

Urban Greening Factor for England User Guide

Green Infrastructure Framework – Principles and Standards for England

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Contents

Foreword 3

Acknowledgments..... 4

1.0 Introducing the Urban Greening Factor 6

2.0 The Purpose of the Urban Greening Factor 7

3.0 When to Apply the Urban Greening Factor 10

4.0 Structure and Content of the Urban Greening Factor 12

5.0 How to Calculate the Urban Greening Factor 30

6.0 Further Considerations in Applying the Urban Greening Factor 33

Appendix 1 –The Green Infrastructure Framework Advisory Group – Member
Organisations 39

Appendix 2 – Stages of Urban Greening Factor Research..... 41

Foreword

There is a clear and urgent need to make our urban environments greener, healthier and more attractive places to live. The 25 Year Environment Plan placed particular emphasis on the importance of greening our towns and cities with an aim to improve existing green infrastructure, encouraging more investment in the environment and supporting more sustainable forms of development. This aim is at the heart of Natural England's Green Infrastructure Framework that provides the principles, standards and planning tools to create more biodiverse and resilient urban districts and neighbourhoods as the impact of climate change becomes increasingly evident.

Our planning system already recognises the importance of urban greening as an essential component of sustainable development. Planning policy provides guidance at a national and local level to improve the provision of green infrastructure and better target investment where it is needed the most. To strengthen this approach, Urban Greening Factors are increasingly being used as a planning tool to improve green infrastructure delivery through the process of development and regeneration. They were first developed in Northern Europe in the late 1990s. First by Berlin to combat the growing densification of urban neighbourhoods and then through the experimental and creative planning of Malmö's Western Harbour in Sweden. Urban Greening Factors have since been adopted by cities in Europe, Asia, North America and Australia. They are increasingly being used in the UK by Local Planning Authorities in the revision of their local plans and have become a prominent policy tool for urban greening across Greater London through the recently adopted London Plan.

This User Guide explains the purpose and practice of applying Urban Greening Factors through the planning, design and development process. It describes the structure and content of the tool itself, the setting of target scores for urban greening, the application of weighted green infrastructure surface cover types and when and where they can most effectively be applied. It explains how they can be used alongside the Accessible Greenspace Standard and support Biodiversity Net Gain to create more nature-rich environments and to increase the functionality, sustainability, and climate resilience of urban areas

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A list of the GI Framework Advisory Group members is provided in Appendix 1.

1.0 Introducing the Urban Greening Factor

- 1.1 Natural England has developed an Urban Greening Factor for England, as one of a suite of five Headline Green Infrastructure Standards within the [Green Infrastructure Framework – Principles and Standards for England](#). This User Guide for the Urban Greening Factor for England describes its purpose, structure, and content. It explains how it can be used to increase urban greening, including the contribution it can make to Biodiversity Net Gain. The User Guide is accompanied by a [User Guide Spreadsheet](#) that can support stakeholders in calculating Urban Greening Factor scores. Further information about the development of the Model Urban Greening Factor for England is provided in Appendix 2, and is available on the [Green Infrastructure Framework website](#). This User Guide can be used alongside the Green Infrastructure Framework's [Guide for developing Green Infrastructure Strategies and Policies](#) (a step-by-step Process Guide for local authorities).
- 1.2 The use of Urban Greening Factors (UGFs) is voluntary and this guide is intended for organisations and individuals involved in the planning and development process. This may include planning authorities, planning consultants, applicants, developers, architects, landscape architects, urban designers, engineers, Sustainable Drainage Systems (SuDS) specialists, tree officers, ecologists and landscape managers.
- 1.3 Green Infrastructure (GI) makes a direct contribution to public health, beauty and environmental performance of places. It is an essential component of sustainable development and significantly enhances the quality of life for people and neighbourhoods. It is defined in the [National Planning Policy Framework](#)¹ (2021) as 'a network of multi-functional green and blue spaces and other natural features, urban and rural, which is capable of delivering a wide range of environmental, economic, health and wellbeing benefits for nature, climate, local and wider communities and prosperity' (DLUHC/2021, p67).

¹ DLUHC - formerly MHCLG (2021) National Planning Policy Framework, 20 July 2021.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1005759/NPPF_July_2021.pdf

- 1.4 The Urban Greening Factor (UGF) has been developed as a planning tool to improve the provision of green infrastructure and increase the level of greening in urban environments. It can be introduced through planning policies and strategies as a practical means to increase GI provision in areas of rising urban density, declining biodiversity, and the growing impact of climate change. It provides a mechanism to improve the resilience, sustainability, and biodiversity value of urban districts, achieving measurable net gains for biodiversity and increasing the delivery of ecosystem services. These include soil protection and enhancement, surface water management, air quality regulation, noise attenuation and carbon sequestration. This allows the natural environment and nature-based solutions to play a more active role in the planning, design and management of neighbourhoods, towns, and cities.
- 1.5 Urban Greening Factors are also known as Green Space Factors and were first established as a planning tool in Berlin, Germany, and then Malmö, Sweden, during the mid to late 1990s. They have since been adopted by other cities in Europe, Asia, The United States, Canada, and most recently in Melbourne, Australia. Southampton was the first location in the UK to introduce a Green Space Factor for the city centre in 2015. The Urban Greening Factor is now a prominent green infrastructure policy tool in the adopted [London Plan](#)² (March 2021) and is increasingly being used by London Boroughs in the revision of their local plans. The term Urban Greening is used to emphasise the role of the tool in providing additional site-based green infrastructure through the development process to complement existing networks of public parks and other types of greenspaces.

2.0 The Purpose of the Urban Greening Factor

- 2.1 As populations grow it is common for urban districts to increase in density over time, urban districts have generally grown faster than rural communities and this has been a particular trend in the major conurbations of England. As towns and cities become increasingly dense, greater pressure is put on greenspaces, the natural environment and natural systems that make a fundamental contribution to the identity and liveability of places. The impact of climate change and the need to increase the resilience of urban areas will only place greater demands on these ecosystem services that manage surface water, improve air quality and cool peak summer temperatures.

² GLA (2021) The London Plan - The Spatial Development Strategy for Greater London, March 2021, Greater London Authority. https://www.london.gov.uk/sites/default/files/the_london_plan_2021.pdf

- 2.2 In response it is essential that local authorities protect, improve, and increase their greenspaces, natural habitats, biodiversity and networks of green infrastructure. This is considered a strategic priority and its importance is emphasised in the [National Planning Policy Framework](#)¹ (DLUHC/2021, para 175). [The 25 Year Environment Plan](#)³ is also clear in the need 'to improve existing green infrastructure by encouraging more investment while making sure there is a presumption for sustainable development' (DEFRA/2018, p77).
- 2.3 UGFs are a planning tool that can make a direct contribution to achieving these objectives. A key attribute is that they are relatively simple to use and when combined with other planning measures can make a direct contribution to increasing the level of urban greening. In particular, they provide a mechanism to support planning, design and decision making to improve the quantity, quality and functionality of green infrastructure in urban districts.

Planning Practice Guidance

- 2.4 [Planning Practice Guidance for the Natural Environment](#)⁴ (DLUHC/2019) informs the implementation of national planning policy and highlights how green infrastructure can contribute to:
- Building a strong, competitive economy
 - Achieving well-designed places
 - Promoting healthy and safe communities
 - Mitigating and adapting to climate change, flooding and coastal change
 - Conserving and enhancing the natural environment

The use of UGFs can contribute to meeting these goals, ensuring that the opportunity and need for green infrastructure is considered 'at the earliest stages of development proposals, as an integral part of development and infrastructure provision' (DLUHC/2019, para 008).

³ DEFRA (2018) A Green Future: Our 25 Year Plan to Improve the Environment.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/693158/25-year-environment-plan.pdf

⁴ DLUHC - formerly MHCLG (2019) Natural Environment Planning Practice Guidance, 21 July 2019.

<https://www.gov.uk/guidance/natural-environment>

National Design Guide and Model Design Code

- 2.5 UGFs also provide a complementary planning tool to achieve the objectives of the [National Design Guide](#)⁵ (DLUHC/2021) and guidance on creating beautiful, enduring and successful places. It provides a mechanism to promote and measure the provision of nature-rich landscapes (Characteristics N1-N3) and public spaces (Characteristics P1-P3). The use of UGFs can also be aligned with the [National Model Design Code](#)⁶ (DLUHC/2021) providing a means to promote, measure and monitor the delivery of ten characteristics of well-designed places, particularly but not exclusively the Nature and Public Space components of the code through the planning and development process.
- 2.6 [The National Green Infrastructure Principles](#) provide further detail to planning practice guidance by describing the benefits, characteristics and processes (the Why, What and How) that are needed to deliver good quality green infrastructure. A Model UGF can support the delivery of these principles and contribute to nature recovery. It can help to create more nature-rich places, improving water management by increasing the amount of permeable green cover and raising the environmental resilience of places. UGF can improve the direct access to good quality and functional greenspaces by promoting higher levels of site-based green infrastructure through the development process. They can also facilitate greater and earlier discussion and negotiation in the planning process and provide a comparative basis to measure and assess options and proposals during design development.

