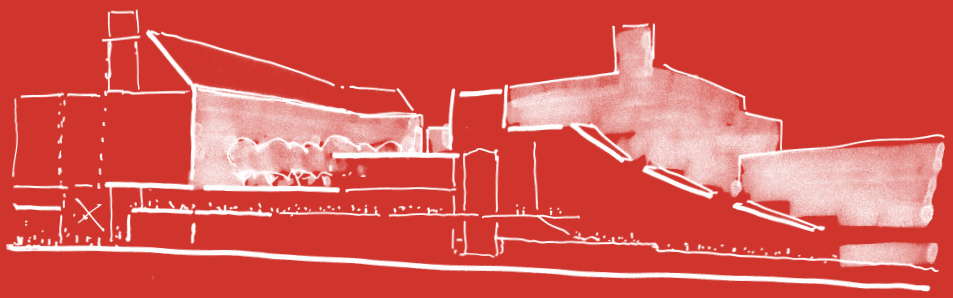
The British Library Extension
January 2022

Environmental Statement - Volume 3



The British Library and SMBL Developments Ltd

British Library Extension

Environmental Statement Volume 3

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A1 Competent experts

A1.1.1 This ES has been prepared by a team of competent experts. The team comprises technical specialists who have extensive experience in the field of EIA. The individual experts can demonstrate their competence through academic qualifications, membership of relevant professional institutions and practical experience in undertaking EIAs.

A1.1.2 The consultant team that prepared the ES was led by:

- Brendan Cuddihy, Associate Director, Arup
- Joss Watson, Senior Consultant, Arup

A1.1.3 Table 1 outlines the team who prepared this ES, their qualifications, membership of relevant professional institutions and relevant experience.

Table 1: Qualifications, memberships and experience of the experts responsible for the production of this ES

Discipline	**Discipline lead**	**Qualifications and membership of professional institutions**	**Relevant experience**
EIA Director	Brendan Cuddihy, Associate Director, Arup	MEng Environmental Energy Engineering Chartered Environmentalist (CEnv) Member, Institute of Environmental Management and Assessment (MIEMA)	18 years of experience 6-8 Bishopsgate, London, EIA Manager for tall office development in the City of London. 52 Lime Street, London, EIA Manager for tall office development in the City of London. 65 Davies Street, London - Project manager for the EIA for office development in London's West End.
EIA Manager	Joss Watson, Senior Consultant, Arup	BSc (Hons) Environmental Science MSc Environmental Monitoring and Assessment Practitioner Member, Institute of Environmental Management and Assessment (PIEMA)	9 years of experience HS2 Phase 2b, EIA Project Manager. Heathrow third runway expansion, EIA Manager. HS2 Phase One, EIA Advisor.

Air quality	James Bellinger, Associate, Arup	MSc Environmental Technology Chartered Environmentalist (CEnv) Chartered Scientist (CSci) Member, Institute of Air Quality Management (MIAQM) Member, Institute of Environmental Sciences (MIES) Practitioner Member, Institute of Environmental Management and Assessment (PIEMA)	12 years of experience Whitleys redevelopment – air quality lead for the redevelopment works in Bayswater, London. Camden Town Hall redevelopment – air quality lead for the redevelopment works in Camden, London. Ebury Road – air quality lead for the redevelopment works in Westminster, London. 101 Camley Street – air quality lead for a new development in Camden, London.
Historic environment	Victoria Donnelly, Senior Consultant, Arup	BA (Hons) Anthropology MPhil World Archaeology DPhil Archaeology Member Chartered Institute for Archaeologists (MCIfA)	18 years of experience 65 Davies Street, London, EIA, Historic environment specialist. Crossrail Bored Tunnels Package C122 General (Crossrail Ltd), London (2008-12), Historic environment specialist. Meridian Water, EIA, Historic environment specialist.
Heritage (on-site)	Cordula Zeidler, Consultant, Cordula Zeidler Heritage	MA (Hons) Art History MSc Architectural History Member of the Institute of Historic Building Conservation (MIHBC) Fellow of the Royal Society of Arts (FRSA)	17 years of experience in advising on development in historically sensitive areas, including World Heritage Sites, Conservation Areas and listed buildings in London and nationally. Townscape Consultant for the Parliamentary Northern Estate Programme and the House of Lords decant project, London. Heritage Consultant to the Parliamentary Estate for the Restoration and Renewal project of the Palace of Westminster. Townscape Consultant for the Museum of London's move to West Smithfield. Heritage and Townscape Consultant to the Crown Estate on projects in Regent Street and St James's, London.

			Heritage Consultant for a large extension to the British Library, London.
Atmospheric Emissions	George Vergoulas, Associate, Arup	BSc (Honours) in Environmental Science MSc in Environmental Management and Technology Chartered Environmentalist (CEnv) Member of the Institute of Environmental Management and Assessment (IEMA) Member of the Institute of Environmental Sciences (IES)	20 years of experience Ebury Bridge mixed use development, for the City of Westminster, EIA carbon topic lead. Meridian Water, mixed used development in the London Borough of Enfield, EIA carbon topic lead. North London Waste Authority DCO application for an energy recovery facility, carbon advisory role during construction phase.
Daylight and sunlight	Elliot Hathaway, Associate Partner, GIA	MSc in Surveying and Land/Environmental management	6 years of experience in advising on daylight and sunlight matters for large scale urban projects that require EIA work.
Noise and Vibration	Nathan Hattersley, Senior Acoustic Consultant, Arup	BEng Engineering Acoustics and Vibration Member, Institute of Acoustics (MIOA)	19 years of experience Battersea Power Station, assessment of noise and vibration impacts on a sensitive development. Crossrail tunnel ventilation (7 stations across central London), control of tunnel ventilation noise. Belfast Transport Hub, EIA of new station.
Electronic interference	Ayman Toema, Associate Director, Arup	MEng (Hons) in Communications Engineering MRes in Telecommunications Chartered Engineer (CEng) Member, Institution of Engineering and Technology (MIET)	15 years of experience 6-8 Bishopsgate, London, assessment of the impact of a tall office development in the City of London on broadcast TV/Radio services. 52 Lime Street, London, assessment electronic interference of a tall office development in the City of London. 50 Fenchurch Street, London, assessment of the impact of a new development in the City of London on mobile operator coverage in its vicinity.

Environmental Wind	Olivia Ewing, Engineering Consultant, Arup	MEng Architectural and Civil Engineering	6 years of experience Ebury Bridge Estate Renewal, London UK, Wind microclimate specialist leading wind tunnel testing and EIA input for a multi-tower regeneration project. Princes Reach, Liverpool, UK, Wind microclimate specialist leading wind tunnel testing and EIA input for a tall tower development on the waterfront. LLDC PPDT, Queen Elizabeth Olympic Park, London, UK. Part of the wind engineering team providing ongoing environmental consultancy services to London Legacy Development Corporation's Planning Policy and Decisions Team.
Socio-economics	Kieron Hyams, Associate Director, Arup	BA(Hons) Geography MPhil Town Planning (Economic and Social Research Council (ESRC) funded) Fellow of the Royal Town Planning Institute (FRTPI) Fellow of the Royal Society of Arts, Manufactures and Commerce (FRSA) Member of the Institute of Economic Development (MIED)	21 years of experience Socio-economic lead for EIA analysis and advice to the London Legacy Development Corporation (LLDC). Socio-economic lead for London-based commercial projects such as: Millennium Dome-O2 conversion, Garden Bridge, New Town Hall Lambeth, Highbury National Grid Headhouse, Kings Cross retail redevelopment, HS2 Euston station, Crystal Palace Park CBA, Ebury Estate Renewal, and Thames Tideway RIA. Work for the OECD, World Bank and UNOPS promoting and developing social and economic policy and growth. Developed MHCLG's evidence base to inform the development of the revised EIA Directive.
Townscape, visual and built heritage (off-site)	Louise Newman, Director, Tavernor Consultancy	BA(hons) Architecture Diploma in Architecture (Dip.Arch)	15 years of experience Registered Architect with experience in practice as an architect and urban designer.

		Architects Registration Board (ARB) Registered Architect	Over two years of experience as a Senior Design Review Advisor at the Commission for Architecture and the Built Environment (CABE) assessing the design quality of high-profile projects across England. Over ten years' experience in the preparation of townscape, visual and built heritage assessments for projects across London including complex masterplans, tall buildings and interventions in sensitive historic environments.

A1.1.4 Arup is a registrant of the Institute of Environmental Management and Assessment's EIA Quality Mark scheme. Arup is committed to excellence in EIA activities and has agreed to have this commitment independently reviewed through review of ESs prepared by the company.

A2 EIA Regulations Schedule 4 – information for inclusion in ESs

Regulation 18 requirement	**Location in this ES**
(3) An environmental statement is a statement which includes at least— a description of the proposed development comprising information on the site, design, size and other relevant features of the development;	ES Volume 1, Sections 2 and 3
a description of the likely significant effects of the proposed development on the environment;	ES Volume 1, Sections 5-13 and ES Volume 2
a description of any features of the proposed development, or measures envisaged in order to avoid, prevent or reduce and, if possible, offset likely significant adverse effects on the environment;	Features and measures are described in ES topic sections (ES Volume 1, Sections 5-13 and ES Volume 2) covering embedded and good practice measures, and additional mitigation. A schedule of all measures is provided as Appendix D2.
a description of the reasonable alternatives studied by the developer, which are relevant to the proposed development and its specific characteristics, and an indication of the main reasons for the option chosen, taking into account the effects of the development on the environment;	ES Volume 1, Section 3.4
a non-technical summary of the information referred to in sub-paragraphs (a) to (d); and	This is provided as a standalone document forming part of the ES.
any additional information specified in Schedule 4 relevant to the specific characteristics of the particular development or type of development and to the environmental features likely to be significantly affected.	See Table 3 of this appendix
(4) An environmental statement must— where a scoping opinion or direction has been issued in accordance with regulation 15 or 16, be based on the most recent scoping opinion or direction issued (so far as the proposed development remains materially the same as the proposed development which was subject to that opinion or direction);	ES Volume 1, Section 4, ES Volume 1 Sections 5.2, 6.2, 7.2, 8.2, 9.2, 10.2, 11.2, 12.2 and 13.2, ES Volume 3, Appendix D1

include the information reasonably required for reaching a reasoned conclusion on the significant effects of the development on the environment, taking into account current knowledge and methods of assessment; and	ES Volumes 1 and 2
be prepared, taking into account the results of any relevant UK environmental assessment, which are reasonably available to the person preparing the environmental statement, with a view to avoiding duplication of assessment.	The Environmental Statement prepared in relation to a previous application for development on the Site has been considered. This is discussed in ES Volumes 1 and 2.
(5) In order to ensure the completeness and quality of the environmental statement— the developer must ensure that the environmental statement is prepared by competent experts; and	ES Volume 3, Appendix A1
the environmental statement must be accompanied by a statement from the developer outlining the relevant expertise or qualifications of such experts.	ES Volume 3, Appendix A1

Schedule 4 requirement	**Location in this ES**
A description of the development, including in particular: a description of the location of the development;	ES Volume 1,Section 2
a description of the physical characteristics of the whole development, including, where relevant, requisite demolition works, and the land-use requirements during the construction and operational phases;	ES Volume 1,Section 3
a description of the main characteristics of the operational phase of the development (in particular any production process), for instance, energy demand and energy used, nature and quantity of the materials and natural resources (including water, land, soil and biodiversity) used;	ES Volume 1, Section 3

an estimate, by type and quantity, of expected residues and emissions such as water, air, soil and subsoil pollution, noise, vibration, light, heat, radiation and quantities and types of waste produced during the construction and operation phases.	ES Volume 1, Sections 3, 5, 9 and 12
A description of the reasonable alternatives (for example in terms of development design, technology, location, size and scale) studied by the developer, which are relevant to the proposed project and its specific characteristics, and an indication of the main reasons for selecting the chosen option, including a comparison of the environmental effects.	ES Volume 1, Section 3.4
A description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge.	ES Volume 1, Section 2 Baseline sections of ES topic sections (ES Volume 1, Sections 5.5, 6.5, 7.5, 8.5, 9.5, 10.5, 11.5, 12.5, 13.5 and ES Volume 2)
A description of the factors specified in regulation 4(2) likely to be significantly affected by the development: population, human health, biodiversity (for example fauna and flora), land (for example land take), soil (for example organic matter, erosion, compaction, sealing), water (for example hydromorphological changes, quantity and quality), air, climate (for example greenhouse gas emissions, impacts relevant to adaptation), material assets, cultural heritage, including architectural and archaeological aspects, and landscape.	ES Volume 1, Section 3 Baseline sections of ES topic sections (ES Volume 1, Sections 5.5, 6.5, 7.5, 8.5, 9.5, 10.5, 11.5, 12.5, 13.5 and ES Volume 2)
A description of the likely significant effects of the development on the environment resulting from, inter alia: the construction and existence of the development, including, where relevant, demolition works;	Assessment sections of ES topic sections (ES Volume 1, Sections 5.7, 6.7, 7.7, 8.7, 9.7, 10.7, 11.7, 12.7, 13.7 and ES Volume 2)
the use of natural resources, in particular land, soil, water and biodiversity, considering as far as possible the sustainable availability of these resources;	ES Volume 1, Section 3
the emission of pollutants, noise, vibration, light, heat and radiation, the creation of nuisances, and the disposal and recovery of waste;	ES Volume 1, Sections 3, 5, 8, 9, 11 and 12

the risks to human health, cultural heritage or the environment (for example due to accidents or disasters);	ES Volume 1, Sections 6
the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources;	Cumulative assessments contained within ES topic sections (ES Volume 1, Sections 5.10, 6.10, 7.10, 8.10, 9.10, 10.10, 11.10, 12.10, 13.10 and ES Volume 2)
the impact of the project on climate (for example the nature and magnitude of greenhouse gas emissions) and the vulnerability of the project to climate change;	ES Volume 1, Sections 3.3 and 8
the technologies and the substances used.	ES Volume 1, Section 3
The description of the likely significant effects on the factors specified in regulation 4(2) should cover the direct effects and any indirect, secondary, cumulative, transboundary, short-term, medium-term and long-term, permanent and temporary, positive and negative effects of the development. This description should take into account the environmental protection objectives established at Union or Member State level which are relevant to the project, including in particular those established under Council Directive 92/43/EEC(1) and Directive 2009/147/EC(2).	Assessment sections of ES topic sections (ES Volume 1, Sections 5.7, 6.7, 7.7, 8.7, 9.7, 10.7, 11.7, 12.7, 13.7 and ES Volume 2) Secondary, or interactive, effects are also reported in Section 1.2 of ES Volume 1
A description of the forecasting methods or evidence, used to identify and assess the significant effects on the environment, including details of difficulties (for example technical deficiencies or lack of knowledge) encountered compiling the required information and the main uncertainties involved.	Summary methodologies are contained within the ES topic sections (ES Volume 1, Sections 5.7, 6.7, 7.7, 8.7, 9.7, 10.7, 11.7, 12.7, 13.7 and ES Volume 2) Full methodologies are provided as Appendix D4 of ES Volume 3
A description of the measures envisaged to avoid, prevent, reduce or, if possible, offset any identified significant adverse effects on the environment and, where appropriate, of any proposed monitoring arrangements (for example the preparation of a post-project analysis). That description should explain the extent, to which significant adverse effects on the environment are avoided, prevented, reduced or offset, and should cover both the construction and operational phases.	Measures are described in ES topic sections covering embedded and good practice measures (ES Volume 1, Sections 5.6, 6.6, 7.6, 8.6, 9.6, 10.6, 11.6, 12.6, 13.6 and ES Volume 2) and additional mitigation (ES Volume 1, Sections 5.8, 6.8, 7.8, 8.8, 9.8, 10.8, 11.8, 12.8, 13.8 and ES Volume 2)

	A schedule of all measures is provided as Appendix D2 of ES Volume 3 Residual effects are described in the ES topic sections (ES Volume 1, Sections 5.9, 6.9, 7.9, 8.9, 9.9, 10.9, 11.9, 12.9, 13.9 and ES Volume 2)
A description of the expected significant adverse effects of the development on the environment deriving from the vulnerability of the development to risks of major accidents and/or disasters which are relevant to the project concerned. Relevant information available and obtained through risk assessments pursuant to EU legislation such as Directive 2012/18/EU(3) of the European Parliament and of the Council or Council Directive 2009/71/Euratom(4) or UK environmental assessments may be used for this purpose provided that the requirements of this Directive are met. Where appropriate, this description should include measures envisaged to prevent or mitigate the significant adverse effects of such events on the environment and details of the preparedness for and proposed response to such emergencies.	Section 6 of the EIA Scoping report[1]
A non-technical summary of the information provided under paragraphs 1 to 8.	Separately bound Environmental Statement Non-Technical Summary
A reference list detailing the sources used for the descriptions and assessments included in the environmental statement.	See footnotes throughout the ES

[1] EIA Scoping Report (2021). Land to the North of the British Library 96 Euston Road London NW1 2DB (2021/2164/P), Available at: http://camdocs.camden.gov.uk/HPRMWebDrawer/Record/8962369/file/document?inline

Appendix B

Not used

Appendix C

Not used

Appendix D

Appendices to Section 4,
Approach to assessment

D1 Response to EIA Scoping Opinion

D1.1 General comments

Scoping Opinion comment	Response	Location of information in ES
Background *The information included in this section is considered acceptable.*	Noted.	n/a
Scoping context *The information included in this section is considered acceptable.*	Noted.	n/a
Overview of the proposed scope of the EIA: Reference should be made to the detailed comments made on each of the technical areas to either be scoped into or out of the EIA in the subsequent sections of this EIA Scoping Opinion.	Noted.	n/a
As is referenced elsewhere in the EIA Scoping Report, the construction assessment in each technical assessment should additionally include for demolition.	The construction assessment for demolition has been presented in the relevant topic sections of the Environmental Statement.	ES Volumes 1 and 2
The EIA Scoping Report, at the bottom of page 2, defines construction effects as "temporary effects that arise as a result of the construction process". However, it should be noted that construction effects could be permanent. For example,	Where the effect of construction on a receptor is permanent, this is explained in the relevant topic sections of the Environmental Statement. However, more typically, such effects are reported as related to the existence of the Proposed Development.	ES Volumes 1 and 2

Scoping Opinion comment	Response	Location of information in ES
demolition/excavation works could have a permanent effect on archaeology or heritage assets for example		
EIA Regulations and approach to EIA The need for an EIA *The information included in this section is considered acceptable.*	Noted.	n/a
EIA scoping *The information included in this section is considered acceptable.*	Noted.	n/a
General approach to EIA *The EIA Scoping Report states "The EIA will be undertaken in accordance with the EIA Regulations and relevant guidance, and by competent experts in all areas". The ES should detail the relevant qualifications, professional registrations and experience of the lead EIA practitioners and all contributing technical experts for the ES.*	Appendix A1 sets out the qualifications, professional registrations and experience of practitioners for all contributing technical experts for the ES.	ES Volume 3, Appendix A1
In addition to describing whether the environmental effects are direct, indirect, secondary and significant or not significant, the ES should specify the temporal nature of any effects predicted. This should include reference to whether the effects are predicted to be short, medium, long-term and whether they are	Methodologies are unique to each topic assessment and follow relevant guidance specific to that topic. As such, blanket definitions are not applied across the ES. The methodologies used for each assessment are presented in Appendix D4 and ES Volume 2, Section 4.	ES Volume 3, Appendix D4 and ES Volume 2, Section 4

Scoping Opinion comment	Response	Location of information in ES
permanent or temporary. A clear definition should be given, in the ES methodology chapter, for the terminology used throughout the ES to describe the temporal nature of the effects in terms of the timescales represented.		
With regard to the COVID-19 pandemic, and potential survey work limitations, it is recommended that the collection of baseline data and the use of existing baseline data should be discussed and agreed with the relevant technical officers within LBC (and other statutory consultees, where relevant) where possible ahead of the ES being submitted.	Discussions on the use of baseline data to inform the EIA have been held with Camden Council and other relevant consultees where possible. Each assessment section in the ES has a section entitled 'Consultation' which describes engagement with relevant parties.	ES Volume 1, Sections 5.3 to 13.3, and ES Volume 2, Section 3
In regard to baseline analysis, commentary should be provided in each of the technical assessments on how the baseline conditions could change from the current baseline in the future without the development going ahead) by the year of full completion. It is acknowledged that material changes could occur for some disciplines, but not necessary all. Commentary should be made on whether such changes could affect the receptor sensitivity that has been identified during the existing baseline review.	The future baseline has been considered for the relevant assessments, where the conditions could change from the current baseline by the first full year of completion. This includes the following assessments: air quality; climate change; and socio-economics. For the following assessments the baseline is unlikely to materially change from the current baseline to the first full year of operation: archaeology; built heritage on-site; daylight, sunlight, overshadowing, solar glare and obtrusive light; electronic interference; environmental wind; noise and vibration; and townscape, visual and built heritage off-site.	

Scoping Opinion comment	Response	Location of information in ES
In each assessment, commentary should be provided on whether the technical consultant recommends the need for any monitoring of significant residual effects, if there is the potential for these to remain as significant post-mitigation.	Recommendations for future monitoring are presented, where relevant, in the relevant topic sections of the Environmental Statement.	ES Volumes 1 and 2
Cumulative effects *As is proposed in the EIA Scoping Report, the cumulative impacts and effects of the proposed development with other relevant nearby proposed developments should be assessed in the ES.* *It is noted that the criteria included Appendix A of the EIA Scoping Report proposes the assessment of development projects that have been submitted for planning but that have not yet been determined. LBC agree with this position, so that the cumulative effects assessment is as up to date as possible at the time of submission of the planning application / at planning committee.* *Beyond the list of proposed cumulative development schemes included here, the list of proposed developments to be assessed should be re-reviewed (against the specified criteria) ahead of commencing the assessment work. Ideally, this list is further discussed with LBC at that time. This will ensure that the list of cumulative development schemes is as up to date as possible at the time of the assessment work commencing. There may also be a need to coordinate assessments between this site and other*	The list used for the cumulative effects assessment has been reviewed and updated following the submission of the Scoping Report to Camden Council. Additional developments were added at the request of the Council.	ES Volume 3, Appendix D3

Scoping Opinion comment	Response	Location of information in ES
sites, if they are due to be submitted and considered at a similar time.		
The schedule of cumulative developments included in Appendix A of the EIA Scoping Report includes variations to original consents. The EIA should ensure that any variations to the original consents that may be material to the cumulative assessment, are considered: for example, consents approved via Section 73 of the Town and Country Planning Act 1990. *There are a number of reserved matters planning applications listed in the schedule of cumulative developments in Appendix A. For completeness, the ES should clearly set out all relevant planning applications for each scheme, including the original outline planning application. Outline planning applications should be assessed for the phases that have yet to be submitted for reserved matters.*	The list of developments used for the cumulative effects assessment has been reviewed and updated to reflect the relevant Outline Planning Applications in relation to any Reserved Matters Applications.	ES Volume 3, Appendix D3
The ES should include a location map of all sites being assessed in the cumulative assessment.	A map showing the locations of the developments considered for the cumulative effects assessment is presented in the ES.	ES Volume 3, Appendix D3
Whilst not part of the cumulative assessment, the technical assessments should have regard to impacts and effects to any future receptors in the vicinity of the site that may be affected. Specifically, this may include nearby planning applications / permissions that are lower than the thresholds defined in the EIA Scoping Report.	The project team is not aware of any developments of any size in close enough proximity to the Site to act as a future receptor.	n/a

Scoping Opinion comment	Response	Location of information in ES
The ES should outline where any of the earlier phases of the identified cumulative schemes are constructed and occupied, and therefore considered to form baseline for the assessment. The assumed construction phasing of nearby cumulative developments should be outlined in the ES and where this is not clear from the associated planning documentation for those schemes, details should be provided on any assumptions made i.e. the potential for overlap of construction phasing if this represents a worst case for assessment purposes.	The project team is not aware of any phases of developments in close enough proximity to the Site where this would be a concern.	n/a
EIA consideration of climate change *The information included in this section is considered acceptable.*	Noted.	n/a
Structure and content of the Environmental Statement *The information included in this section is considered acceptable.*	Noted.	n/a
Accompanying documents *The list of specified planning documents in this section of the EIA Scoping Report appears to be missing a number of reports referred to elsewhere in the report. For example, the EIA Scoping Report additionally makes reference to the submission of a Circular Economy Statement and Delivery and Servicing Management Plan with the planning application. The other*	The list of environment-related reports submitted with the planning application is presented in the ES.	ES Volume 1, Section 1

Scoping Opinion comment	Response	Location of information in ES
documents specified as being submitted with the planning application elsewhere in the EIA Scoping Report will also need to be submitted.		
Non-Technical Summary *The information included in this section is considered acceptable.*	Noted.	n/a
Next steps *The information included in this section is considered acceptable.*	Noted	n/a
The Site and surrounding area *The information included in this section is considered acceptable. Note LBC would require the plans submitted with the planning application to show the element of change to the existing building with a red line and the whole of the existing building with a blue line.*	A plan setting out the land required for the Proposed Development is included in Figure 1 in the Environmental Statement. A planning application drawing demarcating the existing building is included with the planning application.	ES Volume 1, Section 1
Environmental context *The information included in this section is considered acceptable.*	Noted.	n/a
The Proposed Development		

Scoping Opinion comment	Response	Location of information in ES
The planning application *It is assumed that the quantum of development described in this section and red line plan provided on page 9 of the EIA scoping report captures the maximum quantum and maximum red line extent that could be included with the planning application for the purposes of EIA scoping. Note LBC would require the plans submitted with the planning application to show the element of change to the existing building with a red line and the whole of the existing building with a blue line.*	A plan setting out the land required for the Proposed Development is included in Figure 1 in the Environmental Statement. Any changes to the extent of the Site from the plan presented in the scoping report are considered to be immaterial to the scope of the EIA.	ES Volume 1, Section 1
Environmental design and management measures *The information included in this section is considered acceptable.*	Noted.	n/a
Construction phase *The information included in this section is considered acceptable.*	Noted.	n/a
Other matters *The EIA Scoping Report makes reference to the London Plan (2016) and the draft/intend to publish London Plan. It should be noted that the London Plan (2021) has now been adopted by the GLA and therefore this should be taken into consideration in bringing forward the planning application.*	Where appropriate, within the ES the references are to the adopted London Plan.	ES Volumes 1, 2 and 3

Scoping Opinion comment	Response	Location of information in ES
Beyond the scope of the EIA, and comments highlighted, Network Rail have raised a number of further points that should be addressed as the development comes forward outside of the EIA process. Their response is appended to this EIA Scoping Opinion for your information and onward consideration.	Noted.	
London Underground Infrastructure Protection have highlighted that they have no comments to make on the EIA scoping. However, they have highlighted that the developer should consult with TfL Infrastructure Protection team for review of Ground Movement Assessment and detailed design outside of the EIA process.	Noted.	

D1.2 Air quality comments

Scoping Opinion comment	Response	Location of information in ES
LBC Response		
The London Plan and associated guidance requires an air quality positive assessment / statement to now be submitted for major developments in London subject to EIA. This should therefore be prepared and accompany the Air Quality ES Chapter.	The Air Quality assessment sets out the Air Quality Positive assessment.	ES Volume 1, Section 5.7.27 and ES Volume 3, Appendix E7
There are no further comments on the scope of the Air Quality ES chapter, beyond those provided by the Francis Crick	Noted	n/a

Scoping Opinion comment	Response	Location of information in ES
Institute and Network Rail (below) – which should be addressed in the ES. No comments have been received from the LBC Environmental Health officer.		
Francis Crick Institute Response		
The development proposals include uses such as life sciences. Dependant on the type of life science activities that occupy the proposed building there maybe potential for relevant emissions from the building associated with these uses. Consideration should be given to whether the life science uses will include containment facilities, which is likely, and if so to what level and how will extraction requirements be incorporated into the building. Extraction, flue location and heights of flues to ensure relevant dispersion are an important consideration under Air Quality.	This would be a matter of detailed design and analysis once specific tenants and their requirements have been identified.	n/a
During the evolution of the Crick's proposals it was necessary to raise the height of the flues on our building to ensure adequate dispersion of materials (and possible odours) so as not to impact residential development to the north and this was a factor in the design of the upper floors of Brill Tower. The assessment of potential effects arising from this particular use must have regard to the existence of the Crick, to the north, and to climate conditions, so that the cumulative impacts of both developments are considered against sensitive receptors adjacent to the combined sites; specifically Brill Tower	This would be a matter of detailed design and analysis once specific tenants and their requirements have been identified.	n/a

Scoping Opinion comment	Response	Location of information in ES
(currently under construction) that sits in the prevailing wind direction from the development site.		
Network Rail response *The design and siting of buildings should take into account the possible effects of noise and vibration and the generation of airborne dust resulting from the operation of the railway.*	Noted. The design of the Proposed Development considers ambient air quality, including potential dust from the operation of the railway.	n/a

D1.3 Archaeology comments

Scoping Opinion comment	Response	Location of information in ES
LBC Response *The archaeology assessment proposes an assessment of "existence effects", whilst scoping out "construction effects" and "operational effects". It is considered that the scoping out of operational effects is reasonable. However, the construction process itself could lead to impacts and effects to archaeological assets. For example, excavation works and their associated impact and effect to below ground archaeology. This would be an impact and effect as a result of the construction process, as opposed to an effect that is limited to the "existence" of below ground basements and infrastructure.*	The comment arises from a misunderstanding of what is entailed by 'existence effects. However, to aid understanding, the archaeology assessment in the ES has been modified to describe the combined effects of the construction and existence of the Proposed Development on relevant receptors.	ES Volume 1, Section 6

Scoping Opinion comment	Response	Location of information in ES
LBC will therefore require an assessment of construction effects relating to archaeology in the Archaeology ES Chapter. This approach would also be consistent with the built heritage topic, which scopes in an assessment of both construction and existence effects.	See above.	ES Volume 1, Section 6
There are no further specific comments on the scope of the Archaeology ES chapter from LBC.	Noted.	n/a
No comments have been received from GLAAS.	Noted.	n/a

D1.4 Built heritage (on-site) comments

Scoping Opinion comment	Response	Location of information in ES
LBC Response		
There are no specific comments from LBC on the scope of the Built Heritage ES chapter. Historic England have confirmed that they have no comment to make as per their response below.	Noted.	n/a
No comments have been received from the LBC Conservation officer.	Noted.	n/a
Historic England response		

Scoping Opinion comment	Response	Location of information in ES
On the basis of the information available to date, we do not wish to offer any comments. This response relates to designated heritage assets only.	Noted	n/a

D1.5 Climate change comments

Scoping Opinion comment	Response	Location of information in ES
LBC Response		
It is agreed that significant effects relating to climate change are likely to arise from the proposed development, therefore, this topic should be scoped into the ES.	Noted.	ES Volume 1, Section 8
The scope of the greenhouse gas (GHG) emissions assessment element of the climate change ES chapter is appropriate for assessing the likely effects associated with the proposed development. It is acknowledged that the IEMA EIA Guide to Assessment Greenhouse Gas Emissions and Evaluating their Significance recognises that all projects will contribute to climate change; the largest inter-related cumulative environmental effect. Furthermore, that in the absence of any defined threshold, any carbon emissions are considered to be potentially significant. However, it is not clear what criteria shall be used to determine receptor sensitivity and magnitude of	There is no industry standard method for assessing effects related to greenhouse gas emissions in terms of receptor sensitivity and magnitude of impact. As agreed, any net increase in emissions is considered a significant effect. In addition, context is provided in terms of baseline emissions from the London Borough of Camden and Greater London.	ES Volume 1, Section 8

Scoping Opinion comment	Response	Location of information in ES
impact, and therefore level of effect significance. This should be made clear within the ES chapter.		
All sources of GHG emissions benchmarks and conversion factors should be made clear within the ES and a summary of any calculations should be included with/appended to the ES.	The climate change assessment in the ES sets out the relevant information.	ES Volume 1, Section 8, ES Volume 3, Appendix D4
It is agreed that 'in combination climate impacts' are best assessed within each ES chapter scoped into the EIA, as per the IEMA EIA Guide to Climate Change Resilience and Adaptation.	Noted	n/a
It is noted that the ES will also describe how the design of the proposed development has responded to a changing climate and embedded resilience. However, it is not clear on the methodology that shall be used for assessing this, or where it shall be placed within the ES. The IEMA EIA Guide to Climate Change Resilience and Adaptation provides some further guidance on this and states that "project resilience to climate change impacts needs to be assessed as a part of the design (and is generally best reported in the analysis of alternatives). It is also better suited to a Risk Assessment type process than traditional EIA 'determination of significance'".	The description of the Proposed Development, including the alternatives and climate change resilience, is presented in the Environmental Statement. This includes appropriate adaptation measures to address potential climate hazards, such as designing the proposed surface water drainage network for future climate change allowances, integrating rainwater harvesting. It also describes how the need for resilience measures was assessed.	ES Volume 1, Section 3

D1.6 Daylight, sunlight, overshadowing, solar glare and obtrusive lighting comments

Scoping Opinion comment	Response	Location of information in ES
LBC Response		
The *solar glare assessment methodology described in Section 5.5.3 is limited to a qualitative assessment based on the relative locations of sun position, building surfaces and sensitive viewpoints, without quantifying the magnitude of effect of any potential glare source identified. This is an acceptable approach provided any glare sources identified can be demonstrated to be obstructed by embedded mitigation measures. If proposed mitigation measures do not completely obstruct identified glare sources, a quantitative assessment of the intensity of glare against a recognised threshold above which visual impairment is likely should be carried out.*	Noted. The assessment concluded that there were no instances in which this was required.	ES Volume 1, Section 9
Specific locations and viewpoints subject to assessment should be agreed, where possible, with Network Rail and with the London Borough of Camden ahead of the assessment being undertaken.	Network Rail and Camden Council were contacted with a view to agreeing the assessment locations. At the time of preparing the ES, responses had not yet been received.	n/a
The BRE Report, BR209: Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice, 2011 also includes windows of nearby existing and future planned buildings as key locations for the assessment of solar glare. There is currently no discussion on this in the EIA scoping report and therefore it is assumed that effects associated with such receptors are unlikely to be signficiant [sic].	There are no known planned developments sufficiently close to the Site to warrant consideration.	n/a

Scoping Opinion comment	Response	Location of information in ES
However, if this is the case it should be acknowledged in the methodology section of the daylight, sunlight, overshadowing and solar glare ES Chapter for completeness.		

D1.7 Electronic interference comments

Scoping Opinion comment	Response	Location of information in ES
LBC Response *There are no specific comments on the scope of the Electronic Interference ES chapter, beyond those provided by the Francis Crick Institute (below) – which should be addressed in the ES.*	Noted.	n/a
Francis Crick Institute Response *The scoping makes reference to the potential impacts on the Airwave network, the emergency services communications system, but it should be noted that this is being replaced by the Emergency Services Network (ESN). Although delayed ESN is now scheduled to be operational in 2025/26, whilst the proposed construction will be taking place. Whilst ESN hopes to use the existing mast network, additional masts are having to be provided in urban areas and the assessment should factor in both Airwave and ESN or require a future addendum if data is not currently available, when ESN is commissioned.*	Consultation has been held with Airwave regarding the effects of the Proposed Development on the emergency telecommunications services. The Applicant will continue discussions with Airwave post-planning as more information becomes available regarding the Emergency Services Network (ESN) planned upgrades.	ES Volume 1, Section 10

Scoping Opinion comment	Response	Location of information in ES
With respect to terrestrial TV and radio, although it was not expected that the Crick would cause any disruption, some did occur to a number of residential uses to the north/north-east and we believe the Brill Tower proposals considered impacts to terrestrial TV and radio. We agree that it is unlikely that there would be any interference arising from the Library building but this should not be ruled out in its entirety.	As demonstrated in the Scoping Report, the Proposed Development is unlikely to result in a terrestrial TV and radio shadow to be cast and therefore no further assessment is presented in the Environmental Statement.	n/a
There are no specific references to EMI impacts on the Crick during construction or in operation, nor are there any comments on the building and equipment sensitivity to impacts of this nature. Activities within the Crick have the potential to be susceptible to EMI. This should be factored into the scoping although in all likelihood mitigation may be a localised issue arising when an issue arises.	Consultation is ongoing with FCI regarding the UKPN proposed route joining Ossulston Street to Midland Road, and generator locations. Consultation will continue with the FCI through detailed design and construction in order to agree a process going forward.	

D1.8 Environmental wind comments

Scoping Opinion comment	Response	Location of information in ES
LBC Response *The proposed methodology includes for a qualitative desk based assessment, progressing to a quantitative (wind tunnel) assessment should the assessment author deem effects may occur that cannot be robustly mitigated. As per our previous discussion, LBC will require a quantitative assessment of wind*	The environmental wind assessment in the ES provides a quantitative assessment of the wind microclimate.	ES Volume 1, Section 11

Scoping Opinion comment	Response	Location of information in ES
microclimate conditions (for the baseline, with the proposed development and alongside any cumulative schemes in the radius of the wind model). This could be in the form of a wind tunnel or computational fluid dynamics study. This is because of the height of the proposed development (it is over ten storeys) and to adequately demonstrate, quantitively, that all effects have been assessed and mitigated, especially those within the proposed public foyer. *Note the EIA Scoping Report states that the wind assessment will consider "existence" effects. The EIA Scoping Report further states that:* *"Operational effects are scoped out of the assessment as operational activities would not give rise to additional effects to those occurring in the existence phase".* *Existence effects are defined in the EIA scoping report as follows:* *Existence effects – effects that arise due to the physical existence or presence of a Proposed Development; for example, the effects of land take on archaeology, and the visual effects from the presence of new structures. Although these effects initially arise during construction, they do not generally vary overtime. Existence effects therefore arise from works that enable the Proposed Development to exist.* *Operational effects are defined as follows:*	A combined existence and operational effects assessment is presented in the ES.	ES Volume 1, Section 11

Scoping Opinion comment	Response	Location of information in ES
Operational effects – effects arise from how a development will be used; for example, effects from road traffic travelling to and from the Site.		
Given that the proposed development will amend outdoor circulation and seating areas, the operation of the proposed development itself should also be considered in the ES. The wind assessment should ensure that the proposed uses on the site are suitable for their intended use from a wind microclimate perspective. It might be appropriate to consider off-site effects as existence effects, and effects to site users as operational effects for example. Regardless of how the chapter is structured, effects to on-site users should be considered and assessed.	The assessment fully considers the proposed uses surrounding the Proposed Development, and any retained uses off-site.	ES Volume 1, Section 11
Comments from the Francis Crick Institute are provided below. The wind assessment, and any required mitigation, should address any significant adverse effects on and off-site, as a result of the proposed development.	Noted	n/a
Francis Crick Institute Response		
The Crick would have concern should the pedestrianised Dangoor Walk become a wind tunnel as a result of the proposed development, and initial modelling should be undertaken. The Crick would be extremely concerned if the proposed mitigation impacted the use of Dangoor Walk particularly in respect to the comment made that 'regulating the use of the space' may be one solution.	The environmental wind assessment in the ES concludes the effects on Dangoor Walk as a result of the Proposed Development would be within the 'walking' comfort range. There would be an improvement on the baseline scenario where Dangoor Walk meets Ossulston Street.	ES Volume 1, Section 11

Scoping Opinion comment	Response	Location of information in ES
Dangoor Walk is already established and the impact of wind would affect Dangoor Walk as well. How would the suggested mitigation measures be applied to land outside the application site and how does this rationalise the Council's requirement to ensure a permeability route across the site?		

D1.9 Noise and vibration comments

Scoping Opinion comment	Response	Location of information in ES
LBC Response *There are no specific comments on the scope of the Noise and Vibration ES chapter, beyond those provided by the Francis Crick Institute and Network Rail (below) – which should be addressed in the ES. No comments have been received from the LBC Environmental Health officer.*	Noted.	n/a
Francis Crick Institute Response *As with the Brill Tower proposals, this is the greatest area of concern for the Crick and has the potential to directly impact the future operations of the Institute. Reference to the sensitivity of the Francis Crick Institute is referred to in Section 5.8.2. The Crick's most sensitive activities are located to the south side of*	Consultation is ongoing with the FCI regarding the vibration sensitivities of the facility, the existing baseline conditions, the potential effects and mitigation solutions. As the FCI suggests, the Developer intends to continue discussions with the FCI on these matters. The assessment of effects for vibration on	ES Volume 1, Section 12

Scoping Opinion comment	Response	Location of information in ES
its building and these will need to be carefully considered (like they have been for Brill Place Tower (BPT) proposals). *As outlined in the Scoping Report, there could be 'temporary significant adverse vibration effects' on the Crick arising from construction and we would like to draw attention to issues that have arisen in respect Brill Place Tower. Arrangements were introduced with the developers of BPT to minimise and manage these issues. We would expect that the British Library would look to a mitigation solution that involves close cooperation with the Crick, as has been undertaken with BPT, throughout the construction and that this is incorporated into the Environmental Statement.* *The key to setting the relevant mitigation strategy will be the baseline noise and vibration studies and we suggest that the baseline studies include monitoring points in the Crick where these will likely be maintained through the construction phase for monitoring purposes. In any planning application submission, the Crick will seek to work closely and collaboratively with the developers (as it did with BPT) to set noise/vibration thresholds and how exceedances will be managed and responded too, if and when they occur.*	relevant receptors, including the FCI, is presented in the noise and vibration assessment of the ES.	
With respect to noise, if the proposed development is to have standby generators associated with the ongoing uses, which is	Noise limits set by Camden Council (Camden Local Plan, Policy A4[1]) will apply to emergency generators at the Proposed	n/a

[1] London Borough of Camden (2017) *Camden Local Plan.* Available at: https://www.camden.gov.uk/documents/20142/3912524/Local+Plan+Low+Res.pdf/54bd0f8c-c737-b10d-b140-756e8beeae95

Scoping Opinion comment	Response	Location of information in ES
likely given that the Alan Turing Institute is to be located within the development, and life sciences are a specific land use, then consideration must be given to the impact that these might have in the event of a significant electrical outage requiring black start and this needs to also consider the cumulative impact of standby generators at both the British Library and the Crick may have in noise terms. As such the base study needs to extend beyond the site to factor in the wider physical environment. *It would be worth noting that this area has previously (2019) had a full outage over a number of days as a result of the failure of the local UKPN sub-station; which exists as a single point of failure. During this period the Crick's emergency generators operated as they were expected to do, but this was continuously until power was restored.*	Development. The policy requires noise from emergency equipment not to exceed the background noise levels by more than 10dB. These noise limits would be used to specify appropriate noise control as part the detailed design. This would be expected to be governed by a condition.	
Network Rail response Piling *The developer must ensure that any piling work near or adjacent to the railway does not cause an operational hazard to Network Rail's infrastructure. Impact/Driven piling scheme for a development near or adjacent to Network Rail's operational infrastructure needs to be avoided, due to the risk of a major track fault occurring. No vibrocompaction/ displacement piling plant shall be used in development. Where piling equipment / plant is to be used in the development, foundation design and details of the use of such machinery and a method statement*	Noted. The draft Construction Management Plan (CMP), submitted with the application, sets out the proposed construction technique for Piling.	n/a

Scoping Opinion comment	Response	Location of information in ES
should be submitted for the approval of Network Rail's Asset Protection Engineer prior to the commencement of works and the works shall only be carried out in accordance with the approved method statement. Environmental issues *The design and siting of buildings should take into account the possible effects of noise and vibration and the generation of airborne dust resulting from the operation of the railway.*	Noted. The design of the Proposed Development takes account of this external source of noise and vibration.	n/a

D1.10 Townscape, visual and built heritage off-site comments

Scoping Opinion comment	Response	Location of information in ES
LBC Response *There are no specific comments on the scope of the Townscape, Visual and Built Heritage Off-site Assessment, beyond those provided by the Francis Crick Institute (below) – which should be addressed in the ES. LBC Conservation and Urban Design Officers have requested a number of other recommendations to date within the pre application process in regard to relevant policy, guidance and scheme design considerations. It is recommended that the Applicant continues to engage in the pre application process.*	Noted.	n/a

Scoping Opinion comment	Response	Location of information in ES
Francis Crick Institute Response *We understand that the proposals may extend landscaping features on to land owned by the Crick. Whilst the Crick will review these when formally consulted on by the developers, and are not necessarily adverse to this, consideration will need to be given to how these impact on the Crick's S.106 obligations. As the Council is aware, the Crick is in the process of planning for the re-commence of its local community engagement activities, having been suspended due to Covid, and areas such as the forecourt has always been identified as a primary location for exhibition/community related activity.* *As such, whilst we have no specific comment at this time on the scoping of the townscape component of the EIA, we will be particularly interested in the townscape at the eastern end of the site (Midland Road) and views north/south.* *Subject to the comments above, the scope of this assessment, as described in this section of the Scoping Report, is considered acceptable.*	Noted.	n/a

D1.11 Topics proposed to be scoped out comments

Scoping Opinion comment	Response	Location of information in ES
Contaminated land		
LBC Response *It is agreed, that subject to the measures outlined and committed to in the Scoping Report being developed and agreed with LBC's Environmental Health / Contaminated Land officer, that significant effects relating to ground contamination are unlikely to arise and that therefore that this topic can be scoped out of the ES.* *The LBC Environmental Health Officer response is included below. They have raised no objection to the scoping out of this technical area. As is indicated by the EIA Scoping Report, the LBC Environmental Health Officer / Contaminated Land officer should review and sign off any required remediation strategy and verification report, which can be secured via appropriately worded planning conditions.* *The Francis Crick Institute have provided comments related to Unexploded Ordinance, and this should be addressed outside of the EIA process within the Phase 1 Ground Desk Study and as required in the future ground investigation.*	Noted.	n/a
LBC Environmental Health officer response	Noted. A Geotechnical Desk Study and Contamination Risk Assessment is submitted with the application.	n/a

Scoping Opinion comment	Response	Location of information in ES
Within the EIA Scoping Report provided as part of the above planning application, it has been specified that contaminated land has been scoped out of the EIA Scoping Report as a separate Geotechnical Desk Study and Contamination Risk Assessment has been prepared and will be submitted with the planning application in accordance with Environment Agency (Land Contamination: Risk Management) and Camden Council guidance. The applicant is not asking for contaminated land to be considered as part of this EIA Scoping Application.		
Francis Crick Institute Response *.. although not a matter for the EIA, we would like to flag that from our own application we are aware that this area specifically, and it's surroundings, was bombed on several occasions during WW2 and would request that any application is supported by the provision of a UXO study given that history. We believe that the developers may already have indicated that they are intending to prepare a suitable report already.*	As noted in the Opinion, LBC have advised these matters "should be addressed outside of the EIA process with the Phase 1 Ground Desk Study and as required in the future ground investigation". This matter is not discussed further in the ES.	n/a
Ecology		
LBC Response *It is agreed, that subject to the measures outlined in the Scoping Report being put in place, that significant effects relating to*	Noted.	n/a

Scoping Opinion comment	Response	Location of information in ES
ecology and biodiversity are unlikely to arise and that therefore this topic can be scoped out of the ES.		
Beyond the EIA process, the LBC Nature and Conservation officer has welcomed a commitment to explore opportunities to incorporate biodiversity enhancements across the site.	The BREEAM Pre Assessment Report includes commitments in relation to the biodiversity enhancements the Proposed Development can offer. The BREEAM Pre Assessment Report also includes an Urban Greening Factor assessment. This matter is not discussed further in the ES.	n/a
LBC Nature Conservation officer response		
I have no comment to make on the scoping report, beyond welcoming the commitment to explore opportunities to incorporate biodiversity enhancements.	Noted.	n/a
Human health		
LBC Response		
It is agreed that a dedicated human health ES chapter can be scoped out of the ES, with this topic being dealt with in a standalone health impact assessment (which will need to confirm, when accompanying the planning application, that effects are indeed not likely to be signficiant) [sic] and where relevant in other ES chapters. Therefore, this topic can be scoped out of the ES.	A Health Impact Assessment has been submitted with the planning application.	n/a

Scoping Opinion comment	Response	Location of information in ES
Major accidents and disasters		
LBC Response *It is agreed that significant effects relating to major accidents and disasters are unlikely to arise and that therefore this topic can be scoped out of the ES.*	Noted.	n/a
Socio-economics		
LBC Response *The EIA Scoping Report suggest that signficiant [sic] environmental effects are not predicted. However, given the nature of the proposed development, including the offer of new social infrastructure/public institutional space with the proposed development itself, and the number of new jobs created – further analysis should be undertaken and presented to confirm that signficiant [sic] effects are not predicted.* *The EIA Scoping Report alludes to some uncertainty on the end user as follows "the future tenants and therefore the specific sectors occupying the new floorspace cannot be guaranteed at this stage or through the buildings lifespan and therefore the effects are not likely to be significant, based on information currently known". This is somewhat inconclusive and should be analysed further, and if required, scenario testing should be*	An assessment of the socio-economic effects of the Proposed Development has been undertaken in response to this comment from Camden Council.	Volume 1, Section 13

Scoping Opinion comment	Response	Location of information in ES
undertaken which accounts for the potential range in effects depending on the end user. *LBC would therefore require a dedicated Socio-economics ES Chapter to be included in the ES.* *The response from LBC Economic team is included below.* LBC Economic Department response *The Council will use our planning policies to secure our standard employment obligations, including construction apprenticeships, construction work experience opportunities, procurement opportunities;* *There is a strong package of end use opportunities to ensure that Camden residents benefit from any scheme – e.g. end use apprenticeships, supported employment opportunities, work experience placements;* *The Council will explore and expect links and partnership working with Camden's STEAM Commission*		
Transport		
LBC Response *It is agreed that, subject to the measures outlined in the Scoping Report being put in place, significant effects relating to*	Noted. A Transport Assessment supported by a Framework Travel Plan has been submitted with the planning application.	n/a

Scoping Opinion comment	Response	Location of information in ES
transport are unlikely to arise and that therefore this topic can be scoped out of the ES. *As is proposed, Transport Assessment supported by a Travel Plan for both the library and the commercial accommodation, Healthy Streets Transport Assessment, parking arrangement plan and delivery and servicing management plan should be provided with the planning application which detail how traffic and transportation matters will be managed appropriately. It is recommended that the Applicant reviews and follows the Camden Planning Guidance on Transport.* *In accordance with LBC Building Control's requirements, a full access statement should be provided alongside the planning application. The Applicant may decide whether this is best provided as a stand-alone document or within the scope of the Design and Access Statement or TA.* *Comments from TfL and Crossrail 2 are provided below. The points raised by TfL should be considered when bringing forward the separate standalone planning reports referred to in the EIA Scoping Report and as the development progresses.*		
Transport for London response *TfL is satisfied for transport to be scoped out of the EIA. The application should be supported by a Healthy Streets Transport Assessment, produced in line with TfL guidance. TfL's Healthy Streets TA guidance is available at: https://tfl.gov.uk/info-*	Noted. The Transport Assessment has been prepared in line with the Transport for London (TfL) guidance, including the Healthy Streets Transport Assessment. The Applicant has and will continue to engage with the TfL.	n/a

Scoping Opinion comment	Response	Location of information in ES
for/urban-planning-andconstruction/transport-assessment-guide/transport-assessments?intcmp=10094 *TfL would welcome pre-application engagement with the applicant team for this site.* *Overall, the scope in relation to TfL's TA requirements is acceptable but TfL would strongly encourage the applicant to engage in discussions with TfL in the lead up to submission.*		
Crossrail 2 response *Transport for London (TfL) administers the Crossrail 2 Safeguarding Direction made by the Secretary of State for Transport on 24 March 2015.* *With reference to your letter to TfL dated 10 May 2021, requesting the views of the Crossrail 2 Project Team on the above application, I confirm that the location of the proposed development as set out in the Scoping Report falls within the Limits of Safeguarding for Crossrail 2.* *In the event of a future application for planning permission being submitted the borough is required by the Directions to notify TfL/Crossrail 2. Notification of any future application for planning permission should be forwarded to Crossrail2@tfl.gov.uk* *The Scoping Report accompanying the submission refers to Crossrail 2 and provides an outline of the extent of the Crossrail*	Noted.	n/a

Scoping Opinion comment	Response	Location of information in ES
2 works that are proposed to form part of a future application for planning permission. Other than acknowledging the inclusion of the Crossrail 2 works in the Scoping Report, TfL/Crossrail 2 has not reviewed the document further. This view is given without prejudice to any response from other parts of TfL or the Mayor's decision on this submission. *The latest project developments can be found on the Crossrail 2 website www.crossrail2.co.uk*		
Waste and materials		
It is agreed that, subject to the measures outlined in the Scoping Report being put in place, significant effects relating waste [sic] are unlikely to arise and that therefore this topic can be scoped out of the ES.	Noted	n/a
As is proposed, a Circular Economy Statement and Delivery and Servicing Management Plan should be provided with the planning application which detail how waste and materials will be managed appropriately.	A Circular Economy Statement, which forms part of the Sustainability Statement, and a Delivery and Servicing Management Plan are provided with the planning application.	n/a
Water resources, flood risk and drainage		
LBC Response *It is agreed that, subject to the measures outlined in the Scoping Report being put in place, significant effects relating to water*	Noted.	

