



RiverOak Strategic Partners

Manston Airport Development Consent Order 2018 Consultation

**Preliminary Environmental
Information Report (PEIR)**

Volume II

Chapters 11-18

For consultation
January 2018

Scheme Name	Manston Airport DCO
Promoter's Name	RiverOak Strategic Partners Limited
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Suite of Consultation Documents

1.1 As part of this second statutory consultation under section 47 of the Planning Act 2008 a suite of consultation documents relating to the proposal to reopen Manston Airport is available to the public. Together, these documents give an overview of the development proposals including information on the potential benefits and impacts of the Project. The documents also provide further information about environmental considerations following further progression of environmental assessments, as well as a draft Noise Mitigation Plan that has been developed as part of the response to the 2,200 consultation responses that were received in response to the first statutory consultation held between 12 June and 23 July 2017 ('the 2017 consultation'). Further information is also provided on how the public can submit their feedback.

1.2 Similarly to the 2017 consultation, this consultation also forms part of RiverOak's initial engagement on the design of airspace and procedures associated with the airport. As such it is a further opportunity for members of the community to highlight any factors which they believe RiverOak should take into account during that design phase. Having taken all such factors into account, the subsequent proposals for flightpaths and airspace will be subject to a separate round of consultation once the DCO application has been made.

1.3 The suite of consultation documents includes:

1.3.1 an introduction to the consultation;

1.3.2 an updated preliminary environmental information report ('PEIR');

1.3.3 a non-technical summary of the PEIR;

1.3.4 an updated masterplan;

1.3.5 a Noise Mitigation Plan;

1.3.6 a Statement of Community Consultation;

1.3.7 an updated analysis of air freight and need; and

1.3.8 a feedback form.



Contents

11.	Landscape and Visual Impact Assessment	11-1
11.1	Introduction	11-1
11.2	Policy and legislative context	11-1
11.3	Data gathering methodology	11-4
11.4	Overall landscape and visual baseline	11-17
11.5	Environmental measures incorporated into the Proposed Development	11-36
11.6	Scope of the assessment	11-37
11.7	Assessment methodology	11-42
11.8	Assessment of landscape effects	11-52
11.9	Assessment of effects on visual receptors	11-63
11.10	Conclusions of significance evaluation	11-134

11. Landscape and Visual Impact Assessment

11.1 Introduction

- 11.1.1 This chapter sets out the results of an assessment of the landscape and visual effects of the Proposed Development.
- 11.1.2 This chapter should be read in conjunction with the Description of the Proposed Development (**Chapter 3**). Following a summary of the limitations of this Preliminary Environmental Information Report (PEIR), the chapter outlines the relevant policy, legislation and guidance that has informed the assessment, and the data gathering methodology that was adopted as part of the landscape and visual impact assessment (LVIA). This leads on to a description of the overall baseline conditions, the environmental measures incorporated into the Proposed Development with respect to landscape and visual, the scope of the assessment, and the assessment methodology. **Section 11.8** sets out the assessment of landscape effects with **Section 11.9** presenting the assessment of effects on visual receptors. The chapter concludes with a summary of the results of the assessment in **Section 11.10**.
- 11.1.3 The LVIA has been undertaken in accordance with relevant guidance for undertaking landscape and visual assessments in the UK which is provided by the *Guidelines for Landscape and Visual Impact Assessment Third Edition* (hereafter referred to as *GLVIA 3*)¹.
- 11.1.4 The European Landscape Convention Treaty ² which was ratified in the UK in 2007 defines landscape as:
- “an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors.”*
- 11.1.5 Landscape effects and visual effects are closely related, but do form separate assessments, the former relating to landscape and areas of landscape character, and the latter relating to the visual effects on views and visual amenity as experienced by people.

Limitations of the Preliminary Environmental Information Report 2018

- 11.1.6 This PEIR chapter builds upon the assessment work previously undertaken with regard to landscape and visual effects which was reported in the first PEIR in June 2017. Some of the limitations identified previously in the PEIR, such as the outstanding viewpoint photography and visualisations for all viewpoints, have since been completed and are included in (or as an appendix to) this Chapter.
- 11.1.7 A lighting assessment has yet to be completed for the Proposed Development. As such reference to night-time visual effects reported as part of the Viewpoint Assessment will be completed and presented as part of the ES.

11.2 Policy and Legislative Context

- 11.2.1 A study of landscape and visual related planning policy, legislation and guidance at the national, regional and local level has been undertaken for the site and its locality in order to highlight any requirements which the Proposed Development needs to consider. It is always important that policies, legislation and guidance are taken into consideration as they help to define the scope of assessment and can inform the identification of particular local issues.

¹ Guidelines for Landscape and Visual Impact Assessment Third Edition. (2013). Landscape Institute (LI) and Institute of Environmental Management & Assessment (IEMA).

² European Landscape Convention. (2000). Council of Europe.

Legislative context

- 11.2.2 The Infrastructure Planning (Environmental Impact Assessment Regulations) 2017³ requires that the EIA identifies, describes and assesses in an appropriate manner the direct and indirect significant effects of the proposed development on a number of factors including landscape.

Policy context

- 11.2.3 Full details of all national and local planning policies relevant to the Proposed Development can be found in **Appendix 4.1** and a summary is provided in **Table 11.1**.

Table 11.1 National and Local Planning Policies relevant to landscape and visual

Policy reference	Policy Information relevant to Landscape and Visual
Draft Airports National Policy Statement (NPS): new runway capacity and infrastructure at airports in the South East of England⁴	
Paragraph 5.211	This paragraph states that for airport development, landscape and visual effects also include tranquillity effects. It clarifies that references to landscape should be taken as covering local landscape, waterscape and townscape character and quality, where appropriate.
Paragraphs 5.212 to 5.214	This section deals with the applicant's LVIA and notes that the LVIA should reference any landscape character assessment and associated studies as a means of assessing landscape impacts. Paragraph 5.213 states that the assessment should include any significant effects during construction of the preferred scheme and / or the significant effects of the completed development and its operation (including for example surface access proposals or aviation activity) on landscape components and landscape character, including historic characterisation. The assessment should also include the visibility and conspicuousness of the preferred scheme during construction and the presence and operation of the preferred scheme and potential impacts on views and visual amenity. This should include any noise and light pollution effects, including on local amenity, tranquillity and nature conservation.
Paragraph 5.215	Paragraph 5.215 deals with mitigations and states that adverse landscape and visual effects may be minimised through appropriate design (including choice of materials), and landscaping schemes.
Paragraph 5.216 and paragraphs 5.221 to 5.222	<p>This section deals with the decision making process and landscape effects, with paragraphs 5.221 to 5.222 dealing specifically with developments outside of nationally designated areas. Paragraph 5.216 states that landscape effects depend on the nature of the existing landscape likely to be changed and nature of the effect likely to occur. Both these factors need to be considered in judging the impact of the preferred scheme on the landscape.</p> <p>Paragraph 5.221 sets out that where a local development document in England has policies based on landscape character assessment, these should be given particular consideration. In taking decisions, the Secretary of State will consider whether the preferred scheme has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to avoid adverse effects on landscape or to minimise harm to the landscape, including by reasonable mitigation.</p>

³ Infrastructure Planning (Environmental Impact Assessment Regulations) 2017, Available online at www.legislation.gov.uk/ukxi/2017/572/pdfs/ukxiem_20170572_en.pdf. [Checked 20/12/2017]

⁴ Revised Draft Airports National Policy Statement: new runway capacity and infrastructure at airports in the South East of England (2017) Department for Transport. Available online at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/654123/revised-draft-airports-nps-web-version.pdf [Checked 14/11/17].

Table 11.2 (continued) National and Local Planning Policies relevant to landscape and visual

Policy reference	Policy Information relevant to Landscape and Visual
Paragraph 5.223	This paragraph deals with visual impact and states that the Secretary of State will judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local area, outweigh the benefits of the development.
National Planning Policy Framework⁵	
Policy 11: conserving and enhancing the natural environment	The planning system should contribute to and enhance the natural and local environment, protecting and enhancing valued landscapes. (Paragraph 109).
Draft Thanet Local Plan to 2031 Preferred Options Consultation (January 2015)⁶	
SP22: Protection and Enhancement of Thanet's Historic Landscapes	Development proposals should conserve and, where possible, enhance Thanet's local distinctiveness and visually sensitive skylines and seascapes. It sets out principles for each one of Thanet's six local landscape character areas that fall within the LVIA study area (as described in the Desk Study section, below).
Proposed Revisions to draft Local Plan (preferred options) (January 2017)⁷	
Revised Policy SP05: Former Airport Site	<p>Thanet District Council considers that the best use for the 320ha brownfield site at Manston is for a mixed use development primarily focused on residential. The policy states that proposals should include:</p> <p><i>"A Landscape and Visual Impact Assessment to address</i></p> <ul style="list-style-type: none"> <i>the visual sensitivity of the site focussing on retention of open space and protecting wide open landscape and strategic views;</i> <i>how new built development will be designed to minimise visual impact on the open landscape of the central island. Particular attention must be given to roofscape for the purposes of minimising the mass of the buildings at the skyline when viewed from the south.</i> <p><i>Design and Heritage statements to include:</i></p> <ul style="list-style-type: none"> <i>An appropriate landscaping scheme, to be designed and implemented as an integral part of the development."</i>

⁵ National Planning Policy Framework (2012) Communities and Local Government. Available online at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf [Checked 14/11/17].

⁶ Draft Thanet Local Plan to 2013 Preferred Options Consultation. (2015). Thanet District Council. Available online at <https://www.thanet.gov.uk/your-services/planning-policy/thanets-new-local-plan/draft-thanet-local-plan-to-2031-preferred-options-consultation-january-2015/> [Checked 14/11/17].

⁷ Proposed Revisions to draft Local Plan (preferred options). (2017). Thanet District Council. Available online at <https://consult.thanet.gov.uk/consult.ti/TLPPOR/consultationHome> [Checked 13/12/17].

Table 11.3 (continued) National and Local Planning Policies relevant to landscape and visual

Policy reference	Policy Information relevant to Landscape and Visual
Thanet Local Plan (2006) Saved Policies⁸	
CC1: Development in the Countryside	Development in the countryside will not be permitted unless there is a need for development that overrides the need to protect the countryside.
CC2: Landscape Character Areas	Seeks to protect Landscape Character Areas including those within the LVIA study area.
Dover Core Strategy (Adopted 2010)⁹	
DM 15: Protection of the Countryside	Seeks to protect the character and appearance of the countryside.
DM 16: Landscape Character	Requires the protection of landscape character within the district.

11.3 Data gathering methodology

- 11.3.1 This section describes the desk study and surveys undertaken to inform the LVIA. In order to establish the baseline situation, landscape and visual data was obtained from the sources listed in **Table 11.2** to identify existing data about the site and the surrounding area.

Table 11.4 Information used in the preparation of this 2018 PEIR chapter

Source	Data
Ordnance Survey (OS) Mapping Landranger series - scale 1:50,000 (Sheet 179 Canterbury and East Kent, Dover and Margate)	Location of built form, roads, tourist attractions, woodland. Understanding of the topography and land use patterns.
OS Mapping Explorer series - scale 1:25,000 (Sheet 150 Canterbury & the Isle of Thanet)	Location of built form, roads, tourist attractions, woodland. Understanding of the topography and land use patterns.
National Character Area (NCA) Profile 113- North Kent Plain¹⁰	Broad overview of key features, characteristics and sensitivities of the landscape of the site and surroundings at a national level.
Kent Historic Landscape Characterisation¹¹	Considers how the present physical landscape reflects how people have exploited, changed and adapted to the physical environment through time, with respect to different social, economic, technological and cultural factors.

⁸ Thanet Local Plan 2006 Saved Policies. (2006). Thanet District Council. Available online at <https://www.thanet.gov.uk/your-services/planning-policy/thanets-current-planning-policy/thanet-local-plan-2006/> [Checked 14/11/17].

⁹ Dover District Local Development Framework Core Strategy. (2010). Dover District Council. Available online at <https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Adopted-Core-Strategy.pdf> [Checked 14/11/17].

¹⁰ National Character Area Profile 113: North Kent Plain. (2015). Natural England. Available online at <http://publications.naturalengland.org.uk/publication/2900242?category=587130> [Checked 13/12/17]

¹¹ Kent Historic Landscape Characterisation. (2001). Croft, A.; Munby, N. and Ridley, M. Available online at http://archaeologydataservice.ac.uk/archives/view/kent_hlc_2014/downloads.cfm [Checked 13/12/17]

Source	Data
Landscape Assessment of Kent ¹²	Key features, characteristics and sensitivities of the landscape of the site and surroundings at a county level
Thanet Landscape Character Areas ¹³	Key features, characteristics and sensitivities of the landscape of the site and surroundings published at a district level
Dover District Landscape Character Assessment ¹⁴	Key features, characteristics and sensitivities of the landscape within the southern part of the Study Area.
Campaign to Protect Rural England (CPRE)	Tranquillity Mapping (published 2007) ¹⁵
Campaign to Protect Rural England (CPRE)	Night Blight mapping (2016) ¹⁶
GoogleEarth Pro	Aerial photography, imagery dated 4 th September 2017
Kent County Council Public Rights of Way Map ¹⁷	Interactive mapping showing all public rights of way in the County together with their unique reference number.
OS VectorMap Local	Identifies areas of woodland to be included as exclusion areas in the Zones of Theoretical Visibility (ZTVs)

Desk Study

Study Area

11.3.2 The LVIA study area is shown on **Figure 11.1**. It encompasses all areas within 5 km of the site boundary and has been used for the purposes of data collection and the subsequent assessment. The study area has been selected with regard to previous experience of undertaking LVIA's for similar types of development allied with a review of the landscape context within which the Proposed Development will operate. This definition of the study area ensures that the LVIA will include any landscape and visual receptors with the potential to sustain significant landscape or visual effects as a consequence of the construction and operation of the Proposed Development. It accords with the principle of proportionality set out in paragraph 3.16 of *GLVIA 3* that states:

"The level of detail provided should be that which is reasonably required to assess the likely significant effects. It should be appropriate and proportional to the scale and type of development and the type and significance of the landscape and visual effects likely to occur."

¹² Landscape Assessment of Kent. (2004). Kent County Council. Available at <https://www.kent.gov.uk/about-the-council/strategies-and-policies/environment-waste-and-planning-policies/countryside-policies-and-reports/kents-landscape-assessment> [Checked 13/12/17]

¹³ Landscape Character Areas Update August 2012, (2012). Thanet District Council. Available at <https://www.thanet.gov.uk/media/2327036/Landscape-Character-Areas-August-2012.pdf> [Checked 13/12/17]

¹⁴ Dover District Landscape Character Assessment. (2006). Dover District Council. Available at <https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Dover-District-Landscape-Character-Assessment.pdf> [Checked 13/12/17]

¹⁵ Tranquillity Mapping. (2007). Campaign to Protect Rural England. The 2006 National Tranquillity Mapping data was provided on CD by Natural England in ESRI Raster format.

¹⁶ Night Blight: Mapping England's light pollution and dark skies. (2016). Campaign to Protect Rural England. Available at <https://nightblight.cpre.org.uk/maps/> and https://nightblight.cpre.org.uk/images/resources/Night_Blight_cpre.pdf [Checked 13/12/17]

¹⁷ Kent County Council Public Rights of Way Map, (2017) Kent County Council. Available at <https://webapps.kent.gov.uk/countrysideaccesscams/standardmap.aspx> [Checked 13/12/17]

Zone of Theoretical Visibility

- 11.3.3 In addition to the sources of data listed in **Table 11.2** reviewed as part of the desk study, Zone of Theoretical Visibility (ZTV) maps have been prepared for various components of the Proposed Development. ZTV is defined in *GLVIA 3* as “a map, usually digitally produced, showing areas of land within which a development is theoretically visible” and represents the desk top component of the visibility analysis. Further detail is set out in **Section 11.7**. The ZTVs used Ordnance Survey (OS) Terrain 5 digital terrain model (DTM) data to calculate intervisibility between areas within the study area and the proposed Development. The DTM data for all ZTVs was amended to include areas of woodland as depicted in OS VectorMap District to allow their screening effect to be incorporated in the ZTV calculation. A conservative height of 10 m has been used for the woodland exclusion zones. Consequently, the ZTVs calculated show a reasonable worst-case scenario.
- 11.3.4 The suite of ZTVs which accompanies this assessment are shown in **Figures 11.2 to 11.8** and include the following:
- ▶ ZTV: existing (baseline) infrastructure;
 - ▶ ZTV: proposed airfield infrastructure (excluding the air traffic control tower (ATC));
 - ▶ ZTV: proposed ATC;
 - ▶ ZTV: proposed aircraft tail fins when at stands;
 - ▶ ZTV: indicative business park structures;
 - ▶ Composite ZTV of all proposed operational elements; and
 - ▶ Comparative ZTV of all proposed operational and baseline elements.
- 11.3.5 The ZTVs that illustrate the potential visibility of the facilities in the existing non-operational airport (i.e. the baseline) have been generated using the following parameters:
- ▶ former radar tower at a height of 22 m above ground level (AGL);
 - ▶ aircraft maintenance hangar at a height of between 12 m and 16 m AGL;
 - ▶ museum buildings at heights of 5 m AGL;
 - ▶ Fixed Base Operator (FBO) at a height of 10 m AGL;
 - ▶ former ATC building at a height of 12 m AGL; and
 - ▶ buildings in freight area at heights of between 6 m and 12 m AGL.
- 11.3.6 The ZTVs that illustrate the potential visibility of the permanent structures and buildings within the Proposed Development during the operational period have been generated using the following parameters:
- ▶ ATC modelled at a height of 27 m AGL;
 - ▶ cargo facilities modelled at a height of 15 m (to eaves) and 20 m (to peak) AGL;
 - ▶ aircraft recycling hangars modelled at a height of 20 m (to eaves) and 23 m (to peak) AGL;
 - ▶ FBO hangars modelled at 15 m AGL to peak;
 - ▶ Terminal building modelled at 15 m AGL to peak;
 - ▶ a radar tower at a height of 27 m AGL; and
 - ▶ Aviation related business units within the Northern Area modelled at a height of 12 m AGL.
- 11.3.7 In addition to the ZTVs which show the theoretical visibility of the built infrastructure, a ZTV for the operational phase has been modelled to demonstrate the potential visibility of aircraft stationary at

the stands. This has utilised a maximum height of a tail fin of 19.5 m based upon the aircraft list provided in **Table 3.6** (i.e. a Boeing 747-400). Additional modifications have been made to the DTM to include exclusion zones for the proposed buildings within the site to allow for the screening effects of these to be taken into consideration.

- 11.3.8 The operational ZTVs also include modifications to allow for the relevant earthworks within the site which form part of the Proposed Development.
- 11.3.9 The following scenarios or screening have not been modelled as part of the ZTVs:
- ▶ ZTVs for aircraft approaching, moving along and departing from the runway. Modelling aircraft in the air would result in all of the study area being included in the ZTV which would not aid the assessment. It is also not considered likely that overflying of aircraft in the sky could give rise to significant visual effects due to the intermittent, transitory and small-scale nature of the changes that would arise in views. The same principles apply for aircraft moving along the runway whereby the intermittent and transitory nature of this change alone is unlikely to lead to significant visual effects.
 - ▶ ZTVs for the construction phases. It is understood that two mobile cranes up to 40 m in height would be periodically deployed throughout the four phases of the construction period. Whilst the cranes are likely to be visible across a high proportion of the study area, they will be an intermittent visual presence in a receptor's view and it is highly unlikely that this intermittent presence would make the difference between visual effects being significant or not significant. Where the cranes would be the only element visible, which would be in primarily long distance views within which it is highly unlikely that the temporary presence of the cranes alone would result in significant visual effects being sustained.
 - ▶ Any potential screening effects of the proposed tree planting around the Proposed Development has not been taken account of. This is because the tree planting is unlikely to form an effective screen due to the restrictions of dense tree planting for bird hazard reasons around airport sites and as such it will only have the capacity to break up the mass of the Airport/Business Park buildings rather than to screen them in their entirety.

Survey Work

- 11.3.10 The June 2017 PEIR identified 14 provisional photographic viewpoint locations for use in the landscape and visual assessment. The list of viewpoints has been refined and added to following the outcome of the consultation process and the final list of viewpoints included in the LVIA is set out in **Table 11.3**. It should be noted that viewpoints have been renumbered since the June 2017 PEIR so that the closest location to the Proposed Development Site is Viewpoint 1 and that furthest away is Viewpoint 22. Both the new and previous viewpoint numbers are included in **Table 11.3** for clarity.
- 11.3.11 The table includes the rationale for the selection of each viewpoint alongside the type of viewpoint (as defined in paragraph 6.19 of *GLVIA 3*) as follows:
- ▶ representative viewpoints, selected to represent the experience of different types of visual receptor, where large numbers of viewpoints cannot all be included individually and where significant effects are unlikely to differ;
 - ▶ specific viewpoints, chosen because they are key and sometimes promoted viewpoints within the landscape; and
 - ▶ illustrative viewpoints, chosen specifically to demonstrate a particular effect or specific issues.
- 11.3.12 Viewpoint locations are shown on **Figures 11.7** and **11.8**.

Table 11.5 Final schedule of photographic viewpoint locations

Viewpoint Ref	Viewpoint Name	Approximate grid reference	Reason for selection	Daytime photo	Night-time photo	Type of viewpoint (GLVIA3)
Vpt 1	Manston Road close to RAF Manston Museum	633315, 166524	Open, close distance views available to visitors to the two museums which are being retained as part of the Proposed Development. TDC consultation request	Yes	Yes	Specific
Vpt 2	Manston Road	634032, 167145	Representative of the close distance views available to residents in properties along the western side of Manston Road close to the Charles River Laboratories site. TDC consultation request	Yes	Yes	Representative
Vpt 3	Public Right of Way (PRoW) (code 0339/TR32/1) to the south of Canterbury Road West	634366, 165089	Representative of views available to northbound users of the footpath, residents in properties along the southern side of Canterbury Road West and westbound vehicular receptors travelling along Canterbury Road West. TDC consultation request	Yes	Yes	Representative
Vpt 4	Carpark north-western side of Mount Pleasant traffic island	631122, 165862	Closest and most open views potentially available to residents in Minster and key view for westbound vehicular receptors on A299. Original PEIR (2017) Vpt 4	Yes	No	Specific
Vpt 5	Canterbury Road West close to the south-western corner of consented Manston Green housing development	635205, 165114	Location on Canterbury Road West close to the roundabout with the A256 Haine Road. View representative of westbound vehicular receptors travelling along Canterbury Road West. TDC consultation request	Yes	Yes	Representative
Vpt 6	B2050 western edge of Manston	634619, 166204	Provides the most open, publically available view potentially available to residents in the closest settlement to eastern components of the Proposed Development, in particular the passenger facilities and the maintenance, repair and overhaul facilities. Original PEIR (2017) Vpt 1A	Yes	Yes	Representative
Vpt 7	Vincent Road near Flete Farm	634481, 167555	One of closest publically accessible locations to the north of Proposed Development, in particular the secondary business infrastructure components. Original PEIR (2017) Vpt 3	Yes	Yes	Illustrative

Table 11.3 (continued) Final schedule of photographic viewpoint locations

Viewpoint Ref	Viewpoint Name	Approximate grid reference	Reason for selection	Daytime photo	Night-time photo	Type of viewpoint (GLVIA3)
Vpt 8	Woodchurch Road, southern edge of Woodchurch	632564, 167096	Representative of periodic, open, middle distance views available to a variety of visual receptors to the north-west. Original PEIR (2017) Vpt 2	Yes	No	Representative
Vpt 9	Minster Road, Acol	630872, 166840	Middle distance views from the west that are only available to residents in the terraced row in southern edge of Acol. Original PEIR (2017) Vpt 7	Yes	Yes	Specific
Vpt 10	Pumping station south of Quex Park	631819, 167446	Representative of open views available from middle distance locations to north-west that are available to recreational and vehicular visual receptors. Exceptionally open views to south and east. Original PEIR (2017) Vpt 5	Yes	No	Representative
Vpt 11	Viking Coastal Trail, Cottingham Road	633107, 164479	Representative of open middle-distance views from locations to the south of the site. Viewpoint is located on a minor road which forms part of the Regional Cycle Route (RCR) 15 (Viking Coastal Trail). TDC consultation request	Yes	Yes	Representative
Vpt 12	A256 Cottingham Road Bridge	633790, 164232	Views available to northbound vehicular receptors from a short elevated stretch of the A256 to the west of Cliffs End. TDC consultation request	Yes	Yes	Specific
Vpt 13	Nash Court, Nash Road, Margate	635654, 168600	Representative of the limited number of open, middle distance south-westerly views from the Westwood area. Original PEIR (2017) Vpt 9	Yes	No	Representative
Vpt 14	Junction of High Street & Shottendane Road, southern Garlinge	633511, 168850	Representative of open southerly views available from the southern fringe of Margate. Original PEIR (2017) Vpt 6	Yes	Yes	Representative

Table 11.3 (continued) Final schedule of photographic viewpoint locations

Viewpoint Ref	Viewpoint Name	Approximate grid reference	Reason for selection	Daytime photo	Night-time photo	Type of viewpoint (GLVIA3)
Vpt 15	PRoW, Shottendane Road	632531, 168633	Representative of middle distance views available from locations to the north. TDC consultation request	Yes	Yes	Illustrative
Vpt 16	Northern side of Pegwell Country Park	634328, 163120	Popular recreational facility and one of limited number of publically accessible locations in the Stour Valley Original PEIR (2017) Vpt 8	Yes	No	Specific
Vpt 17	South Saxon Way alongside the River Stour	631780, 162767	Illustrative of the northern views available from some open sections of this regional trail and other limited publically accessible locations in the closest part of the Stour Valley Original PEIR(2017) Vpt 10	Yes	No	Illustrative
Vpt 18	Goldstone Drove PRoW west of Lower Goldstone	629443, 161275	Representative of the long distance, occasional views which are available from the south. TDC consultation request for additional viewpoints to the south of the site.	Yes	No	Representative
Vpt 19	Eastern edge of St. Nicholas in Wade	626863, 166205	Representative of long distance, very open views from west, in particular those available to residents on edge of this settlement. Original PEIR (2017) Vpt 13	Yes	No	Representative
Vpt 20	North side of bridge at Plucks Gutter	626980, 163458	Representative of long distance, very open views from the south-west and another section of South Saxon Way Original PEIR (2017) Vpt 14	Yes	Yes	Representative
Vpt 21	St. Michael's Avenue, Northdown	637905, 169846	Representative of locations in Margate and Broadgate where open, long distance, south-western views are sometimes available Original PEIR (2017) Vpt 11	Yes	No	Representative

Table 11.3 (continued) Final schedule of photographic viewpoint locations

Viewpoint Ref	Viewpoint Name	Approximate grid reference	Reason for selection	Daytime photo	Night-time photo	Type of viewpoint (GLVIA3)
Vpt 22	PRoW, north of Richborough Castle	632440, 160311	<p>Illustrative of the periodic open views available from the southern side of the Stour Valley and in particular from some locations close to the tourist attraction of Richborough Castle Roman Fort</p> <p>Original PEIR (2017) Vpt 12</p>	Yes	No	Illustrative

- 11.3.13 A preliminary site survey was carried out in April 2016 and a second field survey was completed in November 2016 to inform the baseline and the selection of viewpoints. Following consultee comments made in response to the June 2017 PEIR and the refinement and finalisation of the viewpoint schedule, additional daytime and night-time field surveys were carried out in September and October 2017.
- 11.3.14 All photography and data recording has and will continue to be undertaken in accordance with the LI's *Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment*¹⁸³ and Scottish Natural Heritage's (SNH) *Visual Representation of Wind Farms Version 2.2*¹⁸⁴. Whilst the SNH guidance is specifically intended for use in relation to on-shore wind farms, much of its content is applicable to all types of large-scale development. Annotated baseline daytime photography is presented in **Figures 11.9a to 11.21** whilst night-time photography is shown in **Figures 11.22a to 11.29**.

Consultation

EIA Scoping

- 11.3.15 RiverOak Strategic Partners (RiverOak) has engaged with consultees with an interest in potential landscape and visual effects as part of the scoping exercise and in relation to specific landscape and visual issues. A Scoping Report (**Appendix 1.1**) including a chapter covering LVIA, was produced and submitted to PINS in June 2016, and a response from PINS in the form of a Scoping Opinion was received in August 2016 (**Appendix 1.2**). The approach taken in the 2016 scoping exercise accords with PINS Advice Note Seven¹⁸⁵. However, although the Scoping Report submitted by the applicant (RiverOak) in request of a Scoping Opinion, for reasons explained in **Chapter 1**, no longer formally applies to these proposals, it seems sensible and perfectly reasonable, because the scheme has remained the same, to use the Scoping Opinion received to guide the scope of the detailed assessment. **Section 5.4** of this PEIR provides additional detail to the background to the EIA scoping.
- 11.3.16 A number of statutory and non-statutory organisations, and others with an interest in the Proposed Development were consulted as part of the scoping stage in June 2016. The organisations that responded to the Scoping Report with landscape and visual comments in August 2016 are as follows:
- ▶ Natural England (NE);
 - ▶ Thanet District Council (TDC);
 - ▶ Kent County Council (KCC); and
 - ▶ Dover District Council (DDC).
- 11.3.17 A summary of the consultee comments and responses which relate to landscape and visual effects and an explanation of how these have been addressed in the 2018 PEIR is provided in **Table 11.4**.

¹⁸³ Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment. (2011). Landscape Institute. Available online at <https://www.landscapeinstitute.org/PDF/Contribute/LIPhotographyAdviceNote01-11.pdf>

¹⁸⁴ Visual Representation of Wind Farms Version 2.2. (2017). Scottish Natural Heritage.

¹⁸⁵ Advice Note Seven: Environmental Impact Assessment, screening and scoping (version 5). (2015) Planning Inspectorate. Available online at <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/03/Advice-note-7v4.pdf>.

Table 11.6 Consultee Comments and Responses to EIA Scoping

Consultee	Comments and considerations	How addressed in the 2018 PEIR
PINS (Scoping Opinion August 2016)	The Secretary of State notes that consultation with relevant consultees, such as KCC and Thanet and Dover Councils, in relation to landscape and visual matters has not yet commenced, and recommends that the methodology, extent of the study area, potential receptors, and location of viewpoints is agreed with them at the earliest opportunity. It is noted that it is proposed to scope out effects on the North Kent National LCA (and any other LCAs outside the ZTV) (discussed above); the Applicant is referred to the Secretary of State's comments above.	TDC, KCC and DDC were asked to comment on the appropriateness of proposed viewpoints (as set out in Table 11.3 of this document) in November 2016, but no comments were provided at the time of the PEIR. The PEIR consultation has subsequently provided the opportunity for the relevant councils to comment and agree the methodology, study area and location of viewpoints and updates have been made accordingly in this 2018 PEIR.
PINS (Scoping Opinion August 2016)	The Secretary of State notes and welcomes that the landscape and visual assessment will include use of a ZTV. The ES should describe the model and methodology used and provide information on the area covered and the timing of any survey work. The ZTV should take account of any land raising activities at the airport. The Secretary of State notes that the location of viewpoints will be agreed with the local authorities.	The ZTVs included in this 2018 PEIR have been generated using a model that takes account of land raising activities. The parameters used in the ZTV model including any exclusions zones which have been added to more accurately depict the effects of vegetative screening are set out in Section 11.3 of this chapter. The final schedule of viewpoints has been formed in response to requests for additional viewpoints from TDC.
PINS (Scoping Opinion August 2016)	The Proposed Development includes large structures on the site. The Secretary of State recommends that careful consideration is given to the form, siting, and use of materials and colours in terms of minimising the visual impact of these structures. The potential effects of the required airport lighting on night-time views should be taken into account. The Applicant's attention is drawn to TDC's comments, contained in Appendix 3, in this regard. The Secretary of State recommends that photomontages and wirelines of the Proposed Development are provided with the ES, and include night-time visualisations, bearing in mind the need for extensive night-time lighting across the site.	Careful consideration has been given to the form, siting, and use of materials and colours in terms of minimising the visual impact of these structures. A set of Manston Airport Design Principles that will be used to ensure that all elements of the Proposed Development are designed to a high standard. A lighting assessment yet to be completed for the Proposed Development. As such reference to night-time visual effects will be completed and presented as part of the ES. The LVIA is accompanied by daytime wirelines from each of the viewpoints (see Appendix 11.1). These are referred to throughout this chapter as photowires as set out in the Appendix of the <i>Landscape Institute Technical Note March 2017: Visual Representation of Development Proposals</i> .
PINS (Scoping Opinion August 2016)	No information is provided in relation to potential mitigation other than a brief reference in paragraph 10.6.10 to mitigation planting. The Applicant should consider in the ES how measures proposed to mitigate landscape and visual effects, such as planting, may relate to other topics, for instance impacts on ecological receptors. Appropriate cross-reference should be made between related topics in the ES, such as Biodiversity, and Historic Environment.	The chapter sets out mitigation measures in Table 11.11 .
PINS (Scoping Opinion August 2016)	Figure 10.3, in Appendix C, shows the long distance walking and cycling routes that fall within the LVIA study area. It identifies National Cycle Route 1 as crossing the south of the study area, although this is not referenced in the Scoping Report. The Applicant should ensure that this receptor is included in the EIA.	The visual effects on users of National Cycle Route 1 has been considered and assessed in the PEIR 2018. The route of National Cycle Route 1 within the LVIA study area is shown in Figure 11.34 .

Table 11.4 (continued) Consultee Comments and Responses to EIA Scoping

Consultee	Comments and considerations	How addressed in the 2018 PEIR
NE (Scoping Opinion August 2016)	NE advised that based on the distance of the proposal site from the Kent Downs Area of Outstanding Natural Beauty (AONB) it did not believe that any impacts on tranquillity from increased overflying would be sufficiently significant to meet its current criteria for engagement with landscape casework.	The Kent Downs AONB is not included in the LVIA.
TDC (Viewpoint consultation November 2016)	TDC were asked to advise on the appropriateness of the viewpoints proposed to be included in the LVIA. No response has been received.	No alteration to proposed viewpoint schedule at the time of the June 2017 PEIR.
KCC (Viewpoint consultation November 2016)	KCC were asked to advise on the appropriateness of the viewpoints proposed to be included in the LVIA. KCC responded that no advice would be provided in the absence a Planning Performance Agreement.	No alteration to proposed viewpoint schedule.
DDC (Viewpoint consultation November 2016)	DDC were asked to advise on the appropriateness of the viewpoints proposed to be included in the LVIA. KCC responded that no advice would be provided in the absence a Planning Performance Agreement.	No alteration to proposed viewpoint schedule.

Statutory Consultation

- 11.3.18 The PEIR was issued for consultation in June 2017¹⁸⁶. This built on the information presented in the Scoping Report, taking account of representations received at the scoping stage and provided high-level information on the potential effects of the Proposed Development. The report was consulted upon as part of statutory consultation between June to July 2017 and the representations received in relation to landscape and visual issues have been used to inform the assessments reported in this 2018 PEIR. Further information with regard to the consultation process is included in **Chapter 1** and **Chapter 5**.
- 11.3.19 A summary of the consultee comments and responses which relate to landscape and visual effects and an explanation of how these have been addressed in the 2018 PEIR is provided in **Table 11.5**.

¹⁸⁶ Manston Airport Development Consent Order Preliminary Environmental Information Report Volumes 1 to 9. (2017). RSP. Available online at <http://rsp.co.uk/documents-page/> [Checked 10/11/17]

Table 11.7 Consultee Comments and Responses to the June 2017 PEIR

Consultee	Comments and considerations	How addressed in the June 2017 PEIR
TDC	<p>TDC advised that a number of additional viewpoints should be added, at a minimum in the following locations:</p> <ul style="list-style-type: none"> • A viewpoint on Shottendane Road close to Minster Road, to show the landscape impact from Westgate • A viewpoint (A256) on Haine Road (adjacent to eastern extent of the site), just south of the approved Manston Green layout. • A viewpoint from Grinsell Road looking north. • A viewpoint from Canterbury Road West adjacent to Jentex site (western side). • A viewpoint on Manston Road between the two Museums, • A viewpoint on Manston Road adjacent to Charles River site. 	<p>The locations requested by TDC have been included in this chapter as Viewpoints 15, 5, 11, 3, 1 and 2 accordingly.</p>
TDC	<p>In addition, the following points are made about the proposed viewpoint locations:</p> <ul style="list-style-type: none"> • Viewpoint 3 should be assessed at nighttime to visualise extent of light intrusion into landscape when viewed from the north on Vincent Road. • Viewpoint 6 and new viewpoint above should include night-time assessment. • A viewpoint (A256) on Haine Road (adjacent to eastern extent of the site) should be selected, just south of the approved Manston Green layout. 	<p>The requests have been included in this chapter as follows:</p> <ul style="list-style-type: none"> • Night-time baseline photography is included for Viewpoint 3 (now Viewpoint 7) to allow an assessment to be made as part of the ES. • Night-time baseline photography is included for Viewpoint 6 (now Viewpoint 14) and for the nearby Viewpoint 15 to allow an assessment to be made as part of the ES. <p>The Health and Safety risks involved with obtaining viewpoint photography from alongside the busy A256 Haine Road where there is no highway footpath has meant that an alternative location has been selected. This is from Canterbury Road West and forms Viewpoint 5. This location is also close to the southern edge of the approved Manston Green development and therefore provides a suitable, safe alternative.</p> <p>A Lighting Assessment has not yet been undertaken.</p>
TDC	<p>We would suggest that a day/night viewpoint is selected on the A256 north bound when approaching the brow of the hill before descending to the roundabout with the A299. Some structures appear visible on the airport site from this road and therefore this should be assessed to ensure that the assessment currently provided in the PEIR is adequate and impact on this view quantified in the ES.</p>	<p>This location is included as Viewpoint 12 and day and night-time photography is included in the figures which accompany this chapter.</p>
TDC	<p>Whilst a baseline from the assessment of landscape has been produced for the PEIR, the results of this work at this stage does not appear to have informed the masterplan of the site, or this has not been explicitly outlined in the information, nor whether the further work in the ES will alter this layout at all. No mitigation measures are outlined, and we await the "Manston Airport Design Principles" document to assess the adequacy of the measures proposed</p>	<p>The chapter sets out mitigation measures in Table 11.11. The Design and Access Statement sets out the Manston Airport Design Principles. The LVIA team has provided preliminary assessments to the masterplanning team to inform emerging landscape (planting) mitigation measures. Further design principles aimed specifically at the Northern Grass area are being developed and will inform the final masterplan presented as part of the ES.</p>

Table 11.5 (continued) Consultee Comments and Responses to the June 2017 PEIR

Consultee	Comments and considerations	How addressed in the June 2017 PEIR
TDC	It is noted that no assessment of the effects of lighting from the proposed development has occurred according to the PEIR, and we await further information on the impact on visual receptors from this element of the development.	A lighting assessment will be used to inform the assessment of effects on night-time views as part of the ES.
DCC	The District Council concurs with the proposed landscape sensitivity assessment for Landscape Character Areas within DDC's administrative area, as set out in paragraphs 11.11.1 to 11.11.5.	With the exception of the inclusion of observations made during additional field surveys, no alteration has been made to the landscape sensitivity assessments.
The Ramsgate Society and The Ramsgate Heritage and Design Forum	At this stage our main concern is the disturbance to peace and tranquillity within the Pegwell Bay Landscape Character Area caused by aircraft movements. There is substantial public access to the area in the form of footpaths and cycle routes, providing a much cherished amenity by both local residents and visitors. The same concern arises in relation to the public enjoyment of the beaches of Ramsgate and surrounding seaside settlements which contribute significantly to the tourist business of South East Kent.	A full assessment of the likely landscape effects on the Pegwell Bay Landscape Character Area forms part of this Chapter and includes consideration of the effects on tranquillity as a result of aircraft movements on flight paths to the east of Manston Airport.
Planit-IE LLP on behalf of Stone Hill Park Ltd	<p>Baseline Viewpoint Selection</p> <p>The viewpoint selection methodology presents a clear rationale for each viewpoint chosen. However, in addition to residential properties, there are only two locations selected that are near the site. Whilst there may be limited sensitive receptors, greater emphasis should be given to this zone, as visual impacts at close range from such large new buildings and infrastructure could possibly be significant. We would suggest the following should be part of the assessment:</p> <ul style="list-style-type: none"> • Receptors on the local and strategic road networks particularly on Manston Road and Spitfire Way. These represent local level views and are important cross Thanet links to the major settlement areas. • Views from the on-site Heritage and Spitfire Museums. Whilst heritage considerations should be addressed separately, the setting and environment of this important tourist attractions should be part of the assessment. • On-site Public Rights of Way to the eastern boundary, where views into the site would be part of the experience of the user. 	<p>Additional viewpoints are included in response to TDC's request and which provide additional locations located in close proximity to the site boundary.</p> <p>With specific reference to the three suggestions offered by Planit-IE LLP, after consideration of these locations, two locations have been carried through to the assessment as follows:</p> <ul style="list-style-type: none"> • Manston Road is included as Viewpoints 2 and 6. No location was identified on Spitfire Way which was safe for photography due to the lack of highway footpaths and narrow nature of the grass verges. • Views from the Heritage and Spitfire Museums are included as Viewpoint 1. • Viewpoint photography has not been included from the Public Rights of Way close to the eastern boundary as this will require a diversion as part of the proposals.

Table 11.5 (continued) Consultee Comments and Responses to the June 2017 PEIR

Consultee	Comments and considerations	How addressed in the June 2017 PEIR
Planit-IE LLP on behalf of Stone Hill Park Ltd	<p>Viewpoint Photography</p> <p>The supporting viewpoint photography and photomontages provided within the assessment are incomplete. Figure 11.2 identifies fourteen views with thirteen views included for reference in subsequent figures. View 10 is not included.</p> <p>With regards to the images provided, no information is shown in relation to exact position, field of view, focal length or if the view has been surveyed and verified.</p> <p>Given the size and nature of the application, verified views would be expected. The views provided are clearly several images 'stitched' together to form a wider panoramic image. Whilst this allows the site's wider context to be generally appreciated, it is not an accurate representation of the visibility of the site or field of view. The methodology does not state how these images have been produced, or if any part of the image can be verified.</p>	<p>All viewpoint photography has been completed and is included as part of the suite of figures which accompanies this chapter.</p> <p>Annotated baseline photographs have been presented in accordance with the Landscape Institute's <i>Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment</i> (2011) and include details with regard to photograph parameters (location, date and time, equipment), field of view and viewing distance.</p>
Planit-IE LLP on behalf of Stone Hill Park Ltd	<p>Photomontages</p> <p>Only two photomontages are provided within the assessment, and are identified as views 1 & 2. View 2 appears to correspond with location of viewpoint 2, whilst view 1 does not correspond with any viewpoint position. Whilst technical information relating to these views is provided, no commentary is provided on verification of the views, or the methodology used to prepare them. Both images appear to be 'stitched' panoramic images, which draws the technical robustness of the images into question, and this should be acknowledged with a lower confidence level assigned to assessments based on them. No justification is included within the assessment as to why only these two views have been produced, or if these have been used to inform the assessment.</p> <p>The tables provided at the end of the document makes initial judgements on the significance of likely visual impacts on receptor groups. Whilst a detailed justification is provided, it is unclear what these conclusions are based on in the absence of a robust and complete visual evidence base.</p>	<p>Photowires have been provided from all 22 viewpoints and are included in Appendix 11.1 of this 2018 PEIR. These have been presented as 75 degree photographic panoramas using cylindrical projection. This has a viewing distance of 30 cm on A3 sheets. Where close distance views require 75 degree wirelines to extend over multiple A3 sheets. The use of stitched panoramas are the common presentation method for LVIA photography.</p>

- 11.3.20 Whilst all viewpoint consultation requests have been included in the revised schedule set out in **Table 11.3**, some minor refinement to the requests has been necessary during the field survey to respond either to specific health and safety concerns of obtaining day and night time photography from the side of busy roads with no highway footpath (i.e. at Viewpoint 2), or where it was found that foreground elements at suggested locations restricted views towards the site (i.e. at Viewpoint 15). Locations close to the requested viewpoints have been included as alternatives.

11.4 Overall landscape and visual baseline

- 11.4.1 The landscape and visual baseline is supported by the figures set out in **Table 11.6**.

Table 11.8 Landscape and visual figures

Figure number	Title
Figure 11.1	LVIA Study Area
Figure 11.2	Zone of Theoretical Visibility: existing (baseline) infrastructure
Figure 11.3	Zone of Theoretical Visibility: proposed airfield infrastructure (excluding the air traffic control tower)
Figure 11.4	Zone of Theoretical Visibility: proposed air traffic control tower
Figure 11.5	Zone of Theoretical Visibility: proposed tail fins at stands
Figure 11.6	Zone of Theoretical Visibility: proposed business park structures
Figure 11.7	Composite Zone of Theoretical Visibility of all proposed operational elements and viewpoint locations
Figure 11.8	Comparative Zone of Theoretical Visibility of all proposed operational and baseline elements with viewpoint locations
Figure 11.9a & b	Annotated Daytime Viewpoint Photography: Viewpoint 1
Figure 11.10	Annotated Daytime Viewpoint Photography: Viewpoint 2
Figure 11.11	Annotated Daytime Viewpoint Photography: Viewpoints 3 & 4
Figure 11.12	Annotated Daytime Viewpoint Photography: Viewpoint 5
Figure 11.13	Annotated Daytime Viewpoint Photography: Viewpoint 6
Figure 11.14	Annotated Daytime Viewpoint Photography: Viewpoints 7 & 8
Figure 11.15	Annotated Daytime Viewpoint Photography: Viewpoints 9 & 10
Figure 11.16	Annotated Daytime Viewpoint Photography: Viewpoints 11 & 12
Figure 11.17	Annotated Daytime Viewpoint Photography: Viewpoints 13 & 14
Figure 11.18	Annotated Daytime Viewpoint Photography: Viewpoints 15 & 16
Figure 11.19	Annotated Daytime Viewpoint Photography: Viewpoints 17 & 18
Figure 11.20	Annotated Daytime Viewpoint Photography: Viewpoints 19 & 20
Figure 11.21	Annotated Daytime Viewpoint Photography: Viewpoints 21 & 22
Figure 11.22a & b	Annotated Night-time Viewpoint Photography: Viewpoint 1
Figure 11.23	Annotated Night-time Viewpoint Photography: Viewpoint 2
Figure 11.24	Annotated Night-time Viewpoint Photography: Viewpoints 3 & 5
Figure 11.25	Annotated Night-time Viewpoint Photography: Viewpoint 6
Figure 11.26	Annotated Night-time Viewpoint Photography: Viewpoints 7 & 9
Figure 11.27	Annotated Night-time Viewpoint Photography: Viewpoints 11 & 12
Figure 11.28	Annotated Night-time Viewpoint Photography: Viewpoints 14 & 15
Figure 11.29	Annotated Night-time Viewpoint Photography: Viewpoint 20
Figure 11.30	Topography

Table 11.6 (continued) Landscape and visual figures

Figure number	Title
Figure 11.31	Principal Settlements whose residents are included in Visual Assessment
Figure 11.32	Groups of properties whose residents are included in Visual Assessment
Figure 11.33	Properties in the immediate vicinity of the Development Site
Figure 11.34	Long distance recreational routes
Figure 11.35	Recreational destinations
Figure 11.36	Individual and groups of Public Rights of Way whose users are included in Visual Assessment
Figure 11.37	Landscape Character Areas
Figure 11.38	Comparative Tranquillity Levels
Figure 11.39	Comparative Light Pollution Levels.
Figure 11.40	Distribution of significant effects

11.4.2 Three appendices also support the LVIA as follows:

- ▶ **Appendix 11.1:** Visualisations;
- ▶ **Appendix 11.2:** Landscape Character Areas Sensitivity Assessments; and
- ▶ **Appendix 11.3:** Viewpoint Analysis.

Current baseline

Landscape and visual context

Topography and drainage

11.4.3 Within the study area, elevations range from sea level to approximately 55 m Above Ordnance Datum (AOD). The landform is shown on **Figure 11.30**.

11.4.4 The Proposed Development site and its immediate surroundings are located at an elevation of between 40 m and 55 m AOD. To the south and west of the site, the River Stour and the River Wantsum with their surrounding marshland areas (e.g. Minster Marshes, Ash Level, Wade Marsh) have a lower topography of approximately 10-30 m AOD. The topography reflects the history of Thanet, which until approximately 1000 years ago was an island, cut off from the mainland by the Wantsum Channel, until it silted up. The distinctive topography is noted in the *Landscape Assessment of Kent*¹⁸⁷ as follows:

“The island quality is preserved in the way that Thanet rises out of the marshes to a modest height of about 50 metres. The landscape falls into two distinct types, based on local topography. These are the flat plateau top above the 40 metre contour and the sloping backdrop to the marshes between 20 and 40 metre contour.”

¹⁸⁷ Landscape Assessment of Kent. (2004). Kent County Council. Available at <https://www.kent.gov.uk/about-the-council/strategies-and-policies/environment-waste-and-planning-policies/countryside-policies-and-reports/kents-landscape-assessment> [Checked 13/12/17]

11.4.5 The western edges of Ramsgate and Broadstairs extend westwards onto the chalk plateau that forms the central part of the Isle of Thanet and upon which the Proposed Development is located. The western parts of these settlements are at elevations which are comparable to that of the Proposed Development site of between 40 m and 50 m AOD.

11.4.6 In the north and east of the study area, the towns of Birchington, Margate, Broadstairs and Ramsgate all occupy elevations of between 5 m and 50 m AOD and are characterised by steep chalk cliff faces down to the sea.

Vegetation and land use

11.4.7 Manston Airport closed in 2014, but some of the airport and associated infrastructure and buildings remain on site, including:

- ▶ a cargo handling facility comprising two storage warehouses 6-8 m high, and one hanger 12 m in height, all finished with metal cladding and covering an area of 5,200 m² with gated entrance and security box;
- ▶ a fire station building, 12 m in height covering an area of 2,200 m² and constructed of brick with a corrugated metal roof;
- ▶ a helicopter pilot training facility comprising two 10 m high hangers with metal cladding and covering an area of 950 m²;
- ▶ two museum buildings of brick construction, 5 m high and covering 2,000 m²;
- ▶ a 4 m high airport terminal building on an area of 2,400 m². This is located on the eastern edge of the site and is surrounded by large expanses of hard surfacing to its east and west which was used as stands for aircraft and car parking for passengers, respectively;
- ▶ ATC building, 6 m high including a viewing tower approximately 9 m high, covering an area of 700 m²;
- ▶ large aircraft maintenance hangar covering 4,700 m² and approximately 12 m high with a taller approximately 16 m high movable section to enclose an aircraft tail fin;
- ▶ network of hard surfacing used for taxi ways, aprons and roads connect the buildings to the runway and to the two main entrance points that are located in the east and west; and
- ▶ post and wire security fencing of varying height runs alongside most of the perimeter.

11.4.8 Vegetation within the site is minimal, but includes:

- ▶ expanses of short mown grass around the runways and adjacent buildings;
- ▶ avenue of tree planting along sections of B2190 Spitfire Way (both inside the site boundary and immediately outside but adjacent to the boundary on the grass verge outside the perimeter fence);
- ▶ short avenue of trees in the south east corner of the site, within the site boundary where it follows the route of Canterbury Road West; and
- ▶ areas of overgrown scrub planting along sections of the fence line.

11.4.9 Within the LVIA study area beyond the Proposed Development site boundary, there are a range of land uses with the primary one being arable fields which cover approximately 60% of the land in the south, west and centre of the LVIA study area. The fields are medium to large in size and often have no boundary fence or hedgerow, creating an extensively open landscape. To the north-west of the site boundary, between Woodchurch Road and the Defence Fire Training and Development Centre, lies an area of paddocks. Here, the fields are smaller in scale and separated by post and wire fencing, which again facilitates clear and expansive views across the surrounding landscape, although in the south-eastern direction of the Proposed Development site views of the non-

operational airport are screened by the extensive tree cover within the extensive Defence Fire Training and Development Centre.

- 11.4.10 Immediately surrounding the Proposed Development site, the arable landscape is frequently interspersed with scattered non-residential built form. Examples include the buildings and facilities associated with the non-operational airport itself, the collection of buildings in northern Minster at the junction between the A299 and Tothill Street immediately south-west of the Proposed Development site boundary (which include a petrol station, fast food restaurants and a hotel), the Defence Fire Training and Development Centre located to the north-west of Manston Road and a concentration of buildings to the north of the B2190/B2050 including Manston Business Park, Bell Helicopter Heli Charter on Spitfire Way and Reclamat Recycling Centre east of Woodchurch Road to the north-east of the site. The tallest and consequently the most widely visible built elements within and around the Proposed Development site are the former radar facility which is sited within the northern part of the site close to Manston Road and a telecommunications mast located west of Manston Road to the north of the Defence Fire Training and Development Centre. The latter is illuminated at night-time.
- 11.4.11 Tree cover is often low in the arable agriculture areas between settlements. There are few substantial woodland blocks in the study area and tree cover is more typically associated with belts of trees along the perimeter of caravan parks e.g. Preston Parks, around farmsteads and other residential properties located in otherwise open tracts of countryside or sometimes on the edge of settlements e.g. along sections of the boundary of Manston.
- 11.4.12 Where small woodland blocks do occur, they are typically found within the open spaces of the towns of Margate, Broadstairs and Ramsgate. Examples include those found at Margate Cemetery and Hartsdown Park. Quex Park also has many mature trees including small woodland blocks.
- 11.4.13 However levels of tree cover are higher in the area around the northern half of the Proposed Development site as a consequence of the coalescence of the tree cover within Manston and Woodchurch, especially the Defence Fire Training and Development Centre.

Settlement and infrastructure patterns

- 11.4.14 The principal settlements within the LVIA study area comprise the coastal towns of Ramsgate (population of approximately 40,000), Broadstairs (population of approximately 23,500) and Margate (population of approximately 61,000). These towns are sprawling and merge to form an almost continuous belt of development along the northern and eastern fringes of the LVIA study area. This belt of development extends southward and westwards towards the Proposed Development site although separation is maintained by agricultural land varying in width between 0.5 km and 3 km. The closest part of Ramsgate is the site of the Westwood Cross Retail Park which contains some of the largest scale and tallest built development in these principal settlements. The distribution of principal settlements in relation to the ZTV and therefore included in the visual assessment is shown in **Figure 11.31**
- 11.4.15 Villages within the study area include Minster, Monkton and Cliffsend located to the south of the site, Nicholas at Wade and Acol to the west and Manston to the east. These are interspersed by the hamlets of Plucks Gutter, Gore Street and Brooks Corner to the west and Lydden to the east. Beyond these villages and hamlets are occasional individual and small groups of residential properties and farmsteads located alongside minor rural lanes. Most of these settlements are located at slightly lower elevations than the Proposed Development site and the reviews of aerial photography and site visits show that their curtilages frequently contain moderate levels of tree cover and are sometimes bounded by tall hedgerows/shelterbelts. The distribution of villages in relation to the ZTV and therefore included in the visual assessment is also shown in **Figure 11.31** whilst groups of properties are shown on **Figure 11.32**. Those properties located in the immediate vicinity of the Proposed Development site and included in the visual assessment are shown in **Figure 11.33**.

- 11.4.16 There is a notable absence of settlement across the low-lying marshes located at the bottom of the valley of the River Stour to the south of the Proposed Development site with the South-East Main Rail Line marking the transition point (with the exception of the hamlet of Plucks Gutter).
- 11.4.17 Thanet Earth, located to the west of the Proposed Development site is a large industrial agriculture / plant factory project consortium and the largest greenhouse complex in the UK. The site covers 90ha and includes seven glasshouses, a research centre, packhouse, small number of dwellings, four reservoirs and a combined heat and power system. There are also large scale warehouse-type modern developments located to the west of the Proposed Development site accessed by Columbus Avenue and Merlin Way east of Acol. Solar farms are also a recent introduction to the landscape including the extensive Manston Solar Farm to the north-east of the site boundary and Thorne Solar Farm located on the southern side of the A299 close to the southern boundary of the site besides the northern edge of Cliffsend.
- 11.4.18 A number of 132 kV overhead lines also cross the LVIA study area. These commence at the Richborough Substation located between the A256 and River Stour approximately 4 km to the south of the Proposed Development site. From here, a dual line travels in a north-westerly direction towards Monkton Marshes where it divides with one 132 kV line heading north and then east towards Broadstairs. The southernmost line continues west towards Canterbury and has recently been subject of a DCO application for its removal and replacement with a 400 kV line as part of National Grid plans. The proposed new 400 kV line will be included in the assessment of cumulative effects included in the ES. A third 132 kV line heads southwest and then south from the Richborough Substation.

Transport network

- 11.4.19 The dense and evenly dispersed settlement pattern has resulted in a relatively dense network of 'A', 'B' and minor roads.
- 11.4.20 'A' roads within the LVIA study area are as follows:
- ▶ The A299 which enters the western fringes of the LVIA study area to the north of St Nicholas at Wade as a dual carriageway and continues west along the southern boundary of the site to Cliffsend and the eastern suburbs of Ramsgate. From here, it continues as a single lane 'A' road to the Port of Ramsgate. The lighting columns alongside sections of the A299 are cumulatively visually prominent in some views from the south;
 - ▶ The A28 which passes Sarre on the western edge of the LVIA study area and continues in a north-easterly direction through Birchington and Margate;
 - ▶ The A253, a short link road which connects the A28 with the A299 to the west of the Proposed Development site;
 - ▶ The A254 is a non-primary route that commences in the centre of Margate at a roundabout with the A28. It continues in a south-easterly direction to Ramsgate where it terminates at a T-junction with the A255 and A299 in the centre of Ramsgate;
 - ▶ The A255 commences at a junction with the A254 in Margate before following a route between Margate and Ramsgate passing through Broadstairs. It joins the A299 at a roundabout at Chilton on the edge of Ramsgate; and
 - ▶ The A256 commences on the outskirts of Broadstairs. At its junction with the A299 at Cliffsend, it becomes a dualled primary route and heads south between Minster Marshes and Pegwell Bay towards Great Stonar. At this point it exits the LVIA study area and continues south towards Dover.
- 11.4.21 Beyond the 'A' routes, a network of 'B' roads and rural roads cross the landscape. Rail lines through the study area include the Kent Coast Line/Javelin high speed train link which follows a coastal route and connects London St Pancras International with the towns of the north Kent coast including Margate, Broadstairs and Ramsgate. A second Javelin high speed line, the Ashford to Ramsgate (via Canterbury West) line, also connects Margate, Broadstairs and Ramsgate with St

Pancras International, and passes through the centre of the LVIA study area. The Folkestone and Dover branch line, via Sandwich, also passes through the LVIA study area to the south of the Proposed Development site.

Recreational use

- 11.4.22 Parts of the study area are popular holiday and recreational destinations and consequently a number of amenity assets are present such as campsites, equestrian centres and beaches. Key destinations for visitors and local residents are set out in paragraphs 11.4.23 to 11.4.36 and **Tables 11.7, 11.8 and 11.9.**

Long distance footpaths

- 11.4.23 The study area contains a network of promoted long distance walking routes, the distribution of which are shown in **Figure 11.34**. These are as follows:
- ▶ Saxon Shore Way: This route follows the ancient Kent coastline, which now is in some places miles inland. It connects Gravesend on the banks of the River Thames with Hastings on the south coast. It is 257 km long in total, approximately 9 km of which is within the LVIA study area. Within the southern part of LVIA study area the Saxon Shore Way follows the route of the River Stour at a relatively low elevation.
 - ▶ Turner and Dickens Walk: This route connects Margate to Broadstairs and is approximately 8 km long. It is almost entirely located within the LVIA study area with the exception of the eastern-most approximately 200 m within Broadstairs. Much of the Walk follows an ancient footpath between St Peter's and St John's churches.
 - ▶ Thanet Coastal Path: This coastal route connects Reculver (approximately 3 km to the west of the LVIA study area boundary) with Pegwell Bay which is located approximately 2 km south of the Proposed Development site. The route is approximately 32 km in length of which approximately 27 km is within the LVIA study area.
 - ▶ Stour Valley Walk: A route connecting the source of the River Stour at Lenham with its confluence at Pegwell Bay. It is approximately 96 km long. Approximately 2.5 km of the eastern-most section of the Stour Valley Walk is within the LVIA study area as it heads north along the coast towards Pegwell Bay.
 - ▶ Wantsum Walk: A walk between Herne Bay and Birchington along the Wantsum River. Overall the Walk is 40 km long. Approximately 8 km of the route is located within the LVIA study area as it crosses the A299, travelling northwards to the coast and then east along the coastline to Birchington.
 - ▶ England Coast Path: The Folkestone to Ramsgate section of this new National Trail is open to the public and follows the coastline to the south of Ramsgate. To the north of Ramsgate the Ramsgate to Whitstable section of the route was approved by the Secretary of State for Environment, Food and Rural Affairs in December 2016. Work is now underway to prepare this section of the England Coast Path for public use and new access rights are expected to come into force along the route in late 2017.

Cycle routes

- 11.4.24 In addition to the long distance walking routes, two cycle routes lie within the LVIA study area. Their routes are shown on **Figure 11.34** as follows:
- ▶ Sustrans National Cycle Route (NCR) 1: This long distance cycle route connects Dover and the Shetland Islands via the east coast of England and Scotland. A short section, approximately 2km long follows the southern boundary of the LVIA study area in the vicinity of Richborough Castle; and

- ▶ Viking Coastal Trail Cycle Route (Regional Cycle Route (RCR) 15): This is a circular route which travels from Reculver through Margate, Broadstairs and Ramsgate and then travels inland to return to Reculver being routed through Minster, Monkton and St. Nicholas at Wade. It is 51.4 km long with an estimated 40 km of the Route being within the LVIA study area. The section between Minster and Cliffsend is routed approximately 1 km south of the Proposed Development site.

Country Parks

- 11.4.25 The Pegwell Bay Country Park is the only country park within the study area and forms part of the Sandwich and Pegwell Bay National Nature Reserve (NNR). It is approximately 29 ha in size and its location in relation to the Proposed Development Site is shown on **Figure 11.35**. A small section of the southern part of the country park is not publicly accessible as it is a sensitive wildlife area, but the majority of the area is publicly accessible with a network of mown and surface paths, picnic areas, car parking and play areas. It is a country park which advertises the attractive views that can be experienced of Sandwich and Deal to the south-west and the cliffs of Ramsgate to the north-east.

Open access land

- 11.4.26 Within the LVIA study area there is an area of land on the coastal margin that is defined as default access land under the Marine and Coastal Access Act 2009, but which also includes some areas not subject to access rights. This area follows the coastline from Ramsgate Marina, westwards and southwards, as far as the southern extent of the study area. The width of the access land varies and includes both areas of land and sea. However, the landward extent of the access land is typically very narrow and is defined by the location of the England Coast Path. The extent of the England Coast Path Coastal Margin is shown on **Figure 11.35** and the assessment of visual effects upon recreational receptors using this area is considered as part of the assessment of visual effects upon users of the England Coast Path.

Parks and gardens open to the public

- 11.4.27 Within the towns of Birchington, Margate, Broadstairs and Ramsgate located in the northern and eastern part of the LVIA study area there are numerous parks that offer a range of amenities including playgrounds and sports pitches. The location and description of these parks is provided in **Table 11.7**.

Table 11.9 Publicly accessible parks and gardens within the study area

Publicly accessible parks and gardens	Distance from the Proposed Development site	Description
Northdown Park	Approximately 4.5km north east	<p>The park was originally part of Northdown House, a Georgian house that still stands at the southern edge of the park in a wooded setting. The park has formal walled gardens nearer the house, and open spaces with more natural woodland and a children's play area to the northern end. The park also has two areas where public access is restricted.</p> <p>The park slopes gently from a high point in the south to a low point in the north.</p>
Hartsdown Park and Tivoli Park	Approximately 3km north east	<p>The land that now forms Hartsdown Park was originally owned by the Hatfield family. Hartsdown Park has tennis courts and a play area. It adjoins the Hartsdown Football Club. There are football and cricket pitches within the park.</p> <p>Tivoli Park is located adjacent to the south-eastern boundary of Hartsdown Park. In 1830, Le Jardin de Tivoli was described as 'one of the most beautiful and romantic spots in Thanet'. Originally designed as a pleasure garden, Tivoli Park has in recent years been left unmanaged and is now a designated nature reserve. There are many mature trees and several pathways.</p>

Table 11.7 (continued) Publicly accessible parks and gardens within the study area

Publicly accessible parks and gardens	Distance from the Proposed Development site	Description
Quex House	Approximately 2km north west	Quex Park itself is 250 acres of parkland and gardens with Quex House and other buildings situated just south-east from Birchington. The Park houses the Powell-Cotton Museum and the house gardens and park holds visitor attractions, leisure activities, and retail food and drink outlets
Dane Park	Approximately 4km north east	Dane Park was donated to the residents of Margate in the late 19th century. The main entrance is through ornamental wrought iron gates in Park Road. There are surfaced paths around and through the park. It has a children's play area. The northern section of the park has many mature trees planted in small groups creating an enclosed character. The southern section of the park is less wooded and more open.
Crispe Park	Approximately 2km north	A small park within a residential setting in the town of Birchington. It is mainly amenity grassland with a playground in the centre and a block of woodland to the west. It is separated from the adjacent housing and the A28 to the south by narrow belts of mature trees.
King George Memorial Park	Approximately 4km east	King George VI Memorial Park occupies a cliff top position overlooking the English Channel between Ramsgate and Broadstairs, it gently slopes from a high point in the west to a low point in the east and therefore faces away from the site. The park is a combination of open amenity grassland and woodland areas. The Viking Coastal Trail and Thanet Coastal Path (both sharing the same route) pass through the eastern section of the park. The King George VI Memorial Park is also an important heritage site in Thanet. It was formed out of the grounds of East Cliff Lodge, the home for over fifty years of the nineteenth-century philanthropist Sir Moses Montefiore. The house was demolished in the 1950s but the stable courtyard survives and the early nineteenth-century Italianate glasshouse is built against its outer side.
Ellington Park	Approximately 1.5 km east	Located within a residential area of Ramsgate. Large expanse of amenity grassland intersected by tree lined paths. The park has a range of amenity features including a playground, bowling green, Edwardian band stand and a miniature railway. The park contains many mature trees, including small groups of mature trees around the perimeter.
Nethercourt Park	Approximately 1 km south east	Located within a residential area of Ramsgate. Amenity grassland with a playground in the north west corner. Well populated with mature trees, particularly around the boundaries of the park.
Royal Esplanade Gardens	Approximately 2km south east	Gardens located in Ramsgate between the Royal Esplanade and Westcliff Promenade facing onto the sea front. The park includes a boating lake, a bowling green and a pitch and put.
Dane Valley Woods	Approximately 4km north east	This is a 13 acre community managed woodland on the outskirts of Margate. The initiative was started in 2003 and since then 5,770 trees have been planted ¹⁸⁸ .
Windmill Community Gardens	Approximately 4km north east	This is a food growing project which has been operational since 2004, transformed from derelict land. The Gardens are open to the public for a limited time, most days of the week. It is located adjacent to Dane Valley Woods, on the outskirts of Margate.

¹⁸⁸ <http://danevalleywoods.org/about/>

Table 11.7 (continued) Publicly accessible parks and gardens within the study area

Publicly accessible parks and gardens	Distance from the Proposed Development site	Description
Spencer Square	Approximately 2.5km south east	A square in the centre of Ramsgate. There are three tennis courts located in the south west of the site and the remainder of the square is paved with planting beds and benches.
Pierremont Park	Approximately 4.9km east	A small park within Broadstairs. Pierremont Park was originally the gardens to Pierremont Hall. The house still exists within the park. The park now includes formal planting around a pergola, informal planting under mature trees, seating, and a children's play area.
Albion Place Gardens (Ramsgate)	Approximately 3.1km east	Albion Place Gardens is an early-19th-century public garden extending to 0.36ha.

- 11.4.28 A review of the ZTVs presented in **Figures 11.3 to 11.8** in conjunction with a review of aerial photography and Google Street View indicates that the views from all of the identified publicly accessible parks and gardens within the study area will be limited by dense vegetation around the perimeters of the parks or by the dense built form which surrounds them. As such recreational receptors visiting these parks and gardens have not been carried through as receptors to the Visual Assessment in **Section 11.9** of this chapter.

Sports and recreation grounds

- 11.4.29 **Table 11.8** describes the sports and recreation grounds located within the LVIA study area and the locations of those carried through to the Visual Assessment are shown in **Figure 11.35**.

Table 11.10 Sports and recreation grounds within the study area

Sports and recreation ground	Distance from the Proposed Development site	Description
Manston Golf Club	Approximately 1km to the east	Nine hole golf course and driving range. The golf course is largely flat and fairly open with only occasional tree groups planted within the course and along its boundary.
Manston Riding Centre	Approximately 0.3km to the north	Located at the end of a track off Alland Grange Lane. A belt of mature overgrown hedgerow surrounds the riding centre.
Minster Recreation Ground	Approximately 1.5km to the south	Grass football pitch, Multi Use Games Area, skatepark and sports pavilion
Westgate and Birchington Golf Club	Approximately 3km to the north	Eighteen hole golf course to the west of Westgate on Sea. Spans both sides of the railway line.
Memorial Recreation Ground	Approximately 4km to the east	Amenity grassland with a playground, bowling green and tennis courts.
Birchington Recreation Ground	Approximately 2.5km to the north	Amenity grassland with sports pitches

Sports and recreation ground	Distance from the Proposed Development site	Description
St. Peter's Recreation Ground	Approximately 4km to the east	Amenity grassland with sports pitches
Table Broadstairs Cricket Club	Approximately 4.5km to the east	Mown grass with cricket square and cricket nets.
Hartsdown Park	Approximately 4 km to the north/north-east	A football ground, home to Margate FC.
Margate Lawn Tennis Club	Approximately 4km to the north/north-east	Located to the east of Trivoli Park Avenue and separated from it by a hedgerow approximately 1.5m in height.
Warre Recreation Ground	Approximately 1.5km to the east	Recreation ground in a residential area of Ramsgate, immediately south of the railway line. Boundaries of the recreation ground are marked by occasionally and gappy groupings of mature trees.
St Augustines Golf Club	Approximately 1.5km to the south	An 18 hole golf course located on low lying ground close to Pegwell Bay. Fairways are lined with mature trees and the northern and western boundaries are lined by hedgerows and tree belts.
Stonelees Golf Centre	Approximately 1.8km to the south	A nine hole course with occasional tree groups but generally open boundaries.
Prince's Golf Club	Approximately 4km to the south	A coastal 27 hole course on low lying ground adjacent to Sandwich Flats

11.4.30 A review of the ZTVs presented in **Figures 11.3 to 11.8** in conjunction with a review of aerial photography and Google Street View indicates that the views from a large proportion of the identified sports and recreation grounds within the study area will be limited. Only five of the sports and recreation grounds and the recreational receptors using the facilities have been carried through to the Visual Assessment in **Section 11.12** of this chapter as follows:

- ▶ Manston Golf Club;
- ▶ Hartsdown Park;
- ▶ St. Augustines Golf Club;
- ▶ Stonelees Golf Centre; and
- ▶ Prince's Golf Club.

11.4.31 The locations of these five sports and recreation grounds in relation to the Proposed Development site and the composite ZTV are shown on **Figure 11.35**.

Caravan and camping sites

11.4.32 The Kent coast and the towns of Broadstairs, Margate and Ramsgate are popular tourist destinations resulting in numerous campsites, caravan site and holiday parks within the study area. It is likely that a proportion of the caravan sites are used for permanent residences as opposed to holiday lets. These are set out in **Table 11.9** and the locations of those carried through to the Visual Assessment are shown in **Figure 11.35**.

Table 11.11 Caravan and camping sites and holiday parks within the LVIA study area

Caravan/camping site	Distance from the Proposed Development site	Description
Nethercourt Touring Park	Approximately 1km east	A site for camping and touring caravans. Set within a residential area on the western outskirts of Ramsgate. The site is gently sloping from a high point in the east to a low point in the west. Belts of mature trees separate the site into land parcels.
Manston Court Caravan Site	Approximately 0.4km east	This site includes permanently located holiday lets as well as pitches for touring caravans and tents. Located in a field to the north west of Manston, off Manston Court Road. The field is bound by hedgerow with hedgerow trees and there are ornamental hedgerows within the site
Preston Parks	Approximately 0.7km east	The site includes permanent holiday homes and also pitches for camping and for touring caravans. Located on the northern edge of Manston on both the east and west of Preston Road. The boundary is a combination of coniferous hedgerow, brick walls, concrete walls and tree planting.
Birchington Vale Holiday Park	Approximately 2km north	The site includes permanent holiday homes and also pitches for camping and for touring caravans. Located south of Quex House, on the south side of Shottendane Road, in an agricultural setting approximately 1km south of Birchington. Sections of the boundary to the park are contained by hedgerow although the south eastern and eastern boundaries are open and unvegetated. To the north, south and east much of the boundary is marked by mature trees and hedgerow. The western boundary facing Quex House is more open and not bound by hedgerow.
Quex Holiday Park and Campsite	Approximately 2km north	The site is located immediately north of Birchington Vale Holiday Park, on the north side of Shottendane Road in includes permanent holiday homes and also pitches for camping and for touring caravans. The site is level and wooded in parts.
Pegwell Bay Caravan Park	Approximately 1.5km south east	The site contains permanent holiday homes/static caravans. It is located in the far south west of Ramsgate on the coast, overlooking Pegwell Bay.
Wayside Caravan Park	Approximately 0.7km south	A touring caravan and camping site located on the southern edge of the hamlet of Way, approximately 500m east of Minster. The caravan park is located on flat ground at an elevation of approximately 15m AOD and has a boundary of hedgerow and mature trees to the west and along much of the northern and southern boundaries. The eastern boundary is marked by coniferous hedgerow.
Bradgate Holiday Park	Approximately 1km north	Holiday homes/static caravan site located on the western edge of the hamlet of Lydden. The site gently slopes from a high point in the west to a low point in the east. The eastern boundary is defined by the settlement edge of Lydden. To the west, south and north the boundary is a combination of hedgerow with hedgerow trees and a belt of woodland and scrub approximately 5m in height.
The Foxhunter Park	Approximately 2.5km south west	A holiday park with permanent holiday homes/static caravans located on the southern edge of the village of Monkton. A belt of woodland marks the eastern and southern boundary and separates the site from the adjacent arable fields. A narrower belt of trees defines the south western boundary while the western edge is defined by hedgerow. To the north is the settlement of Monkton.

Table 11.9 (continued) Caravan and camping sites and holiday parks within the LVIA study area

Caravan/camping site	Distance from the Proposed Development site	Description
Acol Caravan Park	Approximately 1.2km north west	A holiday park with permanent holiday homes/static caravans located on the northern edge of the settlement of Acol at a fork in the road between Acol Hill and Margate Hill. North of the site the land use is arable. The caravan park is separated from the arable fields by fence approximately 2m in height and a belt of tall (over 10m high) trees. The site slopes gently from a high point in the north-east corner to a low point in the south-west corner.
Frost Farm	Approximately 4.5km north west	A small campsite located approximately 150m north of Nicholas at Wade, immediately south of the A299. It is surrounded by paddocks and separated from them by hedgerow.
St. Nicholas Camping Site	Approximately 4.5km north west	A site for touring caravans and camping located on a field on the north-western edge of Nicholas at Wade. The boundary of the field to the north, south and west is defined by hedgerow approximately 3 metres high. To the east is an avenue of mature trees.
Dog and Duck Caravan Park	Approximately 5km south west	A site of permanent caravan holiday homes set within a rural setting on the southern banks of the River Stour. The site is separated from the surrounding landscape by a belt of mature trees and overgrown hedgerow.

11.4.33 A review of the ZTVs presented in **Figures 11.3 to 11.8** in conjunction with a review of aerial photography and Google Street View indicates that the views from a large proportion of the identified caravan and camping sites within the study area will be limited. Only seven of the caravan and camping sites and the recreational receptors using the facilities have been carried through to the Visual Assessment in **Section 11.12** of this chapter as follows:

- ▶ Manston Court Caravan Site;
- ▶ Preston Parks;
- ▶ Birchington Vale Holiday Park;
- ▶ Quex Holiday Park and Campsite;
- ▶ Bradgate Holiday Park;
- ▶ Frost Farm; and
- ▶ Dog and Duck Caravan Park.

11.4.34 The locations of these seven caravan and camping sites in relation to the Proposed Development site and the composite ZTV are shown on **Figure 11.35**.

Public Rights of Way and Bridleways

11.4.35 The individual PRoWs in close proximity to the Proposed Development site are shown on **Figure 11.36**. A single bridleway (reference TR8) is the only PRoW to be partly routed within the Proposed Development site. The TR8 runs south from the B2050 at its junction with Manston Court Road for approximately 300 m before turning 90 degrees to the east to join the High Street (at Bush Farm) in Manston. It follows the existing fenceline of the non-operational airport along a section of the boundary that is otherwise open and unvegetated. Consequently people (recreational visual receptors) using TR8 possess clear views into the south-eastern part of the Proposed Development site with the existing Aircraft Maintenance Building and Passenger Terminal Building being the most readily apparent facilities associated with the non-operational

airport. A network of bridleways (TR9 and TR10) continue eastwards from the High Street in southern Manston to join the A256 on the outskirts of Ramsgate. Tree cover and overgrown hedgerows minimise the availability of views across most of the Proposed Development site from TR9 and TR10 with the exception of the eastern end of the runway.

- 11.4.36 To the north-east of the Proposed Development site, north of Manston, there are six PRowWs which cross the arable and pasture fields, some of which are bounded by tall hedgerows and vegetation in adjacent gardens of residential properties and caravan parks. These six PRowWs connect rural roads between Manston and Northwood and heading north between Manston and Lydden. These are PRowWs are coded TR22, TR23, TR24, TR25, TR26 and TR31.
- 11.4.37 Other PRowWs located in close proximity to the Proposed Development site and highlighted on **Figure 11.36** include:
- ▶ TR32 which links Canterbury Road West (which forms the southern boundary of the Proposed Development site) with Cottingham Road to the south-west of Cliffsend;
 - ▶ TE29 which runs south from the A299 west of Mount Pleasant to meet the northern fringes of Minster;
 - ▶ TE18 which heads west from Minster Road to join Plumstone Road to the west of the Proposed Development site boundary; and
 - ▶ TE16 which follows a north-easterly route from Minster Road to Manston Road to the north of the Proposed Development site boundary.
- 11.4.38 Elsewhere across the LVIA study area, the fields are traversed by a network of PRowWs at varying densities. The highest concentration is found to the east of the Proposed Development site, linking different parts of Margate, Broadstairs and Ramsgate. A moderately dense network of PRowWs also cross the low lying Minster Marshes and Ash Level to the south of the Proposed Development connecting the villages and hamlets with the River Stour and the Saxon Shore Way. These PRowWs have been grouped together on the basis of geographical distribution, connectivity and direction to the Proposed Development site. The result has been to define eight discrete groups of PRowWs as shown on **Figure 11.36**.
- Tranquillity*
- 11.4.39 **Figure 11.38** illustrates the results of Campaign to Protect Rural England's (CPRE's) Tranquillity Mapping, which shows the likelihood of finding tranquillity in any given locality and is relative on a regional level (i.e. South-East England). This is based on a methodology which was developed by Northumbria University on behalf of CPRE and the then Countryside Agency (now NE) in 2007. The data is subject to the limitations inherent in many large-scale desk-based studies and should only form an initial indication of the relative levels of tranquillity that are experienced in the LVIA study area. More detailed observations have been obtained through the field survey work.
- 11.4.40 **Figure 11.38** indicates that the lowest levels of tranquillity within the LVIA study area are associated with the northern and eastern fringes, coinciding with the towns of Ramsgate, Broadstairs, Margate and Birchington. Along this coastal strip, the high proportion of built form, overt signs of human impact and the dense road and rail network with associated movement and noise disturbance are likely to reduce tranquillity levels. By contrast, Minster Marshes, Monkton Marshes and Ash Level in the southern part of the LVIA study area are considered to be the most tranquil parts of the study area. This is likely to be due to the presence of limited built form and a general absence of road and rail infrastructure which, allied with high levels of openness of the landscape, perceived naturalness and the presence of the River Stour although as noted in paragraph 11.4.18 this area is traversed by 132kV overhead power lines. This high level of tranquillity extends east to cover Pegwell Bay and Sandwich Flats where the visibility of the sea is, under the CPRE methodology, deemed to be a positive contributing factor to tranquillity.
- 11.4.41 The Proposed Development site itself is likely to display moderate to low levels of tranquillity. The lower levels are likely to be found within the northern part of the site, extending north and east to

cover Manston and south across Minster. Between this area and the coastal settlements, tranquillity is indicated to be moderate, reflecting its proximity to the urban development and presence of 'A' and 'B' roads. It is likely that when the airport was operating prior to its closure in 2014, levels of tranquillity were reduced in comparison with the current baseline situation.

Dark skies

- 11.4.42 **Figure 11.39** illustrates 'Night Blight' mapping released by CPRE in June 2016. This maps England's light pollution and dark skies and is based on satellite imagery gathered throughout September 2015. Further field survey work including night-time photography has been undertaken as part of the landscape and visual baseline collection (see annotated night-time viewpoint photography in **Figures 11.22 to 11.29**) and commentary is provided as part of the baseline descriptions included in the Viewpoint Assessment provided in **Appendix 11.3**.
- 11.4.43 **Figure 11.39** indicates that the brightest levels of radiance are found in isolated pockets within the LVIA study area including at the Port of Ramsgate (with associated light houses) and at Thanet Earth. Other high levels of radiance are concentrated along the coastal zones encompassing Ramsgate, Broadstairs, Margate and Birchington as a result of high levels of highway lighting and floodlighting. Levels of radiance decrease inland to become more moderate although increasing again around the northern and western parts of the Proposed Development site. Lower levels of radiance are associated the less settled southern parts of the LVIA study area around Ash Level in particular where from the absence of settlements and road networks result in limited sources of light.
- 11.4.44 **Figure 11.39** illustrates the levels of night-time lighting associated with the Proposed Development site after the closure of Manston Airport in April 2014. As such, it is likely that the levels of radiance at the Proposed Development site indicated on the figure are lower than those associated with the historic use of the site. However, in the absence of any maps documenting levels of radiance before CPRE's 2015 mapping, the difference between the two levels cannot be quantified.

Landscape Character

National Character Areas

- 11.4.45 The Proposed Development site and the LVIA study area are located entirely within the *National Character Area (NCA) 113: North Kent Plain*¹⁸⁹. This NCA encompasses an approximately 90 km long strip of land bordering the Thames Estuary to the north and the chalk of the Kent Downs in the south. The NCA comprises an open, low and gently undulating landscape characterised by its arable use. The chalk outlier of Thanet, on which the Proposed Development site is located, is identified as a key feature that is a discrete and distinct area characterised by its dominant agricultural use stemming from the highly quality, fertile soils.
- 11.4.46 The key characteristics of NCA 113: North Kent Plain are:
- ▶ *"An open, low and gently undulating landscape, characterised by high quality, fertile, loamy soils dominated by agricultural land uses.*
 - ▶ *The area's geology is dominated by Palaeogene clays and sands, underlain by the Chalk*
 - ▶ *Geologically a chalk outlier – and historically an island separated from the mainland by a sea channel -Thanet forms a discrete and distinct area that is characterised by its unity of land use, arising from the high quality fertile soils developed in thin drift deposits over chalk.*
 - ▶ *A diverse coastline (both in nature and orientation), made up of cliffs, intertidal sand and mud, salt marshes, sand dunes and shingle beaches. Much of the coastal hinterland has been built*

¹⁸⁹ National Character Area Profile 113: North Kent Plain. (2015). Natural England. Available online at <http://publications.naturalengland.org.uk/publication/2900242?category=587130> [Checked 13/12/17]

on, and the coast itself has been modified through the construction of sea walls, harbours and piers.

- ▶ Large arable/horticultural fields with regular patterns and rectangular shapes predominating, and a sparse hedgerow pattern.
- ▶ Orchards and horticultural crops characterise central and eastern areas, and are often enclosed by poplar or alder shelterbelts and scattered small woodlands.
- ▶ Woodland occurs on the higher ground around Blean and in smaller blocks to the west, much of it ancient and of high nature conservation interest.
- ▶ The Stour and its tributaries are important features of the eastern part of the NCA, draining eastwards into the North Sea, with associated wetland habitats including areas of grazing marsh, reedbeds, lagoons and gravel pits. The River Medway cuts through the NCA as it flows into the Thames Estuary.
- ▶ Other semi-natural habitats include fragments of neutral, calcareous and acid grassland, and also heathland.
- ▶ The area has rich evidence of human activity from the Palaeolithic period. Key heritage assets include Roman sites at Canterbury, Reculver and Richborough; the Historic Dockyard at Chatham; military remains along the coast; and historic parks and buildings.
- ▶ Large settlements and urban infrastructure (including lines of pylons) are often visually dominant in the landscape, with significant development around Greater London and the Medway Towns, as well as around towns further east and along the coast. Major rail and road links connect the towns with London.”

County level landscape character

- 11.4.47 At a county level landscape character is defined by the *Kent Historic Landscape Characterisation*¹⁹⁰ and the *Landscape Assessment of Kent*¹⁹¹ which includes previous assessments of condition and sensitivity of landscape character areas (LCAs). Whilst these county level documents are over a decade old they continue to provide useful context to the district level landscape character assessments.
- 11.4.48 The *Kent Historic Landscape Characterisation* locates the Proposed Development site within Historic Landscape Character Area (HLCA) 18 – Isle of Thanet. This HLCA is comprised mainly of two Historic Landscape Types (HLTs): post-1801 settlement (HLT 9.6) and irregular fields bounded by roads, tracks and paths (HLT 1.14). The latter is described as a relatively recent phenomenon and overlies potentially earlier landscapes of similar character. Urban developments of Margate and Ramsgate are considered to be integral elements within HLCA 18.
- 11.4.49 The *Landscape Assessment of Kent* locates the Proposed Development site and much of the LVIA study area within the Thanet LCA. This features a centrally domed ridge with the former airport “dominant on the crest” of this ridge. Other features include open, large scale arable fields with long views. The Thanet LCA is assessed as having a poor condition due to the “vulnerability of the farmed landscape, lack of natural habitats and the negative impact of recent development”. However, the sensitivity of the Thanet LCA is described as “very high” due to the presence of open views and very strong sense of place.

¹⁹⁰ Kent Historic Landscape Characterisation. (2001). Croft, A.; Munby, N. and Ridley, M. Available online at http://archaeologydataservice.ac.uk/archives/view/kent_hlc_2014/downloads.cfm [Checked 13/12/17]

¹⁹¹ Landscape Assessment of Kent. (2004). Kent County Council. Available at <https://www.kent.gov.uk/about-the-council/strategies-and-policies/environment-waste-and-planning-policies/countryside-policies-and-reports/kents-landscape-assessment> [Checked 13/12/17]

District level landscape character

- 11.4.50 At a district level two published landscape character assessments cover the study area; *Landscape Character Areas*¹⁹² and the *Dover District Landscape Character Assessment*¹⁹³. The distribution of LCAs within the LVIA study area is shown in **Figure 11.37** and the key characteristics and pertinent information in these two published assessments for the LCAs is summarised in **Table 11.10**.
- 11.4.51 It is noted that a new landscape character assessment has recently been published for Thanet in August 2017 (*Thanet Landscape Character Assessment*¹⁹⁴). This divides the previously defined LCAs into a greater number of smaller LCAs. The landscape sensitivity of these character areas and the assessment of effects as a result of the development at Manston Airport will be considered in the ES.

Table 11.12 Landscape character areas within the study area

Landscape Character Area	Description
Thanet Landscape Character Assessment Update	
Pegwell Bay LCA	<i>"Pegwell Bay is an extensive area of mixed coastal habitats, including mudflats, saltmarsh and coastal scrub. These habitats form an open and relatively unspoilt landscape, with a distinctive character. The area possesses a sense of remoteness and wildness despite the relative proximity of development. Among its most important features in the area is the unique sweep of chalk cliffs viewed across Pegwell Bay from the south. This landscape creates large open skies."</i> (TDC, 2012)
The Former Wantsum Channel LCA	<i>"This area includes all the flood plain of the River Stour, and historically represents the former sea channel, the Wantsum Channel, which previously separated the Isle of Thanet from mainland Kent and which silted up over several centuries. The area is characterised by a vast, flat, open landscape defined by the presence of an ancient field system, defined by an extensive ditch and dyke system, the sea walls and isolated groups of trees. These elements provide important visual evidence of the physical evolution of the Wantsum Channel and, like other marsh areas in Kent, produce huge open skies."</i> (TDC, 2012)
The Former Wantsum North Shore LCA	<i>"This area largely comprises the distinctive and often quite steep hill slopes leading down from the Central Chalk Plateau to the former Wantsum Channel. The landscape is very open with few features and the former shoreline is more distinct in some places than in others, with the variation in the contour pattern. From the upper slopes it affords extensive views across the whole of the former Wantsum Channel to the slopes on the opposite banks and in many places to the sea. The former shoreline is more distinct in some places than in others, with the variation in the contour pattern. However, it also provides the unique setting of the former channel side villages of Minster, Monkton, Sarre and St Nicholas, and the smaller, originally farm based, settlements of Shuart, Gore Street and Potten Street. These elements provide important visual evidence of the growth of human settlement, agriculture and commerce in the area.</i> <i>The openness of this landscape provides wide and long views of the former Wantsum Channel area and Pegwell Bay. The area also possesses a large number of archaeological sites (including scheduled ancient monuments); numerous listed buildings (including Minster Abbey, the churches at Minster, Monkton and St Nicholas, and Sarre Mill); and the historical landing sites of St Augustine and the Saxons, Hengist and Horsa."</i> (TDC, 2012)

¹⁹² Landscape Character Areas Update August 2012, (2012) Thanet District Council. Available online at <https://www.thanet.gov.uk/media/2327036/Landscape-Character-Areas-August-2012.pdf> [Checked 13/12/17]

¹⁹³ Dover District Landscape Character Assessment. (2006). Dover District Council. Available online at <https://www.dover.gov.uk/Planning/Planning-Policy-and-Regeneration/PDF/Dover-District-Landscape-Character-Assessment.pdf> [Checked 13/12/17]

¹⁹⁴ Thanet Landscape Character Assessment. (2017). LUC. Available online at <https://www.thanet.gov.uk/your-services/planning-policy/evidence-base/environment-and-quality-of-life/>

Table 11.10 (continued)

Landscape character areas within the study area

Landscape Character Area	Description
The Central Chalk Plateau LCA	<i>"The central part of the District is characterised by a generally flat or gently undulating landscape, with extensive, unenclosed fields under intensive arable cultivation. This open landscape is fragmented by the location of large scale developments such as the airport, Manston Business Park and a sporadic settlement pattern to the north of the airport. The character of this area is also defined by the proximity of the edges of the urban areas." (TDC, 2012)</i>
Quex Park LCA	<i>"The Park is unique within the Thanet context, comprising a formal and extensive wooded parkland and amenity landscape within an otherwise open intensively farmed landscape. It possesses a formal landscape structure and gardens that act as an effective setting to Quex House. The parkland is intensively cultivated between the tree belts, with limited grazing pasture remaining. Two important historic features of the Park are the Waterloo Tower and a round castellated brick tower to the north of the main House." (TDC, 2012)</i>
The Urban Coast LCA	<i>"The urban areas of Thanet form an almost continuous conurbation along the coast between Pegwell Village and Minnis Bay. With the exception of the Green Wedges, this area is heavily urbanised. The coastal strip is characterised by the presence of traditional seaside architecture, active harbour areas and beaches and some extensive public open clifftop areas. The pattern of bays and headlands provides long sweeping views of the coast." (TDC, 2012)</i>
Dover District Landscape Character Assessment	
Little Stour Marshes	<ul style="list-style-type: none"> • "Flat topography • Alluvium soils • Pasture land • Drainage ditches as field boundaries • Occasional hawthorn and willow, reeds and flax along ditch lines • Dark patches of sedges in wetter areas • Drove roads lead up to eastern boundaries • No roads or buildings within character areas • Footpaths follow waterways • Extensive views across open arable farmland • Exposed." (DDC, 2006)
Ash Level	<ul style="list-style-type: none"> • "Flat topography • Alluvium soils • Arable and pastoral use • Grazed primarily by cows • Small fields • Ditches define field boundaries • Occasional hawthorn or willow, reeds and flax along ditch lines • Sedges define wetter areas • No roads or buildings • Few footpaths in north-south direction • Unenclosed • Open views." (DDC, 2006)

Table 11.10 (continued)

Landscape character areas within the study area

Landscape Character Area	Description
Preston and Ash Horticulture Belt	<ul style="list-style-type: none"> • <i>“Relatively flat topography</i> • <i>Variety of plants and market garden character</i> • <i>Orchards dominant</i> • <i>Linear plantations</i> • <i>Field use characterises field size</i> • <i>Poplar shelter belts</i> • <i>Native hedgerows and tree clumps</i> • <i>Narrow winding lanes</i> • <i>Footpath and bridleways network</i> • <i>Variety of building types including Kentish oast houses and large timber barns</i> • <i>Sense of enclosure and limited views.” (DDC, 2006)</i>
Richborough Castle	<ul style="list-style-type: none"> • <i>“Higher knoll of land</i> • <i>Flint castle remains</i> • <i>Manmade landform features, such as amphitheatre</i> • <i>Mown grass</i> • <i>Narrow winding lanes</i> • <i>Surrounding arable fields</i> • <i>Native hedgerows</i> • <i>Variety of building types and ages</i> • <i>Open views of surrounding area.” (DDC, 2006)</i>
The Sandwich Corridor	<ul style="list-style-type: none"> • <i>“Flat landscape</i> • <i>Broad native hedgerows and tall metal fencing along roads</i> • <i>Huge, modern buildings with brick and glass dominant</i> • <i>Large car parks</i> • <i>River Stour and boat culture</i> • <i>Associated mudflats and bird life</i> • <i>Large lake</i> • <i>Industrial pockets</i> • <i>Straight, wide main road</i> • <i>Limited views due to buildings dominating landscape.” (DDC, 2006)</i>
Sandwich Bay	<ul style="list-style-type: none"> • <i>“Flat to gently undulating topography</i> • <i>Dunes</i> • <i>Sand and shingle</i> • <i>Sea kale and sea holly along shingle</i> • <i>Occasional scrub</i> • <i>Birdlife</i> • <i>Wide expanse of sea</i> • <i>Golf courses</i> • <i>Coarse coastal grasses</i> • <i>Some farmland</i> • <i>Large houses in open plan estate</i> • <i>Few roads</i> • <i>Seasonal change</i> • <i>Exposed landscape with extensive views out to sea.” (DDC, 2006)</i>

- 11.4.52 The Proposed Development site is sited within the Central Chalk Plateau LCA. This LCA is characterised by flat or gently undulating topography, slight elevation in comparison with neighbouring LCAs, relative openness and extensive views. Manston Airport and other large scale developments are identified in the *Landscape Character Areas*¹⁹⁵ as contributing to the fragmentation of the open character along with the sporadic settlement pattern. Policy SP22 in the *Draft Thanet Local Plan to 2031 Preferred Options Consultation*¹⁹⁶ which is entitled 'Protection and Enhancement of Thanet's Historic Landscape' states that in this LCA development proposals should avoid skyline intrusion, and the loss or interruption of long views. Developments must be demonstrated to take advantage of and engage with views.

Landscape Designations

- 11.4.53 There are no landscape designations within the LVIA study area.

11.5 Environmental measures incorporated into the Proposed Development

- 11.5.1 This section lists the environmental measures relevant to landscape and visual which have been incorporated into the current design of the Proposed Development.
- 11.5.2 How these environmental measures influence the assessment of significance is discussed in **Section 11.6**. The broad approach adopted is that where achievable and agreed environmental measures have been identified, these have been incorporated into the Proposed Development, and the effect that those environmental measures have on the significance of potential effects is taken into account during the assessment. In some cases a potential effect may require no further consideration following incorporation of appropriate mitigation measures.
- 11.5.3 A summary of the mitigation measures that have been incorporated into the Proposed Development to date in order to avoid, reduce or compensate for potential adverse landscape and visual effects is provided in **Table 11.11**. Potential enhancement measures will also be identified where applicable.
- 11.5.4 It should be noted that the environmental measures incorporated into the design of the Proposed Development at this stage of design maturity largely take the form of guiding principles and generic measures which have been used to inform the outline design. These principles are subject to a continuous process of refinement and will be incorporated into a set of Manston Airport Design Principles that will be used to ensure that all elements of the Proposed Development are designed to a high standard. The Manston Airport Design Principles will accompany the DCO submission for the Proposed Development. These principles will be used to inform the design of any specific mitigation measures that may also need to be embedded into the final proposed design. Design principles and embedded mitigation measures will also be informed by the feedback received in response to this statutory consultation.

¹⁹⁵ Landscape Character Areas Update August 2012, (2012) Thanet District Council. Available online at <https://www.thanet.gov.uk/media/2327036/Landscape-Character-Areas-August-2012.pdf> [Checked 13/12/17]

¹⁹⁶ Draft Thanet Local Plan to 2031 Preferred Options Consultation (2015) Thanet District Council. Available online at <https://www.thanet.gov.uk/your-services/planning-policy/thanets-new-local-plan/draft-thanet-local-plan-to-2031-preferred-options-consultation-january-2015/> [Checked 14/11/17].

Table 11.13 Rationale for incorporation of environmental measure

Potential receptor	Predicated changes and potential effects	Incorporated measure
Landscape elements: trees within the site boundaries	Potential loss or damage to valued vegetation (including tree roots as a result of construction activity) and screening elements	<p>Vegetation /tree survey and protection plans considered as part of the design process.</p> <p>Construction activities to be carried out in accordance with <i>BS 5837: 2012 Trees in relation to design, demolition and construction. Recommendations</i> in order to protect trees and other vegetation which is to be retained.</p> <p>New tree planting to be undertaken to replace that lost. The design of new planting has been located to deliver screening and softening of large-scale built form and is proposed along the southern side of Manston Road (north of the Cargo Facilities) and around the Aviation Business Park. Further planting is proposed east of Spitfire Way. Typical proposed species are likely to be native and non-berrying so as to reduce bird attraction. The width of the planted buffers along the perimeter ranges from 25-30 m with planting densities at 4 m centres in line with recommendations from the Civil Aviation Authority.</p>
Landscape character	Direct or indirect effects on valued characteristics, special qualities and character	<p>Incorporation of enhanced landscape/architectural design, the provision of a landscape masterplan and landscape management to reduce effects of landscape character and ensure that the nature of these effects is neutral or positive as far as possible. The use of building materials, detailing and finish for the roofs and facades of proposed buildings that respond in a positive way to the existing landscape context. However, these details are not yet available so cannot be used to inform the assessment.</p> <p>In terms of overflying and the potential effects on tranquillity, the noise mitigation strategy has been developed in line with the CAP 1520: Draft Airspace Design Guidance.</p>
All visual receptors overlapped by the ZTV within the study area	<p>Changes to existing views, visual amenity and scenic quality:</p> <ul style="list-style-type: none"> • Introduction of new large-scale features to the view; • Alteration to the landscape character of the view; • Loss of or disruption to existing views of skylines; • Changes to perceptions if movement through increased traffic (including HGV) and air movements; and • Visual effects resulting from light pollution 	<p>The provision of screening vegetation as detailed above around the Aviation Business Park, the southern side of Manston Road (north of the Cargo Facilities) and east of Spitfire Way. Localised bunding offers further visual screening in key locations by raising the ground level for planting.</p> <p>It is anticipated that the design of the buildings will be of high quality and that the design treatment, detailing and materials will be used to mitigate the apparent scale and soften the appearance of the buildings. However, these details are not yet available so cannot be used to inform the assessment.</p>

11.6 Scope of the assessment

- 11.6.1 This section sets out information on the process by which receptors were identified; the details of the receptors that could potentially be affected by the Proposed Development; and the potential effects on receptors that could be caused by the Proposed Development.
- 11.6.2 Whilst the relevant EIA regulations (The Infrastructure Planning [Environmental Impact Assessment] Regulations 2017) require that this assessment focuses upon those receptors most likely to experience significant landscape and visual effects, it is also important that a precautionary

approach is adopted in defining the spatial and temporal scope of the assessment, in order that all of the potentially significant landscape and visual effects can be captured by the assessment.

11.6.3 The scope of assessment has been informed by:

- ▶ relevant guidance (in particular that provided by GLVIA 3);
- ▶ consultee responses to the Scoping Report;
- ▶ consultee responses to the PEIR; and
- ▶ the professional judgement of the qualified technical specialists who have undertaken the LVIA.

Approach to identifying receptors

11.6.4 Within the context of the framework outlined above, the identification of receptors has been informed by the results of the work detailed in **Section 11.4**; and the Proposed Development design. In accordance with the guidance provided by GLVIA 3, potential receptors are considered to include those who may reasonably be expected to have the potential to sustain significant adverse effects in relation to:

- ▶ direct landscape effects (i.e. loss or degradation of landscape elements that may be physically affected by the Proposed Development and changes to the character of the landscape hosting the Proposed Development as a result of alterations to the fabric of that landscape);
- ▶ indirect landscape effects (i.e. changes to the character of landscape surrounding the Proposed Development as a result of alterations to the appearance or other perceptual characteristics of the wider landscape); and
- ▶ visual effects (i.e. changes to the views available to people).

11.6.5 The first step in identifying receptors to be included in the LVIA was the definition of the LVIA study area as described in paragraph 11.3.2. This has been defined as encompassing all areas within 5 km of the Proposed Development site boundary and represents the maximum spatial scope of the landscape and visual assessment. The following landscape and visual receptors are excluded from the LVIA on the basis of their spatial relationship to the LVIA study area:

- ▶ all nationally or locally designated landscape located wholly outside the LVIA study area;
- ▶ all nationally or locally defined landscape character areas located wholly outside the LVIA study area; and
- ▶ all visual receptors located outside the LVIA study area.

11.6.6 The second step in identifying receptors to be included in the LVIA was the establishment of a potential effects pathway. In relation to receptors that might be subject to direct landscape effects, no effects pathway is considered to be present for any landscape elements or character areas that are not located wholly or partly within the boundary of the Proposed Development. In relation to receptors that might sustain indirect landscape effects or visual effect, the potential effects pathway is considered to be visual and dependent upon the availability of views of the Proposed Development. The method used to calculate the ZTVs of the Proposed Development is described in paragraphs 11.3.3 to 11.3.9. The following landscape and visual receptors are excluded from the LVIA on the basis of their spatial relationship to the ZTV:

- ▶ all nationally or locally designated landscape located wholly outside the ZTV;
- ▶ all nationally or locally defined landscape character areas located wholly outside the ZTV; and
- ▶ all visual receptors located outside the ZTV.

11.6.7 The third and final step in identifying receptors to be included in the LVIA was a consideration of the sensitivity of the receptors to the changes that are likely to occur. All landscape character

areas included in the LVIA following steps one and two, described above, are considered to be of a sufficiently high sensitivity to have the potential to sustain significant effects as a result of the Proposed Development. In relation to visual receptors, all receptors within the categories: people at their place of residence; people within their community; people engaged in outdoor recreation; and people using the transport network are also considered to be of a sufficiently high sensitivity to have the potential to sustain significant effects as a result of the Proposed Development.

- 11.6.8 With regards to people at their place of work, GLVIA 3 (LI and IEMA, 2013) states the following within the context of visual receptors likely to be less sensitive to visual change:
- 11.6.9 *“People at their place of work whose attention may be focused on their work or activity, not on their surroundings, and where the setting is not important to the quality of working life (although there may on occasion be cases where views are an important contributor to the setting and the quality of working life).”*
- 11.6.10 People at their place of work are therefore only included in the LVIA where views are an important contributor to the setting and the quality of working life. No such receptors have been identified in relation to the Proposed Development.

Potential receptors

- 11.6.11 This section identifies the potential receptors that have been identified based on the factors listed above, on the Scoping Opinion received from PINS and responses made by consultees in relation to the PEIR and other engagement. The receptors listed in **Table 11.12** are considered capable of being significantly affected and will therefore be taken forward for further assessment in this chapter.

Table 11.14 Potential receptors

Receptor	Distance from site boundary	Reason for selection
Landscape receptors		
NCA 113: North Kent Plain	Host NCA	Potential for direct and indirect effects upon NCA's key characteristics arising from proposed construction and operational activities
Pegwell Bay LCA	Approximately 1 km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational activities
The Former Wantsum Channel LCA	Approximately 1.5 km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational activities
The Former Wantsum North Shore LCA	Adjacent to the site boundary	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational activities
The Central Chalk Plateau LCA	Host LCA	Potential for direct and indirect effects upon LCA's key characteristics arising from proposed construction and operational activities
Quex Park LCA	Approximately 1.5 km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities

Table 11.12 (continued) Potential receptors

Receptor	Distance from site boundary	Reason for selection
The Urban Coast LCA	Approximately 0.4 km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities
Little Stour Marshes LCA	Approximately 4.7 km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities
Ash Level LCA	Approximately 2.8 km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities
Preston and Ash Horticulture Belt LCA	Approximately 4.6 km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities
Richborough Castle LCA	Approximately 4.7 km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities
The Sandwich Corridor LCA	Approximately 2.9 km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities
Sandwich Bay LCA	Approximately 2.5 km	Potential for indirect effects upon LCA's key characteristics arising from proposed construction and operational phase activities
HLCA 18 Isle of Thanet	Host HLCA	Potential for direct and indirect effects upon HLCA's key characteristics arising from proposed construction and operational phase activities
Visual Receptors		
Residential visual receptors within LVIA study area and the Proposed Development ZTV	Up to 5.0 km	Potential for changes to baseline views as a consequence of construction and operational phase activities. Groupings of this category of visual receptors are shown in Figures 11.31 – 11.33
Recreational visual receptors within LVIA study area and the Proposed Development ZTV	Up to 5.0 km	Potential for changes to baseline views as a consequence of construction and operational phase activities. Groupings of this category of visual receptors are shown in Figures 11.34 - 11.36
Users of the transport network	Up to 5.0 km	Potential for changes to baseline views as a consequence of construction and operational phase activities.

Spatial and temporal scope

Spatial scope

11.6.12 The spatial scope of the LVIA includes;

- ▶ all national and local landscape character areas located within the boundary of the Proposed Development;

- ▶ all national and local landscape character areas located wholly or partly within both the LVIA study area and the ZTV of the Proposed Development; and
- ▶ all visual receptors located wholly or partly within both the study area and the ZTV of the Proposed Development that fall within the following categories:
 - ▶ people at their place of residence;
 - ▶ people within their community including parks and public open spaces;
 - ▶ people engaged in outdoor recreation; and
 - ▶ people using the transport network.

11.6.13 It is not considered likely that overflying of aircraft in the sky could give rise to significant visual effects due to the intermittent, transitory and small-scale nature of the changes that would arise in views.

Temporal scope

11.6.14 With regard to the timeframe of the assessment, both the construction and operational phases have been considered based on the following timescales:

- ▶ Year 1 which accords with the period when a large proportion of construction activities will be undertaken;
- ▶ Year 10 (winter to account for any increase in visibility due to seasonal leaf loss) at end of Phase 3 when operational activities will be well-established but some construction activities will still be taking place and therefore represents a typical 'snap-shot' of the 18 year period over which the Airport will be developed;
- ▶ Year 20 (summer) is when the completed Airport will be operating at its greatest capacity with regard to traffic and aircraft movements and will therefore be the worst case scenario with regard to perceptual landscape effects; and
- ▶ Decommissioning effects have been scoped out of the assessments of landscape and townscape effects as the Airport is envisaged to operate in perpetuity.

Potentially significant effects

11.6.15 The potentially significant effects from the Proposed Development, which are subject to further discussion in this chapter, are summarised below.

- ▶ Potential effects on landscape character as a result of the construction and operational activity associated with the redevelopment and reopening of Manston Airport. The assessment will be undertaken upon the limited number of Dover and Thanet LCAs that are completely or partially located within the study area and the development ZTV.
- ▶ Potential effects upon NCA 113 – North Kent Basin.
- ▶ Potential effects upon tranquillity, primarily as a result of increased noise and the visual presence of overflying of aircraft will be assessed within the context provided by the defined key characteristics of the different LCAs.
- ▶ Potential effects upon the views and visual amenity of visual receptors within the LVIA study area and Proposed Development ZTV as a result of construction activity required to reopen Manston Airport. These will be principally the construction activities required for the cargo facility, ATC tower, fuel farm, hangars and new aircraft stands.
- ▶ Potential effects upon the views and visual amenity of visual receptors within the LVIA study area and the Proposed Development ZTV as a result of the operation of the reopened Manston Airport. These will be principally the operational activities at the cargo facility, fuel farm,

hangers and new aircraft stands but will also include the movements of aircraft on the ground and when taking off and landing (air traffic movements – ATMs), movement of vehicles and plant within and around the Proposed Development and operational lighting requirements.

- 11.6.16 Assessment of each of the following effects has led to the conclusion that they are unlikely to be significant and do not require any further assessment:
- ▶ Potential effects on any LCA within the study area that are entirely outside the development ZTV as without a visual effects pathway it is highly unlikely that effects could be sustained by other potential effects pathways.
 - ▶ Potential effects on visual receptors that are located within the study area but outside the Proposed Development ZTV. This is because in the absence of a visual effects pathway linking a visual receptor to the Proposed Development it is highly unlikely that visual effects could be sustained.

11.7 Assessment methodology

Methodology for predicted effects

- 11.7.1 The methodology for the LVIA has been undertaken in accordance with best practice guidance and the methodology as set out here, which is based on the *Guidelines for Landscape and Visual Impact Assessment, Third Edition*¹⁹⁷ (GLVIA 3).
- 11.7.2 Additional guidance has been taken from, but not limited to, the following key publications:
- ▶ *Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment*¹⁹⁸;
 - ▶ *Visual Representation of Wind Farms Version 2.2*¹⁹⁹;
 - ▶ *Technical Guidance Note 02/17 Visual representation of development proposals*²⁰⁰; and
 - ▶ *Technical Information Note 01/2017 Tranquillity – An overview*²⁰¹.
- 11.7.3 The assessment of the significance of landscape and visual effects is, according to GLVIA 3 “an evidence-based process combined with professional judgement.” All assessments and judgements must be transparent and capable of being understood by others. Levels of landscape and visual effects are determined by consideration of the nature or ‘sensitivity’ of each receptor or group of receptors and the nature of the effect or ‘magnitude of change’ that would result from the reopening and redevelopment of Manston Airport.

¹⁹⁷ Guidelines for Landscape and Visual Impact Assessment Third Edition, Landscape Institute (LI) and Institute of Environmental Management & Assessment (IEMA), 2013.

¹⁹⁸ Advice Note 01/11 Photography and photomontage in landscape and visual impact assessment. (2011). Landscape Institute. Available online at <https://www.landscapeinstitute.org/PDF/Contribute/LIPhotographyAdviceNote01-11.pdf>

¹⁹⁹ Visual Representation of Wind Farms Version 2.2. (2017). Scottish Natural Heritage. Available online at <https://www.nature.scot/visual-representation-wind-farms-version-22-february-2017>

²⁰⁰ Technical Guidance Note 02/17 Visual representation of development proposals (2017). Landscape Institute. Available online at <https://www.landscapeinstitute.org/wp-content/uploads/2016/01/02-17-Visual-Representation.pdf>

²⁰¹ Technical Information Note 01/2017 Tranquillity – An overview. (2017). Landscape Institute. Available online at <https://www.landscapeinstitute.org/wp-content/uploads/2017/01/Tranquillity-An-Overview.pdf>

Landscape effects

- 11.7.4 Landscape effects are defined by the Landscape Institute in *GL VIA 3*, paragraphs 5.1 and 5.2 as follows:

"An assessment of landscape effects deals with the effects of change and development on landscape as a resource. The concern ... is with how the proposal will affect the elements that make up the landscape, the aesthetic and perceptual aspects of the landscape and its distinctive character. ... The area of landscape that should be covered in assessing landscape effects should include the site itself and the full extent of the wider landscape around it which the Proposed Development may influence in a significant manner."

Evaluating landscape sensitivity to change

- 11.7.5 The sensitivity of a landscape receptor e.g. an LCA, to a particular development is determined by the susceptibility of that landscape receptor and its value. The methodology describes landscape sensitivity as high, medium or low and is assessed by taking into account the landscape receptor's landscape value and landscape capacity or susceptibility to the changes identified as the result of the construction and subsequent operation of a particular Proposed Development.
- 11.7.6 Further guidance on the evaluation of landscape sensitivity and the criteria for assessing value and susceptibility is set out in paragraphs 5.39 – 5.47 of *GL VIA 3* and summarised below.

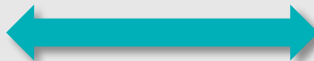
Landscape value

- 11.7.7 *GL VIA 3* (LI & IEMA, 2013) defines landscape value as:

"The relative value that is attached to different landscapes by society".

- 11.7.8 A consistent approach has been applied to determining the landscape value of the individual landscape character receptors considered in the landscape assessment. This utilises a range of factors to help understand the value of a particular landscape, as follows:
- ▶ Landscape designations: whether an area of landscape is recognised by statute (i.e. National Parks), is a heritage coast, a locally designated landscape or is undesignated;
 - ▶ Landscape quality/condition: a measure of the physical state of the landscape (i.e. the intactness of the landscape and the condition of individual elements);
 - ▶ Rarity: the presence of rare elements or features in the landscape or the presence of a rare landscape character type;
 - ▶ Conservation interests: the presence of features of wildlife or historical and cultural interest which add value to the landscape;
 - ▶ Recreational value: evidence that the landscape is valued for recreational activity where experience of the landscape is important;
 - ▶ Perceptual aspects: a landscape may be valued for its perceptual qualities, notably tranquillity; and
 - ▶ Associations: some landscapes are associated with particular people, such as artists or writers, or events in history.
- 11.7.9 **Table 11.13** draws from the advice provided in *GL VIA 3* and provides further guidance and examples of landscape value.

Table 11.15 Assessing value

Landscape Value Criteria	Landscape sensitivity category:			
	High	Medium	Low	
Designations:	Internationally or nationally designated landscape	Non-designated or 'ordinary' landscapes and landscape features.	A 'non-landscape' or area of land-use associated with mineral extraction, heavy industry, landfill, large scale construction (which may be temporary) or dereliction.	
Landscape quality, condition and intactness:	A landscape/features recognised to be of high landscape quality and in excellent or good condition with a 'strong' intact/unified and distinctive character.	A landscape/features that are of a reasonable or medium quality and condition with an intact and recognisable character.	A landscape/features that are in a poor condition with a fragmented or indistinct landscape character.	
	Constant/mature landscape with strong time depth.	Constant or improving state.	The landscape may be in a declining state.	
	Management plans aim for conservation.	Management plans aim for conservation and enhancement.	Management plans aim for enhancement and restoration.	
Scenic quality:	A landscape of high aesthetic appeal supported by recognised tourist/visitor literature. There are little or no detracting features.	A landscape of moderate or 'ordinary' aesthetic appeal. There may be some detracting features.	A landscape of limited or no aesthetic appeal with detracting features, including noise, traffic movement and/or odours.	
Rarity and representativeness:	A landscape or features that are rare and valued in a national or regional context that is supported by designation.	A landscape or features that are uncommon but, not particularly valued or supported through designation.	A landscape or features that are common and not rare	
Conservation interest and associations:	A landscape with rich and diverse cultural, historic, nature conservation value and recognised literary or artistic associations with international/national designation.	A landscape with some cultural or nature conservation features and interest with regional/local designation	A landscape with few or no cultural or nature conservation features and interest.	
Recreation value:	High recreational/tourist value indicated through landuse (parks/sports facilities etc.) and the density/hierarchy of recreational routes.	A landscape of moderate recreational value, as indicated by landuse and density/hierarchy of recreational routes.	A landscape of limited recreational value, where an appreciation of the landscape has a limited contribution to the public's recreational experience.	
Perceptual aspects:	Highest levels of CPRE mapped tranquillity. Strong perceptions of 'wildness' or naturalness and dark skies.			Developed landscapes which are the antithesis of tranquillity 'wildness' or naturalness. Light intrusion occurs.

Landscape susceptibility to change

11.7.10 GL VIA 3 defines landscape susceptibility to change as follows:

"This means the ability of the landscape receptor to accommodate the Proposed Development without undue consequences for the maintenance of the baseline situation..."

11.7.11 GL VIA 3 also emphasises that susceptibility to change is dependent on the types of development proposed. Paragraph 5.42 states:

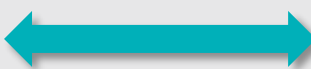
"Some of these existing assessments may deal with what has been called 'intrinsic' or 'inherent' sensitivity, without reference to a specific type of development. These cannot reliably inform assessment of the susceptibility to change since they are carried out without reference to any

particular type of development and therefore do not relate to the specific development proposed. Since landscape effects in LVIA are particular to both the specific landscape in question and the specific nature of the development, the assessment of susceptibility must be tailored to the project.”

11.7.12

Table 11.14 provides further guidance and examples of landscape susceptibility, which considers the capacity or ability of the landscape receptor, by virtue of its particular physical, visual or perceptual characteristics to accommodate the Proposed Development without undue consequences for the maintenance of the baseline situation and/or the achievement of landscape planning policies and strategies.

