Runnymede 2030
Local Plan

Green and Blue Infrastructure Supplementary Planning Document (SPD)

November 2021

cba

Runnymede
BOROUGH COUNCIL

CONTENTS

APPENDICES

ANNEXES (separate documents)

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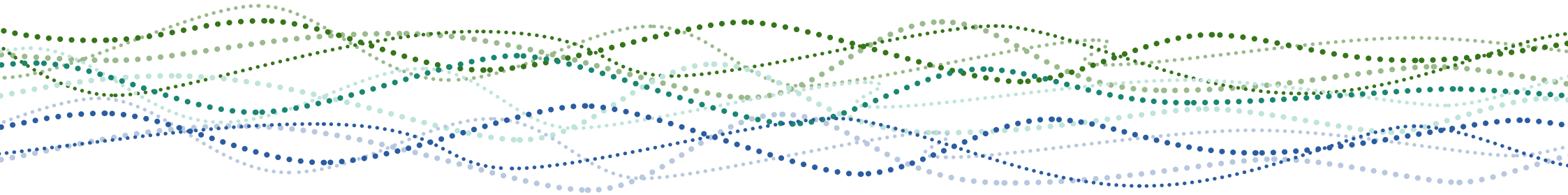


FOREWORD

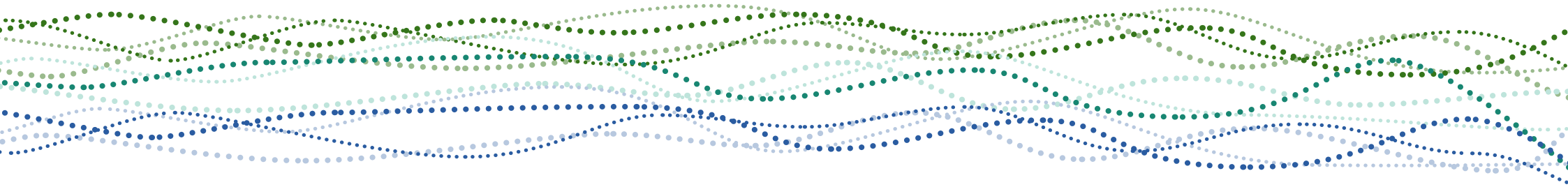
Strengthening the Borough's networks of multi-functional Green and Blue Infrastructure has an important role to play in halting biodiversity loss and nature recovery, building resilience to climate change and promoting healthy, resilient and safe communities.

This Supplementary Planning Document supports implementation of policies SD7 (Sustainable Development), EE11 (Green Infrastructure) and EE12 (Blue Infrastructure) of the **Runnymede 2030 Local Plan** as well as the allocated sites for development. The SPD will be a material consideration in relation to planning applications and planning appeals.

It helps guide applicants, the Council and statutory consultees through initial pre-application discussions, the planning application process and planning conditions/obligations relating to provision of Green and Blue Infrastructure.

The SPD sets out guidance for embedding Green and Blue Infrastructure into development, supported by planning and design principles, planning checklists, examples of good practice and signposts to further information and guidance.

The Supplementary Planning Document was adopted on the 24 November 2021 with implementation from the 1 December 2021 and is a material consideration in relation to planning applications and planning appeals.



1 - GREEN & BLUE INFRASTRUCTURE IN RUNNYMEDE

1.1 What is Green & Blue Infrastructure?

1.1.1 Green and Blue Infrastructure (GBI) can embrace a range of natural green and blue assets – from country parks, rivers, watercourses, lakes and woodlands to urban interventions such as green roofs and street trees.

1.1.2 The government's Planning Practice Guidance on the Natural Environment states:

'Green infrastructure can embrace a range of spaces and assets that provide environmental and wider benefits. It can, for example, include parks, playing fields, other areas of open space, woodland, allotments, private gardens, sustainable drainage features, green roofs and walls, street trees and 'blue infrastructure' such as streams, ponds, canals and other water bodies. (Paragraph 004)'

1.1.3 Natural resources - air, land, water, wildlife, plants and soil - provide our most basic needs, including food, energy and security, and keep us healthy. Where natural resources are under pressure from unsustainable uses and activities, this presents a risk to long-term social, economic and environmental well-being.

1.1.4 Thoughtfully planned, well-designed and sustainably managed GBI assets have potential to provide multiple functions that can deliver a range of ecosystem services. These in turn provide a range of benefits for people, places and nature. For the purposes of this SPD, the key functions of GBI that provide beneficial ecosystem services for Runnymede are summarised in **Box 1.1**.

BOX 1.1 Green & Blue Infrastructure Functions

1.1.5 Embedding GBI into well-designed built development can help reinforce and enhance the local built, natural and historic character of the Borough's landscapes and townscapes, contributing to sense of place and natural beauty.

1.1.6 In addition to helping reverse the decline in biodiversity by enhancing ecological connectivity, facilitating biodiversity net gain and nature recovery networks, GBI can help communities and wildlife become more resilient to a changing climate through natural solutions such as:

- Replicating natural drainage systems and restoring flood storage functions to manage flood risk
- Increasing tree cover to help capture carbon and keep urban areas cooler in the summer
- Providing renewable energy opportunities

1.1.7 GBI can contribute to healthy living and well-being by providing opportunities for recreation, relaxation and growing local food, while also supporting sustainable growth and economic development.

1.1.8 Whilst individual GBI assets can serve one or more functions, connectivity between different GBI assets helps to maximise the ecosystem services and well-being benefits that they can generate. Well-connected GBI assets create GBI networks that are adaptive and resilient to urbanisation and climate change.

1.1.9 Physical connections make the most impact. Linear landscape features such as river corridors and hedgerows provide ecological corridors for the dispersal of wildlife. Connecting green spaces and places via a network of sustainable walking and cycling routes along green corridors encourages healthy living and opportunities for people to experience nature.

1.1.10 Adopting an integrated and joined up "green infrastructure approach" to managing natural assets can significantly reduce costs for public bodies, businesses and individuals, whilst providing quality of life benefits for residents, workers and visitors.

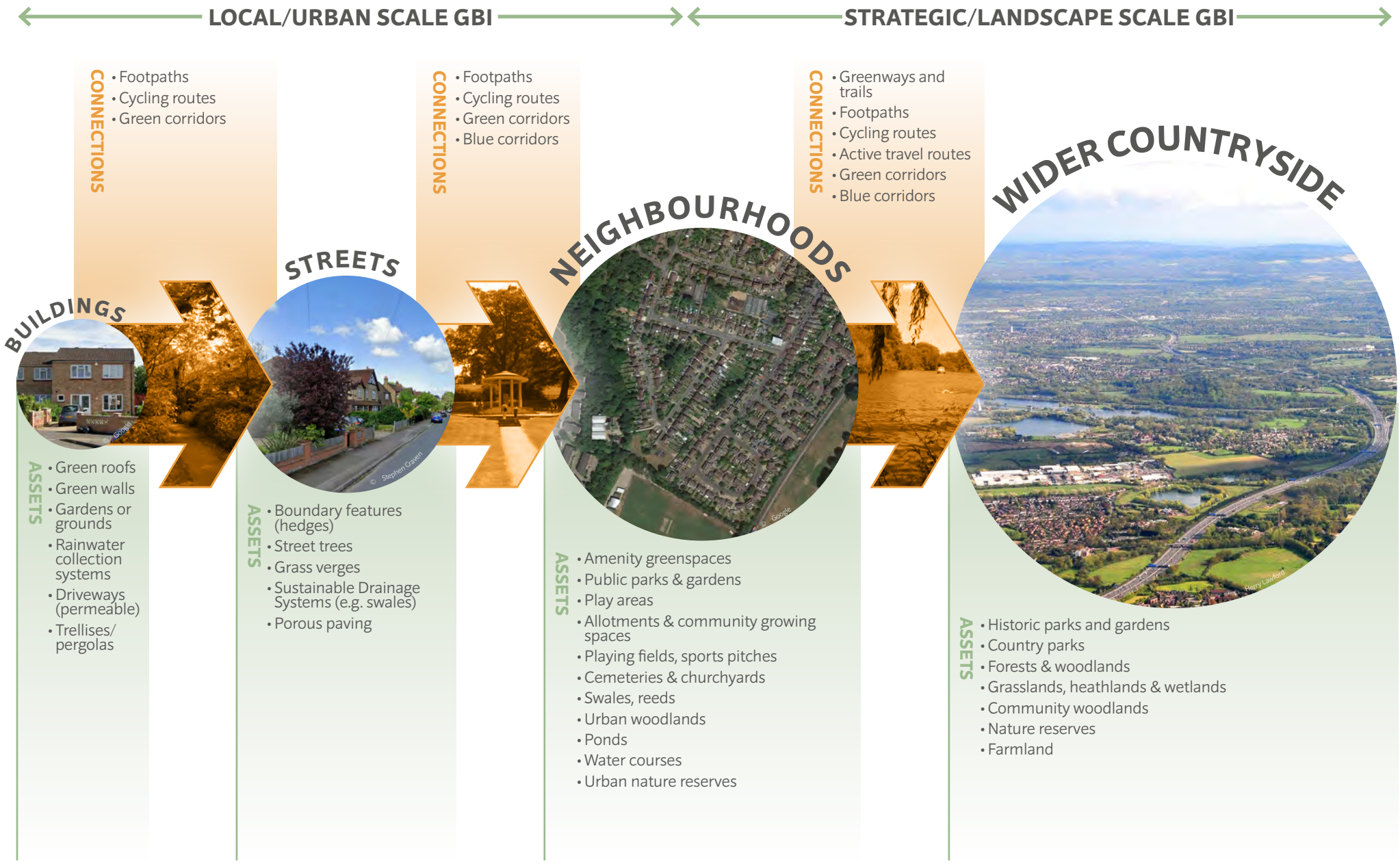
1.1.11 As illustrated in **Diagram 1.1**, GBI networks can connect people and wildlife with GBI assets at various scales (see **Box 1.2**).

BOX 1.2 GBI Scales

GBI Assets range from 'blue infrastructure' (such as rivers, canals and lakes) to urban green infrastructure (such as parks, green roofs and street trees). They can be specific sites or features at the local level or broader landscape-scale features at the strategic level such as river floodplains and woodlands.

Where connected together by rights of way, cycleways and green and blue corridors, GBI assets around individual buildings and gardens, streets, neighbourhoods and in the wider countryside combine to create multi-functional GBI networks interspersed within and between urban and rural places.

DIAGRAM 1.1 **Green & Blue Infrastructure Scales**



1.2 Green & Blue Infrastructure Assets and Network in Runnymede

1.2.1 The Borough of Runnymede (**Map 1.1**) holds a number of green and blue infrastructure assets and networks.

1.2.2 In terms of green infrastructure this includes a number of important nature conservation sites including Windsor Forest and Great Park and the historic Runnymede Meadows in the north of the Borough. There are two Local Nature Reserves (LNRs) at Chertsey Meads and the Riverside Walk at Virginia Water. The Borough also has a number of ancient woodlands and urban open spaces such as parks and gardens, allotments and cemeteries and churchyards.

1.2.3 Runnymede has a rich architectural and landscape heritage. The Borough contains some important statutorily listed parks and gardens such as Great Fosters (Grade II*) and Savill Garden (Grade I) and several Scheduled Ancient Monuments, including the Bowl Barrows at Longcross, Chertsey Abbey and the hill fort and chapel at St Anns Hill.

1.2.4 Blue infrastructure assets include watercourses and lakes which are a key characteristic of the Borough with the River Thames running along the Borough's northern and eastern boundary and the Basingstoke Canal forming the south eastern boundary. The Thorpe No.1 Gravel Pit at Thorpe forms part of the South West London Waterbodies Special Protection Area (SPA) and Ramsar with the River Wey (and the River Wey Navigation), Addlestone Bourne and Chertsey Bourne running through the Addlestone and Chertsey areas of the Borough. Consequently much of the eastern parts of the Borough are subject to flood risk. Many of these water courses and flooded gravel pits provide a range of water-based activities including sailing, water-skiing, wind-surfing, canal and river boating and fishing.

1.2.5 The key GBI assets in the Borough are set out in **Annexes A to D** and applicants should use these as an important resource to audit and assess green and blue infrastructure assets and networks in the Borough. Some of the layers overlaid on the maps are also available on the Council's mapping service and are also available as open data on the **gov.uk** website.

1.2.6 The GBI assets identified work as a whole to form the GBI network in and around Runnymede as illustrated on **Map 1.2**. The network embraces strategic green and blue spaces, corridors and linkages, both with and without public access, connecting GBI assets, largely owned and managed by public bodies, with GBI in neighbouring areas. The Network includes GBI in and around the Borough's settlements.

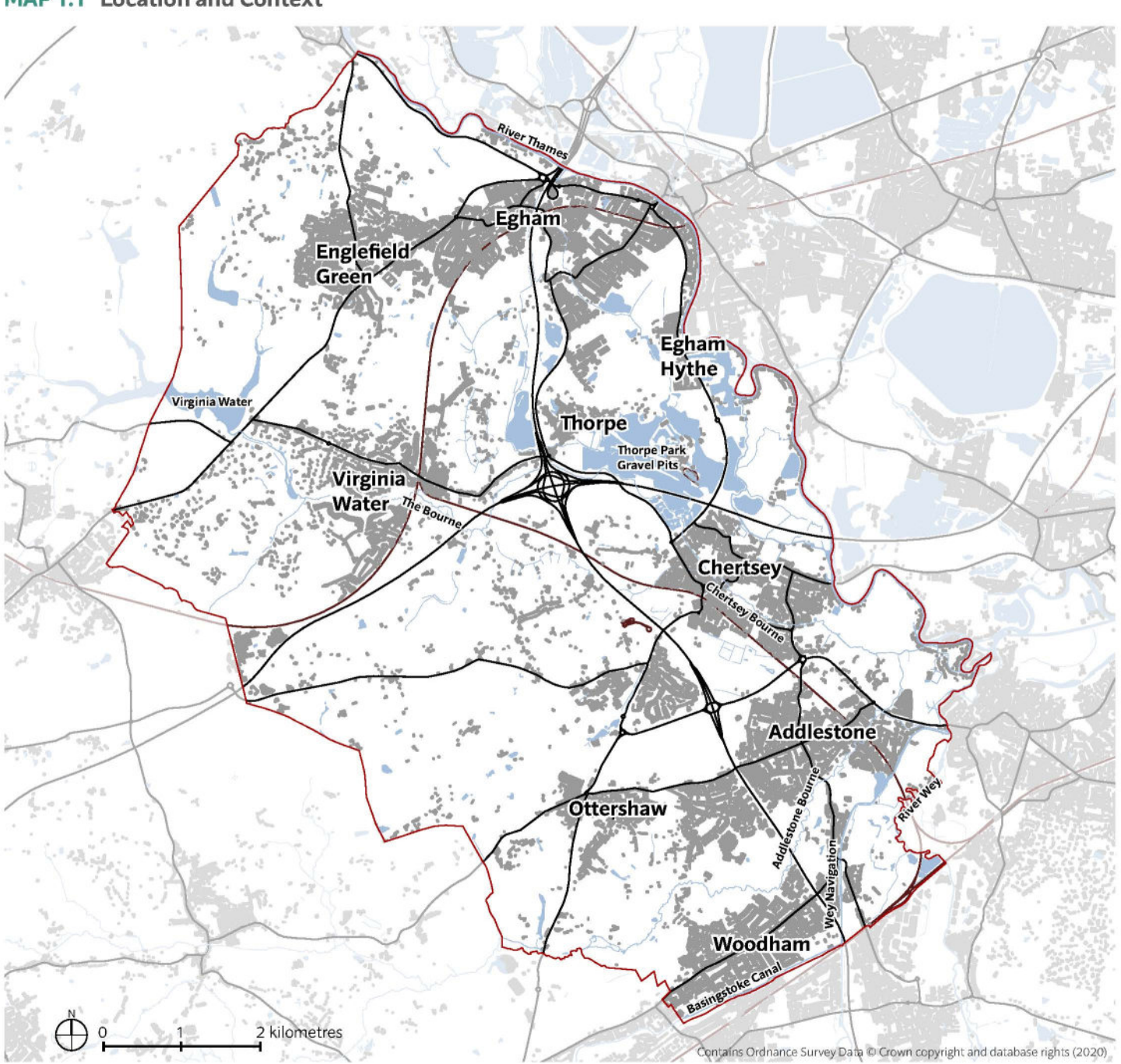
1.2.7 Landscape-scale green and blue corridors provide key linkages with GBI Networks in the wider area. Comprising a mosaic of land uses, natural features and habitats, these corridors are multi-functional and have potential to deliver a wide range of economic, environmental and social well-being benefits.

