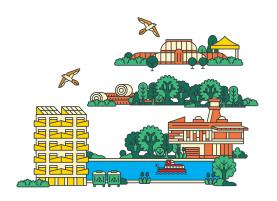
Chapter 8

Green Infrastructure and Natural Environment



Policy G1 Green infrastructure

- A London's network of green and open spaces, and green features in the built environment such as green roofs and street trees, should be protected, planned, designed and managed as integrated features of green infrastructure.
- B Boroughs should prepare green infrastructure strategies that integrate objectives relating to open space provision, biodiversity conservation, flood management, health and wellbeing, sport and recreation.
- C Development Plans and Opportunity Area Planning Frameworks should:
 - 1) identify key green infrastructure assets, their function and their potential function
 - 2) identify opportunities for addressing environmental and social challenges through strategic green infrastructure interventions.
- 8.1.1 A green infrastructure approach recognises that the network of green spaces, street trees, green roofs and other major assets such as natural or semi-natural drainage features must be planned, designed and managed in a more integrated way to meet multiple objectives including: promoting mental and physical health and wellbeing; adapting to the impacts of climate change; improving air and water quality; encouraging walking and cycling; and conserving and enhancing biodiversity and ecological resilience alongside more traditional functions of green space such as play, sport and recreation.
- 8.1.2 All development takes place within a wider environment and green infrastructure should be seen as an integral element and not as an 'addon'. It's **economic and social value** has become increasingly evident across all of London at all scales and has been highlighted in the London i-Tree Assessment¹⁰¹ and the Natural Capital Account for London's Public Parks¹⁰².
- 8.1.3 To help deliver on his manifesto commitment to make London at least 50 per cent green by 2050, the Mayor will review and update existing Supplementary Planning Guidance on the All London Green Grid –

https://www.forestry.gov.uk/pdf/LONDONI-TREECOREREPORT151202.pdf

Published late 2017. Link unavailable at time of publication.

London's strategic green infrastructure framework - to provide **guidance** on the strategic green infrastructure network and the preparation of green infrastructure strategies.

Policy G2 London's Green Belt

- A The Green Belt should be protected from inappropriate development:
 - 1) development proposals that would harm the Green Belt should be refused
 - 2) the enhancement of the Green Belt to provide appropriate multifunctional uses for Londoners should be supported.
- B The extension of the Green Belt will be supported, where appropriate. It's de-designation will not.
- 8.2.1 The Mayor strongly supports the **continued protection of London's Green Belt**. The NPPF¹⁰³ provides a clear direction for the management of development within the Green Belt and sets out the processes and considerations for defining Green Belt boundaries. London's Green Belt makes up 22 per cent of London's land area and performs multiple beneficial functions for London, such as combating the urban heat island effect, growing food, and providing space for recreation. It also provides the vital function of containing the further expansion of built development. This has helped to drive the re-use and intensification of London's previously developed brownfield land to ensure London makes efficient use of its land and infrastructure, and that inner urban areas benefit from regeneration and investment.
- 8.2.2 Openness and permanence are essential characteristics of the Green Belt, but despite being open in character, some parts of the Green Belt do not provide significant benefits to Londoners as they have become derelict and unsightly. This is not, however, an acceptable reason to allow development to take place. These derelict sites may be making positive contributions to biodiversity, flood prevention, and reducing the urban heat island effect. The Mayor will work with boroughs and other strategic partners to **enhance access** to the Green Belt and to **improve the quality** of these areas in ways that are appropriate within the Green Belt.

Policy G3 Metropolitan Open Land

- A Metropolitan Open Land (MOL) should be protected from inappropriate development:
 - 1) development proposals that would harm MOL should be refused
 - 2) boroughs should work with partners to enhance the quality and range of uses of MOL.
- B The extension of MOL designations should be supported where appropriate.
- C Any alterations to the boundary of MOL should be undertaken through the Local Plan process, in consultation with the Mayor and adjoining boroughs.
- D Boroughs should designate MOL by establishing that the land meets at least one of the following criteria:
 - 1) it contributes to the physical structure of London by being clearly distinguishable from the built-up area
 - 2) it includes open air facilities, especially for leisure, recreation, sport, the arts and cultural activities, which serve either the whole or significant parts of London
 - 3) it contains features or landscapes (historic, recreational, biodiverse) of either national or metropolitan value
 - 4) it forms part of a strategic corridor, node or a link in the network of green infrastructure and meets one of the above criteria.
- 8.3.1 Metropolitan Open Land is strategic open land within the urban area. It plays an important role in London's green infrastructure the network of green spaces, features and places around and within urban areas. MOL protects and enhances the open environment and improves Londoners' quality of life by providing localities which offer sporting and leisure use, heritage value, biodiversity, and health benefits through encouraging walking, running and other physical activity.
- 8.3.2 The principles of national Green Belt policy¹⁰⁴ also apply to MOL. Any proposed **changes to MOL boundaries** which result in loss must be

