

A stylized map of West Cambridge on a blue background. The map shows various land parcels outlined in white. Several areas are highlighted with circles: a central rectangular area with a white border, a large irregular area to its right with a dashed white border, and three smaller areas (two on the left and one at the top) also with dashed white borders. Lines connect these highlighted areas to a central point, suggesting a zoomed-in view of the central area.

WEST CAMBRIDGE

OUTLINE PLANNING APPLICATION

DESIGN GUIDELINES

for approval

Credits:

*Masterplanner:
AECOM Design & Planning*

with:

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All of the drawings/diagrams in this document are provided for illustrative purposes only. This Design, Access and Landscape Statement is provided to support the planning application for the Proposed Development, and all details of access, appearance, landscaping, layout and scale are reserved within the parameters set out in the Parameter Plans & Statements and Environmental Statement.

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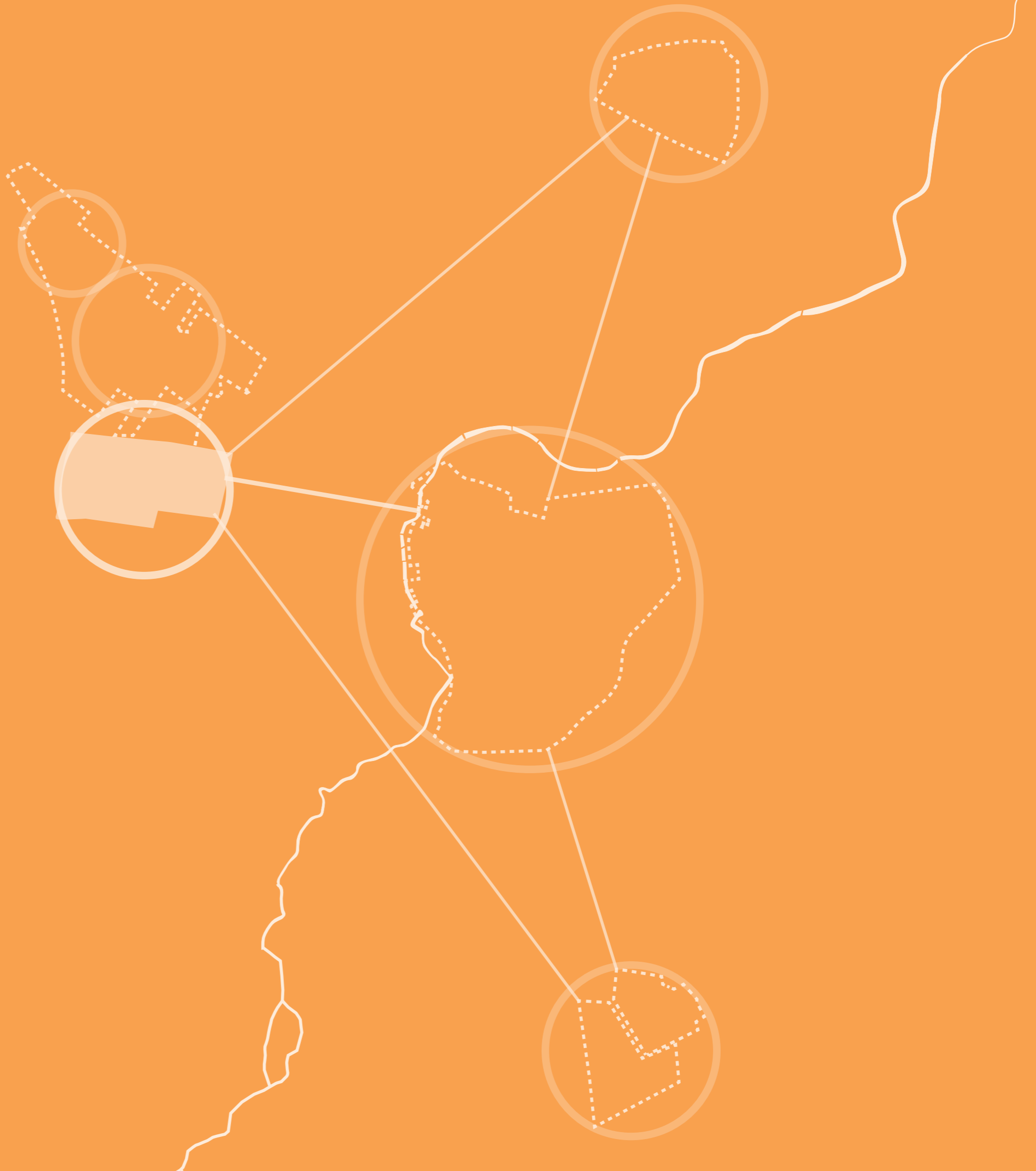
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INTRODUCTION

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0. INTRODUCTION

0.1. Purpose of the document

0.1.1 This Design Guidelines document has been prepared in support of an outline planning application submitted by the University of Cambridge for the comprehensive development of the West Cambridge site.

0.1.2 The Design Guidelines (along with the Parameter Plans) establish a set of design parameters and principles for development at the site, and will act as a basis for informing, guiding and assessing future detailed proposals for individual parts of the site.

0.1.3 Like the Parameter Plans, the Design Guidelines are submitted for approval by the local planning authority. The Design Guidelines supplement the Parameter Plans by providing a greater level of articulation of the design and access intent in relation to key facets of the development proposals. These are considered by the applicant to be particularly important in creating a high quality, attractive, distinctive and sustainable environment for all site users.

0.1.4 These Design Guidelines will be a material consideration when determining Reserved Matters applications for West Cambridge. Any variation to these Design Guidelines will only be possible with the agreement of the University of Cambridge and Cambridge City Council.

0.1.5 The Design Guidelines should be read in conjunction with the Design & Access Statement, where the Design and Access Statement describes and explains the key concepts and vision behind the proposed development.

The West Cambridge Outline Planning Application

Description of Development Including Parameter Plans	Design and Access Statement Including Design Principles and Illustrative Material	Design Guidelines	Other Planning documents
<p>Parameter Plans:</p> <ul style="list-style-type: none"> 01 Development Building Zones 02 Land Use 03 Access and Movement 04 Landscape and Public Realm 05 Maximum Building Heights <p>In addition:</p> <ul style="list-style-type: none"> Application Boundary Demolition Plan 	<p>Volume A:</p> <ul style="list-style-type: none"> 01 University need 02 University vision 03 Development context 04 Masterplan development process 05 Proposed development <p>Volume B:</p> <ul style="list-style-type: none"> 01 Design principles 02 Illustrative masterplan 03 Transformation of key places 	<ul style="list-style-type: none"> 00 Introduction 01 Site-wide Design Guidelines 02 Key places 03 Streets and Green Links 04 Site edges 	<ul style="list-style-type: none"> 01 Transport Assessment 02 Environmental Statement 03 Planning Statement 04 Sustainability Statement 05 Energy Statement 06 Statement of Community Involvement 07 Waste Management Plan 08 Utilities Statement 09 Construction Environmental Management Plan 10 Arboricultural Impact Assessment 11 Woodland Management Plan 12 Heritage Assessment

KEY

	NEW DEVELOPMENT
	EXISTING BUILDINGS RETAINED
	EAST FORUM SPACES
	EAST POND
	WEST FORUM SPACES
	WEST LAKE
	THE GREEN
	SOUTHERN ECOLOGICAL CORRIDOR
	SHARED FACILITIES BUILDINGS
	ENGINEERING DEPARTMENT
	CAVENDISH III LABORATORY
	ACADEMIC DEPARTMENT
	COMMERCIAL LED DEVELOPMENT
	SCHLUMBERGER BUILDING
	BRITISH ANTARCTIC SURVEY
	SPORTS CENTRE
	DATA CENTRE
	PARKING STRUCTURES
	ENERGY CENTRE
	UKCRIC BUILDING



01. West Cambridge - Illustrative Masterplan 2017

0.2. Scope of the document

0.2.1 This document sets out the Design Guidelines for the West Cambridge site. The Design Guidelines will be used to ensure high quality design is delivered at West Cambridge. They are intended to:

- Capture the design responses appropriate to each key element at the application site, while allowing flexibility in the final design of the development;
- Provide a level of consistency so that the site as a whole is developed in a coherent manner consistent with the overall vision for the site;
- Communicate masterplan intentions to the various design teams which will bring forward development proposals over the life of the development; and
- Provide a balance between technical specificity and a concise description of what is required from detailed design proposals.

0.2.2 Additional work will be carried out, at the appropriate time, in regard to further guidelines for the setting of the listed Schlumberger Research building as indicated by the blue dashed line in Figure 02. This work will be compiled to form an addendum to this document.

1. Site-wide Design Guidelines

0.2.3 The document covers critical site-wide elements of the development, including:

- Public realm and landscape - relating to types and arrangement of open spaces across the site;
- Retention of existing trees;
- Access and movement - relating to the location and treatment of vehicular, pedestrian and cycle routes, servicing, car parking and cycle parking;
- Urban structure - relating to the location and treatment of building frontages, gateway features, and the approach to integration of existing buildings;
- Massing, roofscape and skyline - relating to height and massing of new buildings and principles related to treatment of roofscape and skyline;
- Land use and amenities.

