# Site Level Design Code

## Design Code for Net Zero and Nature Recovery

RTPI Royal Town Planning Institute

rspb giving nature a home

BSG ecology

LDĀDESIGN

CITY SCIENCE endless possibilities

# Contents




Version: 1
Version date: March 2022
Comment Final Report

This document has been prepared and checked in accordance with ISO 9001:2015


This illustrative design code has been produced to demonstrate how our approach to masterplanning can tackle the twin challenges of Net Zero and Nature Recovery.

It is written about a fictional place, with data taken from a real-life city and region in England. This site-wide code follows on from the illustrative District Code.

The approach is in line with the structure of the National Model Design Code - setting out the vision and a set of parameters for the site. However, we have not included detailed site analysis which would be a critical key step in the coding process for a site. We have instead, used the analysis set out in the illustrative District Code.

Crucially, we introduce a set of Critical Success Factors that demonstrate what good looks like - they break down the vision into a set of requirements that should inform the design guidance at the site level.

We have not included every recommended element of the National Model Design Code - the guidance focuses on Nature Recovery and Net Zero rather than on aesthetic design quality.

[1] Accessible play areas for every child

[2] Stretches of the River Ment close to Montham provide the perfect environment for active travel

© Mike Williams Photography

[3] Protected woodland within Mentford Local Nature Reserve

[4] The district's rural character should be enhanced but not copied within the new development

[5] Nature to explore in every neighbourhood

# 1.0 Scope and Purpose of the Design Code

Monteshire is ambitious for the future. Our officers and elected Members wish to leave the District in a better state than we have inherited. We have worked with our communities, our service leaders and our elected members to create a vision for the future that protects and enhances our environment and reduces our carbon footprint. Central to the District wide plan is the allocation of 4 large-scale growth sites including this one at Monteshire Vale.

Each growth site in the District requires a design code to be created with support of the community. This code represents the vision and detailed guidance for the site at Monteshire Vale.

The vision set out in this design code is a shared responsibility between the landowner/ developer consortium and the District Council who will support the delivery of critical infrastructure that enables the vision to be achieved.

In 2019 we declared a climate emergency and our intention is for the District to be Net Zero by 2040 (10 years ahead of the National legal obligation) and to have achieved a 78% drop in emissions by 2035.

As the Local Planning Authority, our policies and model for growth will be critical to delivering on these ambitions. The changes required to meet these legal targets are transformational and we have thought carefully alongside our communities about the kind of places we want to leave for future generations.

The vision set out in this design code helps us to achieve the legally binding requirements related to climate and nature recovery whilst also ensuring a resilient, equitable and prosperous society for all.

The decisions taken at the site level - about location and character of any future development are critical to us meeting those obligations and achieving our District wide vision.

In developing the code we have taken account of community engagement, neighbourhood plans, and deliverable growth sites put forward by landowners. We have sought to balance sustainable growth with environmental protection by putting two Nature Recovery Areas at the heart of the plans for Monteshire Vale. Protecting, connecting and enhancing these two sites is a key priority for any future development.

The masterplan and vision also defines what good looks like in terms of the built environment. Monteshire Vale will be a collection of 20 minute walkable neighbourhoods, meaning that everyone can walk from their home to shops, a school or a GP within 10 minutes. This will be critical to limiting vehicle movements and meeting our Net Zero ambitions.

This code can be used by our communities, officers and Members to assess development proposals and by applicants to guide their approach to delivery of the site.

The code sets out clear parameters for the local authority and communities to ensure that development is happening in the right place and meets our aspirations for high design quality that delivers against statutory Net Zero and Nature Recovery targets.

It utilises the analysis of baseline conditions set out in the District-wide code. The 2040 vision is backed by a series of critical success factors that set out the outcomes required to achieve our vision. These have informed the detailed design of the masterplan.

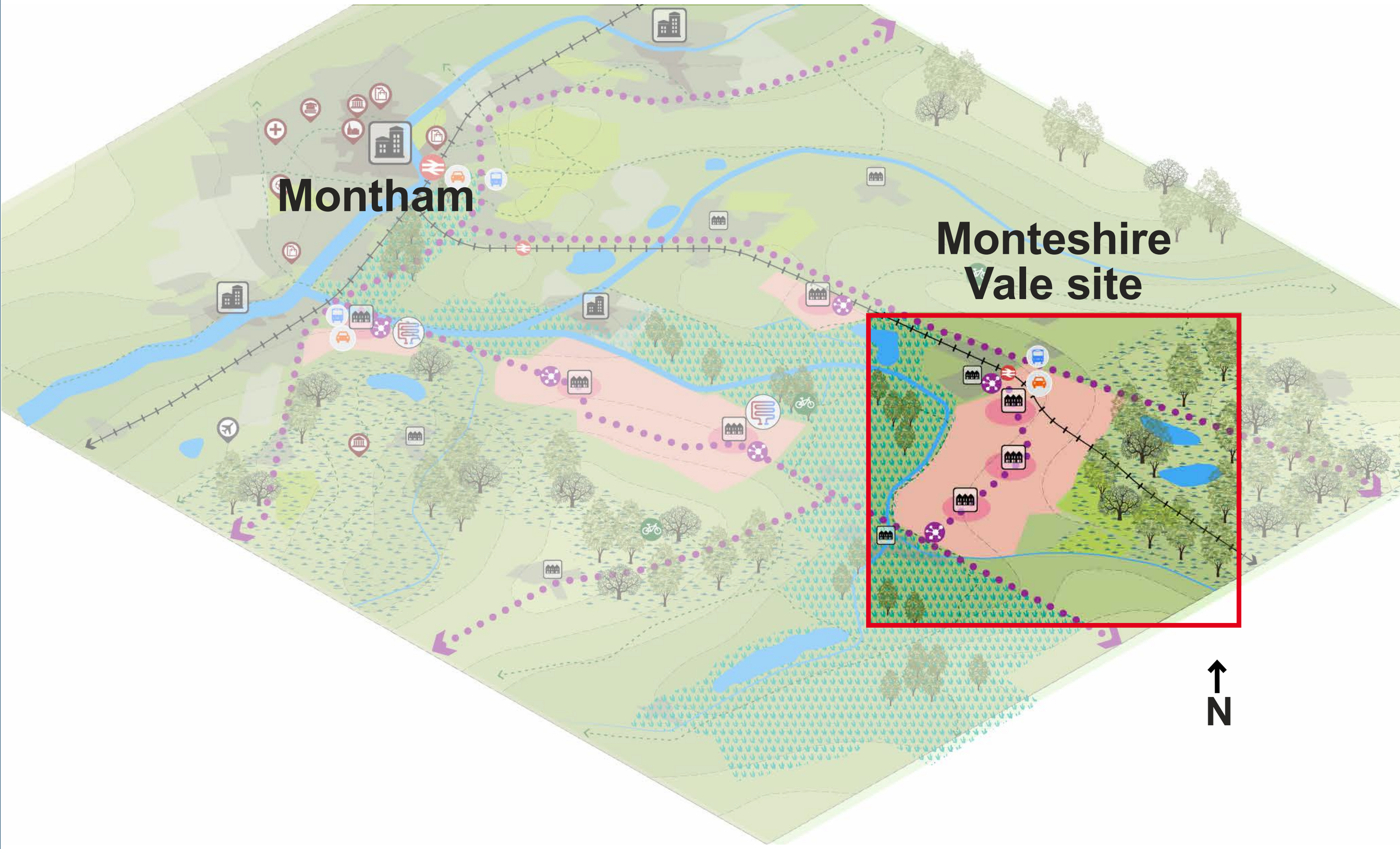
This code is specifically focused on guidance that supports our Net Zero target and Nature Recovery strategy and has been written to integrate these with other planning considerations.

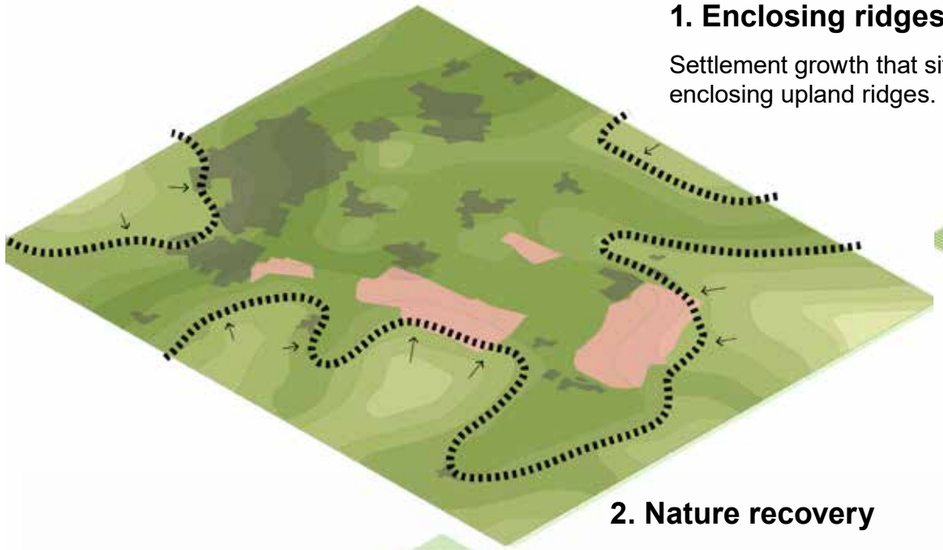
### Top Tip

The site should achieve net zero from a whole-life carbon cycle perspective through an Extended Whole Life Carbon Assessment covering materials (embodied carbon), construction, in-use energy, maintenance and demolition. The design code should support this and consider the role of green infrastructure in carbon sequestration.

