

Forest Farm, Chippenham
Environmental Statement

Chapter 11
Cumulative effects



11 Cumulative effects

Introduction

- 11.1 As discussed in chapter 3, there are several consented and proposed developments in the vicinity of the Forest Farm site and in the wider Chippenham area (figure 3.2). In accordance with good practice and the statutory requirements, this chapter examines the potential for cumulative effects with these schemes.
- 11.2 This chapter should be read alongside ES topic chapters 4 to 10, which provide baseline information and the assessment of the effects associated with the proposed Forest Farm development alone.

Assessment of effects

Air quality

- 11.3 An assessment of the potential cumulative air quality effects has been undertaken for 2029 and 2036, which modelled the following scenarios:
- 2029 with sensitivity test developments: baseline plus committed developments and wider background traffic growth plus proposed development plus the Land East of Showell Farm and Land South of Chippenham developments
 - 2036 sensitivity test developments: baseline plus committed developments and wider background traffic growth plus proposed development plus the Land East of Showell Farm and Land South of Chippenham developments
- 11.4 Details of the schemes included in the committed developments are provided in the 'traffic and transport' section below.
- 11.5 The predicted 'with development' post-construction nitrogen dioxide (NO₂) and fine particulate matter (PM₁₀ and PM_{2.5}) concentrations at the sensitive receptors and the changes as a result of the cumulative developments are set out in tables 11.1 for 2029 and 11.2 for 2036. The annual mean concentrations of all three pollutants are predicted to be well below the relevant objectives at all the receptors, including R34 to R38 within Calne air quality management area (AQMA). All the receptors are predicted to experience negligible increases in NO₂, PM₁₀ and PM_{2.5} levels of less than 1% of the relevant annual mean objective, which will not be significant.

Receptor ref	NO ₂		PM ₁₀		PM _{2.5}	
	Concentration (µg/m ³)	Percentage change*	Concentration (µg/m ³)	Percentage change*	Concentration (µg/m ³)	Percentage change*
R1	10.61	0.3%	16.37	0.5%	9.68	0.5%
R2	10.05	0.1%	15.12	0.2%	9.03	0.2%
R3	11.20	0.2%	17.35	0.4%	10.19	0.5%
R4	10.39	0.1%	15.46	0.1%	9.20	0.1%
R5	9.92	0.1%	15.03	0.1%	8.98	0.1%
R6	9.31	0.1%	14.14	0.2%	8.52	0.2%
R7	8.95	0.1%	13.43	0.2%	8.15	0.2%
R8	8.80	0.1%	13.08	0.2%	7.97	0.2%
R9	8.73	0.1%	12.96	0.2%	7.90	0.2%
R10	8.63	0.1%	12.60	0.1%	7.73	0.1%
R11	9.11	0.1%	13.53	0.1%	8.21	0.1%
R12	9.31	0.0%	13.95	0.1%	8.43	0.1%
R13	10.19	0.3%	14.65	0.4%	8.88	0.4%
R14	8.91	0.1%	13.35	0.2%	8.11	0.2%
R15	9.31	0.2%	14.09	0.4%	8.49	0.4%
R16	9.58	0.2%	14.60	0.4%	8.76	0.5%
R17	9.12	0.2%	13.74	0.4%	8.31	0.4%
R18	9.19	0.2%	13.88	0.4%	8.38	0.4%
R19	9.06	0.2%	13.57	0.3%	8.23	0.3%
R20	9.18	0.2%	13.72	0.3%	8.32	0.3%
R21	9.23	0.2%	13.73	0.3%	8.33	0.3%
R22	9.31	0.2%	13.81	0.3%	8.38	0.3%
R23	9.17	0.2%	13.57	0.3%	8.25	0.3%
R24	9.40	0.2%	13.94	0.3%	8.45	0.4%
R25	8.28	0.0%	12.13	0.1%	7.47	0.1%
R26	8.31	0.0%	12.18	0.1%	7.50	0.1%
R27	9.49	0.1%	13.97	0.2%	8.48	0.2%
R28	6.45	0.1%	12.71	0.1%	7.65	0.2%
R29	6.14	0.1%	12.37	0.1%	7.45	0.1%
R30	5.75	0.0%	11.73	0.1%	7.10	0.1%
R31	6.23	0.1%	12.55	0.1%	7.54	0.1%
R32	5.80	0.0%	11.84	0.1%	7.16	0.1%
R33	5.92	0.0%	12.06	0.1%	7.28	0.1%
R34	7.32	0.1%	13.27	0.1%	7.95	0.1%
R35	7.05	0.0%	12.56	0.1%	7.59	0.1%
R36	7.10	0.0%	12.76	0.1%	7.68	0.1%
R37	6.95	0.0%	12.73	0.1%	7.64	0.1%
R38	7.03	0.0%	12.89	0.1%	7.73	0.1%

Table 11.1: Predicted 2029 'with development' post-construction pollutant concentrations and change as a result of the cumulative developments

