

10 Climate Change

10.1 Introduction

- 10.1.1 This chapter of the ES assesses the likely significant effects of the Proposed Development on the environment in respect of Greenhouse Gas (GHG) emissions. GHG emissions have been calculated for all options (Option 1 – Commercial Office led scheme, Option 2 – Warehouse led scheme, and Option 3 – Warehouse led plus commercial office scheme) to evaluate the worst-case scenario in terms of emissions generation.
- 10.1.2 The chapter has been prepared by Hoare Lea who, as required by the 2017 EIA Regulations (as amended), are an experienced multi discipline building services consultancy (see **Appendix 1.2** Statement of Expertise).
- 10.1.3 This chapter has drawn on information outlined within the standalone planning document titled 'Energy and Sustainability Statement'.

10.2 Policy Context

- 10.2.1 The assessment has been prepared with reference to the following national, regional and local planning documents, legislation, and guidance.

National Planning Policy

- National Planning Policy Framework (NPPF), (2024 with 2025 amendments)ⁱ
- Conservation of fuel and power: Approved Document L Volume 2 – Buildings other than dwellings (2021 edition incorporating 2023 amendments)ⁱⁱ

Local Planning Policy

- Horsham District Council – Horsham District Planning Framework (November 2015)ⁱⁱⁱ
- Horsham Local Plan 2023-2040 (in review)^{iv}

Assessment Guidance

- EIA Guide to: Climate change resilience and adaptation^v
- EIA Guide to: Assessing Greenhouse Gas Emissions and evaluating their significance^{vi}

10.3 Assessment Methodology

- 10.3.1 A Climate Change Risk Assessment has been scoped out of the assessment for reasons discussed in the subsequent paragraphs. It is acknowledged that climate change was not considered as a separate technical topic within the 2016 ES and 2017 ES Addendum. However, it was addressed through various relevant standalone technical assessments and reports including the Flood Risk Assessment, Surface Water Drainage Strategy, Sustainability Statement, Energy Statement, and within various chapters of the 2016 ES and 2017 ES Addendum. Since there are no material changes to the location of the Consented Development, it is not considered relevant to include a Climate Change Risk Assessment within the Outline Planning Application.
- 10.3.2 Mitigation measures proposed within the 2016 ES and 2017 ES Addendum in relation to climate change resilience measures and embedded within the design (as informed by the above-mentioned assessments and reports) will be implemented as part of the Proposed Development. Furthermore, it is considered that the Proposed Development will be constructed in accordance with current building regulations that aim to reduce carbon emissions.

10.3.3 Therefore, this chapter consists of a GHG Emissions Assessment. This Climate Change ES chapter aims to:

- Determine the existing sources of carbon emissions currently present at the Site, and consider how these could change in the future (future baseline);
- Identify the likely sources of carbon emissions arising from the construction and operation of the Proposed Development, and measure them as far as practical; and
- Review measures in which different alternatives (such as development type, construction methodology and operating mechanisms) can demonstrably reduce carbon emissions.

10.3.4 The extent of the carbon emissions assessment considers all carbon emissions arising over the lifecycle of the Proposed Development (subject to the limitations and assumptions listed below). The assessment of the Proposed Development's carbon footprint for the purpose of EIA provides an opportunity to identify the potential for effects to be designed out or reduced/offset through iterative design, and thereby maximise the Proposed Development's contribution towards a net zero carbon society.

Anticipated carbon emissions sources

10.3.5 The key anticipated carbon emission sources reviewed in this assessment are summarised in **Table 10.1**.

Table 10.1: Anticipated sources of carbon dioxide emissions

Life cycle stages	Activity	Emissions sources
Enabling works and construction	Raw material extraction and manufacturing of building materials	Embodied carbon in building materials as per lifecycle stages A1-A3 ^{vii}
	Transportation of building materials	GHG emissions from construction traffic as per lifecycle stage A4 ^{viii} and associated activities
	On-Site construction activity	Fuel use in construction plant and associated facilities as per lifecycle stage A5 ^{ix}
Operation	Building operation	Regulated energy uses from buildings: (Regulated energy is building energy consumption resulting from the specification of controlled, fixed building services and fittings, including space heating and cooling, hot water, ventilation, fans, pumps and lighting. Such energy uses are inherent in the design of a building.)
		Unregulated energy uses from buildings: (Unregulated energy is building energy consumption resulting from a system or process that is not 'controlled', i.e. energy consumption from systems in the building on which the Building Regulations do not impose a requirement such as IT equipment, refrigeration systems etc.)
	User transportation	GHG emissions from operational traffic
	Repair and maintenance	Fabric and component materials as per lifecycle stages B1-B5 ^x
End of life	Decommissioning	End of life lifecycle stages C1-C4. ^{xi}

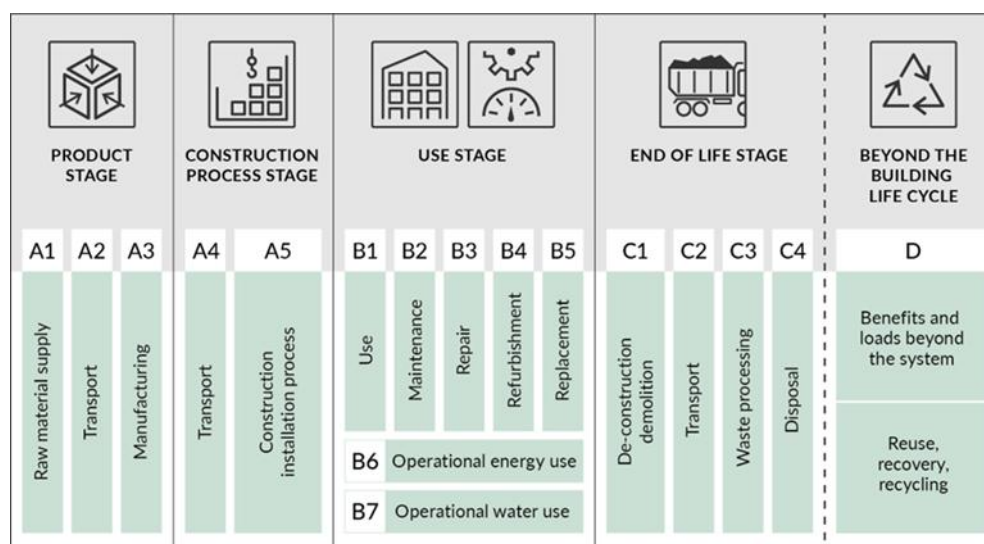
The Proposed Development would be a new mixed use development including workspace and industrial uses, therefore maintenance and refurbishment to extend the operational lifetime or reuse of the buildings would be considered before deconstruction. In light of these circumstances, it is considered unlikely that the Proposed Development would be decommissioned at the end of the 60-year timeframe considered throughout this assessment (the standard assumed life of building, Royal Institution of Chartered Surveyors (RICS)^{xii} best practice guidance).

Furthermore, in line with industry and government expectations regarding future development, should the Proposed Development be decommissioned after the 60-year period used within the supporting calculations, the expectation would be that the replacement development would be built to be net zero carbon. Therefore, end of life emissions sources will not be considered in this assessment.

