



Loughborough Science and Enterprise Park Concept Masterplan Framework

Final Report
February 2016

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Brown

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Glossary

The following list is a glossary of terms that are repeatedly referred to in this document:

“Charnwood”	Charnwood Borough Council
“Core Strategy”	Charnwood Local Plan 2011-2028 Core Strategy (adopted November 2015)
“the County”	Leicestershire County Council
“FAR”	Floor area ratio
“the Framework”	Concept Masterplan Framework for the Loughborough Science and Enterprise Park
“GFA”	Gross floor area
“LCA”	Borough of Charnwood Landscape Character Assessment Local Plan document EB-ENV-4 [2012]
“LLEP”	Leicester and Leicestershire Enterprise Partnership
“the Park”	Loughborough Science and Enterprise Park
“SUE”	West of Loughborough Sustainable Urban Extension
“the University”	Loughborough University

Executive Summary

The commission and the Partnership

The development of the Park is governed and supported by the policy framework set out in the Charnwood Core Strategy. It is Charnwood Borough Council's vision that the Park will have a national profile, building on the opportunity for high tech knowledge-based research and development in partnership with Loughborough University and business leaders.

An area for the extension of the Park has been allocated to the west of the existing science park and the University campus. Approximately half of this site is owned by the University, half is under the control of commercial developers Wilson Bowden and a small area is under the control of William Davis. The commission to design a Concept Masterplan Framework for the Park has resulted from a desire to harness the opportunities provided by the policy context, the site and the market conditions. A Partnership formed of Charnwood Borough Council, Loughborough University, Leicestershire County Council and private development partners Wilson Bowden has taken the initiative to develop proposals for the physical environment of the Park, underpinned by an assessment of its viability and deliverability. The Framework presented in this document is the result of this initiative.

Stages of preparation of the masterplan

Engagement with the Partnership has taken place at various stages throughout the design process. At project inception, an initial briefing workshop and joint site visit was undertaken to outline key objectives and considerations. This was followed by a series of one-to-one consultations with the University and Wilson Bowden to understand the particular aspirations of both land owners.

The first stage of design work included the development of strategic principles and options for the Framework. These formed the basis of a presentation and discussion that was formalised through written feedback and incorporated into the preferred option.

At the second stage of the project, a preferred option for the Framework was presented to the Partnership for discussion and comment. Feedback was collected and informed the subsequent design development.

Leicestershire County Council was consulted principally with regard to highways and strategic economic development issues.

Quantum and type of development

The Core Strategy sets out permitted land use for the Park including:

- Uses that directly relate to the University's own operational activities
- Businesses operating within or directly supporting the knowledge based sector
- An innovation centre with space for business start ups
- Grow on units for small and medium sized enterprises
- Appropriate ancillary uses to serve the Park exclusively

Science and enterprise parks tend to work as an ecology of small pioneering businesses that drive cutting edge innovations and larger established players that have the resource and funding to bring those innovations to the market. Based on market demand analysis and the evidence base outlined in Section 2 of this report, the table below sets out high-level space assumptions for different uses that will be located in the Park.

It should be noted that this mix and quantum of development explores the upper limits of the site's capacity in order to accommodate for the most favourable market conditions. In the event of lesser market demand or slower uptake of development land, the masterplan layout can accommodate for a proportion of this aspirational quantum.

Development Brief table

Use	Gross Floor Area
Innovation Centre	6,000 sqm
Grow on space	40,000 sqm
Hybrid R&D and Advanced Manufacturing and/or Traditional R&D	143,000 sqm
Sports Institution	1,000 sqm
Hotel, conference centre and serviced residential	10,000 sqm (200 beds + 50 flats)
TOTAL	200,000 sqm

Constraints and Opportunities

The site allocated to the expansion of The Park has a series of physical characteristics that influence how the Park can be developed. Some are constraints that will limit the amount or type of development whereas others are opportunities that catalyse development. In summary these considerations are:

Constraints:

- Topography: the site has a gentle sloping topography with some steeper slopes. Larger buildings will require significant amounts of excavation and fill to create level building sites, resulting in increased development cost
- Garendon Park visual impact: the Park faces Garendon Park, a protected historic parkland. The impact of development on views from Garendon Park needs to be considered in relation to potential impact on heritage character
- Snell's Nook Lane: the site is currently bisected by Snell's Nook lane, a public through route that makes connectivity and coherence of the Park challenging
- Existing ecology: the site contains mature natural landscape features whose ecological value needs to be enhanced and preserved
- Existing infrastructure: an underground pumped water main runs under part of the site

Opportunities:

- Accessibility: the site is well connected regionally through its proximity to the M1 motorway but also locally as it adjoins the A512 into Loughborough
- Potential for new western access: planned highway works adjoining the site offer the opportunity to deliver a new access route and gateway into the Park
- Visibility: the site lies at the edge of Loughborough and frames one of the main entrance routes into the town
- Landscape setting: the site lies in an area of significant natural beauty, the preservation of which is a key characteristic that sets the Park apart from its competitors
- Existing Science Park and Loughborough University: Park is already an established science park built on its close research ties with Loughborough University. This collaboration between academic and commercial sectors is a key driver for innovation at Loughborough

Vision and objectives:

The concept masterplan framework for The Park is driven by the aspiration of the Partnership to create a high quality, environmentally sound development that integrates harmoniously with the natural landscape. The Park shall utilise the potential of university-industry partnerships to create a place for knowledge-based research, innovation and enterprise. The following development objectives will embed the quality aspirations for the Park into the physical concept masterplan framework.

1. Objective 1: Create a layout that activates human networks
2. Objective 2: Deliberately plan open spaces that contribute to the Park's overall identity
3. Objective 3: Contain development within a number of discreet and legible areas
4. Objective 4: Amplify the natural features that exist on and around the site, acknowledging the intrinsically rural place character
5. Objective 5: Parcelise and phase development to be 'whole' at every stage
6. Objective 6: Accommodate the need for future flexibility

Land Utilisation

The Core Strategy sets out that 40% of the land area shall be provided as green infrastructure to reflect the location of the Park in Charnwood Forest. Through discussion with the Partnership, the following broad split between structural and on-plot or on-parcel landscape has been arrived at for the purposes of this commission.

- A) 30% Structural off-plot landscaping
- B) 10% On-plot or on-parcel landscape

The overall requirement of 40% site wide open undeveloped space is thus achieved by A+B. The delivery of the 30% off-plot landscape leaves 70% of the site area for development parcels and road infrastructure.

Concept Masterplan Framework

Through a series of strategic masterplan options, strong and weak points of different layouts and design approaches were identified. The discussion and feedback from these formed the basis for a series of spatial framework principles that emerged as preferential through the option testing. These spatial framework principles lay the foundation for the concept masterplan framework of the Park.

Spatial Framework Principle 1:

A single hub located at the centre of the site

Spatial Framework Principle 2:

A new road to divert through traffic west of the existing science park to improve accessibility within the park, referred to as “New Snells Nook Lane” for the purpose of this concept masterplan framework

Spatial Framework Principle 3:

A new western gateway and entrance into the site to improve access to the park

Spatial Framework Principle 4:

Concentration of areas of development into clusters (referred to as ‘hamlets’)

Spatial Framework Principle 5:

Maximise the value of the A512 frontage

Spatial Framework Principle 6:

Distribute land uses according to functional relationships and phasing

Spatial Framework Principle 7:

A legible network of roads and green corridors

Spatial Framework Principle 8:

Preserve and enhance the geometries of field boundaries and site topography

The Framework for the Park sets out the structure of the development. As its name suggests, this plan identifies a spatial framework within which development can come forward in a variety of ways.

The Framework includes:

- The location of strategic road infrastructure such as the New Snells Nook Lane
- The location of primary and secondary roads within the Park
- Access points and gateways into the Park
- The location of the strategic ecological corridors and natural parkland features that compose the 30% off-plot landscape (as a component of the 40% landscape requirement)
- The location of the Hub
- The location and size of development parcels and their predominant land use (Grow-on, Advanced Manufacturing, etc)

This Framework sets out the structure of the Park, safeguarding its key qualitative and spatial principles. It is flexible enough to accommodate development in a number of different ways, taking into account possible future changes in market trends or delivery mechanisms.

The Framework sets out:

- Where the 30% structural off plot landscape could be located
- How development could be grouped into hamlets
- How much development could be provided on each parcel
- Where different uses could be located
- How vehicles could move into and through the Park
- How people could walk and cycle to and through the Park
- How the edges of the Park could be formed
- How water could be managed across the site

In order to provide further guidance, one possible development scenario has been illustrated in more detail in Section 7.



Loughborough Science and Enterprise Park: Concept Masterplan Framework

* The land associated with 'The Greens' has the potential to be used as a development parcel assuming the necessary balance of green infrastructure is achieved to meet the policy requirements.

Viability

The viability assessment in this document sets out the costs and development gains that are likely to arise through the development of the Park. The aim of this viability assessment is to identify any funding gaps and to determine the amount of external funding that must be sought to deliver the Park. It is not expected that The Park generates profit or supports itself from the outset. Instead, it is a project that the Partnership are looking to invest in to safeguard Loughborough's future position in the knowledge-based research sector.

The overall assessment of the viability of the Park off sets the infrastructure cost profile against the potential flow of development receipts. As the hybrid R&D and Advanced Manufacturing model is currently estimated to be the only commercially

viable development on the Park, all capital land receipts will most likely stem from this type of development.

For the purpose of this viability analysis, it is assumed that:

- No restrictive covenant will be applied to potential occupiers of the hybrid R&D and Advanced Manufacturing units
- Land use is restricted solely by the Core Strategy Policy
- The development would achieve an average yield of 7.5%
- Infrastructure costs are as set out in this document

The speed of development of the Advanced Manufacturing space may vary between one and five hectares a year, depending on the existence and nature of a gateway policy applicable to occupiers:

- Our modelling, which has presumed no gateway policy, has allowed for a take up rate peaking at an average of 1.3 ha/year over the course of Phase 4, (though in many years up to 5 hectare a year take up could be expected), and yielding up to £23 million of land receipts over 30 years.
- Conversely, if occupiers were subject to restrictive gateway criteria, the take up rate would be nearer 1 ha/year at most, yielding up to around £9 million receipts over 30 years.

Viability table

Phasing	Infrastructure costs	Land receipts	Cumulative infrastructure costs	Cumulative land receipts
Phase 3a (years 1-5)	£7,250,000	£1,000,000	£7,250,000	£1,000,000
Phase 3b (years 6-10)	£1,500,000	£4,500,000	£8,750,000	£5,500,000
Phase 4	£7,000,000	£8,900,000	£15,750,000	£14,400,000
Phase 5	£3,500,000	£8,600,000	£19,250,000	£23,000,000
End of Development	£3,700,000		£22,950,000	£23,000,000
FULL BUILD OUT	£22,950,000	£23,000,000		

Delivery

The viability assessment highlights the following challenges to the delivery of the Park:

1. Infrastructure costs may exceed land receipts achieved through development
2. If occupiers are selected according to restrictive criteria such as their affiliation with specific research sectors or existing ties with Loughborough University, this may have the effect to:
 - a. Limit the amount of development that is likely to come forward
 - b. Discourage interest from private development partners
 - c. Reduce the speed of development

The delivery strategy for The Park thus seeks to overcome the challenges brought about by high infrastructure costs and the potential restriction of a gateway policy that regulates occupier selection. Six key actions are recommended to overcome these delivery hurdles:

Key Action 1: Leverage of external funding

Key Action 2: Put in place an Infrastructure Delivery Agreement

Key Action 3: Commission additional technical studies

Key Action 4: Secure outline planning consent

Key Action 5: Investigate how land ownership arrangements can best support future development

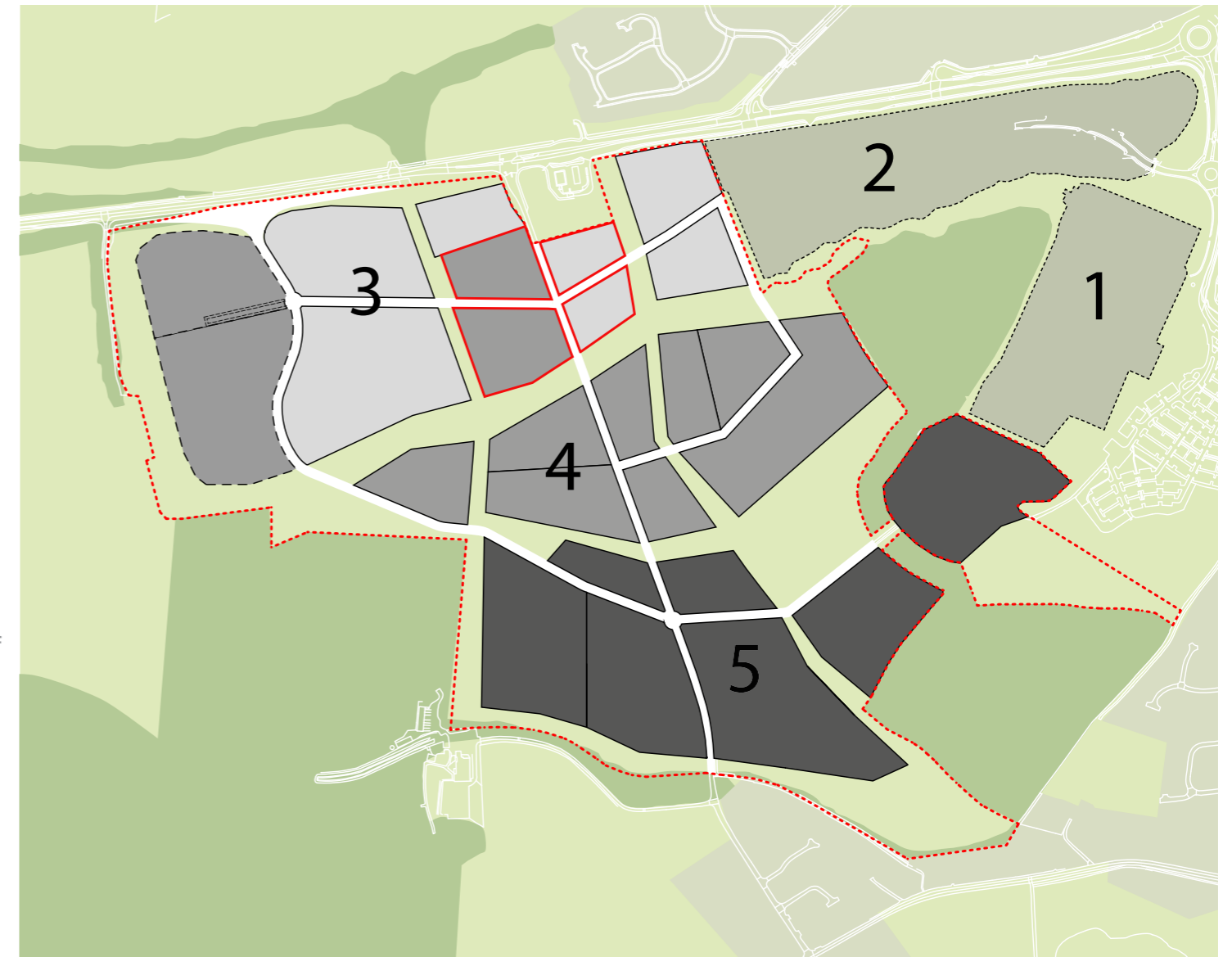
Key Action 6: Develop a targeted occupier marketing strategy

Phasing

It is estimated that the Park will be developed over a 30-year period. The phasing of development will be subject to detailed delivery considerations. However, one potential phasing strategy could be to build the Park in three broad bands of development, stretching from east to west across the site. In order to maintain the spatial coherence with existing phases of the Park, development could extend from the north-eastern part of the site where a connection to existing plots and facilities can most easily be made. Development could initially stretch along the northern boundary, forming the frontage along the A512 and establishing the western gateway into the Park.

Based on the market analysis and development brief set out in Sections 2 and 3, the initial development phases are likely to contain a modest amount of start-up and Grow-on space. This will allow new businesses to settle here and develop their business model. Phases 4 and 5 are then likely to provide additional Grow-on capacity for businesses that have matured and want to invest in better facilities.

Provision for advanced manufacturing is likely to form the largest proportion of all development phases. Due to the Park's unique ability to accommodate combined research and manufacturing facilities, take up of these parcels is expected to be high and continuous.



Potential phasing plan

Delivery of the Park is a key objective in the Leicester and Leicestershire Enterprise Partnership's (LLEP) Strategic Economic Plan 2015-2020. It has also been identified as a key strategic project in the LLEP's bid for City Deal Status (January 2013).

The development of the Park is governed and supported by the policy framework set out in the Core Strategy that was adopted in November 2015. The Core Strategy articulates Charnwood's vision of where and how new development should take place until 2028. The Core Strategy includes five strategic development sites including the extension of the existing science park which forms part of the West Loughborough Growth Area.

It is Charnwood's vision that the Park will have a national profile, building on the opportunity for high tech knowledge-based research and development in partnership with the University and business leaders. The Core Strategy sees Charnwood playing a strong role in managing the development of the Park, through engagement with partners and stakeholders, and influencing decisions to invest in the knowledge-based research sector.

The Core Strategy recognises that the teaching and research expertise of the University is of regional and national importance and that the University is the largest employer in the borough. Whilst the existing science park is successful, evidence suggests that it could have happened faster with a positive planning framework in place. Extending the Park is a critical priority for Charnwood, shared with their partners including the University and the LLEP. They have allocated an area for the extension of the Park to the west of the existing science and university campus on the site that forms the subject of this Framework.

The Core Strategy assessment suggests that the Park has the potential to attract up to 111,000 sqm of knowledge based businesses and University related activities during the plan period. This should be read in the context of the demand and capacity assessments set out in this report.

Charnwood do not want to see the Park used for general industrial development or warehouses and instead want to restrict it for businesses within the knowledge-based sector. These types of businesses include high and medium technology manufacturing, communications technology, financial and professional services, creative and cultural industries and employment in education and health care.

The landscape to the west of Loughborough is an attractive area which forms the north-eastern part of Charnwood Forest Regional Park together with the National Forest within which development is regulated by specific policies within the Core Strategy. The site includes a number of important habitats and Local Wildlife Sites which are required to be protected and improved.

Early phases of the science park have maintained a parkland setting by retaining 40% of the development site as open and undeveloped. An extension to the science park within this attractive landscape will only be permitted under the condition that 40% of the site remains as green infrastructure. The development's scale, form, character and design must respect the site's topography, natural features and setting. As a gateway to Loughborough the site provides an opportunity to provide landmark buildings on prominent frontages as set out in Policy CS2 of the Core Strategy.

The policy provisions applying to this concept masterplan framework are set out in policy CS 23 of the Core Strategy.

Introduction

Physical context

Regional context

The Park benefits from a strategic location in the East Midlands. Nottingham, Leicester and Derby form a triangular catchment area with Loughborough at its centre. Each of the three cities is easily accessible within 30 minutes by road or 20 minutes by rail and they form important centres for the UK's growth of business, enterprise and innovation. The site's position is further strengthened by its proximity to East Midlands airport and the M1 motorway which connect it beyond the Nottingham-Leicester-Derby triangle, both nationally and internationally.

This catchment area forms an important resource of human and economic capital, with many businesses and people already working in the knowledge and technology sector.

Loughborough context

The Park site lies on the western boundary of Loughborough. Its locational advantage is underpinned by the proximity to the M1 motorway which provides essential regional connectivity for the kind of occupiers the Park wishes to attract. The site is located along the A512 Ashby Road in close proximity to junction 23 of the M1 motorway. Loughborough Town Centre lies one mile to the east. The Park will thus form the gateway into Loughborough for anyone arriving via the M1 and travelling into the town centre.



Loughborough Science and Enterprise Park wider context

Local context

The site lies adjacent to the campus of Loughborough University and the first and second phases of the existing science park. The University campus and earlier phases of the science park are contiguous with the site and form its eastern neighbour.

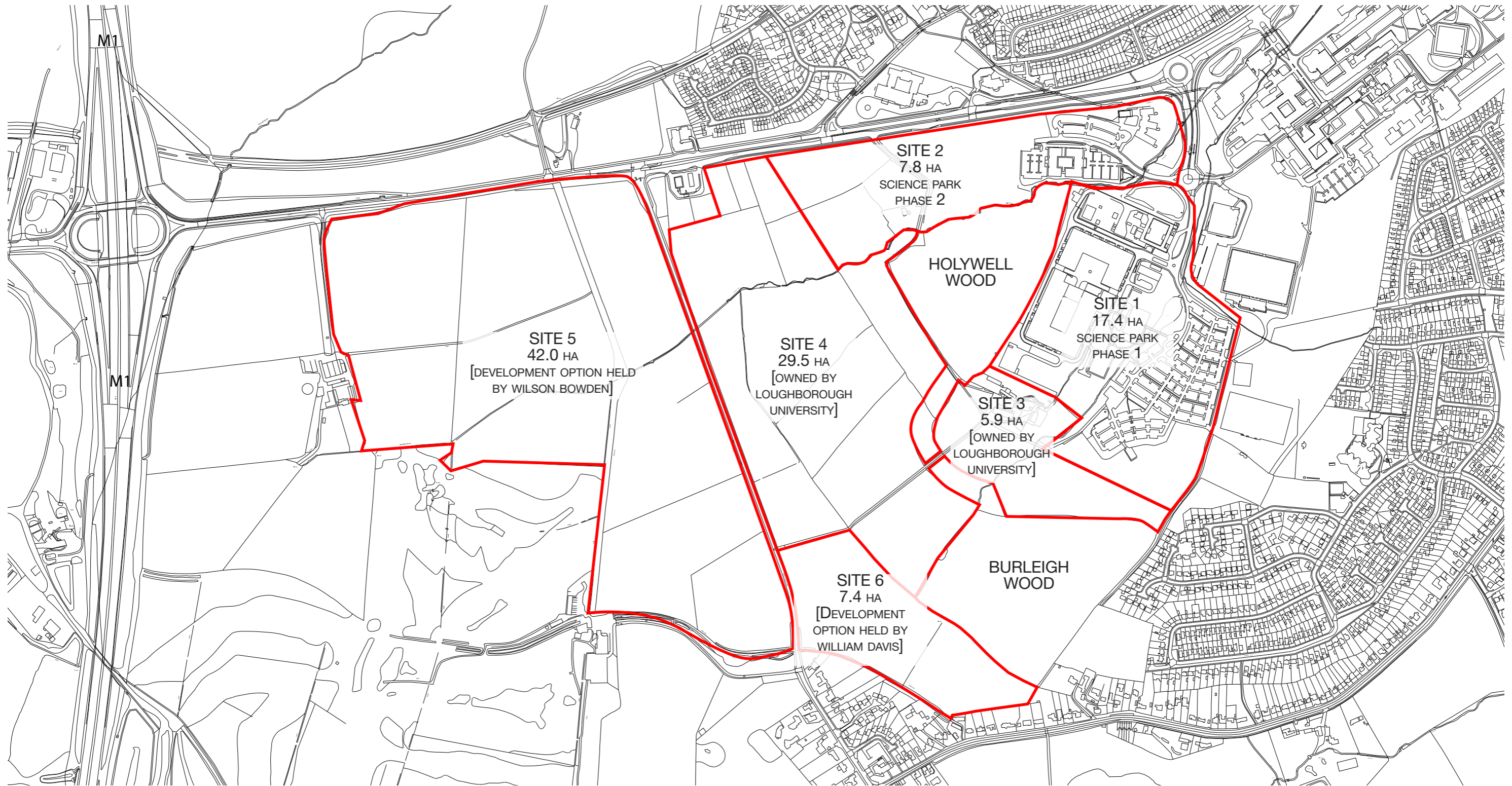
To the west and southwest, the site is bounded by Hurst Farm and the Longcliffe Gold Club, with the M1 motorway lying approximately 350m to the west of the site. Hurst Farm is a historic forest farm and contains listed structures.

The residential area of Nanpantan borders the site to the south east and the Longcliffe golf course lies to the south west of the site .

To the north of the site, across the A512, lies Garendon Park, a protected heritage parkland containing listed structures. Framing Garendon Park to the north is the West Loughborough Sustainable Urban Extension, a planned development which has outline planning approval for more than 3,000 homes, community facilities and 16 ha of land for employment use.



Loughborough Science and Enterprise Park local context



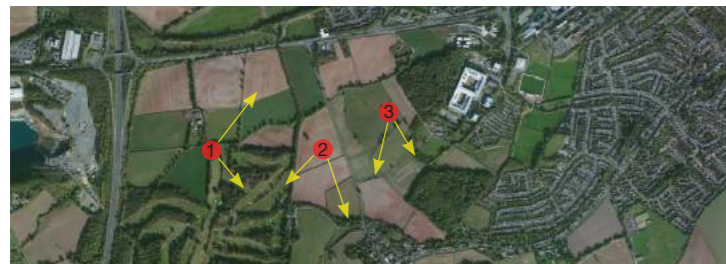
Loughborough Science and Enterprise Park site onwerships

Site and landscape context description

The Park is located in a setting of natural beauty at the edges of Charnwood Forest and the National Forest. At the heart of the site, adjoining phases 1 and 2, are two ancient woodlands, Burleigh Wood and Holywell Wood. Both are linked by a mature tree belt encircling the grounds of Holywell Farm. Burleigh Brook, a small waterway and ecological corridor, runs through the site from east to west.

The agricultural use of the site has defined its current appearance. Fields and pastures are framed by paths, mature hedgerows and tree belts which segment the site into distinct areas. Of particular note among the structural hedgerows is a tree lined avenue which dates back to the 18th century and forms part of a network of paths linking Garendon Park to its surrounding context.

The site's woodland setting is a key driver of attractiveness for the Park. This natural character will set the Park apart from other Parks and hence the Core Strategy seeks to protect and enhance the parkland setting of the site. (Refer to Policy Context above.)



View 1



View 2



View 3

Landscape character

Understanding the character of the existing landscape has helped inform key decisions about the nature of development. The landscape character of the site is described in the document 'Borough of Charnwood-Landscape Character Assessment' Local Plan document EB-ENV-4 [2012] ("LCA"). This assessment has been used to support field work and stakeholder comments and to guide the landscape character of the plan.

The LCA provides an accurate character description of the site and its position in the wider regional context. It is useful to summarise the key findings of this LCA as they have provided a baseline to the evolution of the concept masterplan framework.

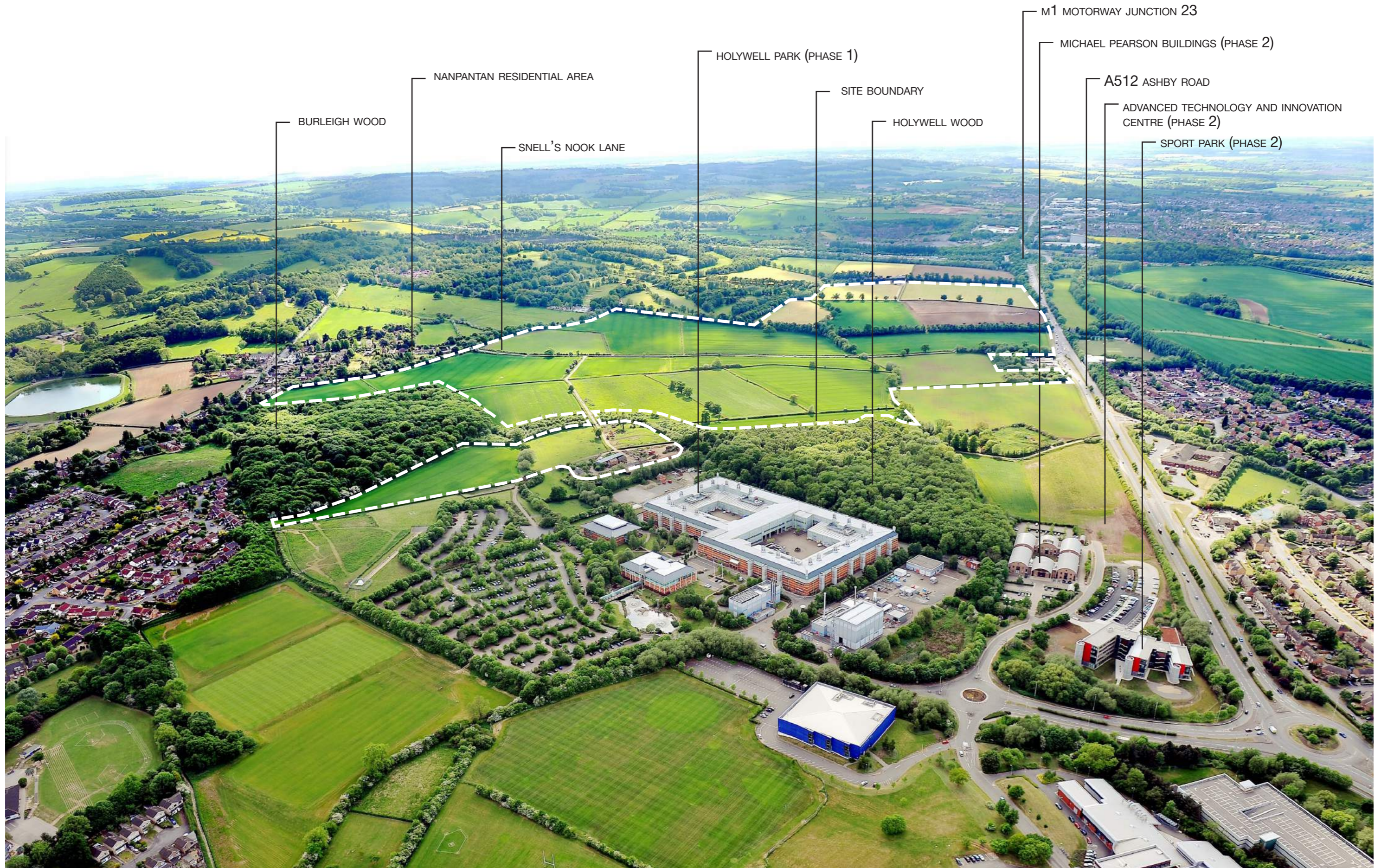
- The LCA identifies the site is at the interface of three separate character areas: Charnwood Forest, Soar Valley and Langley lowlands. As such it forms a transitional landscape between each.

- The site straddles two topographically distinct areas: the northern edge of the elevated Charnwood Forest, and the low lying flat landscape of the River Soar valley

- The overarching character is one of gently rolling landscape, an open network of arable fields, localised woodland groups and strips and extensive hedgerow boundaries. This transitions into the more heavily wooded upland forest landscape of the Charnwood Forest core towards the south, and the urbanised western edge of Loughborough to the east. The northern boundary is defined by Garendon Park landscape of open parkland and tree groups.

- Landscape views are controlled and framed by woodland belts and hedgerows. Views to the south and north are defined by trees on the horizon line. Field patterns are informal and defined with a combination of hedgerows, wooded belts and walled enclosures.

- Garendon Park is a prime landscape asset and the impact of the development on the Garendon Park should be carefully considered.



Loughborough Science and Enterprise Park aerial view of existing site context

Site photography on this page shows the character of the University campus, the A512, the existing science park and Charnwood Forest.

The existing science park, known as Holywell Park, is accessed from the A512 via a security check point at the west of the University campus.

The existing science park is characterised by extensive mature planting with lakeside recreational areas.

A large shared parking area is well set within mature tree planting.

Sports pitches are prominently interspersed throughout the University campus thus showcasing the nationally leading university specialism.



Existing main entrance to the existing science park along Holywell Way from the A512



Visual and recreational setting of the existing science park phase 1



Lake and fountain provide landscaped entrance feature



Entrance walkway leading to the Sir Denis Rooke Building



Sports Park contains many national sports governing bodies in a landmark building



Advanced Technology Innovation Centre is the latest property investment within the existing science park's new 'Phase 2', containing office, lab and studio space for small growing enterprises



Phase 1 car parking is collectively shared in a single area of mature tree and shrub planting



Holywell Farm, including Grade II listed structures



Indoor sports facilities on the University campus



Sports pitches are prominently interspersed throughout the University campus



View to northwest on the site from the A512, indicating rise in land and broken tree belt along roadway



View north along Snell's Nook Lane which traverses the east and west halves of the site



Hurst Farm

Access and connectivity

The strategic movement network of the Park is formed of the M1 motorway and the A512 leading from junction 23 on the M1 into Loughborough town centre.

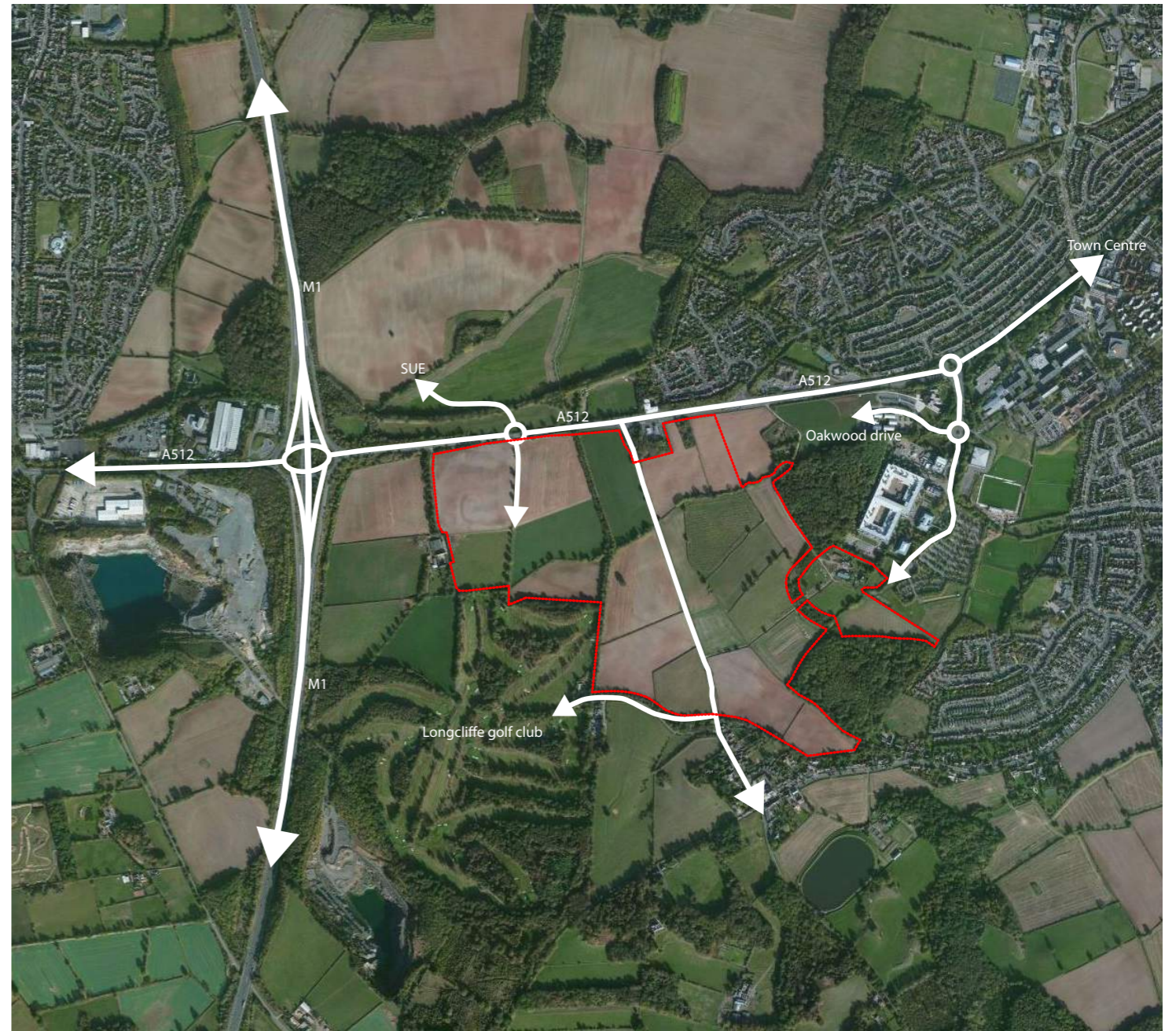
The A512 forms the northern boundary of the Park and views from this road will be key to announcing the park and signalling its entrance. Future access points should therefore be considered on this main route into Loughborough, albeit access could not be given directly into the Park.

Currently the main entrance to the existing science park is via a roundabout on the A512 and Holywell Way. This access is shared with the University campus which also benefits from additional access points further east. Phase 1 of the existing science park is accessed via Holywell Way, directly south of the main entrance. Phase 2 is served by Oakwood Drive which branches off the main entrance in a westerly direction. The latest phase of works extends Oakwood Drive westwards up to the site allocated to the expansion of the Park.

The site itself is bisected by Snell's Nook Lane which provides access from the A512 to areas in the south including the residential settlement of Nanpantan and beyond. There is a network of agricultural paths serving the site and its adjoining farms.

The plan for the SUE includes a new road access from the A512. This will be built in the form of a new roundabout approximately 500m east of the M1 junction and a new road north to the SUE, through Garendon Park. The plan also includes highway improvements and dualling of the A512 up to this point to mitigate the traffic impact the new development will have on the existing infrastructure.

There is the opportunity for the Park to make use of this new highway infrastructure and in particular the roundabout on the A512 to create a new entrance to the Park. This will be explored further in Section 6 of this report.

