Annex D: Scoped In Topic Sheets

TOPIC SHEET

Air Quality

Introduction

1 It is considered that there is the potential for likely significant effects relating to air quality and so this topic shall be **scoped in** to the EIA.

The ES shall:

- Define the air quality baseline conditions;
- Identify relevant receptors sensitive to air quality;
- Assess:
 - The potential for air quality impacts throughout the demolition and construction works and as a result of the completed development and resultant air quality effects;
 - The likely significant air quality effects;
 - Any required mitigation or monitoring to address any likely significant adverse air quality effects; and
 - The potential for cumulative effects in relation to air quality with other agreed upon schemes in the surrounding area.
- Undertake an air quality neutral assessment and an air quality positive statement in accordance with Policy SI 1 of the London Plan¹. The Proposed Development should be at least Air Quality Neutral based upon benchmarks set by the Greater London Authority (GLA) while the air quality positive statement will demonstrate how proposals have considered ways to maximise benefits to local air quality and what measures or design features will be put in place to reduce exposure to pollution.

Baseline Conditions

Current Baseline Conditions

- The London Borough of Camden (LBC) has declared an Air Quality Management Area (AQMA), encompassing the whole borough, for exceedances of the annual mean nitrogen dioxide (NO₂) and 24-hour mean particulate matter (PM₁₀) objectives. The site is also located within the *'Marylebone Road from Marble Arch / Euston / King's Cross Junction'* air quality Focus Area; these are areas that have been identified by the Greater London Authority (GLA) as locations that not only exceed the annual mean limit value for NO₂ (40µg/m³) but are also locations with high levels of human exposure. These are areas where the GLA considers there to be the greatest potential for air quality improvements and are, therefore, where actions will be focused, by the GLA and Transport for London (TfL), to improve air quality.
- 3 The LBC operates five automatic monitoring stations within its administrative boundary, with three monitoring stations located within 1.5km of the site ('BL0', 'CD9' and 'KGX'). All three stations monitor PM₁₀ while BL0 and CD9 also monitor NO₂ and PM_{2.5} concentrations. The LBC also operates a number of NO₂ diffusion tube monitoring sites, eight of which are located within 1.5km of the Proposed Development.
- 4 The latest NO₂ monitoring data for the automatic and diffusion tube monitoring sites within 1.5km of the site are shown in Table 1 and the monitoring locations are displayed in Figure 1.

¹ GLA (2021) The London Plan, The Spatial Development Strategy for Greater London

Site ID	Site Type	Location	2015	2016	2017	2018	2019	2020	2021
			A	nnual Mean I	NO₂ (µg/m³)				
BL0	Urban Background	London Bloomsbury (Russell Square Gardens)	48	42	38	36	32	28	27
CD9	Roadside	Euston Road	<u>90</u>	<u>88</u>	<u>83</u>	<u>82 d</u>	<u>70</u>	43	48
CA4A	Kerbside	Euston Road	-	-	-	-	<u>70.7</u>	53.7	57.1 ^d
CA6	Urban Background	St George's Gardens (prev. "Wakefield Gardens")	35.8	31.3	34.8 ^d	26.7	25.2	_ e	_ e
CA10	Urban Background	Tavistock Gardens	44.6	39.7	46.2 d	35.4	33.9	26.8	22.3 ^d
CA11	Kerbside	Tottenham Court Road	<u>85.6</u>	<u>83.6</u>	<u>74.0 ^d</u>	<u>65.8</u>	<u>62.6</u>	43.3	44.4 ^d
CA20A	Roadside	Brill Place	-	-	-	-	44.1	43.9	34.5 ^d
CA28	Urban Background	St George's Gardens East	-	-	-	-	28.3	22.5	17.4 ^d
CA29	Roadside	Endsleigh Gardens	-	-	-	-	49.5	35.3	34.5 ^d
	Objective			·	·	40			
		Nu	mber of Hou	irly Mean Co	ncentrations	> 200 µg/m³			
BLO	Urban Background	London Bloomsbury (Russell Square Gardens)	0	0	0	0	0	0	0
CD9	Roadside	Euston Road	54	39	25	18	7	0	1
Objective 18									

Table 1 Summary of LBC NO₂ Monitoring (µg/m³) (2015-2021)^{2 a, b, c}

^a Exceedances are shown in **bold**.

^b Exceedances of the 60 μg/m³ proxy value, indicating a potential exceedance of the 1-hour mean NO₂ objective, are shown in <u>bold and</u> <u>underlined</u>.

^c The 2020 and 2021 monitoring results will have been affected by the Covid-19 pandemic so may not represent current conditions in the local area (discussed further below).

^d Data capture for the monitoring period was less than 75%, and as such the results were annualised in accordance with LLAQM Technical Guidance.

^e The monitor was decommissioned in 2020.

² London Borough of Camden (2022) Air Quality Annual Status Report for 2021





Figure 1 Site Boundary, Nearby Monitoring Locations and Air Quality Focus Areas

Contains Ordnance Survey data © Crown copyright and database right 2023. Ordnance Survey license number 100046099. Additional data sourced from third parties, including public sector information licensed under the Open Government License v1.0.

- 5 As shown in Table 1, exceedances of the annual mean NO₂ objective occurred at all the kerbside and roadside locations within 1.5km of the Proposed Development between 2015 and 2021. Concentrations of more than 60µg/m³ were also measured at three sites (two of which are located on Euston Road (A501)), indicating potential exceedances of the 1-hour mean objective. However, all automatic monitoring sites recorded concentrations below this level in 2019, including the 'CD9' automatic monitor which, despite measuring concentrations above 60µg/m³, has not measured any exceedances of the 1-hour mean objective since 2017. There was an overall downward trend in concentrations between 2015 and 2019.
- 6 While 2020 and 2021 results have been presented for completeness, they will not be relied upon in any way as they are not representative of 'typical' air quality conditions due to the impact of the Covid-19 pandemic on traffic volumes and thus pollutant concentrations. Therefore, concentrations measured in 2019 will be used within the air quality ES chapter, unless 2022 monitoring data are published by the time the assessment is undertaken and are deemed appropriate for use.
- 7 The LBC also measures PM₁₀ and PM_{2.5} concentrations at 'BL0' and 'CD9' automatic stations, and only PM₁₀ concentrations at 'KGX'. Table 2 shows the latest monitoring data, and the locations of these monitors are presented in Figure 1.



Table 2 Summary of LBC PM₁₀ and PM_{2.5} Monitoring (µg/m³) (2015-2021)

Site ID	Site Type	Location	2015	2016	2017	2018	2019	2020	2021
		1	Annual Mea	n PM₁₀ (µg/	′m³)				
BLO	Urban Background	London Bloomsbury (Russell Square Gardens)	22	20	19	17	18	16	16
CD9	Roadside	Euston Road	28	24	20	21	22	18	19
KGX	Urban Background / Industrial	Coopers Lane	-	-	-	15	15	13	13 ª
	Objective					40			
		1	Annual Mea	n PM _{2.5} (µg	/m³)				
BLO	Urban Background	London Bloomsbury (Russell Square Gardens)	11	12	13	10	11	9	9
CD9	Roadside	Euston Road	17	17	14	15	14	11	11
C)bjective / GLA Tar	get	20 / 10						
		N	o. of Days	PM ₁₀ > 50 μ	g/m³				
BL0	Urban Background	London Bloomsbury (Russell Square Gardens)	6	9	6	1	9	4	0
CD9	Roadside	Euston Road	5	10	3	2	8	2	2
KGX	Urban Background / Industrial	Coopers Lane	-	-	-	1	5	1	0
	Objective					18			

^a Data capture for the monitoring period was less than 75%, and as such the result was annualised according to the LLAQM Technical Guidance.

8 As shown in Table 2, the measured annual mean and 24-hour mean PM₁₀ concentrations were below their respective objectives in all years presented. PM₁₀ concentrations across the study area are, therefore, likely to also be below the objectives. In addition, PM_{2.5} concentrations were also below the objective, in all years presented. They do, however, exceed the GLA target value at the 'BL0' monitoring station between 2015 and 2019 and at 'CD9' monitoring station in all years presented, which is common across much of London. The nationwide achievement is very unlikely to be possible before 2030, especially in London³.

Future Baseline Conditions

9 Air quality is generally expected to improve with time, due (for example) to more stringent emissions standards for motor vehicles and implementation of strategic policies designed to improve local air quality such as the London Ultra Low Emissions Zone (ULEZ); thus, the likely evolution of the baseline conditions will be considered. Future baseline concentrations of NO₂, PM₁₀ and PM_{2.5} (in the anticipated opening year of the Proposed Development) at existing receptors will be assessed using a combination of background maps published by Defra⁴, predicted background concentrations from the London Atmospheric Emissions Inventory (LAEI) and local air quality monitoring trends. Should a detailed assessment of the impacts of road traffic emissions be

³ Defra (2019) Assessing progress towards WHO guideline levels of PM2.5 in the UK.

⁴ Defra (2021) Local Air Quality Management (LAQM) Support Website



required (see '*Methodology*' section below), future baseline concentrations will be predicted using the dispersion model ADMS-Roads, at selected receptor locations.

10 A detailed air quality assessment would use the predicted future air quality conditions as a baseline from which to determine the significance of the effects of the completed and operational Proposed Development. The methodology is described below within the '*Methodology*' section.

Receptors

Demolition and Construction

11 For the onsite demolition and construction activities, the assessment will consider the potential for impacts within 350m of the site boundary, and within 50m of the routes to be used by construction vehicles up to 500m from the site exit(s). For the construction dust assessment, relevant receptors in the area will be considered. Relevant receptors in the area include residential dwellings and hospitals (high sensitivity receptors) as well as offices and shops (medium sensitivity receptors). Receptors will be identified based upon the distance bandings set out in guidance from the Institute of Air Quality Management (IAQM)⁵. This is the approach recommended in the GLA's guidance on The Control of Dust and Emissions during Construction and Demolition⁶.

Completed Development

12 For the assessment of operational effects, suitable receptor locations will be identified based on detailed maps, satellite imagery, and plans of the Proposed Development. Receptors will be identified to represent a range of exposure, focusing on worst-case locations where the air quality objectives apply. Future receptor locations within the Proposed Development will also be considered. The objectives apply at locations where members of the public are likely to be regularly present and are likely to be exposed over the averaging period of the objective (i.e., locations with relevant exposure). Consideration will be given to those locations with relevant exposure to the annual mean objectives (i.e., residential areas, including outdoor amenity spaces) and the 1-hour mean NO₂ objective (i.e., retail areas and public realm spaces). The air quality objectives do not apply at places of work (e.g., offices).

Potential Effects

Demolition and Construction

- **13** The scope of the air quality assessment in relation to the demolition and construction activities associated with the Proposed Development will include:
 - The identification of relevant sensitive receptor locations for the demolition and construction of the Proposed Development;
 - A qualitative assessment of impacts of the Proposed Development on dust soiling and concentrations of PM₁₀ resulting from activities during the demolition and construction period;
 - A quantitative assessment of the impacts of emissions from construction traffic (both Heavy Duty Vehicles (HDVs) and Light Duty Vehicles (LDVs)) on concentrations of NO₂, PM₁₀ and PM_{2.5}, if construction traffic flows exceed published screening criteria (see '*Methodology*' section below); and
 - The identification of any cumulative effects of construction dust in combination with the any nearby cumulative schemes.

Completed Development

- **14** The scope of the air quality assessment in relation to the complete and operational Proposed Development, will include:
 - Impacts of NO₂, PM₁₀ and PM_{2.5} emissions from road traffic generated by the Proposed Development once operational at existing sensitive receptors in the local area if operational traffic flows exceed published screening criteria (see '*Methodology*' section below);
 - Impacts of NO₂ and PM₁₀ emissions from any energy plant (if included) in the Proposed Development once operational at existing sensitive receptors in the local area;

⁵ IAQM (2016) Guidance on the Assessment of Dust from Demolition and Construction v1.1

⁶ GLA (2014)[′] The Control of Dust and Emissions from Construction and Demolition SPG, Available: https://www.london.gov.uk/what-wedo/planning/implementing-london-plan/supplementary-planning-guidance/control-dust-and.



- Impacts of existing sources of pollution, from both traffic using the local road network and (if proposed) energy plant within the Proposed Development on sensitive receptors at the Proposed Development itself; and
- The potential for the Proposed Development and cumulative schemes to cumulatively impact air quality at sensitive receptors during the operation of the Proposed Development.
- **15** A preliminary air quality assessment will be undertaken prior to preparation of the Environmental Statement (ES) to identify any design opportunities that will avoid or reduce the air quality effects associated with the Proposed Development, and to identify any air quality constraints.
- **16** The air quality neutrality of the Proposed Development, as well as measures aimed at ensuring the Proposed Development is Air Quality Positive, will also be addressed in accordance with the requirements of the London Plan.