Construction stage – Embodied carbon in buildings

- 10.3.6 Embodied carbon is the total carbon emissions generated to produce a built asset. It is often defined as the ‘carbon emissions associated with energy consumption (embodied energy) and chemical processes during the extraction, manufacture, transportation, assembly, replacement and deconstruction of construction materials or products.’
- 10.3.7 Embodied carbon assessment has undergone significant development in recent years. Traditionally, the greatest impact on an asset's whole life carbon has been associated with its operational phase. With the ongoing decarbonisation of the UK electricity grid, this trend is expected to shift, and embodied carbon is expected to assume an ever-increasing significance in the overall carbon footprint of developments (made up of embodied and operational carbon emissions).
- 10.3.8 An appraisal of the anticipated carbon emissions associated with the production and construction stages of the Proposed Development lifecycle has been completed, following the requirements of EN 15978^{xiii}. This assesses carbon emissions associated with raw material extraction, manufacturing of the building materials, transporting these to Site and erecting the buildings. The lifecycle stages are shown as part of the timeline for a typical construction project in **Inset Figure 10.1**.

Inset Figure 10.1: Lifecycle modules as determined in EN 15978



- 10.3.9 The appraisal of anticipated carbon emissions has been carried out based on outline design information including area schedules, building types and building heights using ‘OneClick DesignBuilder: Integrated Life Cycle Assessment’ which uses RICS benchmark data^{xiv} to give indicative values.
- 10.3.10 The associated carbon intensities of these materials have then been computed to generate carbon footprints for each building, following a ‘business-as-usual’ approach. The same model was used to

estimate the emissions generated in the construction process stages (i.e. A1-A3 modules), and Site operations (i.e. A5 module).

Construction stage – Emissions from construction traffic

- 10.3.11 Construction and demolition transport data was calculated and provided by Glanville Group, the transport specialists engaged on the project. The emissions associated with transport in construction apply to RICS module A4 and have been applied as such to the assessment.

In use – Regulated and unregulated emissions

- 10.3.12 The operational emissions associated with this Development have been evaluated using projected regulated and unregulated carbon emissions. The emissions associated with operational energy apply to RICS module B6 and have been applied as such to the assessment.
- 10.3.13 The assessment has reviewed the estimated total operational energy of the Proposed Development. This is made up of regulated components – including heating, cooling, hot water, fans, pumps and lighting – and unregulated ones, such as IT equipment, plug-in devices and catering facilities.
- 10.3.14 Regulated energy uses are inherent in the design of a building. Estimated carbon emissions from regulated operational energy uses of buildings have been calculated from benchmarks based on modelling undertaken in line with Part L 2021 of the Building Regulations (Conservation of fuel and power)^{xv} where available. Where closely matching building types was not possible, modified cases of buildings as similar as possible to those proposed were used. These were modified based on a combination of reported total energy usage for the similar buildings and professional judgement. For operational energy modelling purposes, the gross internal areas of all buildings were split based on use class.
- 10.3.15 The unregulated operational emissions are typically mainly attributable to energy consumption associated with IT equipment, domestic appliances, plug-in devices and catering facilities. Unregulated carbon emissions have been calculated based on the benchmarks described above for regulated energy (i.e. from the Part L 2021 notional building). Although unregulated carbon emissions are not included within Part L targets, an estimate of unregulated energy consumption is still an output produced as part of this methodology.

Operational Development – Traffic emissions

- 10.3.16 The anticipated GHG emissions from operational traffic associated with the Proposed Development have been estimated on the basis of traffic flow data provided by the transport consultant (Glanville Group) which factor in an average distance travelled for vehicles.

The Completed and Operational Development – Emissions from Repair and Maintenance (Materials)

- 10.3.17 The carbon impacts of repair and maintenance of the fabric of the buildings have been calculated as part of the life cycle analysis process, following the requirements of EN 15978^{xvi}.

Impact Magnitude

- 10.3.18 The magnitude of impact has been considered as the change experienced from the baseline conditions at the sensitive receptor. The assessment of magnitude is carried out taking account of any primary and tertiary mitigation that forms part of the Proposed Development. In the absence of clearly defined criteria for assessing magnitude in the context of GHG emissions, a robust blended quantitative and qualitative assessment utilising professional judgement relying on standard GHG accounting and reporting principles has been conducted.
- 10.3.19 To provide context and to assist with determining the magnitude, the carbon emissions generated by the Proposed Development have been assessed in the context of emissions at a local scale (Horsham), regional scale (South East), and national scale (England) reflecting the various levels where emissions may occur. Carbon emissions data at local and regional level have been sourced

from UK national statistics collated by the Department for Business, Energy and Industrial Strategy^{xvii}. The national scale data is based on the five-year National Carbon Budgets produced by the Climate Change Committee (CCC)^{xviii}, which reflect the requirement to remain within agreed global emission limits.

10.3.20 This data has been supplemented with the relevant local (Horsham) and regional (South East) carbon budgets, to contextualise potential impacts of the Proposed Development on the globally sensitive climate receptor. These local and regional budgets have been produced for the Department of Business, Energy and Industrial Strategy (BEIS) by the University of Manchester Tyndall Centre as part of the City Area Targets and Trajectories for Emissions Reduction (SCATTER) project, to set carbon emissions targets that are consistent with the United Nations Paris Climate Agreement. Carbon budgets have been apportioned to reflect the contribution of the built environment towards the UK total carbon footprint, estimated to be nearly 40%. This approach is consistent with Section 6.4 of the IEMA Guide on Assessing Greenhouse Gas Emissions and Evaluating their Significance (2022)^{xix}, which provides advice on contextualising a project's carbon footprint.

10.3.21 Subject to obtaining planning permission, the construction works are anticipated to commence in late 2027 and be completed in 2032, accounting for the completion, handover and occupation of all buildings. The Opening Year of the initial opening phase of the Proposed Development is expected to be 2029 for the first phases. Consequently, the 5th national carbon budget (2028-2032) is deemed to be most applicable as the majority of construction and initial occupation will happen during this period (refer to **Table 10.2**). In light of the progressive national sustainability targets that the Government is currently in the process of defining and legislating (i.e. the accepted CCC target of a 95% reduction in emissions compared to 1990 levels for 2050 and the ambition to go further and set a Net Zero target if possible), it can be expected that the magnitude of operational emissions will only increase in significance as a proportion of the total national carbon budget as the size of those carbon budgets continues to decrease.

Table 10.2: UK National carbon budgets^{xx}

Budget	Carbon budget level	Reduction below 1990 levels
1st carbon budget (2008 - 2012)	3,018 MtCO ₂ e	25%
2nd carbon budget (2013 - 2017)	2,782 MtCO ₂ e	31%
3rd carbon budget (2018 - 2022)	2,544 MtCO ₂ e	37%
4th carbon budget (2023 - 2027)	1,950 MtCO ₂ e	51%
5th carbon budget (2028 - 2032)	1,725 MtCO ₂ e	57%
6th carbon budget (2033 - 2037)	965 MtCO ₂ e	78%
7th carbon budget (2039 - 2043)	535 MtCO ₂ e	82%

10.3.22 In GHG accounting, it is a widely accepted practice to exclude emission sources that do not make a material contribution to the overall carbon footprint on the basis of the De Minimis rule (i.e. justification to exempt a proportion of emissions due to the nature of the supply. ISO guidance on GHG reporting (ISO 14064-1)^{xxi} states that 'the organisation may exclude from quantification direct or indirect GHG sources or sinks whose contribution to GHG emissions or removals is not material or whose quantification would not be technically feasible or cost effective'. In this context, multiple sources have introduced a 'materiality threshold'. PAS 2050, for^{xxii} example, stipulates that in order to be considered 'material' the contribution from any one source of GHG emissions should be more than 1% of the anticipated total GHG emissions associated with the product being assessed and where all such exclusions total a maximum of 5% of total emissions.