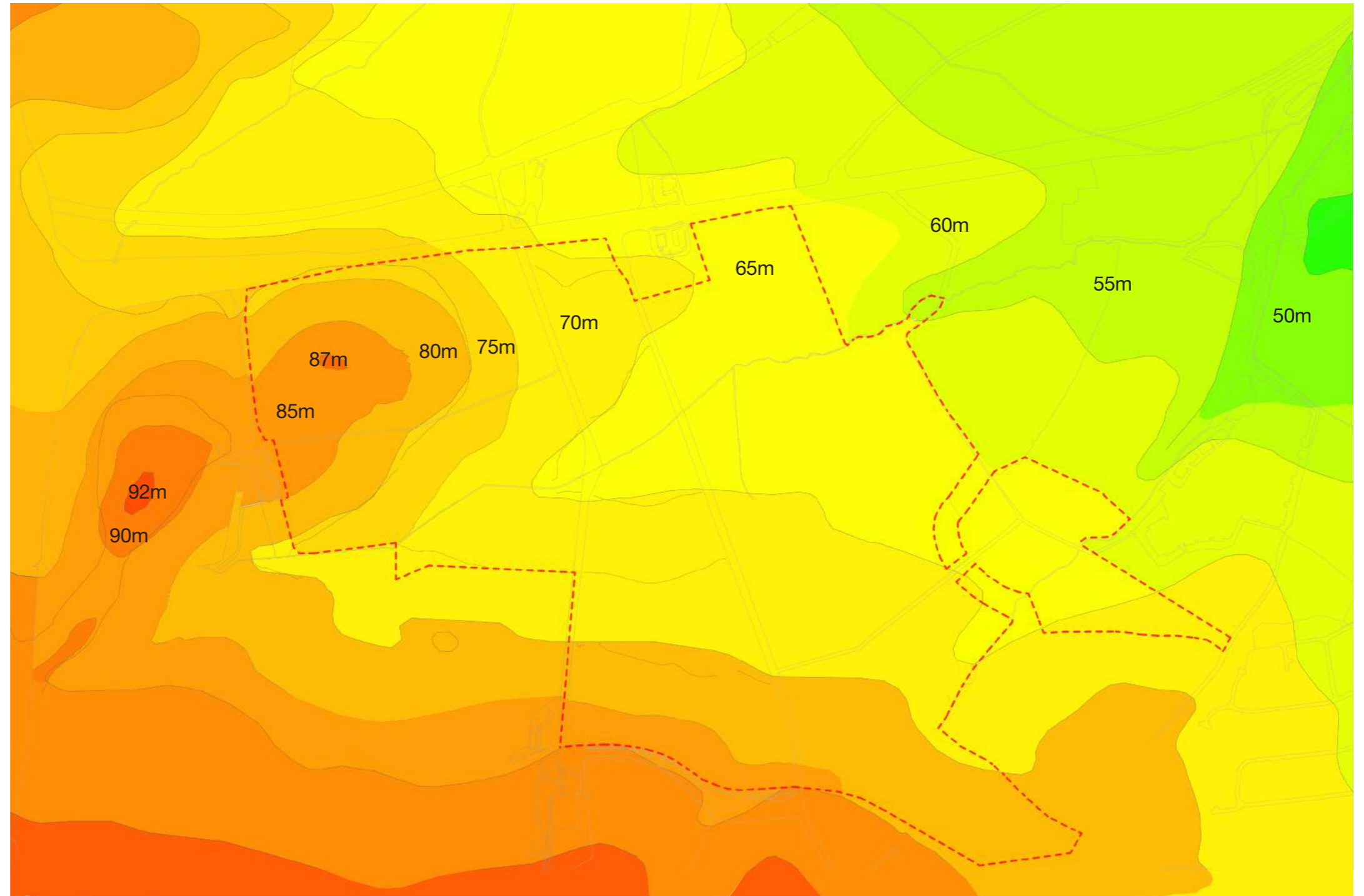


Loughborough Science and Enterprise Park vehicular access and connections

Site levels

Generally, the topography of the site is characterised by gentle slopes rising from north east to south west. However, the eastern and western parts of the site, either side of Snell's Nook Lane, present slightly different topographical profiles. The eastern part of the site is formed predominantly of level fields which rise to the south. To the west, the landscape is more graded, rising south, and west to a plateau before rising further beyond the site.

The gradients of the terrain will be a key consideration for positioning buildings on the Park. Assessing the gradients is necessary to establish development costs associated with cut and fill volumes and creating even building plates.



Site topography and contours map

Market context

Strategic sciencepark context

Overall, UK science parks have witnessed a return to growth following the impacts of the economic recession in 2008. There are now 82 science parks with over 4,000 occupiers representing over 70,000 direct jobs. This scale of science park development is unprecedented in the history of the UK and is actively supported by government initiatives.

At the regional level, the role of the Leicester and Leicestershire Enterprise Partnership is to drive the economic performance of the city and the county, both in terms of quality and quantity of employment. The development of the Park has been identified as a key “transformational priority” by the LLEP.

The science and enterprise park market is strong and intensifying, with fast growth rates, aggressive marketing strategies and a particular focus around science and innovation themes, especially life sciences.

Competitive supply

The review of competitive supply shows that there is currently over 585,000 sqm of floor space identified for science and enterprise parks within the Midlands region. This includes over 71,000 sqm of floorspace within a 40 kilometre catchment of the Park.

Key competitor science and enterprise parks in the region include the University of Nottingham’s Innovation Park, BioCity Nottingham, Nottingham Science Park and Charnwood Biomedical Campus, a former Astra Zeneca site in Loughborough offering up to 46,000 sqm of available research space.

There is some evidence of the clustering of specialisms in the Midlands region, with science parks focussing on specific sectors, for example:

- Transport (Warwick, MIRA, Silverstone)
- Health/medtech (Medicity Nottingham, Coventry and Keele)
- Biotech/medicine (Biocity Nottingham, Charnwood, Birmingham Research Park)

However, most parks market to all knowledge-based sectors without restrictions. The region has a number of innovation centres including Harborough and Mansfield. Innovation centres and incubator facilities drive demand for grow-on space once businesses have successfully established themselves.

Loughborough Science and Enterprise Park and Loughborough University

Taken together, the existing science park and the University campus is the UK’s largest single site university-science park. By floor space it is the UK’s third largest science park. Phase 1 of the science park was completed in 1992 and Phase 2 is currently under development and expected to be completed by 2018. The science park is currently home to around 50 organisations ranging from university occupiers, to knowledge-based industries and governing organisations. These are potentially high growth businesses in the research and high technology manufacturing sectors that make a significant contribution to Charnwood’s economy. Its occupiers form clusters in the fields of energy, environment, health and wellbeing as well as sports.

Loughborough University is a research-intensive institution. The University has identified a number of research fields towards which it will channel scientific resources. Particular research strengths are evident in sport and exercise sciences, leisure and tourism, aeronautical, mechanical and chemical manufacturing and engineering. The University has a strong tradition of academic-commercial partnerships and these are crucial to the success of its research.

Key areas of research focus and centres of excellence are:

- Energy: Rolls Royce University Technology Centre
- Environment: Centre for Sustainable Manufacturing and Recycling Technologies
- Health and Wellbeing: Centre for Biological Engineering
- Sport: Sports Technology Institute

These focus areas will be critical in defining opportunities for further university-industry partnerships and inward investment into the Park. The University is fully committed to the expansion of the Park and is proactively pursuing industry partnerships in its four focus areas.

Governance and Engagement

Framework development process and consultation

The commission to design a Framework for the Park has resulted from a desire to harness the opportunities outlined by the policy context, the site and the market conditions. The Partnership has taken the initiative to develop proposals for the physical environment of the Park, underpinned by an assessment of its viability and deliverability. Charnwood have led this process by commissioning the masterplan and managing the engagement with the Partnership.

Engagement with the Partnership has taken place at various stages throughout the design process. At project inception, an initial briefing workshop and joint site visit was undertaken to outline key objectives and considerations. This was followed by a series of one-to-one consultations with the University and Wilson Bowden to understand the particular aspirations of both land owners.

The first stage of design work included the development of strategic principles and options for the Framework. These formed the basis of a presentation and discussion that was formalised through written feedback and incorporated into the preferred option.

At the second stage of the project, a preferred option was presented to the Partnership for discussion and comment. Feedback was collected and informed the subsequent design development of the Framework.

The County was consulted principally with regard to highways issues and strategic economic development issues. Charnwood have maintained the flow of information and iterative feedback throughout the process.

Development Brief

Definition of Brief

The Development Brief for the Framework is informed by a market demand analysis. The evidence base for assessing interest from potential occupiers has been gathered through interviews with the University, management companies of other science parks, developers and experts in the field. The analysis forms the base of a development brief setting out the use, mix and quantum of development that is likely to come forward on future phases of the Park. Furthermore, this understanding of current market activity and demand underpins assumptions of speed of delivery, yields and potential scale of investment that inform the viability assessment and delivery strategy of the Park (refer to sections 8 and 9).

Evidence base for University uses

The development of the University's core academic, support and residential estate in the future will focus on a smarter use of the main campus. Existing buildings will be replaced and redeveloped as required to increase the density of the campus. The University will therefore not require land on the Park to extend its core academic activities. Instead, it wishes to use the available land to strengthen research and enterprise outputs that are developed in collaboration with industry partners. The University may lease small scale incubator units or co-working space on the science and enterprise park to support start-up and spin-off companies that are born out of its academic research activities. The University has outlined a number of key research themes which, delivered through the right marketing strategy, have great potential to attract commercial research institutions.

Admissible uses

Core Strategy Policy CS23 allows businesses operating within or directly supporting the knowledge-based sector to locate on this site. This includes uses that are ancillary to the research and enterprise occupiers of the Park such as light manufacturing and testing of prototypes, offices associated with lab research activities, hotel and conference facilities catering directly to the occupiers of the Park and facilitating national and international engagement with key players in the sector as well as leisure and sports uses that support Loughborough's brand of sporting excellence.

Manufacturing capability

As outlined in Section 2, the science and enterprise market is currently growing with a number of key competitor sites lying within the catchment area of the Park. The uses listed above are highly attractive for research and enterprise occupiers looking to locate in the Midlands region as many competitor parks preclude high-tech manufacturing in particular.

Ecology of small and large occupiers

Science and enterprise parks tend to work as an ecology of small pioneering businesses that drive cutting edge innovations and larger established players that have the resource and funding to bring those innovations to the market. Therefore, attracting major occupiers in the high tech and knowledge based sector is driven by the presence of smaller speculative research firms and the right infrastructure to build, test and produce prototypes. These smaller occupiers and the technical infrastructure required to develop these innovations often require public sector support and funding as they incur high up-front costs and are exposed to a higher risk of failure.

It is possible to attract one-of-a-kind large-scale investments with a regional impact, but this type of occupier will look for a strong proposition, the commitment and ability to deliver a fully serviced site, typically within 12-18 months from an enquiry.

Development Brief

Influencing Factors

Access

Science parks increasingly need to have good transport connections and attractive public transport services to main rail stations and airports, in this case, Loughborough Station and East Midlands Airport. The Park has the potential to accommodate these requirements with a quality bus/coach service to airport and train services.

Innovation space

Innovation centres play a key role in the life of science parks regionally and nationally. 70% of small and medium enterprises (SMEs) within the LLEP's area have growth plans. There is currently a lack of support for these businesses which is recognised in the government's ambition to foster links between universities and businesses.

The University has a consistent track-record for university start-up and spin-out companies and the Park provides an excellent platform for growing these businesses. The existing science park portfolio includes the Loughborough Innovation Centre at Holywell Park and the newly completed Advanced Technology Innovation Centre (ATIC). Due to University developments on the main academic campus, additional lab space will be released to commercial occupiers on the Park. The available floorspace will accommodate the market demand in the short term but additional capacity will be required in the long term.

As identified in the 2012 report 'Delivery of a Science and Enterprise Park at Loughborough - Phase 1 Report' by Peters and Monck, there is a requirement for 4,000 – 8,000 sqm of innovation space over the next 30 years. This could be delivered in the form of two innovation centres of approximately 4,000 sqm each, one of which could form part of the early phases of the extension of the Park.

Grow-on office-based research space

The Peters and Monck report underpinning the Core Strategy estimated demand for Grown-on space around 22,500 – 37,500 sqm over 15 years - e.g. 45,000-75,000 sqm over 30 years. However, Peters and Monck did not consider the strong correlation between office-based research and manufacturing facilities.

It is therefore envisaged that the pure office-based Grow-on space is likely to be lower, at 40,000 sqm over the 30 year period, with some of the demand shifting to the combined office and manufacturing model. As the office-based Grow-on space is likely to be speculative development, it is difficult at this stage to predict the speed and phasing of delivery for this element.

Self-build R&D and/or combined office and Advanced Manufacturing research space

The competition between science parks is intense in the Midlands region. The different parks are aggressively marketing for occupiers and some have the benefit of strong clustering based on a specific sector. The Park thus needs to clearly differentiate itself from its competitors to attract occupiers.

The opportunity for this differentiated offer lies particularly in the growing high-tech manufacturing sector in the region, and a deficiency in office space. The combination of these two factors makes the Park particularly attractive for mature businesses looking to co-locate their research and manufacturing facilities. The Park has the potential to cater to a more integrated research and production process and this capability becomes its unique selling point against other locations. This will be realisable subject to:

- a very focussed marketing strategy
- a clear masterplan framework being in place and endorsed by the Partnership
- a clear site and occupier proposition being adopted that uses all the links the University has with industry partners
- the availability of serviced sites that enable timely delivery of new units.

This type of combined office and Advanced Manufacturing research space is likely to have more onerous spatial requirements related to access,

servicing and size of buildings. Traditional R&D space tends to have a finer development grain with smaller building and less servicing and logistics area required. While the opportunity for hybrid office and Advanced Manufacturing space is a unique proposition, traditional R&D space will be subject to stronger competition from other science parks. However, it is envisaged that the Park will attract a mix of both types of research space.

National sports

The University has already established itself as the undisputed home for national sporting. Within the existing science park, Sport Park accommodates national sporting organisations and the university has aspirations to attract at least one national sporting and training facility as part of future phases of development. This National Sports development is likely to house predominantly office-based functions of the institution, rather than being an athletic training facility. The office floorspace required for such a facility is likely to be modest at approximately 1,000 sqm, however there may be a requirement for extensive playing fields that could form part of the amenity offer of the Park.

Hotel, conference, associated flats

The Core Strategy supports ancillary uses insofar as they directly facilitate the core research and development activities of the Park. Potential uses include hotel and conference facilities as well as short-term residential, possibly in the form of serviced apartments for visiting staff.

The University already has a successful on-campus hotel, Burleigh Court. The university also owns a three star hotel across the A512, the Link Hotel. The site of Burleigh Court is constrained and does not benefit from good visibility, making it difficult to find. It is likely to require refurbishment within the next 5-10 years.

The Park would benefit from a new 250-300 bed hotel and conference facility that reflects the national and international standing of the Park and includes accommodation for visiting researchers who might stay for several weeks or months. This could be a new hotel to replace Burleigh Court (which has around 265 rooms) and could also provide practical business support and restaurant facilities to complement the Park's food offer. The shift of this facility away from the academic campus and closer to the science and enterprise park would also reflect the visitor profile more accurately as most visitors are expected to be business rather than teaching travellers.

Additionally, universities, science parks and innovation centres typically have a modest

requirement for staff housing for PhD, post doctorate families and knowledge based workers to work and live in convenient proximity for short periods (1-9 months). This housing is often a more attractive alternative to long hotel stays or finding a short term rental on the private residential market. In association with a reduction of hotel accommodation to around 200 beds this model could provide approximately 50 serviced residential flats delivered in the early stages of the Park's expansion.

Ancillary Uses

The development will contain ancillary uses that support the working population of the Park. As required by the Core Strategy policy, these uses will cater only to those who work and visit the Park and will not compete with existing town centre uses. The type and scale of ancillary development thus has to be carefully assessed against existing provision in the wider area.

Possible uses to be developed as part of a central Hub include cafes, snack bars, small convenience retail, hairdresser and dry-cleaning services. These will support the creation of an inclusive working environment where people from different companies and backgrounds can meet. For instance, a cafe or lunch restaurant within the Hub could form a place where researchers from different fields can meet informally and discuss their interests. Hairdressers and dry-cleaners will support the business workers while a gym could encourage healthy lifestyles.

Small convenience retail can provide snacks, fresh fruit, stationary or postal package services. In addition the conference facilities and Hotel will provide amenities such as a restaurant and potentially small-scale swimming pool and spa.

Beyond the Hub, the Park could be supported by a series of smaller food and beverage outlets. These could potentially be mobile coffee and food trucks that move around the Park and only supply during set hours. A small fleet of changing food and coffee trucks that service the Park and possibly the wider campus could add choice and variety to the Park's lunch offer. It could animate the open spaces of the Park and encourage people to use the gardens and outdoor spaces during lunch and break times. Alternatively, smaller clusters of buildings could be supported by a permanent shared convenience or food & beverage supply.

The type and size of these uses will largely depend on the demand generated by the occupiers of the Park and can therefore not be accurately estimated at this stage. The description above intends to illustrate a possible range of ancillary uses and describes their potential to create an interesting working environment.

Quantum and Type of Development

Based on the evidence base outlined above, the table below sets out high-level space assumptions for different uses that could be located in the Park. These figures are compared against the forecast from the Peters and Monck report that has informed the Core Strategy and should be read as an update of those figures. The table also sets out what could be developed in an initial phase of extending the science park (phase 3).

It should be noted that this mix and quantum of development explores the upper limits of the site’s capacity in order to accommodate for the most favourable market conditions. In the event of lesser market demand from interested occupiers, the site can be developed out to a proportion of this capacity. In order to assess the land-take of this development brief and establish the capacity of the site, some initial spatial assumptions have been applied to the uses defined in the development brief. These are as follows:

Innovation Centre

Floor to area ratio: 0.40-0.60
 Building storey heights: 3 typical
 GFA: 2500-5000 sqm
 Parking standard derived from 6Cs Design Guide: 1 space per 30 sqm floorspace

Grow-on space or Traditional R&D

Floor to area Ratio: 0.62
 Building storey heights: 2.5, typical
 GFA: 5000 sqm
 Parking standard derived from 6Cs design Guide: 1 space per 30 sqm floorspace

Combined Office and Advanced Manufacturing

Floor to area Ratio: 0.41
 Building storey heights: 1.2, typical
 GFA: 3000-5000 sqm
 Parking standard derived from 6Cs design Guide: 1 space per 55 sqm floorspace

Hotel and associated residential

Floor to area Ratio: 0.75,
 Building storey heights: 3, typical
 GFA: 10,000 sqm
 Parking standard: 1 space per room, 1 space per housing unit + 50 spaces for staff and conference facility

National sports facility

Floor to area Ratio: 0.20
 Building storey heights: 2, typical
 GFA: 1000 sqm
 Parking standard derived from 6Cs Design Guide: 1 space per 30 sqm floorspace

These assumptions represent standard R&D developments and similar science and enterprise parks in the UK. Please refer to the case studies included in the Appendix for reference.

Further market analysis and detailed viability assessments will be required to determine the amount of development that is deliverable within each use outlined above.

Development brief table

Use	Gross floor area
Innovation Centre	6,000 sqm
Grow-on space	40,000 sqm
Hybrid R&D and Advanced Manufacturing and/or Traditional R&D	143,000 sqm
Sports institution	1,000 sqm
Hotel, conference centre and serviced residential	10,000 sqm (200 beds + 50 flats)
TOTAL	200,000 sqm

Constraints & Opportunities

Opportunities

The site reserved for the expansion of the Park has a series of physical characteristics that influence how the Park can be developed. Some are constraints that will limit the amount or type of development whereas others are opportunities that catalyse development. A summary of these considerations is set out in this section.

Accessibility

The Park lies in an enviable position along the M1 corridor, with access off junction 23 and along the A512. This makes the Park easy to access by vehicles and strategically links it to the wider region. This proximity to the M1 makes it a desirable location for occupiers and therefore drives market demand and development value in the Park. It is one of the key success factors of The Park and the reason why the envisaged scale of development is achievable.

Potential for new western access

The planned highway improvements on the A512 include the widening of this road as well as a new roundabout to link into a new road serving the SUE. This new roundabout brings the opportunity for a western access into the Park, either to relieve the existing shared access with the main university campus, or to form a new entrance gateway into the Park.

The value in the western access lies in the proximity to the M1 junction: the Park would essentially be ‘the first turn as you come off the M1’. This also enables the creation of public transport routes with a through route and pick up and drop off locations at this point.

Furthermore, the direct route between the Park and the new residential areas of the SUE strengthen the employment location as an attractive place to work and live nearby.

Visibility

The Park’s northern boundary is defined by the A512, the main route from the M1 into Loughborough town centre. The Park stretches approximately 1.5km along this frontage, with future phases taking up about 1km. Anyone driving into Loughborough from this direction will notice the Park. Hence this frontage will be desirable for occupiers to affirm their presence in the park and for Loughborough to promote itself as a location for knowledge based innovation.

However, the value of this frontage and the exposure it provides must be balanced against the need to shape a positive threshold from the rural landscape into the town of Loughborough and equally its visual impact on Garendon Park must be carefully considered.

Landscape setting

The Park is part of the Charnwood Forest and the National Forest. The site’s character is uniquely defined by mature landscape. The Core Strategy recognises the value of this landscape and requires the Park development to preserve the natural parkland setting by maintaining 40% of the site as undeveloped open space. Most competing science parks are located in more urban settings or predominantly provide green space in the form of lawns and ornamental planting. The lush and mature character of the Park will be a key part of its identity and will set it apart from other science parks. The site holds an opportunity for a new approach to sustainable development, based on renewable energy, enhanced biodiversity and integration of the development into the natural ecology.

The mature hedgerows and tree belts that currently delineate the agricultural fields within the site have the potential to become part of the open space structure of the Park. The hedges, trees and woodlands can be used to screen buildings from view and to link the different parts of the site through green ecological corridors. The presence of the Burleigh Brook offers the opportunity to manage surface water run-off from buildings and hard paved areas by creating retention ponds and enhancing the wetland habitat.

The site has a rich history of agricultural use by Holywell Farm and Hurst Farm. The adjacent Garendon Park Manor and its surrounding lands have also played a key role in this part of Loughborough. References to these historic uses of the site could be made physically – for instance by preserving field patterns and their boundaries – but also symbolically through the naming of places and buildings.

Existing science park and Loughborough University

The Park has the benefit of being located immediately adjacent to one of the UK’s major universities. The University is widely recognised for its excellent research and its active collaborations for commercial industry partners. This physical and entrepreneurial proximity to the latest academic research makes the Park a perfect breeding ground for innovation. Please refer to the Market Context section in the Introduction (page 26) for further detail on university-industry partnerships.

Constraints & Opportunities

Constraints

Topography

The levels of the site generally rise towards the south west with the highest point being a hill on the western part of the site. There is an inflection of contours where this hill meets the depression formed by Burleigh Brook. This area in particular has some steeper and more irregular slopes.

This gradient in the terrain means that larger research buildings, particularly those designed for advanced manufacturing, will be difficult to locate on the site without significant excavation and fill to create a level building platform. The topography, particularly west of Snell's Nook lane, thus limits the size of buildings that can be delivered here in a cost effective way. Furthermore, if the building locations are driven by the search for relatively flat areas this might result in irregular plot shapes and maximising plot efficiency will be challenging.

Snell's Nook Lane

The site is bisected by Snell's Nook lane which branches off the A512 and serves residential areas to the south, including Nanpantan and Charnwood Forest villages. It is currently a well-used road and forms a separation between the eastern part of the site that is owned by the University and the privately owned land to the west. In order to form a well integrated science park on both parts of land, Snell's Nook lane would need to be significantly altered to provide access and crossing points into both parts of the site. This would impact on the traffic flow for destinations further afield.

In order to ensure the integrity of the Park, Snell's Nook lane would need to be downgraded or diverted. This would constitute a significant infrastructure cost for the development.

Any alterations to Snell's Nook Lane will need to be considered in conjunction with proposed highway works that are delivered on the A512 as part of the SUE (please refer to section 6 for further detail) and be transport modelled. The connection to Nanpantan and beyond needs to be maintained at any stage and therefore a diversion of the existing alignments would be required .

Existing ecology

The Park is framed by two ancient woodlands (Burleigh Wood and Holywell Wood) and includes the Burleigh Brook as well as several mature hedgerows and tree belts. The development of the

Park needs to protect and enhance these ecological features.

The various natural habitats need to be reinforced and links between them created in order to maintain the balance of the local ecosystem. This requirement will inform where buildings can be placed and which parts of the site need to be retained as natural open space.

Existing infrastructure

There are existing above and below ground services and drains that will need to be diverted to facilitate development. There is an underground pumped water main running through the site from north west to south east. A six metre easement limits development either side of this alignment and levels along this alignment cannot be significantly altered. This affects potential earthworks to create level building sites.

Local views and visual impact on landscape character

The site of the Park is located within a mature natural landscape and adjoins the heritage parklands of Garendon Park. The Core Strategy sets out that the character of the existing landscape should be protected and that the Park can only be developed in a form that is harmonious and complementary to the natural setting. In particular, the visual impact of the development on Garendon Park as a protected landscape asset needs to be carefully considered.

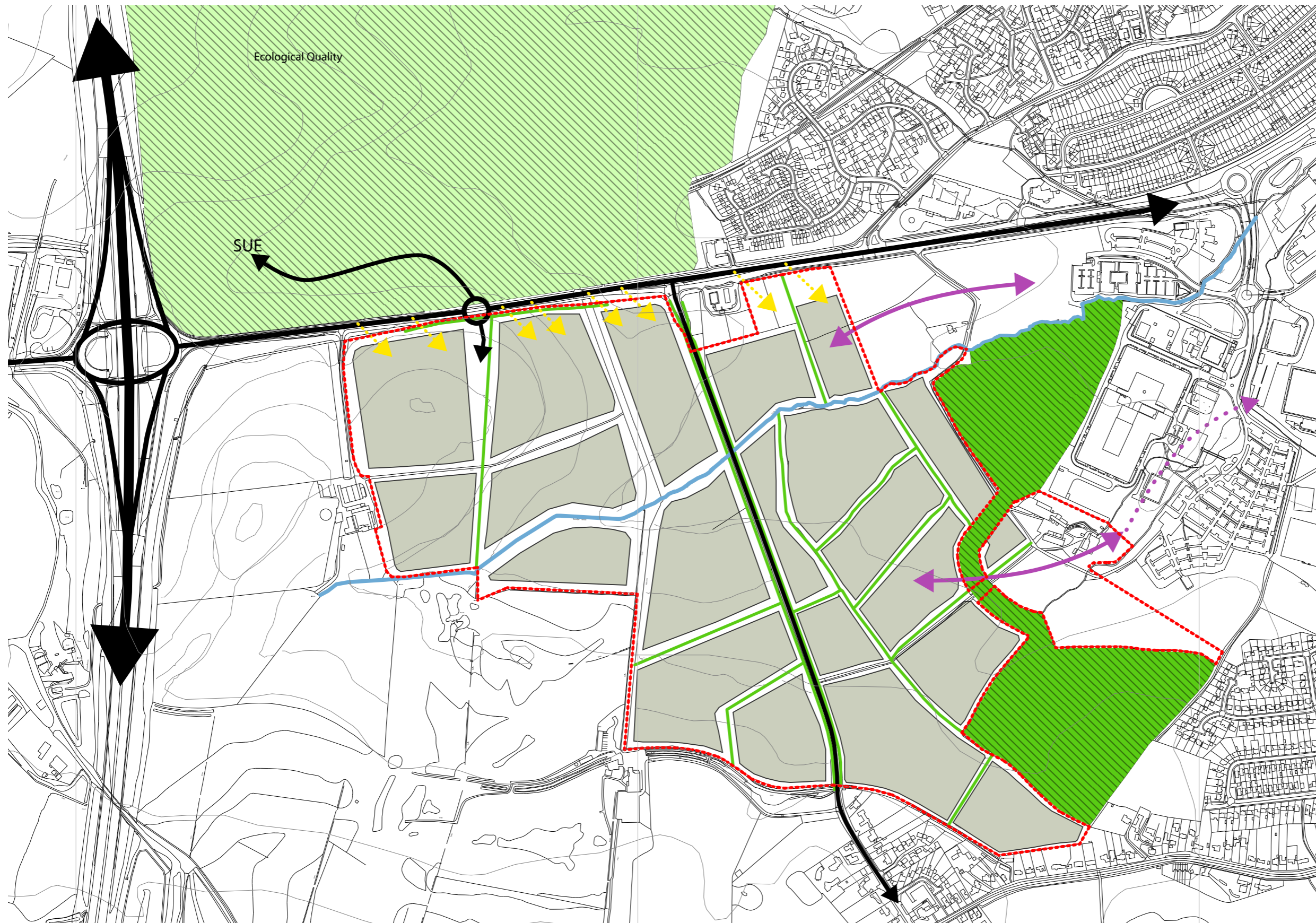
While the impact of the development can only be ascertained through a specialised visual impact study in close consultation with Natural England and Historic England, this report includes a preliminary desk-top assessment that serves to set high-level parameters and recommendations in this regard.

Please refer to page 40 for further detail.

Historic landscape features

The historic Garendon Park estate was linked to areas further south by a tree-lined avenue dating back to the 18th century. The remains of this avenue are still visible today as a tree belt running north south through the western part of the site. This historic avenue is protected as a landscape feature and must be retained and enhanced.

Similarly, the south western edge of the site is formed by the remains of an old canal which still holds water in some places. This canal is to be preserved and enhanced.



Ecological Quality

SUE

KEY:

- Parcels
- Woodlands
- Hedgerows
- Burleigh brook
- Phase connection
- View lines
- Main traffic routes
- Site boundary

Constrains and Opportunities Diagram

Constraints & Opportunities

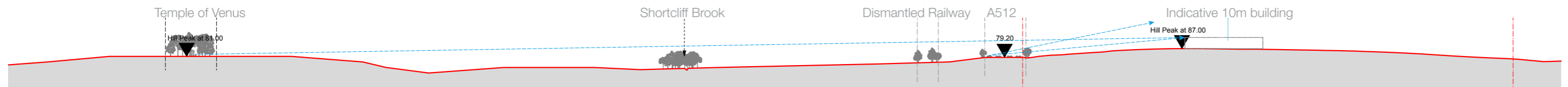
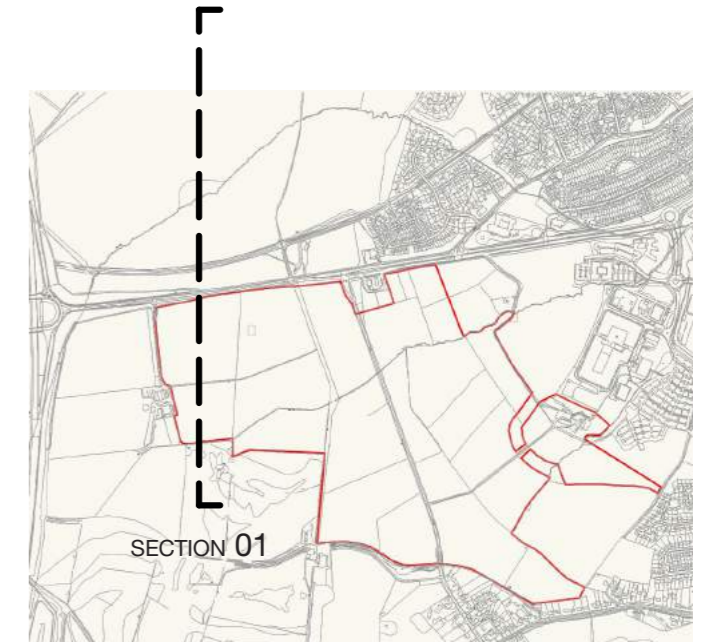
Visual Impact

Garendon Park visual impact

To the north of the site, across the A512, lies Garendon Park, a protected heritage parkland containing listed structures. The development of the Park needs to respect this historic parkland and mitigate negative impact on its unique character. In particular, the sweeping views from Garendon Park's temples and pavilions form part of a landscape composition that should not be disturbed by the development of the Park. While the visual impact of the Park can only be ascertained through a specialised visual impact study in close consultation with Natural England and Historic England, this section includes a preliminary desk-top assessment that serves to set high-level parameters and recommendations in this regard.

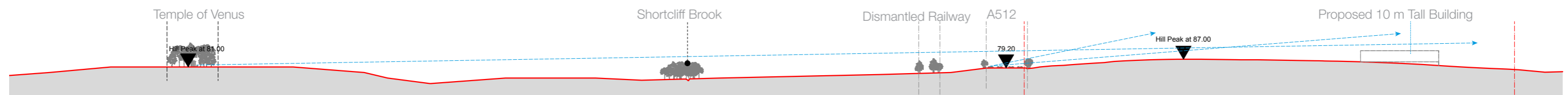
The site sections below illustrate the visual impact of Park buildings on the north-west corner of the site, based on limited topographical information available for this study. This part of the site is particularly sensitive as it forms the highest point of the Park and therefore features in the distant views from Garendon Park. The sections generally indicate that buildings on this part of the site would most likely be visible from Garendon Park and that existing tree planting along the A512 is insufficient to screen them from view. Tree growth is not currently continuous along the A512 and buildings would be particularly exposed in autumn and winter when foliage is less dense.

However, development just south of the highest point would be screened by the hill itself as well as existing tree lines. Therefore development on the north-western part of the site is subject to consultation with heritage and landscape stakeholders.



Section 01: Scenario 1

Located on the north side of the hill, an indicative 10m tall building on the hill top would notionally be visible from Garendon Park's Temple of Venus and the A512.



Section 01: Scenario 2

Located on the south side of the hill, an indicative 10m tall building on the hill top would notionally **not** be visible from Garendon Park's Temple of Venus and the A512.



View to northwest on the site from A512, indicating rise in land and broken tree belt along roadway

Garendon Park: landscape character and impact

Garendon Park is listed on Historic England's Register of Historic Parks and Gardens. The listing describes the parkland setting for original building (demolished 1962), and the collection of ancillary buildings, structures and landscape features. Many of the listed structures which remain, particularly the Temple of Venus, The Triumphant Arch, Obelisk and White Lodge have a strong relationship with the landscape and are carefully placed in relation to the undulating ridge and valley landscape, and the unfolding views of parkland revealed as the visitor arrives and moves through the park. The spatial composition of the parkland is one of open space framed and enclosed with woodland groups and stands of trees. Formal avenues of trees are also present. The listed buildings act as a series of eye-catchers and visual punctuation points in the parkland.

There is a feeling of completeness and enclosure of the estate derived from the wooded boundaries to the principle eastern and western boundaries. From the higher levels in the estate, typically at the 80 metre contour at the Temple of Venus, there are open views towards the south with a wooded horizon, particularly at Nanpantan and the golf course boundary.

Design Response

It is a challenge of the project to develop in a way that is sensitive to the setting of the listed park. Garendon Park is open to views across the A512 towards the south and the Charnwood Forest. This is a landscape of tree groups and mixed arable fields, giving way to dense woodland. It is also a landscape type that can conceal development through appropriate siting in relation to topography and positioning of visually impermeable tree planting.

The Framework, from a landscape viewpoint, suggests the avoidance of development on the rising land to the north of Hurst Farm and the locating of development parcels in topographically hidden positions when viewed from the north. However, this position needs to be balanced with other considerations. If development is brought forward here it will be important that design quality is of a particularly high standard and that sensitivities to its surroundings are addressed. Once the frontage of Garendon Park has been passed development parcels can open up towards the A512 frontage.

The Framework defines a series woodland belts and tree groups which help visually break down larger development parcels and maintain southern views terminating on a wooded horizon. A full landscape and visual impact analysis is beyond the scope of this study but will be required to accurately model the landscape impacts and define the landscape strategy for screening, controlling views, and enclosure of spaces.

Masterplan Principles

Vision & Objectives

The concept masterplan framework for the Park is driven by the aspiration of the Partnership to create a high quality, environmentally sound development that integrates harmoniously with the natural landscape. The Park shall utilise the potential of university-industry partnerships to create a place for knowledge-based research, innovation and enterprise.

In order to achieve this aspiration, the Park not only has to overcome the challenges and maximise the opportunities outlined in section 4; It also has to follow a series of principles that will steer development towards the Partnership's vision. This section sets out a series of development objectives that will embed the quality aspirations for the Park into the physical Framework.

Objective 1:

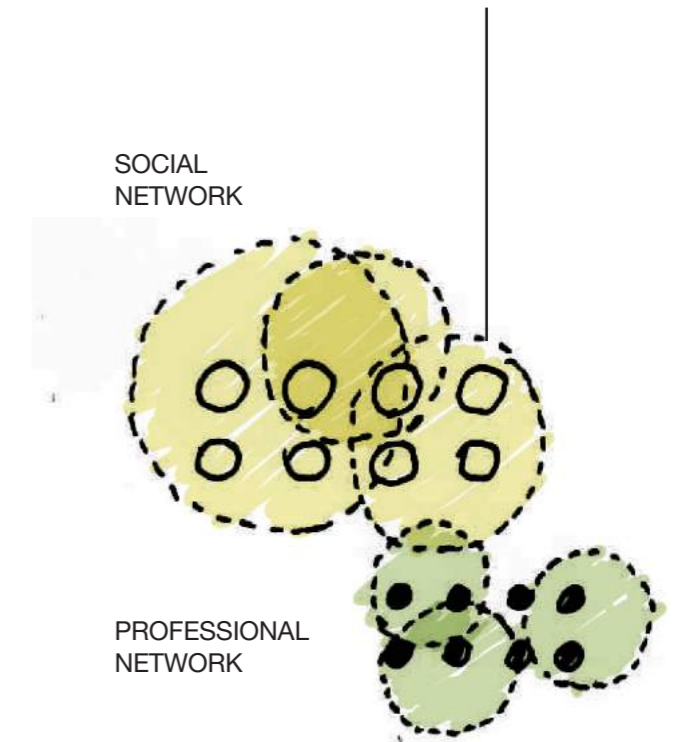
Create a layout that activates human networks

Too often, social and professional networks exist as two separate systems, contained within sectors of professional expertise and socio-economic groups. This is often referred to as 'silos' where industry experts largely work within their own field and have limited interface with professionals from other backgrounds. As private individuals, they may have a circle of friends, relatives and acquaintances from a variety of backgrounds but this does not influence their work as a professional.

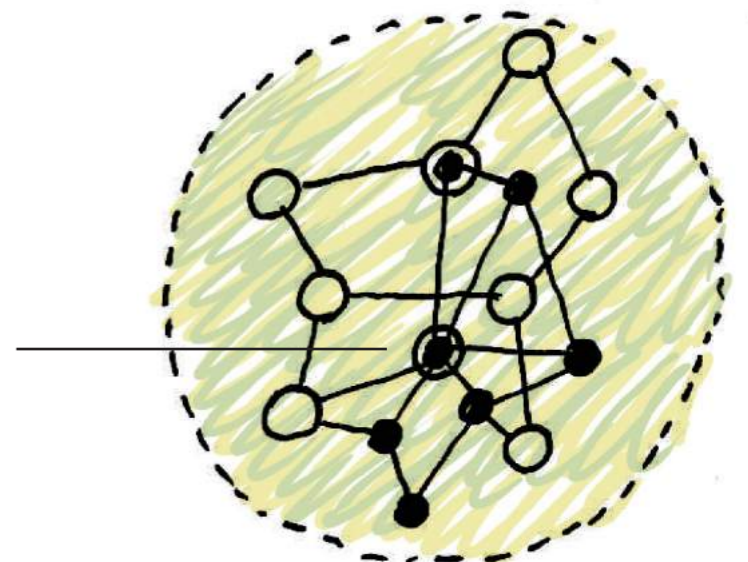
Research shows that innovation is driven by looking at a given subject holistically and from a number of different professional perspectives. This suggests that multi-disciplinary collaboration is more likely to bring about interesting new results. This multi-disciplinary approach does not necessarily need to be a formal business relationship. Quite often conversations and overlapping interests between professionals can spark incredible new ideas.

It is thus one of the over arching principles of the Park to break down professional silos and encourage exchange of knowledge and ideas between a broad spectrum of experts. The key to this principle is to create a common ground for social interaction, where researchers can meet entrepreneurs professionally but also informally and socially. This overlap between social and professional networks builds trust for sharing knowledge. The result is a 'cross-pollination' of all occupiers of the Park which forms a fruitful environment for knowledge-based innovation. We refer to such an environment as a 'geography of innovation'.

