



Yeargate Limited

LAND NORTH OF BIRCH BUSINESS PARK

Environmental Statement Volume I Chapter 16 -
Climate Change

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16 CLIMATE CHANGE

ABBREVIATIONS

ASHP	Air Source Heat Pump
CCRA	Climate Change Resilience Assessment
CEMP	Construction Environmental Management Plan
CTMP	Construction Transport Management Plan
CO ₂	Carbon Dioxide
DESNZ	Department for Energy Security and Net Zero
EV	Electric Vehicle
GHG	Greenhouse Gas
GIA	Gross Internal Area
GMCA	Greater Manchester Combined Authority
HDV	Heavy Duty Vehicle
ISEP	Institute of Sustainability and Environmental Professionals
LCA	Life Cycle Assessment
LDV	Light Duty Vehicle
NPPF	National Planning Practice Framework
PAS	Publicly Available Specification
PfEP	Places for Everyone Plan
PROW	Public Rights of Way
PV	Photo-voltaic
RICS	Royal Institute of Chartered Surveyors
RMBC	Rochdale Metropolitan Borough Council
tCO ₂ e	Tonnes of Carbon Dioxide equivalent
UKCP18	UK Climate Projections (2018)



GLOSSARY

16.1 INTRODUCTION

- 16.1.1. This chapter reports the outcome of the assessment of likely significant effects arising from greenhouse gas (GHG) emissions associated with the Proposed Development upon Climate Change and the likely significant effects arising from Climate Change upon the Proposed Development. The approach to, and assessment of, each potential effect differs. As such, this chapter has been split as follows:
- Part A: GHG Emissions Assessment – the effects on the global climate as a result of GHG emissions arising from the construction and operational phases of the proposed development; and;
 - Part B: Climate Change Resilience Assessment (CCRA) - the effects of a changing climate on the proposed development, including how the design will mitigate or adapt to the anticipated effects of future climate conditions.
- 16.1.2. This chapter has been produced by Redmore Environmental Ltd.
- 16.1.3. The GHG Emissions Assessment has established that the following additional mitigation measures are required:
- BREEAM Materials credits, including a Life Cycle Assessment (LCA);
 - Construction Transport Management Plan (CTMP);
 - Passive Electric Vehicle (EV) charging provision;
 - Travel Plans; and,
 - Servicing and Delivery Strategy.
- 16.1.4. The CCRA has established that the following additional mitigation measures are required:
- Detailed landscape design and planting to consider drought, extreme weather conditions and wind damage; and,
 - Landscape Management Plan.
- 16.1.5. The following residual effects have been identified:
- There is likely to be a direct, permanent, long-term **minor adverse** residual effect on the global climate as a result of GHG emissions during the construction phase (**not significant**);
 - There is likely to be a direct, permanent, long-term **minor adverse** residual effect on the global climate as a result of GHG emissions during the operational phase (**not significant**); and,
 - The residual consequence of effect is predicted to be direct, permanent, long-term **minor adverse** on buildings and infrastructure, future occupiers and landscaping and biodiversity within the Site boundary as a result of climate change during the operational phase (**not significant**).
- 16.1.6. No climate-specific monitoring requirements or environmental enhancements have been identified.
- 16.1.7. The remainder of this chapter describes the assessment methodology and the baseline conditions relevant to the assessment, as well as a summary of the likely significant effects leading to the additional mitigation measures required to avoid, prevent, reduce or, if possible, offset any likely significant adverse effects, and the likely residual effects and any required monitoring after these measures have been employed. Opportunities for environmental enhancement, where such opportunities exist, are also discussed.

16.1.8. This chapter is intended to be read as part of the wider ES, with particular reference to **Chapter 6 - Highways, Traffic and Transport** and **Chapter 12 - Water Environment**. This chapter is supported by the following appendices:

- Appendix 16.1 - Climate Change Legislation, Policy and Guidance;
- Appendix 16.2 - Climate Change Resilience Assessment; and,
- Appendix 16.3 - Greenhouse Gas Emissions Assessment Baseline Information.

16.2 CONSULTATION, SCOPE, METHODOLOGY AND SIGNIFICANCE CRITERIA

PART A: GREENHOUSE GAS EMISSIONS ASSESSMENT

CONSULTATION UNDERTAKEN TO DATE

16.2.1. No consultation specific to the GHG Emissions Assessment has been undertaken. The assessment has been undertaken with reference to relevant legislation, policy, published guidance and available baseline information.

SCOPE OF THE ASSESSMENT

- 16.2.2. The Proposed Development has the potential to result in GHG emissions. As such, associated effects have been assessed in accordance with the Institute of Sustainability and Environmental Professionals (ISEP) guidance 'Assessing Greenhouse Gas Emissions and Evaluating their Significance' (**Ref. 16.1**). It is important to note that there is no singular industry approach to assessing GHG emissions and that there are a range of different methodologies associated with the built environment sector. The ISEP guidance (**Ref. 16.1**) does not specify a particular approach but rather sets out advice as to the key components required to deliver a robust, appropriate, proportionate and consistent assessment.
- 16.2.3. It should be noted that GHGs have the ability to influence the radiation balance of the earth. The extent to which a single molecule of gas can influence this balance varies dependent on the composition of the molecule. As such, different GHGs have different radiative forcing. For the purpose of this assessment, where possible, GHG impacts are measured in tonnes of equivalent Carbon Dioxide (tCO₂e). This measure describes the functionally equivalent mass of Carbon Dioxide (CO₂) as the reference - the amount CO₂ that would have the same effect as 'x' amount of that gas. For example, methane has a greater radiative forcing affect than CO₂ and as such the equivalent CO₂ is greater than 1.
- 16.2.4. The GHG Protocol (**Ref. 16.2**) categorises direct and indirect emissions into three broad scopes:
- Scope 1: all direct GHG emissions;
 - Scope 2: indirect GHG emissions from the generation of purchased electricity, heat, or steam; and,
 - Scope 3: other indirect emissions, such as the extraction and production of purchased materials and fuels, electricity-related activities not covered in Scope 2, outsourced activities, waste disposal etc.
- 16.2.5. Indirect Scope 3 emissions are related to activities which are predominantly outside of the Applicant's control. However, in the supreme court judgment of *Finch v Surrey County Council* (**Ref. 16.3**) it is made clear that Scope 3 emissions should be considered as leading to potential indirect

effects of a development, but only if these are likely. For example, if information on which a reasoned conclusion could properly be based is available, such as when the end use of the material is certain.

- 16.2.6. Potential emissions across the lifetime of the Proposed Development were identified in order to inform the assessment scope. This is summarised in the following Sections. It should be noted that the ISEP guidance (**Ref. 16.1**) makes it clear that the scope of a GHG emissions assessment should be defined based on the likely proportion of emissions during a specific project stage. For example, if the majority of impacts occur during the operational phase of a project and construction impacts are **negligible**, then the GHG assessment can reflect this. The relevant magnitude of release was therefore considered as relevant when determining the assessment scope.

EMISSION SOURCES SCOPED INTO THE ASSESSMENT

Construction Phase

- 16.2.7. The following GHG emission sources are considered to have the potential to give rise to likely significant effects during construction of the Proposed Development and have therefore been considered within this assessment:
- Embodied carbon within construction materials; and,
 - Transport of construction materials to the Site.

