



Barnham Road, Eastergate

Environmental Impact Assessment

Scoping Report

BDW

November 2019

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Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



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Contents Page

1.0 INTRODUCTION	3
2.0 ENVIRONMENTAL IMPACT ASSESSMENT APPROACH	11
3.0 CUMULATIVE SCHEMES.....	14
4.0 IN COMBINATION EFFECTS	28
5.0 PROPOSED IMPACT ASSESSMENT CRITERIA	29
6.0 AIR QUALITY	33
7.0 NOISE AND VIBRATION	37
8.0 ECOLOGY	39
9.0 LANDSCAPE AND VISUAL.....	43
10.0 WATER RESOURCES, FLOOD RISK AND DRAINAGE	48
11.0 CLIMATE CHANGE	51
12.0 TRAFFIC AND TRANSPORT.....	55
13.0 ARCHAEOLOGY AND CULTURAL HERITAGE	59
14.0 GROUND CONDITIONS, AGRICULTURE, SOILS AND CONTAMINATION	63
15.0 SOCIO-ECONOMIC	68
16.0 LIGHTING.....	72
17.0 WASTE	76
18.0 HUMAN HEALTH	79
19.0 MAJOR ACCIDENTS, FIRE AND NATURAL DISASTERS.....	82
20.0 CONCLUSION	84
APPENDIX A: ASSESSMENT METHODOLOGIES.....	86



1.0 Introduction

- 1.1.1 This Environmental Impact Assessment (EIA) Scoping Report has been prepared by WYG on behalf of Barratt David Wilson, to request a formal scoping opinion from Arun District Council (ADC) in support of an application for a residential development of up to 500 homes and a dedicated bedroom care home.
- 1.1.2 This report sets out the framework within which the ES will be produced, including topic areas and information that will be contained within the ES. It assesses the baseline Site conditions which have been collated through survey work and desk studies in order to determine whether the Proposed Development is likely to result in potentially significant environmental effects.
- 1.1.3 This report contains sufficient information to allow ADC to consult with relevant stakeholders on the proposed scope of the EIA, including the Environment Agency (EA), Natural England (NE), Historic England so that their comments can be taken into consideration on the provisional scope set out in this report.

1.2 Site Location

- 1.2.1 The Site is located south of Eastergate Lane within Eastergate, West Sussex. The approximate grid reference for the centre of the Site is SU951056. The Site comprises an area of approximately 17.167ha (42.421 acres) and is primarily greenfield land.
- 1.2.2 Eastergate is located in the district of Arun and is located approximately 9km east of Chichester and 5km north of Bognor Regis. The village is part of the Six Villages Area which comprise Aldingbourne, Barnham, Eastergate, Westergate, Walberton and Yapton.
- 1.2.3 The proposed development site primarily comprises woodland, scrubland and open space. A public footpath which runs from Eastergate Lane at the north to Barnham Road to the south bisects the site. The footpath is lined by a row of trees and hedges.
- 1.2.4 The site is irregular in shape and is loosely 'L' shaped extending from the A29 (Fontwell Avenue) in the west to the B2233 (Barnham Road) in the south.
- 1.2.5 The land to the west of the public footpath predominantly comprises woodland and scrubland with smaller areas of open space. A second main tree and hedge row extends north to south along a track approximately 275m west of the public footpath.



- 1.2.6 An open field is located to the east of the public footpath. This field is dissected by another track, which runs from north to south in the far east of the site.

1.3 Site Surroundings

- 1.3.1 The site is bounded by farmland and open fields to the north. There are also a number of houses, some of which are associated with the land that is accessed from Eastergate Lane. Industrial premises and residential dwellings are located on the northern and southern sides of Eastergate Lane. The properties on the southern side of Eastergate Lane are within 200m of the site boundary.
- 1.3.2 The land to the north east of the site predominantly comprises farmland, houses and other associated buildings. A farm containing commercial greenhouses and solar panels is located approximately 200m to the north east of the site. Ryburn Farm and Stoneyfield Cottages, a row of 14 properties, are located approximately 400m to the north east of the site.
- 1.3.3 There are numerous houses located in proximity of the eastern site boundary and houses on Downview Road, Murrell Gardens and Ewens Gardens are within 50m of the site boundary.
- 1.3.4 Fordingbridge Industrial Site abuts the south east of the site and comprises around a dozen buildings.
- 1.3.5 A line of houses on Barnham Road borders the southern boundary of the site. These houses are the northernmost of a residential area within Eastergate, which extends to the south from Barnham Road.
- 1.3.6 An area of woodland is located to the south west of the site associated with the former fruit farm. There are three old, potentially derelict buildings within the woodland. The track from Barnham Road, from which these buildings were accessed is heavily overgrown. Numerous houses are located beyond this woodland to the south west of the site on Barnham Road and Fontwell Avenue.
- 1.3.7 Numerous houses are located to the west of the site on either side of Fontwell Avenue. The north western part of the site abuts some of these residential properties. The land beyond Fontwell Avenue primarily comprises farmland, with some of the land in industrial use.

Figure 1 – Proposed Development Location



Source: Google Maps



Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report

Figure 2 Redline Boundary





1.4 Planning Policy Context

- 1.4.1 The site forms part of site allocation SD5 included as part of The Adopted Arun Local Plan 2011 – 2031. Further details are included under Policy H SP2c, for Inland Arun and is specifically listed as Barnham/Eastergate/Westergate (SD5), the relevant section of the policy states;

This allocation is located around the small settlements of Barnham, Eastergate and Westergate. This Strategic Allocation will provide at least 2,300 dwellings over the plan period, and up to 3,000 in total (a further 700 beyond 2031). Development proposals must demonstrate compliance with the following key design and infrastructure requirements;

- a. Preserve the separate identities and avoid any further physical coalescence of the three villages of Barnham, Eastergate and Westergate through the delivery of green infrastructure. Eastergate and Barnham should be protected from a continuous urban form / coalescence along the north and south aspects of the B2233,*
- b. The design of development and landscaping shall ensure that there is continuity between the existing landscape setting and villages,*
- c. The design and layout of the development shall take account of the location of the railway line crossing the site,*
- d. Housing shall be designed around a Linear Park which follows along the Lidsey Rife,*
- e. A comprehensive strategy for surface water management will be developed in line with specific recommendations for this locality, in the Arun Strategic Surface Water Management Study;*
- f. Significant views to and from the South Downs shall be incorporated within the site,*
- g. Provide a Community Hub which has been designed and will include;*
 - i) A new well connected local centre, with connections to the train station at Barnham.*
 - ii) The location and scale of the local centre shall support and respect the relationship with existing facilities within the six villages area;*
 - iii) New retail, commercial and community facilities;*
 - iv) New Tier 7 library facility; and,*
 - v) Healthcare facilities to serve BEW (SD5) and Fontwell (SD6).*
- h. Transport requirements including;*



- i) *A new A29 route through the allocation which provides all necessary linkages and routing between the A259 (Bognor Regis Relief Road) to the south and A27 to the north and includes a bridge over the railway to the east of the current Woodgate crossing. The construction of this new route will be regarded as not only mitigating the effect of additional development traffic from the strategic site, but also providing significant additional benefits to the primary local road network and reducing the potential for future congestion in the wider area. In the event that the any landowner delays the delivery of the route and/or does not reasonably make available part or all of the route then Arun District Council will utilise Compulsory Purchase Order powers to deliver the entire route of the road from the A29 Fontwell Avenue in the north to the A29 Lidsey Road in the south;*
 - ii) *Provision of an east-west route north of the railway line that will join the existing A29 route to the new A29 route and continue eastwards to the Barnham railway station;*
 - iii) *Access to Barnham railway station shall be maximised through the provision of direct and attractive routes for all transport modes including additional car parking to serve facilities in Barnham's centre including at the railway station'*
 - iv) *Regular bus services linking BEW with Bognor Regis (A29 route) and local facilities and employment; and,*
 - v) *Westergate Link cycle scheme, in addition to further cycle routes to/from Bognor Regis and linkages.*
- i. *Provide a new two-form entry primary school, a new one-form (expandable to two-form) entry primary school and nursery places,*
 - j. *Incorporate two new sports pitches and changing facilities, and,*
 - k. *Incorporate planned new employment provision*

1.5 Overview of the Proposed Development

- 1.5.1 The proposed planning application will be for; up to 500 dwellings, a dedicated care home and public open space including recreation space and associated infrastructure and works.



1.6 Identified Key Potential Receptors

- 1.6.1 **Buildings located within the Site boundary:** There are a range of stables/agricultural buildings within the site and will be demolished prior to development construction works.
- 1.6.2 **Residential Receptors:** There are residential areas and individual properties located to the north of the site along Eastergate Lane, to the East along Downview Road, Ewens Gardens, Chantry Mead and Murrell Gardens, to the south along B2233 Barnham Road and to the west along the A29/Fontwell Avenue.
- 1.6.3 **Local facilities:** There are 3 primary schools and 2 secondary schools within 2km of the Site, 5 GP surgeries within 5km of the Proposed Development. There are also several shops, fuel stations and public houses within 2km of the site.
- 1.6.4 **Air Quality:** There are no Air Quality Management Areas (AQMA) in Arun District and the closest AQMA is located in the town of Chichester over 9km away.
- 1.6.5 **Heritage and Archaeology Features:** There are no Scheduled Monuments, World Heritage Sites, Registered Battlefields or Registered Parks or Gardens on the site or in close proximity. There are twenty six listed buildings within 1km of the site, the majority of which are located in Eastergate village to the south west. The closest of these is the Grade II listed thatched cottage on Barnham Road approximately 400m to the south west.
- 1.6.6 There are several Archaeological Notification Areas (ANAs) in this part of the West Sussex but none are present within the site.
- 1.6.7 **Ecology/Biodiversity:** The majority of the Site consists of blocks of semi-improved grassland, improved grassland, scrub and broadleaved woodland and orchard. There are no designations on Site and no designated sites within 2km of the site boundary.
- 1.6.8 **Highway Network:** To the north of the site lies Eastergate Lane and to the south B2233/Barnham Road, both of which adjoin the A29 to the west which links Bognor Regis in the south to the A27 to the north.
- 1.6.9 **Water course/Flooding:** There are no watercourses on or adjacent to the site and the site in its entirety is located within Flood Zone 1. There is a drainage ditch along the eastern boundary at the rear of the properties served by Downview Road.



1.7 The Environmental Impact Assessment Consultant – WYG

- 1.7.1 WYG are a Corporate Associate Assessor Member of the Institute of Environmental Management and Assessment (IEMA) and have considerable experience of undertaking both statutory EIA and non-statutory EIA (where the planning authority does not consider that a formal EIA is required under the regulations).
- 1.7.2 IEMA is the UK's leading body for environmental professionals and is an expert body in the EIA field. Because of this status, IEMA has been able to develop the prestigious EIA Quality Mark to identify organisations that are capable of producing high quality EIA on a consistent basis. WYG is an approved Associate Assessor member under the EIA Quality Mark which means that the quality of our EIA service is approved and regularly reviewed by IEMA. As a result we are allowed to use the EIA Quality mark logo on our EIA reports (as shown on the front cover and under Consultant Information). For further information on the EIA Quality Mark please visit: www.iema.net/eia-quality-mark/.
- 1.7.3 In accordance with the EIA Regulations, persons undertaking EIAs need to be competent to do so. WYG believe, that our status as a Quality Mark registrant with IEMA and the individual qualifications and professional accreditations of the specialists undertaking the EIA demonstrates our competence. As part of the Environmental Statement (ES) submitted alongside the planning application a table of competencies will set out these qualifications and memberships.



2.0 Environmental Impact Assessment Approach

2.1 EIA Screening

- 2.1.1 The Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (hereafter termed the 'EIA Regulations'), require that, before consent is granted for certain types of development an EIA must be undertaken. The EIA Regulations set out the types of development which must always be subject to an EIA (Schedule 1 development) and other developments, which will only require assessment if they give rise to significant environmental effects (Schedule 2 developments). Guidance and thresholds are available to help to decide whether EIA is required for a Schedule 2 development.
- 2.1.2 The development, as described in Section 1, does not fall within any of the descriptions contained within Schedule 1 of the EIA Regulations for which EIA is mandatory. However, the development does fall under the description in Schedule 2, 10 (b) Urban Development Projects:
- i. The development includes more than 1 hectare of urban development which is not dwelling house development; or
 - ii. the development includes more than 150 dwellings; or
 - iii. the overall area of the development exceeds 5 hectares.
- 2.1.3 In this case, the development exceeds indicative thresholds set out in the Regulations and is therefore deemed to be Schedule 2 development. Due to the size of the Site and the development characteristics, it is considered to be EIA Development.
- 2.1.4 Additionally, the realigned A29 project, for which a planning application is being prepared will lie adjacent to the north and eastern site boundary and the in-combination effects of this scheme along with the Proposed Development will need to be addressed.

2.2 EIA Scoping

- 2.2.1 Part 4, Regulation 15 (1) of the EIA Regulations (HMSO, 2017) provides for the Applicant to ask the Local Planning Authority (LPA), in this case ADC, to state in writing the information that should be provided within the ES, a process known as scoping.
- 2.2.2 The Applicant is required under Part 4, Regulation 15 (2) to provide:
- ✧ A plan sufficient to identify the land (as shown in Figure 1 and Figure 2);
 - ✧ A brief description of the nature and purpose of the development and of its possible effects on the environment, and;



- Such other information or representations as the person making the request may wish to provide or make.

2.2.3 It is the aim of this EIA Scoping Report to provide sufficient information for ADC to consider and consult on the proposals and to provide a formal scoping opinion.

2.3 Scope of Work

Geographic Scope

2.3.1 The EIA covers the physical extent of the Site as shown in the Site Plan Figure 2. It is defined by the area of land to be used, the nature of the current environmental conditions and the manner in which impacts are likely to be generated. It is important to note however that the influence of many predicted impacts can extend beyond the immediate Site boundary, for example, the effects on some species that are primarily located off-site but which may use the site for foraging. Where identified and relevant, these impacts have also been assessed as part of the EIA.

Temporal Scope

- 2.3.2 As this development is proposed to be operational in excess of 100 years and thereafter will comprise developed land in perpetuity this assessment will not address decommissioning.
- 2.3.3 Any significant changes expected in future baselines due to environmental trends will also be described qualitatively, or in certain cases calculated as quantitative future baseline to allow meaningful future year assessment. These future year baselines can take account of cumulative developments not yet built but in the planning system so cumulative effects are taken into consideration as required by the EIA Regulations.

Technical Scope

- 2.3.4 In order to ascertain the likely scope of the EIA, the process has involved the following steps:
- Identification of the Site boundary;
 - Identification of the key characteristics of the development Site and the establishment of the environmental baseline through a series of desk and field studies;
 - Identification of gaps in the baseline and the further survey work required to address these;
 - Initial consideration of the potential sources and nature of environmental impacts through assessment against the environmental baseline; and,
 - Definition of impact assessment methodologies to be utilised.



2.4 Technical Assumptions

Construction and Operational Legislative Requirements

- 2.4.1 The ES will assume that all legislative requirements and statutory design guidelines will be met. Therefore, any standard guidance which is provided to ensure minimum legal compliance is not considered to constitute 'additional mitigation' in this EIA and will not be taken into account as such.

Construction Environmental Management Plan

- 2.4.2 The potential environmental effects of the construction phase will be controlled through a Code of Construction Practice. A Construction Environmental Management Plan (CEMP) would be prepared prior to commencement of construction and would contain all the design and additional mitigation as identified and reported within the ES and any subsequently agreed requirements, expected to be enforced by planning conditions. The details of these documents would be agreed with ADC prior to construction commencing.

2.5 Alternatives

- 2.5.1 Alternatives will be covered in Chapter 4 of the ES.

Alternative Sites

- 2.5.2 In line with the requirements of the EIA Regulations, alternatives will need to be considered as part of the EIA.

Alternative Development Scenarios

- 2.5.3 Within the development itself alternatives will be considered at all stages of the development. This might include through the use of certain processes as part of the construction phase and in terms of final design and layout of the overall scheme.
- 2.5.4 The development will be subject to a process of design development. This process will involve incorporating the outcomes of baseline surveys and data that is collected and the outcomes of consultation both with statutory and non-statutory consultees and with the public to result in the best possible solution for development at the Site.