Green Infrastructure Design Guide

- 2.7 [The Green Infrastructure Design Guide](#) (Natural England/2023) complements the National Design Guide and provides further information on the delivery of good green infrastructure. The guide explains how well-designed GI helps to create:
- Nature-rich places - biodiversity, soils and geodiversity

⁵ DLUHC - formerly MHCLG (2021) National Design Guide.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/962113/National_design_guide.pdf

⁶ DLUHC - formerly MHCLG (2021) National Model Design Code.

<https://www.gov.uk/government/publications/national-model-design-code>

- Resilient and climate positive places - surface water, carbon and energy, urban cooling
- Thriving and prosperous places - providing a sense of place and supporting education
- Active and health places - improving access to nature, active lifestyles, air and noise

The Guide sets out how the UGF can be applied in different area types.

- 2.8 In developing an UGF planning tool attention should be given to this national hierarchy of planning policy and guidance that set the strategic objectives for planning and sustainable development as well as providing more detailed design guidance to deliver better green infrastructure. Urban greening policies can work alongside this guidance and provides a mechanism to achieve these objectives through the planning and development process. A planning policy for applying the UGF can be applied across the scales from regional and sub-regional to local authorities, neighbourhoods, and individual development sites.

3.0 When to Apply the Urban Greening Factor

- 3.1 The UGF can be applied to all types of urban development although it is recommended that it is first applied to major developments as defined by Town and Country Planning legislation. The full definition of a 'major development' is given in Part 1 of [The Town and Country Planning \(Development Management Procedure\) \(England\) Order 2015](#)⁷, which in summary includes:
- the development of housing - for 10 dwellings or more, or where the area of the development site is 0.5 hectares or more.
 - the development of other land uses - where the floor space to be created is 1,000 square metres or more, or the area of the development site is 1.0 hectares or more.
- 3.2 UGF is a planning tool that focuses on the greening of urban areas, and it is recommended that it is applied through planning policy to areas and districts that are predominantly urban or suburban in character. Where appropriate its use can also be targeted to development sites and locations where the level of urban

⁷ The Town and Country Planning (Development Management Procedure) (England) Order 2015 No. 595, Part 1 Article 2. <https://www.legislation.gov.uk/uksi/2015/595/article/2/made>

greening is a significant planning issue or requirement. This may include the redevelopment of brownfield or post-industrial sites in rural locations or the creation of garden communities that would be expected to provide a significant proportion of green infrastructure across the entire development.

Development Plan Documents

- 3.3 Urban greening policies and the use of UGFs can be incorporated in a variety of Development Plan Documents including Spatial Development Strategies, Local Plans, Neighbourhood Plans, Opportunity Area Planning Frameworks, Area Action Plans and supporting Supplementary Planning Guidance. Draft policies can then be tested and refined through the formal consultation stages for these documents prior to adoption. They may also be scrutinised through the plan-making process including the examination of Development Plan Documents, the preparation of Sustainability Appraisals, Strategic Environmental Assessments, Habitats Regulations Assessments, Viability Assessments and Equalities Impact Assessments.

Green Infrastructure Strategies

- 3.4 Green Infrastructure Strategies provide a key mechanism for developing an evidence base and establishing specific needs for urban greening that can then be used to inform, develop, and justify the use of an UGF tool. Green Infrastructure Strategies can be used to define the characteristics, spatial configuration and priorities for urban greening. This may include the targeting of measures in particular locations and the need to improve the ecological connectivity of green infrastructure and the provision of active travel networks. Strategies can also be used to improve the functionality of green infrastructure, identifying the location and needs for particular ecosystem services such as sustainable drainage systems, flood risk management, summer cooling, air quality regulation and carbon sequestration.

Local Nature Recovery Strategies

- 3.5 Local Nature Recovery Strategies will also provide an important coordinating framework for developing and applying UGFs to promote urban nature conservation, meet local biodiversity priorities and support delivery of mandatory biodiversity net gain. This will help local authorities working in partnership to meet their statutory duty to conserve and enhance biodiversity. The UGF can be used to strengthen wildlife networks and improve specific habitats for priority species including wetlands, woodlands, native hedgerows, and grasslands. This can be achieved by targeting UGFs to strengthen local Nature Recovery Networks, and complement emerging local nature recovery strategies, particularly in areas where the network is fragmented or absent. Local Biodiversity Action Plans can provide a

valuable evidence base for targeting UGFs alongside Tree and Woodland Strategies and Open Space Strategies.

Design Development and RIBA Plan of Work

- 3.6 To achieve an UGF target score set by planning policy will require urban greening measures to be considered at the outset of the development process. This should be led by a qualified landscape architect including advice from an ecological professional where appropriate. Whilst the UGF is principally a planning tool, it can also be used to inform each design stage that commonly follows the [RIBA Plan of Work](#)⁸. This includes the initial preparation of project design briefs, early concept design, through to technical design, construction and handover. Design development should make reference to national and local design guidance and other technical design standards as well as describing the approach to meeting UGF target scores. This can form part of the pre-application consultation process and may be clearly described in planning applications with UGF calculations and supporting drawings validated as part of a planning submission.

4.0 Structure and Content of the Urban Greening Factor

- 4.1 The UGF has two main components; a UGF target score that sets a minimum proportion or percentage of greening for a particular site, area or land use; and a schedule of green infrastructure elements or surface cover types and factor weightings that are used to calculate the target score.

UGF Target Scores

- 4.2 The recommended minimum UGF target scores for major developments in England are:
- 0.3 for predominately commercial development
 - 0.4 for predominately residential development

These target scores take account of current UGF planning practice and can be considered as a minimum benchmark rather than a maximum requirement, e.g., 0.5 for predominately residential development on greenfield sites. The method for calculating the UGF target score is explained in paragraph 5.1. UGF planning policies should state that development schemes are expected to meet or exceed these

⁸ RIBA (2020) RIBA Plan of Work. <https://www.architecture.com/knowledge-and-resources/resources-landing-page/riba-plan-of-work>

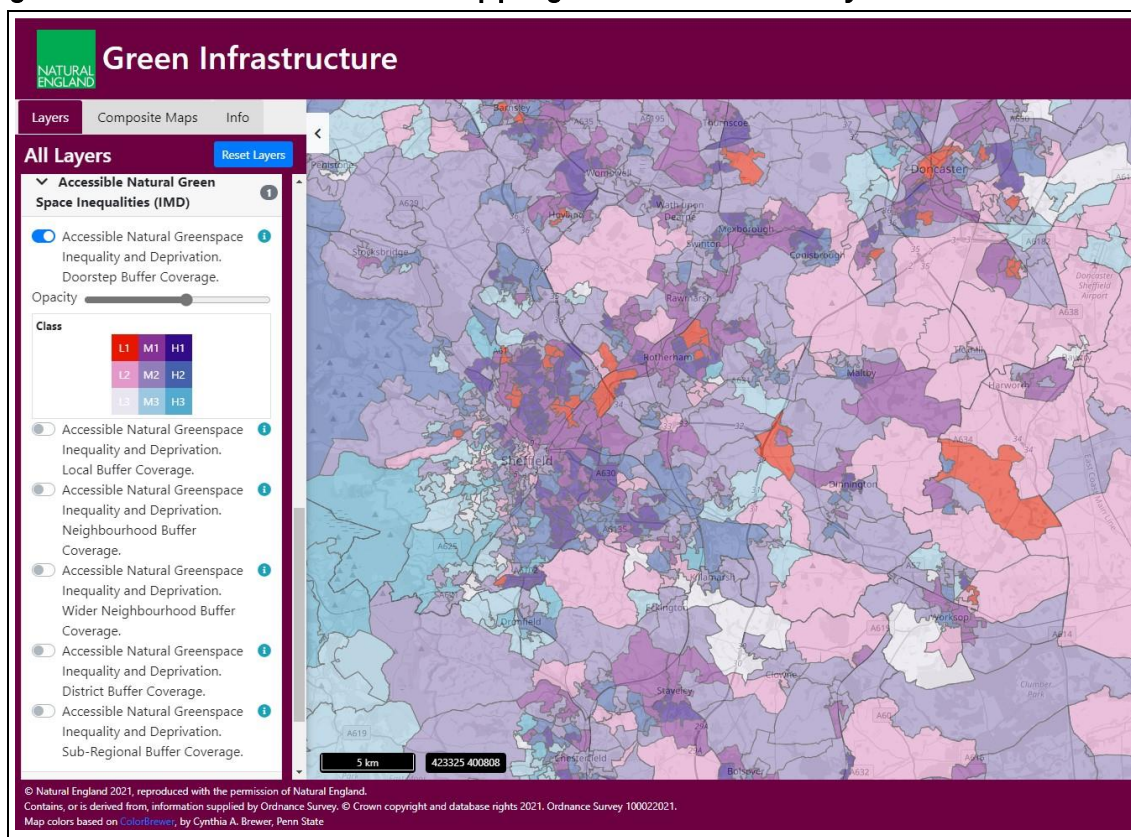
targets to demonstrate the positive contribution their design proposals will have on both urban greening and wider planning policies to achieve sustainable development. For mixed-use developments the land use class with the largest square metreage surface area can be used to determine the target score and if necessary, advice can be sought from the local planning authority.