Operational Phase

- 16.2.8. The following GHG emission sources are considered to have the potential to give rise to likely significant effects during operation of the Proposed Development and have therefore been considered within this assessment:
- Vehicle movements generated by the Proposed Development; and,
 - Energy consumption.

EMISSION SOURCES SCOPED OUT OF THE ASSESSMENT

- 16.2.9. The ISEP guidance (**Ref 16.1**) states that emission sources can be excluded where expected emissions are less than 1% of total emissions, and where all such exclusions total a maximum of 5% of total emissions. This was considered and the emission sources shown in **Table 16-1** scoped out of the assessment:

Table 16-1 - Emission Sources Scoped out of the Assessment: GHG Emissions Assessment

Element scoped out	Justification
GHG emissions from Site activities such as energy consumption within office and welfare facilities, and fuel use of diesel-powered plant during the construction phase	Given the short-term nature of the construction works, GHG emissions associated with plant, machinery and energy use are anticipated to be minimal
GHG emissions from repair, maintenance and refurbishment of the Proposed Development during its lifetime	Warehouses typically require minimal upkeep or refurbishment. As such, embodied carbon within future materials is not considered to be a significant emission source

GHG emissions from water consumption and treatment during operation	Warehouses are not considered to be a water intensive land use. Water will be supplied for office and welfare use only
GHG emissions from the treatment and disposal of waste materials during construction and operation	Significant levels of waste arisings are not anticipated during the construction or operation of the Proposed Development. It is noted these will be minimised through standard best practice including the implementation of suitable Waste Management Plans following the waste hierarchy
GHG emissions from decommissioning of the Proposed Development	Any decommissioning works will occur after 2050 and as such, would be subject to the net zero practices relevant to the time of decommission

EXTENT OF THE STUDY AREA

16.2.10. GHG emissions contribute to climate change, which is a global environmental effect. Therefore, the study area for the assessment is not limited by any specific geographical scope or defined by specific sensitive receptors. As such, the assessment focused on emission sources associated with the Proposed Development over which the Applicant has some ability to control or influence.

TEMPORAL SCOPE

16.2.11. The Proposed Development lifetime is considered to be 60-years, the standard assumed life of a building in line with Royal Institute of Chartered Surveyors (RICS) best practice guidance (**Ref. 16.4**).

METHOD OF BASELINE DATA COLLATION

DESK STUDY

16.2.12. The baseline for assessment comprises two components:

- National and regional GHG emissions, which provide a reference point against which the impact of the Proposed Development can be compared against; and,
- Baseline GHG emissions generated by the existing Site prior to development.

16.2.13. Baseline data for the GHG Assessment has been collected from the following source:

- UK Local and regional tonnes of equivalent Carbon Dioxide (tCO₂e) emissions - data tables (**Ref. 16.5**).

SURVEYS

16.2.14. For the purpose of this assessment, no site visits or surveys were required as sufficient information was available from the previously identified sources to describe the baseline environment.

ASSESSMENT METHODOLOGY

16.2.15. Expected GHG emissions arising from the sources scoped into the assessment were quantified using a calculation-based methodology as per the following equation which is aligned with the GHG Protocol (**Ref. 16.2**):

- Activity data x GHG emissions factor = GHG emissions or removal.

16.2.16. It should be recognised that qualitative assessments of emission sources are acceptable in accordance with the ISEP guidance (**Ref 16.1**) where, for example, data is unavailable or insufficient to support a quantitative calculation. This was considered in the context of the identified sources when undertaking the assessment.

16.2.17. The assessment approach to each emission source is detailed in the following Sections.

Embodied Carbon in Construction Materials

16.2.18. The amount and type of materials to be used throughout construction will be determined by the final building design and selected suppliers at the time of contract award. As such, GHG emissions embedded in construction materials have been estimated based on factors obtained from the RICS guidance (**Ref. 16.6**), which provides benchmark emission rates for a variety of land-use classes. For the purpose of this assessment, the land-use class for 'Business Park' has been considered most appropriate to represent the range of flexible land-uses proposed.

Construction Transport Emissions

16.2.19. Due to the outline nature of this application, the exact design specification had not been finalised at the time of assessment. As a result, the number of required construction vehicles could not be confirmed. A qualitative analysis of GHG emissions associated with construction transport has therefore been undertaken.

Operational Transport Emissions

16.2.20. The anticipated number of daily Light Duty Vehicle (LDV) and Heavy Duty Vehicle (HDV) trips associated with the operational phase of the Proposed Development were provided by Axis P.E.D. Ltd, the Transport Consultants for the project. These were multiplied by trip distances published by RICS (**Ref. 16.4**), and emission factors published by the Department for Energy Security and Net Zero (DESNZ) (**Ref. 16.7**) to calculate associated GHG emissions.

16.2.21. Due to the outline nature of the application, the end users of the Proposed Development are not known. Therefore, for the purpose of the calculation, the following assumptions have been applied:

- 50% of LDVs are passenger vehicles with an average trip distance of 20km, with employees anticipated to be local to the Site;
- 50% of LDVs are local delivery vehicles travelling 50km, the average trip distance for locally manufactured materials (general) published by RICS (**Ref. 16.4**);
- 50% of HDVs are local delivery vehicles travelling 50km, the average trip distance for local manufactured materials (general) published by RICS (**Ref. 16.4**);
- 50% of HDVs are national delivery vehicles travelling 120km, the average trip distance for nationally manufactured materials published by RICS (**Ref. 16.4**); and,
- No electric vehicles have been assumed for a worst-case assessment.

Operational Energy Consumption

16.2.22. GHG emissions associated with operational energy consumption have been quantified based on information provided within the Energy Statement for Planning (**Ref. 16.8**), which was produced by Crookes Walker Consulting, the Energy Consultants for the Proposed Development. This included an energy assessment to demonstrate compliance with the UK Non-Domestic Buildings Regulations Part L, which mandates the conservation of fuel and power, and provided building emission rates for each unit with the relevant energy hierarchy improvement measures included. These were multiplied

by the corresponding unit floorspace for the Proposed Development to calculate associated operational phase GHG emissions from energy use.

Mitigation

- 16.2.23. For GHG emissions mitigation, Publicly Available Specification (PAS) '2080:2023 Carbon Management in Infrastructure' (**Ref. 16.9**) provides a useful structure for working through and identifying potential opportunities and interventions. The ISEP GHG Management Hierarchy, as outlined in the updated guidance (**Ref. 16.1**) provides a similar structure, set out as eliminate, reduce, substitute and remove. The following provides a variation of these steps:
- Do not build: evaluate the basic need for the proposed project and explore alternative approaches to achieve the desired outcome/s;
 - Build less: realise potential for re-using and/or refurbishing existing assets to reduce the extent of new construction required;
 - Design clever: apply low carbon solutions (including technologies, materials and products) to minimize resource consumption and embodied carbon during the construction, operation, user's use of the project, and at end-of-life;
 - Construct efficiently: use techniques (e.g. during construction and operation) that reduce resource consumption and associated GHG emissions over the life cycle of the project; and,
 - Offset and remove emissions: as a complementary strategy to the above, adopt off-Site or on-Site means to offset and/or sequester GHG emissions to compensate for GHG emissions arising from the project.
- 16.2.24. The above steps were considered when identifying potential mitigation for inclusion in the development proposals.