3.0 Cumulative Schemes

- 3.1.1 The potential cumulative effects of the development in association with other developments both during construction and on completion will be included where relevant as required by Schedule 4, Paragraph 5e) of the EIA Regulations (HMSO, 2017). This requires a description of likely significant effects resulting from:

'the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;'

- 3.1.2 To identify approved developments within the vicinity of the Proposed Development an initial search was carried out by WYG. This involved a consideration of relevant planning policies and an online search of the Council's planning application database, from this search, a provisional list of developments was drawn up. This is listed in Table 3.3.
- 3.1.3 Once a list of potential sites for consideration had been established a further assessment on their significance and further assessment was undertaken. For this, PINS Advice Note 17 was chosen as the main method for the Cumulative Effects Assessment (CEA). This sets out a staged process, where Stages 1 and 2 are usually conducted early in the application phase, in this case at the scoping phase; and Stages 3 and 4 are undertaken at the later stages of the environmental assessment.
- 3.1.4 A summary of the staged approach to the CEA process as per PINS Note 17 is outlined in Table 3.1 below. A summary of the tiers provided for each 'other development' is outlined in Table 3.2. All 'other developments' assessed as part of the scoping stage, including those which were considered not significant and consequently scoped out are listed in Table 3.3 below.

Table 3.1 Summary of the staged approach to the CEA process

Stage	Activity
1	Identify a long list of 'other developments' to support Stage 2 Establish the Tier number for each 'other development' identified – (summary of each Tier proposed is outlined on Table 3.2) Establish ZOI of scheme for environmental topics proposed to be scoped into the EIA



2	Develop a shortlist of 'other development' for CEA by applying inclusion/exclusion criteria to the Stage 1 list of 'other developments' and document these in Matrix 1
3	Gather available information regarding the shortlisted 'other development' to inform the CEA. These are then documented in Matrix 2
4	Conduct the cumulative effects assessment of the shortlisted 'other developments'

Table 3.2 'Other development' tiers summary

Tier 1	Under construction	Decreasing level of detail likely to be available 
	Permitted application (s), whether under the PA2008 or other regimes, but not yet implemented;	
	Submitted application (s) whether under the PA2008 or other regimes but not determined;	
Tier 2	Projects on the Planning Inspectorate's Programme of Projects where a scoping report has been submitted;	
Tier 3	Projects on the Planning Inspectorate's Programme of Projects where a scoping report has not been submitted;	
	Identified in the relevant Development Plan (and emerging Development Plans – with appropriate weight being given as they move closer to adoption) recognising that much information on any relevant proposals will be limited;	
	Identified in other plans and programmes (as appropriate) which set the framework for future development consents / approvals, where such development is reasonably likely to come forward.	

Barnham Road, Eastergate - Environmental Impact Assessment,
Scoping Report



Table 3.3 Matrix 1 – Identification of 'other developments' for CEA

Other Development Details					Stage 1	
ID	Application Reference	Application for 'other development' and brief description	Status	Tier	Distance from project (km)	Progress to Stage 2? (sites for inclusion in ES)
1	No current planning application EIA Scoping Reference WB/19a	New 1.3km, single carriageway road in an arc shape from north-west to south east, connecting with the eastern side of the A29, and the northern side of the B2233.	To be submitted in Spring 2020	3	Adjacent to site	Yes
1	WA/44/17/OUT	Outline application with some matters reserved for up to 175 dwellings, new vehicular access, together with associated car parking, landscaping & community facilities to include allotments, play space & community orchard. This application is a Departure from the Development Plan & may affect the character & appearance of the Walberton Village Conservation Area at Land East of Tye Lane Walberton.	Approved in February 2018	1	1.7	Yes
2	A/23/15/OUT	Hybrid application - Full Planning Permission for a retail unit (Class A1) comprising 1,487sqm (1022sqm ground floor and 465sqm mezzanine) with associated access, car parking, servicing, landscaping & associated works.	Approved in October 2018	1	10	No

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



Other Development Details					Stage 1	
ID	Application Reference	Application for 'other development' and brief description	Status	Tier	Distance from project (km)	Progress to Stage 2? (sites for inclusion in ES)
		Outline Planning Permission for a public house (Class A4) comprising 581sqm at ground floor level.				
3	LU/307/15/ DOC	Application for the approval of matters reserved by condition imposed under LU/355/10/ relating to conditions 5, 7, 8, 10, 11, 12, 17, 18, 22, 27 & 29 for details of materials/external surfaces for buildings, surfaces for roads/footpaths, earth remodelling, means of enclosure & parking of vehicles, design statement, surface water drainage, foul drainage system, landscape & layout particulars, protection of retained trees, Construction Method Statement, construction compound details, construction programme for roads, footpaths, cycleways & parking areas, details of how building will achieve a 'very good' rating & a schedule of materials & finishes at Courtwick Lane Land South of Railway Littlehampton BN17 7HF	Approved in January 2016	1	7	No
4	LU/47/11/	Outline application with some matters reserved for mixed use development comprising: demolition of existing buildings and structures, up to 1,260 residential dwellings (out of a potential 1,460 dwelling masterplan), up to 13,000 sqm of B1 employment floorspace (including 3,000 sqm Enterprise Centre),	Approved in January 2013	1	8	No

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



'Other Development' Details					Stage 1	
ID	Application Reference	Application for 'other development' and brief description	Status	Tier	Distance from project (km)	Progress to Stage 2? (sites for inclusion in ES)
		up to 3,500 sqm of Class A local facilities, a 100 bed hotel, 60 bed care home, a new 2 Form Entry primary school, community centre, youth and leisure facilities, combined heat & power plant, extension to existing household recycling centre, landscaping, replacement and additional allotments, multi-functional green infrastructure including sports pitches (& associated changing facilities), informal open space, children's play areas, primary vehicular access from a new access from the A259 bridging over the railway line with additional access from Mill Lane & Toddington Lane. This application is the subject of an EIA & a departure from the development plan. This application affects a PRoW at Land north of Toddington Lane Littlehampton BN17 7PP.				
5	WA/22/15/OUT	Outline application with some matters reserved to provide up to 400 No. new dwellings, up to 500 sqm of non- residential floorspace (A1, A2, A3, D1 and/or D2), 5000 sqm of light industrial floorspace (B1 (b)/(c)) & associated works including access, internal road network, highway works, landscaping, selected tree removal, informal & formal open space & play areas, pedestrian & cyclist infrastructure utilities, drainage infrastructure, car & cycle parking & waste storage. This application is a departure from the	Approved in January 2016	1	0.7	Yes

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



Other Development Details					Stage 1	
ID	Application Reference	Application for 'other development' and brief description	Status	Tier	Distance from project (km)	Progress to Stage 2? (sites for inclusion in ES)
		Development Plan & also lies within the parish of Eastergate at Land to the East of Fontwell Avenue Fontwell.				
6	CM/1/17/OUT	Outline application with some matters reserved for the erection of up to 300 dwellings and ancillary development comprising open space, a building within use class D1 of up to 875 square metres net, a building for A1 use having a floor area of up to 530 sq. metres net, together with open space and ancillary works, including access points, car parking and drainage arrangements, with appearance, landscaping, layout; and scale wholly reserved for subsequent approval. The access detail, showing the points of access to the development, and indicated on Bellamy Roberts drawings numbered 4724/013 and 4724/005 Rev A are access proposals to be determined at this stage of the application. For the avoidance of doubt all other access detail within the site is to be determined as a reserved matter at a later stage. Resubmission following CM/1/17/OUT. Departure from the Development Plan.	Withdrawn	1	5.5	No
7	Y/19/16/OUT	Outline application for 108 residential dwellings, with associated parking, road/footway/cycleway provision,	Reserved matters approved in	1	4	Yes, likely to use the same transport

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



Other Development Details					Stage 1	
ID	Application Reference	Application for 'other development' and brief description	Status	Tier	Distance from project (km)	Progress to Stage 2? (sites for inclusion in ES)
		open space, landscaping, surface water attenuation and ancillary works.	September 2019			infrastructure – Barnham/Yapton Road
8	F/7/15/OUT	45 dwellings at Land off Burndell Road.	Approved in March 2016	1	4.2	Yes, likely to use the same transport infrastructure – Barnham/Yapton Road
9	Y/5/17/OUT	Outline application for 51no. dwellings with all matters reserved except for access. This application is a Departure from the Development Plan at Cinders Nursery & Land R/O Cinders Lane Yapton BN18 0JJ.	Approved in August 2018	1	4	Yes, likely to use the same transport infrastructure – Barnham/Yapton Road
10	Y/80/16/OUT APP/C3810/W/17/3170059	Outline application with some matters reserved for 4.5 hectares of residential development comprising 3.4 hectares of land for up to 100 dwellings (up to 30 (30%) affordable housing) together with 1.1 hectares of land set aside for public open space & strategic landscaping & 2.2 hectares of public open space and green corridors with vehicular access from Ford Lane & pedestrian/cycle access only from North End Road.	Approved subject to conditions in January 2018	1	3.2	No

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



Other Development Details					Stage 1	
ID	Application Reference	Application for 'other development' and brief description	Status	Tier	Distance from project (km)	Progress to Stage 2? (sites for inclusion in ES)
		Resubmission of Y/60/14/OUT. This application is a departure from the development plan, affects the character & appearance of the Church Lane Yapton Conservation Area & affects the setting of a listed building				
11	Y/49/17/OUT	Outline application with some matters reserved for the demolition of all existing structures & redevelopment of the site with up to 45 dwellings (30% affordable (up to 14)) & 0.3 hectares of landscaped open space with vehicular access from Maypole Lane & pedestrian/cycle access only from North End Road. This application is a Departure from the Development Plan & may affect the setting of a listed building	Approved subject to conditions in February 2018	1	2.8	No
12	Y/44/17/OUT	Outline Planning Application for 70 No. residential dwellings including 30% affordable, public open space & associated landscaping. All matters to be reserved apart from Access. This application is a Departure from the Development plan. This application affects the character & appearance of Main Road/Church Road Yapton Conservation Area & the setting of Listed Buildings	Approved in December 2018	1	3	No

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



Other Development Details					Stage 1	
ID	Application Reference	Application for 'other development' and brief description	Status	Tier	Distance from project (km)	Progress to Stage 2? (sites for inclusion in ES)
13	Y/92/17/OUT	Outline application with all matters reserved save access, for up to 300 dwellings, link road, surface drainage, open space and landscaping. Departure from the Development Plan and Access route is within the Yapton (Main Road) Conservation Area	Approved in May 2019	1	3.3	Yes, likely to use similar network infrastructure
14	Y/19/16/OUT	Outline application for the development of a maximum of 108 No. residential dwellings, vehicular access from Burndell Road, public open space, ancillary works & associated infrastructure. This application is a Departure from the Development plan	Approved in September 2019	1	2	Yes, likely to use similar network infrastructure
15	Y/1/17/OUT	Outline Application with some matters reserved for the erection of 56 No. dwellings with associated open space and creation of new access. This application is a Departure from the Development plan & affects the character & appearance of the Yapton (Main Road) Conservation Area at Bonhams Field Main Road Yapton BN18 0DX.	Approved	1	3	Yes, likely to use the same transport infrastructure – Barnham/Yapton Road
16	EG/6/18/RES EG/71/14/OUT	Outline application for the erection of 60 residential dwellings with new vehicular access, open space & other ancillary works at Land at former Eastergate Fruit Farm Eastergate PO20 3RP.	Approved in February 2015	1	Immediately to the south east	Yes

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



Other Development Details					Stage 1	
ID	Application Reference	Application for 'other development' and brief description	Status	Tier	Distance from project (km)	Progress to Stage 2? (sites for inclusion in ES)
17	EG/29/13/	Residential development for 40 dwellings, including 30% affordable, with associated access, landscaping and ancillary works. Re-Submission following EG/73/12. Departure from the Development Plan	Currently under construction	1	0.5	Operational effects only
18	BN/16/12/	Outline application with some matters reserved for a development of up to 107 no. residential units (this application is a Departure from the Development Plan) at Pollards Nursery Lake Lane Barnham PO22 0AF.	Currently being development	1	1.5	Yes
19	AL/107/16/RES	Application for Reserved Matters application following Outline Planning Permission AL/39/13 for the demolition of Oakdene and all other structures within the site and the erection of 79 dwellings, public open space, children's play areas, landscaping, drainage measures, sub-station, pumping station and all other associated works at Land West of Westergate Street & East of Hook Lane Westergate PO20 3TE.	Approved in May 2017	1	1.4	Yes
20	LU/355/10/	Outline application with some matters reserved for mixed use development comprising: up to 600 residential dwellings (including up to 30% affordable housing), up to 4,000 sqm of B1a and B1b employment floorspace, up to 235 sqm of A1/A2/A3 local facilities, structural planting and landscaping,	Approximately 90% constructed	1	6.3	No

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



Other Development Details					Stage 1	
ID	Application Reference	Application for 'other development' and brief description	Status	Tier	Distance from project (km)	Progress to Stage 2? (sites for inclusion in ES)
		multi-functional green infrastructure including sports pitches (and associated changing facilities), informal open space, children's play areas, allotments and surface water attenuation, on-site pedestrian/cycle/bus emergency only access from Courtwick Lane and ancillary works. This application is the subject of an Environmental Impact Assessment & a departure from the Development Plan.				
21	P/58/15/OUT	Outline application with some matters reserved for the erection of 90 No. dwellings with associated access & open space. This is a Departure from the Development Plan at Land at Summer Lane Pagham PO21 4NG.	Approved in September 2016	1	9.5	No
22	P/6/17/OUT	Outline application with some matters reserved for construction of up to 300No. new homes, Care home of up to 80No. beds, D1uses of up to 4000sqm including a 2 form entry Primary School, formation of new means of access onto Hook Lane & Pagham Road, new pedestrian & cycle links, the laying out of open space, new strategic landscaping, habitat creation, drainage features & associated ground works & infrastructure	Approved at appeal in January 2019	1	9.1	No

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



Other Development Details					Stage 1	
ID	Application Reference	Application for 'other development' and brief description	Status	Tier	Distance from project (km)	Progress to Stage 2? (sites for inclusion in ES)
23	P/134/16/OUT	Outline application for the development of up to 280 dwellings (including affordable homes), land for a replacement scout hut, land for an Ambulance Community Response Post Facility and land for either a 1FE primary school or care home. Provision of a primary vehicular access from Sefter Road and demolition of No. 80 Rose Green Road and creation of a pedestrian and emergency only access. Provision of Public Open Spaces including associated children's play areas, landscaping, drainage and earthworks. This application also falls within the parish of Aldwick	Approved subject to conditions in October 2019	1	7.7	No
24	A/169/17/OUT	Outline application with all matters reserved for demolition of existing buildings on site & erection of a mixed use development comprising up to 90 No. residential units, a care home (Use Class C2 & C3) & ancillary facilities including railway crossing, together with associated access, car parking & landscaping (resubmission following A/44/17/OUT). This application is a Departure from the Development Plan & lies within the parishes of Littlehampton & Rustington at Land west of Brook Lane & South of A259 Angmering.	Approved in January 2018	1	9.1	No

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



Other Development Details					Stage 1	
ID	Application Reference	Application for 'other development' and brief description	Status	Tier	Distance from project (km)	Progress to Stage 2? (sites for inclusion in ES)
25	BN/43/16/PL	95 No. dwellings together with access, landscaping open space & associated works at Angels Nursery Yapton Road Barnham PO22 0AY	Approved in May 2017	1	1.6	Yes
26	BN/6/18/RES	Approval of reserved matters following outline consent BN/32/15/OUT relating to appearance, landscaping, layout & scale for erection of 38 No. dwellings including open space, landscaping & new access (resubmission following BN/28/17/RES).	Approved in July 2018 Currently under construction	1	1.7	Yes, operational effects only
27	BN/26/15/RES	Approval of reserved matters following outline consent BN/7/12/ for 44 No. dwellings including 30% affordable, comprising of a mix of 2 & 4 bed houses with associated landscaping & works.	Fully developed	1	1.5	Yes, operational effects only
28	AL/61/13/	Outline permission for 268 dwellings at Land at Nyton Road, Northfields Lane and Fontwell Avenue.	Approved	1	0.2	Yes
29	P/140/16/OUT	Outline application for access only - mixed use development comprising of up to 400 dwellings, a care home with up to 70 beds, a Local Centre comprising up to 2000sqm of A1/A2/A3/D1/sui generis floorspace, provision of land for a 1FE primary school (with sufficient space to ensure that it is expandable to 2FE), provision of land for a scout hut,	Approved in November 2018	1	9.2	No

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



Other Development Details					Stage 1	
ID	Application Reference	Application for 'other development' and brief description	Status	Tier	Distance from project (km)	Progress to Stage 2? (sites for inclusion in ES)
		safeguarding of land to help link the site to the Pagham Harbour Cycle Route & other community uses including public open space & allotments with some matters reserved at Land South of Summer Lane & West of Pagham Road Pagham.				
30	BN/51/16/RES	Approval of reserved matters following outline consent BN/16/12 & BN/21/14 for appearance, landscaping & scale for erection of 107 dwellings, car parking including garages, internal access roads, footpaths, parking & circulation areas, hard & soft landscaping, formal & informal play areas & public open spaces, attenuation basins, sewage treatment plant & other associated infrastructure & engineering.	Approved in September 2017	1	1.4	Yes



4.0 In combination effects

- 4.1.1 A review of the residual impacts within the ES will be undertaken, along with an exercise which tabulates the impacts against receptors to identify the potential for impact interactions. Only residual impacts classified as being of minor, moderate, major significance will be considered in relation to the potential for the in combination (or inter-relationship) effects of individual impacts. Residual impacts of negligible significance will be excluded as by virtue of their definition, they are considered to be imperceptible impacts.
- 4.1.2 Where there is more than one impact on a particular receptor, the potential for impact interactions will be assessed.



