Chapter 10: Greenhouse Gas Emissions

GREENHOUSE GAS EMISSIONS	
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SUPPORTING APPENDIX	**ES Volume 3: Appendix: Greenhouse Gas Emissions:** Annex 1: GHG Policy and Guidance; Annex 2: London Travel Demand Survey 2019; Annex 3: Extract from London Atmospheric Emissions Inventory; and Annex 4: Extract from Sustainability and Energy Statement.
KEY CONSIDERATIONS	The Proposed Development will lead to the direct and indirect release of greenhouse gases (GHGs), both during the enabling and construction phase, and throughout the lifetime of the Development. This assessment estimates the GHG emissions associated with the Proposed Development taking a lifecycle approach and presents the numerous mitigation measures and specific design measures provided by the scheme to minimise its GHG footprint.
CONSULTATION	The EIA Scoping Opinion generally confirmed acceptability of the scope and method proposed for the Greenhouse Gas Emissions assessment. There are a number of general comments on the GHG assessment methodology provided in the Scoping Opinion. Several of these comments reiterate approaches that were captured in the EIA Scoping Report, but the following comments require further commentary and/or inclusion in this GHG Chapter: *"All references to carbon emissions should refer to carbon dioxide, CO_2, carbon dioxide equivalent, or CO_2e and not carbon alone."* Throughout this ES chapter, the assessment refers to carbon dioxide, or CO_2e and not to 'carbon' alone as requested. *"It should be noted that any worst-case scenarios used should be clearly stated, and include consideration of the assessment scenarios as set out in the Scoping Report."* The GHG assessment set out in this chapter is based on worst-case assumptions where possible (e.g. for transport generation during operation), but in other areas relies upon the Indicative Scheme in order to provide the detail to produce a robust assessment. The Indicative Scheme is slightly smaller than the maximum parameters, but the overall assessment provides a reasonable worst-case scenario for GHGs, as described in paragraph 10.1. Assumptions are detailed throughout this ES chapter. "*Paragraph 8.39 of the Scoping Report states that comparison will be made with an existing carbon budget, "defined either at a global, national, regional, local or sectoral level'. This will need to be clearly defined in the ES. It should also be recognised that comparing emissions of a single development to a national carbon dioxide budget is redundant due to differences in scale; therefore, the budgets used must be appropriate to the scale of development."* A comparison to London-wide GHG emissions is provided for context which is considered appropriate. *"As stated in Paragraph 8.89 of the Scoping Report all GHG emissions are to be considered as significant. The Applicant is reminded that all likely significant effects must be stated in the Non-Technical Summary*." As detailed in Table 10.9 the (cumulative) residual effects are considered to be significant in accordance with the IEMA guidance and the likely significant effects of the GHG emissions are detailed in the NTS. *"For the GHG emission assessment of operational phase, the EIA should set out how the scheme will be net zero carbon on-site in 2050 as required by the Climate Change Act 2008 (as amended) and Emerging London Plan Policy SI2."* This has been addressed in this ES chapter, see paragraphs 10.25 to 10.28 and paragraph 10.86. *"It is noted that since January 2019 the GLA has encouraged the use of Standard Assessment Procedure (SAP) 10 carbon emission factors to estimate the carbon produced by new buildings in addition to Part L of the Building Regulations 2013."* As detailed in paragraph 10.17, SAP10 carbon factors have been used for the energy emissions calculations. *"Paragraph 8.100 of the Scoping Report, states repair and maintenance of the during the Proposed Development's lifetime will not be considered within the ES due to the degree of uncertainty of the Proposed Development itself, and that these emissions are considered to be very small in the context of the total carbon footprint. However, within previous Scoping Reports issued by Trium it has been stated that refurbishment of a building with a long lifespan has significantly higher embodied carbon (2-3 times) compared with the embodied carbon within the construction of a development. Therefore, LBTH requires assessment in this regard and it should be clear in the ES how refurbishment during operation of the Proposed Development has been assessed. The life span of the Proposed Development must be stated in the ES."* When comparing the alternatives of refurbishment of an existing end of life building to demolition and construction of a brand new, highly sustainable building, then this statement may have some relevance, but it is incorrect that for new buildings, the embodied emissions from repair and maintenance outweigh the embodied emissions from initial construction. Refurbishment is not an option for the Proposed Development as there are no structures on the Site to refurbish. Emissions from refurbishment (or repair and maintenance) during the building's lifetime is not included in the assessment. Further discussion is provided at paragraph 10.20. *"In this light, mitigation measures are to go beyond normal practice, and will need to be secured within any given planning consent. Particular attention should be made to ensuring emission reduction measures are integrated and delivered through the construction and operation phases."* The Proposed Development will be sustainably designed to high standards, and this is shown in the Design and Access Statement, Energy Strategy, Sustainability Statement and as relevant in ES Volume 1 Chapter 4: Proposed Development. In addition, specific GHG mitigation measures are detailed from paragraph 10.55. Given the outline nature of the application, further detailed design measures to reduce emissions will be undertaken at the RMA stage as relevant.

ASSESSMENT METHODOLOGY

Outline Application Methodology

10.1 The Applicant is seeking flexibility within the OPA on how the Site is developed, with the application establishing parameters of the scale and nature of the Proposed Development. The OPA allows flexibility to deliver a range of quanta of residential and commercial space within the Proposed Development, with a set of maximum parameters in terms of GIAs for each land use type. For the GHG assessment, the following assumptions have been made to ensure a reasonable worst-case assessment is provided, which are:

- GHGs from embedded carbon in construction materials are based on the maximum site-wide permissible floor area, using a carbon factor for commercial (office) space which is a worst-case assumption as set out in paragraph 10.9 and Table 10.1;
- GHGs from construction traffic and energy consumption during operation are based on the Indicative Scheme (Scenario 5, as set out in **ES Volume 1, Chapter 2: EIA Methodology**), as this provides the necessary level of detail against which to quantify the GHG emissions from these sources. The Indicative Scheme is based on 354,958 m^2 of floor space and the maximum parameters are only slightly higher at 355,000 m^2 of total floorspace, and the GHG emissions from construction and energy consumption would not vary significantly to those from the maximum parameters, or any other of the potential development scenarios; and
- GHGs from transport during the Proposed Development's operation, which has been based on the Maximum Transport Generating Scheme Scenario at the Site (Scenario 3, as set out in **ES Volume 1, Chapter 2: EIA Methodology**), as this generates the highest number of trips (by road and rail/DLR) to and from the Proposed Development and therefore the greatest GHG emissions.

Scope of the Assessment

10.2 The EIA Directive 2014[1] sets out the rationale for incorporating climate change into the EIA process. It states: "*Climate change will continue to cause damage to the environment and compromise economic development. In this regard, it is appropriate to assess the impact of projects on climate (for example greenhouse gas emissions) and their vulnerability to climate change*."

[1] *Directive 2014/52/EU of the European Parliament and of the Council on the assessment of effects of certain public and private projects on the environment.*

10.3 The requirements of the EIA Directive 2014 have been adopted within UK EIA Regulations 2017 (as amended)[2] and require that the assessment provides: "*A description of the likely significant effects of the development on the environment resulting from, inter alia:…(f) the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change*".