- 4.3 Local Planning Authorities may choose to vary or add to these target scores in response to the local context, planning priorities and green infrastructure needs assessments. Variations to the proposed target scores should be supported by a robust evidence base that can be informed by freely accessible Geographic Information Systems (GIS) national mapping data and analysis including the national [Green Infrastructure Mapping Database and Analysis](#) prepared by Natural England (see Figure 1). Bespoke, project-based and in-house GIS data may also be available as well as thematic mapping such as i-Tree data and the [Fields in Trust Green Space Index](#)⁹. In London the Greater London Authority has published a [Green Infrastructure Focus Map](#)¹⁰ with further data made available through the GiGL (Greenspace Information for Greater London) environmental records centre.
- 4.4 Green Infrastructure Strategies and Plans, alongside emerging Local Nature Recovery Strategies, will provide a particularly important evidence base for setting UGF target scores and prioritising investment where it is needed the most. Reference should also be made to prevailing national, regional, and local green infrastructure policies including those in Local Plans and Development Plan Documents and their accompanying evidence base. It will also be important to take account of prevailing UGF policies that may be established by adjacent local planning authorities and current practice to ensure there is relative continuity in the setting of target scores. Figure 1 shows a screenshot of the Green Infrastructure Mapping tool, the map shows the combination of two sets of data to illustrate access to greenspace within 200 metres of where people live related to the Index of Multiple Deprivation.

⁹ Fields in Trust (2021) <https://www.fieldsintrust.org/green-space-index>

¹⁰ GLA /(2018) Green Infrastructure Focus Map, London Data Store: <https://apps.london.gov.uk/green-infrastructure/> and <https://data.london.gov.uk/dataset/green-infrastructure-focus-map>

Figure 1 - Green Infrastructure Mapping Database and Analysis



Source: Natural England / Beta version (V1.1)

<https://designatedsites.naturalengland.org.uk/GreenInfrastructure/Map.aspx>

4.5 Variations to the national Model UGF may include:

- providing UGF target scores for greenfield development sites and other [land use classes](#)¹¹ such as general industrial (B2), storage and distribution (B8), non-residential institutions (E/F.1) and infrastructure.
- targeting the use of UGF to specific locations such as city centres, special planning areas, area action plans or areas of opportunity and development intensification.
- varying the UGF target scores to reflect prevailing land values and viability assessments.
- applying UGF targets scores to smaller development sites that are generally referred to as minor developments.

4.6 Local Planning Authorities should set target scores that are both ambitious and achievable. Particular attention may be given to setting UGF target scores for

¹¹ For current Land Use Classes used in planning see the Planning Portal:

<https://www.planningportal.co.uk/permission/common-projects/change-of-use/use-classes>

locations and land uses that will especially benefit from enhanced provision of green infrastructure and developments that promote biophilic design¹² principles. These may include garden communities; nurseries, primary and secondary schools, hospitals, and healthcare; social and sheltered housing.

UGF Surface Cover Types

- 4.7 The second component of the UGF is a menu of green infrastructure elements or surface cover types that are used to calculate the UGF score. This is structured around four key headings:
- Vegetation and Tree Planting
 - Green Roofs and Walls
 - Sustainable Drainage Systems and Water Features
 - Paved Surfaces
- 4.8 A weighting factor from 0.0 to 1.0 is assigned to each cover type reflecting its environmental and social value in urban greening; its functionality in providing ecosystem services, including improving permeability; and its benefit in supporting biodiversity and habitat creation. Table 1 provides a summary list of 22 different surface cover types and weightings with a brief description for each. More detailed guidance for each cover type is provided in Table 2 that sets out guidance on their design and specification and the method of measurement.

Table 1 – Proposed UGF Surface Cover Weightings for England

No	UGF Surface Cover Type	Factor	General Description
Vegetation and Tree Planting			
1	Semi-natural vegetation and wetlands retained on site (including existing / mature trees)	1.0	Protection and enhancement of existing vegetation within the development site including mature trees and habitats.
2	Semi-natural vegetation established on site	1.0	New areas of vegetation and species-rich habitats within the development site that are connected to sub-soils at ground level.

¹² Biophilic design is a concept that seeks to increase the connectivity of buildings with the natural environment and natural processes. The NHS Forest program provides one example for healthcare: <https://nhsforest.org/>

No	UGF Surface Cover Type	Factor	General Description
3	Standard / semi-mature trees (planted in connected tree pits)	0.9	Tree planting established within engineered and interconnected systems with structural soils to maintain tree health at maturity.
4	Native hedgerow planting (using mixed native species)	0.8	Dense linear planting of mixed native hedgerow species, at least 800mm wide and planted two or more plants wide.
5	Standard / semi-mature trees (planted in individual tree pits)	0.7	Tree planting established within separate designed tree pits with structural soils to maintain tree health at maturity.
6	Food growing, orchards and allotments	0.7	Areas and facilities provided for local allotment and community-based food growing including formal orchards with fruit trees.
7	Flower rich perennial and herbaceous planting	0.7	New areas of mixed native and ornamental herbaceous and perennial plant species to support seasonal cycles of pollinating insects.
8	Mixed hedge planting (including linear planting of mature shrubs)	0.6	Dense linear planting of native or ornamental shrub and hedgerow species, closely spaced with one or more plants wide.
9	Amenity shrub and ground cover planting	0.5	Areas of formal and informal non-native shrub and ground cover planting connected to sub-soils at ground level or in planters.
10	Amenity grasslands including formal lawns	0.4	Areas of short-mown grass and lawn used for active sports or informal recreation that is regularly cut and generally species-poor.
Green Roofs and Walls			
11	Intensive green roof (meets Green Roof Organisation / GRO Code)	0.8	High maintenance accessible green roof with planting and a depth of growing substrate with a minimum settled depth of 150mm.
12	Extensive biodiverse green roof (meets the GRO Code, may include Biosolar)	0.7	Green roof with species-rich planting, with limited access, may

No	UGF Surface Cover Type	Factor	General Description
			include photovoltaics, the depth of growing substrate is 100 - 150mm.
13	Extensive green roof (meets GRO Code)	0.5	Low maintenance green roof, limited species mix in planting and with no access, the depth of growing substrate is 80 - 150mm.
14	Extensive sedum only green roof (does not meet the GRO Code)	0.3	Low maintenance sedum green roof, no access, combined depth of growing substrate, including sedum blanket, is less than 80mm.
15	Green facades and modular living walls (rooted in soil or with irrigation)	0.5	Vegetated walls with climbing plants rooted in soil supported by cables or modular planted systems with growing substrate and irrigation.
SuDS and Water Features			
16	Wetlands and semi-natural open water	1.0	Areas of semi-natural wetland habitat with open water for at least six months per year contributing to surface water management.
17	Rain gardens and vegetated attenuation basins	0.7	Bio-retention drainage features including vegetated rain gardens and attenuation basins that also provide biodiversity benefit.
18	Open swales and unplanted detention basins	0.5	Sustainable drainage systems to convey and temporarily hold surface water in detention basins with minimal vegetation cover.
19	Water features (unplanted and chlorinated)	0.2	Ornamental and generally chemically treated water features providing amenity value but with minimal biodiversity and habitat benefit.
Paved Surfaces			
20	Open aggregate and granular paving	0.2	Porous paving using gravels, sands and small stones as well as recycled materials that allow water to infiltrate across the entire surface.
21	Partially sealed and semi-permeable paving	0.1	Semi-permeable paving using precast units and filtration strips that allow water to drain through

No	UGF Surface Cover Type	Factor	General Description
			defined joints and voids in the surface.
22	Sealed paving (including concrete and asphalt)	0.0	Impervious paving constructed of concrete, asphalt or sealed paving units that do not allow water to percolate through the surface.

- 4.9 To maintain continuity in the weighting of individual surface cover types across different locations Local Planning Authorities are recommended not to change either the surface cover type descriptions or the weightings. This may impact the quality of provision and result in unintended consequences that may conflict with the original intention. For example, a local authority may wish to increase the provision of green roofs in a dense urban district and may consider increasing the weighting for this particular surface cover type as an incentive to achieve this outcome. However, a higher weighting for green roofs may actually allow a development proposal to achieve the same UGF score with a smaller area of green roofs.
- 4.10 Table 2 provides detailed descriptions of each surface cover type to ensure there is a level of consistency in green infrastructure proposals that meet recognised standards of design, construction and management. These descriptions include reference to associated guidance and good practice and can be seen as a means to inform rather than restrict the design process, improving the quality and functionality of green infrastructure proposals.
- 4.11 The schedule of surface cover types is not intended to be comprehensive but provides clear guidance to inform the design process. Where these descriptions do not exactly reflect a particular surface cover or green infrastructure element proposed for a development scheme then the nearest surface cover and weighting can be used with a supporting rationale for why this weighting has been selected. Local Planning Authorities may choose to amend the number of surface cover types or add additional surface covers with descriptions, specifications, and weightings to reflect local circumstances and priorities for urban greening.