5.0 Proposed Impact Assessment Criteria

5.1 Impact Assessment Guidance

- 5.1.1 The assessments presented in the subsequent ES will consider the potential for significant environmental effects to impact the baseline conditions as a direct/indirect result of the Proposed Development. The baseline conditions are defined as the existing state of the environment and how it may develop in the future in the absence of the proposals. This is a requirement of the EIA Regulations which in Schedule 4, Paragraph 3 require a description of the aspects of the environment likely to be significantly affected by the development (HMSO, 2017).
- 5.1.2 Predictions are necessary when forecasting future impacts. The EIA Regulations in Schedule 4, Paragraph 6 require a description by the Applicant of the forecasting methods used to assess the effects on the environment (HMSO, 2017). Assessments will be undertaken in accordance with best practice guidelines published by the relevant professional bodies. Industry standard approaches, for example, the Chartered Institute of Ecology and Environmental (CIEEM) Guidelines for Ecological Impact Assessment (EcIA) in the United Kingdom and Ireland (CIEEM, 2018), the Landscape Institute / Institute of Environmental Management and the Countryside Agency's Guidelines for Landscape and Visual Impact Assessment (GLVIA) Third Edition (LI/IEMA et al, 2013), CIRIA C552 etc., will be used in undertaking the impact assessments, unless specifically stated otherwise. Detailed descriptions of the methodologies to be used are presented in Appendix A.
- 5.1.3 The subsequent ES will provide full details of the assessment criteria and terminology used in the context of that technical discipline.

Proposed Consultation

- 5.1.4 The Applicant and its consultants propose to undertake proportionate discussions with statutory and non-statutory consultees, the local community and the landowner(s) as required. The accumulated findings will have an influence over the evolution of the design and layout, and will be detailed in Chapter 4 of the ES and within the specific technical chapters as appropriate.

5.2 ES Chapters and Headings

- 5.2.1 It is proposed that that ES will be based around the following chapter/topic headings.

1.0 Introduction

1.1 Introduction to the Site



- 1.2 Overview of the Proposed Development
- 1.3 The Applicant
- 1.4 Legal Framework for the Environmental Statement
- 1.5 Structure of the Environmental Statement
- 1.6 The Project Team
- 1.7 References

2.0 Environmental Impact Assessment Approach

- 2.1 Objectives
- 2.2 Scope of Work
- 2.3 Assessment Criteria
- 2.4 References

3.0 Description of Proposed Development

- 3.1 Introduction
- 3.2 The Site and Local Context
- 3.3 Existing Utilities
- 3.4 Development Proposals
- 3.5 Construction Proposals
- 3.6 Securing Environmental Management - The Environmental Management Plan
- 3.7 References

4.0 Scheme Development and Alternatives Considered

- 4.1 Site Feasibility and Identification
- 4.2 Consideration of Alternatives
- 4.3 Approach to Public Consultation
- 4.4 References

- 5.2.2 **Topic Chapters** - Specific topic chapters will follow the same format as that proposed below. The topic chapters will be finalised as part of the scoping exercise but are considered to be as detailed below.



- 5.1 Introduction
 - 5.2 Study Area
 - 5.3 Policy and Legislation
 - 5.4 Methodology and Scope
 - 5.5 Baseline Environment
 - 5.6 Mitigation within the Submitted Design
 - 5.7 Likely Significant Environmental Effects of the Scheme
 - 5.8 Cumulative Impacts
 - 5.9 Additional Mitigation, Compensation and Enhancement Measures
 - 5.10 Assessment Summary and Residual Environmental Effects
 - 5.11 References
- 5.2.3 In addition, in accordance with the EIA Regulations the ES will be accompanied by a Non-Technical Summary.



Environmental Topics to be Addressed within the EIA



6.0 Air Quality

6.1 Introduction

- 6.1.1 This chapter provides the Air Quality scoping assessment and provides a summary of the potential effects and how this will be addressed in the EIA and presented in any subsequent ES chapter.

6.2 Baseline Conditions

- 6.2.1 The District is mixed urban and rural with the main urban areas being Arundel, Bognor Regis and Littlehampton. There are a number of major roads passing through Arun District including the A27, A259, A29, but no motorways; however, the main source of air pollution in the District is emissions from vehicular traffic and therefore the main pollutants of concern are nitrogen dioxide (NO₂) and fine particulates (PM₁₀ and PM_{2.5}). The nearest Air Quality Management Areas (AQMA) is located in Chichester over 9km away.
- 6.2.2 The Arun District Council 2019 Air Quality Annual Status Report (ASR) which was produced in June 2019, states that road traffic exhaust emissions continue to be the major source and they have the potential to cause excessive levels of NO₂ when large volumes of road traffic are queuing. However, there were no new major sources of emissions in the District in 2018 and through joint-working, the draft Local Plan has paid specific attention to projected traffic loads and changes at high capacity junctions.
- 6.2.3 Data collection is through a diffusion tube network, in 2018 there were 17 diffusion tubes located across the district. Their location is regularly reviewed and altered where results or local knowledge indicate a new location should be investigated. The closest monitoring location to the site is BARN 20 in Barnham approximately 2km to the south east.
- 6.2.4 Air Quality in Arun continues to be good; there remains no apparent need for the declaration of any Air Quality Management Areas (AQMA). However, local housing and other developments planned or likely to take place in the short- to medium-term, have the potential to increase traffic flows and, if not carefully managed, congestion. An assessment of the areas for potential development will inform the collection of future air quality data; a further review of the sites for diffusion tubes is currently being undertaken (summer 2019) and will result in a number of monitoring tubes being deployed in new locations and others being removed from areas which do not indicate any air quality problems.



6.3 Further Assessment/ Consultation

- 6.3.1 An Air Quality Assessment is yet to be undertaken, however, the assessment will include a detailed dispersion modelling assessment in accordance with guidance from Defra¹, Environmental Protection UK (EPUK) and the Institute of Air Quality Management (IAQM)²; comparing the current baseline conditions at the site to the predicted future conditions in the developments opening year. Within the future year assessment, the impact of the development on local air quality by assessing two future scenarios will be detailed; namely, with and without the development. Any future year assessments will include traffic generated by other committed developments that are proposed in the area.
- 6.3.2 A construction phase dust impact assessment will also be carried out following the IAQM guidance³, to ascertain the potential dust impact on nearby sensitive receptors.
- 6.3.3 Additional consultation with ADC will be undertaken with to discuss local air quality issues and any particular concerns they may have.

6.4 Mitigation within the Submitted Design

- 6.4.1 Appropriate mitigation measures will be recommended, where required, to be applied during both the construction phase and the operational phase of the developments, to lessen the impacts on surrounding land uses and nearby sensitive receptors.
- 6.4.2 A Construction Environmental Management Plan will be developed to control dust and construction related air quality.
- 6.4.3 In order to reduce traffic related emissions operationally, a series of measures to minimise car-usage and promote sustainable modes of transport will be designed into the scheme.

6.5 Receptors to be Considered as part of EIA

Construction Phase

- 6.5.1 Sensitive receptors during the construction phase include the following:
- Sensitive human receptors within 350m of the site boundary and/or within 50m of the route(s) used by construction vehicles, up to 500m from the site entrance(s);

¹ Defra. 2018. Part IV of the Environment Act 1995, Environment (Northern Ireland) Order 2002 Part III, Local Air Quality Management, Technical Guidance LAQM. TG(16). London: Defra.

² EPUK & IAQM. 2017. Land-use Planning & Development Control: Planning for Air Quality.

³ IAQM. 2014. Guidance on the assessment of dust from demolitions and construction.



- Sensitive ecological receptors within 50m of the boundary of the site or 50m of the route(s) used by construction vehicles, up to 500m from the site entrance(s); and,
- Sensitive human receptors adjacent to local roads that will experience a significant change in vehicle flows due to construction traffic.

Operational Phase

- 6.5.2 An assessment of the local road network and any impacts as a result of changes in traffic flows to and from proposed development in comparison to its extant use will be undertaken. The results of this assessment will be utilised to inform any likely effects of the scheme on air quality.
- 6.5.3 Sensitive residential and ecological receptors will be included in the assessment.

6.6 Likely Environmental Effects of the Scheme

- 6.6.1 Potential effects of emissions from construction and operational traffic associated with the development on nearby existing and proposed residential receptors. The Proposed Development has the potential to result in an increase of traffic, which would generate increases of NO₂, PM₁₀ and PM_{2.5} emissions. The level of exposure to concentrations of NO₂ and PM₁₀/PM_{2.5} will be assessed through the use of the ADMS-Roads atmospheric dispersion model.

Construction Phase

- 6.6.2 Potential effects of dust emissions from the construction of the development. During the construction phase of a development, dust arising from construction activities has the potential to cause annoyance.

Operational Phase

- 6.6.3 An assessment of the local road network and any impacts as a result of changes in traffic flows to and from Proposed Development in comparison to its extant use will be undertaken. The results of this assessment will be utilised to inform any likely effects of the scheme on air quality.

Cumulative Phase

- 6.6.4 The effects at the cumulative phase will be similar to those in the operational phase above that increased vehicles on the local road network will lead to increased NO₂, PM₁₀ and PM_{2.5} concentrations in the locality. Whether these increases will be observed at relevant sensitive locations, and whether these increases are significant, will be determined by our detailed modelling assessment.



6.7 Scoping Assessment Summary

- 6.7.1 The Scoping demonstrates that there is the potential for significant effects in relation air quality and is therefore scoped into the EIA. This assessment will be undertaken in accordance with methodology provided in Appendix A.



7.0 Noise and Vibration

7.1 Introduction

- 7.1.1 This chapter provides the noise and vibration scoping assessment. The chapter provides a summary of the potential receptors and how these will be addressed in the EIA and presented in the subsequent ES.

7.2 Baseline Conditions

- 7.2.1 The proposed development site is located on land to the immediate north of Barnham Road in Eastergate. The site will neighbour existing residential properties to the west (off Fontwell Avenue), to the South (on Barnham Road) and to the east (off Murrell Gardens, Chantry Mead and Ewens Gardens).
- 7.2.2 The site largely comprises grassland, orchards, woodland and scrub with existing residential properties to the north, south east, south and west. The existing A29 also lies to the west of the site.
- 7.2.3 Given the site's location it is anticipated that there will be limited noise at the site, however, the main source of noise pollution is therefore anticipated to derive from vehicular traffic from the surrounding road network.

7.3 Further Assessment/ Consultation

- 7.3.1 Further noise assessment will be required to determine the significance of construction and operation phase effects at existing dwellings surrounding the development Site.
- 7.3.2 Additional consultation with the Environmental Health Officer will be undertaken as necessary.

7.4 Mitigation within the Submitted Design

- 7.4.1 At this early stage of the design process, masterplan layouts are not yet available. However, with noise and vibration being considered from an early stage of the project, opportunities to minimise impacts on the surrounding community through Good Acoustic Design principles will be fully utilised wherever possible.
- 7.4.2 The layout of the development will take consideration of noise contours from the modelling to ensure that residential properties are not adjacent to significant noise sources, and where relevant noise mitigation will be specified as required.



7.5 Receptors to be Considered as part of EIA

Construction Phase

- 7.5.1 The effect of noise and vibration from the construction phase on existing residential properties within the vicinity of the Site and the future residential properties that will be constructed on Site.
- 7.5.2 Impacts on receptors as the result of increased construction traffic using the wider road network will also be considered.

Operational Phase

- 7.5.3 The principal receptors during the operational phase would be residential receptors living close to the nearby roads that may be subject to increased noise levels from higher road traffic volumes.
- 7.5.4 Consideration will also be given to both existing receptors and receptors within the development to noise emissions.

Cumulative Phase

- 7.5.5 The principal receptors to be considered in cumulative terms are local residents located close to the main road routes around the Site that may be subject to increased noise levels from higher road traffic volumes.

7.6 Likely Environmental Effects of the Scheme

Construction Phase

- 7.6.1 The noise and vibration effects during construction will cause temporary adverse effects on existing and future residential uses. These effects will be reduced through good practice that will be implemented through a CEMP.

Operational Phase

- 7.6.2 Existing road traffic noise will likely to cause an adverse effect on future residents. Any adverse effect will be reduced through the use of mitigation measures to the building envelope. Noise levels will be reduced to below the guidance in BS8233:2014 which will ensure that there is a negligible effect on future residents.

7.7 Scoping Assessment Summary

- 7.7.1 Given the potential for the development to result in increases in noise at both construction and operational phases it is proposed that a chapter will be produced within the ES. This assessment will be undertaken in accordance with methodology provided in Appendix A.



8.0 Ecology

8.1 Introduction

8.1.1 The Chapter will assess the potential effects of the development with respect to ecology during the construction and operational phases.

8.2 Baseline Conditions

8.2.1 The habitats found on site consist of broad-leaved semi-natural woodland, broad-leaved plantation woodland, orchard, scrub, semi-improved grassland, improved grassland and bare ground.

8.2.2 No Natura 2000 sites are found within 5km of the site with the nearest - Pagham Harbour SPA approximately 9.8km to the south west. No adverse effects occurring as a result of the proposals is considered likely.

8.2.3 There are two non-statutory Sites of Nature Conservation Importance (SNCI) within 2km which include;

- ✧ Fontwell Park Racecourse approximately 07.km to the north; and,
- ✧ Slindon Bottom approximately 1.5km to the north.

8.2.4 A number of ecology surveys have been undertaken previously as detailed in Table 8.1.

Table 8.1 – Ecological Surveys Previously Undertaken for the Site

Survey	Undertaken	Findings
Extended Phase 1 Habitat walkover survey	March 2016, updated February 2019	The habitats found on site consist of broad-leaved semi-natural woodland, broad-leaved plantation woodland, orchard, scrub, semi-improved grassland, improved grassland and bare ground. There is suitable habitat on site for reptiles, bats (roosting, foraging and commuting), badgers, dormice and common nesting birds. The following protected species surveys will be required: • Reptile presence / likely absence surveys; • Bat climbed tree inspections; • Bat activity surveys; • Badger survey; • Hazel dormice surveys.



Survey	Undertaken	Findings
Bat Activity Survey Automated Detector Survey	April – October 2019	The following bat species were identified: - Common pipistrelle; - Soprano pipistrelle; - Noctule; - Serotine; - Leisler's; - Nathusius; <i>Myotis</i> Sp
Badger Survey	May 2016 (updated survey work 2019/20)	Evidence of badgers recorded on site
Dormouse	May 2016 (updated survey work 2019/20)	No evidence of dormouse
Reptile Survey	March – April 2019	The site supports a low population of slow-worms <i>Anguis fragilis</i> . Adult and juvenile slow-worms were recorded on site indicating a breeding population.

8.3 Further Assessment/ Consultation

- 8.3.1 Consultation with ecological consultants on the adjacent A29 realignment scheme is ongoing to allow information to be shared and further consultation will be undertaken with the County Ecologist as necessary.

8.4 Mitigation within the Submitted Design

- 8.4.1 A biodiversity net gain assessment is currently being undertaken and will be provided to support the planning application.
- 8.4.2 Other mitigation measures will be determined following assessment of the likely significant effects and review of the proposal.
- 8.4.3 Such mitigation measures are likely to include the implementation of safeguard measures to protect important habitats and protected species during construction works, such as protective fencing and a CEMP to reduce effects of dust, noise and hydrology during construction works; the



sensitive design of lighting; and the design of green space to enhance green infrastructure and recreational opportunities within the Site.