10.4 This assessment covers the impact of the project on climate through the quantification of GHGs resulting from the Proposed Development. The impact of future climate change on the resilience of the Proposed Development has been addressed in **ES Volume 1, Chapter 4: Proposed Development** and within each other technical chapter (**ES Volume 1, Chapters 6 – 13**) as relevant.

Defining the Baseline

10.5 The baseline for the assessment relates to energy and transport emissions generated by the current use of the Site. The Site is currently occupied by a small number of temporary structures and used for open storage. These activities will only lead to the emission of a very small amount of GHGs, which are difficult to quantify. Any embedded carbon in the demolition materials is not additional to this project and a worst-case assumption is taken that none of the materials are recycled or reused and therefore the baseline embedded carbon is assumed as zero. This is a worst-case assumption as the assessment is based on net GHG emissions (the relative increase or decrease between the baseline and the Proposed Development) and therefore assuming there are no baseline GHGs emitted from the Site will result in a worst-case quantification of the net change in GHG emissions.

Evolution of the Baseline

10.6 If the Proposed Development was not to come forward, it is expected that the Site would remain in its current, state. For the purposes of this assessment, the future baseline is therefore also assumed to be zero CO_2e emissions. The natural evolution of the Site and surrounding area has also been qualitatively considered.

Impact Assessment Methodology

Enabling and Construction

10.7 GHGs associated with the construction of the Proposed Development relate to those embedded in the materials from which the Proposed Development is constructed, and with traffic movements generated during the enabling and construction phases. Emissions from construction site activities (operation of machinery and plant on-site) will form a very minor component of the GHG footprint and have been scoped out of the assessment at scoping stage. Consideration to mitigation is provided in paragraph 10.66.

10.8 Embedded GHG emissions have been calculated based on the Royal Institution of Chartered Surveyors (RICS)[3] GHG factors per square metre of Gross Internal Area (GIA) of development, presented in Figure 10.1. The factors, which are provided as kilograms (kg) of CO_2e per m^2 GIA, are determined for the appropriate development type, and are then multiplied by the GIA area information for the Proposed Development.

10.9 The Proposed Development is for a flexible outline consent for mixed-use development comprising of business (B1), hotel / serviced apartments (C1), residential (C3), co-living (C4/Sui Generis), student housing (Sui Generis), retail (A1-A5), community and leisure (D1 and D2) and sui generis uses, including up to seven buildings between 6 and 65 storeys in height. The proposed floorspace for each land use proposed within the Indicative Scheme along with the RICS categories are presented in Table 10.1. In order to account for the flexibility in the scheme, and to provide a worst-case assessment, the embedded GHG calculations are based on the maximum permissible areas for commercial (B1 office) development of 240,000 m^2, which has the highest relevant GHG emission factor in Table 10.1. The GHG factor for residential uses has then been applied to the remainder of the floorspace (as the next highest relevant use), up to the maximum total permissible floorspace area of 355,000 m^2.

[2] *See https://www.gov.uk/guidance/environmental-impact-assessment#Preparing-an-Environmental-Statement1.*

[3] *RICS, 2012. Methodology to calculate embodied carbon of materials. RICS information paper, IP 32/2012.*

Figure 10.1 GHG Emission Factors for Materials used in Construction

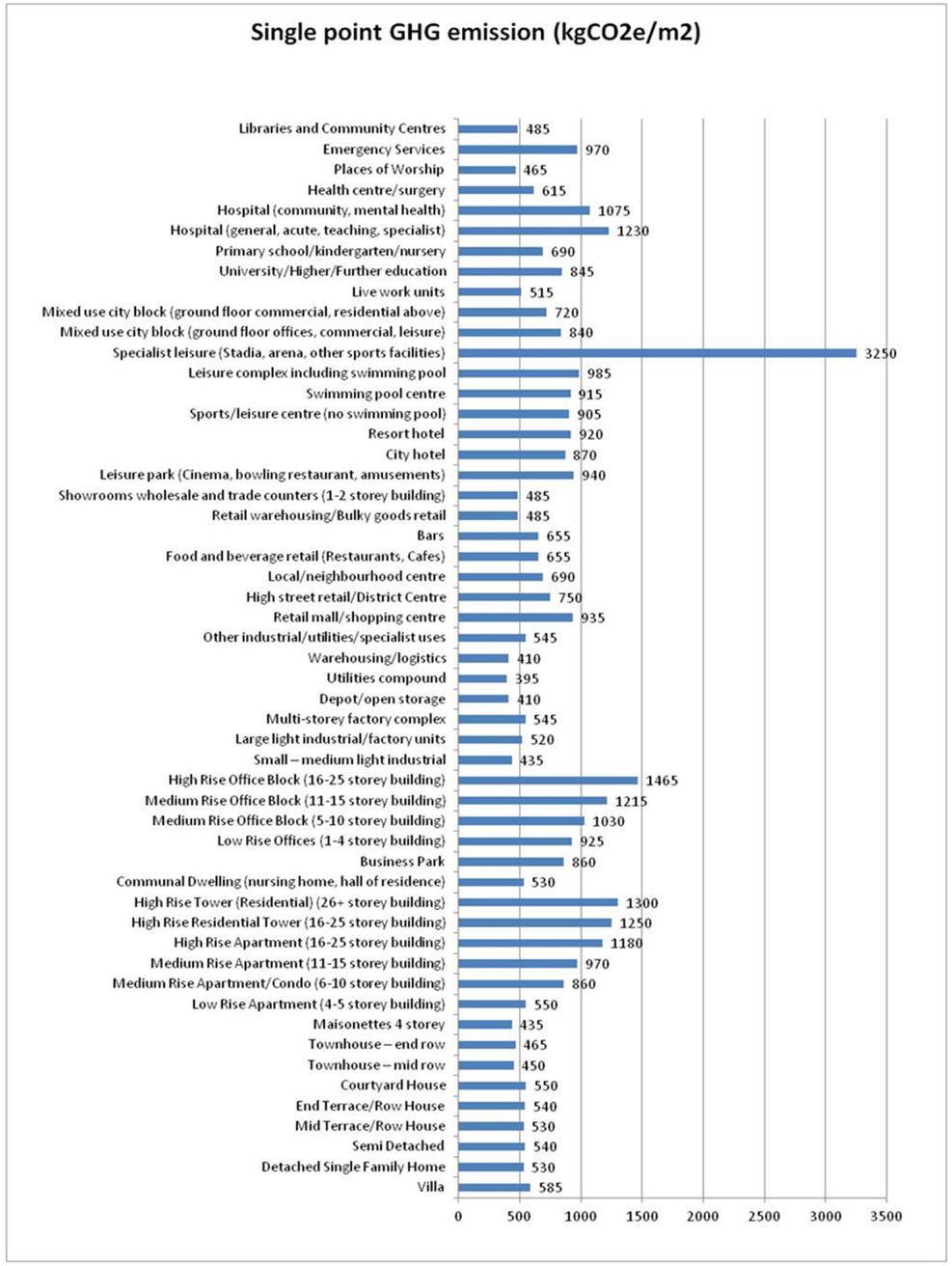

Figure reproduced from RICS, "Methodology to calculate embodied carbon of materials" RICS information paper, IP 32/2012.

