# CULHAM

## SCIENCE VILLAGE

**MASTERPLAN DOCUMENT**

MAY 2024

# Culham Science Village

**Culham Science Village (CSV) is an exciting vision for the creation of a strong, cohesive and place to live and work on land allocated for new development around Culham Station in South Oxfordshire.**

This Masterplan Document sets out how CSV will deliver new homes and jobs, as well as significant social and environmental benefits in the form of a well-designed, self-sufficient 21st Century settlement.

The vision for CSV is based on a view of how people will live in future years and is formed from a narrative of creating a healthy and stimulating 21st Century place to live, learn and grow; it is about catering for who we are and how we live, today and in the future. New infrastructure, parks and open spaces will promote active, healthy and safe lifestyles. The proposal will deliver new jobs and workspaces, well-designed and affordable homes that use innovation and technology to support sustainable approaches to living, working and travelling.

Culham Railway Station, located within the heart of CSV, will provide excellent connectivity for the site and the neighbouring Culham Science Centre offering excellent rail connections and a variety of active and sustainable transport choices to all.

The associated green infrastructure strategy for Culham Science Village will enhance the biodiversity of the local area as well as providing the opportunity for multifunctional public realm that enhances the health and well-being of new residents and visitors.

The production of this Masterplan Document has been formulated through partnership working and a detailed collaborative process between the Design Team and key stakeholders including officers and members from South Oxfordshire District and Oxfordshire County Councils.

The proposals address, mitigate against and overcome a number of key constraints that affect the Site. This document shows how proposals can meet the requirements of the South Oxfordshire Local Plan (December 2020) (including particularly policies STRAT 9 and DES4) and the Culham Neighbourhood Plan 2020-2041 (March 2023) (including particularly policies CUL1, CUL5, CUL6, CUL7, CUL8 and CUL9).

# CONTENTS


04
INTRODUCTION

08
SITE & CONTEXT

12
INVOLVEMENT & EVOLUTION

18
VISION

31
MASTERPLAN

34
MASTERPLAN PRINCIPLES

92
DELIVERY

# INTRODUCTION

## This Masterplan Document is...

1.1. The Masterplan Document is a requirement of policies STRAT9 and DES4; it responds to the component parts of those policies in terms of the key placemaking, land use, movement, green and blue infrastructure provisions that relate to the masterplanning of the Site in order to meet the specific requirements set out by those policies.

1.2. The Masterplan Document establishes a robust conceptual framework for more detailed proposals. The Masterplan Document will be a material consideration in the determination of future Planning Applications.

## This Masterplan Document is not...

1.3. The Masterplan Document is not intended to be overly-prescriptive or specific; it does not seek to duplicate detail that would be provided at a later stage through a planning application.

1.4. Similarly, the Masterplan Document does not seek to determine the precise timeframes that development would be delivered. Given the scale of the site and subsequently, the likely time it will take to develop it, the Masterplan Document emphasises a level of flexibility that would allow proposals to adapt over time.

**IMAGES USED THROUGHOUT THIS DOCUMENT ARE FOR INDICATIVE PURPOSES ONLY AND DO NOT AIM TO BE PRESCRIPTIVE. THEY ARE SUBJECT TO FURTHER TECHNICAL WORK AND AGREEMENT.**

# Purpose of the Document

1.5. This Masterplan Document has been prepared to guide the development of allocated land adjacent to Culham Science Centre, Culham, Oxfordshire.

1.6. The document seeks to demonstrate, at a high level, how the land allocated for development can be comprehensively masterplanned to deliver a coordinated proposal accommodating the land uses and design principles identified by Policy STRAT9 of South Oxfordshire District Council's (SODC) adopted Local Plan (December 2020).

*Planning Policy*

1.7. The National Planning Policy Framework (NPPF) (2023) requires Local Planning Authorities to positively plan to identify appropriate land for homes and promotes the use of masterplans to help ensure that land is used efficiently while also creating beautiful and sustainable places.

1.8. South Oxfordshire District Council's (SODC) adopted Local Plan 2011-2035 (2020) sets out how development will be planned and delivered across South Oxfordshire to 2035. It sets out a vision, that shows how the strategy has been developed which responds to that vision and how it will be delivered working in partnership with everyone with a stake in the future of the district. It also includes policies that are used when determining Planning Applications.

1.9. Policy STRAT9 of the Local Plan allocates Land adjacent to Culham Science Centre for a significant development in a sustainable location.

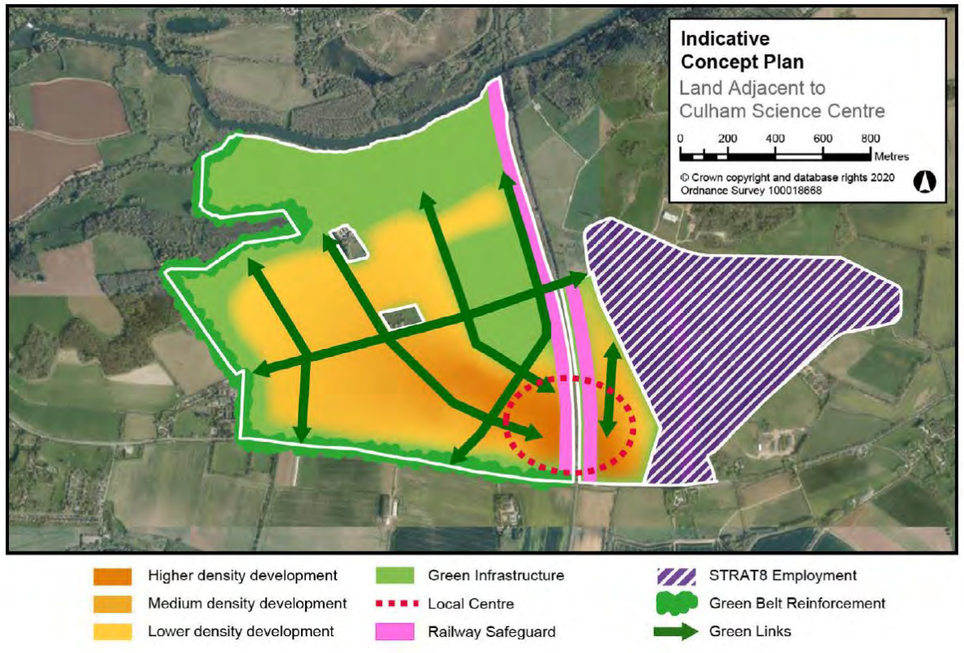



FIGURE 1 - STRAT9 INDICATIVE CONCEPT PLAN

1.10. STRAT9 outlines the Council's site specific policy requirements for the Site including but not limited to:

- approx. 3,500 homes with approx. 2,100 in the Plan period,
- a net increase of 7.3 ha of employment land in combination with Culham Science Centre (with the existing 10 hectares of the No.1 site retained but redistributed across the two strategic allocations),
- 3 pitches for Gypsies and Travellers,
- affordable Housing provision,
- two new 2 form primary schools and one new 8 form entry secondary school,
- GP surgery on site,
- provision of convenience floorspace that meets the day-to-day needs of the local community,
- new junctions onto the A415 and significant contributions towards the Clifton Hampden Bypass, the Didcot to Culham River Crossing, and upgrading the A4074/B4015 junction at Golden Balls,
- provision for excellent sustainable transport facilities contributions to Culham station improvements,
- the provision of appropriate communal parks and gardens and amenity green space allotments, children's playspace and open space, and
- low carbon development and renewable energy.

1.11. Section 38 (6) of the Planning and Compulsory Purchase Act 2004 and section 70(2) of the Town and Country Planning Act 1990 requires applications for planning permission to be determined in accordance with the development plan, unless material considerations indicate otherwise. All Planning Applications at Land adjacent to Culham Science Centre for planning permission will be assessed against SODC's adopted Local Plan.

1.12. Material Planning Considerations relevant to the consideration of the site include the NPPF (2023), National Planning Guidance and Developer Contributions Supplementary Planning Document (adopted 10 November 2022). When approved, this FMP will also be a significant material consideration in the determination of all applications for planning permission at the site.

1.13. Policy STRAT9 states "The proposed development at Culham will deliver a scheme in accordance with an agreed comprehensive masterplan taking into consideration the indicative concept plan development proposals to accord with a masterplan approved by the Council."

1.14. The FMP does not supersede any national or local planning policies but provides a clear vision for how they will be applied and implemented at the site.

1.15. The Masterplan Document (which is a requirement of Local Plan policies STRAT9 and DES4) has been prepared in collaboration with officers from SODC and Oxfordshire County Council (OCC) as well as other key stakeholders.

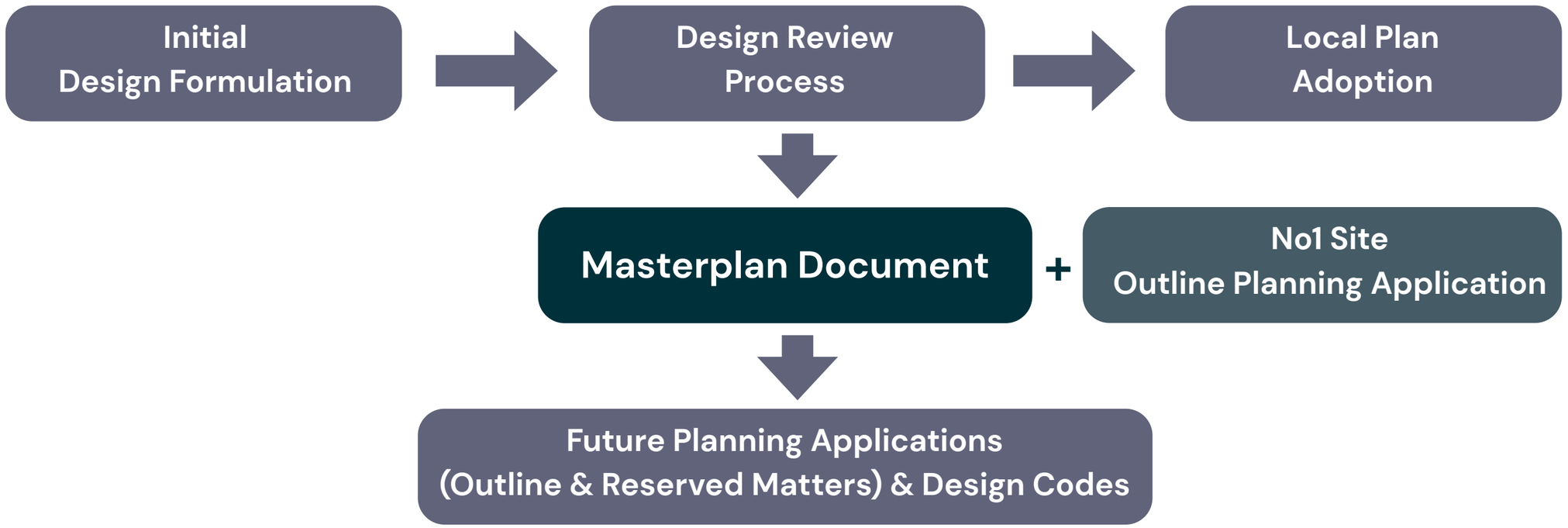
1.16. The document has been produced in accordance with the principles established in the South Oxfordshire Design Guide (June 2022) and aims to ensure that high quality design is achieved throughout the development and that proposals would integrate well with the existing context by establishing key overarching high-level design principles.

1.17. There are a number of Oxfordshire County Council Policy and guidance documents that are relevant of consideration during the preparation of the Masterplan Document and ultimately when the outline and Reserved Matters applications are prepared. These documents are as follows:

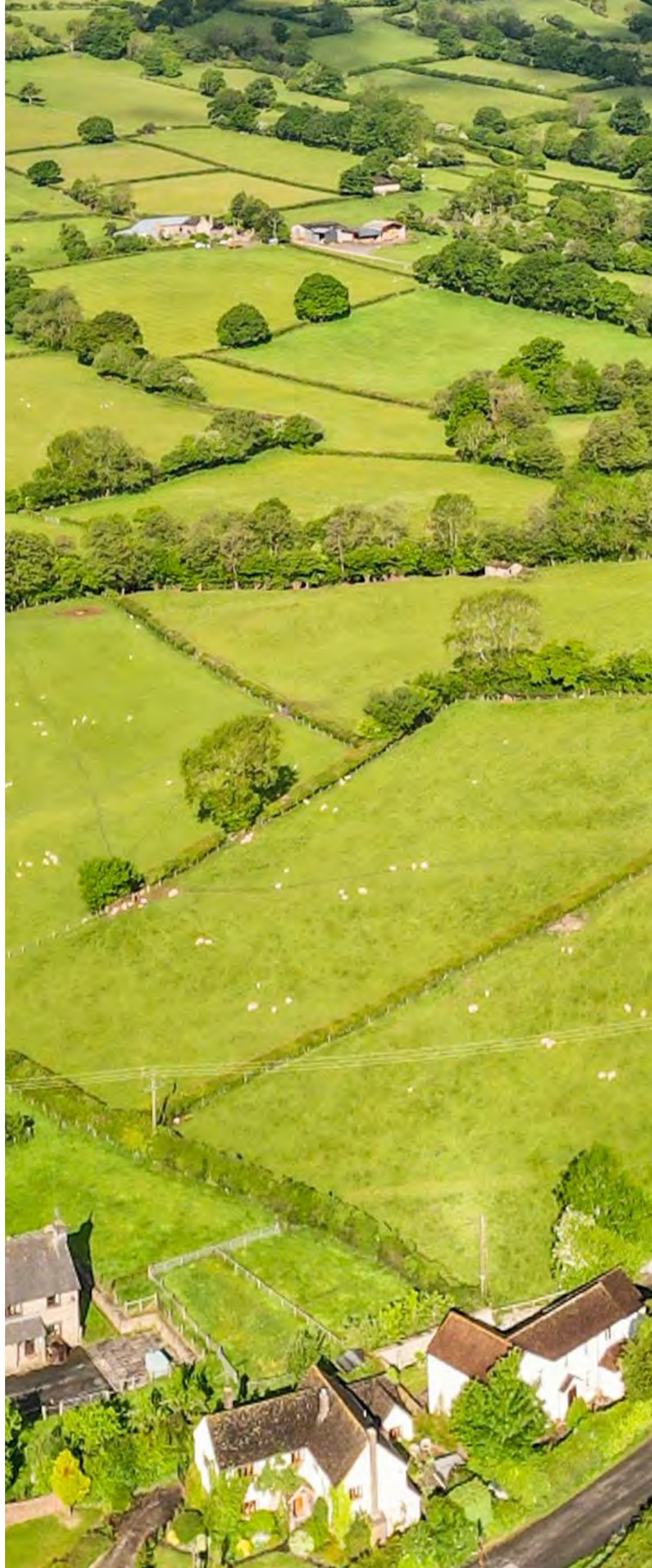
- Strategic Plan, 2022 – 2025,
- Environmental Principles,
- Street Design Guide,
- Local Transport and Connectivity Plan (LTCP) July 2022,
- Implementing 'Decide & Provide': Requirements for Transport Assessments,
- Parking Standards for new Development, (a supplementary document to the LTCP),
- OCC Cycling Standards 2017,
- OCC Walking Standards 2017,
- The Oxfordshire County Council Guide to Developer Contributions
- Secondary School Design Criteria, and
- Primary School Design Criteria.

1.18. The Cycle Infrastructure Design (LTN 1/20), July 2020, is a Department of Transport publication which is also relevant.

1.19. The relevant parts of the documents are too extensive to replicate here but reference is made to the relevant parts of the documents throughout the Masterplan Document where appropriate.



# SITE & CONTEXT



# The Site and its Context

2.1. The Site is situated approximately one mile to the north east of Culham village, 3 miles south east of Abingdon-on-Thames and 6 miles to the north of Didcot and immediately adjacent to Culham Station - as shown at Figure 2.

2.2. The Site comprises approximately 230ha of both agricultural and brownfield land within the boundaries of SODC and accessed from the A415 Abingdon Road and Thame Lane.

2.3. The Site is formed of two main land components as follows:

1) No.1 Site - which sits to the east of the Cherwell Valley Rail Line and the immediate west of Culham Science Centre (see below). The land is currently occupied by a series of small light industrial and commercial businesses that lease 1940's hangars (associated with its previous use as RNAS Culham, a naval support airfield), ad-hoc small buildings and portacabins which are in a range of conditions. The northern third of the No.1 Site is unoccupied by buildings, but does include three electricity pylons north of Thame Lane.

2) Main Site - an area of land located to the west of the Cherwell Valley Rail Line currently in agricultural use. This area primarily comprises a series of fields lined with hedgerows and trees which are predominantly used for arable farming except for an area to the north where the land falls down to the River Thames which includes tussocked wetland and a motocross track. This main site area extends to the west to the Europa School (see below) and to the north to the River Thames. Within the central northern part of this Site are Warren Farm and Warren Cottages which are excluded from the Site area. This part of the Site is bisected by Thame Lane - running east-west a rural public highway until the access to Warren Farm after which, the lane becomes a restricted byway to its east.

2.4. There are a series of Public Rights of Way (PRoW) on the Site. As noted, Thame Lane becomes a restricted byway (183/4/20) to the east of the access to Warren Farm, this route then crosses the rail line and the north part of the No.1 Site before lining the northern edge of the Culham Science Centre site. Public Footpath 183/1/50 runs along the eastern boundary of the main site north from Thame Lane alongside the rail line until it reaches the River Thames where it meets Public Footpath 183/1/40 to run west alongside the River Thames into Abingdon-on-Thames.

2.5. Two overhead power lines currently run across the site, including a 400kv power line running north east-south west across the south eastern corner of the site and 132kv power line running parallel with Thame Lane to its north.

2.6. Immediately adjacent to the eastern boundary of the Site is Culham Science Centre, the home of the UK Atomic Energy Authority (UKAEA) which hosts the Culham Centre for Fusion Energy including the Joint European Torus (JET) project. It is the leading UK centre for fusion research and technology and is of international importance. The adjacency of UKAEA is of particular value to attracting associated research and advanced manufacturing businesses to the No.1 Site.

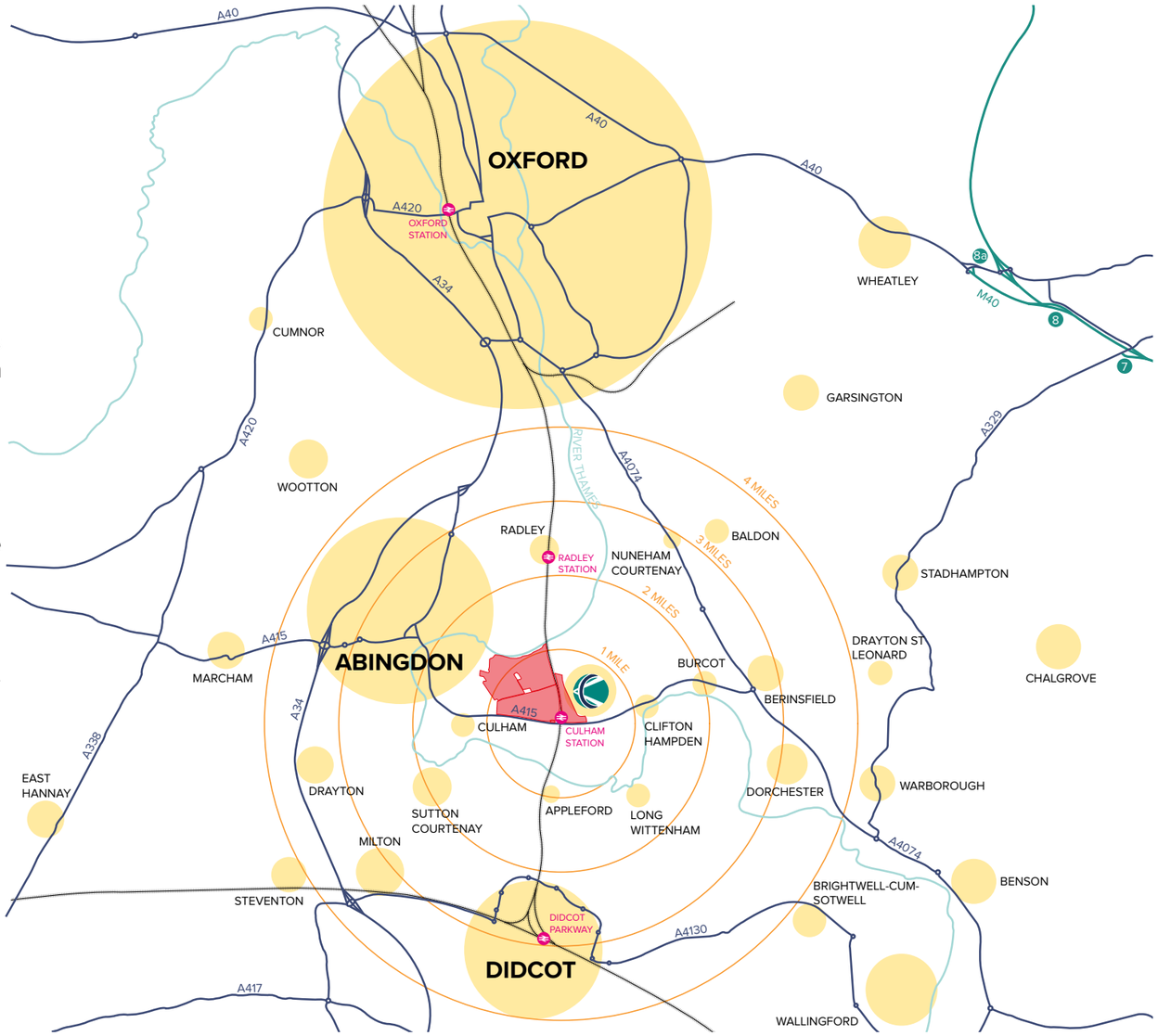



FIGURE 2 - STRATEGIC LOCATION DIAGRAM

2.7. Culham Station and a series of smaller land parcels are encircled by the Site at the point at which the Site straddles the Cherwell Valley Rail Line. Culham Station provides rail connections to Oxford, Didcot, Banbury and London. It is understood that Network Rail intends to increase frequency and destinations as part of the Oxfordshire Rail Corridor Study (ORCS) 2021, which identifies Culham as a Growth Hub. During Peak Times it is suggested that Culham would include 2 trains per hour to Didcot, Oxford and beyond to Milton Keynes and Cambridge.

2.8. The Brunel-designed Culham Station and train bridges are Grade II* and Grade II listed respectively. The Station Building (and adjacent Station Master's Cottage) are predominantly constructed in red brick with slate tile roof. They also feature decorative ashlar maisonry and distinctive asymmetrical chimneys. On the eastern side of the track sits the Railway Inn and Pub, constructed in a similar double-fronted red brick and grey roof tile style.

2.9. Situated to the west of the Site is the Europa School (formerly the European School), which was established in 1978 to educate the children of the staff working for the European Atomic Energy Community (Euratom) on the Joint European Torus (JET) at Culham Science Centre. Part of the school campus originates from 1852, when it was originally built as Culham College; the main building (created by architect Joseph Clarke) being a Gothic Revival style in rusticated limestone which has since been extended with a series of simple brick support buildings, including classrooms and halls.

2.10. Located to the north-east of No.1 Site, Nuneham House is an 18th Century Grade II* Listed Palladian-style mansion, currently owned by Oxford University and functioning as a retreat centre by the Brahma Kumaris World Spiritual University. Capability Brown designed the grounds which are a Grade I Listed Registered Park and Garden (RPG) and originally featured a historic route through the No.1 site that connected the house to Culham Station prior to the creation of RNAS Culham.

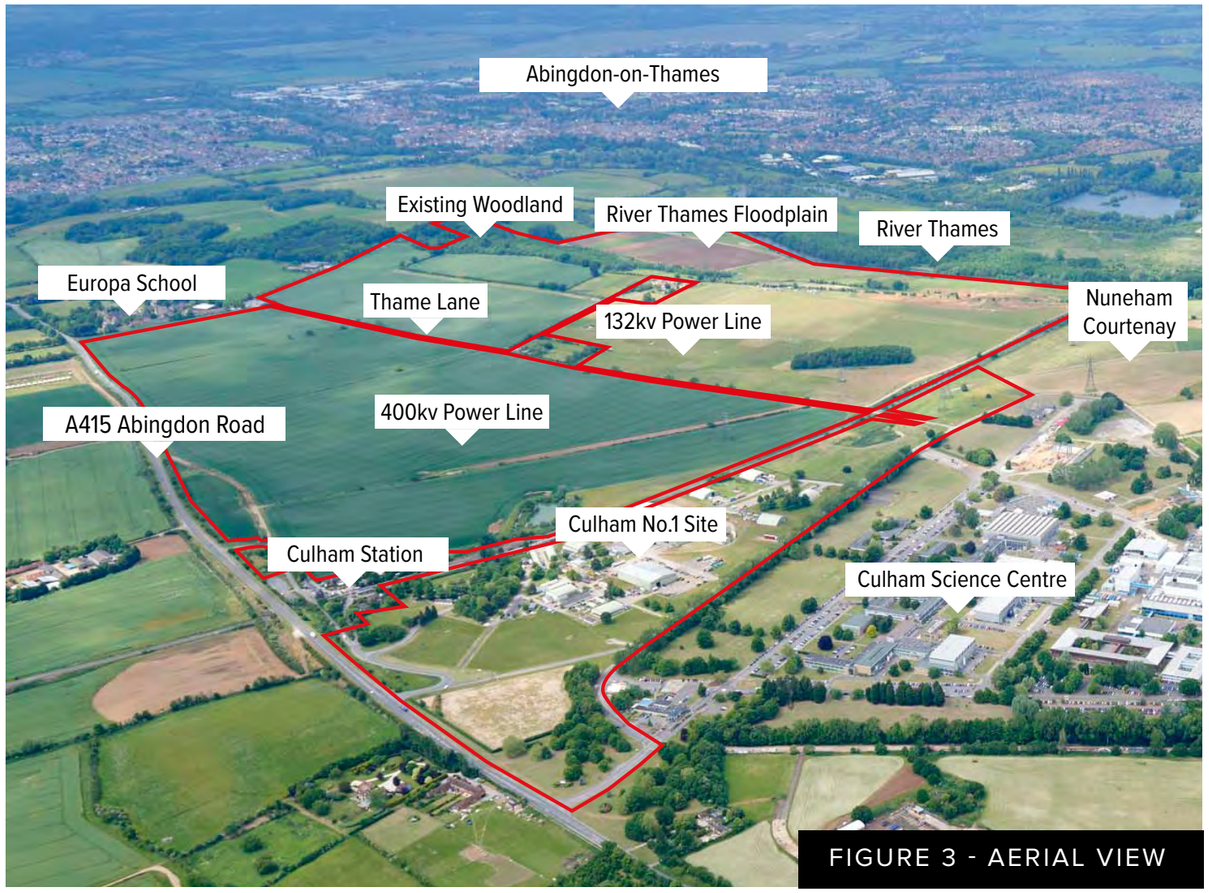


FIGURE 3 - AERIAL VIEW


River Thames Floodplain


Europa School


Culham Station

# Opportunities & Constraints


FIGURE 4 - OPPORTUNITIES & CONSTRAINTS PLAN

# INVOLVEMENT & EVOLUTION

# Consultation and Engagement

3.1. This Masterplan Document has evolved through a collaborative approach to design that has involved the design team and key consultees working closely together over several years to formulate a masterplanning approach that can deliver a high quality new community for the future whilst also responding to key site constraints and meeting necessary policy requirements.

3.2. Concept proposals for CSV began being formulated in 2016 with the emerging masterplan and its technical content being taken through a formal design review process which helped to shape the vision and key placemaking aspirations for the Site. The design review process, which included learning from other real life successful new communities, resulted in the development of thematic strands to shape and guide the emerging proposals.

3.3. Following design review, the design team worked closely with SODC, OCC and key stakeholders to bring forward an allocation for the development of a new community at the Site. This Masterplan Document represents the next key milestone in working towards the delivery of development at CSV.

3.4. The masterplanning approach has evolved through a series of various meetings and workshops including:

- Formal Project Team Meetings - involving officers from SODC, OCC, other key stakeholders and the design team and referenced in a Planning Performance Agreement (PPA) in relation to the proposals.
- Specific technical meetings/workshops - addressing matters of detail that relate to the proposals (e.g. highways, education)
- Focussed Masterplan Document workshops - attended by officers from SODC, OCC, other key stakeholders and the design team to specifically develop themes, concepts and principles in relation to this document.
- Consultation and engagement with local Councillors, Parish Councils and Neighbourhood Plan groups - typically conducted through regular progress meetings. Getting the views of key stakeholders has been fundamental in seeking to deliver a place that aligns with both policy and stakeholder expectations.
- A formal Design Review process - a bespoke and independent Design Review Panel (DRP) was convened to evolve the masterplan. The DRP included notable design professionals with significant knowledge and experience of formulating and delivering successful materplans for new communities. The DRP worked with the design team and officers from SODC and OCC to evolve the proposals.

3.5. Key milestones during the consultation and engagement process have included the following:

**April 2016**
Initial meetings with SODC/OCC setting out a vision for the Site in response to the ‘Call for Sites’

**May 2017**
Representations to the SODC-Local Plan 2033 - Second Preferred Options

**November 2017**
Representations to the SODC-Local Plan 2033 - Final Publication Version Local Plan

**January 2018**
Design Review Panel Meeting 1 (including Site Visit)

**March 2018**
Design Review Panel Meeting 2

**December 2018**
Design Review Panel Meeting 3

**February 2019**
Representations to SODC-Local Plan 2034 - Final Publication Version 2nd Local Plan

**June 2020**
Representations to the Examination of the Soundness of the SODC-Local Plan 2034 - Final Publication Version 2nd Local Plan

**December 2020**
Site allocated through Policy STRAT9 in adopted SODC Local Plan 2035

**June 2022**
Masterplan Document Workshop 1 (attended by officers from SODC and OCC and the Design Team)

**October 2022**
Education-focussed Workshop (attended by officers from SODC and OCC and the Design Team)

**November 2022**
Masterplan Document Workshop 2 (attended by officers from SODC and OCC and the Design Team)

**February 2023**
Councillor Workshop (attended by members from SODC and OCC and the Design Team)

# Evolution of the Masterplan Summary

## Initial Design Formulation


APRIL 2016


NOVEMBER 2017

## Design Review Process

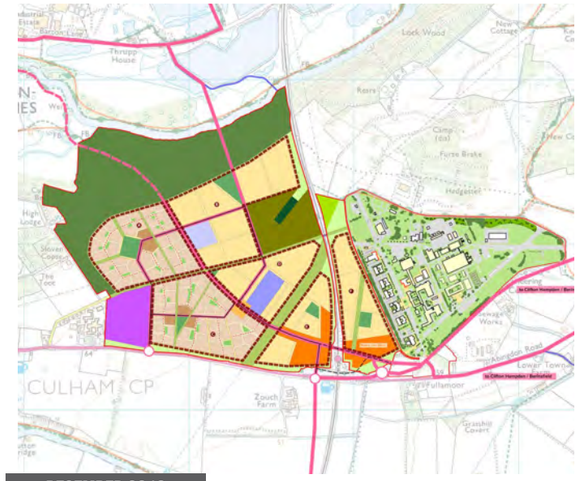

JANUARY 2018


MARCH 2018





J UNE 2018



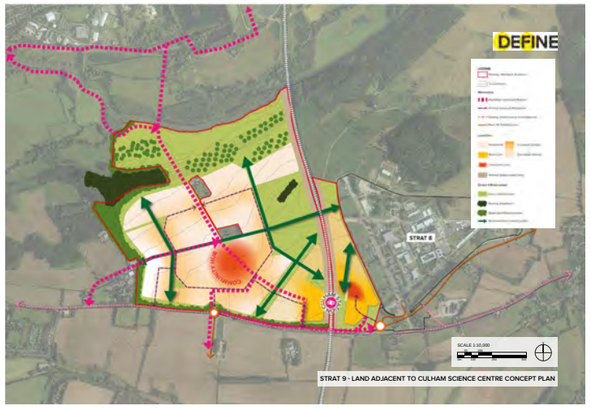

DECEMBER 2018

# Evolution of the Masterplan Summary

## Towards the Local Plan


FEBRUARY 2019


JUNE 2020




AUGUST 2020

## Post Local Plan Adoption

FEBRUARY 2022

JUNE 2022

# Emerging Proposals for No.1 Site

3.6. The first stage of realising the vision for CSV is to bring forward proposals for the employment component of the development with an Outline Planning Application (OPA) being prepared for No.1 Site.