AN UNPRODUCTIVE COEXISTENCE OF TWO NETWORKS



A PRODUCTIVE OVERLAPPING OF NETWORKS

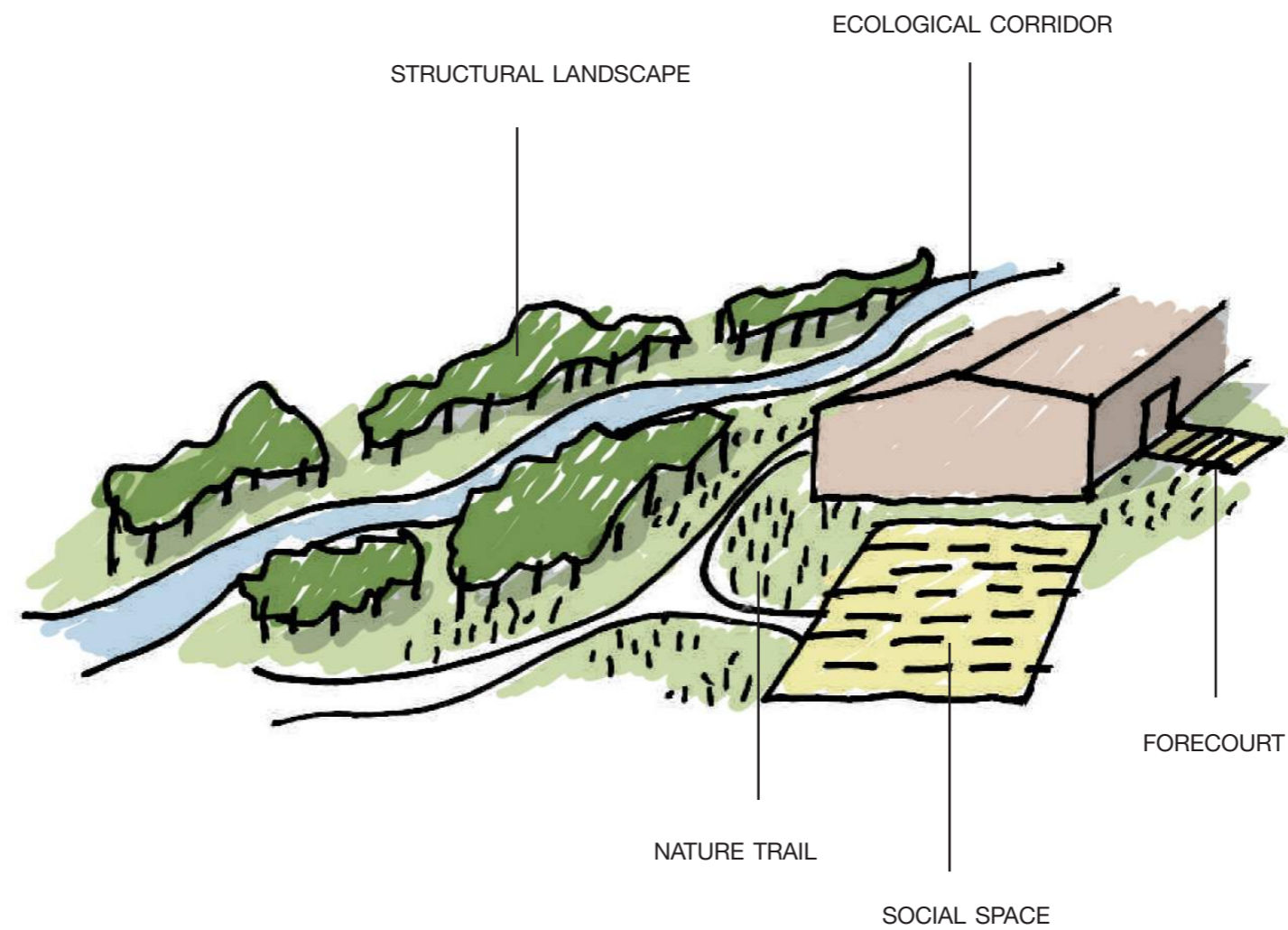


Objective 2:

Deliberately plan open spaces that contribute to the Park's overall identity

The importance of the landscape in shaping the identity of the Park is not just a question of character. The open space of the Park will need to play multiple roles and work hard to achieve four key objectives:

- It will need to form the common ground for occupiers of the Park to interact with each other socially and professionally
- It needs to create a positive first impression and 'brand identity' promoting and distinguishing the Park amidst its competitors
- It will need to preserve, enhance and complete the ecological network of the site by providing habitats for biodiversity
- It needs to mitigate the impact of the development on the natural surroundings through visual screening, surface water management, noise and air quality improvement



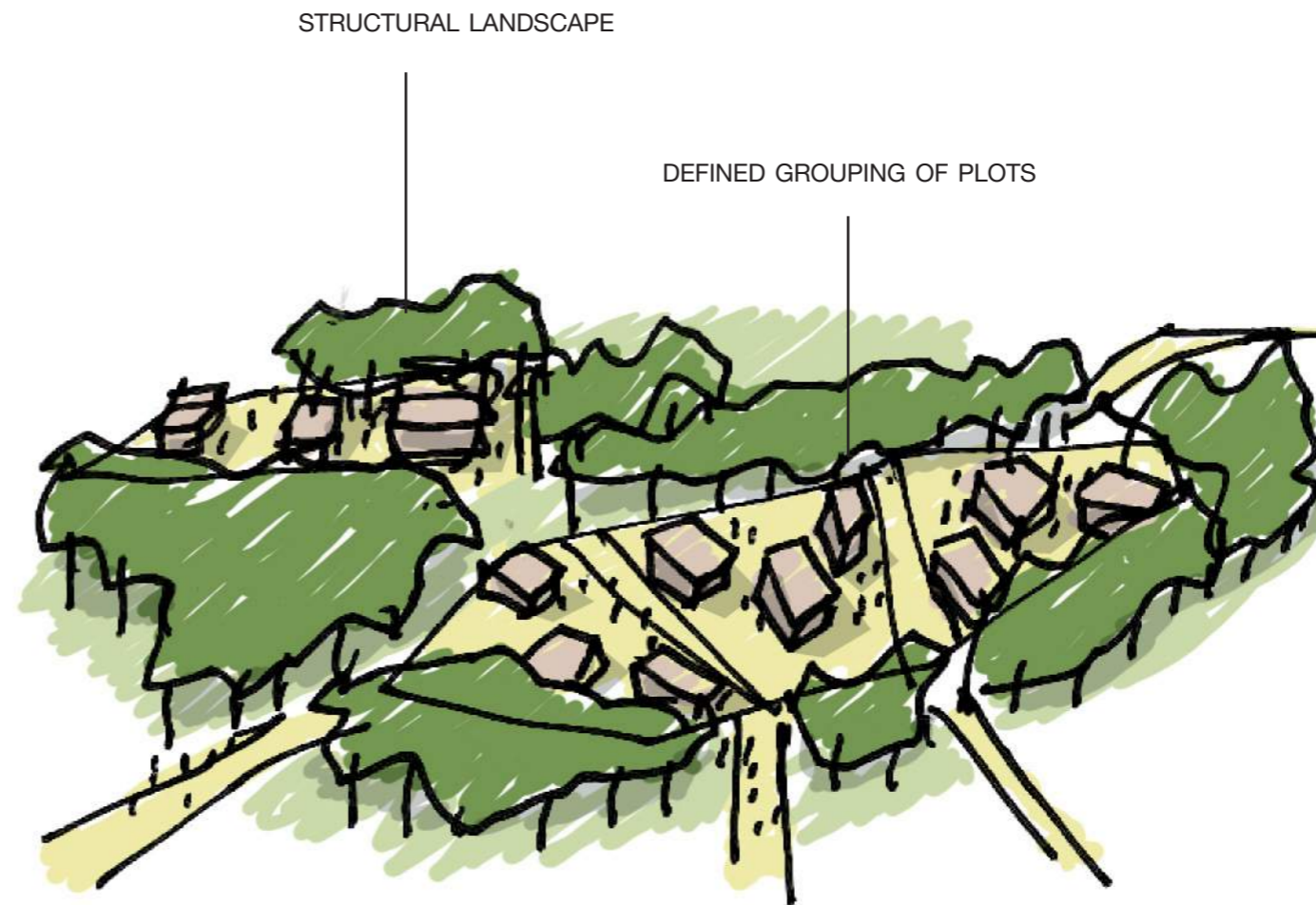
Objective 3:

Contain development within a number of discreet and legible areas

The scale of the Park as the largest of its kind in the UK needs to be balanced with the need to integrate into the sensitive landscape of the Charnwood Forest.

This suggests that the development needs to be broken down into smaller elements that have the flexibility to adapt to the site's constraints and shape around its main assets. Rather than development spreading out in an unregulated manner, the buildings of the Park should be grouped together in clusters, separated by landscape and linked together through streets, walking and cycling routes.

In reference to the site's rural history, these clusters are referred to as 'hamlets' – also suggesting the familiarity they should instigate between the Park's different occupiers. Each hamlet shall be focussed around a central social space for exchange and interaction, thus also contributing to a high accessibility of the amenities of the Park.

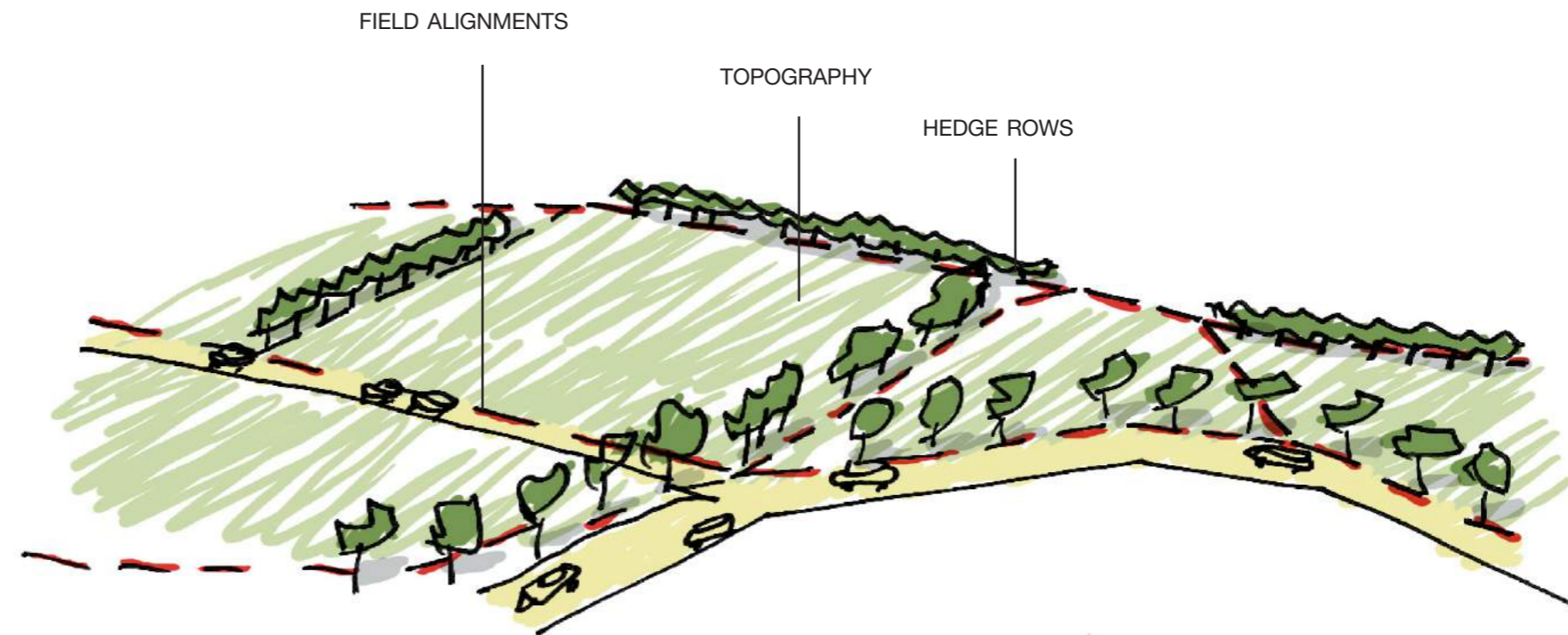


Objective 4:

Amplify the natural features that exist on and around the site, acknowledging the intrinsically rural place character

The buildings of the Park will nestle in between the existing natural features, clustering as hamlets in the landscape. The field boundaries formed by tree belts, hedgerows and historic borders should be preserved where practical. These will minimise the visual impact of the development on the overall landscape character by screening buildings. Inserting the development parcels into the agricultural pattern of the site will also ensure its scale and grain remain sympathetic to the rural setting.

The development parcels of the Park populate the pre-existing agricultural fields; thus turning them from platforms of primary production to platforms of knowledge-based innovation.



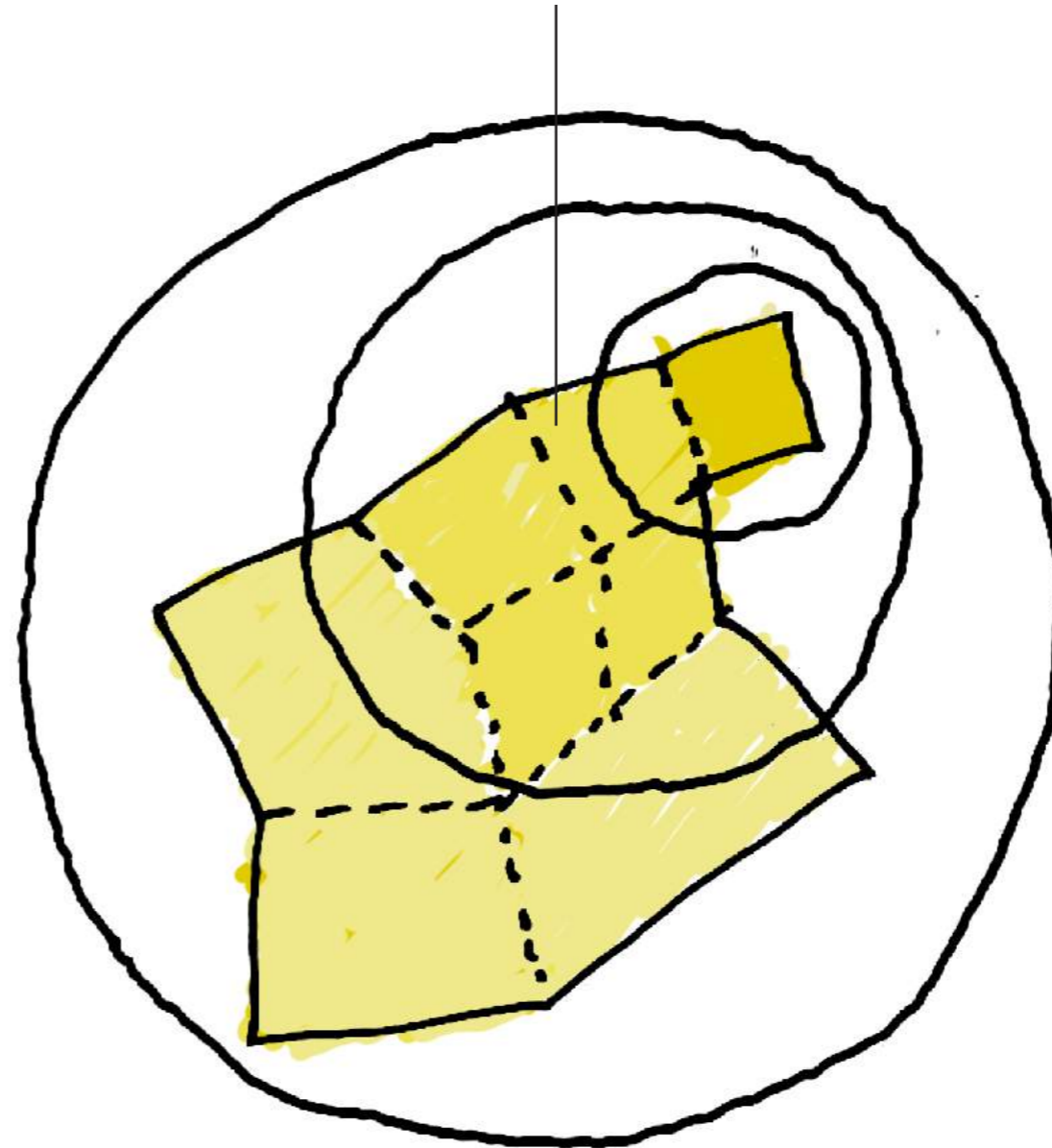
Objective 5:

Parcelise and phase development to be 'whole' at every stage

The Park is a sizeable development that will take many years, even decades, to complete. Therefore it has to be designed as a dynamically evolving place, rather than a final set piece.

From the outset, people will be working and visiting the Park and will expect it to fully function and appear complete. The concept masterplan framework must be planned in such a way that each new group of plots forms a fully functional working environment integrated with the rest of the Park. In particular, shared supporting services such as cafes, conference facilities and collaboration spaces must be available at each stage of the project's construction. Similarly, the shared open spaces forming the landscape and amenity offer of the Park must be ready to use proportionately to the progress of built development on the site. This will ensure that the Park can fully promote its identity and strengths at any given stage throughout the development process.

SUCCESSIVE PHASES



Objective 6:

Accommodate future flexibility

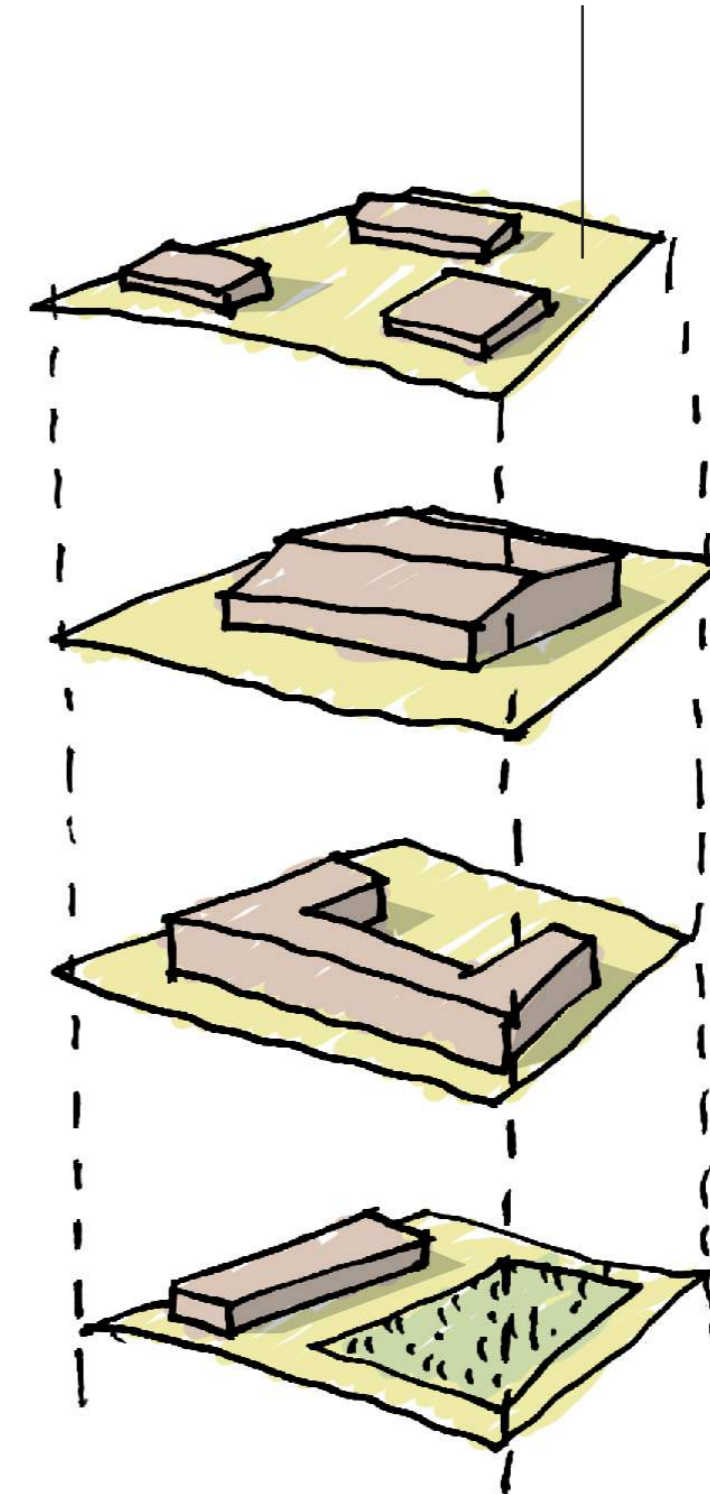
The Development Brief in Section 3 describes a likely mix of different types of knowledge-based research and enterprise buildings. This is based on current market conditions, intelligence from stakeholders and an understanding of the wider knowledge-based industry.

However, the time horizon of the Park is such that an accurate prediction is not possible. In order to be successful, the Park must be able to respond to and accommodate demand for different kinds of buildings and occupiers, ranging from small scale office clusters to large halls of production.

Each occupier will have specific requirements for building typology, parking, servicing areas, green space and infrastructure that will ensure optimal conditions for their particular field of activity. Furthermore, these requirements will change in the future as the market and the industry evolve. There may also be a need to accommodate a leading occupier who requires a larger development area.

The concept masterplan framework must therefore be flexible enough to allow for all conceivable requirements to be met, including different types of plots and being able to combine a number of plots into a larger area for a single occupier. Only through this flexibility can the Park remain competitive in the long term and attract desirable occupiers, possibly at short notice.

ALTERNATE PARCEL AND
MASTERPLAN CONFIGURATIONS



Options & Masterplan

Land Utilisation

Land utilisation

The Core Strategy sets out that 40% of the land area shall be provided as green infrastructure to reflect the location of the Park in Charnwood Forest:

“The landscape will need to be planned for carefully. Early phases of the Science and Enterprise Park have maintained a parkland setting by retaining 40% of the development site as open and undeveloped. We want to continue this and will only allow an extension to the Science and Enterprise Park within this attractive landscape because of its outstanding economic advantage and the fact that it can be developed in a landscaped parkland setting.”

Through discussion with the Partnership, the following broad split between structural and on-plot landscape has been arrived at for the purposes of this commission.

- A) 30% Structural off-plot landscaping
- B) 10% On-plot or on-parcel landscape

The overall requirement of 40% site wide open undeveloped space is thus achieved by A+B.

(A) 30% Structural off-plot landscaping

The off-plot landscape is achieved by ring-fencing the key natural features of the site. These are protected and enhanced in the form of green corridors, sports fields, woodlands and parkland areas. This structural landscape is excluded from developable parcels and forms the natural parkland setting described in the Core Strategy. All occupiers of the Park will be required to make a financial contribution to the management and maintenance of this structural off-plot landscape.

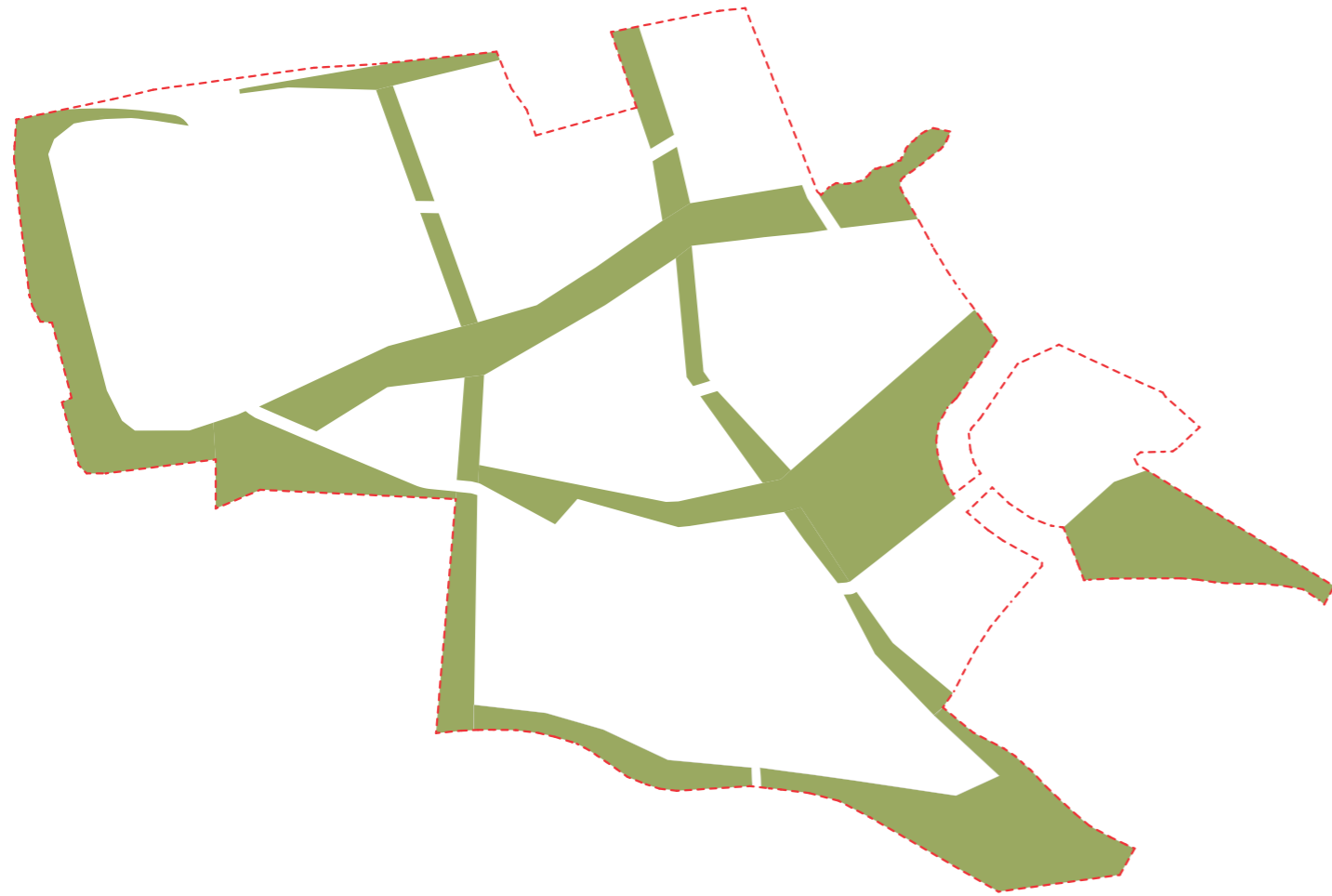
The road infrastructure is composed of a new road, primary and secondary roads. While these roads may be lined by tree planting or linear planting, this landscape does not count towards the 30% off-plot structural landscape provision. Tertiary roads are included within development parcels as described below.

(B) 10% On-plot or on-parcel landscape

The on-plot landscape is the sum of all formal green spaces, referred to as ‘social green spaces’ hereafter, located and shared between individual plots on any given parcel. This does not include incidental green space such as verges, buffers and car park planting. The on-plot provision is met through formal landscaped areas that contribute to positive interaction between people such as forecourts, terraces and gardens. These can be a mixture of soft and hard landscaping.

The accumulation of these on-plot social green spaces forms 10% of the total site area, i.e. 7.74Ha. This figure equates to 15% of the overall developable site area of 51.6Ha. On average, each occupier has to provide 15% of their plot area as social green space to achieve the overall target of 10% across the whole site.

The exact percentage of on-plot social green space will be determined through negotiation at the planning stage. The planning authority will monitor the overall provision of 10% on-plot landscape throughout the Park.



(A) 30% sitewide : Structural landscaping



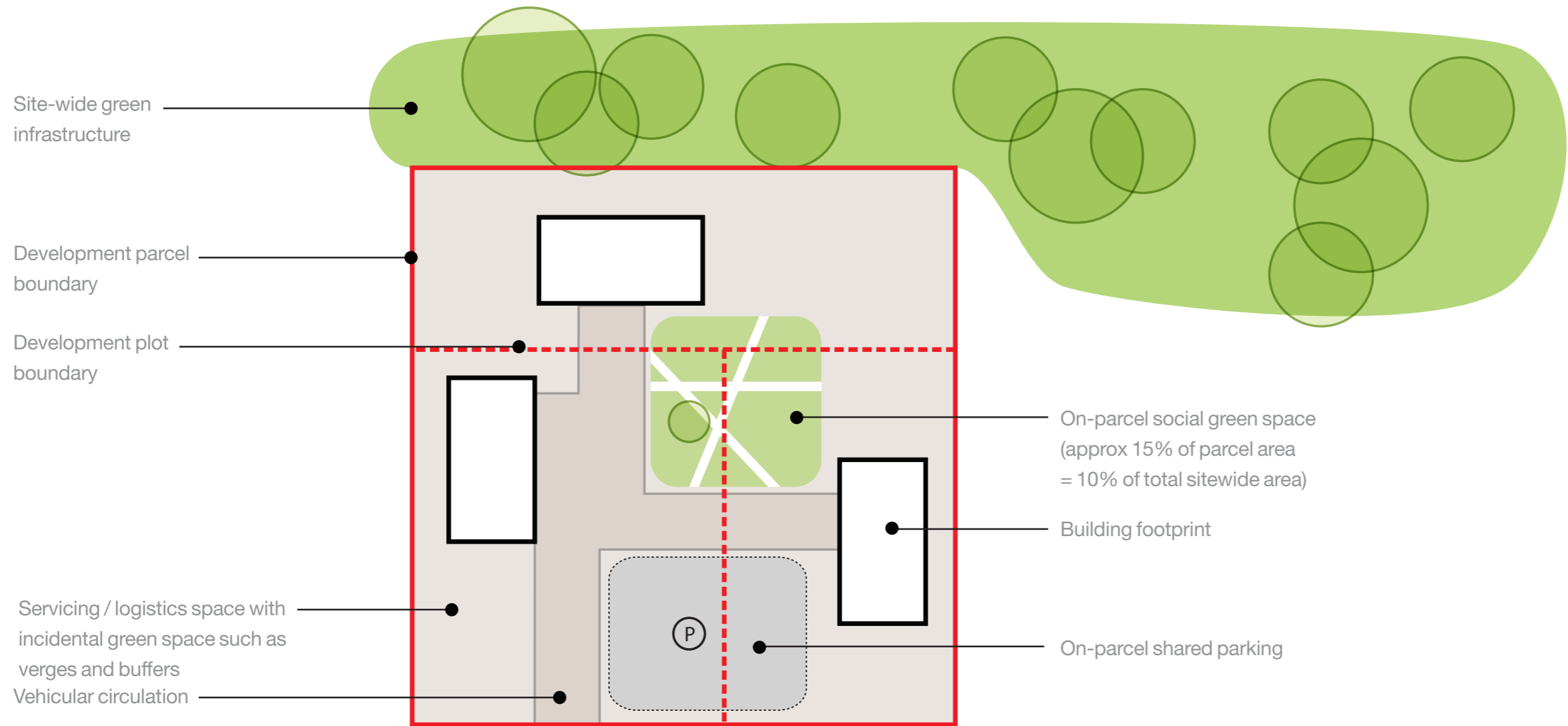
(B) 10% sitewide : Accumulation of on-plot social green space

Development Parcel and Plot Composition

Development parcel composition

The delivery of the 30% off-plot landscape leaves 70% of the site for development parcels and road infrastructure. The development parcels break down into a number of individual plots which are made up of five key components in varying proportions based on the type of activity that takes place on each parcel:

1. **Buildings:** The building footprint is related to plot coverage calculations that are generally higher for office based typologies and lower for Advanced Manufacturing typologies.
2. **Parking:** The parking requirement is linked to the type of activity within the building. The 6Cs Design Standard requires 1 car parking space for each 30 sqm of office floorspace and 1 car parking space for each 55-65 sqm of Advanced Manufacturing floorspace. The parking area also includes access routes leading to the parking areas and driving aisles.
3. **Servicing:** This is the area required for accessing the building for deliveries, loading and unloading as well as manoeuvring of larger vehicles. This area tends to be higher for Advanced Manufacturing buildings and can be very low for offices. Tertiary roads/access driveways are also accounted for in this category.
4. **Social green space:** This is the formal landscape provided on each parcel or plot to account for the 10% overall landscape provision across the site outlined above. This can vary between plots but the overall balance needs to be maintained to meet the requirements of the Core Strategy. The social green space takes the form of shared gardens, terraces with seating, sports pitches, picnic and barbecue areas.
5. **Incidental landscaping:** This is the remainder of the site area which results from the particular layout of components 1-4. It is green space that is not actively used but performs a function such as buffering buildings from surrounding areas, bridging level differences, shading and greening car parking areas and delineating tertiary roads. They include buffer and privacy strips, verges and car park planting.



Sample Development Parcel Composition

Options & Masterplan

Design Development

Concept Masterplan Framework design development

While the constraints and objectives of the Park are clearly defined, its physical layout could take a variety of forms, based on different interpretations and priorities.

For instance, the preservation of the natural features of the site might take precedence over other factors or the opportunity of the visibility along the A512 might be considered of utmost importance outweighing other strengths of the site. In order to define the priorities for development and a certain 'ranking' of opportunities, three very distinct masterplan options were developed for discussion. These options are voluntarily differentiated from each other to encourage a debate and allow the Partnership to focus on the most important issues that the concept masterplan framework shall resolve.

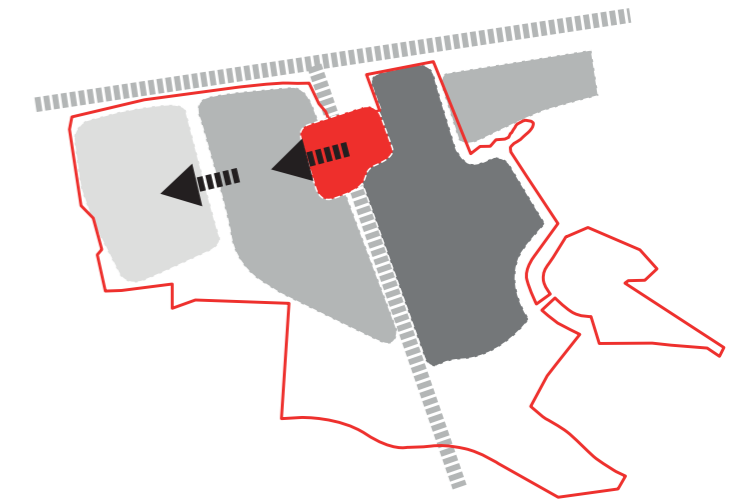
Common to all options are:

- The adherence to the six development principles outlined in Section 5, albeit that they have found different physical interpretations in each option
- The creation of a Hub that will become the heart of the Park where the Innovation Centre, café or shop, hotel and conference facilities are located
- The connection with Oakwood Drive which will link to the second phase of the Park
- The aspiration to enhance Burleigh Brook as a wider ecological corridor
- The preservation of the 18th century avenue linking to Garendon Park
- The creation of a woodland surrounding Hurst Farm, reinstating its historic character as a forest farm and framing the Park with woodlands to the east and west as well as complementing the restoration of Garendon Park.

The following section gives a brief overview of the three options and summarises their appraisal.

Options & Masterplan

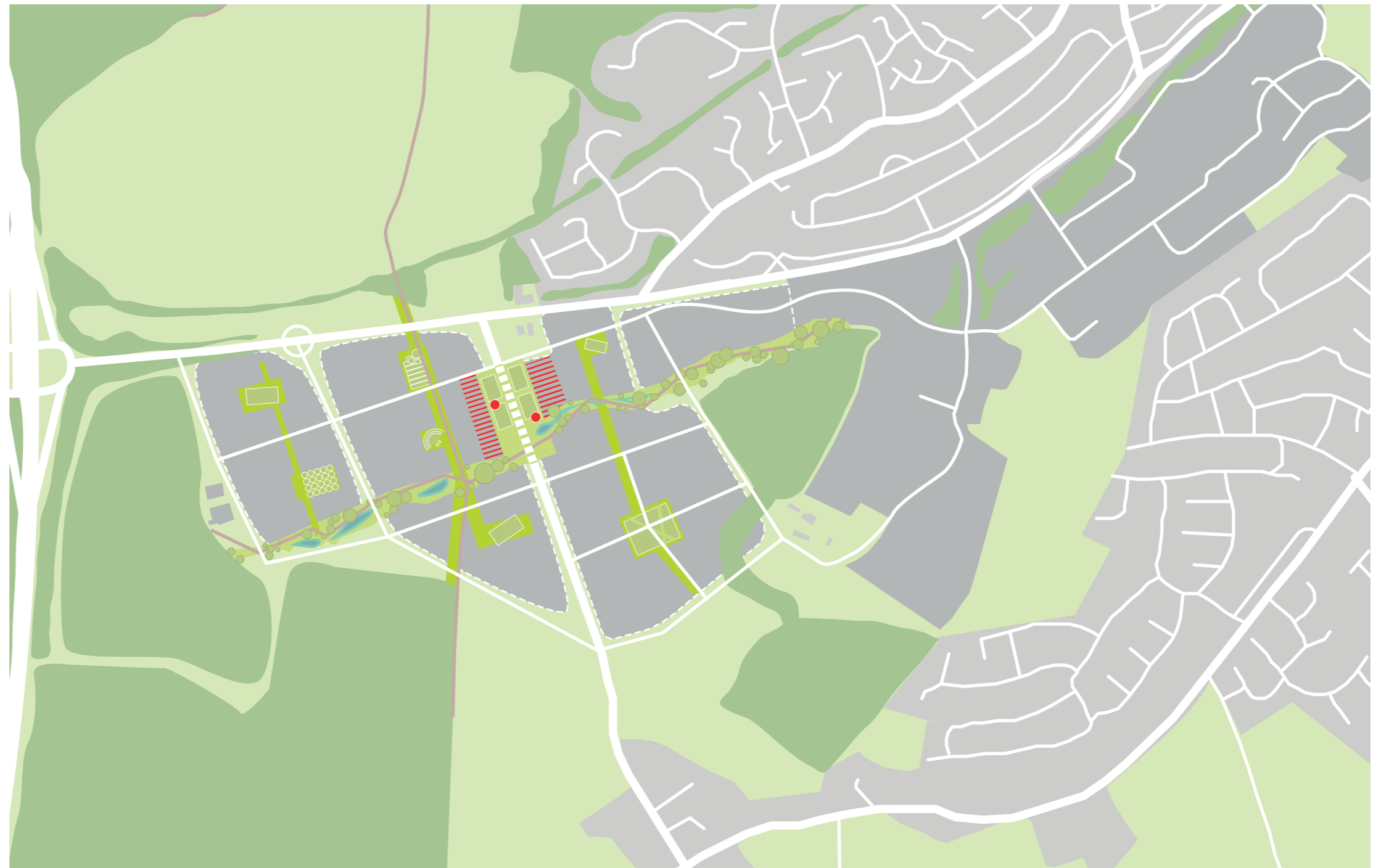
Option 1: Connected Network



The driver for this layout is maximum connectivity with the existing science park as well as with the surrounding road network. This layout is an open network of streets, roughly forming a grid pattern with evenly shaped development parcels. Aside from the primary roads, it is non-hierarchical, giving each part of the Park equal ease of access and choice of routes. The main entrance to the Park is via an improved junction with the existing Snell's Nook lane.

The heart of the Park is formed by a central hub that straddles Snell's Nook Lane, thereby joining the eastern and western part of the site and overcoming the physical barrier the roadway currently presents.

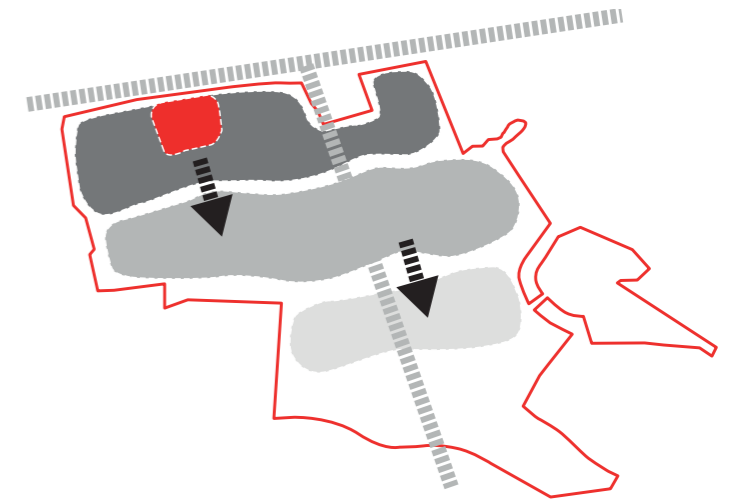
The open space is structured around a lattice of green corridors linking gardens and pocket parks within each development cluster to the larger ecological corridors.