10.3.23 The UK Emissions Trading System (UK ETS) replaced the EU Emissions Trading System (EU ETS) from 1st January 2021. It retains the provision for small installations, which states that small installations, whose emissions do not exceed a threshold of 25,000 tCO₂e per annum and, where they carry out combustion activities, have a rated thermal input below 35 MW, excluding emissions from biomass, can opt out from the scheme.

- 10.3.24 Additionally, as part of its public reporting under the Task Force on Climate-related Financial Disclosures framework (IFC Performance Standard 3: Resource Efficiency and Pollution Prevention^{xxiii}), the International Finance Corporation (IFC) discloses emissions of projects with estimated annual emissions over 25,000 metric tons of carbon dioxide equivalent (tCO₂e) through the Environmental and Social Review Summary for each project.
- 10.3.25 In line with the above, a 1% materiality threshold has been implemented in this assessment when determining magnitude of the relevant change in carbon emissions. To ensure a robust approach, a second reference point has been included, i.e. 25,000 tCO₂e annual emission maximum level. It is, therefore, assumed that any annual carbon emissions quantum <1% of the 'proportional value' of the relevant carbon budget(s) and < 25,000 tCO₂e would not be considered to have a 'material' contribution to the relevant UK GHG inventory. More details are provided in **Table 10.3** below.

Table 10.3: Criteria for determining magnitude of impact – National Baseline (carbon emissions)^{xxiv}

Magnitude of Impact	Criteria for Determining Impact
High	Annual difference in carbon emissions represents a contribution equal to or higher than 1% of the national baseline emissions and/or annual proportion of the relevant UK national carbon budget's share attributable to the built environment sector; AND Annual difference in carbon emissions is higher than 25,000 tCO ₂ e in any year.
Medium	Annual difference in carbon emissions represents a contribution lower than 1% of the national baseline emissions and/or annual proportion of the relevant UK national carbon budget's share attributable to the built environment sector; AND Annual difference in carbon emissions is higher than 25,000 tCO ₂ e in any year.
Low	Annual difference in carbon emissions represents a contribution lower than 1% of the national baseline emissions and/or annual proportion of the relevant UK national carbon budget's share attributable to the built environment sector; AND Annual difference in carbon emissions is lower than 25,000 tCO ₂ e in any year.

Table 10.4: Criteria for determining magnitude of impact – Local/Regional baseline (carbon emissions)^{xxv}

Impact Magnitude	Magnitude Criteria
High	Annual difference in carbon emissions represents a contribution higher than 1% of the local/regional baseline emissions share attributable to the built environment sector; AND Annual difference in carbon emissions represents a contribution higher than 1% of the relevant local/regional carbon budget's share attributable to the built environment sector.
Medium	Annual difference in carbon emissions represents a contribution higher than 1% of the local/regional baseline emissions share attributable to the built environment sector; OR

Impact Magnitude	Magnitude Criteria
	Annual difference in carbon emissions represents a contribution higher than 1% of the relevant local/regional carbon budget's share attributable to the built environment sector.
Low	Additional annual carbon emissions represent a contribution lower than 1% of the local/regional baseline emissions share attributable to the built environment sector; AND Additional annual carbon emissions represent a contribution lower than 1% of the relevant local/regional carbon Budget's share attributable to the built environment sector.

10.3.26 The above approach has been followed when analysing the Proposed Development. The results of the quantitative approach are reported within this document for information.

Effect Significance

10.3.27 Climate change is a pressing environmental issue. It is recognised that all new development produces carbon emissions that contribute towards global climatic change. The IEMA methodology^{xxvi} stipulates that all carbon emissions may be considered significant because *"the GHG emissions from projects will contribute to climate change"* and *"GHG emissions have a combined environmental effect that is approaching a scientifically defined environmental limit"*. However, it is also recognised that new developments need to work within the constraints of a changing climate and have the potential to contribute positively towards a thriving, net zero carbon society.

10.3.28 The significance level attributed to each effect has been assessed based on the sensitivity/value of the affected receptor(s) and the magnitude of change arising from the Proposed Development. This is further informed by climate change mitigation measures detailed within the wider ES chapters. The sensitivity of the affected receptor is assessed on a scale of very high, high, medium or low and the magnitude of impact is assessed on a scale of high, medium or low. For the avoidance of doubt, a 'minor adverse' or 'negligible' non-significant effect conclusion does not necessarily refer to the magnitude of GHG emissions being carbon neutral (i.e. zero on balance) but refers to the likelihood of avoiding severe climate change, aligning project emissions with a science-based 1.5°C compatible trajectory, and achieving net zero by 2050.

10.3.29 The approach to defining likely significant effects has been carried out in three steps:

- The first step is to compare the Proposed Development's GHG emissions in the opening year to the baseline GHG emissions to determine whether there is a net increase or decrease in GHG emissions as a result of the Proposed Development.
- The second step is to compare the calculated change in emissions to local GHG emissions for context; and
- The third step applies expert judgment on the significance of those emissions taking into account the changes in emissions, the contribution to local and regional GHG emissions, consistency with relevant policy, and an evaluation of the mitigation measures proposed to avoid, reduce and compensate for GHG emissions.

10.3.30 In categorising whether an effect is significant or not, due consideration has also been given to the nature, duration and geographical scale of the effect in question (e.g. direct/indirect, temporary / permanent, short / medium term, etc).

10.3.31 For the purposes of this assessment, the geographical scope of the identified likely significant effects has been assumed to be 'international' in all cases due to the global nature of climate change and its transnational ramifications. Furthermore, in view of the findings of the Intergovernmental Panel on Climate Change (IPCC) Special Report^{xxvii} on the effects of global warming of 1.5 °C that some effects from climate change may be long lasting, the duration of all effects assessed in this chapter is assumed to be long-term and permanent.

10.3.32 The effects are categorised as either adverse or beneficial in order to allow easy comparison between impacts. These terms are defined as follows:

- Adverse – Detrimental or negative effects to an environmental resource or receptor. The quality of the environment is diminished or harmed; or
- Beneficial – Advantageous or positive effect to an environmental resource or receptor. The quality of the environment is enhanced.

Table 10.5: Significance Criteria

Typical description ^{xxviii}	
Major adverse	The project's GHG impacts are not mitigated or are only compliant with 'do minimum' standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK's trajectory towards net zero.
Moderate adverse	The project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the UK's trajectory towards net zero.
Minor adverse	The project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse effects is fully in line with measures necessary to achieve the UK's trajectory towards net zero.
Negligible	The project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions.
Beneficial	The project's net GHG impacts are below zero and it causes a reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the 'without project' baseline. A project with beneficial effects substantially exceeds net zero requirements with a positive climate impact.