3.7. The OPA for No.1 Site proposes:

- Up to 115,000sq.m of employment floorspace [UseClass E(g), B2 and B8];
- Up to 2,500sq.m of hotel floorspace (equating to approximately 100 hotel bedrooms) [Use Class C1];
- Up to 600sq.m of retail floorspace [Use Class E(a) and (b)];
- Up to 500sq.m of health club / gym floorspace [Use Class E(d)];
- Up to 500sq.m of crèche / children's nursery floorspace [Use Class E(f)]; and
- Up to 800sq.m of restaurant / public house floorspace [Sui Generis]'.

3.8. The current Illustrative Masterplan for No. 1 Site (shown at Figure 5) proposes a series of mid-tech employment buildings framed around a continuous, central landscaped space at the heart of the Site that incorporate walking and cycling routes, whilst encouraging social activity and leisure and maximising ecological richness. It is proposed that vehicles would be restricted to the perimeter of the site, allowing for a safe and pleasant, people-focused employment scheme.

FIGURE 5 - NO1 SITE ILLUSTRATIVE MASTERPLAN

ABCAM Research Lab and Offices, Cambridge Biomedical Campus

ABCAM Research Lab and Offices, Cambridge

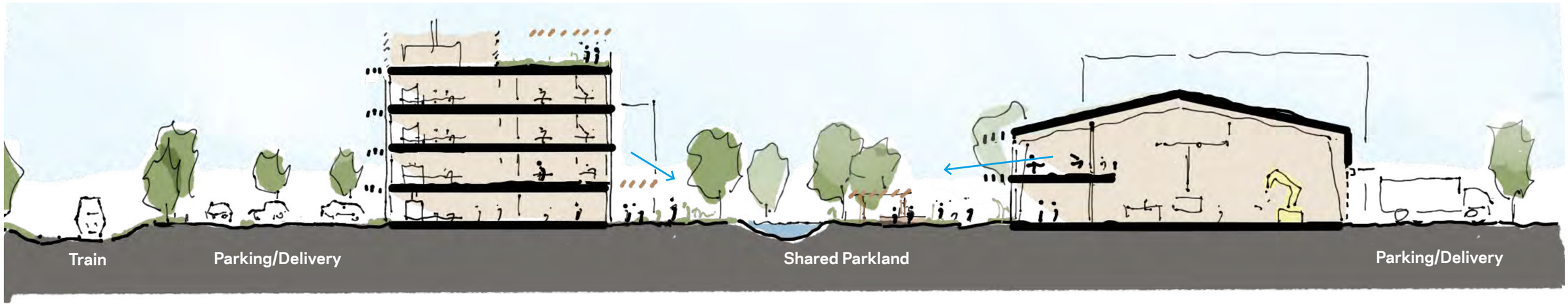



FIGURE 6 - EXTRACTS FROM NO1 SITE DAS

# VISION

# WHAT SORT OF PLACE WILL BE CREATED?

The aspiration is to provide placemaking infrastructure that will facilitate the emergence of a sustainable, new place to live and work with emphasis on health and wellbeing.


# Health & Wellbeing

4.1. The vision for CSV places health and wellbeing at the heart of masterplanning decision-making in the expectation that places that are designed for healthy lives will lead to an enduring legacy and a community that flourishes from its environment.

4.2. The focus on health and wellbeing is central to policy initiatives relating to new development, with 'The Five Ways to Wellbeing' having been developed as a set of practical actions aimed at improving our mental health and wellbeing by the New Economics Foundation from evidence gathered in the Foresight Mental Capital and Wellbeing Project (2008); these have since been absorbed into further guidance including Healthy Homes (2022) and Building for Health (2022) on behalf of the NHS.

4.3. According to the 'The Five Ways to Wellbeing', we are encouraged to think about how often we do the five following actions – on a daily, weekly or monthly basis:

- Take real notice of our surroundings;
- Connect with someone important to us or perhaps someone we don't know;
- Are physically active;
- Learn something new;
- Give something of value to someone else – this could be in the form of giving our time, or something of material value.

4.4. CSV will be a place that takes into account consideration of the above five ways to wellbeing. The masterplan will provide an expansive network of open space that will offer various opportunities for access to nature and social interaction, spaces for sports, play, food growing, leisure, relaxation that will play a vital role in encouraging social cohesion and forging a new community.

4.5. The HIA work is normally being carried out at an application stage and this approach will be followed for the land west of the railway line.


FIGURE 7 - NHS - FIVE WAYS TO WELLBEING

# Innovation

4.6. Innovation is inextricably linked to the vision for CSV. The proposal is to create an entirely new place to live and work where the employees of new and existing mid-tech jobs provided at Culham Science Centre and No.1 Site can live in close proximity to their place of work while sustainably accessing local services and facilities as well as connections from Culham Station.

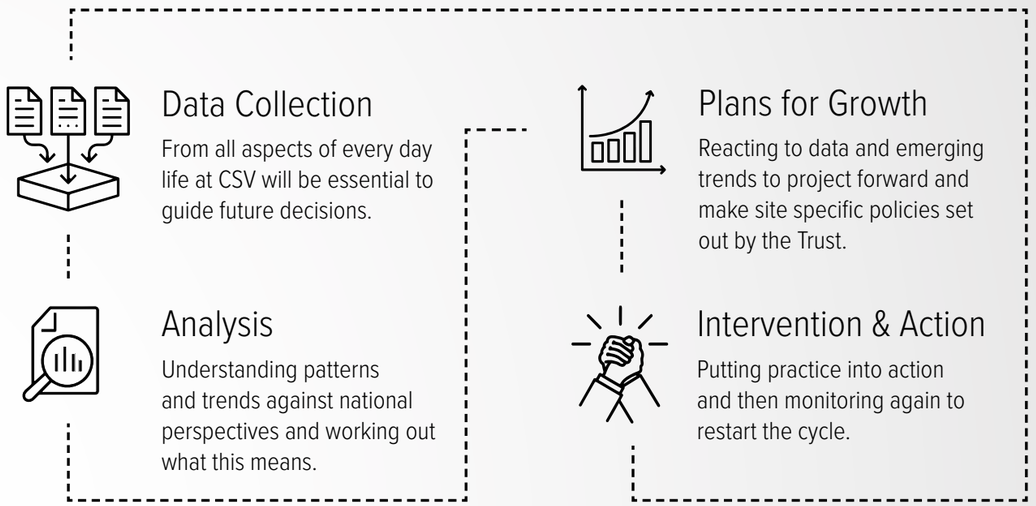
4.7. The masterplan for CSV will delivered utilising best practice technologies and innovations as a means for guiding future development decisions. Key stakeholders including future businesses, employees and residents will use a 'Living Lab' approach to evolve proposals for development on the Site by gathering and analysing data around everyday uses that new innovations and technologies that can be tested against. The objective of this approach will be to explore how technology can be used to shape smarter, more sustainable, less energy intensive, more cohesive and healthier working, living and mixed use environments.

4.8. The scale of development envisaged by Policy STRAT9 is such that delivery could take several decades to be fully implemented. On this basis, it is unlikely that decisions taken now will be fit for purpose in several years and so a Living Lab approach establishes a structure whereby evolution in technology can be embraced, utilised and tested in support of an innovative masterplan. This approach is supported by the Oxfordshire County Council Innovation Hub.

4.9. CSV could also benefit from a legacy model that allows future employees, residents and mixed use occupiers to become members of a site specific trust and be involved in future decisions and management of physical and virtual infrastructure. Such a group could have a strong partnership with an onsite Innovation Hub which will establish the 'Living Lab', identify the initial experiments, monitor and analyse the results and apply this learning to established and future phases and new experiments. It is expected that strong links will naturally be established with No.1 Site and UKAEA, creating further opportunities for research, innovation and lifelong learning.

4.10. An innovation strategy will need to be part of the subsequent outline planning application.

The 'Living Lab'




# Masterplanning Themes

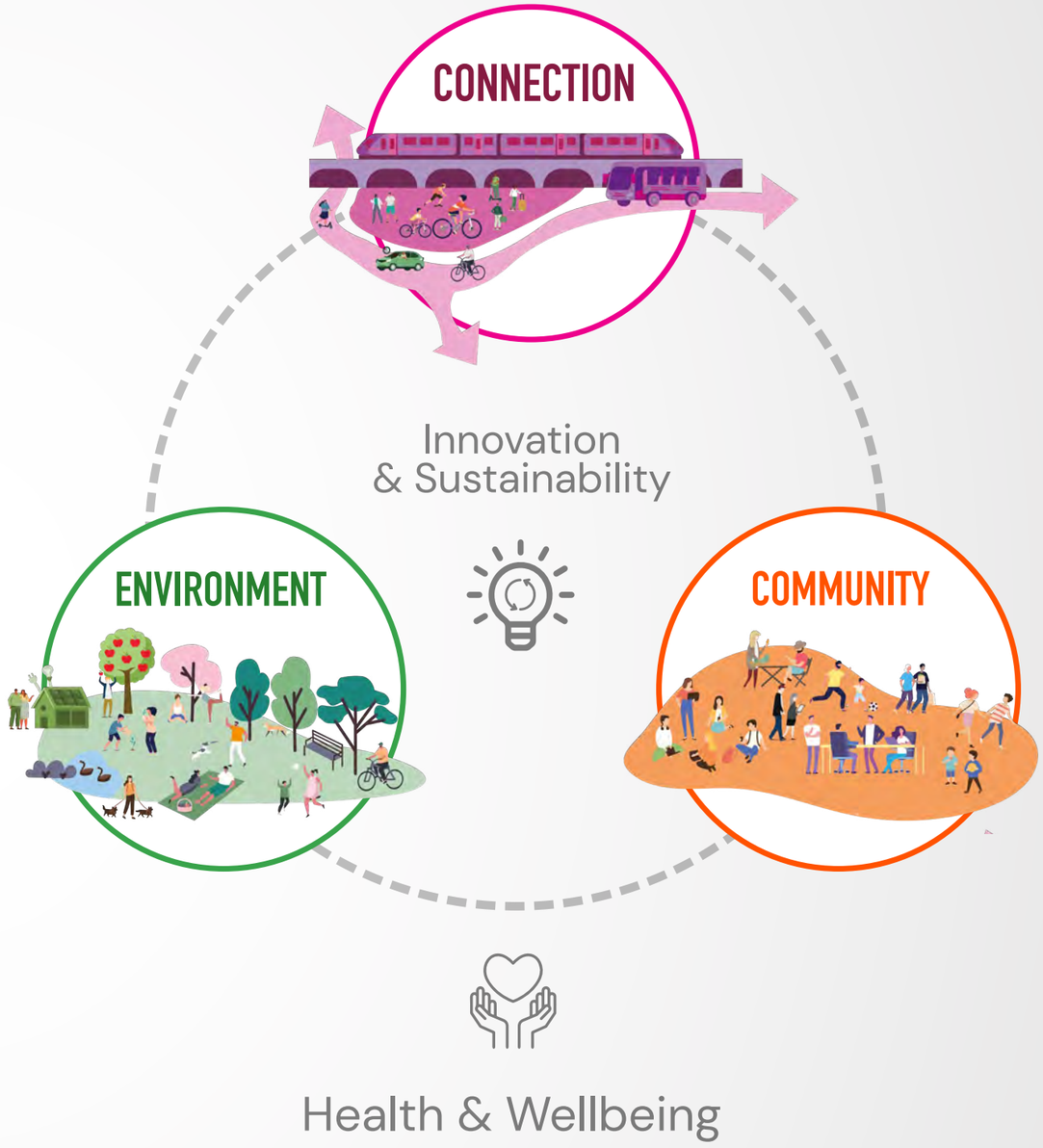
4.11. The masterplan has been shaped and generated from a series of key themes that define the vision for the Site. The themes centre around key determinants of successful new developments of the scale of CSV; connection, environment and community.

4.12. The design review process undertaken in 2018-19 arrived at the three themes as a means to explore the things that matter to the formation of a new community; these include spatial elements, such as land uses, open spaces and connections and non-spatial elements, including legacy, the ability to test and incorporate new innovations (e.g. sustainable transport modes) and supporting and enhancing health and wellbeing.

4.13. Throughout the course of the further evolution of the proposals (including more recent engagement with SODC, OCC and key stakeholders in 2022-23) it was agreed that the three themes of connection, environment and community remained the relevant focus for masterplanning decisions and this masterplan document.

4.14. Within each of the themes, a series of masterplan principles are provided which, in effect, set rules for the ongoing evolution of the masterplan. These rules are not prescriptive and do not seek to place onerous constraints on development, but do give a focus for the important issues that must be addressed by future proposals.

**An innovative and sustainable place to live and work with health and wellbeing at its core communicated through three key themes CONNECTION, COMMUNITY and ENVIRONMENT, each associated with a series of principles...**



# CONNECTION

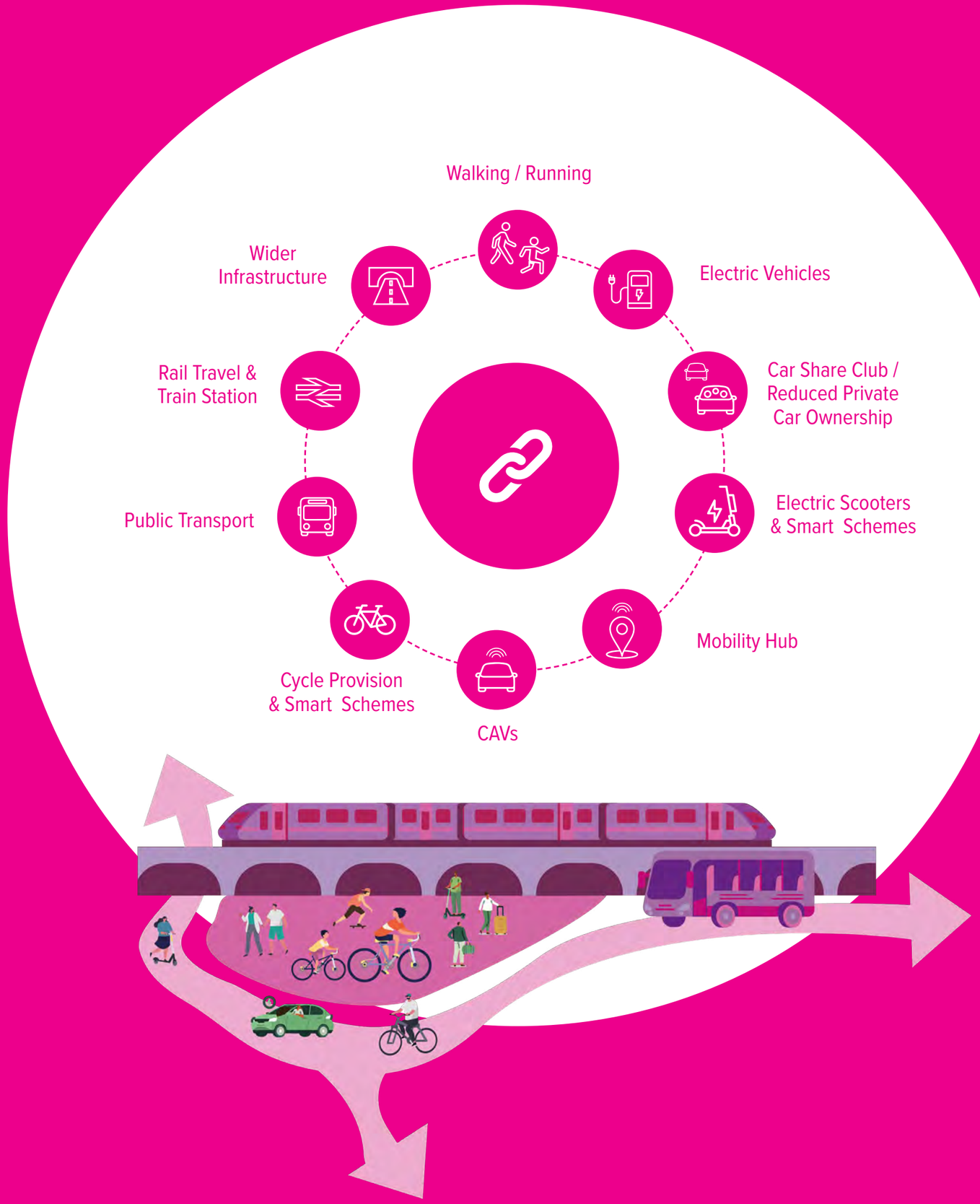
## A well connected village with strong emphasis on active travel and sharing schemes...

Walking and cycling will be the predominant means of movement to on-site facilities and a significant means for off-site trips. Culham Railway Station will be upgraded to provide improved bus and rail service frequencies which when, fully connected to the improved walking and cycling network will provide a full multi-modal interchange offer.

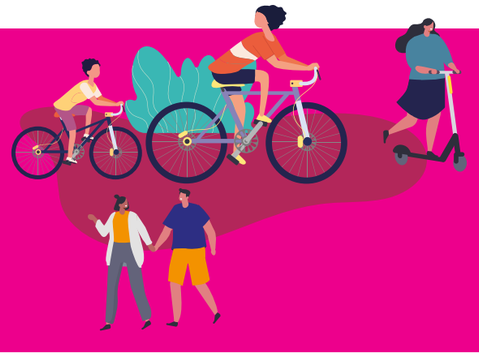
- Improved railway facilities that seek to preserve and incorporate the existing station building with adjoining multi-modal interchange facilities enhancing connectivity.

- Cycling and walking as primary modes of active travel for residents and employees, connecting people with on-site facilities and off-site destinations, whilst providing direct links to Culham Science Centre and the nearby settlements of Abingdon, Didcot, Oxford and Berinsfield.

- A gradual decrease in car usage and parking provision, facilitated through enhanced public transport, testing of community car clubs and Connected and Autonomous Vehicles (CAVs) that don't rely on a driver, such as Autonomous Shuttles. Potential for reduced car usage and low parking provision from the start in areas with good public transport, active travel links and community facilities available within walking distance. Each application will need to demonstrate compliance with OCC Parking Standards for new Development at the time of submission and justification will be required for reduced parking where very high public transport solutions are available. Technical justification of how parking will function will be required at the application stage.



## 1. ACTIVE TRAVEL



Development will be formed around a wide network of routes and connections that prioritise active travel (i.e. walking and cycling) and shared travel schemes. Strategically located cycle hubs will offer the opportunity for secure parking and bike sharing.

The delivery and enhancement of strategic pedestrian / cycling infrastructure will further encourage sustainable movement within, around and beyond the site, offering the opportunity for access to the wider countryside for recreation.

## 2. STRONG PUBLIC TRANSPORT LINKS

The new living and working community at CSV will benefit from the strong public transport links providing local connectivity to Abingdon, Berinsfield, Oxford and Didcot as well as further connections from Culham Station.

Public transport connections are due to improve as the masterplan builds out. Culham Station is expected to increase the frequency of its service to two trains per hour in peak periods with the potential for rail platform extensions and a new station building also being investigated. Buses are expected to be fully automated and electric by 2050.

# COMMUNITY

## A diverse living and working community with strong involvement and emphasis on social cohesion...

A legacy model that can guide future development and maintenance and allow residents and employees to make the best decisions that will ensure an enduring high quality future for the site. This model will allow for information to be collected with the help of data and new technologies and for key infrastructure to be changed based on community interests. The scheme will encourage social cohesion and interaction between residents and employees.

- An attractive, cutting edge employment campus, that combines office space, research and advanced, high tech manufacturing, supported by a series of amenities and facilities that enhance the everyday life of the employees.
- A 21st century new community formed of smaller compact neighbourhoods of unique character, each providing community facilities, such as community hub with flexible workspace, crèche, neighbourhood play, grow zones and car clubs.
- An Education Heart offering secondary and primary education opportunities and opportunities for play.
- A Community Heart offering education, health and later living facilities, as well as opportunities for sports, play and leisure.
- A mixed use Station Quarter offering mixed use, retail, co-working, and leisure opportunities, as well as opportunities for an innovation hub that will establish and promote the 'Living Lab' approach.
- A community which connects, involves and empowers residents and employees.


## 1. COMPACT, WALKABLE NEIGHBOURHOODS THAT BRING PEOPLE TOGETHER

Buildings, streets, spaces and virtual space in CSV will be thought of as environments for people to live, work, play and learn. They will be designed to address changes in living and working patterns and encourage positive human interaction.

The scheme will be focusing on a pedestrian led lifestyle and will be formed of smaller compact neighbourhoods designed at human scale and providing community facilities such as car clubs, grow zones, homework hubs, neighbourhood play and crèche.

The Community Quarter which is located strategically at the heart of the scheme along the Main Active Travel Corridor will offer education, health, community and later living facilities, as well as spaces for sports, play and leisure, encouraging social cohesion.

In close proximity to the train station as its name suggests, the mixed use Station Quarter will offer mixed use, retail, co-working, and leisure opportunities in a more urban environment.

## 2. STEWARDSHIP AND EMPOWERMENT

Employees, residents and occupiers at CSV could become members of a site specific legacy vehicle that connects, involves and empowers people, encouraging them to look after their community.

A potential legacy vehicle (e.g. community trust) would have a strong partnership with the innovation strategy for CSV (as detailed above) which would establish the 'Living Lab' to promote, test and evolve emerging best practice technologies and innovations as a means for guiding future decisions around development and maintenance.

The Innovation Strategy for CSV could create further opportunities for research, innovation and lifelong learning within No.1 Site and UKAEA with benefits for the wider community.

## 3. COHERENT DEVELOPMENT PATTERN WITH DISTINCTIVE AND BEAUTIFUL NEIGHBOURHOODS THAT ENCOURAGE DIVERSITY

CSV will be a beautiful, compact place which sits successfully within its landscape, has lively spaces, attractive buildings and healthy streets that encourage active lifestyles. The form, scale, proportions, materials, details, patterns and colours the buildings, blocks, streets and open spaces will be carefully thought and designed in relationship with each other, to create an attractive environment with a strong identity and a positive sense of place. Neighbourhoods should be visually attractive and have a clear and distinct character that suits the context and their specific location within the scheme.

Variety of building typologies, plot-sizes, ownership models, public and private spaces that respond to specific needs will help create a stimulating, socially cohesive and inclusive environment, where everyone feels welcome.

## 4. AN ATTRACTIVE AND UNIQUE PLACE TO WORK

CSV will benefit from an attractive and innovative 21st century employment campus at No.1 Site that will combine office space, research and advanced, high tech manufacturing, creating an ideal setting for the new living community to grow and flourish.

Thousands of skilled jobs will be created with huge benefits for the local economy, whilst the cutting-edge research potential of the new businesses could provide apprenticeships and links with local schools.

Strong links will be established between employment at No1 Site, the innovation hub and the adjacent Culham Science Centre, creating further opportunities for research and innovation.

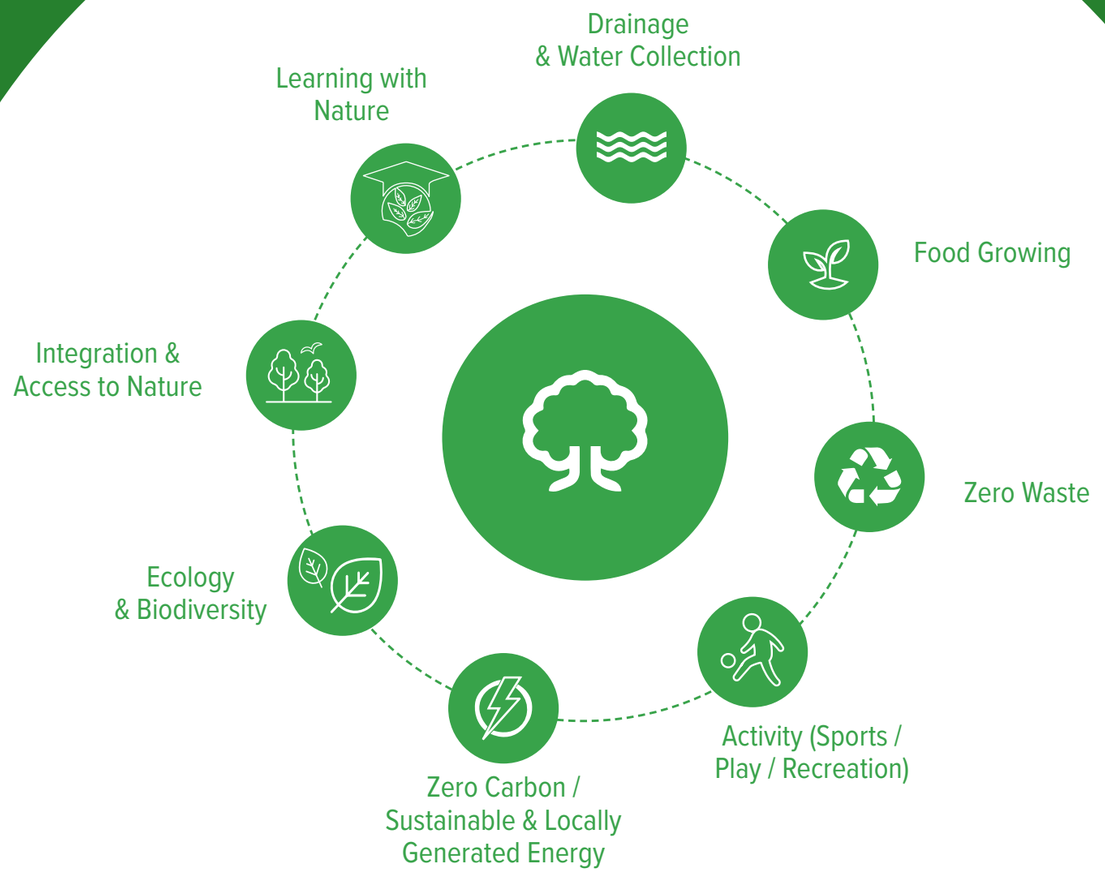
A rich landscape heart, as well as a series of amenities, facilities, active travel and leisure routes will help achieve high placemaking standards, encourage interaction between employees and promote health and wellbeing in the workplace.

# ENVIRONMENT

## A climate resilient place that forms a positive dialogue with its natural environment, whilst promoting health and wellbeing...

An extensive and diverse Green and Blue Infrastructure network will ensure that the natural environment is at the heart of the everyday lives of residents and employees, whilst providing extensive opportunities for sport, play, education and ecological improvement.

- A 21st century new community formed of smaller compact neighbourhoods, that provide opportunities for food growing and neighbourhood play.
- An extensive network of green infrastructure including play spaces and access to high quality sports facilities.
- A integrated blue infrastructure network that is present on almost every street and space of the scheme, responding to their different characters.
- An environment that empowers social cohesion, community involvement, learning, active lifestyles and every day health and wellbeing.
- Direct access to the wider countryside for recreation.
- A net biodiversity gain facilitated by woodland creation, wet / dry meadow grassland habitats and a strong emphasis on native planting.
- Emphasis on clean growth and sustainable construction method and materials, as well as on sustainable, locally generated energy.




## 1. LIVING WITH AND LEARNING FROM NATURE

The large amount of different types and characters of open space in CSV will create the opportunity for nature to be a substantial aspect of the scheme, from the wider Green Infrastructure, to the streets, spaces, urban blocks and employment campus.

The presence, variety and accessibility of the natural environment will offer educational opportunities for residents and employees, promoting everyday health and wellbeing. The scheme will incorporate leisure routes, views and links to unique local assets, such as the River Thames and the wider countryside.

## 2. BUILDING ACTIVE AND HEALTHY COMMUNITIES

CSV will be a healthy living and working environment with emphasis on active and happy communities. Healthy lifestyles will be supported by positioning formal sport facilities in highly accessible strategic locations within the scheme, encouraging food growing, and providing opportunities for dispersed informal play throughout the landscape and development.

Leisure routes around development will provide opportunities for walking, running and contact with nature for residents and employees.

## 3. CLEAN GROWTH

CSV will be a sustainable and resilient new community that practices clean growth through reducing carbon emissions, minimising use of resources and building a more circular and locally-inspired model that minimizes waste. A sustainably-sourced building fabric first approach to carbon reduction will aim to reduce energy consumption on plot, with the ambition to achieve net zero carbon emissions by 2030 in accordance with policy DES10 of the SOLP (2020). Renewable energy will be used for heating. On-site renewables will be assessed for deliver during each phase, at the plot or parcel scale. Other initiatives that could be used include small-scale community food production, community compost facilities, zero waste shops, reduced water consumption and on-site grey water recycling.

## 4. BIODIVERSITY RULES

The design of the new community should integrate existing, and incorporate new natural features into a multifunctional network that supports quality of place, biodiversity and water management, and addresses climate change mitigation and resilience.

An extensive Green Infrastructure network will deliver a wide range of functions and benefits including water features that form part of an integrated system of landscape, biodiversity and drainage. Habitat and woodland creation and native planting help achieve a net biodiversity gain.

