



CLEVE HILL SOLAR PARK

ENVIRONMENTAL STATEMENT

VOLUME 1 - CHAPTERS

CHAPTER 18 - INTERACTIONS AND ACCUMULATION OF EFFECTS

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SOLAR PARK

18 INTERACTION AND ACCUMULATION OF EFFECTS

18.1 Introduction

1. The EIA Regulations state that the EIA should contain a "*description of the aspects of the environment likely to be significantly affected by the Development, including, in particular, population, fauna, flora, soil, water, air, climatic factors, material assets, including the architectural and archaeological heritage, landscape and the interrelationship between the above factors*" (our emphasis).
2. Interrelationships may occur where two or more effects arise that have the potential to impact on the same receptor during construction, operation or decommissioning. An effect taken in isolation may not have a significant effect on a receptor, but where several effects are considered in an interrelated manner, the resultant effect could then be considered significant.
3. Cumulative effects, considered here to be the effects of the Development on a receptor relative to a baseline including other proposed and consented (but not built) developments, are considered and assessed in the other technical chapters of this ES, and are not considered further here.
4. Certain chapters of this ES relate to a specific type of receptor, and assess effects on those. These chapters are 8: Ecology, 9: Ornithology, 11: Cultural Heritage and Archaeology, and (part of) 13: Recreation. Interrelationships with the potential to cause effect to those particular topic-specific receptors have been considered directly in the technical chapters of this ES, and are not considered further here. These are:
 - Effects on birds, such as noise, and changes in habitat, including effects on ornithological land designations (assessed in Chapter 9: Ornithology);
 - Effects on non-avian ecology (species and habitats), such as associated with construction dust, water pollution, noise, lighting, and changes in habitat, including effects on ecological land designations (assessed in Chapter 8: Ecology);
 - Primary¹ effects on heritage features, such as visual and noise (assessed in Chapter 11: Cultural Heritage and Archaeology); and
 - Primary effects on recreational receptors, including walkers on the Public Rights of Way (PRoW) through and close to the site, and cyclists on National Cycle Network route 1 (NCN 1). Interrelationship effects on these included disruption during construction, visual changes, noise, glint and glare effects and the creation of new access routes within the site (assessed in Chapter 13: Socioeconomics, Tourism, Recreation and Land Use).
5. Other chapters of this ES relate to the type of effect (e.g., visual, noise, air quality, glint/glare and traffic), for which the receptors are typically local people.

18.1.1 Development Parameters Assessed

6. The Rochdale Envelope parameters for the Development have been considered with respect to the potential effects considered in this chapter, and in the other chapters that are referred to in it, and worst-case values/scenarios for this are captured by the candidate design, as set out in Chapter 5: Development Description. This chapter reports the assessment of effects associated with the candidate design, therefore.

¹ A primary effect is one that affects the receptor in question (e.g., a Listed Building). A secondary effect is one that affects a receptor (e.g., a Listed Building), and the effect on that receptor affects a different receptor (e.g., the person living in the Listed Building).

18.1.2 Consultation

7. A summary of consultation and responses relating to the interaction of effects prior to issue of the Preliminary Environmental Assessment Report (PEIR) in May 2018 is provided in Table 18.1.

Table 18.1 Summary of Consultation Responses

Consultee and Response	Applicant Response
PINS Scoping Opinion, January 2018	
The ES should assess the interrelated impacts to ecological receptors. This should include impacts that may have a less than significant effect alone on given receptors, but which when considered in an interrelated way may result in significant effects, for example interrelated impacts to ornithological receptors from noise, dust and disturbance.	The response refers specifically to effects on birds, however this is interpreted more generally in the ES, and other interrelationships are assessed in this chapter, as required by the EIA Regulations. Direct and indirect effects (such as from noise, dust, etc.) on birds are considered in Chapter 9: Ornithology, and are not repeated here.

8. The PEIR was completed in May 2018 and Section 42 consultation on this was carried out in June and July 2018. The PEIR did not include a chapter on the interaction and accumulation of effects, because information at that stage of the project was preliminary, and the individual effects were assessed in specific technical chapters. Chapter 2 of the PEIR outlined the method that would be used and stated that comment was sought on the approach proposed through subsequent consultation. No comment in response to the approach was received during Section 42 consultation or other consultation.

