Homes England

The Housing and Regeneration Agency

West of Ifield (WOI)

EIA Scoping Opinion Request Report

17th October 2023

CONTENTS

1. Introduction

1.1 Background

1.1.1 Homes England (HE) (the Applicant) intends to redevelop the area (the 'Site') within the red line boundary depicted on Figure 2.1 below as part of a hybrid planning application. The hybrid planning application will form a sustainable urban extension to Crawley and includes land within Horsham District Council (HDC) and Crawley Brough Council's (CBC) administrative areas (the 'Proposed Development').

1.1.2 The application for planning permission will be an Environmental Impact Assessment (EIA) application and as such the Applicant is requesting HDC's opinion as to the scope level and detail of the information to be provided in the Environmental Statement (ES) (the 'Scoping Opinion'). It is noted that whilst the eastern side of the Site lies partly within the CBC boundary, the majority of the Site lies within the HDC boundary and on this basis HDC has therefore agreed to co-ordinate consultation on the planning application.

1.1.3 The planning application for the Proposed Development will be hybrid with Phase 1a and 1b provided in detail (refer Section 3) and all other matters reserved.

1.1.4 It is noted that a formal Scoping Opinion was provided by HDC in November 2020[1] however, this opinion was based on the Applicant submitting an outline Planning application for the Site. Given the time that has elapsed and that the Applicant now intends to submit a hybrid application it was considered necessary to re assess the scope of the EIA for the amended Proposed Development and request a new scoping opinion from HDC (the local planning authority (LPA)).

1.2 Objective

1.2.1 This EIA Scoping Report provides the information required by regulation 15(2) of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 ('the EIA Regulations') to enable the LPA to issue a formal Scoping Opinion based on the proposed hybrid planning application for the Site.

1.2.2 The purpose of this Scoping Report is to establish the scope of the Environmental Statement to ensure that potential effects that could give rise to 'likely significant effects' from the Proposed Development are appropriately and proportionately addressed in the Environmental Statement (ES). It aims to provide the LPA and other consultees with sufficient information to form an opinion of the adequacy of the proposed assessments.

1.3 Need for EIA

1.3.1 EIA is mandatory for developments of a type falling within Schedule 1 of the EIA Regulations and may be required for developments of a type falling within Schedule 2, dependent on factors such as size, location, nature or likelihood of generating significant environmental effects. The Proposed Development is not of a type described in Schedule 1. However, it can be described as an 'urban development project' as defined under paragraph 10(b) of Schedule 2 of the Regulations, and, given that the proposals are for a mixed-use

[1] Dated 30th November 2020 (signed by Jason Hawkes, Principal Planning Officer)

development including up to 3,000 homes, this far exceeds the threshold of 150 residential units cited in 10(b)(i).

1.3.2 The screening criteria provided in Schedule 3 of the EIA Regulations are used to determine whether developments falling within Schedule 2 are 'EIA development' and hence require EIA to be undertaken. The criteria include the characteristics of the development, its location and the characteristics of potential effects. Further details of the Proposed Development and its location are provided in Sections 2 and 3 of this report respectively and the potentially significant environmental effects are described in subsequent Sections 5 to 17. However, it is clear from the proposed scale of the development, its location and the potential effects that may arise has the potential to generate likely significant environmental effects and therefore that EIA will be required.

1.3.3 This report constitutes a request for a formal Scoping Opinion from HDC under Regulation 15 of the EIA Regulations.

1.4 Structure of Scoping Report

1.4.1 As required by Regulation 15 of the EIA Regulations, this Scoping Report includes the following information in order for HDC to provide a formal Scoping Opinion:

- A plan sufficient to identify the land (Figure 2.1);
- A brief description of the nature and purpose of the development (Section 3), including its location and technical capacity (Section 2); and
- An explanation of the likely significant effects of the development on the environment (Sections 5 -17).

1.4.2 This Scoping Report is structured as follows:

- An overview of the current Site context and surrounding areas, including a plan sufficient to identify the land (Section 2);
- Description of the Proposed Development (Section 3);
- An overview of the proposed EIA methodology (Section 4); and
- A topic-by-topic basis (Sections 5 to 16) covering:
  - Baseline overview and key issues;
  - Likely significant effects on the environment;
  - Proposed surveys and assessment methodologies that would be used in the EIA to establish the baseline conditions and sensitive receptors and the significant effects; and
  - A summary of those potential effects which have been scoped in and out of the EIA.

1.4.3 The Applicant seeks to ensure that the Environmental Statement is proportionate and, in this regard, proposes to scope out of the Environmental Statement those effects that do not have the potential for likely significant effects.

1.5 Planning Policy Summary

Local Planning Policy

1.5.1 The Proposed Development lies within the administrative area of Horsham District Council (HDC) and Crawley Borough Council (CBC) in West Sussex.

1.5.2 The Horsham District Planning Framework (Ref. 5.2) includes an Objective Theme "*to safeguard and enhance the environmental quality of the district, ensuring that development maximises opportunities for biodiversity and minimises the impact on environmental quality including air, soil, water quality and the risk of flooding*."

1.5.3 The current statutory development plan for HDC is the Horsham District Planning Framework, although HDC has been undertaking a review of its Local Plan for a number of years.

1.5.4 As a result of the Local Plan delay, HDC has published a new document, Facilitating Appropriate Development (2022). This document outlines how HDC will consider planning applications as they are received. It confirms that HDC expects applicants to comply with most matters addressed in the existing Horsham District Council Planning Framework, and also sets out the expected approach to new Local Plan policy requirements, including Biodiversity Net Gain and Water Neutrality.

1.5.5 The current statutory development plan for CBC is the Crawley Borough Council Local Plan 2015 – 2030. Policy EC9 states that "*Development proposals which would cause the permanent loss of the best and most versatile agricultural land (Grades 1, 2 and 3a in the Defra Agricultural Land Classification system) will not be permitted unless it can be demonstrated to the satisfaction of the borough council that there are no appropriate alternatives and there are over-riding sustainability benefits*."

1.5.6 In May 2023 CBC published the Draft Crawley Borough Local Plan 2024 – 2040 (Regulation 19), which was consulted on between May and June 2023, although the new Local Plan has not yet been adopted. Draft Policy CL8 states that development proposals at West of Ifield which respect its character as an area of locally special rural fringe, its nature conservation and recreation value, its positive relationship with the urban edge and links to the wider countryside will be encouraged.

1.5.7 The West Sussex Structure Plan (2001 – 2016) (Ref. 5.4) includes Policy ERA5 which states that "*Development should not be permitted unless the quality of, and where appropriate the quantity of, the air, soil and water resources of the County will be protected and, where possible, enhanced*."

1.5.8 It also states that proposals should "*prevent the irreversible loss of the best and most versatile agricultural land (grades 1, 2 and 3a of the Agricultural Land Classification system) unless the need for the development outweighs the long-term protection of the land*."

1.5.9 The Soil Strategy for England (Ref 5.5) sets out the Government's aims in relation to protecting agricultural soils and in relation to protecting the soil resource during construction and development. There is a commitment to review the weight given to protecting best and most versatile land and review the need for any change to policy; no change has currently been advised.

1.5.10 Within the Strategy there is an aim of encouraging better management of soils during the construction process. As part of this, a Construction Code of Practice for the Sustainable Use of Soils on Construction Sites has been produced to protect soil resources disturbed on construction sites. Whilst the Code is not legislatively binding, the wider benefits of following the guidance (in terms of sustainability, cost savings and waste controls) are clearly set out.

1.5.11 Other guidance documents relevant to soils and agriculture will be referenced. In general, these relate back to the policy and guidance documents referenced above, and include:

- Natural England Technical Information Note 049);
- Good Practice Guide for Handling Soils; and
- British Standard Specification for Topsoil and Requirements for Use, BS3882:2015.

1.6 Authorship of Report

1.6.1 This report has been prepared on behalf of Homes England and comprises a combination of authors. An original draft of this EIA Scoping report was prepared by Arcadis (UK) Ltd in August 2019. Subsequently, due to revised timescales for the Proposed Development, this version of the draft EIA Scoping report was put 'on hold' and not formally submitted as part of a request for an EIA Scoping Opinion. Thereafter Ramboll UK Ltd has updated and amended parts of the original draft of the report to take account of changes to the Proposed Development and revisions to applicable guidance and policy. As such this report comprises combined authorship as stated.

2. Site Context

2.1 The Site

2.1.1 The Site is located on land to the west of Ifield near Crawley in West Sussex (Figure 1.1), centred approximately at National Grid Reference TQ 23679 36673 covering a total Site area of approximately 170.8 ha.

2.1.2 The Site is predominantly occupied by a mixture of arable and pastoral fields and includes the Ifield Golf Course and Country Club (hereafter referred to as the 'golf course') in its far southern portion. There are small number of existing buildings associated with the farm and golf club.

2.1.3 The River Mole bisects the western part of the Site and flows from south-west to north-east.

2.1.4 The Site topography is generally low-lying, with ridges to the south and west. The first of these ridges passes through the southern part of the Site in an approximate east-west alignment and this rises up from 76m above ordnance datum (AOD) in the south-west to approximately 85m AOD at Hyde Hill. The second ridge is located approximately 1km to the north-west at Russ Hill. It is orientated in an approximate south-west to north-east alignment which rises up from 68m AOD m on Site and extends up to 100m AOD at Russ Hill. The low-lying land between these two ridges lies at approximately 60-70m AOD and is dissected by the narrow watercourses of Ifield Brook and the River Mole.

2.1.5 A parcel of land that is situated within the northern portion of the Site (Figure 2.1) will be excluded from the Proposed Development and will not lie within the Site". This northern 'island' comprises the Ifield Court Hotel (covering an area of approximately 1ha), and a medieval moat at Ifield Court, classified as a scheduled monument.

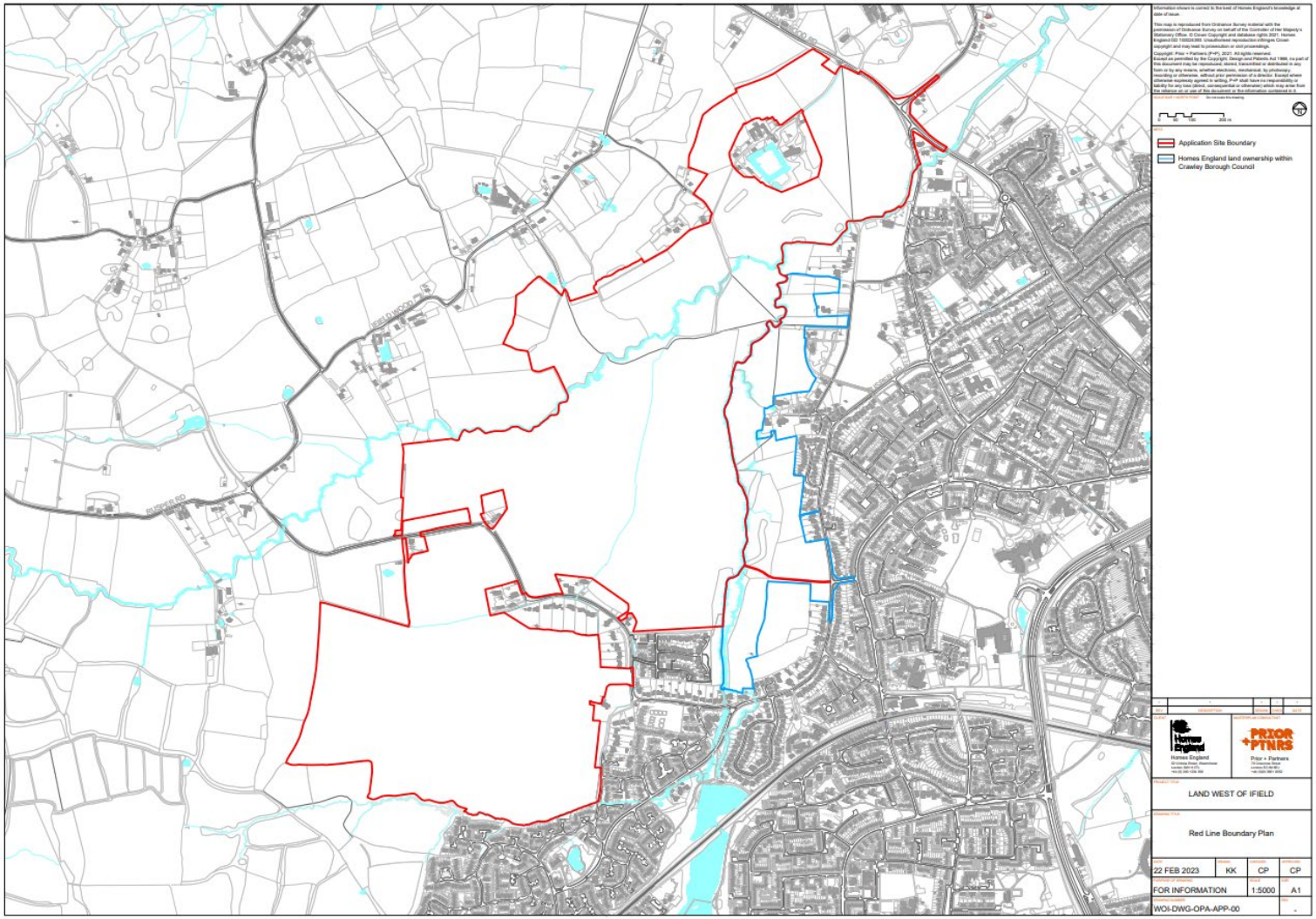


Figure 2.1: Proposed Development Site

2.2 The Surrounding Area

2.2.1 The surrounding area is occupied by agricultural, light industrial, commercial and residential land-uses. Much of the eastern Site boundary is bordered immediately by rural land, and beyond is the residential buildings associated with the suburb village of Ifield, which forms a wider built context with Crawley.

2.2.2 The M23 motorway, which connects London with the south of England, is located approximately 3.7km to the south-east.

2.2.3 Land to the west and south-west is predominantly in agricultural use with small holdings and villages present further west, for example, the villages of Lambs Green and Rusper. Land uses to the north are also predominantly agricultural/rural, with the key exception being Gatwick airport which is located approximately 1km to the north-east, beyond which lies the town of Horley. Land adjacent to the north-west of the Site boundary is occupied by ancient woodland and few farmlands beyond. An extensive network of public footpaths provides for pedestrian access and recreation across the rural area, both within and the outside the Site, and this includes good connections with the urban area. The surrounding land supports a variety of individual residential houses and farmhouses.

2.2.4 The immediate site surroundings are as follows:

- North: The northern boundary of the Site abuts Charlwood Road, Ifield Avenue, Bonnets Lane, and Ifield Green. Ifield Wood and Cophall Wood are directly adjacent to the Site's north-west. The River Mole and woodland along the river run along the Site's north-eastern boundary before joining the Site along the eastern boundary. The Site is also bounded by various land uses to the north, north-east, and north-west, including Stanford House, Standford Bridge, the Da Vinci Gatwick hotel, Sri Guru Singh Sabha Ifield Green, and residential houses.
- East: The Site's eastern boundary abuts Ifield Village, which is the historic core of Ifield and is centred around the Church of St. Margaret and a public house. The eastern boundary runs along the Ifield Brook until it feeds into the River Mole in the north and reaches 'The Maples' residential estate in the south. Beyond the Ifield Brook is the Ifield Conservation Area and Rusper Road Playing Fields. The area adjacent to the eastern boundary and beyond is mostly residential in land-use, with the closest buildings located along Rusper Road. The Parish Church of St. Margaret, a listed building, is located approximately 180m to the east of the Site.
- South: The Site's southern boundary adjoins the rear boundaries of residential properties that front onto Rusper Road. These properties have a mix of boundary treatments, ranging from relatively open low picket fences to more substantial fencing with tree and hedge screening. Rusper Road bisects the Site for a short section near the golf course, where the Site is bounded by Peverel Road and Hyde Hill Brook along the south-eastern boundary, beyond which is Ifield West with residential land-use. The south-western edge of the boundary beyond Hyde Hill Brook is predominantly occupied by ancient and semi-natural woodland.
- West: The Site's western boundary is characterised by woodland, understorey vegetation, and agricultural land. It is adjacent to farmland, associated farm buildings, and isolated residential properties. Beyond this, the surrounding land includes scattered farmhouses and individual houses, including an intermittent array of houses along Ifield Wood, a rural lane located approximately 200m to the north-west at the nearest point.

3. The Proposed Development

3.1 The Proposed Development

3.1.1 The Proposed Development will form a sustainable urban extension to Crawley and includes land within Horsham District Council and Crawley Brough Council's administrative areas.

3.1.2 It was initially intended to submit an outline application, with all matters reserved with the exception of access. However, in the summer of 2023 a decision was made to submit a hybrid planning application with detailed design for Phase 1a and 1b (including access) and all other elements in outline subject to reserved matters.

3.1.3 Phase 1a and 1b are proposed to comprise the following (refer Figure 3.1 for the indicative location of Phase 1a and 1b):

- A signalised junction to be provided at the point of the Crawley Western Corridor tie in with Charlwood Road.
- A dual all-purpose carriageway (Crawley Western Corridor) provided from Charlwood Road Junction in a southward direction to the development area crossing the River Mole with a 4.5m shared footway/cycleway provided on the west side.
- Uncontrolled crossing points along the northern section of the Crawley Western Corridor to provide continuity of existing Public Rights of Way.
- The stopping up of Rusper Road and controlled crossing provided.
- Two signalised junctions, one three arm junction to provide connection from the proposed Crawley Western Corridor to Rusper Road/development area and one four arm junction to provide connectivity to the development area.
- 20mph speed limit between the two signalised junctions with a transition section of 30mph and the remainder of the link being 40mph.
- A new bridge structure over the River Mole.
- 4.5m shared footway/cycleway to be provided both sides of the link between the two signalised junctions and a 4.5m wide shared footway/cycleway to provide on one side of the carriageway for the remaining extent of the Crawley Western Corridor.
- Noise mitigation barrier along a section of the Crawley Western Corridor.
- Two Flood compensation areas.
- A single carriageway primary access road provided from the 4-arm junction with the proposed Crawley Western Corridor described above initially in a southerly direction to a 3-arm junction (presumed to be signalised), and then in an easterly direction through the development area.
- A single carriageway secondary access road provided from the 3-arm junction described above in a westerly direction through the development area, providing access to a proposed secondary school plot.
- A 3-arm priority junction to provide limited connectivity from the eastern end of the primary access road to Rusper Road, with access restricted by a proposed bus gate on the primary access road.
- Primary access road to be provided with 2.5m footway and 3m cycleway on both sides of the carriageway.
- Secondary access road to be provided with 2.5m footway on both sides of the carriageway.

- Surface water attenuation basins to serve both Phase 1a and Phase 1b.
- Associated utility diversions and installations associated with Phase 1a and 1b.
- Landscaping as part of the above Phase 1a and 1b works.

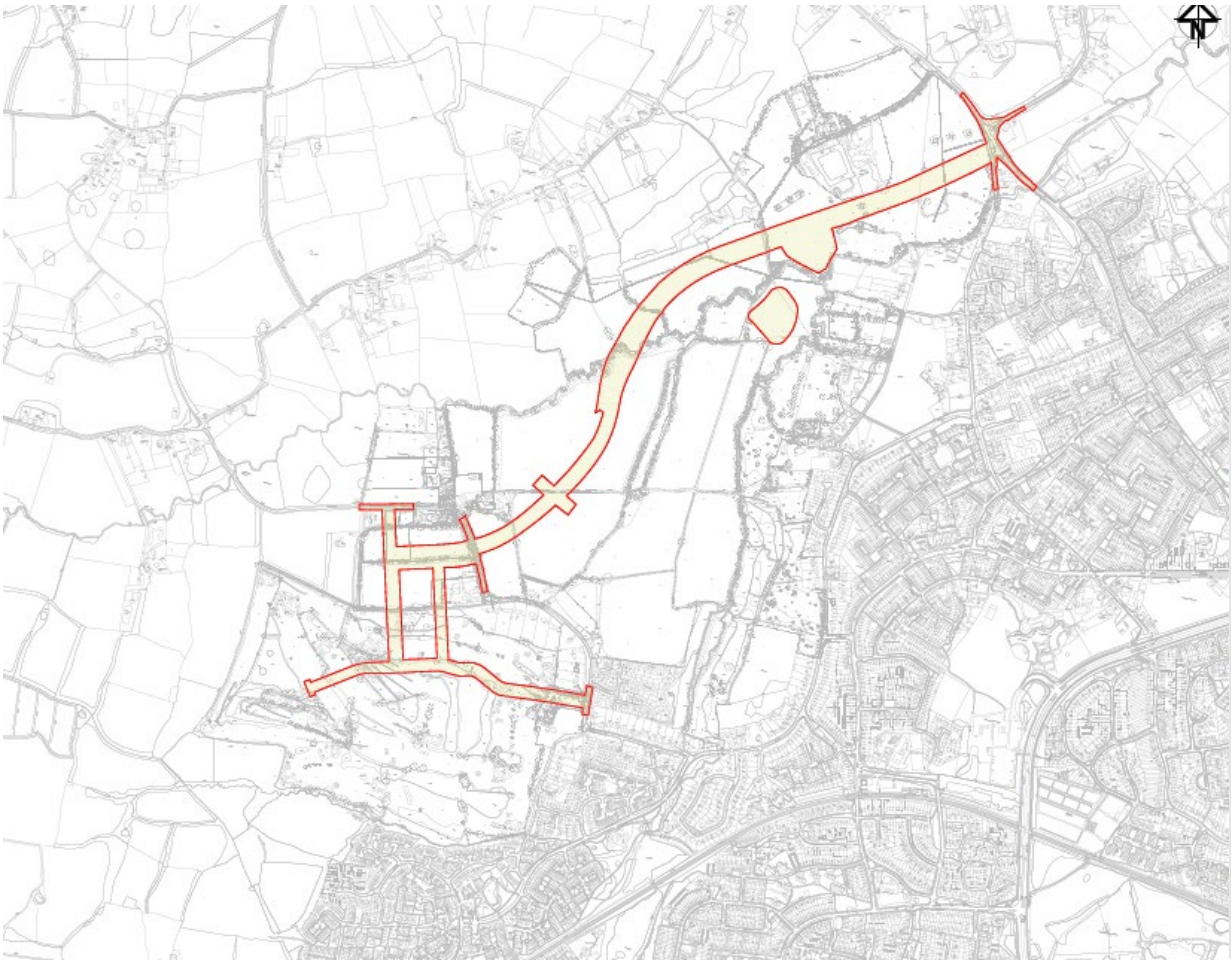


Figure 3.1: Indicative Proposed Development Phase 1a and b

3.1.4 The development proposals are still evolving and will be subject to further masterplanning, however at this stage it is intended that the overall Proposed Development would be described as follows:

"*Hybrid planning application for a phased, mixed use development comprising:*

- *A full element covering enabling infrastructure including the Crawley Western Corridor (Phase 1, including access from Charlwood Road and crossing points) and access infrastructure to enable servicing and delivery of secondary school site and future development, including access to Rusper Road, supported by associated infrastructure, utilities and works, alongside;*
- *An outline element with all matters reserved including up to 3,000 residential homes (Class C2 and C3), Commercial, business and service (Class E), General industrial (Class B2), Hotel (Class C1) community and education facilities (Use Classes F1 and F2), gypsy and traveller pitches (Sui Generis), public open space with sports pitches, recreation, play and ancillary facilities, landscaping and associated infrastructure, utilities and works including pedestrian and cycle routes and enabling demolition; and*
- *This Hybrid Planning Application is for a phased development intended to be capable of coming forward in distinct and separable phases and/or plots in a severable way*".

3.1.5 Further to the proposed description, the development will be brought forward in accordance with the land use as outlined in Tables 3.1 – 3.3.

Table 3.1: Commercial Land Use

COMMERCIAL			
USE CLASS	MAX TOTAL (SQM IN GEA)	SUB CLASS (WHERE RELEVANT)	MINIMUM OR MAXIMUM FLOORSPACE ENFORCED AS PART OF S106 (WHERE RELEVANT
Class E - Commercial, Business and Service	Up to 36,350 sqm	E(a) Display or retail sale of goods, other than hot food	A maximum of 5,200 can be provided for Class E(a) uses
		E(b) Sale of food and drink for consumption (mostly) on the premises	

		E(c) Provision of: (i) Financial services, (ii) Professional services (other than health or medical services), or (iii) Other appropriate services in a commercial, business or service locality	
		Class E(d)- indoor sport, recreation or fitness	Minimum of 1,200sqm provided as a Local Leisure Facility
		Class E(e) - Provision of medical or health services	Minimum of 820sqm to be provided for healthcare-related uses
		Class E(f) - Creche, day nursery or day centre	Minimum of 1,100sqm to be provided as a private early years facility
		E (g) Uses which can be carried out in a residential area without detriment to its amenity: (i) Offices to carry out any operational or administrative functions, (ii) Research and development of products or processes (iii) Industrial processes	
CLASS B2- GENERAL INDUSTRIAL	Up to 5,200 sqm	N/A	

Table 3.2: Residential Land Use

RESIDENTIAL			
USE CLASS	MAX TOTAL BEDS/ UNITS/ PITCHES	SUB CLASS (WHERE RELEVANT)	MINIMUM OR MAXIMUM FLOORSPACE ENFORCED AS PART OF S106 (WHERE RELEVANT
Class C1 - Hotels	Up to 80 beds		
Class C2/C3 - Residential institutions / Dwelling houses	Up to 3,000 units		
Sui Generis – Gypsy and Traveller pitches	Up to 15 pitches		

Table 3.3: Educational and Community Land Use

EDUCATION AND COMMUNITY USE			
USE CLASS	MAX TOTAL SQM (GEA) / UNITS/ HA	SUB CLASS (WHERE RELEVANT)	MINIMUM OR MAXIMUM FLOORSPACE ENFORCED AS PART OF S106 (WHERE RELEVANT
F1 – Learning and Non-residential institutions	Up to 11.75 ha	3 FE Primary School including 1 x Early Years Nursery and Student Support Centre.	A minimum site of 2.4ha to be provided
		6-8 FE Secondary School including sixth form	A minimum site of 9.29 ha to be provided
Class F2 - Local community	Up to 3,500 sqm	Class F2(b)- Halls or meeting places for the principal use of the local community	Minimum of 1,000sqm to be provided for community uses

3.1.6 The hybrid planning application is currently proposed to be submitted in 2024 and is expected to be constructed over an estimated 15-year period.

4. EIA Methodology

4.1 EIA Process

4.1.1 Preparation of the Environmental Statement (ES) will be in accordance with the Town & Country Planning (Environmental Impact Assessment) Regulations 2017 ("the EIA Regulations"). The ES will be undertaken in accordance with the Institute of Environmental Management and Assessment (IEMA) guidelines for EIA. Assessments for the environmental topics would be undertaken in accordance with the relevant Government, professional institution, and / or best practice guidelines.

4.1.2 The aim of the EIA process is to protect the environment by ensuring that the decision maker, when deciding whether to grant permission for the Proposed Development, which is likely to have significant effects on the environment, does so in the full knowledge of the likely significant effects, and is able to take this into account in the decision-making process.

4.2 Spatial Scope

4.2.1 The study areas for the ES are individually defined for each environmental topic based on the spatial scope of the potential effects on receptors or resources and relevant topic-specific criteria. The study areas for each topic are further described in specialist topic Sections of this Report.

4.3 Temporal Scope

4.3.1 The ES would assess the environmental effects of the Proposed Development during its construction and operational stages. Given its nature, the Proposed Development is expected to have a design life of at least 60 years and would be maintained and upgraded as required. Therefore, the EIA would not cover the decommissioning of the Proposed Development.

4.3.2 The construction stage will be phased, and this phasing will be considered in the assessment of the construction effects of Proposed Development.

4.3.3 To assess the environmental effects on receptors that would be caused by the Proposed Development, and to identify any potential significant effects, a comparison of the current environmental conditions immediately before the Proposed Development is implemented (baseline) with predictions of how the environmental conditions are likely to change in the absence of the Proposed Development (future baseline or "base case"), is needed.

4.3.4 The assessment would be conducted to account for specific years, as appropriate for each topic:

- Current baseline (2023 unless stated otherwise in the relevant technical chapter with appropriate reasoning);
- Future baseline / base case – start of construction;
- Year of opening (phased to be confirmed);
- Worst-case construction year during partial occupation; and
- Final year of full build out of the Proposed Development.

4.4 Assessment of Likely Significant Environmental Effects

4.4.1 A description of the likely significant effects on the environment from the Proposed Development including its existence, the use of natural resources and the emission of pollutants, the creation of nuisances and the elimination of waste, is required under Schedule 4 of the EIA Regulations.

4.4.2 For each environmental topic, the significance of the potential environmental effect would be defined as a function of the value of the receptor and the magnitude of change or impact. The significance of effect would be derived using professional judgement and based upon relevant policy or industry guidance where available. Where no specific policy or guidance exists, bespoke significance criteria will be set out to define the scale of effect and adopted in the EIA process.

4.4.3 Environmental effects can be described as:

- Adverse, neutral or beneficial;
- Direct: caused by activities which are an integral part of the Proposed Development resulting in a change in environmental conditions;
- Indirect: due to activities that affect an environmental condition or receptor, which in turn affects other aspects of the environment or receptors;
- Cumulative: comprising multiple effects from different sources within the Proposed Development, or in- combination with other developments on the same receptor(s); and
- Temporary (e.g., demolition and construction phases): short term (<5 years), Medium term (5-10 years), Long term (>10 years) or Permanent (e.g., once the Proposed Development is completed and fully operational).

4.4.4 A matrix will be used to determine the significance of the effects (refer Table 4.1).

Table 4.1: Scale of Effects Magnitude

Magnitude of Impact	Sensitivity/Value of Receptor		
	Low	Medium	High
Unknown	-	-	-
Low	None	Negligible	Minor
Medium	None – Negligible	Minor	Moderate
High	Minor	Moderate	Major

4.4.5 Throughout the ES, residual effects will be predicted as either '**significant**' or '**not significant**'. Significant effects are considered material to the planning decision process (highlighted 'grey' in Table 4.1). Residual effects of moderate and major scale are considered '**significant**'.

4.4.6 This is the broad approach used when assessing significance of effects, however, for certain topics such as air quality and noise and vibration, the environmental effects are quantified against thresholds defined using numerical values to identify effects. This quantification is undertaken through calculations or computer modelling. Furthermore, for certain topics such as climate change and biodiversity the above approach is not used as effects have specifically been assessed in accordance with recognised relevant topic guidance (as outlined in each individual topic chapter).

4.5 Mitigation Measures, Enhancements and Residual Effects

4.5.1 Proposals for mitigation will follow the mitigation hierarchy of avoid, reduce, remedy and compensate for adverse effects identified during construction and operation. The impact assessment will identify the significance of environmental effects on receptors assuming that proposed mitigation measures are in place where this is feasible to the topic. For example, embedded design measures (taking into account all inherent 'in-built' design measures that have been incorporated within the scheme) proposed to mitigate foreseeable effects will be taken into account in the main impact assessment. Other forms of mitigation that relate to the need for further detailed assessment at reserved matters application stage will also be recommended as appropriate.

4.5.2 The ES will set out how significant environmental effects associated with any construction works would be mitigated. The assessment would consider current, and where appropriate, future baseline conditions expected with the construction of the Proposed Development. The mitigation measures proposed in the ES would be expected to be included in a detailed Construction Environmental Management Plan (CEMP) which would be finalised and implemented when a works contractor has been appointed. Compliance with the CEMP will ensure that the proposed mitigation measures are properly implemented following the grant of planning permission.

4.5.3 Given the hybrid nature of the Proposed Development, mitigation measures for the parts of the development provided in outline will relate to further commitments to be assessed and delivered at the detailed design (reserved matters applications) stage.

4.5.4 Residual effects would take into account any recommendations for mitigation that may be required and evaluate the resulting significance.

4.6 Cumulative Effects Assessment

4.6.1 The EIA Regulations require that, in assessing the effects of a particular development proposal, consideration is also given to the potential cumulative effects. Cumulative effects are defined as effects that 'result from multiple actions on receptors and resources and over time; and are generally additive or interactive (synergistic) in nature'. They encompass a broad spectrum of effects at different spatial and temporal scales.

4.6.2 In some cases, cumulative effects can occur because a series of projects are being developed in the same spatial zone. We refer to these as 'inter effects'. Cumulative effects can also occur where it is reasonably foreseeable that there will be interaction between effects within the same project (i.e., within Proposed Development) on different aspects of the environment, for example changes in air quality, noise and visual effects on a receptor. We refer to these as 'intra effects'.

4.6.3 Cumulative effects will be assessed in the ES as follows:

- Intra Effects: The combined action of interrelated Proposed Development specific environmental effects causing effects on a single receptor (for example, increases in noise and dust and transport delays on local residents in combination); and
- Inter effects: The combined action of the Proposed Development and other planned developments environmental effects in combination on a single resource/receptor (for example where multi housing developments are being constructed concurrently in the

same spatial zone resulting combined effects to local residents regarding increases in dust).

4.6.4 Potential intra cumulative effects will inherently be considered within each technical chapter.

4.6.5 The schemes proposed to be included as part of the inter cumulative assessment ('committed or 'consented' schemes') for each topic will be based on screening against a 'longlist' of schemes assessed applying the following criteria:

- minerals and waste developments; or
- significant highways, infrastructure and public transport schemes; or
- development comprising more than 10,000 sq m of gross development floor area; or
- development comprising 50 or more residential units; and
- within 5km of the Site.

4.6.6 Whilst not covered under the criteria as outlined herein, and not actually comprising a 'committed development', in the interest of adopting a precautionary approach the cumulative effects assessment will also include the proposed alterations of Gatwick Airport to support dual runway operations through the routine use of the existing northern runway and to accommodate up to 74 million passengers per annum. The development will include amendments to taxiways, terminals and ancillary facilities, highways and rivers; as well as temporary construction works, mitigation works and other associated development at Gatwick Airport. Noting that specific details are not available at this stage and also that the timescales for dual runway may vary considerably from the Proposed Development.

4.6.7 The list of those developments to be considered in the inter cumulative assessment are provided as Appendix A.

4.7 Alternatives

4.7.1 In accordance with the EIA Regulations, the ES would provide an outline of the main alternative designs considered by the applicant, taking into account a comparison of the environmental effects of the scheme. With respect to alternatives the following is noted:

4.7.2 In the 'Do Nothing' scenario the Site would be left in its current state and land uses. In the event the Proposed Development at the Site did not come forward, a number of adverse effects and lost opportunities would result:

- The opportunity to deliver additional housing;
- The opportunity to meet the existing need for local schools (primary and secondary); and
- The opportunity to maximise the productive use of the Site.

4.7.3 No alternative sites have been considered by the Applicant for the following reasons:

- The Site is primarily owned by the Applicant and therefore the Applicant did not consider alternative sites which are the property of a third party;
- The Applicant is seeking to optimise the Site's potential in accordance with the NPPF; and
- The Site would provide a key development opportunity, and to provide greater and more varied housing, and education opportunities.

4.7.4 The proposed land uses have been informed by prevailing local and regional policy. Accordingly, no other land uses were considered other than those proposed.

4.7.5 Given that the northern portion of the Site is affected by noise from Gatwick Airport there is a limited opportunity for alternative layouts. However, the ES will consider the evolution of the Site design.

4.8 Summary of ES Scoping

4.8.1 A summary of the outcome of the scoping assessment is provided in Table 4.2.

Table 4.2: Scoping Summary

Topic	Scoped In (Y/N)	Comments	Proposed ES Chapter No.
Soil and Agriculture	Construction Y	The Proposed Development has the potential to affect associated farm infrastructure, reducing the total land available to that enterprise through direct loss of farmland and holdings, including land drainage. Land adjacent within agricultural production could be affected by dust and noise disturbance, particularly on land with livestock.	6
	Operation N	Development, operational effects would not be expected to affect agricultural receptors.	
Air Quality	Construction Y	The Proposed Development has the potential to affect air quality through emissions to air and dust during construction from earthworks and transport related effects. Receptors located along Charlwood Road, Ifield Avenue and Rupser Road may be affected by changes in traffic.	7
	Operation Y	Operational effects would consider quantitatively the shift in vehicle emissions as a result of the new occupants and visitors. Ecological sites with national designations (specifically meaning SSSIs and European designated ecology sites) are sensitive to nitrogen deposition.	
Biodiversity	Construction Y	Potential to result in severance and disturbance of existing green infrastructure including a range of habitats, mammals, amphibians, reptiles, birds, terrestrial invertebrates and invasive plant species in the absence of mitigation through the design which are important ecological features.	8
	Operation Y	Operational effects can include disturbance from activities associated with the Proposed Development, and pollution.	
Climate	Construction Y	Potential for the Proposed Development to be affected by climate change over its lifetime and calculation of GHG emissions from the demolition and construction processes.	9
	Operation Y	Operational effects will produce greenhouse gas emissions.	
Cultural Heritage	Construction Y	Potential to impact a scheduled monument, conservation areas and several non-designated assets within and in close proximity of the Site during construction. The non-designated assets mainly relate to previous land use. However, mitigation measures would be implemented. The northern area of the Site is abutted by the scheduled monument (Medieval moated site at Ifield Court). This asset's	10

Topic	Scoped In (Y/N)	Comments	Proposed ES Chapter No.
		setting could be impacted by the Proposed Development and the southern part of the Site would have potential to impact historic farms which would be demolished during construction and therefore would be scoped in the ES. Visual setting of Ifield village conservation area and the scheduled monument could be impacted by construction of the proposed Crawley Western Corridor.	
	Operation Y	Following the implementation of mitigation measures, effects on archaeological resources in operation would not be significant and are scoped out. The Proposed Development would have permanent effects on the visual setting of heritage assets and are scoped in.	
Ground Conditions	Construction N	The Proposed Development does not lie in an area of significant current and historic industrial uses and construction of the Proposed Development will not introduce significant contaminant pathways to human health, watercourses or damage to buildings or infrastructure. There are no sites of geological importance present on or adjacent to the Site that have the potential to be affected by construction and therefore construction effects, including potential effects on groundwater quality, are proposed to be scoped out of the ES. A separate Ground Conditions desk study report will be prepared and included within the hybrid planning application documents (however, not part of the ES). In addition, an outline Construction Environmental Management Plan (CEMP), which will include mitigation for ground conditions during the construction phase, will be included within the hybrid planning application documents. The Site is located within a mineral safeguarding area. A separate mineral resource assessment will be prepared and included within the hybrid planning application documents (however, not part of the ES). HDC indicated that it is acceptable to 'scope out' ground conditions from the EIA[2] provided that a ground conditions assessment is included as part of the relevant application documents (but not part of the ES) and that ground conditions are considered at each phase of the Proposed Development (as part of Reserved Matters Applications).	N/A
	Operation N	Operational effects of the Proposed Development will overall generate little in the way of potentially significant contaminative materials given it is a mixed-use urban development. The potential effect of the Proposed Development during operation on groundwater quality, minerals or sites of geological importance is considered limited and therefore are proposed to be scoped out of the ES.	
Landscape and Visual Impact	Construction Y	The Proposed Development could have potential significant effects upon on the visual receptors such as residents along the Rusper Road and settlements within, open access land	11

[2] Email from HDC Environmental Health Officer to HDC Planning Officer dated 23rd October 2020

Topic	Scoped In (Y/N)	Comments	Proposed ES Chapter No.
		immediately north of the Site and character areas and views for the users of recreational facilities such as Ifield Brook Wood and Meadows during construction. The Proposed Development has the potential to result in lighting effects, therefore an assessment of lighting glow from the Development experienced by potential visual receptors during the construction phase and at full completion of the Proposed Development will be undertaken.	
	Operation Y	The operational phase has the potential for significant effects upon the landscape character and visual amenity of receptors such as High Weald Area Outstanding Natural Beauty, Sussex Border Path (footpath) and would consider the context of the Proposed Development and other consented schemes nearby.	
Noise and Vibration	Construction Y	The Proposed Development has the potential to result in noise and vibration effects during construction on the surrounding receptors which include residential properties, healthcare and schools.	12
	Operation Y/N	Operational highways have the potential to result in noise effects on surrounding receptors due to the introduction of the Proposed Development. Operational phase ground borne vibration has been scoped out as no aspect of the Proposed Development is likely to generate any discernible levels of ground borne vibration.	
Socio Economics and Health	Construction Y	The Proposed Development has the potential to impact local business and the community and create jobs during construction.	13
	Operation Y	The Proposed Development may have some effects on local health and education facilities albeit that the Proposed Development itself will provide appropriate levels of such facilities within the scheme. The provision of the Proposed Development would also have beneficial effects during operation, as it may complement other nearby future developments.	
Surface Water and Flood Risk	Construction Y	The Proposed Development lies mainly within Flood Zone 1, Zones 2 and 3 and the works proposed have the potential to introduce significant environmental effects of flood risk to the River Mole, Ifield Brook and other watercourses.	14
	Operation Y		
Traffic and Transport	Construction Y	The Proposed Development would likely create traffic and transport effects to the existing road network as a result of constructing the Proposed Development.	15
	Operation Y	During operation, the Proposed Development could have potentially significant effects on traffic flows on the local highways due to its connections with the wider transport network, change in journey times and other committed developments likely to come forward in the future.	
Waste and Resource Management	Operation N	Waste and materials associated with the Proposed Development during the construction and operational phases would be considered within 'standalone' documents separate to the ES,	N/A
	Construction N		

Topic	Scoped In (Y/N)	Comments	Proposed ES Chapter No.
		including a Site Waste Management Plan (SWMP), Operational Waste Management Plan (OWMP) and a Sustainability Strategy. Further details behind the reasoning of 'scoping out' Waste and Resource Management from the EIA as included in Chapter 15 of this report.	
Wind Microclimate, Daylight, Sunlight and Overshadowing	Construction N Operation N	No potential significant effects. Not considered in this scoping opinion further.	N/A
Major Accidents and Disaster	Construction N Operation N	Flood risk, adverse weather, and transport issues associated with major events affecting the operation of Gatwick Airport north of the Site would be addressed in the respective sections of the ES. Further details behind the reasoning of 'scoping out' Major Accidents and Disaster from the EIA as included in Chapter 16 of this report.	N/A

4.9 Proposed Structure of the ES

ES Content

4.9.1 The proposed structure of the ES is based on the EIA Regulations, current best practice and the scoping assessment and will comprise the following:

Volume 1 - Non-Technical Summary

4.9.2 A Non-Technical Summary will be produced. This will provide a concise summary, in non-technical language i.e. plain English, of the key information in the ES. The Non-Technical Summary would be produced as an illustrated standalone document in a format suitable for public dissemination.

