

Local Plan

Supplementary Planning Document:

Sustainable Design and Construction

October 2016

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Executive Summary

Following adoption of the Core Strategy and Development Management Policies documents in September 2012 Barnet has one of the most up to date Local Plans in the country. With the support of a robust planning framework with clearly set out priorities of protection, enhancement and consolidated growth, the council is in a strong position to produce more detailed local guidance.

Barnet's Sustainable Design and Construction Supplementary Planning Document (SD&C SPD) was first published in 2007 and was subsequently updated in 2013. Its main purpose is to provide clarification on Barnet's local interpretation of sustainable development in light of national and regional policy and the context of the Three Strands Approach (Protection, Enhancement, Growth). Since 2013, the London Plan has undergone a review with the Further alterations to the London Plan adopted in March 2016. The Government has also established national standards for housing.

It is therefore now timely to update the SD&C SPD. The SPD has been revised to focus on the design standards required for different scales of development as well as the performance standards of buildings. The refocused SPD captures changes on space standards as well as new standards that address accessibility, security, energy, noise and water conservation.

Section 1: Background

1.1 Introduction

- 1.1.1 Over the last ten years there has been a growing public and professional awareness of what represents sustainable design and construction. This Supplementary Planning Document (SPD) is a response to this wider appreciation of the importance of sustainable design and construction, setting out how it should be applied within Barnet. It sets out the technical aspects of the design standards. Sustainable design is design which contributes to the sustainable development of an area and it should take into consideration the full remit of social, environmental and economic issues.
- 1.1.2 The content of this SPD will help Barnet adapt and respond to climate change, one of the greatest challenges facing the world today. It will also help to ensure the ongoing economic success of London by maintaining the qualities which make Barnet such an attractive place to live, work and visit.
- 1.1.3 This SPD on Sustainable Design and Construction (SD&C) sets out Barnet's technical requirements for environmental design and construction management. The SPD sets out requirements on air, noise, water, energy, water, waste and habitat quality in order to achieve protection and enhancement of the environment. The SPD requirements are linked to existing national standards and guidance and will be updated in line with emerging opportunities and future policy developments.
- 1.1.4 This SPD expands on the policy approach set out in the Core Strategy and Development Management Policies (DMP) Development Plan Documents (DPD) and the London Plan. It has been revised to focus on the essential requirements against which planning applications for all forms of development in Barnet will be assessed.
- 1.1.5 This revision retains the innovative core of the original Sustainable Design and Construction SPD, retaining the condensed content whilst updating guidance in light of introduction of national housing standards. The aim is to produce a clear, user friendly document which simply states the sustainability and construction related requirements which need to be applied in Barnet. The Mayor of London has provided a considerable amount of detail on the quality and design of housing to support the London Plan policies which are set out in Housing Supplementary Planning Guidance (SPG). This document will complement the SPG and cross references will be made where appropriate. It also complements Barnet's Residential Design Guidance SPD that provides a clear and consistent message on how we manage change within Barnet's suburbs although this document applies to all forms of development in Barnet, not just residential.

1.2 Structure and content of this guidance

- 1.2.1 This SPD reflects Barnet's priorities for delivering sustainable design and construction. The SPD will therefore not seek to provide detailed guidance on all the factors that should be taken into account in the design of a new development. Cross references will be set out where appropriate to other relevant guidance. Section 2 sets out essential requirements that will apply to developments in Barnet. The following issues are covered:
1. **Minimum residential space standards** which are set for different sizes of houses and flats
 2. **Internal layout and design** for different room types including minimum ceiling heights

3. **Outdoor amenity space** standards which are set for different sizes of houses and flats
4. **Daylight, privacy (minimum distance), outlook and light pollution** standards and requirements to protect existing and future occupants
5. **Microclimate – wind and thermal conditions** to ensure well designed outdoor spaces around tall buildings
6. **Accessible and adaptable dwellings** to help people live independent lives in their own homes
7. **Wheelchair user dwellings** explains the national standard
8. **Energy use in new buildings** sets out the approach to using energy efficiently
9. **Decentralised Energy** clarifies when a development needs to connect or provide infrastructure
10. **Retrofitting of existing buildings** summarises when planning permission is required for various energy efficiency measures
11. **Water efficiency** sets out the London Plan requirements
12. **Waste strategy** explains to the storage requirements for recycling and refuse
13. **Air quality** sets out when proposals may need to mitigate the impact
14. **Noise quality** sets out the requirements to protect amenity
15. **Flood risk and water quality** ensures flood risk is considered
16. **Biodiversity and habitat quality** provides a commitment to ecology
17. **Pollution prevention, contaminated land remediation and construction management** ensures these aspects are considered
18. **BREEAM and Ecohomes** and the scale of development to which it applies
19. **Considerate Constructors Scheme** and its application

1.3 How this guidance will be applied

- 1.3.1 Each topic in Section 2 sets out the principles and requirements and the scale of development to which it will apply. Projects will be affected to different degrees by the guidance and requirements set out in this SPD depending on factors including the type of development and its location. The scale of a development can provide the applicant with the opportunity to deliver more sustainable development.
- 1.3.2 Where requirements are identified they will be set out in terms of Householder, Minor, Major and Large scale. These are defined in Table 1 below and apply to all types of development:

Table 1: Definition of development scale for applying Sustainable Design and Construction requirements

Scale	Description
Householder	Extensions to houses (including roof extensions)
Minor	Residential development of 1 to 9 units in scale including conversions. Non residential development of up to 999 m ² .
Major	Residential development over 10 units. Non residential development over 1,000 m ²
Large scale major	Residential development over 200 units or a site of 4 hectares or more. Non residential development over 10,000 m ²

- 1.3.3 Where development proposals compromise the requirements set out in this document they will need to demonstrate exemplary design as well as a contribution to the achievement of other planning objectives. This follows the approach set out in London Plan Policy 3.5D Quality and Design of Housing Developments.

1.4 How this SPD fits within National, Regional and Barnet's Local Plan

- 1.4.1 The Core Strategy (CS), Development Management Policies (DMP), the saved suite of Unitary Development Plan policies for Brent Cross Cricklewood and the London Plan provide the development plan for Barnet. This SPD supports these documents by setting out more detailed information about how the policies they contain should be applied.
- 1.4.2 The SPD was originally adopted in 2007 and updated in 2013. This further revision is complemented by a revision to the council's SPD on Residential Design Guidance. This Residential Design Guidance provides further detail on other specific areas not covered in this guidance. Cross references are made throughout both SPD's to highlight overlap where necessary.

National Planning Policy Framework (NPPF), March 2012

- 1.4.3 National and strategic planning policy recognises the importance of design to the ongoing success and sustainable development of our urban areas – from the wider spatial layout of the townscape down to architectural details. The NPPF sets out the Government's planning policies for England and how these are expected to be applied. At the heart of the NPPF is the presumption in favour of sustainable development.

National Housing Technical Standards

- 1.4.4 This SPD identifies the national technical housing standards introduced in October 2015 which are relevant to Barnet. The standards comprise new mandatory standards on security, additional 'optional' Building Regulations on water and access, and a new nationally described space standard (collectively known as the new national technical standards). The system complements the existing set of building regulations which are mandatory.

The London Plan March 2016

- 1.4.5 The Local Plan helps to deliver the strategic objectives set out in the London Plan. Policy 2.6: Outer London: Vision and Strategy recognises that one of the key assets is the high quality of life that already exists in most of Outer London and maintaining and enhancing it will be key to the area's future success.
- 1.4.6 The following policies in the London Plan are of particular relevance:
- Policy 3.5: Quality and Design of Housing Developments
 - Policy 3.8: Housing Choice
 - Policy 5.2: Minimising Carbon Dioxide Emissions
 - Policy 5.3: Sustainable Design and Construction
 - Policy 5.4: Retrofitting
 - Policy 5.13: Sustainable Drainage
 - Policy 5.14: Water Quality and Wastewater Infrastructure
 - Policy 5.15: Water use and Supplies
 - Policy 5.18: Construction, Excavation and Demolition Waste

- Policy 5.21: Contaminated Land
- Policy 7.6: Architecture
- Policy 7.7: Location and design of tall and large buildings
- Policy 7.14: Improving Air Quality
- Policy 7.15: Reducing Noise and managing noise, improving and enhancing the acoustic environment and promoting appropriate soundscapes

Mayor's Housing SPG, March 2016

- 1.4.7 The Mayor's Housing SPG provides detail to supplement the housing policies in the London Plan. The SPG seeks to provide a convenient and accessible guide to implementing the key London Plan policies for housing development. The SPG covers supply, quality, choice, affordability, stock and investment, community infrastructure and mixed uses. For the purposes of this Sustainable Design and Construction SPD, Part 2 of the Mayor's Housing SPG which covers housing quality is particularly relevant as it covers space standards, accessible and adaptable dwellings and outdoor space.
- 1.4.8 Requirements in the Mayor's Housing SPG are set out in terms of standards. The document makes clear that any development failing to meet a number of standards is unlikely to be acceptable. It states that whilst failure to meet one standard would not necessarily lead to an issue of compliance with the London Plan, a combination of failures would cause concern.
- 1.4.9 Where appropriate the Sustainable Design and Construction SPD makes reference to the standard in the Mayor's Housing SPG to make clear what is expected from applicants. In these situations the Housing SPG should be read in conjunction with the Sustainable Design and Construction SPD. Appendix 1 provides cross references between the topics in this SPD and the relevant policies in the CS, DMP, London Plan and the Mayor's Housing SPG.

Barnet's Local Plan, September 2012

- 1.4.10 The Core Strategy (CS) sets out the strategic place-shaping objectives and policies to guide development in the borough over the next 15 years. The Three Strands Approach provides the spatial vision that underpins the CS and Barnet's Local Plan. The Development Management Policies (DMP) sets out the borough-wide planning policies beneath the Core Strategy to be used for day to day decision making by the Planning Service and planning committees. The Three Strands Approach is:
- Strand 1.** Absolute protection of the Green Belt, Metropolitan Open Land and other valued open space from inappropriate development
- Strand 2.** Enhancement and protection of Barnet's suburbs, town centres and historic areas
- Strand 3.** Consolidated growth in areas in need of renewal and investment
- 1.4.11 Consolidated growth concentrates new development in the most accessible locations around public transport nodes and town centres where community and physical infrastructure is to be improved. This broad approach can meet the sustainable design principles for a compact city. It can also help adapt to and mitigate the effects of climate change. Most importantly, the Green Belt and the one-third of the borough that comprises green open spaces, is protected from future urbanisation and development to ensure a high quality suburb.
- 1.4.12 In relation to the SPD the implementation of the following Local Plan policies is important.

CS Policies:

- CSNPPF – National Planning Policy Framework – Presumption in Favour of Sustainable Development
- CS1 – Barnet’s Place Shaping Strategy – Protection, Enhancement and Consolidated Growth – the Three Strands Approach
- CS4 – Providing Quality Homes and Housing Choice in Barnet
- CS13 – Ensuring the Efficient Use of Natural Resources

These are supported by **the DMP:**

- DM01 – Protecting Barnet’s Character and Amenity
- DM02 - Development Standards
- DM04 – Environmental Consideration
- DM05 – Tall Buildings

Barnet’s Residential Design Guidance

1.4.14 Barnet’s Residential Design Guidance SPD provides a clear and consistent message on how to manage change within Barnet’s suburbs. That SPD consolidates and updates the existing framework for residential design which mainly focused on improvements to the existing housing stock (Design Guidance Notes on Extensions, Conversions, Porches, and Hardstandings and Vehicular Crossovers). That SPD provides more detailed residential design guidance issues relevant to Barnet such as local character, density, built form, car parking space and amenity space standards connected with new build development. Through these changes that SPD sets out the local priorities for protecting and enhancing Barnet’s character. It provides a local reference point to the suite of national guidance on good design.

Monitoring

1.4.15 The implementation of this SPD will be monitored through Barnet’s Authorities Monitoring Report (AMR). Successful implementation of the SPD should (a) reduce the number of cases subject to an appeal, by providing developers with a clearer framework for residential design and layout; and (b) improve the council’s success rate at appeal in defending decisions against poor residential schemes.

1.4.16 The council does not consider that the cumulative impact of standards in the Residential Design Guidance SPD should put implementation at risk as these standards facilitate development throughout the economic cycle. As economic circumstances change and familiarity with the SPD develops, the council may reassess the design categories in the document and the allocation of particular standards between them.

1.4.17 Details of the monitoring indicators for the Sustainable Design and Construction SPD are set out in Appendix 3.

Section 2: Sustainable Design and Construction requirements and guidance

2.1 - Minimum Residential Space Standards²

- 2.1.1 The Nationally Described Space Standard has been developed to rationalise existing space standards into a single national approach. The standard takes into account the need for rooms to be able to accommodate a basic set of furniture, fittings, activity and circulation space necessary to the function of each room.
- 2.1.2 The space standard also takes into account the spatial implications of providing improved accessibility and adaptability, particularly for older or less mobile people, and is capable of accommodating the requirements of both Category 1 and 2 accessibility standards in Approved Document M of the Building Regulations.
- 2.1.3 The space standard sets out a comprehensive range of one, two and three storey dwelling types with one to six bedrooms and up to eight bedspaces (as well as studio flats).

The London Plan adopted in 2016 applies the nationally described space standard as a minimum residential space standards for new dwellings³. The space standards are intended to ensure that all new homes are fit for purpose and offer the potential to be occupied over time by households of all tenures.

- 2.1.4 The council will require developers of residential development to provide floor areas in their schemes which meet or exceed the minimum space standards for dwellings of different sizes. These figures are based on minimum Gross Internal floor Area (GIA). These space standards are minimum for all residential development in Barnet. They reflect the standards set out in Table 3.3 in the London Plan under Policy 3.5 - Quality and Design of Housing Developments which reflect the nationally described space standard. Barnet's requirements are set out below

Table 2.1 Minimum residential space standard requirements: Table 3.3 London Plan Minimum space standards for new dwellings

Bedrooms	Bedspaces	Minimum gia (sqm)			Built-in storage (sqm)
		1 storey dwellings	2 storey dwellings	3 storey dwellings	
1b	1p	39 (37)*			1.0
	2p	50	58		1.5
2b	3p	61	70		2.0
	4p	70	79		
3b	4p	74	84	90	2.5
	5p	86	93	99	
	6p	95	102	108	
4b	5p	90	97	103	3.0
	6p	99	106	112	

² Technical housing standards – nationally described space standard. DCLG 2015. [https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/421515/150324 - Nationally Described Space Standard Final Web version.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/421515/150324_-_Nationally_Described_Space_Standard_Final_Web_version.pdf)

³ new dwellings in this context includes new build, conversions and change of use

	7p	108	115	121	
	8p	117	124	130	
5b	6p	103	110	116	3.5
	7p	112	119	125	
	8p	121	128	134	
6b	7p	116	123	129	4.0
	8p	125	132	138	
Notes to Table 3.3 <ol style="list-style-type: none"> *Where a one person dwelling has a shower room instead of a bathroom, the floor area may be reduced from 39m² to 37m², as shown bracketed. The Gross Internal Area of a dwelling is defined as the total floor space measured between the internal faces of perimeter walls that enclose a dwelling. This includes partitions, structural elements, cupboards, ducts, flights of stairs and voids above stairs. GIA should be measured and denoted in square metres (m²) The nationally described space standard sets a minimum ceiling height of 2.3 meters for at least 75% of the gross internal area of the dwelling. To address the unique heat island effect of London and the distinct density and flatted nature of most of its residential development, a minimum ceiling height of 2.5m for at least 75% of the gross internal area is strongly encouraged so that new housing is of adequate quality, especially in terms of light, ventilation and sense of space. 					

2.1.5 Applicants will be expected to demonstrate how these standards are to be met. The Mayor regards the relative size of all new homes in London to be a key element of housing quality. It may help development proposals to set out on the dwelling plans accompanying a planning application the following; size of each dwelling, number of persons to be accommodated, habitable floor space of individual rooms and the furniture and circulation space in order to help demonstrate compliance with the space standards. Where a development proposal includes accommodation in the roof space, appropriate section drawings should be submitted. Full justification will be required if these standards cannot be met. In line with the London Plan Policy 3.5 lower space standards will be permitted if they are of demonstrably exemplary design and contribute to other objectives of the London Plan and Barnet's Core Strategy (London Plan Policy 3.5 D).