1.2.8 The principal strategic green and blue corridors that connect people, nature and places in and around the Borough include:

- Colne Valley Regional Park blue/green corridor
- River Thames & Runnymede Meadows blue/green corridor
- Windsor Great Park green corridor
- Thames Basin Heath green corridor
- Wey Valley blue/green corridor
- Basingstoke Canal blue/green corridor

1.2.9 These corridors connect core habitat networks, offering opportunities for restoring, creating and improving habitats.

MAP 1.1 Location and Context



Borough Boundary

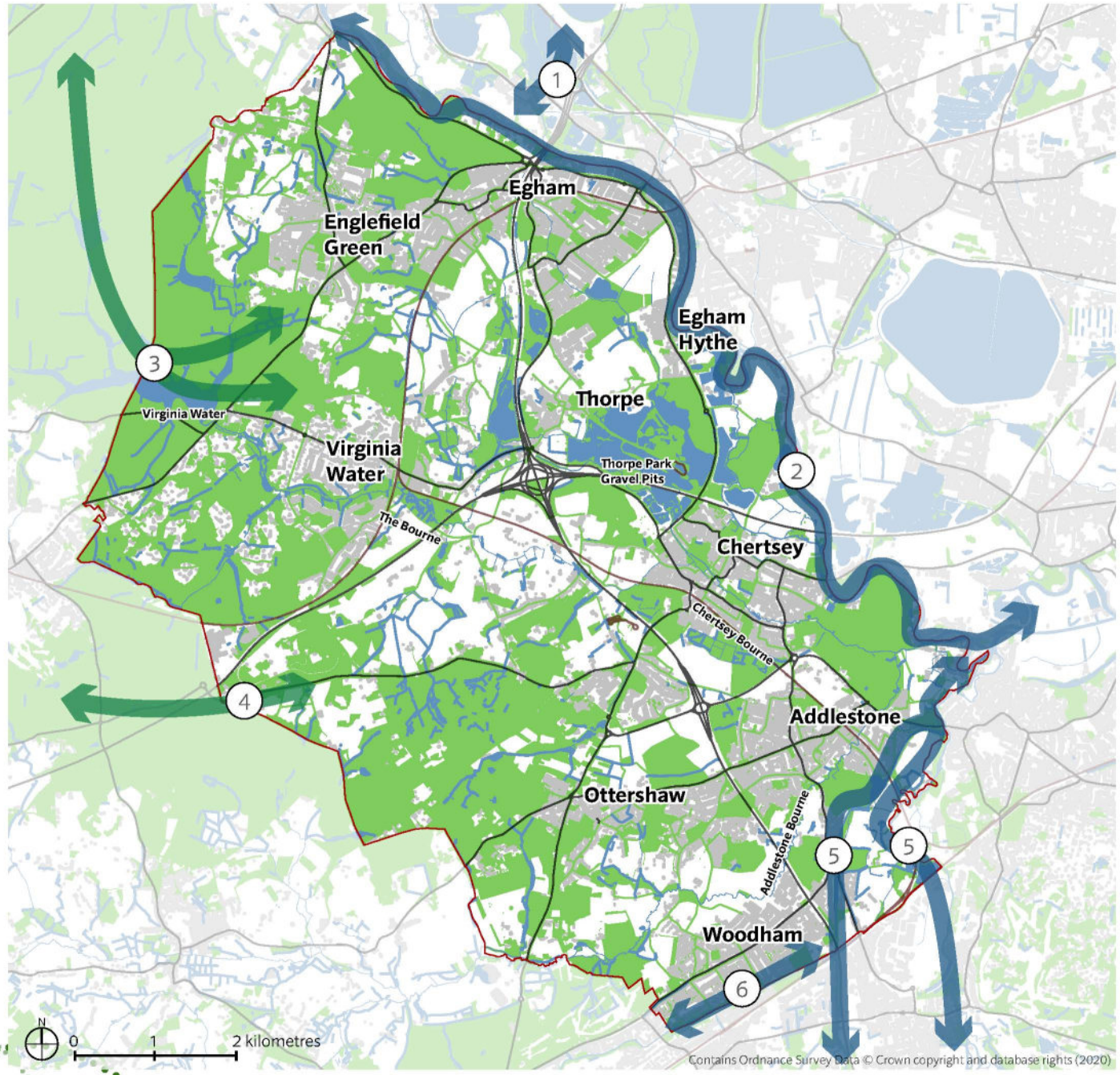
Roads

Railways

Watercourses & Waterbodies

Settlement

MAP 1.2 **Runnymede Green & Blue Infrastructure Network**



Green Infrastructure

Blue Infrastructure

GBI Corridors

1. Colne Valley Regional Park blue/green corridor
2. River Thames & Runnymede Meadows blue/green corridor
3. Windsor Great Park green corridor
4. Thames Basin Heath green corridor
5. Wey Valley blue/green corridor
6. Basingstoke Canal blue/green corridor

Note: the Green & Blue Infrastructure Network map is illustrative only. It is intended to represent a high level spatial framework for the strategic planning and management of Green and Blue Infrastructure Assets at the local level. The map is based on current available data.

1.3 Accessibility & Connectivity of Runnymede's GBI Network

1.3.1 Accessibility to Runnymede's GBI network is provided by Open Access Land, Registered Common Land, Crown Estate Land and Urban Open Space as indicated in **Map 1.3** and the public rights of way (PROW) network shown in **Map 1.4**.

1.3.2 Examples include Registered Common Land at Runnymede Meadows, Englefield Green Common and Thorpe Green Common, extensive areas of accessible Crown Estate Land at Windsor Great Park, Suitable Accessible Natural Greenspace such as Homewood Park and Chertsey Meads, and a number of smaller local parks, recreation grounds, play spaces and allotments that provide accessible greenspace for Runnymede's communities.

1.3.3 Connecting the GBI network is almost 90 kilometres (56 miles) of mostly public footpaths and bridleways, as well as over 120 kilometres (76 miles) of cycle routes which provide access links between the Borough's settlements and countryside. While not rights of way, permissive paths also form part of Runnymede's access network. The Thames Path National Trail follows the course of the River Thames in the north of the Borough, crossing the river at Egham Hythe.

1.3.4 Runnymede's network of cycling routes are used for commuting, accessing community facilities (schools, leisure centres, etc) or for recreation. National Cycle Network routes 4 (running through Egham and Chertsey), 223 (running through Ottershaw and Chertsey) and NCN 221 (running along the Basingstoke Canal) connect the Borough to the wider area.

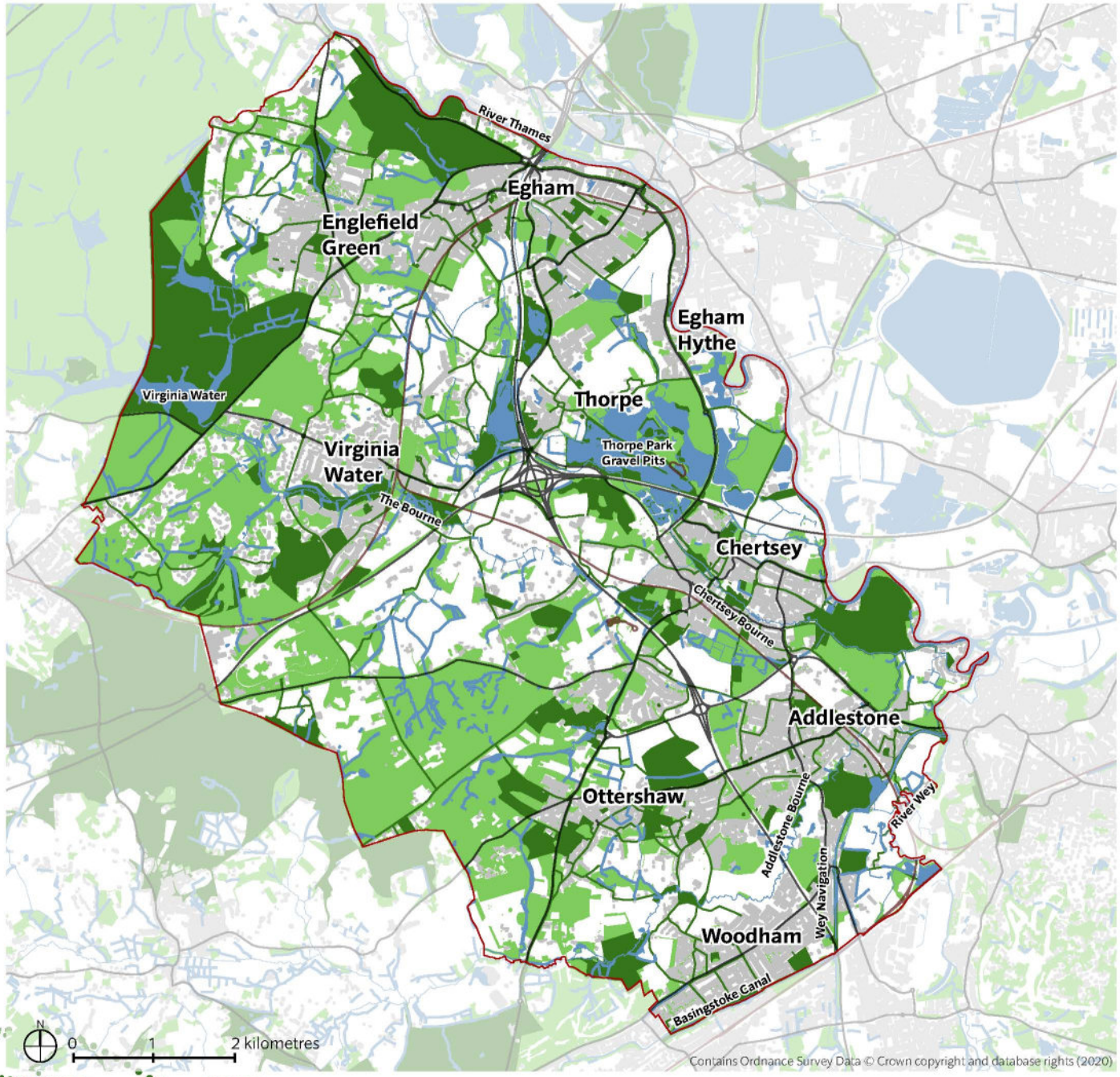
1.3.5 The Borough's green and blue corridors can function as 'stepping stones' for the dispersal of wildlife between otherwise fragmented and isolated habitats within both the agricultural landscape and urban area providing supporting services for a range of wildlife habitats.

1.3.6 Private domestic gardens cumulatively provide an important element of the Borough's GBI Network by contributing to its connectivity for wildlife particularly in urban areas.

1.3.7 In addition, green and blue corridors can incorporate walking and cycling links between settlements and the surrounding countryside. Visits to the countryside on foot, cycle and horseback contribute to the local economy and a well-used and publicised public rights of way network can also contribute to the overall health and wellbeing of local communities and visitors.

1.3.8 Many people rely on cars for day-to-day journeys, and there are opportunities to increase walking and cycling by enhancing the provision of active travel routes along green and blue corridors as an integral part of Runnymede's GBI network while providing education and publicity to support their use. Opportunities are also available for improving the quality and connectivity of public rights of way, and reducing severance, in line with the objectives of the Rights of Way Improvement Plan for Surrey.

MAP 1.3 Runnymede GBI Network - Accessibility

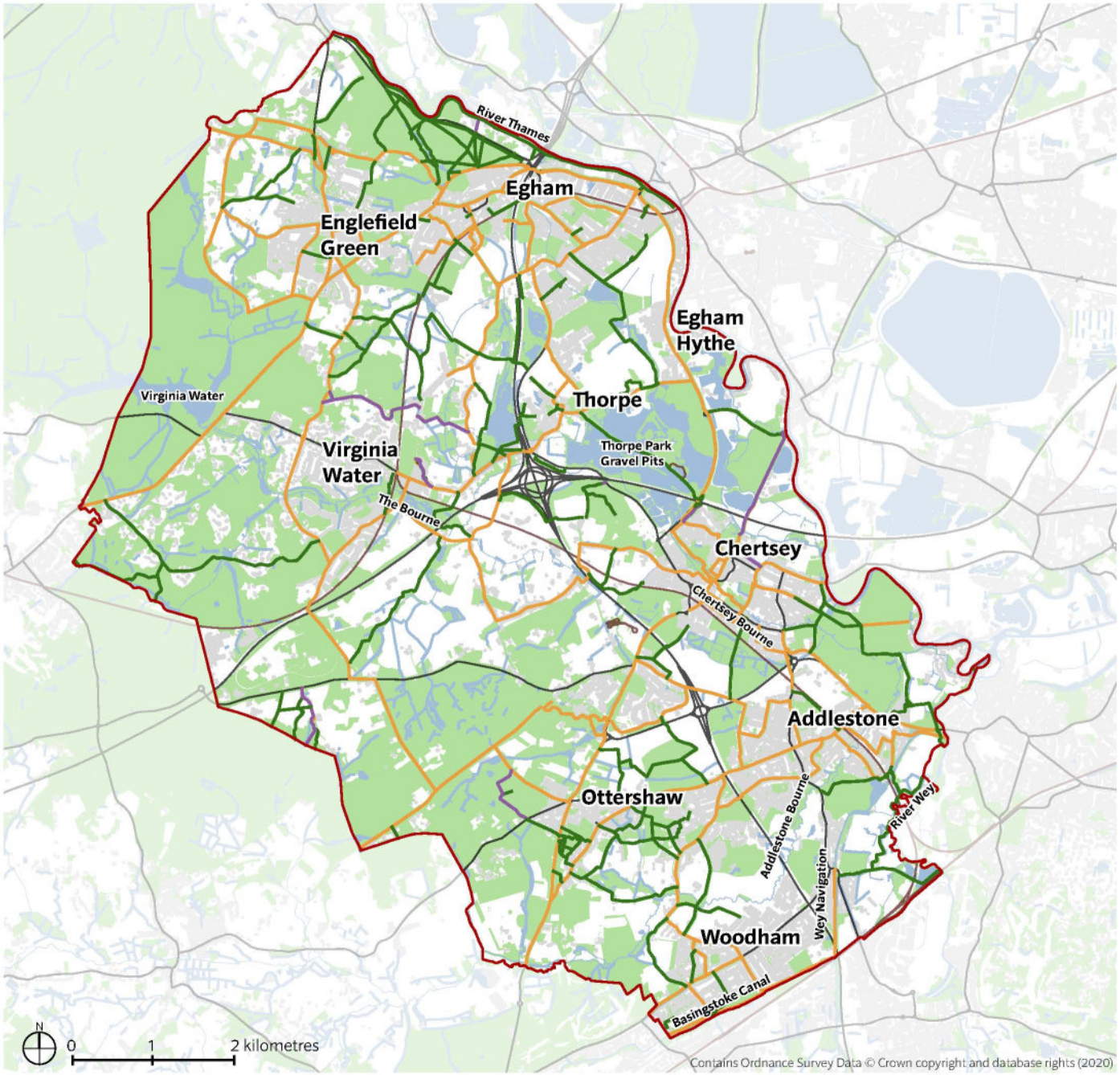


Green Infrastructure

Accessible Green Infrastructure

Blue Infrastructure

MAP 1.4 Runnymede GBI Network - Connectivity



- Borough Boundary
- Footpaths
- Bridleways
- Cycle Routes
- Roads
- Railways
- Green Infrastructure
- Blue Infrastructure

2 - PURPOSE OF THIS SPD

2.1 Overview

2.1.1 The 25-Year Environment Plan (2018) sets out the Government's approach to protecting and enhancing the environment in England, including taking actions to use and manage land sustainably, recover nature and enhance the beauty of landscapes and connect people with the environment to improve health and wellbeing.