Volume 2 – Main Environmental Statement Text

4.9.3 This would contain the full text of the EIA. The proposed chapter headings are set out as follows:

- Introduction (including Concise Statement of Aims);
- Proposed Development Description;
- Alternatives;
- EIA Methodology (including limitations and assumptions);
- Specialist Topics: agriculture, air quality, biodiversity, climate change, cultural heritage, landscape and visual impact, noise and vibration, socio-economics, surface water and flood risk, transport;
- Cumulative Effects;
- Residual Effects; and
- Schedule of Mitigation.

4.9.4 Each specialist topic chapter will be structured as follows:

- Introduction;
- Policy Context;
- Baseline (including future baseline scenarios);
- Assessment Scope and Methodology;
- Baseline Conditions;
- Assessment of Residual Effects (with mitigation);
- Cumulative effects (this would address cumulative effects with other schemes i.e. in-combination effects); and
- Summary - this would include a table summarising the significance of effects following the implementation of mitigation or enhancement.

Volume 3 – Environmental Statement Appendices

4.9.5 The ES Appendices would provide further figures, detailed supporting data and the full text of any technical assessments.

5. Agriculture and Soils

5.1 Introduction

5.1.1 This chapter addresses the proposed scope of the ES with respect to agriculture and soils. It includes a summary of current and proposed consultation, baseline conditions and the proposed approach to the assessment of possible construction and operational effects. Aspects that are proposed to be scoped in and out of the assessment are identified.

5.2 Consultation

5.2.1 Consultation undertaken is outlined in Table 5.1.

Table 5.1: Consultation Undertaken to Date

Consultee	Date	Summary of Issues Raised/Agreed
Natural England	General enquiry. 22/07/19	Sought agreement from Natural England (NE) that majority of the Site aside from the golf course is covered by Agricultural Land Classification (ALC) mapping (Grade 3B) and that the relatively small remaining areas unmapped are likely to be similar grade. No response received.

5.3 Methodology

5.3.1 This assessment will consider to the following key factors:

- The soil types and related ALC grades likely to be affected by the Proposed Development; and
- The type of farm enterprises and farming/land management practices present, including any agri-environment schemes.

5.3.2 The objectives of the assessment will be to:

- Characterise the baseline environmental conditions for soils, land use and agriculture within the Site boundary;
- Identify all soils, land-use and agricultural receptors within and adjacent to the Site boundary that may be affected during the construction and operational phases;
- Assess the likely significant effects of the Proposed Development on soil, land-use and agriculture, taking account of temporary and permanent land-use requirements, the potential for severance and the phasing of the Proposed Development; and
- If appropriate, recommend measures to mitigate potential significant adverse effects on soil, land-use and agriculture.

5.3.3 A range of existing information sources have been or will be reviewed to assess the character of the Site in terms of land use and soils, including:

- Ordnance Survey mapping and aerial photography to establish land use and settlement patterns;
- Land Information System Soilscapes mapping (available from www.magic.gov.uk);Available ALC mapping including provisional ALC mapping (available from www.magic.gov.uk) and detailed ALC mapping (available from previous ALC surveys in this area); and
- Extent of agri-environmental schemes (available from www.magic.gov.uk).

5.3.4 Given the extent of available detailed ALC mapping and that the land that has been mapped is indicated as Grade 3b, no further ALC surveys will be undertaken.

5.4 Relevant Policy and Guidance

5.4.1 The assessment of the significance of the effects of the Proposed Development on agricultural land and soil receptors will follow current best practice set out in:

- Institute of Civil Engineers (2019). Environmental Impact Assessment Handbook: A practical guide for planners, developers and communities, Third Edition. ICE Publishing; and
- Highways England (2019). LA109 Geology and Soils (formerly DMRB, Volume 11, Section 3, Part 11 and Part 6).

5.4.2 Aside from the EIA Regulations there are no legislative requirements governing the assessment of agricultural matters, and the policy framework of any assessment is derived from a combination of EU and national agricultural and land use policies and measures. The key elements of these can be summarised as:

- The conservation of the best resources of agricultural land (described as the best and most versatile land);
- Retention of a competitive and sustainable agricultural industry;
- The diversification of individual farm businesses into supplementary non-agricultural activities; and
- The more positive engagement of individual farm businesses with the delivery of environmental benefits.

National Planning Policy

5.4.3 National planning policy guidance on development involving agricultural land is set out in National Planning Policy Framework (NPPF), which was revised on the 5th of September 2023. The NPPF includes policy guidance on '*Conserving and Enhancing the Natural Environment*' (Section 15). Paragraph 174 (a and b) (page 50) are of relevance to this assessment of agricultural land quality and soil and states that: '174…Planning policies and decisions should contribute to and enhance the natural and local environment by:

- a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); and
- b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland;…'

5.4.4 Schedule 4(y) of The Town and Country Planning (Development Management Procedure (England) Order) (DMPO) 2015ii. Sets out a requirement to consult Natural England if more than 20 ha of Best and Most Versatile (BMV) agricultural land is proposed for non-agricultural development.

Local Planning Policy

5.4.5 The Proposed Development lies within the administrative area of Horsham District Council (HDC) and Crawley Borough Council (CBC) in West Sussex.

5.4.6 The Horsham District Planning Framework (Ref. 5.2) includes an Objective Theme "*to safeguard and enhance the environmental quality of the district, ensuring that development maximises opportunities for biodiversity and minimises the impact on environmental quality including air, soil, water quality and the risk of flooding*".

5.4.7 The Draft (emerging) Horsham District Local Plan 2019-2036 (Ref.5.3) does not contain any specific policy regarding agricultural land quality or soil.

5.4.8 In the Crawley Borough Council Local Plan 2015 – 2030 (Ref. 5.4) Policy EC9 states that "*Development proposals which would cause the permanent loss of the best and most versatile agricultural land (Grades 1, 2 and 3a in the Defra Agricultural Land Classification system) will not be permitted unless it can be demonstrated to the satisfaction of the borough council that there are no appropriate alternatives and there are over-riding sustainability benefits*."

5.4.9 The West Sussex Structure Plan (2001 – 2016) (Ref. 5.5) includes Policy ERA5 which states that "*Development should not be permitted unless the quality of, and where appropriate the quantity of, the air, soil and water resources of the County will be protected and, where possible, enhanced*."

5.4.10 It also states that proposals should "*prevent the irreversible loss of the best and most versatile agricultural land (grades 1, 2 and 3a of the Agricultural Land Classification system) unless the need for the development outweighs the long-term protection of the land*."

5.4.11 The Soil Strategy for England (Ref 5.6) sets out the Government's aims in relation to protecting agricultural soils and in relation to protecting the soil resource during construction and development. There is a commitment to review the weight given to protecting best and most versatile land and review the need for any change to policy; no change has currently been advised.

5.4.12 Within the Strategy there is an aim of encouraging better management of soils during the construction process. As part of this, a Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Ref 5.6) has been produced to protect soil resources disturbed on construction sites. Whilst the Code is not legislatively binding, the wider benefits of following the guidance (in terms of sustainability, cost savings and waste controls) are clearly set out.

5.4.13 Other guidance documents relevant to soils and agriculture will be referenced. In general, these relate back to the policy and guidance documents referenced above, and include:

- Natural England Technical Information Note 049 (Ref 5.8);
- Good Practice Guide for Handling Soils (Ref 5.9); and
- British Standard Specification for Topsoil and Requirements for Use, BS3882:2015 (Ref 5.10).

Study Area

5.4.14 The study area for soils will comprise the Site. In relation to the farm businesses the study area will be extended where required to ensure a full understanding of businesses which lie within and outside of the Site.

Assessment Methodology

Approach

5.4.15 In December 2019, criteria for assessing the significance of effects of development on soil and agricultural land (especially the 'best and most versatile' agricultural land in ALC Grade 1, Grade 2 and Subgrade 3a) were published in:

- the Environmental Impact Assessment Handbook (Third Edition) (Ref. 5.10); and
- LA 109 Geology and soils (formerly DMRB Volume 11 Section 3, Part 11 and Part 6) (Ref 5.11).

5.4.16 A framework has been developed for assessing the significance of effects on soil, agricultural land quality (ALC grades) and agricultural holdings, which follows the approach of the documents above.

Evaluation

5.4.17 It is considered that the baseline in relation to soils and ALC grades will not have changed from that described. There could potentially be changes to the land management practices and business approaches across the landowners/land managers as the Proposed Development phases are developed or changes to business practices occur; the landowner/ land manager will seek to identify where potential changes could occur.

Significance Criteria

5.4.18 As described the Environmental Impact Assessment Handbook (Third Edition, December 2019) (Ref 5.10) the assessment of significance is based on the characteristics (or magnitude) of the impact and the sensitivity of the receptor. For this purpose of this assessment of agricultural land quality, soil and agricultural holdings is set out below.

5.4.19 Consideration has been given to the Sensitivity of Receptor and Magnitude of Effect in relation to agricultural land quality and soil follows the approach of the Institute of Environmental Management and Assessment's (IEMA) '*A New Perspective on Soil in Environmental Impact Assessment*' (2022).

5.4.20 The sensitivity of receptors has been classified as low, medium or high, in accordance with the criteria set out in Table 5.2.

Table 5.2: Receptor Sensitivity Criteria: Soil Functions and Agricultural Land Quality

Sensitivity	Criteria
Low	• **Biomass production**: ALC Grades 4 & 5 or LCA Grades 4.1 to 7 or Urban soils; • **Ecological habitat, soil biodiversity and platform for landscape**: Soils supporting valued features within non-designated notable or priority habitats/landscapes; • **Soil carbon**: Mineral soils; • **Soil hydrology**: Pathway* for local water flows and flood risk management; • **Archaeology, Cultural heritage, Community benefits and Geodiversity**: Soils supporting no notable cultural heritage, geodiversity nor community benefits; Soils supporting limited community/recreational/educational access to land; • **Farm types** and land uses undertaken on a non-commercial basis;
Medium	• **Biomass production**: ALC Grade 3b or LCA Grade 3.2; • **Ecological habitat, soil biodiversity and platform for landscape**: Soils supporting protected or valued features within non-statutory designated sites (e.g., Local Nature Reserves (LNR), Local

Sensitivity	Criteria
	Geological Sites (LGSs), Sites of Nature Conservation Importance (SNCIs), Special Landscape Areas; Non-Native Forest and woodland soils; • **Soil carbon**: Mineral soils; • **Soil hydrology**: Important minor catchment pathway* for water flows and flood risk management; • **Archaeology, Cultural heritage, Community benefits and Geodiversity**: Soils with possible but as yet unproven (prior to being revealed by construction) archaeological interest; Soils supporting community/recreational/educational access to land; • **Farm types** in which there is a degree of flexibility in the normal course of operations, e.g.: combinable arable farms; and grazing livestock farms (other than dairying).
High	• **Biomass production**: ALC Grade 1, 2 and Subgrade 3a; • **Ecological habitat, soil biodiversity and platform for landscape**: Soils supporting protected features within a European site (e.g., SAC, SPA, Ramsar); Peat soils; Soils supporting a National Park, or Ancient Woodland. Als0 soils supporting protected features within a UK designated site (e.g., UNESCO Geoparks, SSSI or AONB, Special Landscape Area, and Geological Conservation Review sites); Native Forest and woodland soils; Unaltered soils supporting semi-natural vegetation (including UKBAP Priority habitats); • **Soil carbon**: Peat soils and organo-mineral soils (e.g., peaty soils); • **Soil hydrology**: Important catchment pathway* for water flows and flood risk management; • **Archaeology, Cultural heritage, Community benefits and Geodiversity**: Scheduled Monuments (S~~A~~Ms); World Heritage and European designated sites; Soils with designated archaeological interest. Historic parks and gardens; RIGS; Soils supporting community/recreational/educational access to RIGS and AONBs; • Soils supporting community/recreational/educational access to land covered by National Park designation; • **Farm types** in which the operation of the enterprise is dependent on the spatial relationship of land to key infrastructure, and where there is a requirement for frequent and regular access between the two, or dependent on the existence of the infrastructure itself, e.g.; dairying, in which milking cows travel between fields and the parlour at least twice a day; irrigated arable cropping and field-scale horticulture, which are dependent on irrigation water supplies; and intensive livestock or horticultural production which is undertaken primarily within buildings, often in controlled environments.
**As defined by the Site and catchment characteristics according to the professional judgement of a catchment hydrologist*	

5.4.21 The magnitude of impact has been classified as low, medium or high, in accordance with the criteria set out in Table 5.3.

Table 5.3: Impact Magnitude Criteria

Magnitude of Impact	Adverse/Beneficial	Descriptor
Unknown	Unknown	Where magnitude of impact is unknown
Low	Adverse	Permanent, irreversible loss over less than 5ha or a temporary, reversible loss of one or more soil functions or soil volumes, or temporary, reversible loss of soil-related features set out in Table 6.2; No adverse effects on agricultural holdings; and - Farm holdings – between 5% and 10% of all land farmed
	Beneficial	Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of less than 5ha or a temporary improvement in

Magnitude of Impact	Adverse/Beneficial	Descriptor
		one or more soil functions due to remediation or restoration or off-Site improvement. No beneficial effects on agricultural holdings.
Medium	Adverse	Permanent, irreversible loss of one or more soil functions or soil volumes, over an area of between 5 and 20ha or loss of soil-related features set out in Table 6.2 above (including effects from 'Temporary Developments'*)-and Farm holdings – between 10% and 20% of all land farmed
	Beneficial	Potential for improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of between 5 and 20 ha.
High	Adverse	Permanent, irreversible loss of one or more soil functions or soil volumes (including permanent sealing or land quality downgrading), over an area of more than 20 ha or loss of soil-related features set out in Table 6.2 above (including effects from 'temporary developments'*); and Farm holdings - more than 20% of all land farmed
	Beneficial	Potential for permanent improvement in one or more soil functions or soil volumes due to remediation or restoration over an area of more than 20 ha (including effects from 'temporary developments'*).
*Temporary developments can result in a permanent impact if resulting disturbance or land use change causes permanent damage to soil		

5.4.22 The significance of the predicted effects, which may be Beneficial (positive) or Adverse (negative), on soil and agricultural land quality can be assessed as either 'Very large', 'Large', 'Moderate', 'Slight' or 'Neutral' according to the sensitivity of the receptor magnitude of the impact, as set out in the impact assessment matrix given as Table 4.1. This is based on IEMA's Guide: '*A New Perspective on Land and Soil in EIA'*.

5.5 Baseline Data

Key Baseline Information Obtained

5.5.1 Extensive ALC surveys have been undertaken in this location. The National Soil Map shows the land within the boundary of the Proposed Development is covered entirely by soils in the Wickham 1 Association. As described by the Soil Survey of England and Wales, this association, which is confined to Kent, Surrey and Sussex, is the most extensive in the Low Weald where intermittent thin drift rests on Atherfield and Weald Clays. The main soils in the Wickham 1 Association are grey coloured with prominent ochreous mottles in the subsoil. The topsoil is fine silty or fine loamy over clayey subsoil, i.e., typical stagnogleys. They are wet for long periods over the winter (Wetness Class IV) where undrained. Where the outfall/gradient of the land allows, under-drainage can help lower the Wetness Class to III. The Association includes some clayey Denchworth and Dale soils, i.e., pelo-stagnogleys, on moderate slopes, often associated with thin bands of limestone. The Association also includes some Oxpasture soils, which are similar to Wickham but less mottled, i.e., stagnogleyic argillic brown earths. Soils with a heavy texture can be restricted in terms of their productivity, and hence ALC grade, due to a soil-wetness limitation.

5.5.2 Provisional Agricultural Land Classification indicates a likelihood of Grade 3 (not differentiated between Subgrades 3a or 3b) and Grade 4 land.

5.5.3 A MAFF Post-1988 ALC survey has determined that there is approximately 90 hectares (ha) of agricultural land within the boundary of the Site which is Subgrade 3b; this is outside of the NPPF (2023) definition of best and most versatile (BMV) land (which comprises ALC Grade 1, Grade 2 and Subgrade 3a). Subgrade 3b agricultural land is a receptor of medium sensitivity. MAFF has not determined any BMV agricultural land at the Site.

5.5.4 Areas not covered by the MAFF Post-1988 ALC survey include a golf course in the south-west, i.e., approximately 48ha. This is classified as 'non-agricultural' in ALC terms. There are smaller areas of agricultural land in the west of the Proposed Development, i.e., approximately 12ha, which are not covered by the MAFF Post 1988 ALC survey, but as they have the same climate and consist of the same soils as the remainder of the Site, i.e., Wickham 1 Association, it is reasonable to assume the quality of the agricultural land will be similar, i.e., Subgrade 3b. The remainder of the land within the boundary of the Proposed Development is classified as 'non-agricultural', i.e., buildings, roads, woodland, and waterbodies/courses, as summarised in Table 5.4.

Table 5.4: Agricultural Land Classification: West of Ifield, West Sussex

ALC grade/subgrade (receptor sensitivity)	MAFF Post 1988 ALC grading within the Proposed Development Site boundary (ha)	Predicted ALC of areas not surveyed by MAFF	Total Area (Ha)	Total Area (%)
Grade 1	0	0	0	0
Grade 2	0	0	0	0
Subgrade 3a	0	0	0	0
Subgrade 3b (medium sensitivity)	90.0	12.0	102.0	59.7
Grade 4	0	0	0	0
Grade 5	0	0	0	0
Non-agricultural, e.g., golf course, buildings, roads, woodland, waterbodies/courses (low sensitivity)	12.0	56.8	68.8	40.3
Total	102.0	68.8	170.8	100

5.5.5 Agricultural land within the Site is currently farmed by an agricultural tenant on a Farm Business Tenancy (FBT) which is due to expire in September 2023. The agricultural land is used for producing combinable crops, which is assessed as being a farm type in which there is a degree of flexibility in the normal course of operations and is therefore an agricultural receptor of medium sensitivity.

5.5.6 Some of the agricultural land at the Site has historically been entered in a 5-year Countryside Stewardship Scheme (Mid-Tier) by the farm tenant. It is predicted the agreement will have ended prior to the agricultural land being required for the Proposed

Development. Therefore, it is predicted that no agricultural land in an agri-environmental scheme would be adversely affected by the Proposed Development. Therefore, agri-environmental schemes are scoped out of the assessment.

Key Receptors and their Value

5.5.7 The key receptors are:

- BMV land and the soils which support this; and
- Farm businesses.

5.5.8 It is considered likely that the value of the agricultural land will be Medium and the businesses which it supports will also be of Medium Value.

5.6 Description of Possible Significant Effects

Construction

5.6.1 The Proposed Development may result in the permanent loss of areas of land from agricultural productivity.

5.6.2 In addition, there could be possible significant adverse effects in relation to agricultural enterprises. As the phases are progressed there is the potential for there to be effects on farm viability. These would occur as land parcels, including any associated farm infrastructure, are taken out of productivity, reducing the total land available to that enterprise, as well as potentially severing access to other land parcels, farm buildings, water supplies etc.

Operation

5.6.3 During the operational phase possible significant effects are likely to be limited. Potential effects could be experienced around the edge of the Proposed Development where residential and commercial activity affects (through noise, disturbance, nuisance, fly tipping etc.) areas that had previously not been in close proximity to housing or commercial areas. This has been scoped out of the assessment.

5.7 Potential Mitigation Measures

Construction

5.7.1 The construction reuse of the soil resource would be undertaken in line with the Construction Code of Practice for the Sustainable Use of Soil on Construction Sites. This would be achieved by the development of a detailed Soil Management Plan (SMP) for each phase identifying the soils present, proposed storage locations and handling methods and locations for reuse where possible. A SMP would be finalised and implemented when a works contractor has been appointed. Measures which will be considered include (but are not limited to):

- Completion of a Soil Resources Survey and incorporate results into a SMP;
- Ensuring that soils are stripped and handled in the driest condition possible;
- Confine vehicle movements to defined haul routes until all the soil resource has been stripped;
- Protecting stockpiles from erosion and tracking over; and
- Ensure the physical condition of the entire replaced soil profile is sufficient for the post construction use.

5.7.2 The appropriate recording and handling of soils will ensure they are in the required condition for the proposed end use and that soils with the optimum characteristics are allocated for the given end use, such as food production, habitat creation/Green Infrastructure or the creation of sustainable drainage features (such as swales).

5.7.3 Industry standard measures will be put in place to control the pollution, including from fuel or chemical spills, silt laden runoff and dust.

5.7.4 An effective drainage scheme will be installed to ensure there is no risk of increased waterlogging or flooding on the land to be returned to agriculture or adjacent land.

5.7.5 Measures contained in relevant Defra and Environmental Agency best practice guidance on the control and removal of invasive weed species would be implemented where appropriate. Works would cease, and the Animal Health regional office would be advised, should animal bones be discovered.

5.7.6 All the movement of plant and vehicles between fields would cease in the event of a disease outbreak and official Defra advice would be followed to minimise the biosecurity risk associated with the continuation of works.

5.7.7 All fencing around the Proposed Development will be sufficient to resist damage by livestock and will be regularly checked and maintained in a suitable condition. Any damage to boundary fencing will be repaired immediately.

5.7.8 A considerate construction approach would be used to minimise potential effects on on-going agricultural enterprises during construction phase. This would include Toolbox talks to ensure all personnel were aware of the key issues and requirements, ensuring continuity of water supplies to drinking troughs and enabling access to limit severance issues.

5.7.9 In relation to temporary and permanent land take requirements liaison with the landowner will be undertaken to agree commercial terms with affected parties in relation to associated losses.

Operation

5.7.10 Not applicable, no potential effects identified, this has been scoped out of the ES.

6. Air Quality

6.1 Introduction

6.1.1 This chapter addresses the proposed scope of the ES with respect to air quality. It includes a summary of current and proposed consultation, baseline conditions and the proposed approach to the assessment of possible construction and operational effects arising from the Proposed Development. Aspects that are proposed to be scoped in and out of the assessment are identified.

6.2 Consultation

6.2.1 Table 6.1 shows a summary of consultation undertaken to date and the issues raised. Updated consultation will take place once this Scoping Report has been issued.

Table 6.1 Consultation Undertaken to Date

Consultee	Date	Summary of Issues Raised/Agreed
HDC Principal Planning Officer	08/05/2019	Arcadis requested approval of Air Quality Assessment (AQA) methodology.
HDC Environmental Protection Officer	30/05/2019	HDC agree with the proposed AQA methodology and express expectations of what should be included in the Air Quality Mitigation Plan.
HDC Air Quality Monitoring Officer	30/11/2020	Include damage cost calculations in assessment, include relevant human receptors on major roads into Horsham, avoid duplication of mitigation measures and ensure mitigation includes measures to reduce emissions from domestic heating.
Crawley Borough Council (CBC)	27/10/2020	Follow a conservative approach and consider receptors on local roads where increased traffic may have a significant impact. Agree verification sites with HDC and CBC
Gatwick Airport Limited	28/10/2020	Consider effects on the Horley Air Quality Management Area.

6.3 Methodology

6.3.1 This assessment will relate to the following key factors:

6.4 Relevant Policy and Guidance

European Policy

6.4.1 The Air Quality Standards Regulations 2010 transposed Directive 2008/50/EC on ambient air quality and cleaner air for Europe (Ref 6.1) The Regulations define objectives for ambient air quality designed to avoid, prevent or reduce harmful effects on human health and the environment as a whole.

6.4.2 The Environmental Targets (Fine Particulate Matter) (England) Regulations 2023 (Ref 6.16) sets targets for reducing PM2.5 concentrations; a target of 10 µg/m3 to be met by 31st December 2040 and an exposure reduction target of 35% between 2018 and 2040.

6.4.3 Part IV of the Environment Act 1995: (Ref 6.2) requires the government to produce a national Air Quality Strategy which contains standards, objectives and measures for improving quality. The ambient air quality standards and objectives relevant to air quality

assessment are given statutory backing in England through the Air Quality Regulations 2000, (Ref 6.3) and the Air Quality (Amendment) Regulations 2002, (Ref 6.4). The Air Quality Standards Regulations 2010, (Ref 6.5) came into force during 2011 and transposed the requirements of the European Union Directive 2008/50/EC.

National Planning Policy

6.4.4 National Planning Policy Framework 2023 (Ref 5.1) The NPPF outlines a set of core land-use planning principles that should underpin both plan making and decision taking.

6.4.5 National Planning Practice Guidance (NPPG, 2019) (Ref 6.6) The National Planning Practice Guidance provides a set of principles by which an air quality assessment should follow. The guidance advises on the role of the Local Plans with regards to air quality and indicates when air quality could be relevant to a planning decision. The guidance also advises on how to approach a proposal where air quality could be of concern and suggests potential mitigation measures to reduce the magnitude of effects.

Local Planning Policy

6.4.6 Horsham District Council (2015) Horsham District Planning Framework: (Ref 5.2) Environmental Protection – Policy 24 explains that the Council has declared the whole of Horsham district an 'Emission Reduction Area'. This means that all developments in Horsham district must make reasonable endeavours to minimise emissions, and where necessary, offset the impact of that development on the environment.

6.4.7 Crawley Borough Council (CBC) Local Plan (2015): (Ref 5.3) Environment ENV12: Air Quality lists a number of requirements in the context of development proposals that require consideration as part of the planning process:

6.4.8 Sussex Air Quality Partnership propose the Air Quality and Emissions Mitigation Guidance for Sussex (2021) (Ref 6.7) in response to changes in national planning policy. The guidance offers the following suggestions air pollution mitigation.

Guidance

6.4.9 For construction phase effects the following guidance will be used to inform the assessment:

- Holman et al (2023). IAQM Guidance on the assessment of dust from demolition and construction, Institute of Air Quality Management, London (Ref 6.8).

6.4.10 The Institute of Air Quality Management (IAQM) guidance provides a mechanism for the assessor to consider both the magnitude of emissions and sensitivity of an area in order to define the level of risk of dust soiling and human health effects during the construction phase. Defining the construction dust risk levels allows appropriate mitigation measures to be adopted.

6.4.11 For operational phase effects the following guidance will be used to inform the assessment:

- Moorcroft and Barrowcliffe. et al. (2017) Land-use Planning & Development Control: Planning for Air Quality. v1.2. Institute of Air Quality Management, London. (Ref 6.9).
- Highways England. Design Manual for Roads and Bridges (DMRB). LA105 Air Quality. (Ref 6.17).

6.4.12 The IAQM Land-use Planning & Development Control guidance (Ref 6.9) is applicable to assessing the effect of changes in exposure of members of the public resulting from residential-led mixed-use developments such as the Proposed Development. It provides guidance on; how to decide whether an air quality assessment is required, how to undertake a suitable assessment of operational effects and whether these are to be considered significant or not, and how to identify whether additional mitigation is required.

Study Area

Construction Phase

6.4.13 The IAQM construction dust guidance (Ref 6.8) requires that construction dust effects are assessed up to 200m from the locations of demolition, construction and earthworks activities. Often, the exact location of the aforementioned construction activities within the Site boundary are unknown, in this case it is deemed prudent to assess effects within 350m of the Site boundary. For trackout (the transport of dust and dirt from the construction site onto the public road network), effects are assessed up to a distance of 500m from site entrances on roads used by construction traffic. Trackout effects are then considered within 50m of these roads.

6.4.14 If construction vehicle flows meet the criteria outlined in Paragraph 6.4.16 then the effects of exhaust emissions from construction vehicles will be assessed at appropriate human health receptor locations adjacent to the roads. For ecological receptors, the threshold for the increase in construction traffic would be 1,000 Annual Average Daily Traffic (AADT) on a road within 200m of the ecological receptor. The methodology of this aspect of the construction phase assessment would follow that detailed below for the operational phase assessment.

Operational Phase

6.4.15 For the operational phase, the IAQM development control guidance (Ref 6.9) does not explicitly specify the geographical extent within which effects should be assessed for human health receptors.

6.4.16 It provides indicative criteria for when an assessment of road traffic effects is required although this is not necessarily a detailed modelling study. Effects are generally assessed at worst case locations adjacent to roads within the traffic model that meet the following criteria:

- A change in Light Duty Vehicle (LDV) flows of greater than 100 AADT within or adjacent to an Air Quality Management Area (AQMA), or greater than 500 AADT elsewhere.
- A change in Heavy Duty Vehicles (HDV) flows of greater than25 AADT within or adjacent to an AQMA, or greater than100 AADT elsewhere.
- Where a road is realigned by 5m or more and is within an AQMA.
- Where a junction is added or removed close to existing receptors.
- Where there are one or more substantial combustion processes where there is a risk of effects at relevant receptors.

6.4.17 Should any of the above criteria be exceeded, then further assessment may be required. The change in traffic flows is likely to dictate the extent of the study area rather than road realignment and the like.

6.4.18 It should be noted that the IAQM guidance (Ref 6.9) states that "the criteria provided are precautionary and should be treated as indicative; in some instances, it may be appropriate to amend them on the basis of professional judgement." Therefore, a view will be taken on the extent of the air quality study area once the traffic data is screened against the IAQM change criteria.

6.4.19 The assessment will consider worst case sensitive receptor locations within 200m of affected vehicle routes. These are those locations where the change in traffic flows are largest and/or where existing pollutant concentrations are highest in the vicinity of the Proposed Development Modelling predictions will be compared against UK Air Quality Strategy objectives (Ref 6.10) as appropriate.

6.4.20 For ecological receptors, the threshold for the increase in construction traffic would be 1,000 AADT on a road within 200m of the ecological receptor.

Assessment Methodology

Construction Phase Effects Approach

6.4.21 The potential dust effects during the construction phase will be assessed qualitatively using the approach defined in the IAQM construction dust guidance which identifies the level of risk associated with construction dust effects. The risk is assessed for four construction dust activities (demolition, earthworks, construction and trackout) and the level of mitigation appropriate to the risk is identified. In accordance with the guidance, no assessment of significance of effect is carried out without mitigation in place.

Operational Effects Approach

6.4.22 An assessment of the likely significant effects of the Proposed Development in operation will be undertaken with regards to local air quality. This will focus on the following pollutants:

- Nitrogen Dioxide (NO2); and
- Particulate Matter (PM10 and PM2.5).

6.4.23 NO2 and particulate matter are the two pollutants principally associated with traffic emissions and exceedances of the annual mean and hourly mean AQS Objectives for NO2 are of particular concern. The scope of the assessment will be carried out with consideration of HDC and CBC ongoing Local Air Quality Management (LAQM) review and assessment work, as required by obligations under Part IV of the Environment Act 1995.

6.4.24 Receptors within the air quality study area will be modelled for the following scenarios:

- Base Year – the year that the traffic surveys informing the traffic model were undertaken in. This scenario is modelled for the purposes of model verification.
- First year of operation without and with the Proposed Development.
- Completed development year without and with the Proposed Development – i.e., fully occupied development, including future baseline.

6.4.25 In addition, should there be significant changes to the external road network as a result of the Development, consideration will be given to the effects of an intermediate Development scenario.

6.4.26 The locations to be assessed will include sensitive receptors such as residential properties and schools where the public and/or sensitive sub-groups (such as the young, elderly and

sick) are likely to be exposed to pollutants across the various averaging periods to which the AQS Objectives apply. The sensitive receptors assessed will include on-Site receptors within the Proposed Development and existing receptors located within the operational phase study area.

6.4.27 Modelling will be undertaken using ADMS-Roads. Emission rates for NOx, PM10, and PM2.5 would be determined for each road at locations where the changes in traffic trigger the thresholds for assessment, using the most recent Emission Factor Toolkit as produced by Defra.

6.4.28 Modelled pollutant concentrations calculated using base year traffic data will be compared against the baseline air quality monitoring results collected adjacent to the local road network as a means of verifying the model. The model verification will be undertaken in accordance with the procedure outlined in LAQM.TG (22) (Ref 6.11). The selection of sites that are to be used as part of the verification process is dependent on the extent of the traffic data that is supplied.

Significance Criteria

6.4.29 For construction phase dust effects, using the IAQM guidance the significance of effects is not defined, only the required mitigation. With the suggested mitigation measures in place, the effects of construction dust are judged to be not significant. For the assessment of road traffic emissions from construction phase vehicles, the approach to defining significance of operational phase effects would be followed (as necessary).

6.4.30 The significance of effects will be assessed in accordance with the IAQM development control guidance. The significance of air quality effects during operation is dependent upon the percentage change in concentration between the 'without and with Development' scenarios, relative to the relevant air quality objective(s), as presented in Table 6.2.

6.4.31 In the context of Table 6.2 an Air Quality Assessment Level (AQAL) is the annual mean AQS Objective for the relevant assessed pollutant. For NO2 and PM10 the annual mean AQAL is 40 µg/m3, and for PM2.5 the AQAL is 25 µg/m3. The impact descriptors vary depending on the level of change in concentration relative to the AQAL. Therefore, those receptors where the future baseline concentrations are higher are more sensitive to change.

Table 6.2 Impact descriptors for individual receptors (taken from the IAQM development control guidance)

Long Term Average Concentration at Receptor in Assessment Year	% Change in Concentration Relative to Air Quality Assessment Level (AQAL)			
	1	2-5	6-10	>10
75% or less 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% or more of AQAL	Moderate	Substantial	Substantial	Substantial

*Changes are rounded up. Changes less than 1% are regarded as Negligible effects.

6.4.32 In accordance with IAQM guidance, the significance of effect of vehicle emissions associated the Proposed Development on ecological receptors will be based on the annual mean critical level for NO_x concentrations of 30µg/m^3 or the site relevant critical load for the habitat. Where critical levels or loads are already exceeded, an increase of more than 1% of the critical level or load is an indication of potentially significant effects which would trigger the need for further, more detailed assessment.

6.4.33 The Design Manual for Roads and Bridges (DMRB) guidance considers the impact of road traffic emissions on designated sites in terms of nitrogen deposition. Where the critical load for nitrogen deposition is exceeded and the development contribution is more than 1% of the critical load, an absolute change of 0.4kgN/ha/year is used a threshold below which significant effects of road traffic emissions are unlikely.

6.4.34 It should be noted that the determination of significance of the overall effect of the Development on air quality relies on professional judgement and reasoning should be provided as far as practicable. The guidance recommends that the following are considered when applying professional judgement:

- Extent and magnitude of effects;
- Existing and future air quality in absence of development;
- Extent of current and future population exposure to the effects; and
- The influence and validity of any assumptions adopted when undertaking the prediction of effects.

Cumulative Effects

6.4.35 The committed developments that have been identified for consideration in the cumulative assessment are provided in Appendix A (and those meeting the criteria identified in Section 4.6). Relevant schemes will in any event be included in the transport model as agreed with the highway authorities in due course. Traffic data from those schemes will be included in the cumulative assessment of operational effects and included within development phase scenarios as appropriate.

6.5 Baseline Data

Key Baseline Data Obtained

Horsham District Council Air Quality Monitoring Data

6.5.1 As required by Part IV of the Environment Act (1995), Horsham District Council (HDC) produces Annual Status Reports (ASRs) each year (Ref 6.12). The most recently available report is the 2022 ASR which summarises air quality in HDC during 2021. In total HDC monitor NO2 at 45 locations (3 automatic sites and 42 diffusion tube sites) and particulate matter at one locations. All of the monitoring sites are over 5km from the Site boundary and therefore there are no HDC monitoring sites which are representative of NO2 concentrations near to the Site.

Crawley Borough Council

6.5.2 As required by Part IV of the Environment Act (1995), Crawley Borough Council (CBC) produces Annual Status Reports (ASRs) each year (Ref 6.13). The most recently available report is the 2023 ASR which summarises air quality in CBC during 2022. In total CBC monitor NO2 at 52 locations (1 automatic site and 51 diffusion tube sites), and particulate

matter at 1 location. The 2022 Monitoring data indicates that the annual mean concentration exceeded the annual mean AQS objective of 40 µg/m3 at three locations.

6.5.3 There are 46 CBC monitoring sites within 5km of the Site boundary, 10 are in Hazelwick Air Quality Monitoring Area (AQMA). Hazelwick AQMA is located approximately 1.5km to the east of the Site boundary. Hazelwick AQMA has been declared an AQMA since 2015 due to an exceedance of the annual AQS objective. It includes the A2011 and Crawley Avenue dual carriage way which borders a number of residential areas and open land. The AQMA covers approximately 3km of the A2011 and three other roads leading off from the Hazelwick roundabout – Hazelwick avenue, A2004 and Gatwick Road. It is proposed to extend the AQMA southwards to include sections of the A2220 at Three Bridges.

6.5.4 Relevant CBC's passive NO2 monitoring data between 2018 and 2022 is summarised in Table 6.3 and the locations are displayed on Figure 6.1.

Table 6.3: Air Quality Diffusion Tube Monitoring undertaken by Crawley Borough Council in the vicinity of the Proposed Development 2018 – 2022

Monitoring Site	Type	National Grid Reference (X,Y)	Annual Mean NO2 Concentration (µg/m3)				
			2018	2019	2020	2021	2022
CR1	Roadside	528438, 138392	33	35	26	28	28
CR3	Urban background	528438, 138392	20	21	16	17	17
CR4	Urban background	529864, 138204	21	23	18	18	17
CR48	Urban background	527110, 139530	25	25	19	19	19
CR49	Urban background	526320, 139860	18	17	10	12	14
CR50	Urban background	527810, 139929	21	21	17	18	17
CR55	Roadside	528446, 138085	41	42	36	35	37
CR 60	Roadside	526759, 136948	33	32	25	26	27
CR62	Urban background	528438, 138088	38	40	34	34	36
CR63	Roadside	528153, 137912	52	49	42	42	45
CR64	Roadside	528150, 137825	40	38	30	31	31
CR66	Roadside	526743, 136346	29	30	27	26	26
CR69	Urban background	528443, 138082	40	44	36	36	37
CR72	Urban background	525534, 138472	15	13	11	11	12

Monitoring Site	Type	National Grid Reference (X,Y)	Annual Mean NO2 Concentration (µg/m3)				
			2018	2019	2020	2021	2022
CR74	Roadside	528978, 139599	34	33	25	26	25
CR75	Roadside	529335, 139589	21	23	17	19	20
CR76	Roadside	528292, 137810	35	35	28	31	29
CR77	Roadside	528362, 137812	35	35	28	31	31
CR78	Urban background	530037, 138553	24	22	17	19	19
CR79	Urban background	529312, 138534	25	25	20	21	21
CR81	Urban background	529047, 134474	24	22	16	17	17
CR85	Urban background	528295, 138009	30	30	31	28	30
CR86	Roadside	526878, 136821	26	27	24	21	22
CR87	Roadside	526908, 136754	38	39	29	31	31
CR88	Urban background	525489, 136573	26	25	21	22	22
CR89	Urban background	527715, 137893	22	22	17	19	18
CR91	Roadside	528681, 137177	34	32	28	30	29
CR93	Roadside	528895, 137115	48	53	39	42	42
CR94	Roadside	528841, 137069	26	27	18	25	25
CR95	Roadside	528882, 137086	31	32	24	26	26
CR96	Roadside	529125, 137196	30	27	22	21.7	21
CR97	Roadside	528603, 136950	41	37	28	29	36
CR98	Roadside	528515, 139275	35	34	27	29	29
CR 99	Urban background	528410, 135628	17	15	13	14	13
CR100	Roadside	526326, 136487	30	27	23	26	26

Monitoring Site	Type	National Grid Reference (X,Y)	Annual Mean NO2 Concentration (µg/m3)				
			2018	2019	2020	2021	2022
CR101	Roadside	525679, 135556	54	50	44	41	42
CR102	Roadside	526449, 134139	37	34	26	29	28
CR103	Urban background	528848, 137802		21	13	17	15
CR104	Urban background	527333, 135846		27	19	23	21
CR105	Roadside	526940, 137831		44	36	36	38
CR106	Roadside	527000, 138357		46	33	37	37
CR107	Urban background	524806, 136822			14	16	15
CR 109	Urban background	527174, 136357			20	24	21
CR 110	Roadside	526928, 136356			17	19	19
CR 111	Roadside	526804, 136375			22	23	23
CR112	Roadside	527206, 142325					18

(1) Data capture for the monitoring period, in cases where monitoring was only carried out for part of the year

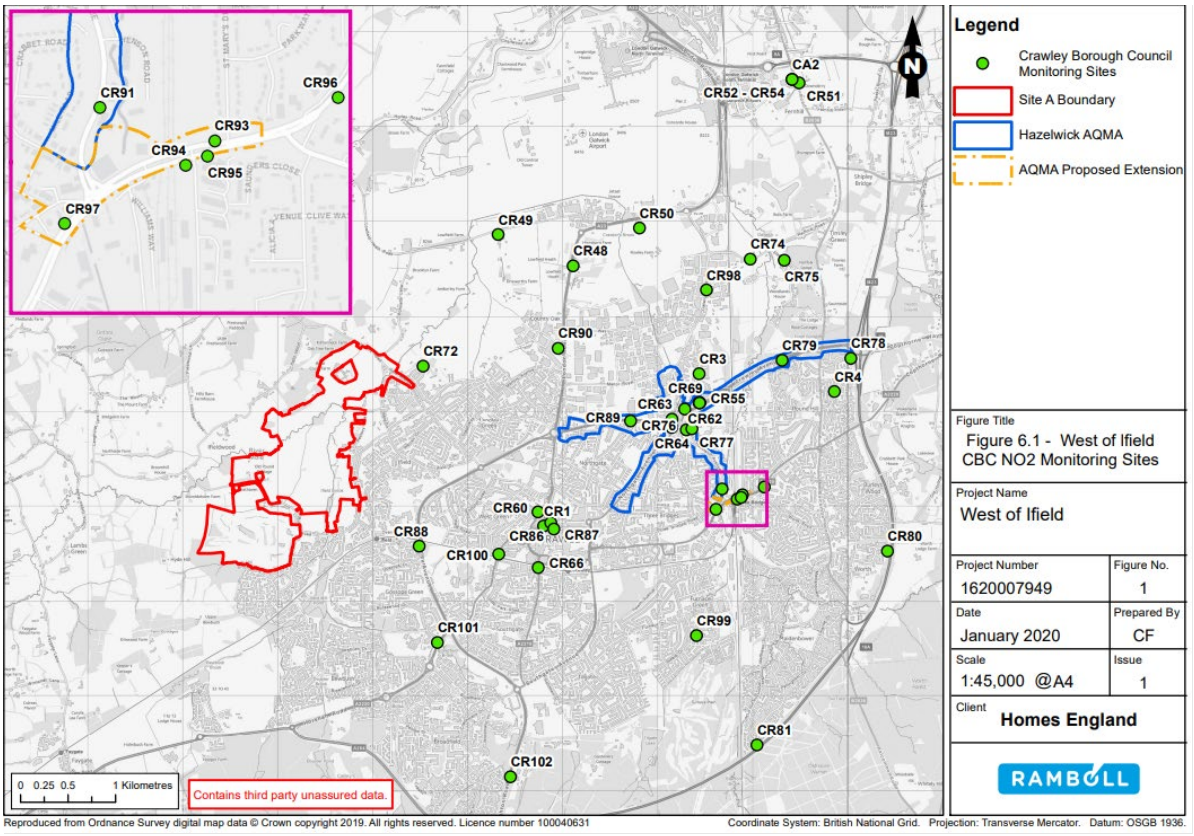


Figure 6.1: Diffusion Monitoring Locations

6.5.5 Table 6.3 demonstrates that NO2 concentrations at most of the monitoring sites have decreased between 2018 and 2022. CR63, CR93, and CR101 show concentrations that exceed the annual mean AQS objective in 2022. In 2022 one of these monitors that exceeded annual mean AQS objectives was in Hazelwick AQMA.