# 2.0. District Context

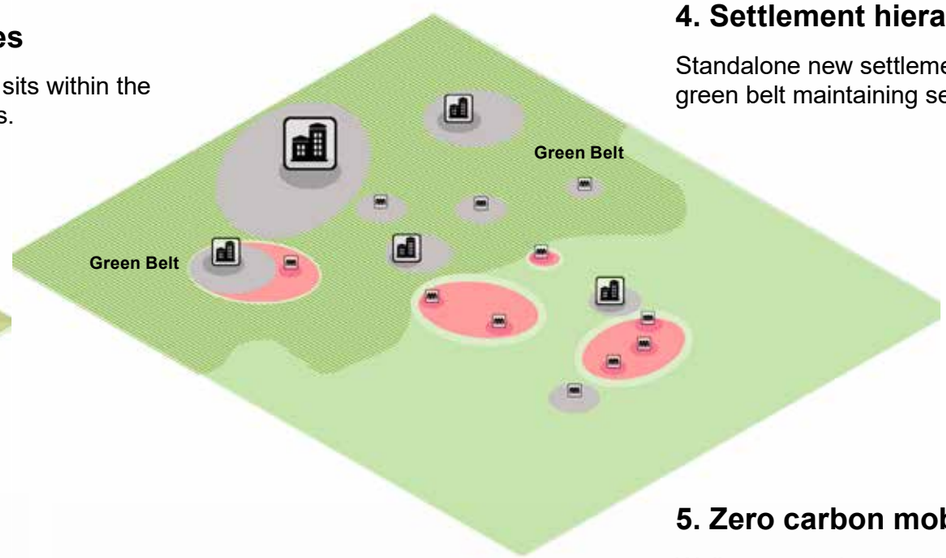
## The 2040 Vision


Montham
Monteshire
Vale site
N



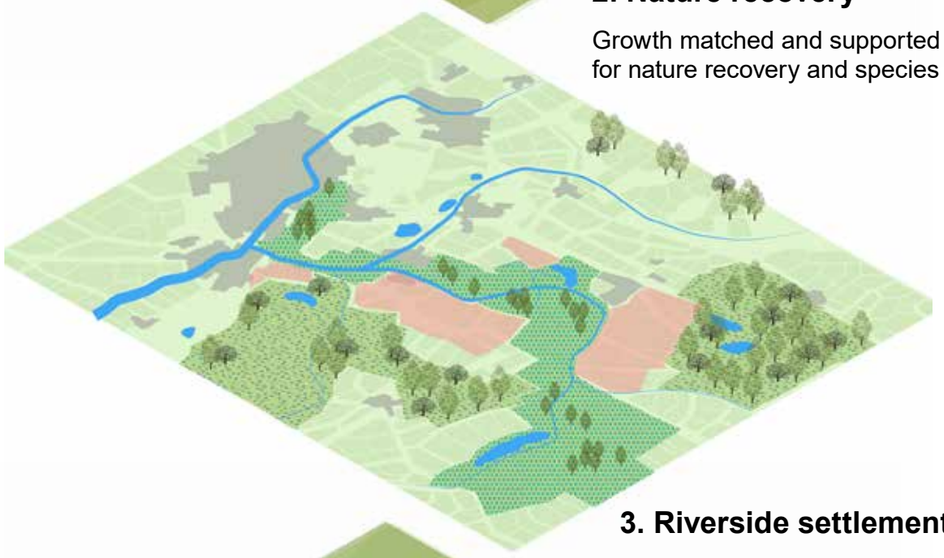
## 1. Enclosing ridges

Settlement growth that sits within the enclosing upland ridges.



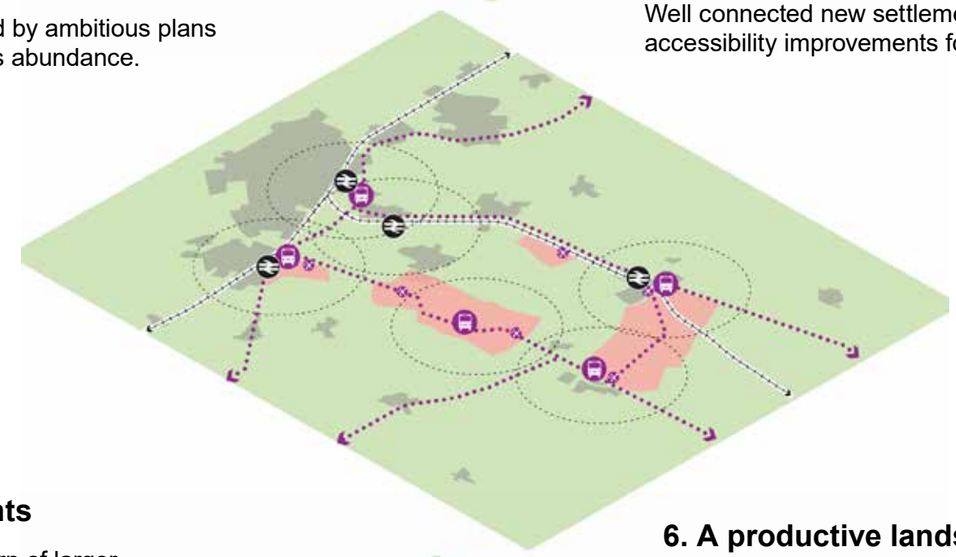

## 4. Settlement hierarchy

Standalone new settlements beyond the green belt maintaining settlement identity.



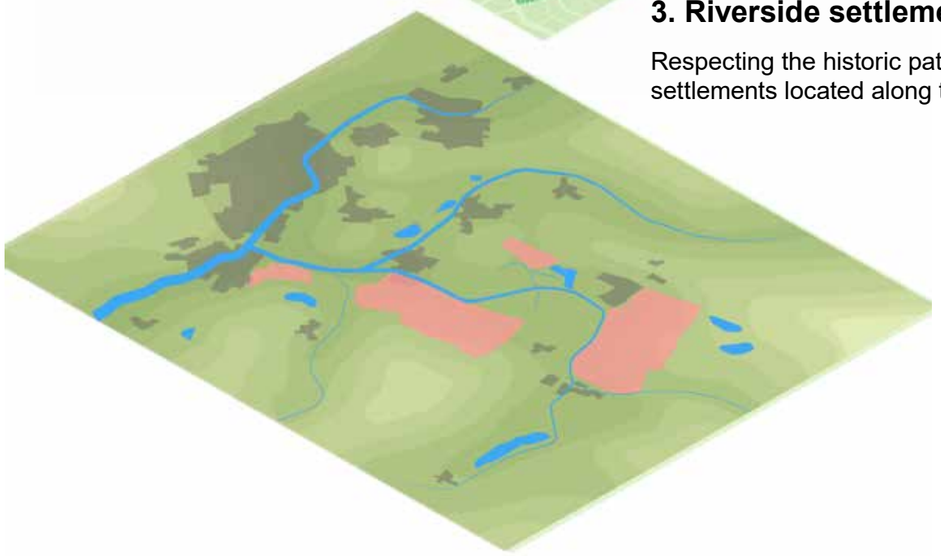
## 2. Nature recovery

Growth matched and supported by ambitious plans for nature recovery and species abundance.



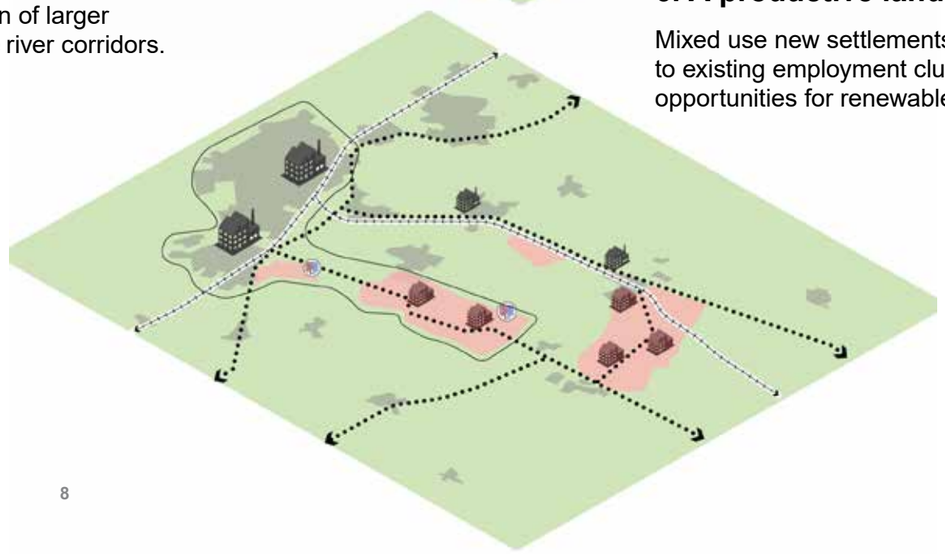
## 5. Zero carbon mobility

Well connected new settlements and accessibility improvements for all.



## 3. Riverside settlements

Respecting the historic pattern of larger settlements located along the river corridors.