- accompanied by thorough evidence which demonstrates that there are exceptional circumstances, as set out in the NPPF. The principle of land swaps could be applied to MOL where the resulting MOL meets at least one of the criteria set out in part D of this policy.
- 8.3.3 Proposals to **enhance access to MOL** and to improve poorer quality areas such that they provide a wider range of benefits for Londoners that are appropriate within MOL will be encouraged. Examples include improved public access for all, inclusive design, recreation facilities, habitat creation, landscaping improvement and flood storage.

Policy G4 Local green and open space

- A Local green and open spaces should be protected.
- B The creation of new areas of publicly-accessible green and open space should be supported, especially in areas of deficiency in access to public open space.
- Boroughs should undertake a needs assessment of local green and open space to inform policy. Assessments should identify areas of public green and open space deficiency, using the categorisation set out in Table 8.1 as a benchmark for all the different types required 105.
- D The loss of green and open spaces should be resisted in areas of deficiency. If losses are proposed outside of areas of deficiency, equivalent or better quality provision should be made within the local catchment area unless an up-to-date needs assessment demonstrates this is unnecessary.
- E Development Plans and Opportunity Area Frameworks should:
 - 1) include appropriate designations and policies for the protection of green and open space to address deficiencies
 - 2) ensure that future green and open space needs are planned for in areas with the potential for substantial change
 - 3) ensure that green and open space needs are planned in line with objectives in green infrastructure strategies in order to deliver multiple benefits and in recognition of the cross-borough nature of some forms of green infrastructure.

http://www.gigl.org.uk/open-spaces/areas -of-deficiency-in-access-to-public-open-space

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- 8.4.1 Green and open spaces planned, designed and managed as green infrastructure provide a wide range of social, health and environmental benefits, and are a **vital component of London's infrastructure**. Although individual spaces may not provide the strategic functions of Green Belt or MOL, they are nonetheless important at the neighbourhood level, as they are the spaces which most Londoners use most often. Connectivity across the network of green and open spaces is particularly important as this provides opportunities for walking and cycling and for improving wildlife corridors.
- 8.4.2 Boroughs should undertake a green and open space needs assessment to inform their **green infrastructure strategy** (drawing from existing strategies such as play, trees and playing pitches).
- 8.4.3 The creation of new green or open space is essential in helping to meet the Mayor's long-term target of making more than 50 per cent of London green by 2050. **New provision or improved access** should be particularly encouraged in areas of deficiency in access to public open space. It will also be important to secure appropriate management and maintenance of open spaces to ensure that a wide range of benefits can be secured and that any conflicts between uses are minimised.
- 8.4.4 Proposals to **enhance green and open spaces** to provide a wider range of benefits for Londoners will be encouraged. Examples could include improved public access for all, inclusive design, recreation facilities, habitat creation, landscaping improvement or flood storage.

Table 8.1 - Public open space categorisation

Open Space categorisation	Description	Size guideline	Distance from homes
Regional Parks	These are large areas, corridors or networks of open space, the majority of which will be publicly-accessible and provide a range of facilities and features offering recreational, ecological, landscape, cultural or green infrastructure benefits. They offer a combination of facilities and features that are unique within London, are readily accessible by public transport and are managed to meet best practice quality standards.	400 ha	3.2 to 8 km
Metropolitan Parks	These are large areas of open space that provide a similar range of benefits to Regional Parks and offer a combination of facilities at a sub-regional level. They are readily accessible by public transport and are managed to meet best practice quality standards.	60 ha	3.2 km
District Parks	These are large areas of open space that provide a landscape setting with a variety of natural features. They provide a wide range of activities, including outdoor sports facilities and playing fields, children's play for different age groups and informal recreation pursuits.	20 ha	1.2 km
Local Parks and Open Spaces	These provide for court games, children's play, sitting out areas and nature conservation areas.	2 ha	400 m
Small Open Spaces	These include gardens, sitting out areas, children's play spaces or other areas of a specialist nature, including nature conservation areas.	under 2 ha	less than 400 m

