Camden Planning Guidance

Basements and lightwells

CPG 4

London Borough of Camden

July 2015

Camden

CPG4 Basements and Lightwells

1 Introduction

What is Camden Planning Guidance?

1.1 We have prepared this Camden Planning Guidance to support the policies in our Local Development Framework (LDF). This guidance is therefore consistent with the Core Strategy and the Development Policies, and forms a Supplementary Planning Document (SPD) which is an additional "material consideration" in planning decisions. The Council adopted CPG4 Basements and lightwells on 6 April 2011 following statutory consultation. This document was updated in 2013 and again in 2015 to expand and refine the guidance. Details on these updates and the consultation process are available at camden.gov.uk/cpg.

1.2 The Camden Planning Guidance covers a range of topics (such as housing, sustainability, amenity and planning obligations) and so all of the sections should be read in conjunction, and within the context of Camden's LDF.

Basements in Camden

1.3 With a shortage of development land and high land values in the borough the development of basements is a popular way of gaining additional space in homes without having to relocate to larger premises. Basements are also a typical feature of the Central London part of Camden and used for various purposes including commercial, retail and leisure uses, servicing and storage. However, while basement developments can help to make efficient use of the borough's limited land, in some cases they may cause harm to the amenity of neighbours, affect the stability of buildings, cause drainage or flooding problems, or damage the character of areas and the natural environment.

What does this guidance cover?

1.4 This guidance provides information on basement and lightwell issues and includes the following sections:

- Planning and design considerations;
- Assessing basements and Basement Impact Assessments; and
- Impacts to neighbours from demolition and construction;

1.5 This guidance supports policy DP27 - Basements and lightwells in Camden Planning Guidance and the following other Local Development Framework policies:

Core Strategy

- CS5 Managing the impact of growth and development
- CS14 Promoting high quality places and conserving our heritage
- CS15 Protecting and improving our parks and open spaces & encouraging biodiversity

- CS17 Making Camden a safer place
- CS18 Dealing with our waste and encouraging recycling

1.6 Development Policies

- DP23 Water
- DP24 Securing high quality design
- DP25 Conserving Camden's heritage
- DP26 Managing the impact of development on occupiers and neighbours

1.7 It should be noted that the guidance covered in this section only forms part of the range of considerations that applicants should address when proposing new basement development. In addition to these specific matters wider issues such as design, heritage, sustainability and the water environment should also be considered. Further guidance on these, and other issues, is contained within the Local Development Framework documents and the Camden Planning Guidance.

When does this guidance apply?

1.8 This guidance applies to all developments in Camden that propose a new basement or other underground development, or an extension to existing basement or other underground development where planning permission is required. Permitted development rights mean that some basements will not require planning permission. Underground developments may include ground or lower ground floors where excavation is required, for example when a ground floor is extended further into sloping land requiring excavation.

PERMITTED DEVELOPMENT

Permitted development rights are nationally set and allow certain building works and changes of use to be carried out without having to make a planning application. Permitted development rights are set out in The Town and Country Planning (General Permitted Development) Order 1995 as amended, which permits "the enlargement, improvement, or other alteration of a dwellinghouse" within the limits laid down for extensions.

In certain situations such 'Permitted Development' rights are removed, such as:

- For listed buildings;
- Within a conservation area if there are any trees which will be affected by the development;
- Outside a conservation area if any protected trees are to be affected (further guidance on the protection of trees is on page 10); and
- For works classified as 'engineering operations'.
- You should also check any relevant Article 4 Directions which may remove Permitted Development rights. For guidance on permitted development rights, please visit the Camden Council website.

2 Basements and lightwells

KEY MESSAGES

The Council will only permit basement and underground development that does not:

- cause harm to the built and natural environment and local amenity;
- result in flooding; or
- lead to ground instability.

We will require applicants to demonstrate by methodologies appropriate to the site that schemes:

- maintain the structural stability of the building and neighbouring properties;
- avoid adversely affecting drainage and run-off or causing other damage to the water environment; and
- avoid cumulative impacts upon structural stability or the water environment in the local area.

Applicants will be required to submit information relating to the above within a Basement Impact Assessment (BIA) which is specific to the site and particular proposed development.

In certain situations we will expect an independent verification of Basement Impact Assessments, funded by the applicant.

2.1 This guidance gives detailed advice on how we will apply planning policies when making decisions on new basement development or extensions to existing basement accommodation.

2.2 Policy DP27 Basements and lightwells of Camden's Local Development Framework requires applicants to consider a scheme's impact on local drainage and flooding and on the structural stability of neighbouring properties through its effect on groundwater conditions and ground movement. Section 3 of this guidance document sets out how basement impact assessments need to provide evidence on these matters.

Planning and design considerations

2.3 We recognise that there can be benefits from basement development in terms of providing additional accommodation, but we need to ensure that basement schemes:

- do not cause undue harm to the amenity of neighbouring properties;
- do not have a detrimental impact on the groundwater environment, including ponds and reservoirs;
- do not have any effects on surface water run-off or ground permeability;

- do not harm the recognised architectural character of buildings and surrounding areas, including gardens and nearby trees, and that conservation area character is preserved or enhanced;
- conserve the biodiversity value of the site;
- achieve sustainable development; and
- do not place occupiers at risk or have any effects on the stability or bearing capacity of adjacent land generally.

Size of development

2.4 Often with basement development, the only visual features are lightwells and skylights, with the bulk of the development concealed wholly underground, away from public view. However, just as overly large extensions above the ground level can dominate a building, contributing to the over-development of a site, an extension below ground can be of an inappropriate scale. There may be more flexibility with the scale of a development when it is proposed underground, but there are a number of factors that would mean basement development would be overdevelopment.

SKYLIGHT
A window, dome, or opening in the roof or ceiling, to admit natural light.

LIGHTWELL
An opening within or next to a building that allows natural light to reach basement windows, that would otherwise be obscured.

2.5 Larger basement developments, such as those of more than one storey in depth or which extend outside of the footprint of the building, can have a greater impact than smaller schemes. Larger basement developments require more extensive excavation resulting in longer construction periods, and greater numbers of vehicle movements to remove the spoil. These extended construction impacts can have a significant impact on adjoining neighbours through disturbance through noise, vibration, dust, and traffic and parking issues. Larger basements also can have a greater impact on the water environment by reducing the area for water to runoff and soak away. Basement development that extends below garden space can also reduce the ability of that garden to support trees and other vegetation leading to poorer quality gardens and a loss in amenity and the character of the area.

2.6 The Council's preferred approach is therefore for basement development to not extend beyond the footprint of the original building and be no deeper than one full storey below ground level (approximately 3 metres in depth). The internal environment should be fit for the intended purpose, and there should be no impact on any trees on or adjoining the site, or to the water environment or land stability. Larger schemes, including those consisting of more than one storey in depth or extending beyond the footprint of the above ground building, will be expected to provide appropriate evidence to demonstrate to the Council's satisfaction that the development does not harm the built and natural environment or local amenity.

2.7 The Council recognises that in the case of larger buildings in central London and on large comprehensively planned sites (for example on large sites that occupy an urban block) the impacts of basements will differ to basement schemes in primarily residential neighbourhoods and in such circumstances larger basements are likely to be appropriate.

Habitable rooms

2.8 Development Policy DP27 (Paragraph 27.6) states that the Council will not allow habitable rooms and other sensitive uses for self-contained basement flats and other underground structures in areas at risk of flooding. Outside of these areas, where basement accommodation is to provide living space (possibly for staff), it will be subject to the same standards as other housing in terms of space, amenity and sunlight. Suitable access should also be provided to basement accommodation to allow for evacuation. Further guidance is contained in CPG2 Housing (refer to section 4 on residential development standards).

Conservation areas and listed buildings

2.9 In the case of listed buildings applicants will be required to consider whether basement and underground development preserves the existing fabric, structural integrity, layout, interrelationships and hierarchy of spaces, and any features that are architecturally or historically important. Where the building is listed, new basement development or extensions to existing basement accommodation will require listed building consent, even if planning permission is not required. The acceptability of a basement extension to a listed building will be assessed on a case-by-case basis, taking into account the individual features of the building and its special interest. Applicants should contact the Council at the earliest opportunity to discuss such proposals.

LISTED BUILDING CONSENT
Legally required in order to carry out any works to a Listed Building which will affect its special value. This is necessary for any major works, but may also be necessary for minor alterations and even repairs and maintenance. Listed Building Consent may also be necessary for a change of use of the property.

2.10 As with all basement schemes, we will need to be satisfied that effective measures will be taken during demolition and construction works to ensure that damage is not caused to the listed building and any buildings it directly adjoins. Poor demolition and construction methods can put neighbouring properties at risk and so can have considerable effects on the character and appearance of heritage buildings and conservation areas.

2.11 We will seek the submission of a management plan for demolition and/or construction where basement works are proposed in conservation areas or adjacent to a listed building. Further guidance on this is contained within CPG6 Amenity (refer to section 8 on construction management plans).

Basement walls, windows, and doors

2.12 The development of a basement and the introduction of light wells will result in an area of exposed basement wall and will usually mean new window or door openings. Any exposed area of basement development to the side or rear of a building will be assessed against the guidance in CPG1 Design (refer to section 4 on extensions, alterations and conservatories). In general, this expects that any exposed area of basement to be:

- subordinate to the building being extended;
- respect the original design and proportions of the building, including its architectural period and style; and
- retain a reasonable sized garden.

2.13 The width of any visible basement wall should not dominate the original building.

2.14 In number, form, scale and pane size, basement windows should relate to the façade above. They should normally be aligned to the openings above and be of a size that is clearly subordinate to the higher level openings so as not to compete with the character and balance of the original building. On the street elevation, and on certain rear elevations where there is a distinguishable pattern to the fenestration, the width and height of windows should be no greater than those above.

FAÇADE
The face or front of a building

FENESTRATION
The arrangement of windows in a building.

Trees, landscape, and biodiversity

2.15 Proposals for basement development that take up the whole front and / or rear garden of a property are very unlikely to be acceptable. Sufficient margins should be left between the site boundaries and any basement construction to enable natural processes to occur and for vegetation to grow naturally. These margins should be wide enough to sustain the growth and mature development of the characteristic tree species and vegetation of the area. The Council will seek to ensure that gardens maintain their biodiversity function for flora and fauna and that they are capable of continuing to contribute to the landscape character of an area so that this can be preserved or enhanced.

GREEN ROOF
A roof that has vegetation growing on it, which can help improve visual appeal, reduce the environmental impact of the building and create habitat for native flora and fauna.

DETENTION POND
A stormwater management facility that is designed to protect against flooding by storing water for a limited period of a time.

2.16 The basement development should provide an appropriate proportion of planted material to allow for rain water to be absorbed and/or to compensate for the loss of biodiversity caused by the development. This will usually consist of a green roof or detention pond on the top of the underground structure. It will be expected that a minimum of 1 metre of soil be provided above basement development that extends beyond the footprint of the building, to enable garden planting and to mitigate the effect on infiltration capacity. The use of SUDS is sought in all basement developments that extend beyond the footprint of the original building. For further guidance on SUDS, see CPG3 Sustainability (section 7 on water efficiency).

2.17 Consideration should be given to the existence of trees on or adjacent to the site, including street trees and the required root protection zone of these trees. CPG1 Design, (refer to section 6 on landscape and trees) sets out the evidence that the Council requires with respect to the protection of trees, including tree surveys and arboricultural method statements.

ROOT PROTECTION ZONE
The area around the base or roots of the tree that needs to be protected from development and compaction during construction to ensure the survival of the tree.

Lightwells

2.18 The building stock in Camden is varied. Some areas contain basements developments that include front lightwells taking up part, or all, of the front garden. Other areas do not have basements or lightwells that are visible from the street. The presence or absence of lightwells helps define and reinforce the prevailing character of a neighbourhood.

2.19 Where basements and visible lightwells are not part of the prevailing character of a street, new lightwells should be discreet and not harm the architectural character of the building, or the character and appearance of the surrounding area, or the relationship between the building and the street. In situations where lightwells are not part of the established street character, the characteristics of the front garden or forecourt will help to determine the suitability of lightwells.

2.20 In plots where the depth of a front garden is quite long, basement lightwells are more easily concealed by landscaping and boundary treatments, and a substantial garden area can be retained providing a visual buffer from the street. In these situations new lightwells that are sensitively designed to maintain the integrity of the existing building may be acceptable, subject to other design requirements and environmental considerations.

2.21 In plots where the front garden is quite shallow, a lightwell is likely to consume much, or all, of the garden area. This will be unacceptable in streets where lightwells are not part of the established character and where the front gardens have an important role in the local townscape.

2.22 Excessively large lightwells will not be permitted in any garden space.

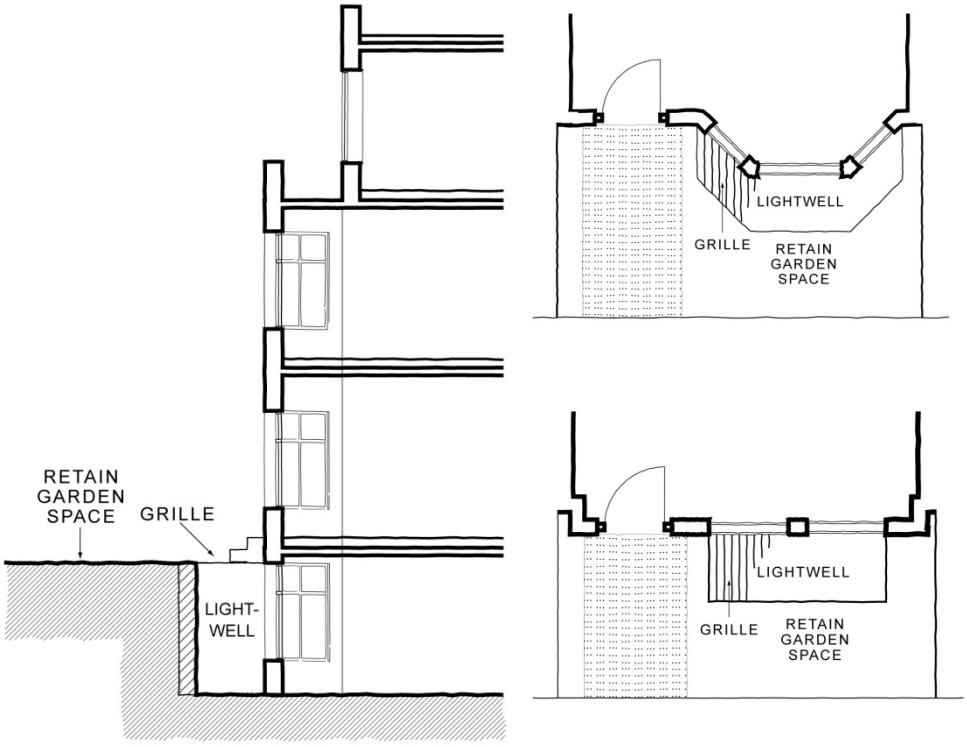
2.23 A lightwell to the side or rear of a property is often the most appropriate way to provide a means of providing light to a new or extended basement development, and can often provide a link to the rear garden. Lightwells to the side or rear of a property should be set away from the boundary to a neighbouring property.

