Guide to Barking and Dagenham's Green Infrastructure and Biodiversity Strategy

1. Introduction

This document is a short guide to Barking and Dagenham's Green Infrastructure and Biodiversity Strategy. The Strategy sets out in detail the Green Grid routes and the design principles for green infrastructure and biodiversity in the borough. The Strategy is supplemented by Annex B that provides details of projects on the Green Grid routes.

This Guide and the full Strategy should be used by planners, developers, urban designers and landscape architects in the early stages of developing new schemes, including residential, commercial, industrial and transport schemes.

The Guide provides a summary of the following elements within the Strategy:

Section 2: Planning Policy and Green infrastructure

Section 3: The Barking and Dagenham Green Grid

Section 4: The Borough Wide Green Infrastructure Design Principles

Section 5: The Character Area Green Infrastructure Design Codes

1.1 What is Green Infrastructure?

Green infrastructure is a network of multi-functional green and blue spaces that delivers benefits for the environment and for communities. Green infrastructure includes parks and gardens, amenity greenspace, natural and semi-natural urban greenspaces, green corridors including rivers and canals, allotments, cemeteries and churchyards. Good quality green infrastructure enhances the economy of Barking and Dagenham by promoting the success of town centres and sustainable growth and economic development and supporting the value of private and commercial property. Green infrastructure provides social benefits through supporting better mental and physical health and well-being, by supporting the quality of place and neighbourhood and by providing opportunities for learning and skills acquisition.

Green infrastructure supports environmental outcomes by enhancing habitat and biodiversity, by creating stronger biodiversity networks across the landscape and by mitigating against the effects of climate change (by moderating urban temperatures, absorbing rainfall and sequestering CO2).

1.2 What is Biodiversity?

Biodiversity encompasses all plants, animals, fungi and microorganisms, the genes they contain, and the different habitats of which they are part. Biodiversity provides foods, medicines, materials, ecological services and contributes to cultural values and to leisure. There are significant opportunities to increase biodiversity in establishing the Green Grid and in the development of new housing, commercial and industrial schemes. This Guide and the Strategy set out detailed design principles

and codes to ensure that the most appropriate habitats and species are selected to maximise gains for biodiversity.

Maximising biodiversity is key to all the elements that make up successful green infrastructure, including soft landscaping, green and blue roofs, SuDS, active travel and street trees. Creating new connections between greenspaces, reconnecting and restoring neglected and polluted waterways, and incorporating biodiversity into travel routes will ensure every resident has access to nature on their doorstep.

2.0 Planning Policy

2.1 National Planning Policy Framework (NPPF)

The NPPF (February 2019) requires plans and decisions to apply a presumption in favour of sustainable development. The NPPF defines three overarching objectives for achieving sustainable development in the planning system. These include an environmental objective that expects development to contribute to protecting and enhancing the natural environment and help to improve biodiversity.

Paragraph 170 states that planning policies and decisions should:

1) protect sites of biodiversity value

2) minimise the impact of development on biodiversity and

3) provide net gains for biodiversity, including establishing coherent ecological networks.

The NPPF requires Local Plans to identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks and “promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity” (Para 174).

2.2 London Plan

The London Plan (Intend to Publish, 2019) includes a number of policies that require protection, enhancement and net gain for green infrastructure and biodiversity. Policy G1 Green infrastructure requires green infrastructure to be planned, designed and managed to ensure it provides multiple benefits. Boroughs are expected to produce green infrastructure strategies that identify opportunities to connect green infrastructure across their boundaries. Development Plans and area-based strategies should identify key green infrastructure assets, their function and their potential function; and identify opportunities for addressing environmental and social challenges through strategic green infrastructure interventions. Development proposals are expected to incorporate green infrastructure that can be integrate with the wider green infrastructure network.

Policy G5 Urban greening will help ensure that green infrastructure is incorporated onto development sites and is multi-functional. Major development proposals are required to treat urban greening as a fundamental part of the design of new development. High quality soft landscaping, trees, green roofs, green walls and

nature-based sustainable drainage are examples of measures that will help achieve this. An Urban Greening Factor (UGF) should be applied using the factors in Table 8.2. The Mayor's recommended target scores are of 0.4 for predominantly residential development and 0.3 for predominately commercial development (excluding B2 and B8 uses). Existing green cover retained on site will count towards the target scores, based on the factors in Table 8.2.