2.1.2 The Plan aims to create more GBI by drawing up a national framework of green infrastructure standards, ensuring that new developments include accessible green spaces and that any area with little or no green space can be improved for the benefit of the community. The new Standards are currently being prepared by Natural England and will provide a consistent framework and guidance to help local authorities, developers, landowners and communities deliver GI improvements, particularly in areas where this is needed most.

2.1.3 The National Planning Policy Framework 2021 requires local plans to adopt a strategic approach to maintaining and enhancing networks of habitats and GBI, and sets out planning measures to address climate change mitigation and adaptation through GBI provision.

2.1.4 As recognised by the Government's Planning Practice Guidance, GBI can make an important contribution to national planning goals for sustainable development. These are:

- Building a strong, competitive economy
- Achieving well-designed places
- Promoting healthy and safe communities
- Mitigating climate change and flooding
- Conserving and enhancing the natural environment

2.1.5 This Supplementary Planning Document (SPD) provides advice and best practice guidance on how development, at any scale, can contribute towards the delivery of Green & Blue Infrastructure (GBI) assets in support of the Local Plan's vision. The SPD is also intended to be of use for informing the preparation of Neighbourhood Plans.

2.1.6 The 2030 Local Plan vision states, in relation to GBI that:

The Borough will continue to enjoy a high quality natural environment through its green spaces, habitats and waterways. The general extent of the Green Belt will have been protected by making the most efficient use of land. Runnymede will be resilient to, and mitigate climate change impacts especially by reducing and minimising the risks from flooding, reducing greenhouse gas emissions and improving water quality and efficiency.

2.1.7 In addition to addressing many of the Local Plan's environmental, social and economic objectives, the SPD supports implementation of policies SD7, EE11, EE12 and the site allocation policies by promoting sustainable development that makes a positive contribution to the Borough's natural assets, biodiversity and the health and well-being of the Borough's residents through the GBI network. It also supports Policy SD3 in seeking attractive active/sustainable travel networks, Policy SL1 in encouraging healthy lifestyles, Policy SL25 in enhancing existing open space, SL26 in providing new or enhanced open space and Policy EE1 in creating attractive places.

2.1.8 The SPD therefore aims to:

- Set out guidance on how development, at whatever scale, can contribute towards delivery of a high quality multi-functional green and blue infrastructure network by providing, protecting, maintaining and enhancing green and blue infrastructure assets (Policy EE11 & EE12).
- Support the design standards within the Runnymede Design SPD where they relate to GBI and the achievement of high quality and inclusive GBI design which responds to the local context including the built, natural and historic character of the Borough's landscapes and townscapes (Policy EE1).
- Provide guidance on how to achieve net gains in biodiversity through creation/expansion, restoration, enhancement and management of habitats and features to improve the status of priority habitats and species as well as on the greening of the urban environment (Policy SD7 & EE9).
- Aid the delivery of GBI on the 2030 Local Plan site allocations by ensuring existing GBI features identified in the site allocation policies are properly audited and opportunities explored to enhance site features and provide additional GBI assets which link with the surrounding GBI network (Policies SL2-SL18, IE1).

2.1.9 When considering the provision/enhancement and delivery of Green and/or Blue infrastructure, applicants should also be aware of guidance set out in the Council's other adopted SPDs, specifically:

- **Design Guide SPD**
- **Thames Basin Heaths SPA SPD**
- **Infrastructure Delivery & Prioritisation SPD**
- **Vehicular & Cycle Parking Guidance SPD**

2.1.10 While opportunities for incorporating GBI will typically be more limited for householders and minor developments, collectively they can make an important contribution to the Borough's GBI Network alongside the measures brought forward as part of major development proposals. The site allocation policies themselves set out GBI features of each site which should be taken into account when considering how the development can enhance the GBI network in Runnymede.

2.1.11 The guidance highlights opportunities and ideas for how GBI can be embedded into householder, minor and major development sites. It also highlights opportunities for the conservation and enhancement of GBI assets, which may be taken forward as local GBI initiatives by the Council in partnership with other stakeholders. Minor and major developments should consider contributing financially through the Community Infrastructure Levy (CIL) towards GBI initiatives elsewhere within the Borough, where it is not feasible or viable to physically provide GBI on site (Policy EE11).

2.1.12 Consideration of GBI from the outset allows applicants to think about what type and how much GBI is required; how it complements and relates to existing GBI assets; and, for major developments, how specific green and blue assets can be linked with each other and the surrounding GBI network.

2.1.13 Where development poses a potential risk to GBI assets, such as to wildlife habitats or trees, applicants should follow good practice and seek specialist advice where necessary. See Sections 3 and 4 for links to advice and good practice guidance.

2.2 How to Use This SPD

2.2.1 This SPD has been developed as a result of collaborative working and cooperation between the Council, relevant statutory consultees, neighbourhood forums and other local community groups.

2.2.2 A stakeholder workshop was held in March 2020, to explore how the SPD can inform the design process, pre-application discussions, decision making on planning applications and implementation of development within the Borough.

2.2.3 This guidance supports applicants in embedding GBI into development proposals in accordance with Local Plan policies. It should be read and used in conjunction with the Council's Design SPD.

2.2.4 The guidance sets out the Council's expectations for how GBI matters should be addressed through the design and place-making process, pre-application discussions, decision-making on planning applications and implementation. The guidance also identifies a number of best practice examples, sources of information for applicants and a series of checklists.

2.2.5 **Section 3** of this SPD sets out guidance for householder development, so that even those schemes at the smallest scale can contribute to green/blue infrastructure and biodiversity enhancements.

2.2.6 **Section 4** sets out guidance for minor and major developments and includes a number of Design Principles which applicants should follow to signpost how green/blue infrastructure has been considered in their proposals and how it will be delivered and managed over the lifetime of a development.

3 - GUIDANCE FOR HOUSEHOLDERS

3.1 Overview

3.1.1 Simple measures and features can be incorporated into householder developments that can contribute to or enhance GBI and provide net gains for biodiversity. Some of these are illustrated on **Diagram 3.1**. Cumulatively, these types of small-scale site already play an important role in providing and connecting GBI networks as well as opportunities for biodiversity.

3.1.2 Further GBI interventions can make a valuable contribution towards delivery of the Borough's GBI Network and help communities and wildlife become more resilient to a changing climate. Householders are strongly encouraged to consider enhancing GBI within their development and avoid or mitigate its loss wherever possible. The rest of this section sets out guidance on how this can be achieved.

3.1.3 Development proposals for alterations and modifications to homes and gardens are encouraged to retain, incorporate and enhance existing GBI features that help reinforce the character of the local area's landscape or townscape setting. Measures to mitigate losses of GBI features are encouraged where retention is not possible.

3.1.4 Houses, gardens and out-buildings can provide valuable habitats for wildlife including rare species protected by law. Applicants are responsible for ensuring that any protected species present are considered and appropriately mitigated for within the application.

3.1.5 If it is suspected that any protected species are present, the Council should be made aware of this and a survey may be requested by the Council. If necessary, applicants may need to revise their proposals in light of the survey's findings and/or provide details of mitigation measures to ensure protection during and after the development. Sources of advice regarding protected species can be found in **Section 3.7**.

3.1.6 Applicants for householder development can also consider opportunities to enhance habitats for protected species from the suggestions set out in this Section.

3.1.7 Suggested measures, together with signposts to sources of useful practical guidance, are provided to help householders contribute towards enhancement of the Borough's GBI Network in this way.

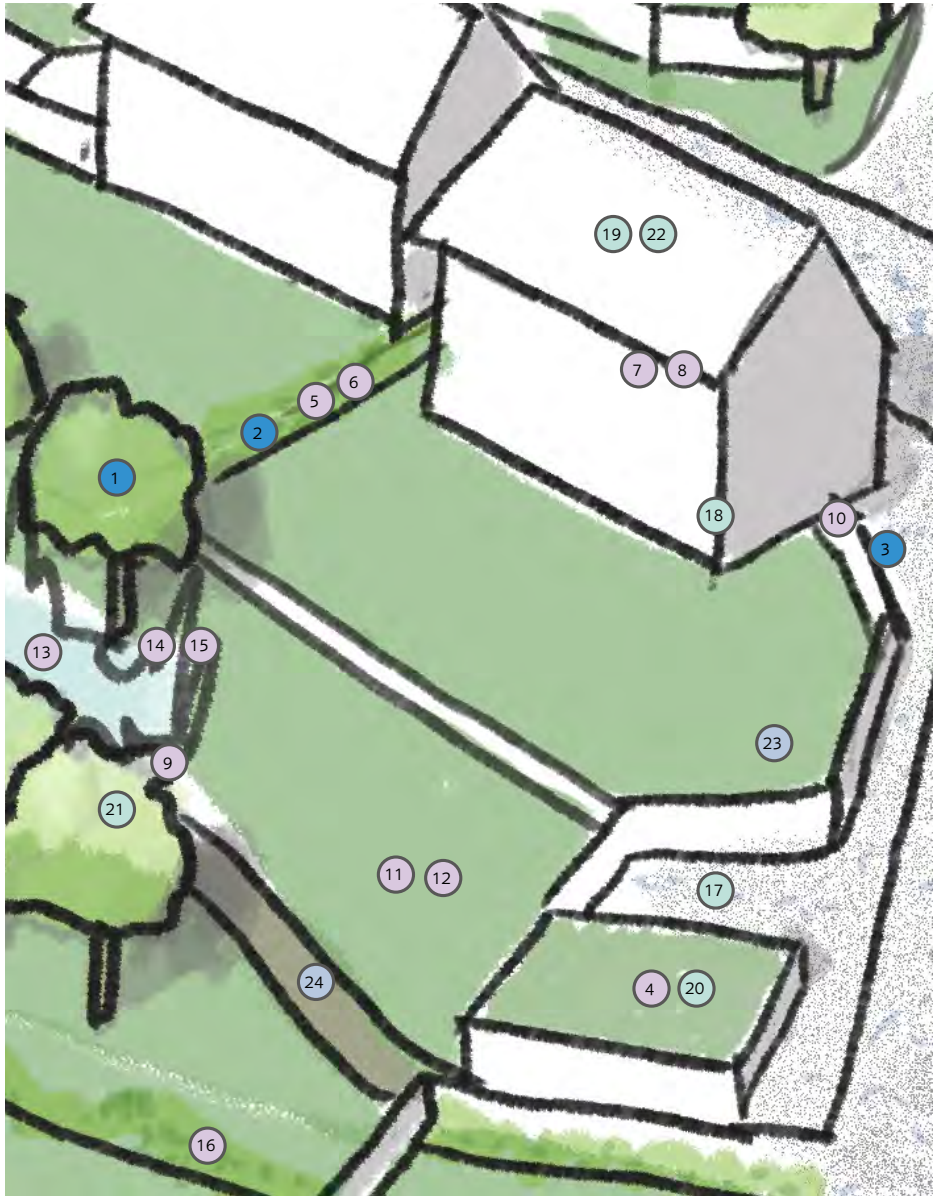
3.1.8 Applicants are encouraged to consider opportunities for retaining or mitigating, enhancing existing and creating new GBI assets, within their properties as part of a development proposal.

3.1.9 A GBI Audit is not required for householder applications, however applicants are encouraged to identify any existing natural features at the property, such as mature trees, hedgerows or ponds which could offer opportunities for retention and enhancement.

3.1.10 Where applicants retain, mitigate or make GBI improvements, including biodiversity improvements, applications should be supported by appropriate information highlighting details of the existing features to be retained or mitigated and the improvements proposed. This is set out in **Section 3.8** of this SPD.

3.1.11 Key considerations for protected species likely to be affected by householder development are highlighted below along with sources of ideas and advice for incorporating simple GBI enhancement measures into householder development.

DIAGRAM 3.1 Illustrative Green & Blue Infrastructure Design Principles



Reinforcing Local Character & Sense of Place:

1. **Green features** – existing mature trees, hedgerows and other natural features retained, extended and enhanced
2. **Soft landscaping** – using appropriate native plant species of local provenance
3. **Hard landscaping** – using appropriate materials

Supporting Nature & Biodiversity:

4. **Living roofs and walls** – green/brown roofs and walls on buildings to attract pollinators and provide food for bats/birds
5. **Green boundary features** – species-rich native hedgerows, stone walls and green fences with built-in planting locations/external planting frameworks
6. **Wildlife-friendly garden boundaries** – with gaps for small mammals
7. **Bat roosting/bird nesting boxes** – on garden trees and buildings
8. **Wildlife-friendly architectural design** – bird nesting/bat roosting features (ornamental slit holes, swift bricks, stone ledges, wood cladding)
9. **Food sources** – ponds, hedgerows, trees and night-scented flowers for attracting insects to provide food for bats/birds
10. **Wildlife-sensitive lighting** – minimise impacts on bats and invertebrates
11. **Nectar-rich native planting** – trees with berries to provide food for birds and early flowering plants to provide nectar source for pollinators
12. **Wildflower lawns** – native wildflower meadow mixes as alternative to amenity rye grass lawns to support pollinator insects
13. **Wildlife ponds** – natural ponds with stone/log piles close by for amphibians
14. **Reptile habitats** – stone/log piles, rotting vegetation/compost and south-facing banks with bare ground for basking
15. **Bug hotels** – stone/dead wood piles or purpose-made bug boxes
16. **Wildlife corridors** – connect to habitats via green/blue corridors within the wider GBI network

Building Resilience to Climate Change:

17. **Sustainable drainage systems** – porous paving soakaways for driveways to reduce flood risk
18. **Water conservation** – rainwater harvesting/grey water recycling systems (water butts and rain gardens)
19. **Renewable energy** – solar water heating/photovoltaic panels, ground-source heat pumps
20. **Green roofs/walls** – roof gardens, biodiverse/brown roofs, living walls to reduce flood risk and regulate temperatures
21. **Tree planting** – for carbon capture/storage, shading and flood prevention
22. **Green building design** – carbon neutral and energy-efficient construction, operation and maintenance

Contributing to Healthy Living & Well-Being:

23. **Healthy eating** – food growing and wildlife-friendly gardening
24. **Well-being** – sensory planting, gardens and trails

3.2 Green Roofs & Walls

3.2.1 As a key component of the GBI network, particularly in urban areas with a constrained land supply and competing land uses, green roofs and living walls can be used on existing buildings or new development. (See **Box 4.8** in **Section 4.0** for further information). Applicants should however consider how they will maintain such features in the long term so that they continue to make a positive contribution to the GBI network.

3.2.2 Good practice pointers include:

- Green roofs should contain a diversity of plant species
- Brown roofs with a range of substrates
- Green walls with built-in planting locations/external planting framework

3.3 Bird Nesting & Bat Roosting

3.3.1 Householders can consider implementing measures which encourage bird nesting and bat roosting, whether in an urban, edge of urban or countryside location. As well as retaining nesting/roosting features on site such as trees and hedgerows, enhancements could include:

Birds

- Bird boxes;
- Ornamental slit holes;
- Swift bricks;
- Stone ledges;
- Wood cladding

Bats

- Ornamental slit holes and bat bricks;
- Bat boxes;
- Wood cladding

3.4 Boundary Treatment

3.4.1 Householders can consider using boundary treatments such as hedgerows, stone walls and green fences which contribute to connectivity of GBI. This could include:

- Creating wildlife-friendly garden boundaries with gaps for small animals including within brick wall boundary treatments
- Species-rich native hedgerows as boundary features. These can also be planted in front of brick wall boundaries to soften impact and improve connectivity.