Railings, grilles and other lightwell treatment

2.24 In order to comply with building regulation standards, light wells should be secured by either a railing (1,100mm high) or a grille. In gardens that front a street, railings can cause a cluttered appearance to the front of the property and can compete with the appearance of the front boundary wall, or obscure front windows. This is particularly the case in shallow gardens. Where front light wells are proposed, they should be secured by a grille which sits flush with the natural ground level, rather than railings (refer to **Error! Reference source not found.** on the following page). In certain publicly accessible locations grilles should be locked to prevent lightwells being misused for casual sleeping and drug use.

2.25 Railings will be considered acceptable where they form part of the established street scene, or would not cause harm to the appearance of the building.

Figure 1. Lightwells and railings



2.26 The lowering of the natural ground level to the rear of the property should be minimised as much as is practicable. It is recommended that the rear garden should be graded rather than secured by railings.

2.27 Where a basement extension under part of the front or rear garden is considered acceptable, the inclusion of skylights designed within the landscaping of a garden will not usually be acceptable, as illumination and light spill from a skylight can harm the appearance of a garden setting and cause light pollution.

3 Assessing the impact of basement development

3.1 The Council will only permit basements and other underground development where the applicant can demonstrate it will not cause harm to the built and natural environment and local amenity, including to the local water environment, ground conditions and biodiversity. Addressing these issues may require the submission of a variety of information to provide us with a basis for determining applications. The level of information required is defined by Policy DP27 Basements and Lightwells and will be commensurate with the scale, location and complexity of the scheme.

Basement impact assessments

3.2 This information must be contained within a Basement Impact Assessment (BIA) which is specific to the site and particular proposed development. Basement Impact Assessments should be submitted with the other details at planning application stage. The BIA will include the following stages:

- Stage 1 - Screening;
- Stage 2 - Scoping;
- Stage 3 - Site investigation and study;
- Stage 4 - Impact assessment; and
- Stage 5 - Review and decision making.

3.3 The purpose of a BIA is to enable the Council to 'assess whether any predicted damage to neighbouring properties and the water environment is acceptable or can be satisfactorily ameliorated by the developer' as stated in DP27.3.

3.4 Each of these stages is explained in full in this section. Please also refer to Chapter 6 of the Camden Geological, Hydrogeological and Hydrological Study, which is available on the Camden Council website. All the technical analysis and recommendations in this guidance are taken from the Study which should be treated as the evidence base and technical advice for this guidance and will be used when we are checking BIA reports.

3.5 We will expect a 'non technical summary' of the evidence that applicants have gathered against each stage of the BIA. This should be presented in a format which can be fully understood by those with no technical knowledge.

3.6 At each stage in the process the person(s) undertaking the BIA process should hold qualifications relevant to the matters being considered. We will only accept the qualifications set out in the following table:

Qualifications required for assessments

Surface flow and flooding	A Hydrologist or a Civil Engineer specialising in flood risk management and surface water drainage, with either: • The "CEng" (Chartered Engineer) qualification from the Engineering Council; or a Member of the Institution of Civil Engineers ("MICE"); or • The "C.WEM" (Chartered Water and Environmental Manager) qualification from the Chartered Institution of Water and Environmental Management.
Subterranean (groundwater) flow	A Hydrogeologist with the "CGeol" (Chartered Geologist) qualification from the Geological Society of London.
Land stability	A Civil Engineer with the "CEng" (Chartered Engineer) qualification from the Engineering Council and specialising in ground engineering; A Member of the Institution of Civil Engineers ("MICE") and a Geotechnical Specialist as defined by the Site Investigation Steering Group; or A Chartered Member of the Institute of Structural Engineers with some proof of expertise in engineering geology. With demonstrable evidence that the assessments have been made by them in conjunction with an Engineering Geologist with the "cGeol" (Chartered Geologist) qualification from the Geological Society of London.

A combination of these may be required to address a variety of site conditions.

Stage 1 - Screening

3.7 The first stage of the BIA is the identification of any matters of concern which should be investigated. Screening is a process of determining whether or not a full BIA is required. All basement proposals should be subjected to the screening stage of a BIA to identify the matters relevant to assessment of local flooding and/or neighbour amenity and structural risks.

3.8 In order to assist in identifying what issues are relevant to a proposed scheme we have developed a series of screening flow charts over the following pages of this guidance, covering three main issues:

- Groundwater flow (see Paragraphs 2.36 to 2.38);
- Land stability (see Paragraphs 2.39 to 2.42); and
- Surface flow and flooding (see Paragraphs 2.43 to 2.47).

3.9 We will expect applicants to identify how these issues impact on neighbouring properties and the natural environment.

3.10 At the screening stage the applicant will need to set out clearly why or why not a full BIA is required. This will need to include an assessment against the flowcharts below and be presented along with the information set out at the end of Paragraph 233 of the Camden Geological, Hydrogeological and Hydrological Study.

3.11 Where a respondent answers “yes” or “unknown” to any of the questions in the flowcharts these matters will need further investigation. “No” answers will require written justification.

Stage 2 - Scoping

3.12 The scoping stage of the BIA requires applicants to identify the potential impacts of the proposed scheme as set out in chapter 5 of the Camden Geological, Hydrogeological and Hydrological Study which are shown by the screening process to need further investigation. Applicants should use this stage to identify the potential impacts for each of the matters of concern identified in the previous screening stage, this may require some preliminary data collection and field work. Appendix F of the Camden Geological, Hydrogeological and Hydrological Study provides guidance on linking the potential impacts to the screening flowcharts. A conceptual ground model is often a useful of carrying out the scoping stage as it can include the known and suspected features on, below and adjacent to a proposed site. (refer to Section 6.3.3 and Figure 28 in the Camden Geological, Hydrogeological and Hydrological Study for further details and an example).

3.13 During the scoping stage the applicant should enter pre-consultation or set up a working group with local residents and amenity groups who may be impacted by a proposed basement in order to fully understand and address the concerns of local residents. The Council will expect consultation with local residents on all basement developments unless the proposed construction work is minimal and will have a negligible effect on the adjoining or nearby properties as evidenced by the applicant to the satisfaction of the Council.

3.14 The scoping stage should build on the information obtained for the screening stage. When doing work for scoping stage, it is mostly likely that there will need to be some works under Stage 3 of the BIA – Site investigation and study

Stage 3 – Site investigation and study

3.15 The third stage of the BIA – site investigation – is undertaken to develop an understanding of the site and its immediate surroundings. The degree of investigation will vary depending upon the matters of concern identified in the screening and scoping stages, and therefore will be dependent on the location of the proposed basement within the borough, its size and setting in relation to existing development on the site and its relationship to adjacent properties and nearby features of importance.

3.16 The BIA site investigation comprises several stages, including:

- Desk study, including site walkover;
- Field investigation, including intrusive investigation;
- Monitoring;
- Reporting; and
- Interpretation.

3.17 Each of these stages should reflect both the site of the proposed basement scheme and beyond the site boundary.

3.18 Section 7 of the Camden Geological, Hydrogeological and Hydrological Study sets out in further detail how this investigation should be carried out.

3.19 Appendix G of the Camden Geological, Hydrogeological and Hydrological Study provides typical contents lists for reporting these stages of the site investigation and we will be looking for submissions that contain comparable content.

Stage 4 – Impact assessment

3.20 This stage is concerned with evaluating the direct and indirect implications of the proposed project. Essentially this involves a comparison between the present situation (the baseline) with the situation as it would be with the basement in place (i.e. constructed). Therefore the BIA should describe, quantify and then aggregate the effects of the development on those attributes or features of the geological, hydrogeological and hydrological environment which have been identified (in the scoping stage) as being potentially affected. Section 7 of the Camden Geological, Hydrogeological and Hydrological Study provides more detail on what is required at this stage.

3.21 The recommendations in Section 7 on boreholes and trial pits set out the sort of thorough, up to date and professional methodologies of subsurface investigation and analysis, which the Council will expect. It is important to recognise as stated in Paragraph 287 and 288 of the Camden Geological, Hydrogeological and Hydrological Study that DP27 is particularly concerned with the potentially significant impact a development can have beyond the site boundary. Where permission is not given by adjacent landowners for structural surveys or subsurface investigations to be carried out, the undetermined structural conditions and ground conditions beyond the site boundary should be identified as a risk in the impact and should be assessed and mitigated against accordingly.

3.22 Hydrogeological processes are subject to seasonal and longer term cyclical influences. Measurements taken at one particular time may not indicate how conditions might be in one or six months from that time. Monitoring of groundwater levels in areas where it is more likely to be present over a period of time is therefore necessary. Please refer to paragraphs 291 to 294 of the Camden Geological, Hydrogeological and Hydrological Study for more detail on monitoring periods.

3.23 The BIA will comprise a factual report and an interpretative report. This is explained in more detail in Section 7 of the Camden Geological, Hydrogeological and Hydrological Study. The interpretative report will have three sections:

- detailed site geology;
- the geotechnical properties of the ground; and
- an engineering interpretation of the implications of the ground conditions for the development of the site.

3.24 Appendix G3 of the study sets this out in more detail from which it should be noted that it must contain details of the retaining wall design for the basement excavation. It is essential for the Council to make the assessment called for by DP27 and to be able to consider, if planning approval is to be given, how the terms of any planning conditions or planning agreements should be drafted.

3.25 The engineering interpretation will require calculations of predicted ground movements and structural impact to be provided. Examples of these calculations are given in appendix D of the Camden Geological, Hydrogeological and Hydrological Study. The sides of excavation always move to some extent no matter how they are supported. The movement will typically be both horizontal and vertical and will be influenced by the engineering properties of the ground, groundwater level and flow, the efficiency of the various support system employed during the underpinning and the efficiency or stiffness of any support frames used.

WATER INGRESS
Change to water flows and levels both above and below ground.

3.26 If the identified consequences are not acceptable, mitigation should be incorporated into the proposed scheme and the new net consequences determined. For example, where there is predicted structural damage to neighbouring property, or where water ingress to neighbouring gardens or properties is predicted to be damaging to residential amenity. Any proposed mitigation measures should be described in the BIA report with details of how they reduce and/or alter the impact of the proposed basement on the surrounding environment. Mitigation measures which may be included in basement development proposals include (but are not limited to):

- Controlled or adequate drainage;
- High permeability corridors;
- Underpinning of neighbouring structures; and
- Setting the basement in from property boundaries.

Burland Scale

3.27 Where a BIAs identifies risk of damage to properties by subsidence this risk should be described using the Burland Scale. The Burland Scale methodology has been adopted for projects internationally and has been used by the Building Research Establishment and the Institution of

Structural Engineers, London. The classification system of the scale is based on the ease or repair of visible damage. Subsidence is only one element in the many potential impacts assessed in a BIA and other methods will be employed when describing these other impacts.

3.28 In the Burland Scale the damage to properties caused by subsidence may be considered in three broad categories:

- (i) visual appearance or aesthetics,
- (ii) serviceability and function, and
- (iii) stability.

3.29 Burland Scale categories 0, 1, and 2 refer to (i) aesthetic damage, category 3 and 4 relate to (ii) serviceability and function, and 5 represents damage which relates to stability.

Figure 2. Burland Scale

Category of damage	Description of typical damage	Approximate crack width (mm)	Limiting tensile strain ε_{lim} (per cent)
0 Negligible	Hairline cracks of less than about 0.1 mm are classed as negligible	<0.1	0.0-0.05
1 Very slight	Fine cracks that can easily be treated during normal decoration. Perhaps isolated slight fracture in building. Cracks in external brickwork visible on inspection	<1	0.05-0.075
2 Slight	Cracks easily filled. Redecoration probably required. Several slight fractures showing inside of building. Cracks are visible externally and some repointing may be required externally to ensure weathertightness. Doors and windows may stick slightly.	<5	0.075-0.15
3 Moderate	The cracks require some opening up and can be patched by a mason. Recurrent cracks can be masked by suitable lining. Repointing of external brickwork and possibly a small amount of brickwork to be replaced. Doors and windows sticking. Service pipes may fracture. Weathertightness often impaired.	5-15 or a number of cracks > 3	0.15-0.3
4 Severe	Extensive repair work involving breaking-out and replacing sections of walls, especially over doors and windows. Windows and frames distorted, floor sloping noticeably. Walls leaning or bulging noticeably, some loss of bearing in beams. Service pipes disrupted.	15-25 but also depends on number of cracks	>0.3
5 Very severe	This requires a major repair involving partial or complete rebuilding. Beams lose bearings, walls lean badly and require shoring. Windows broken with distortion, Danger of instability.	Usually > 25 but depends on number of cracks	

Damage Category Chart (CIRIA C580)

3.30 In line with policy DP27 the Council will ensure that harm is not caused to neighbouring properties by basement development. Burland states that it is a major objective of design and construction to maintain a level of risk to buildings no higher than category 2, where there is only risk of aesthetic damage to buildings (see Burland, J. “The assessment of the

risk of damage to buildings due to tunnelling and excavations", Imperial College London, 1995). However the Council considers that neighbouring residential properties are particularly sensitive to damage, where relatively minor internal damage to a person's home can incur cost and considerable inconvenience to repair and redecorate. The Council therefore will expect BIAs to provide mitigation measures where any risk of damage is identified of Burland category 1 'very slight' or higher. Following inclusion of mitigation measures into the proposed scheme the changes in attributes are to be re-evaluated and new net consequences determined.

Cumulative impacts of basement development

3.31 The cumulative effect of the incremental development of basements in close proximity, particularly when these are large, can potentially create a significant impact. Therefore Basement Impact Assessments must identify neighbouring basements and make the assessment considering all nearby basements. Both existing and planned (with planning permission) underground development must be included in this assessment. To ensure cumulative impacts are considered Basement Impact Assessments must respond to the issues raised in paragraph 168 to 174 of the Camden Geological, Hydrogeological and Hydrological Study.

Stage 5 – Review and decision making

3.32 The final stage of the BIA is undertaken by LB Camden and consists of an audit of the information supplied by the applicant and a decision on the acceptability of the impacts of the basement proposal. Section 8 of the Camden Geological, Hydrogeological and Hydrological Study outlines in more detail what Council officers will be looking for, as a minimum.