Methodology

Demolition and Construction

- 17 The potential impacts from dust generated during the demolition and construction of the Proposed Development will be considered using the approach presented in the IAQM guidance for assessing impacts from construction activities⁴, upon which the GLA's SPG⁷ is based. Where relevant, the cumulative impacts arising from cumulative schemes being constructed concurrently in the study area will also be considered. Appropriate mitigation measures will be recommended based on the outcome of the dust risk assessment. The IAQM guidance is clear that, with appropriate mitigation in place, the residual effects will normally be 'not significant'.
- 18 Emissions from construction plant (Non-Road Mobile Machinery (NRMM)) will not be explicitly modelled, as relevant guidance from the IAQM states that "experience from assessing the exhaust emissions from on-site plant (also known as non-road mobile machinery or NRMM) [...] suggests that they are unlikely to make a significant impact on local air quality and in the vast majority of cases they will not need to be quantitatively assessed". Significant effects as a result of NRMM emissions can thus likely be discounted. However, suitable mitigation measures for site plant will be presented as part of the mitigation measures based on advice presented in the IAQM guidance document and in accordance with the NRMM Low Emissions Zone (LEZ).
- 19 The number of demolition and construction vehicles (including HDVs) in use during the demolition and construction of the Proposed Development will be considered in the context of the screening criteria provided in the EPUK/ IAQM guidance⁸. If the increase in HDV movements exceeds the screening criteria, then emissions from traffic generated during the demolition and construction works will be assessed quantitatively using the ADMS Road dispersion model. The IAQM screening criteria of an increase of 100 Light Duty Vehicles / 25 HDVs Annual Average Daily Traffic (AADT) on roads within the AQMA will be used to define the study area.
- **20** If dispersion modelling of construction traffic is required, the scenarios that will be considered as part of the assessment will include:
 - Current baseline scenario;
 - Peak Construction Year⁹ without the Proposed Development, but including traffic generated by relevant cumulative schemes; and
 - Peak Construction Year with the Proposed Development, including traffic generated by relevant cumulative schemes and the construction of the Proposed Development itself.

Completed Development

- 21 The number of vehicle movements generated as a result of the operation of the Proposed Development will be considered in the context of the screening criteria (25 HDVs or 100 LDVs) provided in the guidance from EPUK and the IAQM⁸. If the Proposed Development is predicted to lead to an increase in vehicle movements that exceeds the screening criteria, then emissions from traffic generated during the operational stage will be assessed quantitatively using the ADMS-Roads dispersion model. The model requires a variety of inputs, including road traffic data (flows, speeds and vehicle fleet composition) and meteorological data.
- 22 The proposed energy strategy for the Proposed Development will use an all-electric solution which includes Air Source Heat Pumps (ASHPs) and, as such, will have no onsite emissions which would need to be considered in the ES. A life safety generator, sprinklers and wet riser are currently being considered. If the details of the plant are available, the emissions will be initially screened against IAQM guidance, in combination with their

⁷ GLA (2014) The Control of Dust and Emissions from Construction and Demolition SPG

⁸ Moorcroft and Barrowcliffe et al (2017) Land-Use Planning & Development Control: Planning For Air Quality v1.2

⁹ The earliest construction year with the greatest construction traffic flows



proposed location, operating profile and dispersion parameters, to identify whether a detailed assessment of emissions is required.

- 23 If detailed dispersion modelling is required to assess emissions from traffic generated during the operational stage, an ADMS Roads model will be used to predict concentrations of NO₂, PM₁₀ and PM_{2.5} for the following three scenarios:
 - Baseline year;
 - Opening year (earliest year of possible occupation/operation) without the Proposed Development, but including traffic generated by relevant cumulative schemes; and
 - Opening year (earliest year of possible occupation/operation) with the Proposed Development, including traffic generated by relevant cumulative schemes and the completed Proposed Development itself.
- 24 An important element of the modelling study will be to verify the ADMS-Roads model output against measured results. This will be undertaken by identifying suitable roadside air quality monitoring locations against which the model performance can be compared, in line with the methodology set out in Defra's TG (22)¹⁰ guidance document.
- 25 Meteorological data will be taken from London City Airport (LCA), which is the nearest and most representative meteorological site to the Proposed Development. The year of meteorological data will be selected to match the baseline assessment year and the latest available representative monitoring data.
- **26** Traffic data for the assessment will be provided by the appointed Transport Consultant and may, where necessary, be supplemented with data from the LAEI.
- 27 Background pollutant concentrations will be determined using data derived from the background maps published by Defra⁴.
- **28** The overall effect will be evaluated using criteria recommended by EPUK/IAQM8 and will be determined based on predicted impacts at receptors and professional judgement. Where required, mitigation measures will be proposed to ensure that residual effects are not significant.
- 29 The Proposed Development will include an allocation for fume cupboards to allow potential end users operating research and development type activities to occupy some of the development. Although the use of such facilities requires extraction of air, there are tight regulations on the design and operation of fume cupboards. Any such end users will need to ensure that all activities meet the requirements of various British Standards (e.g., BSEN 14175) and Health and Safety Executive (HSE)/Control of Substances Hazardous to Health (COSHH) standards for all substances handled. Any residual emissions will need to be appropriately minimised using filtration where necessary. Given the strict regulations on the operation of fume cupboards, there can be a high level of confidence that provided the air extraction system is appropriately designed, that significant air quality effects will be avoided. It is therefore proposed to scope fume cupboard emissions out of the air quality assessment.

Cumulative Effects

- **30** The cumulative construction dust effects of the Proposed Development and identified cumulative schemes will be considered based on the location and proximity of each scheme, and the IAQM Guidance for assessing impacts from construction activities.
- 31 Cumulative operational effects include those associated with road traffic emissions and combustion plant. If the Proposed Development leads to a net decrease in traffic, or an increase in traffic below the screening criteria, then cumulative road traffic impacts will be considered qualitatively. Otherwise, the inclusion of traffic generated by the cumulative schemes in the 'Opening year with the Proposed Development' scenario will ensure that cumulative effects are quantified. With regards to combustion plant sources, a review of nearby cumulative schemes will be undertaken to determine the cumulative impacts of any combustion plant sources.

Air Quality Neutral Assessment

32 The GLA's London Plan Guidance (Air Quality Neutral)¹¹ sets out guidance on how an 'air quality neutral' assessment should be undertaken and aims at ensuring that new developments meet this status. This will involve the calculation of emissions associated with the buildings and transport generated by their use. These emissions will then be compared with published benchmarks. Any excess emissions over and above the benchmarks will need to be reduced by mitigation or off-set.

¹⁰ Defra (2022) Review & Assessment: Technical Guidance LAQM.TG22 August 2022 Version.

¹¹ GLA (2023) London Plan Guidance – Air Quality Neutral



Air Quality Positive

33 The GLA has published guidance¹² to ensure large-scale developments deliver maximum air quality benefits and improvements and incorporate best practice and good design measures to reduce exposure to air pollution as far as possible. An Air Quality Positive Statement will be included in the assessment which will set out the inherent measures included within the Proposed Development's design to improve air quality.

¹² GLA (2023) London Plan Guidance – Air Quality Positive.

TOPIC SHEET

CLIMATE CHANGE AND GREENHOUSE GASES (GHG)

Introduction

- 1 The 2017 Environmental Impact Assessment (EIA) EIA Regulations¹ (as amended) introduced the requirement for the consideration of climate as part of the EIA process. The EIA Regulations seek to account for climate by requiring a description of 'the impact of the project on climate' and 'the vulnerability of the project to climate change' (Schedule 4, paragraph 5(f)).
- 2 Based on the requirement of the EIA Regulations to address climate change and relevant guidance suggesting that any greenhouse gas (GHG) emissions or reductions from a project may be considered as significant, this topic is **scoped in** to the EIA.

The ES shall:

- Define the GHG baseline conditions;
- Assess:
 - The potential for GHG impacts throughout the demolition and construction works and as a result of the completed development and resultant GHG effects;
 - The resultant likely significant GHG effects; and
 - Any required mitigation or monitoring to address any likely significant adverse GHG effects.
- **3** The Climate Change ES chapter will also outline relevant climate change resilience and adaptation measures which have been incorporated into the design of the Proposed Development. Additionally, it will consider how, under an alternate future climate scenario, receptors may be affected by the Proposed Development.
- **4** The GHG assessment will be conducted in accordance with the principles set out in the following policies and guidance:
 - National Planning Policy Framework²;
 - Climate Change Act 2008;
 - Climate Change Act 2008 (2050 Target Amendment) Order 2019;
 - Energy Act 2013;
 - Climate Change and Sustainable Energy Act 2006;
 - The National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting³;
 - The Clean Growth Strategy⁴;
 - Approved Documents L1A and L2A;

¹ Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (amended 2018, 2019, 2020)

² Department for Levelling Up, Housing and Communities (2021) National Planning Policy Framework

³ Department for Environment, Food and Rural Affairs (2018) The National Adaptation Programme and the Third Strategy for Climate Adaptation Reporting

⁴ Department for Business, Energy and Industrial Strategy (2017) The Clean Growth Strategy



- The London Plan⁵;
- London Environment Strategy⁶;
- Delivering London's Energy Future: The Mayor's Climate Change Mitigation and Energy Strategy⁷;
- London Borough of Camden Local Plan⁸;
- IEMA 'Assessing Greenhouse Gas Emissions and Evaluating their Significance' (2022)⁹.
- 5 The greenhouse gas element of the ES chapter will be undertaken by Air Quality Consultants (AQC).

The Proposed Development's Potential Impact on Climate

Baseline Conditions

6 An appropriate baseline will be determined based on the availability of information. Where information is available, baseline carbon dioxide equivalent (CO₂e) emissions relating to the current operation of the site in terms of transport and energy emissions will be calculated. Transport emissions will be calculated based on the number of transport trips generated by the current operation of the site and available data on travel distances, taking account of the mode of transport. Energy emissions will be calculated taking account of current energy consumption of the site (electricity and gas). Should data on the existing use of the site be unavailable, a worst-case assumption will be used whereby the baseline transport and energy emissions are assumed to be zero.

Receptors

7 GHGs contribute towards climate change, which is a global-scale cumulative effect, but do not cause direct local or regional effects, therefore no specific receptor locations are assessed in the GHG assessment. Instead, the global climate is the only receptor considered.

Assessment of Effects

- 8 The approach to assessing the potential impact of the Proposed Development on climate will be undertaken in accordance with the Institute for Environmental Management and Assessment (IEMA) guidance⁹. This guidance sets out a 'good practice' approach to achieving a proportionate assessment of a development's potential impact on climate and communicating the results in terms of a notional percentage contribution relative to a carbon budget, together with appropriate mitigation.
- 9 The guidance presents a series of principles developed by IEMA, which highlight that all GHG emissions contribute to climate change, and that the combined effect of all emissions draws us closer to the scientifically defined environmental limit for climate change. The IEMA guidance assigns significance criteria to the impact of a development's lifecycle GHG emissions, relative to its alignment with the UK Government's decarbonisation targets to achieve Net Zero Carbon by 2050, and limit global temperature increase to 1.5°C above pre-industrial levels. In order for a development to comply with the 1.5°C trajectory of decarbonisation, mitigation is encouraged early and throughout the design process, in line with IEMA's acknowledgement that the ability to effect change to achieve GHG emissions reduction for a project reduces over time.
- **10** Consistent with the guidance, the approach taken in the EIA will be to:
 - Quantify the lifecycle GHG emissions¹⁰ from the Proposed Development;

⁵ Greater London Authority (2021) The London Plan 2021: The Spatial Development Strategy for Greater London

⁶ Greater London Authority (2018) London Environment Strategy

⁷ Greater London Authority (2011) Delivering London's Energy Future: The Mayor's Climate Change Mitigation and Energy Strategy

⁸ London Borough of Camden (2017) Camden Local Plan

⁹ Institute of Environmental Management and Assessment, 2022. Institute of Environmental Management and Assessment (IEMA) Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance, 2nd Edition

¹⁰ Determining the net GHG emissions contribution accounts for the existing GHG emissions within the project boundary prior to the project commencing, against the predicted project emissions.



- Compare the lifecycle GHG emissions against an existing carbon budget projected trajectory that complies with the UK's requirement to be Net Zero by 2050;
- Evaluate the consistency of the Proposed Development with relevant policies as national, regional and local scale that relate to GHG emissions; and
- Evaluate the robustness and effectiveness of mitigation measures designed to minimise GHG emissions throughout the lifetime of the Proposed Development.
- **11** These key components will be used to evaluate the significance of the Proposed Development's impact on climate change in line with the IEMA guidance.
- **12** The lifecycle GHG footprint for the Proposed Development will include the following emissions sources:
 - Embodied carbon in construction materials;
 - Construction transport;
 - Construction site activities (fuel and energy consumption and waste);
 - Operational energy consumption;
 - Operational transport; and
 - Repair, maintenance and refurbishment during the Proposed Development's life.
- 13 IEMA guidance allows elements of a project's GHG footprint to be scoped out where they contribute only a small proportion of the lifecycle emissions. For the Proposed Development, the elements scoped out of the assessment will include construction site activities (i.e. energy and fuel use associated with demolition and construction), operational waste, and water supply and treatment. As the Proposed Development is designed with a lifetime that extends well beyond 2050, when the UK has committed to net zero carbon, the emissions from decommissioning of the development at the end of its life are assumed to be net zero and scoped out of the assessment.
- **14** The Proposed Development's GHG emissions will be contextualised against relevant carbon budgets and appraised in their compatibility with the UK's trajectory to net zero 2050.
- **15** The ES will include a review of the compliance of the Proposed Development to relevant policies relating to GHG emissions, such as Part 14 of the NPPF, and local policies relevant to energy and sustainable transport.
- **16** The ES will present the carbon mitigation being proposed, which will follow the principles of the carbon management hierarchy (i.e., avoid, reduce, off-set), in order to reduce, as far as reasonably practicable, the anticipated GHG emissions over the Proposed Development's lifecycle.
- 17 The assessment of GHG emissions will draw together these analyses to determine the significant effects associated with GHG emissions, which will be presented in the ES chapter. Relevant information relating to carbon mitigation measures will be presented within the ES chapter describing the Proposed Development and the Demolition and Construction ES chapter.