EFFECT SIGNIFICANCE

- 16.2.25. When determining the significance of effect, the ISEP guidance (**Ref. 16.1**) states:

"IEMA's 2010 principles on climate change mitigation and EIA identify climate change as one of the defining environmental policy drivers and that action to address GHG emissions is essential. Specifically, three overarching principles are particularly relevant to considering the aspect of significance:

The GHG emissions from all projects will contribute to climate change, the largest interrelated cumulative environmental effect.

The consequences of a changing climate have the potential to lead to significant environmental effects on all topics in the EIA Directive (e.g. human health, biodiversity, water, land use, air quality).

GHG emissions have a combined environmental effect that is approaching a scientifically defined environmental limit, as such any GHG emissions or reductions from a project might be considered to be significant."

- 16.2.26. The ISEP guidance (**Ref. 16.1**) goes on to state:

"When evaluating significance, all new GHG emissions contribute to a negative environmental impact; however, some projects will replace existing development or baseline activity that has a higher GHG profile. The significance of a project's emissions should therefore be based on its net impact over its lifetime, which may be positive, negative or negligible;

Where GHG emissions cannot be avoided, the goal of the EIA process should be to reduce the project's residual emissions at all stages; and,

Where GHG emissions remain significant, but cannot be further reduced, approaches to compensate the project's remaining emissions should be considered."

16.2.27. The above aligns with the mitigation hierarchy outlined previously. When determining impact significance, the guidance indicates:

"The crux of significance therefore is not whether a project emits GHG emissions, nor even the magnitude of GHG emissions alone, but whether it contributes to reducing GHG emissions relative to a comparable baseline consistent with a trajectory towards net zero by 2050."

16.2.28. For the purposes of the assessment effect significance has been determined against a trajectory towards net zero by 2050 and the criteria outlined in the ISEP guidance (**Ref. 16.1**). This is outlined in **Table 16-2**.

Table 16-2 - GHG Emissions Assessment - Significance Criteria

Effect	Criteria
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

16.2.29. As set out in **Chapter 5: Approach to EIA**, effects that are classified as **beneficial, moderate** or **major** are considered to be **significant**. Effects classified as **negligible** or **minor** are considered to be **not significant**.

16.2.30. All GHG emissions to the atmosphere have a lasting effect, accumulating and remaining in the atmosphere and contributing to global warming. As such, all effects are considered to be **long term, permanent** and **direct**.

PART B: CLIMATE CHANGE RESILIENCE ASSESSMENT

CONSULTATION UNDERTAKEN TO DATE

16.2.31. No consultation specific to the CCRA has been undertaken. The assessment was undertaken with reference to relevant legislation, policy, published guidance and available baseline information.

SCOPE OF THE ASSESSMENT

16.2.32. The Proposed Development has the potential to introduce receptors vulnerable to climate change to the Site. A CCRA was therefore required of the effects of climate change on receptors associated with the Proposed Development. This was undertaken following the methodology provided within Appendix 1 of the ISEP Guidance (**Ref. 16.10**).

ELEMENTS SCOPED INTO THE ASSESSMENT

Construction Phase

16.2.33. The construction duration is not expected to be sufficient to experience any notable changes in the climate. As such, no climate hazards were identified as having the potential to affect the Proposed Development during the construction phase.

Operational Phase

16.2.34. The following climate hazards have been identified as having the potential to affect the Proposed Development during the operational phase.

- Increased annual and seasonal temperatures;
- Flooding;
- Heavy rainfall events;
- Drought and water scarcity; and,
- Storms and extreme wind events.

ELEMENTS SCOPED OUT OF THE ASSESSMENT

16.2.35. The elements shown in **Table 16-2** are not considered to give rise to likely significant effects as a result of the Proposed Development and have therefore not been considered within this assessment.

Table 166-2 - Elements Scoped Out of the Assessment: CCRA

Element scoped out	Justification
Climate risks associated with sea level rise	The Proposed Development is not located in a coastal region
Climate risks during the construction phase of the Proposed Development	The construction duration is not expected to be sufficient to experience any notable changes in the climate

EXTENT OF THE STUDY AREA

16.2.36. The study area for the CCRA, unlike other disciplines, focuses on the effect that climate will have on the Proposed Development, rather than the Proposed Development on the environment. The study area therefore comprises receptors within the Site boundary.

METHOD OF BASELINE DATA COLLATION

DESK STUDY

16.2.37. The baseline conditions for the CCRA represent the prevailing and projected climatic conditions relevant to the Site which may influence its vulnerability and resilience to climate change. This includes both observed historical weather patterns and anticipated future climate trends.

16.2.38. Baseline data for the CCRA has been collected from the following sources:

- Historical regional weather data published by the Met Office (**Ref. 16.11**); and,
- UKCP18 climate projections (**Ref. 16.12**).

SURVEYS

16.2.39. For the purpose of this assessment, no Site visits or surveys were required as sufficient information was available from the previously identified sources to describe the baseline environment.

ASSESSMENT METHODOLOGY

16.2.40. A CCRA has been undertaken following the methodology provided within Appendix 1 of the ISEP guidance (**Ref. 16.10**). This comprised the following stages:

- Define the future baseline;
- Identify potential climate risks and affected receptors within the Site;
- Assess the severity of the climate risk on the identified receptors;
- Determine the significance of impacts; and,
- Where necessary, provide additional mitigation measures to reduce the impacts of the identified risks.

16.2.41. A detailed methodology outlining each of the above steps is provided in **Appendix 16.2**.

Mitigation

16.2.42. Where a significant impact was predicted, further adaptation and mitigation measures were identified. The ISEP guidance (**Ref. 16.1**) outlines that mitigation measures should be prioritise flexibility, risk management, and clear responsibility. Overall, mitigation should both reduce risks and improve the project's resilience and functionality.

16.2.43. A detailed explanation of how mitigation has been considered throughout the assessment is provided in **Appendix 16.2**.

EFFECT SIGNIFICANCE

16.2.44. In accordance with ISEP guidance (**Ref. 16.10**), a combination of probability and consequence was used to reach a reasoned conclusion on the magnitude of the effect of climate change on the Proposed Development. The ISEP guidance states that the magnitude of impact is based on a combination of:

- Probability, which takes into account the chance of the effect occurring over the lifespan of the Proposed Development if the risk is not mitigated; and,
- Consequence, which reflects the geographical extent of the effect, or the number of receptors affected (e.g., scale), the complexity of the effect, the sensitivity of receptors, and the duration, frequency, and reversibility of the effect.

16.2.45. A detailed explanation of the methodology applied in making these judgements is provided in **Appendix 16.2**.

16.2.46. To determine significance within the CCRA, the likelihood of a climate hazard occurring was combined with the consequence of effect in line with the significance matrix within the ISEP guidance (**Ref. 16.10**). This is shown in **Table 16-3**.

Table 16-3 - Significance Matrix

Likelihood	Consequence of Climate Effect				
	Negligible	Minor Adverse	Moderate Adverse	Moderate to Major Adverse	Major Adverse
Very High	Not Significant	Significant	Significant	Significant	Significant
High	Not Significant	Not Significant	Significant	Significant	Significant
Medium	Not Significant	Not Significant	Not Significant	Significant	Significant
Low	Not Significant	Not Significant	Not Significant	Not Significant	Significant
Very Low	Not Significant	Not Significant	Not Significant	Not Significant	Not Significant

16.3 LEGISLATIVE FRAMEWORK, POLICY AND GUIDANCE

LEGISLATIVE FRAMEWORK

16.3.1. The applicable legislative framework is summarised as follows:

- Paris Agreement 2015 (**Ref. 16.13**);
- Climate Change Act (2008) (2050 Target Amendment) (**Ref. 16.14**); and,
- Carbon Budget Orders 2009, 2011, 2016 and 2021 (**Ref. 16.15 - 16.18**).