Independent verification of basement impact assessments

3.33 In order to provide the Council with greater certainty over the potential impacts of proposed basement development, we will expect an independent verification of Basement Impact Assessments to be funded by the applicant. Independent verification will be required in the following circumstances:

- Where a scheme requires applicants to proceed beyond the Screening stage of the Basement Impact Assessment (i.e. where a matter of concern has been identified which requires the preparation of a full Basement Impact Assessment);
- Where the proposed basement development is located within an area of concern regarding slope stability, surface water or groundwater flow; or
- For any other basement applications where the Council feels that independent verification would be appropriate (e.g. where conflicting evidence is provided in response to a proposal).

3.34 This independent verification will be commissioned by the Council.

Basement construction plans

3.35 In some circumstances the Council may require a basement construction plan secured through a Section 106 Agreement. The Council may require provision of a basement construction plan when the proposed development involves excavation or construction that if improperly undertaken could cause damage to neighbouring properties. In most instances this will be on larger and more complex basement schemes and where excavation is close to neighbouring buildings and structures or involve listed buildings.

3.36 A basement construction plan sets out detailed information to demonstrate how the design and construction of the basement has been prepared in order to minimise the impacts on neighbouring properties and the water environment, and provides a programme of measures to be undertaken by the owner to with the objective of minimise the impact on the structural integrity of neighbouring properties and sensitive structures such as the public highway.

3.37 A basement construction plan should contain:

- a method statement detailing the proposed method of ensuring the safety and stability of neighbouring properties throughout the construction phase including temporary works sequence drawings,
- appropriate monitoring including details of risk assessment thresholds and contingency measures,
- detail demonstrating that the basement has been designed using evidence of local factors including ground conditions, the local water environment and the structural condition of neighbouring properties, in order to minimise the impact on them.
- provision to retain at the property throughout the construction phase a suitably qualified engineer from a recognised relevant professional body to monitor, inspect, and approve the permanent and temporary basement construction works, and
- measures to ensure the ongoing maintenance and upkeep of the basement.

3.38 The basement construction plan should ensure that:

- a suitably qualified and experienced engineer has agreed the design,
- the modelling of ground conditions and water environment is appropriately conservative; and
- best endeavours are undertaken to prevent any impact on the structural integrity of the neighbouring properties.

3.39 Prior to final submission to the Council for approval, basement construction plans will need to be certified by a suitably qualified and experienced engineer who is independent of the design team. The certification will need to be funded by the applicant.

Principal impacts of basements in Camden

3.40 This section sets out the principal impacts that basement development can have upon the built and natural environment, and neighbour amenity. Each of these impacts should be considered when undertaking the Basement Impact Assessment, particularly stages 1 and 2: Screening and Scoping (see Paragraphs 2.12 to 2.19 of this report).

GROUNDWATER FLOW
The movement of water that travels and seeps through soil and rock underground.

HYDROGEOLOGY
The study of groundwater moving through soils and rock formations

Groundwater flow

3.41 Basement development may affect groundwater flows, and even though the displaced water will find a new course around the area of obstruction this may have other consequences for nearby properties, trees, etc. Given the nature of the ground in many higher parts of the borough, or those where streams once flowed, basement development may have the potential to divert or displace groundwater which can cause a rise in groundwater and cause flooding, upstream of the development, whilst immediately downstream the groundwater level may decline, which may affect wells, springs and ponds. Figure 23 of the Camden Geological, Hydrogeological and Hydrological Study sets out diagrammatically the potential impacts.

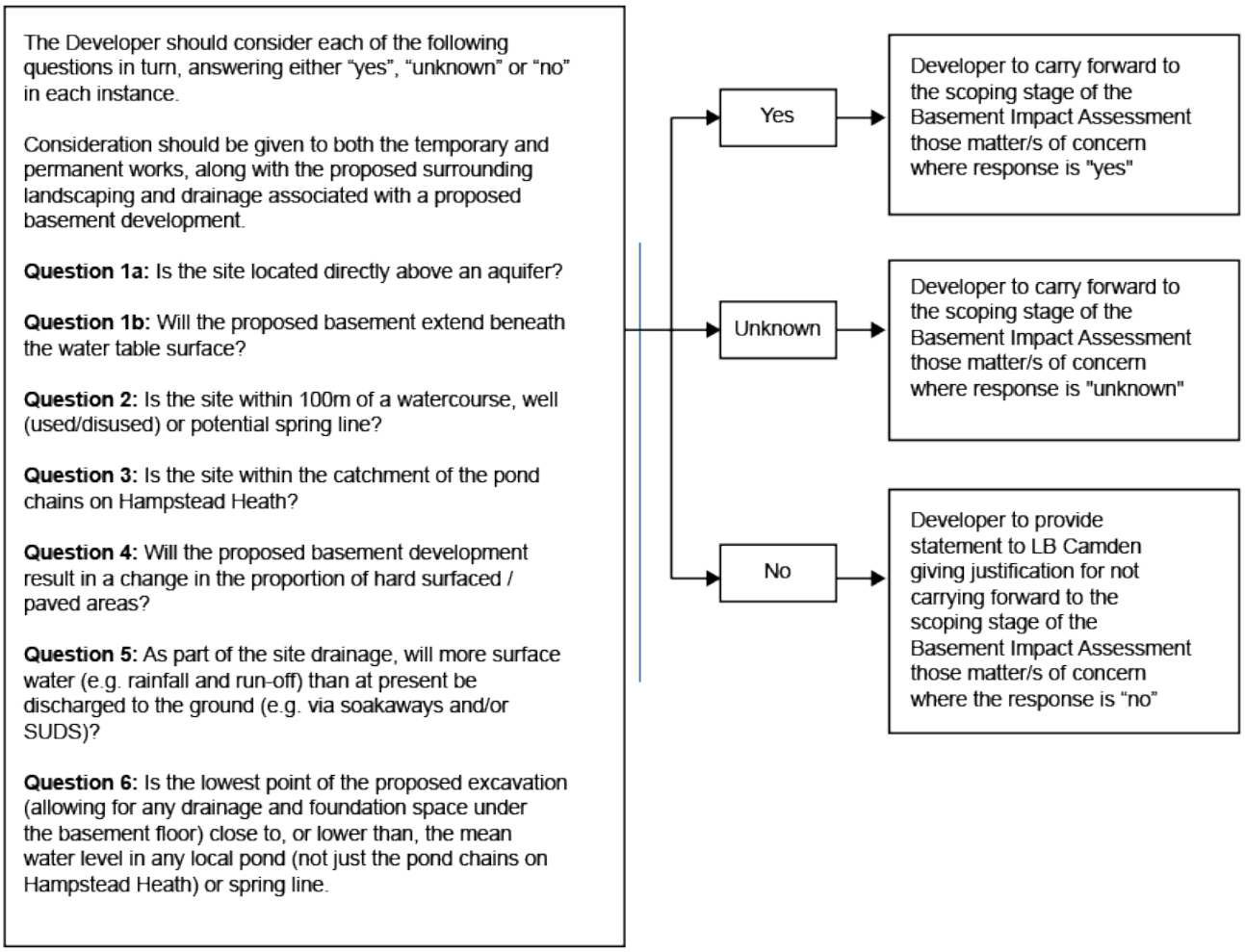
3.42 Applicants should consider the flowchart below to determine whether or not to carry forward to the scoping stage of the Basement Impact Assessment. Where certain factors are present or proposed, for example geological setting, proximity to Hampstead Heath Ponds catchment, or an intention to undertake dewatering as part of the site works, this flowchart will identify that a hydrogeological assessment will be required. If this is the case, it should be prepared by:

- A Hydrologist with the “CGeol” (Chartered Geologist) qualification from the Geological Society of London; and
- A Fellow of the Geological Society of London.

3.43 The Camden Geological, Hydrogeological and Hydrological Study contains a number of maps and plans relevant to groundwater flow, including:

- Figures 2 and 3 showing geology for the whole borough;
- Figure 4 which shows the geology for Hampstead Heath;
- Figure 5 showing the geology for the south of the borough;
- Figure 11 which maps the water courses within and around the borough; and
- Figure 14 which identifies Hampstead Heath surface water catchments and drainage.

Figure 3. Subterranean (ground water) flow screening chart



SUBTERRANEAN (GROUND WATER) FLOW SCREENING CHART NOTES AND SOURCES OF INFORMATION

Question 1: In LB Camden, all areas where the London Clay does not outcrop at the surface are considered to be an aquifer. This includes the River Terrace Deposits, the Claygate Member and the Bagshot Formation. The location of the geological strata can be established from British Geological Survey maps (e.g. 1:50,000 and 1:10,000 scale). Note that the boundaries are indicative and should be considered to be accurate to ±50m at best.

Additionally, the Environment Agency (EA) "Aquifer Designation Maps" can be used to identify aquifers. These can be found on the "Groundwater maps" available on the EA website (www.environment-agency.gov.uk) follow "At home & leisure" > "What's in Your Backyard" > "Interactive Maps" > "Groundwater". Knowledge of the thickness of the geological strata present and the level of the groundwater table is required. This may be known from existing information (for example nearby site investigations), however, it may not be known in the early stages of a project. Determination of the water table level may form part of the site investigation phase of a BIA.

Question 2: Watercourses, wells or spring lines may be identified from the following sources:

- Local knowledge and/or site walkovers
- Ordnance Survey maps (e.g. 1:25,000 or 1:10,000 scale). If features are marked (they are not always) the following symbols may be present: W; Spr; water is indicated by blue colouration. (check the key on the map being used)
- British Geological Survey maps (e.g. 1:10,000 scale, current and earlier editions). Current maps will show indicative geological strata boundaries which are where springs may form at the ground surface; of relevance are the boundary between the Bagshot Formation with the Claygate Member and the Claygate Member with the London Clay. Note that the boundaries are indicative should be considered to be accurate to ±50m. Earlier geological maps (e.g. the 1920's 1:10560 scale) maps show the location of some wells.
- Aerial photographs
- "Lost Rivers of London" by Nicolas Barton, 1962. Shows the alignment of rivers in London and their tributaries.
- The British Geological Survey (BGS) GeoIndex includes "Water Well" records. See www.bgs.ac.uk and follow "Online data" > "GeoIndex" > "Onshore GeoIndex".
- The location of older wells can be found in well inventory/catalogue publications such as "Records of London Wells" by G. Barrow and L. J. Wills (1913) and "The Water Supply of the County of London from Underground Sources" by S Buchan (1938).
- The Environment Agency (EA) "Source Protection Zone Maps" can be used to identify aquifers. These can be found on the "Groundwater maps" available on the EA website (www.environment-agency.gov.uk) follow "At home & leisure" > "What's in Your Backyard" > "Interactive Maps" > "Groundwater".
- The EA hold records of licensed groundwater abstraction boreholes. LB Camden is within the North East Area of the
- Thames Region. Details can be found on the EA website.
- LB Camden Environmental Health department may hold records of groundwater wells in the Borough.

Where a groundwater well or borehole is identified, it will be necessary to determine if it is extending into the Lower Aquifer (Chalk) or the Upper Aquifer (River Terrace Deposits, Bagshot Formation, Claygate Member etc). It is water wells extending into the Upper Aquifer which are of concern with regard to basement development.

Question 3: Figure 14 in the attached study, (prepared using data supplied by the City of London Corporation's hydrology consultant, Haycocks Associates) shows the catchment areas of the pond chains on Hampstead Heath.

Question 4: This will be specific to the proposed development and will be a result of the proposed landscaping of areas above and surrounding a proposed basement.

Question 5: This will be specific to the proposed development and will be a result of the chosen drainage scheme adopted for the property.

Question 6: The lowest point will be specific to the proposed development. Knowledge of local ponds may be taken from

- Local knowledge and/or site walkovers
- Ordnance Survey maps (e.g. 1:25,000 or 1:10,000 scale). If features are marked (they are not always) the following symbols may be present: W; Spr; water is indicated by blue colouration. (check the key on the map being used)
- Aerial photographs

Land stability

LAND STABILITY
Steep areas and a change in geological layers can have vulnerable land stability.

3.44 The Council will expect all basement development applications to provide evidence that the structural stability of adjoining or neighbouring buildings is not put at risk. In the first instance applicants should consider the screening flowcharts to determine whether to progress to the scoping stage of the Basement Impact Assessment. If so, it should be prepared by:

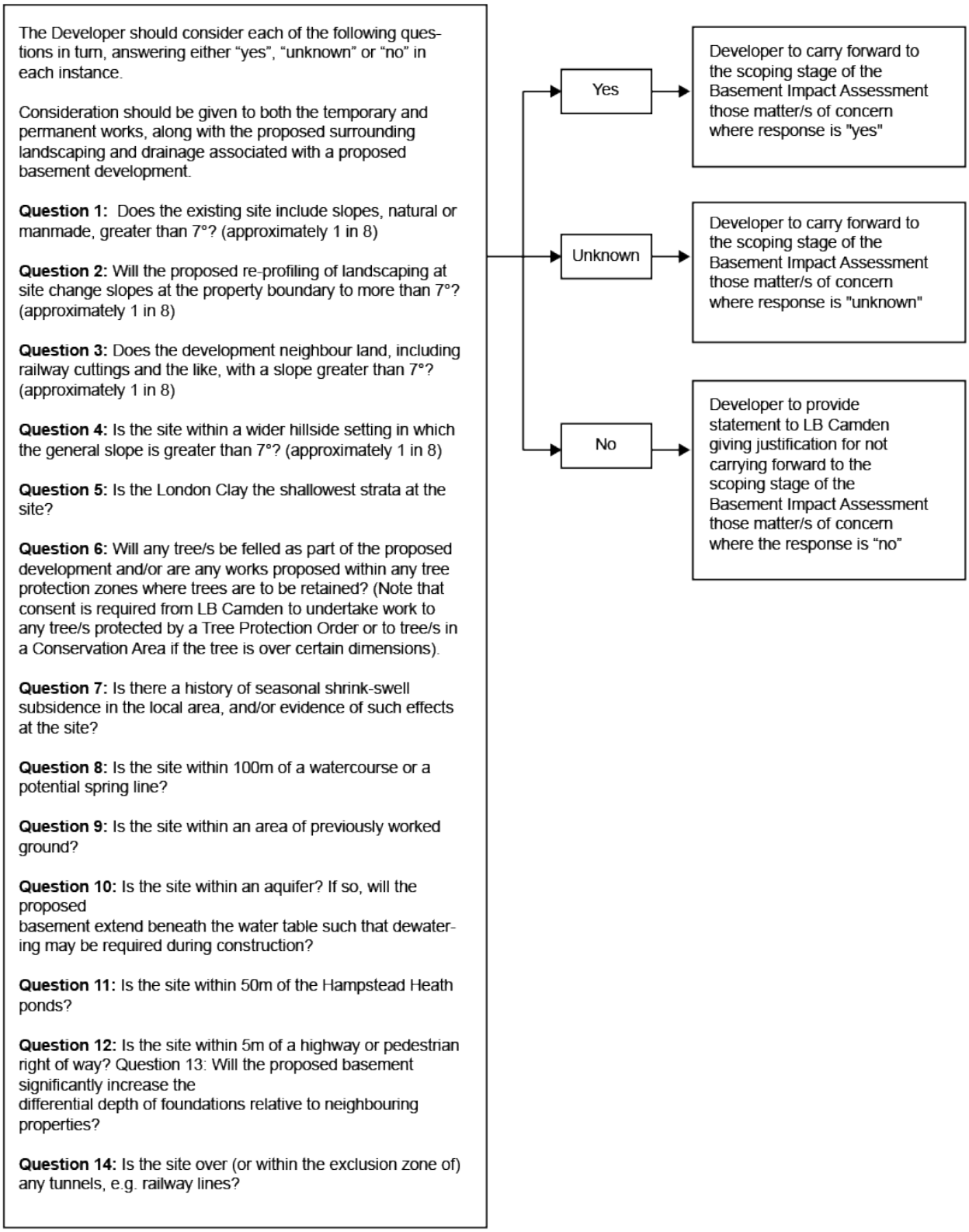
- A Civil Engineer with the "CEng" (Chartered Engineer) qualification from the Engineering Council and specialising in ground engineering;
- A Member of the Institution of Civil Engineers ("MICE") and a Geotechnical Specialist as defined by the Site Investigation Steering Group; or
- A Chartered Member of the Institute of Structural Engineers with some proof of expertise in engineering geology, with demonstrable evidence that the assessments have been made by them in conjunction with an Engineering Geologist with the "cGeol" (Chartered Geologist) qualification from the Geological Society of London.