Categorising Likely Significance Effects

10.3.33 In line with IEMA guidance, effects that are not compatible with the UK's net zero trajectory result in a significant adverse effect. This is differentiated into two 'levels' of significant, e.g. 'moderate' or 'major' adverse effects. A project which is compatible with the 1.5°C trajectory has a minor adverse effect that is not significant. A project which achieves emissions mitigation and goes substantially beyond the reduction trajectory is assessed as having a negligible effect that is not significant. A project that

causes GHG emissions to be avoided or removed from the atmosphere has a beneficial effect which is significant.

10.3.34 Typically, effects that are identified as moderate or major adverse / beneficial effects would be classified as significant effects. Minor or negligible effects would be classified as not significant. As noted above a blended quantitative and qualitative approach relying on standard GHG accounting and reporting principles has been applied so the effect categorisation will be subject to professional judgment.

Limitations and Assumptions

10.3.35 To ensure transparency within the EIA process, the following limitations and assumptions have been identified.

10.3.36 It is assumed that the Site baseline carbon emissions are zero as the existing Site is undeveloped.

10.3.37 As an outline application, the anticipated carbon emissions associated with the product and construction stages of the development lifecycle have been determined based on the design information available to date which consists of land use options, building types and building heights.

10.3.38 Typical materials used for the proposed building types have been mapped to suit these attributes to generate materials quantities. The associated carbon intensities of these materials have then been computed to generate carbon footprints for each building. This approach to modelling the Site was also used to generate estimates of construction energy usage and traffic, as well as embodied carbon estimates for the repair and maintenance of the building lifetime.

10.3.39 As an outline application, the calculated values may not be wholly representative of the project at detailed design stage.

10.3.40 Additional assumptions used in these calculations were as follows:

- Calculated for 60-year operational time frame (assumed life of building, RICS best practice guidance).
- All buildings assumed steel frame construction.
- Used maximum scenarios for building width/depth.

10.3.41 The Proposed Development will be brought forward in several phases. The temporal scope will consider the construction phase and thereafter when the Proposed Development is completed and occupied (the 'operational' phase).

10.3.42 It is currently envisaged that construction will commence in late 2027 and would be completed by 2032.

10.3.43 The Proposed Development is designed to be permanent, therefore decommissioning is not an aspect that has been considered within this assessment.

10.3.44 The estimated carbon emissions associated with operational energy consumption are indicative values based on benchmark Part L data, previous experience for similar buildings and available Display Energy Certificates (DECs). Where closely matching buildings was not possible, modified cases of buildings as similar as possible to those proposed were used. These were modified based on a combination of reported total energy usage for similar buildings and professional judgement. Calculations were made for different building types and indicative areas for different uses included in the Development. The Part L methodology uses standardised parameters, including operational profiles, ventilation rates, and heating and cooling setpoints, based on the building use, which may be different from how the buildings will operate in practice.

- 10.3.45 The anticipated GHG emissions from operational traffic associated with the Proposed Development have been estimated on the basis of estimated traffic flow changes and projected visitor breakdown data provided by the transport consultant (Glanville Group).
- 10.3.46 In line with IEMA 2022^{xxix} guidance, activities which account for under 5% of the energy usage and, therefore, do not have a significant contribution to the overall energy consumption, will be excluded from the assessment. These include:
- Temporary construction Site accommodation;
 - Refuse collection from public bins; and
 - Street lighting, traffic signals and security cameras.

10.4 Baseline Conditions

The Proposed Development baseline

- 10.4.1 The Proposed Development consists of new buildings and infrastructure on undeveloped land. Therefore, it can be considered that there are no existing operational emissions associated with the Site in its current state.
- 10.4.2 Baseline transport emissions associated with roads adjacent to the Proposed Development, is based on Annual Average Daily Traffic data provided by the project's transport consultant (Glanville Group).

Local and regional baseline

- 10.4.3 The latest available BEIS annual CO₂ emissions data for Horsham District Council dates from 2023^{xxx}. The total CO₂ emissions generated in Horsham in 2023 amounts to ~593 ktCO₂.
- 10.4.4 The data show emissions allocated on an 'end user' basis where emissions are distributed according to the point of energy consumption (or point of emission if not energy related). Except for the energy industry, emissions from the production of goods are assigned to where the production takes place. Therefore, emissions from the production of goods which are exported are included, and emissions from the production of goods which are imported are excluded.
- 10.4.5 In order to help understand the trends in carbon emissions at a local level, a breakdown of total carbon emissions from three main sector sources (industrial and commercial, domestic and transport) has been provided for Horsham. The BEIS national statistics data from the UK government are available for the period 2005-2023.
- 10.4.6 The latest available BEIS annual CO₂ emissions data for South East dates from 2023^{xxxi}. The total CO₂ emissions generated in the South East in 2023 amounts to 38,964 kt CO₂.

National baseline

- 10.4.7 The latest BEIS data available for the UK was published in 2025 and relates to the year 2023^{xxxii}. The total CO₂ emissions generated in England in 2023 amount 275,589 ktCO₂. According to a report by the World Resources Institute^{xxxiii}, the UK demonstrates one of the largest declines in CO₂ emissions, with a 20% reduction in the period 2000-2014. This is one of the biggest percentage reductions in CO₂ emissions of all large economies.
- 10.4.8 In line with this trend, the statistics for England demonstrate a continuing downward trend over the 2005-2023 period, whereby the per capita CO₂ emissions have decreased by approximately 47%. Total CO₂ emissions have also gone down by nearly 40% over the studied period despite the observed population growth.
- 10.4.9 The main reductions are observed in industry and commercial emissions, followed by domestic emissions, in line with an overall downward trend for the whole of the UK. However, it is noted that

there was an increase in emissions across all the three main sectors in 2022. In comparison, the reduction observed in the transport sector for the South East region is considerably smaller.