18.2 Assessment Methodology

18.2.1 Legislation and Guidance

9. As quoted in section 18.1, the EIA Regulations make explicit reference to the requirement for an assessment of the interrelationships between types of effect. No further guidance or requirement beyond the need for it is provided.
10. In their Scoping Response, the Planning Inspectorate referred to its Advice Note 17². This note refers to the Overarching National Policy Statement (NPS) for Energy, EN-1. The remainder of Advice Note 17 relates to the assessment of cumulative effects, arising from the proposed development together with other (third party) developments that may be proposed, and does not address the interaction of effects.
11. NPS EN-1³, paragraph 4.2.5, states that:
"When considering cumulative effects, the ES should provide information on how the effects of the applicant's proposal would combine and interact with the effects of other development (including projects for which consent has been sought or granted, as well as those already in existence)."
12. NPS EN-1 refers, for guidance, to Circular 02/99 and to European Commission guidance, also from 1999.

² The Planning Inspectorate (2015). Cumulative Effects Assessment. Available at: <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/2015/12/Advice-note-17V4.pdf> [accessed on 03/11/2018]

³ Department of Energy and Climate Change (2011). Overarching National Policy Statement for Energy (EN-1). Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/47854/1938-overarching-nps-for-energy-en1.pdf [accessed on 03/11/2018]

13. The UK Government's Circular 02/99 has been withdrawn, and replaced with Planning Practice Guidance (PPG), including a topic on Environmental Impact Assessment⁴. This does not refer to the interaction between effects nor indirect effects, however.
14. The European Commission has produced guidelines that, amongst other things, covers the interaction of effects⁵. It recommends combining expert opinion with consultation to inform the assessment, with expert opinion being applied to evaluate the interacting effects. It recommends using matrices to assist with the identification of the interaction of effects. It notes the importance of avoiding double-counting. The methods applied in this chapter are consistent with these guidelines.

18.2.2 Identification of Effects

15. The method for assessing the effects of interrelationships was set out in the PEIR, chapter 2, section 2.2.8, and that method has been applied in this chapter.
16. There are no specific, relevant guidelines on how the assessment of effect interrelationships should be undertaken, including in responses from consultees at the Scoping and Section 42 stages, and so the assessment has been undertaken on a qualitative basis using the results of the individual assessments, informed by professional judgement.
17. Potential sources of environmental effect are not identified specifically in this chapter; this chapter instead relies on the other technical chapters (7 to 17) in this ES for the identification of receptors, potential effects and their assessment. Mitigation, where proposed in other technical chapters, is assumed to be implemented before consideration of the effects in this chapter, i.e., mitigated residual effects are considered here. Similarly, this chapter draws from the other technical chapters for descriptions of aspects of the baseline environment, where required.
18. Effects with a magnitude assessed as "negligible" (described generally as "no detectable or material change", or "a barely discernible change") in other chapters are considered not to have the potential to contribute to interrelationship effects, and are not considered in this chapter. For the avoidance of doubt, all effects not explicitly assessed elsewhere in the ES are considered to be of negligible magnitude and are therefore not assessed. Effects have been considered where they have been identified and assessed in other chapters of the ES.
19. Only receptors that are predicted to be the subject of more than one potential effect have been included in the assessment. Receptors predicted to be the subject of only a single effect are excluded because there is considered to be no potential for a cumulative interrelationship effect to take place.
20. The rationale for receptor inclusion or exclusion has been explicitly detailed in section 18.3.
21. A matrix has been used to detail which potential effects from different sources are predicted to impact each of the included receptors.
22. It should be noted that uncertainty in the assessment of effects, for most of the technical chapters in this ES, is dealt with by making conservative, or worst-case, assumptions. As this chapter considers the "in-combination" effects of multiple individual effects, it is based on there being multiple worst-cases simultaneously, which is likely to be overly conservative.