Masterplan Option 1

Options & Masterplan

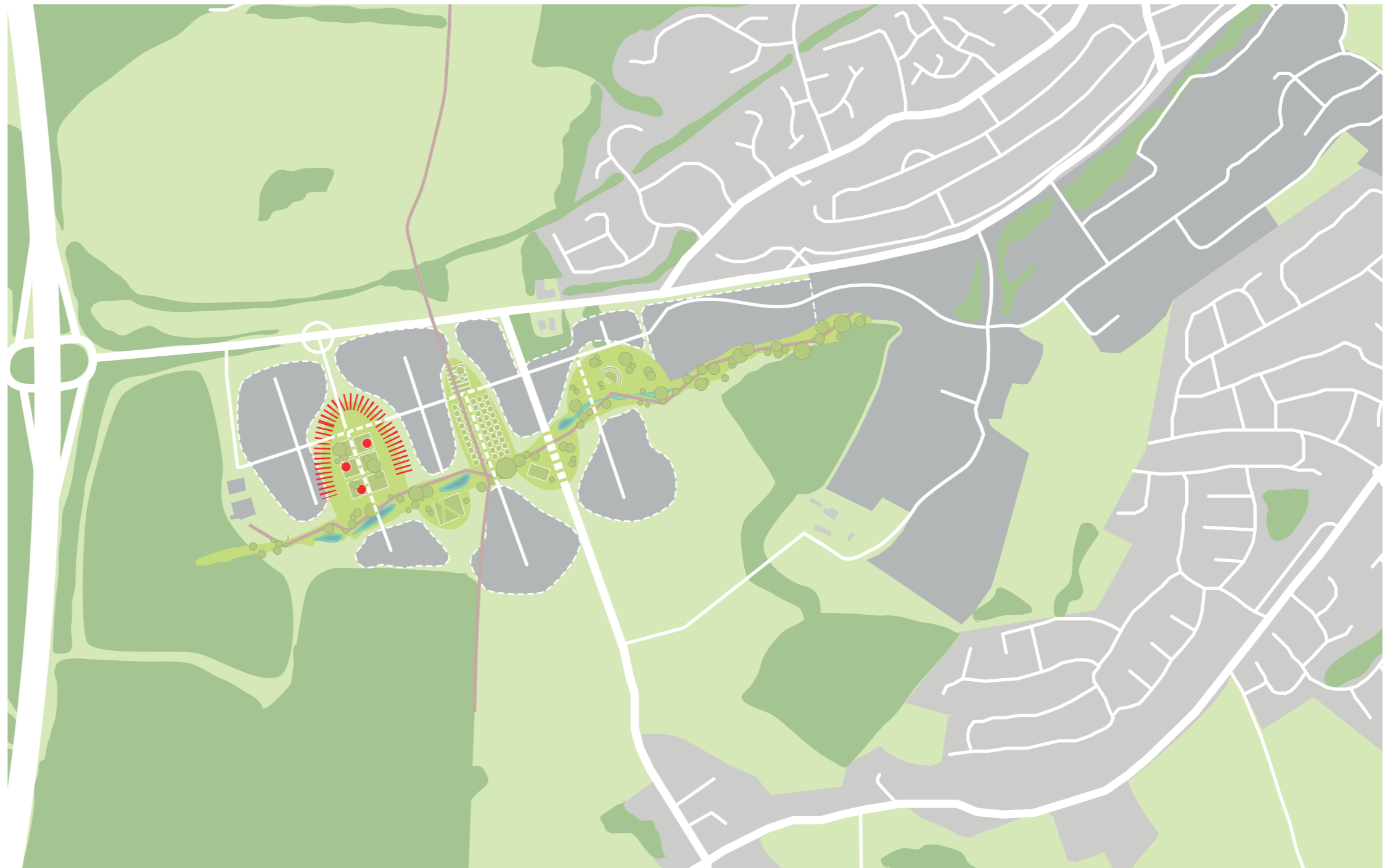
Option 2: Visibility and Frontage



This layout is defined by the value of the frontage and visibility along the A512, a place where businesses can advertise their presence and promote their brand. The Park forms a series of clusters with a strong built edge along the A512. Buildings along the northern edge will be higher and larger, with density reducing further south into the site. This creates highly visible development plots along the approach into Loughborough town centre, a location highly sought after by science park occupiers.

The Hub is located at the front of the site, forming the entrance impression into the Park as well as advertising Loughborough as a location for knowledge-based innovation to anyone travelling into the town. The entrance to the Park is located on the western part of the site, immediately after the M1 motorway junction.

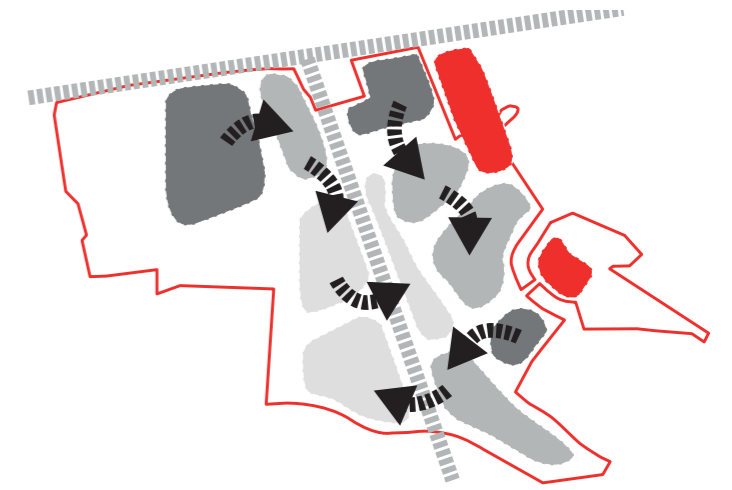
The road network is formed by a primary east-west route which feeds into north-south streets that lead to the individual hamlets. The open space is positioned around a central landscape corridor meandering either side of Burleigh Brook. Its bends form green pockets that separate the different hamlets into distinct development clusters.



Masterplan Option 2

Options & Masterplan

Option 3: Clusters in the Landscape



This layout is rooted in the existing structure of the agricultural landscape. Development is framed by the natural boundaries of woodlands, tree lines, hedgerows and follows the topography of the site. Building parcels are inserted within the existing field pattern, their size, location and density varying with the shapes of the different fields.

This option explores the possibility of two separate hubs where shared facilities are distributed between two locations at the interface with the existing science park. Each hub will provide differentiated support facilities for the Park.

The road network follows agricultural paths where possible and forms an irregular grid, avoiding the main landscape features, and feeding into individual accesses for each hamlet.

The open space naturally concentrates around the existing landscape features and enhances the Burleigh Brook, the hedgerows and tree lines into green corridors that separate and link the development parcels.



Masterplan Option 3

Options & Masterplan

Summary Appraisal

Option 1



In the view of the Partnership, Option 1 presents the following advantages and disadvantages for the Park:

- + Grid approach makes efficient use of land
- + Connected network makes good use of the planned roundabout on the A512
- + Preferred location of hub straddling Snell's Nook Lane
- + Opportunity for strong building frontage along A512
- + Opportunity for landmark building at western edge
- + Green fingers support wildlife corridors
- + Possibility of shared bus route with the SUE
- Closing or downgrading Snell's Nook Lane needs to be considered
- Hub can only be delivered once the Park has grown further west, i.e. Not at the start of phase 3

Option 2



In the view of the Partnership, Option 2 presents the following advantages and disadvantages for the Park:

- + Strong building frontage along the A512
- + Hub at western roundabout provides a good sense of arrival
- Need to be sensitive to the historic Garendon Park opposite
- Meandering central landscape shapes inefficient development parcels
- Hub is located too far west to serve the development east of Snell's Nook Lane
- Road layout contains too many cul-de-sacs
- Research building frontages preferred to Hub along the A512

Option 3



In the view of the Partnership, option 3 presents the following advantages and disadvantages for the Park:

- + Works with existing landscape features
- + Potential for more intimate hubs however locations
- + Well-integrated with university campus
- + Potential for woodland pedestrian and cycle route to Nanpantan
- Field boundaries and hedges should not unnecessarily dictate plot alignments
- Larger scale units located too close to residential development
- Road layout least preferred as its hierarchy is not clear
- Hubs not in central location
- Less integration with new roundabout on A512
- Ambiguous phasing strategy

Options & Masterplan

Spatial Principles

Preferred approach and spatial framework principles

Through the optioneering exercise, strong and weak points were identified for different layouts. Consequently, the feedback from the Partnership forms the base for a series of spatial framework principles that emerged as preferential through the option testing. These spatial framework principles lay the foundation for the Framework of the Park.

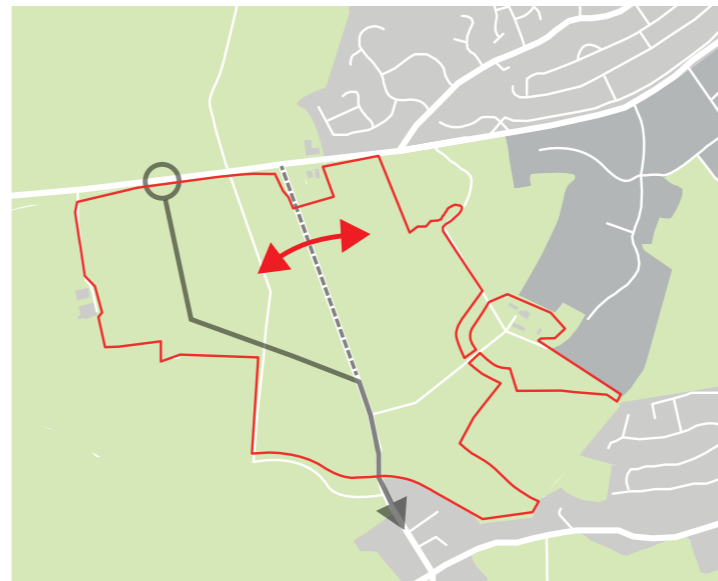
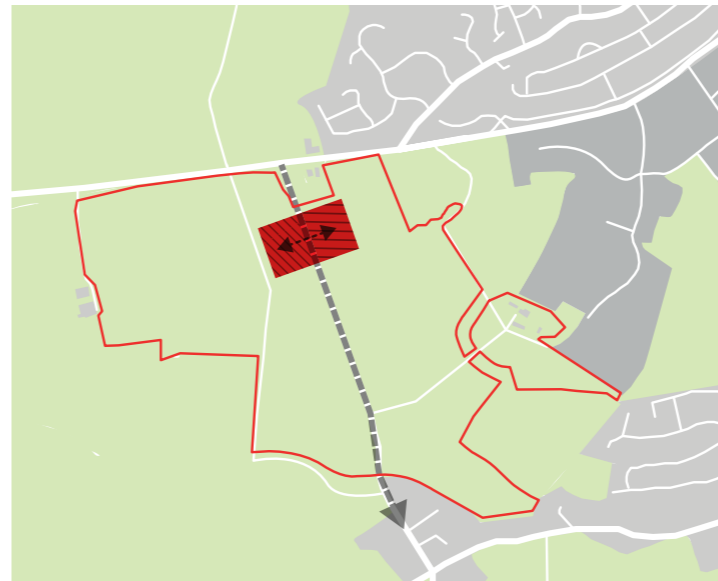
These spatial principles provide the foundations for the concept masterplan framework and form a baseline for future detailed design work. They can be used to evaluate the performance of future design options, to test principles and to balance judgements on potential trade-offs as the delivery of the site is taken forward.

Spatial principle 1: Location of hub

The preference is for the Park to have a single Hub with a concentration of supporting and ancillary uses. This Hub shall also accommodate the Innovation Centre but shall only cater to the needs of the Park and not compete with other town uses. It shall be deliverable in phases in order to stage the provision of shared facilities and amenities in proportion with development coming forward. The Hub shall offer a connection of the east and west halves of the site. This approach will have to be complemented by a new road that diverts through-traffic away from the Hub.

Spatial principle 2: New Snells Nook Lane

The preferred location for the Hub at the centre of the site requires through traffic to be diverted to allow a cohesive and pedestrian friendly environment. This is critical for the spatial coherence of the Park and to overcome the current severance of the east and west halves of the site. A new road is proposed to link the planned roundabout on the A512 to Nanpantan and areas beyond. Furthermore it has the potential to service plots in the southern part of the site and create additional frontage for the Park. Subject to further transport modelling, the new road allows the downgrading of the existing Snell's Nook Lane into an internal road of the Park.



Spatial principle 3:

Western gateway and entrances into the site

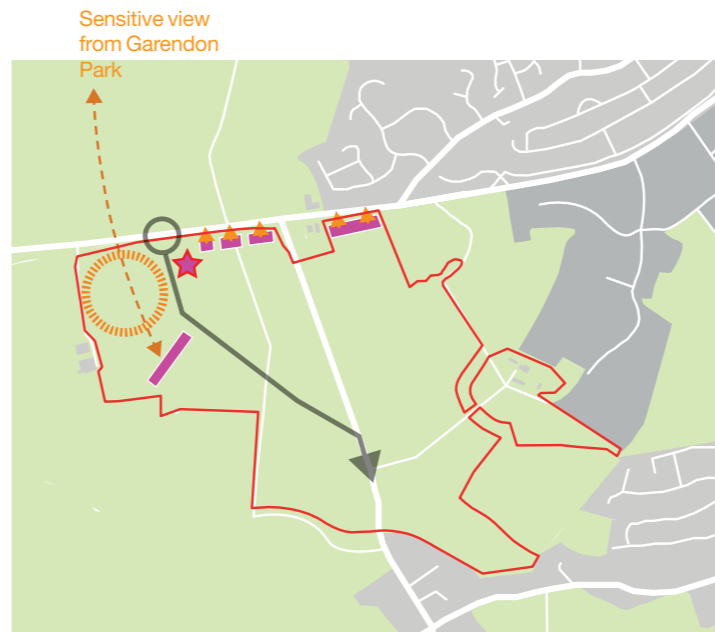
The size of the Park requires multiple entrances. The planned roundabout on the A512 that is delivered through the SUE bears the opportunity to provide a new entrance to the west of the Park. This access will be in close proximity to the M1 motorway junction and will form a prominent arrival point. This new western gateway provides an early impetus for development on the western part of the site.



Spatial principle 4:

Areas of development and location of hamlets

In order to avoid development spreading out in an unregulated manner across the site, the Park assembles buildings within clusters referred to as hamlets. This provides natural groupings of development plots around social and amenity spaces. Certain areas of the site have inherently higher development value such as the northern fringe along the A512 where development has primacy. Other areas are more difficult to develop such as the hilltop on the western part of the site and buildings here are subject to more detailed considerations of visual impact and cut and fill. These factors determine where development is concentrated and thus the location of the hamlets.



Spatial principle 5:

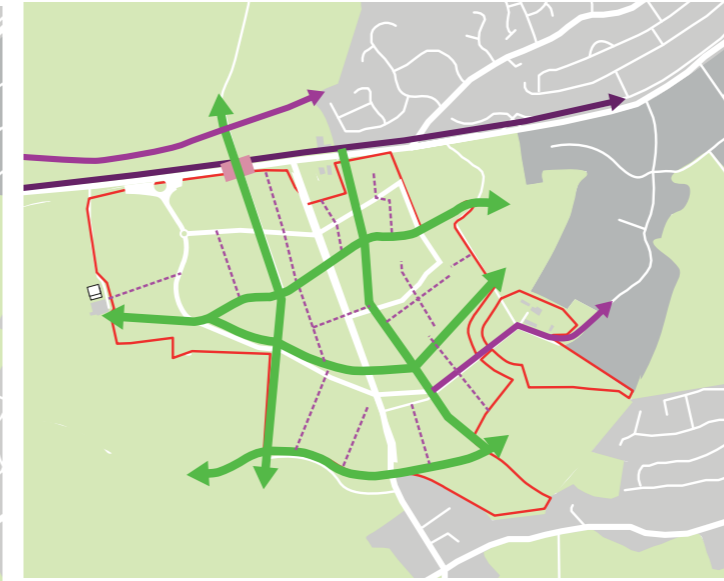
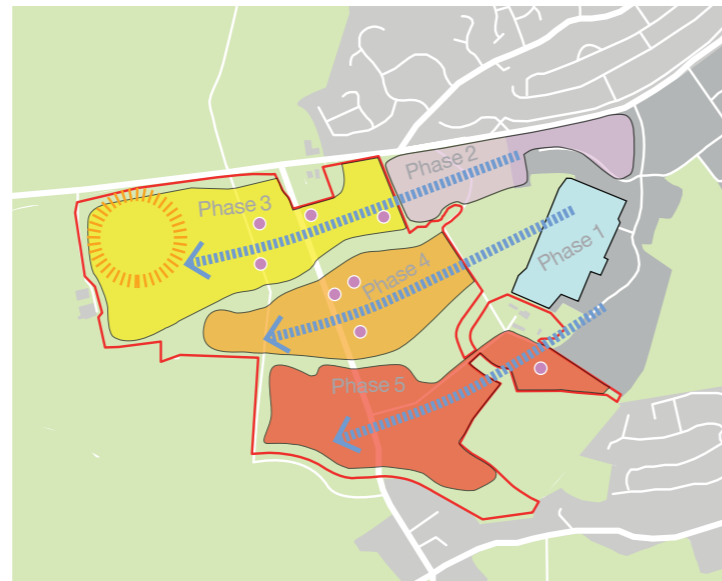
A512 frontage

The opportunity of building frontage along the A512 must be differentiated and mediated against a set of limiting factors. While the primacy of development along the northern edge shall generally be reinforced, the frontage shall present an alternating rhythm of buildings and green views into the site, in continuation of the principle that has been established by phase 2 of the Park. Overall, the Park's presence shall be announced at the western entrance. However, the frontage must preserve a legible transition from natural wooded landscape to an urban settlement by gradually increasing the density and continuity of buildings fronting onto the A512. Furthermore, buildings along the northern edge must be designed with consideration towards the historic Garendon Park opposite the road.

**Spatial principle 6:
Land use distribution and phasing**

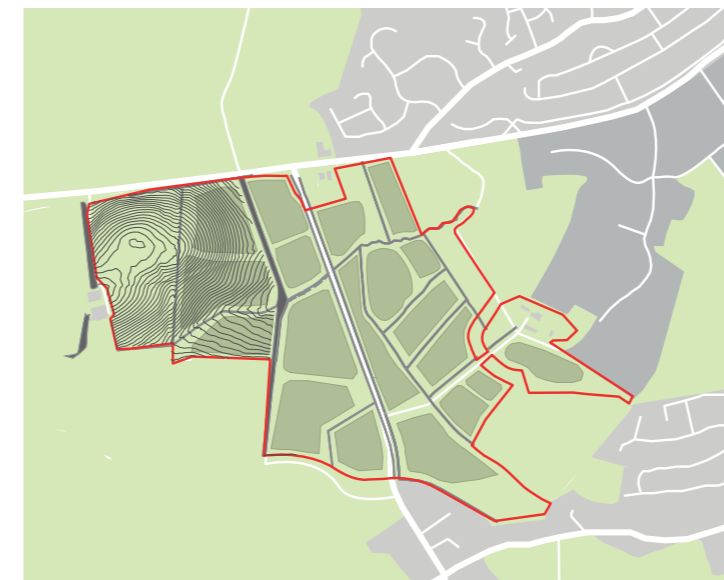
The construction of the Park shall generally proceed from north to south. Within each phase, development shall progress from east to west in order to ensure continuity with earlier phases of the Park. The establishment of future phases of the Park will be based on attracting successful start-up business and providing suitable space for them in an Innovation Centre. As these businesses grow, they will generate demand for inward investment (Grow-on) space. The early phases of development will thus contain more floorspace of these two types.

Advanced Manufacturing plots can be developed at any stage, reflecting the particular market demand for this type of unit (please refer to Section 2 for further detail). The location of the different typologies will thus radiate outwards from the Hub, with the Grow-on space lying in proximity to the Innovation Centre at the Hub and Advanced Manufacturing parcels towards the edges of the site where road access is easiest. The diversity and proportion of the different use types contributes to the different character of hamlets.



**Spatial Framework Principle 7:
Gridded layout and green corridors**

The Park shall have a legible vehicular circulation system. The road network shall be interwoven with pedestrian and cycle routes to create a close-knit movement network. Movement routes, views and ecological corridors shall connect and integrate with wider networks around the site. This will allow ease of accessibility to the development parcels as well as continuous biodiversity corridors.



**Spatial Framework Principle 8:
Geometries of field boundaries and topography**

Where practical, development shall preserve existing alignments of natural landscape features and preserve existing biodiversity corridors and habitats. The Park should retain the natural topography of the site and where possible buildings should align with contours. This will create variegated parcel and road alignments and contribute to different characters of the hamlets.

Concept Masterplan Framework

Framework plan

The Framework sets out the structure of the development. As its name suggests, it sets out a spatial framework within which development can come forward in a variety of ways.

The Framework includes:

- The location of strategic road infrastructure such as the New Snells Nook Lane
- The location of primary and secondary roads within the Park
- Access points and gateways into the Park
- The location of the strategic ecological corridors and natural parkland features that compose the 30% off plot landscape
- The location of the Hub
- The location and size of development parcels and their predominant land use (Grow-on, Advanced Manufacturing, etc)

This framework only sets out the proposed structure of the Park, safeguarding the key qualitative and spatial principles that are set out in this section, (see also Section 2). The Framework is flexible enough to accommodate development in a number of different ways, taking into account possible future changes in market trends or delivery mechanisms. This flexibility is essential to ensure the longevity of the Framework. In order to provide further guidance, one possible development scenario has been illustrated in more detail in Section 7.

The following section will explain the different functional layers of the Framework, in particular:

- Where the 30% structural off plot landscape could be located
- How development could be grouped into hamlets
- How much development could be provided on each parcel
- Where different uses could be located
- How vehicles could move into and through the Park
- How people could walk and cycle to and through the Park
- How the edges of the Park could be formed
- How water could be managed across the site

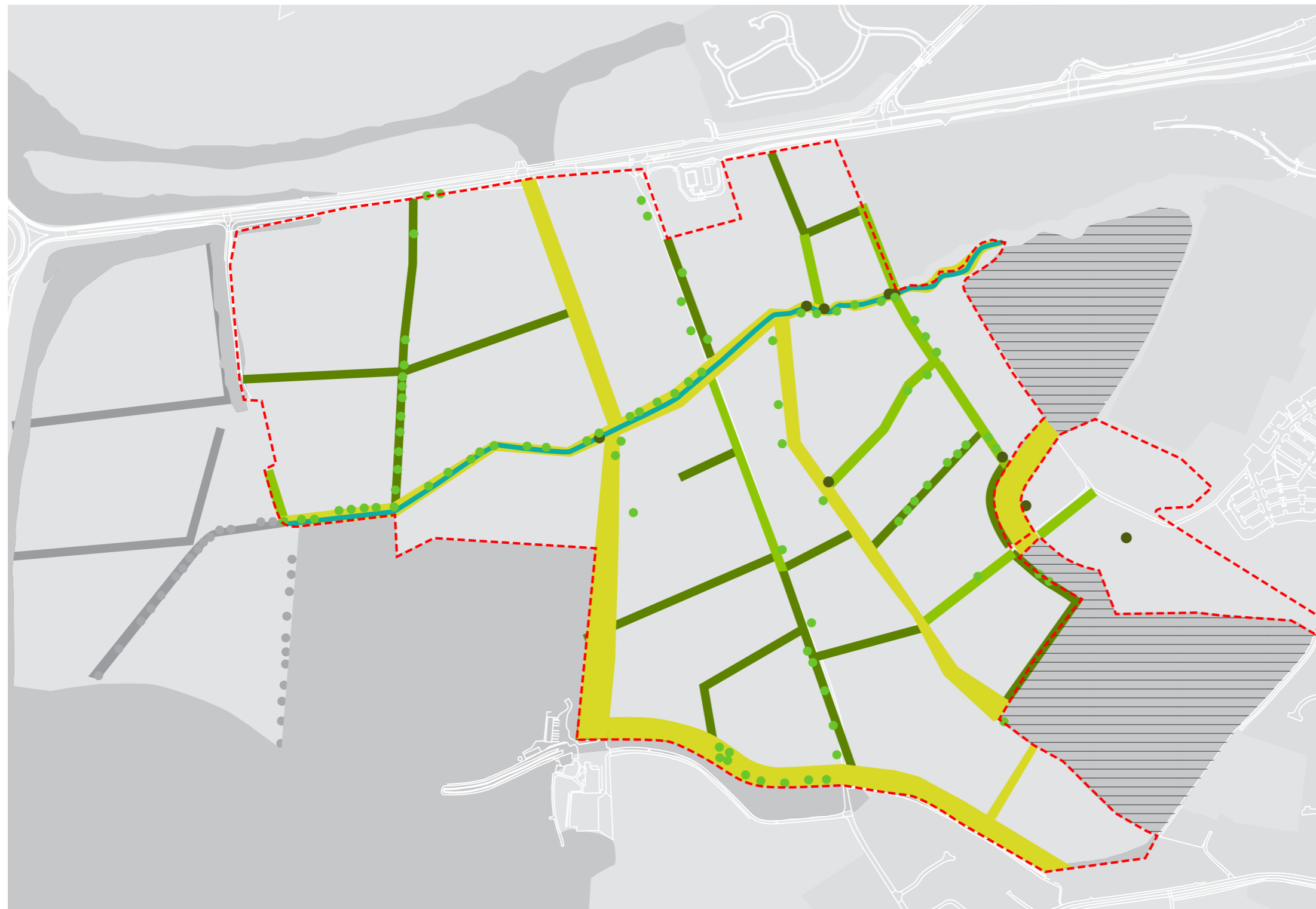


Concept Masterplan Framework

* The land associated with 'The Greens' has the potential to be used as a development parcel assuming the necessary balance of green infrastructure is achieved to meet the policy requirements.

Options & Masterplan







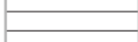
Structural Landscape



Structural landscape (30%)

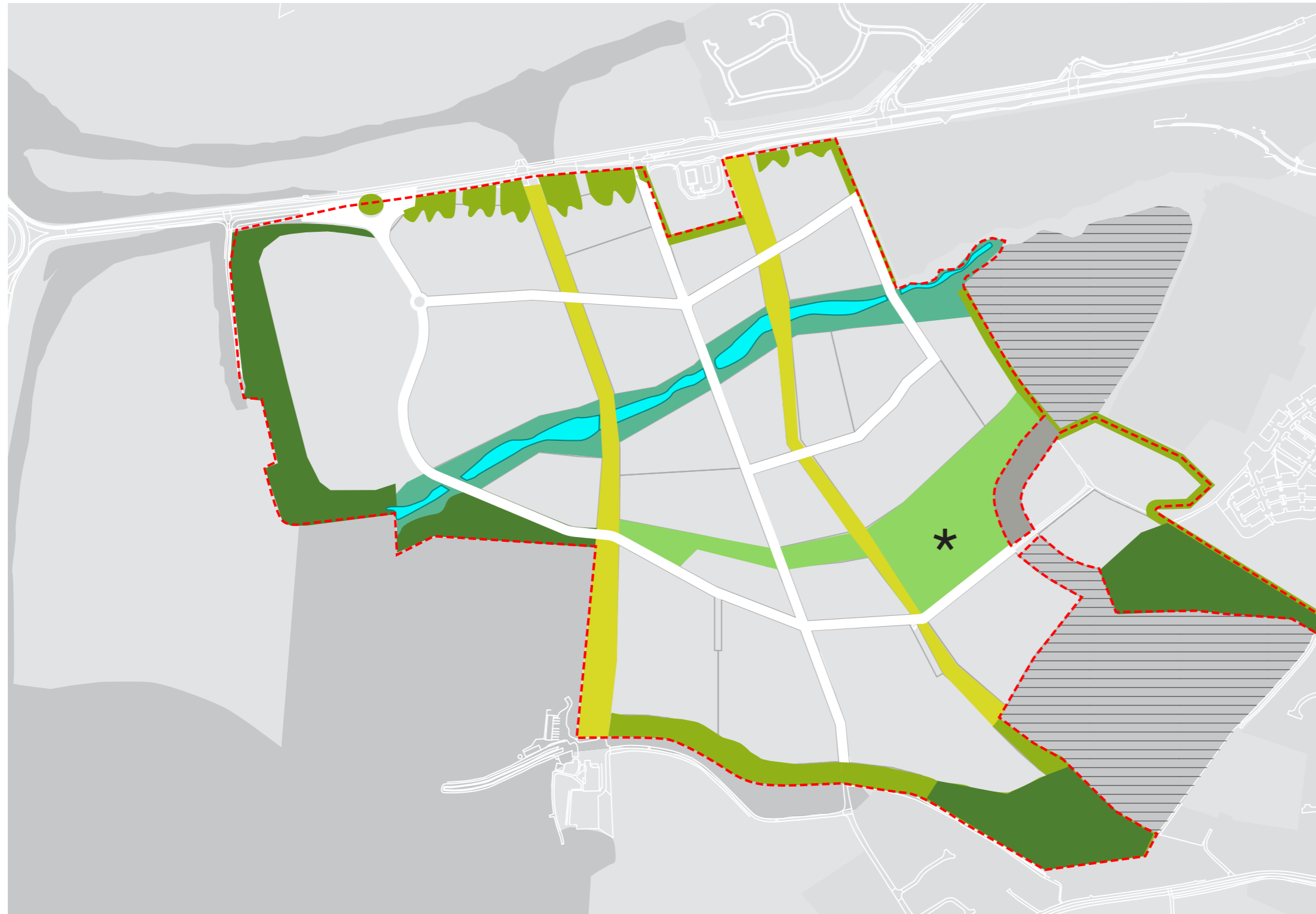
'Structural landscape' is defined as the permanent, site wide green infrastructure network. It includes natural features, streams and wetlands, existing vegetation and habitats and all new structure planting, such as woodlands, hedgerows, shelterbelt and site wide amenity planting.

The pattern of the structural landscape is derived from the layout of the existing field network and the location of the principal ecological assets as defined in the Phase 1 Habitat Survey [CBC 2009]. The structural landscape plan sets out a series of development parcels, connected and defined with a network of connected green corridors. The parcels offer a flexible cellular structure of development plots set amongst a permanent and well integrated green network. The existing landscape structures of woodlands, hedgerows, wet ditches and parkland remnants are used to guide the location of new green infrastructure elements, often being absorbed into new extended planting structures.

-  Wildlife corridor
-  Hedgerow (species rich)
-  Hedgerow (species poor)
-  Wet ditch (Burleigh Brook)
-  Trees (potential local wildlife sites)
-  Trees
-  Broadleaved semi-natural woodland

Existing structural landscape

Structural landscape: enhanced



The new structural landscape conserves and enhances the existing landscape features, and creates a simple robust network of green corridors. These are used to define development parcels, create a well connected green infrastructure network of habitats and wildlife areas. The structural landscape plays a key role in managing water systems across the site. The green corridors provide a range of walking and cycle routes which traverse the site. They include planting to provide shelter and screening, particularly around the edges of the site. In some instances the network expands to establish a series of attractive green amenity spaces. The network includes calm and tranquil spaces as well as active and sport based external facilities.

- Burleigh Brook Corridor: New linear ecology park which forms a green spine from east to west. Establishes an enhanced habitat sequence which connects the existing woodland and hedgerow network to other green corridors.
- The Greens: New activity park which creates a secondary east west route. Contains a range of active uses including sports pitches, pavilion and amenity area set within a green structure. Includes habitat planting, retention of existing hedgerows and connections back to main campus.
- East & West Avenue: Existing hedgerow structures are retained and enhanced with additional planting to create wide shelter belts incorporating footpaths.
- Woodland Belts: New mixed woodland shelterbelt planting to create visual screening and enclosure, plus linear habitat corridor.
- New Woodlands: New woodland plantations to reinforced the character of the National Forest.

Enhanced structural landscape

* The land associated with 'The Greens' has the potential to be used as a development parcel assuming the necessary balance of green infrastructure is achieved to meet the policy requirements.



Structural landscape: Integration into the existing landscape

The 30% structural off-plot landscape is provided in locations where it enhances and reinforces existing landscape features and natural habitats. It establishes visual and spatial connections into the adjoining landscapes. The principles behind each component of the structural landscape are set out below.

1. Garendon Park

Screen development plots with woodland planting to northern edges. Where possible, focus development behind hillock to Hurst Farm on 80m contour. Establish woodland belt to rising land to the west. It is recommended to reduce building plot footprint when placing large development parcels on steep slopes.

2. A512 and Loughborough urban edge

Create a transitional edge condition from woodland to west boundary, through to built up urban edge to the east. Use structure planting in blocks to create filtered and woodland dominated views of development parcels.

3. Nanpantan village and southern slopes

Extended shelter belt along southern boundary helps maintain a tree based horizon line, with out development blocks breaking the horizon with viewed from the north. Creates a wooded transition to Nanpantan village.

Structural landscape integration into existing landscape

4. National forest and western boundary

New woodland planting establishes landscape connection to Charnwood Forest and establishes a landscape edge to the urban settlement. Provides a landscape separation between Loughborough and the M1 corridor/Shepsted settlements.

5. University campus

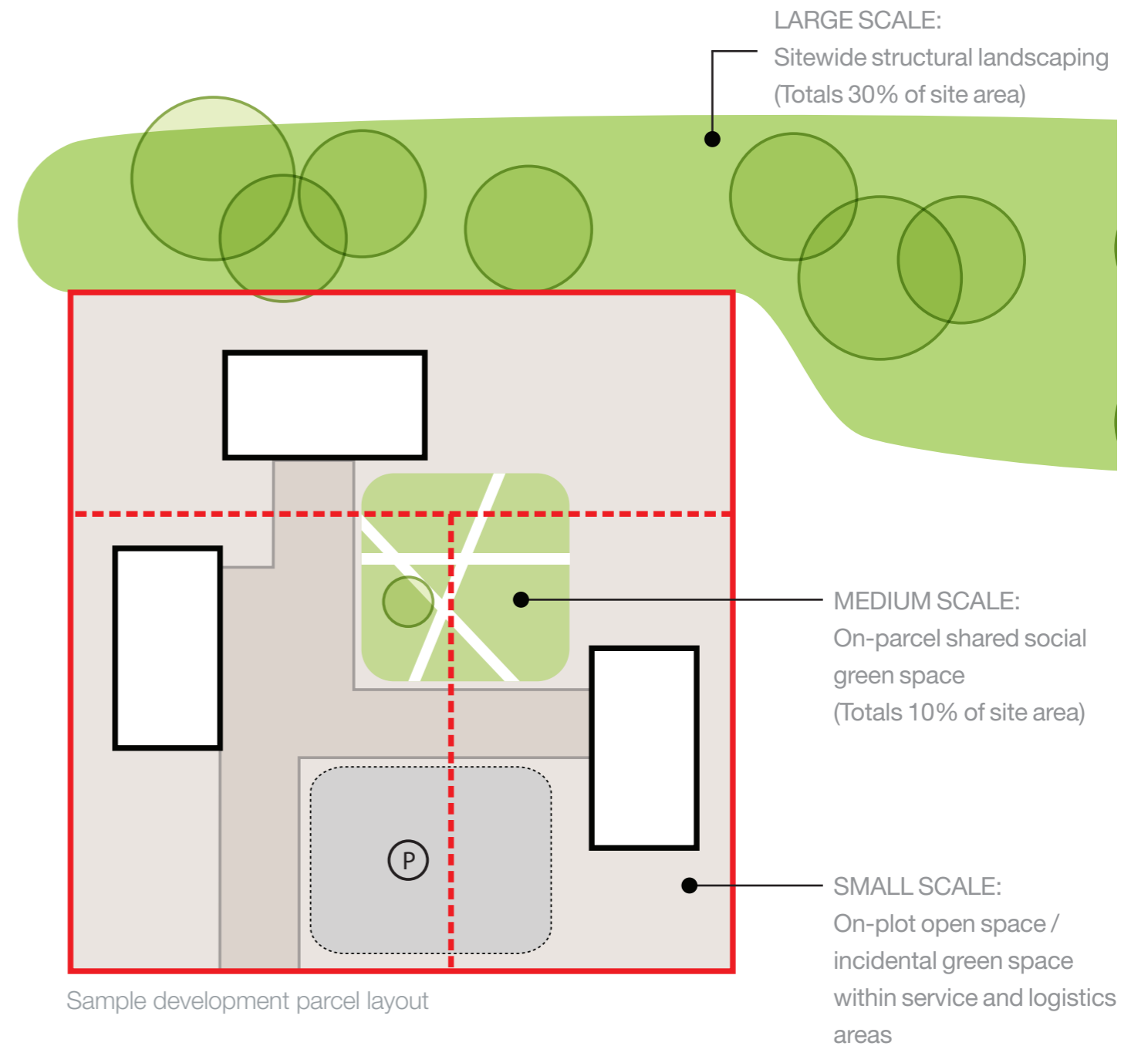
The Framework establishes a network of woodland and tree dominated landscape structures which connect to the existing campus landscape. The green corridors which define the principle development parcels grow out from the existing campus landscape and woodlands.

Landscape tiers

The Park comprises three scales and types of landscape intervention:

- Structural landscape in the form of a green infrastructure network that provides active and passive landscape amenity for all users of the Park (30% of site area) as described above.
- Medium scale landscape in the form of social green space to encourage encounter and interaction within local groups of plots or development parcels (10% of site area)
- Small-scale open space and incidental green space that create formal settings to building(s) on individual plots

Only the structural landscape is shown in the concept masterplan framework whereas the medium and small scale landscape will be developed as part of the detailed proposals for each development parcel. Please refer to the illustrated masterplan in Section 7 for sample layouts of these.



Strategic response to site context

The concept masterplan framework respects the particular character of the Charnwood Forest character area setting, creates a legible and well considered entrance to the town of Loughborough, and promotes a sensitive relationship to Garendon Park.

As set out on the previous pages, the **concept masterplan framework** establishes the principles of a green infrastructure network which conserves and enhances existing ecological assets and landscape features such as hedgerows, existing trees and water courses which are all key components of the overall character of the landscape. Sensitive enhancement of these features helps to stitch the development into its surroundings. The structural landscape establishes a robust and well connected network of habitats and species rich planting, which are sympathetic to the prevailing local ecology.

The development includes extensive tree planting in a combination of types to include stands and tree groups, extended hedgerows, shelterbelts and screens, woodlands and solitary trees.