Scoping Opinion comment	Response	Location of information in ES
resources, flood risk and drainage are unlikely to arise and therefore this topic can be scoped out of the ES. *As is proposed, a Flood Risk Assessment and Drainage Strategy (detailing the SuDS to be utilised where appropriate) should be provided with the planning application which details how flood risk and surface water drainage will be managed appropriately. As is also proposed, the draft CMP to be submitted with the planning application should detail measures for managing demolition and construction related water pollution top ensure that signficiant [sic] adverse effects do not occur.* *Comments from LBC as Local Lead Flood Authority, Thames Water and the Environment Agency are provided below. These points should be considered when bringing forward the separate standalone planning reports referred to in the EIA Scoping Report and as the development progresses. It is acknowledged that the matters raised by Thames Water can be dealt with outside of the EIA process, within other standalone planning documents.*	A Flood Risk Assessment and Drainage Strategy is provided with the planning application.	n/a
Local Lead Flood Authority response Site and flood risk *As with the rest of Camden the national designation is confirmed as Flood Risk Level 1 including national Low Risk for surface water. The maps above show that the very eastern part of the site overlaps with the King's Cross Local Flood Risk*	Noted.	n/a

Scoping Opinion comment	Response	Location of information in ES
Zone. This is designated locally by the Strategic Flood Risk Assessment (Updated Maps 2015) for reasons of surface water flood risk. The scheme is therefore defined as an 'area at risk of flooding' which attracts particular planning requirements as stated in the Local Plan under Policy CC3, and guidance in CPG Water and Flooding. These include a Flood Risk Assessment.		
There are no historically flooded streets nearby.	Noted	n/a
We note the items above in the EIA.	Noted	n/a
In addition, due to the scale and location, at planning stage the applicant will be expected to submit: • *Flood Risk Assessment and Surface Water Drainage Statement* • *Camden Flood Risk Pro-forma as well as the GLA SuDS Pro-forma* • *Basement Impact Assessment if appropriate*	A Flood Risk Assessment and Drainage Strategy, Camden Flood Risk pro-forma and GLA SuDS Pro-Forma, and a Basement Impact Assessment are provided with the planning application.	n/a
Supporting documents including drawings detailing the proposed drainage, extent and position of SuDS, and flood risk mitigation measures, Microdrainage or equivalent runoff and volume calculations, lifetime maintenance plan for SuDS including management of related health and safety issues, drawing of overland flow routes showing no increased risk to the public and surrounding properties, evidence of site surveys		

Scoping Opinion comment	Response	Location of information in ES
and investigations relating to drainage, capacity confirmation from Thames Water or evidence of correspondence.		
The proposals will be expected to meet the NPPF standards, national non-technical standards, London Plan policy and Camden policy and guidance for development in a surface water flood risk area. For example the designs should (include but not limited to): • *be designed to resist flooding and to cope with being flooded* • *achieve greenfield run-off rates* • *constrain run-off volumes to greenfield run off volumes for the 1 in 100 year 6 hour event* • *include SuDS unless demonstrated to be inappropriate* • *follow the drainage hierarchy in policy SI 13 of the London Plan*	Noted	n/a
Summary		
We have no major objection in regard to the EIA scoping report.	Noted	n/a
However the observations would be incomplete with respect to local flood risk policy, and the informatives[sic] above should taken on board [sic] for the pre-application advice process and in the full planning application.	Noted.	n/a

Scoping Opinion comment	Response	Location of information in ES
Environment Agency response *The Environment Agency is a statutory consultee on all development projects subject to Environmental Impact Assessment. There are however, no environmental constraints within our remit on this site and we therefore have no comments at this time.*	Noted.	n/a
Thames Water Response *Thank you for giving Thames Water the opportunity to comment on the above application. Thames Water are the statutory water and sewerage undertaker for the area and would like to make the following comments: The EIA Regulations 2017 set out in Schedule 4 that water and wastewater issues may need to be covered in an EIA. Thames Water considers the following issues should be considered and covered in either the EIA or planning application submission:* 1. *The developments demand for Sewage Treatment and network infrastructure both on and off site and can it be met.* 2. *The surface water drainage requirements and flood risk of the development both on and off site and can it be met.* 3. *The developments demand for water supply and network infrastructure both on and off site and can it be met.*	Noted. Each item mentioned by Thames Water is covered by documents submitted with the planning application separate to the ES. Items 1, 2 and 3 are covered in the Flood Risk Assessment and Drainage Strategy.	n/a

Scoping Opinion comment	Response	Location of information in ES
4. *Build – out/ phasing details to ensure infrastructure can be delivered ahead of occupation.* 5. *Any piling methodology and will it adversely affect neighbouring utility services. The developer can obtain information to support the EIA by visiting the Thames Water website https://developers.thameswater.co.uk/Developing-a-large-site/Planning-your-development*	Item 4 is considered and presented in the draft Construction Management Plan. Item 5 is covered by the Piling methodology, set out in the Basement Impact Assessment.	

D2 Schedule of mitigation

D2.1 Embedded mitigation

ES reference	Commitment
ES Volume 1, Section 3.2	The Proposed Development would be constructed in accordance with the drawings submitted with the planning application.
ES Volume 1, Section 5.6	The Proposed Development would be fully electric for heat generation, with air source pumps provided on the roof.
ES Volume 1, Section 5.6	All car parking spaces would be fitted with rapid electric vehicle charging facilities.
ES Volume 1, Section 6.6	Fencing and hoarding shall be fit for purpose and provide adequate screening for buried archaeological remains as required
ES Volume 1, Section 6.6	Adequate security to prevent unauthorised entry to the site including areas of archaeological works shall be provided.
ES Volume 1, Section 8.6	The Proposed Development has prioritised overall carbon savings through use of passive and active design features included in the proposal.

D2.2 Good practice mitigation

ES reference	Commitment
ES Volume 1, Section 3.2	A Construction Management Plan would be prepared for the Proposed Development, building on the draft Construction Management Plan submitted with the planning application. This includes good practice measures such

ES reference	Commitment
	that the works themselves would be controlled to ensure that they do not have an adverse impact on the local environment. The CMP would be agreed with LBC and would align with the requirements of LBCs Code of Construction Practice.
ES Volume 1, Section 12.6	Noise from building services plant equipment would be controlled through design. The plant is being designed to meet the noise emission limits set by Camden Council.
ES Volume 1, Section 12.6	Discussions would be continued with the FCI with the aim of establishing appropriate thresholds for construction vibration and control measures.

D2.3 Additional mitigation

ES reference	Commitment
ES Volume 1, Section 6.8	An archaeological watching brief would be undertaken during relevant stages of construction, and in accordance with an agreed Written Scheme of Investigation (WSI) setting out the research aims and objectives and outlining plans for the public dissemination of the results, to be agreed with the GLAAS representative for the LBC.
ES Volume 1, Section 10.8	Further consultation will be undertaken with Airwave to agree the appropriate mitigation method for the Proposed Development with respect to the Emergency Services Network.

D3 Information for cumulative effects assessment

D3.1 Introduction

D3.1.1 This appendix sets out the information used for the assessment of cumulative effects of the Proposed Development. These effects are reported in the topic sections of Environmental Statement Volumes 1 and 2.

D3.2 Methodology for identifying developments

D3.2.1 Following a meeting held with Camden officers on 18 November 2020, the developments listed are within a 1km radius of the Site.

D3.2.2 The developments in the table below have been selected based on the criteria set out by Arup in their email, dated 14 October 2020, as follows:

- 500m from our red line boundary / application boundary (subsequently increased to 1km following a meeting with Camden Council)
- All EIA developments and other major developments, including NSIPs
- Planning status
    - submitted but not yet determined
    - permitted (within last 5 years) but not yet implemented
    - under construction.

D3.2.3 The list has been updated following the Scoping Opinion. The Opinion requested that the following criteria be considered:

- Original consents and variations under Section 73 of the Town and Country Planning Act
- Outline planning applications and the associated reserved matters applications.

Table 1: Developments considered in cumulative effects assessment

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
1a	2015/2704/P	Central Somers Town Covering Land At Polygon Road Open Space, Edith Neville Primary School 174 Ossulston Street And Purchese Street Open Space, London, NW1 1EE (Brill Place)	Demolition of existing buildings and the provision of approximately 2,190sq.m replacement school (Use Class D1); approximately 1,765sq.m of community facilities (Use Class D1); approximately 207sq.m of flexible Use Class A1/A2/A3/D1 floorspace and 136 residential units (Use Class C3) over 7 buildings ranging from 3 to 25 storeys in height comprising: Plot 1: Community uses at ground floor (Use Class D1) (approximately 1,554sq.m) Plot 1: Community uses at ground floor (Use Class D1) (approximately 1,554sq.m) to including demolition of existing buildings and the provision of approximately 2,190sq.m replacement school (Use Class D1); approximately 1,765sq.m of 2community facilities (Use Class D1); approximately 207sq.m of flexible Use Class A31/A2/A3/D1 floorspace and 136 residential units (Use Class C3) over 7 buildings ranging from 3 to 25 storeys in height comprising: Plot 1: Community uses at ground floor (Use Class D1) (approximately 1,554sq.m) to include a children's nursery and community play facility with 10no. residential units above; Plot 2: 35 residential units over flexible A1/A2/A3/D1 floorspace at ground level (approximately 137sq.m); Plot 3: Extension of Grade II listed terrace to provide 3no. dwellings; Plot 4: Replacement school (Use Class D1) ; Plot 5: 20no. residential units over a replacement community hall (Use Class D1) (approximately 211sq.m); Plot 6: 14no. residential units; and Plot 7: 54no. residential units over flexible A1/A2/A3/D1 floorspace at ground level (approximately 70sq.m). Provision of 11,765 sqm of public open space along with associated highways works and landscaping. Namely, to include amendments to architectural design, building footprint, internal layouts, quantum of residential units, structural column positions and the energy strategy, in relation to Plot 7, Central Somers Town.	Granted 14 October 2016
1b	2019/5882/P		Variation of conditions 2 (approved drawings), 3 (approved documents), 15 (quantum of housing, plot 7) and 80 (cycle parking, plot 7) of planning permission reference 2015/2704/P dated 14/10/2016 for Demolition of existing buildings and the provision of approximately 2,190sq.m replacement school (Use Class D1); approximately 1,765sq.m of community facilities (Use Class D1); approximately 207sq.m of flexible Use Class A1/A2/A3/D1 floorspace and 136 residential units (Use Class C3) over 7 buildings ranging from 3 to 25 storeys in height comprising: Plot 1: Community uses at ground floor (Use Class D1) (approximately 1,554sq.m) to including demolition of existing buildings and the provision of approximately 2,190sq.m replacement school (Use Class D1); approximately 1,765sq.m of	Granted 14 October 2016 Conditions are currently being discharged against this permission.

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
			2community facilities (Use Class D1); approximately 207sq.m of flexible Use Class A31/A2/A3/D1 floorspace and 136 residential units (Use Class C3) over 7 buildings ranging from 3 to 25 storeys in height comprising: Plot 1: Community uses at ground floor (Use Class D1) (approximately 1,554sq.m) to include a children's nursery and community play facility with 10no. residential units above; Plot 2: 35 residential units over flexible A1/A2/A3/D1 floorspace at ground level (approximately 137sq.m); Plot 3: Extension of Grade II listed terrace to provide 3no. dwellings; Plot 4: Replacement school (Use Class D1) ; Plot 5: 20no. residential units over a replacement community hall (Use Class D1) (approximately 211sq.m); Plot 6: 14no. residential units; and Plot 7: 54no. residential units over flexible A1/A2/A3/D1 floorspace at ground level (approximately 70sq.m). Provision of 11,765 sqm of public open space along with associated highways works and landscaping. Namely, to include amendments to architectural design, building footprint, internal layouts, quantum of residential units, structural column positions and the energy strategy, in relation to Plot 7, Central Somers Town.	
2	2020/4825/P	St Pancras Hospital 4 St Pancras Way London NW1 0PE	Partial redevelopment of the site, involving the demolition of seven existing buildings (Ash House, Bloomsbury Day Hospital, the Camley Centre, Jules Thorn Day Hospital, Kitchen and the Post Room & Former Mortuary) and construction of a part seven, part ten storey (plus roof plant) purpose-built eyecare, medical research and educational centre for Moorfields Eye Hospital, the UCL Institute of Ophthalmology and Moorfields Eye Charity. New building to comprise a mixture of clinical, research and education purposes, including eye care accident and emergency department, outpatients, operating theatres, research areas, education space, cafe and retail areas, admin space and plant space. Associated site relandscaping works including formation of patient drop off area to St Pancras way, new public realm and routes through the site, cycle parking and servicing ramp and cross over to Granary street.	Application registered November 2020
3a	2004/2307/P	Kings Cross Central - Main site Land between Euston Road, St Pancras Station, Midland Main Line, The New Channel Tunnel Rail Link, York Way and Kings Cross Station.	Outline application for a comprehensive, phased, mixed-use development of former railway lands within the King's Cross Opportunity Area, as set out in the Revised Development Specification. The development comprises business and employment uses within the B1 use class; residential uses (including student accommodation), serviced apartments and hotels; shopping, food and drink and financial and professional services within the A1, A2, A3, A4 and A5 use classes; the full range of community, health, education, cultural, assembly and leisure facilities, within the D1 and D2 use classes; night clubs; multi storey and other car parking; re-erection of the linked triplet of gas holder guide frames to enclose new residential and other	Granted 22 December 2006

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
			development, on the site of the Western Goods Shed; re-erection of the guide frame for gas holder no 8, alongside the re-erected triplet, to enclose new play facilities and open space; relocation of an existing district gas governor; works of alteration to other existing buildings and structures, to facilitate their refurbishment for specified uses; new streets and other means of access and circulation; landscaping including open space; new bridge crossings and other works along the Regent's Canal; the re-profiling of site levels; and other supporting infrastructure works and facilities (R1).	
3b	2020/5885/P	Plot S4 King's Cross Central York Way London, N1C 4AB	Reserved matters relating to Building S4 for the erection of a 13 storey building above ground floor to provide 176 residential homes comprising 120 market and 56 social rented units with associated public realm works, as required by conditions 9, 10, 12, 14, 16-22, 24, 27, 28, 31, 33-39, 42, 42A, 43, 45, 46, 48, 49, 50A, 51, 56, 60, 61, 64-67 67 of outline planning permission reference 2004/2307/P granted 22/12/06 (subject to S106 agreement) for a comprehensive, phased, mixed-use development of former railway lands within the King's Cross Opportunity Area.	Committee resolved to approve on 4 March 2021
3c	2017/3133/P	King's Cross Central Development Zone A N1C 4UR	Reserved matters in relation to Zone A for erection of 7-11 storey building for use as offices (Class B1) with ancillary staff facilities including a cafe, gym, pool, Multi Use Games Area, events centre and landscaped roof garden; retail at ground floor level (Class A1) and two levels of basement incorporating a loading bay, 4 x accessible parking spaces, mechanical plant; and works to public realm in Battle Bridge Place, King's Boulevard and Goods Way as required by conditions 6, 9,10,12, 14, 16-23, 26, 27, 28, 31, 33-38, 45, 46, 48, 49, 50A, 51, 56, 60, 64-67 of outline planning permission reference 2004/2307/P granted 22/12/06 subject to a S106 agreement for a comprehensive, phased, mixed-use development of former railway lands within the Kings Cross Opportunity Area.	Granted 16 August 2017 (not yet started)
3d	2016/3195/P	Plot T2-T4 King's Cross Central Canal Reach N1C 4BD	Reserved matters relating to Plots T2-T4 within Development Zone T for erection of two buildings, T2 (part 9, part 10 storeys) and T3 (part 10, part 12 storeys), for use as offices (Class B1) on upper floors, a primary health care centre in T2 (Class D1) at ground floor and flexible commercial/office/leisure units to ground and first floors (A1-A4/B1/D2) and a fuel cell to the south west corner of T2. Associated cycle and car parking, refuse store, storage and plant areas provided. Public realm works to the western side of Canal Reach. As required by conditions 9, 10, 14, 16-22, 27, 28, 31, 33- 36, 45, 46, 48, 49, 50A, 51, 56, 60 and 63-67 of outline planning permission reference 2004/2307/P granted 22/12/06 (subject to S106 agreement) for a comprehensive, phased, mixed-use development of former railway lands within the King's Cross Opportunity Area.	Granted 10 June 2016 (GLA website says not yet started)

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
3e	2016/4445/P	Midlands Goods Shed and Handyside Canopies, Wharf Road N1C 4UZ	Submission of Reserved Matters relating to Development Zone K (Grade II Listed Midland Goods Shed and Handyside Canopies) for alterations and refurbishment works to provide a total of 3,385sqm of retail floorspace (Class A1), 3,504sqm of office space (Class B1) and 334sqm of space for a cookery school (Class D1); with associated public realm works, plant, refuse and cycle storage, and staff facilities. Matters addressed by this submission entail associated details in compliance with condition nos. 16, 27, 33, 34, 35, 36 of the outline planning permission for a comprehensive, phased, mixed-use development of former railway lands within the Kings Cross Opportunity Area (Ref: 2004/2307/P granted subject to s106 agreement on 22 December 2006).	Granted on 18 August 2016 (completed)
3f	2016/1877/P	Kings Cross Central - Main Site Building R8 Development Zone R York Way N1C 4DA	Reserved matters relating to Building R8 for erection of a 9-12 Storey building (excluding basement and roof levels), comprising office (class B1) and 151 residential units (class c3) (82x Social Rented Affordable and 69x market), and retail units (Flexible A1-A5 Use Class) at ground floor level as required by conditions 9, 10, 12, 14, 16-22, 24, 27, 28, 31, 33-39, 42, 42A, 43, 45, 46, 48, 49, 50A, 51, 56, 60, 61, 64-67 67 of outline planning permission reference 2004/2307/P granted 22/12/06 (subject to S106 agreement) for a comprehensive, phased, mixed-use development of former railway lands within the King's Cross Opportunity Area.	Granted on 5 April 2016 (GLA website says not yet started)
3g	2015/4819/P	King's Cross Central Building R3 and Zone R Gardens Development Zone R York Way N1C 4AF	Reserved matters relating to Building R3 and the Zone R Gardens within Development Zone R for erection of a part 8, part 11 storey building with 2 retail units at ground floor level (flexible class A1-A5) and 61 residential units (class C3). Associated cycle and car parking, refuse store, storage and plant areas provided within a single storey (shared) basement. New hard and soft landscaping to include a new area of public realm to the east of the building in the form of the Zone R Gardens; landscaping along the western façade of R3 connecting the Cubitt Park access route to the building and providing a shared surface loading bay; tertiary North and South routes connecting buildings within Zone R as well as Cubitt Park to the Zone R Gardens; and associated cycle parking and seating facilities as required by conditions 9, 10, 12, 14, 16-22, 24, 27, 28, 31, 33- 39, 42, 42A, 43, 45, 46, 48, 49, 50A, 51, 56, 60, 64-67 of outline planning permission reference 2004/2307/P granted 22/12/06 (subject to S106 agreement) for a comprehensive, phased, mixed-use development of former railway lands within the King's Cross Opportunity Area.	Granted on 24 August 2015 (under construction)
3h	2018/2628/P	Building P2 King's Cross Central York Way N1C 4UZ	Reserved matters relating to Plot P2 within Development Zone P for the erection of a 12 storey building for office use (Class B1) with flexible retail (A1-A5) and theatre (Sui Generis) uses at ground floor, and public realm works to parts of Handyside	Granted 7 June 2016 (GLA

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
			Street, Wollstonecraft Street and between the proposed building and the Gasholder Triplets. As required by conditions 6, 9, 10, 14, 16-22, 27, 28, 31, 33- 36, 37, 38, 44, 46, 48, 49, 50A, 51, 56, 60 and 64-67 of outline planning permission reference 2004/2307/P granted 22/12/06 (subject to S106 agreement) for a comprehensive, phased, mixed-use development of former railway lands within the King's Cross Opportunity Area.	website says not yet started)
3i	2016/6197/P	Building R5 South (R6) King's Cross Central York Way N1C 4DF	Reserved matters in connection with Building R5 south (R6), including minor amendments to the original 2013 permission (2013/1573/P, dated 23/05/2013, as amended by 2015/2891/P, dated 03/08/2015) for a part 8 / part 16 storey block providing a total of 76 residential units on upper floors and a 379sqm unit for either retail/café/drinking establishment/take away uses (Class A1/A3/A4/A5), business and employment use (Class B1) and/or community use (Class D1) at ground floor level, 2 levels of basement to accommodate 38 car parking spaces, 3 car parking spaces at ground floor (for the Extra Care housing in R5 North), 90 cycle parking spaces, associated servicing and refuse areas together with new public realm linking Cubitt Park with East Street at Development Zone R5 South, King's Cross Central. Matters addressed by this submission entail associated details in compliance with condition nos. 19, 24, 27, 39, 42A, 43, 51 of the outline planning permission for a comprehensive, phased, mixed-use development of former railway lands within the Kings Cross Opportunity Area (2004/2307/P, granted subject to s106 agreement on 22 December 2006). The amendments relate to a reconfiguration of the layout of the fourteenth floor to accommodate 3x units (2x 2-bed and 1x 1-bed) instead of 2x units (1x 2-bed and 1x 3-bed) (76 units proposed overall), additional cycle parking at ground level	Granted on 10 November 2016 (completed)
3j	2018/4813/P	Building S5, King's Cross Central, York Way N1C 4BE	Reserved matters relating to Plot S5 within Development Zone S for the erection of a 15 storey residential building (Class C3) with flexible retail A1-A5, B1, D1 and D2 uses at ground floor level and associated public realm works, as required by conditions 9, 10, 14, 16-22, 24, 27, 28, 31, 33- 36, 37, 38, 39, 42. 42a, 43, 45, 46, 48, 49, 50A, 51, 55, 56, 60, 61, 63 and 64-67 of outline planning permission reference 2004/2307/P granted 22/12/06 (subject to S106 agreement) for a comprehensive, phased, mixed-use development of former railway lands within the King's Cross Opportunity Area.	Granted 11 October 2018 (GLA website says not yet started)
4a	2004/2311/P	Kings Cross Central - Triangle Site: Land Between York Way, The	A mixed use development of part of the former railway lands within the King's Cross Opportunity Area and Islington Area of Opportunity, comprising residential (use class C3), retail, food and drink and financial and professional services (within use	Granted on 23 March 2006

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
		Thameslink 2000 Rail Line and the East Coast Main Line	classes A1, A2, A3 and A4), a health and fitness centre (use class D2) to incorporate a medi-centre facilities with the potential to incorporate a crèche and community facilities (use class D1), other ancillary uses, the provision of communal open space and a habitat area, recycling facilities, car and cycle parking and highway works to allow access to the site and other supporting infrastructure works and facilities (R1).	
4b	P041261 (Islington)	Kings Cross Triangle Site, bounded by York Way, East Coast Main Line & Channel Tunnel Rail Link, London N1C 0AZ	Mixed use development of part of the former railway lands within the Camden Kings Cross Opportunity Area and an Islington Area of Opportunity. The development comprises residential; shopping, food and drink and professional services within the A1, A2 and A3 use classes; a health and fitness centre (use class D2) incorporating medi-centre facilities, a crèche and community facilities (use class D1); amenity and open space; habitat area; recycling and other ancillary uses; parking; highway works to provide access; and other supporting infrastructure works and facilities.	Allowed on appeal 22 July 2008
4c	P2016/1030/RMS (Islington)		Reserved matters relating to Buildings W1 and W2 comprising 12 to 17 storeys of mixed use accommodation for 140 Open Market residential units on the upper floors of Building W1 and 8 storeys of residential accommodation for 36 General Needs Social Rented, 23 Intermediate and 19 Open Market units at the upper levels of Building W2; four retail units at lower ground floor and podium levels (flexible class A1-A4); and associated cycle and disabled car parking, loading bay, refuse stores, storage, plant areas provided within the shared lower ground floor/basement area, as required by conditions 2, 4, 6, 9-20 and 22-30 of outline planning permission reference P041261 granted 22 July 2008 (subject to a S106 agreement) for a comprehensive, phased, mixed-use development of part of the former railway lands within the Camden King's Cross Opportunity Area and an Islington Area of Opportunity.	Granted 15 April 2016
4d	2016/1530/P		Reserved matters relating to Development Zone W for: - A shared part lower ground part basement area across Development Zone W. - Plot W1 for the erection of a 12 to 17 storey building to provide 140 residential units (Use Class C3) and commercial space to ground floor (Use Class A1-A5). - Plot W2 for the erection of an 8 storey building to provide 78 residential units (Use Class C3)(including 36 social rented and 23 intermediate) and commercial space to ground floor (Use Class A1-A5). - Basement area to include 363 cycle spaces, 48 car parking spaces, plant, refuse and ancillary uses. As required by conditions 2, 4, 6, 9-19, 20, 22-30 of outline planning permission granted at appeal subject to a S106 agreement (Appeal Ref: APP/X5210/A/07/2051898, Council Ref:2004/2311/P) for a comprehensive, phased,	Granted 6 June 2016 but online records do not show any conditions discharged against this permission.

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
			mixed-use development of the Triangle Site of former railway lands within the Kings Cross Opportunity Area.	
4e	P2018/3844/RMS (Islington)		Revised reserved matters relating to Buildings W1 and W2 comprising 12 to 17 storeys of mixed use accommodation comprising 218 residential units; four retail units at lower ground floor and podium levels (flexible class A1-A4); and associated cycle and disabled car parking, loading bay, refuse stores, storage, plant areas provided within the shared lower ground floor/basement area. The revision to the reserved matters granted approval under application ref: P2016/1030/RMS include: changes to internal layouts including revision to unit mix; an increase in total GEA of 190 m2; minor changes to building elevations; an increase in green roof area; a revised retail service strategy; and the removal of 6 no. car parking spaces.	Granted on 3 December 2018 (GLA website says not yet started)
4f	P2018/4062/RMS (Islington)		Revised reserved matters in relation to landscaping and public realm pursuant to outline planning permission granted on appeal for mixed use development of part of the former railway lands within the Camden Kings Cross Opportunity Area and an Islington Area of Opportunity approved under outline planning permission ref: P041261. The revised reserved matters relate to Zone W Landscaping and Public Realm and comprise revisions to the hard and soft landscaping approved under consent ref: P2016/3637/RMS and include the provision of an additional loading bay within the Northern Gateway.	Granted 5 March 2019
5	2020/3881/P	Belgrove House, Belgrove Street WC1H 8AA	Redevelopment of Belgrove House as a part 5 part 10 storey building plus 2 basement levels for use as office and research and laboratory floorspace; with cafe, flexible retail and office floorspace at ground floor; an auditorium at basement; incorporating step free entrance to Kings Cross Underground station in place of two entrance boxes along Euston Road; together with terraces at fourth and fifth floor levels, servicing, cycle storage and facilities, refuse storage and other ancillary and associated works. [Consultation note: this application is linked to redevelopment of Acorn House, 314-320 Euston Road (ref 2020/3880/P)]	Planning committee resolve to approve subject to a S106 legal agreement (25 February 2021) S106 signed and decision notice issued on 1 November 2021.
6a	2017/5497/P	1-6 St Pancras Way (Ugly Brown Building) NW1 0TB	Demolition of the existing building (Class B1 and B8) and erection of 6 new buildings ranging in height from 2 storeys to 12 storeys in height above ground and 2 basement levels comprising a mixed use business floorspace (B1), residential (C3), hotel (C1), gym (D2), flexible retail (A1 – A4) and storage space (B8) development with associated landscaping work.	Granted 19 July 2018 (under construction)

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
6b	2021/2671/P		Demolition of existing building, and redevelopment to provide a nine-storey building with two basement levels for flexible Class E and Sui Generis Use, a two-storey Pavilion for flexible Class E and Sui Generis Use, along with associated cycle parking, servicing, hard and soft landscaping, public realm, and other ancillary works, alongside amendments to Plot C within planning permission 2017/5497/P, namely increase of affordable housing provision.	Registered 2 June 2021
7a	2017/3518/P	Stephenson House 75 Hampstead Road NW1 2PL	Extensive internal and external refurbishment of Stephenson House to provide a ground plus 7 storey building containing 18,181sqm (GIA) of office (B1) floorspace, 904sqm (GIA) of flexible office/healthcare (B1/D1) floorspace, 857sqm (GIA) of retail (A1) floorspace, 118sqm (GIA) of cafe (A3) floorspace and 17 residential (C3) units (total 2130sqm GIA), comprising 11 market units (1x1 bed, 6x2 bed, 4x3 bed) and 6 affordable units (3 x2 bed and 3x3 bed). The works include the removal of existing colonnade to Hampstead Road elevation, creation of double height entrance on Hampstead Road, multiple storey extensions and infills to the building, creation of three terraces to the rear, three integral pocket gardens to the Hampstead Road elevation and balconies facing Hampstead Road to all residential units. Addition of PV panels to the roof, 249 commercial cycle parking spaces, 33 residential cycle parking spaces, 4 disabled car parking spaced and associated landscaping and works.	Granted subject to a S106 legal agreement (9 March 2018) Conditions are currently being discharged against this permission
7b	2018/0663/P		Variation of condition 2 (approved plans) of 2017/3518/P dated 08/03/2018 (for extensive refurbishment of building and extensions to create 16,709sqm office, 904sqm flexible office/healthcare, 857sqm retail, 118sqm café and 17 residential units (including 6 affordable) and associated works (summary)) namely to demolish 60% of the existing primary structure (as opposed to 30%) and to increase the overall height of the building by 450mm.	Granted 18 January 2018
8a	2018/5715/P	Eastman Dental Hospital Site and Buildings (including the former Royal Free Hospital the Eastman Dental Clinic and the Levy Wing) WC1X 8LD	Partial redevelopment of the site, including to the former Royal Free Hospital (Plot 1); Eastman Dental Clinic (Plot 2); Levy Wing (Plot 3); Frances Gardner House and the Riddell Memorial Fountain within the courtyard of the former Royal Free Hospital, to create approximately 23,861sqm of medical research, outpatient facility and academic (Use Class D1) floorspace. Former Royal Free Hospital: demolition of the New, Sussex and Victoria Wings (with retention of the Alexandra Wing); single storey extensions and reinstatement of southern pediment on Alexandra Wing; erection of five storey building (plus two storeys of plant and two storeys of basement) to the rear of the Alexandra Wing, including plant, terraces, flues, to provide a dementia and neurology research facility. Eastman Dental Clinic: alterations to the listed building including the part rebuilding of the northern façade	Granted subject to a Section 106 legal agreement (10 March 2020) NMA and MMA submitted on 23 October 2020 for changes to DoD and ground floor plans.

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
			and new entrance; replacement windows; new plant; works to the courtyard and associated external and internal alterations associated with its conversion to education use. Levy Wing: substantial demolition of the building and erection of a part 4, part 7 storey building (plus two storey basement, including plant and external amenity spaces), to provide education space. Frances Gardner House: installation of photovoltaic panels on the roof and landscaping works to the courtyard. Riddell Memorial Fountain: relocation of the listed fountain from the courtyard of the former Royal Free Hospital to the courtyard of the Eastman Dental Clinic. Associated landscaping arrangements including the creation of a new public square, other public spaces and routes, and pedestrian connections to Gray's Inn Road, St Andrew's Gardens, Cubitt Street and Langton Close. Associated transport and servicing arrangements including cycle parking, parking and a new servicing ram	
8b	2020/4919/P		Variation of Condition 2 (Approved Plans) granted under Planing Application reference 2019/2879/P dated 10/03/20 (for: Partial redevelopment of the site to create medical research, outpatient facility and academic floorspace); CHANGES include an extension to the Plot 1 basement and amended ground floor plan to include vent.	Application registered on 23 October 2020
8c	2020/5791/P		Variation of Condition 2 (Approved Plans) granted under Planing Application reference 2019/2879/P dated 10/03/20 (for: Partial redevelopment of the site to create medical research, outpatient facility and academic floorspace); CHANGES include rear and front extensions to the basement of Plot 1; significant extension of the Plot 3 basement at both level B1 and level B2 to provide two lecture theatres (net additional 852sqm GIA floorspace); additional plant and servicing equipment. This application is accompanied by an addendum to the original Environmental Statement.	Application registered on 14 December 2020
8d	2021/1809/P		Variation of Condition 2 (Approved Plans) granted under Planning Application reference 2019/2879/P dated 10/03/20 (for: Partial redevelopment of the site to create medical research, outpatient facility and academic floorspace); CHANGES include amendments to Plot 1 (former Royal Free Hospital Building) to amend the lecture theatre east facade; east facade updates (locations of doors); north west corner facade (change of detailing); facade level changes; firefighting lift; Alexandra Wing demolition and construction methodology. This application is accompanied by an addendum to the original Environmental Statement.	Application registered on 12 May 2021
9a	2015/3076/P	Regent's Park Estate, Robert Street NW1 3QJ	Two-phased mixed use development to provide 116 residential units (Class C3), community facility (Class D1) and retail and commercial space (Class A1/A3/A4)	Granted Subject to a Section 106

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
			across 8 plots including on green/open space in plots 2,3,4. Development would range from 3 to 11 storeys in height, with associated landscape and public realm works, reorganisation of car parking and associated infrastructure works, following demolition of Dick Collins Hall, Victory Public House, and the Cape of Good Hope Public House. All in association with High Speed 2 proposals.	Legal Agreement (9th December 2015) Conditions are currently being discharged against this permission.
9b	2016/1402/P		Variation of conditions 6,11,17,19,26,35 and 50 to alter the time at which the conditions need to be approved, of 2015/3076/P dated 09/12/2015, (Two-phased mixed use development to provide 116 residential units (Class C3), community facility (Class D1) and retail and commercial space (Class A1/A3/A4) across 8 plots including on green/open space in plots 2,3,4. All in association with High Speed 2 proposals.)	Granted 21 March 2016
9c	2016/4901		Variation of condition 43 (Provision of community centre) and removal of condition 37 (Servicing and Vehicle Management Plan) of planning permission 2015/3076/P dated 09/12/2015 (for two-phased mixed use development to provide 116 residential units (Class C3), community facility (Class D1) and retail and commercial space (Class A1/A3/A4) across 8 plots including on green/open space in plots 2,3,4), namely to allow for the demolition of the Victory Public House prior to the occupation of the new Community centre at the Robert Street Car Park block.	Granted 10 March 2017
9d	2019/3453/P		Variation of Conditions 2 (approved plans) and 54 (number of approved units) of planning permission 2015/3076/P dated 09/12/2015 (as amended by 2016/4901/P dated 10/03/2017 and 2020/0589/P dated 13/02/19) for mixed use development 3 to 11 storeys across 8 plots in relation to HS2 replacement housing, namely to amend unit number and tenure mix, for phase 1: change the tenure from 70 x Social Rent and 24 Intermediate (Total 94) to 88 Social Rent and 6 Intermediate (Total 94) and for phase 2: change the tenure from 7 x Social Rent, 5 x Intermediate and 10 x Private (Total 22) to 11 x Social Rent and 13 x Private (Total 24), all affordable units to be within the Victory Pub Site, with alterations to the external elevations of Dick Collins Hall and the Victory Pub sites in Phase 2.	Granted 12 November 2020
9e	2020/0589/P		Amendment to development description in relation to unit number and addition of condition to confirm unit number of planning permission 2015/3076/P dated 09/12/2015 (as amended by 2016/4901/P dated 10/03/2017) (for a two-phased mixed use development to provide residential units (Class C3), community facility (Class	Granted 13 February 2020

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
			D1) and retail and commercial space (Class A1/A3/A4) across 8 plots) in association with High Speed 2 proposals.)	
10	2019/4201/P	St Pancras Commercial Centre 63 Pratt Street London NW1 0BY	Demolition of existing buildings (Class B1c/B8); erection of 3x buildings ranging in height from 5 to 7 storeys above ground and a single basement level comprising a mixed use development of light industrial floorspace (Class B1c/B8), office floorspace (Class B1), 33x self-contained dwellings (Class C3), flexible retail floorspace (Class A1/A3); associated access and servicing, public realm, landscaping, vehicular and cycle parking, bin storage and other ancillary and associated works	Pending determination (Currently at Stage 1 statutory referral)
11	2018/2398/P	93-103 Drummond Street and 63 Cobourg Street NW1 2HJ	Redevelopment to create 112 student apartments (60 studio units, 9 twin units, 30 cluster units, 3 wheelchair cluster units, and 10 wheelchair studio units) comprising 123 bed spaces with a floor area of 2388sqm (GIA) within a 5-storey building with basement and a commercial unit of 192sqm (GIA) at basement and ground floor levels	Permission granted 18 April 2020
12a	2016/6069/P	1 Triton Square & St Anne's Church Laxton Place NW1 3DX	Erection of 3 storey extension at roof (6th floor) level of 1 Triton Square to provide additional office floorspace (Class B1) with relocated plant above, creation of roof terraces at 6th floor level, reconfiguration of ground floor including infill of Triton Square Mall including flexible retail (A1, A3 and A4), affordable workspace (B1) and reprovision of gym (D2); erection of part 6, part 9 storeys residential building to provide 22 flats (10 x 3-bed, 11 x 2-bed and 1 x 1-bed) (Class C3) following demolition of St Anne's Church (Class D1); hard and soft landscaping including garden at junction of Longford Street and Triton Square; reconfigured vehicle and pedestrian accesses; and other ancillary works.	Permission granted 2 November 2016
12b	2017/6573/P		Amendment to the wording of conditions 2, 4-9, 11-24 and 26 to allow for part discharge between the residential and commercial elements and to alter the triggers for submission to 'erection of 3 storey extension at roof (6th floor) level of 1 Triton Square to provide additional office floorspace (Class B1) including flexible retail (A1, A3 and A4), affordable workspace (B1) and reprovision of gym (D2); erection of part 6, part 9 storeys residential building to provide 22 flats following demolition of St Anne's Church (Class D1)' approved under planning permission 2016/6069/P dated 21/11/2017.	Granted 22 December 2017
13a	2014/4385/P	101 Camley Street NW1 0PF	Demolition of existing building and redevelopment for a mixed use building ranging from 6 -13 storeys comprising 2,220sqm employment floorspace (Class B1), 121 residential flats, the provision of a pedestrian footbridge with disabled access over	Permission granted 4 July 2014 (subject to legal agreement)

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
			the Regent's Canal, and associated landscaping and other works relating to the public realm.	Conditions are currently being discharged against this permission.
13b	2016/6311/P		Variation of Condition 2 (approved plans) of planning permission 2014/4385/P dated 18/03/2015 for (Demolition of existing building and new building ranging from 6 - 13 storeys comprising 2,220sqm employment floorspace (Class B1), 121 residential flats, pedestrian footbridge over the Regent's Canal and associated works) CHANGES include the relocation of affordable housing into southern block; changing the tenure of 4 x Shared Ownership units into Intermediate Rent; rationalisation of core arrangements and access points; internal works to basement including removal of car ramp and introduction of lifts; 11 additional cycle parking spaces; uplift of 908sq.m (GIA) of office (B1a) space and associated internal and external alterations.	Granted 19 December 2016
13c	2018/3682/P		Variation of Condition 2 (approved plans) of planning permission 2014/4385/P dated 18/03/2015 (as varied by 2016/6311/P dated 14/07/2017) for (Demolition of existing building and new building ranging from 6 -13 storeys comprising 2,220sqm employment floorspace (Class B1), 121 residential flats, pedestrian footbridge over the Regent's Canal and associated works) CHANGES INCLUDE external amendments to the approved development - Landscaping works, façade development (spandrels, doors, glazing, canopies, windows), terraces and balconies, edge protection and building services.	Granted 9 September 2018
14a	2014/4381/P	102 Camley Street NW1 0PF	Demolition of existing warehouse building (Class B8) and redevelopment for a mixed use building ranging from 8-12 storeys comprising 1,620sqm employment floorspace (Class B1), 154 residential flats, the provision of a public ramp access to the Regents Canal towpath, and associated landscaping and other works relating to the public realm.	Permission granted on 2 July 2014 subject to S106 legal agreement. S106 agreed and conditions are being discharged against this permission.
14b	2015/5185/P		Proposal: Amendments to the scheme including the reduction and relocation of servicing at basement and roof level, rearrangement of commercial floorspace at	Granted 16 December 2015

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
			mezzanine level (use class B1), relocation of the entrance of the affordable housing block to the western frontage, relocation of affordable units into northern block, relocation of the substation and parking and waste storage areas, alterations to the access points of the commercial units, amendments to landscape layout and introduction of residential amenity space at mezzanine level as approved under planning permission (2014/4381/P) dated 30/03/2015.	
15	P2016/0199/FUL (Islington)	4-8 Rodney Street N1 9JH	Redevelopment of the site to provide for a mixed use development comprising of 2,601 square metres (GEA) of Use Class B1 office floorspace (representing an uplift of 996 sq m on existing 1,605 sq m office floorspace) and 1,208 square metres (GEA) of Use Class D1 education floorspace, including the erection of a part 5/part 6-storey building fronting Rodney Street with associated outdoor learning terrace at 6-storey level, along with partial demolition of the building to the rear and ground floor extensions covering the plot of the site, part 2/part 3-storey extensions adjoining the retained building to the rear of the site with external terrace areas at 2nd storey, 3rd storey and roof level, along with associated access and servicing/parking arrangements along Rodney Street.	Granted 4 February 2016 (completed)
16	2013/3807/P	Land to west of Royal Mail Sorting office bounded by Phoenix Place, Mount Pleasant, Gough Street & Calthorpe Street, Camden W1CX 0DH	Comprehensive redevelopment, following the demolition of existing buildings, to construct four new buildings ranging from 5 to 15 storeys (above basement level) in height, to provide 38,724 sqm (GIA) of residential floorspace (345 dwellings) (Class C3), 823 sqm (GIA) of flexible retail and community floorspace (Use Classes A1, A2, A3, D1 or D2), with associated energy centre, waste and storage areas, basement level residential car parking (54 spaces), the re-provision of Royal Mail staff car parking (approx 196 spaces) cycle parking, residential cycle parking (431 residential spaces) hard and soft landscaping to provide public and private areas of open space, alterations to the public highway and all other necessary excavation and enabling works. The application is accompanied by an Environmental Statement. The proposed redevelopment is to be considered is the context of the redevelopment of the adjacent site, north of the Sorting Office building (within the London Borough of Islington) which has been submitted simultaneously under the Islington planning & conservation area consent application reference numbers: P2013/1423 & P2013/1435. That development involves: The demolition of existing buildings to construct 3 to 12 storey buildings, providing 38,015sqm (336 dwellings) residential floorspace (Class C3), 4,260sqm (GIA) office floorspace (Class B1), 1.428sqm flexible retail and community floorspace, (Classes A1, A2, A3, D1 or D2) with associated energy centre, waste and storage areas, car (65 spaces) and cycle (523 spaces) parking, hard and soft landscaping to provide public and private areas of	Granted 15 June 2018 (under construction)

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
			open space, alterations to the public highway and construction of a new vehicle ramp to basement level to service Royal Mail operations, an acoustic roof deck over the existing servicing yard and other necessary excavation and enabling works. This application is accompanied by an Environmental Statement.	
17	2016/4208/P	Greater London House Hampstead Road London NW1 7AW	The construction of 3 storey infill extensions at upper ground, 1st and 2nd floor levels within the open air atrium of the building to create an additional 3,897m² of office floorspace (B1a); the removal of the existing redundant bridge link structures; associated facilities at lower ground level; the addition of plant at roof level and cycle parking.	Granted on 28 July 2016 (GLA website indicates not yet started)
18a	2015/6955/P	Panther House, 38 Mount Pleasant, 156-164 Gray's Inn Road WC1X 0AN	Redevelopment of the site following partial demolition of Panther House and Brain Yard buildings, partial demolition of 160-164 Gray's Inn Road and demolition of 156 Gray's Inn Road. Proposals would result in part 4 storey, part 7 storey (plus plant and basement) buildings at Panther House and Brain Yard for predominantly employment (B1) uses (including 1450sq.m of subsidised workspaces) and a new 7 storey (plus plant and basement) building at 156-164 Gray's Inn Road behind the retained facade of 160-164 Gray's Inn Road to provide flexible retail/restaurant (A1/3) uses at ground and basement levels with 15 self-contained residential units (C3) (including 3 Intermediate Rent flats) at the upper levels. Associated landscaping, plant and public realm works.	Granted 18 December 2015 (GLA website indicates not yet started)
18b	2021/1056/P		Variation of Condition 2 (Approved Plans) of planning permission ref: 2015/6955/P dated 01/11/2017 (as amended by 2020/1368/P dated 14/04/2020) for: ('Redevelopment of the site to provide a 7 storey (plus plant and basement) buildings at Panther House and Brain Yard for predominantly employment uses (including subsidised workspaces) and a new 7 storey (plus plant and basement) building at 156-164 Gray's Inn Road to provide flexible retail/restaurant uses with 15 self-contained residential units (including 3 Intermediate Rent flats) at the upper levels (summary)). THE CHANGES include: namely relocation of the main office entrance and reception, internal and external alterations and extensions to Panther House and the building fronting Gray's Inn Road, consolidation of the plant room at 4th floor of Brain Yard building to roof level of Panther House, removal of 'Lower Ground Floor 2' basement floorspace and replacement of glazed curtain walling at 2nd to 4th floor at Brain Yard building.	Application registered 25 March 2021
19	P2013/1423/FUL	Land North West of the Royal Mail Sorting Office, Farringdon Road,	Comprehensive redevelopment of the site following the demolition of existing buildings & structures to construct six new buildings ranging from 3 to 12 storeys in height to provide 38,015sqm (GIA) of residential floorspace (336 dwellings) (Class	Granted 2 March 2018 (under construction)

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
		EC1A 1BB	C3), 4,260sqm (GIA) of office loorspace (Class B1), 1.428sqm (GIA) of flexible retail & community floorspace, (Classes A1, A2, A3, D1 and D2) with associated energy centre, waste and storage areas, vehicle (65 spaces) & cycle parking (523 spaces), hard & soft landscaping to provide public (approx 5,124sqm) & private areas open space, alterations to the public highway & construction of a new dedicated vehicle ramp to basement level to service Royal Mail operations, construction of an acoustic roof deck over the existing service yard (encloses 14,150sqm at basement & ground floor levels) & all other necessary excavation & enabling works. The Camden & Islington applications are accompanied by an Environmental Statement.The proposed redevelopment will be considered in the context of the proposals on the adjacent site, located on the west side of Phoenix Place (within London Borough of Camden). The Camden planning reference no. is: [2013/3807/P] & involves: Comprehensive redevelopment, following the demolition of existing buildings, to construct four new buildings ranging from 5 to 15 storeys (above basement level) in height, to provide 38,724sqm (GIA) of residential floorspace (345 dwellings) (Class C3), 823sqm (GIA) of flexible retail & community floorspace (Use Classes A1, A2, A3, D1 or D2), with associated energy centre, waste & storage areas, basement level residential car parking (54 spaces), the re-provision of Royal Mail staff car parking (approx 196 spaces) cycle parking, residential cycle parking (431 residential spaces) hard & soft landscaping to provide public & private areas of open space, alterations to the public highway & all other necessary excavation & enabling works.	
20a	2017/0414/P	44 Cleveland Street W1T 4JT	Refurbishment of and alterations to the existing former Workhouse Building (Grade II listed) and North and South Houses (fronting onto Cleveland Street) to provide 12x residential units (Class C3); demolition of part of South House and buildings at rear of Workhouse Building and redevelopment to provide a part 4, part 5, part 8 storey building comprising 4,535sqm of commercial floor space (flexible use of Class B1 / D1 healthcare) and 38x residential units (Class C3); and associated works including opening up of Bedford Passage, creation of public open space, landscaping works, and partial demolition of front boundary wall	Granted on 25 January 2017 (under construction)
20b	2018/1584/P		Variation of condition 2 (approved drawings) and removal of condition 3 (demolition contract) of planning permission ref 2017/0414/P (dated 15th Jan 2018) for refurbishment of the Workhouse and North/South Houses and redevelopment of the remainder of the site, to provide a mixed-use development comprising 50 residential units and commercial space; namely to increase extent of basement to incorporate MRI scanners with 3 no. external quench pipes, internal modifications to affordable	Granted 30 September 2019