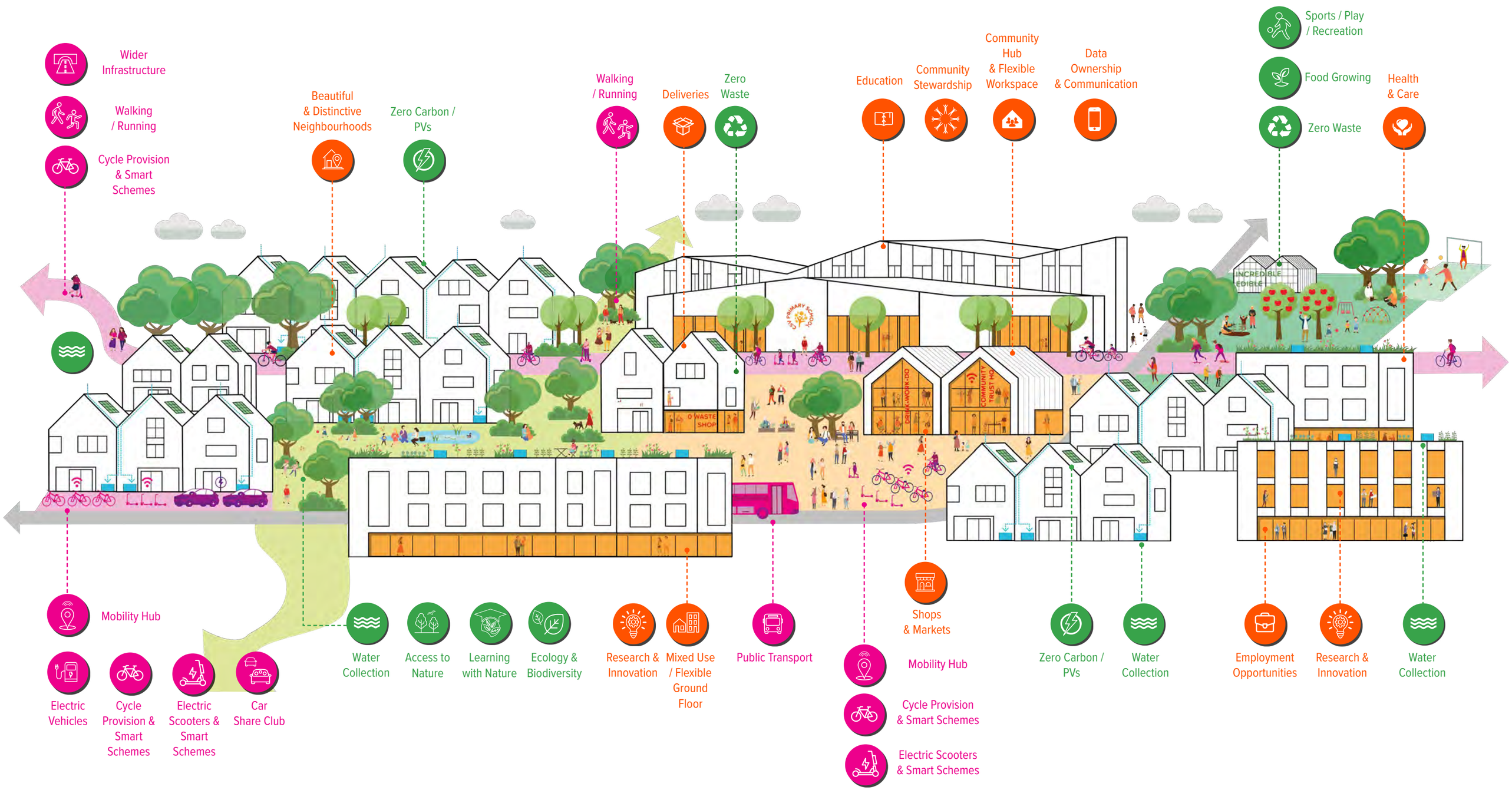



FIGURE 8 - MASTERPLANNING THEMES IN PRACTICE

# Visionary Concept

RIVER THAMES
PLAY
SPORTS PITCHES
SECONDARY SCHOOL
PRIMARY SCHOOL
RESIDENTIAL
RIVER LINK
THAME LANE
PLAY
PRIMARY SCHOOL
GREEN CORRIDOR
EMPLOYMENT
EUROPA SCHOOL
MIXED USE CENTRE
TRAIN STATION
CULHAM SCIENCE CENTRE
TO CULHAM
A415
TO DIDCOT

FIGURE 9 - VISIONARY CONCEPT


# MASTERPLAN

# Masterplan

5.1. The vision, themes and design principles identified above have been used to formulate an approach that will create a special and distinctive community that facilitates growth whilst meeting key challenges of the future.

5.2. The masterplan below shows how growth can be accommodated at CSV in accordance with planning policies. The masterplan is formed around an extensive grid of active travel routes and green corridors that allow for sustainable movement and access to a connected network of open spaces that facilitate biodiversity net gain and offer health and well-being benefits to future residents and visitors to the new community. The masterplanning approach has been landscape-led with a robust green and blue infrastructure network formed around the existing natural and semi-natural features and the topography of the Site.

5.3. The River Link will provide a car-free premium active travel route through the development strategically linking Abingdon to Berinsfield via the Site and serving the main entrances to Culham Station and Culham Science Centre. The River Link route also provides the main focus for activity through the CSV masterplan with non-residential community uses clustered around it and nodal points where bespoke public spaces will be created.

5.4. Thame Lane is proposed to be retained as a focus for active travel linking Europa School to the west with employment-focussed development on the eastern side of the railway line and Culham Science Centre. The secondary school and northern primary school will be situated at the intersection between the River Link and Thame Lane where active travel connectivity is at its greatest.

5.5. Further down the River Link towards Culham Station, the route will be fronted by a mix of uses including community facilities such as a medical centre and community buildings as well as flexible ground floor space. This approach will ensure maximum activity onto the River Link and support natural surveillance and in turn, vibrancy and vitality.

5.6. The River Link will be fronted by the highest density development in order to capitalise on the connectivity of the route. Near to Culham Station, on its immediate western side between the rail line and the power line corridor, a new ‘Station Quarter’ will be formed providing high density developments (e.g. apartments and townhouses) on a tight-knit grid of streets. Again, this approach seeks to maximise the benefit of high density development in such a well-connected location.

5.7. The land between the rail line and Culham Science Centre (known as ‘No.1 Site’) will be the focus for employment with high quality innovation space being provided in a rich landscape and ideally-placed with access to the rail network and the River Link and immediately adjacent to the Science Centre with all the benefits of co-location.

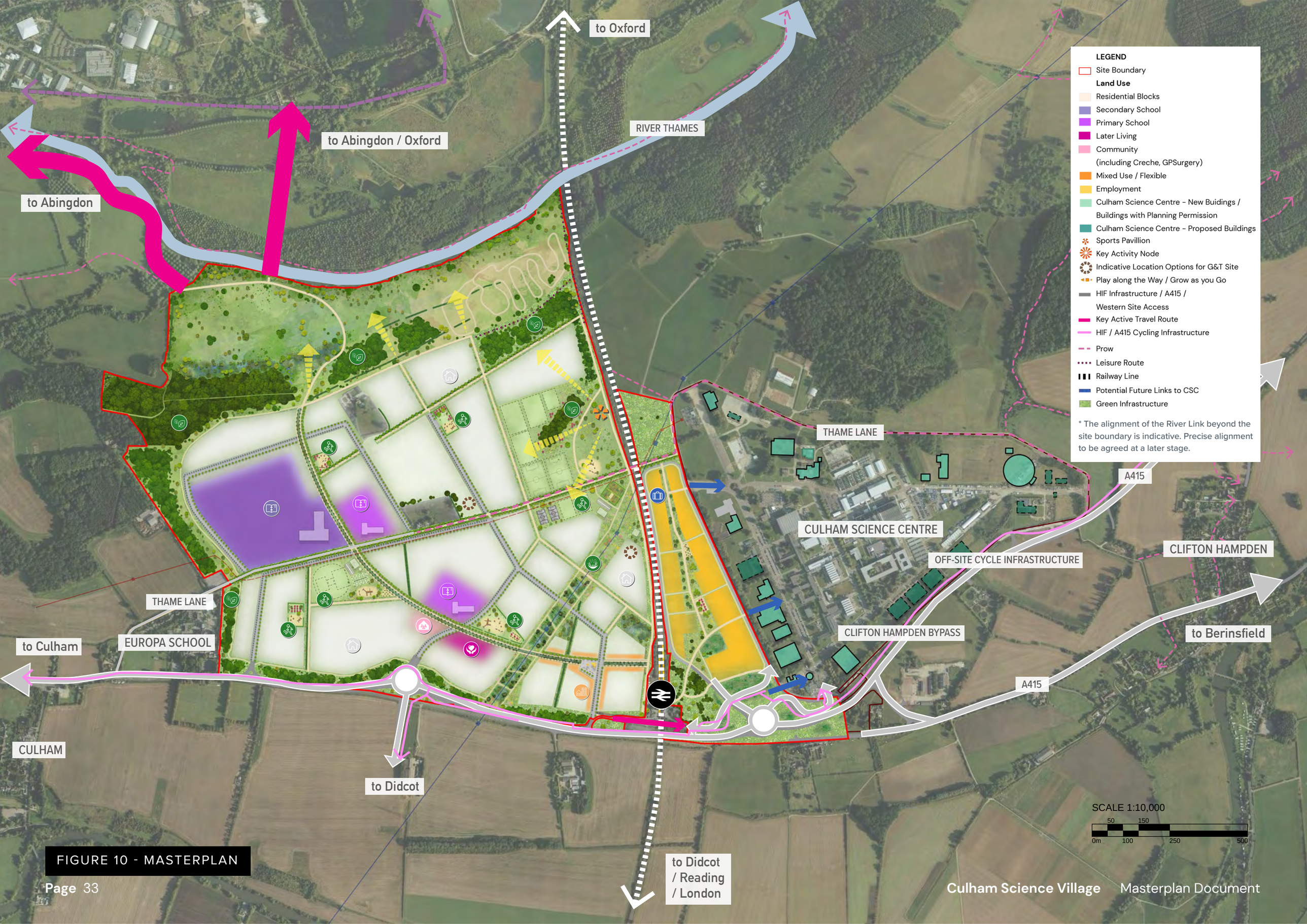



FIGURE 10 - MASTERPLAN

# MASTERPLAN PRINCIPLES

# Community

6.1. The new community will provide a range of new housing including a variety of housing types catering for a diverse new community of a variety of ages, family sizes and tenures in line with the requirements of the relevant planning policies. In accordance with Local Plan policy STRAT9, approximately 3,500 dwellings will be provided.

6.2. Up to 115,000sq.m of employment floorspace is proposed on No.1 Site. High quality mid-tech innovation space will be provided in a rich landscape setting, ideally-placed with access to the rail network and the River Link and immediately adjacent to the Science Centre with all the benefits of co-location.

6.3. A number of other land uses are also proposed to support the new community. Educational facilities will be provided in accordance with policy STRAT9 including an 8-Form Entry Secondary School (with sixth form on-site) and two 2-Form Entry Primary Schools. A GP surgery will also be provided as well as convenience floorspace that meets the day-to-day needs of the local community.

6.4. Flexible community space will also be provided throughout the development in purpose-built community hubs that, due their flexible nature, offer the potential for communal activities and work hub space. As noted above, the River Link will provide the focus for non-residential community uses as a means to creating a vibrant well-surveilled route that is highly-connected to the remainder of the Site, Culham Station, Culham Science Centre and beyond to Abingdon and Berinsfield.

6.5. A comprehensive and expansive connected network of open spaces are proposed across the Site that will provide for a number of functions and activities including ecological enhancement and mitigation, sports, play and recreational activity. The retention of important trees and existing hedgerows (maintaining connectivity to preserve and enhance ecological habitats) as well as existing watercourses is proposed and the open space network includes an expansive network of blue infrastructure for drainage attenuation incorporating SuDS features throughout.

6.6. As noted, utilising the green infrastructure network and street hierarchy that serves the development will be an expansive grid of active travel connections that link all parts of the development so that all land uses may be accessed in a sustainable and healthy way.

# FIGURE 11 - COMMUNITY FACILITIES AND LAND USES

# Movement and Connectivity

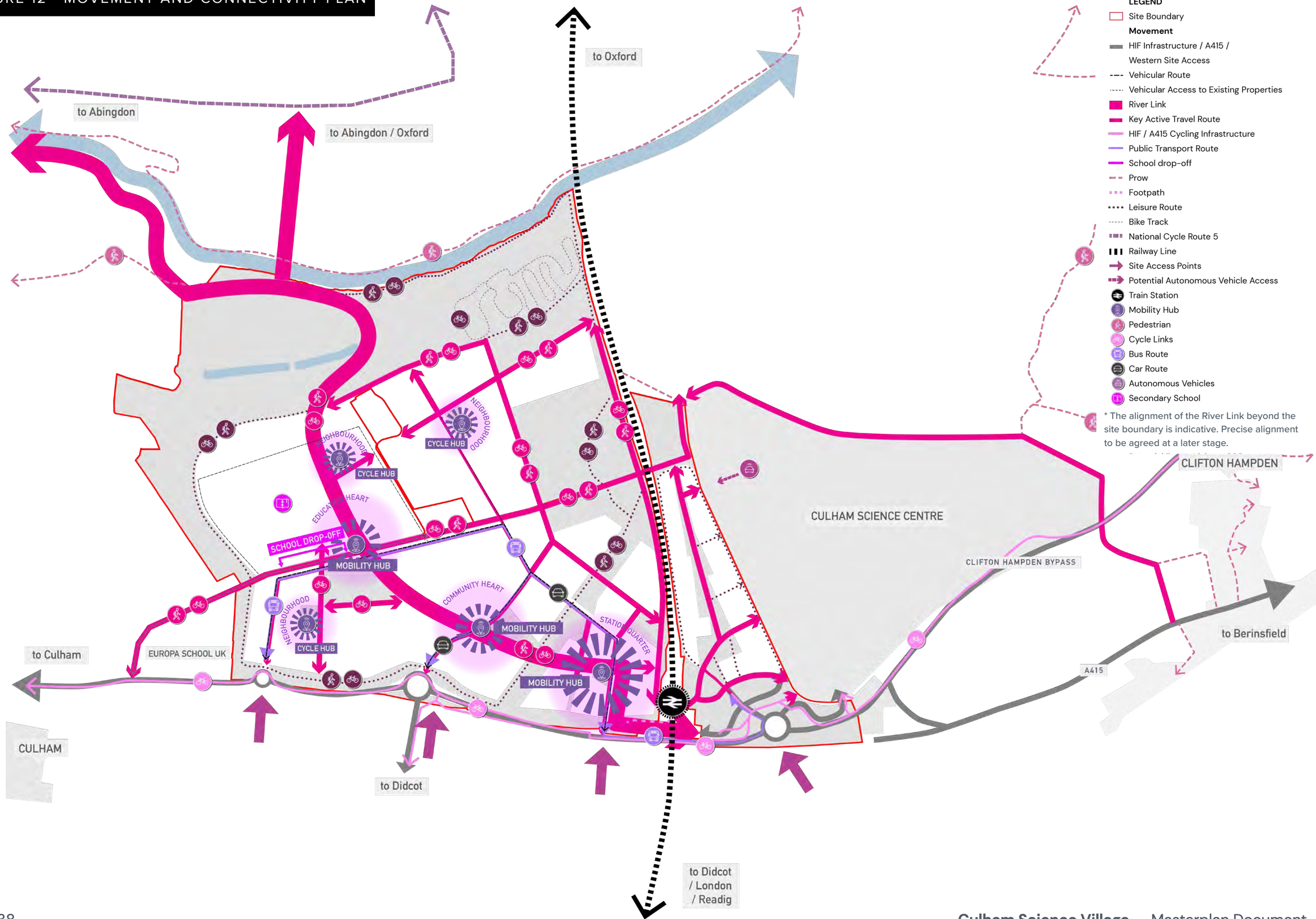
6.7. A well-connected movement network, accessible by all users, is proposed to ensure that all areas of the new development are easy to navigate, safe and secure with priority for public transport, pedestrians and cyclists throughout. A connected, permeable network of active travel routes is proposed through the development giving priority to active travel movement through the design of convenient and safe routes, which support the focus on health and wellbeing and reduce reliance on the private car. This will help create low traffic neighbourhoods and safe school streets. Existing Public Rights of Way are going to be protected and incorporated into the design of the development. The sustainable active travel network has been designed to link directly with existing Public Rights of Way that connect the Site to adjoining areas and facilitate access to the countryside.

6.8. The River Link provides a dedicated active travel route through the development, connecting key destinations within the Site to areas beyond including Abingdon, Culham Science Centre and Berinsfield. The River Link route incorporates a generous direct route for bi-directional active travel as well as a spacious linear green corridor that includes tree planting and SuDS features. High-density will directly front onto to the River Link to create a sense of enclosure to the space. Private vehicles will be restricted to the rear of buildings and there will be limited crossing points over the corridor to ensure the free movement of pedestrians and cyclists.

6.9. The Primary Street has been designed to accommodate public transport movement and allow the potential for bus services to enter the Site as required subject to ongoing discussion with key stakeholders (e.g. OCC, bus operators). The public transport movement loop also allows for potential future public transport modes including autonomous modes.

Abode, Great Kneighton, Cambridge

# FIGURE 12 - MOVEMENT AND CONNECTIVITY PLAN



# Street Typologies

6.10. A well-connected movement network, accessible by all users, is proposed to ensure that all areas of CSV are easy to navigate, safe and secure with priority for public transport, pedestrians and cyclists throughout. A connected permeable network of active travel routes is proposed throughout the movement hierarchy development which gives priority to walking and cycling through the design of convenient and safe routes which support the focus on health and wellbeing and reduce reliance on the private car.

6.11. Provision of a hierarchy of new primary, secondary, tertiary, pedestrian and cycle routes within the Site are integral to the mobility strategy, allowing users of all ages and abilities to move safely and conveniently between various spaces and land uses within the development as well as to the adjacent countryside, and the services and facilities of nearby areas. In accordance with national and local policy, the proposed street typologies offer excellent opportunities for tree planting and drainage features within the street corridor. The River Link, Primary Streets and Green Corridors in particular provide dedicated verges for tree planting and SuDS whilst Edge Streets would allow for enhanced planting and SuDS features to the edges they face onto.

6.12. All pedestrian and cycling infrastructure will be designed in accordance with Local Transport Note 1/20 (LTN 1/20). The street geometry will be inline with the OCC Street Design Guide or the relevant guidance at the time of submission.

6.13. Full SuDS strategy will be prepared in consultation with LLFA, EA, SODC and OCC as part of the outline application process.

6.14. A detailed strategy including climate resilient species, planting sizes, canopy spread, management and lighting co-ordination will be prepared in consultation with SODC and OCC as part of the outline application process.

6.15. All sections and plans used to illustrate the various street typologies of the scheme on the following pages are indicative.

Lovedon Fields, Hampshire

Horsted Park, Kent

# River Link

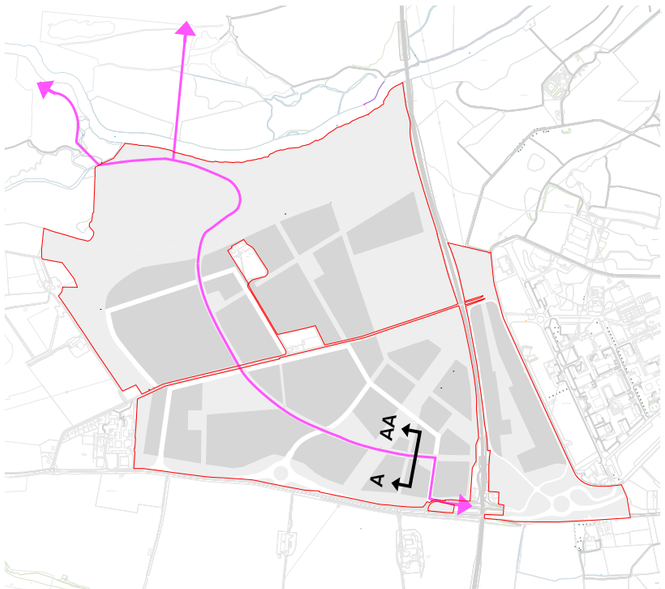
6.16. The River Link provides a dedicated active travel-only route through the entire CSV development, connecting key destinations within the development and beyond to Abingdon to the north west and Berinsfield to the east.

6.17. The River Link corridor incorporates an active travel route, as well as a spacious linear park / activity zone and a swale with tree planting.

6.18. High-sided buildings will directly front onto to the River Link to create a sense of enclosure to the route, whilst maximising active surveillance. Private vehicles will be restricted to the rear of buildings and they will be limited signalled crossing points across the corridor.


* Footpath to include underground utilities

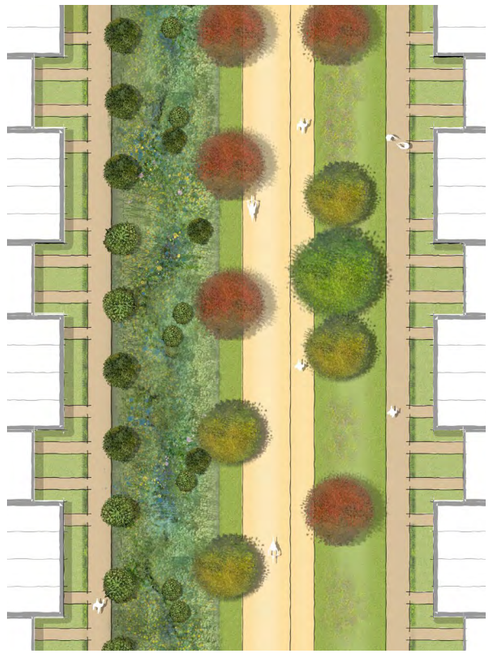
Indicative River Link Section & Plan





Eddington, Cambridge


Eddington, Cambridge



# Primary Street

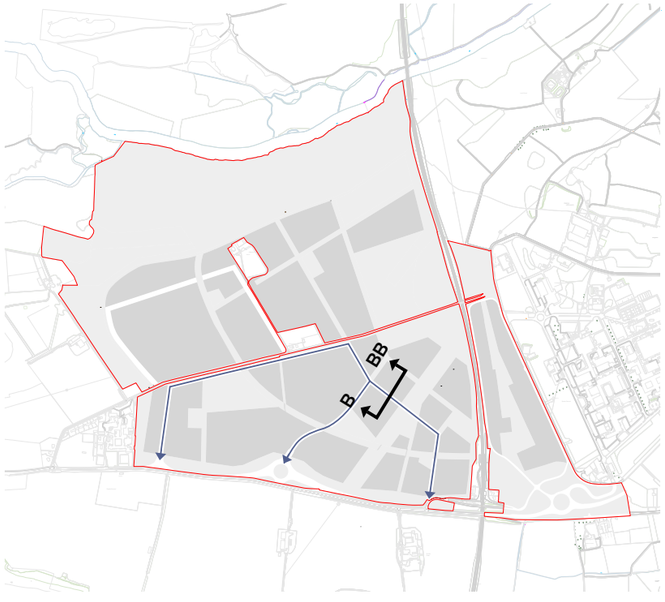
6.19. The Primary Street provides the main vehicular route through CSV and importantly, a circulatory for public transport accessing and servicing the Site. The route enters from A415 (Abingdon Road) and loops round the south of CSV to a route parallel with Thame Lane to then leave the site again on A415, travelling in either a easterly or westerly direction.

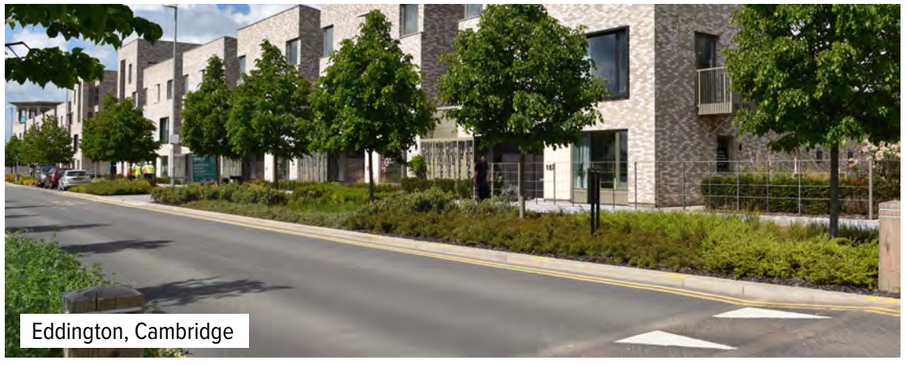
6.20. The Primary Street route will have a sense of formality with tree-lined verges and swales. The route will also provide a dedicated segregated cycleway.

6.21. Around bus stops the verge will be replaced by a pedestrian refuge to allow for safe access on and off buses.


* Footpath to include underground utilities

Indicative Primary Street Section & Plan





Eddington, Cambridge


Eddington, Cambridge

# Secondary Street

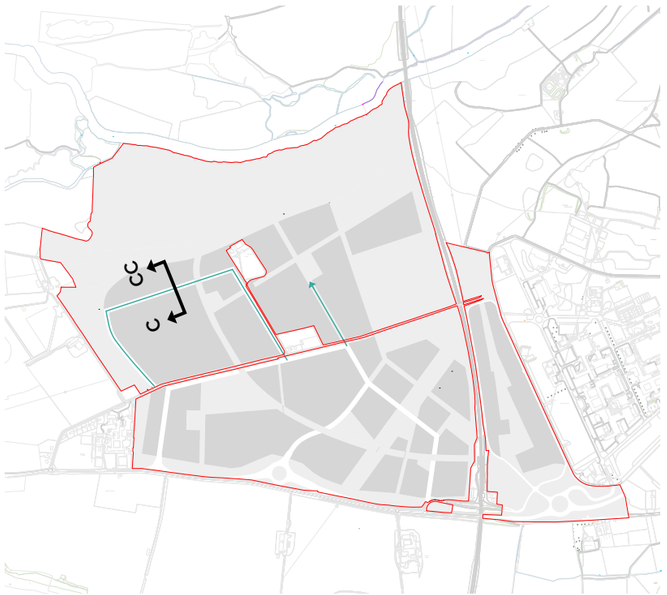
6.22. The Secondary Street will serve the neighbourhoods within CSV and provide a spine for tertiary streets to be accessed from.

6.23. The Secondary Street will provide a safe residential environment and as such will have minimal carriageway width with traffic calming features to ensure low vehicle speeds.

6.24. Drainage attenuation and tree planting will be incorporated into the street typology.


* Footpath to include underground utilities

Indicative Secondary Street Section & Plan




St. Andrews Park, Uxbridge

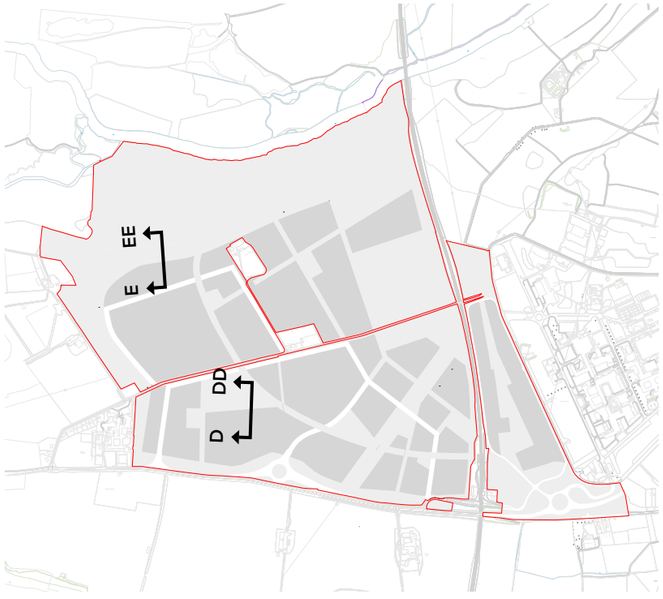
# Tertiary Street & Edge Street

6.25. Tertiary Streets and Edge Streets are the lowest category in the range of street typologies. Their location will not be determined until blocks have been fully designed in detail at the Reserved Matters stage, as they depend on the configuration of individual plots.

6.26. Tertiary Street and Edge Streets will provide a very safe residential environment where for example children can play safely. Measures should be used to ensure very slow vehicle speeds.

6.27. Drainage attenuation can be incorporated within Tertiary Streets by way of rills and rain gardens.

6.28. All tertiary and edge streets will include provisions for service margins (as per current Street Design Guide).





Abode, Great Kneighton, Cambridge


Fairfield Park, Bedfordshire


Trumpington Meadows, Cambridge


Indicative Tertiary Street Section

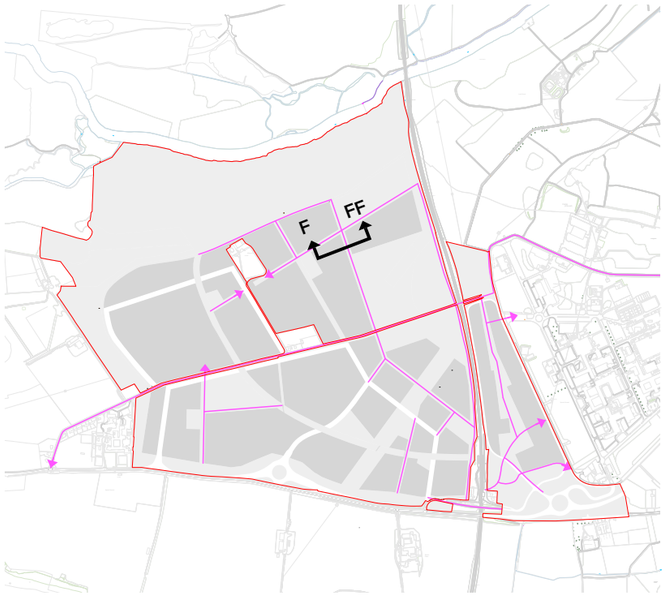

Indicative Edge Street Section

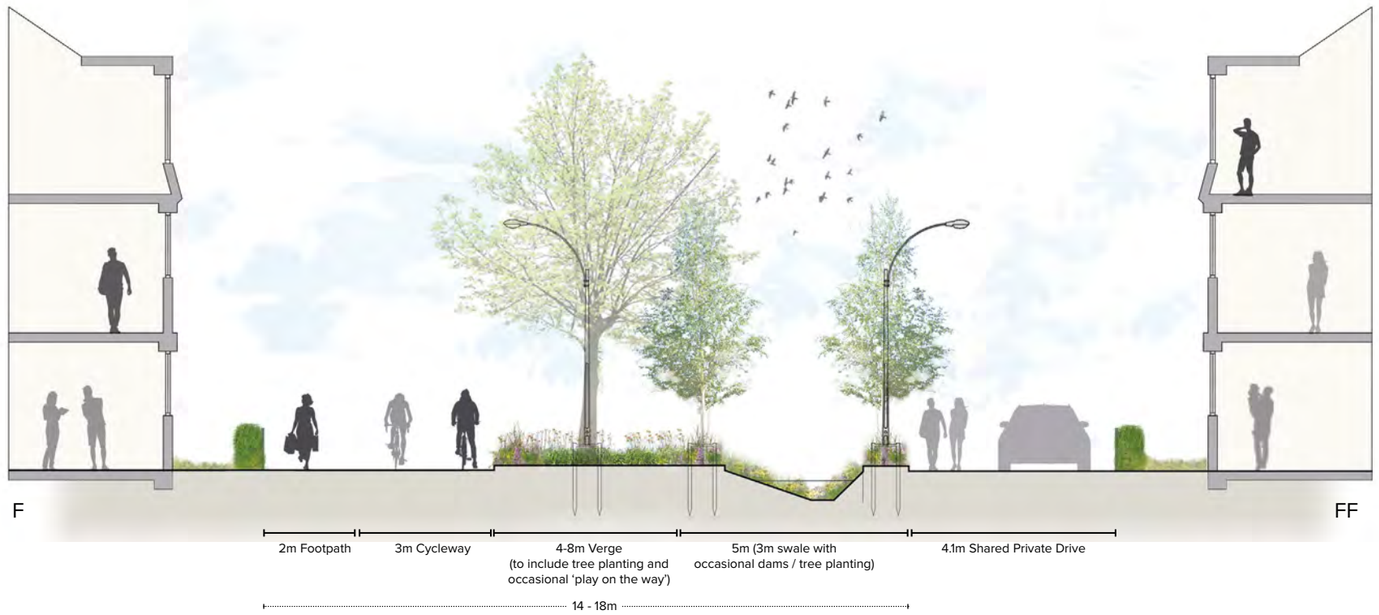
# Green Corridor

6.29. Green Corridors are proposed through the development area to provide essential green connections into the site with generous verges for tree planting and widening in places to allow for occasional ‘play on the way’. The Green Corridors will provide opportunities for ecological enhancement and allow trees to be successfully incorporated within the development.