8.5 Receptors to be Considered as part of EIA

Construction Phase

8.5.1 The following receptors will be considered for the construction phase of the Proposed Development:

- ✧ Habitats and Ecological Corridors;
- ✧ Badgers;
- ✧ Bats; and,
- ✧ Reptiles.

Operational Phase

8.5.2 The following receptors will be considered for the operational phase of the Proposed Development:

- ✧ Habitats and Ecological Corridors;
- ✧ Badgers;
- ✧ Bats; and,
- ✧ Reptiles.

Cumulative Phase

- ✧ Habitats and Ecological Corridors;
- ✧ Badgers;
- ✧ Bats; and,
- ✧ Reptiles.

8.6 Likely Environmental Effects of the Scheme

Construction Phase

8.6.1 In the absence of mitigation, the following effects may be likely:

- ✧ Direct Harm to protected species (reptiles, Badgers, bats);
- ✧ Loss of/damage to woodland, orchard, grassland and hedgerows;
- ✧ Temporary disturbance of protected or notable species (noise, dust, vibration, lighting etc); and,
- ✧ Loss and fragmentation of habitat for protected and notable species.



- 8.6.2 These effects can be avoided or reduced to a level that is not significant, through implementation of the recommendations and mitigation measures.

Operational Phase

- 8.6.3 In the absence of mitigation, the following effects may be likely:

- ✧ Disturbance of protected and notable species (noise, lighting);
- ✧ Predation;
- ✧ Creation of new habitats (positive effect); and,

8.7 Scoping Assessment Summary

- 8.7.1 It is considered that there is potential for significant effects on the ecology of the area surrounding the Proposed Development and it is considered necessary for an assessment of the impacts on Ecology and Biodiversity to be conducted as part of this ES. This assessment will be undertaken in accordance with methodology provided in Appendix A.



9.0 Landscape and Visual

9.1 Introduction

- 9.1.1 This chapter provides the landscape and visual impact scoping assessment and provides a summary of the potential effects and how this will be addressed in the EIA.

9.2 Baseline Conditions

Landscape Character Baseline

- 9.2.1 The following landscape character studies apply to the site;
- ✧ National Character Area 126: South Coast Plain
 - ✧ West Sussex County Landscape Strategy and Land Management Guidelines (2008)
 - ✧ Arun Landscape Study (2006)
 - ✧ Landscape Capacity of Strategic Sites in Arun District (2017)
 - ✧ Arun District Urban Design and Landscape Appraisal Study (2008)

Visual Baseline

- 9.2.2 In determining the baseline information for the assessment, ACD Environmental Consultants have undertaken the following:
- ✧ A desktop study of environmental data: relevant planning documents; landscape character assessments; maps and aerial photographs; and databases.
 - ✧ A field assessment by a qualified landscape architect, including an examination of topography, vegetation and views, and a photographic survey.
- 9.2.3 A visual appraisal of the site and surrounding area was carried out in early March 2019 before trees and hedgerows were in leaf, thus representing the greatest extent of visibility of the site; visibility would be reduced in summer.
- 9.2.4 A Zone of Theoretical Visibility (ZTV) was prepared and initial viewpoints were selected as being representative of the type of views available towards the development site. Viewpoints used for the assessment of visual effects have already been agreed with the Council's Landscape Officer. These will form the baseline against which the visual effects of the proposals will be
- 9.2.5 The key visual characteristics identified in the appraisal are:



- ✧ The area of site west of the footpath is very well contained by vegetation both within the site and on its boundaries; this containment is further enhanced by development and vegetation along Fontwell Avenue, Barnham Road and Eastergate Lane.
- ✧ The area of site east of the footpath is contained on the western side by vegetation along the footpath corridor and in the western part of the site; on the southern side it is largely contained by buildings and vegetation on Barnham Road; and to the east by a northern projection of the settlement of Barnham, but it is open to some local and distant views from the north and north east.
- ✧ Visibility of the site is largely restricted to local views from properties on the adjacent settlement edges; in particular there are open local views from a row of properties on the settlement edge to the east. Views from surrounding roads and rights of way are limited due to the high level of vegetation in the area.
- ✧ There are some distant elevated views from the South Downs National Park, from a limited number of locations. In these the site is very difficult to distinguish, even when visibility is good, due to the distance and vegetation cover, and is seen in the context of surrounding development, including prominent areas of glasshouses, and urban development along the coast.

Views from the north

- 9.2.6 There are some local views towards the site from Eastergate Lane and from properties adjacent to the road. These are largely filtered by vegetation but there are a limited number of more open views into the eastern part of the site.
- 9.2.7 There are a few distant elevated views from the South Downs; the site is difficult to distinguish in these due to the distance and the high level of tree cover, and is seen in the context of surrounding development, with glasshouses particularly prominent, and against a background of urban development along the coast.

Views from the east

- 9.2.8 The eastern part of the site is overlooked by houses on the western edge of an area of development off Downview Road, north of Barnham Road. Potential views from the Barnham to Walberton road, Barnham Lane, and adjacent path are restricted by intervening vegetation and development off Downview Road.



Views from the south

- 9.2.9 Views of the site from the south are largely prevented by buildings in Eastergate and vegetation alongside Barnham Road and north of the road. Views will be further limited by the new development allocated on the south western side of the site. There are some glimpses of vegetation within the site between houses on the north side of Barnham Road (photographs 10 and 11) and views into the eastern part of the site above fencing on either side of the Halo works (photographs 8 and 9). There are some views into the site from properties on the northern side of Barnham Road which adjoin the site.

Views from the west

- 9.2.10 Local views from the west are limited by buildings and vegetation along Fontwell Avenue. There are a few glimpses of vegetation within the western part of the site between houses off Fontwell Avenue (photographs 14 and 15) and a few of these properties have glimpses into the site. Views into the site from Northfield Lane, a public footpath north of Nyton, are prevented by intervening vegetation (photographs 16 and 17). New development under construction on the west side of Fontwell Avenue, 'The Hedgerows', will further limit any potential for views from the west (photographs 13 and 16).

9.3 Further Assessment/ Consultation

- 9.3.1 A Landscape and Visual Impact Assessment will be undertaken in accordance with the Guidelines for Landscape and Visual Impact Assessment (published by the Landscape Institute and Institute of Environmental Management and Assessment, Third Edition, dated 2013).
- 9.3.2 Unless there are significant changes to the scheme or unexpected changes to the baseline it is not anticipated that further consultation with the Landscape Officer for ADC will be required at this stage as viewpoints have already been agreed.

9.4 Mitigation within the Submitted Design

- 9.4.1 The scheme design is an early iterative process and therefore a mitigation strategy has yet to be finalised. However, as part of the design process, design mitigation will be incorporated into the Proposed Development. This will include the addition of relevant requirements into a CEMP and a comprehensive landscape strategy linking into wider areas such as the SuDS in the drainage strategy and ecological mitigation.

9.5 Receptors to be Considered as part of EIA

- 9.5.1 The viewpoints have been chosen to be representative of the following;



9.5.2 Landscape Receptors:

- * The Character Areas outlined in section 9.2 in addition to any other county and district Landscape Character Areas;
- * Hedgerows, trees and woodlands.

9.5.3 Visual Receptors:

- * Local residents;
- * Individual and /or defined groups including users of Public Rights of Way residents (including settlements); and,
- * Motorists/cyclists.

9.6 Likely Environmental Effects of the Scheme

Construction Phase

9.6.1 Likely effects at the construction phase:

- * Changes to the topography and landform of the site;
- * Damage to the existing green infrastructure;
- * Temporary changes to the character and amenity of views from the settlement edge;
- * Temporary changes to the character and amenity of views.

Operational Phase

9.6.2 Likely effects of the Operational Phase:

- * Changes to the characteristics of the wider landscape and townscape;
- * Changes to the rural characteristics of the site and its immediate setting; and,
- * Changes to the character and amenity of views from the settlement edge.

Cumulative Phase

9.6.3 Once the cumulative schemes are agreed an assessment will be made as to the significance of any LVIA cumulative effects as part of the assessment.

9.7 Scoping Assessment Summary

9.7.1 It is considered that there is potential for significant effects on the landscape of the area surrounding the Proposed Development and it is considered necessary for an assessment of the



impacts on the landscape and visual impact to be conducted as part of this ES. This assessment will be undertaken in accordance with methodology provided in Appendix A.



10.0 Water Resources, Flood Risk and Drainage

10.1 Introduction

10.1.1 This chapter provides the hydrology and drainage scoping assessment.

10.2 Baseline Conditions

Watercourses

10.2.1 There are no watercourses on the site or within the immediate vicinity.

Flood Zones and Flood Plain

10.2.2 The entirety of the Site lies within Flood Zone 1, meaning the land has less than a 1 in 1,000 (<0.1%) annual probability of fluvial flooding.

10.2.3 A small area of land within flood zone 2 and flood zone 3 are located around the residential areas along Downview Road.

Surface Water Drainage

10.2.4 There are several small localised areas of surface water flooding but most of the site is not subject to any meaningful surface water flooding.

10.2.5 As the existing site is largely undeveloped, no on-site drainage plans are available and from site walkovers there is limited indication of on-site drainage ditches. In the absence of any meaningful drainage network it is considered that a proportion of any runoff is likely to enter groundwater via infiltration.

10.2.6 There no public or foul water sewers within the Site.

Water Quality

10.2.7 The development Site is not within any area served by watercourses which have a recorded water quality standard or targets.

10.3 Further Assessment/ Consultation

10.3.1 In addition, consultation will take place in relation to water supply and foul drainage issues with ADC and the Environment Agency.

10.3.2 The drainage strategy will be developed to utilise sustainable drainage techniques, in accordance with the guidelines of the SuDS Manual (C753) and the DEFRA Non-Statutory Technical Standards for Sustainable Drainage.



10.4 Mitigation within the Submitted Design

- 10.4.1 As part of the design process, construction and operational design mitigation will be integrated into the Proposed Development. This will include management measures at the construction phase that will be delivered through a CEMP to control runoff and pollution related risks through the construction processes taking place on site.
- 10.4.2 At the operational phase the work undertaken as part of the assessment will feed into a comprehensive drainage strategy for the Site. This drainage strategy will incorporate SuDS and provisions for the management of foul water drainage.

10.5 Potential Environmental Effects of the Scheme

Construction Phase

- 10.5.1 Release of sediments and silt to surface waters from stockpiled material and excavations. This could occur along the entire works area as well as at construction compounds;
- ✧ Release of construction related polluting matter into groundwater, including fuels and oils and materials such as cement and concrete;
 - ✧ Compaction of the ground leading to accelerated surface water runoff;
 - ✧ Compaction of ground leading to reduced infiltration and ground water recharge;
 - ✧ Dewatering of underlying strata to facilitate excavation leading to reduced groundwater levels and a need to dispose of wastewater;
 - ✧ Release of sediments and silt to surface waters from stockpiled material and excavations; and,
 - ✧ Inadvertent and deliberate changes to local topography opening up new overland flows paths for surface water to exploit. Potentially leading to inundation of locations that do not currently experience inundation.

Operational Phase

- 10.5.2 At the occupational stage the key impacts to the water environment will be as follows:
- ✧ Release of pollutants to receiving groundwater;
 - ✧ Increased surface water runoff due to the introduction of the additional hard standing required for the highway works;
 - ✧ Reduced infiltration to underlying strata due to the increase in local hard standing; and



- * Changes to local topography caused by the development works opening up new overland flows paths for surface water to exploit. Potentially leading to inundation of locations that do not experience inundation at the moment.

10.6 Scoping Assessment Summary

- 10.6.1 It is considered that any effects on the water environment of the area surrounding the Proposed Development would be taken into account within the Flood Risk Assessment and Drainage Strategy. However, as there is limited information currently available in relation to water resources, flood risk and drainage, it is not considered possible to rule out potentially significant effects therefore, water environment and flood risk are scoped into the subsequent ES.



11.0 Climate Change

11.1 Introduction

- 11.1.1 This chapter provides the climate change scoping assessment and discusses the potential for the development to significantly affect this aspect of the environment.

11.2 Baseline Conditions

- 11.2.1 Global GHG emissions due to human activities are estimated to have grown significantly since pre-industrial times. Carbon dioxide is the most important anthropogenic GHG and in 2016 it accounted for 81% of the UK's GHG emissions.
- 11.2.2 The residential sector contributed 14% of UK GHG emissions in 2016, the fourth largest sector responsible for GHG emissions.
- 11.2.3 UK Climate Projections 2018 (UKCP18) (released in November 2018) is the official source of climate projections in the UK. It is funded by the Department for Environment, Food & Rural Affairs (DEFRA) and the Department of Energy & Climate Change (DECC) in partnership with the Met Office, EA and Tyndall Centre, amongst others.
- 11.2.4 The UKCP18 Projections show a general trend of:
- ✧ *Increased summer temperatures;*
 - ✧ *Increased winter temperatures – the UK's winters will also be milder with the average temperatures being 2.2°C warmer;*
 - ✧ *Reduced summer rainfall – there may be a 16% decrease in summer rainfall making the UK's summers much drier; and*
 - ✧ *Increased winter rainfall – winters will be wetter with an average of 14% more rainfall.*

11.3 Further Assessment/ Consultation

- 11.3.1 It is not considered that specific consultation is required to aid the assessment. Following review of the Scoping Report by relevant statutory bodies, should additional climate change-specific consultation be required, this will be undertaken.
- 11.3.2 Measures to improve the efficiency of the development, and therefore reduce the GHG footprint of the development, will be clearly articulated in the Design and Access Statement and Planning Statement that will accompany the planning application.



11.4 Mitigation within the Submitted Design

- 11.4.1 The Proposed Development will be designed in accordance with relevant building regulations.
- 11.4.2 It is anticipated that embedded mitigation will comprise of passive and active energy design measures.

11.5 Likely Environmental Effects of the Scheme

Construction Phase

- 11.5.1 The construction phase has the potential to increase greenhouse gas emissions due to:
 - * Emissions from construction plant on site; and,
 - * Exhaust emissions from construction phase road traffic.
- 11.5.2 The construction phase has the potential to be vulnerable to changes in climate, resulting in:
 - * Risk of delay in construction activities.

Operational Phase

- 11.5.3 Once operational, the development has the potential to increase greenhouse gas emissions due to:
 - * Road vehicle exhaust emissions associated with vehicles travelling to and from the Proposed Development;
 - * Recreational and commercial uses; and,
 - * Household and non-residential emissions from operational users.
- 11.5.4 Once operational, the development has the potential to be vulnerable to changes in climate, resulting in:
 - * Flooding;
 - * Impacts on the physical structure and materials of buildings; and,
 - * Increased heat within buildings.

11.6 Scoping Assessment Summary

- 11.6.1 Whilst there are potential for climate change effects, these will be mitigated as far as practicable through good construction practices and the implementation of a CEMP throughout the construction phase.



- 11.6.2 Any potential effects during the operational stage will be mitigated as far as possible through the good building design and efficiency measures incorporated where possible. The Site layout will also be designed to encourage the use of sustainable methods of transport and future issues in relation to flood risk are addressed through the Flood Risk Assessment and Drainage Strategy.
- 11.6.3 However, whilst it is considered that the aspects relevant to climate change will be addressed in other parts of the application it is considered that any development has the potential to result in adverse effects which can impact upon climate change it is therefore proposed to scope Climate Change into this ES.



Environmental Topics to be 'Scoped Out' of the EIA



12.0 Traffic and Transport

12.1 Introduction

- 12.1.1 This chapter provides the transport and access scoping assessment and provides a summary of the potential effects as a result of the proposed development.

12.2 Baseline Conditions

- 12.2.1 Eastergate is located in the district of Arun and is located approximately 9km east of Chichester and 5km north of Bognor Regis. The village is part of the Six Villages Area which comprise Aldingbourne, Barnham, Eastergate, Westergate, Walberton and Yapton.
- 12.2.2 The primary road network in the vicinity of the site include the existing A29 to the west which links the A27 to the north with Bognor Regis to the south and the B2233 which lies to the immediate south of the site linking Yapton and Eastergate.
- 12.2.3 The remaining roads in the surrounding area included a series of non-primary routes comprising village roads and country lanes.

12.3 Future Baseline

- 12.3.1 The northern boundary of the Propose Development site will comprise the new realigned A29. The proposed realignment scheme will deliver a single carriageway to the east of Eastergate, Westergate and Woodgate Villages. To the north it will link into the A29 (north of Eastergate), and to the south a new junction on the A29 Lidsey Road (north of Shripney) is currently proposed.
- 12.3.2 At the time of writing no formal planning application for the northern part of the A29 has been submitted, however, the scheme is being progressed by West Sussex County Council (WSCC) and their consultants and it is anticipated that a planning application will be submitted in Spring 2020.