Cumulative Effects

18 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. The GHG assessment is therefore intrinsically a cumulative assessment and no consideration to specific local cumulative schemes is required.

The Potential Impact of Climate Change on The Proposed Development

19 The approach to assessing the potential impact of climate change on the Proposed Development will be undertaken by Trium (with input from the wider consultant team) in accordance with IEMA's guidance '*Climate*



Change Resilience and Adaption^{'11} which presents a framework for the consideration of climate change resilience and adaption in the EIA process. It recognises a need for a proportionate approach to the assessment, due to the uncertainties associated with predicting how the environment will respond to climate change.

- **20** The guidance advises on *inter alia*, defining the future climate scenario, the integration of climate change adaption into the design, and the process for EIA. The guidance also provides advice on the execution of the impact assessment across the technical topics, including the identification of the climate related parameters which are likely to influence the project in question, and the anticipated changes to those parameters under a future climate scenario.
- 21 Consistent with the guidance, the EIA will describe a future climate scenario which will be developed using the future climate projections published by the Met Office (through the UK Climate Projections (UKCP18) website¹²). The results include projections for variables including annual mean temperatures, and annual changes in summer and winter precipitation.
- 22 To describe the predicted future climate, it is proposed that a medium emissions scenario (Relative Concentration Pathway (RCP) 8.5) for 2080 will be utilised as the future baseline. RCP8.5 has been used as it represents a conservative high emissions scenario. The year 2080 is the timeframe considered most relevant to the Proposed Development. The projected change to the range of climatic conditions will adopt the 50% probability level, which is a central estimate adopted given the level of uncertainty associated with predicting the modelled scenarios. A Climate Change Technical Note setting out the emissions scenario used and probability levels shall be provided as an annex to the Climate Change ES chapter.
- 23 The future climate change scenario will be considered for each of the technical topics covered by the EIA. The level of assessment and methodology will be proportional to the available evidence base. The aim of the assessment will be to consider whether the effect on receptors (under the current condition, without climate change) are likely to be different under an alternative future climate regime; in particular, to identify whether the potential impacts of the Proposed Development will be worse or improve under the future climate regime, and therefore if these changes alter the significance of effects identified for the Proposed Development under the current condition (without climate change). A key aspect of the assessment will be to identify the likely effect of those receptors considered more vulnerable to changes in climate, having considered the resilience and adaptive measures (being either design or management) which are proposed for the scheme in order to mitigate the risk presented by climate change.
- 24 Due to the level of uncertainty in both the future climate projections and how the future climate conditions may affect sensitive receptors, the assessment will be qualitative, based on objective professional judgement, unless where there is published, accepted quantifiable methods available (i.e., in relation to the assessment of flood risk).
- 25 The ES chapter on Climate Change will present the review of the future climate change scenario in terms of how the effects on receptors (under the current condition, without climate change) are likely to be different under an alternative future climate regime. In addition, the adaption and resilience measures proposed as part of the description of the Proposed Development shall be identified.

¹¹ IEMA (2020) Climate Change Resilience and Adaption, Available: https://www.iema.net.

¹² <u>https://www.metoffice.gov.uk/research/approach/collaboration/ukcp/download-data</u>

TOPIC SHEET

Daylight, Sunlight, Overshadowing and Solar Glare

Introduction

- 1 It is considered that there is the potential for likely significant effects relating to daylight and sunlight to impact sensitive surrounding residential buildings and other sensitive uses, overshadowing of surrounding outdoor amenity areas and solar glare to major road junctions surrounding the site. Therefore, this topic shall be **scoped** in to the EIA.
- 2 The ES shall:
 - Define the baseline conditions relevant to daylight, sunlight, overshadowing and solar glare;
 - Identify relevant receptors; and
 - Assess:
 - The potential impacts throughout the demolition and construction works and as a result of the completed development;
 - The likely significance of any effects;
 - Any required mitigation to minimise and reduce any significant adverse effects; and
 - The potential for cumulative effects in relation to daylight, sunlight, overshadowing and solar glare, with other agreed upon schemes in the surrounding area.
- 3 The technical assessments and authoring of the ES chapter will be undertaken by Point 2.

Baseline Conditions

Daylight, Sunlight & Overshadowing

- 4 The current Euston Tower building has been in existence since between 1962 and 1972 and will therefore form the current baseline condition by reference to the Vertical Sky Component (VSC), No-Sky Line (NSL) and Annual Probable Sunlight Hours (APSH) methods.
- **5** With regards to the relevant outdoor amenity areas within the site and the baseline level of overshadowing, Sun Hours on Ground (SHOG) methods will be used.
- **6** The daylight, sunlight and overshadowing effects of the Proposed Development will then be assessed against this baseline condition.

Solar Glare

7 The current Euston Tower building produces a degree of Solar Glare. Consequently, the assessments will consider the effect of the Proposed Development in absolute terms as well as comparatively with the existing building. Professional judgement will be used to determine any impact.



Receptors

Daylight & Sunlight

- 8 Existing residential receptors have been identified on nearby roads/streets that are considered sensitive in relation to daylight and sunlight; these will therefore be included within the assessments. The BRE Guidelines¹ consider that guidance may also be applied to any existing non-domestic building where occupants have a reasonable expectation of daylight; as such, changes in daylight and sunlight to student accommodation surrounding the site will also be assessed. Habitable rooms within the following sensitive receptors surrounding the site will be assessed and are shown in Figure 1 below:
 - 17 to 33 William Road
 - Schafer House, University College Student
 - 164-166 Drummond Street
 - 175 Drummond Street
 - 40-60 Hampstead Road
 - 1-6 Tolmers Square
 - 183 North Gower Street
 - Euston Square Hotel
 - Warren Court, Euston Road
 - 301-305 Euston Road & 69-70 Warren Street
 - Lizmans House, 321 Euston Road
 - 56 Warren Street
 - 57 Warren Street
 - 58 Warren Street
 - 59 Warren Street

- 60-61 Warren Street
- 62 Warren Street
- 63-68 Warren Street
- 71 Warren Street
- The Grafton Hotel
- 9 Warren Street
- 10 Warren Street
- 11 Warren Street
- 12 Warren Street
- 13-14 Warren Street & 118-120 Whitfield Street
- 15 Warren Street & 161 Whitfield Street
- 16 Warren Street
- 17 Warren Street
- Duchess House, 18-19 Warren Street

¹ The BRE Guidelines 2022 – Site Layout Planning for Daylight and Sunlight – A Guide to Good Practice by Paul J Littlefair





Figure 1 Sensitive Receptors for Daylight & Sunlight



Overshadowing

9 Areas of amenity space are considered most sensitive to overshadowing effects resulting from the Proposed Development. Owing to the southerly location of the sun path, only open spaces located from the north-west through to north-east of the site require consideration in relation to overshadowing. The areas deemed relevant for analysis within the immediate vicinity of the site are outlined in yellow in Figure 2 below.







Solar Glare Receptors

10 The assessment will consider potentially sensitive viewpoints for road users surrounding the site. The viewpoints will generally be located at major road junctions or signals within the immediate vicinity and to the south of the site, where drivers have the potential to be affected. The most relevant receptors sensitive to solar glare have been identified in Figure 3 below. Other junctions to the south of the site are a considerable distance away and are not considered to be sensitive given the density of the buildings around them.





11 The three viewpoints identified above are key junctions to the south of the site that contain traffic lights and pedestrian crossings.

Potential Effects

Demolition and Construction

12 Owing to the evolving and changing nature of demolition and construction activities, the assessment of potential effects during the demolition and construction of the Proposed Development will not be modelled. Instead, a qualitative assessment of the demolition and construction phases will be undertaken using professional judgement, with the worst-case scenario in terms of the effects quantitatively modelled and analysed through the assessment of the completed Proposed Development (see below for further details).

Completed Development

13 The scope of the daylight, sunlight, overshadowing and solar glare assessment, in relation to the completed Proposed Development, will include the current baseline conditions compared against the implementation of the Proposed Development and a quantitative analysis on the daylight, sunlight, overshadowing and solar glare to the surrounding sensitive receptors as a result of the implementation of the Proposed Development.



Methodology

- **14** Daylight, sunlight and overshadowing analysis will be undertaken by reference to the BRE Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice (The Guidelines 2022).
- **15** In relation to the properties surrounding the site, we will only assess the impact to main habitable accommodation (i.e. living rooms, bedrooms and kitchens) within residential properties. Commercial properties and non-habitable rooms such as bathrooms, toilets, storerooms, circulation areas and garages will not be considered within the ES chapter.
- **16** The BRE Guidelines provide two principal measures of daylight for assessing the impact on properties neighbouring a site, namely Vertical Sky Component (VSC) and No Sky Line (NSL). In terms of sunlight, the Annual Probable Sunlight Hours (APSH) will be examined.
- 17 These measures of daylight and sunlight are discussed in the following paragraphs.

Diffuse Daylight

- **18** VSC is a measure of the direct skylight reaching a point from an overcast sky. It is the ratio of the illuminance at a point on a given vertical plane to the illuminance at a point on a horizontal plane due to an unobstructed sky.
- **19** For existing buildings, the BRE Guidelines are based on the loss of VSC at a point at the centre of a window, on the outer plane of the wall.
- **20** The BRE Guidelines state that if the VSC at the centre of a window is less than 27%, and it is less than 0.8 times its former value (i.e. the proportional reduction is greater than 20%), then the reduction in skylight will be noticeable, and the existing building may be adversely affected.
- **21** NSL is a measure of the distribution of daylight within a room. It maps out the region within a room where light can penetrate directly from the sky, and therefore accounts for the size of and number of windows by simple geometry.
- **22** The BRE suggest that if the area of the working plane within a room that can receive direct skylight is reduced to less than 0.8 times its former value, the effect will be noticeable.
- 23 The BRE Guidelines considers bedrooms to be less sensitive for daylight distribution (section 2.2.10).

Sunlight

- 24 In relation to sunlight, Annual Probable Sunlight Hours (APSH), the BRE recommends that the APSH received at a given window in the affected receptor should be at least 25% of the total available, including at least 5% in winter.
- **25** Where the proposed values fall short of these, and the absolute loss is greater than 4%, then the proposed values should not be less than 0.8 times their previous value in each period (i.e. the proportional reductions should not be greater than 20%).
- **26** The BRE Guidelines state that '...all main living rooms of dwellings, and conservatories, should be checked if they have a window facing within 90° of due south. Kitchens and bedrooms are less important, although care should be taken not to block too much sun. Normally loss of sunlight need not be analysed to kitchens and bedrooms, except for bedrooms that also comprise a living space, for example a bed sitting room in an old people's home. (3.2.3)
- 27 In accordance with the BRE, sunlight to kitchens and bedrooms that do not contain a living space will not be assessed.
- **28** The APSH figures are calculated for each window, and where a room is served by more than one window the contribution of each is accounted for in the overall figures for the room. The acceptability criteria will be applied to overall room-based figures.



Balconies and Projections over Windows

29 The BRE Guidelines also recognises that balconies and overhangs located above windows inherently restrict the access to direct daylight and sunlight. With regards to daylight, the BRE comments on page 16, paragraph 2.2.13:

"Existing windows with balconies above them typically receive less daylight. Because the balcony cuts out light from the top part of the sky, even a modest obstruction opposite may result in a large relative impact on the VSC, and on the area receiving direct skylight."

30 With regards to sunlight, the BRE comments on page 25, paragraph 3.2.11:

"Balconies and overhangs above an existing window tend to block sunlight, especially in summer. Even a modest obstruction opposite may result in a large relative impact on the sunlight received."

31 In situations such as this, the BRE outlines a supplementary assessment that can be undertaken to understand whether the presence of the balcony, rather than the size of the new obstruction, is the main factor in the relative loss of light. Section 2.2.13 states:

"One way to demonstrate this would be to carry out an additional calculation of the VSC and area receiving direct skylight, for both the existing and proposed situations, without the balcony in place. For example, if the proposed VSC with the balcony was under 0.80 times the existing value with the balcony, but the same ratio for the values without the balcony was well over 0.8, this would show that the presence of the balcony, rather than the size of the new obstruction, was the main factor in the relative loss of light.

32 Where appropriate, an additional 'without balconies' assessment will also be undertaken and discussed within the ES chapter.