2.1.6 Conversion of heritage buildings may present particular challenges for minimum space standards. In line with DM05 any impact on the heritage value will be weighed against the benefit brought from meeting the sustainable design and construction requirements.

Useful References for minimum residential space standards:

- Housing Supplementary Planning Guidance, GLA, March 2016
<https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/housing-supplementary>
- Technical housing standards – nationally described space standard. DCLG 2015.
[https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/421515/150324 - Nationally Described Space Standard Final Web version.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/421515/150324_-_Nationally_Described_Space_Standard_Final_Web_version.pdf)

2.2 - Internal Layout and Design

2.2.1 To deliver the Mayor's aspiration that homes are fit for purpose the internal layout of rooms and design of dwellings needs to be considered to enable flexible use. The positioning of doors and windows should also be considered and single aspect dwellings should be avoided. Barnet's requirements are set out in Table 2.2 and a definition of a habitable room is set out in the glossary including the maximum size considered before a room is counted as two (20 m²).

- 2.2.2 To address the unique heat island effect of London and the distinct density and flatted nature of most of London’s residential development, a minimum ceiling height of 2.5m for at least 75% of the dwelling area is strongly encouraged so that new housing is of adequate quality, especially in terms of light, ventilation and sense of space.
- 2.2.3 Dual aspect dwellings have many benefits including better daylight, a greater chance of direct sunlight for longer periods, natural cross ventilation, mitigating pollution, offering a choice of views, access to a quiet side of a building, greater flexibility in the use of rooms, and more potential for future adaptability by altering the use of rooms. Where single aspect flats are considered acceptable they should demonstrate that all habitable rooms and the kitchen are capable of providing adequate ventilation, privacy and daylight and the orientation enhances amenity, including views.
- 2.2.3 Built-in general internal storage space should be provided to comply with Table 2.1 above (Table 3.3 of the London Plan, and the nationally described space standard 4.1)
- 2.2.4 In addition to internal storage there should be ‘dirty’ storage space for items such as bicycles and buggies. This could be provided as a communal facility for flats. The level of provision recommended for Barnet is:
1. For flats without private gardens: 1m²
 2. For houses, bungalows and flats with private gardens for up to four people: 2.5m²
 3. For housing, bungalows and flats with private gardens for five or more people: 3.0m² (Note the requirements of the Mayor’s cycle parking standards - Table 6.3 – Cycle parking standards).
- ‘Dirty’ storage should be secure, sheltered and adequately lit with convenient access to the street. Further guidance is set out in the Residential Design Guidance SPD section 11.5.
- 2.2.5 The nationally described space standard GIA s incorporate combined floor areas for living/kitchen/dining space corresponding to the occupancy of a dwelling. New homes should be designed to allow sufficient flexibility to adapt to residents’ changing needs and circumstances.

Table 2.2: Internal layout and design requirements	Development scale
<p>Minimum room dimensions and floor areas:</p> <p>1 Single bedroom: minimum area should be 7.5 m² and is at least 2.15m wide to comply with the nationally described space standard. Double/twin bedroom: minimum area should be 11.5 m² and minimum width should be 2.75 m to comply with the nationally described space standard and every other double (or twin) bedroom is at least 2.55m wide.</p>	<p>Minor, major and large scale residential</p>
<p>Ceiling heights</p> <p>A minimum ceiling height of 2.5m for at least 75% of the dwelling area is strongly encouraged.</p> <p>Habitable floorspace in rooms with sloping ceilings is defined as that with 1.5 m or more of ceiling height.</p>	<p>Minor, major and large scale residential</p>

Development proposals should avoid single aspect dwellings that are north facing or exposed to noise exposure categories C & D or contain three or more bedrooms	Minor, major and large scale residential
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Useful References for Internal residential space:

- Housing Supplementary Planning Guidance, GLA, March 2016
[https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/housing-Technical housing standards – nationally described space standard. DCLG 2015.](https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/housing-Technical housing standards – nationally described space standard. DCLG 2015)
[https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/421515/15_0324 - Nationally Described Space Standard Final Web version.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/421515/15_0324_-_Nationally_Described_Space_Standard_Final_Web_version.pdf)

2.3 - Outdoor Amenity Space

- 2.3.1 Outdoor amenity space is highly valued and suitable provision will help to protect and improve the living standards of residents as well as contribute to maintaining and enhancing the wider character of the borough. Residential units with insufficient garden or amenity space are unlikely to provide good living conditions for future occupiers. For houses, amenity space should be provided in the form of individual rear gardens. For flats, options include provision communally around buildings or on roofs or as balconies. Whatever option is chosen it must be usable.
- 2.3.2 In calculating outdoor amenity space the following areas will not be counted as usable: shared surfaces, driveways, vehicle parking areas or hard standings, cycle storage areas ('dirty' storage) footpaths, servicing areas and refuse storage areas. In addition outdoor amenity space which does not have a reasonable level of privacy or good acoustic environment will not be considered to be usable. Further guidance on the design of communal amenity space which will be considered when assessing its useability are set out in the Residential Design Guidance SPD in section 8. Section 2.14 sets out detail on a good acoustic environment.
- 2.3.3 Higher density development, such as flats may not always be able to provide amenity space to the standards outlined in Table 2.3. Where the standards cannot be met and an innovative design solution is not possible the council will seek a Planning Obligation. Further detail on meeting outdoor amenity space requirements and development in areas of open space deficiency are set out in the Planning Obligations SPD.

Table 2.3: Outdoor Amenity Space Requirements	Development Scale
For Flats: •5 m ² of space per habitable room.	Minor, Major and Large scale
For Houses: •40 m ² of space for up to four habitable rooms •55 m ² of space for up to five habitable rooms •70 m ² of space for up to six habitable rooms •85 m ² of space for up to seven or more habitable rooms	Minor, Major and Large scale

Development proposals will not normally be permitted if it compromises the minimum outdoor amenity space standards.

Householder

Design of outdoor amenity space development

- 2.3.5 Outdoor amenity space should be designed to cater for all household needs including those of the elderly, young children and families. The space should be accessible for wheelchair users and should also facilitate use for disabled people in terms of paving, lighting and layout. It is important to distinguish boundaries between public, private and communal areas in order to identify who will take responsibility for the maintenance and security of private and semi-private areas. Further guidance is set out in the Residential Design Guidance SPD in section 8.
- 2.3.6 Where balconies are provided as part of outdoor amenity space they should provide privacy from neighbouring properties. This objective can be achieved by using screens or by setting the balcony back within the façade. In line with the Mayor’s Housing SPG, the minimum depth and width for all balconies and other private external spaces should be 1500mm (Standard 27).

Useful References for Outdoor Amenity Space:

- Housing Supplementary Planning Guidance, GLA, November March y 201562
<https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/housing>

2.4 - Daylight, Privacy (minimum distance), Outlook and Light Pollution

- 2.4.1 The impact of development on the availability of daylight / sunlight and privacy to the occupants of existing buildings and the occupants of new development is strongly influenced by design and contributes significantly to the quality of life. The amount of daylight available in buildings enhances people’s quality of life and reduces energy use. The Mayor’s Housing SPG standard 32 recommends that development should preferably have direct sunlight in living areas and kitchen dining spaces and all homes should provide for direct sunlight to enter at least one habitable room for part of the day. Overheating should be considered when designing for sunlight.
- 2.4.2 The privacy of existing and future development should be protected and gardens and windows to habitable rooms should not be significantly overlooked. Design solutions through layout of habitable rooms, window placement and building orientation should be used to address privacy and overlooking issues. Use of opaque glazing should be avoided in order to provide an outlook. The Residential Design Guidance SPD provides further guidance on design aspects of privacy, outlook and sunlight / daylight in section 7.
- 2.4.3 Artificial lighting can affect amenity, due to glare and light spillage, their visual impact in daytime and the increased disturbance from noise due to extending hours of activity in the evening. Proposals involving new lighting should demonstrate they will not significantly impact on the residential amenity of new and existing residents. Artificial lighting can also impact biodiversity and intrinsically dark landscapes.

Design Principles:

- A. Sunlighting/Daylighting – Ensure that the design takes into account levels of daylight and sunlight that will penetrate into occupied spaces,** as measured by Vertical Sky Component (VSC) and the Average Daylight Factor (ADF). The VSC represents the amount of light available on the outside plane of the window as a ratio of the amount of total unobstructed sky viewable following the introduction of visible barriers, such as new buildings. The ADF is a more complex measurement assessing whether the internal daylighting levels in a room are adequate. The measurement takes into account the VSC, the window size, number of windows available in a room, the room size, the room use and layout and the room surface reflectance. Further details on this and other aspects of sunlighting/daylighting are set out in:
- BRE Site Layout: Planning for Sunlight and Daylight: a Guide to Good Practice
 - the British Standard BS8206: Part II
 - the Applications Manual: Daylighting and Window Design – Lighting Guide LG10 (1999) of the Chartered Institute of Buildings Services Engineers.
- B. Light Pollution – Ensure that the design minimises adverse impacts from the lighting of a building or external areas.** Light pollution is defined as being any light emitting from artificial sources into spaces where this light is unwanted, such as spillage of security lights surrounding car parking areas into residential accommodation such as bedrooms, where this causes inconvenience to their occupants. Design solutions to control the effect of new lighting may include the type of technology used to control the distribution of light and minimise glare. Other solutions include screening, shielding, reducing lantern mounting heights and managing the operating hours of the light source. The visual impact of light fittings should also be considered.
- C. Privacy -** New residential development should afford a reasonable degree of privacy for future and neighbouring occupiers using minimum distances between habitable windows.

Construction Principles:

- D.** When it is essential for certain construction activities to take place at night, lighting needs to be sufficient for safety purposes, but should be set up in a way that any potential nuisance to nearby residential properties is minimised.

Table 2.4: Daylight, Privacy (minimum distance), Outlook and Light Pollution Requirements	Development Scale
Glazing to all habitable rooms should not normally be less than 20% of the internal floor area of the room.	All development
Bedrooms and living rooms /kitchens should have a reasonable outlook with clear glazed windows	All development
In new residential development there should be a minimum distance of 21 m between properties with facing windows to habitable rooms to avoid overlooking, and 10.5 m to a neighbouring garden.	All development
New development should take into account neighbouring properties to ensure that nuisance will not be caused from lighting during night time hours.	All development

Useful References for daylight, privacy, outlook and light pollution:

- Site layout planning for Daylight and Sunlight: a guide to good practice. BRE. Sept 2011 <http://www.brebookshop.com/details.jsp?id=326792>
- Guidance Notes for the Reduction of Light Pollution. Institution of Lighting Engineers. 2000. <http://www.gov.ie/SiteCollectionDocuments/Planning%20and%20building/SPG%20Light%20pollution%202002.pdf>
- Guidance notes for the reduction of obtrusive light, GN01. Institution of Lighting Engineers. 2005. <http://www.pdfport.com/view/629819-institute-of-lighting-engineers-guidance-on-obtrusive-light.html>
- Lighting in the Countryside: Towards Good Practice. DETR & Countryside Commission. 2001. <http://www.communities.gov.uk/archived/publications/planningandbuilding/lighting>

2.5 - Microclimate – Wind and Thermal Conditions

2.5.1 Climate change will exacerbate the temperature gradient that rises from the rural fringe to city centre high density locations. The massing and configuration of buildings can have a significant localised effect on the climatic conditions including funnelling wind or creating sun-traps. When designed well, the outdoor spaces within the built environment can be made much more usable to people for a greater part of the year than natural weather patterns would normally permit. Good design can contribute to urban cooling. If designed poorly, external spaces can be made hostile for all but the most active of uses or benign weather conditions.

2.5.2 It is essential that the microclimatic conditions of the urban environment are improved and wherever possible its ensured that these meet acceptable comfort standards. The following set of generic design and construction principles should be considered in the development process.

Design Principles:

- A. **Wind – ensure that potential levels of wind strength around the base of a building and on balconies and roof gardens are taken into consideration.** A building might be expected to have adverse impacts if it is significantly taller than adjacent properties, is part of a small cluster of tall buildings or stands alone. The acceptability of windy conditions is influenced by factors such as the existing average local wind strengths, the time of year, air temperature, humidity and sunshine. The Lawson Criteria for Distress and Comfort are set out in Table 2.5.1 and provide a set of principles to follow in terms of acceptable wind conditions for different types of activities.

Table 2.5.1: Acceptable Wind Conditions: Lawson’s Distress and Comfort Criteria		
Hourly average Wind Speed	Description	Activity

0 – 4m/s	Long term sitting	Reading a newspaper, eating or drinking
4 – 6m/s	Standing or short term sitting	Appropriate for bus stops, window shopping and building entrances
6 – 8m/s	Walking and strolling	General areas of walking and sightseeing
8 – 10m/s	Business walking	Local areas around tall buildings where people are not likely to linger

- B. Thermal Conditions – Ensure that the design of buildings has taken into account the thermal impact in relation to outdoor spaces and internal glazed spaces.** South facing, enclosed or semi-enclosed areas can trap the sun and create pleasant conditions even when the ambient temperature is cool. Such locations however can also be unbearably hot in mid-summer if there is no shade. Locations with wide expanses of tarmac, for instance can be excessively hot and contribute to the urban heat island effect.

Table 2.5.2: Microclimate, Wind and Thermal Conditions Requirements	Development Scale
Developers should demonstrate that appropriate comfort levels can be achieved for all pedestrian public and communal outdoor spaces using the Lawson Criteria for Distress and Comfort as a guide to the appropriate level of amenity for the expected use of those areas.	Large scale ⁴ and all tall buildings ⁵

2.6 - Accessible and Adaptable Dwellings

- 2.6.1 The Mayor of London has identified the growing and changing requirements for housing older people as one of the most important emerging planning issues for London. The London Plan anticipates that between 2011 and 2036 ‘over 65s’ could increase by 64% and ‘over 90s’ could grow in number by 89,000.
- 2.6.2 Increasing numbers of older people are choosing to live independent lives in their own homes resulting in a need for more accessible and adaptable dwellings which can meet changing needs. Providing these adaptable and accessible dwellings will enable individuals to live dignified and independent lives.
- 2.6.3 In order to address current and future needs the 2015 Building Regulations have been amended to include standardised accessibility and adaptability requirements for all new residential development. Part M of the Building Regulations is comprised of three optional categories:
- M4(1) – Category 1 - Visitable dwellings;
M4(2) – Category 2 - Accessible and adaptable dwellings; and
M4(3) – Category 3 - Wheelchair user dwellings.
- 2.6.4 Part M of the Building Regulations discussed in this section generally applies to new dwellings only and not to conversions or changes of use.

⁴ See table 1.1 for definition of large scale development

⁵ Tall buildings are defined locally in Barnet’s Core Strategy as being eight stories or more (equivalent to 26 m above ground level)

2.6.5 The London Plan requirement is that, 90% of housing should be built to Building Regulation requirement ‘M4(2): Accessible and adaptable dwellings’ with the remaining 10% meeting Building Regulation requirement M4 (3) ‘wheelchair user dwellings’. Detailed guidance on how to meet these requirements is set out in Approved Document Part M and is not repeated in this SPD.

Table 2.6: Accessible and adaptable dwellings	Development Scale
90% of new dwellings should comply with building regulation M4 (2) ‘accessible and adaptable dwellings’.	Minor, Major and Large scale

Useful References for Accessible and adaptable dwellings:

- HM Government. The Building Regulations. Access to and use of buildings. Approved Document M. Volume 1: Dwellings. 2015 Edition)
http://www.planningportal.gov.uk/uploads/br/BR_PDF_AD_M1_2015.pdf
- Easy Access to Historic Buildings, Historic England, 2015
<https://historicengland.org.uk/images-books/publications/easy-access-to-historic-buildings/>

2.7 - Wheelchair User Dwellings

2.7.1 Ten per cent of new housing should be designed to be wheelchair user dwellings that comply with part M4 (3) of the Building Regulations.

2.7.2 Part M4(3) of the Building Regulations regarding ‘wheelchair user dwellings’ distinguishes between ‘wheelchair accessible’ (a home readily useable by a wheelchair user at the point of completion) and ‘wheelchair adaptable’ (a home that can be easily adapted to meet the needs of a household including wheelchair users). Wheelchair adaptable dwellings is the default for the ten per cent delivery of wheelchair user dwellings unless a planning condition is imposed on the grant of planning permission for wheelchair accessible dwellings (specified as Part M4(3)(2)(b)). Planning Practice Guidance⁶ states that Local Plan policies for wheelchair accessible homes should only be applied to those dwellings where the council is responsible for allocating or nominating a person to live in that dwelling.

