

## 3 Climate Change

### 3.1 Scope of Assessment

- 3.1.1 This chapter sets out the implications of the confirmed details for Plot 1 for the findings of the Climate Change Chapter as set out in the 2019 ES Addendum (ESA).
- 3.1.2 This chapter revises the assessment of greenhouse gases associated with the Proposed Development in line with the revised **Energy Strategy Addendum, Whole Lifecycle Carbon Assessment (WLCA)** and the **Circular Economy Statement** submitted in this RMA, as well as updated guidance.
- 3.1.3 As information has been presented in the RMA for Plot 1 in isolation in the above documents, this chapter considers qualitatively whether the greenhouse gas emissions for Plot 1 are in line with the previously assessed likely emissions for the wider (masterplan) Proposed Development.
- 3.1.4 No amendments have made to the recommended climate change adaptation measures from those set out in the 2019 ESA however these are summarised in Section 3.6 of this chapter for clarity.

### 3.2 Changes to Legislation, Policy and Guidance since the 2019 ESA

- 3.2.1 Since the 2019 ESA, the London Plan has been adopted.
- 3.2.2 In addition, three relevant guidance documents have been released:
- The IEMA Guide to Climate Change Resilience and Adaptation was published in June 2020. It recommends that EIA considers both the vulnerability of receptors within the project to climate change and the potential for climate change to alter or exacerbate the findings of the EIA in a future climate scenario;
  - The IEMA EIA Guide to Assessing Greenhouse Gas Emissions and Evaluating their Significance (2<sup>nd</sup> edition) builds on the 2017 guidance on which the 2019 ESA was based, this second edition was published in February 2022. The main changes from the 2017 guidance are a new scale for significant and non-significant effects, based on a development's GHG performance relative to a net zero and 1.5°C aligned reduction trajectory, and a greater focus on up-front mitigation, which can differentiate development projects with significant or non-significant effects; and

- The Greater London Authority Whole Life-Cycle Carbon Assessment guidance was published in March 2022 and sets out the expectations for Whole Life Carbon Assessments.

### 3.3 Changes to Baseline Conditions

- 3.3.1 The usage of the Site, and associated greenhouse gas emissions, remains as assessed in the 2019 ESA, as do the future climate projections. There are therefore no changes to baseline or future baseline conditions.
- 3.3.2 The IEMA EIA Guide recommends that a project's carbon footprint is contextualised. As the majority of Plot 1 is located within the London Borough of Hackney (LBH), Plot 1 emissions as reported in the **WLCA** have been contextualised against the London Borough of Hackney's carbon budgets, which are as follows:
- 4<sup>th</sup> Carbon Budget (2023-2027) – 1.4 MtCO<sub>2</sub>e – corresponds to three years of construction of Plot 1 from 2024-2027.
  - 5<sup>th</sup> Carbon Budget (2028-2032) – 0.7 MtCO<sub>2</sub>e – corresponds to one year of construction of Plot 1 in 2028 and three years of operation 2029-2032.
  - 6<sup>th</sup> Carbon Budget (2033-2037) - 0.4 MtCO<sub>2</sub>e – corresponds to four years of operation 2033-2037.
- 3.3.3 Contextualisation has been undertaken for only the largest contributors towards the total GHG emissions associated with Plot 1 set out in the **WLCA**. These are construction materials (embodied carbon), construction transport and site operations, replacement and refurbishment, and operational energy use.

### 3.4 Implications to the Effects Reported in 2019 ESA

#### Construction Materials

- 3.4.1 The estimated greenhouse gas emissions for construction materials set out in the 2019 ESA employ a different methodology to the 2023 **WLCA** for Plot 1, and are not directly comparable figures. The conclusion of the 2019 ESA was that without the application of circular economy principles, the greenhouse gas emissions associated with building materials would be moderate-minor adverse and significant, and this would reduce to minor adverse if circular economy principles and lower embodied carbon emissions were employed. A **Circular Economy Statement** has been produced for Plot 1. The IEMA guidance notes that a project that complies with up to date policy and good practice reduction measures so that it is compatible with a science based 1.5 degree C trajectory may be considered minor adverse. Therefore, provided that Plot 1 is

constructed in line with the **Circular Economy Statement**, and that similar statements guide development for the remainder of the Site, the minor adverse and not significant conclusion remains valid.