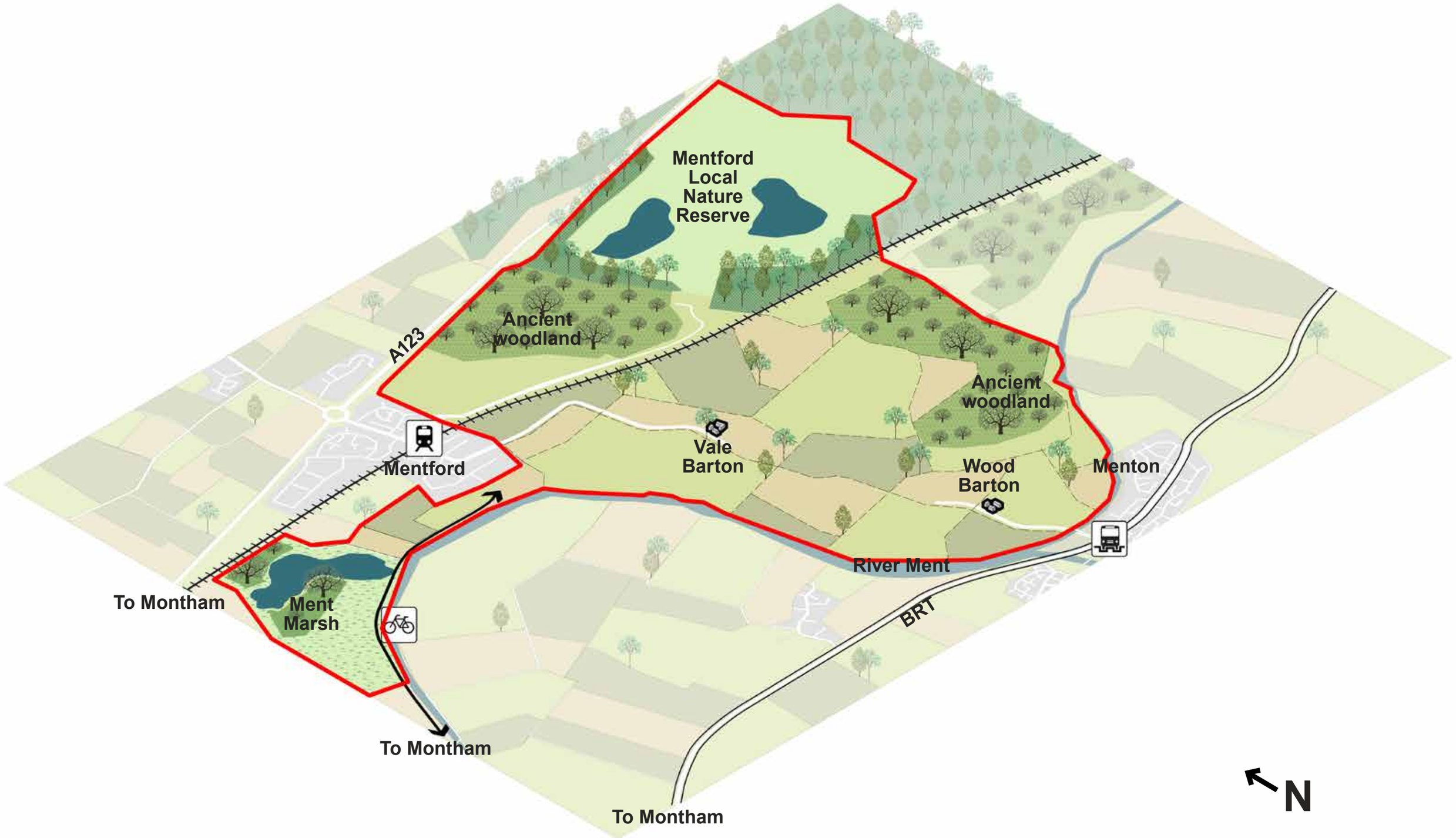


## 6. A productive landscape

Mixed use new settlements well connected to existing employment clusters and new opportunities for renewable energy.

# 3.0 Monteshire Vale Context

## The 2040 Vision


Mentford
Local
Nature
Reserve
Ancient
woodland
A123
Ancient
woodland
Mentford
Vale
Barton
Wood
Barton
Menton
River Ment
To Montham
Ment
Marsh
BRT
To Montham
To Montham
N

Monteshire Vale is the district's principal housing growth site. Currently arable farmland, it has been identified as a future garden village that can deliver up to 4000 new homes, alongside a range of community and commercial uses. Importantly, its scale and proximity to key natural resources enables the site to deliver significant biodiversity net gain on site, and to integrate with new sustainable energy sources nearby.

The site is bounded to the west and south by the River Ment, a key river in the District flowing through lowland marshes to the south and out to the sea.

The site sits adjacent to the village of Mentford, an historic trading centre for surrounding farms that today has a stable population of around 1500 people.

The site has been identified in the District wide code as a strategic growth site. It is one of nearly 400 sites that were put forward through the call for sites process, then critically assessed against a series of objectives that were developed to support the delivery of the District wide vision.

The north of the site is served by an existing railway station which provides fast and low carbon connections into the City of Montham. However, these services are infrequent and the new development provides an opportunity to increase frequency of train services.

There is limited cycle and walking connectivity between Mentford and Montham along the River Ment and the site will be expected to create further opportunities for active and accessible micromobility connections.

Development of the site will be required to minimise energy demand and deliver new renewable energy capacity sufficient to meet the projected needs of the development.

This design code is an important part of the development process, setting out clear development principles for the site in terms of nature recovery and net zero. It provides clarity for developers, future communities and the local authority by setting out key principles for compliance.

Any application for development must demonstrate how it achieves the intended development principles that have been developed through engagement with a broad range of stakeholders, including the local community and current promoter of the site.

The code should be referenced in all planning applications and where proposals meet with the requirements, permission will be granted.

# 4.0 The Vision

Monteshire Vale has been identified within the District Code as the location for a new Garden Village community.

The site is a key part of the District's obligation to achieve Net Zero by ensuring the site meets Net Zero Whole Life Carbon Emissions standards and enabling investment in critical infrastructure to support Monteshire's transition to Net Zero.

The site will drive our nature recovery ambitions enabling the creation of a new multi-functional river park, connecting key habitats and putting nature on everyone's doorsteps through a resilient green infrastructure framework, enabling both nature recovery and enhanced access to nature.

That network of open space will enable active travel, allowing people to access key facilities and their neighbourhood centres through a series of green corridors. The River corridor will be restored and enhanced to provide a beautiful local resource as well as increasing flood protection for the City of Montham and nearby villages.

The new village is expected to deliver 4,000 new homes across 3 distinct neighbourhoods. It's size means it will be large enough to provide the facilities and infrastructure to ensure it is self-sustaining. It's location supports our ambition to revitalise the landscape and create a continuum of nature from doorstep to our most valuable protected sites.

Monteshire Vale will be a place people want to live, work and visit.

A 21st Century Garden Village with Nature at its heart.

The garden village will be an exemplar development, offering a net zero lifestyle where walking and cycling are prioritised. The masterplan and code create a series of neighbourhoods, each designed to enable residents to fulfil their daily needs within a 20 minute walk or cycle.

It will be a self contained village, with each neighbourhood offering community facilities, schools, healthcare and shops and cafes. Mobility hubs will be the portal between the village and the outside world - a place where you can connect to wider transport networks, pick up deliveries and connect with friends and neighbours.

The site will have modern zero carbon surface transport links to the city and the wider country. The village will be forward thinking, using technology and innovation to manage deliveries and the last mile journey to further reduce emissions and improve quality of life for all.

Streets will be designed around people rather than cars and bring nature to the doorstep. Through well designed landscape, they will create a series of beautiful spaces and features, of amenity and wildlife value, and provide a surface water management function. They will connect with surrounding landscapes, attract wildlife and enable people to move around safely without the need of vehicles.

This access to nature will help to shape people's lives. The natural world will be valued, supporting the re-wilding of the River Ment and the creation of a new country park that turns this once arable farmland into a thriving landscape - an exemplar of health and wellbeing and providing distinct areas for nature recovery and access to nature.

The town will be powered with 100% renewable energy, achieved through energy efficient buildings and on-site generation. The masterplan is landscape-led, rooting this new community in its setting and creating a unique way of life for its community.

## Critical Success Factors

- 4000 new homes around a series of walkable neighbourhoods - each of a scale that enables people to walk or cycle from any new home to the centre within 10 minutes
- A minimum 25% Biodiversity Net Gain will be expected on site with the additional contribution to off-site enhancements
- Each neighbourhood will be designed to achieve a minimum Urban Greening Factor score of 0.4
- The site should demonstrate Net Zero Whole Life Cycle carbon emissions.
- Every home will be within 2 minutes of open green space
- All green and blue infrastructure will contribute to atmospheric cooling and the prevention of surface water flooding
- The site will be connected by rail to Montham and is expected to limit private vehicle journeys to less than 10% of total trips
- The mixed-use neighbourhood centres will include primary schools, community facilities, sports club facilities
- Each neighbourhood centre should offer flexible retail, office or restaurant/ pub/ cafe buildings as well as housing typologies that enable working from home with fast broadband connections
- A secondary school will be provided that is accessible through walking and cycling routes to all neighbourhoods
- The site should support low carbon lifestyles, such as local food consumption
- The site will be powered by 100% renewable sources

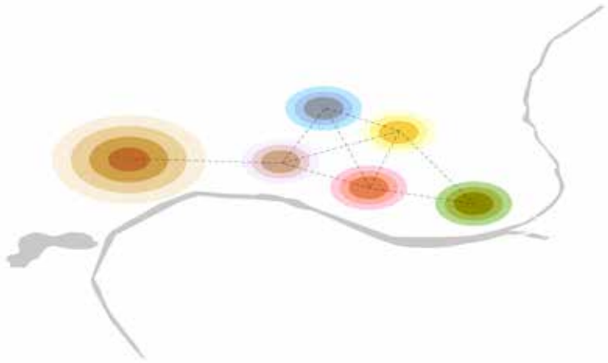
# Spatial principles

## Top Tip

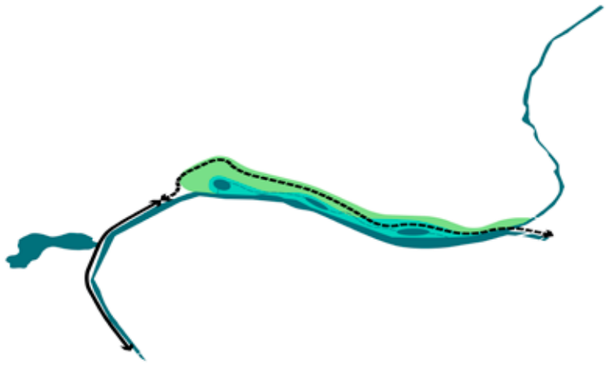
The vision is supported by a series of spatial principles that have been developed through the design and masterplanning process.

These principles set out the ‘big moves’, how the development responds to its context and the urban form that is created.

**1** **Walkable and distinct neighbourhoods**

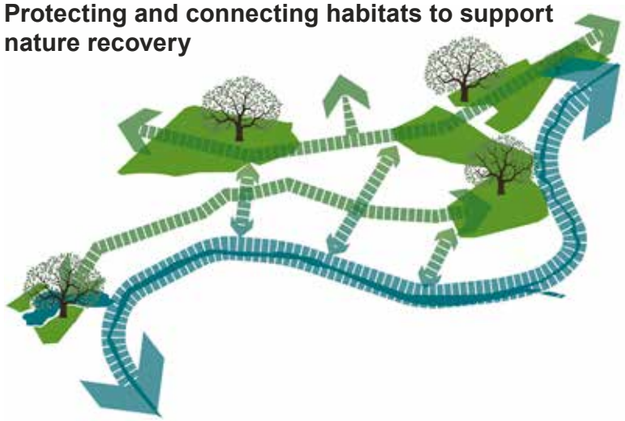


**2** **A new multifunctional river park**

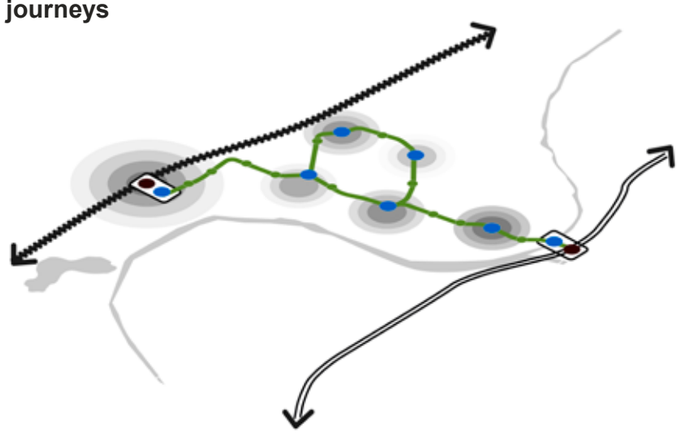


**3** **Neighbourhoods in nature**

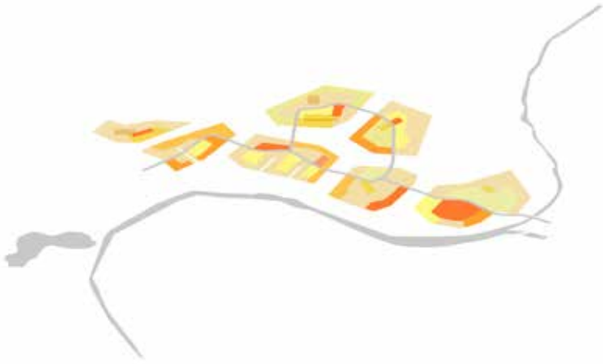
**4** **Protecting and connecting habitats to support nature recovery**