Table 2 – Guidance on the specification and measurement of UGF Surface Cover Types for England

No	UGF Surface Cover Type	Factor
Vegetation and Tree Planting		
1	Semi-natural vegetation and wetlands retained on site (including existing / mature trees)	1.0
1.1	Guidance - The protection and enhancement of existing vegetation, trees and habitats provide a variety of environmental, social and economic benefits. This will protect soils, maintain permeability, reduce flood risk and preserve biodiversity within a development site. Priority should be given to retaining, protecting and enhancing good quality native and semi-natural habitats including woodland and wetlands that offer particular ecology and hydrology benefits. Specific attention should be paid to prevailing national and local planning policies for nature conservation and in particular the National Planning Policy Framework (2021)¹ and the protection of designated and priority habitats and species listed in the Natural Environment and Rural Communities Act' (2006) - Schedule 41 (Natural England / 2010)¹³. Proposals should also take account of BS 8683:2021 Process for designing and implementing Biodiversity Net Gain¹⁴, and BS 5837:2012 - Trees in relation to design, demolition and construction¹⁵. Where available this should make reference to a tree constraints plan (BS 5837:2012¹⁵) for the development site that should include an assessment of the future growth potential of trees and their canopies.	
1.2	Measurement - in Square Metres (m²) of semi-natural vegetation and habitats retained at ground level. Existing woodlands, clusters of trees and individual retained trees should be measured as the current total spread of the existing canopy where the trees are within the	

¹³ Natural England (2010) Natural Environment and Rural Communities (NERC) Act, Schedule 41.
<http://publications.naturalengland.org.uk/publication/4958719460769792>
<http://publications.naturalengland.org.uk/file/6518755878240256>

¹⁴ BS 8683:2021 Process for designing and implementing Biodiversity Net Gain. Specification, London BSI.
<https://shop.bsigroup.com/products/process-for-designing-and-implementing-biodiversity-net-gain-specification>

¹⁵ BS 5837:2012 Trees in relation to design, demolition and construction. Recommendations, London BSI.
<https://shop.bsigroup.com/products/trees-in-relation-to-design-demolition-and-construction-recommendations>

No	UGF Surface Cover Type	Factor
	development boundary. This can be measured using either the existing tree constraints plan or other site survey plan. Trees and their associated canopies that are outside the site boundary should not be included in the calculation.	
2	Semi-natural vegetation established on site	1.0
2.1	Guidance - New areas of semi-natural vegetation that offer ecological value and biodiversity benefit including woodland, species-rich habitats and wildflower grasslands that are not frequently cut. Planting should be connected to sub-soils at ground level to improve permeability and surface water management. Proposals should take account of BS 8683:2021 Process for designing and implementing Biodiversity Net Gain¹⁴. Particular attention should be given to the management of existing and imported soils following the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, (DEFRA / 2009); BS 8601:2013 Specification for subsoil¹⁶; and BS3882:2015 Specification for topsoil¹⁷. Planting techniques should take account of BS 4428:1989 Code of practice for general landscape operations¹⁸. Future landscape maintenance should take account of BS 7370-Part 4:1993 Grounds Maintenance - Recommendations for maintenance of soft landscape¹⁹.	
2.2	Measurement - in Square Metres (m²) at ground level including areas under existing individual tree canopies but excluding areas under existing woodlands. New areas of general tree planting should be measured as standard / semi-mature trees (category 5).	
3	Standard / semi-mature trees (planted in connected tree pits)	0.9

¹⁶ BS 8601:2013 Specification for subsoil and requirements for use, London BSI.
<https://shop.bsigroup.com/products/specification-for-subsoil-and-requirements-for-use>

¹⁷ BS3882:2015 Specification for topsoil, London BSI. <https://shop.bsigroup.com/products/specification-for-topsoil>

¹⁸ BS 4428:1989 Code of practice for general landscape operations (excluding hard surfaces). London BSI.
<https://shop.bsigroup.com/products/code-of-practice-for-general-landscape-operations-excluding-hard-surfaces>

¹⁹ BS 7370 Parts 1-5. Grounds Maintenance (including water areas). London BSI.
<https://shop.bsigroup.com/search?query=BS7370&type=products>

No	UGF Surface Cover Type	Factor
3.1	Guidance - Trees make a substantial contribution to the amenity and environmental performance of urban areas. Tree planting proposals should first take account of Trees, Planning and Development, A Guide for Delivery (TDAG/2021) ²⁰ . The planting of standard to semi-mature trees should following Trees in Hard Landscapes Guide (TDAG/2014) ²¹ and BS 8545:2014 - Trees ²² . This surface cover type takes account of tree planting within connected engineered crated or raft systems using structural growing media to minimise the risk of compaction. The minimum soil volume should be equivalent to at least two thirds of the projected canopy area of the mature tree and specified to meet future rooting, nutrient, oxygenation, and irrigation needs.	
3.2	Measurement - in Square Metres (m ²) of the area of spread of the tree canopy at maturity as stated by Tree Species Selection for Green Infrastructure (TDAG/2019) ²³ or published by nursery supplier.	
4	Native hedgerow planting (using mixed native species)	0.8
4.1	Guidance - Native hedgerows provide valuable habitat, cover and ecological connectivity for biodiversity and deliver a variety of ecosystem services including improved microclimate and reduced air pollution. Mixed species planting, rather than single species, is better for wildlife and this is further enhanced by integrating occasional native tree species within the alignment of the hedge. Native hedgerows should be a minimum of 800mm wide and design proposals should take account of guidance and resources provided by Hedgelink ³⁰ , the coalition of organisations interested in hedgerows. Attention should be given to both implementation and future	

²⁰ TDAG (2021) Trees, Planning and Development, A Guide for Delivery, Issue 1.1 2021 (or later). https://www.tdag.org.uk/uploads/4/2/8/0/4280686/tdag_tpd2021.s1v1.pdf

²¹ TDAG (2014) Trees in Hard Landscapes - A Guide for Delivery. Trees and Design Action Group, September 2014. https://www.tdag.org.uk/uploads/4/2/8/0/4280686/tdag_tihl.pdf

²² BS 8545:2014 Trees: from nursery to independence in the landscape. Recommendations, London BSI. <https://shop.bsigroup.com/products/trees-from-nursery-to-independence-in-the-landscape-recommendations>

²³ TDAG (2019) Tree Species Selection for Green Infrastructure: A Guide for Specifiers. Trees and Design Action Group, Issue 1.3 2019 (or later) https://www.tdag.org.uk/uploads/4/2/8/0/4280686/tdag_treespeciesguidev1.3.pdf

No	UGF Surface Cover Type	Factor
	management, following BS 4428:1989 Code of practice for general landscape operations ¹⁸ and BS 7370-Part 4:1993 Grounds Maintenance - Recommendations for maintenance of soft landscape ¹⁹ .	
4.2	Measurement - in Square Metres (m ²) including areas under existing or proposed tree canopies.	
5	Standard / semi-mature trees (planted in individual tree pits)	0.7
5.1	Guidance - Tree planting proposals should first take account of Trees, Planning and Development, A Guide for Delivery (TDAG/2021) ²⁰ . The planting of standard to semi-mature trees should follow Trees in Hard Landscapes Guide (TDAG/2014) ²¹ , Highway Tree Management: operations note 51 (2019) ²⁴ and BS 8545:2014 - Trees ²² . This surface cover type takes account of tree planting within individual designed tree pits using structural growing media to minimise the risk of compaction. Where possible the minimum soil volume should be equivalent to at least two thirds of the projected canopy area of the mature tree and specified to meet the future rooting, nutrient, oxygenation and irrigation requirements. When this is not possible the tree should be planted in the expectation it can exploit the adjacent free-soil environment where this will not impact utilities or built structures.	
5.2	Measurement - in Square Metres (m ²) of the spread of the tree canopy at maturity as stated by Tree Species Selection for Green Infrastructure (TDAG/2019) ²³ or published by nursery supplier.	
6	Food growing, orchards and allotments	0.7
6.1	Guidance - Allotments and areas for community food growing provide a variety of public health, sustainability, and ecosystem service benefits. Provision should take account of Local Government Association Growing in the Community good practice guidance	

²⁴ Forestry Commission (2019) Highway tree management: operations note 51, 19 July 2019. <https://www.gov.uk/government/publications/highway-tree-management-operations-note-51>

No	UGF Surface Cover Type	Factor
	(2009) ²⁵ and supplementary documents (2010) ²⁶ , as well as current guidance from the People's Trust for Endangered Species guidance on Traditional Orchards (PTES/2014) ²⁷ , the Orchard Project , the National Association of Allotments and Leisure Gardeners and the Social Farms and Gardens organisation .	
6.2	Measurement - in Square Metres (m ²) excluding areas existing or proposed non-orchard tree canopies.	
7	Flower rich perennial and herbaceous planting	0.7
7.1	Guidance - The provision of flower-rich areas of ornamental herbaceous and perennial planting enhances visual amenity, provide distinctive seasonal highlight and are particularly beneficial for pollinating insects. New areas of planting should prioritise mixed semi-natural and ornamental perennial plant species and draw on good practice including Plantlife publications, research in designed ecology (University of Sheffield) ²⁸ and pollinator demonstration projects (Buglife) ²⁹ . Planting should take account of the particular substrate, establishment and management needs of pollinator-rich and species-rich planting; BS 4428:1989 Code of practice for general landscape operations ¹⁸ ; and, BS 7370-Part 4:1993 Grounds Maintenance - Recommendations for maintenance of soft landscape ¹⁹ .	
7.2	Measurement - in Square Metres (m ²) including areas under existing or proposed tree canopies.	