0.2.4 In addition to the **Site-wide elements** the document continues to describe Guidelines for **Key elements**, which include:



2. Key Places

0.2.5 East and West Forums: shall be key focal points for the site. These are existing spaces, determined by the 1999 masterplan, but will be transformed by new development and a new role within the public realm network;

0.2.6 The Green: a new space and shall be a series of connected Gardens that visually and physically connect from east to west through the central part of the site;

0.2.7 Southern Ecological Corridor: The Southern Ecological Corridor shall be formed along the southern edge and will incorporate the existing trees, the canal and the existing strategic cycle route.

0.2.8 Guidelines for these spaces are provided in the Key Places Section 02.

3. Streets and Green Links

0.2.9 Transforming the nature of **Existing Streets** is essential to transforming the character of West Cambridge. These streets will be greened and will contribute to forming a new landscape framework and pedestrian and cycle network through the site. The existing primary streets are:

- High Cross;
- JJ Thomson Avenue;
- Charles Babbage Road; and
- Western Access / Ada Lovelace Road.

0.2.10 Guidelines for Streets are provided in Streets and Green Links Section 03.

0.2.11 Green Links are north-south movement and green elements which will bring the characters of the new NWCD landscape spaces in the north and the agricultural fields in the south through the site. They are an important part of the new landscape framework and pedestrian & cycle network.

0.2.12 The majority of the Green Links have origins in spaces and streets that already exist on site, and a few of these are existing spaces with a servicing role which will need to be maintained.

0.2.13 Guidelines for Green Links are provided in Streets and Green Links Section 03.

4. Site Edges

0.2.14 Control of the site edges is aimed at ensuring that the development relates well to the surrounding context, (particularly the nearby conservation areas) and mitigates and minimises visual impacts.

0.2.15 Guidelines for Site Edges are provided in Section 04 of this document.

0.3. How the Design Guidelines work

0.3.1 The Guidelines within this document are drawn from the Illustrative masterplan, which has been produced in support of the Outline Planning Application. This stands as a robust three-dimensional test of and response to: site conditions; the needs of the University; and ongoing consultation with key stakeholders.

0.3.2 The Document has four Sections: Site-wide Guidelines; Key Places; Streets and Green Links; and Site Edges.

0.3.3 All Sections must be read together and in particular the Guidelines for Key Places should be cross referenced with built form and massing Guidelines within the Streets and Green Links Section.

0.3.4 For each of these elements, the document sets out principles and more specific guidelines to inform the development of detailed design proposals. Two types of principles/guidelines are included:

- **Mandatory**, which must be complied with (denoted by the use of 'must'). The Mandatory guidelines are denoted by the use of 'M' graphic and by being enclosed in coloured boxes for ease of navigation through the document;
- **Non-mandatory but recommended**, setting out the preferred approach (denoted by the use of 'should'). If there is any significant deviation from the preferred approach the alternative will need to demonstrate significant other benefits.

0.3.5 Reserved matters applications will be brought forward in accordance with the Design Guidelines as well as the Parameter Plans. Reserved matters applications will need to demonstrate, through their Design and Access Statement, how the Design Guidelines have been taken into account in the evolution of detailed design proposals, and how the proposals comply with the mandatory elements of the Guidelines. Deviation from the Guidelines, including the mandatory elements, may be acceptable with the agreement of the local planning authority.

Review process

0.3.6 It is intended that this document, subject to agreement with Cambridge City Council, will be reviewed at key stages in the development process to ensure that its Guidelines and content remain relevant and robust. This will ensure that this document remains responsive to changing conditions. For example a review of this document could happen towards the end of the Priority Projects/Phase 1 development process, when more will be known about the University's future requirements and need, as well as the forecast transport position.

Structure of the document

01 Site-wide Design Guidelines

Public realm and landscape
Existing trees to be retained
Access and movement
Urban structure
Massing, roofscape & skyline
Land use and amenities

Key issues:
Frontage types, length, multi-storey car parks
Massing, rooftop plant
Existing trees to be retained

02 Key places

A new public realm

West Forum
East Forum
The Green
Southern Ecological Corridor

Key issues:
Character
Surface Treatment
Planting (inc. existing)

03 Streets and green links

Transformation of existing streets

High Cross
JJ Thomson Avenue
Charles Babbage Road
Western Access/Ada Lovelace
Green Links
Cycle connectivity

Key issues:
Existing/proposed sections
Street frontage
Street character
Planting (inc. existing)

04 Site edges

Integration and response to context

Madingley Road
Coton Footpath/Southern edge
Clerk Maxwell Road
Woodland edge

Key issues:
Frontage heights
Set backs

0.4. Vision for West Cambridge: A new trajectory

0.4.1 The University of Cambridge has identified West Cambridge as one of its key sites for growth, best placed for clustering of physical sciences and technology and collaboration with industry research.

0.4.2 The new development proposals aim to establish a new trajectory for development and gradual transformation of the West Cambridge site into a lively research campus, accessible and integrated with the City, and which can equally well accommodate users' interaction and demanding scientific processes. By facilitating research excellence and innovation, West Cambridge will help to retain and attract staff and enable future research growth, thus strengthening the University's international reputation.

0.4.3 Research and teaching will continue to be the primary uses, but these must be strongly supported by social amenities and commercial research workspaces to promote a new social life and knowledge exchange. In response to this, the proposed development has been shaped by the building and operating requirements of teaching, academic and commercial research as much as by requirements for social interaction. By favouring a moderate density of built form a greater population can support a new level and range of activity on the site.

0.4.4 The current piecemeal development on plots will be abandoned in favour of a character based approach where the site will be transformed by the introduction of a new, clear landscape and open space framework, incorporating existing spaces, landscape planting and streets.

0.4.5 At-grade car parks will be removed and parking relocated into multi storey structures located at the periphery of the site, enabling an increase in density but also an emphasis on cycle movement and pedestrian activity and comfort throughout the site.

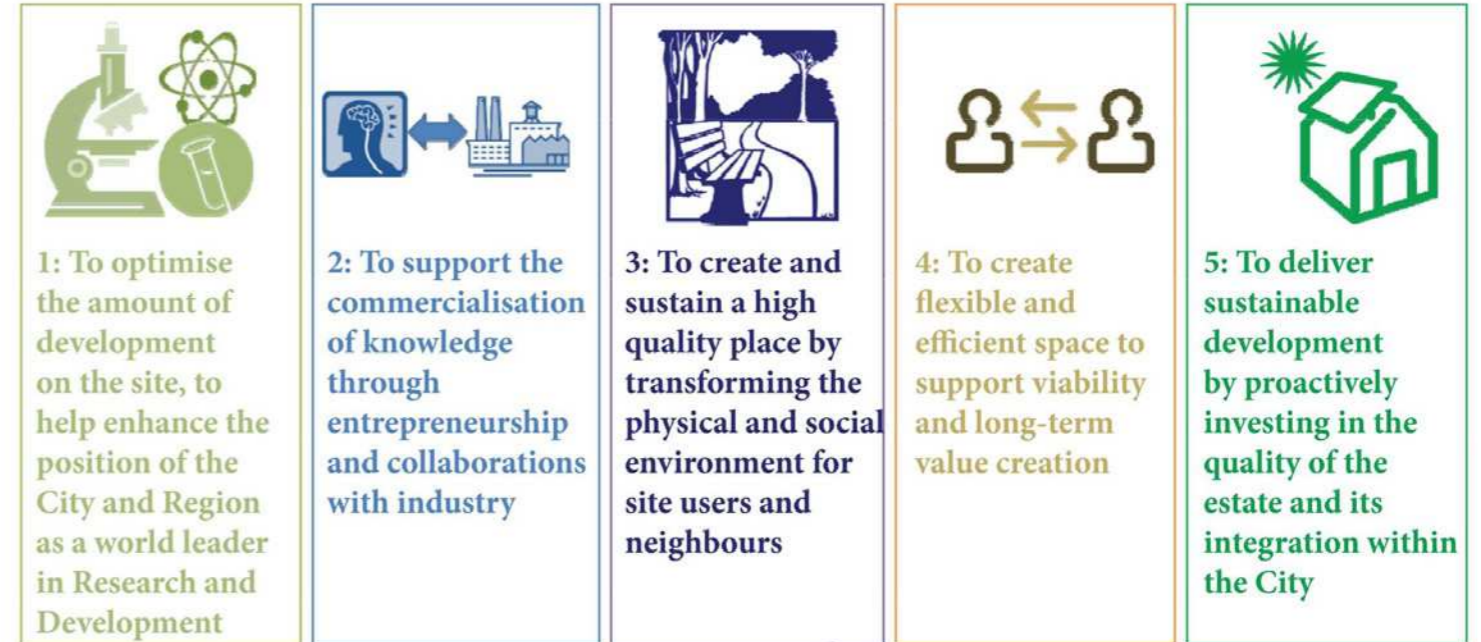
0.4.6 The University has established five key objectives to deliver the vision and guide the Proposed Development:

- **Optimise the amount of development** on the site, supporting the City and Region as a world leader in learning, teaching, research and development;
- **Support the commercialisation of knowledge** through entrepreneurship and collaboration with industry;
- Create and **sustain a high quality place** by transforming the physical and social environment for site users and neighbours across the City;
- Deliver **adaptable and efficient space** to support viability and long term value creation;
- Deliver **sustainable development**, pro-actively investing in the quality of place and integration within the City.

