

## 14. Cumulative Impacts

### Introduction

- 14.1 This Chapter, prepared by Waterman, presents an assessment of the likely significant cumulative impacts of the Development in relation to its impact interactions in isolation and cumulatively with other reasonably foreseeable developments.
- 14.2 This Chapter was informed by the preceding technical chapters of this ES (**Chapters 5 to 13**) concurrent with additional quantitative and/or qualitative assessment by specialists that contributed to the EIA.

### Assessment Methodology and Significance Criteria

#### Assessment Methodology

- 14.3 As outlined within **Chapter 2** of this ES, two types of cumulative impacts are considered in this assessment:
- impact interactions: the combination of individual impacts arising from the Development on a particular receptor, for example noise and vibration, dust and visual impacts; and
  - cumulative impacts: impacts from reasonably foreseeable developments, which in isolation may be insignificant, but when considered together could result in a significant cumulative impact.
- 14.4 Impact interactions were qualitatively assessed using the findings of the individual technical assessments of this ES, and professional judgement. Where likely significant impacts were identified, consideration was given to their potential for combining with other significant impacts in respect of various sensitive receptors identified throughout the ES. Some of the likely impacts would not interact to give rise to a combined impact on a particular receptor and therefore were not given further consideration.
- 14.5 The combination of different types of impact, or impact interactions from the Development on particular receptors is only considered during the construction works and not once the Development is completed. This is because it is considered that the greatest likelihood of significant adverse impact interactions would occur during the construction phase of the Development.
- 14.6 Nearby developments that have the potential to give rise to impacts that could interact with those arising from the Development were identified through consultation with CDC. The agreed committed developments that were assessed as part of the cumulative assessment, are as follows:
- Flying Field, former RAF Upper Heyford Airbase, Upper Heyford;
  - Land north of Willowbank Farm, Fritwell Road, Fewcott; and
  - Ardley Landfill Site, Station Road, Ardley.
- 14.7 The location of the above committed development is shown on **Figure 14.1** and further information on the nature of the committed developments is provided later in this Chapter.
- 14.8 Cumulative impacts were assessed quantitatively through detailed modelling, wherever possible. Where quantified assessment was not possible, likely cumulative impacts were assessed qualitatively using the findings of the technical assessments and professional

judgement. Where no cumulative impacts were predicted, this is also stated and justified. The cumulative impacts are based on predicted impacts assuming no mitigation measures would be in place, as this presents a worst-case scenario.

### Impact Assessment: Impact Interactions

14.9 The likely impact interactions arising during the construction of the Development on various sensitive receptors are listed in **Table 14.1**. The predicted impact interactions arising from a combination of traffic, dust, noise and visual impacts are set out for the main phases of construction. For each impact interaction identified, the significance of the impact is presented as being: minor, moderate or substantial. Where impact interactions are considered unlikely to occur during a particular construction phase, this is also stated.

14.10 As shown in **Table 14.1**, there is some potential for impact interactions to occur during the demolition and construction works, although all these would be temporary in nature. The majority of these interactions relate to noise and dust impacts arising from a combination of traffic, plant, and demolition activities. The identified impact interactions, however, can be minimised through measures outlined in the relevant technical chapters of this ES.

Table 14.1: Likely Impact Interactions Associated with Demolition and Construction Phase

| Sensitive Receptors   | Works                 |                                      |                         |                |
|---|-----------------------|--------------------------------------|-------------------------|----------------|
|   | Demolition Activities | Groundworks (e.g. Excavation/Piling) | Construction Activities | Fit out        |
| Residents / commercial workers occupying parts of the Site            | N moderate            | N moderate                           | N moderate              | N minor        |
|   | D moderate            | D moderate                           | D moderate              | D minor        |
|   | V minor               | V minor                              | V minor                 | V <sup>X</sup> |
|   | T minor               | T <sup>X</sup>                       | T minor                 | T minor        |
|   | P moderate            | P moderate                           | P moderate              | P moderate     |
| Residents / occupants bounding the Site                               | N minor               | N minor                              | N minor                 | N <sup>X</sup> |
|   | D moderate            | D moderate                           | D moderate              | D <sup>X</sup> |
|   | V minor               | V minor                              | V minor                 | V <sup>X</sup> |
|   | T minor               | T <sup>X</sup>                       | T minor                 | T minor        |
|   | P <sup>X</sup>        | P <sup>X</sup>                       | P <sup>X</sup>          | P <sup>X</sup> |
| Local network users (e.g. pedestrians, cyclists and other road users) | N minor               | N <sup>X</sup>                       | N minor                 | N <sup>X</sup> |
|   | D moderate            | D moderate                           | D moderate              | D <sup>X</sup> |
|   | V minor               | V minor                              | V minor                 | V <sup>X</sup> |
|   | T minor               | T <sup>X</sup>                       | T minor                 | T minor        |
|   | P <sup>X</sup>        | P <sup>X</sup>                       | P <sup>X</sup>          | P <sup>X</sup> |
| Scheduled Monuments/heritage buildings (onsite)                       | N <sup>X</sup>        | N <sup>X</sup>                       | N <sup>X</sup>          | N <sup>X</sup> |
|   | D <sup>X</sup>        | D <sup>X</sup>                       | D <sup>X</sup>          | D <sup>X</sup> |
|   | V minor               | V minor                              | V minor                 | V <sup>X</sup> |
|   | T <sup>X</sup>        | T <sup>X</sup>                       | T <sup>X</sup>          | T <sup>X</sup> |
|   | P <sup>X</sup>        | P <sup>X</sup>                       | P <sup>X</sup>          | P <sup>X</sup> |
| Listed buildings and Buildings of heritage interest (offsite)         | N <sup>X</sup>        | N <sup>X</sup>                       | N <sup>X</sup>          | N <sup>X</sup> |
|   | D <sup>X</sup>        | D <sup>X</sup>                       | D <sup>X</sup>          | D <sup>X</sup> |
|   | V <sup>X</sup>        | V <sup>X</sup>                       | V <sup>X</sup>          | V <sup>X</sup> |
|   | T <sup>X</sup>        | T <sup>X</sup>                       | T <sup>X</sup>          | T <sup>X</sup> |
|   | P <sup>X</sup>        | P <sup>X</sup>                       | P <sup>X</sup>          | P <sup>X</sup> |