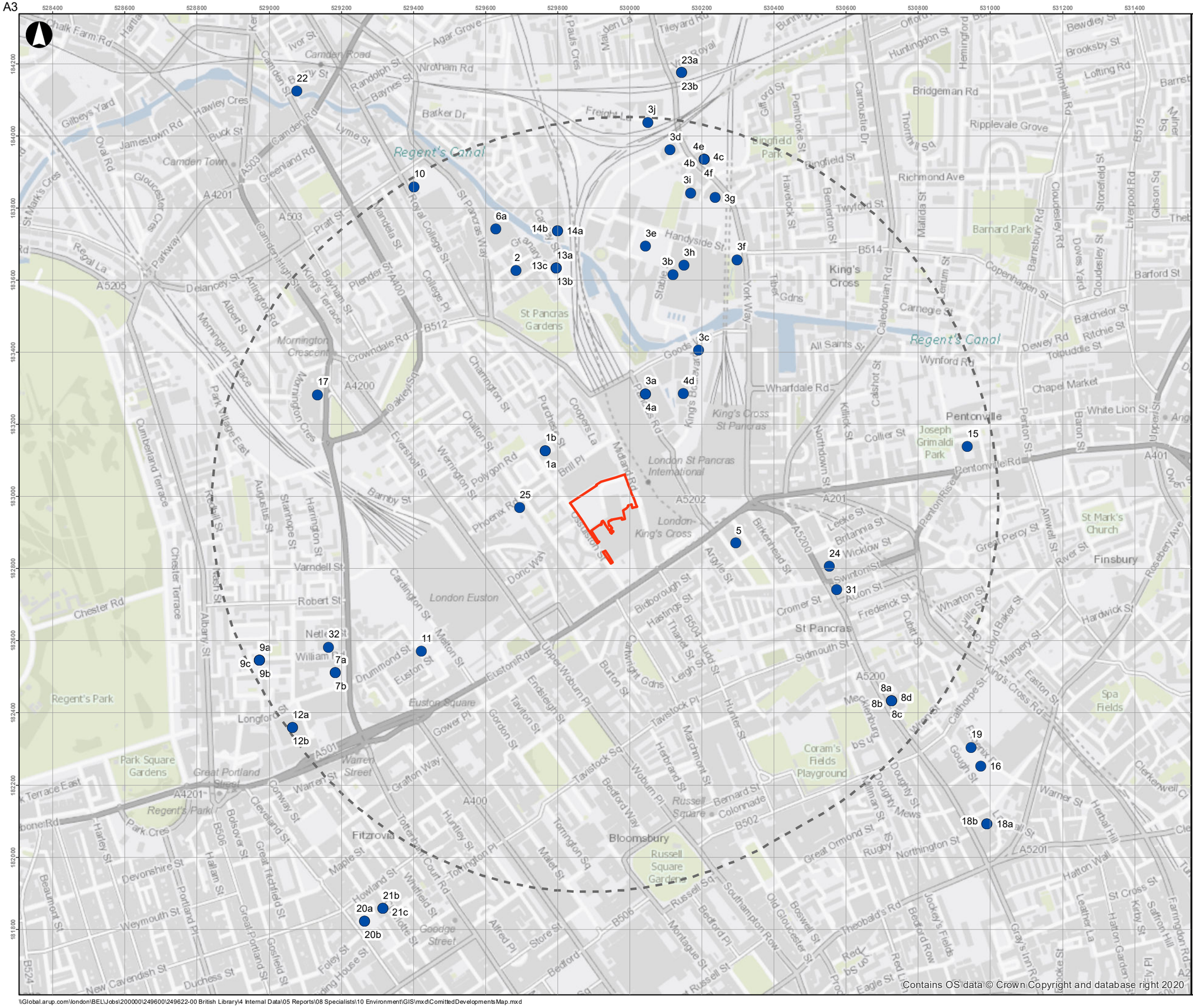
(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
			housing layouts, change of mix of market tenure housing to create 3 no. additional units, alterations to South House to incorporate community room and North House to increase floorspace and provide basement level courtyards, alterations to rooftop plant area, fenestration of new build, cycle parking, access and landscaping.	
21a	2015/1139/P	Astor College 99 Charlotte Street London W1T 4QB	Refurbishment of existing student accommodation (Sui Generis) comprising 2 storey upper ground floor front extension, 8 storey rear extension and front central bay extended forward (from 1st to 6th floor) to provide 60 additional bedrooms, elevational alterations including overcladding, relocation of main access, provision of ground floor cafe (Class A3) and pedestrianisation of Bedford Passage.	Granted on 3 March 2015 (under construction)
21b	2016/4842/P		Variation of condition 10 (SUDS) of planning permission 2015/1139/P dated 27/08/15 (for refurbishment of existing student accommodation comprising 2 storey upper ground floor front extension, 8 storey rear extension and front central bay extended forward to provide 60 additional bedrooms, provision of ground floor cafe and pedestrianisation of Bedford Passage), namely to change the trigger for condition 10.	Granted 20 September 2016
21c	2016/6984/P		Variation to Condition 14 (piling method statement) of planning permission 2015/1139/P dated 27/08/15 (for refurbishment of existing student accommodation comprising 2 storey front extension, 8 storey rear extension and front central bay extended forward to provide 60 additional bedrooms), namely to alter the trigger to allow partial discharge.	Granted 23 December 2016
21d	2017/3751/P		Variation of condition 3 (approved drawings) of planning permission 2015/1139/P dated 27/08/15 (for extensions to student accommodation to provide 60 additional bedroom and associated alterations), namely to allow redesigned main entrance including alterations to layout, longer access ramp and extended canopy; alterations to window design; alterations to lower ground plinth (ceramic cladding replaced by brick with addition of ventilation louvres); alterations to gym entrance; alterations to Bedford Passage elevation (removal of windows / doors); fixed guarding at roof level; alterations to metal fins to rear elevation; and changes to pattern of bricks.	Granted 22 January 2018
22	2014/7908/P	140-146 Camden Street London NW1 9PF	Demolition of existing buildings, excavation of extension to existing single storey basement and erection of 1 - 8 storey building comprising 2,026sqm of commercial floorspace (flexible B1 use class) and 52 residential units (4 x studio, 19 x 1-bed, 18 x 2-bed and 11 x 3-bed C3 use class) with associated landscaping.	Granted on 23 December 2014
23a	P2016/1999/FUL (Islington)	Fitzpatrick Building, 188-194 York Way London N7 9AS	Demolition of the existing office building and redevelopment to provide a part 7/part 8/part 9 storey building to provide office (use class B1a) and flexible (Use class B1) floorspace, including basement, ancillary ground floor cafe, cycle parking,	Granted 21 November 2017

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
			plant/storage, landscaping and all other necessary works associated with the development.	(under construction)
23b	P2017/2937/S73		Minor material amendment under Section 73 of the Town and Country Planning Act (1990) to vary Condition 2 (Plan Numbers) of planning permission ref. P2016/1999/FUL dated 30 June 2017 to amend the approved plans to indicate reduced basement extents and revised ground, first and eighth floor layouts.	Granted 22 March 2018
24	2020/5593/P	Royal National Throat, Nose And Ear Hospital Site 330 Grays Inn Road (and fronting Swinton Street and Wicklow Street) London WC1X 8DA	Redevelopment of the former Royal National Throat, Nose and Ear Hospital site, comprising: Retention of 330 Gray's Inn Road and a two storey extension above for use as hotel (5 above ground storeys in total), demolition of all other buildings, the erection of a part 13 part 9 storey building plus upper and lower ground floors (maximum height of 15 storeys) for use as a hotel (including a cafe and restaurant); covered courtyard; external terraces; erection of a 7 storey building plus upper and lower ground floors (maximum height of 9 storeys) for use as office (for consultation purposes only: 13,275sqm office space) together with terraces; erection of a 10 storey building plus upper and lower ground floors (maximum height of 12 storeys) for use as residential (44 units and 748sqm affordable workspace, for consultation purposes only) on Wicklow Street and office space at lower ground and basement floors; erection of a 5 storey building plus upper and lower ground floors (maximum height of 7 storeys) for use as residential (32 units, for consultation purposes only) on Swinton Street and associated residential amenity space; together with a gymnasium; new basement; rooftop and basement plant; servicing; cycle storage and facilities; refuse storage; landscaping and other ancillary and associated works (for consultation purposes only the development includes 9,427sqm of hotel floorspace (182 rooms)).	Application submitted on 2 December 2020
25	2015/6383/P	42 Phoenix Road London NW1 1TA	Redevelopment of the site involving demolition of the existing building and erection of a new six storey building with basement comprising community use (Class D1) at ground and basement level and student accommodation (7 x 6 bedroom units, 1 x 4-bedroom unit, 7 studio units and 53 bedrooms) on the upper floors; part widening of Clarendon Grove alleyway and the provision of 30 cycle spaces at basement level.	Granted at appeal 13th September 2017
26	2020/3583/P	247 Tottenham Court Road, London, W1T 7HH; 3 Bayley Street, London, WC1B 3HA; 1 Morwell Street, London, WC1B 3AR; 2-3 Morwell Street,	Demolition of 247 Tottenham Court Road, 3 Bayley Street, 1 Morwell Street, 2-3 Morwell Street and 4 Morwell Street and the erection of a mixed use office led development comprising ground plus five storey building for office (Class B1) use, flexible uses at ground and basement (Class A1/A2/A3/B1/D1/D2), residential (Class C3) use, basement excavation, provision of roof terraces, roof level plant equipment and enclosures, cycle parking, public realm and other associated works.	Granted subject to a Section 106 Legal Agreement on 28 January 2021

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
		London, WC1B 3AR; and 4 Morwell Street, London, W1T 7QT.		
27	2020/0728/P	70-86 Royal College Street London NW1 0TH	Demolition of existing buildings (Class B2); erection of 5 storey building (plus rooftop pavilions/plant and basement) to provide a mixed Class C2/D1 healthcare facility (Sui Generis).	Granted Subject to a Section 106 Legal Agreement on 3 February 2021
28	2018/2316/P	Land fronting Stephenson Way (to the rear of 222 Euston Road adjacent to 210 Euston Road) London NW1 2DA	Erection of a 7-storey building plus basement for student accommodation use with 78 rooms of accommodation on the upper floors including shared amenity space at ground and sixth floor level and terrace at 6th floor level fronting Stephenson Way (Sui Generis). Retention of the vehicular easement from Stephenson Way to the rear of 222 Euston Road.	Granted Subject to a Section 106 Legal Agreement on 20 October 2020
29a	2020/5624/P	Network Building (95-100 Tottenham Court Road) 76-80 Whitfield Street and 88 Whitfield Street London W1T 4TP	Outline application for demolition of office building (95-100 TCR & 76-80 Whitfield St) and 7 flats (88 Whitfield Street) and construction of a new building to provide for a maximum of 17746 sqm (GIA) of 'commercial business and service' floorspace (use Class E) along with details of access, scale and landscaping and other works incidental to the application. Details of layout and appearance are reserved. CONSULTATION NOTE: Application is linked to redevelopment of 14-19 Tottenham Mews (ref 2020/5633/P) and Reserved Matters details for office building (ref 2020/5631/P) and Reserved Matters details for lab-enabled building (ref 2020/5638/P).	Application registered 7 December 2020
29b	2020/5638/P		Reserved Matters details of layout and appearance for a building with lab-enabled use comprising one basement level, ground floor and seven upper floors, and details required by conditions 4 (Basement Impact Assessment), 5 (Energy details), 6 (Design and access statement), 7 (Cycle facilities) and 37 (Waste & recycling), associated servicing and all necessary enabling works, associated with planning application reference 2020/5624/P [for the demolition of office building (95-100 TCR & 76-80 Whitfield St) and 7 flats (88 Whitfield Street) and construction of a new building to provide for a maximum of 17746 sqm (GIA) of 'commercial business and service' floorspace (use Class E) along with details of access, scale and landscaping and other works incidental to the application']. CONSULTATION NOTE : Application is linked to an application for outline planning permission (ref 2020/5624/P) which is currently under assessment.	Application registered 7 December 2020

(ID for purpose of map)	LPA Reference	Site/ Address	Description of Development	Status
29c	2020/5631/P		Reserved Matters details of layout and appearance for an office building comprising one basement level, ground floor and eight upper floors, and details required by conditions 4 (Basement Impact Assessment), 5 (Energy details), 6 (Design and access statement), 7 (Cycle facilities) and 37 (Waste & recycling), associated servicing and all necessary enabling works, associated with planning application reference 2020/5624/P [for the demolition of office building (95-100 TCR & 76-80 Whitfield St) and 7 flats (88 Whitfield Street) and construction of a new building to provide for a maximum of 17746 sqm (GIA) of 'commercial business and service' floorspace (use Class E) along with details of access, scale and landscaping and other works incidental to the application']. CONSULTATION NOTE : Application is linked to an application for outline planning permission (ref 2020/5624/P) which is currently under assessment.	Application registered 7 December 2020
30	2019/3138/P	115-119 Camden High Street London NW1 7JS	Demolition of existing two storey building and erection of a part-four, part-five storey building (plus enlargement of existing basement and plant room at roof level) comprising retail (Class A1) at ground floor level fronting Camden High Street, 80-bed hotel (Class C1) and 3 x 2-bed residential units (social rented) (Class C3) fronting Delancey Street.	Granted Subject to a Section 106 Legal Agreement 29 December 2020
31	2020/3880/P	314-320 Acorn House Gray's Inn Road London WC1X 8DP	Redevelopment of Acorn House as a part 6, part 10 storey mixed-use building with 33 affordable homes (with external playspace at level 6, a community room and terrace at level 9), affordable office space and retail unit at ground and basement level; together with cycle parking facilities and associated ancillary uses.	Approved at committee on 25 February 2021
32	2020/5473/P	17-37 William Road London NW1 3ER	Demolition (of No. 35-37) and redevelopment to provide a 15 storey (plus basement) building for use as student accommodation with affordable workspace (No. 17-33 Ground floor) and associated works.	Refused on 1 October 2021. Appeal lodged on 11 November 2021. Appeal decision pending.
33	N/A	HS2 at Euston	https://consultations.wearecamden.org/corporate-services/euston/user_uploads/200131_draft-euston-planning-brief-2020-website.pdf	Not yet submitted.

A3



Rev	Date	By	Chkd	Appd
P02	01/2022	DE	JW	

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Client
The British Library and SMBL Developments

Project Title
The British Library Extension

Drawing Title
Comitted developments considered in the Cumulative Effects assessment

Scale at A3
1:10,000

Role
Final

Suitability
FOR INFORMATION

Arup Job No	Rev
249622-00	**P02**

Name
Appendix D

D4 Assessment methodologies

D4.1 Air quality

Introduction

D4.1.1 This appendix sets out the methodology for assessing the likely significant effects on air quality that would arise from the construction and operation of the Proposed Development. The methodology for assessing cumulative air quality effects is also described.

D4.1.2 The air quality assessment comprises impacts associated with the construction and operation of the Proposed Development. For construction dust, it is anticipated the work associated with the Proposed Development would be high-risk based on the IAQM's Guidance on the Assessment from Demolition and Construction[2] and Greater London Authority (GLA) guidance[3]. As such, mitigation measures for high risk sites have been recommended and applied through a construction management plan (CMP) which is being submitted with the application. Significant effects would therefore not occur and an assessment of construction dust has been scoped out.

D4.1.3 The methodology for undertaking an Air Quality Neutral (AQN) Assessment in accordance with the Greater London Authority's (GLA) Sustainable Design and Construction Supplementary Planning Guidance (SPG)[4] is included in this appendix (paragraph 83D4.1.46).

Baseline conditions

D4.1.4 A desk-based review of the following data sources has been undertaken to determine baseline conditions of air quality:

- the Environment Agency (EA) website[5]
- the Defra Local Air Quality Management website[6]
- the UK Air Information Resource website[7]
- London Atmospheric Emissions Inventory[8]

[2] IAQM (2016). Guidance on the Assessment of Dust from Demolition and Construction (Version 1.1)
[3] Greater London Authority (2014). The Control of Dust and Emissions during Construction and Demolition, Supplementary Planning Guidance
[4] GLA (2014). Sustainable Design and Construction Supplementary Planning Guidance
[5] Environment Agency; Defra data services platform. Available online at: https://environment.data.gov.uk/public-register/view/search-industrial-installations
[6] Defra. Air Quality Management Areas. Available online at: https://laqm.defra.gov.uk/
[7] Defra. UK Air Information Resource. Available online at: https://uk-air.defra.gov.uk/interactive-map
[8] London Atmospheric Emissions Inventory (LAEI) (2016). Available online at: https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory--laei--2016

- Local authority review and assessment reports and local air quality monitoring data[9,10].

Assessment methodology

Sensitive receptors

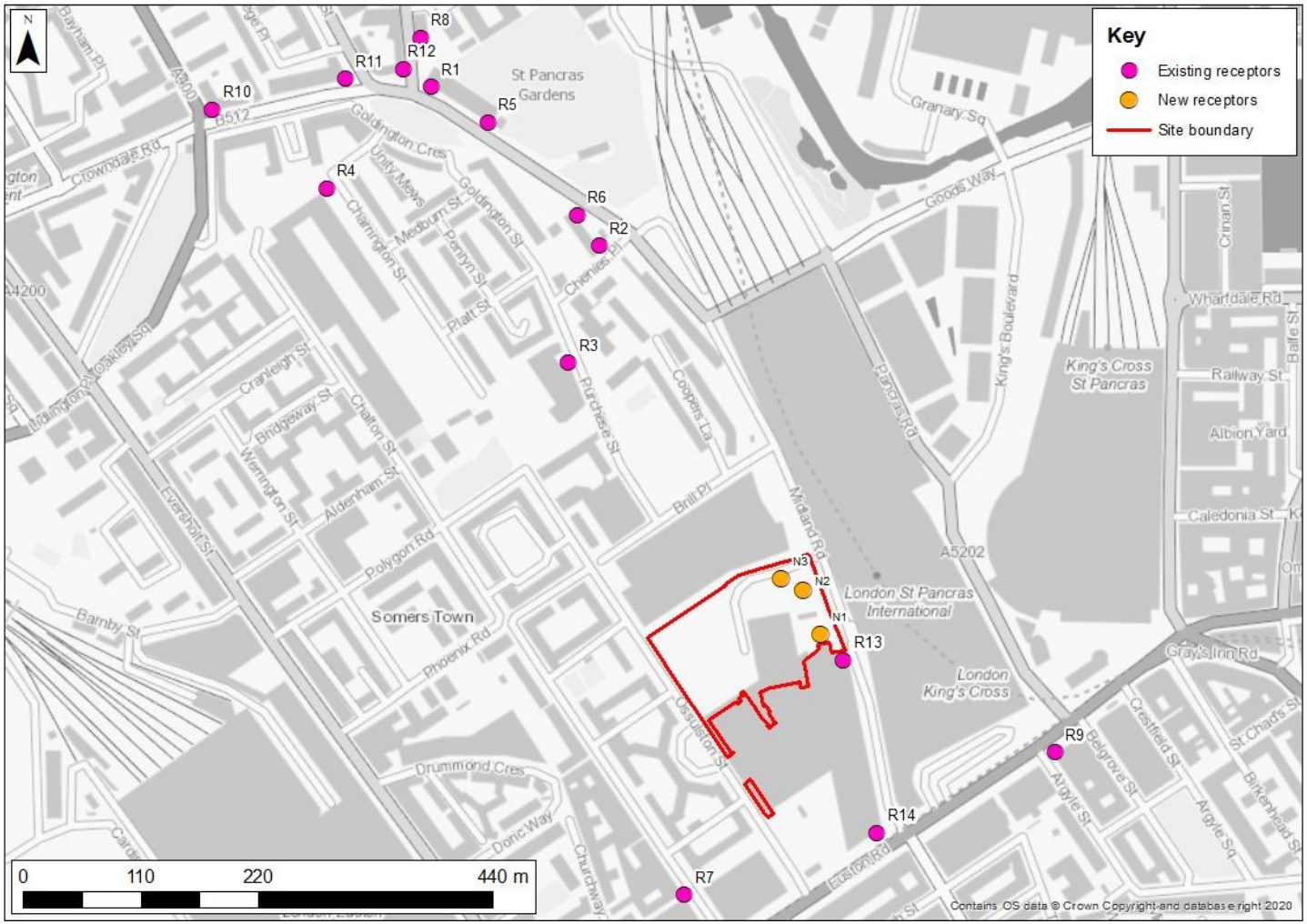
D4.1.5 Sensitive receptors are defined as those residential properties, schools, hospitals, businesses or areas where people may spend time that are likely to experience a change in pollutant concentrations. The receptors used in the construction traffic and operational assessments is provided in Table 2 and presented in Figure 1

Table 2: Details of the receptors assessed for the construction traffic assessment

Receptor ID	Description	OS grid reference (m)		Modelled height (m)
		X	Y	
R1	Residential property on Pancras Road	529630.4	183496.5	1.5
R2	Residential property on Pancras Road	529789.0	183348.8	1.5
R3	Edith Neville Primary School	529760.3	183239.2	1.5
R4	Regent High School	529533.9	183402.8	1.5
R5	Residential property on Pancras Road	529685.0	183464.6	1.5
R6	Residential property on St Pancras Way	529768.8	183377.9	1.5
R7	Blossom Lower School	529869.1	182740.2	1.5
R8	St Pancras Hospital	529621.6	183544.2	1.5
R9	First floor residential property on Euston Road	530216.5	182874.0	4.5
R10	Residential property on Crowndale Road	529426.8	183476.5	1.5
R11	First floor residential property on Crowndale Road	529551.0	183505.3	4.5
R12	Residential receptor on Royal College Street	529605.4	183514.7	1.5
R13	Receptor at British Library	530017.5	182960.6	1.5
R14	Receptor at British Library	530048.8	182798.5	1.5
N1	New receptor at British Library	529996.8	182985.5	1.5
N2	New receptor at British Library	529980.9	183026.3	1.5
N3	New receptor at British Library	529960.4	183037.6	1.5

[9] London Borough of Camden (2020). London Borough of Camden Air Quality Annual Status Report for 2019
[10] London Borough of Islington (2020). Islington Air Quality Annual Status Report 2019

Figure 1: Receptors assessed in the assessment



Construction effects

Construction traffic

D4.1.6 The construction traffic data consists of daily traffic flows for Heavy Duty Vehicles (HDVs) and Light Duty Vehicles (LDV). The maximum increase for daily traffic flows in HDV is 55 and 10 for LDV (peak monthly figures during the construction period). The traffic data have been screened against the EPUK/ IAQM criteria[11], indicating that a detailed assessment is required. The scenarios for assessing the construction effects are as follows:

- 2019 baseline and verification
- do-minimum (DM – con) (2025 future baseline)
- do-something (DS – con) (2025 future baseline traffic plus construction traffic).

D4.1.7 2019 represents the baseline of the assessment year which has been used to undertake the model verification exercise, due to it being the latest year with full monitoring data at the point of undertaking the assessment. 2025 represents the anticipated peak construction year for the Proposed Development. In addition, the traffic data for 2025 future baseline is the same as 2019 baseline assessment scenarios as there is expected to be limited traffic growth in the vicinity of the Site (further explanation is given in paragraph D4.1.8).

Traffic data

D4.1.8 Traffic data was obtained from the 2016 London Atmospheric Emissions Inventory (LAEI)[12]. Data for the roads which would be affected by the construction of the Proposed Development, as well as the roads adjacent to the air quality monitoring site that were used for model verification, have been collected. Traffic data from the LAEI are applicable for 2019 and 2025 due to the expected limited traffic growth in the vicinity of the Site. This has been confirmed by the transport consultant. Vehicle speeds were also obtained from the LAEI, which takes into account reduced speeds at junctions.

D4.1.9 It has been assumed 50% of construction traffic would use St Pancras Way and Crowndale Road respectively for travelling into the Proposed Development via Midland Road. When the construction traffic leaves the Proposed Development, vehicles would exit the Site on Midland Road and 50% would turn left and 50% right at Euston

[11] EPUK/IAQM (2017). Land-Use Planning & Development Control: Planning for Air Quality (Version 1.2)
[12] GLA (2016). London Atmospheric Emissions Inventory. Available online at: https://data.london.gov.uk/dataset/london-atmospheric-emissions-inventory--laei--2016

Road. This assumption is deemed to be accepted and confirmed by the project transport consultant.

D4.1.10 Table 3 details the baseline and construction traffic data used in the assessment and the modelled road network is shown in Figure 2.

D4.1.11 Emission rates have been calculated using the Defra Emissions Factor Toolkit (EFT) V10.1[13], with all roads categorised as the 'London - central' type.

D4.1.12 2019 vehicle emission factors have been used in the baseline and verification, 2025 DM – con and DS – con scenarios. This approach is considered to be conservative, because no improvement in vehicle emission has been applied and therefore the uncertainty for the future year vehicle emissions can be accounted for. It is expected that improvements would occur with continued uptake of new 'cleaner' vehicles and electric or zero emission vehicles.

[13] Defra. Emissions Factors Toolkit (EFT) V10.1. Available online at: https://laqm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html

Table 3: Traffic data used in the assessment for baseline and construction phase

Road name	Road ID	2019 Baseline / 2025 DM – con		2025 DS – con		Speed (kph)
		Total AADT	%HGV	Total AADT	%HGV	
Tavistock Square	AQ1	12201.0	17.3	12201.0	17.3	17.4
Euston Road	AQ2	20041.7	10.6	20074.2	10.8	22.2
Euston Road	AQ3	19976.9	10.3	19976.9	10.3	11.4
Grafton Place	AQ4	6097.1	31.0	6097.1	31.0	10.8
Euston Road	AQ5	46317.5	6.7	46350.0	6.8	11.7
Judd Street	AQ6	11144.2	5.7	11144.2	5.7	29.9
Euston Road	AQ7	23945.4	9.8	23945.4	9.8	15.3
Euston Road	AQ8	22107.2	24.9	22107.2	24.9	16.5
Pancras Road	AQ9	6887.4	12.5	6887.4	12.5	10.6
Euston Square	AQ10	8532.3	17.0	8532.3	17.0	9.4
Eversholt Street	AQ11	8318.4	14.9	8318.4	14.9	17.6
Judd Street	AQ13	11144.2	5.7	11144.2	5.7	22.3
Judd Street	AQ14	11144.2	5.7	11144.2	5.7	25.4
Euston Road	AQ15	20024.6	10.6	20024.6	10.6	10.9
Eversholt Street	AQ16	8318.4	14.9	8318.4	14.9	10.9
Eversholt Street	AQ17	8318.4	14.9	8318.4	14.9	10.7
Upper Woburn Place	AQ18	12201.0	17.3	12201.0	17.3	9.6
Euston Road	AQ19	22651.9	4.6	22651.9	4.6	20.8
Euston Road	AQ20	23665.6	8.7	23698.1	8.8	8.3
Upper Woburn Place	AQ21	12201.0	17.3	12201.0	17.3	9.3
Pancras Road	AQ22	6887.4	12.5	6887.4	12.5	10.1
Royal College Street	AQ23	6887.4	12.5	6952.4	13.2	27.9
Euston Road	AQ24	22107.2	24.9	22107.2	24.9	13.2
Pancras Road	AQ25	12229.8	3.4	12229.8	3.4	36.5
Royal College Street	AQ26	6887.4	12.5	6919.9	12.8	29.5
Eversholt Street	AQ27	8318.4	14.9	8318.4	14.9	17.2

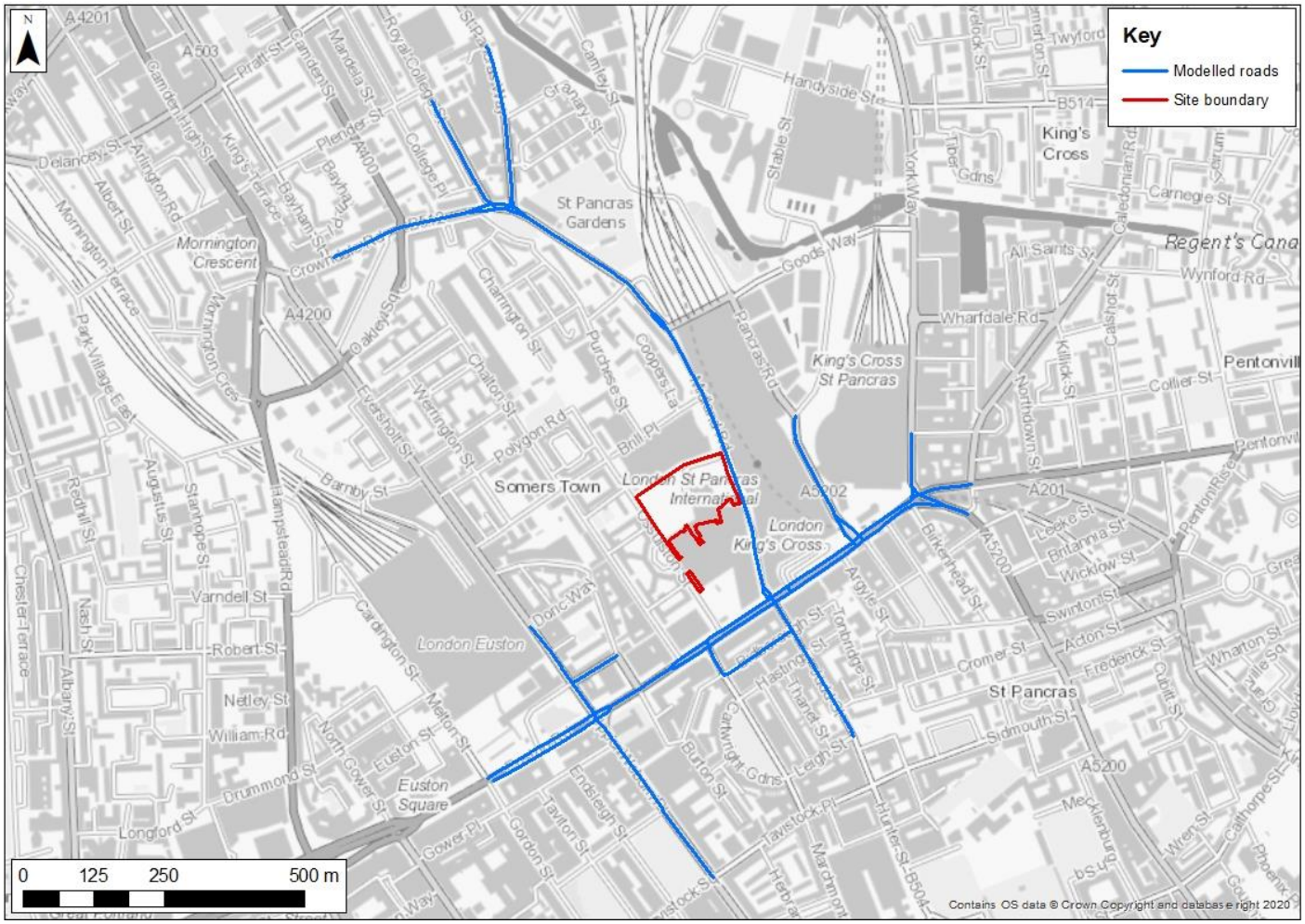
Road name	Road ID	2019 Baseline / 2025 DM – con		2025 DS – con		Speed (kph)
		Total AADT	%HGV	Total AADT	%HGV	
Euston Road	AQ28	23665.6	8.7	23698.1	8.8	7.1
Eversholt Street	AQ29	8532.3	17.0	8532.3	17.0	19.2
Euston Road	AQ30	24198.3	10.7	24198.3	10.7	22.7
Pancras Road	AQ31	11670.2	8.6	11735.2	9.0	22.7
Pancras Road	AQ32	5835.1	8.6	5867.6	9.0	13.8
Upper Woburn Place	AQ33	8532.3	17.0	8532.3	17.0	12.1
Pancras Road	AQ34	5835.1	8.6	5867.6	9.0	13.8
Euston Road	AQ35	23945.4	9.8	23945.4	9.8	20.9
Euston Road	AQ36	24496.3	11.8	24528.8	11.9	19.3
Bidborough Street	AQ37	1270.0	6.1	1270.0	6.1	13.1
Euston Road	AQ38	24496.3	11.8	24528.8	11.9	10.7
Euston Road	AQ39	23917.7	9.7	23917.7	9.7	17.7
Euston Road	AQ40	23931.6	9.7	23931.6	9.7	14.4
Euston Road	AQ41	20024.6	10.6	20024.6	10.6	15.4
Euston Road	AQ42	47863.1	9.7	47895.6	9.8	15.5
Euston Road	AQ43	23931.6	9.7	23964.1	9.8	14.4
Euston Road	AQ44	23931.6	9.7	23931.6	9.7	18.9
Euston Road	AQ45	23917.7	9.7	23917.7	9.7	18.3
Euston Road	AQ46	23931.6	9.7	23964.1	9.8	17.5
Midland Road	AQ47	5579.7	4.4	5612.2	4.9	5.1
Midland Road	AQ48	6158.3	13.4	6190.8	13.8	5.1
Pancras Road	AQ49	11670.2	8.6	11735.2	9.0	27.4
Crossing at Euston Road	AQ50	45303.7	4.6	45303.7	4.6	17.7
Pancras Road	AQ51	11670.2	8.6	11735.2	9.0	23.5
Midland Road	AQ52	11670.2	8.6	11735.2	9.0	29.4
Pancras Road	AQ53	12229.8	3.4	12229.8	3.4	10.1
Mabledon Place	AQ54	1926.9	2.2	1926.9	2.2	13.3

Road name	Road ID	2019 Baseline / 2025 DM – con		2025 DS – con		Speed (kph)
		Total AADT	%HGV	Total AADT	%HGV	
Mabledon Place	AQ55	1926.9	2.2	1926.9	2.2	13.3
Euston Road	AQ56	7686.4	25.0	7718.9	25.3	17.2
Midland Road	AQ57	11417.3	6.6	11482.3	7.0	24.4
Pancras Road	AQ58	6114.9	3.4	6114.9	3.4	3.2
Pancras Road	AQ59	6114.9	3.4	6114.9	3.4	19.9
Midland Road	AQ60	11159.5	4.4	11224.5	4.9	20.9
Midland Road	AQ61	11738.1	9.1	11803.1	9.6	16.4
Pancras Road	AQ62	11976.9	1.4	11976.9	1.4	10.2
Euston Road	AQ63	25026.1	11.8	25058.6	11.9	25.0
Upper Woburn Place	AQ64	12201.0	17.3	12201.0	17.3	14.8
Euston Road	AQ65	23945.4	9.8	23977.9	9.9	18.4
Euston Road	AQ66	23917.7	9.7	23917.7	9.7	10.8
Euston Road	AQ67	24220.9	10.8	24220.9	10.8	9.4
Judd Street	AQ68	5488.4	2.9	5488.4	2.9	11.9
Euston Road	AQ69	24220.9	10.8	24253.4	10.9	20.4
Judd Street	AQ70	5488.4	2.9	5520.9	3.4	10.3
Crowndale Road	AQ71	16981.4	9.2	17013.9	9.3	6.2
Crowndale Road	AQ72	6887.4	12.5	6887.4	12.5	27.3
Crowndale Road	AQ73	6889.3	12.5	6921.8	12.9	27.3
Crowndale Road	AQ74	6887.4	12.5	6919.9	12.8	27.3
Royal College Street	AQ75	6887.4	12.5	6919.9	12.8	22.7
St Pancras Way	AQ76	6460.0	3.9	6492.5	4.3	12.6
St Pancras Way	AQ77	6460.0	3.9	6492.5	4.3	22.0
St Pancras Way	AQ78	6460.0	3.9	6492.5	4.3	26.8
St Pancras Way	AQ79	3230.0	3.9	3262.5	4.7	6.1
St Pancras Way	AQ80	3230.0	3.9	3230.0	3.9	5.1
York Way	AQ81	6715.7	14.0	6732.0	14.2	8.9
York Way	AQ82	13581.8	15.0	13598.1	15.1	20.2

Road name	Road ID	2019 Baseline / 2025 DM – con		2025 DS – con		Speed (kph)
		Total AADT	%HGV	Total AADT	%HGV	
Gray's Inn Road	AQ83	12182.2	17.2	12182.2	17.2	12.7
Euston Road	AQ84	12926.4	10.9	12942.7	10.9	14.1
York Way	AQ85	6998.6	14.0	6998.6	14.0	19.2
Gray's Inn Road	AQ86	11079.9	9.0	11079.9	9.0	5.6
Gray's Inn Road	AQ87	23262.1	13.3	23262.1	13.3	13.2
Pentonville Road	AQ88	27686.0	8.1	27702.2	8.2	19.1
York Way	AQ89	13581.8	15.0	13598.1	15.1	20.2
Crowndale Road	AQ90	2789.9	19.2	2822.4	20.0	12.3
Crowndale Road	AQ91	2789.9	19.2	2822.4	20.0	12.3
Royal College Street	AQ92	13623.5	11.5	13623.5	11.5	5.0
Royal College Street	AQ93	13774.8	12.5	13774.8	12.5	19.6
Royal College Street	AQ95	13365.6	9.8	13365.6	9.8	26.3
Royal College Street	AQ96	13365.6	9.8	13365.6	9.8	31.8

Note: Traffic links for AQ12 and AQ94 have been excluded as traffic data are not available for these minor roads.

Figure 2: Modelled road network



Dispersion model set-up

D4.1.13 This section details the inputs and set-up for the construction phase traffic dispersion modelling. The model ADMS-Roads (Version 5.0) was used for the assessment.

Meteorological data

D4.1.14 Meteorological data used in this assessment were recorded at London Heathrow Airport meteorological station for 2019. Heathrow Airport meteorological station is located approximately 25km south-west of the Proposed Development.

D4.1.15 Due to its location, meteorological data from Heathrow Airport is considered to be representative for the Proposed Development. Figure 3 shows the 2019 wind rose and the predominant wind direction is south westerly.

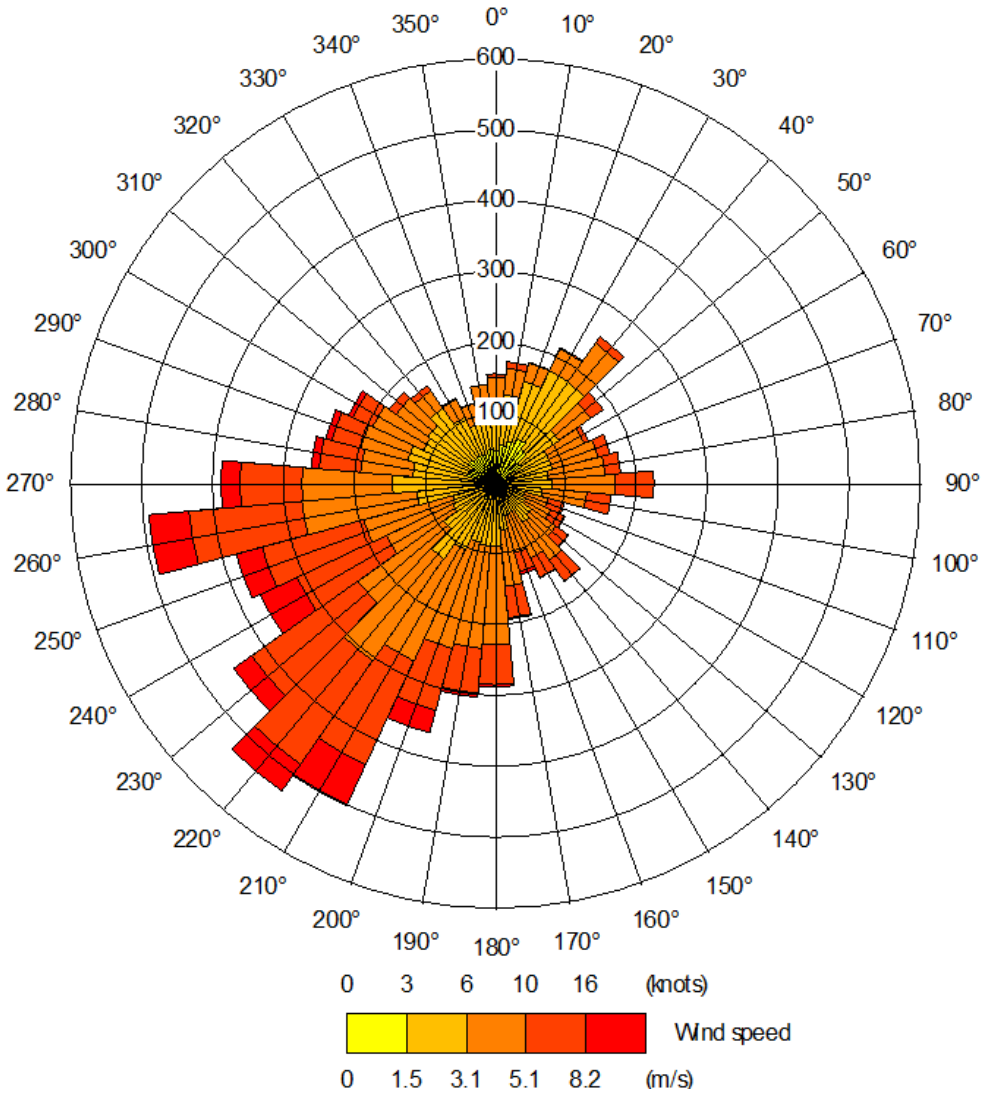
D4.1.16 Most dispersion models do not use meteorological data if they relate to calm wind conditions, as dispersion in calm conditions is difficult to calculate in Gaussian or advanced Gaussian models. ADMS-Roads treats wind speeds less than 0.75m/s (at 10m) by setting the wind speed to 0.75m/s and uses the wind direction from the hour prior to the calm hour for which a valid wind direction (i.e. when wind speed is 0.75m/s or more) is available.

D4.1.17 Defra's LAQM.TG(16) guidance[14] recommends that the meteorological data file is tested within a dispersion model and the relevant output log file checked to confirm the number of missing hours and calm hours that cannot be used by the dispersion model. This is important when considering predictions of high percentiles and the number of exceedances. The guidance recommends that meteorological data should only be used if the percentage of usable hours is greater than 75% and preferably 90%.

D4.1.18 The dataset used includes 8599 lines of usable hourly data for 2019 (about 98% of the hours in a year). These are all well above the 90% threshold and therefore, the data meets the requirements of the Defra guidance and is adequate for the dispersion modelling.

[14] Defra (2018). Local Air Quality Management Technical Guidance

Figure 3: Wind rose for 2019 Heathrow Airport



Other model parameters

D4.1.19 The extent of mechanical turbulence (and hence, mixing) in the atmosphere is affected by the roughness of the surface/ground over which the air is passing. Typical surface roughness values range from 0.0001m (for water or sandy deserts) to 1.5m (for cities, forests and industrial areas).

D4.1.20 In this assessment, the general land use in the area around the Proposed Development can be described as ‘Large Urban Area’ with a corresponding surface roughness of 1.5m. In addition, the minimum Monin-Obukhov length was set to ‘Large Conurbation” with a corresponding value of 100m. This parameter accounts for additional turbulence in the atmosphere as a result of heat production in urban areas. A surface roughness of 0.5m and minimum Monin-Obukhov length values of 30m were used for the meteorological station site. These model parameters are considered to be representative to the

urban settings of the Proposed Development and the meteorological site.

Model verification

D4.1.21 Model verification refers to the comparison of modelled and measured pollutant concentrations at the same points to determine the performance of the model. Should the model results for NO_2 be mostly within ±25% of the measured values and there is no systematic over or under-prediction of concentrations, then the LAQM.TG(16) guidance[14] advises that no adjustment is necessary. If this is not the case, modelled concentrations are adjusted based on the observed relationship between modelled and measured NO_2 concentrations to provide a better agreement.

D4.1.22 Modelled results may not compare as well at some locations for various reasons, including:

- errors/ uncertainties in model input data (e.g. traffic flows and speed data estimates)
- model set-up (including street canyons where applicable, road widths, location of monitoring sites)
- neglect of local effects (including queues, bus stops and street canyons)
- model limitations (treatment of surface roughness and meteorological data)
- uncertainty in monitoring data, notably diffusion tubes (e.g. bias adjustment factors and annualisation of short-term data)
- uncertainty in emissions and emission factors.

D4.1.23 The above factors were investigated as part of the model verification process to minimise the uncertainties as far as practicable.

D4.1.24 The outcome of the traffic model verification exercise is reported in Appendix E3.

Background concentrations

D4.1.25 The background concentrations used to calculate the total predicted concentrations at the receptors are from 2019 Defra mapping background data.

NO_x to NO_2 conversion

D4.1.26 The model predicts NO_x concentrations which comprise nitric oxide (NO) and nitrogen dioxide (NO_2). NO_x is emitted from combustion processes, primarily as NO with a small percentage of NO_2. The emitted NO reacts with oxidants in the air (mainly ozone) to form NO_2. NO_2 is associated with effects on human health. Therefore, the

air quality standards for the protection of human health are based on NO_2 rather than total NO_x or NO. A suitable NO_x:NO_2 conversion has been applied to the modelled NO_x concentrations in order to determine the impact of the NO_x emissions on ambient concentrations of NO_2.

D4.1.27 LAQM.TG(16)[14] details an approach for calculating the roadside conversion of NO_x to NO_2, which takes into account the difference between ambient NO_x concentrations with and without the Proposed Development, the concentration of ozone and the different proportions of primary NO_2 emissions in different years. This approach is available as a spreadsheet calculator, with the most up to date version 8.1 having been released in August 2020[15].

1-hour mean NO_2

D4.1.28 Research carried out on behalf of Defra identified that exceedances of the NO_2 hourly objective are unlikely to occur where the annual mean is below 60µg/m^3. This assumption is referred to in Defra's LAQM.TG(16) guidance[14] and has been used to assess the risk of an exceedance of the short-term objective.

Predicted PM_{10} and $PM_{2.5}$ concentrations

D4.1.29 The total annual PM_{10} and $PM_{2.5}$ concentrations at each receptor are the sum of Defra background concentrations and the road traffic contribution.

Significance criteria

D4.1.30 The EPUK/IAQM land use guidance[11] provides an approach to determining the air quality impacts resulting from a proposed development and the overall significance of local air quality effects arising from a proposed development.

D4.1.31 Firstly, the impact descriptors are determined based on the magnitude of incremental change as a proportion of the relevant assessment level, in this instance the annual mean NO_2, PM_{10} and $PM_{2.5}$ objectives. The change is then examined in relation to the predicted total pollutant concentrations in the assessment year and its relationship with the annual mean NO_2, PM_{10} and $PM_{2.5}$ objectives.

D4.1.32 The process for determining impact descriptors at each of the assessed receptors is shown in Table 4.

[15] Defra. NOx to NO_2 calculator (version 8.1). Available online at: https://laqm.defra.gov.uk/documents/NOx_to_NO2_Calculator_v8.1.xlsm

Table 4: Impact descriptors

Annual average concentrations at receptor in the assessment year	% Change in concentrations relative to annual mean objectives			
	1	2-5	6-10	>10
75% or less of objective	Negligible	Negligible	Slight	Moderate
76-94% of objective	Negligible	Slight	Moderate	Moderate
95-102% of objective	Slight	Moderate	Moderate	Substantial
103-109% of objective	Moderate	Moderate	Substantial	Substantial
110% of more of objective	Moderate	Substantial	Substantial	Substantial
Note: Changes in pollutant concentrations of less than 0% i.e. <0.5% would be described as negligible				

D4.1.33 The impact descriptors at each of the assessed receptors can then be used as a starting point to make a judgement on the overall significance of effect of a proposed development. However, other influences would also need to be taken in to account, such as:

- the existing and future air quality in the absence of a proposed development
- the extent of current and future population exposure to the impacts
- the influence and validity of any assumptions adopted when undertaking the prediction of impacts.

D4.1.34 Professional judgement should be used to determine the overall significance of effect from a proposed development. However, in circumstances where a proposed development can be judged in isolation, it is likely that a 'moderate' or 'substantial' impact would give rise to a significant effect whilst a 'negligible' or 'slight' impact would not result in a significant effect.

New receptors

D4.1.35 The impact significance of the new receptors is determined by comparing the predicted concentrations during operation with the air quality objectives presented in Table 1, Appendix E. The air quality impact would be deemed to be significant should the predicted concentration be above the relevant objectives.

Operational effects

Operational traffic

D4.1.36 The operational traffic data provided consist of daily traffic flows for HDVs and LDVs. The increase of operational traffic flows is 212 vehicles daily, with a breakdown of 22% HGV and 78% LGV. It should be noted that the assessment has accounted for an increase of 232 additional vehicles, this was determined as a worst case scenario prior scheme fix of the Proposed Development.

D4.1.37 As the additional vehicles due to the Proposed Development are above the EPUK/IAQM screening criteria[11], a detailed assessment is required. The scenarios for assessing the operational effects are as follows:

- do-minimum (DM – op) (2029 including future traffic)
- do-something (DS – op) (2029 future traffic plus development traffic).

D4.1.38 2029 represents the opening year of the Proposed Development. In addition, the traffic data for 2029 future baseline is the same as 2019 baseline assessment scenarios (detailed in paragraph D4.1.6) as there is expected to be limited traffic growth in the vicinity of the Site (further explanation is given in paragraph D4.1.8).

D4.1.39 The methodology used for assessing the operational traffic effects is the same as the one used for construction traffic effects, presented in paragraphs D4.1.6 to D4.1.34.

Traffic data

D4.1.40 Traffic data used in assessing the operational effects were obtained from the 2016 LAEI[12]. The extent of traffic data used in the operational assessment is the same as the construction phase because the operational traffic would use the same routes as the construction traffic to arrive and leave the Proposed Development. Traffic data from the LAEI are applicable for 2029 due to expected limited traffic growth in the vicinity of the Site. Vehicle speeds were also obtained from the LAEI.

D4.1.41 It has been assumed that 50% of operational traffic would use St Pancras Way and 50% Crowndale Road for travelling into the Proposed Development via Midland Road. When the operational traffic leaves the Proposed Development, vehicles would exit the Site on Midland Road and 50% would turn left and 50% right at Euston Road.

D4.1.42 2019 vehicle emission rates from EFT[13] and Defra background concentrations have been used for assessing the operational effects; they are consistent with the data used in the construction traffic assessment. A sensitivity test has also been undertaken by using 2029 vehicle emission rates and Defra background concentrations, this is to consider air quality improvement based on current Defra projections.

D4.1.43 Table 5 details the operational traffic data used in the assessment and the modelled road network is shown in Figure 2.

Table 5: Traffic data used in the assessment for the operational phase

Road name	Road ID	2029 DS – op		Speed (kph)
		Total AADT	%HGV	
AQ1	Tavistock Square	12201.0	17.3	17.4
AQ2	Euston Road	20157.7	10.7	22.2
AQ3	Euston Road	19976.9	10.3	11.4
AQ4	Grafton Place	6097.1	31.0	10.8
AQ5	Euston Road	46433.5	6.8	11.7
AQ6	Judd Street	11144.2	5.7	29.9
AQ7	Euston Road	23945.4	9.8	15.3
AQ8	Euston Road	22107.2	24.9	16.5
AQ9	Pancras Road	6887.4	12.5	10.6
AQ10	Euston Square	8532.3	17.0	9.4
AQ11	Eversholt Street	8318.4	14.9	17.6
AQ13	Judd Street	11144.2	5.7	22.3
AQ14	Judd Street	11144.2	5.7	25.4
AQ15	Euston Road	20024.6	10.6	10.9
AQ16	Eversholt Street	8318.4	14.9	10.9
AQ17	Eversholt Street	8318.4	14.9	10.7
AQ18	Upper Woburn Place	12201.0	17.3	9.6
AQ19	Euston Road	22651.9	4.6	20.8
AQ20	Euston Road	23781.6	8.8	8.3
AQ21	Upper Woburn Place	12201.0	17.3	9.3
AQ22	Pancras Road	6887.4	12.5	10.1
AQ23	Royal College Street	7119.4	12.8	27.9
AQ24	Euston Road	22107.2	24.9	13.2
AQ25	Pancras Road	12229.8	3.4	36.5
AQ26	Royal College Street	7003.4	12.7	29.5
AQ27	Eversholt Street	8318.4	14.9	17.2

Road name	Road ID	2029 DS – op		Speed (kph)
		Total AADT	%HGV	
AQ28	Euston Road	23781.6	8.8	7.1
AQ29	Eversholt Street	8532.3	17.0	19.2
AQ30	Euston Road	24198.3	10.7	22.7
AQ31	Pancras Road	11902.2	8.9	22.7
AQ32	Pancras Road	5951.1	8.9	13.8
AQ33	Upper Woburn Place	8532.3	17.0	12.1
AQ34	Pancras Road	5951.1	8.9	13.8
AQ35	Euston Road	23945.4	9.8	20.9
AQ36	Euston Road	24612.3	11.9	19.3
AQ37	Bidborough Street	1270.0	6.1	13.1
AQ38	Euston Road	24612.3	11.9	10.7
AQ39	Euston Road	23917.7	9.7	17.7
AQ40	Euston Road	23931.6	9.7	14.4
AQ41	Euston Road	20024.6	10.6	15.4
AQ42	Euston Road	47979.1	9.8	15.5
AQ43	Euston Road	24047.6	9.8	14.4
AQ44	Euston Road	23931.6	9.7	18.9
AQ45	Euston Road	23917.7	9.7	18.3
AQ46	Euston Road	24047.6	9.8	17.5
AQ47	Midland Road	5695.7	4.8	5.1
AQ48	Midland Road	6274.3	13.6	5.1
AQ49	Pancras Road	11902.2	8.9	27.4
AQ50	Crossing at Euston Road	45303.7	4.6	17.7
AQ51	Pancras Road	11902.2	8.9	23.5
AQ52	Midland Road	11902.2	8.9	29.4
AQ53	Pancras Road	12229.8	3.4	10.1
AQ54	Mabledon Place	1926.9	2.2	13.3
AQ55	Mabledon Place	1926.9	2.2	13.3

Road name	Road ID	2029 DS – op		Speed (kph)
		Total AADT	%HGV	
AQ56	Euston Road	7802.4	25.0	17.2
AQ57	Midland Road	11649.3	6.9	24.4
AQ58	Pancras Road	6114.9	3.4	3.2
AQ59	Pancras Road	6114.9	3.4	19.9
AQ60	Midland Road	11391.5	4.8	20.9
AQ61	Midland Road	11970.1	9.4	16.4
AQ62	Pancras Road	11976.9	1.4	10.2
AQ63	Euston Road	25142.1	11.8	25.0
AQ64	Upper Woburn Place	12201.0	17.3	14.8
AQ65	Euston Road	24061.4	9.9	18.4
AQ66	Euston Road	23917.7	9.7	10.8
AQ67	Euston Road	24220.9	10.8	9.4
AQ68	Judd Street	5488.4	2.9	11.9
AQ69	Euston Road	24336.9	10.9	20.4
AQ70	Judd Street	5604.4	3.3	10.3
AQ71	Crowndale Road	17097.4	9.2	6.2
AQ72	Crowndale Road	6887.4	12.5	27.3
AQ73	Crowndale Road	7005.3	12.7	27.3
AQ74	Crowndale Road	7003.4	12.7	27.3
AQ75	Royal College Street	7003.4	12.7	22.7
AQ76	St Pancras Way	6576.0	4.2	12.6
AQ77	St Pancras Way	6576.0	4.2	22.0
AQ78	St Pancras Way	6576.0	4.2	26.8
AQ79	St Pancras Way	3346.0	4.5	6.1
AQ80	St Pancras Way	3230.0	3.9	5.1
AQ81	York Way	6773.7	14.1	8.9
AQ82	York Way	13639.8	15.0	20.2
AQ83	Gray'S Inn Road	12182.2	17.2	12.7

Road name	Road ID	2029 DS – op		Speed (kph)
		Total AADT	%HGV	
AQ84	Euston Road	12984.4	10.9	14.1
AQ85	York Way	6998.6	14.0	19.2
AQ86	Gray's Inn Road	11079.9	9.0	5.6
AQ87	Gray's Inn Road	23262.1	13.3	13.2
AQ88	Pentonville Road	27744.0	8.2	19.1
AQ89	York Way	13639.8	15.0	20.2
AQ90	Crowndale Road	2905.9	19.3	12.3
AQ91	Crowndale Road	2905.9	19.3	12.3
AQ92	Royal College Street	13623.5	11.5	5.0
AQ93	Royal College Street	13774.8	12.5	19.6
AQ95	Royal College Street	13365.6	9.8	26.3
AQ96	Royal College Street	13365.6	9.8	31.8

Note: Traffic links for AQ12 and AQ94 have been excluded as traffic data are not available for these minor roads.