**5** **Non car modes are the natural choice for most journeys**

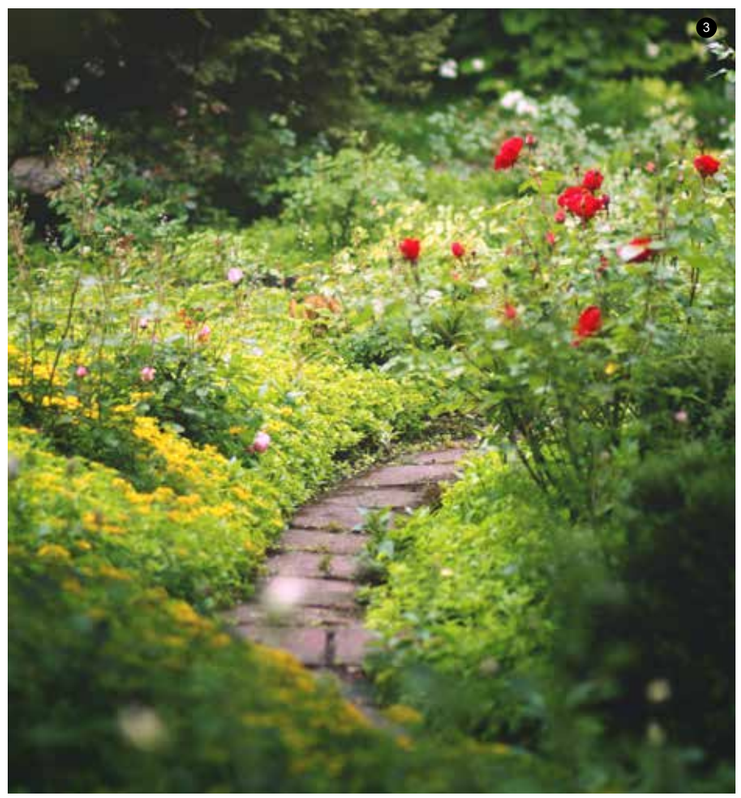


**6** **Diverse mix of uses to facilitate local living and self containment**




1

2



3

[1] Active travel will be enabled by high quality segregated pathways

[2] Green spaces must provide space for people to come together, as well as access to nature

[3] Public space and green streets will entice our communities out into nature, putting them in touch with the natural world

[4] Mobility hubs will be part of our neighbourhood centres and a focal point for the community

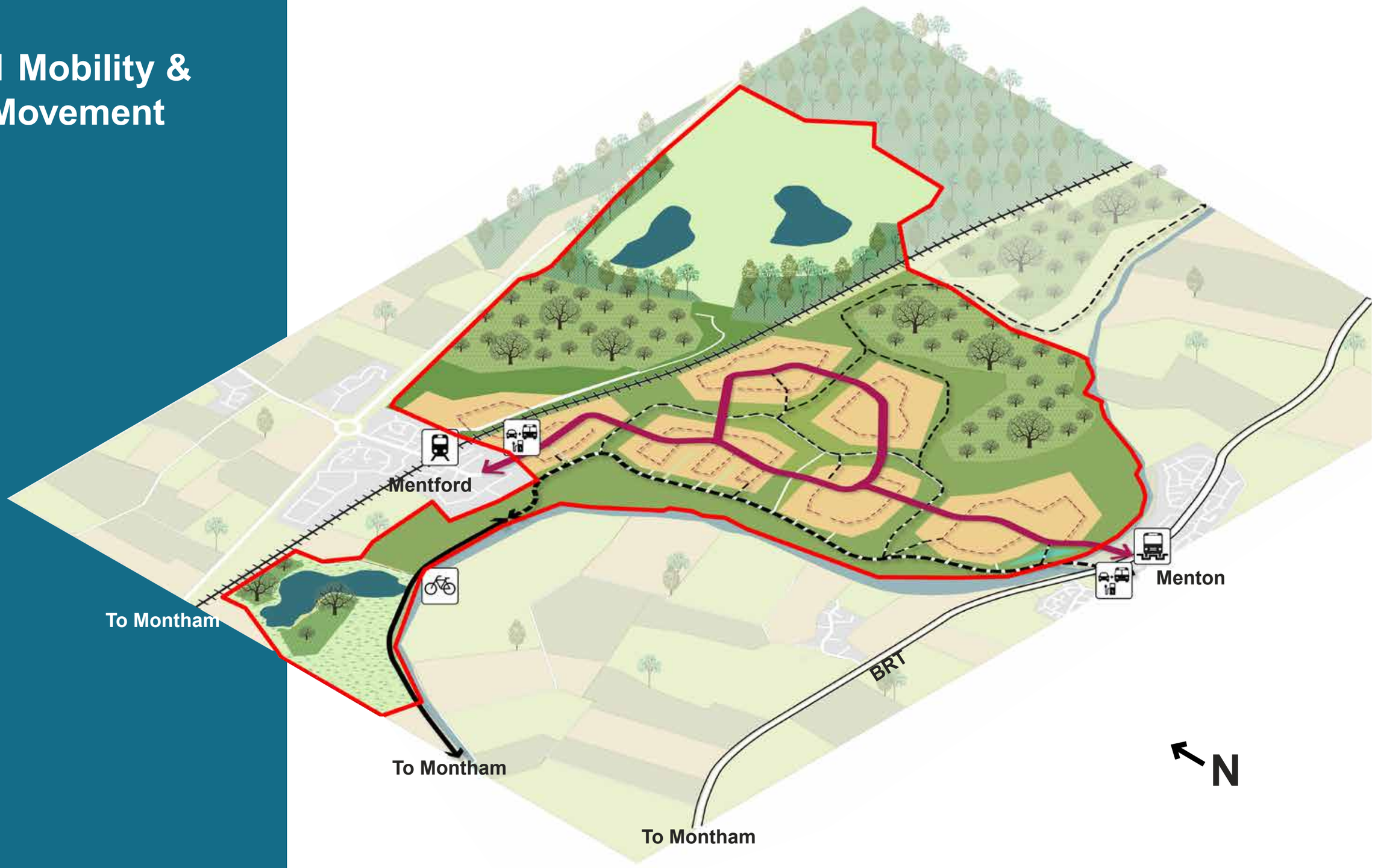


[5] Green walls and roofs will form a critical part of the sites Green Infrastructure

4

5

# 4.1 Mobility & Movement



Existing rail station to be upgraded

Mobility hub

BRT route

Mobility street with regular public transport stops and transport hubs

Living street

Existing strategic cycle route

Proposed strategic cycle route extension

Key micromobility routes

## Top Tip

The principles should express what needs to be done to comply with the parameter plan and to achieve the site wide Critical Success Factors.

Agreeing a set of parameter plans and principles at the plan making stage is critical to ensure that key design considerations are embedded before 'permission in principle' is given via adoption.