16.3.2. Further detail of the relevant legislation is provided in in **Appendix 16.1**.

POLICY

16.3.3. The applicable policy framework is summarised as follows:

- National Planning Policy Framework (NPPF) 2024, Chapter 2, Chapter 14, Chapter 15 (**Ref. 16.19**);
- Greater Manchester Combined Authority (GMCA) Places for Everyone Plan (PfEP) 2024, Policy JP-S1, Policy JP-S2, Policy JP-S4, Policy JP-S6 and Policy JP-P1 (**Ref. 16.20**); and,
- Rochdale Core Strategy 2016, Policy P3, Policy G1 and Policy G2 (**Ref. 16.21**)

16.3.4. In addition, this chapter has been prepared in accordance with the Government's National Planning Practice Guidance (**Ref. 16.22**).

GUIDANCE

16.3.5. The following guidance documents have been used during the preparation of this chapter:

- ISEP 'Assessing GHG Emissions and Evaluating their Significance Edition 2.1 with Supplementary Guidance' 2026 (**Ref. 16.1**)
- World Resources Institute 'GHG Protocol' 2019 (**Ref. 16.3**).
- RICS 'Whole life carbon assessment for the built environment' 2024 (**Ref. 16.4**);
- ISEP 'Environmental Impact Assessment Guidance to: Climate Change Resilience and Adaption' 2020 (**Ref. 16.10**); and,
- GMCA, 'Design Guidance for Net Zero' 2026 (**Ref. 16.23**).

16.4 BASELINE CONDITIONS

PART A: GREENHOUSE GAS EMISSIONS ASSESSMENT

16.4.1. A review of existing and future baseline conditions of relevance to the Site was undertaken to support the GHG emissions assessment. This is detailed in **Appendix 16.3**. A summary of baseline conditions has been provided in the following Sections.

Existing Baseline

National and Regional Emissions

16.4.2. Review of GHG emissions statistics produced by the DESNZ (**Ref. 16.5**) indicated the following:

- The administrative area of Rochdale Metropolitan Borough Council (RMBC) emitted 872ktCO₂e during 2023;
- England emitted 275,589ktCO₂e during 2023. Rochdale therefore contributed 0.32% to the total GHG emissions for England;
- The UK emitted 356,094ktCO₂e during 2023. Therefore, Rochdale contributed 0.24% to the total GHG emissions for the UK; and,
- The largest sectoral contributor to GHG emissions for Rochdale, England and the UK was road transport emissions.

16.4.3. Reference should be made to **Appendix 16.3** for further information.

Existing Land-Use Emissions

16.4.4. The Site covers approximately 4.1ha of open vacant land covered by a mixture of unmanaged vegetation. The existing land use is unlikely to be a significant source of, or sequester of, GHG emissions. As such, for the purpose of this assessment, baseline emissions from the Site were considered to be negligible and all emissions generated by the Proposed Development will be in excess of current levels.

Future Baseline

National and Regional Emissions

16.4.5. It is anticipated that national and regional GHG emissions will continue to decline over the lifetime of the Proposed Development in line with existing and committed climate policies, targets and regulatory measures towards net-zero by 2050. This is in line with the requirements of the Carbon Budget Orders defined in accordance with the Climate Change Act (2008).

Existing Land-Use Emissions

- 16.4.6. In the absence of future development, no change in emissions from the Site are anticipated and emissions will remain negligible.

PART B: CLIMATE CHANGE RESILIENCE ASSESSMENT

- 16.4.7. A review of existing and future baseline conditions of relevance to the Site was undertaken to support the CCRA assessment. This is detailed in **Appendix 16.2**. A summary of baseline conditions has been provided in the following Sections.

Existing Baseline

- 16.4.8. The existing baseline was defined in the context of historic climate data obtained in the vicinity of the Site. This showed that annual average, maximum and minimum temperatures and mean annual rainfall have all risen over the period between 1991 and 2020, with a decrease in the number of frost days.
- 16.4.9. Reference should be made to **Appendix 16.2** for further information.

Future Baseline

- 16.4.10. The future baseline was defined in the context of future climate projections, as published by the Met Office (**Ref. 16.3**). This indicated the following trends in climate over the lifetime of the development:
- Warmer, wetter winters;
 - Hotter, dryer summers;
 - Decrease in lying and falling snow;
 - No compelling trends in storminess, and,
 - An increase in near-surface winter wind speeds. It should be noted that the predicted increase was small in magnitude compared to inter-annual variability in wind speed.
- 16.4.11. Based on the above predictions, it is anticipated that the Site will experience greater variations in climate and more frequent climate hazard events such as heatwaves, droughts, storms and heavy rainfall in the future. It should be noted that snow was not considered to be a climate hazard in the context of the CCRA.
- 16.4.12. Reference should be made to **Appendix 16.2** for further information.

16.5 SENSITIVE RECEPTORS

PART A: GREENHOUSE GAS EMISSIONS ASSESSMENT

- 16.5.1. GHG emissions have a global effect rather than directly affecting specific local receptors. The global climate has therefore been treated as a single receptor. Given the global scale and severe consequences of climate change and limited recoverability, the receptor sensitivity is considered to be **high**.

PART B: CLIMATE CHANGE RESILIENCE ASSESSMENT

- 16.5.2. The following sensitive receptors have been considered in the CCRA:
- Buildings and infrastructure;
 - Future occupiers; and,

- Landscaping and biodiversity.

16.6 ASSESSMENT OF POTENTIAL EFFECTS, MITIGATION AND RESIDUAL EFFECTS

PART A: GREENHOUSE GAS EMISSIONS ASSESSMENT

- 16.6.1. The Proposed Development has the potential to result in GHG emissions. As such, associated effects have been assessed in accordance with the ISEP Guidance (**Ref. 16.1**). This is presented in the following Sections.

CONSTRUCTION PHASE

Embodied Carbon in Construction Materials

- 16.6.2. Estimated GHG emissions associated with embodied carbon in construction materials are summarised in **Table 16-4**.

Table 166-4 – Embodied Carbon in Construction materials

Land Use	GHG Emission Rate (kgCO ₂ e/m ²)	Gross Indoor Area (GIA) (m ²)	GHG Emissions (tCO ₂ e)
Business Park	860	12,241	10,527

- 16.6.3. As shown in **Table 16-8**, the total embodied GHG emissions in construction was calculated as 10,527tCO₂e. Based on a development lifetime of 60-years, this equates to 1,190tCO₂e per year.
- 16.6.4. In lieu of detailed design information at this stage, it was not possible to complete an accurate upfront embodied carbon calculation. As such, as outlined in Section 16.2.18, the above calculation was estimated based on factors obtained from the RICS guidance (**Ref. 16.6**).
- 16.6.5. The GMCA Design Guidance for Net Zero (**Ref. 16.23**) requires all non-residential developments to calculate upfront embodied carbon emissions and provide a summary of measures that have been taken to reduce emissions throughout the design process. Given the outline nature of the application, exact details of materials will be determined later in the design process. As such, an accurate calculation of upfront embodied carbon emissions has not yet been undertaken and no specific measures to reduce emissions have been committed to. In the absence of such commitments, the Proposed Development does not fully contribute to decarbonisation in line with local and national policy goals at this stage. Hence, in accordance with the ISEP guidance (**Ref. 16.1**) the unmitigated effect is considered to be **moderate adverse** and **significant**.
- 16.6.6. It should be noted that it is considered appropriate to complete a calculation of upfront embodied carbon emissions at reserved matters stage, once detailed design has been progressed.