6.30. The Green Corridors will also form part of the active travel movement network by providing dedicated walking and cycling routes as part of the corridor.

6.31. Drainage attenuation can be incorporated within the Green Corridor by way of a swale system conveying water to the low part of the Site.




Indicative Green Corridor Section


Eddington, Cambridge

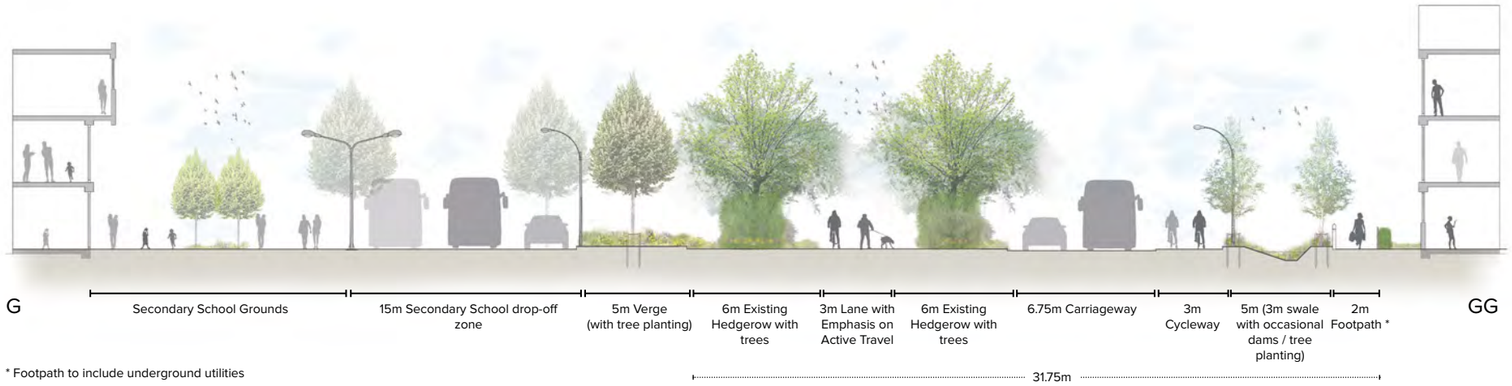

Upton, Northampton

# Thame Lane

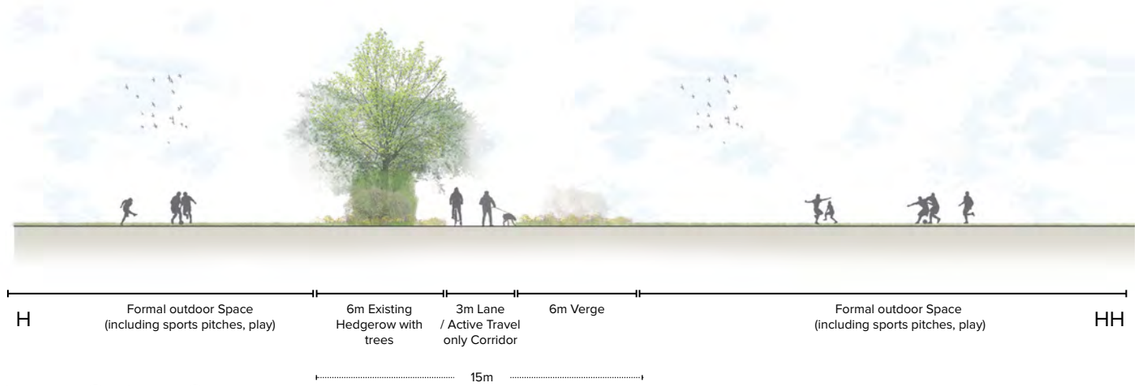
6.32. Thame Lane is proposed to be retained through the development providing a convenient east-west route for active travel movement. It will only be used by vehicular traffic to access the existing properties of Warren Farm and for crossing over between the southern and the northern sections of the site. The route is a public highway to its west between Abingdon Road and Warren Cottages and then becomes a restricted byway after Warren Cottages as it heads east towards Culham Science Centre. The route exists a typical country lane with a 3m wide carriageway with mature hedgerows either side. The existing hedgerows have been identified as 'species-rich' and therefore should be retained within the development as essential wildlife corridors.

6.33. Resurfacing might be required to facilitate active travel. There will be a variation in the cross section of Thame Lane. By the school there will be parallel routes either side of the lane to serve school drop-off to the north and public transport movement to the immediate south.

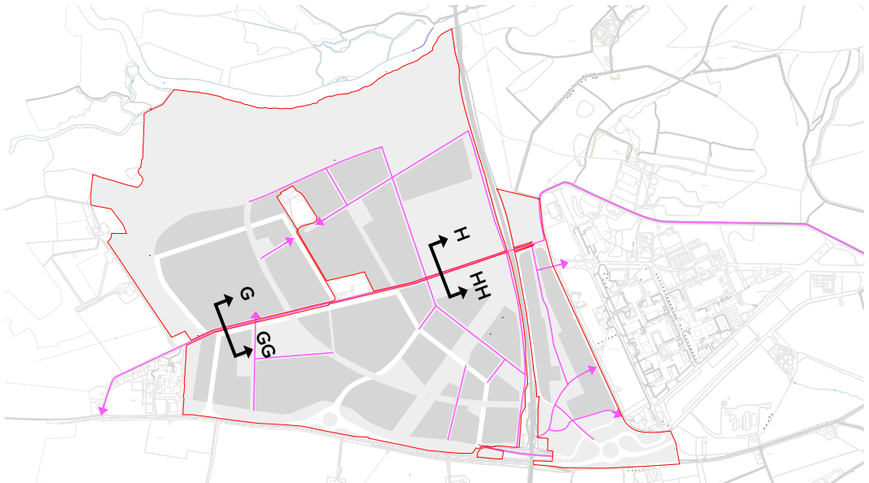
6.34. There is no intention to use Thame Lane to open views towards the RPG as the main focus of the masterplan is the reinforcement of the Green Belt boundary. However, towards its eastern section, accessibility and openess towards the Listed Bridge will increase due to the parks / sports area.




Indicative Thame Lane Section - Option 1




Indicative Thame Lane Section - Option 2





The Avenue, Saffron Walden


Thame Lane, Culham

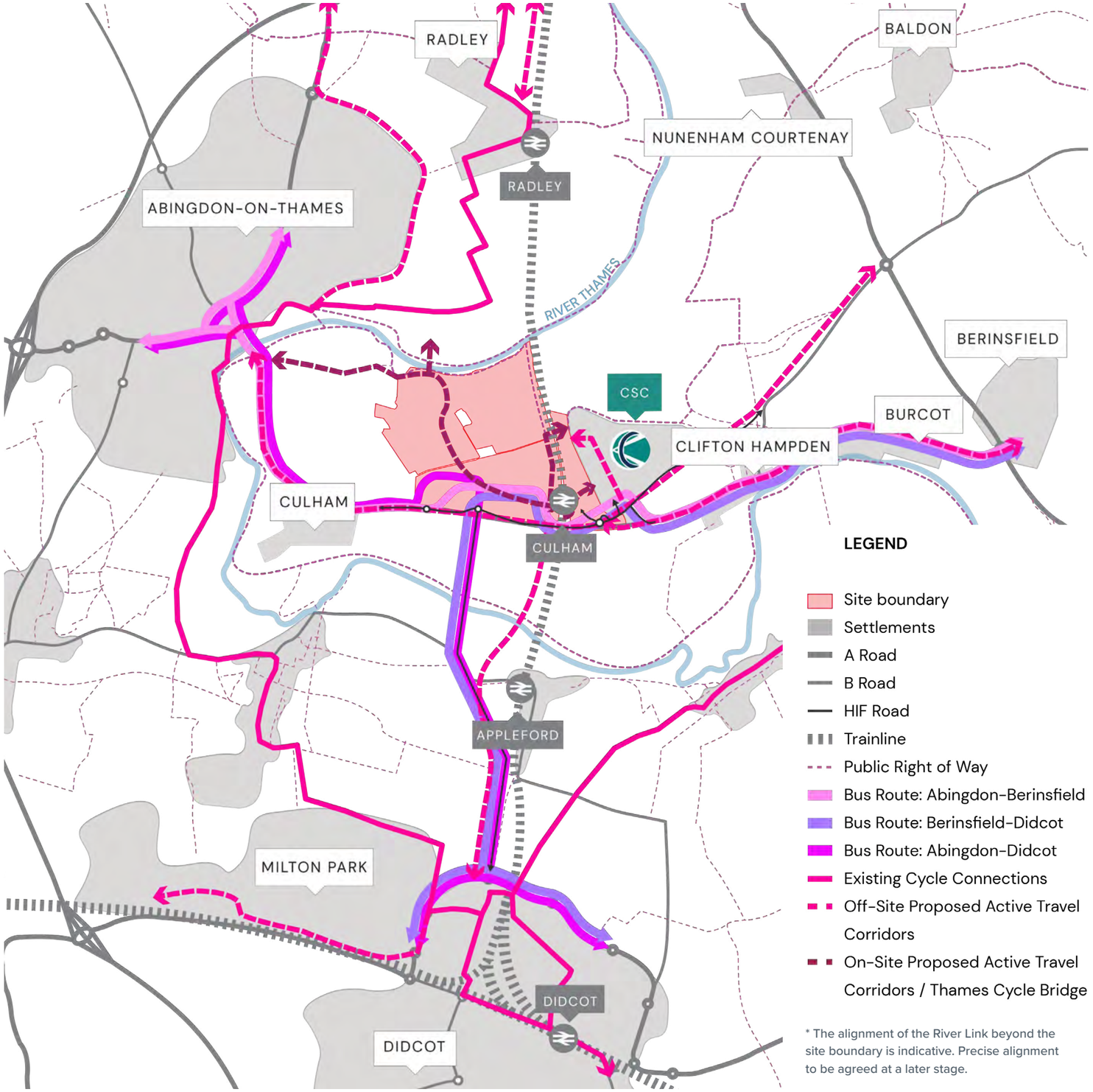
# Connected to Context

6.35. The proposals for CSV facilitate a number of wider connections of strategic importance. Of particular note, the River Link will form part of an expansive cycle route that runs between Abingdon to the north west and Berinsfield to the east.

6.36. Similarly, existing bus services serving Abingdon, Didcot and Berinsfield will be routed into the site to serve the new community and its key trip generators including Culham Station and the Secondary School. The proposed HIF junction and new route south from the site are integral to public transport connectivity, providing a new link between the site and Didcot to the south.

6.37. As required by policy STRAT9, the masterplan proposals take account of future improvements to Culham Station which is the subject of proposals by Network Rail to enhance and modernise the station environment and increase the frequency of trains serving the station.

FIGURE 13 - WIDER CONNECTIONS PLAN




* The alignment of the River Link beyond the site boundary is indicative. Precise alignment to be agreed at a later stage.

# High quality active travel routes

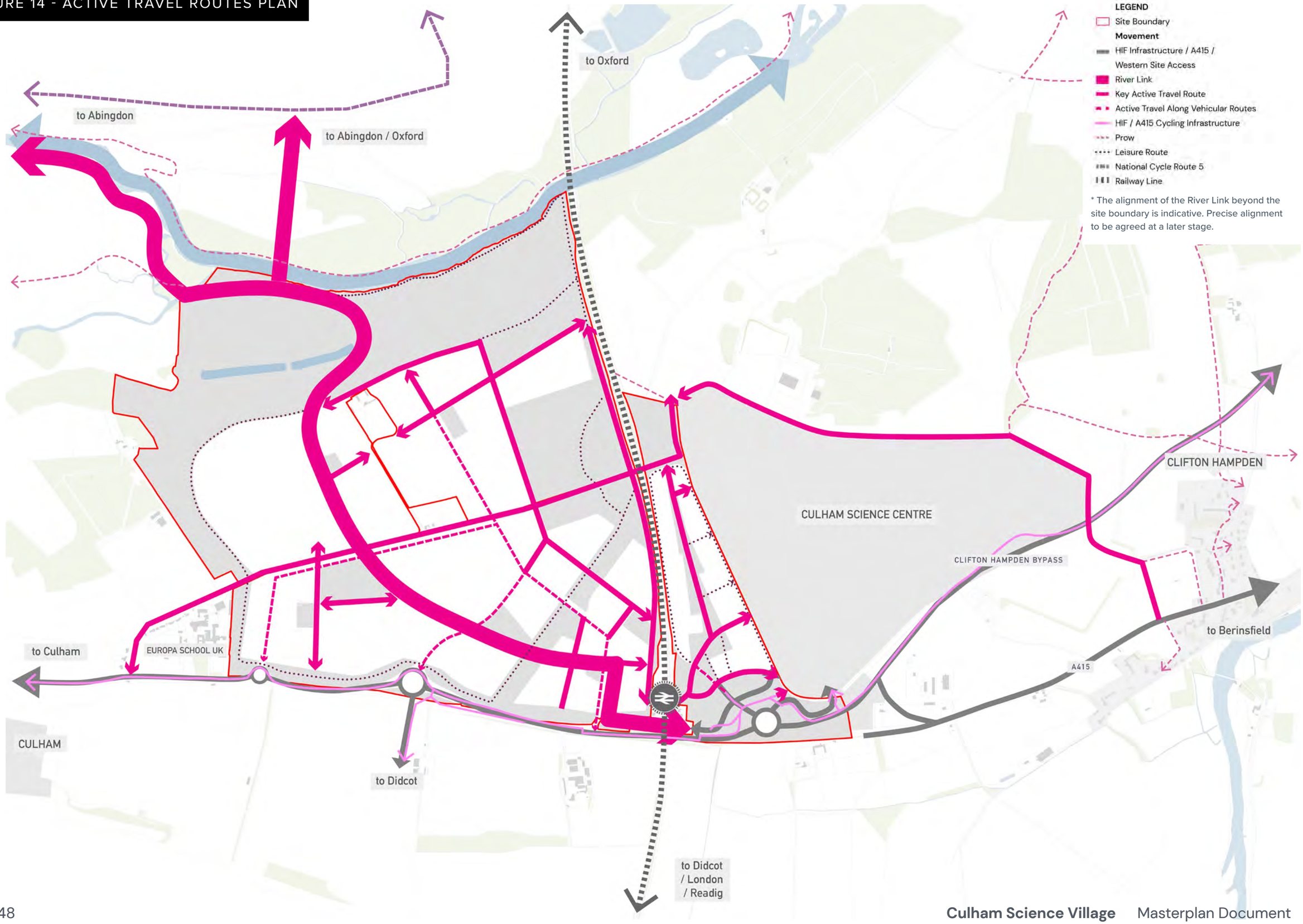
6.38. An expansive and connected network of walking and cycling routes is proposed throughout the development and linking to existing areas and connections that adjoin the site. Existing PRoW will be integrated within the development and there are no proposals for the diversion of these routes.

6.39. The Active Travel Plan (Figure 14) identifies active travel movement routes proposed through the development which includes a variety of sustainable formal (commuter) and informal (leisure) active movement routes.

6.40. The River Link is a signature active travel only route providing a central ribbon running through CSV. The design of the River Link will provide an attractive green public realm that will both encourage people to want to live in CSV and give a clear indication that active travel is the preferred mode for people living, working or learning within the new community. The River Link corridor will be characterised by its spacious width with generous green and blue corridor adjacent to a dedicated active travel movement route. Other routes may cross the River Link corridor, but the stated intention is that the River Link will have the most direct route across the site.

6.41. All active travel routes proposed conform with LTN1/20 ‘Cycle Infrastructure Design’ which sets out guidance on the provision of cycling facilities in new developments

FIGURE 14 - ACTIVE TRAVEL ROUTES PLAN



# Public transport routes

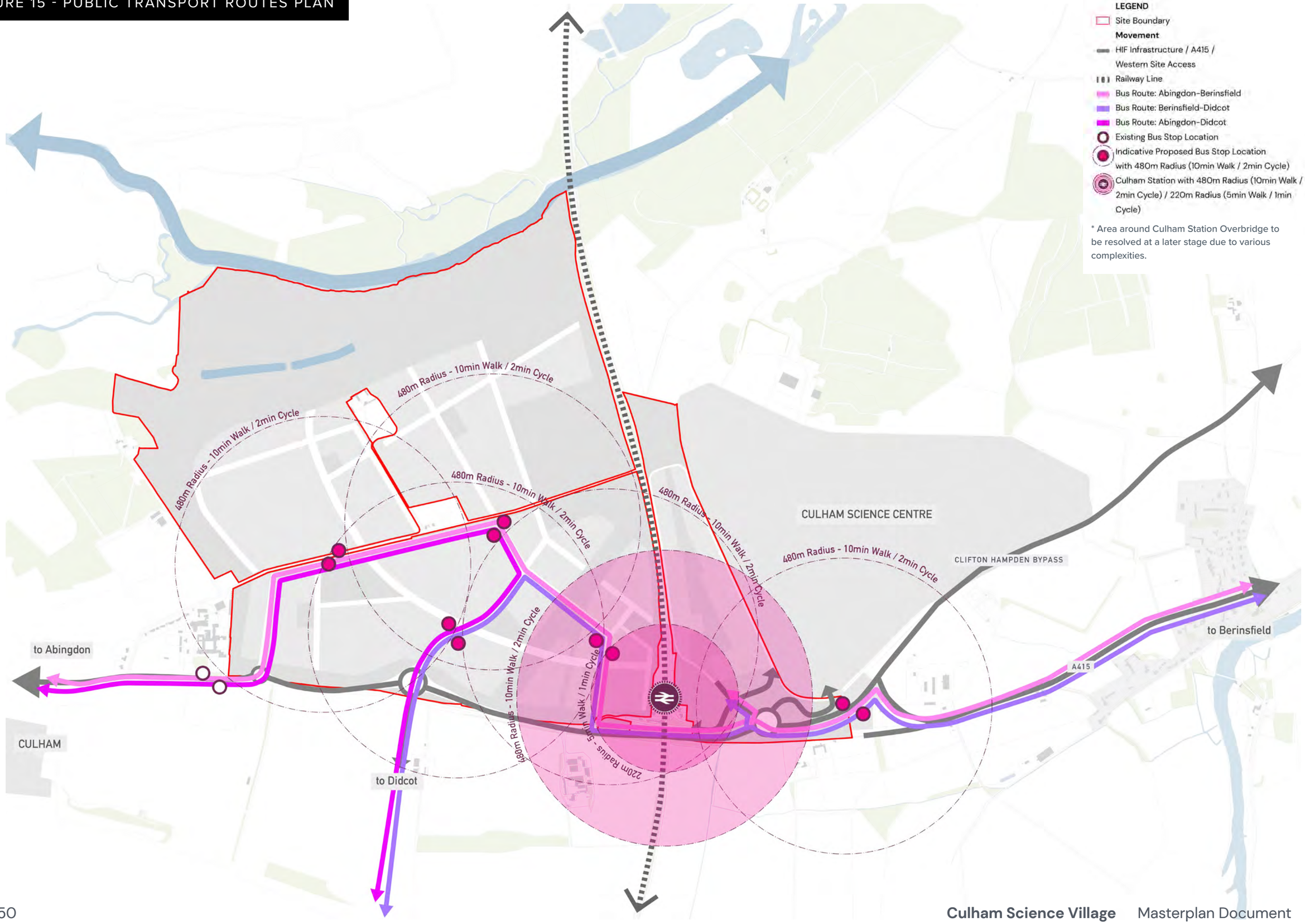
6.42. The proposals allow for dedicated public transport connectivity into the site that will serve the new community and connect to the wider area including Abingdon, Didcot and Berinsfield. This includes the expansion of existing bus services into the site via primary routes designed to accommodate bus movements that connect to key destinations within the development including the community heart and eduction heart.

6.43. Discussions have been held with OCC during the evolution of the proposals to ensure that the connections and routes proposed within the site achieve maximum viability and are technically deliverable.

6.44. In order to allow for maximum accessibility to public transport across the Site, additional multi-modal mobility hubs are proposed which could provide a ‘focal point’ for sustainable travel providing real time public transport information, eScooter/eBike hire facilities, short term car hire services and potentially supporting additional services including package delivery and return lockers. The positioning of the mobility hubs will allow residents in the further reaches of the development to access central public transport facilities.

6.45. All public transport facilities are proposed to be located in close proximity to active travel routes to allow excellent access to public transport and encourage sustainable behaviour.

FIGURE 15 - PUBLIC TRANSPORT ROUTES PLAN



# Culham Station

6.46. As required by Policy STRAT9, the masterplan for CSV is required to recognise proposals for improvement to Culham Station and any associated future rail capacity upgrades, recognising its importance and potential to support growth and development at the adjacent Science Centre. The masterplan proposed in this document shows how essential connections can be provided both from the west from the main site and from the east from No.1 Site and Culham Science Centre to ensure that Culham Station could allow for excellent public transport and active travel connectivity in order to ensure that locational benefits that would develop sustainable journeys are maximised.

6.47. Discussions between key stakeholders including CEG, Network Rail, Train Operating Companies, SODC and OCC are ongoing and will continue to evolve to ensure that Culham Station is maintained and optimised as an essential component of the CSV masterplan.

6.48. Further to discussion with the various stakeholders, land adjacent to Culham Station has been safeguarded to support station improvements and ensure the residential amenity of any new development, particularly on the western side where development blocks will be no closer than 45m from the rail line. Correspondence from Nicholas Hewett (SSP GWML East) of Network Rail in January 2024 confirmed that NR's consultation position is based on the existing two track line for electrification and are not asking for any safeguarding of land beyond their ownership for a four track alignment based on this being discounted due to lack of immediate programme or strategic driver for this.

6.49. We are aware through our meetings with Network Rail that they have commissioned architects to look at designs around station improvements. However these have not evolved at the time of writing into specific design proposals.


Culham Station

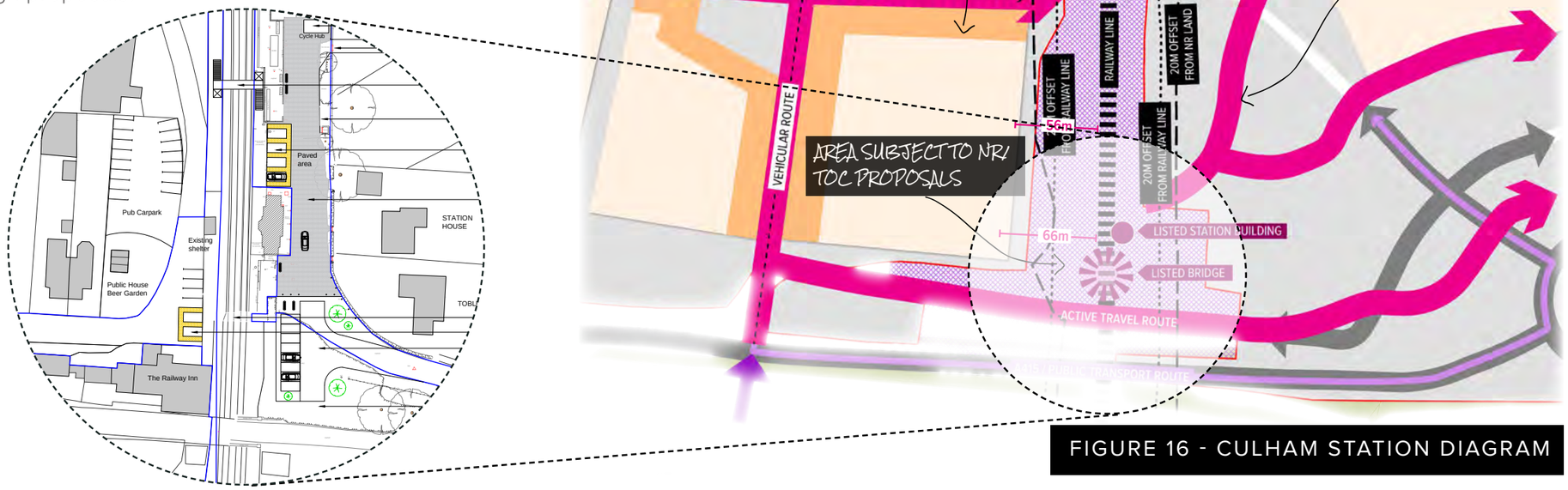


FIGURE 16 - CULHAM STATION DIAGRAM

6.50. Figure 17 aims to demostrate the deliverability of the River Link / key active travel route between CEG and Network Rail land without the need to cross third party land.


LEGEND

- Site Boundary / Land Controlled by CEG
- Morrells Farming Limited
- Sonic Star Limited
- Leda Properties Limited
- Private Ownership
- Thames Water Utilities Limited
- Network Rail
- OCC
- River Link / Key Active Travel Route Alignment

FIGURE 17 - TITLE PLAN - AREA AROUND CULHAM STATION

# Green and Blue Infrastructure

6.51. An integrated approach to the design of the green and blue infrastructure has been adopted whereby the co-ordination of landscape, ecology, drainage and health and well-being requirements have been addressed to provide a connected network of multi-functional green and blue infrastructure. The provision of an appropriately planned, designed and managed open space will deliver a wide range of functions and benefits.

6.52. A network of multi-functional green infrastructure will protect and enhance existing hedgerows and trees, provide new biodiverse habitats, incorporate sustainable drainage attenuation, provide areas for play and recreation and protect the unique landscape character of the Site. This will create a legible, varied and attractive environment that supports a sense of community.

6.53. The starting point for the overall masterplanning approach has been landscape-led with the green and blue infrastructure network formed around the existing features and topography of the site and its surrounds. The landscape strategy has sought to structure the proposals around existing natural and semi-natural features including hedges, mature trees and water-bodies and to incorporate them into areas of proposed public open space.

6.54. As noted above, a connected network of active travel routes will permeate through the development using the dense network of green infrastructure to connect the Site with the surrounding area. The alignment of existing mature hedgerows in particular provides an opportunity to align green corridors with active travel movement routes to create attractive multifunctional green connections that provide not just movement but also biodiversity net gain and landscape mitigation benefits to the proposed development.

6.55. The existing power line corridor, whilst providing a constraint on development has the ability to provide a positive green and blue infrastructure role in the context of the overall open space network. This corridor enables a new biodiverse linear park to be formed providing a wildlife corridor and an important location to incorporate SuDs with a leisure route running through the space.

6.56. Adequate space has also been provided through the Green and Blue Infrastructure strategy to create a defensible Green Belt boundary on the northeastern and southern boundaries of the site. These boundaries comprise 35-55m wide corridors that would be planted to create a strong landscape edge to the site.

# FIGURE 18 - GREEN AND BLUE INFRASTRUCTURE PLAN


**LEGEND**

- Site Boundary

**Environment**

- Peripheral Public Open Space
- Urban Square
- Riverside Park
- Neighbourhood Green
- Formal Outdoor Space
- Employment Public Open Space
- Strategic Green Corridor (River Link)
- Wetland Corridor *
- Sports Pavilion Building
- Retained Hedge
- Tree Lined Streets
- Green Links
- Existing Pond
- Primary Dammed Swale
- Secondary Dammed Swale
- Existing Woodland
- Proposed Woodland
- Fruit Trees
- Play
- Play along the Way / Grow as you Go
- Key Views
- 'The Hill' Viewpoint
- Biodiversity
- Food Growing
- Sports
- Drainage

* We are trying to break the sense of linearity of the Wetland Corridor at two different levels:

1. Internally, through the design of the parkland by creating 'horizontal' features that divert the focus away from the power lines and the pylons.

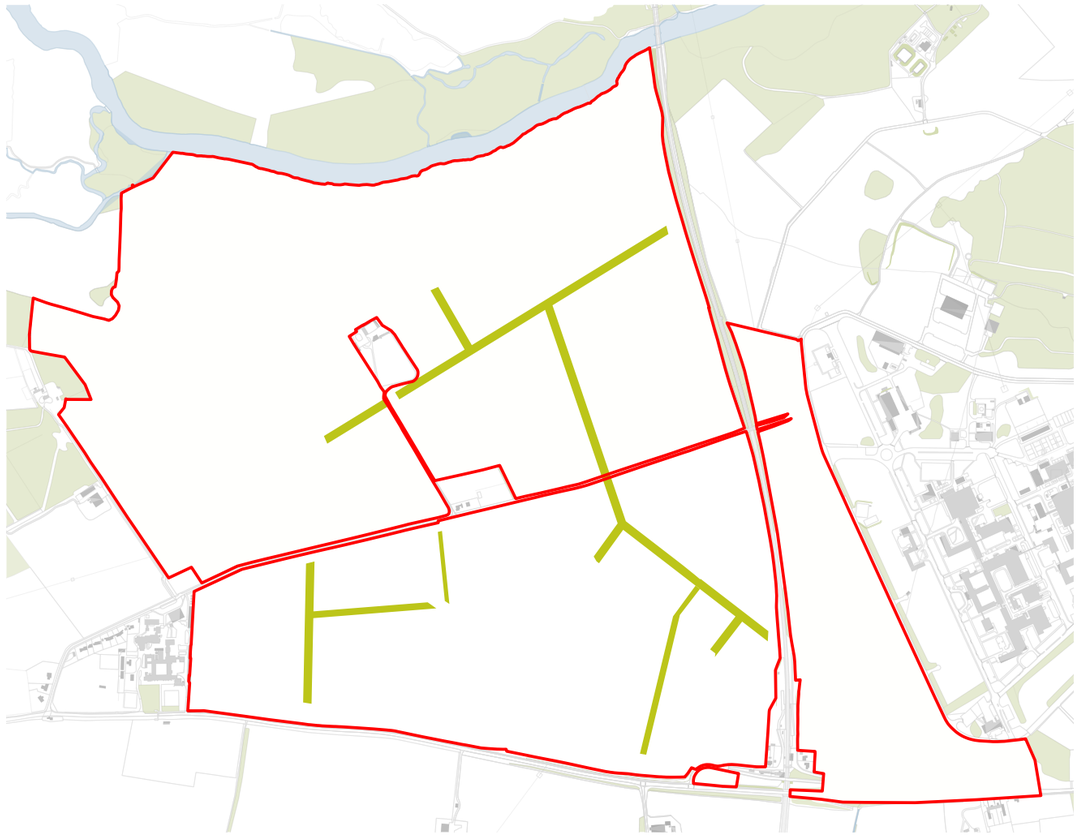
2. Extrenally, by making the edges and corners of the park less linear, linking it to pocket parks, green corridors and other areas of open space.

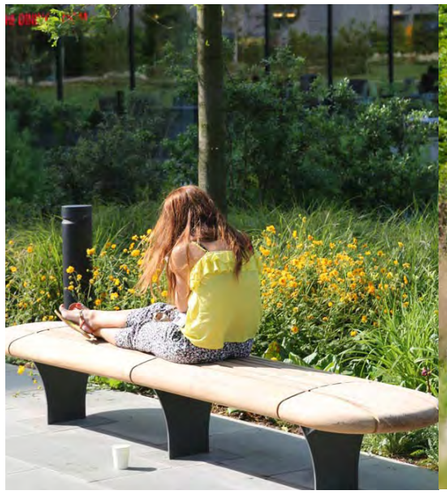
# A connected network of open space

6.57. The proposed drainage strategy for the Site is an integral part of the green infrastructure design and aims to work with the existing topographical features and control surface water runoff from the development through the use of SuDS features such as open channel swales and basins. Throughout the blue infrastructure network, wet meadow and native wetland tree species will be planted within the SuDS to create a naturalistic character and enhance the biodiversity of the site.