Cumulative effects

D4.1.44 Traffic growth in the vicinity of the Site is expected to be limited and therefore increased traffic flows associated with surrounding committed developments are not expected. Committed developments can therefore be assumed to form part of the traffic flows used in the construction and operational traffic assessments, and a separate cumulative assessment is not necessary.

D4.1.45 Emissions from Part A processes, as well as from existing combustion plant from nearby buildings, have been assumed to be included in the background concentrations used in the assessment. A separate cumulative assessment is therefore not necessary.

Air Quality Neutral Assessment

D4.1.46 An AQN Assessment has been undertaken as per the GLA's SPG[4]. Transport Emission Benchmarks (TEBs) and Building Emission Benchmarks (BEBs) have been set for NO_x and PM_{10} according to the land-use classes for the Proposed Development. These are presented in Appendix E6.

D4.1.47 In order to calculation calculate the emissions from the Proposed Development and apply the TEBs and BEBs, the following information is required:

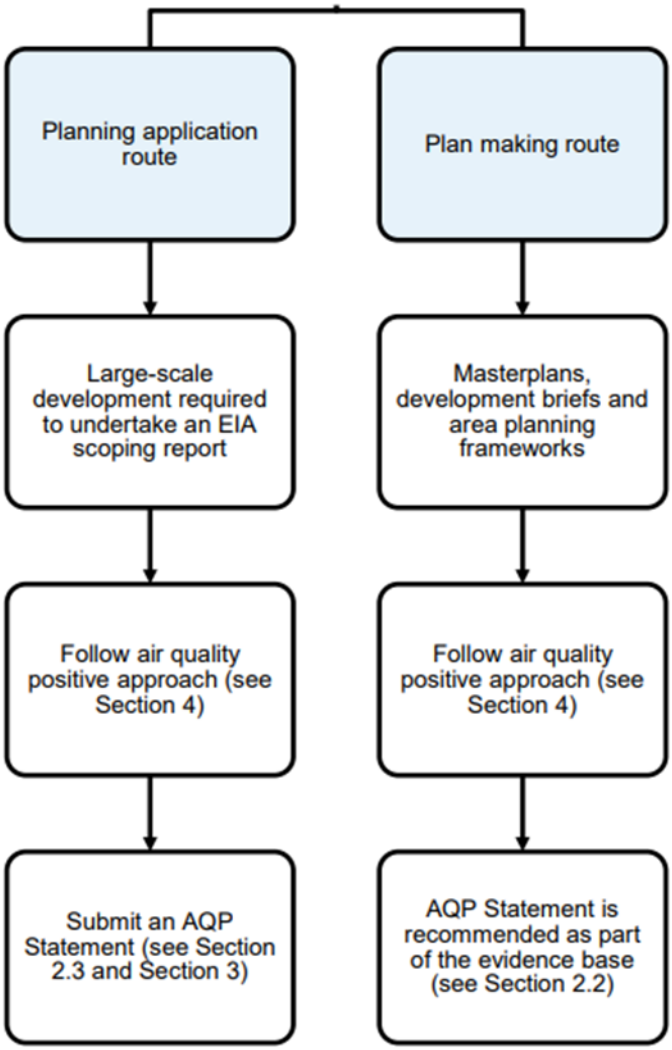
- gross floor area (GFA) (m^2)
- proposed development trip rates (trips/dwelling/annum)
- annual NO_x and PM_{10} emission rates from the proposed backup generators included in the proposed development.

D4.1.48 NO_x and PM_{10} emissions (kg/annum) for each land-use class in the Proposed Development need to be calculated and summed to give the total transport and building emissions. The TEBs and BEBs for the Proposed Development are then subtracted from the total transport emissions and total building emissions for the Proposed Development. Should the outcome be negative, the transport and building emissions from the Proposed Development are within the benchmark, thus no mitigation or offsetting would be required. The SPG notes that it was not possible to derive benchmarks for each land use type. Where it was not possible to derive a TEB, a comparison has been made based on the trip rates. Similarly, to the TEBs, if the Proposed Development trip rate is lower than the benchmark trip rate, then no mitigation is required.

Air Quality Positive Statement

D4.1.49 A draft Air Quality Positive (AQP) Statement has been produced as per the GLA's Draft Air Quality Positive London Plan Guidance[16]. The air quality positive approach should be applied to developments at the plan making and application stages, shown in Figure 4. The AQP Statement structure is shown in Figure 5**.** For this assessment, the AQP statement has been produced using the 'planning application route'.

Figure 4: Routes to applying the air quality positive approach



[16] Greater London Authority (2021) London Plan Guidance Air Quality Positive – Pre-consultation draft.

Figure 5: Air quality positive statement structure

Statement section	What to include
Introduction	Description of the development Method statement
Constraints and opportunities	Summary of site air quality constraints and opportunities Map of constraints and opportunities
Measures adopted	Matrix of adopted measures Rationale for adoption/non-adoption of measures Glossary of technical evaluations and assessments that have informed the measures adopted
Implementation and monitoring	Consultation Implementation plan (how measures will be secured, e.g. against variation in the future) Monitoring plan

Assumptions and limitations

Assumptions

D4.1.50 The impacts of Part A and Part B processes have been included in the background concentrations used in the assessment. Further details have been provided in ES Volume 1, Section 5.

D4.1.51 Reductions in background concentration have not been considered at elevated receptor locations as available monitoring or mapping data are only available at human receptor level (1.5m) or ground level (0m). Therefore, the background concentration used this assessment represent a conservative approach.

Limitations

D4.1.52 Air quality dispersion modelling has inherent limitations, and areas of uncertainty, which are listed below:

- traffic data used in the model
- traffic emission data
- simplifications in model algorithms and empirical relationships that are used to simulate complex physical and chemical processes in the atmosphere

- background concentrations
- meteorological data.

D4.1.53 In order to verify that the assessment is robust despite the above limitations, model verification has been undertaken. Details of the model verification are provided in Appendix E3.

D4.2 Archaeology

Introduction

D4.2.1 This appendix sets out the methodology for assessing the likely significant effects on archaeology that would arise from the construction and existence of the Proposed Development. The methodology for assessing cumulative archaeology effects is also described.

D4.2.2 The archaeology assessment is concerned with effects on any designated or non-designated archaeological assets within the Site or study area, including both currently known archaeology and the potential to encounter previously unknown archaeology at the Site.

D4.2.3 Effects on built heritage, including listed buildings and locally listed buildings, are discussed in Volume 1, Sections 7 (Built heritage on-site) and Volume 2 (Townscape, visual and built heritage off-site).

D4.2.4 The EIA Scoping Report set out the proposed scope for the assessment of archaeology. In summary, construction and existence effects are scoped in and operation effects are scoped out of the assessment:

- Construction and existence effects: Archaeology may experience effects due to the disturbance or removal of below ground deposits for the construction of basements, piling, installation of services and access roads which would remove known or potential below ground archaeological deposits. Archaeological assets would not experience any significant temporary effects arising during the construction process, such as impacts related to increased noise or dust. Therefore, construction and existence effects are scoped into the assessment.
- Operation effects: archaeology would not experience any significant effects arising from the operation of the Proposed Development. Therefore, operational effects are scoped out of the assessment.

Baseline conditions

D4.2.5 The National Planning Policy Framework (NPPF) requires that applicants "describe the significance of any heritage assets affected, including any contribution made by their setting"[17]. The baseline provides this description, including the results of research into the history and development of the site, its archaeological potential, and

[17] Ministry of Housing, Communities & Local Government (MHCLG), (2021). National Planning Policy Framework, Her Majesty's Stationery Office, London, para 194. Available online at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004408/NPPF_JULY_2021.pdf

significance of heritage assets potentially affected by the Proposed Development.

D4.2.6 In addition to compliance with national and local planning policy and legislation, there are a number of codes and guidance documents that have informed the production of this archaeology ES Chapter:

- Chartered Institute for Archaeologists (CIfA) Code of Conduct[18]
- CIfA (2017) Standard and Guidance for Historic Environment Desk-Based Assessment[19] which provides the industry standard for desk based assessments and gives guidance on the approach that should be taken and the content which should be included
- The Greater London Archaeological Advisory Service (GLAAS) (2015) Guidelines for Archaeological Projects in Greater London[20] is the specific guidance for archaeological work carried out in Greater London and includes a specific topic paper for desk based assessment. This guidance includes details of the minimum contents required and the approach which should be taken for each aspect of the work. This guidance has informed and shaped this assessment as far as has been possible in the context of Covid-19
- Historic England (2015) Managing Significance in Decision-Taking in the Historic Environment. Historic Environment Good Practice Advice in Planning: 2[21]. This guidance document gives an overview of how assessing the significance of heritage assets should be approached and the factors affecting the nature of impacts from development or industry
- Historic England (2017) The Setting of Heritage Assets. Good Practice Advice in Planning Note 3 (Second Edition)[22]. This document lays out a five-stage approach to assessing the setting of heritage assets and the impacts of developments on them
- Historic England (2019) Statements of Heritage Significance: Analysing Significance in Heritage Assets. Historic England

[18] Chartered Institute for Archaeologists (2014). Code of Conduct. Available at: https://www.archaeologists.net/sites/default/files/CodesofConduct.pdf
[19] CIfA (2017). Standard and Guidance for Historic Environment Desk-Based Assessment. Available online at: https://www.archaeologists.net/sites/default/files/CIfAS%26GDBA_3.pdf
[20] GLAAS (2015). Guidelines for Archaeological Projects in Greater London. Historic England. Available at: https://historicengland.org.uk/images-books/publications/glaas-standards-for-archaeological-work/glaas-archaeological-standards-apr15/
[21] Historic England (2015). Managing Significance in Decision-Taking in the Historic Environment. Historic Environment Good Practice Advice in Planning:2. Available at: https://content.historicengland.org.uk/images-books/publications/gpa2-managing-significance-in-decision-taking/gpa2.pdf/
[22] Historic England (2017). The Setting of Heritage Assets. Historic Environment Good Practice Advice in Planning Note 3 (Second Edition). Available at: https://content.historicengland.org.uk/images-books/publications/gpa3-setting-of-heritage-assets/heag180-gpa3-setting-heritage-assets.pdf/

Advice Note[23]. This advice note was recently published by Historic England to outline the ways in which a Statement of Significance should be prepared and used as part of a staged approach to decision making in applications affecting heritage assets. It includes definitions of the NPPF terms relating to the significance of heritage assets – archaeological interest, architectural and artistic interest and historic interest. This document has not been without controversy[24] and it has been used in conjunction with the other best practice documents listed

- English Heritage (2008) Conservation Principles, Policies and Guidance for the Sustainable Management of the Historic Environment[25]. There is a revised version of this document currently being prepared but the original still forms an important source of guidance on how the value and significance of heritage assets should be understood. Four particular categories of heritage value are identified: evidential, historical, aesthetic and communal. These terms are different to the NPPF terminology (of archaeological, architectural, artistic and historical). This report primarily uses the NPPF terms but, as instructed in the GLAAS guidance, the Conservation Principles terms are also used as appropriate.

D4.2.7 A study area of 250m from the Site boundary has been used for this assessment. This study area has been chosen in line with guidance produced by the GLAAS for undertaking archaeological assessments in London[26] and professional judgement.

D4.2.8 Within the study area all heritage assets, designated and non-designated, as listed by Historic England or identified by the Greater London HER, have been mapped and included in a gazetteer (Appendix F1, F2, F3 and F4).

D4.2.9 Baseline data was collected from a range of sources, including the Greater London Historic Environment Record, Historic England's

[23] Historic England (2019). Statements of Heritage Significance: Analysing Significance in Heritage Assets. Historic England Advice Note 12, Historic England. Available online at: https://historicengland.org.uk/images-books/publications/statements-heritage-significance-advice-note-12/

[24] IHBC (2019). Consultation on Historic England advice note of Statements of Heritage Significance. Available online at: https://www.ihbc.org.uk/consultations/docs/PDF/HistoricEnglandAdviceNoteStatementsofHeritageSignificance.pdf; CIfA (2019). CIfA statement on Historic England Advice Note: Statements of Heritage Significance. Available online at: https://www.archaeologists.net/news/cifa-statement-historic-england-advice-note-statements-heritage-significance-1571821842

[25] English Heritage (2008). Conservation Principles. Policies and Guidance for the Sustainable Management of the Historic Environment. English Heritage: London.

[26] GLAAS (2015). Guidelines for Archaeological Projects in Greater London. Historic England. Available online at: https://historicengland.org.uk/images-books/publications/glaas-standards-for-archaeological-work/glaas-archaeological-standards-apr15/

datasets of designated heritage assets, historic maps and online archival and documentary sources, including:

- information on designated heritage assets held by Historic England[27]
- Greater London Historic Environment Record data (HER enquiry no. 16100)
- Camden Archaeological Priority Areas Appraisal[28]
- Historic Ordnance Survey maps provided by Envirocheck[29]
- additional historic mapping available online including Bomb Damage maps and earlier historic maps[30]
- geological data from the British Geological Survey (BGS) GeoIndex (onshore)[31]
- archival and documentary sources on local history including Victoria County History publications held by British History Online[32]
- The Research Framework for London Archaeology[33].

D4.2.10 Due to COVID-19 related archive closures the following sources were not able to be accessed in-person:

- archival material and local history publications held at the Camden Local Studies and Archives Centre and London Metropolitan Archives
- Historic England Archive and London Archaeological Archive and Research Centre.

D4.2.11 Due to restrictions on travel imposed by the COVID-19 outbreak a site walkover survey and appraisal has not been carried out at this stage. Plans and photographs of the Site, alongside google earth and street-view imagery has been used to attempt to characterise the area and identify potential on-site issues affecting archaeological potential.

[27] Historic England (2021). The National Heritage List for England (NHLE). Available at: https://historicengland.org.uk/listing/the-list/
[28] O'Connor, T., Lee-Smith, K and Bennett, A. (2018). London Borough of Camden Archaeological Priority Areas. Available at: https://historicengland.org.uk/content/docs/planning/apa-camden/
[29] Landmark Information Group. Envirocheck. Order reference. 247768212 (Accessed July 2020).
[30] Due to the closure of archives at the time of writing, the Layers of London website has been used to review historic mapping. The website (www.layersoflondon.org) provides searchable, geolocated digital versions of historic maps for London. Reproduction of these maps has not been possible due to copyright; however, they can be viewed online.
[31] British Geological Survey (2021). GeoIndex (onshore). Available at: https://www.bgs.ac.uk/map-viewers/geoindex-onshore/?csrt=7440703969718084741
[32] British History Online (2021). Available at: https://www.british-history.ac.uk/
[33] Nixon, T., McAdam, E., Tomber, R. and Swain, H. (eds). (2003). A Research Framework for London Archaeology 2002. Museum of London: London.

Assessment methodology

Construction and existence effects

D4.2.12 The methodology for undertaking the archaeology construction and existence effects assessment uses a significance-based approach following guidance, industry best practice and professional judgement to measure the hierarchy of significance against the magnitude of impact to reach conclusions regarding the likely effects.

D4.2.13 Using the archaeology baseline data, designated and non-designated archaeological assets within the Site or study area are identified along with their sensitivity to change, including both currently known archaeology and the potential to encounter previously unknown archaeology at the Site.

D4.2.14 Archaeological assets that were deemed to be sensitive receptors were chosen based on two factors:

- their location within the Proposed Development, which was extrapolated from baseline data
- the significance of the asset based on several defining values as set out by Historic England, GLAAS and CIfA in their guidance documents and described below.

Significance

D4.2.15 The significance of a heritage asset is defined as "The value of a heritage asset to this and future generations because of its heritage interest; that interest may be archaeological, architectural, artistic or historic"[34]. Historic England defines 'significance' and 'heritage values' as being a collective term for the sum of all the heritage values attached to a place, be it a building, an archaeological site or a larger historic area such as a whole village or landscape .

D4.2.16 Archaeological assets can be designated or non-designated. Designated assets are so designated in accordance with national or international criteria (conservation areas are a local authority designation, though determined through legislation) and have statutory protection. In assessing the significance of an asset, Historic England has outlined values which contribute to overall significance. These include archaeological, architectural, artistic and historic value[35]. Non-designated heritage assets may exhibit equivalent values to those which have been granted statutory protection.

[34] Ministry of Housing, Communities and Local Government (2021). National Planning Policy Framework () Annex 2: Glossary. [online]. Available at: https://www.gov.uk/guidance/national-planning-policy-framework/annex-2-glossary
[35] Historic England. 2008. Conservation Principles: Policies and Guidance for the Sustainable Management of the Historic Environment

D4.2.17 Setting can also contribute to significance. Setting is not simply a visual consideration and specific guidance on the analysis of setting is set out by Historic England[36]. Buried archaeological remains may have a setting which contributes to their significance, for example a setting which can be appreciated in historic street or boundary patterns, in relation to their surrounding topography or other heritage assets or through the long-term continuity in the use of the land that surrounds them.

D4.2.18 Taking these criteria into account, each identified baseline heritage asset has been assigned a level of significance in accordance with a four-point scale as shown in Table 6.

Table 6 Definition of archaeological significance

Significance (value)	Rationale	Example asset class
High	Asset has significance for an outstanding level of archaeological, architectural, artistic and/or historic interest.	Scheduled monument. Non-designated archaeological assets of schedulable quality and importance.
Moderate	Asset has significance for a high level of archaeological, architectural, artistic and/or historic interest.	Sites of high archaeological resource value as identified through consultation or research. Regionally significant non-designated archaeological sites.
Low	Asset has significance for elements of archaeological, architectural, artistic or historic interest.	Locally significant non-designated archaeological sites.
Not significant	Assets identified as being of no archaeological, architectural, artistic or historic interest. Due to the nature of the asset's form/condition/survival, cannot be considered as an asset in its own right.	Assets whose values are compromised by poor preservation or survival or of contextual associations to justify inclusion into a higher grade. Non-extant Historic Environment Record (HER).

Magnitude of change

D4.2.19 Impacts can be direct or indirect, and can be characterised in terms of timing, scale, duration, reversibility and the likelihood of the impact occurring. Impacts can be permanent or temporary and can be positive or negative.

D4.2.20 Permanent impacts arising from the physical presence of the development, including the complete or partial removal of archaeological deposits, may give rise to construction and existence effects. For example, archaeology may experience impacts due to the disturbance or removal of below ground deposits for the construction

[36] Historic England (2017). The Setting of Heritage Assets: Historic Environment Good Practice Advice in Planning Note 3 (2nd Edition).

of basements, piling, installation of services and access which would remove known or potential below ground archaeological deposits.

D4.2.21 The magnitude of an impact can vary from 'no change' to 'large' as set out in Table 7 and can be beneficial or adverse.

Table 7 Criteria for magnitude of change to archaeological assets

Magnitude of change	Summary rationale (adverse)	Summary rationale (beneficial)
Large	Change such that the significance of the asset is totally altered or destroyed. Comprehensive change to setting affecting significance, resulting in changes in our ability to understand and appreciate the resource and its historical context and setting.	Change such that an at-risk or otherwise degraded archaeological asset and/or its setting is sympathetically restored and contribute to bringing into sustainable use with robust long-term management secured.
Moderate	Change such that the significance of the asset is affected. Changes such that the setting of the asset is noticeably different, effecting significance resulting in changes in our ability to understand and appreciate the resource and its historical context and setting.	Appropriate stabilisation and/or enhancement of an archaeological asset and/or its setting that better reveal the significance of the asset or contribute to a long-term sustainable use or management regime.
Minor	Change such that the significance of the asset is slightly affected. Changes to the setting that have a slight impact on significance resulting in changes in our ability to understand and appreciate the resource and its historical context and setting.	Minor enhancements to an archaeological asset and/or its setting that that better reveal its significance or contribute to sustainable use and management.
Negligible	Changes to the asset that hardly affect significance. Changes to the setting of an asset that have little effect on significance and no real change in our ability to understand and appreciate the resource and its historical context and setting.	Minor alteration of an asset which does not affect its significance in any discernible way. Minor and short term or reversible change to setting which does not affect the significance of the asset.
No change	The development does not affect the significance of the asset. Changes to the setting that do not affect the significance of the asset or our appreciation of it.	

Significance of effects

D4.2.22 The assessment of the level of overall significance of the effect, taking into consideration mitigation, is determined by cross-referencing the significance value of the asset (Table 6) and the magnitude of change (Table 7). Professional judgment has been used in assessing significance of effects, allowing for judgments which are reasonable

and balanced with respect to the outcomes of significance of effect, but which is not mechanistic.

D4.2.23 Major and moderate effects may be considered to be significant effects. The assessment of overall effect can be either adverse or beneficial.

Table 8 Significance of effect

		Magnitude of change				
		No Change	Negligible	Minor	Moderate	Large
Archaeological significance	High	Neutral	Slight	Moderate or Slight	Major or Moderate	Major
	Moderate	Neutral	Slight or Neutral	Slight	Moderate	Major or Moderate
	Low	Neutral	Slight or Neutral	Slight or Neutral	Slight	Moderate or Slight
	Not Significant	Neutral	Neutral	Slight or Neutral	Slight or Neutral	Slight

D4.2.24 Mitigation and enhancement opportunities will be considered. It may be possible to avoid effects on potential below ground archaeological deposits through responsive design and sensitive landscaping, i.e. avoidance of below ground works in areas of significant archaeological deposits.

D4.2.25 Residual effects after mitigation will be presented.

Cumulative effects

D4.2.26 Cumulative effects are defined as those effects which arise from the combination of the Proposed Development and other developments not yet constructed or currently under construction in the vicinity acting together to generate elevated or altered levels of effects, such as significant changes to the setting of a heritage asset or the complete removal of a significant archaeological deposit extending beyond the Site.

D4.2.27 The baseline has not identified any archaeological assets with settings that contribute to their significance. Additionally, the assessment of construction and existence effects is inherently cumulative in terms of understanding the significance of heritage assets, including their rarity, survival and sensitivity to change. Therefore cumulative effects are scoped out of this assessment.

Assumptions and limitations

Assumptions

D4.2.28 Greater London HER data is continually updated as the results of new archaeological investigations and finds are included. The archaeological baseline is accurate at the time of compilation.

Limitations

D4.2.29 It is considered that the baseline data provides a reasonable indication of the archaeological heritage assets present within the Site and permits a reasonable assessment of the potential for encountering previously unknown below ground archaeological remains. However, the risk remains that as yet undetected and previously wholly unknown archaeological assets that were not identified within the archaeological baseline may be encountered. Nevertheless, this risk is considered remote, and the assessment is considered to be robust.

D4.3 Built heritage on-site

Introduction

D4.3.1 This appendix sets out the methodology for assessing the likely significant effects on built heritage on-site that would arise from the construction and existence of the proposed development. The methodology for assessing cumulative built heritage on-site effects is also described.

D4.3.2 This assessment sets out the baseline in terms of the built heritage on-site, including designated and undesignated heritage assets.

D4.3.3 The likely significant effects on built heritage on-site, including the listed building and its setting, and the unlisted BLCC building have been assessed. This assessment considers the likely effects of the Proposed Development, the magnitude and significance of those effects, and identification of any measures to mitigate significant adverse effects if they arise.

Relevant guidance for assessment of effects

Built heritage assessment

D4.3.4 The following policy and guidance have been used to assess the effects of the Proposed Development on built heritage:

- National Planning Policy Framework (NPPF) (2021), by Ministry of Housing, Communities and Local Government[37]
- National Planning Practice Guidance (July 2019), by Ministry of Housing, Communities and Local Government[38]
- Good Practice Advice ('GPA') Note 3 – Setting of Heritage Assets, 2nd Edition, December 2017, by Historic England[39]
- Conservation Principles, Policies and Guidance (April 2008) produced by Historic England[40].

D4.3.5 The GPA Note 3 Setting of Heritage Assets by Historic England sets out a methodology to be followed when assessing effects on the significance of heritage assets through changes to their setting.

D4.3.6 Historic England sets out a broad approach to assessment. These are identified as a series of steps that are proportional to the complexity of the case:

1. identify which heritage assets and their settings are affected

[37] Ministry of Housing, (2021).Communities and Local Government, National Planning Policy Framework.
[38] Ministry of Housing, (2019). Communities and Local Government, National Planning Practice Guidance.
[39] Historic England (2017) Good Practice Advice in Planning Note 3 - Setting and Views (2nd Edition).
[40] Historic England (then English Heritage) (2008) Conservation Principles, Policies and Guidance.

2. assess whether, how and to what degree these settings make contribution to the significance of the heritage assets
3. assess the effects of the Proposed Development, whether beneficial or harmful, on that significance (set out in Section 7 of ES Volume 1 and the Heritage Statement)
4. explore ways to maximise enhancement and avoid or minimise harm
5. make and document the decision and monitor outcomes.

D4.3.7 Historic England's Conservation Principles[41] were revised and published in November 2017 for consultation. The revised guidance aims to be more closely aligned with the terms used in the NPPF[37]: archaeological, architectural, artistic and historic interest.

Baseline conditions

Study area

D4.3.8 A study area for understanding baseline conditions has been established. It is confined to the structures within the red line boundary, namely the Grade I listed British Library and the unlisted British Library Centre for Conservation.

Built heritage

D4.3.9 The desk-based research and fieldwork carried out as part of this assessment has identified heritage assets (heritage receptors) that would be affected by the Proposed Development. Heritage assets have been identified in relation to their status, namely statutory designations as listed buildings, and through research and site assessment in relation to undesignated heritage assets on-site. The evaluation of the receptors' sensitivity and significance has been informed by statutory designations and desk-based resources, the NPPF policies[37] and the values set out in Historic England's Conservation Principles[42].

D4.3.10 The baseline data was gathered using desk-based research and site investigation:

- primary sources: drawings of the original buildings held at the British Library
- published sources: Buildings of England: London North[43]; Wilson, Colin St John: The Design and Construction of the

[41] Historic England (2017). *Conservation principles for the sustainable management of the historic environment*. Available online at: https://historicengland.org.uk/content/docs/guidance/conservation-principles-consultation-draft-pdf/
[42] Historic England (then English Heritage) (2008). *Conservation Principles, Policies and Guidance*.
[43] Cherry, B and Pevsner, N (1998). *The Buildings of England*: London North.

British Library, 1998; Stonehouse, R and Stromberg, G: The Architecture of the British Library at St Pancras, 2004

- web sources: The Oxford Dictionary of National Biography[44], Historic England Online Listed Building Description[45] and Camden Council Online Planning Search[46]
- site inspections of the buildings on-site and their setting, in written and photographic form, presented in the Heritage Statement by Cordula Zeidler Heritage Consultancy, a standalone report.

D4.3.11 The Heritage Statement includes a commentary on the Proposed Development and its effects. This includes justification against the Planning (Listed Buildings and Conservation Areas) Act 1990 and the policies of the NPPF, London Plan and Camden's local plan, and should be read in conjunction with the assessment presented in ES Volume 1, Section 7.

D4.3.12 The identified study area has taken into account direct effects on the designated heritage asset and unlisted building within the Site boundary and indirect effects on the setting of the listed building.

Sensitivity to change

D4.3.13 A heritage asset's sensitivity to change relates to its heritage significance. The National Planning Practice Guidance (NPPG, paragraph 6) defines 'significance':

> *"'Significance' in terms of heritage-related planning policy is defined in the Glossary of the National Planning Policy Framework as the value of a heritage asset to this and future generations because of its heritage interest. Significance derives not only from a heritage asset's physical presence, but also from its setting."*[38]

D4.3.14 Assets can be designated or non-designated. These are defined in Annex 2: Glossary of the NPPF Designated heritage assets include Listed Buildings and Conservation Areas[40], alongside other designations not relevant to this ES. Designated heritage assets more widely are defined as: a building, monument, site, place, area or landscape identified as having a degree of significance meriting consideration in planning decisions, because of its heritage interest. It includes designated heritage assets and assets identified by the local planning authority (including local listing).

[44] Oxford Dictionary of National Biography. Available online at: https://www.oxforddnb.com/
[45]Historic England (2021). *National Heritage List for England (NHLE)* . Available online at: https://historicengland.org.uk/listing/the-list/
[46] London Borough of Camden. *Planning Records.* Available online at: https://planningrecords.camden.gov.uk/Northgate/PlanningExplorer/GeneralSearch.aspx/

D4.3.15 The NPPF definition sets out that in the planning context heritage interest may be archaeological, architectural, artistic or historic. This can be interpreted as follows:

- archaeological interest: as defined in the Glossary to the NPPF, there will be archaeological interest in a heritage asset if it holds, or potentially holds, evidence of past human activity worthy of expert investigation at some point
- architectural and artistic interest: these are interests in the design and general aesthetics of a place. They can arise from conscious design or fortuitously from the way the heritage asset has evolved. More specifically, architectural interest is an interest in the art or science of the design, construction, craftsmanship and decoration of buildings and structures of all types. Artistic interest is an interest in other human creative skill, like sculpture
- historic interest: an interest in past lives and events (including pre-historic). Heritage assets can illustrate or be associated with them. Heritage assets with historic interest not only provide a material record of the nation's history but can also provide meaning for communities derived from their collective experience of a place and can symbolise wider values such as faith and cultural identity.

D4.3.16 This assessment does not cover archaeology which is addressed separately in this ES.

D4.3.17 In considering the likely significant effects of the Proposed Development on designated heritage assets, the NPPF requires consideration of their particular significance and of how their significance may be affected by the changes caused to their setting by a development. Setting is defined in the NPPF as the *"surroundings in which a heritage asset is experienced".* Setting is therefore variable over time and may change as a heritage assets and its surroundings are altered.

D4.3.18 The sensitivity to change is established by a process involving professional judgment. It is defined as high, medium or low. The likely sensitivity of the heritage assets to change in the study area is set out in the Table 9.

Table 9: Definitions of built heritage sensitivity

Sensitivity	Typical descriptors
Exceptional	Statutorily listed buildings Grade I and II*, registered Historic Parks and Gardens Grade I and Grade II* and World Heritage Sites.
High	Statutorily listed buildings Grade II, Scheduled Monuments and registered Historic Parks and Gardens Grade II.
Medium	Conservation areas and undesignated heritage assets of high quality in their fabric or historical association.

Sensitivity	Typical descriptors
Low	Undesignated heritage assets of modest quality in their fabric or historical association.

D4.3.19 An appraisal of the history, character, and significance of the heritage assets on-site has been undertaken and is set out in more detail in the Heritage Statement. This appraisal of the significance has been informed by desk-based and archival research and site inspections.

Assessment methodology

Construction effects

D4.3.20 Construction impacts on built heritage on-site would likely be caused by the presence of visible machinery, hoardings, cranes and portacabins. All construction effects are considered to be 'temporary' and 'short-term'.

D4.3.21 The detail of construction works and associated temporary structures has not yet been developed. Therefore, the assessment has not considered any visual material for the construction phase. The assessment of likely effect on heritage receptors is therefore based on preliminary information and professional judgement. This assessment has been made in accordance with the terms set out in relation to the assessment of existence effects below.

Existence effects

D4.3.22 The overall significance of effect concluded by the assessment is reached through the assignment of categories of magnitude and sensitivity quality.

D4.3.23 Major and moderate effects which can be adverse or beneficial are considered to be 'significant'. The assessment of each effect on each receptor follows these steps:

- identification of receptors
- identification of the value of the receptor and its susceptibility to change, concluded through an assessment of its sensitivity
- identification of the size and scale of the change, in terms of its geographic extent, potential to affect sensitivity, duration and reversibility concluded as the overall magnitude of change
- the sensitivity of the receptor and the magnitude of change are then combined to conclude the scale and nature of the effect and to determine whether it is significant or not.

D4.3.24 The process of identifying the sensitivity of the heritage receptors is further detailed in the following sections. The criteria for assessing magnitude of change are outlined in Table 10.

Table 10: Criteria for assessing magnitude of change

Magnitude	Typical descriptors
Major	Immediately noticeable change that would change the value of the heritage asset and/or aspect of the setting of a heritage asset.
Moderate	Discernible change from baseline conditions or a clearly discernible change to the value of the heritage asset and/or its setting.
Minor	Slight, but detectable change from baseline conditions and a slight change to the value of the heritage asset or its setting.
Negligible	Barely distinguishable change from baseline conditions and a barely discernible change to the value of the heritage asset or its setting.

D4.3.25 The magnitude of change for heritage receptors as a result of the Proposed Development is informed by the assessment of changes to the setting of the designated heritage asset and of changes to their fabric, plan from and sensitive features.

D4.3.26 The assessment also considers the contribution of the setting of the heritage asset to its significance and whether the proposals would alter key characteristics of the heritage assets or its setting which are of significance.

D4.3.27 Comparing the magnitude of effect that the Proposed Development would have with the sensitivity of the receptor allows the determination of the significance of the effect. This effect has then been assessed to determine the attribute of this change; beneficial, adverse or neutral.

D4.3.28 The significance of effect is shown in Table 11. The assessment has been made using professional judgement. Significant effects are moderate or major effects only.

Table 11: Assessment matrix

		Sensitivity of Receptor		
		Low	**Medium**	**High/Exceptional**
Magnitude of Impact	**Negligible**	Negligible	Minor/negligible	Minor/negligible
	Minor	Minor/negligible	Minor	Moderate/minor
	Moderate	Moderate/minor	Moderate	Major/moderate
	Major	Moderate/minor	Major/moderate	Major

D4.3.29 The nature of the effects on the receptors is beneficial, adverse, or neutral. The amount to which effects are considered beneficial or adverse is not necessarily related directly to the established sensitivity or to the magnitude, or, consequently, to the significance, as there may be both positive and negative effects on specific heritage assets as a result of the Proposed Development. Therefore, an effect that appears to be significant because of the combination of magnitude and sensitivity may be neutral in respect of effect on the quality of the heritage assets that is being assessed.

D4.3.30 Impacts on receptors can be classified in additional categories. They can be direct or indirect. They can also be characterised in terms of

timing, scale, duration, and reversibility. Impacts can be short, medium or long term.

D4.3.31 As set out in the above assessment matrix at Table 11, the effect on heritage receptors can range from 'major' to 'negligible'. These effects can be beneficial or adverse. Table 12 provides a definition of the nature of effects.

Table 12: Scale and definition of effects on identified receptors

Scale of effect	Description of effect
Major beneficial	The Proposed Development would substantially enhance the heritage asset or setting of any designated heritage assets, either through the removal of visually detracting or harmful elements, or through the introduction of positive elements that build on the heritage asset or its setting.
Moderate beneficial	The Proposed Development would provide a moderate enhancement of the heritage asset or its setting and would provide a marginal improvement to the heritage asset or its setting.
Minor beneficial	The Proposed Development would provide a slight enhancement of the heritage asset or its setting.
Neutral	The Proposed Development would have no beneficial or adverse impact on the heritage asset or its setting.
Minor adverse	The Proposed Development would only slightly impact on the heritage asset or its setting.
Moderate adverse	The Proposed Development would be prominent and would noticeably harm the heritage asset or its setting.
Major adverse	The Proposed Development would considerably harm the character and quality of a heritage asset and would detract from its setting.

Effect type

D4.3.32 As set out in Table 12, the effects on heritage receptors have been assessed as beneficial, adverse, or neutral in respect of their effect on the heritage significance. This recognises that an effect on a heritage receptor or its setting can enhance its heritage significance (a beneficial effect), harm its heritage significance (an adverse effect) or leave its heritage significance unchanged (a neutral effect). This consideration is independent of whether it is a high, medium or low magnitude of change.

D4.3.33 The effect is also in line the NPPF and The Planning (Listed Buildings and Conservation Areas) Act 1990, the legislative basis for decision-making on applications that relate to the historic environment. Sections 66 and 72 of the Act impose statutory duties upon local planning authorities which require the planning authority to have *"special regard to the desirability of preserving the listed building or its setting or any features of special architectural or historic interest which it possesses"*.[47]

[47] The Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended)

Cumulative effects

D4.3.34 The methodology for assessing cumulative built heritage effects is identical to the assessment of the Proposed Development in isolation. The cumulative assessment only considers effects in relation to the Proposed Development and does not consider cumulative development where the Proposed Development has no effect or a neutral effect.

D4.3.35 The assessment considers the full list of cumulative schemes included in Appendix D. The likely effects of these developments are considered in combination with the Proposed Development.

Assumptions and limitations

Assumptions

D4.3.36 The assessment of built heritage is built on an understanding that new high-quality development can make a positive contribution to the sensitivity and setting of heritage assets. Improvements to the public realm by high quality design and materials will generally be perceived as a positive effect on the setting of heritage assets.

D4.3.37 Assumptions have been made in the assessment about the individuals who may be present at particular viewpoints. These assumptions are based on professional judgment but inevitably have limitations since in reality the responses of individuals will be varied and not all conceivable responses can be covered in an assessment.

D4.4 Climate change

Introduction

D4.4.1 This appendix sets out the methodology for assessing the likely significant effects of the Proposed Development on climate change, specifically the release of greenhouse gas (GHG) emissions. The receptor of GHG emissions is the global atmosphere.

D4.4.2 GHG emissions from the construction of the Proposed Development includes the impacts of manufacture and production of construction materials, construction site works including plant activities and transport of construction materials to and from Site.

D4.4.3 GHG emissions from the operation of the Proposed Development includes the impacts associated with operational building energy consumption, operational transport, and repair and replacement.

D4.4.4 End of life GHG emissions have also been assessed and reported.

D4.4.5 British Standards (BS) EN 15804:2012+A2:2019[48] and BS EN 15978:2011[49] have been used to inform the scope and methodology of the GHG emissions assessment, each of which adopts a whole life cycle approach to undertaking GHG emissions assessments.

D4.4.6 The general approach to estimating GHGs for the baseline and the Proposed Development has been to quantify GHG emissions combining:

- activity data – a measure of the quantity of an activity
- GHG factor – a measure of the GHG emissions per unit of activity

based on the generalised formula:

- activity data x GHG factor = GHG emissions or removals.

D4.4.7 Guidance from the Institute of Environmental Management and Assessment (IEMA) on assessing GHG emissions and evaluating their significance[50] has also been used to inform the assessment. This guidance states that *"in the absence of a defined quantitative threshold of GHG emissions, all GHG emissions can be deemed significant"*. The IEMA guidance also provides a framework for

[48] British Standards Institute (2021). BS EN 15804:2012+A2:2019. Available at: https://shop.bsigroup.com/products/sustainability-of-construction-works-environmental-product-declarations-core-rules-for-the-product-category-of-construction-products-2
[49] British Standards Institute (2011). BS EN 15978, Available at: https://shop.bsigroup.com/products/sustainability-of-construction-works-assessment-of-environmental-performance-of-buildings-calculation-method
[50] IEMA (2017). IEMA Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance. Available at: https://www.iema.net/assets/newbuild/documents/IEMA%20GHG%20in%20EIA%20Guidance%20Document%20V4.pdf

ensuring a proportionate, good-practice approach to assessment is adopted.

D4.4.8 Effects from GHG emissions are characterised in this assessment as being adverse, neutral/negligible or beneficial based on the following definitions.

- Adverse: the Proposed Development's GHG impacts would be greater than the comparable baseline.
- Neutral or negligible: no net GHG change compared to the baseline.
- Beneficial: the Proposed Development's GHG impacts would be less than the comparable baseline, or the Proposed Development's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for non-domestic property and would contribute to radical decarbonisation or net zero before 2050.

D4.4.9 Adverse or beneficial effects are considered to be significant, taking into account the IEMA guidance and the high sensitivity of the receptor. Neutral/negligible effects are not considered to be significant.

D4.4.10 Magnitude criteria have not been applied given the sensitivity of the receptor, the global climate emergency, and considering that all GHG emissions are deemed significant.

D4.4.11 GHG emissions are reported as tonnes of carbon dioxide equivalent (tCO_2e). CO_2e refers to a common unit employed to compare the emissions from various GHGs (methane, ozone, nitrous oxide, etc.) based on their global-warming potential (GWP), by converting amounts of other gases to the equivalent amount of carbon dioxide (CO_2) with the same GWP. The adoption of CO_2e as the common metric, rather than CO_2, allows all GHGs to be included in the assessment.

D4.4.12 The IEMA guidance also provides a good practice approach to contextualising a project's carbon footprint against sectoral, local or national carbon budgets to provide a sense of scale. GHG emissions for the baseline and Proposed Development have been contextualised against the 'grand total' 2019 emissions for the LBC from the Local Authority territorial CO_2[51] emissions estimates 2005-2019[52].

[51] The LBC CO_2 emissions are presented in CO_2, which is compared against the net emissions for the Proposed Development in CO_2e. The difference between these units is relatively minor and for the purposes of this exercise it is deemed satisfactory to compare them.
[52] Grand Total 2019 Emissions for Camden in the Local Authority territorial CO_2 emissions estimates 2005-2019 (kt CO_2) - Full dataset. Available at: https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-to-2018

D4.4.13 GHG factors are drawn from national sources. Where appropriate, time-based GHG factors have been used, when factors are expected to change over the duration of the design life based on understanding the extent and rate at which the factor would increase or reduce.

D4.4.14 An operational design life of 60 years has been assumed for the Proposed Development, from 2029-2088. The construction period has been assumed to be five years, from 2024-2029.

Baseline conditions

D4.4.15 Baseline GHG emissions associated with embodied carbon are considered to be zero as they have already occurred and are of a historical nature only. Similarly, with no construction activities currently taking place on-site, baseline emissions associated with construction are considered zero.

D4.4.16 The baseline GHG emissions assessment accounts for the impact of the existing use and operations on the Site. These activities result in GHG emissions predominantly from operational building energy consumption and operational transport.

D4.4.17 GHG emissions associated with operational building energy consumption were based on the current energy consumption of the BLCC sourced from meter readings. It is assumed that the 2019 electricity and gas consumption remain consistent indefinitely for the baseline. These are presented in Table 13.

Table 13: BLCC current energy consumption.

BLCC energy consumption	Consumption per annum (kWh)
2019 electricity consumption	624,440
2019 natural gas consumption	99,506

D4.4.18 GHG emissions resulting from electricity consumption were estimated using factors from the Green Book Supplementary Guidance, produced by the Department of Business, Energy and Industrial Strategy (BEIS)[53], which reflects the likely decarbonisation of the UK electricity grid from the current year up to and including 2100 (remaining consistent from 2050). These are presented in Table 14.

Table 14: BEIS Green Book electricity emissions factors ($kgCO_2e/kWh$) for the operational design life (2030-2089) reflecting consumption-based grid averages for the commercial/public sector.

Year	Electricity emissions factors ($kgCO_2e/kWh$)
2030	0.081

[53] Department for Business, Energy and Industrial Strategy (2019). Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal. Available at: https://www.gov.uk/government/publications/valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal

Year	Electricity emissions factors ($kgCO_2e/kWh$)
2031	0.072
2032	0.060
2033	0.056
2034	0.048
2035	0.040
2036	0.040
2037	0.040
2038	0.040
2039	0.040
2040	0.040
2041	0.039
2042	0.038
2043	0.036
2044	0.035
2045	0.034
2046	0.032
2047	0.031
2048	0.030
2049	0.028
2050	0.027

D4.4.19 GHG emissions resulting from natural gas consumption were calculated based on BEIS GHG reporting conversion factors[54] for natural gas, presented in Table 15. There are no decarbonisation projections associated with natural gas.

Table 15: BEIS GHG reporting conversion factors for natural gas consumption ($kgCO_2e/kWh$) (scope 1 and scope 2).

Fuel type	
Natural gas ($kgCO_2e$/kWh gross CV)	0.215

D4.4.20 To calculate the GHG emissions associated with operational transport emissions, the current number of daily trips and purpose of trips was estimated, in line with the Transport Assessment. These are presented in Table 16. Assumptions were made on mode of transport, delivery days per year and distance travelled to and from the Proposed Development, which are detailed in the assumptions and limitation section.

[54] Department for Business, Energy and Industrial Strategy, Greenhouse gas reporting: conversion factors 2021. Available at: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2021

Table 16: Baseline operational transport estimates.

Baseline operational transport	
Number of delivery trips per day[55]	38

D4.4.21 BEIS GHG reporting conversion factors[54] have been applied to estimate the GHG emissions associated with operational transport. These are presented in Table 17.

Table 17. BEIS GHG reporting conversion factors for an average diesel van ($kgCO_2e/km$) (scope 1 and 2 emissions)

Delivery vehicle type	$kgCO_2e/km$
Diesel van (average – up to 3.5 tonnes)	0.307

Assessment methodology

Construction effects

D4.4.22 GHG emissions from the construction of the Proposed Development includes the impacts of manufacture and production of construction materials, transport of construction materials to Site and construction site works.

D4.4.23 A Life Cycle Assessment (LCA) has been undertaken using One Click LCA software which is an IMPACT (Integrated Material Profile and Costing Tool) compliant software programme created by Bionova. This software provides access to a large database of Environmental Product Declaration (EPD) reports and 'generic' materials GHG information.

D4.4.24 The LCA has been undertaken for the planning application aligning with London Plan (2021) Policy SI 2 Minimising greenhouse gas emissions, which requires development proposals referable to the Mayor to calculate whole life carbon emissions and demonstrate actions to reduce these. The LCA was undertaken in line with BS EN 15978:2011 framework.

D4.4.25 The LCA covers the following scope:

- emissions at practical completion (life cycle modules A1-A5)
- emissions over building life cycle (life cycle modules A-C, 60 years).

D4.4.26 GHG emissions were calculated in the LCA using the Stage 2 cost plan quantities, supplemented by informed assumptions where required. Assumptions for construction materials, construction traffic

[55] Numbers reflective of deliveries to the BLCC only

and construction site works are in line with Royal Institution of Chartered Surveyors (RICS) guidance[56] and detailed within the LCA.

D4.4.27 Embodied carbon GLA benchmarks were used in the LCA for construction stage emissions where detailed design information was not available, for example for internal finishes. For reporting purposes total construction stage emissions (manufacture and production of construction materials, construction traffic and site operations) for these elements have been included under manufacture and production of construction materials.

D4.4.28 The LCA has informed the GHG emissions arising from manufacture and production of construction materials, transport of construction materials to Site and construction site works.

D4.4.29 The same LCA has also informed the BREEAM assessment for the Proposed Development.

Operational effects

D4.4.30 GHG emissions from the operation of the Proposed Development include the impacts associated with operational energy consumption, operational transport for deliveries, repair and replacement and end-of-life.

D4.4.31 GHG emissions associated with operational building energy consumption have been informed by the Energy Statement[57] which has been submitted with the planning application.

D4.4.32 The Energy Statement and approach to compliance modelling was conducted in accordance with all relevant London Plan, GLA Energy Assessment guidance, and Camden Local Plan requirements. It follows the procedure laid out by the document titled Energy Assessment Guidance – Greater London Authority guidance on preparing energy assessments (April 2020), and additional guidance within the London Plan (March 2021) including the energy hierarchy.

D4.4.33 The Energy Statement uses Building Regulations approved compliance software (IES Virtual Environment) to establish regulated annual energy consumption and CO_2 emissions after each stage of the energy reduction hierarchy as well as the baseline emissions. The Energy Statement reports on CO_2e emissions; however, these are calculated based on Standard Application Procedure (SAP) 10.0 carbon emissions factors for electricity consumption, in line with GLA Energy Assessment Guidance (April 2020), which do not reflect the

[56] RICS (Royal Institution of Chartered Surveyors) (2017) Whole life carbon assessment for the built environment.
[57] Energy Statement (2021) prepared by Arup on behalf of The British Library and their development partner 'SMBL Developments Limited' (a joint venture between Stanhope PLC and Mitsui Fudosan) to support an application for planning permission and listed building consent for the Proposed Development.

latest electricity grid decarbonisation rates. This GHG assessment informing the climate change section of the ES has deviated from the Energy Statement methodology by assuming a grid decarbonisation projection.

D4.4.34 Regulated annual operational energy consumption figures, including total saving from each stage of the energy hierarchy, were used in this GHG assessment. These are presented in Table 18.

Table 18: Energy Statement outputs for annual operational energy consumption of the Proposed Development.

Energy Strategy Outputs	
Annual operational energy consumption (kWh/annum)	2,667,841

D4.4.35 To calculate GHG emissions from operational energy, BEIS Green Book Supplementary Guidance electricity emission factors were used. These are consistent with the factors used for the baseline and are presented in Table 14.

D4.4.36 To calculate the GHG emissions associated with operational transport, estimates were made regarding proposed number of daily trips and purpose of trips in line with the Transport Assessment, as presented in Table 19. Assumptions were made on mode of transport, delivery days per year and distance travelled to and from the Proposed Development, which are detailed in the assumptions and limitation section.

Table 19: Operational transport assumptions for the Proposed Development.

Proposed Development operational transport	
No. delivery trips per day[58]	250

D4.4.37 BEIS GHG reporting conversion factors[59] have been applied to estimate the associated GHG emissions. These are consistent with the conversion factors used for the baseline and are presented in Table 17.

D4.4.38 The LCA has informed the GHG emissions arising from repair and replacement and end of life.

D4.4.39 Embodied carbon GLA benchmarks were used in the LCA for operational stage emissions where detailed design information was not available, for example for internal finishes. For reporting purposes total operational stage embodied emissions (repair and replacement

[58] Numbers reflective of deliveries to the Proposed Development only and not for the entire British Library
[59] Department for Business, Energy and Industrial Strategy, Greenhouse gas reporting: conversion factors 2021. Available at: https://www.gov.uk/government/publications/greenhouse-gas-reporting-conversion-factors-2021

and end of life) for these elements have been included under repair and replacement.

Cumulative effects

D4.4.40 The global atmosphere is the receptor for GHG emissions. Owing to the transboundary nature of GHG emissions, the effects of the Proposed Development have been considered in the context of national, regional and local GHG emissions and concentrations of GHGs in the atmosphere. All sources of emissions, including development projects, have a cumulative effect on atmospheric GHG concentrations and climate change. As such, the GHG emissions assessment is inherently cumulative and, therefore, a separate cumulative assessment is not required.

Assumptions and limitations

D4.4.41 The construction emissions assessment was based on the LCA outputs. The main construction materials used within the LCA have been estimated from the project cost plan or, where insufficient detail has been provided, based on RICS default specification. In some instances, further clarification was sought from the project team and/or professional judgement has been made. A full list of assumptions and limitations is presented within the LCA report, including details of the OneClick LCA model basis.

D4.4.42 The operational energy GHG assessment was based on annual operation energy modelling from the Energy Statement. A full list of assumptions and limitations, including the Building Regulation UK Part L report outputs for each energy model, are provided in Appendix B of the Energy Statement.

D4.4.43 For the operational transport GHG assessment, assumptions were made on the distance of trips, number of days with deliveries, and delivery vehicle type, due to limited information available. Assumptions were consistent for the GHG assessments for the baseline and the Proposed Development.