Overshadowing (Sun on Ground)

- **33** Section 3.3 of the BRE guidelines describes the method of assessment of the availability of sunlight within amenity spaces. This relates to the proportion of shading on March 21st.
- **34** The BRE criteria for amenity areas are as follows: "It is recommended that for it to appear adequately sunlit throughout the year, at least half of an amenity space should receive at least two hours of sunlight on the 21st March".

Solar Glare

35 Our analysis is carried out in two separate stages; 1) Annual Sequence Analysis and Annual Temporal Veiling Luminance Analysis and 2) Solar Reflectance Imaging which are both discussed further below.

Annual Sequence Analysis

- **36** The Annual Sequence Analysis will identify the times and locations of all instances of solar reflection from the Proposed Development throughout the year. The reflective elements of the façade of the Proposed Development will be simulated with red coloured mirrors in order to more easily identify possible incidents of glare and their locations. The path of the sun for the entire year will then be simulated around the Proposed Development in order to identify where and when instances of solar reflections may affect sensitive viewpoints.
- **37** The Annual Sequence Analysis creates conditions for optimal reflectance i.e. a perfectly reflective (specular) façade material and adopts an entirely unobstructed sky. The objective is to identify all possible incidents where solar reflection could occur, however brief, under optimal conditions.

Annual Temporal Veiling Luminance Analysis and Solar Reflectance Imaging

38 In order to understand the overall solar reflection effect of the Proposed Development upon each of the agreed sensitive viewpoints, the durations, viewing angles and intensity levels of all of the identified solar reflectance instances within a year are analysed. The time, duration and intensity of each instance of solar reflection is then



plotted onto a grid to create an Annual Temporal Veiling Luminance Calendar Graph for each sensitive viewpoint. The Annual Temporal Veiling Luminance Calendar Graph's axes capture the 365 days of the year along the X axis and the time of day on the Y axis. The Y axis is divided into Greenwich Mean Time (GMT) and British Summer Time (BST).

- **39** Disability glare is a reduction in visibility caused by light from bright sources being scattered within the eye, across the retina. The result is that vision is impaired by the veiling effect caused by the scattered light. David NH Hassall proposed a method of disability glare analysis based on the calculation of veiling luminance perceived by the eye. Hassall suggested that a threshold of 500 candelas per square meter (cd/m²), be used in solar reflection assessments i.e. if an instance of solar reflection is identified as having a veiling luminance level of greater than 500cd/m² it is considered to potentially give rise to disability glare.
- **40** The instance of solar reflection which produces the highest level of veiling luminance is then visualised using Radiance. The image also has the focal point of the observers' view ranging from 10° from the centre of the visual axis and moving out in concentric circles from 20° to 90° overlaid upon it. This provides a reference from which potential issues can be judged.

Cumulative Effects

A cumulative scenario is not considered necessary for daylight, sunlight, overshadowing and solar glare. There are no cumulative schemes located near enough to the site considered to have the potential for a cumulative impact on the daylight, sunlight, overshadowing and solar glare effects of the Proposed Development.

TOPIC SHEET

NOISE AND VIBRATION

Introduction

- 1 It is considered that there is the potential for likely significant effects relating to noise and vibration and so this topic shall be **scoped in** to the EIA.
- 2 The noise and vibration chapter of the ES will assess the likely impact of the Proposed Development upon noise sensitive receptors surrounding the site. This topic sheet sets out the proposed approach that will be taken in the assessment of noise and vibration effects, together with a summary of information that is currently available. The assessment is to be undertaken and prepared by Hann Tucker Associates.
- 3 The ES shall:
 - Define the noise and vibration baseline conditions;
 - Identify relevant noise and vibration receptors;
 - Assess:
 - The potential for noise and vibration impacts throughout the demolition and construction works and as a result of the completed development and resultant noise and vibration effects;
 - The likely significant noise and vibration effects;
 - Any required mitigation or monitoring to address any likely significant adverse noise and vibration effects; and
 - The potential for cumulative effects in relation to noise and vibration with other agreed upon cumulative schemes in the surrounding area.

Baseline Conditions

Current Baseline Conditions

- 4 Hann Tucker Associates undertook a baseline noise and vibration survey at the site in November 2022. During this survey, the dominant airborne noise sources were noted to be road traffic on Euston Road (A501) and Hampstead Road. Sources of vibration at the site comprise London Underground trainlines that pass close to the site; these include Circle, Hammersmith & City, Metropolitan, Northern and Victoria underground lines.
- 5 Noise monitoring undertaken in November 2022 included four unmanned monitoring locations and two manned positions. The measurement positions were carefully selected in order to ensure noise levels could be considered representative of those at surrounding noise sensitive receptors, as well as providing sufficient data for various acoustic design assessments for the Proposed Development (including an assessment of the suitability of the site for the intended use classes).
- 6 The noise monitoring locations are shown in Figure 1.

Figure 1 Noise Survey Monitoring Locations



7 The noise monitoring locations were as described below in Table 1.

Position No.	Description
P2	The sound level meter was placed on the podium roof. The microphone was attached to a pole fixed along the podium roof edge overlooking Euston Road (A501), approximately 15m from roadside and 8m above ground level.
P2	The sound level meter was placed on the podium roof. The microphone was attached to a pole fixed along the podium roof edge overlooking the road junction, approximately 14m from Euston Road, 16m from Hampstead Road and 8m above ground level.
Р3	The sound level meter was placed on the podium roof. The microphone was attached to a pole fixed along the podium roof edge overlooking Regent's Plaza and Brock Street (pedestrians only/no motor vehicles), approximately 63m from Euston Road, 70m from Hampstead Road and 8m above ground level.
P4	The sound level meter was placed on the tower roof. The microphone was attached to a pole fixed along the tower roof edge overlooking nearby road network, approximately 120m above ground level and 1.5m above the roof.
P5	The sound level meter was placed on Level 11 East Staircase. The microphone was attached to a pole extruding a window overlooking nearby road network, approximately 40m above ground level and 1m from façade.
M1	The sound level meter was hand-held. The microphone was positioned approximately 1.5m above ground level and 3m from Euston Road (A501).
M2	The sound level meter was hand-held. The microphone was positioned approximately 1.5m above ground level and 6m from Hampstead Road.

Table 1 Manned and Unmanned Noise Monitoring Locations

8 The typical daytime L_{Aeq(16-hour)} and night time L_{Aeq(8-hour)} noise levels measured during the unmanned survey are presented in Table 2.



Table 2 Typical Daytime L_{Aeq(16-hour)} and Night Time L_{Aeq(8-hour)} Noise Levels (Unmanned)

	Measured L _{Aeq,T} Noise Level (dB re 2 x 10 ⁻⁵ Pa)				
Position	Daytime (07:00 – 23:00) Hours, L _{Aeq,16hr}	Night-Time (23:00 – 07:00) Hours, L _{Aeq,8hr}			
1	68	67			
2	66	63			
3	62	57			
4	60	57			
5	70	67			

9 The A-weighted (dBA) L₉₀, L_{eq} and L_{max} sound levels from the manned survey are presented in Table 3.

Table 3	ole 3 A-Weighted (dBA) L ₉₀ , L _{eq} and L _{max} Sound Levels (Manned)					
Position	Time	Sound Levels dBA				
Position		L ₉₀	L _{eq}	L _{max}		
M1	13:00 to 13:15 hours	63	69	81		
M2	14:45 to 14:55 hours	66	71	85		

Future Baseline Conditions

10 In relation to traffic and transport and associated road traffic noise effects, a future baseline year, i.e., when the Proposed Development is expected to be complete and operational, will be considered. Operational road traffic noise will be assessed by considering the change in traffic flows for the predicted future baseline year, the data for which is to be provided by Velocity Transport Planning, the appointed transport consultants.

Receptors

11 The existing and proposed noise and vibration sensitive receptors which could be affected by noise and vibration impacts associated with the Proposed Development are indicated within Figure 2 and Table 4.

Figure 2 Existing and Proposed Sensitive Receptors





Table 4 Existing and Proposed Sensitive Receptors

Ref	Туре	Description	
А	Existing Commercial	10 Brock Street, commercial office building	
В	Existing Residential	The Triton Building, 26-storey residential tower	
С	Existing Mixed-use	Commercial units with residential properties above on Hampstead Road	
D	Existing Mixed-use	44 – 66 Hamstead Road, commercial and residential properties	
E	Existing Commercial	250 Euston Road, university, and commercial office building	
F	Existing Commercial	The Podium, 235 Euston Rd, University Collage Hospital	
G	Existing Mixed-use	Commercial and residential properties on Euston Road	
Н	Existing Commercial	1 Triton Square, commercial office building	

Potential Effects

Demolition and Construction

12 The scope of the noise and vibration assessment in relation to the demolition and construction activities associated with the Proposed Development will comprise an assessment of the demolition, construction activity and traffic. An assessment based on a reasonable worst-case scenario in terms of site extent and associated demolition and construction vehicles, equipment and activity will be undertaken in respect of the identified sensitive receptors.

Completed Development

- **13** The scope of the noise and vibration assessment in relation to the completed Proposed Development, will include:
 - Assessment of the noise from traffic generation: This includes the maximum anticipated road traffic (as assessed by the Applicant's Transport Consultant), as this represents the worst-case in potential increases in ambient noise levels at the existing and future receptors; and
 - Assessment of noise from building services plant: This would remain unaffected regardless of site extent with the building services plant being designed to achieve the London Borough of Camden (LBC) requirements for plant noise.

Methodology

- **14** The methodology employed for the assessment of likely significant noise and vibration effects resulting from the Proposed Development, and to ensure the Proposed Development provides an acceptable noise environment to its future occupants, will include the following:
 - Identification of the receptors within the vicinity of the Proposed Development that are and/or would be
 potentially sensitive to noise and vibration impacts;
 - Establishment of baseline noise conditions undertaking a detailed noise monitoring survey;
 - Identify and recommend appropriate mitigation and best practice measures to minimise noise and vibration levels anticipated to be generated by the demolition and construction of the Proposed Development;
 - Review of baseline and likely future baseline road traffic flow counts against surveyed noise levels to obtain likely future baseline noise levels for assessment purposes;
 - Establishment of noise criteria for fixed plant associated with the complete and operational Proposed Development in line with LBC requirements;
 - Prediction and assessment of changes in noise levels due to the completed and operational occupied Proposed Development plant in line with LBC requirements;
 - Formulation of appropriate design interventions and mitigation measures where appropriate; and
 - Establishment of the likely residual noise and vibration effects of the Proposed Development.



15 All relevant technical noise and vibration data and information used to inform the assessment will be appended to the ES.

Policy and Legislation

- **16** The noise and vibration assessment will be conducted in accordance with the principles set out in the following policies and guidance:
 - Method for Rating and Assessing Industrial and Commercial Sound BS 4142:2014+A1:2019¹
 - Noise and Vibration Control on Construction and Open Sites. Part 1, 2 & 4. Code of Practice BS 5228:2009+A1:2014²
 - Guidance on Sound Insulation and Noise Reduction in Buildings BS 8233:2014³
 - Guide to Evaluation of Human Exposure to Vibration in buildings BS 6472-1:2008⁴
 - Evaluation and Measurement for Vibration in Buildings BS 7385 Part 1-2: 1990/93⁵
 - Control of Pollution Act, Chapter 40, Part III, 1974⁶
 - Calculation of Road Traffic Noise 1988⁷
 - Design Manual for Roads and Bridges (DMRB) Volume 11 2011⁸
 - World Health Organization Guidelines for Community Noise 2000⁹

Non-Significant Effects to be Scoped out of the EIA

Noise Associated with Demolition and Construction Traffic

17 Given the relatively high flows on the local roads, vehicle movements generated by the demolition and construction works are unlikely to affect traffic noise levels significantly. Notwithstanding this, in addition to a Construction Environmental Management Plan (CEMP), a detailed logistics plan and Temporary Traffic Management (TTM) plan will be developed by the Principal Contractor prior to commencing works, which will include a route or routes to be agreed with the LBC to minimise, as far as practicable, any effects on the surrounding receptors and road users. Therefore, construction traffic noise-related effects are not considered to be significant and are scoped out of the EIA.

Vibration Associated with the Complete and Operational Proposed Development

18 No significant sources of vibration will be introduced by the complete and operational Proposed Development. Accordingly, the assessment of vibration in relation to the complete and operational Proposed Development will be scoped out of the ES.

Other Sources Associated with the Completed and Operational Development

19 Beyond the buildings services plant that will be considered as part of the EIA, other noise may be associated with the operation of any proposed commercial uses. Any such uses will generally be away from existing receptors and will be designed and managed such that sound levels are kept to a practicable minimum. Where necessary, it is assumed that the sound from any such spaces (whether internal or external) would be addressed

¹ British Standards Institute, 2014, 'Method for Rating and Assessing Industrial and Commercial Sound BS 4142'

² British Standards Institute, 2009, 'Noise and Vibration Control on Construction and Open Sites. Part 1, 2 & 4.Code of Practice. BS 5228'

³ British Standards Institute, 2014, 'Guidance on Sound Insulation and Noise Reduction in Buildings. BS 8233'

⁴ British Standards Institute, 2008, 'Guide to Evaluation of Human Exposure to Vibration in Buildings'. BS 6472

⁵ British Standards Institute BS 7385 Part 1-2, 1990/93, 'Evaluation and Measurement for Vibration in Buildings'

⁶ Control of Pollution Act, Chapter 40, Part III, 1974, HMSO

⁷ Department of Transport/Welsh Office, 1988, 'The Calculation of Road Traffic Noise'

⁸ Great Britain Department for Transport, Highways Agency, 2011, 'Design Manual for Roads and Bridges (DMRB) Volume 11'. London

⁹ World Health Organisation, 2000, Guidelines for Community Noise'. WHO, Geneva



via appropriate planning conditions. Therefore, non-plant noise-related effects associated with the operation of the Proposed Development are not considered to be significant and are scoped out of the EIA.