Landscape Character Assessment: Recommendations

Specific recommendations from the LCA guidance for both the Langley Lowlands (LL) and Charnwood Forest (CF) character areas have been addressed in the concept masterplan framework as follows:

- Respect key views to the south towards the higher ground of Charnwood Forest(LL)
- Conserve existing vegetation and tree cover at settlement edges, with management of wooded buffer planting to provide continued assimilation of development with a variety of heights and varied woodland species (LL)
- Integrate new development and provide a setting by planting woodland edges and trees within and around the built form to break up roof line horizons and soften urban edges (LL)
- Take opportunities to strengthen gateway features along the A512 at entrances to the towns of Loughborough and Shepshed (LL)
- Encourage the retention and restoration of the hedgerow network, thorough planting a new generation of hedgerow trees, planting up gaps in hedges and relaxing the management regime (LL)
- Protect and secure the wildlife value of small water courses as wildlife corridors (LL)
- Secure opportunities for the creation and enhancement of the following habitat types, particularly where they strengthen the countryside character near the towns (LL):
 - Wetland habitats within floodplains (flower rich grassland, wet woodland, ponds etc)
 - Hedgerows and trees to grow on as standards within hedgerows
- Conserve the outline of wooded hills, rocky outcrops and ridgelines by avoiding locating large buildings and other structures in visually prominent locations (CF)
- Carefully manage built form development in rural locations so that it is compatible with the intimate scale and character of the Charnwood Forest landscape (CF)
- Support the conservation of the rural character of roads. Where possible retain the lack of defined road edges along country lanes, and manage roadside verges to maintain the old meadow flora. (CF)
- Conserve and protect the valuable biodiversity resource that is found in the Charnwood Forest and seek opportunities for the creation and enhancement of the following habitat types, especially where these support the mosaic of the Charnwood Forest landscape (CF):
 - Freshwater habitats: streams and open water
 - Deciduous woodland particularly achieving connectivity between ancient semi-natural woodland
 - Field boundaries: hedgerows and dry stone walls



Key landscape features

Summary

The LCA recommendations provide guidance on the preservation and enhancement of the special character of the Charnwood Forest and accompanying lowland landscape. The key principles to be used to guide the concept masterplan framework are summarised as follows:

1. Conserve and enhance existing vegetation features and habitats, particularly existing trees, hedgerows and watercourses
2. Create development parcels which respect the existing field pattern and texture of the landscape
3. Create a network of woodland belts and tree stands across the concept masterplan framework to control views, enclose buildings and create a sense of a woodland campus
4. Use woodland shelter belt to the southern boundary at Nanpantan to help reduce the impact from the village and rising ground to the south and to maintain a wooded horizon when viewed from Garendon Park
5. Establish a wooded margin from the M1 junction through to the site entrance to help maintain a green separation between Loughborough and Shepsted
6. Enhance the landscape transition from Langley Lowland to Charnwood Forest with additional woodland planting across the site and additional planting towards the National Forest boundary
7. Development on the hill top to the north east of Hurst Farm will be subject to visual impact assessment and consultation with Natural England and Historic England..

Options & Masterplan

Hamlets

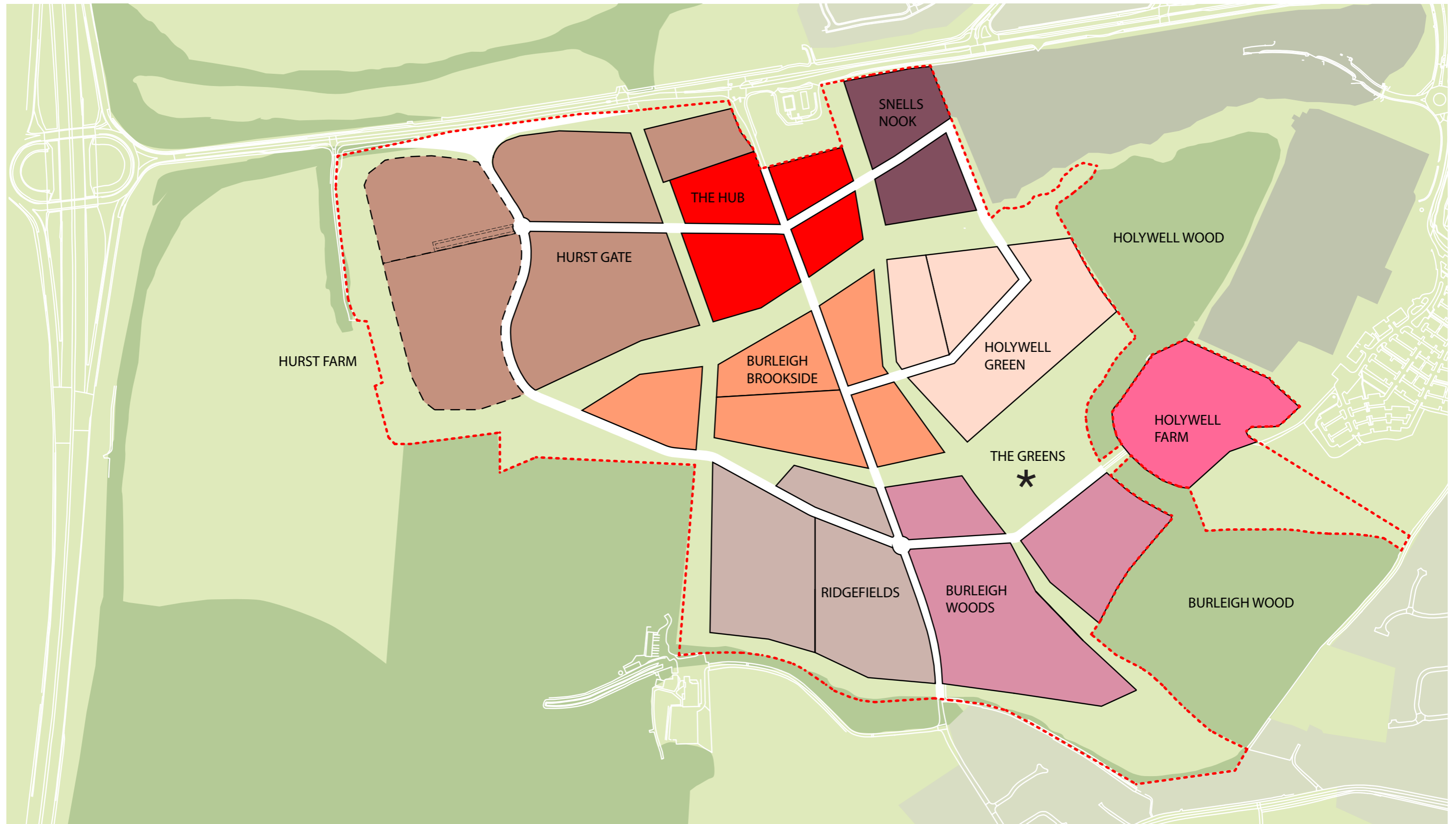
The green infrastructure network frames and defines areas for development. Three bands of development stretch across the site from east to west either side of the ecological corridors, mimicking the direction in which development will be phased and extended from the existing science park.

The development is grouped into hamlets providing roughly equal building floorspace across two to four parcels each. Each hamlet contains a mix of uses and is accessed directly from the Park's primary and secondary road network. Each hamlet has a direct relationship with the site wide landscape corridors, thus ensuring the buildings are set in a parkland landscape and equally benefit from the proximity to high quality natural open space.

The hamlets have been named with reference to the history of the natural landscape and its usage across the centuries. These names also suggest different characters that shall be explored through the type and location of open spaces and buildings within the development parcels.

The location, capacity and land use mix of each hamlet is listed adjacent.

	The Hub				
	• Total GFA	19,825 sqm			
	• Innovation Centre	8,280 sqm			
	• Hotel	10,425 sqm			
	• Sports Institution	1,120 sqm			
	Hurst Gate (including parcels subject to visual impact assessment)				
	• Total GFA	49,487 sqm			
	• Adv. Man. & R&D	49,487 sqm			
	Snell's Nook				
	• Total GFA	11,214 sqm			
	• Grow-on	6,269 sqm			
	• Adv. Man. & R&D	4,946 sqm			
	Burleigh Brookside				
	• Total GFA	25,600 sqm			
	• Grow-on	10,224 sqm			
	• Adv. Man. & R&D	15,377 sqm			
	Holywell Green				
	• Total GFA	22,282 sqm			
	• Grow-on	5,553 sqm			
	• Adv. Man. & R&D	16,729 sqm			
	Ridgefields				
	• Total GFA	24,758 sqm			
	• Adv. Man. & R&D	24,758 sqm			
	Burleigh Woods				
	• Total GFA	27,477 sqm			
	• Adv. Man. & R&D	27,477 sqm			
	Holywell Farm				
	• Total GFA	18,168 sqm			
	• Grow-on	18,168 sqm			



Concept masterplan framework highlighting hamlets

* The land associated with 'The Greens' has the potential to be used as a development parcel assuming the necessary balance of green infrastructure is achieved to meet the policy requirements.

Options & Masterplan

Parcelisation

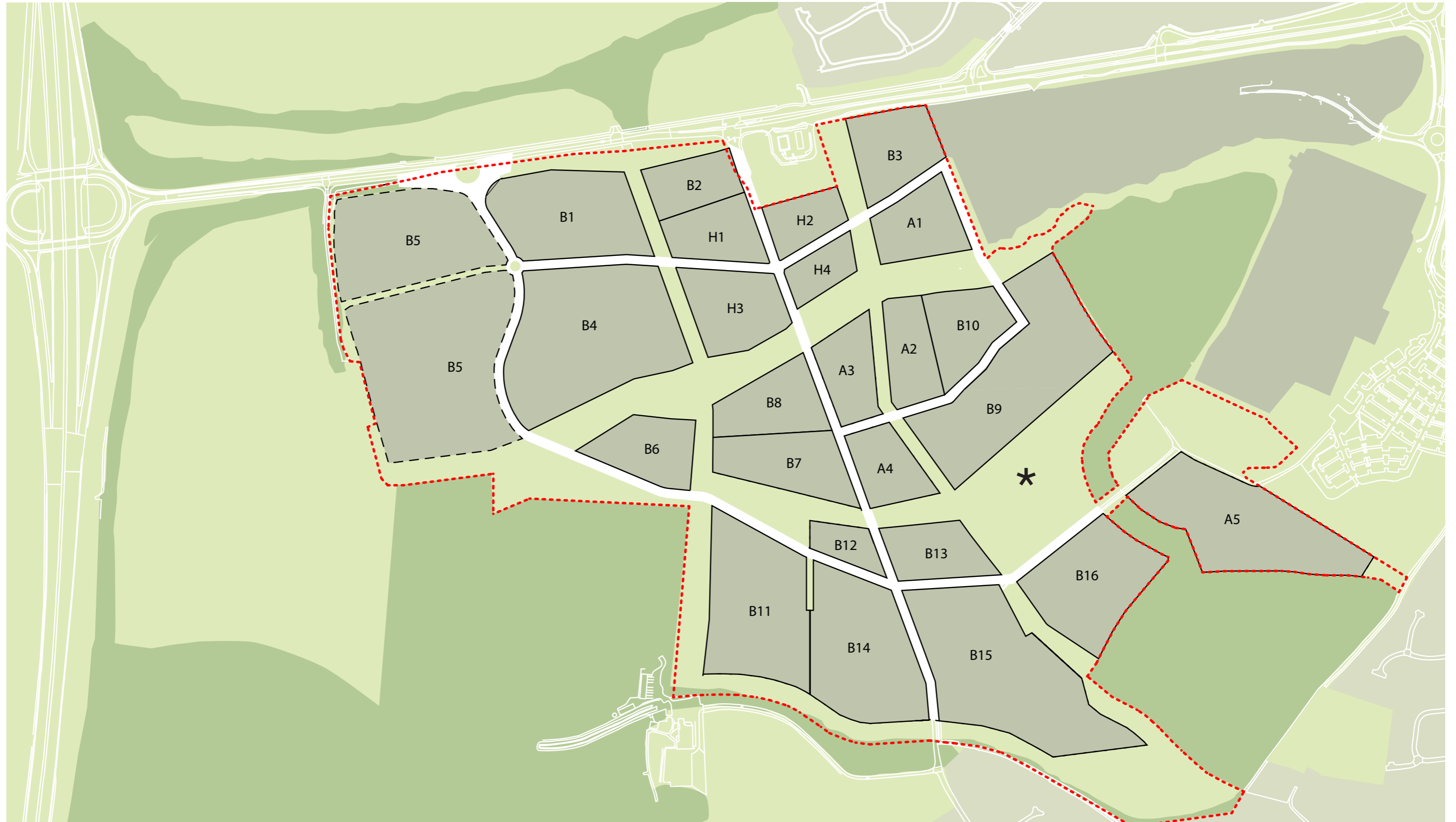
Overall, the Park supports around 200,000 sqm of built floorspace for Innovation Centre, Grown-on space, Advanced Manufacturing and ancillary uses as set out in the development brief (please refer to section 3). This capacity has been established through the following assumptions:

- 30% structural off-plot landscape
- 10% on-plot or on-parcel social landscape
- Parking standards in line with 6Cs Design Guide
- Net development density (excluding on-plot social landscape) of
 - 0.4-0.6 FAR for Innovation Centre
 - 0.62 FAR for Grow-on space
 - 0.41 FAR for Advanced Manufacturing
- Building heights of
 - 3 storeys for Innovation Centre
 - 2.5 storeys for Grow-on space
 - 1.2 storeys for Advanced Manufacturing

These parameters are in line with comparable science park developments in the UK and have been derived from industry benchmarks. Individual parcel capacities are listed adjacent.

Land Use	Plot No	Plot Area	Building Footprint	Plot coverage	No of Storeys	GFA	FAR	No.	
H Innovation centre Hotel/Conference Sports Institute	1	11,690	1,840	16%	3.0	5,520	0.56	184	4,600
	2	7,370	920	12%	3.0	2,760	0.44	92	2,300
	3	15,572	3,475	22%	3.0	10,425	0.79	348	8,688
	4	7,125	560	8%	2.0	1,120	0.18	37	933
H Sub-Total / Average		41,757	6,795	15%		19,825	0.49	661	16,521
A Grow on	1	11,895	2,507	21%	2.5	6,269	0.62	209	5,224
	2	10,537	2,221	21%	2.5	5,553	0.62	185	4,627
	3	9,933	2,094	21%	2.5	5,235	0.62	174	4,362
	4	9,467	1,996	21%	2.5	4,989	0.62	166	4,158
	5	34,475	7,267	21%	2.5	18,168	0.62	606	15,140
A Sub-Total / Average		76,307	16,086	21%		40,214	0.62	1,340	33,511
B Advanced Manufacturing R&D	1	26,767	7,774	29%	1.2	9,328	0.41	170	4,240
	2	10,087	2,929	29%	1.2	3,515	0.41	64	1,598
	3	14,191	4,121	29%	1.2	4,946	0.41	90	2,248
	4	43,965	12,768	29%	1.2	15,322	0.41	279	6,964
	5	61,182	17,768	29%	1.2	21,322	0.41	388	9,692
	6	13,117	3,809	29%	1.2	4,571	0.41	83	2,078
	7	17,262	5,013	29%	1.2	6,016	0.41	109	2,734
	8	13,743	3,991	29%	1.2	4,789	0.41	87	2,177
	9	36,040	10,467	29%	1.2	12,560	0.41	228	5,709
	10	11,962	3,474	29%	1.2	4,169	0.41	76	1,895
	11	32,956	9,571	29%	1.2	11,485	0.41	209	5,221
	12	8,027	2,331	29%	1.2	2,797	0.41	51	1,272
	13	11,006	3,196	29%	1.2	3,836	0.41	70	1,743
	14	30,060	8,730	29%	1.2	10,476	0.41	190	4,762
	15	44,034	12,788	29%	1.2	15,346	0.41	279	6,975
	16	23,805	6,913	29%	1.2	8,296	0.41	151	3,771
B Sub-Total / Average		398,204	115,645	29%		138,774	0.41	2,523	63,079
Total		516,268	138,526	22%		198,813	0.51	4,524	113,111
Percentage of site area		64%							

Development area and floorspace schedule



Concept masterplan framework parcel plan

* The land associated with 'The Greens' has the potential to be used as a development parcel assuming the necessary balance of green infrastructure is achieved to meet the policy requirements.

Options & Masterplan

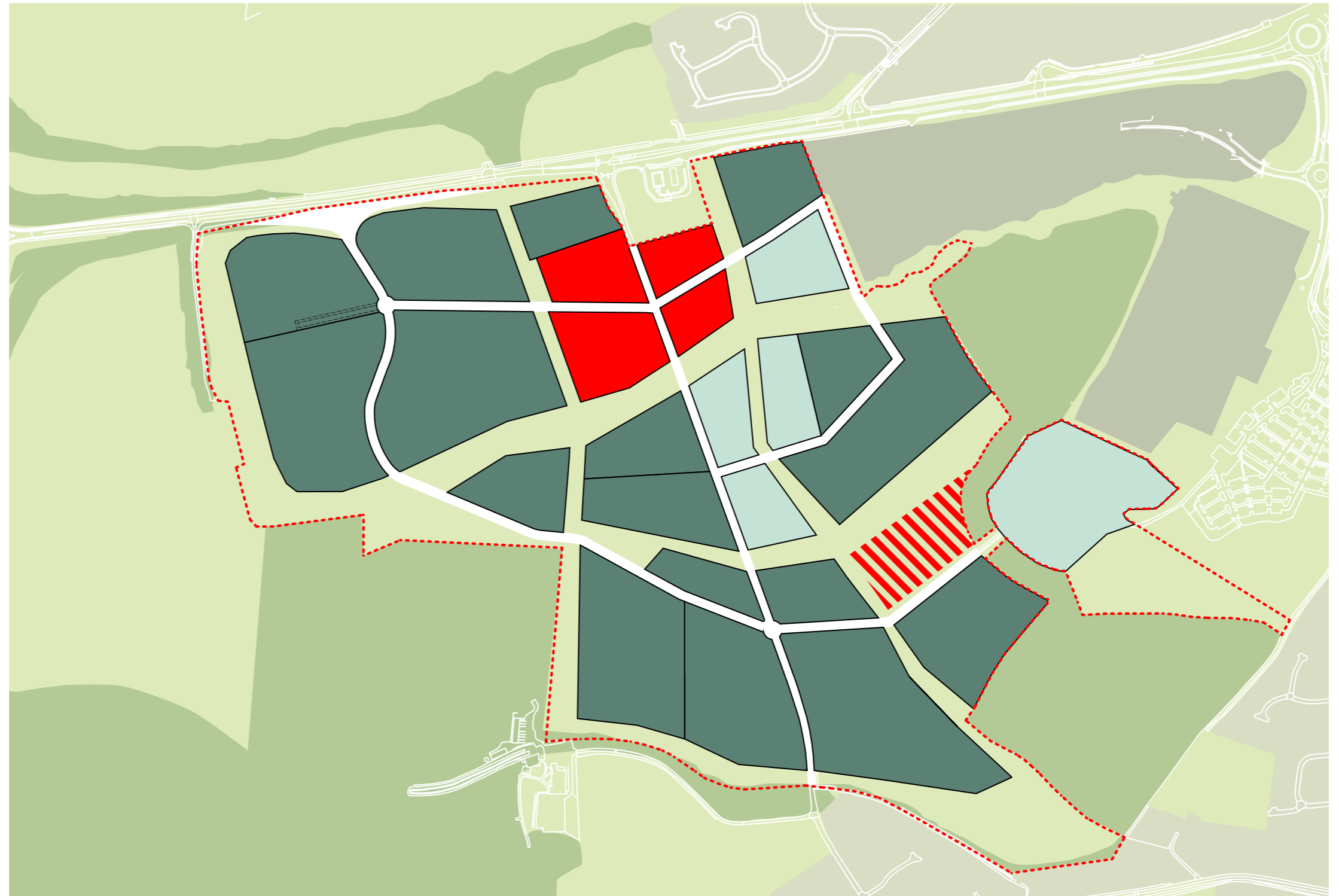
Land Use

The disposition of land uses around the site is informed by their mutual relationship, site characteristics, as well as delivery and phasing strategies. Ancillary and support uses such as the hotel, short-term residential and conference facilities are located within the central hub, together with the Innovation Centre. Grow-on space for businesses that have reached a certain size is located within proximity to the Hub, thus still allowing easy access to shared support facilities such as cafes and conference rooms. Grow-on space is also located near phases 1 and 2 of the Park which contain additional amenities such as canteens and seminar rooms as well as similar occupiers in two Innovation Centres and a number of Grow-on parcels.

R&D and Advanced Manufacturing units are planned in larger parcels radiating outward from the Hub and forming the new western gateway to the Park. These parcels account for the potential spatial requirements of Advanced Manufacturing in terms of access, servicing, logistics and larger building typologies. As these requirements are more onerous than those of traditional R&D development, Advanced Manufacturing has been used to test parcel sizes and locations. However, all parcels will be able to accommodate and cater for traditional R&D uses.

A secondary 'destination' is formed through the clustering of outdoor-based leisure and sports facilities near the ancient woodlands and Holywell Farm. This outdoor leisure destination is called 'The Greens'.

- Hub including Innovation Centre, hotel & conference centre & associated housing for Park researchers and National Sports facility
- Hybrid Advanced manufacturing & R&D or traditional R&D
- Grow-on space
- Destination leisure amenities



Concept masterplan framework land use plan

Access and movement

The strategic road network is formed by the A512 to the north and a new road which directs traffic towards Nanpantan and beyond. This new road serves the dual function of accessing development plots in the southern part of the site and connecting public traffic between the A512 and Nanpantan.

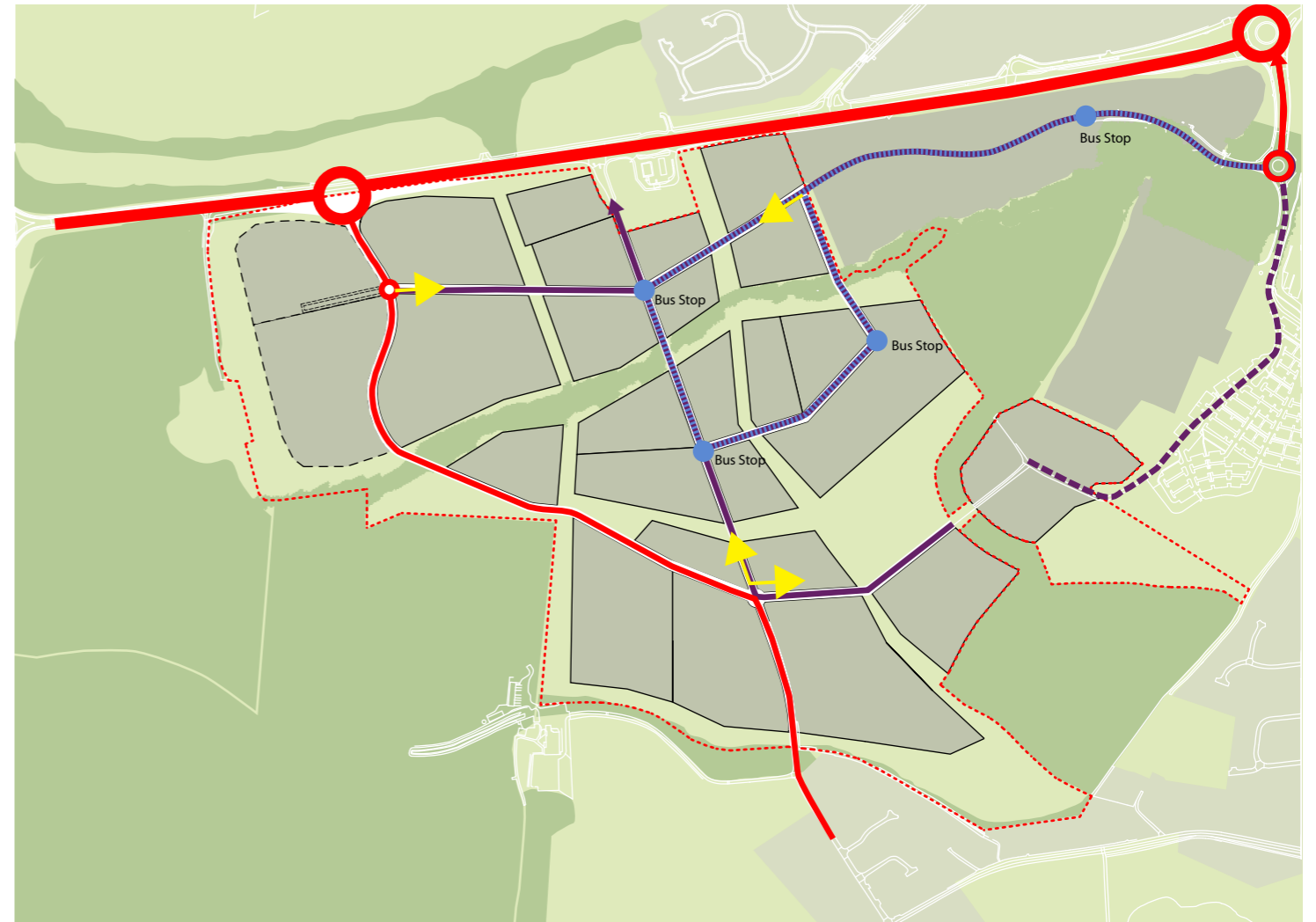
Three access points serve the Park from this network:

1. The existing access from the A512 along Holywell Way, shared with the University's campus
2. A new western gateway accessed from the planned roundabout on the A512 and New Snells Nook Lane
3. A southern access from the junction of the existing Snell's Nook Lane and the new road

Within the Park vehicular movement is planned with a primary east-west axis between phase 2 of the Park and the new western gateway; and a north-south axis along the downgraded Snell's Nook Lane. Secondary roads provide access to development further south through a central loop as well as two routes leading towards Holywell Farm from the east and the west. The western route through the woodland belt enclosing Holywell Farm will only be accessible to pedestrian and cyclists in order to protect that ecological habitat in this location.

Tertiary 'on-parcel' roads are part of the development parcels to allow flexibility in how they are planned and laid out. An indication of the tertiary road network is included in the illustrated masterplan in Section 7.

Public transport is planned in the form of a bus route extending the existing Sprinter Bus route that currently terminates on Holywell Way. The concept masterplan framework anticipates a coach/shuttle bus station at the Hub with secondary stops at key locations throughout the Park.



Concept masterplan framework access and movement plan



- Primary road
- - - New road ("New Snells Nook Lane")
- Internal road: primary
- - - Internal road: secondary
- Bus stop
- ⋯ Bus route

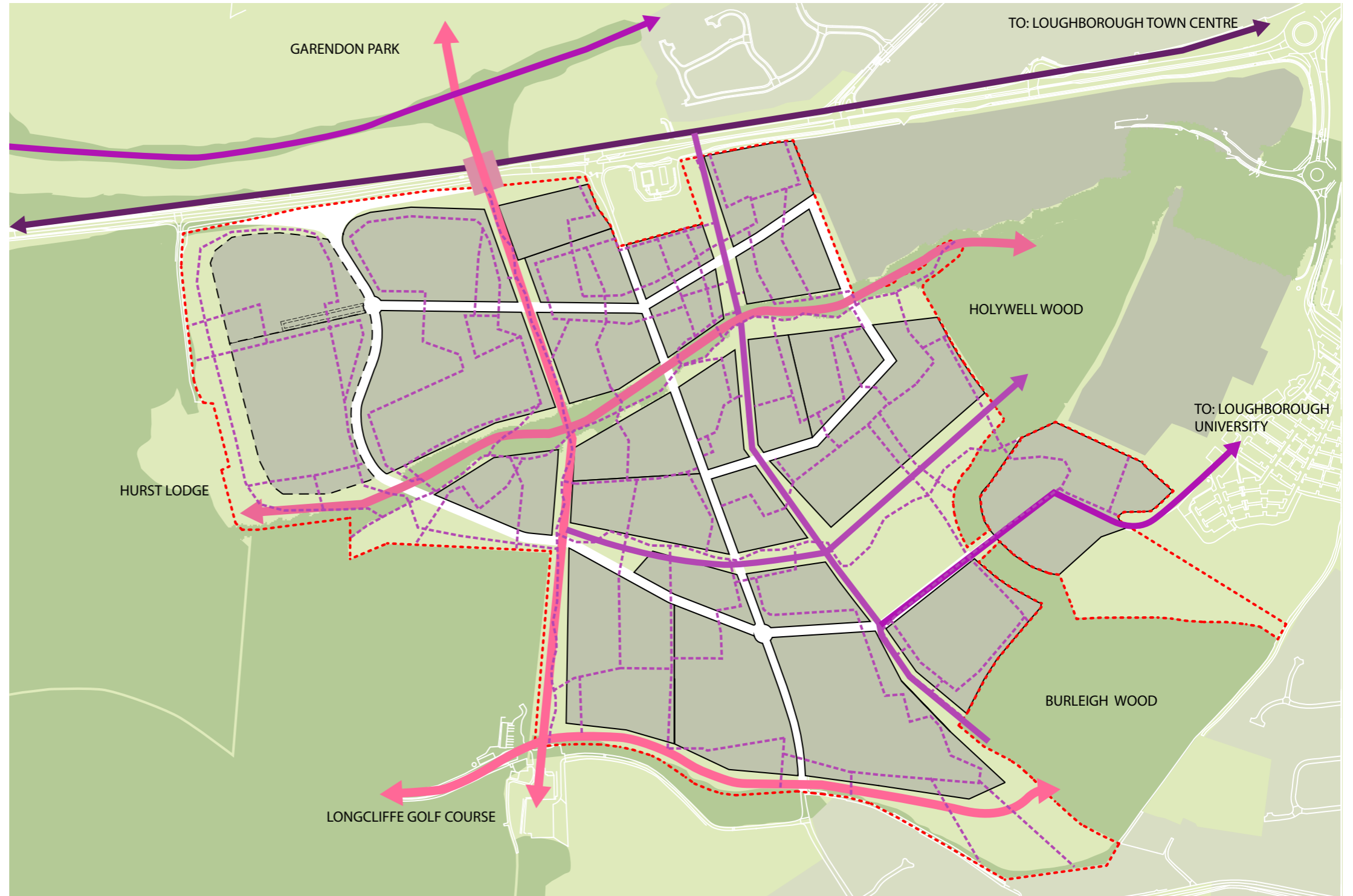
Options & Masterplan

Walking and cycling

The Park will be easily accessible by foot and bike, with a close-knit network of paths that is easy to navigate and aids orientation. Fast routes to destinations beyond the Park follow the major green corridors and connect to Loughborough's and Garendon Park's wider network of walking and cycling paths.

Within the Park itself, an informal network of walking and cycling routes provides essential connectivity between different hamlets and individual plots. The fine grain of this informal network allows for a choice of routes and the discovery of different social spaces within the Park. The pedestrian and cycle network follow the green corridors.

-  Strategic walking and cycle route
-  New pedestrian crossing
-  Dedicated local walking and cycling route
-  Existing dedicated cycle route
-  Informal network of pedestrian paths

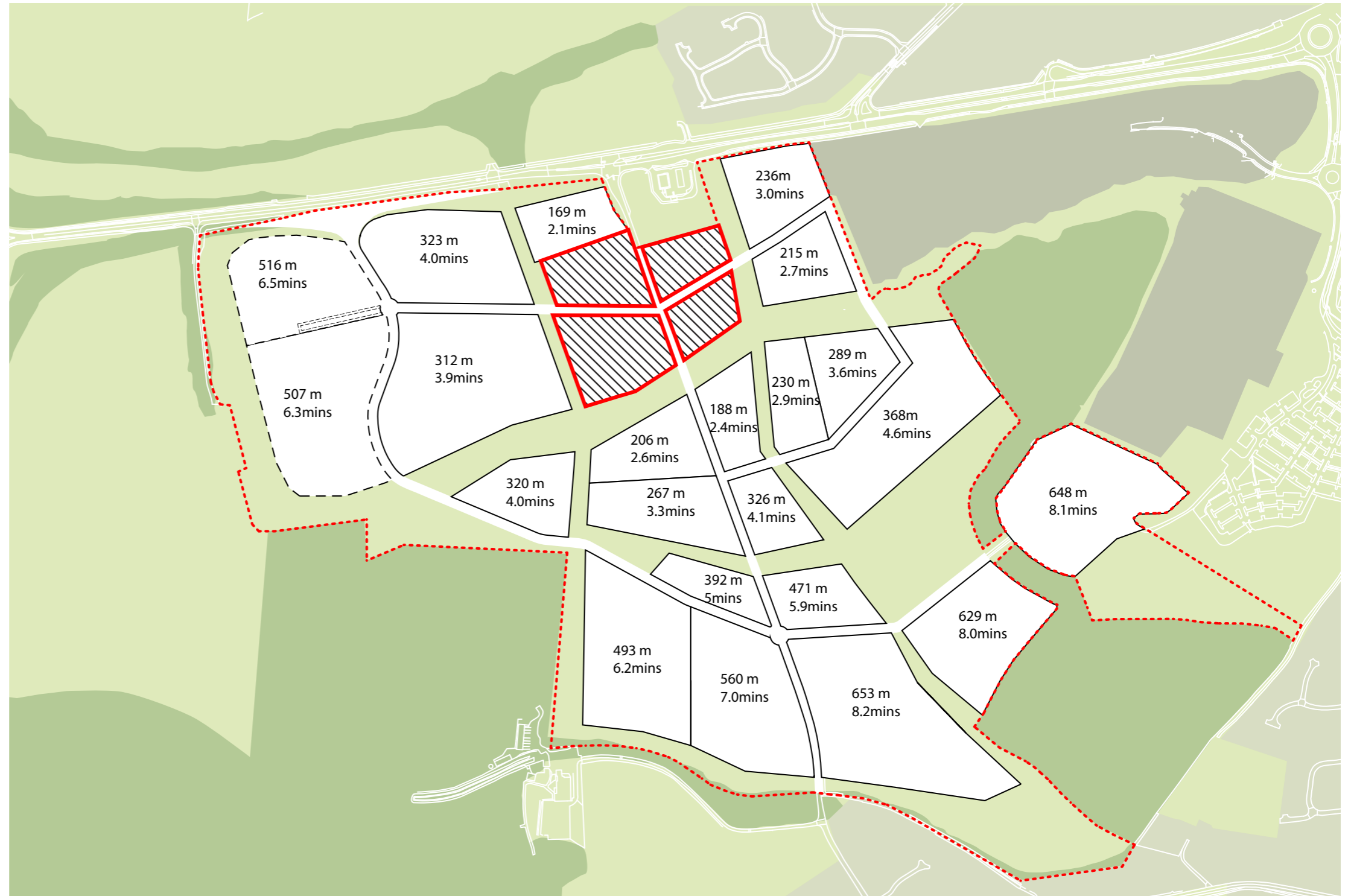


Concept masterplan framework walking and cycling route plan

Walking distances from Hub

The aspiration for a central hub straddling the eastern and western part of the site is driven by the wish to create a centre that can cater equally to all occupiers of the Park.

Care has been taken in the layout of the walking and cycling routes to ensure that all hamlets have good access to the facilities of the Hub. No parcel is further than a 10 minute walk from the Hub, thus allowing an easy stroll towards the shop or café that is located here. Where parcels are situated to the west or to the south of the new road, pedestrian crossings will need to be provided to support the walkability of The Park. Those parcels furthest from the Hub are located in close proximity to Holywell Park and the existing facilities there which constitute a second choice.



Concept masterplan framework highlighting walking distances from Hub

Illustrative Masterplan

Introduction

The Illustrative Masterplan is an indicative representation and forms only one of many possible ways in which the masterplan principles and objectives, as set out in previous sections, can be manifested physically on site.

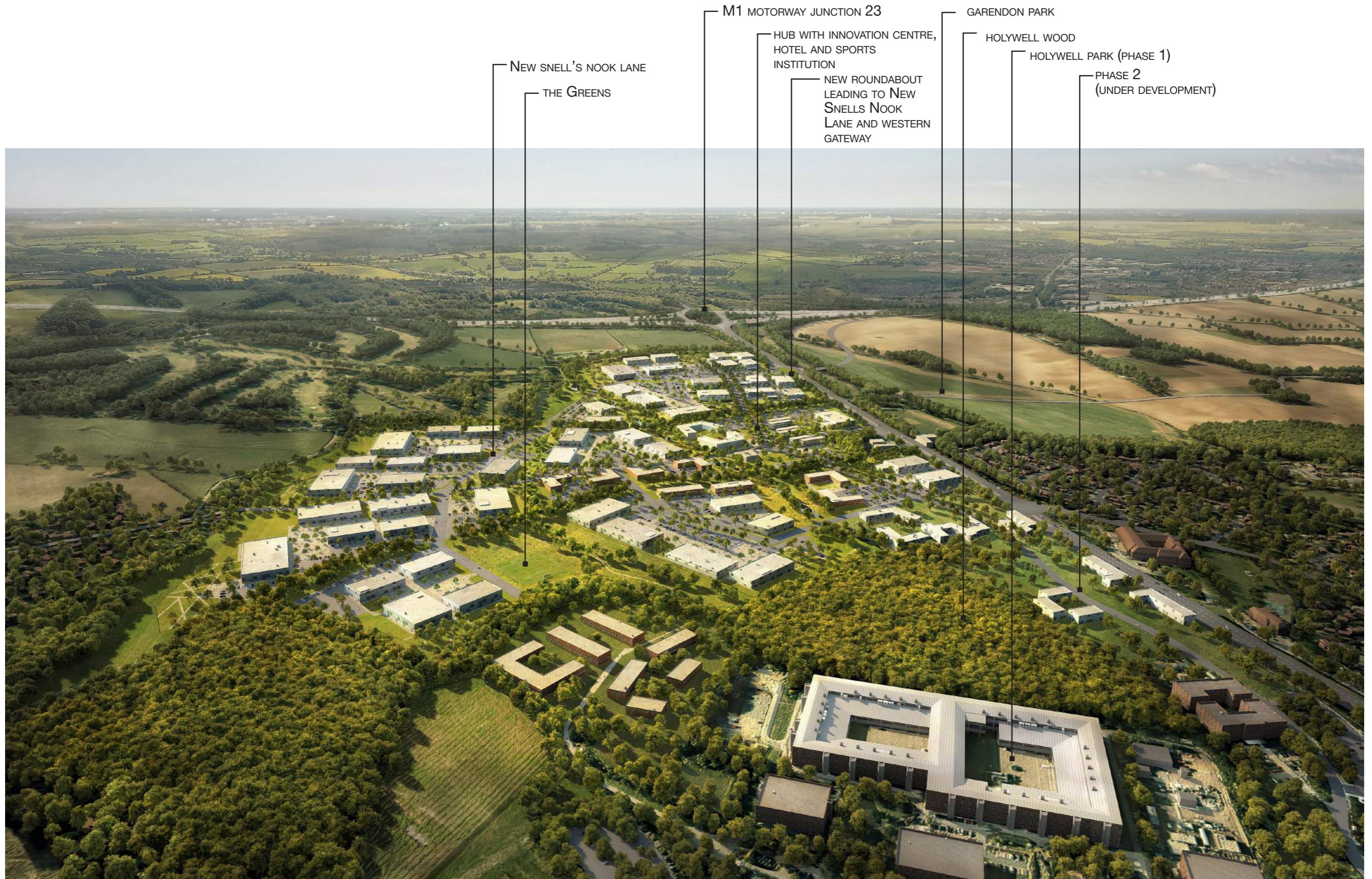
Environmental constraints on development have been balanced with commercial drivers to optimise the site's developable area. However, the illustrative masterplan recognises that the preservation of the character of its unique rural woodland setting is a value proposition for future occupiers.

This section provides further detail of how development may proceed including characterisation of sub-areas, sample parcel development guidelines, building type precedents, potential site layouts and landscape typologies.

This illustrative form helps to describe the realms of the possible, and provides graphic material to present to a potentially wider stakeholder group, capturing the ambitions for this regionally significant project.