Table 11.16 Assessing susceptibility

Susceptibility criteria	Landscape sensitivity category		
	High	Medium	Low
Generally: Landscape possessing combinations of physical, visual or perceptual characteristics that indicate:			
Landscape	High susceptibility to proposed change and low capacity for the Proposed Development.		Low susceptibility to proposed change and high capacity for the Proposed Development.
Examples of physical elements/characteristics:	Elements or combinations of characteristics such as of small scale landscapes with complex landform, patterns and enclosed spaces, susceptible to development.	Elements or combinations of characteristics such as medium to large scale landscapes with more open, simple landform and patterns with some capacity for development.	Elements or combinations of characteristics such as large scale and simple landscapes, where similar development is already part of the baseline character and there is capacity for development.
Examples of visual characteristics:	Susceptibility to alteration of regionally/locally valued skylines, views, vistas and landmarks. Areas with a strong visual relationship with surrounding landscapes/setting and limited visual/light intrusion.	Combinations of broad and simple skylines with few landmarks and change already present. A landscape where light intrusion and some movement is present.	Combinations of broad and simple skylines lacking in landmarks, where development change movement, light intrusion and/or visual intrusion is present.
Examples of perceptual characteristics:	Perceptions of tranquillity, 'wildness' or naturalness, time depth and/or related special qualities with low levels of light intrusion that would be susceptible to development.	Perceptions of moderate tranquillity, 'wildness' or naturalness with limited time depth, presence of light intrusion and some development capacity.	Landscapes lacking in tranquillity, wildness and/or remoteness, subject to land use change, and with development capacity.

11.7.13

The manner in which the value and susceptibility are combined to determine landscape sensitivity is a matter for informed professional judgement and the following matrix shown in **Table 11.15** has been used as a guide to assist this process. In terms of landscape value, national and international landscape designations are generally accorded the highest assessment value. Sensitivity assessments for all LCAs taken through to the assessment are included in **Appendix 11.2**.

Table 11.17 Overall landscape sensitivity

		Susceptibility		
		High	Medium	Low
Value	High	High	High	Medium
	Medium	High	Medium	Low
	Low	Medium	Low	Low

Magnitude of landscape change

- 11.7.14 The magnitude of landscape change or degree of change resulting from the redevelopment and operation of the Proposed Development is described as high, medium, low or negligible, in accordance with GLVIA 3 paragraph 3.27 use of 'word scales'. In those instances where, due to mitigation, there would be no magnitude of landscape change, then this justification is also recorded in the landscape assessment. The magnitude of landscape change is described by reference to its size and scale, geographical extent and duration/reversibility in accordance with GLVIA 3, paragraph 5.48-52 that can be summarised as follows:
- ▶ Size or Scale:
 - ▶ The size or scale of landscape change is described via a simple word scale to describe the extent or proportion of loss or addition of landscape elements, the degree to which the perceptual characteristics of the landscape may be altered and whether the effect changes the key characteristics, critical to its distinctive character overall.
 - ▶ Geographical Extent:
 - ▶ The geographical extent of the effect is distinct from the size and scale of effect and there may for example be a medium loss of landscape elements affecting a large geographical area, or a high level addition of new development affecting a very localised area, both resulting in a high magnitude of landscape change. The geographical extent is described at a site level within the development boundary, within the immediate setting of the site, at the scale of the landscape character type or area assessed or on a larger scale, affecting several landscape character types or areas.
 - ▶ Duration and reversibility:
 - ▶ In accordance with GLVIA 3 this is a separate, but linked consideration and the duration of an effect may be described as temporary (short term 0-5 years, medium term 5-10 years or long term 10-20 years) or permanent. The development may also be considered in terms of whether the effects are reversible.
- 11.7.15 Examples and further guidance on the evaluation of the magnitude of landscape change are described in **Table 11.16**.

Table 11.18 Magnitude of landscape change

Magnitude of landscape change	Key determining criteria
High	A large scale change that may include the loss of key landscape elements/characteristics or the addition of new uncharacteristic features or elements that would alter the perceptual characteristics of the landscape. The size or scale of landscape change could create new landscape characteristics and may change the overall distinctive landscape quality and character, typically, but not always affecting a larger geographical extent.
Medium	A medium scale change that may include the loss of some key landscape characteristics or elements, or the addition of some new uncharacteristic features or elements that could alter the perceptual characteristics of the landscape. The size or scale of landscape change could create new landscape characteristics and may lead to a partial change in landscape character, typically, but not always affecting a more localised geographical extent.
Low	A small scale change that may include the loss of some landscape characteristics or elements of limited characterising influence, or the addition of some new features or elements of limited characterising influence. They may be a small partial change in landscape character, typically, but not always affecting a localised geographical extent.
Negligible	A very small scale change that may include the loss or addition of some landscape elements of limited characterising influence. The landscape characteristics and character would be unaffected.

- 11.7.16 The assessment also identifies areas where no landscape change is predicted. In these instances, 'No Change' has been inserted into the magnitude of change column of the assessment tables and the resulting level of effect identified as 'None'. This commonly occurs where no intervisibility

(presence of a line of sight between two locations) exists between the landscape receptor and the Proposed Development.

- 11.7.17 In accordance with the relevant EIA Regulations (The Infrastructure Planning [Environmental Impact Assessment] Regulations 2017) the level of landscape effect is also described in terms of the effect's duration (permanent/temporary) direct/indirect (as defined by *GL VIA 3*) resulting directly from a Proposed Development or as an indirect consequence), positive (beneficial)/neutral/negative (adverse) and or whether it is cumulative. In describing the level of landscape effect the assessment text will clearly and transparently set out the professional judgements that have been made in determining sensitivity and how the value and susceptibility of the receptor has been assessed; and in determining magnitude and how the size and scale, geographical extent and duration of the effect has been taken into account.

Visual effects

- 11.7.18 Visual Effects are concerned wholly with the effect of the Proposed Development on views, and the general visual amenity and are defined by the Landscape Institute in *GL VIA 3*, paragraph 6.1 as follows:

“An assessment of visual effects deals with the effects of change and development on views available to people and their visual amenity. The concern ... is with assessing how the surroundings of individuals or groups of people may be specifically affected by changes in the context and character of views.”

- 11.7.19 Visual effects are identified for different receptors (people) who will experience the view at their place of residence, within their community, during recreational activities, at work, or when travelling through the area. The visual effects may include the following:

- ▶ Visual effect: a change to an existing static view, sequential views, or wider visual amenity as a result of development or the loss of particular landscape elements or features already present in the view; and
- ▶ Cumulative visual effects: the cumulative or incremental visibility of similar types of development may combine to have a cumulative visual effect.

- 11.7.20 The assessment process involves iterative design and the reassessment of any remaining residual effects that could not otherwise be mitigated or 'designed out'.

- 11.7.21 The level of visual effect (and whether this is significant) is determined through consideration of the 'sensitivity' of each visual receptor (or range of sensitivities for receptor groups) and the 'magnitude of change' that would be brought about by the reopening of Manston Airport and operation of the Proposed Development. The visual assessment unavoidably involves a combination of both quantitative and subjective assessment and wherever possible a consensus of professional opinion has been sought through consultation and internal peer review.

Zone of Theoretical Visibility (ZTV) Analysis

- 11.7.22 Plans mapping the Zone of Theoretical Visibility (ZTV) for various scenarios of the Proposed Development have been used to analyse the extent of theoretical visibility of the Proposed Development or part of it, across the LVIA study area and to assist with viewpoint selection. Whilst the ZTVs take account of the screening effects of larger blocks of woodland as identified on OS mapping, they do not take account of buildings, localised landform or vegetation such as hedgerows and individual trees. Given the urban nature of large parts of the LVIA study area, there will be many locations shown as falling within the ZTV from which vertical features such as banks, fences, walls and vegetation would in reality preclude visibility of the Proposed Development.

- 11.7.23 The ZTVs provide a starting point in the assessment process and accordingly tend towards giving a 'worst case' or greatest calculation of the likely theoretical visibility.

Viewpoint Assessment

- 11.7.24 Viewpoint locations are shown on **Figures 11.7 and 11.8**. Viewpoint analysis is used to assist the LVIA and is conducted from agreed viewpoints within the study area that have been agreed with consultees, in particular local planning authorities. The purpose of this is to assess both the level of visual impact for particular receptors and to help guide the design process and focus the assessment. A range of viewpoints are examined in detail and analysed to determine whether a significant visual effect would occur. By arranging the viewpoints in order of distance it is possible to define a threshold or outer limit beyond which there would be no further significant effects. The viewpoint analysis considers seasonally reduced leaf cover and is included in the ES in **Appendix 11.3**.

Evaluating Visual Sensitivity to Change

- 11.7.25 In accordance with Paragraphs 6.31-6.37 of *GLVIA 3* the sensitivity of visual receptors takes account of the susceptibility of the receptor to visual change and the value of the baseline view available to them. These are described as high, medium or low. The main factors to consider are the occupation or activity of the receptor (people) at particular locations, the extent to which their attention or interest may therefore be focused on appreciation of the landscape in the view and the importance or popularity of the views and/or typical numbers of viewers. These are assessed by reference to Ordnance Survey maps, observations made during site visits and, where available, to publicly available information on user numbers, for example the number of visitors to a tourist destination. Other factors include the location and context of the viewpoint (in terms of the landscape value, quality, and capacity of the area within the view).
- 11.7.26 The factors that will be considered in defining the levels of visual susceptibility are as follows:
- ▶ Visual receptor: Whilst it is accepted that people will undertake a range of different activities, their visual experience of the Proposed Development and its operation will change according to where they are, and what they are doing. The primary activity of the receptor at the viewpoint is therefore a key determinant of visual sensitivity. Residents and other individuals engaged in outdoor recreation, where the focus of the activity is the enjoyment of the landscape are assessed to be of high sensitivity. People who are travelling are assessed to be less sensitive (medium or low) unless the route is specifically signed as a scenic driving route; and people engaged in sport or recreation which does not involve or depend upon appreciation of views of the landscape and people at work are assessed as the least sensitive (low).
 - ▶ Frequency: The popularity and/or number of viewers are also important factors to consider. Landmarks/tourist attractions and national trails visited and used by large numbers of people are likely to be more sensitive than those which are less visited. Exceptions include motorways where, although there are large numbers of receptors these are generally considered to be of lower visual sensitivity and appreciation of scenic quality is unlikely to be their primary motivation in undertaking a motorway journey and their high speed will make appreciation of views more difficult.
- 11.7.27 The factors which will be considered in defining the value attached to views by receptors will take account of:
- ▶ any recognition of the value attached to a particular view in relation to heritage assets or through planning designations; and
 - ▶ any indications of value provided by guidebooks, tourist literature, provision of car parking and/or provision of interpretation materials.
- 11.7.28 Examples and further guidance on the evaluation of visual sensitivity are described in **Table 11.17**.

Table 11.19 Visual receptor sensitivity

Visual receptor sensitivity	Key determining criteria
High	<p>All of the receptors in this category would generally include residents, tourists/visitors, walkers, cyclists and horse riders, either stationary or travelling through the landscape, and/or undertaking outdoor recreational activities where the focus of the activity is an appreciation of the landscape.</p> <ul style="list-style-type: none"> ▪ Residential properties or settlements and related community outdoor spaces. ▪ Outdoor tourist and visitor attractions. ▪ Recreational routes (national trails, long distance footpaths and PRoWs; Sustrans national cycle routes (NCR); open access land/beaches and recognised scenic driving routes) <p>People generally, undertaking recreational activity where the focus of the activity is an appreciation of the landscape (outside internationally or nationally designated landscapes).</p>
Medium	<p>This category generally covers: people travelling through the landscape on road, rail or other transport routes as rail passengers and road users and people undertaking recreational and sporting activities where it is likely that their surroundings have some influence upon their enjoyment (e.g. angling and golfing).</p>
Low	<p>This category generally covers: people for whom their surroundings are unlikely to be a primary concern or affect how they undertake their current activity. Receptors are likely to include people at their place of work, people travelling on main roads through built up areas, dual-carriageways or motorways or taking part in activities not involving an appreciation of the landscape (e.g. playing team sports).</p>

Evaluating the magnitude of change to the view

- 11.7.29 The magnitude of visual change will be described as high, medium, low, or negligible which is in accordance with the guidance on the use of 'word scales' provided in Paragraph 3.27 of *GL VIA 3*. In those instances where the Proposed Development would not be visible, due to vegetation screening, then this is also recorded as 'No Change' in the magnitude of change column of the assessment tables and the resulting level of effect identified as 'None'.
- 11.7.30 The magnitude of visual change will be assessed taking into account the baseline presence of the non-operational airport and will be described by reference to its size and scale, geographical extent and duration/reversibility in accordance with *GL VIA 3* as follows:
- ▶ Size and Scale:
 - ▶ Scale of change: The scale of change in the view is determined by the loss or addition of features in the view and changes in the composition and extent of view affected. This can in part be described objectively by reference to the numbers and scale of new objects visible and the horizontal/vertical field of view that these new objects will occupy. Other descriptors such as 'dominant', 'prominent', 'noticeable' and 'negligible' can also be used to describe the scale of change.
 - ▶ Contrast: The degree of contrast or integration that will be generated by the introduction of any new features or changes in the landscape that will arise with the existing or remaining landscape elements and characteristics in terms of form, scalar, mass, line, height, colour and texture. Developments which contrast or appear incongruous in terms of colour, scale and form are likely to be more visible and have a higher magnitude of change.
 - ▶ Speed: The speed at which the Proposed Development may be viewed will affect how long the view is experienced (continuously, intermittently, glimpsed or repeatedly and sequentially along a route) and the likelihood of the development being noticed by people travelling in cars or trains compared to those who may be walking/riding/cycling and able to stop and 'take in' a view.
 - ▶ Screening: A development may be wholly or partly screened by landform, vegetation (including seasonal effects due to hedgerow management and seasonal variations in deciduous leaf cover) and/or buildings. Conversely visual receptors with open views,

particularly from landscapes where such views are a key characteristic, are likely to be able to see a greater proportion or all of the Proposed Development.

- ▶ Skyline/background: Whether a development would be viewed against the skyline or a background landscape may affect the level of contrast and magnitude, for example, skyline developments may appear more noticeable, particularly where they affect open and uninterrupted horizons.
- ▶ Geographical Extent:
 - ▶ Distance: The separation distance from the Proposed Development can be measured objectively. Distance often provides a strong indicator of the magnitude of visual change, subject to any intervening screening of the development by landform, vegetation, or buildings.
 - ▶ Angle of view: The angle of view may be considered in terms of whether the development will be seen directly in front of a visual receptor or if it will be seen more obliquely. Road users are generally more aware of the views in the direction of travel, whilst train passengers are more aware of views perpendicular to their direction of travel. Elevated views are likely to reveal more of the Proposed Development, whereas low level views are more likely to be screened by intervening built form and vegetation.
 - ▶ Geographical extent of area over which the changes would be visible. This can be defined by the distance, area and the horizontal and vertical field of view affected.
- ▶ Duration and reversibility:
 - ▶ In accordance with *GLVIA 3* this is a separate, but linked consideration and the duration of an effect may be described as temporary (short term 0-5 years, medium term 5-10 years or long term 10-20 years) or permanent. The development may also be considered in terms of whether the effects are reversible.

11.7.31 Further guidance on the evaluation of the magnitude of visual change is provided in **Table 11.18**.

Table 11.20 Magnitude of visual change

Magnitude of Visual Change	Key determining criteria
High	A large and prominent change to the view, appearing in the fore to middle ground and involving the loss/addition of a number of features which is likely to have a strong degree of contrast and involving little screening. The view is likely to be experienced at static or low speed and is more likely to be continuously/sequentially visible from a route.
Medium	A moderate and prominent/noticeable change to the view, appearing in the middle ground and involving the loss/addition of features and a degree of contrast with the existing view. There may be some partial screening. The view is likely to be experienced at static or low to medium speed and is more likely to be intermittently or partially visible from a route.
Low	A noticeable or small change, affecting a limited part of the view that may be obliquely viewed or partly screened and/or appearing in the background landscape. This category may include rapidly changing views experienced from fast-moving road vehicles or trains.
Negligible	A small or negligible change to the view that may be obliquely viewed and mostly screened and/or appearing in the distant background or viewed at high speed over short periods and capable of being missed by the casual observer.

11.7.32 In accordance with the relevant EIA Regulations (The Infrastructure Planning [Environmental Impact Assessment] Regulations 2017) the level of visual effect is also described in terms of the effects duration (permanent/temporary), positive (beneficial/neutral/negative (adverse) and or whether it is cumulative. In describing the level of visual effect the assessment text will clearly and transparently set out the professional judgements that have been made in determining visual sensitivity and how the value and susceptibility of each visual receptor has been assessed; and in

determining magnitude and how the size and scale, geographical extent and duration of the effect has been taken into account.

Evaluating Positive/Neutral and Negative Effects

- 11.7.33 In describing whether the nature of the effects would be positive (beneficial)/neutral/negative (adverse).
- 11.7.34 However, not all change, including high levels of change, is necessarily negative. The LVIA considers architectural and aesthetic factors such as the visual composition of the landscape in the view together with the Proposed Development, which may or may not be reasonably accommodated within the scale and character of the landscape as perceived from the receptor location as follows:
- ▶ positive of beneficial effects would include landscape mitigation and enhancement, combined with good landscape and architectural design quality resulting in a development that can be reasonably well accommodated within the scale and landscape setting or context;
 - ▶ neutral visual effects include changes that neither add nor detract from the quality and character of an area including development that appears reasonably well accommodated within the scale and setting or context and also includes negligible magnitudes of change; and
 - ▶ negative effects are likely to result from poor design quality such as the scale of development relative to the underlying landscape scale and landscape setting or context, or other visual factors that may reduce scenic quality, such that the development may appear dominating, over intrusive, overbearing, or oppressive for example.
- 1.1.1 The identification of negative effects can be used to formulate more effective mitigation and lead to the reduction in residual effects.

Significance evaluation methodology

- 11.7.35 The level of landscape and visual effects will be determined with reference to landscape or visual sensitivity and the magnitude of landscape or visual change experienced. For each receptor the evaluation process will be informed by use of a matrix as in **Table 11.21**.

Table 11.21 Matrix of EIA Significance

Magnitude of Change	Sensitivity of Receptor		
	High	Medium	Low
High	Significant	Significant	Not significant
Medium	Significant	Not significant	Not significant
Low	Not significant	Not significant	Not significant
Negligible	Not significant	Not significant	Not significant

- 11.7.36 In line with the emphasis placed in *GLVIA 3* upon application of professional judgement, the adoption of an overly mechanistic approach through reliance upon a matrix as presented in **Table 11.19** will be avoided. This will be achieved by the provision of clear and accessible narrative explanations of the rationale underlying the assessment made for each landscape and visual receptor over and above the outline assessment provided by the use of the matrix. Wherever

possible cross references will be made to baseline figures and/or to photomontage visualisations in order to support the rationale.

11.8 Assessment of landscape effects

Effects on NCA 113: North Kent Plain

Landscape sensitivity

- 11.8.1 A description of this NCA is provided in *National Character Area Profile 113: North Kent Plain*²⁰².
- 11.8.2 This NCA covers an extensive, generalised area that is highly varied and diverse. Amongst its key characteristics are the “*Large settlements and urban infrastructure (including lines of pylons) are often visually dominant in the landscape, with significant development around Greater London and the Medway Towns, as well as around towns further east and along the coast. Major rail and road links connect the towns with London.*” The NCA profile also notes how the “*The impact of development is exacerbated by the expansive and open nature of the low lying landscape.*” The value and susceptibility of this NCA are both assessed as being Medium. Overall landscape sensitivity is therefore assessed as being **Medium**. Whilst it is recognised that there will undoubtedly be some areas of landscape that are of a higher and lower sensitivity within this extensive NCA, the sensitivity assessment contained within **Appendix 11.2** explores this in more detail at a district LCA level.

Assessment of landscape effects (construction and operational effects)

- 11.8.3 The assessment of landscape effects for the three timeframes set out in **Section 11.6** (Year 1, Year 10 and Year 20) is set out in **Table 11.20**.

Table 11.22 Assessment of landscape effects: NCA 113: North Kent Plain

NCA 113: North Kent Plain		
Year 1 (construction)	At the scale of the NCA, construction activities taking place within the Manston Airport site throughout Year 1 are unlikely to have a characterising influence. The two 40 m high cranes which will be deployed and taller construction elements such as a concrete batching plant would have an influence across the greatest geographical area but present above relatively narrow proportions of the skyline that is already characterised by tall vertical pylons and from some directions, large-scale built form. Ground level construction activities, associated movement of vehicles both within the site and using the local road network and any localised increases in noise levels are unlikely to have a characterising influence at the scale of the NCA. There will be minimal loss of landscape elements from within the site to facilitate the construction activities. The extensive earthworks and emerging built form (the ATC tower, southernmost business units and Cargo Facility 1 being amongst the tallest and therefore the most likely to have the greatest influence beyond the boundary of the site) would not be wholly uncharacteristic in a local landscape which already contains some large-scale buildings such as those at Planet Thanet and within the Manston Business Park. The magnitude of change across the proportion of the NCA within the study area is likely to be Low to Negligible and the effects on this receptor are therefore considered Not Significant .	
	Magnitude of change: Low	Type of effect: Adverse and temporary (construction) and permanent (buildings) Significance: Not Significant
Year 10 (construction and operation)	A good proportion of the built development proposed for the now operational airport and the business park will be completed by Year 10, and the extent of construction activities being undertaken commensurately reduced. The operational phase will see the operation of a number of large-scale cargo facilities, aircraft hangars and ATC tower which in themselves are unlikely to have a characterising influences given the surrounding landscape context which is already host to a number of large-scale developments. The greatest levels of change will be associated with the air traffic movements (ATMs) with the likely model showing aircraft arrivals	

²⁰² National Character Area Profile 113: North Kent Plain. (2015). Natural England. Available online at <http://publications.naturalengland.org.uk/publication/2900242?category=587130> [Checked 13/12/17]

and departures heading from/in an easterly and westerly direction. These ATMs have the potential to disrupt existing levels of tranquillity across the greatest geographical area with intermittent increases in noise levels and the visual presence of overflying aircraft. Ground level movements of aircraft and other vehicles within the site are likely to locally disrupt tranquillity levels. There will also be an increase in lighting and heavy goods vehicles (HGVs) on the local road network. The magnitude of change across the proportion of the NCA within the study area is likely to be **Low to Negligible** and the effects on this receptor are therefore considered **Not Significant**.

Magnitude of change: **Low**

Type of effect: **Adverse and temporary (construction) and permanent (buildings and operational activities)**

Significance: **Not Significant**

Year 20 (operation)

All construction activities will have ceased by Year 18. The now fully operational site will be operating at the predicted maximum ATMs (both passenger and freight) of approximately four ATMs per hour with more frequent but still intermittent increases in noise levels and the visual presence of overflying aircraft. The large-scale built forms within the site will continue to be present in a landscape which is already host to similar scale developments. The magnitude of change across the proportion of the NCA within the study area is likely to be **Low to Negligible** and the effects on this receptor are therefore considered **Not Significant**.

Magnitude of change: **Low**

Type of effect: **Adverse and permanent**

Significance: **Not Significant**

Assessment of effects on the host HLCA: 18 – Isle of Thanet

Landscape sensitivity

- 11.8.4 The assessment of sensitivity with regard to historic landscape character cannot be approached in the same manner as it is with regard to landscape character *per se* as it deals with the value of the historic landscape patterns and the susceptibility of these to physical change.
- 11.8.5 Whilst this HLCA includes a number of historic landscape types (HLTs), it is characterised primarily by two HLTs, namely post-1801 settlement (HLT 9.6) and irregular fields bounded by roads, tracks and paths (HLT 1.14). Other notable HLTs include small patches of orchards (HLT 3.1), pre-1801 settlement (HLT 9.1, 9.7, 9.9) and pockets of industrial activity (HLT 12.1–12.7). Manston Airport itself is categorised as HLT 13.3: Airfields with 20th century origins and defining characteristics of “*large open areas with straight boundaries*”. All of the HLTs within HLCA 18 are considered to be of a high susceptibility to physical change leading to a high landscape sensitivity when considering historic landscape character.

Assessment of landscape effects (construction and operational effects)

- 11.8.6 The construction and gradual emergence of built form within the site would be concentrated within the area defined as HLT 13.2: Airfields and as such will not lead to the erosion of neighbouring HLTs principally HLT 1.14: Irregular fields bounded by roads, tracks and paths or HLT 9.6: Post-1801 settlement which lies adjacent to the northern boundary of the site. The site will still continue to be categorised as 13.3: Airfields although the increase in built form across the site will lead to fewer ‘*large open areas*’ and a more enclosed pattern of built form. There will be no effects on the surrounding HLTs with a low magnitude of change within the site boundary. Given the relatively minor contribution made by HLT 13.2: Airfields to the overall character of the HLCA, landscape effects on the HLCA as a whole will be negligible, neutral (permanent) and not significant.

Assessment of effects on the host LCA: The Central Chalk Plateau

Construction and operational effects

- 11.8.7 The assessment of effects upon the host LCA is set out in **Table 11.21** for the three timescales set out in **Section 11.6**.

Table 11.23 Landscape assessment: The Central Chalk Plateau LCA

The Central Chalk Plateau LCA		
Receptor sensitivity:	The value of this LCA is assessed as Medium and its susceptibility as Low. The overall landscape sensitivity of this LCA is therefore assessed as Low . Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	<p>The construction activities would be concentrated within the boundaries of the non-operational airport. Given the levels of screening provided by the coalescence of intervening vegetation and built development allied to the relative similarity in the elevation of the site with much of the landscape within this LCA, construction activities, particularly those at ground level are unlikely to be readily discernible. The exception relates to the presence of more elevated construction activities, such as the use of cranes and the gradual emergence of the taller structures within the site. These include the first of the cargo facilities, ATC tower and southernmost business units which may be prominent from localised areas in close proximity to the site, particularly to the east and northeast with their role within the landscape diminishing in an arc between north and west. These construction and early operational activities would take place in a landscape which is already characterised by existing large-scale built form such as that within the Manston Business Park and vertical structures such as the occasional masts and transmitter towers within and close to the site thereby limiting their characterising influence.</p> <p>The level of activity and disturbance within the Manston Airport site allied with increased numbers of vehicle through the landscape have the potential to affect perceptual characteristics such as tranquillity the degree of which will be dependent on final predicted traffic volumes. Whilst high levels of change are expected within the boundary of the site itself, the magnitude of change across the LCA as a whole is likely to be Medium to Low. The effects on this receptor are therefore considered Not Significant.</p>	
	Magnitude of change: Medium to Low	Type of effect: Adverse and temporary (construction) and permanent (buildings) Significance: Not Significant
Year 10 (construction and operation)	<p>A good proportion of the built development proposed for the now operational airport and the business park will be completed by Year 10, and the extent of construction activities being undertaken commensurately reduced. The periodic presence of the two cranes and the continued emergence of new structures will continue to play a role in the landscape although similar to Year 1 and, as indicated by the Viewpoint Assessment (Appendix 11.3), the role in which these buildings play will be reduced by intervening vegetation and the presence of other large-scale built form such as that at Planet Thanet and Manston Business Park particularly from areas of this LCA to the north and west.</p> <p>In addition to the role played by the proposed buildings and operational activities focused within the boundaries of the site will be the increased presence of vehicles using the local road network, both cars (passengers and workers) and HGVs. This will introduce additional movement into the landscape but in a LCA which is already busy from baseline traffic flows. Likewise levels of tranquillity are already locally disrupted along these main transportation routes as a result of baseline traffic.</p> <p>The visual and audible presence of aircraft will disturb existing moderate levels of tranquillity within this LCA with the flight paths to the east and west of Manston Airport passing directly over the southern part of the LCA. This disruption will be periodic and transient with approximately two flights an hour at Year 10.</p> <p>At night-time lighting at the Airport and the Business Park would be directly visible from some directions within the LCA with incremental changes to the amount of sky glow in a proportion of any available views. Any incremental increase would be experienced in the context of moderate to high levels of radiance already experienced across the LCA as a result of Planet Thanet, highway lighting and its proximity to urban areas.</p>	
	Magnitude of change: Medium to High	Type of effect: Adverse and temporary (construction) and permanent (operation) Significance: Not Significant
Year 20 (operation)	<p>Landscape effects are likely to be similar to those described for Year 10. Construction activities will have ceased by Year 18 with a small increase in built form within the site when operating at Year 20. There will be an increase in both cars (passengers and workers) and HGVs with a 30-35% increase in the latter along the B2190 (against baseline flows) reducing to a 9-10% increase on the A299 as it passes through this LCA west of the airport.</p> <p>There will be an increase in ATMs by Year 20 with approximately four flights an hour between 0700 and 2300. These movements will create a more frequent disruption to the baseline moderate levels of tranquillity.</p>	
	Magnitude of change: Medium to High	Type of effect: Adverse and permanent Significance: Not Significant

Assessment of effects on other Thanet LCAs

Construction and operational effects

11.8.8 **Tables 11.22 to 11.26** set out the assessment of landscape effects on the remaining five Thanet LCAs within the study area as follows:

- ▶ Pegwell Bay: **Table 11.22**;
- ▶ The Former Wantsum Channel: **Table 11.23**;
- ▶ The Former Wantsum North Shore: **Table 11.24**;
- ▶ Quex Park: **Table 11.25**; and
- ▶ The Urban Coast: **Table 11.26**.

11.8.9 Full details of the sensitivity assessment are provided in **Appendix 11.2**. The distribution of the Thanet LCAs is shown in **Figure 11.37**.

Table 11.24 Landscape assessment: Pegwell Bay

Pegwell Bay LCA		
Receptor sensitivity:	The overall value of this LCA is High. The overall susceptibility is judged to be Medium indicating a High overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	Whilst reference to the ZTVs in Figures 11.2 to 11.8 show that potential for intervisibility between the elevated construction activities and emergence of the taller components of the development (the ATC tower and cargo hangars) and the landscape within the southern part of this LCA, the screening provided on the landward side by scrub within the Country Park and tree cover along Sandwich Road and within St Augustine's Golf course reduces levels of intervisibility. Year 1 construction activities will therefore have very limited characterising influence of this LCA.	
	Magnitude of change: Negligible	Type of effect: Neutral and temporary (construction), permanent (buildings) Significance: Not Significant
Year 10 (construction and operation)	The additional built elements present within the site at Year 10 and the occasional views of cranes will again be highly limited from within the LCA. Landscape effects are more likely to be associated with the brief and intermittent visual and audible influence of the overhead planes arriving from or departing to the east. This will result in periodic and transient disruption to levels of tranquillity but this in itself will not significantly alter the key characteristics or character of this LCA.	
	Magnitude of change: Low	Type of effect: Neutral and temporary (construction), adverse and permanent (operation) Significance: Not Significant
Year 20 (operation)	Landscape effects at Year 20 as a result of built development within the Manston Airport site will be comparable to that experienced at Year 10 with limited intervisibility. An increase in the number of ATMs will result in more frequent disruption to baseline tranquillity levels as a result of the audible presence of aircraft when using flight paths to the east of the airport although this disruption will again be periodic and brief and will not in itself significantly alter the key characteristics or character of this LCA.	
	Magnitude of change: Low	Type of effect: Adverse and permanent (operation) Significance: Not Significant

Table 11.25 Landscape assessment: The Former Wantsum Channel

The Former Wantsum Channel LCA			
Receptor sensitivity:		The overall value of this LCA is Medium. The overall susceptibility is judged to be Medium indicating a Medium overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects			
Year 1 (construction)		The presence of two mobile cranes will introduce some skyline intrusion above narrow sections of the horizon formed by the southern edge of the chalk plateau in northerly and north-easterly views from this low lying LCA. Of the emerging built development within the site, only the ATC tower is likely to become a partial component of outward views, rising above a narrow section of the horizon. The character and key characteristics associated with the vast open landscape will not be significantly changed.	
		Magnitude of change: Low	Type of effect: Adverse and temporary (construction) and permanent (buildings) Significance: Not Significant
Year 10 (construction and operation)		The wirelines from Viewpoints 17 and 20 (Appendix 11.1 Figures 21 and 24 respectively) show that the emergence of a proportion of the proposed aircraft recycling hangars above the crest of the chalk plateau will introduce further skyline intrusion and an increase in distant urban influence above a small section of the distant horizon. The majority of the large-scale built form is set back from the edge of the plateau and only the tallest, southernmost buildings of the development will become components of northerly views. The visual and audible presence of ascending and descending aircraft to the east and west of the site will introduce some periodic and transient disruption to the baseline high levels of tranquillity currently experienced within this LCA. At night, the additional lighting within the site will lead to an incremental level of lighting and potential sky glow to that already present above the horizon as a result of highway lighting columns along the A299 (as shown in Figure 11.29).	
		It is unlikely that these changes will significantly alter the character and key characteristics of this LCA.	
		Magnitude of change: Low	Type of effect: Adverse and temporary (construction) and permanent (operation) Significance: Not Significant
Year 20 (operation)		Landscape effects at Year 20 will be similar to those described for Year 10 although construction activities will have ceased and some additional built form will be present above the horizon in the long, open northerly and north-easterly views from this low lying LCA. An increase in ATMs will result in more frequent disturbances to the high levels of tranquillity currently present within this LCA although these will still be intermittent and transient and unlikely to significantly alter the existing character. In addition to the presence of the built structures within the site, additional sources of light presence and potentially sky glow would be evident above the distant horizon leading to an incremental effect with the highway lighting along the A299 which is already present above the horizon (Figure 11.29). The combined effects of these distant urban influences are unlikely to significantly alter the existing character and key characteristics of this LCA.	
		Magnitude of change: Low	Type of effect: Adverse and permanent (operation) Significance: Not Significant

Table 11.26 Landscape assessment: The Former Wantsum North Shore

The Former Wantsum North Shore LCA		
Receptor sensitivity:	The overall value of this LCA is Medium. The overall susceptibility is judged to be Medium indicating a Medium overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	The ZTVs in Figures 11.2 to 11.8 show occasional intervisibility between the proposed development and this LCA. From locations to the south of Manston Airport the upper sections of the two mobile cranes would create some skyline intrusion above narrow sections of the horizon formed by the southern edge of the chalk plateau as indicated by Viewpoints 11 and 12 (Appendix 11.1, Figures 15 and 16). From areas of intervisibility within the west and north-western part of this LCA, the more distance presence of crane activity would be viewed beyond other large-scale developments such as Planet Thanet (Viewpoint 19, Appendix 11.1: Figure 23) and the Manston Business Park. These small scale additional urban influences and the context within which they are viewed are highly unlikely to alter the existing landscape character of this LCA. It is unlikely that any new built components will be visible in outward views towards the site.	
	Magnitude of change: Low	Type of effect: Adverse and temporary Significance: Not Significant
Year 10 (construction and operation)	Additional built form within the site will introduce some skyline intrusion from localised areas of this LCA to the south as shown in Viewpoint 12 (Appendix 11.1, Figure 16) although the majority of the large-scale built form is set back from the edge of the plateau and only the tallest, southernmost buildings of the development will become components of northerly views. From locations to the west and northwest, built development will become susceptible to screening by the large scale intervening developments of Planet Thanet and the Manston Business Park. From these locations, landscape effects are more likely to be associated with the visual and audible presence of overhead aircraft on flight paths to and from the west and northwest which will periodically and transiently disrupt the moderately high baseline levels of tranquillity. Departure routes to the east also extend above this LCA and the noise and movement of aircraft on the runway will disturb more moderate levels of tranquillity (due to the A299) immediately south of the site.	
	Magnitude of change: Medium	Type of effect: Adverse and temporary (construction) and permanent (operation) Significance: Not Significant
Year 20 (operation)	Landscape effects at Year 20 will be similar to those described for Year 10 although construction activities will have ceased and a greater proportion of built form (that of the recycling hangars) will be visible above the horizon. An increase in ATMs will create more frequent disturbances to the baseline moderate levels of tranquillity found within the landscape immediately south of the site and below the flight paths of arriving and departing aircraft to the east and west of the airport.	
	Magnitude of change: Medium	Type of effect: Adverse and permanent (operation) Significance: Not Significant

Table 11.27 Landscape assessment: Quex Park

Quex Park LCA		
Receptor sensitivity:	The overall value of this LCA is High. The overall susceptibility is judged to be Low indicating a Medium overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	The ZTVs in Figures 11.2 to 11.8 show very little intervisibility with the development from within the LCA with the exception of the far eastern end around the Quex Holiday Park and Campsite. The mature tree belts which line the southern side of the park limit the availability of outward views with the consequence that elevated construction activity and the gradual emergence of the rooflines of the taller structures within the site will have very limited characterising influence on this LCA.	
	Magnitude of change: Negligible	Type of effect: Neutral and temporary (construction), permanent (buildings) Significance: Not Significant
Year 10 (construction and operation)	The additional built elements present within the site at Year 10 and the occasional views of cranes will again be highly limited from within the LCA and any occasional south-easterly views which are available already feature the much closer buildings within the Manston Business Park. Landscape effects are more likely to be associated with the brief and intermittent audible influence of overhead planes particularly those arriving from the west or departing to the west and branching north. This is an LCA where tranquillity levels are moderate given the nearby influence of Birchington, Margate and the A28 and the addition disturbance to this perceptual characteristic will not significantly alter the character or key characteristics.	
	Magnitude of change: Low	Type of effect: Neutral and temporary (construction), adverse and permanent (operation) Significance: Not Significant
Year 20 (operation)	Landscape effects at Year 20 will be comparable to those described at Year 10 with the exception that there will be no presence of cranes in the few outward views which are available from within this small LCA. Aircraft numbers are forecast to increase in comparison with Year 10, therefore there will be an increase in numbers of audible planes on flights path to the west and northwest of Manston Airport. With this likely to be the only landscape change to this LCA as a result of the development at Manston Airport, the key characteristics or character will not be significantly altered.	
	Magnitude of change: Low	Type of effect: Adverse and permanent Significance: Not Significant

Table 11.28 Landscape assessment: The Urban Coast

The Urban Coast LCA		
Receptor sensitivity:	The overall value of this LCA is Medium. The overall susceptibility is judged to be Low indicating a Low overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	Only the upper sections of elevated construction activities and the emerging rooflines of the ATC tower, Cargo Facility 1 and the southernmost aviation business units would become components in outward views from a small proportion of this LCA where more open views are available (such as Viewpoint 21, Figure 11.21 and Appendix 11.1 Figure 25). These will not be out of context with the heavily urbanised landscape which defines this LCA.	
	Magnitude of change: Negligible	Type of effect: Neutral and temporary (construction) and permanent (buildings) Significance: Not Significant
Year 10 (construction and operation)	The additional built elements associated with the operational airport will become new components in outward views from a small proportion of this LCA alongside the occasional presence of cranes. As with Year 1, these changes would be of limiting characterising influence given the highly urbanised nature of this LCA. The periodic and brief visual and audible influence of aircraft on approach or on a departure flight path to the east of Manston Airport and directly above Ramsgate will also be of limited characterising effect given the existing low levels of tranquillity and high levels of movement already present within the Urban Coast LCA. At night-time lighting at the Airport and the Business Park would be highly unlikely to be directly visible and any lighting effect would be restricted to incremental changes to the amount of sky glow in a proportion of any available western and southern views. Any incremental increase would be experienced in the context of high levels of night-time lighting effects already present in the urban area.	
	Magnitude of change: Low	Type of effect: Neutral and temporary (construction), adverse and permanent (operation) Significance: Not Significant
Year 20 (operation)	Landscape effects at Year 20 will be comparable to those described at Year 10 with the exception that there will be no presence of cranes in the few outward views which are available from within the LCA. Aircraft numbers are forecast to increase in comparison with Year 10, therefore there will be an increase in numbers of visible and audible planes on a flight path over Ramsgate. Given the already low levels of tranquillity and high levels of movement within the urban areas, this landscape change would have limited effect on the baseline character of this LCA	
	Magnitude of change: Low	Type of effect: Adverse and permanent. Significance: Not Significant

Assessment of effects on Dover LCAs

Construction and operational effects

- 11.8.10 **Tables 11.27 to 11.30** set out the assessment of landscape effects on the Dover LCAs within the study area and for the three timescales set out in **Section 11.6** as follows:
- ▶ Ash Level: **Table 11.27**;
 - ▶ Richborough Castle: **Table 11.28**;
 - ▶ The Sandwich Corridor: **Table 11.29**; and
 - ▶ Sandwich Bay: **Table 11.30**.
- 11.8.11 Full details of the sensitivity assessment are provided in **Appendix 11.2**. The distribution of the Dover LCAs is shown in **Figure 11.37**.

Table 11.29 Landscape assessment: Ash Level

The Urban Coast LCA		
Receptor sensitivity:	The overall value of this LCA is Medium. The overall susceptibility is judged to be High indicating a High overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	The upper sections of the cranes and upper part of ATC tower will introduce some distant skyline intrusion above narrow sections of the horizon formed by the southern edge of the chalk plateau and beyond the locally prominent pylons which cross this LCA. Viewpoints 17 and 18 and the nearby Viewpoint 20 (Appendix 11.1, Figures 21, 22 and 24) provide a guide to the potential changes to open northerly views from this LCA. The key characteristics of this LCA will continue to be present and will be unaffected by the Proposed Development.	
	Magnitude of change: Low	Type of effect: Adverse and temporary (construction) and permanent (buildings) Significance: Not Significant
Year 10 (construction and operation)	Additional built form within the site will introduce further distant skyline intrusion although the majority of the large-scale built form is set back from the edge of the plateau and only the taller, most southern buildings of the development will become components of northerly or north-easterly views as shown in the wirelines in Appendix 11.1, Figures 21, 22 and 24 . Ascending or descending aircraft, predominantly on flight paths to the west will become small distant components of northerly views with a distant transient and occasional audible presence possible. The built form above the horizon will represent an incremental increase in urban influence with the flight paths of planes introducing movement into views that are often across a low lying static landscape. At night, the additional lighting within the site will lead to an incremental level of lighting and potential sky glow to that already present above the horizon as a result of highway lighting columns along the A299 (Figure 11.29). The key characteristics of this LCA will continue to be present and will be unaffected by the Proposed Development.	
	Magnitude of change: Low	Type of effect: Adverse and temporary (construction) and permanent (operation) Significance: Not Significant
Year 20 (operation)	Landscape effects at Year 20 will be similar to those described for Year 10 although construction activities will have ceased and some additional built form will be present above the horizon in northerly and north-easterly views. An increase in ATMs will result in more frequent disturbances to the high levels of tranquillity currently present within this LCA but these will still be intermittent and transient and unlikely to significantly alter the existing character. In addition to the presence of the built structures within the site, additional sources of light presence and potentially sky glow would be evident above the distant horizon leading to an incremental effect with the highway lighting along the A299 which is already present above the horizon (Figure 11.29). The combined effects of these distant urban influences are unlikely to significantly alter the character and key landscape characteristics as defined by the extant Dover assessment.	
	Magnitude of change: Low	Type of effect: Adverse and permanent . Significance: Not Significant

Table 11.30 Landscape assessment: Richborough Castle

Richborough Castle LCA		
Receptor sensitivity:	The overall value of this LCA is High. The overall susceptibility is judged to be High indicating a High overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	<p>Construction phase effects during Year 1 would be limited to the distant presence of taller construction activities associated with the use of cranes sited close to the tallest components of the development including the ATC tower, Cargo Facility 1, southern-most business units and FBO hangars and the gradual emergence of the upper sections and rooflines of these buildings as indicted in the wireline from Viewpoint 22 (Figure 26, Appendix 11.1).</p> <p>At distances in excess of 5 km, these activities would intrude above a small section of the wide distant horizon formed by the edge of the chalk plateau and beyond a series of tall vertical elements present within the intervening landscape and as such would have limiting characterising influence upon this tightly defined LCA.</p>	
	Magnitude of change: Negligible	Type of effect: Adverse and temporary (construction) and permanent (buildings) Significance: Not Significant
Year 10 (construction and operation)	<p>Construction activities will continue into Year 10 with upper crane activity a periodic component of northern views along with the aircraft recycling hangars, FBO hangars and three of the four cargo facilities which will increase the distant skyline intrusion compared to Year 1. Whilst the ground level movement of aircraft will theoretically be visible from this LCA, at a separation distance in excess of 5 km this is likely to be of limited characterising influence whilst ascending or descending arrival and departures will become small distant components of northerly views. This is a LCA whose character is partly dependent upon the inherent views over the surrounding landscape and the presence of the built form above the horizon will represent an incremental increase in urban influence with the flight paths of planes introducing movement into views across a low lying static landscape.</p> <p>The incremental presence of light sources and sky glow along the distant horizon allied with the described effects on the landscape will be too small in scale to significantly alter the character and key characteristics of this small LCA.</p>	
	Magnitude of change: Low	Type of effect: Adverse and temporary (construction) and permanent (operation) Significance: Not Significant
Year 20 (operation)	<p>Operational phase effects at Year 20 will largely be associated with the distant presence of the rooflines and upper sections of the buildings shown in Viewpoint 22 (Figure 26, Appendix 11.1) above a narrow section of the wide distant horizon formed by the edge of the chalk plateau. Other landscape effects will be associated with the distant audible and visual influence of ascending and descending aircraft (up to four per hour) although this intermittent and brief disturbance to the moderately high levels of tranquillity currently present within this LCA is unlikely to alter the existing character. In addition to the presence of the built structures within the site, additional sources of light presence and potentially sky glow would be evident above the distant horizon. The combined effects of these distant urban influences are unlikely to significantly alter the key landscape characteristics and character of this LCA.</p>	
	Magnitude of change: Low	Type of effect: Adverse and permanent Significance: Not Significant

Table 11.31 Landscape assessment: The Sandwich Corridor

The Sandwich Corridor LCA		
Receptor sensitivity:	The overall value of this LCA is Low. The overall susceptibility is judged to be Low indicating a Low overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	Construction effects during Year 1 would be limited to the distant presence of cranes and the gradual emergence of built form above the horizon of the ATC tower, Cargo Facility 1 and the FBO hangars. However, this is a landscape which is already influenced by the industrial units within it and the busy A256 and external views are limited as a consequence of this built form. This limited intervisibility with the distant landscape to the north means that effects on the character of this LCA as a result of Year 1 of the development at Manston Airport would be highly limited.	
	Magnitude of change: Negligible	Type of effect: Neutral and temporary (construction) and permanent (buildings) Significance: Not Significant
Year 10 (construction and operation)	Effects would be similar to Year 1 whereby any effects arising from the distant periodic presence of cranes and the operational structures would be very limited. This is an LCA which already possesses limited levels or tranquillity and high levels of movement associated traffic flows along the A256 and the distant intermittent audible and visual influence of planes is unlikely to disturb this further.	
	Magnitude of change: Negligible	Type of effect: Neutral and temporary (construction) and permanent (operation) Significance: Not Significant
Year 20 (operation)	There will be a small increase in the proportion of built form within the fully operational Manston Airport site with an increase in ATMs compared to Year 10 together with the cessation of construction activities. The baseline characteristics of limited intervisibility and low levels of tranquillity of this LCA means that these distant changes will not alter the baseline character of this narrow LCA.	
	Magnitude of change: Negligible	Type of effect: Neutral and permanent . Significance: Not Significant

Table 11.32 Landscape assessment: Sandwich Bay

Sandwich Bay LCA		
Receptor sensitivity:	The overall value of this LCA is High. The overall susceptibility is judged to be Medium indicating a High overall sensitivity. Full details of the sensitivity assessment are provided in Appendix 11.2 .	
Assessment of landscape effects		
Year 1 (construction)	This is a flat coastal landscape where views are primarily focussed east out to sea. A review of the ZTVs in Figures 11.3-11.8 indicates that the initial operation of the ATC tower, Cargo Facility 1 and FBO hangars and the elevated construction activity associated with these structures will become components of inland northerly views at minimum separation distances in excess of 3 km. This is likely to represent an incremental increase in the urban influence exerted from the surrounding landscapes which already contain the urban conurbation of Ramsgate and the neighbouring industrial land uses of the Sandwich Corridor, one or both of which are often baseline components of outward views from this LCA.	
	Magnitude of change: Low	Type of effect: Adverse and temporary (construction) and permanent (buildings) Significance: Not Significant
Year 10 (construction and operation)	Additional built form within the site has the potential to represent a further incremental increase in the urban influence already exerted from the surrounding landscapes. Similarly, any lighting within the site will lead to an incremental increase to that already present in northerly views towards the ridgeline. Other landscape change will be associated with the transient visual and audible influence of aircraft on flight paths to the east of Manston Airport which will periodically and briefly disturb the high levels of tranquillity found across this LCA. These changes will not alter the key characteristics of this landscape as defined in the extant Dover assessment.	

	Magnitude of change: Low	Type of effect: Adverse and temporary (construction) and permanent (operation)	Significance: Not Significant
Year 20 (operation)	There will be a small increase in the proportion of built form which is present within northern views compared to Year 10 together with the cessation of construction activities. An increase in ATMs will result in more frequent disturbances to levels of tranquillity but these will still be transient and not continuous. The key characteristics of this LCA will continue to be present and will not be significantly affected by the Proposed Development.		
	Magnitude of change: Low	Type of effect: Adverse and permanent	Significance: Not Significant

Combined and cumulative effects

- 11.8.12 The combination of the effects from the different phases and of landscape and visual effects with other relevant assessments will be undertaken and reported on as part of the ES.
- 11.8.13 The cumulative landscape effects upon the NCA, HLCA and Thanet and Dover LCAs from the proposed Manston Airport development in conjunction with other known developments in the study area will be assessed as part of the ES.

11.9 Assessment of effects on visual receptors

Residential receptors located in principal settlements

- 11.9.1 The visual assessment for this group of visual receptors for the three LVIA assessment periods is set out in **Tables 11.31 – 11.44**. The distribution of the principal settlements is shown in **Figure 11.31**.

Table 11.33 Residential Receptor Group 1: Ramsgate - Chilton (Nethercourt and Pegwell)

Ramsgate – Chilton (Nethercourt and Pegwell)			
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.		
Assessment			
Year 1	Existing views toward the Proposed Development are largely screened by intervening landform, an existing adjacent bund and mature vegetation. Some elements of the Proposed Development are likely to be visible from upper stories of dwellings to the north-western edge of the area that are orientated towards the Proposed Development. These views are likely to include construction cranes, a business aviation hanger, the ATC tower, the fire station and a cargo facility at distances of between approximately 1.7 and 3 km. Views of the proposed business park elements to the north of Manston Road are likely to be screened by intervening landform, vegetation and the settlement of Manston. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening elements the relatively small proportion of available views that would be affected.		
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus an additional business aviation hanger, recycling hanger and a further cargo facility at distances of between approximately 1.7 and 2.5 km. The additional elements would be limited to a very small portion of the view and would only fractionally add to the perceived massing of elements within the Proposed Development, therefore the magnitude of visual change experienced by residents would remain as Year 1. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths to the east of Manston Airport.		

Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
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Year 20	Views of the operational airport would include an additional cargo facility, a further recycling hanger, a further business aviation hanger and an increase in aircraft activity on flight paths to the east of the airport (although the latter would still be transitory and intermittent). The additional elements would increase the density of buildings but would not increase the horizontal extent of the Proposed Development, therefore, the magnitude of change is likely to remain the same as Year 1.
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Magnitude of change: Low	Type of effect: Permanent Adverse	Significance: Not Significant
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Table 11.34 Residential Receptor Group 2: Ramsgate - Newington

Ramsgate – Newington		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views toward the Proposed Development will be experienced from dwellings on the western edge of the area where there are existing mid to long range views towards the Proposed Development across open agricultural fields interspersed with mature tree belt and farm/agricultural buildings. The Proposed Development would be partially screened behind mature trees in the mid-ground of the view in views to the west (towards the proposed business park) and behind mature garden vegetation and roadside hedgerows in the foreground in views to the southwest (towards the control tower and runway). This would result in the visibility of the construction crane and of the potential visibility of the upper parts of the proposed business park buildings at a distance of approximately 1.5km from upper stories of dwellings, and views of the upper parts of the control tower from upper stories of dwellings at a distance of approximately 2.7km. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and existing farm buildings and the relatively small proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional business units which would slightly increase the horizontal spread of the Proposed Development in views from the upper stories of dwellings on the western edge of the area. The additional business units would be visible at a distance of approximately 1.4km. The additional elements would be limited to a very small proportion of the view from upper stories of dwellings and would be seen in the context of existing farm buildings in the mid-ground of the view, therefore the magnitude of visual change experienced by residents would remain as Year 1. There will also be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths to the east of Manston Airport.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be no increase in the visibility of the Proposed Development from Year 10, although there will be an increase in aircraft activity (although the latter would still be transitory and intermittent). Mitigation planting around the aviation business unit will have matured and may provide additional screening in westerly views. The magnitude of change is likely to remain as Year 1.	
	Magnitude of change: Negligible	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.35 Residential Receptor Group 3: Ramsgate - Northwood

Ramsgate – Northwood	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.

Assessment		
Year 1	Views toward the Proposed Development will be experienced from a very small selection of dwellings oriented to the southwest with existing mid to long range views across open recreational fields. Existing views in the direction of the Proposed Development are heavily screened by a combination of rising landform, belts of mature trees and hedging, large commercial buildings, dwellings at Haine and movement along the A256. Views of the Proposed Development are likely to be restricted to upper floors of receptors and are likely to include visibility of the construction cranes and of the upper parts of the ATC tower at distances of between approximately 2.7 and 3.4km. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and existing farm buildings and the very small proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	There would be no increase in the visibility of the Proposed Development within the Manston Airport site from Year 1. There will be some intermittent and transitory views of aircraft (up to two an hour in Year 10). The magnitude of visual change experienced by residents would remain as Year 1.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be no increase in the visibility of the Proposed Development from Year 10, although there will be an increase in aircraft activity with up to four flights an hour. The magnitude of visual change experienced by residents would remain as Year 1.	
	Magnitude of change: Negligible	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.36 Residential Receptor Group 4: Broadstairs

Broadstairs		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views toward the Proposed Development will be experienced from a very small selection of dwellings oriented to the southwest with existing mid to long range views across open agricultural fields. Existing views in the direction of the Proposed Development are heavily screened by a combination of rising landform, belts of mature trees and hedging in the mid-ground of the view, large commercial buildings at Nash Court Industrial Estate, and movement along the B2053. Views of the Proposed Development are likely to include visibility of the construction crane and of the upper parts of the control tower at distances of between approximately 4.6 and 5.8km. The magnitude of visual change experienced by residents would be very limited due to a combination of separation distance, the presence of screening and existing industrial buildings in the mid-ground and the very small proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	There would be no increase in the visibility of the Proposed Development within the Manston Airport site from Year 1. There will be some distant, intermittent and transitory views of aircraft potentially on flight paths both to the east and west of the airport. The magnitude of visual change experienced by residents would remain as Year 1.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be no increase in the visibility of the Proposed Development from Year 10, although there will be an increase in aircraft activity of up to four planes an hour with views remaining distant, transitory and intermittent. The magnitude of change is likely to remain the same as Year 1.	
	Magnitude of change: Negligible	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.37 Residential Receptor Group 5: Margate

Margate		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views toward the Proposed Development will be experienced from dwellings on the southern edge of the area and those oriented towards the Proposed Development with views between or above surrounding dwellings. Existing views in the direction of the Proposed Development are over a gently rising landform, across open agricultural fields. The existing radar tower is partially visible on the skyline of the view. Views are filtered in some locations by close range trees and there is a degree of screening afforded by a belt of trees on the skyline of the view. The Proposed Development would be visible on the skyline of the view and would include visibility of the construction cranes, the roof sections of business park and cargo facility buildings and of the upper parts of the ATC tower at distances of between approximately 2 and 3.5km. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional business units which would be visible to the fore of the Year 1 business units and additional cargo units. The additional units would be visible at a distance of approximately 2-2.4km. It is anticipated that mitigation planting around the business park units would be maturing and providing some screening of the buildings. The additional elements would be limited to a very small portion of the view and would only fractionally add to the perceived massing of elements within the Proposed Development, therefore the magnitude of visual change experienced by residents would remain as Year 1. There will also be some distant, intermittent and transitory views of aircraft (up to two an hour in Year 10), on flight paths which extend both to the east and west of Manston Airport.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be a limited increase in the visibility of the Proposed Development from Year 10 due to increased massing from the introduction of additional cargo units and an increase in aircraft activity. There would also be a decrease in visibility due to the maturation of mitigation planting around the business units to the fore of the Proposed Development. Although there would be a slight increase in massing, the Proposed Development would appear as a more integrated element in the landscape with increased screening therefore the magnitude of change would remain the same.	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.38 Residential Receptor Group 6: Westgate on Sea

Westgate on Sea		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views toward the Proposed Development will be experienced from dwellings on the southern edge of the area and those oriented towards the Proposed Development with views between or above surrounding dwellings. Existing views in the direction of the Proposed Development are over a gently rising landform, across open agricultural fields. The existing radar tower is partially visible on the skyline of the view. Views are filtered in some locations by garden vegetation and there is a degree of screening afforded by belts of trees around dwellings and settlements in the mid-ground of the view and on the skyline of the view. The Proposed Development would be visible on the skyline of the view and would include visibility of the construction crane, the roof sections of business park and cargo facility buildings and of the upper parts of the control tower at distances of between 2.5 and 3km approximately. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional business park units which would be visible to the left of the Year 1 business park units, slightly increasing the horizontal spread of the Proposed Development. Additional cargo units would also be visible. The additional units would be visible at a distance of approximately 2.3 - 3km. Mitigation planting around the business units would be maturing and would provide some screening of the buildings. The additional elements would be limited to a small portion of the view and would only marginally add to the perceived massing of elements within the Proposed Development, therefore the magnitude of visual change experienced by residents would remain as Year 1. There will also be some distant, intermittent and transitory views of aircraft (up to two an hour in Year 10), on flight paths which extend both to the east and west of Manston Airport.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be a slight increase in the visibility of the Proposed Development from Year 10 due to increased massing from the introduction of additional cargo units and an increase in aircraft activity although with the latter, views will still be distant, intermittent and transitory. There would also be a decrease in visibility due to the maturation of mitigation planting around the business park units to the fore of the Proposed Development. Although there would be a slight increase in massing, the Proposed Development would appear as a more integrated element in the landscape with increased screening therefore the magnitude of change would remain the same.	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.39 Residential Receptor Group 7: Birchington

Birchington	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	Views towards the Proposed Development will be experienced from dwellings on the southern edge of the area and those oriented towards the Proposed Development with views between or above surrounding dwellings. Existing views in the direction of the Proposed Development are across agricultural fields. Views are heavily screened by bands of mature trees in the foreground and mid-ground of the view and by settlement edge (Westgate on Sea). The Proposed Development would be visible on the skyline of the view and would include visibility of the construction crane, and of the upper parts of the ATC tower at a distance of approximately 3km. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.

	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Not Significant
Year 10	There would be no increase in the visibility of the Proposed Development from Year 1. There will also be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably on flight paths which extend to the west of Manston Airport. The magnitude of visual change experienced by residents would remain as Year 1.		
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
Year 20	There would be no increase in the visibility of the Proposed Development from Year 10 and although there will be an increase in aircraft activity, views of ascending or descending planes will still be intermittent and transitory. As such the magnitude of change would remain unchanged.		
	Magnitude of change: Negligible	Type of effect: Permanent Adverse	Significance: Not Significant

Table 11.40 Residential Receptor Group 8: Woodchurch

Woodchurch			
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.		
Assessment			
Year 1	Views toward the Proposed Development will be experienced from dwellings across the small settlement. Existing views in the direction of the Proposed Development are across small scale fields, commercial hardstanding areas and larger scale agricultural fields. Views are screened in places by mature trees around buildings, field boundaries and dwellings, and by large agricultural and commercial buildings. The Proposed Development would be visible on the skyline of the view above the mid-ground vegetation and would include visibility of the construction cranes, cargo unit roofline and of the upper parts of the ATC tower at a distance of approximately 1-1.5km. Views of the cargo unit roof would be from upper stories of dwellings. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.		
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional cargo units, visible at a distance of approximately 1.3km. The additional elements would be limited to a small portion of the view and would slightly extend the roofline of the cargo unit in the view. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10), on flight paths which extend both to the east and west of Manston Airport. There would be very little increase in the extent of elements visible, thus the magnitude of visual change experienced by residents would remain as Year 1.		
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
Year 20	There would be a limited increase in the visibility of the Proposed Development from Year 10 due to increased massing from the introduction of additional cargo units and an increase in aircraft activity although views of ascending or descending planes will still be intermittent and transitory. The magnitude of change is likely remain the same as Year 10.		
	Magnitude of change: Low	Type of effect: Permanent Adverse	Significance: Not Significant

Table 11.41 Residential Receptor Group 9: Acol

Acol		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	It is considered that there are potential views of the Proposed Development from the upper stories of dwellings to the north and southern edges of the settlement. Existing views in the direction of the Proposed Development are across agricultural fields and are screened in the direction of the Proposed Development by large industrial units at Columbus Avenue and belts of trees both around the industrial units and around field boundaries and dwellings beyond. The landform in the view also gently rises towards the industrial units at Columbus Avenue in the mid-ground of the view and then falls away towards the airport such that views of the existing and Proposed Development are largely screened at ground level. As described in the Viewpoint Assessment (Appendix 11.3) for Viewpoint 9 only the top of the mobile cranes would be visible on the skyline of the view above the mid-ground vegetation / industrial unit and at a distance of 2.5-3km approximately. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Neutral (built elements) Significance: Not Significant
Year 10	There would be no increase in the visibility of the Proposed Development from Year 1 although there will be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably on flight paths which extend to the west of Manston Airport. The magnitude of visual change experienced by residents would remain as Year 1.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	The photowire in Appendix 11.1 Figure 13 shows the views of elements that will be fully operational by Year 20, and due to the dense tree cover situated on the edge of Manston Business Park located off Columbus Avenue and the large scale units themselves there will be no visual evidence of any built elements, aircraft on the ground or ground level operational activities resulting from the presence of the fully operational Airport in comparison to the baseline view. There will however be some intermittent and transitory views of aircraft (increased up to four an hour in Year 20), most notably on flight paths which extend to the west of Manston Airport.	
	Magnitude of change: Negligible	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.42 Residential Receptor Group 10: St Nicholas at Wade

St Nicholas at Wade		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views towards the Proposed Development would be experienced from dwellings to the north east and south east edges of the settlement. Existing views in the direction of the Proposed Development are extensive across large, open agricultural fields. The landform very gently rises in the direction of the Proposed Development. In the distant mid-ground of the view, large scale commercial greenhouses and commercial warehouse units span much of the view to the fore of the existing airport and Proposed Development, screening views in this direction. It is considered that the construction cranes would be visible on the skyline of the view above the mid-ground commercial greenhouses and commercial warehouse units from upper floors of dwellings at a distance of approximately 6.2-7km. The magnitude of visual change experienced by residents would be very limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Neutral (built elements) Significance: Not Significant

Year 10	There would be no increase in the visibility of the Proposed Development from Year 1. The photowire in Appendix 11.1 Figure 23 shows that even the taller elements of the proposed airport such as the ATC tower will be screened by the greenhouses at Thanet Earth. As at Year 1, there may be periodic views of the two mobile cranes when they are used to construct the taller built elements in the eastern part of the Airport although construction activities will be much less extensive than in Year 1. There will be no views of aircraft on the ground or any other ground level operational activities although there will be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably on flight paths which extend to the west of Manston Airport. The magnitude of visual change experienced by residents would remain as Year 1.
	<div> <div>Magnitude of change: Negligible</div> <div>Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)</div> <div>Significance: Not Significant</div> </div>
Year 20	There will be no visual evidence of any built elements, planes or ground level operational activities resulting from the presence of the fully functional Airport or Business Park. There will however be some intermittent and transitory views of aircraft (increased up to four an hour in Year 20), most notably on flight paths which extend to the west of Manston Airport.
	<div> <div>Magnitude of change: Negligible</div> <div>Type of effect: Permanent Adverse</div> <div>Significance: Not Significant</div> </div>

Table 11.43 Residential Receptor Group 11: Monkton

Monkton	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	Views towards the Proposed Development would be experienced from dwellings to the western edge of the settlement, mainly around Mary Magdalene Church. Existing views in the direction of the Proposed Development are heavily screened by tall, mature trees and hedgerows in the foreground of the view. Views are therefore primarily available during the winter months when there would be filtered views towards the Proposed Development across large, open agricultural fields. It is considered that the construction cranes, and the upper parts of the ATC tower from the Proposed Development may be visible from upper floors of dwellings at a distance of approximately 5.2-6.4km. The magnitude of visual change experienced by residents would be very limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.
	<div> <div>Magnitude of change: Negligible</div> <div>Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)</div> <div>Significance: Not Significant</div> </div>
Year 10	There would be no increase in the visibility of the Proposed Development from Year 1 although there will be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably on flight paths which extend to the west of Manston Airport. The magnitude of visual change experienced by residents would remain as Year 1.
	<div> <div>Magnitude of change: Negligible</div> <div>Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)</div> <div>Significance: Not Significant</div> </div>
Year 20	There would be no increase in the visibility of the Proposed Development from Year 10, although there will be an increase in aircraft activity although views will still be intermittent and transitory. The magnitude of change is likely remain the same as Year 10.
	<div> <div>Magnitude of change: Negligible</div> <div>Type of effect: Permanent Adverse</div> <div>Significance: Not Significant</div> </div>

Table 11.44 Residential Receptor Group 12: Minster

Minster	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.

Assessment		
Year 1	Many of the views from within the settlement are short range and screened by surrounding built development and garden vegetation. Glimpses and potential views between buildings and over roofs from upper storeys in elevated locations are theoretically possible towards the Proposed Development from the southern half of the settlement. It is considered that the construction crane, and the upper parts of the control tower from the Proposed Development may be visible from upper floors of dwellings at a distance of approximately 2.4-3.6km. The magnitude of visual change experienced by residents would be very limited due to a combination of separation distance, the presence of screening and the very limited proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	There would be no increase in the visibility of the Proposed Development within the site from Year 1 although there will be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably on flight paths which extend to the west of Manston Airport. The magnitude of visual change experienced by residents would remain as Year 1.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be no increase in the visibility of the Proposed Development from Year 10, although there will be an increase in overhead aircraft activity. The magnitude of change is likely remain the same as Year 10.	
	Magnitude of change: Negligible	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.45 Residential Receptor Group 13: Manston (central and east)

Manston (central and east)		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	<p>From the centre of Manston village, and from properties located to the north of the B2050 on the eastern side of the village (east of Preston Road), most views toward the Proposed Development will be screened by neighbouring built form and tree cover. Properties most likely to have views to the Proposed Development are those located on St. Catherine's Grove, which generally have rear or gable ends facing west or north-west, in the direction of the site. Where gaps in the surrounding built form and vegetation allow, upper portions of the Proposed Development (rooflines, eaves and upper storeys of taller buildings) may be partially visible. These views are likely to include construction cranes, business park development, the air traffic control tower, proposed terminal buildings and hangars. At its nearest point, the Proposed Development is ~ 750m west of these properties. There are unlikely to be any views to activity within the site at ground level, due to screening by intervening built form and vegetation. It is likely that there will be noticeable changes in the background of views from some properties, giving rise to a Low magnitude of change.</p> <p>Properties further east than St. Catherine's Grove are unlikely to have notable views to the Proposed Development due to multiple layers of screening by built form and tree cover.</p>	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	<p>At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus potential partial views to the eaves and roofline of a proposed cargo facility in the centre of the site. Any additional elements would be limited to a very small portion of the view and would only fractionally add to the perceived massing of elements within the Proposed Development, therefore the magnitude of visual change experienced by residents would remain as Year 1. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths which extend to the east of Manston Airport</p>	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Significance: Not Significant

Permanent Adverse (operation)		
Year 20	Views of the operational airport would be generally similar to those experienced in Year 10, as the built form on the eastern side of the site will be completed by Year 10. Any additional elements would be limited to a very small portion of the view and would only fractionally add to the perceived massing of elements within the Proposed Development. There would be an increase in aircraft activity on flight paths to the east of the airport but views of plans would continue to be intermittent and transitory therefore the magnitude of visual change experienced by residents would remain as Year 1 and Year 10.	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.46 Residential Receptor Group 14: Cliftonville

Cliftonville		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views toward the Proposed Development will be experienced from the upper stories of flats at the southern edge of the area. Existing views in the direction of the Proposed Development are heavily screened by a combination of rising landform, belts of mature trees and hedging in the foreground and mid-ground of the view combined with large commercial buildings at Westwood Industrial Estate. Views of the Proposed Development are likely to include visibility of the construction crane and of the upper parts of the control tower at distances of between approximately 4.5 and 5.5km. The magnitude of visual change experienced by residents would be very limited due to a combination of separation distance, the presence of screening and existing industrial buildings in the mid-ground and the very small proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	There would be no increase in the visibility of the Proposed Development within the Manston Airport site from Year 1 although there would be some distant, intermittent and transitory views of aircraft (up to two an hour) on flight paths to the east and west of the airport. The magnitude of visual change experienced by residents would remain as Year 1.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be no increase in the visibility of the Proposed Development from Year 10 and although there would be an increase in aircraft activity of up to four aircraft an hour views would remain distant, intermittent and transitory. The magnitude of change is likely to remain the same as Year 10.	
	Magnitude of change: Negligible	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.47 Residential Receptor Group 15: Westwood

Westwood	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	Views toward the Proposed Development will be experienced from dwellings at the southern edge of the area. Existing views in the direction of the Proposed Development are over large, open agricultural fields with some mature tree belts forming the skyline of the view and providing some screening in the direction of the Proposed Development. The landform gently rises towards the mid-ground of the view in the direction of the Proposed Development and then gently falls towards the airport thus providing a degree of screening. Views of the Proposed Development would include visibility of the construction cranes, business park units and of the upper parts of the

ATC tower at distances of between approximately 1.9 and 3.1km. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and the small proportion of the Proposed Development visible.

Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Not Significant
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Year 10

At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional business park units. The additional units would be visible at a distance of approximately 1.7km. It is anticipated that mitigation planting to the fore of the business park units would have partly matured by Year 10 and will be providing a degree of screening and integration into the surrounding landscape. The additional elements would be limited to a small portion of the view and it is anticipated that only the upper parts of the units would be visible. There would also be some intermittent and transitory views of aircraft (up to two an hour) on flight paths to the east and west of the airport. The magnitude of visual change experienced by residents would remain as Year 1.

Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
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Year 20

At Year 20, it is anticipated that the mitigation planting to the fore of the business park units will have matured and will screen the business units completely. There would be no increase in the visibility of the Proposed Development from Year 10, although there would be an increase in aircraft activity. The magnitude of change is likely to remain the same as Year 1.

Magnitude of change: Low	Type of effect: Permanent Adverse	Significance: Not Significant
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Residential receptors located in groups of properties

11.9.2 The visual assessment for this group of visual receptors for the three LVIA assessment periods is set out in **Tables 11.46 – 11.63**. The distribution of the groups of properties considered in the assessment is shown in **Figure 11.32**.

Table 11.48 Residential Receptor Group 16: Gore Street

Gore Street		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views of the Proposed Development would be possible from the upper stories of dwellings oriented towards the Proposed Development. Existing views in the direction of the Proposed Development are heavily screened by tall, mature trees and hedgerows in the foreground of the view. Views are therefore only available during winter months when there would be filtered views towards the Proposed Development across large, open agricultural fields. It is considered that the construction cranes, and the upper parts of the ATC tower may be visible at a distance of approximately 5.6-6.6km. The magnitude of visual change experienced by residents would be very limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	There would be no increase in the visibility of the Proposed Development from Year 1 although there would be some intermittent and transitory views of aircraft (up to two an hour) on flight paths to the east and west of the airport. The magnitude of visual change experienced by residents would remain as Year 1.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant

Year 20 There would be no increase in the visibility of the Proposed Development from Year 10, although there will be an increase in aircraft activity of up to four aircraft an hour. These views would continue to be intermittent and transitory and the magnitude of change is therefore likely to remain the same as Year 10.

Magnitude of change: **Negligible** Type of effect: **Permanent Adverse** Significance: **Not Significant**

Table 11.49 Residential Receptor Group 17: Brooks End

Brooks End		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	It is considered that there would be very few views of the Proposed Development from this settlement due to a combination of rising landform in the fore and mid-ground of the view and large industrial units and belts of trees in the fore and mid-ground. It is considered that there may be views from the upper stories of dwellings in elevated areas of the Canterbury Road and in the southern group of dwellings along Seamark Road. The Proposed Development would be visible on the skyline of the view above the mid-ground vegetation and industrial units, and would include potential visibility of the construction crane, and the upper parts of the control tower at a distance of 3.8-5.2km approximately. The magnitude of visual change experienced by residents would be very limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	There would be no increase in the visibility of the Proposed Development within the airport from Year 1 although there would be some intermittent and transitory views of aircraft, most notably those on flight paths to the west of the airport. The magnitude of visual change experienced by residents would remain as Year 1.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be no increase in the visibility of the Proposed Development from Year 10 and although there would be an increase in aircraft activity, views would still be intermittent and transitory. The magnitude of change is likely to remain the same as Year 10.	
	Magnitude of change: Negligible	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.50 Residential Receptor Group 18: Lydden

Lydden		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views of the Proposed Development would be limited to dwellings in elevated areas at the eastern end of Manston Court Road within the area and from upper stories of dwellings at Lydden Farm. Views would be across open agricultural fields and would be mostly screened by a belt of mature trees forming the skyline to the fore of the airport, and by garden planting. The Proposed Development would be visible on the skyline of the view above the mid-ground vegetation and would include potential visibility of the construction crane, and the upper parts of the control tower at a distance of 2km approximately. The magnitude of visual change experienced by residents would be very limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Significance: Not Significant

Permanent Adverse (built elements)		
Year 10	There would be no increase in the visibility of the Proposed Development within the airport from Year 1 although there would be some intermittent and transitory views of aircraft. The magnitude of visual change experienced by residents would remain as Year 1.	
	Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	There would be no increase in the visibility of the Proposed Development from Year 10 and although there would be an increase in aircraft activity (up to four aircraft an hour), views would still be intermittent and transitory. The magnitude of change would remain the same as Year 10.	
	Magnitude of change: Negligible	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.51 Residential Receptor Group 19: Properties on Haine Road

Properties on Haine Road		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views towards the Proposed Development would be available from dwellings along Haine Road – particularly from dwellings to the west of the settlement area that are oriented towards the Proposed Development. Views would be across open agricultural fields and would be mostly screened by a belt of mature trees forming the skyline to the fore of the airport, and by garden planting. The Proposed Development would be visible on the skyline of the view above the mid-ground vegetation and would include potential visibility of the construction crane, and the upper parts of the control tower at a distance of 1.8-2.3km approximately. There are potential views of the business park units in gaps through existing intervening tree belts. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and the limited proportion of the Proposed Development visible.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional business park units. The additional units would be visible at a distance of 1.5km approximately. It is anticipated that mitigation planting to the fore of the business park units would have matured by Year 10 and will be providing a degree of screening and integration into the surrounding landscape. The additional elements would be limited to a small portion of the view and it is anticipated that only the upper parts of the units would be visible, therefore the magnitude of visual change experienced by residents would remain as Year 1. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths which extend to the east of Manston Airport.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	At Year 20, it is anticipated that the mitigation planting to the fore of the business park units will have matured and will screen the business units completely. There would be no increase in the visibility of the Proposed Development within the airport from Year 10, although there would be an increase in aircraft activity. The magnitude of change is likely to remain the same as Year 10.	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.52 Residential Receptor Group 20: Properties alongside and east of A254 between Margate and Westwood

Properties alongside and east of A254 between Margate and Westwood			
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.		
Assessment			
Year 1	There will be no views of the Proposed Development from these locations due to screening and industrial units in the foreground.		
	Magnitude of change: No change	Type of effect: Permanent Neutral	Significance: Not Significant
Year 10	There will be no views of the Proposed Development within the airport from these locations due to screening and industrial units in the foreground. There would however be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths which extend to the east of Manston Airport.		
	Magnitude of change: Negligible	Type of effect: Permanent Adverse	Significance: Not Significant
Year 20	There will be no views of the Proposed Development within the airport from these locations due to screening and industrial units in the foreground. There would be an increase in aircraft activity of up to four flights an hour in Year 20 although views would continue to be intermittent and transitory.		
	Magnitude of change: Negligible	Type of effect: Permanent Adverse	Significance: Not Significant

Table 11.53 Residential Receptor Group 21: Alland Grange Lane properties

Alland Grange Lane properties			
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.		
Assessment			
Year 1	Views towards the Proposed Development would be mostly screened by intervening garden trees, buildings and tree belts such that the main views of the Proposed Development would be from the upper floors of dwellings and/or in winter months. The Proposed Development would be visible on the skyline of the view above the mid-ground vegetation and buildings, and would include visibility of the earthworks and roundabout along Spitfire Way, the roofline of the cargo hanger, fire station, FBO hangers, construction cranes, and the upper parts of the ATC tower at a distance of 0.8-1.3km approximately. The magnitude of visual change experienced by residents would be limited due to a combination of separation distance, the presence of screening and the proportion of the Proposed Development visible.		
	Magnitude of change: Medium (residents of four two-storey properties in north of group) Low (residents of bungalows and residents in south of group)	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant (residents of four two-storey properties in north of group) Not Significant (residents of bungalows and residents in south of group)
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional cargo units and aircraft recycling hangers. The additional units would be visible at a distance of 1.4-1.9km approximately. There would also be additional earthworks and planting along Spitfire Way which would provide a degree of screening and integration into the surrounding landscape. The additional elements would be limited to a small portion of the view and it is anticipated that only the upper parts of the units would be visible, therefore the magnitude of visual change experienced by residents would remain as Year 1. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths ascending from or descending towards the runway.		
	Magnitude of change: Medium (residents of four two-storey properties in north of group)	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant (residents of four two-storey properties in north of group)

	Low (residents of bungalows and residents in south of group)	Not Significant (residents of bungalows and residents in south of group)
Year 20	At Year 20, the Proposed Development would include all of the elements described in Year 10 plus an additional cargo hanger, additional recycling hanger, additional stands and a storage area along the realigned Spitfire Way. It is anticipated that the mitigation planting on the earthworks at Spitfire Way will have matured and will provide a degree of filtered screening. There would also be an increase in aircraft activity. The additional units would not increase the horizontal spread of the Proposed Development and the magnitude of change is likely to remain as Year 10.	
	Magnitude of change: Medium (residents of four two-storey properties in north of group) Low (residents of bungalows and residents in south of group)	Type of effect: Permanent Adverse Significance: Significant (residents of four two-storey properties in north of group) Not Significant (residents of bungalows and residents in south of group)

Table 11.54 Residential Receptor Group 22: Cheeseman's Farm properties

Cheeseman's Farm properties			
Receptor sensitivity:		High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment			
Year 1		Views towards the Proposed Development would be mostly screened by intervening garden/boundary trees, buildings and tree belts such that the main views of the Proposed Development would be from the upper floors of dwellings and/or in winter months. The Proposed Development would be visible on the skyline of the view above the mid-ground vegetation and buildings, and would include visibility of the roofline of the cargo hanger, FBO hangers, construction crane, and the upper parts of the control tower at a distance of 0.8-1.3km approximately. The proposed business units would not be visible behind intervening vegetation and buildings. The magnitude of visual change experienced by residents would be limited due to the presence of screening and the proportion of the Proposed Development visible. The highest magnitude of change would be experienced from the rear upper-storey windows of the two southernmost properties in the group only.	
		Magnitude of change: Medium (residents of two two-storey properties in south of group) Low (all other residents)	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Significant (residents of two two-storey properties in south of group) Not Significant (all other residents)
Year 10		At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional cargo units, visible at a distance of 1.2km approximately. The additional elements would be limited to a small portion of the view and it is anticipated that only the upper parts of the units would be visible. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths ascending from or descending towards the runway. The magnitude of visual change experienced by residents would remain as Year 1.	
		Magnitude of change: Medium (residents of two two-storey properties in south of group) Low (all other residents)	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Significant (residents of two two-storey properties in south of group) Not Significant (all other residents)
Year 20		At Year 20, the Proposed Development would include all of the elements described in Year 10 plus an additional cargo hanger and an increase in aircraft activity. The additional cargo hanger would be visible as a slight increase in the roofline and would not increase the horizontal expanse of the proposed development, thus the magnitude of change will remain the same as in Year 10.	
		Magnitude of change: Medium (residents of two two-storey properties in south of group) Low (all other residents)	Type of effect: Permanent Adverse Significance: Significant (residents of two two-storey properties in south of group) Not Significant (all other residents)

Table 11.55 Residential Receptor Group 23: Vincent Road, Vincent Farm, Flete Farm

Vincent Road, Vincent Farm, Flete Farm		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views towards the Proposed Development would be mostly screened by intervening garden/boundary trees, buildings and tree belts such that the main views of the Proposed Development would be from the upper floors of dwellings and/or in winter months. The Proposed Development would be visible on the skyline of the view above and through the intervening vegetation and buildings, and would include visibility of the business units, the roofline of the cargo hanger, construction cranes, and the upper parts of the control tower at a distance of 0.8-2km approximately. The magnitude of visual change experienced by residents would be limited due to the presence of screening close to all properties in this group and the proportion of the Proposed Development visible.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include additional business park units close to the northern boundary of the site which would screen the majority of the additional cargo facility beyond. Although the additional units would be visible to the fore of the Year 1 business park units at a distance of 0.5-0.7km approximately, it is anticipated that mitigation planting to the fore of the business park units introduced in Phase 2 to reinforce that already present along the northern boundary of the site may begin to partially soften the facades of the northern business units. It is anticipated that only the upper parts of the units would be visible, filtered through foreground vegetation close to the majority of properties in the group. As such the magnitude of visual change experienced by the majority of residents would remain as Year 1. The exception relates to residents in properties at Vincent Farm where more open views to the south are available. For these residents the change to their views would be similar to that described for Viewpoint 7 (Appendix 11.3) and the magnitude of change is likely to rise to medium. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths ascending from or descending towards the runway.	
	Magnitude of change: Medium (Vincent Farm only) Low (all other residents)	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Significant (Vincent Farm only) Not Significant (all other residents)
Year 20	At Year 20, it is anticipated that the mitigation planting to the fore of the business park units will have matured and would heavily filter views of the business units. All ground level operational activity and ground level aircraft movements will be screened by the intervening built form although there would be an increase in overhead aircraft activity. The magnitude of change is likely to remain the same as Year 10.	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.56 Residential Receptor Group 24: Chalkhole Farm, Flete and Fleetcourt Farm

Chalkhole Farm, Flete and Fleetcourt Farm	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	Within this cluster of dwellings there are few that are oriented towards the proposed development. Views would be restricted to those with upper story windows facing south to south-west. Views towards the Proposed Development would be mostly screened by the coalescence of intervening garden/boundary trees, buildings and tree belts. The landform rises in the mid-ground of the view and views are further screened by planting and farm buildings along the mid-ground 'ridge' in the direction of the Proposed Development such that the eastern half of the Proposed Development would be screened. It is anticipated that in Year 1 views of the Proposed Development would be visible on the skyline of the view above the intervening vegetation and buildings, and would include visibility of the construction cranes, and the upper parts of the southernmost business park units at a distance of approximately 1.6-2.0km. The magnitude of visual change experienced by residents would be limited due to the presence of foreground screening and the proportion of the Proposed Development visible.

	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include the northern most business park units which are likely to screen the cargo facilities and other operational buildings located further to the south. It is anticipated that only the upper parts of the units would be visible above the intervening landform and though foreground vegetative screening. This would add new elements to the middle ground of filtered views. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths extending to the east and west of the airport.		
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
Year 20	At Year 20, it is anticipated that the mitigation planting to the fore of the business park units will have matured and would heavily filter views of the business units. All ground level operational activity and ground level aircraft movements will be screened by the intervening built form although there would be an increase in overhead aircraft activity. The magnitude of change is likely to remain the same as Year 10.		
	Magnitude of change: Low	Type of effect: Permanent Adverse	Significance: Not Significant

Table 11.57 Residential Receptor Group 25 – Preston Road properties, Preston Farm and Coldswood Farm

Preston Road properties, Preston Farm and Coldswood Farm			
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.		
Assessment			
Year 1	Views would be mainly from upper story windows, particularly those facing south to south-west and would be across a solar farm. Views would be mostly screened by intervening garden/boundary trees, buildings, tree belts and woodland such that the eastern half of the Proposed Development would be screened. It is anticipated that in Year 1 views of the Proposed Development would be available on the skyline of the view above the intervening vegetation and buildings, and would include visibility of the business park units, construction crane, and the upper parts of the control tower at a distance of 0.9-2.4km approximately. The magnitude of visual change experienced by residents would be limited due to the presence of screening and the proportion of the Proposed Development visible.		
	Magnitude of change: Medium	Type of effect:] Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus additional business park units and the rooflines of cargo units beyond at a distance of 0.6-1.7km approximately. It is anticipated that mitigation planting to the fore of the business units will be maturing and will provide partial screening of the units. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths extending to the east and west of the airport. The magnitude of visual change experienced by residents would increase slightly due to the presence of new elements in the view at closer proximity.		
	Magnitude of change: Medium	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant

Year 20 At Year 20, it is anticipated that mitigation planting to the fore of the business park units will have matured and will heavily filter views of the business units. Although there would be an additional cargo unit in the view, extending the roofline, this would present a very minor addition to views. There would also be an increase in aircraft activity. The magnitude of change is likely to reduce as a result of the mitigation planting.

Magnitude of change: Low	Type of effect: Permanent Adverse	Significance: Not Significant
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Table 11.58 Residential Receptor Group 26: Properties on Spratling Street near Spratling Court Farm

Properties on Spratling Street near Spratling Court Farm		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views would be mainly from upper story windows, particularly those facing to west and south-west, and would be across agricultural fields and gardens. Views would be mostly screened by intervening garden/boundary trees, buildings, and tree belts. It is anticipated that in Year 1 views of the Proposed Development would be available on the skyline of the view above the intervening vegetation and buildings, and would include visibility of the construction crane, the roofline of the cargo building and the upper parts of the control tower at a distance of 0.8-2.3km approximately. The magnitude of visual change experienced by residents would be limited due to the presence of screening and the proportion of the Proposed Development visible.	
	Magnitude of change: Low to Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus the rooflines of aircraft recycling hangers at a distance of 1.2km approximately. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10) most notably those on flight paths extending to the east of the airport. The magnitude of visual change experienced by residents would increase slightly due to the presence of new elements in the view at closer proximity.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	At Year 20, views toward the Proposed Development would include all of the elements described in Year 10 plus the rooflines of additional Aircraft Recycling Hangers at a distance of 1.2km approximately. There would also be an increase in aircraft activity. The additional hangers would extend the existing roofline marginally in the view and would not introduce any additional elements into the view, therefore magnitude of change would remain the same as Year 10.	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.59 Residential Receptor Group 27: Properties east of Quex Park

Properties east of Quex Park	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	Views would be across large open agricultural fields. Views would be screened by intervening garden/boundary trees, large industrial units in the mid-ground of the view, and tree belts. It is anticipated that in Year 1 views of the Proposed Development would be available on the skyline of the view above the intervening vegetation and buildings, and would include visibility of the construction cranes, the roofline of the cargo building and the upper parts of the ATC tower at a distance of approximately 2.2-3km. The magnitude of visual change experienced by residents would

be limited due to the presence of screening, separation distance, existing large industrial features in the view and the proportion of the Proposed Development visible.

Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Not Significant
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Year 10 At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus the roofline of additional cargo units at a distance of 2.4km approximately and some intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths extending to the east and west of the airport. The addition would only affect a very minor part of the view and the magnitude of visual change experienced by residents would remain the same as Year 1.

Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
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Year 20 At Year 20, views toward the Proposed Development would include all of the elements described in Year 10 plus the rooflines of an additional cargo unit at a distance of 1.1km approximately. There would also be an increase in aircraft activity although views would remain intermittent and transitory. The addition would only affect a very minor part of the view and the magnitude of visual change experienced by residents would remain the same as Year 10.

Magnitude of change: Low	Type of effect: Permanent Adverse	Significance: Not Significant
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Table 11.60 Residential Receptor Group 28: Two properties in Hoo including Sherri's Court

Two properties in Hoo including Sherri's Court

Receptor sensitivity: **High** due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.

Assessment

Year 1 Views towards the Proposed Development would be over agricultural fields and the settlement of Minster which would form the mid-ground of the view. The Proposed Development would be visible on the elevated 'shelf' forming the skyline of the view in this direction. Views would be screened by foreground vegetation comprising garden/boundary trees and hedges, as well as mid-ground built elements and tree belts. It is anticipated that in Year 1 views of the Proposed Development would be available on the skyline of the view above the intervening vegetation and buildings, and would include visibility of the construction crane, and the upper parts of the control tower at a distance of 2-2.6km approximately. The magnitude of visual change experienced by residents would be limited due to the presence of screening, separation distance and the proportion of the Proposed Development visible.

Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Not Significant
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Year 10 At Year 10, there would be no increase in the visibility of the Proposed Development from Year 1 although there would be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths extending to the west of the airport. The magnitude of visual change experienced by residents would remain as Year 1.

Magnitude of change: Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
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Year 20 At Year 20, there would be no increase in the visibility of the Proposed Development from Year 10, although there would be an increase in aircraft activity. The magnitude of visual change experienced by residents would remain the same as Year 10.

Magnitude of change: Negligible	Type of effect: Permanent Adverse	Significance: Not Significant
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Table 11.61 Residential Receptor Group 29: Properties along Richborough Road and the southern edge of the LVIA study area

Properties along Richborough Road and the southern edge of the LVIA study area		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views towards the Proposed Development would be over the River Stour valley to the north-east of the dwellings. Views from this location are extensive and include the settlement of Minster as well as the existing airport and large industrial units at Port Richborough. The Proposed Development would be visible on the opposing valley edge forming the skyline of the view in this direction. Views would be screened by foreground vegetation comprising garden/boundary trees and hedges, as well as mid-ground built elements and tree belts. It is anticipated that in Year 1 views of the Proposed Development would include visibility of the construction crane, and the upper parts of the control tower, cargo unit and hangers at a distance of 5km approximately. The magnitude of visual change experienced by residents would be very limited due to the presence of screening, separation distance, and the very small proportion of the Proposed Development visible.	
	Magnitude of change: Low to Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus the introduction of an Aircraft Recycling Hanger and additional cargo units at a distance of 5km approximately. There would also be some distant, intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths extending both to the east and west of the airport. The addition would only affect a very minor part of the view and the magnitude of visual change experienced by residents would remain the same as Year 1.	
	Magnitude of change: Low to Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	At Year 20, views toward the Proposed Development would include all of the elements described in Year 10 plus an additional cargo unit and additional Aircraft Recycling Hangers at a distance of 5km approximately. There would also be an increase in aircraft activity. The addition would only affect a very minor part of the view and the magnitude of visual change experienced by residents would remain the same as Year 10.	
	Magnitude of change: Low to Negligible	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.62 Residential Receptor Group 30: Properties in Stonelees area

Properties in Stonelees area		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	Views towards the Proposed Development from this location are heavily screened by foreground vegetation comprising garden/boundary trees and hedges, as well as mid-ground hedges and tree belts. Views would therefore be mainly filtered, winter views. The Proposed Development would be visible to the north. It is anticipated that in Year 1 views of the Proposed Development would include visibility of the construction cranes, and the upper parts of the ATC tower, cargo unit and hangars at a distance of approximately 1.5-2km. The magnitude of visual change experienced by residents would be very limited due to the screening from foreground vegetation / filtering of views in the winter, separation distance, and the small proportion of the Proposed Development visible.	
	Magnitude of change: No change to Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant

Year 10	At Year 10, views toward the Proposed Development would include all of the elements described in Year 1 plus the introduction of an Aircraft Recycling Hanger and additional cargo units at a distance of approximately 1.8km. There would also be some distant, intermittent and transitory views of aircraft (up to two an hour in Year 10) on flight paths extending both to the east and west of the airport. The addition would only affect a very minor part of the view and the magnitude of visual change experienced by residents would remain the same as Year 1.		
	Magnitude of change: No change to Negligible	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
Year 20	At Year 20, views toward the Proposed Development would include all of the elements described in Year 10 plus an additional cargo unit and additional Aircraft Recycling Hangars at a distance of approximately 5km. There would also be an increase in aircraft activity. The addition would only affect a very minor part of the view and the magnitude of visual change experienced by residents would remain the same as Year 10.		
	Magnitude of change: No change to Negligible	Type of effect: Permanent Adverse	Significance: Not Significant

Table 11.63 Residential Receptor Group 31: Manston – Properties on Preston Road

Manston – Properties on Preston Road		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	<p>Preston Road extends north from the junction with the B2050 in the centre of Manston village, to the open countryside to the north of the village.</p> <p>This receptor group also includes properties located to the west of the junction with the B2050, and including the residential cul-de-sac The Green, and a detached residence at Manston Green Farmhouse on the western edge of the group. These western-most properties are likely to have oblique and rear elevation views to the site and Proposed Development from their upper-storey windows facing west or north-west, likely taking in the northern end of the site in the background of views. These views are likely to be similar in composition to those illustrated in Viewpoint 6 B2050 Western edge of Manston. Views to the Proposed Development may be framed, or partially screened or filtered by hedgerow vegetation and mature trees, and neighbouring built form, in the middle ground of views. Background views will have a notable intensification of built form on the horizon, where the proposed business park, terminal buildings and hangars will be partially visible. Construction cranes may also be partially visible at some points during the construction period, potentially drawing the eye with notable movement silhouetted against the skyline.</p> <p>Travelling north from the B2050 junction, along Preston Road, properties are located on the eastern side of the road, facing a belt of mature trees lining the western side of the road. These properties are substantial two-storey terraced houses, with west-facing windows on both ground floor and first floor elevations. Views to the site and Proposed Development are likely to be heavily filtered by tree cover, however in winter, when deciduous trees are not in leaf, it is likely that there may be discernible views to the site and Proposed Development (business park and passenger terminals), the upper portions of which may be silhouetted against the skyline.</p> <p>Properties at the northern end of this group, just to the south of the junction with Spratling Street, are likely to have unobstructed westerly views across an arable field in the foreground, with hedgerows and tree cover in the middle ground of views, with the site and Proposed Development likely to be visible on the horizon, in the background of views. Background views will have a notable intensification of built form on the horizon, where the proposed business park, terminal buildings and hangars will be partially visible. Construction cranes may also be partially visible at some points during the construction period, potentially drawing the eye with notable movement silhouetted against the skyline.</p> <p>Despite the presence of screening elements, it is likely that there will be large scale changes in the background of views from some properties, giving rise to a Medium magnitude of change.</p>	
	Magnitude of change: Medium	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Significant

Year 10	Due to the majority of development along the eastern side of the site being undertaken during Year 1, at Year 10, views toward the Proposed Development would be largely the same as those described in Year 1. Any additional elements would be limited to a very small portion of the view and would only fractionally add to the perceived massing of elements within the proposed development, therefore the magnitude of visual change experienced by residents would remain as Year 1.
	<div> <div>Magnitude of change: Medium</div> <div>Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)</div> <div>Significance: Significant</div> </div>
Year 20	Due to the majority of development along the eastern side of the site being undertaken during Year 1, at Year 20, views toward the Proposed Development would be largely the same as those described in Year 1. Any additional elements would be limited to a very small portion of the view and would only fractionally add to the perceived massing of elements within the proposed development, therefore the magnitude of visual change experienced by residents would remain as Year 1.
	<div> <div>Magnitude of change: Medium</div> <div>Type of effect: Permanent Adverse</div> <div>Significance: Significant</div> </div>

Table 11.64 Residential Receptor Group 32: Manston – Properties in northern section of High Street

Manston – Properties in northern section of High Street	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	<p>This residential receptor group includes properties on both sides of High Street, on the southern side of the B2050, and including those accessed via Daigor Lane, to the east of High Street.</p> <p>Properties on the western side of High Street are a mix of one- and two-storey residences, which have rear elevation views facing west. These views are likely to be similar in composition to those illustrated in Viewpoint 6 B2050 Western edge of Manston. Views to the Proposed Development may be framed, or partially screened or filtered by hedgerow vegetation and mature trees, and neighbouring built form, in the middle ground of views. Background views will have a notable intensification of built form on the horizon, where the proposed business park, terminal buildings and hangars will be partially visible. Construction cranes may also be partially visible at some points during the construction period, potentially drawing the eye with notable movement silhouetted against the skyline.</p> <p>Properties on the eastern side of High Street, including those on Daigor Lane, have principal views from the properties facing west, taking in the curtilage of the road and the built form of facing properties. Any views to the Proposed Development are likely to be very minor framed background views available between built forms in the foreground of views.</p> <p>Despite the presence of screening elements, it is likely that there will be large scale changes in the background of views from some properties on the western side of High Street, giving rise to a Medium magnitude of change.</p> <div> <div>Magnitude of change: Medium</div> <div>Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)</div> <div>Significance: Significant</div> </div>
Year 10	<p>Due to the majority of development along the eastern side of the site being undertaken during Year 1, at Year 10, views toward the Proposed Development would be largely the same as those described in Year 1. Any additional elements would be limited to a very small portion of the view and would only fractionally add to the perceived massing of elements within the proposed development, therefore the magnitude of visual change experienced by residents would remain as Year 1.</p> <div> <div>Magnitude of change: Medium</div> <div>Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)</div> <div>Significance: Significant</div> </div>
Year 20	<p>Due to the majority of development along the eastern side of the site being undertaken during Year 1, at Year 20, views toward the Proposed Development would be largely the same as those described in Year 1. Any additional elements would be limited to a very small portion of the view and would only fractionally add to the perceived massing of elements within the proposed development, therefore the magnitude of visual change experienced by residents would remain as Year 1.</p> <div> <div>Magnitude of change: Medium</div> <div>Type of effect: Permanent Adverse</div> <div>Significance: Significant</div> </div>

Table 11.65 Residential Receptor Group 33: Manston – Properties in southern section of High Street

Manston – Properties in southern section of High Street		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	<p>This residential receptor group includes properties on the eastern side of High Street, to the south of Daigor Lane. The southern end of High Street adjoins the site boundary, at the eastern end of the existing runway.</p> <p>Properties in this location are a mix of detached bungalows and two storey detached residences, with driveways or small front gardens facing west. A chapel, possibly converted to a residence, is located at the southern end of High Street. The western side of High Street is lined by an overgrown hedgerow with emergent mature trees, and notable gaps along its length. Between the hedgerow and the site boundary to the west is a flat, arable field.</p> <p>Foreground views to the west are largely screened and filtered by the hedgerow along the western side of High Street. Where gaps in the hedgerow allow, middle ground views take in the arable field, which is bounded on its western edge by a hedge. There are currently no notable views to the site or existing built form. At Year 1, the contractor's main compound will be located along the eastern site boundary, approximately ~ 550m west of the properties, and activity may be perceived in the background of filtered or framed views available from ground level. An intensification of built form on the horizon to the north-west, in the vicinity of the business park site, may also be notable in background views. Upper storey windows facing west may have potential for clearer views to the site. Construction cranes may also be partially visible at some points during the construction period, potentially drawing the eye with notable movement silhouetted against the skyline.</p> <p>Due to the screening and filtering of views, it is unlikely that there will be any large scale changes to foreground or middle ground views experienced from these properties, however given their close proximity to the site it is likely that the Proposed Development will be a new, large scale feature in background views, giving rise to a Medium magnitude of change.</p>	
	Magnitude of change: Medium	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Significant
Year 10	<p>At Year 10, views toward the Proposed Development would be largely the same as those described in Year 1, with the addition of an aircraft recycling hangar as an addition to built form in background views. Any additional elements would be limited to a very small portion of the view and would only fractionally add to the perceived massing of elements within the proposed development, therefore the magnitude of visual change experienced by residents would remain as year 1.</p>	
	Magnitude of change: Medium	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Significant
Year 20	<p>Any additional elements would be limited to a very small portion of the view and would only fractionally add to the perceived massing of elements within the proposed development, therefore the magnitude of visual change experienced by residents would remain as Year 1 and Year 10.</p>	
	Magnitude of change: Medium	Type of effect: Permanent Adverse Significance: Significant

Residential receptors located in properties in the immediate vicinity of Development Site

11.9.3 The visual assessment for this group of visual receptors for the three LVIA assessment periods is set out in **Tables 11.64 – 11.78**. The distribution of the groups of properties considered in the assessment is shown in **Figure 11.33**.

Table 11.66 Residential Receptor Group 34: Mount Pleasant, properties west of Minster Road

Mount Pleasant, properties west of Minster Road	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.

Assessment		
Year 1	<p>This residential receptor group covers an isolated detached house at Mount Pleasant, and approximately 40 No. properties at Smuggler's Leap Residential Park Home Estate, a ~ 1ha development located on the north-western side of the A299 and B2190 Minster Road roundabout. The site boundary extends to the north of the receptor group, with the main development area to the east of Minster Road. Viewpoint 4: B2190, Minster Road is located at the north-eastern edge of the receptor group, along the B2190, however this viewpoint is not considered likely to be representative of views experienced from these properties, due to the effects of screening by topography and vegetation, described below.</p> <p>The property at Mount Pleasant appears to be a substantial two- to three-storey home, surrounded by a large garden, and benefitting from substantial screening by surrounding tree and hedge cover. The property's front elevation faces north, with ground level views likely to be largely screened by foreground vegetation. Upper storey views may extend northwards over arable fields, and gable end upper storey views may take in the existing runway to the east.</p> <p>Properties at Smuggler's Leap are static caravans and chalets, arranged around internal roads, and surrounded by hedges. The properties are located at a slightly lower elevation than the surrounding terrain in what appears to be a former quarry, and this topography, combined with the hedges, limits views in or out of the site. All foreground views experienced at these properties are likely to be limited to the neighbouring built form and surrounding vegetation, with very limited potential for occasional, oblique framed views to the A- and B-roads.</p> <p>For both Mount Pleasant and Smuggler's Leap, it is unlikely that any portion of the Proposed Development will form a notable part of principal views from properties.</p>	
	Magnitude of change: Negligible	Type of effect: Neutral Significance: Not Significant
Year 10	<p>At Year 10, views toward the Proposed Development would be largely the same as those described in Year 1. The exception is the presence of overhead aircraft on arrival or departure flight paths to the west although these changes would be transitory and intermittent.</p>	
	Magnitude of change: Low	Type of effect: Temporary Neutral (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	<p>At Year 20, views toward the Proposed Development would be largely the same as those described in Year 10 although with an increase in ATMs. .</p>	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.67 Residential Receptor Group 35: Rose Farm and Pounces Cottages

Rose Farm and Pounces Cottages	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	<p>This residential receptor group includes an isolated farm property, and a terrace of 8 No. properties on the northern side of Spitfire Way. The site boundary is located to the south of Spitfire Way.</p> <p>Rose Farm is an isolated farmhouse, surrounded by outbuildings and mature trees to the south, east and north. The farmhouse appears to have principal views facing west, which are likely to include partial views to the western end of the site and runway, however there is no new built form proposed in this part of the site. Rear elevation views from upper storey windows may take in the main development area within the site, including the cargo buildings, air traffic control tower and new taxiways. Activity on site may also include views to construction cranes, which may potentially drawing the eye with notable movement silhouetted against the skyline.</p> <p>Pounces Cottages is a stand-alone terrace of properties, with small, walled front gardens or driveways facing Spitfire Way, with principal views oriented to the south, looking across the existing runway. A ~ 90m long section of mature hedgerow on the southern side of Spitfire Way partially screens ground level views to the east. Upper storey windows of the properties are likely to take in unobstructed direct views across the runway, and oblique easterly views to the main development area within the site.</p> <p>Rose Farm is likely to have very limited views to the proposed development, due to its orientation to the west and its surrounding screening by vegetation and built form. Roadworks along Spitfire Way in front of the property is likely to</p>

be the most noticeable change associated with the proposed development. The magnitude of change experienced at this property is considered likely to be Low.

Pounces Cottages will have clear fore to middle ground views to the runway, and to the proposed new taxiways, as well roadworks along Spitfire Way. The main development site is part of oblique and gable end views from these properties, and construction activity is likely to be highly visible in the middle and background of easterly views, giving rise to a High magnitude of change.

Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant
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Year 10 At Year 10, proposed landscaping measures on the southern side of Spitfire Way, presumed to include visual screening in the form of tree and shrub planting, will have had the opportunity to mature, and are likely to provide substantial visual screening at ground level. However, increased aircraft movements along the runway and taxiways are still likely to be highly visible in eastern, western and southern views from these properties, as the larger aircraft are likely to be partially visible above any vegetative screening.

Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant
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Year 20 At Year 20, as above, proposed landscaping measures on the southern side of Spitfire Way, presumed to include visual screening in the form of tree and shrub planting, will have had the opportunity to mature, and are likely to provide substantial visual screening at ground level. However, increased aircraft movements along the runway and taxiways are still likely to be highly visible in eastern, western and southern views from these properties, as the larger aircraft are likely to be partially visible above any vegetative screening.

Magnitude of change: High	Type of effect: Permanent Adverse	Significance: Significant
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Table 11.68 Residential Receptor Group 36: Properties on Bell Davies Drive

Properties on Bell Davies Drive		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	<p>This residential receptor group includes 12 No. semi-detached properties located around a cul-de-sac development to the north of Spitfire Drive and to the south-east of Manston Road. The site boundary is located to the south of Spitfire Way.</p> <p>Properties at Bell Davies Drive are arranged around the cul-de-sac, taking in the curtilage of the road and facing properties. The gardens are well-enclosed by fencing and hedges, limiting views to the surrounding countryside. Properties on the southern side of Bell Davies Drive have rear elevation upper storey views to the existing built form on the site, and are likely to have views to construction activity on site in the vicinity of the proposed aircraft stands and ATC tower. Properties on the north-eastern side of Bell Davies Drive with east-facing upper storey windows may have partial oblique views to the proposed business park development in the background of views.</p> <p>Despite their close proximity to the proposed development, it is unlikely that most properties on Bell Davies Drive will experience any changes to foreground views, due to the orientation and screening surrounding the properties. Middle ground views for southeast-facing rear elevations may have partial views to substantial construction and development activities, while the majority of properties will experience minor changes to background views, giving rise to a Medium magnitude of change.</p>	
	Magnitude of change: Medium	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Significant
Year 10	<p>At Year 10, proposed landscaping measures on the southern side of Spitfire Way, to include visual screening in the form of tree and shrub planting, will have had the opportunity to mature, and are likely to provide substantial visual screening at ground level.</p>	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Significance: Not Significant

Permanent Adverse (operation)		
Year 20	At Year 20, as above, proposed landscaping measures on the southern side of Spitfire Way, to include visual screening in the form of tree and shrub planting, will have had the opportunity to mature, and are likely to provide substantial visual screening at ground level.	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.69 Residential Receptor Group 37: Properties on the western side of Manston Road

Properties on the western side of Manston Road		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	<p>This residential receptor group covers properties located in an estate to the west of Manston Road, arranged around cul-de-sac developments on Esmonde Drive, Musgrave Close, Beamont Close and Tollemache Close. The properties are generally two-storey semi-detached or terraced houses, with small front gardens or driveways facing the road, and enclosed rear gardens. The perimeters of the estate are well-enclosed by mature trees on all sides, with substantial blocks of woodland to the south-west, north and south-east.</p> <p>Despite their close proximity to the proposed development, it is unlikely that most properties in this group will experience any changes to foreground views, due to the orientation and screening by built form and mature trees surrounding the properties. Middle ground views, where available, are likely to take in surrounding built form. The majority of properties are unlikely to experience more than minor changes to background views available from upper storey windows, giving rise to a Low magnitude of change.</p>	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	<p>At Year 10, as at Year 1, it is considered likely that the only changes to views will be minor changes to background views available from upper storey windows of some properties, which will give rise to a Low magnitude of change.</p>	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	<p>At Year 20, as at Year 1, it is considered likely that the only changes to views will be minor changes to background views available from upper storey windows of some properties, which will give rise to a Low magnitude of change.</p>	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.70 Residential Receptor Group 38: Terraced and semi-detached properties on the eastern side of Manston Court Road

Terraced and semi-detached properties on the eastern side of Manston Court Road	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	This residential receptor group covers 5 No. properties located on the eastern side of Manston Court Road. These properties are traditional, two-storey houses, with large front gardens generally containing car parking and low-level amenity planting. The properties all have principal views facing west, currently taking in an unenclosed view of the northern end of the site, which includes an existing tower and telecoms mast. In Year 1, there is no built form proposed directly to the west of the properties, however groundworks and vehicular movements are likely to be highly visible, as stockpiling activity will take place at the northern end of the site. Oblique south-westerly views are likely to take in the construction activity on the business park site, including potentially crane movements visible on

the skyline. It is anticipated that the Magnitude of Change resulting from the Proposed Development in Year 1 will be High.

Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant
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Year 10 At Year 10 the business park site will be fully developed, with built form extending north and south in the middle ground of views. However, landscaping proposals along the western side of Manston Court Road will have had the opportunity to mature, potentially providing some screening of views to the built form of the business park.

Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant
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Year 20 At Year 20, as at Year 10, the business park site will be fully developed, with built form extending north and south in the middle ground of views. However, landscaping proposals along the western side of Manston Court Road will have had the opportunity to mature, potentially providing some screening of views to the built form of the business park.

Magnitude of change: High	Type of effect: Permanent Adverse	Significance: Significant
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Table 11.71 Residential Receptor Group 39: Properties around Manston Court on eastern side of Manston Court Road

Properties around Manston Court on eastern side of Manston Court Road		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	<p>This residential receptor group covers a mix of architectural styles, including detached cottages, semi-detached houses and converted farm buildings. The most northern two properties in the group have principal views facing west, currently taking in an unenclosed view of the northern end of the site, which includes an existing tower and telecoms mast. In Year 1, there is no built form proposed directly to the west of the properties, however groundworks and vehicular movements are likely to be highly visible, as stockpiling activity will take place at the northern end of the site. Oblique south-westerly views are likely to take in the construction activity on the business park site, including potentially crane movements visible on the skyline. It is anticipated that the Magnitude of Change resulting from the Proposed Development in Year 1 will be High.</p> <p>For properties to the south, those in and around Manston Court, are unlikely to have any notable views to the site, due to their varying orientations and substantial screening by facing built form and mature trees on the western side of Manston Court Road. Some properties in this group may have background views to the eastern end of the site from south facing upper storey windows, where construction activity and Proposed Development may be partially visible.</p>	
	Magnitude of change: High (Northern-most properties) Low (Manston Court properties)	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Significant Not Significant
Year 10	<p>For the northern-most properties, at Year 10 the business park site will be fully developed, with built form extending north and south in the middle ground of views. However, landscaping proposals along the western side of Manston Court Road will have had the opportunity to mature, potentially providing some screening of views to the built form of the business park.</p> <p>For properties to the south, those in and around Manston Court, effects are likely to be largely similar to those described for Year 1. Some properties in this group may have background views to the eastern end of the site from south facing upper storey windows, where construction activity and Proposed Development may be partially visible.</p>	
	Magnitude of change: High (Northern-most properties) Low (Manston Court properties)	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Significant Not Significant

Year 20 At Year 20, as at Year 10, the business park site will be fully developed, with built form extending north and south in the middle ground of views. However, landscaping proposals along the western side of Manston Court Road will have had the opportunity to mature, potentially providing some screening of views to the built form of the business park.

For properties to the south, those in and around Manston Court, effects are likely to be largely similar to those described for Years 1 and 10. Some properties in this group may have background views to the eastern end of the site from south facing upper storey windows, where the Proposed Development and aircraft movements may be visible.

Magnitude of change:
High (Northern-most properties)
Low (Manston Court properties)

Type of effect: **Permanent Adverse**

Significance:
Significant
Not Significant

Table 11.72 Residential Receptor Group 40: Northern semi-detached properties on western side of Manston Court Road

Northern semi-detached properties on western side of Manston Court Road		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	This residential receptor group covers 6 No. large, semi-detached properties located on the western side of Manston Court Road. These properties are surrounded by large gardens, which are bounded by high, trimmed hedges. The properties all have principal views facing Manston Court Road to the east, and rear elevation views facing the business park site to the west. Although ground level views to the west are likely to be partially screened by hedges and built form associated with the properties' back gardens, upper storey windows facing west may have clear views across the business park site. In Year 1, the business park construction will be underway directly to the south-west of the properties. In addition, groundworks and vehicular movements are likely to be highly visible to the west, with stockpiling activity taking place at the northern end of the site. Oblique south-westerly views are likely to take in the construction activity on the business park site, including potentially crane movements visible on the skyline. Landscaping proposals surrounding the properties' back gardens may be in place, but will not provide any substantial visual screening in the first year. It is anticipated that the Magnitude of Change resulting from the Proposed Development in Year 1 will be High.	
	Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Significant
Year 10	At Year 10 the business park site will be fully developed, with built form extending north and south in the middle ground of views. However, landscaping proposals surrounding the properties' back gardens will have had the opportunity to mature, potentially providing some screening of views to the built form of the business park.	
	Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Significant
Year 20	At Year 20, as at Year 10, the business park site will be fully developed, with built form extending north and south in the middle ground of views. However, landscaping proposals along the western side of Manston Court Road will now be fully mature, and will be likely to provide substantial screening of views to the built form of the business park.	
	Magnitude of change: Medium	Type of effect: Permanent Adverse Significance: Significant

Table 11.73 Residential Receptor Group 41: Southern terraced properties on western side of Manston Court Road

Southern terraced properties on western side of Manston Court Road	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.

Assessment

Year 1 This residential receptor group covers 12 No. terraced properties located on the western side of Manston Court Road. These properties have small front gardens, some of which are paved for car parking, facing Manston Court Road, and small enclosed back gardens backing onto the business park site. There is little vegetative screening associated with these properties, and views are likely to be clear and unobstructed from most locations within the properties' curtilage. The properties all have principal views facing Manston Court Road to the east, and rear elevation views facing the business park site to the west. In Year 1, the business park construction will be underway directly to the south-west of the properties. In addition, groundworks and vehicular movements are likely to be highly visible to the west, with stockpiling activity taking place at the northern end of the site. Oblique south-westerly views are likely to take in the construction activity on the business park site, including potentially crane movements visible on the skyline. Landscaping proposals surrounding the properties' back gardens may be in place, but will not provide any substantial visual screening in the first year. In addition, these properties may also have some oblique views to the far eastern end of the runway and taxiway, and construction activity taking place therein.

It is anticipated that the Magnitude of Change resulting from the Proposed Development in Year 1 will be High.

Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant
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Year 10 At Year 10 the business park site will be fully developed, with built form extending north and south in the middle ground of views. However, landscaping proposals surrounding the properties' back gardens will have had the opportunity to mature, potentially providing some screening of views to the built form of the business park. During the operational phase, these properties may have oblique views to the far eastern end of the runway and taxiway, and the associated movements of aircraft therein.

Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant
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Year 20 At Year 20, as at Year 10, the business park site will be fully developed, with built form extending north and south in the middle ground of views. However, landscaping proposals along the western side of Manston Court Road will now be fully mature, and will be likely to provide substantial screening of views to the built form of the business park. During the operational phase, these properties may have oblique views to the far eastern end of the runway and taxiway, and the associated movements of aircraft therein.

Magnitude of change: High	Type of effect: Permanent Adverse	Significance: Significant
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Table 11.74 Residential Receptor Group 42: Jubilee Cottages on Manston Road

Jubilee Cottages on Manston Road

Receptor sensitivity: **High** due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.

Assessment

Year 1 This residential receptor group covers 4 No. semi-detached properties located on the northern side of Manston Road. These properties have small front gardens enclosed by low walls, facing Manston Road, and small back gardens which are generally surrounded by mature vegetation. The properties' principal views face south-west, taking in the curtilage of the B2050 road in the foreground, an unenclosed arable field in the middle ground of views, and the Proposed Development site in the background of views. These views are likely to be largely similar to those illustrated in **Viewpoint 6: B2050 western edge of Manston**. In year 1, there will be substantial construction activity taking place in the background of views and on the horizon, including crane movements visible on the skyline. It is anticipated that the Magnitude of Change resulting from the Proposed Development in year 1 will be High.

Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant
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Year 10 At Year 10 the main airport site will be largely developed, with built form extending north to the business park, covering much of the horizon with substantial built form. Where some parts of the site are still under construction, such as the cargo facilities and aircraft recycling hangars, there may be potential for occasional construction crane movements on the horizon. These properties may also have views to the movements of aircraft on the runway and taxiways, creating additional activity in views.

	Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant
Year 20	At Year 20, the main airport site will be fully developed, with built form extending north to the business park, covering much of the horizon with substantial built form. These properties may also have views to the movements of aircraft on the runway and taxiways, creating additional activity in views.		
	Magnitude of change: High	Type of effect: Permanent Adverse	Significance: Significant

Table 11.75 Residential Receptor Group 43: Properties in northern Cliffs End, north of Canterbury Road West

Properties in northern Cliffs End, north of Canterbury Road West			
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.		
Assessment			
Year 1	<p>This residential receptor group covers ~ 60 No. detached bungalows located on three side streets (King Arthur Road, Arundel Road and Windsor Road) on the northern side of Canterbury Road West. The northern-most properties in this group abut the airport boundary at the eastern end of the runway, and the western-most properties abut the proposed fuel farm in the south-eastern corner of the Proposed Development site. These properties are all oriented east-west, and have small front gardens enclosed by low walls, facing the minor road, and small back gardens which are generally enclosed by fences and/or vegetation. The properties' principal views face the minor road, taking in the curtilage of the road and facing properties. Properties on the western side of King Arthur Road, particularly at the southern end of the road, benefit from well-vegetated western boundaries, which will provide substantial screening and filtering of views to the proposed fuel farm development. Those properties at the northern end of King Arthur Road have little screening between their properties and the runway to the north. Although these properties will not have principal views facing the proposed development, it is considered likely that due to their close proximity to the site, they will be aware of activity on the site in the periphery and background of most views. In Year 1, there will be substantial construction activity taking place in the background of views to the north and west, including potential for crane movements visible on the skyline. It is anticipated that the Magnitude of Change resulting from the Proposed Development in Year 1 will be High.</p> <p>NB: Although Viewpoint 3: Canterbury Road West PRoW is located within ~ 250m of this group, it is not considered to be representative of views experienced from these properties.</p>		
	Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant
Year 10	At Year 10 the construction to the immediate north and west will be completed, with built form notable on much of the horizon. Where some parts of the site are still under construction, such as the cargo facilities and aircraft recycling hangars, there may be potential for occasional construction crane movements on the horizon. These properties will also have very close range views to the movements of aircraft on the runway, directly to the north of the receptor group.		
	Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant
Year 20	At Year 20, as in Year 10, the construction to the immediate north and west will be completed, with built form notable on much of the horizon. Where some parts of the site are still under construction, such as the cargo facilities and aircraft recycling hangars, there may be potential for occasional construction crane movements on the horizon. These properties will also have very close range views to the movements of aircraft on the runway, directly to the north of the receptor group.		
	Magnitude of change: High	Type of effect: Permanent Adverse	Significance: Significant

Table 11.76 Residential Receptor Group 44: Properties in western Cliffs End, south of Canterbury Road West

Properties in western Cliffs End, south of Canterbury Road West		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	This residential receptor group covers ~ 100 No. properties, primarily detached bungalows, located on two side streets (Cliff View Road and Foads Lane) on the southern side of Canterbury Road West. These properties are all oriented east-west, and have small front gardens enclosed by low walls, facing the minor road, and small back gardens which are generally enclosed by fences and/or vegetation. The properties' principal views face the minor road, taking in the curtilage of the road and facing properties. Any views to the Proposed Development are likely to be oblique background views located to the north and north-west. Although these properties will not have principal views facing the proposed development, it is considered likely that they will be aware of activity on the site in the periphery and background of northerly and north-westerly views. In year 1, there will be substantial construction activity taking place in the background of views to the north and west, including potential for crane movements visible on the skyline. It is anticipated that the Magnitude of Change resulting from the Proposed Development in year 1 will be Low, as construction activity will be taking place in the background of peripheral views, and may be screened by the rising landform to the north of Canterbury Road West. Viewpoint 3: Canterbury Road West PRoW is located within ~ 200m of this group, and is considered to be generally representative of the relationship between the Proposed Development and these properties.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	At Year 10 the construction to the north and west will be completed, with built form largely screened from view by landform and surrounding built form and vegetation. Where some parts of the site are still under construction, such as the cargo facilities and aircraft recycling hangars, there may be potential for occasional construction crane movements on the horizon. Some properties at the northern end of this group may have partial views to structures within the fuel farm, located directly to the north-west of this receptor group. It is likely that aircraft movements on the runway located ~ 350m to the north of this group may be perceived in the background of northerly views.	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	It is unlikely that any operational structures within the will be visible being set back from the southern edge of the plateau. Some properties at the northern end of this group may have partial views to structures within the fuel farm, located directly to the north-west of this receptor group. It is likely that aircraft movements on the runway located ~ 350m to the north of this group may be perceived in the background of northerly views.	
	Magnitude of change: Low	Type of effect: Permanent Adverse Significance: Not Significant

Table 11.77 Residential Receptor Group 45: Properties north of Way on Ivy Cottage Hill

Properties north of Way on Ivy Cottage Hill	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.
Assessment	
Year 1	This residential receptor group covers ~ 6 No. properties located on the eastern side of a minor road, Ivy Cottage Hill, which is located to the south of the A299 and a roadside bund (approximately 2.5m high with immature planting) which runs along the southern side of the A299. This road is accessed from the south, and does not connect to the A299. Properties in this group are large, detached houses surrounded by large and well-treed gardens. These properties have a variety of orientations, but it appears as though the properties' principal views are likely to face south, with views onto gardens, and limited by surrounding tree cover. Any views to the Proposed Development are likely to be background views available from north-facing upper storey windows. Although these properties will not have principal views facing the proposed development, it is considered likely that they will be aware of activity on the site in the periphery and background of northerly views. In Year 1, there will be substantial construction activity

taking place in the background of views to the north and west, including potential for crane movements visible on the skyline. It is anticipated that the Magnitude of Change resulting from the Proposed Development in Year 1 will be Low, as construction activity will be taking place in the background of peripheral views, and is likely to be largely screened and filtered by mature trees surrounding the properties.

Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Not Significant
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Year 10 At Year 10 the construction to the north completed, but is unlikely to form a substantial part of views experienced from these properties. Where some parts of the site are still under construction, such as the cargo facilities and aircraft recycling hangars, there may be potential for occasional construction crane movements on the horizon. It is likely that closer aircraft movements on the runway located ~ 350m to the north of the northern-most property may be perceived in the background of northerly filtered views.

Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Not Significant
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Year 20 At year 20, construction activities will have been completed and operational structures are unlikely to be readily discernible through the mature trees surrounding the properties. It is likely that the closer aircraft movements on the runway located ~ 350m to the north of the northern-most property may be perceived in the background of northerly filtered views.

Magnitude of change: Low	Type of effect: Permanent Adverse	Significance: Not Significant
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Table 11.78 Residential Receptor Group 46: Properties north of Way on Wayborough Hill

Properties north of Way on Wayborough Hill		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	<p>This residential receptor group covers ~ 4 No. properties located on the eastern side of a minor road, Wayborough Hill, which is located to the south of the A299. Properties in this group are large, detached houses surrounded by large and well-treed gardens. These properties have a variety of orientations, but it appears as though the properties' principal views are likely to face south, with foreground views onto gardens, and limited by surrounding tree cover. Any views to the Proposed Development are likely to be background views available from north-facing upper storey windows. Although these properties will not have principal views facing the proposed development, it is considered likely that they will be aware of activity on the site in the periphery and background of northerly views. In year 1, there will be substantial construction activity taking place in the background of views to the north and west, including potential for crane movements visible on the skyline. It is anticipated that the Magnitude of Change resulting from the Proposed Development in year 1 will be Low, as construction activity will be taking place in the background of peripheral views, and is likely to be largely screened and filtered by mature trees surrounding the properties.</p>	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Not Significant
Year 10	<p>At Year 10 and where some parts of the site are still under construction, such as the cargo facilities and aircraft recycling hangars, there may be potential for occasional construction crane movements on the horizon. Other operational built form is likely to be screened by the crest of the plateau. It is likely that the closer aircraft movements on the runway located ~ 350m to the north of the northern-most property may be perceived in the background of northerly views.</p>	
	Magnitude of change: Low	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Not Significant
Year 20	<p>At Year 20, as in Year 10, operational built form within the site is likely to be screened by the crest of the plateau. It is likely that the closer aircraft movements on the runway located ~ 350m to the north of the northern-most property may be perceived in the background of northerly views.</p>	

Magnitude of change: **Low**Type of effect: **Permanent Adverse**Significance: **Not Significant**

Table 11.79 Residential Receptor Group 47: Properties west of Manston Road

Properties west of Manston Road		
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.	
Assessment		
Year 1	<p>This residential receptor group covers ~ 12 No. properties located on the western side of Manston Road, directly opposite the northern end of the site boundary. Properties in this group are generally detached bungalows set back from Manston Road behind front gardens enclosed by low walls, with parking to the front of most residences. These properties' principal views all face east, with foreground views taking in the curtilage of Manston Road, which is lined on the eastern side by mature trees, providing partial screening and filtering of easterly views. Viewpoint 2: Manston Road is taken from the southern end of the group of properties, and represents views experienced where gaps in tree cover allow clear views to the east. Middle ground views take in an arable field (within the site boundary), with background views bounded by built form and tree cover along Manston Court Road.</p> <p>At year 1, there will be substantial construction activity taking place in the field to the east of Manston Road, with groundworks and stockpiling taking place in the northern end of the field, within ~ 150m of the nearest residence. In oblique southerly views from the properties, the construction of the business park buildings will be underway, with large scale built form and mobile cranes in use. Soft landscaping within the business park development may be instated, but will not provide any notable screening at this stage. Further construction activities within the main airport site may also be perceived in oblique views to the south, with the upper portions of built form and construction cranes partially visible in background views.</p> <p>It is considered likely that the Proposed Development will give rise to a Medium magnitude of change, in spite of the partial screening by mature trees in the foreground of views, due to the close proximity of the groundworks and stockpiling activity to the east of the properties, which will likely entail considerable vehicle movement and large machinery in view. The large scale of the Proposed Development to the south will be dominant in peripheral views as the business park buildings are constructed.</p>	
	Magnitude of change: Medium	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements) Significance: Significant
Year 10	<p>At year 10 the construction in the northern end of the site will be completed, with substantial built form in the middle ground of easterly views, partially screened and filtered by mature trees in the foreground of views along Manston Road. Proposed soft landscaping may be providing some partial screening of the built form of the business park. Where some parts of the site are still under construction, such as the cargo facilities and aircraft recycling hangars, there may be potential for occasional construction crane movements on the horizon to the south.</p>	
	Magnitude of change: Medium	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation) Significance: Significant
Year 20	<p>At year 20, as in year 10, the construction in the northern end of the site will be completed, with substantial built form in the middle ground of easterly views, partially screened and filtered by mature trees in the foreground of views along Manston Road. Proposed soft landscaping may be mature, providing some partial screening of the built form of the business park. Built form to the south of the site may be partially visible in the background of southerly views, with rooftops of higher buildings occasionally visible, framed by the built form of the business park in the middle ground of views.</p>	
	Magnitude of change: Medium	Type of effect: Permanent Adverse Significance: Significant

Table 11.80 Residential Receptor Group 48: Properties on Canterbury Road West, south of Jentex site

Properties on Canterbury Road West, south of Jentex site	
Receptor sensitivity:	High due to residential receptors being assessed as possessing high susceptibility in accordance with GLVIA3 paragraph 6.33 and the high likelihood that these receptors attach medium or high value to the views that are available from the windows and curtilage of their properties.

Assessment

Year 1 This residential receptor group covers ~ 8 No. properties located on the southern side of Canterbury Road West, directly opposite the northern end of the site boundary. Properties in this group are generally detached and semi-detached, two-storey properties, set back from the road with parking to the front of most residences. These properties' principal views all face north, with foreground views taking in the curtilage of Canterbury West Road, and the built form of the Jentex site in the middle ground of views, with occasional mature trees along the road boundary. The Jentex site is an existing fuel farm, surrounded by security fencing, with built form comprising several low-rise buildings and large fuel storage tanks. Land rises slightly to the north, with bunding to the south of the existing runway screening long distance views to the north. The runway is located ~ 300m north of the properties, but is not visible from ground level due to the intervening topography which results in a 'table top' effect. Upper storey windows are likely to have more expansive northerly views across the site.

Viewpoint 3: Canterbury Road West PRoW is taken from the western end of the group of properties, from a public footpath which runs south along the western-most rear garden boundary. Although taken from the vicinity of these properties, the viewpoint is unlikely to be representative of views experienced from the front elevations of the properties, along Canterbury Road West.

At Year 1, there will be substantial construction activity taking place in the middle ground of views, as the existing Jentex site is refurbished as a new fuel farm. In addition, the airport access road running along the airport boundary fence line will be refurbished/constructed in the middle ground of views. Although the runway itself is not visible, it is likely that vehicles working on the runway may be partially visible from these properties, and the mobile construction cranes may also be occasionally partially visible on the skyline.

It is considered likely that the Proposed Development will give rise to a Medium magnitude of change, due to the close proximity of construction activities taking place at the fuel farm and runway to the north of the properties. There is likely to be considerable vehicle movement and large machinery in view.

Magnitude of change: Medium	Type of effect: Temporary Adverse (construction) Permanent Adverse (built elements)	Significance: Significant
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Year 10 At Year 10 the construction of the fuel farm and runway will be completed, giving rise to only minor changes to the built form in the middle ground of views. Where some parts of the site are still under construction, such as the cargo facilities and aircraft recycling hangars, there may be potential for occasional construction crane movements on the horizon to the north. Increased movements of aircraft on the runway to the north are likely to be the most notable change in views, giving rise to a High magnitude of change.

Magnitude of change: High	Type of effect: Temporary Adverse (construction) Permanent Adverse (operation)	Significance: Significant
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Year 20 At Year 20, as in Year 10, the construction of the fuel farm and runway will be completed, giving rise to only minor changes to the built form in the middle ground of views. Increased movements of aircraft on the runway to the north are likely to be the most notable change in views, giving rise to a High magnitude of change.

Magnitude of change: High	Type of effect: Permanent Adverse	Significance: Significant
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Recreational receptors travelling along long distance routes

11.9.4 The visual assessment for this group of visual receptors for the three LVIA assessment periods is set out in **Tables 11.79 – 11.86**. The distribution of the long distance routes considered in the assessment is shown in **Figure 11.34**.

Table 11.81 Recreation Receptors travelling along the England Coast Path

England Coast Path	
Receptor sensitivity:	High: Receptors include people undertaking walking, cycling or horse riding along a promoted route where a key component of the activity is an appreciation of the landscape.
Assessment	

Year 1

Within the study area the path runs between Princes Golf Club and Ramsgate, from the southern section of the path views from the path are of coastal marshland and golf courses, to the north towards Cliffs End and Ramsgate views are of a built-up coastline. The Proposed Development will not significantly affect the views from the path and they will remain vastly similar to the baseline level. Users of the path will not experience any views of ground level construction activities and much of the Proposed Development will be screened, however there are some sections of the path where upper portions of some of the taller buildings of the Proposed Development may be visible. When visible the upper portions of the taller buildings will only extend marginally above fore and middle ground screening.

The southern section of the path between Princes Golf club and Richborough port is primarily within the ZTV (**Figure 11.34**). Most views of the Proposed Development will be screened by landform (as the site is situated on top of a plateau) and scattered vegetation. However, where vegetation is less dense Northbound users of the path may experience partial views of the upper sections of the two mobile construction cranes, first cargo unit (most eastern), business units and ATC tower at a minimum separation distance of approximately 3.75km.

Between Richborough port and Cliffs End the path is intermittently within the ZTV for the proposed development. There will be no views of the Proposed Development for southbound travellers, the majority of views of the Proposed Development will be screened for north bound travellers sequentially by roadside trees and built form in the foreground along the A256, vegetation within Pegwell Bay Country Park, hedgerow along Sandwich road and vegetation within St. Augustine's Golf Club. At sections of the path where vegetation cover is less dense there may be partial views of the upper portions of the two mobile construction cranes, first cargo unit (most eastern), business units and ATC tower.

Between Cliffs End and where the path finishes in Ramsgate the path is predominately outside the ZTV for the proposed development. The majority views of the Proposed Development for areas of the path within the ZTV will be screened by dense built form in the foreground. However, there may be partial views of the upper sections of two mobile construction cranes, first cargo unit (most eastern), business units and ATC tower at for southbound travellers leaving the Ramsgate area for a short section before the path enters Cliffs End.

The magnitude of change will be none for the sections of path outside the ZTV, and sections of the path within the ZTV inside Cliffs End and Ramsgate. For the remainder of the path within the ZTV (outside Cliffs end and Ramsgate) the magnitude of change will be low as there will only be partial intermittent views for short sections where tree cover is less dense, however this will represent a noticeable change to a limited part of the view.

Magnitude of change: Low (sections of path within the ZTV outside Cliffs end and Ramsgate)	Type of effect: Permanent Adverse (built elements) Temporary Adverse (cranes)	Significance: Not Significant
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Year 10

For the majority of the path there would be no changes from the Year 1 views. In those areas where vegetation is less dense and there is views of the elements present at Year 1 (identified above) there may be the addition of partial views of the upper portions of the two central cargo units and aircraft breakdown hangars. If visible these buildings would only extend marginally above current screening. This addition would represent a small change in the view for a limited part of the view in the background, consequently the magnitude of change will remain the same as Year 1. There would also be some intermittent and transitory views of aircraft (up to two an hour in Year 10), most notably those on flight paths to the east of Manston Airport.

Magnitude of change: Low (sections of path within the ZTV outside Cliffs End and Ramsgate)	Type of effect: Permanent Adverse (built elements) Temporary Adverse (cranes)	Significance: Not Significant
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Year 20

In contrast to previous periods there would be no cranes visible as construction activity would cease by Year 18. For the majority of the path there would be no changes from the Year 10 views. Where vegetation is less dense in addition to the elements present in the Year 10 view would be the partial views of upper section of the fourth cargo unit (most western). Similar to the other built elements of the Proposed Development the roof of the final cargo facility would only extend marginally above the horizon in the background of the view. There would also be an increase in ATMs (up to four an hour) although views would continue to be distant, intermittent and transitory. The magnitude of change will remain as low because the combined effect of all elements now present will not constitute a prominent change in the view.

Magnitude of change: Low (sections of path within the ZTV outside Cliffs End and Ramsgate)	Type of effect: Permanent Adverse (built elements)	Significance: Not Significant
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Table 11.82 Recreation Receptors travelling along National Cycle Route 1

National Cycle Route 1

Receptor sensitivity: **High:** Receptors include people undertaking walking and cycling along a promoted route where a key component of the activity is an appreciation of the landscape.

Assessment

Year 1	<p>Within the study area the path runs between Lower Goldstone and Richborough farm, views from the path are of a rural character with built form intermittently visible. The vast majority of the path that lies within the study area falls within the ZTV (Figure 11.34) for the proposed development. Users of the path will not experience any views of ground level construction activities, and most of the proposed built elements will be screened by landform (the crest of the plateau), screening vegetation along field boundaries and vegetation in the foreground along the Richborough road. Where vegetation is less dense there may be oblique filtered views for travellers in either direction of, the two mobile cranes, upper portions of the first most eastern cargo unit and the ATC tower, at a separation distance of approximately 5km. The magnitude of change will be low because the cumulative effect of the Proposed Development will only represent a small change affecting a limited part of the view.</p>
	<p>Magnitude of change: Low</p> <p>Type of effect: Temporary Adverse (Cranes) Permanent Adverse (Built elements)</p> <p>Significance: Not Significant</p>
Year 10	<p>There will be no changes from the Year 1 views from much of the path. The exception is where views were previously available along the Richborough Road where vegetation is less dense. At these locations in addition to the elements present in the Year 1 view may be partial views of the upper sections of the aircraft recycling hangars and two central cargo units. There would also be some distant, intermittent and transitory views of aircraft (up to two an hour in Year 10), on flight paths to the east and west of Manston Airport. The magnitude of change will remain as low because the combined effect of all elements present in the background will not constitute a prominent change in the view.</p>
	<p>Magnitude of change: Low</p> <p>Type of effect: Temporary Adverse (Cranes) Permanent Adverse (Built elements)</p> <p>Significance: Not Significant</p>
Year 20	<p>In contrast to previous periods cranes will not be visible as construction activity will cease by year 18. The only new built elements visible at intermittent sections of the path (where vegetation is less dense) compared to the Year 10 view will be the fourth (most western) cargo facility. Similar to the other built elements of the development the roof of the final cargo facility will only extend marginally above the horizon in the background of the view. Any other structures introduced between Year 10 and Year 20 will be screened by the crest of the plateau and it is unlikely that there will be views of ground level plane activity or other ground level operational activity. There would however be an increase in ATMs (up to four an hour) although views would continue to be distant, intermittent and transitory. Although cranes will no longer be present the magnitude of change will remain as low because where views are available there will be an increase in built mass on the distant horizon leading to some skyline intrusion.</p>
	<p>Magnitude of change: Low</p> <p>Type of effect: Permanent Adverse</p> <p>Significance: Not Significant</p>

Table 11.83 Recreation Receptors travelling along the Saxon Shore

Saxon Shore Way

Receptor sensitivity: **High:** Receptors include people walking along a promoted route where a key component of the activity is an appreciation of the landscape.

Assessment

Year 1	<p>The section of path between where the path enters the study area (to the south) and where the path crosses the railway line is predominately outside the ZTV but a small portion dips within the ZTV of the Proposed Development (as shown in Figure 11.34). For the majority of this section there will be no views of the Proposed Development or any related construction activities, views will be screened by landform, built form (Richborough energy park), screening vegetation along field boundaries and vegetation in the foreground adjacent the path and views will remain of a rural character with intermittent built form scattered at a variety of distances. However, the small portions of this section of the path that dip into the ZTV, where vegetation is less dense there may be partial views of the two mobile cranes, the upper sections of the proposed the first cargo unit (most eastern) and ATC tower at a minimum separation distance of approximately 3.5km for northbound travellers only.</p> <p>The majority of the remaining section of the path within the study area between the intersection of the railway line and west of Plucks Gutter is within the ZTV for the Proposed Development (as shown in Figure 11.34). For the majority of this section of the path views will not change, ground level construction activities and most of the built development will be screened by landform (the crest of the plateau), screening vegetation along field boundaries and vegetation in the foreground along the River Stour. Where vegetation is less dense there may be oblique filtered</p>
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views for travellers in either direction of upper portions of, the two mobile cranes, the first most eastern cargo unit and the ATC tower at a minimum separation distance of approximately 3km.

The magnitude of change will be Low because there will be an increase in built form in the distance, this will represent a noticeable change restricted to a limited part of the view.

Magnitude of change: Low	Type of effect: Permanent Adverse (built elements) Temporary Adverse (cranes)	Significance: Not Significant
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Year 10

For the majority of the path there will be no changes from the Year 1 views. In those areas where vegetation is less dense and there is views of the elements present at Year 1 there will be the addition of oblique partial views of the upper portions of the two central cargo units and aircraft recycling hangars. There would also be some distant, intermittent and transitory views of aircraft (up to two an hour in Year 10), on flight paths to the east and west of Manston Airport. These additions will represent a small change in the view for a limited part of the view in the background, consequently the magnitude of change will remain the same as Year 1.

Magnitude of change: Low	Type of effect: Permanent Adverse (built elements) Temporary Adverse (cranes)	Significance: Not Significant
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Year 20

In contrast to previous periods there will be no cranes visible as construction activity will cease by year 18. As described for **Viewpoint 17** in **Appendix 11.3**, where vegetation is less dense and in addition of the elements present in the Year 10 view will be the partial views of upper section of the fourth cargo unit (most western) and an extension to the recycling hangar visible above the distant horizon as well as an increase in ATMs (up to four an hour) although views of the latter would continue to be distant, intermittent and transitory. The magnitude of change will remain as low because the combined effect of all elements now present will not constitute a prominent change in the view.

Magnitude of change: Low	Type of effect: Permanent Adverse	Significance: Not Significant
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Table 11.84 Recreation Receptors travelling along the Stour Valley Walk

Stour Valley Walk		
Receptor sensitivity:	High: Receptors include people walking along a promoted route where a key component of the activity is an appreciation of the landscape.	
Assessment		
Year 1	All of the path that lies within the study area falls within the ZTV (Figure 11.34) for the proposed development. The majority of views from the path will remain vastly similar, users of the path will not experience any views of ground level construction activities, and the majority of the proposed built elements will be screened by landform, built form in Cliffs End and vegetation around Pegwell Bay Country Park, St. Augustine's Golf Club and Cliffs End. The only receptors that may be exposed to views are northbound users of the path. They may experience filtered distant views (minimum separation distance of approximately 2.7km) of the upper sections of the two mobile construction cranes, the first cargo unit, ATC tower and southern business units of the business park. Views of these buildings will be most noticeable at the most northern part of the path. The magnitude of change will be low, because although north bound travellers will be travelling towards the development and the partial views of cranes and upper portions of buildings of the Proposed Development represent a small change affecting a limited part of the view. For southbound users of the path there will be no views of the Proposed Development which will be behind the viewer.	
	Magnitude of change: Low (northbound travellers) No Change (southbound travellers)	Type of effect: Permanent adverse (built elements) Temporary adverse (cranes) Significance: Not Significant
Year 10	There will be no changes from the Year 1 views for much of the path. The exception is for northbound travellers to the northern end of the path (near Pegwell Country park) where, in addition to the elements present in the Year 1 view, there will be potential views of the upper sections of the aircraft recycling hangars and two central cargo units. These buildings when visible will only extend marginally above the current screening. There would also be some distant, intermittent and transitory views of aircraft (up to two an hour in Year 10), on flight paths to the east and west of Manston Airport. The magnitude of change will remain as low because the combined effect of all elements now present will not constitute a prominent change in the view.	

Magnitude of change:	Type of effect:	Significance: Not Significant
Low (northbound travellers)	Permanent adverse (built elements)	
No Change (southbound travellers)	Temporary adverse (cranes)	

Year 20

In contrast to previous periods there will be no views of cranes as construction activity will cease by Year 18. There will now only be potential views of built elements of the development for northbound users of the northern section of the path near Pegwell Bay Country Park as well as an increase in ATMs (up to four an hour) although views of the latter would continue to be distant, intermittent and transitory. From this section of path and in addition to the elements present in the Year 10 view, will be potential views of the upper sections of the fourth (most western) cargo unit and extension to the recycling hangars extending above the distant horizon when more open views are available. The magnitude of change will continue to be low because of the skyline intrusion brought about by these buildings. For southbound users of the path there will be no views of the Proposed Development which will be behind the viewer.

Magnitude of change:	Type of effect: Permanent adverse	Significance: Not Significant
Low (northbound travellers)		
No Change (southbound travellers)		

Table 11.85 Recreation Receptors travelling along the Thanet Coastal Path

Thanet Coastal Path		
Receptor sensitivity:	High: Receptors include people walking along a promoted route where a key component of the activity is an appreciation of the landscape.	
Assessment		
Year 1	<p>This path runs alongside the coast between Cliffs End and West of Birchington. In general views from the path will be typical of a coastal path with seascape and built coastal development constructed in close proximity to beach areas.</p> <p>Walkers between the southern edge Cliffs End and the eastern side of Margate or between the western and eastern edge of Birchington will not experience views of the built development as indicated by the ZTV (Figure 11.34).</p> <p>Between the Westgate-on-sea and Fort Promenade the development may theoretically be visible as indicated by the ZTV (Figure 11.34), although it is highly likely that all views from this section of the path and for receptors travelling in either direction, will be screened by built form in Margate, Westgate-On-Sea and Westbrook. If any views are available, only the two mobile cranes may be partially visible and views will be oblique, heavily filtered and at a separation distance of 3.5 km to the nearest built elements of the proposed airport development (northern business units) making them more susceptible to being screened.</p> <p>Views of the Proposed Development will be most noticeable between an area south of Pegwell Bay Country Park and the southern edge of Cliffs End and only for northbound travellers. From this section no ground level construction activities will be visible, however there may be views of the upper sections of two mobile canes (40m tall), the first cargo unit and ATC tower. The remaining built development emerging during this time will not be visible from this section of path as there is dense intervening vegetation on the perimeter of Pegwell Bay Country Park.</p> <p>The magnitude of change will be Negligible for locations within the ZTV and no change for areas of the path falling outside the ZTV. For the small section of path between the southern edge of Cliffs End and the southern edge of Pegwell Bay Country Park the magnitude of change will rise to low as northbound travellers will be travelling towards the development and the cranes and potential views of upper portions of buildings of the Proposed Development will be visible on the skyline represent a small change affecting a limited part of the view.</p>	
	Magnitude of change: Low (between the southern edge of Cliffs End and the southern edge of Pegwell Bay) Negligible (locations within the ZTV) No Change (remainder)	Type of effect: Permanent adverse (built elements) Temporary adverse (cranes) Mostly Neutral Significance: Not Significant
Year 10	<p>There will be no changes from the Year 1 views from along much of the path. The exception is the small section of the path between the southern edge of Pegwell Bay and Cliffs End from where, in addition to the elements present in the Year 1 view, will be potential views of the upper sections of the aircraft recycling hangars and two central cargo units as well as the intermittent and transitory views of aircraft (up to two an hour in Year 10), on flight paths to the east and west of Manston Airport. The magnitude of change will remain as low because the combined effect of all elements now present will not constitute a prominent change in the view.</p>	

Magnitude of change:	Type of effect:	Significance: Not Significant
Low (between the southern edge of Cliffs End and the southern edge of Pegwell Bay)	Permanent adverse (built elements)	
Negligible (locations within the ZTV)	Temporary adverse (cranes)	
No Change (remainder)	Mostly Neutral	

Year 20 In contrast to previous periods there will be no views of cranes as crane activity will cease by year 18. There will now only be potential views of built elements of the airport from the small section of path between the southern edge of Pegwell Bay and Cliffs End. From this section of path and in addition to the elements present in the Year 10 view, will be potential views of the upper sections of the fourth (most western) cargo unit and an extension to the recycling hangars. The magnitude of change will remain as low for this section of path because the combined effect of all elements now present will not constitute a prominent change in the view. For the remainder of the path the magnitude of change will reduce to none as the cranes will no longer be present/visible.

Magnitude of change:	Type of effect:	Significance: Not Significant
Low (between the southern edge of Cliffs End and the southern edge of Pegwell Bay)	Permanent adverse (built elements)	
No Change (remainder)	Mostly Neutral	

Table 11.86 Recreation Receptors travelling along the Turner and Dickens Walk

Turner and Dickens Walk		
Receptor sensitivity:	High: Receptors include people walking along a promoted route where a key component of the activity is an appreciation of the landscape.	
Assessment		
Year 1	The majority of the path falls outside of the ZTV (as shown in Figure 11.34). To the west of Broadstairs and eastern/central Northdown the path falls within the ZTV however views of the Proposed Development will be unlikely as they will be screened by built development in the foreground within the respective areas (Margate and Broadgate and St Peters). The only exception is the potential for distant oblique views of two mobile cranes in views from a section of the path near the railway line to the east of Northdown, a stretch of approximately 100m.	
	Magnitude of change: Negligible to No Change	Type of effect: Adverse Significance: Not Significant
Year 10	There will be no changes in the views experienced from the path at Year 1 with the exception of intermittent and transitory views of aircraft (up to two an hour in Year 10), on flight paths to the east and west of Manston Airport.	
	Magnitude of change: Negligible to No Change	Type of effect: Adverse Significance: Not Significant
Year 20	In contrast to previous periods there will be no views of the two cranes at any section of the path because construction activity will cease by Year 18. There will be an increase in ATMs (up to four an hour) although views will continue to be distant, intermittent and transitory. The magnitude of change will remain as predicted for Year 10.	
	Magnitude of change: Negligible to No Change	Type of effect: Adverse Significance: Not Significant

Table 11.87 Recreation Receptors travelling along the Viking Coastal Trail Cycle Route

Viking Coastal Trail Cycle Route	
Receptor sensitivity:	High: Receptors include people cycling along a promoted route where a key component of the activity is an appreciation of the landscape.
Assessment	
	This path runs west to east from St Nicolas at Wade to Cliffs End and then alongside the coast between Cliffs End and West of Birchington. In general, between St Nicolas at Wade and Cliffs End views will be of a rural character

with built form visible in the distance. Alongside the coast views will be typical of a coastal path with seascape and built coastal development constructed in close proximity to beach areas.

The section of path between the west of Birchington and the edge of the study area the path falls within the ZTV for the proposed operational elements of the airport. However it is unlikely that the built elements of the Proposed Development would be discernible for travellers heading in an eastbound direction since the scale of any built form at a separation distance of 5km will be susceptible to screening by fore and mid-ground elements. If any views are available they would only be oblique partial views of the upper sections of two mobile cranes for users traveling in an easterly direction only.

The section of path between west of Westgate-on-sea and east of Birchington dips into the ZTV for the Proposed Development (**Figure 11.34**). Again, it is highly likely views of any emerging built form within the site from this section of the path will be screened by built form along the coast. If any views are available they would only be oblique partial views of the top of two mobile cranes at a minimum separation distance of 3.5km.

Travellers on the section of the coastal path between the southern edge Cliffs End and Margate or between the western and eastern edge of Birchington will not experience views of the built development with inland views either being foreshortened by landform or intervening built development along the coast.

Heading westwards between Cliffs End and St Nicolas at Wade the path dips intermittently into the ZTV of the Proposed Development as shown in **Figure 11.34**. No ground level construction activities will be visible and most of the development will be screened by landform and screening vegetation along field boundaries. However, there may be oblique partial views of the two mobile cranes, upper portions of the cargo units and ATC tower for users travelling in either direction at the section of path between the underpass of the A256 and Sevenscore.

Within and to the east of Minster the path falls into the ZTV however there is unlikely to be views of the Proposed Development as there is screening from dense roadside vegetation (east of Minster) and through Minster views will be screened by built form. Between Minster and south of St Nicholas at Wade the path falls outside the ZTV and there will be no views of construction activities or the Proposed Development for that section of the path. Before the path enters St Nicolas at Wade there may be views of the Proposed Development to eastbound users, views will be partial and restricted to only the upper portions of the two mobile cranes, all other built elements and construction activities will be screened by landform. The path then enters St Nicolas at Wade all views of construction activities and the Proposed Development will be screened by built form within St Nicolas at Wade.

The magnitude of change will be low for the sections of the where views of the Proposed Development has been identified sections between Minster and St Nicolas at Wade that falls within the ZTV. The magnitude of change will be negligible for the affected views identified between the east of Birchington and the edge of the study area and between east of Westgate-on-sea and east of Birchington. From the remainder of the path there will be no visual change.

Magnitude of change:	Type of effect:	Significance: Not Significant
Low (between the underpass of the A256 and Sevenscore)	Permanent adverse (built elements)	
Negligible (between Cliffsend and the east west of Birchington)	Temporary adverse	
No Change (remainder of the route)	(cranes)	
	Mostly Neutral	

Year 10

For the vast majority of the path the views will not alter from the Year 1 views with the exception of intermittent and transitory views of aircraft (up to two an hour in Year 10), on flight paths to the east and west of Manston Airport. For the small section of the path identified above between the underpass of the A256 and Sevenscore, in addition to the elements visible in Year 1 there may be oblique partial views of upper sections of the proposed aircraft recycling hangars and central two cargo units for users of the path in either direction. The magnitude of change for the respective sections of the path will remain the same.

Magnitude of change:	Type of effect:	Significance: Not Significant
Low (between the underpass of the A256 and Sevenscore)	Permanent adverse (operation)	
Negligible to no change (remainder of the route)	Temporary adverse	
	(cranes)	

Year 20

In contrast to previous periods cranes will no longer be visible because construction activity will ease by Year 18. For the small section of the path identified above between the underpass of the A256 and Sevenscore, in addition to the elements visible in Year 10 there may be oblique partial views of upper sections of the fourth cargo facility (most western) and an extension to the recycling hangars for users of the path in either direction as well as an increase in ATMs although views of the latter will continue to be intermittent and transitory. The magnitude of change for this section of the path will remain low. From the remainder of the path there will be no visual change due to cranes no longer being components of distant views.

Magnitude of change:	Type of effect:	Significance: Not Significant
Low (between the underpass of the A256 and Sevenscore)	Permanent adverse (operation)	

Negligible to no change (remainder of the route)

Table 11.88 Recreation Receptors travelling along the Wantsum Walk

Wantsum Walk		
Receptor sensitivity:	High: Receptors include people cycling along a promoted route where a key component of the activity is an appreciation of the landscape.	
Assessment		
Year 1	<p>This path runs from St Nicolas at Wade to Birchington and then alongside the coast towards Margate. In general, between St Nicolas at Wade and Birchington views will be of a rural character with built form visible in the distance. Alongside the coast views will be typical of a coastal path with seascape and built coastal development constructed in close proximity to beach areas.</p> <p>Walkers on the eastern section of the path between the intersection with Thanet Way (A299) and St Nicholas at Wade will not experience views of the built development due to screening by intervening built development at St Nicholas at Wade.</p> <p>Between St Nicholas at Wade and the western edge of Birchington the path dips in and out of the ZTV for the Proposed Development as shown in Figure 11.34. Users of this section of the path will not experience any views of ground level construction activities or the proposed built elements as the separation distance means that both are susceptible to screening by vegetation along field boundaries and in the foreground adjacent the path. Where vegetation is less dense southbound users of this section of route may experience oblique filtered views of two mobile cranes (40m tall) which will be minor visual components at a separation distance of approximately 5km.</p> <p>Walkers on the section of path between the western edge of Birchington and the eastern tip of the path within Westgate-on-Sea will not experience any views of construction activities or built elements associated with the proposed development. Views will be screened by built form running adjacent to the coastal path.</p> <p>For the majority of the path there will be no visual change. For the section of path between St Nicolas at Wade and the western edge of Birchington the magnitude of change will be negligible as the addition of the upper sections of two mobile canes in the distance of the view will represent a very small change to a limited part of the view which may be missed by the casual observer.</p>	
	Magnitude of change: Negligible (between St Nicholas at Wade and the western edge of Birchington) No Change (remainder)	Type of effect: Temporary adverse (cranes) Mostly Neutral Significance: Not Significant
Year 10	<p>There will be no changes to the Year 1 views from the path with the exception of intermittent and transitory views of aircraft (up to two an hour in Year 10), primarily those on flight paths to the east of Manston Airport, consequently the magnitude of change will remain the same as the Year 1 view.</p>	
	Magnitude of change: Negligible	Type of effect: Temporary adverse (cranes) Permanent adverse (operation) Significance: Not Significant
Year 20	<p>In contrast to previous periods there will be no visible cranes as construction activity will cease by Year 18. There will be an increase in ATMs although views will continue to be intermittent and transitory. As a consequence, the magnitude of change will remain as predicted for Year 10.</p>	
	Magnitude of change: Negligible	Type of effect: Permanent adverse Significance: Not Significant

Recreational receptors visiting recreational destinations

11.9.5 The visual assessment for this group of visual receptors for the three LVIA assessment periods is set out in **Tables 11.87 – 11.99**. The distribution of the recreational destinations considered in the assessment is shown in **Figure 11.35**.

Table 11.89 Recreational Receptor Group 1: Manston Golf Club

Manston Golf Club		
Receptor sensitivity:	Medium: People undertaking recreational activities (golf) where it is likely their surroundings have some impact on the enjoyment.	
Assessment		
Year 1	<p>There will be some views of ground level construction activities, particularly any movements of machinery associated with the asphalt overlay in the eastern part of the site. There will be views of the upper sections of two mobile cranes (40 m tall), most prominent when constructing eastern elements of the airport, such as most eastern cargo facility.</p> <p>Most of the built elements of the proposed airports will be screened by intervening screening perimeter vegetation and infrastructure and vegetation in Manston (as it is on a raised area of land and situated between the golf course and the airport). However, there will be views of upper sections of the ATC tower, southern units of the business park, the first eastern most cargo facility. The height of the radar tower that may already be visible will be extended by an estimated 5m by the introduction of new radar equipment. This will slightly increase the visual prominence of the radar tower. Although most views ae screened, the magnitude of change will be medium because where views are available there will be prominent changes to the view due to an increase in building mass in the middle distance.</p>	
	Magnitude of change: Medium Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
Year 10	<p>In Year 10 there will be partial views of the upper sections of the two mobile cranes. In addition to the built elements visible at the Year 1 view, will be the upper portions of the northern units of the business park, the central two cargo units and the aircraft recycling hangars. Views of the business units maybe softened by the landscaping works to the east of the business units. Taxiing planes will be visible with the highest magnitudes of change occurring when aircraft is at the eastern end of the runway. The magnitude of change will remain as medium there will be a prominent change to the view in the middle distance.</p>	
	Magnitude of change: Medium Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
Year 20	<p>In contrast to previous periods there will be no ground level construction activity present, periodic crane activity will cease by Year 18. In addition to the built elements and taxiing planes visible in the Year 10 view will be the fourth most western cargo unit. Planting implemented in phase 1 along the eastern edge of the business park would be of a height that would filter and soften views of the upper portions of the business units. The magnitude of change will remain as medium as cumulatively there is a prominent change to the view in the middle distance.</p>	
	Magnitude of change: Medium Type of effect: Permanent adverse	Significance: Not Significant

Table 11.90 Recreational Receptor Group 2: Hartsdown Park

Hartsdown Park		
Receptor sensitivity:	Medium: People undertaking recreational activities (walking) where their surroundings have some impact on their enjoyment.	
Assessment		
Year 1	There will be no views of any ground level construction activities, although there may be distant filtered views of upper sections the mobile cranes. Most of the proposed built development will be screened by intervening landform and screening vegetation and built developments. However, there may be filtered, very distant views of upper portions of the first cargo facility, ATC tower and southern business units. The magnitude of visual change experienced by receptors in the park would be negligible due there being only be a very small change to long distance views that will be mostly screened.	
	Magnitude of change: Negligible Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant

Year 10	As with the view at Year 1 there may be distant views of two mobile cranes but no other ground level construction activities will be discernible. In addition to the built elements present in the Year 1 view, there may be filtered distant views of the upper portions of the northern business units and the central two cargo facilities. There will be no views of taxiing planes or other operational activities. The magnitude of visual change experienced by receptors in the park would remain as negligible as the changes may be missed by the casual observer.
	Magnitude of change: Negligible Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 20	In contrast to previous periods there will be no cranes visible as crane activity will cease by Year 18. In addition to the view at Year 10, there may be filtered distant views of the upper portion of the fourth cargo unit. The magnitude of change will remain as Negligible as views of the new built elements present will be heavily filtered and very distant.
	Magnitude of change: Negligible Type of effect: Permanent adverse (built elements) Significance: Not Significant

Table 11.91 Recreational Receptor Group 3: St Augustines Golf Club

St Augustines Golf Club	
Receptor sensitivity:	Medium: People undertaking recreational activities (golf) where it is likely their surroundings have some impact on the enjoyment.
Assessment	
Year 1	There will be no views of any ground level construction activities, however there will be partial views of the upper sections of the two mobile cranes that will be periodically present on site. Most of the built elements will be screened by either by landform (as the proposed buildings are set back from the southern edge of the plateau), perimeter vegetation around the golf club and vegetation alongside the railway line. However, there may be distant views of upper portions of the first eastern most cargo facility, ATC tower, and southern units of the business park. The magnitude of change will be low as views will mostly be screened, where views are available they will be filtered but there will be a small increase in built form on the distant horizon.
	Magnitude of change: Low Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 10	As with the view at Year 1 there will be no views of ground level construction activities, but there will be partial views of the upper sections of the two mobile cranes. In addition to the built elements visible in the Year 1 view, will be upper sections of the proposed recycling hangar, business aviation hangars, and central two cargo facilities. No stationary or taxiing aircrafts or ground level operational activities will be visible. The magnitude of change will remain as low because the change to the view will not be prominent and only affect a limited part of the view on the distant horizon.
	Magnitude of change: Low Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 20	In contrast to previous periods there will be no cranes visible as construction activity will cease by Year 18. In addition to the built elements present in the Year 10 view will be the upper portions of the fourth cargo facility (most western) and extension to the recycling hangar. The magnitude of change will remain as low because although there is an increased massing of built elements the change to the view will not be prominent and only affect a limited part of the view on the distant horizon.
	Magnitude of change: Low Type of effect: Permanent adverse Significance: Not Significant

Table 11.92 Recreational Receptor Group 4: Stonelees Golf Centre

Stonelees Golf Centre	
Receptor sensitivity:	Medium: People undertaking recreational activities (golf) where it is likely their surroundings have some impact on the enjoyment.
Assessment	

Year 1	There will be no views of any ground level construction activities, however there will be partial views of the upper sections of the two mobile cranes that will be periodically present on the airport site. Most of the built elements will be screened by landform (as the proposed buildings are set back from the southern edge of the plateau), perimeter vegetation around the golf centre and roadside/hedge vegetation in views towards the airport. However, there may be distant views of upper portions of the first eastern most cargo facility, ATC tower and southern units of the business park. The magnitude of change will be low as views will mostly be screened, where views are available they will be filtered but there will be a small increase in built form in the background of the view.
	<div> <div>Magnitude of change: Low</div> <div>Type of effect: Permanent adverse (built elements) Temporary adverse (construction)</div> <div>Significance: Not Significant</div> </div>
Year 10	As with the view at year 1 there will be no views of ground level construction activities, but there will be partial views of the upper sections of the two mobile cranes. In addition to the built elements visible in the Year 1 view, will be upper sections of the proposed breakdown hangar, business aviation hangars, and central two cargo facilities. No stationary or taxiing aircrafts or ground level operational activities will be visible. The magnitude of change will remain as low because the change to the view will not be prominent and only affect a limited part of the view in the distance.
	<div> <div>Magnitude of change: Low</div> <div>Type of effect: Permanent adverse (built elements) Temporary adverse (construction)</div> <div>Significance: Not Significant</div> </div>
Year 20	In contrast to previous periods there will be no cranes visible as crane activity will cease by Year 18. In addition to the built elements present in the Year 10 view will be the upper portions of the fourth cargo facility (most western) and extension to the recycling hangar. Although there is an increased massing of built elements the change to the view will not be prominent and only affect a limited part of the view on the distant horizon, therefore the magnitude of change will remain as low.
	<div> <div>Magnitude of change: Low</div> <div>Type of effect: Permanent adverse</div> <div>Significance: Not Significant</div> </div>

Table 11.93 Recreational Receptor Group 5: Prince's Golf Club

Prince's Golf Club	
Receptor sensitivity:	Medium: People undertaking recreational activities (golf) where it is likely their surroundings have some impact on the enjoyment.
Assessment	
Year 1	There will be no views of any ground level construction activities however there may be partial views of the upper portions of the two mobile cranes. Views of built elements of the proposed airport such as the first cargo facility and southern business units are likely to be screened by screening vegetation and built developments such as Cliffs End. The magnitude of visual change experienced by receptors at the golf course would be negligible due to a combination of separation distance and the presence of screening elements.
	<div> <div>Magnitude of change: Negligible</div> <div>Type of effect: Permanent adverse (built elements) Temporary adverse (construction)</div> <div>Significance: Not Significant</div> </div>
Year 10	As with the view at year 1 there is likely to be distant partial views of the two mobile cranes and no views of other ground level construction activities. No built elements of the proposed airport will be visible. There will be no views of taxiing planes or other operational activities. The magnitude of visual change experienced by receptors in the park would remain as negligible as there is no increase in elements associated with the proposed airport site in view.
	<div> <div>Magnitude of change: Negligible</div> <div>Type of effect: Permanent adverse (built elements) Temporary adverse (construction)</div> <div>Significance: Not Significant</div> </div>
Year 20	In contrast to previous periods there will be no partial views of the cranes as crane activity will cease by year 18. The magnitude of change will reduce to no change as there will be no built elements visible of the operational airport.
	<div> <div>Magnitude of change: No Change</div> <div>Type of effect: Neutral</div> <div>Significance: Not Significant</div> </div>

Table 11.94 Recreational Receptor Group 6: Manston Court Caravan Site.

Manston Court Caravan Site		
Receptor sensitivity:	High: Receptors will include people at their temporary place of residence with the purpose of enjoying and focusing on the landscape around them.	
Assessment		
Year 1	There will be some views of ground level construction activities such as views of the northern construction compound, stockpile area and the movement of construction machinery to and from this area. As well as views of the two mobile cranes (40 m tall), most prominent when constructing the first business units within the southern half of the business park. Most of the built elements of the proposed airport will be visible to some extent due to the proximity of the receptor to the Proposed Development (at its closest 0.15km). The upper sections of the southern units of the business park and the first eastern most cargo unit will be prominently visible. The height of the radar tower that may already be visible will be extended by an estimated 5m by the introduction of new radar equipment. This will slightly increase the visual prominence of the radar tower. The magnitude of change will be high due to there being large prominent changes to the view in the middle ground.	
	Magnitude of change: High Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Significant
Year 10	As with the view at Year 1 there will be views of two mobile cranes and other ground level construction activities. In addition to the built elements visible in the Year 1 view, will be upper sections of the new passenger terminal, the central two cargo facilities, aircraft recycling hangar and the northern units of the business park. The northern units of the business park will appear more prominent than the southern unit's due to the proximity and open nature of the views from some areas of the site set back from perimeter vegetation. At 10 Years after planting, the vegetation proposed along the eastern edge of the business park may begin to soften the facades of the 12m high business units. There may be views of ground level taxiing aircrafts on the eastern side of the airport runway. The magnitude of change will remain high due to the close proximity of the site to this group of receptors and the large proportion of views that will be affected in different directions from the receptor site.	
	Magnitude of change: High Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Significant
Year 20	In contrast to previous periods there will be no cranes visible as construction activity will cease by Year 18. In addition to the built elements visible in the Year 10 view will be views of an additional cargo facility, a further recycling hanger, addition business aviation hangar and increase in taxiing planes only visible to the eastern side of runway. The magnitude of change is likely to remain high because of increased massing of built elements within the view and increased aircraft activity introducing movement, resulting in a prominent change to the view in the middle ground.	
	Magnitude of change: High Type of effect: Permanent adverse	Significance: Significant

Table 11.95 Recreational Receptor Group 7: Preston Parks

Preston Parks	
Receptor sensitivity:	High: Receptors will include people at their temporary place of residence with the purpose of enjoying and focusing on the landscape around them.
Assessment	
Year 1	There will be views of the two mobile cranes (40 m tall), some ground level construction activities and the northern construction compound stockpile area and the movement of construction machinery to and from this area. Views of the ground level construction activities will be heavily filtered by surrounding vegetation and more severe in winter months when vegetative screening is minimal. A proportion of the built elements of the proposed airport will also be screened by intervening vegetation surrounding Preston Park. However the upper sections of the ATC tower, southern units of the business park and the first eastern most cargo unit may be visible. The height of the radar tower that may already be visible will be extended by an estimated 5m by the introduction of new radar equipment, this will slightly increase the visual prominence of the radar tower. The magnitude of change will be medium because where views are available there will be prominent changes due to the increase in the amount of building mass in the view.

Magnitude of change: Medium	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Significant
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Year 10

As with the view at Year 1 there may be views of ground level construction activities and views of the two mobile cranes. In addition to the built elements visible in the Year 1 view, the northern units of the business park, the central two cargo unit and aircraft recycling hangars will be visible. At 10 years after planting the vegetation proposed along the eastern edge of the business park may begin to soften the facades of the 12m high business units, but they would still be prominent in the views of a small proportion of residents within Preston Parks more so for the small proportion of residents whose caravans are oriented west. There will be no views of ground level taxiing aircrafts or other ground level operational activities. The magnitude of change will remain as medium as where views are available the proposed built development will remain as prominent in the view at a middle distance.

Magnitude of change: Medium	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Significant
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Year 20

In contrast to previous periods there will be no construction activity present and periodic crane activity will cease by Year 18. In addition to the built elements visible in the Year 10 view, will be the fourth most western cargo unit, however this should be mostly screened by the closest first built cargo facility present at Year 1. Planting around the eastern edge of the business park may make more of a contribution in screening and softening views of the facades of the northern most business units. The magnitude of change is likely to remain as medium given their prominence at distances of 0.6km.

Magnitude of change: Medium	Type of effect: Permanent adverse	Significance: Significant
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Table 11.96 Recreational Receptor Group 8: Birchington Vale Holiday Park

Birchington Vale Holiday Park

Receptor sensitivity: **High:** Receptors will include people at their temporary place of residence with the purpose of enjoying and focusing on the landscape around them

Assessment**Year 1**

There will be no views of any ground level construction activities, however there will be partial views of the upper sections of the two mobile cranes that will be periodically present on the airport site. Most of the proposed built elements will be screened by vegetation on the perimeter of the holiday park. However, there may be distant views of upper portions of the southern business units, the first cargo facilities and the ATC tower. The magnitude of change will be low as views will mostly be screened, where views are available they will be filtered although a small increase in built form in the background of the view may be discernible.

Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
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Year 10

As with the view at Year 1 there will be no views of ground level construction activities, but there will be partial views of the upper sections of the two mobile cranes. In addition to the built elements visible in the Year 1 view, will be upper sections of the northern business units and central two cargo facilities. No stationary or taxiing aircraft or ground level operational activities will be visible. Although there will be an increase in built form in the view the magnitude of change will remain as low because the change to the view will not be prominent and only affect a limited part of the view in the distance.

Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
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Year 20

In contrast to previous periods there will be no cranes visible as crane activity will cease by Year 18, there will be no views of other construction activities. In addition to the built elements present in the year 10 view will be the upper portions of the fourth cargo facility (most western). Although there will no longer be views of cranes due to the increase of built form in the background of the view the magnitude of change will remain as low, this will not rise to medium because built elements will not be prominent and only affect the view in the distance.

Magnitude of change: Low	Type of effect: Permanent adverse	Significance: Not Significant
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Table 11.97 Recreational Receptor Group 9: Quex Holiday Park and Campsite

Quex Holiday Park and Campsite		
Receptor sensitivity:	High: Receptors will include people at their temporary place of residence with the purpose of enjoying and focusing on the landscape around them	
Assessment		
Year 1	There will be no views of any ground level construction activities, however there will be partial views of the upper sections of the two mobile cranes that will be periodically present on the airport site. Most of the proposed built elements will be screened by dense vegetation on the perimeter of the holiday park. However, there may be distant filtered views of the rooflines of the southern business units, the first cargo facilities and the ATC tower. The magnitude of change will be low because views will mostly be screened. Where views are available they will be heavily filtered with a small increase in built form potentially discernible in the background of the view.	
	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 10	As with the view at Year 1 there will be no views of ground level construction activities, but there will be partial views of the upper sections of the two mobile cranes. In addition to the built elements visible in the Year 1 view, may be filtered views of the rooflines of the northern business units and central two cargo facilities. No stationary or taxiing aircrafts or ground level operational activities will be visible. The magnitude of change will remain as low because the change to the view will not be prominent and only affect a limited part of the view in the distance.	
	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 20	In contrast to previous periods there will be no cranes visible as construction activity will cease by Year 18. In addition to the built elements present in the Year 10 view may be heavily filtered views of the roofline of the fourth cargo facility (most western). As there will no longer be views of cranes and views of the built elements will be very filtered and mostly screened by vegetation running alongside the perimeter of the holiday park the magnitude of change will be Negligible.	
	Magnitude of change: Negligible	Type of effect: Permanent adverse Significance: Not Significant

Table 11.98 Recreational Receptor Group 10: Bradgate Holiday Park

Bradgate Holiday Park		
Receptor sensitivity:	High: Receptors will include people at their temporary place of residence with the purpose of enjoying and focusing on the landscape around them	
Assessment		
Year 1	There will be no views of any ground level construction activities, but there will be views of upper section the mobile cranes most prominent in this phase when constructing the southern units of the business park. Most of the built elements of the proposed airport will be screened due to dense hedge vegetation on the perimeter of the receptor site, mature trees boarding residential properties off Vincent Road and land rising in the direction of the airport. However, there may be some filtered views of the upper portions of the southern business units and most eastern cargo facility. The magnitude of change will be low because there will be a small change in the view affecting a limited portion of the view.	
	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 10	As with the view at year 1 there will be views of two mobile cranes but no other ground level construction activities. In addition to the built elements present in the year 1 will be filtered views of the northern units of the business park. At 10 years after planting, the vegetation proposed along the eastern edge of the business park may begin to soften the facades of the 12m high business units. There will be no views of taxiing planes or other operational activities. The views of the business units would be limited to a very small portion of the view and would not extend far above the tree line (if at all) therefore the magnitude of visual change experienced by residents would remain as low.	
	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Significance: Not Significant

Temporary adverse (construction)		
Year 20	In contrast to previous periods there will be no cranes visible as construction activity will cease by Year 18. There will be no new built elements present that were not present in the Year 10 view. The magnitude of change is likely to remain as low because where perimeter vegetation is less dense and in areas set back from the vegetation there will be some filtered views of the upper portions of airport buildings, resulting in a small change affecting a limited part of the view.	
	Magnitude of change: Low	Type of effect: Permanent adverse Significance: Not Significant

Table 11.99 Recreational Receptor Group 11: Frost Farm

Frost Farm		
Receptor sensitivity:	High: Receptors will include people at their temporary place of residence with the purpose of enjoying and focusing on the landscape around them	
Assessment		
Year 1	There will be no views of any ground level construction activities, but there may be distant filtered views at a separation distance of approximately 5km of the upper sections of the mobile cranes when constructing built elements to the west of the airport and the southern sections of the airport. Although views are relatively open from the receptor site in the direction of the airport the built elements of the proposed airport such as the first cargo facility and southern business units are likely to be screened by intervening landform and screening vegetation and built development. The magnitude of visual change experienced by receptors at Frost Farm would be negligible due to a combination of separation distance and the presence of screening elements.	
	Magnitude of change: Negligible	Type of effect: Adverse and temporary (construction activities) Significance: Not Significant
Year 10	As with the view at Year 1 there may be distant views of two mobile cranes but no views of other ground level construction activities. No built elements of the proposed airport will be visible. There will be no views of taxiing planes or other operational activities. The magnitude of visual change experienced by receptors in the park would remain as negligible	
	Magnitude of change: Negligible	Type of effect: Adverse and temporary (construction activities) Significance: Not Significant
Year 20	In contrast to previous periods there will be no cranes visible as crane activity will cease by Year 18. There will be no built elements of the operational airport visible due to a combination of separation distance and the presence of screening elements. The magnitude of change is likely to reduce to none as the cranes will no longer be present.	
	Magnitude of change: No Change	Type of effect: Neutral and permanent Significance: Not Significant

Table 11.100 Recreational Receptor Group 12: Dog and Duck Caravan Park

Dog and Duck Caravan Park		
Receptor sensitivity:	High: Receptors will include people at their temporary place of residence with the purpose of enjoying and focusing on the landscape around them	
Assessment		
Year 1	There will be no views of any ground level construction activities, however there may be distant filtered views of the upper portions of the two mobile cranes. Views towards the proposed airport site are primarily screened by dense perimeter vegetation. Most of the built elements of the airport are likely to be screened by intervening landform, screening vegetation and built developments at Minster. However, there may be distant filtered views of the upper section of the ATC tower. The magnitude of visual change experienced by receptors would be negligible due to a combination of separation distance and the presence of screening elements.	
	Magnitude of change: Negligible	Type of effect: Permanent adverse (built elements) Significance: Not Significant

Temporary adverse (construction)		
Year 10	As with the view at Year 1 there is views of the two mobile cranes and no views of other ground level construction activities. There will be no new built elements of the proposed airport visible that are not present in the Year 1 view. There will be no views of taxiing planes or other operational activities. The magnitude of visual change experienced by receptors in the park would remain as negligible as there is no increase in elements associated with the proposed airport site in view.	
	Magnitude of change: Negligible	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 20	In contrast to previous periods there will be no views of mobile cranes as construction activity will cease by Year 18. As with year 1 and 10 there will be no views of ground level operational activities, or ground level aircraft. There will be no new built elements visible that are not present in the Year 1 view. The magnitude of change will remain as negligible as there may be partial filtered views of the ATC tower from some areas within the Caravan Park.	
	Magnitude of change: Negligible	Type of effect: Permanent adverse Significance: Not Significant

Table 11.101 Recreational Receptor Group 13: Pegwell Bay Country Park

Pegwell Bay Country Park		
Receptor sensitivity:	High: Receptors will include people undertaking recreational activities where the focus of the activity is an appreciation of the landscape.	
Assessment		
Year 1	There will be no views of any ground level construction activities, however there will be partial views of the upper sections of the two mobile cranes that will be periodically present on site. Views towards the airport site from the receptor site are largely restricted by vegetation on the perimeter of the country park and landform with the proposed built form within the airport site set back from the southern edge of the plateau. However, there may be distant views of upper portions of the first eastern most cargo facility, ATC tower and southern units of the business park in winter months and where perimeter vegetation is less dense. The magnitude of change will be low as views will mostly be screened, where views are available they will be filtered but there will be a small increase in built form in the background of the view.	
	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 10	As with the view at Year 1 there will be no views of ground level construction activities, but there will be partial views of the upper sections of the two mobile cranes. In addition to the built elements visible in the Year 1 view, will be upper sections of the proposed recycling hangar, business aviation hangars, and central two cargo facilities. No stationary or taxiing aircrafts or ground level operational activities will be visible. The magnitude of change will remain as low because the change to the view will not be prominent and only affect a limited part of the view on the distant horizon.	
	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 20	In contrast to previous periods there will be no cranes visible as construction activity will cease by Year 18. In addition to the built elements present in the Year 10 view will be the upper portions of the fourth cargo facility (most western). The magnitude of change will remain as low because although there is an increased massing of built elements the change to the view will not be prominent and only affect a limited part of the view in the distance.	
	Magnitude of change: Low	Type of effect: Permanent adverse Significance: Not Significant

Recreational receptors using local public rights of way

- 11.9.6 The visual assessment for this group of visual receptors for the three LVIA assessment periods is set out for individual PRoWs close to the Proposed Development site in **Tables 11.100 – 11.111** and for groups of PRoWs in **Tables 11.112 – 11.119**. The distribution of these local PRoWs is shown in **Figure 11.36**.

Table 11.102 Recreational Receptors: PRow Receptor TE16

PRow TE16		
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.	
Assessment		
Year 1	<p>This recreational receptor covers users of PRow TE16, a public footpath~ 1.4km in length, which extends from Cleve Court Farm on Minster Road in the south to Manston Road in the north, passing to the west of the Columbus Avenue Industrial Estate. The southern end of the footpath is located ~ 300m north of the site boundary, at the western end of the runway. However, due to tree cover and built form to the south and west of the footpath in this location, it is unlikely that there will be notable views to site from the southerly ~ 700m of the path. Viewpoint 10: Pumping station south of Quex Park is located at the northern end of the path and is representative of views experienced by users of the footpath, heading south from Manston Road.</p> <p>Currently, as users of the footpath leave Manston Road they cut across two large scale arable fields for a distance of ~ 550m. A ~ 50m long belt of young, deciduous trees is located at the northern end of the footpath, briefly limiting views to the south-east from the path. Viewpoint 10 is taken from just beyond this tree belt, and takes in expansive south-easterly views across arable fields extending from the fore to middle ground of view. In the background of views, a hedgerow and mature trees surrounding Cheeseman's Farm, on Alland Grange Lane is visible. The rooftops of farm buildings are discernible. From this location, there are no views to the site at ground level. However, in Year 1 there may be potential for partial views to construction activities visible in the background of views, beyond the treeline. Upper portions of taller buildings on site, including the proposed business park located ~ 2km to the east, cargo facilities located ~ 2km south-east, the proposed ATC tower, or mobile cranes in use across the site at various points during the construction phase, may be partially visible above the treeline in background views. The magnitude of change to views experienced by users of this footpath is considered likely to be Medium, as the Proposed Development will give rise to large scale changes in the background of views, and will be notable in views but not dominant.</p>	
	Magnitude of change: Medium	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Significant
Year 10	<p>In Year 10, as at Year 1, there may be potential for partial views to construction activities visible in the background of views, beyond the treeline. Upper portions of taller buildings on site, including the proposed business park located ~ 2km to the east, cargo facilities located ~ 2km south-east, the proposed ATC tower, or mobile cranes in use across the site at various points during the construction phase, may be partially visible above the treeline in background views. The magnitude of change to views experienced by users of this footpath is considered likely to be Medium, as the Proposed Development will give rise to large scale changes in the background of views, and will be notable in views but not dominant.</p>	
	Magnitude of change: Medium	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Significant
Year 20	<p>In year 20, construction activity on site will be complete. Upper portions of taller buildings on site, including the proposed business park located ~ 2km to the east, cargo facilities located ~ 2km south-east, and the ATC tower, may be partially visible above the treeline in background views. The magnitude of change to views experienced by users of this footpath is considered likely to be Medium, as the Proposed Development will give rise to large scale changes in the background of views, and will be notable in views but not dominant.</p>	
	Magnitude of change: Medium	Type of effect: Permanent adverse Significance: Significant

Table 11.103 Recreational Receptors: PRow Receptor TE18

PRow TE18	
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.
Assessment	
Year 1	This recreational receptor covers users of PRow TE18, a public footpath~ 1.6km in length, which extends from Plumstone Road in the west to Minster Road in the east, following a farm access track for the majority of its length.

The eastern end of the footpath is located ~ 90m north-west of the site boundary, and the western end of the runway. Views to the south-east take in the curtilage of the B2190 and roundabout with Minster Road in the foreground of views. In the middle ground of views, the security fencing surrounding the site's western end is visible, with the flat grassed field to the west of the runway visible in the background of views, extending to the horizon. The existing built form of the airport is visible in the background of easterly views, looking east along the B2190.

From the western end of the footpath, at Plumstone Road, foreground and middle ground views take in arable fields, with a block of mature trees present around Plumstone Farm, located midway along the footpath. Views to the site and existing airport are a feature of notable height on the skyline in an otherwise flat, arable landscape.

At Year 1, Proposed Development in the western end of the site includes the reinstatement/construction of the airport access road, and the upgrading of approach lights, just within the fenceline, which may potentially involve earthworks and vehicular movements in the middle ground of views, as experienced from the eastern end of the footpath. Construction of the built form in the centre of the site (aircraft stands, cargo facilities and new air traffic control tower) is likely to be partially visible in the background of easterly views, with the movement of cranes on the skyline drawing the eye. These views are likely to be notable from the majority of the footpath, providing sequential views of the Proposed Development when travelling from west to east.

The magnitude of change to views experienced by users of this footpath is considered likely to be Medium, as the Proposed Development will give rise to large scale changes in the background of views, and will be notable in views but not dominant.

Magnitude of change: Medium	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Significant
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Year 10

In Year 10, works to the western end of the site will be completed, with the majority of construction activity taking place within the centre of the site, including extensions to the cargo facilities and recycling facilities and continuing earthworks. Built form and construction activity is likely to be partially visible in the background of easterly views, with the movement of cranes on the skyline drawing the eye. Soft landscaping proposals along the north-western airport boundary will have been instated, and may provide some softening of the edges of development in easterly views. Views to the Proposed Development are likely to be notable from the majority of the footpath, providing sequential views of the Proposed Development when travelling from west to east.

Magnitude of change: Medium	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Significant
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Year 20

In Year 20, construction activity on site will be complete. The built form at the centre of the site is likely to be notable in background views, potentially partially screened by landscaping along the north-western boundary, which will have had the opportunity to mature to full height. The magnitude of change to views experienced by users of this footpath is considered likely to be Medium, as the Proposed Development will give rise to large scale changes in the background of views, and will be notable in views but not dominant.

Magnitude of change: Medium	Type of effect: Permanent adverse	Significance: Significant
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Table 11.104 Recreational Receptors: PRoW Receptor TR8

PRoW TR8	
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.
Assessment	
Year 1	<p>This recreational receptor covers users of PRoW TR8, a public bridleway which extends ~ 350m west from High Street, Manston, entering within the eastern end of the site boundary, then turning north at a field boundary to extend ~ 520m north to join the B2050. Approximately ~ 600m of this bridleway is located within the site boundary, in the vicinity of the proposed airport carpark.</p> <p>Currently, as users of the bridleway leave High Street Manston, they enter an arable field, bounded by airport security fencing directly to the south and to the west of the field boundary. At year 1, the existing arable field will be the site of the proposed contractor's main compound. (A temporary diversion of this PRoW during the construction period is likely.) Foreground views in all directions will take in construction activity, including groundworks, earth moving, welfare facilities and many vehicular movements. The existing airport carpark is located to the west of the footpath. The middle ground of westerly and northerly views will likely take in the construction of the airport's built form, including the aircraft stands, fire station and business units to the north. Mobile cranes will also be visible at various points during the construction period. At the northern end of the footpath, an area of mature trees and</p>

shrubs surrounds a derelict building on the western side of the path. At the junction with the B2050, foreground views will take in the road curtilage, with middle ground views to terraced properties along Manston Court Road, and background views to the construction of the proposed business park. The predicted magnitude of change is considered likely to be High, due to the receptor's location within the Proposed Development site.

Magnitude of change: High	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Significant
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Year 10 In year 10, as in year 1, foreground views will take in the contractor's main compound for the ~ 600m of the brideway which falls within the site boundary. Middle distance views will take in the built form of the aircraft recycling hangar, the aircraft stands, cargo facilities and terminal building. Construction may still be on-going in limited areas within the site (such as the extensions to the recycling hangar and cargo buildings, and mobile cranes may still be occasionally visible). The proposed business park to the north of the B2050 will be completed, and the soft landscaping surrounding its eastern edge will be established, providing a small amount of screening to northerly views.

Magnitude of change: High	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Significant
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Year 20 In Year 20, foreground views will take in an overflow carpark and an extension to the main carpark for the ~ 600m of the brideway which falls within the site boundary. Middle distance views will take in the built form of the aircraft recycling hangar, the aircraft stands, cargo facilities and terminal building. The proposed business park to the north of the B2050 will be completed, and the soft landscaping surrounding its eastern edge will be mature, providing a potentially substantial amount of screening to northerly views.

Magnitude of change: High	Type of effect: Permanent adverse	Significance: Significant
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Table 11.105 Recreational Receptors: PRoW Receptor TR9

PRoW TR9					
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.				
Assessment					
Year 1	<p>This recreational receptor covers users of PRoW TR9, a public bridleway ~ 350m in length, which extends from High Street, Manston, following farm access tracks east and south, then entering within the eastern end of the site boundary, to the north-east of the existing runway. The end of the bridleway within the site boundary appears to be a remnant, which no longer connects to the wider PRoW network.</p> <p>Currently, as users of the bridleway leave High Street Manston, they enter a minor lane which accesses the Chapel Farm residence. The lane is lined by mature trees along much of its length, and ends at the entrance to an arable field, where the bridleway continues south along the field boundary until meeting the airport boundary fence. Beyond the boundary fence is an area of mown grass to the east of the existing runway. Views to the site are limited by field boundary hedgerows and trees, but filtered partial views to the eastern end of the runway may be possible from the southern end of this PRoW.</p> <p>At year 1, the access road which follows the fence line to the north-east of the runway will be reinstated/constructed, giving rise to construction activity in the foreground of southerly views. In the middle distance of southerly views, works to the taxiways and runways may be partially visible. Where gaps in the foreground vegetation allow, there may be westerly and northerly framed views to the upper portions of built form, including to the fire station, aircraft stands, cargo facilities and business park to the north, as well as to the mobile cranes on site during the construction period. The predicted magnitude of change is considered likely to be Medium, due to the receptor's close proximity to the development site, in combination with the likely high levels of vegetative screening in the foreground of views.</p> <table><tr><td>Magnitude of change: Medium</td><td>Type of effect: Permanent adverse (built elements) Temporary adverse (construction)</td><td>Significance: Significant</td></tr></table>		Magnitude of change: Medium	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Significant
Magnitude of change: Medium	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Significant			
Year 10	<p>In Year 10, there are no further proposed changes to this end of the site. Where gaps in the foreground vegetation allow, there may be westerly and northerly framed views to the upper portions of built form, including to the fire station, aircraft stands, cargo facilities and business park to the north, as well as to the mobile cranes on site during the construction period. In addition, aircraft movements on the taxiways and runways may be notable in the middle ground of southerly views. The predicted magnitude of change is considered likely to be Medium, due to the receptor's close proximity to the development site, in combination with the likely high levels of vegetative screening in the foreground of views.</p>				

Magnitude of change: Medium	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Significant
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Year 20 In Year 20, as in Year 10, there are no further proposed changes to this end of the site. Where gaps in the foreground vegetation allow, there may be westerly and northerly framed views to the upper portions of built form. In addition, aircraft movements on the taxiways and runways may be notable in the middle ground of southerly views. The predicted magnitude of change is considered likely to be Medium, due to the receptor's close proximity to the development site, in combination with the likely high levels of vegetative screening in the foreground of views.

Magnitude of change: Medium	Type of effect: Permanent adverse	Significance: Significant
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Table 11.106 Recreational Receptors: PRow Receptor TR10

PRow TR10		
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.	
Assessment		
Year 1	<p>This recreational receptor covers users of PRow TR10, a public bridleway ~ 950m in length, which extends from Chapel Farm, Manston, to the east, following a farm access track, to join the A256 to the east in the vicinity of Ozengell Grange. The western end of the bridleway is located ~ 150m north of the site boundary</p> <p>Currently, as users of the bridleway leave the A256, they follow the grassed margins between two large scale arable fields to the north and south of the path. A small block of woodland is located at Ozengell Grange, at the eastern end of the bridleway. Views to the west are unenclosed, and take in flat, arable fields in the foreground and a belt of mature trees in the middle distance, surrounding Chapel Farm.</p> <p>At Year 1, there may be potential for partial views to the eastern side of the site, with construction activities visible in the background of views, either the upper portions of taller buildings in the centre of the site or mobile cranes, or views to ground level where gaps in tree cover allow. At the western end of the bridleway there may be potential for close range views to activity on site, where gaps in tree cover allow.</p>	
	Magnitude of change: Medium	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Significant
Year 10	<p>In Year 10, as at Year 1, there may be potential for partial views to the eastern side of the site, with construction activities visible in the background of views, either the upper portions of taller buildings in the centre of the site or mobile cranes, or views to ground level where gaps in tree cover allow. At the western end of the bridleway there may be potential for close range views to activity on site, where gaps in tree cover allow. Where gaps in the foreground vegetation allow, there may be westerly and northerly framed views to the upper portions of built form, including to the fire station, aircraft stands, cargo facilities and business park to the north, as well as to the mobile cranes on site during the construction period. In addition, aircraft movements on the taxiways and runways may be notable in the back ground of westerly views. The predicted magnitude of change is considered likely to be Medium, due to the receptor's close proximity to the development site, in combination with the likely high levels of vegetative screening in the foreground of views.</p>	
	Magnitude of change: Medium	Type of effect: Permanent adverse (operation) Temporary adverse (construction) Significance: Significant
Year 20	<p>In Year 20, construction activity on site will be complete. Where gaps in the foreground vegetation allow, there may be westerly and northerly framed views to the upper portions of built form. In addition, aircraft movements on the taxiways and runways may be notable in the background of westerly views. The predicted magnitude of change is considered likely to be Medium, due to the receptor's close proximity to the development site, in combination with the likely high levels of vegetative screening in the foreground of views.</p>	
	Magnitude of change: Medium	Type of effect: Permanent adverse Significance: Significant

Table 11.107 Recreational Receptors: PRow Receptor TR22

PRoW TR22		
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.	
Assessment		
Year 1	<p>This recreational receptor covers users of PRoW TR22, a public footpath~ 780m in length, which extends from the entrance to Manston Caravan and Camping Park, on the eastern side of Manston Road, to the south and east to meet the B2050, then east to end at Preston Road. At its nearest point, along the B2050, the footpath is located ~ 240m north-east of the site boundary. Views from the northern end of the footpath, from the entrance off Manston Court Road, tend to be largely screened by built form and tree cover, as the footpath passes between residential properties and through the caravan park. As users of the footpath leave caravan park, which is surrounded by dense deciduous hedges, they cross over a stile and enter an arable field directly to the north of the B2050. From this location, views to the west and south are expansive. Although not taken from the footpath, Viewpoint 6: B2050 western edge of Manston is located within ~ 140m of the footpath, along the B2050, and is considered generally representative of views which may be experienced from the footpath at the edges nearest the B2050. From these locations, westerly and southerly foreground views will take in the curtilage of the B2050, and arable fields in the middle ground of views. In the background of westerly views the existing built form within the site is visible. The flat expanse of the runway, surrounded by security fencing, is visible in the background of southerly views. Views from the eastern section of the footpath, between the B2050 and Preston Road are likely to be heavily screened and filtered by high hedgerow vegetation, which surrounds the path on both sides. If the maintenance regime along these hedgerows were to change, expansive views to the south and west might be possible, taking in the Proposed Development in background views.</p> <p>At Year 1, from the sections of the footpath nearest the B2050, the Proposed Development on site will be clearly visible in the background of southerly and westerly views. This includes the built form and the construction activity associated with the proposed aircraft hangars and cargo facilities, as well as activity within the contractor's main compound, which will be located at the eastern edge of the site, nearest to the B2050. Mobile cranes may also be visible across the site, with movements on the skyline drawing the eye.</p> <p>The magnitude of change to views experienced by users of this footpath is considered likely to be High as the Proposed Development will give rise to large scale changes which are likely to be dominant views for the sections of the footpath nearest the B2050.</p>	
	Magnitude of change: High	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Significant
Year 10	<p>In Year 10, as in Year 1, views from the sections of the footpath nearest the B2050 are likely to have clear views to the majority of the built form in the centre of the site. As a small amount of construction activity is still likely to be on-going at this stage, mobile cranes may be visible on the horizon, and the contractor's main compound will still be in use, at the edge of the site nearest the viewer. Aircraft movements at the eastern ends of the runway and taxiway may also be notable in views.</p>	
	Magnitude of change: High	Type of effect: Permanent adverse (operation) Temporary adverse (construction) Significance: Significant
Year 20	<p>In Year 20, construction activity on site will be complete. Views from the sections of the footpath nearest the B2050 are likely to have clear views to the majority of the built form in the centre of the site. Car parking will occupy the edge of the site nearest the viewer. Aircraft movements at the eastern ends of the runway and taxiway may also be notable in views.</p>	
	Magnitude of change: High	Type of effect: Permanent adverse Significance: Significant

Table 11.108 Recreational Receptors: PRow Receptor TR23

PRoW TR23	
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.
Assessment	

Year 1	<p>This recreational receptor covers users of PRoW TR23, a public footpath~ 550m in length, which cuts across fields to serve as a pedestrian bypass of a dog-leg bend in Preston Road. The footpath extends from Preston Road in the south, with its entrance adjoining the entrance to Maytree Park, a small caravan park, running north through a field of well-wooded pasture and through a solar farm, to re-join Preston Road on its north-eastern extent. At its nearest point, the footpath is ~ 500m east of the site boundary. In spite of its proximity to the site, there are unlikely to be clear views to the Proposed Development from the majority of its length, due to screening by heavily wooded field boundaries in the foreground and middle ground of views at its southern end, and the surrounding built form of the solar farm in the foreground and middle ground of views at its northern end.</p> <p>At Year 1, the majority of the construction activities on site will be taking place to the south-west of the viewer, and are unlikely to be clearly visible from the footpath, due to screening by intervening built form and tree cover. Partial views to the upper portions of the higher buildings on site, and to the mobile construction cranes may be possible, where gaps in built form and tree cover allow.</p> <p>The magnitude of change to views experienced by users of this footpath is considered likely to be Low as the Proposed Development will give rise to only minor changes in the background of views, as experienced from a location with a substantial amount of tree cover and built form in the foreground and middle ground of views.</p>	<p>Magnitude of change: Low</p> <p>Type of effect: Permanent adverse (built elements) Temporary adverse (construction)</p> <p>Significance: Not Significant</p>
Year 10	<p>In Year 10, as in Year 1, the majority of the construction activities on site will be taking place to the south-west of the viewer, and are unlikely to be clearly visible from the footpath, due to screening by intervening built form and tree cover. Partial views to the upper portions of the higher buildings on site, and to the mobile construction cranes may be possible, where gaps in built form and tree cover allow. The eaves and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of westerly views, where gaps in vegetation and built form allow.</p>	<p>Magnitude of change: Low</p> <p>Type of effect: Permanent adverse (operation) Temporary adverse (construction)</p> <p>Significance: Not Significant</p>
Year 20	<p>In Year 20, construction activity on site will be complete. Partial views to the upper portions of the higher buildings within the main site may be possible where gaps in built form and tree cover allow. The eaves and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of westerly views, where gaps in vegetation and built form allow.</p>	<p>Magnitude of change: Low</p> <p>Type of effect: Permanent adverse</p> <p>Significance: Not Significant</p>

Table 11.109 Recreational Receptors: PRoW Receptor TR24

PRoW TR24	
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.
Assessment	
Year 1	<p>This recreational receptor covers users of PRoW TR24, a public footpath~ 1.7km in length, which extends from Manston Court Road, along field boundaries, south to Coldswood Farm, and south to Spratling Street, forming a sharp turn to the north and east to join Haine Road. At its nearest point, the footpath is located ~ 1km east of the site boundary. At the northern end of the path, located ~ 1.1km north-east of the northern end of the business park site, the path follows field boundaries between unenclosed, large scale arable fields. When the path reaches Coldswood Farm, ~ 500m to the south of Manston Court Road, foreground views may be partially screened by mature trees in the foreground of views, and in the middle ground of views, surrounding properties on Preston Road. As the path extends south to Spratling Street, foreground views take in unenclosed arable fields, while westerly views in the direction of the site will have screening in the middle ground of views, where mature tree belts surround Preston Park caravan site. The section of path between Spratling Street and Haine Road is likely to have foreground and middle ground views across unenclosed arable fields, with multiple layers of tree cover and occasional rooftops of built form visible in background views to the west.</p> <p>At Year 1, the majority of the construction activities on site will be taking place to the south-west of the viewer. Partial background views to the upper portions of the higher buildings on site, and to the mobile construction cranes may be occasionally possible, where gaps in foreground and middle ground tree cover allow.</p> <p>The magnitude of change to views experienced by users of this footpath is considered likely to be Low as the Proposed Development will give rise to only minor changes in the background of views.</p>

	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
Year 10	In Year 10, as in Year 1, the majority of the construction activities on site will be taking place to the south-west of the viewer, and are unlikely to be clearly visible from the footpath, due to screening by multiple layers of tree cover. Partial views to the upper portions of the higher buildings on site, and to the mobile construction cranes may be possible, where gaps in fore and mid-ground tree cover allow. The eaves and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of westerly views, where gaps in vegetation allow.		
	Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant
Year 20	In Year 20, construction activity on site will be complete. Partial views to the upper portions of the higher buildings within the main site may be possible where gaps in built form and tree cover allow. The eaves and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of westerly views, where gaps in vegetation allow.		
	Magnitude of change: Low	Type of effect: Permanent adverse	Significance: Not Significant

Table 11.110 Recreational Receptors: PRow Receptor TR25

PRow TR25			
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.		
Assessment			
Year 1	<p>This recreational receptor covers users of PRow TR25, a public footpath~ 250m in length, which follows the northern boundary of an arable field, joining Preston Road in the west and a farm access track in the east. At its nearest point, the footpath is located ~ 700m east of the site boundary. Mature trees lining Preston Road to the west of the footpath are likely to largely screen and heavily filter most views in the direction of site.</p> <p>At Year 1, the majority of the construction activities on site will be taking place to the south-west of the viewer, and are unlikely to be clearly visible from the footpath, due to screening by multiple layers of tree cover. Partial background views to the upper portions of the higher buildings on site, and to the mobile construction cranes may be occasionally possible, where gaps in foreground and middle ground tree cover allow.</p> <p>The magnitude of change to views experienced by users of this footpath is considered likely to be Low as the Proposed Development will give rise to only minor changes in the background of views.</p>		
	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
Year 10	In Year 10, as in Year 1, the majority of the construction activities on site will be taking place to the south-west of the viewer, and are unlikely to be clearly visible from the footpath, due to screening by multiple layers of tree cover. Partial views to the upper portions of the higher buildings on site, and to the mobile construction cranes may be possible, where gaps in fore and mid-ground tree cover allow. The eaves and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of westerly views, where gaps in vegetation allow.		
	Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant
Year 20	In Year 20, construction activity on site will be completed. Partial views to the upper portions of the higher buildings within the main site may be possible where gaps in built form and tree cover allow. The eaves and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of westerly views, where gaps in vegetation allow.		
	Magnitude of change: Low	Type of effect: Permanent adverse	Significance: Not Significant

Table 11.111 Recreational Receptors: PRow Receptor TR26

PRoW TR26		
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.	
Assessment		
Year 1	<p>This recreational receptor covers users of PRoW TR26, a public footpath~ 110m in length, which follows a field boundary between Haine Road to the west and New Haine Road to the east. At its nearest point, the footpath is located ~ 1.4km north-east of the site boundary. Foreground views along the entire length of the path are likely to be heavily filtered and screened by foreground vegetation, as field and property boundaries in this location are surrounded by mature trees.</p> <p>At Year 1, the majority of the construction activities on site will be taking place to the south-west of the viewer. Partial background views to the upper portions of the higher buildings on site, and to the mobile construction cranes may be occasionally possible, where gaps in foreground and middle ground tree cover allow.</p> <p>The magnitude of change to views experienced by users of this footpath is considered likely to be Low as the Proposed Development will give rise to only minor changes in the background of views.</p>	
	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction) Significance: Not Significant
Year 10	<p>In Year 10, as in Year 1, the majority of the construction activities on site will be taking place to the south-west of the viewer, and are unlikely to be clearly visible from the footpath, due to screening by multiple layers of tree cover. Partial views to the upper portions of the higher buildings on site, and to the mobile construction cranes may be possible, where gaps in foreground and middle ground tree cover allow. The eaves and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of westerly views, where gaps in vegetation allow.</p>	
	Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction) Significance: Not Significant
Year 20	<p>In Year 20, construction activity on site will be complete. Partial views to the upper portions of the higher buildings within the main site may be possible where gaps in built form and tree cover allow. The eaves and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of westerly views, where gaps in vegetation allow.</p>	
	Magnitude of change: Low	Type of effect: Permanent adverse Significance: Not Significant

Table 11.112 Recreational Receptors: PRow Receptor TR31

PRoW TR31	
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.
Assessment	
Year 1	<p>This recreational receptor covers users of PRoW TR31, a public footpath~ 400m in length, which links Spratling Street in the north with Elm Grove, a residential close off of the B2050, in the south. At its nearest point, at its southern end, the footpath is located ~ 500m east of the site boundary. From Spratling Street, foreground views take in an adjoining residential property and hedge-lined field boundaries, before entering a hedge-lined arable field. Field boundaries to the west contain a number of mature trees emergent from the hedgerow in the middle ground of westerly views. The path cuts diagonally across the field, then passes between well-wooded garden boundaries to emerge at Elm Grove.</p> <p>At Year 1, the majority of the construction activities on site will be taking place to the west and south-west of the viewer. Partial background views to the upper portions of the higher buildings on site, and to the mobile construction cranes may be occasionally possible, where gaps in fore and mid-ground tree cover allow.</p>

The magnitude of change to views experienced by users of this footpath is considered likely to be Low as the Proposed Development will give rise to only minor changes in the background of views.

Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
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Year 10 In Year 10, as in Year 1, the majority of the construction activities on site will be taking place to the west and south-west of the viewer, and are unlikely to be clearly visible from the footpath, due to screening by multiple layers of tree cover and built form. Partial views to the upper portions of the higher buildings on site, and to the mobile construction cranes may be possible, where gaps in foreground and middle ground tree cover and built form allow. The eaves and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of north-westerly views, where gaps in vegetation allow.

Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant
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Year 20 In Year 20, construction activity on site will be completed. Partial views to the upper portions of the higher buildings within the main site may be possible where gaps in built form and tree cover allow. The eaves and rooftops of the buildings within the northern end of the proposed business park site may occasionally be partially visible in the background of north-westerly views, where gaps in vegetation allow.

Magnitude of change: Low	Type of effect: Permanent adverse	Significance: Not Significant
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Table 11.113 Recreational Receptors: PRow Receptor TR32

PRow TR32

Receptor sensitivity: **High:** Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.

Assessment

Year 1 This recreational receptor covers users of PRow TR32, a public footpath ~ 1.4km in length, Canterbury Road West in the north with Cottingham Lane, in the south. The site boundary and proposed fuel farm are located just to the north of Canterbury Road West, with the runway located ~ 240m north of the northern end of the footpath.
Viewpoint 3: Canterbury Road West PRow is taken from the northern end of the footpath, just south of residential properties located along Canterbury Road West. In Viewpoint 3, there are no views to the Proposed Development, due to rising landform to the north of Canterbury Road West. The majority of the footpath is not modelled as having theoretical visibility to the Proposed Development, however mid-way along the path, an elevated section of the path crosses over the A256 tunnel, and may have potential partial views to the Proposed Development. Foreground views in this location take in an arable field to the north, with rising landform, built form and tree cover in the middle ground of views, and potential for partial views to the upper portions of the Proposed Development in background views.

At Year 1, the construction activity on site may be partially visible in northerly background views to the upper portions of the higher buildings on site. Mobile construction cranes may also be occasionally partially visible in background views.

The magnitude of change to views experienced by users of this footpath is considered likely to be Low as the Proposed Development will give rise to only minor changes in the background of views.

Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
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Year 10 In Year 10, as in Year 1, it is possible that there will be minor partial background views to the upper portions of built form on site, and to mobile construction cranes on site. Movements of aircraft on the runway may also be partially visible from this location, in the background of northerly views.

Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant
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Year 20 In Year 20, construction activity on site will be complete. Partial views to the upper portions of the higher buildings on site may be possible in the background of northerly views. Movements of aircraft on the runway may also be partially visible from this location, in the background of northerly views.

Magnitude of change: **Low**

Type of effect: **Permanent adverse**

Significance: **Not Significant**

Table 11.114 Recreational Receptors: PRoW Group A

Group A: PRoWs between Birchington and St. Nicholas at Wade		
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.	
Assessment		
Year 1	<p>This recreational receptor group covers users of PRoWs located at the north-western edge of the study area, from the A28, south of St. Nicholas at Wade, north to the coastline and east to the settlement of Birchington. At its nearest point, the Proposed Development is ~ 2.4km south-east of the receptor group, near the small settlement of Brooksend. These PRoWs generally cross a landscape of large scale arable fields, and link settlements and isolated farms to the road network, and to the coastline. Some of these PRoWs also form part of promoted long distance footpaths, users of which are considered separately. Viewpoint 19: St. Nicholas at Wade is taken from the southern edge of this PRoW group (though the photograph is taken from the junction of the A28 and Orchard Lane, not from a PRoW), and is generally indicative of the typical landscape and views experienced from the area. The Thanet Earth greenhouses are located just to the south of the A28, and are likely to be prominent in some south-easterly views from this area, or screen views to the proposed development, as is the case in Viewpoint 19. In the ZTV model, potential views to the site are possible from areas of high open ground, generally arable fields, crossed by PRoWs. Due to the distance between the viewers and the proposed development, it is unlikely that the Proposed Development will be a notable feature in views. Where views are possible, it is likely that the Proposed Development will be viewed as a very minor addition to built form along the skyline in background views. During the construction period, mobile cranes may occasionally be visible as minor features in background views.</p>	
	Magnitude of change: Negligible	Type of effect: Neutral Significance: Not Significant
Year 10	<p>It is likely that effects in Year 10 will be as described for Year 1.</p>	
	Magnitude of change: Negligible	Type of effect: Neutral Significance: Not Significant
Year 20	<p>At Year 20, effects upon receptors are likely to be the same as those described above for Year 1, but without construction activity present on site.</p>	
	Magnitude of change: Negligible	Type of effect: Neutral Significance: Not Significant

Table 11.115 Recreational Receptors: PRoW Group B

Group B: PRoWs between Brooksend and West Brook	
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.
Assessment	
Year 1	<p>This recreational receptor group covers users of PRoWs located to the north-west of the proposed development, which cross arable fields at the edges of settlements along the coast. At its nearest point, the Proposed Development is ~ 1.4km south of the receptor group, near Viewpoint 10 Pumping Station south of Quex Park. Viewpoint 15 PRoW, Shottenden Road is also taken from within this receptor group area.</p> <p>Unusually for the study area, the landscape surrounding these PRoWs has tree belts and hedges frequently present in foreground, with substantial tree cover in the vicinity of Quex Park, and tree belts present along some field boundaries. However, where PRoWs cross open fields, there may be partial views to the proposed development, with the upper portions of built form visible on the skyline. During the construction phase, the movement of cranes on the horizon may be notable in some views. Due to distance from the site and likely partial screening of many views, it is unlikely that the Proposed Development will play more than a minor role in background views to the south-east.</p>

	Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
Year 10	It is likely that effects in Year 10 will be as described for Year 1.		
	Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant
Year 20	At year 20, effects upon receptors are likely to be the same as those described above for year 1, but without construction activity present on site.		
	Magnitude of change: Low	Type of effect: Permanent adverse	Significance: Not Significant

Table 11.116 Recreational Receptors: PRow Group C

PRowS between Lydden and West Brook			
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.		
Assessment			
Year 1	<p>This recreational receptor group covers users of PRowS located to the north of the Proposed Development, which frequently follow farm access tracks between arable fields, linking minor roads. At its nearest point, the Proposed Development is ~ 450m south of the receptor group. Viewpoint 7: Vincent Road near Flete Farm, Viewpoint 13: Nash Court, Nash Road, Margate and Viewpoint 14: Junction of High Street and Shottendene Road, southern Garlinge are all taken from within this receptor group area. It is considered likely that views experienced from the PRowS in the southern half of this receptor group will be similar in content to those represented in Viewpoint 7, and PRowS in the northern half will be similar in content to those represented in Viewpoints 13 and 14.</p> <p>From the northern half of the receptor group area, it is likely that the Proposed Development will be a very minor additional built form in the background of views, with only the upper portions of the highest structures on site potentially visible on the skyline. In Year 1, mobile construction cranes may be occasionally discernible in views.</p> <p>From the southern half of the receptor group area, the upper portions of built form may be clearly visible on the horizon in southerly views. At Year 1, construction within the business park site and within the main site is likely to be prominently visible in the background of views, with the movement of construction cranes potentially drawing the eye.</p> <p>It is considered likely that the Proposed Development will give rise to a Medium magnitude of change, as from the nearest PRowS, it introduces large-scale elements of built form into the background of generally rural, undeveloped views.</p>		
	Magnitude of change: Medium	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Significant
Year 10	It is likely that effects in Year 10 will be as described for Year 1.		
	Magnitude of change: Medium	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Significant
Year 20	At Year 20, effects upon receptors are likely to be the same as those described above for Year 1, but without construction activity present on site.		
	Magnitude of change: Medium	Type of effect: Permanent adverse	Significance: Significant

Table 11.117 Recreational Receptors: PRow Group D

PRowS around A255 between Westwood and Northdown
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Receptor sensitivity: **High:** Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.

Assessment

Year 1 This recreational receptor group covers users of PROWs located to the north-east of the proposed development. At its nearest point, the Proposed Development is ~ 2.4m south-west of the receptor group. This receptor group is surrounded on all sides by urbanised or industrial areas. PROWs tend to be footpaths extending from settlement edges, following field boundaries between irregular shaped arable fields. Tree belts are common in this area, with tree cover surrounding farms, settlement edges, the rail line and some field boundaries. Some of these footpaths cross major roads, and a rail line at the north-eastern side of the receptor group. It is considered likely that due to the surrounding built form, vegetative screening and distance from the site, there will be no notable views to the Proposed Development or construction activities on the site with the exception of the presence of elevated crane activity.

Magnitude of change: **Negligible** Type of effect: **Neutral** Significance: **Not Significant**

Year 10 In Year 10, as in Year 1, described above, it is considered unlikely that the Proposed Development will form a notable part of any views.

Magnitude of change: **Negligible** Type of effect: **Neutral** Significance: **Not Significant**

Year 20 In Year 20, as in Year 1, described above, it is considered unlikely that the Proposed Development will form a notable part of any views.

Magnitude of change: **Negligible** Type of effect: **Neutral** Significance: **Not Significant**

Table 11.118 Recreational Receptors: PROW Group E

Group E: PROWs between Minster and Cliffs End

Receptor sensitivity: **High:** Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.

Assessment

Year 1 This recreational receptor group covers users of a small number of PROWs extending from the eastern edge of Minster, following field boundaries to the north-east, east and south. A rail line forms the southern edge of the receptor group area, located at ~ 10m AOD, with land rising gently to ~ 50m AOD at the site boundary to the north. The eastern boundary of the receptor group area is formed by the A256. Banked hedges with emergent mature trees form field boundaries and follow minor lanes, though contain many gaps and areas of varying management. Many of the larger detached residences in the area have well-treed gardens. The combined effect creates multiple layers of vegetative screening across the landscape, allowing occasional filtered or framed views to the north.

Viewpoint 11 Viking Coastal Trail, Cottingdon Road is taken from within this receptor group area (but not from a PROW) and illustrates typical landscapes in this area, and the rising landform to the north. Due to screening by landform and tree cover, it is considered likely that at Year 1, during the construction phase, only the tallest site elements (likely to be mobile construction cranes) are likely to be occasionally visible, where gaps in vegetation allow. Given that the southern side of the site hosts the runway, and no notable built form is proposed in this area, it is unlikely that the Proposed Development will give rise to more than a Low magnitude of change to existing views experienced from these PROWs.

Magnitude of change: **Low** Type of effect: **Temporary adverse** (construction) Significance: **Not Significant**

Year 10 In Year 10, as in Year 1, described above, it is considered unlikely that the Proposed Development will form a notable part of any views. The tops of the tail fins on the largest aircraft using the runway are likely to be intermittently visible moving above the horizon.

Magnitude of change: **Low** Type of effect: **Permanent adverse** (operation)
Temporary adverse (construction) Significance: **Not Significant**

Year 20 In Year 20, as in Year 1, described above, it is considered unlikely that the Proposed Development will form a notable part of any views. The tops of the tail fins on the largest aircraft using the runway which are likely to be

intermittently visible moving above the horizon. Aircraft numbers are forecast to increase in comparison with Year 10, therefore there will be an increase in numbers of partly visible aircraft.

Magnitude of change: **Low**

Type of effect: **Permanent adverse**

Significance: **Not Significant**

Table 11.119 Recreational Receptors: PRoW Group F

Group F: PRoWs between Minster and Gore Street		
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.	
Assessment		
Year 1	This recreational receptor group covers users of PRoWs located to the west of High Street, Minster, west to the minor settlement of Gore Street. A rail line forms the southern edge of the receptor group area, located at ~ 10m AOD, with land rising gently to ~ 45m AOD at the north-eastern edge of the receptor group area, at the south-western corner of the site. The northern receptor group area is bounded by the A253. PRoWs in this area generally extend from the residential centres of Minster and Monkton, following field boundaries to join minor lanes. Banked hedges with emergent mature trees form field boundaries and follow minor lanes, though contain many gaps and areas of varying management. Edges of settlements are well-treed, and small blocks of woodland are found across the landscape. The combined effect creates multiple layers of vegetative screening across the landscape, allowing occasional filtered or framed views to the north-east, in the direction of site. Theoretical visibility, as illustrated in the ZTV model, indicates that the only potential views to the Proposed Development will be from PRoWs at the southern edge of the receptor group area. Due to screening by landform and tree cover, it is considered likely that at Year 1, during the construction phase, only the tallest site elements (likely to be mobile construction cranes) may be occasionally visible, where gaps in vegetation allow. Given that the south-western side of the site hosts the runway, and no notable built form is proposed in this area, it is unlikely that the Proposed Development will give rise to more than a Low magnitude of change to existing views experienced from these PRoWs.	
	Magnitude of change: Low	Type of effect: Temporary adverse (construction) Significance: Not Significant
Year 10	In year 10, as in year 1, described above, it is considered unlikely that the Proposed Development will form a notable part of any views.	
	Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction) Significance: Not Significant
Year 20	In Year 20, as in Year 1, described above, it is considered unlikely that the Proposed Development will form a notable part of any views.	
	Magnitude of change: Low	Type of effect: Permanent adverse Significance: Not Significant

Table 11.120 Recreational Receptors: PRoW Group G

Group G: PRoWs in the Northern Side of Stour Valley	
Receptor sensitivity:	High: Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.
Assessment	
Year 1	This recreational receptor group covers users of PRoWs located to the north of the River Stour to the rail line located south of Minster, east to the A256 and west to Monkton Marshes. At its nearest point the site boundary is located ~ 1.4km to the north of this receptor group. The Saxon Shore Way long distance footpath follows the River Stour, and its users are considered as a separate receptor group. PRoWs in this area generally extend from the river northwards, following field boundaries. There is little to no development in this floodplain landscape, with tree cover limited to occasional mature trees located along field boundaries. A double row of pylons support overhead lines runs from north-west to south-east, to join the Richborough substation. Foreground views from these PRoWs will take in surrounding arable fields, with middle distance northerly views potentially including built form at Minster. Due to distance from site, and topography, it is considered likely that the proposed development, and associated

construction activity, may be occasionally visible in background views on the horizon. The Proposed Development is likely to be viewed as a minor feature on the horizon in expansive views in this area, which may contain substantial elements of existing development, such as overhead lines.

Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
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Year 10 In Year 10, as in Year 1, described above, it is considered likely that the proposed development, and associated elevated construction activity, may be occasionally visible in background views on the horizon.

Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant
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Year 20 In Year 20, as in Year 1, described above, it is considered likely that the proposed development, and associated construction activity, may be occasionally visible in background views on the horizon.

Magnitude of change: Low	Type of effect: Permanent adverse	Significance: Not Significant
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Table 11.121 Recreational Receptors: PRow Group H

Group H: PRowS on the Southern Side of Stour Valley

Receptor sensitivity: **High:** Receptors will include people generally undertaking outdoor recreation, for whom appreciation of the landscape is the focus of their activity. These receptors may therefore be highly susceptible to changes in those views.

Assessment

Year 1 This recreational receptor group covers users of PRowS located from the River Stour extending south to the edge of the study area boundary, and east to the A256 and west to Plucks Gutter. At its nearest point the site boundary is located ~ 3.1km to the north of this receptor group. The Saxon Shore Way long distance footpath follows the River Stour, and its users are considered as a separate receptor group. PRowS in this area generally extend from the river southwards, following field boundaries. There is little to no development in this floodplain landscape, with tree cover limited to occasional mature trees and hedges located along field boundaries to join minor lanes. A double row of pylons support overhead lines crosses the north-eastern edge of the receptor group area, to join Richborough substation. Foreground views from these PRowS will take in surrounding fields, frequently used as rough pasture, with occasional hedge boundaries in the middle ground of views. **Viewpoints 17 South Saxon Way alongside River Stour, 18 Goldstone Drove PRow, west of Lower Goldstone and 22 PRow north of Richborough Castle** fall within this receptor group area, and illustrate the low-lying topography and vegetation. Due to distance from site, and topography, it is considered likely that the proposed development, and associated construction activity, may be occasionally visible in background views on the horizon. The Proposed Development is likely to be viewed as a minor feature in expansive views in this area, which may contain prominent of existing development, such as overhead lines.

Magnitude of change: Low	Type of effect: Permanent adverse (built elements) Temporary adverse (construction)	Significance: Not Significant
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Year 10 In Year 10, as in Year 1, described above, it is considered likely that the proposed development, and associated construction activity, may be occasionally visible in background views on the horizon.

Magnitude of change: Low	Type of effect: Permanent adverse (operation) Temporary adverse (construction)	Significance: Not Significant
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Year 20 In Year 20, as in Year 1, described above, it is considered likely that the proposed development, and associated construction activity, may be occasionally visible in background views on the horizon.

Magnitude of change: Low	Type of effect: Permanent adverse	Significance: Not Significant
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Vehicular receptors travelling along principal and local roads close to the Proposed Development

11.9.7 The visual assessment for this group of visual receptors for the three LVIA assessment periods is set out for principal and local roads close to the Proposed Development site in **Tables 11.120 – 11.129**. The distribution of these routes is shown in **Figure 11.1**.

Table 11.122 Vehicular Receptors: A256 (dual carriageway) north and south

A256 (dual carriageway) north and south		
Receptor sensitivity:	Low: Receptors include drivers and their passengers travelling along a dual-carriageway for which their surroundings is unlikely to be a primary concern.	
Assessment		
Year 1	<p>Within the study area the road runs from east of Richborough to west of Cliffs End where the road meets the A229 at a roundabout approximately 750m south of the site. All of the road lies within the ZTV of the Proposed Development as shown in Figure 11.7. Southbound users will get no views of the airport as they will be travelling away from the Proposed Development which will therefore be behind them.</p> <p>For Northbound travellers, no ground level construction related activities will be visible from any section of the road. A majority of the Proposed Development will be screened by the landform of the southern edge of the plateau and intervening vegetation. However northbound travellers may experience partial views of the upper sections of the two mobile construction cranes and the first cargo unit (most eastern) and occasionally the ATC tower. Views of the upper portions will decrease as northbound travellers head closer to the airport site due to the topography. Views will be most likely approximately 1.3km south of the southern boundary of the proposed development.</p> <p>For southbound travellers, the magnitude of change will be no change, as the proposed development will be outside of their field of view located behind them. For northbound travellers there will be periodic views of upper sections of the two mobile cranes and very limited views of the upper portion of the cargo unit. This will result in a small change in a limited part of the horizon therefore the magnitude of change will be low.</p>	
	Magnitude of change: Low (Northbound travellers) No Change (southbound travellers)	Type of effect: Temporary adverse (Cranes) Permeant adverse (Built elements) Significance: Not Significant
Year 10	<p>For Northbound users in addition to the elements present in the Year 1 view will be the two central cargo units and aircraft recycling hangar. The aircraft recycling hangar will appear most prominent however this will only extend marginally above the horizon line. The magnitude of change will remain as low, because the combined effect of the built elements now visible will only result in a small change to a limited part of the view.</p>	
	Magnitude of change: Low (Northbound travellers) No Change (southbound travellers)	Type of effect: Temporary adverse (Cranes) Permeant adverse (operation) Significance: Not Significant
Year 20	<p>In contrast to previous periods here will be no views of cranes as construction activity will cease by Year 18. For Northbound users in addition to the elements present in the Year 10 view may be very partial views of the upper sections of the fourth cargo unit and an extension to the aircraft recycling hangar. The magnitude of change will remain as low, because the cumulative effect of the built elements now visible will only result in a small change to a limited part of the view.</p>	
	Magnitude of change: Low (Northbound travellers) No Change (southbound travellers)	Type of effect: Permeant adverse Significance: Not Significant

Table 11.123 Vehicular Receptors: A256 Haine Road north and south

A256 Haine Road north and south	
Receptor sensitivity:	Low: Receptors include drivers and their passengers travelling along a busy primary road for which their surroundings is unlikely to be a primary concern.
Assessment	

Year 1

The A256 Haine Road runs from a roundabout with Canterbury Road and A229 west of St Lawrence north to Westwood. All of the road lies within the ZTV of the Proposed Development as shown in **Figure 11.7**.

For northbound travellers, no ground level construction related activities will be visible from any section of the road. Views of the Proposed Development will be restricted to an approximately 350 m southern section of the route although roadside vegetation and built form located at Manston will screen a majority of the development. However, there will be some filtered oblique views of two mobile cranes, the ATC tower and the first cargo unit. Beyond this section of road, views will become increasingly more oblique and through Haine views will be screened by residential properties in the foreground to the west of the road. Between the north of Haine and Westwood there will be no views of the Proposed Development as the Proposed Development will be outside the field of view behind northbound travellers.

Southbound travellers may experience intermittent views of the two mobile construction cranes, first cargo unit, ATC tower and southern units of the business park. Within Westwood views of the Proposed Development will be screened by built form in the foreground of views. Leaving Westwood there will be open views towards the site and there may be long distance views of the cranes and emerging built form. As the road enters Haine neighbouring built form along the route will screen any views of the proposed development. After leaving the built up area of Haine, there may again be some views of the identified elements however the majority will be screened by vegetation along field boundaries between the road and Proposed Development site. As travellers reach the most southern section of the road proximity to the built elements and screening will reduce, but the angle of the view will be more oblique.

For north and southbound travellers, the approximately 350m section to the south, where views are open but oblique the magnitude of change will be Medium. For northbound users travelling along the remaining section of the route there will be no visual change. For southbound users, the magnitude of change will be typically be low (with the exception of the most southern 350m section which will be Medium), because the built elements visible will only contribute to a small change in a limited part of the horizon.

Magnitude of change: Medium (350m most southerly section of the road) Low (remaining length of route for southbound travellers) No Change (remaining section for northbound travellers)	Type of effect: Temporary adverse (Cranes) Permeant adverse (Built elements)	Significance: Not Significant
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Year 10

For north and southbound travellers where views have been identified, further changes to views in Year 10 will include partial views of the aircraft recycling hangar, central two cargo units, and passenger terminal. These built elements will be visible from the same locations described above and will be of similar prominence to the elements visible in year 1.

The magnitude of change will remain as predicated for Year 1.

Magnitude of change: Medium (350m most southerly section of the road) Low (remaining length of route for southbound travellers)	Type of effect: Temporary adverse (Cranes) Permeant adverse (operation)	Significance: Not Significant
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Year 20

In contrast to previous periods no cranes will be visible as construction activity will cease by year 18. For north and southbound travellers in addition to where views of built elements have been identified in the Year 10 view, will be partial views of an extension to the recycling hangar and the fourth cargo unit although this will likely be screened by the cargo units first and central cargo units identified above.

For north and southbound travellers, the approximately 350m section to the south, where views are open but oblique the magnitude of change will remain as Medium. For northbound users for the remaining road the magnitude of change will be No Change. For southbound users for the remaining section of road the magnitude of change will remain as Low, because the combined effect of all built elements visible will only contribute to a small change in a limited part of the horizon.

Magnitude of change: Medium (350m most southerly section of the road) Low (remaining length of route for southbound travellers)	Type of effect: Permeant adverse	Significance: Not Significant
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Table 11.124 Vehicular Receptors: A299 (travelling east)

A299 East

A256 roundabout there may be oblique partial views of the mobile construction cranes, the first cargo unit, the ATC tower and southern units of the business park. The upper portions of these built elements will only extend marginally above the cutting embankment and more distant horizon.

The road then turns to head north and from this short stretch of route (approximately 650m), westbound travellers would experience more direct views of the elements of the Proposed Development identified above the horizon. At its junction with Canterbury Road West then continues westwards alongside the Proposed Development site. From along this stretch, views towards the construction activities and emerging built elements would be foreshortened by the roadside embankment which separates the site from the road. Views from this section would become increasingly more oblique as travellers reach the western edge of the Proposed Development site.

The magnitude of change for the section of the road where the Proposed Development is visible is medium for a short section where receptors are heading north reducing to low where views are screened by the roadside embankment.

Magnitude of change: Medium to Low (between north of Cliffs End and east of the airport site)	Type of effect: Temporary adverse (Cranes) Permeant adverse (Built elements)	Significance: Not Significant
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Year 10

Where views of the Proposed Development have been identified between the north of Cliffs End and east of the Proposed Development site and in addition to the elements identified in the Year 1 view, there will be partial views of the upper sections of two central cargo units, passenger terminal and aircraft recycling hangar as well as aircraft moving along the runway.

The magnitude of change will remain as described for Year 1.

Magnitude of change: Medium to Low (between north of Cliffs End and east of the airport site)	Type of effect: Temporary adverse (Cranes) Permeant adverse (Operation)	Significance: Not Significant
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Year 20

In contrast to previous periods no cranes will be visible as construction activity will cease by Year 18. Where views of the Proposed Development have been identified between the north of Cliffs End and east of the Proposed Development site and in addition to the built elements identified in the Year 10 view will be partial views of the upper sections of the final cargo unit and extension to the aircraft recycling hangar. The magnitude of change will remain the same.

Magnitude of change: Medium to Low (between north of Cliffs End and east of the airport site)	Type of effect: Permeant adverse	Significance: Not Significant
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Table 11.126 Vehicular Receptors: B2050 west of Woodchurch

B2050 west of Woodchurch

Receptor sensitivity:	Medium: receptors will include people travelling through the landscape on local roads where the surrounding landscape may have some influence of their enjoyment.
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Assessment

Year 1

This section of the road runs between the west of Woodchurch and south of Birchington and lies within the ZTV for the Proposed Development (**Figure 11.7**). There will be no views for northbound travellers as they will be heading away from the airport.

Southbound users of the road travelling between the south of Birchington and west of Woodchurch will experience intermittent views of the proposed development. There will be partial views of views of the upper sections of the mobile construction cranes, the first cargo unit, the ATC tower and southern units of the business park. The roofs of the identified built elements will only extend marginally above the roadside vegetation and vegetation making up field boundaries. As the road enters Woodchurch vegetation and built form screens the views of the proposed development.

The magnitude of change for the section of the road where the Proposed Development visible will be low due to roadside and other vegetative screening.

Magnitude of change: Low	Type of effect: Temporary adverse (Cranes) Permeant adverse (Built elements)	Significance: Not Significant
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Year 10 Where views have been identified between the south of Birchington and west of Woodchurch and in addition to the elements identified in the Year 1 view will be partial views of the upper sections of the two central cargo units, northern business units of the business park, passenger terminal and aircraft recycling hangar.

The magnitude of change for the section of the road where the Proposed Development is visible will remain as Low.

Magnitude of change: Low	Type of effect: Temporary adverse (Cranes) Permeant adverse (Operation)	Significance: Not Significant
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Year 20 In contrast to previous periods no cranes will be visible as construction activity will cease by Year 18. In addition to the built elements identified in the Year 10 views will be partial views of the upper sections of the final cargo unit. Although the cranes are no longer present in the view, the magnitude of change will remain as low as the combined effect of the built elements will result in a noticeable change to a small part of the view that will be viewed from moving vehicles.

Magnitude of change: Low	Type of effect: Permeant adverse	Significance: Not Significant
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Table 11.127 Vehicular Receptors: B2050 Woodchurch – Manston (east and westbound)

B2050 Woodchurch – Manston (east and westbound)

Receptor sensitivity: **Medium:** receptors will include people travelling through the landscape on local roads where the surrounding landscape may have some influence of their enjoyment.

Assessment

Year 1 This section of the road runs between Woodchurch and Manston. All of the route lies within the ZTV for the Proposed Development as shown in **Figure 11.7**.

Eastbound and westbound travellers will experience prominent views of construction activities, two mobile construction canes, the first cargo unit (most eastern), the ATC tower, attenuation pond and the southern business units in the foreground with limited screening.

The magnitude of change for the section of the road where the Proposed Development is visible will be high as a consequence of the large and prominent changes to views appearing in the foreground.

Magnitude of change: High	Type of effect: Temporary adverse (Cranes) Permeant adverse (Built elements)	Significance: Significant
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Year 10 Where views have been identified and in addition to the elements identified in the Year 1 view will be views of the two central cargo units, the passenger terminal and the northern units of the business park. The views of the cargo units and Proposed Development of the airport may be softened due to landscaping works along the southern side of the road.

The magnitude of change for the section of the road where the Proposed Development is visible will remain as high because the built elements will contribute to a large prominent change in the view appearing in the foreground.

Magnitude of change: High	Type of effect: Temporary adverse (Cranes) Permeant adverse (Operation)	Significance: Significant
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Year 20 In contrast to previous periods no cranes or ground level construction activity will be visible from the road as this will have ceased by Year 18. In addition to the built elements identified in the year 10 views will be the fourth most western cargo facility. Landscaping vegetation implemented in Phases 3 and 4 will be gradually maturing and may soften and partially filter views across the airport site. Although cranes will no longer be visible the magnitude of change for the section of the road where the Proposed Development is visible will remain as high because the built elements will contribute to a large prominent change in the view appearing in the foreground.

Magnitude of change: High	Type of effect: Permeant adverse	Significance: Significant
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Table 11.128 Vehicular Receptors: B2190 Spitfire Way

B2190 Spitfire Way

Receptor sensitivity:	Medium: receptors will include people travelling through the landscape on local roads where the surrounding landscape may have some influence of their enjoyment.	
Assessment		
Year 1	<p>The road runs adjacent the perimeter of the Proposed Development site to the north west, until it merges with the B2050 south of Woodchurch. This section of the road lies within the ZTV for the Proposed Development as shown in Figure 11.7.</p> <p>Users of the road will experience prominent views of construction activities, two mobile construction canes, the first cargo unit (most eastern), the ATC tower and the southern business units in the foreground of the view with limited screening. Changes to views will be most notable for eastbound travellers as they will be looking more directly at the central core of proposed airport buildings.</p> <p>The magnitude of change for the section of the road where the Proposed Development is visible will be high because there will be a large prominent change in the view appearing in the foreground.</p>	
	Magnitude of change: High	Type of effect: Temporary adverse (Cranes) Permeant adverse (Built elements) Significance: Significant
Year 10	<p>Where views have been identified and in addition to the elements identified in the Year 1 view, will be views of the two central cargo units, the passenger terminal and northern units of the business park. Alike the elements present at Year 1 these new elements will be prominent in the foreground of the view. Aircraft will be visible in the foreground particularly for westbound travellers from the most westerly section of the road.</p> <p>The magnitude of change for the section of the road where the Proposed Development is visible will remain as high because the built elements will contribute to a large prominent change in the view appearing in the foreground.</p>	
	Magnitude of change: High	Type of effect: Temporary adverse (Cranes) Permeant adverse (Operation) Significance: Significant
Year 20	<p>In contrast to previous periods no cranes or ground level construction activity will be visible from the road this will cease by Year 18. In addition to the built elements identified in the Year 10 views will be the fourth most western cargo facility. This cargo facility will screen some buildings from the most eastern part of the road due to the building's proximity to the road. Landscaping vegetation implemented during Phase 4 will have had little time to grow but in time will screen and soften views of the identified buildings. The activity and number of aircrafts is likely to increase from Year 10.</p> <p>Although cranes will no longer be visible the magnitude of change for the section of the road where the Proposed Development is visible will remain as high because the built elements will contribute to a large prominent change in the view appearing in the foreground.</p>	
	Magnitude of change: High	Type of effect: Permeant adverse Significance: Significant

Table 11.129 Vehicular Receptors: Canterbury Road West around Cliffs End

Canterbury Road West around Cliffs End		
Receptor sensitivity:	Medium: receptors will include people travelling through the landscape on local roads where the surrounding landscape may have some influence of their enjoyment.	
Assessment		
Year 1	<p>The road runs for approximately 1.75 km from the north of Cliffs End towards Ramsgate and lies within the ZTV for the Proposed Development. Eastbound and westbound travellers will have views of the Proposed Development, most notably the upper sections of cranes as well as changes to the existing infrastructure at the proposed fuel farm located on the northern side of the road.</p> <p>The magnitude of change for the section of the road where elements of the Proposed Development are visible will be Medium.</p>	
	Magnitude of change: Medium (west of Cliffs End) Negligible (east of Cliffs End)	Type of effect: Temporary adverse (construction) Permanent neutral (Built elements)
		Significance: Not Significant

Year 10	There will be no views of any ground level construction activities, aircraft on the ground or ground level operational activities for east or westbound receptors. There may be periodic views of the two mobile cranes when they are used to construct built elements in the eastern part of the airport, in particular the extension to the aircraft recycling hangars where they may become more prominent than in Year 1 but only occupying a narrow section of the horizon in the views of eastbound drivers and their passengers. All built elements present at Year 10 will be situated below the horizon for eastbound receptors. The fuel farm will be visible in brief views for east and westbound receptors.		
	Magnitude of change: Medium (west of Cliffs End) Low (east of Cliffs End)	Type of effect: Temporary adverse (Cranes) Permanent neutral (Operation)	Significance: Not Significant
Year 20	There will be no views of any ground level construction activities, aircraft on the ground or ground level operational activities. There may be periodic views of the two mobile cranes when they are used to construct built elements in the eastern part of the airport, in particular the extension to the aircraft recycling hangars where they may become more prominent than in Year 1 but only occupying a narrow section of the horizon. All built elements present at Year 10 will be situated below the horizon. The overall composition and balance of the view will not significantly alter in comparison with the baseline.		
	Magnitude of change: Medium (west of Cliffs End) Negligible (east of Cliffs End)	Type of effect: Permanent neutral (Built elements)	Significance: Not Significant

Table 11.130 Vehicular Receptors: Manston Court Road

Manston Court Road					
Receptor sensitivity:	Medium: receptors will include people travelling through the landscape on local roads where the surrounding landscape may have some influence of their enjoyment.				
Assessment					
Year 1	<p>The road runs from the Manston Road east of the proposed business park towards Broadstairs and St Peters. The majority of the road is within the ZTV for the Proposed Development as shown in Figure 11.7.</p> <p>Northbound users of the road will experience prominent views of the southern units of the business park and two mobile cranes when they are constructing the business units.</p> <p>Southbound users of the road will experience prominent views of two mobile construction canes, the first cargo unit (most eastern), the ATC tower and the southern business units. Views from some sections of the road will be screened by residential properties (on the southern section of Manston Court Road) and roadside vegetation. Before the residential properties on the southern section, roadside vegetation is less dense and there will be prominent views of the business units in the foreground.</p> <p>The magnitude of change for the section of the road where the Proposed Development is visible will be high because the built elements will contribute to a large prominent change in the view appearing in the foreground.</p> <table><tr><td>Magnitude of change: High</td><td>Type of effect: Temporary adverse (Cranes) Permeant adverse (Built elements)</td><td>Significance: Significant</td></tr></table>		Magnitude of change: High	Type of effect: Temporary adverse (Cranes) Permeant adverse (Built elements)	Significance: Significant
Magnitude of change: High	Type of effect: Temporary adverse (Cranes) Permeant adverse (Built elements)	Significance: Significant			
Year 10	<p>For northbound users and in addition to the elements present in the Year 1 view will be the northern business units. These will appear prominently in the foreground of the view at an oblique angle.</p> <p>For southbound users and in addition to the elements present at Year 1 will be views of the northern units of business park and upper portions of two central cargo units and the passenger terminal. Northern business units will screen the majority of the other identified built elements.</p> <p>The magnitude of change for the section of the road where the Proposed Development is visible will remain as high because the built elements will contribute to a large prominent change in the view appearing in the foreground.</p> <table><tr><td>Magnitude of change: High</td><td>Type of effect: Temporary adverse (Cranes) Permeant adverse (Operation)</td><td>Significance: Significant</td></tr></table>		Magnitude of change: High	Type of effect: Temporary adverse (Cranes) Permeant adverse (Operation)	Significance: Significant
Magnitude of change: High	Type of effect: Temporary adverse (Cranes) Permeant adverse (Operation)	Significance: Significant			
Year 20	<p>In contrast to previous periods here will be no views of cranes as construction activity will cease by year 18. No new built elements will be present for northbound users however landscaping works that were planted at year 10 will now be softening some of the views of the business units.</p> <p>For southbound travellers in addition to the built elements present at year 10 will be views of the upper portion of the fourth cargo unit (most western). However, business units will screen a majority of the identified built elements from</p>				

most sections of the road due to their proximity from the southern section of the road. Similar to northbound travellers, views of the business units for southbound users will be softened by landscaping works.