Open Space categorisation	Description	Size guideline	Distance from homes
Pocket Parks	These are small areas of open space that provide natural surfaces and shaded areas for informal play and passive recreation that sometimes have seating and play equipment.	under 0.4 ha	less than 400 m
Linear Open Spaces	These are open spaces and towpaths alongside the Thames, canals and other waterways, paths, disused railways, nature conservation areas and other routes that provide opportunities for informal recreation. They are often characterised by features or attractive areas which are not fully accessible to the public but contribute to the enjoyment of the space.		

Policy G5 Urban greening

- A Major development proposals should contribute to the greening of London by including urban greening as a fundamental element of site and building design, and by incorporating measures such as high-quality landscaping (including trees), green roofs, green walls and nature-based sustainable drainage.
- B Boroughs should develop an Urban Greening Factor (UGF) to identify the appropriate amount of urban greening required in new developments. The UGF should be based on the factors set out in Table 8.2, but tailored to local circumstances. In the interim, the Mayor recommends a target score of 0.4 for developments that are predominately residential, and a target score of 0.3 for predominately commercial development.
- 8.5.1 The inclusion of **urban greening measures** in new development will result in an increase in green cover, and **should be integral to planning** the layout and design of new buildings and developments. This should be considered from the beginning of the design process.

- 8.5.2 **Urban greening** covers a wide range of options including, but not limited to, street trees, green roofs, green walls, and rain gardens. It can provide a range of benefits including amenity space, enhanced biodiversity, addressing the urban heat island effect, sustainable drainage and amenity the latter being especially important in the most densely developed parts of the city where traditional green space is limited.
- 8.5.3 A number of cities have successfully adopted a 'green space factor' to encourage more and better urban greening. The Mayor has developed a generic **Urban Greening Factor** model to assist boroughs and developers in determining the appropriate provision of urban greening for new developments. This is based on a review of green space factors in other cities¹⁰⁶. The UGF is currently only applied to major applications, but may eventually be applied to applications below this threshold as boroughs develop their own models. London is a diverse city so it is appropriate that each borough develops its own approach in response to its local circumstances. However, the challenges of climate change, poor air quality and deficiencies in green space need to be tackled now, so while each borough develops its own bespoke approach the Mayor has recommended the standards set out above. Residential development places greater demands on green infrastructure, and as such, a higher standard is iustified.
- 8.5.4 The Urban Greening Factor for a proposed development is calculated in the following way:

(Factor A x Area) + (Factor B x Area) + (Factor C x Area) etc. divided by Total Site Area

So, for example, an office development with a 600 sqm footprint on a site of 1,000 sqm including a green roof, 250 sqm car parking, 100 sqm open water and 50 sqm of amenity grassland would score the following;

$$(0.7 \times 600) + (0.0 \times 250) + (1 \times 100) + (0.4 \times 50) / 1000 = 0.54$$

So in this example, the proposed office development exceeds the interim target score of 0.3 for a predominately commercial development under part B of <u>Policy G5 Urban greening</u>.

Urban Greening Factor for London https://www.london.gov.uk/sites/default/files/urbangreening-factor-for-london-final-report.pdf

Table 8.2 - Urban Greening Factors

Surface Cover Type	Factor	
Semi-natural vegetation (e.g. woodland, flower-rich grassland) created	1	
on site.		
Wetland or open water (semi-natural; not chlorinated) created on site.	1	
Intensive green roof or vegetation over structure. Vegetated sections	0.8	
only. Substrate minimum settled depth of 150mm – see livingroofs.org for descriptions ^A .		
Standard trees planted in natural soils or in connected tree pits with a minimum soil volume equivalent to at least two thirds of the projected canopy area of the mature tree – see Trees in Hard Landscapes for overview ^B .	0.8	
Extensive green roof with substrate of minimum settled depth of 80mm (or 60mm beneath vegetation blanket) – meets the requirements of GRO Code 2014 ^c .	0.7	
Flower-rich perennial planting – see Centre for Designed Ecology for case-studies ^D .	0.7	
Rain gardens and other vegetated sustainable drainage elements – See CIRIA for case-studies ^E .	0.7	
Hedges (line of mature shrubs one or two shrubs wide) – see RHS for guidance ^F .	0.6	
Standard trees planted in pits with soil volumes less than two thirds of the projected canopy area of the mature tree.	0.6	
Green wall –modular system or climbers rooted in soil – see NBS Guide to Façade Greening for overview ^G .	0.6	
Groundcover planting – see RHS Groundcover Plants for overview ^H .	0.5	
Amenity grassland (species-poor, regularly mown lawn).	0.4	
Extensive green roof of sedum mat or other lightweight systems that do not meet GRO Code 2014 ¹ .		
Water features (chlorinated) or unplanted detention basins.	0.2	
Permeable paving - see CIRIA for overview ^J .	0.1	
Sealed surfaces (e.g. concrete, asphalt, waterproofing, stone).	0	