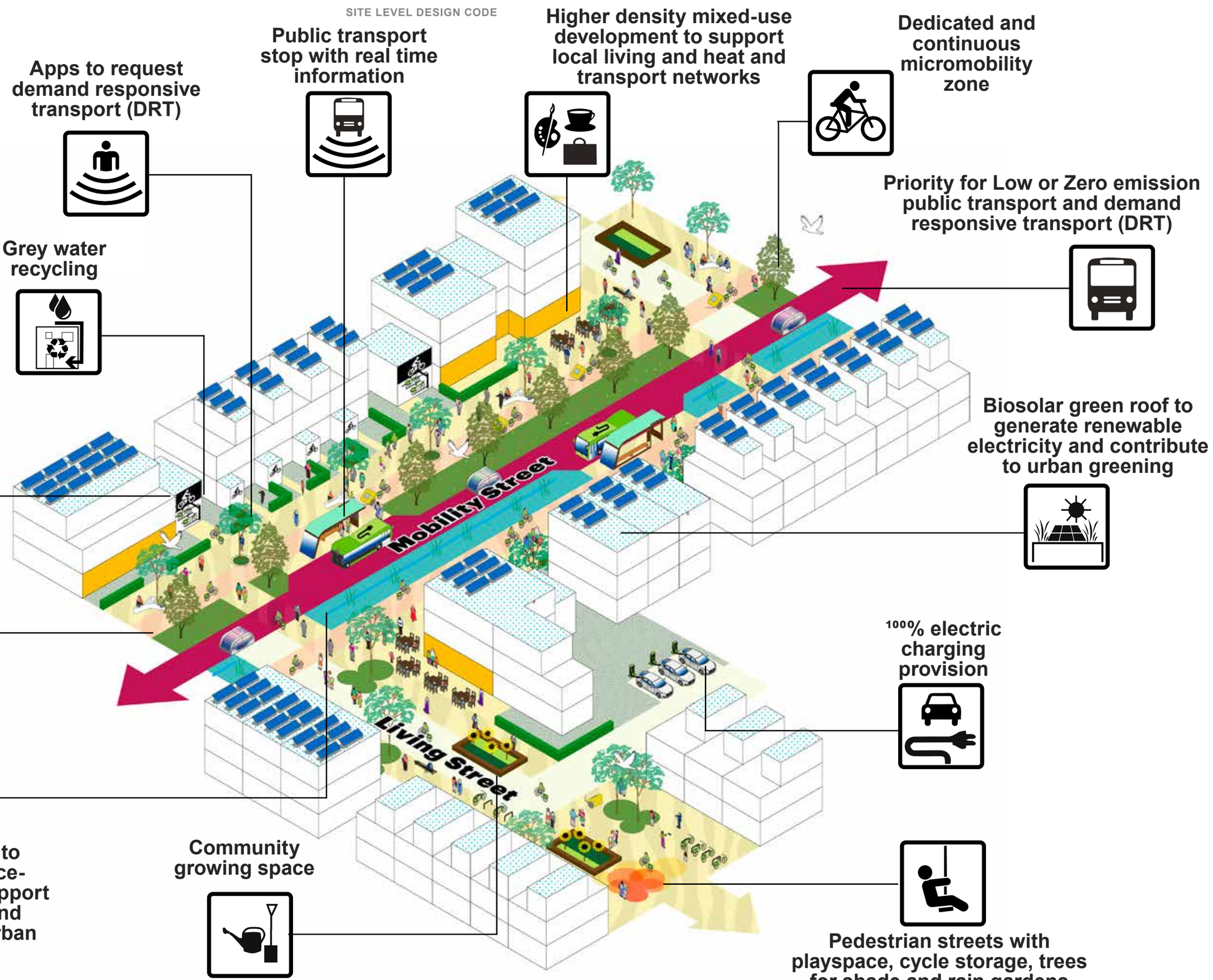
| Ref | Design Principle | Core Requirements |
|---|---|---|
| **M1** | **Active Travel.** Walking and cycling will be the safest, easiest and most direct forms of transport within the wider settlement and vehicular routes will be carefully controlled and restricted | ■ Defined walking and cycling routes will be delivered as part of a strategically planned active travel network connecting neighbourhoods with key destinations and trip generators such as local centres, schools, mobility hubs and places of work and leisure<br>■ The active travel network will incorporate a hierarchy of 'high' and 'low' traffic routes suitable for fast, direct commuter trips and slower, more tranquil routes for recreational trips<br>■ Cycle infrastructure will meet core design principles and requirements in Local Transport Note (LTN) 1/20 and demonstrate how 'desirable' dimensions, gradients and distances have been met or exceeded<br>■ The active travel network will meet the needs of all users through demonstrating how infrastructure takes account of the DfT's document 'Inclusive Mobility: Guide to Best Practice on Access to Pedestrian and Transport Infrastructure' and associated guidance and standards referenced in the document<br>■ The riverside cycleway will extend along the River Ment between the site and Montham |
| **M2** | **20 Minute Neighbourhoods.** The site will be designed to consist of a number of distinct self-contained 20 Minute Neighbourhoods | ■ All residents will be able to fulfil their daily needs (including primary schools, local shops and mobility hub) within a 10 minute maximum walk or cycle |
| **M3** | **Mobility hubs** will provide connections into bike and e-bike and car-club schemes, secure cycle parking and a range of facilities such as delivery drop-off points | ■ A mobility hub will be created at the southern edge of the site to connect into the BRT network at Menton<br>■ A mobility hub will be created around the train station at Mentford<br>■ Smaller transport hubs will be created at each neighbourhood centre on the central spine mobility street<br>■ Public transport stops will be situated at a maximum 400m intervals along the mobility street central spine<br>■ The design of public transport and mobility infrastructure will demonstrate how it takes account of the DfT's document 'Inclusive Mobility: A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure' |
| **M4** | **Streets** will be designed according to a hierarchy that prioritises their use for pedestrians, cyclists and public transport | ■ Streets will be safe, accessible and inclusive places for people of all ages and abilities to walk, cycle and play<br>■ All streets will designed in accordance with the most recent edition of Manual for Streets<br>■ All streets will incorporate nature-rich green and blue infrastructure to connect people with nature, provide urban cooling and sustainably manage surface water |
| **M5** | **Car parking** provision will be located and designed to ensure active, public and shared modes of transport remain the most convenient and accessible modes for most people when leaving their home | ■ Localised on-street parking will be restricted to blue badge holders and communal car clubs<br>■ The design of accessible car parking spaces will comply with relevant recommendations in the DfT's document 'Inclusive Mobility: A Guide to Best Practice on Access to Pedestrian and Transport Infrastructure<br>■ 100% of parking (both on-plot and communal) will include electric vehicle charging or access to a rapid EV charging station within 2 miles<br>■ The whole site will be a zero-emissions zone with no tailpipe emissions<br>■ Deliveries will use central mobility hubs with on-site deliveries through cargo bikes and electric vehicles only in order to reduce the impact on active travel of increasing numbers of delivery vehicles<br>■ All surface-level parking will use permeable surfaces and/or enable surface water run-off to be attenuated and cleaned with appropriate management treatments |

# Street Sections

## Top Tip

A real-life code would likely contain a more varied and flexible street hierarchy built up in parallel with building typologies and the architectural and urban form response to the site.

These examples promote a people first approach, reducing the dominance of private vehicles on central routes and creating pedestrian and cycle friendly spaces.




Apps to request demand responsive transport (DRT)

Public transport stop with real time information

Higher density mixed-use development to support local living and heat and transport networks

Dedicated and continuous micromobility zone

Priority for Low or Zero emission public transport and demand responsive transport (DRT)

Grey water recycling

Biosolar green roof to generate renewable electricity and contribute to urban greening

Integrated micromobility solutions within transport hubs

Seating and nature-rich planting zone

100% electric charging provision

Rain gardens to manage surface-water run-off, support biodiversity and contribute to urban cooling

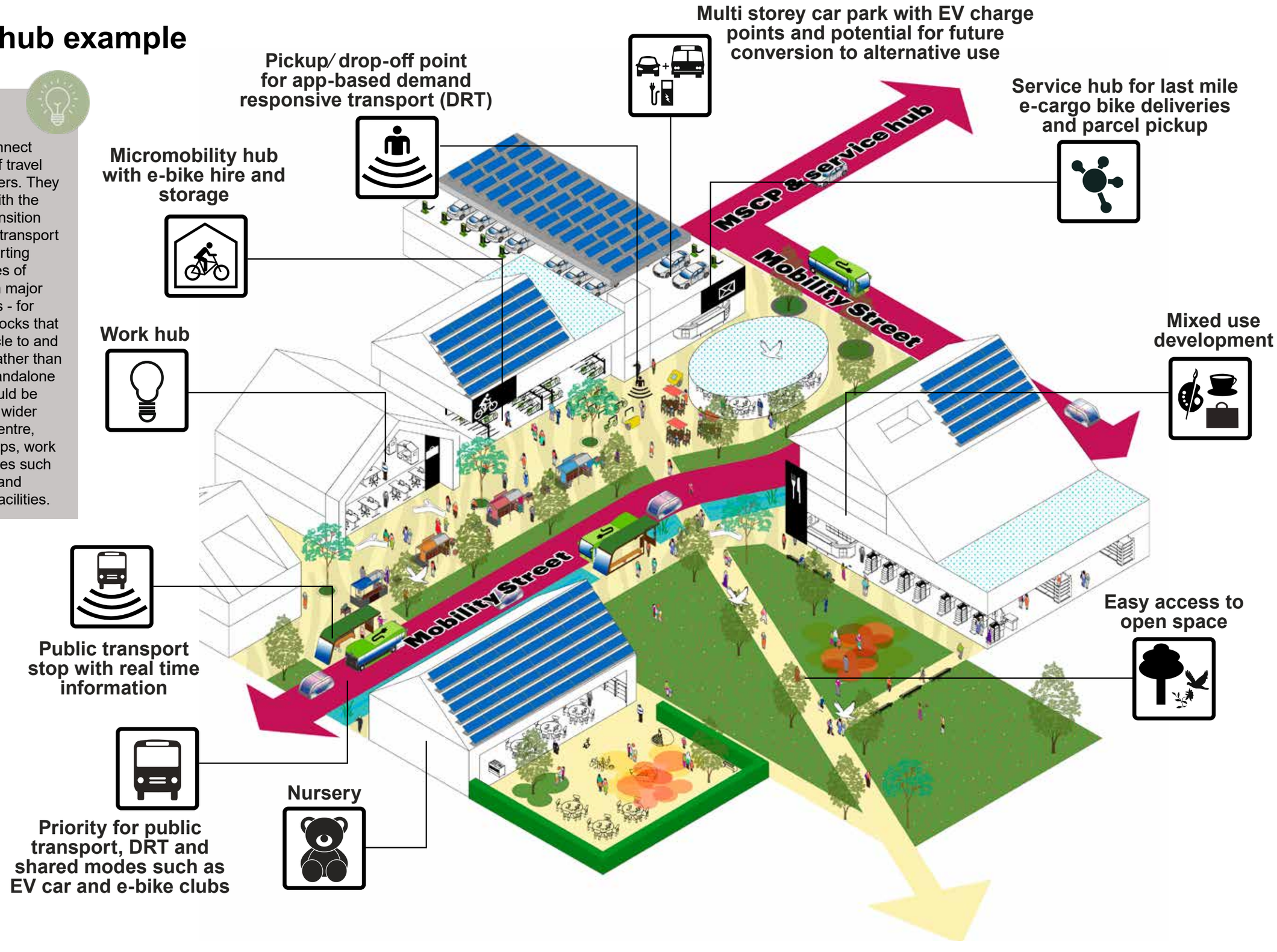
Community growing space

Pedestrian streets with playspace, cycle storage, trees for shade and rain gardens