| Sensitive Receptors  | Works                 |                                      |                         |                    |
|--|-----------------------|--------------------------------------|-------------------------|--------------------|
|  | Demolition Activities | Groundworks (e.g. Excavation/Piling) | Construction Activities | Fit out            |
| Setting of the RAF Conservation Area   | N <sup>X</sup>        | N <sup>X</sup>                       | N <sup>X</sup>          | N <sup>X</sup>     |
|  | D <sup>X</sup>        | D <sup>X</sup>                       | D <sup>X</sup>          | D <sup>X</sup>     |
|  | V <sup>X</sup>        | V <sup>X</sup>                       | V <sup>X</sup>          | V <sup>X</sup>     |
|  | T <sup>minor</sup>    | T <sup>X</sup>                       | T <sup>minor</sup>      | T <sup>minor</sup> |
|  | P <sup>X</sup>        | P <sup>X</sup>                       | P <sup>X</sup>          | P <sup>X</sup>     |
| Nature conservation sites (Country Wildlife Sites, Ecologically Important Landscape) | N <sup>X</sup>        | N <sup>X</sup>                       | N <sup>X</sup>          | N <sup>X</sup>     |
|  | D <sup>X</sup>        | D <sup>X</sup>                       | D <sup>X</sup>          | D <sup>X</sup>     |
|  | V <sup>X</sup>        | V <sup>X</sup>                       | V <sup>X</sup>          | V <sup>X</sup>     |
|  | T <sup>X</sup>        | T <sup>X</sup>                       | T <sup>X</sup>          | T <sup>X</sup>     |
|  | P <sup>X</sup>        | P <sup>X</sup>                       | P <sup>X</sup>          | P <sup>X</sup>     |
| Protected Species  | N <sup>minor</sup>    | N <sup>X</sup>                       | N <sup>minor</sup>      | N <sup>X</sup>     |
|  | D <sup>minor</sup>    | D <sup>minor</sup>                   | D <sup>X</sup>          | D <sup>X</sup>     |
|  | V <sup>X</sup>        | V <sup>X</sup>                       | V <sup>X</sup>          | V <sup>X</sup>     |
|  | T <sup>X</sup>        | T <sup>X</sup>                       | T <sup>X</sup>          | T <sup>X</sup>     |
|  | P <sup>X</sup>        | P <sup>X</sup>                       | P <sup>X</sup>          | P <sup>X</sup>     |
| Surface water and groundwater resources  | N <sup>X</sup>        | N <sup>X</sup>                       | N <sup>X</sup>          | N <sup>X</sup>     |
|  | D <sup>X</sup>        | D <sup>X</sup>                       | D <sup>X</sup>          | D <sup>X</sup>     |
|  | V <sup>X</sup>        | V <sup>X</sup>                       | V <sup>X</sup>          | V <sup>X</sup>     |
|  | T <sup>X</sup>        | T <sup>X</sup>                       | T <sup>X</sup>          | T <sup>X</sup>     |
|  | P <sup>minor</sup>    | P <sup>minor</sup>                   | P <sup>minor</sup>      | P <sup>X</sup>     |

Key: N = adverse noise impact; D = adverse dust impact; V = adverse visual impact; T = adverse traffic impact; P = pollution impact; X = no adverse impact likely / insignificant. Minor = adverse impact of minor significance; moderate = adverse impact of moderate significance; and substantial = adverse impact of substantial significance.

## Impact Assessment: Cumulative Impacts

### Description of Committed and Reasonably Foreseeable Developments

- 14.11 Three committed developments were identified and agreed with CDC as requiring assessment, because of their potential to give rise to impacts that could interact with those arising from the Development; thereby giving rise to 'cumulative impacts'. A brief description of these developments is given below and the locations relative to the Site are shown in **Figure 14.1**.