Notes

- A https://livingroofs.org/intensive-green-roofs/
- B http://www.tdag.org.uk/trees-in-hard-landscapes.html
- c https://livingroofs.org/wp-content/uploads/2016/03/grocode2014.pdf
- https://cfde.co.uk/front-page/about/case-studies/
- http://www.susdrain.org/case-studies/

- https://www.rhs.org.uk/advice/profile?pid=351
- 6 https://www.thenbs.com/knowledge/the-nbs-guide-to-facade-greening-part-two
- https://www.rhs.org.uk/advice/profile?PID=818
- https://livingroofs.org/wp-content/uploads/2016/03/grocode2014.pdf
- J http://www.susdrain.org

Policy G6 Biodiversity and access to nature

- A Sites of Importance for Nature Conservation (SINCs) should be protected. The greatest protection should be given to the most significant sites.
- B In developing Development Plan policies, boroughs should:
 - 1) use the relevant procedures to identify SINCs and green corridors. When undertaking comprehensive reviews of SINCs across a borough or when identifying or amending Sites of Metropolitan Importance boroughs should consult the London Wildlife Sites Board
 - 2) identify areas of deficiency in access to nature (i.e. areas that are more than 1km walking distance from an accessible Metropolitan or Borough SINC) and seek opportunities to address them
 - 3) seek opportunities to create habitats that are of particular relevance and benefit in an urban context
 - 4) include policies and proposals for the protection and conservation of priority species and habitats and opportunities for increasing species populations
 - 5) ensure sites of European or national nature conservation importance are clearly identified and appropriately assessed.
- Where harm to a SINC (other than a European (International) designated site) is unavoidable, the following approach should be applied to minimise development impacts:
 - 1) avoid adverse impact to the special biodiversity interest of the site
 - 2) minimise the spatial impact and mitigate it by improving the quality or management of the rest of the site
 - 3) seek appropriate off-site compensation only in exceptional cases where the benefits of the development proposal clearly outweigh the biodiversity impacts.
- D Biodiversity enhancement should be considered from the start of the development process.

Proposals which create new or improved habitats that result in positive gains for biodiversity should be considered positively, as should measures to reduce deficiencies in access to wildlife sites.

8.6.1 Sites of Importance for Nature Conservation (SINCs) comprise:

- 1. European sites (i.e. Special Protection Areas, Special Areas of Conservations (actual or candidate) and Ramsar sites)
- 2. National sites (i.e. National Nature Reserves, Sites of Special Scientific Interest)
- 3. Sites of Metropolitan Importance strategically-important conservation sites for London
- 4. Sites of Borough Importance sites which support habitats or species of value at the borough level
- 5. Sites of Local Importance sites which are important for the provision of access to nature at the neighbourhood level.

Sites with a European or national designation are protected under their own legislation. For example, Special Protection Areas are protected under the EC Birds Directive and National Nature Reserves are protected under the Wildlife & Countryside Act 1981. The higher up the above hierarchy a SINC is placed, the more any harm to it should be avoided. Before compensatory provision is identified as the only solution to a European site conflict, it is necessary to demonstrate that there are no alternatives to the European site and that Imperative Reasons of Overriding Public Interest (IROPI) exist which justify why the project should proceed.