Illustrative masterplan



Aerial visualisation of illustrative masterplan

Illustrative Masterplan

Sample parcel development guidelines

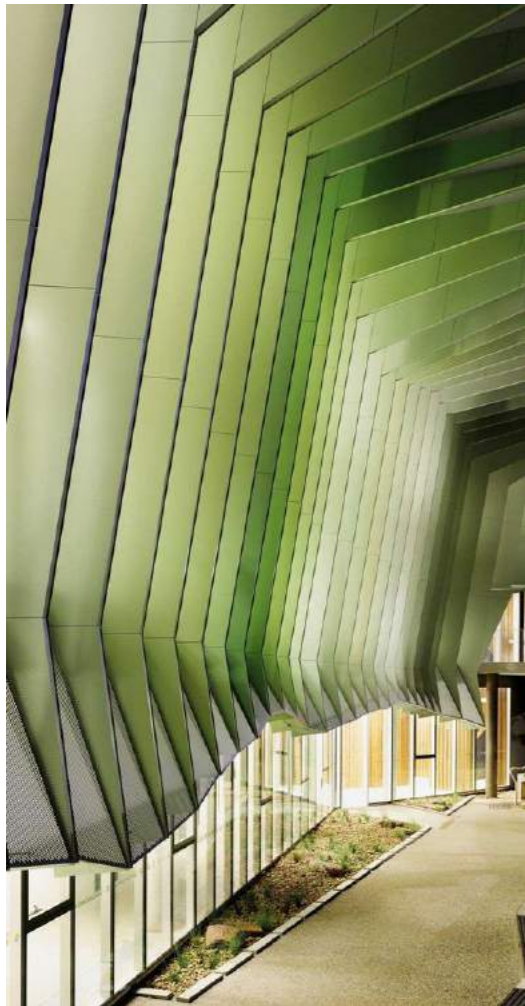
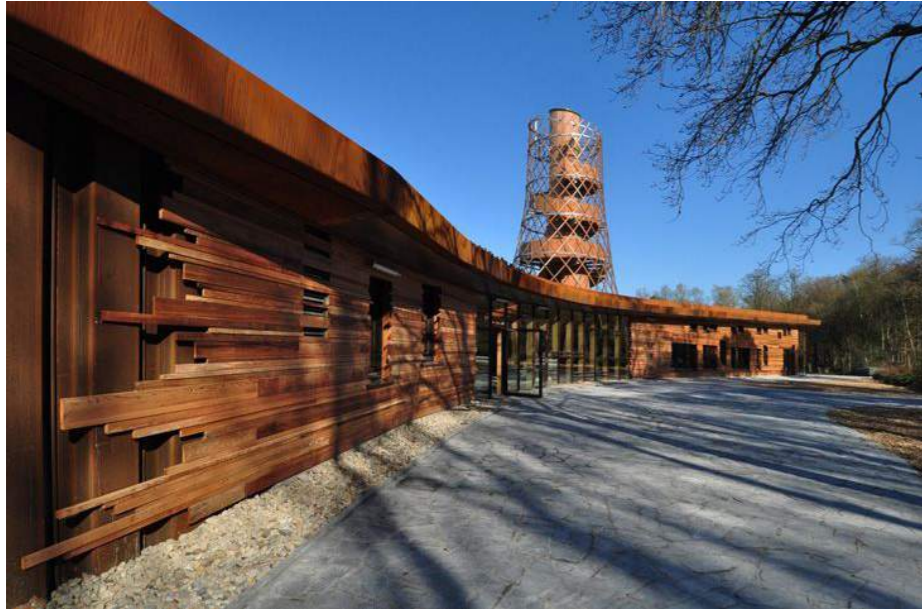
Innovation Centre (Phase 1)

Parcel area	7,370 sqm
Parcel coverage	12%
Typical building footprint	920 sqm
Number of buildings	1
Number of storeys	3
Total GFA	2,760 sqm
Total parking	92 spaces
Total undeveloped parcel area (Including social green space, incidental landscaping and servicing, excluding parking)	56%



Illustrative parcel layout

Illustrative Masterplan Precedents



Illustrative Masterplan

Sample plot development guidelines

Grow-on Space

Parcel area	9,933 sqm
Parcel coverage	21%
Typical building footprint	1050 sqm
Number of buildings	2
Number of storeys	2.5
Total GFA	5,235 sqm
Total parking	174 spaces
Total undeveloped parcel area (Including social green space, incidental landscaping and servicing, excluding parking)	35%



Illustrative parcel layout

Illustrative Masterplan

Precedents



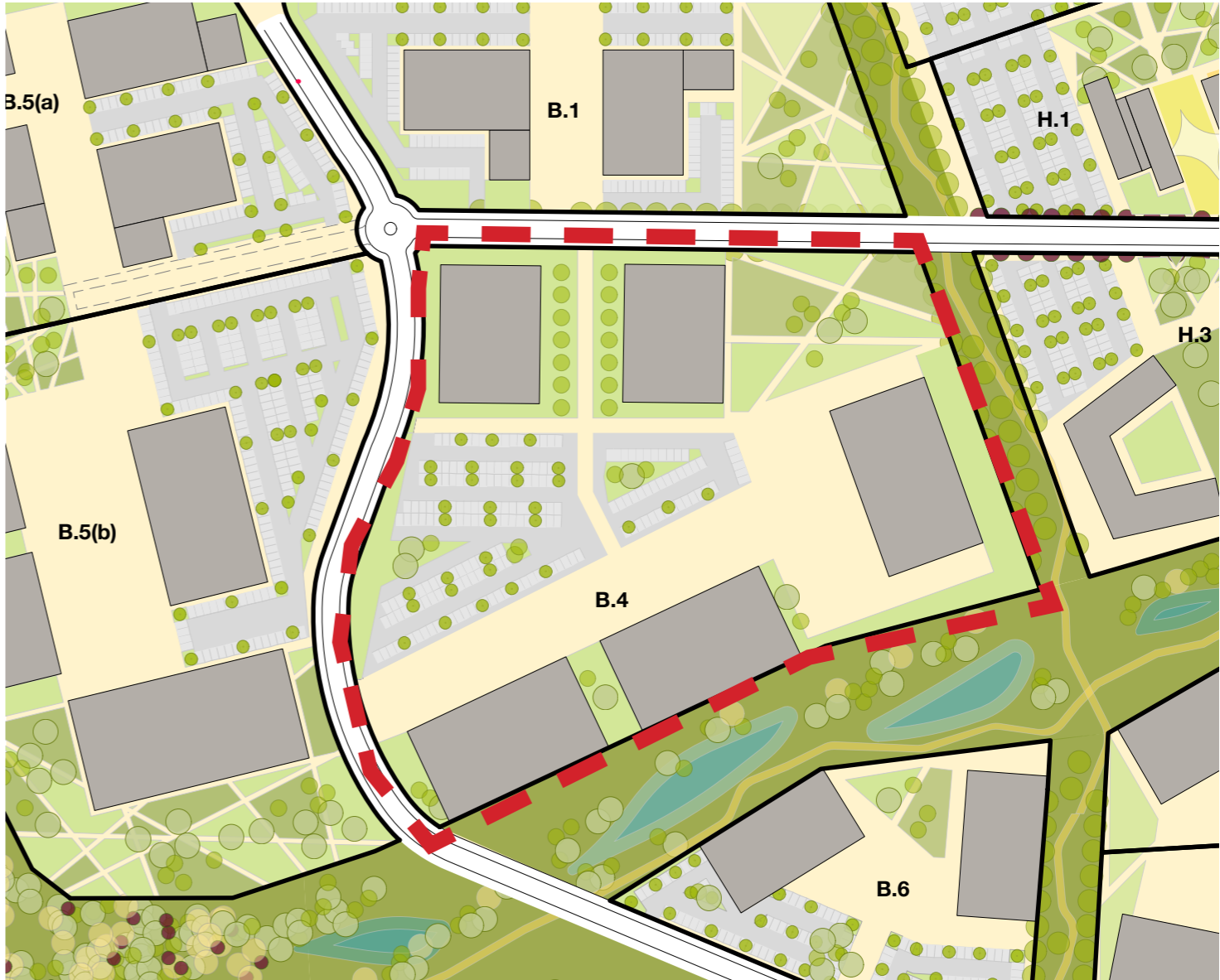
Illustrative Masterplan

Sample parcel development guidelines

Advanced Manufacturing

Parcel area	43,965 sqm
Parcel coverage	29%
Typical building footprint	2200 / 2800 sqm
Number of buildings	5
Number of storeys	1.2
Total GFA	15,322 sqm
Total parking	279 spaces
Total undeveloped parcel area (Including social green space, incidental landscaping and servicing, excluding parking)	55%

As set out earlier in this document, development containing an element of Advanced Manufacturing will require increased access, servicing and logistics area compared to traditional office-based R&D. Therefore, the hybrid R&D with Advanced Manufacturing typology has been used to test parcel sizes and access arrangement in the illustrative masterplan. This 'worst case scenario' of spatial requirements demonstrated that the concept masterplan framework is flexible enough to accomodated Advanced Manufacturing activities. It does not preclude traditional office-based R&D uses to be developed on the parcels.



Illustrative parcel layout

Illustrative Masterplan

Precedents



Illustrative Masterplan

Surface Water Strategy

The overarching water strategy is to create a robust, climate change adapted natural drainage system that utilises Burleigh Brook corridor. The Framework establishes a network of bio-attenuation structures to collect surface water run off from buildings and paved areas and attenuate flows through on-plot porous paving/sub grade along with a network of swales and detention basins. Design of on-plot landscape to allow detained storage capacity for excess flood events.

Flood risk and management

The main area of flood risk is identified by Environment Agency as Burleigh Brook. This is accommodated within the corridor as floodable damp meadows. Corridor profile to be modified to allow additional storage capacity and greater areas of open water as amenity/habitat

Attenuation and flow control

Paved surfaces are to be porous, using sustainable urban design strategy (SUDS) design principles. Run off and collection from buildings should be attenuated in swales and detention basins.

Water quality

Run off and collected water is filtered through the porous paving profile and via network of bio-swales and planted basins. Marginal planting and bio-filtration takes place in Burleigh Brook corridor.




Habitat and wetland

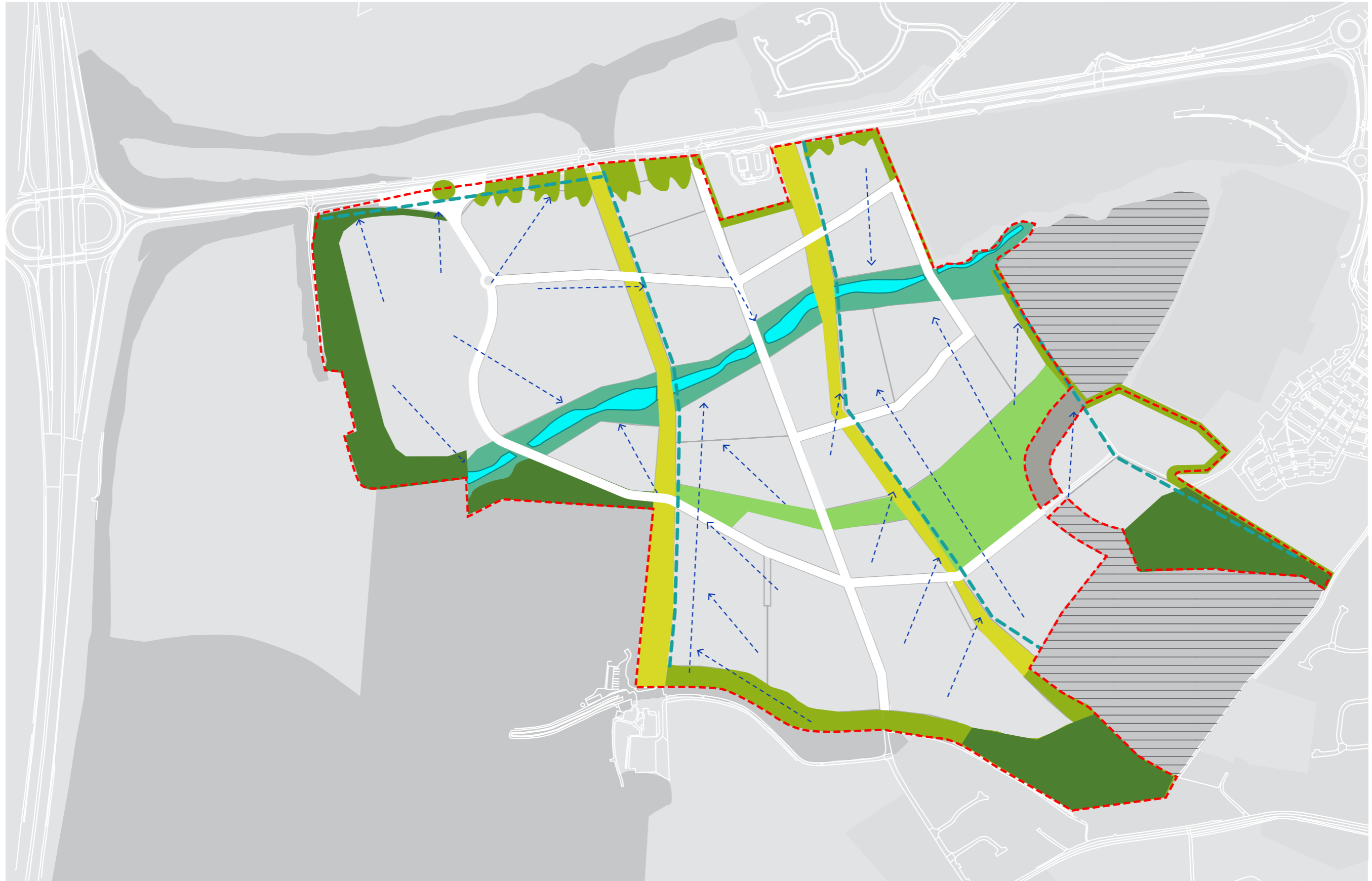
Bio-swales, basins and the Burleigh Brook corridor provide a network of connected open water, marginal and damp/wetland habitats.

Climate change adaptation

The drainage capacity allowances should be developed in line with predicted climate change rates. Allowance for flash flood and periodic inundation of landscape areas shall be incorporated.

Key

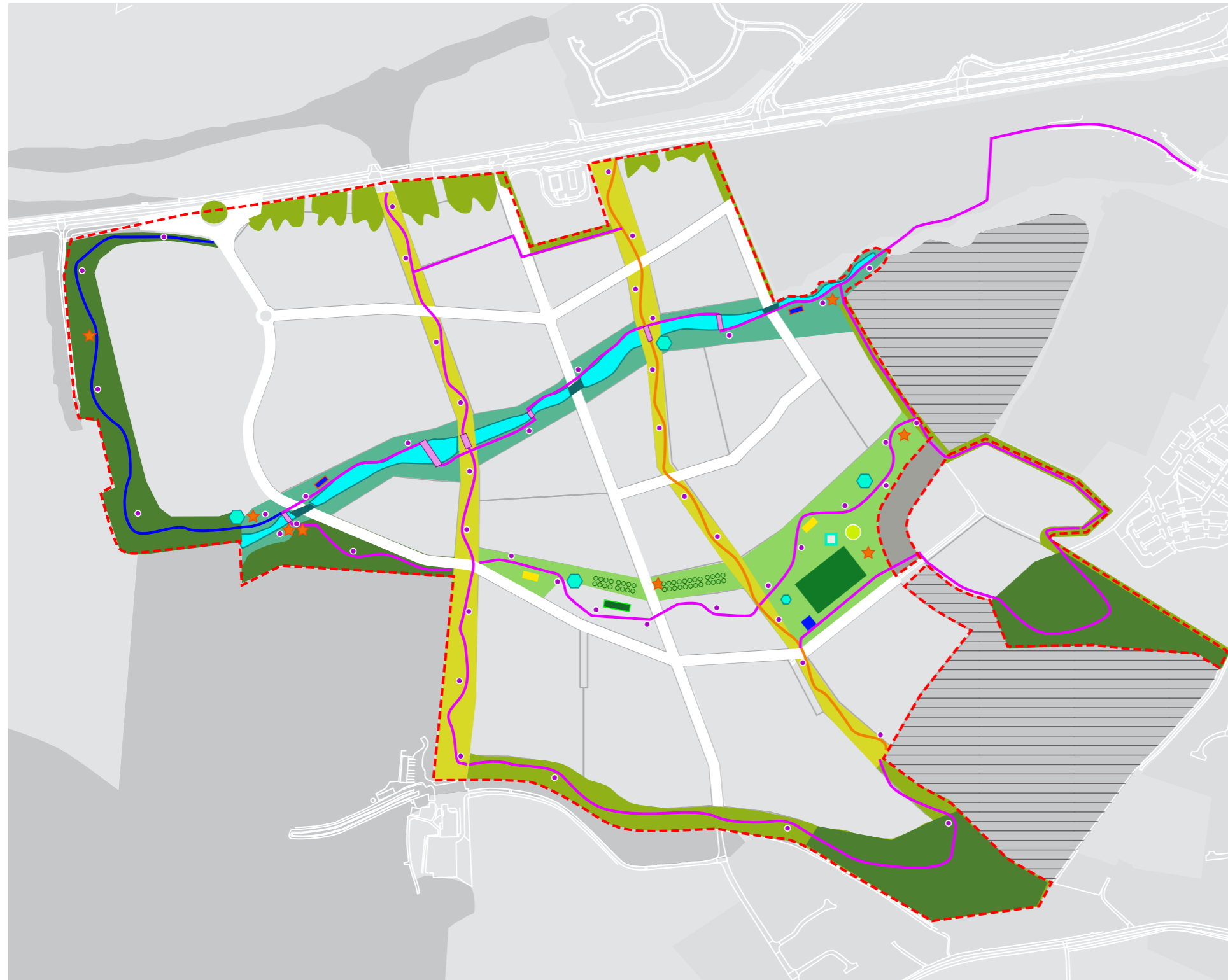
-  Surface water drainage flows via attenuation structures on plot
-  Surface water collection channels within structural landscape network
-  Enhanced Burleigh Brook corridor with extended storage capacity, floodable meadows and bio-retention areas



Surface water management strategy

Illustrative Masterplan

Structural Landscape



The structural landscape is a robust network of connected linear green spaces that provide for each development parcels the following :

- movement routes for cycling and walking that connect between parcels and back to the main campus;
- shared amenity facilities for play and recreation;
- a tranquil and calm green space;
- localised amenity hubs which are shared between adjoining parcels.

Key

- Burleigh Brook Corridor**
- New cycle route and generous footpath links from existing campus to west boundary.
- Footbridge links into development parcels and new hub cluster.
- Vehicular crossings overculverted sections of brook.
- Boardwalks to wetland zones.
- Seating + lighting.
- The Greens**
- New active space with amenity and sports facilities.
- Green sports pitches, outdoor gym, trim trail
- Amenity space
- Cycle route and footpath network
- Pavilion changing rooms
- Play
- The Avenues**
- New footpath links
- New Woodlands and Woodland Belts**
- New walking and cycle route
- Bike trail

Structural landscape: social infrastructure and programme



Structural landscape: green infrastructure

The Green Infrastructure network creates a interconnected system of green corridors which combine existing and enhanced landscape features, new and extended habitat planting and wildlife areas, water management systems, and planting for shelterbelt/screening.

Key

- 1 Burleigh Brook Corridor**
(NF Wildlife Habitat & Species and Drainage)

 - Existing Burleigh Brook is enhanced and extended to create open water stream and wetland habitat areas.
 - Flood zone retained as damp meadows
 - Expanded stream capacity and attenuation areas allow for increased run off from plots
 - Existing hedgerow structure and trees are retained
 - New extended hedgerow planting with understory and tree standards
 - Forms green link between Burleigh Woods and new enhanced hedgerow belts and plantation.

- 2 The Greens**
(NF Open Space and Recreation & Tourism)

 - Existing hedgerow structure retained and enhanced
 - New hedgerow and tree planting added
 - New species rich grassland
 - New drainage swale and retention basins
 - Potential site for new community orchard as set out by NF and National Forest Biodiversity Action Plan

- 3 The Avenues**
(NF Woodland Belts and Access)

 - Existing hedgerows and trees retained
 - Increased width planting with understory and woodland edge species
 - New structure tree planting

- 4 Woodland Belts**
(NF Woodland Belts)

 - New mixed woodland belt planting
 - Connected to existing and new woodlands

- 5 New Woodlands**
(NF New Woodland)

 - 4 no. of new mixed broadleaf woodland planting, all exceed 0.25 ha

Illustrative Masterplan

Structural Landscape Typologies

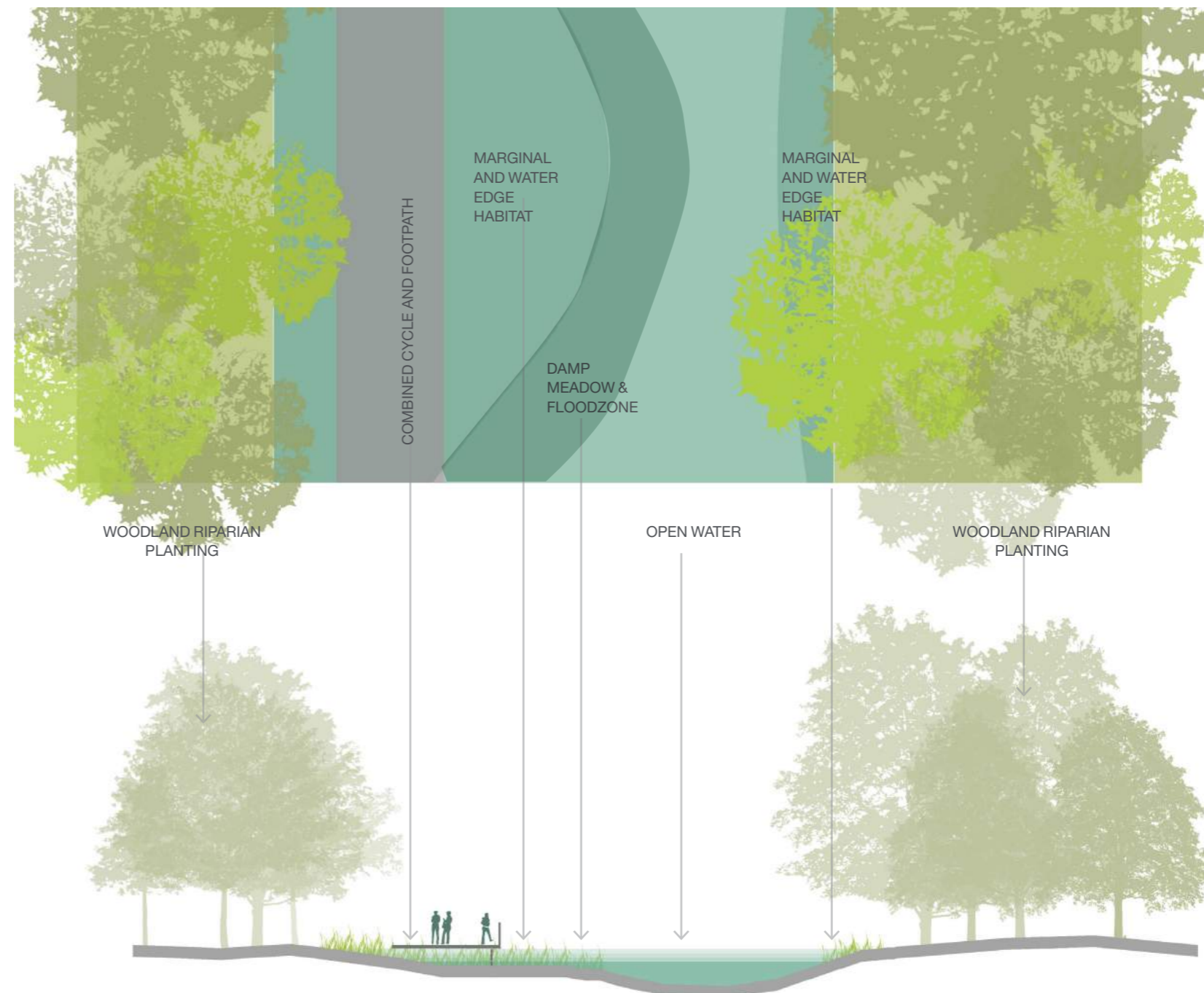
Burleigh Brook Corridor

Burleigh Brook Corridor runs from East to West along the line of existing wet ditch, Burleigh Brook. It creates a connecting spine between development parcels and the main campus. It forms an enhanced ecological corridor connecting Burleigh Wood and to the woodland belt and potential woodland planting to the west of Hurst Farm. The water course includes the opening up of ditches and improvements to the riparian landscape and stream bed.

As part of the provision, a generous combined footpath and cycle way with footbridge forms a connective link between parcels and across the site. Where internal Park roads cross the corridor, the character of Burleigh Brook Corridor will continue across the road in the form of green bridge links.

In following the National Forest (NF) planting options, Burleigh Brook could incorporate drainage as this enhanced waterway should be designed as part of an overall surface water strategy and sustainable urban drainage model. It should provide wildlife habitat and species, and particularly protect and enhance the target species identified in the Nation Forest Biodiversity Action Plan (NFBAP). In addition, the new waterway could support recreation and tourism in the form of nature trails, fishing pools and other appropriate National Forest tourism related projects. Finally, the new wetland corridor should provide access for pedestrians and cyclists. Interpretation and waymarking should also be considered as part of a site wide strategy.

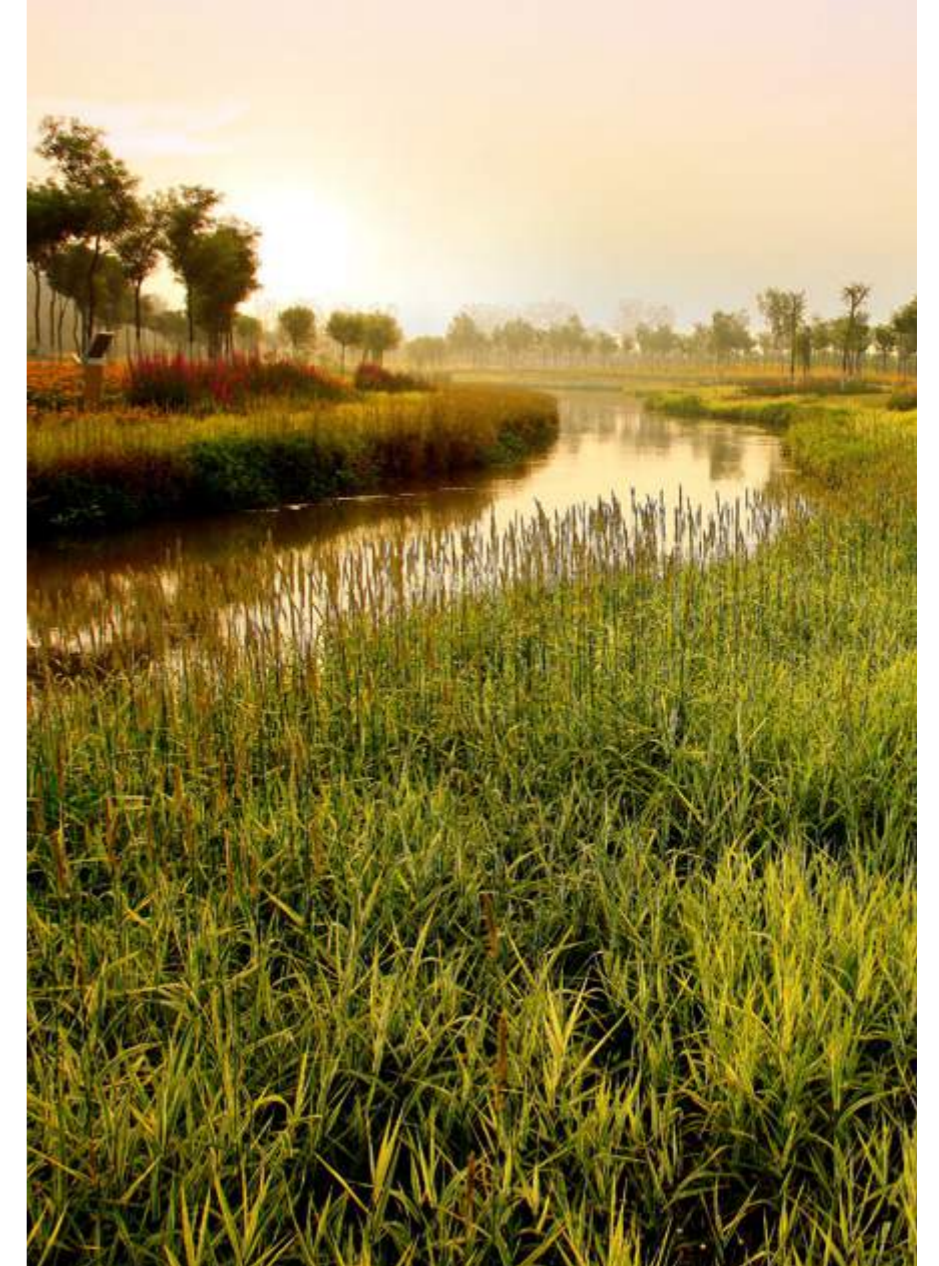
Reference to the National Forest Biodiversity Action Plan (NFBAP) should be taken into account in the detailing of the habitat types. Habitat types to be considered include: wet woodland, wet grassland and marsh, reedbeds, linear Waters-rivers, streams, ditches and canals. There is potential to contribute towards the area targets for habitats and species as identified in the NFBAP.



Burleigh Brook: Typical Diagrammatic Plan and Section

Illustrative Masterplan

Landscape Precedents



Illustrative Masterplan

Structural Landscape Typologies

The Greens

The Greens is an enhanced green corridor running east/west containing activity spaces. It creates a connecting spine between the existing campus and Hurst Farm. It includes a combined cycle way and footpath network with incidental and organised provision for sport and recreation such as sports pitches and facilities. It is densely planted with spaces for activities carved out of the tree and undertstorey layers.

The Greens functions mainly as a Parkland according the National Forest (NF) planting options. It is framed by a continuous Woodland Belt, and includes access routes for pedestrians and cyclists, while also providing opportunity for recreation and tourism (green sports pitch). Interpretation and waymarking should also be considered as part of a site wide strategy.

In addition to the National Forest Planting Options (Community Orchard), there is an opportunity to contribute to the habitat targets set out by the National Forest Biodiversity Action Plan (NFBAP) by setting out an area for orchards. The NFBAP has a target to create one orchard per annum and restore five in total.



The Greens: Typical Diagrammatic Plan and Section

Illustrative Masterplan Landscape Precedents



Illustrative Masterplan

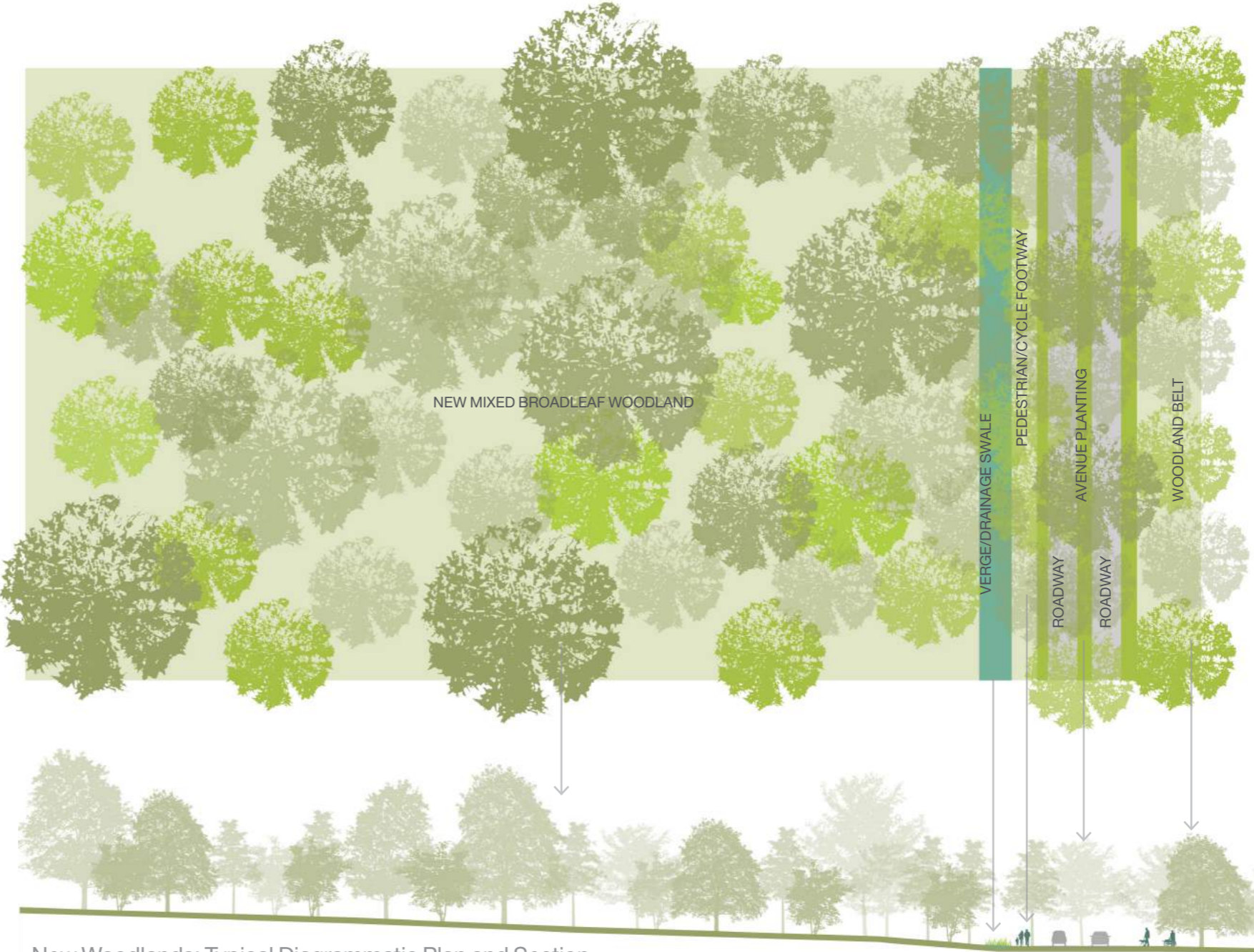
Structural Landscape Typologies

New Woodlands and Woodland Belts

New woodland planting integrated within the concept masterplan framework is proposed to four locations. This helps the retention of the National Forest (NF) setting within the concept masterplan framework and provides a green visual screen for the site. The woodlands provide an opportunity for outdoor activity. They help to complement and build on the existing woodlands within the site (Horseshoe Woods) and directly adjacent to the site (Burleigh Wood and Holywell Wood).

Woodland belts help to minimise the visual impact of the proposed development and integrate the woodland character of the site within the wider context. These woodland belts are located to avoid development extending to the edge of the site and impacting on surrounding uses.

- Existing Woodlands
 - a Holywell Woods
 - b Horseshoe Woods
 - c Burleigh Woods
- New Woodlands
 - 1 Holywell Farm Woods
 - 2 Nanpantan Woods
 - 3 Burleigh Brook Woods
 - 4 Hurst Farm Woods
- Woodland Belts



New Woodlands: Typical Diagrammatic Plan and Section

Illustrative Masterplan

Landscape Precedents



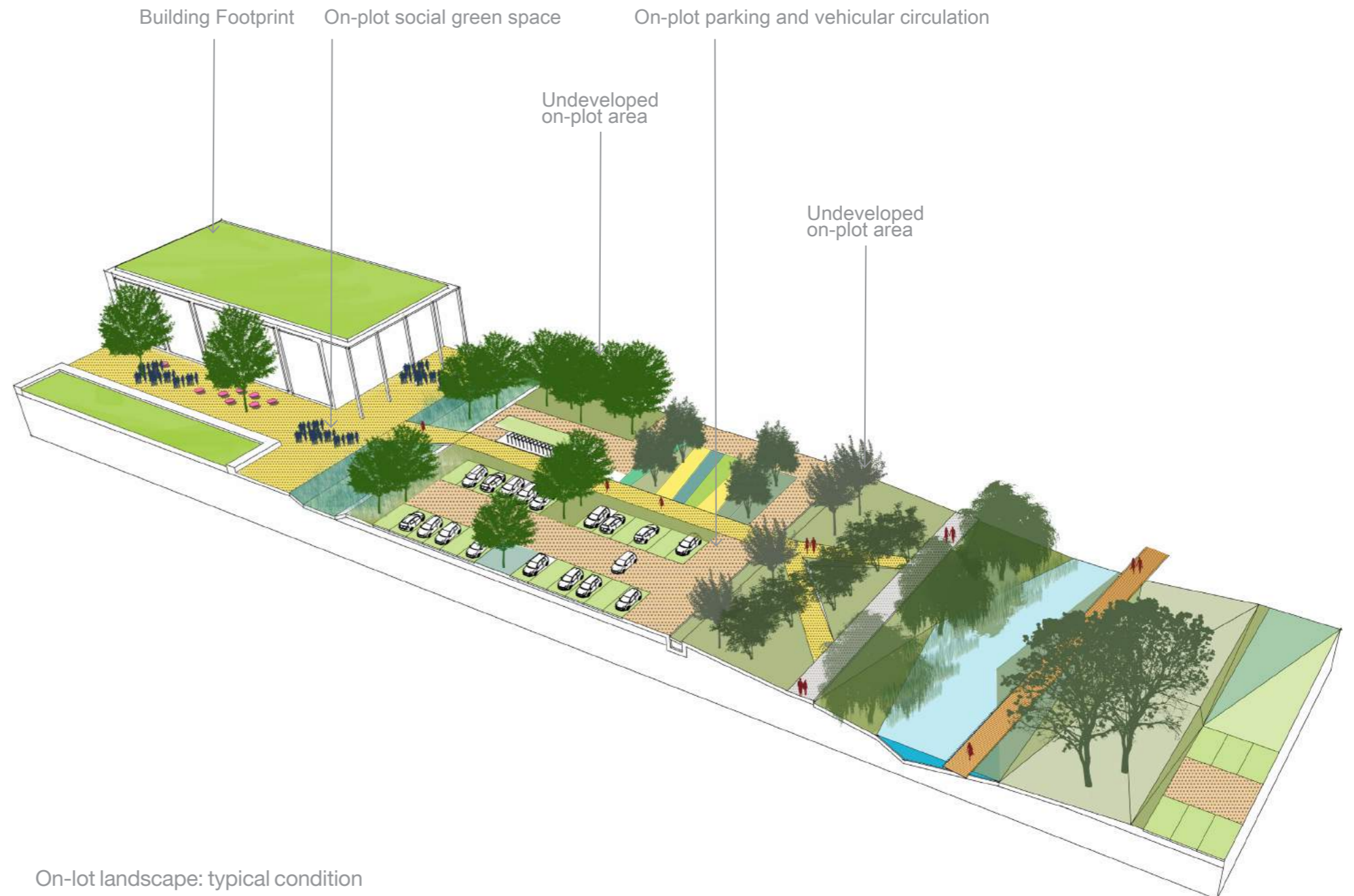
Illustrative Masterplan

On-plot Landscape

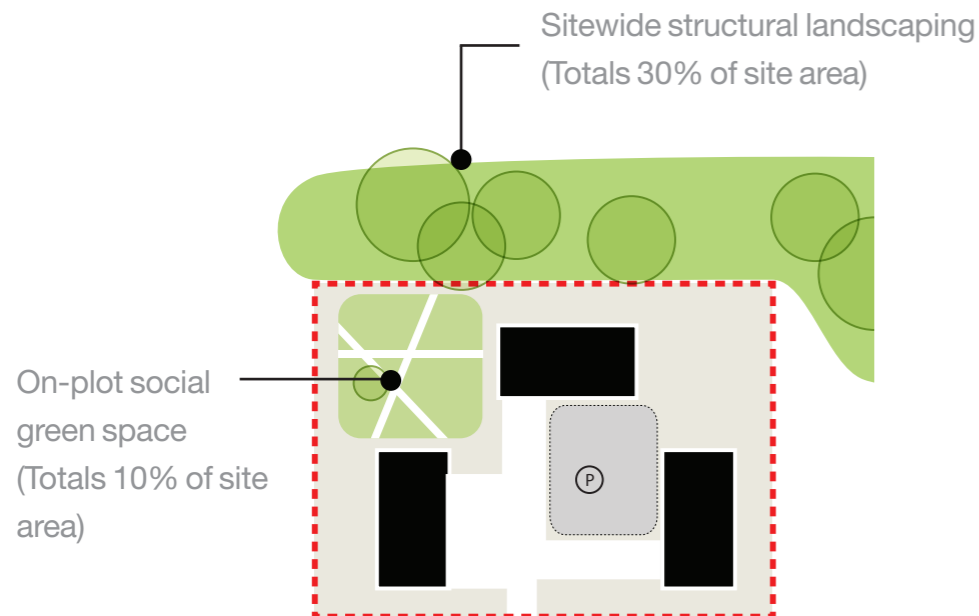
Campus landscape components

Landscape provision within the parcel boundary includes individual buildings with a publicly accessible amenity space, a garden referred to as 'social green space'. This can be provided on individual plots or as shared amenity space on parcels where multiple plots or buildings pool their garden spaces into one larger social green space. These social green spaces are linked through walking and cycling paths and thereby form a network of shared public spaces that ties the Park into a coherent landscape campus.