#### Flying Field Development

- 14.12 As described in **Chapter 1** of this ES, a planning application relating to the entire former Airbase (the Site and Flying Field to the north) was granted permission in January 2010. Under this permission the Flying Field has planning permission for the following uses:
- change of use for vehicle preparation and car processing comprising 17 ha;
  - change of Use of Buildings 205 (111m<sup>2</sup>), 234 (1,195m<sup>2</sup>), 1109 (200m<sup>2</sup>), 3205 (142m<sup>2</sup>), 3208 (142m<sup>2</sup>), 3209 (142m<sup>2</sup>), 3210 (142m<sup>2</sup>) to Class B1 (Business) use;
  - change of Use of Building 350A (20m<sup>2</sup>) to mixed Class B1 (Business)/B8 (Storage) use;
  - change of Use of Buildings 259 (372m<sup>2</sup>), 260 (372m<sup>2</sup>), 336 (800m<sup>2</sup>), 337 (1388m<sup>2</sup>), 354 (336m<sup>2</sup>) and 1,011 (239m<sup>2</sup>) to Class B2 use;

- change of Use of Buildings 209 (1,202m<sup>2</sup>), 324 (397m<sup>2</sup>), 3140 (408m<sup>2</sup>) to mixed Class B1/Class B2 use;
- change of Use of Buildings 221 (2,391m<sup>2</sup>), 325 (692m<sup>2</sup>), 327 (702m<sup>2</sup>), 328 (725m<sup>2</sup>), 335 (769m<sup>2</sup>), 366 (1,656m<sup>2</sup>) to mixed Class B2/Class B8 use;
- change of Use of Building 249 (3,259m<sup>2</sup>) to Class D1/Class B2/Class B8 use;
- change of Use of Buildings 210 (177m<sup>2</sup>), 211 (378m<sup>2</sup>), 212 (271m<sup>2</sup>), 226 (169m<sup>2</sup>), 237 (373m<sup>2</sup>), 238 (119m<sup>2</sup>), 239 (178m<sup>2</sup>), 279 (169m<sup>2</sup>), 292 (2070m<sup>2</sup>), 1001-1005 (193m<sup>2</sup> each), 1006 (524m<sup>2</sup>), 1007 (162m<sup>2</sup>), 1008 (318m<sup>2</sup>), 1009 (24m<sup>2</sup>), 1023 (372m<sup>2</sup>), 1026-1038 (97m<sup>2</sup> each), 1041-1048 (75m<sup>2</sup> each), 1050 (144m<sup>2</sup>), 1100 (34m<sup>2</sup>), 1102 (138m<sup>2</sup>), 1103 (177m<sup>2</sup>), 1104 (89m<sup>2</sup>), 1105-1106 (138m<sup>2</sup> each), 1108 (348m<sup>2</sup>), 1111 (367m<sup>2</sup>), 1112 (60m<sup>2</sup>), 1113 (177m<sup>2</sup>), 1114 (37m<sup>2</sup>), 1115 (149m<sup>2</sup>), 1159 (156m<sup>2</sup>), 1160-1167 (201m<sup>2</sup> each), 1168-1185 (156m<sup>2</sup> each), 1372 (600m<sup>2</sup>), 1601-1625 (139m<sup>2</sup> each), 2001-2009 (595m<sup>2</sup> each), 3001-3035 (930m<sup>2</sup> each), 3043-3051 (930m<sup>2</sup> each), 3056 (912m<sup>2</sup>), 3200-3202 (169m<sup>2</sup> each), 3203 (60m<sup>2</sup>) to Class B8 use;
- demolition of building in the north-western corner of Flying Field;
- removal of identified parts of the boundary fence and partial replacement with 1.5m fencing;
- provision of all infrastructure to serve the above, including access and car parking;
- landscaping alterations including the removal of some trees; and
- reopening of Portway and Aves Ditch as public rights of way across the Flying Field.

14.13 A Management Plan for the Flying Field was prepared in 2009 by Pegasus Planning Group. The Management Plan provides guidance on the future conservation, management and enhancement of the Flying Field with respect to landscape, ecology and heritage interests.

#### Land north of Willowbank Farm, Fritwell Road, Fewcott

14.14 The development, which is located approximately 3km north-east of the Site, has been granted planning permission. The development comprises the erection of four three blade wind turbines and ancillary development including a new site entrance, access tracks, a control building with substation and underground cabling. The wind turbines would have a maximum envelop of 125m to blade tip. The land take of the Development would be approximately 2ha. Construction would take place over 9 to 12 months and the turbines would be operational for 25 years.

#### Ardley Landfill Site Development

14.15 A planning application for Ardley Landfill Site was submitted for determination in 2008 and was subsequently refused permission in 2009. An appeal was made by Virridor Waste Management Ltd, and a public inquiry commenced in July 2010. Although the scheme at Ardley Landfill Site currently has not been granted planning permission, it is reasonably foreseeable that permission could be granted on appeal. Should permission be granted then the development at Ardley Landfill Site could coincide with the Development.