D4.4.44 Assumptions for the length of trips were based on the Department for Transport's Road Freight Statistics for average length of haul by type and weight of vehicle, based on an 'over 3.5t to 7.5t' delivery vehicle. Trips were assumed to be 'one-way' as each delivery vehicle would likely make multiple localised deliveries. Assumptions for the operational transport assessment are presented in Table 20.

Table 20: Assumptions for the operational transport GHG assessment for the baseline and Proposed Development.

Assumption

Days per year with delivery trips[60]	252
Length of trips (km)[61]	55
Transport mode	Diesel van

[60] Delivery numbers are representative of working days. There are an average of 252 working days in a year.
[61] In line with Road Freight Statistics average length of haul by type and weight of vehicle: annual 1990-2020. 2020 values selected representative of all commodity types and rigid vehicles over 3.5t to 7.5t https://www.gov.uk/government/statistical-data-sets/rfs01-goods-lifted-and-distance-hauled#overall-trends-in-domestic-road-freight

D4.5 Daylight, sunlight, overshadowing, solar glare and obtrusive light

Introduction

D4.5.1 This appendix sets out the methodology for assessing the likely significant effects that would arise from the existence of the Proposed Development in relation to daylight, sunlight, overshadowing and solar glare.

Baseline conditions

Study area

Daylight and sunlight

D4.5.2 An existing baseline characterisation was completed firstly undertaking a review of the surrounding land uses using information and data sourced from the Valuation Office Agency (VOA)[62] website and Google Maps[63] to understand the uses of buildings surrounding the Site. This review was undertaken for all buildings close enough to the Site to be affected by the Proposed Development in order to identify any receptors that should be considered as potentially sensitive to daylight and sunlight alterations.

D4.5.3 The BRE Guidelines[64] outline that if a new development, measured in a vertical section perpendicular to a main window wall of an existing building, from the centre of the lowest window, subtends an angle of more than 25° to the horizontal of the existing building, it may be adversely affected in relation to daylight and sunlight. Therefore, this has been used as a guide in determining the study area.

D4.5.4 Based on the above, a three-dimensional (3D) model was then developed for the existing surrounding properties.

D4.5.5 Whilst ultimately professional judgement has been used to establish the scope of buildings assessed within a reasonable zone which considers both the scale of the Proposed Development and the proximity of those buildings which surround and face the Site, the following factors have aided the characterisation of the study area:

- property uses as determined through VOA and planning portal search

[62] Valuation Office Agency, Available at: https://www.gov.uk/government/organisations/valuation-office-agency
[63] Google Maps, Available at: https://www.google.com/maps
[64] BRE. (2011) *Guidelines: Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice*. Available at: https://www.bregroup.com/services/testing/indoor-environment-testing/natural-light/

- Google Maps, planning portal and real estate websites to identify windows facing towards the Site
- as a guide, the 25° subtend has been mapped from continuous obstructions of the Proposed Development
- 3D models to establish where existing buildings in the forefront obscure the Proposed Development from the view of windows.

D4.5.6 The methods used to establish the baseline daylight and sunlight conditions within surrounding sensitive receptors has been assessed using the methods described in paragraphs D4.5.20.

Overshadowing

D4.5.7 An existing baseline characterisation was completed firstly undertaking a review of the surrounding amenity areas using Google Maps[65]. As the sun's path is in the south, the review was undertaken for all surrounding only the amenity areas located from the north-west through to the north-east of the Site. Paragraph 3.3.3 of BRE Guidelines suggest that the availability of sunlight should be checked for all open spaces where it will be required. This would normally include areas of public and private amenity

D4.5.8 The BRE Guidelines provide that at least half of an amenity area should receive at least two hours of sunlight on 21st March. If, as a result of new development, an amenity area does not meet the criteria and the area which can receive two hours of sun on 21st March is less than 0.8 times its former value that the loss is deemed to be noticeable. Therefore, surrounding amenity areas with the potential to experience noticeable overshadowing from the Proposed Development have been considered as sensitive receptors.

D4.5.9 Based on the above, a three-dimensional (3D) model was then developed for the existing surrounding amenity areas within the surrounding context.

D4.5.10 Whilst ultimately professional judgement has been used to establish the scope of amenity areas assessed within a reasonable zone considering the scale of the Proposed Development and the proximity of those areas which surround the Site, the following factors have aided the characterisation of the study area:

- Google Maps
- 3D models to establish where existing buildings in the forefront shield the potential for overshadowing from the Proposed Development.

[65] Google Maps, https://www.google.com/maps

D4.5.11 The methods used to establish the baseline overshadowing conditions within surrounding sensitive receptors has been assessed using the methods described in paragraph D4.5.34.

Solar glare

D4.5.12 Solar glare is particularly important at pedestrian and road junctions, where glare can cause temporary blinding of drivers or pedestrians. Viewpoints along railway lines where train drivers have a view of a proposal are also sensitive. Typically, elements considered to be reflective are either glazed apertures or metal cladding.

D4.5.13 The BRE Guidelines includes the following statement in regard to the potential for reflected solar glare from a new development:

> *"Glare or solar dazzle can occur when sunlight is reflected from a glazed façade. This can affect road users outside and the occupants of adjoining buildings. The problem can occur either when there are large areas of reflective glass or cladding on the façade, or when there are areas of glass or cladding which slope back so that high altitude sunlight can be reflected along the ground. Thus solar dazzle is only a long term problem only for some heavily glazed (or mirror clad) buildings […]"*

D4.5.14 Therefore, viewpoint at junctions of surrounding roads and along the nearby trainline approaching St Pancras station have been included in the study area of assessment. These were identified using Google Maps[66].

D4.5.15 Based on the above, viewpoints looking towards the Proposed Development were placed within a three-dimensional (3D) model at sensitive locations within the surrounding context.

D4.5.16 Solar glare is not a comparative assessment; its occurrence in the baseline does not necessarily justify occurrence as a result of the Proposed Development. Therefore, solar glare is assessed in absolute terms on the façade of the Proposed Development.

Obtrusive Light

D4.5.17 Obtrusive light is defined as any light emitting from artificial sources into spaces where it is unwanted, such as spillage of light from office or commercial buildings onto residential accommodation, where this would cause nuisance to the occupants. The Institute of Lighting Practitioners (ILP): The Guidance Notes for the Reduction of Obtrusive Light, 2021 suggested lighting level values to ascertain the acceptability of lighting levels of light pollution.

[66] Google Maps, Available at: https://www.google.com/maps

D4.5.18 For the purposes of this ES chapter, an assessment of obtrusive lighting from Public Realm Lighting and Interior Lighting from within the Proposed Development has been considered.

D4.5.19 Further information on the two Obtrusive Light Assessments is provided in D4.5.56.

Assessment methodology

Existence effects

Daylight and sunlight

D4.5.20 The BRE Guidelines specify three primary methods for assessing daylight and sunlight within an existing sensitive receptor:

- Vertical Sky Component (VSC)
- No Sky Line (NSL)
- Annual and Winter Probable Sunlight Hours (PSH).

Vertical sky component method

D4.5.21 VSC is a 'spot' measure of the skylight reaching the mid-point of a window from an overcast sky. It represents the amount of visible sky that can be seen from that reference point, from over and around an obstruction in front of the window. That area of visible sky is expressed as a percentage of an unobstructed hemisphere of sky, and, therefore, represents the amount of daylight available for that particular window.

D4.5.22 The 3D model uses 'Waldram Diagrams' to establish the VSC to vertical windows and 3D geometric calculations for NSL.

D4.5.23 Only those surrounding properties which have windows facing towards the Site were included in the assessment. If a nearby property has no windows facing the Site, these properties would not be affected by the Proposed Development in terms of light.

D4.5.24 The assessment is calculated from the centre of a window on the outward face and measures the amount of light available on a vertical wall or window following the introduction of visible barriers, such as buildings.

D4.5.25 The maximum VSC value is 39.9% for a completely unobstructed vertical wall or window. In terms of assessment criteria, Section 2.2 of the BRE Guidelines states:

> *"If any part of a new building or extension, measured in a vertical section perpendicular to a main window wall of an existing building, from the centre of the lowest window, subtends an angle of more than 25° to the horizontal, then the diffuse daylighting of*

the existing building may be adversely affected. This will be the case if either:

- the VSC measured at the centre of an existing main window is less than 27%, and less than 0.8 times its former value
- the area of the working plane in a room which can receive direct skylight is reduced to less than 0.8 times its former value."

No Sky Line method

D4.5.26 The NSL method is a measure of the distribution of daylight at the 'working plane' within a room. The 'working plane' is a horizontal plane 0.85m above finished floor level for residential properties. The NSL divides those areas of the working plane which can receive direct sky light from those which cannot. If a significant area of the working plane lies beyond the NSL (i.e. it receives no direct sky light), then the distribution of daylight in the room may be poor and supplementary electric lighting may be required. Floor levels were assumed for each of the properties where access or detailed planning drawings were not obtained.

D4.5.27 For these properties, assumptions were made as to the use and internal configuration of the rooms (from external observations). In such cases, a standard 4.2m (14ft) room depth was assumed, unless the building form dictated otherwise. This is common practice where information and access to buildings for surveying are unavailable.

D4.5.28 The potential effects on daylight distribution in an existing building can be found by plotting the NSL in each of the main rooms. For houses, this would include living rooms, dining rooms and kitchens. Bedrooms have also been analysed, although they are less important. The BRE Guidelines identify that if the area of a room that does receive direct sky light is reduced to less than 0.8 times its former value, then this would be noticeable to its occupants.

Probable Sunlight Hours method

D4.5.29 Annual Probable Sunlight Hours (APSH) is a measure of sunlight that a given window may expect over a year, and where there is no obstruction, it equates to a maximum of 1,486 hours. North facing windows may receive sunlight on only a handful of occasions in a year, and windows facing eastwards or westwards will only receive sunlight for some of the day. The BRE Guidelines states that only windows with an orientation within 90^{o} of south ought to be assessed. Therefore, in terms of sunlight, only rooms facing within 90^{o} of due south have been assessed for APSH.

D4.5.30 For the purposes of this assessment, the total APSH and winter PSH have been reported separately to provide a more detailed assessment reflecting the different sunlight conditions.

D4.5.31 Section 3 of BRE Guidelines notes:

> *"…In housing, the main requirement for sunlight is in living rooms, where it is valued at any time of day but especially in the afternoon…"*
>
> *"…To assess loss of sunlight to an existing building, it is suggested that all main living rooms of dwellings, should be checked if they have a window facing within 90 º of due south…"*
>
> *"…Kitchens and bedrooms are less important, although care should be taken not to block too much sun…"*

D4.5.32 The BRE Guidelines provide that a window may be adversely affected if a point at the centre of the window receives for the whole year, less than 25% of the APSH, including at least 5% of the PSH during the winter months (21 September to 21 March) and less than 0.8 times its former sunlight hours during either period, and if there is a reduction in APSH which is greater than 4%.

D4.5.33 It was often not possible to determine the room uses within each of the neighbouring properties, nor was it clear which windows should be considered as the 'main windows'. Therefore, regardless of use, all rooms with windows facing the Site and within 90° of due south were considered in the assessment.

Overshadowing

D4.5.34 The following methodologies have been used to assess overshadowing:

- Transient Overshadowing (TOS)

D4.5.35 The BRE Guidelines suggest that where large buildings are proposed that may affect open spaces, it is useful to plot a shadow plan to illustrate the location of shadows at different times of the day and year. For the purpose of this assessment the hourly shadows were mapped for the following three key dates:

- 21 March (spring equinox)
- 21 June (summer solstice)
- 21 December (winter solstice).

D4.5.36 21 September (autumn equinox) provides the same overshadowing images as 21 March (spring equinox) as the sun follows the same path at these corresponding times of year. Therefore, 21 March has been used to cover both dates within the overshadowing assessment.

D4.5.37 Transient overshadowing was calculated at hourly intervals from sunrise, throughout the day, until sunset. On 21 December, the sun would be at its lowest point causing long shadows to be cast and representing the worst-case scenario in terms of overshadowing.

D4.5.38 It is recommended by BRE Guidelines that at least half of an amenity area should receive at least 2 hours of sunlight on 21 March or the area which receives 2 hours of direct sunlight should not be reduced to less than 0.8 times its former value (i.e. there should be no more than a 20% reduction). For the purposes of this assessment, it is clear from the transient overshadowing plots that the Proposed Development does not reduce the areas receiving sunlight by more than 0.8 and therefore further quantitative assessment has not been undertaken.

Summary of BRE Guidelines criteria for daylight, sunlight and overshadowing

D4.5.39 The criteria set out within the BRE Guidelines for daylight, sunlight and overshadowing summarised in Table 21 have been used as guidance for the assessments.

Table 21: BRE Guidelines criteria

Topic	Method	BRE Guidelines criteria
Daylight	Vertical Sky Component (VSC)	A window may be adversely affected if the VSC measured at the centre of the window is less than 27% and less than 0.8 times its former value.
	No Sky Line (NSL)	A room may be adversely affected if the daylight distribution (NSL) is reduced beyond 0.8 times its existing area.
Sunlight	Annual Probable Sunlight Hours (APSH)	A room may be adversely affected if a point at the centre of its window(s) receives for the whole year, less than 25% of the APSH including at least 5% of the PSH during the winter months (21 September to 21 March) and less than 0.8 times its former sunlight hours during either period, and (for existing neighbouring buildings), if there is a reduction in APSH which is greater than 4%.
Overshadowing	Sun Hours on Ground	It is recommended that for it to appear adequately sumlit throughout the year, at least half of a garden or amenity area sh00ld receive at least two hours of sunlight on 21 March. If as a result of new development an existing garden or amenity area does not meet the above, and the area which can receive two hours of sun on 21 March is less than 0.8 times its former value, then the loss of sunlight is likely to be noticeable. If a detailed calculation cannot be carried out, it is recommended that the centre of the area should rec;:eive at least two hours of sunlight on 21 March..

Solar glare

D4.5.40 The BRE Guidelines includes the following statement in regard to the potential for reflected solar glare from a new development:

> *"Glare or solar dazzle can occur when sunlight is reflected from a glazed façade. This can affect road users outside and the occupants of adjoining buildings. The problem can occur either when there are large areas of reflective glass or cladding on the façade, or when there are areas of glass or cladding which slope back so that high altitude sunlight can be reflected along the ground. Thus solar dazzle is only a long term problem only for some heavily glazed (or mirror clad) buildings…"*

D4.5.41 Solar glare effects can only be quantitively assessed where the façade details of a proposed building are known. Typically, only highly glazed buildings are considered which are visible from sensitive receptors like road junctions or, as in this case, railway lines. As such, the solar glare assessment only considers the potential effects of the Proposed Development and therefore no assessment of the cumulative effects is required.

D4.5.42 The solar glare assessment considers potentially sensitive viewpoints for road users and trainlines surrounding the Proposed Development Site. The viewpoints are generally located at the minimum stopping distance and at the driver's eye level. The focal point is a relevant traffic element, such as signals, pedestrian crossings or oncoming traffic.

Viewpoints for road users

D4.5.43 Identifying the viewpoints based on the stopping distance is calculated as the combination of thinking and braking distances, using the following formula:

$$D_{total} = D_{thinking} + D_{braking} = V*T + V2/(2\mu*g)$$

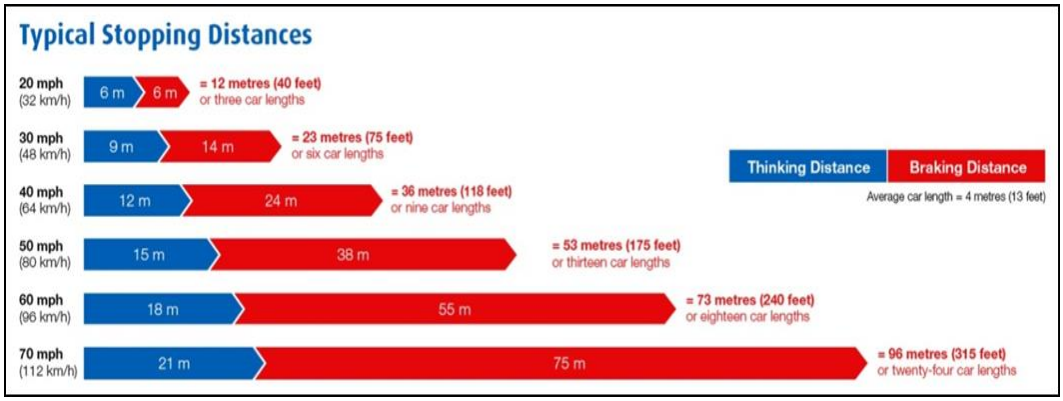
D4.5.44 Where each component is:

- V = Relevant vehicle speed, typically the road speed limit.
- T = Thinking time (0.67 sec)
- μ = Braking effort (considered 0.65 for cars and 0.5 for buses)
- g = Gravity acceleration.

D4.5.45 The height of the viewpoint is considered to be 1.5m for cars and 2.0m for buses. Figure 6 identifies the typical stopping distance range for a car travelling at different speeds. Therefore, a viewpoint for a car driving at 30 mph (i.e. speed limit for a dense urban location) would be placed at 23m from a traffic light and 1.5m above the ground.

D4.5.46 The assessment also considers a driver's field of vision which takes the angular extent seen at any given time, which for humans facing forwards is approximately 180°.

Figure 6: Typical stopping distances for a car



Viewpoints for train drivers

D4.5.47 Due to the proximity of the Site to the railway lines running to and from St Pancras Station, an assessment has been undertaken from these viewpoints.

D4.5.48 As per the Network Rail Development Handbook section on 'Glare[67]', developments which give rise to spectral reflection will require a study of reflected sunlight as experienced by the train driver's perspective, even where they are some distance from the railway. In the case of a train driver the view direction is defined by the rail tracks. The Railway Group Standard UK[68] recommendations set the eye level of the driver at 2.75 m above the rails. The viewpoint is centred between the tracks for ease of reference. Although train drivers sit slightly to the left within the cabin, this bears no material effect on the analysis of the images as the signals are visible at a distance of hundreds of metres at which point the slight shift in the cabin equates to a very small angular change.

D4.5.49 The potential for reflected solar glare or dazzle from glazed or reflective façades of the Proposed Development has been assessed using specialist lighting software, Radiance, showing the path of the sun for the entire year. From this, two computer generated angular images have been produced for each selected viewpoint, indicating the area which sees the reflection of the sun path at any point during the year. A modified diagram portraying a standardised extent of human vision has then been overlaid onto the image, shown in Figure 7.

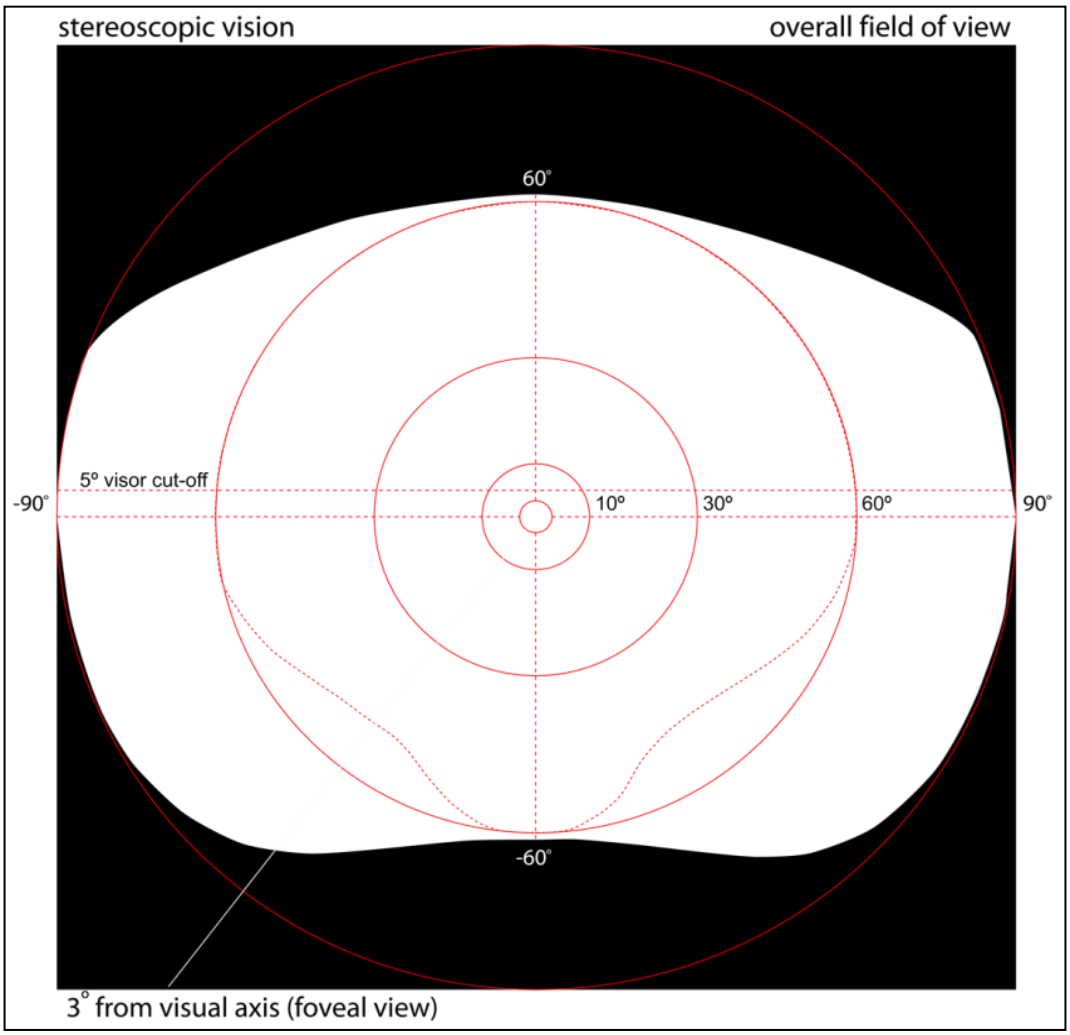
D4.5.50 The fovea centralis (also generally known as the fovea) is a part of the eye, located in the centre of the macula region of the retina. The fovea is responsible for sharp central vision (also called foveal vision),

[67] Network Rail, 2020, Development Handbook section on 'Glare'
[68] Railway Group Standard UK, 2003, Signal, Positioning, and Visibility (GERT8037)

which is necessary in humans for reading, watching television, driving, and any activity where visual detail is of primary importance. The macula corresponds to the central 13° of the visual field; the fovea to the central 3°.

D4.5.51 Figure 7 highlights the degrees of vision corresponding to the foveal view, with a red circle of 3° of angle in order to identify the area most sensitive to reflected solar glare. Another red circle represents the incidence of the 30° radius of our typical field of view in order to identify a secondary area of sensitivity to potential reflected glare instances.

Figure 7: Field of vision diagram



D4.5.52 The degrees of vision provide a reference from which potential concerns can be judged. At 3°, the potential for the reflected glare to cause a hazard is high and mitigation would be required. Between 3° and 30°, there is the potential that there could be an issue and mitigation may be necessary.

D4.5.53 As stated in the International Commission on Illumination (CIE) Collection on Glare (CIE 146:2002)[69], occurrences of glare at angles beyond 30° would be of little significance in most situations but may be relevant in exceptional circumstances. For instance, when seated in a driving seat of a typical car, the limits of the windscreen would generally obstruct the driver's view at angles beyond 30° from the line of sight.

D4.5.54 The methodology for solar glare is not aimed at identifying the intensity of an instance of reflected solar glare, but rather its occurrence, duration throughout the year and the location of this occurrence in respect of an individual's line of sight. It is also to be noted that the hours presented reflect solar time and therefore do not take daylight saving hours into account.

D4.5.55 It must be noted that the solar glare assessments undertaken assume a worst-case scenario whereby the sun will shine every day during daylight hours, which is not the case in the UK.

Obtrusive light

D4.5.56 The Obtrusive Light assessments carried out followed the guidance set out in:

- Institute of Lighting Professionals (ILP) Guidance Note GN01/21 The Reduction of Obtrusive Light (2021)
- Institute of Lighting Professionals (ILP) PLG 04 Guidance on Undertaking Environmental Lighting Impact Assessments.

D4.5.57 An Obtrusive Light Assessment considers a number of parameters, these are outlined in GN01/21 and parameters relevant to the each of the lighting systems are simulated and analysed in the following Appendices:

- Potential for Obtrusive light due to internal lighting to British Library Extension: Appendix I5: Obtrusive Light Assessment – Interior Lighting.
- Potential for Obtrusive light due to public realm lighting: Appendix I6: Obtrusive Light Assessment – Public Realm Lighting
- Appendix I7: Obtrusive Light Assessment – Public Realm Lighting: Methodology.

D4.5.58 The primary parameter considered in both Obtrusive light assessments is '*Maximum values of vertical illuminance on properties*' (spill lighting).

[69] Commission internationale de l'éclairage 146:2002 & CIE 147:2002 Collection on glare (2002)

Significance criteria

Overview

D4.5.59 In terms of sensitivity, in accordance with the BRE Guidelines, surrounding residential properties are considered highly sensitive to daylight and sunlight levels, and specifically habitable rooms within the properties such as living rooms, kitchens and bedrooms. All existing residential receptors included within this assessment are considered highly sensitive due to the expectation of natural light and given equal weighting.

D4.5.60 Overshadowing receptors, which comprise public and private areas of open space such as parks and communal gardens in proximity to the Site, are considered highly sensitive and are considered within the assessment.

D4.5.61 For solar glare, viewpoints have been identified on basis of their high sensitivity from a safety perspective.

D4.5.62 Residential receptors to obtrusive light have been selected on the basis of their potential to be affected by Public Realm and Interior artificial lighting from the Proposed Development.

D4.5.63 The key terminology used to describe the magnitude of effects within this section is as follows:

- major
- moderate
- minor
- negligible.

D4.5.64 Following the determination of the significance of an effect, a clear statement is then made as to whether the effect is significant or not significant in EIA terms. As a general rule, the following criteria are applied:

- 'Moderate' or 'major' effects are deemed to be 'significant'
- 'Minor' or 'Negligible' effects are considered to be 'not significant'.

Evaluating the significance of effects – daylight and sunlight

D4.5.65 For daylight and sunlight, the BRE Guidelines outline an approach within the accompanying Appendix I to assigning criteria to assess the effects. This is summarised in the following paragraphs.

D4.5.66 Section 3 of Appendix I states:

> *"Adverse impacts occur when there is a significant decrease in the amount of skylight [and sunlight] reaching an existing building*

where it is required […]. The assessment of impact will depend on a combination of factors, and there is no simple rule of thumb that can be applied."

D4.5.67 Paragraph 5 of Appendix I states:

"Where the loss of skylight [and sunlight] fully meets the guidelines, the impact is assessed as negligible or minor adverse. Where the loss of light is well within the guidelines, or only a small number of windows […] lose light (within the guidelines), a classification of negligible impact is more appropriate. Where the loss of light is only just within the guidelines and a larger number of windows […] are affected, a minor adverse impact would be more appropriate, especially if there is a particularly strong requirement for daylight […] in the affected building […]."

D4.5.68 Paragraph 6 of Appendix I states:

"Where the loss of skylight [and sunlight] does not meet the guidelines in this book, the impact is assessed as minor, moderate or major adverse."

D4.5.69 The classification of minor adverse is documented within Appendix 1, Paragraph 6 of the BRE Guidelines:

"Factors tending towards a minor adverse impact include:

- *Only a small number of windows […] are affected;*
- *The loss of light is only marginally outside the guidelines;*
- *An affected room has other sources of skylight [and sunlight]; and/or*
- *The affected building […] has a low level of requirement for skylight [and sunlight]."*

D4.5.70 The classification of major adverse is documented within Appendix I, Paragraph 7 of the BRE Guidelines:

"Factors tending towards a major adverse impact include:

- *A large number of windows […] are affected;*
- *The loss of light is substantially outside the guidelines;*
- *All the windows in a particular property are affected; and*
- *The affected indoor […] spaces have a particular strong requirement for skylight [and sunlight], e.g. a living room in a dwelling […]."*

D4.5.71 Where the BRE Guidelines criteria are met, the effects have been considered negligible.

D4.5.72 Taking into consideration the BRE Guidelines, professional judgement has been used to determine whether the likely effects would result in adverse or beneficial daylight and sunlight effects. This has been informed by the application of initial numerical criteria for determining the scale of effect for VSC, NSL and PSH based on percentage alterations:

- 0 - 19.9% alteration = negligible
- 20 - 29.9% alteration = minor
- 30 - 39.9% alteration = moderate
- 40% alteration = major.

D4.5.73 When assigning an overall significance per property, consideration has been given to the proportion of rooms/windows affected, as well as the percentage alterations, absolute changes, and any other relevant factors. There may be mitigating factors such as balconies, overhangs or design features which may also affect the determination of assigning the criteria, which contribute to what the occupant is likely to experience in daylight and sunlight terms.

D4.5.74 Where the scale of VSC levels and NSL levels within a property differ, professional judgement has also been used to determine an overall significance. In addition, if the scale of annual and winter PSH differ greatly, professional judgement has also been used to determine the significance of the effect. This has been based on the factors previously stated.

D4.5.75 Detailed matters such as window size, room use, room size, window number or dual aspect rooms are also taken into account when assigning the overall significance per property, as well as the percentage alterations, absolute changes, and any other relevant factors..

D4.5.76 For instances where existing VSC, NSL and APSH levels within a property are low, any alteration may result in a disproportionate percentage change, whereby the actual change in daylight or sunlight within the property experienced by the occupant may not be as noticeable as the percentage change would suggest. This is another example of when professional judgement has been taken into account.

Evaluating the significance of effects – overshadowing

D4.5.77 The BRE Guidelines do not include criteria for the scale and nature of effects and subsequent significance of transient overshadowing other than to identify the different times of the day and year when shadow would be cast over a receptor area.

D4.5.78 The assessment of effects as a result of transient overshadowing is therefore based on professional judgement, taking into consideration

the baseline conditions and comparing these against the effect of the transient overshadowing arising from the Proposed Development.

D4.5.79 It is suggested in the BRE Guidelines that for an area to appear adequately sunlit throughout the year, at least half (50%) of the area should see direct sunlight for at least two hours on 21 March. If, as a result of new built form, an existing assessment area would not meet this value and the area which can receive two hours of direct sunlight on 21 March is reduced to less than 0.8 times its former area, then the loss of sunlight is likely to be noticeable. As no significant effects are shown to be likely in the transient overshadowing, a quantitative (Sun Hours on Ground) assessment has not been required.

D4.5.80 Where the results show compliance with the BRE Guidelines criteria, the occupants are unlikely to experience any noticeable change to their sunlight amenity levels. For the purposes of this assessment, such an effect would be considered insignificant. Where relevant criteria are not achieved, a judgement has been made as to the significance based on the level of loss, retained sunlight levels and the relevant baseline conditions

Evaluating the significance of effects – solar glare

D4.5.81 There are no quantitative criteria within the BRE Guidelines or elsewhere regarding acceptable levels of solar glare. Generally, however, solar reflections at high levels of a building are less likely to cause nuisance or distraction as one has to look upwards to see it. Professional judgement has been applied to assign the significance of solar glare arising from the Proposed Development and to determine the criteria for assessing the significance of solar glare effects.

D4.5.82 In terms of significance criteria, therefore, professional judgement has been used to determine the effect at the location rather than the individual perspectives within a section of track or road.

D4.5.83 Factors that influence the significance of effect include:

- sunlight availability probability
- area of façade off which reflections are visible
- period of time reflections are visible
- angle at which reflections are visible from line of sight
- intervening objects (e.g. trees) which may obscure views to the Proposed Development
- the time of day at which the solar reflection would occur (for example during peak traffic times).

D4.5.84 Mitigating factors such as alternative and unaffected signals/traffic lights and car visor angle will be considered within the assessment.

D4.5.85 Initially, the criteria summarised in Table 22 have been used to ascertain the possible significance for each view and the factors listed above have then been taken into consideration to determine the overall significance for the designated viewpoint.

Table 22: Scale of magnitude for solar glare assessment

Topic	Description
Negligible	No reflections are visible or, if visible, all would occur at angles greater than 30° from a driver's line of sight and so, as stated by the CIE, will be of "little significance".
Minor	Solar reflections are visible within 30° to 10°, or between 10° to 5° of a driver's line of sight for a short period of time.
Moderate	Solar reflections are visible within 10° and 5° of a driver's line of sight occurring for a long period of time.
Major	Solar reflections are visible within 5° of a driver's line of sight.

Cumulative effects

D4.5.86 Owing to their relative scale, distance from the Site and sensitive receptors, no surrounding cumulative schemes in Appendix D3 were considered relevant to the assessment results presented in Section 9.7 of ES Volume 1. As such cumulative assessment is not required in relation to daylight, sunlight, overshadowing, solar glare and obtrusive light.

Assumptions and limitations

D4.5.87 Where actual room layouts were available, these have been considered when modelling the internal layouts of surrounding properties. Where layout information was not available, assumptions have been made as to the use and internal configuration of the rooms (from external observations) behind the fenestration. In such cases a standard 4.2m (14ft) room depth has been assumed unless the building form dictated otherwise. This is common practice where access to buildings for surveying is unavailable.

D4.5.88 Floor levels have been assumed for surrounding properties where access has not been obtained. With the working plane located 850mm above the finished floor level, this has the potential to affect the assessment of NSL.

D4.5.89 For solar glare, although great care has been taken in identifying typical viewpoints, this does not guarantee that there are no additional sensitive locations where reflected solar glare could give rise to a significant effect. For practical reasons, the area of the assessment has been limited to the area surrounding the Proposed Development. At greater distances, the likelihood of solar reflections causing significant glare is reduced as the time that the Proposed Development would reflect sunlight is reduced and the area of façade visible constitutes a

reduced angle and so reduces the possibility of the whole sun disk being reflected.

D4.5.90 In addition, the methodology for solar glare is not aimed at addressing the intensity of an instance of reflected solar glare, but rather its occurrence, duration throughout the year, and the location of this occurrence in respect of an individual's line of sight. It is also be noted that the hours presented reflect solar time and therefore do not take Daylight Saving Hours into account.

D4.6 Environmental wind

Introduction

D4.6.1 This appendix sets out the methodology for assessing the likely significant effects on wind microclimate that would arise from the existence and operation of the Proposed Development. The methodology for assessing cumulative wind microclimate effects is also described.

D4.6.2 Excessive windiness at ground level may have significant effects on pedestrian comfort and safety. Success in addressing environmental wind issues can enhance the usability of external public spaces including building entrances.

Criteria

D4.6.3 The criteria used to describe windiness in this assessment are the Lawson criteria, developed for the London Docklands Development Corporation[70]. The Lawson criteria are used widely in the UK and around the world. These criteria are useful to describe windiness in terms of acceptability for particular activities. The Lawson criteria are intended for areas used regularly and are generally not considered as applicable to areas of 'good weather use' such as private gardens or balconies.

D4.6.4 Acceptable comfort conditions for various activities in order of increasing windiness are described in Table 23.

Table 23: Lawson comfort criteria

Criteria	Description
'Sitting'	Reading a newspaper, eating and drinking
'Standing' or short term sitting	Appropriate for building entrances, bus stops and window shopping, parks
'Strolling'	General areas of walking and sightseeing
'Business walking'	Local areas around tall buildings where people are not expected to linger

D4.6.5 In the assessment, the words 'Sitting', 'Standing', 'Strolling' and 'Business walking' are used to describe comfort levels of windiness as described in Table 23.

D4.6.6 As shown in Table 24, the Lawson criteria also contain distress criteria.

[70] TV Lawson of Bristol University, extracted from "The evaluation of the windiness of a building complex before construction", TV Lawson, London Docklands Development Corporation

Table 24: Lawson distress criteria

Distress criteria	Description
'General public access'	Members of the general public and cyclists are expected to be able to access the area safely in normal windy weather
'Able-bodied access'	The less able and cyclists may at times find conditions physically difficult
'Restricted access'	It may become impossible at times for an able-bodied person to remain standing

D4.6.7 In the assessment, the phrases 'general public', 'able-bodied' and 'restricted access' are used to describe safety levels of windiness as described in Table 24.

Terminology

D4.6.8 ESDU[71]: a documented methodology and computer program used to estimate the topographic effects on wind speeds as they approach a site. This is used to 'translate' wind speeds measured at an airport or meteorological station to the Site.

D4.6.9 Irwin probes: a robust, omnidirectional measurement device used to measure both the mean wind speed and lower-frequency fluctuations of pedestrian-level winds in wind tunnel testing. An Irwin probe consists of a sensor tube that projects above the ground to a scaled height of 1.5m. The tube is mounted within a round sensor hole at ground level and the pressure difference between the sensor hole and the top of the sensor tube is used to calculate the wind speed.

D4.6.10 Speed up ratios: in environmental wind engineering, a speed up ratio or speed up factor is a ratio between the wind speeds measured at ground level and a single reference point. The reference point should be above the area of interest in a part of the flow that is uninterrupted by the mixing happening below. This ratio allows the modelled wind speeds to be applied to the full-scale wind models.

Baseline conditions

D4.6.11 The same methodology for the assessment of existence and operational effects (described below) was used for the baseline.

Assessment methodology

Existence and operational effects

D4.6.12 A 1:300 scale model of the Proposed (and existing) Development and its surroundings was constructed and placed in a boundary layer wind

[71] ESDU (2012). 84011 *Wind speed profiles over terrain with roughness changes*. Available at: https://www.esdu.com/cgi-bin/ps.pl?sess=unlicensed_1210705093112gxg&t=doc&p=esdu_84011d-r1

tunnel for testing. A boundary layer wind tunnel is one that reproduces the earth's atmospheric boundary layer by adding roughness elements upstream of the model being tested. Sixteen wind directions have been tested (22.5° each) for each run to satisfy the requirements of the Lawson criteria. The wind data (strength and frequencies) to be used in the wind tunnel is London LDDC at 10m and adjusted to the Site using the ESDU methodology.

D4.6.13 Gust and mean wind speeds were obtained using Irwin probes for sixteen equal increments of wind direction. The probe locations were selected either due to wind sensitivity of the expected activity in the area (building entrances, external seating, etc.) or because the Site geometry suggested the possibility of undesirable wind conditions.

D4.6.14 The measured wind speed ratios were combined with the wind statistics for the Site to calculate seasonal and annual levels of windiness according to the 'comfort' and 'distress' limits in the Lawson criteria. These criteria define appropriate levels of windiness according to the type of activity being performed in the area and levels of windiness that may cause distress and have been used to derive significance criteria. These are set out in Table 25. All beneficial and adverse effects meeting the stated criteria are considered significant in EIA terms.

Table 25: Environmental wind significance criteria

Criterion type	Area applicable	Beneficial	Negligible	Adverse
Criterion for entrances	On-site locations	N/A.	'Standing' or better at primary entrances. 'General Public Access' at secondary entrances.	Exceedance of 'Strolling' at primary entrances. Exceedance of 'General Public Access' at secondary entrances.
	Off-site locations	Rectification of baseline adverse conditions.	As above, or no change from baseline	As above, if worse than baseline.
Criterion for general public access and cycling	On-site locations	N/A.	'General Public Access'.	Exceedance of 'General Public Access' distress criterion on main access routes with no reasonable alternatives.
	Off-site locations	Rectification of baseline adverse conditions.	As above, or no change from baseline.	As above, if worse than baseline.

Criterion type	Area applicable	Beneficial	Negligible	Adverse
Criterion for occasional access and routes primarily used by motor vehicles	On-site locations	N/A.	'Able-bodied Access' or better.	Exceedance of 'Able-bodied Access' criterion in any area likely to be used in windy weather.
	Off-site locations	Rectification of baseline adverse conditions.	As above, or no change from baseline.	As above, if worse than baseline.

Cumulative effects

D4.6.15 The cumulative effects describe the wind conditions experienced once the Proposed Development has been constructed and future developments in the surroundings are also present. The list of developments identified for assessment is presented in Appendix D3. Cumulative effects have been assessed in the same way as described for the existence and operational effects.

Assumptions and limitations

Assumptions

D4.6.16 Physical details less than 1m in size have not been modelled in the physical model used in wind tunnel testing. The model is built at a scale of 1:300 and anything less than 1m in size becomes too small for the model makers to accurately recreate.

D4.6.17 Landscaping outside the boundary of the Site has not been modelled. This provides a worst-case scenario as landscaping is usually beneficial to the wind environment.

D4.6.18 Landscaping within the Site boundary has been modelled using scale models of deciduous trees without foliage to represent a worst-case scenario. The final landscaping proposed is slightly different from what was tested in the wind tunnel. A qualitative assessment of the differences has been carried out by Arup's wind specialists who concluded that no adverse wind conditions are expected to arise.

D4.6.19 Photos of the landscaping tested are shown in Figure 8, Figure 9, Figure 10, Figure 11, and Figure 12.

Figure 8: Photos of the model of the proposed landscaping around the Proposed Development in the wind tunnel. View from west

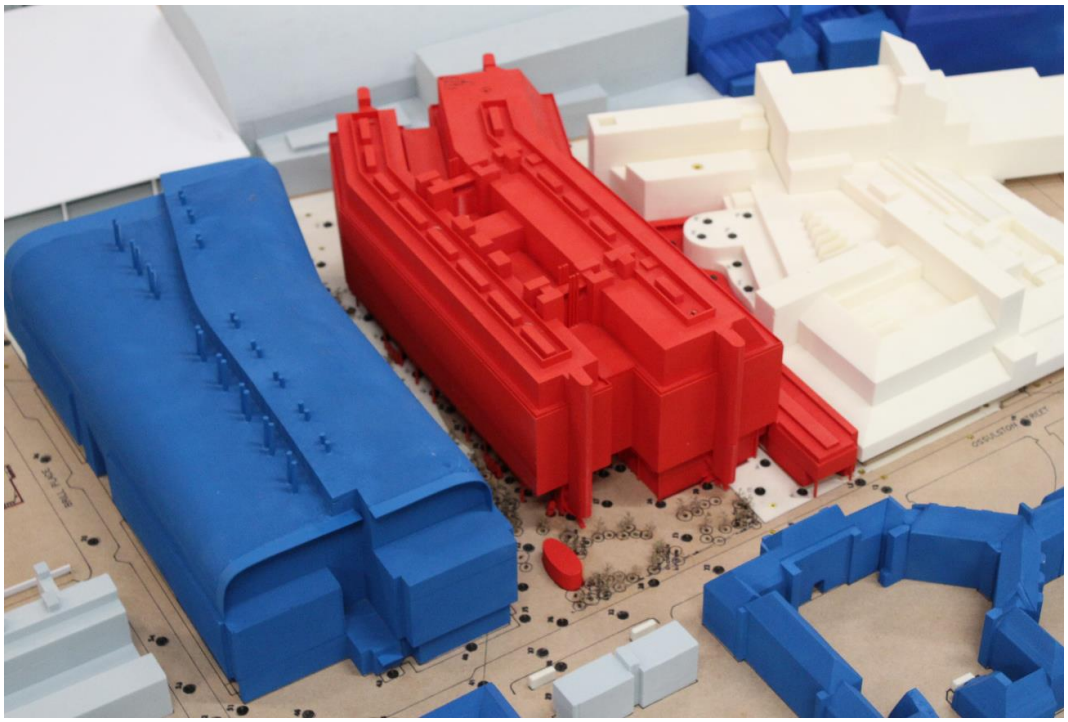


Figure 9: Photos of the model of the proposed landscaping around the Proposed Development in the wind tunnel. Close-up view from west.

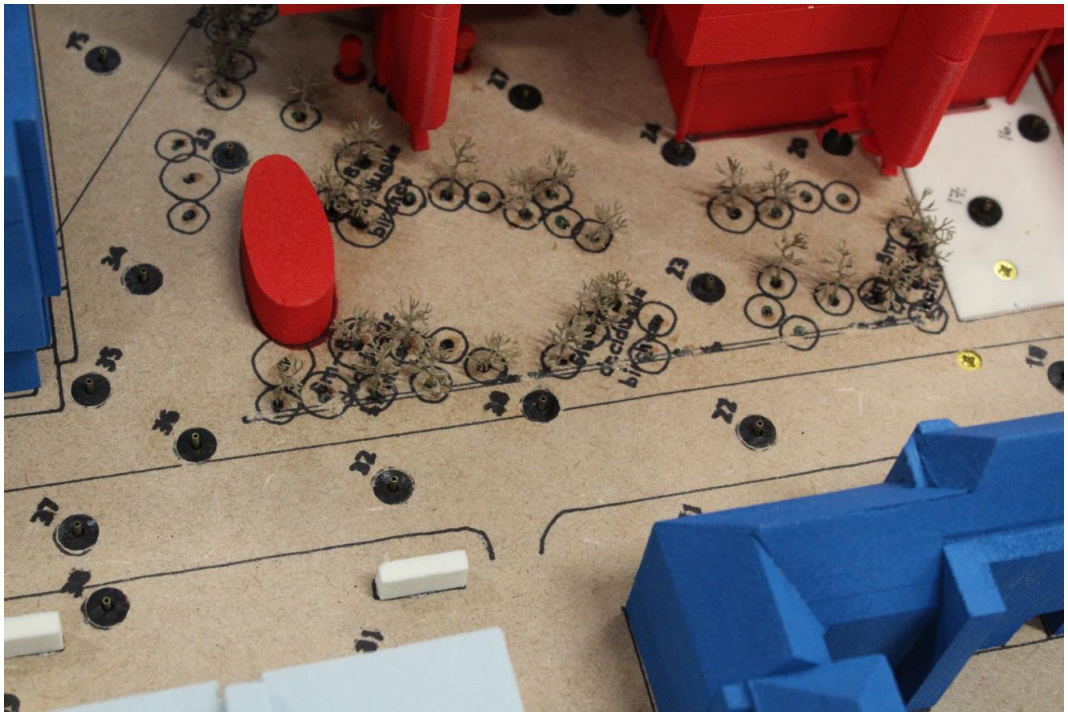


Figure 10: Photos of the model of the proposed landscaping around the Proposed Development in the wind tunnel. Close-up view from north.

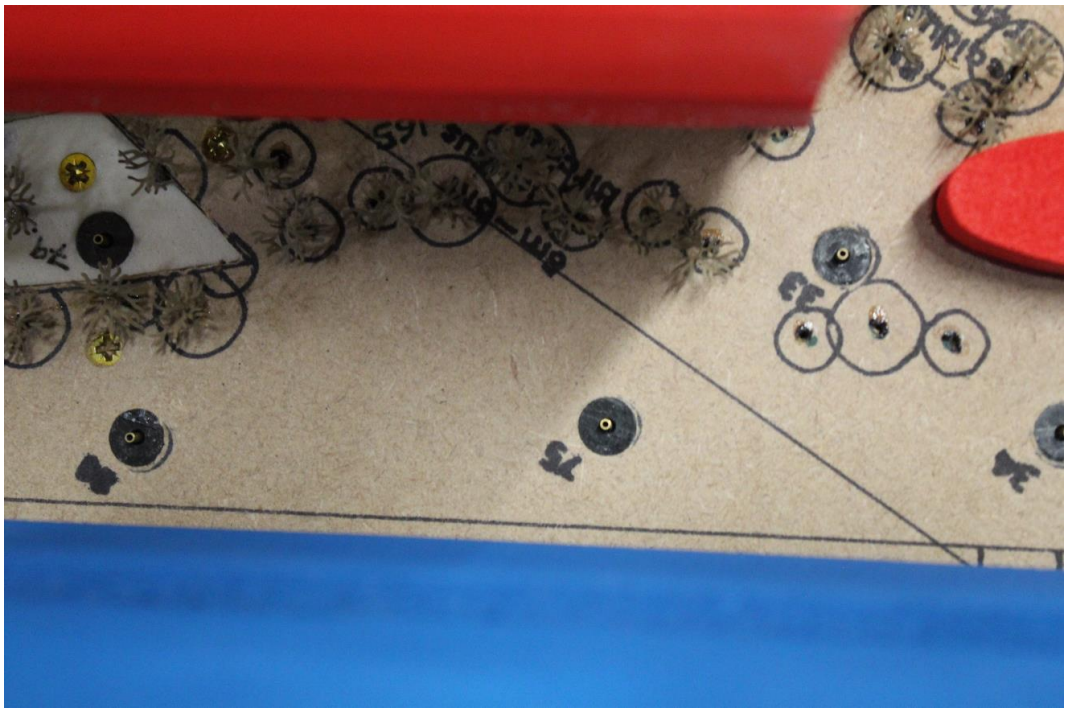


Figure 11: Photos of the model of the proposed landscaping around the Proposed Development in the wind tunnel. Close-up view from west.

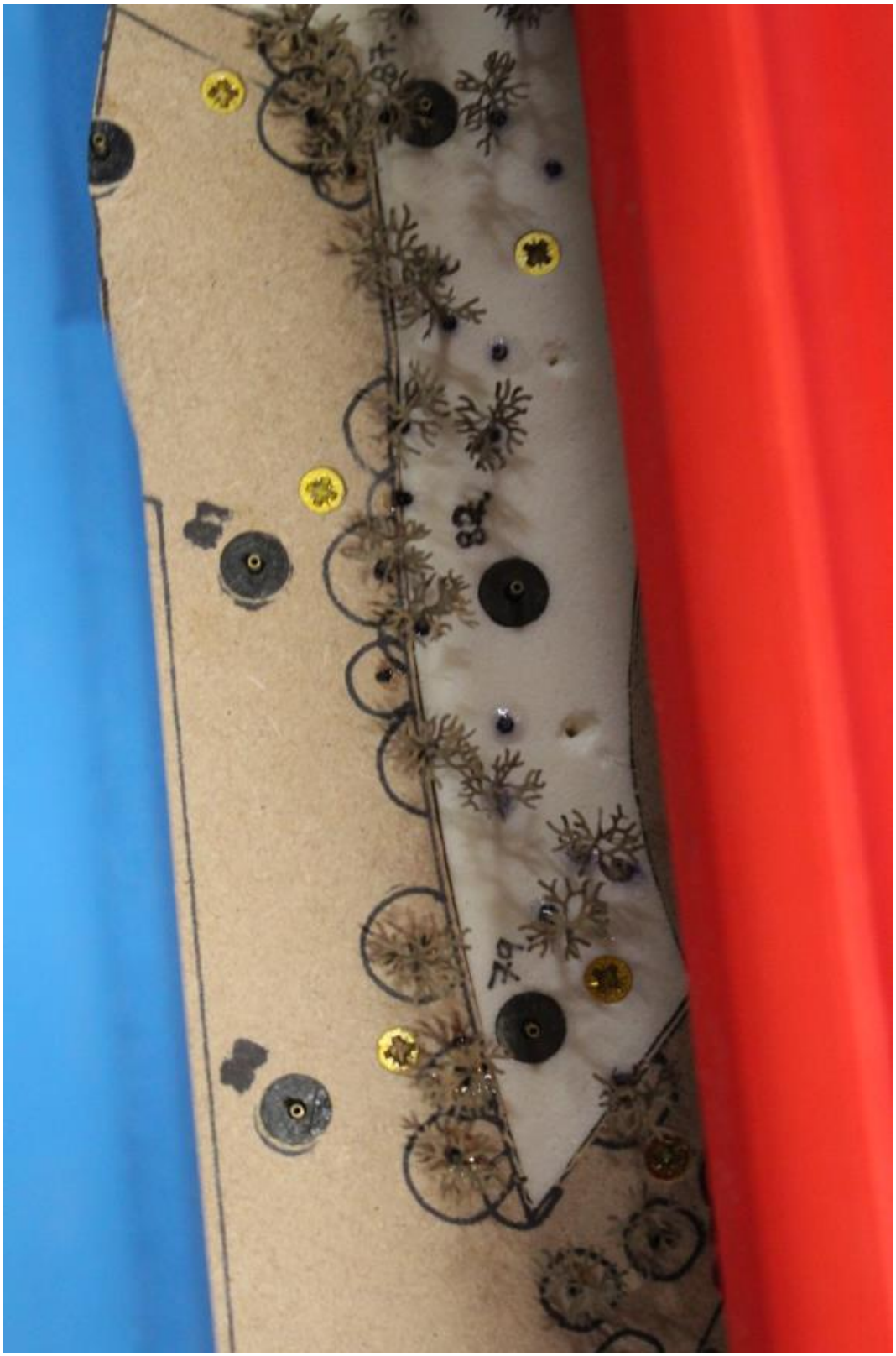
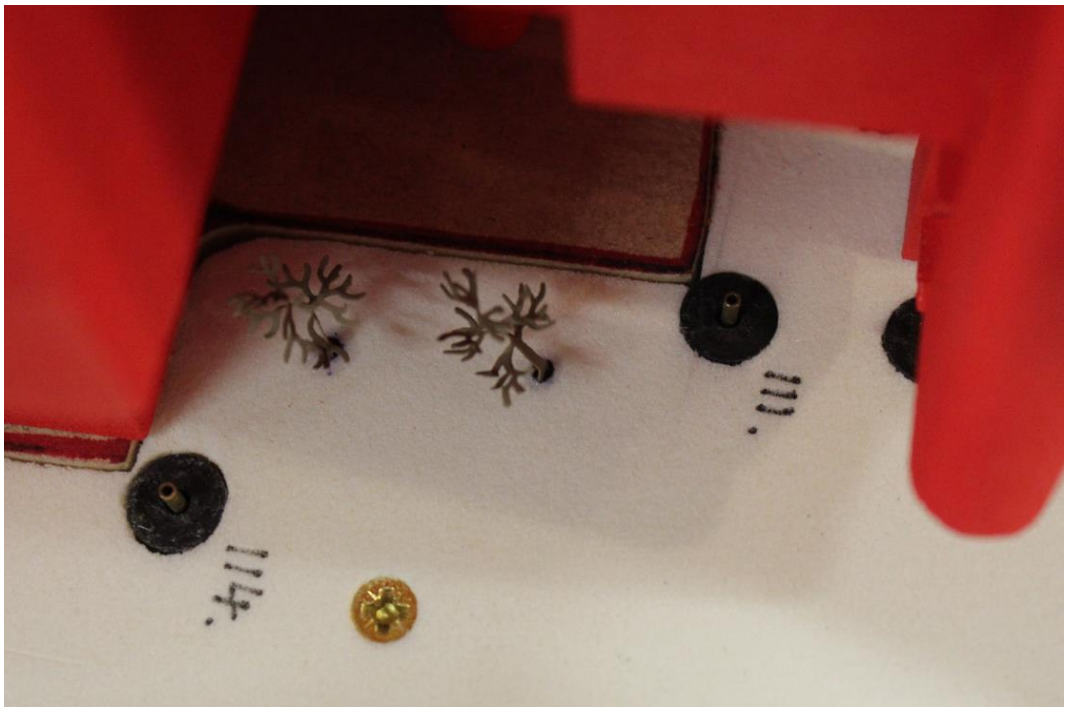


Figure 12: Photos of the model of the proposed landscaping around the Proposed Development in the wind tunnel. Close-up view from north.