Although heavily urbanised, London consists of a wide variety of important wildlife habitats, including a number of sites which have national and international protection. These habitats range from seminatural features such as chalk grasslands and ancient woodlands to more urban habitats such as reservoirs and vegetated railway corridors. The wildlife value of these sites must be protected and appropriate maintenance regimes should be established to maintain or enhance the wildlife value of sites. Improved access to wildlife sites should be secured, where appropriate, so that Londoners can better experience and appreciate the natural environment within the city. The connections between protected sites – green corridors – are often critical in helping to

- sustain wildlife populations that would be vulnerable if they were confined to isolated areas of habitat.
- 8.6.3 Development proposals that are adjacent to or near **SINCs or green corridors** should consider the potential impact of indirect effects to the site, such as noise, shading or lighting. There may also be opportunities for new development to contribute to enhancing the nature conservation value of an adjacent SINC or green corridor by, for example, sympathetic landscaping that provides complementary habitat. The London Environment Strategy includes guidance on identifying SINCs as well as habitat creation targets and a comprehensive list of priority species and habitats that require particular consideration when planning decisions are made.
- 8.6.4 The London Wildlife Sites Board offers help and guidance to boroughs on the selection of SINCs¹⁰⁷. The relevant procedures for identifying SINCs are currently set out as Appendix 1 to the Biodiversity Strategy 2002, which will become an appendix to the final London Environment Strategy once adopted.
- 8.6.5 **London's water spaces** make up an important set of habitats in London.

 Policy SI17 Protecting London's waterways addresses the multi-functional use, protection and development of water spaces, with a particular priority for improving and restoring sections of river. The habitat value of waterways is a key element of their future management.

Policy G7 Trees and woodlands

- A Trees and woodlands should be protected, and new trees and woodlands should be planted in appropriate locations in order to increase the extent of London's urban forest the area of London under the canopy of trees.
- B In their Development Plans, boroughs should:
 - 1) protect 'veteran' trees and ancient woodland where these are not already part of a protected site
 - 2) identify opportunities for tree planting in strategic locations.

https://www.london.gov.uk/what-we-do/environment/parks-green-spaces-and-biodiversity/biodiversity

- Development proposals should ensure that, wherever possible, existing trees of quality are retained 108. If it is imperative that trees have to be removed, there should be adequate replacement based on the existing value of the benefits of the trees removed, determined by, for example, i-tree or CAVAT. The planting of additional trees should generally be included in new developments particularly large-canopied species which provide a wider range of benefits because of the larger surface area of their canopy.
- Category A and B trees as defined by BS 5837:2012
- 8.7.1 Trees and woodlands play an important role within the urban environment. They help to trap air pollutants, provide shading, absorb rainwater and filter noise. They also provide extensive areas of habitat for wildlife, especially mature trees. The urban forest is an important element of London's green infrastructure and comprises all the trees in the urban realm, in both public and private spaces, along linear routes and waterways, and in amenity areas. The Mayor and Forestry Commission, have produced Supplementary Planning Guidance on preparing tree strategies to help boroughs plan for the management of the urban forest¹⁰⁹. These should be part of boroughs' wider green infrastructure strategies.
- 8.7.2 The Mayor wants to increase tree cover in London by 10 per cent by 2050. Trees should be designed into developments from the outset to maximise tree planting opportunities and optimise establishment and vigorous growth. When preparing more detailed planning guidance boroughs are also advised to refer to Right Trees for a Changing Climate¹¹⁰ and guidance produced by the Trees and Design Action Group¹¹¹, a multi-disciplinary cross-partnership forum seeking to promote urban forests.
- 8.7.3 An i-Tree Eco Assessment of London's trees quantified the benefits and services provided by the capital's **urban forest**¹¹². This demonstrated
- https://www.london.gov.uk/what-we-do/planning/implementing-london-plan/supplementary-planning-guidance/tree-and-woodland
- http://www.righttrees4cc.org.uk
- http://www.tdag.org.uk/guides--resources.html
- https://www.london.gov.uk/sites/default/files/valuing_londons_urban_forest_i-tree_report_final.pdf

that London's existing trees and woodlands provide services (such as pollution removal, carbon storage, and storm water attenuation) valued at £133 million per year. The cost of replacing these services if the urban forest was lost was calculated at £6.12 billion. Consequently, when trees are removed the asset is degraded and the compensation required in terms of substitute planting to replace services lost should be based on a recognised tree valuation method such as CAVAT¹¹³ or i-Tree Eco¹¹⁴.