14.16 The proposed development comprises Energy from Waste (EfW) facility together with associated office, visitor centre, bottom ash recycling facilities, a new access road and weighbridge facilities. It includes for the continuation of non hazardous landfill operations and landfill gas utilisation with consequent amendments to the phasing and final restoration landform of the landfill, surface water attenuation features and improvements to the existing household waste recycling facility. The EfW facility is 229m in length, 70m to 38m in width and from 70m to 29m in height to the apex of the main roof. The chimney stack is 82m above base

level at 182m AOD. It is anticipated that construction of the EfW facility would take two years to complete.

## Cumulative Impact Assessment

### Transportation

#### *Demolition and Construction Phase*

- 14.17 The construction traffic associated with the approved proposals for the Flying Field was taken into account in the Transport Assessment for the Site. The majority of construction traffic associated with the Development and the Flying Field would enter and leave the Site via Camp Road and the Chilgrove Drive junction to the B430. Construction traffic would be diverted north to the M40 motorway at Junction 10. The routes used by the construction traffic generated from the EfW facility at Ardley and wind farm at Willowbank Farm are unlikely to be the same, apart from along the B430 Station Road through the village of Ardley out to Junction 10 of the M40 motorway.
- 14.18 The Development and Flying Field Development is predicted to generate a maximum of 128 vehicle movements per day during the construction phase, of which 12 movements would be expected to be generated from HGV's. The construction of the EfW facility is predicted to generate 384 vehicle movements per day, of which 50 movements would be associated with HGV's. Construction traffic generated from the wind farm at Willowbank Farm is predicted to be significantly lower, with an average 45 vehicle movements per day. In total, the combined daily vehicle movements likely to be generated by the Development and committed developments, would be in the order of 557 movements, should the construction activities coincide.
- 14.19 Given that the construction traffic from the Development and the committed developments are expected to be routed along the B430 Station Road through Ardley to Junction 10 of the M40, traffic levels would be expected to increase significantly along this stretch of the road, assuming construction activities coincide. Therefore, cumulatively, the combined increase in traffic flows would be expected to result in a **temporary adverse impact** of **moderate significance**.

#### *Completed Development*

- 14.20 The greatest increase in traffic flows from the Development is expected along Camp Road close to the Site. At greater distances from the Site, the increases in generated traffic would be dispersed across a wider road network. New traffic generated from the operation of the EfW would be expected to be in the order of 131 two-way movements per day, the majority of which would be HGV's. The HGV's would be expected to travel north along the B430 to Junction 10 of the M40. Once operational, the wind farm at Willowbank Farm would be expected, at worst, to generate no more than 14 vehicle movements per day.
- 14.21 Cumulatively, the committed Developments would result in a small increase in the number of new vehicles on the local road network; the majority of which would be expected to use the B430 to Junction 10 of the M40 motorway. Therefore, the cumulative impact on traffic flows and junction capacity along the stretch of the B430 to Junction 10 of the M40 motorway would be likely to result in an **adverse impact** of **moderate significance**. However, for the local road network surrounding the Site, the cumulative impact is predicted to be **adverse**, and of **minor significance**.

## Noise

### *Demolition and Construction Phase*

- 14.22 Cumulative noise impacts as a result of construction activities (e.g. subsurface and superstructure construction) are unlikely to arise in combination with the wind farm and the EfW facility, owing to the distance of these committed developments from the Site. Since the Flying Field proposals largely relate to the change of use of existing buildings, no significant demolition and/or construction works would be carried out close to the Site. As a result noise-related impacts are likely to be minimal, and therefore, cumulatively, the noise impact would be **insignificant**.
- 14.23 However, since construction traffic from the Development and the committed developments are likely to use the same route through Ardley village to access Junction 10 of the M40, cumulative construction traffic noise is likely to occur along this route. This is considered, at worst, to be a **temporary, adverse impact of minor significance**. Elsewhere construction traffic and associated noise is likely to be dispersed, and therefore **insignificant**.

### *Completed Development*

- 14.24 Once the Development is completed and operating at the same time as the businesses located on the Flying Field, cumulative noise impacts could potentially arise due to the proximity of the existing and proposed commercial uses to proposed residential uses. Cumulative noise impacts would be likely to relate to delivery activities associated with service yards and noise generated from fixed plant associated with ventilation, heating and cooling. However, a planning condition specifies that the provision should be made to control noise emanating from the buildings or service areas on the Flying Field. Providing measures are implemented to control noise on the Flying Field, cumulative noise impacts on residential receptors would be minimal. Owing to the distance of the other committed developments from the Site, it is anticipated that **no significant cumulative noise impacts** would occur once the committed developments and the proposed Development are completed and operational.