3.4.2 Hedgerows provide living space and food for all sorts of wildlife. Native species choices include hawthorn, blackthorn, wild rose, holly, hazel and elder. Berberis and pyracantha, which are non-native species also produce lots of berries for the birds. Native tree choices include, for example, alder, ash, beech, birch, field maple, hazel, holly, juniper, oak, Scot's pine, rowan, yew, whitebeam and willow. Any trees that are planted should be from sources that are certified as pest and disease free.

Supporting Nature & Biodiversity: Bird Nesting Boxes


Supporting Nature & Biodiversity: Wildlife Friendly Boundaries

3.5 Wildlife Friendly Gardens

3.5.1 Applicants for householder development can think about ways in which they can encourage wildlife into their gardens and improve biodiversity through enhancing existing planting and landscaping. This could include:

- Planting nectar-rich native planting with berries in autumn within formal landscaping.
- Planting native wildflower mixes as an alternative to amenity grass lawns and reducing mowing regimes to allow wildflowers to grow and set seed.
- Planting early flowering plants to provide nectar source for pollinators.
- Introducing ponds with an irregular and shallow sloping edge combined with stone and log piles close by to provide refuge for amphibians.
- Incorporating south-facing banks with bare ground for reptiles/ invertebrates.
- Introducing rough/natural stone walls with holes for small birds/ invertebrates.
- Providing a range of 'bug hotels' with dead wood and stone piles, or purpose-made bug boxes with tubes and drill holes.

3.6 The Water Environment

3.6.1 Other improvements can be made by householders to protect and conserve the water environment and reduce the impact on blue infrastructure services and assets. This could be a way to reduce the risk of flooding, surface water run-off and/or to conserve water for external use. This could include:

- Sustainable drainage – Applicants can reduce the likelihood of surface water run-off and slow the rate of infiltration by choosing to implement permeable surfaces for parking and landscaping rather than hardstanding driveways and other areas of hard paving.
- Where possible applicants can use solutions such as soakaways involving porous paving or surfacing to minimise rainwater run-off. Whilst non-porous surfacing is not advised, if this is used, soakaways or rain gardens should be provided to reduce surface water run-off.
- Water conservation – Applicants could consider grey water recycling systems and rainwater harvesting techniques such as use of water butts or water storage.

Building Resilience to Climate Change: Water Conservation

3.7 Sources of Advice

BOX 3.1 Sources & Signposts to Advice for Householders

RSPB Guide to Birds and Wildlife
RSPB Guide to Gardening for Wildlife
Bat Conservation Trust
Surrey Wildlife Trust
RHS Guide to Green Walls
RHS Guide to Wildlife Gardening
RHS How to Green your Grey Front Garden
Surrey Wildlife Trust Wildlife Gardening Guide
The Green Age Greywater Recycling Guide
Permeable Surfacing of Front Gardens: Guidance
CIEEM Householders Guide to Engaging an Ecologist
CIEEM Permitted Development Rights & Biodiversity Advice
Surrey County Council Developers Guide to Biodiversity
CIEEM Guide to Ecological Surveys
CIEEM Finding an Ecological Consultant Advice

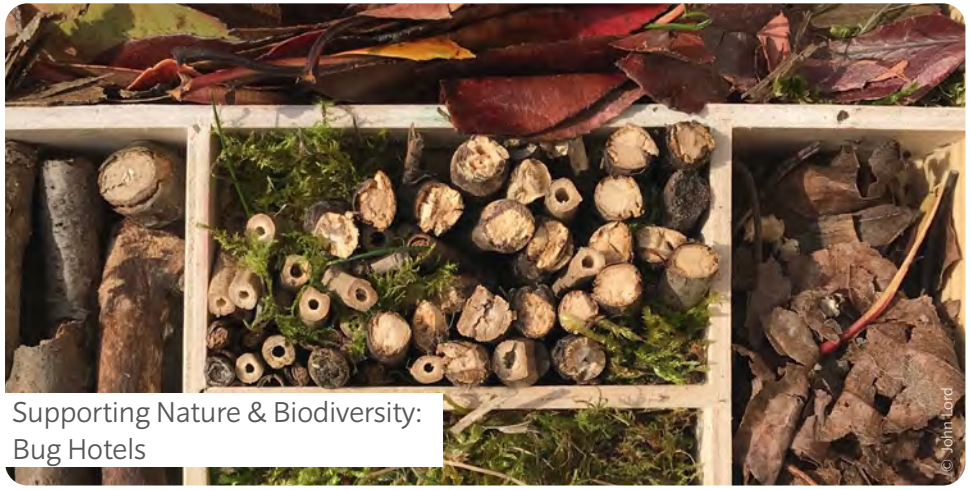
3.7.1 Where there is a potential risk of a proposed development harming trees, applicants should seek specialist arboricultural advice (see **Box 3.2**) to ensure compliance with legislation and planning policies.

BOX 3.2 Signposts to Arboricultural Advice

Arboricultural Association Advice
Runnymede Borough Council Works to Protected Trees Advice

3.7.2 Advice concerning protected species can be found at:

- Surrey Wildlife Trust Advice on UK Wildlife Law
- Natural England Standing Advice for Protected Species



Supporting Nature & Biodiversity: Bug Hotels

3.8 Application Checklist

3.8.1 Where applications mitigate or incorporate GBI into development including biodiversity improvements, the Council will require a simple statement to be submitted with the application outlining the existing GBI features on site, the features to be retained and any GBI mitigation, enhancements and/or new features proposed. The statement should also briefly outline how any GBI features will be maintained.

3.8.2 The Council may place conditions on any permission granted which ensures development delivers the measures outlined in the GBI statement and/or to secure further details if required.

4 - GUIDANCE FOR MINOR & MAJOR DEVELOPMENTS

4.1 Overview

4.1.1 This section of the SPD sets out a simple three-step approach for embedding GBI into development proposals as illustrated in **Diagram 4.1**. For minor and major development schemes applicants will need to show how they have followed the three step approach and how GBI has been incorporated into the development scheme in line with the planning and design principles set out in this section of the SPD.

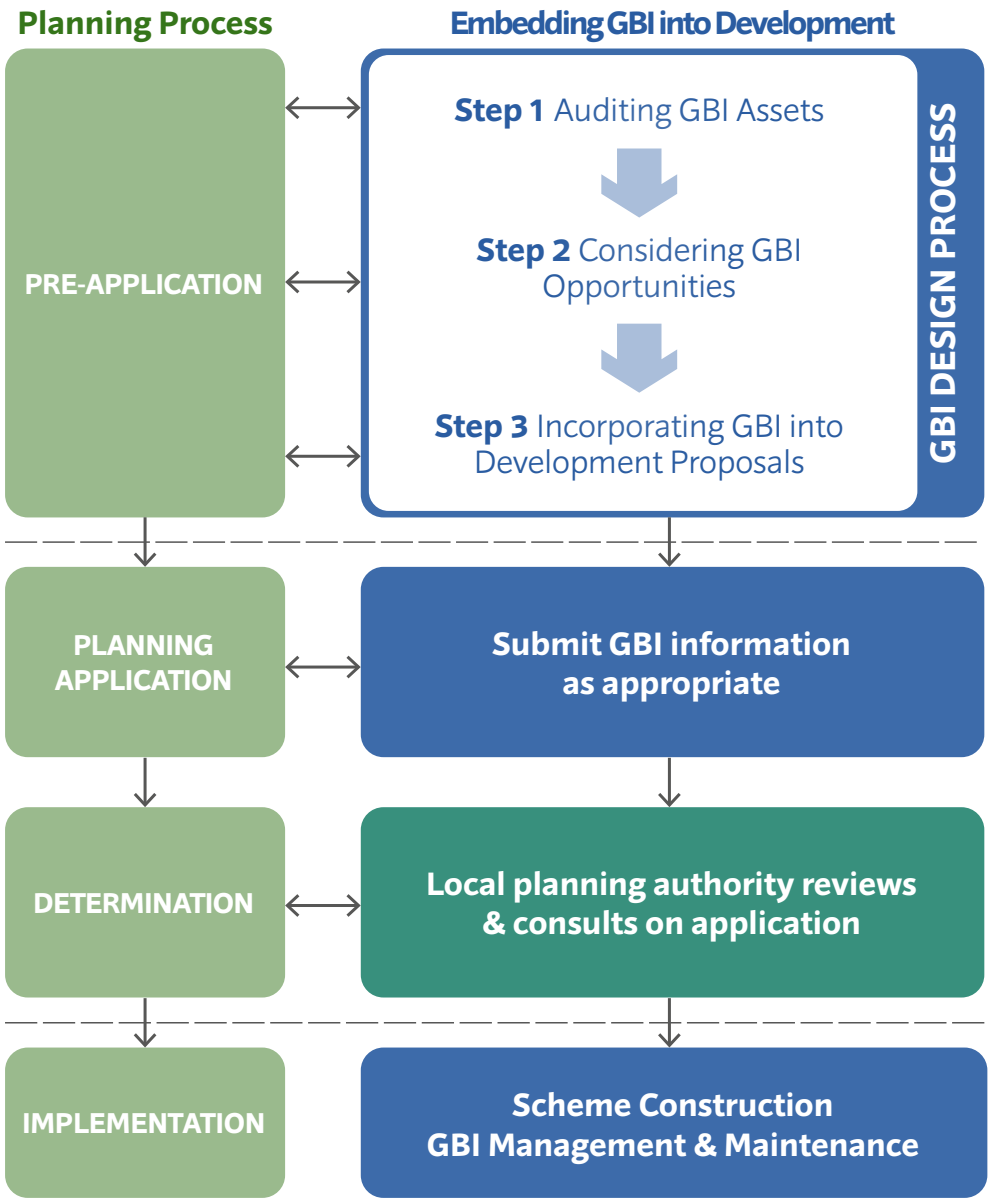
4.1.2 The Council and statutory consultees will use the Planning Review Checklist in **Section 4.6** to assess proposals submitted at the pre-application and application stages against the three step approach and design principles of this SPD to check compliance with Local Plan policies SD7, EE11, EE12 and SL26.

4.1.3 The planning and design of new development is an iterative process involving analysis, design development, consultation and refinement. Wherever possible, it is good practice to consider GBI requirements from the earliest phases of the planning and design process. Ideally, this should happen as part of the initial thinking and research carried out to define GBI needs, opportunities and key development parameters.

4.1.4 GBI should be seen as a critical consideration in the same way as utilities or local transport infrastructure. Where GBI is embedded at the start of a development project, it is possible to achieve substantial cost savings through combining uses and creating multi-functionality.

4.1.5 GBI design should be considered as an integral element of the vision for a site's overall layout and design. Importantly, a network of well-designed and managed greenspaces and links can make a significant contribution to creating a distinctive sense of place for a development.

DIAGRAM 4.1 GBI Planning & Design Guidance - Key Steps



4.1.6 Opportunities for incorporating GBI provision through the evolution and testing of the site layout, or masterplan should be considered, alongside options for the layout of street grids and blocks, movement routes, public spaces and soft landscaping areas, taking account of the requirements of Policy EE1 of the 2030 Local Plan

4.1.7 In addition, GBI can help influence proposals for the massing, heights, densities and orientations of buildings in respect of creating optimum micro-climatic conditions for green roofs/walls to provide insulation or shading and cooling.

4.1.8 It is important that sufficient time is spent studying and understanding how a place works before starting to design. Studies involving urban design, site planning and infrastructure/connectivity analysis should consider GBI assets in a holistic way. This should identify the functions existing GBI assets within and around a site provide, where it is functioning well and needs to be maintained, and where GBI functions less well and would benefit from improvement. The Council's existing evidence base can be used to support this process (see **Step 1**).

4.1.9 The key steps for embedding GBI into new minor and major developments are outlined below. When carrying out the three-step approach and implementing the design principles in this SPD, account must also be had to the Runnymede Design SPD and its design standards. Whilst the Design SPD is guidance and all of its standards may not be applicable to all minor/major development, applicants should clearly signpost in their masterplanning and GBI Strategy how any GBI proposed has taken account of the SPD guidance produced by the Council.

4.2 Step 1 – Auditing GBI Assets

4.2.1 Proposals should be based on an analysis of the site and surrounding area's existing GBI assets and characteristics such as topography, townscape and built form, views, landscape features, land uses and activity, access and movement and any environmental designations that apply. This includes taking account of any national and local nature conservation and landscape designations or typologies such as the National Site Network (formerly Natura 2000 sites), SSSI, SNCI, national and local nature reserves, Biodiversity Opportunity Areas (BOA), priority habitats and landscape character areas and types both on and within the vicinity of the site. Where major development is close to the Borough boundary, 'within the vicinity of the site' includes any GBI assets and features in neighbouring authority areas that could be affected.

4.2.2 Signposts to useful audit information are as follows:

- **Defra's Magic Map**
- **Runnymede Borough Council Mapping**
- **Runnymede Open Spaces Study & Runnymede Playing Pitch Strategy**
- **Surrey Nature Partnership Biodiversity Opportunity Areas**
- **National Character Areas**
- **Surrey County Council Landscape Character Assessment**
- **Surrey Interactive Rights of Way Map**

4.2.3 To inform pre-application discussions, applicants should undertake a GBI Audit to provide an appraisal of existing GBI assets and green corridors on and around the site, which feeds into the identification of opportunities and constraints for development.

4.2.4 All GBI proposals should respond positively to the site's local context. Proposals should start by reviewing existing GBI information, and be supplemented by a more detailed analysis of local GBI assets in the vicinity of the site.

4.2.5 The GBI Audit should also be informed by an understanding of how the site and the place have evolved through history. Where historic landscape features and other heritage assets may be affected by GBI proposals, applicants should assess their significance at an early stage and make sure the findings feed into the design concept and design proposals.

4.2.6 The GBI Audit should identify and map existing GBI assets in and around the site. The different types of GBI assets that may be relevant to consider are set out in **Section 1** and **Annexes A to D**. For larger schemes, GIS mapping datasets are available for some GBI assets in Runnymede Borough, and these may be obtained by contacting the Council (see **paragraph 4.2.2** for sources of information).

4.2.7 The functions (or ecosystem services) provided by existing GBI assets should be appraised from site visits, and by reference to relevant data and information. This should include an appraisal of the connectivity of existing GBI assets in and around the site for people and wildlife.

4.2.8 The GBI Audit should be proportional to the scale of the development proposal; smaller scale developments will usually only require limited survey and appraisal, except where the site is environmentally sensitive; larger scale developments involving large and complex sites are more likely to require a greater level of detail, and may require consideration of GBI connectivity over a larger geographical area.

4.2.9 Where necessary, the GBI Audit should be informed by appropriate surveys undertaken by a competent professional consultant.

4.2.10 Where there is a potential risk of a proposed development harming wildlife habitats, applicants should seek specialist advice from a professional ecological consultant (see **Box 4.1**) to ensure compliance with legislation and planning policies.

BOX 4.1 Signposts to Ecological Advice

Surrey County Council Developers Guide to Biodiversity

CIEEM Guide to Ecological Surveys

CIEEM Finding an Ecological Consultant Advice

Natural England Standing Advice for Protected Species

4.2.11 Where there is a potential risk of a proposed development harming trees, applicants should seek specialist arboricultural advice (see **Box 4.2**) to ensure compliance with legislation and planning policies.

BOX 4.2 Signposts to Arboricultural Advice

Arboricultural Association Advice

Runnymede Borough Council Works to Protected Trees Advice

4.2.12 The early production of a Preliminary Ecological Appraisal, an Arboricultural Impact Assessment (if the proposed new development is close to trees) and any necessary specialist surveys (submitted at either pre-application or with the application) is advisable to inform design and to prevent delays in decision-making.

4.3 Step 2 – Considering GBI Opportunities

4.3.1 The analysis of GBI on and near the site set out in the GBI Audit should be used to shape the creation of the design for the development. The Council's Validation Checklist requires a Biodiversity Enhancement Statement and Open Space Statement to be submitted with applications. To avoid repetition of information and to keep submission documents concise and to a minimum, this information could be included either within a GBI Strategy, proportional to the scale of development or as separate sections in a site masterplan. In either case, the GBI Strategy or Masterplan should:

- encompass other aspects of GBI such as hard & soft landscaping and details of long term management/maintenance of the GBI or ecological asset.
- signpost how proposed GBI has been informed by the audit of GBI undertaken in Step 1 and taken into account the Design Principles in this SPD and the design standards in the Runnymede Design SPD.