The magnitude of change for the section of the road where the Proposed Development is visible will remain as high because the built elements will contribute to a large prominent change in the view appearing in the foreground.

Magnitude of change: **High**

Type of effect: **Permeant adverse**

Significance: **Significant**

Table 11.131 Vehicular Receptors: Manston Road (northwest of site boundary)

Manston Road (northwest of site boundary)		
Receptor sensitivity:	Medium: receptors will include people travelling through the landscape on local roads where the surrounding landscape may have some influence of their enjoyment.	
Assessment		
Year 1	<p>The road runs from the south-eastern edge of Woodchurch where the road meets Spitfire Way to the south-eastern edge of Margate where it meets Shottendane Road. The majority of the road is within the ZTV for the proposed development. The exception is the most northern section of the road approaching Margate.</p> <p>Northbound users will experience close distance oblique views of the southern units of the business park and of the two mobile construction cranes when constructing these business units, when travelling on the most southern section of the road that runs adjacent to the business park site to the north west.</p> <p>Southbound travellers will experience views of the southern business units, first most cargo facility (most eastern) and two mobile construction cranes. The height of the radar tower that is situated adjacent to the road is being increased by 5m, this will slightly increase its prominence. The prominence of the proposed elements identified will increase as southbound travellers head increasingly closer to the proposed development. When constructed the business units will screen a vast majority of the other built development.</p> <p>For northbound travellers beyond the northern edge of the Proposed Development there will be no visual change as all built elements will be behind them.</p> <p>For southbound travellers and northbound travellers, the magnitude of change is likely to be high, because the built elements will contribute to a large prominent change in the view appearing in the foreground.</p>	
	<p>Magnitude of change: No change (northbound receptors once beyond the northern boundary of the site) High (remainder)</p>	<p>Type of effect: Temporary adverse (Cranes) Permeant adverse (Built elements)</p> <p>Significance: Significant</p>
Year 10	<p>For Northbound users in addition to the elements present in the Year 1 view will be the northern business units. These will appear prominently in the foreground of the view at an oblique angle for the approximately 1.3 km stretch of road running adjacent to the business park site.</p> <p>For southbound users and in addition to the elements present at Year 1 will be views of the northern units of business park and upper portions of two central cargo units. The business units are located closest to the road and will screen a majority of the built elements of the proposed development.</p> <p>For northbound travellers beyond the northern edge of the Proposed Development the magnitude of change will remain as no change as all built elements will be behind them. For southbound travellers and northbound users of the road travelling along the southern section of the route adjacent the site, the magnitude of change will remain as high, because the built elements will contribute to a large prominent change in the view appearing in the foreground.</p>	
	<p>Magnitude of change: No change (northbound receptors once beyond the northern boundary of the site) High (remainder)</p>	<p>Type of effect: Temporary adverse (Cranes) Permeant adverse (Operation)</p> <p>Significance: Significant</p>
Year 20	<p>In contrast to previous periods here will be no views of cranes as construction activity will cease by year 18. No new built elements will be present for northbound users however landscaping works that were planted in phase 1 and 2 will now be softening some of the views of the business units.</p> <p>For southbound travellers and in addition to the built elements present at year 10 will be views of the upper portion of the fourth cargo unit (most western). However, business units will screen a majority of the identified built elements</p>	

from most sections of the road due to their proximity from the southern section of the road. Only the upper sections of the cargo units may be visible above the business units from the more northern section of the road. Similar to northbound travellers, views of the business units for southbound users will be softened by landscaping works.

For southbound travellers and northbound travellers, the magnitude of change will remain as high, because the built elements will contribute to a large prominent change in the view appearing in the foreground. For northbound travellers beyond the northern edge of the Proposed Development there will be no visual change as all built elements will be behind them.

Magnitude of change: No change (northbound receptors once beyond the northern boundary of the site) High (remainder)	Type of effect: Permeant adverse	Significance: Significant
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11.10 Conclusions of significance evaluation

- 11.10.1 This section summarises all significant landscape or visual effects identified in Sections 11.8 and 11.9.
- 11.10.2 No significant landscape effects have been predicted to occur at either Year 1, Year 10 or Year 20. The detailed assessments upon which this conclusion is based are set out in paragraph 11.8.5 and **Tables 11.20 to 11.30**.
- 11.10.3 **Table 11.130** summarises all significant visual effects identified in **Section 11.9** together with a brief supporting rationale. Detailed assessments of the visual effects likely to be experienced by all the visual receptors included in the assessment are set out in the tables provided in **Section 11.9** and **Appendix 11.2**. The distribution of significant visual effects is shown on **Figure 11.40**.

Table 11.132 Summary of significant visual effects

Receptor and effects	Significance Level	Rationale
Residential Receptor Groups		
Residential Receptor Group 21: Alland Grange Lane properties	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents in four two-storey properties in the northern part of this group. It is not predicted that any significant visual effects will be experienced by residents of bungalows within this group or by residents in properties in the southern part of this group.</p> <p>Significant effects will arise where unscreened views are available toward the Proposed Development on the horizon to the south-east. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.51.</p>

Receptor and effects	Significance Level	Rationale
Residential Receptor Group 22: Cheeseman's Farm properties	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents in two two-storey properties in the southern part of this group. It is not predicted that any significant visual effects will be experienced by any other residents in this group.</p> <p>Significant effects will arise where unscreened views are available toward the Proposed Development on the horizon to the south-east. These views would be primarily available from upper-storey rear windows. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.52.</p>
Residential Receptor Group 23: Vincent Road, Vincent Farm, Flete Farm	Significant (Year 10)	<p>It is predicted that significant visual effects will be experienced by residents of Vincent Farm only. No significant visual effects are predicted to be experienced by residents of any other properties in this group.</p> <p>Significant effects will arise from the combination of construction activities and built development visible in middle-ground views. These effects are predicted to occur in relation to the Year 10 assessment period only.</p> <p>A detailed assessment of these effects is provided in Table 11.53.</p>
Residential Receptor Group 25: Preston Road properties, Preston Farm and Coldswood Farm	Significant (Year 1 & Year 10)	<p>It is predicted that significant visual effects will be experienced by residents at the majority of properties in this group. The highest magnitudes of visual change will generally be restricted to views available from upper-storey windows and properties on the southern side of Preston Road.</p> <p>Significant effects will arise from the combination of construction activities and built development visible in middle-ground views. These effects are predicted to occur in relation to the Year 1 and Year 10 assessment periods primarily as a result of crane activity and the emergence of large scale built form. Planting around the business park is likely to reduce the magnitude of change in Year 20.</p> <p>A detailed assessment of these effects is provided in Table 11.55.</p>
Residential Receptor Group 31: Manston – Properties on Preston Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents in properties in the southern part of this group and in the eight northernmost properties on Preston Road. It is not predicted that any significant visual effects will be experienced residents in the central part of this group or those located on Spratling Street.</p> <p>Significant effects will arise where unscreened or lightly screened views are available toward the Proposed Development to the west south-west. These views would be primarily available from upper-storey windows. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.61.</p>

Receptor and effects	Significance Level	Rationale
Residential Receptor Group 32: Manston – Properties in northern section of High Street	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents in properties on the western side of High Street. It is not predicted that any significant visual effects will be experienced by residents in properties on the eastern side of High Street.</p> <p>Significant effects will arise as a result of large scale changes in the background of views toward the Proposed Development to the west south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.62.</p>
Residential Receptor Group 33: Manston – Properties in southern section of High Street	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents in the majority of the properties in this group. In most instances, significant changes to views will be restricted to those available from upper-storey windows.</p> <p>Significant effects will primarily arise as a result of large scale changes in the background of views toward the Proposed Development to the west south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.63.</p>
Residential Receptor Group 35: Rose Farm and Pounces Cottages	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents at Pounce Cottages. It is not predicted that significant visual effects would be experienced by residents of Rose Farm. The highest magnitudes of visual change will generally be restricted to views available from upper-storey windows.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in the middle-ground and background of views toward the Proposed Development to the east. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.65.</p>
Residential Receptor Group 36: Properties on Bell Davies Drive	Significant (Year 1)	<p>It is predicted that significant visual effects will be experienced by residents at the majority of properties in this group. The highest magnitudes of visual change will generally be restricted to views available from upper-storey windows.</p> <p>Significant effects will primarily arise as a result of visibility of construction activities in the background of views toward the proposed aircraft stands and ATC. Significant effects would result from temporary construction activities and would be restricted to the Year 1 assessment period only.</p> <p>A detailed assessment of these effects is provided in Table 11.66.</p>
Residential Receptor Group 38: Terraced and semi-detached properties on the eastern side of Manston Court Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents at all properties in this group.</p> <p>Significant effects will primarily arise as a result of visibility of medium and large scale changes in foreground, middle-ground and background views toward the Proposed Development to the south and south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.68.</p>

Receptor and effects	Significance Level	Rationale
Residential Receptor Group 39: Properties around Manston Court on eastern side of Manston Court Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents in properties in the northern-most part of this group. It is not predicted that any significant visual effects will be experienced residents in properties in the immediate vicinity of Manston Court.</p> <p>Significant effects will primarily arise as a result of visibility of medium and large scale changes in foreground, middle-ground and background views toward the Proposed Development to the south and south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.69.</p>
Residential Receptor Group 40: Northern semi-detached properties on western side of Manston Court Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents at the majority of properties in this group. The highest magnitudes of visual change will generally be restricted to views available from upper-storey windows.</p> <p>Significant effects will primarily arise as a result of visibility of medium and large scale changes in foreground, middle-ground and background views toward the Proposed Development to the south and south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.70.</p>
Residential Receptor Group 41: Southern terraced properties on western side of Manston Court Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents at the majority of properties in this group.</p> <p>Significant effects will primarily arise as a result of visibility of medium and large scale changes in foreground, middle-ground and background views toward the Proposed Development to the south and south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.71.</p>
Residential Receptor Group 42: Jubilee Cottages on Manston Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents at the majority of properties in this group.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in background views toward the Proposed Development to the south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.72.</p>
Residential Receptor Group 43: Properties in northern Cliffs End, north of Canterbury Road West	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by residents in properties on the western and northern edges of this group. It is not predicted that any significant visual effects will be experienced residents in properties on the eastern or western edges of the group or located in the centre of the group.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in background views toward the Proposed Development to the north-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.73.</p>

Receptor and effects	Significance Level	Rationale
Residential Receptor Group 47: Properties west of Manston Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by the majority of residents in properties in this group. The highest magnitudes of change are likely to be experienced by residents in the northern-most part of this group.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in foreground, middle-ground and background views toward the Proposed Development to the south. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.77.</p>
Residential Receptor Group 48:	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by the majority of residents in properties in this group.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in middle-ground and background views toward the Proposed Development to the north. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.78.</p>
Recreational Receptor Groups		
Recreational Receptor Group 6: Manston Court Caravan Site	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by the majority of visitors to the caravan park.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in middle-ground views toward the Proposed Development to the west and south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.92.</p>
Recreational Receptor Group 7: Preston Parks	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by a number of visitors to the caravan park, particularly those located in its western-most part.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in middle-ground views toward the Proposed Development to the west and south-west. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.93.</p>
PRoW Receptor TE16	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by users of the northern part of this footpath.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in background views toward the Proposed Development. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.100.</p>

Receptor and effects	Significance Level	Rationale
PRoW Receptor TE18	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by users of the majority of the length of this footpath.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in middle-ground background views toward the Proposed Development. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.101..</p>
PRoW Receptor TR8	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by users of the majority of the length of this footpath.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in foreground, middle-ground background views toward the Proposed Development. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.102.</p>
PRoW Receptor TR9	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by users of the southern part of this footpath.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in foreground, middle-ground background views toward the Proposed Development. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.103.</p>
PRoW Receptor TR10	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by users of the majority of the length of this bridleway.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in foreground, middle-ground background views toward the Proposed Development. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.104.</p>
PRoW Receptor TR22	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by users of the majority of the length of this footpath.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in background views toward the Proposed Development. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.105..</p>

Receptor and effects	Significance Level	Rationale
PRoW Group C	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by users of PRoW in the southern half of this group. It is not predicted that significant visual effects will be experienced by users of PRoW in the northern half of this group.</p> <p>Significant effects will primarily arise as a result of visibility of medium scale changes in background views toward the Proposed Development. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.114.</p>
Users of the Transport Network		
Vehicular Receptors: B2050 Woodchurch – Manston (east and westbound)	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by both eastbound and westbound users of this road.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in foreground views toward the Proposed Development. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.125</p>
Vehicular Receptors: B2190 Spitfire Way	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by both eastbound and westbound users of this road.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in foreground views toward the Proposed Development. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.126</p>
Manston Court Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by both northbound and southbound users of this road.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in foreground views toward the Proposed Development. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.128.</p>
Manston Road (northwest of site boundary)	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by both northbound and southbound users of this road.</p> <p>Significant effects will primarily arise as a result of visibility of large scale changes in foreground views toward the Proposed Development. Significant effects would result from temporary construction activities and the permanent introduction of several elements of the Proposed Development and would be experienced during each assessment period.</p> <p>A detailed assessment of these effects is provided in Table 11.129.</p>
Assessed Viewpoints		

Receptor and effects	Significance Level	Rationale
Viewpoint 1 – RAF Manston Museum Car Park	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by visitors to the RAF Manston Museum. It is likely that these effects will primarily be experienced during arrival at and departure from the museum, but they may also be experienced in relation to any outdoor exhibits that may be on display.</p> <p>Whilst visitors' experience of viewing the main collection (located indoors) will be unaffected, effects are considered significant because of the large scale and close distance changes to external views that would be experienced during all assessment periods.</p> <p>A detailed assessment of these effects is provided in Appendix 11.3, Table 2.1. The nature of the changes to this view are illustrated by the photowires from this viewpoint provided on Figures 1, 2 and 3 of Appendix 11.2.</p>
Viewpoint 2 – Manston Road	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by local residents in properties on the western side of Manston Road. Effects will primarily arise from the construction and operation of the business units of the business park to the north of the Airport, which are likely to result in large-scale, close distance changes to available views during all assessment periods.</p> <p>A detailed assessment of these effects is provided in Appendix 11.3, Table 2.2. The nature of the changes to this view are illustrated by the photowires from this viewpoint provided on Figures 4 and 5 of Appendix 11.2.</p> <p>It should be noted that the view from this viewpoint represents the clearest view of the Proposed Development available in this vicinity and is directly equivalent to the views available to only the northernmost residents in this vicinity. A detailed assessment of the changes to the views available to all nearby residents is provided in Table 11.77.</p>
Viewpoint 3 – Canterbury Road West PRoW	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by local residents in properties along the southern side of Canterbury Road West. It is not predicted that any significant visual effects will be experienced by users of the local PRoW or transport networks in this vicinity.</p> <p>Effects will primarily arise from the temporary use of cranes during the construction of the Airport and from the permanent introduction of the fuel farm. Hence significant effects may be experienced during all assessment periods.</p> <p>A detailed assessment of these effects is provided in Appendix 11.3, Table 2.3. The nature of the changes to this view are illustrated by the photowire from this viewpoint provided on Figure 6 of Appendix 11.2.</p> <p>It should be noted that the view from this viewpoint represents the clearest view of the Proposed Development available in this vicinity. A detailed assessment of the changes to the views available to all nearby residents is provided in Table 11.78.</p>

Receptor and effects	Significance Level	Rationale
Viewpoint 6 - B2050 western edge of Manston	Significant (Year 1, Year 10 & Year 20)	<p>It is predicted that significant visual effects will be experienced by local residents in properties on the central part of the western fringe of Manston. Effects will arise from the construction and operation of several elements of the proposed development, which are likely to result in large-scale, close distance changes to available views during all assessment periods.</p> <p>A detailed assessment of these effects is provided in Appendix 11.3, Table 2.6. The nature of the changes to this view are illustrated by the photowire from this viewpoint provided on Figure 9 of Appendix 11.2.</p> <p>It should be noted that the view from this viewpoint represents the clearest view of the Proposed Development available in this vicinity and is directly equivalent to the views available to only the northernmost residents in this vicinity. A detailed assessment of the changes to the views available to all nearby residents is provided in Table 11.61.</p>

Contents

12.	Noise and Vibration	12-1
12.1	Introduction	12-1
12.2	Glossary and Abbreviations	12-2
12.3	Limitations and Assumptions	12-3
12.4	Scope of Assessment and Consultation	12-3
12.5	Policy and legislative context	12-7
12.6	Baseline	12-8
12.7	Environmental measures incorporated into the Proposed Development	12-13
12.8	Assessment methodology	12-17
12.9	Assessment of effects	12-32
12.10	Summary of significant effects	12-55

12. Noise and Vibration

12.1 Introduction

- 12.1.1 This chapter provides an assessment of the potential noise and vibration effects that could arise as a result of the reopening of Manston Airport as a dedicated airfreight facility capable of handling over 10,000 air cargo movements per year. A description of the development is provided in **Chapter 3: Proposed Development**.
- 12.1.2 Noise and vibration can have an effect on the environment and on the quality of life, health and well-being of individuals and communities. It can also pervade and affect the quality of natural resources.
- 12.1.3 The chapter is structured into the following sections:
- ▶ Scope of assessment, considering the scoping process and consultation, aspects of noise and vibration assessed and study area;
 - ▶ Limitations of assessment, areas of uncertainty and assumptions used within the assessment;
 - ▶ Policy and legislative context informing the assessment methodology and criterion;
 - ▶ Characterisation of baseline conditions around the airport site using noise survey data;
 - ▶ Embedded mitigation incorporated into the design and considered within the assessment;
 - ▶ Assessment methodology, with reference to standards, prediction methodology and criterion;
 - ▶ Assessment of noise and vibration effects during the construction and operation of the site;
 - ▶ Residual effects after mitigation has been considered within the assessment.
- 12.1.4 This chapter is supported by information in a set of Appendices, which provide further detail on each of the sections described above.

12.2 Glossary and Abbreviations

12.2.1 **Table 12.1** provides a list of abbreviations and glossary of terms used specifically for this chapter.

Table 12.1 Glossary and abbreviations

Term	Definition
dB	The ratio between the quietest audible sound and the loudest tolerable sound is a million to one in terms of the change in sound pressure. Due to this wide range, a scale based on logarithms is used in noise level measurement. The scale used is the decibel (dB) scale which extends from 0 to 140 dB corresponding to the intensity of the sound pressure level.
dB(A)	“A Weighting” refers to the sound level that represents the human ear’s response to sound. The dB(A) unit is internationally accepted and has been found to correspond well with people’s subjective reaction to sound.
$L_{Aeq, T}$	$L_{Aeq, T}$ is the equivalent continuous sound level and is the sound level of a steady sound having the same energy as a fluctuating sound over the same period. It is possible to consider this level as the ambient noise encompassing all noise at a given time.
L_{Amax}	L_{Amax} is maximum recorded noise level during the measurement period.
$L_{A90, T}$	$L_{A90, T}$ index represents the sound level exceeded for 90% of the measurement period and is used to indicate quieter times during the measurement period. It is usually referred to as the background sound level.
$L_{A10, T}$	$L_{A10, T}$ refers to the level exceeded for 10% of the measurement period. $L_{A10, T}$ is widely used as a descriptor of road traffic noise.
Rating level, $L_{Ar, Tr}$	The specific sound level plus any adjustment for the characteristic features of the sound.
Sound power levels (L_w)	Sound power levels (L_w) are used to describe the sound output of a sound source.

12.3 Limitations and Assumptions

- 12.3.1 This report is based upon the latest design of the Manston Airport project (the 'Proposed Development'). At the time this chapter was written, several sources of data were uncertain and these are discussed in **Table 12.2** together with a description of how a robust assessment has been delivered in the absence of the data.

Table 12.2 Limitations of the Environmental Statement

Limitation	Assessment Scenario	Impact on Assessment
Construction programme and methods to be confirmed	Construction noise and vibration	Assumptions regarding equipment, working methods and times have been made based on professional judgment and advice from the design team. A precautionary approach has been used by utilising a reasonable worst-case scenario in all variables. This is considered a typical approach reflecting the level of information available at this stage in a development.
Airspace procedures to be confirmed through the CAA's Airspace Change Proposal process	Operational air noise	<p>The ES has considered indicative prototype airspace route options within a design swathe. The three prototype routes used for the assessment considered are developed around design principles, namely 'avoid overflying populations', 'overfly populations' and 'design swathe centreline'. The route 'design swathe centreline' is considered the 'probable route'.</p> <p>The exact airspace options and aircraft flight paths will be formalised through an Airspace Change Proposal (ACP), which is a separate consenting regime. The ACP will be submitted through the Civil Aviation Authority's (CAA) airspace change process and the potential noise effects will be assessed following the CAA guidance within the Civil Aviation Publications (CAP). The ACP will therefore provide opportunities for communities to engage on future flight paths through an extensive consultation process.</p> <p>The assessment is therefore robust because it has considered the range of design outcomes which could occur following the completion of the airspace change process.</p>
Future aircraft performance characteristics through engine and airframe design uncertain	Operational air noise	It is expected that noise from next generation aircraft will be quieter than today's aircraft however actual noise levels are still uncertain. Therefore, for the ES, a robust worst-case assessment of noise from future aircraft types has been undertaken assuming that future generation aircraft will produce the same noise as today's aircraft.

- 12.3.2 For each of the assessment scenarios there is an element of uncertainty inherent in the adopted methodologies. A pragmatic approach, as discussed in **Appendix 12.3: Methodology**, will therefore be adopted to minimise uncertainty throughout the assessment process.
- 12.3.3 The final adopted methodology for the prediction of effect is dependent upon the format of the design and layout of the Proposed Development, therefore is subject to change. Where necessary, assumptions are made with respect to the proposed construction and operation of the Proposed Development. These assumptions are made based upon discussions with the relevant contractors and Amec Foster Wheeler's experience of other, similar developments.
- 12.3.4 No technical difficulties have been encountered whilst preparing the Noise and Vibration Chapter and the assessment carried out can be considered robust and fit for purpose.

12.4 Scope of Assessment and Consultation

Scoping Report and Opinion

- 12.4.1 Since 2015 and throughout the undertaking of the survey and assessment work, RiverOak has engaged with consultees with an interest in potential noise and vibration effects. A Scoping Report

(**Appendix 1.1: Scoping Report for Manston Airport**), which included a chapter covering noise effects, was submitted to PINS who provided a scoping opinion (**Appendix 2.2: Scoping Opinion for Manston Airport**). Although this Scoping Opinion was not carried out in the context of the 2009 EIA Regulations (see **Chapter 1: Introduction** for more information) it has still provided an important basis for defining the scope of detailed assessment.

12.4.2 Organisations that were consulted and provided a response on the noise chapter include:

- ▶ Planning Inspectorate (PINS);
- ▶ The Civil Aviation Authority;
- ▶ Cliffsend Parish Council;
- ▶ The Department for Transport;
- ▶ Kent District Council (KCC);
- ▶ Minster Parish Council;
- ▶ Thanet District Council (TDC); and
- ▶ Natural England.

Scope of Assessment

12.4.3 Based on the Scoping Report and the scoping opinion, the following key aspects have been identified to be assessed within this Chapter:

- ▶ Noise and vibration effects from the construction of the airport masterplan and the transport of construction materials;
- ▶ Renewed exposure to noise from aircraft in the air at the re-opening and mature operation of the airport;
- ▶ Renewed exposure to noise from aircraft on the ground and associated Ground Support Equipment (GSE) at the re-opening and mature operation of the airport;
- ▶ Changes in and exposure to surface access noise, namely road traffic noise from vehicle movements associated with the operation of the airport.

12.4.4 Operation of static noise sources, for example Heating, Ventilation and Air Conditioning (HVAC) equipment and back-up generators, could have a noise impact without appropriate mitigation. However, the necessary information to undertake an assessment of static noise sources would not be available until detailed design. In lieu of an assessment for static noise sources during planning stages, a commitment has been included within imbedded mitigation to ensure no significant impacts from this aspect of the scheme.

12.4.5 Based on professional experience of undertaking similar studies for other airports, significant effects from operational vibration are unlikely. Therefore, as per the associated Scoping Report, vibration from the operation of the Proposed Development has been scoped out of the assessment. Based on this exclusion, a baseline vibration analysis is not considered necessary.

12.4.6 Whilst the core scope of the assessment has remained the same, the approach and detail of the assessment has been informed by the evolution of the masterplan scheme design, results from the baseline stage (described in **Section 12.6: Baseline**) and comments raised following the Section 42 consultation on the PEIR Stage 1 (**Appendix 12.1: Consultation Responses**).

12.4.7 Further consultation was undertaken with TDC to agree a noise monitoring strategy, with changes to the method incorporated into the noise survey (see **Section 12.6: Baseline**).

Study Area

- 12.4.8 The study areas have been determined by the potential extent of the likely significant effects (as defined within this EIA), and the potential adverse effects (in terms of Government Policy) arising from the construction and operation of the airport.
- 12.4.9 The extents at which potential construction noise effects may occur varies depending on the context of the construction phases, and associated noise sources under evaluation. The extents of the construction noise assessments therefore focus on the closest, and thus greatest affected receptors.
- 12.4.10 For the purposes of this assessment, the following parameters have been used to define the study areas applicable to the assessments associated with the ground and airspace activities.
- ▶ An initial study area (as measured from the site boundary) of 2 km has been adopted for the assessment of noise and vibration from ground based elements during construction and operation of the Proposed Development. This is to account for the likely large number of noise sources associated with the construction phase and airfield activities, some of which could occur during the night-time when background sound levels are lower than the day-time period; and
 - ▶ The spatial scope of noise from aircraft in flight is partly governed by the extents to which areas are overflowed, and thus adversely affected by aircraft noise. An initial study area (as measured from the site boundary) of 14 km along the westerly runway centreline (i.e. to Herne Bay coastline) and 3.5 km along the easterly centreline (i.e. to Ramsgate coastline) has been adopted for the assessment of aircraft noise. The extents of this study area have been defined to include locations that are potentially under the aircraft flight paths up to an aircraft height of 7,000 feet as specified in CAP 1520: Draft Airspace Design Guidance¹⁶⁷. Beyond this height, it is considered that aircraft noise would not have a significant effect on ground based receptors.
- 12.4.11 For the purposes of this assessment a design swathe has been considered within which are six prototype routes. The prototype routes have taken into account the 'knowns' of the local airspace, whilst being designed with the objective of overflying the least number of people in line with Government aviation policy and associated guidance. The prototype routes are presented in **Figure 12.1: Airspace Design Swathe**.
- 12.4.12 To determine the range of effects in terms of 'best-case' and 'worst-case' the prototype routes were assessed using an appraisal methodology consistent with options appraisal methodology within CAP 1520¹⁶⁸. A summary of the options appraisal methodology is presented in **Appendix 12.3: Methodology**.
- 12.4.13 Based on the results of the options appraisal three prototype routes have been used for this assessment, including:
- ▶ Overfly population, i.e. the 'worst case' in noise terms;
 - ▶ Avoid populations, i.e. 'best-case' in noise terms; and
 - ▶ Swathe Centreline, i.e. the 'probable' route to be operated.
- 12.4.14 The noise impact of the three routes has been considered and this has been used to inform the assessment of air noise within this ES. For simplicity, the assessment of effects is based upon the probable route as this is considered the most likely to be operated. In EIA terms this is considered to represent a realistic worst case scenario as it would not generally be acceptable to choose the overfly the population option.

¹⁶⁷ CAP 1520: Draft airspace design guidance (2017). Civil Aviation Authority. Available online at http://publicapps.caa.co.uk/docs/33/CAP1520_AirspaceChange_Plain.pdf [Checked 14/12/2017].

Temporal scope

- 12.4.15 The temporal scope associated with the operational noise assessment is based upon Year 2 (2021) and Year 20 (2039), as these represent 'opening year' for aircraft operations and maximum capacity and hence likely worst-case year, respectively.

12.5 Policy and legislative context

- 12.5.1 At an international level, standards governing aircraft noise emissions are set by the International Civil Aviation Organization (ICAO). In the UK, the Department for Transport (DfT) and the Department for Environment, Food and Rural Affairs (Defra) are responsible for overseeing the various environmental aspects of the aviation industry. The Secretary of State has powers under Sections 78-80 of the Civil Aviation Act 1982 (as amended in 2006)¹⁶⁹ to control aircraft noise at designated airports, however, at present only Heathrow, Gatwick and Stansted are designated because of aircraft noise.
- 12.5.2 At a local level, local planning authorities, in this case Thanet District Council, have control through planning conditions and legal agreements.
- 12.5.3 In addition to legislative powers, national and local policy exists to help manage the effects of noise and vibration and guidance documents and British standards exist to inform the assessment of aircraft noise and other noise and vibration sources associated with the construction and operation of airports. Key documents include the National Planning Policy Framework (NPPF)¹⁷⁰, providing guidance to planning authorities on the approval of applications, and the Noise Policy Statement for England (NPSE)¹⁷¹, which sets out Government aims in relation to noise and health and quality of life.
- 12.5.4 At the time of writing this assessment, UK aviation policy and guidance is being updated and the UK Government is consulting on several matters relating to aviation noise. In October 2017, the Government issued a Revised Draft Airports National Policy Statement¹⁷² relating to airport expansion in the southeast of England, Air Navigation Guidance 2017¹⁷³ and Consultation Response on UK Airspace Policy¹⁷⁴. Furthermore, CAP documents 1506: Survey of Noise Attitudes¹⁷⁵ and CAP 1520: Draft airspace design guidance¹⁷⁶ were published in 2017.
- 12.5.5 No changes to the scope of assessment are required as a result of the adoption of the 2017 EIA regulations¹⁷⁷ although it is now the case that the Human Health chapter of the ES (and this PEIR) will refer to the findings of the noise chapter.

¹⁶⁹ The Civil Aviation Act 1982 (as amend 2006). Available online at <http://www.legislation.gov.uk/ukpga/1982/16/contents> [Checked 14/12/2017].

¹⁷⁰ National Planning Policy Framework (2012). Department for Communities and Local Government. Available online at

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/6077/2116950.pdf [Checked 14/12/2017].

¹⁷¹ Noise Policy Statement for England (2010). Department for Environment, Food and Rural Affairs.

Available at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69533/pb13750-noise-policy.pdf [Checked 14/12/2017].

¹⁷² Revised Draft Airports National Policy Statement: new runway capacity and infrastructure at airports in the South East of England (2017). Department for Transport. Available online at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/654123/revised-draft-airports-nps-web-version.pdf [Checked 14/12/2017].

¹⁷³ Air Navigation Guidance 2017 (2017). Department for Transport. Available online at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/653978/air-navigation-guidance-2017.pdf [Checked 14/12/2017].

¹⁷⁴ Consultation Response on UK Airspace Policy: A Framework for balanced decisions on the design and use of airspace (2017). Department for Transport. Available online at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/653801/consultation-response-on-uk-airspace-policy-web-version.pdf [Checked 14/12/2017].

¹⁷⁵ CAP 1506: Survey of noise attitudes (2017). Civil Aviation Authority. Available at <http://publicapps.caa.co.uk/docs/33/CAP%201506%20FEB17.pdf> [Checked 14/12/2017].

¹⁷⁶ CAP1520: Draft airspace design guidance (2017). Civil Aviation Authority.

¹⁷⁷ The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (No.571, 2017). Available at http://www.legislation.gov.uk/ukxi/2017/571/pdfs/ukxi_20170571_en.pdf [Checked 14/12/2017].

- 12.5.6 More detailed information is provided in **Appendix 12.2: Legislation, Policy and Guidance**. Further details of all national and local planning policies relevant to the Proposed Development can be found in **Appendix 4.1: Planning Policy Context**.

12.6 Baseline

Desk Study

- 12.6.1 A desk study was undertaken to collate the current baseline data for the Proposed Development and the surrounding areas. The desk study utilised online mapping resources and population datasets to identify receptors and design baseline surveys. The relevant data sources are listed in **Appendix 12.3: Methodology**.

Baseline overview

- 12.6.2 The airport is located adjacent to the Thanet urban agglomeration with Ramsgate located approximately 1.5 km to the east of the site boundary, St Nicholas-at-Wade approximately 6 km to the west and Margate approximately 5 km to the north.
- 12.6.3 The nearest residential areas to the site are as follows:
- ▶ Cliffsend approximately 200 metres to the southeast of the runway (King Arthur Road);
 - ▶ Minster, approximately 700 metres to the southwest of the runway (Hill House Drive);
 - ▶ Manston, approximately 300 metres to the north of the runway, with the former RAF base approximately 700 metres north of the runway;
- 12.6.4 Other close isolated residences are located on Spitfire Way to the north of the runway (approximately 400 m) and Ivy Cottage Hill and Wayborough Hill, to the south of the runway (both approximately 300 m).
- 12.6.5 Notable road noise sources in the local area include the A299 which extends parallel within 100 metres to the south of the runway and connects Minster and Cliffsend. To the north of the airport, the B2190 (Spitfire Way) and the B2050 runs south of the village of Manston and a number of dwellings. The Chatham Mainline railway runs south of Minster and through Cliffsend.
- 12.6.6 Polar Helicopters, a helicopter charter business, operates from a hangar at the north of the site on Spitfire Way. It is proposed that the business will be retained as part of the reopening of the airport, although it is likely to be moved to the new Business Aviation Facility. The Spitfire and Hurricane Museum and the RAF Manston History Museum are located north of Manston Road, inside the site boundary and these are still operational today and will be retained as part of the reopening.

Receptors

- 12.6.7 There are three main categories of receptor to be considered in the assessment of noise and vibration within the Study Area:
- ▶ Residential receptors – existing and proposed residential receptors in isolation or as a community (i.e. a group of receptors located close to one another, or within a named hamlet, village or town);
 - ▶ Non-residential community receptors – including schools, places of worship, and medical facilities; and
 - ▶ Quiet areas – areas referred to in the NPPF¹⁷⁸ as being prized for their recreational and amenity value.

¹⁷⁸ National Planning Policy Framework (2012). Department for Communities and Local Government.

- 12.6.8 It is understood that there are no areas within the study area that would be referred to in the NPPF as being prized for their recreational and amenity value. Assessments considering the likely impacts upon quiet areas have not therefore been undertaken.
- 12.6.9 The assessment of likely noise effects associated with the construction and operation of the Proposed Development on ecological receptors is addressed within the Biodiversity Chapter (**see Chapter 7: Biodiversity**).
- 12.6.10 The following considerations have been taken into account in identifying potential receptors:
- ▶ The extent to which the receptor will be affected by changes that are expected to result from the Proposed Development;
 - ▶ The sensitivity of the receptors to the changes that are likely to occur;
 - ▶ The likely magnitude, duration and other characteristics of the effects;
 - ▶ The importance or value of the receptor at a local, regional and national level; and
 - ▶ Relevant best practice and guidance where specialist methodologies have been developed as detailed below.
- 12.6.11 Noise measurements or site observations have been undertaken for all identified receptors as identified for the assessment in Table 12.3. These receptors have been identified adopting the considerations outlined above, and from considering consultation responses received from PINS and other stakeholders. Further detail of the receptors are presented in **Appendix 12.3: Methodology**.

Noise survey

- 12.6.12 The current baseline is identified by a combination of noise measurements, for the nearest receptor locations to the airport, and site observations for receptors over a wider area, for the purposes of assessing aircraft noise. Site observations are considered appropriate for the wider area as it would not be practical to measure noise levels in detail across the area potentially affected by flight paths. The observations at each location were not static, and instead consisted of a walkover around the location.
- 12.6.13 The purpose of the baseline sound surveys was to:
- ▶ Obtain baseline ambient sound levels during the daytime to inform the assessment of construction noise emissions at the nearest potential noise sensitive receptors and to inform indicative construction noise thresholds as set prescribed in BS5228-1:2009+A1:2014 'ABC method'¹⁷⁹;
 - ▶ Obtain baseline sound levels during different periods of the day and night to inform the assessment of industrial and commercial sound; and
 - ▶ Understand the baseline sound environment at locations where aircraft noise could be observed to provide context to the assessment of aircraft noise.
- 12.6.14 To ensure collection of reproducible levels of sound, long-term sound measurements were taken over a period of 24 days from Sunday 26th February 2017 to Wednesday 22nd March 2017. Further to TDCs request, an additional survey was undertaken at the Nethercourt Estate from 10th October 2017 to 30th November 2017, a period of 20 days.
- 12.6.15 Baseline sound monitoring was undertaken at 7 locations as illustrated in **Figure 12.1**. A summary of the daytime and night-time sound levels at these locations is presented in **Table 12.3**.

¹⁷⁹ BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites - Part 1: Noise.

Table 12.3 Summary of current baseline survey locations

Location ref.	Address	Observations		Indicative Current Baseline	
		Daytime 0700 to 2300	Night-time 2300 to 0700	Daytime 0700 to 2300 ($L_{Aeq,16hr}$)	Night-time 2300 to 0700 ($L_{Aeq,8hr}$)
LT1 – Acol	The Street, Acol, Birchington	Distant road traffic was the dominant noise source at times of observations from the A28, and the A299. Intermittent road traffic noise was also audible on Minster Road.	At night-time, distant road traffic noise from the A28 and A299 was dominant and road traffic noise on Minster road remained intermittent. An electricity pylon was also audible during the night.	53 dB	48 dB
LT2 – Beamont Close	Beamont Close, Manston	The acoustic environment was observed to be dominated by road traffic noise emanating from the B2190, A299 and the A253. Bird song and distant construction noise were also audible.	Road traffic from A253 was observed to be dominant, however noise from other roads were also audible. An industrial noise source was also perceived, but at a low level.	51 dB	45 dB
*LT3 – Manston Road	Manston Road, Manston	Road traffic dominated the acoustic environment from the B2050 and the A256 became dominant at periods where traffic was low on the B2050. Bird song and a trainpass by were also audible during observations.	Night-time observations were undertaken and it was noted that road traffic noise from the A256 was dominant	51 dB	46 dB
LT4 – St John's Avenue	St John's Avenue, Ramsgate	The acoustic environment was observed to be dominated by road traffic noise from the A256 and intermittent local road traffic noise along St. John's Avenue. Bird song and children playing also contributed to the acoustic environment.	Night-time observations were undertaken and it was noted that road traffic noise from the B2050 dominant. Bird song was also audible.	53 dB	46 dB
LT5 – Cliff View	Cliff View Road, Cliffsend, Ramsgate	The acoustic environment was observed to be dominated by road traffic noise from the A299 and the A256. Aircraft noise from a single helicopter flyover was also audible and dominated the noise environment when occurring. Noise from an electricity pylon was also perceived during observations.	Road traffic noise was dominant, in particular noise from the A256 during the night-time observations. A single aircraft noise event from a high flying aircraft was also observed.	51 dB	47 dB
LT6 – Tothill Street	Tothill Street, Minster	The acoustic environment was observed to be dominated by road traffic noise from the A253, the A299 and Tothill Street. Bird song was constant and aircraft noise was intermittent, both high flying aircraft and a helicopter fly over.	Night-time observations were undertaken and it was noted that background noise levels were low. Wind rustling the trees was the dominant noise source. A single train pass-by was audible to the south and on occasion, road traffic along Tothill Street was observed	53 dB	48 dB
*LT7 – Windermere Avenue	68 Windermere Avenue	The acoustic environment was observed to be dominated by road traffic noise from the B2050, the A299 and the A256. A train pass-by event was observed and dominated the acoustic environment for a small period.	The dominant noise source was a combination of both distant road traffic from the A299 and the A256 combined with the wind rustling leaves from the trees on Windermere Avenue.	52 dB	42 dB

*A weather station was deployed with the sound monitoring equipment at the survey location.

- 12.6.16 To characterise the wider baseline, observations were undertaken at 14 locations during both daytime and night-time periods as described in **Table 12.4** and illustrated in **Figure 12.2**. A single number has been identified to represent each location observed, based on the following:
- ▶ Site observation;
 - ▶ Short-term measurements;
 - ▶ Sound propagation modelling of the major sources of sound, namely road traffic movements for locations where the short-term noise level is uncertain; and
 - ▶ Directive 2002/49/EC¹⁸⁰ Round 2 noise mapping data where road traffic modelling is not possible or rail is the dominant noise source.

Table 12.4 Summary of baseline area characterisation

Observation ref.	Residential area	Observations	
		Daytime	Night-time
OBS 1 - St Nicholas-at-Wade	St Nicholas-at-Wade	Road traffic noise from the A299 was the dominant contributor to the baseline sound environment, which was in the region of 55 to 60 dB $L_{Aeq,5min}$. Intermittent road traffic noise from local roads through the village was audible as well as a train pass-by on the Chatham Main Line.	Road traffic noise from the A299 was still dominant, however the levels had reduced due to decreased traffic flow. Monitored levels were in the region of 42 to 47 dB $L_{Aeq,5min}$.
Represented by Sound Levels:		57 dB $L_{Aeq,16hr}$	45 dB $L_{Aeq,8hr}$
OBS 2 - Beltinge	Beltinge	Road traffic noise from the A299 dominated the sound climate, which was measured in the region of 60 dB $L_{Aeq,5min}$. Train pass-bys were audible along the Chatham Main Line.	Road traffic noise from the A299 remained the dominant source of sound, measuring in the region of 45 dB $L_{Aeq,5min}$.
Represented by Sound Levels:		60 dB $L_{Aeq,16hr}$	45 dB $L_{Aeq,8hr}$
OBS 3 – Avenue of Remembrance, Herne Bay	Herne Bay	Road traffic noise from Kings Road was the dominant source of sound, however during lulls in traffic flow distant road traffic noise from the A299 and A2990 was noted to be the dominant source of sound.	Due to reduced traffic flow on Kings Road, road traffic noise from the A299 and A2990 was dominant, measuring in the region of 46 dB $L_{Aeq,5min}$.
Represented by Sound Levels:		48 dB $L_{Aeq,16hr}$	45 dB $L_{Aeq,8hr}$
OBS 4 – Studd Hill, Herne Bay	Herne Bay	Road traffic noise from Sea St was the dominant source of sound, measured as being in the region of 60 dB $L_{Aeq,5min}$. A train pass-by was also audible during observations.	Distant road traffic noise from the A2990 was the dominant source of sound, which would be dominated by infrequent vehicle pass-bys on Sea St. Measured levels were in the region of 49 dB $L_{Aeq,5min}$.
Represented by Sound Levels:		54 dB $L_{Aeq,16hr}$	48 dB $L_{Aeq,8hr}$
OBS 5 - Sarre	Sarre	The sound climate of the village was dominated by road traffic noise emanating from the A28. This measured in the region of 60 dB $L_{Aeq,5min}$. Aircraft noise was also audible intermittently.	During night-time, the sound climate was again dominated by road traffic noise from the A28, however due to reduced traffic flow the levels had lowered to 50 dB $L_{Aeq,5min}$.

¹⁸⁰ Directive 2002/49/EC of the European Parliament and of the Council of 25 June 2002 relating to the assessment and management of environmental noise - Declaration by the Commission in the Conciliation Committee on the Directive relating to the assessment and management of environmental noise

Observation ref.	Residential area	Observations	
		Daytime	Night-time
Represented by Sound Levels:		57 dB $L_{Aeq, 16hr}$	48 dB $L_{Aeq, 8hr}$
OBS 6 - Stourmouth	Stourmouth	The sound climate was dominated by road traffic noise from the A28. Monitored levels were in the region of 50 dB $L_{Aeq, 5min}$. Train horns were audible whilst making observations.	Road traffic noise from the A28 was dominant. Monitored levels were in the region of 30-35 dB $L_{Aeq, 5min}$.
Represented by Sound Levels:		45 dB $L_{Aeq, 16hr}$	33 dB $L_{Aeq, 8hr}$
OBS 7 – Grove Ferry, Upstreet	Upstreet	The dominant source of sound was road traffic noise from the A28, however during a train pass-by, rail noise would dominate this. Measured levels were in the region of 55 to 60 dB $L_{Aeq, 5min}$.	Road traffic noise from the A28 remained the dominant source of sound. Measured levels were in the region of 35 dB $L_{Aeq, 5min}$.
Represented by Sound Levels:		51 dB $L_{Aeq, 16hr}$	36 dB $L_{Aeq, 8hr}$
OBS 8 - Reculver	Reculver	The dominant source of sound was waves from the sea crashing against the shore, as well as bird song, in particular seagulls.	Distant road traffic noise from the A299 was the dominant source of sound, with intermittent high flying aircraft noise noted. Monitored levels were in the region of 34 dB $L_{Aeq, 5min}$.
Represented by Sound Levels:		54 dB $L_{Aeq, 16hr}$	33 dB $L_{Aeq, 8hr}$
OBS 9 - Birchington-on-Sea	Birchington-on-Sea	Road traffic noise on the A28 was dominant during observations, with local traffic dominating this whilst vehicles passed-by. A rail pass-by occurred which dominated the sound climate. Measured levels were in the region of 61 dB $L_{Aeq, 5min}$.	Road traffic noise from the A28 was dominant. As well as this, high flying aircraft noise was audible, which was intermittent. Measured levels were in the region of 53 dB $L_{Aeq, 5min}$.
Represented by Sound Levels:		60 dB $L_{Aeq, 16hr}$	51 dB $L_{Aeq, 8hr}$
OBS 10 - Staner Court	Ramsgate	Road traffic noise from the B2050 was the dominant source of sound, with road traffic noise from the A256 also audible. A helicopter fly over was audible during the observations. Measured levels were in the region of 46 to 54 dB $L_{Aeq, 5min}$.	Ventilation plant from the commercial units in the vicinity of Staner Court was the dominant source of sound. Whilst road traffic noise on the B2050 was intermittent. Measured levels were in the region of 49 dB $L_{Aeq, 5min}$.
Represented by Sound Levels:		48 dB $L_{Aeq, 16hr}$	48 dB $L_{Aeq, 8hr}$
OBS 11 - St Lawrence	St Lawrence	The sound of trains idling was the dominant source of sound until a rail pass-by occurred, which dominated the sound climate.	During the night-time the sound of trains idling at the train station was dominant, levels were measured in the region of 45 to 50 dB $L_{Aeq, 5min}$.
Represented by Sound Levels:		54 dB $L_{Aeq, 16hr}$	48 dB $L_{Aeq, 8hr}$
OBS 12 – Ramsgate Harbour	Ramsgate	Road traffic noise from the B2054 was dominant throughout, with intermittent aircraft noise audible. Measured levels were in the region of 50 to 55 dB $L_{Aeq, 5min}$.	Traffic flow on the B2054 was much reduced and therefore the dominant source of sound was wind rustling through the trees. Levels measured were in the region of 50 $L_{Aeq, 5min}$.
Represented by Sound Levels:		51 dB $L_{Aeq, 16hr}$	51 dB $L_{Aeq, 8hr}$
OBS 13 - Pegwell	Pegwell	Road traffic noise from traffic on local roads was the dominant source of sound. Agricultural noise and aircraft noise was also audible during observations. Measured levels were in the region of 40 to 45 dB $L_{Aeq, 5min}$.	At night-time, road traffic noise was still the dominant source of, however it was noted to be quieter than that of during the day. Measured levels were in the region of 40 dB $L_{Aeq, 5min}$.

Observation ref.	Residential area	Observations	
		Daytime	Night-time
Represented by Sound Levels:		42 dB L _{Aeq, 16hr}	42 dB L _{Aeq, 8hr}
OBS 14 – Nethercourt Estate	Ramsgate	Road traffic noise from traffic on A299 and A255 was dominant at this location and gets louder closer to the south of the estate. In the evening, road traffic noise was accompanied by sirens from emergency vehicles. Noises from nearby vegetation also dominated. Aircraft noise was audible during the observation but not dominant. A rail pass-by event occurred which was clearly audible but not dominating.	As with the daytime observation, road traffic noise from the direction of the A299 and A255 was dominant at this location and was louder closer to the south of the estate. Sound from nearby vegetation was still equally as dominant also. A low level 'hum', emanating from the railway was observed along the northern edge of Nethercourt Estate. Road traffic noise was observed to be slightly more audible on the south side of the estate.
Represented by Sound Levels:		60 dB L _{Aeq, 16hr}	54 dB L _{Aeq, 8hr}

Future baseline

- 12.6.17 Whilst the trend is for road traffic noise to increase, it is not considered that this will change the baseline significantly. Given the semi-rural character of the area and current legislation and guidance on industrial noise, it is unlikely that the baseline would change because of commercial development. Therefore, the future baseline sound environment is assumed to be the same as today's baseline sound environment.
- 12.6.18 Further information on the baseline noise survey locations, including the approach to formulating a representative sound level for the wider area, is provided in **Appendix 12.4: Baseline Studies**.

12.7 Environmental measures incorporated into the Proposed Development

- 12.7.1 Measures will be incorporated into the construction and operation of the Proposed Development to avoid, reduce or compensate for potential adverse noise effects as follows.

Construction Environmental Management Plan (CEMP)

- 12.7.2 A CEMP is being developed for the Proposed Development. The draft CEMP contains control measures and the standards to be implemented throughout all phases of construction. The CEMP sets out a series of proposed measures and standards of work, which shall be applied by the developer and its contractors throughout the construction period to:

- ▶ provide effective planning, management and control during construction to control potential impacts upon people, businesses and the natural and historic environment; and
- ▶ provide the mechanisms to engage with the local community and their representatives throughout the construction period.

Specific to noise, the CEMP to be included with the ES will describe measures to be put in place by contractors to reduce noise including:

- ▶ A requirement to use Best Practicable Means (BPM) to minimise noise and vibration at neighbouring residential properties and other sensitive receptors arising from construction activities; and

- ▶ A requirement for contractors to seek to obtain consents from the relevant local authority under Section 61 of the Control of Pollution Act 1974¹⁸¹ for the proposed construction works, excluding non-intrusive surveys. Applications will normally be made to the relevant local authority.

12.7.3 In addition, the following mitigation measures, based on current construction assumptions are proposed on the basis that there would serve to reduce construction noise:

- ▶ Where it is reasonable and practical to do so, on-site construction traffic will avoid using the perimeter roads which run in close proximity to sensitive residential development at night; and
- ▶ 2.5m site hoardings will be used where it is reasonable and practical to do so around the perimeter of the construction site compounds, to the south of the internal access road and along perimeter roads used as haul roads during daytime construction where the haul roads are in close proximity to sensitive properties.

Noise mitigation plan

12.7.4 A draft noise mitigation plan has been developed that fully considers potential operating procedures and restrictions. This strategy has been derived from the evaluation of measures that are achievable within the context of the development proposals and it has been developed following the ICAO Balanced Approach to noise management.

12.7.5 It is acknowledged that noise-related restrictions will be a requirement of any consent given. The strategy has therefore determined how noise can be managed and controlled in a manner that provides local communities with certainty around the levels of noise that can be expected from the reopening of the airport and its forecast operation.

12.7.6 It is expected that the observance of the mitigation strategy will become a DCO requirement and will be formalised following the ACP. Once operational the mitigation plan will be formalised in the airports noise abatement procedures within the UK Integrated Aeronautical Information Package (AIP) and will be reviewed periodically as part of the airport's obligations under the Environmental Noise Directive.

12.7.7 As part of the process for adopting operating procedures, the procedures were appraised using a methodology consistent with the CAP 1520: Draft Airspace Design Guidance¹⁸². A summary of the options appraisal methodology is presented in **Appendix 12.3:Methodology**.

- ▶ A restriction on night-time movements:
 - ▶ No passenger aircraft will be scheduled to take-off or land during 2300 to 0600
 - ▶ A restriction on the noisiest aircraft operating at night
 - No QC 16 or 8 aircraft will be allowed to take off or land between 2300 and 0700
 - An aircraft is awarded a quota count (QC) value depending on the amount of noise it generates during certification. The quieter the aircraft the smaller the QC value.
- ▶ An Annual Quota Count (QC) budget for night time freight (2300-0600) and early morning passenger flights (0600-0700) is to be consulted upon and finalised for the submission of the ES:
 - ▶ As each aircraft movement takes place, an amount of the relevant quota is used depending on the classification of the aircraft.
- ▶ A restriction on training flights:

¹⁸¹ Control of Pollution Act 1974. Available online at <http://www.legislation.gov.uk/ukpga/1974/40> [Checked at 14/12/2017].

¹⁸² CAP 1520: Draft airspace design guidance (2017). Civil Aviation Authority.

- ▶ Other than the general aviation training that already operate at Manston Airport, there will be no additional training flights as part of the development.
- ▶ Community Consultative committee:
 - ▶ The Promoter will establish a Community Consultative Committee. The committee will have an independent chair and secretary who will be paid from airport funds. It will meet quarterly in public at suitable premises on the airport and its agendas and minutes will be published. It will also have the power to create special purpose sub-committees as appropriate.
 - ▶ Community Trust Fund:
 - The airport operator will establish a Community Trust Fund. The proceeds of the fund will be applied to community projects within the 50 dB LAeq (16 hour) day time contour and 40 dB LAeq (8 hour) night contours by the Community Consultative Committee.
- ▶ Noise and track monitoring
 - ▶ The airport operator will install a Noise and Track-Keeping system which will track aircraft in flight and measure noise levels. Aircraft operators whose planes have persistently departed from designated departure flight paths will be subject to track keeping penalties of £500 per infringing aircraft departure.
- ▶ Departure Noise Limits
 - ▶ Permanent fixed noise monitoring terminals will be located under each of the aircraft departure flight paths at a distance of 6.5km from the start of aircraft take-off roll.
 - ▶ During the Day Time Period, the operator of any departing aircraft that exceeds 90 dB LASmax at the relevant noise monitoring terminal will be subject to a penalty of £750 and a further penalty of £150 for each additional decibel exceeded above 90 dB LASmax.
 - ▶ During the Night Time Period the operator of any departing aircraft that exceeds 82 dB LASmax at the relevant noise monitoring terminal will be subject to a penalty of £750 and further penalties of £150 for each additional decibel exceeded above 82 dB LASmax.
- ▶ Off-track Flight
 - ▶ Through the Airspace Change Process, the airport authority will seek to establish NPRs which will be designed to avoid overflying of densely populated areas.
 - ▶ The airport will require each aircraft operator to ensure that 95% of all departures within a calendar year remain within the NPR.
 - ▶ Any airline which fails to meet the target in paragraph 11.3 and subsequently fails to work collaboratively with the airport after being notified of persistent departures outside of the NPRs will be subject to a track keeping penalty of £500 per aircraft departure.
- ▶ Runway Preference
 - ▶ When weather conditions allow, and taking into account other operational and safety considerations, the Promoter will seek to operate take-offs from Runway 28 and landings on Runway 10 to avoid aircraft overflying Ramsgate.
- ▶ Procedures for Arriving Aircraft
 - ▶ Aircraft operators will be encouraged to keep noise disturbance to a minimum by operating a low power/low drag procedure subject to ATC speed control requirements and the maintenance of safe operation of the aircraft.
 - ▶ The airport will establish a policy which minimises the use of reverse thrust except where operationally essential.

- ▶ Restrictions on engine testing:
 - ▶ There will be no open field testing of jet engines at night except where operationally urgent and carried out within a designated test area.

Aircraft dwelling relocation scheme

- 12.7.8 In line with Government guidance, dwelling relocation will be offered as part of the Proposed Development if residents are exposed to unacceptable adverse effects of health and quality of life. Guidance provides that eligibility should be based upon a dwelling lying within the daytime 69 dB $L_{Aeq,16hr}$ contour. If eligible, homeowners should be provided with assistance with the costs of moving away from the airport.

Aircraft noise dwelling insulation scheme

- 12.7.9 A noise insulation scheme will be offered as part of the Proposed Development to help avoid significant adverse effects of health and quality of life. Eligibility is dependent on both daytime and night-time noise exposure and is entirely consistent with current and emerging Government Policy. Eligibility associated with day time noise will require residential properties with habitable rooms to be within the 63 dB $L_{Aeq,16hr}$ contour. In addition, where properties have bedrooms which are affected by levels of noise at or above 55 dB $L_{Aeq,8hr}$, the insulation scheme will apply, even if those properties do not fall within the 63 dB $L_{Aeq,16hr}$ contour.

Insulation scheme for noise-sensitive buildings

- 12.7.10 A separate noise insulation scheme for noise-sensitive schools and community buildings will also be offered in connection with the Proposed Development. The scheme takes into account the daytime noise exposure and is based upon the extent of the daytime 60 dB $L_{Aeq,16hr}$. The scheme will provide insulation and ventilation for affected buildings.

Control of industrial and commercial sound

- 12.7.11 A set of measures will be put in place to control the effects of noise from the operation of aviation related infrastructure and fixed plant designed and installed by the Developer as part of the Proposed Development. The measures shall be applied to all fixed plant which are not essential to the operation or maintenance of aircraft, such as mechanical ventilation systems for passenger terminals, hangars and office buildings.
- 12.7.12 Design detail for assessing industrial and commercial sound was not available at the time of writing, as is often the case at this stage for large infrastructure projects. It is therefore necessary to apply a method at this stage for further work once detailed design for fixed plant is available. The level and nature of sound produced by industrial and commercial sound and the ability to practicably control the sound emissions will vary. Measures are designed to ensure an appropriate level of consistency in the approach to be applied to the different sources of industrial and commercial sound, whilst ensuring a suitable level of flexibility to address different situations and circumstances.
- 12.7.13 The Developer will assess industrial and commercial sound at the nearest residential receptor based on the principles set out in BS4142:2014¹⁸³. This methodology requires an assessment of industrial sound against the background level at residential receptors, measured during the detailed design stage. This will ensure that the background level will be established using up-to-date and robust information. The Developer will undertake the following steps to control industrial and commercial sound:

¹⁸³ BS 4142, Method for rating industrial noise affecting mixed residential and industrial areas (2014). British Standards Institute.

- ▶ Specify noise limits and incorporate acoustic requirements into contract documents such that they will apply to the design of all the fixed plant that are to be installed and operated as part of the Proposed Development;
- ▶ Determine the relevant background levels and establish these jointly with the relevant local authorities;
- ▶ Procure, install and commission fixed plant, including sound attenuation equipment that meets the specification requirements; and
- ▶ Before formal operation of the fixed plant, complete a standard suite of acceptance tests as necessary to demonstrate that the operational sound levels achieve the design criteria.

12.7.14 More of the above mitigation measures are presented in **Appendix 12.5: Control of Industrial and Commercial Sound**.

Masterplan Design

12.7.15 As part of the masterplan design a 3-metre acoustic fence is to be erected along the southern and eastern boundary of the fuel farm to mitigate noise at nearby receptors.

12.7.16 As the design of associated business development on the Northern Grass area is developed the promoter has committed to take reasonable steps to minimise noise by implementing the following design principles:

- ▶ A landscaped area has been provided between the proposed business park and the houses immediately adjacent to its eastern boundary. This area will be safeguarded in future design iterations in order to protect the residential properties during construction and operation.
- ▶ The buildings which will generate the least noise will be located in the most sensitive areas of the site close to existing residential development. Such activities could include offices, parkland/greenspace, attenuation ponds, the museums and associated facilities;
- ▶ Warehouse buildings shall be orientated such that loading/unloading activities face away from any existing residential dwellings;
- ▶ Doors or other openings on building facades facing existing residential dwellings shall be minimised or avoided. This is most important for industrial buildings but may also include other buildings where evening, weekend or night time activities occur.
- ▶ Internal vehicular routes shall be located away from the most sensitive parts of the site and buildings shall be used to screen road noise from existing residential buildings;

12.8 Assessment methodology

General Approach

12.8.1 The general approach to the assessment has been to predict noise from the construction and operation of the Proposed Development and assess these against the baseline conditions as described in **Section 12.4: Baseline**.

12.8.2 The assessment has been informed by data resources and prediction methods that are described in detail in **Appendix 12.3: Methodology**. Methods for prediction incorporate both computer noise modelling and spreadsheet analysis incorporating international and national standardised calculation methodologies.

12.8.3 The following sections describe the approach taken in assessing each noise and vibration aspect of the construction and operation of the Proposed Development.

- 12.8.4 The identified criterion for the assessment of impacts has been informed by the aims of the Government's Noise Policy to avoid *significant adverse* impacts and *minimise adverse* impacts on health and quality of life. In the NPSE¹⁸⁴ the effect levels in relation to adverse impacts on health and quality of life are set out as:

Table 12.5 NPSE Criteria and Mitigation Approach

Effect level	Description	Action
NOEL (No Observed Effect)	Level below which no effect on health and quality of life is detected.	No specific measures
LOAEL (Lowest Observed Adverse Effect Level)	Level above which adverse effects on health and quality of life can be detected.	Mitigate and reduce to a minimum
SOAEL (Significant Observed Adverse Effect Level)	Level above which significant adverse effects on health and quality of life occur.	Avoid
UOAE (Unacceptable Observed Adverse Effect Level)	Level above which adverse effects are unacceptable.	Prevent

- 12.8.5 The NPSE¹⁸⁵ states that it is not possible to have a “single objective” noise based measure applicable to all sources and receptors that define the on-set of the LOAEL or the SOAEL. It is however possible to define threshold levels for the onset of each of the effect levels, based upon available Standards and technical guidance.
- 12.8.6 As outlined in **Section 12.5**, there are emerging national planning policies relevant to aviation noise and the Government is consulting on new national airport and aviation policies. In the Government's consultation on airspace policy, there is a much clearer alignment of the aims and objectives of the NPSE in the context of aviation, taking the step in defining values for LOAEL and SOAEL. The consultation on Airspace Policy¹⁸⁶ also reaffirms the Government's aviation noise policy objectives as outlined in the Aviation Policy Framework¹⁸⁷.
- 12.8.7 In line with best practice and previous projects, the assessment identifies likely significant effects by consideration of the existing levels of the noise or vibration exposure, the change in noise and vibration exposure with and without the Proposed Development, the number and type of buildings impacted and other relevant factors. The impact of any noise change is considered within the context in which that change will occur. In general, if the forecast levels with the Proposed Development are below the LOAEL, no significant effects have been identified. Where the current or forecast noise level with the Proposed Development exceeds the SOAEL, greater weight has been applied to receptors by identifying likely significant effects on the basis of a smaller change in noise than when the noise level is less than the SOAEL.
- 12.8.8 The 2017 EIA Regulations require that assessments identify the likely significant environmental effects of a proposed development.
- 12.8.9 The 2017 EIA Regulations require that identified effects should be mitigated with the aim to avoid, prevent or reduce the associated significant adverse effects on the environment.

¹⁸⁴ Noise Policy Statement for England (2010). Department for the Environment, Food and Rural Affairs.

¹⁸⁵ Noise Policy Statement for England (2010). Department for the Environment, Food and Rural Affairs.

¹⁸⁶ Draft UK Airspace Policy: A framework for balanced decisions: on the design and use of airspace (2017). Department for Transport.

¹⁸⁷ Aviation Policy Framework (2013). Department for Transport.

Prediction methods

Construction and Operational noise – road traffic

- 12.8.10 The assessment scenarios and extents are consistent with the advice set out within The Highways Agency's (now Highways England) '*Design Manual for Roads and Bridges*' (DMRB)¹⁸⁸. The baseline year and future assessment year have been selected to identify the periods when likely noise effects from road traffic would be greatest. The future assessment year has been selected to be representative of the road traffic flows during the busiest construction periods and the periods immediately after the commissioning of the Proposed Development (both 'short-term'), and the greatest traffic flows in Year 20 (2039¹⁸⁹) ('long-term').
- 12.8.11 The calculation of construction and operational road traffic noise is undertaken with reference to the following guidance documents:
- ▶ Department of Transport's document 'Calculation of Road Traffic Noise' (CRTN)¹⁹⁰; and
 - ▶ Transport and Road Research Laboratory 'Converting the UK traffic noise index $L_{A10,18hr}$ to EU noise indices for noise mapping'¹⁹¹.

Construction vibration - earthworks, fixed & mobile plant

- 12.8.12 The methodology adopted for the calculation of vibration levels from construction activities is that advocated within Transport and Road Research Laboratory *Research Project 429 – Groundborne vibration caused by mechanised construction works*¹⁹² and BS5228-2:2009+A1:2014 '*Code of practice for noise and vibration control on construction and open sites – Part 2: Vibration*'¹⁹³.
- 12.8.13 Additional general guidance on the considerations to be made when calculating vibration levels has been taken from Transport and Road Research Laboratory *Research Project 53 – Ground vibration caused by civil engineering works*¹⁹⁴.
- 12.8.14 Assessments of the vibration induced effects during construction has been limited to a distance of 100 m from the associated activities, consistent with the research presented within TRL 53 and TRL 429 (2000).

Operational noise – industrial and commercial sound (fixed plant)

- 12.8.15 No detailed quantitative assessment of noise from the fixed plant has been undertaken as the level of design detail available is limited, as would be the case at this stage for any infrastructure project. Therefore, a set of environmental measures which will avoid significant adverse effects of noise and minimise adverse effects of noise from fixed plant has been developed (**Appendix 12.5: Control of Industrial and Commercial Sound**). It is anticipated that it is likely to be reasonably practicable to design these systems so that effects are avoided based upon the assessment methodology set out in BS 4142: 2014 [183].

¹⁸⁸ Design Manual for Road and Bridges HD 213/11 (2011). Highways Agency.

¹⁸⁹ It is acknowledged that Year 20 is not consistent with the methodology presented in DMRB which requires noise to be assessed in the 'long-term' and typically within a 15-year period. However, Year 20 has been considered for this assessment for consistency with the aircraft noise assessment.

¹⁹⁰ Department of Transport (1988), Calculation of Road Traffic Noise, HMSO.

¹⁹¹ Abbot. P.G. Nelson. P.M. (2002) Converting the UK traffic noise index $L_{A10,18h}$ to EU noise indices for noise mapping. TRL Report PR/SE/451/02

¹⁹² Transport Research Laboratory Report 429, Groundborne vibration caused by mechanised construction works, 2000.

¹⁹³ British Standards Institution (2009), BS 5228-2 (2009) +A1: 2014, Code of practice for noise and vibration control on construction and open sites – Part 2 Vibration.

¹⁹⁴ TRL (1986), Transport Research Laboratory Report 53 - Ground vibration caused by civil engineering works.

Operational noise – aircraft noise (aircraft air and airside ground noise (including mobile and static sources of noise))

- 12.8.16 The assessment of aircraft noise presents the combined noise and sound effects of airside ground noise and aircraft air noise for the Proposed Development:
- ▶ Aircraft air noise - the noise as aircraft depart from and arrive at the airport; and
 - ▶ Airside ground noise - the noise from aircraft and associate airport activities, including aircraft taxiing and manoeuvring on the ground, static and moving airfield plant.
- 12.8.17 Different calculation methodologies are to be implemented for aircraft air noise and airside ground noise. For airside ground noise, the methodology and calculation algorithms to be implemented, will be those advocated within ISO 9613-2¹⁹⁵ guidance.
- 12.8.18 For the purposes of the options appraisal, aircraft air noise was calculated using the latest version of Federal Aviation Administration's (FAA) Integrated Noise Model (INM) v.7.0d. For the ES, aircraft air noise was modelled using the latest available version of FAA's Aviation Environmental Design Tool v2d (AEDT).
- 12.8.19 Both INM and AEDT have been developed by the FAA and both utilise the same assessment methodology, namely the SAE AIR 1845 standard and therefore they share the same calculation methodology. The main difference with AEDT is an updated aircraft database with future aircraft types included. However, the forecast fleet for Manston Airport includes only aircraft types operating today and therefore there is not expected to be any material difference between the outputs of AEDT and INM.

Significance evaluation methodology

- 12.8.20 The evaluation of significance differs depending on the sensitivity of the assessed receptor(s). National noise policy and Standards documents generally focus on the effects of noise on residential receptors in isolation, whilst there is a requirement within the NPSE and NPPG to evaluate the effects on a community basis, such as within a neighbourhood. The evaluation of significance within a community is therefore a combination of advice derived from Standards and policy, in addition to considerations of context and receptor sensitivity.
- 12.8.21 Non-residential receptors, such as offices, hospitals and schools, are often cited as containing buildings and/or activities that are potentially noise sensitive. The World Health Organisation (WHO) Guidelines for Community Noise (WHO, 1999) introduce the concept of differentiating between these uses in terms of the degree of sensitivity to noise effects. The evaluation of significance for non-residential receptors may therefore differ from that adopted for residential receptors and communities.
- 12.8.22 In summary, the assessments will consider the appropriate noise and vibration effects upon the following receptors:

Residential receptors

- 12.8.23 For assessment purposes, where the calculated noise exposure at a receptor are shown to be at SOAEL or greater in terms of government noise policy, and therefore where a 'significant observed adverse' impact on health and quality of life is possible, it is to be considered to indicate a likely significant adverse effect in the context of Government Noise Policy.
- 12.8.24 Effects at the assessed receptors that are shown to be LOAEL or lower are not considered adverse in terms of EIA Regulations. However, where possible, mitigation will still be recommended with the aim to improve the health and quality of life of those receptors. This approach is in keeping with the third aim of NPSE (2010).

¹⁹⁵ International Standards Organisation (1996), Acoustics – Attenuation of sound during propagation outdoors – Part 2: general Method of Calculation, International Standard ISO 9613-2: 1996 (E).

- 12.8.25 The second aim of NPSE (p.9, 2010) refers to situations where the calculated impact lies between the LOAEL and the SOAEL, where there is a requirement to:
- 12.8.26 “mitigate and minimise adverse impacts on health and quality of life from environmental, neighbour and neighbourhood noise within the context of Government policy on sustainable development”
- 12.8.27 Where the impact lies between LOAEL and the SOAEL, reasonable steps should be taken to mitigate and minimise the impact. The NPSE (2010) however recognises that this does not necessarily mean such adverse effects cannot occur.
- 12.8.28 The assessment as to whether an adverse effect at a residential receptor, which occurs when the noise exposure is between the LOAEL and SOAEL can occur, requires additional quantitative and qualitative considerations. These considerations require elements of professional judgement and consideration of the context within which the effect occurs. In summary, these considerations include:
- ▶ The magnitude of the effect;
 - ▶ The change in magnitude of the effect;
 - ▶ The type of effect, including its intermittency;
 - ▶ The existing sound environment;
 - ▶ The effectiveness of mitigation, including BPM (best practicable means); and
 - ▶ The duration of effect.
- 12.8.29 The NPPG (2014) advises that noise effects may be partially offset if the residents of affected dwellings have access to:
- ▶ “a relatively quiet facade (containing windows to habitable rooms) as part of their dwelling, and/or;
 - ▶ a relatively quiet external amenity space for their sole use, (e.g. a garden or balcony). Although the existence of a garden or balcony is generally desirable, the intended benefits will be reduced with increasing noise exposure and could be such that significant adverse effects occur, and/or;
 - ▶ a relatively quiet, protected, nearby external amenity space for sole use by a limited group of residents as part of the amenity of their dwelling, and/or;
 - ▶ a relatively quiet, protected, external publicly accessible amenity space (e.g. a public park or a local green space designated because of its tranquillity) that is nearby (e.g. within a 5 minutes walking distance).”
- 12.8.30 Furthermore, the NPPF (2012) requires consideration to be made to the likely cumulative effects at receptors of noise and vibration from all relevant committed and proposed development projects within the study area. The exact details of the methodology to be applied to the cumulative noise and vibration effect assessments will be developed as both the Proposed Development, and other projects emerge and evolve.

Community receptors

- 12.8.31 Where the calculated noise exposure at residential receptors within a community area is greater than the LOAEL but less than the SOAEL, and thus in terms of government noise policy has an adverse effect, a significant adverse effect in terms of the EIA Regulations can be demonstrated to occur if the overall effect upon the community is deemed severe enough.
- 12.8.32 Additional considerations in determining whether the adverse community effect is significant, include:
- ▶ The number of residential receptors affected; and

- ▶ The sensitivity of receptors within the 'community'.

- 12.8.33 The assessment of likely significant adverse effects upon communities is therefore largely evidence-based but also requires professional judgements assisted by the considerations outlined for residential receptors. Depending on the number of receptors and their associated sensitivity, a likely significant adverse effect may occur when there is a large effect at a small number of properties, or a smaller effect at a larger number of properties.
- 12.8.34 It is possible that a likely significant adverse effect can apply on a community basis when significant adverse effects are not derived on an individual basis for any of the receptors within it.

Non-residential receptors

- 12.8.35 For non-residential receptors, the evaluation of significance shall take into account the considerations outlined for residential receptors, and the sensitivity of the non-residential receptors accounting for its existing use.

Assessment Criteria – residential and community receptors

- 12.8.36 This section sets out how the criteria for likely significant effects upon residential and community receptors in terms of EIA Regulations for each of the scoped assessments have been derived, taking into account significant adverse effects as outlined in government policy, and other relevant guidance.

Construction noise – earthworks, fixed & mobile plant

- 12.8.37 In accordance with the methodologies advocated within Annex E of BS 5228-1:2009+A1:2014 '*ABC Method*', the determination of impact thresholds for the construction phase noise effects will have regard to baseline levels of ambient noise at the receptors.
- 12.8.38 Using the three-tiered threshold level system set out within the ABC Method, the impact thresholds to be adopted within the construction noise assessment are shown in **Table 12.16**. Exceedance of the Category C threshold levels are considered to correlate with SOAEL in government policy, and to have a significant adverse effect, in terms of the EIA Regulations.
- 12.8.39 The daytime Category C (SOAEL) threshold of 75 dB $L_{Aeq, T}$ is taken from the Committee on the '*Problem of Noise: Noise Report*' (Wilson, 1963) and was set to avoid interference with normal speech indoors. This is considered a conservative approach given the improvement in construction methods and glazing specifications since 1963. The night-time Category C (SOAEL) of 55 dB $L_{Aeq, 8hr}$ is consistent with advice presented within the '*WHO Night Noise Guidelines for Europe*' (WHO NNG, 2009). The evening Category C (SOAEL) is set at 10 dB lower than the daytime criteria, based upon advice presented within the '*Department of the Environment Advisory Leaflet 72 – Noise Control on Building Sites (AL 72, 1976)*'.
- 12.8.40 Therefore, a potential significant effect may also occur if the ambient noise level exceeds the Category C threshold values provided in **Table 12.16**, (i.e. the ambient noise level is higher than the threshold value) and the total $L_{Aeq, T}$ noise level for the period increases by more than 3 dB because of construction noise.
- 12.8.41 The Category A and Category B threshold levels set out within **Table 12.16** are considered representative of LOAEL given they are the '*ABC Method*' lower thresholds for the adverse effects.

LOAEL and SOAEL impact thresholds

- 12.8.42 The threshold levels related to noise during the development's earthworks and construction activities are summarised in **Table 12.6**. A significant adverse effect is determined to occur when the calculated noise is greater than the SOAEL threshold level. The threshold levels are set out for the daytime, evening and night-time periods, and are considered free-field (i.e. away from acoustically reflective surfaces).

Table 12.6 Noise from Construction – Impact criteria for residential receptors (airborne sound only)

Noise Sources	Receptor	Period	Category A (LOAEL)	Category B	Category C (SOAEL)
Construction noise (earthworks, fixed & mobile plant)	Residential	Daytime	65 dB $L_{Aeq, 12hr}$	70 dB $L_{Aeq, 12hr}$	75 dB $L_{Aeq, 12hr}$
	Residential	Evening	55 dB $L_{Aeq, 4hr}$	60 dB $L_{Aeq, 4hr}$	65 dB $L_{Aeq, 4hr}$
	Residential	Night-time	45 dB $L_{Aeq, 8hr}$	50 dB $L_{Aeq, 8hr}$	55 dB $L_{Aeq, 8hr}$
Definitions and notes:					
Daytime – Weekdays (0700-1900) and Saturdays (0700-1300)					
Evening – Weekdays (1900-2300), Saturdays (1300-2300), Sundays and Bank Holidays (0700-2300)					
Night-time – Weekdays, Weekends and Bank Holidays (2300-0700)					
Category A – threshold level is LOAEL when ambient noise levels (rounded to the nearest 5 dB) are less than these values					
Category B – threshold level is LOAEL when ambient noise levels (rounded to the nearest 5 dB) are the same as Category A values					
Category C – threshold level is SOAEL for ambient noise levels (rounded to the nearest 5 dB) which are 3 dB or more below these values. Where ambient noise levels are less than 3dB below these values, SOAEL is indicated if the total $L_{Aeq, T}$ noise level for the period increases by more than 3 dB due to site noise.					

Construction and Operational noise – road traffic

Residential receptors (in isolation)

- 12.8.43 The determination of impact thresholds for road traffic noise is based upon the guidance values set out within the Noise Insulation (Amendment) Regulations (NIR, 1988) and the WHO Guidelines for Community Noise (WHO, 1999), for daytime noise criteria, and the WHO Night Noise Guidelines for Europe (WHO NNG, 2009) for night-time noise criteria.
- 12.8.44 During the daytime, a significant adverse effect is determined to occur when noise exposures exceed 63 dB $L_{Aeq, 16hr}$ free-field (equivalent to 68 dB $L_{A10, 18hr}$ façade level) at assessed residential receptors. The 68 dB $L_{A10, 18hr}$ façade level is one of the requirements set out within the NIR (1988) under which buildings may qualify for statutory noise insulation. In the event that the assessment identifies any requirements for mitigation under the NIR, these would be clarified. For the purpose of the assessment of likely significant effects the 63 dB $L_{Aeq, 16hr}$ free-field threshold level is considered a suitable value for the SOAEL.
- 12.8.45 During the night-time 55 dB $L_{Aeq, 8hr}$ is considered representative of SOAEL and is consistent with advice presented within WHO NNG (2009).
- 12.8.46 The day-time and night-time LOAEL are set at 50 dB $L_{Aeq, 16hr}$ (free-field) and 40 dB $L_{Aeq, 8hr}$ (free-field) respectively, based upon advice set out within WHO (1999) and WHO NNG (2009).

LOAEL and SOAEL impact thresholds

- 12.8.47 The threshold level relating to road traffic noise during the construction and operation of the proposed development are summarised in **Table 12.7**. A significant adverse effect is determined to occur when the calculated noise is greater than the SOAEL threshold level. The threshold levels are presented for the daytime and night-time periods and are considered free-field (i.e. away from acoustically reflective surfaces).

Table 12.7 Summary of road traffic noise thresholds

Noise Sources	Receptor	Period*	LOAEL	SOAEL
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Construction and operational noise – road traffic	Residential	Daytime	50 dB $L_{Aeq,16hr}$	63 dB $L_{Aeq,16hr}$
		Night-time	40 dB $L_{Aeq,8hr}$	55 dB $L_{Aeq,8hr}$

* Daytime – (0700-2300), Night-time – (2300-077)

- 12.8.48 Where the road traffic noise effects at residential receptors lie between the LOAEL and the SOAEL, consideration will be given to the items listed in **subsection ‘Significant Evaluation Methodology’** to evaluate the magnitude of significance in terms of EIA Regulations.

Community receptors

- 12.8.49 In addition to the considerations summarised in subsection **‘Significance Evaluation Methodology’**, the determination as to whether there is a significant adverse community effect in terms of the EIA Regulations from road traffic noise will take into account the likely magnitude of change.
- 12.8.50 The Highways Agency (now Highways England) Design Manual for Roads and Bridges (DMRB) presents an interpretation of changes in road traffic noise levels ($L_{A10, 18hr}$) for determining the potential magnitude of impact. DMRB sets out differing criteria associated with noise change for short term (i.e. immediately after the development opening) and long term (15 years from the development opening) effects, as outlined in **Table 12.8** and **Table 12.9**, respectively.

Table 12.8 DMRB Classification of magnitude of noise impacts in the short-term

Noise Change in dB $L_{A10,18hr}$, dB	Magnitude of Impact
0	No Change
0.1 – 0.9	Negligible
1 – 2.9	Minor
3 – 4.9	Moderate
5+	Major

Table 12.9 DMRB Classification of magnitude of noise impacts in the long-term

Noise Change in dB $L_{A10,18hr}$, dB	Magnitude of Impact
0	No Change
0.1 – 2.9	Negligible
3 – 4.9	Minor
5 – 9.9	Moderate
10+	Major

- 12.8.51 The classification of magnitude of noise impacts in **Table 12.8** and **Table 12.9** have been used to assist the evaluation of significance for communities located in proximity to new and existing road networks.
- 12.8.52 At residential receptors where the baseline road traffic noise is already greater than the SOAEL threshold level, a significant adverse community effect is likely to occur when the overall magnitude

of change is greater than 1 dB. This approach is in keeping with the DMRB short-term criteria, summarised in **Table 12.8**.

- 12.8.53 At residential receptors where both the existing and proposed levels of road traffic noise exposure are calculated to be less than the SOAEL threshold level, there is a potential for a significant adverse community effect where the magnitude of change is 3 dB. This approach is in keeping with the DMRB long-term criteria, summarised in **Table 12.9**.

Construction vibration - earthworks, fixed & mobile plant

- 12.8.54 Sources of potential adverse effects due to vibration at residential receptors include from the construction of the airport include:
- ▶ Earthworks – construction activities such as vibratory compactions; and
 - ▶ Construction – activities such as those associated with impact or vibratory piling.
- 12.8.55 BS 6472:2008 Part 1 Guide to Evaluation of Human Exposure to Vibration in Buildings (BS 6472-1:2008) covers vibration sources other than those associated with blasting. The standard provides guidance on predicting human response to vibration over the frequency range 0.5 Hertz (Hz) to 80 Hz. The standard uses typical human responses to whole-body vibration in order to determine a Vibration Dose Value (VDV), which may be used to determine the potential for unfavourable reaction and adverse comment to vibration from residential occupants.
- 12.8.56 The response of the human body to vibration is very complex and depends on many different factors, one of which (but not necessarily the most important), is the magnitude of vibration. Once an individual has perceived a vibration then it is possible for concern to be raised about the source of that vibration. This concern is usually expressed, as fear of the vibration and the potential to cause damage to the occupant's property and that further damage may occur from repeated vibration events.
- 12.8.57 BS 6472-1:2008 discusses the fact that structural vibration within buildings can be detected by the occupants and examines how the occupant's quality of life and/or working efficiency may be reduced. Tentative guidance is given on the various magnitudes of vibration at which adverse comment by the occupants may begin to arise. The standard also discusses how and where to measure vibration and gives the factors which influence human response.
- 12.8.58 The standard discusses the possible effects that various types of vibration may have on the inhabitants of any building. BS 6472-1:2008 Section 6 describes methods for the evaluation of such vibration and indicates levels, in terms of vibration dose values (VDV $\text{ms}^{-1.75}$) that might possibly give rise to adverse comment under a given range of circumstances. **Table 12.10** presents a summary of these values.

Table 12.10 Summary of Vibration Dose Values (VDV) above which various degrees of adverse comment may be expected from the residents of dwellings

Period	Satisfactory VDV ($\text{ms}^{-1.75}$)		
	Low Probability of Adverse Comment	Adverse Comment Possible	Adverse Comment Probable
Daytime (0700-2300),	0.2 – 0.4	0.4 – 0.8	0.8 – 1.6
Night-time (2300-0700)	0.1 – 0.2	0.2 – 0.4	0.4 – 0.8

LOAEL and SOAEL impact thresholds

- 12.8.59 The vibration dose values (VDV $\text{ms}^{-1.75}$) which relate to human response, as summarised in **Table 12.10**, have been used to determine the effect criteria in terms of government policy, as summarised in **Table 12.11**.
- 12.8.60 Exposures relating to the LOAEL are based upon the VDV values outlined in BS 6472-1:2008 for a low probability of adverse comment. The exposures relating to the SOAEL are based upon lower VDV value for adverse comment probable.
- 12.8.61 The LOAEL values vary dependent upon the length of time over which the impact takes place. The requirement to mitigate and minimise effects is therefore less stringent where activities are to take place for less than one month.
- 12.8.62 The threshold levels related to vibration during a proposed development's earthworks, construction activities and rail traffic movements are summarised in **Table 12.11**. A significant adverse effect is determined to occur when the calculated vibration is greater than the SOAEL threshold level. The VDV are representative of the worst-case location within the property.

Table 12.11 Vibration from Construction – Impact criteria for residential receptors

Vibration Sources	Receptor	Duration	Period*	VDV (LOAEL)	VDV (SOAEL)
Vibration - earthworks, fixed & mobile plant and rail traffic	Residential	Less than 1 month	Daytime	0.4	0.8
			Night-time	0.2	0.4
	Residential	More than 1 month	Daytime	0.2	0.8
			Night-time	0.1	0.4

* Daytime – (0700-2300), Night-time – (2300-0700)

- 12.8.63 Where the calculated vibration impacts at residential receptors lie between the LOAEL and the SOAEL, consideration will be given to the items listed in **Section 12.8** to evaluate the magnitude of significance in terms of the EIA Regulations.
- 12.8.64 It is noted that the assessment of vibration effects from the earthworks and construction (fixed and mobile plant) phases will be based upon the absolute values of the predicted vibration effects at residential receptors. There will be no earthworks and construction activity related vibration effects in the absence of the development, therefore an assessment that considers the magnitude of change will not be undertaken, and will be based upon meeting associated threshold limits.

Cosmetic damage

The assessment criteria for the likelihood of cosmetic damage to buildings are based upon guidance presented within BS 7385 'Evaluation and measurement for vibration in buildings: Part 2 Guide to damage levels from ground-borne vibration' (BS 7385-2: 1993). An exceedance of the values, specified in terms of Peak Particle Velocity (PPV) (mms^{-1}), in **Table 12.12** would indicate, in terms of EIA Regulations a significant adverse effect.

Table 12.12 Assessment criteria for likely cosmetic damage to buildings

Building Category	Transient vibration guide values for cosmetic damage in buildings	
	Transient vibration mms^{-1}	Continuous vibration mms^{-1}
Structurally sound and non-protected buildings	12	6

Community Receptors

12.8.65 In addition to the assessment criteria set out within **Table 12.11** and **Table 12.12**, the main considerations in determining whether adverse effects on a community basis constitute a significant adverse community effect in terms of the EIA Regulations are summarised in subsection **‘Significance Evaluation Methodology’**.

12.8.66 Similarly, to the assessment of vibration effects upon residential receptors in isolation, the assessment at community receptors will not consider the magnitude of change as it is assumed there is currently no earthwork and construction activity related vibration effects in the absence of the development. The assessment will therefore be based upon meeting threshold limits.

Operational noise – aircraft noise (aircraft air and airside ground noise (including mobile and static sources of noise))

12.8.67 The determination of impact thresholds for the consideration of significance in terms of the EIA Regulations is informed by relevant existing and emerging aviation noise policies, in addition to the relevant guidance, namely:

- ▶ Aviation Policy Framework (APF, 2013);
- ▶ Air Navigation Guidance, 2017
- ▶ Draft policy consultations on airport expansion in the South East of England¹⁹⁶ and UK Airport Policy¹⁹⁷;
- ▶ Transport Analysis Guidance (WebTAG, 2016);
- ▶ CAP1506a: The 2014 Survey of Noise Attitudes (SoNA, 2017); and
- ▶ CAP1520: Draft airspace design guidance.

12.8.68 In the UK Government’s Airspace Policy consultation, it is stated that whilst the APF (2013) is the current policy framework, a new Aviation Strategy due for consultation in 2017 will eventually replace the APF.

12.8.69 Therefore, whilst the methodology for operational air noise has been developed based on the APF (2013), consideration has been given to relevant recent draft policy consultation. Whilst this consultation may not represent the final Government policy position, it is to be considered the direction of travel with respect to airspace and aviation noise policy. This is particularly relevant to greater consistency between aviation noise policy as set out in the draft Airports NPS and UK Airspace Policy consultation with overarching noise policy in England as set out in the NPSE.

12.8.70 For the daytime period, a *significant adverse effect* is determined to occur when average absolute free-field operational noise exposures are greater than 63 dB L_{Aeq,16hr}. This is based upon the APF (Par. 3.37-3.39, 2013), which indicates that above 63 dB L_{Aeq,16hr} airports should provide assistance towards noise insulation at noise-sensitive buildings and residential dwellings. This is further supported by emerging policy as set out in UK Airspace Policy consultation (Par. 4.44 – 4.47, 2017). For the purpose of the assessment of *likely significant effects* 63 dB L_{Aeq,16hr} free-field threshold level is considered a suitable value for SOAEL on this basis.

¹⁹⁶ Consultation on Draft Airports National Policy Statement: new runway capacity and infrastructure at airports in the South East of England, February 2017

¹⁹⁷ Consultation on UK Airspace Policy: A framework for balanced decision on the design and use of airspace, February 2017

- 12.8.71 For the aircraft noise element of the operational noise calculation, consideration will also be given to the size of population exposure to noise above 54 dB $L_{Aeq,16hr}$ ¹⁹⁸ and 69 dB $L_{Aeq,16hr}$ ¹⁹⁹, in accordance with the UK Air Navigation Guidance 2017 and UK APF, 2013 respectively.
- 12.8.72 During the night-time period, a *significant adverse effect* is determined to occur when average absolute free-field noise exposures are greater than 55 dB $L_{Aeq,8hr}$ based upon advice set out within WHO NNG (2009).
- 12.8.73 For night-time periods, operational noise will also be considered to result in an adverse effect on residential receptors where noise levels at the façade as a result of the Development are at least 60 dB L_{Amax} ²⁰⁰.
- 12.8.74 For residential receptors with no specific form of noise insulation, operational noise will be considered to give rise to significant adverse effects if there is an absolute noise level of at least 80 dB L_{ASmax} (approximately 90 dB SEL²⁰¹) and the average number of noise events during the night above this level is already at least 18.
- 12.8.75 This 'awakening' metric is informed by emerging best practice and research into aircraft induced sleep disturbance, namely research being undertaken by Basner et al (2004)²⁰². The use of this metric does not imply any plan or proposal to attain this level of night flights, but merely that if there were, then this could be considered likely to result in a significant effect should external noise levels be above 80 dB L_{ASmax} for each movement. *Use of the 18 event metric does not imply any plan or proposal to attain this or any level of night flight.*
- 12.8.76 For the purposes of this assessment, the daytime and night-time LOAEL are set at 50 dB $L_{Aeq,16hr}$ (free-field) and 40 dB $L_{Aeq,8hr}$ (free-field) respectively, based upon advice set out within WHO (1999) and WHO NNG (2009).
- 12.8.77 It is noted that the Government is currently consulting on proposals that would set a daytime and night-time LOAEL of 51 dB $L_{Aeq,16hr}$ (free-field) and 45 dB $L_{Aeq,8hr}$ (free-field), respectively, within the draft Airspace Policy consultation (Par. 5.47 – 5.50). At this stage, these values of LOAEL are proposals only, and are not fixed policy thresholds. The adoption of lower values for LOAEL for this assessment protect against potential changes in Government policy and specifically align with values adopted on other major transport infrastructure projects in England including HS2.
- 12.8.78 Whilst the above effect criteria provide objective measures for the significance of the noise effects associated with the Development, adverse or beneficial effects may also be identified through any potential features of the effects or through professional judgement.

LOAEL and SOAEL impact thresholds

- 12.8.79 Threshold levels relating to the operation of the proposed development are summarised in **Table 12.13**. A significant adverse effect is determined to occur when the calculated noise is greater than the SOAEL threshold level. The threshold levels are presented for the daytime and night-time periods and are considered free-field (i.e. away from acoustically reflective surfaces).

¹⁹⁸ The Aviation Policy Framework (APF) states in Paragraph 3.17 that 57 dB $L_{Aeq,16hr}$ will continue to treat as 'the average level of daytime aircraft noise marking the approximate onset of significant community annoyance'

¹⁹⁹ The Aviation Policy Framework (APF) states in Paragraph 3.36 that the Government expects airports operators to offer households exposed to 69 dB $L_{Aeq,16hr}$ or more assistance with the costs of moving.

²⁰⁰ An outdoor 60 dB L_{Amax} at the façade is likely to result in an indoor L_{Amax} value of around 45 dB L_{Amax} which is cited by WHO in publications 'Guidelines for Community Noise' (1999) and 'Night Noise Guidelines for Europe' (2009) as a known threshold for the potential effects of sleep disturbance.

²⁰¹ 90 dB SEL has been used by Department for Transport and at other UK airports as a measure of sleep disturbance and the basis of for night-noise insulation schemes when considering the number and nature of aircraft night operations.

²⁰² Based on the findings of Basner et. al. 'Aircraft noise effects on sleep: Application of the results of a large polysomnographic field study' 2006 enabling the calculation one additional awakening due to aircraft noise using L_{ASmax} noise events. Assumes an average insulation value of the 21 dB for a bedroom façade as adopted by the WHO Night Noise Guidelines for Europe (2009)

Table 12.13 Summary of operational noise thresholds

Noise Sources	Receptor	Period*	LOAEL	SOAEL
Operational noise	Residential	Daytime	50 dB $L_{Aeq,16hr}$	63 dB $L_{Aeq,16hr}$
		Night-time	40 dB $L_{Aeq,8hr}$	55 dB $L_{Aeq,8hr}$

* Daytime – (0700-2300), Night-time – (2300-0700)

Consideration of L_{Amax} also required

- 12.8.80 Where the operational noise effects at residential receptors lie between the LOAEL and the SOAEL, consideration will be given to the items listed in in **Section 12.8** to evaluate the magnitude of significance in terms of EIA Regulations.

Community receptors

- 12.8.81 In addition to the considerations summarised in **Section 12.8**, the determination as to whether there is a significant adverse community effect in terms of the EIA Regulations from operational noise will take into account the likely magnitude of change.
- 12.8.82 This is a similar approach to that to be adopted in the road traffic assessment, based upon the classification of magnitudes summarised in **Table 12.8** and **Table 12.9**.
- 12.8.83 At residential receptors where the baseline noise levels are already greater than the SOAEL threshold level, a significant adverse community effect is likely to occur when the overall magnitude of change is greater than 1 dB. This approach is in keeping with the DMRB short-term criteria, summarised in **Table 12.8**.
- 12.8.84 At residential receptors where the current baseline noise levels and the proposed operational noise levels are calculated to be less than the SOAEL threshold level but above the LOAEL, there is a potential for a significant adverse community effect where the magnitude of change is 3 dB. This approach is in keeping with the DMRB long-term criteria, summarised in **Table 12.9**.

Assessment Criteria – non-residential receptors

- 12.8.85 **Table 12.14** summarises the criteria that will be adopted for assessing the effect of the proposed development upon non-residential noise sensitive receptors. In the case of non-residential noise sensitive receptors, the criteria provided in **Table 12.14** will be used to indicate effects, however, significance will be determined on a case-by-case basis.

Table 12.14 Impact Criteria for Establishing Potentially Significant Effects on Non-Sensitive Receptors

Receptor(s)	Impact Criteria		Potential Effects
	Daytime (0700-2300)	Night-time (2300-0700)	
Acoustical resources i.e. Theatres, concert halls, opera houses, concert halls or any specific space for the dedicated to the enjoyment of sound	60 dB L_{Amax} ; or 50 dB $L_{Aeq, T}$; and No increase upon existing levels See Note 1		Loss in acoustic quality and enjoyment
Places of worship	50 dB $L_{Aeq, T}$ and an increase of 3 dB See Note 2	n/a	Disruption or disturbance

Educational Facilities Including schools, colleges and	50 dB LAeq, T and an increase of 3 dB See Note 2	n/a	Disruption or disturbance and interference with task
Healthcare Facilities Including hospitals and out- patients clinics	50 dB LAeq, T and a change of 3 dB See Note 2	45 dB LAeq, T and a change of >3 dB See Note 3	Disruption or disturbance during daytime periods and sleep disturbance during the night
Community Resources including libraries	50 dB LAeq, T and a change of 3 dB See Note 2	n/a	Disruption or disturbance and interference with task

Notes:

NOTE 1: Values based on indoor noise levels of 25 dB $L_{Aeq, T}$ and 25 dB $L_{A_{Smax}}$ as available within BS8233:2014 and FRA/FTA guidance respectively. Values have been converted to outdoor levels assuming a façade adjustment with a partially open window.

NOTE 2: Value is based on an indoor noise level target value of 35 dB $L_{Aeq, T}$ as aligned with the guidance available within Building Bulletin 93 and BS8233:2014. Value has been converted to outdoor levels assuming a façade adjustment with a partially open window.

NOTE 3: Value is based on an internal noise level target value of 30 dB $L_{Aeq, T}$, which is consistent with the guidance, provided in BS8233:2014 and WHO Guidelines for Community Noise (1999). Value has been converted to outdoor levels assuming a façade adjustment with a partially open window.

Receptor sensitivity and significance

- 12.8.86 As described above noise levels which are forecast to exceed the relevant SOAEL are identified as a significant effect on an individual basis as required by Government Noise Policy.
- 12.8.87 The identification of significant effects in the context of EIA regulations takes into account the sensitivity of the impacted receptor. **Table 12.15** sets out the sensitivity of receptors considered in this noise assessment.
- 12.8.88 The assessment of significance of the predicted effects in the context of EIA regulations depends on the sensitivity of the receptor under consideration and is defined according to the matrix set out in **Table 12.16**.

Table 12.15 Receptor sensitivity

Sensitivity of receptor	Receptor description
High	Such receptors include pupils in residential educational facilities and patients in healthcare facilities and are defined as a "vulnerable subgroup" with very high or continuous rates of occupancy. Receptors are categorised as high sensitivity where noise may be detrimental to vulnerable subgroups.
Medium	Residential receptors and community receptors. Receptors are categorised as medium sensitivity where noise may cause disturbance and a level of protection is required but a level of tolerance is expected.
Low	Area used primarily for leisure activities including public rights of way, sports facilities and sites of historic or cultural importance. Receptors are categorised as low sensitivity where noise may cause short duration effects in a recreational setting although particular high noise levels may cause a moderate effect.

Table 12.16 Significance criteria

Sensitivity/Value	Magnitude of Impact			
	Major	Moderate	Low	Negligible

High	Significant	Significant	Significant	Not Significant
Medium	Significant	Significant	Not Significant	Not Significant
Low	Significant	Not Significant	Not Significant	Not Significant

12.9 Assessment of effects

- 12.9.1 As described in **Section 12.1 Introduction** this assessment evaluates effects from the following principle sources of noise at key sensitive receptors:
- ▶ Noise effects from the construction of the airport masterplan and the transport of construction materials;
 - ▶ Exposure to noise from aircraft in the air from the re-opening and mature operation of the airport;
 - ▶ Exposure to noise from aircraft operations on the ground, associated Ground Support Equipment (GSE) and airfield activities from the re-opening and mature operation of the airport;
 - ▶ Changes in and exposure to surface access noise, namely road traffic noise from vehicle movements associated with the operation of the airport; and
 - ▶ Operational noise from the secondary business infrastructure located within the Northern Grass Area.
- 12.9.2 A summary of assessment of the effects of each of these principle noise and vibration sources is presented in this Section.

Construction phase

Construction noise – earthworks, fixed & mobile plant

- 12.9.3 Construction of the Proposed Development is expected to commence in 2020 (Year 0), continuing until the end of 2026 (Year 15). Construction of the development will be undertaken in four phases:
- ▶ Phase 1: eight aircraft cargo stands and 12,000m² of cargo warehousing operational by Year 2. This phase will also involve the rehabilitation of the runway and a new parallel taxiway; development of internal roads and parking; upgrading of the highway and access off site; demolition and refurbishment of existing buildings as well as construction of new buildings; and development of a new Fuel Farm.
 - ▶ Phase 2: Additional six aircraft cargo stands and 16,000m² of cargo warehousing operational by Year 4. This phase will also involve the extension of associated lorry and car parking; construction of a new passenger terminal; and construction of a new aircraft maintenance hangar as well as demolition of the existing.
 - ▶ Phase 3: Additional two aircraft cargo stands and 14,000m² of cargo warehousing operational by Year 10. This phase will also involve the extension of associated lorry and car parking; the internal road will be constructed in its permanent alignment; and an additional aircraft maintenance hangar with an associated stand will be constructed with existing buildings adjacent to Spitfire Way to be demolished.
 - ▶ Phase 4: Additional three aircraft cargo stands and 23,000m² of cargo warehousing operational by Year 15. This phase will also involve the extension of associated lorry and car parking; an additional terminal building with an associated stand; an extension to the maintenance hangar with an associated stand; and an airside hardstand storage area.
- 12.9.4 Within these phases a set of activities will be required to construct the different components of the proposed development. These include:
- ▶ Cut and fill activities – this activity involves the excavation and movement of earth using excavators, dozers dump trucks and other ancillary equipment;
 - ▶ Concrete paving activities to construct the runway, taxiways and stands;
 - ▶ Asphaltting of new roads and carparking areas;

- ▶ Warehouse construction;
- ▶ Construction of other buildings such as the new control tower and passenger terminal; and
- ▶ Construction traffic operating on haul routes within the site.

- 12.9.5 The assessment assumes that some of the activities defined above may occur simultaneously at points during the construction of the Proposed Development. For each phase, the locations where each activity is taking place is identified in Figure 12.3. More details relating to these activities is provided in **Appendix 12.3: Methodology**. The receptors where construction noise has been assessed are shown in Figure 12.2.
- 12.9.6 The assessment is based on reasonable programme assumptions available at this stage. As required by the principles of the CEMP, the contractor will be required to apply to the Local Authority for consent under Section 61 of the Control of Pollution Act 1974 which requires the adoption of Best Practicable Means to control noise and vibration at worksites.
- 12.9.7 The assessment takes account of the embedded mitigation measures described in **Section 12.7** which are:
- ▶ A requirement for contractors to use BPM to reduce noise and vibration from construction works;
 - ▶ Where it is reasonable and practical to do so, on-site construction traffic will avoid using the perimeter roads which run in close proximity to sensitive residential development at night; and
 - ▶ 2.5m site hoardings will be used where it is reasonable and practical to do so around the perimeter of the construction site compounds and to the south of the internal access road.
- 12.9.8 During Phase 1 it is expected that the construction will be undertaken during normal working hours (weekdays 0800 to 1800 and Saturdays between 0800 and 1300 with some activity an hour either side for set-up, close down, deliveries and HGV movements).
- 12.9.9 During Phases 2, 3 and 4 some night time working will be required because works in certain areas cannot be carried out whilst the airport is operational.
- 12.9.10 Construction noise predictions during the different activities for weekdays 0800 to 1800 and Saturdays between 0800 and 1300 are shown in **Table 12.17** to **Table 12.20**. The tables present the expected noise levels for one month when plant and equipment is located in the part of the work site closest to the receptor. Shaded cells represent an exceedance of the BS5228 construction noise impact criteria at residential receptors.
- 12.9.11 Construction noise levels are not predicted to exceed the construction noise impact threshold during any activity occurring on site during phases 1, 2, 3 or 4.
- 12.9.12 Construction noise is not predicted to exceed the daytime SOAEL for construction noise of 75 dB $L_{Aeq,16hr}$ at any receptor during any phase or activity.
- 12.9.13 Hence no significant adverse effects are identified for daytime works during phases 1, 2, 3 and 4.

Table 12.17 Phase 1 monthly construction noise predictions for core construction hours (Weekdays 0800 to 1800 and Saturdays between 0800 and 1300)

Receptor Number	Description	5228 Construction Impact	Noise Levels dB $L_{Aeq,12hr}$					
			Cutting	Construction	Asphalt	Warehouse	Airport Buildings	Highways

		Threshold dB $L_{Aeq,12hr}$					Demolition	Construction	
1	Bell Davies Drive	65	63	54	48	47	47	45	63
2	Spitfire Way	65	61	53	54	42	53	59	63
3	Smugglers Close	65	58	54	56	33	53	54	43
4	Southall Close	65	52	46	48	33	45	46	42
5	Ivy Cottage Hill	65	55	48	52	38	47	48	46
6	King Arthur Road	65	56	52	54	34	50	57	32
7	High Street	65	59	52	51	42	48	51	47
8	Manston Court Road	65	65	58	46	48	53	59	56
9	Manston Road	65	65	56	43	44	45	50	53

Table 12.18 Phase 2 monthly construction noise predictions for core construction hours
(Weekdays 0800 to 1800 and Saturdays between 0800 and 1300)

Receptor Number	Description	BS5228 Construction Impact Threshold dB $L_{Aeq,12hr}$	Noise Levels dB $L_{Aeq,12hr}$						
			Cut & Fill	Concreting	Asphalt	Warehouse	Airport Buildings		Highways Improvements
							Demolition	Construction	
1	Bell Davies Drive	65	56	50	-	48	45	47	-
2	Spitfire Way	65	54	51	-	48	49	49	-
3	Smugglers Close	65	57	54	-	51	53	54	-
4	Southall Close	65	49	45	-	42	44	46	-
5	Ivy Cottage Hill	65	51	47	-	44	46	47	-
6	King Arthur Road	65	55	52	-	48	50	52	-
7	High Street	65	52	47	-	40	44	44	-
8	Manston Court Road	65	60	54	-	40	44	54	-
9	Manston Road	65	61	50	-	37	39	59	-

Table 12.19 Phase 3 monthly construction noise predictions for core construction hours
(Weekdays 0800 to 1800 and Saturdays between 0800 and 1300)

Receptor Number	Description	BS5228 Construction Impact Threshold dB $L_{Aeq,12hr}$	Noise Levels dB $L_{Aeq,12hr}$						
			Cut & Fill	Concreting	Asphalt	Warehouse	Airport Buildings		Highways Improvements
							Demolition	Construction	
1	Bell Davies Drive	65	62	57	-	51	55	44	-
2	Spitfire Way	65	61	55	-	49	55	47	-
3	Smugglers Close	65	57	54	-	51	53	54	-
4	Southall Close	65	49	45	-	43	45	45	-
5	Ivy Cottage Hill	65	52	47	-	45	48	47	-
6	King Arthur Road	65	55	51	-	48	50	51	-
7	High Street	65	54	51	-	45	46	48	-
8	Manston Court Road	65	50	46	-	38	37	40	-
9	Manston Road	65	45	38	-	37	36	35	-

Table 12.20 Phase 4 monthly construction noise predictions for core construction hours
(Weekdays 0800 to 1800 and Saturdays between 0800 and 1300)

Receptor Number	Description	BS5228 Construction Impact Threshold dB $L_{Aeq,12hr}$	Noise Levels dB $L_{Aeq,12hr}$						
			Cut & Fill	Concreting	Asphalt	Warehouse	Airport Buildings		Highways Improvements
							Demolition	Construction	
1	Bell Davies Drive	65	56	57	-	59	-	42	-
2	Spitfire Way	65	65	55	-	49	-	43	-
3	Smugglers Close	65	52	51	-	52	-	51	-
4	Southall Close	65	47	43	-	44	-	43	-
5	Ivy Cottage Hill	65	52	45	-	46	-	44	-
6	King Arthur Road	65	54	49	-	49	-	49	-
7	High Street	65	55	52	-	35	-	47	-
8	Manston Court Road	65	50	37	-	27	-	33	-
9	Manston Road	65	44	27	-	27	-	27	-

12.9.14 Construction noise predictions during the different activities for night time working during weekdays 2300 to 0700 are shown in **Table 12.21** to **Table 12.22**. The tables present the expected noise levels at night during one month when plant and equipment is located in the part of the work site closest to the receptor. Shaded cells represent an exceedance of the construction noise impact criteria for residential receptors.

12.9.15 During phase 2 the construction noise impact threshold is exceeded at the following receptors:

- ▶ At High Street the construction impact criteria of 50dB $L_{Aeq,8hr}$ is exceeded by 1dB during concreting activities (a minor impact according to impact magnitude classifications presented in **Table 12.8**); and

12.9.16 Considering that the impact criteria is exceed by only 1dB no significant effect is identified for night time works during phase 2.

12.9.17 During phase 2 construction noise is not predicted to exceed the night time SOAEL for construction noise of 55 dB $L_{Aeq,8hr}$ at any receptor during any phase or activity.

12.9.18 Hence no significant adverse effects are identified for night time works during phase 2.

12.9.19 During phase 3 the construction noise impact threshold is exceeded at the following receptors:

- ▶ At Spitfire Way the construction impact criteria of 50dB $L_{Aeq,8hr}$ is exceeded by 3dB during cut and fill activities and by 3dB during concreting activities (a moderate impact according to impact magnitude classifications presented in **Table 12.8**); and
- ▶ At Bell Davies Drive the construction impact criteria of 50dB $L_{Aeq,8hr}$ is exceeded by 3dB during cut and fill activities and by 2dB during concreting activities (a minor to moderate impact according to impact magnitude classifications presented in **Table 12.8**);.

12.9.20 During phase 4 the construction noise impact threshold is exceeded at the following receptors:

- ▶ At Spitfire Way the construction impact criteria of 50dB $L_{Aeq,8hr}$ is exceeded by 5dB during cut and fill activities and by 3dB during concreting activities (a moderate to major impact according to impact magnitude classifications presented in **Table 12.8**).

12.9.21 At Bell Davies Drive, approximately six dwellings have a direct line of site to the Proposed Development and may be exposed to the noise levels presented in **Table 12.22** for a duration of longer than one month.

12.9.22 At Spitfire Way, approximately eight dwellings have a direct line of site to the Proposed Development and may be exposed to the noise levels presented in **Table 12.22** and **Table 12.23** for a duration of longer than one month.

12.9.23 Considering approximately 14 dwellings in Minster are predicted to be exposed to minor to major construction noise impacts for a duration of one month a significant adverse effect has been predicted at the community of Minster because of night time construction noise in phases 3 and 4.

12.9.24 The SOAEL for night time construction noise is not predicted to be exceeded at any receptors during any of the phases of work.

12.9.25 The assessment is based on reasonable programme assumptions available at this stage. As required by the principles of the CEMP, the contractor will be required to apply to the Local Authority for consent under Section 61. The application will include a reassessment of construction noise levels and construction noise mitigation based on more detailed information. The CEMP sets out the following mitigation measures for construction noise:

- ▶ BPM to be applied during construction activities to minimise noise (including vibration) at neighbouring noise sensitive properties;
- ▶ Prescribed steps to be taken to minimise construction noise and vibration as far as it is reasonable and practical to do so;
- ▶ Contractors to undertake and report noise and vibration prediction and monitoring to assure and demonstrate compliance with the CEMP. Monitoring data to be made available to local authorities.;
- ▶ Plant fitted with effective silencers and noise insulation to be used;
- ▶ The use of pink noise reversing alarms where practicable to reduce the noise generated by reversing beepers on site vehicles;
- ▶ Servicing, maintenance and operation of plant to be in accordance with manufacturer's instructions. Plant that is intermittently used should be shut down in the intervening periods between work, or throttled down to a minimum;
- ▶ The use of local noise screening or site hoardings to reduce noise where necessary;
- ▶ Appointment of a site contact to whom complaints/ queries about construction activity can be directed - any complaints to be investigated and action taken where appropriate;
- ▶ All construction activity to be undertaken in accordance with good practice as described in BS 5228-1:2009+A1:2014;
- ▶ Local residents to be kept informed of construction activities, including working hours;

- ▶ All reasonable steps will be taken to limit the number of vehicles waiting to deliver materials to the Site;
- ▶ Construction at the Site boundary (which would be closest to nearby residential receptors), to be undertaken as efficiently and quickly as reasonably possible; and
- ▶ With the exception of generators, pumps and electric plant, all plant and equipment to be shut down when not in use.

12.9.26

It is considered likely that one or a combination of these mitigation measures would avoid the significant effect describe above.

Table 12.21 Phase 2 monthly construction noise predictions for night time construction hours
(Weekdays 2300 to 0700)

Receptor Number	Description	BS5228 Construction Impact Threshold dB L _{Aeq,8hr}	Noise Levels dB L _{Aeq, 8hr}						
			Cut & Fill	Concreting	Asphalt	Warehouse	Airport Buildings		Highways Improvements
							Demolition	Construction	
1	Bell Davies Drive	50	46	47	-	-	-	-	-
2	Spitfire Way	50	46	46	-	-	-	-	-
3	Smugglers Close	55	35	35	-	-	-	-	-
4	Southall Close	55	35	35	-	-	-	-	-
5	Ivy Cottage Hill	55	40	42	-	-	-	-	-
6	King Arthur Road	50	40	38	-	-	-	-	-
7	High Street	50	50	51	-	-	-	-	-
8	Manston Court Road	50	45	44	-	-	-	-	-
9	Manston Road	50	40	39	-	-	-	-	-

Table 12.22 Phase 3 monthly construction noise predictions for night time construction hours
(Weekdays 2300 to 0700)

Receptor Number	Description	BS5228 Construction Impact Threshold dB $L_{Aeq,8hr}$	Noise Levels dB $L_{Aeq,8hr}$						
			Cut & Fill	Concreting	Asphalt	Warehouse	Airport Buildings		Highways Improvements
							Demolition	Construction	
1	Bell Davies Drive	50	53	52	-	-	-	-	-
2	Spitfire Way	50	53	53	-	-	-	-	-
3	Smugglers Close	55	39	37	-	-	-	-	-
4	Southall Close	55	39	37	-	-	-	-	-
5	Ivy Cottage Hill	55	46	44	-	-	-	-	-
6	King Arthur Road	50	40	40	-	-	-	-	-
7	High Street	50	50	50	-	-	-	-	-
8	Manston Court Road	50	43	42	-	-	-	-	-
9	Manston Road	50	39	38	-	-	-	-	-

Table 12.23 Phase 4 monthly construction noise predictions for night time construction hours (Weekdays 2300 to 0700)

Receptor Number	Description	BS5228 Construction Impact Threshold dB L _{Aeq,8hr}	Noise Levels dB L _{Aeq,8hr}						
			Cut & Fill	Concreting	Asphalt	Warehouse	Airport Buildings		Highways Improvements
							Demolition	Construction	
1	Bell Davies Drive	50	50	50	-	-	-	-	-
2	Spitfire Way	50	55	53	-	-	-	-	-
3	Smugglers Close	55	39	37	-	-	-	-	-
4	Southall Close	55	39	37	-	-	-	-	-
5	Ivy Cottage Hill	55	47	45	-	-	-	-	-
6	King Arthur Road	50	47	38	-	-	-	-	-
7	High Street	50	48	50	-	-	-	-	-
8	Manston Court Road	50	43	43	-	-	-	-	-
9	Manston Road	50	40	39	-	-	-	-	-

Construction Vibration – earthworks, fixed & mobile plant

- 12.9.27 Construction activities which may potentially give rise to significant construction vibration effects include vibratory compaction for asphalt road surfaces. The majority of vibratory compaction on the main site of the Proposed Development will occur at distances of more than 100m from vibration sensitive receptors and hence is unlikely to give rise to significant effects.
- 12.9.28 The exception is vibratory compaction which may be required for highway improvement works to the existing Spitfire Way. These works are in close proximity to dwellings on Bell Davies Drive and Spitfire Way and would be undertaken during normal daytime working hours.
- 12.9.29 **Table 12.24** presents predictions of construction vibration at these vibration sensitive dwellings for a vibratory roller operating at a range of amplitudes. **Table 12.24** presents the Peak Particle Velocity (PPV) at the building foundations and the Vibration Dose Value (VDV) inside a room on the first floor of the property.
- 12.9.30 In all cases the PPV is less than the impact criteria for the onset of cosmetic damage (**Table 12.12**) meaning that significant effects in the form of building damage are unlikely as a result of the works.
- 12.9.31 At Bell Davies Drive the internal VDV is less than the LOAELs for construction vibration (**Table 12.11**).