Construction Transport Emissions

- 16.6.7. Given the outline nature of the Proposed Development, the number of construction vehicle trips has not been possible to calculate. A Construction Environmental Management Plan (CEMP) is proposed as embedded mitigation and it is anticipated that modern best practice construction methods would be followed throughout the construction phase. However, no detailed commitments to reduce GHG emissions from construction transport were available at the time of assessment. In the absence of such commitments, the Proposed Development does not fully contribute to

decarbonisation in line with local and national policy goals. Therefore, in accordance with the ISEP guidance (**Ref. 16.1**), the unmitigated effect is considered to be **moderate adverse** and **significant**.

OPERATIONAL PHASE

Operational Transport Emissions

- 16.6.8. GHG emissions from operational transport were calculated in accordance with the methodology outlined in Section 16.2.20, using traffic data provided by Axis P.E.D. Ltd, the Transport Consultants for the project. This is outlined in the following Section.
- 16.6.9. The following measures have been incorporated into the design of the Proposed Development to minimise road transport emissions;
- Car parking provided below the maximum allowance with the intention of constraining private car trip generation at source rather than accommodating unconstrained demand. This is consistent with Chapter 9 of the NPPF (**Ref. 16.19**) and PfEP Policy JP-S1 (**Ref. 16.20**);
 - Provision of pedestrian linkages to existing Public Rights of Way (PROW) through the Site, supporting the active travel and connectivity objectives of Chapter 9 of the NPPF (**Ref. 16.19**) and PfEP Policy JP-S1 (**Ref. 16.20**);
 - Active EV charging spaces provided in accordance with Part S of the Building Regulations. This will support the transition to low-carbon transport in line with PfEP Policies JP-S1 and JP-S2; and,
 - Provision of 24 cycle storage spaces, in excess of the 19 required in accordance with the RMBC Core Strategy (**Ref. 16.21**), to encourage the use of sustainable transport modes, consistent with Chapter 9 of the NPPF (**Ref. 16.19**) and PfEP Policy JP-S1 (**Ref. 15.21**).
- 16.6.10. Additionally, the Draft Transport Assessment (**Ref. 16.24**) identifies that the Site provides opportunities for access by walking and cycling from surrounding settlements and that public transport services are available within the wider locality, demonstrating accordance with RMBC Local Plan Policy G1 (**Ref. 16.21**). However, it is recognised that, due to the nature of the proposed B2/B8 use and its associated workforce catchment, the potential for travel by sustainable transport modes may be inherently limited for staff and visitors commuting from further afield.
- 16.6.11. The calculated GHG emissions from operational transport are provided in **Table 16-5**.

Table 166-5 – Operational Transport GHG Emissions

Vehicle Type	Annual Trips	Trip Distance (km)	Emission Factor (kgCO ₂ e/km)	Annual Emissions (tCO ₂ e)
Passenger vehicles	368,650	20	0.17304	1,275.8
Delivery vans	368,650	50	0.25561	4,711.5
Local HDVs	17,338	50	0.89121	772.6
National HDVs	17,338	120	0.89121	1,854.2
Total				8,614.1

- 16.6.12. As shown in **Table 16-5**, the total GHG emissions from operational vehicle movements was calculated as 8,614.1tCO₂e/yr. Based on a development lifetime of 60-years, this equates to 516,845tCO₂e.

- 16.6.13. As shown in **Table-16-5**, the majority of transport-related GHG emissions are associated with delivery and servicing activity, reflecting the nature of the proposed B2/B8 use. Whilst the embedded design measures will reduce emissions associated with staff and visitor travel, emissions from delivery movements remain a key contributor.
- 16.6.14. Given the outline nature of the application, the end users of the Proposed Development are not known and therefore, detailed servicing and delivery arrangements cannot be defined at this stage and no specific operational mitigation measures to reduce emissions from deliveries have been incorporated. In the absence of such commitments, the Proposed Development does not fully contribute to decarbonisation in line with local and national policy goals at this stage. Therefore, in accordance with the ISEP (**Ref. 16.1**) significance criteria, the unmitigated effect is considered to be **moderate adverse** and **significant**.

Operational Energy Consumption

- 16.6.15. GHG emissions from operational energy consumption were quantified in accordance with the methodology outlined in Section 16.2.22. These are outlined in the following Section.
- 16.6.16. An Energy Statement for Planning (**Ref. 16.8**) has been produced by Crookes Walker Consulting, the Energy Consultants for the Proposed Development. This includes an energy assessment to demonstrate compliance with the UK Non-Domestic Buildings Regulations Part L, which mandates the conservation of fuel and power.
- 16.6.17. The assessment has applied the energy hierarchy; 'Be Lean, Be Clean and Be Green' in accordance with the low-carbon and energy efficiency objectives of Section 14 of the NPPF (**Ref. 16.19**), PfEP Policies JP-S2 (**Ref. 16.20**), the GMCA Net Zero Design Guidance (**Ref. 16.23**) and RMBC Core Strategy Policy G1 (**Ref. 16.21**), to reduce the associated energy demand of the Proposed Development. The measures include:
- Be Lean - an improved model of energy efficient measures and optimum envelope compared to Baseline, with the following features:
 - Incorporation of Mechanical Ventilation with Heat Recovery (MVHR) for office spaces, which will incorporate high efficiency heat recovery;
 - Provision of thermal insulation in accordance with BS 5422: 2001 to reduce heat loss and conserve energy;
 - Inclusion of high efficiency lighting installations.
 - Be Clean - The use of Air Source Heat Pumps (ASHPs); and,
 - Be Green - The use of high efficiency solar Photovoltaic (PV) panels to significantly improve the performance of the development.
- 16.6.18. In addition, the development is seeking to achieve BREEAM 'Excellent' credits for energy in line with the requirements of the GMCA Net Zero Design Guidance (**Ref. 16.23**) and PfEP Policy JP-S2 (**Ref. 16.20**). Actual credits achieved will be confirmed by the BREEAM assessor later in the design process.
- 16.6.19. The calculated building emission rates for each unit, with the improvement measures included, have been applied across the corresponding unit floorspace for the Proposed Development. The calculated GHG Emissions are summarised in **Table 16-6**.

Table 166-6 – Operational Energy Consumption GHG Emissions

Unit	Building Emission Rate (kg/CO ₂ /m ² /year)	Gross Indoor Area (m ²)	Annual CO ₂ Emissions (tonnes)
A	1.05	6,452	6.8
B	1.11	5,789	6.1
Total			12.9

16.6.20. As shown in **Table 16-6**, total GHG emissions from energy consumption were calculated as 12.9tCO₂e/yr. Based on a development lifetime of 60-years, this equates to 774.7tCO₂e.