4.3.2 Separate reports for protected species and arboricultural impacts will still be required.

4.3.3 To inform pre-application discussions, applicants should provide a GBI Concept Statement or similar that sets out opportunities for retaining, enhancing, creating and linking GBI assets in and around the site for informing the GBI Strategy or masterplanning for the development.

4.3.4 The GBI Concept Statement or similar should demonstrate a response to the GBI audit, the client's brief and the historic and current nature of the site and its context, taking into account local community consultation.

4.3.5 Applicants should demonstrate how the site has been designed to take account of the GBI planning and design principles set out in this SPD and design standards in the Runnymede Design SPD, as well as any Neighbourhood Plans and their design guidance/statements. This should include demonstrating how existing GBI assets in and around the site have been retained and incorporated into the design concept. If a scheme proposes any loss of GBI this must be fully justified in accordance with Policy SL25 of the 2030 Local Plan.

4.3.6 The design concept should take into account the general opportunities for enhancement of GBI assets highlighted in **Annexes A-D** of this SPD. The provision, character and distribution of specific GBI opportunities will depend on the nature of the development site and its context, the type of development and the contribution the proposal can make to GBI network connectivity and provision of ecosystem services, without detrimentally impacting GBI assets and features in neighbouring local authority areas or their connectivity.

4.3.7 As highlighted in **Appendix A**, the Council works with local partners to deliver a range of landscape-scale biodiversity, heritage and access improvement initiatives for strengthening the connectivity, extent and quality of the Borough's GBI Network. The Council will use funds raised through the Community Infrastructure Levy (CIL) to help achieve these initiatives, but applicants are still expected to deliver GBI net gain on site unless it can be demonstrated with evidence that this is neither feasible or viable.

4.4 Step 3 – Incorporating GBI into Development Proposals

4.4.1 To ensure that GBI forms an integral part of new developments, landscaping, architectural and drainage engineering plans which support the GBI Strategy or masterplanning detailing how GBI features will be incorporated into the proposals should be submitted to the Council. These can be indicative plans at outline stage.

4.4.2 Applicants should demonstrate how natural features, green spaces and corridors have been embedded into the site layout and/or masterplanning in ways that strengthen the Borough's GBI Networks by reinforcing landscape character and supporting biodiversity, and providing high quality and well-connected open space that contribute to healthy living and well-being.

4.4.3 For all outline and full planning applications, applicants will be expected to prepare and submit the information outlined in **Box 4.4**. Applications for full planning permission should also be supported by appropriate plans showing details of GBI design proposals as per the checklist set out in **Box 4.4**.

4.4.4 For all major developments coming forward in phases, the GBI Strategy or Masterplan will need to demonstrate how GBI will be delivered across the different phases of development.

4.4.5 Where relevant, an outline or detailed SuDS Wildlife Management Plan should be incorporated into the GBI Strategy or Masterplan.

Pre-Application Advice

4.4.6 The Council offers a pre-application advice service to applicants applying for planning permission for changes to a home or for a new development (see **Box 4.3**).

BOX 4.3 Sources of Planning Advice

Runnymede Borough Council Pre-Application Advice

Planning@runnymede.gov.uk

Building.control@runnymede.gov.uk

BOX 4.4 Planning Application Checklist

The Council's **Validation Document** sets out the information required with a planning application in order for it to be deemed valid. The Validation Document sets out that for GBI, a checklist of required information will be set out in this SPD.

The Council's preference is for applicants to prepare a single evidence document or statement in the form of a GBI Strategy or section in a site Masterplan proportional to the scale of development and which covers biodiversity impact and net gain, open space and landscaping proposals rather than submit a variety of evidence statements or documents for instance separate landscaping strategies, open space strategies, biodiversity impact assessments, landscaping/ecology management plans, although separate assessments relating to protected species and trees will still be required but should signpost how any mitigation or enhancement measures complement the GBI Strategy/Masterplan.

As such, a GBI Strategy or section of a Masterplan should include (this list is not exhaustive):

- ☐ An audit of GBI and historic assets and the GBI network within and around the site;
- ☐ An appraisal of GBI most appropriate to the site based on the GBI audit, and signposted to how this meets the Design Principles in this SPD, Design standards in the Runnymede Design SPD and Policy SL26 of the 2030 Local Plan where appropriate;
- ☐ Demonstration of how GBI will be incorporated into the development, and where appropriate how this connects to the existing GBI network through clearly annotated site layout/landscaping or indicative plans/ masterplans which show the location and extent of GBI features;
- ☐ A section in the strategy/masterplan to show a proportional Biodiversity Impact Assessment, and the measures which will be incorporated into the scheme to achieve at least 10% biodiversity net gain and show these on layout/landscaping or indicative plans/ masterplans where appropriate;
- ☐ A section in the strategy/masterplan (if known at application stage) showing how GBI or ecological assets will be managed/maintained over the long-term;
- ☐ If green/living walls or roofs are proposed these should be annotated on elevation or site plans and be accompanied by a maintenance plan where appropriate. Where features such as bird/bat boxes or bricks are to be located on property these should be shown on elevation plans;
- ☐ A planting schedule (species, numbers/planting density, distribution, size and protection until established), proposed boundary treatments and hard landscaping materials etc (if known at application stage).
- ☐ Details of the location and dimensions of any storage areas or units if greywater recycling systems are proposed.

Where details of GBI or ecological features, location, biodiversity improvements, planting, boundary treatment, hard landscaping materials and greywater recycling storage have not be provided with a planning application but are indicated to be delivered on the site in the application submission, the Council may attach conditions to any permission granted requiring the approval of such details prior to the commencement of development. If details are submitted at a later stage under condition or through reserved matters, applicants will be expected to explain how their choice of features and/or materials deliver GBI in accordance with their GBI Strategy/Masterplan taking account of the design principles of this SPD and design standards in the Runnymede Design SPD.

All layout plans should identify the location of any existing/proposed underground/overhead services which could affect existing/proposed planting or blue infrastructure.

If an applicant considers that GBI or biodiversity enhancements cannot be readily incorporated into the development on site, this should be clearly justified with evidence through the GBI Strategy or Masterplan.

4.5 Planning & Design Principles

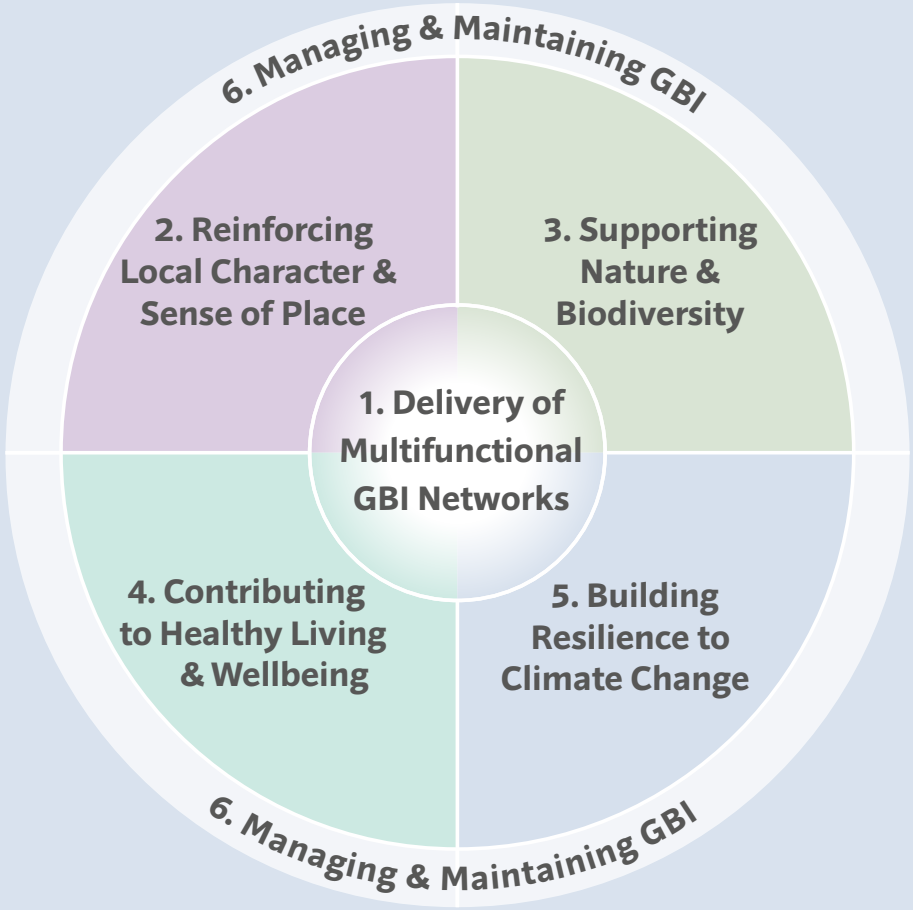
4.5.1 All scales and types of development have the potential to contribute to Runnymede's GBI Network by achieving biodiversity and wider environmental net gains.

4.5.2 Planning and design principles for embedding GBI into development are set out in **Box 4.5**. Supported by design checklists, examples of good practice and signposts to further advice, the principles highlight opportunities and considerations for embedding GBI into development through good design and place-making. They are not intended to be prescriptive.

4.5.3 Applicants are encouraged to use the planning and design principles to stimulate thinking and ideas about how to incorporate GBI into minor and major development proposals that are appropriate to a site and its context.

4.5.4 The GBI planning and design principles are applicable to minor and major residential schemes and other types of development (including commercial, educational and community schemes).

BOX 4.5 GBI Planning & Design Principles



Principle 1: Delivery of Multi-Functional GBI Networks

All minor & major developments should contribute to the delivery of high quality multi-functional networks of GBI to provide long-term benefits for people, places and nature

4.5.5 In addition to conserving and enhancing the natural environment, high quality multi-functional GBI networks can help contribute to building a strong, competitive economy, achieving well-designed places and promoting healthy and safe communities, and mitigating climate change and flooding.

4.5.6 In accordance with Local Plan Policies EE11 and EE12, the Council expects development to contribute towards delivery of GBI networks by protecting, maintaining and enhancing GBI assets in line with the following principles.

- Opportunities and requirements for multi-functional GBI should be considered at the earliest stages of development proposals, as an integral part of development and infrastructure provision, taking into account existing natural assets and the most suitable locations and types of new provision in line with the principles set out in this SPD, and in guidance such as **Good Practice Guidance for Green Infrastructure and Biodiversity (TCPA)**.
- The design and assessment of development proposals should satisfy the requirements of the following 'mitigation hierarchy':
  - » Development should avoid causing significant harm to the integrity of the GBI Network.
  - » Where significant harm to the integrity of the GBI Network is wholly or partially unavoidable, development should seek to minimise the harm through re-design or use of effective mitigation measures secured by planning conditions or obligations as necessary.
  - » Where, despite mitigation, there would be significant residual harm to the integrity of the GBI Network, as a last resort development should compensate for the harm by providing GBI assets of an equivalent or greater value secured by planning conditions or obligations as necessary.
- In addition to any required compensation measures, development should achieve an environmental net gain that leaves the Borough's GBI Network in a measurably better state than it was beforehand (particularly in areas identified in **Section 1** as having greatest opportunities for creating, enhancing and linking GBI assets in association with development that can best contribute to relevant local and national policy objectives).
- In delivering an environmental net gain, development proposals should give priority to providing and making enhancements to on-site GBI assets as an integral element of the scheme;
- For major developments, unless transferred into the ownership of the Borough Council, a detailed management plan should be established to ensure suitable long-term management and maintenance of GBI assets.
- Depending on individual circumstances, the Council will use planning conditions, obligations or the Community Infrastructure Levy as appropriate to secure funding and delivery of GBI, including for monitoring and management where required.
- For major developments, arrangements for funding the long-term sustainable management and maintenance of GBI should be identified as early as possible, and factored in alongside consideration of costs and benefits (see **Section 4.6**).

4.5.7 GBI opportunities to consider are outlined in the following principles as illustrated in **Diagram 4.2**.

DIAGRAM 4.2 **Illustrative Green & Blue Infrastructure Design Principles**

Reinforcing Local Character & Sense of Place:

1. **Green features** – existing mature trees, hedgerows and other natural features retained, extended and enhanced
2. **Soft landscaping** – using appropriate native plant species of local provenance
3. **Hard landscaping** – using appropriate materials

Supporting Nature & Biodiversity:

4. **Living roofs and walls** – green/brown roofs and walls on buildings to attract pollinators and provide food for bats/birds
5. **Green boundary features** – species-rich native hedgerows, stone walls and green fences with built-in planting locations/external planting frameworks
6. **Wildlife-friendly garden boundaries** – with gaps for small mammals
7. **Bat roosting/bird nesting boxes** – on garden trees and buildings
8. **Wildlife-friendly architectural design** – bird nesting/bat roosting features (ornamental slit holes, swift bricks, stone ledges, wood cladding)
9. **Food sources** – ponds, hedgerows, trees and night-scented flowers for attracting insects to provide food for bats/birds
10. **Wildlife-sensitive lighting** – minimise impacts on bats and invertebrates
11. **Nectar-rich native planting** – trees with berries to provide food for birds and early flowering plants to provide nectar source for pollinators
12. **Wildflower lawns** – native wildflower meadow mixes as alternative to amenity rye grass lawns to support pollinator insects
13. **Wildlife ponds** – natural ponds with stone/log piles close by for amphibians
14. **Reptile habitats** – stone/log piles, rotting vegetation/compost and south-facing banks with bare ground for basking
15. **Bug hotels** – stone/dead wood piles or purpose-made bug boxes with tubes and drill holes
16. **Wildlife corridors** – connect to habitats via green and blue corridors within the wider GBI network

Building Resilience to Climate Change:

17. **Sustainable drainage systems** – porous paving soakaways for driveways to reduce flood risk
18. **Water conservation** – rainwater harvesting/grey water recycling systems (water butts and rain gardens)
19. **Renewable energy** – solar water heating/photovoltaic panels, ground-source heat pumps
20. **Green roofs/walls** – roof gardens, biodiverse/brown roofs, living walls to reduce flood risk and regulate temperatures
21. **Tree planting** – for carbon capture/storage, shading and flood prevention
22. **Green building design** – carbon neutral and energy-efficient construction, operation and maintenance
23. **Rivers and Streams** - incorporate undeveloped buffer zones (which may include public access)

Contributing to Healthy Living & Well-Being:

24. **Healthy eating** – food growing and wildlife-friendly gardening
25. **Well-being** – sensory planting, gardens and trails
26. **Green links** – connect to local parks, community gardens/orchards and other green spaces via accessible green and blue corridors

Principle 2: Reinforcing Local Character & Sense of Place

All minor & major development should embed GBI in ways that help reinforce and enhance the local built, natural and historic character of the Borough's landscapes and townscapes

4.5.8 The built environment can be enhanced by features such as green roofs, street trees, proximity to woodland, public gardens and recreational and open spaces. More broadly, GBI exists within a wider landscape context and can reinforce and enhance local landscape character, contributing to a sense of place and natural beauty.

4.5.9 In accordance with Local Plan Policy EE1, the Council expects development to reinforce local character and sense of place through provision of GBI in line with the following principles.