⁴ UK Government (2018). Planning Practice Guidance: Environmental Impact Assessment. Available at: <https://www.gov.uk/guidance/environmental-impact-assessment> [accessed on 03/11/2018]

⁵ EC (1999). Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions. Available at: <http://ec.europa.eu/environment/archives/eia/eia-studies-and-reports/pdf/guidel.pdf> [accessed on 03/11/2018]

18.2.3 Assessment of Significance

23. Following the matrix, a description of the interrelationships will be undertaken for each receptor and a conclusion drawn, using experience and professional judgement, as to whether any receptor will be subject to significant effects as a result, in EIA terms.
24. The interrelationship effect is the effect over and above the individual effects assessed in other chapters, and is described as the difference between the change caused to a receptor from one effect alone and the change caused to the receptor from all effects combined.
25. Significance has been determined by qualitative consideration of the sensitivity of receptors and the magnitude of effects using the following general criteria in accordance with Chapter 2: Environmental Impact Assessment:
 - Negligible – no detectable or material change to a location, environment or species;
 - Minor – a detectable but non-material change to a location, environment or species;
 - Moderate – a material, but non-fundamental change to a location, environment or species; or
 - Major – a fundamental change to a location, environment or species.
26. Effects assessed as Moderate or Major are treated as being significant in terms of the EIA Regulations.

18.3 Effect Interrelationship Matrix

27. A matrix, Table 18.2, has been used to detail which potential residual effects are predicted to impact each of the included receptors. Receptors are grouped at this stage to provide focus, and only receptor groups that have effects from more than one chapter are listed.
28. As noted in section 18.1, this matrix excludes effects on ornithological receptors and ecological receptors, and primary effects on heritage receptors and recreational receptors, the interrelationship effects of which have been considered in other chapters. All other effects relate to people. Beneficial effects of more than negligible magnitude are included, where they apply to receptors considered in this chapter.
29. Where recreational receptors (e.g., users of Public Rights of Way) are included in the assessment of interrelationships it is because there may be secondary effects on local residents.
30. It is acknowledged that while heritage assets are protected, and effects on them assessed, in their own right, individual people having relationships with those heritage assets (e.g., listed buildings or conservation areas) may experience appreciation effects associated with changes to these assets. Non-negligible effects on heritage receptors are therefore included in the matrix in Table 18.2, where the people experiencing the effect are local residents.
31. It is noted that noise effects (Chapter 12) are not sub-categorised into Negligible, Minor, Moderate and Major, and hence “not significant” effects could potentially contribute to interrelationship effects, and those assessed as requiring mitigation are included below.

Table 18.2 Matrix of Non-Negligible Magnitude Effects Arising in Two or More Chapters

Chapter / Effect Type	Receptor Group		
	Road users	Residents	School
7: LVIA	x	x	
11: Heritage		x	
12: Noise		x	x
13: ... Recreation...		x	
14: Traffic	x	x	x
17: Miscellaneous	x	x	

32. Specific receptors that were identified in each of these chapters are detailed in Table 18.3 for construction phase effects and 18.4 for operational phase effects. Decommissioning effects are expected and assumed to be similar to, though of lesser magnitude than, construction phase effects, and are not assessed explicitly in this chapter.
33. Specific sources of this information within this ES are:
- Technical Appendix A7.3, tables C3 and C5 (visual effect assessment);
 - Technical Appendix A7.4 (Residential Visual Amenity Assessment);
 - Chapter 11: Cultural Heritage and Archaeology, section 11.9.2;
 - Chapter 12: Noise, table 12.26;
 - Chapter 14: Access and Traffic, table 14.15; and
 - Technical Appendix A17.1, sections 7.1 and 7.2.

Table 18.3 Non-Negligible Magnitude Construction Phase Effects Arising in Two or More Chapters

Chapter / Effect Type	Receptor	Magnitude
7: Visual	Residents at: Nagden Warm House	Substantial
	Road users on: • Faversham Rd/Seasalter Rd, to the north of the Cleve Hill Substation access point Residents on/at: • Harty Ferry Cottages • 1-8 All Saints View • Graveney Court Farm • Seasalter Road (4 properties between Monkshill Rd and Denley Court Farm) • Graveney Hill Farm • Crown Cottages & Hill View • The Sportsman public house	Moderate
	Road users on: • Sandbanks Rd • Broom Street Residents on/at: • Sandbanks Rd • Broom Street • Hollowshore (assessed at the Shipwrights Arms) • Cedar Croft properties including Country View Park • Hollowshore (cumulative effects) • Foreshore Chalets (c. 37 beach chalets)	Slight