²⁵ LGA (2009) Growing in the Community, second edition, Local Government Association. <https://www.local.gov.uk/sites/default/files/documents/growing-community-second--8f5.pdf>

²⁶ LGA (2010) A Place to Grow, a supplementary documents to Growing in the Community, Local Government Association. <https://www.local.gov.uk/sites/default/files/documents/place-grow-supplementary--736.pdf>

²⁷ PTES (2014) Traditional Orchards, a guide to wildlife and management, People's Trust for Endangered Species and Natural England. https://ptes.org/wp-content/uploads/2014/06/Guide-to-wildlife-and-management_England.pdf

²⁸ University of Sheffield research in Designed Ecology. <https://www.sheffield.ac.uk/landscape/research/ecology>

²⁹ Buglife Pollinator Projects. <https://www.buglife.org.uk/our-work/pollinator-projects/>

No	UGF Surface Cover Type	Factor
8	Single species or mixed hedge planting (including linear planting of mature shrubs)	0.6
8.1	Guidance - Hedges are used to define boundaries and deliver a variety of ecosystem services including improved microclimate and reduced air pollution. Mixed species planting, rather than single species, is better for wildlife and design proposals should take account of guidance and resources provided by Hedgeline³⁰ , the coalition of organisations interested in hedgerows. Attention should be given to both implementation and future management, following BS 4428:1989 Code of practice for general landscape operations¹⁸ and BS 7370-Part 4:1993 Grounds Maintenance - Recommendations for maintenance of soft landscape¹⁹ .	
8.2	Measurement - in Square Metres (m ²) including areas under existing or proposed tree canopies.	
9	Amenity shrub and ground cover planting	0.5
9.1	Guidance - Areas of substantially ornamental shrub and ground cover planting provides amenity and seasonal highlight. The depth of growing medium, including the use of raised planters, should be sufficient to ensure the long-term health of the planting areas. Species selection, planting techniques and maintenance should follow horticultural good practice, BS 4428:1989 Code of practice for general landscape operations¹⁸ and BS 7370-Part 4:1993 Grounds Maintenance - Recommendations for maintenance of soft landscape¹⁹ .	
9.2	Measurement - in Square Metres (m ²) including areas under existing or proposed tree canopies.	
10	Amenity grasslands including formal lawns	0.4
10.1	Guidance - Areas of short mown grassland and formal lawns provide a variety of public health benefits associated with organised sport, children's play and informal recreation. Species selection, establishment techniques and maintenance should reflect the	

³⁰ Hedgeline UK: <https://hedgeline.org.uk/hedgerows>

No	UGF Surface Cover Type	Factor
	anticipated intensity of use. The depth and placement of growing medium should prevent compaction and be sufficient to ensure the long-term health of the grassland sward. Planting techniques should follow horticultural good practice, BS 4428:1989 Code of practice for general landscape operations ¹⁸ and BS 7370-Part 3:1991 Grounds maintenance - Recommendations for maintenance of amenity and functional turf ¹⁹ .	
10.2	Measurement - in Square Metres (m ²) including areas under existing or proposed tree canopies.	
Green Roofs and Walls		
11	Intensive green roof (meets Green Roof Organisation (GRO) / GRO Code)	0.8
11.1	Guidance - An Intensive and high maintenance Green Roof with regular access for people and constructed with a deep growing substrate at least 150mm in depth supporting a broad range of vegetation including lawns, shrubs, hedges and tree planting providing recreation and amenity space. These roofs may also combine qualities of a blue roof for temporary water attenuation. Design and management should meet the GRO Green Roof Code ³¹ (GRO/2021), para 2.2.4, for Intensive Green Roofs and where appropriate blue roof technical guidance (GRO/2021, para 2.2.5 and NFRC/2017 ³²).	
11.2	Measurement - in Square Metres (m ²) of areas of intensive green roof with a minimum settled depth of substrate of 150mm or more.	
12	Extensive biodiverse green roof (meets the GRO Code, may include Biosolar)	0.7

³¹ GRO / Green Roof Organisation (2021) The Green Roof Code, Green Roof Code of Best Practice incorporating Blue Roofs and Biosolar Applications, Anniversary Edition 2021.
https://www.bauder.co.uk/getmedia/aa24968f-19b6-4195-b48f-b52d073957f2/GRO_GreenRoofCode.pdf

³² NFRC (2017) NFRC Technical Guidance Note for the construction and design of Blue Roofs. Roofs and podiums with controlled temporary water attenuation. National Federation of Roofing Contractors Ltd.
<https://www.nfrc.co.uk/docs/default-source/form-protected-documents/sustainability/blue-roofs-spreadslowres.pdf?sfvrsn=2>

No	UGF Surface Cover Type	Factor
12.1	Guidance - An Extensive and relatively low maintenance Green Roof constructed with a growing substrate between 100mm and 150mm in depth supporting a variety of low growing and medium height plants including wild and meadow flowering species to support pollinating insects. Additional natural features and habitats should be incorporated to encourage insect populations and bird life to establish biodiverse roofs or biosolar roofs that incorporate photovoltaic (PV) panels. These may provide limited access for people and the design and management should meet the GRO Green Roof Code ³¹ (GRO/2021, para 2.2.2 and 2.2.3) for Extensive Wild and Meadow Flower Roofs or Biodiverse Roofs.	
12.2	Measurement - in Square Metres (m ²) of areas of semi-intensive green roof with defined depth of substrate between 100mm to 150mm including areas of roof below photovoltaic panels.	
13	Extensive green roof (meets GRO Code)	0.5
13.1	Guidance - An Extensive and low maintenance Green Roof constructed with a shallow growing substrate between 80mm to 150mm in depth supporting a limited variety of hardy and drought tolerant succulent or wildflower plant species. These generally do not provide access for people, the design and management should meet the GRO Green Roof Code ³¹ (GRO/2021, para 2.2.1) for Extensive Green Roofs.	
13.2	Measurement - in Square Metres (m ²) of areas of extensive green roof with defined depth of substrate between 80mm to 150mm.	
14	Extensive sedum only green roof (does not meet the GRO Code)	0.3
14.1	Guidance - An Extensive and very low maintenance Green Roof that commonly use pre-grown planted blankets of drought tolerant sedum plant species. They are constructed with a shallow growing substrate of up to 80mm and this depth may include a 20mm thick sedum blanket. They are not accessible, and their design and management does not meet the GRO Green Roof Code ³¹ .	
14.2	Measurement - in Square Metres (m ²) of areas of extensive sedum only green roof with defined depth of substrate up to 80mm, including the sedum blanket.	
15	Green facades and modular living walls (rooted in soil or with irrigation)	0.5

No	UGF Surface Cover Type	Factor
15.1	Guidance - Green walls include green façades with climbing plants rooted in soil supported by cables or modular living wall structures incorporating a growing substrate, planting and irrigation system. Maintenance requirements vary and living walls require regular monitoring to ensure there is adequate water and nutrient supply to support plant growth. Design and management should take account of the National Building Specification's guide to facade greening part 1 ³³ , part 2 ³⁴ and part 3 ³⁵ (NBS / 2015) and current fire safety regulations for green walls that place limits their height.	
15.2	Measurement - in Square Metres (m ²) of the vertical plane of the green wall to the height of the planting supports or modular system.	
SuDS and Water Features		
16	Wetlands and semi-natural open water	1.0
16.1	Guidance - Ponds and wetland habitats that provide areas of open water for at least six months a year that support attenuation and the natural treatment of surface water runoff. Design, establishment and long-term management should take account detailed guidance in the SuDS Manual Chapter 23 (CIRIA/2015) ³⁶ and the recommendations to update Non-Statutory Technical Standards for Sustainable Drainage Systems (SuDS) ³⁷ and in particular Standard 6: Biodiversity (Defra/2021).	

³³ NBS (2015-1) The NBS guide to façade greening (Part One), Definitions, benefits and detriments. David Fuller, National Building Specification. <https://www.thenbs.com/knowledge/the-nbs-guide-to-facade-greening-part-one>

³⁴ NBS (2015-2) The NBS guide to façade greening (Part Two), Systems. David Fuller, National Building Specification. <https://www.thenbs.com/knowledge/the-nbs-guide-to-facade-greening-part-two>

³⁵ NBS (2015-3) The NBS guide to façade greening (Part Three), Thermal benefits. David Fuller, National Building Specification. <https://www.thenbs.com/knowledge/the-nbs-guide-to-facade-greening-part-three>

³⁶ CIRIA (2015) The SuDS Manual (C753). <https://www.ciria.org/ItemDetail?iProductCode=C753F&Category=FREEPUBS>

³⁷ Defra (2021) Recommendations to Update Non-Statutory Technical Standards for Sustainable Drainage Systems (SuDS), Final Report, February 2021. http://randd.defra.gov.uk/Document.aspx?Document=15129_WT15122RecommendationstoUpdateNonStatutoryTech%27calStandardsforSust%27bleDrainageSystems.pdf