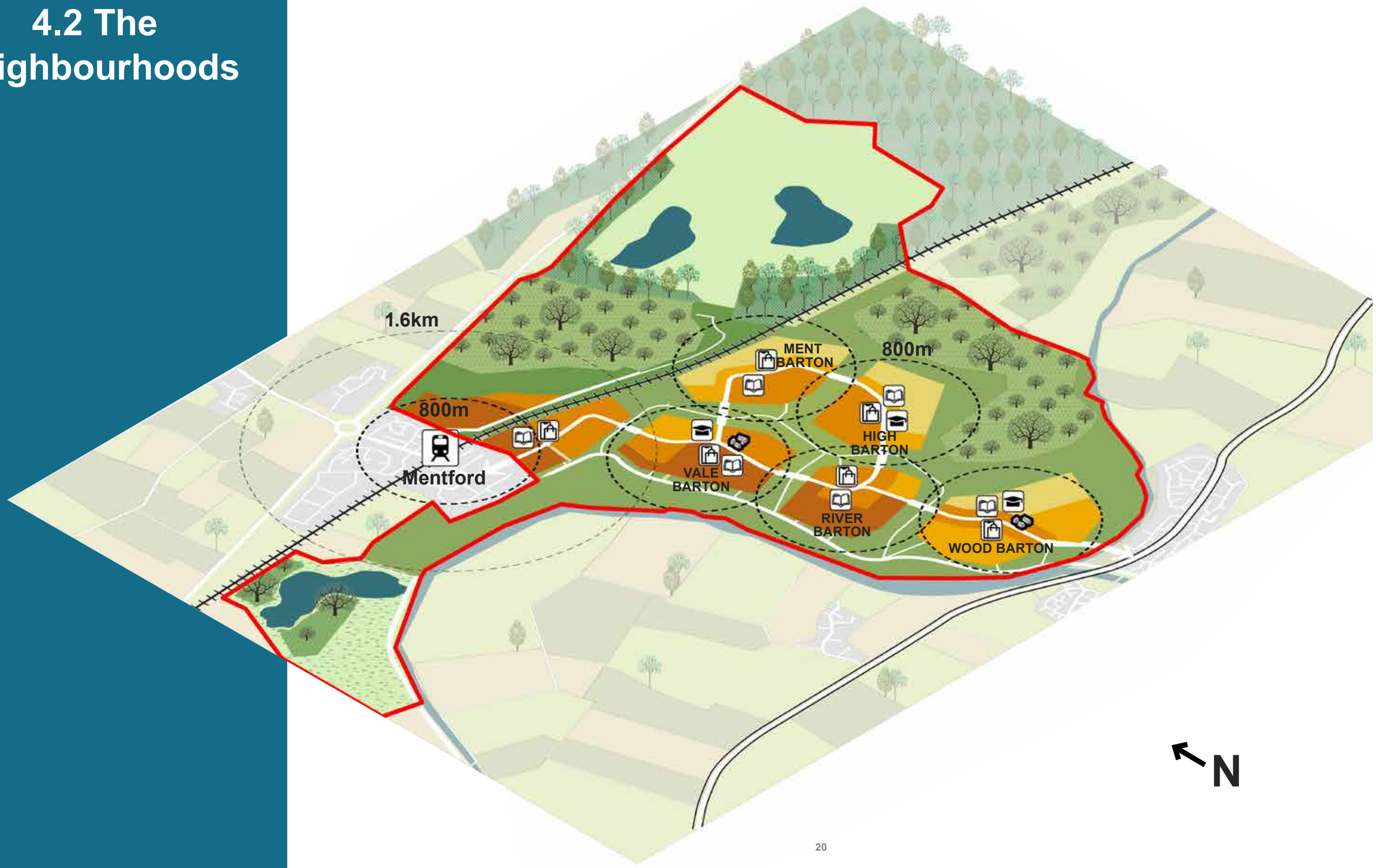
# Mobility hub example

### Top Tip

Mobility Hubs connect multiple modes of travel with their customers. They provide people with the opportunity to transition from one form of transport to another, supporting sustainable modes of travel to and from major transport systems - for example e-bike docks that enable you to cycle to and from a station. Rather than being seen as standalone entities, they should be seen as part of a wider neighbourhood centre, incorporating shops, work space, key services such as GP surgeries and delivery pick-up facilities.



# 4.2 The Neighbourhoods



**Highest density**
Riverside and adjacent to the rail station

**High density**
Park frontage and mobility street

**Medium density**
Mobility street

**Lowest density**
Development edge

**Primary/secondary school**

**Key library/community space**

**Key employment space**

**Neighbourhoods based around existing farm clusters.**

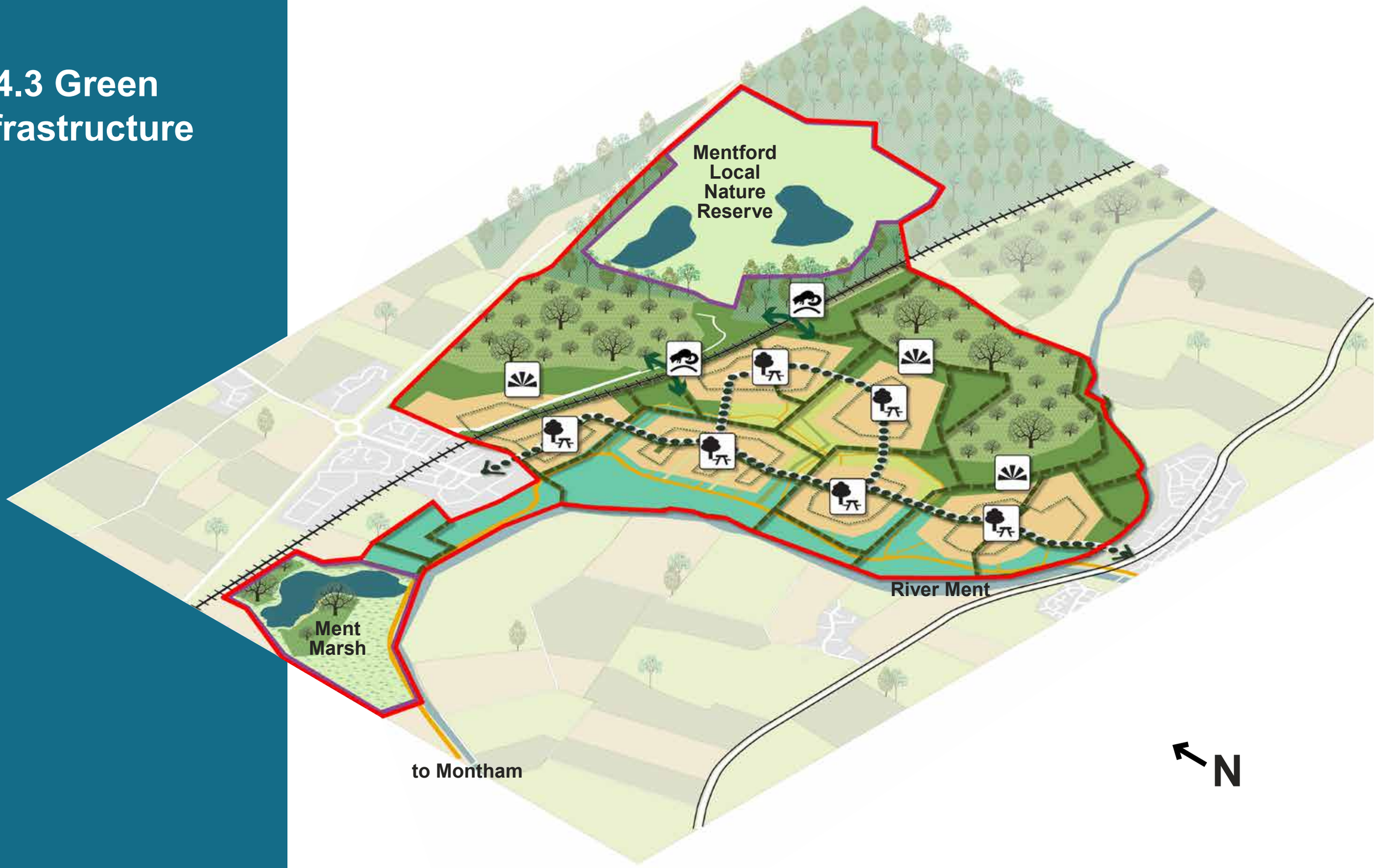
| Ref | Design Principle | Core Requirements |
|---|---|---|
| **N1** | **Accessibility.** The location of each neighbourhood centre will promote their everyday use and active travel | ■ No housing shall be constructed beyond a 10 minute walk from one of the neighbourhood centres<br>■ Neighbourhood centres will be located only on the Central Spine, ensuring they are easily accessible through the main bus and cycle route |
| **N2** | **Community Infrastructure.** Each neighbourhood centre should provide a mix of uses that enable the community to fulfil their everyday needs | ■ Each neighbourhood centre will provide a single-form entry primary school, with dual use sports facilities that can be managed for use by the local community<br>■ A two form through school will be provided in Vale Barton, with dual use sports facilities that can be managed for use by the local community<br>■ The diverse neighbourhood centres will provide all residents with everyday essentials and should therefore include flexible space that can be used for retail, cafe's/ pubs or a restaurant, shared serviced offices<br>■ The site will be equipped to facilitate home working, learning and online service delivery through provision of gigabit broadband, 5G coverage and workspaces within every home and neighbourhood centre<br>■ Neighbourhood Centres should have centrally located homes for Later Living enabling people to live close to key services and remain at the heart of their community |
| **N3** | Neighbourhoods should have a range of densities that defines their character with **centres being higher density** to support a mix of housing typologies that enable diverse communities to thrive | ■ Neighbourhoods will be designed with a mix of densities, with higher density within the neighbourhood centres<br>■ The Highest Densities permissible along the river edge and adjacent to the station at Mentford must be of exceptional design quality that avoids river pollution and unacceptable flood risk, and demonstrates how it protects and enhances river habitats<br>■ High density areas in the core neighbourhood centres at Vale Barton, River Barton and Wood Barton will be between 75 and 100 dph along the Mobility Street central spine<br>■ Medium densities on the edge of Mentford, Vale Barton, River Barton and Wood Barton, and in the neighbourhood centres at Ment Barton and High Barton should be designed at 60 dph<br>■ Low densities at the edge of Ment Barton, High Barton and Wood Barton must be a minimum of 35 dph |

**High Density**
Neighbourhood centres will deliver densities of between 75 and 100 dph.
Community Squares will be provided, orientating homes around a central communal green space to encourage community cohesion and activity.
Streets should prioritise accessible nature, SUDS and play.

**Medium Densities**
Minimum of 60 dph.
Blocks will front secondary or primary streets, and provide private gardens to the rear with continuity of the street frontage.
Streets should prioritise accessible nature, SUDS and play.

**Low Densities**
Minimum of 35 dph.
Low density areas must be designed in naturally landscaped clusters. Streets should prioritise accessible nature, SUDS and play.