Chapter / Effect Type	Receptor	Magnitude
	<ul style="list-style-type: none"> Church Road, Faversham (cumulative effects) Users of: <ul style="list-style-type: none"> The Church of St Thomas the Apostle, Harty 	
13: ... Recreation...	Users of footpaths ZR484 and ZR485	Moderate
	Users of footpaths ZR486 and ZR488	Minor
14: Traffic	Vehicle delay along Seasalter Road, Head Hill Road and Staple Street for: <ul style="list-style-type: none"> Residents along Seasalter Road, Head Hill Road and Staple Street Users of Graveney Primary School Users of All Saints Church Users of Country View Park (holiday park) Bus route 660 Fear/intimidation for pedestrians and cyclists on Seasalter Road Severance of communities either side of Seasalter Road	Minor

Table 18.4 Non-Negligible Magnitude Operational Phase Effects Arising in Two or More Chapters

Chapter/ Effect Type	Receptor	Magnitude
7: Visual effects	Residents on/at: <ul style="list-style-type: none"> Nagden Warm House 	Substantial
	Residents on/at: <ul style="list-style-type: none"> Harty Ferry Cottages (until year 5) 1-8 All Saints View (until year 10) Graveney Court Farm (until year 10) Seasalter Road (4 properties between Monkshill Rd and Denley Court Farm; until year 10) Crown Cottages & Hill View (until year 10) The Sportsman public house (until year 10) 	Moderate
	Road users on: <ul style="list-style-type: none"> Faversham Rd/Seasalter Rd, to the north of the existing Cleve Hill Substation access point (until year 5) Sandbanks Rd (until year 10) Broom Street (until year 10) Residents on/at: <ul style="list-style-type: none"> Harty Ferry Cottages (after year 5) 1-8 All Saints View (after year 10) Graveney Court Farm (after year 10) Cedar Court (including Country View Park; until year 10) Seasalter Road (4 properties between Monkshill Rd and Denley Court Farm; after year 10) Graveney Hill Farm Foreshore Chalets (c. 37 beach Chalets) The Sportsman public house (after year 10) Sandbanks Rd (until year 10) Broom Street (until year 10) Crown Cottages & Hill View (after year 10) Hollowshore (assessed at the Shipwrights Arms) Cedar Croft properties including Country View Park Hollowshore (cumulative effects, until year 10) Church Road, Faversham (cumulative effects) Users of: <ul style="list-style-type: none"> The Church of St Thomas the Apostle, Harty 	Slight
11: Heritage	Setting effects on the Church of All Saints in Graveney (Grade I)	Low

Chapter/ Effect Type	Receptor	Magnitude
	Setting effects on Graveney Court Farm (grade II) Setting effects on Sparrow Court (Grade II) Setting effects on the Graveney Church Conservation Area	
12: Noise	Night-time: <ul style="list-style-type: none"> • Properties at Nagden • Warm House • Coney Banks • Properties at Crown Cottages • Cleve Farm Day-time: <ul style="list-style-type: none"> • Warm House • Coney Banks (Broom Street) • Properties at Crown Cottages • Cleve Farm 	Negligible or Minor
13: ... Recreation...	Users of footpath ZR485	Moderate
	Users of footpath ZR484	Minor
17: Glint and Glare	Potential glint and glare effects for road users along two stretches of 150 m on Seasalter Road Potential glint and glare effects on residents at: <ul style="list-style-type: none"> • Harty Ferry Cottages (6 properties) • Hollowshore (4 properties) • Ham Farm (3 properties) • Nagden (3 properties) • Warm House (1 property) • Crown Cottages (4 properties) • 14 Properties on Seasalter Road near Denley Hill Farm and Country View Park • Cleve Farm (1 property) 	Possible

34. The above effects have been set out for each receptor in Table 18.5 and 18.6.
35. Table 18.5 shows receptors located east of Faversham Creek. In addition to the effects shown, it is possible that people occupying these properties will, depending personal circumstance and preference, also receive the following effects:
- Construction phase: vehicle delay (minor) while accessing Graveney Primary School;
 - Construction phase: vehicle delay (minor) while accessing the Church of All Saints;
 - Construction phase: delay to bus route 660 (minor);
 - Construction phase: fear/intimidation for pedestrians and cyclists on Seasalter Road (minor);
 - Construction phase: users of footpaths ZR484 and ZR485 (moderate) and ZR486 and ZR488 (minor);
 - Operational phase: appreciation of heritage effect on the Church of All Saints; and
 - Operational phase: users of footpaths ZR485 (moderate) and ZR484 (minor).
36. These have not been included in the table below, because they will not necessarily apply to residents of every property.
37. Table 18.6 shows receptors located west of Faversham Creek or north of the Swale, which would not be expected to receive the effects listed above.