No	UGF Surface Cover Type	Factor
	Maintenance should also take account of BS 7370-Part 5:1998 Grounds Maintenance - Recommendations for the maintenance of water areas ¹⁹¹⁹ .	
16.2	Measurement - in Square Metres (m ²) of wetland habitats including areas of open water.	
17	Rain gardens and vegetated attenuation basins	0.7
17.1	Guidance - Sustainable Drainage Systems (SuDS) collect, store, convey and naturally filter surface water runoff. Bio-retention features that capture and retain water and are deliberately vegetated to increase habitat and biodiversity value include rain gardens (shallow planted depressions) and planted swales (shallow vegetated channels). Design, establishment and long-term management should take account of detailed guidance in the SuDS Manual ³⁶ Chapter 17 - Wet swales and Chapter 18 - Bio-retention systems (CIRIA/2015). Proposals should also take account of the recommendations to update Non-Statutory Technical Standards for Sustainable Drainage Systems (SuDS) ³⁷ and in particular Standard 6: Biodiversity (Defra/2021).	
17.2	Measurement - in Square Metres (m ²) of vegetated surface water drainage and attenuation features.	
18	Open swales and unplanted detention basins	0.5
18.1	Guidance - Sustainable Drainage Systems (SuDS) collect, store, convey and natural filter surface water runoff. Open swales and detention basins (larger landscape depressions that are generally dry but fill temporarily) are used to convey surface water during periods of heavy rainfall. They have minimal vegetation cover and provide limited habitat and biodiversity value. Design, establishment and long-term management should take account of detailed guidance in the SuDS Manual ³⁶ Chapter 17 - Dry swales and Chapter 22 - Detention basins (CIRIA/2015).	
18.2	Measurement - in Square Metres (m ²) of open surface water drainage and detention features.	
19	Water features (unplanted and chlorinated)	0.2
19.1	Guidance - Water features that are designed and engineered to provide amenity value and visual interest but do not form part of a Sustainable Drainage System (SuDS). Water supply is generally	

No	UGF Surface Cover Type	Factor
	provided by mains or borehole within a closed system that is generally chemically treated to maintain water quality.	
19.2	Measurement - in Square Metres (m ²) of the open surface water area and enclosing structure.	
Paved Surfaces		
20	Open aggregate and granular paving	0.2
20.1	Guidance - Porous paving, footpath and road surfaces that contribute to Sustainable Drainage Systems (SuDS) that intercept surface water runoff allowing it to infiltrate across the entire surface and percolate on through the base and sub-base layers. Materials include reinforced grass systems, bound and unbound gravels, aggregates, recycled materials and other porous paving materials.	
20.2	Measurement - in Square Metres (m ²) of the porous surface material including areas under existing or proposed tree canopies.	
21	Partially sealed and permeable paving	0.1
21.1	Guidance - Semi-permeable paving that contribute to Sustainable Drainage Systems (SuDS) by intercepting surface water runoff and allowing it to percolate through defined joints and voids and drain at defined locations using filter drains that can capture sediment. Design and construction of filtration features should take account of detailed guidance in the SuDS Manual ³⁶ Chapter 16 - Filter drains and Chapter 20 - Pervious pavements (CIRIA/2015). Design and construction of unit paving should also take account of BS 7533-101:2021 - Pavements. Guidance ³⁸ and Guidance on the permeable surfacing of front	

³⁸ BS 7533-101:2021 Pavements constructed with clay, concrete or natural stone paving units - Code of practice for the structural design of pavements using modular paving units, London BSI.
<https://shop.bsigroup.com/products/pavements-constructed-with-clay-concrete-or-natural-stone-paving-units-code-of-practice-for-the-structural-design-of-pavements-using-modular-paving-units>

No	UGF Surface Cover Type	Factor
	gardens ³⁹ , published by Communities and Local Government and Environment Agency (DCLG/2008).	
21.2	Measurement - in Square Metres (m ²) of the semi-permeable surface material including areas under existing or proposed tree canopies.	
22	Sealed paving (including concrete and asphalt)	0.0
22.1	Guidance - Sealed and impervious areas of paving constructed of concrete, asphalt or sealed paving units that do not allow water to percolate through the surface. These surfaces significantly reduce the permeability of sites, have no role in Sustainable Drainage Systems (SuDS) and can increase flood risk during periods of heavy rainfall. Permitted development rights for householders ⁴⁰ (MHCLG/2019) requires all areas of hard surfacing in front gardens exceeding 5 Square Metres (m ²) to be made of permeable or porous material under Class F of the Town and Country Planning (General Permitted Development) (England) Order 2015 ⁷ .	
22.2	Measurement - in Square Metres (m ²) of the impervious surface material.	

5.0 How to Calculate the Urban Greening Factor

- 5.1 The UGF score provides a figure for the proportion of urban greening in comparison to the total area of the development site. It is calculated by multiplying the area of each surface cover type by its factor; each figure is then added together and divided by the total area within the development site boundary that is commonly referred to the red-line boundary.

³⁹ DCLG (2008) Guidance on the permeable surfacing of front gardens, Communities and Local Government and Environment Agency, September 2008.

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7728/pavingfrontgardens.pdf

⁴⁰ MHCLG (2019) Permitted development rights for householders, Technical Guidance, September 2019.

https://www.planninggeek.co.uk/wp-content/uploads/2020/07/190910_Permitted-development-rights-for-householders-Technical-Guidance.pdf

$$\text{Urban Greening Factor Score} = \frac{\text{Sum of each Surface Area type (m}^2\text{)} \times \text{Factor}}{\text{Total site area (m}^2\text{)}}$$

(Surface Area A x Factor A + Surface Area B x Factor B + Surface Area C x Factor C, etc.)

The resulting score is then compared with the target UGF score for the development site set by the planning policy and the score indicates whether the urban greening proposals achieve, exceed or fail to meet the defined target.

- 5.2 Figure 2 provides a worked example of how the UGF is calculated for a theoretical site.

Figure 2 – Theoretical site plan showing UGF Scores

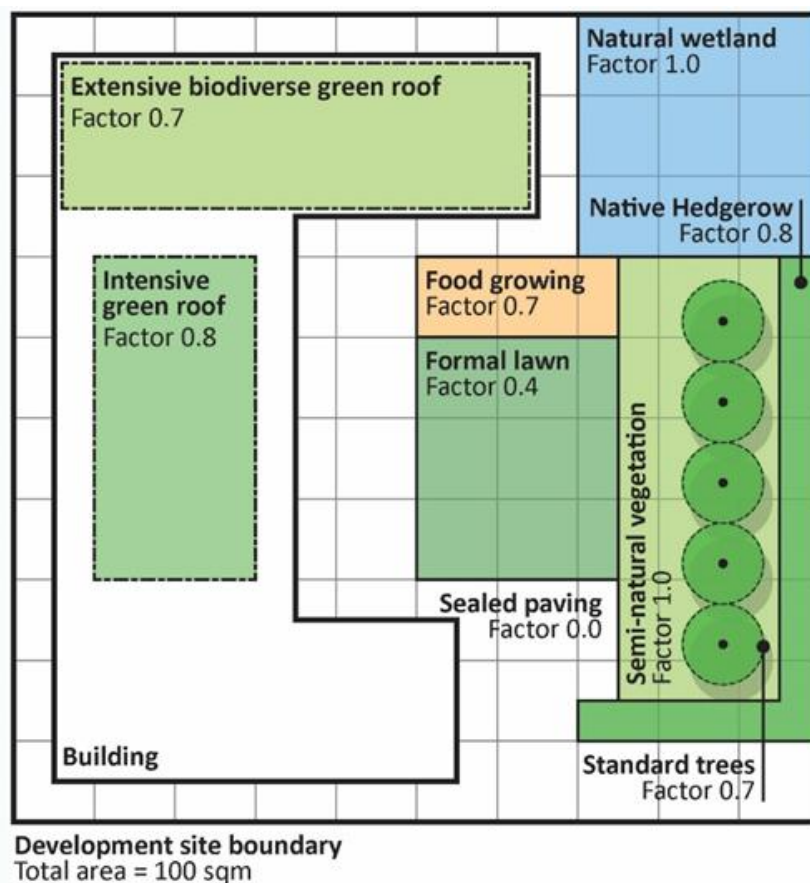


Table 3 – Calculation of an urban Greening Factor Score for a theorical site plan shown in figure 2

Surface Cover Type	Area		Factor	Total
Semi-natural vegetation	11.00	×	1.0	=11.00
Native hedgerow	4.25	×	0.8	=3.40

Standard trees	3.93	×	0.7	=2.75
Food growing/allotment	2.50	×	0.7	=1.75
Amenity grassland	7.50	×	0.4	=3.00
Intensive green roof	8.00	×	0.8	=6.40
Extensive green roof	12.00	×	0.7	=8.40
Wetlands/open water	9.00	×	1.0	=9.00
Sealed paving	28.75	×	0.0	=0.00
			Total	=45.70
			Total Site Area	=100
			UGF (45.7/100)	=0.46

- 5.3 The area of private front and rear gardens in residential schemes can be included in the calculation using factors for the relevant surface cover types. These are likely to include amenity grasslands including formal lawns (Type 10), Amenity shrub and ground cover planting (Type 9), Tree planting (Type 5) and Sealed paving (Type 22). It is acknowledged that the future configuration and GI value of private gardens may change over time through permitted development and the future value of private gardens may increase or decrease over time.