Table 10.1 Selected Embedded GHG Factors

Land Use Category	Use	RICS GHG Factor ($kg/CO_2e/m^2$)	RICS Category	Proposed Development - Indicative Scheme GIA (m^2)
Basement	All	1,465	High Rise Office Block (16 - 25 Storey Building)	28,047
Office B1	Office	1,465	High Rise Office Block (16 - 25 Storey Building)	174,653
Residential C3	Residential	1,300	High Rise Tower (Residential) (26+ Storey Building)	81,774
Internal Play Space	Residential	1,300	High Rise Tower (Residential) (26+ Storey Building)	2,992
Serviced Apartments C1	Residential	1,300	High Rise Tower (Residential) (26+ Storey Building)	44,081
Retail A1-A5	Retail	750	High Street Retail / District Centre	13,681
Plant	All	1,465	High Rise Office Block (16 - 25 Storey Building)	9,730
Factors used in Assessment				
Office B1	Office	1,465	High Rise Office Block (16 - 25 Storey Building)	240,000[a]
Residential C3/C1/Play Space	Residential	1,300	High Rise Tower (Residential) (26+ Storey Building)	115,000[b]

Notes:
[a] 240,000 m^2 is the maximum office space in the maximum parameters.
[b] 115,000 m^2 is the remaining floor space to a total of 355,000 m^2, which is the maximum parameters.

10.10 In addition to the embedded GHGs during construction of the Proposed Development to practical completion, over the lifetime of the Proposed Development there will also be GHG emissions associated with the repair, maintenance and refurbishment of the building during its lifetime[4]. These emissions are effectively "unregulated" as there is no policy or standard for establishing compliance, nor is there published data on good practice against which developments can be benchmarked. Nonetheless, the LBTH has requested that emissions from repair, maintenance and refurbishment be considered in the GHG assessment. To estimate embedded GHGs from repair, maintenance and refurbishment, data from RICS[5] have been used, which estimates that for office development, embedded GHG emissions during use (i.e. repair, maintenance and refurbishment) are around 48% of the total lifetime embedded GHGs, and for residential embedded GHG emissions during use are around 26% of total lifetime embedded GHGs. The embedded GHG emissions to

[4] *Refurbishment refers to ongoing refurbishment of elements of the building as required during its estimated 60 year lifetime and does not include a complete whole-building refurbishment, as this would occur at the end of the building's practical life and would be subject to a future lifecycle GHG assessment.*

[5] *RICS (2017) Whole Life Carbon Assessment for the Built Environment*

practical completion as described in Table 10.1 have therefore been uplifted by 48% for commercial floorspace and 26% for residential floorspace to account for repair, maintenance and refurbishment.

10.11 The estimated number of construction trips to and from the Site during the whole construction period have been provided within **ES Volume 1, Chapter 5: Enabling and Construction Work**s by the Applicant's construction team. These have been provided for Heavy Goods Vehicles (HGVs) and Light Goods Vehicles (LGVs). The precise origin/destination of these trips is not known and so the average travel distance for all articulated HGVs has been assumed to be 38 km. This distance is based on the distance by road from the site to the London Gateway Port, from which imported construction materials may be sourced[6]. The assumed travel distance for rigid HGVs, such as tippers to deliver aggregates, concrete mixers and waste removal vehicles is assumed to be 20 km, which is sufficient to encompass key distribution locations for the construction materials and waste disposal used for the Proposed Development, such as concrete batching sites and construction waste transfer stations. The average travel distance for Light Duty Vehicles (cars and vans) is assumed to be 6.4 km, which is based on London Travel Demand Data and is consistent with the trip distance applied to LDVs for operational transport. Although these distances are estimates, and vehicle trips to and from the Site during construction works will vary greatly in origin and destination, the distances are intended to be overestimates that when applied to all construction phase vehicles, resulting in a robust estimate of overall construction phase transport emissions.

10.12 GHG emission factors for construction transport in 2019 have been obtained from the Department of Business, Energy and Industrial Strategy (BEIS) publication on GHG Conversion Factors for Company Reporting[7] which sets out GHG emissions factors for a range of modes of transport valid for 2019. These are the latest factors available at the time of writing of this ES chapter. The GHG emissions factor are applied to the calculated total construction travel distances to estimate the GHG emissions from construction transport. The use of 2019 factors for construction transport is conservative as emissions from road transport are likely to decarbonise in future years as vehicles become more fuel efficient.

10.13 A summary of the GHG emission factors for selected modes of transport are provided in Table 10.2.

Table 10.2 Transport GHG Factors by Mode (selected modes)

Mode	Type	Unit	GHG Factor (kg CO_2e)
Car	Average Car	km	0.177
Van (LGV)	Average Diesel Van	km	0.252
17 tonne Rigid HGV	Average Rigid HGV	km	0.932
22 tonne Artic HGV	Average Rigid HGV	km	1.047

Completed Development

10.14 GHGs associated with the operation of the Proposed Development relate to emissions from transport and energy use.

10.15 GHG emission factors for transport in 2019 (latest data available) have been obtained from the Department of Business, Energy and Industrial Strategy (BEIS) publication on GHG Conversion Factors for Company Reporting[8]. Factors for 2025 (first likely year of occupation i.e. opening year) were determined by applying engine and fuel efficiency factors (sourced from the WebTAG data book[9]) to the 2019 BEIS factors, for different types of fuel/energy source, and vehicle size/type. Transport emissions have then been calculated by applying GHG emission factors for the opening year (2025) to the total kilometres travelled by each transport mode (bus, underground, car, etc) as provided by the Project Transport Consultant (Steer Group). This assumes a whole development opening year of 2025 as a worst-case assumption, as full build out will likely extend to 2029.

10.16 A summary of the 2025 GHG emission factors for selected modes of transport used in this GHG assessment are provided in Table 10.3.

Table 10.3 2025 Transport GHG Factors by Mode (selected modes)

Mode	Type	Unit	Calculated 2025 Factor (kg CO_2e)
Car Travel	Average Car	km	0.150
Van (LGV)	Average Diesel Van	km	0.252
Heavy Goods Vehicle	Rigid HGV (average laden)	km	0.867
Motorcycle	Average motorcycle	km	0.099
Taxis	Black Cab	km	0.285
Bus/Coach	Local London Bus	passenger.km	0.081
Rail	National Rail	passenger.km	0.030
London Underground	London Underground	passenger.km	0.023

Notes:
The GHG factor for London buses has been used for all bus and coach passenger kms as this is a higher factor than for coaches and is therefore a worst-case assumption.

10.17 GHG emissions associated with the energy use of the Proposed Development have been taken from the Energy Statement for the Indicative Scheme[10], taking account of energy efficiency measures, and low and zero carbon technologies to be incorporated within the Proposed Development. The energy strategy is based on the Indicative Scheme to demonstrate that development at the Site is able to comply with Building Regulation and relevant GLA and LBTH policies. The GHGs from energy consumption are based on the energy demand of the Indicative Scheme and published GHG emission factors for gas and electricity use (SAP10). Relevant extracts from the Energy Statement are presented in **ES Volume 3: Appendix Greenhouse Gas Emissions - Annex 4**.

[6] *Assumption based to London Gateway as the nearest port. The detailed construction logistics will be determined post-planning.*
[7] *BEIS, 2019: UK Government GHG Conversion Factors for Company Reporting.*
[8] *BEIS, 2019: UK Government GHG Conversion Factors for Company Reporting.*
[9] *Department for Transport, 2018. TAG data book June 2018 v1.10.1, Available: https://www.gov.uk/government/publications/webtag-tag-data-book-may-2018*
[10] *Max Fordham, 2020, North Quay Masterplan Energy Statement NQ.PA.17*

10.18 The assessment considers regulated energy consumption, which is energy consumption from heating and cooling, lighting, and on-site infrastructure such as lifts, and unregulated energy consumption, which is electricity consumption from the behaviour of the building's users, such as personal electrical appliances (phones, laptops, televisions etc.), and kitchen appliances.