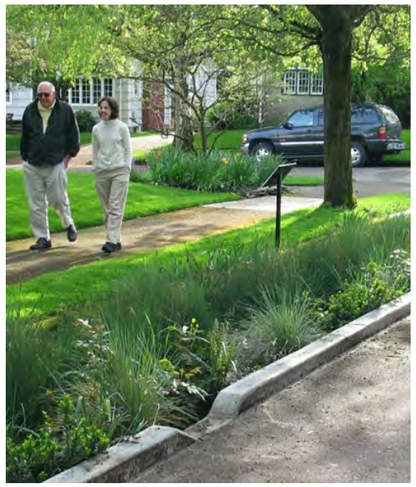
6.58. SuDS features will also be fully integrated into the movement network, taking advantage of the River Link and linear green corridors in particular to convey water runoff to attenuation basins at the lowest parts of the Site.

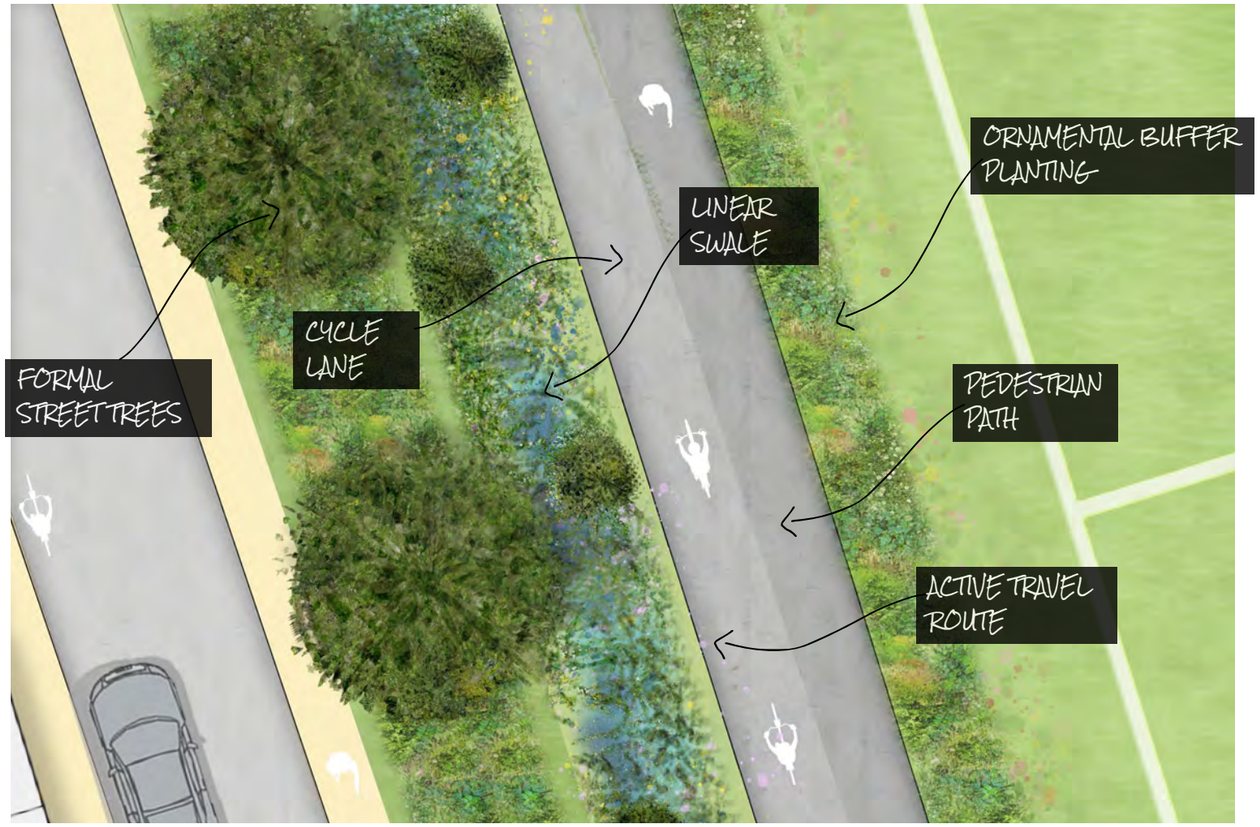
6.59. The power line corridor will be a key focus for drainage attenuation with native wetland species planted within SuDS features to create a naturalistic character and enhance the biodiversity of the Site.





# Green Corridors






SCALE 1:200

0m 1 2 3 5 10

SCALE 1:1,000

0m 5 10 15 25 50

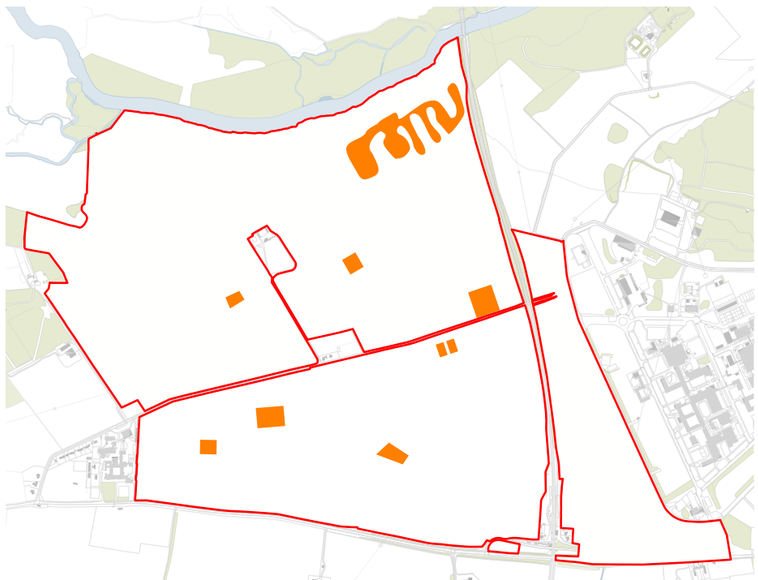
# Play Strategy

6.60. Throughout the site there will be an even distribution of play, making use of existing features such as the motorcross track. Play areas within the design will include a number of pieces of equipment that are inclusive, to help children play together. Furniture will be accessible for not only those who are less mobile than others, but also for their carers (close to equipment). There will be accessible routes through play areas and fences will only be used where there is an adjacent risk (such as a road). In most cases, boundaries will be natural to improve the social element to the play areas.

6.61. The naturalistic setting of Culham lends itself to primarily timber constructed play equipment, with minimal use of metal. Play areas will be enhanced through the use of natural play, so change of levels and materials will be used in the designs. Youth provision will include MUGAs, as well as space for young girls.

6.62. As well as play the proposal will provide elements for cyclists through the park to improve the health and fitness levels of the community and draw more people of varying ages into the parkland.

6.63. The provision of play will be provided in accordance with relevant standards including SOLP policy CF5 and the Supplementary Developers Contribution SPD (2023).



## NEAP

A play space that appeals to all ages and has a diverse variety of equipment to cater for these age groups. There will be an activity zone of 1000m2 to include a play area with 8 pieces of equipment and at least 600m2 of hard space suitable for informal kickabout or wheel based sports. A youth shelter also provides a space for young adults to socialise, whilst activities such as parkour/ basketball / netball and skateboarding should be explored with the local authority and engagement with the local community.





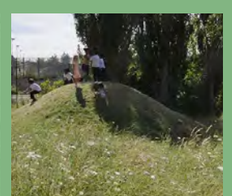
## LEAP

These play areas will include 5 pieces of equipment within an area no smaller then 400m2, as well as natural landscaping to provide natural play and boundary treatment. They will include reinforced surfacing that will enable access into the centre for wheelchairs and seating with trees within the space to provide shade. A smaller area for younger children will be included that is denoted in a different surface material.




## Play on the Way

These incidental spaces will create fun opportunities for children and adults to play en route or during a walk. As well as actual equipment, natural materials should be explored such as play boulders and fallen logs.


## Mountain Bike/ Cyclocross Trail

A space that can be used to encourage a healthy lifestyle and also help to build physical and cognitive development in younger adults as well as important physical exercise opportunities for adults who want to keep fit outside.

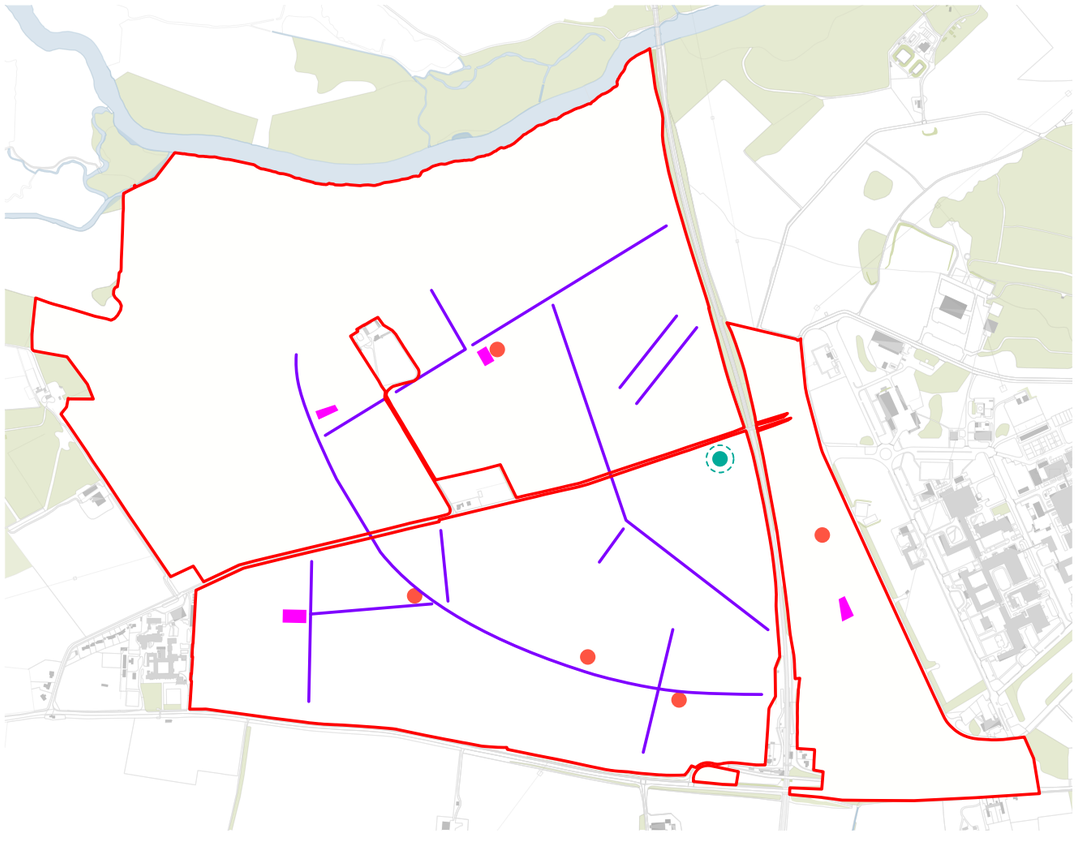


# Productive Landscape

6.64. The proposals will provide growing and foraging opportunities for the community in line with best practice principles that are actively promoted on larger scale communities.

6.65. Community orchards, grow zones and foraging corridors distributed amongst the six different neighbourhoods, as well as a small allotment hub will push forward the educational, health and mental wellbeing aspects of this type of use well beyond that of a traditional allotment approach, which tends to benefit a small number of people.

6.66. A further benefit of this approach is its positive biodiversity contribution, but also a positive contribution to the character and use of the Riverlink and green corridors - encouraging more use, activity and social connections.



### Community Orchard

Within the neighbourhood greens are varied community orchards. This would have a wide range of species of apple, pear, plum, cherry and damson. Ideally including some varieties of local providence.

The ‘community’ part of this orchard will include information and core facilities (tables / hut / chairs) to enable community led initiatives/small community focused events.

There would be 50% dwarf planting supported on a wire trellis system to improve opportunities for inclusivity.

### Community Grow Zones

Within the key community areas of the development the proposals will provide a range of accessible community grow zones. These would be subject to further consultation in respect of their precise location / type and mix: being a combination of:

- Informal community ‘gardens / grow zones’ within key open spaces, managed via a Community Trust.

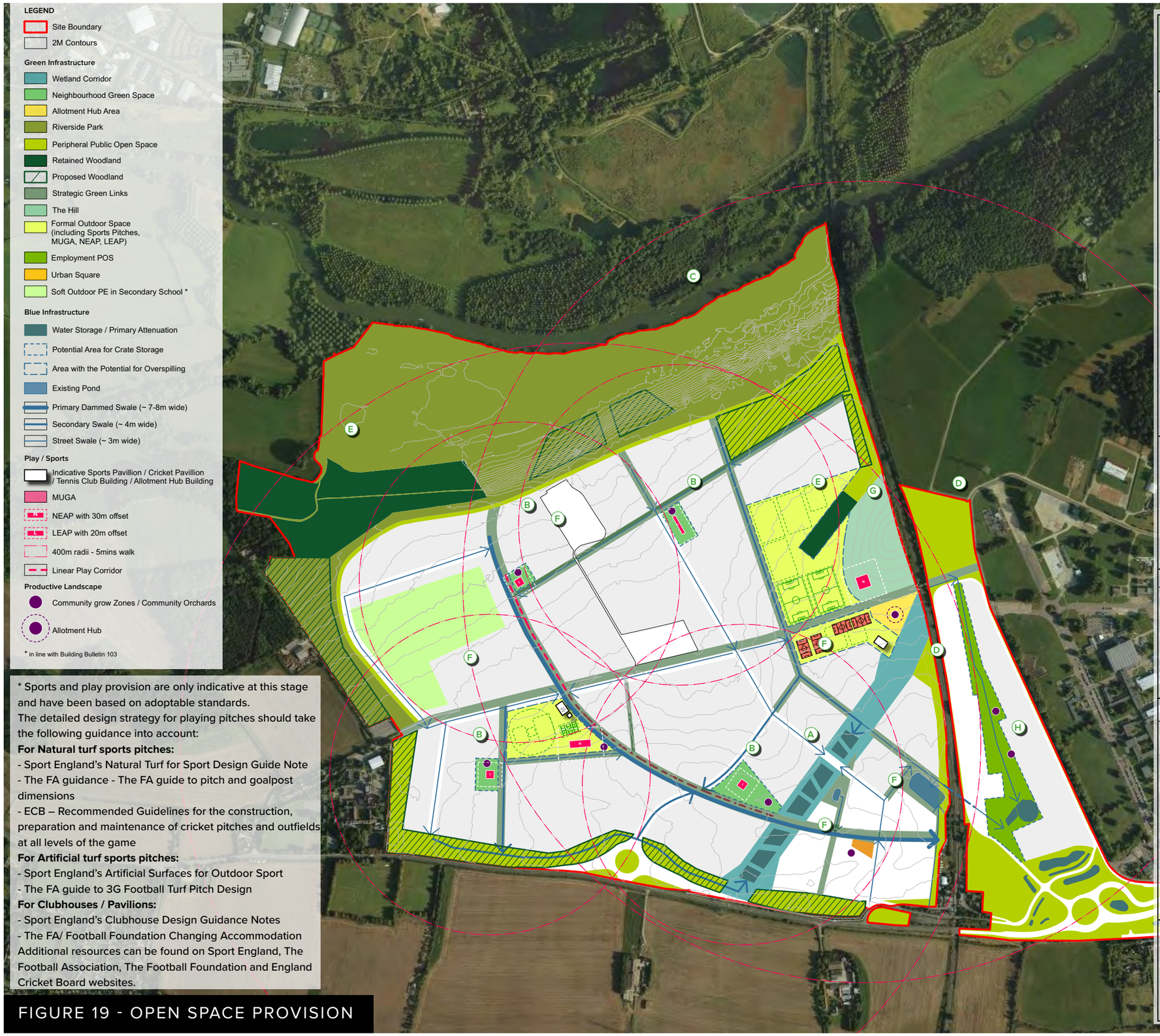
### Foraging Corridors / Linear Orchards (indicative alignment)

- Foraging corridors which would include more informal native species, along with information to educate and encourage (hazelnuts / blackberries / apples / pears / cherry / damson / sloe / elderberry / roseship...etc). Circa 3m wide.

- Linear orchards to include lines of different species providing fruit at a variety of times across the season, adding variety and character.

### Allotment Hub

Small cluster of allotments in close proximity to the sports area




* Sports and play provision are only indicative at this stage and have been based on adoptable standards.
The detailed design strategy for playing pitches should take the following guidance into account:

**For Natural turf sports pitches:**
- Sport England's Natural Turf for Sport Design Guide Note
- The FA guidance - The FA guide to pitch and goalpost dimensions
- ECB – Recommended Guidelines for the construction, preparation and maintenance of cricket pitches and outfields at all levels of the game

**For Artificial turf sports pitches:**
- Sport England's Artificial Surfaces for Outdoor Sport
- The FA guide to 3G Football Turf Pitch Design

**For Clubhouses / Pavilions:**
- Sport England's Clubhouse Design Guidance Notes
- The FA/ Football Foundation Changing Accommodation

Additional resources can be found on Sport England, The Football Association, The Football Foundation and England Cricket Board websites.

| | Open Space Typology | SODC Policy Requirement (Ha per 1000 population)* | Site Requirement (Ha) (3500 units / 8400 population)** | Site Provision (Ha) (3500 units / 8400 population)** |
|---|---|---|---|---|
| 1. | Parks & Gardens and Amenity Green Space | 1.4 | 11.76 | 108.56 |
| A | Wetland Corridor | | | 6.05 |
| B | Neighbourhood Green Space | | | 2.25 |
| C | Riverside Park (excluding existing woodland / including proposed woodland ) | | | 45.72 |
| D | Remaining Public Open Space | | | 27.13 |
| E | Retained Woodland | | | 9.06 |
| F | Strategic Green Links | | | ~ 11 |
| G | The Hill | | | 3.6 |
| H | Employment POS | | | 3.75 |
| 2. | Allotments | 0.4 | 3.36 | 0.65 (Allotment Hub) Community Orchards and Community Grow Zones to be provided within the 6 Neighbourhoods (0.45 Ha per neighbourhood) and to complement the Allotment Hub. Foraging Corridors and Linear Orchards to be located along green corridors. |
| 3. | Sports Facilities | | | |
| | Sports Hall | 0.006** | 0.05 | 0.05 + 0.01 (for changing facilities) + 0.01 (for tennis club ancillary facilities) = 0.07 |
| | Total Pitch Area | | 5.5 **** | 5.5 |
| | Total Playing Field Area | | 8.3 ***** | 10.61 ****** |
| 4. | Children and Young People Play | | | Play is provided in Neighbourhood Green Space and Sports as follows: |
| | Designated Equipped Playing Space | 0.25 | 2.1 | 2 x MUGA (~660m²) = 0.26<br>2 x NEAP (~1000m²) = 0.2<br>4 x LEAP (~400m²) = 0.16<br><br>Linear Play Corridor<br><br>LAPS / doorstep play within neighbourhoods as required to deliver in walk accessibility |
| | Teenage / MUGA Provision | 0.3 | 2.52 | |

* SODC Infrastructure Delivery Plan (2019) / South Oxfordshire Open Spaces Study, (January 2017) / Playing Pitch Strategy (2018)
** Based on 2.4 people per household
*** Based on 0.3 badminton courts per 1000 population
**** To include 2 adult, 3 youth, 3 mini football pitches , 1 cricket pitch and 3 tennis courts
***** Based on 150% of the total field area
****** Including MUGAs, NEAPs, Sports Halls

FIGURE 19 - OPEN SPACE PROVISION

# Sustainable Drainage

6.67. The proposed drainage strategy for the Site is an integral part of the green infrastructure design and aims to work with the existing topographical features and control surface water runoff from the development through the use of SuDS features such as open channel swales and basins. Throughout the blue infrastructure network, wet meadow and native wetland tree species will be planted within the SuDS to create a naturalistic character and enhance the biodiversity of the site.

6.68. SuDS features will also be fully integrated into the movement network, taking advantage of the River Link and linear green corridors in particular to convey water runoff to attenuation basins at the lowest parts of the Site. There will also be a range of features including rain gardens and rills that are incorporated within secondary and tertiary streets that support sustainable drainage of whole blocks before they reach main SuDS features.

6.69. The corridor that contains the 400kv power line will be a key focus for drainage attenuation with native wetland species planted within SuDS features to create a naturalistic character and enhance the biodiversity of the Site.

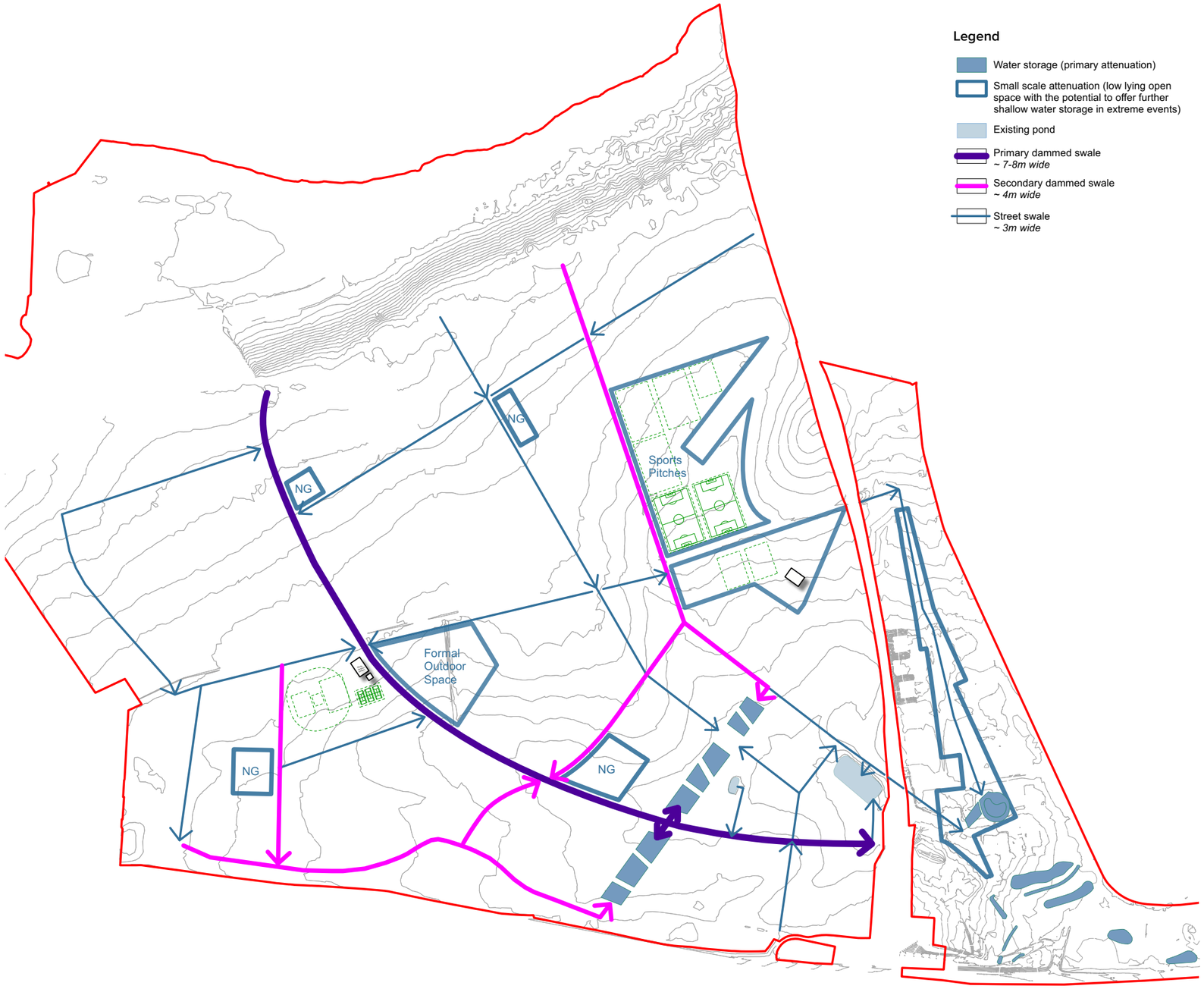
6.70. At a smaller scale, low lying open space can be used to offer further shallow water storage in extreme events.

6.71. The Design Team have worked collaboratively with Council officers and key stakeholders to agree proposed key drainage features. SODC's landscape officer has commented that where swales need to be deep, it may be necessary to combine these with underground crate systems to reduce the overall depth of swales and make them safer and more attractive. They have noted that drainage basins should have shallow and varied side slopes for safety and to create a natural appearance.

6.72. The existing pond on site is created via a weir system. Although historical mapping and site surveys conducted by the drainage consultant do not indicate a spring fed system, the consistent flow suggests the possibility of both spring and groundwater contribution. Therefore, the design will ensure that an adequate amount of the intercepted water will be returned to the existing pond.

6.73. The plan and sections (Figure 20) on the following page are only conceptual at this stage and are subject to further technical work. Full SuDS strategy will be prepared in consultation with LLFA, EA, SODC and OCC as part of the outline application process.

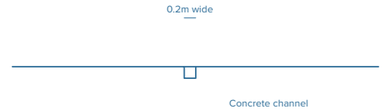
# FIGURE 20 - DRAINAGE CONCEPT PLAN



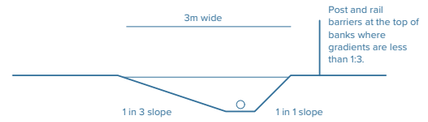

## Legend

- Water storage (primary attenuation)
- Small scale attenuation (low lying open space with the potential to offer further shallow water storage in extreme events)
- Existing pond
- Primary dammed swale *~ 7-8m wide*
- Secondary dammed swale *~ 4m wide*
- Street swale *~ 3m wide*

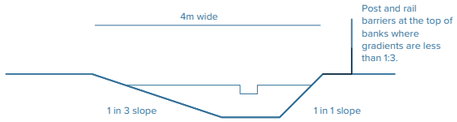
## Indicative Swale Cross Sections



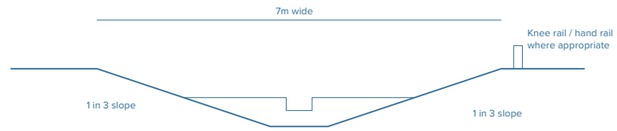

Water rill within neighbourhood blocks




Street swale




Secondary dammed swale



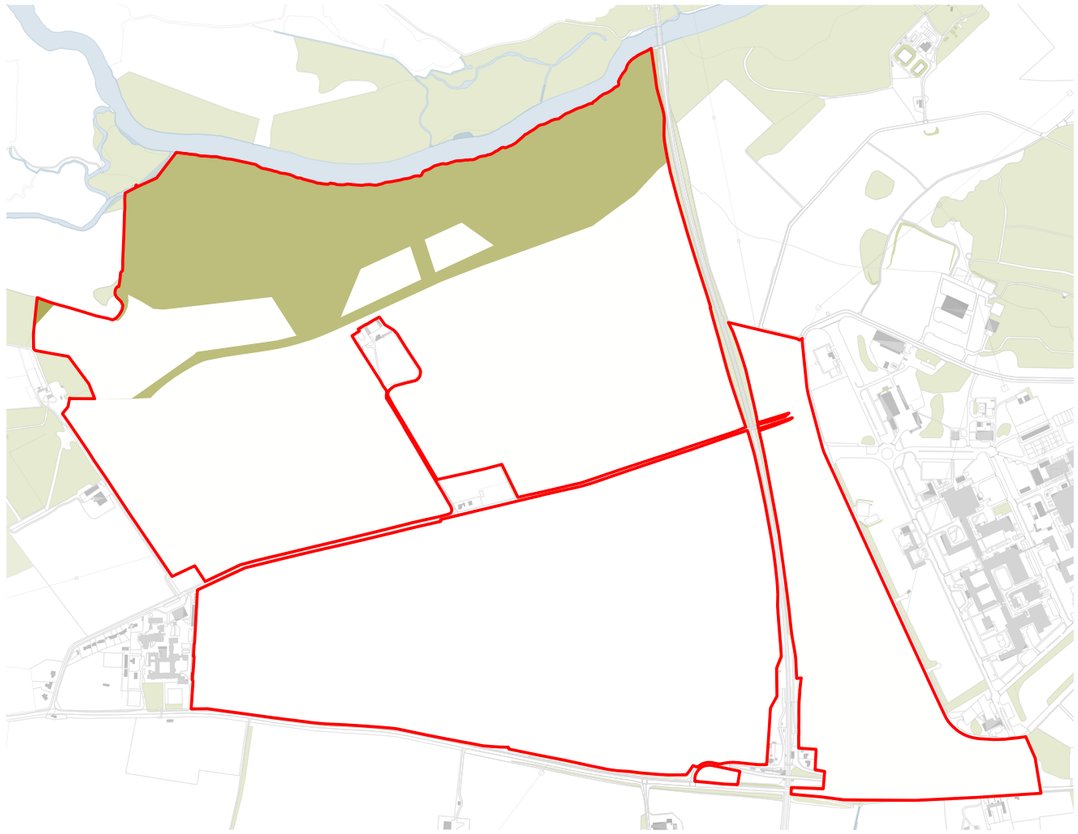

Primary dammed swale (river link)

# Responding to the River Thames Floodplain

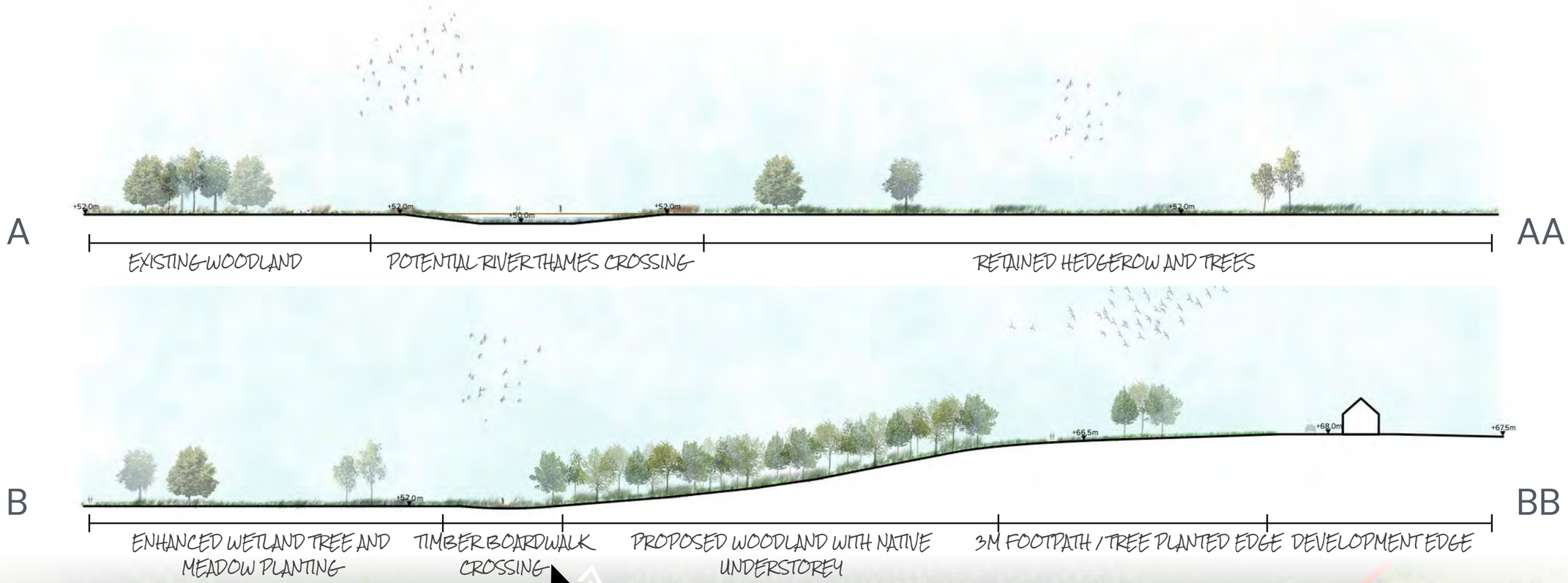
6.74. The Thames floodplain occupies the north part of the main site and is characterised by tussock wetland and a wooded edge to the river. Much of this area is in flood zone 2 and 3 and is therefore unsuitable for built form. The area has high ecological value both in terms of what is currently there but also its future potential.