2.7.3 In accordance with Standard 18 of the Mayor’s Housing SPG each designated wheelchair accessible dwelling should have a car parking space that complies with Part M4 (3). The distance of the accessible car parking space to the home or to the relevant block entrance or lift core should be kept to a minimum. Transport for London intends to provide separate advice on parking design.

2.7.4 Approach routes, entrances and communal circulations should comply with the requirements of regulation M4(2), unless they also serve Wheelchair User Dwellings, where they should comply with the requirements of regulation M4(3).

2.7.5 The application of M4(2) requires level access which the Mayor’s Housing SPG recognises

⁶ National Planning Practice Guidance (Housing- Optional Technical Standards) Paragraph: 009
Reference ID: 56-009-20150327 DCLG Revision date: 27 03 2015

may have particular implications for developments of four storeys or less. Further detail on these implications is provided under Standard 11 of the Mayor’s Housing SPG.

Table 2.7: Wheelchair User Dwellings	Scale of development
10% of new dwellings to meet building regulation M4 (3) ‘wheelchair user dwellings’.	Major and Large scale residential

Useful References for Wheelchair Housing

- National Planning Practice Guidance (Housing- Optional Technical Standards) Paragraph: 009 Reference ID: 56-009-20150327 DCLG Revision date: 27 03 2015HM Government. The Building Regulations. Access to and use of buildings. Approved Document M.Volume 1: Dwellings. 2015 Edition)
http://www.planningportal.gov.uk/uploads/br/BR_PDF_AD_M1_2015.pdf

2.8 - Energy Use in New Buildings

2.8.1 Energy used in Barnet is derived mainly from fossil fuels (coal, oil and gas). It is used to heat homes, to power transport and in commercial and industrial processes. The production of energy by the combustion of fossil fuels not only depletes finite resources but also leads to significant environmental consequences, such as climate change.

2.8.2 The London Plan emphasises that development proposals should make a contribution to minimising carbon dioxide emissions in conjunction with the following energy hierarchy:

1. **Be Lean: Using Less Energy** – Ensure that the buildings within the development are as energy efficient as technically possible using passive and active design measures. The following are key measures which help achieve greater energy efficiency:
 - The orientation of a building will have a significant impact on its carbon performance, especially in relation to heating and cooling. Building orientation can be used to generate passive solar gain, to reduce the need for heating. Large south facing windows will capture sunlight and heat the building up like a greenhouse. This can lead to discomfort or require air conditioning to mitigate the heat generated in the building. Large south-facing windows should therefore be accompanied by shading mechanisms or other suitable methods of solar shading.
 - High standards of insulation are essential to reduce the amount of energy required to maintain comfortable temperature levels. It is important to consider any potential causes of thermal bridging which can compromise the insulation of a building.
 - Ventilation is essential to maintain comfort for users and can be provided through natural or mechanical ventilation. Well-designed and efficient mechanical ventilation which combines heating or cooling recovery can, if managed and operated correctly, consume less energy than an equivalent natural system without any heating or cooling recovery.

- Low temperature heating systems should be considered such as underfloor heating.
- Good building design can reduce the heating and cooling loads required thereby avoiding the need for air conditioning.
- Thermal mass, which represents the ability of materials to store heat or cool, is important as a means to control building temperatures and better manage day/night fluctuations.
- High efficiency lighting and appliances will reduce energy consumption .
- Direct electrical generation of heating and cooling should be avoided because of its high carbon intensity.
- Poorly designed heat network infrastructure within a building can contribute to internal overheating problems and should conform with Chartered Institute of Building Services Engineers (CIBSE) Heat Networks: Code of Practice for the UK

2 - Be Clean: Supply Energy Efficiently – Ensure that all opportunities are taken for local generation and microgeneration of energy and recycling of heat and cooling. Some of the more efficient ways of generating energy locally are:

- Decentralised Energy (DE) is a process to generate electricity, heating or cooling in a location close to where it is used. The energy can be generated in the same building or in close proximity through pipes (which distribute it as hot or cold water). Energy can also alternatively be distributed along cables. DE has the advantage that it produces less carbon dioxide than conventional energy sources. This is due to the shorter distances the energy has to be transmitted which results in a reduction of heat, coolness or electricity loss. The most efficient types of DE systems are Combined Heat and Power (CHP) and Combined Cooling, Heat and Power (CCHP). These are technologies which use gas or another fuel, such as biomass to generate electricity. This process inevitably gives off heat which is then used directly to heat buildings or produce cooling through the use of absorption chillers. CHP can be used on a building by building basis (known as micro-CHP) or to power community district heating systems. CCHP is a process whereby the heat produced by CHP generates cooling. CCHP is only currently viable for large district systems and is more appropriate in mixed used developments.
- Centralised boilers can power heating and cooling systems within a building and are more efficient than individual boilers installed in each residential unit.

3 Be Green: Using Renewable Energy – Ensure that opportunities are harnessed for deriving renewable energy from the local environment around buildings. The principal renewable energy technologies likely to be appropriate include:

- Solar Water heating is a system for heating water using energy from the sun. Solar energy is collected by a roof panel, which is connected by pipes to a hot water storage cylinder. (Nb solar thermal is not considered compatible with CHP as they both supply base heat demand)
- Photovoltaics (PVs) are panels which convert solar energy into electricity. PVs can be placed on the roof of a building or incorporated into the façade by using roof tiles, panels or cladding.
- Heat pumps are devices which transfer heat energy from one place to another and from a lower to a higher temperature. A ground sourced heat pump (or cooling system) recovers the heat (or cold) in the ground by circulating a fluid through a long, buried pipe. An open loop variation can also be used, where water in the ground is extracted and then discharged. The latter provides significantly more cooling capacity but both extraction and discharge will require a licence from the

Environment Agency. The degree of benefit that can be derived from such technologies depends upon the selected internal building systems for heating and cooling.

- Biomass is a collective term for all plant and animal material. A number of different forms of biomass can be burned or digested to produce energy. Examples include wood, straw, and agricultural waste. Biomass can also be in liquid form eg biodiesel and bioethanol made from food/vegetable stocks. Biomass can be used to power CHP systems. Impact on air quality is a consideration for all biomass schemes.

2.8.3 In line with the London Plan [policy 5.9] building design should also consider overheating and cooling in order to reduce the impact of the urban heat island effect. Major development proposals will be expected to demonstrate compliance with the cooling hierarchy. Measures that are proposed to reduce the demand for cooling should be set out under the following categories:

- 1. Minimising internal heat generation through energy efficient design:** For example, heat distribution infrastructure within buildings should be designed to minimise pipe lengths, particularly lateral pipework in corridors of apartment blocks, and adopting pipe configurations which minimise heat loss e.g. twin pipes.
- 2. Reducing the amount of heat entering the building in summer:** For example, through use of carefully designed shading measures, including balconies, louvres, internal or external blinds, shutters, trees and vegetation.
- 3. Use of thermal mass and high ceilings to manage the heat within the building:** Increasing the amount of exposed thermal mass can help to absorb excess heat within the building.
- 4. Passive ventilation:** For example, through the use of openable windows, shallow floorplates, dual aspect units, designing in the ‘stack effect’
- 5. Mechanical ventilation:** Mechanical ventilation can be used to make use of ‘free cooling’ where the outside air temperature is below that in the building during summer months. This will require a by-pass on the heat recovery system for summer mode operation.

Table 2.8: Energy Use in New Buildings Requirements	Development Scale
Proposed development should provide an Energy Assessment which demonstrates compliance with the London Plan energy hierarchy, ⁷ cooling hierarchy the London Plan carbon dioxide requirements and where relevant decentralised energy	Major, Large scale
Development proposals should make the fullest contribution to minimising carbon dioxide emissions in accordance with the London Plan energy hierarchy	Minor

⁷ The Energy Hierarchy is set out in London Plan Policy 5.2 Minimising Carbon Dioxide Emissions.

Proposed development to ensure that every 1 car parking space in 5 has provision or is future proofed to provide a suitable electrical charging point or as agreed in a Travel Plan	Minor, Major, Large scale
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- 2.8.4 The **Energy Assessment** should be in line with the Greater London Authority guidance on preparing energy assessments. 2.8.5 Carbon offsetting will be considered in line with the Greater London Authority guidance and a figure of £60/tonne will be used over a 30 year period. London Plan Policy 5.2 sets out that where the required percentage improvements beyond Part L of the Building Regulations are not met on-site, any short fall should be provided off-site or through a cash-in-lieu contribution to the relevant borough. The benefit of the fund is in unlocking carbon dioxide saving measures with boroughs to identify suitable projects. Suitable projects will be identified on a site by site basis focusing on publicly owned buildings such as schools local to the development which can provide wider community benefits. Further detail is set out in the Greater London Authority guidance on preparing energy assessments and the Sustainable Design and Construction SPG.

Useful References for Energy Use in New Buildings

Please see section 2.9

2.9 - Decentralised Energy

- 2.9.1 The Mayor of London has set a target to supply a quarter of London's energy from decentralised sources by 2025. Decentralised Energy (DE) makes more efficient use of fuel, reduces carbon emissions, cuts electricity transmission losses and future proofs the energy supply for the use of alternative low carbon fuels. The DMP in policy DM04b requires that major development connects to a planned or feasible DE network. For large scale development connection to a planned or feasible DE network should include the delivery of an energy centre⁸ or necessary infrastructure to connect to the network.
- 2.9.2 A high level heat mapping study has identified clusters of buildings and areas of development with the best potential for delivering future district heating networks in the borough. Brent Cross / Cricklewood and Colindale are identified as high priority areas given the scale of regeneration taking place. Chipping Barnet, Mill Hill East, North Finchley and Whetstone are identified as lower priority areas in the study.
- 2.9.3 Major development which is located within the vicinity of an existing decentralised energy network should aim to connect to the network. Where connection is not possible justification will be required in the Energy Assessment. Physical factors such as major roads and railways may create a barrier which could make it unreasonable to consider connection. A suitable connection point should be discussed with the provider of the DE network or Energy Services Company (ESCO).
- 2.9.4 The council will encourage major development which is located within the vicinity of a DE network that has been implemented or is being implemented to connect to that DE network. The provider of the proposed heat network or ESCO will be able to estimate the cost of connection. Where connection is not possible justification will be required in the Energy Assessment. GLA guidance on preparing energy assessments would expect to see a whole

⁸ An Energy centre is the central point from which the local or sub regional supply of heat and electricity comes. The energy centre will normally host one or two Combined Heat and power units as well as back up boilers and thermal stores. See <http://www.londonheatmap.org.uk/Content/FAQs.aspx> for further information.

life cost (WLC) analysis where the applicant is contending that providing a site heat network to allow future connection will result in uneconomic costs to end users. Appendix 1 of that guidance provides further details on how WLC must be approached.

- 2.9.5 In instances where the proposed DE network does not commence construction within five years of the start of the proposed development provision should be made for providing a suitable means of connection. This will be pooled either through CIL or via a legal agreement. In these situations carbon savings from potential future connection will not be counted towards a schemes carbon reduction target in their Energy Assessment.
- 2.9.6 Further guidance on implementing heat networks should be sought from GLA’s guidance on preparing energy assessments and the London Heat Network Manual and the Chartered Institute of Building Services Engineers (CIBSE) Heat Networks: Code of Practice for the UK. The Code of Practice will also help inform the quality of feasibility studies. Where development, in particular for a larger scheme, is within the vicinity of an existing DE network developers maybe required to fund a feasibility study to consider options for connection.

Table 2.9: Decentralised Energy Requirements	Development Scale
In order to establish a DE network large scale development in the priority areas identified in the heat mapping study should deliver an energy centre. Where the energy centre already exists or is planned for construction within five years then suitable related infrastructure should be provided to facilitate connection to the DE network. Where capacity at the energy centre needs to be increased to meet the needs of the new proposed development then a legal agreement should set out the investment needed in the energy centre. Where the network is not completed commitments to undertake future connections should be made by the applicant.	Large scale
Proposed development within the vicinity of an existing or proposed DE network should aim to connect	Major, Large scale
Where a DE network is proposed but unlikely to be constructed within next 5 years, development should where feasible provide a suitable means for connection for future use or be future proofed with a commitment to connect.	Major, Large scale

Useful References for Energy:

- Barnet Heat Mapping Study, London Borough of Barnet, May 2010
http://www.barnet.gov.uk/downloads/940160/ldf_evidence_and_supporting_documents
- London Heat Map <http://www.londonheatmap.org.uk/Content/home.aspx>
- The London Heat Network Manual. Greater London Authority. April 2014
http://www.londonheatmap.org.uk/Content/uploaded/documents/LHNM_Manual2014Low.pdf
- Energy Planning Greater London Authority guidance on preparing energy assessments. March 2016 <https://www.london.gov.uk/what-we-do/planning/planning-applications-and-decisions/pre-planning-application-meeting-service-0>
- BREEAM – www.breeam.org

- Heat Networks: Code of Practice for the UK, July 2015 Chartered Institute of Building Services Engineers (CIBSE) and the Association for Decentralised Energy (ADE)
<http://www.cibse.org/Knowledge/CIBSE-other-publications/CP1-Heat-Networks-Code-of-Practice-for-the-UK>
- Sustainable Design and Construction SPG. April 2014 Greater London Authority
<https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/sustainable-design-and>

2.10 - Retrofitting of Existing Buildings

2.10.1 Retrofitting refers to the addition of new technology or features fitted to existing buildings to make them more efficient and to reduce their environmental impacts. While it is important to reduce carbon emissions in new buildings, it is equally important to reduce emissions in existing buildings as they contribute more significantly to the borough’s current total carbon dioxide emissions. Helping homeowners make changes to their properties to make them energy efficient has been encouraged through the extension of permitted developments rights. This means that building owners do not have to apply for planning permission to make certain changes to their property concerning energy efficiency. Table 2.10 sets out a range of retrofitting measures and the planning requirements with some of the improvements having permitted development rights.

Table 2:10 Retrofitting measures and the need for planning permission	
Change	Planning requirement
Solid wall insulation (external)	For most houses planning permission is not required provided the cladding material on the front and side elevations does not protrude significantly. For flats planning permission is required.
Double or triple glazing	For most houses planning permission is not required except in Conservation Areas. For flats planning permission is required.
Solar panels or Photo Voltaic panels	Planning permission is not normally required (except for Article 4 conservation areas ⁹). Where the panels are attached to a building they should not project more than 200mm from the roof slope and should not protrude above the highest part of the roof (excluding the chimney).
Air source heat pumps	Planning permission is normally required
Ground source heat pumps	Planning permission is not required
Biomass heating system or Combined Heat and Power system	Planning permission is normally required where an external flue is required
Wind turbine	Planning permission is normally required

2.10.2 Table 2.10 is based on the Regulations set out in the General Permitted Development Order (GPDO) 2015 (as amended). For up to date guidance and further advice visit the planning portal: www.planningportal.gov.uk and click on the interactive house. Further guidance is also available in Barnet’s Residential Design Guidance SPD.

⁹ The following Conservation Areas have Article 4 directions: Hampstead Garden Suburb (including The Bishop’s Avenue), Mill Hill, Monken Hadley, Totteridge, Wood Street, Moss Hall Crescent, Finchley Garden Village, Glenhill Close, Finchley Church End, Hendon – the Burroughs.

- 2.10.3 Development within Barnet’s conservation areas has fewer permitted development rights particularly where Article 4 directions apply. If there is conflict between meeting climate change objectives and the conservation of heritage assets, the council will weigh up the public benefit of mitigating the effects of climate change against any harm that would occur to the heritage asset. Retrofitting work affecting listed buildings or buildings in a conservation area is likely to require further consultation with the council’s conservation team.