3.45 For listed buildings, or properties adjoining or adjacent to listed buildings, we will require a structural stability report before we validate applications.

3.46 The Camden Geological, Hydrogeological and Hydrological Study contains a number of maps and plans relevant to land stability, including:

- Figures 2 and 3 showing geology for the whole borough;
- Figure 4 which shows the geology for Hampstead Heath;
- Figure 5 showing the geology for the south of the borough;
- Figure 11 which maps the water courses within and around the borough;
- Figure 16 which is a land stability slope angle map; and
- Figure 17 which outlines areas of significant landslide potential.

Figure 4. Slope stability screening flowchart



SLOPE STABILITY SCREENING FLOWCHART
NOTES AND SOURCES OF INFORMATION

Question 1, 3 & 4: The current surface slope can be determined by a site topographical survey. Slopes may be estimated from

1:25,000 OS maps, however in many urban areas such maps will not show sufficient detail to determine surface slopes on a property-by-property scale, just overall trends. With regard to slopes associated with infrastructure, e.g. cuttings, it should be ensured that any works do not impact on critical infrastructure.

Question 2: This will be specific to the proposed development and will be a result of the proposed landscaping of areas above and surrounding a proposed basement.

Question 5: The plan footprint of the outcropping geological strata can be established from British Geological Survey maps (e.g. 1:50,000 and 1:10,000 scale). Note that the boundaries are indicative and should be considered to be accurate to ±50m at best.

Question 6: this is a project specific determination, subject to relevant Tree Preservation Orders etc.

Question 7: this can be assessed from local knowledge and on-site observations of indicative features, such as cracking, Insurance firms may also give guidance, based on post code. Soil maps can be used to identify high-risk soil types. Relevant guidance is presented in BRE Digest 298 "Low-rise building foundations: the influence of trees in clay soils" (1999); BRE Digest 240 "Low-rise buildings on shrinkable clay soils: part 1" (1993); and BRE Digest 251 "Assessment of damage in low- rise buildings" (1995).

Question 8: Watercourses or spring lines may be identified from the following sources:

- Local knowledge and/or site walkovers
- Ordnance Survey maps (e.g. 1:25,000 or 1:10,000 scale). If features are marked (they are not always) the following symbol may be present "Spr"; water is indicated by blue colouration. (check the key on the map being used)
- Geological maps will show indicative geological strata boundaries which are where springs may form at the ground surface; of relevance are the boundary between the Bagshot Formation with the Claygate Member and the Claygate Member with the London Clay. Note that the boundaries are indicative should be considered to be accurate to ±50m at best. British Geological Survey maps (e.g. 1:10,000 scale, current and earlier editions).
- Aerial photographs
- "Lost Rivers of London" by Nicolas Barton, 1962. Shows the alignment of rivers in London and their tributaries.

Question 9: Worked ground includes, for example, old pits, brickyards, cuttings etc. Information can be gained from local knowledge and/or site walkovers, and from historical Ordnance Survey maps (at 1:25,000 or 1:10,000 scale, or better) and British Geological Survey maps (at 1:10,000 scale, current and earlier editions). Earlier geological maps (e.g. the 1:10560 scale series from the 1920s) include annotated descriptions such as "old pits", "formerly dug", "brickyard" etc.

Question 10: In LB Camden, all areas where the London Clay does not outcrop at the surface are considered to be an aquifer.

This includes the River Terrace Deposits, the Claygate Member and the Bagshot Formation. The general footprint of the geological strata can be assessed from British Geological Survey maps (e.g. 1:50,000 and 1:10,000 scale). Note that the boundaries are indicative and should be considered to be accurate to ±50m at best.

The Environment Agency (EA) Aquifer Designation Maps can be used to identify aquifers. These are available from the EA website (www.environment-agency.gov.uk), by clicking on 'At home & leisure' > 'What's in Your Backyard' > 'Interactive Maps' > 'Groundwater'.

Details are required of the thickness of the geological strata present and the level or depth of the groundwater table. This may be known from existing information (for example nearby site investigations); however, it may not be known in the early stages of a project. Determination of the water table level may form part of the site investigation phase of a BIA and may require specialist advice to answer. Depth of proposed development is project specific.

Question 11: From local knowledge and/or site walkovers, and from Ordnance Survey maps (e.g. 1:25,000 or 1:10,000 scale). In relation to the stability and integrity of the pond structures and dams, the guidance of a Panel Engineer should be sought. (Details of Panel Engineers can be found on the Environment Agency website: http://www.environment-agency.gov.uk/ business/sectors/64253.aspx). Duty of care needs to be undertaken during any site works in the vicinity of the ponds.

Question 12: From local knowledge and/or site walkovers, and from Ordnance Survey maps (e.g. 1:25,000 or 1:10,000 scale). Any works should not impact on critical infrastructure.

Question 13: From local knowledge and/or site walkovers. May find some details on neighbouring properties from searches of LB Council databases, e.g. planning applications and/or building control records.

Question 14: From local knowledge and/or site walkovers, from Ordnance Survey maps (e.g. 1:25,000 or 1:10,000 scale) and directly from those responsible for tunnels (e.g. TfL or Network Rail). Any works should not impact on critical infrastructure.

Surface flow and flooding

3.47 While nowhere in the borough is identified by the Environment Agency as being flood prone from rivers or the sea, there are still parts that are identified as being subject to localised flooding from surface water. This is caused during times of heavy rainfall when the local combined sewer system is unable to deal with the volume and rate of flow. Detailed modelling suggests that areas of West Hampstead, Hampstead Town and South Hampstead are at a higher risk of surface water floods, with some risk in Highgate and Gospel Oak.

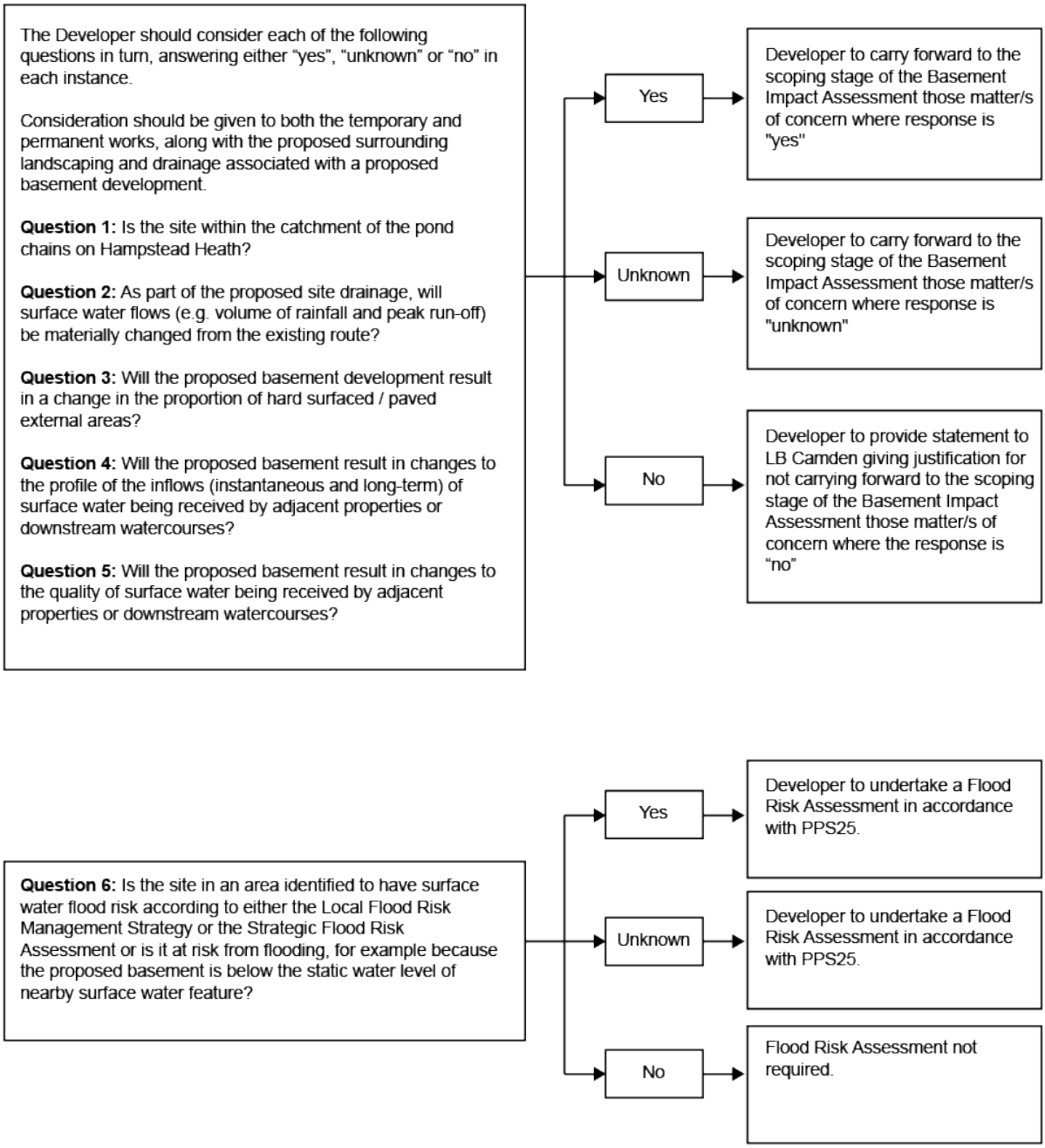
3.48 All applications for a basement extension within flood risk areas identified in the LB Camden Flood Risk Management Strategy or in any future updated Strategic Flood Risk Assessment will be expected to include a Flood Risk Assessment. In line with Policy DP27 in Camden Development Policies, the Council will not allow habitable rooms and other sensitive uses for self contained basement flats and other underground structures in areas at risk of flooding.

3.49 Applicants should consider the flowchart below to determine whether to proceed to the scoping stage of the Basement Impact Assessment and whether a Flood Risk Assessment should be undertaken as part of this. For surface flow and flooding issues the Basement Impact Assessment should be undertaken by a Hydrologist or a Civil Engineer specialising in flood risk management and surface water drainage, with either:

- The “CEng” (Chartered Engineer) qualification from the Engineering Council; or a Member of the Institution of Civil Engineers (“MICE); or
- The “C.WEM” (Chartered Water and Environmental Manager) qualification from the Chartered Institution of Water and Environmental Management.

3.50 Figure 14 within the Camden Geological, Hydrogeological and Hydrological Study identifies Hampstead Heath surface water catchments and drainage.

Figure 5. Surface flow and flooding screening flowchart



SURFACE FLOW AND FLOODING SCREENING FLOWCHART NOTES AND SOURCES OF INFORMATION

Question 1: Figure 14 in the Camden geological, hydrogeological and hydrological study (prepared using data supplied by the City of London Corporation's hydrology consultant, Haycocks Associates) shows the catchment areas of the pond chains on Hampstead Heath

Question 2: This will be specific to the proposed development and will be a result of the proposed landscaping of areas above and surrounding a proposed basement. The developer should provide documentation of discussion with Thames Water to confirm that the sewers have capacity to receive any increased wastewater flows.

Question 3: This will be specific to the proposed development and will be a result of the chosen drainage scheme adopted for the property

Question 4: This will be specific to the proposed development and will be a result of the proposed landscaping and chosen drainage scheme adopted for the property. SUDS will be required to compensate any increases in peak flow.

Question 5: This will be specific to the proposed development and will be a result of the proposed landscaping and chosen drainage scheme adopted for the property. SUDS will be required to compensate any increases in peak flow.

Question 6: The principles outlined in PPS25 should be followed to ensure that flood risk is not increased.

3.51 Basement development should not displace ground water or surface water flow so it causes flooding on nearby sites or those further away. The Council will require an adequate drainage plan and has a preference for the use of Sustainable Urban Drainage Systems (SUDS). Only where this cannot be achieved should surface/ground water be discharged to combined sewers (refer to the chapter on water efficiency in CPG3 Sustainability and policy DP23 Water).

