



Redington **Frognal**

Neighbourhood Development Plan

20XX - 20XX

August 2018

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BGI BIODIVERSITY AND GREEN INFRASTRUCTURE

WHY DO WE NEED A BIODIVERSITY POLICY?

1. Private gardens are critical to biodiversity and green infrastructure in the Redington Frogal Area. Individually, private gardens act as ecological stepping stones and, in tandem, form an ecological network providing the green Infrastructure of the Redington Frogal Area.
2. Redington Frogal is a leafy and verdant environment, with large, generous gardens, sustaining mature and veteran trees, making it a sought-after area in which to live.
3. As evidenced below, the Area has suffered an unsustainable cumulative loss (which cannot be reversed) of soft surface, trees and hedges, and an attendant loss of biodiversity and green infrastructure, over the past 30 years.
4. Losses to biodiversity (e.g. sparrows, bats, butterflies and thrushes) have occurred as a result of garden and habitat loss due to new development, including building extensions into rear and side gardens; conversion of traditional front gardens to hard-surfaced off-street car parks; and basement developments incorporating light wells. This is despite the area’s designation as a Conservation Area and its aim to preserve or enhance the character of the Area.
5. If we value the morning chorus, the contribution of gardens to the streetscapes, the rich and varied tree canopies, then we need a firm but reasonable framework which gives clear guidance about what we, the residents, consider to be acceptable.
6. Experience suggests that lack of clarity provides planners and developers with the opportunity to degrade the environment and dilute the aspirations of the Redington Frogal Conservation Area Statement and Guidelines.

Background

7. Estimates for United Kingdom cities suggest that domestic gardens comprise 19-27% of the entire urban area. A study of five UK cities showed that domestic gardens covered more than 20% of the urban area, and ranging from 35% in Edinburgh to 47% in Leicester⁴⁰. In London, 37,900 hectares (ha), approximately 24% of the city, is comprised of private, domestic garden. Of that garden land, 57% or 22,000 ha is vegetated cover (lawn, tree canopy and other vegetation). Therefore, approximately 14% of London is garden greenspace⁴¹.
8. Urban green spaces, such as domestic gardens, are becoming increasingly important refuges for native biodiversity⁴², and play an important part in maintaining biodiversity in urban areas. Available evidence suggests that domestic gardens offer an extensive, unique and undervalued resource for enhancing urban biodiversity⁴³. In particular gardens play an important role in supporting diverse wildlife populations. However, the benefit to wildlife will depend on the composition of the garden, such as differing landcovers e.g. grass lawn, paved patio, cultivated flower beds, etc⁴⁴.

1. “Urban domestic gardens (IV): the extent of the resource and its associated features”, by Kevin J. Gaston, Philip H. Warren, Ken Thompson and Richard M. Smith , 2004
<http://www.bugs.group.shef.ac.uk/BUGS1/sources/bugs-reprint4.pdf>
2. “Blooming London” by Chloe Smith, Greenspace Information for Greater London, July 2011
<http://www.gigl.org.uk/blooming-london/>
3. “Scaling up from gardens: biodiversity conservation in urban environments” by Mark A. Goddard, Andrew J. Dougill and Tim G. Benton, February 2010
<http://homepages.see.leeds.ac.uk/~lecajd/papers/Goddardetal.TREE.pdf>
4. “Scaling up from gardens: biodiversity conservation in urban environments” by Mark A. Goddard, Andrew J. Dougill and Tim G. Benton, February 2010
<http://homepages.see.leeds.ac.uk/~lecajd/papers/Goddardetal.TREE.pdf>
5. “Urban domestic gardens (IX): Composition and richness of the vascular plant flora, and implications for native biodiversity” by R.M. Smith, K. Thompson, J.G. Hodgson, P.H. Warren and K.J. Gaston, 2005
<http://www.bugs.group.shef.ac.uk/BUGS1/sources/bugs-reprint9.pdf>

9. A study of 61 gardens in Sheffield, UK, showed that garden size plays an overwhelming role in determining garden composition: larger gardens support more landcovers, contained greater extents of three-quarters of the recorded landcovers, and were more likely to contain trees taller than 2 metres. All categories of vegetation canopy increased with garden size, and large gardens supported disproportionately greater cover above 3 metres, thus contributing more to ecosystem services. Garden area partly determines the availability of particular landcovers and thus the presence of potential habitat for wildlife⁴⁵.
10. In evidence to the London Assembly Planning Committee of March 2018⁴⁶, it was noted that greater protection is required for, “Green spaces, including small open spaces, pocket parks and gardens” (para. 9.11); protection against extension (para. 9.15) and the harmful effect on biodiversity due to loss of gardens (para. 9.18):

“In support of this concern, the Planning Committee heard from the London Wildlife Trust that further loss of gardens would have a negative effect on biodiversity. The same meeting heard that there was a lack of biodiversity expertise in the planning process at the local level, with 18 per cent of applications impacting biodiversity, but only one per cent being scrutinised for those impacts.”
11. The National Planning Policy Framework requires local authorities to take a strategic approach to biodiversity, to “plan for biodiversity at a landscape-scale across local authority boundaries; identify and map components of the local ecological networks... ; promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations...”
12. Biodiversity 2020: A strategy for England’s wildlife and ecosystems services, details a strategy for delivering the Government’s natural environment policy. It includes a commitment to “...take a strategic approach to planning for nature” via reform of the planning system whilst still retaining “...the protection and improvement of the natural environment as core objectives of the planning system.” Biodiversity 2020 also features a number of Priority Actions, including to “establish more coherent and resilient ecological networks on land that safeguards ecosystem services for the benefit of wildlife and people”.
13. In oral evidence provided on 16 January 2018 (QQ 197-208) to the Select Committee on the Natural Environment and Rural Communities Act, the Rt. Hon. Michael Gove MP stated that,

“As you quite rightly point out, one of the striking things is that domestic gardens are some of the richest sources of biodiversity in the country. When thinking about how we meet housing need, we must be clear that it must not come at the cost of biodiversity loss.”⁴⁷
14. Moreover, the Revised NPPF, published 24 July 2018⁴⁸, states that,

Para. 70: “Plans should consider the case for setting out policies to resist inappropriate development of residential gardens, for example where development would cause harm to the local area.”

Para. 122: “Planning policies and decisions should support development that makes efficient use of land, taking into account:”

“d) the desirability of maintaining an area’s prevailing character (including residential gardens), or of promoting regeneration and change.”
15. An analysis of consented planning decisions within the Redington Frogmal Conservation Area between 2010 and mid-March 2016 indicates that Camden granted 238 consents, to the detriment of biodiversity and green infrastructure, without delivering an appreciable increase in the number of residential units.
16. Such planning applications additionally resulted in the felling of a very large number of trees. For example, consents granted to excavate a total of 80 basements caused 307 trees and a number of hedgerows to be felled, almost invariably undertaken to facilitate development. Other reasons cited included “nuisance shading” and “honeydew deposits”.

6. “Urban domestic gardens (IX): Composition and richness of the vascular plant flora, and implications for native biodiversity” by R.M. Smith, K. Thompson, J.G. Hodgson, P.H. Warren and K.J. Gaston, 2005
<http://www.bugs.group.shef.ac.uk/BUGS1/sources/bugs-reprint9.pdf>
7. London Assembly Planning Committee London Plan consultation response, March 2018
https://www.london.gov.uk/sites/default/files/london_assembly_response_to_london_plan.pdf
8. House of Lords Select Committee on NERC 2006 – written and oral evidence <http://www.parliament.uk/documents/lords-committees/NERC-Act-2006/Combined-evidence-volume-nerc.pdf>
9. NPPF Draft Consultation, March 2018
https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/685289/Draft_revised_National_Planning_Policy_Framework.pdf

Table BGI 1: Consents Granted for Building Extensions and Garden Building, 2010 - June 2016

	Rear garden	Side garden	Front garden	Total gardens affected	Net change in residential units
Arkwright Road	7	2	2	11	
Bracknell Gardens	5	1	1	7	
Briardale Gardens	6		1	7	
Chesterford Gardens	4	1	2	7	-1
Clorane Gardens	5	2		7	
Ferncroft Avenue	2	2	2	6	
Finchley Road	2			2	
Frognal	10	2	2	14	2
Frognal Close	2	1		3	
Frognal Lane	3			3	
Greenaway Gardens	7	1	2	10	
Heath Drive	7	6	3	16	
Hollycroft Avenue	10	2		12	-1
Kidderpore Avenue	1			1	
Kidderpore Gardens	3	2	3	8	-1
Langland Gardens	2		2	4	
Lindfield Gardens	4		1	5	
Oakhill Avenue	4	4		8	1
Platt's Lane	9	4		13	
Redington Gardens	1			1	
Redington Road	35	12	5	52	-1
Rosecroft Avenue	8		3	11	
Telegraph Hill	4			4	
Templewood Avenue	9	5	1	15	-4
Templewood Gardens	1	1		2	
West Heath Road	7	2		9	
Total	158	50	30	238	-5

Source: Redfrog based on Socrata from LB Camden

Map BGI 1: Consented Tree Fellings in the Redington Frognal Conservation Area, 2010 to June 2016



Source: Socrata Open Data API

Note: the above exclude 41 trees felled at 23 West Heath Road, 36 trees felled at SINC CaB1109, up to 60 fellings at the Kidderpore Avenue south (Barratt) site⁴⁹ and many trees felled illegally.

17. This Policy aims to deliver enhancements to green infrastructure, in order to improve connectivity and secure improvements to local biodiversity, through the following sub policies:
- biodiverse green habitat and connectivity (BGI 1)
 - front and side gardens / front boundary treatments for new developments (BGI 2)
 - tree planting and preservation (BGI 3)
 - light pollution (BGI 4)
 - local green spaces (BGI 5)
 - basements (BGI 6).