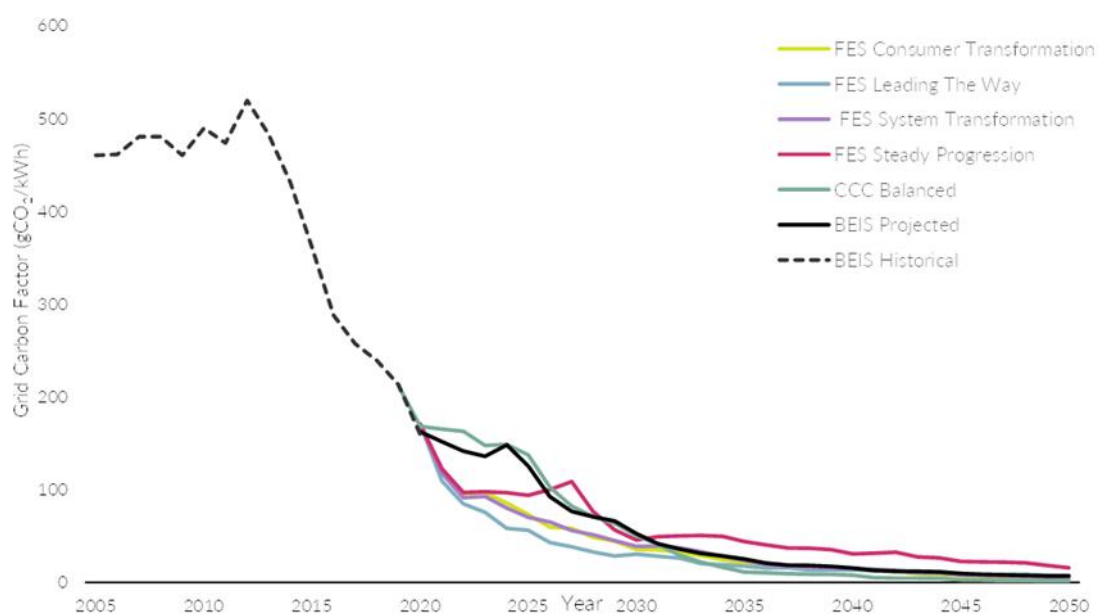
- 10.4.10 A study conducted by analysts Carbon Brief^{xxxiv} reveals that the decline in industry, commercial and domestic emissions is driven by a combination of the introduction of a low and zero carbon electricity mix based on gas and renewables instead of coal and reduced non-electric energy consumption in the industrial and residential sectors. The latter is explained mainly by improvements in energy efficiency and switching to lower carbon fuels. A structural movement towards a less carbon intensive mix of industrial output, with some energy intensive industry moving to other countries and the UK industry increasingly focusing on higher value manufacturing with lower energy intensity is also considered to have been a significant factor in the case of industry related emissions.

Future Baseline

Decarbonisation of the Electricity Grid

- 10.4.11 The carbon factor of the National Grid – the amount of carbon dioxide released per kilowatt hour of electricity generated and distributed – is recognised in current Building Regulations as being 0.136 kgCO₂/kWh^{xxxv}.
- 10.4.12 Consequently, the Building Regulations Part L 2021 value of the National Grid carbon factor has been shown to be substantially higher than how the grid is performing in reality. This notably impacts the calculated emissions produced by all heat-raising plant which either use electricity directly or generate it to offset other emissions. **Inset Figure 10.2** shows how the grid carbon factor (affected by the mix of generation techniques serving the National Grid), has varied over the past fifteen years. The carbon intensity of the grid has reduced to below a third of its previous value between 2012 and 2020 – to 0.159 kgCO₂/kWh^{xxxvi}. The carbon emissions associated with electricity consumption are therefore much lower than reported in current Building Regulations. This means that, under the Part L 2021 methodology, the CO₂ emissions associated with electrically-driven plant are being overestimated. Based on the ongoing decarbonisation of the National Grid, a full electric strategy has been developed for the Site to take advantage of the current decarbonisation process. This also means that the carbon emissions associated with the operational energy usage for the Proposed Development will steadily decrease in future years as a result of the ongoing decarbonisation of the National Grid.

Inset Figure 10.2: Historic and future projected carbon factor for the National Grid. Sources: BEIS Green Book (historic carbon factors); National Grid Future Energy Scenarios (FES) 2025 (future projected carbon factors).



(Source: Hoare Lea infographic.)^{xxxvii}

Future Projections

10.4.13 The Future Energy Scenarios (FES) document^{xxxviii}, produced by the National Grid, discusses how the UK's energy landscape is changing. The latest version, FES 2025, discusses these projections in four scenarios and **Inset Figure 10.2** combines these future trajectories with the actual carbon intensity of the National Grid over the past 15 years. The reported emissions associated with electricity generation have fallen steeply since 2012 and in all four cases, the grid decarbonises further by 2050. The rate of decarbonisation differs between scenarios depending on the modelled consumer behaviour, technology developments and generation mix. The trajectories presented here do not include the negative emissions benefit of Bio Energy Carbon Capture and Storage (BECCS) because this will be needed to offset hard-to-abate sectors such as aviation, shipping and agriculture in future, in order for the UK as a nation to meet net zero carbon by 2050 (It is important to note that carbon capture and storage technology is not currently commercially demonstrated at a large scale, but the FES 2025 studies are useful as future scenarios).

10.4.14 This projected decarbonisation of the grid has been considered and has informed the proposed all electric Energy Strategy.

10.5 Potential Significant Impacts

Construction

10.5.1 Embedded mitigation strategies that have been evaluated and will be implemented as part of the construction phase assessment, include:

- Preference for local suppliers to shorten the supply chain and reduce its associated environmental footprint, coupled with prioritisation of responsibly sourced goods and services where feasible, whilst maximising the proportion of recycled content within materials used in construction;
- Prioritising, wherever possible and feasible, the use of low embodied carbon materials;
- Adoption of the circular economy principles within the design;
- Detailed consideration of the layout of the Proposed Development to minimise its impact on the Site's ecology;
- Position of the buildings and structures so to minimise the number of trees that need to be felled;
- Key materials extracted as part of the enabling works to be re-used and/or recycled in accordance with the waste hierarchy giving priority to on site uses where practical; and
- Manage all waste materials during the construction phase in accordance with the construction waste management practices outlined in the Site Waste Management Plan. This objective will be facilitated by providing training for site personnel regarding the correct disposal of materials.

Operation

10.5.2 Embedded mitigation strategies that have been evaluated and will be implemented as part of the operational phase assessment are listed below:

- Operational Energy:
 - Undertake operational energy modelling in compliance with the Part L requirements to determine key contributors to anticipated operational energy demand;
 - Implement highly energy efficient building fabric and building services to maximise the reduction in energy demand and associated carbon emissions through passive design measures (including mechanical ventilation with heat recovery to further reduce energy consumption and carbon emissions);

- Specify suitable glazing ratios to reduce heating demand and overheating risk whilst maintaining light levels. A lower g-value assists with minimising the risk of overheating, but this needs to be balanced against capturing beneficial solar gains in winter and a better visible light transmittance;
 - An “all electric” approach to the Energy Strategy will be adopted to enable the Proposed Development’s operational emissions to continue to decarbonise over its lifetime through decarbonisation of the National Grid.
 - Optimisation of photovoltaic (PV) panels throughout the site, in combination with biodiverse roof and plant space, will provide green energy to support the “all electric” approach.
 - Full details on the proposed energy strategy for the Proposed Development are provided within the Sustainability Energy Strategy accompanying the planning application.
- Transport in operation:
- Production of a Framework Travel Plan to set out all relevant targets/measures in relation to encouraging more sustainable travel patterns and identify future monitoring and management arrangements;
 - Implementation of Travel Plans to encourage residents/workers occupying the Proposed Development to use modes other than the private car, secured by legal agreement/condition attached to any planning permission granted.
 - Create and enhance pedestrian and cycle accessibility by increasing the permeability and safety of the Site for pedestrians and cyclists;
 - Increase engagement with sustainable transport modes by carefully designing walking and cycling infrastructure.

Primary and Tertiary Mitigation

10.5.3 No additional primary or tertiary mitigation has been considered within this assessment

10.6 Likely Significant Effects

Construction Phase

Option 1 – Commercial Office led scheme

10.6.1 The annual carbon emissions resulting from the combined construction lifecycle stages A1 – A3 (Product stages), A4 (Transport) and A5 (Site operations) is currently estimated to be 56,559 tCO₂e per year. This exceeds 25,000 tCO₂e and accounts proportionally for the figures presented in **Table 10.6**.