Policy G6 Biodiversity and access to nature requires boroughs to protect Sites of Importance for Nature Conservation (SINCs) and identify SINCS and ecological networks in development plans. Areas of deficiency of access to nature and opportunities to address them, should be identified. Priority habitats and species that are outside of SINCS should also be protected and enhanced, and opportunities for habitat creation or other positive biodiversity features identified. Development proposals protect biodiversity and aim to provide net biodiversity gain.

Policy GG2 Making the best use of land requires planning and development to protect and enhance open spaces, including designated nature conservation sites; promote the creation of new green infrastructure and urban greening; and aim to secure net biodiversity gains. Policy D8 Public realm states that development Plans and development proposals should incorporate green infrastructure such as street trees and other vegetation into the public realm increase biodiversity.

2.3 Barking and Dagenham Local Plan

The adopted Local Plan consists of a number of Development Plan Documents (DPDs) and Supplementary Planning Documents (SPDs), including:

- Core Strategy DPD
- Borough Wide Development Policies DPD
- Site Allocations DPD
- Biodiversity DPD
- Trees and Development DPD

Policy CR2 Preserving And Enhancing The Natural Environment in the Core Strategy DPD and policy BR3 Greening the urban environment in the Borough Wide Development Policies DPD Policy require development proposals to protect and enhance the natural environment. The Biodiversity SPD provides guidance to developers, householders and planners on protecting, creating and improving biodiversity during the development process. The Trees and Development SPD provides guidance on designing development to maximise the retention of trees, protecting trees during construction and trees in soft landscaping.

The Local Plan is under review and a Draft Local Plan was made available for a second Regulation 18 public consultation from 29 November 2019 to 29 February 2020. The Draft Local Plan contains detailed policies including:

- Draft Policy SP5 Enhancing our natural environment - states the Council protect and enhance the quality of the natural environment, and work to maximise the creation of new green infrastructure.

- Draft Policy DM19 Urban greening - requires development proposals to maximise opportunities for urban greening; contribute to the All London Green Grid, the Council's Green Infrastructure and Biodiversity Strategy and the Council's Parks and Open Spaces Strategy; meet the Urban Greening Factor in accordance with the Draft London Plan.
- Draft Policy DM20 Nature conservation and biodiversity - protects SINCs; requires developers to provide net gain for biodiversity; requires major development to provide an ecology assessment demonstrating biodiversity enhancements.
- Draft Policy DM21 Enhancing rivers and waterways – requires proposals for development adjacent to rivers and waterways to protect and enhance biodiversity, provide naturalised buffers and prevent pollution.
- Draft Policy DM22 Trees – requires development proposals to retain existing trees, shrubs and vegetation, provide additional tree planting using native, non-invasive species, and where appropriate contribute to the Council's tree planting program.
- Draft Policy DM 23 Local food growing including allotments – protects existing allotments and encourages new allotments and opportunities for communal food growing.

3.0 Barking and Dagenham's Green Grid

The new Green Grid provides a network of green infrastructure across the borough connecting communities with parks and open spaces and with strategic green grid routes in neighbouring boroughs.