Cumulative Effects

20 The cumulative impacts associated with the Proposed Development and other proposed schemes (i.e., cumulative schemes) within the locality will be established and assessed. This will be in relation to demolition and construction as well as building services noise, and any other potential for new noise sources.

TOPIC SHEET

SOCIO-ECONOMICS

Introduction

- 1 It is considered that there is the potential for significant effects relating to socio-economics and so this topic shall be **scoped in** to the EIA. The socio-economic assessment will be undertaken by Trium Environmental Consulting LLP ('Trium').
- 2 The ES shall:
 - Define the socio-economic baseline conditions;
 - Identify relevant socio-economic receptors;
 - Assess:
 - The potential for socio-economic effects as a result of the completed development;
 - The likely significant socio-economic effects;
 - Any required mitigation to address any likely significant adverse socio-economic effects; and
 - The potential for cumulative socio-economic effects.
- 3 The socio-economic assessment will assess the direct and indirect employment opportunities generated as a result of the Proposed Development. It will also consider the indirect impacts of the employment uses, such as the contribution to commercial space (including life sciences) within the London Borough of Camden (LBC), as well as the contribution to the public realm and placemaking. As the scheme is solely commercial, no residential impacts are assessed.

Baseline Conditions

Current Baseline Conditions

- 4 A detailed assessment of the baseline conditions of the site and surrounding area will be undertaken as part of the socio-economic assessment, through a combination of desk-top research and review of relevant policy.
- **5** The baseline review will consider the most recent published information available relating to the site from the current owners and from publicly available database records for the study area. This includes the following sources:
 - Office for National Statistics (ONS) and NOMIS¹;
 - Indices of Multiple Deprivation (2019);
 - NHS Choices and NHS Digital (2022); and
 - London Borough of Camden (LBC), Greater London Authority (GLA) and UK Government data.
- 6 This baseline analysis will consider the following socio-economic conditions:

¹ <u>https://www.nomisweb.co.uk/customerrors/nodataset.asp</u>



- Demographics: population and deprivation;
- Economy and labour market: employment, sectoral employment, unemployment and claimant count, labour skill levels, economic activity, local jobs, provision of commercial space (including laboratory and research floorspace); and
- Social infrastructure: access to and provision of publicly-accessible open space and public realm.
- 7 The baseline conditions will be considered at different geographic scales. The study areas for each element of the assessment will be set out in the ES chapter and are anticipated to comprise:
 - Site the area within the planning application boundary;
 - Local Area Regents Park ward;
 - Borough LBC;
 - Region London; and
 - Nation England/Great Britain.

Receptors

- 8 Receptors are likely to include, but may not be limited to:
 - Existing uses on-site;
 - The local economy and labour market i.e. local businesses and economically active residents; and
 - Local social infrastructure and its users, specifically open space within 800m walking distance of the site.
- **9** It is not possible to ascribe specific 'values' or a quantifiable scale of 'sensitivity' to all socio-economic receptors due to their diversity in nature and scale. The assessment will therefore focus on the qualitative 'sensitivity' of each receptor, and on their ability to respond to change created by the Proposed Development.

Potential Effects

- **10** Based on the sensitive receptors and impacts outlined above, the Proposed Development is expected to generate a range of socio-economic effects during both the demolition and construction works, and once complete and operational.
- 11 The assessment will consider the potential for the following likely significant effects:
 - Creation of temporary employment opportunities during the demolition and construction phase;
 - Spending effects associated with the temporary construction workers;
 - Creation of permanent employment opportunities once complete and operational;
 - Increased demand for social infrastructure as a result of the Proposed Development, notably in relation to open space provision; and
 - Spending effects associated with the employees brought to the site by the Proposed Development.
- **12** The effects in Table 1 are considered unlikely to be significant and therefore are proposed to be scoped out of the assessment.

Impact	Receptor	Justification for Scoping Out of the EIA						
Demolition and Constr	Demolition and Construction							
Demand for GPs and A&E services	GP and A&E provision	The demolition and construction workers will be temporary and are not expected to have a significant effect on health provision of either GPs or the local A&E service. Prior to the start of work on site, the Applicant will be required to discharge planning conditions relating to construction and logistics management. The information set out for approval in respect of these aspects will demonstrate how the contractors will follow best practice throughout the demolition and construction works, thus minimizing the risk of accidents, and in turn any such minor impacts upon local healthcare facilities. It is therefore proposed to be scoped out of the EIA.						

Table 1 Socio-Economic Elements to be Scoped Out of the EIA

Impact	Receptor	Justification for Scoping Out of the EIA		
Completed Developme	ent			
Housing provision	Current and future residents	The Proposed Development provides no housing and hence this effect is proposed to be scoped out of the EIA.		
Change in demand for educational services	Educational services (current and future residents)	As the Proposed Development does not provide housing, no impacts on the availability of school places in the local area are anticipated. The children of workers at the Proposed Development are likely to be educated at schools located near to their places of residence and therefore this element of the assessment is proposed to be scoped out of the EIA.		
Availability of healthcare services	GP & A&E provision (current and future residents and workers)	It is expected that workers at the Proposed Development (and their families) will continue to access primary healthcare facilities near to their places of residence. Though GP practices are permitted to register new patients living outside their catchment areas, they are not obliged to do so – particularly where there is already a shortage of capacity to serve the local resident population. In terms of A&E provision, a significant increase in admissions as a result of the operation of the commercial floorspace provided by the Proposed Development is not expected. It is therefore proposed that the impacts of the Proposed Development on the availability of healthcare services is scoped out of the EIA.		
Access to play space	Current and future residents	As stated, the Proposed Development provides no housing and so is not expected to have a material effect on the residential population in the local area. The population yield calculator requires that 10m ² of play space is provided for every additional child expected to reside at the Proposed Development. The levels of children present in the area are not expected to change, and so access to play space is proposed to be scoped out of the EIA.		
Demand for other community facilities	Dentists, nurseries, leisure and other community facilities	It is not possible to undertake a quantitative assessment of the Proposed Development's impact on the capacity of dentists, nurseries, leisure and other community facilities in the same way as for schools and GPs surgeries. This is because the take up and usage of these types of facilities is non-statutory, varies and cannot be accurately predicted or measured. Use of these facilities varies amongst the population and can be more spatially disparate compared to schools and GP facilities, for which attendance is often based on location and proximity to these services. Demand for these facilities tends to therefore be met by the market. The effect of the Proposed Development (due to its scale and location) on these types of facilities is not expected to be significant and is therefore proposed to be scoped out of the EIA.		
Introduction of Crime	Current and future residents	The Proposed Development comprises a commercial scheme only, to be occupied by private businesses, and will be designed to limit opportunities for crime and/or anti-social behaviour. The staff and visitors expected to arise as a result of the Proposed Development will increase natural surveillance which may have a minor beneficial impact upon crime through better design and greater visible presence on site, but it is not expected that this impact would be significant. Consequently, it is therefore proposed that this is scoped out of the EIA.		

Methodology

- **13** The socio-economic assessment will, wherever possible, be appraised against relevant national standards such as those provided by Homes England (which replaced the Homes and Community Agency (HCA) in January 2018). Where no standards exist, professional experience and judgement will be applied and justified.
- **14** The assessment of socio-economic impacts will utilise a number of methodologies, data sources and assumptions. These are set out below:
 - Employment generation: where flexibility is sought, or Class E uses are proposed, the assessment will define two scenarios a minimum and a maximum employment generating scenario. The scenario applied will vary by effect so that a reasonable worst-case assessment is applied for all effects. For example, the minimum commercial scenario will be used to estimate jobs and worker spending impacts. Any such assumptions and scenarios will be clearly outlined in the socio-economic chapter;
 - Open space: the assessment of the Proposed Development's population on existing provision of open space will be assessed based on the total population of the Proposed Development. Open space will be assessed within an 800m walking distance of the Proposed Development as specified in the GLA's Shaping Neighbourhoods: Play and Informal Recreation SPG²;
 - Additional spending: the assessment of spending likely to occur once the Proposed Development is complete, and the impact of this additional expenditure on the local economy includes the worker expenditure generated by the new employees who may buy goods and services locally.
- **15** Following this assessment, any required mitigation or monitoring shall be identified.
- **16** The ES chapter will conclude with a summary of the likely significant socio-economic effects.

² GLA, 2011, Shaping Neighbourhoods: Play and Informal Recreation – Supplementary Planning Guidance



Cumulative Effects

17 Consideration will be given to the potential for cumulative effects associated with the Proposed Development and other surrounding cumulative schemes on the receptors identified previously.

Conclusion

18 As noted above, it is concluded that the Proposed Development could potentially give rise to significant residual effects with respect to socio-economics; therefore, it is proposed socio-economics is **scoped in** to the EIA.

TOPIC SHEET

Townscape, Visual and Built Heritage Assessment

Introduction

- 1 It is considered that there is the potential for likely significant effects relating to townscape, visual and above ground built heritage receptors, and so this topic shall be **scoped in** to the EIA. The Townscape, Visual and Built Heritage Assessment ('TVBHA') will be carried out by the Tavernor Consultancy Limited.
- 2 The TVBHA will be presented in **Volume 2** of the ES and sufficient signposts will be included within the main text of the ES (**Volume 1**), to ensure readers will be aware of the location of the TVBHA.
- 3 Townscape, visual and built heritage assessments are separate, although related. The townscape and built heritage baseline analysis contributes to the scope of the baseline for the Visual Assessment – and the Visual Assessment of change to the content and character of views in turn informs the assessment of potential effects on townscape and built heritage assets.
- 4 The assessment of townscape effects will consider how the Proposed Development will affect the aesthetic and perceptual aspects of the townscape and its distinctive character. The visual assessment will consider the composition and character of views, including both protected views and representative views and how change is likely to be experienced by people as the visual receptors. As required by the NPPF, the effects on the heritage significance of built heritage assets will be considered in proportion to the value of each heritage asset and the susceptibility to change of the heritage asset and/or its setting. There will be no effects on the fabric of designated built heritage assets; all effects as a result of the Proposed Development will be on setting.
- 5 The ES shall:
 - Define the townscape, visual and built heritage baseline conditions;
 - Identify relevant townscape, visual and built heritage receptors;
 - Assess:
 - The potential for townscape, visual and built heritage impacts throughout the demolition and construction works and as a result of the completed development and resultant townscape, visual and built heritage effects;
 - The likely significant townscape, visual and built heritage effects;
 - Any required mitigation or monitoring to address any likely significant adverse townscape, visual and built heritage effects; and
 - The potential for cumulative effects in relation to townscape, visual and built heritage with other agreed upon schemes in the surrounding area.

Baseline Conditions

Current Baseline Conditions

6 The study area will be centered on the site and limited to locations from which the site can be seen, or from which new buildings within the Proposed Development have the potential to result in significant townscape, visual and built heritage effects. Generally, the study area will be limited to a 500m radius. Based on visual



impact testing, it is judged that outside this area, while development on the site could be visible, effects would not generally be 'significant'. However, there are limited more distant areas of potential visual impact outside the study area, in particular across the open spaces of Regent's Park and Primrose Hill, where there may be significant townscape and built heritage effects due to the potential high visibility of the Proposed Development, the sensitivity of the intervening townscape and landscape, and the designation of London View Management Framework (LVMF) and Euston Area Plan (EAP) views. Areas outside the core 500m study area where potential significant effects are identified, for example Regent's Park and Primrose Hill, will be included in the assessments where appropriate.

- 7 The identification of the study area has been based upon:
 - Site survey of the baseline townscape;
 - The form, scale and massing of the Proposed Development in comparison to the existing Euston Tower on the site; and
 - Visibility of the existing Euston Tower and the Proposed Development through Zone of Visual Influence (ZVI) mapping and visual impact analysis of areas of potential visibility identified in the ZVI.
- 8 The site is not within a designated conservation area and does not include any listed buildings. It is currently occupied by the unlisted 36-storey Euston Tower. The townscape to the north, east and west of the site, north of Euston Road is varied but largely post-war in character and includes the tall modern commercial quarter of Regent's Place, the post-war Regent's Park Estate and the ongoing redevelopment of Euston Station. To the south of Euston Road, the townscape is finer grained and more historic in character.
- 9 The site is located approximately 75m to the north of the LBC Fitzroy Square Conservation Area (CA), 200m to the north-west of the LBC Bloomsbury CA and 170m to the east of the LBC Regent's Park CA. Regent's Park is a Grade I listed landscape approximately 400m to the west of the site. The closest listed buildings to the site are Nos.48-52 Stanhope Street (Grade II) to the north of the site and Nos.15, 16, 17, 20, 21, 56, 58-62, 63-68 Warren Street (all Grade II) and Nos.159-161 Whitfield Street (Grade II), to the south, which are within 150m of the site boundary. There are numerous listed buildings within 500m of the site boundary including the Grade I listed Holy Trinity Church, Grade I listed Nash terraces fronting Regent's Park, Grade I and Grade II* listed buildings defining Fitzroy Square, and the Grade II* listed Church of St Mary Magdalene.
- **10** The Proposed Development will be visible in designated LVMF views, in the same location as the existing 1969 Euston Tower which is currently seen in several LVMF views, and in locally designated Euston Area Plan (EAP) views as well as in non-designated local townscape views.