SUSTAINABLE URBAN DRAINAGE SYSTEMS (SUDS)

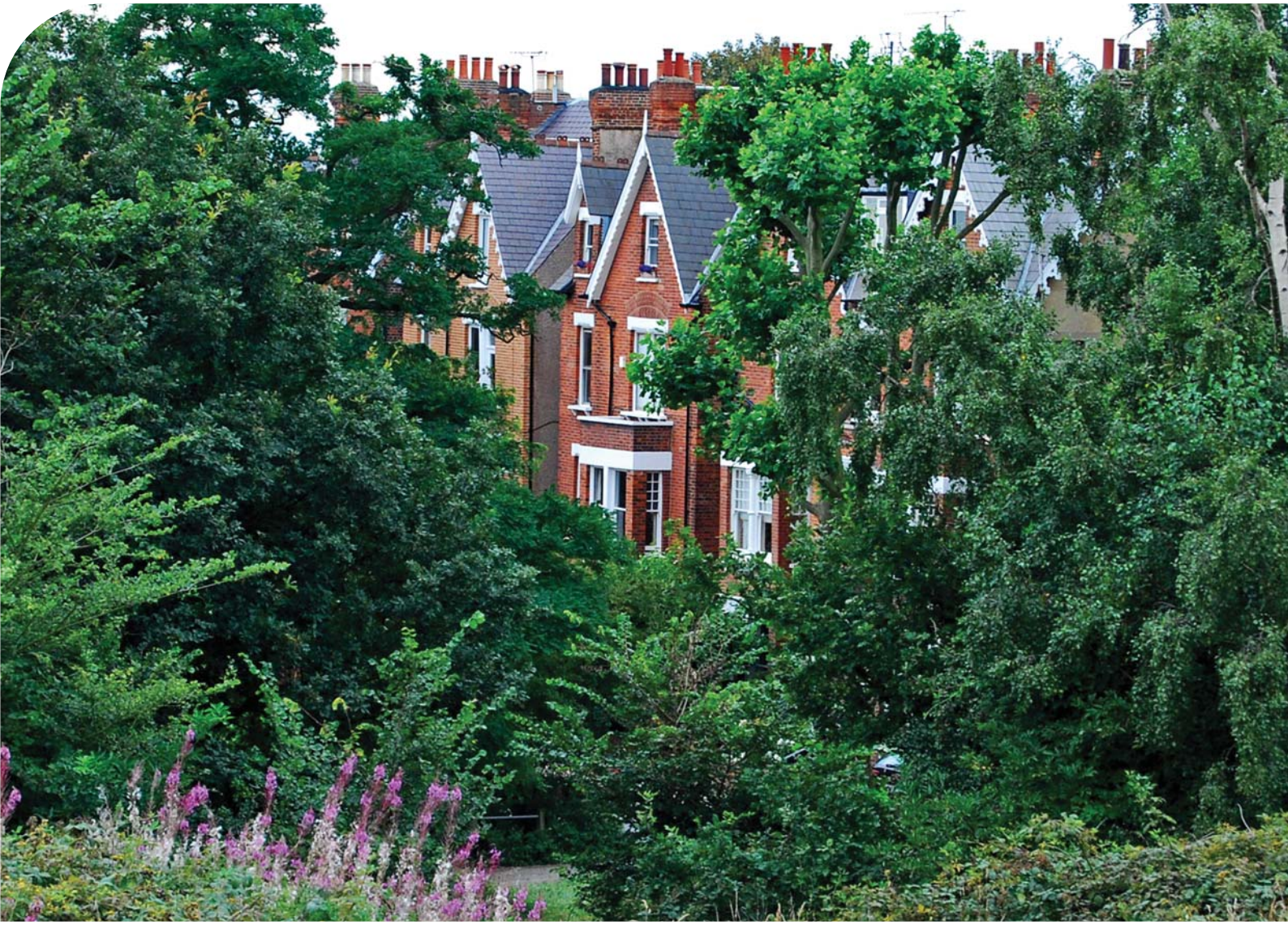
Low environmental impact approaches to drain away dirty and surface water run-off through collection, storage, and cleaning before allowing it to be released slowly back into the environment, thereby preventing flooding, pollution and contamination of groundwater.

Camden Planning Guidance

Amenity

CPG 6

London Borough of Camden



Camden

CPG6 Amenity

1 Introduction

What is Camden Planning Guidance?

1.1 We have prepared this guidance to support the policies in our Local Development Framework (LDF). It is therefore consistent with the Camden Core Strategy and Development Policies, and is a formal Supplementary Planning Document (SPD) which is an additional "material consideration" in planning decisions. This guidance will replace Camden Planning Guidance 2006, updating advice where appropriate and providing new guidance on matters introduced or strengthened in the LDF.

1.2 Camden Planning Guidance covers a range of topics (such as design, housing, sustainability and planning obligations) and all of sections should be read in conjunction with, and within the context of, Camden's other LDF documents.

Amenity in Camden

1.3 A key objective of the Camden Core Strategy is to sustainably manage growth so that it avoids harmful effects on the amenity of existing and future occupiers and to nearby properties.

What does this guidance cover?

1.4 This guidance provides information on all types of amenity issues within the borough and includes the following sections:

1. Air quality
2. Contaminated land
3. Noise and vibration
4. Artificial light
5. Daylight and sunlight
6. Overlooking, privacy and outlook
7. Construction management plans
8. Access for all
9. Wind and micro-climate
10. Open space, outdoor sport and recreation facilities

1.5 This guidance supports the following Local Development Framework policies:

Camden Core Strategy

- CS5 - Managing the impact of growth and development
- CS15 - Protecting and improving our parks and open spaces & encouraging biodiversity
- CS16 - Improving Camden's health and well-being

Camden Development Policies

- DP26 - Managing the impact of development on occupiers and neighbours
- DP28 - Noise and vibration
- DP31 - Provision of, and improvements to, public open space and outdoor sport and recreation facilities
- DP32 - Air quality and Camden's Clear Zones

4 Noise and vibration

KEY MESSAGES:

We will ensure that noise and vibration is controlled and managed to:

- Limit the impact of existing noise and vibration sources on new development; and
- Limit noise and vibration emissions from new development.

4.1 The impact of noise and vibration can have a major affect on amenity and health and can severely affect people's quality of life.

4.2 Policy *DP28 – Noise and Vibration* of the Camden Development Policies aims to ensure that noise and vibration is controlled and managed. It sets out the Council's thresholds for noise and vibration and goes beyond the thresholds set out in Planning Policy Guidance 24: Planning and noise (see below). DP28 contains noise/vibration thresholds for the day, evening and night.

How can the impact of noise and vibration be minimised?

4.3 The main sources of noise and vibration in Camden are generated from:

- Road traffic;
- Railways;
- Industrial uses;
- Plant and mechanical equipment;
- Entertainment uses (such as bars and nightclubs); and
- Building sites.

4.4 For details on how to manage noise and vibration from building sites see section 8 on Construction management plans.

Ways to minimise the impact of noise on your development

Design

- Locating noise sensitive areas/rooms away from the parts of the site most exposed to noises;
- Creating set backs;
- Designing the building so its shape and orientation reflect noise and protect the most sensitive uses;
- Stacking similar rooms (such as kitchens and living rooms) above each other; and
- Positioning non-residential uses closer to the noise source in mixed use developments.

Built fabric

- Insulating and soundproofing doors, walls, windows, floors and ceilings;
- Sealing air gaps around windows;
- Double glazing;
- Including architectural fins (where appropriate); and
- Laminated glass.

Landscaping and amenity areas

- Incorporating planting, landscaping, fencing/barriers and solid balconies to reflect sound.

4.5 Our preference for controlling noise:

- Begins with attempting to reduce noise at its source;
- Then to separate the development (or at least the sensitive parts e.g. habitable rooms) from the source or to use noise barriers; and

- Finally construction materials such as acoustic glazing should be used.

4.6 When you consider measures to minimise noise and vibration you also need to take into account our policies on design and crime prevention. You should consider the implications of noise and vibration at the beginning of the design process to enable prevention or mitigation measures to be designed into the scheme. Poorly designed schemes will not be acceptable.

4.7 Proposals will be expected to include appropriate attenuation to alleviate or mitigate the impact of noise and vibrations to an acceptable level, as set out in policy *DP28 – Noise and vibration* of the Camden Development Policies. Where appropriate, the Council will consider the cumulative impact of noise sources (for example, air conditioning units).

4.8 Everyday domestic activities can also generate noise, e.g. communal entrances and roof terraces. Sufficient sound insulation must be provided between dwellings to prevent the transmission of noise between them, particularly in conversions where new partition walls are often deficient in terms of insulation.

Ways to mitigate noise emitted by your development

Engineering

- Reducing the noise emitted at its point of generation (e.g. by using quiet machines and/or quiet methods of working);
- Containing the noise generating equipment (e.g. by insulating buildings which house machinery and/or providing purpose-built barriers around the site); and
- Protecting any surrounding noise-sensitive buildings (e.g. by improving sound insulation in these buildings and/or screening them by purpose-built barriers).

Layout

- Ensuring an adequate distance between source and noise-sensitive buildings or areas; and
- Screening by natural barriers, buildings, or non-critical rooms in the development.

Administrative

- Limiting the operating time of the source;
- Restricting activities allowed on the site; and
- Specifying an acceptable noise limit.

4.9 If your proposal could result in noise and vibration that would cause an unacceptable impact to nearby uses or occupiers, or proposes sensitive uses near a source of noise or vibration and cannot be adequately attenuated then planning permission is likely to be refused.

Developments will be assessed against the thresholds set out in policy DP28.

How will the Council manage the impact of noise and vibration?

4.10 Detailed acoustic/noise and vibration information in the form of a report will be required if your development proposes:

- The installation of plant, ventilation or air conditioning equipment;
- A use that will create significant noise (e.g. new industry, nightclub)
- A noise-sensitive development in an area where existing noise sources are present (e.g. an existing industrial site, busy road, railway line);
- A use that will generate a significant amount of traffic.

Noise sensitive developments
Those developments located near sources of noise, including housing, schools and hospitals as well as offices, workshops and open spaces.

4.11 The list above is a guide only and you may need to provide noise and vibration information for other developments depending on the circumstances of the site or proposal.

4.12 The appropriate amount and detail of information required will depend on the specific circumstances of your proposal. At a minimum you will be expected to provide the following information to support your application:

- Description of the proposal;
- Description of the site and surroundings, a site map showing noise and vibration sources, measurement locations and noise receivers;
- Background noise levels;
- Details of instruments and methodology used for noise measurements (including reasons for settings and descriptors used, calibration details);
- Details of the plant or other source of noise and vibration both on plan and elevations and manufacturers specifications;
- Noise or vibration output from proposed plant or other source of noise and vibration, including:
  - Noise or vibration levels;
  - Frequency of the output;
  - Length of time of the output;
  - Features of the noise or vibration e.g. impulses, distinguishable continuous tone, irregular bursts;
- Manufacturers' specification of the plant, supporting structure, fixtures and finishes;

- Location of neighbouring windows (and use if applicable);
- Details of measures to mitigate noise or fume emissions and vibration;
- Details of any associated work including acoustic enclosures and/or screening;
- Cumulative noise levels of all the proposed and existing units;
- Hours/days of operation.

4.13 Where appropriate the Council will seek a legal agreement to control or reduce noise levels where this is unlikely to be met through the use of a condition attached to a planning permission.

Further information

PPG24	Planning Policy Guidance Note 24: Planning and Noise provide Government guidance on noise. This guidance defines four Noise Exposure Categories (A-D) and outlines what should be done if your proposal falls into one of these categories. Advice is also provided on how to address noise issues and secure amelioration methods through the planning system. www.communities.gov.uk/publications/planningandbuilding/ppg24
DEFRA	The Department of Food, Environment and Rural Affairs provide a number of publications on noise and noise related issues. www.defra.gov.uk
Camden Council website	Camden's Environmental Health web pages provide strategic information on noise in Camden including the results of monitoring that has taken place www.camden.gov.uk/noise Also see *Camden's Guide for Contractors working in Camden* on the Camden website.
The Mayor's Ambient Noise Strategy	This provides details on the Mayor of London's approach to reducing noise in London. http://legacy.london.gov.uk/mayor/strategies/noise/docs/noise_strategy_all.pdf

6 Daylight and sunlight

KEY MESSAGES:

- We expect all buildings to receive adequate daylight and sunlight.
- Daylight and sunlight reports will be required where there is potential to reduce existing levels of daylight and sunlight.
- We will base our considerations on the Average Daylight Factor and Vertical Sky Component.

6.1 Access to daylight and sunlight is important for general amenity, health and well-being, for bringing warmth into a property and to save energy from reducing the need for artificial lighting and heating. The Council will carefully assess proposals that have the potential to reduce daylight and sunlight levels for existing and future occupiers.

6.2 This guidance relates to:

- Camden Core Strategy policy CS5 - *Managing the Impact of Growth and Development*;
- Core Strategy policy CS14 - *Promoting high quality places and conserving our heritage*; and
- Policy DP26 – *Managing the impact of development on occupiers and neighbours* of the Camden Development Policies.

DP26 sets out how the Council will protect the quality of life of building occupiers and neighbours by only granting permission for development that does not cause harm to amenity.

When will a daylight/sunlight report be required?

6.3 The Council expects that all developments receive adequate daylight and sunlight to support the activities taking place in that building.

6.4 A daylight and sunlight report should assess the impact of the development following the methodology set out in the most recent version of Building Research Establishment's (BRE) "Site layout planning for daylight and sunlight: A guide to good practice". Reports may be required for both minor and major applications depending on whether a proposal has the potential to reduce daylight and sunlight levels. The impact will be affected by the location of the proposed development and its proximity to, and position in relation to, nearby windows.

WHAT DOES THE COUNCIL REQUIRE?

The Council will require a daylight and sunlight report to accompany planning applications for development that has the potential to reduce levels of daylight and sunlight on existing and future occupiers, near to and within the proposal site.

Daylight and sunlight reports should also demonstrate how you have taken into consideration the guidance contained in the BRE document on passive solar design; and have optimised solar gain. Please refer to the BRE guidance on daylight and sunlight.

6.5 While we strongly support the aims of the BRE methodology for assessing sunlight and daylight we will view the results flexibly and where appropriate we may accept alternative targets to address any special circumstances of a site. For example, to enable new development to respect the existing layout and form in some historic areas. This flexible approach is at the Council's discretion and any exception from the targets will assessed on a case by case basis.

Daylight

6.6 We will aim to minimise the impact of the loss of daylight caused by a development on the amenity of existing occupiers and ensure sufficient daylight to occupiers of new dwellings taking in account overall planning and site considerations. If your proposal will have an unreasonable impact on amenity the planning application will be refused. When assessing daylight issues, we will use the guidelines and methods contained in the BRE's *Site layout planning for daylight and sunlight: A guide to good practice*.

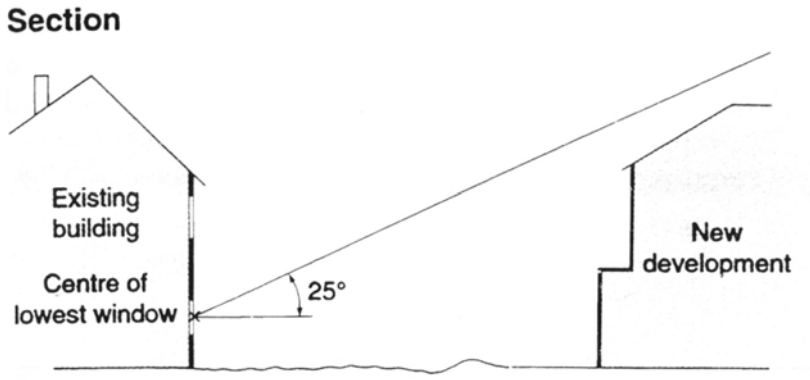
6.7 There are two quick methods that can be used to assess access to daylight:

Daylight to new development

- project a 25 degree line, starting 2m above ground level from a wall of your proposed development;
- if none of the existing surrounding buildings extend above this line, then there is potential for good daylighting to be achieved in the interior of your new development.