6.75. The Design Team have worked collaboratively with Council officers and key stakeholders to preserve and maintain the ecological and drainage value of this area whilst also exploring potential measures that could enhance its value. It is proposed that the area would be maintained and enhanced as a wet meadow; native wetland species will be planted in this area to support the naturalistic character and enhance the biodiversity of this part of the Site.

6.76. The River Link will cross the floodplain to access Abingdon-on-Thames and further detailed design will be necessary to understand how best this can be achieved whilst also preserving and enhancing the unique features of this part of the Site.



River Thames Floodplain


A
AA
EXISTING WOODLAND
POTENTIAL RIVER THAMES CROSSING
RETAINED HEDGEROW AND TREES
+52.0m
+50.0m
B
BB
ENHANCED WETLAND TREE AND MEADOW PLANTING
TIMBER BOARDWALK CROSSING
PROPOSED WOODLAND WITH NATIVE UNDERSTOREY
3M FOOTPATH / TREE PLANTED EDGE
DEVELOPMENT EDGE
+66.5m
+68.0m
+67.5m
POTENTIAL RIVERSIDE PATH
WETLAND PLANTING
ACTIVE TRAVEL ROUTE
RETAINED BMX TRACK
EXISTING PONDS ENHANCED WITH WETLAND PLANTING
EXISTING NATIVE HEDGE
EXISTING WOODLAND ENHANCED

# Ecological protection and enhancement

6.77. Policy STRAT9 of the SODC Local Plan 2035 (December 2020) requires that the masterplan includes appropriate mitigation measures that protect Culham Brake Site of Special Scientific Interest (SSSI) which lies to the north-west of the site, the Biodiversity Action Plan (BAP) priority sites to the north of Culham, and that within the Culham Science Centre and numerous BAP priority habitats, including the BAP priority habitat south of Culham Railway station.

6.78. An Ecological Protection and Enhancement Plan (Figure 21) has been produced that identifies the key ecological interests of the site and proposed mitigation and enhancement measures that would contribute to ensuring that the key ecological priority sites identified by policy STRAT9 are addressed appropriately.

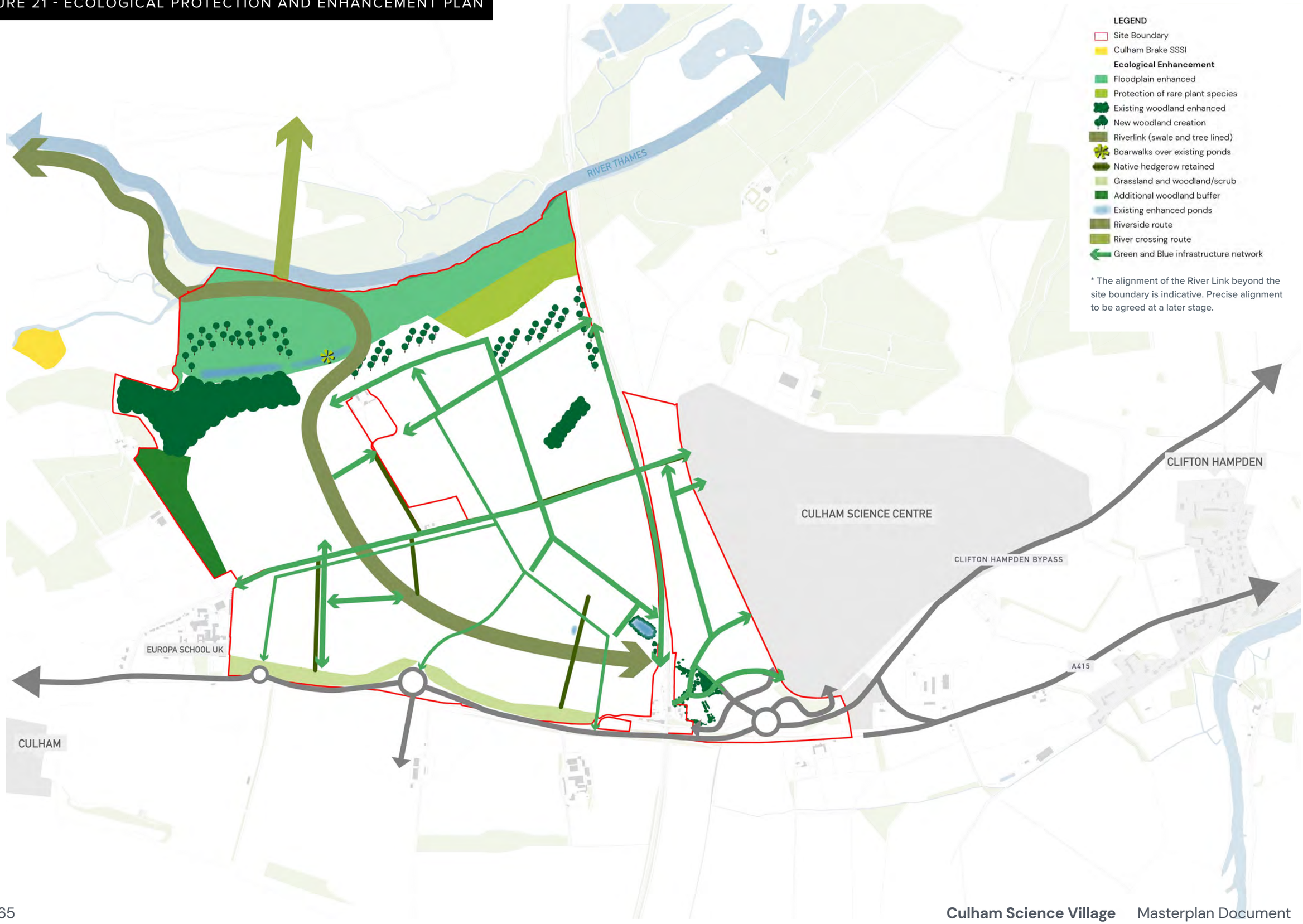
6.79. The SSSI is not currently easily accessible for recreational use, but additional measures will be needed to divert pressure away from it and prevent recreational impacts. Appropriate provision of access routes linking into the PRoW network in appropriate places away from the SSSI, improvements to the local PRoW network in key places and provision of suitable landscaping (both hard and soft) will help minimise the risk of unauthorised access into the SSSI. Providing direct access routes into the PRoW network in the north east of the site will potentially discourage residents from accessing it, whilst opportunities for walking routes within the site at the floodplain and embankment, alongside diverse habitats will provide interesting and attractive alternatives.

6.80. Recreational access to woodland within the STRAT9 site at the northwest will be restricted to protect habitats and protected species (i.e. badgers) within the woodland, but also so that any access through the woodland to Culham Brake SSSI is avoided. This could be achieved by planting thorny scrub between the residential landscape and woodland in a linear buffer/hedge, and also ensuring there are recreational links into newly created woodland within the site and down towards the river to divert interest away from habitats near the Abingdon PRoW route.

6.81. In terms of hydrology, the SSSI is fed and hydrologically dependent on the Swift Ditch, a backwater of the River Thames. It is therefore necessary not to change the hydrology of the Swift Ditch.

6.82. It is anticipated that the BNG phasing will be front-loaded for delivery where possible, ideally to include the creation of floodplain and woodland habitats that local policy encourages. The floodplain presents a good opportunity for creation and enhancement of a diversity of wetland and meadow habitats, and the post-consent calculations for BNG will seek to include woodland, species-rich grassland, species-rich hedgerows (with trees), scrub, ‘urban trees’ throughout the built landscape, and pockets of interest around SuDS and amenity areas. The floodplain may also be enhanced to include wetland areas featuring reed-beds. The final proposals for delivering 10% BNG will be agreed at the Reserved Matters Application stage, through the Biodiversity Gain Plan (which is controlled by the standard BNG Planning Condition). This is because the exact on-site BNG provisions cannot be calculated until the precise location and quantum of built development vs green space is known. The need for any supplemental off-site BNG units would be considered at that point in the process.

# FIGURE 21 - ECOLOGICAL PROTECTION AND ENHANCEMENT PLAN



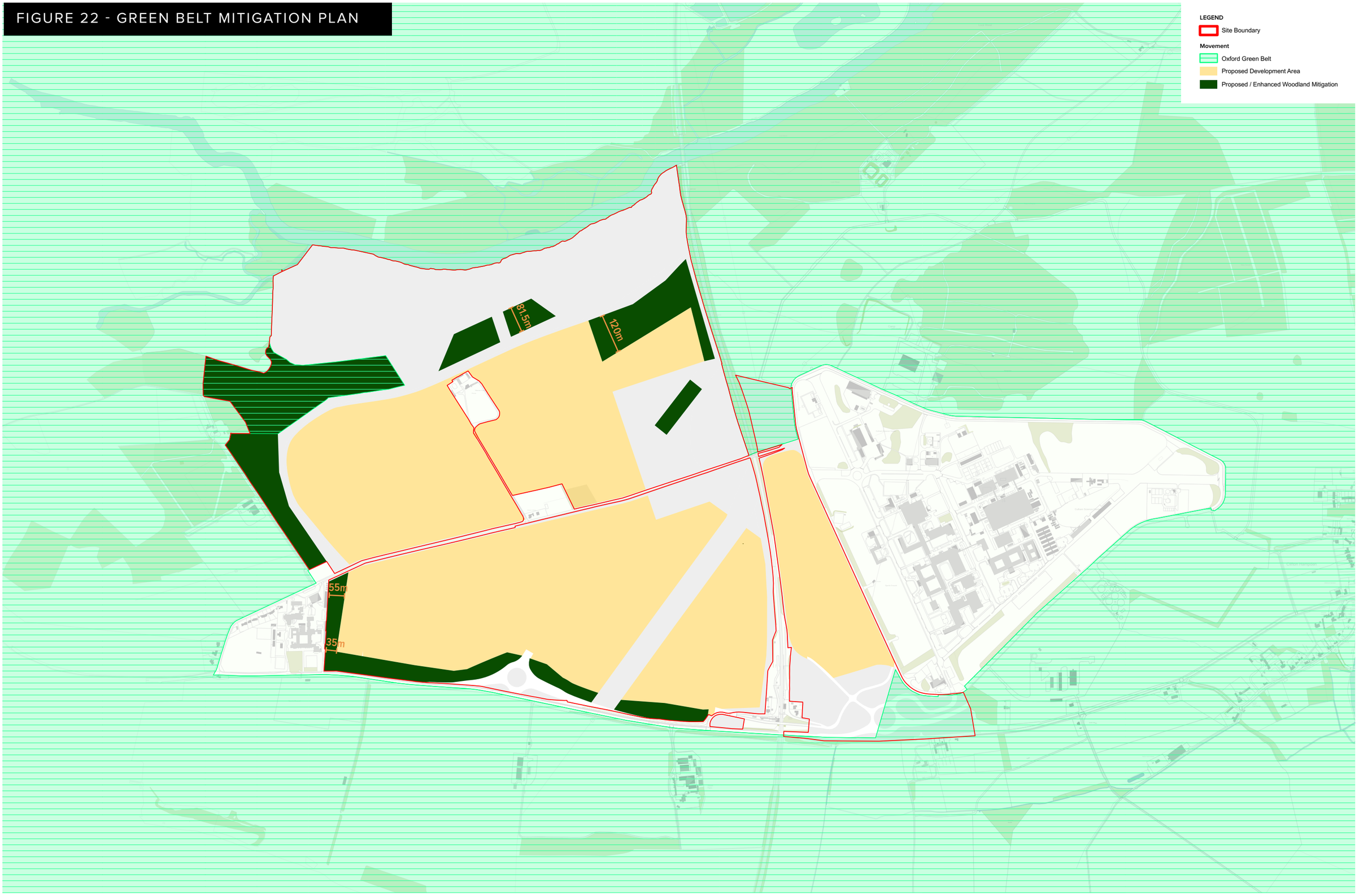
# Protecting the Oxford Green Belt

6.83. Policy STRAT9 of the SODC Local Plan 2035 (December 2020) refers to the need for appropriate landscaping along the boundaries of the strategic allocation to create a permanent defensible edge to protect the Oxford Green Belt which would allow for limited through views. The policy adds that this shall be based on landscape character, including historic landscape characterisation, considering the contribution of the site to the setting of Oxford, that preserve and enhance the surrounding Green Belt Way and River Thames long distance footpath.

6.84. A Green Belt Mitigation Plan (Figure 22) has been produced that identifies the site in the context of the Oxford Green Belt and the proposed mitigation measures to form a permanent defensible Green Belt edge to the development. Extensive testing in respect of the tests of Green Belt and Landscape and Visual Impact Assessment have led to a mitigation strategy that incorporates specific planting blocks of between 35-120m wide on the north, west and south of the Site, the depths of which have been specified to allow for substantial wooded belts at maturity. At the east of the Site, certain features including a rise in level the existing railway line and the No1 Site (which is not Green Belt) already form a defined edge to the Green Belt.

6.85. In addition, it is proposed that lower density and lower rise development would be positioned on the northern, southern and eastern edges of the site, as this is also part of the policy requirement to create a permanent defensible edge to protect the Green Belt.

# FIGURE 22 - GREEN BELT MITIGATION PLAN



# Placemaking Strategy

6.86. The Placemaking Strategy Plan (shown at Figure 23) identifies key placemaking components of the Masterplan that should be addressed in further detail in future Planning Applications for the Site.

6.87. The key components of the placemaking strategy, which are addressed further below, are as follows:

- Character Areas
- Nodes and connections
- Frontages and Edges
- Key Groupings and Landmarks

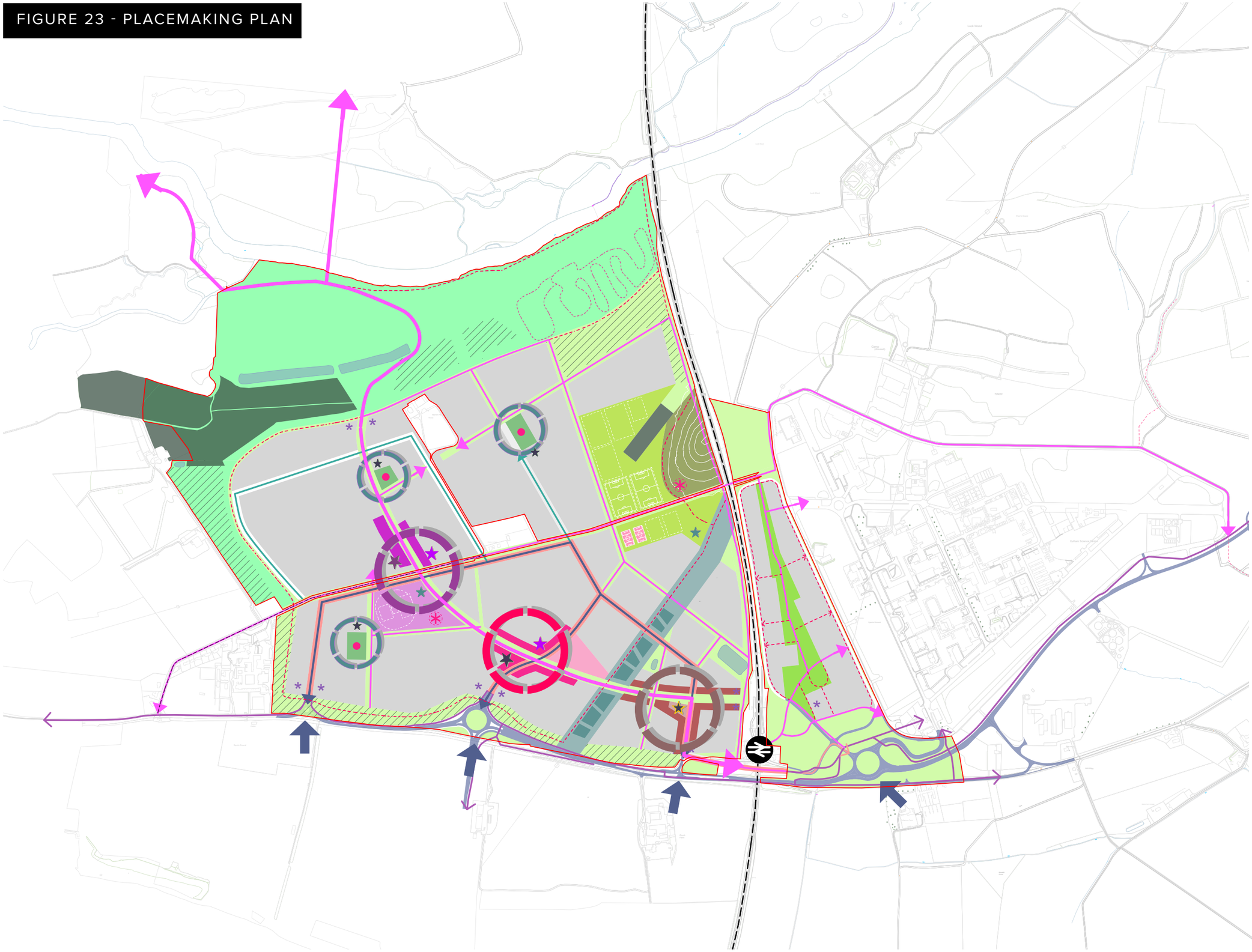
6.88. The placemaking strategy also provides an approach for addressing power lines that cross the Site and the need to respect the relationship with heritage assets within and beyond the site; in particular the listed buildings and structures (the Culham railway station and rail bridges and “Schola Europaea”) and the Registered Park and Garden associated with Nuneham House.

6.89. Design and Access Statements accompanying future Reserved Matters applications should make reference to the way in which the components of the Placemaking Strategy has been addressed in detail.

Abode, Great Kneighton, Cambridge

Lovedon Fields, Hampshire

# FIGURE 23 - PLACEMAKING PLAN




* The alignment of the River Link beyond the site boundary is indicative. Precise alignment to be agreed at a later stage.

# Neighbourhoods

6.90. CSV will comprise six principal neighbourhoods across the Site that are effectively formed by the alignment of the River Link and Thame Lane creating four quadrants, each of which is a character area, and then the Station Quarter (which lies between the rail line and power line corridor) and No.1 Site, which is effectively the employment area lying between the rail line and Culham Science Village.

6.91. The neighbourhoods are therefore as follows:

1) No.1 Site
2) Station Quarter
3) Village Centre West
4) Village Centre East
5) Education Quarter
6) Thames View

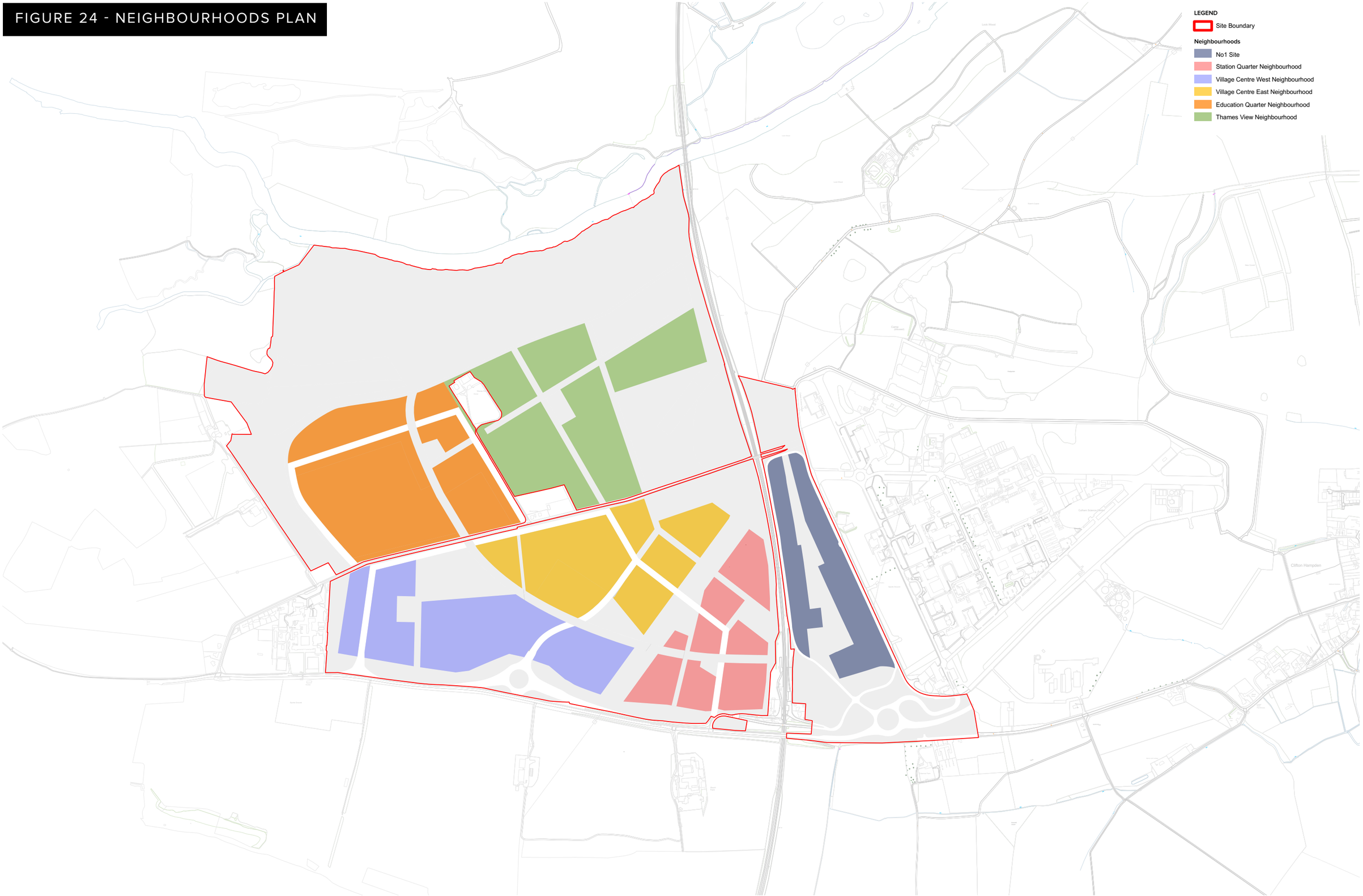
6.92. Each of the neighbourhoods should, at outline planning application stage, be informed by a detailed character analysis exercise in accordance with the National Design Guide and National Model Design Code.

6.93. Descriptions of the neighbourhoods are provided below that set the narrative for specific placemaking components (e.g. streets and movement, character and scale, landscape and public realm, land uses and activities) that can be applied in future Planning Applications and design codes.

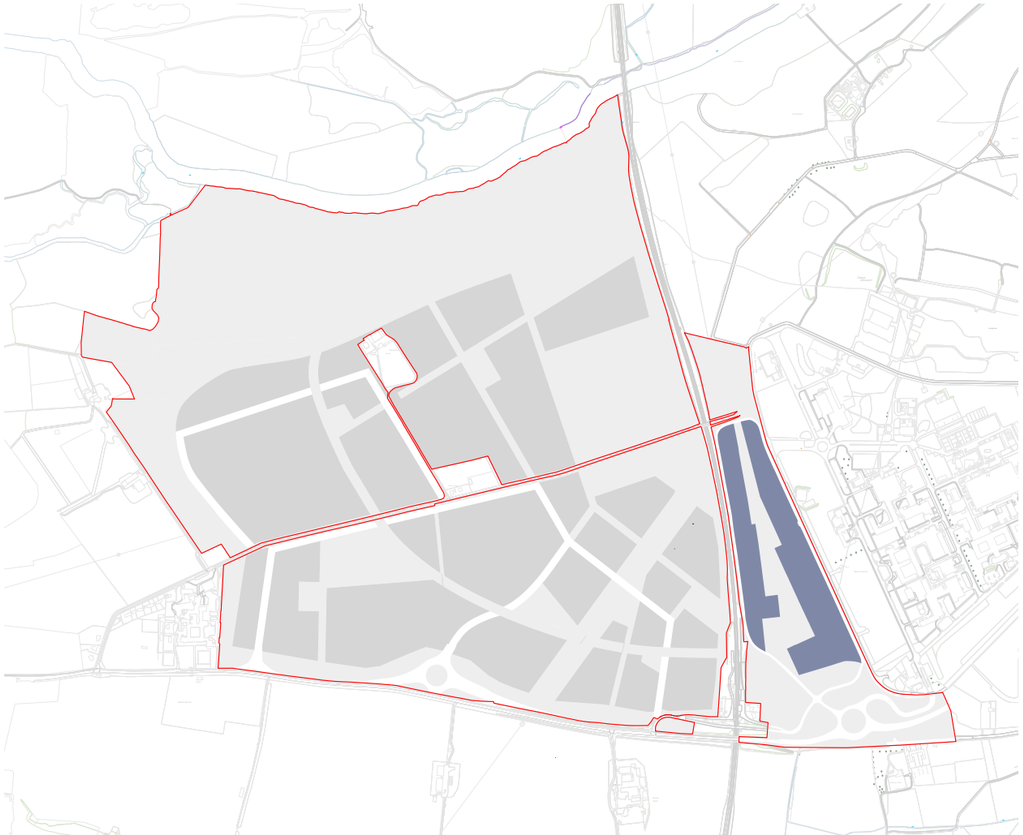
The Avenue, Saffron Walden

The Gables, Liverpool

# FIGURE 24 - NEIGHBOURHOODS PLAN



# No. 1 Site



The No.1 Site will provide the employment component of the CSV masterplan and a major attractor for the new residential community. It's strategic location between Culham Station and Culham Science Centre makes it an ideal site for a new working community.

The area will be characterised by a series of pavilion buildings set within a green landscaped environment to give the feel of a campus arrangement. All vehicular movement and servicing will be restricted to the edges of the neighbourhood to ensure that, car parking, does not dominate the green setting of the neighbourhood.

At the south of the neighbourhood, development will front positively onto the River Link to create a vibrant and interesting interface between Culham Station and Culham Science Centre.

The design and layout of the No.1 Site will be informed by the context of the listed station building and bridge to ensure connections are enhanced and historic structures are not diminished.

Haute Deûle River Banks, France

Poppelsdorf Campus, Germany

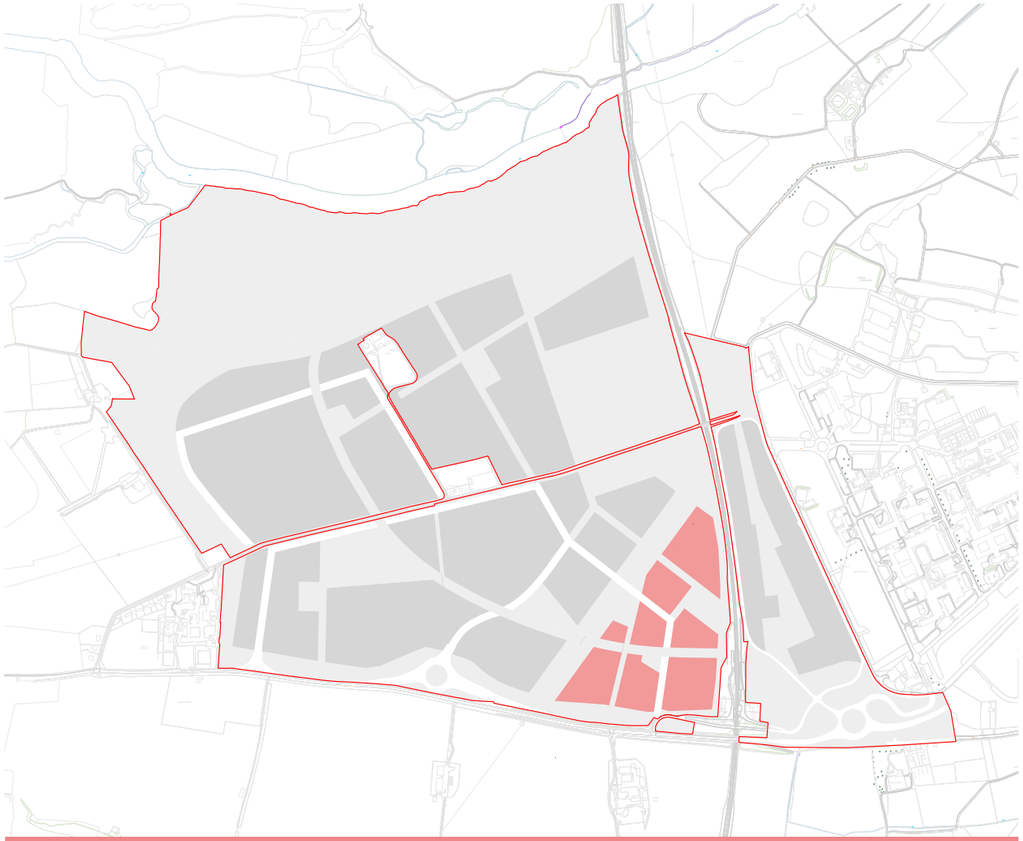
ABCAM Research Lab and Offices, Cambridge Biomedical Campus

The Bradfield Centre, Cambridge Science Park

The No.1 Site comprises:

- up to 115,000sq.m of employment floorspace.
- Minimum surface car parking.
- Communal buildings including gym, cafe/restaurant and crèche.
- Expansive semi-natural amenity green space within which the employment buildings will be set and look out onto providing an attractive campus style environment offering health and well-being benefits (e.g. walking/ running during lunch hour) and incorporating sustainable urban drainage features, community orchards and grow zones.
- A network of permeable active travel routes that connect to Culham Station, CSV and Abingdon to the west via the river link and to Culham Science Centre and Berinsfield to the east.

# Station Quarter Neighbourhood



The Station Quarter Neighbourhood will take benefit from excellent public transport and active travel connectivity by providing medium and high density development on a tight-knit grid of streets.

The area will be characterised by contemporary taller forms occupying entire plots to back of pavement edge. Given the urban form sought in this location, parking standards will be reduced.

The Station Quarter will be permeated by the River Link. Mixed use and flexible ground floor uses will front onto the River Link with residential accommodation being provided above.

The design and layout of the Station Quarter will be informed by the context of the listed station building and bridge to ensure connections are enhanced and historic structures are not diminished.