## Air Quality

### *Demolition and Construction Phase*

- 14.25 The principal impact on the local air quality during the demolition and construction phase of the Development relates to dust generation. If not effectively controlled, dust generation is likely to lead to soiling of surfaces and nuisance to nearby sensitive receptors. Owing to the typical dispersion and deposition rates of dust over distances (see **Chapter 7**), the wind farm and the EfW facility are at such a distance from the Site not to give rise to a cumulative impact, even if construction works were to occur simultaneously.
- 14.26 Although the Flying Field adjoins the northern boundary of the Site, the consented work on the Flying Field predominantly relates to the change of use of existing buildings. No significant ground preparation and earth works are proposed, and the only building specified to be demolished is located 1.5km north of the Site. For these reasons, should work on the Flying Field progress at the same time as within the Site, cumulative dust nuisance on sensitive receptors within 200m of both sites is likely to be minimal.
- 14.27 The cumulative dust impacts associated with the Development and committed developments are expected to be **insignificant** and dust impacts from the Development would therefore remain as assessed in **Chapter 7** of this ES.

#### *Completed Development*

- 14.28 Based on the evidence provided by the 2007 air quality assessment (see **Appendix 2.1**), it is considered that any indirect impacts on air quality from vehicle exhaust emissions resulting from the operation of the Development and Flying Field would be insignificant. Consequently, traffic-derived exhaust emissions were scoped out of the EIA. Given this, a quantitative assessment of the likely cumulative impact of the Development together with the committed developments on air quality cannot be undertaken. For this reason, a qualitative assessment is provided below.
- 14.29 Given that no air quality assessment was carried out as part of the EIA for the wind farm, and that change in traffic during the operation of the wind farm is predicted to be negligible (see **Paragraph 14.20**), the impact of traffic emissions on air quality is not likely to be significant. The findings of the air quality assessment for EfW facility concluded that operational traffic would have a negligible impact on air quality (SLR, 2008).
- 14.30 The Development and committed developments, in isolation, would have no significant impact on air quality. However, due to the predicted cumulative increase in traffic, and thus increase traffic emissions, there is the potential for a cumulative impact on air quality to arise, particularly through the village of Ardley. Generally the air quality within Cherwell District is good, and therefore no Air Quality Management Areas have been designated within Cherwell District (AEA, 2009). Taking all of the above into account it is considered that at worst, cumulatively the impact on air quality from operational traffic is likely to be **adverse** and of **minor significance**.

#### *Ground Conditions and Contamination*

##### *Demolition and Construction Phase*

- 14.31 The solid geology underlying the Development and committed developments comprise limestone, which is classed by the Environment Agency to support a Principal Aquifer. It is reasonable to assume that the underlying groundwater of the Site is to some extent in hydraulic continuity with the groundwater near to, and underlying the committed developments. This would also likely be the case for surface water courses within the vicinity of the Site and committed Developments since many of the surface water courses appear to be fed by the Limestone aquifer via springs.
- 14.32 Sources of contamination such as oil and chemical wastes spills could be introduced during the construction of the Development and the committed developments. If not managed appropriately, owing to the presence of the potentially highly fissured aquifer, there is the potential for pollution incidents to cumulatively impact controlled waters and local springs, should the incidents occur at the same time. However, given that the consented works on the Flying Field largely relate to the change of use of buildings, the likelihood and potential for an increase in pollution incidents associated with the Flying Field is limited. Furthermore, remediation of POL system would, in the longer term, reduce the contamination risk to the underlying groundwater.
- 14.33 Contamination pathways to controlled waters could also be created during the excavation of service routes of the Development, the piling associated of the EfW facility and the excavation of turbine bases for the wind farm. Given the distance of the wind farm and EfW facility from the Development, any contamination of controlled waters would be likely to be diluted. A likely exception would be when contamination enters a fissure. The presence of the fissures within the underlying aquifer could have an effect of channelling contamination thus transporting it offsite quickly and reducing the opportunity for dilution. Should this occur, the cumulative



impact on controlled waters is predicted, at worst, to be **temporary, local adverse** and of **moderate significance**.

#### *Completed Development*

- 14.34 The Development, Flying Field and wind farm would not include land uses that are likely to result in significant contamination of soil, underlying groundwater and surface waters. However, fuel and oil leakages cannot be discounted in car parks or from any of the intended future commercial activities associated with the Development and Flying Field.
- 14.35 The EfW facility would operate under an Environmental Permit and discharge consent, and therefore would comply with the requirements of the Environment Agency. For these reasons, the cumulative impact on controlled waters would be, at worst, **adverse** and of **moderate significance**.

#### *Water Resources*

##### *Demolition and Construction Phase*

- 14.36 The Site, together with the committed developments is located in Flood Zone 1, where the risk of flooding is considered to be low. Since the wind farm is located within a different drainage catchment to the Site, no cumulative increased risk of flooding from surface water runoff would occur should the construction of the Development and wind farm coincide. Although the Flying Field is located adjacent to the Site, a cumulative increased risk of flooding is also considered unlikely, even if the works with the Development progressed simultaneously. This is because the consented works for the Flying Field are unlikely to involve either a significant change in the extent of impermeable surfaces or significant earthworks.
- 14.37 The main risk associated with the construction of the Development is from an increase in runoff as a result of intense rainfall before completion of the drainage system or if ponding of surface water occurs on the Site leading to a surge of runoff into the drainage system. Surface water runoff from the Site flows into two tributaries of Gallos Brook, immediately to the east and south of the Site. However, any surface water runoff during the construction of the EfW facility is likely to flow into Gagle Brook, which is to the east of Ardely Landfill Site. Both Gallos Brook and Gagle Brook eventually flow in the River Ray. Given this, the cumulative increase in surface water runoff and flooding along the River Ray would be **insignificant**.