*Percentage change relative to the air quality assessment level (AQAL)

Receptor ref	NO ₂		PM ₁₀		PM _{2.5}	
	Concentration (µg/m ³)	Percentage change*	Concentration (µg/m ³)	Percentage change*	Concentration (µg/m ³)	Percentage change*
R1	9.12	0.10%	16.34	0.49%	9.68	0.26%
R2	8.92	0.04%	15.08	0.19%	9.01	0.10%
R3	9.35	0.08%	17.30	0.42%	10.18	0.22%
R4	9.07	0.02%	15.38	0.12%	9.17	0.06%
R5	8.87	0.02%	15.00	0.10%	8.97	0.05%
R6	8.64	0.04%	14.13	0.20%	8.52	0.10%
R7	8.49	0.02%	13.42	0.12%	8.15	0.06%
R8	8.43	0.03%	13.08	0.16%	7.97	0.09%
R9	8.40	0.03%	12.95	0.15%	7.90	0.08%
R10	8.36	0.03%	12.60	0.09%	7.73	0.05%
R11	8.54	0.02%	13.53	0.08%	8.22	0.04%
R12	8.61	0.02%	13.95	0.07%	8.43	0.04%
R13	8.97	0.10%	14.67	0.34%	8.89	0.19%
R14	8.47	0.05%	13.34	0.23%	8.11	0.12%
R15	8.62	0.07%	14.08	0.35%	8.50	0.18%
R16	8.72	0.09%	14.59	0.43%	8.77	0.23%
R17	8.55	0.08%	13.73	0.38%	8.31	0.20%
R18	8.58	0.08%	13.87	0.41%	8.38	0.21%
R19	8.53	0.06%	13.57	0.29%	8.23	0.16%
R20	8.58	0.06%	13.72	0.27%	8.32	0.15%
R21	8.59	0.06%	13.73	0.26%	8.34	0.14%
R22	8.63	0.06%	13.82	0.26%	8.39	0.14%
R23	8.57	0.06%	13.58	0.25%	8.26	0.14%
R24	8.66	0.08%	13.94	0.32%	8.46	0.17%
R25	8.23	0.01%	12.13	0.06%	7.47	0.03%
R26	8.24	0.02%	12.18	0.07%	7.50	0.04%
R27	8.70	0.04%	13.98	0.15%	8.49	0.08%
R28	5.68	0.04%	12.73	0.14%	7.66	0.08%
R29	5.56	0.03%	12.38	0.12%	7.46	0.06%
R30	5.41	0.02%	11.74	0.08%	7.11	0.04%
R31	5.60	0.03%	12.56	0.14%	7.55	0.08%
R32	5.43	0.01%	11.84	0.06%	7.16	0.03%
R33	5.48	0.02%	12.06	0.07%	7.28	0.04%
R34	6.70	0.02%	13.30	0.10%	7.97	0.05%
R35	6.60	0.01%	12.59	0.05%	7.61	0.03%
R36	6.61	0.02%	12.79	0.06%	7.70	0.03%
R37	6.55	0.01%	12.74	0.05%	7.66	0.03%
R38	6.58	0.01%	12.91	0.06%	7.74	0.03%

Table 11.2: Predicted 2036 'with development' post-construction pollutant concentrations and change as a result of the cumulative developments

*Percentage change relative to the air quality assessment level (AQAL)

Community and social effects

11.6 The nature of the Land at Forest Gate solar farm and Land at Showell Farm employment development means that they do not have the potential to lead to community and social effects, so they have not been considered further in the assessment. The application documents produced for the other schemes were reviewed to obtain information on potential community and social effects. The cumulative developments fall within a number of lower super output areas (LSOAs), as follows:

- LSOA Wiltshire 014C: Land South of Chippenham
- LSOA Wiltshire 018E: Land East of Showell Farm, Land at Showell Nurseries, and the majority of Rowden Park
- LSOA Wiltshire 018A: the remainder of Rowden Park and Land at Hunters Moon

- LSOA Wiltshire 013F: Land at Rawlings Farm, Land East of Barrow Farm and the majority of Land North of Chippenham
- LSOA Wiltshire 009C: the remainder of Land North of Chippenham
- LSOA Wiltshire 009D: Langley Park