# 4.3 Green Infrastructure



**Riverside Park**
Wetland and marginal habitat.

**Central Park**
Formal open space, sport and play

**Outer landscape**
Informal recreational space with habitat restoration

**Mobility street**
Urban habitat corridor

**Green bridges/tunnels for habitat connectivity**

**Neighbourhood parks**

**Low level lighting along development edge**

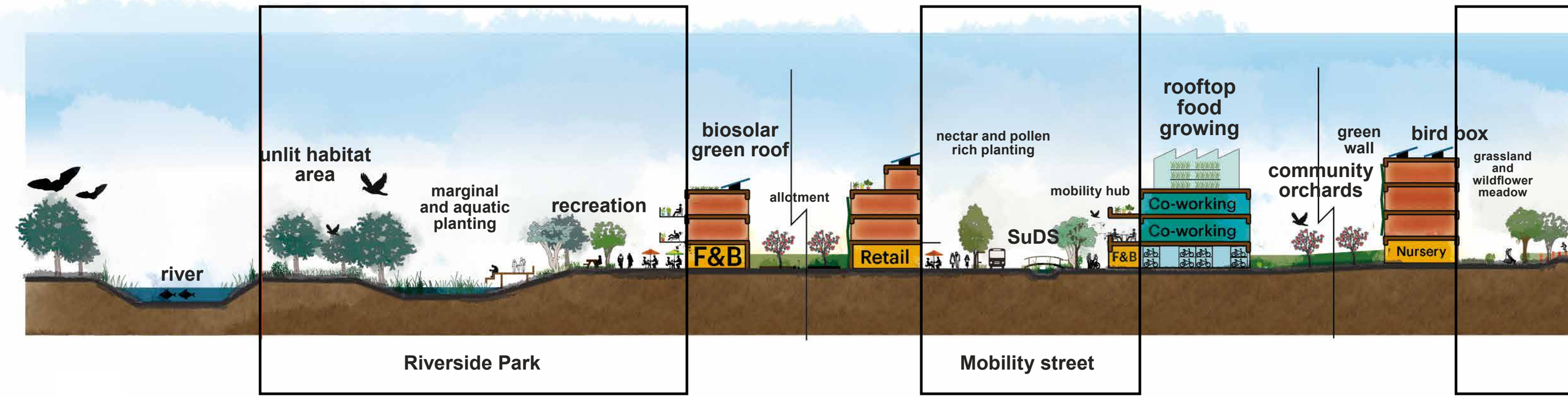
**Local Nature Reserve**
Formal open space to ease visitor pressure on these areas

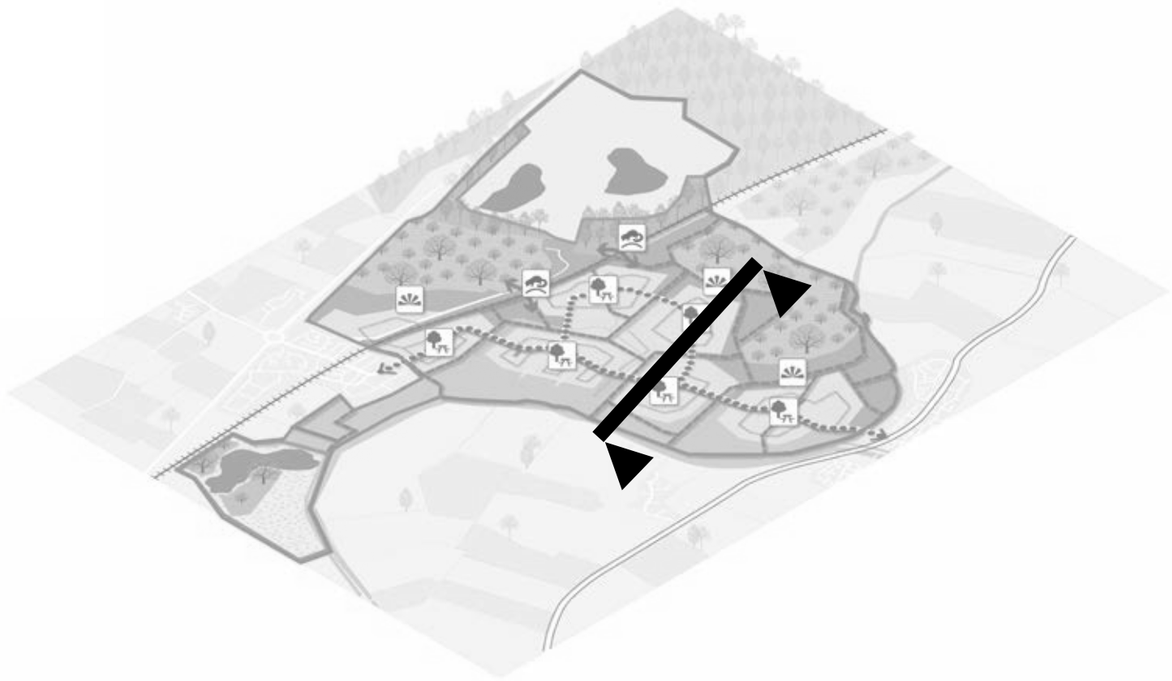
**Retained and enhanced hedgerows**

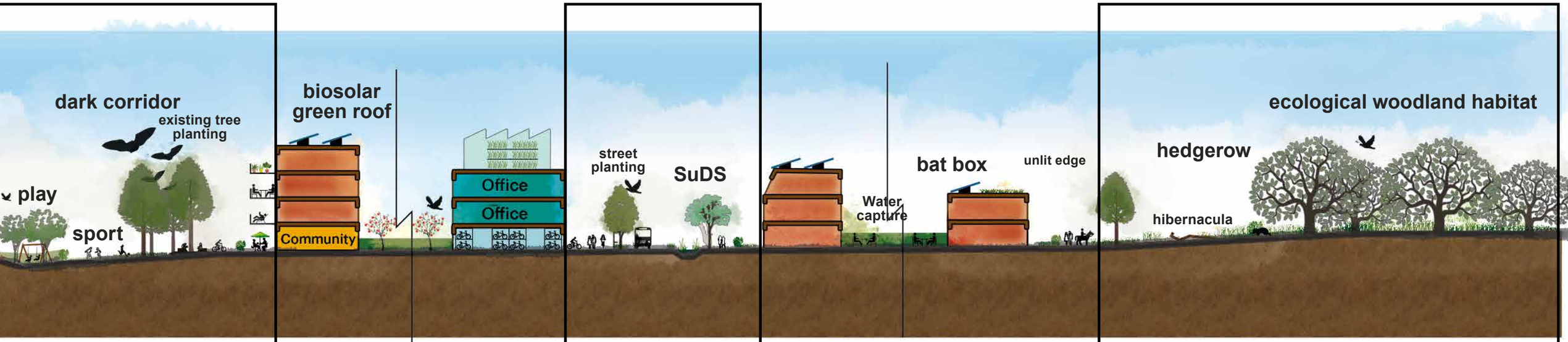
**Key micromobility routes**

| Ref | Design Principle | Core Requirements |
|---|---|---|
| **G1** | The development will create new green and blue infrastructure that **connects** valued wildlife sites and incorporates surface water management features | ■ Design green space to maintain and enhance habitat connectivity within and beyond the development<br>■ From the River Ment to the urban fringe adjacent to the Adder Hill NRA and Mentford Local Nature Reserve, the site shall create nature rich streets that connect communities with the natural world in line with the green vision set out on page 22 |
| **G2** | The development will support the delivery of the District's Local Nature Recovery Strategy (LNRS) by requiring **Biodiversity Net Gain** on-site and positively contributing to neighbouring Nature Recovery Areas | ■ Achieve a 25% net gain in biodiversity on site<br>■ All neighbourhoods will achieve a minimum Urban Greening Factor score of 0.4<br>■ Surface water management features will be designed in accordance with the nationally described Hierarchy of Drainage and the most recent edition of the CIRIA SuDs Manual and DEFRA's technical standards on sustainable drainage systems<br>■ All lighting plans should follow guidance published by the Bat Conservation Trust |
| **G3** | **Delivery of the Lower Middle Marshes, Meadows and Woods NRA.** The development will protect existing sites within the NRA and deliver on the aspirations set out in the District Design Code | ■ Protect all existing wildlife sites from development and construction activity and provide a minimum 75m buffer between the Adder Hill NRA and the nearest hard road, hard-standing or building<br>■ Restore 10 ha of floodplain grassland<br>■ Create 5 ha of species-rich floodplain meadow<br>■ Improve water quality within the Lower Middle River and its tributaries<br>■ Restore 5 ha of wet woodland<br>■ Protect existing riverside willow pollards and establish through planting a new generation |
| **G4** | The development will positively **contribute to the emerging NRA at Adders Hill** that adjoins the site and support it's development through off-site funding contributions | ■ Protect all existing wildlife sites from development and construction activity and provide a minimum 200m buffer between the Adder Hill NRA and the nearest hard road, hard-standing or building<br>■ Provide financial contributions to the strategic aims of the NRA (see District level code for requirements) |
| **G5** | **Access to Natural Green Space.** Deliver easy and regular contact with nature to every resident through a mosaic of landscape interventions across the site | ■ Maximise habitat provision by establishing a connection with nature from the doorstep to the nature reserve whereby the potential for any space to support nature is considered<br>■ Provide accessible natural green space for all new residents in line with the standards set in the Green Infrastructure Framework – Principles and Standards for England set by Natural England – up to 200m to 0.5ha accessible greenspace (includes playing fields), up to 300m to 2ha accessible natural green space, 10 ha within 1km, 20 ha within 2km, 100 ha within 5 km , 500 ha within 10km and 1ha of Local Nature Reserve per 1000 people<br>■ Maximise habitat provision on built structures through the inclusion of biosolar green roofs and living walls<br>■ Provide wildlife benefits through good landscape and planting design in line with the proposed planting typologies on page 26/27<br>■ Maximise the use of native species appropriate to local soil conditions and landscape character, ensuring both species diversity structural vegetation diversity<br>■ Where native species are not appropriate, ensure planting palettes provide a diverse mix of specie of known wildlife benefit that provide structural diversity<br>■ Incorporate domestic-scale features to support wildlife in all buildings, such as integral bird nest boxes, bat roost and invertebrate boxes across the site |
| **G6** | **Design for the future.** Minimise risk of introducing invasive species | ■ Avoid planting species listed in Schedule 9 Part 2 of the Wildlife and Countryside Act 1981 and Natural England's data on horizon-scanning for invasive non-native plants in Great Britain<br>■ Minimise risk of future failure of planting by selecting the right species for the right place, avoiding large blocks of single-species plant monocultures, and considering climate change adaptation<br>■ Educate and inform new residents as to the benefits of designing for biodiversity and how they can support biodiversity by providing each new household with a bio-diversity action pack<br>■ Avoid planting any non-native invasive species |

# Green Infrastructure Vision






central park

mobility street

ancient woodland and fringe

**Top Tip**

This diagram has been created to demonstrate the green vision that sites at the heart of the site design code. It promotes a development that brings nature into every street and connects natural areas across and beyond the site.

Simple diagrams help to convey the aspirations of the community but must be linked to the Development Principles (in this case G1).