BGI 1 BIODIVERSE GREEN HABITAT

Intent

- 18. Within London, gardens are a priority habitat for the London Biodiversity Action Plan and a core habitat focus for London Wildlife Trust’s Living Landscapes vision in the capital⁵⁰.
- 19. With no publicly-owned green space⁵¹, private gardens are critical to biodiversity and infrastructure. They are increasingly vital to wildlife⁵² and people, providing shade, absorbing carbon, filtering air particulates soaking up flood water and helping to cool buildings.
- 20. Guideline RF1 of the Redington Froggnal Conservation Area Statement and Guidelines notes that, *“Rear gardens contribute to the townscape of the Conservation Area and provide a significant amenity to residents and a habitat for wildlife. Development within gardens is likely to be unacceptable.”*
 However, the low status of the Conservation Area Statement in the planning hierarchy has meant that Camden has been powerless to enforce its Guidelines, with the result that gardens, and particularly larger gardens, have been dramatically eroded by building extensions, outbuildings and basements.
- 21. AECOM’s March 2016 study, The Contribution of Trees to the Townscape Character of the Redington Froggnal Area⁵³ notes the “opportunity to define policy that enforce or encourage homeowners and developers to retain existing trees within front and rear gardens to protect the garden setting of buildings, and the contribution that trees in these locations make to the verdant character of streets. This could be through specific policy that restricts tree removal, or by using policy to incorporate trees into development.”
- 22. Adjoining rear gardens with trees and hedges form particularly diverse and important habitat network, both at ground level and above, enabling wildlife in the in the Redington Froggnal Area to circulate and providing a refuge. Together, they form Core Sustenance Zones⁵⁴ for bats, birds and other wildlife species. The presence of bats throughout the area is confirmed by a number of bat surveys conducted by The Ecology Network⁵⁵, The Ecology Consultancy^{56,57}, Furesfen⁵⁸ and John Cromar’s arboricultural report⁵⁹. In particular, adjoining rear gardens provide links to Hampstead Heath (Metropolitan Site of Interest for Nature Conservation M072), Hampstead Cemetery (CaB101) and Camden’s Strategic Green Corridors, notably to the Nash Ramblas Link and the Hampstead Ridge Corridor, to the CaL07 Site of Interest for Nature Conservation, to Golders Hill Park and to Regent’s Park.
- 23. Hedges are of particular importance to the Redington Froggnal ecological network: they create cool, shady places in what might otherwise be hot, exposed sites, with mixed hedgerows providing food, nesting places and shelter for birds and mammals. Wild flowers can provide both ornamental value and value to biodiversity, by supporting bees and other insects.
- 24. The value of the Area’s green habitat network is being compromised by planning consents for rear garden buildings, property extensions and basements, which almost invariably lead to hedge and tree fellings, including important mature trees.

- 11. Smith, C., Dawson, D., Archer, J., Davies, M., Frith, M., Hughes, E. and Massini, P., 2011. London: Garden City? From green to grey; observed changes in garden vegetation structure in London, 1998-2008, London Wildlife Trust, Greenspace Information for Greater London, and Greater London Authority [http://downloads.gigl.org.uk/website/Garden Research Full report.pdf](http://downloads.gigl.org.uk/website/Garden%20Research%20Full%20report.pdf)
- 12. See Appendix BGI 1 and BGI 2
- 13. Scaling up from gardens/ biodiversity conservation in urban environments, Mark A Goddard, Andrew J. Dougill, Tim G. Benton <http://homepages.see.leeds.ac.uk/~lecajd/papers/Goddardetal.TREE.pdf>
- 14. See Evidence Base document BGI AECOM Contribution of Trees to the Townscape FINAL 160505
- 15. Spaces Wild, London Wildlife Trust, October 2015 <http://www.wildlondon.org.uk/sites/default/files/spaces-wild-london-wildlife-trust-oct2015.pdf>
- 16. Ecology Network Bat Activity Survey, September 2016
- 17. Ecology Consultancy Kidderpore Avenue Bat Surveys, December 2012
- 18. Ecology Consultancy Kidderpore Avenue King’s College Halls, Bat Presence or Likely Absence Surveys, September 2014
- 19. Furesfen 25B Froggnal Bat Survey, July 2012
- 20. Arboricultural report for 5 Templewood Avenue, 24.1.17

21. Email from Janet Gompertz, 29.10.17 and planning objection from Linda Robson

- 25. The permission granted for planning application 2015/3936/P to provide for a double-storey underground car park, building extensions and new buildings at the former King’s College campus SINC CaB1109, has had a profound impact on the north side of Kidderpore Avenue. It led to the felling of 36 mature trees, the disappearance of 103 square metres of native woodland and 80 square metres of tall herbs, and a 130% increase in the area of bare artificial habitat (from 968 square metres to 2,225 square metres)⁶¹.
- 26. At the time of writing in March 2018, it appeared that up to 60 trees had been felled at the King’s College south site in Kidderpore Avenue for the Barratt development (which includes building refurbishments, extensions and some replacement buildings). The Ecology Consultancy planting plans^{62, 63}, which had been drawn up for the purpose of securing planning consent, have not implemented. Instead, the Phase 1 Habitat Survey Map, shown in Figure 1 of The Ecology Consultancy report, has been primarily replaced by hard surface and car parking.
- 27. Three planning consents at Sarum Chase, 23 West Heath Road (2005/3118/T, 2006/0371/T and 2006/2143/T) saw the felling of some 41 trees, including 7 Lombardy Poplars, 3 Scots Pines, an Oak and numerous other native species, for the purpose of various building extensions. Although Camden had imposed a requirement for some replanting, this was never enforced and was unenforceable⁶⁴. As a result, another formerly wooded site has been lost.
- 28. Policy BGI 1 therefore addresses the need to restore ecological networks and to provide potential foraging, roosting and nesting sites. New development in gardens must take the opportunity to strengthen existing green infrastructure and wildlife habitat, and reinforce the protection of gardens and green spaces, above and beyond that afforded by Camden Local Plan policies.

Photo BGI 1: Rear Garden Corridor Between Hollycroft Avenue, Ferncroft Avenue and Platts Lane, Sub Area 2



- 22. The Ecology Consultancy response to questions raised by community groups, dated 13.6.2017
- 23. Appendix BGI 6 Recommended Planting Plan, Phase I Habitat Survey, by The Ecology Consultancy 13.12.12
- 24. Murdoch and Wickham Planting Plan, 30.1.15
- 25. Enforcement notice EN16/0144 and emails from (redacted), Tree and Landscape Officer, dated 6.9.16 and 7.9.16

BGI 1 Biodiverse Green Habitat

- i. Gardens in the Plan Area are to be regarded as part of an ecological network.
- ii. The Plan supports development within gardens, which is planned so as to minimise tree, hedge and biodiverse habitat loss, by:
 - a) maximising the amount of soft landscaping, with minimal coverage of the unbuilt area of the land plot by hard landscaping;
 - b) maximising the permeability of the surface, where hard landscaping is needed;
 - c) developing or restoring planting and hedgerow habitats at the edges of plots;
 - d) providing areas of high biodiversity value on the site;
 - e) maintaining rear garden tree corridors and filling gaps in rear garden tree corridors with trees with a high biodiversity value.
- iii. All applications for new building into, around, over or under a garden (including underground development, extensions, outbuildings and swimming pools) must incorporate provision for tree and hedge planting, unless it can be demonstrated to the Council's satisfaction that this is not feasible or appropriate.
- iv. For applications which cause loss of front, rear and / or side garden area (for example, due to an increased building footprint), tree and hedge planting will be required to offset the loss of soft surface. Where replacement tree planting would not be appropriate or feasible, tree planting should be undertaken within the vicinity of the site.

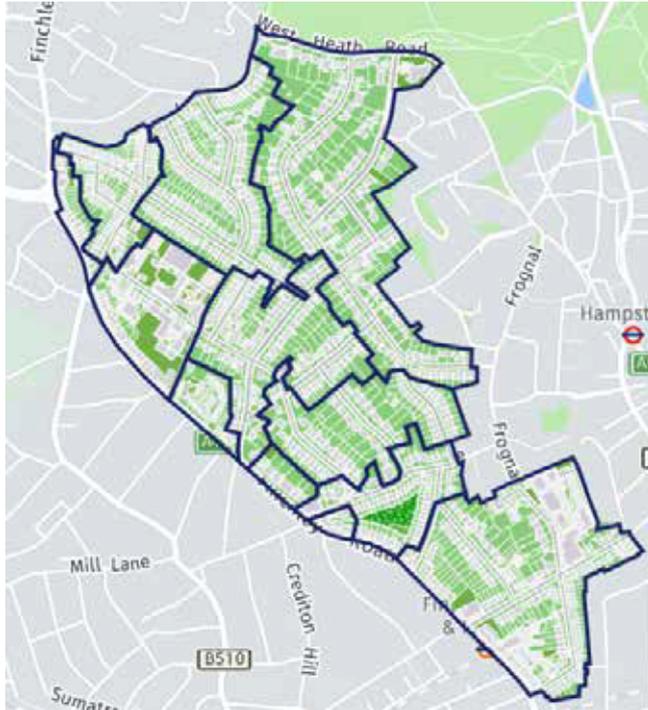
Application

- 29. Due regard is to be given to the importance of the Area's private gardens, as an ecological green network, when assessing applications for new development which consumes gardens and open space.
- 30. The location of all extensions or new development should take account of leaving the unaffected portion of garden connected to other unaffected gardens and open space immediately adjoining the site, to ensure connectivity of these spaces is protected.
- 31. All gardens within the Plan Area lie on bat foraging and commuting routes, and many hedges and trees support nesting birds. A bat and bird survey screening assessment is therefore required to be conducted by a company which is a member of the Chartered Institute of Ecology and Environmental Management for all planning applications involving the loss of gardens, which provide wildlife foraging and / or commuting habitat.
- 32.