- 11.7 As a result, the assessment of cumulative population and housing effects has been undertaken at the town level, rather than considering individual LSOAs.
- 11.8 As set out in chapter 3, several of the other developments in the area are currently under construction, so estimates of the numbers of dwellings remaining to be constructed have been taken from Wiltshire Council's (June 2026) *Housing Land Supply Statement Base Date: April 2025*. Based on this, it is estimated that there are 3,097 dwellings remaining to be constructed across the other developments in the area. Together with the proposed development, therefore, 3,697 dwellings will be provided.
- 11.9 Based on the average household size for Wiltshire of 2.32 people, the 3,697 dwellings are estimated to generate a new population of 8,577 people. An additional 8,577 people represents an increase of approximately 21% to the population of Chippenham, which is a change of small magnitude. Combined with the medium sensitivity of the receptor, this will lead to a slight cumulative effect on the town's demography that will not be significant.
- 11.10 The 3,697 new dwellings represent a 21% increase in housing provision in Chippenham, which is a change of small magnitude that will lead to a moderate, significant, beneficial cumulative effect. Together with the proposed development, it is estimated that 1,232 affordable dwellings remain to be constructed across the cumulative developments. Based on the seven-year construction period for the proposed development, an average of 176 affordable dwellings could be completed per year. This represents a 52% increase on the current rates of affordable housing completion in Wiltshire, which is a change of large magnitude that will lead to a substantial, significant, beneficial cumulative effect.
- 11.11 Several of the cumulative developments include local centre uses that are likely to be used mainly by residents of the new developments and will not be of sufficient scale to compete significantly with businesses in the town centre. The increase in population is likely to give rise to a small associated increase in demand for local businesses in Chippenham. This will be a slight, beneficial cumulative effect that will not be significant, but it will help to contribute to the ongoing viability of many existing town centre businesses.
- 11.12 The other cumulative developments will increase demand for education, healthcare and community facilities in Chippenham. However, the other developments will provide several primary schools and a range of public open space and will also be required to make financial contributions through the Community Infrastructure Levy and section 106 agreements towards education, healthcare and community facilities. As a result, no significant adverse cumulative effects are predicted on demand for existing facilities in Chippenham.

Cultural heritage

Archaeology

- 11.13 In the absence of mitigation, the proposed development would give rise to a moderate to substantial, significant adverse effect to the known and suspected archaeological resource within the site. However, adverse effects can be fully mitigated through the appropriate and agreed levels of evaluation and recording, as set out in chapter 6.
- 11.14 There is the potential for further adverse cumulative effects on the archaeological resource of the local area as a result of the other developments proposed. The archaeological resource of the other sites is not known, so it is not possible to accurately evaluate other potential impacts in combination with the proposed development. As excavation by its nature is a destructive process, the eventual archaeological investigation and, as required, excavation of a large amount of the land surrounding Chippenham has the potential to result in a large cumulative change to the below ground archaeological resource present, leading to a substantial, significant cumulative effect. However, as for the site alone, these works will add greatly to the existing archaeological knowledge of the area and result in significant beneficial cumulative effects.

Built heritage

- 11.15 The assessment in chapter 6 of the proposed development alone has identified no significant effects on built heritage and historic landscape. However, the potential for cumulative effects is assessed in this chapter on a precautionary basis.
- 11.16 There is no potential for the proposed development to result in cumulative effects on heritage assets in combination with most of the schemes shown in figure 3.2, if they proceed, because of their location and distance from the site, their scale, or the nature of the development. The only cumulative scheme relevant to the assessment is the Land South of Chippenham development to the immediate west of the site.
- 11.17 The assessment of the effect of the proposed development alone on the integrity and legibility of the historic landscape as a result of the landtake during construction is slight and not significant. This reflects the nature of the modern fieldscapes of the site and the avoidance of the group of fields around Forest Farm that maintains the historic patterns and relates most clearly to the 19th-century planned farmstead.
- 11.18 The landtake for the development of the adjacent site will have a similar effect on historic landscape character. To the immediate west of the site, this comprises large scale field patterns of planned 19th-century enclosure and large areas of reorganised fields of 20th-century origin. It would be expected that the design approach for the other development would take account of the interest and landscape character of the site, so there would be some avoidance of effects to the integrity and legibility of areas of stronger time depth. However, the change to the character of a large area of agricultural land is predicted to result in a slight to moderate, adverse cumulative effect on historic landscape character, which will not be significant.

- 11.19 The assessment of the proposed development alone predicts no significant effects on the settings or heritage significance of the designated assets in the study area. These are predominantly the farmsteads and individual houses along the London Road corridor, mainly of late 18th and 19th century date. These assets are to the east of the site. Their scale, agricultural association and functional connections to the surrounding land are all localised and there is no potential for additional or combined effects on these assets as a result of the Land South of Chippenham development to the west of the site.
- 11.20 The assessment in chapter 6 was extended beyond the defined 1 km radius study area to the rising ground to the south in order to include the edge of Bowood Park registered park and garden and the Golden Gates lodge. Again, no effects are predicted to result from the proposed development alone. The Land South of Chippenham site is a similar or greater distance from the heritage assets and is separated from them by the complex topography of the greensand ridge. The visual change as a result of the construction and development of the Land South of Chippenham scheme will not result in cumulative effects.