Receptors

Townscape Receptors

- **11** An assessment will be made of the existing townscape of the site and surrounding area. This will be based on study of the historic development of the site and surrounding area with reference to the EAP Historic Area Assessment (2014), and study of the present-day condition of the area based on site visits.
- 12 This analysis will inform the division of the study area into Townscape Character Areas, i.e., geographical areas which have readily identifiable townscape characteristics in common. It should be noted that townscape character almost invariably forms part of a continuum and that character area boundaries are often not distinct. The impact of the Proposed Development on these townscape character areas will then be assessed, informed by views modelled in the Visual Assessment and supplementary views in the appendices to the TVBHA. The boundaries of the character areas will be identified in the relevant section of the TVBHA. The criteria for assessing townscape receptors are based on a number of factors, including the designation of the townscape and individual features within it.

Visual Receptors

13 The baseline description will identify the people within the study area who will be potentially affected by changes in the views; these will be the 'visual receptors'.



- **14** The following viewing locations will be identified:
 - Designated LVMF views including:
 - LVMF London Panoramas from Parliament Hill to Westminster (Assessment Points 2A.2 and 2B.1);
 - LVMF London Panorama from Primrose Hill to Westminster (Assessment Point 4A.2); and
 - LVMF River Prospects from Lambeth Bridge (Assessment Points 19A.1, 19A.2 and points between).
 - Views that have been identified as significant, by the London Borough of Camden (LBC) or others, e.g. in relevant planning policy and guidance documents including relevant LBC Euston Area Plan views and views identified in local conservation area appraisals;
 - Other locations or views of particular sensitivity, including those of or from sensitive built heritage assets, which will inform the built heritage assessment; and
 - Representative townscape views from streets and open spaces.

Conservation Areas

Figure 1

- [LB Camden] ILB Camden
- 15 Verified views for assessment will be selected in consultation with the LBC through pre-application discussion. The detailed location of each viewpoint will be carefully considered to be typical or representative of the view likely to be experienced by a visual receptor in this location. The views selected will allow a methodical 360-degree view analysis of near, middle and distant views of the Proposed Development on representative visual receptors in the area likely to be affected by the visibility of the Proposed Development. The visual assessment is not intended as an exhaustive assessment of all potential visual effects, but rather an assessment of a



sufficient number of views from a variety of distances and directions that allow a proportionate assessment of changes to visual amenity.

16 A set of views for testing and potential inclusion in the TVBHA will be agreed with LBC officers. The split of wireline and render modelling will also be agreed with LBC officers during the pre-application period. A representative selection of verified views will be individually assessed in the visual assessment and additional verified and non-verified views (not individually assessed) will be included in the appendices to the TVBHA. These supplementary views will inform the visual, townscape and heritage assessments and will demonstrate the additional testing carried out of potential visual impacts identified during the ZVI mapping that has informed the radius of the townscape and built heritage study areas and the scoping in or out of designated heritage assets.

Built Heritage Receptors

17 The scale of the Proposed Development is limited by the Protected Silhouette of the Westminster World Heritage Site (WHS) seen in LVMF River Prospects from Lambeth Bridge. The Proposed Development will therefore not be materially taller than the existing Euston Tower on the site. For this reason, many of the designated built heritage assets in the 500m study area would not be significantly affected by the replacement of the existing Euston Tower with another tall building of equal height on the site and will be scoped out of the assessment. However, sensitive receptors will be identified where testing has shown potentially sensitivity to change in the architectural form, articulation or materiality of the Proposed Development. This may be due to proximity or particularly high sensitivity understood through baseline analysis and visual impact testing. A map of designated heritage assets to be included in the built heritage assessment is included as Figure 2.



Figure 2 Built Heritage Receptors



Potential Effects

18 The potential effects on townscape and visual receptors, as well as built heritage receptors, have been detailed in Table 1. The receptor, impact, and resultant effect have been described.

Table 1	Potential Townscape.	Visual and	Built Heritage Effects
			Eant montage Encote

Receptor	Impact	Potential Effect
Townscape receptors: Townscape Character Areas ('TCAs')	Addition of the Proposed Development. The built form and elevational treatment in comparison to the existing Euston Tower will be considered in relation to TCAs.	Permanent and/or temporary effects on the townscape quality and character of TCAs.
Visual receptors: The people experiencing the identified views	Changes to visual amenity as a consequence of the proposed built form, including form, massing and appearance in comparison to the existing Euston Tower, and potential changes to the perception of existing features in the view.	Permanent and/or temporary effects on the perception of local, medium and distant views.
Built heritage receptors: Designated built heritage assets	Changes to the settings of designated built heritage assets with potential consequential effects on the heritage significance of those heritage assets.	Permanent and/or temporary effects on the significance or ability to appreciate the significance of designated built heritage assets.



Methodology

19 The methodologies for the townscape and visual assessments and built heritage assessment are set out separately below. These assessments will take into account the nature of the existing physical fabric of the area, the settings of designated heritage assets in the vicinity of the site, the appropriateness of the form of the Proposed Development, and the architectural character and quality of its design. Structured, informed and reasoned professional judgement will be used to take account of quantitative and qualitative factors. This is widely accepted as best practice and has been based on an analysis of desk research and field assessment. It is recognised that the townscape character of London is one of contrasts, of historic and modern buildings, and that modern buildings of high design quality do not necessarily, or by definition, harm the character of historic townscape or views including historic townscape.

Townscape and Visual

Assessment Criteria

- **20** The assessment will follow the guidance set out in the Guidelines for Landscape and Visual Impact Assessment (GLVIA). It will entail consideration of the magnitude of impact in relation to the sensitivity of each receptor, resulting in a judgement on the significance of effect.
- **21** Different detailed elements of methodology apply to townscape assessment and visual assessment, but each follows the same assessment sequence:
 - 1. Identify the receptors;
 - 2. For each receptor, consider its 'value' and 'susceptibility to change' and combine those judgements to assess its sensitivity;
 - **3**. For each receptor, consider the size and scale of the change and its geographic extent to assess the magnitude of impact as the result of the Proposed Development; and
 - 4. Combine the judgements of sensitivity of the receptor and magnitude of impact as a result of the Proposed Development in a matrix to assess the scale of the effect; for effects that are moderate or major in scale, also assess the nature (adverse, neutral or beneficial) of the effect.
- 22 Simple word scales are used as a means of summarising judgements at each stage of the assessment sequence described above, with detailed narrative describing the reasoning for each judgement in the accompanying text.
- 23 A more detailed description of assessment criteria and the assessment process is set out in **Annex A** of the EIA Scoping Report.

Built Heritage

Assessment Criteria

- 24 The assessments will follow the step by step guidance set out in *The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3* (Historic England, 2017) and the *Principles of Cultural Heritage Impact Assessment in the UK* (Institute of Environmental Management and Assessment, 2021). It will entail consideration of the magnitude of change in relation to the sensitivity of each receptor, resulting in a judgement on the significance of effects on the heritage significance of heritage assets in accordance with the NPPF.
- 25 The assessment sequence will be as follows:
 - 1. Identify the receptors;
 - 2. For each receptor consider its 'value' and 'susceptibility to change' and combine those judgements to assess its sensitivity;
 - **3**. For each receptor consider the size and scale of the change and its geographic extent to assess the magnitude of impact as the result of the Proposed Development; and



- 4. Combine the judgements of sensitivity of the receptor and magnitude of impact as a result of the Proposed Development in a matrix to assess the scale of the effect; for effects that are moderate or major in scale also assess the nature (adverse, neutral or beneficial) of the effect.
- **26** Simple word scales are used as a means of summarising judgements at each stage of the assessment sequence described above, with detailed narrative describing the reasoning for each judgement in the accompanying text.
- 27 A more detailed description of assessment criteria and the assessment process is set out in **Annex A** of the EIA Scoping Report.

Demolition and Construction

28 The scope of the townscape, visual and built heritage assessment in relation to the demolition and construction activities associated with the Proposed Development will take into account the same receptors as for the assessment of the completed and operational Proposed Development. However, due to the complexity in accurately predicting the constantly evolving numerous different visual changes during the demolition and construction process, and the temporary nature of the effects, verified views will not be prepared to inform the assessment and receptors will be assessed in broad qualitative terms informed by the views prepared of the completed Proposed Development. The extent and detail of the assessment will be proportionate to the temporary nature of the effects on potentially significant effects.

Completed Development

- **29** The Proposed Development will bring about change in the massing and character of the site. It is therefore expected that the Proposed Development will have effects, including likely significant effects, on the surrounding townscape, visual and built heritage receptors. These effects will be assessed in full in the TVBHA.
- **30** Consideration of townscape visual and built heritage effects will be integral to the design process and will be considered at each stage alongside consultation with the LBC and other key stakeholders.

Cumulative Effects

- 31 The cumulative visual assessment will consider the additional effect of the Proposed Development on top of those effects that would arise from other 'cumulative schemes' that have been proposed or consented; i.e. the effect of the Proposed Development if the cumulative schemes were already in place and formed a 'cumulative baseline'.
- **32** All cumulative schemes agreed for consideration in the ES will be modelled in the cumulative views within the visual assessment and supplementary views, which will inform the townscape and built heritage assessments.

TOPIC SHEET

Traffic and Transport

Introduction

- 1 A Transport Assessment (TA) will be prepared by Velocity Transport Planning and submitted as a standalone document as part of the Planning Application. The TA will assess the impact of the Proposed Development on the surrounding transport network to accord with the policy requirements of the London Plan¹ and the London Borough of Camden (LBC) Local Plan².
- 2 The Traffic and Transport ES chapter will be prepared based on information and analysis undertaken as part of the TA. It will provide sufficient information to enable the reader to understand the likely significant effects of the Proposed Development in relation to transportation and access. The methodology to be applied in the TA is subject to separate parallel scoping discussions with transport/highways officers at the LBC and Transport for London (TfL).
- 3 There is the potential for likely significant effects relating to traffic and transport, so this topic shall be **scoped in** to the EIA.
- 4 The ES shall:
 - Define the traffic and transport baseline conditions; this includes the existing conditions and site accessibility, accident data and traffic data. A mixture of TfL data and new traffic surveys will be used.
 - Identify relevant traffic and transport receptors;
 - Assess:
 - The potential for traffic and transport impacts throughout the demolition and construction works and as a result of the completed development and resultant traffic and transport effects;
 - The likely significant traffic and transport effects;
 - The forecast traffic and transport impacts through the demolition and construction period;
 - Any required mitigation or monitoring to address any likely significant adverse traffic and transport effects; and
 - The potential for cumulative effects in relation to traffic and transport with other scoped in schemes in the surrounding area.

Baseline Conditions

Current Baseline Conditions

5 Euston Tower is located in Regent's Place in the LBC. Euston Tower is bounded north by Brock Street, a private pedestrianised area within Regent's Place; to the east the site is bounded by Hampstead Road (A400) and to the south by Euston Road (A501), both form part of the Transport for London Road Network (TLRN); and west by Regent's Place Plaza, which is also a private pedestrianised area within Regent's Place.

¹ The London Plan (2021)

² London Borough of Camden; Camden Local Plan (2017)



6 The basement within Euston Tower provides existing car and cycle parking. This basement is connected to the wider Regents Place Campus basement, which also provides a servicing yard used by Euston Tower and 10 Brock Street.

Pedestrian Network

- 7 Euston Tower is part of Regent's Place, which offers a pedestrian-friendly environment with largely pedestrianised streets, alleyways and plazas. Around the Euston Tower site there are wide footways, signalised pedestrian crossings with dropped kerbs and tactile paving.
- 8 Wayfinding facilities are placed strategically within and around the site to help pedestrians navigate journeys.

Cycle Network

- **9** As part of the development of the Central London Grid, a set of connected routes for cyclists is being developed across central London comprising a network of Quietways and Cycle Superhighway routes, as shown Figure 1.
- **10** Quietway 3 (Q3), between Regent's Park and Gladstone Park, originates at the north-west corner of Regent's Park, some 2.9km north-west of the site and travels through St. John's Wood, South and West Hampstead, Kilburn, Willesden Green and Dollis Hill.
- **11** The north-south Cycle Superhighway (CS6) runs between Elephant & Castle to the south and King's Cross to the north (approximately 1.4km northeast of the site).
- **12** The cycle routes near to the site include Longford Street and Drummond Street, two of the many quieter local roads recommended for cyclists. To the south there are a network of routes that are signed or marked for use by cyclists and connect across Marylebone, Fitzrovia and within central London.
- **13** Additionally, the nearest TfL Santander bike docking stations are located to the east of the site on the eastern side of Hampstead Road and another station is located to the south of Euston Road on Warren Street.