The Mayor of London’s RE: NEW Delivery Model

- 2.10.4 The Mayor has recognised the financial implication of implementing retrofitting measures to London’s housing stock and has developed the RE:NEW delivery model to help increase the rollout of energy efficiency measures, low and zero carbon microgeneration technologies and water saving measures. London’s housing stock is particularly challenging compared to the rest of the country because of its average age and the density. Generally the older the property the more expensive the retrofitting measures are likely to be and flatted development can lead to complications with implementation. In Barnet the issue of flatted development is less significant but age is an issue with over two thirds of Barnet’s housing stock built before 1944. The carbon emissions associated with the heating of Barnet’s older housing stock creates a higher than average contribution to the borough’s overall carbon emissions compared to the rest of London.
- 2.10.5 The RE:NEW programme has moved into a third phase and a more strategic delivery model through the creation of a Support Team. The Support Team offer free support to social landlords, local authorities and private landlords to help get home energy retrofit projects and programmes up and running across Greater London. The support is tailored to each organisation and can comprise of a review of retrofit potential, formulation of retrofit projects, funding and procurement advice and support through the procurement process.

Useful References for Retrofitting:

- General Permitted Development Order (GPDO) 2015 (as amended)
- Delivering London’s Energy Future: the Mayor’s Climate change mitigation and energy strategy, GLA, October 2011 <http://www.london.gov.uk/who-runs-london/mayor/publication/climate-change-mitigation-energy-strategy>
- Energy Efficiency in Historic Buildings and other guidance, Historic England, 2011 <https://historicengland.org.uk/advice/technical-advice/energy-efficiency-and-historic-buildings/>
- RE:NEW Support Team. Greater London Authority. <https://www.london.gov.uk/WHAT-WE-DO/environment/energy/renew-0/renew-support>

2.11 - Water Efficiency

- 2.11.1 Water is a precious resource. It is essential that new development uses water efficiently, seeking wherever possible to reduce consumption.
- 2.11.2 The following design principles should be considered in Barnet:
- A. Water consumption – reduce consumption of water by buildings, landscape and occupants.** Designs should seek to minimise water use. There are a variety of techniques and technologies, including the fitting of water efficient toilets, taps, showers, dishwashers and washing machines.

B. Water storage (Rainwater harvesting systems) - **put measures in place which enable storage of rainwater for plant watering on site.** This reduces consumption of treated water from the mains system. Landscaping should be designed so that it does not need regular watering. Where any external watering is still required, then water butts, collecting rain water from roofs should be installed.

C. Water recycling – grey water. Systems are also available for localised recycling of water, such as using shower water to flush toilets (these are known as grey water systems).

2.11.3 Residential development should be designed so that mains water consumption would meet a target of 105 litres or less per head per day, excluding an allowance of 5 litres per head per day for external water use. This reflects the ‘optional requirement’ set out in Part G of the Building Regulations¹⁰.

2.11.4 A fittings based approach should be used to determine the water consumption of a development. This approach is transparent and compatible with developers’ procurement and the emerging Water Label, which Government and the water companies serving London are supporting¹¹.

2.11.5 There is a duty on a developer (or applicant) to inform their Building Control Body that optional requirements apply to the submission of their application for Building Regulations.

2.11.6 National Planning Practice Guidance recommends that a local planning authority should establish a clear need (Reference ID: 56-016-20150327) based on existing sources of evidence, consultations with the local water company and environmental agency and the consideration of the impact on viability and housing supply. In line with this guidance the following existing sources of evidence have been considered:

- Environmental Agency Water Stressed Areas - final classification - Thames Water region is identified as an area in serious stress in the 2013.
- The Environment Agency River Basin Management Plan. The Thames River Basin District 2009 identifies abstraction and other artificial flow pressures as one of a number of specific pressures identified as significant water management issues for the Thames basin area.
- The Thames Water Final Water Resources Management Plan 2015 - 2040 identifies that the supply demand balances across the supply area have worsened since the previous Water Resources Management Plan (dWRMP14). In London, Thames Water forecast a growing deficit on a dry year annual average increasing from -133 MI/d in 2020 to -416 MI/d in 2040.

2.11.7 In relation to viability the Greater London Authority Housing Standards review: viability assessment May 2015 concluded that there is no measurable cost impact from the optional requirement for water usage of 110 litres per head per day as this is no more onerous than existing London Plan standards.

Table 2.11: Water Efficiency Requirements	Development Scale
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¹⁰ Requirement G2 of Schedule 1 to the Building Regulations 2010. HM Government 2015

¹¹ Table 2.2 of Part G of the Building Regulations provides maximum consumption values for water fittings. If these consumption values are exceeded and where waste disposal units, water softeners or water re-use are specified in the application, the Water Efficiency Calculator must be completed.

New dwellings should be designed to ensure that a maximum of 105 ¹² litres of water is consumed per person per day.	Minor, Major, Large scale
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Useful References for Water Efficiency:

- The Building Regulations 2015 edition Part G http://webarchive.nationalarchives.gov.uk/20151113141044/http://www.planningportal.gov.uk/uploads/br/br_pdf_ad_g_2015.pdf
- Conserving Water in Buildings, A Practical Guide, Environment Agency, Nov 2007 <http://publications.environment-agency.gov.uk/PDF/GEHO1107BNJR-E-E.pdf>
- Housing Standards Review - Viability Study for Greater London Authority by David Lock Associates May 2015 <http://www.london.gov.uk/file/22676/download?token=uj59uXd1>

2.12 - Waste Strategy

2.12.1 There is an ever-increasing need to reduce waste generation and to increase recycling wherever possible. There is a challenging target to achieve 50% recycling of household waste in 2016 rising to 70% by 2020 - further detail are available in the Councils' Municipal Recycling and Waste Strategy¹³. Waste is generated by development in three different ways:

- 1 during the construction process
- 2 through the use of buildings
- 3 from refurbishment and/or demolition of buildings.

2.12.2 It is critical to ensure that we reduce the waste generated through construction, refurbishment and demolition activities and to reduce waste and encourage recycling during the occupation of buildings. Our design and construction requirements are therefore based on the objectives to:

- reduce the amount of waste produced in Barnet;
- make the best use of waste that is produced; and
- choose waste management options which minimise the risk of immediate and future environmental pollution and harm to human health.

2.12.3 The following set of design and construction principles are to be considered in the design and construction process.

Design Principles:

- A. Waste generated through building occupation – Identify measures to help occupants to recycle waste.** People will generally recycle more when it is easy and convenient for them to do so. This requires consideration as to how a building's

¹² Excluding and allowance of 5 litres or less per head per day for external water use (as set out in the 'optional' Requirement G2 of Schedule 1 to the Building Regulations 2010).

¹³

<http://barnet.moderngov.co.uk/documents/s31744/Appendix%202%20Municipal%20Recycling%20and%20Waste%20Strategy%202016%202030.pdf>

occupants will be able to participate in recycling initiatives and services. Key considerations include:

- Ensuring that sufficient space is dedicated in appropriate places, including within and without residential properties, for the temporary storage of material to be recycled. For example, space should be provided within kitchens in new properties to accommodate extra bins which are required for separately storing items such as paper, bottles, cans and food waste for recycling.
- Ensuring that people can easily transfer material for recycling from their own premises, such as a residential unit, a shop or an office, to a location from which the material can be collected. Waste from shops or offices would be considered trade waste, so any movement of this waste would need to be undertaken by an appropriate, licensed waste carrier and taken to a permitted waste management site. An exemption or permit may be required from the Environment Agency for storage of waste at a collection point.
- Communal refuse and recycling containers, communal bin enclosures and refuse and recycling stores should be easily accessible to all residents including children and wheelchair users, and located on a hard, level surface. Refuse and recycling stores within buildings should be located to limit the nuisance caused by noise and smells and maintained to a high hygiene standard.
- Storage facilities for waste and recycling containers should be provided in accordance with local authority requirements and meeting at least British Standard BS5906:2005 Code of Practice for waste management in Buildings.
- Early consultation with the council is recommended to ascertain the best strategy for the recycling of household waste (see references). The requirements for storage of waste containers vary depending on the scale of development and whether it is for flats or houses.

Construction Principles:

B. Construction Waste – Ensure that measures have been taken to minimise waste generated during building construction. The following issues should be considered during development design and in preparation for construction:

- Identify resources already on the site, such as topsoil or hardcore, making provision for storage on-site to enable the materials to be put to useful effect in the new development. Activities that involve any form of treatment to make the material suitable for re-use may require an exemption or permit from the Environment Agency.
- Refurbishment of existing buildings will most likely generate less waste than demolition and reconstruction. Consideration in the first instance must always therefore, be given to the retention and refurbishment of buildings and justification provided where demolition is proposed.
- Good practice in terms of waste management should be employed, including monitoring of waste streams to meet the above objectives.
- Every opportunity should be taken to recycle materials or send waste materials to waste recovery centres to meet the above objectives.
- Modern methods of construction such as modular building components put together off-site in a factory environment supporting more efficient use of materials and working practices.
- Ensuring that measures have been taken to enable more components of a building to be recycled during refurbishment or demolition.

Table 2.12: Waste Strategy Requirements	Development Scale
In consultation with the Council developers should comply with the standards set out in the council's guidance document "Information for developers and architects – provision of household recycling and refuse waste collection services.". https://www.barnet.gov.uk/citizen-home/rubbish-waste-and-recycling/information-for-developers-and-architects.html	Minor, Major and Large scale
A minimum internal storage capacity of 60 litres per dwelling (flats and houses) should be provided which can accommodate containers for the temporary storage of materials to be recycled. Materials will then be transferred to external containers for collection. (This standard is subject to change over time, so consultation with the council at the design stage is essential.)	Residential Minor, Major, Large scale
All non-residential developments should provide a minimum of 10m ² designated waste storage space for materials for recycling, such as paper, glass bottles and jars, cans, cardboard, and plastic bottles.	Non residential minor, major, large scale
Proposals that employ or attract a large number of people, such as supermarkets or commercial buildings should provide appropriately designed facilities for the collection for recycling or reuse of the waste that they, their customers and staff generate. Applicants for such developments should submit a comprehensive waste and recycling management strategy in accordance with the BS5906:2005 <i>Waste Management in Buildings – Code of Practice</i> .	Large scale
Prior to commencement of work, all construction sites should put in place a Site Waste Management Plan in accordance with the DTI's <i>Site Waste Management Plans - Guidance for Construction Contractors & Clients - Voluntary Code of Practice</i> .	Major and Large scale

Useful References for Waste:

- Information for developers and architects – provision of household waste and recycling service. London Borough of Barnet. July 2015 <https://www.barnet.gov.uk/citizen-home/rubbish-waste-and-recycling/information-for-developers-and-architects.html>
- Barnet Municipal Recycling and Waste Strategy (2016 – 2030) draft for consultation Feb 2016
<http://barnet.moderngov.co.uk/documents/s31742/Recycling%20and%20Waste%20Strategy%202016%20to%202030.pdf>
- Site Waste Management Plans. Feb 2008 http://www.environment-agency.gov.uk/static/documents/NetRegs/SWMP_Simple_Guide_Feb_2011.pdf
- BS5906:2005 *Waste Management in Buildings – Code of Practice*
<http://shop.bsigroup.com/en/ProductDetail/?pid=000000000030050097>
- The emerging North London Waste Plan <http://www.nlwp.net/>
- Demolition Protocol. Institute of Civil Engineers. 2008
<http://www.ice.org.uk/getattachment/eb09d18a-cb12-4a27-a54a-651ec31705f1/Demolition-Protocol-2008.aspx>
- Environment Agency permitting and registration information <http://www.environment-agency.gov.uk/business/topics/permitting/32330.aspx>

2.13 - Air Quality

- 2.13.1 The air quality of urban areas has a significant impact on people's health. This has been recognised by the Mayor of London, who updated guidance covering London in Cleaning the Air – The Mayor's Air Quality Strategy (GLA 2010). The design of the built environment has an important role in managing the degree to which people are exposed to air pollutants. The principal sources of air pollution are:
- Traffic emissions from vehicles
 - Air pollutants arising from industrial activities
 - Emissions from boiler and mechanical plant within buildings
 - Dust emissions from demolition and construction activities
 - Emissions from construction traffic and plant supporting construction activities.
- 2.13.2 Within Barnet, emissions from traffic have by far the most severe and pervasive impact on reduction of local air quality. Travel Plans are part of the mitigation to reduce this impact. A Delivery and Servicing Plan can be part of a Travel Plan. Further detail on when a Travel Plan will be required can be found in LB Barnet Planning Obligations SPD. It is also becoming more accepted that trees and planting can contribute to reducing air pollutants.
- 2.13.3 It is critical that the exposure of the public to air pollutants is minimised and the contribution to atmospheric pollution from activities within the built environment is reduced. The principles and related requirements are supported by DM04: Environmental Considerations and London Plan Policy 7.14 – Improving Air Quality.

Air quality principles:

- A. Location – Ensure that development type suits development site.** In areas of poor air quality, for example next to some major roads, it may not be appropriate to build residential accommodation or schools or other types of development (so called sensitive receptors) where people, in particular vulnerable people, will spend a substantial amount of time in the accommodation and thereby be exposed to continuous high levels of air pollutants. If there is no other potential use for a site, then the design will be required to prevent exposure to air pollutants both within buildings and in accessible outdoor areas proximate to buildings.
- B. Siting and design – Ensure that where there is a localised and proximate source of air pollution, buildings are designed and sited to reduce exposure to air pollutants.** Buildings themselves can be used as barriers between sources of air pollution and those areas where people will linger in the outside environment, such as private, communal or public gardens and public realm. New or existing trees and planting may also help provide a barrier. Buildings should be actively ventilated allowing air to be drawn from the less polluted side of the building (where a balance needs to be achieved between air quality and energy consumption required for active ventilation). Consideration should also be given to ensuring that buildings façades, which face directly onto a pollution source, are sealed.

Table 2.13: Air Quality Requirements	Development scale
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Where development could potentially contribute to a worsening of local air quality an air quality assessment will be required.	- Minor - Major, Large scale with the potential to increase and/or change road traffic. - Commercial or industrial use requiring environmental permitting ¹⁴ . - Development proposing a Combined Heat and Power plant or biomass boiler.
Developers are to design their schemes so that they meet the Air Quality Neutral emission benchmarks for Buildings and Transport as set out in appendix 5 and appendix 6 of the Mayor of Londons Sustainable Design and Construction SPG	Mixed user major and large scale developments
Developers shall select plant that meets the standards for emissions form combined heat and power and biomass plants set out in Appendix 7 of the Mayor of Londons Sustainable Design and Construction SPG	Mixed user major and large scale development proposing a Combined Heat and Power Plant or biomass boiler
Proposals may be required to demonstrate how the development is designed to reduce people’s exposure to air pollutants to acceptable levels through an air quality assessment.	Minor, Major, Large scale
Restaurants or other odour emitting premises will be required to locate air extracts appropriately to avoid nuisance to neighbouring occupiers.	All Class A3, A4 and A5 development
Developers should comply with the minimum standards on construction dust management that are detailed in the Mayor of Londons Control of Dust and Emissions During Construction and Demolition SPG providing an Air Quality and Dust Risk Assessment and where necessary an Air Quality and Dust Management Plan	Minor, Major, Large scale
Non Road Mobile Machinery used on construction sites should meet Stage IIIA of EU Directive 97/68/EC and its subsequent amendments as a minimum. Details should be registered at www.nrmm.london/register	Major, Large scale

Air Quality Assessments

2.13.3 Air quality assessments should demonstrate the likely changes in air quality or exposure to air pollutants as a result of a proposed development and identify any mitigation necessary. The scope of the assessment required should be commensurate with the potential significance of the impacts. As a minimum an air quality assessment should set out the following:

- The basis of determining the significance of the impacts

¹⁴ Environmental Permitting is required for uses which could have an impact on the environment and human health. For example certain manufacturing or waste activities or uses which discharge into a river or underground water supply. Depending on the operation either the Environment Agency or Local authority provide the regulation. More guidance is available here: <https://www.gov.uk/topic/environmental-management/environmental-permits> and the legislation is available here: <http://www.legislation.gov.uk/uksi/2010/675/contents/made>

- Details of the assessment methods including the model and the input data used for the assessment and any assumptions that have been made
- Identification of sensitive locations
- Description of baseline conditions
- Assessment of impacts
- Description of construction phase impacts
- Mitigation measures
- Summary of assessment results

2.13.4 The above list is a summary of what is expected. Further detail can be found in Land-Use Planning and Development Control: Planning for Air Quality, May 2015, published by Environmental Protection UK and the Institute of Air Quality Management.