- The design of GBI to support development should be informed by assessment of the built, natural and historic character of the site's local context and setting, having regard to the Runnymede Landscape Character Assessment and the Council's Design SPD.
- GBI should be embedded into the layout and design of development in ways that help make a positive and enduring contribution to the Borough's townscape, public realm and/or landscape setting.
- Proposals for major developments, should incorporate a natural succession form of planting using appropriate species which should be established at the earliest opportunity to ensure built development is visually well-integrated into its landscape context and help reinforce the sense of place.
- Proposals should demonstrate how new and existing trees will be protected, and new planting provided using appropriate native species of local provenance in the right place, to ensure that built development will reinforce and enhance local landscape character.
- Where viable, new trees should be of an appropriate species (see **Box 4.6**) capable of growth to exceed building height, and managed so to do.
- Through the GBI Strategy or Masterplan, proposals for development will be expected to demonstrate how the site layout retains, incorporates and enhances GBI features that can reinforce the landscape character of the local area through measures such as:

All Minor & Major Development

» Designing landscaping to create a meaningful character for the site

» Including an appropriate landscaping strategy, demonstrating how the proposals will contribute to and enhance the quality of the public realm and/or the site's landscape setting, through implementation of a high quality and inclusive hard and soft landscaping scheme that takes account of existing and proposed townscape/landscape character and features

» Demonstrating how existing structural landscape features within the site, such as woodland blocks, tree belts, trees and hedgerows, have been retained, extended and enhanced to contribute to a strong landscape edge and setting for residential areas

» Demonstrating how ancient woodland, ancient/veteran trees, trees/hedgerows protected by a tree preservation order and other significant trees/tree groups of amenity value will be retained as part of the proposals, protected during construction and effectively managed and maintained to help maintain the landscape structure of a site

» Consider opportunities to enhance landscape features, including heritage assets, through incorporation of GBI assets such as green space, hedges, hedgerows, trees and woodlands

Major Development should also consider

- » Orientating built development and the pattern of GBI to respond to the site's landscape character, topography and drainage/ground conditions, including framing views into or across the site through appropriate siting of open spaces, landscaping and development frontages.
- » Where appropriate, creating a series of sub-character areas for larger sites, and using the siting of green spaces and flood attenuation areas as a focus for creating a distinctive identity and setting for development.
- » Providing planted landscape buffers for visually screening roads, mitigating traffic noise and improving air quality.
- » Where appropriate, enhancing approaches to new and existing development areas through avenue planting of street trees on key gateway routes, ensuring existing street trees are managed and enhanced to ensure they are sustained as enduring landscape and townscape features.
- » Considering opportunities for enhancing townscape and landscape quality by improving the character, appearance and condition of key access corridors/gateways and settlement edges.

Reinforcing Local Character & Sense of Place: Retaining Green Features

- Development proposals should demonstrate how existing trees and tree planting have been incorporated into the detailed design of streets and spaces between buildings, including parking areas, to increase tree canopy cover across the Borough, especially in urban areas. The types of measures that may be considered appropriate include:
  - » Increasing the biodiversity value and resilience of landscaped areas, green spaces and corridors for pollinators through wildflower planting, and in major developments implementing cutting regimes that allow a diversity of species to flourish throughout the year.
  - » Inclusion of appropriate biosecurity measures for control of non-native invasive species, pests and diseases to protect plant health, taking into account relevant legislation, regulations and good practice guidance such as the **Landscape Institute's Plant Health and Biosecurity Toolkit** and **Plant Healthy**, which aids the consideration of sourcing trees and other plants in the interests of securing best practice in biosecurity
  - » New tree planting using appropriate species (see **Box 4.6**) to help adapt to climate change through mitigation of higher temperatures, wind speeds, noise and light levels, and reduced air quality.

BOX 4.6 Tree Species Selection for Green Infrastructure

The Trees & Design Action Group's **Tree Species Selection for Green Infrastructure Guide (2019)** provides advice on selecting appropriate species for a range of tree planting scenarios in around towns and cities.

The Guide includes advice on addressing constraints and tree ecophysiology (characteristics that determine the geographical distribution and habitat preferences of a particular species), which are key factors in species selection.

In addition to guidance on maximising desired ecosystem services from trees, it also sets out advice for achieving aesthetic impact through appropriate tree selection.

Surrey County Council can offer advice on tree management in Surrey – **contact trees@surreycc.gov.uk**

Design Checklist – Reinforcing Local Character & Sense of Place

Through GBI Strategies and Masterplans, applicants should signpost how they have considered the following:

All Minor & Major Development

- ☐ How does the site respond positively to the adjacent landscape character and context whilst complementing existing GBI functions?
- ☐ What GBI design measures have been incorporated to protect, preserve and enhance the surrounding landscape/townscape setting and enhance the distinctiveness of existing settlements?
- ☐ How does the GBI Strategy or Masterplan respond in GBI design terms to local landscape character assessments?
- ☐ Have existing landscape and historic features been identified through the GBI Audit and if so, have these been incorporated into proposed GBI and are there opportunities to conserve and enhance the setting of these features within the site?
- ☐ What landscape edge treatments have been considered for the site boundary and do they provide sensitive and appropriate levels of integration to the surrounding area?

Major Developments should also consider

- ☐ How will the scheme connect with the wider GBI network physically and visually?
- ☐ How will the provision of GBI create lasting value, identity and a distinct sense of place for the scheme?
- ☐ Have existing views into and out of the site been safeguarded and are there opportunities to create new views and vistas within the proposed development?

Principle 3: Supporting Nature & Biodiversity

All minor & major development should embed GBI in ways that help support nature recovery and reverse the decline in biodiversity

4.5.10 National planning policy and guidance emphasises the role of GBI in conserving and enhancing the natural environment. High-quality networks of multifunctional GBI can contribute a range of benefits, including enhancing ecological connectivity, facilitating biodiversity net gain and nature recovery networks and providing opportunities for communities to undertake conservation work.

4.5.11 The need to secure 'measurable net gains' in biodiversity is embedded in the National Planning Policy Framework 2019 as a means to conserve and enhance the natural environment. In line with the aims of the 25-Year Environment Plan, provisions for mandating development to achieve a 10% biodiversity net gain through the planning system have been introduced by the Environment Bill 2019. Once enacted, applicants for most scales of development will be required to comply with this requirement.

4.5.12 In principle, biodiversity net gain seeks to safeguard existing habitats and to ensure that any loss or damage is compensated by restoring or creating new features that provide greater value to wildlife and people. It provides a way for developers and Local Planning Authorities to ensure that biodiversity is not lost during new development.

4.5.13 In accordance with Local Plan Policy SD7, development should protect existing biodiversity and include opportunities for biodiversity net gain. Policy EE9 expects development to support nature recovery and biodiversity through provision of GBI in line with the following principles:

- Development proposals that may affect European, national, regional or locally designated sites and features of importance for biodiversity in the Borough, and protected species, should demonstrate that impacts have been assessed in accordance with the mitigation hierarchy set out in Policy EE9.
- Applicants should demonstrate how GBI will be integrated to maximise potential gains in biodiversity by incorporating measures for creating/expanding, restoring, enhancing and managing habitats to support the recovery of priority habitats and species in accordance with good practice guidance (see **Box 4.7**).

BOX 4.7 Biodiversity Net Gain Guidance

Biodiversity Net Gain - Good Practice Principles for Development published by CIEEM, IEMA and CIRIA in 2019 provides practical guidance and advice for achieving biodiversity net gain in the UK's land and freshwater environment. The Guide applies to all types and scales of development, at all stages in the life cycle of a development. It is relevant to developers and other stakeholders wishing to promote, facilitate and deliver biodiversity net gain.

Part D of the Guide provides detailed advice on implementing good practice principles for biodiversity net gain through impact assessment (Chapter 10), design (Chapter 11), construction (Chapter 12) and maintenance and monitoring (Chapter 13).

Advice on achieving biodiversity net gain for smaller-scale developments with low-level biodiversity impacts and/or without specialist ecological input is also provided (Technical Note 2).

4.5.14 Measures to enhance biodiversity and achieve net gains should be of the right type and located in the right place to support local nature conservation and be guided by the GBI audit taking account of priority habitats, species and Biodiversity Opportunity Areas (BOA).

4.5.15 Major development proposals should demonstrate how measures for creating/expanding, restoring, enhancing and managing habitats to support the recovery of priority habitats will be incorporated into the scheme and contribute to objectives and targets identified in the Biodiversity Opportunity Areas.

4.5.16 The types of measures that may be considered appropriate as biodiversity gains for helping to aid nature recovery and strengthen ecological connectivity in the Borough include:

Minor & Major Developments

- Native planting using natural structures to enhance biodiversity by creating microhabitats for priority species. Consideration should be given to opportunities to incorporate tree planting with appropriate species selected for their biodiversity value.
- Enhancement of green corridors in urban areas to aid the dispersal of wildlife (such as green roofs, tree-lined streets, or linear green corridors along rivers, canals, roads and railways).
- Provision of biodiverse (brown) roofs and living walls (see **Box 4.8**), and green boundary treatments.
  Provide features or enhance provision of nesting, roosting and hibernation habitat. Opportunities for installing permanent bird nesting and bat roosting boxes/bricks within buildings to support local nature conservation priorities should be considered, taking into account good practice guidance on appropriate orientations, dimensions and density.
- Where appropriate, applicants should include the design of wildlife-sensitive external lighting schemes to minimise impacts on nocturnal wildlife species (e.g. bats and invertebrates) based on best practice design guidance (see **Box 4.9**).
- Applicants should demonstrate how green and blue corridors in and adjacent to the site have been retained, enhanced and linked to enhance ecological connectivity and support the dispersal of species. This should include any requirement for undeveloped buffer zones set out under Policy EE12 of the 2030 Local Plan. Landscape schemes for new planting should support a graded natural succession with their surroundings.

Major Developments should also consider

- Provision of new and enhanced priority habitats to support the recovery of vulnerable priority species.
- Integrating the provision of wetland habitats into the design of sustainable drainage systems or as features in their own right whilst maintaining, enhancing or creating appropriate adjacent buffer habitats and strips.
- Development proposals should demonstrate how potential conflicts between people and wildlife in accessible natural/semi-natural green spaces will be managed (such as using structural landscaping to create inaccessible areas/natural barriers to buffer and segregate users from the most ecologically sensitive areas, creation of formed paths and provision of signage and interpretation).

BOX 4.8 Green Roofs and Walls

As a key component of the GBI network, particularly in urban areas with a constrained land supply and competing land uses, green roofs and living walls can be used on existing buildings or new development.

Green roofs can be designed as a habitat to support wildlife, as recreational space for people or a combination of both. Extensive roof systems typically include hardier, more drought tolerant species of plants such as sedums, mosses and wildflowers. Where designed specifically to replicate specific habitats, biodiverse or brown roofs can help recreate habitat lost by urban development. Generally used as an amenity space as roof gardens, intensive systems typically include shrubs, trees, paving, lawns and water features requiring higher levels of maintenance and irrigation.

Well-designed green roofs and walls offer a range of GBI benefits:

- Flood risk reduction
- Countering the urban heat island effect
- Increased biodiversity
- Improvements in air and water quality
- Increases in amenity space
- Reductions in noise pollution
- Supporting better health
- Reductions in energy/water consumption

Living Roofs & Walls Good Practice

BOX 4.9 Bats & Artificial Lighting Guidance

Published by the Bat Conservation Trust in partnership with the Institution for Lighting Professionals (ILP), the **Bats & Artificial Lighting Guidance 2018** provides practical guidance on considering the impact on bats when designing lighting schemes.

The note provides detailed guidance about lighting levels and colour temperature impacts on different bat species. It is intended to raise awareness of the impacts of artificial lighting on bats and potential mitigation measures to avoid and reduce this harm.

Supporting Nature & Biodiversity: Living Walls

4.5.17 The Environment Bill once enacted, may allow a development to deliver a 10% biodiversity net gain off-site (purchasing of local off-site biodiversity units) rather than on-site and/or allow for biodiversity credits towards strategic improvements if no local off-site units are available to purchase. The Council's preference is for the 10% biodiversity net gain to be achieved on-site. Where it can be justified, with evidence, that it is not feasible to achieve 10% biodiversity net gain on-site or that a better outcome can be achieved off-site, purchase of local off-site biodiversity units may be considered i.e. where these have been identified through Council or other stakeholder strategies and/or Local Nature Recovery Strategies (LNRs). Only where on-site net gain is not feasible and there are no local off-site units available to purchase will the Council consider Biodiversity Credits.

4.5.18 The calculation of Biodiversity Net Gain should be undertaken using the governments most up to date biodiversity metric.

Supporting Nature & Biodiversity: Wildflower Lawns

Design Checklist – Supporting Nature & Biodiversity

Through GBI Strategies and Masterplans, applicants should signpost how they have considered the following:

All Minor & Major Development

- ☐ Has a Biodiversity Impact Assessment/Enhancement Statement been undertaken of the site and habitats adjacent/close to the site boundary?
- ☐ Have native species of biodiversity value been specified within the proposals?
- ☐ Has the biodiversity value of different GBI elements been maximised (e.g. green roofs)
- ☐ Have potential impacts on designated sites and protected species been considered and, where necessary, suitable proposals for mitigation, compensation or enhancement provided?
- ☐ Have existing habitats and landscape features such as hedgerows, trees, water bodies and corridors such as rivers, canals and undeveloped buffer zones been integrated into the scheme, as well as opportunities for naturalisation of river banks?

Major developments should also consider

- ☐ Have new accessible areas of habitat been created that contribute to local objectives and targets within Biodiversity Opportunity Areas? How has the balance between access and nature conservation been addressed?
- ☐ How have natural play, education or interpretation opportunities been incorporated into the scheme to connect people to nature?
- ☐ Have robust funding, habitat management/maintenance and conservation plans been produced for the scheme?
- ☐ How does the scheme connect with the wider GBI Network in ecological and habitat terms?

CASE STUDY 4.1 2 London Wall Place, London

Good practice GBI design for commercial development

Location: City of London

Developer: Brookfield Properties and Oxford Properties

Consultant Team: MAKE Architects (Architect), Spacehub (Landscape Architect), WSP (Engineer), ANS Global (Green Wall Designer / Installer)

Description: Green walls, part of major commercial development

Local Planning Authority: City of London

Planning permission granted: 2011

Construction completed: 2018

GBI design features

- Biodiverse green walls
- New green space provision
- Biophilic design, with year-round interest
- Native planting to support wildlife

Why is this good practice?

As part of the major redevelopment of London Wall Place, which also includes pocket parks and roof terraces, 780m2 of biodiverse green walls were incorporated into 2 London Wall Place. The green walls are dispersed across the site, at street level and along a pedestrian bridge. The planting design includes year-round colour to create visual interest, as well as a native plants to support wildlife, including flowering bulbs. Plant palettes vary from wall to wall to respond to the aspect and microclimate of each location. Design for the development as a whole was also focused on conveying a sense of place connected the site's significant history.

CASE STUDY 4.2 Rotunda Community Campus, Liverpool

Good practice GBI design for community development

Location: Liverpool
Developer: Rotunda Community College
Consultant Team: BCA Landscape (Landscape Architect)
Description: New garden campus on brownfield site
Local Planning Authority: Liverpool
Planning permission granted: not known
Construction completed: 2015

GBI design features

- Biodiverse planting, including plants for pollinators
- New woodland, orchard and habitat creation
- Brownfield site redeveloped as green space
- Resource for training, education and healthy living
- Community food growing

Why is this good practice?

A new garden campus was created on semi-derelict brownfield land adjacent to Rotunda College to support their programmes for learner-led education and training, including for marginalised and disadvantaged people in the local community. The campus was designed to provide opportuities for training and qualifications for garden volunteers, improve community links, maximise access for all, and promote the concept of growing and eating fresh fruit and vegetables. The kitchen garden supplies the college cafe, and planting supports biodiversity with a wide range of native species, including an area of native woodland, and other resources for wildlife including bird and bat boxes.

CASE STUDY 4.3 Sharrow School. Sheffield

Good practice GBI design for educational development

Location: Sheffield
Developer: Sheffield Education Authority
Consultant Team: Sheffield City Council Design & Project Management (Architect), Nigel Dunnett (Green Roof Consultant)
Description: New school building with biodiverse green roof
Local Planning Authority: Sheffield City Council
Planning permission granted: 2005
Construction completed: 2007

GBI design features

- Accessible and biodiverse green roofs with native planting
- Roof-top nature reserve
- Keeps building cool in summer, soaks up rainfall and absorbs carbon
- Wetland area
- Bird tables, insect feeders and deadwood
- Outdoor classroom

Why is this good practice?