Landscape and visual effects

Introduction

- 11.21 The distance of the Land off the B4069 East of Barrow Farm and Land at North Chippenham sites from the application site, and the screening provided by the intervening topography, buildings and vegetation, mean that any cumulative landscape and visual effects would be minimal. The Langley Park site is currently in industrial and commercial use and the redevelopment will extend the existing built form. The site is located within the existing urban extent of Chippenham and the magnitude of change will be limited, so significant cumulative landscape and visual effects are not considered likely. The Land at Hunters Moon development has largely been constructed and is therefore considered as part of the existing baseline. These developments have therefore been scoped out of detailed consideration in the cumulative effects assessment.
- 11.22 The potential for cumulative effects with the Land East of Showell Farm and Land South of Chippenham developments is assessed first, as these projects fell within the former local plan allocation and are currently at the scoping / planning application stage. This is followed by the assessment of the potential for cumulative effects with the Rowden Park, Land at Showell Farm and Land at Showell Nurseries developments, which are considered together because the sites are adjacent and the developments are likely to affect similar receptors. The potential for cumulative effects with the Land at Forest Gate solar farm is assessed separately because the site is separate from the others and it is a different type of development. The potential for cumulative effects with Land at Rawlings Farm is assessed separately because the site is separate from the others and it is a different type of development. The assessment scenarios are shown on figure 11.1.
- 11.23 At each stage that is considered (construction, at completion and after 15 years), it is assumed that the proposed development and the cumulative developments are at the same stage. This identifies the worst case cumulative effect, but is not necessarily likely to occur so the actual cumulative effects may be lower. The assessments of cumulative visual

effects only consider those receptors with the potential to experience cumulative changes to views.

Cumulative effects with Land East of Showell Farm and Land South of Chippenham

- 11.24 During construction and at completion, the change to the application site and these sites will result in a major alteration of the landscape from agricultural land to construction works. The cumulative change will be very large, leading to a major, significant, adverse cumulative effect. By 15 years after completion, the proposed street trees and vegetation within the large areas of public open space that will be created will have matured, softening the settlement edge and providing increased tree cover across these sites. However, the overall level of change will remain the same and the cumulative effect will remain major, adverse and significant.
- 11.25 The construction of the proposed development and these schemes will result in a notable increase in the urban extent of Chippenham, taking up much of the part of the Avon Open Clay Vale landscape character area (LCA) that lies south east of Chippenham. While there will be limited change to the wider LCA, there will be a recognisable change in the extent of Chippenham in this area. The magnitude of change will be medium, leading to a moderate, significant, adverse cumulative effect during construction and at completion. The proposed street trees and vegetation will mature over time, softening the settlement edge and providing increased tree cover. The magnitude of change will reduce to small and the cumulative effect will reduce to moderate / slight and not significant.
- 11.26 Construction works within the application site and these sites will result in limited change to the Bowood Greensand Hills LCA, with the only change relating to views from the west. As a small component of the area's character, the magnitude of change will be very small, leading to a moderate / slight, adverse cumulative effect that will not be significant during construction and at completion. The maturing of the proposed vegetation over time will reduce the magnitude further and by year 15 the cumulative effect will have reduced to negligible and not significant.
- 11.27 Several public rights of way (PROW) connect through and adjacent to the application site and these cumulative sites, including footpaths CHIP 16, CHIP 41, CHIP 49 and CALW 83, bridleway CHIP 40 and the Avon Valley Walk. Users of these routes will experience views of these schemes and the proposed development, both in combination and sequentially along different parts of the routes. The construction works will be clearly visible and the magnitude of change during construction and at completion will be very large, leading to a substantial, significant, adverse cumulative effect. By year 15, the proposed tree planting along the routes will have matured and building materials will have weathered, softening the appearance of the built form. However, the overall magnitude of change will remain very large and the cumulative effect will remain substantial, adverse and significant.
- 11.28 PROW CALW 80 heads east from these sites and construction works within the site and the cumulative sites will be visible intermittently in filtered views and above the intervening vegetation. The works will be recognisable and the magnitude of change will be medium during construction and at completion, leading to a major / moderate, significant, adverse cumulative effect. By year

15, the proposed trees and woodland will have matured and this, combined with the weathering of building materials, will filter and soften views of the proposed development and break up the roofscape. The magnitude of change will reduce to small, leading to a moderate, significant, adverse cumulative effect.