10.19 Further detail on the CO_2 factors and CO_2 emissions from energy consumption is provided in the Energy Strategy.

Phasing

10.20 Construction of the Proposed Development is likely to be phased across a number of years up to 2029. This assessment does not directly account for the phasing and is based on a whole development opening year of 2025. This provides a worst-case assessment as in future years, gradual decarbonisation of construction materials, energy supply and transport sectors mean that the GHGs emitted from construction works and the materials purchased would likely be a small amount lower than has been assumed in this assessment.

Assumptions and Limitations

10.21 The metric for assessing the climate change impacts of GHG emissions in this assessment is Global Warming Potential (GWP). This is expressed in units of CO_2 equivalent (CO_2e) over 100 years. This allows for the emissions of the six key GHGs: carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulphur hexafluoride (SF_6) expressed in terms of their equivalent global warming potential in mass of CO_2e.

10.22 The assessment determines the baseline GHG emissions and the GHG emissions from the Proposed Development assuming a whole completed development in the year of opening (assumed to be 2025), based on an estimated operational lifetime of 60 years, which is a typical assumption for a development of this type and is in accordance with British Standard EN 15978:2011[11]. The quantification of annual emissions for the assessment is carried out to allow comparison of the Proposed Development's GHG emissions to local and regional annual GHG emissions for context.

10.23 The 'net emissions' are the change in the GHG emissions between the baseline and the Proposed Development, taking account of GHG reduction measures and offsetting.

10.24 The assessment estimates the Proposed Development's GHG emissions in the opening year as these are worst-case due to decarbonisation of the gas and electricity supply in the future and increase in sustainable transport in preference to private car use.

Net Zero Policy Implications

10.25 The UK has recently legislated a 2050 net zero[12] target following recommendations and analysis completed by the Committee on Climate Change (CCC). The CCC's Net Zero report[13] has established a "Further Ambition" scenario which considers feasible and cost-effective policy and technology interventions to ensure the UK can meet its new net zero target.

10.26 For power generation under this scenario the CCC consider that 100% of power generation by 2050 will be low carbon and for ground transport it forecasts that all ground transportation (apart from small number of HGVs) will be electrically powered. The CCC therefore forecast that power and ground transportation sectors are largely decarbonised by 2050 with any residual emissions removed through technical and or natural means.

10.27 The implications of the UK adopting the net zero target are that it is reasonable to assume that government policies will be brought forward to ensure the net zero target is achieved. The recent government announcement bringing forward the ban on sale of new vehicles that are not electrically powered to 2035 is an example of policy that is being developed.

10.28 For this assessment therefore all operational and ground transportation emissions with the Proposed Development are therefore likely to be zero at the latest by 2050.

Methodology for Defining Effects

Receptors and Receptor Sensitivity

10.29 The assessment of GHGs does not include identification of local sensitive receptors, as GHG emissions do not directly affect specific locations, but lead to indirect effects by contributing to climate change. Identification of sensitive areas for climate change has been undertaken by the IPCC[14], however specific impacts on these areas are not included within this assessment. The sensitive receptor with respect to GHG emissions is therefore the atmosphere, where GHGs contribute to increasing atmospheric temperatures and resultant climate change effects.

Magnitude of Impact

10.30 The assessment of GHGs does not include determination of magnitude of impact as there is no published guidance or statutory methodology for defining a magnitude of impact for small contributions to total GHG emissions such as brought about by the Proposed Development. The approach to determining the significance of effects from GHG emissions is described below.

Defining the Effect and Categorising Likely Significant Effects

10.31 For GHG emissions there are no recognised criteria for determining the scale of the likely significant effects.

10.32 In terms of defining significance, guidance from IEMA[15] has been adopted, which has identified three underlying principles to inform the assessment of significance, as follows:

- 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. population, fauna, soil, etc.; and
- 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.

[11] British Standard BSEN 15978:2011, Sustainability of construction works. Assessment of environmental performance of buildings. Calculation method.
[12] Climate Change Act 2008. Net zero has been defined by the CCC to allow for GHG removals to offset any residual GHG emissions in 2050 so that the overall balance of emissions is zero.
[13] Committee on Climate Change (2019) Net Zero. The UK's contribution to stopping global warming, 2019. Found at https://www.theccc.org.uk/publication/net-zero-the-uks-contribution-to-stopping-global-warming/
[14] The Intergovernmental Panel on Climate Change, 2014. AR5 Climate Change 2014: Impacts, Adaptation, and Vulnerability.
[15] IEMA, 2017. Assessing Greenhouse Gas Emissions and Evaluating their Significance.

10.33 For the majority of development projects, the individual contribution to total GHG emissions (from local through to global scale) will be very small; however, the IEMA guidance recognises that the contribution of GHG emissions to climate change is a cumulative global issue, and as such it is important for developments of all scales to acknowledge the significance of any increases in GHG emissions, and that the EIA should ensure the project addresses their occurrence by taking mitigating action.

10.34 In terms of mitigation, IEMA recommends that mitigation should in the first instance seek to avoid GHG emissions. Where GHG emissions cannot be avoided, the development should aim to reduce a project's residual emissions at all stages. Where additional GHG emissions remain but cannot be further reduced at source, approaches should be considered that compensate the project's remaining emissions, for example offsetting.

10.35 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 development;
- The second step is to compare the calculated change in emissions to local and regional GHG emissions for context; and
- The third step applies expert judgment on the significance of those emissions taking into account the changes in emissions, their contribution to local and regional GHG emissions, their consistency with relevant policy, and an evaluation of the mitigation measures proposed to avoid, reduce and compensate GHG emissions.

Geographic Extent of Effects

10.36 The geographic extent of effects arising from the Proposed Development could extend across the entire country, and therefore the extent is considered to be 'national'.

Effect Duration

10.37 GHG emissions will be generated for the lifetime of the project (or at least up to 2050 by which time it might be expected that net GHG emissions will be zero (see paragraphs 10.25 to 10.28)). They are, therefore considered to be permanent.

Direct and Indirect

10.38 The Proposed Development's GHG emissions will not have any direct environmental effects, but contribute to climate change, which is an indirect environmental effect.

BASELINE CONDITIONS

10.39 The Site is currently occupied by a small number of temporary structures and used for open storage. These activities will only lead to the emission of a very small amount of GHGs, which are difficult to quantify. Any embedded carbon in the demolition materials is not additional to this project and a worst-case assumption is taken that none of the materials are recycled or reused and therefore the baseline embedded carbon is assumed as zero.

POTENTIAL EFFECTS

Enabling and Construction

10.40 Minimal deconstruction is required on site, which is mostly cleared, used as storage and has some temporary structures in place, and therefore the contribution of deconstruction to GHGs has not been quantified as it will contribute a very small component of the overall construction phase GHG footprint.

10.41 The GIA for the Proposed Development maximum parameters is 355,000m^2 and to calculate the embedded carbon in construction, this GIA is multiplied by the GHG factors obtained from RICS (Figure 10.1) that are judged to be most appropriate for the proposed land uses, as presented in Table 10.1. The calculation of the embedded GHGs in the Proposed Development is shown in Table 10.4.