Planning Applications

- 5.4 Landscape and green infrastructure proposals are a common component of outline, detailed and hybrid planning applications and submissions may include green infrastructure frameworks, landscape masterplans, landscape and planting design and detailed specifications. Where a development is required to provide an UGF calculation to meet the UGF planning policy target as part of a detailed application the submission may include:
- A description of the green infrastructure and urban greening measures that have been adopted to meet the UGF planning policy target
 - A colour coded UGF masterplan that indicates the location of the surface cover types
 - A completed calculation table indicating the UGF target score achieved
 - A statement on the protection of existing trees and habitats where these are retained
 - A management plan describing how the green infrastructure will be maintained
- 5.5 This information and the supporting design narrative can form part of a Design and Access Statement for the development. Where planning permission is granted the colour coded UGF masterplan should be included in the referenced documents. For outline applications where landscape proposals are yet to be defined or finalised a planning condition can require that an UGF calculation and supporting information

that meets the UGF target score is provided as part of a Reserved Matters Application.

Existing and Proposed UGF Scores

- 5.6 Whilst the UGF tool is used to calculate the future amount and type of GI proposed for a development site it could also be used to indicate the level of change in urban greening. This can be achieved by calculating an UGF score for the existing pre-development site and then comparing this with the development and landscape proposals. The difference between the existing and proposed UGF scores would provide a numerical measure of the net change in urban greening or GI provision achieved through the development process.

Spreadsheet Template

- 5.7 A spreadsheet template in Excel format has been prepared to assist in the calculation of the UGF score, [UGF User Guide Spreadsheet](#)⁴¹. This provides a summary list of all land cover types and their associated weightings. Full descriptions for each cover type are provided in this user guide. Where these descriptions do not exactly reflect a particular surface cover type then the nearest surface cover and weighting should be used, and notes provided on why that weighting has been selected. The total surface area for each cover type should be added to the Area (m²) column along with the area of the Total Development Site (m²). The spreadsheet will then auto-calculate the UGF score.

6.0 Further Considerations in Applying the Urban Greening Factor

- 6.1 The UGF provides a useful planning policy tool to increase green infrastructure provision through the development process and particularly in more dense urban areas. In applying the UGF tool local planning authorities should consider its application in the round, taking account of associated nature conservation, nature recovery and green infrastructure policies and standards. It will be particularly important to ensure the use of UGF can support mandatory biodiversity net gain requirements. Its use can also align with other green infrastructure standards

⁴¹ Natural England (2021) Urban Greening Factor for England User Guide Spreadsheet – Green Infrastructure Framework Principles and Standards for England

<https://designatedsites.naturalengland.org.uk/GreenInfrastructure/Home.aspx>

including the Accessible Greenspace Standard, and that robust measures are in place to monitor delivery and secure future management and maintenance.

UGF and Biodiversity Net Gain

- 6.2 Planning policies and decisions should contribute to and enhance the natural and local environment by 'minimising environmental impacts on and providing net gains for biodiversity' ([NPPF¹/2021, 174e](#)). Natural Environment Planning Practice Guidance (2019) provides further detail on how this can be achieved and the requirement for net gain has now been strengthened by the Environment Act (2021) that will mandate a minimum 10% gain by winter 2023. The gain should be calculated using the latest version of the [Biodiversity Metric](#)⁴² (2021) which takes a habitat-based approach to determining a proxy biodiversity value and assesses changes in biodiversity value from the development process. Where local planning authorities choose to apply UGF to smaller sites a [Small Sites Metric](#)⁴³ (2021) is available as a beta test version for sites that do not meet the criteria to be considered as 'major development' as noted in Section 3.1.
- 6.3 The use of urban greening policies and the application of the UGF tool should be seen to facilitate this net gain process. It is not uncommon for urban and brownfield development sites to have no or very limited biodiversity baseline level where subsequent net gains for biodiversity, including a mandatory 10% net gain, may be relatively modest. Local planning policies for biodiversity should promote an ecologically informed approach to design and development in accordance with the National Planning Policy Framework to increase the biodiversity baseline and enhance ecological connectivity to support Local Nature Recovery Strategies (LNRS). This can be further strengthened with the use of UGF policies that define specific urban greening objectives for particular locations and land uses and can help to set the quantity and quality of GI that should be delivered on-site.
- 6.4 The process of setting UGF target scores should take account of local biodiversity strategies and the emerging LNRS for a district or planning area so that it can support the delivery of biodiversity net gain objectives. The proposed surface cover types are weighted towards habitat and species-rich urban greening measures. This process will be further strengthened by the use of the [Green Infrastructure Design](#)

⁴² Natural England (2021) The Biodiversity Metric 3.1 (JP039).
<http://nepubprod.appspot.com/publication/6049804846366720>

⁴³ Natural England (2021) The Small Sites Metric (JP040), beta test version.
<http://nepubprod.appspot.com/publication/6047259574927360>

[Guide](#) and planning authorities may also choose to publish Supplementary Planning Guidance or Design Guides that reflect local contexts and priorities. For example, the Greater London Authority has jointly published an [Urban Greening for Biodiversity Net Gain Design Guide](#)⁴⁴ with the London Wildlife Trust (GLA/2021).

UGF and Accessible Greenspace Standards

- 6.5 The Accessible Natural Greenspace Standard (ANGSt) was introduced in the 1990s by English Nature and has now been updated as Accessible Greenspace Standards (AGS) by Natural England as part of the Green Infrastructure Framework. AGS is a planning tool based on the Accessible Natural Greenspace Standards to assess the level of accessibility to greenspaces and sets quantity and accessibility standards for the provision of different sizes of greenspace. These include Doorstep Greenspace, and Local, Neighbourhood, Wider Neighbourhood, District and Wider Area Accessible Natural Greenspace.
- 6.6 AGS and UGF should be considered as complementary planning tools that can be aligned to the national Green Infrastructure Principles and serve to meet a variety of local GI needs and outcomes. AGS focuses on the strategic supply of publicly accessible greenspace to ensure districts have adequate provision and distribution of greenspace within easy access for residents. The supply and management of accessible greenspace is generally, but not exclusively, the responsibility of local authorities and the public sector. These standards of provision are followed or adapted by Local Plan policy and informed by the supporting evidence base which commonly includes green infrastructure strategies and open space, sports and recreation strategies.
- 6.7 UGF provides an additional mechanism to increase the provision of GI within development sites and through the development process. This is generally, but not exclusively, undertaken by the private sector through site-based planning applications and approvals although this provision may not necessarily be publicly accessible. Where Local planning authorities have difficulty in meeting quantity and accessibility standards in more dense urban locations UGFs can be used to increase provision of green infrastructure and can be targeted to specific locations and outcomes. UGF is therefore deliberately named as a tool for Urban Greening rather than as a Green Space Factor as it provides the means to increase the quantity, quality and functionality of GI. UGF should be used in combination with

⁴⁴ London Wildlife Trust / Mayor of London (2021) Urban Greening for Biodiversity Net Gain: A Design Guide, March 2021, Greater London Authority.

https://www.london.gov.uk/sites/default/files/urban_greening_and_bng_design_guide_march_2021.pdf

AGS to provide the means to improve GI provision through both strategic planning and site-based approaches to increase both publicly accessible greenspace and urban greening overall.

UGF and Meeting Local Needs

- 6.8 The Local Plan evidence base, prevailing planning policies and local green infrastructure strategies should be used to both identify local needs and meet specific requirements for green infrastructure. The monitoring of the Local Plan Delivery will also provide a mechanism to demonstrate how these needs and targets are being met over time.
- 6.9 Where UGF planning policy targets have been adopted, development and design proposals should demonstrate how they are locally appropriate and meet local needs. Rather than changing the individual weighting of surface cover types to prioritise particular types of urban greening, planning policies and strategies can be used to identify and emphasise particular GI needs that should be achieved through the use of UGFs and these may include:
- Improving onsite permeability in areas that are particularly vulnerable to flood risk
 - Increasing Sustainable Drainage Systems (SuDS) to improve surface water management
 - Providing areas of natural play where there is a deficit of local play areas for children
 - Prioritising particular habitats in response to Local Nature Recovery Strategies (LNRS) objectives.
 - Expanding tree canopy cover in urban areas to reduce peak summer temperatures
 - Establishing greenways for active travel in areas with high traffic and poor air quality

Management and Maintenance

- 6.10 It is essential that GI is properly maintained so that it continues to fulfil the functions and meet the standards of quality defined by planning policy and agreed through the planning approval process. Landscape and Green Infrastructure Management and Maintenance Plans provide a mechanism to achieve these objectives and can either be a requirement of the planning policy or included in the planning application process. They should describe the actions and responsibilities required to establish and then maintain GI elements over a defined timeframe set by local planning policy. Maintenance activities should include the establishment and long-term maintenance of trees, the frequency and specification of horticultural activities and the approach to lifecycle and replacement. Maintenance regimes should take account of specific measures to protect and enhance natural

habitats to ensure biodiversity net gain can be achieved and sustained over the long-term. This is also needed to meet the net gain requirement to manage sites for at least thirty years following construction.