12.4 Further Assessment and Consultation

- 12.4.1 Liaison with ADC and relevant highways authority will be undertaken to agree a technical Transport Scoping Note separately to this EIA scoping.
- 12.4.2 The following documents will be prepared and submitted as part of the planning application, appended to the ES:
- Transport Assessment; and,



- ✧ Travel Plan.

12.5 Mitigation within the Submitted Design

12.5.1 In order to minimise car-usage and to promote the use of sustainable modes of transport, the development proposals will include the following key elements:

- ✧ The main junction for the site will be provided with the realigned A29 to the north;
- ✧ Provision of cycle parking in line with ADC's guidance for parking;
- ✧ Provision of attractive walking and cycling routes through the Site and connecting to the wider area surrounding the site;
- ✧ Implementation of a Residential Travel Plan; and
- ✧ Implementation of a Public Transport Strategy.

12.5.2 Any potential short terms effects relating to the construction phase of the development would be mitigated through the implementation of a Construction Environmental Management Plan (CEMP) and Construction Traffic Management Plan (CTMP), which will include measures to control traffic/HGV movement, ensure deliveries are undertaken at appropriate times and ensure road cleanliness etc

12.6 Likely Environmental Effects of the Scheme Construction, Operational and Cumulative Phases

12.6.1 The Proposed Development has the potential to impact on the adjacent highway network and on sensitive receptors within close proximity to the local highway network and the impact of the development on the surrounding highway network would normally be assessed in accordance with the Institute of Environmental Management and Assessment (IEMA) document 'Guidelines for the Environmental Assessment of Road Traffic' to assess the following topics in relation to the construction and operational phases:

- ✧ Driver severance and delay;
- ✧ Comprehensive development infrastructure;
- ✧ Pedestrian severance and delay;
- ✧ Pedestrian amenity;
- ✧ Accidents and safety;
- ✧ Hazardous and dangerous loads; and



- * Dust and dirt.

- 12.6.2 However, it is noted that the SD5 allocation site and its component parts must demonstrate compliance with the key design and infrastructure requirements set out as part of the policy H SP2c, and that Section i) of this policy states;

A new A29 route through the allocation which provides all necessary linkages and routing between the A259 (Bognor Regis Relief Road) to the south and A27 to the north and includes a bridge over the railway to the east of the current Woodgate crossing. The construction of this new route will be regarded as not only mitigating the effect of additional development traffic from the strategic site, but also providing significant additional benefits to the primary local road network and reducing the potential for future congestion in the wider area.

- 12.6.3 As the proposed development covered within this EIA Scoping document is entirely reliant on the realigned A29 being constructed to function as a viable development, it is considered that in line with the policy section referenced above that the generation of any additional traffic from the development will be mitigated for by the provision of the new A29 route and that subsequently any effects on the wider network will be negated.

12.7 Scoping Assessment Summary

- 12.7.1 The Scoping demonstrates that whilst there is the potential for significant effects in relation traffic and transport, that the provision of the new A29 route will mitigate the effects of the additional traffic from the development on the wider road network. Furthermore, the Transport Assessment and Travel Plan will provide the necessary technical information for the Local Highways Authority. As such it is proposed that Traffic and Transport is scoped out of further assessment within the ES. Table 12.1 shows a summary of potential effects in respect to Traffic and Transport.

Barnham Road, Eastergate - Environmental Impact Assessment,
Scoping Report



Table 12.1 – Assessment of Potential Effects – Traffic and Transport

Summary description of the identified impact	Sensitivity of Receptor	Impact Magnitude	Significance and Nature of Effect	Additional Mitigation	Residual Impact Magnitude	Residual Significance and Nature of Effect	Confidence Level
Construction Phase							
Local Transport Network	High	Moderate	Significant, adverse	Implement CEMP and CTMP	Slight	Non-significant, Neutral	High
Operational Phase							
Local Transport Network	High	Moderate	Significant, adverse	Residential scheme cannot be constructed until A29 is built which will alleviate traffic on the surrounding network	Moderate	Significant Beneficial	High

13.0 Archaeology and Cultural Heritage

13.1 Introduction

- 13.1.1 The assessment of archaeology and cultural heritage within this context includes all buried and above ground archaeological remains, built heritage sites, historic landscapes and any other features that contribute to the archaeological and historic interest of the area. Cultural heritage includes both designated and non-designated sites.
- 13.1.2 This scoping assessment considers the potential consequences relating to the construction and operation of the Proposed Development.

13.2 Baseline Conditions

- 13.2.1 There are no designated heritage assets within the site boundary. There are no scheduled monuments, registered parks and gardens, conservation areas and historic battlefields within 1km of the Proposed Development.
- 13.2.2 There are several Archaeological Notification Areas (ANAs) in this part of the West Sussex but none are present within the site.
- 13.2.3 There are twenty six listed buildings within 1km of the site, the majority of which are located in Eastergate village to the south west. The closest of these is the Grade II listed thatched cottage on Barnham Road approximately 400m to the south west.
- 13.2.4 There is no clear evidence for archaeological remains within the Site or immediately surrounding land.
- 13.2.5 The Site boundary contains land which has not previously been developed and which has been retained in agricultural use. There are few recorded archaeological features in this area and none which positively indicate the presence of archaeology within the site.

13.3 Further Assessment/ Consultation

- 13.3.1 A baseline cultural heritage assessment will be produced that will include consideration of buried archaeological remains and the setting of designated heritage assets; where necessary this will include consultation with key statutory consultees.

13.4 Mitigation within the Submitted Design

- 13.4.1 The scheme design is an early iterative process and therefore a mitigation strategy has yet to be finalised. However, as part of the design process both construction and operational design

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report

mitigation will be considered as necessary once further archaeological and cultural heritage assessment has been undertaken and can provide further recommendation.

Archaeological remains

- 13.4.2 The requirement for any archaeological evaluation will be determined through further consultation with the Historic Environment Advisor at ADC. Any further archaeological work should be undertaken in accordance with the standards and guidance from the Chartered Institute for Archaeologists and a Written Scheme of Investigation agreed in advance with BDC.

Built Heritage

- 13.4.3 During construction, appropriate measures should be taken to reduce disruption to nearby heritage assets through noise, dust and visual intrusions. Measures will be integrated into a CEMP.
- 13.4.4 The site is currently well screened by existing vegetation the majority of which will be retained. As the proposed buildings will be high quality and building heights will be relatively low, it is considered that this will mitigate the impact on the setting of any listed buildings in the vicinity.

13.5 Likely Environmental Effects of the Scheme

Construction Phase

- 13.5.1 Any buried archaeological heritage assets have the potential to be adversely impacted by the development through truncation of the land during construction.
- 13.5.2 There is also the potential that built heritage assets are affected during the construction phase as the works impact upon their setting.

Operational Phase

- 13.5.3 Whilst no effects are envisaged on any buried archaeological resource at the operational stage there is the potential for built heritage assets to be affected due to a change in their settings.

Cumulative Phase

- 13.5.4 No effects on the archaeological resource or built heritage are envisaged during the cumulative phase.

13.6 Scoping Assessment Summary

The scoping assessment concludes that the identified effects can be mitigated through the further archaeological investigation. Therefore, the potential archaeology and heritage effects to arise as a result of the development is considered to be limited and unlikely to result in any likely

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report

significant effects and it is proposed that ground conditions are scoped out of the proposed ES.

Table 13.1 shows a summary of potential effects in respect to Archaeology and Cultural Heritage.

Barnham Road, Eastergate - Environmental Impact Assessment,
Scoping Report



Table 13.1 – Assessment of Potential Effects – Archaeology and Cultural Heritage

Summary description of the identified impact	Sensitivity of Receptor	Impact Magnitude	Significance and Nature of Effect	Additional Mitigation	Residual Impact Magnitude	Residual Significance and Nature of Effect	Confidence Level
Construction Phase							
Impact on unidentified buried archaeology	Medium	Moderate negative	Moderate Adverse Significant	Archaeological investigation	Minor negative	Minor adverse Non-significant	High
Impact on designated Grade listed buildings	Medium	Slight negative	Neutral Not significant	None	Slight negative	Minor/Neutral Not significant	High
Operational Phase							
Impact on unidentified buried archaeology	Negligible	Neutral	Negligible	None Required	Neutral	Negligible	High
Impact on designated Grade listed buildings	Negligible	Slight negative	Minor adverse Not significant	None Required	Slight negative	Minor adverse Not significant	High

14.0 Ground Conditions, Agriculture, Soils and Contamination

14.1 Introduction

14.1.1 This chapter provides the geology, agriculture, soils and hydrogeology scoping assessment.

14.2 Baseline Conditions

14.2.1 The following baseline conditions have been generated by Wilson Bailey Geotechnical and Environmental Consultants who produce a preliminary due diligence desk study and ground investigation report in September 2018.

Geology

14.2.2 Information provided by the British Geological Survey indicates the site to be underlain by River Terrace Deposits and Raised Beach Deposits overlying clay soils of the London Clay Formation.

14.2.3 Information provided by the Environment Agency indicates the site and the surrounding area to be underlain by a Secondary 'A' Superficial Aquifer but that the site is not shown to be located within the source protection zone of any registered abstraction wells.

Ground Conditions

14.2.4 The ground conditions have been found to comprise a variable depth of topsoil underlain by a soft Brickearth silty clay with occasional to abundant flint gravel and occasional cobbles has been encountered to depths of between 1.10 m and 2.20 m below ground level.

14.2.5 Beneath these clay soils a variable chalk derived Raised Beach Deposit has been encountered comprising an initially pale brown and brown becoming pale brown and off white silty sand and sandy silt with variable flint gravel, chalk fragments and occasional flint cobbles. These soils locally graded into a pale brown and brown off white silty sandy flint gravel with variable chalk fragments. These granular soils were proved to the maximum depth of investigation with no indications of the anticipated underlying London Clay encountered as part of this ground investigation.

Hydrogeology

14.2.1 Information provided by the Environment Agency indicates the site and the surrounding area to be underlain by a Secondary 'A' Superficial Aquifer but that the site is not shown to be located within the source protection zone of any registered abstraction wells.

Site History

14.2.2 A review of available historical maps indicates that the site has not been previously developed and has been in use as open agricultural land since at least 1896, the date of the first map studied.

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report

During the post-war period, the site is shown to have been bisected by a network of tracks and to have been planted with rows of orchard trees, although by 1970 these are no longer marked as being present.

- 14.2.3 The historical use of the site as open agricultural land is not considered to be of concern with regards to potential ground contamination although the use as a commercial orchard could present the potential historical use of a wide range of chemicals such as pesticides and herbicides. Whilst the majority of these chemicals are not biologically persistent in the open environment, there is a perhaps limited potential for some relic pesticide and herbicide contamination at this site. The site is located remove from any farm yards or agricultural centres, such that risk of other contaminants associated with the refuelling, repair and servicing of agricultural equipment is considered negligible.
- 14.2.4 The site is located within a Mineral Safeguarding Area for Sharp Sand and Gravel, however, a Minerals Resource Assessment undertaken by WYG it is not considered it would be practicable to extract the mineral as it underlies a band of clay, it is of low quality and would need to be washed, it largely coincides with groundwater and would require dewatering and the site would need to be worked in 3 sections due to the proposed retention of the tree and hedgerows. It is considered that these circumstances are likely to detract any commercial interest.
- 14.2.5 An Agricultural Land Classification shows the site is located in an area which is predominantly Grade 1 agricultural land.

14.3 Further Assessment/ Consultation

- 14.3.1 None Proposed.

14.4 Mitigation within the Submitted Design

- 14.4.1 During the construction works a CEMP will be implemented which will outline measures to control pollution related risks during construction. This document will also set out measures for the storage and handling of potentially contaminating materials and also emergency procedures which should be adopted in the event that unidentified contamination is found during groundworks.
- 14.4.2 While direct mitigation compensation for the loss of agricultural land is not practicable within the development area it is proposed to preserve the integrity of this topsoil by undertaking the following additional measures. Following the removal of vegetation, the existing topsoil resources will be stripped and stored in stockpiles no more than 2m high, for future use in landscape areas, or sold for suitable reuse off Site. In order to help preserve the integrity of the topsoil this

operation will be done in accordance with The Construction Code of Practice for the Sustainable use of Soils on Construction Sites, which will include the production of a soil resource plan.

14.5 Likely Environmental Effects of the Scheme

- 14.5.1 The following section identifies the receptors we consider could potentially be significantly impacted, as a result of the Proposed Development,

Construction Phase

- ✧ Changes to local groundwater regime; and
- ✧ Loss of agricultural land.

Operational Phase

- ✧ Changes to local groundwater regime; and
- ✧ Future users of the Site.

14.6 Scoping Assessment Summary

- 14.6.1 The scoping assessment concludes that the identified effects can be mitigated through the implementation of a CEMP and if required a Soil Resource Management Plan at the construction phase. The potential for any operational effects will be mitigated through appropriate site design. Therefore, the potential for geology, contaminated land issues, soils and hydrogeology effects to arise as a result of the development is considered to be limited and unlikely to result in any likely significant effects and it is proposed that ground conditions are scoped out of the proposed ES. Table 13.1 shows a summary of potential effect in response to ground conditions.

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



Table 14.1 – Assessment of Potential Effects – Ground Conditions

Summary description of the identified impact	Sensitivity of Receptor	Impact Magnitude	Significance and Nature of Effect	Additional Mitigation	Residual Impact Magnitude	Residual Significance and Nature of Effect	Confidence Level
Construction Phase							
Health and Safety Risk to Workers	High	Moderate	Significant, adverse	Implement CEMP	Slight	Non-significant, Neutral	High
Impacts on controlled waters (pollution)	High	Major	Significant, adverse	Implement CEMP	Slight	Non-significant, Neutral	High
Impacts on controlled waters (changes to regime)	High	Slight	Not Significant, Neutral	None	Slight	Not Significant, Neutral	High
Loss of agricultural land	High	Substantial	Significant, adverse	Soil Resource Plan	Substantial	Significant, adverse	High
Impacts on aquifer	High	Substantial	Significant, adverse	Implement CEMP	Slight	Non-significant, Neutral	High
Operational Phase							
Impacts on controlled waters (changes to regime)	High	Slight	Not Significant, Neutral	None	Slight	Not Significant, Neutral	High

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



Impacts on future users	Mild	Slight	Not Significant, Neutral	None	Slight	Not Significant, Neutral	High
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15.0 Socio-Economic

15.1 Introduction

15.1.1 This chapter provides the socio-economic scoping assessment.

15.2 Baseline Conditions

15.2.1 The proposed Site is located within Barnham Ward is bounded by Arundel and Walberton ward to the north, within the District of Arun.

Population

15.2.2 Based on the 2011 Census, 8,627 people resided within the Barnham ward. Of these, 22% were aged between 45 to 59 (representing the largest proportion), followed 17.9% aged between 30 to 44 and 11% aged between 65 to 74.

15.2.3 As per the 2011 Census, the district of Arun has a population of 149,518 people, of which those aged between 45 to 59 represent the highest proportion of the total population.

Economy

15.2.4 Of the 8,627 residents within Barnham ward, 73.5% are economically active. Of these, 68.2% are in employment, 2.7% are unemployed and 2.7% are full-time students. Of the other 26.5% of the economically inactive residents, 16.1% are retired, 3.4% are students and with the remaining of the population either long-term or looking after home or family.

Education

15.2.5 State education provision within the scheme area comprise numerous primary schools, which feed into a number of secondary schools. Within 1km of the Site, there is one primary schools, which currently has space capacity. Within 2km of the Site there are all two secondary schools, and a college with all but operating within their recommended capacity.

Deprivation

15.2.6 Local levels of deprivation are measured by the Index of Multiple Deprivation (IMD). The development is within the 10% least deprived neighbourhoods in the country.

15.2.7 The development of this Site will help with the provision of housing and contribute to the areas' overall employment needs.

Health Provision

15.2.8 There are currently 5 GP surgeries, practices and medical centres within approximately 5km of the Proposed Development all which are accepting new patients.



15.3 Further Assessment/ Consultation

15.3.1 No further assessment in respect to socio-economics is considered required.

15.4 Mitigation within the Submitted Design

15.4.1 The scheme design is in an early iterative process and therefore specific mitigation measures in relation to socio-economic impacts have yet to be finalised. Following a more detailed assessment, appropriate mitigation measures can be established.

15.5 Likely Environmental Effects of the Scheme

Construction Phase

15.5.1 The key impacts of the construction phase of the proposed development include the following:

- ✧ Employment during construction; and,
- ✧ Indirect and induced jobs e.g. local construction suppliers.