Table 10.4 Calculation of Embedded GHG from Construction and Repair, Maintenance and Refurbishment

Land Use Type	GIA (m^2)[a]	RICS GHG Factor (kg/CO_2e/m^2)	Embedded GHGs from Construction (tonnes CO_2e)	Uplift for Repair, Maintenance and Refurbishment during Operation (%)	Total Embedded GHGs (tonnes CO_2e)
Office B1	240,000	1,465	351,600	91	671,556
Residential C3/C1/Play Space	115,000	1,300	149,500	35	201,825
Total	**355,000**	**-**	**501,100**	**-**	**873,381**

Notes:
[a] Based on maximum parameters as described in paragraph 10.9 and Table 10.1.
[b] Uplift to embedded GHGs from construction to practical completion as described in paragraph 10.10.

10.42 The total embedded CO_2e emissions for the Proposed Development from construction to practical completion, and repair, maintenance and refurbishment during operation are 705,222 tonnes. Based on a development lifetime of 60 years, this equates to 14,556 tonnes/annum.

10.43 Since the Site is brownfield, and does not lead to a loss in habitat, no land use change GHG emissions[16] are assumed to occur.

10.44 In addition to embedded carbon in the materials used for construction, GHG emissions will be emitted by transportation of materials to site and operation of onsite plant and machinery. These emissions are typically materially smaller than embedded GHG emissions and have been scoped out of the assessment (see paragraph 10.7).

10.45 The calculation of construction transport related GHG emissions for the Proposed Development are presented in Table 10.5. The assessment multiplies the calculated 2019 GHG emission factors for each mode

[16] *Land use change can result in GHG emissions for example by the removal of habitats (e.g. trees) that act as carbon sinks.*

of travel (see Table 10.2) by the average annual distance travelled. Total vehicle numbers have been provided by the Project Transport Consultant, Steer Group.

Table 10.5 Calculation of GHG Emissions from Transport in 2025

Mode	2019 Emission Factor per km or passenger.km (kg CO_2e)	Distance Travelled (km)	Total CO_2e Emissions (tonnes per annum)
LDV	0.177	211,574	37
Van (LGV)	0.252	1,904,166	1,775
17 tonne Rigid HGV	0.932	4,569,998	4,783
22 tonne Artic HGV	1.047	380,833	96
Total	-	7,066,572	**6,690**

10.46 The total construction transport GHG emissions are calculated as 6,690 tonnes of CO_2e. Based on a development lifetime of 60 years, this equates to 112 tonnes/annum (as above, all of these emissions will occur in the construction phase prior to building occupation).

Completed Development

Transport

10.47 The assessment of transport related GHG emissions for the Proposed Development in the opening year are presented in Table 10.6. The assessment multiplies the calculated 2025 GHG emission factors for each mode of travel (see Table 10.3) by the average annual distance travelled (provided by the Project Transport Consultant, Steer Group).

Table 10.6 Assessment of GHG Emissions from Transport in 2025

Mode	2025 Emission Factor per km or passenger.km (kg CO_2e)	Distance Travelled (km)	Total CO_2e Emissions (tonnes per annum)
Car Travel/ Van (LGV)*	0.252	1,678,159	423
Motorcycle	0.099	1,152,985	114
Taxis	0.285	9,358,915	2,671
Bus/Coach	0.081	6,689,574	539
Rail	0.030	72,476,940	2,177
London Underground	0.023	429,704,024	9,672
Cycle	0	4,697,906	0
Walk	0	2,800,544	0
Total	-	**528,559,047**	**15,596**

Notes:
*The transport consultants have included van service and delivery trips within the car travel distances. For conservatism, the higher GHG emission factor for vans (LGV) have been used.

10.48 The total transport GHG emissions are calculated as 15,596 tonnes of CO_2e.

Energy Consumption

10.49 The CO_2 emissions from energy consumption of the Proposed Development are described in the Energy Statement (provided by the Project Mechanical and Electrical Consultants, Max Fordham). It should be noted that for energy it is CO_2 emissions and not CO_2e emissions that have been reported, but this is to ensure consistency with the energy strategy and GLA policy requirements.

10.50 The Energy Statement compares the Proposed Development to a notional "baseline" of compliance with Part L Building Regulations. This is not used as the baseline in this GHG assessment, but it is important in demonstrating that the Proposed Development meets the CO_2 emission policy requirements of the London Plan, Tower Hamlets Local Plan 2031[17] and Tower Hamlets Planning Obligations SPD[18].

Regulated Energy Consumption

10.51 Table 10.7 summarises the improvement in performance for the Proposed Development for regulated CO_2 emissions (see paragraph 10.18), taking into account measures to address the Policy 5.2 of the London Plan[19] to be lean, be clean and be green offsets to meet the GLA target for zero carbon residential development and target to achieve minimum on-site carbon reductions of 35% compared to Part L of the Building Regulations (2013) for non-domestic developments. LBTH policy requires developments to achieve a 45% reduction in CO_2 emissions for domestic and non-domestic uses. The office and retail elements of the Proposed Development are all classified as non-domestic uses for the purposes of the calculation.

Table 10.7 Assessment of CO_2 Emissions from Regulated Energy Consumption

Regulated Emissions	Domestic (tonnes CO_2 per annum)	Non-domestic (tonnes CO_2 per annum)	Site-wide (tonnes CO_2 per annum)
No energy strategy assuming Part L compliance	674	2,443	3,117
With Energy Strategy	314	1,292	1,606
% Improvement	53%	47%	49%

10.52 Table 10.7 shows that the Proposed Development will achieve a 49% improvement in site-wide regulated carbon emissions over Part L 2013 compliance, with both domestic and non-domestic components achieving the Mayor's target of more than 35% improvement.

10.53 Carbon offsetting is provided to further reduce the CO_2 emissions from energy consumption within the domestic uses. Carbon offsetting is discussed in the mitigation section of this ES chapter.

Unregulated Energy Consumption

10.54 Table 10.8 summarises the unregulated CO_2 emissions (see paragraph 10.18). Unregulated emissions are the behavioural emissions as part of the buildings' use (personal electronic equipment, TVs, computers, printers, fridges, ovens, washing machines etc.) and are not subject to a policy requirement for improvement against any benchmarks, so the emissions following application of the energy strategy only is presented.

[17] *London Borough of Tower Hamlets, Local Plan 2031*
[18] *London Borough of Tower Hamlets (2016) Planning Obligations SPD*
[19] *GLA (2016), The London Plan*

Table 10.8 Assessment of CO_2 Emissions from Unregulated Energy Consumption

Unregulated Emissions	Domestic (tonnes CO_2 per annum)	Non-domestic (tonnes CO_2 per annum)	Site-wide (tonnes CO_2 per annum)
With Energy Strategy	458	1,737	2,195

Total GHG Emission Footprint

10.55 Table 10.9 and Figure 10.2 summarise the GHG emissions for the Proposed Development based on the Indicative Scheme, but using maximum traffic generation for operational road transport as set out in paragraph 10.1. The GHG emissions are shown in the opening year for each footprint element. The GHG emissions from embedded materials used in constructions are annualised assuming a 60-year life[20]. Annualising the embedded GHG emissions allows them to be compared on a like-for-like basis to the operational GHG emissions which are reported on a 'per annum' basis.