Policy G8 Food growing

- A In Development Plans, boroughs should:
 - protect existing allotments and encourage provision of space for community gardening, including for food growing, within new developments
 - 2) identify potential sites that could be used for commercial food production.
- 8.8.1 Providing land for food growing helps to support the **creation of a healthier food environment**. At the local scale, it can help promote more
 active lifestyles and better diets, and improve food security. Community
 food growing not only helps to improve social integration and community
 cohesion, but can also contribute to improved mental and physical health
 and wellbeing.
- 8.8.2 As provision for **small-scale** food growing becomes harder to deliver, innovative solutions to its delivery should be considered, such as green roofs and walls, re-utilising existing under-used spaces and incorporating spaces for food growing in new schools.
- 8.8.3 At a more **macro scale**, providing land for food growing helps to support farming and agriculture. Providing food closer to source helps to create a sustainable food network for the city, supports the local economy, and reduces the need to transport food, thereby reducing transport emissions and helping to address climate change. There are also longer-term biodiversity benefits, and farmers adopting agri-environmental stewardship schemes are more likely to deliver good environmental

https://www.ltoa.org.ul/resources/cavat

hppts://www.itreetools.org/eco/

- practice. For all food growing, consideration should be given to the historic use of the land any potential contamination.
- 8.8.4 The **Mayor's Food Strategy** prioritises the need to help all Londoners to be healthier and for the food system to have less of a negative environmental impact.
- 8.8.5 The **Capital Growth network** is London's food growing network, which continues to promote community food growing across the capital, as well as delivering food-growing skills and employment opportunities for Londoners.

Policy G9 Geodiversity

- A In Development Plans, boroughs should:
 - 1) establish clear goals for the management of identified sites to promote public access, appreciation and interpretation of geodiversity
 - 2) ensure geological sites of European, national or regional conservation importance are clearly identified.
- B Where relevant, development proposals should
 - make a positive contribution to the protection and enhancement of geodiversity
 - 2) protect Regionally Important Geological Sites (RIGS)
 - 3) give Locally Important Geological Sites (LIGS) the level of protection commensurate with their importance.
- 8.9.1 **Geodiversity** is a fundamental cornerstone of our everyday lives. Geology affects where we build, how we construct buildings and how we deliver associated services. It influences the design and layout of infrastructure, filters our drinking water and underpins the landscape around us. Geodiversity cannot be replaced or recreated (other than on geological timescales).
- 8.9.2 National planning policy is clear that boroughs should **protect, promote** and enhance geodiversity. London's geodiversity sites are shown in Figure 8.1. Geodiversity sites with existing or proposed European or national designations are Sites of Special Scientific Importance and subject to statutory protection. Boroughs should protect and enhance

- RIGSs and LIGSs through their Development Plans. The Mayor will continue to work with the London Geodiversity Partnership to promote geodiversity and will prepare updated Supplementary Planning Guidance as necessary.
- 8.9.3 Geodiversity sites should be recognised for their importance in providing **habitats for biodiversity** and in allowing delivery of ecosystem services.
- 8.9.4 Where appropriate, access for all should be provided to geodiversity sites, although it is recognised that this is not always desirable. Geological sites will require appropriate **maintenance regimes** to ensure that these assets are properly protected and managed.

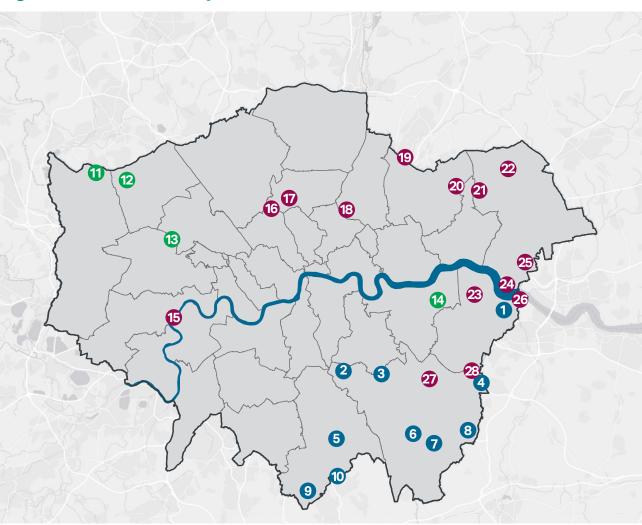


Figure 8.1 - Geodiversity sites

Sites of National/ Regional Geodiversity Importance

- Recommended RIGS
- Proposed RIGS
- Potential RIGS

Reference numbers refer to the London Foundations SPG 2012

Source: GLA Planning

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