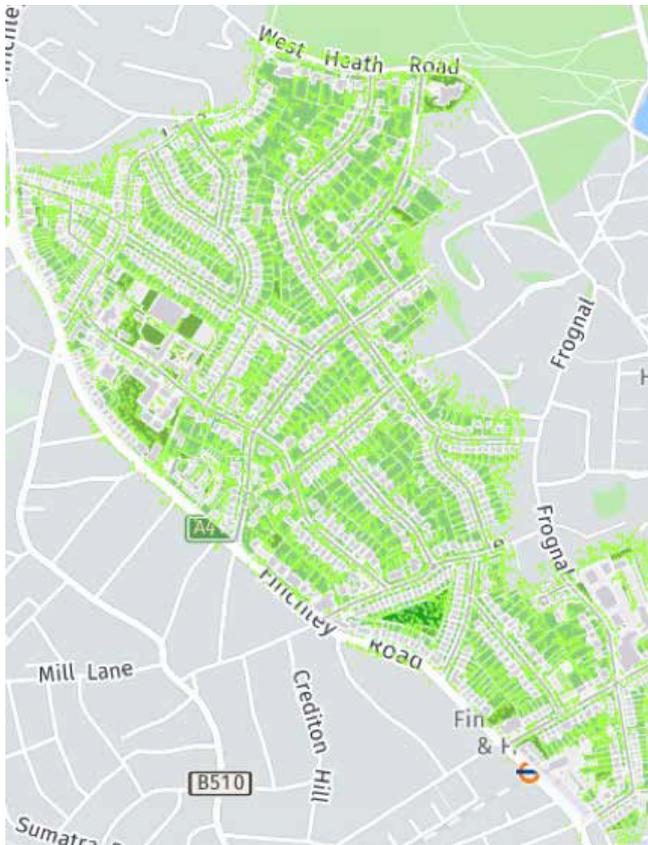
Map BGI 2: Redington Frogнал Private Gardens Forming an Ecological Network



Map BGI 3: Redington Frogna Private Gardens Forming an Ecological Network, by Conservation Area Sub Area



Map BGI 4: Redington Frogna Private Gardens with Trees



Source: Rosie Donnelly based on OS maps

Recommendations

33. Recommendations to create areas with high biodiversity value are:
 - structure planting with high biodiversity value to provide nest sites, winter shelter and food for birds
 - wild flower or ornamental meadows with an abundance of flowers to encourage pollinators
 - natural ponds
 - undisturbed wild patches.
34. Hedgerow species should include evergreen and thorny plants for winter shelter and protection from predators. A good hedgerow planting mix is shown at Appendix BGI 3
35. It is recommended that fences and garden walls should incorporate small gaps to ensure connectivity between gardens for small mammals such as hedgehogs.
36. Where practicable, ponds should be re-instated and underground rivers “daylighted” (i.e. uncovered and exposed). Reference may be made to the Arup Red Frog Sub Surface Water Features Mapping Report (latest edition).

BGI 2 FRONT AND SIDE GARDENS / FRONT BOUNDARY TREATMENTS FOR NEW DEVELOPMENTS

Intent

- 37. The garden settings of buildings create a buffer between the buildings and the street and are a central element of the original design of the area. Front gardens afford an attractive transition between the public realm of the street and the private areas of dwellings, in addition to providing space for planting, sitting outside and informal social interaction.
- 38. The traditional front boundary treatment in the Forum area typically comprises retaining walls in combination with hedges (Local Plan Policy T1 10.21). In many streets, gardens have been converted to hard-surfaced car parks and boundary treatments removed, causing the street scenes to become degraded.
- 39. Soil types are predominantly clay, and the removal of front gardens exacerbates water run-off and flood risk. Camden’s Local Plan Policy T1 10.20 notes that,

“Areas of paving can also increase the volume and speed of water run-off. This adds to the pressure upon the drainage system and increases the risk of flooding from surface water. Developments seeking to replace garden areas and/or boundary treatments for the purposes of providing on-site parking will therefore be resisted.”
- 40. Front gardens additionally provide important public amenity value, their trees and hedges contributing positively to the streetscape and to biodiversity.
- 41. Side gardens. The Area is characterised by significant and well-preserved gaps between buildings, providing views through to rear gardens. These gaps contribute greatly to the verdant streetscapes (as noted in Camden’s Local Plan Policy A2 6.38). However, despite the apparent support for maintaining such gaps, gaps have continued to be closed. and it is therefore the intention of this policy to strengthen the protection afforded to their preservation.
- 42. BGI 2 seeks to re-green streets, to preserve traditional front boundary treatments and to enhance the street scenes.

Photo BGI 2: Front Garden Hedge and Retaining Wall, Bracknell Gardens, Sub Area 6



Photo BGI 3: Front Garden Hedge and Retaining Wall, Platts Lane, Sub Area Two



BGI 2 Front and Side Gardens / Front Boundary Treatments

- i. Camden Planning Guidance applies to front boundaries and must be enforced for all types of development (including refurbishment and reconfiguration, extension and infill).
- ii. The Plan encourages front gardens which provide for:
 - a) re-instatement of front gardens, hedges and original boundary treatments, where these have been lost through previous developments and alterations;
 - b) removal of space allocated for vehicle parking in front and side gardens, or reduction to no more than 50% of any front garden;
 - c) minimal hard surface. But, where hard surfaces are desired, the materials should be permeable.
- iii. Where front gardens have been lost to car parking, applications involving developments causing any loss of garden (front side and / or rear) space will be strongly encouraged to allocate at least 50% of the plot frontage to soft-surfaced front garden, with a traditional boundary treatment and hedge.

Application

- 43. Applications should demonstrate their compliance with this policy through detailed design plans for planting, hedging and soft surfaces for front gardens and materials for boundary treatments.
- 44. Where side extensions would not result in the loss of an existing gap between buildings, they should be single storey and set back from the front building line.

Recommendation

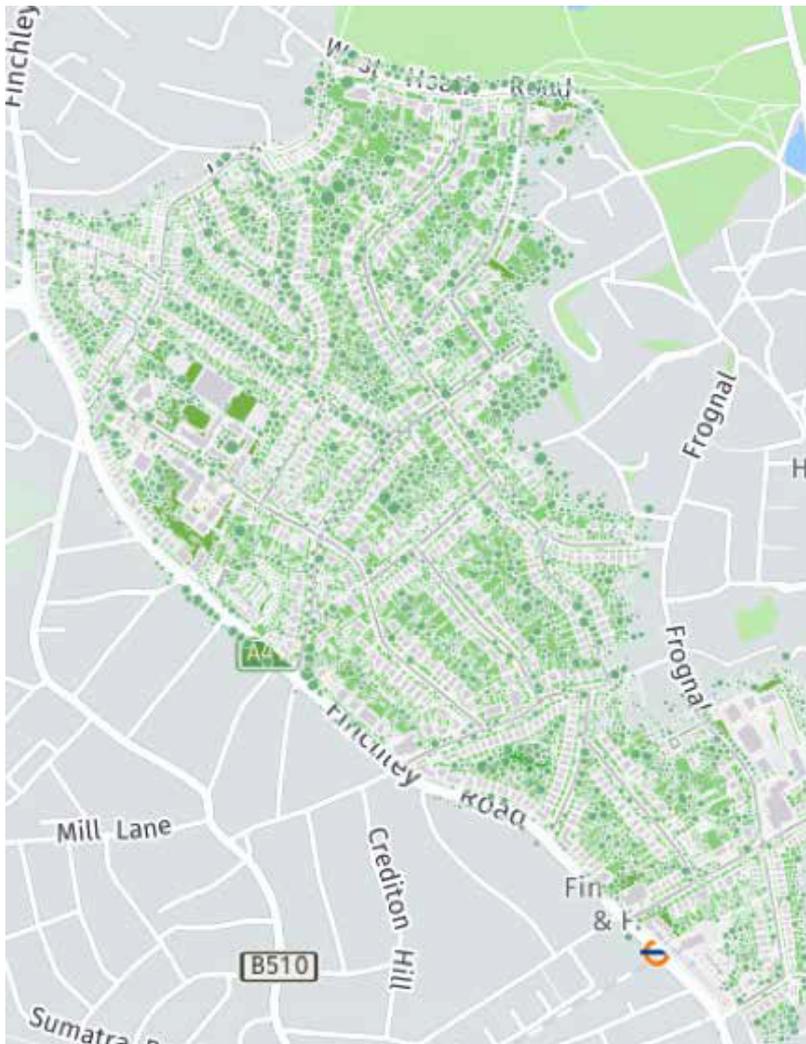
- 45. Planting and hedges should be used to screen parking, refuse, recycling bins and other facilities, in order not to negatively affect the streetscape.

BGI 3 TREE PLANTING AND PRESERVATION

Intent

- 46. The Redington Frognal Area was developed as a verdant Victorian and Edwardian suburb, whose character is strongly determined by the presence of many trees lining pavements and adorning the front and back gardens of private properties.
- 47. The prominence given to tree planting is apparent from the 1866 Ordnance Survey Map. Forum members have surveyed the remaining veteran trees and trees with developing veteran features and have identified more than 30 remaining within the Plan area. Their co-ordinates are provided in BGI Appendix 5. Veteran trees provide a unique, high-value contribution to the area’s biodiversity, as well as to its character and heritage. It is particularly important to protect these veteran trees from avoidable felling: it would take many decades before trees planted to replace them could provide a similar contribution.
- 48. Trees in front gardens contribute greatly to the setting of streets and buildings, while trees in rear gardens are often visible from the street through gaps between buildings.
- 49. The aesthetic value of trees substantially enhances the townscape, while shade and shelter provided by their canopies helps to cool urban areas in summer and prevent heat loss, by buffering the impact of cooling winds, in winter.
- 50. Trees contribute to ecosystems by providing food and habitat for birds and other animals, and improve air quality by absorbing a range of toxic gases and particulates. Larger, native trees, in particular, provide valuable foraging and potential roosting or nesting sites for a range of bird, bat, insect and lichen species.
- 51. With trees making such a large contribution to the Area’s character and providing multiple benefits to ecological and human health, it is of great importance that the Area’s tree canopy is maintained.

Map BGI 5: Redington Frognal Tree Canopy Map, 2010



Source: AECOM based on ProximiTree data (2010).