10.56 The Proposed Development will result in a net increase in GHG emissions in the opening year of 33,892 tonnes. This is the first step of the assessment of significance as described in paragraph 10.35.

Table 10.9 GHG Footprint for Proposed Development in 2025

Development Phase	Footprint Element	Baseline (tonnes CO_2e per annum)	2025 (tonnes CO_2 per annum)	Net Emissions (tonnes CO_2 per annum)
Construction	Embedded	0	14,556	+14,556
	Transport	0	112	+112
Operation	Transport	0	15,423	+15,423
	Energy	0	3,801	+3,801
Total		**0**	**33,892**	**33,892**

Notes:
All figures rounded.
Total embedded emissions from construction divided by 60 years.
Total transport emissions from construction divided by 60 year lifetime.

GHG Comparisons

10.57 The second step in determining the likely significant effects is to compare the net change in GHG emissions in the opening year to London-wide and local GHG emissions (see paragraph 10.35). Table 10.10 presents residual CO_2e data for the Proposed Development with a comparison to CO_2 emissions data taken form the 2013 London Atmospheric Emissions Inventory for the GLA for the year 2025. Comparison of the GHG emissions from the Proposed Development with those within the GLA inventory shows that the Proposed Development is 0.135% of total emissions in the GLA, and no more than 0.174% when looking at any individual aspect of the footprint.

Figure 10.2 GHG Footprint for Proposed Development in 2025

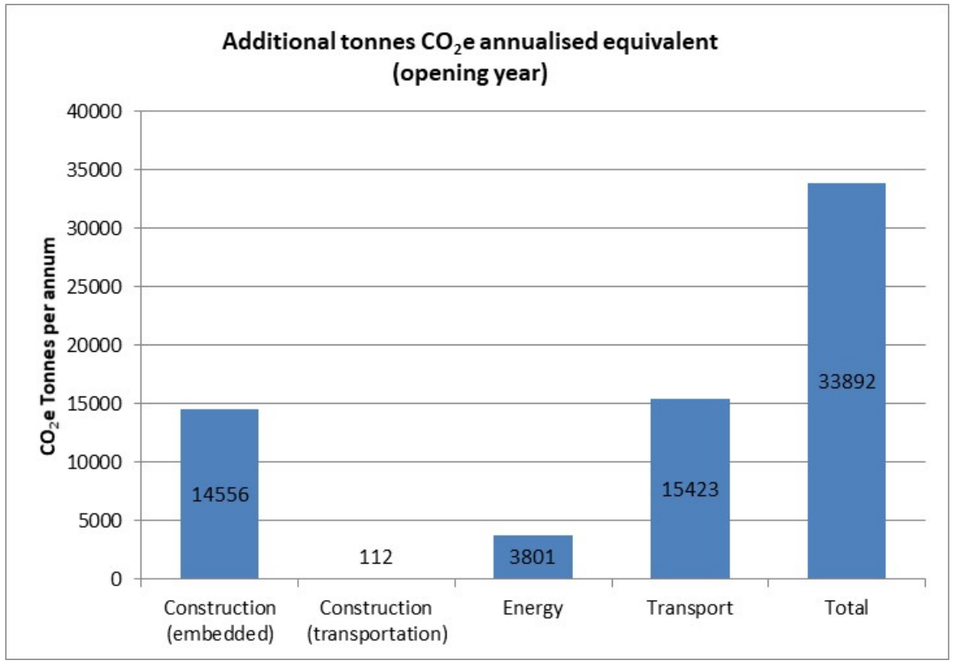

Table 10.10 Comparison of Proposed Development Footprint to GLA Emissions

Footprint Element	Opening Year CO_{2e} Emissions (Tonnes) from Proposed Development	Opening Year CO_{2e} Emissions (Tonnes) from Within GLA [a]	Notes	Proposed Development as % of GLA
Enabling and Construction				
Embedded Carbon	11,754	-	There are no data on embedded CO_{2e} for London	-
Transport	112	8,799,911	Based on Road Transport	0.001%
Completed Development				
Energy	3,801	11,481,204	Combined data for domestic and commercial gas and other fuels	0.03%
Transport	15,423	8,876,393	Combined data for road and rail transport	0.174%
Total				
All Sources [b]	33,892	25,130,268	All GLA Sources	0.135%

Notes:
[a] The London Atmospheric Emissions Inventory data presented are for 2025.
[b] Total includes sources not listed in this table.

10.58 In terms of borough-wide emissions, the total LBTH CO_2e emissions as set out in the LBTH's Net Zero Carbon Plan[21] is 1,600,000 tonnes per year. Compared to this value, the estimated 2025 CO_2e footprint for the Proposed Development (35,965 tonnes) represents 2.1% of borough-wide emissions. It should be noted though that the calculated GHG emissions for the Proposed Development from transport includes emissions

[20] *Which is considered standard for a development of this type.*
[21] *LBTH (2020), Net Zero Carbon Plan*

that will be released outside the borough of Tower Hamlets, whereas LBTH's boroughwide emissions only include transport emissions within the borough; also LBTH's boroughwide emissions will not include emissions from construction (i.e. embedded GHGs); therefore 2.1% of boroughwide emissions is a conservative comparison. Based on a more representative comparison of just the operational energy and transport emissions for the Proposed Development (19,224 tonnes[22]) contributes 1.2% of boroughwide emissions in the opening year.

10.59 IEMA guidance makes clear that any increase in GHG emissions might be considered significant; however, as presented in Table 10.12, the residual emissions are a small component (approximately 0.143%) in the context of the regional GHG emissions and 2.2% in the context of local emissions. The principles of the IEMA guidance are that where GHGs can't be avoided, that mitigation should be provided to minimise GHGs. The mitigation is discussed in the following section.

MITIGATION MEASURES, MONITORING AND RESIDUAL EFFECTS

Enabling and Construction Mitigation

10.60 Reducing GHG emissions during the construction phase would include consideration of minimising the use of materials as well as the procurement of sustainable materials, with consideration of the embedded carbon footprint of the material from the extraction of the raw materials, the production of the final construction products and the transport of products between the factory and Proposed Development.

10.61 **ES Volume 1, Chapter 16: Mitigation and Monitoring** presents the environmental management and mitigation measures that the Applicant has committed to implementing throughout the enabling and construction works to either eliminate or reduce the significance of any likely adverse environmental effects.

10.62 In addition the Sustainability Statement[23] sets out a framework that will be adopted at RMA stage to maximise the sustainability of the development and minimise GHG emissions from construction, including a target of BREEAM 'excellent' rating, the potential for which has been demonstrated through an initial BREEAM Shell & Core assessment for the Indicative Scheme. In addition, the following measures to minimise embedded carbon through detailed design have been recommended:

- Upper floors: Hollow core slab with a high recycled content (GGBS) & Cross Laminated timber;
- Sub-structure: Recycled content (GGBS) in foundations and slabs;
- Super structure: Concrete frame with a high recycled content (GGBS) & recycled content in steel; and
- Façade: External wall cladding options to be reviewed as per the detailed design for individual plots. In this analysis, concrete panels had lower emissions compared to brick slip and aluminium cladding.