0.4.7 The new proposal seeks to transform the site by recognising and building on a number of site-related opportunities, which will contribute wider benefits to the University and the City:

- Promote **sustainability** and improve the University's performance on a site unhindered by historic structures and dense urban form found in the city centre;
- **Sustainable transport strategy**, as the key tool for the transformation of the site, aiming to reduce the reliance on cars and domination of at grade car parks by improving **public transport**, concentrating car parks along the edges and thus freeing public space for **pedestrians and cyclists**;
- Provide a necessary space for a City-wide step change in **entrepreneurship and employment growth**;
- Cluster the University's Physical Sciences and Technology disciplines, with their industry partners, which will establish West Cambridge as a place which lives and breathes **science and technology**, generating exciting technological achievements and innovation;
- Opportunities for academic events as well as **popularisation and promotion of science**, through evening lectures, festivals and community projects;
- **Public realm with adjacent shared facilities and amenities**, linking into a wider network of open spaces and pedestrian and cycle routes; and
- **Community uses**, further capacity in addition to existing sport and nursery provision, helping to promote healthy and balanced lifestyle of site users and the wider community.

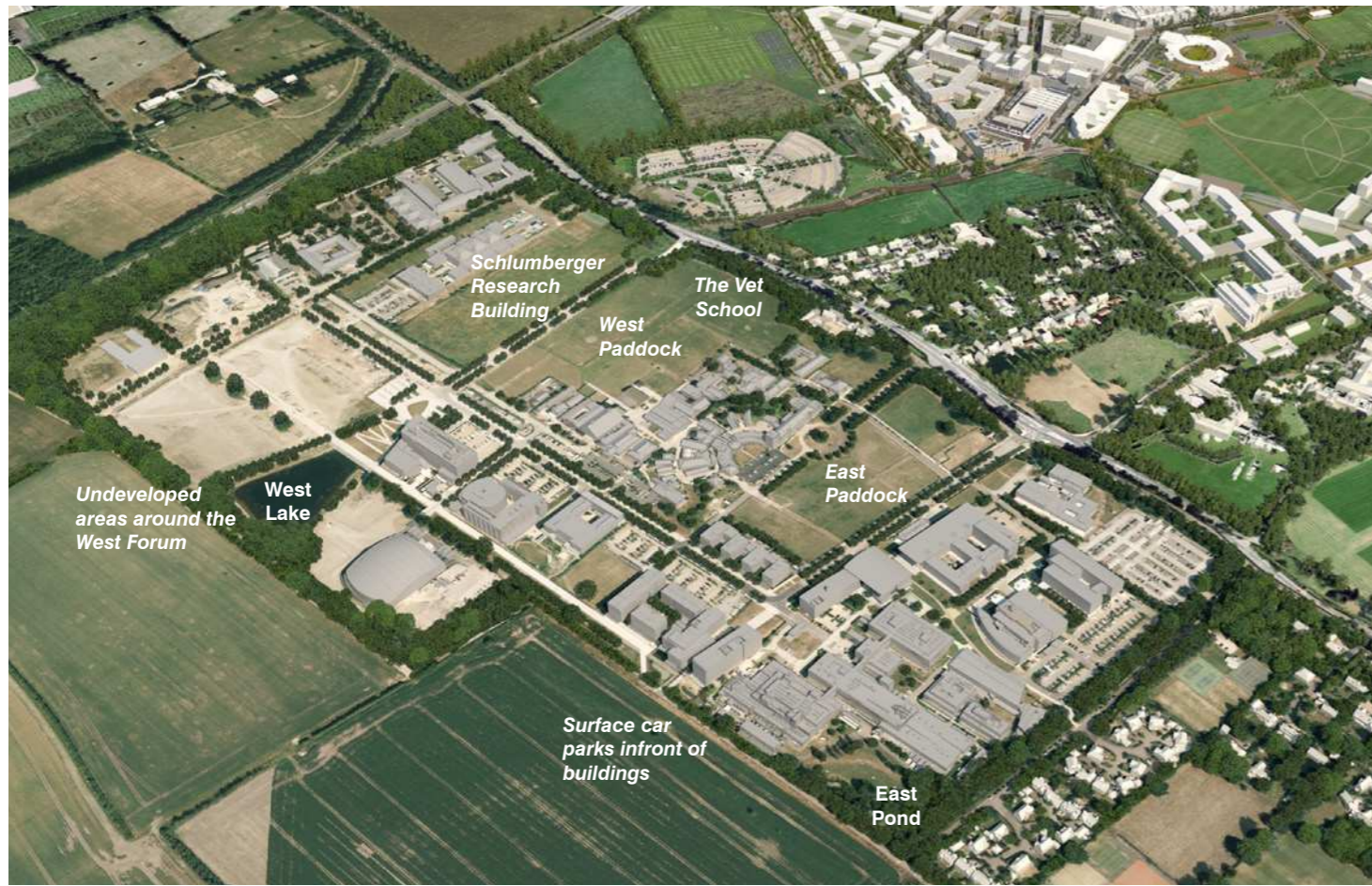
0.4.8 Development at West Cambridge will be incremental, with the initial stage 'Priority Projects' concentrating new academic development in the east, forming this new density and a renewed activity from the outset.