Eddington, Cambridge

Eddington, Cambridge

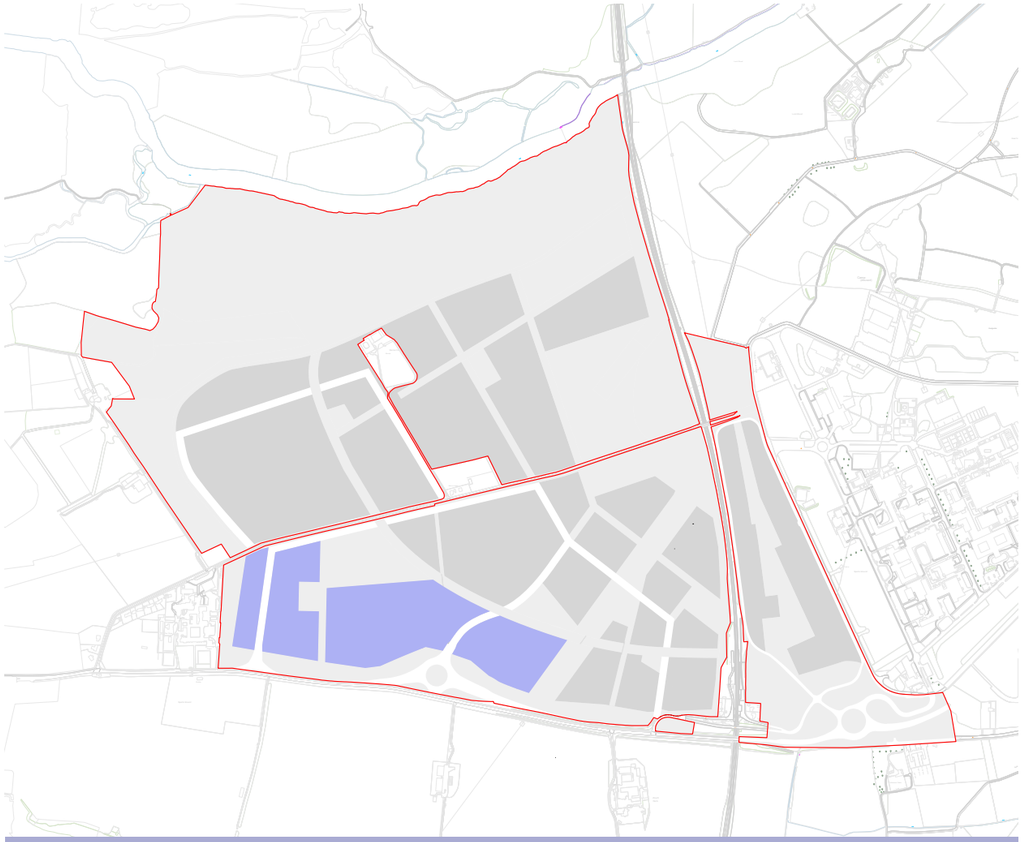
Eddington, Cambridge

Eddington, Cambridge

The Station Quarter Neighbourhood comprises:

- Circa 690 dwellings.
- Higher density residential development that capitalises on the locational benefits of being close to Culham Station, No.1 Site employment and Culham Science Centre.
- Flexible ground floor space, retail, cafes to support mixed uses.
- The southern extent of the River Link alignment running to Culham Station and on to No.1 Site and Culham Science Centre via the existing railway crossing.
- Feature central urban space as a focal point for activities (e.g. cafe spill out, markets).
- Ground floor uses to potentially include local retail and cafes.

# Village Centre West Neighbourhood



The Village Centre will be the centrepiece to CSV. Informed by a narrative of creating a bold, modern, attractive 21st Century heart to the development, the Village Centre will be a place where built form and public realm interact positively together.

The River Link will permeate through the Village Centre to create two distinct neighbourhoods either side.

The western side of the Village Centre Neighbourhood will have the feel of a contemporary tight-knit neighbourhood of housing arranged in ordered blocks on an orthogonal street pattern. Development in this area will positively address the context of the listed Europa School building.

Trumpington Meadows, Cambridge

Trumpington Meadows, Cambridge

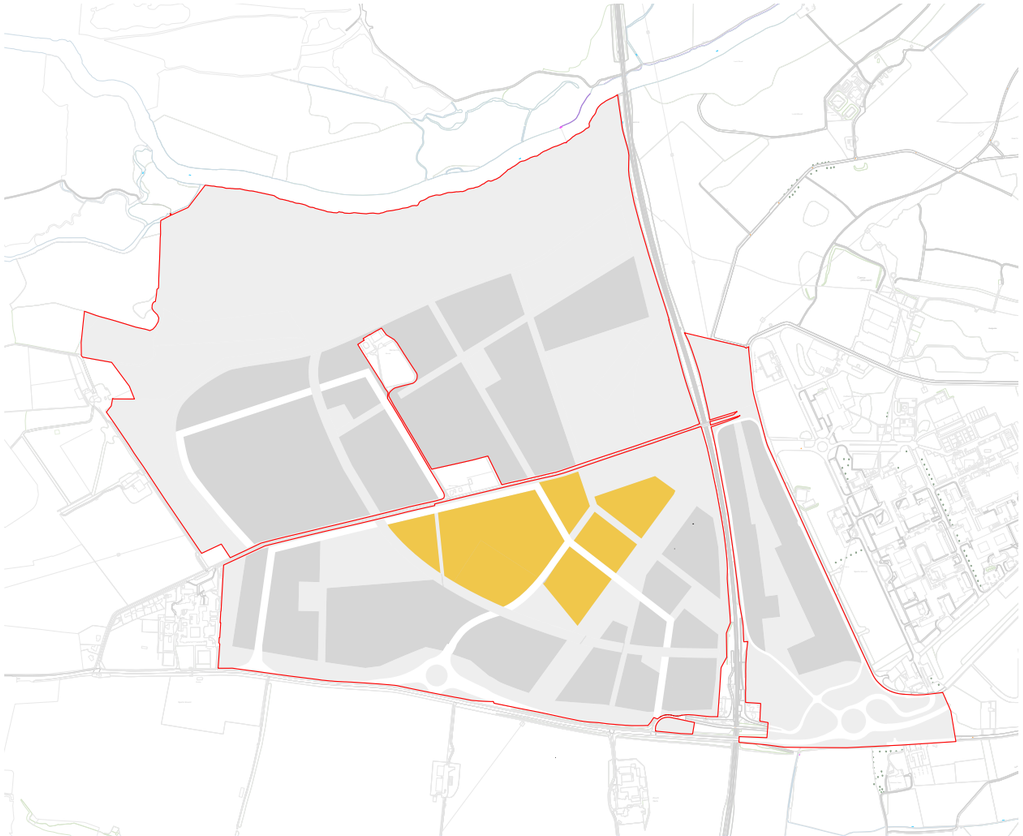
Upper Rissington, The Cotswolds

St. Chad's, Tilbury, Essex

The Village Centre West Neighbourhood comprises:

- Circa 730 dwellings.
- Medium density residential development.
- Community hub, cafe, crèche, GP surgery and later living facility as key components of the community heart to the south of the river link.
- Formal outdoor space to incorporate sports facilities, neighbourhood play and community grow zones.
- Neighbourhood green space to function as the neighbourhood heart and to incorporate local play (LEAP), community orchard and cycle hub.
- Local community hub building.

# Village Centre East Neighbourhood



The western side of the Village Centre Neighbourhood will be characterised by generous green corridors permeating through from the River Thames View Neighbourhood to its north and have a looseness to its structure that is markedly different to the Village Centre West Neighbourhood.

The approach will support family living and offer a comfortable and attractive environment for families to live and grow.

The immediate proximity of sports pitches to the north east of the neighbourhood will be celebrated to further allow greenery into blocks and to ensure connectivity with this important green space.

The Gables, Liverpool

Eddington, Cambridge

Abode, Great Kneighton, Cambridge

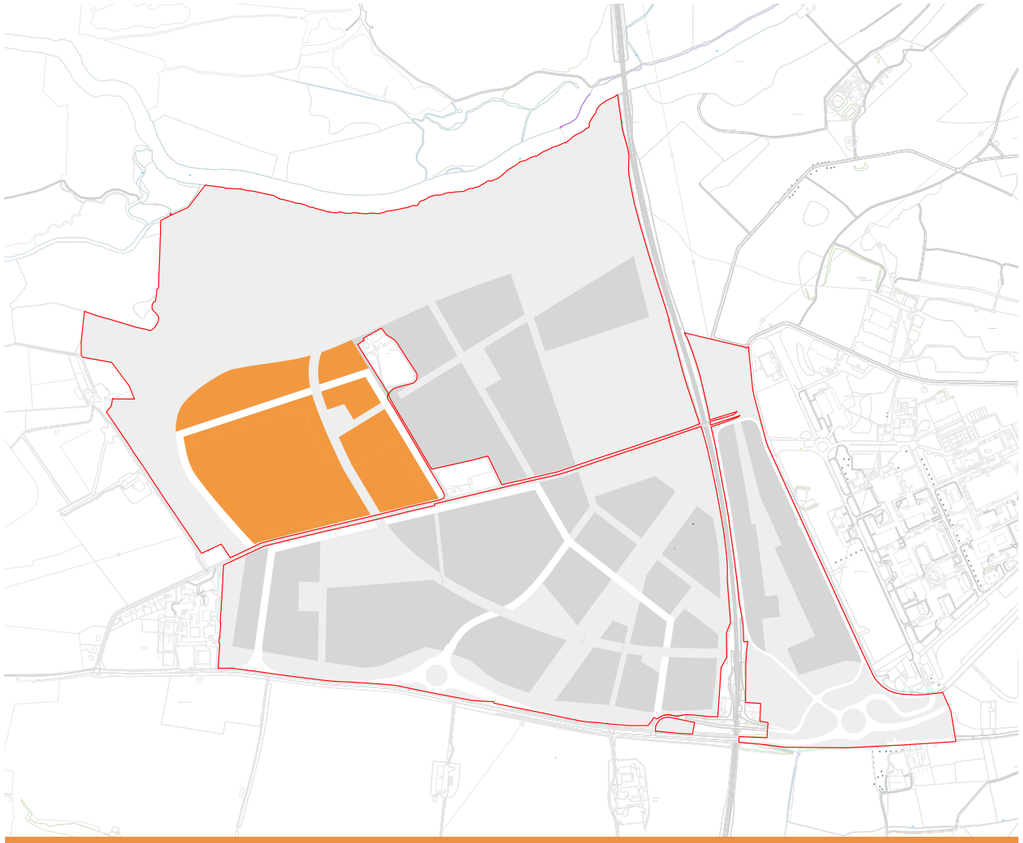
Accordia, Cambridge

Abode, Great Kneighton, Cambridge

The Village Centre East Neighbourhood comprises:

- Circa 730 dwellings.
- Medium-high and medium density residential development that positively addresses the River Link, the Primary Street, the Wetland Corridor and Thame Lane.
- 2FE Primary School.
- Neighbourhood green space to function as the neighbourhood heart and a key component of the community heart to the north of the River Link. Space to incorporate local play (LEAP), community grow zones and cycle hub.
- Formal outdoor space to incorporate sports pitches, sports pavilion and MUGA's
- Allotment hub adjacent to the formal open space and Wetland Corridor.
- Local community hub building.

# Education Quarter Neighbourhood

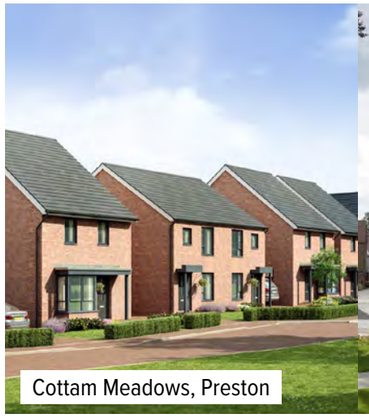


An area on the north west part of the Site, the main components of which will be the Secondary School with residential areas to its north and east, as well as the north primary school.

The neighbourhood will be permeated by the River Link, which features as a School Street and fronts onto Thame Lane to the south. To the north and west, the neighbourhood will face out onto woodland areas.

The area will be deliberately green in character in order to make a comfortable transition to the wider countryside. To achieve this, in addition to the schools (which are predominantly comprised of open green pitches), the area will accommodate a low to medium form density of residential development in an informal arrangement where spacing between built form will vary in size and contain planted front gardens to facilitate the transition to the countryside.

Trumpington Meadows, Cambridge



Cottam Meadows, Preston

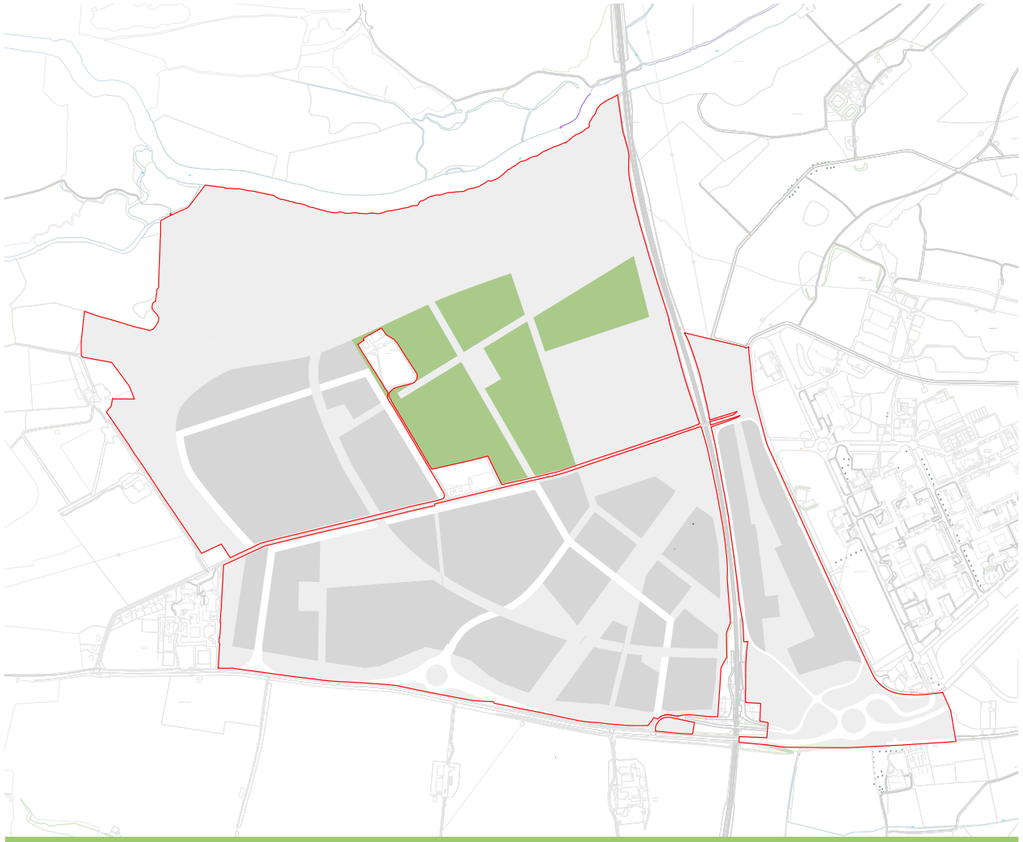
The Avenue, Saffron Walden

The Avenue, Saffron Walden

The Education Quarter Neighbourhood comprises:

- Circa 480 dwellings.
- Medium and low density residential development and informal arrangement to help achieve a smooth transition to the countryside.
- 8FE Secondary School.
- 2FE Primary School.
- The northern extent of the River Link alignment running from Thame Lane north to the Thames flood plain.
- A neighbourhood green incorporating local play (LEAP), community orchard and mobility hub (eScooter/eBike hire).
- Local community hub building.

# Thames View Neighbourhood



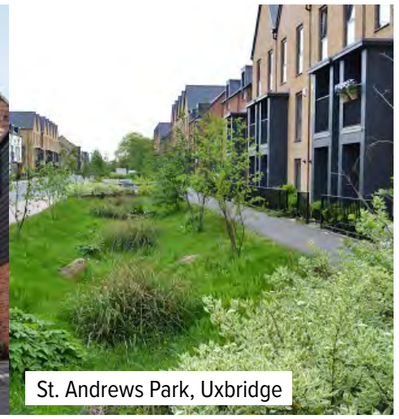
An area on the north east part of the Site, the neighbourhood will comprise residential development and will front onto Thame Lane, retained woodland and playing fields to the south. To the east the neighbourhood will face out onto the railway line.

To the north, the neighbourhood will face out onto woodland areas and to the River Thames and its associated floodplain.

The area will celebrate its connections to the River Thames and adjoining floodplain by providing generous north south green corridors through residential development that allow biodiverse connections to permeate into urban areas.

A mix of housing of medium and low density will be provided, to facilitate a smooth transition to the countryside.

The Avenue, Saffron Walden



St. Andrews Park, Uxbridge

The Avenue, Saffron Walden

The Avenue, Saffron Walden

Cane Hill Park, Coulsdon

Cane Hill Park, Coulsdon

The Thames View Neighbourhood comprises:

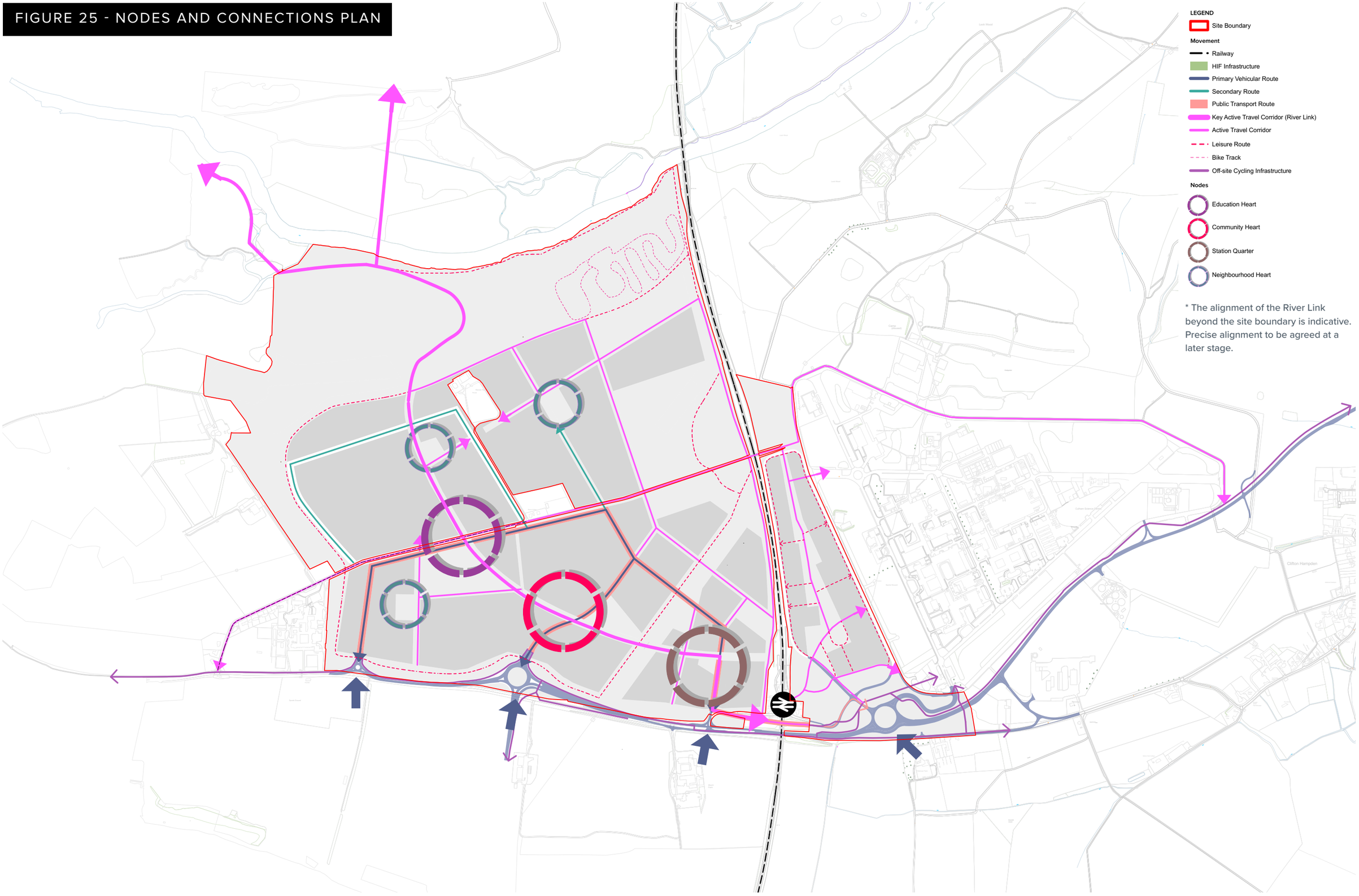
- Circa 870 dwellings.
- Medium and low density residential development to help achieve a smooth transition to the countryside.
- Generous north south green corridors that allow biodiverse connections and active travel links to permeate into urban areas, whilst allowing for views to the floodplain and wider countryside .
- Formal outdoor space to incorporate sports pitches, neighbourhood play (NEAP) existing woodland and viewpoint.
- Neighbourhood green space to function as the neighbourhood heart and to incorporate local play (LEAP), community orchard and cycle hub.
- Local community hub building.

# Nodes and Connections

6.94. The masterplan is structured around a dense grid of connections that include the network of active travel routes and green corridors through the Site and the movement hierarchy of street typologies. This effectively forms the skeleton upon which the masterplan is formed. Where key connections cross, important nodes are formed where movement choices can be made by users of the movement network. The nodes provide levels of accessibility to important destinations (e.g. Schools, Culham Station) within the development.

6.95. The River Link, which provides a connectivity spine through CSV, is the focus for a number of key nodes where important routes cross it. At these crossing points, important communal facilities will be located in order take benefit from heightened levels of accessibility. Nodes will be signified by public realm treatments that emphasise the importance of the space and provide essential placemaking qualities for increased footfall and movement.

# FIGURE 25 - NODES AND CONNECTIONS PLAN




* The alignment of the River Link beyond the site boundary is indicative. Precise alignment to be agreed at a later stage.

# Community Heart Key Node / Primary School


Houlton, Rugby


Alconbury Weald, Huntingdon


Eddington, Cambridge

The Community Heart Key Node comprises:

- 2FE School - The design of the school will be in accordance with OCC Primary School Design Criteria
- 2.22ha fully secured primary school site
- Plaza with strong community focus as a focal point of the community heart
- Active frontages that address plaza and River Link / main active travel corridor
- Flexible community hub building
- Neighbourhood green space to include play, community grow zone and cycle hub
- Integrated uses into a cohesive design solution


Eddington, Cambridge


Neue Meile Böblingen, Germany


Trumpington Meadows, Cambridge

# Frontages and Edges

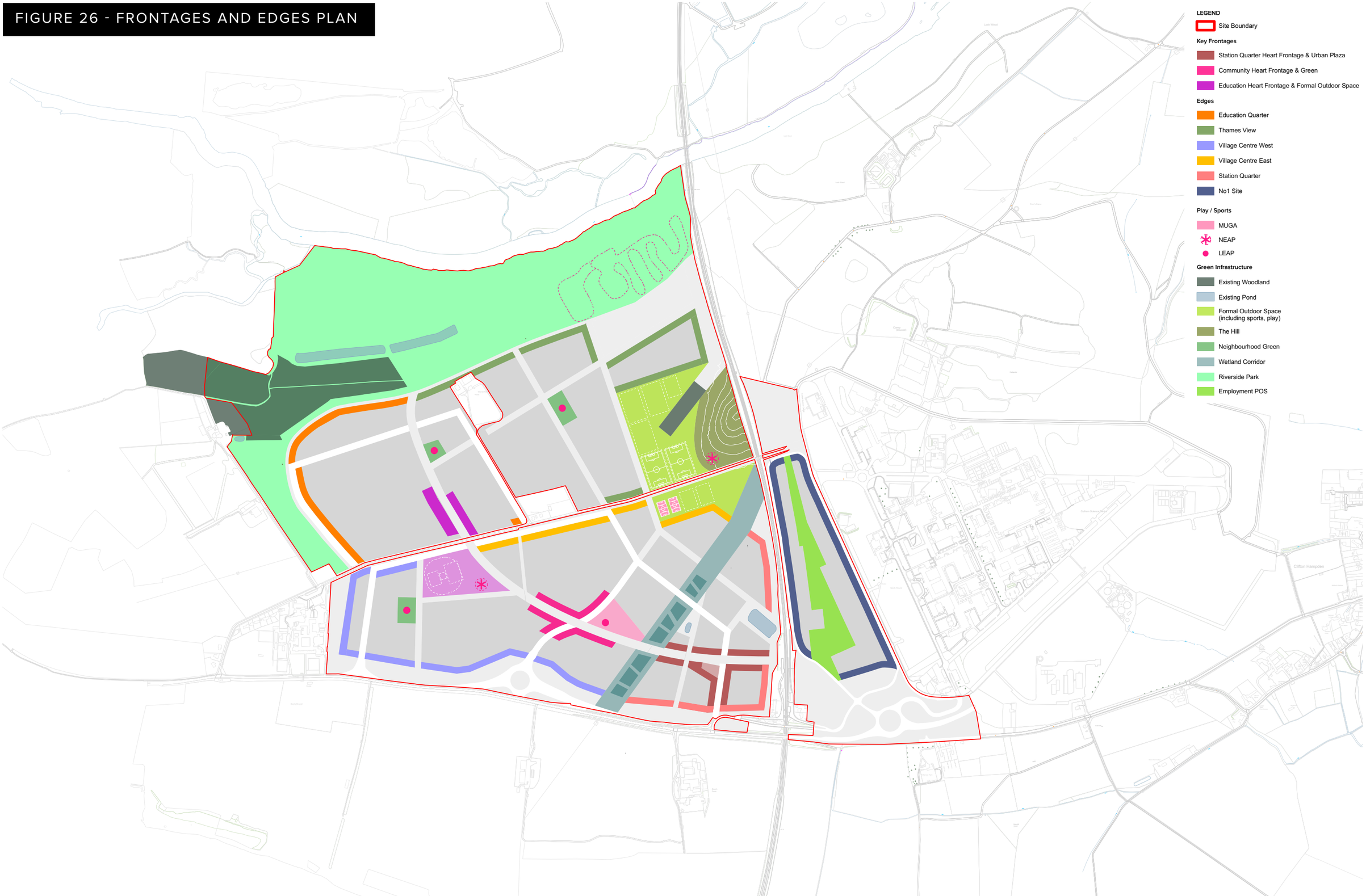
6.96. Within the Site there are several distinct frontages and edges that form recognisable elements of the placemaking strategy. Key edges and frontages are broadly aligned with important routes such as the River Link and the Character Areas that exist on the Site.

6.97. The detailed architectural and urban design treatment for key frontages and edges will come forward in a finer level of detail in future Planning Applications but it is important at a conceptual masterplan level to identify where these are located within the masterplan.

The Avenue, Saffron Walden

Cane Hill Park, Coulsdon

# FIGURE 26 - FRONTAGES AND EDGES PLAN



# Key Groupings and Landmarks

6.98. Within the masterplan area, key spaces and frontages exist that provide a focus for important treatments to buildings that go beyond the architectural treatment of other buildings in order to highlight their relative importance.

6.99. Key groupings seek to create special places that are a focus for public activity and interest within the development. Examples include specific buildings around a node where heightened architectural investment would contribute to the overall success of the space that the buildings front onto.

6.100. Landmark buildings should be notably distinct within the wider development and use changes in height, mass and/or scale as well as additional detailing and accent materials to emphasise particular house-types within their setting.

6.101. Such buildings are characterised by their location in relation to the Site and are typically highly visible and hold a commanding position, standing out from the context and the neighbourhood, bringing focus and identity.

6.102. Indicative locations for landmarks are identified on the Key Groupings and Landmarks Plan (Figure 27). These locations have been selected in line with the following principles:

- they are in highly visible locations within the pattern of streets and spaces;
- they would be appropriate landmarks for navigation;
- they hold a commanding position that is not shared by other buildings;
- they are distributed throughout the masterplan in such a way that important nodes and connections become more memorable.

Carrowbreck Meadow, Norwich

Horsted Park, Kent

# FIGURE 27 - KEY GROUPINGS AND LANDMARKS PLAN

# Addressing power lines

6.103. Policy STRAT9 of the SODC Local Plan 2035 (December 2020) requires that the masterplan recognises the overhead power lines that run through on the site and avoids the built form beneath these where possible. Two overhead power lines currently run across the site, including:

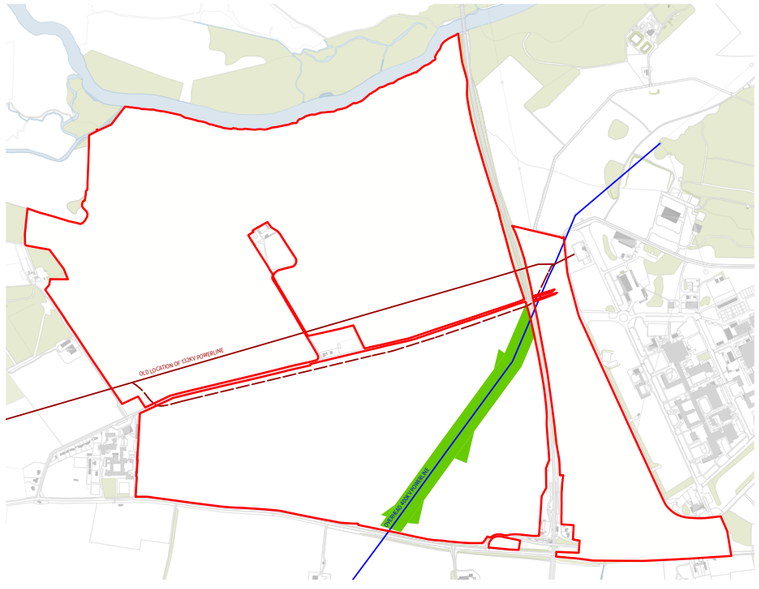
- 400kv power line running north east-south west across the south eastern corner of the site; and
- 132kv power line running parallel with Thame Lane to its north.

6.104. In addressing the requirements of Policy STRAT9, it is proposed that:

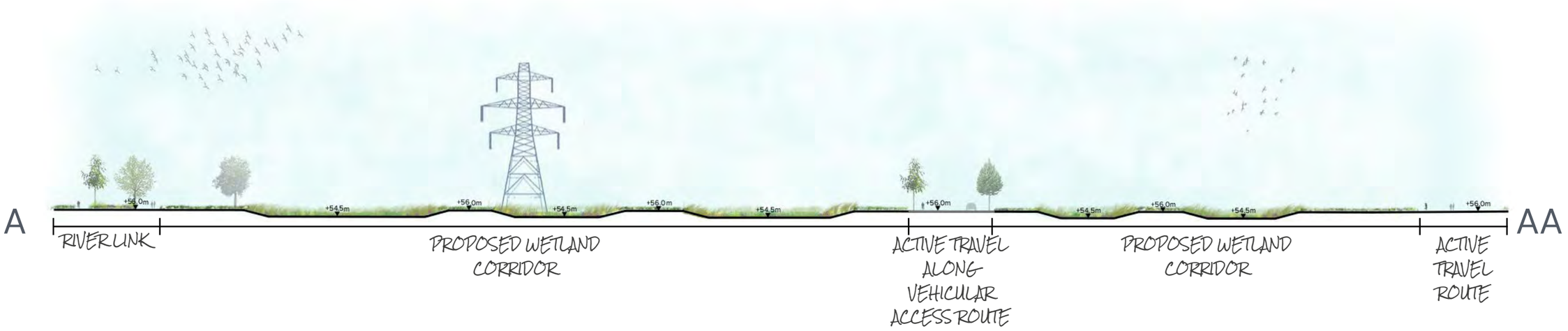
- The 400kv power line is proposed to be retained in situ avoiding development underneath it as required but using a linear corridor under its alignment as an important green corridor for drainage attenuation and ecological enhancement.
- The 132kv power line running parallel with Thame Lane is proposed to be grounded at the west of the site and rediverted under a new primary route adjacent to Thame Lane.