Daylight to existing development

- project a 25 degree line from the centre of the lowest window on the existing building;
- if the whole of your new development is lower than this line then it is unlikely to have a substantial effect on the daylight enjoyed by occupants in the existing building.



Source: BRE, Site layout planning for daylight and sunlight: A guide to good practice.

6.8 For either test, if buildings extend above the 25 degree line a more detailed test needs to be carried out to fully assess either the loss of daylight in existing buildings or the level of daylight achievable in the new development. The two most common measurements of daylight of the more detailed test are the Vertical Sky Component (VSC) and the Average Daylight Factor (ADF).

Vertical Sky Component
The amount of light striking the face of a window

6.9 The Vertical Sky Component is expressed as a ratio of the maximum value of daylight achievable for a completely unobstructed vertical wall. The maximum value is almost 40%. This is because daylight hitting a window can only come from one direction immediately halving the available light. The value is limited further by the angle of the sun. This is why if the VSC is greater than 27% enough sunlight should be reaching the existing window. Any reduction below this level should be kept to minimum.

6.10 Windows to some existing rooms may already fail to achieve this target under existing conditions. In these circumstances it is possible to accept a reduction to the existing level of daylight to no less than 80% of its former value. Any greater reduction than this is likely to have a noticeable affect on amenity. If this occurs then applications may be refused.

Average Daylight Factor
Average Daylight Factor is a measure of the level daylight in a room. It can be used to establish whether a room will have a predominantly daylit appearance. It provides light levels below which a room should not fall even if electric lighting is provided.

6.11 The Average Daylight Factor can be used as a measure to determine whether a room will receive adequate daylight (expressed as a percentage). The ADV takes into account the:

- net glazed area of windows;

- the total area of the room surfaces (ceiling, floor, walls, and windows);
- the average reflectance; and
- the angle of visible sky.

6.12 If a predominately daylit appearance is required, then the daylight factor should be 5% or more if there is no supplementary electric lighting, or 2% or more if supplementary electric lighting is provided. This figure should be as high as possible to enable occupiers to rely on as much natural light and not use artificial lighting, but as a minimum for dwellings the figures should be 2% for kitchens, 1.5% for living rooms and 1% for bedrooms.

6.13 These minimum figures may not be applicable when measuring the impact of new buildings on existing dwellings as the simple preservation of minimum ADFs will not necessarily be seen as an indication of acceptability, especially if the VSC demonstrates a significant worsening in daylight levels. For existing dwellings the Council will consider the overall loss of daylight as opposed to the minimum acceptable levels of daylight. As the BRE guidance suggests, the readings will be interpreted flexibly as their aim is to support rather than constrain natural lighting. However, daylight is only one of the many factors in site layout design. Therefore, when applying these standards in Camden, we will take into consideration other site factors and constraints.

6.14 The calculation of the VSC and the ADF is complex. For full details on how these calculations are carried out you should refer to the most up to date version the BRE's "Site layout planning for daylight and sunlight: A guide to good practice". For more complex and larger developments we will expect a daylight study to be submitted with the planning application showing the windows that will be affected and provide before development and post development figures for VSC and ADF.

6.15 Other methods can be used to measure daylight and these can be incorporated in daylight and sunlight reports, where necessary, as a supplement to VSC and ADF measurements, such as the No Sky Line (NSL) test contained within BRE guidance.

Sunlight

6.16 The design of your development should aim to maximise the amount of sunlight into rooms without overheating the space and to minimise overshadowing.

WHAT DOES THE COUNCIL EXPECT?

New developments should be designed to provide at least one window to a habitable space facing within 90 degrees of south, where practical.

This window should receive at least 25% of Annual Probable Sunlight Hours, including at least 5% of Annual Probable Sunlight Hours between 21 September and 21 March, where possible.

Annual Probable Sunlight Hours
The annual amount of sunlight a window receives in an average year.

6.17 The BRE's "Site layout planning for daylight and sunlight: A guide to good practice" provides guidance on access to sunlight in relation to:

- site layout, building orientation and overshadowing for new buildings;
- protecting sunlight to existing buildings, and
- new and existing gardens and open spaces.

6.18 Design for access to sunlight will be specific to the orientation of your site, and the specific design and uses within your proposed development. You should follow the detailed design requirements recommended in the "Sunlighting" section of the BRE document. The Council recognises that not all of the guidance contained within the BRE document, particularly orientation, can be adhered to in all developments due to the dense and constrained urban nature of Camden.

Other considerations

Right to Light

6.19 The right to light is a legal right which one property may acquire over the land of another. If a structure is erected which reduces the light to an unobstructed property to below sufficient levels this right is infringed. A right to light can come into existence if it has been enjoyed uninterrupted for 20 years or more, granted by deed, or registered under the Rights of Light Act 1959. Planning permission does not override a legal right to light, however where a right to light is claimed, this is a matter of property law, rather than planning law. The Council will have no role or interest in any private dispute arising and it will be for the owner or occupier affected to seek a legal remedy.

Supporting documents

6.20 For further information on daylight and sunlight please refer to:

Building Research Establishment (BRE). Site layout planning for daylight and sunlight: A guide to good practice.

Copies of this are available directly from BRE.

BRE Bookshop, 151 Roseberry Avenue, London, EC1R 4GB
020 7505 6622
brebookshop@emap.com
www.constructionplus.co.uk

7 Overlooking, privacy and outlook

KEY MESSAGES:

- Development are to be designed to protect the privacy of existing dwellings;
- Mitigation measures are to be included when overlooking is unavoidable;
- Outlook from new developments should be designed to be pleasant;
- Public spaces benefit from overlooking as natural surveillance.

7.1 This section aims to ensure that when designing your development you successfully consider the potential impact on the privacy and outlook of neighbouring properties.

7.2 This guidance relates to Core Strategy policy CS5 Managing the Impact of Growth and Development and Core Strategy policy CS14 Promoting high quality places and conserving our heritage.

7.3 Policy *DP26 – Managing the impact of development on occupiers and neighbours* of the Camden Development Policies outlines how the Council will protect the quality of life of occupiers and neighbours by only granting permission for development that does not cause harm to amenity.

Overlooking and privacy

7.4 Development should be designed to protect the privacy of both new and existing dwellings to a reasonable degree. Spaces that are overlooked lack privacy. Therefore, new buildings, extensions, roof terraces, balconies and the location of new windows should be carefully designed to avoid overlooking. The degree of overlooking depends on the distance and the horizontal and vertical angles of view. The most sensitive areas to overlooking are:

- Living rooms;
- Bedrooms;
- Kitchens; and
- The part of a garden nearest to the house.

WHAT IS GOOD PRACTICE?

To ensure privacy, there should normally be a minimum distance of 18m between the windows of habitable rooms of different units that directly face each other. This minimum requirement will be the distance between the two closest points on each building (including balconies).

7.5 Where this standard cannot be met we may require you to incorporate some of the following design measures into your scheme to ensure

overlooking is reduced to an acceptable level. Design measures to reduce the potential for overlooking and the loss of privacy include:

- Careful consideration of the location of your development, including the position of rooms;
- Careful consideration of the location, orientation and size of windows depending on the uses of the rooms;
- Use of obscure glazing;
- Screening by walls or fencing; and
- Screening by other structures or landscaping.

7.6 Where landscaping is used as a method of screening, arrangements for ongoing maintenance should be put in place and this may be secured by a planning condition.

7.7 Public spaces and communal areas will benefit from a degree of overlooking due to the increased level of surveillance it can provide.

Outlook

7.8 Outlook is the visual amenity enjoyed by occupants when looking out of their windows or from their garden. How pleasant an outlook is depends on what is being viewed. For example, an outlook onto amenity space is more pleasant than an outlook across a servicing yard. You should design developments so that the occupiers have a pleasant outlook. You should screen any unpleasant features with permanent landscaping.

7.9 When designing your development you should also ensure the proximity, size or cumulative effect of any structures do not have an overbearing and/or dominating effect that is detrimental to the enjoyment of their properties by adjoining residential occupiers. You should carefully consider the location of bin or cycle stores if they are in close proximity to windows or spaces used by occupiers.

7.10 You should take particular care if your development adjoins properties with a single aspect over your development.

7.11 You should note that the specific view from a property is not protected as this is not a material planning consideration.

Further information

Better Places to Live: By Design - A companion guide to PPG3 (ODPM) makes number of design recommendations which recognise the importance of privacy in the home.

Perceptions of Privacy and Density in Housing report available from Design for Homes; 0870 416 3378 or www.designforhomes.org. This report highlights some of the issues facing households living at higher densities, and the implications for future design of buildings.

8 Construction management plans

KEY MESSAGES:

- Construction management plans are required for developments that are on constrained sites or are near vulnerable buildings or structures;
- They are essential to ensure developments do not damage nearby properties or the amenity of neighbours.

8.1 The purpose of this guidance is to give details on how construction management plans can be used to manage and mitigate the potential impacts of the construction phase of a development.

8.2 All construction and demolition work will cause at least some noise and disturbance. Where construction impact is particularly significant Camden will ensure it is managed through a legally binding construction management plan.

8.3 This guidance relates to Core Strategy Policy CS5 Managing the impact of growth and development and policies DP20 Movement of goods and materials, and DP26 Managing the impact of development on occupiers and neighbours of the Camden Development Policies.

When does this guidance apply?

8.4 This guidance applies to all development proposals which, having regard to the nature of the surrounding area, are likely to give rise to significant noise and other disturbance during construction. Details on the circumstances in which the Council will expect construction management plans are set out within this guidance.

How should construction management plans be prepared?

8.5 Camden's planning policies make it clear that the effect on local amenity and the highway network from construction and demolition is a material planning consideration. Construction management plans are used to set out the measures a developer should take (both on-site and off-site) in order to reasonably minimise and manage the detrimental effects of construction on local amenity and/or highway safety. Usually Camden will secure construction management plans through a Section 106 Agreement, although sometimes for less complicated schemes they may be secured by using a condition attached to planning permission.

8.6 Whilst construction management plans are a 'planning led' document they will incorporate mechanisms controlling planning considerations that overlap with other regulatory regimes (particularly highways and environmental protection). Hence, most construction management plans will be an umbrella document managing all impacts of the demolition, excavation and construction process.

8.7 Besides ensuring measures under these different regimes are coordinated in one document, construction management plans represent a proactive way of dealing with construction issues. They encourage developers to work with the Council and local people in managing the construction process with a view to ensuring that problems do not arise in the first place.

Circumstances Camden will expect a construction management plan

8.8 Whether a construction management plan is required for a particular scheme will be assessed on a case by case basis, although the Council will usually require a construction management plan for larger schemes (i.e. over 10 residential units or 1,000sq m of new commercial floorspace). However, occasionally a relatively large development will have comparatively little impact on its neighbourhood.

8.9 Conversely, small schemes on confined or inaccessible sites can have very significant impacts, particularly where the construction process will take place over a number of months (or even years) or outside normal working hours. When assessing smaller developments, special regard should be had to on-site factors that would seriously exacerbate the impact of the development works on the surrounding area. These could include development in residential areas, in close proximity to a school or a care home or very narrow or restricted site access (e.g. development in a mews with no footways). Regard will also be had to the nature and layout of a site. It will be much more difficult to fully absorb or contain the effects of demolition and construction in terms of noise, dust vibration etc within the boundaries of a small constrained site. Furthermore, lack of on-site space for plant, storage of materials and loading and unloading of construction may mean that construction effects will inevitably take place close to the boundary and spill out on to the highway network – a particular issue in much of Camden.

8.10 The types of schemes where a CMP will usually be appropriate include:

- Major developments (and some larger scale non major developments);
- Development where the construction process has a significant impact on adjoining properties particularly on sensitive uses;
- Developments which give rise to particular ‘on-site’ issues arising from the construction process (e.g. large scale demolition or complicated or intrusive remediation measures);
- Basement developments;
- Significant developments involving listed buildings or adjacent to listed buildings;
- Developments that could seriously affect wildlife;
- Developments that could cause significant disturbance due to their location or the anticipated length of the demolition, excavation or construction period;

- Development where site specific issues have arisen in the light of external consultation (where these are supported by objective evidence); and
- Development on sites where constraints arising from the layout or size of the site impact on the surrounding road network.

Contents of a construction management plan

8.11 Any construction management plan will manage on-site impact arising from demolition and construction. It will also seek to establish control over construction traffic and how this integrates with other construction traffic in the area having regard to t cumulative effect.

8.12 A Section 106 or planning permission securing a construction management plan will contain provisions setting out in detail the measures the final version of the construction management plan should contain. Most construction management plans will be umbrella documents managing all impacts of the demolition, excavation and construction processes. This would include (but is not limited to) issues such as:

- Dust, noise and vibration on site and off site;
- Traffic management highways safety and highways congestion;
- Protection of listed buildings (if relevant);
- Stability of adjacent properties;
- Protection of any off-site features that may be damaged due to works;
- Protection of biodiversity and trees; and
- Preserve the amenity of surrounding residential and other sensitive uses.

8.13 A construction management plan is often split into two elements. The first element will be focussed on controlling environmental impacts, pollution and other non-highway related impacts arising from the scheme, having regard to the requirements of the Council's Considerate Contractor Manual and best practice guides from the GLA. In particular this will seek to control hours of operation and monitor and manage air quality, noise, dust and other emissions of other pollutants and location of equipment. The second element will be focussed on traffic control with a view to minimising disruption, setting out how construction work will be carried out and how this work will be serviced (e.g. delivery of materials, set down and collection of skips), with the objective of minimising traffic disruption and avoiding dangerous situations for pedestrians and other road users.

8.14 Sometimes the Section 106 will link the construction management plan with a requirement to convene a working group to act as a forum for the developer to meet with local residents and businesses to deal with construction issues as they arise.

8.15 Construction management plans will also have to be consistent with any other plans required for the development. For example, a Site Waste Management Plan, which is a legal requirement for works over a certain size which may require the re-use or recycling of materials on-site and therefore the construction management plan will have to reflect that space will be required to sort, store and perhaps crush or recycle materials.

8.16 The construction management plan should include the following statement:
"The agreed contents of the construction management plan must be complied with unless otherwise agreed with the Council. The project manager shall work with the Council to review this construction management plan if problems arise in relation to the construction of the development. Any future revised plan must be approved by the Council and complied with thereafter."