- 12.9.32 At Spitfire Way the highest VDV exceeds the SOAEL for construction vibration for works lasting more than one month. However the lowest VDV is less than the LOAEL. This demonstrates that it is possible to avoid adverse impacts from construction vibration by managing the amplitude at which the compactor operates. This is consistent with the requirement for the contractor to use BPM to reduce noise and vibration from construction works. Hence no significant effect has been identified.

Table 12.24 Predictions of construction vibration at sensitive receptors during highway improvement works

Receptor	Minimum distance to vibratory compaction	Amplitude of vibrating drum mm	External PPV mms^{-1}	Internal VDV $\text{mms}^{-1.75}$
Bell Davies Drive	40m	0.5 – 1.5	0.1 – 0.5	0.0 – 0.1
Spitfire Way	10m	0.5 – 1.5	0.7 – 3.6	0.1 – 0.6

Construction noise – road traffic

- 12.9.33 As described above construction is to be undertaken in four phases. The airport will be operational in Phase 2 (at the start of Year 2) meaning that construction will be undertaken simultaneously with the operation of the airport in phases 2, 3 and 4.
- 12.9.34 It is expected that construction vehicles and operational HGV would access the site from the wider transport network via the A299, the B2190 Minster Road and the B2190 Spitfire Way. It is anticipated that staff vehicles and passenger terminal vehicles will use the full extent of the highway network.
- 12.9.35 The number of construction HGV's anticipated on site will vary within and across the four construction phases but will be up to approximately 200 two-way HGV movements per day.
- 12.9.36 Based on traffic forecasts set out in **Chapter 14: Traffic and Transport** forecast construction traffic will increase traffic flow on existing roads by less than 25% and there will not be a significant change in the number of HGVs using existing roads. This means that noise increases on existing roads during phase 1 of construction are expected to be less than 1dB. According to the impact criteria in **Table 12.8** this is a negligible magnitude of impact for a short-term change in road traffic noise levels which would not be significant at noise sensitive receptors.
- 12.9.37 The impact of construction traffic during phases 2, 3 and 4 has been assessed in combination with operational traffic generated by the Proposed Development in the following section because construction traffic will be using the road network simultaneously with operational traffic.

Operational phase.

Aircraft noise (aircraft air and airside ground noise (including mobile and static sources of noise))

- 12.9.38 The aims and purpose of the Proposed Development are to reopen and develop Manston Airport into a dedicated air freight facility. The airport would also offer a small number of passenger, general aviation and helicopter flights.
- 12.9.39 The assessment of aircraft noise is based on Year 2 and Year 20 using the forecast aircraft movements as shown in **Appendix 12.3 Methodology**. The types of aircraft that will operate from the airport are very different from when the airport previously operated and a much more modern aircraft fleet is forecast.

- 12.9.40 The forecast assumes that total aircraft traffic will grow from approximately 33 Air Transport Movements²⁰³ (ATMs) for a busy day in Year 2 to 50 ATMs per day in Year 6 and 79 ATMs per day in Year 20. There will also be around 16 non-ATMs per day in all years including general aviation and training flights.
- 12.9.41 The forecast assumes a minor change in aircraft fleet over the years with airlines phasing out older aircraft. The forecast also assumes that the next generation Boeing 777X will be operational from Year 6. Due to the uncertainty of future noise emissions from next generation aircraft the modelling has assumed no future aircraft and has used a suitable surrogate aircraft type currently in operation. This represents a worst-case scenario as a number of the airlines will begin operating quieter next generation aircraft from Year 6.
- 12.9.42 At night (2300 to 0700) the airport is forecast to handle a maximum of 8 aircraft movements, specifically up to 4 arriving freight aircraft and 4 departing freight aircraft. There is forecast to be no passenger movements during the night. It is expected that the 71 aircraft movements (at Year 20) during the day will be distributed linearly throughout the 16-hour period with an average of approximately 2.2 departures and 2.2 arrivals per hour. Similarly, at night the aircraft movements will be distributed evenly throughout the 8 hour period with an average of 1 aircraft movement per hour.
- 12.9.43 At its capacity, the airport will have a total of 19 freight stands and 4 passenger stands. The freight stands will be constructed at the north of the site and the terminal building and therefore passenger stands will be constructed on the north east of the site
- 12.9.44 Furthermore, the aircraft fuel farm will be redeveloped in a location which is currently used for fuelling activities, at the south eastern airport boundary. The airport will also offer a small maintenance repair and overhaul (MRO) facility with approximately 10 aircraft per year being dismantled and recycled.
- 12.9.45 The assessment of aircraft noise has assumed embedded mitigation as described in **Section 12.7**. The mitigation measures will avoid or reduce significant noise effects at many receptors within the study area. However, as described in **Appendix 12.3: Methodology**, further reductions in the number of people exposed to the LOAEL and SOAEL could be achieved by implementing noise abatement procedures and the ACP will seek to formalise these procedures.
- 12.9.46 Assessments of aircraft noise typically consider an '*average summer's day*' period of movement from 16th June to 15th September. This 92-day period is used to account for the increased aircraft traffic during the summer season. However, the Proposed Development will focus on freight aircraft and an increase in flights is forecast during the winter season. Therefore, the assessment of aircraft noise for the Proposed Development is based on a '*typical busy day*' regardless of season.
- 12.9.47 The assessment of aircraft noise presents the combined noise and sound effects of airside ground noise and aircraft air noise for the Proposed Development, including:
- ▶ Aircraft air noise - the noise as aircraft depart from and arrive at the airport; and
 - ▶ Airside ground noise - the noise from aircraft and associate airport activities, including aircraft taxiing and manoeuvring on the ground, static and moving airfield plant.
- 12.9.48 Generally, air noise is the dominant source, except in areas in close proximity to the airfield but away from the runway (i.e. Spitfire Way).
- 12.9.49 As described in **Section 12.1**, due to the uncertainty around future airspace options the assessment of aircraft noise has been based on three indicative prototype routes. The prototype routes within the design swathe are presented in **Figure 12.1**. The location and length of the runway will remain unchanged and the routes in which aircraft follow will be similar to that of the previous airport. Any changes to the previous routes will be to route aircraft away from more

²⁰³ An ATM includes all landings and take-offs of commercial flights related to the transport of passengers and freight. All non-commercial aircraft movements which land or take-off from the airport are considered 'non-ATMs'.

densely populated areas with aircraft departing to the west turning before they reach St Nicholas at Wade. For safety purposes aircraft take-off and land into wind so the direction in which aircraft operates is dependent on the prevailing wind and weather data suggests that 70% will take-off towards Herne Bay and land over Ramsgate, whilst 30% will land over Herne Bay and take off over Ramsgate.

- 12.9.50 The assessment of aircraft noise effects is informed by the number of dwellings and sensitive non-residential receptors exposed to noise in excess of impact thresholds as a result of the 'probable route'. A full summary for the noise effects for route designed to 'overfly populations' and avoid urban areas' is presented in **Appendix 12.3: Methodology**.

Permanent noise impacts at residential receptors

- 12.9.51 **Table 12.24** presents results of the number of residential dwellings potentially impacted by aircraft noise for the probable airspace route in Years 2, 6 and 20, because forecast noise levels at these properties are predicted to be above the daytime or night time LOAELs of 50 dB $L_{Aeq,16hr}$ and 40dB $L_{Aeq,8hr}$ respectively.
- 12.9.52 The number of aircraft movements increases rapidly between Year 2 and Year 20 and therefore the extents of the Year 20 contour are much greater than the Year 2. In Year 2, 4,852 dwellings are forecast to be exposed to aircraft noise levels above the daytime LOAEL of 50 dB $L_{Aeq,16hr}$, while in Year 20 13,046 dwellings are forecast to be exposed to noise levels in excess of the daytime LOAEL. In Year 2, 10,512 dwellings are forecast to be exposed to aircraft noise levels above the night time LOAEL of 40 dB $L_{Aeq,8hr}$, while in Year 20 16,465 dwellings are forecast to be exposed to noise levels in excess of the night time LOAEL.
- 12.9.53 In Year 2, 48 dwellings are forecast to be exposed to daytime noise above the daytime SOAEL of 63 dB $L_{Aeq,16hr}$ with the Proposed Development. In Year 20 approximately 115 properties are forecast to be exposed to noise levels above the SOAEL with the Proposed Development. A potential significant adverse effect in the context of Government Noise Policy has therefore been identified at up to 115 residential properties during the daytime. Dwellings exposed to aircraft noise above SOAEL will be eligible for sound insulation under a sound insulation grant scheme described in **Section 12.7**. These mitigation measures will reduce noise inside all dwellings during the daytime such that it does not reach a level where it will significantly affect residents.
- 12.9.54 In Year 2, no dwellings are forecast to be exposed to night time noise above the night time SOAEL of 55 dB $L_{Aeq,8hr}$ with the Proposed Development. In Year 20 approximately 225 properties are forecast to be exposed to noise levels above the SOAEL with the Proposed Development. A potential significant adverse effect in the context of Government Noise Policy has therefore been identified at up to 225 residential properties during the night time. Dwellings exposed to aircraft noise above SOAEL will be eligible for sound insulation under the sound insulation grant scheme described in **Section 12.7**. These mitigation measures will reduce noise inside all dwellings at night such that it does not reach a level where it will significantly affect residents.
- 12.9.55 In Year 2, no dwellings are predicted to be exposed to noise levels in excess of the UOAEL of 69 dB $L_{Aeq,16hr}$ during the day time. In Year 20 approximately eight dwellings are forecast to be exposed to noise levels above the UOAEL with the Proposed Development. These properties are located at the south-east corner of the site close to the fuel farm on King Arthur Road. Fuel farm noise is contributing to the exceedance of the UOAEL in addition to aircraft noise. Dwellings exposed to noise above UOAEL will be eligible financial assistance for moving away from the airport with as part of the dwelling relocation scheme described **Section 12.7**. This mitigation will prevent unacceptable adverse effects of noise.
- 12.9.56 In Year 2 approximately 11,356 dwellings are forecast to be exposed to maximum noise levels in excess of 80 dB L_{ASmax} at night. In Year 20 approximately 10,139 dwellings are forecast to be exposed to maximum noise levels in excess of 80 dB L_{ASmax} at night. For residential receptors with no specific form of noise insulation, operational noise is considered to give rise to significant adverse effects if there is an absolute noise level of at least 80 dB L_{ASmax} and the average number of noise events during the night above this level is already at least 18. Even at maximum capacity



only 8 night flights are forecast, hence aircraft noise alone will not typically result in additional awakenings at these dwellings.

Table 12.25 Number of dwellings impacted by aircraft noise as a result of the probable route

Indicator	Year 2	Year 20
Daytime (0700 to 2300)		
>50 dB L _{Aeq,16hr} (LOAEL)	4,852	13,046
>63 dB L _{Aeq,16hr} (SOAEL)	48	115
>69 dB L _{Aeq,16hr} (UOAE)	0	8
Night-time (2300 to 0700)		
>40 dB L _{Aeq,16hr} (LOAEL)	10,512	16,465
>55 dB L _{Aeq,16hr} (SOAEL)	0	225
At least 1 additional awakening per night (SOAEL)	0	0
>80 dB L _{Amax}	11,356	10,139*

*reduction from Year 2 due to phase out of Boeing 767 aircraft in the fleet

Permanent noise impacts at sensitive non-residential properties

- 12.9.57 **Table 12.26** presents predicted daytime noise levels resulting from the Proposed Development's probable route in Year 20 at sensitive non-residential receptors which are potentially impacted by aircraft noise.
- 12.9.58 Considering the magnitude of the impacts and the sensitivity of the receptors, significant adverse effects have been identified at the following non-residential receptors:
- ▶ Manston School House Nursery
 - ▶ Chatham & Clarendon Grammar School
 - ▶ The Elms Nursery School
 - ▶ Priory County Infant School
 - ▶ Masque Theatre School
 - ▶ Fledglings Nursery School
 - ▶ Ellington Cp School
 - ▶ Christchurch Church
 - ▶ Spitfire & Hurricane Memorial Building
 - ▶ Pie Factory Music
- 12.9.59 The significant effect will be characterised by potential disruption, disturbance or interference with tasks by the users of the buildings.
- 12.9.60 The magnitude of the effect will depend on the existing ambient noise level at these receptors. For example at receptors which are already exposed to transport noise levels in excess of the impact

threshold the impact of the introduction of a new transport noise source would be negligible. The significant effects have therefore been identified on a precautionary basis because the assessment has not considered the existing ambient noise at these receptors.

- 12.9.61 As described in **Section 12.7**, a noise insulation scheme for noise-sensitive schools and community buildings will also be offered as part of the Proposed Development. The scheme takes into account the daytime noise exposure and is based upon the extent of the daytime 60 dB $L_{Aeq,16hr}$ noise contour. The scheme will provide reasonable costs for insulation and ventilation. It should be noted that noise-sensitive schools and community buildings have been identified which are exposed to noise levels in excess of 60 dB $L_{Aeq,16hr}$ for the proposed developments Probable Route.

Table 12.26 Non residential receptors impacted by aircraft noise

Receptor	Receptor Category	Impact threshold (dB $L_{Aeq,16hr}$)	Noise level (dB $L_{Aeq,16hr}$)	Exceedance dB	Magnitude of impact
St. Laurence Junior School	Educational	50	53	3	Minor
Chilton Primary School	Educational	50	54	4	Minor
Penzance Language School	Educational	50	53	3	Minor
Pinewood Studios	Acoustical	50	52	2	Negligible
St. Augustines Rc Church	Worship	50	50	0	No Change
Sailors Church	Worship	50	53	3	Minor
Manston School House Nursery	Educational	50	55	5	Moderate
Chatham & Clarendon Grammar School	Educational	50	58	8	Moderate
The Elms Nursery School	Educational	50	58	8	Moderate
St. Nicholas At Wade C Of E Primary School	Educational	50	52	2	Negligible
Priory County Infant School	Educational	50	55	5	Moderate
Churchill House School	Educational	50	53	3	Minor
Masque Theatre School	Educational	50	57	7	Moderate
Fledgelings Nursery School	Educational	50	57	7	Moderate
Ellington Cp School	Educational	50	56	6	Moderate
Christ Church School	Educational	50	53	3	Minor
Newington Childrens Centre	Educational	50	53	3	Minor
Christchurch Church	Worship	50	55	5	Moderate
Newington Community Primary School	Educational	50	51	1	Negligible
Old Priory School	Educational	50	53	3	Minor
St. Laurence Junior School	Educational	50	52	2	Minor
Minster Abbey	Worship	50	50	0	No change

Receptor	Receptor Category	Impact threshold (dB L _{Aeq,16hr})	Noise level (dB L _{Aeq,16hr})	Exceedance dB	Magnitude of impact
Spitfire & Hurricane Memorial Building	Community	50	57	7	Moderate
Mother Goose Nurseries	Educational	50	53	3	Minor
Minster Library & Community Centre	Community	50	50	0	No Change
Newington Community Centre	Community	50	51	1	Negligible
Village Hall	Community	50	52	2	Negligible
St Johns Ambulance	Healthcare	50	51	1	Negligible
Ramsgate Christian Fellowship	Worship	50	50	0	No Change
Pie Factory Music	Acoustical	50	58	8	Moderate
Canterbury & Thanet Community Healthcare NHS Trust	Healthcare	50	54	4	Minor

Permanent noise impacts on community receptors

- 12.9.62 The noise contours for the Proposed Scheme's probable route are presented in **Figures 12.4 to 12.7**.
- 12.9.63 The 50 dB L_{Aeq,16hr} daytime LOAEL contour in Year 20 (**Figure 12.6**) extends approximately 5.6 km to the west and 8 km to the east of the Proposed Development. This therefore encompasses the communities of St Nicolas at Wade to the west and Ramsgate to the east. The contour extends approximately 2.5 km north and south of the runway, therefore it encompasses the communities of Minster, to the south, St Nicholas at Wade to the west, Manston to the North and Ramsgate and Pegwell Bay to the east. These communities will potentially be impacted by increased aircraft noise in the daytime. The magnitude of the impact will depend on the existing ambient noise level resulting from other noise sources in these communities. For example, aircraft noise will be less noticeable close to existing major roads and more noticeable in areas which are screened from existing noise sources.
- 12.9.64 The 40 dB L_{Aeq,8hr} night-time LOAEL contour in Year 20 (**Figure 12.7**) extends approximately 8 km to the west and 10km to the east of the Proposed Development. This therefore encompasses the communities of St Nicholas at Wade, Minster, Cliffsend, Manston, Pegwell Bay and Ramsgate. These communities will potentially be impacted by increased aircraft noise in the night time. The magnitude of the impact will depend on the existing ambient noise level resulting from other noise sources in these communities.
- 12.9.65 To understand the magnitude of the impact at the communities described above, the change in noise level resulting from the Proposed Development has been estimated at baseline monitoring and observation locations. This is presented in **Table 12.26** below.
- 12.9.66 At many of the communities described above the predicted change in daytime and night time noise is negligible.
- 12.9.67 During the daytime:
- ▶ a minor adverse impact is predicted in Broadstairs;
 - ▶ minor to major adverse impacts are predicted in Ramsgate;

- ▶ a minor adverse impact is predicted in Minster;
- ▶ a minor adverse impact is predicted in Wade;
- ▶ a minor adverse impact is predicted in West Stourmouth;
- ▶ a minor adverse impact is predicted in St Lawrence;
- ▶ a major adverse impact is predicted at Pegwell Bay; and
- ▶ minor to moderate adverse impacts are predicted in Manston.

12.9.68

Considering that the impact is permanent and that a large number of dwellings within the communities are subject to moderate to major adverse impacts, significant adverse effects have been identified at the communities of Ramsgate, Pegwell Bay and Manston as a result of the Proposed Development. The effect would be characterised as a perceived change in quality of life for occupants of buildings in these communities or a perceived change in the acoustic character of shared open spaces within these communities during the daytime.

12.9.69

During the night time:

- ▶ minor to major adverse impacts are predicted in Ramsgate;
- ▶ minor to moderate adverse impacts are predicted in Manston;
- ▶ a minor adverse impact is predicted in Minster;
- ▶ a moderate adverse impact is predicted in Wade;
- ▶ a moderate adverse impact is predicted in West Stourmouth;
- ▶ a minor adverse impact is predicted in Upstreet;
- ▶ a minor adverse impact is predicted in Reculver;
- ▶ a minor adverse impact is predicted in St Lawrence; and
- ▶ a minor adverse impact is predicted in Pegwell Bay.

12.9.70

Considering that the impact is permanent and that a large number of dwellings within the communities are subject to moderate to major adverse impacts, significant adverse effects have been identified at the communities of Ramsgate, Manston, Wade and West Stourmouth as a result of the proposed development. The effect would be characterised as a perceived change in quality of life for occupants of buildings in these communities or a perceived change in the acoustic character of shared open spaces within these communities during the night time.

Table 12.27 Change in noise - Year 20

Location	Indicative Baseline Daytime 0700 to 2300 ($L_{Aeq,16hr}$)	Aircraft Noise 0700 to 2300 ($L_{Aeq,16hr}$)	Noise Change	Magnitude of Impact	Indicative Baseline Night-time 2300 to 0700 ($L_{Aeq,8hr}$)	Aircraft Noise 2300 to 0700 ($L_{Aeq,8hr}$)	Noise Change	Magnitude of Impact
LT1 - Orchard Cottage, Broadstairs	53 dB	49 dB	+1.5 dB	Minor	48 dB	42 dB	+1 dB	Negligible
LT2 - 14 Beamont Close, Manston	51 dB	50 dB	+2.5 dB	Minor	45 dB	44 dB	+2.5 dB	Minor
LT3 - Grove House, Manston	51 dB	54 dB	+4.8 dB	Moderate	45 dB	46 dB	+3.5 dB	Moderate
LT4 - St John's Avenue, Ramsgate	53 dB	47 dB	+1 dB	Negligible	45 dB	39 dB	+1 dB	Negligible
LT5 - 17a Cliff View Road, Ramsgate	51 dB	59 dB	+8.6 dB	Major	45 dB	51 dB	+7 dB	Major
LT6 - 45 Tothill Street, Minster	53 dB	52 dB	+2.5 dB	Minor	48 dB	45 dB	+1.8 dB	Minor
LT7 - 68 Windermere Avenue, Ramsgate	52 dB	57 dB	+6.2 dB	Major	42 dB	50 dB	+8.6 dB	Major
OBS 1 - St Nicholas at Wade	57 dB	52 dB	+1.2 dB	Minor	45 dB	45 dB	+3 dB	Moderate
OBS 2 - Beltinge -	60 dB	42 dB	+0.1 dB	Negligible	45 dB	35 dB	+0.4 dB	Negligible
OBS 3 - Avenue of Remembrance Herne Bay	48 dB	42 dB	+1 dB	Negligible	45 dB	34 dB	+0.3 dB	Negligible
OBS 4 - Studio Herne Bay	54 dB	35 dB	+0.1 dB	Negligible	48 dB	29 dB	+0.1 dB	Negligible
OBS 5 - Sarre	57 dB	46 dB	+0.3 dB	Negligible	48 dB	39 dB	+0.5 dB	Negligible
OBS 6 - West Stourmouth	45 dB	43 dB	+2.1 dB	Minor	33 dB	36 dB	+4.8 dB	Moderate
OBS 7 - Grove Ferry, Upstreet	51 dB	40 dB	+0.3 dB	Negligible	36 dB	33 dB	+1.8 dB	Minor
OBS 8 - Reculver	54 dB	35 dB	+0.1 dB	Negligible	33 dB	28 dB	+1.2 dB	Minor
OBS 9 - Birchington-on-Sea	60 dB	36 dB	+0 dB	Negligible	51 dB	28 dB	0 dB	Negligible
OBS 10 - Staner Court, Ramsgate	48 dB	52 dB	+5.5 dB	Major	48 dB	45 dB	+1.8 dB	Minor

Location	Indicative Baseline Daytime 0700 to 2300 (L _{Aeq,16hr})	Aircraft Noise 0700 to 2300 (L _{Aeq,16hr})	Noise Change	Magnitude of Impact	Indicative Baseline Night-time 2300 to 0700 (L _{Aeq,8hr})	Aircraft Noise 2300 to 0700 (L _{Aeq,8hr})	Noise Change	Magnitude of Impact
OBS 11 - St Lawrence	54 dB	52 dB	+2.1 dB	Minor	48 dB	44 dB	+1.5 dB	Minor
OBS 12 - Ramsgate	51 dB	57 dB	+7 dB	Major	51 dB	50 dB	+2.5 dB	Minor
OBS 13 - Pegwell	42 dB	48 dB	+7 dB	Major	42 dB	41 dB	+2.5 dB	Minor
OBS 14 – Nethercourt Estate, Ramsgate	60 dB	61 dB	+3.5 dB	Moderate	54 dB	54 dB	+3 dB	Moderate

Operational noise – road traffic

- 12.9.71 As described above the Proposed Development will be operational in Year 2 and construction of additional elements of the development will be undertaken in phases 2, 3 and 4. Construction will be complete in Year 15. Year 20 represents the highest forecast use of the Proposed Development. This section assesses the impact of the combined impact of construction and operational traffic between Year 2 and Year 20.
- 12.9.72 It is expected that construction vehicles and operational HGV would access the site from the wider transport network via the A299, the B2190 Minster Road and the B2190 Spitfire Way. It is anticipated that staff vehicles and passenger terminal vehicles will use the full extent of the highway network.
- 12.9.73 The number of operational HGV anticipated on site will increase across the four development phases but will be up to approximately 600 two-way HGV movements per day in Year 20. The number of operational LGV and HGV anticipated will vary as the proposed development increases in capacity.
- 12.9.74 **Table 12.28** presents the predicted change in Basic Noise Level (BNL) adjacent to the sections of road likely to be used by construction and operational traffic (staff and/or HGVs). The BNL is the noise level 10m from the road and is not intended to be representative of noise sensitive receptors. The BNL has been calculated using the CRTN prediction methodology using traffic data set out in **Chapter 14: Traffic and Transport**. BNLs have been predicted for the baseline scenario, using the 18 hour average weekly traffic data (AAWT), and the do something scenarios in Years 2, 6 and 20, by adding the forecast construction traffic data to the baseline.
- 12.9.75 The predictions show that the forecast change in noise level on all roads in Years 2, 6 and 20 is less than 1dB on all roads used by operational and construction traffic. According to the impact criteria in **Table 12.8** and **Table 12.9** this is a negligible magnitude of impact for a sort or long-term change in road traffic noise levels, which would not be significant at noise sensitive receptors on the roads presented.

Table 12.28 Predicted change in L_{Aeq,16hr} road noise level in Years 2, 6 and 20 as a result of operational and construction traffic (dB relative to the without proposed development scenario)

Road	Year 2	Year 20
A256, south of the junction with Sandwich Road/Jutes Lane	0	0.1

A299, east of the Sandwich Road/A256 junction	0	0
B2050 Manston Road, east of junction with Princess Margaret Avenue	0	0.1
A254 Margate Road, south of the junction with Coxes Lane/Highfield Road	0	0
A256 Westwood Road, west of the junction with Northwood Road	0	0.1
A254 Ramsgate Road, south of the junction with Farley Road	0	0
A254 Ramsgate Road, near junction with Connaught Road	0	0
A28 Canterbury Road, east of the junction with Hartsdown Road	0	0
A28 Canterbury Road, east of junction with Domneva Road	0	0
A299 Thanet Way, west of the roundabout junction with A28/Potten Street Road	0.2	0.3
A28 Canterbury Way, south west of the junction with Manor Road/Orchard lane	0	0
A253, west of the junction with Orchard Lane/Monkton Street	0	0
A299 Hengist Way, east of the roundabout junction with Tothill Street/B2190 Spitfire Way	0	0
B2190 Spitfire Way, east of the junction with Alland Grange Lane	0.6	1.0
Minster Road, south east of the junction with Plumstone Road	0.	0
B2050 Manston Road, south east of the junction with Shottendane Road	0.1	0.3
Shottendane Road, north east of the junction with Park Lane	0	0
Manston Road, north of junction with Bramble Lane	0.1	0.3
Manston Road, south of junction with Vincent Road	0.1	0.3
Manston Court Road, east of Valley Road	0.1	0.3
Manston Court Road, south of the junction with Preston Road	0.2	0.6
B2050 Manston Road, west of the junction with Greensole Lane	0.1	0.4

Operational noise – associated development

- 12.9.76 The business units located in the Northern Grass area will comprise a mixture of B1, B2 and B8 business use classes and range from office blocks to cargo facilities, with a total footprint of approximately 105,000m². This area of the development will commence operation in Year 2. Development in this area is necessary to meet the needs and requirements of aviation related

business interests however, the precise layout, occupiers, activities and plant and equipment that will be operated in this area is unknown at this stage of the development. Therefore a qualitative assessment of operational noise from this component of the development has been undertaken and certain development principles (mitigation) embedded within the scheme design.

12.9.77 However, the potential sources of noise include:

- ▶ Increased LGV and HGV traffic on access roads to the Proposed development (this forecast increase in traffic has been included in the road traffic noise assessment in the previous section)
- ▶ Movement of LGVs and HGVs within the site of the proposed development;
- ▶ Loading and unloading of cargo at cargo facilities; and
- ▶ Noise from Heating, Ventilation and Air-conditioning of buildings which form part of the development.

12.9.78 The closest noise sensitive developments to the Northern Grass Area include:

- ▶ Approximately 15 dwellings on Manston Road approximately 20m from the development boundary at the north west corner of the Northern Grass Area; and
- ▶ Approximately 20 dwellings on Manston Court Road which line the development boundary at the north east corner of the Northern Grass Area;

12.9.79 These receptors have the potential to be affected by noise from the operation of secondary business infrastructure.

12.9.80 As the design of this area is developed the promoter has committed to take reasonable steps to minimise noise by implementing the following design principles:

- ▶ A landscaped area has been provided between the proposed business park and the houses immediately adjacent to its eastern boundary. This area will be safeguarded in future design iterations in order to protect the residential properties during construction and operation.
- ▶ The buildings which will generate the least noise will be located in the most sensitive areas of the site close to existing residential development. Such activities could include offices, parkland/greenspace, attenuation ponds, the museums and associated facilities;
- ▶ Warehouse buildings shall be orientated such that loading/unloading activities face away from any existing residential dwellings;
- ▶ Doors or other openings on building facades facing existing residential dwellings shall be minimised or avoided. This is most important for industrial buildings but may also include other buildings where evening, weekend or night time activities occur.
- ▶ Internal vehicular routes shall be located away from the most sensitive parts of the site and buildings shall be used to screen road noise from existing residential buildings;
- ▶ As described in **Section 12.7** Environmental measures are to be incorporated into the proposed development, The Developer will undertake the following steps to control noise from industrial and commercial sound:
 - ▶ Specification of noise limits and incorporation of acoustic requirements into contract documents such that they will apply to the design of all sources of industrial and commercial sound which are to be operated as part of the Proposed Development;
 - ▶ determine the relevant background levels and establish these jointly with the relevant local authorities;
 - ▶ procure, install and commission sources of industrial and commercial sound, including sound attenuation equipment that meets the specification requirements; and

- ▶ before formal operation of a source of industrial or commercial sound, complete a standard suite of acceptance tests as necessary to demonstrate that the operational sound levels achieve the design criteria;

12.9.81

The mitigation strategy in **Appendix 12.5: Control of Industrial and Commercial Sound** describes the steps that will be taken to avoid significant adverse effects of industrial noise and minimise adverse effects of industrial noise using the assessment methodology set out in BS 4142: 2014. Taking account of the proposed uses of the Northern Grass Area and the mitigation measures that will be implemented in the design of this part of the development it is considered that significant noise effects on nearby residential developments from the operation of secondary business infrastructure are unlikely.

12.10 Summary of significant effects

Receptor and effects	Significance Level	Rationale
Construction noise - Minor/moderate temporary effect on the community of Minster	Significant	<p>Minor/moderate disturbance/sleep disturbance at 14 dwellings on Bell Davies Drive and Spitfire Way.</p> <p>It is however envisioned that undertaking works according to the principles of BPM as set out in the CEMP could avoid this significant effect.</p>
Aircraft noise – permanent day-time effects on individual residential receptors	Significant	<p>Up to 115 properties expected to be exposed to noise levels above the day time SOAEL of 63 dB $L_{Aeq,16hr}$</p> <p>Without mitigation, these dwellings will be exposed to significant annoyance and disturbance as a result of the Proposed Development.</p> <p>The noise insulation scheme will reduce noise inside all dwellings such that it does not reach a level where it will significantly affect residents. However adverse impacts would remain in external areas such as gardens.</p>
Aircraft noise – permanent night-time effects on individual residential receptors	Significant	<p>Up to 225 properties expected to be exposed to noise levels above the night time SOAEL of 55 dB $L_{Aeq,8hr}$</p> <p>Without mitigation, these dwellings will be exposed to significant annoyance, disturbance and sleep disturbance as a result of the Proposed Development.</p> <p>The noise insulation scheme will reduce noise inside all dwellings such that it does not reach a level where it will significantly affect residents.</p>
Aircraft noise – permanent day-time effects on individual residential receptors	Significant	<p>Up to 8 properties expected to be exposed to noise levels above the day time UOAEI of 69 dB $L_{Aeq,16hr}$</p> <p>Without mitigation, these dwellings will be exposed to unacceptable annoyance and disturbance as a result of the Proposed Development.</p> <p>Dwellings exposed to aircraft noise above the UOAEI will be eligible financial assistance for moving away from the airport with as part of the dwelling relocation scheme. This mitigation will prevent unacceptable adverse effects of noise.</p>
Aircraft noise – permanent effects on non-residential receptors	Significant	<p>Significant adverse effects have been identified at the following non-residential receptors on a precautionary basis:</p> <ul style="list-style-type: none"> • Manston School House Nursery • Chatham & Clarendon Grammar School • The Elms Nursery School • Priory County Infant School • Masque Theatre School • Fledgelings Nursery School • Ellington Cp School • Christchurch Church
Aircraft noise – permanent community effects – day time	Significant	<p>In the following communities aircraft noise would increase to the point where there would be a perceived change in quality of life for occupants of buildings in these communities or a perceived change in the acoustic character of shared open spaces within these communities:</p> <ul style="list-style-type: none"> • Ramsgate • Pegwell Bay • Manston

Receptor and effects	Significance Level	Rationale
Aircraft noise – permanent community effects – night time	Significant	<p>In the following communities aircraft noise would increase to the point where there would be a perceived change in quality of life for occupants of buildings in these communities or a perceived change in the acoustic character of shared open spaces within these communities:</p> <ul style="list-style-type: none">• Ramsgate• Manston;• Wade• West Stourmouth

Contents

13.	Socio-economics	13-1
13.1	Introduction	13-1
13.2	Policy, legislation and guidance	13-1
13.3	Data gathering methodology	13-4
13.4	Overall socio-economic baseline	13-6
13.5	Environmental measures incorporated into the proposed development	13-25
13.6	Scope of the assessment	13-26
13.7	Assessment methodology	13-27
13.8	Assessment of effects on local businesses	13-29
13.9	Assessment of effects on local communities	13-31
13.10	Assessment of effects on tourism	13-33
13.11	Assessment of effects on local and regional economies	13-34
13.12	Conclusions on preliminary significance evaluation	13-35

13. Socio-economics

13.1 Introduction

- 13.1.1 This Chapter sets out the findings of an assessment of the effects of the Proposed Development on the socio-economic environment.
- 13.1.2 This Chapter should be read in conjunction with the Proposed Development description (**Chapter 3**). Following a summary of the limitations of the Preliminary Environmental Impact Assessment (PEIR), the Chapter outlines the relevant policy, legislation and guidance that has informed the assessment, and describes the data gathering methodology that was adopted. This leads on to a description of the overall baseline conditions, the scope of the assessment, and the assessment methodology. The Chapter concludes with the results of the assessment.
- 13.1.3 This PEIR is one of the documents forming a suite of consultation materials for the statutory consultation that is being held in relation to the Proposed Development. It updates the information contained in the 2017 PEIR and is intended to provide information on possible socio-economic effects as they have been assessed up to this point. A more detailed assessment of the identified direct effects and potential indirect effects on identified receptors will be included in the final Environmental Statement (ES), drawing on assessment work from other disciplines.

Limitation of the PEIR

- 13.1.4 The socio-economic effects of the proposed development are, in some cases dependent on the findings of interrelated topics which at the time of writing had not been fully completed and are not therefore reported in this chapter. These include:
- ▶ Information on health effects, including those from changes in air quality, noise and dust is covered in **Chapter 15**, which itself refers to the Health Impact Assessment. Estimations of magnitude and significance of effects are ongoing and the results are currently not available;
 - ▶ Further detail on noise is provided in **Chapter 12**;
 - ▶ Further information on air quality is covered in **Chapter 6**, for which dust assessment during construction is ongoing;
 - ▶ Information on travel, including disruption and related effects is covered in **Chapter 14**; and
 - ▶ Information on the detail of employment and housing projections is provided in the report *Employment and Housing Land Technical Report*¹. It includes assessments of the labour market and the supply of land for employment and for housing.
- 13.1.5 All of the above will be included in the final version of this assessment to be included in the ES.
- 13.1.6 Limitations which affect assessments of significance will be addressed when the supporting information is available and are identified as 'not assessed' in the Summary of significance of effects (**Table 13.22**).

13.2 Policy, legislation and guidance

- 13.2.1 A study of socio-economic related planning policy, legislation and guidance at the national, regional and local level has been undertaken for the site and its locality in order to highlight any requirements which the Proposed Development needs to consider. It is always important that policies, legislation and guidance are taken into consideration as they help to define the scope of assessment and can

¹ RiverOak Strategic Partners (2017) Employment and Housing Land Technical Report

inform the identification of particular local issues. Full details of all national and local planning policies relevant to the Proposed Development can be found in **Appendix 4.1**.

13.2.2 **Table 13.1** sets out national and local policies and guidance relevant to the Proposed Development, and its potential effects on socio-economic receptors.

Table 13.1 National and Local Planning Policies relevant to Socio-economics

Policy Document	Reference	Policy information relevant to socio-economics
National Planning Policy Framework (2012)	Para 7	Provides high level guidelines for planning for sustainable development, specifically in relation to socio-economics, identifies the importance of “ensuring that sufficient land of the right type is available in the right places at the right time to support growth and innovation.”
	Para 14	Presumption in favour of sustainable development including: “local planning authorities should positively seek opportunities to meet the development needs of their area.”
	Para 17	“... proactively drive and support sustainable economic development to deliver the homes, business and industrial units, infrastructure and thriving local places that the country needs. Every effort should be made objectively to identify and then meet the housing, business and other development needs of an area, and respond positively to wider opportunities for growth.”
	Para 20	“To help achieve economic growth, local planning authorities should plan proactively to meet the development needs of business and support an economy fit for the 21st century.”
Town and Country Planning (Environmental Impact Assessment) Regulations 2017		Explicit reference to the inclusion of population and human health aspects
South East Local Enterprise Partnership (2014) Strategic Economic Plan	p.19	Our ambition is to: enable the creation of 200,000 sustainable private sector jobs over the decade to 2021, an increase of 11.4% since 2011; complete 100,000 new homes by 2021, which will entail, over the seven years, increasing the annual rate of completions by over 50% by comparison with recent years; and, lever investment totalling £10 billion, to accelerate growth, jobs and homebuilding.
	p.28	“... the area around Manston and Discovery Park contains extensive land suitable for residential and employment use, and is well connected by new infrastructure. As a consequence, we are seeking an extension of the designated Discovery Park Enterprise Zone for Manston. A Manston Airport task force has been established with local MPs.”
South East Local Enterprise Partnership (2014) Kent and Medway Growth Deal	p.159	The Discovery Park and Manston Growth Deal: We will take forward a coordinated approach to the development of Discovery Park and Manston. We will: Consider extending Enterprise Zone designation to Manston Business Park, Manston Airport and the Richborough Corridor. We ask Government to permit Thanet District Council to retain 100% of business rate receipts within the Zone with no impact on their baseline, in order that discounts can be fully funded by receipts above the discount level. Allocate £3.5 million in Local Growth Fund finance to support commercial development at Manston and Discovery Park. Support SEFUND investment in commercial and residential development.
Kent County Council (2015) Refresh of the 14-24: Learning, Employment and Skills Strategy	p.16	Priorities and actions: Raise Attainment and Skills Levels Improve and extend Vocational Education, Training and Apprenticeships Increase Participation and Employment Target Support for Vulnerable Young People

Policy Document	Reference	Policy information relevant to socio-economics
Kent County Council (2010) Unlocking Kent's Cultural Potential – A Cultural Strategy for Kent	pp.x/xi	<p>Intention 1: We will grow Kent's creative economy by being welcoming and cooperative hosts to the creative workforce</p> <p>Intention 2: We will protect Kent's existing strengths by being passionate and responsible stewards of Kent's built and natural environment</p> <p>Intention 3: We will increase Kent's potential by being ambitious and resourceful cultural planners</p>
Kent Forum (2012) A Vision for Kent		<p>Ambition 1: To grow the economy - For Kent to be open for business with a growing and successful economy and jobs for all.</p> <p>Ambition 2: To tackle disadvantage - For Kent to be a county of opportunity, where aspiration rather than dependency is supported and quality of life is high for everyone.</p> <p>Ambition 3: To put citizens in control - For power and influence to be in the hands of local people so they are able to take responsibility for themselves, their families and their communities.</p>
Thanet District Council (2006) Thanet Local Plan	Policy EC2	Kent International Airport: Policy framework for proposals designed to support the development, expansion and diversification of Manston.
Thanet District Council (2013) Thanet District Council Economic Growth and Regeneration Strategy and Plan 2013 – 2031	Sections 5 and 6	<p>Vision: Accelerate economic growth and achieve greater productivity and profit for businesses; to create more jobs, and increased prosperity for residents.</p> <p>Critical Pathways:</p> <p>Create the right environment and conditions to deliver real economic growth</p> <p>Capitalise on the District's assets</p> <p>Maximise the potential of existing businesses</p> <p>Create an enterprising and aspirational labour force with the right education and skills</p>
Thanet District Council (2013) Destination Management Plan	'What we want to achieve'	<p>Deliver quality experiences for existing markets, develop new experiences to grow market share and attract new higher spending visitors looking for short-breaks.</p> <p>Present the three towns more strongly together, playing to the strengths of each and making it easy for the visitor to explore along the coast and to get around.</p> <p>Invest in the experience of its beaches, Thanet's strongest natural assets – their development and management.</p> <p>Prioritise investment in new quality character accommodation to enable Thanet to grow the short break market - to achieve longer stays and higher spend.</p> <p>Make more of its location – the Isle, the big skies, the natural coastline and importantly its proximity to London by high-speed train and the market opportunities that bring.</p> <p>Stimulate the environment to encourage investment in new quality visitor attractions, visitor experiences and places to stay.</p> <p>Ensure tourism is one of the drivers of the local economy and put steps in place to enable that, including supporting tourism business sustainability, growth and inward investment</p>
Thanet District Council (January 2015) Thanet Local Plan Preferred Options	Summary	<p>A flexible strategy in order to provide for 5,000 additional jobs across all sectors of the economy including tourism, leisure and the green economy</p> <p>The airport and surrounding area is proposed as an opportunity area for which the council will prepare an Area Action Plan to guide its future development</p> <p>The housing provision over the plan period is 12,000 additional homes</p> <p>Development will be focused in accessible areas with existing infrastructure and services, either within or on the edge of existing urban areas.</p> <p>Greenfield housing allocations are proposed at Westwood, Birchington, Westgate-on-Sea and Manston Green</p> <p>Important countryside, open spaces, heritage and the built and natural environment will be protected for their character and contribution to sense of place</p> <p>The green wedges that separate Thanet's towns will be protected</p> <p>A new parkway station is promoted for wider economic benefit to the district</p>

13.3 Data gathering methodology

Desk Study

- 13.3.1 In order to establish the socio-economic baseline, data was obtained from the sources listed in **Table 13.2** below to identify existing data about the site and the surrounding area. These data have been used to identify baseline conditions in the study area and identify any socio-economic characteristics, opportunities or challenges relevant to the construction and operation of the Proposed Development.

Table 13.2 Information used in the preparation of the PEIR

Source	Data
Office for National Statistics (ONS)	2011 Census Data https://www.ons.gov.uk/
NOMIS	Labour market statistics https://www.nomisweb.co.uk/
Experian	Economic profile (Standard Industrial Classification [SIC] by postcode) http://www.experian.co.uk/marketing-services/products/mosaic-uk.html
Thanet District Council (2010) Employment Land Review	Economic profile https://www.thanet.gov.uk/publications/planning-policy/employment-land-review-2010/
Thanet District Council (2012) Economic and Employment Assessment	Economic profile https://www.thanet.gov.uk/media/2326613/Thanet-Economic-and-Employment-Assessment-2012.pdf
Thanet District Council (2013) Destination Management Plan	Tourism statistics and strategy https://www.thanet.gov.uk/publications/destination-management-plan/thanet-destination-management-plan/
Thanet District Council (2013) Thanet District Council Economic Growth and Regeneration Strategy and Plan 2013-2031	Economic profile and strategy http://democracy.thanet.gov.uk/documents/s33636/Regeneration%20Strategy%20Phase%203%20Final%20Version.pdf
Thanet District Council (TDC)	District profile https://www.thanet.gov.uk/your-services/statistics-and-census-information/state-of-the-district-facts-and-figures/thanet-statistics/
Kent County Council (KCC)	Population profiles http://www.kent.gov.uk/about-the-council/information-and-data/Facts-and-figures-about-Kent/area-profiles# Education https://www.kent.gov.uk/_data/assets/pdf_file/0012/50304/Education-infrastructure-needs-and-requirements-GIF.pdf# Health http://www.kpho.org.uk/_data/assets/pdf_file/0020/44660/ThanetCCGHealthNeedsAssessmentv2.compressed.pdf Business

Source	Data
	www.kent.gov.uk/ data/assets/excel_doc/0007/.../District_Profile.xls

Survey Work

- 13.3.2 Survey work on the effects of the Proposed Development on noise, traffic and health is covered in the respective chapters and the relevant conclusions are incorporated here. No additional survey work has been undertaken.

Consultation

- 13.3.3 A Scoping Report (**Appendix 1.1**), including a chapter covering socio-economics, was produced and submitted to the Planning Inspectorate ('PINS') who provided a Scoping Opinion (**Appendix 1.2**). A summary of PINS' comments provided in its Scoping Opinion and responses to those comments is provided in **Table 13.3** below.
- 13.3.4 In addition, since 2015 and throughout the assessment work, RiverOak Strategic Partners (RiverOak) has undertaken supporting work on potential socio-economic effects including other engagement and consultation including the 2017 PEIR consultation.

Table 13.3 PINS Consultee comments

Comments and considerations			How addressed in this PEIR
Socio Economic Page 43, 3.109	The Secretary of State notes that the socio-economic baseline description includes consideration of health, crime, tourism and education indicators. The proposed effect of Manston Airport should be considered for each of the indicators described. The Applicant is referred to the Secretary of State's comments in Section 4 of this Scoping Opinion in relation to health impact assessment. The Secretary of State recommends that effects on tourism are considered in their own right, as currently this appears to be considered in terms of effects on businesses only.	Effects on tourism should be considered in their own right.	Tourism included as separate section (paras. 13.4.24 – 13.4.29)
Socio Economic Page 43, 3.110 to 3.113	Significance criteria are set out in Scoping Report Tables 12.13 to 12.15. The description of large magnitude effects in Table 12.13 includes reference to "An effect that is likely to... ..significantly affect identified receptors". The Secretary of State considers that use of the term 'significantly' in this context is circular because significance of effect is determined by considering the magnitude of effect against the sensitivity of a receptor. The magnitude criteria are inconsistent as the definition of small and medium magnitude effects include 'number of receptors' as a criterion, whereas negligible and large magnitude effects focus appear to focus on 'identified receptors'. The Secretary of State considers that the criteria have potential to undervalue impacts on key local businesses, since the removal of such a business would be unlikely to be considered greater than a small degree of effect.	Significance criteria should be better thought out and consistent terminology used.	Criteria amended accordingly. (section 13.7).

The Secretary of State also considers that the criteria for sensitivity are too narrow, since they only relate to economic change, whereas the list of effects in Scoping Report paragraph 12.6.1 includes amenity effects.

Scoping Report Table 12.15 uses different terminology from Table 12.13 (small, medium, large vs low, medium, high). Terminology should be consistent in the ES.

**Socio
Economic**
**Page 44,
3.114 to
3.115**

The Secretary of State recommends that the assessment of socioeconomic effects includes consideration of the potential opportunities arising from the proposed airport to create local skills and training opportunities. This should include consideration of the potential to create apprenticeship opportunities during construction and operation.

The socio-economic assessment and in particular any skills and training opportunities should be developed in discussion with TDC and KCC as appropriate.

Potential opportunities such as the creation of apprenticeships should be considered and skills and training opportunities should be developed in discussion with TDC and KCC.

Noted and incorporated into this assessment. Discussion with TDC and KCC to be conducted as part of pre-application discussions.

13.4 Overall socio-economic baseline

Current baseline

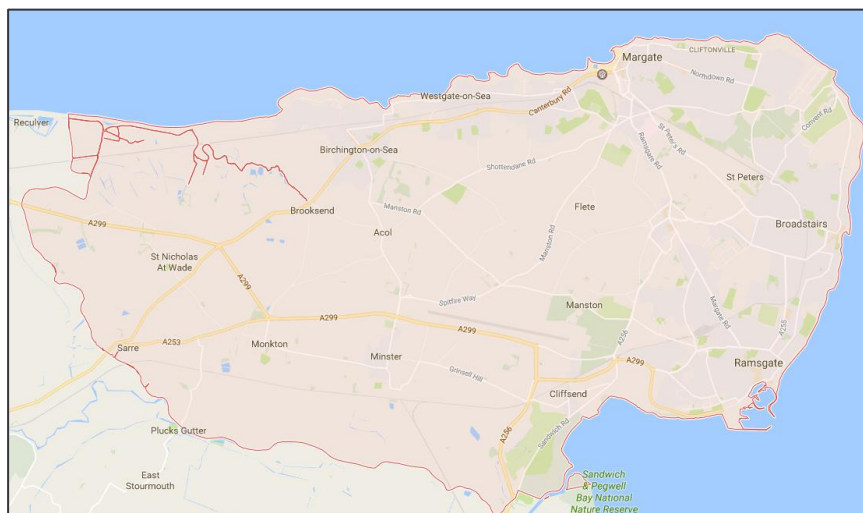
13.4.1 The socio-economic baseline has been considered at three spatial levels:

- ▶ The immediate locality of the Airport as defined by the boundaries of TDC ('Thanet'). At this scale, detailed census data at LSOA (Lower Super Output Area) level has been used, along with data derived from local authority surveys;
- ▶ Kent and the South East of England, analysed through secondary data and providing a more general socio-economic overview; and
- ▶ England and Wales to provide a national level comparison.

13.4.2 The extent of Thanet District is shown in **Figure 13.1**.

13.4.3 Manston Airport is located in proximity to the district's town centres, being approximately 3km west of Ramsgate, 5km south west of Broadstairs and 5km south of Margate. The village of Manston is the closest settlement, but pockets of residential development exist around the periphery of the Airport site.

Figure 13.1 Thanet District



Population Profile

13.4.4

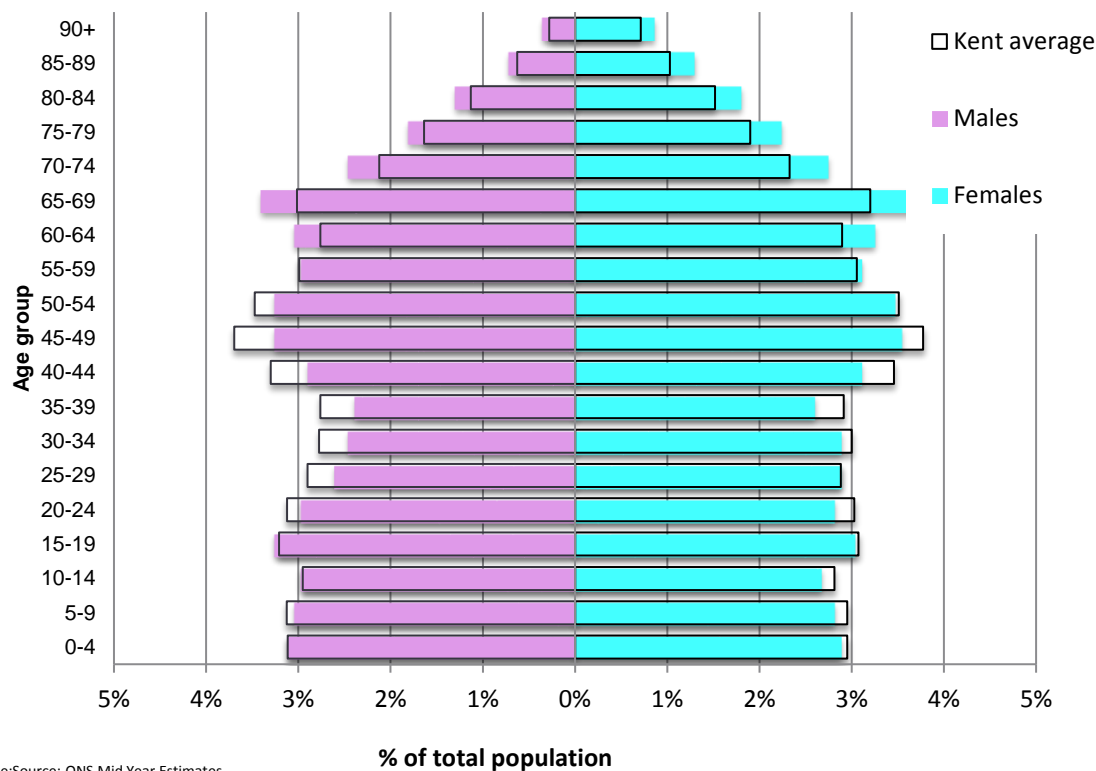
Table 13.4 and **Figure 13.2** below summarise the profile of the population in Thanet district and show, most notably, a relatively low proportion of those of working age and a relatively high proportion of elderly compared to Kent and England and Wales more widely, whilst the proportion of those aged 0 - 15 are in line with County and National figures.

Table 13.4 Population Profile 2014 by Geography

	Thanet		Kent		England & Wales	
	No.	% of total population	No.	% of total population	No.	% of total population
All People	138,400		1,510,400		57,408,700	
0-15	26,000	18.8%	289,400	19.2%	10,858,400	18.9%
16-64	81,000	58.6%	926,500	61.3%	36,397,802	63.4%
65+	31,300	22.6%	294,500	19.5%	10,152,500	17.7%

Source: ONS Mid-Year Estimates

Figure 13.2 Population Profile in Thanet by Age and Gender



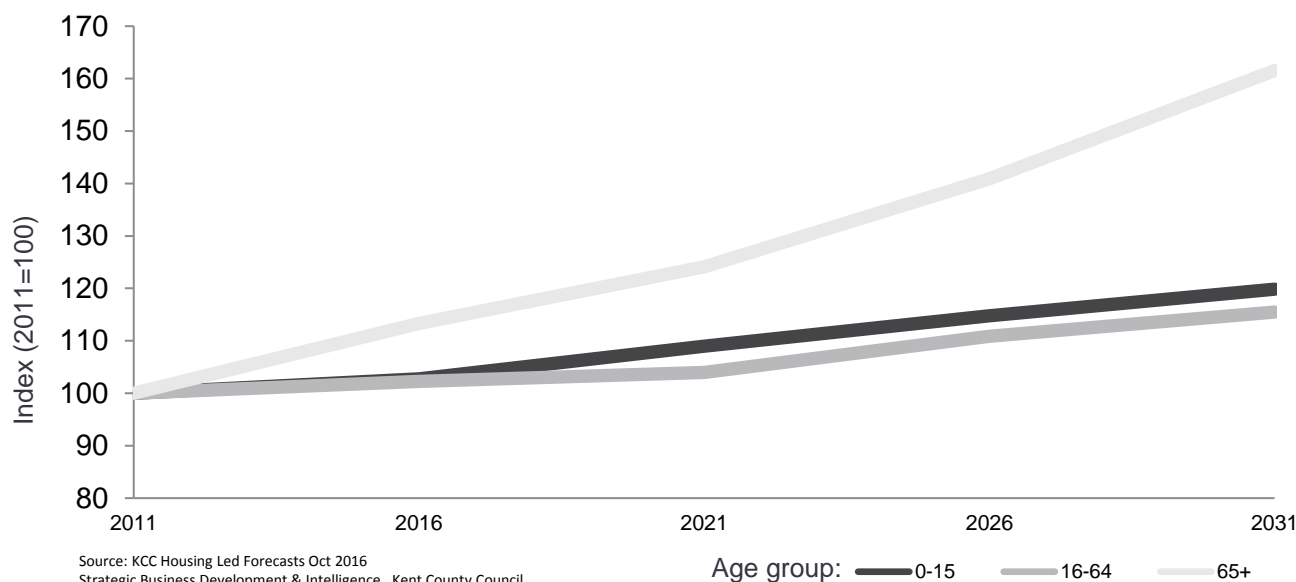
Source: ONS Mid Year Estimates
Presented by: Research & Evaluation, Kent County Council

² Kent County Council (2015) Available online at www.kent.gov.uk/data/assets/excel_doc/0007/.../District_Profile.xls

13.4.5

The expected changes in the population profile in Thanet are more significant. There is a predicted aging of the population (**Figure 13.3**) reflecting a combination of the aging of the current cohort of those aged 50 - 65 which forms part of the 'post-war bulge', out-migration of those of working age, and a falling birth rate.

Figure 13.3 Population Projections in Thanet by Age 2011 - 2031



Source: Kent County Council³

Index of Multiple Deprivation

13.4.6

The Index of Multiple Deprivation (IMD) is a composite measure which is defined by a number of domains or dimensions⁴, including household income, education, health and living environment. The index offers a readily comparable measure, by area, of the degree to which communities may be struggling with particular issues. Thanet was the most deprived local authority in the IMD2010 and remains Kent's most deprived local authority district in IMD2015.

13.4.7

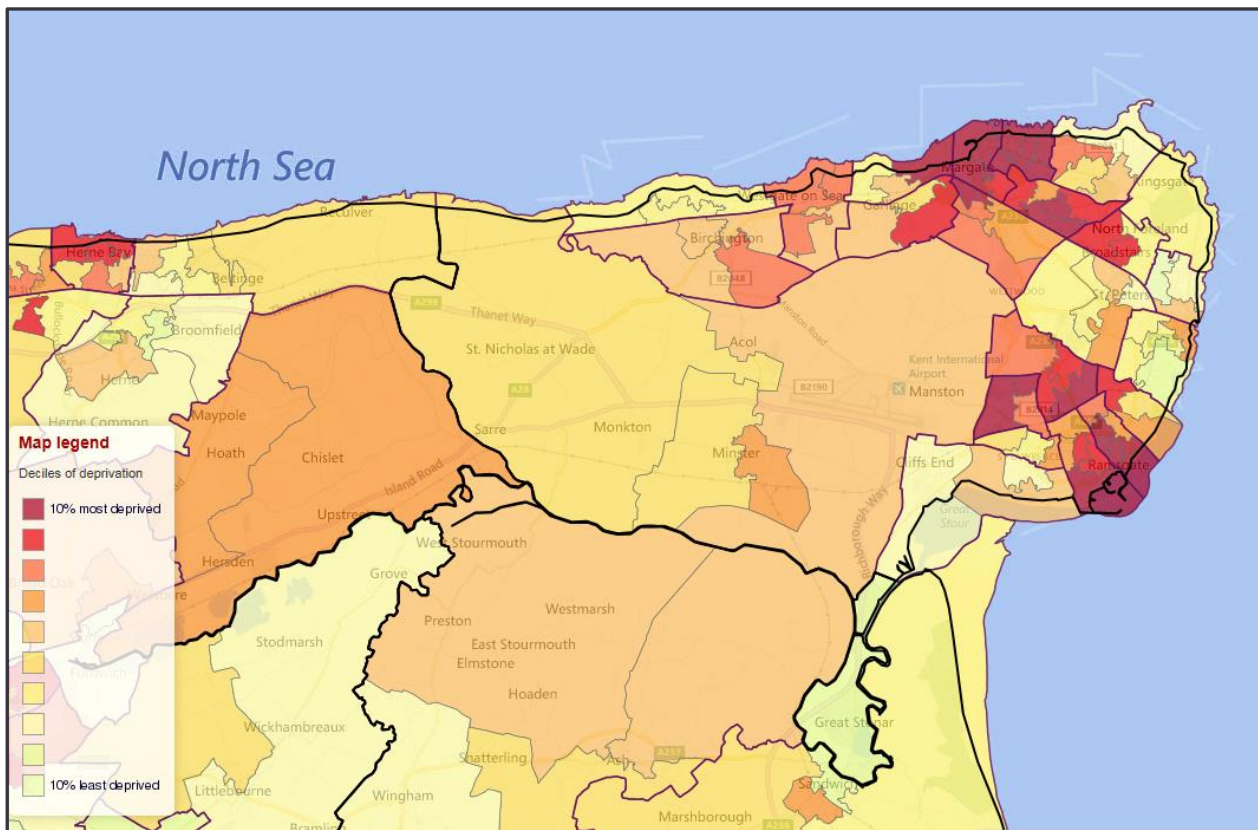
Nationally, Thanet is ranked at 21 out of 326 authorities placing it within England's 10% most deprived of authorities⁵. This disguises variability amongst local communities (**Figure 13.4**) in which all seven domains of deprivation are considered) where there are significant concentrations of relative deprivation, particularly in parts of the coastal towns.

³ Kent County Council (2016) www.kent.gov.uk/_data/assets/excel_doc/0007/.../District_Profile.xls

⁴ There are seven domains (or dimensions) used in calculating the Index of Multiple Deprivation: Income, Employment, Health Deprivation and Disability, Education, Skills and Training Deprivation, Barriers to Housing and Services, Crime and Living Environment Deprivation.

⁵ Kent County Council (2015) The English Index of Multiple Deprivation (IMD 2015): Headline findings for Kent. Available online at https://www.kent.gov.uk/_data/assets/pdf_file/0006/7953/Indices-of-Deprivation-headline-findings.pdf [Checked 05/01/18]

Figure 13.4 Index of Multiple Deprivation (2015) at Neighbourhood LSOA) Scale



Source: Department for communities and Local Government⁶

Education

- 13.4.8 In comparison to the national average, Thanet has a relatively high level of residents with either no qualifications or qualifications equal to one or more GCSE at grade D or below (**Table 13.5**), with a commensurately low relative proportion of residents with more advanced qualifications. There is clearly a significant skills gap which serves to suppress average wage levels and can prove unattractive to prospective and existing employers seeking to invest in the area⁷. Levels of educational attainment can be closely linked to the IMD, as discussed above, of which education is one dimension. Poor educational achievement can be difficult to turn around and requires time to achieve.

⁶ Department for Communities and Local Government (2015) Indices of Deprivation Explorer. Available online at <http://dclgapps.communities.gov.uk/imd/idmap.html> [Checked 05/01/18]

⁷ For more analysis of this issue, see Azimuth Associates (2017) **Manston Airport: A National and Regional Aviation Asset - Volume IV, The economic and social impacts of airport operations**, Chapter 5

Table 13.5 Qualifications by Geography

Qualification ⁸	Thanet	Kent	England
No Qualifications	28.4%	22.5%	22.5%
Level 1	14.8%	14.7%	13.3%
Level 2	16.4%	16.9%	15.2%
Apprenticeship	3.9%	3.8%	3.6%
Level 3	11.3%	12.3%	12.4%
Level 4	19.6%	24.7%	27.4%
Other	5.6%	5.1%	5.7%

Source: 2011 census

Health and Crime

- 13.4.9 Health can reflect a range of other indicators such as deprivation, crime and unemployment and this is no exception for Thanet where there is a higher proportion of vulnerable populations such as children in care, ex-offenders and people with a mental health condition. Most indicators relating to healthy lifestyles show that Thanet has statistically worse outcomes compared to the England average. These include smoking prevalence (including smoking during pregnancy), excess weight in adults, physically active adults and prevalence of opiate and/or crack use. Detail of the health of the population is set out in **Chapter 15**.
- 13.4.10 **Table 13.6** sets out the key health variables by geography, illustrating significantly higher levels of bad and very bad health, lower levels of very good health, combined with lower life expectancy and higher dependence on incapacity benefits than the South East or England.

Table 13.6 Key Health Variables by Geography

Variable	Measure	Thanet	South East	England
Very Good Health	%	40.7	49.0	47.2
Good Health	%	35.1	34.6	34.2
Fair Health	%	16.7	12.0	13.1
Bad Health	%	5.8	3.4	4.2
Very Bad Health	%	1.7	1.0	1.2
Low Birthweight Live Births	%	8.0	6.5	7.2

⁸ Level 1: 1-4 O Levels/CSE/GCSEs (any grades), Entry Level, Foundation Diploma, NVQ Level 1, Foundation GNVQ, Basic/Essential Skills; Level 2: 5+ O Level (Passes)/CSEs (Grade 1)/GCSEs (Grades A*-C), School Certificate, 1 A Level/ 2-3 AS Levels/VCEs, Intermediate/Higher Diploma, Welsh Baccalaureate Intermediate Diploma, NVQ level 2, Intermediate GNVQ, City and Guilds Craft, BTEC First/General Diploma, RSA Diploma; Apprenticeship; Level 3: 2+ A Levels/VCEs, 4+ AS Levels, Higher School Certificate, Progression/Advanced Diploma, Welsh Baccalaureate Advanced Diploma, NVQ Level 3; Advanced GNVQ, City and Guilds Advanced Craft, ONC, OND, BTEC National, RSA Advanced Diploma; Level 4 and above: Degree (for example BA, BSc), Higher Degree (for example MA, PhD, PGCE), NVQ Level 4-5, HNC, HND, RSA Higher Diploma, BTEC Higher level, Foundation degree (NI), Professional qualifications (for example teaching, nursing, accountancy); Other qualifications: Vocational/Work-related Qualifications, Foreign Qualifications (not stated/level unknown).

Variable	Measure	Thanet	South East	England
Infant Mortality	Rate per 1000	4.5	3.7	4.4
Life Expectancy at Birth; Males	Years	76.5	79.4	78.3
Life Expectancy at Birth; Females	Years	81.6	83.3	82.3
Incapacity Benefits	%	9	5	7

Source: Census 2011

- 13.4.11 There are considerable variations in population health within Thanet and inequalities are wider than in any other district in Kent. Around one third of the Thanet population are in the most deprived quintile nationally with less than one in twenty in the least deprived quintile. The difference in life expectancy between the highest and lowest wards is 16.77 years⁹.
- 13.4.12 Crime, as a general trend, has risen in Thanet since 2009 (**Table 13.7**) and across almost every type is higher than that of Kent as a whole (**Table 13.8**).

Table 13.7 Reported crime in Thanet 2009/10 – 2014/15

	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15
Cases	10,783	10,658	10,560	9,945	11,971	11,708

Source: Kent Police

⁹ Kent County Council (2018) Kent Public Health Observatory. Available online at <http://www.kpho.org.uk/health-and-social-care-maps/pdf-social-care-maps> [Checked 05/01/18]

Table 13.8 Recorded Crimes 2014/15 by Geography per 1,000 population

Type of Crime	Thanet	Kent
Burglary dwelling (per 1,000 households)	9.9	7.1
Burglary other	4.0	4.3
Criminal damage offences	14.6	10.0
Robbery	0.9	0.5
Sexual offences	2.3	1.4
Shoplifting	8.9	6.5
Theft from motor vehicle	4.7	3.6
Theft of motor vehicle	1.4	1.3
Theft of pedal cycle	2.1	1.1
Theft offences	12.2	9.1
Vehicle interference	0.9	0.6
Violence against the person	23.7	15.6
Victim based crime	80.4	57.0

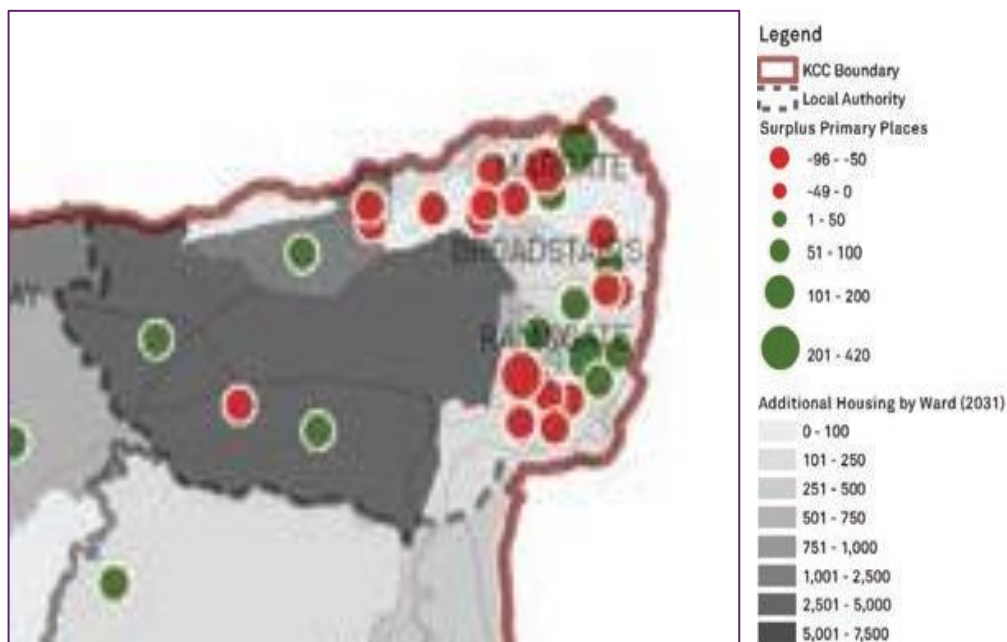
Source: Kent County Council Community Safety Portal

Community Resources

Primary Schools

- 13.4.13 In 2014 there was a net 6,483 surplus of places (+4.4% of capacity) across Kent and Medway. There was however a deficit of 215 places in reception years (-1% of capacity) across Kent and Medway as a whole reflecting a recent baby boom. The total surplus places are for all year groups in primary schools and hides the pressure on reception year places across the county. **Figure 13.5** illustrates the current balance of places across primary schools in Thanet.

Figure 13.5 Primary Schools in Thanet by Capacity



Source: Kent County Council¹⁰

Secondary schools

13.4.14 In 2014 there were 13,318 surplus places (12.1 % of capacity) across all secondary school years in Kent and Medway. Overall, every local authority in the County is running at a positive surplus of more than one form of entry. The surplus capacity is the greatest in areas with less development pressure and often capacity in more peripheral locations masks shortages in urban areas. **Figure 13.6** illustrates the current balance of places across secondary schools in Thanet.

¹⁰ Kent County Council (nd) Growth and Infrastructure Framework. Available online at https://www.kent.gov.uk/_data/assets/pdf_file/0012/50304/Education-infrastructure-needs-and-requirements-GIF.pdf# [Checked 05/01/18]

Figure 13.6 Secondary Schools in Thanet by Capacity



Source: Kent County Council¹¹

Post-16 Education

13.4.15 The following current projects and proposals indicate the investment in post-16 education facilities across Thanet:

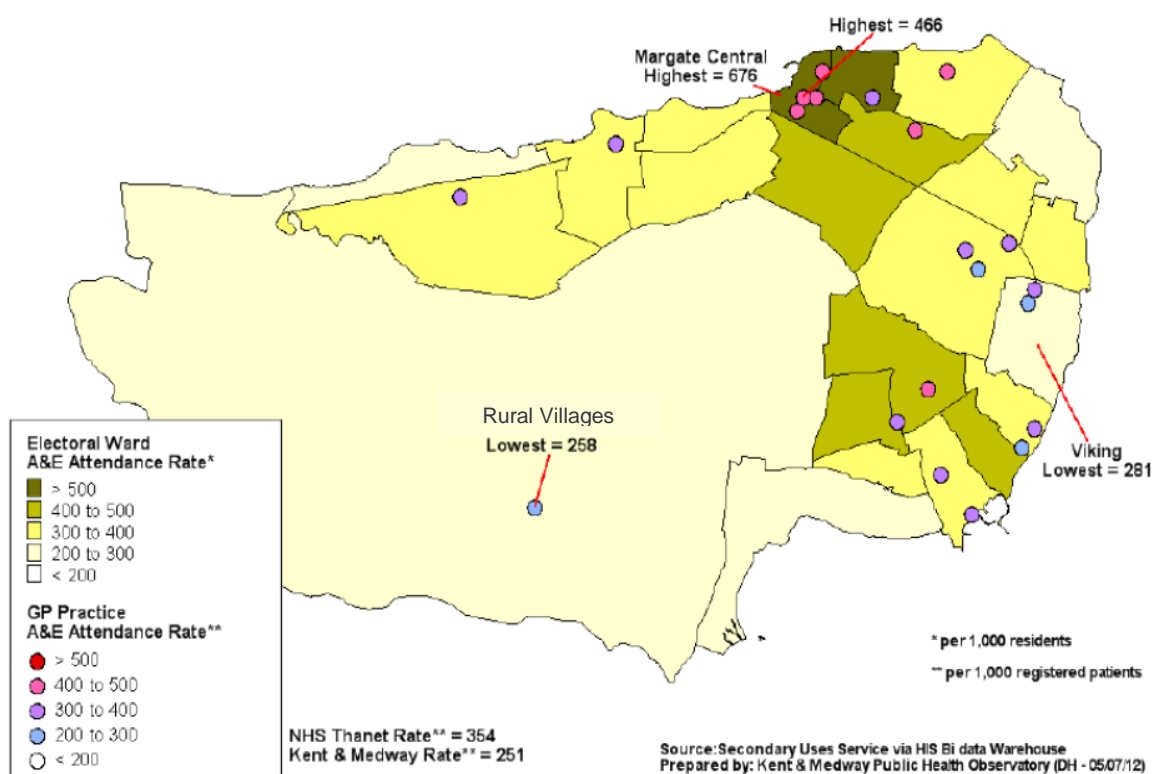
- ▶ East Kent College - Broadstairs Campus - Construction / Renewables / Engineering (2013);
- ▶ East Kent College - Broadstairs Campus - Nursery (2014);
- ▶ East Kent College - Broadstairs Campus - Classroom Modernisation (2014);
- ▶ East Kent College - Broadstairs Campus - Training Hotel (2015);
- ▶ East Kent College - Broadstairs Campus - Centre for Creative Industries (2015); and
- ▶ East Kent College - Broadstairs Campus - Final Phase of Development (2019+).

Healthcare Facilities

13.4.16 In addition to the Queen Elizabeth the Queen Mother Hospital in Margate, there are twenty primary care surgeries across Thanet, one located in the Rural Villages Ward (containing Manston Airport) where there is the lowest GP Practice A&E attendance rate (**Figure 13.7**).

¹¹ Kent County Council (nd) Growth and Infrastructure Framework. Available online at https://www.kent.gov.uk/_data/assets/pdf_file/0012/50304/Education-infrastructure-needs-and-requirements-GIF.pdf# [Checked 05/01/18]

Figure 13.7 Primary Healthcare Facilities and A&E Attendance in Thanet



Source: Kent County Council¹²

Recreation Facilities

13.4.17 Reflecting the age structure and levels of deprivation in the District, participation in sport is lower than in Kent, the South East and nationally. The following summary by TDC of provision and quality of recreation facilities across Thanet¹³ also suggests problems with investment:

- ▶ There are 33 play areas across the district. The current level of provision equates to 0.2ha per 1,000 population (below the national recommended standard of 0.8ha per 1,000 population);
- ▶ The quality of these play areas is 'below average';
- ▶ Junior football pitches – insufficient supply;
- ▶ Outdoor tennis courts – poor quality sites, uneven distribution of facilities;
- ▶ Synthetic turf pitches – insufficient quantity and full-size pitch is of poor quality, poor accessibility for residents in Margate, Broadstairs and villages;
- ▶ Five a side pitches – poor accessibility for Broadstairs residents;
- ▶ Skate parks – well-used but in need of some refurbishment/modernisation;

¹² Kent County Council (2013) Thanet Area Health Needs Assessment. Available online at http://www.kpho.org.uk/_data/assets/pdf_file/0020/44660/ThanetCCGHealthNeedsAssessmentv2.compressed.pdf [Checked 05/01/18]

¹³ Thanet District Council (nd) Leisure and Recreation. Available online at <https://www.thanet.gov.uk/publications/planning-policy/planning-obligations-and-developer-contributions/leisure-and-recreation/> [Checked 05/01/18]

- ▶ Changing provision for football and cricket facilities – only ‘average’ standard and significant scope for improvement;
- ▶ A significant deficit of youth facilities locally to accommodate the need generated by housing development in Thanet; and
- ▶ Existing level of provision 0.95ha per 1,000 population of ‘Natural/Semi-Natural’ green space (below the recommended minimum standard set by Natural England of 2ha per 1,000 population).

Business Profile

Working Age Population

13.4.18 Related to its population characteristics, Thanet has a relatively small population of working age compared to Kent and nationally (**Table 13.9**). However, the differences are relatively small (3% to 5%) and need to be placed in the context of the working age population forming the largest proportion of residents in Thanet (see **Table 13.2**).

Table 13.9 Working Age Population by Geography 2014

	Thanet		Kent		England & Wales	
	Number	%	Number	%	Number	%
Males	39,300	58.9%	458,400	61.9%	18,147,900	64.1%
Females	41,700	58.3%	468,100	60.8%	18,249,900	62.7%
Total	81,000	58.6%	926,500	61.3%	46,558,400	63.4%

Source: ONS Mid-Year Estimates

Employment

13.4.19 Unemployment is a problem in Thanet, with worklessness¹⁴ at significantly higher levels than Kent or nationally (**Table 13.10**). Whilst concentrated in the coastal towns and associated with wider social issues (see IMD below), the issue is nevertheless of concern. As at February 2013 the following wards showed out-of-work benefits being received for over 20% of the working age population: Cliftonville West 41.6%; Margate Central 41.1%; Newington 26%; Eastcliff 23.8%; Dane Valley 21.5%; Ramsgate Central Harbour 21%; and Northwood 20.1%.

¹⁴ “Worklessness is difficult to define, but is often researched in terms of the unemployed and economically inactive. The unemployed population ‘are people who are without a job, want a job, have actively sought work in the last four weeks and are available to start work in the next two weeks or are out of work, have found a job and are waiting to start it in the next two weeks’. The economically inactive population are ‘those without a job who have not actively sought work in the last four weeks, and/or are not available to start work in the next two weeks’” source: http://www.neighbourhood.statistics.gov.uk/HTMLDocs/images/Worklessness%20topic%20profile_Final_tcm97-83621.pdf

Table 13.10 Worklessness in People Aged 16 – 64, May 2015

	Thanet District		Kent		England & Wales	
	Number	% of 16-64 age group	Number	% of 16-64 age group	Number	% of 16-64 age group
In receipt of out of work benefits	11,260	13.9%	74,980	8.1%	3,359,280	9.2%
Jobseekers	2,370	2.9%	12,880	1.4%	609,330	1.7%
Those claiming incapacity benefits	7,290	9.0%	49,540	5.3%	2,242,470	6.2%
Lone parents	1,240	1.5%	10,300	1.1%	406,630	1.1%
Others on income related benefits	360	0.4%	2,260	0.2%	100,850	0.3%

Source: DWP Longitudinal Study

Table 13.11 Employment by Occupation 2011

	Thanet		Kent		England	
	Number	% of all people 16-74 in employment	Number	% of all people 16-74 in employment	Number	% of all people 16-74 in employment
All Occupations	55,200		688,434		25,162,721	100%
Managers, directors and senior officials	5,489	9.9%	79,504	11.5%	2,734,900	10.9%
Professional occupations	7,794	14.1%	110,988	16.1%	4,400,375	17.5%
Associate professional and technical occupations	5,669	10.3%	87,041	12.6%	3,219,067	12.8%
Administrative and secretarial occupations	5,717	10.4%	80,621	11.7%	2,883,230	11.5%
Skilled trades occupations	7,174	13.0%	84,252	12.2%	2,858,680	11.4%
Caring, leisure and other service occupations	7,447	13.5%	67,451	9.8%	2,348,650	9.3%
Sales and customer service occupations	5,352	9.7%	58,242	8.5%	2,117,477	8.4%
Process, plant and machine operatives	3,970	7.2%	46,284	6.7%	1,808,024	7.2%
Elementary occupations	6,588	11.9%	74,051	10.8%	2,792,318	11.1%

Source: 2011 Census Table KS608EW

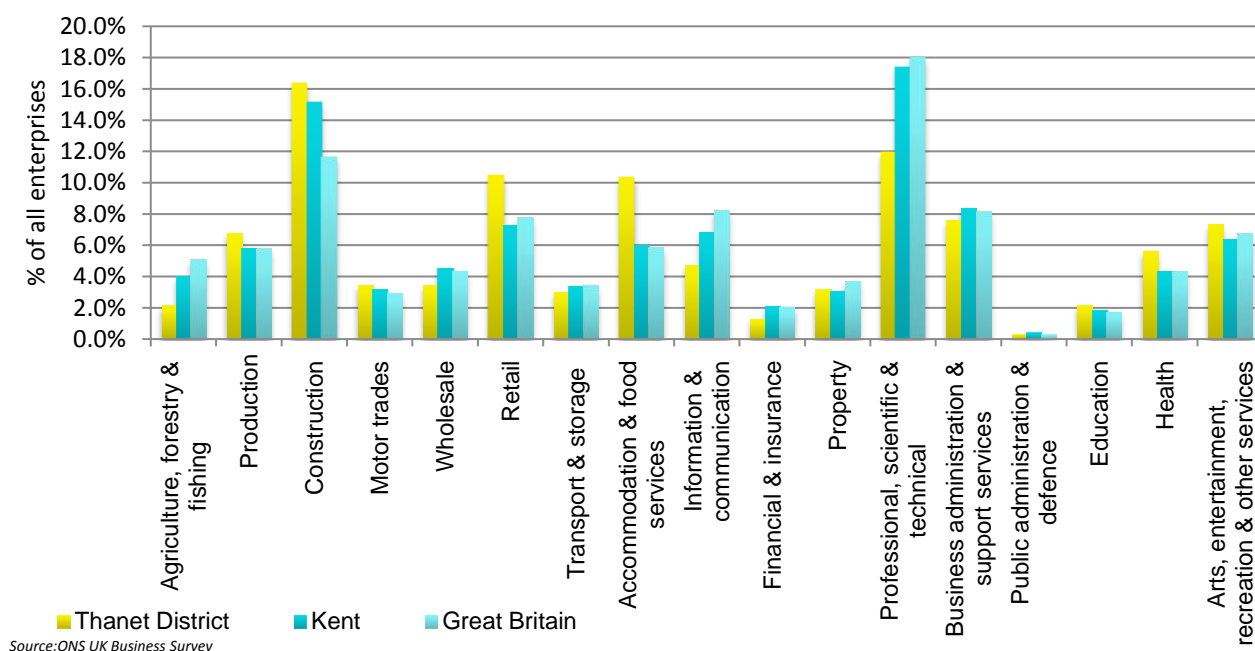
13.4.20 Thanet has 20% fewer managerial, administrative or professional households than the national average (Table 13.11) which translates into the lower proportions of social groups AB and C1 than Kent or nationally (Table 13.12). In turn, this is reflected in the profile of registered businesses (Figure 13.8).

Table 13.12 Proportion of Workers by Social Group and Geography

Social Group	Description	Thanet	Kent	England
AB	Higher & intermediate managerial, administrative, professional occupations	15.88%	22.42%	22.96%
C1	Supervisory, clerical & junior managerial, administrative, professional occupations	29.38%	31.89%	30.92%
C2	Skilled manual occupations	23.59%	22.46%	20.64%
DE	Semi-skilled & unskilled manual occupations, Unemployed and lowest grade occupations	31.14%	23.22%	25.49%

Source: Census 2011

Figure 13.8 Registered Businesses by Geography 2015

Source: Kent County Council¹⁵

13.4.21 The profile shown in **Table 13.12** is also reflected in the average weekly earnings of the district (**Table 13.13**) which are notably lower than those for Kent and nationally.

Table 13.13 Median weekly full-time earnings (£s) - workplace based (2015)

	Thanet District	Kent	Great Britain
Males	451.5	554.3	569.9
Females	374.5	424.3	471.5

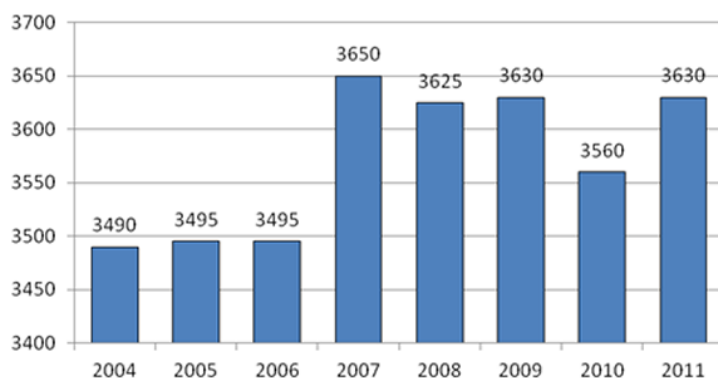
¹⁵ Kent County Council (2015) Registered Businesses by Geography. Available online at www.kent.gov.uk/data/assets/excel/doc/0007/.../District_Profile.xls [Checked 05/01/18]

Total	415.8	504.1	529.0
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Source: NOMIS - Annual Survey of Hours & Earnings

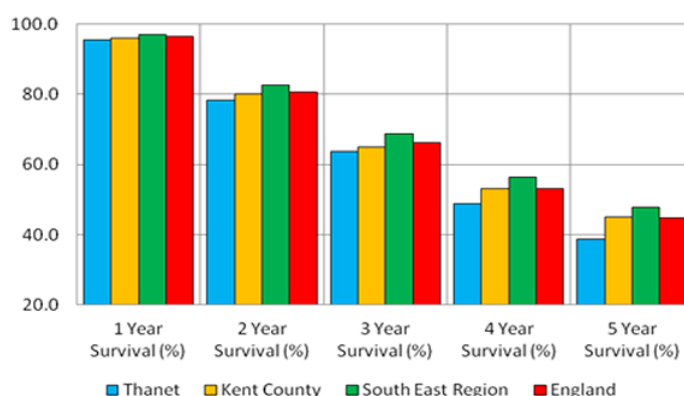
- 13.4.22 ONS data suggests that Thanet has approximately 3,500 VAT-registered businesses, a figure which has remained broadly steady (**Figure 13.9**), although 5-year survival rates are lower than Kent and nationally (**Figure 13.10**).

Figure 13.9 Number of VAT-registered businesses in Thanet 2004 - 2011



Source: ONS¹⁶

Figure 13.10 Five- Year Survival Rates of Businesses by Geography



Source: ONS¹⁷

- 13.4.23 **Table 13.14** summarises the number and type of businesses by postcode, revealing that there a significant number of businesses (532) within the immediate vicinity of the Airport (postcode CT12) and more widely in the surrounding towns of Margate, Ramsgate and Broadstairs, notably in respect of manufacturing, construction, retail, accommodation and other service activities.

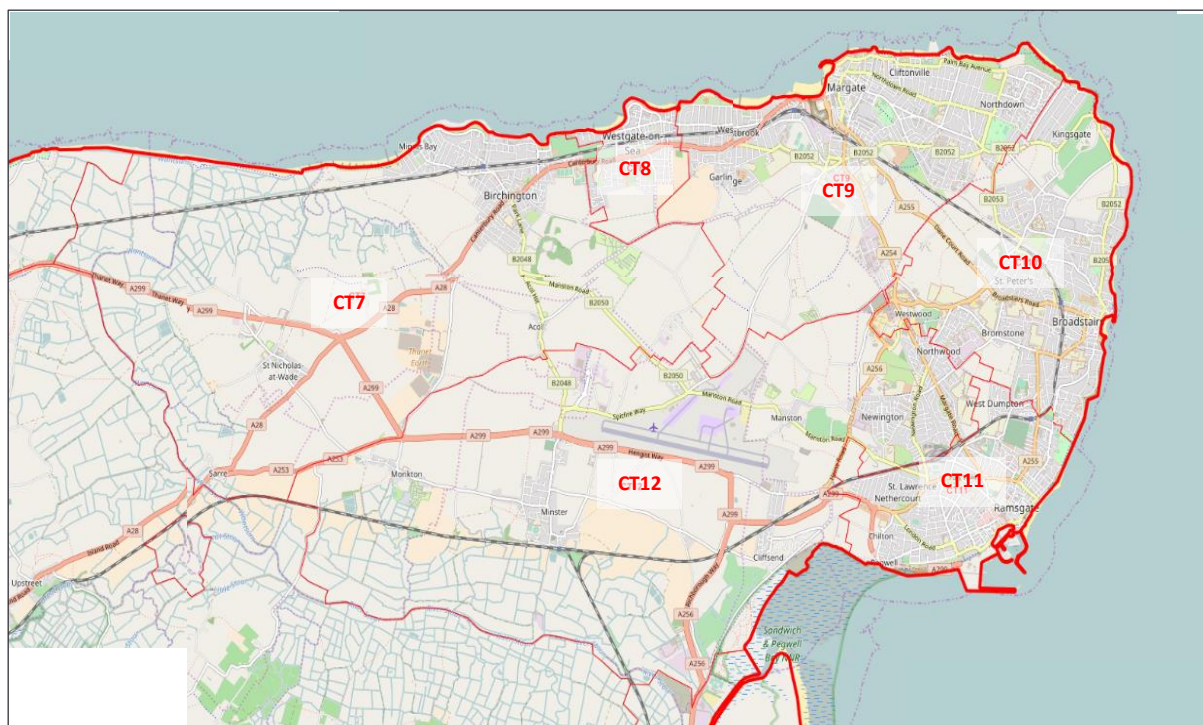
¹⁶ ONS (nd) Number of VAT registered businesses in Thanet 2004-2011. Available online at <http://www.ons.gov.uk/ons/search/index.html?pageSize=50&sortBy=none&sortDirection=none&newquery=business+de+mography+release>

¹⁷ ONS (nd) Five Year Survival Rates of Businesses by Geography. Available online at <http://www.ons.gov.uk/ons/publications/re-reference-tables.html?edition=tcm%3A77-283124>

Table 13.14 Number of Business by SIC Section by Postcode

Standard Industrial Classification (SIC) 2007 Section	Postcode District					Total
	CT08	CT09	CT10	CT11	CT12	
SECTION A AGRICULTURE, FORESTRY AND FISHING	1	19	11	6	17	54
SECTION B MINING AND QUARRYING	0	0	0	0	2	2
SECTION C MANUFACTURING	9	81	55	48	55	248
SECTION D ELECTRICITY, GAS, STEAM AND AIR CONDITIONING SUPPLY	0	3	1	1	0	5
SECTION E WATER SUPPLY; SEWERAGE, WASTE MANAGEMENT AND REMEDIATION ACTIVITIES	0	4	7	0	2	13
SECTION F CONSTRUCTION	19	155	116	91	76	457
SECTION G WHOLESALE AND RETAIL TRADE; REPAIR OF MOTOR VEHICLES AND MOTORCYCLES	34	232	211	160	102	739
SECTION H TRANSPORTATION AND STORAGE	5	34	21	25	30	115
SECTION I ACCOMMODATION AND FOOD SERVICE ACTIVITIES	17	156	113	110	43	439
SECTION J INFORMATION AND COMMUNICATION	9	44	39	51	18	161
SECTION K FINANCIAL AND INSURANCE ACTIVITIES	4	21	14	11	8	58
SECTION L REAL ESTATE ACTIVITIES	11	43	36	30	5	125
SECTION M PROFESSIONAL, SCIENTIFIC AND TECHNICAL ACTIVITIES	18	79	65	57	34	253
SECTION N ADMINISTRATIVE AND SUPPORT SERVICE ACTIVITIES	12	71	62	44	41	230
SECTION O PUBLIC ADMINISTRATION AND DEFENCE; COMPULSORY SOCIAL SECURITY	1	5	1	4	1	12
SECTION P EDUCATION	10	47	42	44	22	165
SECTION Q HUMAN HEALTH AND SOCIAL WORK ACTIVITIES	30	122	78	61	26	317
SECTION R ARTS, ENTERTAINMENT AND RECREATION	5	68	29	35	11	148
SECTION S OTHER SERVICE ACTIVITIES	12	109	79	93	36	329
SECTION T ACTIVITIES OF HOUSEHOLDS AS EMPLOYERS; UNDIFF GOODS-AND SERVICES	8	23	16	22	2	71
SECTION U ACTIVITIES OF EXTRATERRITORIAL ORGANISATIONS AND BODIES	0	1	0	0	1	2
Total	205	1,317	996	893	532	3,943

Source: Experian B2B Prospector



13.4.24 The Thanet Economic and Employment Assessment¹⁸ summarises the various socio-economic characteristics of Thanet and assesses the implications for economic development. In general, Thanet has a diverse economy with a still appreciable but declining manufacturing base offset by growth in the service sector including finance and real estate. Notable differences from UK averages are a lower proportion of firms in the knowledge economy and slightly higher numbers of both high growth firms and low growth firms.

a. *“Thanet’s growth is currently below that of the South East and more in line with the UK as a whole*

b. Thanet's business base is largely located in urban areas

There are some 5,000 businesses within Thanet. This figure is significantly higher than ONS data which suggests that there were 3,560 businesses in 2010. Around 80% of the companies identified in Thanet are single site. Around 13% are companies with headquarters in Thanet and multiple sites either in Thanet or elsewhere.

January 2018

- c. *Home-working is relatively high in the district and is particularly popular in Margate and Ramsgate*

A relatively high proportion of the businesses, particularly in 'urban wards' are home based. They account for over 5% of businesses, ranking Thanet in third place in Kent only behind Canterbury and Tunbridge Wells. In addition, around 9.4% of the working population in the district are home-based. In particular, Margate and Ramsgate have high proportions of home-based businesses.

- d. *Key sectors within the business base include wholesale and retail and construction*

Wholesale and retail and construction business comprise a quarter of all businesses. The next largest sectors are other service activities, accommodation and food services, followed by professional, scientific and technical and admin and support services.

- e. *Tourism & green sectors, comprise a sizeable proportion of total businesses*

There are over 530 businesses within the tourism sector representing 11% of the business base. Around 80 businesses have been identified in the primary green sector and 280 businesses in the broader secondary green sector. Combined, they represent 7% of the business base. Green businesses are more likely to be located in rural areas than other sectors, particularly secondary green sector businesses.

- f. *Businesses within the knowledge intensive sectors comprise a smaller proportion of the total than elsewhere*

Thanet, despite its low base, has experienced strong growth within the knowledge intensive sectors over the last decade. Proportionally however, there still remain fewer businesses within knowledge intensive sectors in the district than other areas of Kent. At 18%, the proportion of knowledge intensive businesses compares to the England average of 23% per cent and the South East as a whole of 27%. The local economy in Thanet has been shown to be dominated by manufacturing with this sector representing 50% of the key commercial sectors in Thanet which mainly include: Transport and Logistics, Retail and Wholesale and Engineering.

- g. *Historically the district has had just above average proportion of growth firms, but growth potential is lower*

Within the UK, growth firms which have experienced employment growth of five per cent or more over the last three years account for 7% of businesses, in Thanet they account for slightly more – 8%. The proportion of low growth or declining firms is however also higher at 8% compared to 7% within the UK. In terms of growth potential, Thanet is broadly in line with the UK, particularly for high growth potential.

- h. *Exporting potential is much lower in Thanet than the UK*

Businesses that export make up only a small proportion of the UK economy yet are a key component of the growth strategy for the UK. Thanet is in line with the UK in terms of its current exports.

- i. *A significant amount of land is available for development in Thanet but there is strong competition from elsewhere in Kent*

The Employment Land Review (2010) for Thanet revealed that the total amount of employment floorspace is the second lowest in the East Kent with only Shepway having less, however overall stock has been increasing, particularly office and warehousing with the amount of factory space decreasing. In April 2008 there was approximately 100,000m² office floorspace, 335,000m² of factories and 155,000m² warehousing space. The total amount of employment floorspace is the second lowest out of the East-Kent Districts, with only Shepway having less. The amount of Office floorspace in Thanet is also lower than the other districts, with office accounting for only 17% of the stock in the district. Factories account for 56% and warehouses 26%. The document also concludes that the age and quality of the employment building stock is highly dated with only 3% of the office stock being built post 1980.

- j. *An additional 3,100 jobs are likely to be created over the next two decades in Thanet with continued growth in the service sectors and declines within manufacturing*

Net growth of £700 million in output over the next two decades is likely, taking the total to over £2 billion in 2031. The biggest growth will be in construction of buildings (net growth of £90

million), health (net growth of £90 million) and real estate (net growth of £70 million). The manufacturing sectors will experience the greatest losses, although these are not predicted to be as significant as the employment declines in these sectors pointing to enhanced productivity.

k. Caring, leisure and other service occupations will grow strongly, alongside professional occupations in which Thanet is currently under-represented

There will be a strong growth in the caring, leisure and other service occupations, as well as strong growth within the professional occupations. Based upon the existing occupation and skills profile this suggests that there could be challenges in ensuring that local residents are able to maximise the potential. This is particularly the case within professional services, in which Thanet is under-represented compared to the region and England.”

Tourism Profile

13.4.26 Tourism currently accounts for around 3,800 jobs across Thanet and is concentrated in the coastal towns of Margate, Broadstairs and Ramsgate. There are over 530 businesses across the district, representing 11% of the business base and 9% of total employment (compared to around 8% for the South East as a whole)¹⁹. The tourism and leisure sector is identified as one of a suite of opportunity sectors for Kent.²⁰

13.4.27 The profile of visitors to Thanet is as follows²¹:

- ▶ 3.1 million visitors per year;
- ▶ 75% are day visitors;
- ▶ 66% are adult-only couples & groups - higher in Ramsgate, lower in Broadstairs;
- ▶ Most are from the UK – less than 10% come from overseas;
- ▶ By far the strongest reason to visit is the seaside/beaches;
- ▶ Most travel by car;
- ▶ Most visit in the summer – with a significant peak in August; and
- ▶ New attractions include the Turner Gallery in Margate which between April 2011 and April 2014 received 1.2 million visitors, contributing £30m to the local economy and supporting 130 jobs.

13.4.28 **Table 13.15** details the number of tourism-related business in postcodes within the vicinity of the airport (see also **Figure 13.11** for a map showing the postcode areas).

Table 13.15 Number of Tourism-Related Business by SIC Section by Postcode

Standard Industrial Classification (SIC) 2007 Section	Postcode District					Total
	CT08	CT09	CT10	CT11	CT12	
SECTION I ACCOMMODATION AND FOOD SERVICE ACTIVITIES	17	156	113	110	43	439
SECTION R ARTS, ENTERTAINMENT AND RECREATION	5	68	29	35	11	148
Total	22	224	142	145	54	587

Source: Experian B2B Prospector

¹⁹ Experian / Thanet District Council (2012) Economic and Employment Assessment. Available online at <https://www.thanet.gov.uk/media/2326613/Thanet-Economic-and-Employment-Assessment-2012.pdf> [Checked 05/01/18]

²⁰ South East Local Enterprise Partnership (2014) South East LEP: Growth Deal and Strategic Economic Plan 2014. Available online at <http://www.southeastlep.com/strategic-economic-plan> [Checked 05/01/18]

²¹ Thanet Visitor Survey 2010 & Visit Kent DMP Research 2012

13.4.29

Thanet's Draft Economic Growth Strategy²² identifies the 'heritage, culture and visitor economy' as a sector with growth potential, with the ambition to "rebuild our reputation as the UK's favourite visitor destination" which might be achieved through²³:

- ▶ "Support for the sector at a strategic level within local policy and planning is key to unlocking the growth opportunities;
- ▶ Identification and targeting of those businesses which have real growth potential within the business base and providing them with the support and guidance required to grow further;
- ▶ The expansion and development of transport infrastructure namely Manston Airport will further boost the tourism sector enhancing access to the area; and
- ▶ Positive Planning to unlock opportunities – identifying and supporting the development of key sites e.g. development of Dreamland to raise the quality of the tourism offer attracting a more affluent / active population. In line with this, there is also a need for quality accommodation and hotel provision."

13.4.30

These approaches sit within the county-wide strategy of the Kent & Medway Tourism Development Framework which seeks to:

- ▶ "Help existing businesses improve their performance and develop further, in line with evolving market requirements;
- ▶ Identify, encourage and support additional visitor economy businesses and facilities that will enhance Kent's attractiveness as a destination and increase market penetration, particularly through generating more staying visits;
- ▶ Make the most of opportunities for visitor economy development afforded by on-going investment in regeneration programmes and projects;
- ▶ Focus on local distinctiveness to enable Kent and its individual destinations to stand out from the crowd but also combine to offer a range of complimentary offers to potential visitors;
- ▶ Ensure that key public and private sector players work together as effectively as possible towards achieving agreed tourism development priorities;
- ▶ Improve the skills of people who work in Kent's tourism industry and the quality of welcome and service received by visitors; and
- ▶ Deliver and sustain a quality tourism product for visitors."

13.4.31

At the local level, the specific intention²⁴ is that there should be effort to:

- ▶ "Deliver quality experiences for existing markets, develop new experiences to grow market share and attract new higher spending visitors looking for short-breaks;
- ▶ Present the three towns more strongly together, playing to the strengths of each and making it easy for the visitor to explore along the coast and to get around;
- ▶ Invest in the experience of its beaches, Thanet's strongest natural assets – their development and management;

²² Thanet District Council (2016) Economic Growth Strategy for Thanet. Available online at <https://www.thanet.gov.uk/media/3656760/Thanet-Economic-Growth-Strategy.pdf> [Checked 05/01/18]

²³ Experian / Thanet District Council (2012) Economic and Employment Assessment. Available online at <https://www.thanet.gov.uk/media/2326613/Thanet-Economic-and-Employment-Assessment-2012.pdf> [Checked 05/01/18]

²⁴ Thanet District Council (2013) Thanet Destination Management Plan. Available online at <https://www.thanet.gov.uk/publications/destination-management-plan/thanet-destination-management-plan/> [checked 05/01/18]

- ▶ Prioritise investment in new quality character accommodation to enable Thanet to grow the short break market - to achieve longer stays and higher spend;
- ▶ Make more of its location – the Isle, the big skies, the natural coastline and importantly its proximity to London by high-speed train and the market opportunities that brings; and
- ▶ Stimulate the environment to encourage investment in new quality visitor attractions, visitor experiences and places to stay.”

Future baseline

13.4.32 For the purposes of the ES it is not expected that the future socio-economic baseline will significantly change.

13.5 Environmental measures incorporated into the proposed development

13.5.1 This section lists the environmental measures relevant to socio-economics which have been incorporated into the design of the Proposed Development.

13.5.2 How these environmental measures influence the assessment of significance is discussed in **Section 13.6**. However, the broad approach adopted is that where achievable and agreed environmental measures have been incorporated into the design, the effect that those environmental measures have on the likely significant effects is taken into account during this assessment. In some cases, a potential effect may require no further consideration following incorporation of appropriate environmental measures and, if this is the case, this has been stated.

13.5.3 A summary of the environmental measures that have been incorporated into the proposals to date in order to avoid, reduce or compensate for likely significant adverse socio-economic effects is provided below in **Table 13.16**.

Table 13.16 Rationale for the incorporation of environmental measures

Potential receptor	Predicted changes and potential effects	Incorporated measures
Local population	<ul style="list-style-type: none"> • Disruption to the local road network during construction impacting on amenity and access to services. • Noise and dust during construction impacting on local amenity and health. • Aircraft noise and traffic during operation impacting on local amenity and health. 	<ul style="list-style-type: none"> • Carefully designed programme of traffic management to minimise disruption. • Noise and dust control during construction. • Noise and traffic control measures during operation.
Local businesses	<ul style="list-style-type: none"> • Disruption to the local road network during construction impacting on employee and customer access. • Aircraft noise and traffic volumes during operation impacting on employees and customers. 	<ul style="list-style-type: none"> • Carefully designed programme of traffic management during construction to minimise disruption. • Aircraft noise and traffic control during operation.
Tourism	<ul style="list-style-type: none"> • Disruption to the local road network during construction impacting on employee and visitor access. • Aircraft noise during operation impacting on amenity. 	<ul style="list-style-type: none"> • Carefully designed programme of traffic management to minimise disruption. • Aircraft noise control during operation.

13.6 Scope of the assessment

- 13.6.1 This section sets out information on:
- 13.6.2 the process whereby receptors are identified;
- 13.6.3 the potential receptors that could be affected by the Proposed Development; and
- 13.6.4 the likely effects on receptors that could be caused by the construction and operation of the Proposed Development.
- 13.6.5 The scope of assessment has been informed by:
- 13.6.6 the scoping study;
- 13.6.7 consultee responses to the Scoping Report and the 2017 PEIR;
- 13.6.8 the results of the work detailed in **Section 13.4**; and
- 13.6.9 the proposed scheme design.

Approach to identifying receptors

- 13.6.10 The identification of receptors is based on relevant guidance and the professional judgement of a qualified technical specialist who has undertaken a desk study for the site location.
- 13.6.11 In some cases, even without quantified information, it is reasonable to assume that some potential receptors will not experience significant effects. This is sometimes the result of tried and trusted mitigation measures that have been incorporated into the Proposed Development design, which might reasonably be expected to be effective (see **Section 5.5**).
- 13.6.12 The following considerations have been taken into account in identifying potential receptors:
- ▶ The extent to which the receptor will be affected by changes that are expected to result from the Proposed Development;
 - ▶ The sensitivity of the receptors to the changes that are likely to occur;
 - ▶ The likely magnitude, duration and other characteristics of the effects;
 - ▶ The importance or value of the receptor at a local, regional and national level; and
 - ▶ Relevant best practice and guidance where specialist methodologies have been developed as detailed below.

Potential receptors

- 13.6.13 This section identifies the potential receptors that have been identified based on the above factors and on the Scoping Opinion received from PINS. The receptors listed in **Table 13.17** are considered capable of being likely to be significantly affected and will therefore be taken forward for further assessment within the ES.

Table 13.17 Potential receptors

Receptor	Distance from site	Reason for selection
Local population	<5km	Effects on the local community from temporary and permanent health, amenity and population-related changes to the environment such as disruption, noise and dust from increased road traffic, and demand for local services and resources. The approach to assessing such effects will take into account work in other environmental disciplines

Receptor	Distance from site	Reason for selection
		(such as assessments of impacts on landscape and visual, transport and noise) in order to draw conclusions.
Local businesses	<5km	Effects on local business (other than those specifically related to tourism) during construction, such as due to noise, disruption and temporarily increased demand locally, and during operation from more permanent effects such as noise from aircraft operations, changes in traffic patterns and greater business activity related to the airport.
Tourism	Thanet District and Kent County	Effects such as noise and traffic congestion on tourism receptors within the immediate vicinity of the airport, settlements nearby (notably the coastal resorts of Ramsgate, Broadstairs and Margate) and other potentially affected tourist receptors in the wider area (e.g. Canterbury).
Local and Regional Economies	Thanet District and Kent County	Effects on the local and regional economy resulting from construction such as additional employment and purchases of goods and services. Effects during operation include additional permanent employment and other effects resulting from additional demand for services from local, regional and national supply chains.

Spatial and temporal scope

- 13.6.14 The scope of assessment of socio-economic effects is defined spatially in terms of the geographic areas of Thanet, Kent County and the UK. Temporally, the scope covers construction, operation and decommissioning phases.

Likely significant effects

- 13.6.15 The likely significant effects from the Proposed Development, which are subject to further discussion in this chapter, are summarised below:
- ▶ Local communities: disruption from traffic during construction and operation and ongoing amenity (noise, traffic and population-related) effects;
 - ▶ Businesses: disruption from traffic during construction and operation;
 - ▶ Local communities: additional burden on local services such as education, health and recreation;
 - ▶ Tourism: ongoing amenity (noise, traffic and population-related) effects in specific localities; and
 - ▶ Local and regional economies: job and training opportunities.

13.7 Assessment methodology

Methodology for predicted effects

- 13.7.1 There is no definitive guidance on significance criteria for socio-economic effects and accordingly the assessment draws on existing good practice. The assessment methodology should be read in conjunction with the scope of the socio-economic assessment which is outlined above.
- 13.7.2 The significance of a socio-economic effect has been determined by assessing both the magnitude of the effect and the sensitivity of the receptor. The magnitude of an effect represents its severity with key factors to be considered including the extent (number of groups and/or people, households or businesses affected) and the value of the resource. **Table 13.18** details the guideline criteria for assessing the effect magnitude. Some receptors will experience direct effects (such as through the construction of the Proposed Development), but the majority are likely to experience indirect effects.

- 13.7.3 There are no published socio-economic standards that define receptor sensitivity or magnitude. The definitions in **Tables 13.18** and **13.19** have been developed and applied to the socio-economic assessment and are based on professional judgement and best practice for NSIPs.

Table 13.18 Magnitude of Effect

Magnitude of Effect	Criteria
High	An effect that will dominate over baseline conditions, and/or will be very likely to affect large numbers of businesses and/or people (number depending on the local context) and/or persists over many years.
Moderate	An effect that can be demonstrated to change the baseline conditions and likely to affect a moderate number of businesses and/or people (number depending on the local context) and/or of medium duration.
Low	An effect that will result in a perceptible difference from baseline conditions and is likely to or may affect a small number of businesses and/or people (number depending on the local context) and/or is of short duration.
Negligible	An effect that does not result in a variation beyond the baseline conditions and/or is unlikely to measurably affect the well-being of businesses and/or people.

- 13.7.4 The assessment considers both economic and social resources. The framework set out in **Table 13.18** is suitable for assessing direct effects such as an increase in job opportunities associated with activity at the Proposed Development.

- 13.7.5 The sensitivity of a receptor relates to the potential for a receptor to resist or overcome an effect. The criteria for sensitivity are the same for both direct and indirect amenity effects, as set out in **Table 13.19**.

Table 13.19 Receptor Sensitivity

Receptor Sensitivity	Criteria
Very High	The receptor is of international importance and/or has little or no ability to absorb change and/or recover or adapt to the change and/or is used by sensitive groups such as older people, children, and people of poor health.
High	The receptor is of national importance and/or has little ability to absorb change and/or recover or adapt to the change and/or is used by sensitive groups such as older people, children, and people of poor health.
Moderate	The receptor is of regional or local importance and/or has medium ability to absorb change and/or recover or adapt to the change and/or is used by sensitive groups such as older people, children, and people of poor health.
Low	The receptor is of local importance and/or has some ability to absorb change and/or recover or adapt to the change and/or is used by sensitive groups such as older people, children, and people of poor health.
Very Low	The receptor is of local importance and/or is able to absorb change and/or recover or adapt to the change and is not specifically for the use by sensitive groups such as older people, children, and people of poor health.

- 13.7.6 Sensitivity is a key dimension to the assessment of amenity effects. Key receptors are likely to be community resources, tourism resources and specialised manufacturing which are sensitive to noise and/or vibration effects. When a resource is considered to be sensitive to amenity effects and has a high or medium magnitude, the overall effect is considered to be significant.

Significance evaluation methodology

- 13.7.7 The likely significance of a socio-economic effect is determined by combining the magnitude of the effect with the sensitivity of the receptor. **Table 13.20** sets out the approach to determining significance.
- 13.7.8 All of the assessments below have been compiled for the purposes of the PEIR and provide a high-level assessment of potential effects on the identified socio-economic receptor categories. Further detail will be provided in the ES.

Table 13.20 Determining Significance

Sensitivity of Receptor	Magnitude of Effect			
	High	Moderate	Low	Negligible
Very High	Major adverse/ beneficial – significant	Major adverse/ beneficial - significant	Moderate adverse/ beneficial - significant	Minor adverse/beneficial – significant
High	Major adverse/ beneficial – significant	Major adverse/ beneficial - significant	Moderate adverse/beneficial - significant	Negligible – not significant
Moderate	Major adverse/ beneficial – significant	Moderate adverse/ beneficial - significant	Minor adverse/ beneficial – significant	Negligible adverse/beneficial - not significant
Low	Moderate adverse/ beneficial – significant	Minor adverse/beneficial – significant	Negligible adverse/beneficial - not significant	Negligible adverse/beneficial - not significant
Negligible	Minor adverse/beneficial – significant	Negligible adverse/beneficial - not significant	Negligible adverse/beneficial - not significant	Negligible adverse/beneficial - not significant

13.8 Assessment of effects on local businesses

Construction phase effects

- 13.8.1 The predicted effects are centred on disruption to the local road network during construction impacting on employee and customer access to local businesses. Lorry traffic associated with phase 1 earthworks construction is estimated²⁵ to be 72 HGV movements/day with a total of 30,456 movements (each movement is one arrival or departure to or from site). Other HGV construction traffic flow during phase 1 is estimated at 132 movements per day. In addition, there are 210 movements per day of light vehicles primarily related to the workforce arriving and departing each

²⁵ PEIR Chapter 3 para 3.2.75 – 3.2.107. Construction Phase 1: Spring 2019-2020; Phase 2: Spring 2020-Spring 2023; Phase 3: Spring 2023-Spring 2030; Phase 4: Spring 2030-Spring 2036

day. The number of HGV traffic movements during subsequent phases (2 - 4) falls from 204 per day to 176 per day while the number of movements of light vehicles stays the same.

- 13.8.2 The worst case for effects from transport throughout the construction and operational phases is the operational traffic in 2039 (see **Chapter 14**). The effects on businesses during the construction period are expected to be minimal as the greatest increases in HGV traffic are on the A299 dual carriage to the west, and on the perimeter road leading to the A299 from the site (see **Table 14.15** in **Chapter 14**). Only the perimeter road is deemed sensitive to delay and severance, but these effects will be mitigated through road widening, a pedestrian route and a new crossing. Environmental measures to mitigate direct effects also include implementation of a pattern of lorry movements. The magnitude of this effect is considered to be low, and the sensitivity of the receptor also low with an overall **negligible adverse effect - Not Significant (Table 13.22)**.
- 13.8.3 Positive effects result from increased income generated from construction employees spend on accommodation and food, as well as potential income for local construction and supply companies, in turn providing employment opportunities. The magnitude of this effect is considered to be low, and the sensitivity of the receptor moderate with an overall effect of **minor beneficial - Significant (Table 13.22)**.

Operational phase effects

- 13.8.4 Positive effects are related to employment generation and additional valued added economic effects and are categorised as direct, indirect, induced and catalytic in nature²⁶. The employment from direct, indirect, induced effects is estimated to lead to 9,333 jobs by 2030 and 13,241 by 2038, of which the number of direct jobs (mainly on-site) is 3,011 in 2030 and 4,271 by 2038. Catalytic jobs are associated with more general growth and are inherently difficult to estimate but could add over 12,000 additional jobs by 2030 and over 17,000 by 2038²⁷.
- 13.8.5 The direct economic effects result from a diverse range of activities at the airport, including activities by the airport operator, the airlines, airport air traffic control, general aviation, ground handlers, airport security, immigration and customs, aircraft maintenance, and other activities at the airport.
- 13.8.6 Indirect economic effects relate to the supply of goods and services to the airport such as wholesalers providing food for in-flight catering, oil refining activities for jet fuel, companies providing accounting and legal services to airlines, and companies servicing customers with travel needs for flights or shipping.
- 13.8.7 Induced and catalytic effects result from spend by employees on goods and services in the locality and beyond, and the creation of wider business and therefore employment opportunities as a result

²⁶ **Direct:** Employment associated with the operation and management of activities at the airport. This includes the jobs created by the airport operator as well as other airport-related businesses located elsewhere on or near the airport site. These other businesses include airlines, general aviation, handling agents, airport security, immigration and customs, retail and food concessions, aircraft maintenance, and a range of other activities at the airport. **Indirect:** Employment in the supply chain such as wholesalers providing food for inflight catering, aviation fuel supply, travel agents, cleaning and maintenance contractors, construction, and accounting and legal services. **Induced:** This category covers the employment created directly or indirectly as a result of those connected to the airport spending their income in the local or national economy. Induced employment therefore includes a wide range of jobs such as retail, entertainment, childcare, health care, building and home renovations for example. **Catalytic:** Catalytic impacts, also known as Wider Economic Benefits, are associated with the aviation sector. Air transportation facilitates employment and economic development in the local and national economy and jobs in this category therefore capture a wide range of opportunities. For example, air transport contributes to tourism and therefore impacts tourist spending in the economy. Air transport also impacts trade, facilitating the import and export of goods by air and therefore their manufacture and distribution, as well as productivity. Air transport also positively impacts location and business decisions by other organisations and stimulates innovation, thereby having a long run impact on productivity and GDP.

Source: Azimuth Associates (2017) **Manston Airport: A National and Regional Aviation Asset - Volume IV, The economic and social impacts of airport operations**

²⁷ Table 3, Azimuth Associates (2017) **Manston Airport: A National and Regional Aviation Asset - Volume IV, The economic and social impacts of airport operations**

of airport operations. The magnitude of this effect is considered to be high and the sensitivity of the receptor moderate with an overall effect of **major beneficial - Significant (Table 13.22)**.

- 13.8.8 The negative effects from operational pressures on the local road network from freight HGV movements and other traffic is worst in 2039 (see **Chapter 14**). The effects are described above in paragraph 13.8.2 and are assessed as not significant. In addition, aircraft noise, which is assessed in **Chapter 12**, provides noise contours which illustrates that noise levels meet recommended standards or can be mitigated for the areas that are most exposed to increases. The effects of disruption on the population is dependent on ongoing work on health effects and is not assessed here (**Table 13.22**).

Decommissioning phase effects

- 13.8.9 Decommissioning effects are not considered as the airport is expected to operate in perpetuity.

Combined effects

- 13.8.10 These effects are centred on the synergies associated with greater economic activity, with businesses benefitting from both increased demand for their services and opportunities to diversify their services. Negative combined effects are estimated to be minimal and arise from patterns of traffic and transport which are mitigated with environmental measures. More detail on estimated effects is provided in the Traffic Assessment undertaken in support of **Chapter 14**.

13.9 Assessment of effects on local communities

Construction phase effects

- 13.9.1 The following communities lie within the immediate vicinity of the Airport (up to 1km away): Manston, Monkton, Acol, Minster, Cliffsend, Alland Grange Lane and Woodchurch. In addition, there are small groups of residential properties and individual properties. These include:
- ▶ properties at Bell Davies Drive and Esmonde Drive to the north;
 - ▶ properties at the southern end of Manston Court Road to the east of the airport;
 - ▶ properties on the north side of the B2190 (Spitfire Way);
 - ▶ properties on the northwest side of the B2050 (Manston Road);
 - ▶ properties along either side of Manston Court Road;
 - ▶ properties at the southern end of Manston High Street; and
 - ▶ those parts of Cliffsend adjacent to Canterbury Road West.
- 13.9.2 All of these properties are immediately adjacent to the site of the Proposed Development.
- 13.9.3 For local residents, the following effects during construction are estimated:
- ▶ Disruption to the local road network. The effects during construction are described by the worst case for operational traffic in 2039 as explained in **paragraph 13.8.2** above. The principal changes are increases in the number of movements of HGVs to the west related to construction traffic, and in movements of other vehicles in the roads to the north of the site primarily related to the arrival and departure of the on-site workforce. The receptors which are assessed as sensitive will see increases in total traffic of between 16% and 38%. Of these, one receptor (B2190, Spitfire Way) has an increase in HGV traffic of 31% and the others an increase of 1% or less (see **Table 14.15** in **Chapter 14**). Environmental measures to mitigate direct effects include road widening, a pedestrian route and new crossing on Spitfire Way and patterns of traffic management. Detailed consideration of likely road traffic effects is set out in **Chapter 14**.