Car parking and associated access roads are integrated within the undeveloped area of the parcels. In keeping with the wooded landscape structure, carparks will include tree groups in stands and dispersed throughout the parcels.



On-plot landscape: typical condition



Illustrative Masterplan

Landscape Precedents

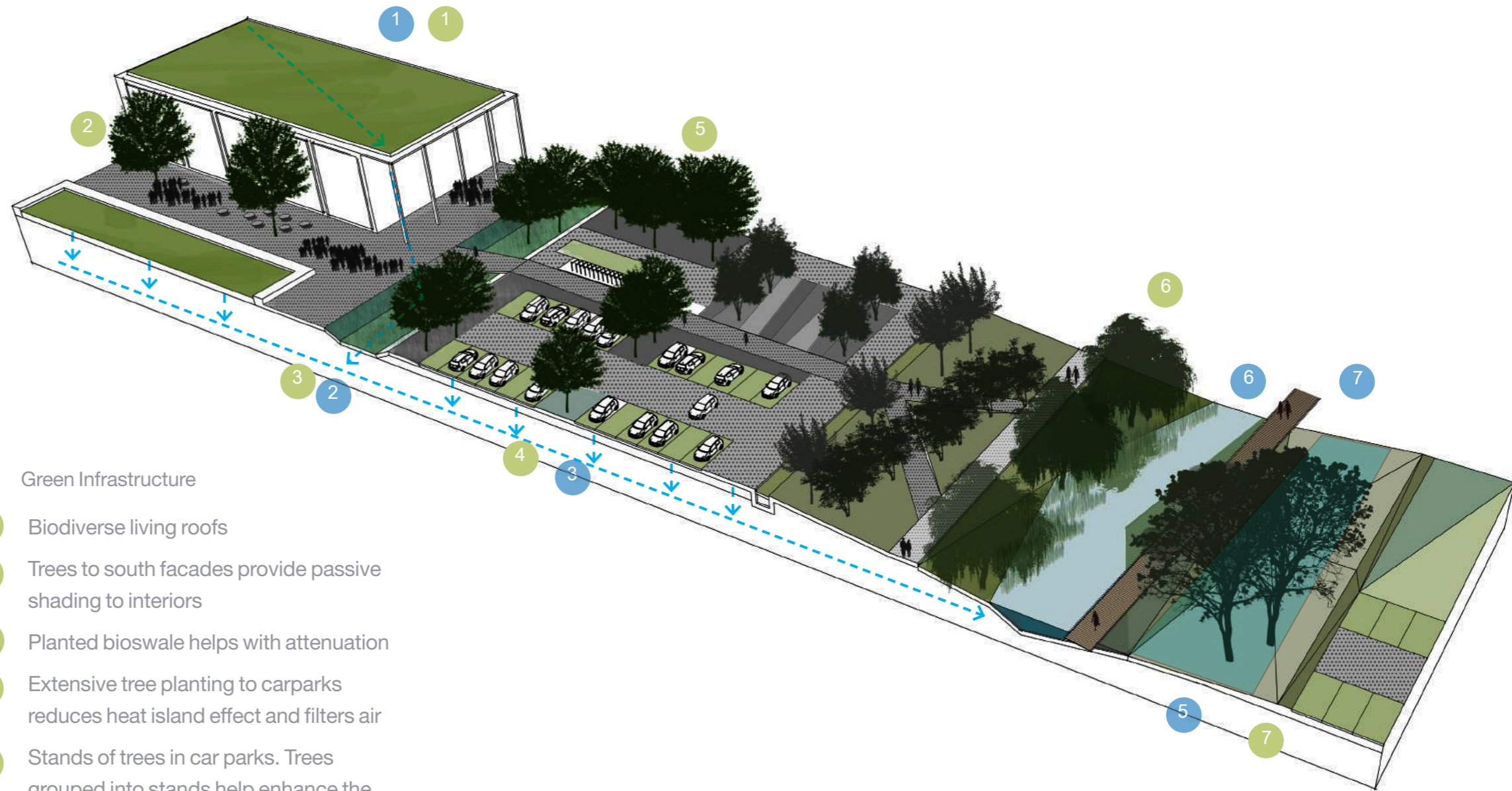


Illustrative Masterplan

On-plot Landscape

Blue & Green Infrastructure

The development plots will contribute to the overall ecological value of the Park by completing the site-wide green infrastructure and water management strategy. The section opposite illustrates a few key principles of how blue and green infrastructure can be incorporated within plots.



Blue Infrastructure

- 1 Water is collected from roofs
- 2 Bioswale collects surface run off and filters water
- 3 Porous surfaces [grass systems] attenuate water and filter pollutants
- 4 Burleigh Brook forms natural valley that creates a spine of ecology and amenity
- 5 Additional capacity for climate change flood events are allowed for in the remodeled valley earthworks
- 6 Enhanced Burleigh Brook creates a continuous wildlife corridor, with variety of habitats that clean water and help slope retention
- 7 New boardwalk deck and shared cycle/footpath follow the valley

Green Infrastructure

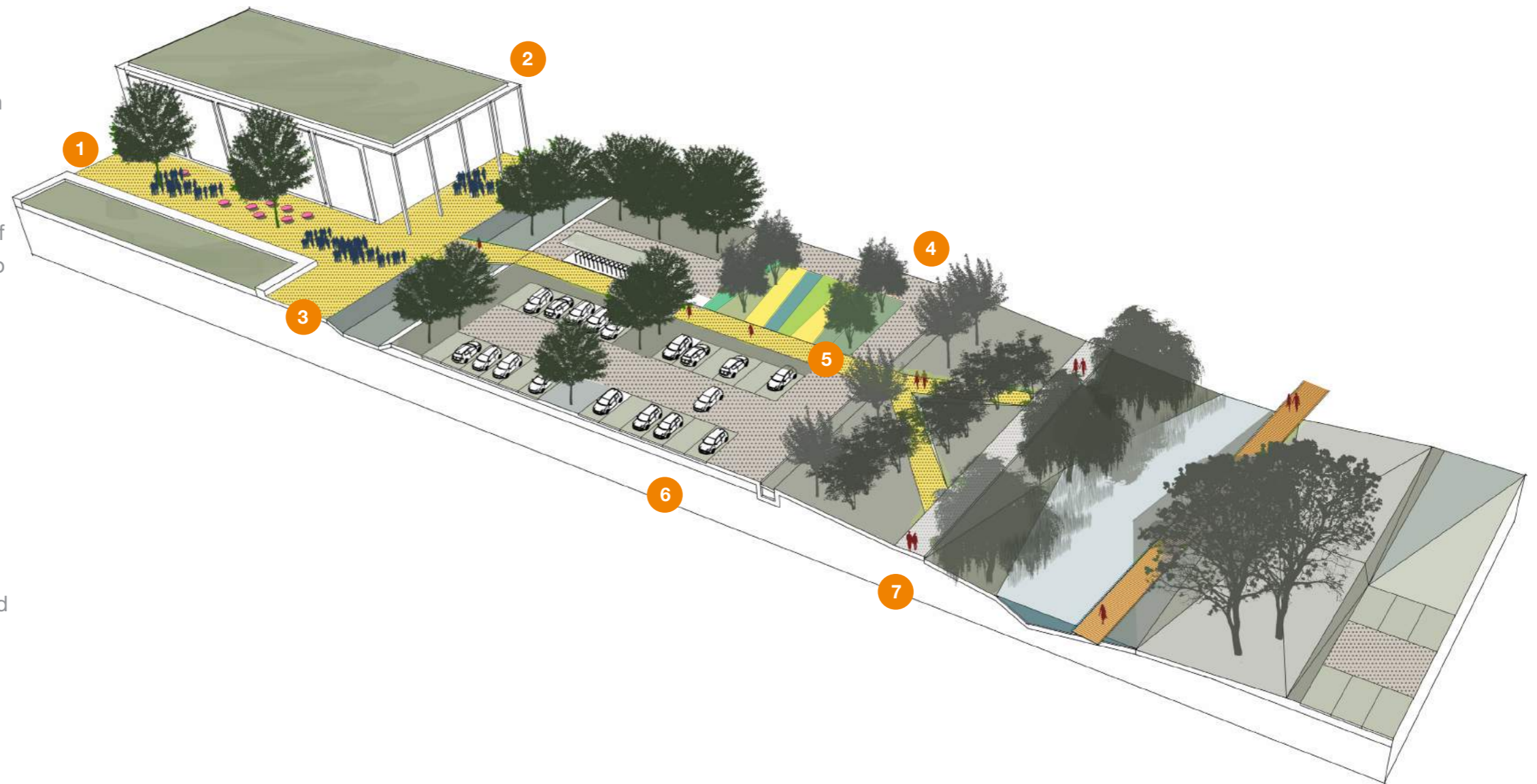
- 1 Biodiverse living roofs
- 2 Trees to south facades provide passive shading to interiors
- 3 Planted bioswale helps with attenuation
- 4 Extensive tree planting to carparks reduces heat island effect and filters air
- 5 Stands of trees in car parks. Trees grouped into stands help enhance the idea of a woodland campus
- 6 Enhance Burleigh Brook create a continuous wildlife corridor, with variety of habitats
- 7 Existing important trees and hedgerows and retained and new planting extended towards the existing

Illustrative Masterplan

On-plot Landscape

Social Infrastructure

In accordance with the aspiration for a collaborative and inclusive science park, the spaces around the buildings will perform a key role in bringing people together. The on-plot open spaces should encourage human encounters between experts of different fields and be conducive to socialising and contemplation. The section opposite illustrates a few key principles of how social infrastructure can be programmed into plots.

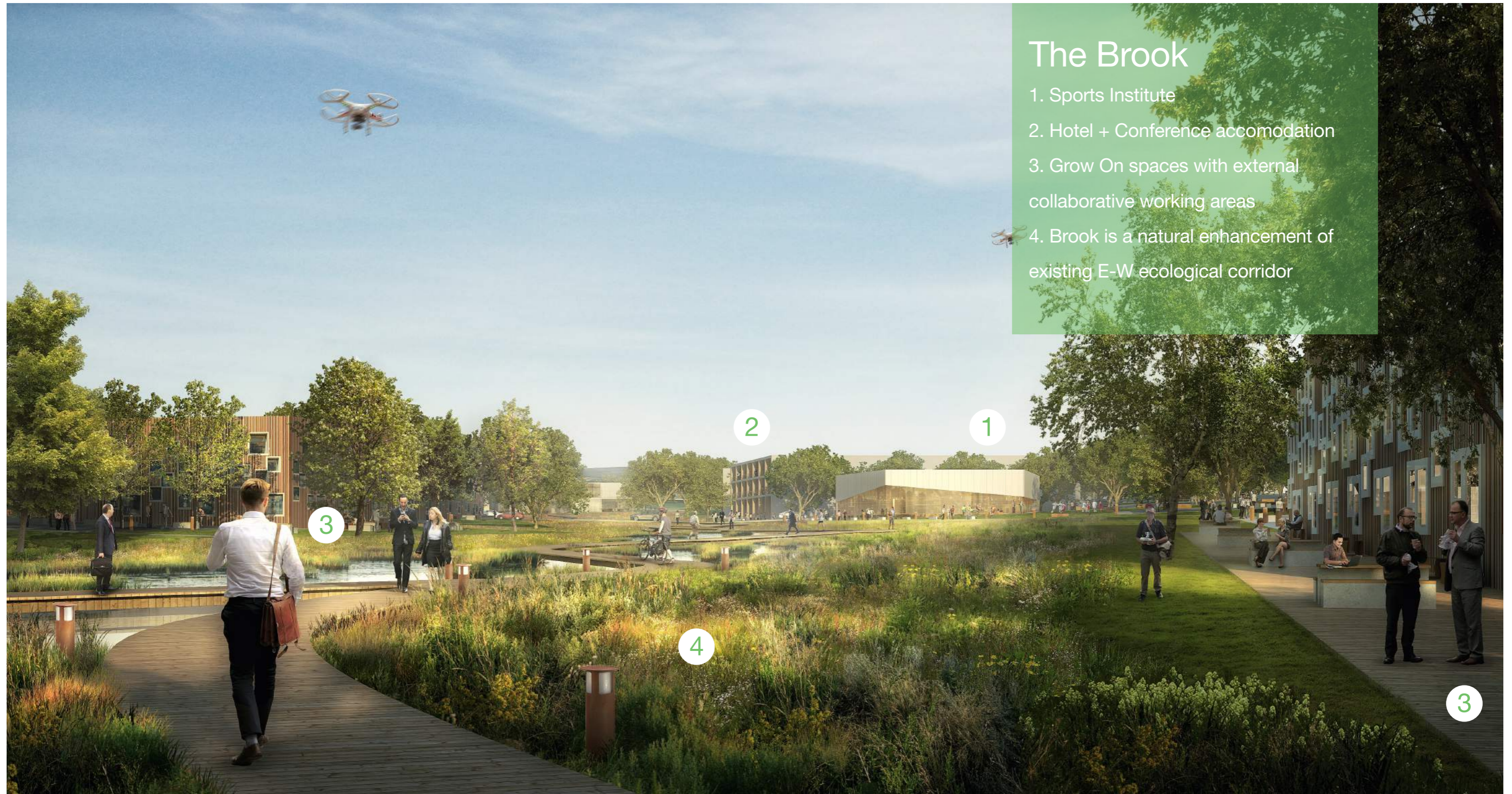


Social Infrastructure

- 1 Shared communal spaces are located between buildings
- 2 Buildings are clustered where possible to create common areas and places of social exchange
- 3 Communal spaces are well located (south and west aspect) with trees for shade and good facilities
- 4 Pedestrian footways are generous, direct, well-lit and robust
- 5 Areas for social interaction and activities are interspersed around and between buildings
- 6 Parking is broken up and in clusters with extensive planting; search patterns are logical and well signed
- 7 Cycling is promoted with good cycle storage and a cycle route network that is well connected to campus and surrounding landscape

Illustrative Masterplan

Character of place



The Brook

1. Sports Institute
2. Hotel + Conference accomodation
3. Grow On spaces with external collaborative working areas
4. Brook is a natural enhancement of existing E-W ecological corridor

Artist impression of Burleigh Brook corridor

Illustrative Masterplan

Character of place



Innovation Hub

1. Flexible ancillary uses
2. Signature Innovation Buildings
3. Social clustering spaces
4. Shared surface public realm

Artist impression of Hub

Infrastructure Cost

Introduction

The Framework describes the vision and aspiration for the Park as supported by the Core Strategy and the Partnership formed by Charnwood Borough Council, Loughborough University, Leicestershire County Council and private development partner Wilson Bowden. The Framework described in this document captures the qualitative and quantitative objectives for the Park development and is intended to steer and promote the Park as a place for knowledge-based excellence. This Framework is but the beginning of the development process, setting out guidelines and retaining flexibility to respond to changing requirements in the future. Therefore, further work is required to progress the delivery of the Park, particularly through identifying funding sources and developing a targeted marketing strategy.

The Park is a place that the Partnership are looking to invest in to safeguard and grow Loughborough's future position in the knowledge-based research sector. This section considers the viability and delivery of the Park, including the requirement for possible external funding to assist with what will be significant, up front, infrastructure costs and also the delivery of high quality, specialist space to help small firms grow and prosper. The viability considerations in this section are solely based on the requirements of the Core Strategy to create place for knowledge-based innovation and do not take into consideration other restrictions or gateway policies.

A delivery strategy (see Section 9) is also presented, that will outline the recommendations and next steps for the Partnership towards achieving its aims for the Park. Reflecting this, this section is set out as follows:

- A consideration of the infrastructure requirements and associated costs
- A consideration of the development cost of Innovation, Grow-on and Advanced Manufacturing space
- An overall consideration of viability taking into account infrastructure costs, development costs and potential land receipts over the 30-year development period

Infrastructure requirements

The development of the Park is supported by infrastructure that broadly falls under three categories:

1. **Off-site infrastructure:** Refers to infrastructure that lies outside of the site and ownership of the Park but is critical to its delivery. The development of the Park will increase the use of existing surrounding infrastructure networks which need to be upgraded. While these works are likely to be delivered by third parties, the Park will be required to make a financial contribution to these infrastructure projects. Examples include the roundabout on the A512 as well as primary electricity substation.
2. **On-site strategic infrastructure:** Refers to site wide networks that encompass the whole of the Park and ensure its technical functioning. The delivery of these infrastructure projects lies within the ownership and the responsibility of the Park and their cost will be borne directly by the developing body of the Park. Examples include primary and secondary roads within the Park, green infrastructure and utilities.
3. **Land-servicing:** Includes all parcel specific infrastructure necessary for the parcel to be marketed for development, including tertiary road access and utilities connections, and before that, any engineering works required for a serviceable plot (for example, cut and fill and other ground preparation works at certain parts of the site).

The costs for these infrastructure items have been derived from the existing information available, namely:

- The Infrastructure Report, prepared for Loughborough University by Scott White and Howkins in July 2013
- The various technical studies prepared for Wilson Bowden relating to the land under their control
- The Local Plan Core Strategy Infrastructure Delivery Plan for off-site highways and electricity

This evidence has been supplemented by standard benchmarks for the servicing of large scale employment sites. The following cost assumptions should be considered as a high level guide and will need to be firmed up through detailed cost assessments.

Off-site infrastructure: Highways

A significant programme of highway improvements is required to support both the SUE and the Park. Improvements to Junction 23 with the M1 motorway will be required to support additional traffic generated by these two developments. The A512 needs to be reconfigured into a dual highway with two lanes in each direction and a new roundabout to link to a distributor road leading north towards the SUE. These works have already been committed to for the delivery of the SUE and are currently planned with upfront funding by the SUE development. The Park benefits from these improvements (traffic flow, possibility to link a new road to the A512 roundabout) and will be required to make a proportionate financial contribution once development will be underway.

The cost profile below illustrates an optimistic scenario where this contribution to off-site highway infrastructure is not repayable until the end of the development process. However, the timing for this repayment needs to be agreed and, if it is due earlier in the process (potentially tied to a threshold of built

floorspace), it will have an impact on the gap funding required.

Improvements to the existing access points from the A512 to Snell’s Nook Lane and Holywell Way are likely to be required. The exact scope and cost of these works needs to be determined through detailed traffic modelling and highway engineering. As these access points are for the sole benefit of the Park, they will be funded by the Park alone.

Off-site infrastructure: Electricity

The joint electricity requirements of the SUE and the Park will be met through a new electricity sub-station and associated network. The utility provider Western Power has estimated the cost for this infrastructure at £7 million. This will need to be fully funded through contributions of both developments, although the split between the SUE and the Park have not yet been agreed. The timeframe for delivering the electricity works is driven by the pace of development of the SUE. Based on the most recent development trajectory, delivery is estimated around 2023.

On-site strategic infrastructure

The Framework proposes a new road branching off from the planned roundabout junction of the A512 with the SUE Strategic Link road. This new road will divert through traffic to Nanpantan and beyond and will connect to Snell’s Nook lane in the southern part of the Park. This new road enables the downgrading of the northern part of the existing Snell’s Nook lane to link the eastern and western parts of the Park. It is assumed that the quality and specification of this new road will be similar to the SUE Strategic Link road, and will likely cost in the order of several million pounds.

Land servicing

The cost for providing fully serviced development parcels within the Park has been estimated based on existing evidence listed above as well as industry benchmarks for large scale employment sites. Bearing in mind the abnormal costs related to the development of the land west of Snell’s Nook Lane, and also the significant development and maintenance costs of the green spaces (‘site-wide

structural landscape’ and ‘social spaces’, which the development will be liable for directly, or indirectly through a S106 liability attached to the plots), an allowance of circa £200,000/net hectare (£80,000/net acre) has been made for plot servicing.

All infrastructure, servicing costs & timing

The indicative infrastructure profile below suggests that around £7.25 million infrastructure funding will be required in the first five years of delivering phase 3 (including a £3.5 million contribution to the off-site electricity infrastructure requirement) and around £9 million to deliver all of Phase 3, which is estimated could be delivered over ten years.

As highlighted in Section 2 the Park will need to be able to deliver a suitable serviced plot within 12-18 months of receiving an enquiry from a major inward investor. The land servicing cost has therefore been forward profiled, aligning also with the objective of creating a science and enterprise Park that is whole at every stage.

The off-site highway infrastructure package shared with the SUE, is to be funded ‘upfront’ by the SUE, with the Park paying down its liability to the SUE (assumed as 50% or £3.7 million, of the cost of the joint contributions package of £7.4 million) at a later date to be agreed.

Infrastructure Cost table

Phasing	Net developable area (ha)	Land servicing cost (£200,000/net hectare)	On site road infrastructure	Off site infrastructure: Highways	Off site infrastructure: Electricity	Phase total
Phase 3a	10	£2,000,000	£1,250,000	£500,000	£3,500,000	£7,250,000
Phase 3b		£1,000,000		£500,000		£1,500,000
Phase 4	20	£4,000,000	£3,000,000			£7,000,000
Phase 5	15	£3,000,000	£500,000			£3,500,000
End of development				£3,700,000		£3,700,000
FULL BUILD OUT		£10,000,000	£4,750,000	£4,700,000	£3,500,000	£22,950,000

Viability

Development Cost

Innovation Centre and Grow-on Space

The proposed network of Innovation Centres and Grow-on Space is seen as fundamental to the development of the Park. These types of business space are, however, undeliverable on a commercial basis due to the short, 'easy in, easy out' lease terms, and the small and often embryonic nature of the tenant businesses which presents a lease risk.

An appraisal of existing information and industry benchmarks suggests that each Innovation Centre will cost in the region of £3 million (which we would envisage would be developed by the University with grant funding) plus plot servicing costs, whilst a Grow-on Space scheme of around 1,850 sqm (20,000 sqft) would require in the region of £1 million in 'gap funding', plus plot servicing costs.

The cost for the total proposed Innovation Centre space (cost based on benchmark development costs for similar space) and Grow-on space (cost expressed as the funding 'gap' between the cost of the Grow-on Space and the value of the space) capital across the whole Park will thus be in the region of £32 million (including land servicing costs).

Development Cost table

Phasing	Innovation centre cost	Gap funding needed for Grow-on space	Additional land servicing costs	Phase total
Phase 3	£3,000,000	£3,400,000	£320,000	£6,720,000
Phase 4	£6,000,000	£8,500,000	£700,000	£15,200,000
Phase 5		£9,800,000	£580,000	£10,380,000
FULL BUILD OUT	£9,000,000	£21,700,000	£1,600,000	£32,300,000

Larger R&D space and Advanced Manufacturing hybrid units

The market demand study in Section 2 and development brief in Section 3 estimate that a number of prospective occupiers of the Park may be established and expanding R&D firms of national or international standing. These firms will be attracted to the Park because, unlike most other science parks in the region, it offers the opportunity for combined research and advanced manufacturing activity. The market analysis suggests that enquiries and decisions to develop from these occupiers will be sporadic and very much driven by the business plan of the individual firms. However, these occupiers will expect a quick delivery within 12-18 months and will consider other locations if this cannot be achieved. The speed of delivery and the reliance on internal business planning make this type of investment very difficult to predict. The Park may attract significant interest from such major occupiers, or very little. Consequently the development of the Park cannot be predicated on larger one-off R&D and Advanced Manufacturing space and the quantum indicated in the development brief reflects the maximum capacity of the site.

More development is likely to come from firms with a requirement to locate at the Park because of its location and prestige, and the opportunity the Park presents for combining advanced manufacturing/R&D on one site. These will operate from hybrid buildings comprising office as well as light manufacturing space, and are deliverable on a commercial basis by developers on a 'pre-let' basis. The viability of such development is, however, occupier sensitive.

Land receipts and value assumptions

Serviced land receipts in the order of £680,000/hectare (£275,000/acre) might be expected from the type of development outlined above. If, however, the breadth of potential occupiers is restricted by a covenant allowing only occupiers from certain industrial sectors (i.e. beyond the usual planning use class restrictions), there will be less investor interest and the investment value of the development will reflect this, so depressing land values, to around £310,000/hectare (£125,000/acre).

Once land servicing costs of £200,000/hectare (£80,000/acre) are factored in, development that is subject to land use covenants is unlikely to be commercially viable as it would not return a sufficient receipt to the landowner. On this basis, such development is unlikely to come forward on land under the control of Wilson Bowden. Whilst the University might be in a position to take a broader view on land receipt, considering this alongside its wider corporate objectives, it may ultimately be reliant on a commercial delivery partner who will be unwilling to sacrifice land value.

Viability Analysis

Serviced Land Value Approximation

The Park presents a unique proposition specific to its geographical and operational proximity to the University, its location close to the M1 and the mix of employment uses. This specificity makes it difficult to benchmark the Park against other employment locations and indeed science parks. For the purpose of the concept masterplan framework, a value of £680,000/hectare (£275,000/acre) has been used as a reasonable proxy at this stage.

Given its excellent location close to the M1, the Park could achieve higher gross values for serviced land if the employment uses were not limited by the Core Strategy. Clearly, however, the Core Strategy envisions the Park as a location for knowledge-based sectors. Consistent with the Core Strategy, the concept masterplan framework, based on the market analysis set out earlier, envisages hybrid, integrated research and production, advanced manufacturing activities within a single building typology. These buildings are expected to comprise around 30% office space and 70% manufacturing space.

The likely built costs and rental values of these buildings would be higher than standard employment or manufacturing space. Also, the smaller average size of these hybrid units around 3,200 sqm (35,000 sqft) results in a longer development and disposal period. Hence the holding costs are also likely to be higher compared to standard employment developments where the same amount of floorspace spread over fewer, larger units may be developed at a greater pace.

Although the proximity to the M1 and links to the University are attractive to Advanced Manufacturing firms, the nature of this sector presents a greater rental income risk than standard employment. Consequently, a higher average investment yield than at similar quality employment locations would be expected and would serve to moderate development values. These moderate values, alongside the higher build and holding costs of such Advanced Manufacturing units constrains serviced land values for this type of development.

Overall viability modelling summary

The overall assessment of the viability of the Park off sets the infrastructure cost profile against the potential flow of development receipts. As the hybrid R&D and Advanced Manufacturing model is currently estimated to be the only commercially viable development on the Park, all capital land receipts will most likely stem from this type of development and it's promotion is thus crucial.

For the purpose of this viability analysis, it is assumed that:

- No restrictive covenant will be applied to potential occupiers of the hybrid R&D and Advanced Manufacturing units
- Land use is restricted solely by the Core Strategy Policy
- Serviced land values of around £680,000/net hectare (£275,000/net acre)
- Infrastructure costs are as set out in the table below

The high level analysis of prospective serviced land receipts, set against estimated infrastructure costs show that costs and receipts are broadly in equilibrium. At this scale of development, however, any slight increase in infrastructure costs or decrease in serviced land receipts could open up a significant financial gap. It is important that actions are taken now in order to anticipate and address this risk.

The following section considers delivery of the Park, and the prime recommended delivery action advises maximizing the leverage of external grant funding towards the Park infrastructure (on and off site highways, and off site electricity infrastructure).

Viability table

Phasing	Infrastructure costs	Land receipts	Cumulative infrastructure costs	Cumulative land receipts
Phase 3a	£7,250,000	£1,000,000	£7,250,000	£1,000,000
Phase 3b	£1,500,000	£4,500,000	£8,750,000	£5,500,000
Phase 4	£7,000,000	£8,900,000	£15,750,000	£14,400,000
Phase 5	£3,500,000	£8,600,000	£19,250,000	£23,000,000
End of development	£3,700,000		£22,950,000	£23,000,000
FULL BUILD OUT	£22,950,000	£23,000,000		

Delivery

Delivery Strategy

Introduction

The viability analysis in the previous section highlights the following challenges to the delivery of the Park:

1. Infrastructure costs may exceed land receipts achieved through development of the Park, irrespective of whether or not occupiers are selected based on certain restrictive criteria.
2. If occupiers are selected according to restrictive criteria such as their affiliation with specific research sectors or existing ties with the University, this may have the effect to:
 - a. Limit the amount of development that is likely to come forward and potentially preclude development on the land under Wilson Bowden control as there would not be sufficient demand to fill the parcels on the western part of the site
 - b. Discourage interest from private development partners that could help to deliver the Park on the University's land
 - c. Reduce the speed of development. This is particularly important if the Park would acquire the status of an Enterprise Zone in the future. The rate of development may then become

insufficient to pay back any prudential borrowing and to generate the required target surplus for the Local Enterprise Partnership (surplus to be returned to the Local Enterprise Partnership in exchange for their upfront investment into the Park).

The delivery strategy for the Park thus seeks to overcome the challenges brought about by high infrastructure costs. Three overarching principles will guide the approach to delivering the development:

- Enhance, strengthen and promote the unique qualities of the Park as well as its supportive policy framework, such that the quality of the Park promotes the brand amongst target sectors, avoiding restrictive gateway criteria.
- Respond to the emerging needs of enterprises turning to technological innovation in order to boost productivity, expand and create new markets through the Park's unique ability to accommodate advanced manufacturing.
- Give the Partnership the opportunity to respond to delivery hurdles in an agile way as and when they arise without compromising the qualitative principles of the Park as set out in the Core Strategy.

The delivery strategy is broken down into a number

of key actions that will put the Partnership into a proactive position to overcome the challenges outlined above.

1. Key Action: Leverage external funding

We understand that funding is being pursued for the off-site electricity infrastructure requirement, which may otherwise expose the development to some £3.5 million of cost within the next five years. This should continue to be pursued, and consideration be given to extending the grant scope to the other unfunded elements, which include:

- The network of primary and secondary roads, most notably the proposed new road from the A512/SUE to the south of the existing Snell's Nook Lane
- Junction capacity improvements at:
 - Snell's Nook Lane/A512
 - Holywell Way/A512
- The two proposed innovation centres, including the land servicing costs
- The 'follow on' business space, including related land servicing costs

As outlined earlier, whilst land receipts are expected for the disposal of the serviced land proposed for the development of Advanced Manufacturing units, these might only accrue significantly in the long term, presenting significant financing costs, especially for the private sector. Even if these were overcome, the development values may not be sufficient to contribute to the infrastructure, whilst

also providing a sufficient return to the landowner (with particular regard to Wilson Bowden optioned land).

2. Key Action: Infrastructure Delivery Agreement

The delivery of the Park relies on upfront investment into enabling infrastructure. The funding source of this infrastructure remains uncertain and could be met in part by investments from the Partnership itself.

The mosaic of funding is potentially complex, and whilst certain parties will rely on certain infrastructure interventions more or less than others, and at different points in time, the success of the Park will rely on a collaborative approach that approaches and considers each element as being fundamental to the success of the whole, no matter of the location and timing of the particular investment.

The agreement of the common private landowner of the SUE and Wilson Bowden optioned land, to effectively front fund the Park's share of the common off site road infrastructure (including the A512 dualling, J23 improvements, and the shared A512 access) with a view to the long term success of both the SUE and the Park is a fine example of such a positive and collaborative approach.

On this basis, the partners should consider the setting up of an Infrastructure Delivery Agreement

(IDA) including Charnwood, the two major landowners (the University and Wilson Bowden), the County and LLEP, setting out contributions and the conditions of such contributions.

3. Key action: Additional pre-planning/Local Development Order technical studies

The Framework is based on the available evidence, site information and data that has resulted from previous related commissions. However, there remain a number of gaps where further detailed investigation is necessary to ensure that the plan can be delivered. These studies will give additional certainty that the Park is indeed deliverable and will firm up the requirement for additional funding.

The recommendations for additional studies include:

- Transport modelling, highway engineering feasibility studies and related cost analysis: The impact of the proposed new road and the downgrading of the existing Snell's Nook Lane need to be assessed and agreed as acceptable with the County. Once this agreement in principle has been reached, further engineering work needs to be undertaken to demonstrate how these works can be delivered. The engineering work will generate material quantities which help to determine the construction budget that is necessary to deliver these two infrastructure projects.
- Serviced land costs: technical studies identifying potential remediation requirements, abnormal

servicing and development costs are available for the land west of Snell's Nook lane. However, a cost assessment of these requirements needs to be undertaken and needs to be reflected in the viability assessment for this part of the Park.

- Landscape heritage assessment and visual impact assessment: the visual impact of The Park needs to be considered through a specialist study and in consultation with Natural England and Historic England.

4. Key action: Outline planning consent or Local Development Order

The Core Strategy is highly supportive of the development of the Park and the concept masterplan framework will translate a clear physical vision for the site. Nevertheless, current market conditions are very competitive and potential occupiers will seek assurance that a fully serviced building can be delivered within a short timescale.

An outline planning consent will give certainty to developers and funders. In particular, the sensitive nature of the landscape will be perceived by developers and occupiers as a high planning risk.

To mitigate this uncertainty, an outline planning application can be submitted, seeking consent for the following key elements:

- Use classes including nature and size of ancillary uses
- Maximum development quantum
- Massing and height envelopes

- Access, primary and secondary road network
- Phasing

The outline consent needs to be sufficiently detailed to safeguard key overarching principles and provide certainty that development can realistically be brought forward on the site. However, it should not be so detailed as to undermine the flexibility of the concept masterplan framework to accommodate a range of uses and building types key to the functioning and deliverability of the Park. Such a planning consent will place the Park in the position to deliver development quickly, subject to funding.

Alternatively, a Local Development Order for the Park could be considered. This would

- proactively enable development
- provide a comprehensive outline of all development that is permitted
- removes the need for developers to submit planning applications
- allow to respond expediently to occupier inquiries, especially for one-off large scale occupiers looking to have buildings delivered within 12-18 months
- engage and reassure the local community of the nature and quality of future development
- improve certainty and confidence to investors and occupiers at an early stage

5. Key action: Investigate how land ownership arrangements can best support future development

As part of the consultation carried out with the University and Wilson Bowden, the potential for land ownership agreements, land swaps or other land ownership arrangements were discussed. The potential for land ownership arrangements to support delivery of the Park should be discussed further and investigated before further planning work is undertaken.

6. Key Action: Targeted occupier marketing strategy

The market demand overview outlined in Section 2 demonstrates the competitive nature of the science park market. In order to attract occupiers to the Park a clear and focussed marketing proposition is required, based on targeting take up of development space with strong operational and collaborative reasons for locating at the Park.

Whilst market interest in Phase 2 of the Park, been disappointing, this reflects the competitive nature of the sector.

For example, Nottingham Science Park, which has grown in a similar organic manner over the past 30 years to the current Loughborough University Science Park, began a Phase 2 expansion in 2006, led by Blueprint on a 12 acre former landfill site. Whilst there has been success in developing a bespoke area of grow on space (No 1 Nottingham

Science Park), two major pre-lets and several other smaller occupiers, the five acres of land serviced and with outline planning consent for 180,000 sqft of B1b development has not been taken up.

Park should take a more proactive approach, based on identifying and engaging with specific occupiers with them directly. Based on an analysis of the potential occupier's requirements, a bespoke proposition could be put forward. Loughborough University is committed to using its influence to attract further industry partnerships in its key areas of research focus.

The University strategy on themes and Research Challenges has great potential (and builds upon existing areas of strength), but the development and interpretation of these areas needs to be worked up with the University to allow for an attractive "marketing proposition to be put to potential occupiers, UKTI and regional inward investment teams.

There must be a clear site and occupier proposition using all the links the University has with corporates, and a focussed partnership pursuing regional, UK and foreign inward investments.

The following methodology could be adopted to identify and engage with potential occupiers:

1. Network Mapping: A systematic analysis of all collaborative ventures that Loughborough University's academic staff are involved in should be undertaken. This should record key contacts and field of activity.
2. Long list of potential occupiers: in addition to existing contacts, a list of potential occupiers should be created, detailing their current location, estate, rent levels, lease terms, size, specification and quality of their space.
3. Shortlist of potential occupiers: the long list should be refined through a process of iterative sifting based on certain criteria, for instance:
 - a. Would Loughborough Science and Enterprise Park offer a competitive advantage?
 - b. Does the quality of the occupier's existing premises fit the development plans of the firm?
 - c. What are the firm's current lease terms and possible break clauses?
4. Further analysis of the potential occupier's business model and property knowledge
5. Soft introductions and engagement
6. The process of identification and selection shall be based on a systematic audit of commercial links, followed by a careful and iterative sorting process. For example, research has shown that a lease approaching its end is often not sufficient for relocation, and there must be over drivers

present, which will need to be identified in the research, for example:

- Consolidation potential : Identifies those occupiers with more than 2 locations in London for which a consolidation could drive savings
- Growth potential ; Identifies those companies that have shown greater than 5% increase in turnover between 2013 and 2014.
- Obsolescence of Esatet
- Commercial reasons for relocating, for example, drive by legislation or access to clients and contracts

The Partnership should undertake this occupier identification study as a matter of priority. The time to collect information and develop trusted relationships can take time and many steps must be undertaken before an agreement of heads of terms is possible.