Useful References for air quality:

- Environmental Protection UK and IAQM Guidance: Land-Use Planning and Development Control: Planning for Air Quality, May 2015. <http://www.iaqm.co.uk/text/guidance/iaqm-planning-development.pdf>
- Review and Assessment of Air Quality in the London Borough of Barnet; Updating and Screening Assessment; Air Quality Action Plan Updates <https://www.barnet.gov.uk/citizen-home/environmental-health/pollution/air-quality/review-and-assessment-of-air-quality.html>
- Environmental Criteria for Design – A Guide, Chartered Institute of Building Services Engineers (CIBSE). 2006 <https://www.cibse.org/knowledge>
- Minimising Pollution at Air Intakes TM 21. CIBSE 2001 www.cibse.org/knowledge/cibse-tm/tm21-minimising-pollution-at-air-intakes
- The Mayor's Air Quality Strategy. GLA. 2010 <http://www.london.gov.uk/what-we-do/environment/environment-publications/mayors-air-quality-strategy>
- The Mayor's Air Quality Strategy Progress Report 2015. www.london.gov.uk/WHAT-WE-DO/environment/environment-publications/mayor%E2%80%99s-air-quality-strategy-progress-report
- Institute of Air Quality Management: Guidance on the assessment of dust from demolition and construction. <http://iaqm.co.uk/text/guidance/construction-dust-2014.pdf>
- Mayor's Supplementary Planning Guidance. The Control of Dust and Emissions from Construction Sites. <https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/control-dust-and>
- Mayor's Supplementary Planning Guidance. Sustainable Design and Construction. <http://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/sustainable-design-and>
- Delivering and Servicing Plans Transport for London <http://content.tfl.gov.uk/delivery-and-servicing-plans.pdf>

2.14 - Noise Quality

2.14.1 Noise can have a significant effect on the quality of life enjoyed by those who live work and visit the borough. Noise can also impact the natural environment. Vibration is also an

issue, often related to noise.

- 2.14.2 The main sources of noise (and vibration) in Barnet include road and rail traffic, commercial and industrial land use, refrigeration and air handling plant [building services plant], sound systems, construction activities and people. Management of noise is an issue which significantly increases in importance for higher densities of population and economic activity. Noise can be persistent such as traffic, air conditioning or refrigeration units or intermittent such as drilling or early morning delivery vehicles.
- 2.14.3 Receptors which are particularly sensitive to noise include residential, health care facilities and schools. Noise also affects people enjoying outdoor amenity space and public open space. Noise exposure can have effects including significant sleep disturbance and annoyance. Recent evidence shows that noise can impair cognitive learning in school children. It is also agreed by many experts that environmental noise can lead to chronic health effects. For example, associations have been found between long term exposure to some types of transport noise, particularly from aircraft and road traffic, and an increase in the risk of cardiovascular effects (heart disease and hypertension). This guidance aims to address the effect that noise can have on quality of life and deliver the best acoustic outcome for a site.
- 2.14.4 In order to affect the design process it is important to assess and address noise impacts arising or existing for a new development at the earliest stage. If there is insignificant noise and vibration, then mitigation requirements maybe unlikely and further assessment maybe unnecessary. However, if there are significant noise or vibration levels, then the noise affects would need to be assessed carefully using suitably qualified consultants providing a Noise Impact Assessment which identifies optimum mitigation measures to reduce the noise impacts to an acceptable level.
- 2.14.5 To help consider noise at a site at an early stage an initial noise risk assessment should assess the Noise Risk Category of the site to help provide an indication of the likely suitability of the site for new residential development from a noise perspective. Figure 1: Initial Site Risk Assessment sets out the indicative noise levels for the Noise Risk Categories and a description of the potential effect of noise were no further noise mitigation to take place as well as additional pre-planning application guidance.

Stage 1: Initial Site Risk Assessment (measured/predicted, empty site, pre-mitigation)

Noise Risk Category*	Potential Effect if unmitigated	Pre-Planning Application Guidance
0 – Negligible $L_{Aeq,10hr} < 50dB$ $L_{Aeq,8hr} < 40dB$	May be noticeable but no adverse effect on health and quality of life	In this category the development is likely to be acceptable from a noise perspective, nevertheless a good acoustic design process is encouraged to improve the existing environment and/or safeguard against possible future deterioration and to protect any designated tranquil areas. A noise assessment may be requested to demonstrate no adverse impact from noise. Application need not normally be delayed on noise grounds.
1 – Low $L_{Aeq,10hr} 50-63dB$ $L_{Aeq,8hr} 40-55dB$	Adverse effect on health and quality of life	In this category the development may be refused unless a good acoustic design process is followed and is demonstrated via a Level 1 Acoustic Design Statement which confirms how the adverse impacts of noise on the new development will be mitigated and minimised and that a significant adverse noise impact will not arise in the finished development. Planning conditions and other measures to control noise may be required.
2 – Medium $L_{Aeq,10hr} 63-69dB$ $L_{Aeq,8hr} 55-60dB$ $L_{AFmax} > 80dB^{**}$	Significant adverse effect on health and quality of life	In this category the development is likely to be refused unless a good acoustic design process is followed and is demonstrated via a Level 2 Acoustic Design Statement which confirms how the adverse impacts of noise on the new development will be mitigated and minimised, and clearly demonstrates that a significant adverse noise impact will not arise in the finished development. Planning conditions and other measures to control noise will normally be required.
3 – High $L_{Aeq,10hr} > 69dB$ $L_{Aeq,8hr} > 60dB$ $L_{AFmax} > 80dB^{**}$	Unacceptable adverse effect on health and quality of life	In this category the development is very likely to be refused on noise grounds, even if a good acoustic design process is followed and is demonstrated via a Level 2 Acoustic Design Statement. Applicants are advised to seek expert advice on possible mitigation measures. Advice on the circumstances when the refusal of new housing on noise grounds should normally be anticipated is included in the ProPG.

- 2.14.6 Barnet will consider daytime and night time averages, background noise levels and maximum intermittent noise levels during the night in order to establish appropriate mitigation in accordance with guidance. Barnet would expect a good acoustic design with mitigation measures that ensure a good level of amenity both externally and internally.
- 2.14.7 In order to advise on appropriate measures the Noise Impact Assessment report should refer to the most relevant and up to date guidance, British Standards and Codes of Practice from such professional and governmental bodies including but not limited to the following: Construction Industry Research and Information Association, Institute of Acoustics, Department for Environment, Food and Rural Affairs (UK), Building Research Establishment, Chartered Institute of Environmental Health and the Mayor of London’s office.
- 2.14.8 The following set of generic design and construction principles are to be considered in the design and construction processes.

Noise Design Principles:

- A. Location – Ensure that development reduces the effect of noise on occupants and existing properties.** In line with DM04: Environmental Considerations in areas where there are unavoidable high levels of noise and vibration, for example next to major roads, it will not normally be appropriate to build sensitive uses where they would be exposed to continuous raised noise or vibration levels. Residential uses, schools, health facilities or other types of development where people, in particular vulnerable people (receptors) will spend a substantial amount of time in the accommodation are identified as sensitive uses. If there is no other potential use for a site, then very high design criteria will be required to mitigate exposure to noise and vibration to ensure acceptable levels in buildings and in accessible outdoor areas proximate to buildings.
- B. Siting – reduce noise impact through siting of building** can be used to reduce noise and vibration exposure. For example buildings themselves can be used as barriers between

sources of noise and those areas where people will linger in the outside environment, such as private, communal or public gardens - outdoor amenity space should have a good acoustic standard.

C. Mixing of land uses and Internal layout - Consideration should be given as to the appropriateness of different land uses in close proximity and how noise and vibration arising from one might affect another. The NPPF para 124 provides guidance that continuing businesses should not have unreasonable restrictions put on them because of subsequent changes in nearby land uses since they were established. Internally the layout can help mitigate the impact of noise using the following measures:

- Locate rooms that are sensitive to loud noise (i.e. bedrooms/living rooms) away from areas of the site that are most prone to loud or continuous noise.
- Stacking rooms with similar uses on top of each other (i.e. living rooms, kitchens) to avoid unnecessary noise disturbance (Also see Residential Design Guidance section 9).
- Non-residential uses should be placed closer to noise sources than residential accommodation.

Further guidance on layout and conversions is available in the Residential Design Guidance SPD.

D. Exposure to noise within buildings – Provide appropriate noise insulation given the external and internal noise environment. In order to meet the standards for internal noise, appropriate levels of noise insulation will be required. Good internal noise levels should be achievable when windows are open for ventilation. Acoustically lined ventilators would be preferable in areas where traffic noise is high but air quality is acceptable; whereas mechanical ventilation may be required within areas of high air pollution in order to provide clean air as well as good internal noise levels. Other examples include a residential block with balconies that face onto an industrial site 24 hour night time activity. In this case, it would be reasonable to ensure mechanical ventilation with an inlet away from the noise source or acoustically ventilated ventilators in the windows. Building services such as air intake ducting should be positioned away from sensitive windows and properties and be isolated from the structure to prevent structural noise. Particular care should be taken to avoid or attenuate fan and vent noise on the ‘quiet side’ of buildings.

E. Noise emissions from plant – Establish the impact of new development on the noise environment. Careful siting, barriers and enclosures can be used to mitigate the noise from plant such as active air handling units. The noise should be such that it does not contribute to increasing the background noise levels. Noise mitigation must always aim to be as close to the noise source as possible, thereby minimising the wider effect of the noise and its contribution to raising background noise.

F. Noise levels in external amenity areas – Noise levels in external private and communal outdoor amenity areas should comply with the good standards according to the British Standards BS8233: 2014. This includes a recommended limit of 55dBA in these external spaces including; balconies, roof gardens, terraces and communal gardens. BS8233: 2014 recognises that these guideline values are not achievable in all circumstances where development might be desirable, therefore where outdoor amenity areas cannot achieve this level then winter gardens or other solutions such as not siting balconies on most affected facades could be considered. The Residential Design SPD supports a flexible approach to outdoor amenity space recognising that the rigid application of amenity space standards can sometimes restrict creative design and layout of new residential developments, particularly on smaller development sites. The Planning Obligations SPD also recognises that in town centres and for some higher

density schemes including tall buildings it may not be feasible for development to provide adequate private or communal outdoor amenity space. In these circumstances the development may make a financial contribution to the nearest appropriate public open space to compensate for the lack of outdoor amenity space.

Public open spaces should be protected by careful siting of potentially noise making developments.

Construction Principles:

- A. Construction noise and disruption should be minimised through good site management and operation and the specification of techniques, such as the use of framed construction and pre-fabricated components.
- B. Construction activities should be planned to limit both the level and duration of noise, to minimise disturbance to premises and amenities in the area.
- C. Consultation with borough Environmental Health Officers (EHO) is required at an early stage.

Table 2.14.3: Noise Quality Requirements	Development Scale
To help consider noise at a site at an early stage an initial noise risk assessment should assess the Noise Risk Category of the site to help provide an indication of the likely suitability of the site for new residential development from a noise perspective.	Minor, Major, or Large scale developments
A Noise Impact Assessment is required for proposed residential development which is likely to be exposed to significant noise and/or vibration or cause a noise and/or vibration impact. For all noise-sensitive and noise creating developments the council will refer to the standards set out for internal and external noise levels in BS8233 (2014) and to the approach of BS4142:2014.	Minor, Major, or Large scale developments
The adverse impacts of noise should be minimised, using measures at source or between source and receptor (including choice and location of plant or method, layout, screening and sound absorption) in preference to sound insulation at the receptor, wherever possible.	All development
Any proposed plant and machinery shall be operated so as to ensure that any noise generated is at least 5dB(A) below the background level, as measured from any point 1 m outside the window of any room of a neighbouring residential property. Plant should also be installed to ensure that no perceptible noise or vibration is transmitted through the structure to adjoining premises.	All development with plant and machinery or activity which potentially has a noise impact

Useful References for noise quality:

- Noise Policy Statement For England (March 2010)
<https://www.gov.uk/government/publications/noise-policy-statement-for-england>
- Defra Noise Action Plans: Large urban Areas, Roads and Railways. (DEFRA) 2014
<https://www.gov.uk/government/publications/noise-action-plans-large-urban-areas-roads-and-railways>

- Planning Practice Guidance 2014
<http://planningguidance.communities.gov.uk/blog/guidance/noise/noise-guidance/>
- The Mayor’s Ambient Noise Strategy “Sounder City”. GLA. 2004
http://legacy.london.gov.uk/mayor/strategies/noise/docs/noise_strategy_all.pdf
- Professional Practice Guidance on Planning and Noise New Residential Development (Consultation Draft) Chartered Institute of Environmental Health Acoustics and Noise Consultants Institute of Acoustics : January 2016 (due to be published Dec 2016)
http://www.association-of-noise-consultants.co.uk/wp-content/uploads/2016/01/ProPG_Planning_and_-Noise_Consultation_-_Draft_January_2016_FINALv1.1-with-watermark.pdf
- BS 8233: 2014 Code of Practice for Sound Insulation and Noise Reduction for Buildings
<http://shop.bsigroup.com/ProductDetail/?pid=000000000030241579>
- BS 5228-1 2009 +A1:2014 – Code of Practice for Noise and Vibration Control on Construction and Open Sites
<http://shop.bsigroup.com/ProductDetail/?pid=000000000030258086>
- BS 4142: 2014 Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas. <http://shop.bsigroup.com/ProductDetail/?pid=000000000030268408>
- Heating, Ventilating, Air Conditioning and Refrigeration Guide B, CIBSE 2005.
<https://www.cibseknowledgeportal.co.uk/>
- BS 6472-1:2008 Guide to Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz) <http://shop.bsigroup.com/en/ProductDetail/?pid=000000000019971044>
- Guidelines for Community Noise. World Health Organisation. Geneva. 1999
<http://www.who.int/docstore/peh/noise/guidelines2.html>

2.15 – Flood Risk, Sustainable Urban Drainage Systems and Water Quality

- 2.15.1 Water is an essential resource and its quality is a key measure of the overall quality of the local environment. The resource comprises surface water and ground water, where the latter may be made up of more than one unconnected aquifer at different depths below ground. Surface water flooding is more of an issue than ground water flooding in Barnet.
- 2.15.2 Managing surface water flows and drainage is essential to prevent flooding and resultant damage to property and infrastructure. If flood events cause sewers to overflow then this can also become a health hazard.
- 2.15.3 National standards for SUDs¹⁵ require the Council as Lead Local Flood Authority (LLFA) to be satisfied that major development meets the minimum standards of operation and that there are clear arrangements in place for ongoing maintenance over the lifetime of the development. SUDs aim to use drainage methods which mimic the natural environment rather than using conventional methods of drainage to slow down the rate at which water flows from a site. Retaining or incorporating existing biodiversity on a site, in particular trees can also help regulate the rate rainfall reaches the ground.
- 2.15.4 SUDs can have an additional benefit through helping to remove pollution from rainwater

¹⁵ Non statutory technical standards for Sustainable Drainage Systems were published in March 2015 and apply to major developments of 10 units or more <https://www.gov.uk/government/publications/sustainable-drainage-systems-non-statutory-technical-standards>

runoff. The Water Framework Directive sets a target that all main river waterbodies identified in the Thames River Basin Management Plan should achieve a ‘good’ ecological potential by 2027. There are three main rivers in Barnet identified in the Thames River Basin Management Plan; the Pymmes Brook (moderate water quality) and its tributaries, the Dollis Brook (poor water quality) and the Silk Stream and Edgware Brook (moderate water quality) and their tributaries. The main reasons for failure are linked to pollution – point source (e.g. sewer misconnections), diffuse (e.g. urban runoff), and intermittent pollution incidents. SUDs can help reduce impacts from urban runoff.

- 2.15.5 The NPPF identifies a sequential approach to the location of development to ensure that inappropriate development in areas of flood risk is avoided. Paragraph 101 states “The aim of the Sequential Test is to steer development to areas with the lowest probability of flooding. Development should not be allocated or permitted if there are reasonably available sites appropriate for the proposed development in areas with a lower probability of flooding.” To carry out a sequential test a geographic area will need to be defined. This will usually be the entire borough unless a local need can be justified. Housing need will not be considered a local need to justify a smaller search area. A list of sites with unimplemented planning consents which are broadly equivalent to the development sites proposal can be made available on request. In the absence of a publicly available Strategic Housing Land Availability Assessment unimplemented planning consents are considered suitable, developable and deliverable and therefore reasonably available.
- 2.15.6 The Environment Agency is the regulatory body which provides flood risk advice to local planning authorities on development. They provide guidance and advice on how to assess flood risk as part of a Flood Risk Assessment (FRA) and how to design in flood resilience to a development. Further information is available – see the References section below.