Figure 6: Photos of the model of the proposed landscaping around the Proposed Development in the wind tunnel. Close-up of the main entrance view from east.



Limitations

D4.6.20 Wind conditions in the wind tunnel can only be measured at finite locations, where the probes are installed. The conditions between probes is unknown. Experience and expert judgment is used to qualitatively assess areas where recordings have not been taken.

D4.7 Noise and vibration

Introduction

D4.7.1 This appendix sets out the methodology for assessing the likely significant noise and vibration effects that would arise from the construction and operation of the Proposed Development. The methodology for assessing cumulative noise and vibration effects is also described, as well as assumptions and limitations associated with the noise and vibration assessment.

Baseline conditions

D4.7.2 The baseline noise conditions have been established by undertaking a 7-day continuously logged noise survey on the site. The availability of measurement locations was restricted as a result of the COVID-19 pandemic to secure locations at the boundary of the Site. The noise survey report is included in Appendix L1.

D4.7.3 Measurements were taken to support the assessment of noise effects on existing sensitive receptors. The noise measurement locations are shown in Figure 13. Residential properties are typically more sensitive than commercial receptors. As a result, where receptors contain a mix of residential and commercial uses, the focus of this assessment (and surveys) has been on the residential use as the more sensitive component.

D4.7.4 Noise logging measurements were taken at two locations between 8 and 15 December 2020.

D4.7.5 Traffic flows in the UK have been affected by the COVID-19 pandemic. Government data has been published showing the variation of traffic flows during this period[72]. The UK traffic flows during the noise survey period average at 87% of the pre-pandemic volume. Use of these figures as a baseline is therefore considered conservative.

D4.7.6 The measurement locations were chosen to provide typical ambient noise levels at representative noise sensitive receptors around the Proposed Development, as shown in Figure 13.

[72] Department for Transport Statistics (2020). *Transport use during the coronavirus (COVID-19) pandemic*. Available at: https://www.gov.uk/government/statistics/transport-use-during-the-coronavirus-covid-19-pandemic

Figure 13: Noise survey measurement and assessment receptor locations[73]

D4.7.7 The survey locations were as follows:

- Location 1 – in front of the 'pepperpot' building façade at rooftop level overlooking the residential properties on Ossulston Street
- Location 2 – on the roof terrace of the British Library building, overlooking Midland Road.

D4.7.8 All measurements were made with the microphone mounted using a tripod 1.2m – 1.5m above roof level under acoustically free field conditions (i.e. at least 3.5m from any acoustically reflecting surface other than the ground). Or mounted on a tripod, extended outside the façade using a boom with the microphone set about 1m away from the façade.

Noise survey methodology

D4.7.9 For the noise survey, sound level meters were set up to continuously record noise levels at Locations 1 and 2. The meters were set to record noise levels over contiguous 15-minute intervals for 24 hours to cover all three assessment periods, i.e. daytime, evening and night time. Logging periods were as follows:

- Location 1: Logging from 13:06 on 8 December 2020 to 12:06 on 15 December 2020

[73] NSR stands for noise sensitive receptor

- Location 2: Logging from 11:51 on 8 December 2020 to 11:36 on 15 December 2020.

D4.7.10 The meters were set to automatically store the L_{Aeq}, L_{A10}, L_{A90} and $L_{Amax,F}$ indices. Measurements were made with a fast (0.125s) time constant.

Construction effects

Demolition and construction site noise

Assessment area

D4.7.11 Construction noise from development sites at unscreened receptors is sometimes assessed up to a distance up to 300m from the site boundary (based on precedents from other projects and the limitations of the prediction methods). In practice, however, in built-up areas with relatively high ambient noise levels, it would be expected that effects would be limited to a much smaller radius where there are one or more intervening rows of buildings screening the works from noise sensitive receptors.

D4.7.12 The quantitative assessment has therefore focused on selected, representative receptors closest to the Site. At properties beyond these closest receptors, effects have been assessed in relation to the closest receptors, which would generally be exposed to higher noise levels and therefore represent the worst case. The assessment has included qualitative consideration of how the different relative positions (distances and screening) would affect the construction noise exposure of more distant properties.

Determining magnitude of impacts

D4.7.13 Predicted noise from construction activities has been calculated using the approach presented in BS 5228[74]: Part 1. This uses the schedule of construction plant that are likely to be required for the Proposed Development and the construction programme for this Proposed Development contained in Appendix L2. In the absence of a contractor and a defined construction plan, the assessment of construction noise has been based upon assumptions regarding construction activities and plant which would typically be expected for a project of this size type and scale.

D4.7.14 The BS 5228: Part 1 noise prediction method assumes typical source noise levels for the various items of plant equipment. The predicted noise levels at surrounding receptors have been calculated by considering the individual source noise levels of key noise-generating plant, the numbers of pieces of plant operating for different periods of

[74] British Standards Institution (2014). BS 5228-1:2009+A1:2014 and BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites

the day, the distance to the receptors and any intervening screening. The predicted noise levels represent a monthly average of construction activity.

Significance of effects

D4.7.15 The thresholds for determining significant effects from construction noise at receptors has been set according to the time of day that they occur and the prevailing ambient noise levels.

D4.7.16 For residential receptors, potential significant effects have been identified where construction noise exceeds the appropriate threshold using the ABC method in Annex E of BS 5228-1. The numeric criteria used for this assessment are described in Table 26.

Table 26: Threshold of potential significant effect at dwellings according to ABC Method in BS 5228–1:2009 + A1:2014 (potential significance in EIA terms).

Assessment category and threshold value period	Threshold value, dB(A)		
	Category A	Category B	Category C
Night-time (23:00 – 07:00)	45	50	55
Daytime (07:00 – 19:00) and Saturdays (07:00 – 13:00)	65	70	75
Other: Weekday evenings (19:00 – 23:00) Saturdays (13:00 – 23:00) Sundays (07:00 – 23:00)	55	60	65
Notes: Category A: threshold value to use when ambient noise levels (rounded to the nearest 5dB) are less than these values Category B: threshold value to use when ambient noise levels (rounded to the nearest 5dB) are the same as Category A values Category C: threshold value to use when ambient noise levels (rounded to the nearest 5dB) are higher than Category A values			

D4.7.17 The adverse impact threshold has been determined at a dwelling using the existing ambient noise level, rounded to the nearest 5 decibels (dB). This has then been used to determine the assessment category: A, B or C, which defines the adverse noise impact threshold according to the method. The predicted construction noise level is then compared to the appropriate noise impact threshold level. If the L_{Aeq} construction noise level exceeds the appropriate noise impact threshold level shown in

D4.7.18 Table 26, then an adverse impact with the potential to cause a significant effect is identified.

D4.7.19 For example, for a site exposed to an existing ambient noise level of 68dB(A), this would be rounded to 70dB(A). An ambient level of

70dB(A) is higher than the Category A value of 65dB(A) (see notes at bottom of

D4.7.20 Table 26), therefore the Category C value of 75dB(A) would apply as a threshold for potential significant effect.

D4.7.21 Having established if there is a potentially significant effect using the ABC method, the final assessment of significance is made using professional judgement based on other project-specific factors (as required in the BS 5228-1 methodology). This is evaluated by considering the expected duration of the activity and the character of the construction noise and its impact on the particular receptor (i.e. whether habitable rooms are affected such as bedrooms and living spaces).

D4.7.22 Additionally, it is a government policy requirement to consider predicted noise levels associated with the Proposed Development against the LOAEL and SOAEL criteria[75]. The thresholds, shown in Table 27, have been used to establish the LOAEL and SOAEL criteria for monthly average construction noise levels. These effect thresholds in government policy terms have been based upon the ABC thresholds described in BS 5228-1.

Table 27: Thresholds of potential effects of construction noise at residential buildings in terms of government policy

Effect threshold (residential)	Threshold value, 1m in front of the relevant façade
LOAEL	day 65dB$L_{Aeq,daytime}$ evening 55dB$L_{Aeq,1hr}$ night 45dB$L_{Aeq,1hr}$
SOAEL	day 75dB$L_{Aeq,daytime}$ evening 65dB$L_{Aeq,1hr}$ night 55dB$L_{Aeq,1hr}$
Note: Day is 07:00 to 19:00, evening is 19:00 to 23:00, and night is 23:00 to 07:00	

D4.7.23 For non-residential receptors, significant effects have been evaluated on a receptor-by-receptor basis using established impact criteria where appropriate for the particular use of the non-residential receptor, such as BS 8233[76] for guidance on internal noise levels. Where existing baseline noise levels are already in excess of the proposed thresholds, an increase of 3dB, relating to a perceptible increase in noise level, is

[75] Lowest Observed Adverse Effect Level (LOAEL) and Significant Observed Adverse Effect Level (SOAEL) – see 'Determining significance of effects' of Section 12, ES Volume 1 explaining National Policy relating to these thresholds. The policy action for effects above the LOAEL is to '*mitigate and reduce to a minimum',* and for effects above the SOAEL the policy action is for these to be '*avoided'.*

[76] British Standards Institution (2014). BS 8233 Guidance on sound insulation and noise reduction for buildings, British Standards Institution.

taken as an indication of potential significant adverse impacts. Additional factors are taken into consideration in determining the final assessment of significance, as described in D4.7.21.

Demolition and construction site vibration

Assessment area

D4.7.24 Only a small number of specific types of construction activities give rise to significant levels of vibration from construction and then only where they are employed close to sensitive receptors. Therefore, the vibration assessment area considers the closest receptors immediately surrounding the Proposed Development.

Determining the magnitude of impacts

D4.7.25 Where applicable, vibration from construction sources has been considered using the procedure identified in Transport Research Laboratory Report 429[77] on ground-borne vibration caused by mechanised construction works, which is included in BS 5228: Part 2. This standard provides typical source vibration levels for particular items of plant.

Significance of effects

D4.7.26 The assessment of construction vibration effects has been based on the approaches set out in BS 5228: Part 2. The identification of significant vibration effects at residential properties is complex due to the highly variable nature and duration of vibration impacts arising from construction work.

D4.7.27 BS 5228: Part 2 indicates that the threshold of perception in residential environments corresponds with a Peak Particle Velocity (PPV) of 0.3 mm/s. The Standard also states that complaints are likely where levels occur above 1.0 mm/s PPV at residential properties, but this exposure can be tolerated if prior warning and explanation has been given to residents. Levels of vibration of 10 mm/s PPV and above are likely to be intolerable for any more than a very brief exposure to this level.

D4.7.28 The overall significance of the effect, including the exceedance of LOAEL or SOAEL thresholds, is assessed using professional judgement by considering not only the criteria above but also other factors, such as the duration of exposure, if habitable rooms are affected, and the particular characteristics of the source and its potential to disturb[78].

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[77] Hiller, DM, Crabb, GI (2000). *TRL Report 429-2000, Groundborne Vibration caused by mechanised construction works*. Transport Research Laboratory, Berkshire

[78] PPG-Noise (2014 – updated 2019). notes in relation to LOAEL and SOAEL (also applicable to vibration) that: *'Although the word 'level' is used here, this does not mean that the effects can only*

D4.7.29 The Francis Crick Institute (FCI) is considered vibration sensitive owing to its use for nano-technology research activities. Discussions are ongoing with the FCI regarding vibration limits that are considered acceptable.

D4.7.30 Risk of damage to buildings from ground-borne vibration has been assessed using the criteria in Table 3. The criteria have been derived from BS7385, Part 2[79]. This ensures there is no risk of the lowest damage category ('cosmetic') being exceeded, as defined in BS ISO 4866. However, effects in terms of even cosmetic damage to buildings would occur only for vibration exposures much higher than the lowest perceptible levels.

D4.7.31 For the purposes of this assessment, the significance thresholds for risk of cosmetic damage is set to the criteria in Table 28. In this case, the SOAEL is set at the same threshold.

Table 28: Vibration impact criteria for buildings (conservative criteria below which there is no risk of cosmetic damage)

Category of building	Peak particle velocity[1] (mms^{-1})	
	Transient[2] vibration	Continuous[3] vibration
Potentially vulnerable building	6	3
Structurally sound buildings	12	6
Notes: 1 At the building foundation 2 Transient relative to building response, e.g. from percussive piling 3 Continuous relative to building response, e.g. from vibratory piling, vibrating rollers		

Construction road traffic noise

Assessment area

D4.7.32 Off-site construction road traffic routes on the public road network have been considered as part of the assessment where any of the following criteria apply:

- the flow changes are estimated to be greater than +25% or -20%
- HGV composition would change by 5%
- mean speeds would change by 10km/h.

be defined in terms of a single value of noise exposure. In some circumstances adverse effects are defined in terms of a combination of more than one factor such as noise exposure, the number of occurrences of the noise in a given time period, the duration of the noise and the time of day the noise occurs.

[79] British Standards Institution (1993). BS 7385-2 Evaluation and measurement for vibration in buildings – Guide to damage levels from groundborne vibration, British Standards Institution.

D4.7.33 These criteria relate to the potential for road construction traffic to cause traffic noise level changes of at least 1dB. Changes below these thresholds are considered to be negligible. This methodology has been used to assess the change in noise level over the daytime period (08:00 until 18:00) potentially associated with construction traffic on Euston Road and Midland Road, where baseline traffic flows have been established.

D4.7.34 Within the Site itself, the movement of vehicles has been considered as part of the methodology for demolition and construction noise described above.

Determining magnitude of impacts

D4.7.35 The Department of Transport Memorandum Calculation of Road Traffic Noise[80] (CRTN) presents a procedure for the prediction of road traffic noise. The relevant parts of this procedure have been used to predict, for a given road at a reference distance (10m), the change in noise level resulting from the change in road traffic between the baseline scenario and the assessment case with construction traffic.

D4.7.36 For minor roads around the Site, such as Ossulston Street, the traffic flows are not available. For this situation, the significance of construction road traffic noise has been compared against the prevailing noise level established from the measurement of noise at measurement Location 1.

Significance of effects

D4.7.37 The change in construction road traffic noise on the public roads around the Proposed Development between the baseline and the assessment case with construction traffic has been determined to be a potentially significant effect where the change would be greater than 3dB. This is based on the Design Manual for Roads and Bridges (DMRB) LA 111[81] traffic noise change criteria to indicate a potential significant effect.

D4.7.38 The final assessment of significance is made using professional judgement based on expected duration of the traffic noise change and its impact on the particular receptor (i.e. whether habitable rooms are affected).

D4.7.39 In the case of construction traffic, the LOAEL and SOAEL criteria have been set consistent with the construction noise criteria shown in Table 27, since they relate to the temporary situation and would only occur for part of the construction programme.

[80] Department of Transport Welsh Office (1988). *Calculation of Road Traffic Noise*. HMSO.
[81] Highways England, Design Manual for Roads and Bridges (2020). *LA 111: Noise and vibration.* Available at: https://www.standardsforhighways.co.uk/dmrb/search/cc8cfcf7-c235-4052-8d32-d5398796b364

Operational noise

Road traffic

Assessment area

D4.7.40 Indirect effects from road traffic noise associated with the Proposed Development on the public road network have been considered where flow, speed and HGV composition indicate a greater than negligible effect, using the same traffic change criteria as described in paragraph D4.7.32.

Determining magnitude of impacts

D4.7.41 The same CRTN method described in paragraph D4.7.35 for construction traffic has been used for the prediction of changes in traffic noise, but for operational road traffic noise with the Proposed Development in place in this case.

Significance of effects

D4.7.42 Assessment of operational road traffic noise has been carried out using the assessment principles of DMRB LA 111[81], which is to compare the traffic noise levels for the baseline situation with the scenario with a new or altered highway scheme. In this case this has been based on the forecast traffic changes taken from the Transport Assessment between the baseline scenario and the operational 'with Proposed Development' scenario in operational assessment years.

D4.7.43 An initial indicator of a significant effect for road traffic noise is identified in LA 111 where at least a 3dB increase (or decrease) in road traffic noise level would occur. The comparison of baseline and with-development noise levels is carried out at a standard reference distance of 10m for the purpose of determining impact.

D4.7.44 The final assessment of significance for operational traffic noise is based upon the additional criteria given in LA 111 which requires consideration of the context of the change for each receptor. These factors, which should be considered collectively in the assessment, are:

- how close the noise level change is to the potential significance threshold, i.e. within 1dB above or below the 3dB change threshold noted above
- the extent to which impacts occur in both the short-term and the longer-term
- the absolute noise level, where the baseline traffic noise level is above the SOAEL, any increase in level greater than 1dB is assessed as a potentially significant effect

- whether noise sensitive parts of a receptor are exposed to the noise impact
- acoustic context, whether there is an impact on the acoustic character of the area, not simply the noise level change.

D4.7.45 In terms of government policy, the LOAEL and SOAEL for road traffic noise for this assessment are given in Table 29 (from LA 111).

Table 29: Thresholds of potential effects of road traffic noise at residential buildings in terms of government policy

Time period	Effect level (façade level), dBLAeq,T	
	LOAEL	SOAEL
Day	55dBL$_{A10,18h}$ (façade) 50dBL$_{Aeq,16h}$ (free-field)	68dBL$_{A10,18h}$ (façade) 63dBL$_{Aeq,16h}$ (free-field)
Night	40dBL$_{Aeq,8hr}$ Lnight,outside (free-field)	55dBL$_{Aeq,8hr}$ Lnight,outside (free-field)

Assumptions and limitations

D4.7.46 The predicted level of noise from construction depends on the particular items of plant used and the time duration that the plant is active. The assumptions made regarding construction activities and plant are based on the experience of the engineering specialists developing the design. These assumptions are considered to be a conservative, reasonable, illustrative scenario for the purpose of this assessment.

D4.8 Socio-economics

Introduction

D4.8.1 This appendix sets out the methodology for assessing the likely significant effects on socio-economic receptors that would arise from the operation of the Proposed Development. The methodology for assessing cumulative socio-economic effects is also described.

Baseline conditions

D4.8.2 The assessment, where applicable draws on relevant baseline data at the following scales:

- St Pancras and Somers Town ward
- London's Knowledge Quarter[82]
- Borough (London Borough of Camden)
- Regional (London).

D4.8.3 The geographies chosen for assessment of different baseline sub-topics are flexible and reflect the characteristics of each receptor.

D4.8.4 Key data sources for the assessment are:

- Office for national Statistics (ONS)
- Business Register and Employment Survey (BRES)
- Economic Value and Knowledge Quarter Uses Statement (submitted separately with the planning application).

Employment

D4.8.5 The baseline amount of existing employment has been provided by the British Library and is considered in the operational assessment. The occupational and skills profile of existing residents are also established for use in the operational effects assessment.

Wider socio-economic impacts

D4.8.6 The baseline conditions are established through a qualitative review of the site's location within London's Knowledge Quarter, drawing on the findings of the Economic Value and Knowledge Quarter Uses Statement submitted separately with the planning application.

[82] As defined in ES Volume 1, Section 13.5

Assessment methodology

Operational effects

Employment – residents living in St Pancras and Somers Town ward, the London Borough of Camden and London seeking employment

D4.8.7 Taking into account baseline data regarding existing employment uses, an assessment of the net employment effect of the Proposed Development has been undertaken using the estimated employment floorspace supported by the Proposed Development.

D4.8.8 The works involve extending the northern aspect of the existing British Library to provide library accommodation, commercial and lab-enabled office, and retail space.

D4.8.9 In terms of library floorspace, the Proposed Development consists of demolition and reprovision of the British Library Centre for Conservation (BLCC) and the British Library Sound Archive and the construction of new library accommodation. In considering existing versus proposed employment supported by the Library uses, the following assumptions have been made:

- no net additional jobs relating to the British Library Centre for Conservation (BLCC)
- no net additional jobs relating to the British Library Sound Archive
- 30 net additional jobs relating to the new library accommodation (it is assumed that these are FTE).

D4.8.10 In terms of wider employment uses, the Proposed Development includes some flexibility around the potential mix of employment uses, which would each result in different net employment effects.

D4.8.11 The Economic Value and Knowledge Quarter Uses Statement accompanying the planning application states that there would be a focus on attracting Science and Research companies, start-ups and universities, all of which would benefit from direct proximity to the Frances Crick Institute and the Alan Turing Institute, and the hub of the Knowledge Quarter. Two main scenarios covering the uncertainty in end user have been considered. These are:

- Scenario 1: ‘Office-led occupation’: conventional and affordable offices but no incubator or lab-enabled offices
- Scenario 2: ‘Lab-led occupation’: does not include affordable offices but an incubator and several floors of lab-enabled offices, as well as conventional offices.

D4.8.12 Within these two end user scenarios, three density scenarios (conservative, medium and dense[83]) of additional job numbers for two floorspace scenarios have been considered.

D4.8.13 The scenarios assessed account for the potential range in socio-economic effects. It should be emphasised that these jobs figures are based on estimations in lieu of any guarantee (now or through the building's lifespan) regarding future tenants and therefore the specific sectors occupying the new floorspace.

Scenario 1 additional jobs: office-led occupation

Table 30: Scenario 1.1: Conservative.

Type of space		Employment Density		Total FTE jobs created
Office	Conventional office	12	NIA sqm/job	3,940
	Affordable workspace	10	NIA sqm/job	670
ATI	Alan Turing Institute	12	NIA sqm/job	90
Retail	Retail	20	NIA sqm/job	30
Total jobs				*4,720*

Table 31: Scenario 1.2: Medium.

Type of space		Employment Density		Total FTE jobs created
Office	Conventional office	10	NIA sqm/job	4,730
	Affordable workspace	8	NIA sqm/job	830
ATI	Alan Turing Institute	10	NIA sqm/job	100
Retail	Retail	14	NIA sqm/job	40
Total jobs				*5,700*

Table 32: Scenario 1.3: Dense.

Type of space		Employment Density		Total FTE jobs created
Office	Conventional office	8	NIA sqm/job	5,920
	Affordable workspace	8	NIA sqm/job	830
ATI	Alan Turing Institute	8	NIA sqm/job	100
Retail	Retail	10	NIA sqm/job	40
Total jobs				*6,910*

Scenario 2 Additional jobs: lab-led occupation

Table 33: Scenario 2.1: Conservative.

Type of space		Employment Density		Total FTE jobs created
Office	Conventional office	12	NIA sqm/job	1,170
	Lab-enabled	50	NIA sqm/job	630
	Incubator	60	NIA sqm/job	100
ATI	Alan Turing Institute	12	NIA sqm/job	90
Retail	Retail	20	NIA sqm/job	30
Total jobs				*2,010*

[83] Density assumptions for additional job calculation, based on Employment Density Guide 3rd edition, 2015, and Arup analysis

Table 34: Scenario 2.2: Medium.

Type of space		Employment Density		Total FTE jobs created
Office	Conventional office	10	NIA sqm/job	1,400
	Lab-enabled	25	NIA sqm/job	1,260
	Incubator	20	NIA sqm/job	310
ATI	Alan Turing Institute	10	NIA sqm/job	100
Retail	Retail	14	NIA sqm/job	40
Total jobs				*3,110*

Table 35: Scenario 2.3: Dense.

Type of space		Employment Density		Total FTE jobs created
Office	Conventional office	8	NIA sqm/job	1,750
	Lab-enabled	10	NIA sqm/job	3,140
	Incubator	15	NIA sqm/job	420
ATI	Alan Turing Institute	8	NIA sqm/job	130
Retail	Retail	10	NIA sqm/job	40
Total jobs				*5,470*

D4.8.14 Overall, the Economic Value and Knowledge Quarter Uses Statement calculates that the Proposed Development could sustain between 2,010 and 6,910 jobs. For the purposes of the socio-economic assessment, the medium density scenario has been taken forward, as through professional judgement, and experience, the medium density is the most likely scenario, which suggests that Scenarios 1 and 2 could sustain approximately 5,700 or 3,110 jobs (on-site direct employment) respectively. In combination with the new jobs generated by the library, this would equate to 5,730 or 3,140 jobs.

D4.8.15 It is also important to consider the indirect and induced FTE jobs. Table 36 sets out the additionality factors used to calculate indirect and induced FTE jobs at the borough and London scale. Appendix M2 details the supporting calculations.

Table 36: Additionality factors applied to the calculation of operational employment.

Additionality factor	Value	Justification
Leakage (percentage of jobs generated by the Proposed Development which are taken up by residents outside of LB Camden and London)	LB Camden: 25% London: 10%	For the purposes of Scenarios 1 and 2, a medium leakage rate has been assumed at the borough scale and a low leakage rate is assumed at the London scale, based on the ready reckoner set out in Table 4.3 of the HCA (2014) Additionality Guide[84]. This is based on the consideration of employment opportunities being accessible to residents.
Displacement (percentage of jobs generated by the Proposed Development which are offset by reductions in economic activity elsewhere).	LB Camden: 25% London: 25%	It is anticipated that the Proposed Development may accommodate employment activities previously located elsewhere, therefore a low displacement rate of 25% is assumed, based on the ready

[84] Available at: https://www.gov.uk/government/publications/additionality-guide

Additionality factor	Value	Justification
		reckoner set out in Table 4.8 of the HCA Additionality Guide.
Multiplier (further economic activities which result from either labour supply or direct labour demands).	LB Camden: 1.3 London: 1.5	It is anticipated that the employment sectors to be accommodated in the Proposed Development would have average supply chain linkages, therefore the multipliers set out for the borough level (LB Camden) and the regional level (London) in Table 4.14 of the HCA Additionality Guide have been used.
Substitution (where a firm substitutes one activity for a similar one)	LB Camden: 0% London: 0%	It is anticipated that the Proposed Development would not lead to a substitution of activities, therefore a substitution factor is not applied.
Deadweight (the amount of employment that could be accommodated if the Proposed Development did not go ahead)	LB Camden: 50% of gross direct baseline employment (FTE) London: 10% of gross direct baseline employment (FTE)	The Proposed Development is proposed on a site with existing employment uses. Whilst the jobs figure for the British Library complex is known, it has not been possible to apportion an estimated Reference Case (i.e. number of FTE jobs supported by on-site employment generating uses) to all existing floorspace within the red line boundary. In order to calculate deadweight, 50% of the Reference Case would usually be subtracted from the gross employment generated by the Proposed Development at the LB Camden scale and 10% at the London scale. On the basis that the gross jobs figure does not account for employment generated from the new library uses (as there is assumed to be limited change), the Reference Case in this instance is 0. Further detail on the calculations is provided in Appendix M2.

Wider socio-economic impacts – residents St Pancras and Somers Town Ward, London Borough of Camden and London; institutions/ companies within London's Knowledge Quarter

D4.8.16 A qualitative assessment has been undertaken to consider how the Proposed Development may result in wider socio-economic effects for defined receptors. The assessment focusses on:

- how the provision of new and enhanced social infrastructure/ public institutional space (library floorspace) and public realm may result in beneficial effects for residents in the St Pancras and Somers Town Ward, LB Camden and London
- how the provision of new library and employment generating floorspace may generate value to knowledge creation and innovation within London's Knowledge Quarter, resulting in beneficial effects for surrounding institutions and companies.

D4.9 Assessment criteria

D4.9.1 There is no definitive set of criteria for assessing the significance of socio-economic effects, although there are conventions and good practice guidance. The assessment is therefore based on convention, professional judgement and experience, and considers the value and sensitivity of receptors from the baseline socio-economic characteristics, based on their importance, size and potential for substitution, as well as the magnitude of the net additional impact based on qualitative and quantitative evidence (where applicable).

D4.9.2 The adjudged significance is a product of the magnitude of effects (Table 37) and the sensitivity of the receptor (Table 38). Significance equates to both adverse and beneficial effects through the consideration of the costs and benefits and the overarching objective. In EIA terms, an effect of moderate or substantial significance, as judged in Table 37, is deemed to be significant.

Table 37: Effect significance matrix.

Magnitude of effect	**Sensitivity of receptor**				
	Very high	**High**	**Medium**	**Low**	**Negligible**
Very large	Substantial significance	Substantial significance	Moderate significance	Moderate significance	[1]
Large	Substantial significance	Moderate significance	Moderate significance	Minor significance	[2]
Medium	Moderate significance	Moderate significance	Minor significance	[2]	Neutral significance
Small	Moderate significance	Minor significance	[2]	Neutral significance	Neutral significance
Negligible	[1]	[2]	Neutral significance	Neutral significance	Neutral significance
[1] The choice between 'Moderate significance', 'Minor significance' and 'Neutral significance' depends on the specifics of the impact and has been informed by professional judgement and reasoning.					
[2] The choice between 'Minor significance' and 'Neutral significance' depends on the specifics of the impact and has been informed by professional judgement and reasoning.					

Table 38: Methodology for determining receptor sensitivity.

Sensitivity	**Examples of receptor/resource**
Very high	Very high importance and rarity, very limited potential for substitution
High	High importance and rarity, limited potential for substitution
Medium	Medium importance and rarity, limited potential for substitution
Low	Low importance and rarity, potential for substitution
Negligible	Very low importance and rarity, potential for substitution

Assumptions and limitations

D4.9.3 In producing the methodology, evidence-and judgement-based assumptions have been made on:

- employment multipliers for indirect and induced effects
- leakage, deadweight and displacement of employment effects
- employment densities (as established through Economic Value and Knowledge Quarter Uses Statement)
- scale of impact for the assessments, as defined by receptor.

Appendix E

Appendices to Section 5, Air quality

E1 Standards, legislation and policy

E1.1 Air quality standards and legislation

Environment Act 1995

E1.1.1.1 Part IV of the Environment Act 1995[1] places a duty on the Secretary of State for the Environment to develop, implement and maintain an air quality strategy with the aim of reducing atmospheric emissions and improving air quality. The national air quality strategy (NAQS) for England, Scotland, Wales and Northern Ireland provides the framework for ensuring compliance with air quality limit values based on a combination of international, national and local measures to reduce emissions and improve air quality. This includes the statutory duty, also under Part IV of the Environment Act 1995, for local authorities to undergo a process of local air quality management and declare Air Quality Management Areas (AQMAs) where necessary.

National air quality objectives

E1.1.1.2 The Air Quality Standards Regulations 2010 (amended in 2016)[2] defines the policy framework for 12 air pollutants known to have harmful effects on human health or the natural environment. The Secretary of State for the Environment has the duty of ensuring compliance with the air quality limit values (pollutant concentrations not to be exceeded by a certain date). Air quality limit values and objectives are quality standards for clean air. Some pollutants have standards expressed as annual mean concentrations due to the chronic way in which they affect health or the natural environment (i.e. effects occur (long-term) after a prolonged period of exposure to elevated concentrations) and others have standards expressed as 24-hour, 1-hour or 15-minute average concentrations (short-term) due to the acute way in which they affect health or the natural environment (i.e. after a relatively short period of exposure). Some pollutants have standards expressed in terms of both long-term and short-term concentrations. Table 1 sets out the air quality standards for the pollutants relevant to this study (NO_2 and particulate matter).

Table 1: Air quality standards

Pollutant	Averaging period	Limit value/objective

[1] Environment Act 1995, Chapter 25, Part IV Air Quality.
[2] The Air Quality Standards Regulations 2010, SI 2010/1001

Nitrogen dioxide (NO_2)	1-hour mean	200µg/m^3, not to be exceeded more than 18 times a year (99.79th percentile)
	Annual mean	40µg/m^3
Fine particulate matter (PM_{10})	Daily mean	50µg/m^3, not to be exceeded more than 35 times a year (90.4th percentile)
	Annual mean	40µg/m^3
Very fine particulate matter ($PM_{2.5}$)	Annual mean	25µg/m^3

Dust nuisance

E1.1.1.3 Dust is the generic term that the British Standard document BS 6069[3] (Part Two) used to describe particulate matter in the size range 1 – 75 µm (micrometres) in diameter. Dust nuisance is the result of the perception of the soiling of surfaces by excessive rates of dust deposition. Under provisions in the Environmental Protection Act 1990, dust nuisance is defined as a statutory nuisance.

E1.1.1.4 There are currently no standards or guidelines for dust nuisance in the UK, nor are formal dust deposition standards specified. This reflects the uncertainties in dust monitoring technology, and the highly subjective relationship between deposition events, surface soiling and the perception of such events as a nuisance. In law, complaints about excessive dust deposition would have to be investigated by the local authority and any complaint upheld for a statutory nuisance to occur. However, dust deposition is generally managed by suitable on-site practices and mitigation rather than by the determination of statutory nuisance and/or prosecution or enforcement notice(s).

E1.2 Planning policy and guidance

National Planning Policy Framework

E1.2.1.1 The National Planning Policy Framework (NPPF)[4] was updated in July 2021 with the purpose of planning to achieve sustainable development. Paragraph 186 of the NPPF on air quality states that:

> *"Planning policies and decisions should sustain and contribute towards compliance with relevant limit values or national objectives for pollutants, taking into account the presence of Air Quality Management Areas and Clean Air Zones, and the cumulative impacts from individual sites in local areas. Opportunities to improve air quality or mitigate impacts should be identified, such as through traffic and travel management, and green infrastructure provision and enhancement. So far as possible these opportunities should be considered at the plan-making stage, to ensure a strategic approach and limit the need for issues to be reconsidered when determining individual applications. Planning decisions should ensure that any new development in Air Quality*

[3] British Standards Institute (1993) *BS 6069 Characterization of air quality. General.* London: BSI
[4] Ministry of Housing, Communities and Local Government (2021). *National Planning Policy Framework*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

Management Areas and Clean Air Zones is consistent with the local air quality action plan."

E1.2.1.2 In addition, paragraph 105 states that:

"The planning system should actively manage patterns of growth in support of these objectives. Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."

E1.2.1.3 Paragraph 174 discusses how planning policies and decisions should contribute to and enhance the natural and local environment. In relation to air quality, NPPF notes that this can be achieved by:

"e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans."

Planning Practice Guidance

E1.2.1.4 Planning Practice Guidance (PPG) on air quality to supplement the latest NPPF was updated in November 2019[5]. The guidance refers to the significance of air quality assessments to determine the impacts of proposed developments in the area and describes the role of local and neighbourhood plans with regard to air quality. It also provides a flowchart method to assist local authorities to determine how considerations of air quality fit into the development management process.

Local Air Quality Management Policy and Technical Guidance

E1.2.1.5 The 2016 policy guidance note from Defra, LAQM.PG(16)[6], provides additional guidance on the links between transport and air quality and guidance on the links between air quality and the land-use planning system. It summarises the main ways in which the land-use planning system can help deliver compliance with the air quality objectives. This guidance is relevant to any external organisations who may wish to engage with the local authority to assist in the delivery of their statutory duties on managing air quality.

E1.2.1.6 The LAQM Technical Guidance, TG(16)[7] is designed to support local authorities in carrying out their duties to review and assess air quality in their area. LAQM TG(16) is published at the UK level and is relevant to England, Scotland, Wales and Northern Ireland with the exception of London. It provides detailed guidance on how to assess the impact of measures using existing air quality tools. Where relevant, this guidance has been taken into account in this assessment.

E1.3 Policy and guidance

London Plan 2021

E1.3.1.1 The London Plan 2021[8] is the Spatial Development Strategy for Greater London. It sets out a framework for how London will

[5] Ministry of Housing, Communities and Local Government, Planning Practice Guidance on Air Quality. Available online at: https://www.gov.uk/guidance/air-quality--3
[6] Defra (2016). *Local Air Quality Management Policy Guidance PG(16)*. Available online at: https://laqm.defra.gov.uk/documents/LAQM-PG16-April-16-v1.pdf
[7] Defra (2018*). Local Air Quality Management Technical Guidance*. Available online at: https://laqm.defra.gov.uk/documents/LAQM-TG16-February-18-v1.pdf
[8] Greater London Authority (2021). *The London Plan 2021*. Available at: https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan/london-plan-2021

develop over the next 20-25 years and the Mayor's vision for Good Growth. Policy SI1, which relates to improving air quality states:

- large-scale development proposals subject to an Environmental Impact Assessment should consider methods of an Air Quality Positive approach
- the development must demonstrate plans to comply with the Non-Road Mobile Machinery Low Emission Zone during the demolition and construction phase of buildings
- air quality assessments should be submitted unless it can be demonstrated that transport and building emissions are lower than existing use
- where on-site measures to reduce emissions are not applicable, off-site measures may be acceptable.

The London Environment Strategy

E1.3.1.2 The London Environment Strategy (LES)[9] was published in May 2018 and sets out the Mayor's vision for London's environment in 2050. It is a strategy that brings together approaches from multiple aspects of London's environment in an integrated document. In relation to planning, the LES proposes new large-scale developments in London to be 'air quality positive'. It aims for larger development to go further than being 'air quality neutral' and implement effective design and integration to surrounding area to boost local air quality. The key aim is to ensure that emissions and exposure to pollution are reduced and air quality positive emphasises the importance of considering air quality very early in the design process.

E1.3.1.3 The Proposed Development has considered the possible options for contributing to 'air quality positive', and they are detailed in ES Volume 1, Chapter 5 and the air quality positive statement is in Appendix E7.

Sustainable Design and Construction Supplementary Planning Guidance

E1.3.1.4 The Sustainable Design and Construction Supplementary Planning Guidance (SPG)[10] was published in April 2014 by the Greater London Authority (GLA). Section 4.3 of the SPG focuses on air

[9] GLA (2018). *The London Environment Strategy*. Available at: https://www.london.gov.uk/what-we-do/environment/london-environment-strategy

[10] GLA (2014). *Sustainable Design and Construction Supplementary Planning Guidance*. Available at: https://www.london.gov.uk/sites/default/files/gla_migrate_files_destination/Sustainable%20Design%20%26%20Construction%20SPG.pdf

pollution and provides guidance on when assessments should be undertaken and how intelligent design can help to minimise the effect of a development on local air quality. The primary way in which the guidance aims to minimise air quality impacts is by setting an Air Quality Neutral (AQN) policy for buildings, as well as emissions standards for combustion plants. The AQN policy sets benchmarks against which the annual emissions of nitrogen oxides (NOx) and particulate matter (PM_{10}) from combustion plant of a proposed development should be assessed.

Air Quality Positive London Plan Guidance

E1.3.1.5 The Air Quality Positive London Plan Guidance[11] sets out guidelines for active contribution to improving air quality in and around a development or masterplan area and minimising exposure to existing sources of poor quality. The guidance considers measures that contribute to the delivery of an air quality positive scheme under four key themes:

- Better design and reducing exposure.
- Building emissions.
- Transport emissions.
- Innovation and futureproofing.

[11] GLA (2021) *London Plan Guidance Air Quality Positive – Pre-consultation draft*. Available online at: https://www.london.gov.uk/sites/default/files/air_quality_positive_lpg_pre-consultation_draft.pdf

London Local Air Quality Management Technical Guidance

E1.3.1.6 The London Local Air Quality Management technical guidance (LLAQM.TG(16))[12] applies only to London's 32 boroughs (and the City of London), while Defra's LAQM.TG(16) guidance[7] applies to all other UK local authorities. Although the LLAQM.TG(16) technical guidance has many common elements with the updated national guidance, LAQM.TG(16), it does incorporate London-specific elements of the LAQM system.

E1.3.1.7 This guidance is designed to support London authorities in carrying out their duties to review and assess air quality in their area. Where relevant, this guidance has been taken into account in this assessment.

Guidance on the Assessment of Dust from Demolition and Construction

E1.3.1.8 The Assessment of Dust from Demolition and Construction guidance[13] produced by the Institute of Air Quality Management (IAQM) provides guidance to development consultants and environmental health officers on how to assess air quality impacts from construction. The IAQM guidance provides a method for classifying the significance of effects from construction activities based on the 'dust magnitude' (high, medium or low) and proximity of the proposed development to the closest receptors. The guidance recommends that once the significance of effect from construction is identified, the appropriate mitigation measures are implemented. Experience has shown that once the appropriate mitigation measures are applied, in most cases the resulting dust impacts can be reduced to negligible levels.

E1.3.1.9 The method outlined for dust assessment is the same as in the GLA's Control of Dust and Emissions during Construction and Demolition SPG[14], published in July 2014. The GLA guidance seeks to reduce emissions of dust, PM_{10} and fine particulate matter ($PM_{2.5}$) from construction and demolition activities in London. It also aims to manage emissions of NOx from construction and demolition

[12] GLA (2016). *London Local Air Quality Management Technical Guidance TG (16)*. Available at: https://laqm.defra.gov.uk/technical-guidance/
[13] IAQM (2016). *Guidance on the Assessment of Dust from Demolition and Construction (v1.1)*. Available at: http://iaqm.co.uk/text/guidance/construction-dust-2014.pdf
[14] GLA (2014). *The Control of Dust and Emissions during Construction and Demolition, Supplementary Planning Guidance*. Available at: https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/london-plan-guidance-and-spgs/control-dust-and

machinery by means of a non-road mobile machinery (NRMM) ultra-low emissions zone (ULEZ). Both the IAQM methodology and GLA method has been considered in this assessment.

Guidance on Land-Use Planning & Development Control

E1.3.1.10 The 2017 Land-Use Planning & Development Control guidance document[15] produced by Environmental Protection UK (EPUK) and the IAQM provides a framework for professionals operating in the planning system to provide a means of reaching sound decisions, with regard to the air quality implications of development proposals.

E1.3.1.11 The document provides guidance on when air quality assessments are required by providing screening criteria regarding the size of a development, changes to traffic flows/composition energy facilities or combustion processes used.

Camden Local Plan

E1.3.1.12 The Camden Local Plan[16] was adopted in July 2017 and is the basis for planning decisions and future development in the London Borough of Camden. Policy CC4, Air Quality states:

> *"The Council will ensure that the impact of development on air quality is mitigated and ensure that exposure to poor air quality is reduced in the borough. The Council will take into account the impact of air quality when assessing development proposals, through the consideration of both the exposure of occupants to air pollution and the effect of the development on air quality."*

E1.3.1.13 The local plan also states that "all development likely to generate nuisance odours should install appropriate extraction equipment and other mitigation measures. These should be incorporated within the building where possible". These policies have been considered through the design process of this proposed development.

Camden Planning Guidance on Air Quality

E1.3.1.14 Camden Council has prepared a supplementary planning document on Air Quality[17] to support the policies in the Camden Local Plan.

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[15] IAQM/EPUK (2017*). Land-use Planning & Development Control: Planning for Air Quality. (v1.2)*. Institute of Air Quality Management, London.
[16] Camden Council (2017). *Camden Local Plan*. Available at: https://www.camden.gov.uk/documents/20142/4820180/Local+Plan.pdf/ce6e992a-91f9-3a60-720c-70290fab78a6
[17] Camden Council (2019). *Camden Planning Guidance on Air Quality*. Available at: https://www.camden.gov.uk/air-quality-assessment

This document details best practice for proposed developments and specifies the scope an air quality assessment should cover:

- assess local air quality pollutants and dust
- assess the current baseline situation in the vicinity of the proposed development
- predict the future impact of operation.

E2 Baseline

E2.1 Local air quality

Air quality management area (AQMA)

E2.1.1.1 The extent of the Camden AQMA is shown in Figure 1.

E2.2 Local monitoring

E2.2.1.1 Camden Council and Islington Council operate three automatic monitoring stations and eight diffusion tubes within 1km of the Site. The details of the monitoring locations are presented in Table 2 to Table 5Table 5: PM2.5 concentrations 2015 – 2019 and their locations are shown in Figure 2.

Table 2: Annual mean NO_2 concentrations 2015 – 2019.

Monitoring site	**NO_2 annual mean concentration (µg/m^3)**				
	2015	2016	2017	2018	2019
B0 – London Bloomsbury	**48**	**42**	38	36	32
CD9 – Euston Road	**90**	**88**	**83**	**82**	**70**
CA4A – Euston Road	-	-	-	-	**69.1**
CA27 – Euston Road LAQN colocation	-	-	-	-	**63.8**
CA6 – St George's Gardens	35.8	31.3	34.8	26.7	24.7
CA28 – St George's Gardens East	-	-	-	-	27.7
CA10 – Tavistock Gardens	**44.6**	39.7	**46.2**	35.4	33.1
CA20A – Brill Place	**48.9**	**47.5**	**52.7**	**41.2**	-
CA29 – Endsleigh Gardens	-	-	-	-	**48.3**
BIS005/03 – Caledonian Road	**58**	**53**	**43**	36	39
Objective	40				
Note: Bold indicates exceedances for the annual mean objective Bold and underline indicates annual mean NO_2 concentration is above 60µg/m^3, indicating exceedances for the hourly mean objective is likely for the hourly mean objective according to Defra's LAQM Guidance TG(16)[5] "-" denotes data are unavailable					

Table 3: 1-hour mean NO_2 exceedances 2015 – 2019.

Monitoring site	**Number of NO_2 1-hour mean exceedances**				
	2015	**2016**	**2017**	**2018**	**2019**
B0 – London Bloomsbury	0	0	0	0	0
CD9 – Euston Road	11	37	1	2	1
Objective	More than 18 exceedances of 200µg/m^3				
Note: Bold indicates exceedances for the hourly mean objective					

Table 4: PM_{10} concentrations 2015 – 2019.

Monitoring site	PM_{10} annual mean concentration (µg/m^3)					Number of PM_{10} 24-hour mean exceedances				
	2015	2016	2017	2018	2019	2015	2016	2017	2018	2019
B0 – London Bloomsbury	22	20	19	17	18	6	9	6	1	9
CD9 – Euston Road	18	24	20	21	22	5	10	3	2	8
KGX – Coopers Lane	-	-	-	15	15	-	-	-	1	5
Objective	40					More than 35 exceedances of 50µg/m^3				
Note: "-" denotes data are unavailable.										

Table 5: $PM_{2.5}$ concentrations 2015 – 2019.

Monitoring Site	$PM_{2.5}$ annual mean concentration (µg/m3)				
	2015	2016	2017	2018	2019
B0 – London Bloomsbury	11	12	13	10	11
CD9 – Euston Road	17	17	14	15	14
Objective	25				

Figure 1: Camden AQMA.

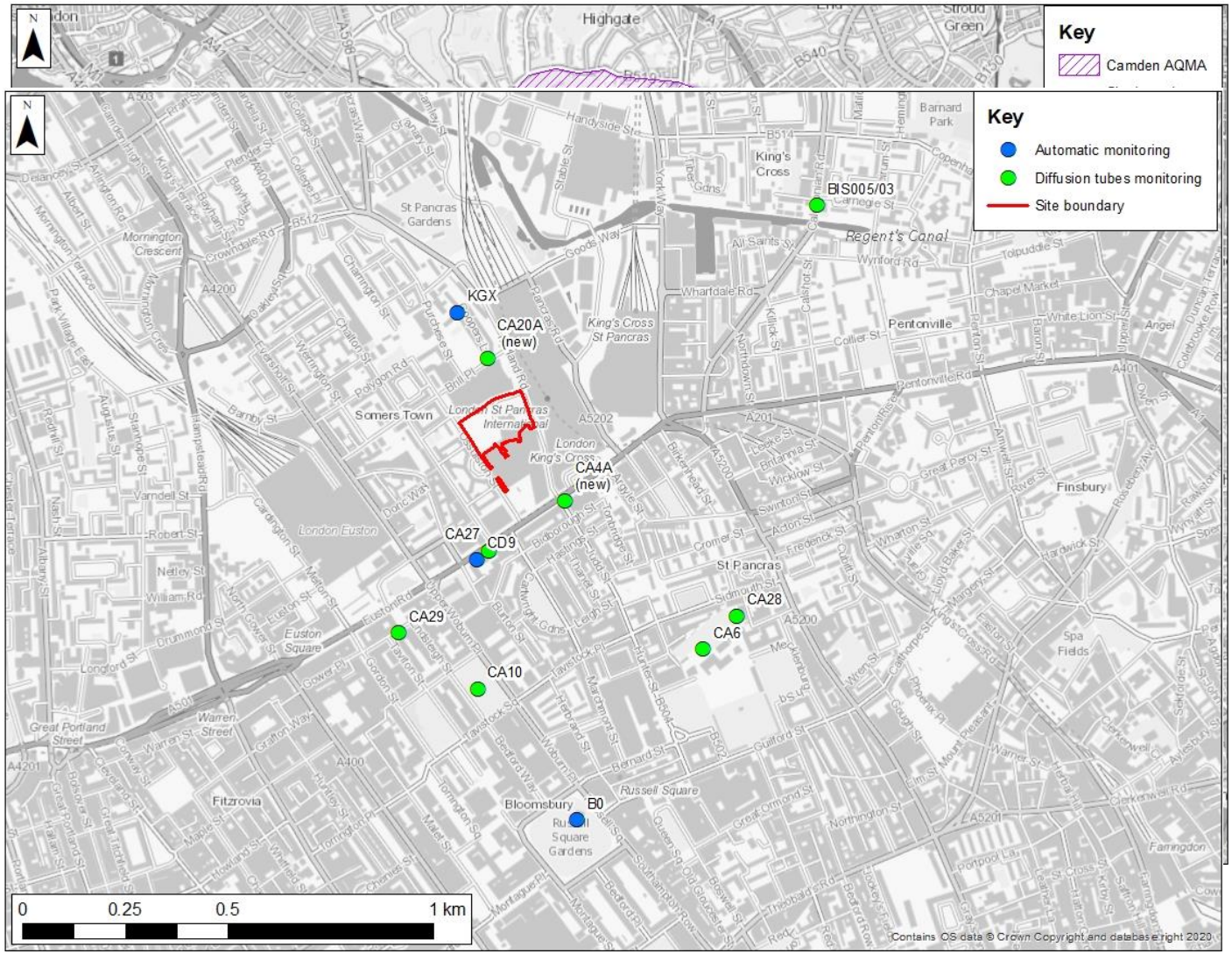


Figure 2: Monitoring sites within 1km of the Site.