16.6.21. The Proposed Development demonstrates compliance with Part L of the Building Regulations (2021) and is seeking to achieve BREEAM 'Excellent' credits for energy. As such, it is minimising GHG emissions in line with national, regional and local policy. Therefore, the unmitigated effect is considered to be **minor adverse** and **not significant**.

LIFETIME EMISSIONS SUMMARY

16.6.22. Combined construction and operational phase emissions for the Proposed Development are summarised in **Table 16-7**. GHG emissions from embodied carbon in construction materials were annualised based on a 60-year life. This allows them to be compared like-for-like to operational GHG emissions which are reported on a 'per annum' basis. In order to provide context to the assessment results, predicted emissions have been compared with the 6th Carbon Budget (**Ref. 16.18**), with the five-year carbon budget total divided by five to derive an equivalent annual figure.

Table 166-7 – GHG Emissions Overview

Phase	Emission Source	Annual GHG Emissions (tCO ₂ e/yr)	Proportion of 6 th Carbon Budget (%)
Construction	Embodied Carbon in Construction Materials	175.5	0.000091
Operational	Operational Transport	8,614.1	0.004463
Operational	Operational Energy Consumption	12.9	0.000007
Total		8,493.4	0.004561

16.6.23. As shown in **Table 16-7**, the Proposed Development is predicted to contribute a low proportion of budgeted GHG emissions on a national level. Operational transport was predicted to result in the largest contribution to GHG emissions. It is noted that the need for logistics and office space would be required without the Proposed Development coming forward and the associated vehicle trips would likely still be on road network, albeit in a different location.

ADDITIONAL MITIGATION

Embodied Carbon in Construction Materials

16.6.24. At the outline application stage, detailed building design, structural solutions, and material specifications are not yet fixed. As a result, it was not possible to meaningfully quantify embodied carbon or to specify detailed construction product mitigation at this stage.

16.6.25. As outlined in the BREEAM Pre-assessment Summary Report (**Ref. 16.25**), the Proposed Development is seeking to achieve the following materials credits under the BREEAM UK New Construction V6.1 framework:

- Mat 01 - Building life cycle assessment (LCA);
- Mat 02 - Environmental Product Declarations;
- Mat 03 - Responsible sourcing of construction products;
- Mat 05 - Designing for durability and resilience; and,
- Mat 06 - Material efficiency.

16.6.26. A Materials Efficiency Plan (**Ref. 16.26**) and Sustainable Procurement Plan (**Ref. 16.27**) have been prepared in support of the development. These establish a target embodied carbon of less than 550 kgCO₂e/m² GIA, which will be realised through future detailed design.

16.6.27. The above measures and associated BREEAM credits can be secured by RMBC via planning condition.

16.6.28. The above approach includes an LCA, which involves a calculation of upfront embodied carbon emissions. This aligns with the GMCA Net Zero Design Guidance (**Ref. 16.23**) and the objectives of the PfEP (**Ref. 16.20**), including Policies JP-S2 and JP-S6. The proposed measures are also consistent with RMBC Core Strategy Policy G1 (**Ref. 16.21**).

Construction Transport Emissions

16.6.29. A CTMP is proposed to be prepared following the appointment of a contractor to look at the construction impacts of the Proposed Development. This can be secured via planning condition. This is predicted to minimise impacts associated with construction transport in accordance with RMBC Core Strategy Policy G2 (**Ref. 16.21**).

Operational Transport Emissions

16.6.30. GHG emissions from vehicles accessing and egressing the Site are expected to gradually decrease over the operational lifetime of the Proposed Development. This reflects ongoing changes in government policy, technological advancement, and market trends, including the increased uptake of hybrid and electric EVs and the progressive phase-out of petrol and diesel vehicles. In addition, new vehicles will be required to comply with increasingly stringent European emissions standards resulting in lower pollutant emissions from the vehicle fleet. As a result, overall emissions associated with road traffic are expected to reduce from current levels.

16.6.31. Notwithstanding the above, whilst the shift to EVs will reduce direct emissions from vehicles, it may lead to increased electricity demand. However, associated indirect emissions are expected to reduce over time as the electricity grid continues to decarbonise in line with net-zero targets.

16.6.32. Overall, the above trends are expected to reduce transport-related GHG emissions associated with the Proposed Development over time.

16.6.33. The following additional operational transport mitigation measures are recommended for inclusion within the Proposed Development and can be secured by RMBC via planning condition:

- Provision of passive EV infrastructure to support the transition to low-carbon transport and future-proof the Site for electric HDVs, consistent with PfEP Policy JP-S2 (**Ref. 16.20**);
- Preparation of a Delivery and Servicing Strategy to manage GHG emissions from HDV and delivery movements through operational controls, in accordance with PfEP Policy JP-S1 (**Ref. 16.20**); and,

- Travel Plans for each building delivered through the BREEAM UK New Construction V6.1 Tra 01 assessment process, to support the shift to sustainable transport modes and further reduce GHG emissions from private vehicles, in accordance with PfEP Policy JP-S1 (**Ref. 16.20**).

16.6.34. These measures will further contribute to the reduction of operational transport-related GHG emissions as far as reasonably practicable. The proposed strategy complies with the aims of national, regional and local policy to deliver sustainable new development.

Operational Energy Consumption

16.6.35. It is considered that the measures incorporated within the Energy Statement for Planning (**Ref. 16.8**) are sufficient to reduce operational energy demand and associated GHG emissions in line with national, regional and local policy. As such, no additional mitigation is considered necessary.

RESIDUAL EFFECTS

Embodied Carbon in Construction Materials

16.6.36. Following securement of the relevant BREEAM materials credits via planning conditions, embodied carbon in construction materials will be considered and minimised as far as reasonably practicable throughout the design process in line with national, regional and local policy. Therefore, the residual effect is **minor adverse** and **not significant**, in accordance with ISEP guidance (**Ref. 16.1**).

Construction Transport Emissions

16.6.37. Given the anticipated low GHG emissions produced by construction transport in comparison with the operational phase and the provision of a CTMP, which can be secured by planning condition, it is considered that construction transport emissions will be minimised as far as reasonably practicable in line with national, regional and local policy. Therefore, the residual effect is **minor adverse** and **not significant**, in accordance with ISEP guidance (**Ref. 16.1**).

Operational Transport Emissions

16.6.38. Subject to implementation of the additional mitigation measures outlined in Section 16.6.33, which can be secured by planning condition, it is considered that operational transport emissions will be minimised as far as reasonably practicable throughout the design process and in line with national, regional and local policy. Therefore, the residual effect is **minor adverse** and **not significant**, in accordance with ISEP guidance (**Ref. 16.1**).

Operational Energy Consumption

16.6.39. As outlined in Section 16.6.21, the predicted effect of operational energy consumption is **minor adverse** and **not significant**, without the requirement for additional mitigation. It therefore follows that the residual effect is **minor adverse** and **not significant**, in accordance with ISEP guidance (**Ref. 16.1**).

SUMMARY

16.6.40. A summary of the effects on the global climate as a result of GHG emissions arising from the construction and operational phases of the Proposed Development is presented in **Table 16-8**.