Transport considerations

8.17 The details contained within a construction management plan will relate to the nature and scale of the development, however, in terms of assessing the impact on transport the plan should demonstrate that the following has been considered and where necessary the impacts mitigated:

a) Start and end dates for each phase of construction;
b) The proposed working hours;
c) The access arrangements for vehicles;
d) Proposed routes for vehicles between the site and the Transport for London Road Network (TLRN). Consideration should also be given to weight restrictions, low bridges and cumulative effects of construction on the highway;
e) Sizes of all vehicles and the frequency and times of day when they will need access to the site, for each phase of construction;
f) Swept path drawings for any tight manoeuvres on vehicle routes to the site;
g) Details (including accurate scaled drawings) of any highway works necessary to enable construction to take place;
h) Parking and loading arrangements of vehicles and delivery of materials and plant to the site;
i) Details of proposed parking bays suspensions and temporary traffic management orders;
j) Proposed overhang (if any) of the public highway (scaffolding, cranes etc);
k) Details of any temporary buildings outside the site boundary, or overhanging the highway;
l) Details of hoardings required or any other occupation of the public highway;

m) Details of how pedestrian and cyclist safety will be maintained, including any proposed alternative routes (if necessary), and any banksman arrangements;

n) Details of how traffic associated with the development will be managed in order to reduce congestion;

o) Arrangements for controlling the movements of large/heavy goods vehicles on and in the immediate vicinity of the site, including arrangements for waiting, turning and reversing and the provision of banksmen, and measures to avoid obstruction of adjoining premises.

p) Details of any other measures designed to reduce the impact of associated traffic (such as the use of construction material consolidation centres);

q) Details of how any significant amounts of dirt or dust that may be spread onto the public highway will be cleaned or prevented;

r) Details of any Construction Working Group that may be required, addressing the concerns of surrounding residents, as well as contact details for the person responsible for community liaison on behalf of the developer, and how these contact details will be advertised to the community;

s) A statement confirming registration of the site with the Considerate Constructors Scheme;

t) How the servicing approach takes into consideration the cumulative effects of other local developments with regard to traffic and transport;

u) Provision for monitoring of the implementation of the CMP and review by the council during the course of construction works;

v) Any other relevant information with regard to traffic and transport; and

Air quality and climate change considerations

8.18 A method statement should be prepared and adopted as part of the construction management plan to minimise gaseous and particulate matter emissions generated during the Construction Phase. The following best practice measures shall be included in the method statement:

- Techniques to control PM_{10} and NO_x emissions from vehicles and plant;
- Techniques to control dust emissions from construction and demolition;
- Air quality monitoring; and
- Techniques to reduce CO_2 emissions from construction vehicles.

How will we secure construction management plans?

8.19 Generally a Section 106 agreement (rather than a condition) is the most appropriate mechanism for securing a construction management plan. For larger schemes or developments on constrained sites within heavily

built-up areas where building activities could materially affect the highway construction management plans will always be secured through Section 106s. While the use of conditions is normally preferred to Section 106 Agreements, conditions can only be used to control matters on land within the developer's control. The range of matters typically covered by a CMP, particularly in relation to highways, mean that a Section 106 Agreement will be necessary in most cases.

8.20 The level of detail contained in a typical Section 106 also lends itself to the tailored, site-specific approach Camden uses for construction management plans. However, the use of a condition to secure a construction management plan may be sufficient for sites where the building activities associated with the build out can be totally accommodated within the site itself, particularly where these are smaller schemes.

11 Open space, outdoor sport and recreation facilities

KEY MESSAGES:

- If your scheme is over a certain size it is expected to make a contribution towards the provision of public open space in the borough;
- Our priority if for the provision of public open space on-site, therefore it is important this is taken into account at the design stage of your scheme;
- Other forms of public open space contributions could be provision off-site or as a payment in lieu.

11.1 This guidance gives details of how the Council expects development to provide for a variety of public open space, outdoor sport and recreation facilities. It sets out:

- Which developments are expected to make provision for open space, outdoor sport and recreation opportunities;
- The amount of open space we expect;
- The type of open space and outdoor sport and recreation facilities we expect;
- How we will calculate the open space expected for a specific development; and
- The Council's priorities for how open space, outdoor sport and recreation facilities will be provided.

11.2 This guidance primarily relates to:

Core Strategy Policies:

- CS5 – Managing the impact of growth
- CS15 – Protecting and improving our parks and open spaces and encouraging biodiversity

Development Policies:

- DP26 – Managing the impact of development on occupiers and neighbours
- DP31 – Provision of, and improvements to, open space and outdoor sport and recreation facilities.

Which developments are expected to contribute towards open space, outdoor sport and recreation facilities?

11.3 As set out in paragraph 31.6 the Camden Development Policies document you will need to make a contribution to the provision of these facilities in the borough if your development falls within the following categories:

- Five or more additional dwellings;
- Student housing schemes creating an additional 10 or more units/rooms or occupiers; and
- Developments of 500sq m or more of any floorspace that are likely to increase the resident, worker or visitor populations of the borough.

How much open space do we expect?

11.4 Development Policy *DP31 – Provision of, and improvements to, open space and outdoor sport and recreation facilities* sets out the amount of open space to be provided by developments as follows:

Figure 2. Amount of open space to be provided by land use

Development type	Open space provision
Residential (all types)	9 sq m per occupier
Commercial development	0.74 sq m per worker

11.5 Non-residential developments for higher education are considered to generate requirements per occupier (including employees and students) at the same rate as commercial developments.

What types of open space, outdoor sport and recreation facilities will we expect?

11.6 Open space standards relate specifically to public open space. The Council acknowledges the private amenity space and other private open land can reduce pressure on the use of public open space. However public open spaces provide opportunities for social interaction and a focus for community activities. Private spaces cannot be used as a substitute for public open space.

11.7 Public open space includes a wide variety of different facilities that are available to the public:

- Green amenity spaces, including natural and semi-natural spaces;
- Active spaces for outdoor sport and recreation and for children's play; and
- Civic spaces.

11.8 Green amenity spaces can be formal or informal parks and gardens or other landscaped areas, which provide areas of passive recreation for all age groups and attractive green areas within the urban environment. They are intended to be attractive spaces for people to enjoy using or viewing. This type of open space can include areas of natural or semi-natural green spaces, which support wildlife conservation and biodiversity and promote environmental education and awareness.

11.9 Active spaces are areas of grassed or artificial surfaces providing opportunities for sport and recreation together with ancillary facilities such as changing rooms and flood lighting. These include playing pitches, courts, greens, athletic tracks and Multi Use Games Areas (MUGAs). Formal recreation areas may be stand-alone facilities or may form part of a larger open space (e.g. the tennis courts and bowling greens at Hampstead Heath).

11.10 Civic spaces are hard surfaced areas designed for pedestrians, such as piazzas, which often provide a setting for civic buildings.

11.11 Given the amount of hard surfaces in Camden, our priority will generally be for green spaces, especially in the south of the borough. Paragraphs 11.12 to 11.17 give more details of specific types of public open space.

Children's play space and young people's recreation space

11.12 These are formal or informal areas designed to engage children or young people. Formal spaces are designated areas for children and young people containing a range of facilities and an environment that has been designed to provide focused opportunities for outdoor play. There are three categories of formal children's play space defined by the National Playing Fields Association (NPFA).

1. LAP - Local Area for Play;
2. LEAP - Local Equipped Area for Play;
3. NEAP - Neighbourhood Equipped Area for Play.

11.13 Informal spaces are less well defined areas and can be incorporated into smaller spaces such as local footpaths where wide enough or town centre spaces. It involves incorporating features that children can play with such as fountains or objects to climb.

11.14 Contributions to children's play space and young people's recreation space can include formal and informal areas. We must be satisfied that any informal space has been sufficiently designed to meet the requirements of children and young people.

Natural and semi-natural green spaces

11.15 These include sites and areas formally recognised for their nature conservation value such as Sites of Special Scientific Interest, Sites of Nature Conservation Importance and Local Nature Reserves as well as other areas with biodiversity such as gardens, parks and open spaces.

11.16 In exceptional circumstance, generally in areas deficient in nature conservation sites, we may consider the inclusion of a biodiverse green roof, brown roof or green wall as a contribution towards natural and semi-natural green spaces in the borough. For more information about areas of deficiency please see Appendix A to this section. For more information about green roofs, brown roof and green walls please see Camden Planning Guidance 3 – Sustainability.

Allotments and Community Gardens

11.17 Allotments and community gardens provide opportunities for people to grow food as part of the long term promotion of sustainability, health and social inclusion.

What type of open space, outdoor sport and recreation facilities are expected for specific development types?

11.18 For this guidance, and in line with *Camden's Open space, Sport and Recreation Study Update 2008* we have identified the following five broad categories of open space:

- Public amenity open space;
- Children's play space and young people's recreation space;
- Natural and semi-natural green space;
- Allotments and community gardens; and
- Outdoor sport and recreation.

11.19 We recognise that not every type of development will generate a need for all types of open space, outdoor sport and recreation facilities. For example, housing for older people will not generate demand for children's play space. Figure 3 sets out the types of open space that are likely to be needed for various types of development.

Figure 3. Type of open space to be provided by development

	Amenity open space	**Children's playspace**	**Natural green-space**	**Outdoor sport facilities**	**Allotments / Community gardens**
Self-contained homes (Use Class C3)	✓	✓	✓	✓	✓
Student housing	✓	x	✓	✓	x
Housing for older people	✓	x	✓	x	✓
Commercial	✓	x	✓	✓	x

Source: adapted from Camden Open Space, Sport and Recreation Study Update 2008.

11.20 The requirement for 9 sq m of public open space per residential occupier and 0.74 sq m of public open space per employee/ student (commercial/ higher education developments) should generally be divided into different types of open space approximately as set out in Figure 4.

11.21 In Camden the potential to add to outdoor sports facilities for adults is limited. Provision for outdoor sports will be sought within the overall requirement of 9 sq m per residential occupier where an opportunity for provision arises. Where a development provides public facilities for outdoor sports these will reduce the requirement for other types of open space.

11.22 The Camden Open Space, Sport and Recreation Study Update 2008 derived a separate standard for allotments of 0.9 sq per residential occupier. The study indicated that additional space to grow food could only be provided by taking a flexible approach including community gardens, roof gardens, temporary use of vacant sites and converting parts of existing open spaces. Although the standard is not included within the 9 sq m overall requirement, paragraph 31.7 of the Camden Development Policies document indicates that allotments and community gardens are a Council priority. Provision will be sought wherever an opportunity arises, and will be considered to reduce the requirement for other types of open space.

Figure 4. Break down of open space by type of provision

Residential Developments (all types)

Type of open space	Provision per adult	Provision per child
Amenity open space	5 sq m	4 sq m
Children's playspace (where applicable)		2.5sq m
Natural green space	4 sq m	2.5 sq m

Commercial / higher education (non-residential)

Type of open space	Provision
Amenity open space	0.4 sq m per person
Natural green space	0.34 sq m per person

How we will calculate the open space expected for a specific development

11.23 Figure 5 below shows the figures we will use to assess open space requirements for individual residential, commercial and higher education developments. The figures are based on the break down of open space requirements in Figure 4 and the occupancy rates recommended by the Camden Open Space, Sport and Recreation Study Update 2008. The occupancy rates are given in Appendix B to this section.

Figure 5. Open space required for specific developments

Self-contained homes in Use Class C3	Amenity open space	Children's play space	Natural green space	Total
One bedroom home	6.5 sq m		5.2 sq m	11.7 sq m
Two bedroom home	9.2 sq m	0.6 sq m	7.2 sq m	17.0 sq m
Three bedroom home	12.8 sq m	2.9 sq m	9.5 sq m	25.2 sq m
Four bedroom home	14.1 sq m	3.6 sq m	10.2 sq m	27.9 sq m
Student housing, hotels and hostels				
Single room	5.0 sq m		4.0 sq m	9.0 sq m
Double room	10.0 sq m		8.0 sq m	18.0 sq m
Commercial/ higher education development				
Per 1,000 sq m gross external area	21.6 sq m		17.9 sq m	38.9 sq m

11.24 Appendix D sets our worked examples showing the open space required for a number of different development types and sizes.

How public open space will be provided

11.25 There are three ways in which you can make a contribution to public open space in Camden:

1. On site provision of new public open space;
2. Off site provision of new public open space;
3. Providing a financial contribution in lieu of direct provision.

On site provision of new public open space

11.26 If your development is located in an area deficient in public open space or with an under provision of public open space we expect provision of new public open space on the development site (see Appendix A to this section and Core Strategy Map 7). This is in accordance with paragraph 31.7 of the Camden Development Policies document. Paragraph 31.7 and accompanying Table 1 also set out other developments that are expected to provide open space on-site. Some on-site provision is expected for residential development adding 60 or more homes and commercial development adding 30,000 sq m or more.

11.27 The amount and type of public open space that can be achieved on-site will be determined by the size of the site. Where children's play facilities are required as a result of the development, priority should be given to the provision of these facilities. On sites already covered by development, and where appropriate access may have to be restricted to the occupiers of the building, the provision of a roof garden as a contribution to public open space may be considered. If a roof garden is to be considered as public open space, as a minimum it should be able to be used by all the occupants of the building.

11.28 Any new public open space that is provided as part of your development should be:

- Large enough to cater effectively for the intended users;
- Designed to be fully accessible, where possible;
- Designed in consultation with the Council's Open space team; and
- Practical to maintain.

11.29 Where you are required to make a contribution to public open space we will ensure that the type of open space you provide best meets the needs of the occupiers or users of the development. You should consider designing your open space carefully to enable different types of open space to be located together or adjacent to each other to complement the overall provision of open space, sport and recreation opportunities.

11.30 We will expect new open space provision to be publicly accessible, however in exceptional circumstances, for example where an existing open space is in private ownership or already has restricted access we may accept an alternative access arrangement.

Off site provision of new public open space

11.31 Where a site cannot provide public open space on-site, the preferred option will be provision of new suitable open space off-site. Once again this is especially important where a site does not have access to existing open space in accordance with the distance thresholds (see Appendix A to this section). The new provision should be within the distance threshold for the type of public open space to be provided. For example, if a developer is to provide a children's play area of 100 sq m this should be provided within 50 m walking distance of the development, if amenity open space is to be provided, this should be a maximum of 280 m from the development. If the developer is to provide for a new formal recreation area such as a multi-use games area, this should be provided within 1,200 m of the development.

11.32 We will accept the provision of public access to an existing open space that currently has restricted access as a contribution to off-site public open space provision.

Providing a financial contribution in lieu of direct provision

11.33 The Council may agree to accept financial contributions in place of direct provision of new public open space where the development site is too small to incorporate on-site open space and the densely built up character of Camden prevents direct provision of off-site public open space. Financial contributions may be used for:

- The creation of an area of public open space, including buying additional land or leasing it at a nominal rate;
- Improving access to existing public open space;
- Opening up access to existing private open space;
- Fit out of a new or existing open space, or some elements of the open space; and
- Qualitative improvements to existing open space.

11.34 Financial contributions may be pooled to create, fit out, improve or provide access to open space. For example, where the Site Allocations Document indicates that new public open space is required on a development site, contributions from other developments within 280 m may be pooled to facilitate the creation of the new public open space.