# Green Infrastructure Planting Principles

## Ecological woodland planting

- Clearly define the naturalistic setting at the edge of the development
- Native woodland and shrub planting should reflect local landscape character and plant typologies
- Buffer, enhance and expand existing features to help screen and buffer buildings and infrastructure
- Create a diverse horizontal and vertical structure through naturalistic landscape patterns
- Vary the location, size and spacing between clumps or groups of trees and ensure variety in the choice of species and spacing between individual plants
- Avoid planting in straight lines to improve humidity, warmth, and wildlife cover and to prevent wind tunnels

## Grassland & wildflower meadow

- Create wildflower and grassland meadows on nutrient poor soils with seed mixes appropriate to the local soils and the habitat being created
- Sow higher nutrient soils with fewer species more tolerant of richer soils
- Sow amenity grassland with the appropriate flowering lawn mix or turf tolerant of regular mowing
- Ensure a diverse sward structure between short and long grass to add interest and wildlife benefits
- Integrate mown paths through and around the edges of long grass, and areas cut on longer rotations of 18 to 36 months.
- Promote playfulness
- Use long grass to buffer the edges of naturalistic tree and shrub planting and hedges

## Nectar and pollen rich planting

- Locate planting to contribute to site-wide connectivity for pollinators and to promote contact with nature and high quality placemaking
- Ensure year-round colour, seasonality and support for pollinators and other wildlife through specifying a diverse palette of native and non-native trees, shrubs and herbaceous plants of known wildlife value
- Avoid monoculture schemes which are prone to disease and/or devoid of wildlife value
- Use dense underplanting with herbaceous plants to help retain soil moisture and suppress weeds while providing a source of nectar for pollinators
- Planting design to establish naturalised drifts of drought tolerant species for lower maintenance
- Promote playfulness and curiosity for the natural world

© Claire Borley

## Native hedgerow mix

- Retain, restore, and expand on existing hedgerows to provide habitat connectivity across the site
- Choose plant species compatible with the local landscape character
- Enhance the structure and wildlife value of hedgerows by including appropriately spaced trees within hedge lines
- Ensure hedgerows are buffered with flower rich grassland to increase the aesthetic and wildlife value
- Non-native hedges in formal streetscapes, local centres and other areas of public realm should enhance habitat connectivity and boost pollen and nectar resources

## Street planting

- Ensure the structural diversity and visual amenity of street trees is tailored to the function and character of different street types
- Prioritise species that are best able to absorb carbon and airborne pollutants, attenuate surface water run-off, cool the atmosphere and provide shade and shelter
- Incorporate trees into a network of nature-rich rain gardens within the public realm and alongside paths and roads
- Provide root systems with appropriate soil, air and irrigation to promote establishment and longevity
- Trees within hard paving areas to be provided with underground rootcells for adequate rooting volume and irrigation

## Green Links

- Provide a nature-rich backdrop to the active travel network, enhancing the attractiveness of routes
- Planting should be designed to help protect people walking and cycling from noise and airborne pollutants associated with nearby roads
- Planting should enhance connectivity for wildlife moving through the area as well as connecting people to nature
- A seasonally changing palette of plants (to include versatile dry/shade and evergreen plant species) giving an opportunity for people to connect with nature and unwind
- Landscaping should contribute to management of surface water run-off through SuDS appropriate to the location, including rain gardens, bioretention basins, swales, rills and filter strips



## Green walls and roofs

- Provides rich and attractive vertical soft landscape through modular or metal trellis systems fixed to building facades
- Provide refuge for nature in places which otherwise might be lacking plants or habitat
- Install biosolar roofs on buildings as standard, to deliver biodiversity and renewable energy benefits
- Install standard green roofs on buildings where biosolar roofs are not possible

## Marginal and aquatic planting

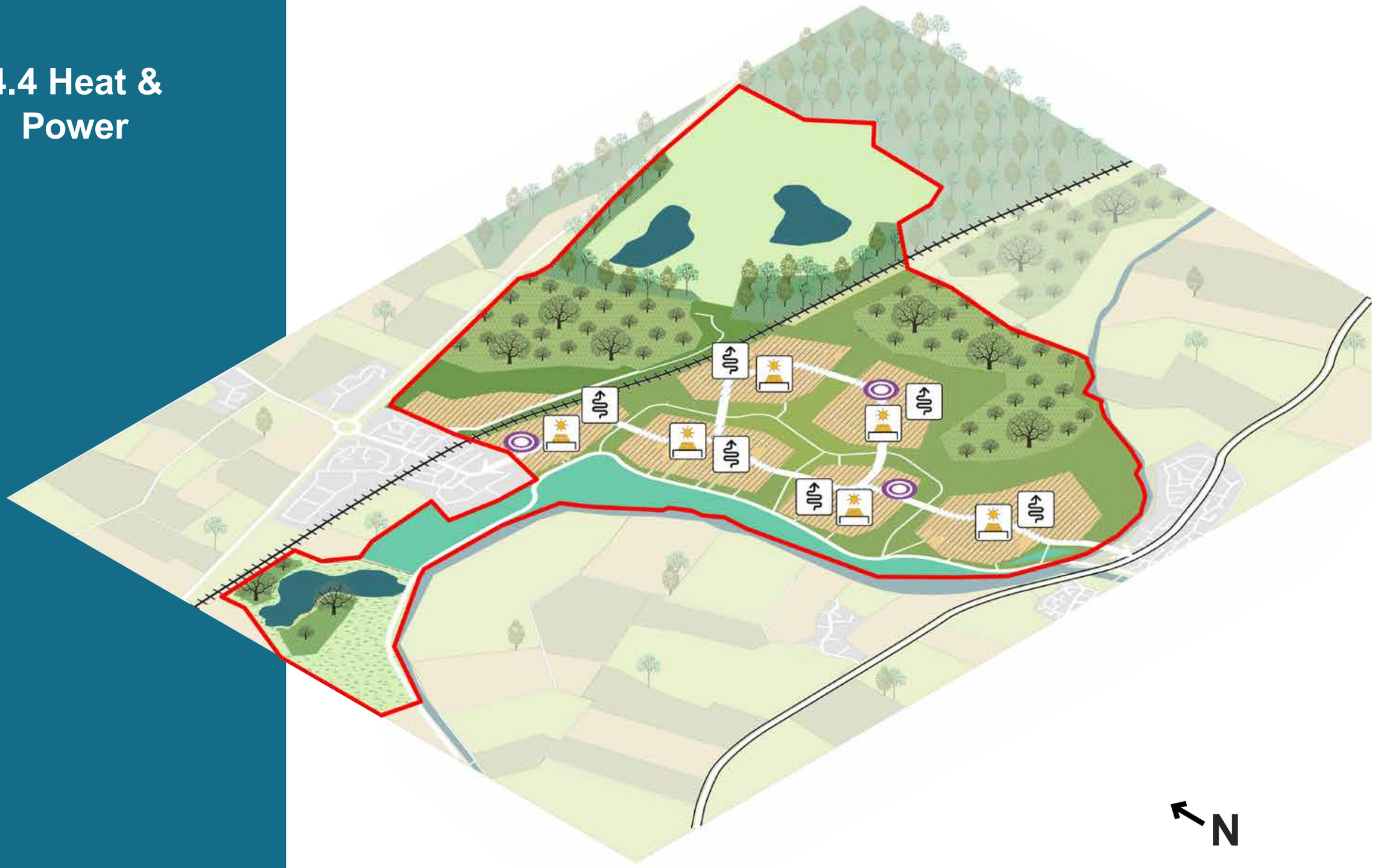
- Integrate aquatic and marginal planting into site-wide SuDS and nature recovery strategies through use of planted landscape features such as detention basins, balancing ponds, soft swales and rain gardens
- Use only native species where ‘kick-start’ planting is required
- Facilitate natural plant colonisation, particularly in regional detention basins and balancing ponds
- Incorporate meanders and check dams, vary bed topography and width, and plant native marginal plants and wetland meadow mixes along the course of soft landscape swales to enhance value for nature
- Sow flowering lawn filter strips leading from hard surfaces into swales, detention basins or balancing ponds with a flower rich seed mix to benefit pollinating insects and other wildlife
- Ensure the location and plant choices for rain gardens allows for periods of temporary inundation and drought and provides for year round visual interest at street level
- Ensure connecting drainage features such as rills in hard landscape areas incorporate check dams around which marginal plants can deliver amenity and wildlife value

### Top Tip

Planting palettes should provide inspiration and principles within which design teams can flex their designs. They should promote local species and encourage the use of buildings and streets to create nature rich areas.

They must be linked to the Development Principles (in this case G5).

# 4.4 Heat & Power



**Solar PV**

**Renewable heat**

**Proposed substation**

**Micro energy generation on development rooftops**

| Ref | Design Principle | Core Requirements |
|---|---|---|
| **HP1** | The development will accord with the energy hierarchy. It will use less energy, supply energy efficiently and use renewable energy | ■ Development will demonstrate how it achieves no net increase in energy demand with no on-site fossil fuel use<br>■ All new homes and buildings will exceed the 'Future Homes and Buildings Standard' no later than 2025<br>■ All new buildings will be net zero carbon in construction and operation, as defined by the UKGBC Net Zero Carbon Buildings Framework Definition<br>■ All new buildings will promote smart controls and standards to enable intelligent control within the building and grid efficiency through flexible services<br>■ Each new home will be provided with a welcome pack setting out ways in which energy can be saved<br>■ Communal access to white goods will be supported in high density local centres to reduce in-home consumption<br>■ All new buildings will strive for minimal climate impact through using the most sustainable materials, including use of modern methods of construction with low embodied carbon |
| **HP2** | The development will be the first in the District to use 100% renewable energy, providing onsite generation of electricity sufficient to meet its energy needs | ■ All new buildings will include on-plot renewable generation through photovoltaic solar panels (rooftop solar PV)<br>■ Rooftop solar PV should be incorporated within a biosolar green roof wherever possible to embed renewable energy generation and wildlife within the fabric of buildings<br>■ The development site will demonstrate annual on-site renewable generation equivalent to 120 kWh for every m2 of development footprint |
| **HP3** | The development will incorporate renewable heat technologies and avoid use of any fossil fuel heating | ■ All new buildings will be supplied with an on-plot renewable heat source<br>■ Energy required for heating new homes will not exceed 15kWh/m2/year from 2025, in accordance with Climate Change Committee recommendations |

Mock design codes produced by:

www.lda-design.co.uk

LDA Design Consulting Ltd
Registered No: 09312403
17 Minster Precincts, Peterborough PE1 1XX