Table 166-8 – Assessment of potential effects, additional mitigation, residual effects and monitoring

Sensitive receptor	Global Climate
Potential effects	The sensitivity of the global climate is considered to be high. Prior to the implementation of additional mitigation measures, there is likely to be a direct, permanent, long-term moderate adverse effect on the global climate (significant).
Additional mitigation	In addition to the embedded mitigation, the below measures are required to minimise GHG emissions associated with the Proposed Development as far as practicable in line with national, regional and local policy: • BREEAM Materials Credits, including an LCA; • Provision of a CTMP; • Passive EV infrastructure; • Travel Plans; and, • Servicing and Delivery Strategy. The mitigation measures can be secured by RMBC via suitably worded planning conditions
Residual effects and monitoring	The sensitivity of the global climate is considered to be high. The recommended mitigation measures are considered to reduce GHG emissions as far as practicable in line with national, regional and local policy. Therefore, there is predicted to be a direct, permanent, long-term minor adverse residual effect (not significant) following the implementation of mitigation measures No specific climate-related monitoring requirements have been identified. The proposed mitigation measures will be secured through planning conditions and implemented at the detailed design stage, with compliance demonstrated through condition discharge at Reserved Matters stage

CUMULATIVE EFFECTS

16.6.41. An overarching principle of the ISEP guidance (**Ref. 16.1**) is that GHG emissions from all development cumulatively contribute to climate change. This, therefore, makes the assessment of GHG emissions a cumulative assessment by its very nature. As such, cumulative effects from the Proposed Development when considered alongside other committed development in the vicinity of the Site were addressed inherently within the GHG Emissions Assessment.

PART B: CLIMATE CHANGE RESILIENCE ASSESSMENT

16.6.42. An assessment of significance of future climate effects on the Proposed Development has been undertaken. This is presented in **Appendix 16.2** and summarised in the following Sections.

OPERATIONAL PHASE

Climate Change Risk Assessment and Significance of Impacts

16.6.43. The significance of potential effects on receptors associated with the Proposed Development due to climate change was assessed in accordance with the ISEP guidance (**Ref. 16.10**). This included consideration of the vulnerability and susceptibility of each receptor to the associated climate hazards, the likelihood of the climate effect occurring and the consequence of the associated effect.

16.6.44. Reference should be made to **Appendix 16.2** for the detailed CCRA.

16.6.45. An assessment of each receptor to the individual climate risk has been determined by combining the receptor susceptibility with the receptor vulnerability and applied professional judgement.

16.6.46. Embedded measures included within the Energy Statement for Planning (**Ref. 16.8**) and Flood Risk Assessment & Drainage Strategy Report (**Ref. 16.28**) produced in support of the Proposed Development, as well as the requirements of building regulations were considered within the assessment.

16.6.47. The results of the assessment show **significant** effects could occur as a result of the following, if suitable design measures are not implemented:

- Extreme weather and storm conditions on landscaping/ planting; and,
- Droughts on landscaping/ planting.

16.6.48. Effects as a result of the following climate hazards were assessed to be **not significant**:

- Increased summer temperatures on buildings/ infrastructure and future occupiers;
- Wetter winters and extreme precipitation on buildings/ infrastructure and landscaping/ planting;
- Extreme wind and storm conditions on buildings/ infrastructure and future occupiers; and,
- Drought on buildings and infrastructure.

Additional Mitigation

16.6.49. Given the outline nature of the application, detailed design has not yet been undertaken. As such, detailed landscape design should include planting specifications to take into account drought and extreme weather conditions. Tree, shrub and hedge planting should also be planned to avoid wind damage. This should be supplemented by a Landscape Management Plan to ensure the ongoing maintenance and protection of the planted species.

16.6.50. The above measures can be secured by RMBC via planning condition.

Residual Effects

16.6.51. Following implementation of the identified additional mitigation measures, the consequence of effect as a result of extreme weather and storm conditions on property and landscaping/ planting, as well as droughts on landscaping/ planting would reduce to **minor adverse**. It therefore follows that the residual effect would be **not significant**.

SUMMARY

16.6.52. A summary of the effects of climate change on the Proposed Development during the operational phase is presented in **Table 16-15**.

Table 166-15 – Assessment of potential effects, additional mitigation, residual effects and monitoring

Sensitive receptors	Buildings and infrastructure, future occupiers, landscaping and biodiversity
Potential effects	The consequence of effect is negligible to large adverse and the likelihood is very low to high. In line with the significance matrix shown in Table 16-3 , the predicted effects range from not significant to significant .
Additional mitigation	In addition to the mitigation outlined within the Energy Statement for Planning (Ref. 16.8) and Flood Risk Assessment & Drainage Strategy Report (Ref. 16.26) and the requirements of building regulations, the following mitigation is recommended to control potential effects as a result of climate change on the identified receptors:

	- Detailed landscape design and planting to consider drought, extreme weather conditions and wind damage; and, - Landscape Management Plan. The mitigation measures can be secured by RMBC via suitably worded planning conditions
Residual effects and monitoring	The consequence of effect is negligible to minor adverse and the likelihood is very low to high. In line with the significance matrix shown in Table 16-3, the predicted residual effects are not significant. No specific climate-related monitoring requirements have been identified. The proposed mitigation measures will be secured through planning conditions and implemented at the detailed design stage, with compliance demonstrated through condition discharge at Reserved Matters stage.

CUMULATIVE EFFECTS

16.6.53. Climate hazards of relevance to the Proposed Development were identified based on analysis of UKCP18 projections, which consider changes in climate as a result of global GHG emissions. Cumulative effects have therefore been inherently considered within the assessment.

16.7 OPPORTUNITIES FOR ENVIRONMENTAL ENHANCEMENT

16.7.1. No opportunities for environmental enhancement were identified during the assessment.

16.8 DIFFICULTIES AND UNCERTAINTIES

Part A: Greenhouse Gas Emissions Assessment

16.8.1. The following assumptions and limitations were made when completing the GHG Emissions Assessment:

- Given the outline nature of the application, the assessment has been based on high level information. This has been taken into consideration through the use of a hybrid quantitative / qualitative approach to assessing GHG emissions associated with the Proposed Development;
- Detailed design information was not available. As such, embodied carbon within construction materials has been based on benchmark figures;
- In relation to operational traffic movements of the Proposed Development, some assumptions were made on vehicle types and trip distance. Average trip distances were adopted to be conservative;
- GHG emissions within fuel and materials will continue to improve as the UK heads towards net zero. However, this was not included within the calculations as a worst-case;
- There is inherent uncertainty within all emission factors; and,
- The trajectory of GHG emissions into the future is dependent on influences outside of the Applicant's control, for example Government policy and global technology and economic shifts, which are difficult to predict. As such, any assumptions regarding national emissions trends are based on current projections and may not fully reflect actual future outcomes. However, the UK carbon budgets are legally binding and the Government have an array of policies and levers to be deployed if the carbon budgets are not likely to be met.

Part B: Climate Change Resilience Assessment

The following limitations and assumptions have been identified within the CCRA:

- There is currently no agreed industry methodology that should be applied for assessing the vulnerability of projects under the EIA Regulations. Therefore, the approach has been developed and applied based on existing best practice;
- The UKCP18 projections have been used to infer future changes in a range of variables that may affect the vulnerability of the Proposed Development to climate change. At the time of writing, these represent the most up-to-date representation of future climate in the UK. However, the UKCP18 data currently available does not provide data for extreme precipitation, drought, snow and ice or wind; and,
- There are inherent uncertainties associated with climate projections and they are not predictions of the future. It is possible that future climate will differ from the future baseline climate against which the resilience of the Proposed Development has been assessed, depending on global emissions over the next century. A 'high' emissions scenario (RCP 8.5) using the 2030s time slice (2020–2049) and the 2080s (2070 - 2099), has been used to develop the baseline against which resilience has been assessed. This is consistent with the precautionary principle.