- 3.4.2 The GHG emissions associated with construction materials (WLCA modules A1-A3) for Plot 1 would be 36,454 TCO<sub>2</sub>e with 27,341 TCO<sub>2</sub>e in the 4<sup>th</sup> carbon budget and 9,114 TCO<sub>2</sub>e in the 5<sup>th</sup> carbon budget representing 1.9 % of the 4<sup>th</sup> carbon budget and 1.3 % of the 5<sup>th</sup> carbon budget.

### Construction traffic and site operations

- 3.4.3 The GHG emissions associated construction traffic and site operations (WLCA modules A4-A5) for Plot 1 would be 5,284 TCO<sub>2</sub>e over the 4 year construction with 3,963 TCO<sub>2</sub>e in the 4<sup>th</sup> carbon budget and 1,321 TCO<sub>2</sub>e in the 5<sup>th</sup> carbon budget representing 0.3 % of the 4<sup>th</sup> carbon budget and 0.2 % of the 5<sup>th</sup> carbon budget.
- 3.4.4 In the 2019 ESA the estimated GHG emissions associated with construction traffic (no estimate was given for plant/site operations) was 77,623 TCO<sub>2</sub>e in total. Plot 1 represents a reasonable 'share' of this overall total and as such the findings of the 2019 ESA (minor adverse and not significant) remain valid.

### Replacement and Refurbishment

- 3.4.5 This element of the Proposed Development's GHG emissions was not considered in the 2019 ESA however as it is a substantial element in the WLCA, contextualisation against the LB Hackney GHG budget has been provided for completeness.
- 3.4.6 The GHG emissions associated with replacement and refurbishment (WLCA module B4) for Plot 1 would be 11,738 TCO<sub>2</sub>e total, 195.6 TCO<sub>2</sub>e per year over a 60 year design life. This would therefore equate to 586.9 TCO<sub>2</sub>e in the 5<sup>th</sup> carbon budget (0.08 % of Hackney's 5<sup>th</sup> carbon budget) and 782.4 TCO<sub>2</sub>e in the 6<sup>th</sup> carbon budget (0.20 % of Hackney's 6<sup>th</sup> carbon budget).
- 3.4.7 In light of the above, and noting that this element of GHG emissions is also covered by the submitted **Circular Economy Statement**, an additional conclusion of a minor adverse (not significant) effect arising from greenhouse gas emissions from replacement and refurbishment is noted.

### Operational Energy

- 3.4.8 An Energy Strategy was submitted for the wider site in 2019. This showed the Site achieved a 32 % non-domestic reduction in greenhouse gas emissions from regulated energy use from the 2013 Part L Baseline. This raised to 33 % once the Plot 7 refurbished railway arch units were excluded. This was achieved

through energy efficient lighting, insulation to pipework, suitable glazing to solid ratios for facades, suitable g values, the capacity for blinds to be installed in office buildings, mechanical ventilation, air source heat pumps (ASHPs) on a plot by plot basis as the primary heat generation technology, a potential ambient loop network to share heat from the plot by plot ASHPs across the whole development, and photovoltaic panels.

- 3.4.9 The **Energy Strategy Addendum** for Plot 1 builds on the above mitigation measures, confirming the photovoltaic panels, air source heat pumps and sitewide ambient loop community heat network. Plot 1 achieves an 24.6 % reduction in greenhouse gas emissions from the 2021 Part L baseline. The 2021 Part L baseline sets out substantially lower greenhouse gas emissions targets than the 2013 baseline. Greenhouse gas emissions for regulated energy for Plot 1 are considered to be in line with those assessed for the wider Proposed Development in 2019. With the measures set out in the Energy Strategy the regulated energy emissions for the full Proposed Development are likely to be slightly lower than estimated in 2019.
- 3.4.10 In 2019, the site wide operational regulated energy emissions were anticipated to be 1,705 TCO<sub>2</sub>e per year – 102,300 TCO<sub>2</sub>e across a 60 year lifespan. The estimated operational energy use (combining regulated and unregulated energy use) for Plot 1 set out in the **Energy Strategy Addendum** is 11,212 TCO<sub>2</sub>e across the 60 year lifespan, this is well within Plot 1's 'share' of the total energy use and the conclusions relating to operational energy use (minor adverse – not significant, noting the use of renewable technologies, improvement over Part L and contribution to carbon offsetting for residual emissions) are expected to remain valid.
- 3.4.11 The GHG emissions associated with energy use (WLCA module B6) for Plot 1 would be 560.61 TCO<sub>2</sub>e in the 5<sup>th</sup> carbon budget and 747.48 TCO<sub>2</sub>e in the 6<sup>th</sup> carbon budget representing 0.08 % of the 5<sup>th</sup> carbon budget and 0.19 % of the 6<sup>th</sup> carbon budget.