Table 10.6: Proposed Development GHG emission for Construction Phase – Option 1

Budget Scenario	Budget Emissions	Magnitude of impact	
	tCO ₂ e	%	High/ Medium/ Low
National			
4th Carbon budget (2023-2027)	1,950,000,000	0.0029%	Medium
[40% attribution to built environment]	780,000,000	0.0073%	Medium

5th Carbon budget (2028-2032)	1,725,000,000	0.0033%	Medium
[40% attribution to built environment]	690,000,000	0.0082%	Medium
6th Carbon Budget (2033-2038)	965,000,000	0.0059%	Medium
[40% attribution to built environment]	386,000,000	0.0147%	Medium
Regional			
Regional Baseline Emissions	38,963,815	0.1452%	-
Regional Apportionment Budget (2023-2027)	85,347,596	0.0663%	Low
Regional Apportionment Budget (2028-2032)	75,499,796	0.0749%	Low
Regional Apportionment Budget (2033-2038)	42,236,118	0.1339%	Low
Local			
Local Baseline Emissions	593,509	9.5295%	-
Local Apportionment Budget (2023-2027)	85,347,596	0.0663%	Medium
Local Apportionment Budget (2028-2032)	75,499,796	0.0749%	Medium
Local Apportionment Budget (2033-2038)	42,236,118	0.1339%	Medium

Option 2 – Warehouse led scheme

- 10.6.2 The annual carbon emissions resulting from the combined construction lifecycle stages A1 – A3 (Product stages), A4 (Transport) and A5 (Site operations) is currently estimated to be 30,571 tCO₂e per year. This exceeds 25,000 tCO₂e and accounts proportionally for the figures presented in **Table 10.7**.

Table 10.7: Proposed Development GHG emission for Construction Phase – Option 2

Budget Scenario	Budget Emissions	Magnitude of impact	
	tCO ₂ e	%	High/ Medium/ Low
National			
4th Carbon budget (2023-2027)	1,950,000,000	0.0016%	Medium
[40% attribution to built environment]	780,000,000	0.0039%	Medium
5th Carbon budget (2028-2032)	1,725,000,000	0.0018%	Medium
[40% attribution to built environment]	690,000,000	0.0044%	Medium
6th Carbon Budget (2033-2038)	965,000,000	0.0032%	Medium

[40% attribution to built environment]	386,000,000	0.0079%	Medium
Regional			
Regional Baseline Emissions	38,963,815	0.0785%	-
Regional Apportionment Budget (2023-2027)	85,347,596	0.0358%	Low
Regional Apportionment Budget (2028-2032)	75,499,796	0.0405%	Low
Regional Apportionment Budget (2033-2038)	42,236,118	0.0724%	Low
Local			
Local Baseline Emissions	593,509	5.1509%	-
Local Apportionment Budget (2023-2027)	85,347,596	0.0358%	Medium
Local Apportionment Budget (2028-2032)	75,499,796	0.0405%	Medium
Local Apportionment Budget (2033-2038)	42,236,118	0.0724%	Medium

Option 3 – Warehouse led plus commercial office scheme

- 10.6.3 The annual carbon emissions resulting from the combined construction lifecycle stages A1 – A3 (Product stages), A4 (Transport) and A5 (Site operations) is currently estimated to be 42,810 tCO₂e per year. This exceeds 25,000 tCO₂e and accounts proportionally for the figures presented in **Table 10.8**.

Table 10.8: Proposed Development GHG emission for Construction Phase – Option 3

Budget Scenario	Budget Emissions	Magnitude of impact	
	tCO ₂ e	%	High/ Medium/ Low
National			
4th Carbon budget (2023-2027)	1,950,000,000	0.0022%	Medium
[40% attribution to built environment]	780,000,000	0.0055%	Medium
5th Carbon budget (2028-2032)	1,725,000,000	0.0025%	Medium
[40% attribution to built environment]	690,000,000	0.0062%	Medium
6th Carbon Budget (2033-2038)	965,000,000	0.0044%	Medium
[40% attribution to built environment]	386,000,000	0.0111%	Medium
Regional			
Regional Baseline Emissions	38,963,815	0.1099%	-

Regional Apportionment Budget (2023-2027)	85,347,596	0.0502%	Low
Regional Apportionment Budget (2028-2032)	75,499,796	0.0567%	Low
Regional Apportionment Budget (2033-2038)	42,236,118	0.1014%	Low
Local			
Local Baseline Emissions	593,509	7.2131%	-
Local Apportionment Budget (2023-2027)	85,347,596	0.0502%	Medium
Local Apportionment Budget (2028-2032)	75,499,796	0.0567%	Medium
Local Apportionment Budget (2033-2038)	42,236,118	0.1014%	Medium

10.6.4 **Table 10.6 to Table 10.8** show the magnitude of impact from emissions from the construction phase for each design option at a National, Regional and Local level. It can be seen that in all cases, at a Regional level, the magnitude of impact is considered low, but medium at both National and Local levels.

10.6.5 Furthermore, at both the National and Local levels, the predicted emissions are <1% of the budgets. But, because the emissions are greater than 25,000tCO₂ (national) and >1% of the local baseline, they must be considered to have medium impact.

10.6.6 Option 1 (Commercial Office led scheme) has the highest quantum of predicted emissions of those proposed.

Operational Phase

Option 1 – Commercial Office led scheme

10.6.7 The annual carbon emissions resulting from the combined operational phase effects of operational energy, operational traffic and repair and maintenance emissions 783,861 tCO₂e per year. This exceeds 25,000 tCO₂e and accounts proportionally for the figures presented in **Table 10.9**.

Table 10.9: Proposed Development GHG emission for Operational Phase – Option 1

Budget Scenario	Budget Emissions	Magnitude of impact	
	tCO ₂ e	%	High/ Medium/ Low
National			
4th Carbon budget (2023-2027)	1,950,000,000	0.0402%	Medium
[40% attribution to built environment]	780,000,000	0.1005%	Medium
5th Carbon budget (2028-2032)	1,725,000,000	0.0454%	Medium
[40% attribution to built environment]	690,000,000	0.1136%	Medium
6th Carbon Budget (2033-2038)	965,000,000	0.0812%	Medium

[40% attribution to built environment]	386,000,000	0.2031%	Medium
Regional			
Regional Baseline Emissions	38,963,815	2.0118%	-
Regional Apportionment Budget (2023-2027)	85,347,596	0.9184%	Medium
Regional Apportionment Budget (2028-2032)	75,499,796	1.0382%	High
Regional Apportionment Budget (2033-2038)	42,236,118	1.8559%	High
Local			
Local Baseline Emissions	593,509	132.0724%	-
Local Apportionment Budget (2023-2027)	85,347,596	0.9184%	Medium
Local Apportionment Budget (2028-2032)	75,499,796	1.0382%	High
Local Apportionment Budget (2033-2038)	42,236,118	1.8559%	High

Option 2 – Warehouse led scheme

10.6.8 The annual carbon emissions resulting from the combined operational phase effects of operational energy, operational traffic and repair and maintenance emissions 669,073 tCO_{2e} per year. This exceeds 25,000 tCO_{2e} and accounts proportionally for the figures presented in **Table 10.10**.