Construction Activities

10.63 The Applicant will develop and implement a Construction Environmental Management Plan (CEMP) through which mitigation and compliance with the GLAs Sustainable Design and Construction Supplementary Planning Guidance (SPG)[24] will be managed. The CEMP will detail control measures and activities to be undertaken to minimise environmental effects, including matters regarding waste management, and energy and water usage and will be secured via planning condition.

10.64 The CEMP, in terms of waste management, will contain measures to minimise waste generation, opportunities for reuse and recycling, and consideration of alternatives to removing waste by methods other than by road. In terms of energy usage, all relevant contractors would be required to investigate opportunities to minimise and reduce the use of energy so as to avoid any likely significant adverse effects associated with excessive energy consumption and resulting GHG emissions.

10.65 In terms of machinery and plant use, and site energy usage, energy consumption monitoring and reduction plans will be in place and all relevant contractors will be required to investigate opportunities to minimise and reduce the use of energy so as to avoid excessive energy consumption and resulting GHG emissions. This may include measures such as use of low emission or electric plant and machinery, on site engine idling policy and energy efficient site lighting. During site establishment, small power operations and tower crane and hoist use will utilise grid-generated electrical energy.

10.66 To dissuade construction staff from arriving on-site via private motorised vehicles, limited car parking will be available, and construction staff will be advised against parking off-site. Walking, cycling and other sustainable forms of transport will be promoted, and pedestrian site access will be segregated from the road by physical barriers to ensure safety upon arrival and departure. In terms of construction transport, a Construction Logistics Plan (CLP) (an outline of which is submitted as part of this OPA) will be prepared. Within the CLP will be measures to reduce the environmental impact from the construction stage and to optimise the efficient delivery and collection of goods and materials to the Site.

Completed Development Mitigation

Transport

10.67 A Travel Plan will be developed for the Proposed Development, in order to minimise car use and facilitate the sustainable movement of residents, staff, visitors and goods to and from the Proposed Development. The requirement to prepare and implement a Travel Plan will be secured via planning condition.

10.68 There will be pedestrian and cycle access to the Proposed Development, including cycle parking.

10.69 Overall, the Site itself is in a well-connected location for public transport providing a wide range of transport services including national rail and Docklands Light Railway (DLR) services and the London bus network. This includes the West India Quay and Poplar DLR stations located close to the Proposed Development.

Energy Consumption

10.70 The design team have worked extensively on the Energy Strategy for the Proposed Development with particular attention being paid to the 'Be Lean, Be Clean and Be Green' hierarchical system. The Applicant is, however, committed to going beyond normal good practice, and aspires to delivering a zero-carbon scheme.

[22] *3,801 tonnes from energy + 15,423 tonnes from transport = 19,224 tonnes.*
[23] *Max Fordham (2020), North Quay Sustainability Statement NQ.PA.16*
[24] *GLA (2014) Sustainable Design and Construction SPG.*

10.71 The Proposed Development achieves an overall total on-site regulated carbon reduction of 49%, as shown in Table 10.7, relative to Part L of the Building Regulations. This is better than the London Plan policy requirement of a 35% reduction, and also better than the LBTH Policy D.ES7 which specifies that 'Major' residential and non-residential applications must achieve a 45% reduction in regulated CO_2 emissions against Part L of the Building Regulations.

10.72 In order to achieve such reductions, the following measures are proposed to minimise energy consumption, as set out in the Energy Statement[25], which will be developed further during detailed design at RMA stage:

- High performance building fabric;
- High performance solar glazing and very low u-values which significantly exceed the Part L 2013 requirements;
- Low air permeability rates to minimise uncontrolled heat losses and gains;
- Air handling systems that incorporate heat recovery;
- Reliance on electricity as the main fuel, rather than fossil fuels;
- Heat networks will be designed with provision for future connections to a suitable low carbon heat network, if one becomes available in the local vicinity of the Site; and
- Use of renewable (or 'Low and Zero Carbon', LZC) technologies, such as photovoltaic panels to deliver the heating, hot water, cooling, and lighting requirements.

10.73 In addition, to comply with Policy 5.2 of the London Plan, a carbon offset payment (secured via planning obligations) will be provided to offset residual regulated domestic CO_2 emissions to zero. The LBTH's offset price is £95 per tonne for 30 years and so for the Proposed Development, the contribution has been calculated at £4,577,449 (although will need to be recalculated once the final scheme is determined).

10.74 As part of the Draft New London Plan, there is a proposal to set the non-domestic targets to the same level as domestic, requiring offsets of 100%.

10.75 A summary of the carbon offset payments and residual emissions from energy consumption are presented on Table 10.11.

Table 10.11 Carbon Offset [a]

Land Use	Part L Baseline (T CO_2/yr)	On-site Carbon Reductions	Total Carbon after On-site Reductions (T CO_2/yr)	Carbon Offset (T CO_2) [b]	Residual CO_2 Emissions (T CO_2/yr)
Regulated Domestic	674	53%	314	314 (£895,249)	0
Regulated Non-domestic	2,482	47%	1,292	1,292 (£3,682,200)	0
Unregulated Domestic	n/a	n/a	458	0 (£0)	458
Unregulated Non-domestic	n/a	n/a	1,737	0 (£0)	1,737
Total	**n/a**	**n/a**	**3,801**	**1,606 (£4,577,449)**	**2,195**

Notes:
[a] Based on unrounded numbers.
[b] Calculated based on the LBTH Carbon Offset Cost multiplied by the residual carbon.

[25] *Max Fordham, North Quay Masterplan Energy Statement NQ.PA.17*

10.76 The residual CO_2 emissions from energy consumption associated with the Proposed Development when considering offsetting in the opening year will be 2,195 tonnes per annum. This results in total opening year residual GHG emissions of 32,286 tonnes (calculated using the total net opening year emissions in Figure 9.2, reduced by 1,606 tonnes to account for the offsetting of regulated domestic and non-domestic energy consumption shown in Table 9.11).

Mitigation Summary

10.77 Table 10.12 summarises the Proposed Development's approach to mitigation against the principles described in IEMA guidance.

Table 10.12 Proposed Development Approach to Mitigation in Accordance with IEMA Mitigation Principles

Development Phase	Avoid and Reduce GHGs	Compensate GHGs
Construction	Construction Environment Management Plan (CEMP) including measures to reuse of material on site where possible. Minimising waste to landfill. Good practice measures to minimise energy use from construction activities. Target of BREEAM excellent rating. Detailed consideration to minimising GHGs from construction will be approached phase by phase during detailed design.	n/a
Operation (Transport)	Cycle parking and electric vehicle charging points in line with the London Plan policies. Private car parking spaces for disabled users only.	n/a
Operation (Energy)	Suite of measures to ensure highly energy efficient buildings. On-site measures to be lean, be clean and be green will lead to site-wide reductions of regulated GHG emissions of 49% compared to the Part L Baseline energy consumption. Carbon offsetting is provided to reduce overall site-wide CO_2 and ensure net zero regulated emissions from the residential elements of the Indicative Scheme. Further development of the energy strategy for the development is expected to evolve during RMA applications.	Offsetting the residual regulated domestic and non-domestic carbon to zero.

Residual Effects

10.78 The final stage of assessment of significance as described in paragraph 10.35 is to consider the residual GHG emissions in the context of the proposed mitigation and relevant policy targets.