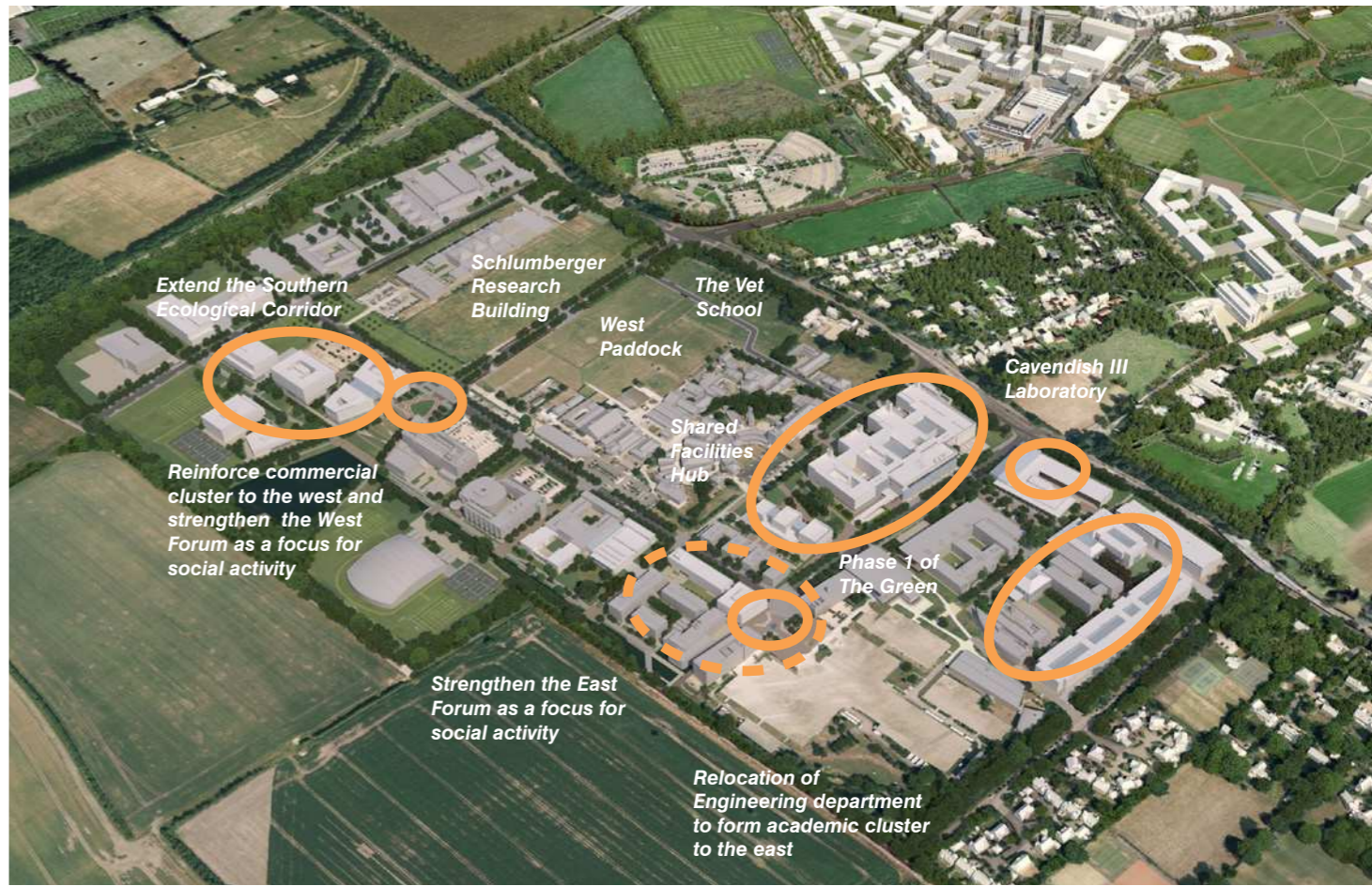
03. University Objectives



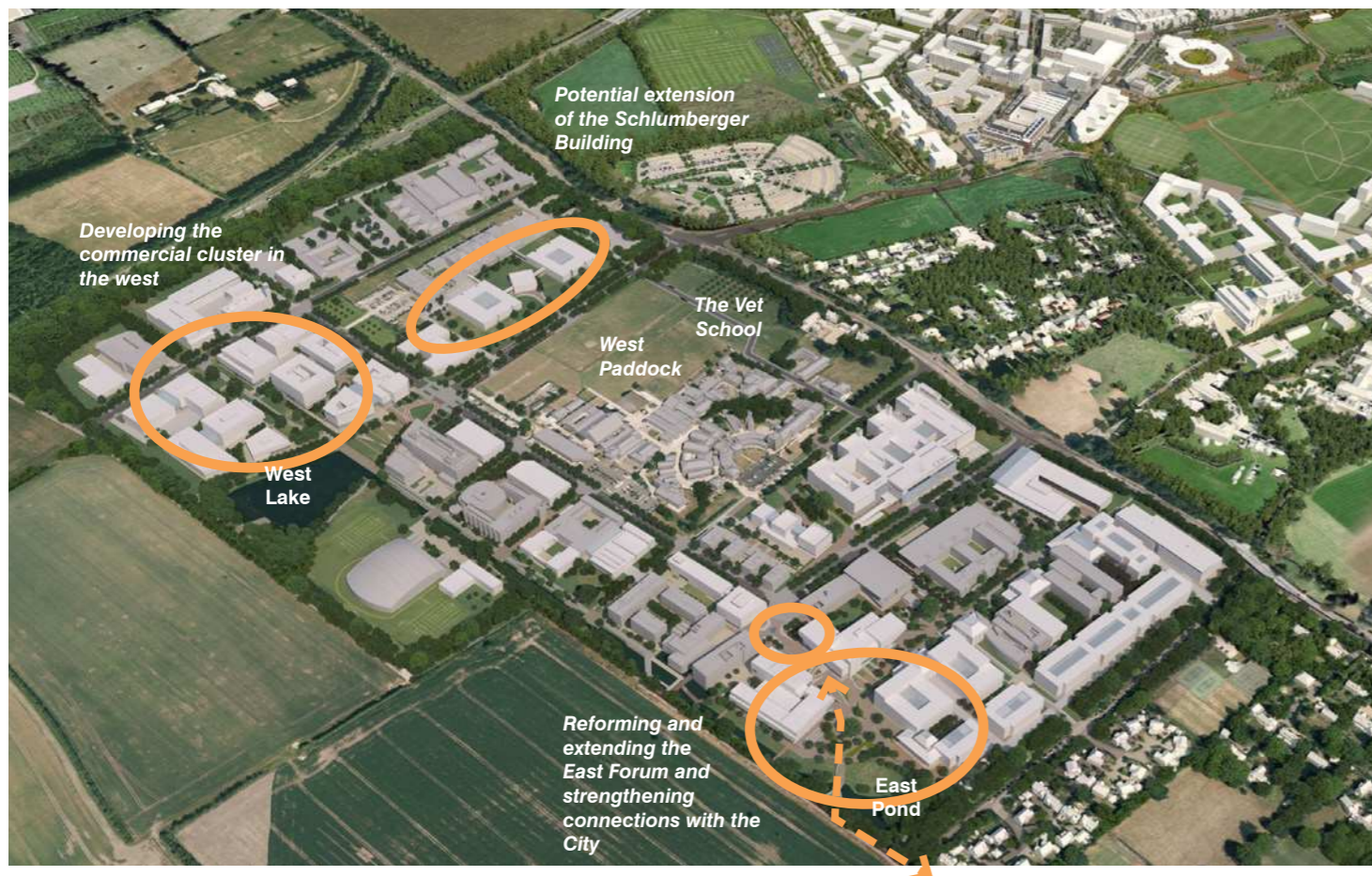
04. The West Cambridge site in the West of the city



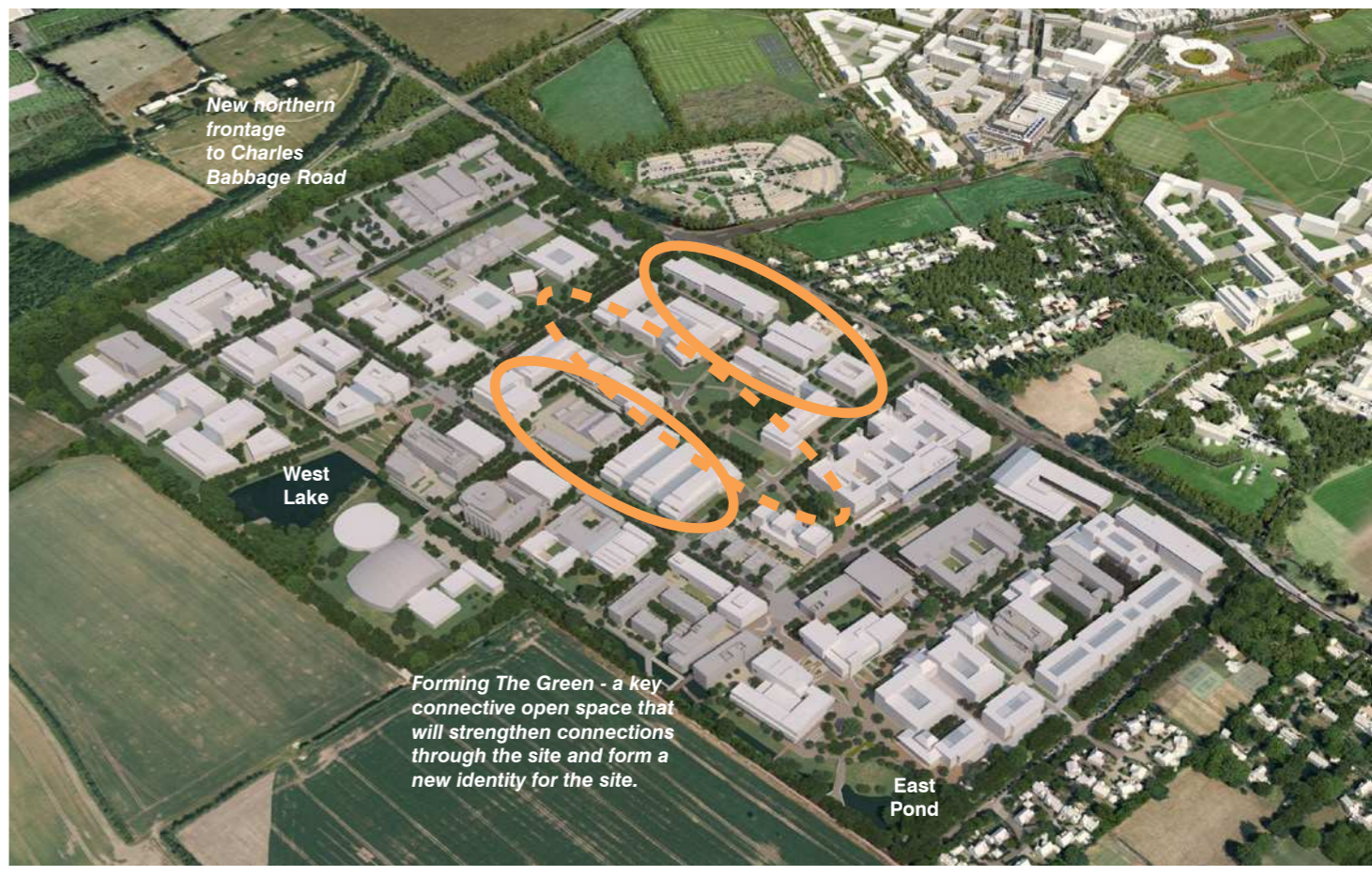
West Cambridge Site - Existing condition



West Cambridge Site - Priority Projects



West Cambridge Site - Interim Condition



West Cambridge Site - Full Development

05. The West Cambridge site - a Gradual Process of Transformation

0.5. Vision for West Cambridge: Gradual transformation of place

0.5.1 Key to forming a new University Science and Technology cluster at West Cambridge is the physical transformation of the site. The transformation will:

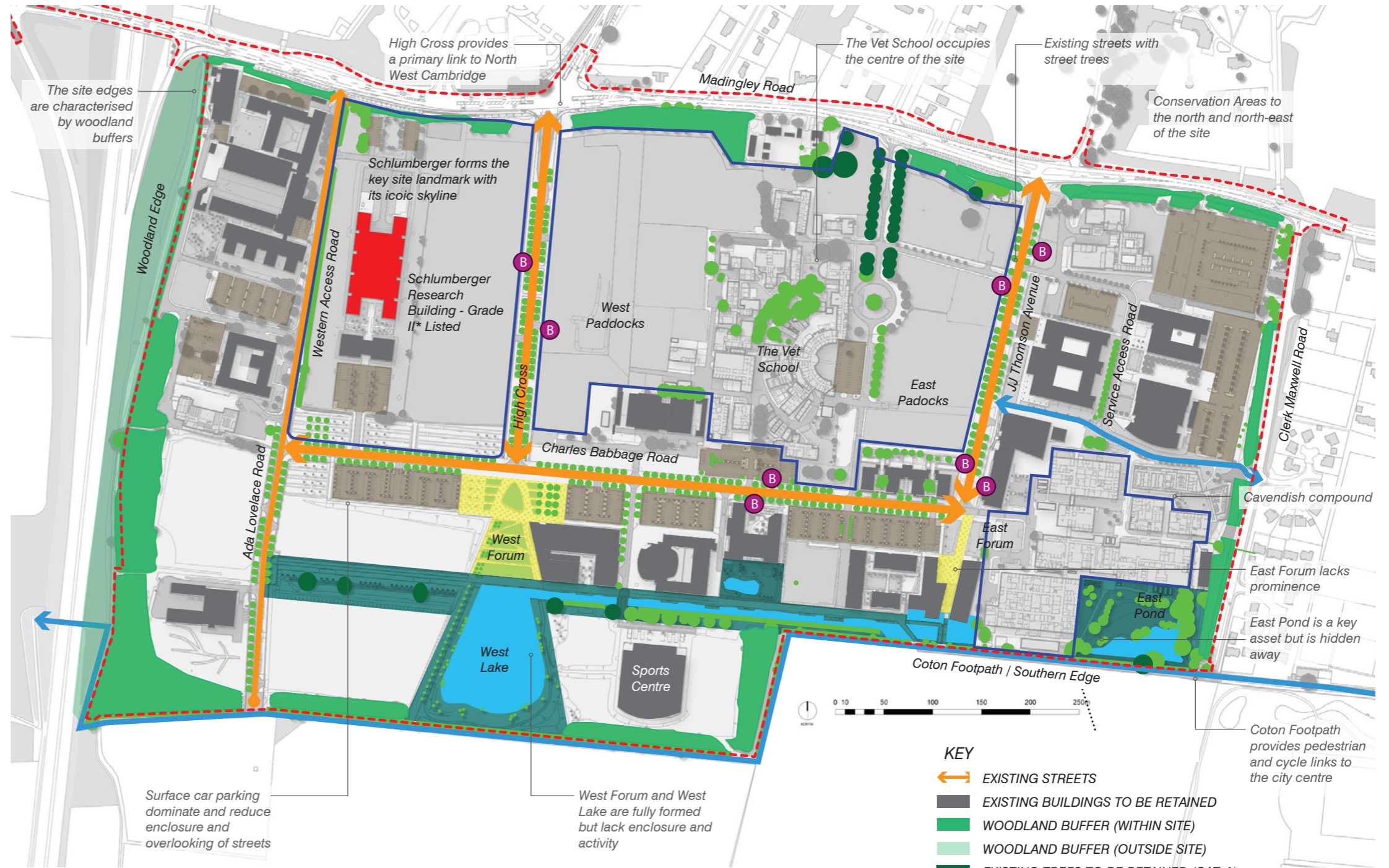
- provide a new and improved identity for the site that serves to enhance the University's national and international reputation;
- firmly establish West Cambridge (with the neighbouring North West Cambridge Development) as a new place within the city of Cambridge;
- create a new working environment that is attractive for University staff and students and is able to attract and retain commercial occupiers;
- increase the density of the site to ensure a new, greater population of users. This population will be supported by additional social amenities, recreational space, public realm as well as supporting uses and working space;
- transform the character of existing places and streets already within the site.

0.5.2 The intention is for a gradual transformation over time as new academic and commercial occupiers move in. Streets and spaces will be upgraded in-line with new development coming forward, for example JJ Thomson Garden, parts of the Central Green Link and the upgrade of JJ Thomson Avenue will take place in parallel with the development of the new Cavendish III Laboratories.

0.5.3 However it is important that the site does not continue to grow in a piecemeal way, but to cluster growth (initially around the Forums) to ensure that concentrations of development and activity can be formed.

0.5.4 There are high quality existing elements within the site that lend West Cambridge a certain character and identity. The proposed development aims to ensure that these are retained and reinforced or supplemented. These elements are:

- The Grade II* Listed Schlumberger Research Building which is an iconic building within the site. The proposed development aims to reinforce the prominence of this building and ensure that it remains the primary landmark building for the site;
- The Canalside, West Lake and East Pond already form a series of key spaces within the site as well as space for the strategic pedestrian and cycle network. The proposed development aims to retain these spaces, reinforce their ecological role and ensure that the existing water bodies form part of the social amenity of the site while retaining their drainage role;



06. The West Cambridge site - Existing condition and key elements for transformation

- Woodland buffers at the boundary provide character to the site but also to the surrounding streets. The buffers perform the crucial role of screening the site from views from the south, west and east as well as in the north protecting the setting and character of Madingley Road and the two Conservation Areas to the north and east of the site;
- There are existing specimen trees in various locations throughout the site and much of the existing streets are furnished with street trees. The intention of the proposed development is to retain these trees and allow them to grow to maturity in the long term. In addition new tree planting throughout the site will ensure that the green character of the site can be retained and reinforced.

0.5.5 However, certain elements require improvement. Key elements considered for transformation are:

- The East and West Forums have already been established and the proposed development aims to safeguard their prominence as key places, integrate them into a wider pedestrian network and ensure greater definition and enclosure from new development;
- The existing streets are at present monotonous, car dominated and lacking in enclosure. In the same way as the Forums, these streets shall be integrated into a greater landscape and movement framework, and the aim of the proposed development is to ensure that these routes are transformed into walkable streets which incorporate new levels of pedestrian activity and cycle movement.

0.5.6 In addition, the proposed development seeks to promote legibility by creating a new landscape framework of different but connected routes and spaces - from urban streets, to boulevards, to Green Links and pedestrian lanes.

0.5.7 With this aim of the promotion of a new site-wide landscape framework, a new open space element will be formed - The Green. This new east-west space will address the present lack of connection and legibility across the site and will link the site from east to west. Most importantly this new space will provide new visual connections by establishing a new view corridor from the east of the site to the iconic roof-line of the Schlumberger Research building.

0.5.8 The proposed development establishes a new wider network that builds on the existing streets within the site, connects to the city via the Cotton Footpath and forms links to the adjacent strategic network now being developed at the North West Cambridge Development, ensuring that the West Cambridge development becomes a strongly integrated part of the City.



Places for Meeting



A Pedestrian Place - Introducing Activity



Places for Relaxing



Social Places



New Social Facilities



Encouraging Different Ways of Working



Places for Collaboration



Promoting Interaction



New Working Environments



Collaboration and chance encounters



Student and Staff Experience



Events and Extra-curricular

07. The West Cambridge transformation - What Kind of Place?



**SITE-WIDE
DESIGN GUIDELINES**

01

1. SITE-WIDE DESIGN GUIDELINES

1.1. Public realm and landscape

1.1.1 The proposed development aims to transform West Cambridge through establishing a new landscape structure that will weave the site together, east to west and north to south. This structure will incorporate existing spaces and landscapes, will retain and incorporate existing trees and woodland buffers, transform the existing streets, while also establishing a range of new spaces. The landscape structure re-establishes West Cambridge as a green, pedestrian orientated and highly active place in the city.