15.5.2 These are considered to be beneficial and are unlikely to represent a significant effect.

Operational Phase

15.5.3 The key impacts of the operation phase of the proposed development include:

- ✧ Employment;
- ✧ Housing;
- ✧ Deprivation;
- ✧ Expenditure;
- ✧ Health services;
- ✧ Education; and,
- ✧ Recreation and wellbeing.

15.5.4 Sustainable transport and access will be addressed through the transport chapter, with links to socio-economic issues where relevant.

Cumulative Phase

15.5.5 In consideration of the other development proposals identified within Eastergate and surrounding area as outlined in the cumulative developments section, the potential effects are likely to be similar to those mentioned above, especially if some developments will be constructed simultaneously.



15.6 Scoping Assessment Summary

- 15.6.1 The results of the scoping assessment conclude that there is limited potential for significant socio-economics effects to arise as a result of the development and as such is scoped out of further assessment within the ES. Table 15.1 shows a summary of potential effects in respect to socio-economic.

Barnham Road, Eastergate - Environmental Impact Assessment,
Scoping Report



Table 15.1 Assessment of Potential Effects (Socio-Economic)

Summary description of the identified impact	Sensitivity of Receptor	Impact Magnitude	Significance and Nature of Effect	Additional Mitigation	Residual Impact Magnitude	Residual Significance and Nature of Effect	Confidence Level
Construction Phase							
Local Employment	Very High	Medium	Moderate Beneficial, Direct, Reversible, Short Term	None Required	Medium	Moderate Beneficial, Direct, Reversible, Short Term	High
Operational Phase							
Local Employment	Very High	Medium	Moderate Beneficial, Direct, Permanent, Long Term	None Required	Medium	Moderate Beneficial, Direct, Permanent, Long Term	High
Housing Provision	Very High	Medium	Moderate Beneficial, Direct, Permanent, Long Term	None Required	Medium	Moderate Beneficial, Direct, Permanent, Long Term	High
Population	High	Slight	Low Beneficial, Direct, Permanent, Long Term	None Required	Slight	Low Beneficial, Direct, Permanent, Long Term	High
Deprivation	Very High	Medium	Moderate Beneficial, Direct, Permanent, Long Term	None Required	Medium	Moderate Beneficial, Direct, Permanent, Long Term	High
Recreation and health facilities	High	Negligible	Neutral	None Required	Negligible	Neutral	High



16.0 Lighting

16.1 Introduction

- 16.1.1 This chapter provides the lighting scoping assessment and discusses the potential for the development to significantly affect these aspects of the baseline environment.

16.2 Baseline Conditions

- 16.2.1 Residential receptors are located immediately north, south and west of the Proposed Development with further residential receptors located at greater distances to the east.
- 16.2.2 In addition to residential receptors, ecological receptors are expected to be present along the network such as hedgerows and mature trees. Such receptors are of high sensitivity.

16.3 Further Assessment/ Consultation

- 16.3.1 As required by the ADC Local Validation Requirements Checklist (Updated 11 October 2019), a Lighting Assessment will be undertaken. This will comprise of a baseline survey to quantify existing lighting levels and determine the effects of existing luminaires in the vicinity of the proposed residential development in accordance with the Institute of Lighting Professionals (ILP) Guidelines. Existing night-time ambient lighting levels will be measured, where practicable, at the identified sensitive receptor locations using a suitably calibrated light meter and the type and location of all relevant luminaires recorded.
- 16.3.2 Lighting from the proposed development will be modelled to assess potential impacts to both existing and proposed residential units as well as any potentially sensitive ecological receptors. Light trespass will be predicted at the surrounding sensitive receptor locations and compared with the guideline values stipulated within the ILP document, 'Guidance Notes for the Reduction of Obtrusive Light' in order to provide an indication of the potential impacts of any proposed light sources at existing light sensitive receptors. Where light trespass at these receptors is deemed to be significant, mitigation options will be discussed with the client in order to manage the risk and reduce potential impacts.
- 16.3.3 A Lighting Assessment report will be produced providing details of key areas of the Site which need to be given particular consideration during the detailed design and will provide recommendations on the mitigation options available depending on the nature and sensitivity of the receptor.

16.4 Mitigation within the Submitted Design

- 16.4.1 The lighting of the Proposed Development will be designed in accordance with relevant standards.



16.4.2 During the construction phase, the CEMP will include good practice measures to be implemented across the Site. These measures to be implemented include:

- * specified working hours, uses of lighting, locations of floodlights;
- * lighting to be switched off unless specifically needed; and,
- * barriers to be erected to shield adjacent receptors where appropriate.

16.4.3 An appropriate lighting scheme will be incorporated into the development design that will mitigate light spill on to ecological receptors e.g. hedges, streams and bats.

16.5 Potential Environmental Effects of the Scheme

Construction

16.5.1 The onsite temporary light fittings, construction compounds and on-site security lighting associated with preparation and construction have the potential to result in sky glow and light trespass or 'spill' impacting sensitive local and ecological receptors.

16.5.2 The level of light will be dependent on the location of the construction activities on a daily basis and the equipment being used, with light levels being attenuated as the distance between the source and receptor increases. Any impacts would be temporary.

16.5.3 Through the implementation of a CEMP, the potential impact of construction lighting is deemed to be negligible.

Operation

16.5.4 Lighting associated with the operational phase of the Proposed Development has the potential to impact on receptors of ecological sensitivity within the vicinity of the Site.

16.5.5 As there will be a requirement to meet standard guideline criteria, through good design and consented conditions, significant adverse effects are considered unlikely to occur and the impact is deemed to be negligible.

16.6 Scoping Assessment Summary

16.6.1 This assessment concludes that it is unlikely that the development will produce any significant negative lighting effects. It is therefore concluded that it is not necessary to provide a separate Lighting chapter within the proposed EIA and therefore it has been scoped out of further assessment. A lighting assessment will however be completed as part of the planning application.



- 16.6.2 As the development will adhere to best practice guidance in respect to lighting, it is deemed that rather than considering the effects of lighting in a standalone chapter, it is proposed to address the issue of lighting design within the development description and design chapter. In addition, lighting will be considered and discussed within the technical report and appropriate technical chapters, most notably ecology, where relevant. Table 16.1 shows a summary of potential effect in response to lighting.

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



Table 16.1 – Assessment of Potential Effects – Lighting

Summary description of the identified impact	Sensitivity of Receptor	Impact Magnitude	Significance and Nature of Effect	Additional Mitigation	Residual Impact Magnitude	Residual Significance and Nature of Effect	Confidence Level
Construction Phase							
Impact on local sensitive receptors	Very High	Negligible	Non-significant, Neutral	None Required	Negligible	Neutral	High
Impact on ecological receptors	Very High	Negligible	Non-significant, Neutral	None Required	Negligible	Neutral	High
Impact on sky glow levels	Very High	Negligible	Non-significant, Neutral	None Required	Negligible	Neutral	High
Operational Phase							
Impact on local sensitive receptors	Very High	Negligible	Non-significant, Neutral	None Required	Negligible	Neutral	High
Impact on ecological receptors	Very High	Negligible	Non-significant, Neutral	None Required	Negligible	Neutral	High



17.0 Waste

17.1 Introduction

- 17.1.1 This chapter provides the waste scoping assessment and discusses the potential for the development to significantly affect this aspect of the environment.

17.2 Baseline Conditions

- 17.2.1 The Site is predominantly in use as agricultural land with grazing and orchards, it is therefore considered that it is likely to generate a negligible amount of waste.

17.3 Further Assessment/ Consultation

- 17.3.1 A Waste Strategy will be produced for the proposed development in line with the Council's 'Waste Planning Guidance'.

17.4 Mitigation within the Submitted Design

- 17.4.1 The construction mitigation will include the implementation of a CEMP. This CEMP will include the provision of a Site Waste Management Plan (SWMP) and the use of modern methods of construction. The Waste Strategy will outline how waste will be managed in accordance with the Waste Hierarchy, and as such waste minimisation will be given the highest priority. The detailed layout of the scheme will be designed in conjunction with ADC waste collection requirements.

17.5 Potential Environmental Effects of the Scheme

Construction Phase

- 17.5.1 The Proposed Development will result in the production of construction, demolition and excavation waste (principally comprising inert soils, bricks, concrete, cladding, steel, timber, glass etc.) during the construction phase.
- 17.5.2 The construction process for the Proposed Development would generate levels of waste through groundworks, piling, construction and fit out. A SWMP would be prepared pre-commencement and the implementation of the SWMP would ensure good site management practice resulting in the minimisation of waste and promoting the reuse or recycling of waste where possible. Further detail regarding the types and quantities of waste to be generated at the construction phase would be covered in chapter 3 of the ES and within the Waste Strategy.



Operational Phase

- 17.5.3 Residential and commercial waste will be produced during the operational phase. Municipal waste will be collected by ADC as part of its service to residents; industrial waste from the commercial uses could be collected by a number of local private providers.
- 17.5.4 In respect to operational waste, a number of measures in the layout and design of the scheme and the properties will be proposed to reduce waste generation and encourage recycling and re-use. The increase in numbers is not considered significant in the context of the administrative areas of the Proposed Development.

17.6 Scoping Assessment Summary

- 17.6.1 The results of the scoping assessment conclude that there is limited potential for significant waste effects to arise as a result of the development and as such is scoped out of further assessment within the ES. Waste will be addressed in the front end of the ES and Waste Strategy. Table 17.1 shows a summary of potential effect in response to waste.



Barnham Road, Eastergate - Environmental Impact Assessment,
Scoping Report

Table 17.1 – Assessment of Potential Effects – Waste

Summary description of the identified impact	Sensitivity of Receptor	Impact Magnitude	Significance and Nature of Effect	Additional Mitigation	Residual Impact Magnitude	Residual Significance and Nature of Effect	Confidence Level
Construction Phase							
Construction waste	Low	Low	Non-significant, Neutral	None	Low	Non-significant	High
Operational Phase							
Operational waste	Low	Low	Non-significant, Neutral	None	Low	Non-significant	High



18.0 Human Health

18.1 Introduction

18.1.1 This chapter provides the human health scoping assessment and discusses the potential for the development to significantly affect this aspect.

18.2 Baseline Conditions

18.2.1 The Site supports limited uses and therefore currently has a negligible effect on human health.

18.3 Further Assessment/ Consultation

18.3.1 No further assessment is required for human health as this topics will be covered within air quality and noise assessments.

18.4 Mitigation within the Submitted Design

18.4.1 The Proposed Development will be designed to abide by current housing safety regulations.

18.4.2 During construction, activities will be controlled through the CEMP which will ensure compliance with the health and safety Construction (Design and Management) Regulations (2015).

18.5 Potential Environmental Effects of the Scheme

Construction Phase

18.5.1 A number of aspects of the construction phase have the potential to affect human health, these include:

18.5.2 With respect to air quality:

- * The generation of dust during construction activities; and,
- * Emissions from construction plant on Site; and, exhaust emissions from construction phase road traffic.

18.5.3 With Respect to Noise:

- * Increase in noise and vibration as a result of construction activities.

18.5.4 With Respect to Ground Conditions:

- * Potential exposure to construction workers of existing ground contamination.

18.5.5 With respect to Traffic:

- * Increase in construction traffic entering Site and on the local road network.



Operational Impacts and Effects

18.5.6 A number of aspects of the operational phase have the potential to adversely affect human health, these include:

18.5.7 With respect to air quality:

- * Vehicle emissions from increases in road traffic associated with the completed development.

18.5.8 With Respect to noise:

- * Increase in noise from increases in road traffic associated with the completed development.

18.5.9 With respect to traffic:

- * Increase in congestion, driver delay, conflicts with non-motorised forms of transport etc, associated with the completed development.

18.5.10 There is also the potential for beneficial effects on human health through with respect to socio economic effects:

- * Increase in the number of housing provided in the area;
- * Provision of additional Care Home.

18.6 Scoping Assessment Summary

18.6.1 It is proposed that these human health issues will be considered within specific topic chapters namely air quality, noise and vibration. Human health will therefore not be assessed as a separate chapter within this ES. Table 18.1 shows a summary of potential effect in response to human health.

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



Table 18.1 – Assessment of Potential Effects – Human Health

Summary description of the identified impact	Sensitivity of Receptor	Impact Magnitude	Significance and Nature of Effect	Additional Mitigation	Residual Impact Magnitude	Residual Significance and Nature of Effect	Confidence Level
Construction Phase							
Human health effects associated with dust, noise and increase in traffic	High	To be assessed in a relevant chapter of the ES					High
Operational Phase							
Human health effects associated with noise and vehicle emissions due to an increase in traffic flow	High	To be assessed in a relevant chapter of the ES					High



19.0 Major Accidents, Fire and Natural Disasters

19.1 Introduction

- 19.1.1 This chapter provides the major accidents, fire and natural disasters scoping assessment and discusses the potential for the development to significantly affect this aspect of the environment.

19.2 Baseline Conditions

- 19.2.1 The Site is currently has limited uses and is therefore considered to be at negligible risk of Major Accidents, Fire and Natural Disasters.

19.3 Mitigation within the Submitted Design

- 19.3.1 The Proposed Development will be designed to current best practice, in respect road safety, drainage design and building regulations.
- 19.3.2 During construction, activities will be controlled through the CEMP which will ensure compliance with the health and safety Construction (Design and Management) Regulations (2015).

19.4 Potential Environmental Effects of the Scheme

- 19.4.1 Given the proposed housing and care home use of this development, the potential for either large volume storage or frequent passage / delivery of fuels and chemicals during both construction and operation is considered to be low. This is in comparison to more industrial sites such as chemical works, storage depots, docks, major highways etc.

19.5 Scoping Assessment Summary

- 19.5.1 It is therefore considered that while there is always a potential risk that a major accident, fire or natural disaster could result in a significant environmental impact, given the nature of the Proposed Development, this risk can be appropriately mitigated through embedded design measures and through compliance with statutory design guidelines. It is therefore proposed that major accidents, fire and natural disasters are not assessed as a separate chapter within this ES. Table 19.1 shows a summary of potential effect in response to major accidents, fire and natural disasters.

Barnham Road, Eastergate - Environmental Impact Assessment, Scoping Report



Table 19.1 – Assessment of Potential Effects – Major Accidents, Fire and Natural Disasters

Summary description of the identified impact	Probability of Risk	Potential Severity	Significance and Nature of Effect	Additional Mitigation	Confidence Level
Handling of hazardous materials	Unlikely	Severe	Low/Moderate	While no significant effects have been identified during construction, activities will be controlled through a CEMP which will ensure compliance with the health and safety Construction Regulations	High
Risks from spills, fire, or explosion	Unlikely	Severe	Low/Moderate		High
Risks of traffic accidents (including spillages and pollution incidents)	Unlikely	Severe	Low/Moderate		High
Risks from spills, fire, or explosion	Unlikely	Severe	Low/Moderate	None required	High
Risks of traffic accidents (including spillages and pollution incidents)	Unlikely	Severe	Low/Moderate	None required	High



20.0 Conclusion

20.1.1 This scoping report concludes that the topics which will need to be assessed and included as separate ES topics in the proposed ES are as follows:

- ✧ Air Quality
- ✧ Noise;
- ✧ Ecology;
- ✧ Landscape and Visual;
- ✧ Water Resources, Flood Risk and Drainage; and
- ✧ Climate Change.

20.1.2 The supporting documents to be submitted alongside the ES include but are not limited to:

- ✧ Planning Statement;
- ✧ Design and Access Statement;
- ✧ Statement of Community Involvement;
- ✧ Heritage Statement;
- ✧ Tree survey / arboriculture Statement;
- ✧ Sustainability Strategy;
- ✧ Topographical Survey;
- ✧ Transport Assessment;
- ✧ Travel Plan;
- ✧ Drainage Strategy;
- ✧ Flood Risk Assessment.
- ✧ Contamination Assessment
- ✧ Solis Survey & Minerals Safeguarding Report

20.1.3 This ES scoping assessment has identified a number of topics which it is considered are unlikely to have significant effects as mitigation is to be implemented through sensitive design and/or the implementation of good practice working measures during construction which will negate any



likely impacts. As such based on this detailed scoping assessment the following topics have been scoped out of the ES:

- * Traffic and Transport;
- * Cultural Heritage;
- * Ground conditions, Agriculture, Soils and Contamination;
- * Socio-Economics;
- * Lighting;
- * Waste;
- * Health; and,
- * Major Accidents and Natural Disasters.