16.9 SUMMARY

16.9.1. **Table 16-16** provides a summary of the findings of the assessment.

Table 16-16 - Summary of Climate Change effects

Receptor	Potential Effects	Significance of Effects Prior to Mitigation/Enhancement	Additional Mitigation	Residual Effects	Monitoring
Construction Phase					
Global climate	GHG emissions to the atmosphere as a result of embodied carbon in construction materials	Moderate adverse (Significant) P / D / LT	BREEAM Mat 01 Credits, Life Cycle Assessment	Minor Adverse (not significant) P / D / LT	No requirement
Global climate	GHG emissions to the atmosphere as a result of construction traffic	Moderate adverse (Significant) P / D / LT	CTMP to be secured via Planning Condition	Minor Adverse (not significant) T / D / LT	No requirement
Operational Phase					
Global climate	GHG emissions to the atmosphere as a result of operational traffic	Moderate adverse (Significant) P / D / LT	Travel Plans, Passive EV provision, Servicing and Delivery Strategy to be secured	Minor Adverse (not significant) P / D / LT	No requirement

Receptor	Potential Effects	Significance of Effects Prior to Mitigation/Enhancement	Additional Mitigation	Residual Effects	Monitoring
			via planning condition		
Global climate	GHG emissions to the atmosphere as a result of operational energy consumption	Minor Adverse (not significant) P / D / LT	Confirmation of BREEAM 'Excellent' energy credits	Minor Adverse (not significant) P / D / LT	No requirement
Buildings and Infrastructure	Effects on the Proposed Development as a result of Climate Change	Minor Adverse (significant) P / D / LT	Detailed design measures	Minor Adverse (not significant) P / D / LT	No requirement
Future Occupiers	Effects on the Proposed Development as a result of Climate Change	Minor Adverse P / D / LT	Detailed design measures	Minor Adverse (not significant) P / D / LT	No requirement
Landscaping, Planting and Biodiversity	Effects on the Proposed Development as a result of Climate Change	Moderate Adverse (significant) P / D / LT	Detailed design measures, Landscape Strategy and Management Plan	Minor Adverse (not significant) P / D / LT	No requirement

Key to table:

P / T = Permanent or Temporary, D / I = Direct or Indirect, ST / MT / LT = Short Term, Medium Term or Long Term, N/A = Not Applicable

16.10 REFERENCES

- **Reference 16.1:** ISEP (2026). Assessing GHG Emissions and Evaluating their Significance Edition 2.1. with Supplementary Guidance.
- **Reference 16.2:** World Resources Institute. (2019). GHG Protocol. [online] Available at: <https://ghgprotocol.org/> [Date accessed: 28/04/2026]

- **Reference 16.3:** Finch vs Surrey. (2022). R (on the application of Finch on behalf of the Weald Action Group) (Appellant) v Surrey County Council and others (Respondents). [online] Available at: <https://www.supremecourt.uk/cases/uksc-2022-0064> [Date accessed: 28/04/2026]
- **Reference 16.4:** RICS. (2024). Whole life carbon assessment for the built environment (2nd Edition).
- **Reference 16.5:** DESNZ. (2025). UK local authority and regional GHG emissions statistics, 2005 to 2023. [online] Available at: <https://www.gov.uk/government/collections/uk-local-authority-and-regional-greenhouse-gas-emissions-statistics> [Date accessed: 28/04/2026]
- **Reference 16.6:** RICS. (2012) RICS information paper, IP 32/2012, RICS, 2012 Methodology to calculate embodied carbon of materials.
- **Reference 16.7:** DESNZ. (2025) Conversion factors 2025: full set. [online] Available at: <https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2025> [Accessed 24/04/2026]
- **Reference 16.8:** Crookes Walker Consulting. (2025) Energy Statement for Planning - The Field, Birch Business Park.
- **Reference 16.9:** BSI. (2023) PAS 2080:2023 Carbon Management in Infrastructure.
- **Reference 16.10:** ISEP (2020). Environmental Impact Assessment Guidance to: Climate Change Resilience and Adaptation.
- **Reference 16.11:** Met Office. (2026) Bradford meteorological data. [online] Available at: <https://www.metoffice.gov.uk/pub/data/weather/uk/climate/stationdata/bradforddata.txt> [Date accessed: 23/04/2026]
- **Reference 16.12:** Met Office. (2018) UKCP18 [online] Available at: <https://ukclimateprojections-ui.metoffice.gov.uk/ui/home> [Date accessed: 23/04/2026]
- **Reference 16.13:** Parties to the United Nations Framework Convention on Climate Change (2015). Paris Agreement 2015. [online] Available at: <https://unfccc.int/process-and-meetings/the-paris-agreement> [Date accessed: 23/04/2026]
- **Reference 16.4:** UK Government. (2019) The Climate Change Act 2008 (2050 Target Amendment) Order 2019.
- **Reference 16.15:** Department of Business, Energy & Industrial Strategy. (2009) Carbon Budgets Order 2009.
- **Reference 16.16:** Department of Business, Energy & Industrial Strategy (2011) Carbon Budgets Order 2011.
- **Reference 16.17:** Department of Business, Energy & Industrial Strategy (2016) Carbon Budgets Order 2016.
- **Reference 16.18:** Department of Business, Energy & Industrial Strategy (2021) Carbon Budgets Order 2021.
- **Reference 16.19:** Ministry of Housing, Communities and Local Government. (2024) NPPF.
- **Reference 16.20:** GMCA. (2024) Places for Everyone Joint Development Plan for Bolton, Bury, Manchester, Oldham, Rochdale, Salford, Tameside. Trafford and Wigan 2022 to 2039. [online] Available at: <https://www.greatermanchester-ca.gov.uk/media/9578/places-for-everyone-joint-development-plan-document.pdf> [Accessed 28/04/2026]
- **Reference 16.21:** RMBC. (2016) Rochdale Adopted Core Strategy. [online] Available at: <https://www.rochdale.gov.uk/downloads/file/405/core-strategy> [Accessed 28/04/2026]

- **Reference 16.22:** UK Government. (2024) Planning Practice Guidance [online] Available at: <https://www.gov.uk/government/collections/planning-practice-guidance> [Accessed 28/04/2026]
- **Reference 16.23:** GMCA. (2025) Design Guidance for Net Zero.
- **Reference 16.24:** AEW Architects. (2025) Birch Business Park, Rochdale - BREEAM Pre-assessment Summary Report.
- **Reference 16.25:** Axis. (2025) The Field, Birch Business Park - Draft Transport Assessment.
- **Reference 16.26:** AEW Architects. (2025) Birch Business Park, Rochdale - Materials Efficiency Plan.
- **Reference 16.27:** AEW Architects (2025) Birch Business Park, Rochdale - Sustainable Procurement Plan.
- **Reference 16.28:** Ridge. (2025) Birch Business Park Flood Risk Assessment & Drainage Strategy Report.

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