Table 18.5 Non-Negligible Interrelationship Effects by Receptor – East of Faversham Creek

Receptor	Construction Phase Effects	Operational Phase Effects
Nagden (3 properties)	Visual – substantial Visual (from Sandbanks Road) – slight Traffic delay (on Head Hill Road) – minor	Visual – substantial Visual (from Sandbanks Road) – slight Noise (night time) – negligible/minor Glint and Glare – possible
Warm House	Visual – substantial Visual (from Sandbanks Road) – slight Traffic delay (on Head Hill Road) – minor	Visual – substantial Visual (from Sandbanks Road) – slight Noise (night time and day time) – negligible/minor Glint and Glare – possible
1-8 All Saints View	Visual – moderate Traffic delay – minor Community severance – minor	Visual – moderate to year 5, then slight
Graveney Court Farm	Visual – moderate Traffic delay – minor Community severance – minor	Visual – moderate to year 10, then slight Listed building appreciation – low Graveney Church Conservation Area appreciation – low
Seasalter Road (4 properties between Monkshill Rd and Denley Court Farm)	Visual – moderate Traffic delay – minor Community severance – minor	Visual – moderate to year 10, then slight Glint and Glare - possible
Graveney Hill Farm	Visual – moderate Traffic delay – minor	Visual – slight Glint and Glare – possible
Foreshore Chalets (c. 37 beach chalets)	Visual – slight Traffic delay – minor	Visual – slight
The Sportsman public house	Visual – moderate Traffic delay – minor	Visual – moderate to year 10, then slight
Other Residents on Sandbanks Road	Visual – slight Visual (from Sandbanks Road) – slight Traffic delay (on Head Hill Road) – minor	Visual (from Sandbanks Road) – slight
Other Residents on Broom Street	Visual – slight Visual (from Broom Street) – slight Traffic delay (on Head Hill Road) – minor	Visual (from Sandbanks Road) – slight Noise (day time and night time) – negligible/minor
Cedar Croft properties including Country View Park	Visual – slight Traffic delay – minor	Visual – slight to year 10, then negligible
Residents of Sparrow Court	Traffic delay – minor Community severance – minor	Graveney Church Conservation Area appreciation – low Listed building appreciation - low
Other residents of Seasalter Road	Traffic delay – minor Community severance – minor	Graveney Church Conservation Area appreciation – low
Crown Cottages, Hill View & Cleve Farm	Visual – moderate Traffic delay – minor	Visual – moderate to year 5, then slight Noise (day time and night time) – negligible/minor Glint and Glare – possible

Table 18.6 Non-Negligible Interrelationship Effects by Receptor – West of Faversham Creek and North of The Swale

Receptor	Construction Phase Effects	Operational Phase Effects
Harty Ferry Cottages	Visual – moderate	Visual – moderate to year 5, then slight Glint and Glare – possible
Hollowshore	Visual – slight Visual (cumulative) – slight	Visual – slight Glint and Glare – possible
Church Road, Faversham	Visual (cumulative) – slight	Visual (cumulative) – slight
Users of the Church of St Thomas the Apostle, Harty	Visual – slight	Visual – slight
Ham Farm (3 properties)		Glint and Glare – possible

38. The following receptors receive a single non-negligible type of effect during a phase of development, and hence do not have any interrelationships to assess and are not considered further in this chapter:

- Church Road, Faversham (cumulative visual effects during construction and operation);
- Users of the Church of St Thomas the Apostle, Harty (visual effects during construction and operation); and
- Ham Farm (glint and glare effects).

18.4 Assessment of Effects

39. This section considers the effects of the interrelationship between the individual effects identified in Tables 18.5 and 18.6 for each receptor or receptor group. Moderate and Major effects, which are significant in terms of the EIA Regulations, are highlighted in bold.

18.4.1 Nagden

40. During construction, the substantial visual effects at these 3 properties and their environs are likely to be the greatest change in experience of living at these properties. These may have the effect of sensitising residents to construction effects, such that, when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change may be material, but non-fundamental, and so is assessed as **moderate**, and significant.

41. During the operational phase, the visual effects at these three properties and their environs are likely to be the greatest change in experience of living at these properties.