20.1.4 The topics detailed above will not be included in the ES as separate ES chapters. However, the various technical reports relating to each topic will be summarised in the front-end chapters of the ES and these technical reports will be submitted with the application as stand-alone documents.



Appendix A: Assessment Methodologies

Air Quality

The significance of the effects during the operational phase of the development is based on the latest guidance produced by EPUK and IAQM in January 2017.

The following rationale will be used in determining the severity of the air quality effects at individual receptors:

The change in concentration of air pollutants and air quality effects, will be quantified and evaluated in the context of Air Quality Objectives (AQOs). The effects will be provided as a percentage of the Air Quality Assessment Level (AQAL), which may be an AQO, EU limit or target value, or an Environment Agency 'Environmental Assessment Level (EAL)';

The absolute concentrations will also be considered in terms of the AQAL and are divided into categories for long term concentration. The categories are based on the sensitivity of the individual receptor in terms of harm potential. The degree of harm potential to change increases as absolute concentrations are close to or above the AQAL;

Severity of the effect will be described as qualitative descriptors; negligible, slight, moderate or substantial, by taking into account in combination the harm potential and air quality effect. This means that a small increase at a receptor which is already close to or above the AQAL will have higher severity compared to a relatively large change at a receptor which is significantly below the AQAL;

The effects can be adverse when air quality concentration increase or beneficial when concentration decrease as a result of development;

The judgement of overall significance of the effects will then be based on severity of effects on all the individual receptors considered; and,

Where a development is not resulting in any change in emissions itself, the significance of effect is based on the effect of surrounding sources on new residents or users of the development, i.e., will they be exposed to levels above the AQAL as detailed in the Table below.



Table -Significance of Effects Matrix

Long term average concentration at receptor in assessment year	% Change in concentration relative to AQAL			
	1	2-5	6-10	>10
≤75% of AQAL	Negligible	Negligible	Slight	Moderate
76-94% of AQAL	Negligible	Slight	Moderate	Moderate
95-102% of AQAL	Slight	Moderate	Moderate	Substantial
103-109 of AQAL	Moderate	Moderate	Substantial	Substantial
≥110 of AQAL	Moderate	Substantial	Substantial	Substantial



Noise

- 1.1.1 The following approach and methodology are proposed:
- 1.1.2 Existing baseline noise levels have been considered as part of a 142-hour noise monitoring survey which will include attended and unattended measurements in accordance with the requirements of British Standard (BS) 7445 1-3 Description and measurement of Environmental Noise; the locations of the noise monitoring are shown in Figure 3 below.
- 1.1.3 In order to account for the effects of distance and screening (for example from the development itself) of sources on the noise levels across the Site, a noise prediction model has been constructed using the CadnaA software package. The model will also be used to predict any changes in road traffic noise levels as a result of any predicted changes in road traffic flows as a result of the scheme. The predicted noise levels will be assessed against existing baseline conditions and standard guideline noise level criteria as appropriate.

Construction Assessment

- 1.1.4 Operational noise levels will be compared against BS 5228-1+A1:2014 Code of Practice for noise and vibration on construction and open sites – Part 1: Noise. The assessment would determine the likely effect of the construction phase on existing receptors and will recommend mitigation measures as necessary.
- 1.1.5 The construction assessment will assess the noise levels associated with deliveries to the development Site, construction operations and fixed/mobile plant. These levels will then be compared against baseline noise levels and the criterion noise levels given in the guidance document.
- 1.1.6 Considering the outline nature of the demolition and construction phase proposals, the results of the assessment will be able to be used iteratively to feed into the design and mitigation strategy (height and locations of barriers/enclosures and vibration monitoring limits where appropriate) together with Construction and Environmental Management Plan (CEMP).

Traffic Assessment

- 1.1.7 The potential exists for noise from the development to impact upon nearby sensitive receptors. The likely sources of noise within the development are:
 - Road traffic noise from development generated vehicles on the local road network



- 1.1.8 Where information is available, outline assessment will be undertaken with reference to percentage change in traffic flows in line with guidance from the Design Manual for Roads and Bridges, Volume 11, Section 3, Part 7, HD213/11 Noise and Vibration. Consideration will also be given to the effects of increased HGV numbers associated with the sugar beet harvest.
- 1.1.9 In terms of off-site road traffic noise there is the potential that there will be both beneficial and adverse effects due to the proposals. This will be quantified within the report based on 'with' and 'without' development traffic flow data.

Operational Assessment

- 1.1.10 The assessment of potential noise effects from existing ambient noise sources will take into account the baseline noise survey and be undertaken using British Standard 8233:2014 with reference to the 1999 WHO document "Guidelines for Community Noise" as appropriate.
- 1.1.11 The assessment will be reflective of the scheme layout and the level of detail available at the time of planning submission. Subject to evolving guidance and legislation over the development phasing, design criteria will be presented within the report. This will be appended within the technical report and will reference relevant guidance documents such as the WHO Guidelines and BS 8233.
- 1.1.12 The proposed development will not generate vibration once constructed and operational. It is not anticipated that the proposed development will be subject to significant sources of vibration and therefore vibration will not be considered as part of the assessment.

Mitigation Recommendations

- 1.1.13 If identified within the noise assessment, noise control measures will be incorporated within the scheme design including the consideration of appropriate bunding/barriers or other mitigation measures such as enhanced glazing and ventilation.

References

- Ref 1.1 BS 5228-1+A1:2014 Code of Practice for noise and vibration on construction and open sites – Parts 1&2: Noise and Vibration.
- Ref 1.2 Design Manual for Roads and Bridges, Volume 11, Section 3, Part 7, HD213/11
- Ref 1.3 British Standard (BS) 7445 1-3 Description and measurement of Environmental Noise
- Ref 1.4 BS 8233: 2014 Guidance on sound insulation and noise reduction for buildings
- Ref 1.5 World Health Organisation 'Guidelines for Community Noise' 1999



Ecology

Assessment Methodology

The impact assessment for ecology will be carried out in accordance with the Chartered Institute of Ecology and Environmental Management's (CIEEM) Guidelines for Ecological Impact Assessment in the UK Ireland: Terrestrial, Freshwater and Coastal (2018), hereafter referred to as the CIEEM guidelines.

The starting point for any assessment of impacts is to determine which features should be subject to detailed assessment. These will be ecological receptors considered to be important and potentially affected by the project.

This approach is consistent with the 2017 EIA Regulations, which only require investigation of likely significant effects. A summary of the key points from the relevant guidance, as relevant to this assessment, is provided below.

Geographic Context

The CIEEM guidelines recommend that the value of ecological receptors or features is determined based on a geographic frame of reference that includes the following levels:

- ✧ International - Special Protection Areas (SPA), Special Areas of Conservation (SAC), Ramsar Sites, etc;
- ✧ National - Sites designated at UK level, e.g. Sites of Special Scientific Interest (SSSI);
- ✧ Regional - Habitats or populations of species of value at a regional (i.e. South East, England) level;
- ✧ County - Designated Sites, such as Wildlife Heritage Sites (WHS) and Sites of Importance to Nature Conservation (SINCs), or habitats / species populations of value at a county (i.e. West Sussex) level;
- ✧ Local - Habitats or species populations of value in a local context
- ✧ Negligible - Habitats or species populations that are considered to be sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable.

Habitats

In accordance with the CIEEM guidelines, the importance of habitats is measured against published selection criteria where available. Reference is also made to the list of habitats of principal importance in England and Wales, Priority Habitats and local Biodiversity Action Plans (BAPs). In accordance with the guidance, where important habitats are in a sub-optimal condition, their potential value should be considered.



Species

In accordance with the CIEEM guidelines, when assigning a level of value to a species, it is necessary to consider its distribution and status, including a consideration of trends based on available historical records. Rarity is an important consideration because of its relationship with threat and vulnerability although since some species are inherently rare, it is necessary to look at rarity in the context of status. A species that is rare and declining should be assigned a higher level of importance than one that is rare but known to be stable.

Reference is also made to the list of species of principal importance in England and Wales and local Biodiversity Action Plans (BAPs). Legally protected species are considered important where there is potential for a breach of relevant legislation.

Predicting and Characterising Ecological Impacts

In accordance with the CIEEM guidelines, when describing impacts, reference is made to the following, where applicable:

Positive/Negative – whether an impact improves or reduces the quality of the receptor.

- ✦ Extent – the area over which an impact occurs.
- ✦ Duration – the time for which an impact is expected to last.
- ✦ Magnitude – the size or intensity of the impact.
- ✦ Reversibility – a permanent impact is one that is irreversible within a reasonable timescale or for which there is no reasonable chance of action being taken to reverse it; a temporary impact is one from which a spontaneous recovery is possible.
- ✦ Timing and frequency – whether impacts occur during critical life-stages or seasons.

Direct and Indirect Ecological Impacts

Both direct and indirect impacts are considered within this assessment. A direct impact is directly attributable to a defined action such as the physical loss of a habitat or the immediate mortality of an individual of a particular species. Indirect impacts are attributable to an action, but which affect ecological resources through effects on an intermediary ecosystem, process or receptor. An example of an indirect effect would be the loss of an important prey species for a predator.



Approaches for Determining Significant Impacts

In accordance with the CIEEM guidelines, a significant impact, in ecological terms, is defined as an impact which either supports or undermines the conservation objectives for important ecological features or for biodiversity in general.

In accordance with the CIEEM guidelines, the approach adopted here aims to determine if an impact is significant or not on the basis of a discussion of the factors which characterise it - i.e. the ecological significance of an impact is not dependent on the value of the feature in question. The value of any feature that will be significantly affected is used to determine the geographical scale at which the impact is significant. For example, an ecologically significant impact on a feature of value at county level is regarded as a significant impact at county level. This in turn is used to determine the implications in terms of legislation, policy and/or development control.

As noted above, impacts are only assessed in detail for receptors of sufficient value that impacts upon them may be significant (in terms of legislation or policy).

Any significant impacts remaining after mitigation (the residual impacts), together with an assessment of the likelihood of success in the mitigation, are the factors to be considered against legislation, policy and development control in determining the application.



Landscape and Visual Impact

The assessment of the landscape and visual effect of the proposed development follows the Institute of Environmental Management and Assessment/Landscape Institute Guidelines on Landscape and Visual Assessment, 2013, 3rd Edition.

Scope of the assessment

The study area for the assessment was determined by a combination of a computer generated Zone of Theoretical Visibility (ZTV) and site assessment to establish a visual envelope. The visual envelope is the area from which the existing site can be seen. Views were considered up to 4 km from the site on the basis that beyond this distance, this form of development when seen by the human eye would be hardly discernible or not legible.

A computer ZTV is used as a working tool to inform the assessment team of the extent of the zone within which the proposed development may potentially be visible. It should be noted that this is a topographical information based exercise with no account being taken of the visual barrier effects of vegetation or buildings.

Viewpoints for the purpose of assessing the effects of the proposals were agreed with Arun District Council. Viewpoints were identified with emphasis placed on the selection of locations with a clear relationship to the proposed scheme, where potential visual implications were likely to be greatest.

The effects of the proposals have been considered both during and after the development at the following times:

- ✧ Construction: a worst case period, in winter, during construction; this will include temporary compounds, the storage of materials, vehicles movements, lighting and the erection of buildings;
- ✧ On completion: a worst case period, in winter, on completion of the works, which includes the completion of new buildings, roads, lighting and structures, without the benefit of screening by planting mitigation; and
- ✧ After 15 Years: a best case period, in summer, fifteen years after completion, with the benefit of effective planting mitigation.
- ✧ Residual effects are taken to be those remaining after 15 years following completion, given that mitigation by planting will not be effective immediately on completion of development. However, it may be expected that planting will continue to grow and develop further beyond year 15 and effects predicted to arise at year 15 may reduce further with the on-going growth of planting to maturity.



Effects may be local or widespread. They may be adverse or beneficial, direct or indirect, secondary, cumulative, permanent or temporary. Effects may occur during the short term (0-5 years), medium term (5-15 years) or long term (more than 15 years). The effects of lighting have also been considered.

Baseline

In determining the baseline information for the assessment, ACD have undertaken the following:

- » A desktop study of environmental data: relevant planning documents; landscape character assessments; maps and aerial photographs; and databases.
- » A field assessment by a qualified landscape architect, including an examination of topography, vegetation and views, and a photographic survey.

In order to represent the worst case in terms of effects, it has been assumed that development on the adjacent allocated areas (which are part of the same allocation as the site but subject to a separate planning application) will take place during the same timescale as the site and will be of a similar form with buildings at a similar height.

Landscape value

The value attributed to an area of landscape reflects communal perception at a local, regional, national or, occasionally, international scale. It is informed by a number of factors including scenic beauty, wildness, tranquillity, condition, rarity and cultural associations. Cultural associations may be widely held at a national scale or more locally. Landscapes considered to be of the highest value would generally be formally designated at the national level, whereas those considered of lowest value would generally be undesignated, degraded landscapes, perhaps identified as being in poor condition and requiring either restoration or re-creation.

An absence of designation does not necessarily imply the absence of value, as other factors such as scarcity or cultural associations can establish an area of otherwise unremarkable landscape as a valued local resource. Increasingly landscape designations at a local level are being replaced by a descriptive landscape character approach in the form of landscape character assessments.

As part of the baseline study, the value of the potentially effected landscape has been established. Value can apply to areas of landscape as a whole, or to individual elements, features and aesthetic or perceptual dimensions which contribute to the character of the landscape. Value has been determined in terms of: landscape designations; existing landscape character descriptions; the quality of landscape features, for example of trees and hedgerows; and perceptual characteristics such as tranquillity and remoteness,



Assessment of Landscape Effects

Landscape receptors are physical elements or attributes of the landscape that could be directly or indirectly affected by the development, such as landscape character, landform, trees or hedgerows, land uses and field boundaries.

Sensitivity

In order to assess the significance of landscape effects the sensitivity of the landscape receptors must be determined. This is achieved by combining judgements about the susceptibility of the landscape receptor to the type of change proposed, and the value of the landscape receptor. The criteria used to determine the sensitivity of landscape receptors are set out in the following table.

Table: Landscape Receptor Sensitivity

Sensitivity	Criteria
High	An area possessing a particularly distinctive sense of place, in good condition, or highly valued for its scenic quality and/or landscape character, for example National Parks, AONBs, Heritage Coasts, Grade 1 listed buildings and historic parks; or an intact feature of high intrinsic value, such as prominent trees or tree groups of category A or A/B, or species rich hedgerows forming a critical part of the landscape pattern or historic landscape pattern; landscapes or features with a low tolerance to change of the type identified.
Medium	An area with a well-defined sense of place and/or character in moderate condition; or an area valued by designation at a local or regional level for its landscape quality; or a partly damaged feature of high intrinsic value, or an intact feature of moderate intrinsic value, such as prominent trees or tree groups of Grade B or above, or species rich hedgerows which contribute to the character of the site, screening of views, landscape or historic landscape pattern; a landscape or feature which is partially tolerant of change of the type identified.
Low	An area with a poorly defined sense of place, and/or landscape character in poor condition, often not valued for its scenic quality; or a feature of low intrinsic value, such as trees and species poor hedges of no special quality or function; or a landscape or feature that is tolerant of change of the type identified.

Magnitude of Landscape Effects

The magnitude of landscape effects has been assessed using criteria based on the amount of physical change to landscape features and the degree to which key characteristics of the landscape are altered, either by removing existing components of the landscape or by the addition of new ones.



Table: Magnitude of Landscape Effects

Magnitude	Description
Large adverse effect	Major loss of or alteration to key elements and characteristics features of the landscape; or introduction of elements at considerable variance with the landform, scale, pattern and character of the landscape.
Medium adverse effect	Partial loss of or alteration to one or more key elements or characteristic features of the landscape; or introduction of elements at some variance with the landform, scale, pattern and character of the landscape.
Small adverse effect	Minor loss or alteration to one or more key elements or characteristic features of the landscape; or introduction of elements that may not quite fit with the landform, scale, pattern and character of the landscape.
Negligible adverse effect	Just perceptible loss or alteration to one or more key elements or characteristic features of the landscape; or introduction of elements that may be just perceptibly at odds with the scale, landform, pattern and character of the landscape.
No change	No change to key elements or characteristic features of the landscape; or to the scale, landform, pattern and character of the landscape.
Negligible benefit	Just perceptible improvement to key elements or characteristic features of the landscape; or to the scale, landform, pattern and character of the landscape.
Small benefit	Minor improvement to key elements or characteristic features of the landscape; or introduction of elements that would achieve a degree of fit with the scale, landform, pattern and character of the landscape.
Medium benefit	Partial improvement to key elements or characteristic features of the landscape; or introduction of elements that would fit well with the scale, landform, pattern and character of the landscape
Large benefit	Major improvement to or restoration of, key elements or characteristic features of the landscape; or the introduction of elements that would fit very well with the scale, landform, pattern and character of the landscape.