- 11.29 Users of the PROW along the north-facing slopes to the south of the site, including CALW 79, CALW 82 and CALW 85, will gain views of the construction works within the site and these cumulative sites. The works will bring notable change to the views and the magnitude of change will be large, leading to a major, significant, adverse cumulative effect during construction and at completion. By year 15, the maturing of the proposed vegetation and the weathering of the building materials will soften the appearance of the developments, which will appear congruent with Chippenham. The magnitude of change will reduce to medium, leading to a major / moderate, significant, adverse cumulative effect.
- 11.30 During construction, works within the site and these cumulative sites will be visible from the A4 where it passes the southern edge of Pewsham and runs south east past the site. High level works, such as cranes and partially constructed buildings, will be visible along much of this route and low to medium level activities will also be visible in places. The magnitude of change will be very large, leading to a major / moderate, significant, adverse cumulative effect. At completion, there will be short stretches of the A4 where development is clearly visible, but the built form will be either set back from the road or separated from it by existing vegetation along much of the route. The magnitude of change will be large, leading to a moderate, significant, adverse cumulative effect. After 15 years, the magnitude of change will reduce to medium and the cumulative effect will be moderate / slight, adverse and not significant.
- 11.31 Works within the site and these cumulative sites will appear congruent in views from Stanley Lane. The well-treed landscape will provide some filtering, but the works will be recognisable in the view. The magnitude of change during construction and at completion will be medium, leading to a moderate, significant, adverse cumulative effect. By year 15, the maturing of the proposed vegetation and the weathering of the building materials will soften the appearance of the developments, which will appear congruent with Chippenham. The magnitude of change will reduce to small, leading to a moderate / slight, adverse cumulative effect that will not be significant.
- 11.32 Works within the site and these cumulative sites will also appear congruent in views from Bencroft Hill Farm Cottage and Holly House. The well-treed landscape will provide some filtering, but the works will be recognisable in the view. The magnitude of change during construction and at completion will be medium, leading to a major, significant, adverse cumulative effect. By year 15, the maturing of the proposed vegetation and the weathering of the building materials will soften the appearance of the developments, which will appear congruent with Chippenham. The magnitude of change will reduce to small, leading to a major / moderate, significant, adverse cumulative effect.
- 11.33 Receptors within properties at Nocketts Hill will have views of construction works within the site and these cumulative sites. The works will bring a notable change to the views and the magnitude of change will be large during construction and at completion, leading to a substantial, significant, adverse

cumulative effect. By year 15, the maturing of the proposed vegetation and the weathering of the building materials will soften the appearance of the developments, which will appear congruent with Chippenham. The magnitude of change will reduce to medium, leading to a major, significant, adverse cumulative effect.

Cumulative effects with Rowden Park, Land at Showell Farm and Land at Showell Nurseries

- 11.34 These sites do not influence the character of the application site or its immediate surroundings. There is therefore no potential for significant cumulative effects on the site's landscape resources.
- 11.35 The construction of the proposed development and these schemes will result in a notable increase in the urban extent of Chippenham, taking up a large part of the western edge of the Avon Open Clay Vale LCA to the south of Chippenham. While there will be limited change to the wider LCA, there will be a recognisable change in the extent of Chippenham in this area. The magnitude of change during construction and at completion will be medium, leading to a moderate, significant, adverse cumulative effect. The maturing of the proposed vegetation over time will reduce the magnitude of change at year 15 to small, leading to a moderate / slight, adverse cumulative effect that will not be significant.
- 11.36 Construction works within the site and these cumulative sites will result in limited change to the Bowood Greensand Hills LCA, with the only change relating to views west from this LCA. While the construction works will expand the current urban extent of Chippenham, these views are not defined as undeveloped in the LCA's character description. The cumulative change will be very small during construction and at completion, leading to a moderate / slight, adverse cumulative effect that will not be significant. The maturing of the proposed vegetation over time will reduce the magnitude further and by year 15 the cumulative effect will have reduced to negligible and not significant.
- 11.37 The Rowden Park, Land at Showell Farm and Land at Showell Nurseries sites will appear congruent with the edge of Chippenham but separate from the application site, due to a combination of distance and the well-treed character of the landscape. As a result, the combined construction and development of these sites and the application site is not likely to result in any significant cumulative visual effects.

Cumulative effects with the Land at Forest Gate solar farm

- 11.38 Construction works within the Land at Forest Gate site will result in a very limited change to the site and its immediate surroundings because of the unintrusive nature of solar farm development and the limited extent of the solar farm site that falls close to the site. There is likely to be a reduction in tranquillity, mainly due to increased construction traffic, but the construction period of the solar farm will be much shorter than that of the proposed development. The magnitude of change during construction, at completion and after 15 years will be very large, leading to a major, significant, adverse cumulative effect, primarily as a result of the proposed development.