Delivery

Possible Phasing Scenario

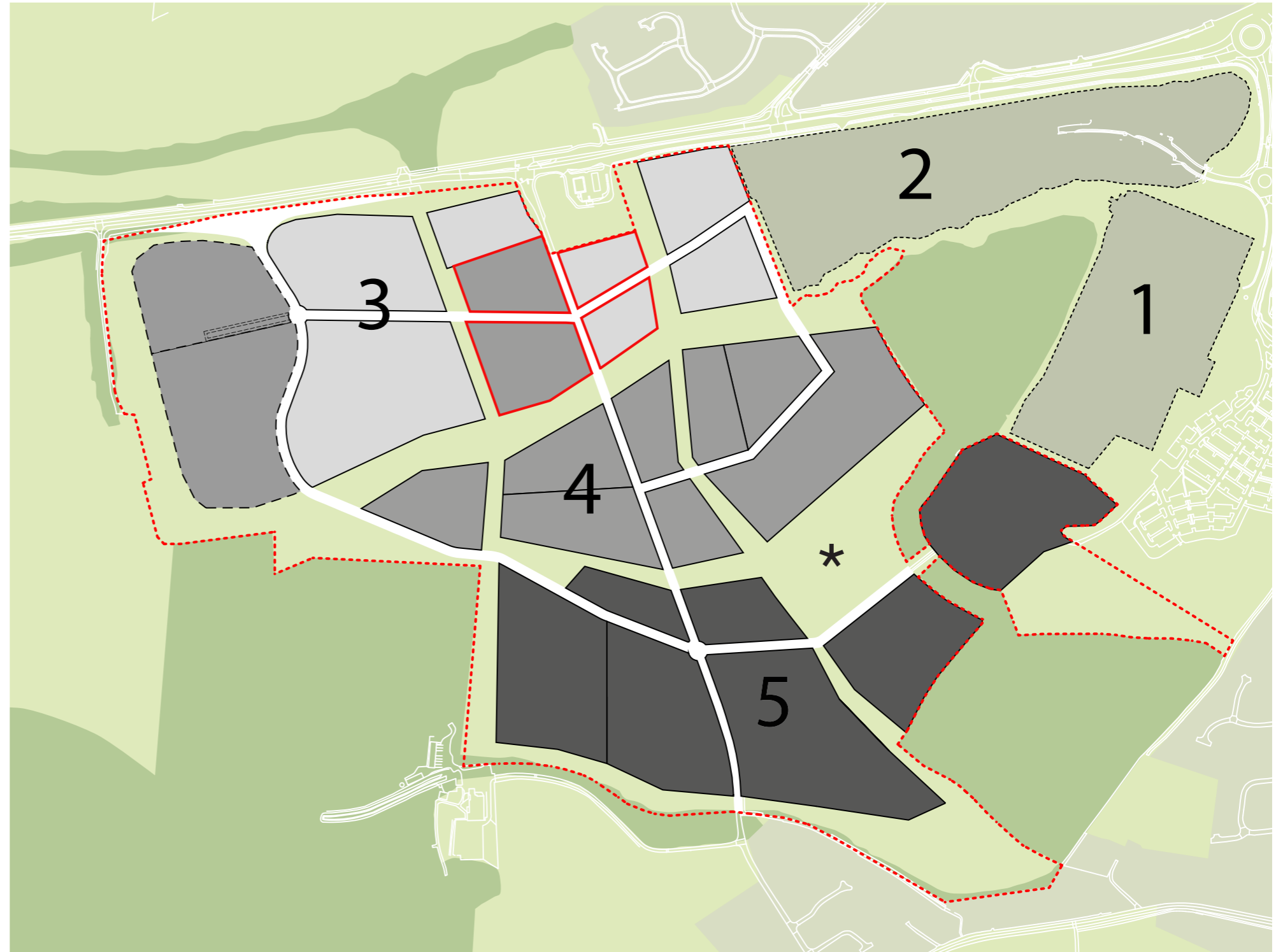
The Park will be built in three broad bands of development, stretching from east to west across the site. In order to maintain the spatial coherence with existing phases of the Park, development will extend from the north-eastern part of the site where a connection to existing parcels and facilities can most easily be made. An extension of Holywell Park to the south would have to overcome the separation of the two ancient woodlands and would not achieve the same level of coherence.

Development will initially stretch along the northern boundary, forming the frontage along the A512 and establishing the western gateway into the Park.

Based on the market analysis and development brief set out in Sections 2 and 3, the initial development phases will contain a modest amount of start-up and Grow-on space, provision of the Grow-on Space increasing more substantially in latter phases as the mass of the Park develops, and enterprises graduate from the Innovation Centres.

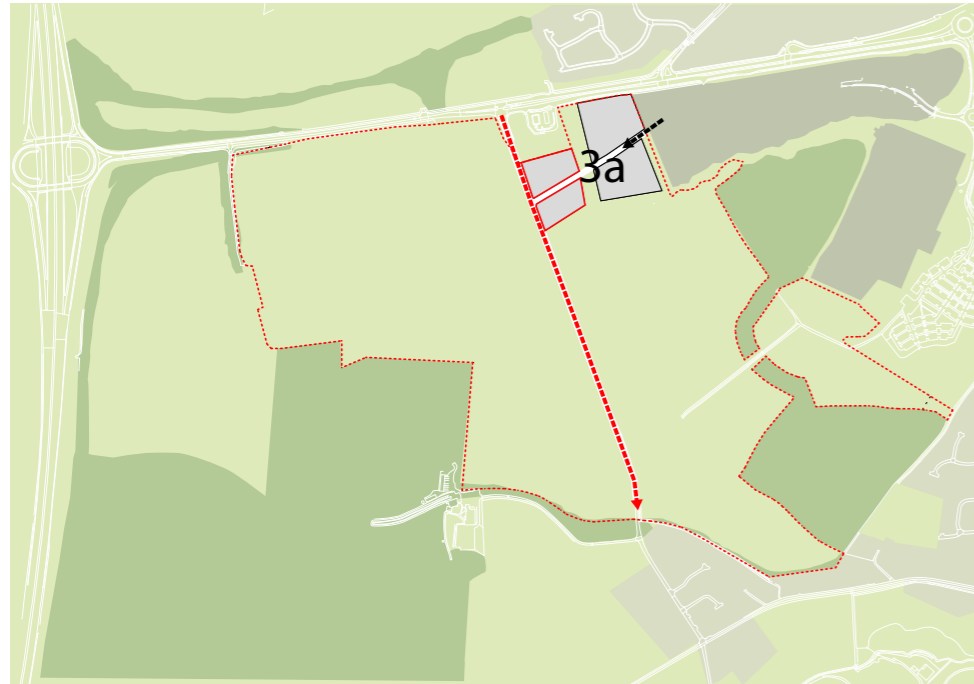
Provision for Advanced Manufacturing will form the biggest part of all development phases, and is projected to develop at a rate consistent with market demand.

*Note: Phasing designations start as a follow-on of current phases on the existing science park.



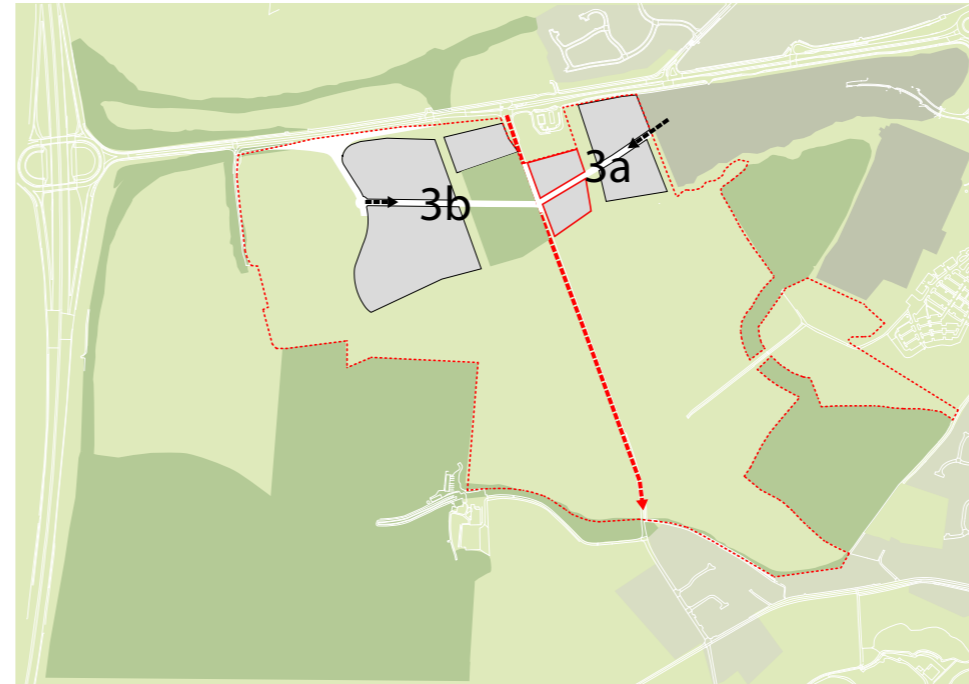
Potential phasing plan

* The land associated with 'The Greens' has the potential to be used as a development parcel assuming the necessary balance of green infrastructure is achieved to meet the policy requirements.



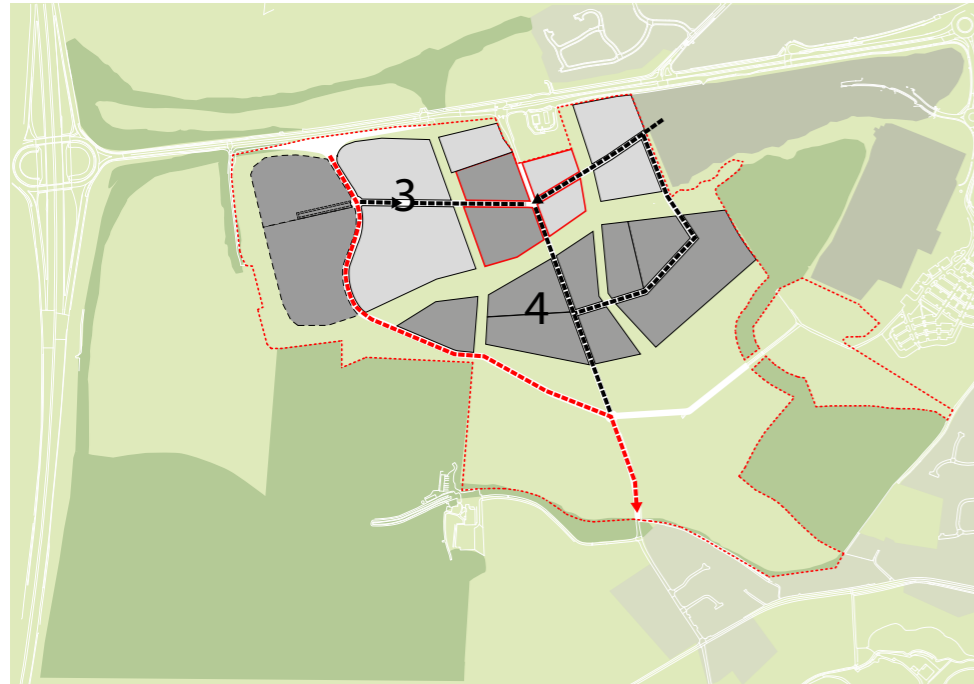
Phase 3a*

- Extension of existing science park
- Access through Holywell Way and Oakwood drive, along existing Park Snell's Nook Lane remains an active through-route
- Design of first Hub development needs to mitigate impact of through traffic on Snell's Nook lane through landscaping and parcel layout
- Cumulative GFA: approx 15,000 sqm
- Infrastructure : Access route from existing Oakwood Drive, and parcel servicing



Phase 3b

- Extension west of Snell's Nook Lane and along A512 frontage
- Access through existing science park and via new SUE roundabout and western access
- Snell's Nook Lane remains an active through-route
- Design of first Hub development needs to mitigate impact of active Snell's Nook Lane through landscaping and parcel layout
- Meanwhile use on second part of the Hub
- Cumulative GFA: approx 28,000 sqm
- Infrastructure: SUE roundabout and western access road, and parcel servicing

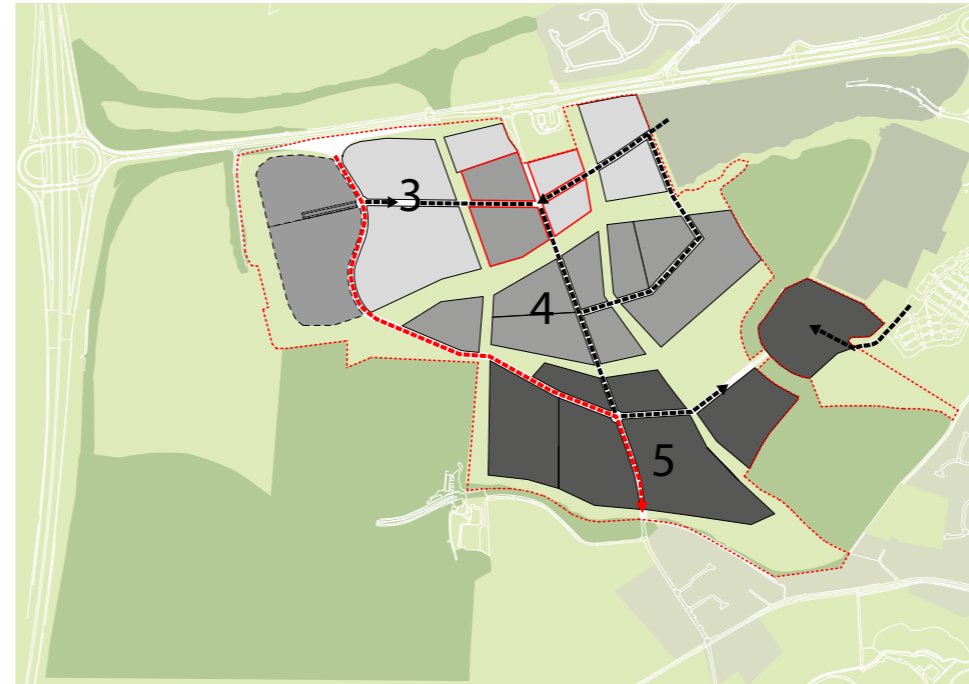


Phase 4

- Extension south of Burleigh Brook corridor
- Access through existing science park and via new SUE roundabout and western access
- Snell's Nook Lane is downgraded to an internal Park road
- Infill of second part of the Hub

- Cumulative GFA: approx 85,000 sqm

- Infrastructure: new road and downgrading of existing Snell's Nook Lane, internal roads, and parcel servicing



Phase 5

- Extension south of the site
- Access through existing science park, via western access and new southern access from new road

- Cumulative GFA: approx 70,000 sqm

- Infrastructure: Internal roads, and parcel servicing

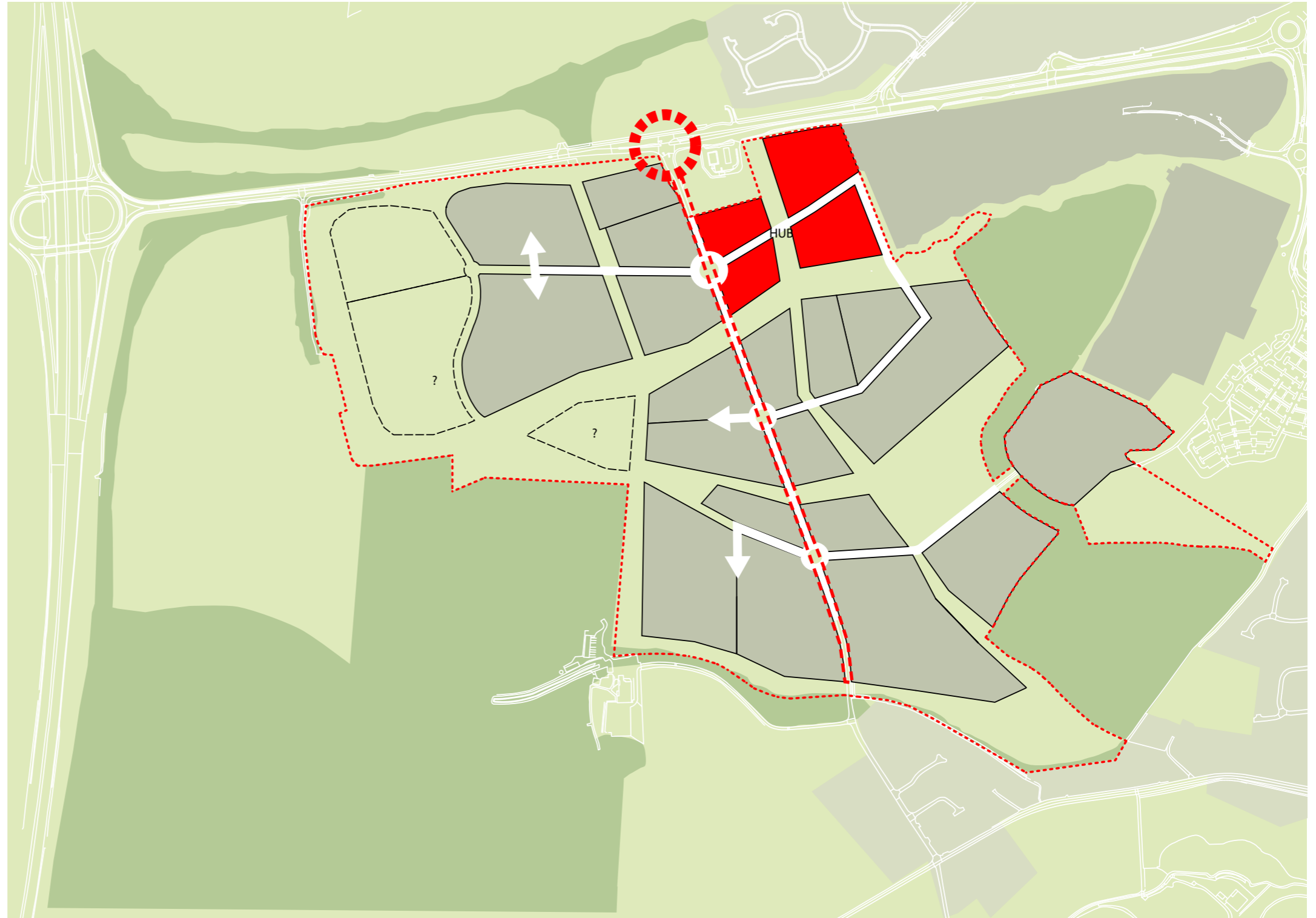
Delivery

Delivery risks and mitigation: SUE roundabout & new road

In case the A512 roundabout associated with the SUE is not delivered, Snell's Nook Lane continues to operate as a public through route to Nanpantan. To mitigate the impact of public through traffic, the Hub is re-located further east, adjoining the existing science park. Works are likely to be required to provide access points off Snell's Nook Lane into the Park in three locations.

These would allow service to all parcels of the Framework but the internal road network would need to be extended to reach the westernmost development areas. The Park would not benefit of a single internal road network but would be bisected by public highways.

This will also result in a sense of separation between the eastern and western parts of the park which will be mitigated through the landscape corridors and the walking and cycling routes they contain.



Potential alternative masterplan scenario without new road from A512

Delivery

Alternative delivery scenarios: Major anchor tenant

Whilst the Framework is designed to be flexible, three development parcels have been identified as being particularly suitable potential sites for large inward investment occupiers due to a combination of their size and location.

- The first site is adjacent to the western gateway, accessed via the first turn after the M1 junction. Buildings on this parcel are highly visible and act as a signpost to the wider Park. The size of the parcel supports development of approximately 20,000 sqm GFA in a number of building arrangements, from a single building to a 'mini-campus'. It is also in a prominent location next to the Burleigh Brook corridor and adjacent to the Hub, hotel, residential and conference facilities. This parcel is available from phase 3b.
- The second site offers a location closer to the existing phase 2 development and could be available from phase 4.
- The third site is accessed directly of the new road, with extensive frontage along this key route. It is located on higher ground and overlooks the rest of the Park. The size of the parcel supports development of approximately 25,000 sqm GFA in a number of building arrangements, from a single building to a 'mini-campus'. While it is more remote from the Hub, it has easy access to the Greens and the amenities of the secondary Hub. It also benefits from private access and therefore can potentially be secured individually. This parcel is available from phase 5.



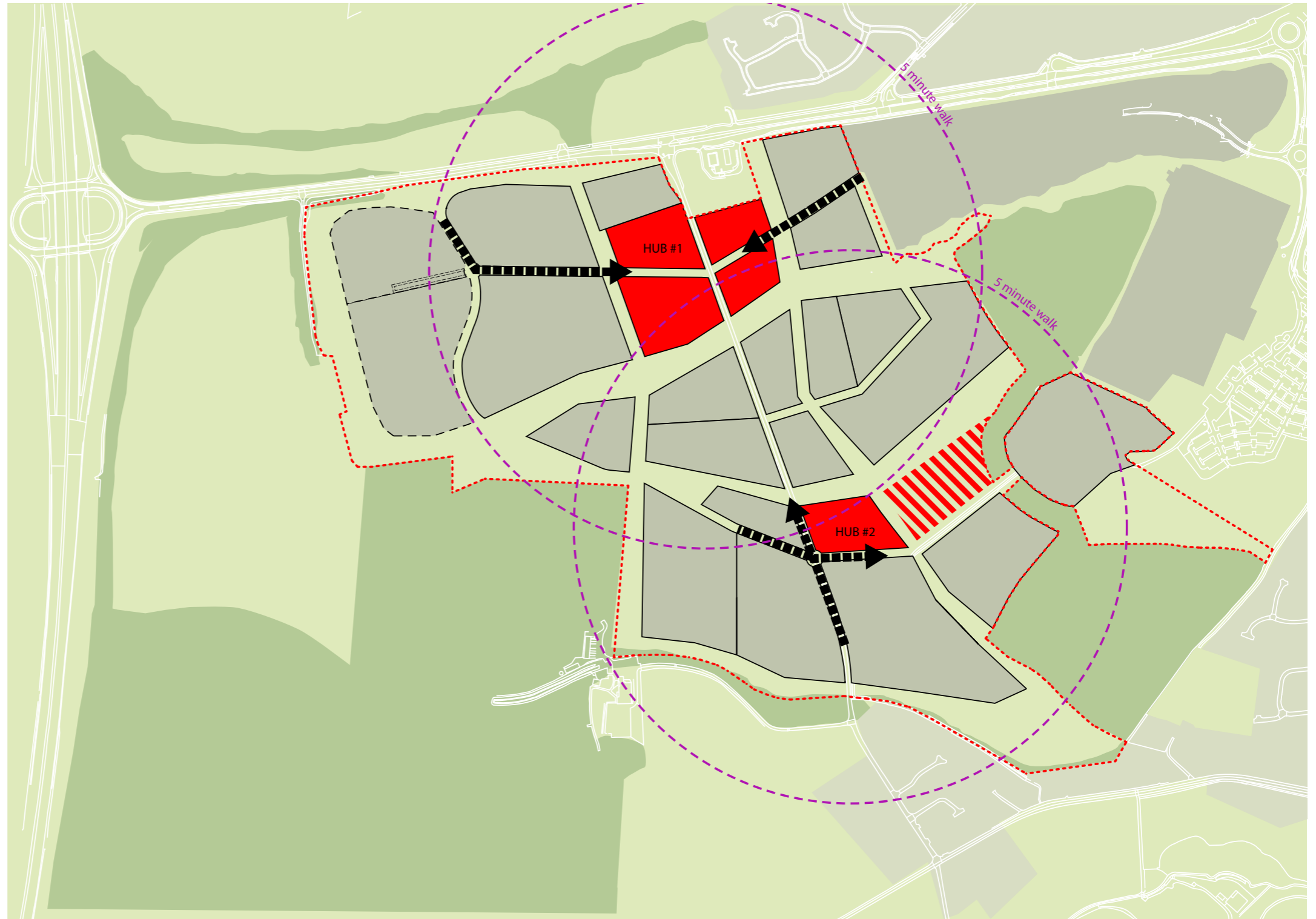
Potential locations for major anchor tenant

Delivery

Alternative delivery scenarios: second Hub

Current demand estimates and the development brief suggest that the provision of a single Hub with two Innovation Centres will be sufficient. However, if there is additional demand for start-up space, Innovation Centres or shared facilities, these can be accommodated in the parcel indicated opposite.

This location is adjacent to the southern gateway to the Park and forms a welcome centre for arrivals from the south. It is also adjacent to The Greens and their extensive open space provision. The location of the secondary Hub allows to increase the accessibility of shared facilities across the site, with all development parcels falling within a 5 minute walking distance of one of the Hubs. This Hub and its Innovation Centre would also form a close relationship with the Innovation centre in Holywell Park.



Potential alternative masterplan scenario with second Hub

Conclusions & Recommendations

Conclusions

The ambition to grow Loughborough as a centre for knowledge-based innovation is anchored in the Core Strategy which formalises the vision for the Loughborough Science and Enterprise Park. The Partnership formed of public and private sector leaders of the project have proactively taken the next step to turn this vision into reality. This concept masterplan framework is the first stage of investigation of the physical potential of the Loughborough Science and Enterprise Park. It translates the vision and objectives articulated in policy and by the project stakeholders into a spatial framework which can form the basis for further work. The project will undergo a number of stages taking delivery forward, at each of which, the amount, type and mix of development as well as its physical layout will evolve. The aim of this concept masterplan framework is to capture the joint ambitions of the Partnership and to form a robust base for further work which will test, refine and adjust the principles of this plan.

Challenges and opportunities

The concept masterplan framework demonstrates how the key physical opportunities can be harnessed to maximise the benefits for the Park. It also suggests optimal ways of overcoming the main physical challenges and guiding future work in addressing these difficulties in more detail.

Wider context findings and key considerations

- The regional catchment of the East Midlands supports the development of the Park through the availability of human and economic capital, but at the same time forms a territory already inhabited by some of the Park's strongest competitors. The key delivery actions are designed to strengthen the Park's position within the regional context.
- The location within the M1 corridor is attractive to occupiers in the knowledge-based industries. However, the maximum value of the site lies outside the target sector defined by the Core Strategy. This recognition needs to be balanced with a clear financial strategy for securing external gap funding to support the development for knowledge-based sector occupiers.
- The connection to Loughborough University is a key driver for the knowledge economy at the Loughborough Science and Enterprise Park and needs to be reinforced through physical links and marketing.
- The Park has the potential to make a bold statement about Loughborough as a location

for pioneering research by transforming the entrance into the town. This needs to be positively balanced against the landscape sensitivities.

Key findings of masterplan site assessment

- The owners and stakeholders of the land that will host the expansion of the Park have proactively come together to move the project forward. This collaboration must continue and should investigate how the delivery of the Park can be progressed by optimising the assets and expertise of each land owner (potential for land swaps, delivery of ancillary uses etc).
- The natural landscape setting of the site will differentiate the Park against its competitors but will also raise the qualitative expectations for how the development will enhance the existing Charnwood Forest character. Particular sensitivity to the heritage context of Garendon Park will require a more detailed assessment of visual impact. Related to the ambition for a high quality is the opportunity to create a coherent built environment, potentially supported by future design guidelines, which could create a more distinct and integrated campus than many existing parks.
- The site benefits from multiple access points and the concept masterplan framework sets out how the Park can capitalise on existing infrastructure commitments and investments such as the A512 highway improvements and roadways that are being built as part of current phases of the Park

(Oakwood drive). Further transport modelling will be required to confirm the feasibility of the proposed access arrangements and will help to assess associated infrastructure costs more accurately.

- The topography of the site is a challenge for larger building footprints but the concept masterplan framework sets out how the levels of the site can reinforce character through clustering buildings and following natural contours.

Market Analysis Findings

Competing science and enterprise parks are driven by strong and targeted marketing propositions. The potential for hybrid office-based and Advanced Manufacturing R&D is a unique selling point for the Loughborough Science and Enterprise Park. Coupled with the University's defined areas of research focus this offer can be used to target specific occupiers and sectors.

Development Brief Refinement

The amount of development shown in the concept masterplan framework illustrates the capacity of the site to accommodate up to 200,000sqm of development. The suggested uses are driven by the Core Strategy policy to establish a location for knowledge-based industries. In conjunction with an appropriate marketing strategy, the concept masterplan framework thus illustrates what is achievable in the Park and can serve as a starting point to signal the opportunity to the market.

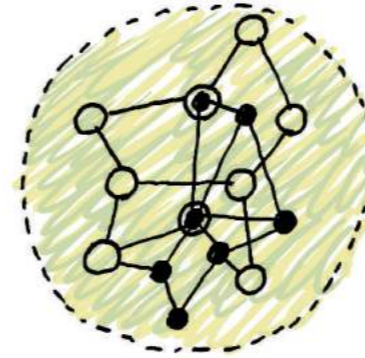
Both the quantum and the exact type of development that can be delivered on the Park need to be verified through further market testing and viability studies. However, the assessments supporting this concept masterplan framework emphasise the importance of creating an ecology of small and large businesses. The Park must provide an avenue for University spin-offs to set up as start-up businesses in an Innovation Centre and allow to them to stay in the Park as they grow into established businesses with their own premises.

Therefore the proportionate mix of Innovation Centre, Grow-on and Advanced Manufacturing space should be carefully considered in any future market testing.

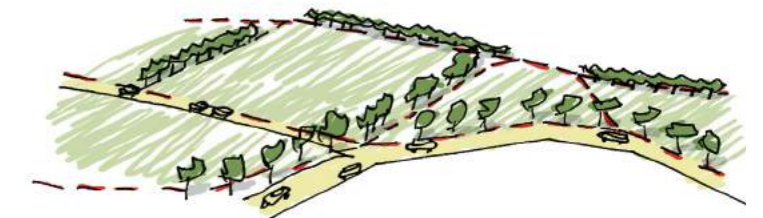
Vision & Objectives for future work

The objectives underpinning the concept masterplan framework are translating the policy aspirations of the Core Strategy into physical guidelines. It is recommended that future design work adheres to these broad objectives to ensure the overall vision is carried through:

1. Create a layout that activates human networks
2. Plan open spaces that contribute to the Parks' identity
3. Contain development in distinct clusters (hamlets)
4. Amplify natural features of the landscape
5. Ensure that the phasing strategy supports a Park that appears whole at every stage of its delivery
6. Retain flexibility within the plan to accommodate future changes



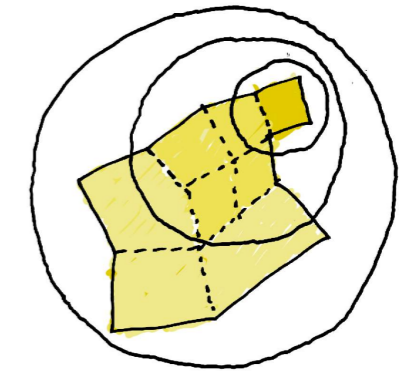
1. ACTIVATE HUMAN NETWORKS



4. AMPLIFY NATURAL FEATURES



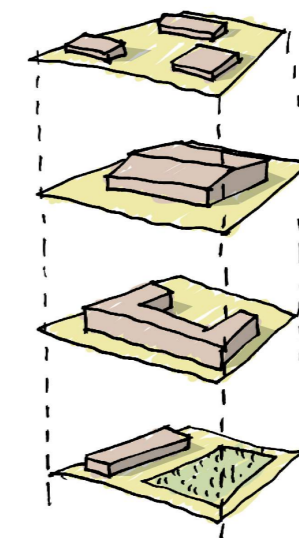
2. OPEN SPACE THAT CONTRIBUTES TO THE PARK'S



5. WHOLE AT EVERY STAGE



3. CONTAIN DEVELOPMENT IN DISTINCT CLUSTERS



6. RETAIN FLEXIBILITY

Masterplan recommendations

The concept masterplan framework establishes broad principles which have emerged from the Core Strategy and the Partnership's collaboration. These serve as the starting point for further detailed work to progress the delivery of the Park. While this future work may challenge the assumptions and principles of the concept masterplan framework, it should build on the following recommendations:

- 40% of the site area should be green infrastructure including both structural landscape to respond to the requirements of the Core Strategy and National Forest guidelines and on-plot social green space providing space for human interaction
- The structural landscape should enhance existing landscape features and define areas of development.
- Parcels should be large enough to allow subdivision and should allow for servicing and logistics requirements for Advanced Manufacturing activities.
- Parcels should be tested based on specific occupier requirements.
- Future design work should build on and evolve the 8 spatial principles of the concept masterplan framework to provide continuity with stakeholder consultation and agreement to date.
- Development should be grouped into smaller clusters to reinforce character and enhance the natural setting of the Park.
- The potential for a public bus route linking the

Park to transport hubs such as Loughborough station and East Midlands Airport should be explored further.

- The mix of employment and ancillary uses should be distributed to reinforce the hub as a central part of the Park and to give a particular focus to the clusters. Where possible, clusters should express individual characteristics and be centred around a small provision of amenity space and ancillary uses.
- Ensure that the Hub is within easy walking distance from any point within the Park.
- Walking & cycling infrastructure should be integrated into all landscape components. The Park should remain permeable by ensuring that the green corridors are publically accessible and link to the wider walking and cycling network.

Illustrative masterplan guidelines

In addition to the recommendations listed above, the illustrative masterplan sets out some optional guidelines which could support more detailed design studies:

- Position buildings to create a strong edge along the A512, showcasing the range of activities that are happening in the Park
- Position buildings to create positive frontage along the main green corridors
- Group clusters of buildings around social amenities and programmed open space
- Encourage coherent building quality and reference to local landscape setting
- Prioritise maturing natural landscape over

manicured gardens to reinforce Charnwood forest character

- Allow buildings to “spill out” wherever possible, using terraces and gardens to create spaces for encounter
- Ensure the landscape works at multiple levels, to manage water, habitats, ecology and human interaction

Viability

The high level viability assessment underpinning the concept masterplan framework sets the starting point for assessing the requirements for external funding. The cost assumptions need to be firmed up through further detailed cost analysis and confirmation of infrastructure requirements and specification.

The terms and timescales for financial contributions to off-site infrastructure improvements need to be agreed in order to ascertain the actual cost profile of the development and identify funding gaps. External sources to alleviate funding gaps will need to be identified and pursued.

Delivery

The delivery strategy identifies six key actions to progress the development of the Park and give confidence to developers and occupiers that the vision for the Park is achievable:

- Leverage external funding
- Investigate potential for Infrastructure Delivery Agreement
- Undertake additional pre-planning / Local Development Order technical studies
- Secure Outline planning consent
- Investigate how land ownership arrangements can best support future development
- Develop targeted occupier marketing strategy

In addition, further work should be undertaken to:

- Firm up possible phasing scenarios through further market testing and delivery work
- Retain and demonstrate the masterplan's flexibility to mitigate key risks
- Ascertain key infrastructure projects can be delivered (New Snells Nook Lane)



Concept Masterplan Framework

* The land associated with 'The Greens' has the potential to be used as a development parcel assuming the necessary balance of green infrastructure is achieved to meet the policy requirements.

Appendix

Case Studies



1. Nottingham Science Park, Nottingham
(15 Plots)

Average FAR: 0.61
Range: 0.25 - 0.93

Average Plot Ratio: 32%
Range: 17 - 50%

Average Parking Ratio: 9%
Range: 0 - 22%

Average Landscape Ratio: 31%
Range: 4 - 56%



2. University of Nottingham
Innovation Park, Nottingham (6 Plots)

Average FAR: 0.7
Range: 0.36 - 1.1

Average Plot Ratio: 26%
Range: 12 - 32%

Average Parking Ratio: 4%
Range: 0 - 7%

Average Landscape Ratio: 63%
Range: 42 - 72%



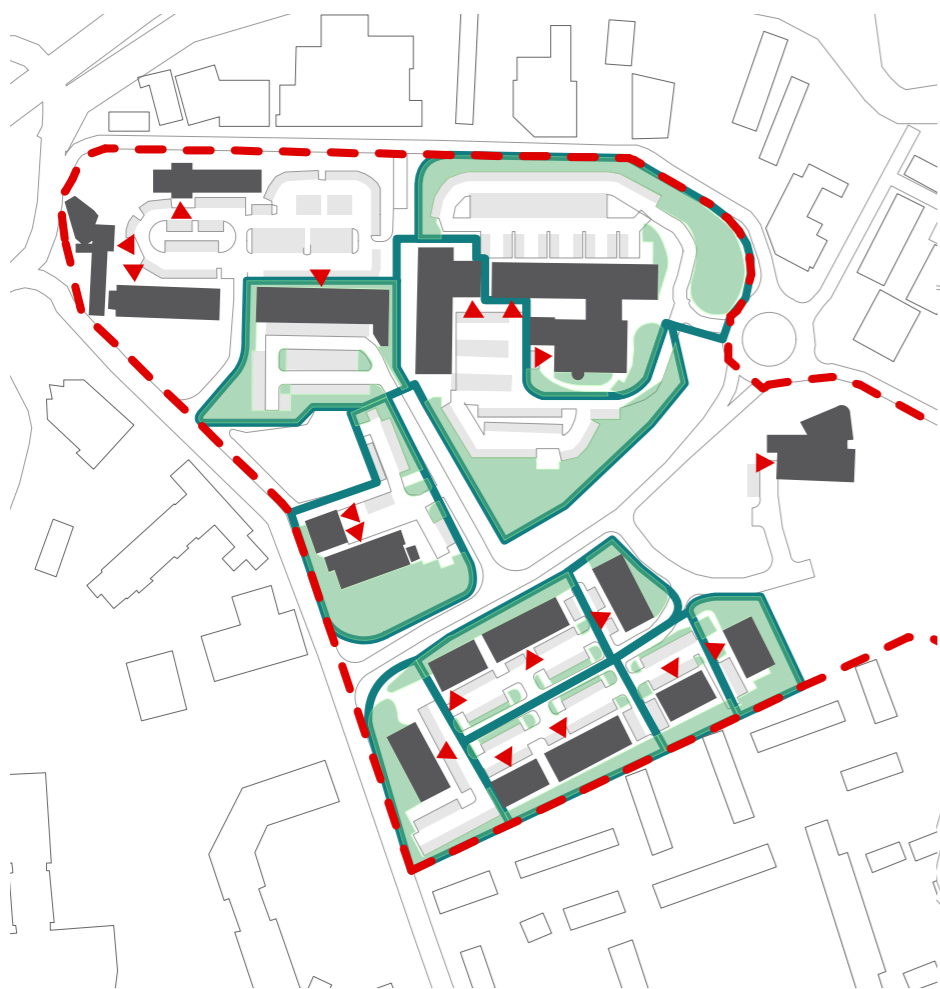
3. MIRA Technology Park, Nuneaton
(42 Plots)

Average FAR: 0.62
Range: 0.24 - 1.02

Average Plot Ratio: 22%
Range: 8 - 57%

Average Parking Ratio: 8%
Range: 2 - 23%

Average Landscape Ratio: 51%
Range: 20 - 65%



4. Coventry University Technology Park, Coventry
(10 Plots)

Average FAR: 0.50
Range: 0.30 - 0.68

Average Plot Ratio: 21%
Range: 14 - 25%

Average Parking Ratio: 12%
Range: 5 - 21%

Average Landscape Ratio: 30%
Range: 21 - 54%



5. Colworth Science Park, Bedford
(8 Plots)

Average FAR: 0.75
Range: 0.40 - 1.1

Average Plot Ratio: 33%
Range: 23 - 50%

Average Parking Ratio: 8%
Range: 0 - 23%

Average Landscape Ratio: 34%
Range: 7 - 53%



6. Westlakes Science & Technology Park, Cumbria
(12 Plots)

Average FAR: 0.23
Range: 0.10 - 0.54

Average Plot Ratio: 11%
Range: 5 - 18%

Average Parking Ratio: 10%
Range: 3 - 21%

Average Landscape Ratio: 58%
Range: 37 - 71%

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