Table 10.10: Proposed Development GHG emission for Operational Phase – Option 2

Budget Scenario	Budget Emissions	Magnitude of impact	
	tCO _{2e}	%	High/ Medium/ Low
National			
4th Carbon budget (2023-2027)	1,950,000,000	0.0343%	Medium
[40% attribution to built environment]	780,000,000	0.0858%	Medium
5th Carbon budget (2028-2032)	1,725,000,000	0.0388%	Medium
[40% attribution to built environment]	690,000,000	0.0970%	Medium
6th Carbon Budget (2033-2038)	965,000,000	0.0693%	Medium
[40% attribution to built environment]	386,000,000	0.1733%	Medium
Regional			
Regional Baseline Emissions	38,963,815	1.7172%	-
Regional Apportionment Budget (2023-2027)	85,347,596	0.7839%	Medium

Regional Apportionment Budget (2028-2032)	75,499,796	0.8862%	Medium
Regional Apportionment Budget (2033-2038)	42,236,118	1.5841%	High
Local			
Local Baseline Emissions	593,509	112.7317%	-
Local Apportionment Budget (2023-2027)	85,347,596	0.7839%	Medium
Local Apportionment Budget (2028-2032)	75,499,796	0.8862%	Medium
Local Apportionment Budget (2033-2038)	42,236,118	1.5841%	High

Option 3 – Warehouse led plus commercial office scheme

10.6.9 The annual carbon emissions resulting from the combined operational phase effects of operational energy, operational traffic and repair and maintenance emissions 720,681 tCO_{2e} per year This exceeds 25,000 tCO_{2e} and accounts proportionally for the figures presented in **Table 10.11**.

Table 10.11: Proposed Development GHG emission for Operational Phase – Option 3

Budget Scenario	Budget Emissions	Magnitude of impact	
	tCO _{2e}	%	High/ Medium/ Low
National			
4th Carbon budget (2023-2027)	1,950,000,000	0.0370%	Medium
[40% attribution to built environment]	780,000,000	0.0924%	Medium
5th Carbon budget (2028-2032)	1,725,000,000	0.0418%	Medium
[40% attribution to built environment]	690,000,000	0.1044%	Medium
6th Carbon Budget (2033-2038)	965,000,000	0.0747%	Medium
[40% attribution to built environment]	386,000,000	0.1867%	Medium
Regional			
Regional Baseline Emissions	38,963,815	1.8496%	-
Regional Apportionment Budget (2023-2027)	85,347,596	0.8444%	Medium
Regional Apportionment Budget (2028-2032)	75,499,796	0.9545%	Medium
Regional Apportionment Budget (2033-2038)	42,236,118	1.7063%	High
Local			
Local Baseline Emissions	593,509	121.4271%	-

Local Apportionment Budget (2023-2027)	85,347,596	0.8444%	Medium
Local Apportionment Budget (2028-2032)	75,499,796	0.9545%	Medium
Local Apportionment Budget (2033-2038)	42,236,118	1.7063%	High

10.6.10 **Table 10.9 to Table 10.11** show the magnitude of impact from emissions from the operational phase for each design option at a National, Regional and Local level. It can be seen that in all cases, at a National level, the magnitude of impact is considered medium. However, at Local and Regional levels the impact goes from medium to high as later budgets are considered. This is due to the emissions being >1% of the regional/local baseline as well as >1% of the budgets. The highest level of impact is associated with Option 1 which has high impact for all but one budget.

10.6.11 Option 1 (Commercial Office led scheme) has the highest quantum of predicted emissions of those proposed.

10.6.12 Considering the operational emissions associated with the energy used within the buildings, as the Energy Strategy utilises an “all-electric” approach, it is anticipated that the Proposed Development will benefit from reduction of emissions over the lifetime of the development due to the decarbonisation of the National Grid. Therefore, the magnitude of impact could improve.

10.6.13 Secondly, the transport emissions have assumed no allowance for the use of electric vehicles to consider a worst-case scenario. In reality, the uptake of EV cars for private use (e.g. commuting) is increasing year on year therefore it can be considered that the calculated emissions are an inflation of real-life practice. However, as the breakdown of EV users cannot be determined at this time we have not considered it within the assessment.

10.7 Secondary Mitigation

10.7.1 There are no secondary mitigation measures considered at this time.

10.8 Residual Effects

Construction Phase

10.8.1 Measures which will provide additional mitigation for the construction phase effects:

- Procure energy efficient construction plant reflecting the latest technology advances.
- Monitor energy, water and waste data during the construction stage to encourage transparency and accountability.
- All waste generated during construction to be diverted from landfill (where technically feasible).
- Explore the potential for low carbon construction materials and techniques – such as timber frame and off site manufacture – which can help reduce the embodied impact of construction.
- Planning conditions or equivalent will aim to target employment and training opportunities to local people. This will be in the form of an Employment and Skills Plan which will be required for each phase of the construction period. This approach, while providing positive social value, will reduce emissions associated with transport of construction workers during the construction period.

10.8.2 These potential interventions have not been relied upon when assessing the significance of anticipated effects of the Proposed Development prior to the consideration of residual effect. They are considered to be implemented when assessing the residual effect.

- 10.8.3 The overall residual effect is assessed to have a long term and permanent effect of minor nature, and therefore not significant.

Operational Phase

- 10.8.4 A number of design solutions have already been built into the Proposed Development design to avoid, prevent or reduce carbon emissions associated with the energy usage and transportation during the operational phase.
- 10.8.5 In addition to these inherent design principles, this chapter suggests the following measures to be adopted to effectively manage and further reduce the significance of carbon emissions expected to be generated through the operational stage of the scheme:
- At detailed design stage (i.e. RIBA Stage 3 & 4), seek to use materials with a high albedo in the façade design, these would reflect a higher level of incident radiation away from the building rather than absorbing to reduce surface temperatures, avoiding exacerbating the overheating risk.
 - Install smart meters and/or sub-meters to monitor operational consumption more accurately.
 - Additional detailed modelling will be further explored at detailed design stages to investigate operational energy usage.
- 10.8.6 Specifically relating to operational traffic which is considered to be a potentially significant effect:
- Provide appropriate signage and information on local public transport, cycle and pedestrian routes to encourage the use of sustainable modes of transport.
 - S106 contributions will aim to target employment and training opportunities to local people. This approach, while providing positive social value, will reduce emissions associated with transport of staff during operation.
- 10.8.7 As with the additional mitigation suggested for the 'Demolition and Construction' emissions, these potential interventions have not been relied upon when assessing the significance of anticipated effects of the Proposed Development prior to the consideration residual effect. They are considered to be implemented when assessing the residual effect.
- 10.8.8 The overall residual effect of operational energy is assessed to be a long term and permanent effect of minor, and therefore minor adverse effect.
- 10.8.9 Regarding operational traffic emissions, if the various mitigation and other measures detailed were taken into account, this effect would be reduced. However, as the impact of these measures cannot be quantified at this stage, as they are still under development/unknown, we are not in a position to quantify the magnitude of the impact in relation to carbon emission reduction. It is anticipated that these emissions will reduce over the lifetime of the Proposed Development and will provide qualitative benefits to individuals that can be considered to offset this impact.
- 10.8.10 The proposed mitigation measures can be actioned during the RIBA design stages 3 & 4. But, as noted above, as the impact of these measures cannot be quantified at this stage, the residual effect should remain as previously stated.
- 10.8.11 The ongoing electrification of the transport sector and continuous decarbonisation of the national electricity grid are expected to further reduce the annual emissions of the Proposed Development during its operational stages.