##### *Completed Development*

- 14.38 In accordance with national planning policy and requirements of the Environment Agency, it is assumed that the committed developments would implement measures, where necessary, so as not to increase flood risk on the sites and elsewhere. This would result in each of the committed developments not increasing flood risk either in isolation, or in combination with the Development. For the Development, a Flood Risk Assessment and Surface Water Drainage Strategy was prepared, which demonstrates that surface water runoff would be effectively attenuated on-site through the provision of SuDS and attenuation tanks, so as not to increase flood risk offsite.
- 14.39 Existing foul water discharge from the Flying Field connects to the current infrastructure on the Site, which in turn discharges to the Sewage Treatment Works (STW) to the south-east of the Site. Although the Development would increase the volume of foul water discharge to the existing STW, it is not anticipated that the change of use of existing buildings on the Flying Field would significantly increase foul water discharge from the existing baseline condition.



Therefore, the combined volume of foul water discharge should be comparable to that which previously discharged to the STW when the existing Airbase was fully occupied.

- 14.40 Owing to the distance of the wind farm and the EfW facility, together with the nature of these committed developments, it is assumed that these developments would not significantly increase foul water discharge. Furthermore, as part of the proposals for the EfW facility, a sewage treatment plant would be provided on-site.
- 14.41 Consequently, **no cumulative impacts** are predicted to arise resulting from the committed developments and the Development with regard to flood risk and drainage capacities of local sewers.
- 14.42 The additional demand on water resources resulting from the Development in isolation would be accommodated by existing water resources. To reduce water consumption, the Development would incorporate water efficiency measures. Owing to the nature of the wind farm and the consented scheme on the Flying Field, these two committed developments would not be expected to result in additional demand on water resources. Although information is not readily available with regard to the quantity of water the EfW facility is likely to use, the proposals include for the collection and reuse of rainwater for the use in the process plant. Furthermore, the ancillary development associated with EfW facility would incorporate water efficiency measures to reduce water consumption. Cumulatively, the impact on water resources as a result of the Development and EfW facility would be **insignificant**.

#### Landscape and Visual Character

##### *Demolition and Construction Phase*

- 14.43 As a result of intervening vegetation and distance, demolition and construction associated with the wind farm and the EfW facility is unlikely to result in any significant cumulative impacts with respect to landscape and visual amenity. However, owing to the proximity of the Site to the Flying Field, demolition and construction activities would be visible in combination with those within the Site in local views, namely those from Camp Road and within the Site itself (photoviewpoints 1 – 7 of **Figure 10.5** to **10.8**). However, from longer distance views, although the Flying Field is often visible, the Site itself is not. Consequently, cumulative impacts are unlikely to arise in relation to middle and long distance receptors.
- 14.44 Taking the above into consideration, the magnitude of change is anticipated to be low to medium resulting in, at worst, a direct, short-term cumulative **adverse impact** of **minor significance** to both character and visual amenity.

##### *Completed Development*

- 14.45 It is likely that the wind turbines (125m high) would be visible in combination with development at the Flying Field, particularly to the west from the A4260 where panoramic views are possible (photoviewpoints 13, 14, 15 and 17 (see **Figure 10.13** to **10.15**)). Similarly, the chimney flues of the EfW facility, which are 82m in height, may also be seen although the topography of this area is more enclosed as a result of flatter terrain and tree belts.
- 14.46 As demonstrated as part of the assessment (see **Chapter 10**), the Site is relatively hidden within the landscape and it is only within close range views that it can be clearly discerned. From close range receptors it is unlikely that the committed developments would be significantly discernible, apart from the Flying Field, owing to its proximity. From middle distance views, if

the committed developments are visible in tandem they would not be significant features within the landscape due to the expansive nature of views possible.

- 14.47 Although changes will occur to the Flying Field, the majority of this area will remain predominantly as grassland interspersed with low density commercial buildings. Changes are anticipated to be most apparent within local views although even here, due to the compartmentalisation of the Site, they are likely to be limited. The removal of military features not of historical value and the increased assimilation of the whole of the base into the existing landscape context is welcomed. The magnitude of change is considered to be low resulting in **negligible to minor beneficial** cumulative impacts to both local character and visual amenity. **No cumulative impacts** are anticipated to wider character and visual amenity as a result of the committed developments.

#### *Archaeology and Cultural Heritage*

- 14.48 Because archaeological impacts are site-specific, **no cumulative impacts** on archaeology are likely to arise in conjunction with the committed developments, either during the construction phase or once the Development has been completed. Similarly, direct impacts on built heritage such as vibration damage to, severance and destruction of structures are also site-specific and therefore potential cumulative impacts on built heritage would only arise in relation to indirect impacts.