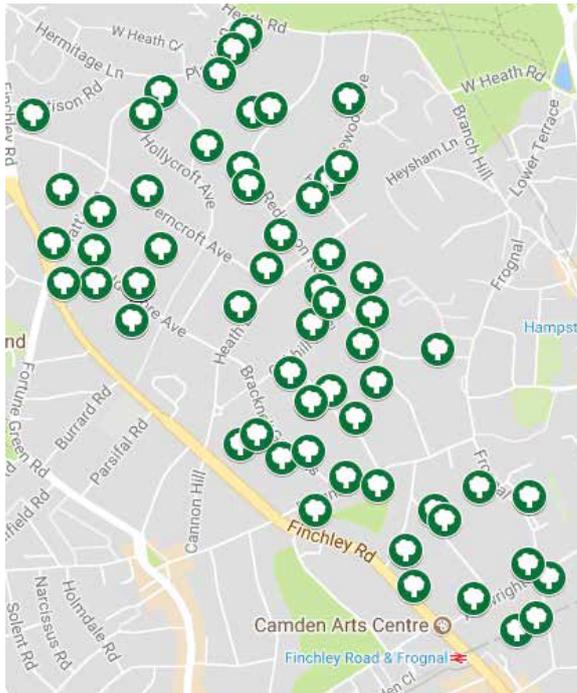
Photo BGI 4 Line of Veteran Hedgerow Trees between Platts Lane and Telegraph Hill, Sub Area Two



52. However, as a result of development, and the conversion of front gardens to car parks, the tree canopy has been considerably eroded, with widespread loss of trees, notably:
- to the east of Finchley Road, at the former King’s College Hampstead Campus in Kidderpore Avenue
 - to the south east of the Forum area, from University College School to Netherhall Gardens
 - the eastern end of Redington Road and in the south west from Arkwright Road up to and including at the Hampstead Gate office development
 - over the underground River Westbourne at University College School, Frognal.
53. The felling of water-loving trees, such as poplar and weeping willow, which were historically planted in close proximity to underground rivers, has caused basements to flood and has created many soggy gardens⁶⁵, even requiring the installation of pumps (e.g. University College School and 262 Finchley Road). The location of soggy gardens [60](#) and underground rivers has been researched and mapped by Arup in association with the Neighbourhood Forum (Arup Red Frog Sub-Surface Water Features Mapping Report, April 2016).
54. Between 2010 and mid-June 2016, Camden granted consents for 307 trees to be felled, just for basement excavation applications alone, within the Redington Frognal Conservation Area. Replanting efforts have fallen greatly behind. These incremental losses of trees have had a major cumulative negative effect on the verdant character of the area and the tree canopy is now reduced compared to the 2010 ProximiTree data (in maps BGI 4 and BGI 5).

26. These are gardens where wet ground conditions are observed, at least on a seasonal basis.

Map BGI 6 Consented Tree Fellings in the Redington Froggnal Conservation Area, 2010 to June 2016



Source: Socrata Open Data API

- 55. Policy BGI 3 seeks to close gaps in the tree canopy and to provide a healthy mix of tree species to support health and well-being, to benefit biodiversity and to maintain and improve the Area's heritage character.

BGI 3 Tree Planting and Preservation

- i. Development will protect trees that are important to biodiversity, rear garden tree corridors, local character and / or the Conservation Area.
 - a) Development proposals, where appropriate, should include measures to protect and assist in the restoration of tree lines and biodiversity corridors, reducing the incidents of breaks and the length of gaps. Trees selected for planting should have a high value to insects and lichens, as in the list at Appendix BGI 4, arranged in order of biodiversity value;
 - b) Any development that proposes removal of a tree should provide justification for the proposed tree removal(s) and details of replacement tree planting to mitigate against any loss of canopy cover, included within the application. Any trees removed to facilitate development shall be replaced by two or more trees with a high value to insects and lichens, from the list at Appendix BGI 4, arranged in order of biodiversity value;
 - c) notifications of intent to fell are to be accompanied by plans for replacement planting of trees with a high value to insects and lichens, from the list at Appendix BGI IV, arranged in order of biodiversity value. If Camden's tree officers should deem none of these to be appropriate, the felled tree should be replaced with the species removed
- ii. Planning proposals are required to ensure that veteran trees are fully and strictly protected in accordance with Natural England's "Standing Advice for Ancient Woodland and Veteran Trees". The required minimum buffer zone for veteran trees is 15 times larger than the diameter of a veteran tree or 5m from the edge of its canopy, if that's greater. Deadwood should be retained where possible. Canopy reduction to facilitate construction will only be acceptable in exceptional circumstances.
- iii. Tree root protection zones required for non-veteran trees are to be in accordance with British Standard BS5837: 2012.

Note: a tree corridor is a line of trees along or close to the boundary of one or more adjoining gardens.

Application

- 56. Trees should be retained and incorporated as part of any development. Where felling is required, eg on grounds of safety, or because it is an invasive species, one or more trees are to be planted in replacement.
- 57. Tree planting is expected at all developments sites, with species selected on the basis of the trees' high biodiversity value. Where space permits, they should be trees with a large canopy.
- 58. A list of trees with high biodiversity value⁶², in terms of the number of insect and lichen species supported, is provided in Appendix BGI 4. A majority of the trees selected should be capable of living to at least 100 years.
- 59. For soggy garden sites within 30 metres of an underground stream, as indicated in the Arup Red Frog Sub-Surface Water Features Mapping Report, April 2016, it is advisable to plant trees with a high water demand, such as willow, poplar, elm and oak.
- 60. Through careful planting of tree and shrub species, it is envisaged that the Area will regain some of the wildlife species, which have been lost and or become depleted, and that Redington Froggnal gardens will once more become home to sparrows, starlings, thrushes and butterflies.

Recommendation

- 61. Camden Council is requested to place Tree Preservation Orders on:
 - all veteran trees in the Plan area;
 - the mature trees at the northern end of the Hampstead Manor, Kidderpore Avenue site. It can be expected that occupiers of the sunken pavilion houses (currently under construction) will find the accommodation to be lacking in natural light and will seek the removal of the established mature trees. These trees provide an important screen between the site and St. Luke's Vicarage and are also used by bats for foraging and commuting.

- 27. Hirons, Andrew D and Percival Glynn C " Fundamentals of tree establishment: a review"
[https://www.forestry.gov.uk/pdf/Trees-people-and-the-buit-environment_Hirons.pdf/\\$FILE/Trees-people-and-the-buit-environment_Hirons.pdf](https://www.forestry.gov.uk/pdf/Trees-people-and-the-buit-environment_Hirons.pdf/$FILE/Trees-people-and-the-buit-environment_Hirons.pdf)
- 28. Alexander, A., Butler, J. and Green, T. (2006) 'The value of different tree and shrub species to wildlife'. British Wildlife 18(1): 18 – 28 http://www.countrysideinfo.co.uk/woodland_manage/tree_value.htm

BGI 4 LIGHT POLLUTION

Intent

- 62. Insect-eating bats have long been part of the Area’s wildlife. Common pipistrelle, soprano pipistrelle and serotine bats commute, forage and roost throughout the Area, wherever there are mature trees and associated shrubbery.
- 63. Mature trees and shrubbery provide roosting, shelter and safety and attract a wide variety of insects which bats prey on (such as midges, mosquitoes, moths and gnats).
- 64. The presence of bats throughout the Area is confirmed by a number of bat surveys conducted by The Ecology Network⁶⁸, The Ecology Consultancy^{69, 70}, Furesfen⁷¹ and John Cromar’s arboricultural report⁷². Rear garden tree corridors are vital to their survival.
- 65. Artificial night lighting has been shown to have an adverse effect on wildlife, particularly on nocturnal species, such as bats, moths and owls, while the impact on song birds and robins of night-time singing and the continual lack of sleep is likely to be detrimental to the birds’ survival⁷³.
- 66. As well as disrupting the biological rhythms of wildlife, badly-aimed artificial lights are a nuisance to residents in neighbouring properties, by forcing levels of artificial lighting upon the residents that they may not desire and are unable to control.
- 67. Policy BGI 4 seeks to limit harm to the environment and nuisance to residents by reducing the level of light pollution, notably in rear gardens.

BGI 4 Light Pollution

- i. It is desirable to minimise light pollution, particularly in rear gardens and near trees and hedges. Developers are encouraged to take steps taken to minimise light pollution from within the building and from any external lighting.
- ii. The Plan encourages all development to support the Plan’s aims to foster biodiversity and minimise light pollution, through:
 - a) the avoidance of white light, or light which is rich in blue (short) wavelengths, in the form of white light-emitting diodes (LEDs), known for its harmful impact on human health and on wildlife. Cool white LEDs are particularly strong light polluters, due to their strong blue emission peak;
 - b) the avoidance of large expanses of glazing at the rear of properties, such as conservatories at first-floor level and above and glazed summerhouses sited in rear garden tree corridors;
 - c) ensuring that lights are correctly adjusted to light only the intended area, avoiding stray artificial light on neighbouring properties or green spaces;
 - d) avoiding (intentionally or unintentionally) directing artificial lights at trees, hedges and areas of high potential for biodiversity;
 - e) ensuring that lights, including security lights, are not brighter and are not left on for longer than needed for their purpose;
 - f) avoiding illuminated advertising: except for shop signs in the Finchley Road town centre, which may be appropriate.

- 29. Ecology Network Bat Activity Survey, September 2016
- 30. Ecology Consultancy Kidderpore Avenue, Hampstead Bat Surveys, December 2012
- 31. Ecology Consultancy Kidderpore Avenue King’s College Halls, Bat Presence or Likely Absence Surveys, September 2014
- 32. Furesfen 25B Froggnal Bat Survey, July 2012
- 33. Arboricultural report for 5 Templewood Avenue, 24.1.17
- 34. Pollard A. (2009) Visual constraints on bird behaviour. University of Cardiff

Application

- 68. For security lighting a low-power light emitting 600-900 lumens can offer a suitable solution. Security lights should be adjusted to pick up only movement of people in the area intended, not beyond, and should be fitted with a solar time clock to ensure it is not activated during times of daylight^{74, 75}.
- 69. Solar-powered lights emit a dim light that is less likely to harm wildlife.

Photo BGI 5: Motion Sensor Lighting, Illuminating Specific Areas Only When Needed



35. Letter from (redacted) of The Ecology Consultancy to (redacted), Principal Planning Officer, London Borough of Camden
36. International working group, "Declaration on the use of blue-rich white light sources for night time lighting".
http://www.iac.es/adjuntos/otpc/International_Declaration_on_Blue-Rich_Light.pdf

BGI 5 LOCAL GREEN SPACES

Intent

- 70. The Plan Area does not meet Natural England Accessible Green Space Standards (ANGSt) and the green pace deficit is forecast to intensify (see Appendix BGI 2)⁷⁶.
- 71. With no new open space likely to become available, it is essential to protect those that already exist (London Plan Policy G4). By designating land as a Local Green Space, local communities will be able to protect these spaces from future development, other than in “very special circumstances”.
- 72. The following areas have been identified as Local Green Space and fulfil the criteria outlined in NPPF (99) and (100).The table below evaluates the sites to be designated against these criteria.