42. Glint and glare effects are predicted as being possible for very short periods on each day from April (around 5am), through June (around 7am) until early September (around 5am), so even if they occur they are unlikely to cause nuisance or contribute substantially to the overall effect.

43. As set out in Chapter 12: Noise, effects are possible only between 19:00 and 07:00, the night-time period for noise assessment. Non-negligible noise effects were assessed in Chapter 12: Noise, during night-time periods only, at Nagden, and were assessed on the basis of the site operating at maximum generating capacity. As set out in Chapter 12, the night-time period for noise assessment is from 19:00 to 07:00. Noise could be created by the inverters and transformers used to process the electricity from the solar PV modules, which can occur only in daylight hours. Within the night-time period, this would occur only around mid-summer, in the evening and early morning, when the sun

is relatively low in the sky. As the sun is low in the sky, the majority of light would fall on either the east- or the west-facing panels, but not both, and even on these panels production would be at less than maximum capacity, hence electricity production and noise generation would be substantially lower than assessed. As a result, noise effects are very unlikely to contribute substantially to the overall effect.

44. Even when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change is expected to be a detectable but non-material change, and so is assessed as minor, and not significant.

18.4.2 Warm House

45. During construction, the visual effects at this property and its environs are likely to be the greatest change in experience of living at the properties. These may have the effect of sensitising residents to construction effects, such that, when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change may be material, but non-fundamental, and so is assessed as **moderate**, and significant.
46. During the operational phase, the substantial visual effects at this property and its environs are likely to be the greatest change in experience of living at these properties until year 10, around which time screening planting would obscure views of Development infrastructure. After that time, visual effects remain substantial because of the new woodland, but all views of solar PV infrastructure would be screened by woodland.
47. Glint and glare effects from panels c. 700 m to the east are predicted as being possible (without modelling any intervening structures or vegetation) for very short periods on each day from April (around 7am), through June (around 6am) until early September (around 7am). However, Warm House has substantial vegetation and polytunnel screening to the east, and these effects won't occur in practice.
48. Glint and glare effects from panels c. 200 m to the west and west-northwest are predicted as being possible for c. 10 minutes on each day from April (around 5pm), through June (around 6pm) until early September (around 5pm). These effects would cease when the mitigation planting reaches the height of the panels, which is expected within c. 5 years (see the Technical Appendix A7.4: Residential Visual Amenity Assessment), so any effects would be short-term. As described in Technical Appendix A17.1: Glint and Glare Assessment, the reflections of sunlight from solar panels are similar to those from water, rather than from glass or steel, and would be viewed in the same direction as the sun when it is low in the sky. As a result, these effects are unlikely to contribute substantially to an overall effect.
49. Noise, as set out in Chapter 12, will be mitigated to a not significant level. The noise assessment predicts that noise at Warm House could arise from the inverters and transformers, which process the electricity produced by the solar PV modules. The maximum noise level will be produced across the middle of the day on bright or sunny days in summer, when the panels, and hence the inverters and transformers, are operating at or near maximum capacity. Vegetation, particularly in summer, will help attenuate any noise, and this attenuation will increase as the proposed woodland area between Warm House and the panels matures and forms an increasingly dense barrier over time. These factors, combined with mitigation to ensure maximum noise levels are not significant, will substantially reduce the contribution noise would make to the overall change at Warm House as a result of the Development.
50. Even when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change is expected to be a detectable but non-material change until

between years 5 and 10 (after which time it will be negligible), and before that time the effect is assessed as minor, and not significant.

18.4.3 1-8 All Saints View, Graveney

51. During construction, the visual effects at these 8 properties and their environs are likely to be the greatest change in experience of living at these properties. Even when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.
52. During the operational phase, only visual effects are predicted, so there would be no interrelationship effects.

18.4.4 Graveney Court Farm

53. During construction, the visual effects at this property and its environs will be added to by traffic effects. Even when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.
54. During the operational phase, the visual effects at this property may be accentuated by the effect they have on changing the appreciation of the Graveney Court Farm (Grade II listed) and Graveney Church Conservation area. Even when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.