Figure 1 Cycle Routes



Public Transport

- **14** The Public Transport Accessibility Level (PTAL) of Euston Tower has been calculated using TfL's WebCAT. This assumes a walking speed of 4.8km per hour and considers rail stations within a 12-minute walk (960m) of the site and bus stops within an eight-minute walk (640m) as accessible.
- **15** The site has a PTAL rating of 6b. This is rated as 'Excellent' with 6b being the highest accessibility, as shown in Figure 2.



Figure 2 PTAL Map

Buses

16 The nearest bus stops are adjacent to the site on Hampstead Road and Euston Road. The local bus services provide approximately 143 buses per hour to various destinations across London including the City of London, London Bridge, Camden, Victoria, and Angel.

London Underground

- **17** There are six London Underground stations within a 960m walking distance of the site:
 - Warren Street (Northern line and Victoria line);
 - Euston Square (Hammersmith & City line, Circle line and Metropolitan line);
 - Great Portland Street (Hammersmith & City line, Circle line and Metropolitan line);
 - Regent's Park (Bakerloo line);
 - Euston (Northern line and Victoria line); and
 - Goodge Street (Northern line and Victoria line).
- 18 The frequency of services is shown in Table 1.



Table 1 London Underground Peak Hour Frequency

Line	AM Peak Hour	PM Peak Hour
Victoria	36	36
Northern Line	23	24
Hammersmith & City	6	6
Circle	6	6
Metropolitan	16	16
Bakerloo	22	21

19 Tottenham Court Road station which provides access to the Central Line and Elizabeth Line is located 1.2km to the south of the site.

National Rail

20 Euston Station is located a 450m walking distance of Euston Tower. Euston Station provides services to destinations in Scotland, north-west England, Wales and the West Midlands on services operated by Avanti West Coast Trains, London Northwestern Railway, West Midlands Railway and Caledonian Sleeper.

London Overground

- **21** Euston Station also provides access to London Overground services. A London Overground route terminates at Euston Station and serves Watford Junction via Queen's Park, Willesden Junction, Wembley Central and Harrow & Wealdstone.
- **22** There are 4 London Overground services in the AM peak and 4 in the PM peak.

Existing Local Highway Network

- **23** There is no public highway immediately north and west of the site. Longford Street and Drummond Street provide two vehicles access to the Regent's Place Campus basement:
 - The Longford Street access is used to access various servicing yards and car parking including the servicing yard shared by Euston Tower and 10 Brock Street.
 - The Drummond Street access is used to access car and cycle parking, including spaces that are within the Euston Tower basement.
- **24** The location of these is shown in Figure 3.





Figure 4

Local Highway Network





- **25** Longford Street continues as Drummond Street to the east and intersects with Hampstead Road. Hampstead Road forms part of the A400 that connects Charing Cross to Archway in north London.
- **26** The site is bounded by Hampstead Road to the east and Euston Road to the south , both of which form part of the Transport for London Road Network (TLRN).
- 27 Euston Road is part of the London Inner Ring Road, a 19km route formed by a number of major roads that encircle central London. It also forms the northern boundary of the London Congestion Charge (LCC) zone, but the road itself is not part of it.
- **28** The local highway network and road hierarchy in the vicinity of the site is shown in Figure 4. Euston Road and Hampstead Road form a signalised junction at the site's eastern boundary. Both are distributor roads that carry relatively high volumes of traffic.

Cycle Parking

29 Approximately 200 cycle parking spaces are provided in the Euston Tower basement. These are provided as Sheffield stands in several separate locations.

On-site Car Parking

30 Approximately 102 car parking spaces are provided within the Euston Tower basement.

Delivery and Servicing

31 A total of eight loading bays (two ten-metre and six eight-metre bays, plus offload space) are provided within the Regent's Place Campus basement that are shared by Euston Tower and 10 and 20 Brock Street servicing area. Platform lifts connect the loading bays to the Euston Tower basement and building core

Existing Baseline Data

- 32 The following traffic data locations and data sources are expected to provide the baseline traffic data:
 - Euston Road traffic survey to be undertaken in April 2023;
 - Hampstead Road TfL traffic data provided from 2022; and
 - Drummond Street/Longford Street traffic survey to be undertaken in April 2023.
- 33 Pedestrian data at the following locations is also being gathered and surveys will be undertaken in April 2023:
 - Euston Road;
 - Hampstead Road; and
 - Brock Street.

Future Baseline Conditions

Future Baseline Traffic

- **34** The Future Baseline Scenario (Do Minimum) includes any changes which are committed to take place to existing conditions by the future design year.
- **35** Confirmation will be required from TfL and LBC on any cumulative development or highways schemes which need to be considered. The submitted Transport Assessments associated with cumulative schemes will be reviewed to identify the forecast and agreed levels of future traffic.

London Underground

36 As part of TfL's ongoing commitment to improving London Underground services, the following upgrades to stations and London Underground lines in the vicinity of the site are planned:



- New signaling for the Circle, Hammersmith & City, District, and Metropolitan lines (Four Lines modernisation).
- 37 The new S-stock trains are operational on the Circle, Hammersmith & City, District and Metropolitan lines. When the new signalling system is in place and operational (planned for 2023), the Circle and Hammersmith & City lines will see a 65% increase in capacity. This will mean that both lines will be able to carry 17,000 additional passengers per hour. In addition, the District line signalling will increase capacity on the line by 24%, equating to 10,000 additional passengers per hour. When the upgrade of the Metropolitan line is complete, the line capacity will increase by 27%, meaning that an additional 9,500 passengers can be accommodated per hour.

High Speed 2

- **38** High Speed 2 train services will link London to Birmingham and the West Midlands and, later, from Birmingham and the West Midlands to Leeds and Manchester will depart from Euston station. No opening date for Phase One has been set yet, but services are expected to commence in the late 2020s.
- **39** The proposals include a new ticket hall with direct connections to Euston Square station and from HS2 platforms and Euston station will have fully accessible step-free access from street level to platform level.

Receptors

- 40 The identified sensitive receptors are:
 - People making journeys within the relevant study area; pedestrians, cyclists, public transport users and vehicle drivers/passengers. Existing receptors are those persons currently making journeys; and
 - Newly introduced receptors will be those travelling to and from the Proposed Development, primarily the new office workers at the site.
- 41 The impacts relevant to transport are:
 - Increases in HGV movements and changes to access during the demolition and construction of the Proposed Development; and
 - Additional trips, by active modes and public transport, during the operation of the completed and occupied Proposed Development.
- **42** The Institute for Environmental Management and Assessment (IEMA), '*Guidelines for the Environmental Assessment of Road Traffic, 1993*'³ sets out a number of potential environmental effects which may require assessment. Those which relate to the traffic and transport ES chapter are summarised below:
 - Severance;
 - Delay;
 - Amenity;
 - Fear and Intimidation;
 - Accidents and Safety; and
 - Hazardous Loads.
- **43** The environmental effects noted above may have different impacts on the demolition, construction and operational phases of the Proposed Development, which are discussed separately later in this section.

Scope of Assessment

44 The technical scope for each potential environmental effect identified for the construction and operational stages is discussed below, setting out whether the effects are scoped in or scoped out and the basis for that judgement.

³ Institute of Environmental Management and Assessment (IEMA), 'Guidelines for the Environmental Assessment of Road Traffic' (1993).



The initial transport strategy for the Proposed Development has informed the judgement with the key features being:

- A reduction in the amount of car parking (c 100 spaces) such that the scheme becomes car-free other than accessible parking spaces;
- A significant provision of cycle parking spaces and supporting active travel facilities;
- Retention of the shared servicing yard accessed via Longford Street; and
- Retained and improved pedestrianised space and footways surrounding the site.

Severance

- **45** Severance is defined by the 'IEMA 1993' guidance in paragraph 4.27:
- **46** "Severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery. The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by the road itself. It can also relate to quite minor traffic flows if they impede pedestrian access to essential facilities".
- **47** The usual threshold for a non-negligible severance effect is a 30% change in vehicle flow or HGV flow on a link. This can be used as a benchmark when considering whether or not severance should be scoped in or scoped out. This can also be used to inform the extent of any assessment.
- **48** During the demolition and construction period, the Proposed Development could change perceptions of severance. Although Euston Road and Hampstead Road are relatively heavily trafficked, they would experience additional HGV volumes during the demolition and construction phase. Drummond Street, which provides access to the basement servicing area, may also experience additional HGV volumes during the construction phase. Severance will be assessed along Euston Road and Hampstead Road during the demolition and construction works.
- **49** The Proposed Development is not expected to result in changes which could detrimentally affect perceptions of severance during operation. The development will be car-free and will remove existing parking, and although servicing demand will increase, it will not affect perceptions of severance during operation. Assessments of severance are therefore scoped out for the complete and operational Proposed Development.

Delay

50 The 'IEMA 1993' guidance references potential delays to drivers and pedestrians. Users of other modes can also experience delays, such as cyclists and those travelling by public transport.

Pedestrian and Cyclist Delay

- **51** Pedestrian and cyclist delays may change due to an increase in pedestrian or cyclist volumes and network changes such as footway width or pedestrian crossings.
- **52** During the demolition and construction period, the Proposed Development could change perceptions of pedestrian and cyclist delay. There may be a need to narrow footways surrounding the site to facilitate the demolition and construction works.
- **53** The Proposed Development could result in changes which affect perceptions of pedestrians and cyclist delays during operation because the volume of pedestrians and cyclists is expected to increase. However, as there are no planned material changes to the existing highway network, a qualitative discussion of pedestrian and cyclist delays will be included within the traffic and transport ES chapter. A detailed quantitative review is scoped out to assess the development in operation, instead being supplemented by a qualitative discussion.
- **54** Assessment of pedestrian delays during both the construction and operational stages will be provided within the ES chapter. This will be based on pedestrian comfort analysis that will be undertaken as part of the TA.



Driver and Bus Delay

- 55 During the demolition and construction period, the Proposed Development is not expected to result in changes significantly affecting perceptions of driver/bus delay. The volume of vehicular construction trips is expected to be low relative to the capacity of local roads and would also be managed as part of the Construction Logistics Plan (CLP). A qualitative commentary reviewing driver/bus delays associated with any off-site highway works will be provided within the ES chapter, but a detailed quantitative assessment is scoped out for the demolition and construction assessment.
- 56 The Proposed Development is not expected to result in changes affecting perceptions of driver/bus delays during operation. The number of vehicular trips expected to be generated by the complete and operational Proposed Development will be minimal due to the car-free nature of the scheme. No speed limits on the existing highway network are expected to be changed. No changes to existing bus routes are anticipated as a direct result of the Proposed Development. Therefore, the assessment of driver/bus delay is scoped out of the ES chapter.

Rail Delay

- **57** Rail delay, as experienced by passengers of the Underground and National Rail, could change due to changes to station or rail service capacity or volumes, for instance, if a station or rail service becomes congested.
- **58** During the demolition and construction period, the Proposed Development is not expected to result in changes which would significantly affect perceptions of rail delay and is therefore scoped out of the EIA.
- **59** Given the significant local public transport provision during operation, the Proposed Development is not expected to result in changes which would significantly affect perceptions of rail delay. The assessment of rail delay is therefore scoped out of the EIA.

Amenity, Fear and Intimidation

- **60** As set out within 'IEMA 1993' guidance, amenity, fear and intimidation broadly relate to the pleasantness of a journey and is generally affected by the availability of pedestrian/cyclist provisions and the flow of vehicle and HGV traffic.
- **61** During the demolition and construction period, the Proposed Development could change perceptions of amenities, fear and intimidation. While the change in HGV activity relative to the baseline is unlikely to be perceptible, footway narrowing may be required. Qualitative assessment of amenities, fear and intimidation are therefore scoped in for the demolition and construction period.
- **62** The Proposed Development will not result in any significant changes to the public realm in terms of transport and access once operational and is to be car-free. As such amenity, fear and intimidation are therefore scoped out for the operational stage assessment of the EIA.

Accidents And Safety

- **63** The potential for changes to accidents and safety can relate to the increased use of the transport network; however, the greatest potential for change relates to more fundamental street and junction layout changes, such as new access or pedestrian/cyclist crossing.
- 64 During the demolition and construction period, the Proposed Development is not expected to result in changes which could affect accidents and safety. Traffic changes arising from the demolition and construction of the Proposed Development will be low and unlikely to be perceptible relative to baseline conditions. Road safety would also be further managed and mitigated through the Construction Logistics and Cycle Safety (CLOCS) scheme and the use of contractors registered on the Considerate Constructors Scheme. Accidents and safety are therefore scoped out for the demolition and construction period assessment.
- **65** The Proposed Development is not expected to result in changes which could affect accidents and safety during operation. No major changes to the road network are envisaged and the servicing strategy will minimise the



potential for vehicle and pedestrian/cyclist conflict. Accidents and safety are therefore scoped out for the operational stage assessment.