- 11.39 The construction works will result in the loss of key characteristics of the Avon Open Clay Vale LCA, including short sections of hedgerow, and a reduction in tranquillity. However, these changes will be contained largely within the site and its immediate surroundings, and much of the existing vegetation within the solar farm site will be retained. The change during construction and at completion will be small, leading to a moderate / slight, adverse cumulative effect that will not be significant. After 15 years, the proposed vegetation will have matured and reduced the magnitude of change to very small, leading to a slight, adverse cumulative effect that will not be significant.
- 11.40 The construction works will result in a limited change to the Bowood Greensand Hills LCA, with the only change relating to views west from the LCA. However, the change will represent a small alteration to these views, rather than a loss of views altogether. The magnitude of change during construction and at completion will be very small, leading to a moderate / slight, adverse cumulative effect that will not be significant. The maturing of the proposed vegetation over time will reduce the magnitude further and by year 15 the cumulative effect will have reduced to negligible and not significant.
- 11.41 During construction, works within the application site and the solar farm site will be visible mostly in sequential views along the A4, but also in-combination in some cases. The works will result in a very large change along the stretch of road that passes the sites and a short way beyond, after which the sites will become screened. The cumulative effect will be major / moderate, adverse and significant during construction and at completion. After 15 years, the proposed tree planting within the application site and the buffer planting along the western edge of the solar farm development will have matured. Most of the solar farm will be screened from view along the A4, with the exception of the isolated parcel to the west of the road, which will be filtered. The magnitude of change will reduce to large and the cumulative effect will be moderate, adverse and significant, mainly as a result of the proposed development.
- 11.42 Construction works within the site and the solar farm site will be visible in-combination in views from high ground along Stanley Lane. The works will appear separate from each other and will be clearly noticeable in the view. The magnitude of change during construction and at completion will be large, leading to a major / moderate, significant, adverse cumulative effect. By year 15, the proposed tree planting within the application site will have matured and the building materials will have weathered, softening the proposed development in views. However, the solar farm will continue to be recognisable in the view. The magnitude of change will be medium, leading to a moderate, significant, adverse cumulative effect.
- 11.43 Construction works within the site and the solar farm site will be visible in views from Bencroft Hill Farm Cottage and Holly House. The works will appear separate from each other and will be clearly noticeable in the view. The magnitude of change during construction and at completion will be large, leading to a major, significant, adverse cumulative effect. By year 15, the proposed tree planting within the application site will have matured and the building materials will have weathered, softening the proposed development in views. However, the solar farm will continue to be recognisable in the view. The magnitude of change will be medium, leading to a major / moderate, significant, adverse cumulative effect.

Cumulative effects with Land at Rawlings Farm

- 11.44 This site does not influence the character of the application site or its immediate surroundings. There is therefore no potential for significant cumulative effects on the site's landscape resources.
- 11.45 The construction of the proposed development and this scheme will result in a notable increase in the urban extent of Chippenham. While there will be limited change to the wider Avon Open Clay Vale LCA, there will be a recognisable change in the extent of Chippenham in this area. The magnitude of change during construction and at completion will be small, leading to a moderate / slight adverse cumulative effect that will not be significant. After 15 years, the maturing of the proposed vegetation will have reduced the magnitude of change to very small, leading to a slight, adverse cumulative effect that will not be significant.
- 11.46 This site is not located within the Bowood Greensand Hills LCA and does not influence its character. There will therefore be no cumulative effects on this LCA.
- 11.47 Construction works within the application site and this cumulative site will be visible from Stanley Lane. While not located side by side, the sites will be visible in the foreground of Chippenham and will be congruent with it. The extent of works across the view will be noticeable and the magnitude of change will be medium during construction and at completion, leading to a moderate, significant, adverse cumulative effect. By year 15, the proposed tree and woodland planting will have matured and this, combined with the weathering of materials, will soften the built form in views. The magnitude of change will reduce to small and the cumulative effect will reduce to moderate / slight, adverse and not significant.
- 11.48 Construction works within the application site and this cumulative site will also be visible from Bencroft Hill Farm Cottage and Holly House. While not located side by side and not necessarily within the same view, the sites will be visible in the foreground of Chippenham and will be congruent with it. The extent of works across the view will be noticeable and the magnitude of change will be medium during construction and at completion, leading to a major, significant, adverse cumulative effect. By year 15, the proposed tree and woodland planting will have matured and this, combined with the weathering of materials, will soften the built form in views. The magnitude of change will reduce to medium and the cumulative effect will reduce to major / moderate, adverse and significant.

Natural heritage

- 11.49 There will be no likely significant effects on the integrity of any designated sites of nature conservation importance, either for the proposed development alone or cumulatively with other planned development.
- 11.50 The effects of the proposed development on the majority of the ecological receptors assessed in chapter 8 will be neutral or beneficial in the long term and will not, therefore, contribute to cumulative effects with other developments in the area. Potential cumulative effects could occur on badger, brown hare, otter and foraging / commuting bats, which are the only receptors where adverse effects are identified from the proposed development

alone. However, such effects, while long term, will remain slight and will therefore not be significant. There will not be any cumulative effects on habitats, plants, invertebrates, reptiles, amphibians or birds.

Traffic and transport

Introduction

- 11.51 An assessment of the potential cumulative traffic and transport effects has been undertaken for the following scenarios:
- 2036 with sensitivity test developments: baseline plus committed developments and wider background traffic growth plus proposed development plus the Land East of Showell Farm and Land South of Chippenham developments
 - 2036 with sensitivity test developments: baseline plus committed developments and wider background traffic growth plus proposed development plus the Land East of Showell Farm and Land South of Chippenham developments plus construction traffic
- 11.52 Most of the other cumulative developments were included in the assessment as committed developments. The Land at Forest Gate solar farm scheme was not included because it will generate negligible operational traffic flows.