6.5.6 The nearest monitor to the Site boundary is CR107 which recorded NO2 concentrations of 15 µg/m^3 in 2022.

6.5.7 CBC have one automatic monitor (CA2) located to the east of Gatwick runway. This site monitors NO2, PM10 and PM2.5 concentrations. Table 6.4, Table 6.5, and Table 6.6 summarises the annual mean NO2, PM10 and PM2.5 concentrations recorded at CA2 between 2018 and 2022.

Table 6.4: NO2 Automatic Monitoring undertaken by Crawley Borough Council in the vicinity of the Proposed Development 2018 – 2022

Monitoring Site	Type	National Grid Reference (X,Y)	Annual Mean NO_2 Concentration (µg/m^3)				
			2018	2019	2020	2021	2022
CA2	Other/Suburban/ industrial	529394, 141446	25	25	17	18	21

Table 6.5: PM10 Automatic Monitoring undertaken by Crawley Borough Council in the vicinity of the Proposed Development 2018 – 2022

Monitoring Site	Type	National Grid Reference (X,Y)	Annual Mean PM_{10} Concentration ($\mu g/m^3$)				
			2018	2019	2020	2021	2022
CA2	Other/Suburban/ industrial	529394, 141446	18	21	15	18	14

Table 6.6: PM2.5 Automatic Monitoring undertaken by Crawley Borough Council in the vicinity of the Proposed Development 2018 – 2022

Monitoring Site	Type	National Grid Reference (X,Y)	Annual Mean PM_{10} Concentration ($\mu g/m^3$)				
			2018	2019	2020	2021	2022
CA2	Other/Suburban/ industrial/	529394, 141446	12	15	8	8	8

6.5.8 NO2 concentrations shown in Table 6.4 show that the concentrations for all years are well below the annual mean AQS objective and there has been a decrease in concentration between 2018 and 2022.

6.5.9 PM10 concentrations shown in Table 6.5 show that the concentrations for all years are well below the annual mean AQS objective and that there has been a decrease in PM10 concentrations between 2018 and 2022.

6.5.10 PM2.5 concentrations shown in Table 6.6 show that the concentrations for all years are well below the annual mean AQS objective and that there has been a decrease in PM2.5 concentrations between 2018 and 2022.

Defra Background Pollutant Concentrations

6.5.11 Predictions of background pollutant concentrations are periodically produced by Defra to assist Local Authorities in their Review and Assessment of Air Quality. These are produced for every 1km grid square in the UK. The site and possible air quality study area is located across a number of grid squares. Data for the grid squares that cover the site were downloaded from the Defra website (Ref 6.14) for the purposes of the assessment. The background concentration predictions for each grid square during 2022 are presented below in Table 6.7.

Table.6.7: Defra Background Map Concentrations across the site in 2018

Grid Square	2022 Modelled Defra Background Concentration ($\mu g/m^3$)		
	NO2	PM10	PM2.5
524500_138500	10.4	12.9	8.8
525500_138500	11.2	13.7	9.3
524500_137500	9.7	13.8	9.2
523500_136500	9.5	13.5	9.2
523500_137500	9.3	13.3	8.9

6.5.12 Table 6.6 indicates that 2022 background NO2 and PM10 concentrations are low across the site and that exceedances of the annual mean NO2 and PM10 AQS objective of 40 µg/m^3 are unlikely. In future years background concentrations are expected to reduce further.

Key Environmental Receptors

6.5.13 The IAQM development control guidance does not provide a method for assessing the 'value' or 'sensitivity' of receptors. In effect, the guidance considers all residential properties to be sensitive because of the potential for regular exposure of individuals to poor air quality. Areas away from residential properties are therefore not considered to be sensitive with the exception of those non-residential properties where vulnerable members of the population such as children, the elderly and infirm are likely to be regularly exposed.

6.5.14 Key environmental receptors likely to be affected by the Proposed Development will be those remaining residences that are currently outside of the Site boundary but located within the overall masterplan area. Other receptors further away from the Site boundary will be identified once the air quality Study Area is defined but receptors located along roads Charlwood Road, Ifield Avenue and Rusper Road may be affected by the changes in traffic due to the Proposed Development.

6.5.15 In addition to the above, air quality effects on nitrogen-sensitive ecological receptors will be assessed. The impact of the Proposed Development will be assessed on ecological sites with the following European or national designations which are located in the Study Area:

- Special Protection Areas (SPA);
- Special Conservation Areas (SAC);
- Sites of Special Scientific Interest (SSSI); and
- Ramsar sites.

6.5.16 The following ecological sites with European or national designations are located within 5km of the Site boundaries (refer Figure 6.2):

- Glover's Wood SSSI, located 2.5km to the north-west (Broad-leaved, mixed & yew woodland);
- House Copse SSSI, located 0.6km to the south (Broad-leaved, mixed & yew woodland); and
- Buchan Hill Ponds SSSI, located 1.6km to the south (Broad-leaved, mixed and yew woodland).

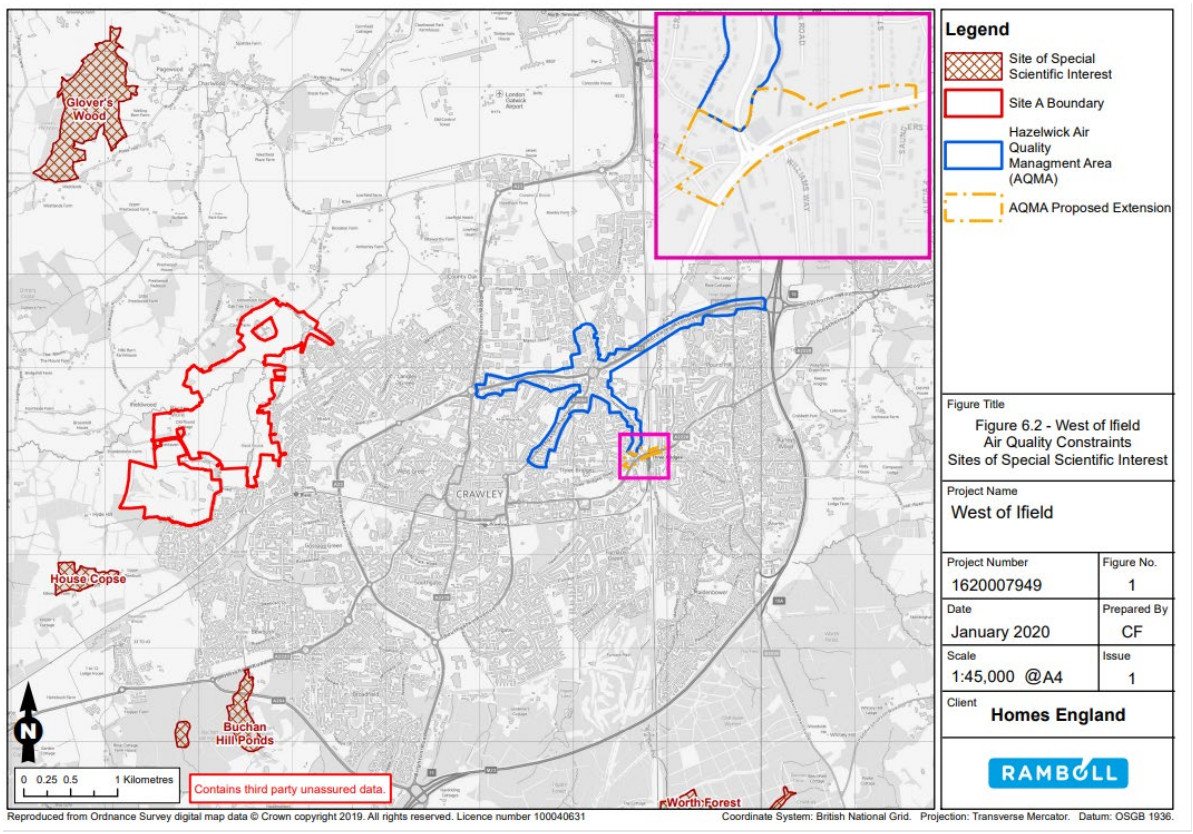


Figure 6.2: Diffusion Monitoring Locations

6.5.17 The above listed ecological receptors are all sensitive to nitrogen deposition and therefore will be scoped in-to the operational phase assessment, should they reside within 200m of roads that comprise the air quality study area. Based on the location of Glovers Wood SSSI, then it is unlikely that construction or operational traffic will increase by more than 1,000 AADT on roads within 200m of the Site. Glovers Wood SSSI will therefore be scoped out of the air quality assessment.

Critical Loads and deposition rates at Ecological Sites

6.5.18 Data on Site-specific critical loads and background nitrogen and acid deposition rates will be obtained from the Air Pollution Information System (APIS) (Ref 6.15).

6.6 Description of Possible Significant Effect

Construction Phase

6.6.1 During the construction phase of the Proposed Development, there is the potential for fugitive dust emissions from activities such as demolition, excavation, ground works, cutting, construction, and storage of materials. Vehicle movements both on-Site and on the local road network also have the potential to result in the resuspension of dust from haul road and highway surfaces.

6.6.2 There is also the potential for air quality effect from road traffic exhaust emissions from additional construction vehicles on the local highway. There are existing residential receptors within 200m of the likely routes used to access the site which could be impacted by an increase in pollutant concentrations due to the additional construction vehicles. The assessment of construction phase dust and emissions effects is therefore scoped in.

Operational Phase

6.6.3 The Proposed Development has the potential to significantly increase traffic flows and therefore change emissions rates on the local road network. There are likely to be deteriorations in air quality at receptors as a result of the change in traffic flows due to the Proposed Development. The study area will be defined by the change in traffic flows as a result of the Proposed Development as described herein. Sensitive receptors within 200m of these roads will be considered to determine the impact of the he Development on air quality. The assessment of operational effects of NOX and particulates emissions from vehicles will therefore be scoped into the assessment.

6.7 Potential Mitigation Measures

Construction

6.7.1 The risk of construction phase effects will be assessed by following the IAQM construction dust guidance (Ref 6.10). Relevant mitigation measures identified within the guidance appropriate to the identified level of risk will be specified within the ES.

Operation

6.7.2 Exhaust emissions from operational phase traffic have the potential to cause an adverse impact on local air quality. There are a number of design practices and mitigation techniques that may be employed in order to reduce or negate the air quality impact of the Proposed Development and these will be assessed in accordance with the requirements of the HDC Air Quality and Emissions Reduction Guidance (Ref 6.7):

- Increase distance between potential sources of emission and receptors;
- An appropriate offset distance should be maintained between residential, health and education land uses and the main roads within the Site. However, given that background concentrations are low and that the internal site roads will only carry development traffic, significant offset distances are unlikely to be necessary. Encourage uptake of low/zero emission vehicles;
  - The provision of Electric Vehicle (EV) charge point.
  - Contributions to low emission vehicle refuelling infrastructure.
  - Provision of incentives for the uptake of low emission vehicles.
  - Financial support to low emission public transport options.
- Reduce number of vehicle journeys;
  - Provision of a detailed travel plan (with provision to measure its implementation and effect) which sets out measures to encourage sustainable means of transport (public, cycling and walking) via subsidised or free-ticketing, improved links to bus stops, improved infrastructure and layouts to improve accessibility and safety.
  - Improvements to public transport, cycling and walking infrastructure.
  - Support for and promotion of car clubs.

7. Biodiversity

7.1 Introduction

7.1.1 This chapter addresses the proposed scope of EIA with respect to Biodiversity. It includes a summary of current and proposed consultation, baseline condition and the proposed approach to the assessment of possible construction and operational effects. Areas that are proposed to be scoped in and out of the assessment are identified.

7.2 Consultation

7.2.1 Table 7.1 shows a summary of consultation undertaken to date that has informed EIA Scoping, and the key issues raised:

Table 7.1 Consultation Undertaken to Date

Consultee	Date	Summary of Issues Raised/Agreed
Gatwick Airport	26 November 2018	Provided 2017-2018 bird monitoring data.
Horsham District Council (Essex County Council – Place Services)	29th March 2019	This consultation was conducted to agree the ecology survey scope for the Land West of Ifield Ecological Assessment. The scope for the surveys was agreed via email on 16 April 2019. A further call was held on 3rd April 2020 to discuss potential effects on proposed ecological surveys resulting from Covid-19. It was noted that some flexibility in survey data was likely given the Covid-19 situation e.g., delay surveys, if possible, use non-licensed method statements for mitigation where licences can be avoided, however a complete absence of data on European Protected Species would be unlikely to be acceptable. It was noted that the project team was fortunate in already having a significant amount of ecological baseline data.
Natural England	6th March 2020	A call was held to discuss the approach to the proposed Habitats Regulations screening assessment.
Horsham District Council	30th November 2020	HDC do not consider 2020 an appropriate existing baseline given the effects of the COVID-19 pandemic. Ecological surveys have been ongoing over several years up to the time of submission and will continue afterwards as appropriate.
Crawley Borough Council	27th October 2020	CBC has concerns in using 2020 as the existing baseline given the effects of the COVID-19 pandemic. Baselines should be agreed with CBC and HDC for each of the technical topics. Ecological surveys have been ongoing over several years up to the time of submission and will continue afterwards as appropriate.
Horsham District Council Ecology	3rd April 2020	Requirement for Defra metric to be used to deliver Biodiversity Net Gain (BNG), which has been done. Discussion on validity of 2020 data given pandemic. Sufficient surveys undertaken since 2020 for most species, with additional surveys proposed. Issue of District Level Licensing (DLL) in the area. Discussion on potential cycle path within Ifield Brook Wood and Meadows Local Wildlife Sites (LWS), and requirement for clarity on proposed compensation measures for habitat loss. HDC requested Habitats Regulations (HRA) screening to include information on potential visitor pressure and air quality pathways. This has been completed.

Consultee	Date	Summary of Issues Raised/Agreed
Horsham District Council Landscape	5th November 2020	The parameter plan 'Public Real, Open and Play Space' needs to reflect the landscape and ecology strategy for the Site. The parameter plans should clearly identify the existing landscape fabric, buffer zones, tree lined routes, key panoramic views or view cones to be protected, the distinction between public green spaces and inaccessible areas such as ancient woodland or other ecological sensitive enhancement areas, existing water courses and attenuation areas. This is also expected to be coordinated with the walking and cycling strategy presented under Vehicular Access, Pedestrian Access and Servicing parameter plan.
Natural England	26th October 2020	The development Site is within close proximity to Buchan Hill Ponds Sites of Special Scientific Interest (SSSI), Glover's Wood SSSI and House Copse SSSI. The ES should fully consider the potential for any direct and indirect effects to these sites. The EIA will need to consider any effects upon local wildlife and geological sites. Effects on designated sites are included within the assessment. Refer to details in 7.4.6 below in terms of consideration of designated sites.
		The ES should assess the impact of all phases of the proposal on protected species (including, for example, great crested newts (GCN) *Triturus cristatus*, reptiles, birds, water voles *Arvicola amphibius*, badgers *Meles meles* and bats). The ES should thoroughly assess the impact of the proposals on habitats and/or species listed as 'Habitats and Species of Principal Importance' within the England Biodiversity List, published under the requirements of S41 of the NERC Act 2006. This is addressed in the assessment.
		Ancient woodland is an irreplaceable resource of great importance for its wildlife, its history and the contribution it makes to our diverse landscapes. The ES should have regard to the requirements under the NPPF: c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons, and a suitable compensation strategy exists. This will be addressed in the assessment.
Environment Agency	2nd November 2020	In regard to Chapter 7 of the submitted report, there is a significant lack of consideration with regard to the aquatic environment, predominantly invertebrates, fish and supporting habitat (submerged and marginal). The chapter mainly focuses on the terrestrial environment. There is a brief reference to aquatic life (fish and invertebrates) and habitat as they are recognised as sensitive receptors, but they do not appear to be mentioned or considered elsewhere, specifically in relation to the significant effects and mitigation sections. Specific effects on the aquatic environment and relevant mitigation needs to be considered and included as part of the ES. We would recommend that baseline survey data is collected on aquatic invertebrates and fish. There is data available on fish populations that is collected by us and available to the public. There are three sites for monitoring located within or very close to the Proposed Development boundary. This is also likely to be the case for invertebrates. The Applicant should consider the inclusion of a desk-based study for establishing baseline data, although physical surveys may also be helpful. This is addressed in the assessment, with fish scoped out of the assessment.

7.2.2 Data has been purchased from Sussex Biodiversity Records Centre (SxBRC) and Surrey Biodiversity Information Centre (SBIC) and has also been obtained from Multi Agency Geographic Information for the Countryside (MAGIC) (Ref 7.29).

7.3 Methodology

Relevant Policy and Guidance

National Planning Policy

7.3.1 The following national policy is of relevance and will be referred to in the assessment:

- National Planning Policy Framework (NPPF) (Ref 5.1).

Local Planning Policy

7.3.2 The following local policy is of relevance and will be referred to as necessary in the assessment:

- Horsham District Planning Framework (Ref 5.2).
- Horsham District Planning Framework - Green Infrastructure Strategy (Ref 7.1).
- Crawley Borough Council Local Plan (Ref 5.3).
- Crawley Borough Council - Green Infrastructure Supplementary Planning Document (Ref 7.2).
- Horsham Nature Recovery Network Report (Ref 7.3).
- Sussex Biodiversity Partnership – Rusper Ridge Biodiversity Opportunity Area 36 (Ref 7.4).
- Sussex Biodiversity Partnership – Ifield Brook Biodiversity Opportunity Area 37 (Ref 7.5).

Guidance

7.3.3 The following guidance will be used to inform the assessment.

- ARG UK, 2010. Advice Note 5 – Great crested newt habitat suitability index (Ref 7.6).
- Biggs, J., Ewald, N., Valentini, A., Gaboriaud, C., Griffiths, R. A., Foster, J., Wilkinson, J., Arnett, A., Williams, P., and Dunn, F., 2014. Analytical and methodological development for improved surveillance of the Great Crested Newt. Appendix 5. Technical advice note for field and laboratory sampling of great crested newt (*Triturus cristatus*) environmental DNA. Freshwater Habitats Trust, Oxford (Ref 7.7).
- Birds of Conservation Concern (BoCC) 5: The Red List for Birds, 2021. Available online at https://www.bto.org/sites/default/files/publications/bocc-5-a5-4pp-single-pages.pdf (Ref.7.8).
- Breeding Bird methodology customised, based on British Trust for Ornithology Breeding Bird Survey (BBS) https://www.bto.org/volunteer-surveys/bbs/research-conservation/methodology (Ref 7.9).
- Bright, P., Morris, P., and Mitchell-Jones, T., 2006. The Dormouse Conservation Handbook, 2nd edition. ISBN 1 85716 219 6 (Ref 7.10).
- British Standard 5837 (2012): Trees in Relation to Design, Demolition and Construction – Recommendations (Ref 7.11).
- British Trust for Ornithology (BTO), 2019, JNCC, and RSPB's Breeding Bird Survey Instructions (Ref 7.12).
- BTO, 1996, Common Bird Census (ref 7.13).

- Butcher, B. *et al*. (UK Hab), 2020, UK Habitat Classification User Manual Version 1.1, 2020 (Ref 7.14).
- CIEEM, 2018. Guidelines for Ecological Impact Assessment in the UK and Ireland (Ref 7.15).
- Collins, J. (ed), 2023. Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition). The Bat Conservation Trust, London. (Ref 7.16).
- Dean, M., Strachan, R., Gow, D. and Andrews, R., 2016. The Water Vole Mitigation Handbook (The Mammal Society Mitigation Guidance Series). Eds Fiona Mathews and Paul Chanin. The Mammal Society, London (Ref 7.17).
- Defra, 2007. Hedgerow Survey Handbook – a standard procedure for local surveys in the UK. 2nd edition (Ref 7.18).
- DEFRA,1997, The Hedgerows Regulations 1997: A Guide to the Law and Good Practice, 1997 (Ref 7.19).
- Drake, C., *et al*., 2007, Surveying terrestrial and freshwater invertebrates for conservation evaluation (Ref 7.20).
- English Nature, 2001. Great crested newt mitigation guidelines. ISBN 1 85716 568 3 (Ref 7.21).
- English Nature, 2002. Badgers and development. ISBN 1 85716 614 0 (Ref 7.22).
- Froglife, 1999. Reptile survey: an introduction to planning, conducting and interpreting surveys for snake and lizard conservation. Froglife Advice Sheet 10. Froglife, Halesworth (Ref 7.23).
- GOV.UK, 2014. Otters: Surveys and Mitigation for Development Projects. Available online at https://www.gov.uk/guidance/otters-protection-surveys-and-licences (Ref 7.24).
- GOV.UK, 2015. Badgers: Surveys and Mitigation for Development Projects. Available online at https://www.gov.uk/guidance/badgers-surveys-and-mitigation-for-development-projects#survey-effort-required (Ref 7.25).
- GOV.UK, 2015. Great crested newts: surveys and mitigation for development projects. Available online at https://www.gov.uk/guidance/great-crested-newts-surveys-and-mitigation-for-development-projects (Ref 7.26).
- GOV.UK, 2015. Hazel or common dormice: surveys and mitigation for development projects. Available online at https://www.gov.uk/guidance/hazel-or-common-dormice-surveys-and-mitigation-for-development-projects (Ref 7.27).
- Harris, S., *et al.*, 1989, (The Mammal Society) Surveying Badgers. Occasional Publication No. 9. (Ref 7.28).
- Invertebrate survey methodology customised, based on Drake, C. M., Lott, D. A., Alexander, K. N. A., and Webb, J., 2007. Research Report NERR05 – Surveying terrestrial and freshwater invertebrates for conservation evaluation. Peterborough: Natural England (Ref 7.29).
- JNCC, 2010. Handbook for Phase 1 habitat survey - a technique for environmental audit. ISBN 978-0-86139-636-8 (Ref 7.30).
- Natural England, 2011. Interim Natural England Advice Note – Dormouse surveys for mitigation licensing – best practice and common misconceptions (Ref 7.31).
- Natural England, 2013. Higher Level Stewardship Environmental Stewardship Handbook, 4th Edition available online at: http://publications.naturalengland.org.uk/publication/2827091 (Ref 7.32).

- Natural England, 2019. The Biodiversity Metric 2.0 (JP029). Available online at: http://publications.naturalengland.org.uk/publication/5850908674228224 (Ref 7.33).
- Reason, P.F. and Wray, S., 2023. UK Bat Mitigation Guidelines: a guide to impact assessment, mitigation and compensation for developments affecting bats (Ref 7.34).
- Sewell, D., Griffiths, R. A., Beebee, T. J. C., Foster, J., Wilkinson J. W., 2013. Survey protocols for the British herpetofauna (Ref 7.35).
- Shawyer, C., (Wildlife Conservation Partnership), 2012, Barn Owl *Tyto alba* Survey Methodology and Techniques for use in Ecological Assessment (ref 7.36).
- UK Hab's UK Hab Field Key Version 2.1 (Ref 7.37).
- Wray *et al*., 2010, Valuing Bats in Ecological Impact Assessment (ref 7.38).

Study Area

7.3.4 The study area is the area within which habitat and targeted species surveys have been undertaken to date but may be extended at a later date for species with a larger range or complex population dynamics (e.g. great crested newt) and will be variable depending on the species. The zone of influence describes the area over which the activities associated with the Proposed Development could influence ecological features. The study area and zone of influence have been established on the basis of a desk-based review of ecological features in the general vicinity of the Site boundary (up to date data for a 2km radius (5km for bats) around the Site have been obtained), together with the results of field surveys, and a review of the likely areas affected by the Proposed Development. Where bats form part of a European site citation (for example Special Area of Conservation) then a study area radius of 30km would be used for this specific issue.

7.3.5 The field study area for this assessment includes the area within the Site boundary and a buffer distance of 250 m beyond the Site boundary. A standard 2 km study area from the boundary of the Site was used for the identification of designated sites, important habitats and species, extended to 5 km for bats.

Assessment Methodology

Approach

7.3.6 The effects on Biodiversity will be assessed in accordance with CIEEM (2018) guidelines Version 1.1 - Updated September 2019 (Ref.7.15).

Evaluation

7.3.7 In order to determine the likelihood of a significant effect, it will first be necessary to identify whether an ecological feature is sufficiently valuable. To achieve this, where possible, habitats, species and populations will be valued based on a combination of their rarity, status and distribution, using contextual information where it exists. This will include legal, policy and conservation status.

7.3.8 The factors which will be taken into consideration in evaluating ecological features for both habitats and species will be adapted from Ratcliffe (Ref 7.39) following CIEEM (2018) guidelines (Ref 7.15). The frame of reference for the valuation of ecological features in terms of geographical levels from International to site level will be used. A range of documents will be consulted to assign the criteria, for example, for breeding birds, the BOCC 5: The Red list of Birds (2021) (Ref 7.8) traffic light system of highlighting species of nature conservation concern will also be considered.

7.3.9 Biodiversity Net Gain (BNG) calculations will be undertaken using the UK-wide industry accepted metric, the Natural England metric v4.0 published in 2023 (Ref 7.33) (unless this is superseded). This provides a transparent and robust quantitative measure of biodiversity change. Update site surveys will be undertaken to determine UKHab habitat types and condition to inform the calculations. The findings of these surveys and calculation will be fed back to the design team and recommendations will be made to increase habitat value throughout the site to minimise any potential offsetting requirements. A commitment has been made for the Proposed Development to achieve a 10% BNG.

7.3.10 In the process of Ecological Impact Assessment (EcIA), it is important to select the appropriate important ecological features (IEFs) for inclusion in the assessment. In this case, a threshold of Local level value has been set.

Significance Criteria

7.3.11 A significant effect is defined as one which is considered likely to enhance or undermine the conservation status of an IEF. Where a significant effect is identified, the value of the feature will be used to help determine the geographical scale at which the effect is significant. For example, a significant effect to a Site of Special Scientific Interest (SSSI), is likely to be significant at a national level. However, it may be the case that the effect could be considered significant at a lower geographical level than that at which the feature is important, depending on the magnitude of the effect.

7.3.12 The significance of the likely residual effects upon the IEFs will form the main assessment following the consideration of mitigation measures. However, where likely significant effects are identified without mitigation these will be summarised and information will be provided on the appropriateness of monitoring.

7.3.13 Any remaining residual significant effects would require additional design and/or compensatory measures. Any mitigation of likely significant effect that is embedded within the Proposed Development or included with the assessment should be secured as part of the planning permission.

Cumulative Effects

7.3.14 A review of nearby committed schemes will be undertaken, based on criteria outlined in section 4.6 has been undertaken in the consideration of the cumulative effect's assessment. Data from those schemes will be included in the cumulative assessment of operational effects and included within development phase scenarios as appropriate.

7.4 Baseline Data

Key Baseline Data Obtained

7.4.1 A review of existing ecological information relating to the Site and the associated potential zone of influence (ZoI) has been undertaken. This has included an assessment of available desk-based data including the following sources:

- Ecology Solutions Ltd, 2014. Land West of Ifield, Crawley, West Sussex. Ecological Appraisal and Constraints Document. (Ref 7.40);
- Gatwick Airport Bird Monitoring Data 2017 - 2018 (Ref 7.41);
- MAGIC website: http://magic.defra.gov.uk/ (the database managed by Natural England) (Ref 7.42);

- RSK, 2018. Homes and Communities Agency: Landholding at Ifield, Crawley (Ref 7.43);
- Sussex Biodiversity Record Centre (SxBRC), 2018. Ecological data search for land at Ifield, Phase 1, Crawley. Report reference SxBRC/18/153 (Ref 7.44). The data search was undertaken using a 2km search radius for designated sites, habitats and protected, notable and invasive species with an extended 5km search radius for bat species;
- Sussex Biodiversity Partnership, 2007. Ifield Brook Biodiversity Opportunity Area http://sussexlnp.org.uk/boas.php (Ref 7.45);
- Surrey Biodiversity Information Centre (SBIC) (Ref 7.46)[3];
- Woodland Trust, 2018. Ancient Tree Inventory (Ref 7.47);
- Ifield Village Conservation Area Statement (2018) Crawley Borough Council and Ifield Village Association (ref. 7.48);
- Crawley 2029 Additional Site Consultation (2013) (Ref. 7.49);
- Crawley Land West of Ifield Opportunities and Constraints (David Lock Associates, 2009) (Ref. 7.50);
- Land West of Ifield Crawley Towards a Master Plan (The Consortium 2010) (Ref 7.51);
- River Mole Catchment Plan Draft 4 (2018) (Ref 7.52); and
- River Mole Catchment Plan Project Register (2018) (Ref 7.53).

7.4.2 An ecological walkover of the study area identified habitats likely to be of nature conservation value, and the potential for protected or notable species of plants and/or animals to be present. Targeted species surveys were undertaken during 2018 to 2023. Ecological survey methods will be detailed within the individual survey reports.

Constraints and Limitations to Baseline Data

7.4.3 As per good practice survey limitations (if any) for each survey will be detailed in each survey report included within the Environmental Statement.

Important Ecological Features (IEF)

7.4.4 The IEFs scoped into the EIA are presented in summary below.

Features scoped into the assessment

7.4.5 The following ecological features have been scoped into the assessment:

Statutory Designated Sites

- A Magic site search revealed that there are no Natura 2000 (Special Areas of Conservation (SACs and Special Protection Areas SPAs)) nor Ramsar sites within 10km. Within 20km there is the Ashdown Forest SAC and the Mole Gap to Reigate SAC and within 30km the Ebernoe Common SAC and Arun Valley Ramsar and The Mens SAC. Air quality and recreational pressure, as well as potential effects on bats, have been considered with regards to these receptors via a Habitats Regulations Directives Screening Assessment.
- SxBRC data and MAGIC mapping identified four statutory designated sites within 2km of the Site, the nearest being House Copse Site of Special Scientific Interest (SSSI) approximately 665m south of the Proposed Development. House Copse SSSI is

[3]

designated for its woodland habitat which is of botanic and historic interest. House Copse SSSI is scoped into the assessment based on its proximity to the Site and potential for adverse effects as a result of increased recreational pressure.

- Buchan Hill Ponds SSSI located 1.6km to the south comprises three ponds which are the best examples of Wealden hammer ponds on acid Tunbridge Wells sands, in West Sussex. This SSSI is scoped into the assessment based on the potential for adverse effects associated with transport proposals and the potential for adverse effects as a result of increased recreational pressure.
- Target Hill Park Local Nature Reserve (LNR) is located 1.9km to the south-east and comprises a mosaic of grassland, scrub and woodland habitats. Willoughby Fields LNR comprises valuable flower-rich grassland and two large meadows, all bounded by thick hedges. These LNR are scoped into the assessment based on the potential for adverse effects as a result of increased recreational pressure.

Non-Statutory Designated Sites

- SxBRC data identified ten non-statutory designated sites within 2km of the Site, which will be assessed for their potential to be impacted by increased recreation pressure, air quality effects including dust and noise and vibration.
- The nearest sites are Ifield Brook Wood and Meadows LWS and Hyde Hill LWS which are within the boundary of the Proposed Development and designated for their combination of habitats including herb-rich meadows, rough grassland, hedgerows, watercourses and woodland including woodland registered on the Ancient Woodland Inventory (AWI).
- Further sites scoped in within 500m of the Proposed Development include; Willoughby Fields LWS (approximately 330m north-east).
- Ifield Pond and surroundings LWS (approximately 120m south (and Wood near Lower Prestwood Farm LWS (approximately 465m north-west).
- Further LWS present within 2km include: Orltons Copse LWS (approximately 895km north-west), Woldhurstlea Wood LWS (approximately 940m south-east), Ewhurst Wood LWS (approximately 1.3km east), Kilnwood Copse LWS (approximately 1.3km south-west), Buchan Country Park LWS (approximately 1.7km south-east) and Buchan Country Park (approximately 1.7km south-east).

Ifield Brook Biodiversity Opportunity Area

- The Proposed Development contains areas which are part of the Ifield Brook Biodiversity Opportunity Area and as such the ES will consider the effects of the Proposed Development upon achieving the targets identified for the Biodiversity Opportunity Area.

Habitats

- An extended UKHab survey of the Site was undertaken in August 2022, with update UKHab surveys to parts of the Site undertaken in April 2023.
- The Site, which covers approximately 170.8 ha, comprises predominantly agricultural land in the northern and central areas (dominated by arable and grazed pasture fields and with various areas of woodland and scrub), and Ifield Golf Course in the south. A range of habitats are present throughout the Site including grassland, arable land, woodland, scrub, a network of hedgerows and lines of trees, individual trees, ditches (including land drains) and ponds. The River Mole flows west to east through the northern half of the Site, and Ifield Brook runs flows south to north along the eastern Site boundary (forming the boundary between the Site and the adjacent Ifield Meadows LWS). Rusper Road passes through the southern half of the Site (passing north of the

Golf Course), and Charlwood Road and Bonnett's Lane form the northern-most extent of the Site.

- The habitats are as follows:
  - w1f – Lowland mixed deciduous woodland
  - w1g – Other woodland; broadleaved
  - w1g6 – Line of trees
  - g3c – Other neutral grassland
  - g4 – Modified grassland
  - g1c – Bracken
  - h3h – Mixed scrub
  - h3d – Bramble scrub
  - h3a – Blackthorn scrub
  - s – Sparsely vegetated land, 17 – Ruderal/ ephemeral
  - h2a – Hedgerows (priority habitat)
  - h2b – Other hedgerows
  - u1a – Developed land; sealed surface
  - u1b5 – Buildings
  - u1c – Artificial unvegetated, unsealed surface
  - c1c – Cereal crops
  - u – Urban, 1160 – Introduced shrub
  - r1a – Eutrophic standing waters, 19 – Ponds (priority habitat), 39 – Artificial pond
  - r – Standing open waters and canals, 191 – Ditch
  - r2b – Other rivers and streams
  - Individual trees
- These habitats have the potential to/have been shown to support a range of protected and notable species and are therefore scoped into the EIA.

Habitats of Principal Importance

- The site supports Habitats of Principal Importance listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 and/or the Sussex BAP including rivers, ponds, arable field margins, hedgerows and lowland mixed deciduous woodland. With the exception of the woodland and the River Mole, the majority of these habitats are relatively common and typical of the wider landscape. Habitats of Principal Importance are scoped into the EIA.

Arboriculture Features

- An arboricultural survey in line with BS 5837: 2012 (Ref 7.11) has been undertaken. A total of 609 arboricultural items were recorded within the study area, these were recorded as 300 individual trees, 168 groups of trees, 92 woodlands and 49 hedgerows.
- A review of Horsham council online data base has confirmed there is one group Tree Preservation Order (TPO/0046 Land At Whitehall Drive Ifield West Sussex) located off-Site, however within close proximity of the Site. There are no Conservation Areas (CAs) within the areas of the Site within the Horsham District Council administrative Boundary.
- Liaison with Crawley Borough council found one conservation area within close proximity of the Site (Ifield Village Conservation area).

- Within the Site, the majority of the arboriculture features were identified as being mature (34%). Four trees were identified as being veteran trees (T365, T368, T394 and T449).
- There are areas of Ancient Woodland immediately adjacent to the north-western, western, south-western and south-eastern Site boundary.

Hedgerows

- Hedgerow surveys identified three Important hedgerows (as defined under the Hedgerows Regulations (1997) (Ref 7.19) within the study area. Hedgerows are a Habitat of Principal Importance listed on Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (Ref. 7.54) and this habitat is therefore scoped into the EIA.

Badger

- A number of badger setts have been recorded in the Site, and badger are therefore scoped into the EIA.

Bats

- Emergence / re-entry surveys undertaken from 2018 to 2023 have consistently recorded several day roosts of individual common and soprano pipistrelles at buildings and trees within the Site. In addition, a small maternity roost of brown long-eared bats has been recorded in an off-Site building.
- The assemblage of bats utilising the site comprises largely common species, with the majority of passes recorded from common *pipistrelles Pipistrellus pipistrellus* and soprano pipistrelles *P. pygmaeus*, with a low level of activity of rarer bats including *Myotis* bats and brown long-eared bats *Plecotus auritus*. Very occasional Nathusius' pipistrelle *P.nathusii*, serotine *Eptesicus serotinus*, grey long-eared bat *Plecotus austriacus*, barbastelle *Barbastella barbastella* and Leisler's *Nyctalus leislerii* bat were also recorded.
- Radiotracking studies in 2020 to 2022 suggest that the majority of the core areas for foraging Bechstein's bats *Myotis bechsteinii* are outside of the Site, focusing on extensive off-Site woodland habitat (where maternity roost trees have been identified). Although individuals are likely to use suitable habitat with the Site (such as tree lines and copses), these are likely to be of lower importance to the local population than surrounding woodland habitats and unlikely to comprise significant portions of the populations' CSZ, with the Site likely to be at the fringes of the local populations' home ranges. One day roost was recorded within the Site, at a patch of woodland in the centre of the Site. Bats are scoped into the EIA due to their use of the Site for foraging/commuting and roosting.

Brown Hare

- No records of brown hare Lepus europaeus were provided by SxBRC and no incidental observations have been made during ecological surveys on Site. No specific surveys for this species have been carried out, but this species is large and often conspicuous. Brown hare is likely to be absent from the site and is therefore scoped out.

Other mammals (hedgehog and water shrew)

- Data provided by SxBRC confirmed records of hedgehog *Erinaceus europaeus* within the Site. Two water shrew *Neomys fodiens* were captured during great crested newt surveys undertaken in 2018.
- Habitats within the Site are suitable to support these species and they are therefore scoped into the EIA. However, no targeted surveys for hedgehog or water shrew have

been undertaken or are proposed as presence is presumed and mitigation for these small mammals is to be achieved as a component of the retention and improvement of habitats within the Proposed Development site and within the green infrastructure strategy.

Great Crested Newts (GCN)

- GCN surveys undertaken in 2018 to 2022 identified the presence of three GCN metapopulations, with a 'medium' size population associated with the golf course in the south of the Site.
- Due to their presence on Site, GCN are scoped into the EIA.