Para 100 NPPF LGS tests	Is it in close proximity to the RF NP Area?	Does it hold special value?	Does it have local character?
LGS 1 West Heath Lawn Tennis Club	Yes	Provides the opportunity for outdoors exercise, a social meeting place, with club tournaments, suppers, picnics etc.	In use since 1912. The green, wooded site is used by local residents and from further afield. Important for older residents and children.
LGS 2 Kidderpore Reservoir	Yes	Unbuilt open space above a feat of Victorian engineering	One of London's oldest reservoirs, constructed in 1867, it supplies drinking water to 11,000 homes in north west London
LGS 3 Tennis courts to rear of Windsor Court, Platts Lane	Yes	Enjoyed by Windsor Court residents.	Part of the Kidderpore Reservoir.
LGS 4 SINC CaL07 Frognal Lane Gardens, bounded by Langland Gardens, Finchley Road and Frognal Lane.	Yes	The garden is a valuable amenity for residents in a green space deprived area. It is also used by many birds and invertebrates.	First notified as a SINC in 1993. Contains a pond and many mature trees, beneath which grow a good selection of wild flowers.
LGS 5 Embankment between Platt's Lane and Telegraph Hill;	Yes	Visual amenity for residents and passers by. The site acts as an important green corridor linking to Hampstead Heath (West Heath). It provides a screen from traffic and its trees filter particulates.	Originally part of West Heath, with several veteran oaks and oaks with developing veteran features.
LGS 6 The entire lawned and planted area of Studholme Court	Yes	Valued by residents for relaxation, socialising, exercising, picnics, children's birthday parties, nature and biodiversity.	The musical comedy actress and picture postcard beauty, Marie Studholme, lived and died at Croft Way.
LGS 7 Rear Garden at Camden Arts Centre, Arkwright Road, NW3 6DG	Yes	Used by vistors as a quiet retreat and a lush green space in which to picnic, read and observe the wildlife.	This has been a public space since 1897, when the premises opened as the Central Public Library.
LGS 8 Copse to the tear of 17 Frognal, NW3 6AR	Yes	Attractive visual amenity, preserved trees and biodiverse commuting, foraging and nesting habitat.	The last remaining woodland behind Finchley Road and critical to the to the Area's verdant townscape and character.
LGS 9 SINC CaB1109, Kidderpore Avenue	Yes	Female students used the grounds for relaxation and study, away from the public gaze. It was notified as a SINC in 2003. A pond is being added and SINC status is to be retained for this important bat-foraging and commuting area. The development site was being marketed in 2017 for its biodiversity and contribution to local nature conservation.	From 1882, the grounds formed part of Westfield College, dedicated to women's education. The campus became co-educational in 1964.

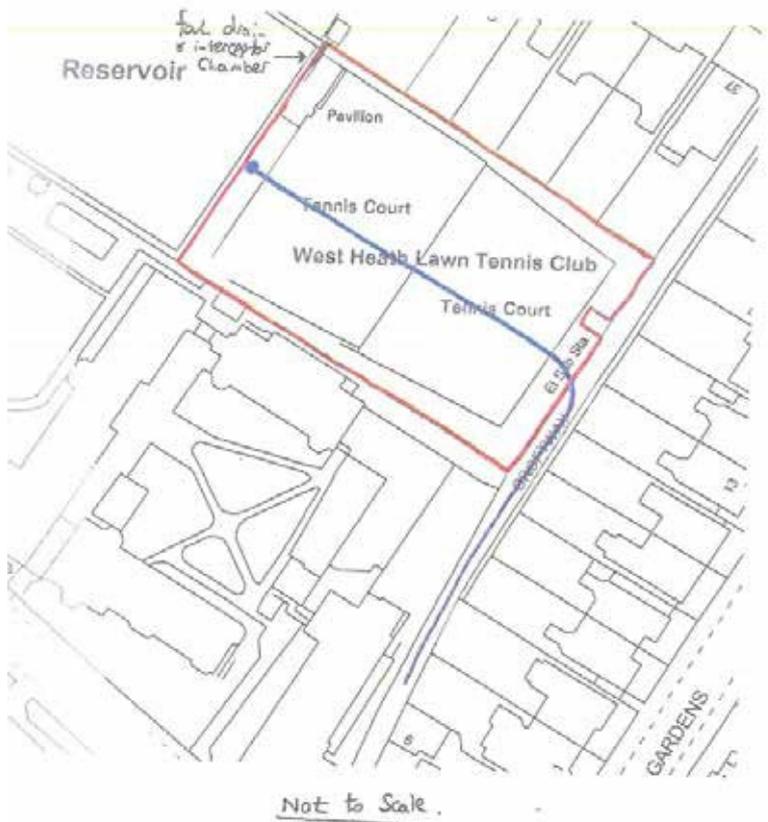
⁷⁶ Letter from Ashfords LLP to the London Borough of Camden, dated 24 August 2016

73. Public green space within the study area is very limited. The West Heath Lawn Tennis Club (WHLTC), together with a large covered water reservoir, constitute the most substantial area of open space.

LGS 1: West Heath Lawn Tennis Club.

- 74. WHLTC has operated on the Croft Way site since at least 1912. It offers low-cost memberships and provides the opportunity for outdoors exercise for residents in the area and from elsewhere. WHLTC also provides a social meeting place, with club tournaments, suppers, picnics etc.
- 75. It is acknowledged by the freeholder of the site that its use meets the definition of an Asset of Community Value. However, an attempt by the Forum to designate the site as an Asset of Community Value failed ³⁷ because the land is “operational land” as defined in section 263 of the Town and Country Planning Act 1990.
- 76. The lease term granted on 1 October 2001 to the West Heath Lawn Tennis Club Ltd by Thames Water Utilities Ltd is due to expire on 30 September 2022. The Plan therefore wishes to designate the site as Local Green Space, notwithstanding its existing designation by Camden as private open space.

West Heath Lawn Tennis Club to be Designated Local Green Space



³⁷.Letter from Ashfords LLP to the London Borough of Camden, dated 24 August 2016

76 Letter from Ashfords LLP to the London Borough of Camden, dated 24 August 2016

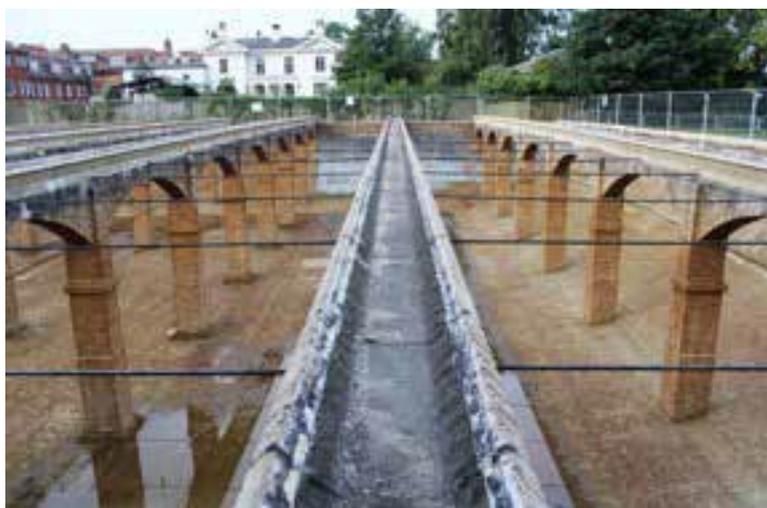
LGS 2: Kidderpore Reservoir

77. This is an important open space in the north west of the Plan Area. In the event that the reservoir, and the land on which it is sited, becomes surplus to water supply operations (as with the nearby Gondar Gardens reservoir) the Plan seeks to preserve the site for the community, for potential future use as a community-designated nature reserve and to achieve this Vision and Objectives supported aim. Such a use will also help to meet the Natural England Accessible Green Space Standards (ANGSt) summarised in Appendix BGI 2. It therefore proposed that the land on which the reservoir is sited be designated as Local Green Space.

Kidderpore Reservoir to be Designated Local Green Space



Victorian Engineering Beneath Covered Water Reservoir



LGS 3: Tennis Courts to the Rear of Windsor Court, Platts Lane

- 78. The tennis courts behind Windsor Court on the south side of Platts Lane and to the north west of Kidderpore Reservoir, similarly do not enjoy any protection. Currently, they are enjoyed by residents of Windsor Court, on a lease from Thames Water.
- 79. The Plan additionally seeks to designate this site as Local Green Space.

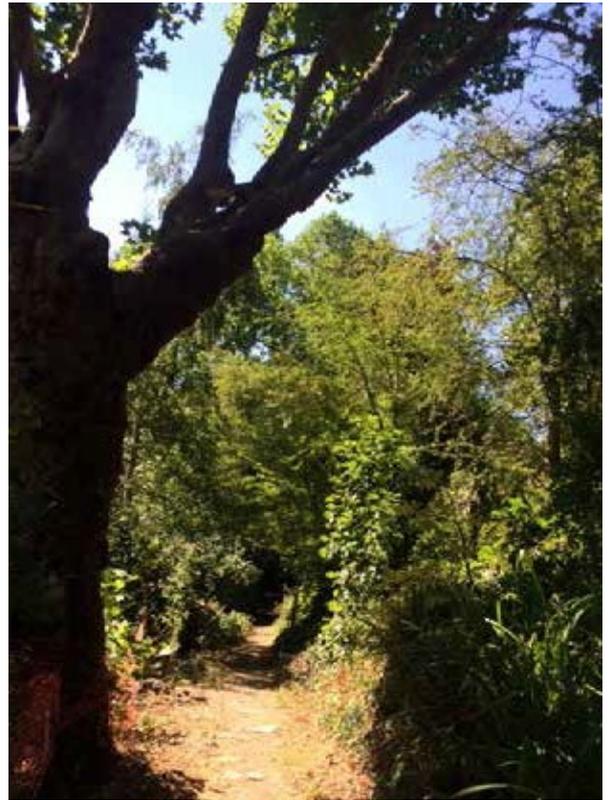
Windsor Court Tennis Courts to be Designated Local Green Space



LGS 4: SINC CaL07: Frogmal Lane Gardens

- 80. This is a small private communal garden bounded by Langland Gardens, Finchley Road and Frogmal Lane, owned by Frogmal Lane Gardens Ltd. The garden incorporates an attractive pond (temporarily filled in), and has many mature trees, beneath which grow a good selection of wild flowers. Trees include large London planes ash, oak, Norway maple, holm oak and silver birch. Ornamental shrub beds around the perimeter are planted with both native and exotic species, which include hazel, yew, cherry plum, lilac, spotted laurel and oleaster.
- 81. The western end of the site contains numerous trees and shrubs/scrub and is less intensively managed. It, thus, has a wilder appearance with a greater number of tall herb species including meadow buttercup, wood dock, teasel, herb-Robert, red campion, greater periwinkle and enchanter’s nightshade.
- 82. The site is used by numerous birds including blue tit, jay, blackbird, magpie, robin, thrush, starling and great-spotted woodpecker. Nest boxes have been put up and the site management is focused on creating a more invertebrate-friendly habitat.