Monitoring and Review

- 6.11 Local Planning Authorities are required to publish Annual Monitoring Reports (AMR) on the implementation of their local development schemes and to demonstrate whether the policies and objectives in local plans are being achieved. This includes data on planning permissions and development completions as well as the delivery of key performance indicators (KPIs) that are linked to the Local Plan objectives. The AMR provides a means to measure progress towards set targets and milestones which can include indicators for the provision of green infrastructure, public open space and urban greening elements such as tree canopy cover.
- 6.12 UGF provides a useful measure or indicator to assess the delivery of GI through the planning process. This can be achieved by setting KPIs for delivery of the UGF in general or for specific elements of urban greening that are identified as local plan priorities. For example, the [London Legacy Development Corporation Local Plan](#)⁴⁵ (LLDC/2020) includes a KPI for the 'number of applications approved for development schemes meeting the Urban Greening Factor target'. [The London Plan](#)⁴⁶ (GLA/2021) includes a KPI for the increasing Urban Greening measured by the target to 'increase total area of green roofs in the CAZ'. [The Portsmouth draft Local Plan](#)⁴⁷ (2021) will monitor the 'quantifiable net gain in green infrastructure in the city'. This will use a KPI of the total number of 'square metres of additional green infrastructure incorporated into new development each year, measured from the urban greening factor'.
- 6.13 Local Planning Authorities should use the Annual Monitoring process to assess the impact and effectiveness of the UGF planning tool and target scores. This may include an analysis of the proportion of planning applications that have used, met

⁴⁵ LLDC (2020) Local Plan 2020 to 2036, London Legacy Development Corporation, Adopted 21 July 2020, page 273. https://www.queenelizabetholympicpark.co.uk/-/media/lldc/local-plan/adoption-local-plan-2020/final-version-local-plan-may-2021/local-plan_web-version-14-january-2021.ashx?la=en

⁴⁶ GLA (2021) London Plan AMR 16 2018/19, Key Performance Indicator 22, page 61. https://www.london.gov.uk/sites/default/files/amr_16_final.pdf

⁴⁷ Portsmouth City Council (2021) Portsmouth Local Plan 2038, 'Regulation 18' Consultation Document Draft for consultation September 2021, Policy G2 Green Infrastructure, Policy Monitoring, p156. <https://www.portsmouth.gov.uk/wp-content/uploads/2021/09/207.9-Local-plan-2021-document-FULL-ACCESSIBLE.pdf>

and exceeded the UGF target score as well as post construction appraisals that can assess the quality of delivery, establishment and management. Periodic reviews of the UGF planning policy, which may be undertaken as part of the Local Plan review cycle, will ensure the targets remain both ambitious and achievable and are meeting the overarching aim to improve urban greening. Where appropriate and achievable UGF target scores may be incrementally increased over time where the policy has initially improved the level of greening but more ambitious targets are needed.

Further Information

- 6.14 UGF were first developed in Europe in the mid-1990s, and their international application has grown substantially providing a broad evidence base that demonstrates their role in the delivery of better GI and increasing urban greening more generally. This User Guide sets out the purpose, structure and application of a Model UGF for England, the following references provide further information on the context and development of this GI planning tool.
- [GRaBS Expert Paper 6](#)⁴⁸ the green space factor and the green points system, TCPA, 2011
 - Urban Greening Factor for London, [Research Report](#)⁴⁹, Greater London Authority, 2017 Planning for green infrastructure - the green space factor and learning from Europe, [PERFECT Expert Paper 2](#)⁵⁰, TCPA, 2018.

⁴⁸ Kruuse, A. (2011) GRaBS Expert Paper 6 the green space factor and the green points system, TCPA. <https://www.tcpa.org.uk/Handlers/Download.ashx?IDMF=c6ecd8bc-a066-435f-80d6-d58e47ab39a7>

⁴⁹ Grant, G. (2017) Urban Greening Factor for London, Research Report. The Ecology Consultancy / Greater London Authority. https://www.london.gov.uk/sites/default/files/urban_greening_factor_for_london_final_report.pdf

⁵⁰ Massini, P., and Smith, H. (2018) Planning for green infrastructure - the green space factor and learning from Europe, PERFECT Expert Paper 2 / TCPA. https://www.interregeurope.eu/fileadmin/user_upload/tx_tevprojects/library/file_1551105810.pdf

Appendix 1 –The Green Infrastructure Framework Advisory Group – Member Organisations

1. Activity Alliance
2. AECOM
3. Berkeley Homes
4. Birmingham City Council and Birmingham City University
5. Birmingham City University
6. Brillianto
7. Buckinghamshire County Council
8. Building Research Establishment
9. Building with Nature
10. Cambridge City Council
11. Canal and River Trust
12. Chartered Institute of Ecology and Environmental Management
13. Chartered Institute of Water and Environmental Management
14. Chilterns AONB Unit
15. Construction Industry Research and Information Association
16. Core Cities Group,
17. Country Land and Business Association
18. Cycling UK
19. Department for Environment, Food and Rural Affairs
20. Ecosystems Knowledge Network
21. Eden Project
22. Environment Agency
23. Essex County Council
24. Field Studies Council
25. Fields In Trust
26. Forestry Commission
27. Friends of the Earth
28. Future Parks
29. Gloucestershire Wildlife Trust
30. Greater Manchester Combined Authority
31. Groundwork
32. Historic England
33. Home Builders Federation
34. Homes England
35. Keep Britain Tidy
36. Land Trust
37. Landscape Institute
38. Lend lease
39. Local Government Association
40. Lockhart Garratt
41. Mind

42. Mott MacDonald
43. National Federation of Parks and Greenspaces
44. National Grid
45. National Infrastructure Commission
46. Natural England
47. Nene Park Trust and Parks Alliance
48. Nottingham City Council
49. Office for Health Improvement and Disparities, Department of Health and Social Care
50. Open Spaces Society
51. Ordnance Survey
52. Peel Land and Property Group Management Limited
53. Royal Society of Protection of Birds
54. Sport England
55. Sustrans
56. The Association of Directors of Environment, Economy, Planning and Transport
57. The Ramblers
58. The Rivers Trust
59. The Wildlife Trusts
60. Town and Country Planning Association
61. UK Green Building Council
62. University of Birmingham
63. University of Manchester
64. University of Northumbria
65. University of Oxford
66. University of the West of England
67. Urban Nature Ltd
68. Urban&Civic
69. Wildlife and Countryside Link
70. WSP Global Inc

Appendix 2 – Stages of Urban Greening Factor Research

The development of the UGF described in this report was commissioned and led by Natural England on behalf of Defra, and was undertaken between September 2021 and March 2022.

It builds on research undertaken during earlier stages of the development of the GI Framework between 2019 and 2020, and contributes to a set of eight papers on UGF applications:

Stage 1 2018-19

This work was contracted to LDA Design, and led by Frazer Osment. Peter Neal (Peter Neal Consulting) was the lead author of the paper below.

1.1 Final Report (unpublished): GI Standards Framework Interim Report, 2019

Stage 2 (2020)

This work was contracted to the University of Manchester. Dr Ian Mell led the delivery of the contract. Peter Neal (Peter Neal Consulting) was the lead author of the papers below.

Briefing Papers (unpublished, 2020)

2.1 - A Review of UGF Applications

- This paper introduces the concept and describes the chronological development of Urban Greening Factors using a structured review of the academic and grey literature. It provides a description of both international practice and UK applications and includes a summary of existing policies, guidance and the process of application and implementation. It assesses the extent of the evidence base that has been used to develop specific Urban Greening Factors and provides a review of surveys, assessments and evaluations that gauge the effectiveness of the planning tool.

2.2 - An Assessment of UGF and Ecosystem Services

- This paper provides a review of the approach and effectiveness of Urban Greening Factors in delivering ecosystem services (ESS). It uses a familiar evaluative framework of supporting, regulating, provisioning and cultural service headings. Particular attention is given to factors that prioritise the water-holding capacity of

vegetated surface covers and soils that have commonly been used as a proxy for delivering wider ESS benefits.

2.3 - An Analysis of UGF Metrics, Net Gain and Scale of Application

- This paper provides an analysis of the metrics commonly used in Urban Greening Factors that incorporate specific socio-cultural, economic and ecological parameters. It assesses the role that Urban Greening Factors can play in spatial planning and their potential use in analysing the nature of green infrastructure provision, demonstrating net gain and their ability to work alongside other net gain metrics including the Biodiversity Metric and Eco-metric.

2.4 - A Review of the use of UGF to meet Local Needs and Inform Targets

- This paper considers the flexibility of Urban Greening Factors in meeting particular local needs and how inclusive and collaborative approaches including stakeholder consultation and public engagement can inform their development. This may help to prioritise the delivery of specific ESS alongside other cultural, recreational and placemaking objectives and describes how the use of Urban Greening Factors can inform national and local targets for ESS and green infrastructure provision.

Stage 3 (2021-22)

This work was undertaken by Peter Neal on behalf of Natural England.

Technical Papers (published 2023)

- 3.1 - Urban Greening Factor for England - Case Studies
- 3.2 - Developing a Model Urban Greening Factor for England
- 3.3 - Urban Greening Factor for England - User Guide and User Guide Spreadsheet
- 3.4 - Urban Greening Factor for England Summary Report

All the Stage 3 papers and User Guide Spreadsheet form part of the Green Infrastructure Framework - Principles and Standards for England.

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