### Operational Traffic

- 3.4.12 No estimates of greenhouse gas emissions associated with Plot 1 traffic are provided. However, as Plot 1 is within the parameters set out in 2019, there is not anticipated to be any change in the trip generation from the 2019 ESA, as shown in **Chapter 5 – Transport and Movement**. As such, the findings of the 2019 ESA for operational traffic (minor adverse, not significant – noting the limited parking and provision of a Travel Plan in the scheme) remain valid.

## End of Life

- 3.4.13 In the 2019 ESA the GHG emissions associated with end of life were assessed qualitatively and considered to be moderate-minor adverse in the absence of circular economy principles. Circular economy principles were identified as additional mitigation and should the Proposed Development be built in line with circular economy principles the residual effect would be minor adverse.
- 3.4.14 A **Circular Economy Statement** has been submitted with the Plot 1 RMA. Therefore, provided that Plot 1 is constructed in line with the **Circular Economy Statement**, and that similar statements guide development for the remainder of the Site, the minor adverse and not significant effect conclusion remains valid.

## 3.5 Consideration of any new Cumulative Schemes

- 3.5.1 Because of the global nature of Greenhouse Gas Emissions all global GHG emissions are relevant to effects on the global climate, and as such effects of GHG emissions from specific cumulative projects is not considered further.
- 3.5.2 The new committed developments are not anticipated to affect the resilience of the Proposed Development to Climate Change.

## 3.6 Summary and Conclusion

- 3.6.1 **Table 3.1** compares the findings of the 2019 ESA and this chapter.

**Table 3.1 Comparison of findings for Greenhouse Gas Emissions – 2019 ESA and 2023 ECR**

Proposed Development element	2019 ESA findings	2023 ESA findings
Construction materials	Without circular economy principles – moderate-minor adverse (significant) With reduction in embodied carbon and circular economy principles – minor adverse (not significant)	Minor adverse (not significant)
Construction traffic and construction plant	Minor adverse (not significant)	Minor adverse (not significant)
Replacement and refurbishment	-not assessed-	Minor adverse (not significant)
Operational Energy	Minor adverse (not significant)	Minor adverse (not significant)
Operational Traffic	Minor adverse (not significant)	Minor adverse (not significant)

Proposed Development element	2019 ESA findings	2023 ESA findings
End of life	Without circular economy principles – moderate-minor adverse (significant) With reduction in embodied carbon and circular economy principles – minor adverse (not significant)	Minor adverse (not significant)

3.6.2 As noted above the conclusions remain as stated in the 2019 ESA with no new significant effects identified. Mitigation measures for Plot 1 are set out in the **Energy Strategy Addendum, Circular Economy Statement and Transport Assessment** submitted with this RMA. Similar documents have been secured by condition to be submitted with subsequent reserved matters applications and the climate change assessment will be reviewed for each reserved matters application as it comes forward.

3.6.3 The 2019 ESA (**Volume 2, Chapter 18 Table 18.5**) included an in-combination assessment that assessed the implications of climate change across the topic chapters. This identified that the highest in-combination risks would arise from:

- Increased odour;
- Disruption to waste management during extreme weather;
- Users of amenity space prevented from doing so due to flood/hot weather;
- Impacts of extreme weather on healthcare facilities;
- Higher occurrences of strong winds;
- Increased overheating;
- Changes in flood risk; and
- Impacts on sewage and water supplies.

3.6.4 This is considered to remain valid in light of the submitted details for Plot 1.

3.6.5 The 2019 ESA included an outline Climate Change Adaptation Plan, recommending the following measures. It has been noted where further design has been undertaken in line with these recommendations.

- Fit out of tenanted spaces to be in line with the performance stipulations within the Non-Domestic Building Services Compliance Guide;
- Energy monitoring devices – these will now be required under the Be Seen GLA requirements;
- Zonal/programmable thermal controls;

- Highly efficient water installations – in Plot 1 mains water consumption will be designed to target BREEAM excellent standard for the Wat 01 water category as set out in the **Sustainability Statement**;
- Native and drought resistant planting – urban tree species have not been selected for Plot 1 but the **Landscape Strategy** identifies some likely native and drought tolerant species such as small leaved lime, common hornbeam and pedunculate (English) oak;
- Passive solar shading provision over amenity spaces – owing to the location of Middle Road there is likely to be substantial shading for amenity areas in this location.

3.6.6 As such the findings and mitigation measures set out in the climate change adaption element of the 2019 ESA remain valid.