Breeding birds

- Breeding bird surveys were undertaken between May and July 2018 and between March and April 2020, with a total of 55 different bird species recorded in 2018 and 46 in 2020. Of these 19 are considered notable.
- An assemblage of 'farmland' bird species was recorded. Of the birds that form this assemblage within the Site, all except three species were confirmed, probably or possibly breeding species.
- Incidental records of kingfisher and red kite, species specially protected under Schedule 1 of the Wildlife and Countryside Act, were recorded during the survey. It is not thought that these species are breeding on the site.
- During the barn owl surveys in 2020, no Occupied Breeding Sites were identified within the buildings on Site and no suitable trees used by roosting or nesting barn owls were recorded during the surveys. The Site may support roosting and breeding barn owl and has the potential to support some barn owl foraging.
- The breeding bird assemblage is scoped into the EIA.

Wintering birds

- Wintering bird surveys have been completed over the winter season of 2018 – 2019. The surveys found that the site supported a varied assemblage of wintering birds, with a total of 50 species recorded on Site. Of these, 18 were considered notable. On average, around 1110 birds were recorded on each of the four surveys. A limited assemblage of wintering farmland birds was recorded. The wintering bird assemblage is scoped into the EIA.

Reptiles ('Common' Species)

- Surveys to inform the distribution of reptiles across the site were completed in 2019 and 2022. Reptile refugia were located within suitable habitat such as field margins, hedgerows and adjacent to ditches. Populations of common lizard *Zootoca vivipara*, slow worm *Anguis fragilis* and grass snake *Natrix natrix* were found within the Site. The site does not support habitat suitable for 'rare reptiles', i.e. smooth snake (*Coronella austriaca*) or sand lizard (*Lacerta agilis*).
  - Common reptiles are therefore scoped into the EIA.

Terrestrial Invertebrates

- Records from SxBRC identified the presence of white admiral *Limenitis amilla*, small heath *Coenonympha pamphilus*, brown hairstreak Thecla betulae and green-brindled crescent *Allophyes oxyacanthae* within the Site. Historical records of several notable species within the Site were also provided including bulrush veneer Calamotropha paludella, long-winged conehead *Conocephalus fuscus*, Roesel's Bush-Cricket

Metrioptera roeselii, white-barred knot-horn *Elegia similella*, chequered pearl *Evergestis pallidata* and a weevil *Dorytomus ictor*.

- Ifield Brook Wood and Meadows LWS is known to support six species of butterfly and four species of damselfly. Hyde Hill LWS is also an important site for invertebrates with 26 species recorded in recent years including uncommon/localised species such as dingy skipper *Erynnis tages*, purple hairstreak *Favonius quercus*, white admiral, silver-washed fritillary *Argynnis paphia* and ringlet *Aphantopus hyperantus*.
- A habitat-based scoping survey was undertaken in June 2018 to identify habitats of potential value to invertebrates within the Site and confirm the scope for any further targeted surveys.
- Targeted surveys for terrestrial invertebrates were undertaken in 2018, 2019 and 2023covering the habitats identified as being potentially suitable for notable invertebrates in the scoping surveys.
- During 208 and 2019 surveys, 719 species were recorded on Site. Of these, 34 species of recognised conservation status in the UK were recorded, including one species currently classed as Red Data Book (RDB1) nationally 'endangered' under pre-1994 IUCN criteria (a tephritid fly *Acinia corniculata*); two species classed as nationally 'vulnerable' under post-2001 IUCN criteria; two species classed as RDB3 nationally 'rare' and four species classed in the 'near threatened' post-2001 IUCN category. Two species classed within the RDB 'unknown' or Data Deficient (DD) categories were recorded, together with 22 species classed as nationally scarce in the UK. The invertebrate assemblage as a whole is considered to be of regional importance.
- In response to historic records of a Species of Principal Importance, the brown hairstreak *Thecla betulae* on Site provided by Sussex Biodiversity Record Centre, a dedicated transect was undertaken covering suitable habitat for this butterfly during 2018. This species was recorded on-Site and is therefore scoped in.
- Terrestrial invertebrates are therefore scoped into the EIA as a result of the diversity of species present within the Site, including the presence of locally uncommon species.

Aquatic Invertebrates

- Records from SxBRC did not identify any protected/notable aquatic invertebrates. However, a habitat-based scoping survey was undertaken in June 2018 to identify habitats of potential value to invertebrates within the Site and confirm the scope for any further targeted surveys which were undertaken in July 2019.
- The site supports significant wetland habitat including well-vegetated ponds with potential to support aquatic invertebrates of conservation value, and slow-flowing habitats of the River Mole and Ifield Brook were identified as potential breeding habitat for the brilliant emerald dragonfly *Somatochlora metallica*. Aquatic invertebrates are therefore scoped into the EIA.

Invasive Plants

- Invasive plant species Cherry Laurel, New Zealand Pigymyweed, Cotoneaster and Rhododendron have been recorded within the Site during the Phase 1 habitat survey.
- Invasive plants are scoped into the ES as there is potential for adverse effects from the spread of these species during construction but also positive effects if these species are removed or controlled.

Invasive Fauna

- Signal crayfish *Pacifastacus leniusculus* were identified within the Site during the water vole survey conducted in 2018. There is potential for adverse effects from the spread of this species during construction.
- Invasive fauna is scoped into the ES.

Features Scoped Out of the Assessment

7.4.6 The following features have been **scoped out** of the EIA as they are not considered to be present in the Site or potential ZoI or because the Proposed Development is considered unlikely to have potential to cause adverse significant effects.

Statutory Designated Sites

- The following statutory designated sites are scoped out of the ES due to their distance from the Site (more than 1.7km): Target Hill Park Local Nature Reserve (LNR), Glover's Wood SSSI (see also reasoning in paragraph 6.5.17 of this report for scoping out of this designated site), Edolph's Copse LNR, Grattons Park LNR and Tilgate Forest LNR.

Fish

- The desk study searches provided by SxBRC and SBIC in 2023 re-turned one historic record of a bullhead fish Cottus gobio in 1991. As effects on watercourses are considered to be limited, significant effects on fish species using the watercourses are not considered likely, and fish have been scoped out of full assessment. Embedded mitigation, including pollution prevention measures, are considered to be appropriate to prevent effects on watercourses and therefore fish.

Water Vole

- No records of water vole *Arvicola amphibius* were provided by SxBRC, Targeted surveys undertaken in June 2018 and August 2018 found no evidence of water vole within the study. Water vole are scoped out of the assessment.

Otter

- No records of otter were provided by SxBRC. Targeted surveys undertaken in June 2018 and found no evidence of otter within the study. Construction phase effects on otter are scoped out. However, it is acknowledged that otter range is increasing and there is potential for otters to colonise the Site in the operational phase. As such operational effects on otter are scoped into the assessment.

Dormice

- Records provided by SxBRC confirmed dormice approximately 1.8km and 2km south-east of the Site within Target Hill Park LNR and Buchan Country Park.
- The habitat within the Site, notably areas of woodland and connecting hedgerows are considered suitable to support dormice, and also provide connectivity to other suitable habitat in the wider landscape.
- Targeted dormouse surveys were undertaken within the study area in 2018 and 2022 and found no confirmed evidence of dormice, although a possible nest was identified in the north of the Site. It is reasonable to assume that dormice are absent from the Site. They are therefore scoped out of full assessment, but appropriate mitigation in case they are found to be present would be implemented and is described in the ES.

Red squirrel

- SxBRC provided a single record of red squirrel (*Sciurus vulgaris*) immediately adjacent to (but outside of) the development Site in 2012 (TQ235372). One further record was provided from February 2016. Given that the Site is outside of the core range of red squirrels, it is considered that the record of this species is most likely to be as a result of an escaped captive individual and red squirrel are therefore scoped out of this assessment.

Further Baseline Data to be obtained

7.4.7 Surveys will be up to date (as per recognised guidance) at the time of submission of the ES. The validity of surveys would be regularly reviewed, and update surveys and assessments undertaken where appropriate.

7.5 Description of Possible Significant Effect

7.5.1 Where possible, retention and avoidance of habitats and creation of new habitats will be undertaken at the masterplanning stage and the biodiversity value of the green infrastructure would be maximised through landscape-led design, for example, any SuDS treatment areas will also be designed as replacement habitat for amphibians and bats. Recreational areas will also incorporate sensitive design such as limited lighting, raised walk boards or natural permeable surfaces and habitat buffers. Key wildlife corridors will be retained or created with connective measures indicated where fragmentation is unavoidable and dark areas would be retained to support bats and other nocturnal animals. A minimum 10% Biodiveristy Net Gain (BNG) would be achieved in addition to mitigation.

7.5.2 The masterplan is still evolving; however, the following potential effects have been identified:

Construction Phase

7.5.3 The following potential construction effects are proposed to be **scoped in** to the EIA.

- Direct mortality of faunal species due to habitat loss, degradation and collision with construction vehicles;
- Habitat loss, degradation and conversion resulting from the clearance of vegetation for compounds and areas for construction;
- Alteration of hydrology (including water chemistry) of on-Site and adjacent watercourses;
- The spread of invasive species;
- Fragmentation and severance of habitat; from the construction of roads and housing (resulting in reduced fecundity, access to resources etc.);
- Degradation of habitat due to vehicles (emissions and damage to the vegetation and soil), construction dust, the spread of invasive species, increased recreational usage and waste created by workers;
- Disturbance and displacement of fauna due to construction noise, vibration and lighting; and
- Pollution effects including water quality and air quality.

7.5.4 The following potential construction effects are proposed to be **scoped out** of further assessment in the EIA:

- Effects from unlikely events such as fires and large spillages etc. as the risk of these effects is to be controlled through design, good working practices and training within a CEMP.

Operational Phase

7.5.5 The potentially significant effects below are attributable to the operational phase of the Proposed Development and would be considered within the ES.

- Increased faunal mortality or displacement resulting from increased road traffic accidents (RTAs), human persecution and pet ownership.
- Increased pollution resulting directly from the Proposed Development (air quality, noise and light pollution).
- Increased faunal disturbance and displacement and habitat degradation as a result of increased visitor pressure and recreational use of sensitive areas and from noise and lighting associated with the Site.
- Fragmentation due to road speeds, widths and lack of permeability and increase in footprint of built environment.
- Garden edge habitat issues such as garden expansion and dumping of garden waste.
- Potential water pollution from the Proposed Development and associated infrastructure.

7.5.6 All of these potential effects are scoped into the assessment at this stage.

7.6 Potential Mitigation Measures and BNG

Construction

7.6.1 Where possible, the effects and effects from the Proposed Development upon ecological features are to be minimised through design in line with the mitigation hierarchy. The following key mitigation measures would be considered with respect to construction effects:

- A minimum 10% BNG would be achieved, which would be detailed in the BNG Assessment Report which will be presented in the ES.
- Landscape-led design to ensure ecologically valuable habitats are retained, protected, enhanced and created as a component of the Proposed Development (e.g. woodlands, hedgerows, ecological corridors and aquatic features).
- Where appropriate and where mitigation cannot be undertaken in situ, translocation of protected species into these new habitat areas in accordance with targeted mitigation strategies.
- Appropriate management of new habitats, undertaken in accordance with a Landscape and Ecological Management Plan (LEMP) to be secured via a Planning condition. This would ensure that new habitats are managed appropriately to ensure they develop appropriately and maximise value for notable and protected species. Measures such as rotational cutting of hedgerows (to allow invertebrate eggs to overwinter) and reduction of fertility in grasslands (to allow wildflowers to thrive) would be detailed.
- Provision of strategic open space to alleviate recreational pressure on designated sites and habitats of ecological value, with more vulnerable areas protected from recreational pressure in the completed development stage.
- Control of effects during the construction phase through industry good practice measures within the Outline Construction Environmental Management Plan to limit

direct mortality, noise/visual disturbance (including lighting); habitat degradation and pollution.

- Retention and enhancement of key ecological corridors through the Proposed Development Site to retain and improve connectivity for wildlife, including commuting routes for bats. These have been designed with north-south and east-west corridors, to connect to valuable habitats adjacent to the study area such as LWS and ancient woodlands. As much of the mature hedgerow and scrub/woodland and associated grassy margins of importance for terrestrial invertebrates has been retained as possible.
- Buffers of between 25m to 30m (width) around areas of sensitive habitat, such as river corridors, woodlands, hedgerows and water bodies, including in the south-east of the Site buffering Ifield Brook Wood and Meadows LWS, in the south of the Site buffering ancient woodland, and in the east buffering ancient woodland, with a 35 m buffer at Hyde Hill Wood LWS. These would be designed to protect habitats used by species groups including invertebrates, amphibians, reptiles, birds and bats, preventing recreational access.
- Creation of new ecologically rich habitat in the northern part of the Site. This would primarily comprise enhancement of existing modified grassland to Lowland Meadow grassland – a priority habitat with high biodiversity value. This would include publicly accessible areas which would alleviate recreational pressure on adjacent sites, as well restricted access areas managed for wildlife.
- Creation of ecologically rich landscape planting and green infrastructure within the Proposed Development, dominated by native plant species of benefit to wildlife wherever possible, and with non-native species of value to wildlife. This would include Sustainable Drainage Systems (SuDs), urban trees, biodiverse roofs, living walls, new native species-hedgerows and rain gardens, and replacement ponds, maximised for their biodiversity value via design, location and connectivity. The Proposed Development is anticipated to be built over several years, and it is the intention that new habitat would be created when a parcel is developed, and this would be maturing / mature before other parcels are cleared of the existing habitats. This would ensure that habitat of a variety of ages and structure types are always available across the Site.
- Maintenance of the integrity of the Site's existing wetland habitats wherever possible, including the Ifield Brook and River Mole and where possible the ponds occurring within Ifield Golf Course and elsewhere on Site.
- Creation of new valuable wildlife areas, suitable for use by protected/notable species (e.g. GCN, reptiles, bats, breeding birds and invertebrates) in the north of the Site and in targeted areas around the southern parts of the Site. This would include creation of Lowland Meadow areas, other grassland areas, new woodland, hedgerows, ponds and ditches.
- Where appropriate and where mitigation cannot be undertaken in situ, translocation of protected species into these new habitat areas in accordance with targeted mitigation strategies.
- Sensitive lighting design following guidance and principles provided in the BCT and Institution of Lighting Professionals (ILP) Guidance Note 08/23 'Bats and artificial lighting at night' (or as updated), with an assumption against lighting of areas of important retained and new habitats and minimising light spill from lit areas.
- Provision of strategic open space to alleviate recreational pressure on designated sites and habitats of ecological value, with more vulnerable areas protected from recreational pressure in the completed development stage.

- Control of effects during the construction phase through industry good practice measures within a CEMP which would be followed to limit direct mortality, noise/visual disturbance (including lighting); habitat degradation and pollution.

Operation

7.6.2 Key design measures to minimise significant adverse effects would be expected to have been achieved during construction. However, operational mitigation measures that would be included for consideration are as follows:

- A commitment to appropriate maintenance/management of retained habitats and of created wildlife habitats to maximise biodiversity value (including adherence to a LEMP, secured via a Planning condition).
- A drainage strategy which meets greenfield run-off rates and policy compliant quality requirements.
- A commitment to demonstrating net gain for biodiversity to be managed appropriately throughout the completed development phase to maintain value.
- Sensitive operation of street lighting to limit night-time lighting effects.
- Design and management to encourage the retention of permeable green infrastructure.

8. Climate Change

8.1 Introduction

8.1.1 This chapter details the proposed scope of work for the EIA with respect to Climate Change. It includes a summary of current and proposed consultation, baseline conditions and the proposed approach to the assessment of possible construction and operational effects arising from the Proposed Development. 'Climate' as an assessment topic has been divided into the following three subsections:

- Greenhouse Gas Assessment (GHG) – considers the potential for significant effects to arise from the Proposed Development in terms of GHG emissions;
- Climate Resilience Assessment (CRR) – considers the vulnerability of the Proposed Development to extreme weather and projected climate; and
- In-combination climate change impact (ICCI) assessment – considers how extreme weather and projected climate change could have an additive effect on effects identified by other technical disciplines as a result of the Proposed Development.

8.1.2 Consideration of the climate assessment within this chapter provides a holistic assessment of climate change aspects related to the Proposed Development. There are linkages between the assessment of potential effects on climate and other disciplines, notably:

- Agriculture and Soils
- Air quality;
- Biodiversity;
- Landscape and Visual;
- Noise and Vibration;
- Socioeconomic Effects and Health; and
- Surface Water Resources and Flood risk.

8.2 Consultation

8.2.1 Table 8.1 shows a summary of consultation that will be undertaken during the assessment:

Table 8.1 Details of consultations undertaken to date

Consultee	Contact	Summary of Issues Raised/Agreed
Crawley Borough Council (CBC)	Group Manager Development Management	Climate Change targets, aims and commitments required, particularly for major infrastructure projects, document where targets stated were requested. Details of any future plans and policy that could potentially affect climate change requirements and/or baseline data were also requested. The Proposed Development has adhered to the policies included within the adopted Crawley Borough Local Plan 2015-2030. However, the advice has been offered at Officer level only and with the caveat that the CBC policy position on climate change may change by the point of submission of any application. Any modelling carried out is on assumptions that may be updated and revised as part of the CBC Local Plan review process. The work and modelling are therefore at risk and based on the best advice currently available.

Consultee	Contact	Summary of Issues Raised/Agreed
Horsham District Council (HDC)	Environment Manager	HDC does not have recently updated targets for greenhouse gas emission reductions for the District. The previous strategy dates from 2009. However, work is about to commence on producing one. The UK target is now for net zero emissions by 2050 (as of 27th June 2019) as enshrined in the Climate Change Act. HDC would play its part in reaching this target and work is about to commence on a local study which will demonstrate how this can be achieved. Carbon emissions for Local Authority areas produced by Defra have been used to estimate the baseline of the Proposed Development. The Proposed Development would contribute to the national target.
Scoping Opinion – CBC and HDC received 2020	Environmental Health Officer	Previous scoping opinion received from CBC and HDC which provided comment on the previous scoping report.

8.3 Methodology

8.3.1 This assessment will be undertaken in line with the following legislation, policy and guidance:

Relevant Legislation Policy and Guidance

8.3.2 This impact assessment has been undertaken in accordance with current national legislation, and national, regional and local plans and policies relating to Climate in the context of the Proposed Development. A summary of the relevant legislation and policies, the requirements of these policies and the project response is provided below.

Legislation

8.3.3 The overarching legislation in relation to climate is contained within the Climate Change Act 2008 (Ref 8.1) (2050 Target Amendment) Order 2019. The Climate Change Act commits the UK government by law to reducing greenhouse gas emissions by at least 100% of 1990 levels by 2050.The Act introduces a system of carbon budgeting which constrains the total amount of emissions in a specific time period and establishes a procedure for assessing the risks of the impact of climate change for the UK.

National and International Planning Policy

8.3.4 A number of national and international policies, details of assessment methodologies and mitigation techniques, have been used to inform the assessment, including:

- Kyoto Protocol to the United Nations Framework Convention on Climate Change (Ref 8.2);
- Paris Agreement (Ref 8.3).
- Planning Practice Guidance (PPG) (Ref 8.4).
- The UK Climate Change Risk Assessment (Ref 8.5).
- National Planning Policy Framework (NPPF) (Ref 5.1).
- The UK's Nationally Determined Contribution (NDC) (Ref 8.6); and
- The United Nations Framework Convention on Climate Change (UNFCCC) (2020) (Ref 8.7).

Local Planning Policy

8.3.5 A number of local policies, which provide which provide details of assessment methodologies and mitigation techniques, have been used to inform the assessment, including:

- Horsham District Planning Framework (2015) (Ref 8.8);
- Draft Horsham District Local Plan 2019-2036 (Ref 8.9);
- Horsham District's Draft Climate Action Strategy (2023) (Ref 8.10);
- Horsham Local Cycling and Walking Infrastructure Plan (LCWIP) (2020) (Ref 8.11);
- Crawley 2030: Crawley Borough Local Plan 2015 – 2030 (2015) (Ref 8.12);
- CBC Planning and Climate Change Supplementary Planning Document (2016) (Ref 8.13);
- Crawley Borough Local Plan Topic Paper 6: Climate Change (2021) (Ref 8.14);
- Crawley Borough Council, New Directions for Crawley: Transport Strategy (2020) (Ref 8.15);
- Crawley Borough Council, Local Cycling and Walking Infrastructure Plan (2020) (Ref 8.16); and
- Crawley Borough Council, Climate Emergency Declaration (2019) (Ref 8.17).

Regional Policy

8.3.6 A number of regional policies, which provide which provide details of assessment methodologies and mitigation techniques, have been used to inform the assessment, including:

- West Sussex County Council, Climate Change Strategy 2020–2030 (2020) (Ref 8.18);
- West Sussex County Council, Climate Change Strategy 2020–2030 Delivery Plan (2021) (Ref 8.19); and
- West Sussex County Council, Our Council Plan 2021-2025 (2021) (Ref 8.20).

Guidance

8.3.7 A number of standards and non-statutory guidelines, which provide details of assessment methodologies and mitigation techniques, have been used to inform the assessment, including:

- Meeting Carbon Budgets: Closing the Policy Gap (Ref 8.21);
- IEMA Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation (Ref 8.22);
- IEMA Environmental Impact Assessment Guide to: Assessing GHG Emissions and Evaluating their Significance 2017 (Ref 8.23);
- PAS 2080:2023 Carbon Management in Infrastructure (Ref 8.24);
- Tyndall Centre, Setting Climate Commitments for Horsham (2023) (Ref 8.25);
- Tyndall Centre, Setting Climate Commitments for Crawley (2023) (Ref 8.26); and
- West Sussex County Council, Carbon Management Plan (Ref 8.27).

Study Area

GHG Emissions

8.3.8 The study area for the GHG emissions assessment is not restricted by geographical scope but instead will include any increase or decrease in GHG emissions associated with the

demolition and construction and completed development stages of the Proposed Development over a 60 year period. This will include the following:

- Demolition and construction GHG emissions – which result from the Proposed Development's carbon footprint but also related to the transport of materials to and from the Site and from the material manufacturer's sites (this may be distant from the Site); and
- Completed development emissions - which result from the use of the Proposed Development and any shifts in transport modes/patterns which may occur. Such emissions include those for traffic using the Proposed Development, as well as the regional road network to gain access.

Climate Change Resilience (CCR)

8.3.9 The study area comprises the boundary of the Proposed Development. This includes the physical infrastructure assets associated with the Proposed Development (for example, earthworks, structures, buildings).

In-combination climate change impact (ICCI)

8.3.10 The study area for the ICCI assessment will mirror that of the relevant technical disciplines. This is to take account of the fact the ICCI assessment considers the additive effect of climate change on the other technical disciplines cumulatively.

Assessment Methodology

8.3.11 The criteria used for assessing climate effects and the significance of the effects follows the IEMA Guidance for assessing GHG emissions and climate resilience in EIAs and differs from the general criteria.

8.3.12 In line with IEMA Guidance (Ref 8.23), the sensitivity of receptors to potential climate change effects has been considered, informed by the following factors, as well as the value or importance of the receptor:

- Susceptibility of the receptor (e.g. ability to be affected by a change); and
- Vulnerability of the receptor (e.g. potential exposure to a change).

8.3.13 The susceptibility of a receptor has been determined as high, medium or low in accordance with the ratings set out in Table 8.2.

Table 8.2: Receptor Susceptibility Scale

Sensitivity	Rating
High	Receptor has no ability to withstand/not be substantially altered by the projected changes to the existing/prevailing climatic factors (e.g. lose much of its original function and form).
Medium	Receptor has some limited ability to withstand/not be altered by the projected changes to the existing/prevailing climatic conditions (e.g. retain elements of its original function and form).
Low	Receptor has the ability to withstand/not be altered much by the projected changes to the existing/prevailing climatic factors (e.g. retain much of its original function and form).

8.3.14 The vulnerability of a receptor has been defined as high, medium or low in accordance with the ratings set out in Table 8.3.

Table 8.3: Receptor Vulnerability Scale

Sensitivity	Rating
High	Receptor is directly dependent on existing/prevailing climatic factors and reliant on these specific existing climate conditions continuing in future (e.g. river flows and groundwater level) or only able to tolerate a very limited variation in climate conditions.
Medium	Receptor is dependent on some climatic factors but able to tolerate a range of conditions (e.g. a species which has a wide geographic range across the entire UK).
Low	Climatic factors have little influence on the receptors (consider whether it is justifiable to assess such receptors further within the context of EIA – i.e. it is likely that such issues should have been excluded through the EIA scoping process).

8.3.15 With respect to significance this will be applied in accordance with Table 4.1.

Approach

Greenhouse Gas Assessment (GHG)

8.3.16 The GHG assessment will be undertaken following IEMA Guidance and PAS 2080:2023 and will include:

- A review of current and future GHG trends;
- A proportionate calculation of GHG emissions from the demolition and construction processes utilising PAS 2080:2023. PAS 2080 provides a framework on how to manage whole life carbon when delivering assets and programmes of work and considers emissions associated with: raw material extraction, processing and manufacturing of building materials used in construction (embodied carbon); transport of materials to and from Site; construction activities from plant types and disposal of waste from excavation works and construction;
- A proportionate calculation of GHG emissions from the operation of the development utilising PAS2080 which considers emissions associated with replacement, repair and maintenance of materials, regulated and unregulated energy demand, water use and transport use by the users of the Proposed Development and land use change;
- A proportionate calculation of GHG emissions from the end of life of the development utilising PAS2080 which considers emissions associated with deconstruction, transport, waste processing and disposal;
- The GHG emissions will be split by the proposed buildings and the proposed roads to represent the hybrid nature of the planning application;
- A comparison of the scenario without Proposed Development against the scenario with the Proposed Development and the UK, local and building sector carbon budgets;
- A summary of design and mitigation measures for the Proposed Development; and
- The conclusion of the GHG assessment will be to provide a qualitative judgement on whether GHG emissions associated with the Proposed Development are considered to be significant within the context of EIA.

Climate Change Resilience (CCR)

8.3.17 The CCR assessment will include:

- A qualitative assessment of current and future climate trends in the study area using data from United Kingdom Climate Projections 2018 (UKCP18) (Ref 8.29) and Charlwood Climate Station projected changes in climate variables (Ref 8.30);

- An analysis of current baseline climate conditions and projected climate hazards, utilising appropriate UKCP18 datasets in order to identify any likely significant climate changes and the likelihood of the Development to be exposed to these changes;
- The identification of the likelihood and consequence of the climate impact on the Proposed Development will be qualitatively assessed to determine the significance; and
- Identification of mitigation/adaptation measures for any significant effects, in liaison with the Proposed Development design team and relevant environmental discipline specialists.

8.3.18 The conclusion of the CCR assessment will be to provide a qualitative judgement on whether any projected climate change effects and associated effects are considered to be significant. The CCR assessment will be in line with the IEMA guidance on climate resilience and adaptation.

In-Combination Climate Change Impact (ICCI)

8.3.19 To assess the direct and indirect significant effects of climate relevant to the Proposed Development, the additive effects of climate change to those effects identified in the other relevant ES chapters will be considered. Effects originally identified in other ES chapters but considered not significant may have to be reconsidered and could require additional design and/or mitigation measures should there be an additive effect as a result of climate change. Future climate conditions will be reviewed as part of this assessment, including changes to long term seasonal averages and extreme weather events as projected by the UKCP18.

8.4 Description of Potential Significant Effect

GHG Emissions

8.4.1 Current emission levels are already having an impact on the climatic system and to avoid catastrophic climate change, the level of global warming must remain within a two-degree limit, which will be exceeded if global emission reductions are not achieved. However, even by limiting warming to two degrees, there will still be some irreversible climatic effects.

8.4.2 GHG emissions associated with the construction and operation of the Proposed Development will be presented and contextualised against current carbon budgets (outlined in Table 8.2) and forthcoming legislation, before providing a qualitative judgement of significance.

8.4.3 The UK Government has set five-yearly carbon budgets which currently run until 2037. Additionally, the HDC and CBC carbon budget have been calculated by the Tyndall Centre by allocating a proportion of the UK carbon budget to ensure that both HDC and CBC are net zero by 2050.

Table 8.4: UK, Local and Industry Carbon Reduction Targets

Carbon Budget	UK Carbon budget level ($MtCO_2e$)	Tyndall Centre recommended HDC carbon budget level ($MtCO_2e$)	Tyndall Centre recommended CBC carbon budget level ($MtCO_2e$)	Buildings sector carbon budget level ($MtCO_2e$)
Fourth (2023-2027)	1,950	1.5	1.3	419
Fifth (2028-2032)	1,725	0.7	0.6	334

Sixth (2033-2037)	965	0.3	0.3	237

Climate Change Resilience (CCR)

8.4.4 The effects of climate change and extreme weather events can be either positive or negative.

8.4.5 Table 8.5 presents examples of weather events and provides a high-level overview of the types of potential effects.

Table 8.5: Summary of Primary Weather Events and Types of Potential Effects

Weather Events	Potential Effects
Heavy rain / flooding	Raised river levels, flooded drains, collapsed culvert Road closures and disruption to train services (e.g. trains cancelled or non-stopping at certain stations) Contaminated water Fabric damage and material degradation
High winds	Structural and fabric damage Power cut Fallen trees Road closures
Heat wave	Health effects from breathing problems and sunstroke Impact to biodiversity (e.g. loss of fish) Fires Structural damage and materials degradation Overheating in buildings further increased by urban heat island effects Water stress
Lightning	Structural damage Power surge and tripping electricity breakers Fires Health effects from direct strikes
Snow and Ice	Dangerous driving conditions Damage to roads and buildings Health effects from slipping on ice and chest illnesses Road and school closures
Fog	Dangerous driving conditions

In-combination Climate Change Impact (ICCI):

8.4.6 Current climate and climate change may have an additive effect on effects already identified within other EIA Report topic assessments, where residual effects identified may become significant because of the effects of climate. Therefore, effects that were originally identified by the assessment but considered non-significant may have to be reconsidered and could require additional design and/or mitigation measures should there be an additive effect. A qualitative judgement of significance will be provided.

Cumulative Effects

8.4.7 Whilst some information and quantitative data are available for the cumulative developments, it has been anticipated that it would not be possible to undertake a meaningful quantitative assessment of the potential effects of all cumulative developments with regard to climate change for the following reasons:

Climate Change Resilience:

- The CCR effects resulting from the demolition and construction and completed development stages would be limited in their spatial extent to the Site boundary and the Proposed Development in isolation. Therefore, cumulative CCR effects with other schemes are not applicable.

In-Combination Climate Change Impact:

- The climate change ES chapter will consider potential in-combination cumulative climate (intra) effects affecting environmental receptors identified by other technical assessments undertaken as part of the ES. It will include consideration of existing potential effects on environmental receptors that could be intensified by climate change, as well as environmental effects that could potentially emerge in the future.
- The ICCI's resulting from the demolition and construction and completed development stages would be limited in their spatial extent to the relevant technical assessments in the ES for the Proposed Development. Therefore, cumulative effects will be considered for the full scope of technical assessments undertaken as part of this ES (intra cumulative) as opposed to in-combination with other cumulative schemes (inter cumulative).

Greenhouse Gas Emissions:

- The atmospheric concentration of GHGs and resulting effect on climate change is affected by all sources and sinks globally, anthropogenic and otherwise. As GHG emission effects and resulting effects are global rather than affecting one localised area, the approach to cumulative effects assessment for GHGs differs from that for many EIA topics where only projects within a geographically bounded study area of, for example, 1-2 km would be included.
- Therefore, effects of GHG emissions from specific cumulative schemes will not be individually assessed. However, GHG emissions, will be contextualised within the UK, HDC, CBC and the building sector-based carbon budgets.

8.5 Baseline Data

Site Information and Baseline Conditions

8.5.1 The Site comprises an irregular shaped parcel of land, covering a total Site area of approximately 170.8 hectares (ha). The Site is predominantly occupied by a mixture of arable and pastoral fields and includes the Ifield Golf Course and Country Club in its far southern portion. There are also existing buildings throughout the Site including the Ifield Barn Theatre, Ifield Court Farm, various residential properties, Old Pound Cottage and studio, yard buildings and a portacabin office complex.

Existing Baseline

8.5.2 This section contains information about average monthly climate data for Charlwood climate station (approximately 2 km from the Site) for the period 1991-2020 (Ref 8.30), which is summarised in Table 8.6.

Table 8.6: Average Monthly Climate Data for Charlwood Climate Station

Month	Maximum temperature (°C)	Minimum temperature (°C)	Days of air frost (days)	Sunshine (hours)	Rainfall (mm)	Days of rainfall ≥1 mm (days)
January	7.83	1.52	10.89	53.42	90.34	13.10
February	8.49	1.44	10.47	75.42	64.46	10.86
March	11.20	2.79	7.35	119.36	53.65	9.44
April	14.50	4.24	3.87	171.48	52.49	9.73
May	17.74	7.11	0.60	206.31	54.83	8.90
June	20.80	9.92	0.03	209.70	50.67	8.79
July	23.14	11.99	0.00	215.95	54.73	8.45
August	22.70	11.86	0.00	199.09	60.42	9.29
September	19.55	9.51	0.07	156.01	64.71	9.15
October	15.35	7.10	1.66	110.62	94.33	12.51
November	11.11	3.91	6.09	65.21	97.11	13.17
December	8.25	1.74	11.89	45.87	95.95	12.82
Annual	15.09	6.12	52.92	1628.44	833.69	126.21

8.5.3 Climate data available for Charlwood shows annual maximum and minimum temperatures both being higher than the UK average of 12.79 °C and 5.53 °C respectively and less days of air frost experienced annually (an average of 21.16 annual air frost days in comparison to the UK annual average of 45.14 days). The average annual rainfall for Charlwood is 833.69 mm, compared to an average for England of 869.59 mm.

8.5.4 National carbon dioxide emissions statistics are published by the UK Government (Ref 8.31) and contain historic emissions data covering 2007-2020 for all Local Authorities and Councils. This showed that HDC emitted 661 ktCO_2e in 2020. This figure can be broken into the following sectors: 235 ktCO_2e from transport; 221 ktCO_2e from domestic sources; 13 ktCO_2e from the public sector; 30 ktCO_2e from commercial and; 84 ktCO_2e from industry.

Future Baseline

8.5.5 Whilst scientific data shows that the climate is changing, there remain uncertainties in terms of the magnitude, frequency and spatial distribution of these changing conditions.

8.5.6 To determine the likely future conditions at the Site, there is a need to apply climate projections to understand what local conditions are likely to be present during the lifetime of the Proposed Development. Good practice in the UK uses the UKCP18 projections (Ref 8.29) which are generated from climate modelling. Different emissions scenarios can be applied, with more extreme changes occurring at higher emission scenarios. A qualitative future baseline for the Proposed Development will be presented within the ES.

Furthermore, local and national GHG emissions have been reducing over recent years, primarily due to increasing generation of electricity from sources that produce less GHG emissions. This trend is expected to continue especially given the recent UK commitment to reduce domestic emissions to net zero by 2050.

Key Environmental Receptors

GHG Emissions

8.5.7 Greenhouse gases emissions associated within the Proposed Development will be released to the global atmosphere therefore this is considered to be the receptor. In line with standard practice, the sensitivity of human and natural receptors is not considered within this assessment.

Climate change resilience (CCR)

8.5.8 The receptors identified as sensitive to the Proposed Development with regards to climate change resilience include the following:

a) Buildings and infrastructure receptors (including equipment, materials and building operations);

b) Human health receptors (e. g. construction workers, occupants and Site users); and

c) Environmental receptors (e. g. integrity of landscape features, habitats and species).

In-combination climate change impact (ICCI) (intra)

8.5.9 ICCI sensitive receptors include all receptors in the surrounding environment. These have been specified within other chapters of this Scoping Report. Receptors include soils, water supply, drainage systems, land, atmosphere, people and communities, residential properties, open space and PROW, built heritage, habitats and wildlife species, ground and surface water, flood risk and land drainage landscape character and visual receptors, member of the public and local communities, infrastructure and built environment, business and community organisations, all forms of motorised traffic and transport, pedestrian routes, waste landfills, etc.

8.6 Potential Mitigation Measures

GHG Emissions

8.6.1 Recommendations for managing GHG emissions associated with the Proposed Development will be made in in line with the PAS 2080 carbon reduction decision making hierarchy.

Climate change resilience (CCR) and In-combination climate impact (ICCI)

8.6.2 Proposed design measures and/or mitigation measures will be identified where appropriate to address any identified vulnerabilities.

9. Cultural Heritage

9.1 Introduction

9.1.1 This chapter addresses the proposed scope of ES with respect to Cultural Heritage (archaeology, historic buildings and historic landscapes). It includes a summary of current and proposed consultation, baseline conditions and the proposed approach to the assessment of possible construction and operational effects. Areas that are proposed to be scoped in and out of the assessment are identified.

9.2 Consultation

9.2.1 Table 9.1 shows a summary of the consultation undertaken. Table 9.2 provides comments on further consultee responses.

Table 9.1:Consultation Undertaken to Date

Consultee and Form/Date of Consultation	Summary of Comments	Responses
Historic England letter, 27 October 2020 pre-application advice	*'The ES should contain a thorough assessment of the likely effects the Proposed Development might have on those elements which contribute to the significance of heritage assets;*	Agreed, to be undertaken during preparation of the ES Cultural Heritage chapter and appendices
	there should be close collaboration of cultural heritage and landscape/visual impact assessment;	Agreed
	there should be an integrated landscape approach to assessment of heritage assets (both designated and undesignated);	Agreed
	assessment should take account of the potential impact which associated development activities (such as construction, servicing, maintenance, and associated traffic) might have upon perceptions, understanding, and appreciation of heritage assets in the area;	Agreed
	assessment should consider the likelihood of alterations to drainage and groundwater patterns that might lead to in situ decomposition or destruction of below ground archaeological remains and deposits;	Agreed
	the setting of Parish Church of St Margaret and potential effects on its significance will need to be examined in detail within the heritage baseline assessment and the ES chapter;	Agreed
	a key requirement for the EIA is to understand the setting of Medieval moated site at Ifield Court, how the scheme would change this and how this may harm the asset's significance;	Agreed

Consultee and Form/Date of Consultation	Summary of Comments	Responses
	information on traffic volumes of along the proposed relief road and the potential impact of this on Medieval moated site at Ifield Court will need to be considered within the ES;	For information on traffic volumes on Crawley Western Corridor will be included in the ES
	research is needed on the former medieval setting and history of the moated site to determine (if possible) whether it was constructed within a wooded or more open arable landscape;	Agreed
	concerns regarding the prospect of vegetation screening being introduced to the non-designated parkland adjacent to the scheduled monument; the ES to consider the potential effects on non-designated features of historic, architectural, archaeological or artistic interest;	Agreed
	the ES should also include a consideration of potential non-designated heritage assets and views on whether these would meet the criteria for national or local designation. The assessment process should also allow for correction of discrepancies between the recorded and actual locations of designated heritage assets'.	Agreed
Place Services, 2nd November 2020	'*recommend that the ES Cultural Heritage chapter comprise:*	
	a desk-based assessment of the Proposed Development area;	See Ref 9.11
	a re-assessment of the aerial photographic evidence for the area, including the on-line digital data available on Google Earth. This should include rectification of both archaeological features and palaeochannels;	Agreed
	an assessment should be made of the available LiDAR data for the application site and rectified plots produced of both archaeological and historic landscape features identified;	Agreed
	it is recommended that a trial area of geophysical survey is undertaken on an area of known archaeological deposits to assess its effectiveness prior to the remainder being surveyed;	See Ref 9.12
	an assessment should be made of the available borehole and BGS data for the site in order to establish the potential for palaeoenvironmental deposits within the valleys of the Mole River and the Ifield Brook;	Agreed

Consultee and Form/Date of Consultation	Summary of Comments	Responses
	an element of ground-truthing, in the form of trial-trenching, will be required to clarify the results of all of the surveys.'	See Ref 9.13
Crawley Borough Council, 27 October 2020; comments and recommendations to make in respect of the proposed scope of the ES	*'The potential for previously unknown below-ground heritage assets needs to be considered and explored;*	Agreed
	Medieval moated site at Ifield Court occupies a rural setting surrounded in all aspects by open countryside that affords far reaching views due to the topography of the Site. Any 'built form' development therefore has the capacity to cause harm in the intermediate and far reaching view. Whilst this harm will not be 'physical' the impact upon historic context and legibility is likely to be at the high end of less than substantial;	Agreed
	any development is likely to affect the skyscape which forms part of the setting of Medieval moated site at Ifield Court;	Agreed
	the ES should establish all the buildings that contribute positively to the special character of Ifield Village conservation area and consequently an impact assessment of the setting of these buildings should also be included;	Agreed
	further research is necessary to establish the historic context of Ifield and its association with the surrounding land which should inform any Proposed Development design.'	Agreed
Place Services, February-June 2021	Correspondence relating to the specifications and approval of the initial phase of trial trenching on the Site.	See Ref 9.13
Historic England, 20th April 2023; correspondence	Confirmation that the advice Historic England provided in their letter dated 27 October 2020 remains a valid summation of Historic England's position regarding the development proposals, and that any recommendations contained within the letter remain valid.	Not applicable

Table 9.2: Comments on Consultation Requests

Consultee	Consultee Requests	Comments on Consultee Requests
Horsham District Council Archaeological	Rectification and illustration of on figures of archaeological features and palaeochannels identified from aerial photographs.	Heritage assets identified on available remote sensing material will be included on a figure of heritage assets.