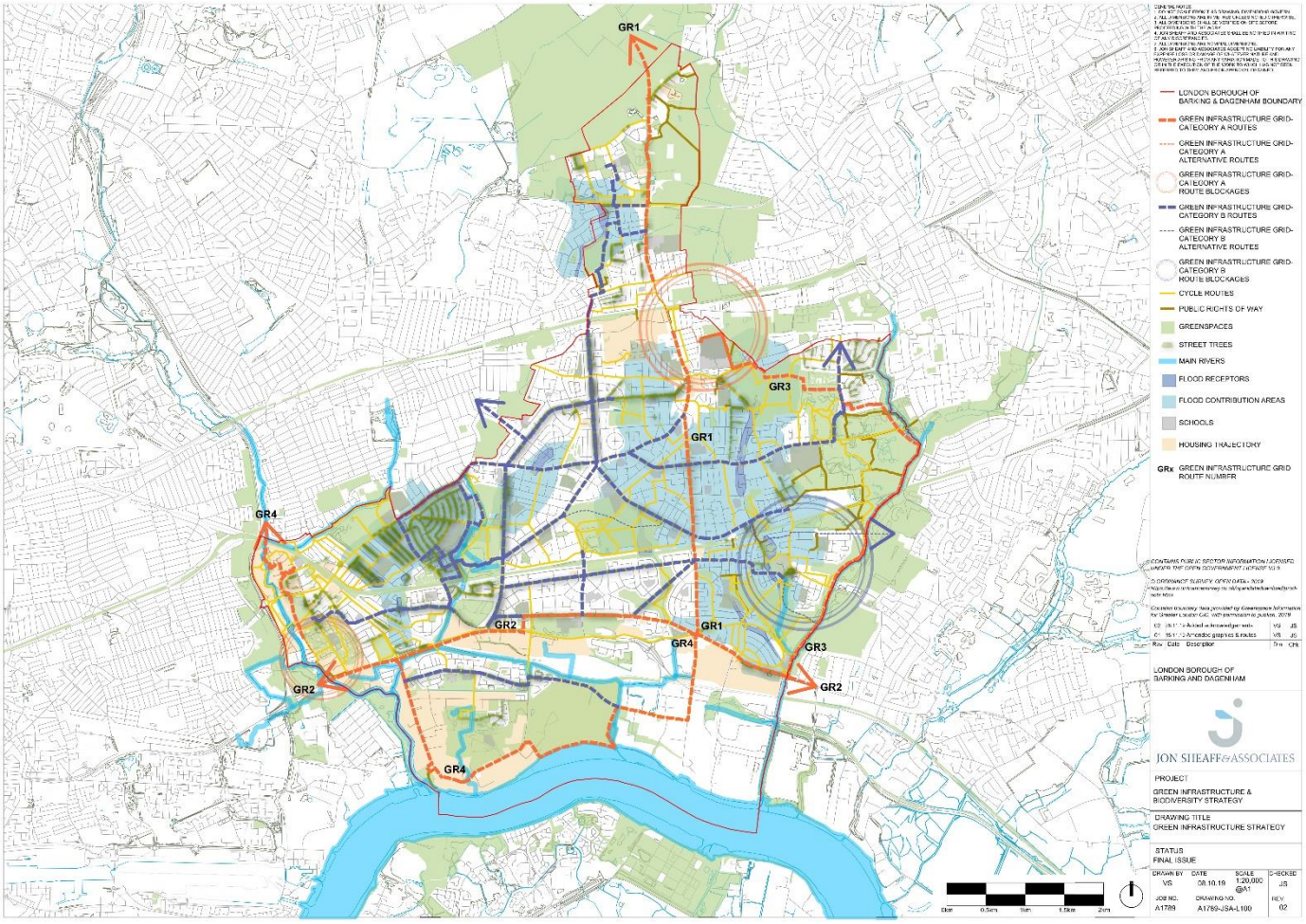
The Green Grid has been divided into A routes and B routes. Category A routes connect major green infrastructure elements within the borough and with networks and green infrastructure in neighbouring boroughs. There are four category A routes, called GR1, GR2, GR3 and GR4.

Category B grid network routes connect local communities with local parks and connections to the Grid A routes.

Map 1 shows the Green Grid for the entire borough. Sections 6 and 7 of the Strategy divide the borough into 5 areas (South, West, Central, East and North) and describe the green grid routes in more detail. Detailed maps (1:5000) are provided in Appendix 2 to the Strategy – this is available under Nature and Open Space in the Evidence Base for the Local Plan: https://www.lbbd.gov.uk/local-plan-review

Projects associated with each Green Grid Route are provided in Annex B.

Map 1: Barking and Dagenham Green Grid



4.0 The Borough Wide Green Infrastructure Design Principles

The borough wide design principles for different types of Green Infrastructure are set out in Section 8.1 of the Strategy. These principles provide the minimum design requirements expected for new green infrastructure and the upgrading of existing green infrastructure. Section 8 should be read in conjunction with Section 8.2 which provides detailed design specifications for different Character Areas of the borough.

Green Infrastructure is divided into 8 types – a summary of the design principles for each of these is set out below. Section 8.1 of the Strategy should be referred to for further detail.

4.1 Ecomimicry

Adopting an ecomimicry approach to soft landscaping and green infrastructure will help developers meet with the Local Plan's policy requirements and with the London's Plan's Urban Greening Factor.

Ecomimicry is based on the recreation of natural or semi-natural habitats that are appropriate to a particular geographical location and should be incorporated into the design of all green infrastructure. The creation of specific habitats with a particular species composition has significantly greater value for biodiversity than generic landscaping. Making use of different substrates as part of the design increases the ecological value of the habitats created, particularly for invertebrates.