- ▶ Noise and dust during construction affecting local amenity and health. Noise associated with construction and traffic will have a minor/moderate effect on dwellings in the vicinity of the Airfield on B2190 (Spitfire Way). The effects are likely to be significant but have the possibility of further mitigation as discussed in **Chapter 12**. The effects of dust during construction are the subject of a future risk-based construction dust assessment which will be carried out []. Noise and dust are also addressed as potential health pathways and the sensitivity of the receptor is assessed as high. Detailed consideration of noise, air quality and health effects is set out in **Chapter 12, Chapter 6** and **Chapter 15**. As the magnitude and significance of health effects is the subject of ongoing work, no assessment is provided in this PEIR. Further details will be provided in the ES (**Table 13.22**).

13.9.4 Additional burdens are placed on local service provision particularly primary care health services by construction workers through accident or injury. The magnitude of these is likely to be low reflecting the relatively small projected workforce and use of modern health and safety site practices during the construction phase. There is general pressure on health services due to the low levels of health in Thanet and the sensitivity of the receptor is therefore assessed as high, resulting in overall significance of **Moderate Adverse – Significant (Table 13.22)**.

Operational phase effects

13.9.5 For local residents, there are the following effects:

- ▶ Traffic related noise and disruption impacting on local amenity and health. Negative effects from operational pressures on the local road network from freight HGV movements and other traffic is assessed according to the worst case when the Airport is fully developed in 2039. The effects are described above in **paragraph 13.9.3** and are assessed as moderate adverse. Detailed consideration of effects due to traffic is set out in **Chapter 14, Chapter 12** and **Chapter 6**.
- ▶ Noise associated with operations related to aircraft. Negative impacts include airborne noise related to use of specific air routes and ground-based noise related to maintenance, supporting activities and other ancillary operations at the airfield. Environmental measures for mitigation includes selection of routes, controls on flight times and the siting and orientation of buildings. Detailed consideration of aircraft-related noise effects is set out in **Chapter 12**.

13.9.6 The significance of these effects varies considerably according to location and sensitivity of the receptor. As the magnitude and significance of health effects is the subject of ongoing work, no assessment is provided in this PEIR. Further detail will be provided in the ES (**Table 13.22**).

13.9.7 The jobs at the Airport can be met by a population which has appreciable spare capacity as a result of higher than average levels of unemployment, 'draw-back' of a workforce currently commuting out of the area, and the possibility of increased participation rates as more people choose to re-enter the workforce to take up the opportunities created at the Airport. It is estimated that the demand for labour of approximately 12,000 jobs is almost exactly matched by the potential supply from these sources.

13.9.8 The majority of the operational workforce are expected to be from the local community and already resident in the area²⁸. They will be participating in the local economy and making use of local services. Because the local population will not increase due to additional in-migration of new workers, there will not be additional pressures from a new burden on local community services such as schools, health and recreation. The impact on the housing market is also limited both because the expected workforce is already resident in the area and local authority plans indicate there is a substantial potential supply of land for housing development. There is also substantial potential supply of employment land²⁹. As a result, there are no impacts expected on the local communities from additional demand.

²⁸ Employment and Housing Land Technical Report, (RiverOak Strategic Partners, December 2017)

²⁹ Employment and Housing Land Technical Report, (RiverOak Strategic Partners, December 2017)

- 13.9.9 The health effects for the community include the benefits accruing to a more active local workforce (economic impacts are considered separately below) as well as other effects identified in **Chapter 15**. As the population is already resident, the effects on health and on health services result from a change in types of effects. The significance of effects depends primarily on the types of new activities, the particular localities and affected populations. As the magnitude and significance of health effects is the subject of ongoing work, no assessment is provided in this PEIR but will be provided in the ES (**Table 13.22**).

Decommissioning phase effects

- 13.9.10 Decommissioning effects are not considered as the airport is expected to operate in perpetuity.

Combined effects

- 13.9.11 The effects on local communities are centred principally on the effects of change in the types and levels of activities at and near the airport on the local population. The different effects from these activities often affect the same receptors. Mitigation measures can also reduce more than one type of effect, such as where traffic plans affect both air and ground transport scheduling. Potential combined effects on socio-economic receptors also need to be judged in the context of the detailed findings of **Chapter 14**, **Chapter 12**, **Chapter 6**, and **Chapter 15**. Further information will be provided on combined effects in the ES.

13.10 Assessment of effects on tourism

Construction phase effects

- 13.10.1 Tourism receptors in the vicinity of the Airport (up to 5km) may experience effects resulting from the increased population and activity in the geographical area in both construction and operational phases as a result of the Proposed Development.
- 13.10.2 This may include potential demand for temporary accommodation from construction workers which may affect tourism. The effects of transport disruption are localised and are not considered to affect tourism (see **Chapter 14**). The increased population passing through the nearby area and the increased income in the local workforce will add to the potential tourist activity but the level is uncertain and is likely to be small compared to existing levels of tourist activity. The magnitude of net effects is considered to be low, and the sensitivity of the receptor low; therefore, it is considered that these effects will be **negligible adverse - Not Significant** (**Table 13.22**).

Operational phase effects

- 13.10.3 The operational effects of traffic and noise (surface and air) are the main factors affecting amenity related to tourism. The increase in surface traffic is small compared to existing flows and the levels of noise increase are small in comparison to existing levels at the most exposed locations which include the centre of Ramsgate, the port and the main beach (see **Chapter 12**). The slight rises expected due to aircraft noise is not expected to significantly affect tourism businesses in the urban area. Other beaches in Kent are expected to experience no equivalent effect of noise as the changes are minimal. As the magnitude and significance of health effects is the subject of ongoing work, no assessment is provided in this PEIR but will be provided in the ES. (**Table 13.22**).
- 13.10.4 For tourism businesses within the surrounding area (up to 5km), the increased incomes from employees at Manston will lead to increased demand for tourism in the locality. There are potential beneficial effects associated with use of local accommodation. Whilst passenger numbers are predicted to be substantial (662,768 in year 3 rising to 1,407,753 in year 20)³⁰, the proportion of these requiring local accommodation and/or visiting specific tourist attractions is likely to depend on

³⁰ Azimuth Associates (2017) Manston Airport: A National and Regional Aviation Asset - Volume IV, The economic and social impacts of airport operations p.18

the air routes served from the Airport and so remain inherently variable. Given the access tourists have to other facilities, such as hotel accommodation in London, the magnitude of this effect is considered to be low, and the sensitivity of the receptor moderate; therefore, it is considered that these effects will be **minor beneficial - Significant (Table 13.22)**.

Decommissioning phase effects

13.10.5 Decommissioning effects are not considered as the airport is expected to operate in perpetuity.

Combined effects

13.10.6 At this stage, no likely combined effects have been identified.

13.11 Assessment of effects on Local and Regional Economies

Construction phase effects

13.11.1 It is estimated that some 600 – 700 jobs³¹ will be associated with each construction phase.³² There will be direct economic effects through supply chain spending for construction materials and spend by construction workers, although the precise significance of this spending on the local and regional economy is uncertain at this stage. Construction phases 2 – 4 are likely to create further economic benefits over the longer term through employment opportunities and spending. A full assessment of these impacts will be prepared for the Environmental Statement. The magnitude of this effect is considered to be moderate, and the sensitivity of the receptor moderate; therefore, it is considered that these effects will be **moderate beneficial - Significant (Table 13.22)**.

Operational phase effects

13.11.2 Job creation associated with airport operations has been estimated as follows³³ (**Table 13.21**).

Table 13.21 Forecast Direct and Indirect Job Creation (Years 2, 5, 10 and 20) associated with Airport Operations at Manston

	Direct jobs	Indirect/induced jobs	Catalytic jobs	Total job creation
Year 2	856	1,798	0	2,655
Year 5	2,150	4,515	8,601	15,266
Year 10	2,749	5,773	10,996	19,517
Year 20	4,271	8,970	17,085	30,326

Note: Direct jobs comprise airport-related activity. Indirect jobs comprise supply chain activities. Catalytic jobs comprise employment and economic development in the wider national economy. For full definitions and data for year 1 to 20, see: Azimuth Associates (2017) **Manston Airport: A National and Regional Aviation Asset - Volume IV, The economic and social impacts of airport operations**.

13.11.3 The implications of such growth are potentially significant over the medium (two to ten years) and long term (up to 20 years) as changes in employment opportunities and commuting patterns evolve and the provision of local services reflects a wealthier and differently distributed local population.

³¹ Azimuth Associates (2017) **Manston Airport: A National and Regional Aviation Asset - Volume IV, The economic and social impacts of airport operations** p.20

³² the redevelopment project has been planned in four discontinuous phases - construction jobs will be recreated at each phase, in years 4, 10 and 15

³³ Azimuth Associates (2017) **Manston Airport: A National and Regional Aviation Asset - Volume IV, The economic and social impacts of airport operations** p.18

The magnitude of this effect is considered to be high, reflecting the scale of employment and economic activity generated from an important local infrastructure asset, and the sensitivity of the receptor moderate; therefore, it is considered that these effects will be **major beneficial - Significant (Table 13.22)**.

Decommissioning phase effects

- 13.11.4 Decommissioning effects are not considered as the airport is expected to operate in perpetuity.

Combined effects

- 13.11.5 The principal combined effects of construction and operational activity are likely to relate to potential negative effects on local communities associated with amenity, traffic congestion and service provision, and positive effects on local and regional economies associated with employment and training opportunities, and the resultant uplift in local economic vibrancy.
- 13.11.6 Potential combined effects on socio-economic receptors also need to be judged in the context of the detailed findings of **Chapter 14**, **Chapter 12**, **Chapter 6**, and **Chapter 15**. This assessment will be carried out in the ES.

13.12 Conclusions on preliminary significance evaluation

- 13.12.1 The conclusions on the significance of all those effects that have been subject to assessment in **Sections 13.8 to 13.11** are summarised in **Table 13.22**. The assessment has been compiled for the purposes of the PEIR and identifies potential effects on the identified socio-economic receptor categories. Further detail will be provided in the ES.

Table 13.22 Summary of significance of effects

Receptor and effects	Magnitude of effect	Sensitivity	Significance Level	Rationale
Local businesses: disruption during construction	Uncertain	Low	not assessed	Effects on some businesses in some locations, related to construction traffic. Environmental measures are incorporated to mitigate direct effects such as the pattern of lorry movements.
Local businesses: disruption during operation	Uncertain	Low	not assessed	Effects on some businesses in some locations related to road congestion, for example. Environmental measures are incorporated to mitigate direct effects such as traffic movements and modal split.
Local businesses: economic benefits during construction	Low	Moderate	Minor beneficial – significant	Beneficial effects associated with the spending associated with construction activity (both direct and indirect), where local businesses provide goods and services, in turn providing some employment opportunities for residents across the study area (and further afield).

Receptor and effects	Magnitude of effect	Sensitivity	Significance Level	Rationale
Local businesses: economic benefits during operation	High	Moderate	Major beneficial – significant	Effects from the spending associated with operational activity (both direct and indirect), where local business provide goods and services, in turn providing employment opportunities for residents across the study area (and further afield).
Local Communities: disruption during construction	Uncertain	High	not assessed yet	Effects on specific receptors (groups and facilities) in some locations, including potential health effects. Environmental measures will mitigate direct effects e.g. through traffic management plans during construction.
Local Communities: disruption during operation	Uncertain	High	not assessed yet	Effects on specific receptors (groups and facilities) in some locations. Environmental measures to be incorporated to mitigate direct effects e.g. through limiting night flights and aircraft flightpaths during operational activities.
Local Communities: additional burden on local services and resources (education, health, recreation and accommodation) during construction	Low	High	Moderate adverse – significant	Effects on facilities in some locations, dependent upon the residence of construction workers.
Local Communities: additional burden on local services and resources (education, health, recreation and housing) during operation	Negligible	High	Negligible –not significant	As employees will come from the local residential pool, there are negligible additional effects.
Tourism: amenity effects during construction	Low	Low	Negligible adverse – not significant	Effects associated with some construction activities (traffic movements) although these are likely to be isolated and can be mitigated e.g. through traffic management.
Tourism: amenity effects during operation	Uncertain	High	not assessed yet	Effects associated with operational activities (aircraft noise), including potential health effects. Environmental measures to be incorporated to mitigate

Receptor and effects	Magnitude of effect	Sensitivity	Significance Level	Rationale
				direct effects e.g. through limiting night flights and aircraft flightpaths.
Tourism: economic benefits during operation	Low	Moderate	Minor beneficial - significant	Whilst the tourism sector will benefit from increased economic activity as a result of airport operations, establishing a specific connection between the tourism sector/attractions and airport activity is unclear.
Local and Regional Economies: job and training opportunities during construction.	Moderate	Moderate	Moderate beneficial - significant	Opportunities to capitalise from increased business activity, as well as direct job creation. Also through the co-ordination of training opportunities for those in deprived areas in the vicinity of the airport.
Local and Regional Economies: job and training opportunities during operation; contribution to economic growth in the area.	High	Moderate	Major beneficial - significant	Opportunities to capitalise on increased business activity, as well as direct job creation, particularly over the long term. Also through the co-ordination of training opportunities for those in deprived areas in the vicinity of the airport, although much will depend on proactive schemes.

Contents

14.	Traffic and Transport	14-1
14.1	Introduction	14-1
14.2	Key Traffic and Transport Aspects of the Proposed Development	14-1
14.3	Policy and Legislative Context	14-3
14.4	Data Gathering Methodology	14-4
14.5	Overall Traffic and Transport Baseline	14-18
14.6	Environmental Measures Incorporated into the Proposed Development	14-26
14.7	Scope of the Assessment	14-27
14.8	Assessment Methodology	14-29
14.9	Assessment of effects	14-35
14.10	Assessment of effects on receptors	14-38
14.11	Conclusions of significance evaluation	14-43

14. Traffic and Transport

14.1 Introduction

- 14.1.1 This Chapter of the PEIR sets out the results of an assessment of the traffic and transport related environmental effects of the Proposed Development and should be read in conjunction with the scheme description (**Chapter 3**).
- 14.1.2 As detailed in **Chapter 3**, the Proposed Development would support between 10,000 and 17,000 air freight air transport movements (ATM) which would result in approximately 350,000 tonnes of air freight per year. In addition, the airport will have capacity for some 1.5 million passengers per annum (mppa) and over 100,000sqm of aviation related business/industrial development on the 'Northern Grass' area. **Figure 14.1** shows the location of the Proposed Development in the context of the wider highway network with the Proposed Development site shown in **Chapter 1, Figure 1.1**, which sets out the proposed masterplan layout for the site.
- 14.1.3 This Chapter sets out the key traffic and transport aspects of the Proposed Development, relevant policy, legislation and guidance, the data gathering methodology, the overall baseline conditions, the scope and methodology of assessment and the results.

Limitation of the Environmental Statement

- 14.1.1 This report is based upon the latest design of the components making up the Manston Airport Proposed Development (the 'Proposed Development'). At the time this chapter was written, some limitations with data need to be set out and these are discussed below;
- ▶ The data collection exercise undertaken in March 2017 resulted in some issues with the final data collected. The traffic counts undertaken in highways links was found to have double counted HGVs in many locations as a result of congestion on the link. A detailed explanation as to how this is resolved is set out later in this chapter;
 - ▶ Some receptor locations have been selected at locations where 24 hour traffic counts were not undertaken and as such adjacent junction turning counts have been used with local factors applied. A detailed explanation as to how this is resolved is set out later in this chapter; and
 - ▶ Details of hazardous loads, including types and quantity of load, number of movements and access route, are yet to be finalised.

14.2 Key Traffic and Transport Aspects of the Proposed Development

Site Context

- 14.2.1 The Proposed Development site is well located to access key highway routes in the area which comprise the A299 which links to the M2 and the A28 to Canterbury and the M20, and the A256 which links to Dover. Access to the A299 from the site is via the B2050 Manston Road and the B2190 Spitfire Way which are the roads which bound the site.
- 14.2.2 The key local aspects of the local highways network are set out in further detail in **Section 14.5** including key local context maps showing the site and key local highways infrastructure.

Proposed Site Access

- 14.2.3 As shown in the masterplan, the following access points are proposed:
- ▶ Cargo Facility – new access onto Spitfire Way in the form of a roundabout;

- ▶ Passenger Terminal – existing access onto Manston Road will be upgraded to a signal junction;
- ▶ Northern Grass Area – new access onto Manston Road in the form of a signal junction;
- ▶ Northern Grass Area – new western access onto Manston Road in the form of a priority junction; and
- ▶ Fuel Farm – exiting access onto Canterbury Road West will remain unchanged.

14.2.4 The accesses have been designed in accordance with the national design standards set out in the Design Manual for Roads and Bridges (DMRB) and have been based on junction modelling to ensure that the design has capacity to accommodate the full development and future traffic flows. The following sets out the details of the proposed accesses.

Cargo Facility Access with Spitfire Way

14.2.5 The Cargo Facility and associated vehicle parking for HGVs and staff will be served by one access which will be a new junction off Spitfire Way. This is proposed to be a three arm roundabout.

Passenger Terminal Access with Manston Road

14.2.6 The Passenger Terminal and associated car parking for passengers and staff will be served by one access which is in the same location as the existing. The junction will be upgraded to signalisation a fully signalised junction, linked with a second new junction to the west (Northern Grass Area Southern Access).

14.2.7 The junction has been designed to incorporate pedestrian crossing facilities across the Airport access arm and across Manston Road.

Northern Grass Areas Southern Access with Manston Road

14.2.8 The Northern Grass Area will be served by two accesses, the main one being off the B2050 Manston Road which will be a three arm signal junction and will be linked with the Passenger Terminal junction to optimise traffic flow throughput.

14.2.9 The junction has been designed to incorporate pedestrian crossing facilities across the access arm and across Manston Road.

Northern Grass Area western Access with Manston Road

14.2.10 The second access to the Northern Grass Area will be off Manston Road to the west of the site. This will be a ghost island priority junction which incorporates a right turn lane.

Fuel Farm Access

14.2.11 The existing access to the fuel farm off Canterbury Road West is not proposed to be amended in any way as it is an established access to the facility that has been designed to accommodate large tankers.

Other Proposed Local Highways Improvements

14.2.12 As part of the Proposed Development, the Spitfire Way/Manston Road junctions would be upgraded to a signalised crossroads and Spitfire Way and the B2050 Manston Road would be widened to a 7.3m carriageway pedestrian footways provided on the southern side of Manston Road and eastern side of Spitfire Way between the Cargo Facility and Passenger Terminal junctions. Further details on the nature, and design of these improvements will be provided within the Transport Assessment (TA) which will form part of the Development Consent Order (DCO) application.

14.3 Policy and Legislative Context

- 14.3.1 A study of traffic and transport related planning policy, legislation and guidance at the national, regional and local level has been undertaken in order to highlight any requirements which the development scheme needs to consider. It is always important that policies, legislation and guidance are taken into consideration as they help to define the scope of assessment and can inform the identification of particular local issues.

Policy and Guidance Context

- 14.3.2 Policy and guidance documents of relevance to the traffic and transport environmental effects of the Proposed Development are listed in **Table 14.1**.

Policy Documents

Table 14.1 National and Local Planning Policies relevant to Traffic and Transport

Policy Reference	Policy Information relevant to Traffic and Transport
National Planning Policy Framework (NPPF) (March 2012)	<p>The NPPF outlines the Government's planning policies and how they are expected to be applied. The NPPF states that 'the purpose of the planning system is to contribute to the achievement of sustainable development.' Paragraphs 29 to 32 encourage sustainable transport modes for the movement of goods and people, and for plans and decisions to take account of whether safe and suitable access to sites can be achieved for all people, whilst ensuring developments are designed to accommodate the efficient delivery of goods and supplies, give priority to pedestrian movements, and create safe and secure layouts which minimise conflicts between traffic and pedestrians.</p> <p>Paragraph 32 identifies that development should only be prevented or refused on transport grounds where the residual cumulative impacts of the development are severe'.</p> <p>The traffic and transport work in support of the Proposed Development has been undertaken in compliance with the NPPF and demonstrates that safe and suitable access is deliverable t</p>
Kent County Council Local Transport Plan 4: Delivering Growth without Gridlock 2016–2031	<p>It is identified in LTP4 that the elected members of KCC fully support the continued regeneration of Manston and East Kent and are supportive of a business park or an airport, depending upon the viability of such plans and their ability to deliver significant economic growth and job opportunity."</p> <p>Within the local priorities, infrastructure improvements such as the dualling the A299 Thanet Way, the East Kent Access scheme and the introduction of High Speed rail services have helped to address isolation issues of Thanet district. Further improvements identified include an inner circuit of new and improved highway routes, including improved links to Westwood Cross, the Westwood Relief Strategy – Westwood Road to Margate Road Link and the Thanet Parkway railway station.</p>
Kent County Council Freight Action Plan (2012)	<p>The Freight Action Plan has been produced with a vision to "promote safe and sustainable freight distribution networks into, out of and within Kent, which support local and national economic prosperity and quality of life, whilst working to address any negative impacts on local communities and the environment both now and in the future."</p> <p>Objective 6 encourages sustainable distribution that involves more efficient transport and warehousing.</p> <p>The Airport would achieve this through the co-location of Northern Grass Area which will enable local storage of freight cargo.</p>
The Thanet Local Plan Saved Policies (2006)	<p>Policy TR3 – Provision of Transport Infrastructure states that– "The district and county councils will ensure, by means of a legal agreement that proper provision is made for transport infrastructure that is necessary and relevant to the development to be permitted. Proposals for transport infrastructure will be assessed in terms of their impact on capacity and safety of the transport network together with their social and economic impacts."</p>
Draft Thanet Local Plan to 2031 Preferred Options (2015) and Proposed Revisions (2017)	<p>Policy SP05 address the Airport Site, and whilst it identifies a residential led development for the site, the transport requirements to demonstrate deliverability are applicable to the Airport proposal. These include:</p>

Policy Reference	Policy Information relevant to Traffic and Transport
	<ul style="list-style-type: none"> How the requirements of the Transport Strategy will be met including the upgrade of Manston Court Road and improvements to Spitfire junction. The relationship to the Parkway Station and Ramsgate Port A travel plan to include a public transport strategy linking the site to existing services, demonstration of how the site links with and relates to neighbouring settlements; Key routes for traffic-calming measures <p>The Proposed Revisions to Draft Local Plan include Policy 8 - New Strategic Routes which will be based on a new Transport Strategy for the district that includes proposals for new and improved roads and junctions; enhancements to bus and train services and an expansion of the cycling/walking network.</p> <p>The key element of the emerging Strategy is the development of a proposed "Inner Circuit" to serve new development and reduce pressure on the existing network. It is intended that the Inner Circuit schemes will incorporate provision for buses and cycling.</p> <p>It should however be noted that the Thanet Local Plan will not be formally approved for consultation and Secretary of State has now announced an intention to intervene in TDC's Local Plan process.</p>

Guidance Documents

- 14.3.3 The only document available which sets out a methodology for assessing potentially significant environmental effects is the 1993 Institute of Environmental Assessment (IEA) publication *Guidance Notes No. 1: Guidelines for the Environmental Assessment of Road Traffic* (hereafter referred to as GEART), and this has been used for this assessment.
- 14.3.4 All onsite junction designed provided as part of the masterplan, and referenced in this chapter are based on the Design Manual for roads and Bridges (DRMB) design guidance with particular reference to the following documents;
- ▶ TD 16/07 – The Geometric Design of Roundabouts;
 - ▶ TD 42/95 – The Geometric Design of Major/Minor Junctions;
 - ▶ TA 86/03 – Layout of Large Signalised Junctions;
 - ▶ TD 50/04 - The Geometric Layout of Signal-Controlled Junctions and Signalised Roundabouts
 - ▶ TA 90/05 – The Geometric Design of Pedestrian, Cycle and Equine Routes;
 - ▶ TA 9/93 – Highways Link Design

14.4 Data Gathering Methodology

- 14.4.1 The following section sets out the data gathering methodology that has been used to inform the assessments within this chapter.

Desk Study

- 14.4.2 The desk study included a review of the overall network, public transport and accident data. Further detail is set out in the following sections.

Network Review

- 14.4.3 A detailed review of the local highways network and Public Rights of Way (PRoW) was undertaken to give an understanding of study area, including sensitive locations such as schools, areas with high pedestrian flows, and congested sections of the road network. This review was undertaken using street mapping, aerial photography and Google traffic.

- 14.4.4 For PRoW, the details of the local routes and nature of these routes has been taken from the “Public Rights of Way Map” online mapping provided by KCC at <https://webapps.kent.gov.uk/countrysideaccesscams/standardmap.aspx>

Local Public Transport Facility Review

- 14.4.5 A review of existing public transport facilities (bus/rail stops and interchanges) and routes (rail lines and bus routes) was undertaken.
- 14.4.6 Detailed information on the local bus stops and route has been provided by KCC through the “Thanet Bus Map” and through the Travel Line South East journey planner website (<http://www.travelinesoutheast.org.uk>).
- 14.4.7 Rail information on train times has been extracted from the National Rail Enquires website (nationalrail.co.uk).

Accident Data

- 14.4.8 Personal Injury Accident (PIA) data recorded by the police has been reviewed. The PIA data categorises whether the accident is slight, serious or fatal in nature and includes information on the location of the accident, the time it took place, the weather and light conditions, motorised and non-motorised users involved and casualty numbers. The data also sets out the causation factors of the accidents which have been identified by the police.
- 14.4.9 Records of the PIAs have been obtained from Kent County Council (KCC) for a five year period, dating from June 2011 to September 2017. Full details of the accident records are provided as **Appendix 14.1**. The accident data assessment area is shown in **Figure 14.2**.

Survey Work

- 14.4.10 A site visit was undertaken on 27 September 2017 and included detailed notes and photographs recorded on a GPS iPad system. The following was included during the site visit:
- ▶ All roads and junctions that formed part of the study area;
 - ▶ All proposed site accesses;
 - ▶ The PRoW affected by the Proposed Development were walked;
 - ▶ Peak hour observations were made of traffic conditions on the A299;
 - ▶ On site observations were recorded of the operation of signalised junctions within the study area;
 - ▶ Road width measurements of Spitfire Way and Manston Road were taken;
 - ▶ Observations were made of sustainable transport provision, such as pedestrian footways, bus stops etc.;
 - ▶ A visit to Ramsgate train station was made, including observation of key routes to and from the station; and
 - ▶ Observations were made of key sensitive locations identified as part of the desk top review.

Baseline Traffic Data Surveys

- 14.4.1 Traffic count surveys were commissioned in order to understand the existing traffic conditions within the study area. **Table 14.2** provides a summary of the traffic survey counts.

Table 14.2 Sources of Traffic Survey Information

Source	Survey Information
360TSL	Manual classified turning counts (MCC), automatic traffic counts (ATC) and queue surveys commissioned on links and at junctions anticipated to be effected by the proposals – March 2017
PCC Traffic information consultancy	Additional MCC counts and ATC's as well as queue surveys were commissioned on links and at junctions anticipated to be affected by the proposals following discussions with KCC – October 2017
Highways England	Traffic data for the strategic road HE network has been extracted through the HE traffic data portal at http://webtris.highwaysengland.co.uk/

14.4.2 As set out in Table 14.2 360TSL were commissioned to undertake a series of traffic counts and queue surveys. MCC traffic surveys were undertaken on Wednesday 1 March, Thursday 2 March and Thursday 9 March 2017 at the following junctions for the period 06:00 - 24:00:

- ▶ 1 – A256/Sandwich Road;
- ▶ 2 – A256 / A299/Cottingham Link Road;
- ▶ 3 – A299 / Canterbury Road W;
- ▶ 4 – A299 / B2190 (Minster Road)/B2190 (Tothill Street);
- ▶ 5 – B2190 / Minster Road;
- ▶ 6 – A253 (Canterbury Road) / A299 / Willetts Hill/ Seamark Road;
- ▶ 7 – A299 / A28 (Canterbury Road)/ Potten Street Road;
- ▶ 8 – A28 (Canterbury Road)/The Square (Station Road)
- ▶ 9 – B2050 (Park Lane) / Acol Hill / B2050 (Manston Road);
- ▶ 10 – B2050 (Manston Road) / Shottendane Road / Margate Hill;
- ▶ 11 – B2190 (Spitfire Way) / Columbus Avenue;
- ▶ 12 – B2050 (Manston Road) / Manston Road / B2190 (Spitfire Way);
- ▶ 13 – B2050 (Manston Road) / Manston Court Road;
- ▶ 14 – A28 (Canterbury Road) / B2052 (George V Avenue);
- ▶ 15 – B2052 (Heartsdown Road) / B2052 (Tivoli Road) / B2052 (College Road) / Nash Road / Empire Terrace / Manston Road (Coffin Corner);
- ▶ 16 – A254 (Ramsgate Road) / B2052 (College Road) / B2052 (Beatrice Road);
- ▶ 17 – A254 (Margate Road) / A254 (Ramsgate Road)/ Star Lane/ Poorhole Lane;
- ▶ 18 – Star Lane Link/Manston Court Road;
- ▶ 19 – A256 (New Haine Road) / New Cross Road;
- ▶ 20 – A256 (Hain Road) / B2050 (Manston Road);
- ▶ 21A – A256 (Haine Road) / Canterbury Road West/ A256; and
- ▶ 21B – A299 (Canterbury Road East) / A299 (Hengist Way) / Sandwich Road / A256 (Lord of the Manor Roundabout).

14.4.3 Following discussion with KCC, a series of additional MCC traffic counts was commissioned in October 2017 to widen the scope of assessment and this was undertaken by PCC Traffic Information Consultancy Limited. The counts were undertaken at the following junctions:

- ▶ 22 – B2052 (Tivoli Road)/ Tivoli Road/B2052 (Beatrice Road);
- ▶ 23 – B2050 Park Lane/ A28 (Canterbury Road);
- ▶ 24 – Star Lane/Nash Road;
- ▶ 25 – B2050 Manston Road/Tescos Supermarket Access;
- ▶ 26 – B2050 (Manston Road)/B2014 (Newington Road);
- ▶ 27 – B2014 (Newington Road)/A255 (High Street); and
- ▶ 28 – A255 (High Street)/ A255 (Park Road)/Wilfred Road/Grange Road.

14.4.4 This junction turning count data has been supplemented by ATCs within the area to better understand the 7-day traffic conditions. The ATC data has been collected for a period of one week starting 07 March 2017 and for a 24-hour period per day (360TSL) The ATC locations are:

- ▶ ATC1 - A256 north of Sandwich;
- ▶ ATC2 – A299 near to Windermere Ave;
- ▶ ATC3 – Manston Road near to Princess Margaret Ave;
- ▶ ATC4 – A254 near Coxes Lane;
- ▶ ATC4A – A256 west of Northwood Road;
- ▶ ATC5 – A254 near Farley Road;
- ▶ ATC6 – A254 near Connaught Road;
- ▶ ATC7 – A28 near Westbrook Road;
- ▶ ATC8 – A28 near Domneva Road;
- ▶ ATC9 – A299 east of Grays;
- ▶ ATC10 – A28 Canterbury Road east of Sarre;
- ▶ ATC11 – A253 east of Sarre;
- ▶ ATC12 – A299 between Minster Road and Canterbury Road West; and
- ▶ ATC13 – B2190 Spitfire Way between Minster Road and Manston Road.

14.4.5 Following discussion with KCC, a series of additional ATC counts was undertaken in October 2017 to widen the scope of assessment at the following locations (PCC);

- ▶ ATC 14 – Minster Road (South of Acol);
- ▶ ATC 15 – B2050 Manston Road (North of Woodchurch Road);
- ▶ ATC 16 – Shottendane Road between Minster Road and Park Road;
- ▶ ATC 17 – Manston Road, north of junction with Bramble Lane;
- ▶ ATC 18 – Manston Road, south of junction with Vincent Road;
- ▶ ATC 19 – Manston Court Road, east of Valley Road;
- ▶ ATC 20 – Manston Court Road, south of the junction with Preston Road; and
- ▶ ATC 21 – B2050 Manston Road (East of Manston).

- 14.4.6 The locations of the relevant traffic counts set out are included in **Figure 14.3**.
- 14.4.7 In addition, traffic flow information for the strategic highways network (M2, A2 and A20) was extracted from the DfT online traffic count system. This data however only provides 24-hour Annual Average Daily Traffic (AADT).
- 14.4.8 This information provides the base network flows for the local highways network. Full details of the traffic counts are provided as **Appendix 14.2** to this assessment.

Highway and Junction Models

- 14.4.9 Kent County Council (KCC) and Thanet District Council (TDC) have commissioned a SATURN model, known as the strategic transport model, as part of the transport evidence base for the emerging Local Plan and to support the Transport Strategy for the district. The strategic transport model has not yet been finalised and is not available for developers use.
- 14.4.10 In the absence of the strategic transport model, a spreadsheet model has been developed for the purpose of the traffic assessment of the Proposed Development which is based on the traffic survey count data and assumptions on growth for the future years. Individual junction models have been built using industry standard software – Junctions 9 for priority junctions and roundabouts and the LinSig software for signal junctions.
- 14.4.11 It is the intention to use the strategic transport model if it is available in spring 2018 and a formal request has been made to do so. Discussions with KCC over the specification for the use of the model and programme are ongoing. However, as this model is not available to any local developers it is considered that the spreadsheet model approach developed by Amec Foster Wheeler is robust and appropriate for assessing the development impacts on the wider highways network.

Consultation

- 14.4.12 Since 2015, RiverOak Strategic Partners (RiverOak) and Amec Foster Wheeler as highways consultant have engaged with consultees who have an interest in potential traffic and transport effects as part of the wider scoping/consultation effort for this Proposed Development. A Scoping Report (**Appendix 1.1**), including a chapter covering traffic and transport, was produced and submitted to PINS who distributed it to stakeholders and provided a scoping opinion (**Appendix 1.2**). A PEIR was then submitted by the applicant for consultation and review. Amec Foster Wheeler has held meetings with KCC, Highways England (HE) in relation to the strategic road network, and with Network Rail in relation to the rail network.
- 14.4.13 A summary of the consultation response is set out in the following tables:
- ▶ **Table 14.3** – Consultee response to scoping report;
 - ▶ **Table 14.4** – PINS response to scoping report;
 - ▶ **Table 14.5** – Consultee response to Summer 2017 statutory consultation; and
 - ▶ **Table 14.6** – Consultation with KCC – comments on Transport Scoping Note.
- 14.4.14 It should be noted that the text in the tables below refers to other documents being prepared to support the DCO application, with particular reference to the TA. This document has not been submitted at this stage but is a significantly completed document which has informed this chapter, particularly the traffic flow generation and distribution methodology that is provided as **Appendix 14.3**. The junction assessment and mitigation identification work is ongoing; details of the TA impacts relative to the environmental assessment and other documents being prepared are set out in **Table 14.8** later in this chapter.

Table 14.3 Consultee Response to Scoping Report

Consultee	Comments and Considerations	How this has been addressed
Cliffsend Parish Council	<p>The response from Cliffsend Parish Council related to the Stone Hill Park proposals, however some of the comments and observations apply for the Proposed Development. They are as follows:</p> <p>The existing highway network is overcrowded and the proposals need to be adequate and delivered in a timely manner.</p> <p>There is concern over:</p> <ul style="list-style-type: none"> • Canterbury Road West becoming a rat run; • Extra traffic on the Sandwich Road and Southern Lord of the Manor roundabout; • The inadequacy of Manston Road heading towards Haine Road & Westwood Cross Roads; • The suitability of the highway network for Birchington bound traffic via Acol; • Construction haul routes; • The location of extra bus stops. 	<p>These comments are noted and have been considered in the development of the masterplan, TA and accompanying documents. All roads mentioned in the comments are included in the study area for the Proposed Development.</p> <p>The development traffic will not need to use Canterbury Road west apart from a short section from the A299 and proposed fuel farm site.</p> <p>It is not anticipated that development traffic will use Sandwich Road along Pegwell Bay.</p> <p>Development traffic is anticipated to route onto the Southern Lord of the Manor Roundabout. The TA identifies the impact and mitigation requirements.</p> <p>The section of Manston Road along the site frontage will be improved through widening and the provision of pedestrian facilities. It is not anticipated that Manston Road east of the passenger terminal access will be a key route to and from the site as airport signage will be via Spitfire Way. However, traffic originating from Ramsgate would be anticipated to use this route as an access from Ramsgate. The TA identifies the impact and mitigation requirements.</p> <p>It is not anticipated that development traffic would route along Minster Road through Acol with Birchington bound traffic routeing along the B2050 (Manston Road/Park Lane) to Birchington.</p> <p>The details of the provision for improved or relocated bus stops will be provided within the Airport Surface Access Strategy, TA and other documents.</p>
Highways England (HE)	<p>There is concern about the potential impact of freight-related trips on the M2 and A2 and therefore traffic impacts on these roads should be assessed during the construction and operational phases; including where necessary junction modelling.</p> <p>Justification of assumptions should be provided to ensure a robust assessment.</p> <p>The EIA and TA should be mutually compatible.</p>	<p>The traffic impacts on the M2 and A2 will be considered and consultation with HE will be ongoing throughout the DCO process.</p> <p>A meeting was held with HE on the 28 September 2017 and it was agreed that the TA will provide a chapter setting out the impacts on the M2/A2 and any other key parts of the strategic highways network that may be effected (such as the A20)</p> <p>The TA and environmental assessment will be using the same traffic flow figures based in the same methodology.</p> <p>Details of the environmental impacts on the HE network are set out later in this chapter for the M2, A2 and A20.</p>
Kent County Council	<p>There will be a requirement for a full transport assessment using any strategic transport model that KCC may have developed.</p> <p>This will inform a requirement for more detailed modelling processes at individual junctions.</p> <p>Assessments should be made on existing Public Rights of Way; historic footpaths and public access; dog walking and recreation routes.</p>	<p>A TA will accompany the DCO application.</p> <p>A meeting was held on the 11 September 2017 to agree a way forward with the development of the TA with KCC. Whilst it is acknowledged that the TA will need to use the KCC strategic transport model to assess the impact of the Proposed Development, this is not currently completed or available for use. It is intended that testing will be undertaken as soon as it is available, but this is likely to be post-submission of the DCO application.</p> <p>In the absence of the availability of the strategic transport model, a detailed traffic and transport spreadsheet model has been developed which has informed this chapter and the TA.</p> <p>In addition to the TA a PRoW Management Plan is being prepared to support the DCO application which</p>

Consultee	Comments and Considerations	How this has been addressed
		will include the impacts on local PRow and effects on public access, dog walking and recreation routes. .
Minster Parish Council	<p>[†] First response</p> <p>Consideration of improving the road infrastructure from the Minster roundabout to the main airport entrances.</p> <p>Second response</p> <p>Better definition of the local road network is required</p>	<p>Road infrastructure proposals to accommodate the Proposed Development, include widening Spitfire Way and Manston Road and improvements to the Spitfire Way/Manston Road junction. Details of this are included in the TA.</p> <p>This revised PEIR chapter sets out a detailed breakdown of the local highways network and the scope of the assessment. This is the scope of the assessment that is proposed to be used in the DCO application.</p>
National Grid	The construction and operation of the Richborough Connection Proposed Development (RCP) should be considered in the cumulative assessment.	<p>According to the National Grid Development website the major construction work will be complete on the Richborough connection by August 2018 which is before the first year of construction of the Proposed Development (2019). As such the impacts have not been considered for construction of the RCP.</p> <p>It is considered the operational traffic for the RCP is negligible and has also not been considered further and this traffic has been considered as part of a wider background growth that's been applied to develop future year assessments.</p>
Royal Mail	<p>Concerned with disruption to Royal Mail's road operations.</p> <p>More information on:</p> <ul style="list-style-type: none"> • Construction phase length; • The extent and phasing of the proposed employment development; • Cumulative traffic impact during the construction and operation phases; • The disruption to major road users. 	This chapter provides information on the construction phase lengths and the extent and phasing of the proposed employment development. These are included in Appendix 14.3 which sets out the construction traffic methodology.
Thanet District Council	<p>Would like the operational and junction capacity assessment to be included in the ES Chapter.</p> <p>A 5% threshold should be used for operational capacity of the highway.</p>	<p>It is not usual practice to include junction capacity assessments within the ES Chapter but this is included in the TA to support the DCO.</p> <p>A 5% threshold for highways capacity has been considered as part of the TA.</p> <p>The ES T&T chapter will consider the assessment thresholds set out in GEART will be applied.</p>
Police	<p>Kent Police consider that the existing road infrastructure leading to and in the vicinity of the site require significant investment to allow for increased traffic volume and growth.</p> <p>Local roads can become congested, particularly those to the North and East of the site and a detailed road strategy and infrastructure plan would be required.</p> <p>Roads to the west and east would require significant work. The roads to the north of the site are wholly inappropriate for use in conjunction with a cargo hub.</p> <p>Traffic count locations are limited and may not present a reliable baseline at this time. Other data collection should be broadened in order to get a more accurate picture of what is required in this case.</p> <p>A broader, county view should be taken including the A2, M2, A256, A28 and future road infrastructure</p>	<p>The TA will set out the required improvements to mitigate the impact of the development traffic.</p> <p>A Surface Access Strategy and Construction Traffic Management Plan (CTMP) have also been prepared.</p> <p>The roads to the east of the Passenger Terminal access are not anticipated to be used by HGVs or development traffic other than that originating from Ramsgate and environs. The HGVs to and from the Cargo area and Northern Grass area are proposed to route along Spitfire Way, Minster Road and onto the A299. Much of this route will be upgraded as appropriate. This is due to the nature of where these HGVs are required which is predominantly to the east and the London area and Ashford or south to Dover.</p> <p>The data collection has been supplemented with further counts undertaken in October 2017.</p>

Consultee	Comments and Considerations	How this has been addressed
	<p>Proposed Developments such as the proposed Lower Thames Crossing.</p> <p>A Transport Assessment, a Travel Plan, and a Traffic Management plan are essentials for this Proposed Development from construction through to completion and daily business.</p> <p>Manston Airport is currently a contingency site for Operation Stack and the implications on this if the Proposed Development were to occur before Manston is no longer required.</p>	<p>A broader view has now been taken after discussion with HE and KCC. The impacts on the A2, M2 will also be set out in this chapter and documents prepared to support the DCO application.</p> <p>To support the DCO application a TA, two Travel Plans (Airport Site and Northern Grass area), CTMP and PRoW Management Plan will also be prepared.</p> <p>The use of the site for Operation Stack is a temporary measure regardless of the development proposals.</p>

Table 14.4 PINS Response to Scoping Report

PINS Comments and Considerations	How this has been addressed
The Secretary of State drew particular attention to the plan to scope out 'potential noise, vibration, visual, dust, dirt, air pollution and ecological effects as a result of traffic and transport associated with the Proposed Development. It is the opinion of the Secretary of State that they should be assessed as part of the ES but is content for them to be presented within the relevant topic chapters.	<p>The effects scoped out will be assessed within the wider chapters as follows;</p> <ul style="list-style-type: none"> Noise and Vibration – Chapter 12; Dust, Dirt Air Pollution – Chapter 6; and Ecological Effects – Chapter 7
The Secretary of State welcomes the proposed assessment of traffic related environmental effects based on the GEART as well as the preparation of a separate TA, Traffic Management Plan (TMP) and Travel Plan (TP). The study area and methodology for these assessments should be agreed with the local highways authority (KCC), TDC and Highways England, where appropriate. The assessment should include consideration of freight related trips on the strategic road network (e.g. M2 and A2).	<p>Meetings have since taken place to agree a wider scope of assessment within Thanet District with KCC which incorporates the same study area as that included in the strategic transport model.</p> <p>It was also agreed to include not just the M2 and A2 but the A20 and any other elements of the HE network that might be affected although not all of these routes are assessed in this Chapter, but are covered in the TA in support of the DCO application.</p>
The Secretary of State would expect on-going discussions and agreement, where possible, with the relevant authorities regarding transport and highways proposals.	Ongoing consultation and meetings on traffic and transport are being undertaken and agreement will be reached where possible. It is proposed a Statement of Common Ground (SoCG) will be prepared with KCC Highways and HE before the examination of the DCO application commences.
The Secretary of State requires robust justification for the use of professional judgement in moderating any assessment of significant effects.	Where the assessment of effects is considered to differ from the theoretical, robust justification will be provided.
The Secretary of State supports the principle of a proportionate EIA but requires that sufficient information is presented in the ES to justify the exclusion of effects that do not trigger the thresholds and are therefore considered not significant	The ES will ensure that data gathered and analysed in addition to the assessment methodology will provide sufficient justification for exclusion or inclusion.
The Applicant's attention is drawn to the comments, contained in Appendix 3 of this Opinion, of Highways England; of KCC, in relation to the revision of their Local Transport Plan, and potential impacts on Pegwell Bay; of TDC, particularly in relation to operational and junction capacity of the area road network; and of Royal Mail, particularly in relation to potential additional vehicle movements during the operational phase of	See Table 14.3.

PINS Comments and Considerations	How this has been addressed
the Proposed Development, and the need for thorough consultation	
The Applicant should also take into account National Grid's and Royal Mail's comments, contained in Appendix 3, about potential cumulative effects on construction traffic routes of the Proposed Development together with the RCP	See Table 14.3 .
14.4.15 Local stakeholders also responded to the previous Section 42 consultation (PEIR) documentation and these responses are detailed in Table 14.5 .	

Table 14.5 Consultee Response to June 2017 PEIR

Consultee	Comments and Considerations	How this has been addressed
Thanet District Council	We are concerned about the potential impacts on the network surrounding the site from both construction and operational phase given the likely level of traffic generated by the Proposed Development, especially regarding Spitfire Way, Spitfire Junction and Manston Court Road. At this stage in the process there is insufficient information to consider these impacts. We therefore await further information about the scope of the transport assessment, which should including any additional housing requirement (see Economic impacts section), the methodology for distributing trips on the network and physical improvements to the network as well as mitigation measures in due course.	<p>The impacts of the construction and operational traffic on Spitfire Way, Manston Road and Manston Court Road (and associated junctions) will be set out in the TA and ES Chapter to support the DCO application. This PEIR chapter also sets out the impacts on these links in the context of the environmental assessment.</p> <p>The study area of the TA has now been established in a local context, comprising 29 key junctions. In a wider context, impacts on the key elements of the strategic road network have also been established.</p> <p>The methodology of the traffic generation and distribution methodology undertaken to inform this chapter has been provided in Appendix 14.3.</p>
Thanet District Council	We request that we are directly involved in coordinating the list of committed development to be included within the future baselines with KCC.	<p>As identified earlier, the strategic transport model to assess the impact of the Proposed Development will be used when it is available. The specification for the model testing will be agreed with KCC and TDC beforehand.</p> <p>In the absence of the availability of the strategic transport model, a first principles spreadsheet model has been developed to understand the existing and future baseline scenarios.</p> <p>A growth rate has been applied to the study area highway network to account for the housing and employment growth identified in the draft Local Plan. This is considered to be a robust approach.</p>
Thanet District Council	An assessment of the impact from the Proposed Development on the Thanet Transport Strategy must also be included within the submission, which should also be taken into account when agreeing modelling scenarios with KCC.	<p>As previously identified, the strategic transport model is not currently available for developers to use and will not be available before the Manston Airport DCO submission.</p> <p>It is proposed however to request access to the model so that it can be used in the post submission period and agree with KCC the scenarios that should be modelled.</p>

Consultee	Comments and Considerations	How this has been addressed
Thanet District Council	Operational and junction capacity assessment should be included within the ES.	As set out above, the junction capacity analysis will be set out in the TA to support the DCO.
Cogent Land LLP	<p>CL consider that the following matters need to be considered and assessed thoroughly before any proposed plans to expand the airport are taken further:</p> <ul style="list-style-type: none"> • Clarification on Multi-Modal Split • Clarification on Travel Patterns • Traffic Distribution • Committed Development/Transport Schemes 	<p>Details on multi modal split, travel patterns, and traffic distribution are set out in Appendix 14.3 which also sets out the traffic generation methodology.</p> <p>As the local transport model is not available to use at this stage of the planning process it has been decided to use a robust approach and apply a growth rate across the whole study area highway network.</p>
Dover District Council	Dover District Council (DDC) supports the Applicant's intention to submit the following supporting documents as part of the formal DCO application: Operational Traffic Management Plan; Travel Plan; Public Transport Access Strategy; and Pedestrian, Cycle and Equestrian Access Strategy. The District Council is keen to engage with the Applicant as the preparation of these documents advances to ensure the provision of necessary infrastructure to accommodate visitors and staff, as well as sustainable links to the development site for residents in the Dover District.	At this stage, no further discussion has taken place with DDC. DDC will have an opportunity to comment on more detailed and informative proposals and provided comments.
Kent County Council	Resilient and reliable surface access on the strategic road network will be essential for freight traffic using Manston Airport. With the anticipated increase in traffic through growth at the Port of Dover and the future demand once the Lower Thames Crossing is constructed (anticipated to be 2026), a series of wider network improvements are needed. The location of Manston gives it direct free-flow access between the M2 and the A299, but the M2 has limited capacity being only two lanes in each direction from the A299 to M2 Junction 4.	The capacity impacts on the A2 and M2 as well as other key parts of the strategic highways network will be set out in the TA and the environmental impacts at three of the strategic highways network links are set out in this chapter.
Kent County Council	Kent Highways and Transportation has not been invited by RiverOak to engage in any discussions relating to this proposal. Therefore, the County Council has not had an opportunity to discuss the relationship with an emerging Thanet Transport Strategy. KCC, as Local Highway Authority, would welcome the opportunity to discuss how these proposals could more appropriately reflect or respond to this emerging strategy in due course.	Since this comment was made meetings and ongoing consultation has been undertaken with KCC highways team which has informed the study area and scope and methodology for assessment.
Kent County Council	The consultation documents suggest a significant expansion in aviation and other associated operations to those previously present on the site in its former aviation capacity. This in turn would generate a significant increased traffic demand on the surrounding highway network. Therefore, the reopening and redevelopment of this site should also be complemented by appropriate highway links. These are currently limited in the locality, particularly to the north east. Given the scale and location of the proposal, an agreed solution to delivery of key strategic improvements in the area will be essential to accommodate increased traffic activity and ensuring that highway safety and amenity is managed in future years.	<p>Key improvements are set out in the revised masterplan provided as part of this PEIR submission. This includes the improvements to the key links and junctions adjacent to the airport.</p> <p>Further improvements may be proposed as a result of the ongoing consultation, results of ongoing junction capacity analysis for the developing TA or as a result of changes to the masterplan.</p>
Kent County Council	Paragraph 14.1.5 (pg. 14-1) suggests that the site has good access to the surrounding highway network. However, KCC, as Local Highway Authority, considers that access around parts of the site is not currently satisfactory and consists of local routes with constrained geometry and junctions.	In terms of good access to the surrounding network, this specifically refers to an appropriate route from the site to the A299. It is understood that some of the other routes to the north and east present issues in some of the current link

Consultee	Comments and Considerations	How this has been addressed
		and junction restrictions. This PEIR submission includes improvements to the local network, and the developing TA will set out improvements schemes at local junctions and links where capacity restrictions would require these.
Kent County Council	It is suggested that all HGV access to the site would take place from the A299 (via the B2190 approaching the site to its northern boundary). The B2190 Spitfire Way beyond the Manston Business Park is subject to a lower standard (both in terms of restricted geometry and construction) and as such it is likely that this section of road would need to be improved to reflect the proposed uses on the site and the type of vehicle movements associated with it. It is also suggested that staff and passenger terminal vehicles will make use of the full extent of the highway network, which is a reasonable assumption to make as these trips have the potential to be more local in nature.	Airport routing for traffic and HGVs will be along appropriate roads. It is acknowledged that the route beyond Manston Business Park is below standard and as such a road widening scheme is provided as part of the proposals from the Cargo Access to the Airport Access incorporating elements of Spitfire Way and Manston Road. If these elements need to be expanded this can be discussed with KCC following revised comments once this PEIR information has been reviewed.
Kent County Council	The proposed complementary business/ industrial uses on the Northern Grass will potentially generate more local based trips, thus rendering local routes such as Manston Court Road and Manston Road as an attractive route to certain destinations. Whilst limited transport information has been provided to date, without a comprehensive package of improvements to cater for trip origins and destinations to the north, the proposals in their current form could lead to the use of inappropriate minor highway routes for both walking and cycling and/ or a proliferation of trips by private car on roads which are not suitable for additional traffic loading.	The traffic flow methodology and associated figures included in Appendix 14.3 of this chapter set out the proposed distribution specifically of staff based trips and the impact in the peak hours and the Airport Peak on the local highways network. The environmental impact on the Manston Court Road and Manston Road with particular regard to pedestrian and vehicular modes will be assessed within this Chapter.
Kent County Council	There is no specific reference to the need for corridor improvements aside from a new junction at Spitfire Way/ Manston Road, although a comprehensive transport assessment will be required by the applicant to provide more fully informed recommendations in relation to wider highway impacts and subsequent mitigation requirements. The emerging Thanet Local Plan seeks to introduce policy to secure an enhanced package of connected highway improvements/ routes, to complement the existing primary highway route corridors. This methodology also forms part of the emerging Local Transport Plan 4. It would appear that with some changes to the proposed layout, there is scope to provide a new highway route through the Northern Grass to connect to Manston Court Road, however an appropriate mechanism to facilitate an improved vehicle/ pedestrian and cycle route to Westwood should also form part of this methodology. This is currently absent from the proposals subject to the current consultation	Corridor improvements have now been proposed for the Manston Road/Spitfire Way route and these are set out on the masterplan. The TA prepared to support the DCO application will set out wider improvements for capacity and safety effects. As set out above, the emerging local transport plan as part of the TDC local plan has not been approved or signed off and access to the KCC/TDC strategic transport model that informs these reports is not available. A spreadsheet first principles approach to modelling the traffic flows has been used based on recent traffic counts of the existing network arrangement. It is proposed to undertake further modelling work using the strategic transport model in agreement with KCC and TDC after a DCO submission. However, this model was not available at this stage and will not be available before the Manston Airport DCO submission.
Kent County Council	Paragraph 14.1.7 (pg. 14-2) indicates that some 4,300 staff could be employed at the airport (with up to 1,500 being present on site at any one time). This represents the potential for a considerable number of trips for staff alone although no modal split figures are provided. This section also suggests that a high proportion of passengers will travel to the site by private vehicle, either by parked car or drop off, although at this stage it is unclear where these figures are derived from. Rail travel is not listed as one of the possible modes of travel, however there is potential to promote further modal shift in view of the proposed delivery of the Thanet Parkway Railway Station (with appropriate bus shuttle services to complement it). It is considered that	Revised staff numbers split across specific jobs and sites are provided with in Appendix 14.3 (traffic generation methodology). This includes for modal split targets. This identifies the number of staff who may wish to access the site via rail (and then a local bus service). Appendix 14.3 also sets out a detailed breakdown modal split for staff trips. At this stage, Thanet Parkway station is not a committed scheme locally, and not within current local transport policy and as such has not been included in rail calculations. This could be

Consultee	Comments and Considerations	How this has been addressed
	Thanet Parkway would significantly enhance the sustainability credentials of the site.	considered a robust worst case approach focusing all rail trips to Ramsgate station.
Kent County Council	Chapter 9 of the 2017 Consultation Overview Report makes reference to sections of the highway that could be adversely affected by the Proposed Development. The list is extremely limited and refers only to the roads immediately surrounding the site. Local impacts on Manston Court Road, Manston Road, the A299 and parts of the A256 are notably absent from this initial list with some of these links being missing from the screening assessment data tables. The nature of the uses intended on the site could have a material impact on the primary road network, which in turn feeds into the strategic road network falling under the jurisdiction of Highways England. It is anticipated that the scope of junctions and links that will need to be assessed will increase as further transport assessment work is undertaken.	The study area has been broadened following consultation with KCC, and includes junctions and links in Ramsgate, Birchington and Margate. The assessment now also includes locations along the strategic road network as agreed with HE.
Kent County Council	Taken at face value, at this stage, it would appear that the proposed uses on the site would make this site a destination for many new and existing residents for work based trips. Therefore, it is essential that appropriate links (vehicular and non-vehicular) to the wider highway network are provided to reflect this anticipated demand. Until such time that further transport modelling/ assessment work has been submitted by the applicant, it would be difficult at this stage to identify the extent of any impact and the subsequent mitigation package that might be necessary.	A series of highways improvements related to access and improvements to the local highways network are proposed as part of the DCO submission within the TA. In this PEIR submission the proposed access junctions and improvements to Manston Road and Spitfire Way (and the junction between) have been provided in the DCO plans. These junctions and improvements are focused on the ability to deliver the development at peak operating capacity in year 20.
Kent County Council	It is essential that any further transport assessment work is fully scoped with Kent Highways and Transportation at an early stage to avoid potential delays later in the Development Consent Order process.	Meetings and ongoing communication has been undertaken with KCC Highways team to establish a wider study area and agree/confirm other matters, the specifics of which are detailed within tables 14.3 to 14.6.
Cliffsend Parish Council	Must ensure any traffic does not use Canterbury Road West.	The only traffic that would use this route would be the fuel tankers routing to the fuel farm, as was the case when the airport was last operational.
Spitfire and Hurricane museum	Social: improve public transport options (bus etc.)	A Surface Access Strategy for the Proposed Development will be submitted in support of the DCO application, as well as Travel Plans for the Airport and Northern Grass Area. These documents will set out in detail the anticipated future year improvements to public transport to and from the airport but also the local area improvements that may result.
St Johns College Cambridge	Thanet and Kent Councils are proposing a new strategic route within the Local Plan which will serve the Proposed Developments within the Local Plan. It is important that the EIA which accompanies the DCO application is required to include this completed road network as one of its scenarios. The Proposed Development which is subject to this DCO application will need to proportionately and fairly contribute towards the proposed road network in the Thanet Local Plan.	Corridor improvements have now been proposed for the Manston Road/Spitfire Way route and these are set out in the masterplan. The TA prepared to support the DCO application will set out wider improvements for capacity and safety effects. As set out above, the emerging local transport plan as part of the TDC local plan has not been approved or signed off and access to the KCC/TDC strategic transport model that informs these reports is not available. A spreadsheet first principles approach to modelling the traffic flows

Consultee	Comments and Considerations	How this has been addressed
		<p>has been used based on recent traffic counts of the existing network arrangement.</p> <p>It is proposed to test the Proposed Development impact using the strategic transport model in agreement with KCC and TDC after a DCO submission.</p>
Thanet Green Party	<p>The very substantial increase in road traffic that would arise from a freight hub would aggravate both the noise and air pollution problems caused by the planes themselves. We understand that aviation fuel would have to be delivered by road as Manston is not part of the national fuel pipeline system that connects large UK airports. The need to transport such fuel and store it safely in the immediate neighbourhood of the former airport gives rise to concerns in itself, and the number of vehicle movements required would add to both noise and particulate pollution. They would also increase volumes of heavy traffic on roads not suitable for them, leading to congestion, delays and a vicious circle of further pollution.</p>	<p>Noise and Air quality issues will be addressed in the noise and air quality PEIR chapters and then within the EIA chapters for the DCO submission. The proposals for fuel are as they were when the previous aviation operations were in place at the site, with tankers routing along the A299 and then a short distance along Canterbury Road West into the existing fuel farm. The majority of tanker journeys would therefore be along the strategic road network and then the A299 and only a short distance on local roads.</p> <p>Estimates of the HGV trips per hour to and from the fuel farm are provided in Appendix 14.3 to this chapter. This indicates only a peak of 2 tanker movements (one in and one out) per hour.</p>

Table 14.6 Consultation with KCC – Comments on Transport Scoping Note

KCC Comments and Considerations	How this has been addressed
<p>It is noted that 2446 parking spaces are proposed. It will be necessary for this level of parking to be justified through the final Transport Assessment.</p>	<p>A revised masterplan design has been provided as part of this PEIR submission with updated car parking numbers for staff and passengers. This car park design is still evolving and a final number and layout will be provided in the DCO submission.</p> <p>With the final design established, the TA to support the DCO submission will set out in detail the justification for all car parking spaces, the split between passenger and staff parking, the split between long stay and short stay parking, detailed on the how the car park will operate and any other car parking matters. Details regarding car parking will also be included in the Surface Access Strategy for the Airport.</p>
<p>It is stated that it is likely that the vast majority of flights would occur between 07:00 and 23:00 hours, however the anticipated traffic flow figures appear to suggest an even split of movements across the whole 24 hour day. Further justification will be required to substantiate this approach.</p>	<p>A revised and detailed traffic generation methodology for the Airport has been provided in Appendix 14.3. This considers a detailed breakdown of flights across the day and the times vehicles may route to and from the airport.</p>
<p>Flights destined for later departure times may result in some passengers arriving prior to booking in time, which in turn could coincide with road network peaks. Allowance for such occurrences should be made in peak hour trip generation figures.</p>	<p>A more detailed breakdown of the times of arrivals and departures has now been made in the Airport revised traffic generation methodology. It has been proposed that:</p> <ul style="list-style-type: none"> • 20% of all passengers would arrive 2 hours before a flight • 80% of passengers would arrive 3 hours before a flight • All passengers would depart the airport 1 hour after an arrival flight has landed. <p>These figures are based on average travel patterns at comparable airports in the UK.</p>
<p>A proportionally low level of passenger numbers has been estimated within the highway network peak</p>	<p>The revised traffic flow methodology is based on a flight schedule developed by looking at arrivals and departures to similar sized or natured</p>

KCC Comments and Considerations	How this has been addressed
<p>hours. Future operators are at this time undefined and the flight patterns unknown. Therefore, in order for an appropriately robust assessment to be provided, the maximum number of flights capable of being handled by the facility within the peak hour should be considered for robust assessment purposes.</p>	<p>airports from Civil Aviation Data for October 2017. This has now provided a flight schedule on which the traffic generation of passengers can be based on. This is set out in Appendix 14.3.</p> <p>It should be noted that due to the nature of flights arriving and departing airports the peak traffic generation falls in the mid afternoon and not within the traditional highways network peak hours.</p>
<p>Passenger travel model assumptions are noted, but the submission lacks further clarification in relation to the data sources that have been used to inform such forecasts. Given the location of the site, staff and passenger travel plans may have limited scope for success. At this point in time there is no basis on which to assess the likely feasibility/likelihood of achieving the stated modal shift across the 20 year period. Rail is a feasible travel alternative for staff and passengers in the medium term, however this would rely on regular shuttle bus services being provided to link the airport to the station.</p>	<p>Details of the mode share targets and the justification for these will be provided within the Surface Access Strategy for the airport that will be provided to support the DCO application.</p> <p>The figures have recently been revised based on details from aviation and airport experts consulting on this DCO application.</p>
<p>There is a significant amount of staff trips associated with the aviation uses, which in turn could generate a material impact on the road network. It is essential that this element of the assessment is undertaken using robust estimates.</p> <p>On initial inspection, it is unrealistic to assume that all staff movements would occur outside of the network peak hours and that staff will all follow the same shift patterns. It would be very difficult to monitor or ensure future compliance with such a regime and in turn this could potentially underestimate the peak hour impact of staff movements.</p>	<p>A revised traffic generation methodology has been prepared which set out in detail the types of jobs related to the aviation uses, and breaks these down by shift patterns, shift times, staff numbers and likely modal split targets. All this information has been tested to provide a robust estimate of the how staff trips would actually impact the local highway network and the times these would impact the network.</p> <p>This robust assessment now takes into account some staff trips occurring in the peak hour based on a better understanding of 24 hour shift pattern working (unlikely to affect peak hour) and traditional working day work patterns (likely to affect traditional highways network peak hours).</p>
<p>The mix of uses on the Northern Grass is assumed to be 10% office, 40% light industrial and 50% warehousing. As these uses have significantly different trip profiles, it is important that they are defined in the final TA and application documentation, so that they can be conditioned as such. If unconditional consent is sought for any combination of potential uses, then the worst case scenario in terms of peak hour traffic generation would need to be assessed, in this case B1 office.</p> <p>The location filters appear to be generally acceptable, however it is noted that suburban areas are included in the business park analysis, which should be removed as the site is not in a suburban location. Population filters have not been applied, which could have a bearing on final trip rate outputs. I suggest that TRICS outputs are recalculated taking into account local demographics and as such the trips rates shown in Table 3.5 are not agreed at this stage.</p>	<p>The figures used for the split of land uses on the Northern Grass Area has changed significantly and is now follows;</p> <ul style="list-style-type: none"> • 25% B1 (Office); and • 75% B8 (Warehousing). <p>The zonal masterplan for the Northern Grass area has defined this split and the total GFA of the development in this area.</p> <p>Compared to the previous PEIR submission this is a more robust traffic scenario with B1 office development having been increased from 8% to 25%.</p> <p>The TRICS rates have not been changed in line with the comment due to the lack of comparable sites within the defined restrictions suggested which would lead to a less robust assessment than that which has been calculated.</p>
<p>The [construction] Traffic figures are noted, however the final TA should outline how the impact of these movements will be managed. This could be dealt with through an associated Construction Management Plan.</p>	<p>A CTMP will be provided as part of the final DCO submission which will set out the mitigation required to facilitate the construction of the site.</p>
<p>The peak traffic flow scenario for both development and network traffic need to be examined, with the scenario for both development and network traffic need to be examined, with the scenario generating the highest overall flows through a given junction being</p>	<p>This will be undertaken within the TA which will be submitted with the DCO application. In this Chapter, the network peaks and 24 hour period have been used as basis for assessment as is standard in environmental assessments of traffic impact.</p>

KCC Comments and Considerations	How this has been addressed
assessed/ modelled in more detail. The figures presented in table 3.8 and 3.9 will need to be revised to encompass the comments outlined within this correspondence.	However, within the TA all junctions and links that form part of the study area will be assessed for the AM and PM peaks as well as the development peak which falls between 13:00 – 14:00.
The scope of junction to be assessed within the TA should be based on the local traffic conditions. It is noted that a blanket 50 vehicle per hour threshold for further assessment is proposed. Junctions that are severely congested could be disproportionately impacted by traffic increases, lower than 50 vehicles per hour. I recommend that existing flows on each link are examined and any links which are subject to a 5% increase or greater are examined/assessed in more detail.	Of the junctions selected to form the scope of assessment, these will be assessed to understand capacity impacts should there be any increase above 1 vehicle to complete a robust set of assessments.

14.5 Overall Traffic and Transport Baseline

Current Baseline

Site Description

- 14.5.1 The site is located to the west of the conurbations of Ramsgate, Margate and Broadstairs in the District of Thanet and is bound by the A299 Hengist Way to the south, B2190 Spitfire Way to the west, arable farmland to the north and Manston Court Road and further farmland to the east. The site is bisected by the B2050 Manston Road which connects with Spitfire Way in the west and the A256 in the east. Manston Airport is located on the south side of the B2050 and the Northern Grass area is located to the north.
- 14.5.2 The site is a disused airfield with only minor aviation uses currently taking place, although it was an operational airport from 1916 to 2014. A small number of existing buildings are occupied by two museums and others businesses and low levels of activity occur associated with these. These occupied buildings are located on Spitfire Way and the Airport access road within the site.
- 14.5.3 **Figure 14.1** illustrates the site location in relation to the local highway network, the main junctions and railway stations in the vicinity of the site. The following section provides descriptions of the junctions and highway network.

Existing Highways Network

- 14.5.4 The highway network surrounding the site is shown in **Figure 14.4** which indicates the anticipated routes to and from the site based on the traffic flow distribution methodology set out in **Appendix 14.3**.
- 14.5.5 The following section describes the key local roads that form part of the study area.

Roads Forming Part of the Key Access to the Site

- 14.5.6 It is anticipated that the main signed access route to the site will be from the A299, and then onto the B2190 (Minster Road) and along Spitfire Way. From Spitfire Way traffic routes north onto Manston Road for the Northern Grass Area western access, and east on the B2050 (Manston Road) to the Passenger Terminal and Northern Grass Area.
- 14.5.7 It should also be noted that Canterbury Road West provides access to the fuel farm directly from the A299.

B2050 Manston Road

- 14.5.8 The B2050 Manston Road is a single carriageway road that runs between Birchington-on-Sea (to the north west of the site) and Ramsgate (to the east of the site). This road forms the northern boundary to the site for a short distance and is a key link for access to various elements of the Proposed Development. Access to the Passenger Terminal, and to the Northern Grass Area will be from the B2050 Manston Road. The road intersects with Spitfire Way to the west and the A256 (Haine Road) to the east.

Spitfire Way

- 14.5.9 Spitfire Way is a single carriageway road that runs between the B2190 (Minster Road) and the B2050 Manston Road. This road forms the northern boundary to the site for a short distance and is a key link for access to the various elements of the Proposed Development. Access to the Cargo Facility will be from Spitfire Way.

Manston Road

- 14.5.10 Manston Road runs between the junction with Spitfire Way/B2050 (Manston Road) to Coffin Corner, South Margate. This is single carriageway road which is width restricted in some locations. This road forms the western boundary to the site for a short distance and is a key link as it provides a direct access into the Northern Grass Area.

A299

- 14.5.11 The A299 is a key strategic road which runs between the M2/A2/A299 junction near Faversham to the access to the Port of Ramsgate. The road is a dual carriageway and a high standard carriageway. The A299 forms the southern boundary to the site for a short distance. The A299 is a key link for the development as a large percentage of arrival and departure trips will use this road to local and strategic destinations.

B2190 Minster Road

- 14.5.12 The B2190 (Minster Road) is a short section of road which runs between the A299 and Spitfire Way and forms the western boundary of the site. The road is initially dual carriageway and then single carriageway as it becomes Spitfire Way. This forms part of the main link into the development site from the A299.

Canterbury Road West

- 14.5.13 Canterbury Road West runs between the A299 and the A256 Lord of the Manor Roundabout. The short road link has two characteristics. The first section runs from the A299 to the fuel farm access and is the southern boundary to the Airport site. East of fuel farm access the road runs through a village setting. It is not proposed traffic would use the eastern element of the road and only tankers and some small private vehicles would access the fuel farm from the west (A299).

Other A Roads Affected by Proposed Development Traffic

A256

- 14.5.14 The A256 runs between a junction with the A2 near Dover to a junction with the A255 in Margate. The road forms part of a key route for traffic routing to and from the site from Ramsgate, Dover, Sandwich, Margate and Broadstairs as well as a key route for HGVs for Dover. The road varies in standard from elements of dual carriageway (south towards Dover) to running through constrained residential areas in Margate.

A254

- 14.5.15 The A254 runs between Margate and Ramsgate town centres and has a small section of dual carriageway but predominantly signal carriageway. This road is affected by trips to and from the residential areas between Margate and Ramsgate such as Haine and Newington.

A255

- 14.5.16 The A255 runs between Margate town centre and Broadstairs and is single carriageway. This road is affected by development traffic routing to and from Broadstairs and south Margate.

A28 Canterbury Road

- 14.5.17 The A28 runs between Canterbury and Margate and is a key link in the area for east/west traffic. The road has some elements of dual carriageway but is predominantly single carriageway. Separate elements of this road are proposed to be effected by development traffic. South of the junction with the A299 traffic to and from Canterbury and other areas of Mid Kent will use the road. Also in the area around Birchington on Sea there will also be development traffic using the road.

M2

- 14.5.18 The M2 is part of the Highways England strategic road network and runs between the junction of the A299/A2 in the east to where it merges into the A2 near Strood. The road is a motorway classification road with various lane configurations between two and four running lanes in both directions. The motorway has 7 junctions and is 41.4km long. It is proposed this is the major route to and from the airport for traffic to London and the surrounding region as well as any other national destinations.

A2

- 14.5.19 The A2 is part of the Highways England strategic road network and runs from London to Dover. It is the primary carriageway for this journey other than in Mid Kent where the M2 is the most direct route as the A2 runs through a number of the Medway towns. The road is a A classification road with various lane configurations between two and three running lanes in both directions. It is proposed this is the major route to and from the airport for traffic to London and the surrounding region as well as any other national destinations.

A20

- 14.5.20 The A20 is part of the Highways England strategic road network and runs from London to Dover. The road is an "A" classification road with various lane configurations between two and three running lanes in both directions. Relative to this project the element of the A20 that is being considered is that between Dover and Folkestone to understand the impacts because of any traffic to and from Folkestone.

Other Local Roads Effected by the Development Traffic

Manston Court Road

- 14.5.21 Manston Court Road runs between Manston Road (B2050) and Star Lane. This is single carriageway road which is width restricted in some locations. This road provides access from the B2050 Manston Road corridor running through the site area to Margate.

B2050 Park Lane

- 14.5.22 The B2050 Park Lane is a single carriageway road which runs between the junction of Acol Hill and Manston Road and the A28 in Birchington-on-Sea. This road provides access from the site towards Birchington on Sea and areas in the A28 corridor.

Shottendane Road

- 14.5.23 Shottendane Road is a single carriageway which routes southeast/northwest between the B2050 Manston Road in the south east to a priority junction with Manston Road in the northwest. This road will accommodate some trips from the development routing to and from the Westgate on Sea.

B2014 Newington Road

- 14.5.24 The B2014 Newington Road is a single carriageway road which runs between the A255 in Ramsgate to a junction with the A254 in Northwood. The road routes through urban areas and is subject to a 30 mph speed limit.

Existing Baseline Traffic Flows

- 14.5.25 Traffic counts were undertaken in March and October 2017 and the data collected were analysed and entered onto a traffic flow network diagram of the local highways network. **Figures 14.5 to 14.7** set out the traffic flow network diagram and the baseline traffic flows for the AM, PM and 24 hour period in Year 20. **Table 14.4** sets out the two-way average AM Peak (07:45 – 08:45), PM Peak (16:45 – 17:45) and 24-hour traffic flows for all vehicles and HGVs recorded at each receptor location
- 14.5.26 As set out in the limitations to this chapter some issues were recorded with the traffic counts undertaken in March 2017 due to congestion in the peak periods resulting in double counting of HGVs. To address the issues at these locations, a comparison has been made to the adjacent junction turning counts to establish a valid flow based the figures recorded in the junction turning count videos that we have been provided. This issue did not affect the October 2017 ATCs.
- 14.5.27 A second limitation regarding the data was that not all receptor locations that have been selected matched the locations where ATC were undertaken. For these locations, the nearest junction turning counts have been used to inform the traffic flows at the receptor. Data for turning counts was only for 12 hours so a local factor has been applied based on the split between 12 and 24-hour flows at an adjacent ATC point.
- 14.5.28 As set out above, data for the strategic road network is only available as 24 hour AADT flows.
- 14.5.29 Despite the limitations, a robust data set for the local highways network has been established and is set out in Table 14.4 below.

Table 14.4 Two Way AM Peak, PM Peak and 24-hour Traffic Flow (All Vehicles and HGVs) - 2017

ID	Road	AM Peak All Vehicles	AM Peak HGV	AM Peak %HGV	PM Peak All Vehicles	PM Peak HGV	PM Peak %HGV	24 Hour All vehicles	24 Hour HGV	24 Hour %HGV
1	A256 north of Sandwich	2782	173	6%	2660	82	3%	28006	3546	13%
2	A299 Hengist Way between Richborough Way and Sandwich Road	2925	144	5%	2944	79	3%	33648	1529	5%
3	A299 Canterbury Road E between A256 and Royal Harbour Approach	2066	89	4%	2039	46	2%	22917	2578	11%
4	Manston Road between Haine Road and the railway line	941	12	1%	864	6	1%	11126	813	7%
5	B2014 Newington Road between B2050 Manston Road and A255 High Street	1296	37	3%	1287	17	1%	17113	123	1%

ID	Road	AM Peak All Vehicles	AM Peak HGV	AM Peak %HGV	PM Peak All Vehicles	PM Peak HGV	PM Peak %HGV	24 Hour All vehicles	24 Hour HGV	24 Hour %HGV
6	A255 High Street between B2014 Newington Road and Ellington Place	1293	39	3%	1399	22	2%	16175	102	1%
7	A254 Margate Road	1119	63	6%	1250	34	3%	16459	1294	8%
8	A256 Westwood Road between Poorhole Lane and Northwood Lane	1379	25	2%	1770	6	0%	22945	1388	6%
9	A254 Ramsgate Road between Nash Lane and Farley Road	1649	64	4%	1678	38	2%	22651.4	1781	8%
10	A254 Ramsgate Road north of the junction with B2052 College Road	788	39	5%	803	22	3%	10916	1173	11%
11	A28 Canterbury Road, east of junction with Domneva Road	1814	53	3%	1762	28	2%	22498	1636	7%
12	Manston Road between Bramble Lane and Flete Road	326	47	14%	308	35.4	11%	4130	619	15%
13	Shottendane Road, north east of the junction with Park Lane	830	83	10%	909	118	13%	8367	1090	13%
14	B2050 Park Lane, between A28 Canterbury Road and Manston Road	496	12	2%	519	12	2%	6565	50	1%
15	A299 Thanet Way west of junction with A28	2994	211	7%	3146	105	3%	32981	5837	18%
16	A299 between A253 and A28	1941	148	8%	2043	75	4%	22028	1716	8%
17	A299 between B2190 and A253	2552	185	7%	2519	97	4%	28512	1922	7%
18	Minster Road southeast of the junction with Plumstone Road	602	48	8%	513	53	10%	5750	633	11%
19	B2050 Manston Road between Spitfire Way and Shottendane Road	497	47.2	9%	444	36.2	8%	5685	540	9%
20	B2190 Spitfire Way between B2050 Manston Road and B2190 Columbus Avenue	811	50	6%	789	24	3%	9146	1484	16%
21	A299 between B2190 and Canterbury Road West	2306	175	8%	2396	89	4%	25226	4348	17%
22	Manston Road, south of junction with Vincent Road	432	56	13%	429	32	7%	5246	634	12%
23	B2050 Manston Road between Manston Road and Manston Court Road	1004	26	3%	988	15	2%	10985	236	2%
24	Manston Court Road, south of the junction with Preston Road	212	28	13%	264	19	7%	2500	300	12%
25	Manston Court Road, east of Valley Road	334	46	14%	426	30	7%	4274	421	10%

ID	Road	AM Peak All Vehicles	AM Peak HGV	AM Peak %HGV	PM Peak All Vehicles	PM Peak HGV	PM Peak %HGV	24 Hour All vehicles	24 Hour HGV	24 Hour %HGV
26	Manston Road, west of the junction with Greensole Lane	788	79	10%	707	61	9%	9701	1053	11%
27	A256 Haine Road between B2050 Manston Road and Canterbury Road West	1951	95	5%	2530	58	2%	25624	962	4%
28	Canterbury Road West between A299 and Cliff View Road	320	10	3%	475	9	2%	4795	389	8%
29	M2 – Between Junctions 5 and 6	-	-	-	-	-	-	-	-	-
30	A2 – Between the A227 and B262 (Near Gravesend)	-	-	-	-	-	-	-	-	-
31	A20 – Between Dover and Folkestone	-	-	-	-	-	-	-	-	-

Existing Accident Record

- 14.5.30 This section reviews the PIA data that has been obtained from KCC for the most recent six year period up to and including June 2017. A six year period was selected to ensure a thorough understanding of the existing accident record was gained. The area covered in the PIA analysis is illustrated in **Figure 14.2** along with the accident locations and severity, whilst the full accident report is presented in **Appendix 14.1**.
- 14.5.31 The PIA data indicates that there were 708 accidents recorded within the wider study area over the six year period, of which 246 were on junctions/roads analysed below. Of those analysed, 209 were classified as slight in severity, 28 were classified as serious and 5 were classed as fatal. The accidents have been split into junctions and key links in order to present the data geographically. **Tables 14.5** and **Table 14.6** summarise the number of accidents and the severity over the assessment period. These tables have been split between accidents occurring within 100 m of the centre point of a junction and on links between junctions.
- 14.5.32 Consideration has been given to the PIA data when identifying sensitive locations and roads, and also with regard to mitigation identification.

Table 14.5 Summary of Accident Record 2011-2016 (Junctions)

Junctions	Total	Fatal	Serious	Slight
A299 / A28	12	1		11
A253 / A299 / Willetts Hill	15		2	13
A299 / B2190	10	1		9
B2050 / Manston Road / Spitfire Way	8		1	7
A299 / Canterbury Road W	12		2	10
A256 / A299	9		1	8
Cottington Link Road/Cottington Road	5			5
A256/Sandwich Road	6		1	5
Canterbury Road E/Sandwich Road/Hengist Way	7			7
Haine Road/Canterbury Road W	1			1
A256 / Manston Road	7			7
A256/Spratling Lane	3		1	2
New Haine Road/Marlowe Way	1			1
Haine Road/New Haine Road	4			
Haine Road /Star Lane Link	2			2
A254 / B2052	5			5
B2050 / Acol Hill / Park Lane	4			4
B2190 / Minster Road	1		1	
A256/Margate Road	7			7
B2050 / Shottendane Road / Margate Hill	7			7
B2050 / Manston Court Road	5		1	4

Table 14.6 Summary of Accident Record 2011-2016 (Links)

Links	Total	Fatal	Serious	Slight
A299 between A253 and A28	1			1
A299 between B2190 and A253	3			3
A299 Hengist Way between Canterbury Road W and Minster Road	6		3	3
Canterbury Road W between Haine Road and the Cliffsend Roundabout	7		1	6
Hengist Way between Richborough Way and Sandwich Road	7	1	1	5
A256 between Sandwich Road and Cottington Road	7	1	2	4
Haine Road between Canterbury Road W and Manston Road	5		1	4

Links	Total	Fatal	Serious	Slight
Haine Road between Spratling Road and Spratling Street	3			3
A256 between Star Lane Link Margate Road	6		1	5
Manston Court Road between Manston Road and Star Lane	5			5
B2050 Manston Road between Spitfire Way and Shottendane Road	24		4	20
Manston Road between Manston Court Road and A256	9			9
Manston Road between Spitfire Way and Manston Court Road	2			2
Manston Road between Spitfire Way and Shottendane Road	6		1	5
Spitfire Way between Minster Road and Manston Road	15	1	2	12
Minster Road and The St between B2190 and Acol Hill	8		1	7
B2190 between A299 and Minister Road	1		1	

Future Baseline

- 14.5.33 To understand the impact of the development in future years and specifically for the peak year of construction/operational traffic and operational traffic alone a growth rate is required.
- 14.5.34 The proposed future years of development that will be assessed within this chapter are as follows:
- ▶ Peak Year of Construction/Operational Traffic – Year 2 – 2021; and
 - ▶ Peak Year of Operational Traffic – Year 20 – 2039.
- 14.5.35 Growth rates have been developed based on the National Trip End Model (NTEM) growth rates extracted from the DfT's Trip End Model Presentation Program (TEMPO) 7.2 software for the Kent area. Although the TDC emerging Local Plan is not yet approved, consideration has been given to the proposed increase in the number of households and jobs and the TEMPO growth rates have been adjusted upwards to take this into account. This growth has been applied across the whole network which will provide for a more robust assessment. As the development regarding the preferred sites is not known, this blanket growth is considered to be a more appropriate and acceptable approach to take. **Table 14.7** summaries the future background traffic growth rates.

Table 14.7 Future Growth Factors – TEMPO 7.2

Year	Growth Factor					
	Light Vehicles			HGVs		
	AM	PM	24H	AM	PM	24H
2021	1.0622	1.0614	1.0632	1.0728	1.0720	1.0738
2039	1.2484	1.2591	1.2726	1.3115	1.3227	1.3370

- 14.5.36 This PEIR chapter presents the future baseline traffic flows at each receptor location for each assessment year.

14.6 Environmental Measures Incorporated into the Proposed Development

14.6.1 Environmental measures that have been incorporated into the Proposed Development are set out in **Table 14.8**. The measures are based on assessments and documents that will form part of the DCO application.

Table 14.8 Rationale for Incorporation of Environmental Measure

Potential receptors	Predicted changes and potential effects	Incorporated measure
Construction		
The users of local roads and the occupiers of land uses fronting roads likely to be affected	<p>Changes in the character of traffic (such as increases in HGVs), as a result of proposed construction traffic. Potential effects on:</p> <ul style="list-style-type: none"> • Severance • Driver delay • Pedestrian delay • Pedestrian amenity; and • Accidents and safety 	<p>A Construction Traffic Management Plan (CTMP) would be agreed with KCC prior to construction works commencing. The CTMP would seek to keep construction traffic on the strategic highway network and avoid sensitive routes and local communities in order to minimise impacts on receptors and manage environmental effects.</p> <p>The CTMP will manage the daily delivery profiles and control movements and routing of HGVs through the following measures:</p> <ul style="list-style-type: none"> • traffic routing strategy – ensuring vehicles access the site via the most appropriate route and avoid unnecessary conflict with sensitive areas; • traffic timing strategy – programme vehicle arrival/departures and working hours to lessen the impact on the highway network; • temporary signage – in accordance with the Department for Transport (DfT) (2006) <i>Traffic Signs Manual, Chapter 8</i> to inform local road users of construction access points and the presence of HGVs; • temporary traffic management – provided on approaches to accesses in the form of traffic warning signs, possible reductions in speed limit signs to ensure safe passage of vehicles. • Site accesses designed in accordance with HE (1995)DMRB TD 42/95 Geometric Design of Major/Minor Priority Junctions and • Staff travel plan – will provide details of how staff should travel to the site by alternative modes in an effort to reduce single occupancy vehicles travelling to the site. <p>A Construction Environmental Management Plan (CEMP) would be implemented for each phase of the development to control construction activities. The CEMP would detail working practices and any other measures that form part of the Proposed Development for which planning permission would have been granted</p>
Operation		
The users of local roads and the occupiers of land uses fronting roads likely to be affected	<p>Changes in the character of traffic (such as increases in traffic volume), as a result of operation of the Proposed Development. Potential effects on:</p> <ul style="list-style-type: none"> • Severance • Driver delay • Pedestrian delay • Pedestrian amenity; and • Accidents and safety 	<p>An Airport Surface Access Strategy (ASAS) will be submitted as part of the DCO application. The ASAS identifies the physical measures to maximise the multi modal accessibility to the site, including identification of bus/rail interchange opportunities, bus provision proposals and pedestrian improvements and linkages, including crossing points, as well as setting out the vehicular access. The proposals for shuttle buses, employee buses, and improvements to local bus interchanges will aim to reduce overall traffic and improve all effects.</p> <p>A TA will be part of the DCO application and identifies the off-site highway works to improve junctions and ensure 'nil-detriment' as a result of the Proposed Development, thereby addressing environmental effects on receptors such as driver delay. Off-site mitigation also considers the effects on pedestrian and incorporates improvements such as footway provision and crossing facilities to address this. Specific proposals include:</p> <ul style="list-style-type: none"> • improvement to the access junctions and off site junctions where operational capacity is adversely affected to minimise driver delay;

Potential receptors	Predicted changes and potential effects	Incorporated measure
		<ul style="list-style-type: none"> • Widening along Manston Road and Spitfire Way to accommodate the Proposed Development traffic and minimise driver delay; • Speed reduction along Spitfire Way and road safety improvements in the form of road signs and road markings; • Provision of new pedestrian crossings at all key access junctions to minimise pedestrian delay and optimise pedestrian amenity; • Provision of a new pedestrian link between the Cargo Facility and Passenger Terminal access to optimise pedestrian amenity; and • Accident analysis to inform mitigation schemes and address accident hot spots where improvements are proposed. <p>Travel Plans for the Airport and for the Northern Grass Area will be part of the DCO application. The Travel Plans set out initiatives to enable and encourage sustainable travel by public transport, cycling and walking and to reduce and discourage car travel in order to minimise impacts on receptors and manage environmental effects. The Travel Plans will set out:</p> <ul style="list-style-type: none"> • physical measures to enable sustainable travel, such as bus provision, cycle parking, footway provision and connectivity to the external network, car share scheme and parking spaces, etc; • influencing travel behaviour measures, including sustainable travel information provision and incentives to travel sustainably. <p>A PRoW Management Plan (PRoWMP) will be submitted as part of the DCO application and sets out proposals to retain all pedestrian links and routes that exist currently via diversions if required. As such impacts on the pedestrian effects will be no worse than they are currently or enhanced with new surfaces and routes.</p>

14.7 Scope of the Assessment

- 14.7.1 This section sets out information on the process whereby receptors are identified; the potential receptors that could be affected by the development; and the potential effects on receptors that could be caused by the development.
- 14.7.2 The scope of assessment has been informed by the scoping study's, consultation with KCC, the scheme design as it stands the results of the work detailed in **Section 14.4**, and GEART.

Approach to Identifying Receptors

- 14.7.3 The identification of receptors is based on the guidance set out in GEART. Receptors are:
- ▶ local roads and the users of those roads, including public transport users, pedestrians, cyclists and equestrians; and
 - ▶ land uses and environmental resources fronting those roads, including the relevant occupiers and users.

Spatial and Temporal Scope

- 14.7.4 The spatial scope of this assessment includes a wide scope of the local highways network taking in elements of the settlements of Ramsgate and Margate to the east though to the settlements of Birchington-on-Sea and Sarre in the west. A plan giving an overview of the study area is set out as **Figure 14.3**.
- 14.7.5 The temporal scope of this assessment has been established above as the peak years or the operational and construction traffic.

Potentially significant effects

- 14.7.6 The types of effect that could be expected during the construction and operational phases of the Proposed Development are taken from the GEART (guidelines for environmental assessment of road traffic) and are presented in **Table 14.9**. Those effects of relevance to this chapter are highlighted in bold text. The remaining issues are considered within the other chapters of this PEIR.

Table 14.9 Traffic Related Environment Effects Identified in GEART

Types of Traffic Related Environmental Effects		
Noise	Fear and Intimidation	Heritage and Conservation
Vibration	Accidents and Safety	Pedestrian Delay
Visual Effects	Hazardous Loads	Ecological Effects
Severance	Air Pollution	Pedestrian Amenity
Driver Delay	Dust and Dirt	

- 14.7.7 The potentially significant effects from the Proposed Development, which are subject to further discussion in this chapter, are summarised below. All other effects in Table 14.9 above are discussed within the corresponding technical chapter of this PEIR.

Severance

- 14.7.8 Severance is the perceived division that can occur within a community when it becomes separated by an increase in traffic on a route that separates people from other people and places. For example, severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by the road itself. It can also relate to locations where even low increase in traffic flows impede pedestrian access to essential facilities.
- 14.7.9 The effects of severance can be applied to motorists, pedestrians or residents but it is recognised that there are no predictive formulae which give simple relationships between traffic factors and levels of severance.
- 14.7.10 The GEART state that marginal changes in traffic flow are unlikely to create or remove severance, but that consideration in determining whether severance is likely to be an important issue should be given to factors such as road width, traffic flow and composition, traffic speeds, the availability of crossing facilities and the number of movements that are likely to cross the affected route. Consideration should also be given to different groups such as the elderly and young children.

Driver Delay

- 14.7.11 Delays to non-development traffic can occur at several points on the local highway network as a result of the additional traffic that would be generated by a development. The GEART state that delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system.

Pedestrian Delay

- 14.7.12 Changes in the volume, composition or speed of traffic may affect the ability of people to cross roads, and therefore, increases in traffic levels are likely to lead to greater increases in delay. Delays will also depend upon the general level of pedestrian activity, visibility and general physical conditions of the crossing location.

- 14.7.13 Given the range of local factors and conditions which can influence pedestrian delay, the GEART do not recommend that thresholds be used as a means to establish the significance of pedestrian delay, but recommend that reasoned judgements be made instead.

Pedestrian Amenity

- 14.7.14 Pedestrian amenity is broadly defined as the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic.

Fear and Intimidation

- 14.7.15 The scale of fear and intimidation experienced by pedestrians is dependent on the volume of traffic, its HGV composition, its proximity to people or the lack of protection caused by such factors as narrow pavement widths, as well as factors such as the speed and size of vehicles.
- 14.7.16 The GEART also note that special consideration should be given to areas where there are likely to be particular problems, such as high speed sections of road, locations of turning points and accesses. Consideration should also be given to areas frequented by school children, the elderly and other vulnerable groups.

Accident and Safety

- 14.7.17 Where a development is expected to produce a change in the character of the traffic on the local road network, as a result of increased HGV movements for example, the GEART state the implications of local circumstances or factors which may elevate or lessen risks of accidents, such as junction conflicts, would require assessment in order to determine the potential significance of accident risk.

Hazardous Loads

- 14.7.18 Some developments may involve the transportation of dangerous or hazardous loads by road and this should be recognized within the assessment. The GEART note that the number of movements should be calculated and if it is considered to be significant then a risk analysis should be undertaken.
- 14.7.19 As details of hazardous loads, including types and quantity of load, number of movements and access route, are yet to be finalised, this has not been included within this assessment.

14.8 Assessment Methodology

Methodology for Screening

- 14.8.1 The guidance that is followed when assessing the potential significance of road traffic effects is summarised in GEART (IEA, 1993), which states that:
- “The detailed assessment of impacts is...likely to concentrate on the period during which the absolute level of an impact is at its peak, as well as the hour at which the greatest level of change is likely to occur.” (Paragraph 3.10).*
- 14.8.2 To assess the impact at its peak, the likely percentage increase in traffic is determined by comparing estimates of traffic generated by the Proposed Development with future predicted baseline traffic flows on the road links in the study area.
- 14.8.3 In order to define the scale and extent of this assessment, the GEART guidelines identify the following rules by which to undertake an assessment of potentially significant traffic and transport related environmental effects:
- ▶ Rule 1: Include roads where traffic flows are predicted to increase by more than 30% (or where the number of HGVs are predicted to increase by more than 30%); and

- ▶ Rule 2: Include any specifically 'sensitive' areas where traffic flows are predicted to increase by 10% or more.

14.8.4 The 10% threshold in Rule two considers daily variations in traffic levels which are typically around 10% meaning that an increase in traffic levels of less than 10% is not likely to have an undesirable effect and would not require assessment.

Receptor sensitivity

14.8.5 The sensitivity of each highway link included in the assessment has been assigned a sensitivity in accordance with GEART. This is based on the proximity of sensitive receptors to the highway link and the highway environment. Table 14.10 summarises the rationale used to determine the sensitivity against the corresponding receptors as part of the assessment as contained in GEART. Professional judgement is also used to determine the sensitivity of the receptor.

Table 14.10 Receptor sensitivity

Sensitivity	Description/reason	Receptor
High	Receptors of greatest sensitivity to traffic flows: schools, colleges, playgrounds, accident blackspots, retirement homes and urban/residential homes without footways that are used by pedestrians and cyclists	Residents/workers travelling to and from work or home on foot and by bicycle, school children, leisure walkers and equestrians
Medium	Traffic flow sensitive receptors including: congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, unsegregated cycle ways, community centres, parks, recreation facilities	Residents/workers travelling to and from work or home on foot and by bicycle, people visiting these land uses
Low	Receptors with some sensitivity to traffic flows: places of worship, public open space, nature conservation areas, listed buildings, tourist/visitor attractions and residential areas with adequate footway provision	Residents/workers travelling to and from work or home on foot or bicycle and people visiting these land uses
Negligible	Receptors with low sensitivity to traffic flows: Motorway and Dual Carriageways and/or land uses sufficiently distant from affected routes and junctions	Residents/workers travelling by foot or by bicycle

14.8.6 Sensitivity judged as High or Medium results in Rule 2 being considered for that highway link. Sensitivity judged as Low or Negligible results in Rule 1 being considered for that highway link.

14.8.7 Given the potential receptors described, Table 14.10 identifies the sensitivity of highway link and the GEART Rule that applies.

14.8.8 In terms of defining 'sensitive' areas according to the GEART, some highway links assessed are considered to be 'sensitive' due to the fact that they have residential properties fronting the link or pedestrian activity. Therefore, a change of 10% or more in the total traffic flows or a change of 30% in the number of HGVs would trigger a detailed evaluation of the effects.

14.8.9 To determine the sensitivity of each receptor, the considerations below, taken from GEART, have been used as a basis for identification of sensitive receptors:

- ▶ people at home;
- ▶ people at work;
- ▶ sensitive groups including children, elderly and disabled;
- ▶ sensitive locations such as hospitals, churches, schools, and historical buildings;
- ▶ people walking;
- ▶ people cycling;

- ▶ open spaces, recreational areas, shopping areas;
- ▶ sites of ecological/nature conservation value; and
- ▶ sites of tourist/visitor attractions.

14.8.10 All other receptors, which are not considered sensitive, are predominantly non-residential in nature, have low pedestrian footfall, or have a road environment suited to the proposed activity and its associated traffic. These links are still assessed as part of this chapter as it is these links that are proposed to experience the largest increase in total vehicles and HGVs and may trigger the 30% threshold.

14.8.11 **Table 14.11** summarises the receptors that have been identified for this assessment and the resultant sensitivity as identified by GEART and use of professional judgement. The table sets out the potential receptors, the receptor ID, the highways link this is located on, some comments on the receptors and finally the judgment of the sensitivity of the receptor. These receptors and the corresponding highway links are also presented in **Figure 14.8**.

Table 14.11 Sensitivity of Highway Links where Receptors have been Identified

ID	Highway Link	Comments	Receptor sensitivity	Assessment (Rule 1/Rule 2)
1	A256 north of Sandwich	Routes predominantly through an agricultural area on a dual carriageway. No pedestrian facilities along majority of this highways link.	Negligible	1
2	A299 Hengist Way between Richborough Way and Sandwich Road	The link is a non-developed dual carriageway with no properties fronting the carriageway and no pedestrian footways	Negligible	1
3	A299 Canterbury Road E between A256 and Royal Harbour Approach	Initially through an agriculture area then into a residential area, but with properties well set back on a service lane	Low	1
4	Manston Road between Tesco's access roundabout and rail underbridge	This link passes close to Newington Community Primary School, although the area adjacent to the highway is commercial and residential in nature. The link has pedestrian footways and is a main link into Ramsgate.	High	2
5	B2014 Newington Road between B2050 Manston Road and A255 High Street	Commercial and residential area, anticipated high pedestrian flows to local shops schools and businesses. The link has pedestrian footways and located in the St Lawrence area of Ramsgate.	High	2
6	A255 High Street between B2014 Newington Road and Ellington Place	Commercial and residential area, anticipated high pedestrian flows to local shops schools and businesses. The link has pedestrian footways and located in the St Lawrence area of Ramsgate and link passes local parks and schools.	High	2
7	A254 Margate Road between Broadstairs Rewail park and the B2014	Commercial and residential area, anticipated high pedestrian flows to local shops schools and businesses. The link has pedestrian footways and located in the Northwood area of Ramsgate.	High	2
8	A256 Westwood Road between Poorhole Lane and Northwood Lane	Commercial and residential area, anticipated high pedestrian flows to local shops schools and businesses. The link has pedestrian footways and located in the Broadstairs.	High	2
9	A254 Ramsgate Road between Star Lane and Nash Court Road	Commercial and residential area with some industrial uses fronting the carriageway. Anticipated there is a high pedestrian flows to local shops schools and businesses. The link has pedestrian footways and located between Westwood Cross and Margate and is a key link in the local area.	High	2

ID	Highway Link	Comments	Receptor sensitivity	Assessment (Rule 1/Rule 2)
10	A254 Ramsgate Road north of the junction with B2052 College Road	-Link though busy residential area with numerous properties adjacent to the carriageway and pedestrian footways. South end of link is a village centre type setting.	Medium	2
11	A28 Canterbury Road, east of the junction with Domneva Road	Predominantly a residential area that is just adjacent to a commercial area so properties (residential and shops fronting the carriageway). Link has pedestrian footways.	Medium	2
12	Manston Road between Shottendane Road and Vincent Road	The link is a single track rural road through agricultural areas where some properties front the carriageway. Predominantly no pedestrian footway but there are footways on the approach to Shottendane Road.	Medium	2
13	Shottendane Road between Manston Road and High Street	The link is a single track rural road through agricultural areas where some properties front the carriageway. Predominantly no pedestrian footway but there are footways on the approach to Manston Road.	Low	1
14	B2050 Park Lane, between A28 Canterbury Road and Manston Road	Predominantly a residential and commercial area and the link does have pedestrian footways. Birchington C of E school also fronts onto the carriageway.	High	2
15	A299 Thanet Way west of junction with A28	The link is a dual carriageway with no properties fronting the carriageway and no pedestrian footways. Already conveys a high percentage of HGVs	Negligible	1
16	A299 between A253 and A28	The link is a dual carriageway with no properties fronting the carriageway and no pedestrian footways. Already conveys a high percentage of HGVs.	Negligible	1
17	A299 between B2190 and A253	The link is a dual carriageway with no properties fronting the carriageway and no pedestrian footways. Already conveys a high percentage of HGVs.	Negligible	1
18	Minster Road between B2190 and Manston Road (Acol)	Predominantly agricultural area with frontage properties as the route passes through the small village of Acol. Despite the village setting the village of Acol does not have pedestrian footways	High	2
19	B2050 Manston Road between Spitfire Way and Shottendane Road	Predominantly agricultural area and along the link the small amount of footways (near the junction with Spitfire Way) and some properties are well set back from the carriageway.	Low	1
20	B2190 Spitfire Way between Spitfire Way and B2190 Columbus Avenue	Predominantly agricultural area to the north and the Manston Airport Site to the south. There are only a few properties along this link which front the carriageway.	Low	1
21	A299 between B2190 and Canterbury Road West	The link is a dual carriageway with no properties fronting the carriageway and no pedestrian footways. Already conveys a high percentage of HGVs.	Negligible	1
22	Manston Road, south of the junction with Vincent Road	Predominantly agricultural area with frontage properties as the route passes through the small village setting near Drome Garage Despite the village setting there are no footways.	Low	1
23	B2050 Manston Road between Manston Road and Manston Court Road	The link runs through the Manston Airport site and no properties front onto the carriageway and no footways are present	Negligible	1
24	Manston Court Road, south of the junction with Preston Road	Predominantly agricultural area with frontage properties as the route passes through the small village setting near Manston Court Holiday Park. Despite the village setting there	Medium	2

ID	Highway Link	Comments	Receptor sensitivity	Assessment (Rule 1/Rule 2)
		are no footways. The route is also near the tourist site Manston Court Holiday Park.		
25	Manston Court Road, east of Valley Road	Predominantly agricultural area with frontage properties as the route passes through the small village setting near Bradgate Caravan Park. Despite the village setting there are no footways.	Medium	2
26	Manston Road, between the centre of Manston Village and the A256	The link passes through the centre of Manston Village and although the remaining section of this link is agricultural in nature the village setting of Manson is considered to be the defining factor on this link.	Medium	2
27	A256 Haine Road between B2050 Manston Road and Canterbury Road West	The link is a single carriageway with no properties fronting the carriageway and no pedestrian footways. Already conveys a high percentage of HGVs.	Negligible	1
28	Canterbury Road West between A299 and Cliff View Road	The link is a single carriageway with no properties fronting the carriageway and no pedestrian footways.	Negligible	1
29	M2 – Between Junctions 5 and 6	This link is a motorway that is set back from properties and is designed to carry high traffic and HGV flows.	Negligible	1
30	A2 – Between the A227 and B262 (Near Gravesend)	This link is a key 'A' road which is part of the strategic highways network that is set back from properties and is designed to carry high traffic and HGV flows.	Negligible	1
31	A20 – Between Dover and Folkestone	This link is key A road which is part of the strategic highways network that is set back from properties and is designed to carry high traffic and HGV flows.	Negligible	1

14.8.12 **Table 14.12** provides details of thresholds used to determine the magnitude of levels of each transport effect based on guidance within GEART.

Table 14.12 Magnitude of effect

Transport effect	Magnitude of effect			
	Major	Moderate	Minor	Negligible
Severance	Change in total traffic or HGV flows over 90% And/or Where there will be a temporary maximum increase in pedestrian journey length of 500m or more along a road or other public right of way for more than 6 months over a 12 month period	Change in total traffic or HGV flows of 60-90% And/or Where there will be a temporary maximum increase in pedestrian journey length of 250m – 500m along a road or other public right of way for a 3-6 month period over 12 months	Change in total traffic or HGV flows of 30-60% And/or Where there will be a temporary increase in pedestrian journey length of up to 250m along a road or other public right of way for between 4 weeks and 3 months over a 12 month period	Change in total traffic or HGV flows of less than 30% And/or Where there will be no temporary increase in pedestrian journey length.
Driver delay	Change in total traffic or HGV flows over 90%	Change in total traffic or HGV flows of 60-90%	Change in total traffic or HGV flows of 30-60%	Change in total traffic or HGV flows of less than 30%

Pedestrian amenity and delay	Change in total traffic or HGV flows over 90%	Change in total traffic or HGV flows of 60-90%	Change in total traffic or HGV flows of 30-60%	Change in total traffic or HGV flows of less than 30%
Accidents and road safety	Informed by a review of existing collision patterns and trends based upon the existing personal injury accident records and the forecast increase in traffic.			

Significance evaluation methodology

Effect evaluation

- 14.8.13 The classification of a likely traffic and transport effect is derived by considering the sensitivity of the receptor (derived from Table 14.11) against the magnitude of impact (derived from Table 14.12) as defined in Table 14.13.

Table 14.13 Significance matrix

Receptor sensitivity	Magnitude of effect				
		Major	Moderate	Minor	Negligible
	High	Major adverse – Significant	Major adverse – Significant	Moderate adverse – Significant	Negligible
	Medium	Major adverse – Significant	Moderate adverse – Significant	Minor to moderate adverse – Not significant	Negligible
	Low	Moderate adverse – Significant	Minor to moderate adverse – Not significant	Minor adverse – Not significant	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible

- 14.8.14 The following terms have been used to classify the level of effects, where they are predicted to occur:
- ▶ Major adverse or Major beneficial – where the development would cause a significant deterioration (or improvement) to the existing environmental effect;
 - ▶ Moderate adverse or Moderate beneficial – where the development would cause a noticeable deterioration (or improvement) to the existing environmental effect;
 - ▶ Minor adverse or Minor beneficial – where the development would cause a small deterioration (or improvement) to the existing environmental effect; and
 - ▶ Neutral – no discernible deterioration or improvement to the existing environment.
- 14.8.15 Note that for the purposes of the EIA, Major and Moderate adverse effects are considered to be significant, whilst Minor and Negligible adverse effects are considered 'neutral/not significant'.
- 14.8.16 Effects can also be described, for example, as:
- ▶ beneficial, negligible or adverse;
 - ▶ temporary (short term, medium term, long term) or permanent; and
 - ▶ local, district, regional or national.

Methodology for assessing environmental effects

- 14.8.17 In relation to traffic and transport, the significance of each effect identified in Section 6.7 has been considered against the criteria within GEART, where possible. However, GEART states that:

'For many effects there are no simple rules or formulae which define thresholds of significance and there is, therefore, a need for interpretation and judgement on the part of the assessor, backed-up by data or quantified information wherever possible. Such judgements will include the assessment of the numbers of people experiencing a change in environmental impact as well as the assessment of the damage to various natural resources.' (Paragraph 4.5, IEA, 1993).

Severance

- 14.8.18 There are no predictive formulae which give simple relationships between traffic factors and levels of severance. GEART states that changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance. In general, marginal (slight) changes in traffic flow are, by themselves, unlikely to create or remove severance. The magnitude of effect can also be assessed against increases in pedestrian journey length along roads and/or PRowS for between four weeks and six months as identified in Table 14.12.

Driver delay

- 14.8.19 GEART states that delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system. The capacity of a road or a particular junction can be determined by establishing the ratio of flow to capacity (RFC).
- 14.8.20 For this assessment, criteria from GEART has been used to assess the effects on traffic levels and driver delay, which states the need for assessment where changes in traffic flows exceed 30%.

Pedestrian delay

- 14.8.21 Given the range of local factors and conditions which can influence pedestrian delay, GEART does not recommend that thresholds be used as a means to establish the significance of pedestrian delay, but recommend that reasoned judgements be made instead. However, GEART suggests a lower threshold of 10 seconds delay and upper threshold of 40 seconds delay which, for a link with no crossing facilities, equates to the lower threshold of a two-way flow of 1,400 vehicles per hour.

Pedestrian amenity

- 14.8.22 GEART notes that changes in pedestrian amenity may be considered significant where the traffic flow is halved or doubled, with the former leading to a positive effect and the latter a negative effect.

Accidents and safety

- 14.8.23 Informed by a review of existing collision patterns and trends based upon the existing personal injury collision records and the forecast increase in traffic.

14.9 Assessment of effects

- 14.9.1 To undertake the assessment of effects traffic generated by the development, the development traffic flows need to be estimated and these trips need to be distributed on to the highway network. The methodology that has been developed as part of the work to support the DCO application is provided in **Appendix 14.3**.
- 14.9.2 In this PEIR chapter assessment will only be provided for the worst-case traffic flow scenario, which is for the operational traffic. Construction traffic has been screened out on the basis that the flows are less than fully operational. Details of this comparison will be set out in the TA prepared as part of the DCO application.

- 14.9.3 The Proposed Development trips for operational traffic has been added to those future baseline years to provide a clear impact on the difference between the growthed future base years and the growthed future year with Development.
- 14.9.4 It is at this stage that the significance will be predicted using the rules in **Table 14.11**. For those receptors where the change is considered significant, further assessment will be made using the criteria in **Section 14.7**.
- 14.9.5 This PEIR chapter sets out the assessment for the peak operational traffic year (Year 20). The findings will be summarised in **Tables 14.16 to 14.22**.

Traffic and Transport Environmental Assessment for the Peak Operational Phase – Year 20 (2039)

- 14.9.6 **Table 14.14** sets out the Two Way 24-hour Traffic Flow (All Vehicles and HGVs) for the peak operational traffic period (Year 20) and identifies the percentage increase. Where the threshold of change is 30%, or 10% for sensitive locations, this is identified in red.

Table 14.14 2039 compared with 2039 Operational Traffic (Year 20)

ID	Road	Assessment Rule	2039 Future Baseline		2039 Future Baseline plus Construction		% Change	
			24 Hour All Vehs	24 Hour HGV	24 Hour All Vehs	24 Hour HGV	24 Hour All Vehs	24 Hour HGV
1	A256 north of Sandwich	1	35641	4742	37587	4750	5%	0%
2	A299 Hengist Way between Richborough Way and Sandwich Road	1	42820	2044	42846	2044	0%	0%
3	A299 Canterbury Road E between A256 and Royal Harbour Approach	1	29164	3447	29815	3451	2%	0%
4	Manston Road between Tesco's access roundabout and rail underbridge	2	14159	1087	14681	1087	4%	0%
5	B2014 Newington Road between B2050 Manston Road and A255 High Street	2	21779	165	22301	165	2%	0%
6	A255 High Street between B2014 Newington Road and Ellington Place	2	20585	136	21107	136	3%	0%
7	A254 Margate Road between Broadstairs Rewail park and the B2014	2	20945	1730	21093	1730	1%	0%
8	A256 Westwood Road between Poorhole Lane and Northwood Lane	2	29200	1856	29957	1856	3%	0%
9	A254 Ramsgate Road between Star Lane and Nash Court Road	2	28826	2381	28826	2381	0%	0%
10	A254 Ramsgate Road north of the junction with B2052 College Road	2	13892	1568	13892	1568	0%	0%

ID	Road	Assessment Rule	2039 Future Baseline		2039 Future Baseline plus Construction		% Change	
			24 Hour All Vehs	24 Hour HGV	24 Hour All Vehs	24 Hour HGV	24 Hour All Vehs	24 Hour HGV
11	A28 Canterbury Road, east of the junction with Domneva Road	2	28630	2187	28664	2187	0%	0%
12	Manston Road between Shottendane Road and Vincent Road	2	5256	828	6312	828	20%	0%
13	Shottendane Road between Manston Road and High Street	1	10648	1457	10648	1457	0%	0%
14	B2050 Park Lane, between A28 Canterbury Road and Manston Road	2	8355	67	8692	67	4%	0%
15	A299 Thanet Way west of junction with A28	1	41972	7804	44474	8464	6%	8%
16	A299 between A253 and A28	1	28033	2295	30573	2955	9%	29%
17	A299 between B2190 and A253	1	36285	2570	38881	3230	7%	26%
18	Minster Road between B2190 and Manston Road (Acol)	2	7317	846	7341	846	0%	0%
19	B2050 Manston Road between Spitfire Way and Shottendane Road	1	7234	722	8298	722	15%	0%
20	B2190 Spitfire Way between Spitfire Way and B2190 Columbus Avenue	1	11639	1984	14381	2596	24%	31%
21	A299 between B2190 and Canterbury Road West	1	32103	5813	32151	5861	0%	1%
22	Manston Road, south of the junction with Vincent Road	1	6676	848	7732	848	16%	0%
23	B2050 Manston Road between Manston Road and Manston Court Road	1	13980	315	19360	459	38%	46%
24	Manston Court Road, south of the junction with Preston Road	2	3182	401	4239	401	33%	0%
25	Manston Court Road, east of Valley Road	2	5440	563	6497	563	19%	0%
26	Manston Road, between the centre of Manston Village and the A256	2	12345	1408	16050	1415	30%	0%
27	A256 Haine Road between B2050 Manston Road and Canterbury Road West	1	32609	1286	35307	1293	8%	1%

ID	Road	Assessment Rule	2039 Future Baseline		2039 Future Baseline plus Construction		% Change	
			24 Hour All Vehs	24 Hour HGV	24 Hour All Vehs	24 Hour HGV	24 Hour All Vehs	24 Hour HGV
28	Canterbury Road West between A299 and Cliff View Road	1	6102	521	6144	563	1%	8%
29	M2 – Between Junctions 5 and 6	1	78937	6704	80618	7407	2.1%	10.5%
30	A2 – Between the A227 and B262 (Near Gravesend)	1	184306	15080	185530	15784	0.7%	4.7%
31	A20 – Between Dover and Folkestone	1	51659	7221	51835	7221	0.3%	0.0%

14.9.7 Comparing the % change analysis presented above with the relevant screening criteria in **Table 14.14**, demonstrates that the environmental effects on receptors at the following six locations require further assessment:

- ▶ 12 - Manston Road between Shottendane Road and Vincent Road;
- ▶ 20 - B2190 Spitfire Way between Spitfire Way and B2190 Columbus Avenue;
- ▶ 23 - B2050 Manston Road between Manston Road and Manston Court Road;
- ▶ 24 - Manston Court Road, south of the junction with Preston Road;
- ▶ 25 - Manston Court Road, east of Valley Road; and
- ▶ 26 - Manston Road, between the centre of Manston Village and the A256.

14.9.8 These locations requiring further assessment are shown in **Figure 14.9**.

14.9.9 Further assessment is undertaken below for the receptors, where the predicted change in traffic flows is considered to be significant.

14.10 Assessment of effects on receptors

14.10.1 The six receptors which have been identified as requiring assessment are now assessed in detail below.

Receptor 12 – Manston Road between Shottendane Road and Vincent Road

14.10.2 **Table 14.15** sets out the predicted effects and their significance for the key environmental impacts. The requirement for assessment is based on the fact that in the operational period the predicted total traffic flows are predicted to increase by 20% across the 24-hour period. The sensitivity of the receptor has been identified as medium, and based on Table 14.12, as the change in traffic flows is less than 30%, the magnitude of effect is generally negligible.

Table 14.15 Predicted effects and their significance near Receptor 12 (Manston Road between Shottendane Road and Vincent Road)

Effects	Comments	Magnitude of Effect	Significance
Severance	At this receptor location, there are residential properties on the western side of Manston Road south of the junction with Shottendane Road and a crematorium	Negligible	Negligible

Effects	Comments	Magnitude of Effect	Significance
	<p>on the eastern side to the south of the housing. There are pedestrian footways on both sides of the carriageway, but along the housing frontage, there are no land uses on the opposite of the road that would attract pedestrians to cross the road.</p> <p>Given that the highway link has medium receptor sensitivity and increases in traffic are well below 30% resulting in negligible magnitude, the level of the effect is considered negligible overall and therefore not significant.</p>		
Driver Delay	<p>In this location Manston Road has been constructed a two-lane single carriageway and has on street parking and has been designed to accommodate traffic flows suitable for residential areas.</p> <p>Given that the highway link has medium receptor sensitivity and increases in traffic are well below 30% resulting in negligible magnitude, the level of the effect is considered negligible overall and therefore not significant.</p>	Negligible	Negligible
Pedestrian Delay	<p>As identified above, there are no pedestrian desire lines across Manston Road and pedestrians would not be impeded by additional traffic.</p> <p>Given that the highway link has medium receptor sensitivity and increases in traffic are well below 30% resulting in negligible magnitude, the level of the effect is considered negligible overall and therefore not significant.</p>	Negligible	Negligible
Pedestrian Amenity	<p>The pedestrian footways are of adequate width. Given that the highway link has medium receptor sensitivity and increases in traffic are well below 30% resulting in negligible magnitude, the level of the effect is considered negligible overall and therefore not significant.</p>	Negligible	Negligible
Fear and Intimidation	<p>The degree of hazard to pedestrian's changes is relative to the increase in HGVs which there is not proposed to be an impact at the receptor. Even with an increase in light vehicles on the link it's not considered that this would result in a significant change to the fear and intimidation at the receptor.</p>	Negligible	Negligible
Accidents and Safety	<p>Along the link that forms this receptor there have been 24 accidents, 4 of which have been serious and 20 which are slight. However, these accidents were recorded over the total length of the link and no clusters were found in the vicinity of the area where pedestrian footways and residential receptors are located.</p>	Minor	Minor to moderate adverse – Not significant

Receptor 20 – B2190 Spitfire Way between Spitfire Way and B2190 Columbus Avenue

14.10.3 **Table 14.16** sets out the predicted effects and their significance for the key environmental impacts. The requirement for assessment is based on the fact that in the operational period the predicted total traffic flows are predicted to increase by 24% across the 24-hour period while HGVs are predicted to rise by 31%. The sensitivity of the receptor has been identified as low, and based on Table 14.12, as the change in HGV flows is less than 60% and more than 30%, the magnitude of effect is generally minor.