Consultee	Consultee Requests	Comments on Consultee Requests
Advisor - Essex County Council Place Services	Assessment of LiDAR data and production of rectified illustrations showing archaeological and historic landscape features.	Heritage assets identified on available remote sensing material will be included on a figure of heritage assets.
	Assessment of available borehole data for the Site in order to establish potential for palaeoenvironmental deposits.	Available borehole data will be assessed during the EIA.
	Comments were received regarding the scope of proposed further evaluation trial trenching.	Following submission of a draft written scheme of investigation (WSI), proposals for trial trenching (subject to access being available) in specific areas of the Site were agreed via a telephone call on 17th August 2020. The WSI was revised in light of discussion and agreed during the call.
Crawley Borough Council Conservation Officer – Debbie Gardner, DCG Consultancy	The Baseline Assessment should identify "prominent features within the landscape (points of reference)".	This is not a heritage matter, landscape matters will be addressed in the LVIA Chapter.
	The Baseline Assessment should identify "the extent of setting/historic context between heritage assets and the landscape (hedgerows defining historic field patterns etc)".	Where areas of the landscape contribute to the significance of a heritage asset, they will be identified in line with the methodology and guidance set out in this scoping report. Historic landscape areas and their significance are identified in the Cultural Heritage Baseline Assessment.
	"Define character areas – grouping of buildings / farmsteads etc"	Landscape/area character will be addressed in the LVIA chapter.
	"Identify other notable features – water courses, bridges, topography, escarpments, hills and valleys, woods / ancient woodland etc"	Landscape matters will be addressed in the LVIA chapter.
	"A record of birdsong - this is an important contributor to the sense of place and was not diminished by the aircraft noise - it should therefore be afforded due consideration in the EIA Scoping."	This is not a heritage matter.
	Request that the desk-based assessment (Baseline Assessment) should "Assess the likely settings effects caused by the Development".	Potential harm to the significance of heritage assets as a result of change within their setting will be identified in the ES chapter.
	"The scoping report should also identify any requirement for additional surveys will be agreed with the LPA".	A limited programme of pre-determination trial trench evaluation will be agreed with the LPA and undertaken during the course of the EIA. This will target areas of likely heritage significance identified by the geophysical survey undertaken to support preparation of the Cultural Heritage Baseline Assessment (refer to comments above regarding trial trenching).
	"A robust assessment of the potential to impact the setting of the church and conservation area is considered essential. This should be extended to include all other heritage assets to substantiate what the potential is.	The setting of heritage assets will be assessed in line with Historic England guidance and industry best practice.

Consultee	Consultee Requests	Comments on Consultee Requests
	"In relation to the assessment methodology, it [sic] considered the approach should also include reference to the following data sources: • Topographical survey • Natural England – Landscape Characterisation Assessment • West Sussex Landscape Character Assessment / A Strategy for the West Sussex Landscape • Visualisation Impact assessment - wider views etc (Not just the Site, needs to be a much more extensive assessment to establish the extent of setting, sense of place and local distinctiveness. • Desktop Research including Historic map regression to link to landforms and key features"	These sources will be consulted and referred to, where relevant to the assessment of the significance of heritage assets (including the contribution to their significance made by setting).
	"The Assessment of Effect Methodology should be carried out by a suitably qualified heritage consultant full membership to the Institute of Building Conservation."	All heritage work will be undertaken by qualified heritage consultants who are Members of the Chartered Institute for Archaeologists.
	"The potential for the occurrence of direct effects will be assessed by analysis of information provided by the Kent County Council HER and information derived from national datasets of designated features"	The information provided in the Cultural Heritage Baseline Assessment (derived from the West Sussex HER and the National Heritage List for England) will be assessed.
Horsham District Council Senior Conservation Officer	The assessment should include a consideration of potential non-designated heritage assets and views on whether these would meet the criteria for national or local designation.	Agreed.
	Identify discrepancies between the recorded and actual locations of designated heritage assets.	Agreed.
	"It would be appropriate for further assessment to be undertaken to increase our knowledge of all the designated assets. This might be through an enhanced listing assessment undertaken by Historic England or a comprehensive historic survey and assessment undertaken by a qualified consultant. This should also include a characterisation of the farmstead arrangement with reference to Historic England's South East Farmsteads Character Statement and the National Farmstead Assessment Framework."	A historic farmyard survey forms part of the Cultural Heritage Baseline Assessment (Ref 9.11). The significance of heritage assets will be identified and described with a level of detail in a proportionate manner in accordance with paragraph 189 of the NPPF.

9.3 Methodology

9.3.1 This assessment will relate to the following key factors:

Relevant Policy and Guidance

9.3.2 The following legislation and policies are of relevance to the assessment:

Legislation

- Planning (Listed Buildings and Conservation Areas) Act 1990 (Ref 9.1);
- Ancient Monuments and Archaeological Areas Act 1979 (Ref 9.2);

Planning Policy

- National Planning Policy Framework (NPPF) 2012 (updated 2023) (Ref 5.1);
- Planning Practice Guidance (PPG) 2016 (updated 2021) (Ref 9.3).
- Hedgerow Regulations 1997 (Ref 7.19);
- Horsham District Planning Framework 2015 (Ref 5.2);
- Crawley Borough Local Plan 2015 (Ref 5.3);
- Crawley Borough Local Plan 2015-2030 Urban Design Supplementary Planning Document (adopted 2016) (Ref 9.4);
- Ifield Village Conservation Area Statement (ref 7.48);
- Gossops Green Neighbourhood Centre Draft Conservation Area Appraisal (Ref 9.5); and
- Crawley Borough Corporate Heritage Strategy 2008 (Ref 9.6).

Guidance

9.3.3 The assessment will be undertaken with regard to all relevant industry guidance, including the following:

- Chartered Institute for Archaeologists (CIfA) 'Code of Conduct' (Ref 9.7), 'Standard and guidance for commissioning work or providing consultancy advice on archaeology and the historic environment' (Ref 9.8) and 'Standard and guidance for historic environment desk-based assessment' (Ref 9.9);
- Historic England, 2019, 'Statement of Heritage Significance: Analysing Significance in Heritage Assets', Historic England Advice Note 12, Swindon: Historic England (Ref 9.10);
- Historic England's 'The Setting of Heritage Assets, Historic Environment Good Practice Advice in Planning Note 3' (henceforth, 'GPA3') (Ref 9.11). This document sets out guidance on managing change within the settings of heritage assets, including archaeological remains, historic buildings, sites, areas and landscapes;
- Historic England, 2017, 'Conservation Principles for the Sustainable Management of the Historic Environment (draft)', Swindon: Historic England (Ref 9.12)
- Institute for Environmental Management and Assessment, 2021, 'Principles of Cultural Heritage Impact Assessment in the UK' (Ref 9.13); and
- West Sussex's 'Sussex Archaeological Standards 2019' (Ref 9.14).

9.3.4 Significance criteria will have regard to:

- Design Manual for Roads and Bridges (DMRB) Volume II, Section 3, Part 2, LA 104, page 13, issued by the Highways Agency (Ref 9.15).

Study Area

9.3.5 A study area of a minimum of 1km around the Site boundary will be utilised for designated assets and 500m radius for non-designated assets. The size of these study areas has been selected using professional judgement, in order to provide a sufficient baseline of information from which to assess the potential effects of the Proposed Development on the historic environment.

Assessment Methodology

Approach

9.3.6 The following data sources will be used as part of the assessment:

- Historic England's National Heritage List for England (NHLE, Ref 9.16);
- West Sussex County Council Historic Environment Record (WSHER);
- Cartographic and documentary sources held at the West Sussex Record Office;
- Online sources including LiDAR data, aerial and satellite imagery;
- Horsham District Council (HDC) and Crawley Borough Council (CBC) websites for information regarding local planning policies, planning guidance and information on locally listed buildings;
- West Sussex County Council website for information on Archaeological Notification Areas (ANA);
- West Sussex Record Office (WSRO) for cartographic and documentary sources; and
- Site visits undertaken on 16-19 August 2018, 16 July 2019, 21 January 2020, 15 January 2021, 18 March 2021, 24 March 2021 and 28 May 2021.

Heritage Significance Criteria

9.3.7 This assessment has been undertaken using professional judgement and methodology which draws on sources of guidance such as the DMRB guidance (Ref 9.15), the NPPF (Ref 5.1) and Historic England's Conservation Principles (Ref 9.12 and 9.13). Using the above, an assessment of the heritage significance of each heritage asset will be made (Table 9.3). Following determination of heritage significance, an assessment of the magnitude of impact is made based upon professional judgement (Table 9.4), and guided by legislation, national policies, acknowledged standards, designations, criteria and research priorities.

9.3.8 NPPF defines heritage significance as the value of a heritage asset to this and future generations because of its heritage interest (NPPF Annex 2: Glossary). Significance derives not only from a heritage asset's physical presence, but also from its setting. Heritage significance can be thought of as a term which captures the qualities that make an otherwise ordinary place a heritage asset (Department for Communities and Local Government 2010, 7; Ref 9.17), or in other words, what is valued about the asset (IEMA 2021, 7).

Table 9.3: Table of Significance

Sensitivity	Criteria
Low	Very low importance and rarity, local scale; Low or medium importance and rarity, local scale.
Medium	Medium or high importance and rarity, regional scale, limited potential for substitution.
High	High importance and rarity, national scale, and limited potential for substitution; Very high importance and rarity, international scale and very limited potential for substitution.

9.3.9 The significance of effect arising from change to a heritage asset, in other words 'the consequences of change to cultural significance' (IEMA 2021, 5), is determined by weighing the heritage significance of that asset against the predicted level of change (the magnitude

of impact, Table 9.4). Effects can be beneficial or adverse (Table 9.5). This is not intended to lead to a formulaic assessment and professional judgement is used at all stages in the process. Both direct effects and indirect effects on the setting of the heritage assets will be considered. Assessment of historic landscape effects will draw upon findings from the landscape and visual impact assessment (LVIA), including use of the zone of theoretical visibility ('ZTV', a model of where within the study area the Proposed Development would be visible) which will be generated by the Landscape and Visual Impact team.

Table 9.4: Magnitude of impact

Magnitude of Impact	Criteria
Low (adverse)	Very minor loss or detrimental alteration to one or more characteristics, features or elements of heritage value; Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to, one (maybe more) key characteristics, features or elements of heritage value.
Low (beneficial)	Very minor benefit to or positive addition of one or more characteristics, features or elements of heritage value; Minor benefit to, or addition of, one (maybe more) key characteristics, features or elements of heritage value; some beneficial impact on attribute or a reduced risk of adverse impact occurring.
Medium (adverse)	Partial loss of receptor, but not adversely affecting the integrity; partial loss of/damage to key characteristics, features or elements of heritage value.
Medium (beneficial)	Benefit to, or addition of, key characteristics, features or elements of heritage value; improvement of attribute quality.
High (adverse)	Loss of resource and/or quality and integrity of receptor; severe damage to key characteristics, features or elements of heritage value.

Table 9.5: Scale of effect criteria

Magnitude	Sensitivity of Receptors		
	Low	Medium	High
Low	Negligible	Negligible - Minor	Minor
Medium	Negligible - Minor	Minor	Moderate
High	Minor	Moderate	Major

9.3.10 The matrix of effects is graduated, with negligible effects being the least significant, and major effects the most significant. Significant effects are those that are moderate or major. On this definition, effects that are negligible, negligible - minor or minor are not significant and not considered further, although they will be subject to the same range of mitigation measures as significant effects.

Cumulative Effects

9.3.11 Cumulative effects that may arise from committed developments within 1km of the Site have been considered (based on applicable schemes as outlined in section 4.6)

9.3.12 In response to a proposal by Gatwick Airport Ltd (GAL) to amend Gatwick Airport (the Gatwick Airport Northern Runway [GANR] proposal), the Planning Inspectorate has considered that there may be effects to the settings of designated heritage assets located within the urbanised areas of Horley and Crawley, including from increases in airborne noise and from road traffic.

9.3.13 There appears to be no overlap between the heritage assets considered by the GANR and West of Ifield projects. As a result, there is unlikely to be any cumulative effect during the construction stage.

9.3.14 Similarly, there appears to be little overlap between the heritage assets considered by the GANR and West of Ifield projects for the completed development stage. As a result, there is unlikely to be any significant cumulative effects during the completed development stage.

9.4 Baseline Data

Key Baseline Data Obtained

9.4.1 The baseline data will be assembled using:

- National Heritage List for England (NHLE) for data on designated heritage assets (Ref 9.17);
- West Sussex Historic Environment Record (WSHER) for data on non-designated heritage assets, historic environment features and previous archaeological investigations;
- Horsham District Council (HDC) and Crawley Borough Council (CBC) websites for information regarding local planning policies, planning guidance and information on locally listed buildings and conservation areas;
- West Sussex County Council website for information on Archaeological Notification Areas (ANA) (Ref 9.18);
- West Sussex Record Office (WSRO) for cartographic and documentary sources;
- Online sources including aerial and satellite imagery;
- Site visits undertaken on 16-19 August 2018, 16 July 2019, 21 January 2020, 15 January 2021, 18 March 2021, 24 March 2021 and 28 May 2021;
- 'Land West of Ifield: Cultural Heritage Baseline Assessment' (Arcadis 2019; Ref 9.19);
- 'Land West of Ifield, West Sussex, Geophysical Survey Report' (Headland Archaeology 2019; Ref 9.2o); and
- 'West of Ifield Site A, Rusper Road, West Sussex: Archaeological Evaluation' (Wessex Archaeology 2021, (Ref 9.21);

Key Environmental Receptors

9.4.2 Seventy-six cultural heritage receptors are identified as potentially sensitive to the Proposed Development. These comprise two scheduled monuments, two Grade I listed buildings, one Grade II* listed building, 32 Grade II listed buildings, two conservation areas, 10 locally-listed buildings, 21 other non-designated heritage assets and five archaeological character areas.

9.5 Description of Possible Significant Effect

Demolition and Construction Phase

9.5.1 During the demolition and construction phase possible significant adverse effects may occur to the scheduled Medieval moated site at Ifield Court (NHLE ref. 1012464), Ifield Village conservation area and the non-designated heritage assets of Ifield Medieval Park and Archaeological Character Area 4: Ifield Court Farm (east).

Completed Development Phase

9.5.2 During the completed development phase potential significant adverse effects may occur to the scheduled Medieval moated site at Ifield Court and Ifield Village conservation area.

9.6 Potential Mitigation Measures

Demolition and Construction

9.6.1 The effects of the Proposed Development on below-ground heritage assets will be addressed by a staged programme of archaeological work. Geophysical survey of the Site has been completed (Ref 9.21) and partial evaluation trial trenching has taken place (Ref 9.21). The effects on below-ground heritage assets identified by the trial trenching exercise will be addressed by undertaking localised areas of archaeological excavation, to be followed by a programme of post-excavation assessment, analysis, reporting and archiving. Further work, should it be necessary, may comprise a programme of monitoring under archaeological supervision and control during the construction programme or, in exceptional circumstances, preservation in situ.

9.6.2 Where programmes of archaeological investigation such as these are undertaken, they do not avoid or reduce the magnitude of impact or significance of effect. Instead, they offset the loss of physical remains against advances in understanding.

Completed Development

9.6.3 In consultation with Historic England, Horsham District Council and Crawley Borough Council mitigation measures during the completed development phase will be clearly identified within the EIA. Operational mitigation measures will be built into the scheme design where possible.

10. Landscape and Visual Impact

10.1 Introduction

10.1.1 This chapter addresses the proposed scope of ES with respect to Landscape and Visual Impact. It includes a summary of current and proposed consultation, baseline condition and the proposed approach to the assessment of possible construction and operational effects. Areas that are proposed to be scoped in and out of the assessment are identified.

10.2 Consultation

10.2.1 Table 10.1 shows a summary of preliminary consultation undertaken that has informed both EIA Scoping, and development of the scheme design, and the issues raised by consultee:

Table 10.1:Consultation Undertaken to Date

Consultee	Date	Summary of Issues Raised/Agreed
Horsham District Council Landscape Officer	19th June 2019	Aspects of the visual context of the Site. • Those landscape character publications that are relevant to the HDC administrative area that should be referred to. • Value of Ifield Meadows. • Setting of the Ifield Conservation Area • Aspirations for greater connectivity to adjoining rural areas by the current residents of the west of Crawley. • The value of existing views of St Margaret's Church, Ifield, from the development Site. • The likely landscape and visual effects of the new corridor road. • The style and form of the potential development's buildings.
Horsham District Council – Scoping Opinion	30th November 2020	The setting of Ifield Conservation Area should also be included within the landscape assessment; • The West Sussex Land Management Guidance and West Sussex Historic Landscape Characterisation studies should be included to the list of existing character assessments and guidance documents; • Identify any change to the Horsham District Landscape Character Areas (in the HDC landscape character assessment) and also examine the impact of development on distinctive local character areas within and immediately surrounding the development Site. • The impact on specific landscape features should also be assessed e.g. field and boundary trees, hedges, woodlands and other historic landscape features which contribute to the landscape e.g. hedgerow/woodland banks, old country lanes, drove routes, old railway lines, etc • The EIA should include assessments of visual effects on the surrounding area and landscape together with any physical effects on the development, such as changes in topography. Changes in characteristic views e.g. to the High Weald AONB, to local landmarks may need to be considered, etc • Photomontages should be prepared for key viewpoints of the development - locations to be agreed with HDC. Any

Consultee	Date	Summary of Issues Raised/Agreed
		particularly tall elements of the development are likely to need to be shown on cross sections to understand their impact. • The landscape and visual assessment should take account of the 'worst case scenario' in terms of winter views and also the effects of mitigation planting in year 1 of the development and after 15 years of establishment.
Natural England	7th December 2020	Generic comments received regarding: • mapping of local landscape character areas at a scale appropriate to the development; • include assessment of visual effects on the surrounding areas; • include a full assessment on local landscape character; • refer to the relevant National Character Areas; • use of GLVIA3; • consideration of character and distinctiveness and use of local materials in design; and • assessment of cumulative effects with other relevant developments.
Pre-Application Consultation with Crawley Borough Council, Horsham District Council and WSCC	21st January 2021	Included discussion on viewpoint locations.
Pre-Application Consultation with Crawley Borough Council, Horsham District Council and WSCC	24th February 2021	Discussion on viewpoint locations and AVR locations. Heritage also inputted to the discussions.

10.3 Methodology

10.3.1 The LVIA will relate to the following key factors:

Relevant Policy and Guidance

10.3.2 An outline of the legislation, policy and guidance relevant to the Proposed Development at the national and local levels is provided below:

National Legislation and Planning Policy

10.3.3 National Planning Policy includes:

- European Landscape Convention 2010 (Ref 10.1);
- Tree Preservation Orders;
- The National Planning Policy Framework (NPPF), Department for Communities and Local Government, 2023 (Ref 5.1)

10.3.4 The NPPF attaches importance to the character of the built environment, emphasising that developments should add to the overall quality of the area, respond to local character and history and reflect the identity of local surroundings and materials. The provisions relevant to the Proposed Development are included are as follows:

- Section 12: Achieving well-designed places; and

- Section 15: Conserving and enhancing the natural environment.

Local Planning Policy

10.3.5 The local planning policies, which relate to the landscape character and/or visual amenity of the Site and its surrounds, and which will be referred to in the LVIA, where these may have a bearing on the Proposed Development and its potential effects are:

- Crawley Borough Council Local Plan to 2030, adopted 2015 (Ref 5.3):
  - **Policy CH8:** Important Views;
  - **Policy CH9:** Development Outside the Built-Up Area;
  - **Policy CH12:** Heritage Assets; and
  - **Policy ENV1:** Green Infrastructure.
- Horsham District Planning Framework to 2031, adopted 2015 (Ref 5.2): Policies Applicable:
  - **Policy 4:** Strategic Policy - Settlement Expansion;
  - **Policy SD6:** Landscape Buffer, Landscape Character, Biodiversity and Green Infrastructure;
  - Policy SD7: Design;
  - **Policy 24:** Strategic Policy - Environmental Protection;
  - **Policy 25:** The Natural Environment and Landscape Character;
  - **Policy 26:** Countryside Protection;
  - **Policy 30:** Protected Landscapes;
  - **Policy 31:** Green Infrastructure and Biodiversity; and
  - **Policy 32:** The Quality of New Development.
- Horsham District Council (2020) Draft Horsham District Local Plan 2019 – 2036
  - **Strategic Policy 3:** Settlement Expansion;
  - **Strategic Policy 15:** Strategic Site Development Principles;
  - **Strategic Policy 25:** Environmental Protection;
  - **Strategic Policy 27:** The Natural Environment and Landscape Character;
  - **Strategic Policy 28**: Countryside Protection;
  - **Strategic Policy 30:** Protected Landscapes;
  - **Strategic Policy 31:** Green Infrastructure and Biodiversity;
  - **Strategic Policy 33:** Development Quality; and
  - **Strategic Policy 34:** Development Principles.

10.3.6 The following relevant landscape-related planning policy guidance documents have also been considered in the preparation of this chapter and will be applicable to the LVIA:

- West Sussex County Council (2003) The West Sussex Landscape Land Management Guidelines;
- Horsham District Landscape Character Assessment, 2003; and
- Horsham District Landscape Capacity Assessment, May 2021.

Guidance

10.3.7 The landscape and visual impact assessment (LVIA) will be based on guidance provided in the Guidelines for Landscape and Visual Impact Assessment Third Edition (GLVIA) (ref 10.3)(Landscape Institute and Institute of Environmental Management and Assessment, 2013).

Study Area

10.3.8 The iterative design and assessment process undertaken to date has concluded that a study area of up to 2.5km from the Site boundary is appropriate for the Proposed Development. This distance was determined by Site visits, the nature of the surrounding environment, and by the physical scale of the proposals and the likely distance over which they would be sufficiently visible to give rise to significant effects. Visibility mapping using LidAR data, has shown that most areas beyond this distance would be screened by intervening vegetation and buildings. Even if the Proposed Development was visible from locations beyond 2.5km, at this distance the effects would not be considered significant.

10.3.9 Initially a study area of 4km was considered. This distance was reviewed and reduced to 2.5km after production of the ZTV using LiDAR data, which shows that most areas beyond this distance would be screened by intervening vegetation and buildings. Even if the Proposed Development was visible from locations beyond 2.5km, at this distance the effects would not be considered significant.

Assessment Methodology

Approach

10.3.10 The LVIA will be based on the recommendations set out in:

- Landscape Institute & Institute of Environmental Management and Assessment, 2013: Guidelines for Landscape and Visual Impact Assessment, Third Edition. London. Routledge (GLVIA3) (Ref 10.3);
- Landscape Institute (2021) Technical Guidance Note 02/21 Assessing Landscape Value Outside National Designations (Ref 10.4);
- Natural England (2019) An Approach to Landscape Sensitivity Assessment – to Inform Spatial Planning and Land Management (Ref 10.5); and
- Landscape Institute (2019) Technical Guidance Note 06/19 Visual Representation of Development Proposals (Ref 10.6).

10.3.11 The assessment will draw upon Site surveys, desk-top research sources and the design proposals to determine significant effects upon landscape character and visual amenity during the construction and operational phases of the Proposed Development. The LVIA will be reported in the ES setting out: an introduction to the topic, a detailed assessment methodology, the findings of baseline research (including reference to landscape designations and landscape character), mitigation measures, an assessment of residual effects (including cumulative considerations), and an overall summary.

10.3.12 The assessment will adopt the following general approach:

- Establish baseline conditions against which the changes resulting from the Proposed Development are assessed. The baseline is established through desk study and field work. It includes an identification of the landscape and visual receptors, and an appraisal of the value of the existing landscape or view. It also includes consideration of the future baseline, which is the way the Site is likely to evolve due to natural changes, irrespective of the Proposed Development (albeit this will not form the basis of the assessment).

- Determine the sensitivity of the landscape and visual receptors to likely change arising from the Proposed Development through consideration of the value of the landscape or the view and the susceptibility of landscape and visual receptors to change arising from the Proposed Development;
- Categorise each landscape or visual effect as beneficial, adverse, or neutral. GLVIA3 (Ref 10.3) sets out the criteria which should be used in reaching a professional judgement on the nature of the effects;
- Assess each identified effect on landscape and visual receptors in terms of its size or scale, the geographical extent of the area influenced, and its duration and reversibility. This assessment informs judgements regarding the magnitude of impact; and
- Determine the level of each landscape and visual effect by considering the sensitivity of the receptor and the magnitude of impact to give an overall judgement on the level of effect applying informed professional judgment.

10.3.13 The assessment of landscape and visual effects will consider both the demolition and construction and completed development stages of the Proposed Development.

Significance Criteria

10.3.14 The significance of effect, whether adverse or beneficial, will be assessed by comparing the sensitivity of the receptor relative to the magnitude of change, as referred to in Table 4.1.

10.3.15 Significance criteria for landscape and visual effects are set out in Table 10.2 below.

Table 10.2: Effects Significance Criteria for Landscape and Visual Effects

	Landscape	Visual
Major Adverse	The Proposed Development would do one or more of the following: • be at considerable variance with the landform, scale and pattern of the landscape; • result in a total loss or major alteration to key attributes and their setting; • disrupt a finely balanced or intact landscape; • be visually intrusive and disrupt valued views of the area; • cause a major reduction in the current level of tranquillity; • introduce dominant incongruous elements into the landscape; • be incapable of adequate mitigation.	The Proposed Development would cause a major deterioration to the existing view or wider visual amenity.
Moderate Adverse	The Proposed Development would do one or more of the following: • be out of scale with the landscape, or at odds with the local pattern and landform; • result in a partial loss of key attributes, or reduce or remove their setting; • be visually intrusive and adversely affect views into and across the area; • cause a noticeable reduction in the current level of tranquillity; • introduce prominent new elements that are not entirely characteristic; • be incapable of full mitigation; • be in conflict with local guidelines, where they exist, for the landscape character area.	The Proposed Development would cause a noticeable deterioration to the existing view or wider visual amenity.

Minor Adverse	The Proposed Development would do one or more of the following: • not quite fit the landform and scale of the landscape • result in a minor loss of key/characteristic elements or features or their setting reduced; • although not very visually intrusive, would adversely affect certain views into and across the area; • cause a minor reduction in the current level of tranquillity; • introduce noticeable new elements that are not entirely characteristic.	The Proposed Development would cause a slight deterioration to the existing view or wider visual amenity.
Negligible	The Proposed Development would result in a very slight noticeable adverse change to: • the scale, landform and pattern of the landscape; or • the current level of tranquillity of the landscape.	The Proposed Development would cause an almost imperceptible deterioration to the existing view or wider visual amenity.
None	The Proposed Development would do one or more of the following: • complement the scale, landform and pattern of the landscape; • incorporate measures for mitigation to ensure that the scheme will be appropriately incorporated with surrounding landscape; • avoid being visually intrusive; • have no adverse effect on the current level of tranquillity of the landscape; • maintain existing landscape character; • a neutral effect can also be the result of the removal of incongruous or intrusive elements and the introduction of new elements.	The Proposed Development would cause a noticeable change to the existing view or wider visual amenity, but this would be considered neither adverse of beneficial.
Negligible beneficial	The Proposed Development would result in a very slight noticeable beneficial change to: • the scale, landform and pattern of the landscape; or • the current level of tranquillity of the landscape.	The Proposed Development would cause an almost imperceptible improvement to the existing view or wider visual amenity.
Minor beneficial effect	The Proposed Development would do one or more of the following: • fit well with the scale, landform and pattern of the landscape; • incorporate measures for mitigation to ensure they will blend in well with surrounding landscape; • enable some sense of place and scale to be restored through well-designed planting and mitigation measures; • make a minor improvement to the contribution that the Site makes to the local existing landscape character; • be in line with local guidelines, where they exist, for the landscape character area.	The Proposed Development would cause a slight improvement to the existing view or wider visual amenity.
Moderate beneficial effect	The Proposed Development would provide an opportunity to enhance the landscape because they do one or more of the following: • fit very well with the scale, landform and pattern of the landscape; • have the potential, through mitigation, to enable the restoration of key/characteristic features, partially lost or diminished; • make a noticeable improvement to the contribution that the Site makes to the local landscape character through well-designed planting and mitigation measures;	The Proposed Development would cause a noticeable improvement to the existing wider visual amenity.

	• enable some sense of quality to be restored or enhanced through beneficial landscape proposals and sensitive design; • support objectives in local guidelines, where they exist, for the landscape character area	
Major beneficial effect	The Proposed Development would do one or more of the following: • mitigate substantially an existing significant adverse effect; • fulfil objectives in local guidelines, where they exist, for the landscape character area; • make a major improvement in the contribution that the landscape makes to the local landscape character by restoring the integrity of a damaged landscape.	The Proposed Development would cause a substantial improvement to the existing wider view or visual amenity.

10.3.16 Major and moderate effects are those that are likely to be considered 'significant', especially if they are long term, permanent and/or not reversible. Minor or Negligible effects are those that are likely to be considered as 'not significant' (refer Table 4.1).

Cumulative Effects

10.3.17 The cumulative stage visual impact assessment focuses on the additional cumulative change which may result from the introduction of the Proposed Development, when considered alongside other cumulative schemes in the area. The objective of the assessment is to identify whether effects from several developments, which individually might be insignificant, could cumulatively result in a significant effect upon visual receptors.

10.3.18 The study area for the assessment of cumulative effects will be limited to the following:

- Visual Context – those additional developments seen from within the ZTV of the Proposed Development; and
- Landscape Character – those additional developments visible from the range of landscape character areas being assessed within the LVIA.

10.3.19 The cumulative assessment will exclude recently completed developments and schemes currently under construction and due to be completed prior to the completion of the Proposed Development. This is because they will be accounted for in the baseline and future baseline conditions which are established as part of the LVIA.

10.3.20 From current analysis of Appendix A, the committed developments, there is no intervisibility between the developments and the Proposed Development for any of the visual receptors which have been identified.

10.4 Baseline Data

Key Baseline Data Obtained

Desktop and Field Work

10.4.1 Initial desktop and field work has been undertaken to understand the natural and manmade composition of the LVIA study area, and to help identify and establish the sensitivity of landscape character and visual amenity receptors. This has included research into, for example the area's topography, vegetation cover, land use, historical and cultural associations, settlement patterns and built form vernacular, accessibility and recreational usage.

10.4.2 The findings of the initial desk-based study were supplemented with a programme of seasonal Site surveys. This included surveys during both summer (2020 and 2022) and winter (2020/2021) months to fully understand the landscape and visual baseline and likely effects. The purpose of the Site visits was to:

- Obtain baseline photographs;
- Confirm the extent of the study area;
- Verify information in the published landscape character assessments;
- Gain an understanding of perceptual landscape characteristics;
- Confirm viewpoint locations;
- Undertake the viewpoint survey; and
- Identify the likely significant landscape and visual effects.

10.4.3 In addition, winter photography was undertaken in 2023 for the production of wirelines. During this visit it was confirmed that existing photography from previous visits was still valid as there has been minimal change to the baseline environment in the intervening period.

Key Environmental Receptors

Designations

10.4.4 Relevant landscape character and visual amenity related planning designations (at national, county, and local levels) have been identified within the study area. These designations include:

- Ifield Conservation Area;
- Listed Buildings;
- Sussex Border Path (Long Distance Footpath); and
- Rusper Road Area of Special Landscape Character.

10.4.5 All these designations are scoped out of the landscape and visual assessment for the following reasons (but included with the 'value' rating of receptors):

- Ifield Conservation Area – This will be addressed in the Cultural Heritage Chapter;
- Listed Buildings – These will be addressed in the Cultural Heritage Chapter;
- Sussex Border Path - Effects on views from the Sussex Border Path as although there may be some very limited intervisibility it lies too distant from the Site for users of the footpath to experience any potential significant effects;
- Rusper Road Area of Special Landscape Character - This will be addressed in the Cultural Heritage Chapter.

Landscape Character Receptors

10.4.6 Character areas at the national level have been reviewed, the Site falls within National Character Area 121: Low Weald. It is considered that, whilst these assessments inform the context for county and local character assessments, they do not provide a sufficient level of detail appropriate to the nature of effects likely to arise at a local level as a result of the Proposed Development. Therefore, in line with the recommendations of GLVIA3 (ref 10.3), to ensure that the scale of assessment is appropriate and proportionate to the scale of the Proposed Development, National Character Areas will not be considered further as part of the assessment.

10.4.7 Published Landscape Character Assessments will inform the identification of landscape character receptors for use in the LVIA. The existing character assessments and guidance documents that will be used in the preparation of the LVIA include:

- West Sussex Landscape Character Assessment (2003), West Sussex County Council (Ref 10.7);
- Horsham District Landscape Character Assessment (2003), Chris Blandford Associates (Ref 10.8); and
- Horsham District Landscape Capacity Assessment (2021), Horsham District Council (Ref 10.9).

10.4.8 Initial LVIA field work and Site analysis concluded that sole reliance upon the existing assessments is too generic in nature across the Site to provide sufficient information to inform the LVIA and shaping of the Proposed Development masterplan. For this reason, and on account of the size of the Site and the relative complexity of its landscape, a Site-specific LCA was undertaken in 2020 in line with current guidance - Natural England, 2014: An Approach to Landscape Character Assessment. Natural England. This additional work will support the landscape character assessment but also the ongoing design process.

10.4.9 An assessment of potential effects on the following landscape character receptors will be undertaken as part of the LVIA:

- West Sussex Landscape Character Assessment (2003) LW8 – Northern Vales
- Horsham District Landscape Character Assessment (2003) – K1 Upper Mole Farmlands
- Horsham District Landscape Capacity Assessment (2014) – Local Landscape Character Area 4: River Mole;
- Horsham District Landscape Capacity Assessment (2014) – Local Landscape Character Area 5: Land West of Ifield Brook;
- Horsham District Landscape Capacity Assessment (2014) – Local Landscape Character Area 6: Rusper Road; and
- Horsham District Landscape Capacity Assessment (2014) – Local Landscape Character Area 7: Ifield Golf Course.

10.4.10 The baseline study will identify the existing key characteristics and overall character of the landscape, its constituent elements, features and its geographical and historical context. It will assess the condition of the landscape, the way it is experienced, the value attached to it and its susceptibility to change.

10.4.11 The assessment will consider:

- The physical influences on the landscape resource – geology, soils, landform, drainage and water bodies;
- The influence of human activity – land use, land management, the character of settlement and buildings, the pattern and type of fields and enclosure; and
- The aesthetic and perceptual aspects of the landscape – scale, complexity, openness, tranquillity and wildness.

Visual Receptors

10.4.12 The visual receptors included in the scope of the LVIA are as follows:

- Residents along the western edges of Crawley, along Rusper Road and within the settlements of Ifieldwood, and Rusper;

- Users of the public right of way network across the LVIA study area;
- Users of Open Access Land immediately north of the Site;
- Users of recreational facilities such as Ifield Meadows, Ifield Green Recreation Ground, Rusper Road playing field; and
- Users of public highways across the LVIA study area.

10.4.13 Visual receptors scoped out of the LVIA, on account of there being very little intervisibility between these settlements and the scheme, or views being outside of the study area, include:

- Residents elsewhere within Crawley, and within the settlements of Horsham, Lambs Green, Faygate, Kilnwood Vale, Norwood Hill, Charlwood and Hookwood; and
- Users of the Sussex Border Path.

10.5 Description of Possible Significant Effect

Construction Phase

10.5.1 During demolition and construction works, there would be possible adverse effects on the character of the landscape within the Site, however it is noted that effects will be minimised by the retention of many of the existing trees and hedgerows.

10.5.2 There would be possible significant adverse effects on the views experienced by receptors both within and close to the Site. Initial assessment indicates there would not however be a significant effect on views from Ifield Village Conservation Area, Ifield Green Recreation Ground, Ifield Meadows and the built up area of Ifield to the east of the Site, residents and the wider community using roads and footpaths along Ifield Wood to the north-west of the Site and within the rising land to the west and south west of the Site. This will be confirmed during the LVIA (scoped in).

Operational Phase

10.5.3 The LVIA will consider the magnitude of effects on receptors during operation of the Proposed Development as there may be the potential for significant effects upon landscape character and visual amenity receptors listed above (scoped in). Following the implementation of mitigation measures, residual effects of the Proposed Development would be assessed at Year 1 of completion and also 15 years following final completion when landscaping and associated planting would be suitably established. Night time effects of the Proposed Development will also be considered, a qualitive assessment being provided.

10.5.4 During operation, there would be possible significant adverse effects on the landscape within the Site (scoped in), although due to the retention of many of the existing trees and hedgerows, the effects on individual landscape elements within the Site is considered likely to be not significant. The wider character area beyond the Site is likely not to experience significant effects due to the high level of visual containment of the Site from existing boundary trees and hedgerows (scoped out).

10.5.5 There would be possible significant adverse effects on the views experienced by receptors both within and close to the Site (scoped in). Over time and with the maturing of the landscape proposals, the level of adverse effect would reduce but with a few exceptions could remain significant and adverse. As in construction, initial assessment has indicated it is unlikely there would be significant effects on views from Ifield Village Conservation Area,

Ifield Green Recreation Ground, Ifield Meadows and the built up area of Ifield to the east of the Site, residents and the wider community using roads and footpaths along Ifield Wood to the north-west of the Site and within the rising land to the west and south west of the Site, but this will be confirmed.

10.6 Potential Mitigation Measures

10.6.1 The landscape masterplan for the Proposed Development has been informed by the initial landscape and visual assessments which have been undertaken to date. Embedded measures which have been included in the design are:

- Careful planning, siting and design of the built form and open space within the Proposed Development;
- Setting maximum parameters for building heights;
- The offset of built development from existing sensitive landscape and visual receptors within and surrounding the Site;
- Consideration of key views into and out of the Proposed Development; and
- Proposed structural landscape works.

10.6.2 If possible significant adverse landscape and visual effects will be identified as a result of the Proposed Development and identified in the LVIA, secondary mitigation measures will be proposed to avoid, reduce and mitigate identified effects.

11. Noise and Vibration

11.1 Introduction

11.1.1 This chapter addresses the proposed scope of ES with respect to Noise and Vibration. It includes a summary of current and proposed consultation, baseline conditions, and the proposed approach to the assessment of possible construction and operational effects arising from the Proposed Development. Aspects that are proposed to be scoped in and out of the assessment are identified.

11.2 Consultation

11.2.1 Table 11.1 shows a summary of consultation undertaken to date that has informed EIA Scoping, and the issues raised:

Table 11.1: Consultation Undertaken to Date

Consultee	Date	Summary of Issues Raised/Agreed
Crawley Borough Council/Horsham Environmental Health Officer	17th May 2019	**Issues raised:** proposed baseline noise monitoring locations and durations; proposal to scope out baseline vibration surveys; the use of current CBC and HDC Local Policies with regards to noise and vibration; and consideration of Gatwick Airport noise contours and the second runway proposal. **Response received 24th June 2019:** No comment received regarding proposed survey methodology. Agreement received to scope out vibration surveys, use Gatwick Airport 60dB contour cut-off for sensitive development and some commentary provided regarding Local Authority policies and the use of future Gatwick Airport noise contours in the assessment – Draft response.
Crawley Borough Council/Horsham District Council Environmental Health Officers	25th June 2019	**Issues raised:** Queries on the Local Authority polices and the use of Gatwick Airport noise contours still in draft; request for comment on the proposed survey methodology and confirmation whether we would be receiving separate responses from HDC and CBC. **Response received 25th June 2019:** Confirmation that only CBC will provide comments, and that HDC Environmental Health Officer agrees with the CBC Officer comments. Reponses to other queries still to be received.
Crawley Borough Council/Horsham Environmental Health Officers	4th July 2019	Email sent to follow up a response to the remaining queries. No response received from HDC to date.
Crawley Borough Council/ Horsham Environmental Health Officers	11th July 2019	Clarifications received relating to reference documentation and Local Plan clarifications. Survey protocol agreed including locations, durations and other specifics. Advice given relating to the reference to the Summer 2040 Air Noise Map relating to Gatwick Airport noise contours.
Crawley Borough Council Environmental Health Officer	5th May 2020	Clarification received as to which specific Gatwick Airport noise contour map should be used (as the 2019 masterplan document includes numerous maps). The response confirmed that the '2040 2nd wide-spaced runway contours are the most applicable'.
Horsham District Council	Scoping Opinion, dated 30th November 2020	• Minimise the need for piling works. • Construction not usually permitted during night-time periods.

Consultee	Date	Summary of Issues Raised/Agreed
		• Significance criteria banding too wide. • Plant noise limits should be set at 5 dB below background.
Crawley Borough Council	Scoping Opinion, dated 27th October 2020	• General agreement with scoping report. • Expected that the noise rating level should not exceed the background L_{A90} and to prevent background creep in mixed commercial residential areas the L_{A90} should be 10dB below the L_{Aeq}. • Internal noise levels quoted in BS8233:2014 relate to steady external noise sources (i.e. the distant hum of traffic) and not noise made up on intermittent events like aircraft and passing traffic in close proximity.
Gatwick Airport	Response to Scoping Opinion, dated 28th October 2020	• Support the use of the future wide-spaced runway noise contours for the year 2040 in the assessment. • The assessment of significance should take into account latest government advice that the 54dBA L_{eq} contour represents the threshold for the onset of significant aircraft noise in the daytime and 48 dBA L_{eq} at night (SOAEL). • The opinion does however state: "To be clear this does not mean that noise development should not be allowed where noise levels exceed 54dBAL_{eq} day / 48dBAL_{eq} night, but it is important that the effects on noise sensitive development is properly assessed and mitigation is planned accordingly to protect against significant adverse effects on such development."
Crawley Borough Council	Principal Environmental Health Officer, email of 10th June 2022	No objection to baseline noise monitoring proposals
Gatwick Airport Limited	Planning Manager – Consents & Policy, email of 23rd January 2023 to Homes England	"GAL's advice is to use the 2040 summer day contours in any noise assessment".