CaL07 SINc Comprised of Area of Communal Garden Bounded by Froggnal Lane, Langland Gardens and Finchley Road: to be Designated Local Green Space



LGS 5: Embankment between Platt's Lane and Telegraph Hill

- 83. The embankment between Platt's Lane and Telegraph Hill was originally part of West Heath⁷¹ and is also to be protected. Here there are several veteran oaks and oaks with developing veteran features, acting as an important green corridor linking to Hampstead Heath (West Heath). It contributes to the biodiversity of the area, fulfils criteria 99 and 100 of the NPPF outlined above and is to be designated as Local Green Space. Telegraph Hill is additionally of historic importance, having marked the Anglo-Saxon boundary between Hampstead and Hendon. It was also the site of an optical telegraph station constructed by the Admiralty during the Napoleonic wars as a means of communication with the fleet where the beacon was lit to carry the tidings of the Spanish Armada ⁷²

Embankment Between Platt's Lane and Telegraph Hill: to be Designated Local Green Space



72
Hendon and Di
<http://>
2014
47

38. <http://www.hampsteadheath.net/west-heath-details.html>

LGS 6: Open space at Studholme Court, Finchley Road, NW3 7AE.

84. Studholme Court was constructed within an orchard on part of the garden of Marie Studholme’s former Hampstead home⁷⁸. The site retains many trees, including fruit trees. The verdant setting, its trees and green space are highly valued by Studholme Court residents for their health and wellbeing⁷⁹. It is noted that Studholme Court is situated within a green space deficient area, yet consideration has already been given to developing the parcel of garden space fronting onto Finchley Road. To ensure the protection of the green space and verdant setting, the Plan seeks to designate the entire lawned and planted land as Local Green Space.

Open Space at Studholme Court, Finchley Road. NW3 7AE: to be Designated Local Green Space



LGS 7: Rear garden at Camden Arts Centre, Arkwright Road, NW3 6DG.

85. This much-valued green oasis, with many mature trees and natural landscaping, offers visitors a quiet retreat and a lush green space in which to picnic, read and observe the wildlife. It is to be preserved as unbuilt, natural green space through designation as Local Green Space.

Rear Garden at Camden Arts Centre, Finchley Road. NW3 6GD: to be Designated Local Green Space



LGS 8: Copse to rear of 17 Frognal NW3 6AR

86. This site⁸⁰ is approximately 3,900 sq. ft. and the last remaining area of woodland behind Finchley Road within the Plan area. It lies in close proximity to the underground river, which flows from Maresfield Gardens to Finchley Road.

39. Marie Studholme [https://www.revolvy.com/main/index.php?s=Marie Studholme](https://www.revolvy.com/main/index.php?s=Marie+Studholme)
 40. Email (redacted), Chair of Studholme Court, Tenants and Residents Association, 3 July 2017.
 41. Land Registry Title NGL633051

- 87. The site has no direct access from the street (albeit there is a pedestrian right of way across neighbouring land to Froggnal) and seven main trees are subject to Tree Protection Orders⁸¹. The trees and other growth provide a green outlook to residents in apartments on Froggnal and to office users in Hampstead Gate and Meridien House. It is also valued for its peaceful backdrop to nearby gardens and for shielding views of buildings on Finchley Road. The trees additionally help to filter noise and air pollution from Finchley Road, thus increasing the sense of tranquillity in Froggnal gardens.
- 88. The copse is used by bats for foraging and commuting, as documented by Fursefen⁸² and is home to nesting birds, black squirrels and other wildlife.

Approximate Site Plan

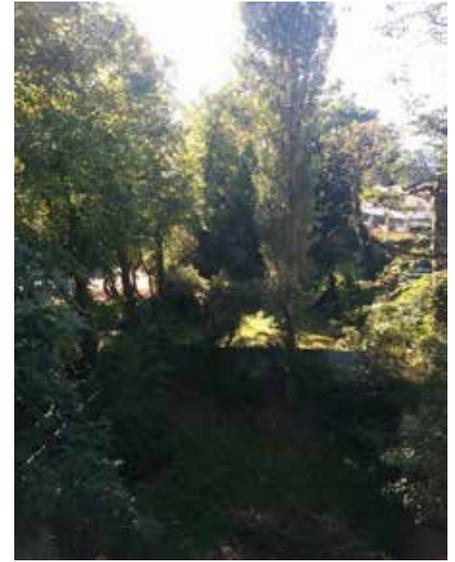


H.M. LAND REGISTRY.		TITLE NUMBER	
		NGL633051	
ORDNANCE SURVEY PLAN REFERENCE	COUNTY	SHEET	NATIONAL GRID
	GREATER LONDON		TQ 2685
			SECTION
			Z
Scale: 1/1250		© Crown Copyright 1980	

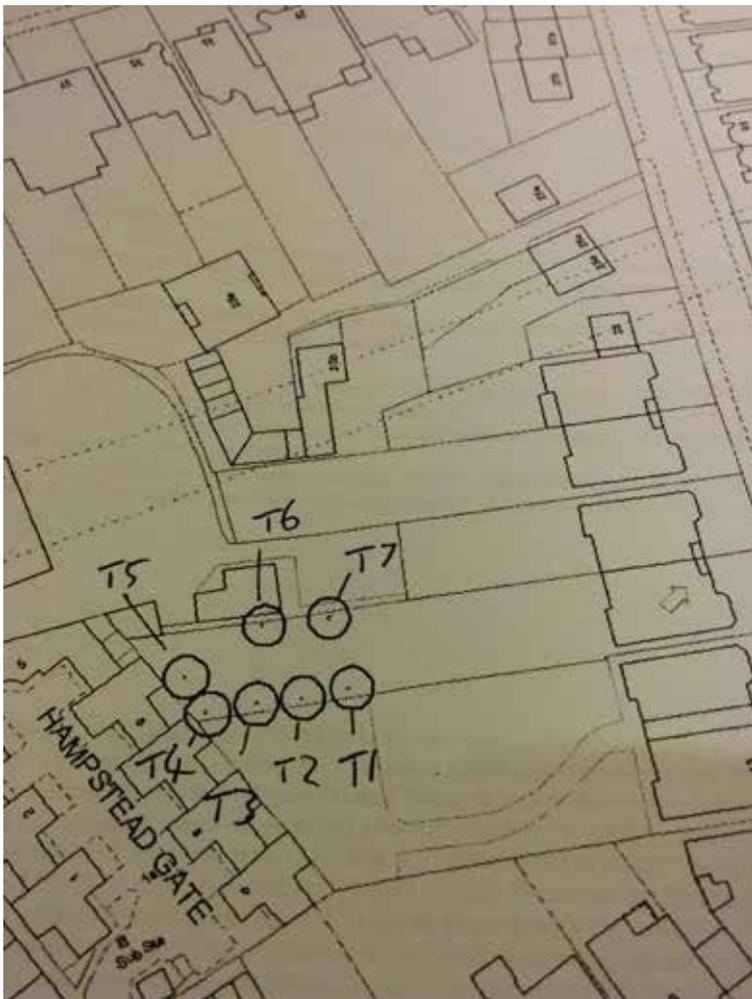


42. TPO dated 10.7.08
 43. Furesfen 25B Froggnal Bat Survey, July 2012. Studholme Court, Tenants and Residents Association, 3 July 2017.

View of Copse from Meridien House Car Park



Tree Preservation Orders in Place



Recommendation

- 89. Ivy, which was cleared from trees, along with ground cover and other wildlife habitat, during spring 2018, should be replanted, in order to reinstate the site's high biodiversity value.

LGS 9: Borough Grade II Site of Interest for Nature Conservation CaB1109 in Kidderpore Gardens.

- 90. In 2016 the sale of this site was completed, following the grant of planning consent to use the site for housing development. This Borough Grade II Site of Interest for Nature Conservation (SINC) has been highly valued by students at King’s College, who enjoyed relaxing there and the green and natural outlook provided.
- 91. In its marketing, the new site owner states that, “we are thrilled to be working in Hampstead, to be conserving the rich heritage of the historical Kidderpore Avenue site and to be overseeing a programme of landscaping and biodiversity across the site that will contribute greatly to local nature conservation”⁸³. This marketing theme suggests that Mount Anvil expects the gardens to be highly valued by residents.
- 92. In the s.106 agreement, it is stipulated that the SINC is to be “properly maintained and opened for controlled public access” ((paragraph 24.1 g) and that the Open Space Management Plan will include “measures governing the use of the Open Space by the public and to secure public access to the Open Space from dawn to dusk subject to Clause 21.4.2 or as otherwise agreed by the Council in writing” (paragraph 21.2.1).
- 93. It is likely, therefore, that the SINC will be similarly valued by non-residents, including residents at the Barratt site opposite, where green space is more limited. The Plan therefore wishes to designate the gardens as Local Green Space. The natural pond, planned for the north-western corner of the SINC (adjacent to the Vicarage garden), is expressly included within this designation, on account of its high value to biodiversity.

Borough Grade II SINC CaB1109, Kidderpore Avenue (shaded green): to be Designated Local Green Space



Source: Camden planning consent 2015/3936/P, section 106 agreement

44. <http://hampsteadproject.mountanvil.com/>

BGI 5 Local Green Spaces

The Plan designates the following areas as Local Green Spaces.

Development on these sites will be permitted only in very special circumstances.