10.9 Cumulative Effects

- 10.9.1 It is acknowledged that there is a need to apply a systematic, coordinated approach to climate change mitigation and adaptation on a scale beyond that of individual projects. An overarching principle of the IEMA 2022 guidelines is that the GHG emissions from all projects cumulatively contribute to climate

change and affect all projects, thus making climate change by its very nature a cumulative effect. As such, the cumulative effects from the Proposed Development when considered alongside other committed development schemes in proximity to the Site have been addressed inherently within the GHG and climate change assessments and are not duplicated here.

10.10 Summary

- 10.10.1 An assessment has been made of the likely significant environmental effects of the Proposed Development on the global climate. While the focus of the Climate Change chapter is on GHG emissions, consideration has also been given to the anticipated effects on other receptors sensitive to climate change in collaboration with the wider design team and EIA experts in charge of the relevant topics.
- 10.10.2 Climate change is the most pressing environmental issue currently facing humanity. It is recognised that all new development potentially emits carbon, contributing towards global climatic change. In fact, the Institute of Environmental Management and Assessment (IEMA) advises that all GHG emissions might be considered significant because “the GHG emissions from all projects will contribute to climate change...”. There are currently no global carbon emission budgets defined beyond which significant impacts of climate change would be likely to occur. Therefore, in line with the industry guidance, all GHG emissions in the assessment are considered to be potentially significant. This reasoning is also consistent with the Precautionary Principle which stipulates that if there is threat or risk of serious or irreversible damage to human health or the environment, precautionary actions must be taken even if there is lack of full certainty surrounding the issue.
- 10.10.3 The global climate has been identified as the ‘sensitive receptor’ for the purposes of the climate change impact assessment. In light of the extreme importance of limiting global warming to below 2°C and in the absence of a published standard definition of receptor sensitivity of GHG emissions, the assessment has assumed that the sensitivity of the global climate to increases in GHG emissions is always considered to be ‘high’.
- 10.10.4 The outline nature of the planning application submitted for the Proposed Development introduces a high level of uncertainty to the quantification of indirect emissions which precludes the delivery of a robust and reliable assessment. The chapter has, therefore, excluded indirect emissions both at construction and operational stages.
- 10.10.5 Overall, it is expected that the Proposed Development has the potential to deliver a resilient, low-carbon scheme that is expected to continue to reduce its operational emissions in view of the ongoing grid decarbonisation trends and expected future technology breakthroughs.
- 10.10.6 The significance of operational GHG emissions associated with the buildings’ regulated and unregulated energy consumption is considered to be minor in the short term, with continued reduced impact in the medium to long-term as a result of the ongoing decarbonisation of the National Grid, due to the recommendation for combustion-free energy strategy for the Site. Similarly, the significance of GHG emissions stemming from operational traffic has been classified as low in the medium to long-term following an anticipated increased uptake of electric vehicles.
- 10.10.7 Consideration has also been given to the potential for cumulative increases in GHG emissions upon completion of the schedule of relevant committed schemes in the vicinity. While robust data is not available to undertake a detailed quantitative assessment of the Development in combination with other schemes, it is considered that so long as all new developments carefully consider and factor in suitable climate change mitigation and adaptation measures in their design in line with local, regional and national policy requirements, there will be an overall positive in-combination effect.
- 10.10.8 **Table 10.12** contains a summary of the likely significant effects of the Proposed Development.

Table 10.12: Table of Significance – Climate Change

Potential Effect	Nature of Effect (Permanent/ Temporary)	Significance (Major/Moderate/Minor) (Beneficial/Adverse/ Negligible)	Mitigation / Enhancement Measures	Geographical Importance*						Residual Effects (Major/Moderate/Minor) (Beneficial/Adverse/ Negligible)
				I	UK	E	R	C	L	
Construction										
Embodied carbon emissions from construction works	Permanent	Minor	Adoption of responsible construction practices and incorporate circular economy principals within the detailed design (to be developed during RMA) to reduce embodied carbon emissions. This includes, but is not limited to, responsible sourcing of materials and specification of low carbon materials where feasible. Procure energy efficient construction plant reflecting the latest technology advances. Monitor energy, water and waste data during the construction stage to encourage transparency and accountability. All waste generated during construction to be diverted from landfill (where technically feasible).		Y		Y	Y	Y	Minor/ Negligible
Transport emissions associated with the construction period	Permanent	Negligible	Specification of materials that can be procured and sourced locally. Coordinate movement of products to reduce number of trips to site. Employ local workforce, where possible. Produce and implement site waste management plan that follows circular economy principles to reduce need for movement of waste from the site where possible. which can help reduce the embodied impact of construction.		Y		Y	Y	Y	Negligible
Completed Development										

Operational emission from buildings in use	Permanent	Minor	At RIBA Stages 3 & 4, seek materials with a high albedo in the façade design, these would reflect a higher level of incident radiation away from the building rather than absorbing to reduce surface temperatures, avoiding exacerbating the overheating risk. Install smart meters and/or sub-meters to monitor operational consumption more accurately. Additional detailed modelling will be further explored at detailed design stages to investigate operational energy usage. Suitable space for waste storage and management facilities will be factored into the design to enable adequate waste segregation for optimal collection and subsequent treatment.		Y		Y	Y	Y	Minor / Negligible
Operational traffic	Permanent	Negligible	Increased uptake in use of EV vehicles for private travel. Increased uptake in use of public transport modes to travel to and from the site		Y		Y	Y	Y	Negligible
Cumulative Effects										
<i>Construction</i>										
N/A										
<i>Completed Development</i>										

*** Geographical Level of Importance**

I = International; UK = United Kingdom; S = Scotland; R = Regional; C = Council; L = Local

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- ⁱ Ministry of Housing, Communities and Local Government (2025), National Planning Policy Framework, **National Planning Policy Framework - GOV.UK**
- ⁱⁱ Ministry of Housing, Communities and Local Government (2024), Approved Document L: Conservation of fuel and power, Volume 2: Buildings other than dwellings, **Approved Document L, Conservation of fuel and power, Volume 2: Buildings other than dwellings, 2021 edition incorporating 2023 amendments**
- ⁱⁱⁱ Horsham District Council (2015), Horsham District Planning Framework, **Horsham District Planning Framework 2015**
- ^{iv} Horsham District Council (2024), Horsham District Local Plan 2023-2040 (regulation 19), **Horsham District Local Plan Regulation 19.pdf**
- ^v IEMA (2022), IEMA EIA Guide to: Climate Change resilience and adaptation
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- ^{vii} BSI (2011), BS EN 15978:2011 – Sustainability of construction works. Assessment of environmental performance of buildings
- ^{viii} BSI (2011), BS EN 15978:2011 – Sustainability of construction works. Assessment of environmental performance of buildings
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