11.3 Methodology

11.3.1 This assessment will be undertaken in line with appropriate Policy, Standards and Guidance documents. Specifically, this would include:

Relevant Policy and Guidance

National and Local Planning Policy

- National Planning Policy Framework (NPPF), 2023 (Ref 5.1);
- Noise Policy Statement for England (NPSE), 2010 (Ref 11.1);
- Planning Practice Guidance: Noise (PPG) 2014 (Ref 11.2);
- Appropriate Local Policy documents specific to Horsham District Council and Crawley Borough Council, for example Horsham District Planning Framework (Ref 5.2), the Crawley Borough Council Local Plan (Ref 5.3) and Planning Noise Advice Documents: Sussex 2015 (Ref 11.3); and
- Building Regulations Approved Document O: Overheating (ADO) (2022) (Ref 11.4).

Guidance

11.3.2 For construction phase effects the following guidance will be used to inform the assessment:

- British Standard 5228:2009+A1:2014: Code of practice for noise and vibration control on construction and open sites; Part 1 Noise and Part 2: Vibration (Ref 11.5).

11.3.3 The following National Guidance has been considered in the assessment:

- BS 7445-1:2003 & 2:1991 Description and measurement of environmental noise (Ref 11.6);
- World Health Organisation (WHO): Environmental Noise Guidelines for the European Region 2018 (Ref 11.7);
- British Standards 8233:2014: Guidance on sound insulation and noise reduction for buildings (Ref 11.8);
- Calculation of Road Traffic Noise (CRTN) 1988 (Ref 11.9);
- The Design Manual for Roads and Bridges (DMRB), LA 111 – Noise and Vibration 2020 (Ref 11.10);
- British Standard 4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound (Ref 11.11);
- Professional Practice Guidance on Planning and Noise – New Residential Development (ProPG) 2017 (Ref 11.12);
- Association of Noise Consultants Acoustics Ventilation and Overheating Residential Design Guide 2020 (Ref 11.13);
- Building Bulletin 93 (BB93) Acoustic Design of Schools – Performance Standards (Ref 11.14);
- Acoustics of Schools: A Design Guide, 2015 published jointly by the Institute of Acoustics and the Association of Noise Consultants (Ref 11.15);
- World Health Organisation Guidelines for Community Noise (1999) (Ref 11.16); and
- World Health Organisation (WHO) Night Noise Guidance for Europe (2009) (Ref 11.17).

Study Area

11.3.4 For the purpose of the assessment, the study area has been defined to include identified, representative sensitive receptors located up to 300m from the Proposed Development Site boundary.

11.3.5 With regard to future noise sensitive (e.g., residential) receptors within the Site boundary either as part of the Proposed Development or whether retained, these, where appropriate, would be considered and assessed accordingly.

11.3.6 Key sensitive receptors to noise include residential properties, hotels, care facilities (healthcare) and schools. A number of such receptors are present either within or close to the Proposed Development Site boundary; these include, but are not limited to:

- Residential receptors and isolated farms; and
- Ifield Court Hotel.

11.3.7 Where there are groups of residential receptors close to the Proposed Development boundary, the effects upon the receptors nearest to the Proposed Development boundary

will be determined. Effects will not be determined for every residential receptor within the study area.

11.3.8 Where there will be future receptors within the Proposed Development boundary due to phased occupation of the Proposed Development, the effects upon these receptors will be considered. Receptors would be classified according to their sensitivity into high, medium and low categories prior to the assessment of noise and vibration effects. Residential, care facilities and schools would be classified as high sensitivity. Offices would be classed as medium sensitivity. Commercial and industrial uses classified as low sensitivity.

11.3.9 The study area for new and existing road links associated with the Proposed Development will be derived in accordance with the requirements of The Design Manual for Roads and Bridges (DMRB), LA 111 - Noise and Vibration 2020 (Ref 11.10).

Assessment Methodology

Approach

11.3.10 The approach adopted for the assessment would consider the following phases of the Proposed Development.

- Construction: The likely effects caused by construction work e.g. piling, and construction delivery traffic during peak construction;
- Operational - Traffic: The likely effects due to changes in road traffic on the local network as a result of the Proposed Development including prior to full occupation (and therefore when the Site is part under construction), and;
- Operational - Static Noise sources: Introduction of new noise sources associated with static noise sources e.g., rooftop plant noise, arising from operation of the Proposed Development and the potential impact of existing noise sources on new noise sensitive receptors associated with the Proposed Development.

11.3.11 The assessment would be based upon the Policies, Standards and Guidance documents identified above and would include the following main tasks:

- Initial desktop studies and consideration of mapping of the local area;
- Quantification of the baseline and ambient noise within the vicinity of the Proposed Development by means of Site surveys and noise prediction modelling;
- Assessment and consideration of construction noise and vibration effects;
- Assessment and consideration of the Site suitability of the areas identified for sensitive land uses (e.g. residential and education);
- Consideration of appropriate noise controls with regard to areas of the Site identified as having the potential to adversely affect the noise climate of the area including commercial, community, retail and industry land uses;
- Consideration of the potential changes in road traffic noise in the wider area of the Site as a result of changes in traffic flow resulting from the Proposed Development;
- Consideration of mitigation measures where necessary and appropriate; and
- Consideration and assessment of residual effects.

11.3.12 In addition to this, consideration would be given to the potential cumulative effects of noise associated with identified committed schemes identified in Appendix A, and how this could affect the noise profile in the vicinity of the Proposed Development.

Construction Noise

11.3.13 Guidance on assessing and controlling noise from construction sites can be found in British Standard BS 5228:2009+A1:2014 Part 1 and Part 2 (Ref 11.5). Construction noise effects for the Proposed Development would be assessed in accordance with this Standard.

11.3.14 BS5228: - Part 1 Annex E gives different methods of guidance on significance of noise effects from construction and provides methodologies for the establishment of appropriate construction noise thresholds in relation to dwellings.

- Method 1: The ABC Method would be applied in this instance, however, only to the most sensitive receptors i.e. residential receptors; and
- Method 2: The 5dB Change Method would be applied for non-residential receptors such as schools, offices, health care facilities and places of worship as advised in the standard.

11.3.15 Significant effects may be deemed to occur if noise generated by construction activity exceeds the noise thresholds of BS5228-1 2009 (+A1:2014). The criteria will not be treated as construction noise limits, but as thresholds that should aim to not be exceeded through the implementation of Best Practicable Means (BPM), as far as reasonably practicable).

11.3.16 For the construction noise assessment, the significance criteria are in Table 11.2.

Table 11.2: Demolition and Construction Noise Criteria for Noise Sensitive Receptors

Daytime Demolition and Construction Noise Level	Adverse Effect Level	Magnitude of Impact
≥ 70 dB $L_{Aeq,10,hr}$	Above or equal to SOAEL + 5 dB	High
65 – 69 dB $L_{Aeq,10,hr}$	Above or equal to SOAEL and below SOAEL + 5 dB	Medium
SOAEL		
50 – 65 dB $L_{Aeq,10,hr}$	Above or equal to LOAEL and below SOAEL	Low
LOAEL		
< 50 dB $L_{Aeq,10,hr}$	Below LOAEL	Negligible

11.3.17 Where the existing ambient noise level already exceeds the limits proposed in BS5228 (either method), then a significant effect, SOAEL would be derived on the basis that a construction noise increase in the ambient noise climate by more than 3dB.

Construction Vibration

11.3.18 BS 5228:2009 Part 2 (Ref 11.6): Vibration provides guidance in relation to the effects of construction vibration upon the surroundings and would be used to determine potential effects from construction vibration.

11.3.19 Significant effects would be deemed to occur if Peak Particle Velocity (PPV) levels exceed 1.0 mms^{-1} as stated within BS 5228.

11.3.20 For the construction vibration assessment, the criteria of Table 11.3 would be considered with regard to the setting of LOAEL and SOAEL values for construction generated vibration at residential properties.

Table 11.3: Construction vibration significance thresholds

Vibration Level (PPV)	Effect	Magnitude of Impact	Observed Adverse Effect Level
Vibration less than 0.29 mms^{-1}	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.	Negligible	NOAEL
LOAEL			
Vibration between 0.3 and 0.9 mms^{-1}	Vibration might be just perceptible in residential environments	Low	LOAEL-SOAEL
SOAEL			
Vibration between 1.0 and 9.9 mms^{-1}	It is likely that vibration of this level in residential environments will cause complaint but can be tolerated if prior warning and explanation has been given to residents.	Medium	Above SOAEL
Vibration greater than 10 mms^{-1}	Vibration is likely to be intolerable for any more than a very brief exposure to this level.	High	Above SOAEL

Operational Road Traffic Noise

11.3.21 The operational traffic noise assessment would be based upon traffic data representing the 'without Development' scenario as a baseline with committed schemes included, and the proposed flows associated with the Development during the opening year, when fully constructed and occupied. The operational assessment will take account of total flows, the percentage of heavy vehicles that make up traffic flows and vehicle speeds.

11.3.22 Noise associated with road traffic sources would be calculated in accordance with the methodology of Calculation of Road Traffic Noise (CRTN) (Ref 11.8), and then assessed in accordance with The Design Manual for Roads and Bridges (DMRB), LA 111 – Noise and Vibration, 2020 (Ref 11.10).

11.3.23 The DMRB provides classification for the magnitude of change in road traffic noise in terms of both long term and short-term changes in road traffic noise with the smallest perceptible changes (Threshold Values); defined as 3dB in the long term and 1dB in the short-term comparisons. Changes in road traffic noise levels are referenced to a short- and long-term magnitude of change as presented in Table 11.4 and Table 11.5, respectively.

Table 11.4: DMRB classification of magnitude of noise effects - short term

Short term magnitude of impact	Change in road traffic noise level (dB $L_{A10,18hr}$ or L_{night})
No Change	0 dB
Negligible	> 0 dB and < 1.0 dB
Low	≥ 1.0 dB and ≤ 2.9 dB

Short term magnitude of impact	Change in road traffic noise level (dB $L_{A10,18hr}$ or L_{night})
Medium	≥ 3.0 dB and ≤ 4.9 dB
High	≥ 5.0 dB

Table 11.5: DMRB classification of magnitude of noise effects - long term

Long term magnitude of impact	Change in road traffic noise level (dB $L_{A10,18hr}$ or L_{night})
No Change	0 dB
Negligible	> 0 dB and < 3.0 dB
Low	≥ 3.0 dB and ≤ 4.9 dB
Medium	≥ 5.0 dB and ≤ 9.9 dB
High	≥ 10.0 dB

11.3.24 LA111 defines the LOAEL and SOAEL for operational noise for all receptors as in Table 11.6.

Table 11.6: Operational Road Traffic Noise LOAELs and SOAELs For All Receptors

Time Period	LOAEL	SOAEL
Day (06:00 – 24:00)	55dB $L_{A10,18hr}$ façade	68dB $L_{A10,18hr}$ façade
Night (24:00 – 06:00)	40dB $L_{night,outside}$ (free-field	55dB $L_{night,outside}$ (free-field)

Aircraft Noise

11.3.25 Table 11.7 defines the magnitude of effects and adverse effect levels for the Proposed Development. These criteria are deemed to be consistent with the emerging Crawley Local Plan.

Table 11.7: Aircraft Noise Impact Magnitude Criteria

Time Period	Noise level	Adverse Effect Level	Magnitude of Impact
Day (07:00 – 23:00)	<51 dB $L_{Aeq,16hour}$	NOAEL	Negligible
	51 dB $L_{Aeq,16hour}$	LOAEL	Low
	54 dB $L_{Aeq,16hour}$	SOAEL	Medium
	57 dB $L_{Aeq,16hour}$	SOAEL	High
Night (23:00 – 07:00)	<45 dB $L_{Aeq,8hour}$	NOAEL	Negligible
	45 dB $L_{Aeq,8hour}$	LOAEL	Low
	48 dB $L_{Aeq,8hour}$	SOAEL	Medium

Time Period	Noise level	Adverse Effect Level	Magnitude of Impact
	51 dB $L_{Aeq,8hour}$	SOAEL	High

11.3.26 The emerging Crawley Local Plan states that night-time maximum noise levels of >60 dB L_{AFmax} could give rise to a LOAEL and that maximum noise levels of 60-80 dB LAFmax could give rise to a SOAEL.

11.3.27 The assessment of aircraft noise will consider the Gatwick Airport Second Runway 2040 Option 3 (Wide Spaced Mixed Mode) No EATs 2040 Leq 54-72 dB(A) Contours and the 2040 Second Runway Option 3 (Wide Spaced Mixed Mode) No EATs 2040 Summer Night N60 Contours.

Operational Plant and Commercial Development

11.3.28 British Standard BS 4142: 2014+A1:2019 provides a methodology for the rating and assessing of sound associated with both industrial and commercial premises. The purpose of the Standard is clearly outlined in the opening section where it states the method is appropriate for the consideration of:

- Sound from industrial and manufacturing processes;
- Sound from fixed installations which comprise mechanical and electrical plant and equipment;
- Sound from the loading and unloading of goods and materials at industrial and/or commercial premises; and
- Sound from mobile plant and vehicles that is an intrinsic part of the overall sound emanating from premises or processes, such as that from forklift trucks, or that from train or ship movements on or around an industrial and/or commercial site.

11.3.29 The Standard is based around the premise that the significance of the impact of an industrial/commercial facility can be derived from the arithmetic subtraction of the background noise climate from the measured/calculated rating level of the specific sound under consideration. This comparison will enable the impact of said sound to be concluded based upon the premise that typically "the greater this difference, the greater the magnitude of the impact". This difference is then considered as follows:

- A difference of around +10dB or more is likely to be an indication of a significant adverse impact, depending on the context;
- A difference of around +5dB is likely to be an indication of an adverse impact, depending upon context; and,
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact.

11.3.30 BS4142 (Ref 11.11) further states that "where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact" again depending upon the specific context of the Site.

11.3.31 Significant effects may be deemed to occur if the mitigated operational 'Rating' levels described in BS4142:2014+A1:2019 Methods for rating and assessing industrial and commercial sound exceed the measured background noise level (L_{A90}) by more than +5dB.

11.3.32 For the operational noise assessment associated with the noise generating aspects of the Proposed Development, the following has been considered with regards to the setting of LOAEL and SOAEL values at noise sensitive receptors.

Table 11.8: Operational noise significance thresholds (noise generating aspects)

BS4142:2014 Assessment	Example Outcome	Magnitude of Impact	Adverse Effect Level	Actions
Rating level ≥10dB below the typical L_{A90}	No effect – not noticeable	Negligible	NOEL	No specific measures required
Rating level of between L_{A90}-10dB and L_{A90} +/-0dB	Noise can be heard but does not cause any change in behaviour or attitude. Can slightly affect the acoustic character of the area but not such that there is a perceived change in the quality of life.			
Rating level of between L_{A90} +/-0dB and L_{A90} + 5dB	Noise can be heard and causes small changes in behaviour and/or attitude. Affects the acoustic character of the area such that there is a perceived change in the quality of life.	Low	LOAEL	Mitigate and reduce to a minimum
Rating Level of between L_{A90} + 5dB and L_{A90} + 10dB	The noise causes a material change in behaviour and/or attitude. Quality of life diminished due to change in the acoustic character of the area.	Medium	SOAEL	Avoid
Rating level of greater than L_{A90} + 10dB	Extensive and regular changes in behaviour and/or an inability to mitigate effect of noise leading to psychological stress or physiological effects.	High	SOAEL	

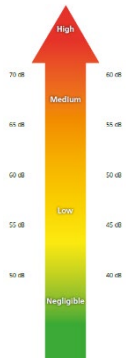
11.3.33 Where it is considered appropriate, reference to the absolute guidance levels provided in British Standard BS 8233: 2014 'Guidance on Sound Insulation and Noise Reduction for Buildings' (Ref 11.8) and the World Health Organisation 'Environmental Noise Guidelines for the European Region', 'Guidelines for Community Noise' (Ref 11.16) and 'Night Noise Guidance for Europe' (Ref 11.17) will also be made.

Residential Feasibility

11.3.34 The assessment of residential feasibility for the Development Site will be based upon the guidance and design criteria of the NPPF, NPSE, Local Policies, ProPG, BS8233 and the World Health Organisation guidance documents. Significant effects would be deemed occur if the internal ambient noise level guidelines of BS8233:2014 and ProPG are expected to be exceeded by more than +5 dB (following Good Acoustic Design and appropriate mitigation measures).

11.3.35 Table 11.9 presents the criteria for consideration of Site suitability for residential development.

Table 11.9: Significance Criteria – Residential Suitability

Noise Policy Statement England	Planning Practice Guidance - Noise	Assigned Noise Levels/Limits External Noise	Internal Noise	Mitigation Strategy
SOAEL	Noticeable and very disruptive		Increasing scale of negative impact with increase in noise levels above the BS8233 internal design criteria values	Detailed mitigation required. Mitigate to a minimum
LOAEL	Noticeable and intrusive			Mitigation required. Mitigate to a minimum
	Noticeable and disruptive			
NOEL	Not noticeable		BS8233/WHO internal design criteria met	None required

External Amenity Noise Levels

11.3.36 Noise levels in public open spaces and private gardens will be assessed against the guidance of ProPG, BS8233:2014 and the emerging Crawley Local Plan.

11.3.37 The assessment outlines the magnitude of impact associated with the expected external noise levels at the completed development. These are summarised in Table 11.10.

Table 11.10: Noise Magnitude Criteria

External Noise Level $L_{Aeq,16hr}$ dB	Magnitude of Impact
> 57	High
SOAEL	
54 to 57	Medium
51 to 53	Low
LOAEL	
≤ 50	Negligible

Education Buildings Site Suitability

11.3.38 Significant effects may be deemed to occur where noise levels within the areas identified for educational end use have the potential to result in the exceedance of the room usage criteria for indoor ambient noise levels detailed within Building Bulletin 93: Acoustic Performance Standards for Schools (Ref 11.15).

11.3.39 Guidance for outdoor educational teaching areas is provided in the document Acoustics of Schools: A Design Guide, 2015 published jointly by the Institute of Acoustics and the Association of Noise Consultants (Ref 11.15). For new schools, 60 dB $L_{Aeq,30min}$ should be regarded as an upper limit for external noise at the boundary of external areas used for formal and informal outdoor teaching and recreation. Noise levels in unoccupied

playgrounds, playing fields and other outdoor areas should not exceed 55 dB $L_{Aeq,30min}$ and there should be at least one area suitable for outdoor teaching activities where noise levels are below 50 dB $L_{Aeq,30min}$.

11.3.40 Significant effects would be deemed to occur where the upper guideline level is exceeded.

11.4 Cumulative Effects

11.4.1 The key committed developments that have been identified for consideration in the cumulative assessment would include those outlined in Appendix A (in accordance with the criteria outlined in section 4.6).

11.4.2 Traffic data from relevant schemes will be included in the cumulative assessment of operational road traffic noise effects and included within baseline and development phase scenarios as appropriate.

11.5 Baseline Data

11.5.1 The existing baseline noise climate is characterised by road and air traffic noise. During daytime periods steady road traffic noise dominates the noise climate towards the eastern side of the Site. The main noise source towards the western side of the Site is regular air traffic. Distant road traffic is audible at these locations. During the start of night-time periods the background noise level across the Site is caused by distant road traffic noise with air traffic dominating during regular take-off and landing events. Regular air traffic events also dominate towards the end of the night-time periods.

11.5.2 The existing baseline noise conditions were characterised through a baseline noise survey completed between Tuesday 28 June and Thursday 7 July 2022.

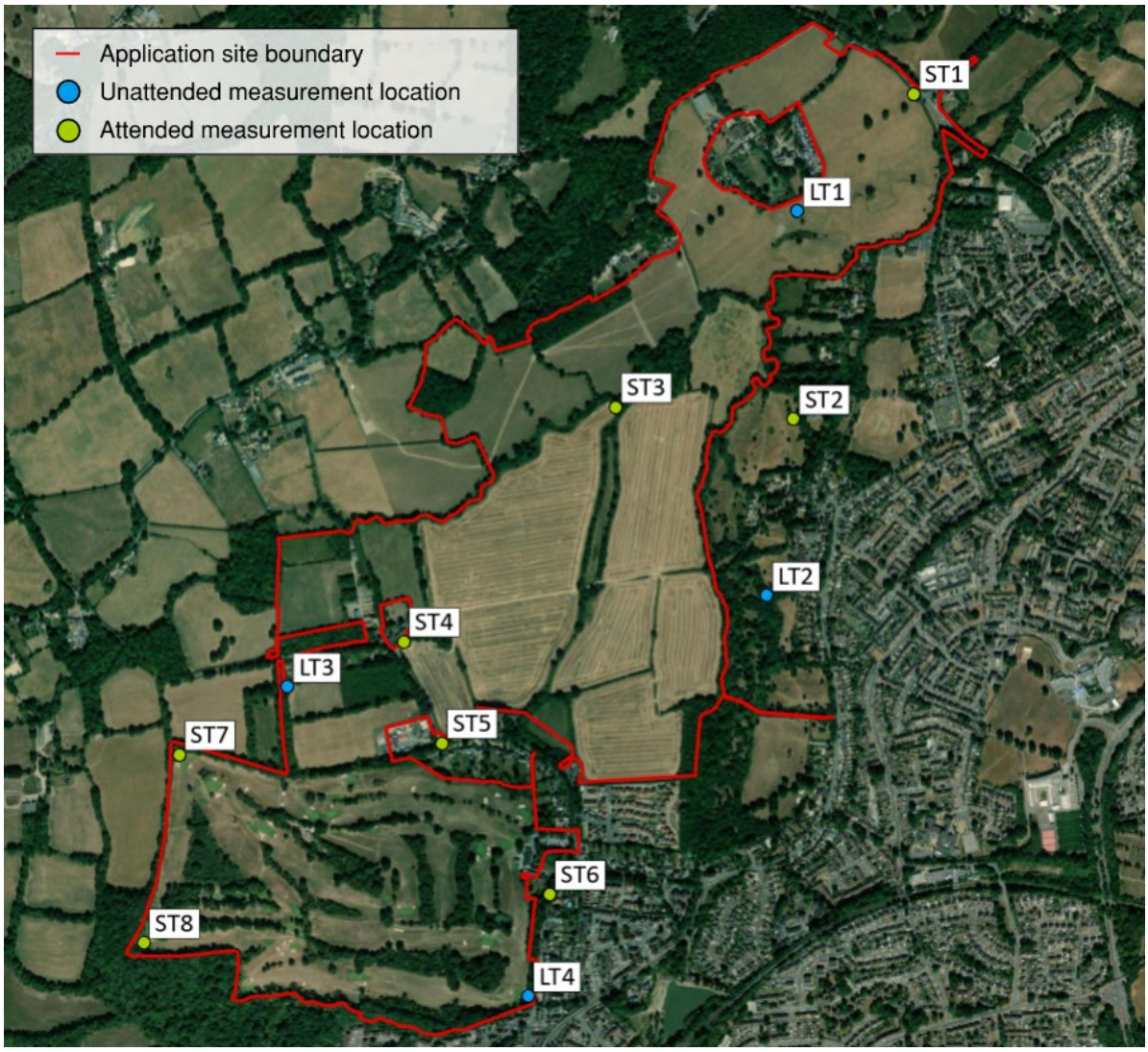
11.5.3 The survey comprised:

- Longer term unattended surveys at 4no. locations with continuous monitoring between Tuesday 28 June and Thursday 7 July 2022.
- Shorter term attended monitoring at 8no. locations on a rotational basis. Measurements of 15 minutes in duration were taken whilst rotating around the 8no. locations.

11.5.4 The baseline monitoring was completed using Type 1 sound level meters and in accordance with BS 7445-1 and BS 7445-2. The data gathered from the surveys would be used to inform the assessments using the standards and guidance as previously mentioned.

11.5.5 As stated earlier within this section, there is considered to be no requirement for baseline vibration at the Site, therefore, measurement and assessment of vibration has not been completed and is not proposed within the scope of this study.

Figure 11.1: Noise monitoring locations



11.6 Description of Possible Significant Effect

Construction Phase

11.6.1 Effects from construction plant and vehicle noise and vibration emissions are scoped in.

11.6.2 Noise levels would be considered at the nearest existing sensitive receptors as well as new receptors created within the Proposed Development (for phased construction).

11.6.3 The assessment would identify typical work activities and indicate receptors that would be likely to experience significant adverse effects. Where necessary, consideration would also be given to the potential of cumulative effects from other developments within the area being constructed at the same time. Where potential cumulative construction effects are identified, a qualitative assessment will be provided as detailed construction plant and methodology information will not be available for the cumulative scheme(s).

Operational Phase

11.6.4 The key effects to be considered are the change in road traffic noise levels, the impact of aircraft noise on the Proposed Development and plant/operational noise emissions from non-residential uses. Assessment of these operational effects are scoped in. However only

plant noise limits will be set in the assessment, as detailed proposals for plant noise emissions will not be available at the hybrid planning stage.

11.6.5 Consideration of Site suitability with regard to noise sensitive development within the Site boundary, including residential and educational land uses are scoped in. This is necessary to ensure a commensurate level of noise mitigation is included where necessary to protect residential and other amenity.

11.6.6 Operational phase ground borne vibration is scoped out of the assessment on the basis that no aspect of the Proposed Development is likely to generate any discernible levels of ground borne vibration.

11.6.7 Where necessary consideration will also be given to cumulative development within area as stipulated within Appendix A of this scoping report and how this affects the noise climate and traffic flows.

11.7 Potential Mitigation Measures

Construction

11.7.1 In order to ensure that noise and vibration during construction is suitably controlled, Best Practical Means (BPM) will be proposed within the ES.

11.7.2 Measures would include controls relating to equipment specification, working practices, temporary bunding/fencing, working hours amongst other options. These measures would be further specified through either the scope of a Construction Environmental Management Plan (CEMP) for the development of the scheme or through the specific agreement of a CoPA Section 61 agreement with the LPA(s).

Operation

11.7.3 The Proposed Development would likely contain embedded mitigation through the layout of the scheme and the use of green space and landscape buffer zones to create separation distances between new receptors and potential noise sources within the existing and proposed commercial areas.

11.7.4 Where the assessment identifies potential significant adverse effects, mitigation measures for the detailed design stage will be recommended via reference to relevant guidance or standards. As with the overall approach to the EIA, mitigation measures will be assumed to be in place for the main impact assessment.

12. Socio-economic Effects and Health

12.1 Introduction

12.1.1 The Proposed Development will result in a range of socio-economic effects including the generation of population, employment and associated community and social infrastructure needs. Accordingly, the Socio-Economics and Health section of the ES would address the potential significant environmental effects of the Proposed Development with respect to changes in the following:

- Population;
- Housing;
- Economy and employment;
- Community services and infrastructure; and
- Open space and recreation including Ifield golf club and Public Rights of Way (PRoW).

12.1.2 The potential health effects will be considered in a separate standalone Health Impact Assessment (HIA).

12.1.3 This chapter provides a summary of current and proposed consultation, baseline conditions and the proposed approach to the assessment of construction and operational effects arising from the Proposed Development. Aspects that are proposed to be scoped in and out of the socioeconomic effects and health assessment are identified.

12.2 Consultation

12.2.1 Table 12.1 shows a summary of consultation undertaken to date that has informed ES scoping, and the issues raised.

Table 12.1: Consultation Undertaken to Date

Consultee	Date	Summary of Issues Raised/Agreed
HDC Planning Officer. Scoping Opinion	30th November 2020	One of the most significant socio-economics effects would be to the residents of Crawley, especially those living to the west of Crawley and who currently enjoy the use of this countryside site.
Sport England. Consultation on Sport and Leisure Facilities in HDC and CBC	17th May 2023	The consultation discussed the details of the evidence base of existing sport facilities in HDC and CBC as well as the future provision.
On-Site tenant farmer and rental property management.	31st May 2023	This consultation discussed the details of current workforce on the farms as well as alternative farming activities.
WSCC Planning & Communities Officer, Public Rights of Way, Highways & Transport. Consultation on Footpaths and PRoW.	15th May 2023	The footpaths in the Site are rural and used as such. The Proposed Development could lead to increased usage and the WSCC would be looking for mitigation if affected. PRoWs remain as footpaths or upgrade to bridleway / permissive cycleway if needed, with associated necessary works. Connectivity was highlighted as a key consideration and ensuring people could continue to travel outside of the Site's boundary subsequent to the Proposed Development.
WSCC Schools Planning Officer and Education Directorate.	26th June 2023	Consultation on educational facilities in WSCC and the large deficit of secondary places in CBC.

Consultee	Date	Summary of Issues Raised/Agreed
Consultation on the Education facilities in WSCC.		
Surrey County Council Interim Commissioning Manager. Consultation on the Education facilities in Surrey County Council.	13th June 2023	Educational facilities in Surrey County Council and the Organisation plan.

12.3 Methodology

Relevant Policy and Guidance

12.3.1 There are no published guidelines or specific requirements for assessing socioeconomic related effects from a large housing led development as part of an ES. The assessment uses a range of appropriate guidance and methodologies to identify and assess relevant changes that may arise from the Proposed Development.

12.3.2 The economic and employment impact assessment will be informed by the Homes and Communities Agency's (HCA) 'Additionality Guide' (Ref. 12.1). The 'Additionality Guide' is based on the principles of the HM Treasury Green Book and describes a methodology for defining the additional economic benefits arising from an intervention.

National Planning Policy

12.3.3 The following national policy documents will be assessed as part of the ES:

- National Planning Policy Framework (NPPF) 2023 - The NPPF (Ref 5.1) aims to support strong, vibrant and healthy communities, by providing the supply of housing required to meet the needs of present and future generation; and by creating high quality-built environment, with accessible local services that reflect the community's needs and support its health, social and cultural well-being (Para 8(b)). In addition, it requires that development takes account of and supports local strategies to improve health, social and cultural wellbeing for all sections of the community (Para 92(b)).

Regional and County Planning Policy

12.3.4 The following regional and County Council level policy documents will be assessed as part of the ES:

- The West Sussex Economy Reset Plan 2020-2024 (Ref 12.2) – considers the impact and challenges posed by the COVID-19 pandemic and 'Our Council Plan' - WSCC's corporate plan for 2021-2025 .
  - This sets out 4 key priority areas:
  - Keeping people safe from vulnerable situations.
  - A sustainable and prosperous economy.
  - Helping people and communities to fulfil their potential.
  - Making the best use of resources.
- West Sussex County Council (WSCC) Economic Growth Plan 2018-2023 (Ref 12.3)- The County Council developed a new Economic Growth Plan for the period 2018 - 2023, to provide the framework for the County Council's priorities in driving economic growth. The plan, and the supporting action plan, will prioritise activity and investment to

achieve economic growth, by both recognising and building on the County Council's commitments, and by identifying new opportunities for growth.

- Coast to Capital (Local Enterprise partnership) Strategic Economic Plan 2018-2030 (Gatwick 360) aims to address some of the major issues which have slowed the areas growth (Ref 12.4).
- West Sussex Walking and Cycling Strategy 2016-2026 (Ref 12.5) - details the county's aims and objectives for walking and cycling in West Sussex. The document also contains a prioritised list of over 300 potential walking and cycling improvements suggested by a range of stakeholders and partner organisations.
- Rights of Way Management Plan 2018-2028 (Ref 12.6) sets out WSCC approach to managing the Public Rights of Way (PRoW) network over the next ten years.
- Active Sussex Strategy 2018-2023 (Ref 12.7)- By 2023, Active Sussex aim is to see 5% fewer inactive people in Sussex, and 10% fewer inactive people in the county by 2028, so that all our local authorities have activity levels better than the national average (Ref 12.5).
- West Sussex Joint Health and Wellbeing Strategy 2019-2024 (Ref 12.8)- The purpose of the JHWS is to improve the health and wellbeing of the local community and reduce inequalities for all ages. The intention was that they would be part of a continuous process of strategic assessment and planning by all organisations in the area.
- Gatwick Diamond Local Strategic Statement 2016 - This Local Strategic Statement has been prepared by the Gatwick Diamond Local Authorities working under the umbrella of the Gatwick Diamond Initiative. The Statement seeks to provide a broad but consistent strategic direction for the Gatwick Diamond area on planning and economic issues which cross local authority boundaries, set out, for the shorter term, how that strategic direction will be translated into change and development, to establish effective mechanisms for inter-authority cooperation on strategic issues so that longer term decisions made through the local plan making processes are well informed and to identify those areas where joint working will be prioritised (Ref 12.9).
- Gatwick Diamond Post 2030 Infrastructure Study – The study has been prepared on behalf of West Sussex and East Surrey local authorities to provide a view of future development around Gatwick (including growth in the following councils; Crawley Borough, Mid Sussex District, Horsham District, Mole Valley District, Reigate & Banstead Borough, Tandridge District and Epsom & Ewell Borough) between 2030 and 2050 and its impact on social infrastructure (Ref 12.10).
- WSCC Planning school places document - sets out the policies and principles of the WSCC. It provides information on current organisation and future forecasts of pupil numbers and provisional plans for where additional school places will be made available. The document also explains how WSCC plans to meet the growing need for additional school places throughout the county in future years (Ref 12.11).

Local Planning Policy

12.3.5 The following local policy documents will be assessed as part of the ES:

- The Horsham District Planning Framework – Horsham District's Local Plan (November 2015) - The Horsham District Planning Framework (HDPF) is the overarching planning document for Horsham district outside the South Downs National Park (SDNP) and replaces the Core Strategy and General Development Control Policies documents which were adopted in 2007 (Ref 5.2).

- Horsham District Economic Development Strategy 2020-2027 - sets out the economic vision and strategy for the area. The strategy aims to address the limited supply of space in both the office and industrial / warehouse sector and the continuing high rise of out commuting from the district. One of the priority areas in the strategy is infrastructure, whereby the district commits to develop business cases for transport infrastructure improvements. Horsham District Council (HDC) Open Space, Sport & Recreation review non-technical summary paper (2021) - sets open, sports and recreational spaces provision requirements and standards resulting from residential developments. This covers the requirements for new facilities on-Site and contribution towards enhancements of existing or planned future facilities outside developments but which serves the needs of the new residents (Ref 12.12).
- HDC, Built Sports Facility Strategy (2017-2031) (Ref 12.13).
- HDC Playing Pitch Strategy 2018-2031 Needs Assessment (Ref 12.14).
- Crawley 2030: Crawley Borough Local Plan 2015-2030 – The plan sets the way forward for planning the future of our town – where we live, work and visit – for the next 15 years. The document will provide the basis for future planning decisions in Crawley (Ref 5.3).
- Horsham Green Infrastructure Strategy 2014 – The strategy maps, plans and identifies a strategic network of green space across the District and identify mechanisms to ensure its delivery. This will assist the Council across many of its functions, including Leisure, and also forms part of the evidence base of the Horsham District Planning Framework (Red 12.9).
- Crawley Green Spaces Strategy 2014-2018 – The strategy document establishes the role the Council and its partners play in directing the management of green spaces in Crawley and guides the future development of its parks and open spaces, making sure they continue to evolve to meet the changing needs of the community (Ref 12.9).
- Horsham District Council Sport and Physical Activity Strategy 2016-2031 – The strategy reinforces both the value that the council places on the importance of sport and physical activity and its commitment to increasing participation and improving health within finite financial constraints. The purpose of the strategy is to increase participation in sport and physical activity and improve the health and wellbeing of people living, working or visiting the Horsham district (Ref 12.10).
- Crawley Economic Recovery Plan, 2022-2037 (Ref 12.15) sets the strategic framework for delivering the “One Town” vision for 2050 and the five strategic priorities (of which all are relevant to the Proposed Development) to restore economic success post covid-19.
- The Open Space, Sport and Recreation Assessment, Indoor Sports Facilities Assessment and Playing Pitch Strategy (2020) establish Crawley’s specific needs and quantitative or qualitative deficits or surpluses of open space, sports and recreational facilities (Ref 12.16).

Guidance and Industry standards of relevance:

- Design Manual for Roads and Bridges LA 112 Population and Human Health sets out the requirements for assessing and reporting the environmental effects on population and health from construction, operation and maintenance of highways projects (Ref 12.17).
- National Planning Practice Guidance (PPG) – Open Space, Sports and recreation facilities, PRoW and local green space, 2014 states that existing open space should be considered when reviewing development proposals, in line with NPPF paragraph 96 (Ref 12.18).

- National Planning Practice Guidance (PPG) – Housing and economic needs assessment recommends that a formula should be used to identify the minimum number of homes expected to be planned for, in a way which addresses projected household growth and historic under-supply (Ref 12.19).

Study Area

12.3.6 Baseline information would be considered as appropriate at ward, local authority (Crawley Borough Council (CBC) and Horsham District Council (HDC)) and West Sussex County Council (WSCC) level.

Assessment Methodology

Approach

12.3.7 The approach for the assessment of socio-economic effects would use a combination of quantitative and qualitative methodologies as appropriate to the topic. Specific methodologies for assessing the effects of the Proposed Development are as follows:

- Population: the net additional residential population arising as a result of the Proposed Development will be estimated, using available baseline data and the illustrative housing mix supplied by Homes England;
- Employment: employment generated during the construction phase would be assessed using capital construction costs of the Proposed Development provided by the Applicant team. Full Time Equivalent (FTE) jobs as provided in the Homes & Communities Agency (2015) Best Practice Note have then been estimated and applied. The Homes & Communities Agency (2015) Best Practice Note uses a figure of 13.9 FTE job-years per £1 million of construction spending for infrastructure development and 16.6 FTE job-years per £1 million of construction spending for private commercial development. All jobs (part-time) have been converted to FTE in accordance with the Homes & Communities Agency guidance. The operational assessment of employment would include analysis of the proposed land uses and associated floor space provision coupled with an assessment of the likely effect on the employment availability for the existing economically active population. Indirect employment will be estimated using the HCA Additionality Guidance and will include estimates of deadweight (i.e. what would happen in the absence of the project), leakage (employment accessed by workers from outside the study area), displacement (reduction of employment elsewhere as a result of the Proposed Development) and multiplier effects (increased employment in supply chains and as a result of local spend by new employees);
- Community services and infrastructure: an audit of the existing community facilities (including education, healthcare, public rights of way (PRoW) and open space) will be undertaken as part of the baseline assessment. Potential level of demand arising from the Proposed Development for each of these would be assessed as follows:
  - Education – child yields arising from the Proposed Development and current capacity information and for primary and secondary schools would be based on available information such as 'West Sussex County Council: Planning School Places 2018' supplemented where necessary with consultation with relevant stakeholders.
  - Healthcare and older people – current waiting list information would be accessed using available NHS data and information from specific GP surgeries relating to waiting lists.

- Social infrastructure – demand will be assessed using relevant guidance and standards as contained in document such as the HDC Planning Obligations and Affordable Housing SPD (2017).

12.3.8 Consideration would be given to significant environmental effects that may arise from the implementation of the Proposed Development, including positive (or beneficial) and negative (or adverse) effects.

12.3.9 Construction of the Proposed Development is expected to be phased over approximately 15 years. Socio-economic and health effects would be considered in relation to localised construction phases.

12.3.10 Future baseline information would be collected and presented in relation to projected population and economic growth that corresponds to the timeline of the construction and operation of the Proposed Development. Finally, data relating to committed schemes (see cumulative assessment section below) will be assessed as part of the cumulative assessment.

Significance Criteria

12.3.11 Unlike other environmental topics such as noise, the sensitivity of socio-economic and health receptors to the Proposed Development is not determined by reference to designations or an objective standard. Instead, it is the nature of the activity that the human receptor is undertaking that is most influential in determining sensitivity. A combination of quantitative and qualitative assessment, together with professional judgement, would therefore be undertaken to assess likely effects.

12.3.12 The terms used to define the significance of effect are as follows:

- Adverse: detrimental or negative effects to a socio-economic/ heath resource or receptor;
- Negligible: imperceptible effects to a socio-economic/ health resource or receptor; and
- Beneficial: advantageous or positive impact to a socio-economic/ health resource or receptor.

12.3.13 Where beneficial or adverse effects have been identified, these have been assessed against the following scales:

- Negligible: very slight highly localised impact coupled with low sensitivity of receptor;
- Minor: slight, very short or highly localised impact;
- Moderate: limited impact (by extent, duration or magnitude) which may be considered significant; and
- Major: considerable impact (by extent, duration or magnitude) of more than local significance (for example a sizeable change in relation to the baseline, or affecting a wide geographic area).

12.3.14 Moderate and major effects will be considered significant (refer to Table 4.1).

Cumulative Effects

12.3.15 Consideration will be given to the likely significant effects of the Proposed Development with committed schemes identified as per details in Section 4.6. Potential cumulative effects of relevance to socio-economics include committed schemes which alongside the Proposed Development will generate additional population, or which may cause health related

environmental change and thereby potential impact on local infrastructure, facilities and resources (such as schools and healthcare facilities).

12.3.16 The committed schemes listed in Appendix A, will be considered in the assessment of cumulative effects. An assessment will be made of the findings of cumulative assessments undertaken as part of other ES topics (for example noise, air quality) in order to assess the in-combination effect on the different receptors. Not all schemes in Appendix A will be considered, as a qualitative screening of the nature of each development will be undertaken to determine the nature of committed schemes which could lead to cumulative effects.