The first step in the process is to retain existing natural or semi-natural habitats wherever possible, as existing vegetation will already be adapted to local conditions and provide benefits for biodiversity. Understanding the history of the site and its location in the wider landscape will help identify which habitats should be recreated. London's Natural Landscape Signatures (2011) can assist with this process along with the Council's Biodiversity Survey (2017). Further information on applying the LNS is provided in Section 8.2.

Ecomimicry for Barking Riverside (2016)provides a clear explanation of the process to follow and how the principles of ecomimicry can be applied to different types of green infrastructure. This document is available here: https://repository.uel.ac.uk/

4.2 Active transport routes

Active transport routes include on-road cycle paths, footpaths and off-road routes for green travel. The design principles for active transport routes in the borough should take account of the latest guidance and good practice.

A walking or a cycling route is only as good as its weakest link. The design for footpaths and cycle paths needs to provide positive answers to the following questions:

- Linkages – Does the route connect to other routes?
- Directness- Is the route the most direct way to reach a particular destination?
- Width – Is the width sufficient for users to feel safe? Can people walk or cycle in groups?

- Surfaces – Is the surface well maintained, smooth and level? Is there pooling of water after heavy rain?
- Signage – Are walking and cycling routes signposted? Are walking times provided?
- Seating – Is there seating at regular intervals? Is the seating designed for comfort and well maintained?
- Greening- Has existing vegetation and trees been retained in the design? Is new planting included in the design?
- Are there opportunities to reduce or avoid littering?
- Multifunctional – Does it encourage active travel; Does it reduce surface water run off; Is there shade for pedestrians and cyclists; Are there native trees and vegetation to create wildlife corridors?

4.3 Sustainable urban drainage systems

The design principles for sustainable urban drainage (SuDS) in the borough should take account of the latest guidance and good practice. SuDS provide the opportunity to provide multiple benefits including flood reduction, amenity and biodiversity.

A summary of the design principles for SuDS is provided below:

SuDS	Design	Planting	Locations
Swales	Velocities limited to 1-2 m/s; Maximum side slopes of 1 in 3; Minimum base width of 0.5m; Avoid use of underground structures.	Native plants of local provenance; Species selection according to type of swales – wet or dry; Avoid fertiliser use.	Road verges; Communal soft landscaping; Open space.
Filter strips and drains	Should have a minimum width of 2.5m, a 1 percent slope and a minimum length of 1m. Maintenance will need to avoid compaction.	Plant with suitable native species of local provenance.	Road verges; Communal soft landscaping; Open space. Capture surface water through linear grass, soil or aggregate features and direct flow to swales etc.
Rain gardens	Max depth 150mm	Native plants of local provenance	Gardens; Road verges, Pavements
Wetlands and ponds	Open water areas depth between 1.2m and 2m; shallow areas with depths between 0.6m and 1.0 m; Sides maximum slope of 1 in 3;	Native plants of local provenance;	Communal soft landscaping; Open space.

SuDS	Design	Planting	Locations
	Wetlands can be varied in scale, according to location; at end of SuDS management train.	Consider naturalisation to reduce risk of introducing invasive species.	
Blue roofs	Combine with green roofs and photovoltaics for maximum benefits; water can be retained in basin or in substrate; water management can be used for maintenance of vegetation and cooling.	Native plants of local provenance, if planting is appropriate.;	Flat roofs.

4.4 Trees, hedges and woodlands

Trees make a significant contribution to improving the amenity, environmental health and ecological diversity of urban areas, helping to combat climate change and reducing air pollution. Woodlands and hedgerows can make a significant contribution to amenity, biodiversity and mitigating climate change impacts. However, species selection, design and management are crucial to ensure benefits from tree planting, woodland creation and hedgerows are realized.

To maximise the benefits of trees to green infrastructure the following design requirements should be met:

1. Existing trees should be retained, and the layout of development designed to maximize retention of trees and minimize impacts of development on new and existing trees in the future.
2. Where new trees will be planted soil should be protected from compaction.
3. Trees that are native and of local provenance should be the first choice for species selection. Justification for the use of non-native trees will be needed.
4. Trees that will have a significant canopy when mature should selected to maximise environmental benefits.
5. Wherever possible grass or native plants should be planted around street trees rather than using hard surfacing. This will increase the effectiveness of mitigating climate impacts and promote amenity and biodiversity.
6. Trees should be sourced from stock grown in the UK to avoid the import of non-native invasive species.