18.4.5 Seasalter Road (4 properties)

55. These properties are located between Monkshill Road and Denley Court Farm.
56. During construction, the visual effects at these properties and their environs will be added to by traffic effects. Even when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.
57. During the operational phase, the visual effects at these three properties and their environs are likely to be the greatest change in experience of living at these properties. Glint and glare effects are predicted as being possible (without modelling any intervening structures or vegetation) for very short periods on each day from April (around 5pm), through June (around 6pm) until early September (around 5pm), so even if they occur they are unlikely to cause nuisance or contribute substantially to the overall effect. Even when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.

18.4.6 Graveney Hill Farm

58. During construction, the visual effects at this property and its environs will be added to by traffic effects. Even when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.

59. During the operational phase, the visual effects at this property and its environs are likely to be the greatest change in experience of living at this properties. Glint and glare effects are predicted as being possible (without modelling any intervening structures or vegetation) for very short periods on each day from February (around 3pm), through June (around 6pm) until mid-November (around 2:30pm). Glint and glare are predicted to come from the west, and aerial photo shows there are trees to the west through south of the residential property, which would reduce glint and glare effects to people away from the property. Even if they do occur, they are unlikely to cause nuisance or contribute substantially to the overall effect. Even when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.

18.4.7 Foreshore Chalets

60. These comprise c. 37 beach chalets.
61. During construction, the visual effects at these properties and their environs will be added to by traffic effects, although noting that traffic east towards Whitstable would not be affected. Even when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.
62. During the operational phase, only visual effects are predicted, so there would be no interrelationship effects.

18.4.8 The Sportsman Public House

63. During construction, the visual effects at this property and its environs will be added to by traffic effects, although noting that traffic east towards Whitstable would not be affected. Even when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.
64. During the operational phase, only visual effects are predicted, so there would be no interrelationship effects.

18.4.9 Sandbanks Road – Other Properties

65. During construction, the visual effects at these properties and their environs will be added to by minor traffic delay effects on Head Hill Road. Even when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.
66. During the operational phase, only visual effects are predicted, so there would be no interrelationship effects.

18.4.10 Broom Street – Other Properties

67. These properties include Coney Banks, which is included in the list of properties assessed for noise effects.
68. During construction, the visual effects at these properties and their environs will be added to by minor traffic delay effects on Head Hill Road. Even when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.

69. During the operational phase, the slight visual effects from the roads near these properties may be added to by day-time and night-time noise. Noise, as set out in Chapter 12, will be mitigated to a not significant level, but, if any noise is audible on an ongoing basis, this would contribute to the overall effect at the property.
70. Local visual effects would combine with possible noise effects and the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above) to give an overall change that is expected to be detectable but non-material, and so is assessed as minor, and not significant.

18.4.11 Cedar Croft properties including Country View Park

71. During construction, the visual effects at these properties and their environs will be added to by traffic effects. Even when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.
72. During the operational phase, only visual effects are predicted, so there would be no interrelationship effects.

18.4.12 Sparrow Court

73. During construction, the traffic-related effects at this property and its environs will be combined with the minor recreation effects associated with infrastructure east of Faversham Creek (paragraph 35, above). The difference between the traffic effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.
74. During the operational phase, the heritage appreciation effects for residents at this property associated with change to the setting of Graveney Church Conservation Area and Sparrow Court itself will be combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above). The overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.

18.4.13 Seasalter Road – Other Residents

75. During construction, the traffic-related effects at these properties and their environs will be combined with the minor recreation effects associated with infrastructure east of Faversham Creek (paragraph 35, above). The difference between the traffic effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.
76. During the operational phase, the heritage appreciation effects for residents within Graveney, associated with change to the setting of Graveney Church Conservation Area, will be combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), leading to an overall change which is expected to be detectable but non-material, and so is assessed as minor, and not significant.

18.4.14 Crown Cottages, Hill View and Cleve Farm

77. During construction, the visual effects at these properties and their environs will be added to by traffic effects. Even when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.

78. During the operational phase, the visual effects at this property and its environs are likely to be the greatest change in experience of living at this properties. Glint and glare effects from the west/southwest are predicted as being possible (without modelling any intervening structures or vegetation) for up to 15 minutes per day, at times between 2pm in December to 6pm in June. All of these properties have substantial screening to the west through south, however, and whilst some effects may occur between the vegetation, effects would be much less than the theoretical predictions. Noise, as set out in Chapter 12, will be mitigated to a not significant level.
79. Even when combined with the other potential minor effects associated with infrastructure east of Faversham Creek (paragraph 35, above), the difference between the visual effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.