12.4 Baseline Data

Overview of Baseline Conditions and Key Issues

12.4.1 The following baseline data has been obtained and the key information and issues identified are as follows:

Population

12.4.2 Initial baseline information from a variety of sources (for example 2021 Census) and other data provided by the Office for National Statistics (ONS) has been assessed, relating to topics such as demographics, local economy, housing and community services and infrastructure. An overview of this data is provided below.

12.4.3 The Site falls mainly within the administrative area of Horsham District Council whilst a small portion of the Site is located within Crawley Borough Council. The 2021 Census Data population figures show Horsham to have a slightly larger population than Crawley and equating to approximately 1/6 of the County of West Sussex.

12.4.4 According to the 2021 Census, Horsham District has an increasingly aging population, with 45% of the population over the age of 50. The population of Horsham district has grown at a faster rate than the county (11.8% compared to 9.4%). The 2021 Census confirms that Crawley Borough Council has the biggest proportion of 18-64year olds (65.7%).

12.4.5 Key issues include the increasingly older age population profile in Horsham which create additional demands on community infrastructure and services. Also, a growing working age population in Crawley that may impact the demand for employment in the area. The Gatwick Diamond Post 2030 Infrastructure Study states that 'total population is forecast to increase across West Sussex but to decline in the Surrey Gatwick Diamond area between 2030 and 2050'.

Housing

12.4.6 The Proposed Development is within the Northern West Sussex Housing Market Area (NWS HMA). The NWS HMA was assessed and defined in the Northern West Sussex Strategic Housing Market Assessment (SHMA) published in November 2019. In 2021 HDC was found to have a significantly higher average house price (at £401,590) than CBC (£290,818) and the WSCC (£351,190).

12.4.7 The three Northern West Sussex Local Authorities have also undertaken more recent individual 'Local Housing Assessments' or 'Locally Generated Housing Needs Studies' to help inform their understanding of future housing requirements for their Local Plans. The most recent is the 2019 Mid Sussex District Council HMA Position Statement. According to this

report the assessed housing need for Horsham is 965 dwellings per annum and 752 dwellings per annum for Crawley.

12.4.8 A key issue in relation to the Proposed Development is that housing supply in Horsham is required to help meet Crawley's housing unmet need.

12.4.9 Other key facts include that Horsham district has a relatively high number of residents living in private housing compared to England as a whole (89% and 83% respectively). For Crawley private housing comprises 77%.

Local Community Services, Amenities and Infrastructure

12.4.10 Settlements within the immediate vicinity of the Proposed Development include Crawley to the south-east, Ifield Wood and Rusper to the west and Lowfield Heath and Charlwood to the north. Tilgate Park, Crawley Museum, Crawley Hospital and the Ifield Mill Pond and Bewbush Water are all within 10km of the Proposed Development. The County Mall Shopping Centre in Crawley and the County Oak and Acorn Retail Parks in Langley Green are the nearest retail centres, both within 5km of the Site.

12.4.11 The Proposed Development will involve the redevelopment of Ifield Golf Club. Ifield Golf Club is a private members golf club located on the west side of Crawley within Horsham District Council boundary.

12.4.12 There is another golf club within 5 km of the Proposed Development. Cottesmore Golf Club is situated to the south and charge a similar amount for annual membership fees, approximately £930. Cottesmore Golf Club, like Ifield, is a member of the Sussex County Golf Union. There are currently 61 golf clubs that make up the Sussex Union.

12.4.13 According to the governing body for amateur golf, England Golf, Golf club membership is on the rise in England. The biennial survey paints a positive picture for golf club membership in England. Since the 2016 survey, average membership numbers per club, per annum is up by 24. In 2016, the average number was 460 and in 2018 that is up to 484.

Local Economy and Employment

12.4.14 A review of data sources demonstrates that when considered at a national and regional level, the study area can be seen as a highly successful economic area with relatively high employment, low economic inactivity rates and low deprivation. However, there are some pockets of deprivation and socio-economic groups that would benefit from new housing and employment opportunities.

12.4.15 According to 2021 Nomis data, 93.3% of Crawley's population are economically active and in employment compared to 96.6% for Horsham. Horsham district continues to have lower unemployment rates when compared to the regional average (3.4% when compared to 4.2% for Crawley).

12.4.16 Educational achievement in Horsham is above average when compared to Crawley and WSCC. Educational achievement in Crawley for level 4 qualification is below the regional average.

12.4.17 Existing and new employment opportunities in the area need to focus on the local residents. This will see a greater benefit to the local economy and reduce out-migration for

employment. Analysis work on the Gatwick Airport expansion has shown that one of largest implications of the proposals post 2030 will be on employment in the West Sussex area.

12.4.18 In terms of establishing a future economic baseline, a review of the North Sussex Economic Growth Assessment (2014) was made. This shows that under the baseline scenario employment in Crawley is expected to increase by 16,440 jobs between 2011-2031. The largest growth sector is office related jobs in the admin and support services sector. Under the same scenario employment in Horsham is expected in increase by 8,890 with jobs in the professional services sector being the largest growth sector. In the ES a full assessment of the most up to date employment forecasts will be made.

Health

12.4.19 The 2017 Health Profile states that the health of people in Horsham is generally better than the England average. Horsham is one of the 30% least deprived districts/unitary authorities in England. Life expectancy for both men and women is higher than the England average. The 2017 Crawley Health Profile states that the health of people in Crawley is varied compared with the England average. Life expectancy for both men and women is higher than the England average.

Key Receptors

12.4.20 Resources are the assets and facilities which may be affected by the Proposed Development; receptors are the users or beneficiaries of those resources. Table 12.2 summarises the resources and corresponding receptors that will be considered as part of the assessment. It should be noted that receptors may be within and external to the wider study area.

Table 12.2: Socio-economics – Resources and Receptors

Resource	Corresponding Receptor
Local workforce	Workers
Housing	Accommodation Stock, Tourism, Private Rented Sector (PRS), Owner Occupier
Community infrastructure (for example education, healthcare, community facilities)	Local communities
Businesses within local area	Local businesses
Areas of open space, play areas,	Users of these spaces and facilities
PRoW/ recreational routes including footpaths, bridleways and cycle paths	Users of these spaces and facilities
Public health	Local residents
Golf Club	Members and paying visitors

12.5 Description of Possible Significant Effect

Construction Phase

12.5.1 During the construction stage, the following potential effects have been identified and are scoped in:

- Employment: The potential to generate economic benefits as a result of construction employment and associated spend. In addition to the creation of direct employment as a result of construction of the Proposed Development, indirect and induced

employment opportunities would also be generated. Indirect employment results from expenditure on supplies and services necessary for the construction of the scheme; induced employment results from the spending of incomes earned by those directly employed on the construction of the Proposed Development and workers employed by suppliers/ subcontractors for example on food or accommodation.

- Recreation and Access to Public Rights of Way: Potential effects on recreation and access, for example by the temporary severance of PRoWs and areas of open space. This may lead to a change in the route that walkers or cyclists take to access local facilities, and a change in journey length accordingly. Construction could also affect the amenity of users of PRoW through the generation of noise, dust and the movement of construction vehicles and there is the potential for severance.
- Construction Amenity Effects: There may be short to medium term disturbance and nuisance within the local area during the construction phase. The assessment would consider findings from other ES topics including Air Quality, Noise and Vibration, and Transport. From the perspective of socio-economics and community, local people may experience a temporary reduction in amenity as a result of a combination of effects – for example slight increases in noise as a result of construction activities or effects associated with construction traffic.

Operational Phase

12.5.2 The following potential effects may potentially arise as part of the operational stage of the Proposed Development and so are scoped in:

- Population: Population change as a result of the creation of new housing and communities.
- Employment: Creation of both direct and indirect employment relating to the Proposed Development.
- Community infrastructure: This includes effect on education, healthcare facilities, libraries, post offices, community centres, youth centres, places of worship and areas of open space. The Proposed Development would contribute to community facility and service provision in the local area (including community meeting venues for example) and to the broader amenity and open space provision.

12.6 Potential Mitigation Measures

12.6.1 Where applicable, effective mitigation measures that minimise identified potential significant adverse effects will be considered in the assessment.

Construction

12.6.2 A detailed CEMP would be prepared and approved before any construction work commences and would outline appropriate induction to be given to ensure contractors act considerately in relation to local residents, particularly for any works that may be programmed to take place at night.

12.6.3 In order to minimise disruption to non-motorised user (NMU) routes, PRoW, footways and cycle routes, temporary diversions would be put in place together with appropriate signage. This would be carried out in consultation with the local highways authority and other interested stakeholders.

Operation

12.6.4 For the operational phase of the Proposed Development, mitigation measures that will be considered include ensuring adequate provision of social and community infrastructure including a new school and health centre and a local employment and training strategy.

13. Surface Water Resources and Flood Risk

13.1 Introduction

13.1.1 This chapter addresses the proposed scope of the ES with respect to Surface Water Resources and Flood Risk. It includes a summary of current and proposed consultations, baseline conditions and the proposed approach to the assessment of possible construction and operational effects. Areas that are proposed to be scoped in and out of the assessment are identified.

13.2 Consultation

13.2.1 Table 13.1 shows a summary of consultation undertaken to date that has informed EIA Scoping, and the issues raised:

Table 13.1: Consultation Undertaken to Date

Consultee	Date	Summary of Issues Raised/Agreed
Gatwick Airport	Meeting correspondence 31st October 2018 and 26th November 2018	Details of the GAL approach to existing floodplain inundation risks were requested. The proposed scheme for floodplain management will need to consider drain down time in the context of the existing floodplain inundation regime. Meeting on 26 November 2018 covered an update on the EA flood model, West Ifield Flood Alleviation Scheme (FAS) and new Crawley Western Corridor. The 1 in 75 annual probability event was discussed as the design standard for the FAS to potentially a balance between likely costs and benefits. It was noted that the total standing time of the flood water in the study area is currently > 44hrs during a 1 in 75 annual probability event, which may constrain provision of substantial flood attenuation volumes as part of the proposed FAS options to address GAL's bird strike concerns.
Environment Agency (EA)	Meeting correspondence on 25th April 2018, 20th September 2018, 7th March 2019 and 22nd July 2019	Meetings on 25th April 2018 and 20 September 2018 covered the proposed West Ifield Flood Alleviation Society Options (FAS) and analysis of the baseline modelling results as well as the Memorandum of Understanding (MoU) between the EA and HE. Meeting on 7th March 2019 covered the latest position on West Ifield FAS study, and then agreed the general principles for developing and testing suitable site flood mitigation measures within the Site boundary, as part of an overall FAS scheme to help reducing flood risk to the existing communities. The EA agreed in principle to reprofile existing floodplain and adjoining land within the Site if this can provide a net flood risk reduction subject to satisfactory Flood Risk Assessment (FRA) and EIA findings. Meeting on 22nd July 2019 was essentially a handover of the project information within the EA team.
	Email correspondence on 25th June 2019	EIA should include all watercourses (ordinary and main river), lakes or storage areas within 1km of the Site boundary. The latest outputs of the EA's Upper Mole flood mapping study (to be issued by the EA) are to be referenced rather than the existing flood map for planning. Any assessment will need to recognise the primary risk sources which are fluvial and surface water. It will also need to reference the existing risk to communities in the surrounding area (1km) and Gatwick Airport specifically. Water

Consultee	Date	Summary of Issues Raised/Agreed
		Framework Directive (WFD) requirements and aquifer designations (including Source Protection Zones (SPZs)) and existing abstractions are also to be assessed to consider effects on groundwater, water quality etc.
Environment Agency (EA) and Homes England (HE)	Email Correspondence on 28th November 2022	Initially, the project was intending to utilise the hydraulic model to build on the previous work completed by Arcadis, however, following a review of the EA 1D-2D FMP-TUFLOW model, several concerns with the model were identified by the EA in comments provided to Ramboll via Homes England. It was agreed, following discussions with the EA and Homes England, that the model would be updated for the purposes of the West of Ifield study and to follow best practice guidance. Following extensive consultation with the EA, it was confirmed by email, that Ramboll's model "is considered as suitable for purpose" by the EA.
Horsham District Council (HDC) and Crawley Borough Council (CBC)	Meeting correspondence on 8th March 2019 22nd September 2020	It was noted that the councils consider it may be prudent to carry out a level 2 FRA and a Sequential Test for the development. An exception test may also be required if any new housing is proposed in Flood Zone 3. Early engagement with the Lead Local Flood Authority (LLFA) is preferable as well as the drainage officers in CBC and HDC. Detailed comments were received from the Environment Agency raising objections to the initially proposed approach (scoping out of a Water Resources and Flood Risk Chapter). In view of the scale of development and its location next to the River Mole and Ifield Brook. The EA advised that flood risk and water resources should be scoped into the Environmental Impact Assessment as there are significant flood risk issues, including the adequacy of the proposed flood defence works, the risk of flooding to the development and its occupants and surface water drainage.

13.3 Methodology

13.3.1 The assessment will be informed by the following legislation, policies and published guidance.

Legislative Framework

- The Water Environment (Water Framework Directive) Regulations 2017;
- Water Resources Act 1991;
- Land Drainage Act 1991;
- Water Act 2003; and
- Flood and Water Management Act 2010.

National Planning Policy

- The National Planning Policy Framework (NPPF) (Ref 5.1);
- Planning Practice Guidance (PPG) Flood Risk and Coastal Change (Ref 13.1); and
- Environment Agency Flood Risk Assessments: climate change allowances (Ref 13.2).

Local Planning Policy

- Crawley Borough Council (CBC) Local Plan 2015 – 2030 (Ref 5.3);

- Horsham District Council (HDC) Horsham District Planning Framework Guidance (Ref 5.2);
- CBC Strategic Flood Risk Assessment (Ref 13.3); and
- HDC Strategic Flood Risk Assessment (Ref 13.4).

Guidance

- Lead Local Flood Authorities of the South East of England (2017) Water People Places: A guide for master planning sustainable drainage into developments (Ref 13.5); and
- Crawley Borough Council (CBC) Local Plan Green Infrastructure Supporting Planning Document (Ref 13.6).

Study Area

13.3.2 The Study Area includes land within the Site boundary for the Proposed Development, areas to cover the downstream reaches of the River Mole, and any other surface water receptor within 1km of the Site boundary.

13.3.3 The EA assesses surface water quality at a river catchment level. Therefore, the potential for effects on downstream water quality has been considered at a river catchment level. The cumulative schemes to be considered have been identified (reference Appendix A). The only scheme within the same river catchment or within 1 km of the Proposed Development is the proposed Gatwick Airport development consent order (DCO). The cumulative effects for flood risk/water quality effects will only be assessed for the aforementioned scheme, as Gatwick Airport itself is located outside the area of interest, and any increases in flood depth may be related to the relocation of the inflow boundary of Crawter's Brook.

Assessment Methodology

13.3.4 As there is no published guidance for the assessment of water resources in an ES, the assessment will be undertaken by means of professional judgement, taking account of all applicable legislation, guidance and policy.

Technical Scope

13.3.5 The assessment of the potential effects of the Proposed Development on surface water resources and flood risk will consider the following:

- Contamination of surface water arising from construction works and associated drainage;
- Fluvial flood risk, both in terms of effects to the Proposed Development and changes to flood risk in the study areas or to downstream receptors as a result of the Proposed Development;
- Changes to the surface water runoff regime and associated downstream flood risks;
- Regular discharge of surface water, during operational use, and the associated effects on the water quality of downstream receiving waterbodies; and
- Demand on the local potable water network and on foul drainage infrastructure.

Spatial Scope

13.3.6 In the absence of published guidance, the study area is defined based on professional judgment as that within a 1 km radius of the Site boundary as it is considered unlikely that effects would extend beyond such a geographic area. The ES will assess surface water at a

river catchment level. Therefore, the potential for effects on downstream water quality will be considered at a river catchment level.

Temporal Scope

13.3.7 The assessment will consider effects arising during the construction stage, which would be temporary and short- (up to 5 years) to medium-term (5-10 years) in nature, and from the completed development stage which would be permanent and long-term in nature (i.e. more than 10 years). The current baseline will be considered as well as future climate change-adjusted scenarios.

Baseline Characterisation Method

Desk Study

13.3.8 In order to establish baseline surface water and flood risk conditions in the study area, relevant data will be reviewed and assessed including a Site-specific Flood Risk Assessment (FRA) supported by flood modelling. The following data will be obtained and reviewed:

- Surface water hydrology, including water features and surface water drainage in the vicinity of the Site, based on Environment Agency (EA) geo-spatial data, Southern Water and Thames Water asset location mapping, Ordnance Survey mapping and further topographic surveys;
- Existing catchment pressures (e.g. point source and diffuse pollution issues) from the EA's online catchment data explorer; and
- Flood risks, typically associated with fluvial and surface water sources at this location, based on consultation with the EA, as well as further Site-specific hydraulic modelling.

13.3.9 Government guidance on future climate change will be used to determine a potential future baseline in terms of flood risk.

13.3.10 The Flood Risk Assessment will be provided as an Appendix to the ES.

13.3.11 There is no Water Framework Directive designated groundwater body beneath the Site, however there are three surface water bodies: Ifield Brook, Baldhorns Brook, and the Mole upstream of Horley. All three of these surface waterbodies are classified as main rivers and have flood plains associated with them within the boundary of the Site. Therefore, these on-Site Water Framework Directive designated water bodies have the potential to be affected by the Proposed Development and thus a Water Framework Directive assessment is required A Water Framework Directive Regulations Screening Assessment will be undertaken, and if necessary, scoping and assessment will be completed. The Assessment will be provided as an Appendix to the ES.

Field Study

13.3.12 Field study/data collection will not be undertaken as the data provided by other sources is deemed to be adequate and representative of the Site conditions.

Impact Assessment

13.3.13 The significance of the likely residual effects upon the surface water environment will form the main assessment following the consideration of mitigation measures. However, where

likely significant effects are identified without mitigation these will be summarised and information will be provided on the appropriateness of monitoring.

13.3.14 Any remaining residual significant effects would require additional design and/or compensatory measures. Any mitigation of likely significant effect that is embedded with the Proposed Development or included with the assessment should be secured as part of the planning permission.

13.3.15 The Surface Water Resources and Flood Risk ES Chapter will provide a summary of embedded mitigation measures relevant to the assessment and effects will be determined on the basis of their effective implementation.

Construction Stage

13.3.16 The identification of likely significant effects during the construction stage will be based on a review of the presence of potential receptors, a qualitative assessment of the sensitivity of the receptors, the identification of potential impact pathways and an assessment of the magnitude of the potential effects.

13.3.17 The assessment of potential likely effects will, therefore, comprise the following approach:

- Identification and establishment of the sensitivity of surface water receptors on the basis of their use, proximity to the Site, existing quality or resource value;
- Consideration of embedded mitigation measures integral to the Proposed Development;
- Consideration of potential 'source-pathway-receptor' linkages;
- Evaluation of the magnitude of potential effects to surface water quality and hydrology as a result of the introduction of the Proposed Development; and
- Classification of the significance of likely effects.

Completed Development Stage

13.3.18 The methodology described above would also be applied to the identification of potential significant effects during the completed development stage. The assessment will be informed by the FRA, which has been undertaken in order to assess in more detail flood risks and to inform the design of the Proposed Development, and associated mitigation strategies, in order to minimise any increase in flood risk to both on-Site and off-Site receptors and to the Proposed Development itself.

Assessment Criteria

13.3.19 The criteria to be used to assess if an effect is significant or not is set out in the subsequent sub-sections. The sensitivity of the receptor and the magnitude of impact will be considered and taken together, used to determine the significance of effect. In considering the significance of an effect, the duration and geographical extent of the effect will be determined alongside the application of professional judgement.

Receptor Sensitivity/Value Criteria

13.3.20 The sensitivity of receptors will be classified as low, medium or high, in accordance with the criteria set out in Table 13.2.

Table 13.2: Receptor Sensitivity Criteria

Sensitivity	Criteria
Low	Feature of low quality and/or rarity, with potential for substitution or tolerant of some change, e.g. • Surface water classed as 'Moderate' or 'Poor' by the EA (e.g. within the Thames River Basin District River Basin Management Plan (RBMP)) • Sewer • Areas within Flood Zone 1
Medium	Feature of medium quality and/or rarity, with some potential for replacement and reasonably tolerant of some change, e.g. • Surface water classed as 'Good' by the EA • Species reliant on surface water protected under EC or UK habitat legislation • Areas within Flood Zone 2
High	Feature of high quality and/or rarity, or with limited potential for replacement and highly sensitive to some change, e.g. • Surface water WFD class 'High' • Areas within Flood Zone 3

Impact Magnitude Criteria

13.3.21 The magnitude of impact will be classified as low, medium or high, in accordance with the criteria set out in Table 13.3.

Table 13.3: Impact Magnitude Criteria

Magnitude of Impact	Criteria
Low	Small alteration/change in the quality or quantity of controlled waters and/or to the physical or biological characteristics of surface waters and associated flood risk.
Medium	Medium alteration/change in the quality or quantity of controlled waters and/or to the physical or biological characteristics of surface waters and associated flood risk.
High	Large alteration/change in the quality or quantity of controlled waters and/or to the physical or biological characteristics of surface waters and associated flood risk.

Scale of Effect Criteria

13.3.22 Effects will be assessed based on the value/sensitivity of receptors against the magnitude of impact to determine the significance of effect as presented in Table 4.1.

13.3.23 Using professional judgement, moderate and major effects are considered significant in terms of the ES.

Nature of Effect Criteria

13.3.24 The nature of the effect has been described as either adverse, neutral or beneficial as follows:

- Beneficial – An advantageous effect to a receptor;
- Neutral – An effect that on balance, could be considered both beneficial and adverse to a receptor; or

- Adverse – A detrimental effect to a receptor.

13.3.25 Negligible can also be used in isolation when achieving a particular threshold, absolute value or target criteria.

Cumulative Effects

13.3.26 Inter-project cumulative effects arising from the Proposed Development in combination with 'other development' schemes during the construction and operating phases will be assessed.

13.3.27 For the purpose of assessing cumulative effects The committed development sites that are listed in Appendix A and meet the criteria outlined in Section 4.6 have been reviewed against this suggested preliminary criterion for the ZoI. Only the proposed Gatwick Airport development consent order (DCO) is considered to represent a potential cumulative effect.

13.4 Baseline Data

Key Baseline Data Obtained

13.4.1 Flood risk data and flood history have been collected from the EA and Strategic Flood Risk Assessments for CBC and HDC, West Sussex Local Flood Risk Management Strategy (LFRMS) (2013-2018) (Ref 13.7), West Sussex Preliminary Flood Risk Assessment (Ref 13.8), Crawley Local Plan (2015) and the EA's Flood Maps for Planning (Ref 13.9). The EA Upper Mole Fluvial Flood Model and detailed hydraulic modelling outputs including the latest 1 in 100, 1 in 100 year plus Climate Change and 1 in 1000 annual probability flood extents and technical reports have been provided. Data to describe hydrological catchment areas and characteristics has been drawn from the Centre from the Ecology and Hydrology Flood Estimation Handbook (FEH) web service (Ref 13.10).

13.4.2 Surface water quality data and Water Framework Directive (WFD) status information was collected from the Thames River Basin Management Plan (RBMP) (Ref 13.11), Thames (2015) updated RBMP (Ref 13.12) and from online EA mapping (Ref 13.13). Water environment data is available from Gatwick Sub-Region (Jan 2011) Water Cycle Study (WCS) (Ref 13.14) as well as the CBC updated WCS and review of policy implications in October 2013 (Ref 13.15) which is used to support the latest Crawley Local Plan.

Water Resources

13.4.3 Southern Water's Water Resource Management Plan (WRMP) (2015-2040) states that the South East has experienced low rainfall in recent years, including dry winters. The 2013 EA classification confirms that the South East region, as a whole, is designated as an area of serious water stress. This means that the region does not have sufficient water for the whole of the 25-year planning period and therefore would not meet customers demand for water. Expected climate change trends for the south-east are for drier summers, wetter winters and more extreme events which also presents possible issues in terms of water resources Southern Water.

13.4.4 The study area sits within the Central sub-regional supply area of Southern Water. The Central sub-regional supply area is comprised of three Water Resource Zones (WRZs). The Sussex North WRZ, where the study area is located, has dry year demands typically around 60Ml/d. The Sussex North WRZ is currently supplied by groundwater (35%), rivers (51%), reservoirs (8%) and water transfers (6%). The WRZ's own internal supply sources are

supplemented by a bulk import from Portsmouth Water of 15Ml/d. However, the WRZ also provides a supply of 5.4Ml/d from Weir Wood to South East Water.

13.4.5 Southern Water's WRMP will be updated every 5 years to outline how water can be supplied to meet demand over the planning period. During AMP6 (2015-2020) the key schemes are N8a winter transfer scheme, N10 well field reconfiguration and catchment management schemes to recover dry output from sources affected by nitrate pollution. From AMP7 (2020-2025), Southern Water has plans to reduce leakage in Sussex North by 1Ml/d by 2022 and 2Ml/d by 2024.

13.4.6 Southern Water's draft WRMP (2020-70) indicates that over the next 10-15 years their strategy is dominated by the potential future sustainability reductions although the full extent of which remains currently uncertain. Southern Water have assessed and highlighted the potential differences to their WRMP strategy by comparing the two real option strategies with and without the potential sustainability reductions. In the Central area during a 1 in 200-year drought, Southern Water anticipate that their supply demand balance would move into deficit early in the planning period and with a sharp decrease due to potential sustainability reductions in 2027-28. Southern Water have already identified several potential schemes in their draft WRMP (2020-70) to maintain the projected supply demand forecast, which will be further developed once the EA have confirmed the full extent of sustainability reductions.

Surface Water Features and Existing Hydrology

13.4.7 The River Mole dissects the northern section of the Site flowing south-west to north-east. The Ifield Brook flows in a northerly direction parallel with the eastern Site boundary. The Hyde Hill Brook is located along the southern boundary flowing in an easterly direction. These are all classified as Main Rivers.

13.4.8 Land within the Site boundary is generally low-lying with most of the Site sloping gently towards the north-west. The topography and existing watercourses split the Site into several sub-catchments, which drain to local watercourses and convey flow to the River Mole and Ifield Brook.

13.4.9 Due to the Site topography, surface water from most of the Site flows from south-west to north through a series of local drains which then flow into the River Mole, whilst a small area drains to the Ifield Brook. At the southern end of the Site, part of the existing golf course drains south into the Hyde Hill Brook, which eventually feeds into the Ifield Brook.

Surface Water Quality

13.4.10 Within the study area, there are two waterbodies present which are classified under the European Parliament and Council (2000) WFD, these are the Ifield Brook and the River Mole (i.e. under the Baldhorns Brook general description on the EA Data Catalogue within Upper Mole Tributaries). Both waterbodies flow from south to north through the Site boundary. However, whilst the River Mole achieves 'Poor' overall classification (Cycle 2 2016), the Ifield Brook archives 'Moderate' Status (Cycle 2 2016). The Ifield Brook eventually converges with the River Mole within the Site and flows north towards Gatwick. This waterbody achieved 'Good Status' from the WFD (Cycle 2 2016).

Fluvial Flood Risk

13.4.11 The EA Flood Map for Planning refers to the probability of river and sea flooding, ignoring the presence of defences. The map shows that the vast majority of the Site is within category of Flood Zone 1 (< 0.1% annual chance), with areas of Flood Zone 2 (0.1% annual chance) and Flood Zone 3 (1% annual chance) associated with the Ifield Brook, which runs in a northerly direction within the east side of the Site and the River Mole, which runs through the northern portion of the Site.

Surface Water Flood Risk

13.4.12 As a largely greenfield site, rainfall runoff patterns are governed by topography, soil type and the nature of overlying surfaces. Data on existing surface water flood risk have been gathered from the EA long term flood risk map. The mapping indicates limited areas of localised flooding within the area of study. The main areas are mostly associated with valley features representing drainage routes/ flow paths; and the channels of the watercourse within the Site area, particularly the River Mole, Ifield Brook, Hyde Hill Brook and the local watercourse which runs along the northern edge of the golf course then through the centre of the Site. It is therefore subject to varying degrees of flood risk from this source.

Groundwater Flood Risk

13.4.13 This risk of groundwater flooding is typically highly variable and heavily dependent upon local conditions, however, in Crawley the risk of groundwater flooding is relatively low. The HDC SFRA also has no records of groundwater flooding near the Proposed Development. Therefore, the risk of groundwater flooding is considered to be low and it is proposed that the issue of groundwater flooding be scoped out of the ES.

13.4.14 There are two recorded incidents of groundwater flooding within Crawley. In 2001, both Bewbush, which is about 1.5km south of the Site, and Furnace Green, which is over 3km east of the Site, flooded from rising groundwater. These areas are not located near the Proposed Development.

Flood Risk from Artificial Sources

13.4.15 A review of EA Long Term Flood Risk Maps for flood risk from reservoirs indicated that the Site is at risk of flooding in the event of the Douster Pond and Ifield Mill Pond failing. The main areas at risk is the development on the west side of the Ifield Brook and part of the development along Rusper Road.

Flood Risk from Sewers

13.4.16 The 2014 Stage 1 Crawley Borough Council Strategic Flood Risk Assessment (SFRA) details that localised flooding problems have arisen from under capacity sewer systems. These networks can be overwhelmed during large rainstorm events, resulting in surcharge and flood risk to land and properties. The risk of sewer flooding is increasing with mounting pressure placed upon ageing systems as a result of climate change. The HDC SFRA) also details flood risk from sewer, however there are no records of flooding within the Site boundary and therefore the risk of sewer flooding is low.

Key Environmental Receptors

13.4.17 The following sensitive receptors have been identified as part of this scoping assessment, these are summarised and assigned a value within Table 13.4 below:

- Future Development users and infrastructure;
- Downstream receptors, including people, property, habitat, infrastructure and statutory sites;
- Local hydrology, including water bodies receiving surface water runoff; and
- Public sewerage network, dependant on surface water drainage strategy.

Table 13.4: Sensitive Receptors: Local Hydrology

Receptor	Attribute	Description	Value (Sensitivity)
River Mole	Flood Risk	The River Mole is the receptor and final conveyance route for most of the surface water drainage generated within the Site boundary, it therefore has a key function in local land drainage and flood risk management. Areas of Flood Zone 3 surround the River Mole.	High – to be addressed within the FRA
	Water Quality	The River Mole has 'Good' ecological classification and 'Good' chemical classification with an overall classification of 'Good'.	Medium
	Water Resource	The River Mole is identified as being unlikely to support new requests from consumptive abstractions given the reliability of water availability	Medium
Ifield Brook	Flood Risk	The Ifield Brook is also a main receptor for surface water drainage generated with the Site boundary. It will convey this flow into the River Mole and therefore has a key function in local land drainage and flood risk. Areas of Flood Zone 3 will be associated with Ifield Brook.	High – to be addressed within the FRA
	Water Quality	The Ifield Brook currently has a 'Moderate' ecological classification and 'Good' chemical classification with a target of 'Good' by 2027.	Medium
	Water Resource	The Ifield Brook is identified as being unlikely to support new requests from consumptive abstractions given the reliability of water availability	Medium
Ordinary Watercourses	Flood Risk	Watercourses with limited constraints and low probability of flooding industrial/ residential properties, but medium to high risk of surface water flooding and which are key to local land drainage.	Low/ Medium
	Water Quality	Inferred class of 'Moderate' without any protected designations	Low
	Water Resource	Inferred that the existing watercourses are unlikely to support new requests from consumptive abstractions given the reliability of water availability	Medium
Existing ponds and waterbodies	Flood Risk	Waterbodies with low probability of flooding industrial/ residential properties	Low
	Water Quality	Inferred class of 'Moderate' without any protected designations	Low
	Water Resource	Inferred that the existing watercourses are unlikely to support new requests from	Medium

Receptor	Attribute	Description	Value (Sensitivity)
		consumptive abstractions given the reliability of water availability	

13.5 Description of Potential Significant Effect

Construction Phase

13.5.1 Construction phase effects are scoped in and would address the following aspects in relation to flood risk, surface water management and water quality and hydromorphology.

- Activities such as earthworks, including excavation, transportation, stockpiling and backfilling of material have potential to impact on the water quality of local watercourses.
- Construction works may result in accidental spillages of oils, chemicals, cements and fuels from the movement of construction traffic across the Site and in association with storage facilities. These pollutants could be mobilised by surface water runoff and enter ground or surface waterbodies.
- Fluvial or surface water flooding on-Site during construction works could impact on construction operation or divert flood water into surrounding areas. These effects would be magnified in areas where communities are already vulnerable to flooding such as Ifield.
- Impermeable areas will incrementally increase during construction works, with the potential to increase surface water runoff. This could cause flooding on-site, in surrounding areas, change existing overland flow pathways and impact the existing land drainage regime.
- Potential effects from sedimentation and pollution have the potential to detrimentally impact the availability and quality of water resources to support existing abstractions and reduce the capacity of watercourses to assimilate existing consented discharges.
- Changes in surface water runoff pathways and rates/volumes in conjunction with works in proximity to, or in, the river channels and surface water features has the potential to result in changes in hydromorphology, i.e., changes in the physical characteristics of the shape, boundaries and content of these waterbodies.
- Changes to surface water runoff pathways and rates/volumes, which have the potential to result in deterioration of water resource availability.
- Changes in surface water runoff pathways and rates/volumes in conjunction with works in proximity to, or in, the river channels and surface water features has the potential to result in changes in hydromorphology, i.e., changes in the physical characteristics of the shape, boundaries and content of these waterbodies.

- No potentially significant effects to groundwater have been identified and as per Table 4.2, construction groundwater effects have been scoped out of the ES.

Operational Phase

13.5.2 Fluvial and surface water flood risk on-site, could impact future users and infrastructure, exacerbated by the anticipated effects of climate change.

13.5.3 A number of potentially significant effects during operation of the Proposed Development have been identified in relation to flood risk, surface water resources and water quality.

13.5.4 The increase in impermeable land cover, proposed employment land uses, as well as likely increase in traffic flows across the Proposed Development has the potential to result in increased concentrations of pollutants and sediments in surface water runoff, resulting in detriment to the water quality of receiving watercourses.

13.5.5 The increase in impermeable land cover and the potential for changes in existing drainage pathways have the potential to impact flood risk to the Site and to third party areas.

13.5.6 Development proposals within the floodplain could potentially affect floodplain storage and impact flood risk mechanisms.

13.5.7 As the population grows and urban creep takes place, this could impact on the available quality and quantity of water as more water is required for supply and soil infiltration capacity becomes limited.

13.5.8 The hydromorphology of existing watercourses, relative to the existing situation, could be impacted by changes in flow regimes through the addition of new structures and new drainage outfalls.

13.5.9 No potentially significant effects to groundwater have been identified and as per Table 4.2, operational groundwater effects have been scoped out of the ES.

13.6 Potential Mitigation Measures

Construction Phase

Construction Environmental Management Plan

13.6.1 To ensure the quality of the water environment does not deteriorate during construction, a detailed Construction Environmental Management Plan (CEMP), to be secured via a planning condition, would be produced and implemented. This would document best practice construction methodologies and describe procedures for the management of environmental effects during construction, including a Pollution Control Plan, including measures to safeguard the quality of the surface water environment during the construction phase.

Operational Phase

Flood Risk Assessment

13.6.2 A Site-specific FRA would be prepared for the Proposed Development and would provide an assessment of flood risk from all sources along with identification of any mitigation works required to manage flood risk throughout the lifetime of the Proposed Development. This will be submitted with the planning application.

Surface Water Drainage Strategy

13.6.3 A detailed surface water drainage strategy would be produced for the Proposed Development. An initial conceptual strategy would be produced and reported in the accompanying FRA. This would describe likely feasible SuDS measures that would manage both quantity and quality of surface water runoff generated from the Proposed Development, to meet LLFA requirements. This would ensure the Proposed Development results in no detriment to existing drainage patterns and surface water flood risk within the Site and in surrounding areas.

14. Transport

14.1 Introduction

14.1.1 This chapter addresses the proposed scope of the ES with respect to Transport. It includes a summary of current and proposed consultation, baseline conditions, and the proposed approach to the assessment of possible construction and operational effects. Areas that are proposed to be scoped in and out of the assessment are identified.

14.2 Consultation

14.2.1 Consultation has been undertaken with all relevant stakeholders regarding design and transport assessment matters. A summary of consultation that has already been made is outlined in Table 14.1 along with the format for presenting the outcome of the consultation.

Table 14.1: Consultation Undertaken to Date

Consultee	Contact/ Date	Summary of Issues Raised/Agreed
West Sussex County Council (WSCC)	WSCC 31st March 2019 and 26th June 2019, 4 & 12 March 2020, Joint pre-app meetings with WSCC, HDC and CBC on 2nd June 2020, 4th August 2020	First initial meeting with WSCC on 31st March 209 discussed general approach to development impact assessment. The Transport Assessment Scoping Report request for an outline application issued to WSCC on 26th June 2019. Response provided by WSCC on 12th July 2019. Generally positive feedback on draft approach outlined to assessing the effects. The TA Scoping Report outlined that a number of technical notes will be issued to WSCC to agree the details around trip generation, trip distribution and modal split. This approach was acceptable to WSCC, the use of the Crawley Transport SATURN Model was agreed to model scenarios: The same approach will be used for the hybrid application. Further joint meetings with CBC and HDC across topics including Bus Strategy, off-Site mitigation, Transport Strategy (28/1/21, 5/7/21, 2/2/22, 23/9/22, 3/10/23, 28/4/23).
Crawley Borough Council	Joint pre-app meetings with WSCC, HDC and CBC on 2nd June 2020, 4th August 2020.	Crawley have been made aware of the Proposed Development through joint presentations. Joint meetings with WSCC and HDC going forward (28/1/21, 5/7/21, 2/2/22, 23/9/22, 3/10/23, 28/4/23).
Horsham District Council	18th June 2019. Joint pre-app meetings with WSCC, HDC and CBC on 2nd June 2020, 4th August 2020	Joint meetings with WSCC and CBC going forward (28/1/21, 5/7/21, 2/2/22, 23/9/22, 3/10/23, 28/4/23).
Highways England	22nd July 2019, 10th June 2020	Initial meeting on 10th June 2020.
Local Bus Operator(s)	7th June 2019, 24th August 2022	Metrobus provided positive comments about the approach being adopted in particular incorporating bus accessibility for the whole Site. Possible mitigation measures included: Improved bus priority; Improved peak hour bus service provision on local existing routes to Crawley and Gatwick Airport should be identified; and Highlighted that bus priority measures would be an essential aspect to support development and should identify both on and off-Site mitigation.

Consultee	Contact/ Date	Summary of Issues Raised/Agreed
		However, it was noted that account should be made with other extensions and frequency changes as a result of other committed developments coming forward in the area, such as Kilnwood Vale.
Train operating company / Network Rail	4th April 2022, 28th April 2022, 3rd March 2023	On-going work taking place relating to Kilnwood Vale and new station at Horsham North.
Gatwick Airport	Various dates until May 2023	On-going at strategic level. Gatwick have been made aware of the Proposed Development. In addition, the Applicant is also aware of the expansion proposals being promoted by Gatwick Airport.

14.2.2 Agreement has been received from the relevant consultees with respect to the content of the Transport Assessment (TA) and associated ES chapter:

- Pedestrian accessibility;
- Cycle facilities;
- Rail accessibility;
- Highway design;
- Method to be used for the distribution of external trips (has been outlined in the Scoping TA report for vehicles);
- Scope and method of the highway capacity modelling; and
- Additional traffic flow data requirements for any extended assessment considerations.

14.3 Methodology

14.3.1 The following national policy will be used to inform the assessment:

National Planning Policy

- National Planning Policy Framework (NPPF), updated 2023 version; (Ref 5.1);
- The Strategic Road Network and the Delivery of Sustainable Development, Department for Transport, September 2013 (Ref 14.1);
- The Strategic Road Network Planning for the Future, Highways England, September 2015 (Ref 14.2);
- Local Transport Note (LTN) 1/20 Cycle Infrastructure Design (Ref 14.3);
- Active Design (Active Travel England / Sport England / Department for Health and Social Care) (2023) (Ref 14.4); and
- DfT Policy Paper: Gear Change – a bold vision for cycling and walking (July 2020) (ref 14.5).

Regional Policy:

- Transport for the South East (TfSE) Strategic Investment Plan (2023) (ref 14.6);
- Transport for the South East (TfSE) Transport Strategy for the South East (2020) (Ref 14.7);
- West Sussex Transport Plan 2022-2036 (Ref 14.8);
- West Sussex Walking and Cycling Strategy 2016-2026 (WSWCS) (Ref 14.9);
- West Sussex County Council Guidance for Parking in New Developments (2020) (Ref 14.10);
- West Sussex Cycling Design Guide - A Guide for Developers, Planning and Engineers (2019) (Ref 14.11); and

- West Sussex Development Travel Plan Policy (ref 14.12).

Local Policy:

- Horsham Emerging Local Plan (2019-2036) (Ref 5.4);
- Crawley Borough Draft Local Plan (Ref 5.4);
- Crawley 2030 Local Plan (2015) (Ref 5.3); and
- Crawley Transport Strategy – New Directions for Crawley: Transport and access for the 21st century (January 2020) (Ref 14.13).