The Sharrow School is a low-carbon building with biodiverse green roofs over three levels. The green roofs are acccessible and provide an educational resource, as well as providing benefits to biodiversity and wildlife. The building was designed by Sheffield City Coucil, and the green roof was designed in consultation with Nigel Dunnett, University of Sheffield, with the intention that it would be an exemplar of good practice. It is the first roof-top Local Nature Reserve in the country, designated for its nature conservation value and benefit to the community. The green roof also assists the control of storm water.

Principle 4: Building Resilience to Climate Change

All minor & major development should embed GBI in ways that help communities and wildlife be resilient to a changing climate

4.5.19 National planning policy and guidance emphasises the role of GBI in both mitigating and adapting to climate change in urban and rural areas. GBI can contribute to carbon storage, cooling and shading, opportunities for species migration to more suitable habitats and the protection of water quality and other natural resources. It can also be an integral part of multifunctional sustainable drainage and natural flood risk management.

Climate Change Mitigation

4.5.20 In accordance with Local Plan Policies SD7, EE11, EE12 and EE13, the Council expects development to contribute to climate change mitigation. This can be achieved through provision of GBI in line with the following principles:

All Minor & Major Development

- Proposals should consider opportunities for incorporating ecological building design measures, such as green roofs and walls to reduce the risk of flooding from surface water run-off and improve the quality of water discharged from properties. Where possible roofs can be combined with renewable technologies such as solar panels.
- Development should consider opportunities for GBI which can contribute to carbon capture/storage such as incorporating woodland and tree planting to absorb CO2 and act as 'carbon sinks'. See Surrey's **Climate Change** & **Tree** Strategies for further information.
- Incorporation of SuDS to slow water infiltration and improve water quality.
- Greening of the urban environment to reduce the 'urban heat island' effect through provision of GBI, tree and other planting, soft landscaping and reducing areas of hard landscaping;
- Maximise opportunities for passive solar gain and passive cooling through the orientation and layout of development including the planting of trees to reduce energy consumption; lessening the need for heating in the winter and air-conditioning in summer.

Major developments should also consider

- Improving access to and enhancing GBI networks and cycling/ pedestrian corridors to provide attractive off-road green routes connecting housing areas to transport hubs, schools, employment sites and leisure destinations to encourage walking and cycling.
- Opportunities to incorporate measures for local renewable or low carbon energy production into management of green spaces.

Building Resilience to Climate Change: Renewable Energy

CASE STUDY 4.4 62 Kimpton Road, Hertfordshire

Good practice GBI design for residential development

Location: Wheathampstead, Hertfordshire
Developer: ZEHo Projects Ltd
Consultant Team: Paul Osborne; Gyuory Self; Solinvictus SES; Be Green Systems; Merronbrook; Green Building Store
Description: 274 sqm single dwelling eco-home
Local Planning Authority: St Albans City & District Council
Planning permission granted: 2013
Construction completed: 2015

GBI design features

- Green Roof
- Sustainable Drainage System (incorporating permeable paving)
- Solar PV Panels
- Ground Source Heat Pump
- Structurally Insulated Panels System (for timber frame)
- Reused & Recycled Materials

Why is this good practice?

Award-winning, self-build house in Hertfordshire that is net-zero energy in operation with a 31 panel PV array, a ground-source (thermal piles) heat pump for heating and hot water, mechanical ventilation, heat recovery system, high levels of insulation and use of sustainable materials above ground level. The house took eight months to construct and included several key sustainability innovations, including the use of circular economy design principles, low carbon heat, high insulation and solar PV (saving 25 tonnes of CO2 emissions between 2015 and 2018). Building Futures Award 2016 Most Sustainable Construction Project Winner.

Climate Change Adaptation

4.5.21 In accordance with Local Plan Policies EE11 and EE12, the Council expects development to contribute to climate change adaptation through provision of GBI in line with the following principles:

All Minor & Major Development

- Proposals should incorporate innovative water-sensitive design and natural flood management solutions for managing flood risk, while also delivering biodiversity, recreation and landscape enhancement opportunities. Measures that may be appropriate include:
  - » Designing wildlife-friendly sustainable drainage systems, with natural native planting, as an integrated element of a development's site drainage, open space and biodiversity strategy (see **Box 4.10**).
  - » Demonstrating that development along watercourses and in floodplains do not obstruct flow of flood water by avoiding boundary treatments and planting open structured shrub layer or only using ground cover and tall trees.
  - » Demonstrating that development proposals will protect, enhance, improve and maintain Blue Infrastructure networks, including through deculverting of watercourses, avoiding the loss of natural banks and the re-naturalisation of hard banks where appropriate.
  - » Where appropriate, considering opportunities to enable public access to Blue Infrastructure corridors through provision of natural undeveloped buffer zones along main rivers and watercourses in accordance with the standards and ecological requirements set out in Local Plan Policy EE12, as well as opportunities for widening and re-naturalisation of existing buffer zones in urban areas.

BOX 4.10 Sustainable Drainage Systems

Sustainable Drainage Systems (SuDS) manage surface water run-off from rainfall close to where it falls in a more natural way. When designed well, SuDS can increase property value, mitigate local flood risk, moderate microclimate, benefit ecology, provide new sources of water and create valuable amenity spaces for communities to enjoy. Furthermore, the cost of SuDS construction can also work out cheaper than traditional drainage methods if planned properly from the start.

Policy EE13 of the 2030 Local Plan requires that all new development provide SuDS unless demonstrated to be inappropriate.

In its capacity as Lead Local Flood Authority, Surrey County Council is a statutory consultee on surface water drainage for all new major developments in the Borough, and provides **Pre-Application Planning Advice** to help applicants in developing and submitting a surface water drainage strategy.

The County Council recommends applicants take into consideration the **Surrey County Council SuDS Design Guidance (2019)** before submitting a planning application. Prepared in partnership with the other local planning authorities in Surrey, including Runnymede Borough Council, the Guidance provides advice on meeting the requirements of Defra's National Technical Standards for Sustainable Drainage, the evidence required to support an application and what standard conditions may be with respect to surface water drainage. The guidance is also a useful tool for minor development schemes.

The County Council also recommends that new major developments take into consideration the advice provided by **Water People Places – a guide for master planning sustainable drainage into developments (2013)** prepared by the Lead Local Flood Authorities in South East England, including Surrey County Council.

Design Checklist – Building Resilience to Climate Change

Through GBI Strategies and Masterplans, applicants should signpost how they have considered the following:

All Development

- ☐ Where feasible, have green/brown roofs and/or green walls been incorporated into buildings to increase energy efficiency, create new habitats and shade and slow the rate of runoff?
- ☐ Has the siting and design of the built form and external spaces been orientated to maximise passive solar gain whilst creating sheltered and sunny green spaces?
- ☐ Have tree species been chosen that help cool spaces in the summer, provide solar gain in winter and reduce rainwater runoff while contributing to biodiversity? Has structural planting been designed to create shelter from winds in winter and shade in summer?
- ☐ What measures have been identified to improve the quality and quantity of water?
- ☐ Have rainwater harvesting systems been incorporated to provide grey water recycling?
- ☐ Have watercourses/buffer zones been included to protect and enhance Blue Infrastructure on-site?

Major Developments should also consider

- ☐ If renewable energy technologies are required in accordance with Local Plan Policy SD8, has solar water heating/electricity generation been considered for installation on roofs, potentially as part of a green roof?
- ☐ Where relevant, has an assessment of the ground water and water resource of the site taken place?
- ☐ Where relevant, have studies of groundwater, contaminated land etc been undertaken to determine the suitability of the site for sustainable drainage systems?
- ☐ Have sustainable drainage systems been considered and incorporated into the scheme? If so, do SuDS layout or strategies consider:
  - Linked SuDS to enhance biodiversity and recreational resource?
  - What provision has been made for water balancing measures such as storm water ponds or lagoons to replace groundwater levels, and have sustainable drainage systems using swales been considered?
  - Have relevant flood strategies been identified and do they inform the design and approach to GBI and the wider masterplan?
- ☐ Does the development physically and visually connect to the surrounding GBI network and provide attractive and safe travel corridors for cyclists/pedestrians?
- ☐ How has existing or proposed woodland been incorporated to provide benefits such as carbon sequestration and habitat creation?

Signposts to Further Information

- Surrey County Council Climate Change Strategy
- Surrey County Council Tree Strategy
- Living Roofs & Walls Good Practice
- Surrey County Council SuDS Design Guidance (2019)
- Water People Places – a guide for master planning sustainable drainage into developments (2013)
- Surrey Local Flood Risk Management Strategy

Building Resilience to Climate Change: Sustainable Drainage Systems

CASE STUDY 4.5 Dorset House, Dorset

Good practice GBI design for residential development

Location: Dorset
Developer: Private Individual
Consultant Team: LTS Architects, Enhabit
Description: 300 sqm single dwelling eco-home
Local Planning Authority: Dorset Council
Planning permission granted: 2013
Construction completed: 2018

GBI design features

- Designed and built to Passivhaus standards
- Rainwater recycling system
- Solar PV and Thermal Panels
- Structurally Insulated Panels System

Why is this good practice?

A private, three bedroom family eco-home equipped with a photovoltaic roof, triple glazed windows and rainwater recycling on-site providing water for toilets, washing machine and irrigation. The house is designed to Passivhaus standards and is an 'energy plus' residence, exporting more energy than it consumes. The structure is fabricated from structurally insulated panel (SIPS). Solar PV system and solar hot water system provides for most electrical usage and hot water throughout the year and is boosted through the use of a 400 litre thermal store for any excess PV energy. The use of wastewater heat recovery to preheat the cold water supply also reduces energy demand. The integrated 9KW roof solar PV and solar thermal system ensure the house is energy positive.

CASE STUDY 4.6 **Clapham Park, Lambeth, London**

Good practice GBI design for residential development

Location: London Borough of Lambeth
Developer: Metropolitan Thames Valley
Consultant Team: PJMA (Architect), Bauder (Green Roof / PV Supplier)
Description: New five-storey social housing development, 21 dwellings
Local Planning Authority: Lambeth Council
Planning permission granted: 2008 (outline)
Construction completed: 2017

GBI design features

- Biodiverse biosolar green roof
- Supports pollinators
- Sustainable energy generation
- Minimisation of carbon dioxide emissions

Why is this good practice?

As part of a larger redevelopment scheme to replace old social housing stock in Clapham Park, a biosolar green roof was incorporated into the design of a new five-storey block of 21 dwellings. The photovoltaic solar arrays generate 10% of the residents' electricity needs. The green roof includes a biodiversity mix of 35 plant species to support pollinators, and has been certified BREEAM Outstanding for its environmental, economic and social sustainability.

CASE STUDY 4.7 Ashley Vale Homes, Bristol

Good practice GBI design for residential development

Location: Bristol
Developer: Self-Builders/Ashely Vale Action Group (Not for Profit Company)
Consultant Team: Graham Gaine (lead Architect)
Description: Self-build mixed-use development combining 37 affordable homes, 3 business units and a community building on a 0.8ha brownfield site
Local Planning Authority: Bristol City Council
Planning permission granted: 2001
Construction completed: 2010

GBI design features

- Communal garden and play area
- Solar PV
- High levels of building insulation
- Biomass boiler for flats and business units
- Green roofs
- Rainwater harvesting systems
- Located close to existing allotments, a nature reserve and a city farm

Why is this good practice?

Timber frame construction houses. Most houses have PV panels. Biomass boiler for the block of flats and business units. Rainwater harvesting and a number of sedum green roofs to reduce run off and improve biodiversity and insulation. Houses have their own gardens and are also positioned around a prominent central community garden/play area. Home zone principles adopted to create attractive streets that are safe for pedestrians. Promotes sustainable, innovative and affordable housing design. Regional South West Green Energy Award 2009 for 'Best Housing Scheme'. Building for Life Silver Standard Award 2010.

CASE STUDY 4.8 **Moorgate Crofts, Rotherham**

Good practice GBI design for commercial development

Location: Rotherham
Developer: Rotherham Investment and Development Office
Consultant Team: Rotherham Metropolitan Borough Council (Landscape Architect), NIgel Dunnett (Planting Design)
Description: Semi-extensive green roof
Local Planning Authority: Rotherham Metropolitan Borough Council
Planning permission granted: 2004
Construction completed: 2005

GBI design features

- Biodiverse planting
- Integral part of sustainable building design
- Demonstration site for semi-extensive green roofs and sustainable buildings
- Contribution to research on green roof performance
- Contribution to promoting green roofs in the UK

Why is this good practice?

The Moorgate Crofts Business Centre, the first building in the 25-year Rotherham Renaissance programme, had the first green roof in the borough. Sustainability was integral to the design of the building, as was its use as a demonstration site. The semi-extensive green roof is intended to provide 'high impact greening', and more visual and biodiversity benefits than sedum roofs. Nigel Dunnett of the University of Sheffield advised on planting mixes and species selection, based on his green roof research, and its performance has been studied by the University, contributing to the body of knowledge on biodiverse green roofs.

Principle 5: Contributing to Healthy Living & Well-Being

All minor and major development should embed GBI in ways that help contribute to healthy living and well-being by providing spaces for recreation, relaxation and growing local food

4.5.22 National planning policy and guidance emphasises the role of GBI in promoting healthy, resilient and safe communities. GBI can improve the wellbeing of a neighbourhood with opportunities for recreation, exercise, social interaction, experiencing and caring for nature, community food-growing and gardening, all of which can bring mental and physical health benefits. GBI can help to reduce health inequalities in areas of socio-economic deprivation and meet the needs of families and an ageing population. It can also help to reduce air pollution and noise.

4.5.23 In accordance with Local Plan Policy SL1 (Health and Wellbeing) and SL26 (New Open Space), the Council expects development to contribute to healthy living and well-being through provision of GBI in line with the following principles:

All Minor & Major Development

- GBI proposals should create healthy, lively, sociable, safe and sustainable places.
- Proposals for development should consider opportunities for providing well-designed urban green spaces, tree planting and green roofs to help improve air quality and reduce health risks from air pollution, provide a buffer from noise and mitigate health risks of the urban heat island effect during extreme heat events.

Major developments should also consider

- Provision of sufficient high quality open spaces of different types to ensure residents have the opportunity to access and interact with nature, and encourage recreation, sports and healthy lifestyles, taking into account **Sport England's Active Design Guidance**.
- Proposals should consider opportunities for connecting development to the wider network of walking and cycling routes along green and blue corridors, providing opportunities for active travel and experiencing nature.
- Including opportunities for safe and attractive green spaces that have a positive impact on the physical and mental health and well-being of all by encouraging physical activity, improving mental well-being and providing a focus for community activities and social interaction.
- Through GBI Strategies and Masterplans demonstrate how open space has been integrated into the site layout.
- Developments of 20 or more net additional dwellings should provide new or enhanced open space in accordance with the standards set out in Local Plan Policy SL26 or as directed by the Local Plan's site allocation policies.
- Consider opportunities for integrating sustainable local food systems (see **Box 4.11**) into the design and management of GBI networks, through private gardens, shared community spaces along local streets and opportunities within parks/gardens for food-growing.

BOX 4.11 Sustainable Local Food Systems

Sustainable local food systems encourage healthy eating and community food-growing and promote opportunities for producing, processing and distributing food locally. It brings together farms in rural areas with urban farms, allotments, community orchards, farmers' markets and food co-operatives

- Designing open spaces that provide a balance between formal and passive recreation uses and access to nature, and offer varied opportunities for natural play.
- Designing recreational and play spaces that provide an enjoyable and visually rewarding environment for all users and respond to/ reflect the landscape context.
- Enhancing the connectivity of residential areas, the high street, outdoor sports and recreational facilities, public transport services and the wider countryside by connecting development to the GBI network where this is feasible.
- Strengthening community cohesion/social inclusion through provision of community gardens and outdoor amenity, recreational and natural play spaces.
- Considering opportunities for designing green spaces as outdoor classrooms by providing access to and interpretation of natural and cultural assets.
- Designing green spaces and links to take into account **good practice guidance** on providing inclusive access to countryside and urban greenspace for people with mobility, sensory or intellectual impairments, including those using mobility scooters or similar.