Flood Risk, SUDS and Water Quality Design Principles:

- A. Maintenance of water quality** – Establish impact of development on local water quality. The key consideration here is water run-off from development, which may bring with it pollutants from urban activities and compromise the quality of water in a river or stream. Development needs to have sufficient drainage to manage and control water run-off and appropriate interceptors using Sustainable Urban Drainage solutions where possible to capture any potential pollutants.
- B. Water Management and Flood Prevention** – Ensure that development has been designed not to increase flood risk either on-site or off-site and ensure that flood events will not lead to overflowing of sewers. Water attenuation as close to the source as possible, the provision of on-site capacity to store surface water run off, and the use SUDS – see Table 2.15.1 below for more details, enable better control of water during periods of peak rainfall. SUDS also allow the water table to replenish, thereby reducing the risk of subsidence.
- C. Basements** – Careful consideration must be given when constructing basement development as in some instances it may prove to be detrimental to the stability of buildings, the amenity of neighbours and contribute to flooding and drainage problems. The council may require a Hydrology report to be submitted which determines in particular the surface flow of water, the subterranean flow of water and land stability where this requires further consideration. Areas with geology more prone to increased groundwater flows such as a non-clay based geology combined with a basement development in a previously vegetated area [a garden] or basement development proximate to surface water flows or basement development on a sloping site over 8 degrees may all require further technical verification. Developers maybe required to provide independent verification of further technical evidence and

all technical reports should be prepared by a suitably qualified chartered engineer or chartered geologist who is a member of the relevant professional body. Further guidance on design is set out in the Residential Design Guidance SPD sections 12 and 14.

Flood Risk, SUDS and Water Quality Construction Principles:

- A. Good site management is essential to prevent run-off during construction activities which may pollute local water courses.

2.15.5 Table 2.15.1 sets out the most suitable methods of sustainable urban drainage (SUDS) in Barnet. These were identified in the North London Strategic Flood Risk Assessment data¹⁶. Development will need to demonstrate how their chosen method of runoff attenuation is suitable for the site and local area.

Table 2.15.1: Examples of SUDS

Soakaways

Soakaways are drainage structures with high available storage. Surface water runoff is directed to the soakaway where the storage volume provides attenuation of flows and gradual infiltration to the surrounding soil. Soakaways can be designed to store rapid runoff from a single house, several buildings or highway areas. Long, thin soakaways are called infiltration trenches. Areas with a high water table or clay soil may not be appropriate for a soakaway.

Swales

Swales are linear vegetated drainage features in which surface water can be stored or conveyed. When used alongside roads, swales can replace conventional gullies and drainage pipes. They are easy to incorporate into landscaping, offer good reductions in both runoff rates and pollutant removal. They are ideal for use as drainage systems on industrial sites because any pollution that occurs will be visible and can be dealt with before it causes damage to a receiving watercourse.

Detention Basins

These are vegetated surface storage basins that provide flow control through attenuation of storm water runoff and controlled release. Detention basins are normally dry except during and immediately after a storm event. In some instances the land may also function as a recreational facility e.g. playground or sports field.

Pervious Surfaces

Pervious pavements allow rainwater to infiltrate through the surface into underlying construction layers where water is stored prior to infiltration to the ground, reused or released to a surface water drainage system or watercourse at an attenuated rate. Where pervious pavements are located within 5m of foundations or basements, an impermeable membrane liner is required to prevent infiltration.

Pervious pavements can either be made from porous materials which allow infiltration across their entire surface e.g. gravels, grass and porous concretes, or permeable surfaces which are made from impermeable materials with voids to allow infiltration e.g. brick paving.

Pervious pavements can be used for both infiltration and attenuation collecting water from paved areas and roof catchments. They have been shown to reduce both the peak flow rate and total runoff volume from developments. Pervious surfaces can be incorporated into soft landscaping and oil interceptors can be added to improve pollutant retention and removal. In urban areas where there is a high percentage of hard cover the use of pervious surfaces for car parks and hard areas is

¹⁶ http://www.nlwp.net/documents/sfra_documents_submission.html

a valuable technique that should be used wherever possible. Further guidance on hardstandings is set out in the Residential Design Guidance SPD in section 16.

Ponds

Ponds can provide both storm water attenuation and treatment. Runoff from each rain event is detained and treated in the pond through sedimentation and biological uptake. Ponds can provide valuable aesthetic and wildlife value to a development site.

Green Roofs

Green roofs represent roof systems which enhance local ecology and their growing medium (substrate) provides temporary storage of storm water. Significantly less water will flow from the roof and more slowly due to absorption by the substrate, and through evaporation and evapotranspiration from the substrate and plant surfaces.

Rooftops form a major part of the cityscape, but have been vastly under utilised. The use of green roofs can reduce the size of downstream SUDS and drainage infrastructure that is required.

Table 2.15.2: Flood risk, Sustainable Urban Drainage and water quality requirements	Development Scale
Proposed development will need to demonstrate application of the sequential test and exception test where inappropriate ¹⁷ development is proposed in areas of flood risk ^{18,19} .	Minor ²⁰ , Major and large scale.
Proposed development will need to provide a Flood Risk Assessment on the known flood risk potential from all sources of flooding including surface water ²¹ to the planning application site, the risk to others, how it will be managed and taking climate change into account.	All development over 1 hectare in Flood Zone 1 ¹⁰ Development in Flood Zone 2 & 3 ¹⁰ except for minor development ²²
Developments will be required to demonstrate how they have considered the London Plan drainage hierarchy (Policy 5.13: Sustainable Drainage) and achievement of a maximum run-off rate which is equivalent to greenfield rates (typically 2 litres per second hectare). The Barnet LLFA pro-forma detailing SUDs strategy should be submitted with the application.	Major, Large scale
Developers should consult with Thames Water and confirm that their scheme will not increase the risk of sewer flooding to other properties.	Large scale

¹⁷ Inappropriate development can be defined using Table 2 in the Technical guidance to the National Planning Policy Framework which sets out the flood risk vulnerability classification for various types of land uses

¹⁸ Table 1 in the Technical guidance to the National Planning Policy Framework sets out the Flood Zones and the appropriate uses (also see table 2) for those zones. The Environment Agency Flood Map identifies the flood zones <http://www.environment-agency.gov.uk/homeandleisure/floods/default.aspx>

¹⁹ The Surface Water Management Plan for Barnet also needs to be considered and it identifies areas more prone to surface water flooding. It will be informed by the Preliminary Flood Risk Assessment <http://publications.environment-agency.gov.uk/PDF/FLHO1211BVNP-E-E.pdf>

²⁰ Minor development means:

- Minor non-residential extensions: Industrial/Commercial/Leisure etc. extensions with a footprint less than 250 m2.
- Alterations: development that does not increase the size of buildings eg alterations to external appearance.
- ‘Householder’ development: eg sheds, garages, games rooms etc. within the curtilage of the existing dwelling in addition to physical extensions to the existing dwelling itself. This definition EXCLUDES any proposed development that would create a separate dwelling within the curtilage of the existing dwelling eg subdivision of houses into flats.

²¹ All potential surface water flooding should be considered and Critical Drainage Areas (CDA) are particular areas of concern for surface water flooding. Barnet Surface Water Management Plan identifies CDA.

Where planning permission is required for hardsurfacing porous materials should normally be used.	Householder, Minor, Major, Large scale
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Useful References for Flood Risk, Sustainable Urban Drainage and Water Quality:

- Flood Risk Assessment requirements, Environment Agency guidance <https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications> .
- Planning Portal/DCLG – Improving the Flood Performance of New Buildings: http://www.planningportal.gov.uk/uploads/br/flood_performance.pdf
- Non-statutory technical standards for the design, maintenance and operation of sustainable drainage systems to drain surface water DEFRA March 2015 <https://www.gov.uk/government/publications/sustainable-drainage-systems-non-statutory-technical-standards>
- Environment Agency Standing Advice on Flood Risk Assessment <https://www.gov.uk/guidance/flood-risk-assessment-for-planning-applications>
- Thames River Basin Management Plan, Environment Agency <http://www.environment-agency.gov.uk/research/planning/125035.aspx>
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- The SuDS Manual (C753). December 2015. CIRIA <http://www.ciria.org/ItemDetail?iProductCode=C753&Category=BOOK&WebsiteKey=3f18c87a-d62b-4eca-8ef4-9b09309c1c91>
- Garden Matters: Front Gardens. Royal Horticultural Society (2006) <http://www.rhs.org.uk/Gardening/Sustainable-gardening/pdfs/RHS-urban-greening>
- Surface Water Management Plan London Borough of Barnet 2011 <https://www.barnet.gov.uk/citizen-home/planning-conservation-and-building-control/planning-policies-and-further-information/ldf-evidence-and-supporting-documents/surface-water-management-plan.html>

2.16 - Biodiversity and Habitat Quality

- 2.16.1 A key objective of Barnet's approach is to protect and enhance the natural ecological environment, maintain and improve biodiversity and harness the benefits of healthy local habitats. The creation of new biodiversity should be encouraged wherever possible. Redevelopment of a site can offer new opportunities to provide new links or corridors between existing habitats for example. Buildings can provide opportunities for new biodiversity too with the provision of green roofs and facades and bird or bat boxes.
- 2.16.2 An environment high in biodiversity can improve the amenity of local residents whilst providing further benefits including shading and reducing surface water run off. Large crowned trees in particular can help regulate the rate rainfall reaches the ground. Careful planning can ensure that the natural environment can co-exist with and help complement the built environment to the benefit of both residents and wildlife.
- 2.16.3 Gardens make a significant contribution to local character, biodiversity, tranquillity and sense of space. They also help to enhance the setting of buildings and provide amenity value for residents. Development can impact the biodiversity or habitat value of gardens and will be considered when making decisions on development which affects residential

gardens.

- 2.16.4 Further detail on biodiversity and habitat quality will be set out in the Green Infrastructure SPD²³. The Local Plan Development Management Policies sets out in Table 17.2 Sites of Importance for Nature Conservation in Barnet. Some of these sites include ancient woodland which should be protected in line with NPPF para 118.

Design principles

- A. Replacement and enhancement of natural environmental features** – Almost all development sites will have some existing or potential value as wildlife habitat. Proposals should include an assessment of existing wildlife habitats and seek to preserve and enhance existing habitats and features or, if not possible, to replace these with new habitats which can evolve in a locally sustainable way aiming to achieve no net loss in habitat. Existing mature, healthy trees and other vegetation should be incorporated into layouts rather than be felled. Where possible existing ponds and hedges should be retained given their ecosystem service role.
- B. Green roofs, trees and green façades and rainwater gardens – ensure that the built form of the development can contribute to the ecological environment.** The built environment should aim to be permeable to wildlife, incorporating design features aimed at sustaining and increasing the population of particular species and facilitating climate change adaptation. Any building or built structure has the potential to be designed or adapted to support biodiversity; in turn buildings can benefit through better environmental performance. Green roofs, façades, trees and rainwater gardens can help to attenuate water run off, reduce the urban heat island effect, reduce solar heating of a building and provide habitat for wildlife. The design of a flat roof in a development should use a green roof which should be planted with sedums and native wildflowers, in order to provide sufficient foraging resources and structural variation for a range of species to colonise the roof.
- C. Low maintenance, indigenous landscaping**–, landscaping should aim to choose plants which are beneficial to wildlife using indigenous plants wherever possible, require low levels of water and are low maintenance to enable the appearance and amenity of the environment to remain high in low rainfall years. Consideration should also be given to the long term management of existing habitats, new landscaping and other biodiversity design features.

Construction principles

- A. Good site management** –is essential to ensure that no pollution incidents occur and to prevent harm to the surrounding environment from demolition and construction activities.
- B. Preservation of important features** – Where a site has existing trees, hedges, topsoil, log piles or other valuable habitat features which can be included within the final development design, these should be properly preserved where practical during the construction phase.
- C. Protected species** – Certain individual wildlife species receive statutory protection under a range of legislative²⁴ provisions. In Barnet, the main specially-protected species that are likely to be encountered are bats, great crested newts, grass

²³ Please see the Local Development Scheme for details of the timetable for publication

²⁴ Principally the Wildlife and Countryside Act 1981

snakes, the common lizard and slow worms. Where a protected species is encountered, potentially on any scale of development, consideration of the impact and where necessary, mitigation will need to be demonstrated through an ecological statement by a suitably qualified ecologist.

Table 2.16: Biodiversity and habitat quality Requirements	Development Scale
A development proposal should provide an ecological statement as part of a submission which demonstrates how protection of biodiversity and habitat quality will be achieved. This statement should provide recommendations on where enhancements to biodiversity can be made.	Major & Large scale

Useful References for Biodiversity and Habitat Quality:

- Biodiversity by Design: A guide for sustainable communities, Town and Country Planning Association 2004 http://www.tcpa.org.uk/data/files/bd_biodiversity.pdf
- advice, research and promotion of green roof systems for environmental urban regeneration see livingroofs.org and www.greenroofs.org
- Trees in the townscape: A guide for decision makers, Trees and Design Action Group November 2012 <http://www.tdag.org.uk/trees-in-the-townscape.html>
- Trees in the Hard Landscape: A Guide for Delivery, Trees and Design Action Group 2014 <http://www.tdag.org.uk/trees-in-hard-landscapes.html>
- Planning for a Healthy Environment: Good practice for green infrastructure and biodiversity; July 2012 <http://www.tcpa.org.uk/pages/planning-for-a-healthy-environment-good-practice-for-green-infrastructure-and-biodiversity.html>
- Rain Garden Guide, Bob Bray, Dusty Gedge, Gary Grant & Lani Leuthvilay, 2013 <http://raingardens.info/wp-content/uploads/2012/07/UK-Rain-Garden-Guide.pdf>
Environment Agency advice on Biodiversity, flora and fauna <http://www.environment-agency.gov.uk/research/policy/40131.aspx>
- London Biodiversity Action Plan Strategy priorities - <http://www.lbp.org.uk/londonhabssp.html>

2.17 – Archaeological Investigation

2.17.1 Discovery is an important basis of archaeology. When researching the development potential of a site, developers should, in all cases, assess whether the site is known or is likely to contain archaeological remains. In line with the NPPF paragraph 128 where appropriate a desk based assessment and, where necessary a field evaluation may be required. As part of this evaluation the Greater London Archaeology Advisory Service (GLAAS) should be consulted. GLAAS is part of English Heritage and provides expert archaeological advice to local authorities, developers and owners of sites as well as members of the public. It may also be appropriate for the Hendon and District Archaeological Society to be consulted. The Development Management Policies DPD in Policy DM05: Barnet’s Heritage and Conservation sets out the 19 Local Areas of Archaeological Significance in the borough.

Table 2.17: Archaeological Investigation Requirements	Development Scale
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Development within the 19 Local Areas of Archaeological Significance in the borough should provide detail of how they will investigate, catalogue and where possible preserve the remains in situ or in a museum.	Householder, Minor, Major & Large scale
Development outside the 19 Local Areas of Archaeological Significance should assess whether the site is known or is likely to contain archaeological remains.	All sites larger than 0.4 hectares

Useful References for Archaeological Investigation

- Archaeology and Planning in London – A Charter for the Greater London Archaeology Advisory Service, March 2011 English Heritage, <https://historicengland.org.uk/images-books/publications/archaeology-planning-greater-london/>
- Guidelines for Archaeological Projects in Greater London. April 2015 GLAAS <https://historicengland.org.uk/images-books/publications/glaas-standards-for-archaeological-work/>
- Further detail on the Hendon and District Archaeological Society <http://www1.hadas.org.uk/>

2.18 - Pollution Prevention, Contaminated Land Remediation and Construction Management

2.18.1 To maintain the quality of the environment within Barnet, it is essential that good standards of environmental management are maintained to prevent nuisance or harm to people and the natural environment.

2.18.2 It is critical that incidents of pollution are prevented and any emissions to the environment are managed. The following set of generic principles is to be considered in the design and construction processes.