1.1.2 The diagram in Figure 08 shows the arrangement of the different types of public realm across the site.

1.1.3 The following are the Guidelines for the proposed public realm throughout the site:

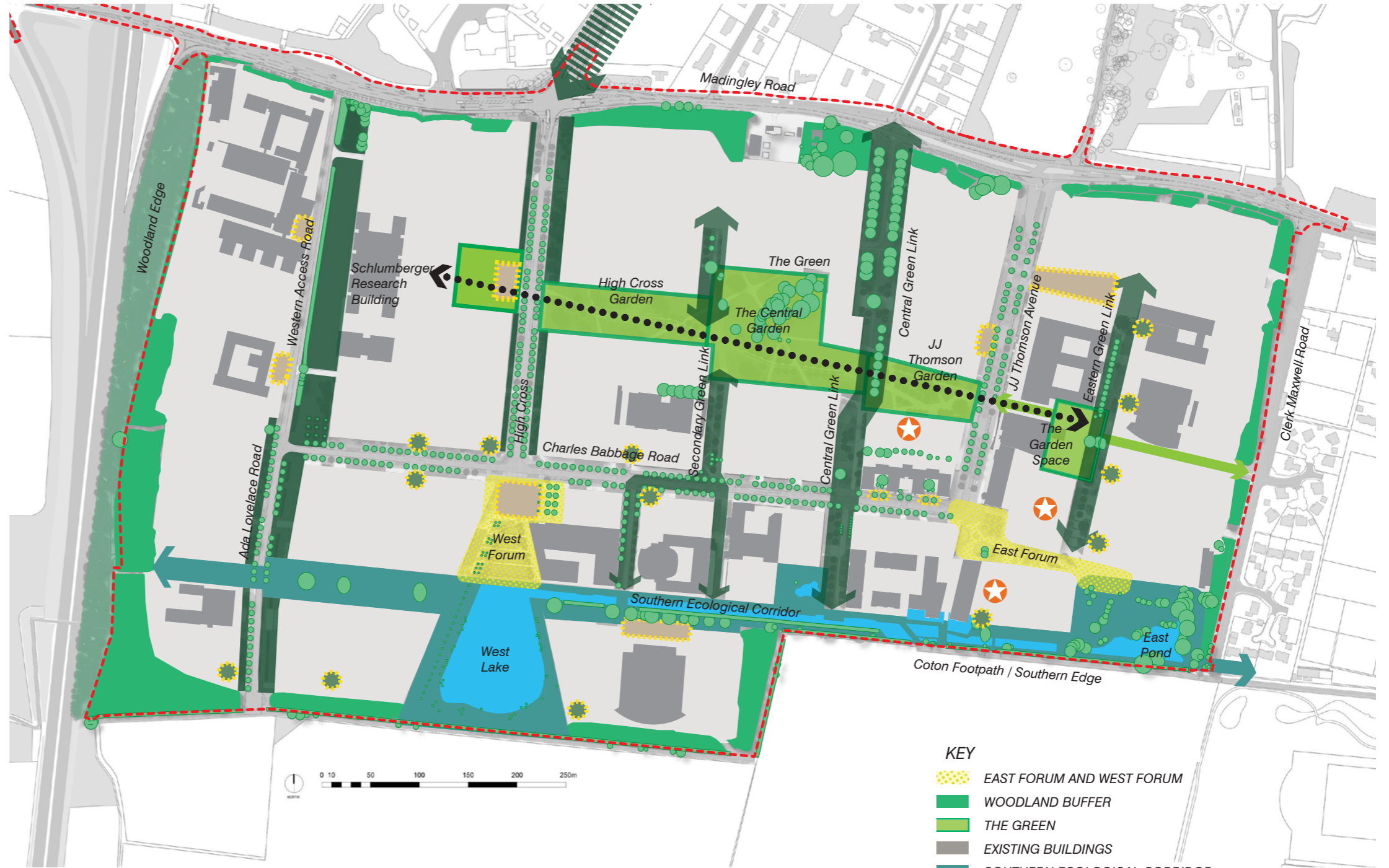
M

▪ The primary east-west orientated public realm spaces that shall be provided within the site are as follows:

- West Forum and East Forums shall be retained as the primary social public places within the site;
- The existing Southern Ecological Corridor along the southern edge shall be retained and reinforced with additional planting to form a more diverse ecological habitat. This space shall also maintain the existing strategic east-west pedestrian/cycle route that runs through the space. The existing canal must be upgraded and must connect West Lake with the East Pond and form the backbone of the site-wide drainage strategy;
- The Green open space shall be established. This space shall be formed as a series of connected 'Gardens' located between Clerk Maxwell Road in the east and High Cross in the west. These Gardens shall be arranged to allow a (straight) view line between JJ Thomson Avenue and the roof of the Listed Schlumberger Research building, and shall include a large, open, 'Central Garden' plus two 'gateway' gardens, one at High Cross and one at JJ Thomson Avenue. In addition, a 'Garden Space' between Clerk Maxwell Road and JJ Thomson Avenue shall be formed;

▪ A Garden space within the Schlumberger compound should also be formed and visually connected to the main sequence of Gardens, ensuring that the Schlumberger Research Building remains the key site landmark and the focal point of this space.

1.1.4 Further guidelines for the Key Spaces, are specified in Section 02 of this document.



08. Site-wide Principles: Public Realm and Landscape Structure

(shapes of open space are diagrammatic: the exact shapes may vary but the scale and total area correlate to the total area secured through Parameter Plans and Parameter Statement)

KEY

- EAST FORUM AND WEST FORUM
- WOODLAND BUFFER
- THE GREEN
- EXISTING BUILDINGS
- SOUTHERN ECOLOGICAL CORRIDOR
- GREEN LINKS
- ARRIVAL SQUARE
- POCKET LANDSCAPE
- EXISTING TREES TO BE RETAINED
- WATER BODIES
- SHARED FACILITIES HUB

1.1.5 In addition to the primary public realm spaces previously detailed, a network of Streets and Green Links - north-south landscaped connections formed partially from existing streets and partially from new spaces - will be established, as follows:

M

- The network of Streets and Green Links shall include:
 - The Eastern Green Link - a pedestrian only space connecting the Department of Engineering cluster south-wards to the East Forum spaces, and partially located between the existing Computer Laboratory and Roger Needham and CAPE buildings;
 - The Central Green Link - will be an upgraded and predominantly landscaped pedestrian and tertiary cycle link in the location of the existing former access road to the Vet School and the service lane for the Southern Residences. This link shall incorporate the existing group of high quality lime trees to the north. At the southern end, this link shall be widened to allow for additional landscaping;
 - Existing north-south streets shall be further greened through the use of development setbacks and landscaped areas formed alongside High Cross and Western Access/Ada Lovelace Road. This will ensure these existing streets are transformed in character and will contribute to the greening of the site;
 - The transformation of High Cross shall also provide an improved setting for the Listed Schlumberger Research building.

1.1.6 Additional Green Links should be formed, incorporating other existing tertiary streets located between the Southern Ecological Corridor and Charles Babbage Road, These existing streets should be greened and transformed to achieve better pedestrian comfort. Proposed development should allow the alignment of these existing streets to extend north-wards to the Green as illustrated on the diagram in Figure 08.

1.1.7 Further guidelines for the Streets and Green Links, including the minimum acceptable widths between buildings, are specified in Section 03 of this document.

1.1.8 Other types of spaces within the West Cambridge development will include Arrival Spaces. These will be located, in key locations, along existing streets and within key spaces. These spaces are intended to provide high quality 'address' and arrival for certain areas or key buildings within the site.

1.1.9 These Arrival Spaces shall include:

M

- Two site wide arrival points, shall be located at the East and West Forums;
- The sequence of Gardens within The Green should also visually include an arrival space/entrance to the Schlumberger Research building;
- Further arrival squares should be located to serve particular developments in other parts of the site, where required.

1.1.10 Lastly, smaller scale foreground and Pocket Landscapes should be formed in key locations by means of building set backs or other variations in building line. These spaces serve the purpose of providing adequate space for additional greenery and tree planting to the adjacent street, space or site edge.

1.1.11 Further guidelines for these Arrival Spaces and pocket landscapes are provided in Sections 02 and 03 of this document.

1.1.12 For the development of the site and the implementation of public realm, the intention is for a gradual transformation over time. Streets and spaces will be upgraded in-line with new development coming forward, for example JJ Thomson Garden, parts of the Central Green Link and the upgrade of JJ Thomson Avenue will take place in parallel with the development of the new Cavendish III Laboratories.

Artificial lighting - operational

1.1.13 Guidelines for artificial lighting within the West Cambridge site are as follows:

M

- Any new artificial lighting to buildings or spaces shall ensure that impacts of lighting on and off-site meet the Institute of Lighting Professionals - Guidance Notes for the Reduction of Obtrusive Light -GN01:2011 for the appropriate environmental zone;
- An artificial lighting scheme shall be submitted with each reserved matters application.

Public realm principles

1.1.14 The proposed development aims to provide a range of public spaces which are freely accessible by all site occupants and visitors. The following are guidelines for the design of the public realm:

M

- The design for the public realm shall:
 - Include hard and soft landscaped areas;
 - Include formal and less formal areas;
 - Consider safety and security;
 - Provide a range of publicly accessible areas and more private areas;
 - Allow good external daylight accessibility;
 - All external areas must be safely accessible by users of all abilities;
 - Consider the impacts of future climate change, providing for a comfortable environment in hotter summers.
- The design of public realm shall ensure that no potable water irrigation is required for landscape planting, apart from during a two year establishment period (this is particularly important for new tree planting). Planting which is either low irrigation, or which can use recycled water or rainwater shall be provided;
- The design of public realm shall take into account future climate change conditions. Preference shall be given to:
 - Planting which does not require irrigation after a two year establishment period; or
 - Drought resistant planting, to withstand warmer and drier summers.
- In appropriate locations, the public realm design shall include facilities and/or measures which allow site occupants to engage with biodiversity and ecology. These facilities may include signage and displays; educational measures a features; community gardens; rooftop gardens; and/or water features. Some of these features may be temporary and/or introduced in early phases as interim active uses;
- In addition to public open spaces, on plot open spaces should also be provided as part of individual plot developments, which will provide amenity to plot users but may have restricted access to public.