E2.3 Background concentrations

E2.3.1.1 Background pollutant concentrations for the existing baseline year of 2019 and the future assessment year of 2029 have been obtained for the grid squares surrounding the Site and the closest automatic urban background monitor is located, BO – London Bloomsbury from the Defra website[18]. The grid squares also cover all the assessed receptor locations, and they are shown in Table 6 and Table 7 respectively. It can be observed that the annual mean background concentrations are all below the relevant air quality standards for all pollutants (NO_2, PM_{10} and $PM_{2.5}$).

Table 6: Defra 2019 background pollutant concentrations.

Location	OS grid square		Annual mean concentration (µg/m^3)			
	X	Y	NOx	NO_2	PM_{10}	$PM_{2.5}$
Site	529500	182500	70.7	39.5	20.2	12.9
	529500	183500	53.7	32.5	19.9	12.7
Site/ BO – London Bloomsbury	530500	182500	69.5	39.3	20.3	12.9

Table 7: Defra 2029 background pollutant concentrations.

Location	OS grid square		Annual mean concentration (µg/m^3)			
	X	Y	NOx	NO_2	PM_{10}	$PM_{2.5}$
Site	529500	182500	53.4	31.8	18.5	11.8
	529500	183500	40.2	25.8	18.3	11.7
Site/ BO – London Bloomsbury	530500	182500	55.1	32.6	18.6	11.8

[18] Defra. *Air Quality Management Areas*. Available at: https://laqm.defra.gov.uk/

E2.3.1.2 The 2019 monitored NO_2 concentration measured at the BO – London Bloomsbury automatic monitor was 32µg/m^3 which is lower than the estimated Defra background concentration for the same grid square (39.3µg/m^3), a -22.8% difference, shown in Table 8. The comparison shows that the use of 2019 Defra background concentrations provide a conservative approach, and they have been used in the assessment.

Table 8: Comparison between monitored NO_2 and Defra background concentration

Location	Estimated Defra background NO_2 concentration (µg/m^3)	Monitored NO_2 concentration (µg/m^3)	Difference (monitored – modelled) (µg/m^3)	Difference (monitored – modelled) (%)
LB (London Bloomsbury)	39.3	32.0	-7.3	-22.8%

E2.3.1.3 2019 background concentrations have been used in all assessment scenarios and 2029 background concentrations have been used in the sensitivity test for the opening year.

E3 Model verification

E3.1 Overview

E3.1.1.1 Model verification is based on the 2019 baseline model and carried out using the NO2 diffusion tubes CA4A and CA27 and automatic monitor CD9. CD9 location (529878, 182648) detailed in the LBC's 2019 air quality ASR has been amended to grid reference 529906, 182669, thus is considered to be the representative location observed from Google Earth and has been used in the verification process. The location of these verification sites is shown in Appendix E2.

E3.1.1.2 Monitoring data for 2019 at these sites was obtained from Camden Council's 2019 air quality ASR[19] and compared with modelled concentrations at the same location. The model verification was undertaken following the methodology described in Defra's LAQM.TG(16) guidance[7].

E3.1.1.3 A comparison of monitored and modelled annual mean NO_2 concentrations for 2019 before and after adjustment are presented in Table 9 with the graphical representation shown in Figure 3. The percentage difference between the monitored and modelled results before adjustment is between -11% and -20%, indicating under-predictions at all verification sites though they are within the recommended guideline stated in LAQM.TG(16) guidance[7] of ±25%.

E3.1.1.4 The monitored and modelled NO_2 road contribution concentrations were plotted, and the equation of the trend line based on linear regression through zero calculated. This showed that a verification factor of 1.8 could be applied to all modelled NOx results from road traffic. After adjustment, the percentage differences between the monitored and modelled results are all within the recommended guideline of ±25%. The adjustment factor of 1.8 has been applied on all NOx concentrations to increase the resulting NO_2 concentrations.

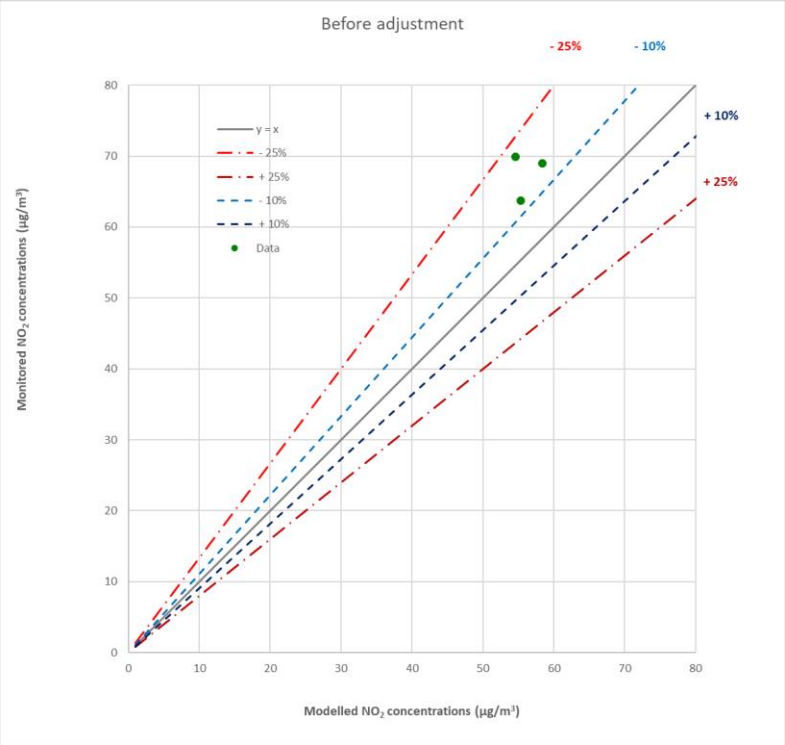
Table 9: Comparison of modelled and monitored annual mean NO_2 concentrations.

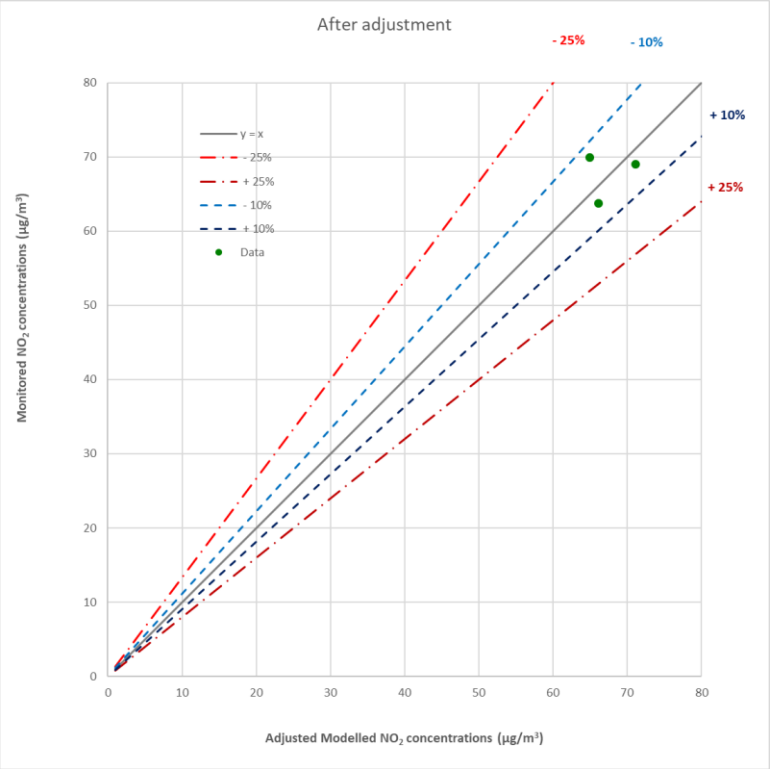
Site ID	Site type	Background NO_2 concentration ($\mu g/m^3$)	Monitored NO_2 concentration ($\mu g/m^3$)	Modelled NO_2 concentration ($\mu g/m^3$)	% Difference (modelled - monitored)/ monitored
Before adjustment					
CA4A	Kerbside	39.3	69.1	58.3	-15.5%%
CA27	Roadside	39.6	63.8	55.3	-13.4%

[19] London Borough of Camden (2020) London Borough of Camden Air Quality Annual Status Report for 2019

Site ID	Site type	Background NO_2 concentration ($\mu g/m^3$)	Monitored NO_2 concentration ($\mu g/m^3$)	Modelled NO_2 concentration ($\mu g/m^3$)	% Difference (modelled - monitored)/ monitored
CD9	Roadside	39.6	70.0	54.6	-22.1%
After adjustment					
CA4A	Kerbside	39.3	69.1	71.1	3.0%
CA27	Roadside	39.6	63.8	66.1	3.6%
CD9	Roadside	39.6	70.0	64.9	-7.3%

Figure 3: Monitored and modelled 2019 annual mean NO_2 concentrations before and after adjustment.





Note: No adjustment of PM_{10} or $PM_{2.5}$ concentrations has been undertaken, as they are not at risk of leading to significant air quality impacts.

E4 Construction traffic assessment

E4.1 Overview

E4.1.1.1 The predicted concentrations (NO_2, PM_{10} and $PM_{2.5}$) from the construction traffic assessment are presented in Table 10, Table 11 and Table 12.

Table 10: Predicted annual mean NO_2 concentrations for the construction traffic assessment.

Receptor ID	Description	2025 DM - con (µg/m^3)	2025 DS – con (µg/m^3)	Change (µg/m^3)	Impact descriptor
R1	Residential property on Pancras Road	**44.4**	**44.5**	0.1	Negligible
R2	Residential property on Pancras Road	35.5	35.6	0.1	Negligible
R3	Edith Neville Primary School	33.8	33.8	<0.1	Negligible
R4	Regent High School	35.1	35.1	<0.1	Negligible
R5	Residential property on Pancras Road	39.7	39.8	0.1	Negligible
R6	Residential property on St Pancras Way	36.8	36.8	<0.1	Negligible
R7	Blossom Lower School	**46.2**	**46.3**	0.1	Negligible
R8	St Pancras Hospital	**40.3**	**40.4**	0.1	Negligible
R9	First floor residential property on Euston Road	**59.8**	**59.8**	<0.1	Negligible
R10	Residential property on Crowndale Road	**45.6**	**45.8**	0.2	Negligible
R11	First floor residential property on Crowndale Road	**42.4**	**42.4**	<0.1	Negligible
R12	Residential receptor on Royal College Street	**45.6**	**45.7**	0.1	Negligible
R13	Receptor at British Library	**47.2**	**47.3**	0.1	Negligible
R14	Receptor at British Library	**64.2**	**64.3**	0.1	Negligible

Note: Bold denotes for exceedances of annual mean NO_2 concentration of 40µg/m^3.

Table 11: Predicted annual mean PM_{10} concentrations for the construction traffic assessment.

Receptor ID	Description	2025 DM - con (µg/m^3)	2025 DS – con (µg/^{m3})	Change (µg/m^3)	Impact descriptor
R1	Residential property on Pancras Road	20.9	20.9	<0.1	Negligible
R2	Residential property on Pancras Road	20.2	20.2	<0.1	Negligible
R3	Edith Neville Primary School	20.0	20.0	<0.1	Negligible
R4	Regent High School	20.1	20.1	<0.1	Negligible

Receptor	Description	2025 DM	2025 DS –	Change	Impact
R5	Residential property on Pancras Road	20.6	20.6	<0.1	Negligible
R6	Residential property on St Pancras Way	20.3	20.3	<0.1	Negligible
R7	Blossom Lower School	20.7	20.7	<0.1	Negligible
R8	St Pancras Hospital	20.5	20.5	<0.1	Negligible
R9	First floor residential property on Euston Road	22.1	22.1	<0.1	Negligible
R10	Residential property on Crowndale Road	20.6	20.6	<0.1	Negligible
R11	First floor residential property on Crowndale Road	20.7	20.7	<0.1	Negligible
R12	Residential receptor on Royal College Street	20.9	20.9	<0.1	Negligible
R13	Receptor at British Library	21.0	21.0	<0.1	Negligible
R14	Receptor at British Library	22.4	22.4	<0.1	Negligible

Table 12: Predicted annual mean $PM_{2.5}$ concentrations for the construction traffic assessment.

Receptor ID	Description	2025 DM - con (µg/m^3)	2025 DS – con (µg/m^3)	Change (µg/m^3)	Impact descriptor
R1	Residential property on Pancras Road	13.3	13.3	<0.1	Negligible
R2	Residential property on Pancras Road	12.9	12.9	<0.1	Negligible
R3	Edith Neville Primary School	12.8	12.8	<0.1	Negligible
R4	Regent High School	12.8	12.8	<0.1	Negligible
R5	Residential property on Pancras Road	13.1	13.1	<0.1	Negligible
R6	Residential property on St Pancras Way	13.0	13.0	<0.1	Negligible
R7	Blossom Lower School	13.2	13.2	<0.1	Negligible
R8	St Pancras Hospital	13.1	13.1	<0.1	Negligible
R9	First floor residential property on Euston Road	14.0	14.0	<0.1	Negligible
R10	Residential property on Crowndale Road	13.2	13.2	<0.1	Negligible
R11	First floor residential property on Crowndale Road	13.2	13.2	<0.1	Negligible
R12	Residential receptor on Royal College Street	13.3	13.3	<0.1	Negligible
R13	Receptor at British Library	13.3	13.3	<0.1	Negligible
R14	Receptor at British Library	14.2	14.2	<0.1	Negligible

E5 Operational traffic assessment

E5.1 Overview

E5.1.1.1 The predicted concentrations (NO_2, PM_{10} and $PM_{2.5}$) from the operational traffic assessment (with the use of Defra 2019 background concentrations and vehicle emissions) are presented in Table 13, Table 14 and Table 15.

E5.1.1.2 A sensitivity test for the use of 2029 Defra background concentrations and vehicle emissions has been undertaken for the operational traffic assessment. The predicted concentrations (NO_2, PM_{10} and $PM_{2.5}$) are presented in Table 16, Table 17 and Table 18.

Table 13: Predicted annual mean NO_2 concentrations for the operational traffic assessment.

Receptor ID	Description	2029 DM – op (µg/m^3)	2029 DS – op (µg/m^3)	Change (µg/m^3)	Impact descriptor
R1	Residential property on Pancras Road	**44.4**	**44.5**	0.2	Moderate adverse
R2	Residential property on Pancras Road	35.5	35.6	0.1	Negligible
R3	Edith Neville Primary School	33.8	33.8	<0.1	Negligible
R4	Regent High School	35.1	35.1	<0.1	Negligible
R5	Residential property on Pancras Road	39.7	39.9	0.2	Negligible
R6	Residential property on St Pancras Way	36.8	36.9	0.1	Negligible
R7	Blossom Lower School	**46.2**	**46.3**	0.1	Negligible
R8	St Pancras Hospital	**40.3**	**40.5**	0.2	Negligible
R9	First floor residential property on Euston Road	**59.8**	**59.8**	<0.1	Negligible
R10	Residential property on Crowndale Road	**45.6**	**45.8**	0.2	Negligible
R11	First floor residential property on Crowndale Road	**42.4**	**42.4**	<0.1	Negligible
R12	Residential receptor on Royal College Street	**45.6**	**45.8**	0.2	Moderate adverse
R13	Receptor at British Library	**47.2**	**47.4**	0.16	Negligible
R14	Receptor at British Library	**64.2**	**64.4**	<0.2	Negligible
N1	New receptor as British Library	-	**45.0**	-	-
N2	New receptor as British	-	37.6	-	-

Receptor	Description	2029	2029 DS	Change	Impact
	Library				
N3	New receptor as British Library	-	36.25	-	-

Note: Bold denotes for exceedances of annual mean NO_2 concentration of 40µg/m^3.

Table 14: Predicted annual mean PM_{10} concentrations for the operational traffic assessment.

Receptor ID	Description	2029 DM - op (µg/m^3)	2029 DS – op (µg/m^3)	Change (µg/m^3)	Impact descriptor
R1	Residential property on Pancras Road	20.9	20.9	<0.1	Negligible
R2	Residential property on Pancras Road	20.2	20.2	<0.1	Negligible
R3	Edith Neville Primary School	20.0	20.0	<0.1	Negligible
R4	Regent High School	20.1	20.1	<0.1	Negligible
R5	Residential property on Pancras Road	20.6	20.6	<0.1	Negligible
R6	Residential property on St Pancras Way	20.3	20.3	<0.1	Negligible
R7	Blossom Lower School	20.7	20.7	<0.1	Negligible
R8	St Pancras Hospital	20.5	20.5	<0.1	Negligible
R9	First floor residential property on Euston Road	22.1	22.1	<0.1	Negligible
R10	Residential property on Crowndale Road	20.6	20.6	<0.1	Negligible
R11	First floor residential property on Crowndale Road	20.7	20.7	<0.1	Negligible
R12	Residential receptor on Royal College Street	20.9	20.9	<0.1	Negligible
R13	Receptor at British Library	21.0	21.0	<0.1	Negligible
R14	Receptor at British Library	22.4	22.4	<0.1	Negligible
N1	New receptor as British Library	-	20.6	-	-
N2	New receptor as British Library	-	20.3	-	-
N3	New receptor as British Library	-	20.2	-	-

Table 15: Predicted annual mean $PM_{2.5}$ concentrations for the operational traffic assessment.

Receptor ID	Description	2029 DM – op (µg/m^3)	2029 DS – op (µg/m^3)	Change (µg/m^3)	Impact descriptor
R1	Residential property on Pancras Road	13.3	13.3	<0.1	Negligible
R2	Residential property on Pancras Road	12.9	12.9	<0.1	Negligible

Receptor	Description	2029 DM	2029 DS –	Change	Impact
R3	Edith Neville Primary School	12.8	12.8	<0.1	Negligible
R4	Regent High School	12.8	12.8	<0.1	Negligible
R5	Residential property on Pancras Road	13.1	13.1	<0.1	Negligible
R6	Residential property on St Pancras Way	13.0	13.0	<0.1	Negligible
R7	Blossom Lower School	13.2	13.2	<0.1	Negligible
R8	St Pancras Hospital	13.1	13.1	<0.1	Negligible
R9	First floor residential property on Euston Road	14.0	14.0	<0.1	Negligible
R10	Residential property on Crowndale Road	13.2	13.2	<0.1	Negligible
R11	First floor residential property on Crowndale Road	13.2	13.2	<0.1	Negligible
R12	Residential receptor on Royal College Street	13.3	13.3	<0.1	Negligible
R13	Receptor at British Library	13.3	13.3	<0.1	Negligible
R14	Receptor at British Library	14.2	14.2	<0.1	Negligible
N1	New receptor as British Library	-	13.2	-	-
N2	New receptor as British Library	-	13.0	-	-
N3	New receptor as British Library	-	12.9	-	-

Table 16: Predicted annual mean NO_2 concentrations for the operational traffic assessment (sensitivity test).

Receptor ID	Description	2029 DM – op (µg/m^3)	2029 DS – op (µg/m^3)	Change (µg/m^3)	Impact descriptor
R1	Residential property on Pancras Road	30.6	30.7	0.1	Negligible
R2	Residential property on Pancras Road	26.9	26.9	<0.1	Negligible
R3	Edith Neville Primary School	26.3	26.3	<0.1	Negligible
R4	Regent High School	26.9	26.9	<0.1	Negligible
R5	Residential property on Pancras Road	28.5	28.6	0.1	Negligible
R6	Residential property on St Pancras Way	27.4	27.4	<0.1	Negligible
R7	Blossom Lower School	34.3	34.3	<0.1	Negligible
R8	St Pancras Hospital	29.0	29.1	0.1	Negligible
R9	First floor residential property on Euston Road	**40.7**	**40.8**	<0.1	Negligible
R10	Residential property on Crowndale Road	32.3	32.4	0.1	Negligible
R11	First floor residential property on Crowndale Road	30.0	30.0	<0.1	Negligible
R12	Residential receptor on Royal	31.6	31.7	0.1	Negligible

Receptor ID	Description	2029 DM	2029 DS –	Change ($\mu g/m^3$)	Impact descriptor
	College Street				
R13	Receptor at British Library	35.6	35.6	0.1	Negligible
R14	Receptor at British Library	**42.9**	**43.0**	0.1	Negligible
N1	New receptor as British Library	-	33.8	-	-
N2	New receptor as British Library	-	27.7	-	-
N3	New receptor as British Library	-	27.2	-	-

Note: Bold denotes for exceedances of annual mean NO_2 concentration of 40µg/m^3.

Table 17: Predicted annual mean PM_{10} concentrations for the operational traffic assessment (sensitivity test).

Receptor ID	Description	2029 DM - op ($\mu g/m^3$)	2029 DS – op ($\mu g/m^3$)	Change ($\mu g/m^3$)	Impact descriptor
R1	Residential property on Pancras Road	19.1	19.1	<0.1	Negligible
R2	Residential property on Pancras Road	18.5	18.5	<0.1	Negligible
R3	Edith Neville Primary School	18.4	18.4	<0.1	Negligible
R4	Regent High School	18.4	18.4	<0.1	Negligible
R5	Residential property on Pancras Road	18.8	18.9	<0.1	Negligible
R6	Residential property on St Pancras Way	18.6	18.6	<0.1	Negligible
R7	Blossom Lower School	18.9	18.9	<0.1	Negligible
R8	St Pancras Hospital	18.8	18.8	<0.1	Negligible
R9	First floor residential property on Euston Road	20.2	20.2	<0.1	Negligible
R10	Residential property on Crowndale Road	18.9	18.9	<0.1	Negligible
R11	First floor residential property on Crowndale Road	19.0	19.0	<0.1	Negligible
R12	Residential receptor on Royal College Street	19.1	19.1	<0.1	Negligible
R13	Receptor at British Library	19.2	19.2	<0.1	Negligible
R14	Receptor at British Library	20.4	20.4	<0.1	Negligible
N1	New receptor as British Library	-	18.8	-	-
N2	New receptor as British Library	-	18.6	-	-
N3	New receptor as British Library	-	18.5	-	-

Table 18: Predicted annual mean $PM_{2.5}$ concentrations for the operational traffic assessment (sensitivity test).

Receptor ID	Description	2029 DM – op (µg/m^3)	2029 DS – op (µg/m^3)	Change (µg/m^3)	Impact descriptor
R1	Residential property on Pancras Road	12.1	12.1	<0.1	Negligible
R2	Residential property on Pancras Road	11.8	11.8	<0.1	Negligible
R3	Edith Neville Primary School	11.7	11.7	<0.1	Negligible
R4	Regent High School	11.8	11.8	<0.1	Negligible
R5	Residential property on Pancras Road	12.0	12.0	<0.1	Negligible
R6	Residential property on St Pancras Way	11.9	11.9	<0.1	Negligible
R7	Blossom Lower School	12.0	12.0	<0.1	Negligible
R8	St Pancras Hospital	12.0	12.0	<0.1	Negligible
R9	First floor residential property on Euston Road	12.7	12.7	<0.1	Negligible
R10	Residential property on Crowndale Road	12.0	12.0	<0.1	Negligible
R11	First floor residential property on Crowndale Road	12.0	12.0	<0.1	Negligible
R12	Residential receptor on Royal College Street	12.1	12.1	<0.1	Negligible
R13	Receptor at British Library	12.1	12.1	<0.1	Negligible
R14	Receptor at British Library	12.8	12.8	<0.1	Negligible
N1	New receptor as British Library	-	12.0	-	-
N2	New receptor as British Library	-	11.9	-	-
N3	New receptor as British Library	-	11.8	-	-

E6 Air quality neutral assessment

E6.1 Building emissions

E6.1.1.1 The GLA's Sustainable Design and Construction SPG[10] provides emission rates of NOx and PM_{10} for each land-use. The emission rates have been combined with the gross floor areas (GFA) in Table 19 to determine the BEB rates, as shown in Table 20. The BEB is independent of whether a proposed development is in the CAZ, inner or outer London.

Table 19: Building benchmark emission rates for land-uses (g/m^2/annum) and proposed GFA (m^2).

Land-use	NOx (g/m^2/annum)	PM_{10} (g/m^2/annum)	Proposed GFA (m^2)
Class A1	22.6	1.3	37.5
Class A3-A5	75.2	4.3	37.5
Class A2 and B1	330.8	1.8	74,558
Class B8	23.6	1.9	5,559
Class D1 (c-h)	31.0	1.8	12,494

Table 20: Calculation of the BEB (kg/annum)

Land-use	Nox (kg/annum)	PM_{10} (kg/annum)
Class A1	0.8	0.05
Class A3-A5	2.8	0.2
Class A2 and B1	2,296.4	132
Class B8	131.2	10.6
Class D1 (c-h)	387.3	22.2
BEB (kg/annum)	*2,818.6*	*165*

E6.1.1.2 The Proposed Development would include three units of backup generators. The operating hours and emission rates provided for the back-up generators are presented in Table 21, they have been used to calculate the Total Building Emissions (TBE) shown in Table 22. Table 23 compares the BEB with the TBE and shows that Nox and PM_{10} for the Proposed Development would be below the benchmark. Therefore, the Proposed Development is air quality neutral for building emissions.

Table 21: Backup generator parameters.

Source	Emission rate (g/s)		Operating hours per year
	NOx	PM_{10}	
Backup generator (each)	8.1	0.01	7

Table 22: Calculation of the TBE (kg/annum).

Source	NOx (kg/annum)	PM10 (kg/annum)
Generator (3 units)	614.9	0.9

Table 23: Comparison of the BEB and the TBE (kg/annum).

Pollutant	TEB (kg/annum)	BEB (kg/annum)	Difference (TBE - BEB) (kg/annum)	Outcome
NOx	614.9	2879	-2,263.8	within benchmark
PM_{10}	0.9	165.4	-164.5	within benchmark

E6.2 Transport emissions

E6.2.1.1 The TEB depends on the location of the Site; the Proposed Development is located in the central activities zone (CAZ). The Sustainable Design and Construction SPG[10] provides emission rates of NOx and PM_{10} for each land-use. The emission rates have been combined with the GFA in **Table 24 Table 19**to determine the TEB as shown in Table 25. The TEB based on emission rates have been calculated for use classes A1-A5 and B1.

Table 24: Transport benchmark emission rates for land-uses (g/m^2/annum) and proposed GFA (m^2).

Land-use	NOx (g/m^2/annum)	PM_{10} (g/m^2/annum)	Proposed GFA (m^2)
Class A1-A5	169	29.3	558
Class B1	1.3	0.2	82,094

Table 25: Calculation of the TEB (kg/annum).

Land-use	NOx (kg/annum)	PM_{10} (kg/annum)
Class A1-A5	94	16
Class B1	104	18

E6.2.1.2 The Total Transport Emissions (TTE) for the Proposed Development have been calculated using the estimated development trip rates (trips/m^2/annum) for the various areas included in the Proposed Development, along with average distance travelled by car per trip (km) and average pollutant emission factors (g/vehicle/km) provided from the Sustainable Design and Construction SPG[10]. The TTE are shown in Table 26.

Table 26: Calculation of the TTE (kg/annum).

Land-use	NOx (kg/annum)	PM_{10} (kg/annum)
Class A1-A5	11	2.0
Class B1	89	15

E6.2.1.3 Table 27 compares the TEB with the TTE and shows that the transport emissions for NOx and PM_{10} are below the AQN benchmarks.

Table 27: Comparison of the TEB and TTE (kg/annum).

Pollutant	TTE (kg/annum)	TEB (kg/annum)	Difference (TTE – TEB (kg/annum)	Outcome
NOx	101	199	-98	within benchmark
PM_{10}	17	34	-17	within benchmark

E6.2.1.4 The neutrality for use classes B8 and D1 is determined by trip rates. The development trip generation rates are presented in Table 28.

Table 28: Development trip generation rates for the Proposed Development (trips/m^2/annum).

Land-use	Trip per land use (daily)	Development trip rate (trips/m^2/annum)
Class D1	11	0.4

E6.2.1.5 For benchmarks based on trip rates, Table 29 shows the transport emissions associated with Class D1 is not within the benchmark.

Table 29: Comparison of development trip rates and benchmark (trip/m^2/annum).

Land-use	Dev trip rates	Benchmark trip rates	Difference	Outcome
Class D1	0.3	0.07	0.3	Not within benchmark

E6.3 Conclusion

E6.3.1.1 The building emissions for the Proposed Development are within the benchmarks.

E6.3.1.2 The transport emissions for all land use class are within the relevant benchmarks, except for class D1. However, the exceedance in trips for class D1 is marginal and this should be outweighed by the benchmark surpluses in classes A1-A5 and B1. Therefore, exceedance in transport emissions for the Proposed Development overall is not expected.

E6.3.1.3 Overall, the AQN assessment complies with the AQN policy and indicates that no further mitigation is required.

E7 Air Quality Positive Statement

E7.1.1.1 The draft Air Quality Planning (AQP) statement has been prepared following the structure below, in line with the Air Quality Positive Draft Guidance[11]:

- Introduction
- Constraints and opportunities
- Measures adopted
- Implementation and monitoring

Introduction

E7.1.1.2 The planning description of the Proposed Development can be found in the Volume 1 Section 3 of the ES. The air quality positive measures were discussed during meetings with the project MEP engineers, architects and the applicant. It should be noted that this AQP statement was prepared using the Air Quality Positive Draft Guidance[11], prior the draft guidance being finalised.

Constraints and opportunities

E7.1.1.3 The Proposed Development is in close proximity to the heavily trafficked Euston Road, this is the main constraint as they are the main road infrastructure for London.

E7.1.1.4 The constraints and opportunities information can be found in the documents as part of this planning application, summarised in Table 30.

Table 30: Constraints and opportunities for the Proposed Development.

Constraints and opportunities	Documents as part of the planning application
Statutory designations (AQMA, focus area)	Chapter 11: Air Quality ES
Major off-site sources of air pollution	
A general overview of off-site sensitive receptors	Design Access Statement (DAS)
Transport infrastructure opportunities	DAS and transport statement
Site permeability and access	

Measures adopted

E7.1.1.5 Considering the constraints and opportunities of the Proposed Development, the following mitigation measures have been incorporated.

Table 31: Mitigation matrix for the Proposed Development.

Measure	Summary of the measure	Reasoning for undertaking measure	Expected benefits	Assessment and reporting			How will this measure be secured
				Methods	Quantitative	Qualitative	
Better design and reducing exposure							
Mechanical ventilation	Air intakes serving British Library will be from above level 2. Other areas will be lower but well away from road sources.	Reducing exposure to future users during the operational phase.	Future uses will be exposed to acceptable air quality when the Proposed Development is operational.	Ventilation strategy	N	Y	Secured through approved plans
Best practice construction – dust	Best practice controls will be in place to mitigate demolition and construction dust.	Reducing exposure to existing and future users to construction phase dust.	Negligible effects from construction dust.	Dust assessment in the air quality assessment.	N	Y	Agreed through the CEMP.
Best practice construction – emissions	The site construction logistics will be designed to reduce exposure for existing residents nearby and to reduce exposure for the workforce. NRMM will meet and where possible exceed the	Reducing emissions from the construction phase.	Reduced emissions from the construction phase.	Reported via commitment from contractors.	N	Y	Agreed through the CEMP.

Measure	Summary of the	Reasoning for	Expected benefits	Assessment and reporting			How will this
	GLA requirements. Euro IV HGVs will be used.						
Building emissions							
Air source heat pumps installation	The building will be all electric.	Reduce emissions to air from boilers or Combined Heat and Power (CHP) units.	Reduced emissions of NOx to the area	Air quality assessment	N	Y	Secured through approved plans.
Transport emissions							
Car-lite development	Car-lite aside from provision of five wheelchair-accessible car parking spaces for employees of the British Library and one space for the employees of the new commercial scheme.	To reduce transport-related NOx emissions once the development is operational.	Reduced emissions of NOx to the local area.	Air quality assessment	Y	N	Secure through approved plans.
Cycle parking	Long-stay cycle parking spaces: 1,100 Short-stay parking spaces: 174 (84 to be onsite and the remaining will be provided in the local area)	To encourage active travel and reduce transport-related emissions.	Reduced emissions of NOx to the local area.	Transport assessment	Y	N	Secure through approved plans.
Innovation and future proofing							
Electric vehicle	Provision of rapid	To encourage the	Reduced emissions	Transport	Y	N	Secure through

Measure	Summary of the	Reasoning for	Expected benefits	Assessment and reporting			How will this
charging point	electric vehicle charging facilities for all proposed car parking spaces.	use of electric vehicle and reduce transport-related emissions	of NOx to the local area.	assessment			approved plans.

Table 32: Details of measures and responsibility for securing them.

Measure	Method of securing measure	Responsibility for implementation	Method reporting	Provision of details	Monitoring
Mechanical ventilation installation	Secured through approved plans.	Applicant	Detailed design plans	Plans to be provided for agreement and secured through detailed planning application.	None required.
Best practice construction – dust	Agreed through the CEMP.	Contractor	Reported via updated CEMP and dust management plans.	Provision of plans to be provided prior to commencement of works on-site.	On-site updates and information on local air quality monitoring where necessary to be provided to the local authority.
Best practice construction – emissions	Agreed through the CEMP.	Contractor	Reported via updated CEMP	Provision of plans to be provided prior to commencement of works on-site.	On-site updates and information on local air quality monitoring where necessary to be provided to the local authority.
Air source heat pumps installation	Secured through approved plans.	Applicant	Detailed design plans	Plans to be provided for agreement and secured through detailed planning application.	None required.

Measure	Method of securing measure	Responsibility for implementation	Method reporting	Provision of details	Monitoring
Car-lite development	Secure through approved plans.	Applicant	Transport statement	Plans to be provided for agreement and secured through detailed planning application.	None required.
Cycle parking	Secured through approved plans.	Applicant	Transport statement	Number of cycling parking to be agreed and secured through detailed planning application.	None required.
Electric vehicle charging point	Secured through approved plans.	Applicant	Transport statement	Number of electric vehicle charging points to be agreed and secured through detailed planning application.	None required.

E8 Air Quality Checklist

E8.1.1.1 The air quality checklist has been completed as per Camden Council's requirement.

Air Quality Planning Checklist

This document is to be completed for all developments that are subject to an Air Quality Assessment (AQA).

Travel and Transport

1) If there will be parking in the development, will electric vehicle charging point/s be included?

   Yes. It is anticipated all car parking spaces would be fitted with rapid electric vehicle charging facilities to conform with the London Plan (2021) requirements. All operational parking would provide infrastructure for electric or other ultra-low emission vehicles.

2) Will secure cycle storage be provided for users of the building?

   Yes. There will be 1,115 long stay and 180 short stay cycle spaces.

Energy

3) If a CHP is to be included, did you ensure that this technology is suitable for the energy requirements of the building? Please see Camden's Boiler Guidance Manual B for more information.

   Not applicable.

4) If CHP is to be included, will it adhere to the GLA CHP Emissions Limits outlined in the *GLA's* Sustainable Design and Construction SPG?

   Not applicable.

5) Has the impact of the CHP been modelled within the air quality assessment? Y/N – if not please state why.
   Please note that if CHP modelling was not included due to the fact that the final CHP specification has not been decided, this will need to be clearly stated in the draft AQA, and the potential impact of the CHP will still need to be considered when assessing the exposure of occupants and/or locations of any ventilation inlets, if applicable. If full details of the CHP have not been

included at Planning Application stage, Camden will impose a stringent Planning Condition for the CHP, which will include a requirement for modellingof the impact at all sensitive receptors, as well as a requirement that it adheres to the requirements of the GLA's Sustainable Design and Construction SPG. Not applicable.

Exposure

6) If located in an area of poor air quality and/or next to a busy road or diesel railway line, does the AQA include details of the way in which the building has been designed to reduce the exposure of occupants (e.g. through orientation, greening, placement of residential properties, or, only for developments in areas of very poor air quality, mechanical ventilation?) No. The AQA shows that the predicted annual mean NO2 concentrations at the new receptors of the Proposed Development are below 60µg/m3, indicating exceedances of hourly mean NO2 objective are unlikely according to Defra's TG(16) guidance. The predicted annual mean PM10 and PM2.5 are below the relevant objectives. Therefore, the new occupants will not be exposed to unacceptable air quality levels, and further design measures for minimising exposure levels will not be required.

Construction Dust

7) Does the project have a Construction Management Plan written in accordance with the recommendations in the Control of Dust and Emissions during Construction and Demolition Supplementary Planning Guidance, including an assessment of the risk? And, if the risk is Medium or High, a real time monitoring proposal? Yes. High risk mitigation has been recommended and a draft construction management plan has been submitted with the planning application. The requirementof monitoring will be confirmed at a later stage.

If not, this must be provided.

Air Quality Neutral

8) Does the AQA include an assessment against the GLA's Air Quality Neutral Standard?

Yes.

If not, this must be included, as outlined in the GLA's Sustainable Design and Construction SPG.

Please return this form with your AQA with your Planning Application

Appendix F

Appendices to Section 6, Archaeology

F1 Designated heritage assets

Designated heritage assets within the study area are listed in Table 1.

Table 1: Listed buildings

Listed building reference	Grade	Name	Description
1078328	I	King's Cross Station, Euston Road, Camden	Railway terminus. 1850-52. By Lewis Cubitt (architect), and Sir William and Joseph Cubitt (engineers). Yellow stock brick. 2 train sheds (originally 1 for arrivals, the other for departure) closed by monumental plain brick screen of 2 glazed semi-circular openings, framed with recessed arches (echoing the train sheds behind) with central and flanking towers; ground storey obscured by late C20 additions. Central tower with rectangular clock turret with pyramidical roof, eaves cornice and weathervane. To the west, 3 storey 3 window office block with booking hall and service rooms at rear; 1st floor with thin, debased Venetian windows, cornice at 2nd floor level, 2nd floor segmental-arched sashes (flanking bays tripartite), cornice. On east side, an extension with archway to the cab drive (now bricked up); rusticated surround to arch and quoins; cornice above which 3 tripartite sashes and parapet. INTERIOR: train sheds separated by round-arched brick colonnade. Originally, train shed roofs of laminated wood, inspired by the Crystal Palace, but these rapidly deteriorated and were replaced by the present iron-ribbed roofs to the eastern shed 1869-70, to the western 1886-7. (Laminated wood trusses successfully used at 26 Pancras Road (qv). HISTORICAL NOTE: when opened as the terminus of the Great Northern Railway, was the largest station in England and is the earliest great London terminus still intact. The contrast of its functional simplicity with St Pancras Station next door (qv) is powerful. (Hunter M and Thorne R: Change at King's Cross: London: -1990: 59-64).
1342037	I	St Pancras Station and Former Midland Grand Hotel, Euston Road	Railway terminus and hotel, comprising train shed, terminus facilities and offices, ancillary buildings, taxi stand, warehousing: including substructure and storage areas to sides and rear, and structures to the forecourt. Station, 1865-1869; former Midland Grand Hotel, 1868-76, both by George Gilbert Scott. Train shed, 1865-8 by William Henry Barlow (engineer). Deep red Gripper's patent Nottingham bricks with Ancaster stone dressings and shafts of grey and

Listed building reference	Grade	Name	Description
			red Peterhead granite; slated roofs renewed in 1994 in carefully diminishing courses. STYLE: monumental, picturesquely composed Gothic Revival building of 23 windows flanked by towers and a curved 10 window wing to the west. HISTORICAL NOTE: St Pancras was the terminus of the Midland Railway and when built was the largest station roof in the world without internal supports. In terms of both architecture and engineering, it has claim to be Britain's most impressive station. Dramatic roof line with gables and spires forms an important landmark. (Hunter M and Thorne R: Change at King's Cross: London: -1990: 65-74).
1426345	I	The British Library, Piazza, Boundary Wall and Railings to Ossulston Street, Euston Road and Midland Road	Public Library, the present design based on that of 1975-8, built 1982-99, though opened in 1997; architect Sir Colin St John Wilson, with M.J. Long, Douglas Lanham, John Collier, John Honer and many more. The British Library designed by Sir Colin St John Wilson with M.J. Long, built 1982-99, is listed at Grade I for the following principal reasons: * Architectural interest: for its stately yet accessible modernist design rooted in the English Free tradition with Arts and Crafts and classical influences, crisply and eloquently contextualised by its massing and use of materials which respect and contrast to the St Pancras station and hotel; * Materials: for its level of craftsmanship and skilful handling of a range of materials externally and internally, including Travertine, Portland and Purbeck stone, granite, Leicestershire brick, bronze and American white oak throughout, carefully and meticulously detailed; * Interior: for the well-planned interior spaces comprising the generously lit reading rooms and multi-level atrium, successfully fulfilling the brief to create the nation’s Library; * Historic Interest: in the tradition of the Royal Festival Hall, it is a landmark public building incorporating at its heart the King’s Library, given to the nation by George III; * Architect: a major work by the eminent architect and academic Sir Colin St John Wilson and his architectural partner, M.J. Long. Wilson has a number of listed buildings to his name notably the St Cross libraries at the University of Oxford (Grade II*); * Artistic interest: for the fusion of art with architecture as a component of the design ethos, exemplified by Paolozzi’s Newton in the piazza; * Group Value: with the Grade I St Pancras Hotel, Grade II Camden Town Hall and Grade II housing on Ossulston Street.
1113232	II	Levita House including attached Shops and Somers Town Coffee House	Blocks of council flats and attached shops and coffee house/tavern forming part of the Ossulston Estate; frontages to Ossulston Street, Chalton Street and Weir's Passage. 1930-31. To the designs of the LCC Architect's Department under G Topham Forrest. Flats and shops:

Listed building reference	Grade	Name	Description
			load-bearing brickwork rendered with coloured roughcast, channelled to ground floor to appear as stone; reinforced concrete balconies. Hipped pantiled roofs with dormers and tall chimney-stacks. Western courtyard is enclosed by a range of single storey shops with central fluted Doric screen flanked by pillars having fielded finials to angles. Coffee house/tavern: the Somers Town Coffee House on Chalton Street forms the southern part of the entrance to the northern courtyard. 1927-8, believed to be by Halsey Ricardo. Rendered and painted brickwork. Pantiled hipped roof with tall chimney-stacks, dormers and coved cornice to projecting eaves. Two storeys, attic and cellars. Five windows and four window left hand return. HISTORICAL NOTE: despite policy to house as many Londoners as possible on outlying cottage estates, pressure of waiting lists and urgency of slum clearance forced Cecil Levita, Chairman of the LCC Housing Committee to review the situation. The Ossulston Estate is the most important inner-city estate of the inter-war period, representing the most considered attempt by the LCC to inject new thinking into inner-city housing estates. It was influenced in particular by Viennese housing models and was innovative in terms of layout and elevation. This complex forms a group with Chamberlain House, Phoenix Road (qv) and the southern block of Walker House, Phoenix Road including The Cock Tavern (qv).
1113243	II	26, Pancras Road	Gymnasium and library, now offices & gymnasium. 1864-65. By Edward Gruning. For the German Gymnastic Society. Built by Piper and Wheeler. Multi-coloured stock brick. Rectangular plan with narrow, slightly projecting entrance frontage to Pancras Road. The piers support arched, laminated wood roof trusses some 20m wide, as experimented with but replaced at King's Cross Station, Euston Road (qv). An important early example of the use of laminated timber to give broad spans.
1113244	II	Great Northern Hotel and Attached Railings	Hotel. 1854, by Lewis Cubitt. Yellow stock brick with stucco dressings. Slate roof with pedimented dormers. Crescent shaped building. Concave main facade towards King's Cross Station, Euston Road (qv). SUBSIDIARY FEATURES: attached cast-iron railings of geometric design to areas. HISTORICAL NOTE: curved plan reflects the original alignment of Pancras Place, now Pancras Road. The hotel was one of the first to include rooms on the "continental system" with bedrooms en suite with sitting rooms. The company prided itself on the fireproof construction of the hotel, with thick walls dividing every room and with the corridors constructed of brick arches supported by iron girders. (Hunter M and Thorne R (eds.): Change at King's Cross: London: -1990: 77-79).

Listed building reference	Grade	Name	Description
1113245	II	Pancras Road Arches	Section of St Pancras goods yard perimeter wall with integral shops. A substantial remnant of the former coal depot belonging to the Midland Railway Company. Erected as offices and coal trading stores 1895-1898, possibly to the designs of John Underwood, engineer to the Midland Railway Company. Red brick in English Bond with stone dressings; parapeted roof. Single-storey; pointed-arch arcade of 28 bays, most with shop fronts of authentic design, in the Gothic Revival style. A rare survival of commercial premises incorporated within a rail goods yard.
1139057	II	Chamberlain House including Shops	Chamberlain House OSSULSTON STREET. Block of council flats, partly with shops at ground floor level, forming part of the Ossulston Estate; frontages to Phoenix Road, Ossulston Street and Chalton Street. 1927-9. To the designs of the LCC Architect's department under G Topham Forrest. Loadbearing brickwork rendered with roughcast, channelled to ground floor to appear as stone; reinforced concrete balconies. Pantiled hipped roofs with tall chimney-stacks. This complex forms a group with Walker House Southern Block including the Cock Tavern Public House (qv) and Levita House, Ossulston Street including the Somers Town Coffee House (qv). HISTORICAL NOTE: despite policy to house as many Londoners as possible on outlying cottage estates pressure of waiting lists and urgency of slum clearance forced Cecil Levita, Chairman of the LCC Housing Committee to review the situation. The Ossulston Estate is the most important inner-city estate of the inter-war period, representing the most considered attempt by the LCC to inject new thinking into inner-city housing estates. It was influenced in particular by Viennese housing models and was innovative in terms of layout and elevation. The foundation stone of Chamberlain House was laid by Neville Chamberlain, then Minister of Health.
1139058	II	Walker House Southern Block including the Cock Tavern Public House	Block of council flats and attached public house forming part of the Ossulston Estate. 1929-30. To designs of the LCC Architects' Department under G Topham Forrest. Load-bearing brickwork rendered with coloured roughcast, ground floor channelled to appear as stone; reinforced concrete balconies. Hipped pantiled roofs with dormers and tall chimney-stacks. This complex forms a group with Chamberlain House, Phoenix Road (qv) and Levita House, Ossulston Street including the Somers Town Coffee House (qv). HISTORICAL NOTE: despite policy to house as many Londoners as possible on outlying cottage estates pressure of waiting lists and urgency of slum clearance forced Cecil Levita, Chairman of the LCC Housing Committee to review the situation. The Ossulston Estate is the most important

Listed building reference	Grade	Name	Description
			inner-city estate of the inter-war period, representing the most considered attempt by the LCC to inject new thinking into inner-city housing estates. It was influenced in particular by Viennese housing models and was innovative in terms of layout and elevation.
1242932	II	Six Bollards South East of Junction with Wellers Court	Six bollards. Dated 1854. Cast-iron. Octagonal form on rectangular bases with octagonal caps having small domes; inscribed "SP. P. 1854".
1342072	II	The Rocket Public House	The Rocket Public House (Formerly listed as No.120, Rising Sun Public House). 1899. By Shoebridge & Rising. For Cannon Brewery. Red brick with stone bands and dressings and steeply pitched slate roofs. Main building, three storeys and attic, one window, corner turret and two window return to Charlton Road; set back from Euston Road with single storey extension of one bay, splayed corner and four bay return filling forecourt. Granite public house frontage with pilasters with enriched capitals and banded shafts supporting fascia with projecting cornice and blocking course. Three round arched entrances (one on corner and two on return); windows with large round-arched light and small panes in spandrels. Main building with square-headed two-light sashes flanked by pilasters and with enriched aprons. Egg and dart main cornice at third floor level. Attic storey in large Flemish gables; west gable with windows in round-arched recesses and segmental topped enrichment; south gable with carved plaque of the sun rising over the sea and inscribed "Rebuilt 1899". Corner turret with enriched panels and ornamented lead dome with finial.
1356760	II	Stanley Buildings, Flats Numbers 21-30	Philanthropic flats. 1865. By Matthew Allen for the Improved Industrial Dwellings Company under the guidance of Sydney Waterlow. Materials and treatment of architectural elements, identical to flats 1-20 in Stanley Passage to the north (now demolished) with which this block formed a group. 5 storeys. One window to end ranges flanking 2-bay balcony-stair recess; balconies enclosed by cast-iron lattice railings and supported by cast-iron columns and lintels. 2-window range to right return with segmental-arched windows, the lintels cast from concrete and panelled. Left-return rendered to all but top storey. Ablution and scullery towers to rear. Stanley Buildings form a group with the King's Cross Gasholders, Goods Way (qv) and Barlow's great shed to St Pancras Station, Euston Road (qv). Among the earliest blocks built by Waterlow's influential and prolific IIDC, Stanley Buildings are in addition an important part of a dramatic Victorian industrial landscape.
1379162	II	Camden Town Hall	Town hall. 1934-7. By AJ Thomas. Exterior clad in Portland stone ashlar over a steel frame on all 4 fronts. HISTORICAL NOTE: Camden Town Hall was designed as St Pancras Town

Listed building reference	Grade	Name	Description
			Hall by AJ Thomas, a former assistant of EL Lutyens, the influence of whose Classical style pervades the building. Thomas designed several housing schemes for St Pancras Borough Council from 1924 onwards. (Architect and Building News: 25 June 1937: London; The Builder: 9 July 1937: London; The Building: July 1937).
1390775	II	Elizabeth Garrett Anderson Hospital, Euston Road, Camden	Hospital for Women. 1889-90 by J.M. Brydon. Stock brick with red brick dressings in the Queen Anne style, timber cupola, tiled roof. HISTORY: this hospital was opened in 1890 as the New Hospital for Women, and was the first purpose-built hospital devoted to women doctors, treating female patients. The foundation stone had been laid by the Princess of Wales in 1889; Brydon exhibited drawings of the building at the 1890 RA. Elizabeth Garrett Anderson (1836-1917), had led the movement for women doctors, and had founded a hospital ward at her dispensary in Marylebone in 1874. The Euston Road hospital combined teaching hospital provision (it initially had 42 beds) with premises for the Women's Medical Institute, situated on the ground floor of the frontage block. The lay-out of the hospital was originally distinguished by a circular ward block at the north end, and by open connecting balconies between the blocks (subsequently in-filled), reflecting the direct involvement of Florence Nightingale and her nephew Sir Douglas Galton. The hospital subsequently expanded considerably, to north and east, in the 1920s, which replaced the circular ward block with a large rectangular block. Only the first generation buildings are included within this listing. Although somewhat altered externally and internally, they possess very considerable historic interest as the country's first proper hospital for women. The frontage block on Euston Road is of particular interest as it is architecturally the most impressive surviving part, and because it originally contained the Women's Medical Institute on the ground floor, with wards on the upper floors.
1393675	II	K6 Telephone Kiosk Outside St Pancras Station	The K6 telephone kiosk on Euston Road, outside St Pancras Station is recommended for designation at Grade II for the following principal reasons: * Design Interest: Giles Gilbert Scott's design has special interest for its artistry and functionality as well its iconic status as a milestone of C20 industrial design; * Setting: a strong visual relationship to two listed buildings including St Pancras Station at Grade I; * Historic Interest: juxtaposition of the K6 and St Pancras Station, designed by Sir George Gilbert Scott, grandfather of Sir Giles Gilbert Scott, designer of the K6.

F2 Non-designated heritage assets

Non-designated heritage assets within the study area as recorded in the Greater London Historic Environment Record (Greater London HER) data are listed in Table 2.

Table 2: Non-designated heritage assets

Reference	Name	Type	Date range	Period range	Finds	Summary
MLO15877	Phoenix Road (Nos 38 & 40), Somers Town, Camden {site of 19th century terraced houses}	Terraced House	1801 to 1970	Post Medieval to Modern	-	The site of two post medieval terraced houses demolished in 1970.
MLO72345	Goodge St	Air Raid Shelter	1939 to 1945	World War Two	-	Air raid shelter.
MLO75965	Corner of Battlebridge Road and Cheney Road, Camden {site of 19th century cellar}	Cellar	1801 to 1900	Post Medieval	-	A 19th century cellar was recorded on this site during archaeological work in 2002.
MLO79870	Goodsway, [West Side], Camden {site of three early elaborate linked gas holders}	Gas Holder; Gas Holder; Gas Holder	1864 to 2002	Post Medieval to Modern	-	This is the site of three linked gas holders which were erected from 1864 through to 1880. Their framework was unusually elaborate, consisting of various degrees of columns, and were built by C.F. Clegg for the Imperial Gas Light and Coke Company's works, which in 1869 was the largest in the country. The gasholders were demolished in 2002-2003 as part of the Channel Tunnel Rail Link's development of the site and extension of St Pancras Station.