Table 14.16 Predicted effects and their significance near Receptor 20 (B2190 Spitfire Way between Spitfire Way and B2190 Columbus Avenue)

Effects	Comments	Magnitude of Effect	Significance
Severance	<p>In this location, there are residential properties to the north of the B2190 Spitfire Way which front onto the highway and no pedestrian link are provided. A small pedestrian link exists on the B2190 Spitfire Way arm on the junction of the B2190 Spitfire Way with B2190 Columbus Avenue. Due to the limited need for pedestrian facilities along this link, and that the highway link has a low receptor sensitivity and increases in traffic are below 60% minor magnitude of effect, the significance is minor adverse - not significant.</p>	Minor	Minor adverse – not significant

Effects	Comments	Magnitude of Effect	Significance
Driver Delay	In this location, the B2190 is a single carriageway road, which, for much of its length is rural in nature with grassed verges adjacent to the carriageway. As the Environmental Measures will include road widening along this section of road to accommodate the Proposed Development traffic, the magnitude of effect is considered to be minor and, the significance is minor adverse - not significant.	Minor	Minor adverse – not significant
Pedestrian Delay	There is limited need for pedestrian facilities along this link, and limited pedestrian activity. The highway link has a low receptor sensitivity and increases in traffic are below 60% minor magnitude of effect, the significance is minor adverse - not significant.	Minor	Minor adverse – not significant
Pedestrian Amenity	As above, given the limited pedestrian activity, and the highway link has a low receptor sensitivity and increases in traffic are below 60% minor magnitude of effect, the significance is minor adverse - not significant.	Minor	Minor adverse – not significant
Fear and Intimidation	As above, given the limited pedestrian activity, and the highway link has a low receptor sensitivity and increases in traffic are below 60% minor magnitude of effect, the significance is minor adverse - not significant.	Minor	Minor adverse – not significant
Accidents and Safety	There has been only one fatal accident and two serious accidents recorded in the last five years and it is unlikely that this area of the network is at, or close to, the capacity of the system. Therefore, the magnitude of effect could be major. However, as the Environmental Measures will include road widening along this section of road, there are proposals to reduce the traffic speed and there will be road markings and warning signs to alert drivers to the road section with the bend, the magnitude of effect is considered to be minor.	Minor	Minor adverse – not significant

Receptor 23 – B2050 Manston Road between Manston Road and Manston Court Road

14.10.4 **Table 14.17** sets out the predicted effects and their significance for the key environmental impacts. The requirement for assessment is based on the fact that in the operational period the predicted total traffic flows are predicted to increase by 38% and HGVs by 46% across the 24-hour period. The sensitivity of the receptor has been identified as negligible, and based on Table 14.12, as the change in HGV flows is less than 60% and more than 30%, the magnitude of effect is generally minor.

Table 14.17 Predicted effects and their significance near Receptor 23 (B2050 Manston Road between Manston Road and Manston Court Road)

Effects	Comments	Magnitude of Effect	Significance
Severance	In this location there are no properties, frontages or pedestrian links. It is therefore considered that effects due to severance are negligible.	Negligible	Negligible
Driver Delay	In this location, the B2050 Manston road is a single carriageway which routes along the northern boundary of the Airport site, there are no frontages to properties but the airport access exists on this link. The Environmental Measures will include any mitigation required to accommodate the Proposed Development traffic along this section. The effects are therefore considered minor.	Minor	Negligible
Pedestrian Delay	In this location there are no properties, frontages or pedestrian links It is therefore considered that effects due to severance are negligible.	Negligible	Negligible
Pedestrian Amenity	In this location there are no properties, frontages or pedestrian links. It is therefore considered that effects are negligible.	Negligible	Negligible
Fear and Intimidation	The degree of hazard to pedestrians is unclassified with the addition of the max operation traffic. However, in this location there are no properties, frontages or pedestrian links. It is therefore considered that effects are negligible.	Negligible	Negligible

Effects	Comments	Magnitude of Effect	Significance
Accidents and Safety	There have been only two slight accidents recorded in the last five years. It is therefore considered that effects are negligible.	Negligible	Negligible

Receptor 24 – Manston Court Road, south of the junction with Preston Road

14.10.5 **Table 14.18** sets out the predicted effects and their significance for the key environmental impacts. The requirement for assessment is based on the fact that in the operational period the predicted total traffic flows are predicted to increase by 33% across the 24-hour period. The sensitivity of the receptor has been identified as medium, and based on Table 14.12, as the change in traffic flows is less than 60% and more than 30%, the magnitude of effect is generally minor.

Table 14.18 Predicted effects and their significance near Receptor 24 (Manston Court Road, south of the junction with Preston Road)

Effects	Comments	Magnitude of Effect	Significance
Severance	In this location, there are residential properties which front onto to the west and east side of Manston Court Road but no pedestrian footways are provided along this link. There aren't any land uses which result in pedestrian desires lines to cross the road. Given that the highway link has medium receptor sensitivity and increases in traffic are well below 60% resulting in minor magnitude, the level of the effect is considered minor to moderate overall and therefore not significant.	Minor	Minor to moderate adverse – Not significant
Driver Delay	In this location, Manston Court Road is a single carriageway which narrows in sections along its route and is fronted by residential properties. The Environmental Measures will include any mitigation required to accommodate the Proposed Development traffic along this section. The effects are therefore considered minor.	Minor	Minor to moderate adverse – Not significant
Pedestrian Delay	There is limited pedestrian activity in this location. Given that the highway link has medium receptor sensitivity and increases in traffic are well below 60% resulting in minor magnitude, the level of the effect is considered minor to moderate overall and therefore not significant.	Minor	Minor to moderate adverse – Not significant
Pedestrian Amenity	As already identified, there is limited pedestrian activity in the area. Given that the highway link has medium receptor sensitivity and increases in traffic are well below 60% resulting in minor magnitude, the level of the effect is considered minor to moderate overall and therefore not significant.	Minor	Minor to moderate adverse – Not significant
Fear and Intimidation	As already identified, there is limited pedestrian activity in the area. Given that the highway link has medium receptor sensitivity and increases in traffic are well below 60% resulting in minor magnitude, the level of the effect is considered minor to moderate overall and therefore not significant.	Minor	Minor to moderate adverse – Not significant
Accidents and Safety	There have been only five slight accidents recorded in the last five years. It is therefore considered that effects are minor.	Minor	Minor to moderate adverse – Not significant

Receptor 25 – Manston Court Road, east of Valley Road

14.10.6 **Table 14.19** sets out the predicted effects and their significance for the key environmental impacts. The requirement for assessment is based on the fact that in the operational period the predicted total traffic flows are predicted to increase by 19% across the 24-hour period. The sensitivity of the receptor has been identified as medium, and based on Table 14.12, as the change in traffic flows is less than 30%, the magnitude of effect is generally negligible.

Table 14.19 Predicted effects and their significance near Receptor 25 (Manston Court Road, east of Valley Road)

Effects	Comments	Magnitude of Effect	Significance
Severance	In this location, there are residential properties to the north of Manston Court Road. No pedestrian crossing is required as there aren't any land uses which result in pedestrian desire lines to cross the road. Given that the highway link has medium receptor sensitivity and increases in traffic are below 30% resulting in negligible magnitude, the level of the effect is considered negligible.	Negligible	Negligible
Driver Delay	In this location Manston Court Road is a single carriageway which is traffic calmed. The Environmental Measures will include any mitigation required to accommodate the Proposed Development traffic along this section. The effects are therefore considered negligible.	Negligible	Negligible
Pedestrian Delay	There are verges which are used by pedestrians and footways. As identified above, there are no pedestrian desire lines across Manston Court Road which would result in an environmental effect of pedestrian delay. The effect is therefore considered negligible.	Negligible	Negligible
Pedestrian Amenity	As identified above, Manston Court Road is traffic calmed to discourage speeds above the 30mph speed limit. There is no increase in HGVs as a result of the Proposed Development and therefore pedestrian amenity won't be adversely affected by greater HGV traffic flows. The Environmental Measures to be identified by the TA process will consider capacity constraints along the route and mitigation requirements. The effect is therefore considered negligible.	Negligible	Negligible
Fear and Intimidation	As identified above, there are no pedestrian desire lines across Manston Court Road and there is no increase in HGV traffic. The Environmental Measures to be identified by the TA process will consider capacity constraints along the route and mitigation requirements. The effect is therefore considered negligible.	Negligible	Negligible
Accidents and Safety	There have been only five serious accidents recorded in the last five years. It is therefore considered that effects are minor.	Minor	Minor to moderate adverse – Not significant

Receptor 26 – Manston Road, between the centre of Manston Village and the A256

14.10.7 **Table 14.20** sets out the predicted effects and their significance for the key environmental impacts. The requirement for assessment is based on the fact that in the operational period the predicted total traffic flows are predicted to increase by 30% across the 24-hour period. The sensitivity of the receptor has been identified as medium, and based on Table 14.12, as the change in traffic flows is less than 60%, the magnitude of effect is generally minor.

Table 14.20 Predicted effects and their significance near Receptor 26 (Manston Road, between the centre of Manston Village and the A256)

Effects	Comments	Magnitude of Effect	Significance
Severance	In this location, there are properties on both the north and south side of the B2050 Manston Road as the road enters Manston Village. Therefore, pedestrians who wish to cross the road and may be impeded by the additional traffic. The Environmental Measures to be identified by the TA process will consider capacity constraints and pedestrian facilities along the route and mitigation requirements to deliver a nil detriment situation. The effect is therefore considered minor.	Minor	Minor to moderate adverse – Not significant
Driver Delay	The route experiences high traffic volumes through a sensitive location. The Environmental Measures to be identified by the TA process will consider capacity constraints and pedestrian facilities along the route and mitigation requirements to deliver a nil detriment situation. The effect is therefore considered minor	Minor	Minor to moderate adverse – Not significant

Effects	Comments	Magnitude of Effect	Significance
Pedestrian Delay	As identified above the route through the village is sensitive to change. The Environmental Measures to be identified by the TA process will consider capacity constraints and pedestrian facilities along the route and mitigation requirements to deliver a nil detriment situation. This may include pedestrian improvements and crossing facilities, or further traffic calming. On the basis that the environmental measures will be delivered, the effect is therefore considered minor.	Minor	Minor to moderate adverse – Not significant
Pedestrian Amenity	The Environmental Measures to be identified by the TA process will consider capacity constraints and pedestrian facilities along the route and mitigation requirements to deliver a nil detriment situation. This may include pedestrian improvements and crossing facilities, or further traffic calming. On the basis that the environmental measures will be delivered, the effect is therefore considered minor.	Minor	Minor to moderate adverse – Not significant
Fear and Intimidation	The Environmental Measures to be identified by the TA process will consider capacity constraints and pedestrian facilities along the route and mitigation requirements to deliver a nil detriment situation. This may include pedestrian improvements and crossing facilities, or further traffic calming. On the basis that the environmental measures will be delivered, the effect is therefore considered minor.	Minor	Minor to moderate adverse – Not significant
Accidents and Safety	There have been only nine slight accidents recorded in the last five years. It is therefore considered that effects are minor.	Minor	Minor to moderate adverse – Not significant

14.11 Conclusions of significance evaluation

14.11.1 **Table 14.21** summarises the significance of road traffic effects on receptors as a result of changes in traffic flows on the local road network that would arise from the Proposed Development.

Table 14.21 Summary of significance of effects during maximum year of operation (Year 20)

Receptor	Effect	Significance ¹
Receptor 12 - Manston Road between Shottendane Road and Vincent Road	Severance	Not significant
	Driver delay	Not significant
	Pedestrian delay and amenity	Not significant
	Accidents and safety	Not significant
Receptor 20 – B2190 Spitfire Way between Spitfire Way and B2190 Columbus Avenue	Severance	Not significant
	Driver delay	Not significant
	Pedestrian delay and amenity	Not significant
	Accidents and safety	Not significant
Receptor 23 – B2050 Manston Road between Manston Road and Manston Court Road	Severance	Not significant
	Driver delay	Not significant
	Pedestrian delay and amenity	Not significant
	Accidents and safety	Not significant

Receptor 24 – Manston Court Road, south of the junction with Preston Road	Severance	Not significant
	Driver delay	Not significant
	Pedestrian delay and amenity	Not significant
	Accidents and safety	Not significant
Receptor 25 – Manston Court Road, east of Valley Road	Severance	Not significant
	Driver delay	Not significant
	Pedestrian delay and amenity	Not significant
	Accidents and safety	Not significant
Receptor 26 – Manston Road, between the centre of Manston Village and the A256	Severance	Not significant
	Driver delay	Not significant
	Pedestrian delay and amenity	Not significant
	Accidents and safety	Not significant



Contents

15.	Health and Wellbeing	15-1
15.1	Introduction	15-1
15.2	Policy and Legislative Context	15-1
15.3	Data Gathering Methodology	15-4
15.4	Overall Health and Wellbeing Baseline	15-8
15.5	Environmental Measures Incorporated into the Proposed Development	15-13
15.6	Scope of the Assessment	15-13
15.7	Assessment Methodology	15-15
15.8	Assessment of Effects on Health and Wellbeing	15-18
15.9	Conclusions of Significance Evaluation	15-24

15. Health and Wellbeing

15.1 Introduction

- 15.1.1 This chapter of the PEIR presents the early findings of a Health Impact Assessment (HIA) process that is being undertaken for the Proposed Development. HIA is a multidisciplinary process designed to identify and assess the potential public health outcomes (both adverse and beneficial) of a proposed project, plan or programme, and to deliver evidence-based recommendations that maximise health gains and reduce or remove potential negative impacts or inequalities¹. The HIA process is currently being applied to test and inform the proposed application, and a full HIA will be provided as an appendix to the Environmental Statement (ES) and submitted for consideration as part of the Development Consent Order (DCO).
- 15.1.2 This remainder of this chapter summarises how construction and operational activities of the Proposed Development have the potential to affect public health and wellbeing through environmental and socio-economic pathways. The assessment also considers, where possible, the spatial and social distribution of impacts within different groups, to investigate and address any disproportionate outcome on any sensitive community group.
- 15.1.3 Potential for risks to life or health resulting from major accidents and disasters is assessed in **Chapter 17**.

15.2 Policy and Legislative Context

Legislative Requirements

Legislation

- 15.2.1 Regulation 5(2)(a) and paragraph 4(2)(a) of Schedule 4 to the 2017 EIA Regulations² require the consideration of public health through planning, and require that an EIA assesses the effects (where likely to be significant) on population and human health, amongst other factors.

National Policy

- 15.2.2 Promoting healthy communities is a theme of the National Planning Policy framework (NPPF)³, which states that “*the planning system can plan an important role in facilitating social interaction and creating healthy, inclusive communities*” (paragraph 69).
- 15.2.3 Although not explicitly referenced in NPPF or required by the Aviation Policy Framework⁴, HIA is often regarded as good practice for major developments; has been used to provide evidence concerning several other airports in the UK, and the approach fulfils the reinforced legislative requirement.

1 WMPHO (2007) A Critical Guide to HIA, PHE. Available online at:

<https://web.archive.org/web/20170301012334/http://www.apho.org.uk/resource/view.aspx?RID=44422> [Checked 09/05/17].

2 UK Parliament, “The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 SI 2017/572,” 2017. [Online]. Available: http://www.legislation.gov.uk/uksi/2017/572/pdfs/uksi_20170572_en.pdf.

3 DCLG, “National Planning Policy Framework,” 2012.

4 Secretary of State for Transport, “Aviation Policy Framework,” Department for Transport, 2013.

Regional and Local Policy

- 15.2.4 The following Thanet local policies, as detailed in the Draft Thanet Local Plan to 2031⁵, are relevant to the protection of health and wellbeing.

Policy SP31 – Healthy and Inclusive Communities

- 15.2.5 As detailed in the Draft Thanet Local Plan to 2031 Preferred Options Consultation⁶, Policy SP31 – Healthy and Inclusive Communities, states the following: *“The Council will work with relevant organisations, communities and developers to promote, protect and improve the health of Thanet’s residents, and reduce health inequalities. Proposals will be supported that:*

- ▶ *bring forward accessible community services and facilities, including new health facilities,*
- ▶ *safeguard existing community services and facilities,*
- ▶ *safeguard or provide open space, sport and recreation and enable access to nature,*
- ▶ *promote healthier options for transport including cycling and walking,*
- ▶ *improve or increase access to a healthy food supply such as allotments, markets and farm shops,*
- ▶ *create social interaction and safe environments through mixed uses and the design and layout of development,*
- ▶ *create a healthy environment that regulates local climate.”*

Policy SE01 – Potentially Polluting Development

- 15.2.6 As detailed in the Draft Thanet Local Plan to 2031 Preferred Options Consultation⁷, Policy SE01 – Potentially Polluting Development, states the following: *“Development with potential to pollute will be permitted only where:*

- ▶ *Applicable statutory pollution controls and siting will effectively and adequately minimise impact upon land use and the environment including the effects on health, the natural environment or general amenity resulting from the release of pollutants to water, land or air or from noise, dust, vibration, light, odour or heat; and*

In determining individual proposals, regard will be paid to:

- ▶ *The economic and wider social need for the development; and*
- ▶ *The visual impact of measure needed to comply with any statutory environmental quality standards or objectives.*

Permission for development which is sensitive to pollution will be permitted only if it is sufficiently separated from any existing or potential source of pollution as to reduce pollution impact upon health, the natural environment or general amenity to an acceptable level, and adequate safeguarding and mitigation on residential amenity.”

5 Thanet District Council, “Draft Thanet Local Plan to 2031 Preferred Options Consultation,” January 2015. [Online]. Available: <https://www.thanet.gov.uk/media/3432043/Final-Thanet-Preferred-Option-Draft-Local-Plan-Inovem-Inc-Appendices-with-cover.pdf>.

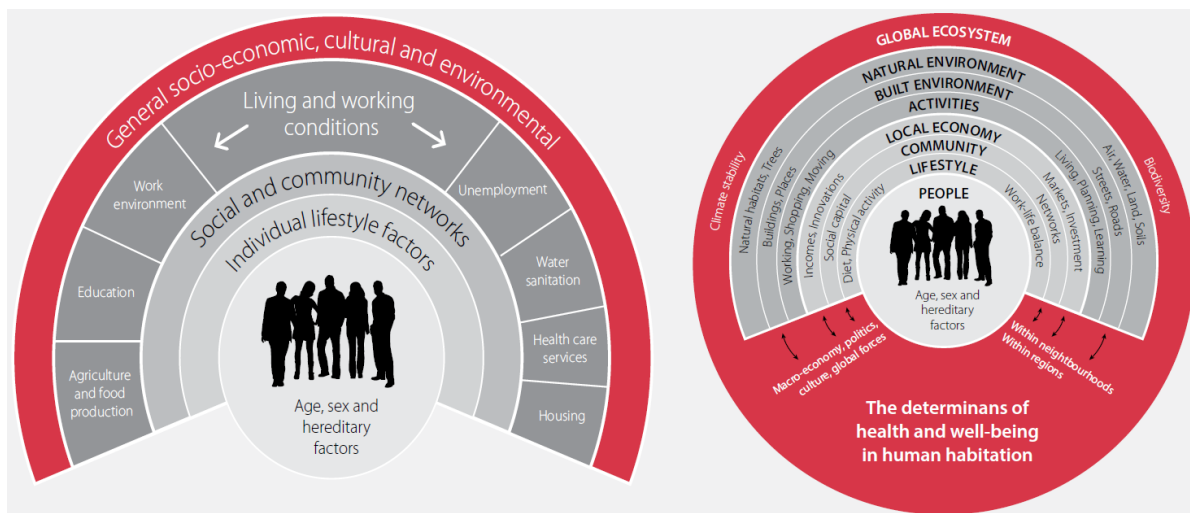
6 Thanet District Council, “Draft Thanet Local Plan to 2031 Preferred Options Consultation,” January 2015. [Online]. Available: <https://www.thanet.gov.uk/media/3432043/Final-Thanet-Preferred-Option-Draft-Local-Plan-Inovem-Inc-Appendices-with-cover.pdf>.

7 Thanet District Council, “Draft Thanet Local Plan to 2031 Preferred Options Consultation,” January 2015. [Online]. Available: <https://www.thanet.gov.uk/media/3432043/Final-Thanet-Preferred-Option-Draft-Local-Plan-Inovem-Inc-Appendices-with-cover.pdf>.

Guidance

- 15.2.7 There is a large body of guidance on HIA generally and in the context of development planning^{8 9 10}, drawing from expert evidence and national government policy regarding the importance of integrating public health into the planning system^{12 13 14}.
- 15.2.8 Methods employed in a particular HIA should be proportionate, tailored to meet the assessment requirements of the project in question, which can differ considerably depending on the scale, nature of potential impacts, and whether an individual development or broader policy is being assessed.
- 15.2.9 The basis of this assessment of health and wellbeing impacts is to apply a broad socio-economic model of health that encompasses conventional health impacts such as disease, accidents and risk, along with wider health determinants vital to achieving good health and wellbeing such as employment and local amenity. It considers both physical and mental health, and also addresses equality and social impacts. The assessment is therefore based on both 'social' and 'ecological' (environmental) determinants of health, illustrated in **Figure 15.1**, which are affected through relevant health pathways defined in the following section.

Figure 15.1: Social (left) and ecological (right) determinants of health



Reproduced from Reference 15, citing Reference 16 and Reference 17.

- 15.2.10 The assessment follows a source-pathway-receptor concept to identify and assess health impacts that are plausible and attributable to the Proposed Development. As shown in **Table 15.1**, a hazard in, and of itself does not constitute a health risk: it is only when there is a hazard source, a sensitive receptor and a pathway of exposure where there is a potential for risk to health. Where a source-pathway-receptor linkage exists, it is then the nature of the specific hazard source, the magnitude

8 WMPHO, "A Critical Guide to HIA," PHE, 2007. [Online]. Available:

<https://web.archive.org/web/20170301012334/http://www.apho.org.uk/resource/view.aspx?RID=44422>. [Accessed 09 May 2017].

9 C. Chadderton, E. Elliott, L. Green, J. Lester and G. Williams, "Health Impact Assessment: A practical guide," Public Health Wales, Cardiff University and WHIASU, 2012.

10 The NHS Centre for Equality and Human Rights, "a Toolkit for carrying out Equality Impact Assessment".

11 A. Ross and M. Chang, "Reuniting Health with Planning - Healthier Homes, Healthier Communities," Town and Country Planning Association, 2012.

12 M. Marmot, J. Allen, P. Goldblatt, T. Boyce, D. McNeish, M. Grady and I. Geddes, "Fair Society, Healthy Lives: The Marmot Review. Strategic review of health inequalities in England post-2010," London, 2010.

13 Department of Health, "Healthy Lives, Healthy People: Our strategy for public health in England," 2010.

14 DCLG, "Planning Practice Guidance. The role of health and wellbeing in planning.," 2014. [Online]. Available: <https://www.gov.uk/guidance/health-and-wellbeing>. [Accessed 09 May 2017].

15 C. Chadderton, E. Elliott, L. Green, J. Lester and G. Williams, "Health Impact Assessment: A practical guide," Public Health Wales, Cardiff University and WHIASU, 2012.

16 G. Dahlgren and M. Whitehead, "Policies and strategies to promote social equality in health," Institute for Futures Studies, Stockholm, 1991.

17 H. Barton and M. Grant, "A health map for the local human habitat," The Journal of the Royal Society for the Promotion of Health, vol. 126, pp. 252-253, 2006.

of impact via the pathway and the sensitivity of the receptor that will determine what level of health risk is predicted.

Table 15.1: Example of Source-Pathway-Receptor Model for Health Effects

Source	Pathway	Receptor	Plausible Health Impact	Explanation
✗	✓	✓	No	There is not a clear source from where a potential health impact could originate.
✓	✗	✓	No	The source of a potential health impact lacks a means of transmission to a population.
✓	✓	✗	No	Receptors that would be sensitive or vulnerable to the health impact are not present.
✓	✓	✓	Yes	Identifying a source, pathway and receptor does not mean a health impact is a likely significant effect; health impacts should be assessed (describing what effect will occur and its likelihood) and likely health effects are then evaluated for significance.
Reproduced from IEMA: Reference 18				

15.3 Data Gathering Methodology

Desk Study

- 15.3.1 Evidence suggests that different communities have varying susceptibilities to health impacts and benefits as a result of social and demographic structure, behaviour and relative economic circumstance¹⁹. A health baseline section therefore not only forms the basis to exposure response modelling, but also provides a means to consider how potential health pathways identified might act disproportionately upon certain communities and sensitive groups.
- 15.3.2 Health baseline data will be collected and reviewed for Thanet, Dover and Canterbury districts and their respective Clinical Commissioning Groups (CCGs) from the following sources:
- ▶ PHE Local Health Profiles;
 - ▶ Health and Social Care Information Centre (HSCIC);
 - ▶ NHS Hospital Episode Statistics (HES);
 - ▶ British Heart Foundation (BHF);
 - ▶ NHS Quality and Outcomes Framework (QOF);
 - ▶ Cancer Statistics;
 - ▶ NOMIS Official Labour Market Statistics; and
 - ▶ Index of Multiple Deprivation 2015.

18 IEMA, "Health in Environmental Impact Assessment: A Primer for a Proportionate Approach," 2017. [Online]. Available:

<https://www.iema.net/assets/newbuild/documents/IEMA%20Primer%20on%20Health%20in%20UK%20EIA%20Doc%20V11.pdf>. [Accessed 13 November 2017].

19 PHE, "Critical guide to HIA (WMPHO, England)," PHE, 2007. [Online]. Available: <http://www.apho.org.uk/resource/item.aspx?RID=44422>.

Consultation

Section 42 Consultation

15.3.3 Although Health Impact was not required to be assessed in the 2017 PEIR or in the EIA Scoping report, a number of consultees did comment on the potential for health related effects arising as a result of the Proposed Development. These included:

- ▶ Acol Parish Council;
- ▶ CPRE;
- ▶ Dover District Council;
- ▶ Kent County Council;
- ▶ Public Health England;
- ▶ Thanet District Council;
- ▶ Thanet Green Party; and
- ▶ Ramsgate Society.

15.3.4 Health and wellbeing related concerns were centred around changes in noise exposure, changes in air quality, and the potential for disproportionate impacts on particularly sensitive communities in the in the surrounding area. In addition, a proportion of consultees were supportive of expected socio-economic benefits in the local area such as income and employment generation which are two of the most significant wider determinants of health. These are summarised in **Table 15.2**. Following the current consultation to which this PEIR relates, a full summary of health, quality of life, and socio-economic (such as employment and income generation) related comments raised by statutory consultees will be referenced in the HIA.

Table 15.2: Summary of Statutory Consultation Health Concerns Raised to Date

Source	Pathway
Noise	<p>There is concern that aircraft noise has severe negative effects on people's health and quality of life. Short term health/quality of life concerns include sleep disturbance, annoyance, and impairment of learning in children, while longer term health/quality of life concerns include the associated risk of high blood pressure, heart disease, heart attack, stroke, dementia and mental health issues.</p> <p>In particular, residential occupiers within close proximity of the airport and residents living under flight paths are considered sensitive receptors, especially to aircraft noise generated from night flights.</p> <p>In addition, the fiscal impact on health services from health problems associated with exposure to aircraft noise above recommended levels is a cause for concern.</p>
Air pollution	<p>There is concern that the construction and operation of the Proposed Development will increase air pollution, which could exceed guidelines set to be protective of the environment and human health.</p> <p>Health problems associated with air pollution which have been identified by consultees include Alzheimer's, cancer, decreased pulmonary function, respiratory morbidity, cardiovascular morbidity, and increased mortality rate/premature death.</p>
Health inequalities / sensitive members of the community	<p>Thanet has high levels of deprivation with some of the worst health outcomes and lowest life expectancy throughout Kent. In addition, Thanet's population is more elderly than the national average.</p> <p>Particularly sensitive communities within Thanet identified by statutory consultees include Newington, Ramsgate and Herne Bay. It has been suggested that these communities should be given particular consideration when assessing impacts on human health.</p> <p>There are many children in Newington, a high proportion of social housing, and poor educational attainment (the latter point for throughout Thanet). This is a particular concern that flights will disrupt lessons and children's sleep, resulting in tiredness during the day and the loss of a considerable amount of learning time.</p>
Health specific consultation	<p>Health specific consultation with Public Health or Health and Wellbeing Teams is recommended to allow for comment and contribute into the assessments of the socio economic and wider public health aspects of the development.</p>
Wider determinants of health (employment generation, income generation and connectivity)	<p>Employment offers social and economic opportunities not only for residents within Thanet but also for those living in the wider districts such as Dover.</p> <p>Social benefits for employees who will receive skills development, and also for those who will eventually use passenger flights.</p> <p>As wider determinants of health, factors such as employment, income and enhanced connectivity all contribute to health and wellbeing.</p>

Community Consultation

- 15.3.5 Local community consultees provided feedback via a questionnaire. **Table 15.3** summarises community responses relating to health, quality of life, and socio-economic impacts. Following the further period of consultation, a full summary of health, quality of life, and socio-economic community consultee comments will be referenced in the HIA.

Table 15.3: Summary of Public Consultation Health Concerns Raised to Date

Question	Response Summary
Do you have any comments on our Outline Business Case for reopening Manston Airport?	<p>69 comments were received about the negative health impacts on residents, for example on physical and mental well-being especially of children, and 3 mentioned the increase in danger/risk to life from falling debris, planes and HGV collisions. 50 comments were received about the health impacts of air pollution. 1 respondent was concerned about how the NHS would cope if there was an accident. 40 respondents mentioned the impact that noise would have on sleep deprivation.</p> <p>175 respondents suggested that reopening the airport would provide jobs in the local area and help businesses to grow. Others said their support was conditional upon job creation (12) and that opportunities needed to have good terms of employment (1). 1 respondent suggested that the promoter should start any activities not requiring a licence as soon as possible to create jobs at the site. Some respondents were concerned that the project may not create as many jobs as anticipated (87), would lead to job losses (5), or that the jobs created would be unsuitable for the local skill set (5).</p>
Do you have any comments or suggestions about how we could maximise the social and economic benefits of reopening Manston Airport?	<p>82 respondents commented that the Project would have a negative effect on quality of life for local residents. Effects mentioned include impact on community and social life, impacts on children's health and derelict aircraft and scrap becoming an eyesore.</p> <p>83 people raised concerns about the impact of the airport on health. There was particular concern about harm being caused to children's learning and development and that night flights would lead to sleep deprivation. Of these, 14 respondents were also concerned that life expectancy would be reduced.</p> <p>92 respondents commented on the economic benefits that the Project would bring, including 84 respondents who suggested that such economic benefits would lead to less reliance on welfare and would help Thanet to become self-sufficient.</p> <p>190 respondents expressed support for education and training opportunities for local people. This included assertions that the airport would inspire educational achievement in the local area as well as suggestions that the airport should work with, and invest in, local schools, colleges and universities to encourage apprenticeships and training. 13 respondents suggested building educational / training facilities at the airport itself with a further 5 suggesting that there should be flight crew training opportunities.</p> <p>190 respondents expressed support for education and training opportunities for local people. This included assertions that the airport would inspire educational achievement in the local area as well as suggestions that the airport should work with, and invest in, local schools, colleges and universities to encourage apprenticeships and training. 13 respondents suggested building educational / training facilities at the airport itself with a further 5 suggesting that there should be flight crew training opportunities.</p> <p>51 people commented generally about the positive impact on employment that the Project would bring to the area. 15 respondents specifically commented that employment must be long-term, sustainable and secure and 12 respondents suggested that jobs be provided at all levels, from unskilled to highly skilled.</p>
Do you have any comments or suggestions about the potential impacts of the Project and our proposals to limit them?	<p>45 respondents said that reopening the site would have a negative impact on the physical and mental health of the local population. Comments specifically mentioned issues for development of children, strokes, heart disease, lung cancer, chronic and acute respiratory diseases, higher pregnancy complication rates and higher infant mortality, mental illness and depression and lower life expectancy, health inequality and chronic obstructive pulmonary disease (COPD). 34 respondents said that general health would be damaged due to increased noise and 12 respondents specifically raised concerns that mental health would be damaged due to increased noise, including from night flights.</p> <p>46 comments were received about health risks from living under a flying path and 12 mentioned the impact of noise on mental health. One respondent said that the impact of radar on health was currently unknown.</p> <p>In support of these concerns, 5 respondents quoted reports/evidence about the negative effects of living near an airport. 48 respondents raised concerns about the effects of emissions/air quality on health.</p> <p>75 respondents said that the development was positive or that the positive effects would outweigh the negative, for example increases in employment, tourists and property values. 3 said that this was the type of develop Thanet needs.</p> <p>24 responses highlighted the negative effect it would have on house prices in the area and 40 said that it would have a negative impact on regeneration in Ramsgate. 23 respondents also said that the positive impacts the project would have on employment had been overestimated.</p> <p>Some respondents said that the proposals would increase tourism in the area. On the other hand, 24 responses said that the project would damage tourism and 21 said this would be a result of air and noise pollution, and environmental damage.</p>
Do you have any	A large number of the respondents were concerned that night flights and the associated noise would

comments on the possibility for limited night flights at Manston Airport?

negatively impact the health of local residents, in particular children and the elderly, and tourists. Potential health impacts raised by respondents included:

- effects on mental health;
- impairment of learning in children;
- impact on the cardiovascular system including increased risk of high blood pressure, heart disease, heart attacks and strokes;
- increased risk of dementia;
- reduced lifespan;
- insomnia and interruptions to sleep and the impact this has on mental and general health and quality of life;
- impact on health caused by pollution and aviation fumes; and
- impact on cognition.

In support of these comments, respondents cited evidence from the World Health Organisation and the Aviation Environment Federation.

Several respondents commented that night flights, and the resulting loss of sleep would seriously affect the quality of their work and family life with some respondents commenting that they would need to move house if night flights were allowed.

A number of respondents suggested that any proposals for night flights should be subject to a Health Impact assessment by independent experts.

A number of respondents raised the concern that night flights would have a negative impact on the quality of life for local residents.

Director of Public Health

15.3.6 In addition to the consultation responses in **Table 15.3**, additional health-focussed consultation was carried out with the Kent Director of Public Health (DPH). The Kent DPH was issued a draft copy of the Manston Airport HIA Scoping Statement for review which was followed up by a telephone conversation. The general approach and scope was agreed, and the following key points were emphasised:

- ▶ the immediate surrounding area of Manston Airport (Thanet) has low life expectancy and high rates of all-age all-cause mortality in comparison to the rest of Kent; and
- ▶ areas likely to be directly affected by the proposal include Newington, Central Harbour and Eastcliffe areas of Ramsgate.

15.3.7 In addition, it was highlighted that the local health economy is currently struggling to deliver sustainable health care services. It was suggested that the organisations responsible for delivering these services should be consulted via a health forum, expected to take place in January 2018.

15.3.8 The health forum will seek to engage with key health stakeholders to understand local public health circumstance and priorities, inform planning, support health objectives, and manage potential impacts on healthcare during construction. We will seek to organise this with the Kent DPH, inviting the relevant organisations which are anticipated to include:

- ▶ Thanet Clinical Commissioning Group;
- ▶ East Kent Hospitals Foundation Trust;
- ▶ Kent Community Healthcare Foundation Trust;
- ▶ Kent and Medway Partnership Trust; and
- ▶ Southeast Ambulance Trust.

15.4 Overall Health and Wellbeing Baseline

Current Baseline

- 15.4.1 The information to support the current baseline is drawn from the study area health and wellbeing baseline summary, presented in **Appendix 15.1**.

Background

- 15.4.2 The health and wellbeing baseline reviews demographic, socio-economic and health statistics, drawing from national databases such as the Office for National Statistics (ONS) and NHS, local Public Health Observatories, and organisations such as the British Heart Foundation.
- 15.4.3 Communities within Thanet are in closest proximity and therefore have the highest potential to be affected by local environmental impacts of the airport, while many socio-economic impacts, arising from employment generation and economic investment, may also be realised further afield in the wider study area of Dover and Canterbury. On this basis, the health and wellbeing baseline concentrates primarily on the district of Thanet, but also takes into consideration Dover and Canterbury districts which represent the wider study area.

Demography

- 15.4.4 The study area has a higher population growth than the regional and national average but this varies between each local authority. Overall, the demographic profile of the study area has a larger proportion of elderly residents and 20-24 year olds when compared to the national average.

Deprivation and Economic Activity

- 15.4.1 The following deprivation categories were analysed: overall, income, employment, education, health and crime by Lower Super Output Area (LSOA) which is a geographic area which reports small area statistics taken by the census. The least deprived domain within the study area is health; this domain has the lowest amount of LSOAs in deprivation categories 1 and 2 (40% most deprived out of all LSOAs nationally) and the highest amount of LSOAs in deprivation categories 4 and 5 (40% least deprived out of all LSOAs nationally). All other domains are relatively similar to one another²⁰.
- 15.4.2 Overall, Thanet district has the highest proportion of LSOAs in the highest deprivation category (34%) compared to Dover and Canterbury (17% and 13% respectively) and the lowest proportion of LSOAs in the lowest deprivation category (2%) compared to Dover and Canterbury (6% and 17% respectively). As a result, it is clear that Thanet district is the most deprived local authority within the study area and Canterbury district is the least deprived²¹.
- 15.4.3 Economic activity and employment rates within the study area are below the regional and national averages. In addition, the level of educational attainment and income within the study area is also below respective regional and national averages.

Physical Health

- 15.4.4 Life expectancy for both genders is increasing at a similar rate to the national and regional trend. Between the years of 2009-2015, male life expectancy in the study area is consistently below the national, regional and county averages. Generally, this is also the case for female life expectancy; however, there is one instance in 2011-2013 where female life expectancy is equal to the national average.
- 15.4.5 All-age all-natural cause mortality is highest in Dover district and lowest in Canterbury district. Both Dover district and Thanet district have all-age all-natural cause mortality rates higher than the

20 Department for Communities and Local Government, "The English Indices of Deprivation 2015," 2015. [Online]. Available: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/464597/English_Indices_of_Deprivation_2015_-_Research_Report.pdf.

21 Department for Communities and Local Government, "The English Indices of Deprivation 2015," 2015. [Online]. Available: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/464597/English_Indices_of_Deprivation_2015_-_Research_Report.pdf.

regional and national averages. Canterbury district on the other hand has an all-age all-natural cause mortality rate lower than the national average but still higher than the regional average.

- 15.4.6 With the exception of rheumatic heart disease, Thanet has a higher emergency hospital admission rate (per 100,000 population) compared to the national average for all other cardiovascular diseases including hypertension, ischaemic heart disease (IHD) and cerebrovascular diseases²². Hypertension prevalence is higher in Thanet than nationally, as is IHD and stroke incidence and IHD mortality, while stroke mortality rates in Thanet are lower than nationally^{23 24}. Mortality from cardiovascular disease within the wider study area has been decreasing over time to a level just below the national average. The most recent statistics show that mortality from cardiovascular disease within the wider study area has dropped to below the national average, whereas in previous years, mortality in the study area had been consistently higher.
- 15.4.7 Thanet has a lower emergency hospital admission rate (per 100,000 population) for all respiratory diseases compared to the national average but has a higher mortality rate (per 100,000 population). Mortality from respiratory disease has been gradually increasing since 2012; compared to other causes of death within the wider study area (such as cardiovascular disease and cancer), respiratory disease is the lowest contributor to mortality.
- 15.4.8 Cancer incidence is higher in all the CCGs that make up the study area when compared to the national average (614.8 per 100,000 population). Thanet CCG has the highest incidence (671.5 per 100,000 population) out of all the CCGs within the wider study area while South Kent Coast CCG has the lowest incidence (630.1 per 100,000 population). Canterbury & Coastal CCG has a cancer incidence rate of 631.6 per 100,000 population, which is more comparable to South Kent Coast CCG. Cancer is the largest contributor to cause of death within the study area. Mortality as a result of cancer in the study area has remained relatively static while both the regional and national averages have been gradually decreasing over time.

Mental Health

- 15.4.9 In terms of mental health, depression recorded incidence in the wider study area is consistently higher than national and regional averages and has been increasing. Long-term mental health problems have recently seen a decrease to below the national average but still higher than the regional average, following the regional trend. Hospital stays for self-harm can also be used as a proxy for mental health issues and has generally seen a decrease but remains above regional and national averages.
- 15.4.10 Out of all the CCGs located within the study area, Thanet CCG and Canterbury & Coastal CCG have the lowest dementia recorded prevalence (all ages) in the study area; however, all CCGs within the study area have higher dementia prevalence than the regional and national averages.

Lifestyle

- 15.4.11 Overall, child obesity in the wider study area is higher than the regional and national averages. However, when broken down by district, Canterbury has a lower child obesity level than both regional and national averages while Thanet and Dover are more comparable to one another and higher than regionally and nationally. Trends show that childhood obesity is generally increasing which is also the case for the South-East and England.
- 15.4.12 For adults, excess weight in adults within the wider study area has increased and is higher than regional and national averages. Similar to childhood obesity, excess weight in adults is higher in Thanet and Dover compared to regional and national averages, while Canterbury shows a lower proportion of adults with excess weight.

²² NOMIS, "Local Authority Profile," 2011. [Online]. Available: <https://www.nomisweb.co.uk/reports/lmp/la/contents.aspx>. [Accessed 7 June 2017].

²³ NHS, "QOF database," 2016. [Online]. Available: <https://www.gpcontract.co.uk/browse/ENG/16>.

²⁴ BHF, "Cardiovascular Disease Statistics 2015," 2015. [Online]. Available: <https://www.bhf.org.uk/publications/statistics/cvd-stats-2015>.

- 15.4.13 Physical activity in the wider study area, measured by the percentage of adults doing 150+ minutes of physical activity per week, negatively correlates with obesity and excess weight statistics. The proportion of adults doing 150+ minutes of physical activity per week in the wider study area is generally lower than the regional and national averages. Between 2012 and 2013 there was a decrease in physical activity levels but since 2013, this has been increasing.
- 15.4.14 Between 2012 and 2015, smoking prevalence in the wider study area was consistently higher than the regional and national average. Between 2015 and 2016, smoking prevalence in the wider study area shows a large decrease to below the national average but still remains higher than the regional average. There is an overall decreasing trend in smoking prevalence in all areas.
- 15.4.15 Hospital stays for alcohol related harm in the wider study area is consistently higher than the regional average and consistently lower than the national average. All areas show a relatively static trend year on year.

Housing

- 15.4.16 The proportion of social rented housing is lower than regional and national averages, while private rented housing and owner occupied housing is more common. The proportion of those living rent free is the same as regionally and nationally. Housing is becoming increasingly unaffordable within the study area; housing is most unaffordable in Canterbury district, and most affordable in Dover district which is the only area to have more affordable housing than the national average.

Crime

- 15.4.17 Crime rate within the study area is consistently higher than the UK average and has increased over the years while the national average remains relatively static. The largest contribution to crime committed in the study area is from "anti-social behaviour" (ASB) followed by "violent" crimes and "criminal damage and arson".

Community Health Needs and Objectives

- 15.4.18 In addition to the quantitative data collected, general health needs and objectives are outlined within health and wellbeing strategies or needs assessments undertaken at district and/or county level. This helps inform the recommendations within the Health Action Plan to ensure suggested initiatives contribute to rather than repeat or contradict what is already outlined.
- 15.4.19 As the wider determinants of health are concerned with a variety of topics, the health and wellbeing issues covered and actions developed as part of local authority documents often go beyond the scope of the influence of a single project. Those beyond the influence of this project and not considered relevant in this instance include: diabetes, dental health, antimicrobial resistance, vaccinations, maternal health, substance misuse, teenage pregnancy, STIs and domestic abuse.
- 15.4.20 **Table 15.4** highlights relevant health and wellbeing issues within Kent County, setting out priority actions for improvement, as identified by the Health and Wellbeing Boards. This forms the local health needs and objectives policy against which any changes predicted due to the Proposed Development can be appraised. National priorities, as identified in the 'Promoting Healthy Communities' section of the NPPF, are also summarised.

Table 15.4: Locally-Identified Health Needs and Objectives

Health/wellbeing issue	Action to improve	Source
Kent County		
Lifestyle risk factors	Behaviour change techniques should be promoted.	25
Health inequalities	Recognise and act upon the social determinants of health such as education, housing and green spaces.	26
Healthy weight	Provide advice on the benefits of behaviour change and ensure the needs of those most at risk are met.	27
Mental health	Enable people to feel connected and in control; improve social and community support; and encourage workforce wellbeing initiatives.	28
Physical activity	Lifestyle-focussed health improvement services; integrate physical activity into transport and environmental planning; and increase use of the natural environment for physical activity.	29
Healthcare Capacity	The Care Quality Commission has rendered a variety of services inadequate. This is likely due to understaffing.	Director of Public Health
National (NPPF)		
Community cohesion	Promote safe and accessible environments, high quality public space and opportunities for meetings between members of the community	30
Social, recreational and cultural facilities	Plan positively for and deliver the services the community needs, including guarding against unnecessary loss	31
Open space provision and rights of way	Access to high quality open spaces and opportunities for sport and recreation; protect and enhance public rights of way and access	32

Conclusion

15.4.21 Overall, the community profile reports higher than average levels of socio-economic deprivation and an existing burden of poor health within the study area.

25 Kent Public Health Observatory, "Joint Strategic Needs Assessment Overview Report," August 2016. [Online]. Available: http://www.kpho.org.uk/_data/assets/pdf_file/0015/66003/Draft-JSNA-Overview-Report-V12-15.12.16-7.pdf. [Accessed 29 September 2017].

26 Kent Public Health Observatory, "Joint Strategic Needs Assessment Overview Report," August 2016. [Online]. Available: http://www.kpho.org.uk/_data/assets/pdf_file/0015/66003/Draft-JSNA-Overview-Report-V12-15.12.16-7.pdf. [Accessed 29 September 2017].

27 Kent Public Health Observatory, "Joint Strategic Needs Assessment Overview Report," August 2016. [Online]. Available: http://www.kpho.org.uk/_data/assets/pdf_file/0015/66003/Draft-JSNA-Overview-Report-V12-15.12.16-7.pdf. [Accessed 29 September 2017].

28 Kent Public Health Observatory, "Joint Strategic Needs Assessment Overview Report," August 2016. [Online]. Available: http://www.kpho.org.uk/_data/assets/pdf_file/0015/66003/Draft-JSNA-Overview-Report-V12-15.12.16-7.pdf. [Accessed 29 September 2017].

29 Kent Public Health Observatory, "Joint Strategic Needs Assessment Overview Report," August 2016. [Online]. Available: http://www.kpho.org.uk/_data/assets/pdf_file/0015/66003/Draft-JSNA-Overview-Report-V12-15.12.16-7.pdf. [Accessed 29 September 2017].

30 DCLG, "National Planning Policy Framework," 2012.

31 DCLG, "National Planning Policy Framework," 2012.

32 DCLG, "National Planning Policy Framework," 2012.

- 15.4.22 As a result, the local community surrounding the Proposed Development are considered more sensitive to changes in the environment. However, it is important to note that the large number of employment opportunities associated with the Proposed Development has the potential to widely benefit the health and wellbeing of socio-economically disadvantaged residents in the locality.

Future Baseline

- 15.4.23 As it is challenging to predict the future health and wellbeing baseline a decade or more hence with high confidence, trends are analysed as part of the current baseline to provide insight into likely future local community circumstance.
- 15.4.24 For the purpose of quantitative impact assessment, the present-day baseline health and demographic data (plus consented developments containing sensitive receptors) is used, in effect comparing two parallel situations in which the predicted with- and without-development scenarios were happening in the present day. By framing the analysis as two scenarios using present-day data, all the other variables can be held constant, allowing the change in health outcomes due specifically to the Proposed Development to be assessed on a like-for-like basis.

15.5 Environmental Measures Incorporated into the Proposed Development

- 15.5.1 Embedded mitigation and enhancement measures which have the potential to affect health and wellbeing are already detailed in the following PEIR topic chapters that comprise the environmental and social health pathways being assessed:
- ▶ Air Quality (**Chapter 6**);
 - ▶ Noise and Vibration (**Chapter 12**);
 - ▶ Transport (**Chapter 14**); and
 - ▶ Socio-economic (**Chapter 13**).

15.6 Scope of the Assessment

Approach to Identifying Receptors

- 15.6.1 Health and wellbeing receptors include residences, schools and community facilities which have the potential to be affected by relevant health pathways such as environmental changes (to air quality, noise and transport) and socio-economic changes (to employment, income, connectivity and access to green space).
- 15.6.2 To ensure consistency between assessments, a list of health and wellbeing receptors has been compiled by reproducing and combining all identified human sensitive receptors identified by the relevant technical disciplines.

Approach to Identifying Potential Direct Effects

- 15.6.3 Potential direct health and wellbeing effects include those where there is a specified dose-response relationship (i.e. a relationship between the quantity or concentration of exposure to, and the effect it has on a typical individual arising from environmental health pathways, such as changes in air quality and noise).
- 15.6.4 The main air pollutants of interest for transport-related emissions are nitrogen dioxide (NO₂) and particulate matter (PM). Particulate matter refers to an aerosol of small solid particles and liquid droplets. It is commonly differentiated by size fraction as PM₁₀, PM_{2.5} and PM_{0.1} (coarse, fine and ultrafine particulate matter), where the subscript indicates mean aerodynamic diameter in microns.

PM_{2.5} has the strongest dose-response evidence base for mortality and disease incidence^{33 34 35 36 37}. However, evidence of an independent effect of NO₂ exposure has strengthened in recent years. While the close correlation of NO₂ exposure with exposure to other transport air pollutants makes distinguishing clear NO₂ effects in epidemiological studies difficult, both long- and short-term high NO₂ exposure has been shown to be associated with increased mortality and cardiovascular or respiratory morbidity risk, including after adjusting for PM (and sometimes other pollutant) exposure in short-term and some long-term studies.

- 15.6.5 Evidence of health impacts from environmental noise has also been established, including sleep disturbance, stress or anxiety, hypertension and resulting risk of cardiovascular disease (particularly ischaemic heart disease), stroke, and dementia risk later in life; and some evidence of effects on children's learning³⁸. Sufficient evidence of heart disease risk is also available to allow quantification of heart disease risk from transport noise exposure^{39 40 41}. There is also some evidence of associations of aircraft noise exposure with anxiety and depression^{42 43}, obesity or reduced physical activity (albeit principally for road noise)^{44 45} and possibly impairments to children's learning as measured by reading comprehension (though this evidence is still quite limited)^{46 47 48 49 50}. The WHO is expected to publish new guidelines on community noise supported by a review of the scientific health evidence base in 2018, which if available before the HIA is completed, will provide further evidence and guidance that can be considered.

33 WHO, "Review of evidence on health aspects of air pollution - REVIHAAP Project: Technical Report," WHO Regional Office for Europe, Copenhagen, 2013.

34 EPA, "Integrated Science Assessment for Particulate Matter," National Center for Environmental Assessment - RTP Division, North Carolina, 2009.

35 C. Pope III, R. Burnett, M. Thun, E. Calle, D. Krewski, K. Ito and G. Thurston, "Lung cancer, cardiopulmonary mortality, and long-term exposure to fine particulate air pollution," *Journal of the American Medical Association*, vol. 287, pp. 1132-1141, 2002.

36 J. Anderson, J. Thundiyil and A. Stolbach, "Clearing the Air: A Review of the Effects of Particulate Matter Air Pollution on Human Health," *Journal of Medical Toxicology*, vol. 8, pp. 166-175, 2012.

37 M. Bell, "Assessment of the Health Impacts of Particulate Matter Characteristics," Health Effects Institute, Boston, 2012.

38 L. Fritschi, A. Brown, R. Kim, D. Schwela and S. Kephapopoulos, "Burden of disease from environmental noise," WHO Regional Office for Europe, Copenhagen, 2011.

39 L. Fritschi, A. Brown, R. Kim, D. Schwela and S. Kephapopoulos, "Burden of disease from environmental noise," WHO Regional Office for Europe, Copenhagen, 2011.

40 T. Münzel, T. Gori, W. Babisch and M. Basner, "Cardiovascular effects of environmental noise exposure," *European Heart Journal*, vol. 35, pp. 829-836, 2014.

41 W. Babisch, "Transportation noise and cardiovascular risk: Updated Review and synthesis of epidemiological studies indicate that the evidence has increased," *Noise Health*, vol. 30, no. 8, pp. 1-29, 2006.

42 M. Beutel, C. Jünger, E. Klein, P. Wild, K. Lackner, M. Blettner, H. Binder, M. Michal, J. Wiltink, E. Brähler and T. Münzel, "Noise annoyance is associated with depression and anxiety in the general population - the contribution of aircraft noise," *PLoS ONE*, vol. 11, no. 5, 2016.

43 S. Floud, F. Vigna-Taglianti, A. Hansell, M. Blangiardo, D. Houthuijs and O. Breugelmans, "Medication use in relation to noise from aircraft and road traffic in six European countries: results of the HYENA study," *Occupational and Environmental Medicine*, vol. 68, pp. 518-524, 2011.

44 M. Foraster, I. Eze, D. Vienneau, M. Brink, C. Cajochen, S. Caviezel, H. Héritier, E. Schaffner, C. Schindler, M. Wanner, J.-M. Wunderli, M. Röösli and N. Probst-Hensch, "Long-term transportation noise is associated with subsequent lower levels of physical activity," *Environment International*, vol. 91, pp. 341-349, 2016.

45 B. Oftedal, N. Krog, A. Pyko, C. Eriksson, S. Graff-Iversen, M. Haugen, P. Schwarze, G. Pershagen and G. Aasvang, "Road traffic noise and markers of obesity - a population-based study," *Environmental Research*, vol. 138, pp. 144-153, 2015.

46 S. Stansfeld, B. Berglund, E. Ohlstrom, E. Lebrecht and I. Lopez Barrio, "Executive Summary. Road traffic and aircraft noise exposure and children's cognition and health: exposure-effect relationships and combined effects (RANCH).," [Online]. Available: https://ec.europa.eu/research/quality-of-life/ka4/pdf/report_ranch_en.pdf. [Accessed 07 12 2015].

47 S. Stansfeld, B. Berglund, C. Clark, I. Lopez-Barrio, P. Fischer, E. Öhrström, M. Haines, J. Head, S. Hygge, I. van Kamp and B. Berry, "Aircraft and road traffic noise and children's cognition and health: a cross-national study," *Lancet*, vol. 365, pp. 1942-1949, 2005.

48 M. Klatte, K. Bergström and T. Lachmann, "Does noise affect learning? A short review on noise effects on cognitive performance in children," *Frontiers in psychology*, vol. 4, no. 578, 2013.

49 M. Klatte, J. Spilski, J. Mayerl, U. Möhler, T. Lachmann and K. Bergström, "Effects of aircraft noise on reading and quality of life in primary school children in Germany: results from the NORA study," *Environment and Behaviour*, pp. e-print ahead of publication doi:10.1177/0013916516642580, 2016.

50 B. Sharp, T. Connor, D. McLaughlin, C. Clark, S. Stansfeld and J. Hervey, "Assessing aircraft noise conditions affecting student learning," *Transportation Research Board of the National Academies, Airport Cooperative Research Program*, 2014.

- 15.6.6 Other potential direct health and wellbeing hazards include collision danger and impact on pedestrians and cyclists due to surface access traffic, and potential for community severance or increases journey times to local services.

Approach to Identifying Potential Indirect Effects

- 15.6.7 Potential indirect health and wellbeing effects include those which arise from the wider determinants of health. Socio-economic status, deprivation, employment and income are among the most significant determinants of long-term health, influencing a range of factors including the quality of housing, education, diet, lifestyle, coping skills, access to services and social networks⁵¹
52 53 54.
- 15.6.8 While socio-economic impacts are principally related to the employment opportunities offered by an airport and its spending on local businesses, together with demands that its workforce may place on local services and infrastructure, leisure and social connectivity opportunities that it provides for passengers are also relevant. In addition, there could be potential for construction and operational activities to affect environmental amenity (e.g. through visual or noise impacts) which may affect health through access to green space and physical recreation.

Potential Receptors

- 15.6.9 Potential receptors are those at which there is a relevant environmental or social change, as predicted in the other technical disciplines in the PEIR that could affect a health outcome via the health pathways identified below. Potential receptors are therefore broad-ranging, comprising residences, facilities such as schools, hospitals and care homes, and other community facilities relevant to wellbeing such as recreational areas and places of worship.
- 15.6.10 The receptors assessed will be defined in the HIA based on the environmental and social pathways (e.g. for the environmental noise pathway, taking the study area for those locations predicted in the noise assessment to be affected by a change in noise exposure) and the applicable health evidence base (e.g. receptors predicted to experience a noise level above which the exposure-response factor indicates a potential for health impact).

Spatial and Temporal Scope

- 15.6.11 The spatial scope of the assessment is defined for each of the environmental and social health pathways assessed, as detailed in the other topic chapters of the PEIR. For example, the direct environmental health pathways of air quality and noise change affect mainly Thanet district, whereas for the socio-economic pathways, the spatial scope is wider reaching.
- 15.6.12 The temporal scope is a comparison of impacts expressed as annual rates with- and without-development in the assessment year defined within the EIA.

15.7 Assessment Methodology

Methodology for Predicted Effects

- 15.7.1 A health and wellbeing pathway can be described as the way in which an activity influences a known determinant of health. When defining potential health pathways for a development project, it

51 R. Wilkinson and M. Marmot, "Social determinants of health: the solid facts. 2nd edition.," WHO Regional Office for Europe, Copenhagen, 2003.

52 M. Marmot, "Social determinants of health inequalities," Lancet, vol. 365, pp. 1099-1104, 2005.

53 CSDH, "Closing the gap in a generation: health equity through action on the social determinants of health. Final Report of the Commission on Social Determinants of Health," WHO, Geneva, 2008.

54 Commission for Strategic Review of Health Inequalities in England Post-2010, "Fair Society, Healthy Lives," Department of Health, 2010.

is also useful to consider three broad domains of public health practice⁵⁵: health protection (i.e. environmental pollution and standards set to protect health); health promotion (i.e. healthy lifestyles, socio-economic status and inequalities); and health care (i.e. provision, effectiveness and equity of access to healthcare services).

- 15.7.2 Airport operation activities including flights and surface access are associated with a number of environmental and social effects that have the potential to influence health (adversely and beneficially). Based on the Proposed Development's construction and operational phase activities and health evidence base, and further informed by engagement with statutory consultees, key health stakeholders and local communities, the potentially relevant health and wellbeing pathways to be assessed are identified in **Table 15.5**.
- 15.7.3 Identification of a potentially relevant health pathway at this stage does not necessarily indicate that there would be a significant impact through that pathway, which will depend on the magnitude of change, sensitivity of receptors and hence degree to which they are affected.
- 15.7.4 The assessment approach considers each of the health and wellbeing pathways identified, and applies quantitative or qualitative methods to predicting health impacts using the health evidence base that will be provided in the HIA.

⁵⁵ IEMA, "Health in Environmental Impact Assessment: A Primer for a Proportionate Approach," Ben Cave Associates Ltd, IEMA and the Faculty of Public Health, Available at <https://www.iema.net/assets/newbuild/documents/IEMA%20Primer%20on%20Health%20in%20UK%20EIA%20Doc%20V11.pdf> [accessed 25.05.17], 2017.

Table 15.5: Potential Health Pathways Summary

	Health Pathway	Potential for Impact	Impact Characteristics
Construction Phase	Construction noise and vibration	Change in noise environment at residential and other sensitive locations Change in amenity value of green / recreational space	Direct, adverse, local, temporary
	Construction dust and air pollutant emissions	Change in air quality and nuisance at residential and other sensitive locations	Direct, adverse, local, temporary
	Construction traffic generation	Contribution to air pollutant and noise exposure Change in amenity value of green / recreational space Change in road safety Community severance Impacts on non-motorised users (NMUs) Change in congestion, access to services	Direct, adverse, local and regional, temporary
	Construction workforce and procurement	Direct employment generation Supply chain spending – indirect employment / wealth generation Additional employees' impact on services, housing capacity, community cohesion, crime, infectious disease	Direct and indirect, beneficial or adverse, local and regional, temporary
Operational Phase	Airport / aircraft noise	Change in noise environment at residential and other sensitive locations Change in amenity value of green / recreational space	Direct, adverse, local, long-term
	Airport / aircraft air pollutant emissions	Change in air quality at residential and other sensitive locations Impact on habitats and resulting change in amenity value of green / recreational space	Direct, adverse, local, long-term
	Surface access road traffic generation	Contribution to air pollutant and noise exposure Change in amenity value of green / recreational space Change in road safety Community severance Impacts on non-motorised users (NMUs) Change in congestion, access to services	Direct, adverse, local and regional, long-term
	Economic activity and employment	Direct employment generation Education / training opportunities Supply chain spending – indirect employment / wealth generation Additional employees' impact on services, housing capacity, community cohesion	Direct and indirect, beneficial or adverse, local and regional, long-term

15.7.5 A final health pathway to be investigated within the HIA is that of risk perception. This is necessary to investigate, respond to and address community concerns, which if left unaddressed can fester and lead to stress and anxiety during the planning process itself.

Significance Evaluation Methodology

Sensitivity of receptor

15.7.6 Following the analysis of local community circumstance, existing health burden and underlying causes, the HIA is to apply a conservative approach where the sensitivity of all community receptors will be considered to be 'high' for methodology purposes. In addition, the HIA will identify groups with potentially greater vulnerability to particular impacts, such as children, older people or those already in poor health.

Magnitude of change

15.7.7 The magnitude of change in health outcomes can be predicted quantitatively for certain health pathways, such as change in air pollution and noise exposure, using exposure-response factors

reviewed in the health evidence base to be published in the HIA. Other predicted health impacts are assessed qualitatively using professional judgement and characterised as negligible, minor, moderate or major depending on the magnitude of change in the environmental or social health pathway, number of receptors affected, baseline health status and potential for any disproportionate impact on vulnerable groups.

Determination of significance

- 15.7.8 The determination of the significance of effects has been through professional judgement, taking into account the magnitude of potential impacts and sensitivity (established through the community health profile) of the communities affected, as it is not usual in the HIA process to pre-define generic thresholds of impact magnitude and receptor sensitivity from which to form a deterministic significance matrix⁵⁶.

15.8 Assessment of Effects on Health and Wellbeing

- 15.8.1 The beneficial and adverse health and wellbeing impacts predicted due to the Proposed Development will be assessed in the HIA. The following sections of the PEIR highlight the main areas for potential significant impacts and introduce the assessment approach that will be followed.

Health and Wellbeing Effects from Changes to Noise Exposure

Assessment Inputs

- 15.8.2 The following exposure-response factors listed in **Table 15.6** are those presently expected to be used to predict health outcomes arising from the change in aircraft noise exposure for the residential population. These have been derived from the health evidence base and guidance that will be detailed in an appendix to the HIA.
- 15.8.3 The WHO is expected to publish new guidelines on environmental noise supported by a review of the scientific health evidence base in 2018. If this publication is available before the HIA is completed, the following evidence will be updated to make use of its findings; in any case, emerging evidence will continue to be reviewed in the course of undertaking the HIA and the following information will be updated where necessary.

Table 15.6: Noise exposure-response metrics

Health outcome	Relative risk* (central estimate)	Per increase (dB)	Exposure range (dB)	Source	Notes
Hypertension prevalence (a)	1.06	10	45–75 (or >50) L _{Aeq, 16h} or L _{den}	57 used in 58 and 59	Includes road noise studies
Hypertension	1.11	10	50–70 L _{den}	60 used in 61	Aircraft noise but

56 IEMA, "Health in Environmental Impact Assessment: A Primer for a Proportionate Approach," Ben Cave Associates Ltd, IEMA and the Faculty of Public Health, Available at <https://www.iema.net/assets/newbuild/documents/IEMA%20Primer%20on%20Health%20in%20UK%20EIA%20Doc%20V11.pdf> [accessed 25.05.17], 2017.

57 E. van Kempen and W. Babisch, "The quantitative relationship between road traffic noise and hypertension: a meta-analysis," *Journal of Hypertension*, vol. 30, no. 6, pp. 1075-1086, 2012.

58 Defra and IGC(BN), "Environmental Noise: Valuing impacts on: sleep disturbance, annoyance, hypertension, productivity and quiet," Defra, London, 2014.

59 D. Houthuijs, A. van Beek, W. Swart and E. van Kempen, "Health implication of road, railway and aircraft noise in the European Union. Provisional results based on the 2nd round of noise mapping. RIVM Report 2014-0130," National Institute for Public Health and the Environment, Bilthoven, 2014.

60 W. Babisch and I. van Kamp, "Exposure-response relationship of the association between aircraft noise and the risk of hypertension," *Noise and Health*, vol. 11, no. 44, pp. 161-168, 2009.

61 Expert Panel on Noise, "EEA Technical Report No 11/2010. Good practice guide on noise exposure and potential health effects," European Environment Agency, Copenhagen, 2010.

prevalence (b)					fewer, older studies
Stroke incidence or mortality	1.04	10	>50 L _{den}	62	Derived from “ <i>ad hoc analysis</i> ” of mixed studies of incidence and mortality. Aircraft and road noise.
IHD incidence or mortality	1.05	10	>50 L _{den}	63	Road and aircraft noise, excluding cross-sectional studies.
IHD incidence	1.08	10	52–77 L _{den}	64	Road noise and including cross-sectional studies.
Depression or anxiety prevalence	1.58	Strong or extreme annoyance relative to no annoyance		65	Aircraft noise. Average of depression and anxiety risk in top two annoyance categories.
Dementia incidence	1.47	With hypertension relative to without		66 used in 67	Based on hypertension risk not noise exposure directly.
Count highly sleep disturbed	$18.147 - 0.956 * L_{\text{night}} + 0.01482 * L_{\text{night}}^2$		45–75 L _{night}	68	Aircraft noise, self-reported sleep disturbance.
Count highly annoyed (a)	$-0.00009199 * (L_{\text{den}} - 42)^3 + 0.03932 * (L_{\text{den}} - 42)^2 + 0.2939 * (L_{\text{den}} - 42)$		42–65 L _{den}	69	Aircraft noise.
Percentage highly annoyed (b)	$100 / (1 + \text{EXP}(8.942 - 0.123 * L_{\text{Aeq,16h}}))$		51–72 (or >45) L _{Aeq, 16h}	70 71	Aircraft noise, more recent study but strongly Heathrow-weighted.

15.8.4 The health assessment of noise change will be based on exposure-response factors for statistical risks applicable to a large exposed population, and although the noise changes at most receptors

62 D. Houthuijs, A. van Beek, W. Swart and E. van Kempen, “Health implication of road, railway and aircraft noise in the European Union. Provisional results based on the 2nd round of noise mapping. RIVM Report 2014-0130,” National Institute for Public Health and the Environment, Bilthoven, 2014.

63 D. Vienneau, C. Schindler, L. Perez, N. Probst-Hensch and M. Röösli, “The relationship between transportation noise exposure and ischemic heart disease: a meta-analysis,” *Environmental Research*, vol. 138, pp. 372–380, 2015.

64 W. Babisch, “Updated exposure-response relationship between road traffic noise and coronary heart diseases: a meta-analysis,” *Noise and Health*, vol. 16, no. 68, pp. 1–9, 2014.

65 M. Beutel, C. Jünger, E. Klein, P. Wild, K. Lackner, M. Blettner, H. Binder, M. Michal, J. Wiltink, E. Brähler and T. Münzel, “Noise annoyance is associated with depression and anxiety in the general population - the contribution of aircraft noise,” *PLoS ONE*, vol. 11, no. 5, 2016.

66 A.-H. Harding, G. Frost, H. Mason, E. Tan, A. Tsuchiya and N. Warren, “Quantifying the links between environmental noise related hypertension and health effects,” Health and Safety Laboratory, Buxton, 2011.

67 Defra and IGC(B), “Environmental Noise: Valuing impacts on: sleep disturbance, annoyance, hyperension, productivity and quiet,” Defra, London, 2014.

68 Defra and IGC(B), “Environmental Noise: Valuing impacts on: sleep disturbance, annoyance, hyperension, productivity and quiet,” Defra, London, 2014.

69 Defra and IGC(B), “Environmental Noise: Valuing impacts on: sleep disturbance, annoyance, hyperension, productivity and quiet,” Defra, London, 2014.

70 D. Rhodes, “Survey of noise attitudes 2014: aircraft. CAP 1506,” Civil Aviation Authority, <http://publicapps.caa.co.uk/docs/33/CAP%201506%20FEB17.pdf>, 2017.

71 D. Rhodes, Pers. comm., CAA, 15.05.17.

may be relatively small (to be predicted through the EIA noise assessment), cumulatively they may be associated with measurable health outcomes. Some individual receptors may experience larger noise changes, which contribute to the overall population health impacts assessed, but it should be noted that the probability-based risk factor approach cannot predict effects for particular individuals (which would be affected by an individual's own specific circumstances and health).

- 15.8.5 The limited evidence and metrics available mean that it is difficult to establish a single preferred health outcome or set of outcomes to quantify, and all of the exposure-response functions listed will therefore be used. In some cases these overlap (e.g. stroke and IHD are potential outcomes of hypertension) or provide more than one estimate for a given health outcome, and they should not be summed. Rather, they provide a range of effect estimates, illustrating the order of magnitude of likely health effects due to the Proposed Development.
- 15.8.6 Although there is some evidence that these effects are not confounded by co-exposure to road traffic air pollutants, there is potential for double-counting with the effects of air pollution exposure quantified below, and caution should therefore also be used if summing the air pollution and noise health effects predicted in the assessment.
- 15.8.7 Noise health impacts will be calculated for the population at each relevant noise exposure level using the following equation, and then summed for each health outcome and each scenario (with- and without-development) as follows. The results will be shown as total effects in the exposed residential population.

$$PAF = \frac{RR - 1}{RR} \times P \times B$$

where:

PAF is the population attributable fraction (health outcome within the exposed population due to noise)

RR is the relative risk, from which an attributable fraction is calculated as shown. Where RR is given per 10 dB increase, it is scaled linearly using:

$$RR_{dB} = 1 + \left((RR_{10} - 1) \times \frac{dB}{10} \right)$$

where:

dB is the noise level

P is the population exposed

B is the baseline annual rate of health outcome per person

- 15.8.8 The sources of baseline health data will be reported in the HIA community profile. Of the available data, **Table 15.7** lists that selected for use in the assessment.

Table 15.7: Baseline disease and mortality rates used in noise health impact calculation (Thanet district only)

Health outcome	Rate (Thanet)	Denominator	Notes
Hypertension prevalence	16.7	Percentage of population	Thanet CCG, GP diagnosed.
Stroke incidence	161.2	100,000 population	National incidence rate (emergency hospital admissions) adjusted for Thanet using local CHD standardised admission ratio.
Stroke mortality	60.9	100,000 population	All ages, age-standardised.
Stroke incidence and mortality	222.1	100,000 population	Some stroke incidence cases will also be mortality cases, so this may double-count to a degree (not adjusted, to be conservative). However, mortalities prior to reaching hospital are not recorded in the incidence statistics ⁷² . Around 20-25% of stroke incidence results in mortality within one year ⁷³ .

⁷² N. Townsend, P. Bhatnagar, E. Wilkins, K. Wickramasinghe and M. Rayner, "Cardiovascular disease statistics, 2015," British Heart Foundation, London, 2016.

IHD incidence	257.5	100,000 population	National incidence rate (emergency hospital admissions) adjusted for Thanet using local CHD standardised admission ratio.
IHD mortality	135.8	100,000 population	All ages, age-standardised.
IHD incidence and mortality	393.3	100,000 population	Potential for double-counting with IHD incidence (not adjusted, to be conservative). As above, mortality prior to hospital admission not recorded as incidence.
Depression or anxiety prevalence	15.3	Percentage of population	Ages 18+, GP Patient Survey.
Dementia prevalence	0.9	Percentage of population	All ages, Thanet CCG.

Health and Wellbeing Effects from Changes to Air Quality

- 15.8.9 The concentration-response factors (CRFs) used, listed in **Table 15.8**, are a subset of those recommended in the WHO HRAPIE guidance⁷⁴, that are applicable using the available evidence (annual average pollutant concentrations and mortality/hospital admissions data). The HRAPIE central estimate PM_{2.5} CRF is the same as that applied in UK guidance from COMEAP⁷⁵, both being based on many of the same underlying epidemiological studies (principally Pope et al, 2002⁷⁶). The HRAPIE NO₂ mortality CRF is based on a meta-analysis by Hoek et al in 2013⁷⁷, which recommends a -33% adjustment to account for potential double-counting with PM_{2.5} exposure mortality; this has been applied in the CRF shown. The latest interim COMEAP guidance⁷⁸ provides a somewhat lower recommended NO₂ CRF and again a suggested -33% adjustment to account for overlap with PM_{2.5} exposure; however, it discusses significant uncertainty about the overlap adjustment and the risk of double-counting. Given that the COMEAP NO₂ CRF is lower and is an interim recommendation pending further work, the HRAPIE CRF has been used as a worst-case.
- 15.8.10 The HRAPIE guidance provides CRFs for both short- and long-term changes in air pollutant concentrations. The air quality modelling data are expected to be provided as annual average concentrations, and short-term mortality impacts would therefore not be assessed separately to avoid double-counting with long-term effects. The CRFs for long-term effects, being based mainly on cohort studies, are likely to capture short-term effects. Hospital admission CRFs are for daily-mean rather than annual-mean concentrations. However, as there are no upper or lower concentration thresholds recommended for the CRFs, they can be treated as applicable to the annual mean. The guidance separates CRFs into categories (A*, A, B*, B) based on strength of evidence and potential overlap in impacts that would lead to double-counting. A* CRFs will be used with the exception of long-term mortality due to NO₂ exposure (B*), which has been adjusted to avoid double-counting with PM_{2.5} exposure mortality.

73 Stroke Association, "State of the Nation. Stroke statistics January 2016.," [Online]. Available:

https://www.stroke.org.uk/sites/default/files/state_of_the_nation_2016_110116_0.pdf. [Accessed 06 December 2016].

74 WHO, "Health risks of air pollution in Europe - HRAPIE project. Recommendations for concentration-response functions for cost-benefit analysis of particulate matter, ozone and nitrogen dioxide.," WHO Regional Office for Europe, Copenhagen, 2013.

75 COMEAP, "Long-Term Exposure to Air Pollution: Effect on Mortality," COMEAP, Health Protection Agency, London, 2009.

76 C. Pope III, R. Burnett, M. Thun, E. Calle, D. Krewski, K. Ito and G. Thurston, "Lung cancer, cardiopulmonary mortality, and long-term exposure to fine particulate air pollution," *Journal of the American Medical Association*, vol. 287, pp. 1132-1141, 2002.

77 G. Hoek, R. Krishnan, R. Beelen, A. Peters, B. Ostro, B. Brunekreef and J. Kaufman, "Long-term air pollution exposure and cardio-respiratory mortality: a review," *Environmental Health*, vol. 12, no. 43, pp. 12-13, 2013.

78 COMEAP, "Interim statement on quantifying the association of long-term average concentrations of nitrogen dioxide and mortality," 2015.

Table 15.8: Air Pollutant Exposure-Response Metrics

Health outcome	Pollutant	Relative risk* (central estimate)	Notes
Mortality	NO ₂	1.037	All natural-cause mortality, age 30+
	PM _{2.5}	1.062	
Respiratory disease hospital admissions	NO ₂	1.018	Emergency admissions, ICD 10 J00-J99. 24-hr daily mean (treated as equivalent to annual mean).
	PM _{2.5}	1.019	
Cardiovascular disease hospital admissions	PM _{2.5}	1.009	Emergency admissions, ICD 10 I00-I99. 24-hr daily mean (treated as equivalent to annual mean).

* all per 10 µg.m⁻³ exposure. No upper or lower concentration thresholds have been applied as cut-offs (i.e. RR = 1 at zero concentration is implicitly assumed). Although the HRAPIE guidance recommends a lower threshold of 20 µg.m⁻³ for the NO₂ concentration-response function (CRF), this discontinuity would either lead to unreasonably large changes in health outcomes being predicted where a small change in concentration causes receptors to cross the threshold, or an adjustment of the CRF so that RR = 1 at 20 µg.m⁻³ which may significantly underestimate health impacts, and so it has not been applied. (See further discussion of this issue in Annex 7.1 in Reference 79.)

15.8.11 The baseline disease and mortality rates are listed in **Table 15.9**.

Table 15.9: Baseline disease and mortality rates used in air pollutant health impact calculation

Health outcome	Rate	Denominator	Notes
Thanet all natural-cause mortality	1013	100,000 population	Rate for each district is applied to LSOAs within it.
Emergency respiratory disease hospital admissions	1361.2	100,000 population	National incidence rate (emergency hospital admissions) adjusted for Thanet using local COPD standardised admission ratio.
Emergency cardiovascular disease hospital admissions	1002.6	100,000 population	National incidence rate (emergency hospital admissions) adjusted for Thanet using local CHD standardised admission ratio.

15.8.12 The population attributable fraction will be calculated as specified in paragraph 15.8.7. The risk ratio will be calculated using the following equation:

$$RR_A = RR^{(A/10)}$$

where:

A is the air pollutant concentration

P is the population exposed

B is the baseline annual rate of health outcome per person

15.8.13 As with the assessment of noise impacts, present-day baseline health rates will be used and results are presented as changes in annual rates of disease or mortality (deaths brought forward) were the air pollution exposure to be at the predicted levels over the long term. This allows small cumulative long term changes in statistical life expectancy or disease risk to be expressed in a single year scenario for comparison of impacts with and without the Proposed Development.

79 H. Walton, D. Dajnak, S. Beevers, M. Williams, P. Watkiss and A. Hunt, "Understanding the Health Impacts of Air Pollution in London," Environmental Research Group, King's College London, the Greater London Authority, and Transport for London, London, 2015.

- 15.8.14 Vulnerable individuals, such as those in healthcare facilities or with existing respiratory diseases, will in some cases have greater susceptibility to health impacts from air pollutant changes; this cannot be quantified from statistical risks applicable to the general population, but potential for additional risks will be considered qualitatively based on the magnitude of air pollutant concentration changes predicted.

Health and Wellbeing Effects from Changes to Income, Employment and Connectivity

- 15.8.15 In addition to direct income and employment generation (i.e. jobs created by the airport operator, airlines, general aviation, handling, immigration and customs, retail and food concessions and aircraft maintenance), the Proposed Development has the ability to generate wider indirect jobs (including a wide range of jobs in the airport's supply chain), induced jobs (which includes jobs created by the spending of people employed directly and indirectly), and catalytic jobs (which includes jobs in the wider economy supported by the operations of an airport such as in tourism and trade).
- 15.8.16 Being in stable, good-quality employment and receiving a consistent income is strongly associated with good health and wellbeing compared to being in long-term unemployment (though noting the influence of the 'healthy worker effect', i.e. the relationship runs both ways). Therefore, the direct, indirect and induced income and employment generated by the Proposed Development has the potential to offer important health and wellbeing benefits.
- 15.8.17 For the potential health and wellbeing benefits to be fully realised, it is critical that the employment generated assists those who would not otherwise have found work (e.g. those long-term unemployed, young people looking for work, or those with limited skills/qualifications), which Manston Airport can influence for the direct employees. Existing and proposed measures to achieve that will be discussed in the mitigation and enhancement measures (Health Action Plan) recommended.
- 15.8.18 Quality of life indicators such as leisure, family, good relationships and social cohesion are also relevant to the Proposed Development due to the connectivity it offers via its passenger services, which may benefit these connections in an increasingly globalised world with substantial international migration.

Health and Wellbeing Effects from Changes to Surface Access

- 15.8.19 The health benefits of active transport are well recognised. Therefore, the capacity of and access to public transport is a factor in wellbeing and quality of life for both airport employees and local residents; and access to various essential services including healthcare, whether by road or public transport, is relevant to health and wellbeing for residents – in particular those with existing ill-health or mobility impairment.
- 15.8.20 The following will be assessed:
- ▶ construction traffic generation, road closures or diversions;
 - ▶ operational traffic generation; and
 - ▶ impacts on road safety, active travel, or community severance.

Health and Wellbeing Effects from Changes to Amenity, Green Space and Physical Activity

- 15.8.21 Noise from the airport may have the potential to affect the tranquillity of green spaces and recreational areas, reducing the amenity and perhaps disincentivising use for some people, depending on subjective responses. Access to such spaces is a component of quality of life and wellbeing, of which the tranquillity value forms a part, and though it is difficult to characterise the magnitude of benefits in quantitative terms, research indicates its qualitative importance.
- 15.8.22 This health and wellbeing pathway will be considered qualitatively, if applicable (depending on the results of the noise assessment).

15.9 Conclusions of Significance Evaluation

15.9.1 Significance evaluation will be undertaken when the HIA assessment has been completed

Contents

16.	Climate change	16-1
16.1	Introduction	16-1
16.2	Policy and legislative context	16-2
16.3	Data gathering methodology	16-9
16.4	Overall climate change baseline	16-12
16.5	Environmental measures incorporated into the Proposed Development	16-14
16.6	Scope of the assessment	16-17
16.7	Assessment methodology	16-20
16.8	Assessment of effects related to climate change	16-26

16. Climate change

16.1 Introduction

- 16.1.1 This chapter outlines the approach to climate change assessment and sets out the likely significant effects resulting from the Proposed Development. It should be read in conjunction with the scheme description (**Chapter 3**).
- 16.1.2 The relevant policy, legislation and guidance that has informed this chapter of the PEIR is described, followed by the baseline data gathering methodology and the overall baseline conditions. An assessment of the likely significant effects of the development is then presented and a methodology for the full assessments required as part of the ES is given.

Background

- 16.1.3 Climate change is regarded as one of the most significant threats facing the planet. Although it is a global issue, its impacts will be felt at a local level. In the UK, climate change is projected to bring temperature rises, changing rainfall patterns, flood risk and more extreme weather events, with associated disruption and damage to infrastructure¹⁴⁶.
- 16.1.4 Climate change occurs as a result of greenhouse gas (GHG) emissions, including carbon dioxide (CO₂) and Methane (CH₄). GHG emissions have many sources, including energy generation, transport, industrial processes, agriculture and changes in land use. Action must be taken to mitigate climate change, both through reducing GHG emissions, as well as adapting and increasing resilience to the expected change.

Climate change is already affecting all countries of the world and the extent of future climate change will be a product of how effective we are in limiting GHG emissions. In November 2016, the Paris Accord came into force in which all but a few countries agreed to work together to limit global temperature rise to below 2 °C¹⁴⁷. Consequently, there is now a necessity to explore how resilient the services, assets and infrastructure upon which society relies are to the impacts of climate change, as well as continuing to reduce the amount of emissions produced.

- 16.1.5 Newly built infrastructure has the advantage of being able to embed climate change resilience and carbon reduction measures into the design, thus saving whole-life costs as retrofitting and adapting assets will not be necessary. Existing infrastructure has assets of varying age that must be maintained with climate change in mind, increasing expense. Major airports in the UK have climate change resilience strategies in place (e.g. Heathrow and Gatwick¹⁴⁸).

General Approach to Assessment

- 16.1.6 The 2017 EIA Regulations¹⁴⁹ cover how the above issues are considered in the planning process. This assessment considers three sub-topics relevant to climate change that cover the requirements of the Regulations for infrastructure projects:
- a **climate change resilience assessment** (i.e. the impact of climate change on the Proposed Development). The aim of the assessment is to determine the impact that

¹⁴⁶ Committee on Climate Change (2017), UK Climate Change Risk Assessment. Available online at: <https://www.theccc.org.uk/wp-content/uploads/2016/07/UK-CCRA-2017-Synthesis-Report-Committee-on-Climate-Change.pdf>

¹⁴⁷ UNFCCC (2017), The Paris Agreement. Available online at: http://unfccc.int/paris_agreement/items/9485.php

¹⁴⁸ Heathrow (2016), Climate Change Adaptation and Resilience Progress Report. Available online at: https://www.heathrow.com/file_source/Company/Static/PDF/Communityandenvironment/Climate-Change-Adaptation-Report-2016.pdf and Gatwick (2016), Climate Change Adaptation Progress Report. Available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/530908/climate-adrep-gatwick-airport.pdf

¹⁴⁹ UK Legislation (2017), The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. Available online at: <http://www.legislation.gov.uk/uksi/2017/572/contents/made>

climate change is likely to have on the ability of the Proposed Development to maintain its function throughout its operational life.

- an **in-combination climate change assessment** (i.e. the impact of the Proposed Development *and* climate change on environmental receptors). The aim of the assessment is to determine where climate change increases the exposure of environmental receptors to an extent that a new significant effect is found.
- a **GHG assessment** (i.e. the impact of the Proposed Development on climate change). The aim of the GHG assessment is to calculate the emissions that are produced as a result of the Proposed Development.

16.1.7 Mitigation measures will be produced for each sub-topic if likely significant effects are found.

16.1.8 Many of the proceeding sections in this chapter are split into these sub-topics. Although thematically closely tied, the methodologies and scopes of the assessments vary greatly.

Limitations of this chapter of the PEIR

16.1.9 The climate change resilience assessment is based on the Proposed Development's design data as of January 2018.

16.1.10 The GHG assessment is based on design data available in January 2018. Where data has not yet been established at this stage of the design, assumptions based on best practice or typical values have been adopted.

16.1.11 There are significant challenges regarding applying significance criteria to a GHG assessment in the EIA process due to there only being one receptor which is effected to some extent by any development which is not carbon neutral. There is no defined approach for determining what level or scale of GHG emissions makes the effect of those emissions significant or otherwise. This is explored in IEMA guidance on 'Assessing Greenhouse Gas Emissions and Evaluating their Significance'¹⁵⁰.

16.1.12 The Proposed Development sits outside of the UKCP09 25x25km grid (as described in Section 16.4) which slightly reduces confidence in climate change projections.

16.2 Policy and legislative context

16.2.1 A study of climate change related planning policy, legislation and guidance at the international, EU, national, regional and local level has been undertaken in order to highlight any requirements which the Proposed Development needs to consider.

16.2.2 Legislation and policy relevant to the three climate change assessments are summarised in Table 16.1 below. The core rationale for the incorporation of climate change into the EIA for Manston Airport sits in the EU EIA Directive 2014¹⁵¹ and the subsequent transposition into UK law as The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017.

16.2.3 Full details of all national and local planning policies relevant to the Proposed Development can be found in **Chapter 4**.

¹⁵⁰ IEMA (2017), Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance. Available online at: <https://www.iema.net/policy/ghg-in-eia-2017.pdf>

¹⁵¹ European Parliament and Council of the EU (2014), EU EIA Directive 2014. Available online at: <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32014L0052&from=EN>

Table 16.1 Policies relevant to the climate change assessments

Sub-topics affected	Legislation or Policy reference	Legislation Summary or Policy Information relevant to Climate Change
International Policy		
Resilience; In-combination impacts; GHG	UNFCCC Paris Agreement	<p>The United Nations Framework Convention on Climate Change (UNFCCC) is the major international body responsible for managing climate change and carbon emissions. In 2015, it adopted the Paris Agreement, the aims of which are stated as:</p> <p><i>“This Agreement, in enhancing the implementation of the Convention, including its objective, aims to strengthen the global response to the threat of climate change, in the context of sustainable development and efforts to eradicate poverty, including by:</i></p> <p><i>“(a) Holding the increase in the global average temperature to well below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels, recognizing that this would significantly reduce the risks and impacts of climate change; and</i></p> <p><i>(b) Increasing the ability to adapt to the adverse impacts of climate change and foster climate resilience and low greenhouse gas emissions development, in a manner that does not threaten food production”.</i></p> <p>The agreement sets targets for countries’ greenhouse gas emissions, but these are not legally binding or enforceable. The agreement excludes international aviation (but domestic aviation is included).</p>
GHG	Internal Air Transport Association targets	<p>The International Air Transport Association (IATA) has adopted a set of targets to mitigate CO₂ emissions from air transport¹⁵². The targets are: an average annual improvement in fuel efficiency of 1.5% per year to 2020; a cap on net aviation CO₂ emissions from 2020 (carbon-neutral growth); and a reduction of 50% in net aviation CO₂ emissions by 2050 relative to 2005 levels. These targets are not legally binding.</p>
EU Policy		
Resilience; In-combination impacts; GHG	EIA Directive 2014	<p>The EIA Directive 2014 sets out the rationale for incorporating climate change into the EIA process. It reads:</p> <p><i>“Climate change will continue to cause damage to the environment and compromise economic development. In this regard, it is appropriate to assess the impact of projects on climate (for example greenhouse gas emissions) and their vulnerability to climate change.”</i></p>
National Policy		
Resilience; In-combination impacts; GHG	The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017	<p>The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 are the transposition of the 2014 EIA Directive into UK law, as it relates to infrastructure (town and country planning is considered separately).</p>

¹⁵² IATA, Resolution on the implementation of the aviation “CNG2020” strategy. Available online at: <https://www.iata.org/pressroom/pr/Documents/agm69-resolution-cng2020.pdf>

Sub-topics affected	Legislation or Policy reference	Legislation Summary or Policy Information relevant to Climate Change
		The Regulations refer to 'climate' in the following way: ' <i>climate (for example greenhouse gas emissions, impacts relevant to adaptation)</i> ', and: ' <i>the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change</i> '; therefore, signalling that both the impact of climate change on the development (including environmental receptors), and the impact of the development on climate change, are to be considered.
Resilience; In-combination impacts	Climate Change Act Adaptation Reporting Power (ARP) and the associated UK Climate Change Risk Assessment	The Climate Change Act 2008 (see below) requires the Government, on a regular basis, to assess the risks to the UK from the impact of climate change and report to Parliament. The Act contains the Adaptation Reporting Power, which allows Government to ask certain organisations to produce reports on both their climate change risks and their adaptation plans. In 2012 the Civil Aviation Authority (CAA), National Air Traffic Services (NATS) and ten airports published climate change adaptation reports under the Climate Change Act Adaptation Reporting Power (ARP). These were followed up by progress reports submitted to Defra through 2016 and 2017. Six airports responded to the second round of reporting against the power in 2016/17. It is unclear whether Manston Airport would be required to respond as part of the third reporting power. It is likely that the Committee on Climate Change would request evidence from the Manston Airport development design that climate change resilience is being considered and embed it within a 'Progress in preparing for climate change' report or an update to the National Adaptation Plan.
Resilience	Aviation Policy Framework (2013)	In the Aviation Policy Framework (2013), the incumbent Secretary of State for Transport set out the need to better understand and manage the risks associated with climate change. Doing so was deemed essential for the successful long-term resilience of the UK's aviation industry and its contribution to supporting economic growth and competitiveness.
Resilience; GHG	Revised Draft Airports National Policy Statement (NPS)	The Revised Draft Airports NPS ¹⁵³ puts Government policy on climate change adaptation and GHG emissions into practice for the aviation sector, and in particular how RiverOak Strategic Partners (RiverOak) and the Secretary of State will take into account the effects of climate change when developing and considering airports infrastructure applications. This document sets out the basis of the criteria for determination of significant effects in the GHG assessment.
Resilience; In-combination impacts	National Planning Policy Framework	The Environment Agency guidance on climate change allowances to be used in flood risk assessments as set out in the NPPF ¹⁵⁴ . The NPPF Planning Practice Guidance –

¹⁵³ Department for Transport (2017), Revised Draft Airports National Policy Statement: new runway capacity and infrastructure at airports in the South East of England. Available online at: <https://www.gov.uk/government/publications/revised-draft-airports-national-policy-statement>

¹⁵⁴ Environment Agency (2017), Flood risk assessments: climate change allowances. Available online at: <https://www.gov.uk/guidance/flood-riskassessments-climate-change-allowances>

Sub-topics affected	Legislation or Policy reference	Legislation Summary or Policy Information relevant to Climate Change
GHG	Climate Change Act (2008)	Guidance on Climate Change sets out the approach for addressing climate change impacts in the planning and decision-making process for major infrastructure projects ¹⁵⁵ .
		<p>The Climate Change Act 2008 set the commitment of the UK to reduce its net GHG emissions by 80% below the 1990 levels by 2050 and requires the Government to establish 5-year carbon budgets. Emissions by international aviation and international shipping are currently left out of carbon budgets (and the 2050 target) when the Climate Change Act became law. They have been informally included in the 2050 target, by reducing the actual budget so that emissions are on the trajectory required to meet the 2050 target if that were altered to include international aviation and shipping.</p> <p>In 2011, the UK government issued its Carbon Plan¹⁵⁶, which sets out how the UK will achieve decarbonisation within the framework of UK energy policy and make the transition to a low carbon economy. However, the UK has yet to present a plan to limit aviation emissions or include it formally within its carbon budgets and the 2050 target, despite previous commitments to do so in 2016¹⁵⁷.</p> <p>In the meantime, the Committee on Climate Change recommends¹⁵⁸:</p> <p><i>“In the context of future UK policy and infrastructure investment decisions, appropriate long-term assumptions for government planning are for aviation emissions to be around 2005 levels in 2050 (implying around a 60% increase in demand over the same period), and for shipping emissions to be around one-third lower than 2010 levels. Government should publish an effective policy framework for aviation emissions on this basis. If aviation emissions are anticipated to be higher than 2005 levels – as in the central case in the business case for an additional runway at Heathrow airport – then other sectors would have to plan for correspondingly higher emissions reductions. We would expect to see this reflected in the Government’s plan for meeting the fourth and fifth carbon budgets.”</i></p> <p>UK aviation CO₂ emissions in 2005 were estimated¹⁵⁹ to be 37.5 Mt. It is therefore common practice is to assume that the effective cap for the UK’s aviation CO₂ emissions in 2050 will be 37.5 Mt, although this remains only an inference from the CCC’s recommendations and has no other formal status.</p> <p>This target of 37.5 Mt refers to emissions from cruise and LTO only and to CO₂, which constitutes 99% of the GHG emissions from aviation, rather than GHGs in total. Due to secondary chemical</p>

¹⁵⁵ Department for Communities & Local Government (2014), Planning Practice Guidance – Guidance climate change. Available online at: <http://planningguidance.communities.gov.uk/blog/guidance/climate-change/why-is-it-important-for-planning-to-consider-climate-change/>

¹⁵⁶ HM Government (2011), The Carbon Plan: Delivering our low carbon future. Available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47613/3702-the-carbon-plan-delivering-our-low-carbon-future.pdf

¹⁵⁷ HM Government (2012), International aviation and shipping emissions and the UK’s carbon budgets and 2050 target. Available online at: www.gov.uk/government/publications/uk-carbon-budgets-and-the-2050-target-international-aviation-and-shipping-emissions

¹⁵⁸ Committee on Climate Change (2017), 2017 Report to Parliament – Meeting Carbon Budgets: Closing the policy gap. Available online at: <https://www.theccc.org.uk/publication/2017-report-to-parliament-meeting-carbon-budgets-closing-the-policy-gap/>

¹⁵⁹ Committee on Climate Change (2009) Meeting the UK aviation target – options for reducing emissions to 2050. Available online at: <https://www.theccc.org.uk/wp-content/uploads/2009/12/CCC-Meeting-the-UK-Aviation-target-2009.pdf>

Sub-topics affected	Legislation or Policy reference	Legislation Summary or Policy Information relevant to Climate Change
		processes, GHG emissions from non-CO ₂ gases are difficult to measure and mitigate.
GHG	Aviation Policy Framework	<p>The 2013 Aviation Policy Framework¹⁶⁰ presents the government's policy for aviation. It devotes substantial space to a review of policy relating to climate change and generally endorses the various national, EU and international measures being undertaken.</p> <p>This document postpones making a decision on whether the UK should retain a national emissions target for aviation.</p>
GHG	National Planning Policy Framework (NPPF)	<p>The National Planning Policy Framework is a key part of the government's reforms to make the planning system less complex and more accessible. The framework acts as guidance for local planning authorities and decision-takers, both in drawing up plans and making decisions about planning applications.</p> <p>The NPPF states:</p> <p><i>"Planning plays a key role in helping shape places to secure radical reductions in greenhouse gas emissions, minimising vulnerability and providing resilience to the impacts of climate change, and supporting the delivery of renewable and low carbon energy and associated infrastructure. This is central to the economic, social and environmental dimensions of sustainable development.</i></p> <p><i>To support the move to a low carbon future, local planning authorities should:</i></p> <p><i>plan for new development in locations and ways which reduce greenhouse gas emissions; actively support energy efficiency improvements to existing buildings; and</i></p> <p><i>when setting any local requirement for a building's sustainability, do so in a way consistent with the Government's zero carbon buildings policy and adopt nationally described standards. In determining planning applications, local planning authorities should expect new development to: comply with adopted Local Plan policies on local requirements for decentralised energy supply unless it can be demonstrated by the applicant, having regard to the type of development involved and its design, that this is not feasible or viable; and take account of landform, layout, building orientation, massing and landscaping to minimise energy consumption."</i></p>
Regional Policy		
Resilience; GHG	Kent County Council	<p>Policy SP30 – Climate Change policy aims to ensure new development minimises the impacts of climate change through mitigation and adaptation measures, and reduce Thanet's carbon footprint. These must take account of:</p> <ul style="list-style-type: none"> • Adapting to climate change by minimising vulnerability, providing resilience to the impacts of climate change and complying with the Government's Zero Carbon Policy; • Mitigating against climate change by reducing emissions

¹⁶⁰ Secretary of State for Transport (2013), Aviation Policy Framework. Available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/153776/aviation-policy-framework.pdf

Sub-topics affected	Legislation or Policy reference	Legislation Summary or Policy Information relevant to Climate Change
		<p>The following actions are identified for the Council, which could be achieved through the planning process:</p> <ul style="list-style-type: none"> • Ensure all new developments, where possible, consider the use of Sustainable Urban Drainage Systems (SUDS) • Ensure new developments do not increase the risk of surcharge of sewer network within their catchment • Promote benefits of rainwater reuse and recycling • Support KCC in the use of SUDS in identified areas <p>Infiltration methods are unlikely to be appropriate in some parts of Thanet due to the quality of the groundwater. Groundwater from the chalk rock beneath Thanet is used to supply water for drinking water, agriculture, horticulture and industry. It also feeds the springs that emerge along the coast and near the marshes.</p>
Local Policy		
Resilience; GHG	Draft Thanet Council Local Plan	<p>Thanet District Council's new draft Local Plan¹⁶¹, which is currently being prepared, with a draft issued for consultation in 2015, considers climate change and new buildings. The draft Local Plan is being considered at Council level in January 2018. In this draft, the policy with direct relevance to carbon emissions is CC04 Sustainable Design, which states:</p> <p><i>"All new buildings and conversions of existing buildings must be designed to reduce emissions of greenhouse gases and function in a changing climate. All developments will be required to:</i></p> <ol style="list-style-type: none"> <i>1) achieve a high standard of energy efficiency in line with most recent government guidance;</i> <i>2) make the best use of solar energy passive heating and cooling, natural light, natural ventilation and landscaping.</i> <p><i>All new buildings and conversions of existing buildings must be designed to use resources sustainably. This includes, but is not limited to:</i></p> <ol style="list-style-type: none"> <i>3) re-using existing buildings and vacant floors wherever possible;</i> <i>4) designing buildings flexibly from the outset to allow a wide variety of possible uses;</i> <i>5) using sustainable materials wherever possible and making the most sustainable use of other materials;</i> <i>6) minimising waste and promoting recycling, during both construction and occupation.</i> <p><i>New developments must provide safe and attractive cycling and walking opportunities to reduce the need to travel by car."</i></p>

Guidance

16.2.4 Technical and policy guidance related to the climate change assessments are listed in Table 16.2.

¹⁶¹ Thanet District Council (2015) Draft Thanet Local Plan to 2031 Preferred Options Consultation. Available online at: <https://www.thanet.gov.uk/media/3432043/Final-Thanet-Preferred-Option-Draft-Local-Plan-Inovem-Inc-Appendices-with-cover.pdf>

Table 16.2 Guidance relevant to climate change

Sub-topics affected	Source	Summary description
Resilience; In-combination climate change impacts; GHG	Institute of Environmental Management and Assessment (IEMA)	An IEMA EIA Guide to Climate Change Resilience and Adaptation has been produced, which sets the case for the component aspects of a climate change chapter as laid out in the proposed scope (Section 2 of this document) ¹⁶² .
Resilience; In-combination climate change impacts	International Organization for Standardization (ISO)	A new standard on Adaptation to Climate Change is in the process of being produced by ISO (ISO 14090), which further defines the process of applying climate change to a major project. This standard will be in place by the time the Proposed Development is due to begin operations.
Resilience; In-combination climate change impacts	UK Department for Communities and Local Government	The 2012 National Planning Policy Framework (NPPF) and relevant planning practice guidance includes a chapter on climate change adaptation and mitigation ¹⁶³ and a 2014 update specifically for climate change ¹⁶⁴ . In 2016, new climate change allowances for flood risk assessments were introduced to the NPPF by the Environment Agency ¹⁶⁵ .
In-combination climate change impacts	European Commission	The EC Guidance on Integrating Climate Change and Biodiversity into EIAs ¹⁶⁶ sets out guidance for screening and scoping, analysing baseline trends, alternative and baseline measures, monitoring and adaptive management.
In-combination climate change impacts	Food and Agriculture Organization (FAO) of the United Nations (UN)	FAO has produced numerous guidance reports on climate change impacts for agriculture, soils and forests ¹⁶⁷ .
In-combination climate change impacts	World Health Organization (WHO)	Strengthening Health Resilience to Climate Change: Technical Briefing for the World Health Organization - Conference on Health and Climate ¹⁶⁸ .

¹⁶² IEMA (2015), Environmental Impact Assessment Guide to Climate Change Resilience and Adaptation. Available online at: [https://www.iema.net/assets/templates/documents/iema_guidance_documents_eia_climate_change_resilience_and_adaptation%20\(1\).pdf](https://www.iema.net/assets/templates/documents/iema_guidance_documents_eia_climate_change_resilience_and_adaptation%20(1).pdf)

¹⁶³ UK Department for Communities and Local Government (2017), Planning practice guidance. Available online at: <https://www.gov.uk/government/collections/planning-practice-guidance>

¹⁶⁴ UK Department for Communities and Local Government (2014), Climate change. Available online at: <https://www.gov.uk/guidance/climate-change>

¹⁶⁵ UK Environment Agency (2017), Flood risk assessments: climate change allowances. Available online at: <https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

¹⁶⁶ European Commission (2013), Guidance on Integrating Climate Change and Biodiversity into Environmental Impact Assessment. Available online at: <http://ec.europa.eu/environment/eia/pdf/EIA%20Guidance.pdf>

¹⁶⁷ FAO. Climate change. Available at: [http://www.fao.org/climate-change/resources/publications/en/?page=1&ipp=5&tx_dynalist_pi1\[par\]=YToxOntzOjE6IkwiO3M6MT0iMCI7fQ==](http://www.fao.org/climate-change/resources/publications/en/?page=1&ipp=5&tx_dynalist_pi1[par]=YToxOntzOjE6IkwiO3M6MT0iMCI7fQ==)

¹⁶⁸ WHO (2015), Strengthening health resilience to climate change: Technical briefing. Available online at: <http://www.who.int/globalchange/publications/briefing-health-resilience/en>

Sub-topics affected	Source	Summary description
GHG	PAS2080	Publicly Available Specification (PAS) on carbon management in infrastructure
GHG	BSI Group	BS EN 15804 ¹⁶⁹ , which outlines the requirement for quantifying and reporting emissions at a product level;
GHG	BSI Group	BS EN 15978 ¹⁷⁰ , which outlines the calculation method to assess performance at the buildings level, based on life cycle assessment (LCA).
GHG	IEMA	Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance ¹⁷¹

16.3 Data gathering methodology

16.3.1 This section describes the desk studies and consultations undertaken to inform the baselines for each sub-topic.

Climate change resilience and in-combination climate change impacts assessments

Desk study

- 16.3.2 The same baseline for the climate change resilience and in-combination impact assessments are used¹⁷².
- 16.3.3 Gridded observational weather data, covering the period 1961-2011, is used to establish 'current' conditions for temperature and rainfall. These are used as the 'climate baseline' against which future projections are compared.
- 16.3.4 Contextual climate information has also been gathered from the Met Office, using the existing climate station situated on the site of the Proposed Development¹⁷³.
- 16.3.5 Climate projections for the Proposed Development are sourced from UK Climate Projections 2009 (UKCP09)¹⁷⁴. The representative grid cell is ID1709 and can be seen on the UKCP09 User Interface¹⁷⁵. The Proposed Development itself sits outside of the UKCP09 grid, and this grid cell is used as it is the closest to the site. Whilst this is a limitation, the site is only approximately 5 miles from the edge of the grid cell and there are no significant landforms or topographic features between them, which means that any climatic differences between the site and the grid cell used will be negligible for the resolution of data needed in these assessments.
- 16.3.6 The UKCP09 projections are plausible representations of future climates across the UK based on GHG emissions scenarios. UKCP09 provides probabilistic information, enabling the analysis of many potential future climates rather than one. Using a range of projections is preferable to a

¹⁶⁹ BSI Group (2014), Sustainability of construction works. Environmental product declarations. Core rules for the product category of construction products

¹⁷⁰ BSI Group (2012), Sustainability of construction works. Assessment of environmental performance of buildings. Calculation method

¹⁷¹ IEMA (2017) Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance. Available at: <https://www.iema.net/policy/ghg-in-eia-2017.pdf>

¹⁷² 'Future climate conditions' should not be confused with the EIA term 'future predicted baseline'.

¹⁷³ Met Office. Manston climate. Available online at: <https://www.metoffice.gov.uk/public/weather/climate/u10unds1y>

¹⁷⁴ UKCP09. Using Climate Projections. Available online at: <http://ukclimateprojections.metoffice.gov.uk/21678>

¹⁷⁵ UKCP09. User Interface. Available online at: <http://ukclimateprojections-ui.metoffice.gov.uk/ui/start/start.php>

single projection given the inherent uncertainties involved with estimating future GHG emissions and the complexities of modelling the climate system¹⁷⁶.

- 16.3.7 UKCP09 provides low, medium and high emissions scenarios for use in climate change assessments. The medium and high emissions scenarios are used for this assessment as data from the low emissions scenario is not considered realistic given observed GHG emissions data. This is in-line with best practice from other major infrastructure projects in the UK.
- 16.3.8 Projections for the '2030s' and '2050s'¹⁷⁷ are obtained from the UKCP09 interface. The 2030s is chosen to represent the end of the construction phase (construction phases 3 and 4 are scheduled for 2023 – 2036). The 2050s is chosen to represent the operational period of the Proposed Development. This is deemed adequate at this stage as it represents the need for long-term thinking when making decisions about climate change impacts. Further climate change adaptation planning in the detailed design of assets would need to relate to their specific design lives. Data for the following variables are sourced from UKCP09:
- ▶ Daily average temperature (summer)
 - ▶ Daily average temperature (annual)
 - ▶ Daily maximum temperature (summer)
 - ▶ Daily average minimum temperature (winter)
 - ▶ Daily average rainfall (winter)
 - ▶ Precipitation on the wettest day (winter)
 - ▶ Daily average rainfall (summer)
 - ▶ Daily average rainfall (winter)
- 16.3.9 For each variable, the 10th, 50th and 90th probability levels from across the range of climate change projections for the 2050s are obtained from UKCP09, in-line with UKCP09 guidance¹⁷⁸. For flood risk, the climate change allowances stated in Environment Agency guidance within the NPPF is used, which is based on the flood zone, river basin and vulnerability of the assets¹⁷⁹.
- 16.3.10 The UKCP09 Weather Generator is used to obtain information on extreme events, such as precipitation on the wettest day. The weather generator uses a higher resolution grid of 5x5km, and unlike for the main UKCP09 projections, Manston Airport is within the grid. The relevant grid cell is 6350170, and can be seen on the UKCP09 User Interface.
- 16.3.11 The next generation of UK climate projections, UKCP18 is due to be released in May 2018. Until this launch, UKCP09 are still considered to be the most robust climate projections to use in UK projects¹⁸⁰.
- 16.3.12 Qualitative information for other parameters with less readily-available quantified data, such as fog, lightning, storms and wind direction, are sourced from:
- ▶ UKCP09 Technical Notes¹⁸¹
 - ▶ Coupled Model Intercomparison Project stage 5 (CMIP5)¹⁸²

¹⁷⁶ Jenkins, et al. (2009), UK Climate Projections: Briefing Report. Available online at:

<http://ukclimateprojections.metoffice.gov.uk/media.jsp?mediaid=87868&filetype=pdf>

¹⁷⁷ Within the UKCP09 projections, '2030s' refers to a time period representative of 2021-2049, and '2050s' refers to a time period representative of 2041-2069.

¹⁷⁸ UKCP09, Before you start using UKCP09. Available online at: <http://ukclimateprojections.metoffice.gov.uk/21679>

¹⁷⁹ UK Environment Agency (2017), Flood risk assessments: climate change allowances. Available online at:

<https://www.gov.uk/guidance/flood-risk-assessments-climate-change-allowances>

¹⁸⁰ UKCP09, Is UKCP09 still an appropriate tool for adaptation planning? Available online at:

<http://ukclimateprojections.metoffice.gov.uk/24127>

¹⁸¹ UKCP09 (2009-2017) UKCP09 published reports. Available online at: <http://ukclimateprojections.metoffice.gov.uk/22530>

¹⁸² Program for Climate Model Diagnosis and Intercomparison (PCMDI), CMIP5 - Coupled Model Intercomparison Project Phase 5 – Overview. Available online at: <https://cmip.llnl.gov/cmip5/>

- ▶ the Committee on Climate Change Adaptation Sub-Committee's (CCC ASC) report on 'Developing H++ climate change scenarios (hereafter referred to as 'H++ scenarios')'¹⁸³,
- ▶ outputs from the UK Climate Change Risk Assessment (CCRA)¹⁸⁴, and;
- ▶ responses to the Adaptation Reporting Power (ARP) by airport operators, such as at Heathrow¹⁸⁵ and Gatwick¹⁸⁶.

GHG assessment

Desk study

- 16.3.13 Baseline GHG emissions data for 1990-2015 is sourced from the Department for Business, Energy and Industrial Strategy (BEIS) through the National Statistics service¹⁸⁷.
- 16.3.14 Future baseline data only refers to the Airports Commission: Final Report in 2015¹⁸⁸, and the gross total emissions cap of 37.5 MtCO₂ from the aviation sector by 2050.

Consultation

- 16.3.15 Statutory Consultation took place over a period of six weeks between 12 June and 23 July 2017.
- 16.3.16 Through the development of, and consultation on, the Scoping Report and the 2017 PEIR, RiverOak engaged with consultees with an interest in potential air quality effects. A scoping report, including a chapter covering air quality, was produced and submitted to PINS in 2016 who provided a scoping opinion.
- 16.3.17 Organisations that were consulted for the Scoping Report included:
- ▶ The Planning Inspectorate (PINS); and
 - ▶ Thanet District Council.
- 16.3.18 A summary of the consultee comments and responses relating to GHG emissions is provided in Table 16.3, along with a response to identify how the matter was dealt with in the 2017 PEIR.

¹⁸³ Committee on Climate Change (2015), Developing H++ climate change scenarios for heatwaves, droughts, floods, windstorms and cold snaps (Met Office). Available online at: <https://www.theccc.org.uk/publication/met-office-for-the-asc-developing-h-climate-change-scenarios/>

¹⁸⁴ The Committee on Climate Change Adaptation Sub-Committee (2017), UK Climate Change Risk Assessment, Chapter 4: Infrastructure. Available online at: <https://www.theccc.org.uk/wp-content/uploads/2016/07/UK-CCRA-2017-Chapter-4-Infrastructure.pdf>

¹⁸⁵ Heathrow (2016), Climate Change Adaptation and Resilience Progress Report. Available online at: https://www.heathrow.com/file_source/Company/Static/PDF/Communityandenvironment/Climate-Change-Adaptation-Report-2016.pdf

¹⁸⁶ Gatwick (2016), Climate Change Adaptation Progress Report. Available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/530908/climate-adrep-gatwick-airport.pdf

¹⁸⁷ National Statistics (2017), Final UK greenhouse gas emissions national statistics: 1990-2015. Available online at: <https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-2015>

¹⁸⁸ Airports Commission (2015), Airports Commission: Final Report. Available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/440316/airports-commission-final-report.pdf

Table 16.3 Consultee comments

Consultee	Comments and considerations	How comments were addressed in 2017 PEIR
PINS	The Applicant's attention is drawn to TDC's comments, contained in Appendix 3, in relation to potential impacts of emissions on climate change. The applicant should give consideration to the carbon footprint of the Proposed Development during construction and operation, demonstrating how the Proposed Development will contribute to achieving the objective of reducing global greenhouse gas emissions set out in the Aviation Policy Framework (Department for Transport (2013).	<i>"A quantitative assessment of changes in emissions of carbon dioxide arising from the Proposed Development will be made and a comparison with national UK emissions will be made, together with an evaluation in relation to the proposed (CCC) cap on aviation emissions of 37.5 Mt by 2050."</i>
Thanet District Council	There is no reference to CO ₂ emissions and climate change which is now general considered within EIA as best practice. The scale of the development is such that an assessment of the projects impact on the regions and the UK's carbon budget should be provided.	<i>"A quantitative assessment of changes in emissions of carbon dioxide arising from the Proposed Development will be made and a comparison with national UK emissions will be made, together with an evaluation in relation to the proposed (CCC) cap on aviation emissions of 37.5 Mt by 2050."</i>

16.3.19 In the 2018 PEIR, the quantitative assessment of GHG emissions is now incorporated into the Climate Change chapter, rather than as an appendix to the Air Quality chapter.

16.3.20 Embodied carbon is not considered in the GHG assessment, but is included within the Resources Strategy Statement (Appendix 16.1).

16.4 Overall climate change baseline

Climate change resilience and in-combination climate change impacts assessments

- 16.4.1 The site of the Proposed Development sits on the Isle of Thanet peninsula at 51.3° North and 1.3° East, within a temperate marine climate (Cfb¹⁸⁹). Sitting on the east coast, it is furthest in the UK from the paths of most Atlantic depressions and thus receives a relatively low amount of rain and extreme wind events, with warm, dry summers.
- 16.4.2 Manston Airport has a climate station situated within the site. It lies 54m above mean sea level.
- 16.4.3 The site has average annual temperature of 14 °C, average summer temperatures of 16.8 °C, with average highs of 20.8 °C (August). Average winter temperatures are 4 °C, within average minimums of 1.5 °C (January).
- 16.4.4 Average annual rainfall at the site is 592.5mm, and rainfall in October (the month with the highest average rainfall), is 72.6mm. There are an average of 106.6 days of rainfall >1mm and 1802.4 hours of sunshine¹⁹⁰.

¹⁸⁹ M. C. Peel, B. L. Finlayson, T. A. McMahon. Updated world map of the Koppen-Geiger climate classification. Hydrology and Earth System Sciences Discussions, European Geosciences Union, 2007, 11 (5), pp.1633-1644.

¹⁹⁰ Met Office. Manston climate. All data is for 1981-2010. Available online at:

<https://www.metoffice.gov.uk/public/weather/climate/u10unds1y>

- 16.4.5 Summer temperatures are above average for the UK in all seasons, and rainfall is below average for the UK in all seasons.
- 16.4.6 Projected conditions at Manston Airport during the construction and operational phase of the Proposed Development (characterised by the 2050's climate change projections) will be presented in the Environmental Statement. Generally, UKCP09 projections for the south-east of England suggest¹⁹¹:
- ▶ Warmer, drier summers, and milder wetter winters, thus extenuating the seasonal extremes that already exist for the site.
 - ▶ An increase in very hot days;
 - ▶ An increase in annual average temperature and fewer days with snow and frost.
 - ▶ Likely include more intense downpours of rain (particularly in summer);
 - ▶ Very likely include an increase in dry spells
 - ▶ Short periods of intense cold weather (low certainty)
 - ▶ An increase in the frequency and intensity of storms and high winds ((low certainty)

GHG

Current baseline

- 16.4.7 UK GHG emissions from domestic and international aviation rose to a peak of 38 Mt in 2006, then fell slightly to 34.8 Mt in 2015, the last year for which data are available¹⁹². Emissions over the 26-year period are shown in Figure 16.1.