10.79 Paragraph 10.76 sets out that there will be residual GHG emissions in the opening year of 32,195 tonnes. The mitigation measures described in paragraphs 10.60 to 10.75 will be implemented to avoid, reduce and compensate the GHG emissions during construction and throughout the lifetime of the Proposed Development, however, a net increase in GHG emissions against the baseline GHG emissions will remain in the opening year of 2025.

10.80 The GHG emissions resulting from the Proposed Development are very small in the context of local and regional GHG emissions, contributing 2.1% to borough-wide GHG emissions and 0.135% to London-wide GHG emissions (see paragraph 10.58).

10.81 As described in paragraph 10.50 the Proposed Development meets the relevant climate change policy requirements of The London Plan relating to energy, and also meets the requirements of Policy D.ES7 of the Tower Hamlets Local Plan 2031.

10.82 The Proposed Development is also compliant with the principles of the Draft London Plan and accompanying Draft Energy Assessment Guidance; further details are provided in **ES Volume 3: Appendix Greenhouse Gas Emissions – Annex 1**.

10.83 In terms of transport emissions and emissions during construction, there are no planning policies that are directly relevant to meeting targets or reductions in emissions terms, but the Proposed Development meets the policy requirements of the London Plan including meeting the car parking requirements of Table 6.2 of the London Plan (designed to minimise private parking) and the cycle parking requirements of Table 6.3 of the London Plan (designed to maximise secure and convenient cycle parking and storage).

10.84 As detailed in paragraph 10.25 to 10.27 the UK has adopted a net zero target to be achieved no later than 2050 with UK government legally mandated to take steps across the economy to meet this target. This will include measures to decarbonise UK power supply as well as ground transportation the effects of which will be to reduce the longer term operational GHG emissions associated with the Proposed Development to zero by 2050.

10.85 It is, therefore, judged that although the Proposed Development has residual GHG emissions in the opening year, these have been minimised through an appropriate degree of mitigation consistent with best practice and IEMA guidance and ensure the Proposed Development is compliant with relevant policies and the UK's target for net zero carbon emissions by 2050. It is judged that significant effects as a result of the Proposed Development in isolation are not likely, but the significance of effects is discussed further in relation to the wider global cumulative effects.

ASSESSMENT OF THE FUTURE ENVIRONMENT

Evolution of the Baseline Scenario

10.86 If the Proposed Development did not come forward, it is expected that the Site would remain in its current state, which currently is cleared, used predominately as storage space with some temporary buildings.

10.87 The UK Government has adopted a long-term strategy to aim for net zero GHG emissions by 2050, as such, the trend for reducing GHG emissions from all sectors will continue in the future in order for this to occur.

10.88 Whilst any new development in the local area will lead to an incremental increase in baseline GHG emissions in the shorter term, with decarbonisation of the national grid, increased take up and improvements in low or zero carbon transport technology and continued improvements in building designs, these changes are likely to ensure the UK reaches net zero emission by 2050, as required by the UK Climate Change Act 2018.

Cumulative Effects Assessment

10.89 As set out in the IEMA guidance "*GHG emissions from all projects will contribute to climate change; the largest interrelated cumulative environmental effect*". This statement relates to 'cumulative' on a global scale as all emissions of GHG's contribute to climate change. The definition of 'cumulative effects' in the context of greenhouse gases and climate change therefore goes far beyond the typical definition of cumulative effects for EIA, which tends to focus on other proposed projects in the vicinity of the Proposed Development.

10.90 The EIA has identified 26 cumulative schemes (and a further 2 schemes EIA Scoping for consideration in the assessment. It is difficult to quantify the greenhouse gas emissions from each of the 26 cumulative schemes and as discussed above cumulative contributions to climate change from GHGs will extend well beyond these 26 schemes. It is expected that mitigation will be provided, principally for operational energy and transport, which are policy compliant and work to minimise the on-site GHG emissions and reduce the lifetime GHG emissions of each cumulative scheme.

10.91 The residual cumulative GHG emissions from the 26 schemes and Proposed Development will likely be small in the context of regional and national GHG emissions, but as part of the wider cumulative effects of GHG emissions from all local, regional, national and global sources are nonetheless judged to be significant in accordance with IEMA guidance.

CLIMATE CHANGE

10.92 The future implications of climate change will not affect the assessment set out in this ES chapter. Climate change resulting in local climatic effects such as changes in temperatures, greater fluctuations in temperatures or more frequent weather events may increase the energy demand of the Proposed Development; however, the GHG assessment is based on annualised emissions in 2025, which do not take account of further decarbonisation of energy supply beyond 2025, or any further energy efficiencies that can be introduced to the Proposed Development during its operational life. Any increase in energy demand from climate change is therefore likely to be offset with energy efficiencies and decarbonisation of the energy supply.

LIKELY SIGNIFICANT EFFECTS

10.93 The assessment of the significance of the GHG emissions has followed IEMA guidance[15] on assessing greenhouse gas emissions and evaluating their significance, which describes that any increase in GHG emissions might be considered significant (see paragraph 10.32). Nonetheless, it is important to consider the GHG emissions in the context of wider GHG emissions, relevant climate change policy and the proposed mitigation measures to reduce, avoid and compensate GHGs.

10.94 Comparison of the GHG emissions from the Proposed Development to those within the LBTH shows that the Proposed Development provides a very small contribution to wider GHG emissions, representing 0.135% of total emissions in the GLA, and 2.1% of emissions in Tower Hamlets.

10.95 IEMA guidance recommends a focus on mitigation through the principles outlined in paragraph 10.34. The assessment has concluded that those principles have been addressed by the Proposed Development and the mitigation provided is appropriate to the scale and nature of the scheme.

10.96 When assessing the Proposed Development to relevant climate change policy, it has been demonstrated that the development meets all relevant policy requirements as described in paragraphs 10.81 to 10.83.

10.97 As detailed in paragraph 10.84, the UK has adopted a net zero target to be achieved no later than 2050 with UK government legally mandated to take steps across the economy to meet this target. This will include measures to decarbonise UK power supply as well as ground transportation the effects of which will be to reduce the longer term operational GHG emissions associated with the Proposed Development to zero by 2050.

10.98 Overall, the Proposed Development contributes a small amount to GHG emissions and will employ commensurate mitigation measures to ensure policy compliance and minimise its contribution to climate change where possible to ensure that likely significant effects associated with the Proposed Development itself are avoided. Many of the mitigation measures will be further defined during subsequent RMA applications. The IEMA guidance is clear that any GHG emissions might be considered significant, but it is important to acknowledge that significant effects from climate change relate to cumulative global GHG emissions from all sources driving up atmospheric temperatures and do not relate to a direct effect resulting from a small additional GHG contribution associated with the Proposed Development. It is therefore concluded that significant effects arise as a result of cumulative GHG emissions from all sources, as described in paragraph 10.93.

INDICATIVE SCHEME COMPARISON

10.99 The GHG assessment set out in this ES chapter is based on reasonable worst-case assumptions as set out in paragraph 10.1. The GHG assessment has used the maximum parameters for embedded GHGs, the maximum trip generation scenario for transport and the Indicative Scheme for operational energy consumption and construction transport. Total GHG emissions from the Indicative Scheme will therefore likely be lower than those presented in this assessment. Although the maximum parameters may lead to slightly higher GHG emissions from energy and construction transport, this is likely to be minor as the Indicative Scheme is only slightly smaller in GIA terms to the maximum parameters. The principles of mitigation set out in the assessment will remain the same and the overall conclusions of the assessment will not be affected.