6.105. The potential to underground the 400kv power line has been explored with the utilities provider however, due to strategic operational requirements and financial viability, this option is not feasible.

6.106. The strategy for each of the power lines is illustrated in the following drawings.



# 400kv power line




# 132kv power line

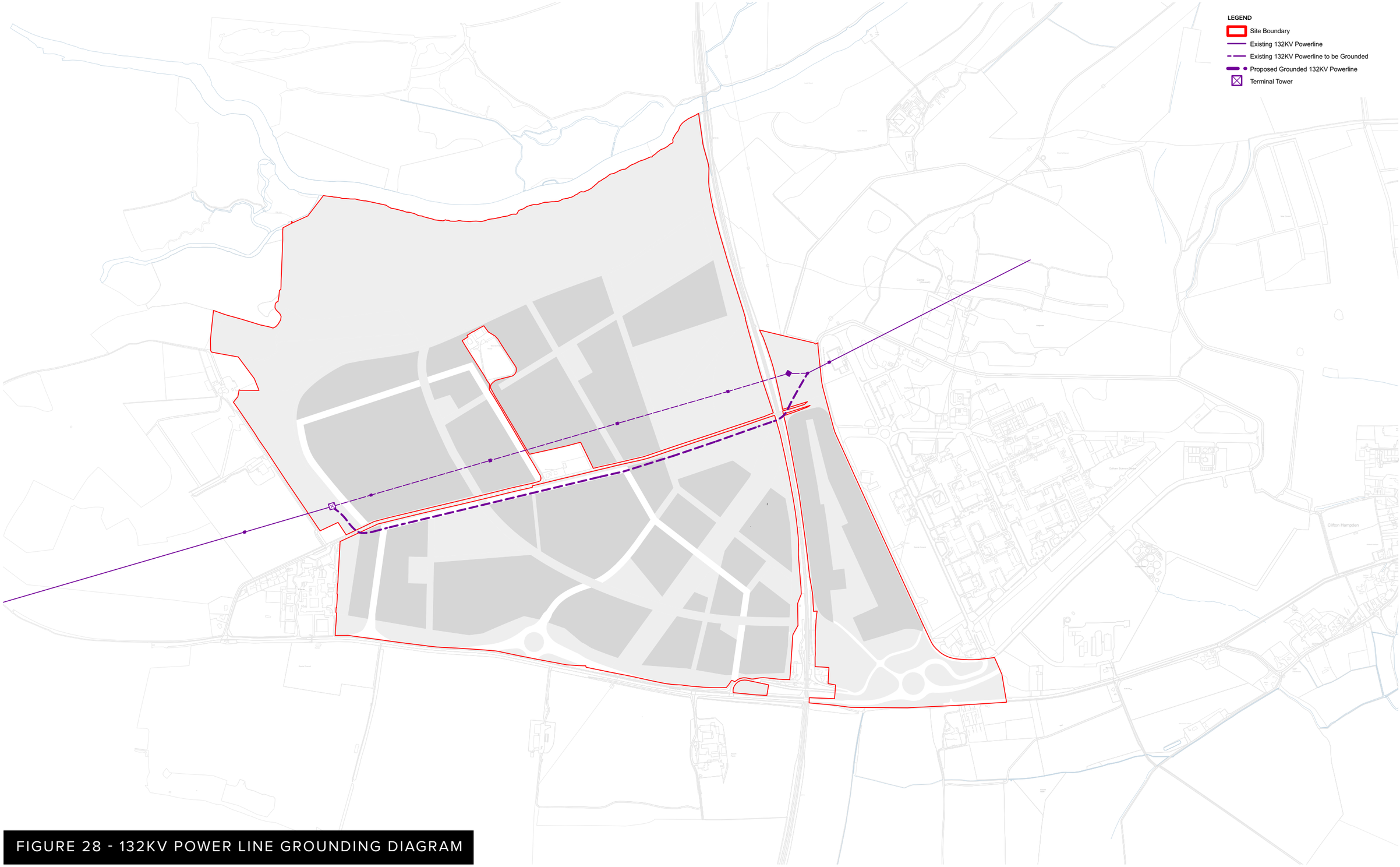



FIGURE 28 - 132KV POWER LINE GROUNDING DIAGRAM

# Relationship with heritage assets

6.107. Policy STRAT9 of the SODC Local Plan 2035 (December 2020) requires that the layout and form of the masterplan for the site respects the setting of the heritage assets within and beyond the site; in particular the listed buildings and structures (the Culham railway station and rail bridges and “Schola Europaea”) and the Registered Park and Garden associated with Nuneham House.

6.108. In addressing these requirements, it is noted that the site does not contain any built heritage assets, although is in close proximity to a number of designated heritage assets. Known heritage assets will need to be assessed further in respect of their significance and likely impacts as part of the ongoing masterplanning.

6.109. In order to mitigate potential harm to the Grade II Listed Europa School, a landscape buffer should be provided along the western boundary of the Site and built form that faces the school should form a positive relationship with the designated heritage asset. If the secondary school is located in the western side of the Site there may be potential for shared facilities, which would help sustain the current use of the listed building.

6.110. As noted above, Nuneham Park is designated as a Grade I Registered Park and Garden. The designed landscape is focused around the house, while the southern parts of the RPG, closest to the Site are now in arable use. As the priority of the masterplan is the reinforcement of the Green Belt boundary, views to the RPG will be restricted by Green belt planting. However, accessibility to the listed bridge via Thame Lane will increase, providing a sense of opening up to this heritage feature through the street enclosure reducing to the west of the bridge. The land in the east part of the Site, in closest proximity to the RPG is more sensitive to built form of scale, so it is recommended that open space is retained in this area and/or built form is of low scale (up to 2.5 storeys).

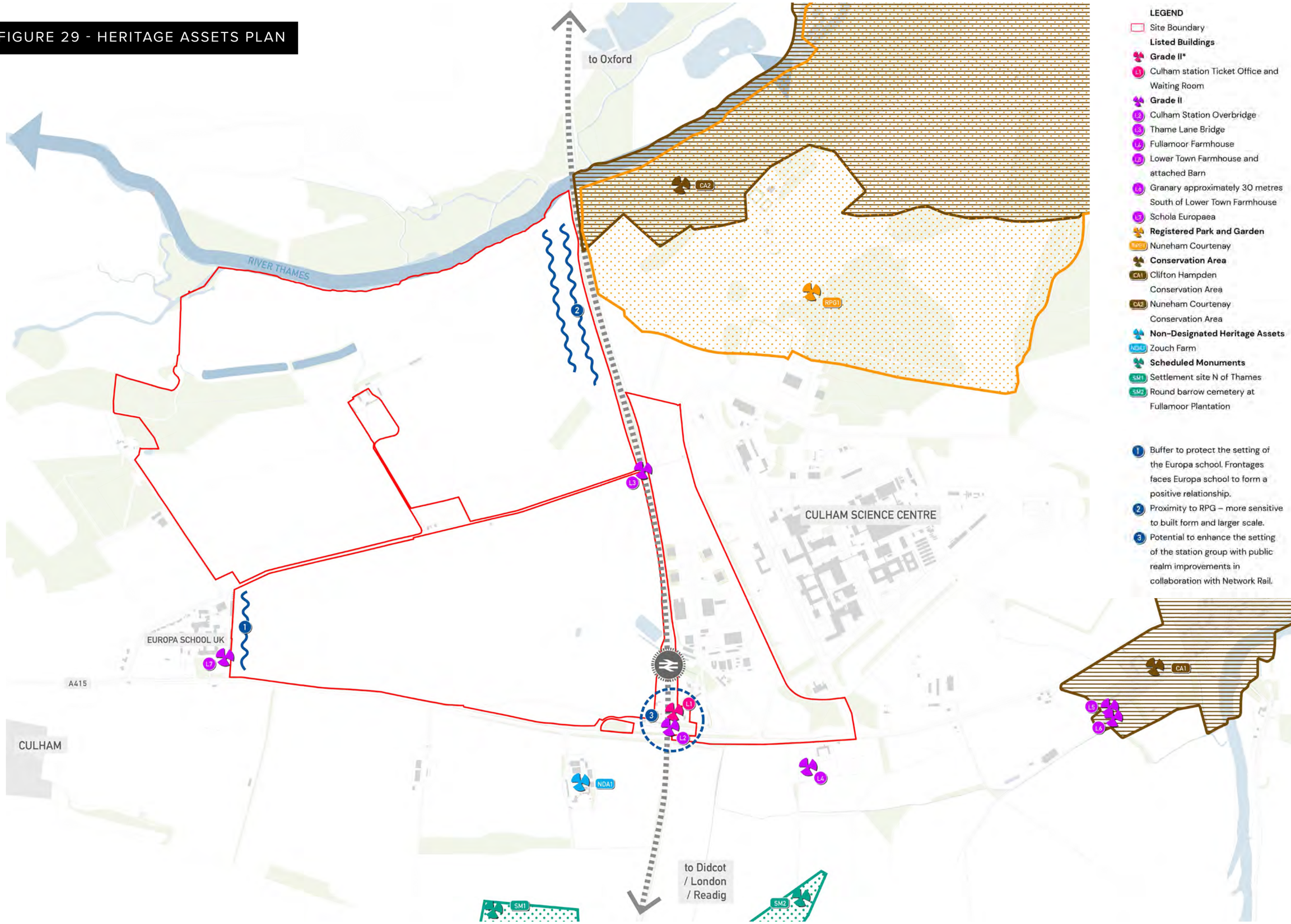
6.111. The Culham Ticket Office and Waiting Room were built c. 1844 to designs by Isambard Kingdom Brunel. At Grade II*, the station is highly graded, and forms a group with the Culham station overbridge (Grade II listed) and the unlisted Station Master’s Cottage and Railway Inn Pub, which are identified as non-designated heritage assets. Although this land is outside the masterplan area, the masterplan will considers public realm enhancements and decluttering of the space around the station group, in collaboration with Network Rail, as they develop their proposals for the station, to enhance their setting.

6.112. Regarding archaeology, this masterplan is informed by both geophysical surveys and trial trenching across the STRAT9 allocation. Trial trenching was undertaken between August and October 2022, comprising 156 trenches of which 12 were located within the No. 1 Site, and the remainder across the wider STRAT9 site. It is anticipated that further survey work of the wider site to an agreed percentage will be undertaken in relation to the residential outline planning application in due course.

Nuneham House, Nuneham Courtenay

Culham Station

FIGURE 29 - HERITAGE ASSETS PLAN



# Sustainability Strategy

6.113. The sustainability strategy for CSV is directly linked with the innovation strategy described earlier in the document. It responds to the challenges of climate, biodiversity and wellbeing and is aligned with South Oxfordshire local policies (STRAT 9, DES 8 and DES 10) and the UN Sustainable Development goals. Meeting these challenges requires a holistic approach that starts with science. This means delivering innovative buildings and spaces, whilst enhancing the environment, producing economic benefits for the widest number of people in the area, and creating the maximum amount of social value.

6.114. Proposals should seek to increase ecology and biodiversity, as well as facilitating a connection with, and provide access to nature for all that live and work there. This will involve strategically enhancing the biodiversity in the power line corridor with native wetlands, cultivating connections that extend beyond the site boundary to the east and embedding sustainable urban drainage systems throughout the development.

6.115. CSV should enable sustainable economic growth for the local area through the creation of high quality jobs and investment in infrastructure. There will be opportunities for collaboration and coordination between companies, both within the Oxfordshire region and new to the area.

6.116. The generation of social value is a core driver of the proposals. The formulation of emerging proposals will involve the local community from the outset to identify opportunities for the enhancement of existing neighbourhood activities and the creation of proposed spaces to deliver benefits to the existing local community and new residents and users of the site.

6.117. To ensure this approach is verifiable, progress will be measured against independent and internationally-recognised environmental assessment methodologies to evidence and validate the outcomes to be achieved. For example, buildings proposed will seek to achieve BREEAM ‘Excellent’ standards in accordance with Local Plan policies.

6.118. The emerging energy strategy is directly informed and influenced by the sustainability strategy. It will be resilient and future-proofed, facing up to the climatic changes being witnessed today and those changes that are yet to occur.

6.119. The energy strategy will be underpinned by a set of key principles seeking to demonstrate a feasible pathway to net zero carbon. An all-electric building approach is proposed to leverage the continued decarbonisation of electricity — this can be reinforced by very efficient buildings which maximise thermal performance. Local and low environmental impact materials will also be preferred where feasible. Critically, the masterplan will explore, test, iterate, improve and implement new and existing technologies and solutions to achieve the objectives of this strategy.

6.120. To prevent 'technological lock-in', the masterplan is supported by a 'Living Lab' approach that supports flexibility and use of the most appropriate technologies at the time of delivery. This can be achieved through the requirement to secure an Energy Strategy for each Reserved Matters application.

# DELIVERY

# Delivery

7.1. The following pages set out how CSV is anticipated to be delivered over time, providing a phased plan for each time period. The plans identify how employment, residential development and other land uses can be delivered in relation to open space, civic facilities, schools, active travel and public transport routes and infrastructure.

7.2. The numbers included in the tables that follow are indicative only at this stage.

FIGURE 30 - EMPLOYMENT PHASE

| EMPLOYMENT PHASE - SCHEDULE | |
|---|---|
| Housing | • None |
| Other Land Uses | • Employment<br>• Hotel<br>• Retail<br>• Health club / gym<br>• Crèche / children's nursery<br>• Restaurant / pub |
| Access & Movement | • Access point to No1 Site off Clifton Hampden Bypass |
| Off-site Infrastructure | • HIF Infrastructure and off-site highways improvements<br>• Clifton Hampden Bypass for access to No 1 Site<br>• Potential work between Abingdon and Culham bridges |
| Public Transport | • Use of the bus stop in front of Europa School on A415 and in front of No1 Site at Clifton Hampden Bypass |
| Train Station | • Direct link to existing train station and potential link to future train station (subject to NR / GWR) |
| Active Travel | • Active travel links associated with No1 Site and connections to Culham Station, CSC and Culham Science Centre |
| Green Infrastructure / Amenity | • Central landscaped space (Green Spine) to include a range of green infrastructure elements and to incorporate walking and cycling routes<br>• Central landscaped space to include productive landscape |
| SuDS | • SuDS to be included in the central landscaped space<br>• Attenuation ponds to the south of No1 Site |

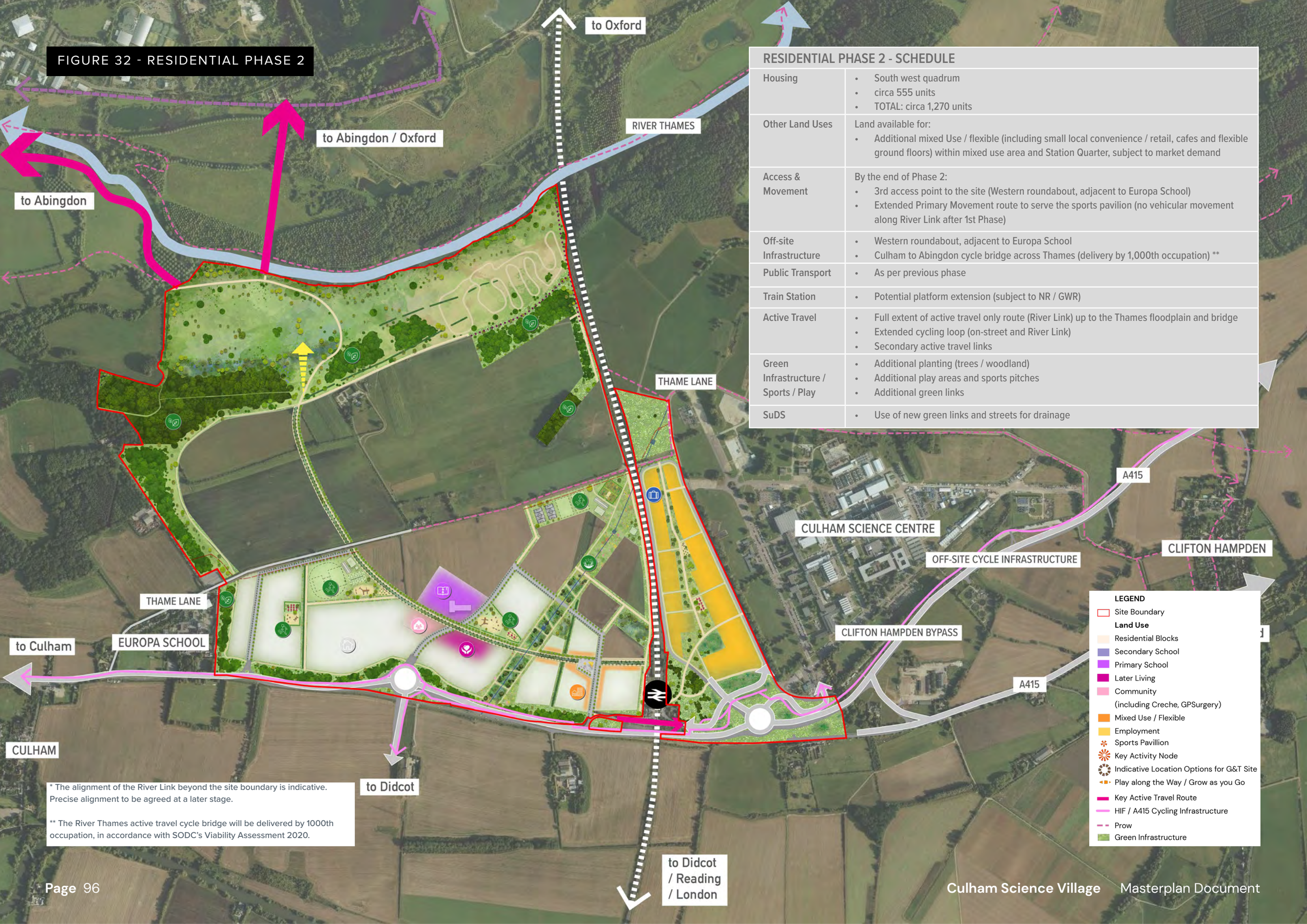
FIGURE 31 - RESIDENTIAL PHASE 1

| RESIDENTIAL PHASE 1 - SCHEDULE | |
|---|---|
| Housing | • South of Thame Lane around Station Quarter and Community Heart area<br>• circa 715 units |
| Other Land Uses | Land available for:<br>• First Primary School (delivery at 400th-500th occupation)<br>• Community (including community hub, crèche, GP surgery)<br>• Later Living<br>• Mixed Use / flexible (including small local convenience / retail, cafes and flexible ground floors) within mixed use area and Station Quarter |
| Access & Movement | Prior to 401st occupation:<br>• 2 access points to the site<br>• Small primary movement loop<br>• temporary vehicular access along northern extent of River Link to sports pavilion |
| Off-site Infrastructure | • HIF Western Roundabout (first point of access required prior to 1st occupation)<br>• Emergency access (required before 151st occupation)<br>• Upgraded Station Road Junction (second point of access required before 401st occupation) |
| Public Transport | • To follow Primary Movement loop<br>• Use of the bus stop in front of Europa School on A415 |
| Train Station | • Potential increase in train frequency (subject to NR / GWR) |
| Active Travel | • Active travel only route (River Link) up to Thame Lane to serve School and Community Buildings<br>• On-street cycling loop |
| Green Infrastructure / Sports / Play | • Existing woodland<br>• Proposed woodland<br>• A number of green links<br>• Part of the productive landscape<br>• 1 LEAP, 1 NEAP, linear play corridor, Cricket Pitch with pavilion, Tennis Courts with associated facilities |
| SuDS | • Use of existing ponds, wetland corridor, green links and streets for drainage |

to Oxford
RIVER THAMES
THAME LANE
CULHAM SCIENCE CENTRE
OFF-SITE CYCLE INFRASTRUCTURE
CLIFTON HAMPDEN
THAME LANE
EUROPA SCHOOL
to Culham
CLIFTON HAMPDEN BYPASS
A415
CULHAM
to Didcot
to Didcot / Reading / London

LEGEND
Site Boundary
Land Use
Residential Blocks
Secondary School
Primary School
Later Living
Community (including Creche, GPSurgery)
Mixed Use / Flexible
Employment
Sports Pavillion
Key Activity Node
Indicative Location Options for G&T Site
Play along the Way / Grow as you Go
Key Active Travel Route
HIF / A415 Cycling Infrastructure
Prow
Green Infrastructure

FIGURE 32 - RESIDENTIAL PHASE 2




| RESIDENTIAL PHASE 2 - SCHEDULE | |
|---|---|
| Housing | • South west quadrum<br>• circa 555 units<br>• TOTAL: circa 1,270 units |
| Other Land Uses | Land available for:<br>• Additional mixed Use / flexible (including small local convenience / retail, cafes and flexible ground floors) within mixed use area and Station Quarter, subject to market demand |
| Access & Movement | By the end of Phase 2:<br>• 3rd access point to the site (Western roundabout, adjacent to Europa School)<br>• Extended Primary Movement route to serve the sports pavilion (no vehicular movement along River Link after 1st Phase) |
| Off-site Infrastructure | • Western roundabout, adjacent to Europa School<br>• Culham to Abingdon cycle bridge across Thames (delivery by 1,000th occupation) ** |
| Public Transport | • As per previous phase |
| Train Station | • Potential platform extension (subject to NR / GWR) |
| Active Travel | • Full extent of active travel only route (River Link) up to the Thames floodplain and bridge<br>• Extended cycling loop (on-street and River Link)<br>• Secondary active travel links |
| Green Infrastructure / Sports / Play | • Additional planting (trees / woodland)<br>• Additional play areas and sports pitches<br>• Additional green links |
| SuDS | • Use of new green links and streets for drainage |

* The alignment of the River Link beyond the site boundary is indicative. Precise alignment to be agreed at a later stage.

** The River Thames active travel cycle bridge will be delivered by 1000th occupation, in accordance with SODC's Viability Assessment 2020.

FIGURE 33 - RESIDENTIAL PHASE 3

| RESIDENTIAL PHASE 3 - SCHEDULE | |
|---|---|
| Housing | • South east quadrum<br>• circa 880 units<br>• TOTAL: circa 2,150 units |
| Other Land Uses | Land available for:<br>• Second Primary School (at the trigger point of 1,400th occupation)<br>• Secondary School (at the trigger point of 2,000th occupation)<br>• Remaining mixed Use / flexible (including small local convenience / retail, cafes and flexible ground floors) within mixed use area and Station Quarter, subject to market demand |
| Access & Movement | • Extended Primary Movement loop to connect all vehicular points of access<br>• Access to Secondary School and drop-off |
| Off-site Infrastructure | • - |
| Public Transport | • To follow extended primary movement loop |
| Train Station | • Potential new station (subject to NR / GWR) |
| Active Travel | • Additional active travel links |
| Green Infrastructure / Sports / Play | • Additional planting (trees / woodland)<br>• Additional play areas and sports pitches<br>• Additional green links |
| SuDS | • Use of new green links and streets for drainage |

to Oxford

RIVER THAMES

to Abingdon / Oxford

to Abingdon

THAME LANE

A415

CULHAM SCIENCE CENTRE

OFF-SITE CYCLE INFRASTRUCTURE

CLIFTON HAMPDEN

THAME LANE

EUROPA SCHOOL

to Culham

CLIFTON HAMPDEN BYPASS

A415

CULHAM

to Didcot

to Didcot / Reading / London

LEGEND
- Site Boundary
- Land Use
- Residential Blocks
- Secondary School
- Primary School
- Later Living
- Community (including Creche, GPSurgery)
- Mixed Use / Flexible
- Employment
- Sports Pavillion
- Key Activity Node
- Indicative Location Options for G&T Site
- Play along the Way / Grow as you Go
- Key Active Travel Route
- HIF / A415 Cycling Infrastructure
- Prow
- Green Infrastructure

* The alignment of the River Link beyond the site boundary is indicative. Precise alignment to be agreed at a later stage.

FIGURE 34 - RESIDENTIAL PHASE 4

| RESIDENTIAL PHASE 4 - SCHEDULE | |
|---|---|
| Housing | • North west quadrum<br>• circa 480 units<br>• TOTAL: circa 2,630 units |
| Other Land Uses | • - |
| Access & Movement | • - |
| Off-site Infrastructure | • - |
| Public Transport | • As per previous phase |
| Train Station | • - |
| Active Travel | • Additional active travel links |
| Green Infrastructure / Sports / Play | • Additional planting (trees)<br>• Additional play areas and remaining sports pitches<br>• Additional green links |
| SuDS | • Use of new green links and streets for drainage |

to Oxford

to Abingdon / Oxford

to Abingdon

RIVER THAMES

THAME LANE

A415

CULHAM SCIENCE CENTRE

OFF-SITE CYCLE INFRASTRUCTURE

CLIFTON HAMPDEN

CLIFTON HAMPDEN BYPASS

THAME LANE

EUROPA SCHOOL

to Culham

CULHAM

to Didcot

to Didcot / Reading / London

**LEGEND**

Site Boundary

**Land Use**

Residential Blocks
Secondary School
Primary School
Later Living
Community
(including Creche, GPSurgery)
Mixed Use / Flexible
Employment
Sports Pavillion
Key Activity Node
Indicative Location Options for G&T Site
Play along the Way / Grow as you Go
Key Active Travel Route
HIF / A415 Cycling Infrastructure
Prow
Green Infrastructure

* The alignment of the River Link beyond the site boundary is indicative. Precise alignment to be agreed at a later stage.

# FIGURE 35 - RESIDENTIAL PHASE 5

| RESIDENTIAL PHASE 5 - SCHEDULE | |
|---|---|
| Housing | • North east quadrum<br>• circa 870 units<br>• TOTAL: circa 3,500 units |
| Other Land Uses | • - |
| Access & Movement | • Access to north east quadrum |
| Off-site Infrastructure | • - |
| Public Transport | • As per previous phase |
| Train Station | • - |
| Active Travel | • Additional active travel links |
| Green Infrastructure / Sports / Play | • Remaining planting (trees)<br>• Remaining play areas<br>• Remaining green links |
| SuDS | • Use of new green links and streets for drainage |

to Oxford

RIVER THAMES

to Abingdon / Oxford

to Abingdon

THAME LANE

A415

CULHAM SCIENCE CENTRE

OFF-SITE CYCLE INFRASTRUCTURE

CLIFTON HAMPDEN

CLIFTON HAMPDEN BYPASS

THAME LANE

EUROPA SCHOOL

to Culham

A415

CULHAM

to Didcot

to Didcot / Reading / London

**LEGEND**

Site Boundary

**Land Use**

Residential Blocks
Secondary School
Primary School
Later Living
Community
(including Creche, GPSurgery)
Mixed Use / Flexible
Employment
Sports Pavillion
Key Activity Node
Indicative Location Options for G&T Site
Play along the Way / Grow as you Go
Key Active Travel Route
HIF / A415 Cycling Infrastructure
Prow
Green Infrastructure

* The alignment of the River Link beyond the site boundary is indicative. Precise alignment to be agreed at a later stage.

# Policy Checklist

8.1. The Masterplan Document has been prepared in response to key SODC Local Plan policies including STRAT9, STRAT4, DES 1, 2, 5, 7, 8 9, 10, H9, 11, 12, 13 and 14, EMP 1, and 2, EP 1, 4 and 5, CUL9, CF5, TRANS 1B, 2, 4 and 5, INF1, ENV1, 2, 3, 4, 5, 6, 7, 9 an, 10, 11 and 12, INF1 and TC2.

8.2. SODC Local Plan policies STRAT9 and DES4 relate specifically to the requirement to produce masterplan documents to support major developments. The respective requirements for each of these policies and the location where these requirements have been addressed in the Masterplan Document are identified below:

## PAGE STRAT9

| | |
|---|---|
| 49 | A layout that recognises plans for improvements to Culham Rail Station. |
| 66 | A layout that delivers higher density development along the principal internal transport corridors, adjacent to the local centre and adjacent to the railway station, provided it does not adversely impact any existing heritage assets. Density should then gradually reduce from these locations outwards to provide a transition across the site, with lower density development located on the northern, southern and eastern edges of the site, to create a permanent defensible edge to protect the Oxford Green Belt. |
| 82 | A layout that recognises the overhead power lines on the site and avoids the built form beneath these where possible. |
| 63 | Appropriate landscaping and an integrated network of Green Infrastructure throughout the site and in particular along the boundaries of the strategic allocation, which would allow limited through views, creating a permanent defensible edge to protect the Oxford Green Belt. |
| 85 | A layout and form that respects the setting of the heritage assets within and beyond the site; in particular the listed buildings and structures, and the Registered Park and Garden associated with Nuneham House. |
| 59 | A layout that has land which remains undeveloped to the northern border of the site and that should be utilised for flood plain storage. |
| 61 | A layout and appropriate mitigation measures that protect Culham Brake SSSI which lies to the north-west of the site, the BAP priority sites to the north of Culham, and that within the Culham Science Centre and numerous BAP priority habitats, including the BAP priority habitat south of Culham Railway station. |
| 45 | High quality walking and cycling routes within the site. |
| 44 | Provision of infrastructure to support public transport through the site. |
| 61 | A net gain in biodiversity which is integrated into the masterplan through the creation of new woodland habitats along the river escarpment and ecological enhancements of the floodplain habitats, including a complex of new wetland habitats and species rich floodplain meadows. Any residual biodiversity loss should be offset through a recognised biodiversity offsetting scheme. |

## PAGE DES4

| | |
|---|---|
| 68 | Set out the land uses proposed including the amount, scale and density of development, the movement and access arrangements and Green Infrastructure provision. |
| 66 | Illustrate how the proposal integrates with the surrounding built, historic and natural environments, in particular maximising existing and potential movement connections and accessibility to prioritise walking, cycling and use of public transport. |
| 85 | Be based on a full understanding of the significance or special interest of the historic environment as it relates to the site, including above and below ground archaeological remains and other heritage assets on the site or within the setting of which the site lies, and the conservation and enhancement of those remains or assets and significance or special interest. |
| 58 | Define a hierarchy of routes and the integration of suitable infrastructure, including for example SuDS within the public realm. |
| 66 | Demonstrate a legible structure and identify key elements of townscape such as main frontages, edges, landmark buildings, key building groups and character areas. |
| 37 | Be based on the principles of natural surveillance and active street frontages by demonstrating that streets and spaces are well overlooked and fronted by the main entrances of buildings which provide direct access to the street or space and that positive relationships have been created between the fronts and backs of buildings. |
| 34 | Demonstrate as appropriate the careful sitting of community facilities and other amenities to meet the needs of the existing and future community, including access to education/training facilities, health care, community leisure and recreation facilities. |
| 66 | Demonstrate a clear link to the principles established in the South Oxfordshire Design Guide. |
| 12 | Demonstrate that the masterplan has been prepared with the involvement of the local community and other stakeholders and in consultation with the local planning authority. |

# Define.

Unit 6 | 133-137 Newhall Street | Birmingham | B3 1SF
**T:** 0121 2371914 **W:** www.wearedefine.com