18.4.15 Harty Ferry Cottages

80. During the construction phase, only visual effects are predicted, so there would be no interrelationship effects.
81. During the operational phase, the moderate visual effects at these six properties and their environs are likely to be the greatest change in experience of living at these properties. Glint and glare effects are predicted as being possible (without modelling any intervening structures or vegetation) for up to 10 minutes on each day from March (around 8am) to mid-May (around 6am) and from August (around 6am) to early October (around 8am). In practice, the sea wall around the Development site will screen views of the solar PV modules to some extent, and hence reduce any glint and glare effects, which would be at distances of 1 to 3 km. Given the minimal magnitude of these effects, they are unlikely to cause nuisance or contribute substantially to the overall effect. The difference between the visual effects and the overall change is expected to be detectable but non-material, and so is assessed as minor, and not significant.

18.4.16 Hollowshore

82. This receptor includes the Shipwrights Arms and nearby properties.
83. During the construction phase, only visual effects are predicted, so there would be no interrelationship effects.
84. During the operational phase, the slight visual effects at these six properties and their environs may be added to by glint and glare effects. These are predicted as being possible (without modelling any intervening structures or vegetation) for a few minutes on each day from April (around 7:30am) through June (around 5:30am) to early September (around 7:30am). In practice, the sea wall around the Development site will screen views of the solar PV modules, and hence any glint and glare effects, from the majority of the Development site, which would be at distances of 1 to 3 km, and vegetation and built form screening will further limit effects for some properties in this group. Given the remaining very small time effects may occur, they are unlikely to cause nuisance or contribute substantially to the overall effect. The overall combination of visual effects and glint and glare effects is expected to be detectable but non-material, and so is assessed as minor, and not significant.

18.5 Mitigation Measures and Residual Effects

85. The effects assessed in section 18.4 were, as noted in section 18.2.2, based on post-mitigation residual effects identified in other chapters. Further mitigation for the interrelationship effects identified in this chapter could be achieved by applying further mitigation of individual effects in the relevant technical chapters.

86. Two receptors are assessed as being likely to receive significant effects during the construction phase as a result of the interrelationships between individual assessments made in other chapters in this ES, which are the properties at Nagden and Warm House. All other receptors are assessed as receiving minor, not significant, interrelationship effects.
87. No mitigation is proposed beyond that set out in the other technical chapters of this ES, and the residual effects are as assessed in section 18.4.

18.6 Cumulative Effects Assessment

88. The assessment in section 18.4 included consideration of non-negligible cumulative effects identified in the other technical chapters of this ES, and hence the potential effects associated with the cumulative developments identified in Chapter 2: Environmental Impact Assessment are already considered.

18.7 Statement of Significance

89. Interrelationship effects on ecological, ornithological, heritage and recreational receptors are considered either in other chapters of this ES.
90. Other interrelationship effects have been assessed in this chapter, principally on individual properties or groups of properties in the vicinity of the Development site. For the purposes of making this assessment as meaningful and complete as practicable, the potential changes to the experiences of the people residing at these properties have been considered, including experiences in their local lives away from their properties. Hence, factors have been included such as nearby public footpaths they may use, the possibility they may have children attending Graveney Primary School, and the change in their appreciation of heritage assets such as All Saints Church and Graveney Church Conservation Area. The approach uses worst-case assessments from other technical chapters of this ES and assumes they apply simultaneously, which is likely to be an overly conservative, and certainly precautionary, assessment of interrelationship effects.
91. It is clear that there may be several different effects considered elsewhere in this ES that could change, relative to the baseline, the experience of someone living in the locality. These effects have been assessed in combination and found to be consistent with the description “detectable but non-material change”, and hence assessed as minor, and not significant, in all cases during the operational phase, and in all but two cases during the construction phase of the Development. Decommissioning effects are expected and assumed to be similar to, though of lesser magnitude than, construction phase effects, and are not assessed explicitly in this chapter; as a worst-case, it may be assumed that the significant effects identified for the construction phase would also occur during the decommissioning phase.
92. For the properties at Nagden and Warm House, which are assessed as receiving a substantial visual effect, a “material, but non-fundamental change” associated with the combination of multiple effects was identified during the construction phase, and hence the additional effects have been assessed as moderate, and significant.
93. No additional mitigation has been identified to reduce these effects, beyond that set out in the other technical chapters of this ES.