Contributing to Healthy Living & Well-Being: Green Links

Contributing to Healthy Living & Well-Being: Healthy Eating & Food Growing

Design Checklist – Contributing to Healthy Living & Well-Being

Through GBI Strategies and Masterplans, applicants should signpost how they have considered the following:

All Minor & Major Development

- ☐ Has an audit of existing accessible green spaces and access routes (on and off-site) been undertaken and do the proposals complement, enhance and support these assets?
- ☐ What provision has been made to connect the development site with the wider green network, off-site community facilities and green spaces?

Major developments should also consider

- ☐ Have opportunities for providing a range of functions in relation to local needs for open space (such as recreation grounds/sports pitches incorporating ecological areas) been considered?
- ☐ Where feasible, have GBI connections and linkages been made between the scheme and existing settlements to promote reduction in car use and safe active travel routes to schools, workplaces and community facilities?
- ☐ Where and what type of new green access routes will be provided on-site, and how best can these strengthen, enhance and join up with the existing green network?
- ☐ What consideration is there for 'access for all' and is it possible for all residents to access a range of GBI from their home easily and conveniently?
- ☐ Has a management and maintenance plan been produced and is it funded robustly so the long term quality of the GBI is ensured?
- ☐ Have local community groups and other stakeholders been consulted on the GBI aspects of the design proposals?
- ☐ What potential is there for shared community orchards, allotments and foraging features such as hedgerows on the site?
- ☐ Does the scheme meet the Council's adopted minimum standards for open space provision in accordance with Policy SL26? ?
- ☐ Have adequately sized rear gardens (see Runnymede Design SPD) been provided to allow for small-scale domestic food growing?
- ☐ Can the proposals connect to local community food growing spaces close to where people will live?

CASE STUDY 4.9 RNIB, Redhill

Good practice GBI design for residential development

Location: Redhill, Surrey
Developer: Countryside
Consultant Team: Gardner Stewart Architects, LDC/Studio Loci Landscape Architects
Description: Housing scheme of 102 homes on a 16ha former college brownfield site in the Green Belt owned by the Royal National Institute for the Blind (RNIB)
Local Planning Authority: Reigate & Banstead Borough Council
Planning permission granted: 2015
Construction completed: 2020

GBI design features

- Sensory garden and trail
- Retained large trees
- Wildflower meadows
- Wildlife-friendly external lighting

Why is this good practice?

The design creates a positive dialogue between built form and landscape. Contemporary homes cascade and rise with the natural steep topography, focused around a Sensory Garden (the Minds Eye Garden) set within a generous public realm incorporating a sensory trail winding its way through a 'Learning Landscape' that assists wayfinding and creates a rich sensory experience for visually impaired and sighted residents. Fully restored and converted Grade II Listed Tudor House used as a Community Hub comprising offices, training, café and multi-purpose facilities. Landscape design features such as clear layouts, subtle and natural forms of wayfinding and evocative planting have broader applications in place-making to address the health and well-being needs of an ageing population. World Architecture Festival Health Future Projects Award Finalist.

CASE STUDY 4.10 RISC Roof Garden, Reading

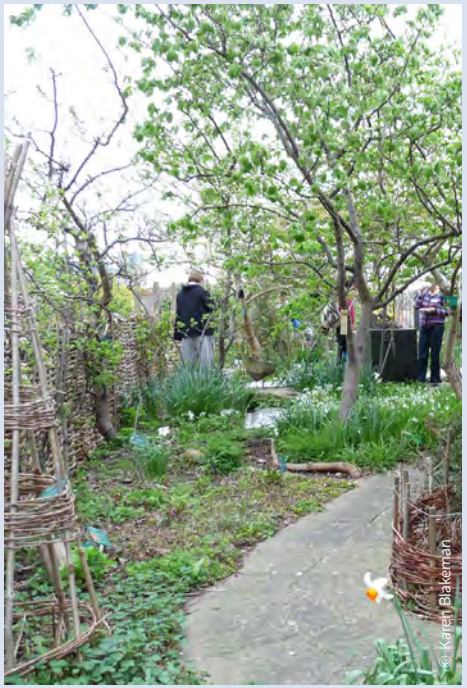
Good practice GBI design for community development

GBI design features

- Biodiverse roof garden, using forest garden principles
- Demonstrates sustainable lifestyles/carbon footprint reduction
- Water harvesting for garden irrigation
- Waste minimisation, cafe food and office waste composting
- Use of recycled materials
- Micro-wind turbine and solar array power water pump
- Hard landscaping using recycled materials

Why is this good practice?

Sustainable development and food security are key themes of the RISC's work. When repairs were needed to the existing roof of their conference hall, a biodiverse forest garden was created featuring edible and useful plants instead of conventional roofing. Designed and managed using permaculture principles, it is an educational resource as well as a valuable green space for people and wildlife in the centre of Reading. Cafe food and office paper waste are composted to support the garden, water is harvested for irrigation (minimising surface water run off) and the water pump is powered with renewable energy from a micro-wind turbine and solar array.



Location: Reading
Developer: Reading International Solidarity Centre
Consultant Team: Paul Barney (Permaculture Designer)
Description: Biodiverse roof garden retrofitted to existing building
Local Planning Authority: Reading Borough Council
Planning permission granted: 2001
Construction completed: 2002

Principle 6: Managing & Maintaining GBI

4.5.24 For all developments which provide areas or features of GBI located outside of private amenity space, early consideration of how GBI proposals will be implemented, managed, maintained and funded over the lifetime of the development will be required.

4.5.25 Implementation of GBI for a new development site should be considered as an ongoing process in conjunction with the design phase. This involves considering the processes and strategies required for successful implementation and delivery of the site layout, landscaping or masterplan's aspirations for GBI.

4.5.26 Funding, management and maintenance are interconnected and will vary depending on the funding approach and management structure chosen. As such, the Council will consider the management/ maintenance of GBI assets provided by developers on a case by case basis. The choice will depend on the specific characteristics of the site, the type of GBI, whether the GBI is on or off-site as well as the aspirations of the developer, stakeholders, residents and the Council.

4.5.27 The Council's starting point is that GBI assets provided by developers can be managed/maintained by the developer unless otherwise indicated by the Council. Should a developer wish to manage and maintain on-site GBI themselves or via a third party, this will need to be detailed in the GBI Strategy or Masterplan demonstrating how GBI will be maintained/managed and funded over the lifetime of the development, outlining the developers role, responsibilities and actions. The measures envisaged to monitor and remedy any failure of management/maintenance responsibilities and whether the Council would be expected to 'step in' (with full cost recovery) should there be a persistent failure of management/maintenance should also be set out in the GBI Strategy or Masterplan.

4.5.28 Where the Council is requested to take ownership and/or management and maintenance of GBI assets, funding will be paid for by the developer to cover management/maintenance for the lifetime of the development via contributions secured by planning obligations through Section 106 Agreements or via the Council's Community Infrastructure Levy. The process for the Council to take on ownership/ management/maintenance of GBI is likely to involve discussion with a number of Council departments. If this route for funding, management/maintenance is chosen, developers will need to engage with the Council at the earliest opportunity. The decision to take on management/maintenance responsibilities and/or ownership will be at the Council's discretion.

4.5.29 Where inclusion of a sustainable drainage system is necessary, proposals for development should demonstrate that a wildlife management plan will be in place, including appropriate arrangements for implementation and monitoring of the plan. If green/living roofs and walls are proposed, arrangements for maintenance over the lifetime of the development will need to be set out and secured through a maintenance plan where appropriate.

4.5.30 Development proposals should consider opportunities for engaging local communities at all stages of the planning and design process to foster a sense of ownership and responsibility for the long-term care and maintenance of green spaces.

CASE STUDY 4.11 Water Colour Homes, Redhill

Good practice GBI design for residential development

Location: Redhill, Surrey

Developer: Linden Homes

Consultant Team: John Thompson & Partners, Studio Engleback, Stillwell Bell, David Lock Associates

Description: Mixed-use development combining 523 homes, offices, supermarket, residential care home, medical centre and play facilities on a brownfield site in a former sand quarry

Local Planning Authority: Reigate & Banstead Borough Council

Planning permission granted: 2005

Construction completed: 2012

GBI design features

- Private and communal gardens, amenity green spaces and play spaces
- Public open space
- Linear wildlife corridors
- Canals, reed beds and lagoons
- Network of landscaped pedestrian and cycle routes
- Dedicated management company maintaining green infrastructure

Why is this good practice?

Strong landscape framework providing distinctive and interconnected neighbourhood areas by exploiting existing water features and topography. Creation of 6.8 hectares of public open space connected to housing and transport links by network of landscaped pedestrian and cycle routes. Sustainable urban drainage system using existing and new water courses, including two lagoons, and previously culverted Gatton Brook re-opened and landscaped. In addition to providing on-site water attenuation, these provide new wildfowl habitats and encourage biodiversity. Home zone principles adopted to create attractive streets that are safe for pedestrians, promote walking and cycling and provide informal play areas. Dedicated management company maintains public open space and green infrastructure. Future ownership of the lagoons transferred to Surrey Wildlife Trust. Homes constructed to Ecohomes 'very good' standard.

4.6 Planning Review Checklist

4.6.1 The Council will use this Checklist to review the GBI aspects of minor and major development proposals submitted at the pre-application and planning application stages against the guidance set out in this SPD.

4.6.2 The Checklist is intended to be of use by the local planning authority and statutory consultees as part of the pre-application design and consultation process, decision-making on planning applications and in the implementation of schemes.

4.6.3 The Checklist highlights the key GBI matters that will be considered, where relevant, as part of the assessment of individual planning applications. It also provides a useful checklist for applicants in terms of the key considerations that will inform the Council's decision making process in respect of compliance with Local Plan policies.

4.6.4 Where necessary, the Council may request further information from applicants to inform pre-application discussions and decision-making with regards to Local Plan policies.

Step 1 – Auditing GBI Assets

- ☐ Has a proportionate GBI Audit been undertaken to an appropriate level of detail, and are the findings an accurate record of GBI constraints?
- ☐ Has relevant evidence been taken into account in identifying local needs and priorities for GBI provision?
- ☐ Have the relevant Local Plan policies been accurately determined and are there any conflicts with specific GBI or other policies?

Step 2 – Considering GBI Opportunities

- ☐ Has a GBI Strategy or Masterplan been provided, and is this considered proportionate to the scale and nature of development proposed?
- ☐ Has any pre-application consultation and engagement on the GBI Concept Plan been undertaken with statutory consultees and wider community?
- ☐ Have GBI constraints and opportunities been adequately reflected in the GBI Strategy or Masterplan?
- ☐ Have any GBI issues been raised through the pre-application consultation process, and if so, have these been adequately addressed by the application?
- ☐ Where the development is likely to harm existing GBI assets, have mitigation measures and enhancement opportunities been proposed and are they considered acceptable?

Step 3 – Incorporating GBI into Development Proposals

- ☐ Does the GBI Strategy or Masterplan clearly explain how net gains for biodiversity/other GBI assets will be achieved?
- ☐ Have appropriate Plans been submitted with the application and if so, are these considered acceptable?
- ☐ Has a GBI Strategy or Masterplan been provided that clearly demonstrates how GBI will be delivered in different development phases (if appropriate)?
- ☐ Is any additional detailed design information required as part of a Planning Condition/Reserved Matters Application?
- ☐ Has an appropriate Management Plan for long-term maintenance/ management of new/enhanced GBI assets been included within the GBI Strategy or Masterplan or can this be secured by condition?
- ☐ Is a planning obligation to secure physical delivery of new GBI assets or network connectivity enhancements required via a Section 106 Planning Agreement?

4.6.5 For major developments involving larger-scale housing and commercial schemes in environmentally sensitive locations, the Council (or the applicant) may consider requesting an independent assessment and review of the quality of an application's GBI proposals. An example of this type of service is the free to use **Building with Nature Green Infrastructure Scheme**. Other schemes are also available.

APPENDICES

APPENDIX A - GREEN & BLUE INFRASTRUCTURE DELIVERY

There are a number of strategic partnerships working collaboratively to deliver the environmental, economic and social benefits of GBI at a local and regional level in and around Runnymede Borough. A summary of these partnerships is provided below. The partnerships can provide information and advice to applicants on needs, opportunities and priorities for strengthening the Borough's GBI network.

Surrey Nature Partnership

The Surrey Nature Partnership's mission is to *facilitate informed decision-making in Surrey in partnership with other like-minded groups to ensure that our natural environment can continue to contribute to the economy, health and well-being of our communities*.

The Local Nature Partnership is championing the development of a Natural Capital approach to investing in delivering a sustainable natural environment, within the context of supporting in Surrey's future economic prosperity and the health and well-being of all its people. It advocates a multi-capital approach to delivering multiple benefits, implemented through collaboration and innovation.

The strategic direction and implementation framework for investing in Surrey's natural capital assets is set out in Naturally Richer: A Natural Capital Investment Strategy for Surrey (2015) and The Natural Capital Investment Plan for Surrey (2018). This Natural Capital approach is feeding into the Local Enterprise Partnership's emerging Local Industrial Strategy.

Enterprise M3 Local Enterprise Partnership

The Enterprise M3 Local Enterprise Partnership is a business-led partnership of private and public sector organisations working across west Surrey, including Runnymede Borough, and most of Hampshire. It aims to help deliver increased productivity, prosperity and an improved quality of life for people living and working across the area. The Partnership undertakes activities which drive economic growth through innovation, job creation, improved infrastructure and increased workforce skills.

The Strategic Economic Plan 2018-2030 sets out the direction and priorities for enhancing the economic performance of the Enterprise M3 Area. This Plan provides a foundation for the emerging Local Industrial Strategy, which is expected to highlight the importance of enhancing natural capital as an essential basis for economic growth and productivity over the long term.

Surrey Health & Wellbeing Board

The Surrey Health & Wellbeing Board brings together a range of partners working to promote health and well-being across Surrey. The Board includes NHS commissioners, public health, social care, local county councillors, Surrey Police, borough and district councils and public representatives. The Surrey Health and Wellbeing Strategy 2019-2029 sets out how the partners can work together with communities in Surrey to help people lead a healthy life, support their mental health and emotional wellbeing and support people to fulfil their potential.

Wey Landscape Partnership

The Wey Landscape Partnership aims to improve water quality in the Wey Catchment in line with the European Water Framework Directive's objectives through well informed/evidenced, collaborative and partnership working.

The River Wey Catchment Plan vision is *for a healthy and diverse catchment where all interested sectors, groups or individuals may contribute effectively towards restoring the natural environment for the sustainable use of its essential resources, whilst preserving other valued heritage assets, to benefit both people and wildlife today and in the future.* The Plan sets out an Action Plan for delivering sustainable solutions that address water quality issues in the catchment.

Thames Basin Heaths Partnership

Comprising 26 organisations, including Runnymede Borough Council, the Partnership seeks to protect the Thames Basin Heaths Special Protection Area in line with the jointly agreed strategic approach set out in the Thames Basin Heaths Special Protection Area Delivery Framework.

Colne Valley Partnership

Extending to the Thames on the northern boundary of Runnymede Borough, the Colne Valley Regional Park is a 43 square mile park comprising 200 miles of river and canal network as well as over 60 lakes. It is managed by the Colne Valley Park Community Interest Company, of which Surrey County Council is a member, which seeks to maintain, safeguard and conserve the park and its related biodiversity.

The Colne Valley Landscape Partnership works with stakeholders to coordinate management of the Park's GBI assets in line with the aims and objectives of the Crane Valley Partnership Strategy 2018-2028. The Strategy contains a range of initiatives that aim to improve access routes, conserve wildlife and habitats and raise awareness of water consumption through community engagement. These measures offer opportunities for cross-boundary working in relation to strategic GBI corridors at the regional scale.

APPENDIX B - ACKNOWLEDGEMENTS

The Green & Blue Infrastructure SPD was prepared by CBA (www.cbastudios.com) on behalf of Runnymede Borough Council

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