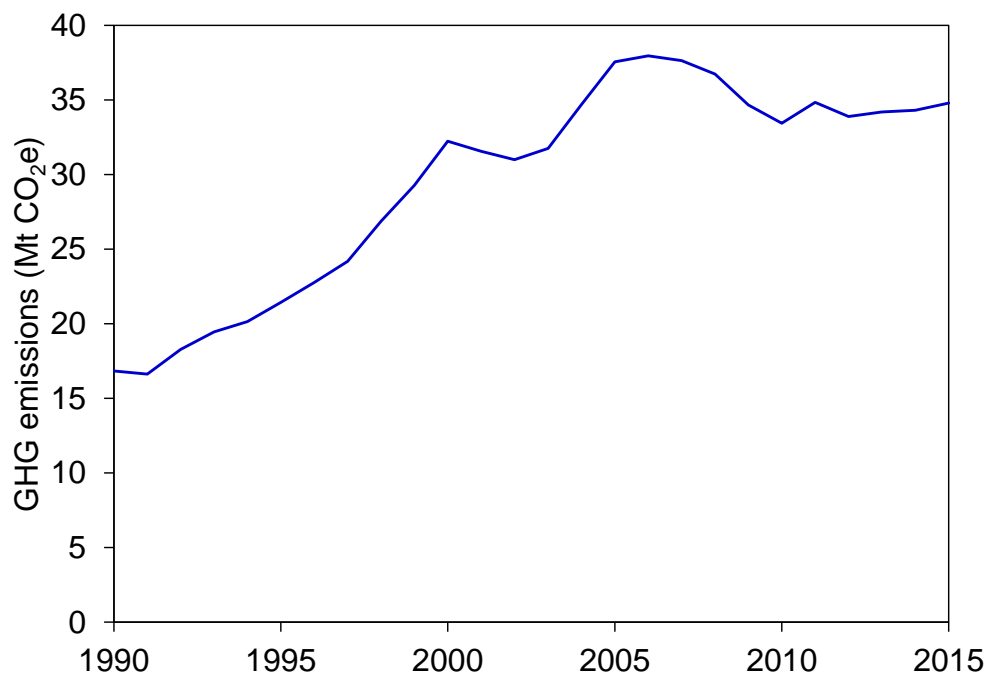


Figure 16.1 GHG emissions from domestic and international aviation

¹⁹¹ UKCP09, Maps and key findings. Available online at: <http://ukclimateprojections.metoffice.gov.uk/21708>

¹⁹² National Statistics (2017), Final UK greenhouse gas emissions national statistics: 1990-2015. Available online at: <https://www.gov.uk/government/statistics/final-uk-greenhouse-gas-emissions-national-statistics-1990-2015>

Future baseline

- 16.4.8 Following the findings of the Revised Draft Airports National Policy Statement¹⁹³, it is assumed that a runway expansion at Heathrow Airport will take place, and that this can be achieved within the Government's carbon obligations of an 80% reduction in emissions by 2050. This target does consider international aviation, which was not considered in previous carbon budgets.
- 16.4.9 As a result of the uncertainty around the mechanism by which the UK aviation sector will achieve emissions in-line with the Government's carbon obligations, it is not possible to define a future GHG emissions baseline. However, this is not of detriment to the GHG assessment for the Proposed Development, as the Revised Draft Airports National Policy Statement states:
- Any increase in carbon emissions alone is not a reason to refuse development consent, unless the increase in carbon emissions resulting from the project is so significant that it would have a material impact on the ability of Government to meet its carbon reduction targets, including carbon budgets.*
- 16.4.10 Therefore, the significance of effects relating to GHGs is not directly related to an emissions value, but to the satisfactory provision of mitigations that meet the requirements of the Revised Draft Airports National Policy Statement.

16.5 Environmental measures incorporated into the Proposed Development

- 16.5.1 This section lists the environmental measures relevant to climate change which have been incorporated into the Proposed Development.
- 16.5.2 The broad approach adopted is that where achievable and agreed environmental measures have been incorporated into the Proposed Development, the effect that those environmental measures have on the significance of potential effects will be considered during the assessment. In some cases, a potential effect may require no further consideration following incorporation of appropriate environmental measures.

Climate change resilience assessment

- 16.5.3 All environmental measures incorporated into the operational phase of the Proposed Development for climate change resilience purposes relate to the mitigation of risks relating to freshwater environment (Chapter 8). They are:
- ▶ The attenuation ponds will be designed to an appropriate capacity, taking into account NPPF climate change allowances and the capacity of the drainage pipeline into Pegwell Bay
 - ▶ Lagoons will be appropriately sized to account for NPPF climate change allowances, to ensure that treatment facilities continue to function
- 16.5.4 There are no other environmental measures incorporated in to the design of the Proposed Development that increases its resilience to the impacts of climate change.

In-combination climate change impacts assessment

- 16.5.5 A summary of in-combination climate change impacts in relation to other topic areas that have been assessed as part of the 2018 PEIR is provided below in Table 16.4: Summary of Table 16.4.

¹⁹³ Department for Transport. Revised Draft Airports National Policy Statement. Available online at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/654123/revised-draft-airports-nps-web-version.pdf

Table 16.4: Summary of In-combination climate change impacts in relation to other topic areas

Topic area	Projected changes and potential effects	Incorporated measure
Construction Phase Measures		
Biodiversity (Chapter 7)	Climate change impacts on vegetation in compensation areas for SPI/red-listed bird species.	To ensure that the conservation status of SPI/red-listed BoCC is maintained, appropriate habitat, using plant species appropriate for the changing climate, will be created prior to commencement of construction within the c.36 ha compensation site south of the proposed development. The arable area within the compensation field will contain 'skylark plots' at a density of 2 per ha.
Freshwater Environment (Chapter 8)	Overwhelming of local drainage system in future flooding events.	The Environment Agency have agreed under the site drainage strategy that the drainage system will be designed so that there would be no offsite flooding for a 1% Annual Exceedance Probability) AEP event with a 40% climate change allowance (scenario agreed with KCC as Lead Local Flood Authority (LLFA)). All surface water will be captured, attenuated within two ponds, treated and then discharged to Pegwell Bay via an existing pump and outfall.
Groundwater / land quality (Chapter 8)	Overwhelming of local drainage system in future flooding events. Contaminated run-off generated by de-icer storage and use enters the groundwater environment as a potential pollutant.	Storage lagoons will be appropriately sized to account for NPPF climate change allowances, to ensure that treatment facilities continue to function.
Operational Phase Measures		
Biodiversity (Chapter 7)	Climate change impacts on implanted measures used to improve invertebrate habitat at the site.	Monitoring of the invertebrate habitat will occur to monitor effectiveness of implanted measures and enable adaptive management.
Biodiversity (Chapter 7)	Climate change impacts on receptor mitigation habitats created for breeding birds.	The number of pairs of breeding birds will be monitored for at least five years from the first breeding season successful post-habitat creation. This will enable adaptive management of any of the measures in place to enhance the nesting suitability of the compensation site. Any changes to the type of measures implemented will generate further monitoring.
Biodiversity (Chapter 7)	Climate change impacts on receptor mitigation habitats created for reptiles.	Monitoring of the reptile population within the receptor site will occur every two years for six years beginning the year after translocation. The results of the monitoring

Topic area	Projected changes and potential effects	Incorporated measure
		will permit any adaptive management required to ensure continued effective delivery of suitable reptile habitat. Further monitoring will be implemented if significant intervention is required as shown by monitoring results.
Freshwater Environment (Chapter 8)	Full operation phase (2036 onwards): climate change will cause further variation from baseline climatic patterns.	The attenuation ponds will be designed to an appropriate capacity with a 40% allowance for climate change
Groundwater / land quality (Chapter 8)	Overwhelming of local drainage system in future flooding events. Contaminated run-off generated by de-icer storage and use enters the groundwater environment as a potential pollutant.	<p>It is proposed that there are two ponds on site, one of which will receive “dirty” run-off (for example that containing de-icer) and one receiving “clean” run-off. Water will only be discharged from the “dirty” run-off pond once treatment is complete and pumped discharge will only take place from the “clean” pond. These ponds have been sized to attenuate site run off for the 1% AEP storm plus a 40% climate change allowance.</p> <p>Following the production of a compliant Flood Risk Assessment, it is concluded that all effects during the operation phase will be negligible and there will not be any likely significant effects to on or off-site during the operation phase of the site.</p>

GHG assessment

- 16.5.6 A summary of the environmental measures that have been incorporated into the development proposals to date in order to avoid, reduce or compensate for potential adverse GHG effects is provided below in Table 16.5.

Table 16.5 Rationale for incorporation of environmental measures

Potential receptor	Predicated changes and potential effects	Incorporated measure
Construction Phase Measures		
Global atmosphere	Potential GHG emissions from vehicles and plant during the construction phase	<p>As part of the Construction Environmental Management Plan (CEMP) the contractor will include measures to reduce or limit GHG emissions during the construction phase of the Proposed Development.</p> <p>Measures may include limiting the use of diesel or petrol-powered generators and use mains electricity or battery-powered equipment where practicable; ensuring all</p>

Potential receptor	Predicated changes and potential effects	Incorporated measure
		vehicles switch off engines when stationary — no idling vehicles.
Operational Phase Measures		
Global atmosphere	Congestion on the local road network	Agree and enforce a strict routing agreement for incoming and outgoing HGV, avoiding, where possible, peak traffic flow hours.
Global atmosphere	Potential GHG emissions from vehicles.	Agree and enforce delivery and dispatch schedules for HGVs that avoid, where possible, causing congestion on the local road network and excessive emissions to atmosphere. Also, enforce a “no unnecessary idling” policy for all vehicles and plant on the airport.
Global atmosphere	Potential effects on GHG emissions as a result of emissions from aircraft movements on the ground and in the air.	Planning of aircraft arrival and departure scheduling to avoid, where possible, over-long idling, taxiing and hold times. Airfield layout design to minimise times taxiing and holding. Use of Fixed Electrical Ground Power to minimise engine/APU use. Bans on older, less efficient aircraft.
Global atmosphere	Potential effects on GHG emissions as a result of emissions from aircraft ground support equipment (GSE).	Largely electric GSE fleet. Diesel GSE largely bought new and meeting current emissions standards. Planning of aircraft arrival and departure scheduling to avoid, where possible, over-long operation of liquid fossil-fuelled GSE.

16.6 Scope of the assessment

- 16.6.1 This section sets out information on: the process whereby receptors are identified; the potential receptors that could be affected by the Proposed Development, and; the potential effects on receptors that could be caused by the Proposed Development.
- 16.6.2 The scope of assessment has been informed by: consultee responses to the Scoping Report; the change in scope associated with the compliance of the 2017 EIA Regulations; the results of the work described in Section 16.4, and; the preliminary design of the Proposed Development.

Climate change resilience assessment

Approach to identifying receptors

- 16.6.3 The identification of receptors is based on relevant guidance and the professional judgement of a qualified technical specialist who has undertaken a desk study for the site location, including assessment of the preliminary design and mapping across to climate change assessments of other airports.

- 16.6.4 The climate change resilience sub-topic inevitably uses a different interpretation of 'receptor' given that the focus is on the impact of the environment (exacerbated by climate change) on the Proposed Development itself. The in-combination climate change impacts assessment covers the impact of climate change *and* the Proposed Development on environmental receptors identified elsewhere in the 2018 PEIR.

Potential receptors

- 16.6.5 The receptors potentially affected by climate change are any of the built infrastructure elements of the preliminary design that are exposed to the natural hazards identified in Section 16.3, and the interdependent infrastructure assets and networks that are exposed to natural hazards identified in Section 16.3 not covered by measured described in Section 16.5. This includes the runway, apron and taxiways, aircraft stands, the soft estate, fuel farm, air traffic control terminal, business /light aircraft operations and cargo buildings, the recycling facility, the fire station, all buildings associated with the business park, and the museum.

Spatial and temporal scope

- 16.6.6 The spatial scope of the assessment of airport assets is the redline boundary for the Proposed Development and that of interdependent infrastructure¹⁹⁴ (such as transport, power and telecommunication networks) beyond the boundary, within reason. For the purposes of this assessment a light-touch, qualitative approach is taken to considering interdependent infrastructure. Stakeholder engagement with interdependent infrastructure operators, national infrastructure planners and local authorities will be necessary pre-construction to produce an infrastructure system that is resilient to climate change.
- 16.6.7 The temporal scope of the assessment is the '2030s' for the construction phase and the '2050s' for the operational phase. As the detail of design develops through time, the design lives of individual assets will need to be considered (e.g. the terminal buildings will be expected to function beyond the '2050s'). However, given detailed design for individual assets is not currently available, the 2050s is deemed to be sufficient to cover the Proposed Development as a whole.

Likely significant effects

- 16.6.8 The likely significant effects on the Proposed Development, which will be subject to further assessment in the Environmental Statement, are summarised below:
- ▶ Higher average temperatures combined with a potentially increased lightning and drought risk increase fire risk on site.
 - ▶ Heat damage to road and apron surfaces caused by temperatures exceeding design standards (i.e. melting, cracking). Higher average temperatures can result in buckling of pavements (e.g., concrete expansion while remaining rigid). Non-concrete pavement integrity can be compromised (e.g., tarmac melt). Heat-related weathering of fleet, including tyres
 - ▶ Overheating of operationally-critical buildings which could impair performance of critical staff or equipment and breach regulated conditions.
 - ▶ Increasing variability of snowfall challenges winter contingency plans, de-icing supplies and staff experience.

¹⁹⁴ 'Interdependent' and 'interdependence' are used in the context of this chapter to refer to infrastructure networks or assets that are mutually reliant on each other (e.g. a power network requires the Proposed Development to supply to and the Proposed Development requires power). As this sub-topic is concerned with the impact of the environment on the Proposed Development (i.e. the assets of the Proposed Development can be considered the receptor), an impact upon an interdependent infrastructure asset/network that causes degradation of the Proposed Development's functionality can also be considered a receptor. However, the response to such an indirect effect would differ from one directly impacting the proposed Development given that direct influence over design is not possible.

- ▶ Flooding and storms affecting ground transport access. Flooding of access roads causing a reduction in airport throughput. Disruptions during airport construction and operation.
- ▶ Flooding and storms affecting provision of utilities. Flooding of critical assets owned by utilities providers (e.g. water, electricity, telecommunications etc.) compromises the functionality of the airport.
- ▶ Increased frequency and severity of drought conditions, resulting in localised water scarcity and pollution incidents. Reduced borehole capacity.
- ▶ Variable groundwater levels affect asset integrity and could cause subsidence and water ingress damage to buildings and surfaces. Climate change increases winter precipitation and reduces summer precipitation events, increasing the seasonality of the rainfall profile. This potentially reduces throughput and threatens operation, both due to groundwater flooding and geohazards caused by more variable soil moisture deficit levels
- ▶ Disruption to airfield operations due to stormy conditions.
- ▶ Extreme wind damage to assets, standing aircraft, vehicles and injuries to staff.

In-combination climate change impacts assessment

Approach to identifying receptors

16.6.9 Receptors are identified from the existing 2018 PEIR assessment chapters for each topic.

16.6.10 The following considerations have been taken into account in identifying potential receptors:

- ▶ The extent to which the receptor will be affected by changes that are expected to result from the Proposed Development;
- ▶ The sensitivity of the receptors to the changes that are likely to occur;
- ▶ The likely magnitude, duration and other characteristics of the effects;
- ▶ The importance or value of the receptor at a local, regional and national level; and
- ▶ Relevant best practice and guidance where specialist methodologies have been developed as detailed below.

Potential receptors

16.6.11 Receptors are any of those listed in the topic chapters that are exposed to any of the environmental hazards listed in Section 16.3.

Spatial and temporal scope

16.6.12 The spatial scope is that identified from the existing assessment chapters for each topic.

16.6.13 The temporal scope is that same as for the climate change resilience assessment (i.e. the '2050s')

Likely significant effects

16.6.14 Identifying significant effects for in-combination climate change impacts has not yet been fully carried out. Therefore, for the purposes of the 2018 PEIR all receptors that can be influenced by climate change are considered likely significant at this stage, unless they have specific climate change mitigations specified in Section 16.5).

16.6.15 Guidance (as stated in Table 16.2) and professional experience would suggest receptors with the most exposure to climate change will be in the freshwater environment, biodiversity, land quality and landscape and visual impact topics.

GHG assessment

Approach to identifying receptors

- 16.6.16 For GHGs, the only receptor is the global atmosphere. Impacts are global with no specific local impacts.

Spatial and temporal scope

- 16.6.17 All emissions from airport-related activities are included within this assessment, including flights wherever they are to or from. However, the vast majority of emissions are from aircraft movements, so they are the focus of the assessment, and some minor sources have been treated as making a negligible contribution.
- 16.6.18 In terms of temporal scope, it is proposed to assess the following calendar years for operational activity:
- ▶ the opening year (Year 2);
 - ▶ Year 6 (being the year at which the airport reaches 10,000 movements per year); and
 - ▶ Year 20 (being the year of peak usage). It is assumed that activity levels (but not necessarily emissions) in 2050 will be the same as Year 20.
- 16.6.19 Construction is a one-off source emissions (albeit spread over several years) rather than an on-going source. It is therefore proposed to assess emissions from construction as a single total from the whole activity. This is also true for embodied carbon.

Likely significant effects

- 16.6.20 The overwhelming majority of airport GHG emissions arise from aircraft activity. Aircraft activity will result in emissions of carbon dioxide (CO₂) from the combustion of fuel. At present, aviation fuel is derived from fossil oil. Work is being undertaken to introduce lower-carbon biofuels, but current evidence is that in the future fuel will remain largely fossil-derived with only a fairly small percentage (one estimate is around 10%) of biofuel in the mix.
- 16.6.21 Given that the Proposed Development creates GHG emissions that contribute to climate change through its construction and operational phases, the effect upon the global climate is considered likely significant. This approach is in-line with current guidance¹⁹⁵. This will be assessed in greater detail, with results communicated in the Environmental Statement.

16.7 Assessment methodology

Climate change resilience assessment

Methodology for predicted effects

- 16.7.1 The assessment of likely significant effects as a result of the Proposed Development will take into account the operational phase of the Proposed Development (the '2050s'). The significance level attributed to each effect will be assessed based on the magnitude of the climate change impact and the sensitivity of the affected receptor to resulting changes.
- 16.7.2 The approach used is consistent with that proposed in the relevant guidance.¹⁹⁶

¹⁹⁵ IEMA (2017), Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance. Available online at: <https://www.iema.net/policy/ghg-in-eia-2017.pdf>

¹⁹⁶ IEMA (2015), Environmental Impact Assessment Guide to Climate Change Resilience and Adaptation. Available online at: [https://www.iema.net/assets/templates/documents/iema_guidance_documents_eia_climate_change_resilience_and_adaptation%20\(1\).pdf](https://www.iema.net/assets/templates/documents/iema_guidance_documents_eia_climate_change_resilience_and_adaptation%20(1).pdf)

Significance evaluation methodology

Collate climate change hazards in literature

16.7.3 The relevant hazards to the Proposed Development are identified from a desk study, best practice and expert opinion. The documents used are:

- ▶ UK airport climate change adaptation reports under the National Adaptation Programme, enforced by the Climate Change Act 2008. First round in 2011 and progress report in 2016. Particularly Gatwick Airport and Heathrow Airport given closest proximity to Manston and largest scope, respectively.
- ▶ UK Climate Change Risk Assessment, Chapter 4 – Infrastructure (2017)¹⁹⁷.
- ▶ Airport Coordinated Research Program - Synthesis 33: Airport Climate Adaptation and Resilience (Baglin, 2012)¹⁹⁸.
- ▶ Adapting Aviation to a Changing Climate (EUROCONTROL, 2014)¹⁹⁹.

Screen relevance for Proposed Development

16.7.4 The hazards therein are screened for their relevance to Manston Airport by determining whether:

- ▶ The hazard is relevant to the Manston Airport site.
- ▶ The hazard is relevant to the functions and infrastructure associated with the proposed redevelopment of Manston Airport.

16.7.5 Screened out hazards are not considered beyond this point.

Sensitivity of receptor

16.7.6 Whilst the magnitude is determined through quantitative assessment wherever possible, the sensitivity of the affected receptor is determined by expert opinion, best practice and desk study.

16.7.7 The sensitivity of each receptor is considered very high, high, medium or low based on the extent to which its disruption causes functionality of the airport to be reduced. This will be assessed at high level based on expert judgement, which is appropriate for this stage of design.

Magnitude of change

16.7.8 Screened in hazards are assessed using quantitative information wherever possible. UKCP09 information is used where it is prudent to do so. Where no viable quantitative information is available, qualitative statements and best practice from literature are used.

16.7.9 Deterministic definitions of magnitude are not possible for the climate change topics given the inherent uncertainty involved in projecting future climates. All definitions of magnitude are context specific, so the extent of disruption a particular hazard may have on the receptors (i.e. airport assets) will be considered. As an example, a hazard for which the climate change trend is very uncertain (e.g. extreme winds) may be more likely to be considered a significant effect due to the high impact an increased number of extremely windy days would have on the operation of the Proposed Development. This is a precautionary approach – it would make sense in this situation to consider the resilience of the Proposed Development to increased extreme wind events, even if they are not certain to occur. .

16.7.10 This is considered acceptable for this stage of the development as many of the effects of climate change do not necessarily need to be mitigated now, but can be reduced by adaptive management throughout the operational phase.

¹⁹⁷ Committee on Climate Change (2016), UK Climate Change Risk Assessment 2017: Evidence Report. Chapter 4 – Infrastructure. Available online at: <https://www.theccc.org.uk/wp-content/uploads/2016/07/UK-CCRA-2017-Chapter-4-Infrastructure.pdf>

¹⁹⁸ Baglin (2012), Airport Climate Adaptation and Resilience. Available online at: <http://www.trb.org/Publications/Blurbs/167238.aspx>

¹⁹⁹ Eurocontrol (2014), Adapting Aviation to Changing Climate. Available online at: <http://www.eurocontrol.int/Resilience>

- 16.7.11 Flood risk is a notable exception, as there is explicit guidance for accounting for climate change with a specific percentage uplift on top of return periods. See Chapter 8 for a detailed description of this.
- 16.7.12 Magnitude of change is considered high, medium, low or negligible based on expert opinion. This relates to significantly increased exposure of the receptor, increased exposure of the receptor, possibly increased exposure of the receptor, or no increase in exposure of the receptor, respectively.

Determination of significance

- 16.7.13 Significance is determined by consideration of both the sensitivity of a receptor and the magnitude of change, as shown in Table 16.6.
- 16.7.14 For flood risk, design guidance will be applied, enabling a quantitative assessment of the impact of climate change on the scheme for this topic. See Chapter 8 for a detailed description of this. For all other topics, significance will be determined qualitatively.

Table 16.6 Significance criteria

Sensitivity/Value	Magnitude of Change			
	High	Medium	Low	Negligible
Very High	Significant	Significant	Not Significant	Not Significant
High	Significant	Significant	Not Significant	Not Significant
Medium	Significant	Not Significant	Not Significant	Not Significant
Low	Not Significant	Not Significant	Not Significant	Not Significant

Mitigation

- 16.7.15 Where appropriate, the impact assessment will identify the need for additional resilience measures to mitigate the effects of climate change. These may be 'hard' measures such as changes to design standards, or 'soft' measures relating to strategies, policies and building the adaptive capacity of the operating organisation.

In-combination climate change impacts assessment

Methodology for predicted effects

- 16.7.16 The aim of the assessment is to determine where climate change increases the exposure of environmental receptors to an extent that a new significant effect is found.
- 16.7.17 The assessment of likely significant effects as a result of the Proposed Development will take into account the operational phase of the Proposed Development. The significance level attributed to each effect will be assessed based on the magnitude of the climate change impact and the sensitivity of the affected receptor to resulting changes.
- 16.7.18 The in-combination climate change impacts assessment will rely upon the production of a valid determination of significance for environmental receptors without the application of climate change information.

16.7.19 The approach used will be consistent with best practice produced by IEMA²⁰⁰.

Significance evaluation methodology

Collate climate change hazards in literature

16.7.20 The climate change hazards will be the same as those identified in the climate change resilience assessment. They will be identified from a desk study, best practice and expert opinion.

Screen relevance for Proposed Development

16.7.21 The hazards therein will be screened for their relevance to the topic by determining whether changes in the magnitude and/or frequency of the hazard could feasibly have an adverse effect on receptors.

16.7.22 Screened out hazards will not be considered beyond this point.

Sensitivity of receptor

16.7.23 The sensitivity of the environmental receptors will be taken directly from the topic assessments in their respective chapters.

Magnitude of change

16.7.24 Magnitude of change will be assessed in the same way as for climate change resilience assessment, although in collaboration with the effects assessed as part of other topic chapters. The magnitude of change will be ultimately decided in collaboration between the climate change topic lead and the relevant environmental topic lead.

16.7.25 The aim of the assessment will be to determine where climate change increases the exposure of the receptors to an extent that a new significant effect is found.

Determination of significance

16.7.26 Significance is determined using the same approach as the climate change resilience assessment, and therefore Table 16.6 is also valid here.

16.7.27 The assessment of climate change within an EIA is a relatively young discipline. Consequentially there is little experience or best practice of considering climate change in the assessments of many environmental topics.

16.7.28 There is substantially more planning guidance for flood risk under climate change than any other topic in the Environmental Statement for the Proposed Development. For other topics, such as historic environment, experience and best practice is minimal. Therefore, delivering consistent conclusions of significant effects will be challenging.

16.7.29 Qualitative statements of significance will be made, and mitigation measures will be suggested based on those statements. In many cases, adaptive management and monitoring provisions will be important tools for ensuring climate change impacts on receptors affected by the Proposed Development are mitigated.

16.7.30 The methodology proposed represents a uniform approach that allows the determination of significance against defined criteria. Whilst based on expert judgement, this is deemed to be the most appropriate response to the new EIA Regulations at this stage. It is in-line with, and builds upon, IEMA guidance.

²⁰⁰ IEMA (2017), Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance. Available online at: <https://www.iema.net/policy/ghg-in-eia-2017.pdf>

GHG assessment

Method for predicted effects

Operation and emission scenarios

16.7.31 Three operational years are assessed:

- ▶ Year 2, representing the first year of aircraft operation;
- ▶ Year 6, representing the point at which the aircraft exceeds 10,000 movements per year; and
- ▶ Year 20, representing the peak forecast year in terms of movements.

Emissions sources

16.7.32 A number of emissions sources, both direct and indirect, will be considered. The sources are in-line with those described in the Revised Draft Airports National Policy Statement²⁰¹, namely:

- ▶ Carbon impact of the project (including embodied carbon) from both construction and operation;
- ▶ Emissions from surface access due to airport and construction staff;
- ▶ Emissions from surface access due to freight and retail operations and construction site traffic.
- ▶ Emissions from surface access due to airport passengers / visitors; and
- ▶ Emissions from airport operations including energy and fuel use.

16.7.33 The sources are described below.

Aircraft emissions

16.7.34 Eurocontrol publishes the Small Emitters Tool (SET)²⁰², which calculates fuel use and CO₂ emissions from the whole flight (see below), given aircraft type and sector length. SET is intended to help small airlines compile emissions inventories for historic years. It is updated annually to reflect each year's fleet, as aircraft may be fitted with different engine models which vary slightly in fuel consumption. For this assessment, the 2016 version of SET was used, being the latest available at the time.

16.7.35 It is conventional to calculate GHG emissions from the landing and take-off cycle at the airport (below 3000 feet elevation) plus the departure cruise phase. This prevents double-counting arriving and departing aircraft at the origin and destination airports.

16.7.36 Other tools for calculating GHG emissions from aircraft are available, again aimed at calculating inventories for historic years. These include Eurocontrol's Advanced Emission Model²⁰³ and the European Environment Agency's EMEP/EEA air pollutant emission inventory guidebook²⁰⁴. However, the major uncertainty in the assessment is forecasting the future fleet and routes. Given the uncertainties associated with this, more complex and data-hungry methods are not considered to be justified and the relatively simple SET is most appropriate.

16.7.37 The movements by aircraft type for years 2, 6 and 20 are summarised in chapter 6 in Table 6.23. The emissions associated with these movements will be presented in the Environmental Statement.

Ground support equipment and airport operations

²⁰¹ Department for Transport. Revised Draft Airports National Policy Statement. Available online at https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/654123/revised-draft-airports-nps-web-version.pdf

²⁰² Eurocontrol, Small Emitters Tool (SET). Available online at: <http://www.eurocontrol.int/small-emitters-tool>

²⁰³ Eurocontrol, Advanced Emission Model (AEM). Available online at: <http://www.eurocontrol.int/services/aem-advanced-emission-model>

²⁰⁴ European Environment Agency (2009), EMEP/EEA air pollutant emission inventory guidebook. Available online at: <https://www.eea.europa.eu/themes/air/emep-eea-air-pollutant-emission-inventory-guidebook/emep>

- 16.7.38 Emissions from ground support equipment and vehicles will be considered but are judged to be negligible, so are scoped out for the purposes of the GHG assessment. The basis for this judgement is as follows. The Heathrow 2013 air quality inventory²⁰⁵ includes carbon emissions, and calculated emissions of 31 kt CO₂ from Ground Support Equipment (GSE), compared with 1047 kt from aircraft in the Landing and Take Off (LTO) cycle. Experience from other airports in the UK suggests that of whole-flight emissions from aircraft, the LTO cycle represents about 5% of the total. This suggests that GSE emissions are about 0.15% of the whole-flight emissions from aircraft. While there will be some differences between fleets and routes at Manston Airport compared with Heathrow, it may nonetheless be concluded that GSE emissions are well under 1% of total emissions.
- 16.7.39 GHG emissions from other airport operations is being compiled and will be incorporated into the assessment of GHG effects.

Road transport and traffic

- 16.7.40 GHG emissions associated with road transport and traffic data is being collated and will be incorporated into the assessment of GHG effects.

Embodied carbon

- 16.7.41 Embodied carbon refers to emissions that occur during the manufacture and transport of construction materials and components, as well as the construction process itself. These emissions are historical emissions from the material's production processes plus the current emissions due to transport to site, travel of construction labour and energy used during construction.
- 16.7.42 Embodied carbon data is being collated and will be incorporated into the assessment of GHG effects.

Land use change

- 16.7.43 Given the site has historically operated as an airfield and has not been substantially changed since, the carbon emissions due to land use change will be negligible and have not been considered further.

Significance evaluation methodology

- 16.7.44 The significance evaluation methodology for the GHG assessment will be defined in the Environmental Statement.

Determination of significance

- 16.7.45 There is currently no quantitative carbon emissions threshold which if exceeded is considered significant.
- 16.7.46 Determination of significance for GHGs will be in-line with IEMA guidance and will be described in the assessment of GHG effects.

Mitigation

- 16.7.47 The impact of mitigation is required to be measured, so a 'do nothing' and a 'do something' case will be presented in the Environmental Statement.
- 16.7.48 Many of the mitigations for GHG emissions are the same as those for Air Quality, and are thus identified in Table 16.5.

²⁰⁵ Ricardo (2015), Heathrow Airport 2013 Air Quality Assessment. Ricardo-AEA/R/3438. Available online at: http://www.heathrowairwatch.org.uk/documents/Heathrow_Airport_2013_Air_Quality_Assessment_Detailed_Emissions_Inventory.pdf

16.8 Assessment of effects related to climate change

- 16.8.1 The likely significant effects resulting from and contributing to climate change have been described above. The baseline has been collated in-line with best practice and guidance.

The methodology for assessing the identified likely significant effects for climate change resilience, climate in-combination impact and GHGs is described in Section 16.7. The assessment has not yet been completed but will be included within the final Environmental Statement.

Contents

17.	Major Accident and Disasters	17-1
17.1	Introduction	17-1
17.2	Policy and legislative context	17-2
17.3	Data gathering methodology	17-6
17.4	Overall major accident and disaster baseline	17-8
17.5	Environmental measures incorporated into the Proposed Development	17-14
17.6	Scope of the assessment	17-19
17.7	Assessment methodology	17-24
17.8	Assessment of effects	17-31
17.9	Conclusions of significance evaluation	17-32

17. Major Accident and Disasters

17.1 Introduction

- 17.1.1 As a result of the introduction of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the EIA Regulations 2017) it is now a requirement that Major accidents and disasters relevant to a development are included in the preparation of an Environmental Statement. For this reason, they are now included as a new element of the Preliminary Environmental Information Report (PEIR). For example, the EIA Regulations 2017 state:
- ▶ 'The significant effects to be identified, described and assessed under paragraph (2) include, where relevant, the expected significant effects arising from the vulnerability of the Proposed Development to major accidents or disasters that are relevant to that development' (Regulation 5(4))
- 17.1.2 And, with respect to information for inclusion in the Environmental Statement:
- ▶ 'A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project [...] Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.' (Schedule 4, Para 8)
- 17.1.3 Previously major accidents and disasters were primarily considered as part of the design process. However, the European Union revised the EIA Directive (2014/52/EU) to ensure that these factors are a material consideration in decisions to grant consent for developments requiring EIA, and prior to the elements being further considered as part of the later design stage processes.
- 17.1.4 This chapter sets out the approach for an assessment of major accidents and disasters on and as a result of the Proposed Development and should be read in conjunction with the scheme description (**Chapter 3**).
- 17.1.5 Following a summary of the limitations of the Preliminary Environmental Information Report (PEIR), this Chapter outlines the relevant policy, legislation and guidance that will inform the assessment, the data gathering methodology and context of the overall baseline conditions. The methodology for an assessment of the potentially significant effects of the development is then presented.
- 17.1.6 The requirements for this Chapter have only recently been established. The results of the assessment are not yet available and the Chapter therefore concludes with a summary of the work that will be completed prior to submission of the ES rather than study findings and results.

Limitation of the Preliminary Environmental Information Report

- 17.1.7 This Chapter presents solely the methodology by which major accidents and disasters will be assessed for the purposes of the ES albeit that at this stage further work is required both in terms of the assessment itself and in terms of any methodological development arising from the current consultation.
- 17.1.8 This Chapter of the PEIR explains the approach that will be adopted for the assessment. It does not present any results or findings.
- 17.1.9 The research to date has already identified sources of potential Major Accident and Disasters and potential environmental receptors of relevance to them. This identification process is ongoing and is yet to be completed. The limits and scope of the site survey work relevant to specific receptor

types, e.g. historic environment, ecological receptors etc. are covered under the specific topic chapters elsewhere in the PEIR.

- 17.1.10 This increase in understanding as the planning and design process progresses is typical of large infrastructure projects and sites. As the design advances, an iterative approach to the assessment is therefore taken to ensure all emerging and relevant information is captured and integrated into the scheme design. This approach will include a documented risk management process and, where necessary, the Major Accident and Disaster Management Plan will need to be updated at a later date (e.g. at key design milestones).
- 17.1.11 The level of detail contained in the assessment will be commensurate with the current design understanding that the Proposed Development is not anticipated to hold large quantities of hazardous substances of relevance to major accidents (and so is not anticipated to fall under the Control of Major Accident Hazards regulations, or require Hazardous Substance Consent).
- 17.1.12 The assessment methodology is that of a qualitative desk-based review. The findings that arise from it will be derived from review of publicly available information, information developed as part of the work conducted for other topics of the PEIR and the design basis contained in **Chapter 3** of the PEIR.
- 17.1.13 Decommissioning effects have been scoped out of the assessments as the Airport is envisaged to operate in perpetuity.

17.2 Policy and legislative context

- 17.2.1 A study of planning policy, legislation and guidance at the national, regional and local level has been undertaken in relation to major accidents and disasters for the Proposed Development. Specific consideration has been given to the Proposed Development's location and proximity to receptors.
- 17.2.2 Full details of all national and local planning policies relevant to the Proposed Development can be found in **Appendix 4.1**. The following section outlines legislation and policy relevant to this major accidents and disasters assessment.

Policy and Legislative requirements

- 17.2.3 The importance of effective risk management for Major Hazards and Disasters of relevance to the proposed site, and their impact on environmental receptors is recognised in legislation.
- 17.2.4 Legislation specific to other Chapter topics is addressed in the relevant topic chapter and therefore not repeated here.
- 17.2.5 Key aspects of policies and legislation relevant to this appraisal are set out in **Table 17-1**.
- 17.2.6 For completeness, the Control of Major Accident Hazards Regulation (COMAH, 2015) has been included in **Table 17-1**. However, on the basis of current understanding and information in relation to the Proposed Development, it is considered that the quantities of hazardous substances anticipated will be too low for COMAH to be engaged.

Table 17-1 Legislation, National and Local Planning Policies relevant to Major Accidents and Disasters

Legislation or Policy reference	Legislation Summary or Policy Information Relevant to Major Accidents and Disasters
Legislation:	

Legislation or Policy reference	Legislation Summary or Policy Information Relevant to Major Accidents and Disasters
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017	Provides the legislative requirements for EIA in England, including the new requirement to consider major accidents and disasters.
2014/52/EU Directive on the Assessment of the Effects of Certain Public and Private Projects on the environment	<p>Directive upon which the EIA Regulations 2017 are based.</p> <p>'A Community Approach on the Prevention of Natural and Man-made Disasters', 2009 (Para 14 of the Directive) is referred to in the Directive, in which 'man-made disasters' and 'natural disasters' are addressed, but no reference is made to 'major accident'. The Directive itself refers to 'disasters/natural disasters' (interchangeably) but no reference is made to manmade disasters. It is the interpretation of this assessment that the Directive is intended to be consistent with the Community Approach document. The term 'disasters' is therefore used in the assessment to refer to 'natural disasters', and the term 'major accident' to 'manmade disasters'.</p>
Health and Safety at Work Act 1974	<p>Overarching Act for safety to workers and the public by employers. Obligation to prevent intolerable risk and reduce residual risk So Far As Is Reasonably Practicable. The concept of risk management in the UK is and its application to major hazards, to:</p> <ul style="list-style-type: none"> ▶ Remove intolerable risk ▶ Reduce other effects So Far As Is Reasonably Practicable.
Management of Health and Safety at Work Regulations 1999	These Regulations Include a specific requirement that risks to people are proportionately assessed (this includes those associated with major hazard and disasters).
Control of Major Accidents (COMAH) Regulations 2015	<p>Covers operational sites which involve a large quantity of hazardous substances, with obligations for demonstrating risk is managed prior to construction. For COMAH regulations to apply, threshold quantities of hazardous substances (in aggregate) must be met or exceeded. For those sites to which COMAH applies, specific obligations exist to support the management of major accidents and disasters (environmental and safety risk). A level of demonstration is also required which is proportionate to the level of risk posed by the establishment, and the quantity of hazardous materials involved.</p> <p>The general obligations are consistent with those of the Management of Health and Safety at Work Regulations.</p>
National Planning Policy:	
Draft Airports National Policy Statement (NPS): new runway capacity and infrastructure at airports in the South East of England 2017	<p>Includes reference to a number of factors which may influence the cause, severity or likelihood of major accidents and disasters (e.g. Climate Change, flood risk).</p> <p>See also Chapter 8.</p>
National Planning Policy Framework (NPPF) (2012)	
Paragraph 164	Identifies that account should be taken by local advisors and others of up to date information on higher risk sites in their area for malicious threats and natural hazards, including steps that can be taken to reduce vulnerability and increase resilience.
Paragraph 172	<p>Identifies that planning policies should be based on up-to-date information on the location of major hazards and on the mitigation of the consequences of major accidents.</p> <p>For the purposes of the planning policy, 'major hazards' is defined in the specific context of Major Hazard installations and pipelines, licensed explosive sites and nuclear installations, around which Health and Safety Executive (and Office for Nuclear Regulation) consultation distances to mitigate the consequences to public safety of major accidents may apply.</p>

Legislation or Policy reference	Legislation Summary or Policy Information Relevant to Major Accidents and Disasters
	Note: The term 'Major Accidents' in the EIA 2017 regulations applies to all developments for which an EIA is required, and is not limited to only designated Major Hazard (e.g. COMAH) installations and pipelines, licensed explosive sites and nuclear installations'.
Paragraph 194	Identifies that Local Planning Authorities should consult appropriate bodies when planning, or determining applications, for development around major hazards. See above referenced para 172 of NPPF for context of major hazards as applied to planning policy.
Local Policies:	
Thanet District Adopted Local Plan (2008) saved policies	Identifies the requirement for proposals to demonstrate that new developments cannot contaminate groundwater sources and/or that appropriate mitigation measures will be incorporated into the development to prevent contamination.
Policy EC2 - Manston Airport	
Policy EP 13	Development located within groundwater Source Protection Zones, if identified to have the potential to result in a risk of contamination of groundwater sources, will not be permitted without adequate mitigation measures to prevent such contamination taking place.
Emerging Local Policies:	
Draft Thanet Local Plan to 2031 Preferred Options Consultation January 2015	
Strategic Priority SP4	Safeguarding of the environment through protection and maintenance.
Policy SP05	Compliance with Town and Country Planning Act 1990 and relevant regulations required. Identifies a need for mitigation measures to minimise pollution. Demonstration that a new development cannot contaminate groundwater sources and that appropriate mitigation measures will be incorporated to prevent contamination. No significant harm to Thanet's SSSI/SAC/SPA/RAMSAR.
Policy SE 01	Developments should minimise impact from pollution to an acceptable level with adequate safeguarding and mitigation.
Policy SE04	Proposals for development within the Groundwater Source Protection Zones identified on Map 19 of the policy will only be permitted if there is no risk of contamination to groundwater sources. If a risk is identified, development will only be permitted if adequate mitigation measures can be implemented. Proposals for Sustainable Drainage systems involving infiltration must be assessed and discussed with the Environment Agency to determine their suitability in terms of the impact of any drainage into the groundwater aquifer.

Guidance

- 17.2.7 Since the requirement for this topic in EIA was established only in 2017 guidance on the assessment of major accidents and disasters specific to Environmental Impact Assessment regulations has yet to be produced.
- 17.2.8 Existing guidance for the general topic of major accidents and disasters assessment has been developed for other regulatory purposes in the UK but is largely focussed on facilities which fall within COMAH regulations (i.e. those containing significant quantities of hazardous substances) and later stages of design than planning. While this existing guidance has been referred to, it is important to note that based on current development information the proposed airport is not considered to fall within the remit of COMAH (quantities of hazardous substances are expected to be too low to meet or exceed COMAH threshold limits).

- 17.2.9 The general principles of existing guidance (refer to **Appendix 2**) are relevant to, and have been taken into account in, the development of the proposed approach to the assessment of major accidents and disasters in the following respects:
- ▶ Determining the criteria for a major accident
 - ▶ Concept of removing intolerable risk and reducing residual risk to as low as reasonably practicable (ALARP)
 - ▶ Tolerability criteria for defining significant effect
- 17.2.10 See **Table 17-2** for full reference.

Table 17-2 Major Accident and Disaster Guidance

Source	Summary description
Environmental Impact Assessment of Projects, Guidance on the Preparation of the Environmental Impact Assessment Report, European Commission, 2017	<p>Guidance on how to develop a good quality environmental impact report to ensure appropriate information is available for decision making purposes.</p> <p>The guidance provided by the European Commission highlights that the context for inclusion of major accidents and disaster is to ensure that adequate focus is given to the provisions for events leading to significant risk with an objective of building resilience in a development against such effects. The bar for what is tolerable to society is therefore set somewhat more onerously for major accidents and disasters than for a smaller event of much lower magnitude.</p>
Guidelines in Environmental Management for Facilities Storing Bulk Quantities of Petroleum Products and Other Fuels, Energy Institute 2015	<p>Guidance on managing environmental issues involved in the design, construction, operation and decommissioning of bulk storage facilities. Promoting application of good environmental management systems and environmental risk assessment, and addressing inherent environmental protection. Applicable to facilities which do not fall into COMAH regulations, and those that do.</p>
Chemicals and Downstream Oil Industry Forum (CDOIF) – Environmental risk tolerability for COMAH establishments V2	<p>Guidelines on the assessment and tolerability of major accidents to the environment (established in relation to COMAH sites).</p>
Guide to predicting environmental recovery durations for Major Accidents Energy Institute 2017	<p>Establishes guidance on recovery time for ecosystems following a major accident in relation to the environmental fate of released chemicals.</p>
Guidance on the Interpretation of Major Accidents to the environment for the purposes of COMAH regulations, 1999, Department of the Environment, Transport and the Regions, 1999	<p>Guidance on what would constitute a major accident to the environment (from the perspective of COMAH regulations).</p>
All Measures Necessary – Environmental Aspects Guidance to the Competent Authority Inspectors and Officers, 2016. Health and Safety Executive (HSE)/Environment Agency (EA)/Scottish Environment Protection Agency (SEPA)/Natural Resources Wales, Office of Nuclear Regulation (ONR)	<p>Guidance in relation to COMAH for the prevention and mitigation of environmental aspects of major accidents and discussion of concepts for proportionality and risk tolerability.</p>
Safety and Environmental Standards for Fuel Storage Sites Process Safety Leadership Group, 2009	<p>Standards established to specify minimum standards of control storing large quantities of gasoline. Applicable to facilities falling within scope of COMAH</p>
Guidance Hazardous Substances https://www.gov.uk/guidance/hazardous-substances accessed 1/12/2017. Department of Communities and Local government	<p>Guidance on how to consider hazardous substances in land use planning and relevant planning controls. It includes guidance on how to assess whether Hazardous Substance Consent is required based on the intended inventory.</p>

Source	Summary description
Guidelines for Environmental Risk Assessment and Management Green Leaves III, 2011. Dept of Environment, Food and Rural Affairs	Guidelines for the management and assessment of environmental risk.
CIRIA C736 Containment Systems for the Prevention of Pollution: Secondary, Tertiary and Other Means for Industrial and Commercial Premises.	Good practice guidance on pollution prevention to assist owners and operators of commercial and industrial premises storing substances which may be hazardous to the environment.
Reducing Risks Protecting People (R2P2)	HSE's decision making process. Protocols and procedures followed in decision making in relation to protection of human life in the UK.
CAP 795 Civil Aviation authority. Safety Management Systems Guidance for organisations 2015.	Guidance on safety management of operational airports including risk criteria for human harm.

17.3 Data gathering methodology

- 17.3.1 This section describes the desk study methodology which will be undertaken to inform the assessment of major accidents and disasters.
- 17.3.2 The study area has been defined as follows:
- ▶ The DCO red line area plus 1km study area outside the DCO red line area for land receptors, including population, designated land and biodiversity;
 - ▶ The DCO red line area plus 1km study area outside the DCO red line area for groundwater receptors, and
 - ▶ The DCO red line area plus 10km study area outside the DCO red line area (downstream) for surface water receptors.
 - ▶ In addition, for inflight major accidents under the control of Manston and within the design swathe:
 - ▶ Passengers and crew on a plane while under the control of Manston Airport will be included.
 - ▶ Receptors within the design swathe will be included.
- 17.3.3 The following principal sources and data sets will be consulted for the purposes of establishing the list of potential relevant receptors:

Table 17-3 Base data

Topic	Source of Information
Topography, Elevation, Relief Climate	See PEIR Chapter 8
Water Quality	See PEIR Chapter 8
Flood Risk	See PEIR Chapter 8
Hydrogeology	See PEIR Chapter 8
Soils and Soil Type	See PEIR Chapter 8

Topic	Source of Information
Water Abstractions and Discharges	See PEIR Chapter 8
Biodiversity	Chapter 7 Biodiversity Environment Agency maps ¹⁴⁶ National Biodiversity Network Atlas ¹⁴⁷
Historic Environment	See PEIR Chapter 9
Designated and Non-Designated Sites	www.magic.gov.uk : Natural Environment Interactive Map Environment Agency ¹⁴⁸ What's in Your Backyard North East Kent (Thanet) SIP, Natural England, 2014. Angling Trust ¹⁴⁹
Populations and Communities	Census data obtained through CACI Ltd (20/06/2017) which processes and supplies Census information for the UK.
Climate Change	Chapter 16 Climate Change
Seismicity	British Geological Survey: Earthquakes in the UK ¹⁵⁰ and Geological map ¹⁵¹
Tolerability	Chemicals and Downstream Oil Industry Forum (CDOIF) – Guideline Environmental Risk Tolerability for COMAH Establishments V2 ¹⁵⁵ Guide to Predicting Environmental Recovery Durations for Major Accidents Energy Institute 2017 ¹⁵² Guidance on the Interpretation of Major Accidents to the Environment for the Purposes of COMAH Regulations, 1999, Department of the Environment, Transport and the Regions, 1999 ¹⁵³ (Note while this refers to 1999 regulations, it continues to be an underlying reference for current Major Accident Guidance e.g. CDOIF ¹⁵⁵) Reducing Risks Protecting People (R2P2), HSE, 2001 ¹⁵⁴
Site and drainage	Chapter 3 and RPS Site Masterplan

¹⁴⁶ <http://maps.environment-agency.gov.uk> (accessed 1/12/2017)

¹⁴⁷ <https://nbnatlas.org/> (accessed 1/12/2017)

¹⁴⁸ <http://apps.environment-agency.gov.uk/wiyby/default.aspx> (accessed 4/12/2017)

¹⁴⁹ Fishinginfo.co.uk (accessed 1/12/2017)

¹⁵⁰ <http://www.bgs.ac.uk/discoveringGeology/hazards/earthquakes/UK.html> (accessed 4/12/2017)

¹⁵¹ <http://mapapps.bgs.ac.uk/geologyofbritain3d/index.html> (accessed 4/12/2017)

¹⁵² <http://publishing.energyinst.org/topics/environment/guide-to-predicting-environmental-recovery-durations-from-major-accidents.-supporting-guide-to-the-environmental-risk-tolerability-for-comah-establishments-guideline>

¹⁵³ <https://www.sepa.org.uk/media/219153/detr-guidance-1999.pdf>

¹⁵⁴ <http://www.hse.gov.uk/risk/theory/r2p2.htm>

Desk Study

- 17.3.4 A desk study is ongoing to assess the potential impact of major accidents and disasters to relevant receptors within the study area. This will reference the receptor data sources in **Table 17-3** and will be undertaken proportionately but in accordance with the general principals outlined in guidance for the assessment of major accidents to the environment and risk tolerability (developed by the Chemical and Downstream Industries Forum¹⁵⁵ and the HSE¹⁵⁴).

Survey Work

- 17.3.5 No survey work has been carried out specifically for this Chapter. However, as noted above and where relevant, the assessment of major accidents and disasters draws on the primary and secondary data contained in other chapters.

Consultation

Environmental Impact Assessment (EIA) Scoping

- 17.3.6 The requirement for 2017 Environmental Impact Assessment regulations to be applied to the DCO has only recently been agreed. Major accidents and disasters are a new consideration under the EIA Regulations 2017. As such, this section has only recently been initiated and will be developed for inclusion in the ES to be submitted in 2018.
- 17.3.7 No consultation has therefore been performed to date specifically relating to this PEIR Chapter. However there has been ongoing dialogue with the Environment Agency (EA) and Southern Water particularly in relation to the fuel farm and this information has been considered within the design of the proposed development and will be considered within the work being carried out for this Chapter.

Statutory consultation

- 17.3.8 As noted above, the PEIR consultation is being revisited and major accidents and disasters included. The EA and Southern Water have been consulted on an ongoing basis.

17.4 Overall major accident and disaster baseline

Introduction

- 17.4.1 The baseline described below draws heavily on the findings of several other chapters contained in this PEIR. There is inevitably a degree of commonality in terms of the receptors considered across the chapters.
- 17.4.2 Only those where it is important to highlight context specific to Major Accident and Disasters, or where they are not part of discussion elsewhere, are therefore considered below.
- 17.4.3 The baseline with respect to the design swathe has yet to be assessed for the purposes of this Chapter.

Current baseline

- 17.4.4 The airport is not currently operating for commercial flight purposes. A small fuel farm exists to the South East within the red line boundary. This fuel farm is a private enterprise and supplier of fuels for a variety of marine purposes. The existing fuel farm holds fuel of similar orders of magnitude to

¹⁵⁵ Chemicals and Downstream Oil Industry forum (CDOIF) – Environmental risk tolerability for COMAH establishments V2

those anticipated for the future proposed airport use, with filling and unloading taking place to serve the activities of the current owners.

Topography and geology

17.4.5 These are discussed in **Chapter 8**.

17.4.6 The site red line boundary (RLB) includes a proportion of the buried pipeline to Pegwell Bay. Offsite this pipeline in its entirety extends from the southern portion of the red line boundary to the outfall point in Pegwell Bay.

Surface Water designation and other water features (Rivers)

17.4.7 These are fully discussed in **Chapter 8**.

17.4.8 There are no river watercourses on or adjacent to the site. A series of water channels and streams forming part of Minster Marshes are located more than 1 km south of the site. The buried pipeline connecting the site to the Pegwell Bay outfall is in part in closer proximity to the system.

17.4.9 For the major accidents and disasters chapter, significant sites within the flight path design swathe will also be included. These are yet to be fully identified. No site specific surveys (offsite) are undertaken.

Coastal, Land and Marine Designation and Features

17.4.10 These are fully discussed in **Chapter 7**(Biodiversity) which also includes the findings of a Habitats Regulation Screening Assessment.

17.4.11 This includes a number of internationally/nationally designated sites, including:

- ▶ The north coast of the Isle of Thanet (approximately 3.5 km from the site) which is designated a Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC), Special Protected Area (SPA) and RAMSAR site.
- ▶ Sandwich and Pegwell Bays, located 1.5 km to the south east. These bays are part of designated National Nature Reserve (NNR), RAMSAR, SSSI, SPA and SAC sites.

17.4.12 The proposed Manston Airport development site, due to the proximity of Sandwich and Pegwell Bay SSSI, has been identified as falling within the associated SSSI risk zones¹⁵⁶.

17.4.13 The coastal areas in the study bounds involve a number of priority habitats; coastal saltmarsh, coastal sand dunes, mudflats, maritime cliffs and slopes, coastal and floodplain grazing marsh, intertidal substrate foreshore.

17.4.14 The marine area is listed for fisheries and fishing activity as shellfish waters (2014).

17.4.15 For the major accidents and disasters chapter, significant sites within the flight path design swathe will also be included. These are yet to be fully identified. No site specific surveys (offsite) are undertaken.

Biodiversity

17.4.16 Potential site based ecological receptors are discussed in the Biodiversity **Chapter 7**, which also includes the findings of a Habitats Regulation Screening Assessment.

¹⁵⁶ Zones around each SSSI site (the extent of which reflects the sensitivities of the features for which the site is notified) that indicate the extent beyond the SSSI where development proposals may still have adverse impacts on the SSSI.

- 17.4.17 Potential ecological receptors will be located offsite, and can be important in the designations assigned. These are identified from review of the local designations in available literature Magic 157 (geographic information on the natural environment) for the purposes of the Major Accident and Disaster assessment. No site specific surveys (offsite) are undertaken.
- 17.4.18 For the major accidents and disasters chapter, significant sites within the flight path design swathe will also be included. These are yet to be fully identified. No site specific surveys (offsite) are undertaken.

Soils and Land Use

- 17.4.19 Land use is fully described in **Chapter 10**, Land Quality.
- 17.4.20 The airport has historically been used for military aircraft operations. There may therefore be hazards associated with this historic use which will need to be identified and managed, both in construction and operation. These are included in the assessment. Other potential causes identified to date, fall within categories of hazard which are typically envisaged for the type of development planned.
- 17.4.21 The airport is surrounded by local roads. The site is bordered by roads that run along the south and west, with the B2050 crossing the site in the north. This is occupied by road users on a regular basis.
- 17.4.22 Farmland and industrial/retail areas (including Manston Fire Museum) surround the site and will be occupied to carrying degrees, depending on the specific usage.
- 17.4.23 Residential dwellings exist, around the site, in generally small numbers. Also within the study bound of 1km (partially or fully) are a small number of villages, though these are more remote from the site. They include Manston, Cliffsend, Acol and Minster. Major conurbations are more remote and beyond the 1km study bound.

Flood Risk

- 17.4.24 **Chapter 8** gives a detailed assessment of flood risk.

Site Drainage

- 17.4.25 **Chapter 3** provides a description of site drainage. This is further assessed in **Chapter 8**.
- 17.4.26 The main site discharge is at the south eastern site boundary via a 1200 mm drainage pipe which outfalls at Pegwell Bay. This discharge point also serves as the main discharge drainage point for the proposed fuel farm.
- 17.4.27 The site infrastructure will be fully investigated to confirm its condition.

Surface Waterbodies

- 17.4.28 **Chapter 8** gives a detailed assessment of surface water bodies.
- 17.4.29 The southern part of the Proposed Development is located within the Monkton and Minster Marshes surface water body (within the Stour Marshes Operational Catchment). Neither of the two water bodies are currently of good status, although mitigation measures have been identified that will provide improvement from the current status by 2027 for both water bodies.
- 17.4.30 For the major accidents and disasters chapter, significant sites within the flight path design swathe will also be included. These are yet to be fully identified.

Groundwater Body

- 17.4.31 **Chapter 8** gives a detailed assessment of Ground water bodies.
- 17.4.32 The Manston Airport site is located entirely within a groundwater SPZ catchment¹⁵⁸. The inner zone (SPZ1), where the consequences of damage from a major release would be highest if it occurred, is at the eastern end of the site and in a strip beneath the runway. This is surrounded by a wider area of outer zone (SPZ2) that also dominates the area beneath the runway, in the south of the site. The remainder of the site falls within the wider SPZ catchment area (SPZ3).
- 17.4.33 Manston Airport site is also located within a Safeguard Zone (SGZ) and a groundwater Nitrate Vulnerable Zone (NVZ).
- 17.4.34 There are no licensed abstractions located within the Manston Airport site boundary, but a number of people and organisations are licensed to abstract water from groundwater or ponds/lakes up to 1 km outside the main site boundary.
- 17.4.35 For the major accidents and disasters chapter, significant sites within the flight path design swathe will also be included. These are yet to be fully identified.

Historic and Heritage Sites

- 17.4.36 This aspect is described fully in **Chapter 9** for a 1 km study area.
- 17.4.37 The site lies within an area of local and regional historic significance because of its siting on the Isle of Thanet.
- 17.4.38 Designated heritage assets including those within the study area for up to 1 km are described fully in **Chapter 9**.
- 17.4.39 There are no World Heritage Sites (WHS) within the study area.
- 17.4.40 Two Scheduled Monuments (SM) exist within the 1km study area and in close proximity to the site:
- ▶ Anglo-Saxon Cemetery south of Ozengell Grange (List Entry 1004228).
 - ▶ Enclosure and ring ditches east-northeast of Minster Laundry (List Entry 1004203).
- 17.4.41 24 listed buildings surround the site within the 1km study area, though none are located within it.
- 17.4.42 The conservation area of Acol lies partially within the 1km study area.
- 17.4.43 For the major accidents and disasters chapter, significant sites within the flight path design swathe will also be included. These are yet to be fully identified.

Population and Human Health

- 17.4.44 Populations within the 1 km study bound include (partially or fully) Manston, Minster, Acol and Cliffsend, as well as workers and visitors to the airport development and surrounding commercial premises.
- 17.4.45 The 1 km study bounds exclude the large conurbations of Ramsgate, Broadstairs and Margate which are further than 1 km from the red line boundary.
- 17.4.46 Aircraft users (flight crew, passengers etc.) are also included while they are under the direct control of Manston airport and control tower.
- 17.4.47 For the major accidents and disasters chapter, significant sites within the flight path design swathe will also be included. These are yet to be fully identified.

¹⁵⁸ The Environment Agency have defined SPZs for 2000 groundwater sources such as wells, boreholes and springs used for public drinking water supply. These zones show the risk of contamination from any activities that might cause pollution in the area. The closer the activity, the greater the risk. There are three main zones (Zone 1 - inner, Zone 2- outer and Zone 3 - total catchment). Source: <http://apps.environment-agency.gov.uk/wiyby/37833.aspx>

Weather Conditions and Climate Change

- 17.4.48 Climate Change is addressed in **Chapter 16** and provides information to support the assumptions applied to the Major Accident and Disaster assessment. Flood risk is considered in **Chapter 8**.
- 17.4.49 **Chapter 16** has considered the impact of conditions such as fog, wind direction, lightning, extreme wind and storm, and high temperature.
- 17.4.50 It is predicted that winters will become generally wetter and summers generally drier and that peak rainfall intensities could increase, with a consequent effect on the frequency and magnitude of high river flows. Mean sea levels are also predicted to rise, and may be accompanied by an increase in the frequency and magnitude of flood events as a consequence.
- 17.4.51 Compared to most of the UK, the Kent region is an area of low seismicity. Regional variations exist and the British Geological Survey (BGS) indicates a Peak Ground Acceleration, PGA (g) of 0.02-0.04¹⁵⁹ for the development area which is considered to be low, compared too many locations elsewhere in the UK. The highest regions of seismic activity in the UK are considered to be Snowdonia and South Wales. In the period 1956 to 2017, one earthquake was recorded off the coast of Ramsgate (Magnitude 4.2, at a depth of 9.1m, 22/May/2015). None have been recorded onshore in the same period. For the south east, historically (1884) magnitude 4.6 earthquake has been recorded by BGS in Colchester in 1884, and in 1580 an earthquake has been listed of magnitude 5.8 (Dover Straits).

Potential Sources of Major Accident and Disaster

- 17.4.52 It is necessary to identify credible sources of major accidents and disasters which may theoretically be associated with the development (arising from it, or impacting upon it (e.g. those associated with natural disasters) and including those which occur due to combined effects with other adjacent operations or features) so that potential significant adverse effects are understood and described.
- 17.4.53 All lifecycle phases and proposed activities are of relevance (construction, airport operations, fuel storage, associated day to day activities, and emergency operations). Natural phenomena (e.g. extreme weather events) of relevance to the Kent area are also included.
- 17.4.54 The study will be based on full airport operations (planned to be at Year 20), and allow for climate change within the study period (as considered in **Chapter 16**).
- 17.4.55 Particular consideration is given to those sources of major accidents and disasters with potential to harm the most sensitive receptors.
- 17.4.56 A list of typical sources of major accident and disasters relevant to airport and fuel storage operations major accidents and disasters is given in **Table 17-4**. This list provides a starting point for the assessment, even if the events are only remotely possible. While the list below presents a typical range of major accidents and disasters associated with any industrial operation, the Proposed Development has yet to be assessed against it. Not all of the typical events will therefore apply be present at Manston.

¹⁵⁹ http://www.earthquakes.bgs.ac.uk/hazard/uk_hazard_map.html (accessed 4/12/2017)

Table 17-4 List of typical sources of major accidents and disasters

External Major Accidents	Construction Phase Major Accidents
Contamination e.g. drinking water supply	Structural collapse
Transport accident	Collapse of excavation
Biological agents/disease	Removal of hazardous spoil
Radiological hazards	Accidental release of hazardous chemical or flammable material
Chemical hazards from external source	Fire
Terrorism	Explosion
Sabotage	Toxic Release
Theft	Major Environmental Discharge
Civil unrest/Demonstration	Loss of utilities
Bird Strike	Loss of waste
Fire/explosion at neighbouring site	Temporary Storage
Structural collapse at neighbouring site	Damage from adjacent establishments
Excavation failure at neighbouring site	Contractor facilities
	Incidents associated with on-site pipelines or underground services
	Historic site specific hazard (e.g. unexploded ordnance)
	Transport Accidents
Operational Phase Major Accidents	Natural Disasters
Accidental release of hazardous chemical or flammable material	Flooding (sea, river, rainfall)
Structural collapse	Catchment/flood plains mismanagement
Fire	Seismic/earthquake
Explosion	Subsidence
Toxic Release	Snow
Major Environmental Discharge	Tsunami
Loss of utilities	Extreme Storm
Loss of waste	Lightning
Extreme heat (e.g. flaring)	Forest Fire
Rotating equipment	Landslip
Incidents associated with on-site pipelines or underground services	Disease outbreak
Historic site specific hazard (e.g. unexploded ordnance)	Climate change /resilience from above (Extreme changes to flood (from rainfall, river, and sea), sea rise level, temperature, storm, tsunami, snow loading, and avalanche.)
Transportation of dangerous substances	
Transport accidents	

Factors influencing the baseline

- 17.4.57 Baseline conditions with influence on major accidents and disasters are those which can affect the severity or likelihood of a Major Accident or Disaster over the development lifetime (including construction). This may include factors such as land use, biodiversity, climate change and seismic activity.
- 17.4.58 Climate change and seismic activity could be of increased influence in later years.
- 17.4.59 Changing land use may mean that the surrounding environment may become more agricultural, industrial, residential or recreational in use.
- 17.4.60 Changing ecological baselines resulting from the land use and climate change factors above, may also impact the local ecology and associated environmental designations of the land and coastal/marine environment.
- 17.4.61 All of these changes could influence the interaction of the site with receptors and the pathways for any discharges from it. They could introduce or modify potential causes or receptors for major hazards and accidents.

Future baseline

- 17.4.62 The future baseline is described in the relevant receptor topic chapters of Biodiversity, Climate Change, Land Use, Historic Environment and Freshwater environment.

17.5 Environmental measures incorporated into the Proposed Development

- 17.5.1 This section lists the environmental measures of specific relevance to major accidents and disasters which have been incorporated into the Proposed Development to the extent that they have been currently reviewed in the ongoing assessment. Some of these have been included in the design specifically for major accidents and disasters risk management purposes. Others, while reducing the impact of major accident and disaster risk, also have benefits in reducing risk for other impacts considered in other chapters.
- 17.5.2 Of particular significance to this Proposed Development, will be the rigorous requirements and standards set by the Civil Aviation Authority (CAA) under which the airport will operate and industry standards for fuel storage and handling in design and operation (for example HSG 176 (Storage of Flammable liquids in tanks), EI 1540 (Design, construction, commissioning, maintenance and testing of aviation fueling facilities, CIRIA C 736 (Containment systems for the prevention of pollution), Guidelines on Environmental Management for Facilities Storing Bulk Quantities of Petroleum, Petroleum Products and Other Fuels (Energy Institute Ed 3) and PSLG Buncefield recommendations).
- 17.5.3 The broad approach adopted is that where achievable and agreed environmental measures have been incorporated into the Proposed Development, the effect that those environmental measures have on the significance of potential effects is taken into account during the assessment. In some cases a potential effect may require no further consideration following incorporation of appropriate environmental measures.
- 17.5.4 The measures covered in this section and Chapter relate to major accidents and disaster aspects only. Other aspects of environmental measures, relating to measures to protect against planned activities are considered in the other topic chapters.
- 17.5.5 A summary of the measures that have been incorporated into the Proposed Development in order to avoid, reduce or compensate for potential adverse effects associated with major accidents and disasters environment features during the construction phases is provided in Table 17-5.

Table 17-5 Environmental measures incorporated into the construction phase of relevance to major hazards and disasters

Potential receptor	Predicated changes and potential effects	Incorporated measure
Land, Surface and ground water (including particular species, designated sites and habitats)	Large accidental spillages of oils and other chemicals (including those associated with firefighting) associated with the construction process entering the environment (land or water) as a potential pollutant to cause a major accident.	<ul style="list-style-type: none"> • Drainage and containment is further discussed in Chapter 8. • Fuel, oil and hazardous chemical storage and handling will be minimised in the design of the works and safe working procedures / method statements for handling these substances and minimising the potential for spillage will be put in place. • Tanks and stored chemicals will be away from excavation and high vehicle movements. Collision barriers will be provided where required. • Oils, chemicals and fuels will be stored in designated locations with specific measures to prevent leakage and release of their contents to water receptors, including the siting of the storage area away from the drainage. • Any large quantity of fuel, chemical, oil (including those of waste) will be located away from the SPZ1 area and away from drainage routes to Pegwell Bay. • The risks from accidental spillages/leaks (including those arising as a result of loss of containment from extreme adverse weather) during handling and storage of chemicals and fuels will be mitigated by good working practices (e.g. set out in the Construction Environmental Management Plan, CEMP). This is further discussed in Chapter 8 and Chapter 10. • Protection to the run ways and taxiways is considered in Chapter 10.
Land, Surface and ground water (including particular species, designated sites and habitats)	Structural collapse/equipment failure associated with the construction process or outcome of extreme natural weather phenomena on the Proposed Development leading to hazardous substances entering the environment (land or water) as a potential pollutant.	<ul style="list-style-type: none"> • The risks from construction activities will be mitigated by measures determined by a construction risk assessment in accordance with the Construction (Design and Management) Regulations 2015 and good working practices (e.g. set out in the CEMP). • Adoption of inherent safe design principles¹⁶⁰ in the design plan.
Populations and their buildings	Serious harm (multiple serious injury or fatality) to people on or off site during construction (e.g. fire, collision, structural collapse)	<ul style="list-style-type: none"> • Equipment and storage measures as outlined for 'Land, Surface and Groundwater above'. • Flammable materials and dangerous chemical will be stored in a in a secure location, contained and away from populations, and the public. • Control of ignition for flammable materials as required under DSEAR regulations. • Collision barriers will be provided where required. • Management of major accident hazards through construction risk assessment in accordance with Construction (Design and Management) Regulations 2015 and good working practices. This will include adoption of inherent safe design principles in the design plan and an Emergency Plan to cover construction activities • See also Chapter 8 and 10
Populations and their buildings	Discovery and potentially explosion of Unexploded Ordnance (UXO) associated with construction process	<ul style="list-style-type: none"> • The potential for UXO will be minimised prior to construction: Site survey investigations and monitoring programmes will be undertaken to identify any that may be present. If any are found a plan will be developed for their controlled removal.

¹⁶⁰ Policy and guidance on reducing risks as low as reasonably practicable in Design, HSE <http://www.hse.gov.uk/risk/theory/alarp3.htm> (accessed 3/1/2018)

Potential receptor	Predicated changes and potential effects	Incorporated measure
		<ul style="list-style-type: none"> Management of hazards through construction risk assessment in accordance with Construction (Design and Management) Regulations 2015 and good working practices in accordance with current guidelines. This will include adoption of inherent safe design principles in the design plan and an Emergency Plan to cover construction activities
Designated Heritage Assets	Serious damage to designated heritage assets. Potential sources of major accident, including fire and excavation.	<ul style="list-style-type: none"> Details of measures provided in Chapter 9

17.5.6 A summary of the measures that have been incorporated into the development proposals in order to avoid, reduce or compensate for potential adverse effects associated with Major Hazards and Disasters during the operational phase is provided below in **Table 17-6**.

Table 17-6 Environmental measures incorporated into the operational phase of relevance to major hazards and disasters

Potential receptor	Predicated changes and potential effects	Incorporated measure
Surface and groundwaters	<p>Large release of fuel, chemical or oil from the airport (including firewater and during refuelling) arising from disasters or major accidents at the site and leading to major accident damage of the water environment</p> <p>This excludes the fuel farm which is considered separately below.</p>	<ul style="list-style-type: none"> An outline site drainage strategy has been developed (see Chapter 3: Description of the Proposed Development) to capture, treat and discharge water in a controlled manner. The general mitigations associated with the groundwater and surface water are covered in Chapter 8. Many of these are of benefit to Major Accident and Disaster Mitigation. Additional measures specific to the Major Accidents and Disaster topic are outlined below. De-icer selected for use on the runways will not be classed as 'dangerous to the environment'. An Emergency Plan will be developed and will include provision for major accidents and disasters. The design will minimise the storage and use of materials which are classed as 'dangerous to the environment'. The design will ensure these are stored in accordance with good practice as a minimum and that the layout of the airport and fuel farm is in line with relevant design standards and codes. Operational flights and vehicle movements will be in accordance with CAA requirements to minimise the potential for collision or aircraft incident and subsequent release of fuel/chemical to the environment. Oils, chemicals and fuels will be stored in designated locations with specific measures to prevent leakage and release of their contents. All fuel storage of tanks will be appropriately designed to at least current standards or higher. Failure during adverse weather will include: <ul style="list-style-type: none"> Mitigations relating to drainage and containment as outlined in Chapter 8 and above under groundwater. Many are applicable to protect against extreme weather events. Tank and equipment activities will allow for adverse weather events in their design basis. Procedures will be in place to restrict and make safe operations in adverse weather as part of the operational safety management system. These events will also be allowed for in the Emergency Plan.

Potential receptor	Predicated changes and potential effects	Incorporated measure
Groundwater	Large leakage from fuel storage tanks, tankers or contaminated firewater, arising from disasters or major accidents at the fuel farm, enters the groundwater and leads to major accident damage of water environment	<ul style="list-style-type: none"> The general mitigations associated with the groundwater and surface water are covered in Chapter 8. Several of these refer to tank farm design. The information provided below highlights aspects of specific relevance to major accidents and disasters which are not addressed elsewhere. All fuel storage tanks on the fuel farm will be appropriately designed to at least current standards or higher (e.g. double skinned, banded etc.), including HSG 176 (Storage of Flammable liquids in tanks), EI 1540 (Design, construction, commissioning, maintenance and testing of aviation fuelling facilities), CIRIA C 736 (Containment systems for the prevention of pollution), Guidelines on Environmental Management for Facilities Storing Bulk Quantities of Petroleum, Petroleum Products and Other Fuels; PSLG Buncefield recommendations. Design will be in accordance with requirements of the Management of Health and Safety at Work Act, including the principle to reduce risk to As Low As Reasonably Practicable (ALARP). Tank and associated equipment will include leak detection, process interlocks and mechanical devices. Site access will be secure and controlled. The potential for major accidents and disasters will be included in the Emergency Plan and safety/environmental management systems. Operational control will include procedures for extreme weather operations and cessation of operation. Collision protection will be provided in key areas and traffic control will exist on site Firefighting foam selected for use on the tank farm will not be classed as 'dangerous to the environment'. Climate change will be allowed for in the design basis. The design will minimise the storage and use of materials which are dangerous to the environment. The design will ensure that where these are stored, they are stored in accordance with industry good practice (e.g. relevant guidance referred to in Table 17-2 and elsewhere in Chapter 8). Operational flights and vehicle movements will be in accordance with CAA requirements to minimise the potential for collision or aircraft incident leading to loss of material harmful to the environment (e.g. aircraft fuel tank or fuel farm tank failure). Tankers within the local public road network are considered in Chapter 14. The nature of vehicles and tankers is similar to those already experienced in the local network. Collisions leading to release of fuel cargo would be dealt with by means of the normal police response. Tanker Driver would be ADR drivers and familiar with the transport of hazardous material. Failure during adverse weather will include: Mitigations relating to drainage and containment as outlined in Chapter 8 and above under groundwater. Many are applicable to protect against extreme weather events. Tank and equipment activities will allow for adverse weather events in their design basis. Procedures will be in place to restrict and make safe operations in adverse weather as part of the operational safety management system. These events will also be allowed for in the Emergency Plan.
Pegwell Bay and associated designated sites	Large release of substances dangerous to the environment which leads to a	<ul style="list-style-type: none"> The design of the tanks, equipment, layout, containment and drainage systems (throughout the airport and tank farm) and their

Potential receptor	Predicated changes and potential effects	Incorporated measure
	potential major accident at the receptor arising from natural disasters or major accidents at the site (airport or tank farm)	<p>operation will be as described above under 'groundwater' and are therefore not repeated here.</p> <ul style="list-style-type: none"> Mitigation measures relating to the Pegwell Bay outfall and the associated pipeline are addressed in Chapter 8. The potential for major accidents and disasters will be included in the Emergency Plan and safety/environmental management systems. Tankers while on the local public road network are considered in Chapter 14. The nature of vehicles and tankers is similar to those already experienced in the local network. Collisions leading to release of fuel cargo would be dealt with by means of the normal police response. Tanker Driver would be ADR drivers and familiar with the transport of hazardous material.
Designated heritage assets including Historic Buildings, scheduled monuments and conservation areas.	Major accident or disaster damage to designated heritage arising from site operations	<ul style="list-style-type: none"> Details of mitigation for Heritage and historic sites are outlined in Chapter 9. Separation of operational activities from designated heritage sites will be included in the design. The Emergency Plan will allow for protection of heritage sites where required.
Populations or occupied buildings	<p>Large fire/explosion due to release and ignition of substantial aviation fuel (Jet A1 and Avgas) or other flammable material, either at the fuel farm or on the airport site.</p> <p>Aircraft related disasters</p> <p>Structural events or misadventure associated with buildings, lagoons</p> <p>Exposure to natural disasters onsite (extreme weather, consequences of seismic events)</p>	<ul style="list-style-type: none"> The design of the tanks, equipment, containment and drainage systems, and their operation will be as described above under 'groundwater' and are therefore not repeated here. The design will include risk assessment and be developed in line with process safety standards, and the requirements of the Management of Health and Safety at Work Regulations. This will include site layout and design to reduce risk to public and workers to As Low As Reasonably Practicable. Ignition sources at the site will be controlled in areas where flammable atmospheres may be present in the event of a release in line with DSEAR regulations¹⁶¹. Layout and equipment design will consider measures to minimise the potential for vapour cloud explosions (e.g. to minimise congestion and confinement). The design will minimise the storage of materials which are flammable or have the potential to lead to serious damage to populations. The design will ensure that where storage of such materials is necessary, they are stored in accordance with good practice (e.g. relevant guidance referred to in Table 17-2 and elsewhere in Chapter 8) as a minimum and that the layout of the airport and fuel farm allows for sufficient segregation from populated areas to control risk in accordance with HSE requirements. CAA regulations and guidelines will be complied with for airside access, security and operations. The potential for major accidents and disasters will be included in the Emergency Plan and operational safety/environmental management systems. Collision protection (e.g. barriers) will be provided in key areas and traffic control will exist on site to minimise potential for collision with equipment containment flammable or harmful materials, or impact with people. Operational flights and vehicle movements will be in accordance with CAA requirements to minimise the potential for collision or aircraft incident leading to injury or damage to property.

161 The Dangerous Substances and Explosive Atmospheres Regulations 2002

Potential receptor	Predicated changes and potential effects	Incorporated measure
		<ul style="list-style-type: none"> The potential for UXO will be minimised prior to construction and during operations as part of the site survey investigations and monitoring programmes. Tankers and vehicles offsite within the local public network are considered in Chapter 14. The nature of vehicles and tankers is similar to those already experienced in the local network. Collisions leading to injury would be dealt with by means of the normal police response. Tanker Driver would be ADR drivers and familiar with the transport of hazardous material.

17.6 Scope of the assessment

17.6.1 This section sets out information on:

- Identification of potential sources of Major Accident and Disaster that could theoretically be associated with the development
- Identification of potential receptors that could be affected by the development; and
- The potential effects on identified receptors from major accidents and disasters that could be associated with the Proposed Development.

17.6.2 The scope of assessment has been informed by:

- Other PEIR Chapters: principally **Chapter 8** (Freshwater Environment), **Chapter 9** (Historic Environment), **Chapter 10** (Land Use), **Chapter 16** (Climate Change) and their assessments to date.
- The finalised Proposed Development design (**Chapter 3**).

Approach to identifying receptors

17.6.3 The identification of receptors is based on relevant guidance and the professional judgement of a qualified technical specialist.

17.6.4 It is reasonable to assume that some potential receptors will not experience significant effects. This is sometimes the result of tried and trusted mitigation measures that have been incorporated into the Proposed Development and which might reasonably be expected to be effective (**see Section 17.5**).

17.6.5 The following considerations will be taken into account in identifying potential receptors:

- The extent to which the receptor could be impacted by changes that are expected to be associated with the Proposed Development;
- The magnitude, duration, likelihood and other characteristics of the effects;
- The importance of the receptor locally, regionally, nationally and internationally, and
- Relevant best practice and guidance where specialist methodologies have been developed as detailed below.

17.6.6 Major accidents and disasters are by their nature of very high magnitude and are 'unplanned' (the effects are not part of the intended design, construction or operation). The notion of significant effects for major accidents and disasters, focusses on the significance of the risk: i.e. magnitude of the event, sensitivity of the receptor and likelihood, all combined.

- 17.6.7 A significant effect from major accidents and disasters associated with the development is one which would result in the following, with a likelihood that the effect is considered intolerable to general society:
- ▶ Serious damage to human populations. This includes harm which would be considered substantial i.e. death(s), multiple serious injuries or a substantial number requiring medical attention.
 - ▶ Serious damage to the environment i.e. death(s) or adverse effects on local populations of species or organisms (with lower thresholds for high-value or protected species), contamination of drinking water supplies, contamination of ground or groundwater or harm to environmental receptors in line with other UK Major Accident regulations.
- 17.6.8 A significant effect could include both immediate and delayed effects. An immediate effect will be one that is self-evident at the time of the event (for example fire damage, injury). A delayed effect will be one which becomes evident only after time (for example loss of feeding ground leading to a change in the eco system).

Potential receptors

- 17.6.9 The identification of receptors is based on relevant guidance, the methodology outlined above and the findings of relevant studies performed and documented in other Topic Chapters.
- 17.6.10 Those Chapters of relevance to this major accidents and disasters Chapter are contained within:
- ▶ **Chapter 7** of this PEIR 2 Document: Biodiversity
 - ▶ **Chapter 8** of this PEIR 2 Document Freshwater Environment:
 - ▶ **Chapter 9** of this PEIR 2 Document: Historic Environment
 - ▶ **Chapter 10** of this PEIR 2 Document: Land Quality
 - ▶ **Chapter 16** of this PEIR 2 Document: Climate Change Environment
- 17.6.11 The process of identification is ongoing. **Table 17-7** provides a summary of key receptors within the 1km land, 1km groundwater and 10 km surface water study area.
- 17.6.12 Additional receptors (e.g. within the flight design swathe) will also be identified as the assessment progresses.

Table 17-7 Potential receptors affected by the Proposed Development

Receptor	Location	Summary of evidence
Human Populations	Onsite	<p>The airport will include people visiting and working at the airport (during construction and operation), and including aircraft operations.</p> <p>The above populations could theoretically be exposed to a release of fuel which is ignited, handling or exposure to harmful substances, an aircraft incident, structural/equipment failure and vehicle collision.</p> <p>They may also be exposed to natural phenomena such as flooding, seismic activity, other extreme weather events such as hurricanes and external events caused by third party activity outside of the site.</p> <p>Changes to the site operations may change the risk to these populations, and introduce new populations to the site.</p>

Receptor	Location	Summary of evidence
Human Populations	Offsite	<p>Major towns are outside the 1 km land study area. However, there are a low number of smaller conurbations, houses and commercial premises within 1km of the red line boundary. A small number of these are in relatively close proximity to the airport.</p> <p>Users of the local road network may also use roads local to the airport and around its perimeter.</p> <p>There could be localised effects associated with a release of fuel which is ignited, exposure to harmful materials, an aircraft incident, structural/equipment failure or vehicle collision.</p> <p>They may also be effects such as natural phenomena (flooding, seismic activity and other extreme weather events such as hurricanes) initiating events at the development.</p> <p>Changes to the site operation may change the exposure profile of these populations.</p> <p>There may also be potential for an aircraft incident (e.g. on approach and landing). Populations potentially involved in such events (where under the control of Manston tower) are also considered where within the flight path design swathe. This would include larger conurbations of Ramsgate, as well as villages within the swathe. It would also include passengers and crew of the flight.</p>
Biodiversity	On site and within vicinity	<p>These are fully considered in Chapter 3.</p> <p>While ecological receptors use the Proposed Development site, none are currently anticipated to be of regional or national significance based on studies to date.</p> <p>No rare fauna is anticipated on the development site. The prevalent land type is hard standing and mown grass.</p>
Biodiversity	Pegwell Bay/Sandwich Bay	<p>Ecological receptors are intrinsic to the designation of sites at Pegwell Bay and Sandwich Bay and include:</p> <ul style="list-style-type: none"> • Birds (waders and wildfowl); • Herbaceous vegetation and dunes • Fish; • Insects, crustaceans and molluscs, worms and beetles through toxicity; • Rare and scarce marine vegetation, marine algae, saltmarsh plants etc.; • Marine mammals; and • Reefs. <p>Changes to the site operation may introduce new or larger quantities of substances which could be hazardous to the environment and could introduce new pathways to the coastal and marine receptors through changes in the drainage system and its capacity needs.</p>
Coastal and marine Designation sites Pegwell Bay/Sandwich Bay	1.5 km to 3.5 km	<p>The north coast of the Isle of Thanet, located approximately 3.5km north of the site, is designated as a Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC), and Special Protected Area (SPA) and RAMSAR site. In closer proximity to the Manston Airport site are Sandwich and Pegwell Bays, located 1.5km south east.</p> <p>The proposed Manston Airport development site is within associated SSSI risk zones¹⁶².</p> <p>Changes to the site operation may introduce new or larger quantities of substances which could be hazardous to the environment and could introduce new pathways to the coastal and marine receptors through drainage system modifications and its capacity needs.</p>

¹⁶² Zones around each SSSI site (the extent of which reflects the sensitivities of the features for which the site is notified) that indicate the extent beyond the SSSI where development proposals may still have adverse impacts on the SSSI.

Receptor	Location	Summary of evidence
SPZ, Southern Water Public Water supply sources	<0.5km	<p>The adit which supplies the Southern Water Lord of the Manor Source lies under the site boundary. The associated SPZ1 is also partially within the site boundary. Further Information is provided in Chapter 8 – Freshwater Environment</p> <p>Changes to the site operation may introduce new or larger quantities of substances which could be hazardous to the environment and could introduce new pathways to the site and drainage modifications and its capacity needs.</p>
Other Groundwater bodies and Abstractions		These are addressed in Chapter 8 – Freshwater Environment
Monkton and Minster Marshes (River) WFD surface water body and downstream River Stour WFD Transitional water body.	Underlies the southern portion of the site, around the runway.	These are addressed in Chapter 8 – Freshwater Environment
Historic Environment	Within site and in the vicinity of the site (within 1 km)	<p>There are no World Heritage Sites (WHS) within the study area.</p> <p>There are two Scheduled Monuments (SM) within the 1km study area. These are fully described in Chapter 9 and include:</p> <ul style="list-style-type: none"> Anglo-Saxon Cemetery south of Ozengell Grange. Located 100m to the east of the site. Enclosure and ring ditches sited 180m east-northeast of Minster Laundry <p>There are no listed buildings within the site, however there are 24 listed buildings surrounding the site within the 1km study area.</p> <p>Introduction of chemicals and flammable quantities of fuels, structural/equipment failure, or aircraft/vehicle incident could lead to the damage of any features in close proximity.</p>

- 17.6.13 There is also potential for previously unrecorded features and receptors to be present. These will be examined further on completion of the ongoing desktop and site survey work (undertaken as part of the Historic Environment, Freshwater, Land Use and Biodiversity Topics considered in other Chapters).

Spatial and temporal scope

- 17.6.14 The spatial scope comprises the 1km study area for land, 1 km study area for groundwater receptors, 10km study area (downstream) for surface water receptors and receptors within the flight design swathe. Since there is no surface water flowing over the site, surface water receptors are those which receive site drainage and the WFD surface water body which the site lies partially within.
- 17.6.15 The temporal scope is detailed below.
- ▶ The assessment of the construction phase effects from all of the construction phases is outlined in **Chapter 3: Description of the Proposed Development**. Where there are different potential effects from each construction phase these will be outlined and each assessed separately.
 - ▶ Operational effects are based on Year 20 after the start of operations, by which time the Airport will have reached its operational peak (see **Chapter 3** for further detail).
 - ▶ The Outline Strategy allows for climate change for an airport lifespan of nominally 'the 2050s'.

- 17.6.16 Aircraft accidents which impact directly upon Manston will be considered. Aircraft which are either departing from or en-route to Manston will not be considered where they are outside of Manston control or outside the flight design swathe. Phases of flight are excluded where either the consequences do not impact upon Manston or its study area directly or the cause is not directly attributable to Manston. For clarity, these will be defined using terminology defined by Commercial Aviation Safety Team and ICAO's Common Taxonomy Team (CICCT) (CICCT, 2013).

- 17.6.17 Table 8 Phases of flight to be considered

Flight Phase	Included	Reasoning or limitations
Standing (STD)	Yes	If departing from Manston
Pushback/Towing (PBT)	Yes	If departing from Manston
Taxi(TXI)	Yes	If departing from Manston
Take off(TOF)	Yes	If departing from Manston
Initial Climb (ICL)	Yes	If departing from Manston
En route (ENR)	No	Except aircraft intending to land at Manston within a holding pattern while in the control of Manston tower.
Manoeuvring (MNV)	No	Not anticipated at Manston
Approach	Yes	If landing at Manston
Landing (LDG)	Yes	If landing at Manston
Emergency descent (EMG)	Yes	Only if it occurs when under the control of Manston tower during approach, take-off or landing.
Uncontrolled descent (UND)	No	Except if it occurs when the aircraft is in the process of landing or taking off from Manston airport under the control of Manston tower.
Post-impact (PIM)	No	Not an expected flight stage. Used primarily in incident reporting.
Unknown (UNK)	No	Not a definable flight stage. Used primarily in incident reporting.

- 17.6.18 In simple terms, aircraft under the control of Manston tower, within the flight swathe or on the ground at Manston will be considered to be within the scope of the Major Accident and Disaster assessment. Departing aircraft that have completed their initial climb, or aircraft who are flying to Manston but are not yet on approach, will not be considered to be within the bounds of the assessment.

- 17.6.19 Vehicles and tankers are considered for the purposes of the Major Accident and Disasters assessment where they are within the development bounds (e.g. site roads, vehicular routes and parking areas).

17.7 Assessment methodology

Definitions

- 17.7.1 It can be helpful to provide key definitions for terms used in the Assessment of major accidents and disasters. Key terms are summarised below:
- 17.7.2 **Major accident** – an occurrence resulting from an uncontrolled event caused by a man-made activity or asset leading to serious damage to receptors, either immediate or delayed.
- 17.7.3 This either arises from (directly or indirectly), or has potential to impact upon the development.
- 17.7.4 Examples: A major accident at third-party establishment which gives rise significant injury at the airport, aircraft crash, fire in terminal or discharge of contaminated firewater or de-icer.
- 17.7.5 **Disasters** – a natural occurrence which has serious damage to receptors, either immediate or delayed.
- 17.7.6 Examples: Hurricane, landslide, subsidence, extreme seismic activity, flooding
- 17.7.7 **Receptor** – Population and human health, biodiversity, land, soil, water, air, climate, material assets, cultural heritage and landscape. These are as defined in Regulation 5(2) of the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 and include people.
- 17.7.8 **Serious damage on human populations** – This is harm which would be considered substantial i.e. death(s), multiple serious injuries or a substantial number requiring medical attention.
- 17.7.9 **Serious damage on the environment** – Loss or significant detriment to populations of species or organisms, valued sites (including designated sites), valued cultural heritage sites, with lower thresholds for high-value or protected species/sites, contamination of drinking water supplies, ground or groundwater, or harm to environmental receptors in line with other UK Major Accident regulations.
- 17.7.10 **Significant effect** – A significant effect is an increased risk of major accidents and disasters to a receptor leading to a total risk level that would be considered intolerable to society.
- 17.7.11 Note: Guidance provided by the EC¹⁶³ highlights that the context for inclusion of major accidents and disasters in the EIA is to ensure that adequate focus is given to the provisions for events leading to significant risk with an objective of building resilience in a development against such effects. The bar for what is tolerable to society is therefore be set somewhat more onerously for major accidents and disasters than for a smaller event of much lower magnitude.
- 17.7.12 For major hazards and disasters, it is very important to recognise that the magnitude levels applied are those described in **Table 17-9** below. In general, they relate to a level of harm and damage starting at the highest level of consequence addressed in other topic chapters. The likelihood with which such an event occurs (and from which the level of risk is determined) is relative to this scale of magnitude and therefore in general the events are much less likely than those covered in other chapters.
- 17.7.13 **Risk** – The likelihood of an event occurring and resulting in a given consequence.
- 17.7.14 **Pathway** – The physical route or medium by which a hazard source reaches and effects a receptor.

¹⁶³ Environmental Impact Assessment of Projects, Guidance on the Preparation of the Environmental Impact Assessment Report, European Commission 2017

Methodology for predicted effects

- 17.7.15 The requirement for 2017 Environmental Impact Assessment regulations to be applied to the DCO has only recently been agreed. Major accidents and disasters are a new consideration under the EIA Regulations 2017. As such, this section has only recently been initiated and will be developed for inclusion in the ES to be submitted in 2018.
- 17.7.16 Receptors of relevance to major accidents and disasters have been identified from the information currently available, and this will be further developed as the assessment continues. The methodology adopted will include an assessment of the effects of the Proposed Development on receptors, taking into account good industry guidance for construction, design and operation for the Proposed Development.
- 17.7.17 To understand the significance of effects, the presence of any relevant receptors that are known to be, or could potentially be, within the study area will be identified.
- 17.7.18 As the requirement is new, significant guidance on the assessment of major accidents and disasters within the context of EIA has yet to be published in the UK. Two clear principles have however emerged from technical and EIA guidance that will be adopted in the methodology used here; first the notion of proportionality and second the established principle that only those effects likely to be significant need to be assessed within the EIA.
- 17.7.19 The approach that has been adopted is aligned to recent European guidance made available by the European Commission¹⁶⁴. The context of the guidance for major accidents and disasters is that the scope covers those which could impede the Proposed Development's activities/objectives and may have adverse effects to receptors. The focus of the assessment will therefore be to recognise significant risk arising from major accidents and disasters and leading to potential significant environmental effects and, thereby, to build resilience into the scheme (i.e. to reduce vulnerability).
- 17.7.20 A range of options are available on which to base environmental tolerability. One which is widely referenced in the UK¹⁶⁵ has been developed to support evaluation of establishments falling under the Control of Major Accident Hazard regulations 2015. These regulations are not considered to apply to the Proposed Development, based on current understanding of hazardous substances which may be present. However, aspects of the guidance relating to the tolerability of risk and the level at which an accident would be considered intolerable (significant) are generally applicable¹⁶⁶, if proportionately applied to reflect, in this case, the relatively low quantities of hazardous substances, the full range of theoretically relevant sources for major accidents and disaster, and the development stage of the proposed scheme.
- 17.7.21 The methodology which will be adopted for the assessment is necessarily qualitative as the design is at planning stage.
- 17.7.22 The approach is qualitative with particular consideration of:
- ▶ The threshold of damage/harm which can be considered to constitute a Major Accident or Disaster and the significance of increasing levels of damage/harm above the threshold. These vary for each type of receptor so that appropriate account is taken for receptor sensitivity.
 - ▶ The magnitude of serious damage and likelihood of a potential major accident or disaster at the Proposed Development. The fact that the Proposed Development is currently in the planning stage means that the estimates made are qualitative and informed by expert judgement, with comparison against experience in similar industries and for similar developments where this is useful and possible.

¹⁶⁴ Environmental Impact Assessment of Projects, Guidance on the Preparation of the Environmental Impact Assessment Report, 2017, European Commission

¹⁶⁵ Chemicals and Downstream Oil Industries Forum Guideline. Environmental Risk Tolerability for COMAH sites V2

¹⁶⁶ Guidelines on Environmental management for facilities storing bulk quantities of petroleum, petroleum and other fuels, Ed 3.

- ▶ The risk of the Major Accident and Disaster (i.e. the combination of the serious damage arising from the event and its likelihood of occurrence).
- ▶ How the risk compares to the thresholds of damage which constitute a major accident or disaster.

17.7.23 Risk tolerability for major accidents and disasters in the UK generally follows the 'ALARP' principle, where the onus is to eliminate significant effects (intolerable risk), and thereafter to reduce risk to the environment and people to "As Low As Reasonably Practicable".

17.7.24 The assessment approach is to:

- ▶ Identify potential receptors
- ▶ Identify potential major accidents and disasters relevant to the Proposed Development
- ▶ Assess whether any credible pathways exist (i.e. the link between an event and a receptor)
- ▶ Qualitatively assess the harm/damage which could be caused to the receptor to:
 - Eliminate those effects which do not meet the threshold of serious damage from a major accident/disaster; and, if the threshold is met;
 - Estimate the magnitude of the effect at the receptor.
- ▶ Qualitatively assess the likelihood of the effect, considering the range of impacts which may be associated with an accident/disaster source and taking into account the measures embedded in the Proposed Development which would reduce their occurrence and severity.
- ▶ Establish whether significant effects from major accidents and disasters exists.

17.7.25 Major Accident and Disasters are by their nature of very high magnitude and are 'unplanned' (the effects are not part of the intended design, construction or operation). The notion of significant effects for major accidents and disasters, focusses on the risk significance: i.e. magnitude of the event, sensitivity of the receptor and likelihood, all combined^{Error! Bookmark not defined.} (rather than the magnitude of the event and vulnerability of the receptor only).

Significance evaluation methodology

17.7.26 The significance level attributed to each effect will be assessed from the magnitude and likelihood of change due to the development and the sensitivity of the receptor. Changes associated with the development can be positive or negative.

17.7.27 Sensitivity of the affected receptor is assessed on a scale of very high, high, medium, and low. These categorisations are shown in **Table 17-10**^{Error! Reference source not found.}. For Major Accident and Disasters, the sensitivity of the receptor will be accounted for in the threshold values and criteria for damage/harm which are specific to given receptor types (see **Table 17-10**).

17.7.28 Duration is also often a factor in establishing criteria for magnitude of harm. This is because a receptor which is able to recover very quickly from an event is often considered to have suffered a much less significant level of harm than one that does not recover, or recovers only after a very long time. This is covered in **Table 17-11**.

17.7.29 The criteria outlined in **Table 17-10** and **Table 17-11** are aligned to definitions used in commonly applied major hazard guidance for the environment¹⁶⁵ and risk tolerability criteria for people applied by the HSE¹⁶⁷. This is to provide a consistent basis for the study against common benchmarks for major accidents and disasters applied across the UK.

¹⁶⁷ R2P2 Reducing Risk, Protecting People, 2001.

- 17.7.30 The environmental criteria have been directly extracted from that of CDIOF¹⁶⁸ which sets a maximum or minimum severity ranking for some receptors. In the table, therefore, some 'Extents' are noted as non-applicable.
- 17.7.31 **Table 17-10** and **Table 17-11** will be used to develop the magnitude of change which is assessed on a scale of very high, high, medium, low and negligible as provided in **Table 17-9**.
- 17.7.32 The final conclusions as to the significance of any effects are yet to be made, but will also include a consideration, based on professional judgement, of the efficacy of the Proposed Development's Environmental Measures in reducing the magnitude of the effects and the likelihood of the impact occurrence.

Magnitude of change

- 17.7.33 Magnitude of change within the context of major hazards and disasters, relates to both the spatial extent of harm/damage, and the period of time over which the receptor experiences that harm and recovers, allowing for mitigation.
- 17.7.34 Magnitude of effects on receptors are assigned to one of five classes of magnitude (very high (Dark Red), through High (Red), Medium (Amber), Low (Green), to negligible, (Grey)), defined in **Table 17-9** and derived as a combination of spatial extent and duration of impact from **Table 17-10** and **Table 17-11**, respectively.

Table 17-9 Magnitude matrix

Extent	Catastrophic		High	V High	V High
	Large		Medium	High	V High
	Severe		Low	Medium	High
	Below Threshold		Negligible		
		Short	Medium	Long	Very long
		Duration of harm			

¹⁶⁸ Chemical and downstream Oil Industries Forum. Guideline Environmental Tolerability for COMAH Establishments V2

Table 17-10 Criteria for Spatial extent to the environment (relative to the receptor sensitivity)

Receptor Type	Receptor Sensitivity	Extent			
		Below Threshold	Severe	Large	Catastrophic
Populations (public: local communities, visitors, passengers)	Very high	Small number of minor injury	Multiple minor injuries requiring medical attention	Severe injury/multiple minor injuries requiring medical attention	Fatality or multiple serious injuries
Populations (airport and construction workers)	High	Multiple minor injuries requiring medical attention	Severe injury/multiple minor injuries requiring medical attention	Fatality or multiple serious injuries	Multiple fatalities and serious injuries
Designated Land/Water Sites (Nationally important)*	High	<0.5 ha or <10%	>0.5 ha or 10-50% of site area, associated linear feature or population	>50% of site area, associated linear feature population	N/A
Designated Land/Water Sites (Internationally important)*	Very high	<0.5 ha or <5% (<5% LF/Pop)	>0.5 ha or 5-25% of site area or 5-25% of associated linear feature or population	25-50% of site area, associated linear feature or population	>50% of site area, associated linear feature or population
Other Designated Land*	High	<10 ha or <10%	10-100 ha or 10-50% of land	>100 ha or >50% of land	N/A
Scarce Habitat*	High	<2 ha or <10%	2-20 ha or 10-50% of habitat	>20 ha or >50% of habitat	N/A
Widespread Habitat – Non-designated Land*	Medium	<10ha	Contamination of 10-100 ha of land, preventing growing of crops, grazing of domestic animals or renders the area inaccessible to the public because of possible skin contact with dangerous substances. Alternatively, contamination of 10ha or more of vacant land.	100 – 1000 ha (applied as per text under 'Severe')	>1000 ha (applied as per text under 'Severe')
Widespread Habitat – Non-designated Water*	Medium	N/A	Contamination of aquatic habitat which prevents fishing or aquaculture or renders is inaccessible to the public.	N/A	N/A
Groundwater Source of Drinking Water*	Very high/High/Medium (depending on specific receptor)	Interruption of drinking water supply <1000 person-hours or For England & Wales only <1ha SPZ	Interruption of drinking water supplied from a ground or surface source (where persons affected x duration in hours [at least 2] >1,000) or For England & Wales only 1-10ha of SPZ where drinking water standards are breached	>1 x 10 ⁷ person-hours interruption of drinking water (a town of ~100,000 people losing supply for month) or For England & Wales only 10-100ha SPZ drinking water standards breached	>1 x 10 ⁹ person-hours interruption of drinking (~1 million people losing supply for 1 month) or For England & Wales only >100ha SPZ drinking water standards breached
Groundwater – non Drinking Water Source*	Medium	<1ha	1-100ha of aquifer where water quality standards are breached (or hazardous substance is discernible)	100-10,000ha	>10,000ha
Groundwater in unproductive strata*	N/A	Groundwater not a pathway to another receptor	N/A	N/A	N/A

Receptor Type	Receptor Sensitivity	Extent			
		Below Threshold	Severe	Large	Catastrophic
Soil or sediment (i.e. as receptor rather than purely a pathway)*	Medium	Contamination not leading to environmental damage (as per ELD), or not significantly, affecting overlying water quality.	Contamination of 10-100ha of land etc. as per Widespread Habitat; Contamination sufficient to be deemed environmental damage (Environmental Liability Directive)	Contamination of 100-1000ha of land, as per Widespread Habitat; Contamination rendering the soil immediately hazardous to humans (e.g. skin contact) or the living environment, but remediation available.	Contamination of >1000ha of land, as per Widespread Habitat; Contamination rendering the soil immediately hazardous to humans (e.g. skin contact) or the living environment and remediation difficult or impossible.
Built environment*	Very high/High depending on the designation	Damage below a level at which designation of importance would be withdrawn.	Damage sufficient for designation of importance to be withdrawn.	Feature of built environment subject to designation of importance entirely destroyed.	N/A
Particular species (Note – these criteria apply nationally not regionally/locally)*	Very high/high (depending on species)	Loss of <1% of animal or <5% of plant ground cover in a habitat.	Loss of 1-10% of animal or 5-50% of plant ground cover.	Loss of 10-90% of animal or 50-90% of plant ground cover.	Total loss (>90%) of animal or plant ground cover.
Marine*	Medium	<2ha littoral or sub-littoral zone, <100ha of open sea benthic community, <100 dead sea birds (<500 gulls), <5 dead/significantly impaired sea mammals.	2-20ha littoral or sub-littoral zone, 100-1000ha of open sea benthic community, 100-1000 dead sea birds (500-5000 gulls), and 5-50 dead/significantly impaired sea mammals.	20-200ha littoral or sub-littoral zone, 100-10,000ha of open sea benthic community, 1000-10,000 dead sea birds (5,000-50,000 gulls), and 50-500 dead/significantly impaired sea mammals.	>200ha littoral and sub-littoral zone, >1000ha of open sea benthic community, >10000 dead sea birds (>50000 gulls), >500 dead/significantly impaired sea mammals.
Fresh and estuarine water habitats*	Medium	Impact below that of 'Severe'	WFD Chemical or ecological status lowered by one class for 2-10km of watercourse or 2-20ha or 10-50% area of estuaries or ponds. Plus, interruption of drinking supplies, as per Groundwater Source of Drinking Water.	WFD Chemical ecological status lowered by one class for 10-200km of watercourse or 20-200ha or 50-90% area of estuaries and ponds. Plus, interruption of drinking water supplies, as per Groundwater Source of Drinking Water.	WFD Chemical or ecological status lowered by one class for >200km of watercourse or >200ha or >90% area of estuaries and ponds. Plus interruption of drinking water supplies, as per Groundwater Source of Drinking Water.

*Extracted from CDOIF Criteria ¹⁶⁹

Table 17-11 Criteria for Duration of harm to the environment

Description	Short term	Medium term	Long term	Very long term
Populations	n/a	Duration category not directly applicable. Any harm to human life is placed within this category. This is so that it is correctly calibrated within the Magnitude Matrix (Table 17-9)	n/a	n/a
Groundwater or surface water drinking water source (public or private)*	N/A	N/A	Harm affecting drinking water source or SPZ < 6 years	Harm affecting drinking water source or SPZ >6 years
Groundwater (except drinking water sources): WFD Hazardous/Non Hazardous Substances*	WFD hazardous substances < 3 months	WFD hazardous subs > 3 months	WFD hazardous subs > 6yrs	WFD hazardous subs >20 years
	WFD non-hazardous substances < 1yr	WFD non-hazardous substances > 1yr	WFD non-hazardous substances >10 years	WFD non-hazardous substances >20 Years
Surface water (except drinking water sources - see above)*	< 1 year	> 1 year	> 10 years	> 20 years
Land*	< 3 years	> 3 years or > 2 growing seasons for agricultural land	> 20 years	> 50 years
Built environment* Not all descriptions in this row refer directly to duration. They are included here so that they are correctly calibrated within the Magnitude Matrix (Table 17-9)	Can be repaired in < 3 years, such that its designation can be reinstated.	Can be repaired in > 3 years, such that its designation can be reinstated.	Feature destroyed, cannot be rebuilt, all features except world heritage site.	Feature destroyed, cannot be rebuilt, world heritage site

*Extracted from CDOIF Criteria ¹⁷⁰

Sensitivity of Receptor

- 17.7.35 Guidance on the categories and definitions of intrinsic value and/or sensitivity of receptors, used in the assessment, is indicated in **Table 17-10**, as 'Receptor Sensitivity'. This has been developed based on expert judgement (rather than from published guidance) and is provided for information only, since the sensitivity of the receptor is already implicitly allowed for in the 'Extent' criteria rating for each Receptor Type.
- 17.7.36 The 'Receptors Type' column is used to allocate the correct 'Extent' criteria to be used. Where a receptor could reasonably be placed within more than one Receptor Type category conservative professional judgment is used to determine which category would be applicable.

Determination of significance

- 17.7.37 The assessment will apply expert judgement to identify risks that are intolerable, once the mitigation is applied.

¹⁷⁰ Chemical and Downstream Oil Industries Forum. Guideline Environmental Tolerability for COMAH Establishments V2

- 17.7.38 The magnitude of impact by which a Major Accident or Disaster is identified is often very different from other topics considered in the Environmental Statement.
- 17.7.39 Guidance provided by the EC [Error! Bookmark not defined.](#) highlights that the context for inclusion of major accidents and disasters in EIA is to ensure that adequate focus is given to the provisions for events leading to significant risk with an objective of building resilience into a development against such effects. The bar for what is included (i.e. what can be considered to be tolerable) therefore includes much less frequent remote effects than are addressed in many other topic chapters. The allocation of risk and likelihood is given in **Table 17-12** and is used for the major accidents and disasters assessment. This is consistent with major accident tolerability perceptions commonly applied elsewhere in the UK.
- 17.7.40 It is important to recognise that the magnitude levels referred to in **Table 17-12** are from **Table 17-9**. In general they relate to a level of harm and damage starting at the highest level of effect addressed in other chapters. The associated likelihoods from which the level of risk is determined are relative to this 'Major Accident and Disaster' scale of magnitude and therefore in general much less likely than those covered in other chapters.

Table 17-12 Major accident and disaster Matrix

MA&D Magnitude	Likelihood per receptor per effect						
	Incredible	Theoretically Credible	Highly improbable	Improbable	Probable	Highly Probable	Likely
	Theoretically possible but not experienced globally	Only a small possibility of occurring in similar development globally during the lifetime of the development	Unlikely to occur in similar industries globally during the lifetime of the development	Extremely unlikely at the development over its lifetime	Small possibility at the development over its lifetime	Unlikely to occur at the development over its lifetime	Reasonable likelihood at the development over its lifetime
Very High	Not Significant	Not Significant	Not Significant	Significant	Significant	Significant	Significant
High	Not Significant	Not Significant	Not Significant	Not Significant	Significant	Significant	Significant
Medium	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Significant	Significant
Low	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant	Significant

17.8 Assessment of effects

- 17.8.1 The assessment of major accidents and disasters has been initiated very recently. The confirmed findings of the assessment, and its conclusion are not therefore available at the time of writing. A full assessment is underway.
- 17.8.2 However, of particular significance to the Proposed Development will be the stringent requirements and standards set by the CAA under which the airport will operate and the good practice industry standards for fuel storage and handling in design and operation (for example HSG 176 (Storage of Flammable liquids in tanks), EI 1540 (Design, construction, commissioning, maintenance and testing of aviation fueling facilities, CIRIA C 736 (Containment systems for the prevention of pollution), guidelines on environmental management for facilities storing bulk quantities of petroleum, petroleum products and other fuels and PSLG Buncefield recommendations).

Predicted effects and their significance

Construction phase effects

- 17.8.3 Preliminary effects relevant to Construction are yet to be determined. A preliminary understanding of receptors, and the theoretically credible sources of relevant major accidents and disasters is outlined in **Table 17-5**, along with an understanding of the mitigation embedded in to the design.

Mitigation

- 17.8.4 The ongoing work includes a qualitative assessment of the construction activities and the interaction between potential receptors and sources (including any combined effects that need to be accounted for).
- 17.8.5 Preliminary information indicates that the design of the Proposed Development specifically considers the vulnerability of key receptors such as local population, the SPZ and Pegwell Bay (and associated designated sites). It also includes measures specifically to support the mitigation of major accidents and disasters.

Operational phase effects

- 17.8.6 Preliminary effects relevant to Operational phases are yet to be determined. A preliminary understanding of receptors, and the theoretically credible sources of relevant major accidents and disasters is outlined in **Table 17-6**, along with an understanding of the mitigation embedded in to the design.
- Mitigation*
- 17.8.7 The ongoing work includes a qualitative assessment of the operational activities and the interaction between potential receptors and sources (including any combined effects that need to be accounted for).
- 17.8.8 Preliminary information indicates that the design of the Proposed Development specifically considers the vulnerability of key receptors such as local population, the SPZ and Pegwell Bay (and associated designated sites). It also includes measures specifically to support the mitigation of major accidents and disasters.
- 17.8.9 The design of the fuel farm and other areas of potential harm specifically allows for resilience against natural phenomenon and major accidents to the environment and populations, as part of the design basis. There is specific consideration in the design and layout of key areas including the fuel farm to ensure that risks both onsite and offsite to people are reduced and controlled. Features involved in the existing design include separation of the fuel tanks in accordance with HSE requirements (HSG 176), specific containment considerations for primary, secondary and tertiary containment and associated drainage. Elimination of hazards where possible, and principles of risk reduction to As Low As Reasonably Practicable are inherent in the design.

Decommissioning phase effects

- 17.8.10 Decommissioning effects have been scoped out of the assessments as the Airport is envisaged to operate in perpetuity.

17.9 Conclusions of significance evaluation

- 17.9.1 The Conclusions on the significance of Major Accident and Disaster effects will be developed and made available in the Environmental Statement.
- 17.9.2 **Table 17-13** outlines the current position of the assessment.

Table 17-13 Summary of significance of adverse effects

Receptor	Preliminary Significance Level	Rationale	Further work to be undertaken to support the ES to confirm preliminary understanding
Groundwater	To be confirmed	The SPZ has been recognised as a specific area of sensitivity and design	Work continues on this assessment to inform the ES

Receptor	Preliminary Significance Level	Rationale	Further work to be undertaken to support the ES to confirm preliminary understanding
	following completion of Major Accident and Disaster Assessment	<p>measures implemented to ensure risk is managed and controlled. This includes consideration of separation in the layout, and primary, secondary and tertiary containment.</p> <p>Mitigation measures designed to protect the most sensitive receptors included in the design, construction and operation.</p> <p>Elimination or risk reduction to As Low As Reasonably Practicable will be inherent in the design.</p>	
Pegwell Bay and associated designated sites	To be confirmed following completion of Major Accident and Disaster Assessment	<p>The Pegwell Bay and its designated receptors and ecology have been specifically recognised as an area of sensitivity. The design has specifically allowed for this receptor.</p> <p>Mitigation measures are included in the design to protect the most sensitive receptors during both construction and operation.</p> <p>Elimination or risk reduction to As Low As Reasonably Practicable will be inherent in the design.</p>	Work continues on this assessment to inform the ES
Mitigation of flood risk and adverse weather	To be confirmed following completion of Major Accident and Disaster Assessment	<p>Site drainage from hardstanding will be captured on site by the site drainage system.</p> <p>The design basis will include allowance for extreme weather events, and climate change over the design lifetime.</p> <p>Elimination or risk reduction to As Low As Reasonably Practicable will be inherent in the design.</p>	Work continues on this assessment to inform the ES
Designated heritage assets including Historic Buildings, scheduled monuments and conservation areas.	To be confirmed following completion of Major Accident and Disaster Assessment	<p>Elimination or risk reduction to As Low As Reasonably Practicable will be inherent in the design.</p>	. Work continues on this assessment to inform the ES
Populations or occupied buildings offsite and onsite	To be confirmed following completion of Major Accident and Disaster Assessment	<p>On very rare occasions, major accidents and disasters may be associated with aircraft operations and storage of flammable and chemical substances. However, the quantity of material that is intended to be stored falls below thresholds of concern required for hazardous consent, or control under UK major accident regulations, and the entire airport operations will follow the strict</p>	Work continues on this assessment to inform the ES

Receptor	Preliminary Significance Level	Rationale	Further work to be undertaken to support the ES to confirm preliminary understanding
		<p>requirements and guidelines of the Civil Aviation Authority.</p> <p>The design of the fuel farm and other areas of potential harm will specifically allow for resilience against natural phenomenon and major hazards as part of the design basis. There will be specific consideration in the design and layout of key areas including the fuel farm, to ensure that risks both onsite and offsite to people are controlled. Features included in the existing design include separation of the fuel tanks in accordance with HSE requirements (HSG 176), specific containment considerations for primary, secondary and tertiary containment and associated drainage. Elimination of hazard where possible, and risk reduction to As Low As Reasonably Practicable as a minimum will be inherent in the design.</p>	
Designated land (Other than where covered under designations associated with Pegwell)	To be confirmed following completion of Major Accident and Disaster Assessment	Elimination of hazard where possible, and risk reduction to As Low As Reasonably Practicable as a minimum will be inherent in the design.	Work continues on this assessment to inform the ES
Widespread habitat, non designated land/water, soil	To be confirmed following completion of Major Accident and Disaster Assessment	Elimination of hazard where possible, and risk reduction to As Low As Reasonably Practicable as a minimum will be inherent in the design.	Work continues on this assessment to inform the ES
Particular species onsite	To be confirmed following completion of Major Accident and Disaster Assessment	<p>Based on current understanding from the biodiversity assessment it is not expected that any significant effects would arise on site due to construction or operation.</p> <p>Mitigation (covered as part of the biodiversity assessment, Chapter 7) and the current understanding that no species of national significance exist on site.</p>	Work continues on this assessment to inform the ES
Particular species offsite		<p>The Pegwell Bay and its designated receptors and ecology have been specifically recognised as an area of sensitivity. The design has specifically allowed for this receptor.</p> <p>Mitigation measures are included in the design to protect the most sensitive receptors during both construction and operation.</p>	Work continues on this assessment to inform the ES

Receptor	Preliminary Significance Level	Rationale	Further work to be undertaken to support the ES to confirm preliminary understanding
Elimination or risk reduction to As Low As Reasonably Practicable will be inherent in the design.			

18. Cumulative Effects

18.1 Introduction

- 18.1.1 The 2017 EIA Regulations include a requirement to give consideration to ‘any indirect, secondary, **cumulative**, short, medium and long-term, permanent and temporary, positive and negative effects of the development’¹; within the approach usually taken. The approach that will be taken in the Manston Airport EIA is to distinguish between combined effects, and cumulative effects (see **Box 5.3** in **Chapter 5**). This approach is consistent with the advice contained within PINS Advice Note 9² and will be in accordance with the 2017 EIA regulations.
- 18.1.2 Combined effects are defined as the inter-relationships between topics which occur where a number of separate effects, e.g. noise and air quality, affect a single receptor such as fauna. These will be assessed, where appropriate, within the topic chapters in the Environmental Statement.
- 18.1.3 Cumulative effects are defined as the interaction of the Proposed Development and other ‘major’ developments (as defined by PINS Advice Note 9: Rochdale Envelope, p7) where there is the potential for combined environmental effects. **Figure 4.1** shows the other developments that will be considered in the cumulative effects assessment.

18.2 The approach

- 18.2.1 The proposed approach to the assessment of cumulative effects is outlined in **Section 5.9** of **Chapter 5**.
- 18.2.2 The ES will assess the potential for **cumulative effects** associated with other development, i.e. whether the effects from the Proposed Development could be combined with similar effects from other schemes to result in significant positive or negative cumulative effects. The baseline assessments in the ES will include existing developments. It is best practice to consider the future baseline situation, which includes other schemes that are likely to be constructed or have not yet commenced but have a valid planning permission. In addition, proposed schemes which are the subject of a planning application (at the time of preparing the ES), will also be assessed.
- 18.2.3 The process for undertaking a Cumulative Effects Assessment (CEA) for a Nationally Significant Infrastructure Project (NSIP) has been defined by the PINS and is set out within PINS Advice Note 17³. The guidance defines a four-stage process for a CEA as follows:
- ▶ Stage 1: establish the NSIP Zone of Influence and identify long list of ‘other development’;
 - ▶ Stage 2: Identify short list of ‘other development’ for CEA;
 - ▶ Stage 3: Information gathering; and
 - ▶ Stage 4: Assessment.
- 18.2.4 This approach will be adopted in the ES, however, a cumulative effects assessment has not been included in the PEIR as it will be finalised on completion of all ES chapters.

¹ Schedule 4, Part 1, Paragraph 20 (2017) Environmental Impact Assessment Regulations. Available online at http://www.legislation.gov.uk/uksi/2017/571/pdfs/uksi_20170571_en.pdf [Checked 14/11/17].

² Advice Note Nine, Rochdale Envelope (version 2). Planning Inspectorate, April 2012.

³ Advice Note Seventeen, Cumulative Effects Assessment (version 1). Planning Inspectorate, December 2015.