Significance of Landscape Effects

The significance of effects is determined by the assessment of landscape sensitivity combined with the magnitude of effect as indicated by the matrix in the table below.



Table: Assessment of Landscape Significance

Magnitude of Effect of Benefit	Sensitivity		
	High	Medium	Low
Large	Very significant	Significant	Slightly significant
Medium	Significant	Slightly significant	Not significant
Small	Slightly significant	Not significant	Not significant
Negligible	Not significant	Not significant	Not significant
No change	Not significant	Not significant	Not significant

The prediction and extent of effect cannot always be absolute. It is for each assessment to determine the assessment criteria and the thresholds, using informed and well-reasoned professional judgement supported by thorough justification for their selection, and explanation as to how the conclusions for each effect assessed have been derived, as noted in GLVIA 3rd edition para 2.23-2.26 and 3.32-36.

Assessment of Visual Effects

Visual receptors are groups of people who will be affected by changes in views and visual amenity due to the development proposals. Receptors include people living or working in the area, people passing through by road or rail, people visiting landscapes and engaged in recreation.

Visual Receptor Sensitivity

The visual sensitivity of receptors is assessed in terms of their susceptibility to a change in views and visual amenity; this being a function of their occupation or activity, and the extent to which their attention or interest may therefore be focused on the view (GLVIA para 6.32).

The value attached to the view either 'in relation to heritage assets, or through planning designations' or 'through appearances in guidebooks or on tourist maps' and the extent of visibility are also relevant considerations (GLVIA section 6.37).

The sensitivity of visual receptors has been assessed against the criteria set out in the table below, these are based on advice set out in the GLVIA (paras 6.32-6.34) and on professional judgement.



Table: Visual Receptor Sensitivity

Magnitude	Description
High	Occupiers of residential properties. Users of outdoor recreational facilities, including public rights of way, whose attention or interest may be focused on the landscape Visitors to heritage assets or other attractions where views of the surrounding area are an important contributor to the experience. Communities where views contribute to the landscape setting or valued views enjoyed by the community.
Medium	People travelling through or past the affected landscape in cars, on trains or other transport routes where speeds are moderate and views readily available. People at their place of work where their attention is focussed on work but where the setting is important to the quality of working life. People engaged in outdoor recreation where enjoyment of the landscape is incidental rather than the main interest.
Low	People travelling through or past the affected landscape in cars, on trains or other transport routes where high speeds are involved and views sporadic and short-lived. People engaged in outdoor sport or recreation which does not involve or depend upon appreciation of views of the landscape. People at their place of work where their attention is focussed on their work not their surroundings, and where the setting is not important to the quality of working life.

The number of people likely to be present and the duration of time that a view is likely to be experienced, may also influence the visual sensitivity of a particular location, also whether the view is open or glimpsed. It is sometimes the case that different categories of visual receptor might be present at a selected representative viewpoint, e.g. a selected location may include both residential properties and workplaces, resulting in different levels of sensitivity.

Magnitude of Visual Effects

The magnitude of visual effects depends on factors such as distance, the angle of the sun/ time of day, weather conditions and elevation. Also whether the site is seen completely or in part; whether it appears on the skyline or is viewed with a backdrop of land or vegetation or with a complex foreground; and whether the site forms part of an expansive landscape or is visible within a restricted view. The aspect of dwellings and whether the view is from a main window or a secondary window, which may be used less frequently, is also a consideration. From highways, the direction and speed of travel are relevant. In the assessment magnitude of change is ranked in accordance with the follow table.



The assessment of visual effects from any one location takes into account the:

- ✦ Nature, scale or magnitude and duration of the change
- ✦ Extent of the proposed development that will be visible;
- ✦ Degree of visual intrusion or obstruction that will occur;
- ✦ Distance of the view;
- ✦ Change in character or quality of the view compared to the existing.

Table: Visual Receptor Sensitivity

Magnitude	Examples
Large effect or benefit	The development would result in a dominant change in the existing view and/or the quality and /or character of the view. The development would form prominent elements within the overall view and/or may be in full view of the receptor.
Medium effect or benefit	The development would result in a clearly noticeable change in the existing view and/or the quality and/or character of the view. The development would form a conspicuous element within the overall view and/or may be readily noticed by the receptor.
Small effect or benefit	The development would result in a perceptible change in the existing view, without materially affecting the overall quality and/or character of the view. The development would form an apparent small element in the wider landscape that may or may not be noticed by the receptor.
Negligible effect or benefit	The development would result in a barely perceptible change in the existing view, without affecting the overall quality and character of the view. The development would form an inconspicuous minor element in the wider landscape that may be missed by the receptor.
No change	The development will cause no change to the view

Type of view and number of viewers

The type of view and number of viewers who experience the view are factors in judging significance of effect. Views may be glimpsed or open and there may be few, moderate or many viewers.

Significance of Visual Effects

The significance of effects is determined by the assessment of visual receptor sensitivity combined with the magnitude of effect as indicated by the matrix in the table below.



Table: Assessment of Landscape Significance

Magnitude of Effect of Benefit	Sensitivity		
	High	Medium	Low
Large	Very significant	Significant	Slightly significant
Medium	Significant	Slightly significant	Not significant
Small	Slightly significant	Not significant	Not significant
Negligible	Not significant	Not significant	Not significant
No change	Not significant	Not significant	Not significant



Hydrology and Flooding

This method is a bespoke method developed by WYG which takes into consideration the Highways Agency's impact assessment guidance which can be found in the Design Manual for Roads and Bridges (DMRB), Volume 11 Environmental Assessment, Section 2, Part 5, HA205/08 Assessment And Management Of Environmental Effects Highways Agency (Highways Agency, 2008). Note that the DMRB assessment method is not followed in its entirety as DMRB assessments are developed for the assessment of highways projects and many of the impact criteria are developed around the results of highways specific assessment tools specific in DMRB.

Therefore, the assessment of the potentially significant environmental effects on the flood risk, drainage and surface water features of the environment will be based on the following set of sensitivity criteria provided in Table below. Examples of how sensitivity may be determined for a particular feature are provided for transparency.

Table Sensitivity of Flood Risk, Drainage and Surface Water Quality Attributes

Sensitivity	Criteria	Example Criteria
Very High	Attribute has a high quality and rarity on a regional or national scale	Water Framework Directive (WFD) Class 'High'. Site protected/designated under EC or UK habitat legislation (Special Area of Conservation (SAC), Special Protection Area (SPA), Site of Special Scientific Interest (SSSI), Drinking Water Protection Zone (DWPZ), Ramsar site, and Freshwater Fishery/Shellfish Water). Flood Zone 3b (Functional Floodplain) area at risk from a flood event less than or equal to the 1 in 20 year event EC Bathing Waters Directive Beach class – 'Higher' classification.
High	Attribute has a high quality and rarity on a local scale	Water Framework Directive (WFD) Class 'Good'. Main river >10m wide. Major Cyprinid Fishery (commercial). Watercourse that supports species protected under EC or UK habitat legislation but is not a designated site. Flood Zone 3a (High probability) area at high risk from a river flood event less than or equal to the 1 in 100 year event. EC Bathing Waters Directive Beach class – 'Minimum' classification.
Medium	Attribute has a medium quality and rarity on local scale	Water Framework Directive (WFD) Class 'Moderate'. Minor Cyprinid Fishery (commercial). Main river <10m wide. Ordinary watercourse >5m wide. Flood Zone 2 (Medium probability) area at medium risk from a river flood event between the 1 in 100 and 1 in 1000 year. event .
Low	Attribute has a low quality and rarity on local scale.	WFD Class 'Poor'. No fishery of any type. Unclassified field drain which is therefore likely to be <5m wide. Flood Zone 1 (Low probability) area at low risk from a river or sea flood event greater than the 1 in 100 year. EC Bathing Waters Directive Beach class– Fail.



Determination of the Magnitude of Flood Risk and Drainage Effects and their Significance

The magnitude of potential impacts during both construction and operation of the proposed development will be assessed using the criteria presented below. The magnitude (scale of change) is determined by considering the degree of deviation from the baseline conditions and whether this is likely to result in any changes in the use of the receptor concerned.

Table Assessing the Impact Magnitude on Flood Risk and Drainage, Surface Water Quality and Water Demand

Impact magnitude	Example Criteria
Substantial negative	A pollution incident or release during construction or operation of a development likely to result in a major pollution incident. Substantial change (reduction) in the water body's existing failing physico chemical elements and the addition of new failing chemical elements resulting in a substantial change in current WFD physico chemical status. Therefore substantially increased pressure in meeting target status. A substantial adverse change in hydromorphological characteristics of the water feature which would affect the water body's existing WFD ecological status. Project conflicts with the delivery of more than one RBMP mitigation measures on a WFD water body. Loss or extensive change to a fishery. Building 'vulnerable development' in Flood Zone 3b on the site. Direct loss of Flood Zone 3b on site and indirect increase in flood risk elsewhere.
Moderate negative	A pollution incident or release during construction or operation of a development likely to result in a moderate or minor pollution incident. Moderate change (reduction) in the water body's physico chemical elements resulting in a moderate change in current WFD physico chemical status. Therefore moderately increased pressure in meeting target status. A moderate change in hydromorphological characteristics of the water feature which would affect the water body's existing WFD ecological status. Project conflicts with the delivery of one RBMP mitigation measure on a WFD water body. Partial loss in productivity of a fishery. Building 'vulnerable development' in Flood Zone 3a on the site. Direct loss of Flood Zone 3a on site and indirect increase in flood risk elsewhere. Water demand during construction on most large construction projects is expected to be moderate negative.
Slight negative	Small reduction in water quality. Reduction in the water body's chemical elements but insufficient to change the current WFD chemical status. Therefore only slight increased pressure in meeting target WFD chemical status. A slight change in the hydromorphological characteristics but insufficient to change the current WFD ecological status. Building 'vulnerable development' in Flood Zone 2 on the site. Direct loss of Flood Zone 2 on site and indirect increase in flood risk elsewhere. Meets Code for Sustainable Homes Level 3 for water use. Water demand for non-residential buildings (BREEAM standard for non-residential buildings requirement) – water efficiency measures would help to achieve a Very Good rating (assuming 1 credit achieved for a water use between 4.5 and 5.5 m³/per person/year).
Negligible	Very low levels of pollution from discharges insufficient to significantly affect water quality. Very low risk of pollution from accidental spillages. No discernible change in the water body's chemical elements. Therefore, no discernible change to WFD chemical status of waterbody. No discernible movement towards or away from the target WFD chemical status. No discernible cause and effect between the project and RBMP mitigation measures. No discernible loss of flood zone Water demand for non-residential buildings (BREEAM standard for non-residential buildings requirement) – water efficiency measures would help to achieve an Excellent rating (assuming 2 credits achieved for a water use between 1.5 and 4.4 m³/per person/year).
Slight positive	Improvement in the water body's physico chemical elements but insufficient to change the current WFD chemical status. Therefore a slight improvement towards meeting target WFD chemical status. Direct net gain of Flood Zone 2 on site and indirect decrease in flood risk elsewhere.



Impact magnitude	Example Criteria
Moderate positive	Moderate change (improvement) in the water body's physico chemical elements resulting in a moderate positive change in current WFD chemical status. A moderate positive change in hydromorphological characteristics of the water feature which would affect the water body's existing WFD ecological status. Therefore substantially decreased pressure in meeting WFD ecological target status as a result of the proposal (but this might not result in the water body's designation being removed from the Heavily Modified Waterbody category). Direct net gain of Flood Zone 3a on site and indirect decrease in flood risk elsewhere.
Substantial positive	Substantial change (improvement) in the water body's existing failing physico chemical elements. A substantial beneficial change in hydromorphological characteristics of the water feature which would affect the water body's existing WFD ecological status. Therefore substantially decreased pressure in meeting WFD ecological target status as a result of the proposal(s) (possibly resulting in the waterbody losing its 'Heavily Modified Waterbody' designation). Direct net gain of Flood Zone 3b on site and indirect decrease in flood risk elsewhere.

Determination of the Magnitude of Drainage Infrastructure Impacts and their Significance

Drainage infrastructure impact magnitude will be determined by applying a qualitative approach. This will follow the following steps:

- Reviewing the drainage proposals to ascertain if there will be any impact from the proposed design on existing drainage infrastructure and capacity during construction and operation.

For drainage infrastructure impacts the magnitude of the impact is described in descriptive words (not on a scale of magnitude) by stating whether the impact is either negative or positive or no impact. It is assumed that all negative and positive impacts result in significant effects.

Determining the Significance of Potential Effects and Significant Effects

Magnitude and sensitivity for flooding and drainage and surface water quality attributes is combined as to determine the significance of the effects. This is similar to the significant effects table as provided specifically within Volume 11 Environmental Assessment, Section 3, Part 10, HD45/09 (Highways Agency, 2009), but terminology has been modified to maximise consistency of terminology used within this ES.

A level of significance of intermediate significance or greater is considered as being significant within the terms of reference of the EIA Regulations.



Table **Estimating the Significance of Potential Effects on Flood Risk and Drainage,
Surface Water Quality and Water Demand**

		Magnitude of Impact			
		Substantial magnitude	Moderate magnitude	Slight magnitude	Negligible magnitude
Sensitivity of Receptor	Very High	Major	Major	Intermediate	Neutral
	High	Major	Intermediate	Minor	Neutral
	Medium	Major	Intermediate	Minor	Neutral
	Low	Minor	Minor	Neutral	Neutral



Climate Change

There is at present no single accepted methodology for the assessment of climate change within EIA. The proposed assessment methodology outlined below is therefore based on professional judgement and existing sources of guidance.

Magnitude of Effect

Effects on Climate

The magnitude of impact for the effects on climate is categorised as shown in Table below, based on WYG's professional judgement.

Table Determining Magnitude of Impact for the assessment of effects on climate

Magnitude	Impact
Moderate to Substantial Adverse	An increase in GHG emissions and sources of emissions, contributing substantially to local and global GHG emissions.
Slight Adverse	A small increase in GHG emissions and sources of emissions, contributing to local and global GHG emissions.
Negligible / None	No increase in local and global baseline emissions.
Slight Beneficial	A small reduction in GHG emissions and sources of emissions, contributing to the reduction in anticipated local and global GHG emissions.
Moderate to Substantial Beneficial	A reduction in GHG emissions and sources of emissions, contributing to the reduction in anticipated local and global GHG emissions.

Vulnerability to Climate Change

The Department for Transport and Infrastructure (Australia)'s Climate Change Adaptation – Guideline for Asset Management (2015) is one of few methods for determining the magnitude of impact of vulnerability to climate change and therefore has been adapted as outlined in Table for use in this assessment.

Table - Determining Magnitude of Impact for the assessment of the vulnerability of the project to climate change

Magnitude	Impact
Moderate to Substantial Adverse	Loss of receptor and/or considerable permanent damage/alteration to the characteristics, features or elements of the receptor; substantial permanent damage/alteration to key characteristics, features or elements.



Magnitude	Impact
Slight Adverse	Some measurable damage/alteration to key characteristics, features or elements of the receptor.
Negligible / None	Minor loss or damage/alteration to the characteristics, features or elements of the receptor.
Slight Beneficial	Some measurable benefits to the characteristics, features or elements of the receptor.

Source: Adapted from Department for Transport and Infrastructure (Australia), Climate Change Adaptation – Guideline for Asset Management, April 2015

Sensitivity of Receptor

The earth's atmosphere / climate is the receptor for the assessment of the effects on climate and is categorised as being of Very High Sensitivity, given the potentially global effects of climate change and the UK's legally binding commitments to reduce GHG emissions.

The project and the environmental topics assessed within this ES are the receptors for the assessment of the vulnerability of the project to climate change and are categorised as being of Very High Sensitivity.

Duration of Effect

The climate change assessment will consider the short-term duration of effects in relation to the construction phase. Medium to longer term effects will be considered in relation to the projects overall contribution to climate change and vulnerability to climate change throughout its proposed life. This assessment will be limited to a qualitative assessment.

Significance of Effect

Effects that are Intermediate or greater are defined as significant in EIA terms for the purpose of this assessment.

The significance matrix to be applied has been set out below

Table Significance of effects matrix

		Magnitude of Impact			
		Moderate to Substantial Adverse	Slight Adverse	Negligible/None	Slight Beneficial
Sensitivity of Receptor	Very High	Major	Intermediate	Neutral	Neutral