#### *Demolition and Construction Phase*

- 14.49 The potential impacts on built heritage arising during the construction of the EfW facility appear not to be addressed within the ES (SLR, 2008). Therefore it has been assumed that no significant impacts on built heritage would arise during the construction of the EfW facility.
- 14.50 No significant demolition and construction activities would be carried out on the Flying Field and demolition within the Site would predominantly be carried out within the less historic or less coherent areas. As such, there would be no significant change to the setting of cultural heritage assets within the RAF Upper Heyford Conservation Area. The cultural heritage assessment carried out for the wind farm (Arcus Renewable Energy Consulting Ltd, 2008) indicates that the presence of cranes and plant during the construction of the wind farm could indirectly impact the setting of Fewcott Conservation Area. Owing to the limited demolition construction activities associated with the Flying Field and the distance between the Site and the wind farm, together with the topography and intervening vegetation, **no cumulative impacts** would be likely to arise in relation to the setting of cultural heritage assets during the demolition and construction phase.

#### *Completed Development*

- 14.51 The Site and Flying Field have been designated a Conservation Area owing to the distinctive layout and architecture associated with the Cold War era. The implementation of the Management Plan for the Flying Field would facilitate the preservation of the character of the Flying Field, including maintaining the fabric of all structures which positively contribute to the Conservation Area.
- 14.52 Although the majority of buildings and structures that positively contribute to the character of the Site would be retained and integrated into the Development, there would be a significant change to the character of the Site. Once the Development is completed, there would be no significant change to the settings of the listed buildings outside the Site.

- 14.53 For the reasons given in paragraph 14.47, the wind farm once operational, would also not significantly impact listed buildings within the surrounding area or the setting of the Cold War structures or the RAF Upper Heyford Conservation Area. Although the chimney flues of the EfW facility may be visible from the Site and surrounding area, the EfW facility is unlikely to significantly impinge on the view and setting of the RAF Upper Heyford Conservation Area and cultural heritage assets outside the Conservation Area. For these reasons, **no cumulative impacts** on built heritage would be likely.

#### Ecology

##### *Demolition and Construction Phase*

##### *Loss of Habitats*

- 14.54 There would be a cumulative loss of habitats, particularly hedgerows, as a result of the Development, the wind farm and the EfW facility. The habitats to be lost as a result of construction of the wind farm and EfW facility were of low ecological value (Arcus Renewable Energy Consulting Ltd, 2008 and SLR, 2008). Although there would be a relatively small loss of habitats used for foraging, no habitats supporting great crested newts, reptiles, badger setts or roosting bats would be lost as a result of the committed developments. With regard to the Flying Field, demolition would be restricted to areas of hard-standing and therefore no significant loss in habitat would be expected. For the Flying Field, an Ecological Mitigation and Management Plan would be implemented, which would include tree planting and improvements to calcareous and neutral grassland habitats. Enhancements to the biodiversity of the Flying Field would be likely to offset any adverse impacts associated with the Development and other committed developments. Therefore, cumulatively, the impact on habitats would be **insignificant**.

##### *Protected Species*

- 14.55 The construction of the Development in isolation would result in a direct impact on protected species, particularly great crested newts and roosting bats, without the implementation of appropriate mitigation. However, the wind farm and EfW facility are not expected to result in direct impacts on protected species. For the Flying Field, an Ecological Mitigation and Management Plan would be implemented. The objectives of the Ecological Mitigation and Management Plan include enhancing great crested newts and bat populations, which would be expected to offset the adverse impacts predicted for the Development in isolation. Therefore, cumulatively, the impact on protected species would likely be **insignificant**.
- 14.56 However, construction works associated with the Development, wind farm and EfW facility and the restoration works associated with the Flying Field would be expected to result in the disturbance of breeding birds, should the works be carried out during the breeding bird season. As such, the cumulative impact on breeding birds would likely to be **temporary adverse**, and of **moderate significance** if works are carried out during the breeding bird season. If works were undertaken outside of the breeding bird season, or if appropriate measures are taken to avoid disturbance prior to works commencing, the cumulative impact would be **insignificant**.

##### *Completed Development*

- 14.57 No impacts are predicted with respect to ecology once the Development is completed and operational. Therefore, no cumulative impacts would arise.