Design Principles:

- A. Pollution prevention – ensure that good environmental management practices are implemented.** Construction sites and industrial activities can set up environmental management systems which can be accredited through the BS7750 or ISO14001 standards. Setting up such management systems and seeking accreditation is not complicated if done at the outset of a construction project or industrial activity. Achieving accreditation for an environmental management system does not require commitment to any particular standards, but does require a company to commit to a strategy of continuous improvement in environmental management, to have pollution prevention procedures in place and to monitor performance.
- B. Contaminated Land Remediation – ensure that potential areas of contamination are identified, adequately investigated and then appropriately remediated.** If there is any reason to suspect that a site might contain some historic contamination left from previous uses of the site, then the planning applicant should consult the

council and will need to follow the staged approach to investigation of contamination. Applicants should consider the use of Category 4 Screening Levels. Category 4 Screening Levels have been introduced by DEFRA Statutory Guidance as a four category system for classifying land under Part 2A, ranging from Category 4, where the level of risk posed is acceptably low, to Category 1, where the level of risk is clearly unacceptable. Contaminated land will not inhibit new developments where site investigation and, if necessary, remediation has resulted in a site suitable for its intended use.

- C. Construction Management - construction sites can achieve good management** by preparing and implementing a Construction Management Plan. Such plans should as a minimum address the following issues: water, waste, noise and vibration, dust, emissions and odours, ground contamination, wildlife and features and archaeology. Following best practice guidance such as that produced by CIRIA on the preparation of Site Environmental Plans will be helpful and commitment to the Considerate Constructors Scheme can also be demonstrated (see 2.20). The Considerate Constructors Scheme is a national initiative to improve the management of construction sites and minimise nuisance caused to neighbours and the general public. The scope of a Construction Management Plan should be commensurate to the scale of construction, its impact and its context.
- D. Construction Management – basement excavation and construction** should in addition to Design Principle C ensure that proposals consider the access arrangements for construction vehicles are both safe and do not create unreasonable nuisance to neighbouring residents

Table 2.18: Pollution Prevention, Contaminated Land Remediation and Construction Management Requirements	Development Scale
Applicants should prepare and implement a Construction Management Plan signed-off by the council prior to commencement of any demolition or construction activities on site.	Minor, Major, Large scale. Applications for basements.
Where contamination is suspected then applicants should submit a Preliminary Risk Assessment. Where contamination is found a full site investigation and remediation strategy will need to be agreed with the council before development can commence.	Minor, Major, Large scale

Useful References for Pollution Prevention, Contaminated Land Remediation and Construction Management:

- ISO 14001: Environmental Management System <http://www.bsigroup.co.uk/en/>
- Environmental Good Practice on Site (C741). CIRIA March 2015 http://www.ciria.org/service/Web_Site/AM/ContentManagerNet/ContentDisplay.aspx?Section=Web_Site&ContentID=8982
- Considerate Constructors Scheme, <http://www.ccscheme.org.uk/>
- Model Procedures for the Management of Land Contamination (CLR 11), Environment Agency, September 2004 http://www.clare.co.uk/index.php?option=com_content&view=article&id=911&Itemid=357
- Development of Category 4 Screening Levels for assessment of land affected by contamination - SP1010 DEFRA 2013

<http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=18341>

- A Framework for Assessing the Sustainability of Soil and Groundwater remediation: Sustainable Remediation Forum UK (SuRF-UK) March 2010
http://www.claire.co.uk/index.php?option=com_phocadownload&view=file&id=61:initiatives&Itemid=78
- Environment Agency – PPG6 – Working at construction and demolition sites: preventing pollution guidance:
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/485215/pmo0412bwfe-e-e.pdf.

2.20 - BREEAM

2.20.1 Barnet supports the use of Building Research Establishment Environmental Assessment Method (BREEAM)

BREEAM is used to measure the environmental performance of non-residential buildings. It assesses the following criteria to measure the overall performance of a building:

- **Energy:** The total energy used in the building and the amount of carbon dioxide (CO₂) produced.
- **Management:** Site management and procurement
- **Health and Wellbeing:** Ensuring that there are adequate levels of day-lighting, sound insulation and air quality to improve the quality of living
- **Transport:** Proximity of location to local transport facilities
- **Water:** Consumption both inside and outside the house as well as energy efficient measures
- **Materials:** The life cycle and impact of materials on the surrounding environment
- **Waste:** Construction efficiency that will seek to promote better waste management and minimisation of waste materials
- **Land use:** Size of building footprint as well as the use of the site
- **Pollution:** Reduction of water and external air pollution emissions
- **Ecology:** To ensure that there is minimum disruption to wildlife and there is a commitment to conserving and enhancing the site

2.20.2 BREEAM New Construction and BREEAM (Refurbishment) represent the suite of environmental assessment schemes that are nationally managed by the Building Research Establishment (BRE).²⁵ Use of BREEAM may help to demonstrate compliance with London Plan Policy 5.2 Minimising Carbon Dioxide Emissions.

Table 2.20: BREEAM Requirements	Development Scale
Development proposals should achieve a minimum 'Very Good' rating.	Major & Large scale

²⁵ See the BRE website at www.bre.co.uk.

2.20.3 Exceptions to this requirement may be allowed in cases concerning the refurbishment of listed buildings and buildings in conservation areas. Applicants will need to balance any harm caused to the significance of the heritage asset against the wider sustainability benefits in consultation with the conservation and design team. Applicants should justify any exceptions in an Energy Statement. Schemes which can achieve an ‘excellent’ rating will be encouraged where practical. Further details can be found in ‘Energy Conservation in traditional Buildings’ published by English Heritage, 2008 (www.climatechangeandyourhome.org.uk/live/)

Useful References for BREEAM / Ecohomes:

- BREEAM scheme documents – see BREEAM resources <http://www.breeam.org/page.jsp?id=301>
- BREEAM domestic refurbishment (Ecohomes) tool - <http://www.breeam.org/page.jsp?id=228>

2.21 - Considerate Constructors Scheme

- 2.21.1 The Considerate Constructors Scheme is a national initiative to improve the management of construction sites and minimise nuisance caused to neighbours and the general public.
- 2.21.2 Barnet operates a Considerate Contractors Scheme and an annual award ceremony highlights those companies and individuals that have attained and exceeded the required standards of the scheme.
- 2.21.3 The Council has adopted a Supplementary Planning Document on Skills, Employment Enterprise and Training (SEET). The SPD sets out the Council’s approach to delivering skills, employment, enterprise and training initiatives from development to ensure that residents benefit from the job opportunities created by new development across Barnet. The SPD applies to development that generates new jobs through construction and / or end use as well as developments that involve the loss of employment space and require planning permission. For further guidance on contributions please refer to the SPD.

Table 2.20: Considerate Constructors Requirements	Development Scale
Applicants are encouraged to sign up to the Considerate Constructors Scheme will be expected prior to commencement of any demolition or construction activities	Minor, Major & Large scale

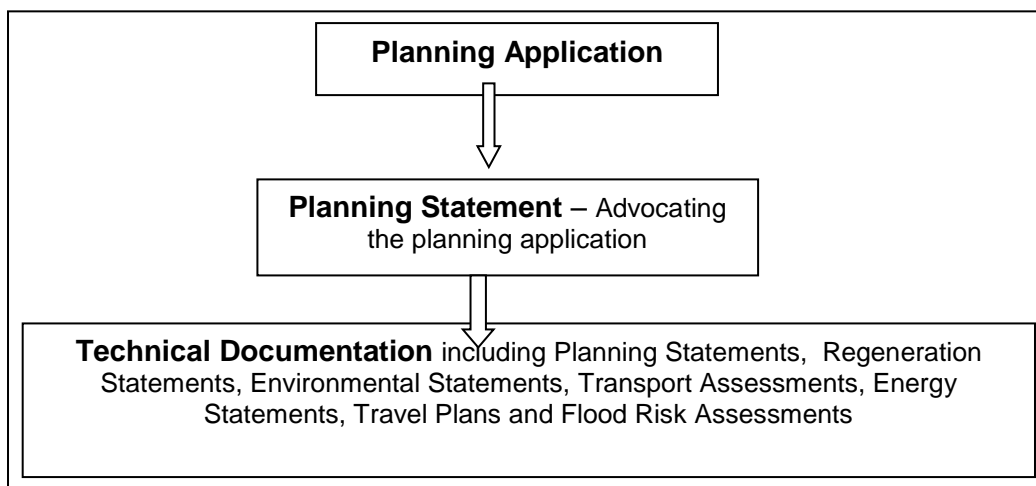
Useful References for Considerate Constructors Scheme:

- Considerate Constructors Scheme tool - <http://www.ccscheme.org.uk/>
- Barnet considerate constructors tool - <http://www.barnet.gov.uk/index/housing/building-control/considerate-contractors-scheme.htm>
- Skills, Employment Enterprise and Training SPD London Borough of Barnet October 2014 <https://www.barnet.gov.uk/citizen-home/planning-conservation-and-building-control/planning-policies-and-further-information/supplementary-planning-documents/draft-skills-employment-enterprise-and-training-seet-from-development-through-s106/spd-on-delivering-skills-employment-enterprise-and-training-seet.html>

Section 3: Supporting Information

- 3.1.1 The level of information required to support planning applications will vary according to the scale of proposed development and its context. In this respect, the council will only seek information as is appropriate to demonstrate that the new development will comply with policy. A development's context is relevant. For example development in a noisy area will need to demonstrate that design and layout helps to reduce exposure to that noise and that sufficient noise insulation has been included in designs to ensure that comfort within buildings is adequate.

Figure 1: The hierarchy of planning application documents



3.2 Feasibility Studies and Associated Supporting Information

- 3.2.1 The council recognises that certain design measures may have cost or value implications. Where an applicant for a Major or Large Scale Development takes the view that it is not viable to meet a specified requirement, the council will require a fully justified feasibility study.
- 3.2.2 In requesting feasibility studies to be undertaken, applicants are asked to be open in their decision-making to allow us to understand the influences leading the applicant to make a particular proposal. Justification is required where an applicant suggests that something is not deliverable either because of increased cost or loss of value. This should be provided in the context of the overall development with comparison to other design solutions, indicating the degree to which different options have been explored to achieve the design requirements set out in this SPD.

3.3 Environmental Impact Assessment (EIA)

- 3.3.1 EIA is a procedure for ensuring that the likely significant environmental effects of a new development are fully understood and taken into account before the development is allowed to go ahead. The regulations (European Union Directive (97/11/EC)) apply to two separate lists of project. Schemes which fall under Schedule 1 will always require an EIA and include for example energy infrastructure, certain industrial processing industries, waste management or transport infrastructure.

- 3.3.2 The assessment of Schedule 2 development will depend on the type, scale and location of the development and is based on thresholds for various land uses. These are set out in the regulations²⁶. Any significant development proximate to the Welsh Harp Site of Special Scientific Interest (SSSI) will generally require an assessment. Where a developer is unclear whether an EIA is required they may request a screening from the local authority. Further detail on EIA is set out in National Planning Practice Guidance (Reference ID: 4-018-20140306).
- 3.3.3 Where EIA is formally required, or where the council requests submission of an environmental statement in respect of a Schedule 2 development, planning applicants will be expected to demonstrate that the development proposals not only act to mitigate any environmental impacts, but that they also create a high quality environment within the boundary of the new development site. When a full EIA is not required, but a few discrete issues, such as noise and air quality, need to be assessed, the council will expect such assessments to be undertaken to the same level of detail and thoroughness as would be required by a formal EIA.

²⁶ The Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 <http://www.legislation.gov.uk/ukxi/1999/293/contents/made> and Amendment Regulations 2015 http://www.legislation.gov.uk/ukxi/2015/660/pdfs/ukxi_20150660_en.pdf

Appendix 1 – List of Development Plan Policies

Sustainability topic	Relevant Core Strategy and Development Management Policies	Relevant London Plan policies and	Relevant Mayoral Housing Supplementary Planning Guidance
Minimum residential space standards and internal layout and design	Policy DM02 – Development standards	Policy 3.5: Quality and Design of Housing Developments	Standard 24 and Standard 25 - Dwelling Space Standards Standard 31 – Floor to Ceiling Heights
Outdoor amenity space	Policy DM02 – Development standards		Standard 26 and Standard 27– Private open space
Daylight, privacy, outlook and light pollution	Policy DM04 – Environmental considerations	Policy 7.6: Architecture	Standard 28 – Privacy Standard 29 – Dual aspect Standard 32 – Daylight and sunlight
Microclimate	Policy DM05: Tall Buildings	Policy 7.6: Architecture Policy 7.7: Location and design of tall and large buildings	
Accessible and adaptable dwellings	Policy CS4 – Providing quality homes and housing choice in Barnet Policy DM02 – Development Standards	Policy 3.8: Housing Choice	Standard 11 - Access
Wheelchair user dwellings	Policy CS4 – Providing quality homes and housing choice in Barnet Policy DM02 – Development standards	Policy 3.8: Housing Choice	Standard 11 - Access
Energy use in new buildings and decentralised energy	Policy CS13 - Ensuring the efficient use of natural resources Policy DM04 – Environmental considerations	Policy 5.2: Minimising Carbon Dioxide Emissions	Standard 35 – Energy and CO2 Standard 36- Overheating
Retrofitting of existing buildings	Policy CS13 - Ensuring the efficient use of natural resources Policy DM04 – Environmental considerations	Policy 5.4: Retrofitting	
Water efficiency	Policy CS13 - Ensuring the efficient use of natural resources Policy DM04 – Environmental considerations	Policy 5.15: Water use and Supplies	Standard 37 – Water
Waste strategy	Policy CS13 - Ensuring the efficient use of natural resources Policy DM04 – Environmental considerations	Policy 5.18: Construction, Excavation and Demolition Waste	Standard 22 and Standard 23 – Refuse, post and deliveries
Air quality	Policy CS13 - Ensuring the efficient use of natural resources	Policy 6.13: Parking Policy 7.14: Improving Air Quality	Standard 33 – Air quality

	Policy DM04 – Environmental considerations		
Noise quality	Policy CS13 - Ensuring the efficient use of natural resources Policy DM04 – Environmental considerations	Policy 7.15: Reducing Noise and Enhancing Soundscapes	Standard 30 – Noise
Flood risk and water quality	Policy CS13 - Ensuring the efficient use of natural resources Policy DM04 – Environmental considerations	Policy 5.13: Sustainable Drainage Policy 5.14: Water Quality and Wastewater Infrastructure	Standard 38 and Standard 39 – Flooding and drainage
Biodiversity and habitat quality	Policy CS7: Enhancing and Protecting Barnet's open spaces Policy DM16: Biodiversity	Policy 7.19: Biodiversity and access to nature Policy 5.11: Green roofs and development site environs	Standard 40 - Ecology
Pollution prevention, Contaminated land and construction management	Policy CS13 - Ensuring the efficient use of natural resources	Policy 5.21: Contaminated Land	
BREEAM	Policy CS13 - Ensuring the efficient use of natural resources Policy DM04 – Environmental considerations		

Appendix 2 – Glossary

Term	Definition
Accessibility	The ease with which goods, services and employment are accessible and available.
Accessible transport	Transport services and vehicles designed and operated to be useable by people with disabilities and other transport disadvantaged people: such as the elderly, parents with prams and children and wheelchair users.
Air Quality Management Area (AQMA)	Areas where air quality objectives are not being met are normally designated as Air Quality Management Areas. It is then a requirement that affected Local Authorities implement a plan to improve air quality – a local Air Quality Action Plan.
Ambient Noise	Ongoing sound in the environment such as from transport and industry, as distinct from individual events, such as a concert. Unless stated otherwise, noise includes vibration.
Amenity	Element of a location or neighbourhood that helps to make it attractive or enjoyable for residents and visitors
Outdoor amenity space	Those open areas within a development which are used exclusively by the occupants for their recreation. These could be private gardens or communal open spaces.
Authorities Monitoring Report (AMR)	Part of the Local Plan which monitors (measures) and assesses the implementation of the Local Development Scheme and the extent to which policies in the Local Development Documents are being successfully implemented.
Article 4 Direction	A power available under the 1995 General Development Order allowing the council to restrict permitted development rights in identified locations and require planning permission to be obtained from the council.
Biodiversity	The variety of plants and animals and other living things in a particular area or region. It encompasses habitat diversity, species diversity and genetic diversity.
Biomass	The total dry organic matter or stored energy of plant matter. As a fuel it includes energy crops and sewage as well as forestry and agricultural residues.
Brown Roofs	Roofs which have a layer of soil or other material which provides a habitat or growing medium for plants or wildlife.
Building Regulations	Sets minimum construction standards for building works. They exist to ensure the health and safety of people in and around all types of buildings (i.e. domestic, commercial, and industrial). They also provide for energy conservation and access to and use of buildings.
Building Research Establishment Environmental Assessment Method (BREEAM)	Measures the environmental performance of proposed development.
Change of Use	A material change in the use of land or buildings from one class of use to another as defined by the Use Classes Order constitutes development and therefore requires planning permission.
Combined Heat & Power (CHP)	The combined production of electricity and usable heat is known as Combined Heat and Power (CHP). Steam or hot water which would otherwise be rejected when electricity alone is produced, is used for space or process heating.
Community Infrastructure Levy (CIL)	CIL is a levy that local authorities in England and Wales can choose to charge on new developments in their area. The money can be used to support development by funding infrastructure that the council, local community and neighbourhood want.
Conservation Area	Areas of special architectural or historic interest the character and appearance of which it is desirable to preserve or enhance.
Contaminated Land	Land which contains potentially harmful substances as a result of human activity or from natural causes may be regarded as contaminated land.
Conversions	The sub-division of residential and non-residential properties into self-contained flats or maisonettes.
Core Strategy (CS)	A Development Plan Document (DPD) setting out the long term spatial vision and strategic objectives for the Local Planning Authority area. It includes a spatial strategy, core policies and a monitoring and implementation framework for achieving them.