Sustainable drainage systems

1.1.15 A site-wide SuDS drainage strategy will be developed which integrates with existing infrastructure.

1.1.16 It is intended to incorporate rain gardens as part of the integrated street-scape drainage and landscape strategy, wherever this is possible given the existing trees and underground service constraints. Where SuDS can be provided, water will be integral to the landscape design and provide amenity and bio-diversity benefits.

1.1.17 The following are the Mandatory guidelines for the site wide SuDS approach:

M

- Site-wide SUDs infrastructure shall be incorporated in the external space in a manner which helps inform and educate occupants and visitors;
- Road side rain gardens shall be a minimum of 1.5m wide and 6m in length;
- Detailed designs for rain gardens shall be considered in the general locations shown in Section 03 of this document and shall be brought forward unless it is demonstrated that this is not technically possible or cost effective;
- Rain garden features shall be considered on a plot by plot basis for bio-retention and brought forward during detail design;
- Individual SuDS strategies for each reserved matters application shall be carried out for the benefit of water quality, biodiversity and the landscape provision. The strategies held within individual RMA's shall integrate with the site wide SuDS strategy;
- Engineered soils (gravel & sand layers) and enhanced vegetation shall be considered to improve treatment performance;
- Rain garden features shall be planted with a variety species appropriate for the conditions and the expected saturation level. Species shall be robust, drought tolerant, salt tolerant and preferably native grasses. Grasses with a soil-binding root structure shall be favoured along the bottom of the rain garden for their ability to aid in the filtration of pollutants and stabilize soils;
- Site wide infrastructure shall meet best practice guidance such as the Ciria SuDS Manual (C753).
- Rain garden features should offer a variety of creative design interpretations to suit different parts of the site.

1.2. Retention of existing trees

1.2.1 The design guidelines on this and the next page are to be read in conjunction with the Arboriculture Impact Assessment Report, 'West Cambridge Masterplan EIA Arboriculture Impact Assessment Report' and the 'West Cambridge Masterplan Woodland Management Plan' which are based on information captured in February 2015 by Atkins Senior Arboriculturist.

Tree assessment

1.2.2 Existing trees on the site were surveyed and recorded as individual specimens or groups with their root protection zones. Trees were assessed to reflect arboricultural, landscape and cultural values and assigned BS categories A, B or C, in accordance with BS5837: 2012;

1.2.3 **Mandatory Trees and Hedgerows** are illustrated on Figure 09 and are represented in solid colours assigned to BS categories: A-green; B-blue; & C-grey.

1.2.4 **Non-mandatory Trees and Hedgerows** are also illustrated on Figure 09 and are represented in outline colours assigned to BS categories: A-green; B-blue; C-grey; and U-red.

Buffers from tree stem to building edge

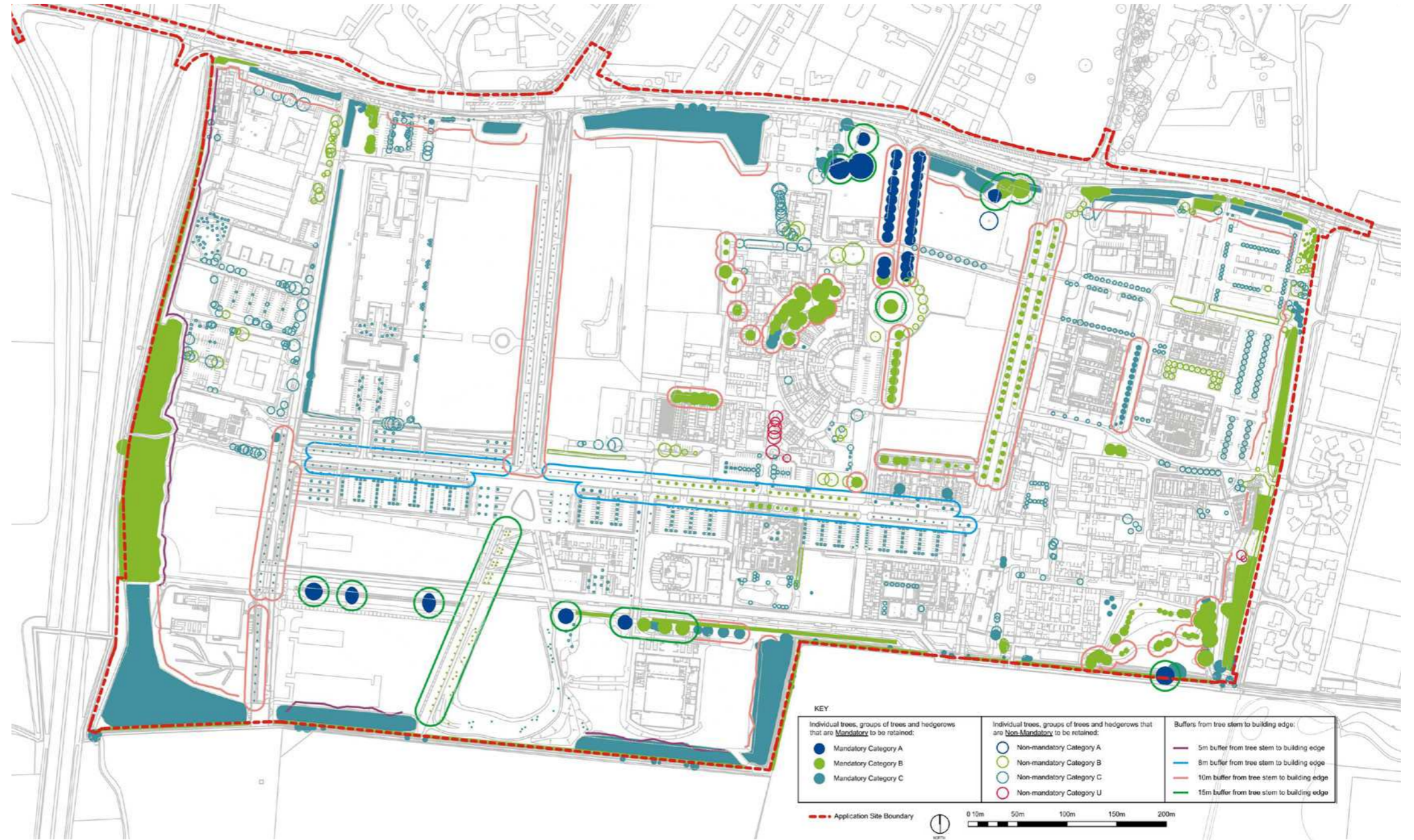
1.2.5 It is understood that in order for existing trees to grow to their potential, permanent buffers are required between the tree and any adjacent development. The extent of these buffers are specified in the 'West Cambridge Masterplan EIA Arboriculture Impact Assessment Report' and these buffers are measured from tree stem to building edge and are illustrated in Figure 09.

1.2.6 Within these buffers, elements such as: servicing routes and/or areas; at grade car parking; fencing; surface water drainage etc. shall be allowed through prior agreement with the LPA through the reserved matters applications.

1.2.7 Proposed buffers to existing trees are to be seen as a general working assumption, rather than definitively fixed. The precise extent of buffer will be fixed at reserved matters stage for the relevant development plot.

Woodland Edges

1.2.8 The Woodland Management Plan addresses the woodland edge conditions and sets out a management plan for these trees.