11.35 Financial contributions are calculated on the basis of the costs and requirements set out in Figure 6.. We will aim to spend the collective amount in the proportions set out in Figure 6 and within the same ward as the contributing development where possible. However individual financial contributions will be spent on priorities identified in:

- Camden's open space, sport and recreation study update 2008;
- Camden's open space strategy;
- Camden's biodiversity action plan;
- Camden's play strategy;
- Camden's sport strategy;

- Individual park management plans.

11.36 A financial contribution is based on the:

- Capital cost of providing new public open space;
- Cost of maintenance for the first 5 years; and
- Cost for the open space team to administer the contribution and design schemes.

Figure 6. The financial contributions

	Capital cost	Maintenance	Design and admin
Self-contained homes in Use Class C3			
One bedroom home	£385	£386	£46
Two bedroom home	£663	£561	£80
Three bedroom home	£1,326	£832	£159
Four bedroom home	£1,537	£921	£184
Student housing, hotels and hostels			
Single room	£297	£297	£37
Double room	£593	£594	£71
Commercial/ higher education development			
Per 1,000 sq m	£1,265	£1,284	£152

11.37 These aggregate contributions are based on provision of public open space, natural green space and (where applicable) children's play space. Specific contributions to allotments and community gardens and to outdoor sport and recreation provision will be sought on a case by case basis depending on whether there are opportunities to add to provision or are local facilities that need to be maintained.

11.38 The calculation of the aggregate contributions is set out in Appendix C to this section. Appendix C includes break down of the capital cost by open space type. This may be needed for developments where a proportion of the open space requirement is met on site or where adequate open space of some types is already available locally.

11.39 Payments for maintenance and design and administration are explained in paragraphs 11.45 to 11.50. They have not been aggregated with capital costs as payments will sometimes be required need to be calculated separately (eg where open space will be provided by the developer but maintained by the Council. The Council may also wish to draw separately on funds for capital works, funds for maintenance and funds for design and administration.

11.40 The contributions may be adjusted upwards or downwards according to the particular circumstances of the development. They provide a starting

point for negotiations between the Council and developers. The scale of financial contributions will be reviewed and updated as appropriate.

11.41 Appendix D to this section sets out worked examples showing the contributions required for a number of different development types and sizes.

Providing a combination of open space provisions

11.42 Your development may contribute to public open space through one of the ways listed above or by a combination of them. To determine the amount and type of public open space you are expected to provide, either on-site or off-site we will consider the:

- Type and size of the existing public open space provision within the distance threshold of your development; and
- Size and likely users of your development.

11.43 For example, if you propose a residential development located within 280 m of a small local park you may not be required to contribute to amenity open space, but may still be required to contribute to children's play facilities or a formal recreation area if suitable facilities do not exist within the distance threshold of the development.

11.44 In all cases a legal agreement will be required to secure the ongoing use of the open space provided as public open space, or to secure the financial contribution in lieu of direct provision.

Maintenance

On or off-site provision

11.45 Where you provide a contribution towards public open space outdoor sport or recreation facilities (either on-site or off-site), the Council will need to be satisfied that it has been properly laid out and completed and that suitable contractual arrangements for its long-term maintenance have been put in place. If you provide new public open space (either on-site or off-site) you will be expected to transfer the space to the Council to maintain and retain for such use.

11.46 Where your new public open space is to be transferred to us, you will normally be required to remain responsible for its maintenance for an initial establishment period of 5 years. After this time, we will take full responsibility for the maintenance of that public open space.

Financial contribution

11.47 If you make a financial contribution in lieu of direct provision, whether it is for substantial qualitative or accessibility improvements to existing sites already maintained by the Council or for the provision of a new public open space, we will expect you to provide a commuted sum for the maintenance of these facilities for a period of five years.

11.48 Where your new public open space is not to be transferred to the Council a commuted sum for maintenance will not be required. However,

if you choose to retain control of your public open space, we will need to be sure that adequate provision for the maintenance and access of that public open space is in place.

11.49 In ALL cases a legal agreement will be required to secure the maintenance of public open space over a defined period or to secure the financial contribution in lieu of direct maintenance.

Design and administration

11.50 For payments in lieu of providing public open space, on-site or off-site payments we will also require a 12% contribution towards the costs of our open space team to administer the financial contribution and to plan and design works within our open spaces.

Further information

Open Space, Sport And Recreation Study	Camden's open space, sport and recreation study update 2008 provides an assessment of open space, sport and recreation provision and demand in the borough. www.camden.gov.uk/planning
Biodiversity Action Plan	Camden's Biodiversity Action Plan provides Camden's priorities for improving our greenspaces and biodiversity. www.ukbap-reporting.org.uk/plans/lbap.asp
PPS17	Planning Policy Guidance 17 – Planning for open space and its companion guide provide policy and guidance for the provision of open space including the quantitative and qualitative considerations. www.communities.gov.uk
Mayor of London's Supplementary Planning Guidance	The Mayor of London's Supplementary Planning Guidance Providing for children and young people's play and informal recreation provides guidance and examples of how to incorporate space for children and young people. http://legacy.london.gov.uk/

Appendix A

Public Open Space Deficiency

Figure 7 shows the maximum distance that people can reasonably be expected to travel on a regular basis to use different types of open space. Amenity open space and children's play space should be available within easy walking distance of the development to which they relate. People are generally willing to travel further to use recreation areas providing outdoor sport facilities or to larger parks.

Figure 7. Distance threshold for different types of public open space

Type of public open space	Minimum size (where applicable)	Distance from development to public open space
Public amenity open space		280m*
Formal recreation area		1.2 km
Play Space		
LAP	100sq m	50m*
LEAP	400sq m	280m*
NEAP	1000sq m	500m*
Natural greenspace	Any	500m
Allotments and community gardens	Any	Any

*This distance is the actual walking distance, taking into account local circumstances, such as the location of entrance gates, street patterns, the severance effects of railway lines or heavy traffic flows that could all reduce the accessibility of open spaces.

(Based on Guide to preparing Open Space Strategies: Best practice guidance of the London Plan, Mayor of London, 2002)

Camden Core Strategy Map 7 shows areas of the borough that are deficient in public open space.

AREAS DEFICIENT IN PUBLIC OPEN SPACE

Areas more than 280m walking distance away from a public open space with a multi-functional role, that is a space over 0.25ha (2,500sq m).

Core Strategy policy CS13 also refers to areas with an under-provision of open space. These are areas with access to open space, but the provision is not sufficient to meet the level of local need due to the number of children, dwelling density, and social disadvantage in the area. These are shown in Figure 4.4 of Camden's Open Space, Sport and Recreation Study Update.

Both components are needed to ensure that everyone is within an appropriate distance of public open space based upon their needs and to ensure that people are not prevented from accessing that open space as a result of prohibitive costs. Contributions to open space will be

encouraged within the distance thresholds for the particular type of open space to be provided.

Paragraph 15.18 of Camden's Core Strategy indicates that residents and visitors further than 1 km away from a metropolitan or borough Site of Nature Conservation Importance (SNCI) are considered to have poor access to the natural environment. Core Strategy Map 8 shows all areas greater than 500 m from an SNCI as deficient in access to nature conservation areas.

AREAS DEFICIENT IN NATURE CONSERVATION SITES

Areas more than 500m walking distance away from a Borough or Metropolitan level Site of Nature Conservation Interest.

Appendix B

Occupancy rate by development type

The Camden Open Space, Sport and Recreation Study Update 2008 recommends calculating occupancy rates and child yields on the basis of the London Housing Survey 2002 and DMAG briefing 2005/25. The occupancy rates are shown in Figure 8.

Figure 8. Occupancy rate for C3 homes based on the London Housing Survey and DMAG briefing 2005/25

Self-contained homes in Use Class C3	Total persons	Children (average)	Adults (net)
One bedroom home	1.3	0.04*	1.3
Two bedroom home	1.9	0.25	1.65
Three bedroom home	2.8	1.15	1.65
Four bedroom home	3.1	1.44	1.66

Source: Camden Open Space, Sport and Recreation Study Update 2008.
*The average child yield for a one bedroom home equates to 1 child per 25 homes, which would not generate a meaningful play space requirement, and has been treated as 0.

Occupancy rates for student housing, hotels and hostels are assumed to be one person per single bedroom and two people per double bedroom.

The study recommends assuming an employee density of one worker per 19 sq m (gross external area) for commercial floorspace. This generates an occupancy rate of 52.6 employees per 1,000 sq m (gross external area). Non-residential developments for higher education are considered to generate the same number of occupants (including employees and students) as commercial developments.

Appendix C

Calculation of financial contributions

This appendix shows how we have calculated the financial contributions for provision or enhancement of public open space.

In addition to this capital cost, you will be expected to pay a commuted sum to cover:

- Maintenance of the facility and open space provision over a 5 year period; and
- Designing the new open space works and administering the financial contribution by Camden's open space team.

Figure 9. Capital cost of provision

Type of public open space	Capital cost
Amenity open space	£46.22 per sq m
Children's play space and young people's recreation space	£199.48 per sq m
Natural and semi-natural greenspace	£16.42 per sq m
Allotments/Community Gardens	£32.50 per sq m

Source: Camden Open Space, Sport and Recreation Study Update 2008

Figure 5 sets out the break down of open space requirements for developments of specific sizes. The capital costs have been aggregated in accordance with Figure 5 as set out in Figure 10.

Figure 10. Calculation of financial contribution to capital cost

Capital cost per square metre	**Amenity open space £46.22 psm**	**Children's play space £199.48 psm**	**Natural green space £16.42 psm**	**Total (amenity space + play space + green space)**
Self-contained homes in Use Class C3				
One bedroom home: space required Space required x cost per square metre	6.5 sq m £300		5.2 sq m £85	 £385
Two bedroom home: space required Space required x cost per square metre	9.2 sq m £425	0.6 sq m £120	7.2 sq m £118	 £663
Three bedroom home: space required Space required x cost per square metre	12.8 sq m £592	2.9 sq m £578	9.5 sq m £156	 £1,326
Four bedroom home: space required Space required x cost per square metre	14.1 sq m £652	3.6 sq m £718	10.2 sq m £167	 £1,537
Student housing, hotels and hostels				
Single room: space required Space required x cost per square metre	5 sq m £231		4 sq m £66	 £297
Double room: space required Space required x cost per square metre	10 sq m £462		8 sq m £131	 £593
Commercial/ higher education development				
Space required per 1,000 sq m Space required x cost per square metre	21.0 sq m £971		17.9 sq m £294	 £1,265

Contributions to maintenance costs

In addition to capital costs, the Council has established a maintenance cost of £6.60 per square metre per year, based on the 2006 Parks and Open Spaces Budget, plus inflation.

The standard length of time developers should provide for maintenance of new and enhanced public open space is 5 years.

Commuted sums for maintenance of public open space are calculated as follows: open space requirement (sq m) x £6.60 x 5. This equates to £33 per square metre of open space required.

Contributions to the cost of design and administration

Design and adminstration costs are have been assessed as 12% of the capital cost of the open space provision or contribution.

Appendix D

Worked Examples

Worked Example 1:
Public open space provision for self-contained homes (C3)

A residential development of 16 new homes provides the following mix of dwelling sizes: 3 x 1-bedroom, 8 x 2-bedroom, 4 x 3-bedroom and 1 x 4-bedroom. The open space requirement can be calculated as follows:

Home size	No of homes	x open space requirement per home (sq m) from Figure 5	= total requirement (sq m)
One bedroom home	3	11.7	35.1
Two bedroom home	8	17.0	136.0
Three bedroom home	4	25.2	100.8
Four bedroom home	1	27.9	27.9
Total for all homes	16		299.8

The total open space requirement for this 16 home scheme would be approximately 300 sq m.

Worked Example 2:
Public open space provision for non-residential development

An office development provides 1,500sq m of additional floorspace. The open space requirement can be calculated as follows:

Additional floorspace	÷ 1,000 to give floorspace in thousands of sq m	x open space requirement per 1,000 sq m from Figure 5	= total requirement (sq m)
1,500 sq m	1.5	38.9	58.35

The total open space requirement for this additional non-residential floorspace would be approximately 60 sq m.

Worked Example 3:
Payment in lieu of open space provision for non-residential development – capital costs

As per example 2, an office development provides 1,500 sq m of additional floorspace. The payment in lieu of open space provision can be calculated as follows:

Additional floorspace	÷ 1,000 to give floorspace in thousands of sq m	x capital cost per 1,000 sq m from Figure 6	= total payment for capital costs
1,500 sq m	1.5	£1,265	£1,897.50

The payment in lieu of open space provision for this additional non-residential floorspace based on capital costs would be £1,897.50. However, we would also expect payments towards maintenance and design and administration – see example 5.

Worked Example 4
Payment in lieu of open space provision for student housing – capital costs

A student housing scheme provides 30 single rooms and 10 double rooms. The payment in lieu of open space provision can be calculated as follows:

Bedroom type	No of bedrooms	x capital cost per bedroom from Figure 6	= total payment for capital costs
Single	30	£297	£8,910
Double	10	£593	£5,930
Total for all bedrooms	40		£14,840

The payment in lieu of open space provision for this student housing based on capital costs would be £1,897.50. However, we would also expect payments towards maintenance and design and administration – see example 5.

Worked Example 5
Payment in lieu of open space provision for self-contained homes (C3) – all costs

A residential development of 5 new homes provides the following mix of dwelling sizes: 1 x 1-bedroom, 3 x 2-bedroom, 1 x 3-bedrooms. The total payment in lieu of open space provision can be calculated in 4 stages

Stage 1 – Capital costs

Home size	No of homes	x capital cost per home from Figure 6	= total payment for capital costs
One bedroom home	1	£385	£385
Two bedroom home	3	£663	£1,989
Three bedroom home	1	£1,326	£1,326
Total for all homes	5		£3,700

The payment in lieu of open space provision for this 5 home scheme based on capital costs would be £3,700.

Stage 2 – Maintenance costs

Home size	No of homes	x maintenace cost per unit from Figure 6	= total payment for maintenance
One bedroom home	1	£386	£386
Two bedroom home	3	£561	£1,683
Three bedroom home	1	£832	£832
Total for all homes	5		£2,901

The payment in lieu to cover maintenance of new or enhanced open space for this 5 home scheme would be £2,901.

Stage 3 – Design and administration costs

Home size	No of homes	x design and administration cost per unit from Figure 6	= total payment for design and administration
One bedroom home	1	£46	£486
Two bedroom home	3	£80	£240
Three bedroom home	1	£159	£159
Total for all homes	5		£445

The payment in lieu to design and administration for new or enhanced open space for this 5 home scheme would be £445.

Stage 4 – Sum of all costs

The three separate types of costs will not usually be aggregated for the Council's purposes (see paragraph 11.39). However, for the guidance of developers, the three costs can be added together.

In this example, the total cost to the developer would be:

Capital costs	£3,700
+ maintenance costs	£2,901
+ design and administration costs	£445
= grand total	**£7,046**