Decentralised Energy Network	A Decentralised Energy (DE) network produces heat as well as electricity at or near the point of consumption.
Density	A measure of the intensity of residential development. Usually expressed as the number of habitable rooms per hectare (hrha).
Density Matrix	Matrix in the London Plan 2011 which sets out density ranges related to existing building form, massing and public transport accessibility level (PTAL).
Design & Access Statement	A statement that accompanies a planning application to explain the design principles and concepts that have informed the development and how access issues have been dealt with.
Development	The carrying out of building, engineering, mining or other operations in, on, over or under the land, or the making of any material change in the use of any buildings or other land. Throughout the DPD the term development is taken to include new development, redevelopment and change of use.
Development Management Policies DPD	A Development Plan Document setting out the detailed borough-wide implementation planning policies for development and forms the basis for local planning authority decision making.
Development Plan Documents (DPDs)	Statutory planning documents that form part of the Local Plan including the Core Strategy, Development Management, Site Allocations DPDs and also Area Action Plans.
Disability Discrimination Act (DDA)	The Disability Discrimination Act 1995 has now been repealed and replaced by the Equality Act 2010. Formerly, it made it unlawful to discriminate against people in respect of their disabilities in relation to employment, the provision of goods and services, education and transport.
Dwelling	A building or any part of a building that forms a separate and self-contained unit designed to be occupied by a single family or household.
Environment Agency (EA)	Responsible for preventing or minimising the effects of pollution on the environment. Issues permits to monitor and control activities that handle or produce waste. It also provides up-to-date information on waste management and deals with other matters such as water quality, flood protection and advice.
Environmental Impact Assessment (EIA)	Predicts the effects on the environment of a development proposal, either for an individual project or a higher-level 'strategy' (a policy, plan or programme), with the aim of taking account of these effects in decision-making.
Equality Impact Assessment (EQIA)	An equality impact assessment involves assessing the likely or actual effects of policies or services on people in respect of disability, gender and racial equality
Flood Risk Assessment (FRA)	Planning applications for development proposals of 1 hectare or greater in Flood Zone 1 and all proposals for new development located in Flood Zones 2 and 3 should be accompanied by a FRA. This should identify and assess the risks of all forms of flooding to and from the development and demonstrate how these flood risks will be managed, taking climate change into account. For major developments in Flood Zone 1, the FRA should identify opportunities to reduce the probability and consequences of flooding.
Flood Zones	Flood Zones are the starting point for the sequential approach. Flood Zones refer to the probability of sea and river flooding only, ignoring the presence of existing defences.
Greater London Authority (GLA)	A strategic body constituted under the Greater London Authority Act 1999, consisting of the Mayor of London, the London Assembly and staff, which has responsibility for producing regional strategic policy in a number of areas, including transport, economic development, planning, and the environment for London.
Green Belt	A national policy designation that helps to contain development, protect the countryside and promote brownfield development. Development is strictly controlled in the Green Belt.
Green Chain / Link	These are areas of linked but separate open spaces and the footpaths between them. They are accessible to the public and provide way-marked paths and other pedestrian and cycle routes.
Green Grid	The Green Grid is a strategic framework for creating a network of interlinked, multi-purpose open spaces connecting the Green Belt, Metropolitan Open Land and open space to places where people live and work.

Green Infrastructure	The open environment within urban areas, the urban fringe and the countryside. It is a network of connected, high quality, multi-functional open spaces, corridors and the links in between that provide multiple benefits for people and wildlife.
Habitable Room	A room within a dwelling, the primary purpose of which is for living, sleeping or dining, including kitchens where the total area is more than 13m ² (including fittings), or the dining space if it is divided from the working area by a moveable partition. Rooms exceeding 20m ² will be counted as two.
Inclusive Design	Creates an environment where everyone can access and benefit from the full range of opportunities available to members of society. It aims to remove barriers that create undue effort, separation or special treatment, and enables everyone to participate equally in mainstream activities independently, with choice and dignity.
Lifetime Neighbourhoods	Are designed to be welcoming, accessible and inviting for everyone, regardless of age, health or disability, is sustainable in terms of climate change, transport services, housing, public services, civic space and amenities making it possible for all people to enjoy a fulfilling life and take part in the economic, civic and social life of the community.
Listed Building	An historic building recorded on a statutory list of buildings of 'special architectural or historic interest' compiled by the Secretary of State for Culture, Media and Sport on advice from English Heritage, to ensure that the architectural and historic interest of the building is carefully considered before any alterations, outside or inside, are agreed. A building is graded I, II* or II, with grade I being the highest. Listing includes the interior as well as the exterior of the building, and any buildings or permanent structures (e.g. wells) within the curtilage. A listed building is a heritage asset which is defined in the Local Plan – Core Strategy.
Local Plan	The plan for the future development of the local area, drawn up by the local planning authority in consultation with the community. In law this is described as the development plan documents adopted under the Planning and Compulsory Purchase Act 2004. Current core strategies or other planning policies, which under the regulations would be considered to be development plan documents, form part of the Local Plan. The term includes old policies which have been saved under the 2004 Act.
London Plan	The Mayor's London Plan sets out an integrated economic, environmental and social framework for the development of the capital over the next 20-25 years. London boroughs Local Plans are required to be in general conformity with the London Plan. Policies in the London Plan guide decisions on planning applications by councils and the Mayor.
Major Development (applications decided by the London Boroughs)	Major Developments are defined as these: <ul style="list-style-type: none"> • for dwellings: where 10 or more are to be constructed (or if number not given, area is more than 0.5 hectares). • for all other uses: where the floor space will be 1000 m² or more (or the site area is 1 hectare or more). The site area is that directly involved in some aspect of the development. Floor space is defined as the sum of floor area within the building measured externally to the external wall faces at each level. Basement car parks, rooftop plant rooms, caretakers' flats etc. should be included in the floor space figure.
Material Considerations	Matters that should be taken into account in deciding on a planning application or on an appeal against a planning decision. This includes such things as the number, size, layout, siting, design and external appearance of buildings and the proposed means of access, together with landscaping, impact on the neighbourhood and the availability of infrastructure.
Mixed Use Development	Development for a variety of activities (and uses) on single sites or across wider areas such as town centres.
National Planning Policy Framework (NPPF)	Sets out Government's planning policies for England and how they are expected to be applied. The NPPF replaces 44 planning documents, primarily Planning Policy Statements (PPS) and Planning Policy Guidance (PPGs), which previously formed Government policy towards planning.
Nature Conservation	Protection, management and promotion for the benefit of wild species and habitats, as well as the human communities that use and enjoy them. This also covers the creation and re-creation of wildlife habitats and the techniques that protect genetic diversity and can be used to include geological conservation.

Outdoor amenity space	Those open areas within a development which are used exclusively by the occupants for their recreation. These could be private gardens or communal open spaces.
Permitted Development Rights	Rights to carry out certain limited forms of development without the need to make an application for planning permission, as granted under the terms of the Town and Country Planning (General Permitted Development) Order 1995.
Planning Conditions	Planning conditions are provisions attached to the granting of planning permission. The Government's five policy tests for conditions are that they must be necessary, relevant to planning, relevant to the development to be permitted, enforceable, precise and reasonable in all other respects. More detail on Government policy on planning conditions is in Circular 11/1995 (found in Government policies)
Planning Inspectorate (PINS)	The Planning Inspectorate is an independent Government agency that processes planning and enforcement appeals and holds inquiries into local development plans. It also deals with a wide variety of other planning-related casework, including listed building consent appeals, advertisement appeals and reporting on planning applications.
Proposals Map	An obligatory part of the adopted development plan which shows the area base map with allocated sites for particular land use and development proposals and sets out the area to which specific policies apply.
Public Transport Accessibility Level (PTAL)	A detailed and accurate measure of the accessibility of a point to the public transport network, taking into account walk access time and service availability. PTALs reflect : <ul style="list-style-type: none"> • walking time from the point of interest to the public transport access points; • the reliability of the service modes available; • the number of services available within the catchment; and • the level of service at the public transport access points – ie average waiting time.
Renewable Energy	Energy derived from a source that is continually replenished, such as wind, wave, solar, hydroelectric and energy from plant material, but not fossil fuels or nuclear energy. Although not strictly renewable, geothermal energy is generally included.
Retrofitting	The addition of new technology or features to existing buildings in order to make them more efficient and to reduce their environmental impacts.
Runoff	Runoff is the flow of water from rain or other sources over land. Greenfield run off rates are a requirement set out in the London Plan and relate to the speed of run off from an undeveloped site ie a greenfield.
Section 106 Agreements	These agreements confer planning obligations on persons with an interest in land in order to achieve the implementation of relevant planning policies as authorised by Section 106 of the Town and Country Planning Act 1990.
Secure by Design	The planning and design of street layouts, open space, and buildings so as to reduce the likelihood or fear of crime.
Sites of Importance for Nature Conservation (SINC)	SINCs are areas protected through the planning process having been designated for their high biodiversity value. SINCs are classified into sites of metropolitan importance, borough and local importance for nature conservation.
Sites of Special Scientific Interest (SSSI)	Areas of special interest by reason of its fauna, flora, geological or physiographic (landform) features. A classification notified under Section 28 of the Wildlife and Countryside Act (1981 as amended).
Standard Assessment Procedure (SAP)	Standard Assessment Procedure (SAP) is the Government's recommended system for energy rating of dwellings and is based on the annual energy costs for space and water heating.
Supplementary Planning Document (SPD)	Document providing supplementary information in respect of the policies in development plan documents and not forming part of the development plan nor subject to independent examination. Must be subject to public consultation if it is to be accorded any weight in decisions on development proposals. SPDs can be taken into account as a material planning consideration.
Sustainable Development	This covers development that meets the needs of the present without compromising the ability of future generations to meet their own needs.
Sustainable Urban Drainage Systems (SUDS)	SUDS can reduce the total amount, flow and rate of surface water that runs directly to rivers through stormwater systems.

Tall Buildings	Buildings which in Barnet are either eight or more storeys high, or which are 26 m above ground level.
Three Strands Approach	Three Strands provides the spatial vision that underpins Core Strategy and Local Plan. The three strands are: Strand 1 - Absolute protection of the Green Belt, Metropolitan Open Land and other valued open space from inappropriate development. Strand; 2 - Enhancement and protection of Barnet's suburbs, town centres and historic areas; 3 - Consolidated growth in areas in need of renewal and investment
Town Centres	Covers - <ul style="list-style-type: none"> • Metropolitan Town Centre, • Major Town Centre, • District Town Centre, • Neighbourhood and local town centres
Transport for London (TfL)	One of the GLA groups of organisations, accountable to the Mayor, with responsibility for delivering an integrated and sustainable transport strategy for London.
Tree Preservation Order (TPO)	Made under the Town and Country Planning Act 1990 by the local planning authority to protect trees of importance for amenity, landscape and nature conservation.
Unitary Development Plan (UDP)	A statutory development plan introduced in 1986 and replaced by Local Development Frameworks in the Planning and Compulsory Purchase Act 2004. Barnet's Unitary Development Plan was adopted in May 2006. The UDP is superseded by the Local Plan Core Strategy and Development Management Policies DPDs following adoption in September 2012.
Use Class	A category of landuse activities requiring planning permission which is set according to a use classes order. The uses are grouped into classes A, B, C and D and sui generis (a use not within a specified class). The classes are: A1 - shops A2 - financial and professional services A3 - restaurants and cafes A4 - drinking establishments A5 - hot food takeaways B1 - business (office) B2 - general industry B8 - storage C1 - hotels C2 - residential institutions C3 - dwelling houses C4 – small HMO D1 - non-residential institutions D2 - assembly and leisure Sui Generis - a use not within a specified class.
Use Classes Order	A legislative mechanism under the terms of the Town and Country Planning Act 1990, as amended by the Use Classes (Amendment) Order 2005, and the General Permitted Development (Amendment) Order 2005, which sets out when permission is or is not required for changes to the use of land and buildings, and the circumstances under which such changes can be undertaken.
Wheelchair accessible housing	This refers to homes built to meet the standards set out in the second edition of Wheelchair Housing Design Guide by Stephen Thorpe, Habinteg Housing Association 2006.

Appendix 3 – Monitoring Indicators

Topic	Indicator	Target
2.1 – Minimum residential space standards & 2.2 – Internal layout and design	Residential units approved below minimum space standards (indicator for DM02: Development Standards)	To justify exceptions for new units Source: Uniform
2.3 – Outdoor Amenity Space	Residential units approved outside town centres and regeneration areas below minimum outdoor amenity space requirements (LBB new)	To justify exceptions for new units Source: Uniform
2.4 – Daylight, privacy (minimum distance), outlook and light pollution	Number of appeals lost on privacy or daylight grounds	None
2.6 – Accessible and adaptable dwellings	Lifetime homes approved (indicator for DM03: Accessibility and inclusive design)	90% of homes should meet building regulation M4 (2) – ‘accessible and adaptable dwellings’.
2.7 - Wheelchair	Wheelchair accessible homes approved (indicator for DM03: Accessibility and inclusive design)	10% of new homes to be wheelchair accessible [adaptable]
2.8 – Energy use	See indicator for topic 2.18:	London Plan Policy 5.2: Minimising Carbon Dioxide Emissions
2.9 – Decentralised energy	Units connected to a decentralised energy network (indicator for DM04: Environmental considerations for development)	Colindale by 2016 BXC by 2021
2.10 – Retrofitting	Number of feed in tariff applications	https://www.renewablesandchp.ofgem.gov.uk/Public/ReportManager.aspx
2.11 – Water efficiency	Average water consumption in Barnet	105 l/p/d (excluding and allowance of 5 l/p/d for external water use).
2.12 – Waste strategy	Amount of municipal solid waste (MSW) recycled	To increase
2.13 – Air quality	PM ₁₀ trends NO _x trends	Air Quality Action Plan
2.14 – Noise quality	Number of noise impact assessments received as part of a planning application	To justify exceptions for sensitive uses in high noise areas or impact of a noisy use on a sensitive use
2.15 – Flood Risk and Water Quality	Planning permissions granted contrary to EA advice on either flood defence or water quality grounds (indicator for DM04: Environmental Considerations for development)	No planning permissions granted contrary to EA advice
2.16 - Biodiversity and Habitat Quality	Area of land in SINC (LBB New) (indicator for DM16: Biodiversity) Number of developments including green roofs	No net loss in area designated as SINC All high density developments to include some aspect of green roof
2.17 – Pollution Prevention, Contaminated land remediation and construction management	The number of developments on contaminated land requiring full site investigations	Remediation strategy agreed with the council Source: Scientific Services, Barnet Council
2.20 – Considerate Constructors Scheme	None	None

Useful contacts

For further information and any specific queries, please contact:

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Urban Design and Heritage Team
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Building Regulation enquiries:

Building Regulation Service
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For a comprehensive source of information concerning planning and building control matters please visit the council's planning pages online www.barnet.gov.uk or Government's planning portal website at www.planningportal.gov.uk

Copies of this document can be viewed at any Barnet library and at the planning reception which is located at

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