Hedgerows are often included in soft landscape plans but fail to reach their full potential due to poor design and inappropriate management. The following guidelines should be referred to and included in any management plans:

1. All species should be native. They should be grown from indigenous root stock or seed, to ensure they are adapted to local conditions.
2. The recommended species composition is: 60 per cent mix of hawthorn and blackthorn; 40 per cent mix of other species intermixed randomly with the hawthorn and blackthorn. Suitable species include: field maple, elder, dogwood, wayfaring tree, hazel, wild cherry, guelder rose, dog rose, field rose.
3. A hedgerow should be planted in a double staggered row with at least 40cm between each row and 4-6 plants planted per metre.
4. Trees can be included in the hedgerow. Suitable trees include: oak, ash, alder, beech, field maple, wild cherry, hornbeam, rowan, crab apple and holly. Once planted use a marker stake and tree-tag to help prevent the trees being cut during hedge maintenance operations.
5. A strip of grassland at least 2m wide on either side of the newly planted hedgerow should be provided if possible. These strips should be planted with native ground flora. The use of herbicide on the grassland strips should be avoided.
6. In general, cut hedges in January or February, to avoid harm to nesting birds and to allow birds to forage during the winter months. Always avoid cutting hedges and trees between March and September.

4.5 Green corridors and wildlife corridors;

Green corridors and linear landscape features are recognised as particularly important green infrastructure elements. The borough has a variety of rivers, road and rail corridors, pedestrian and cycling routes and rights of way that serve as green corridors and are mapped and described within this Strategy.

The following design principles should be used in order to enhance existing wildlife corridors and create new ones:

1. Wildlife corridors may require protection from disturbance and may not be suitable for active travel. Lighting infrastructure and footpaths / cycle paths should avoid traversing the naturalised buffers adjacent to waterways.
2. Lighting adjacent to wildlife corridors, including waterways, and through open spaces needs to be carefully designed to avoid impacts on bats, nesting birds and invertebrates.
3. Habitat creation and how it can improve connections with local wildlife corridors or SINCs needs to be incorporated into soft landscape plans on new developments.
4. Opportunities to deculvert waterways and naturalise the banks of waterways should be included in development proposals that have waterways within or adjacent to the development site.
5. Where continuity cannot be created, a ‘stepping stones’ approach should be adopted and appropriate habitats (type and size) created on and adjacent to the development site.

Private and communal gardens can make significant contributions to green corridors. Front gardens should be designed to prevent residents converting them into car parking areas. Where parking is provided, it should be designed to minimise the amount of hard surfacing and include greenery.

The following principles should be followed to increase the green infrastructure benefits of gardens:

1. Avoid the use of artificial surfaces, including paving, decking and artificial grass.
2. Replace boundary fences with hedges.
3. If there is space include a tree or trees in the design.
4. Include native plants and shrubs to maximise benefits for biodiversity.
5. Include a pond or wetland if there is sufficient space.
6. Create 150mm gaps at the bottom of fences to allow the movement of hedgehogs or install hedgehog baffles.
7. Avoid using fencing or railings that have spikes, as these are hazardous to people and wildlife.

4.6 Green roofs and green walls

Opportunities to enhance the urban greening of buildings with green roofs and living walls should be incorporated wherever possible. The design principles for green roofs in the borough should take into account the latest guidance and good practice. The design of green or living roofs and walls should meet the requirements set out below:

Type of green roof / green walls	Substrate	Planting	Special features
Biodiverse roofs (extensive)	Minimum substrate depth 100 mm Use at least 3 types of recycled aggregates across the roof. Use soil from site if it is un- contaminated.	Native herbs and sedums of local and regional provenance or allow natural colonization.	Include ephemeral and permanent wetland areas; soil mounds (75 to 200 mm); bare substrate; dead wood; rubble; bug hotels. Combine with blue and / or photovoltaic roofs.
Semi Intensive green roofs	Minimum substrate depth: 100 mm Use at least 3 types of recycled aggregates across the roof.	Native herbs, shrubs and sedums of local and regional provenance	Ephemeral wet areas; permanent wetland areas; mounding of soil (75 to 200 mm); areas of bare substrate; deadwood piles; rubble piles; bug hotels.