Effects during construction

- 11.53 The construction phase parameters set out in chapter 9 have been applied to the cumulative assessment. For the Land East of Showell Farm development, it has been assumed that all construction traffic will use the A350 corridor to access the site and that there will be no impact of construction traffic on the proposed study area. For the Land South of Chippenham development, it has been assumed that construction traffic will use the same routes to access the site as the proposed development (i.e. HGVs arrive and depart via the A4 Pewsham Way and the A4 London Road). Car and LGV traffic has been distributed based on Census journey to work data.
- 11.54 Table 11.3 sets out the cumulative traffic flows anticipated on the local highway network and the change as a result of the construction and occupation of the proposed development combined. This is a worst case scenario where it is assumed that the proposed development is fully occupied, as well as construction traffic accessing the site.

Road link	No. vehicles	Change	No. HGVs	Change
A420 Ivy Lane (north of Bridge Centre gyratory)	22,045	4.5%	382	2.0%
Bath Road (east of Bridge Centre gyratory)	8,051	0.0%	63	0.0%
A4 Bath Road (west of Bridge Centre gyratory)	24,535	6.4%	450	19.5%
Avenue La Fleche (between Bridge Centre gyratory and Gladstone Road)	36,959	6.9%	734	12.4%
Gladstone Road (east of Avenue La Fleche)	6,901	2.8%	91	1.5%
Avenue La Fleche (south of Gladstone Road)	30,671	7.8%	670	13.5%
Avenue La Fleche (west of A4 Pewsham Way)	30,815	7.9%	701	12.8%
Avenue La Fleche (east of A4 Pewsham Way)	9,593	0.1%	104	0.1%
A4 Pewsham Way (south of Avenue La Fleche)	25,554	6.5%	610	13.8%
A4 Pewsham Way (west of London Road)	20,374	7.9%	536	8.7%
London Road (north of A4 Pewsham Way)	10,100	10.2%	127	6.6%
A4 London Road (between A4 Pewsham Way and site access)	26,027	6.4%	604	7.7%
A4 London Road (between site access and Old Derry Hill)	25,043	3.2%	564	1.1%
A4 New Road (east of Old Derry Hill)	16,872	2.8%	485	0.7%
Old Derry Hill (south of A4 New Road)	10,322	3.1%	230	1.1%
A4 Chilvester Hill (west of A3102 Greenacres Way)	17,180	2.7%	495	0.7%
A3102 Greenacres Way (north of A4 Chilvester Hill)	11,060	2.2%	293	0.6%
A4 Curzon Street (east of A3102 Greenacres Way)	11,728	1.9%	291	0.6%

Table 11.3: 2036 Cumulative construction traffic impacts

11.55 Table 11.3 shows that there will be less than a 30% cumulative increase in both total vehicles and HGV flows on all links, and less than a 10% cumulative increase on sensitive links. In accordance with the Institute of Environmental Management and Assessment's (2023) *Institute of Environmental Management and Assessment (IEMA) Guidelines: Environmental Assessment of Traffic and Movement*, as set out in chapter 9, no further assessment is required.

Effects post-construction

11.56 Following construction, table 11.4 summarises the traffic flows and changes associated with the full occupation of the proposed development and the Land East of Showell Farm and Land South of Chippenham developments.

Road link	No. vehicles	Change	No. HGVs	Change
A420 Ivy Lane (north of Bridge Centre gyratory)	21,985	4.2%	382	2.0%
Bath Road (east of Bridge Centre gyratory)	8,051	0.0%	63	0.0%
A4 Bath Road (west of Bridge Centre gyratory)	24,415	5.8%	388	3.0%
Avenue La Fleche (between Bridge Centre gyratory and Gladstone Road)	36,779	6.4%	672	2.9%
Gladstone Road (east of Avenue La Fleche)	6,901	2.8%	91	1.5%
Avenue La Fleche (south of Gladstone Road)	30,491	7.2%	608	3.0%
Avenue La Fleche (west of A4 Pewsham Way)	30,635	7.3%	639	2.8%
Avenue La Fleche (east of A4 Pewsham Way)	9,593	0.1%	104	0.1%
A4 Pewsham Way (south of Avenue La Fleche)	25,374	5.7%	548	2.2%
A4 Pewsham Way (west of London Road)	20,253	7.3%	505	2.4%
London Road (north of A4 Pewsham Way)	10,076	9.9%	127	6.6%
A4 London Road (between A4 Pewsham Way and site access)	25,906	5.9%	573	2.2%
A4 London Road (between site access and Old Derry Hill)	25,005	3.0%	564	1.1%
A4 New Road (east of Old Derry Hill)	16,848	2.6%	485	0.7%
Old Derry Hill (south of A4 New Road)	10,308	2.9%	230	1.1%
A4 Chilvester Hill (west of A3102 Greenacres Way)	17,156	2.6%	495	0.7%
A3102 Greenacres Way (north of A4 Chilvester Hill)	11,042	2.0%	293	0.6%
A4 Curzon Street (east of A3102 Greenacres Way)	11,722	1.9%	291	0.6%

Table 11.4: 2036 Cumulative post-construction traffic impacts

11.57 Table 11.4 shows that there will be less than a 10% cumulative increase in both total vehicles and HGV flows on all links. In accordance with the IEMA guidelines, as set out in chapter 9, no further assessment is required.