Hazardous Loads

66 Hazardous loads are discussed in paragraph 4.43:

"Some developments may involve the transportation of dangerous or hazardous loads by road and this should be recognised within any Environmental Statement. Such movements should include specialist loads which might be involved in the construction or decommissioning phases of the development, in addition to movement associated with the operation of the establishment"

- **67** The Proposed Development is not expected to generate or attract hazardous loads during the demolition and construction works. Hazardous loads are therefore scoped out of the demolition and construction period assessment.
- **68** The Proposed Development may generate or attract hazardous loads due to the potential laboratory use of part of the Proposed Development. The number of deliveries of hazardous loads is expected to be very low, and all suppliers will follow the UK Transport Legislation, regulations and agreements⁴ required for the transportation of hazardous loads. Hazardous Loads are therefore scoped out for the operational stage assessment.

Mitigation

- **69** Mitigation measures integral to the Proposed Development (embedded mitigation) will form part of the transport strategy. The embedded mitigation measures are typical of development of this nature and include management plans required by planning policy secured by a planning condition, expected to include:
 - A Construction Logistics Plan (CLP) to manage the routing and arrival profile of construction vehicles which will minimise disruption to the surrounding area and, in particular, to pedestrians and cyclists;
 - A Travel Plan (TP) focusing on the promotion of cycling; and
 - A Delivery & Servicing Plan (DSP) sets the delivery strategy and minimises/manages servicing demands.
- 70 These documents will be appended to the TA.

Summary of Scope of Assessment

71 A review of the potential effects of the Proposed Development has been undertaken for both the demolition and construction works and one complete and operational. The Proposed Development will result in minimal changes to the transport network. Typically, embedded mitigation measures will be in place to manage potential adverse effects and secured through a planning condition.

Effect	Receptor	Receptor Demolition and Construction of the Proposed Development	
Severance	Pedestrians, cyclists	Scoped In	Scoped Out
Pedestrian and Cyclist Delay	Pedestrians, cyclists	Scoped In	Scoped In
Vehicle and Bus Delay	Car drivers and passengers, bus passengers	Scoped In	Scoped Out
Rail Delay	Rail passengers	Scoped Out	Scoped Out
Amenity, Fear and Intimidation	Pedestrians, cyclists	Scoped In	Scoped Out
Accidents and Safety	All modes	Scoped Out	Scoped Out

Table 2 Summary of Scope

⁴ ADR 2023 - Agreement concerning the International Carriage of Dangerous Goods by Road

Effect	Receptor	Demolition and Construction of the Proposed Development	Completed and Operational Development
Hazardous Loads	All modes	Scoped Out	Scoped Out

Methodology

72 A separate TA will be prepared in relation to the Proposed Development. The ES chapter will be prepared based on the TA, but this ES chapter will provide sufficient information to enable the reader to understand the likely significant effects of the Proposed Development in relation to traffic and transport. The methodology to be applied in the TA is subject to separate but parallel scoping discussions.

Cumulative Effects

- **73** A cumulative effects scenario will be considered and is expected to include those nearby developments which have planning permission (or committee resolution to grant consent) and that the local planning authority reasonably expects to be constructed by the assessment year. This assessment will also be subject to TA scoping discussions.
- **74** The changes to existing conditions arising as a result of cumulative schemes (which will define the baseline scenario) will be taken from either the TA supporting those schemes, data held and provided by the relevant highway authorities, by a first principles review or by any other methodology as may be agreed with the relevant highway authorities.

TOPIC SHEET

WIND MICROCLIMATE

Introduction

- 1 It is considered that there is potential for significant effects relating to wind microclimate and this topic will be **scoped in** to the EIA. The wind microclimate assessment will be undertaken by Arup.
- 2 The ES will:
 - Define the baseline wind conditions;
 - Identify relevant wind microclimate receptors;
 - Assess:
 - The potential for wind microclimate impacts throughout the demolition and construction works, and as a result of the completed development;
 - The resultant likely significant wind microclimate effects;
 - Any required mitigation or monitoring to address any likely significant adverse wind microclimate effects; and
 - The potential for cumulative effects in relation to wind microclimate with other agreed upon cumulative schemes in the surrounding area.

Baseline Conditions

Current Baseline Conditions

3 The strength and directionality of the winds at the site are fundamental aspects of the environmental wind assessment. The wind statistics for London are based on peer reviewed historical wind data obtained from Holborn Weather Centre. The wind data for London was obtained from Holborn Weather Centre and was peer reviewed for the Lawson LDDC Criteria. It has been used to inform the established assessment criteria used for the wind microclimate assessment as discussed in this topic sheet. These wind statistics are corrected for conditions over the site. Figure 1 shows the wind roses per season for the London area.







- 4 The key aspects of the wind climate in London are as follows:
 - West and west-south-west winds are the most frequent and strongest winds at all times of the year. These
 winds are relatively warm and wet. Most cases of adverse wind conditions due to strong winds around
 buildings are caused by these winds;
 - North-east winds are almost as common as the south-west winds during the winter months but are weaker. They are often associated with cold dry conditions. North-east winds can be more unpleasant than suggested by their strength due to the lower than average air temperature; and
 - South-east winds are generally warm and light and are rarely associated with adverse ground level wind conditions.
- 5 The areas within and around the Proposed Development will be accessible by pedestrians at all times of the year. Therefore, the environmental wind assessment will be based on the 'worst season' (typically the winter season) for areas that will be accessible all year round, and summer season for areas typically only used in summer (i.e. flexible amenity space). Measurements will be taken at locations across the existing site and at the entrances to and around other surrounding buildings, footpaths, roads and areas of open space within an appropriate proximity. The assessment will consider 16 wind directions evenly spread at 22.5 degree intervals. This is slightly more refined than the original Lawson LDDC criteria to better capture the impact of prevailing winds. The baseline results from the wind tunnel will be combined with long-term meteorological climate data for the London area to understand the baseline conditions specific to the site. Testing in the wind tunnel will be conducted in the absence of any hard or soft landscaping in the first instance, in order to provide a least sheltered, worst-case result.



Receptors

- 6 Pedestrian safety (in relation to strong winds or safety/distress criteria) is assessed in the wind microclimate assessment as well as pedestrian comfort. The areas that pedestrians are likely to use within and around the Proposed Development are assessed as the sensitive receptors for the assessment. Cyclists and vehicles are also considered as sensitive receptors in the wind assessment, at receptor locations that they would typically use.
- 7 Onsite sensitive receptors can include building entrances, public/pedestrian routes, outdoor amenity spaces (seating and play areas), public terraces or balconies. Offsite sensitive receptors can include thoroughfares, building entrances, waiting areas such as bus stops and pick-up/drop-off points, pedestrian crossings, retail frontages and outdoor amenity spaces.

Potential Effects

Demolition and Construction

- 8 There will be no assessment of the wind environment within or around the Proposed Development during the demolition and construction scenario. This is because wind mechanisms from developments do not fully develop until the external cladding is installed on the buildings. Additionally, the activity on-site during this time (i.e. construction activity) is temporary, transient, and less sensitive to wind conditions (due to protection from site hoarding, and site access being restricted to site workers).
- **9** It is considered that the complete and operational Proposed Development would represent the worst-case wind conditions, and that this final massing will eventually be achieved as the demolition and construction works take place until completion.

Completed Development

- **10** Undesirable wind speeds can make spaces uncomfortable or unsafe for pedestrian use. The introduction of the Proposed Development's massing onsite will, therefore, have the potential to influence the wind conditions on and surrounding the Proposed Development.
- 11 The potential wind microclimate effects associated with the Proposed Development are considered to be undesirable wind speeds at ground and publicly accessible levels of the Proposed Development, including entrances, publicly accessible podium/terrace levels, thoroughfares and amenity spaces, surrounding buildings (including entrances), thoroughfares around the surrounding buildings, pedestrian junctions, bus stops, cycle lanes and nearby areas accessible to the public.
- **12** Adverse wind microclimate conditions can be responsible of a degradation of the usability of outdoor spaces depending on their intended use.
- **13** High levels of windiness can also cause difficulties of staying upright for the general public, especially for the less-abled bodied and cyclists.
- **14** Appropriate levels of windiness near building entrances are important to ensure a safe transition from conditions inside to outside and to ensure that doors can be operated safely and reliably.

Methodology

- **15** Given the size and geometry of the Proposed Development, in addition to the site's location in relation to surrounding buildings and nearby areas of public realm, it is important to avoid undesirable wind speeds being generated at ground and publicly accessible elevated levels.
- **16** The wind microclimate assessment will therefore quantify the potential changes to the local wind environment (both onsite and within the surrounding area) in terms of pedestrian amenity and public open space and quantify these in relation to their 'usability' for a range of pedestrian and amenity activities as set out above at paragraph



7, as defined by the well-known and established Lawson criteria (LDDC version) (shown in Table 1 of this topic sheet).

Initial Testing and Design Guidance

17 A qualitative desk study aided by high-level Computational Fluid Dynamic (CFD) simulations will be undertaken during the design process before the scheme is fixed to ensure that critical locations for wind tunnel measurements are identified and to qualitatively assess the environmental wind conditions that may affect pedestrians and cyclists in and around the Proposed Development. The baseline will also be assessed through CFD simulations and will be used to identify and minimise areas of potentially excessive windiness, and to provide advice on likely suitable positions and size of landscaping elements, possible mitigation strategies, as well as preferred locations of doors, pedestrian pathways, and outdoor areas. This will be supplemented by wind tunnel studies which will be used to explore alternatives for mitigation in more detail.

Demolition and Construction

18 As discussed in paragraphs 8 and 9, no detailed assessment of the wind environment will be performed around the Proposed Development during the demolition and construction works.

Completed Development

- **19** Wind tunnel tests will be carried out to quantify conditions around the existing site (baseline) and the Proposed Development and further develop the scope and design of any necessary mitigation. Tests will be undertaken using a 1:300 scale model of the Proposed Development, covering a full-scale radius of 360-400m (depending on the impact of building upstream). The scale model of the Proposed Development will be constructed and tested in a boundary layer wind tunnel test facility.
- **20** Gust and mean speeds will be measured in key locations around the Proposed Development using "*Irwin probe*" anemometers. Measurements will be taken in areas of wind-sensitive activities (as per paragraph 7) or where significant windiness is expected due to the geometry and exposure of the Proposed Development. For each test configuration, wind speeds will be measured for 16 equal increments of wind directions.
- **21** Levels of windiness will be compared to the intended future usage using the Lawson LDDC criteria for pedestrian comfort and distress (safety) as per paragraphs 23, 24, and 25.
- 22 Comfort and distress (safety) conditions will be reported together on figures with additional photographs of the testing arrangements and any significant mitigation features.
- 23 Comfort thresholds are shown in Table 1 below. If the measured wind conditions exceed the threshold wind speed for more than 5% of the time (whether that is seasonally or annually), then they are unacceptable for the stated pedestrian activity and the expectation is that there may be complaints of nuisance or people will not use the area for its intended purpose.

Comfort Criteria	Key	Threshold 5% speed (m/s)	Description	
Long Term 'Sitting'		4	Regular use for reading a newspaper, eating, and drinking	
'Standing' or short term 'Sitting'		6	Bus stops, window shopping, building entrances and parks	
Walking or 'Strolling'	\bigcirc	8	Thoroughfares and general areas of walking and sightseeing	
Business 'Walking'		10	Areas where people are not expected to linger	

Table 1 Lawson LDDC Criteria, Comfort



- 24 As a mixed-use scheme, the target wind environment onsite would usually include the following activities:
 - 'Sitting' for amenity spaces (in the summer months) A mixture of sitting and standing may be tolerable where no seating provisions are specifically provided, and in private spaces;
 - 'Standing'/entrance conditions outside building entrances, and pick-up/drop-off points etc. (throughout the year); and
 - 'Strolling' for most of the year and 'Business Walking' in the worst case for thoroughfares and general areas of transit for members of the public.

Table 2 Lawson LDDC Criteria, Distress (Safety)

Distress Criteria	Key	Description
'General Public Access'		Suitable for access by General Public and Cyclists
'Able Bodied Access'		Unsuitable for General Public access during strong winds. Restrictions may be required.

25 Strong winds are reported for exceedances of 15m/s (to account for less able-bodied people or vulnerable users such as cyclists) or 20m/s (for able bodied people) for more an 0.022% of the year (or above approximately 2 hours).

Assessment Configurations

- **26** Four configurations will be tested within the wind tunnel as set out below:
 - **Configuration 1:** Existing site (baseline scenario) with the existing surrounding buildings and landscaping;
 - **Configuration 2:** Proposed Development with the existing surrounding buildings (excluding proposed landscaping);
 - **Configuration 3:** Proposed Development with the existing surrounding buildings (including proposed landscaping and wind mitigation); and
 - **If Relevant Configuration 4:** Proposed Development with cumulative surrounding buildings (including proposed landscaping and wind mitigation).

Cumulative Effects

- **27** The wind conditions across the site and the immediate surrounding area (within approximately a 360-400m radius of the site) with cumulative schemes in place will be quantified during the wind tunnel tests using the methodology described above.
- **28** A list of cumulative schemes to be considered is included within **Annex C** of this scoping report. At the time of scoping, no cumulative schemes are located close enough to the site or are in an area which would interact with the Proposed Development, and so no cumulative assessment is anticipated.