Roof garden (intensive)	Minimum substrate depth: 200 mm Use at least 3 types of recycled aggregates across the roof for biodiversity. Use suitable planting medium for shrubs, vegetables, trees etc.	% of native and non-native species dependent on location. native herbs and sedums of local and regional provenance. Ornamental species with value for biodiversity.	At least 70% of the roof garden must be covered by vegetation, or vegetation and water. Artificial surfaces will not contribute to the UGF.
Extensive sedum roofs	Minimum substrate depth: 80mm. Substrate type: as specified by manufacturer.	Mix of sedum species.	Only suitable for structures that cannot bear weight of intensives or extensive roofs.
Green walls – living wall systems	Living wall system: Use plant cells or pockets. Modules or sheets, attached to wall.	Ornamental plants attractive to pollinators, native plants, grasses, ferns, sedges, herbs and salad plants can all be grown depending on the design intentions for wall.	Nest boxes / bug boxes.
Green walls – direct or indirect greening	Climbers planted directly into soil. Direct greening: use self attaching climbers. Indirect greening: use support for climbers such as trellis or wires.	For biodiversity select native climbers: Helix hedera (native ivy); Clematis vitalba (Old Man's Beard); Lonicera periclymenum (native honeysuckle).	Nest boxes / bug boxes.

4.7 Food growing

The provision of opportunities for food growing support the development of a healthier food environment and supports a range of physical and mental health outcomes.

Food growing space can be provided in a number of ways on and near development sites. The following list is in order of preference:

1. Providing specific areas for communal food growing at ground level within the development.

2. Providing a small orchard of fruit trees that can be harvested by residents.

3. Roof gardens or intensive green roofs are designed to allow access by residents to grow vegetables and fruit. These roofs should aim for 70% coverage of the roof garden with vegetation or soil.

4. Private amenity space designed to incorporate raised beds for growing vegetables.

5. Incorporating Edible Landscaping (ornamental plants or trees that also produce edible fruits or nuts) into landscaped areas that are easily accessible to residents for harvesting and that are protected from potential contamination.

6. Green walls: Walls can be used for vertical growing of plants for food production. They need to incorporate feeding and irrigation and are particularly useful for growing salads, herbs and tomatoes. They will need to be accessible, so that produce can be harvested and may require a dormant period in the winter.

7. Internal atriums and courtyards: Buildings with internal communal space such as courtyards or atriums can support food growing if there is sufficient sunlight.

8. Balconies: Balconies can be designed to incorporate small spaces for food growing, depending on aspect. Window boxes can be incorporated into the design of balconies.

4.8 Bird and bat boxes

Providing nesting and roosting boxes can further enhance the benefits of green infrastructure for biodiversity. Opportunities can be provided in modern buildings by incorporating specially designed bird and bat bricks into the building's walls and into the roof space. This is preferable to attaching bird and bat boxes to buildings, as internal cavities are more attractive to birds such as house sparrows and to bats, provide more protection and are less obtrusive.

1. The new development should incorporate a range of artificial nest and roost sites, with the number reflecting the size and scale of the development.
2. Features such as bird bricks and internal bat roosts should be designed into the structure of the buildings and should be shown on the soft or hard landscaping plan.

3. These features should be specific to the species that occur or are likely to occur in the area. They are likely to include house sparrows; starlings; house martins; swifts; black redstarts; bats.
4. Provide these features beneath the eaves of the building if possible, as these locations are preferred by birds.
5. All tall buildings should incorporate a row of swift bricks one or two rows below the eaves of the buildings.
6. The direction that bird boxes or bricks face is very important. In general avoid south or south-west facing walls, as fledglings will over heat.
7. Provide additional bird and bat boxes on suitable trees. External bird and bat boxes should be made of long lasting material, such as woodcrete.

5.0 The Character Area Design Codes

New development should apply the Design Codes detailed in this section to soft landscaping, green infrastructure and habitat creation for the Character Area in which their development falls. The Character Areas are defined in the Barking and Dagenham Townscape and Socio-economic Characterisation Study and a map is provided in Appendix 4 to the Strategy. The Design Codes have been created by overlaying London Natural Signatures with the Character Areas to provide specific recommendations for each area.

Developers should base masterplans, soft landscape plans and design codes on the information provided in the relevant tables below. Note that where a development site is adjacent or within 200m of a SINC, the habitats present on the SINC should inform the soft landscaping of the proposed development.

In addition, a list of native plants, shrubs and trees of local provenance to Barking and Dagenham can be found in Appendix 3.