Mitigation and monitoring

11.58 The transport assessment (technical appendix G) includes an assessment of the cumulative impacts of all developments within the study area. This has identified the need for mitigation at the Bridge Centre Gyratory, which is not needed to accommodate the proposed development in isolation but is needed to address the cumulative impacts of all three developments and wider background traffic growth. The strategy for mitigating the impacts of the development on this junction includes maximising walking, cycling and public transport trips. There is also an opportunity to provide some additional highway capacity at this junction, which could be funded via contributions from the developments.

11.59 As for the proposed development, construction traffic management plans (CTMPs) will be required by a condition attached to any planning permissions for the other developments. These will include details of the routes construction traffic will take. Full details of any signage and management / monitoring of the construction traffic routing will be provided within the CTMPs and agreed with Wiltshire Council at the relevant time. The CTMPs will also include measures to prevent mud and soil being deposited on the highway, details of where construction vehicles will park on the site, and the associated construction compound. Working hours and delivery times will be proposed in the CTMPs if appropriate.

11.60 Framework travel plans will be required for the wider cumulative development sites, with the main objective of minimising single occupancy car use by

residents. These travel plans will set out measures to promote more sustainable alternatives to the car, including walking, cycling, public transport and car sharing. The travel plans will be monitored using travel surveys and remedial measures will be put in place if required.

- 11.61 No significant residual adverse cumulative traffic and transport effects are predicted.

Water environment

- 11.62 The other developments in the area will be required to implement sustainable drainage systems (SuDS) measures through their surface water drainage strategies. These measures will ensure that there will be no significant adverse cumulative effects on flood risk and surface water.
- 11.63 As discussed in chapter 10, Wessex Water has advised that it is currently strategically modelling wastewater demand for the area and the extent of any off-site reinforcement required to serve the developments will be confirmed in due course. Any works required would be funded through Wessex Water's infrastructure charging arrangements. As a result, no significant cumulative effects are predicted on the area's wastewater treatment network.

Summary of effects

- 11.64 The predicted significant residual cumulative effects are summarised in table 11.5.

Significant residual cumulative effect	Sensitivity of receptor	Magnitude of change	Nature	Duration	Degree of effect	Level of certainty
Air quality						
None	--	--	--	--	--	--
Community and social effects						
Increased provision of housing in Chippenham	High	Small	Beneficial	Long term	Moderate	Absolute
Increased provision of affordable housing in Chippenham	High	Large	Beneficial	Long term	Substantial	Absolute
Cultural heritage						
Knowledge gained through the excavation required to mitigate the effects on archaeology	Medium	Medium to large	Beneficial	Long term	Moderate	Reasonable
Landscape and visual effects						
Change to landscape character of the Land East of Showell Farm, Land South of Chippenham and solar farm sites and their immediate surroundings during construction and at year 15	Medium	Very large	Adverse	Long term	Major	Reasonable
Change to the character of the part of the Avon Open Clay Vale LCA to the south east, south and east of Chippenham during construction	Medium	Medium	Adverse	Short to medium term	Moderate	Reasonable
Change to views from PROWs CHIP 16, CHIP 41, CHIP 49, CALW 83, CHIP 40 and the Avon Valley Walk during construction and at year 15	High	Very large	Adverse	Long term	Substantial	Reasonable
Change to views from PROW CALW 80	High	Medium (construction) Small (year 15)	Adverse	Short to medium term Long term	Major / moderate (construction) Moderate (year 15)	Reasonable
Change to views from PROWs CALW 79, CALW 82 and CALW 85	High	Large (construction) Medium (year 15)	Adverse	Short to medium term Long term	Major (construction) Major / moderate (year 15)	Reasonable
Change to views from the A4 (passing the site and solar farm site)	Low	Very large (construction) Large (year 15)	Adverse	Short to medium term Long term	Major / moderate (construction) Moderate (year 15)	Reasonable
Change to views from Stanley Lane	Medium	Large (construction) Medium (year 15)	Adverse	Short to medium term Long term	Major / moderate (construction) Moderate (year 15)	Reasonable
Change to views from Bencroft Hill Farm Cottage and Holly House	Very high	Large (construction) Medium (year 15)	Adverse	Short to medium term Long term	Major (construction) Major / moderate (year 15)	Reasonable
Change to views from Nocketts Hill	Very high	Large (construction) Medium (year 15)	Adverse	Short to medium term Long term	Substantial (construction) Major (year 15)	Reasonable

Significant residual cumulative effect	Sensitivity of receptor	Magnitude of change	Nature	Duration	Degree of effect	Level of certainty
<i>Natural heritage</i>						
None	--	--	--	--	--	--
<i>Traffic and transport</i>						
None	--	--	--	--	--	--
<i>Water environment</i>						
None	--	--	--	--	--	--
Table 11.5: Significant residual cumulative effects						