Reference	Name	Type	Date range	Period range	Finds	Summary
MLO80972	St Pancras Road, [formerly Nos 11-20 Stanley Passage], Camden {site of Victorian philanthropic model dwellings}	Model Dwelling	1865 to 2007	Post Medieval to Modern	-	This block of flats was originally part of the Stanley Buildings. It dated to 1865 and was one of the earliest philanthropic estates to be built in London and formed an integral part of the Victorian industrial landscape in this area. The building was demolished in 2007.
MLO99025	Kings Cross Underground Station, [Northern Ticket Hall], NW1 {19th century railway tunnel and hotel cellar}	Cellar; Underground Railway Tunnel	1854 to 2006	Post Medieval to Modern	-	The remains of the backfilled Hotel Curve Tunnel, a connection for the Metropolitan line at Kings Cross that was built in 1863, was recorded during a watching brief on the construction of a new ticket hall in 2006.
MLO99184	Pancras Road, [St Pancras Station], Camden {site of Stanley Buildings, or the Old St Pancras Road estate}	Housing Estate	1865 to 2050	Post Medieval to Modern	-	This is the site of the Old St Pancras Road estate, which contained the Stanley Buildings. The northern extension of St Pancras Station has caused the demolition of all but one of these model dwellings, which had been designed as low-rent philanthropic housing.
MLO99185	Pancras Road, Camden, {parts of 19th century German Gymnasium}	Wall; Culvert; Footing; Basement	1801 to 1900	Post Medieval	-	A 19th century brick culvert, footings and external wall were recorded during a watching brief in 2007. These may have been part of the once-larger German Gymnasium (MLO80194). In 2002 basement wall foundations were also recorded.
MLO99188	Cheney Road, and corners of Wellers Court and Battlebridge Road {18th-19th century domestic buildings}	Cellar; Made Ground; House	1701 to 1900	Post Medieval	Alluvium (unknown date)	Some 19th century domestic building remains and an 18th -19th century cellar were recorded during archaeological work in 2002. In addition, some 19th century made ground and undated alluvium from the River Fleet was recorded.
MLO99189	Corner of Battlebridge Road and Cheney Road, Camden {site of 19th century tenement}	Tenement Block?; Footing	1801 to 1900	Post Medieval	Alluvium (unknown date)	19th century tenement foundation footings were recorded during archaeological work in 2002. Undated alluvium was also recorded.

Reference	Name	Type	Date range	Period range	Finds	Summary
MLO99195	Cheney Road, Camden {site of Victorian drain}	Drain	1840 to 1900	Post Medieval	-	A Victorian drain dating to after 1840 was exposed during contractors excavations in 2002.
MLO99197	Battlebridge Road, [South side], Camden {19th century brick warehouse foundations}	Warehouse; Foundation	1801 to 1900	Post Medieval	-	A 19th century brick warehouse foundation was exposed during contractors excavations in 2002.
MLO99198	Cheney Road, Camden {19th century brick basement walls}	Building; Basement; Wall	1840 to 1900	Post Medieval	-	Brick basement walls dated to after 1840 were recorded during archaeological work in 2002. These belonged to a building constructed adjacent to the 'hotel curve' underground railway tunnel.
MLO99199	Cheney Road, [Milk Dock], Camden {site of demolished 'Hotel Curve' 19th century railway tunnel}	Underground Railway Tunnel; Arch	1840 to 2007	Post Medieval to Modern	-	Infilled arches belonging to the underground railway tunnel referred to as 'Hotel Curve' were exposed during contractors excavations in 2002.
MLO99200	Cheney Road, Camden {19th century brick cess pit}	Cess Pit	1801 to 1900	Post Medieval	-	A 19th century brick cess pit was recorded during work in 2002.
MLO99201	Battlebridge Road, [North Side], Camden {mid-19th century tenement foundations}	Foundation; Tenement Block?	1840 to 1900	Post Medieval	-	The brick foundations of a tenement building were exposed during work in 2002. These were thought to date to after 1840.
MLO99204	West of York Way, [King's Cross Lands], Camden {19th century brick wall}	Wall; Foundation	1801 to 1900	Post Medieval	-	Brick wall foundations dating to the 19th century were exposed during work in 2002.
MLO99207	Cheney Road, [South of the German Gymnasium], Camden {19th century brick wall foundations}	Wall; Foundation	1801 to 1900	Post Medieval	-	A contractors excavation of a service trench exposed 19th century brick wall foundations in 2002.

Reference	Name	Type	Date range	Period range	Finds	Summary
MLO99208	Pancras Road, [South of the German Gymnasium], Camden {19th century brick basements}	Wall; Drain; Cellar; Foundation	1801 to 1900	Post Medieval	-	Four brick basement foundations dating to the 19th century were recorded during work in 2002. They probably belong to buildings built after the construction of the railway around 1840.
MLO99211	Brill Place, Somers Town, Camden {19th century domestic activity}	Flats; Drain; Culvert; Wall?; Foundation; Industrial Building	1801 to 1925	Post Medieval to Modern	Button (Post Medieval); Bead (Post Medieval); Pencil (Post Medieval); Figurine (Post Medieval); Clay Pipe (Smoking) (Post Medieval)	19th century brick foundations and culverts were found during investigations in 2002 and 2010. The features indicated a domestic use of the site prior to the construction of the Goods Yard.
MLO99213	Cheney Road, [South of German Gymnasium], Camden {19th century brick foundation walls}	Foundation; Wall	1801 to 1900	Post Medieval	-	Contractors reduction of approximately 600mm of modern made ground in 2002 in preparation for road building exposed parallel 19th century brick foundation walls.
MLO99214	Cheney Road, [Opposite Stanley Buildings}, Camden {site of late 19th/early 20th century buildings}	Building; Foundation; Wall	1801 to 1925	Post Medieval to Modern	-	This is the site of a number of small buildings visible in a triangular plot opposite the Stanley Buildings on late 19th/early 20th century maps. Brick foundations were recorded during work in 2002.
MLO99216	Cheney Road, [South of the German Gymnasium], Camden {late 18th and late 19th century walls}	Wall; Foundation; Wall; Foundation	1775 to 1900	Post Medieval	-	Two brick wall foundations were exposed by contractors in 2002. The earlier wall was of late 18th or early 19th century date, and the later wall was probably built in the 1890s.

Reference	Name	Type	Date range	Period range	Finds	Summary
MLO99219	Midland Road and Brill Place Junction, Camden {site of late 19th century railway arches}	Structure; Arch; Railway Siding	1875 to 1970	Post Medieval to Modern	-	This is the site of railway arches probably constructed between 1875 and 1896 during the transformation of the area into railway sidings and depots. It is not clear when it fell out of use, but presumably before the start of the British Library building on the site around 1970. Basement walls were exposed by a contractor during work on a new British Library access road in 2002. Originally the basements formed part of the Midland Road railway arches, and were built after 1860. These arches were probably part of the works undertaken between 1875 when the area is occupied by housing and 1896, when a large area now occupied by the British Library had been covered with sidings, good sheds, 'milk shed' and 'coal depot'.
MLO99220	Brill Place to Euston Road, [British Library site], Camden {site of St Pancras Goods Yard}	Levelling Layers; Goods Yard	1850 to 1970	Post Medieval to Modern	Pottery (Post Medieval)	This is the site of St Pancras, or 'Midland Railway', Goods Yard, a railway goods yard and sidings which was built between 1875 and 1896 on the site of earlier housing and fell out of use by 1970. This is a large site. The southern part is now covered by the British Library. The goods yard was constructed at some point between 1875 when the site was covered by domestic housing and 1896. It fell out of use by the 1970s, when the Library began to be constructed. A watching brief in 2009-10 by Museum of London Archaeology revealed building foundations, elevated platforms and tracks all associated with the goods yard. One of the features was the base of a chimney which would

Reference	Name	Type	Date range	Period range	Finds	Summary
						have previously stood on the site. Other remains included cast iron column bases, brick and concrete footings, floor surfaces, yards and tracks. During investigations in 2010 by Museum of London Archaeology a number of features associated with the Goods Yards were identified (MLO99223 & MLO103550). The Goods Yard was constructed on 0.5m thick levelling layers containing debris from the 19th century housing which had previously occupied the site (MLO99211).
MLO99221	Ossulston Street/Euston Road [The British Library], Camden {site of late 19th century goods shed}	Goods Shed	1875 to 1970	Post Medieval to Modern	-	This is the site of a railway goods shed which formed part of the St Pancras Goods Yard and was constructed between 1875 and 1896. It fell out of use and was probably demolished by 1970. It is present in 1916 and probably remained on the site until the goods yard became disused, presumably prior to around 1970 when the construction of the British Library building began on the southern section of the site.
MLO99223	Euston Road, [British Library site], Camden {site of late 19th century railway 'milk shed'}	Milk Depot; Goods Shed	1875 to 1970	Post Medieval to Modern	-	This is the site of a goods shed referred to as the 'milk shed' that was constructed as part of the St Pancras Goods Yard at some point between 1875 and 1896. It fell out of use and was probably demolished by 1970. It is present in 1916 and may have survived until 1970 when the site had fallen out of use and had presumably been closed for the construction of the British Library on the southern half. During investigations in 2010 by Museum of London Archaeology cobbled surfaces and tracks were exposed over the area of the former Milk

Reference	Name	Type	Date range	Period range	Finds	Summary
						and Fish Depot. Three stanchions were also located aligned north-south and at 8m intervals from each other. The southern-most stanchion had been reused for drainage.
MLO99224	Brill Place, [South Side], Camden {site of late 19th century railway 'coal depot'}	Coal Depot; Goods Shed	1875 to 1970	Post Medieval to Modern	-	This is the site of a railway coal depot constructed between 1875 and 1896 and probably demolished in or before 1970. This is the site of a late 19th century railway 'coal depot' which was constructed between 1875 and 1896 as part of the St Pancras Goods Yard. It is visible on the 1916 map and probably survived until the site fell out of use and was demolished in 1970.
MLO99225	Brill Place to Euston Road, Camden {site of late 19th century railway sidings and cranes}	Railway Siding; Railway; Crane; Railway Bridge; Arch Bridge	1875 to 1970	Post Medieval to Modern	-	This is the site of a large number of railway sidings leading into the St Pancras Goods Yard and including at least one crane. They were constructed between 1875 and 1896, and fell out of use and were demolished by around 1970. Railway arch foundations were recorded in 2002. This is the site of a large number of railway lines and sidings drawing into the St Pancras Goods Yard. They were constructed at some point between 1875 and 1896, and fell out of use by around 1970. 'Cr' is marked at least once, possibly indicating the presence of cranes. In addition, a bridge appears to have carried the rails over what was Phoenix Street (now Brill Place), and another over the corner of Pancras Road to join the main tracks leading into St Pancras Station. Basement walls were exposed by contractors' excavations for the new British Library access road in 2002. Originally these basements formed part of the Midland Road railway arches and

Reference	Name	Type	Date range	Period range	Finds	Summary
						dated to the 19th century (MLO99219). These arches presumably supported or enclosed the railway sidings leading into the Goods Yard at the very north of the site. The observation of demolition and ground reduction by Pre-Construct Archaeology in 2002 recorded late 19th century pier bases or wall foundations. A number of cast iron bases, probably representing the remains of late 19th century or early 20th century hydraulic lifting gear were also recorded.
MLO99226	Chenies Place to Brill Place, Camden {site of late 19th century railway coal depot}	Coal Depot; Structure; Railway Turntable?	1896 to 1970	Post Medieval to Modern	-	This is the site of a late 19th century railway coal depot built between 1896 and 1916. It appears to have been an open site with only a few small structures, the majority of coal probably stored in heaps between the sidings. It is not known when it fell out of use, but probably by the 1970s when rejuvenation in this area began. This is the site of a coal depot marked on the 1916 OS map and presumably associated with the St Pancras Goods Yard and Station. It was constructed at some point between 1896 and 1916, on the site of a large number of what appear to be domestic residences. The depot appears to have been largely open air, with tracks situated perpendicular to each other at regulated distances suggesting open heaps of coal. Markings on the map and the structure of the railway sidings suggest that small turntables were present. No cranes appear to be marked. Only a few small structures are present. It is not known when it fell out of use, but probably by the 1970s when rejuvenation in this area began.

Reference	Name	Type	Date range	Period range	Finds	Summary
MLO99227	Undercroft of St Pancras Station, Camden {early to mid 19th century cellar}	House; Cellar	1801 to 1864	Post Medieval	-	The cellar of a house demolished in advance of the construction of St Pancras in 1864 was recorded during work in 2002.
MLO99228	Undercroft of St Pancras Station, Camden {original floor of St Pancras Station}	Floor	1864 to 1900	Post Medieval	-	A brick and granite flooring was recorded during work in 2002. This may be the earliest Undercroft floor that was superseded by the later concrete slab.
MLO99230	Tramway, Camden {late 19th century to early 20th century tramway}	Tramway; Foundation	1875 to 1940	Victorian to Second World War	-	This is the site of tramway system that operated from before 1875 to some time before 1940. The tramway system is visible on historic OS maps from 1875 through to 1916. It probably survived until the beginning of World War Two. Bedding and concrete track foundations were recorded during work in 2002 on Pancras Road.
MLO99236	St Pancras Station Extension, Camden {site of 1870s steam train water point}	Water Point	1870 to 2001	Post Medieval to Modern	-	This is the original site of an 1870s steam train water point which was constructed in the same style as St Pancras Station. It was moved in 2001 to allow for platform extension at St Pancras. The steam locomotive water point was built around 1870, probably by the office of Sir George Gilbert Scott for the Midland Railway. In the Gothic style, it is of red brick with yellow stone dressings and contains an iron water tank. It was formerly situated near to the railway tracks north of St Pancras Station, where is served steam locomotives departing the station. In 2001 the extension of the St Pancras platforms required its movement to a position near the Camley Street Gardens (MLO 79869).
MLO103550	Brill Place, Somers Town, Camden {Hydraulic Power	Power Station; Chimney; Building	1801 to 1970	Post Medieval to Modern	-	Evidence for the hydraulic power station at the Somers Town Good Yard was revealed during

Reference	Name	Type	Date range	Period range	Finds	Summary
	Station at Somers Town Goods Yard}					archaeological work by Museum of London Archaeology in 2010. The base of the power station was revealed and comprised the remains of two buildings. The northern building had two cast iron tanks on brick foundations, and the possible remains of a third tank. To the west of these tanks were two rectangular concrete plinths. The southern building contained a large flue system which was used to transport fumes to a chimney. North of the chimney was the base of the accumulator tower, of which only the base survives. A steam powered engine would have pumped water down onto a piston in the tower which would have pressurised the liquid. This water was then fed around the Goods Yard in pipes to power hydraulic hoists, lifts, cranes and capstans. The cast iron tanks in the northern building may have been reservoir tanks or boilers for the steam engine, and the plinths supports or a pump.

F3 Archaeological priority areas

Archaeological priority areas within the study area are described in Table 3.

Table 3: Archaeological priority area

Designation reference	Grade	Name	Description
DLO38607	Tier II	Regents Canal and Rail Infrastructure	Summary and Definition: The Archaeological Priority Area covers three areas of historic transport interchanges and industrial development that grew up beside the Regents Canal. The three discrete areas covered by this APA are: Camden Lock, Cumberland Basin and Kings Cross. The APA is allocated to Tier 2, as it contains the canal itself along with a range of post-medieval buildings, structures and remains of industrial works and warehouses associated with the historic use of the canal and railways. Description: The Regents Canal was built to link the Paddington arm of the Grand Junction Canal with the Thames at Limehouse. The Regents Canal Act was passed in 1812 and the company was formed to build it. John Nash was a director, and his assistant James Morgan was appointed as the canal's engineer. The stretch from Paddington to Camden opened in 1816, and the rest opened in 1820. This included an arm built as a spur down to Cumberland Basin near Euston Station. The canal was constructed within open ground, as shown on Greenwood's map of 1824. The canal was now linked to the major industrial cities in the north of England. The canal was important for the transport of goods into London, especially coal and led to the development of wharfs, warehouses and depots along the canal side. Railway construction began in the 1830s with the construction of the London and Birmingham Railway then accelerated from 1847 – 1852 with the construction of the Kings Cross Goods Station. Significance: This APA is significant because it contains evidence of the industrialisation of London. The complexes of railway and canal structures in Camden Lock represent some of the best preserved examples of 19th Century transport infrastructure in England. The ice industry is also a notable feature of the area. Many standing buildings and structures survive whilst archaeological investigations have

			shown that remains of the first industrial buildings do survive alongside the canal, which can add to further knowledge of the industrial activity of the 19th and early 20th centuries that depended on the canal and the interchanges with the road and rail networks. Study of industrial sites of this period requires integrated research of historical sources, standing buildings/structures and below-ground archaeology. Expertise in 18th and 19th century technology is also necessary to understand the increasingly sophisticated logistics operations. The recent and forthcoming publications of research at Kings Cross Central provide an exemplar of what can be achieved. Historic industrial sites have considerable place-making potential and can be particularly attractive to today's creative industries and as homes with character. Opportunities range from the conversion of historic buildings to the recovery and restoration of old machinery, rail tracks or cobbled surfaces and the inspiration for public art. Industrial archaeology should therefore form part of an informed conservation strategy for the reuse of these sites as seen at Kings Cross Central. Although there is some evidence for pre-industrial activity at Kings Cross these areas are mostly very heavily disturbed by industrial and modern development.

F4 Previous archaeological investigations

Previous archaeological investigations within the study area as recorded within the Greater London HER are listed in Table 4 below.

Table 4: Previous archaeological excavations (Greater London HER events)

Reference	Event name	Event type	Organisation	Summary
ELO476	St Pancras Terminus and Kings Cross Lands, Camden, Desk Based Assessment	Desk Based Assessment	Gifford	St Pancras Terminus and Kings Cross Lands, Camden, Desk Based Assessment, undertaken in 2003. Limited information available.
ELO477	Archaeological Work at Corner of Battlebridge Road/Cheney Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, possibly a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.3. Limited information is available from the interim report, but a 19th century cellar was recorded on this site.
ELO7522	Pancras Road [Kings Cross Underground Station], Camden, London, NW1: Watching Brief	Watching Brief	Museum of London Archaeology Service	An archaeological watching brief was carried out by the Museum of London Archaeology Service in 2006 during the redevelopment of Kings Cross Underground Station. Site code KSX01. This work included the construction of a new Northern Ticket Hall beneath the open area in front of the Great Northern Hotel and new underground access points from the Piccadilly, Victoria and Northern Lines. Archaeological remains were identified as the truncated and backfilled vault cellars of the Great Northern Hotel and partially removed and backfilled remains of the Hotel Curve Tunnel. Deposits overlying these features consisted of redeposited London Clays mixed with construction rubble. *undisturbed natural not observed*
ELO7787	Pancras Road [Kings Cross Underground Station], Camden, London, NW1: Watching Brief	Watching Brief	Museum of London Archaeology Service	An archaeological watching brief was conducted in 2007 by the Museum of London Archaeology Service on demolition works. Site code KSX01. No archaeological deposits were identified during the watching brief. Natural deposits were not observed, although deposits of disturbed

Reference	Event name	Event type	Organisation	Summary
				London Clays mixed with construction rubble were noted, which may have been imported rather than upcast.
ELO7881	Pancras Road, (Northern Stanley Building), King's Cross Redevelopment, Building Recording	Building Survey	Pre-Construct Archaeology	Historic building recording was conducted in 2007 by Pre-Construct Archaeology as part of the discharge of planning and Listed Building consent conditions for the demolition of the buildings and the redevelopment of the site. The building, formerly known as 11-20 Stanley Passage, was constructed by the Improved Dwellings Company as low-rent philanthropic housing in 1865, and is an historically interesting early example of its type. It was originally one of five blocks, accompanied by a smaller house, which formed the Old St Pancras Road estate. A number of the buildings have been lost over the years and only two remained before this northern building was itself demolished in mid-2007, leaving only the southern block. The fabric of these is largely original, and they retain a variety of 19th century fixtures and fittings.
ELO7883	Pancras Road Realignment, King's Cross Central, Camden, Watching Brief	Watching Brief	Pre-Construct Archaeology	An archaeological watching brief was undertaken in 2007 by Pre-Construct Archaeology on ground reduction at Pancras Road as part of an investigation during realignment of the road. Natural geology of gravely clay was recorded across the site. This was heavily truncated by late 19th century and modern 20th century redevelopments. A 19th century culvert plus contemporary footings and external wall were observed in close proximity to the still extant German Gymnasium. The external wall is believed to demarcate the original frontage of this construction. All deposits were sealed by 20th century made ground and resurfacing layers. All recorded deposits suggest large-scale redevelopment of the area during the 19th and 20th centuries.
ELO8547	Archaeological Work at Gas Holder No 3, Battlebridge Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.5. Limited information is available from the interim report, but modern made ground was recorded.

Reference	Event name	Event type	Organisation	Summary
ELO8550	Archaeological Work at Cheney Road/Wellers Court/Battlebridge Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.8, 9 and 10. Limited information is available from the interim report, but undated alluvium from the River Fleet was recorded in G.8. In G.9 some undated alluvium and some 19th century domestic building remains were recorded, and in G.10 an 18th-19th century cellar and some 19th century made ground were found.
ELO8553	Archaeological Work at Corner of Battlebridge Road and Cheney Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.13. Limited information is available from the interim report, but undated alluvium and 19th century tenement foundation footings were recorded.
ELO8554	Archaeological Work at Corner of Battlebridge Road and Cheney Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.14. Limited information is available from the interim report, but 19th century made ground was recorded.
ELO8557	Archaeological Work at the Corner of Battlebridge Road and St Pancras Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.16. Limited information is available from the interim report, but an undated deposit of River Fleet alluvium was recorded.
ELO8558	Archaeological Work at the Eastern Gasholder Site off Goodsway, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.18. Limited information is available from the interim report, but very modern disturbance was recorded.
ELO8561	Archaeological Work at the Corner of Battlebridge Road and Cheney Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.20.

Reference	Event name	Event type	Organisation	Summary
				Limited information is available from the interim report, but modern disturbance was recorded.
ELO8565	Archaeological Work at the Junction of Midland Road and Pancras Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.22. Limited information is available from the interim report, but excavations exposed live gas and water mains and modern disturbance.
ELO8566	Archaeological Work at the Junction of Midland Road and Pancras Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.23. Limited information is available from the interim report, but undated alluvium and 19th to 20th century made ground was recorded.
ELO8567	Archaeological Work at Goodsway, Camden, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.24. Limited information is available from the interim report, but undated alluvium and 19th to 20th century made ground were recorded.
ELO8568	Archaeological Work at Goodsway Junction with Camley Street, Camden, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.25. Limited information is available from the interim report. The contractors trench across the Goodsway exposed 19th century made ground deposits.
ELO8581	Archaeological Work at German Gymnasium off Cheney Road, Camden (CTRL 2002)	Open Area Excavation	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.38. Limited information is available from the interim report. The basement wall foundations of the German Gymnasium building dating to the 19th century were recorded.
ELO8582	Archaeological Work at Cheney Road, Camden (CTRL 2002)	Open Area Excavation	Museum of London Archaeology Service-	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.39.

Reference	Event name	Event type	Organisation	Summary
			Pre-Construct Archaeology	Limited information is available from the interim report. A Victorian drain dating to after 1840 was exposed during contractors excavations.
ELO8584	Archaeological Work at Cheney Road, Camden (CTRL 2002)	Open Area Excavation	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.41. Limited information is available from the interim report. Possible undated Fleet River gravel deposits were observed.
ELO8588	Archaeological Work at Southwest Corner of Area 27, Junction of Goodsway and Camley Street, (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.44. Limited information is available from the interim report. Brick wall foundations were recorded in section. These appeared to belong to buildings shown on the 1868 OS map, and probably date no earlier than 1840.
ELO8589	Archaeological Work at South Side of Battlebridge, Camden, (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.45. Limited information is available from the interim report. A 19th century brick warehouse foundation was exposed during contractors excavations.
ELO8590	Archaeological Work North of Great Northern Hotel, Cheney Road, Camden, (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.46. Limited information is available from the interim report. Brick basement walls dated to after 1840 were recorded. These belonged to a building constructed adjacent to the 'hotel curve' underground railway tunnel.
ELO8591	Archaeological Work at Milk Dock, South End of Cheney Road, Adjacent to West Anglia Platforms, Camden, (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.47. Limited information is available from the interim report. Infilled arches belonging to the underground railway tunnel referred to as

Reference	Event name	Event type	Organisation	Summary
				'Hotel Curve' were exposed during contractors excavations. An adjacent area of this features had been previous recorded in a different event.
ELO8592	Archaeological Work North of the Great Northern Hotel, Cheney Road, Camden, (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.48. Limited information is available from the interim report. Possible undated Fleet River gravel deposits were recorded.
ELO8613	Archaeological Work at Cheney Road, Camden, (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.49. Limited information is available from the interim report. A 19th century brick cess-pit was recorded.
ELO8614	Archaeological Work at Stanley Passage, Camden, (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.50. Limited information is available from the interim report. Undated palaeochannel fills were recorded in cross section during contractors' excavations for a new lighting pylon.
ELO8615	Archaeological Work on North Side of Battlebridge Road, Camden, (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.51. Limited information is available from the interim report. The brick foundations of a tenement building were exposed during contractors' excavations. These were thought to date to after 1840.
ELO8621	Archaeological Work on King's Cross Lands, West of York Way, Camden, (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.58. Limited information is available from the interim report. Brick wall foundations dating to the 19th century were exposed during contractors' excavations.

Reference	Event name	Event type	Organisation	Summary
ELO8637	Archaeological Work South of the German Gymnasium off Cheney Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.64. Limited information is available from the interim report. A contractors excavation of a service trench exposed 19th century brick wall foundations.
ELO8638	Archaeological Work South of the German Gymnasium off Cheney Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.65. Limited information is available from the interim report. Four brick basement foundations dating to the 19th century were recorded.
ELO8641	Archaeological Work at Brill Place, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.68. Limited information is available from the interim report. The observation of demolition and ground reduction recorded late 19th century pier bases or wall foundations. A number of cast iron bases, probably representing the remains of late 19th century or early 20th century hydraulic lifting gear were also recorded.
ELO8643	Archaeological Work South of the German Gymnasium off Cheney Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.70. Limited information is available from the interim report. Contractors reduction of approximately 600mm of modern made ground in preparation for road building exposed parallel brick foundation walls.
ELO8646	Archaeological Work South of the German Gymnasium, off Cheney Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.73. Limited information is available from the interim report. The contractors' reduction of the modern made ground in preparation of road building exposed a 19th century brick foundation wall.

Reference	Event name	Event type	Organisation	Summary
ELO8647	Archaeological Work South of Battlebridge Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.74. Limited information is available from the interim report. 19th century brick tenement wall foundations were exposed by contractors during ground reduction ahead of realignment and relaying of Cheney Road. These presumably were part of the buildings visible on the Historic OS maps of the late 19th/early 20th century on a small triangular plot of land opposite the Stanley Buildings.
ELO8651	Archaeological Work at Brill Place, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.77. Limited information is available from the interim report. Brick foundations associated with either late 19th century industrial use of the site or earlier tenement buildings were recorded.
ELO8653	Archaeological Work South of the German Gymnasium, off Cheney Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.80. Limited information is available from the interim report. Two brick wall foundations were exposed by contractors during ground reduction ahead of realignment and relaying of Cheney Road. Consideration of the type of bricks found indicates that the earlier wall was of late 18th or early 19th century date, and the later wall was probably built in the 1890s.
ELO8654	Archaeological Work South of the German Gymnasium, off Cheney Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.81. Limited information is available from the interim report. Contractors reduction of modern made ground in preparation for road building exposed brick cellar foundation walls and associated drainage structures dating to after 1840.

Reference	Event name	Event type	Organisation	Summary
ELO8658	Archaeological Work at South of the German Gymnasium, off Cheney Road, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.85. Limited information is available from the interim report. The removal of a buried diesel storage tank exposed brick cellar wall foundations dating to the late 19th/early 20th century.
ELO8659	Archaeological Work at Midland Road and Brill Place Junction, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.86. Limited information is available from the interim report. Basement walls were exposed by a contractor during work on a new British Library access road. Originally the basements formed part of the Midland Road railway arches, and were built after 1860.
ELO8660	Archaeological Work in the Undercroft of St Pancras Station, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.83. Limited information is available from the interim report. Contractors trial pit excavations were conducted to establish the level of the crown of the Thameslink tunnel. They appear to have recorded deposits dating to after the construction of the station in 1864.
ELO8661	Archaeological Work in the Undercroft of St Pancras Station, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.87f. Limited information is available from the interim report. A 19th century cellar, probably belonging to the domestic housing which was demolished to make way for the construction of St Pancras Station in 1864.
ELO8662	Archaeological Work in the Undercroft of St Pancras Station, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.87g. Limited information is available from the interim report. Contractors trial pit excavations occurred to establish the depth of the 1864 undercroft foundations.

Reference	Event name	Event type	Organisation	Summary
ELO8663	Archaeological Work in the Undercroft of St Pancras Station, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.87h. Limited information is available from the interim report. Contractors pit excavations occurred to establish the depth of the 1864 undercroft foundation.
ELO8664	Archaeological Work in the Undercroft of St Pancras Station, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.87i. Limited information is available from the interim report. A brick and granite flooring was recorded. This may be the earliest Undercroft floor that was superseded by the later concrete slab.
ELO8665	Archaeological Work in the Undercroft of St Pancras Station, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.87j. Limited information is available from the interim report. A 6 metre diameter railway turntable within the Undercroft. It was the central one of three the length of the main spine avenue, allowing engines to turn through 360 degrees.
ELO8666	Archaeological Work in the Undercroft of St Pancras Station, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.87k. Limited information is available from the interim report. A six metre diameter railway turntable was recorded within the undercroft. It is the southernmost of three spanning the length of the main spine avenue allowing engines to turn through 360 degrees.
ELO8668	Archaeological Work at Pancras Road, South of German Gymnasium, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.89. Limited information is available from the interim report. Bedding and concrete tram track foundations dating to the late 19th or early 20th century were exposed in contractors' excavations.

Reference	Event name	Event type	Organisation	Summary
ELO8675	Archaeological Work at Southwest Corner of Brill Place, Camden (CTRL 2002)	Watching Brief	Museum of London Archaeology Service-Pre-Construct Archaeology	Archaeological work, probably a watching brief, was carried out in January 2002 by Pre-Construct Archaeology and the Museum of London Archaeology Service. Site code YKW01, site G.93. Limited information is available from the interim report. Basement walls were exposed by contractors' excavations for the new British Library access road. Originally these basements formed part of the Midland Road railway arches and dated to the 19th century.
ELO9114	Kings Cross Development, Camden: Historic Building Record	Building Survey	English Heritage	In November 1988 Stephen Duckworth and Barry Jones of the Ironbridge Institute compiled a record of the extant features and structures on the Kings Cross Development Site, especially those associated with railway goods handling, the gas industry and other industrial installations. They did not cover the two main line termini and their associated hotels and they only briefly examined the German Gymnasium. The site was divided into 26 areas. There are reports on each area, each of which describes the site's extent, its historical context, features are located and described and recommendations made.
ELO9116	Kings Cross Area, Camden: Desk Based Assessment	Desk Based Assessment	Museum of London	In May 1991 Museum of London compiled an archaeological impact assessment of the Kings Cross Site. The site covers 125 acres and has been divided in four areas. Area A is next to the River Fleet and has a high potential for all periods. However, 19th century basements may have had an impact on archaeological deposits. Area B is also adjacent to the Fleet and to St Pancras Old Church. There may be remains relating to the original village of St Pancras, which may date to Saxon times. Area C covers the central and northern parts of the site and these are thought to be the least affected by modern disturbance. Area D is adjacent to York Way and may contain remains relating to the line of the Roman and medieval road, including Roman buildings or cemeteries.
ELO9117	Union Railway St Pancras Site Camden: Desk Based Assessment	Desk Based Assessment	Oxford Archaeological Unit	In March 1994 Oxford Archaeological Unit compiled an archaeological desk based assessment of the Union Railway St. Pancras Site. The site was split into 4 areas.

Reference	Event name	Event type	Organisation	Summary
				Within Area A, there was thought to be a high potential of finding archaeological remains, which may include remains associated with the Roman Road York Way, the Anglo-Saxon and medieval settlement of St Pancras and the 19th century railway workers' settlement of Agar Town. Within Area B there was thought to be potential for remains related to the Anglo-Saxon and medieval settlement of St Pancras, St Pancras Well, and post-medieval buildings including the Adam and Eve Inn. In Area C there was thought be potential for remains of the presumed medieval and post medieval hamlet of 'Brill'. There were also thought to be potentially be remains of earlier settlements associated with the Fleet and Brill rivers. Within Area F there was thought to be potential for remains associated with the nucleus of the 18th and 19th century resettlement of Kings Cross and St Pancras, the 18th century area of industry, 18th century Small Pox hospital and Kings Cross Station.
ELO9144	Euston Road [St Pancras Terminus] London: Evaluation and Watching Brief	Trial Trench; Test Pit; Watching Brief	Oxford Archaeological Unit	Between October and December 1995 Oxford Archaeological Unit conducted an archaeological evaluation and watching brief at St Pancras. The watching brief monitored a geotechnical assessment of the site. Two test pits and one trench were also excavated for archaeological purposes. The survey area was found to include farmland related to the medieval village of St Pancras. The lands to the east was truncated by the East Coast Main Line and sidings whilst land to the west was buried by the Midland Main Line and Sidings. Deposits were also recorded relating to the construction of Regents Canal in the 19th century. Remains were also found of 19th century terraced houses, a 19th century munitions factory and the 20th century motor works. Natural London Clay with overlying gravel/alluvial deposits was recorded at between 12-16m OD.
ELO11358	Brill Place [United Kingdom Cancer Medical Research	Watching Brief	Museum of London Archaeology	A watching brief was carried out at the United Kingdom Cancer Medical Research Institute by Museum of London Archaeology between 2009 and 2010. The base of a brick flue, cast iron column

Reference	Event name	Event type	Organisation	Summary
	Institute], London, NW1: Watching Brief			bases, floor surfaces, tracks and several brick and concrete footings were found which were all associated with the former Somers Town Goods Depot. A brick drain and two brick culverts were the only features found which pre dated the construction of the Goods Depot in the late 19th century. *Natural deposits of clay were observed between 0.60m and 2.00m below the ground level.*
ELO11841	Euston Road (No 144) [Elizabeth Garrett Anderson Hospital], Camden, NW1: Desk Based Assessment	Desk Based Assessment	Museum of London Archaeology Service	A desk based assessment was carried out at the Elizabeth Garrett Anderson Hospital at 144 Euston Road, Camden in April 2005 by the Museum of London Archaeology Service. It was thought that as the potential archaeology has probably been disturbed by the existing buildings that the archaeological potential for the site is low.
ELO11843	Euston Road (No 144) [Elizabeth Garrett Anderson Hospital], Camden, NW1: Watching Brief	Watching Brief	Museum of London Archaeology	A watching brief was undertaken at the Elizabeth Garrett Anderson Hospital, 144 Euston Road, Camden between the 24th January and the 12th February 2009 by Museum of London Archaeology Service. The trench sections observed around the side of the trenches showed made ground. No archaeological features were observed.
ELO11844	Goodsway/Camley Street/Battlebridge [King's Cross Station], Camden: Watching Brief	Watching Brief	Pre-Construct Archaeology	A Watching brief was undertaken at Kings Cross Station in the area bordered by Goodsway, Camley Street and Battlebridge. The investigations were carried out by Pre-Construct Archaeology in September and October 2011. The area investigated is referred to as either King's Cross Central or Zone B, and has been sub-divided into six areas. During the ground reduction of one of these areas Roman tiles were recovered. It was concluded that the large quantity of Early Roman Brick and tile are likely to have come from a structure. *Natural clay was observed at a height of 17.95 to 17.06m OD*
ELO11855	Brill Place [Somers Town Goods Yard], Camden: Excavation and Watching Brief	Watching Brief; Open Area Excavation	Museum of London Archaeology	An excavation, immediately followed by a watching brief was carried out at Somers Town Goods Yard at Brill Place in March 2011, by Museum of London Archaeology. The excavation comprised three large open areas and a watching brief on ground reduction. The site revealed the in-situ remains of the structural and functional elements of the goods yard. 19th century

Reference	Event name	Event type	Organisation	Summary
				pottery and a ceramic drain were the only surviving evidence of any type of domestic activity.
ELO13426	St Pancras Road [Kings Cross Station], Kings Cross, Camden, N1: Building Recording	Building Survey	Museum of London Archaeology	Work was commissioned by Vinci Construction on behalf of Network Rail and involved Museum of London Archaeology undertaking a watching brief and standing building recording. This event relates to the building recording element, see ELO14804 for the watching brief record. This work involved related documentary research; and survey of the buildings, including a photographic survey, as part of the redevelopment at King's Cross Station. This work involved building upon an existing photographic survey of the Western Range and two phases of recording the building's fabric. Part of this range: Kings Cross station, is Grade I listed.
ELO14238	Pancras Road, [Stanley Building] Kings Cross Central, Camden: Watching Brief	Watching Brief	Pre-Construct Archaeology	A watching brief was undertaken at Plot E Kings Cross Central on the 20th January 2013 by Pre-Construct Archaeology. The monitoring focused on ground reduction and the creation of service trenches inside and adjoining the Stanley Building. The remains of an earlier structure were observed and they comprised a brick stub wall, pits and a hearth, all of an 18th-19th century date. *Natural London Clay was observed.*
ELO14555	Goods Way, (Gas Holder No.8 & Walls) King's Cross Central, Camden: Building Recording	Building Survey	Pre-Construct Archaeology	Built heritage recording of Gas Holder No.8 and the north and south walls around the St Pancras gas holder station, Goods Way, King's Cross. Built heritage recording to English Heritage Level 4 was carried out as a condition of planning permission for the removal of the walls and relocation of the gas holder. Report reference R11715.
ELO14568	King's Cross Square, Southern Concourse, Camden: Watching Brief	Watching Brief	Museum of London Archaeology	Watching brief on work on the refurbishment of the existing Southern Concourse and landscaping works. Three trenches were monitored; Trench 1 4.50m x 27.75m, Trench 2a 1m x 0.55m, and Trench 2b 1.75m x 0.45m. Archaeological deposits and structural features were recorded in two trenches, none of which predated the construction of Kings Cross Railway Station in the 1850's and it is likely that all structure observed relates to the station and the underground railways serving it.

Reference	Event name	Event type	Organisation	Summary
ELO14804	St Pancras Road [Kings Cross Station], Kings Cross, Camden, N1: Watching Brief	Watching Brief	Museum of London Archaeology	Work was commissioned by Vinci Construction on behalf of Network Rail and involved Museum of London Archaeology undertaking a watching brief and standing building recording. This event relates to the watching brief element, see ELO13426 for the standing building survey record. This involved monitoring of redevelopment works whilst also creating a photographic building record. The work was undertaken between 2009 and 2011. King's Cross Station was built as the London terminus of the Great Northern Railway in 1852 to designs by Lewis Cubitt. At the time of its construction the principles behind the design and layout of large passenger terminals were yet to be fully established. Cubitt's designs provided the GNR with an efficient and simple layout to the station buildings and an uncomplicated yet striking public façade, made all the more significant by its contrast to the palatial Gothic of St Pancras Station, which opened later in 1868. The Western Range building at King's Cross was the working heart of the station, housing the Booking Hall, waiting rooms and refreshment rooms for the public as well as board rooms, office rooms, strong rooms and the Parcel Office. The building also contained large storage facilities in the basement for food, beer and wine, whilst attic areas were utilised to house large water tanks for fresh water. The historic building recording included a watching brief on the redevelopment and refurbishment of the Western Range allowing hidden features to be recorded. The majority of the demolition occurred internally, with selected partition walls, floors and fireplaces being removed. The opening up and enabling works exposed much of the buildings fabric, structure and details which were examined and analysed as and when feasible. These elements were then interpreted and appropriately recorded, having regard to their historical and architectural significance.
ELO16106	King's Boulevard [Kings Cross Station], King's Cross, Camden, NW1: Watching Brief	Watching Brief	Museum of London Archaeology	A watching brief was carried out at King's Cross Station between the 7th November and the 20th December 2008 by Museum of London Archaeology.

Reference	Event name	Event type	Organisation	Summary
				The watching brief observed the brick and concrete foundations of features associated with the railway station. These included possible foundation walls of the train shed and Hotel Curve Tunnel wall.
ELO16107	King's Boulevard [Kings Cross Station], King's Cross, Camden, NW1: Standing Building Recording	Building Survey	Museum of London Archaeology	Standing building recording was carried out at King's Cross Station between the 7th November and the 20th December 2008 by Museum of London Archaeology. Three brick walls were recorded which had been exposed in May 2008. These walls appear to be from three phases of development on the site. One wall did follow the known alignment of the Hotel Curve or its portal, but may have been form a later phase. The second wall dates to the 20th century and the third wall was inline with the east wall of the Hotel Curve cutting.
ELO16108	Euston Road [King's Cross Station], King's Cross, Camden, NW1: Geotechnical Monitoring	Watching Brief	Museum of London Archaeology Service	A watching brief on geotechnical test pits was undertaken at King's Cross Station between the 1st November 2007 and the 14th February 2008 by Museum of London Archaeology. 17 test pits were observed and no archaeological material was visible, natural was also not reached.
ELO16111	Pancras Road [King's Cross Underground Station], King's Cross, Camden: Standing Building Survey	Building Survey	Museum of London Archaeology Service	Building recording was undertaken at King's Cross on structures that were to be demolished as part of the redevelopment of the underground station. The recording was undertaken between February 2002 and April 2003 over two phases by the Museum of London Arcaheology Service. The icehouse was dated to the 1860's, and only the bottom 2m were visible, and it is possible that it was never completed. The icehouse was also truncated by the Hotel Curve Tunnel.
ELO16112	Euston Road [King's Cross Underground Station], King's Cross, Camden, NW1: Watching Brief	Watching Brief	Museum of London Archaeology Service	A watching brief was undertaken in the area of the new western ticket hall at King's Cross Underground Station in September 2002 by the Museum of London Archaeology Service. The monitoring focused on the excavation of the forecourt area, no archaeological finds or deposits were recovered. * Natural London Clay was observed at 12.2m OD*

Reference	Event name	Event type	Organisation	Summary
ELO16114	Midland Road/Pancras Road/Brill Place/Ossulston Street [St Pancras Station & Somers Town Goods Depot], St Pancras, Camden, NW1: Building Recording	Building Survey	Museum of London Archaeology Service	Building recording was undertaken at St Pancras Station and the former Somers Town Goods Depot between August 2001 and February 2006 by the Museum of London Archaeology Service. The buildings recorded included the West Side Buildings, a cab ramp and screen walls and vaults, a perimeter retaining wall and the perimeter walls of the goods depot. During the works parts of the stations fabric, structure and details were exposed, and these were also recorded.
ELO17230	Goods Way/ Battle Bridge Road/ Boulevard [King's Cross Central, Zone A] London: Archaeological Watching Brief	Watching Brief	Pre-Construct Archaeology	Between August and December 2010 Pre-Construct Archaeology conducted an archaeological watching brief at Zone A, King's Cross Central. The watching brief was carried out during groundworks for the construction of the Interim Service Road and the excavation of piling and service trenches. Potentially redeposited London Clay was recorded in all three trenches between 17m AOD and 18m AOD. In Trench 1 the remains of a 20th century depot building were revealed beneath a layer of modern concrete. This was constructed on a layer of made ground which overlain the remains of 19th century brick walls and floors and early 20th century loose sandy deposits. The 19th century walls are the remains of the Retort Houses, Store Houses and the Gasworks Basin, as shown in the 1871 Ordnance Survey map. In Trench 5 modern concrete and made ground overlaid the remains of the 19th century Retort Houses, also seen in Trench 1. In Trench 8 modern made ground and concrete overlain 19th century brick walls and cast iron pipes in the southern part of the trench and a 19th century sandstone slab floor over a sandy bedding layer in the northern part of the trench. As in the other two trenches, the 19th century walls relate to the Retort Houses.
ELO17232	Battle Bridge Road [The Culross Buildings] King's Cross Central London Borough of Camden: Buliding Recording	Building Survey	Pre-Construct Archaeology	In 2008 Pre-Construct Archaeology were commissioned to undertake building recording of the Culross Buildings (comprising the Culross Building, Culross Hall and 41 Battle Bridge Road). The buildings were constructed in 1891 and 1892 as rental accommodation for Great Northern Railway workers and others displaced by the expansion of King's Cross Station.

Reference	Event name	Event type	Organisation	Summary
				Building recording was conducted in accordance with a Level 4 survey, as defined by English Heritage (2006). This comprised documentary research, on-site recording, measured survey, photographic survey and fabric analysis. A building recording watching brief was also conducted during the demolition of the buildings. The building fabric was found to have survived largely intact, with the original plan still surviving on all four floors of the tenement block. The main alteration had occurred in 1984 when the flats were modernised and each flat given a new kitchen and bathroom. All of the original ranges and coppers had been removed.
ELO17234	Zone A (N) and Zone A (S), Kings Cross Central, London Borough of Camden: Archaeological Watching Brief	Watching Brief	Pre-Construct Archaeology	Pre-Construct Archaeology carried out an archaeological watching brief between 2012 and 2013 on Zone A (N) and Zone A (S) King's Cross Central. The work identified evidence of the remains of a Gasworks Retort House and Store/Smithy dated to the mid-19th century.
ELO17574	Euston Road [King's Cross Station] London Borough of Camden: Desk Based Assessment	Desk Based Assessment	Unknown	Strazala Architects compiled a heritage impact statement for King's Cross Station, Western and Eastern Range, Staff Accommodation Works. The work was commissioned by Virgin Trains East Coast. The report found that the proposed design for the facility of Staff Accommodation has been created with the intention of improving the working environment. The report found that the Strazala Architects have retained the character of the original Cubitt design, whilst providing the requirements of Virgin Trains East Coast.
ELO17840	Pancras Road [Great Northern Hotel] Camden London NW1: Historic Building Recording	Building Survey	Pre-Construct Archaeology	Between October 2007 and January 2008 Pre-Construct Archaeology conducted building recording of the Great Northern Hotel. Building recording was carried out to a Level 4. It was found that few changes had been made to the hotel's basic footprint and main internal layout. The main alterations included: the extension of coal cellars, the construction of a new boiler house, extension at the north-west end of the building, an extension at the south-east end of the building and the insertion of en-suite bathrooms to bedrooms.
ELO17842	Pancras Road [Great Northern Hotel] [Basement Level Coal	Building Survey	Ingram Consultancy Limited	In March 2006 Ingram Consultancy Limited conducted a building recording of the basement level coal stores on the northwest side of

Reference	Event name	Event type	Organisation	Summary
	Stores] Camden London NW1: Historic Building Recording			the Great Northern Hotel at King's Cross Station. A site inspection was undertaken and maps, drawings and written sources inspected.
ELO17843	Euston Road [King's Cross Station] [Red Star Parcel Office] London: Building Recording	Building Survey	Ingram Consultancy Limited	In June and July 2003 Ingram Consultancy Limited conducted a building recording of the tunnel which provided an underground link between the 'Red Star' Parcel Office and King's Cross Station. The parcel office in the west station forecourt and its link tunnel were built c.1939 and its structure consists of mass concrete walls and rolled steel joists encased in concrete forming the roof. A record was prepared to an English Heritage Level 3 standard. A site inspection, study of design drawings and written sources was undertaken.
ELO17912	Euston Road [St Pancras Station] [The Western Ticket Hall] London: Historic Building Recording	Building Survey	Ingram Consultancy Limited	In March 2004 Ingram Consultancy and Pre-Construct Archaeology conducted building recording of the joinery of St Pancras Chambers main elevation and other elements and recording of the brick infill to arches of the blind arcade in the St Pancras Forecourt, Euston Road elevation. In May 2005 James Brennan undertook further recording of the principal St Pancras Station elevation, 'basement' level. This was conducted to a level 4 standard.
ELO17914	Pancras Road [King's Cross Station] [The Great Northern Hotel] London: Historic Building Recording	Building Survey	Ingram Consultancy Limited	Between February 2002 and July 2003 Ingram Consultancy Ltd was commissioned to undertake a Historic Building Recording of the Northern Ticket Hall . The report summarises the recording of the Red Star parcel depot, adjacent porte cochere, northern canopy, basement level vaulted stores of the Great Northern Hotel and west station range. Different elements of the area of the New Northern Ticket Hall were recorded to different levels ranging between Level 2 and 4. Information was gathered through site inspection, study of maps and drawings and of written sources.
ELO17916	Euston Road [St Pancras Station] [Midland Grand Hotel] London: Historic Building Recording	Building Survey	Ingram Consultancy Limited	In July 2003 Ingram Consultancy Limited conducted a level 4 building recording of the forecourt structures of St Pancras Station. The description and brief history are based upon site inspection, examination of archival drawings and photographs and a review of other written sources.

Reference	Event name	Event type	Organisation	Summary
ELO18367	Pancras Road [Great Northern Hotel] Kings Cross Central Camden: Watching Brief	Watching Brief	Pre-Construct Archaeology	Between December 2007 and January 2008 Pre-Construct Archaeology conducted an archaeological watching brief in the basement area of the Great Northern Hotel. The excavation of 25 geotechnical trial pits was monitored. It was found that all subsurface structures were built on a brick base, supported by a concrete foundation slab resting on a bed of brick rubble. Trial pits 9, 10 and 22, which were outside of the hotel footprint, observed brick footings on top of clay deposits. It is unknown if these clay deposits were natural. Trial pit 11 revealed steel and brick reinforcements for the Fleet sewer and the brick sewer itself was observed in Trial Pit 23. Report reference OASIS-preconst1-36819.
ELO18368	Pancras Road [Great Northern Hotel] King's Cross London: Watching Brief	Watching Brief	Pre-Construct Archaeology	Between June and August 2009 Pre-Construct Archaeology conducted an archaeological watching brief of a single large trench which was excavated as part of a structural investigation into the historic buildings. The trench was excavated against the southwest wall of the Great Northern Hotel. It was found that most subsurface structures were built on a brick base, supported by a concrete foundation slab, resting on a bed of brick rubble. However, two walls, the earliest features observed (at 12.88m OD and 12.83m OD) were built directly onto natural clay. Several phases of flooring were also identified. All features were related to the construction of the extension of the hotel during the 1890s. Report reference OASIS-preconst1-63245.
ELO20824	Belgrove Street [Belgrove House] London WC1H: Archaeological Desk Based Assessment	Desk Based Assessment	Museum of London Archaeology	In August 2020 Museum of London Archaeology compiled an archaeological desk based assessment of Belgrove House. It was concluded that there was no potential for archaeological remains dating from the prehistoric to later medieval periods and a low potential for remains dating to the post-medieval period. The site was thought to have been first developed in the mid to late 19th century with terraced housing. The construction of Belgrove House in the mid 20th century included a basement covering the site. This may have truncated or completely removed an archaeological remains.

Reference	Event name	Event type	Organisation	Summary
ELO21002	Caribbean Carnival	Unassigned/ HIS	Unassigned	A "Caribbean Carnival" was held on 30 January 1959 in St Pancras Town Hall, now Camden Town Hall, as a response to the state of race relations at the time and the Notting Hill race riots of the previous year. The 1959 event was organised by the Trinidadian journalist and activist Claudia Jones and directed by Edric Connor to showcase elements of a Caribbean carnival in carnival style, and was televised by the BBC. The show featured the Mighty Terror singing the 'Carnival at St Pancras' calypso, The Southlanders, Cleo Laine, steel bands, and ended with a Caribbean Carnival Queen beauty contest and a Grand Finale Jump-Up by West Indians who attended the event. Out of the Caribbean Carnival grew today's Notting Hill Carnival.

F5 Supporting figures