Step 1: Identify the Character Area the development site is in (refer to Appendix 4);

Step 2: Identify the relevant London Natural Signature;

Step 3: Are there any SINCs within 200m of the development site?

Step 4: Are there any physical connections between the development site and green infrastructure outside the site boundary?

Step 5: Select the habitats in the tables below to include within the soft landscape design and to meet with the UGF.

Step 6: Select the appropriate species composition for the selected habitat. Ensure species selected are native and are not cultivars.

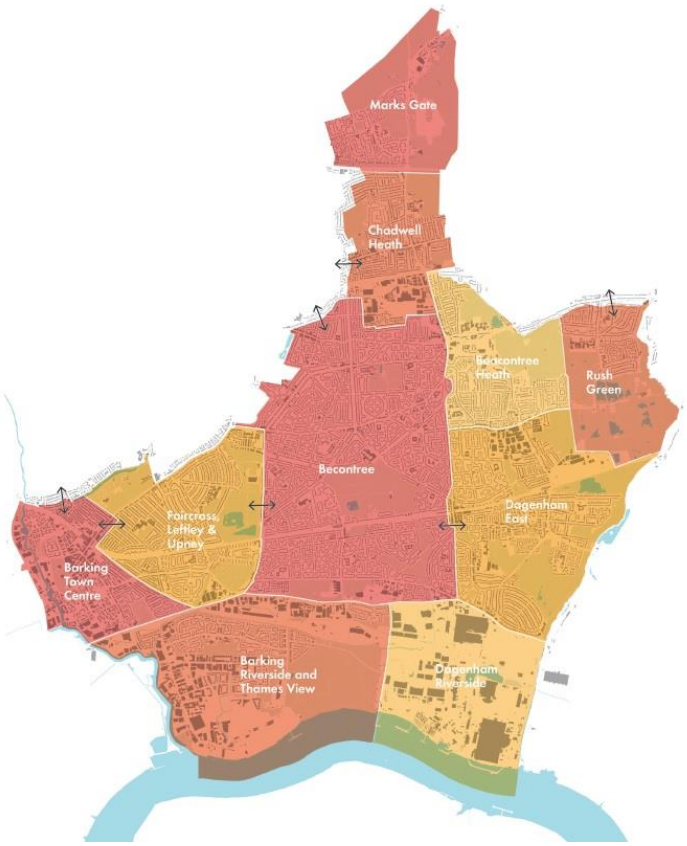
Step 7: Where specific habitats are not created, refer to Appendix 3 for appropriate species selection.

Barking and Dagenham Character Areas

(Barking and Dagenham Townscape and Socioeconomic Characterisation Study (2017))

Character Areas:

- Marks Gate
- Chadwell Heath
- Barking Town Centre
- Faircross, Leftley and Upney
- Becontree
- Becontree Heath
- Dagenham East
- Rush Green
- Barking Riverside and Thames View
- Dagenham Riverside



5.1 LNS 7 Essex Plateau

Character Areas

- Marks Gate
- Chadwell Heath (between A12 and Chadwell Heath Station)

Design Codes

Natural Signature	Soft landscape interpretation	Habitat types to include	Key Species
• Mosaics of ancient woodland and acid grassland. • Hornbeam coppice. • Ridgetop woodlands. • Historic wood pasture. • Sinuous streams bordered by alder woodland • Farmland, with small pockets of native woodland • Open character	• Blocks of native woodland, linked by lines of trees, to provide a wooded backdrop to development. • Woodland framework for open spaces, with trees around the edges and open glades within the centre. • Blocks of hornbeam coppice, using traditional management techniques. • Woodland adventure play. • Multi-stem trees at gateways and focal points in / adjacent to development. • Open meadows against backdrop of woodland. • Link new woodland planting to existing woodlands	• Native woodland pasture • Native hedge • Acid grassland • Still water • Running water • Ditch • Wet marginal vegetation	**Woodland** **Major species:** • Quercus robur; **Minor species:** • Carpinus betulus (traditionally coppiced); • Corylus avellane; • Populus tremula • Crataegus monogyna; • Ilex aquifolium; • Sorbus aucuparia; • Malus Sylvestris; • Prunus avium; • Acer campestre; • Salix cinerea; • Salix caprea; • Ulmus sp. **Acid grassland** **Major species:** • Agrostis capillaris • Rumex acetosella • Festuca rubra