Guidance

- Department for Communities and Local Government, March 2014: Travel Plans, Transport Assessments and Statements in Decision-Taking (Ref 14.14);
- Department for Transport, National Planning Practice Guidance (NPPG) on Travel Plans, Transport Assessments and Statements (2014) (Ref 14.15);
- DMRB Volume 11, Section 2, Part 5 - HA 205/08 'Assessment and Management of Environmental Effects', (2008) (Ref 14.16);
- Department for Communities and Local Government / Department for Transport, 2007: The Manual for Streets (Ref 14.17);
- Department for Communities and Local Government / Department for Transport, 2010: The Manual for Streets 2, CIHT, 2010 – a companion guide to Manual for Streets (Ref 14.18);
- Guidelines for Environmental Impact Assessment, London. Elsevier Press, IEMA, 2004 (Ref 14.19);
- Supplementary Planning Guidance SPG4: West Sussex Parking Standards, WSCC, September 2010 (Ref 14.20);
- West Sussex County Council Local Design Guide, WSCC, January 2008 (Ref 14.21); and
- West Sussex County Council Development Travel Plan Policy, (June 2014) (Ref 14.22).

Study Area

14.3.2 The TA and the EIA will outline the assessed effects on pedestrian, cycle and public transport networks and infrastructure within the Site. Consideration will also be given to linkages to key pedestrian or cycle destinations that would be affected the Proposed Development.

14.3.3 The study area for the assessment for transport effects would be discussed and agreed with WSCC. It is anticipated that the level of assessment would be greater closest to the Site commensurate with the potential impact and mitigation. The study area will ensure that the identified cumulative scheme effects are taken into account, particularly Gatwick Airport.

Assessment Methodology

Approach

14.3.4 The assessment will draw upon information gathered for the TA which will accompany the hybrid planning application for the Proposed Development. The traffic and transport section of the ES will summarise the results of the TA and in reference to the IEMA Environmental Assessment of Traffic and Movement 2023 guidance. The assessment will therefore identify a number of potential transport impact types as follows:

- severance;

- driver delay;
- pedestrian delay (including all non-motorised users);
- non-motorised user amenity;
- fear and intimidation;
- road safety & audits; and
- hazardous loads/large loads.

14.3.5 The assessment of the pedestrian, cycle and public transport networks effects will be based on the fully completed Proposed Development.

14.3.6 One development assessment scenario will be assessed:

- The hybrid planning application (HPA) scheme – as shown by the Site boundary. This scenario will assess the Proposed Development.

14.3.7 The following years will be assessed within the highways assessment:

- A pre-construction 'no scheme' baseline year, drawing on existing data. It is anticipated that this will be for year 2019;
- An Opening Year (2026), (without Proposed Development, without Crawley Western Corridor) + cumulative developments (as modelled within the Crawley Town Model (CTM));
  - An Opening Year (2026) (first phase Proposed Development, with Crawley Western Corridor) + cumulative developments (as modelled within the CTM);
  - 2041 Future Year ('Do Minimum') (without Proposed Development, without Crawley Western Corridor) + cumulative developments (as modelled within the CTM plus Gatwick Aiport Limited (GAL) Development Control Order (DCO) growth);
  - 2041 Future Year ('Do Something') (full Proposed Development, with Crawley Western Corridor) + cumulative developments (as modelled within the CTM) plus GAL DCO growth.
- For each assessment year a weekday morning peak period (0800 to 0900) and a weekly evening peak period (1700 to 1800) will be assessed.

Significance Criteria

14.3.8 The IEMA guidelines recommend that two rules are considered when assessing the effect of development traffic on a highway link:

- Rule 1: Include highways links where total traffic flows will increase by more than 30% (or the number of Heavy Goods Vehicles (HGVs) will increase by more than 30%); and
- Rule 2: Include any other specifically sensitive areas where traffic flows will increase by 10% or more.

14.3.9 Consideration will also be given to the temporal scope of identified effects. Effects which would only occur over a short duration or infrequently will be reviewed using professional judgement to determine whether it would be appropriate to reduce the impact magnitudes suggested by the criteria identified.

Cumulative Effects

14.3.10 The strategic highway network area around the Site is contained within the Crawley Transport Model (CTM) developed from SATURN. In agreement with WSCC, the SATURN model can be used to establish a future year baseline traffic flow scenario. The SATURN

model has been utilised and developed with a number of included committed developments. Gatwick Airport growth is included within the CTM. Gatwick Airport DCO growth (use of the second runway) is tested as a cumulative scheme in 2041. This reflects the position that the CTM assessment has already inherently taken account of future growth and development across the region.

14.4 Baseline Data

Key Baseline Data Obtained

- 2018 and 2019 traffic flow data for junctions and links within the study area to enable the highway capacity modelling;
- WSCC Crawley Transport Model (developed in SATURN); and
- Traffic signal timing data for all signalled junctions in the study area to enable the highway capacity modelling.

Key Environmental Receptors

14.4.1 The IEMA guidelines identify groups and special interests which should be considered within the assessment. These include the following:

- People at home and in workplaces;
- Sensitive groups including children, the elderly and disabled;
- Sensitive locations, e.g. hospitals, churches, schools, historical buildings;
- People walking and cycling;
- Open spaces, recreational sites, shopping areas; and
- Sites of ecological / nature conservation value.

14.4.2 The key receptors that are being considered in the transport chapter of the ES include:

- Resident occupiers in properties surrounding the Site;
- Business, education and workplace occupiers in the area surrounding the Site;
- Pedestrians and cyclists travelling within and through the area surrounding the Site, including users of recreational spaces and with particular reference to sensitive pedestrian groups such as children, the elderly and those with mobility impairments;
- Private vehicle users travelling or parking on the highway network in the area surrounding the Site;
- Emergency services requiring access within or passing through the area surrounding the Site;
- Public transport users (passengers) travelling to, from and through the area surrounding the Site and;
- Public transport operators (including coach operators) whose operations may be affected by changes to services as a consequence of route diversions or changes to journey times.

Baseline Data

14.4.3 Baseline data we have and form the baseline includes:

- Bus timetable and routing information;
- Rail timetable and routing information;
- Pedestrian and cycle route networks;

- Car Ownership;
- Travel behaviour information relevant to the trip generation, mode split and assignment calculations;
- Accident record data for the most recent 36 months covering an area within the Site boundary and up to 500m from it to provide a baseline safety analysis; and
- Future base traffic flows from the SATURN model and TEMPro growth factors to enable the highway capacity modelling.

14.5 Description of Possible Significant Effect

Construction Phase

14.5.1 Information on the construction programme and resultant HGV traffic flows will be reviewed to determine whether traffic increases would be likely to generate significant transport effects. Construction effects are considered to be temporary and concentrated during the construction phase of the Proposed Development only. After the construction of the first development phase for occupation, future construction periods will run concurrently with operational phases already complete and occupied. Where construction phases coincide with the agreed operational assessment years, construction vehicle flows will be included in the assessment along with the operational flows. As such, no separate construction traffic assessment will be undertaken but the effects are scoped in.

Operational Phase

14.5.2 Permanent effects during the operational phase would be mainly associated with users of the Proposed Development, and associated servicing activities. The effects during operation that will be considered include:

- Permanent road closures, diversions and improvements;
- Changes in public transport facilities, including bus stop and taxi stands;
- Changes in road and parking layouts in the vicinity of the Proposed Development; and
- Changes in the use of other public transport services.

14.5.3 Potential permanent traffic and transport effects during operation may include:

- Changes in traffic flows;
- Changes to journey times and distances for private and commercial vehicle occupants;
- Changes to interchanges, such as rail stations;
- Changes to journey times, distances or frequencies for public transport;
- Loss of parking and loading facilities;
- Changes in road safety; and
- Changes in journey times and distances, and loss of amenity for vulnerable road users.

14.6 Potential Mitigation Measures

Construction

14.6.1 The construction phase of development is anticipated to commence in 2024 / 2025 and build out of the full Proposed Development is expected to occur over approximately a 15 year period. The Proposed Development will be designed to minimise environmental effects and will therefore incorporate mitigation measures that would include the following:

- Agreeing routes for construction vehicles that avoid residential areas where practicable;

- Minimising changes to pedestrian and cycle routes during construction whilst also ensuring that appropriate separation is maintained between these users and construction traffic where possible;
- Ensure that any long-term traffic management requirements maintain minimum lane widths and two-way traffic flow where possible and to provide appropriate diversionary signage;
- Changes required to the highway network to facilitate the movement of larger construction vehicles without encroaching onto footways, with reinstatement wherever possible in the operational phase;
- Changes required to car, coach, cycle or motorcycle parking provision as a result of construction activity and the need to provide alternative locations and capacity where possible; and
- A construction worker travel plan including Site-specific requirements and guidelines to reduce the number of construction workers travelling by private car and encourage the use of other transport modes.

Operation

14.6.2 The access and movement strategy aims to minimise transport effects through consideration of the following measures:

- Limiting the need to travel through the provision of a full mix of land uses and encouraging home working;
- Providing high quality walking and cycling linkages within the Proposed Development and connections to the wider area;
- Exploring the provision of new bus services into the Proposed Development;
- Promoting sustainable travel and vehicle choices through a comprehensive set of travel measures including personalised travel planning, a car club etc.;
- Mitigation measures at key junctions to improve safety and improve bus journey times;
- Provision for pedestrian and cyclist movements at junctions and links to reduce severance; and
- Seeking to route traffic away from the most sensitive areas through highway measures.

15. Waste and Resource Management

15.1 Introduction

15.1.1 The Proposed Development would use a large amount of material resources and would result in the generation of solid waste from construction, demolition and excavation (referred to as CD&E waste), in combination with operational waste produced by residential, commercial and other uses as the Proposed Development is built.

15.2 Consultation

15.2.1 Table 15.1 shows a summary of consultation undertaken to date that has informed ES Scoping, and the issues raised:

Table 15.1: Consultation Undertaken to Date

Consultee	Contact/ Date	Summary of Issues Raised/Agreed
Horsham District Council (HDC)	Principal Planning Officer, Dedicated council consultation liaison with West Sussex County Council (WSCC), and Crawley Borough Council (CBC) – various 2019	Information was requested 22nd May 2019 on local targets, local waste assessments, local material extraction and management sites within the council areas, and information on the waste management facilities within the council areas. Jason Hawkes responded stating that he had forwarded requests on to the relevant parties. Subsequent contact was made on the 18 June, 3, 17 July with no response. On 30th July, HDC responded stating that HDC and CBC relied on WSCC for advice on mineral and waste matters and that he had not received any responses from WSCC.

15.3 Methodology

Construction materials

15.3.1 Resource management and materials used during construction will be documented in a 'stand alone' Sustainability Statement for the Proposed Development. This will provide a plan for managing materials usage during construction.

Construction waste

15.3.2 Waste management will be addressed through the production of an outline Site Waste Management Plan (SWMP), which would cover the Demolition, Excavation and Construction (CD&E) phases. A SWMP is used to plan, implement, monitor and review waste minimisation and management on construction sites. The SWMP is also used to record how waste is reduced, reused, recycled and disposed of on a construction site. This effectively means:

- Recording decisions taken to prevent waste through concept and design.
- Forecast waste produced on Site.
- Plan how to reduce, reuse or recover the forecasted waste.
- Implement and monitor the planned activity.
- Review the SWMP and record lessons learnt.

15.3.3 The outline SWMP would identify the anticipated waste arisings associated with CD&E works and present a management strategy for waste arisings in line with the waste hierarchy.

15.3.4 The now repealed Site Waste Management Plan (SWMP) Regulations 2008 (Ref 15.1) was previously the only legislative requirement governing the assessment of CD&E waste matters. However, the implementation of a SWMP remains industry best practice.

Operation materials

15.3.5 It is anticipated that, during the lifetime of the Proposed Development, the amounts of material resources that would be required for maintenance would not be significant and would be beyond the control of the Proposed Development and so no assessment is proposed to be undertaken.

Operation waste

15.3.6 Waste management will be addressed through the production of a 'stand alone' outline Operational Waste Management Plan (OWMP). The OWMP would set out outline measures for waste storage, collection, recycling and reuse and disposal in compliance with good practice standards and local council policies.

15.3.7 Forecast waste generation from the Proposed Development would be estimated based upon proposed land use since actual waste generation data is not available. Assumptions would be made based upon the nature of uses that would occupy the proposed mixed use and employment, retail and commercial units in compliance with local policy and the Waste Management in Buildings – Code of Practice BS5906:2005 (Ref 15.2).

Relevant Policy and Guidance

15.3.8 There are a number of policy and legislative instruments in the UK on the use of material resources and disposal of waste as well as guidance documents, including:

- National Planning Policy for Waste 2014; and
- Resources and Waste Strategy for England 2018.

Study Area

15.3.9 For the purposes of the outline SWMP and OWMP the study area would encompass the Proposed Development Site and the waste receiving facilities. The majority of waste receiving facilities are anticipated to fall within the administrative boundaries of the WSCC, HDC, and CBC areas.

15.3.10 Material resources would be required to construct the Proposed Development, and these will be considered in the Sustainability Statement prepared for the Proposed Development. It is intended that material resources such as aggregate would be sourced either locally or regionally, wherever possible.

Cumulative Effects

15.3.11 It is considered that all of the potential cumulative developments would be developed in line with the similar policy requirements as the Proposed Development including the requirements for maximising reuse and recycling of CD&E waste through a SWMP and the

meeting of targets for recycling and composting waste. Therefore, assessment of cumulative construction effects is scoped out of further assessment.

15.4 Description of Possible Significant Effects

Construction Materials

15.4.1 The Proposed Development will use materials during construction. Use of materials will be considered within the Sustainability Statement prepared for the Proposed Development which will document measures taken to use materials sustainably throughout the CD&E phases. Environmental effects associated with the use of materials including carbon emissions and transport would be covered in the respective ES chapters. There are no known issues regarding supply of key construction materials and the quantity of materials to be used for this development is unlikely to have a significant impact on regional supply. On this basis, significant effects from the use of material resources during construction is considered unlikely and will be scoped out of the EIA.

15.4.2 There are also potential environmental effects related to the presence of one mineral safeguarded area in the vicinity of the Proposed Development. Due to the size of the Proposed Development in comparison to the total safeguarded area, mineral safeguarding issues are not considered significant and have been scoped out of the EIA. A separate minerals resource assessment will be submitted in conjunction with the hybrid planning application documents.

Construction Waste

15.4.3 A construction phase outline Site Waste Management Plan (SWMP) will be produced to provide a plan for how waste will be managed during the CD&E phases.

15.4.4 Although the existing Site is largely undeveloped land, it is anticipated that there would be demolition waste from existing buildings, for example, Ifield Golf Club and from local infrastructure. This would likely to comprise soils, rock, inert materials such as wood (including vegetation), asphalt, brick, concrete, miscellaneous metals However, overall volumes of demolition material are considered to be not significant.

15.4.5 It is anticipated that waste is likely to arise from excavation phases (any excavated materials not reused on Site). The capacity of soil treatment facilities that could potentially receive and process contaminated soil waste arisings from the Proposed Development has been scoped out given the greenfield nature of the Site.

15.4.6 Waste would also arise from the construction phase. It would be produced from wastage, plastics, packaging (wooden and plastic), insulation material, miscellaneous metals, and from canteen and office waste. These waste streams have a high potential to be diverted from landfill and the overall quantity of waste is unlikely to have a significant impact on the regional landfill void capacity. The design team will take opportunities to minimise waste arisings as part of the design process.

15.4.7 An outline SWMP is considered the most appropriate mechanism for securing the efficient and sustainable management of waste during CD&E phases of the Proposed Development in line with the waste hierarchy and policy requirements. Significant effects from construction waste during construction is considered unlikely and on this basis CD&E waste is scoped out of the EIA.

Operation Phase

15.4.8 It is anticipated that, during the lifetime of the Proposed Development, the amounts of material resources that would be required for maintenance would not be significant and would be beyond the control of the Proposed Development, therefore this is scoped out of the EIA.

15.4.9 It is anticipated that during the lifetime of the Proposed Development, municipal solid waste (MSW), municipal household (MH) waste and other wastes being generated by the proposed uses (commercial, civil and public facilities) would be substantial. A management plan for operational waste generation would be provided in the OWMP.

15.4.10 An OWMP is considered the most appropriate mechanism for securing the efficient and sustainable management of waste during operation of the Proposed Development in line with the waste hierarchy and policy requirements. Significant effects from operational waste are considered unlikely and on this basis operational waste is scoped out of the EIA.

15.5 Potential Mitigation Measures

Construction

15.5.1 The detailed design of the Proposed Development would play a vital role in the reducing the amount of material resources used during construction, this will be detailed in a Sustainability Statement for the Proposed Development.

15.5.2 The detailed design of the Proposed Development would also play a vital role in reducing the impact of waste, and particular during the construction phase. The Proposed Development's design would take into consideration waste hierarchy to decrease the amount of waste arisings via designing out waste and maximising efficient use of materials ultimately to reduce amounts of waste sent to landfill.

15.5.3 Other relevant best practice controls during the construction phase (for example segregated materials storage and reuse of inert materials for grading)) would be considered and proposed as measures to be incorporated within the outline SWMP and would form part of the outline Construction Environmental Management Plan (CEMP) which would be finalised and implemented when a works contractor has been appointed. The CEMP would require the contractors to:

- Promote opportunities for the potential reusing and recycling of all material resources and waste;
- Sort and segregate waste into different waste streams (where technically and economically feasible); and
- Manage material use to maximise the environmental and Proposed Development's benefits from the use of surplus materials.

15.5.4 Some of the key aspects of waste minimisation that would be considered during design phases are:

- Designing for Site conditions: the design would accommodate strategies to manage particular constraints which may impact on waste;
- Design complexity: reduce the complexity of the design to standardise the construction process and reduce the quantity of material resources required; and

- Specifications: avoid over specification and minimise variation in material resources, components and joints; evaluate the reuse and recycling opportunities for the specified material resources before specification.

15.5.5 In addition, waste minimisation measures that could be adopted include:

- Specify the use of materials with a high percentage of recycled content;
- Reuse packaging by returning to supplier/manufacturer or using it for other purposes (e.g. timber packaging pallets can be chipped and used for landscaping top mulch); and
- Devise and implement a Materials Logistic Plan (looking at supply routes, handling, storage and security).

15.5.6 The Proposed Development construction contractor(s) would also have a Waste Manager or Champion who would oversee the implementation of the waste control and handling strategy as would be set out in the CEMP. The Contractor would consider setting off-cut/surplus targets for sub-contractors with a positive incentive Proposed Development for on-Site waste champions.

15.5.7 It is expected that the Contractor would register with the Considerate Constructors Scheme (Ref 15.4). This is a national initiative, set up by the construction industry. Sites that register with the Scheme sign up and are monitored against a Code of Considerate Practice, designed to encourage best practice beyond statutory requirements.

Operation

15.5.8 Waste management measures would include extending the HDC and CBC recycling and waste collection systems to the Proposed Development to support the collection of waste and to promote recycling. Specific provision for waste recycling and composting would be guided by the number of dwellings provided and location of existing waste collection provision in the surrounding area.

15.5.9 An OWMP would be prepared to set out measures for waste storage, collection, recycling and reuse and disposal in compliance with good practice standards and local council policies.

16. Major Accidents and Disasters

16.1.1 Paragraph 8 of Schedule 4 of the EIA Regulations requires an ES to include an assessment of the "*significant environmental effects of a development to risks of major accidents or disasters which are relevant to the development concerned*". Paragraph 8 also states that "*Where appropriate, this description should include measures to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and response to such emergencies*".

16.1.2 There is no formal definition of 'major accidents or disasters' that may affect a development in the context of the current EIA Regulations. The following approach has however been adopted by way of applying a definition sourced from existing relevant legislation and guidance documents.

16.1.3 A 'major accident' is defined within the Control of Major Accident Hazards (COMAH) Regulations 2015 (Ref 16.1) as:

"*An occurrence such as a major emission, fire or explosion resulting from uncontrolled development in the course of the operation of any establishment….and leading to serious danger to human health or the environment (whether immediate or delayed) inside or outside the establishment and involving one or more dangerous substance*."

16.1.4 Two key information sources have been reviewed in the assessment of major accidents and disasters considered to be of relevance to the Proposed Development Site:

- UK National Risk Register of Civil Emergencies (Ref 16.2); and
- Public information on establishments that are subject to COMAH 2015.

16.1.5 General risks arising from typical external environmental and anthropogenic hazard sources have been considered from the UK National Risk Register of Civil Emergencies (Ref 16.2). This document provides an overview of the main types of civil emergencies that could affect the UK over five years since its publication (2016). The report shows within a set of risk matrices how these emergencies compare in terms of likelihood, and the scale and extent of the consequences. It then provides detail of how the Government and emergency responders plan to prepare for and respond to them.

16.1.6 The main types of civil emergency, their relative plausibility of occurring and overall relative impact in the UK are shown in Figure 16.1 and Figure 16.2.

Figure 16.1: Risk of Terrorist and other Malicious Attacks (source: UK National Risk Register of Civil Emergencies: 2015 edition)

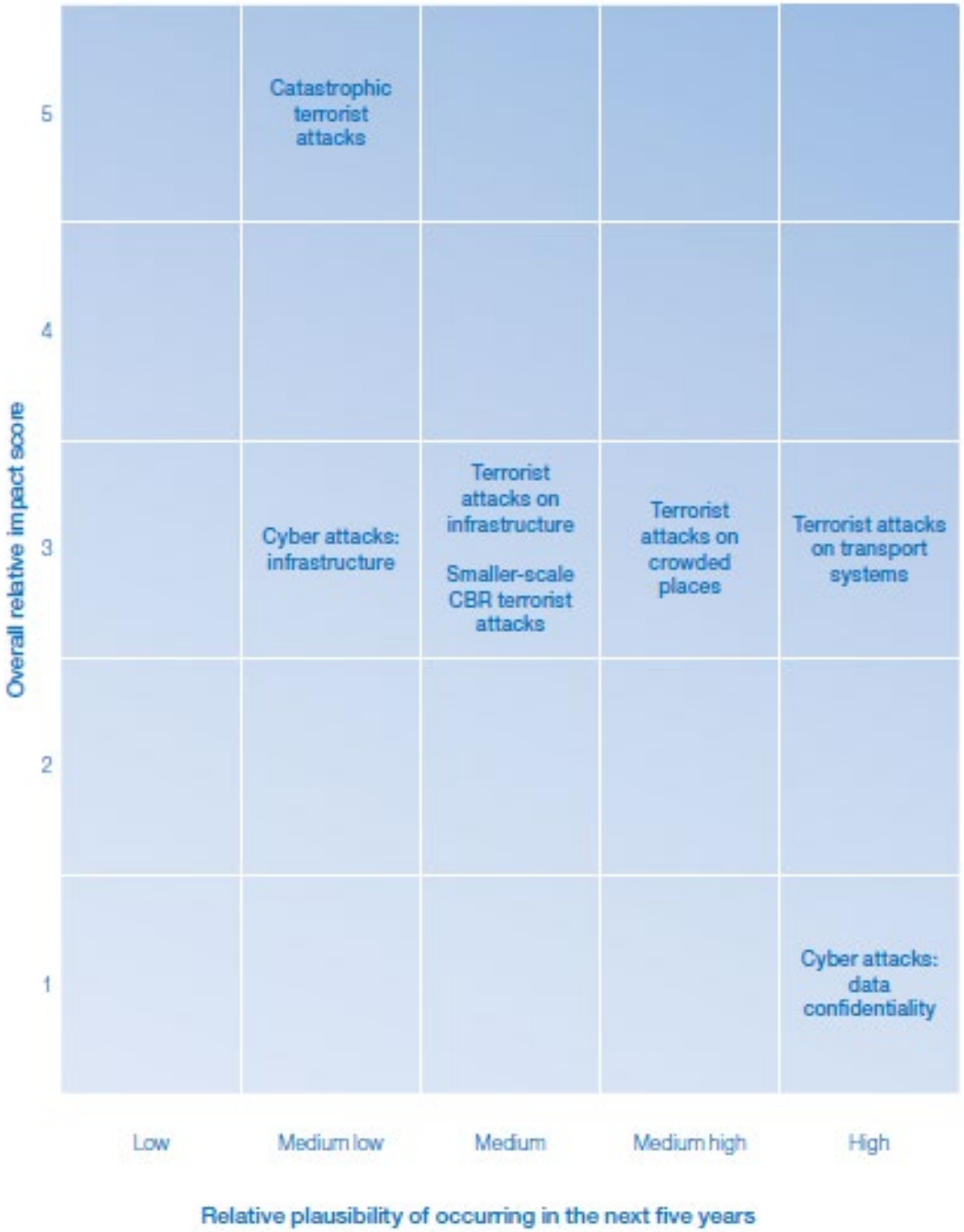
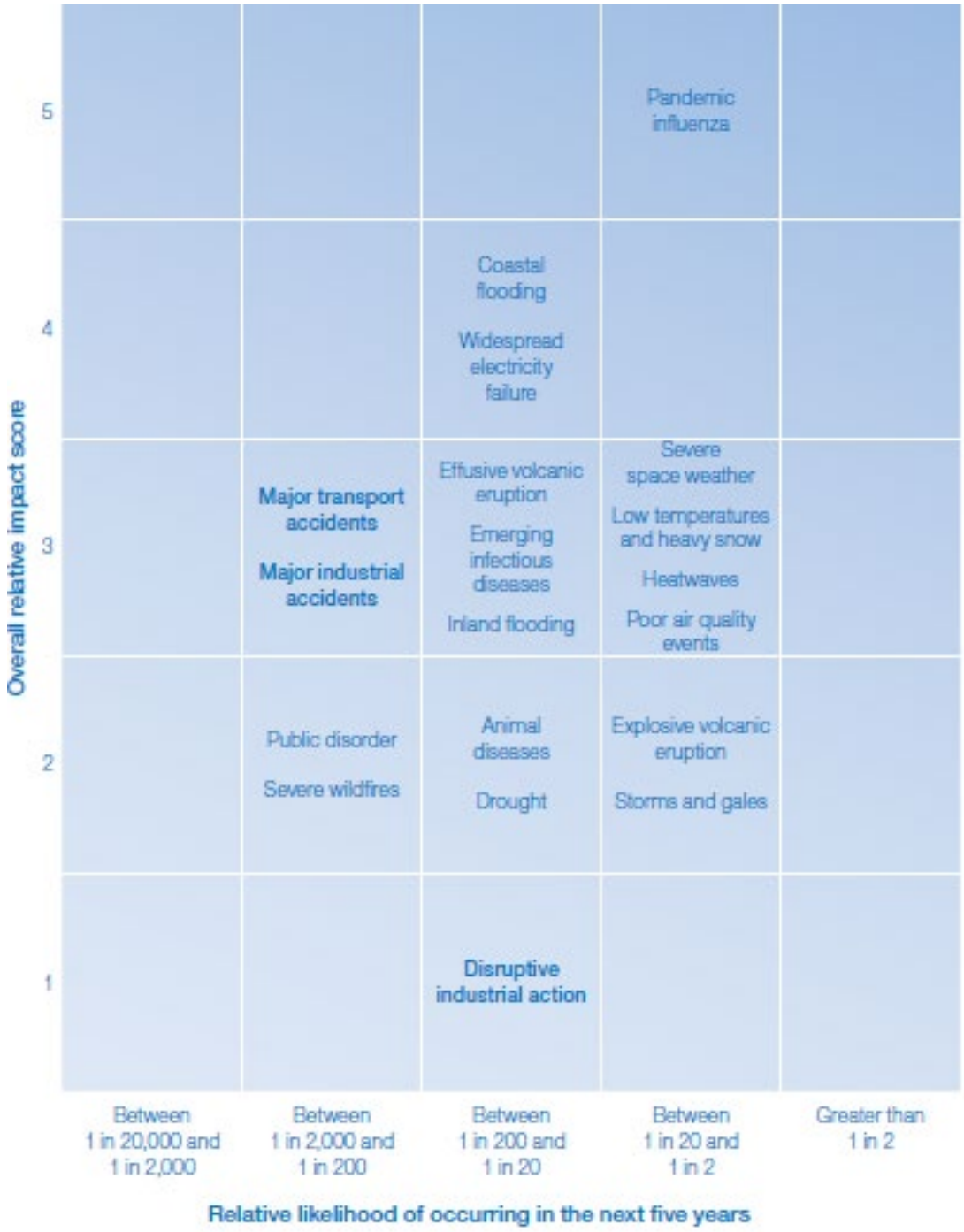


Figure 16.2: Other Risks (source: UK National Risk Register of Civil Emergencies: 2015 edition)



16.1.7 The key hazards and risks in the Register have been reviewed and for those considered relevant the potential effects on receptors within and outside of the Proposed Development have been considered in determining whether the aspect should be scoped into the EIA. The result of this assessment and the location in the ES that the impact will be addressed in is shown in Table 16.1. Major accidents as a topic chapter is scoped out.

Table 16.1: Scoping Table for Major Accidents and Disasters: Identified Key Hazards and Potential Effects

Hazard – Project hazard log and London Risk Register	Environmental Receptor	Resultant Impact	Scope in/Scope out
Flooding	Contamination of waters, human health (injuries)	Infrastructure damage from water inundation. Development Site occupier evacuation from flood event. Off-Site downstream flooding effects to adjacent Site occupiers.	Scope Out – Proposed Development is located partially within Flood Zone 1, 2 and 3, and therefore, flood risk and water resources assessment have been scoped into the ES. This aspect will be addressed in the Surface Water Resources and Flood Risk chapter of the ES.
Adverse Weather (long term, from storms, snow and gales)	Human health: occupants at the Proposed Development	Power cuts and storm damage to infrastructure and buildings	Scope Out – Impact could result in irreversible damage to environmental receptors from adverse weather events. Adaptation to such events will be addressed in the description of the Climate Change chapter of the ES.
Transport Accidents, or Industrial Action	Human health: occupants at the Proposed Development	Temporary closure or congestion of the M23 motorway lanes. Noise and air quality implications of traffic resurgence following congestion incidents.	Scope Out – The implications for the effects of significant congestion events arising from road accidents would be expected to be addressed via the support of emergency services, county highways authorities, and highways agencies. In addition, the M23 motorway is located 6km away from the Site and therefore is not expected to be significantly affected by anything other than temporarily affected local roads due to its distance away.
Terrorist Attack	Human health, contamination of waters, soils, air	Explosion resulting in loss of life and destruction of nearby Gatwick Airport infrastructure. Loss of human life, introduction of chemicals/contaminants to the local environment.	Scope out – Location of Gatwick Airport from the Proposed Development is considered sufficiently distant for the effects of explosions at source not likely to directly physically affect the Proposed Development buildings or infrastructure.
Utility Failure including gas explosion or urban fire	Human health, sensitive ecological receptors	Power cut to buildings and infrastructure Gas leak and explosion leading to reduction of air quality.	Scope out – Proposed Development will be designed to Building Regulations, good standards of fire detection/fighting equipment. Utilities would be expected to be diverted and/or protected during enabling works. Utilities companies would have response procedures/mechanism to protect the networks.

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Ref 16.2	National Risk Register 2023 - GOV.UK (www.gov.uk)

APPENDIX A

LIST OF DEVELOPMENTS TO BE CONSIDERED IN CUMULATIVE EFFECTS ASSESSMENT

West of Ifield
Cumulative Schemes

Version 9

Date: 04/10/2023

Scheme	Local Authority	Application Ref	Applicant	Brief description	Planning Use Class		Homes	Distance (km)	Planning Status	
					Use Class(es)	Use Sub Class(es)			Approved / Submitted	*Add detail to status*
Largescale Major Residential (Over 200 dwellings or site area over 4ha)										
Land North of Steers Lane	Crawley BC	CR/2018/0894/OUT	Danescroft (RLP Crawley) LLP	Outline application for erection of up to 185 residential dwellings, with the associated vehicular and pedestrian access via steers lane, car parking and cycle storage and landscaping (all matters reserved except for access) at Steers Lane, Forge Wood, Pound Hill, Crawley RH10 3ZJ	C - Hotels, hostels and dwelling houses	N/A	185	4.4	Approved	Appeal allowed and planning permission granted 14-17 January 2020
Overline House, Station Way	Crawley BC	CR/2016/0294/OUT	Rockspring UK Value Crawley (Jersey) Ltd C/O Arora	Outline application (all matters reserved) for demolition of existing office building and integrated railway station building, footbridges and ancillary structures. erection of 308 studio, 1, 2 and 3 bedroom residential apartments and associated parking (c3 use class); integrated railway station building, footbridges, and ancillary structures; flexible use retail / coffee shop / business centre (a1 / a3 / b1 use classes); 120 space multi-deck station car park, vehicle drop-off lay-by and associated hig hway works and public realm enhancements at Overline House, Crawley Station and adjacent highway, Station Way, Northgate, Crawley RH10 1JA	C - Hotels, hostels and dwelling houses	C3	308	2.9	Approved	Approved in Aug-16
					A - Shops (inc. some services)	A1; A3				
					B - Further business and industrial activities	B1				
Land North of Horsham	Horsham DC	DC/16/1677	Liberty Property Trsut	Outline planning application with all matters reserved except access for a mixed use strategic development to include housing (up to 2,750 dwellings), business park (up to 46,450 m2), retail, community centre, leisure facilities, education facilities, public open space, landscaping and related infrastructure at Land North of Horsham West Sussex. Easting: 518370, Northing: 133777 (No postcode)	C - Hotels, hostels and dwelling houses	N/A	2,750	3.8	Approved	Approved March 2017
					A - Shops (inc. some services)					
					B - Further business and industrial activities					
Largescale Major Commercial (Over 10,000sqm or site area over 2ha)										
Crawley Civic Office	Crawley BC	CR/2017/0997/OUT	Westrock Ltd	Hybrid application comprising: a) detailed application for demolition of the existing council offices and civic hall, and erection of a replacement town hall, offices and a public square, and associated access, car parking, landscaping and ancillary works. b) outline application for residential development comprising up to 182 units including commercial space with details of access, all other matters reserved (layout, scale, landscaping and appearance) at Town Hall, The Boulevard, Northgate, Crawley RH10 1UZ	B - Further business and industrial activities	N/A	N/A	2.6	Approved	Approved in May-17
					C - Hotels, hostels and dwelling houses	N/A	182			
Gatwick Road, Manor Royal	Crawley BC	CR/2016/1020/FUL	Surrey County Council	Erection of one B1 operations building and one B1/D1 training & office building, both with ancillary uses and associated landscaping and car parking at 2 - 3 Gatwick Road, Northgate, Crawley RH10 9BG	B - Further business and industrial activities	B1	N/A	3.3	Approved	Approved in May-17
					D - Non-residential institutions	D1	N/A			
Largescale Major Industrial (Over 10,000sqm or site area over 2ha)										
The Base, Fleming Way	Crawley BC	CR/2021/0248/FUL	PREC Crawley Prop. Co. S.A.R.L	Demolition of the existing buildings and redevelopment of the site to provide two buildings (Use Class B8 - Storage or Distribution) with ancillary offices, parking and service yards, new site access, boundary treatments and associated works	B - Further business and industrial activities	B8	0	2.4	Approved	Approved 6 April 2021
Astral Towers and The Atrium Building, Betts Way	Crawley BC	CR/2022/0653/FUL	BYM Astral Ltd	Demolition of all existing buildings and strucutres; Eneabling Works and site clearance; construction of buildings (Use Class b2/B8 including ancillary office provision); Associated Highway, Access , Servicing, Parking, landscaping and other ancillary works	B - Further business and industrial activities	B2/B8	0	1.7	Submitted	Submitted in October 2022. Undecided as of 22/05/2023
Largescale Major Other (10,000sqm-9,999sqm or site area over 2ha)										
Proposed Multi-Storey Car Park, Gatwick Hilton Hotel, Gatwick Airport	Crawley BC	CR/2018/0337/OUT	AH5 Limited C/O Arora Management Services Limited	Erection of multi-storey hotel car park at Hilton (South Terminal) London Gatwick Airport, Eastway, Gatwick Airport, Crawley RH6 0LL	Sui Generis	N/A	N/A	4.7	Approved	Approved November 2019
Small-scale Major Residential (50-199 dwellings or site area 0.5ha-4ha)										

Zurich House, East Park	Crawley BC	CR/2017/0974/FUL	East Street Homes (South East) Ltd	Demolition of existing building and erection of a new part 3 and part 4 storey building comprising 56 apartments (30 x one bed and 26 x two bed) together with 56 car parking spaces and landscaping (amended description and amended plans received) at Zurich House, East Park, Southgate, Crawley RH10 6AS	C - Hotels, hostels and dwelling houses	N/A	56	2.2	Approved	Approved September 2018
Tilgate Forest Business Centre	Crawley BC	CR/2017/0346/OUT	Lamron Developments (Tilgate) Ltd	Outline application (access & layout), for erection of two four-storey residential buildings, comprising 80 one and two bedroom flats, with car parking at undercroft and surface level and communal private amenity space at land north of Tilgate Forest Business Centre, Forest Gate, Brighton Road, Tilgate, Crawley RH11 9PT	C - Hotels, hostels and dwelling houses	N/A	80	3.2	Appeal	N/A
Tushmore Lane	Crawley BC	CR/2022/0407/OUT	Calm Homes Limited	Outline Planning application (all matters reserved) for the demolition of four dwellings and associated sturctures and the erection of new residential flats (within two separate buildings) to provide 60 apartments with assoviated landscaping, ancillary storage and communal car parking	C - Hotels, hostels and dwelling houses	N/A	60	2.1	Submitted	N/A
Steers Lane, Phase 2	Crawley BC	CR/2022/0055/FUL	Bellway Homes Ltd (South London)	Erection of 60 dwellings including associated parking, landscaping ans infrastructure works (amended plans & documents received)	C - Hotels, hostels and dwelling houses	N/A	NA	4.4	Submitted	N/A
Tinsley Lane	Crawley BC	CR/2021/0355/OUT	C/O Agent Redcliff Quay 120 Redcliff Street Bristol BS1 6HU	OUTLINE APPLICATION FOR DEVELOPMENT OF UP TO 138 NEW MARKET AND AFFORDABLE HOMES (USE CLASS C3); DEMOLITION OF THE EXISTING OAKWOOD FOOTBALL CLUB FACILITIES AND PROVISION OF A NEW CLUBHOUSE, SENIOR ALL-WEATHER AND JUNIOR GRASS FOOTBALL PITCH; PROVISION OF NEW PUBLIC OPEN SPACE AND WOODLAND ACCESS; NEW SITE ACCESS FROM BIRCH LEA AND IMPROVEMENTS TO THE EXISTING SITE ACCESS FROM KENMARA COURT; AND OTHER ANCILLARY WORKS (ACCESS TO BE APPROVED WITH ALL OTHER MATTERS RESERVED).	C - Hotels, hostels and dwelling houses	C3	138	3.4	Submitted	N/A
11-13 The Boulevard	Crawley BC	CR/2016/0662/FUL	Haywards Heath Investments LDA	Demolition of existing car park and the erection of a part 3 storey, part 6 storey & part 9 storey building to provide a total of 91 flats with associated parking (amended plans received) at car park, 11-13 the Boulevard, Northgate, Crawley RH10 1UR	C - Hotels, hostels and dwelling houses	N/A	91	2.4	Approved	Approved July 2017
Former TSB Site, Russell Way	Crawley BC	CR/2020/0037/FUL	Bellway Homes Ltd	ERECTION OF L SHAPED 4 STOREY BUILDING COMPRISING 59 X FLATS WITH ASSOCIATED LANDSCAPING, REFUSE AND CYCLE STORAGE, INFRASTRUCTURE WORKS AND PARKING COURT AT THE REAR	C - Hotels, hostels and dwelling houses	C3	59	3.4	Approved	Granted planning permission at committee on Febuary 2021 and subject to a Section 106 Agreement.
Longley House, East Park	Crawley BC	CR/2020/0024/FUL	A2Dominion Group Ltd	DEMOLITION OF LONGLEY HOUSE (OFFICES - CLASS B1A) & ERECTION OF BUILDING RANGING BETWEEN 4 TO 9 STOREYS TO PROVIDE 121 X RESIDENTIAL UNITS (CLASS C3) WITH ASSOCIATED SUB-STATION, CAR/CYCLE PARKING, TREE WORKS, PUBLIC REALM IMPROVEMENTS AND LANDSCAPING	C - Hotels, hostels and dwelling houses	C3	121	2.4	Approved	Granted planning permission at committee on 30 August 2022 and subject to Section 106 Agreement.
Breezehurst Drive	Crawley BC	CR/2020/0192/RG3	Bailey Partnership LLP	ERECTION OF 85 AFFORDABLE HOUSES & FLATS, ACCESS ROADS, CAR PARKING, SPORTS PITCH, OPEN SPACE & ASSOCIATED WORKS	C - Hotels, hostels and dwelling houses	C3	85	1.6	Approved	Approved after a planning committee on 30/01/2021
Major infrastructure										
Gatwick Airport	The Planning Inspectorate	TR020005	Gatwick Airport Limited	The amendment of Gatwick Airport to support dual runway operations through the routine use of the existing northern runway and to accommodate up to 74 million passengers per annum. The development will include amendments to taxiways, terminals and ancillary facilities, highways and rivers; as well as temporary construction works, mitigation works and other associated development at Gatwick Airport, Horley RH6 0NP	D - Non-residential institutions; assembly and leisure	N/A	N/A	1	Submitted	The Planning Inspectorate on behalf of the Secretary of State accepted the application for Development Consent Order on 3rd August 2023.