LGS 1 West Heath Lawn Tennis Club

LGS 2 Kidderpore Reservoir

LGS 3 Tennis courts to rear of Windsor Court, Platts Lane

LGS 4 SINC CaL07, the communal garden bounded by Languard Gardens, Finchley Road and Frognal Lane

LGS 5 Embankment between Platt's Lane and Telegraph Hill;

LGS 6 The entire lawned and planted area of Studholme Court

LGS 7 Rear garden at Camden Arts Centre, Arkwright Road, NW3 6DG

LGS 8 Roundabout at the junction of Heath Drive and Bracknell Way

LGS 6 Open Space at Studholme Court

LGS 7 Rear Garden at Camden Arts Centre, Arkwright Road, NW3 6DG

LGS 8 Copse to the rear of 17 Frognal, NW3 6AR

LGS 9 SINC CaB1109, Kidderpore Avenue

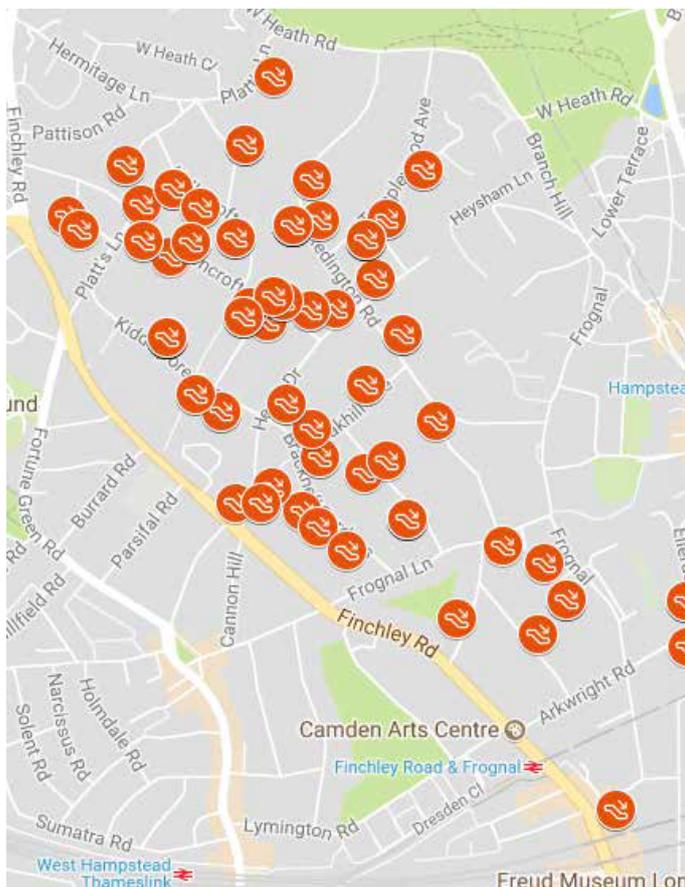
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BGI 6 BASEMENTS

Intent

- 94. Paragraph 170 of the NPPF requires that development contributes to and enhances the natural and local environment, including, “d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures .”
- 95. There is an increasing trend for domestic basement extensions in the Plan Area. Although basement extensions can provide an opportunity to add habitable space to homes, in the neighbourhood plan Area, they are frequently utilised to provide basement car parking and car lifts⁸⁴. This is, arguably, at variance with Camden’s Local Plan Policy T2 for car-free new development. In a test case of the application of Camden’s new car-free development policy⁸⁵. Camden officers successfully argued that the requirement for car-free development applies only to cases involving demolition, paving the way for a development of two flats with eight off-street parking spaces (including four spaces within a new basement) and a car lift.
- 96. The use of basement space for car parking and / or car lifts additionally causes harm to the amenity of neighbours. The noise and vibration impacts resulting from such a use is contrary to Local Plan Policies A1 paragraphs 6.19 and 6.20 and A4 paragraphs 6.89 and 6.91.
- 97. Generous land plots with well-vegetated gardens are intrinsic to the setting of the Redington Frognal Conservation Area. However, basement development continues to further erode front, side and rear gardens, with attendant losses to the soil, or garden substrate, and the vegetation. Soil and garden substrate play a crucial role in supporting and providing a number of ecosystem functions, including the provision of habitat (shelter and forage) for a range of wildlife.
- 98. Between 1 January 2010 and 28 October 2017, data from Camden’s Socrata website indicate that consents were granted for 123 basement excavations in the Redington Frognal Conservation Area.

Map BGI 7 Consented Basement Excavations in the Redington Frognal Conservation Area, 1.1.10 to 28.10.17



Source: Socrata Open Data API

- 45. Examples are the Mount Anvil, Barratt and Westfield developments in Kidderpore Avenue, 5 Templewood Avenue (2017/1229/P) and 28 Redington Road (2016/2997/P).
- 46. 5 Templewood Avenue: 2017/1229/P

Biodiverse-Free Garden with Light Pollution Above Basement at 38 Redington Road

House for sale in Redington Road, London, NW3 - UK

guide price **£9,950,000**

£9,950,000

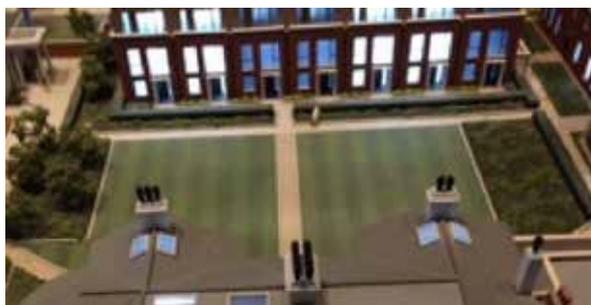


- 99. In order to excavate the basement car park at Hampstead Manor (the former Westfield College site), some 38 mature trees were felled. Planned replacement planting is comprised of shrubs and a lawned area, the soil depth of 1 metre being insufficient to sustain large-canopy species.

Existing Large Canopy Mature Trees in Deep Soil at Hampstead Manor



Planned Planting Above Basement Car Park at Hampstead Manor



- 100. During excavation works it is typical for almost the entire garden area, minus the perimeter buffer, to be dug up and removed offsite. This has been observed at the Barratt and Mount Anvil construction sites (the latter designated SINC CaB1109), both in Kidderpore Gardens (2014 to 2018), where almost all the vegetation (except on the far perimeters) has been removed, and the sites left bare for the duration of the works.

101. The main consequence in the short-term (during construction) will be the removal of habitat for micro-organisms, invertebrates, birds, reptiles, amphibians and small mammals. As some animals are territorial, this will create knock-on effects on local populations. If the works occur during breeding or nesting season, the removal of the nesting sites could result in a lost generation and/or severe stress on the breeding animal if they have to reproduce again in the same season. Such disturbance could also result in the breeding pairs abandoning the site never to return. Likewise, in the winter season, the works could disturb hibernating animals (this includes overwintering insects as well as small mammals). The energetic costs of being roused from hibernation are often lethal for the animals, as they generally cannot replenish their reserves in the winter months.
102. The removal and relocation of the soil also has a more permanent impact on its micro-organisms and invertebrate populations. If the soil is taken away and redistributed to other sites, potentially in other regions, this will impact on the natural distribution of those animals. For example, construction work on the south side of Kidderpore Avenue saw the rehoming of bats in Royston⁸⁷.

Soil Depth, Volume and the Potential for Tree Planting

103. The importance of retaining a soil depth, which is sufficient to support large canopied species to survive to reach maturity (or their full potential) is critical not only to biodiversity, but also to retaining the character and setting of the conservation area, and to facilitate a healthy age structure.
104. Dr. Andrew D. Hirons, Senior Lecturer in Arboriculture at University Centre Myerscough advises that tree roots are often found beyond a depth of 1 metre⁸⁸. Soil volume is key to achieving a good quality rooting environment and species such as oak can have a water requirement of 100 litres per day. In the book “Applied Tree Biology”,⁸⁹ Dr. Hirons and Dr. Peter A. Thomas note that,
“to reach their potential for shade, rainfall management, noise reduction and carbon sequestration, trees must have sufficient water available for uptake within the rooted soil volume for growth and for transpiration.”
This necessitates a soil volume of 10 cubic metres or more and, on average 20 to 30 cubic metres of soil per tree, with an open surface to enable oxygenation of the soil⁹⁰.
105. Similarly, studies such as the Kew Wind Blown Tree Survey by Gasson and Cutler (1990), show that 56% of trees surveyed had a root plate depth of below 1 metre, while an Arboricultural Advisory and Information Service research note⁹¹ states that “All trees can develop a deep root system (2-3 metres deep) if soil conditions allow”. However, this ability will be influenced by the capacity of different species to tolerate varying soil conditions.
106. Soil volumes and depths are set out by the London Borough of Islington in its Supplementary Planning Guidance (SPG) on Basement Development, in paragraphs 7.4.14 and 7.4.15. This provides for the following soil volumes according to tree size (as defined by The Benefits of Large Species Trees in Urban Landscapes a Costing, Design and Management Guide, CIRIA, 2012:
- small trees (ultimate height of 5 - 8m): a minimum of 10 m³
 - medium trees (ultimate height of 8 -15m): a minimum of 20 m³
 - large trees (ultimate height of 15m+): a minimum of 30 m³
107. Soil rooting depths are stipulated as follows:
- small trees: a minimum of 1 metre
 - medium trees: 2 metres
 - large trees: 3 metres, in order to allow for adequate anchorage and hydrology during weather events (heavy rain/ water logging, drought conditions/ soil moisture deficit) to support tree health.

87 Natural England reference TRM-2014-7164 B

88 Applied Tree Biology by Andrew D. Hirons and Peter A. Thomas, pub. WILEY Blackwell, 2018

89 Soil depth telephone conversations, 26.2.18 and 6.3.18

90 Tree Root Systems by Martin Dobson, 1995 <https://www.trees.org.uk/Trees.org.uk/files/61/6181f2b7-e35d-4075-832f-5e230d16aa9e.pdf>

91 Basements Publication Planning Policy, Partial Review of the Core Strategy, February 2014 [https://www.rbkc.gov.uk/pdf/Basements Publication Second v5.pdf](https://www.rbkc.gov.uk/pdf/Basements%20Publication%20Second%20v5.pdf)

108. The Royal Borough of Kensington and Chelsea notes, in its “Trees and Basements” review (February 2015):
- “The physical root barriers, such as boundary walls, building foundations etc, typically found in this borough may restrict certain species from utilising soil beyond these constraints, which could greatly affect the health and vigour of many trees” and*
- “when you consider the constraints on a newly planted tree above a basement in a walled garden with potentially limited soil volume available the scenario appears not too dissimilar to the many moribund town centre trees in planters. Providing a suitable growing medium for all species of trees may not always be possible above a basement one metre below ground level, especially where further rooting constraints exist beyond the basement footprint”.*
109. Flooding due to lack of adequate drainage will greatly impact vegetation growth.
110. Research by the Royal Borough of Kensington and Chelsea⁹² found that, “All applications for basements are likely to affect trees either on-site or nearby”. Supplementary planning guidance has been drawn up in an attempt to protect trees from development⁹³.