5.2 LNS 8 Roding Valley

Character Areas

- Barking Town Centre (east of Abbey Green and Gascoigne Estate and down to River Thames)
- Barking Riverside and Thames View (Roding valley and Barking Creek)

Design Codes

Natural Signature	Soft landscape interpretation	Habitat types to include	Key species
Upper Roding • Farmland alongside the riverbanks. • Lines of willow trees marking the alignment of the stream. **Lower Roding** • Mudflats and reedswamp on the wider floodplain of Lower • Roding.	• Wetlands as a focus for new development – open water and wetlands as part of flood attenuation areas. • Curving swales, with reeds and damp grassland within and on edges of roads, foot paths and car parks, and as gateway features. • Boardwalks and decks jutting out onto wetland areas. • Interconnected wetlands alongside roads, with reedbeds where possible.	• Native woodland • Reed bed • Rough grassland • Native hedge • Still water • Ditch • Running water • Wet marginal vegetation	**Trees** **Major species:** • Salix cinerea; • Salix. caprea **Minor species:** • Quercus robur; • Populus tremula; • Betula pendula; • Crataegus monogyna; • Ilex aquifolium; • Sorbus aucuparia; • Malus Sylvestris; • Prunus avium; • Acer campestre; • Ulmus sp. **Reedbed** **Major species:** Phragmites australis;

5.3 LNS 9 North Thames Terraces

Character Areas

- Chadwell Heath (south of Chadwell Heath Station)
- Becontree
- Dagenham East
- Rush Green
- Faircross, Leftley and Upney
- Barking Town Centre (west of Abbey Green and Gascoigne Estate, down to A13)

Design Codes

Natural Signature	Soft landscape interpretation	Habitat types to include	Key species
• Open acid grassland (occasional stands of heather) • Open farmland with hedgerow trees and small copses – some field ponds. • River Ingrebourne corridor – sinuous stream, with narrow floodplain meadow and strips of native woodland. • Local bricks as materials for built development. • Subtle 'step up' in landform, from alluvial floodplain of River Thames to terraces to the north. • Contrast between narrow strips of woodland along tributary creeks and completely open acid grassland. • Black poplar. • Flooded gravel quarries.	• Steps and subtle terraces as a focus for design. • Isolated clumps and winding lines of trees within a relatively open meadow setting. Eastern stretch • Open acid grassland and wildflower meadows. • Black poplar (local provenance) planted as features within large scale open spaces, associated with wetland scrapes.	• Open acid grassland • Open farmland with hedgerow trees, small copses and field ponds. • Narrow strips of woodland along tributary creeks • Black poplar. • Flooded gravel quarries	Woodland Major species: • Populus nigra; Minor species • Quercus robur; • Populus tremula; • Fraxinus excelsior; • Crataegus monogyna; • Sorbus aucuparia; • Acer campestre; • Salix cinerea; • Salix caprea; • Salix fragilis; • Ulmus sp. Acid grassland Major species: • Agrostis capillaris • Rumex acetosella • Festuca rubra

5.4 LNS 14 Lower Thames Floodplain

Character Areas:

- Barking Riverside and Thames View
- Dagenham Riverside

Design Codes

Natural Signature	Soft landscape interpretation	Habitat types to include	Key species
• Flat, expansive landscape, with low horizons. • Remote and wild. • Open grazed saltmarshes with networks of medieval and modern reed-fringed drainage ditches • Extensive intertidal mudflats, divided by winding creeks. • Reedswamp • Industrial and military heritage • Almost no trees.	• Drainage ditches to control patterns of circulation. • Embankments, stepped terraces and viewing mounds. • Open landscapes – occasional lines and groups of trees. • No hedgerows, fences or upstanding boundaries. • Wet scrapes, ponds, swales and ditches surrounded by open wet grasslands. • Incorporate industrial archaeology within the public realm.	• Salt marsh • Mud flats • Reedswamp • Wet marginal vegetation • Ponds • Ditches • Running water • Grassland • Tree lines **Open mosaic habitats:** Open grassland, flower-rich grassland, scrub, secondary woodland, ephemeral water bodies.	Reedbed Major species • Phragmites australis; Woodland Major species • Betula pendula Open mosaic habitats • See Section 11 for species list in Ecomimicry for Barking Riverside (2016). (https://repository.uel.ac.uk/)

References:

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Barking and Dagenham Local Plan: https://www.lbbd.gov.uk/development-plan

Barking and Dagenham Local Plan Review: https://www.lbbd.gov.uk/local-plan-review