## Socio-economics

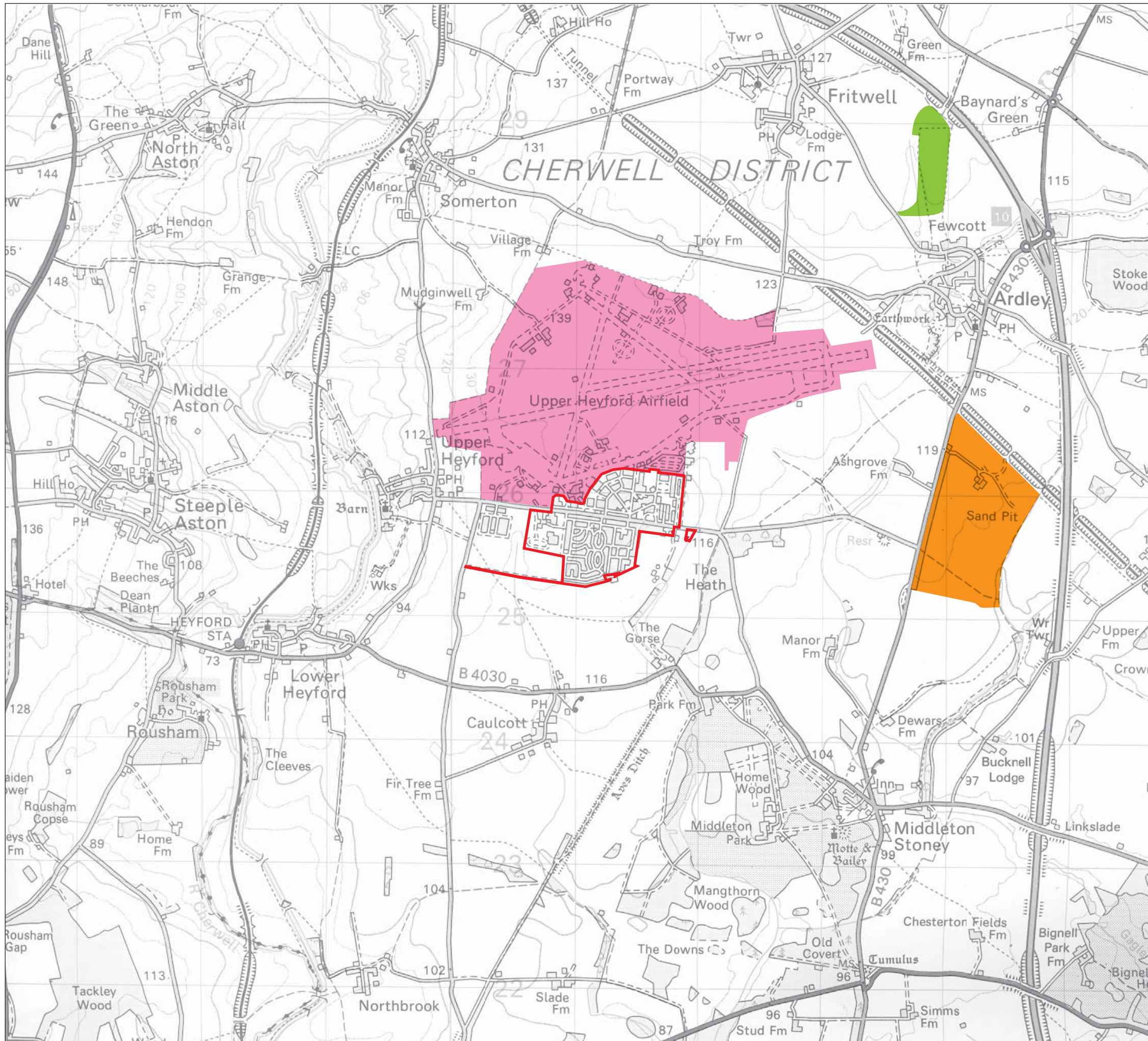
### *Demolition and Construction Phase*





- 14.58 The extent of cumulative interactions would vary according to the timing and duration of phasing of each of the committed developments. Any overlap of the construction works of the committed developments with those associated with the Development would temporarily increase local employment levels. This, in turn, would lead to further increases in local spend on goods and services in the District, concurrent with induced job creation as a result of increased expenditure.
- 14.59 According to the respective ESs for the committed developments (Arcus Renewable Energy Consulting Ltd, 2008 & SLR, 2008), the wind farm is predicted to generate employment for ten construction workers, whilst the EfW facility is expected to generate work for 150 to 200 workers per day throughout the duration of the construction phase. Although the consented works for Flying Field largely comprises a change of use of existing buildings, it is anticipated that limited employment would be generated in relation to providing landscaping and infrastructure. Nonetheless, any overlap in construction activities, would temporarily significantly increase local employment levels and associated local spend; the cumulative impact is assessed as being a **beneficial impact of moderate significance** at local level.

### *Completed Development*

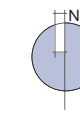
- 14.60 The cumulative impact of the committed developments together with the Development is likely to lead to greater direct long-term employment levels in the District, particularly in relation to the Flying Field and the EfW facility. The Development is predicted to create 234 new jobs and the change in use of buildings on the Flying Field is also predicted to increase long-term employment opportunities. Further employment opportunities would be generated once the EfW facility is completed and becomes operational, with 40 permanent jobs likely to be created. However, once the wind farm at Willowbank Farm becomes operation, employment opportunities would be limited to a number of maintenance staff visiting the wind farm throughout the year. Cumulatively, the Development together with the aforementioned committed developments would result in a **beneficial impact of substantial significance** at local level.





-  Application Boundary
-  Land North of Willowbank Farm, Fewcott
-  Ardley Landfill Site and Ardley Waste Management Facility
-  Upper Heyford RAF Airbase Flying Field

Not to Scale



|                 |   |
|-----------------|---|
| Project Details | E10658-103: Upper Heyford                                 |
| Figure Title    | Figure 14.1: Location of Committed Developments           |
| Figure Ref      | E10658-103_GR_ES_14.1A                                    |
| Date            | October 2010  |
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