Basement Size

111. The significance and value of private gardens to biodiversity and the area’s character is formally accepted by the London Borough of Islington. In its Supplementary Planning Guidance (SPG) on Basement Development, adopted January 2016⁹⁴, paragraph 7.1.4 states that,
- “Open space including private residential gardens contribute greatly to Islington’s character as well as providing vital green infrastructure functions for the borough such as reducing surface water flood risk, providing important habitat and ecological connectivity, and contributing to the borough’s biodiversity, urban cooling and adaptation to climate change. Private open spaces make up a significant proportion of Islington’s open space. The piecemeal loss of these spaces due to incremental development such as large outbuildings and extensive basements within gardens has serious potential implications for the borough.”*
112. For residential basement extensions, paragraphs 7.1.7 to 7.1.10 note that,
- “For extensions to existing residential basements or the creation of new basement areas underneath and/or within the curtilage of an existing dwelling, the majority of original open area of the site should be retained, and the total area of basement beyond the original footprint must be subordinate to the original footprint of the dwelling.”*
- and
- “The maximum extent will be measured separately for each garden/unbuilt upon area within the site, e.g. front, back or side.”*
- “The remaining garden area/unbuilt upon area of the site should be designed to maximise garden and amenity functionality, providing useable amenity space and supporting biodiversity enhancement, to protect the garden setting and contribute to local character. In considering the design of a basement that extends into a garden/unbuilt upon area, a proposal should avoid fragmentation of spaces to deliver cohesive, useable and functional private open space.”*
- The location of all basements should take account of leaving the unaffected portion of garden connected to other unaffected gardens and open space immediately adjoining the site, to ensure connectivity of these spaces is protected.” “... margins should be left between basements and adjoining sites. This allows for space to enable natural surface water drainage and lateral ground water movement to occur between sites.”*

92 Royal Borough of Kensington and Chelsea Adopted Trees and Development SPD
<https://planningconsult.rbkc.gov.uk/consult.ti/trees.2009/viewCompoundDoc?partid=1322100>

93 London Borough of Islington Supplementary Planning Document Basement Development, January 2016
<https://www.islington.gov.uk/~media/sharepoint-lists/public-records/planningandbuildingcontrol/publicity/publicconsultation/20152016/20160122basementdevelopmentspdadoptedjan2016.pdf>

94 Life Cycle Carbon Analysis of Extensions and Subterranean Development in RBKC, Eight Associates, February 2014
https://www.rbkc.gov.uk/pdf/E642_RBKC_FinalReport_1402-10RM_lores.pdf

113. Research by the Royal Borough of Kensington and Chelsea also found the size of the basement to be directly correlated with the level of nuisance and disturbance to neighbours. Chapter 34 of the Local Plan, para 34.3.53 notes that,
- “Restricting the size of basements will help protect residential living conditions in the Borough by limiting the extent and duration of construction and by reducing the volume of soil to be excavated. Large basement construction in residential neighbourhoods can affect the health and well-being of residents with issues such as noise, vibration and heavy vehicles experienced for a prolonged period. A limit on the size of basements will reduce this impact.”*
114. Carbon emissions are another reason for size restrictions, noted in para. 34.3.54.
- “The carbon emissions of basements are greater than those of above ground developments per square metre over the building’s life cycle^{95,96}... Limiting the size of basements will therefore limit carbon emissions and contribute to mitigating climate change.”*
- Para 34.3.55 notes that [basements],
- “can also introduce a degree of artificiality into the garden area and restrict the range of planting⁹⁷. and “will enable natural landscape and character to be maintained, give flexibility in future planting (including major trees), support biodiversity⁹⁸ and allow water to drain through to the ‘Upper Aquifer’⁹⁹. This policy takes into account the London Plan¹⁰⁰ and the Mayor of London’s Housing SPG 9¹⁰¹ both of which emphasise the important role of gardens. The National Planning Policy Framework (NPPF)¹⁰² also supports local policies to resist inappropriate development of residential gardens and excludes private gardens from the definition of previously developed land.”*
115. In para. 34.3.59 it is acknowledged that,
- “Trees make a much-valued contribution to the character, and bring biodiversity and public health benefits. Works to, and in the vicinity of, trees, need to be planned and executed with very close attention to detail. All applications for basements likely to affect trees¹⁰³ either on-site or nearby must be accompanied by a full tree survey and tree protection proposal for the construction phase. Core Strategy Policy CR6 Trees and Landscape will also apply.”*
116. The BGI 6 policy seeks to ensure that full consideration is given to the potential biodiversity and green infrastructure impacts of basement developments at application stage. This policy applies to all new basement development.

95 Life Cycle Analysis (LCA) is a methodology for assessing the environmental performance of a product (i.e. building) over its life cycle.

96 Trees and Basements, RBKC, February 2014 (BAS 35) <https://www.rbkc.gov.uk/pdf/Trees%20and%20basements.pdf> ; and Basements Visual Evidence, RBKC, February 2014 (BAS 33) https://www.rbkc.gov.uk/sites/default/files/atoms/files/BAS_33_Basements_Visual_Evidence_Feb_2014.pdf and Basements Visual Evidence - External Manifestations, Feb 2014 (BAS 34) https://www.rbkc.gov.uk/pdf/Bsmt_Visual_evidence_external_man.pdf

97 Impact of Basement Development on Biodiversity, RBKC, February 2014 (BAS 36) https://www.rbkc.gov.uk/pdf/BiodiversityBasementPaper_final.pdf

98 Royal Borough of Kensington and Chelsea Residential Basement Study Report, Alan Baxter and Associates, March 2013 https://www.rbkc.gov.uk/wamdocs/0954-130_RBKC_Residential%20Basement%20Study%20Report_2013-03_low.pdf

99 Policy 3.5 of the London Plan, Spatial Development Strategy, March 2016 https://www.london.gov.uk/sites/default/files/the_london_plan_malp_final_for_web_0606_0.pdf

100 Paras 1.2.44 and 2.2.12 London Plan Housing SPG, March 2016 https://www.london.gov.uk/sites/default/files/housing_spg_revised.pdf

101 Para 70 and Appendix 2: Glossary, NPPF, August 2018 <https://www.gov.uk/guidance/national-planning-policy-framework/annex-2-glossary>

102 Works to trees should be carried out in accordance with BS 5837 2012 (with the exception that tunnelling underneath the root protection area should not be undertaken) and The Royal Borough of Kensington and Chelsea’s Trees and Development SPD: [https://www.rbkc.gov.uk/wamdocs/Trees and Development SPD Adopted April 2010 %282%29.pdf](https://www.rbkc.gov.uk/wamdocs/Trees_and_Development_SPD_Adopted_April_2010_%282%29.pdf)

103 The NPPF defines an original building as “a building as it existed on 1 July 1948 or, if constructed after 1 July 1948, as it was built originally.” <https://www.gov.uk/guidance/national-planning-policy-framework/annex-2-glossary>

BGI 6 Basements

- i. Proposals for basement development in Redington Froggnal will be required to demonstrate how they will not cause cumulative erosion of garden space, i.e:
- ii. basement development beyond the footprint of the building are to occupy no more than 15% of the original (unextended) building footprint, or no more than 50% of the total area of each land plot, as at 1 July 1948 (or, if constructed after 1 July 1948, as it was built originally), according to whichever measure consumes least rear garden space).
- iii. it must demonstrate that it is able to safeguard the amenity of the garden space by ensuring that it:
 - a) does not encroach upon the root protection areas of nearby trees (as set out in BS 5837 of 2012); and
 - b) maintains a minimum depth of 2 metres of permeable soil above the basement, to sustain large trees to become veterans and to allow planting; and
 - c) does not conceal or divert an underground stream or spring line; and
 - d) does not require the felling of trees with an ecological or amenity value, especially mature trees, forming part of a rear garden tree corridor; and
 - e) does not introduce light pollution into a rear garden tree corridor; and
 - f) does not cause loss of visual amenity to the character of the host building or its setting; and
 - g) that the space is to not to be used for car parking and / or car lift(s).
- iv. For rear boundaries where there are visually important, mature or veteran trees, historic tree lines or trees forming part of a green corridor, a minimum boundary of 12 times the stem diameter is to be provided between the basement perimeter and the trees’ root protection zones.

Application

- 117. The area of original building footprint, and soft surface area, as at 1 July 1948¹⁰⁴ is to be mapped and quantified (in square metres) prior to and after the basement has been constructed.
- 118. Consideration must be given to how the excavation might affect trees at adjoining properties and ensure that trees are not placed at risk. All trees on the development site, and at neighbouring sites, are to be clearly marked and named, and their distance from the perimeter of the proposed basement measured.
- 119. Developers should consult the latest version of the Arup Red Frog Sub-Surface Water Features Mapping Report, to check if the development site is located near to an underground water feature.
- 120. Areas of landscaping proposed should be designed as deep soil landscaping with natural drainage. A minimum soil depth of 2 metres above the basement development will be required in order to maintain well-vegetated gardens, with space available for tree planting. A soil depth of less than 2 metres is likely to increase the risk of the soil profile drying out and prevent large canopy trees planted in future to endure to reach their fill maturity or, ideally, veteran stage.
- 121. Adequate natural drainage is required in order to ensure the soil above a basement does not become waterlogged in times of high rainfall to prevent any adverse effect on planting within this space. The provision of a drainage layer with a minimum depth of 200mm above any basement that extends beyond the footprint of a building should be provided to ensure surface water drainage is adequately dealt with in conjunction with the unbuilt upon areas/drainage margins/areas of natural drainage.
- 122. Developers should follow guidance contained within BS5837: 2012 “Trees in relation to design construction and demolition”.

104 The NPPF defines an original building as “a building as it existed on 1 July 1948 or, if constructed after 1 July 1948, as it was built originally.”

<https://www.gov.uk/guidance/national-planning-policy-framework/annex-2-glossary>

123. The demolition, construction and even the landscaping phase of a development is when damage to trees is most likely to occur. Basement development is to avoid the most common ways of causing damage, which are detailed below:
- bark wounds or broken branches caused by machinery;
 - compaction of the soil from repeated movement of heavy machinery and the storage of materials within the Root Protection Area (RPA) of a tree;
 - root bark damage from site stripping or grading;
 - cutting of roots during excavation for foundations and services;
 - raising or lowering soil levels beneath the crown spread of a tree;
 - raising the water table;
 - the spillage of petrol or diesel, mixing of cement and the storage of toxic materials or machinery within the Root Protection Area of a tree or under the canopy of a tree;
 - burning waste materials close to the tree;
 - removal of branches to create space for scaffolding or access of heavy plant.
124. Margins should be left between basements and adjoining sites in order to allow for space to enable natural surface water drainage and lateral ground water movement to occur between sites.