09.Existing Trees: Groups of Trees and Hedgerows to be Retained (with buffers)

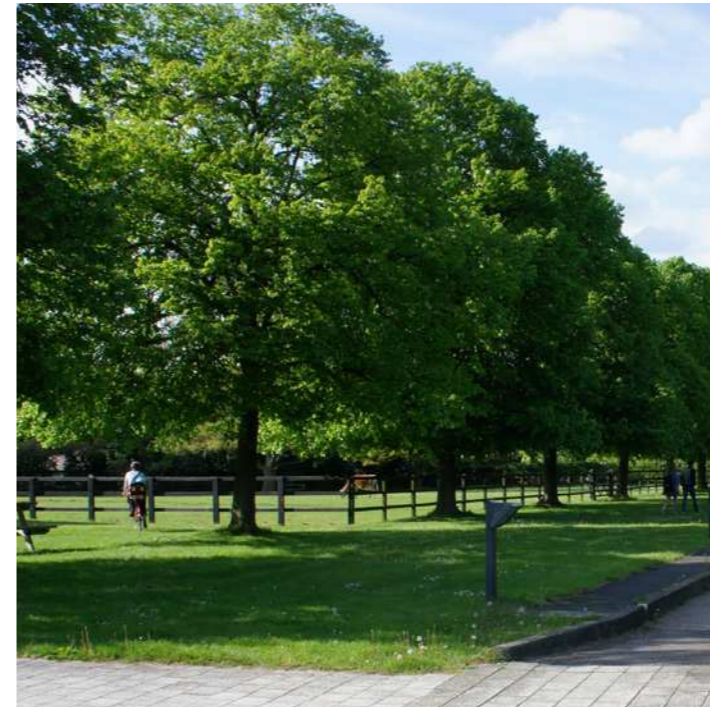
1.2.9 The following are the Mandatory principles for the retention of existing trees throughout the site:

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- Mandatory Trees and Hedgerows shall be retained, their root protection area uncompromised and the appropriate buffer zone (as set out in the 'West Cambridge Masterplan EIA Arboriculture Impact Assessment Report') shall be provided to building edge;
- Woodland infill planting at the site edges shall be native trees and shrubs and shall be in accordance with the 'West Cambridge Masterplan Woodland Management Plan';
- Selective Removals: The design of new access points and service routes will require the selective removal of trees. Selective removal shall be carefully considered and designers shall demonstrate a sympathetic approach to the layout of any development for minimal tree removal. Any tree removals shall be assessed on an individual basis and addressed during reserved matters applications;
- Avenue trees to High Cross, Charles Babbage Road, JJ Thomson Avenue and Western Access/ Ada Lovelace are Mandatory to be retained but shall require selective removals to facilitate access to the plots or replace trees in ill health. Street tree removals shall be assessed on an individual basis and addressed during reserved matters applications and where trees are removed due to ill health planting conditions shall be improved before new planting is introduced;
- Where possible, Non-mandatory Trees should be retained within the existing and proposed public realm and the proposed development areas. New developments should consider a sympathetic approach to the layout of built form to retain and incorporate these trees.



10. Existing Trees: Norway Maple tree 028



11. Existing Trees: Lime tree group G057



12. Existing Trees: Weeping Willow tree group G037



13. Existing Trees: English Oak tree 066



14. Existing Trees: English Oak trees 065, 064 & 063



15. Existing Trees: English Oak trees 024

1.3. Access and movement

1.3.1 The existing on-site primary street network consists of four existing streets: High Cross, JJ Thomson Avenue, Charles Babbage Road and Western Access/Ada Lovelace Road. In addition there are a series of existing tertiary streets, specifically located to the south of the site serving developments to the south of Charles Babbage Road, and to the east, serving existing development and car parking to the east of JJ Thomson Avenue.

1.3.2 The strategic cycle and pedestrian connection, the Coton Footpath, runs along the southern boundary and a new strategic network is now evolving within and around North West Cambridge in the north. An existing primary cycle route crosses the site from east to west through the Southern Ecological Corridor and there is a second primary cycle link from Clerk Maxwell Road to JJ Thomson Avenue within the centre of the site.

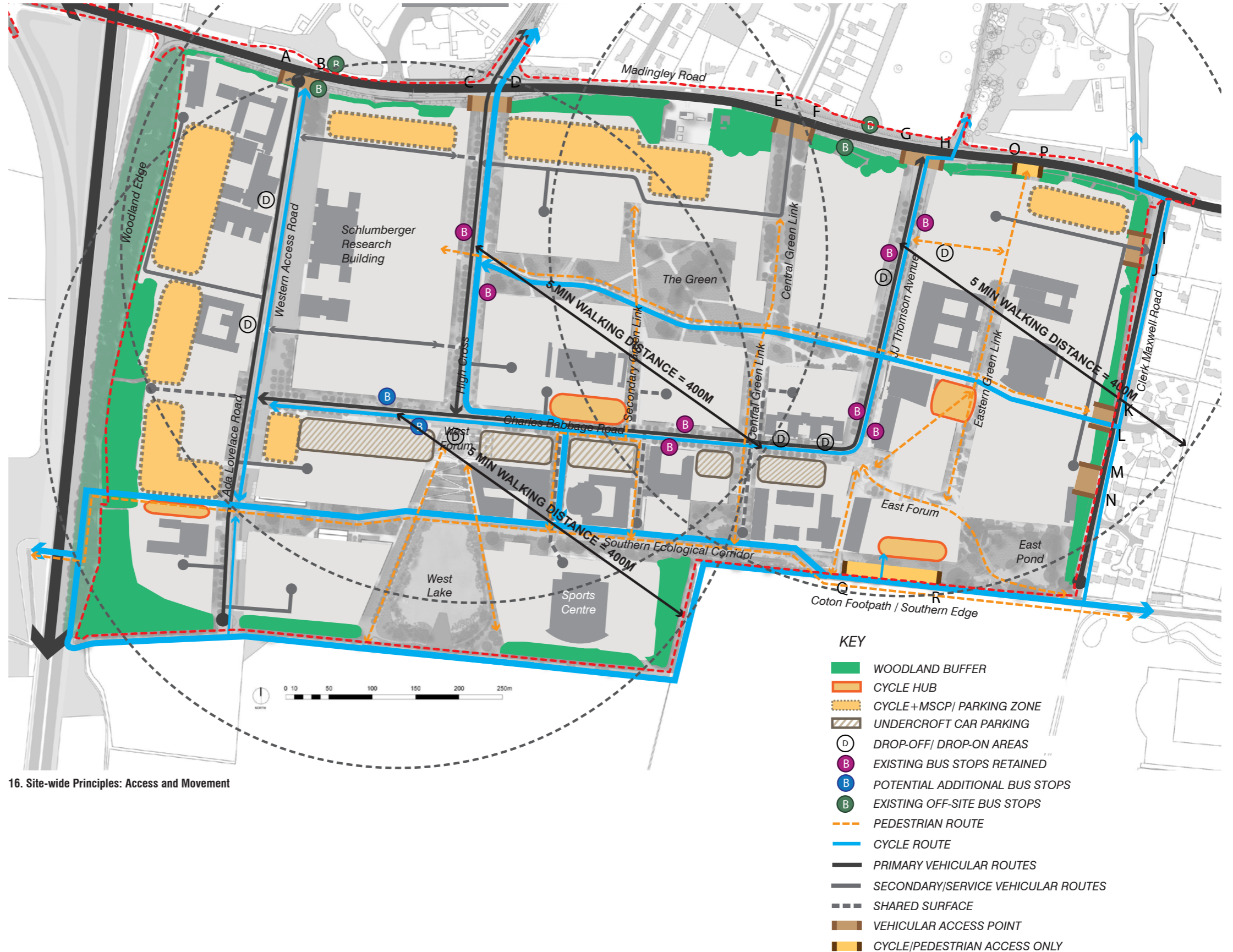
1.3.3 Existing vehicular access points are located on Madingley Road (at High Cross and JJ Thomson Avenue) and on Clerk Maxwell Road (access to the Park and Cycle).

1.3.4 Figure 16 on this page indicates the existing on-site bus stops which will be retained, existing off-site bus stops on Madingley Road and indicative locations for potential additional bus stops for existing bus routes or bus routes which may be considered in future. The on-site bus stops service the existing bus services which utilise the High Cross, Charles Babbage Road and JJ Thomson Avenue loop.

1.3.5 The shown arrangement of on and off-site bus stops ensures that walking catchments from the bus stops to be a maximum distance of 400m to any of the buildings and development areas within the site as shown in Figure 16.

1.3.6 The primary streets and many of the tertiary streets will be retained within the development and will be transformed in role and character. Additional streets/lanes and Green Links will be introduced to ensure that the existing street network can be enriched and then extended to encompass the whole site. The access, movement and car parking strategy will ensure that these streets form part of the wider landscape framework and contribute to the creation of a walkable, pedestrian orientated place.

1.3.7 Additional guidelines in regard to the existing streets are provided in the Streets and Green Links - Section 03.



1.3.8 The key access and movement guidelines that apply site-wide are as follows:

Vehicular movement

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- Two new vehicular access points shall be provided from Madingley Road. Apart from the two listed below, no other new vehicular access points shall be formed along Madingley Road:
 - In later stages of the development, a new junction at the Western Access Road shall provide a new access point into the site;
 - A new secondary access shall be introduced at the historic Vet School approach road (to the west of JJ Thomson Avenue);
- In addition, secondary access points shall be provided to the east of the site along Clerk Maxwell Road. These shall provide access and egress to a limited number of plots west of Clerk Maxwell Road (I-J, K-L and M-N in Figure 16). It is anticipated that only two access points along Clerk Maxwell Road will be required;
- Access point K-L, if required, shall be exit only, as shown on Parameter Plan 3. At this stage planning consent is sought for this egress to provide flexibility around the access and servicing of the plots to the north. Reserved Matters applications will demonstrate whether or not K-L is required for vehicular egress.
- Access/egress point M-N will be implemented in association with the redevelopment of the existing Cavendish site. Once operational, egress point K-L (if operational) will cease to be operational;
- The four primary existing streets shall be transformed so that they comfortably accommodate motor vehicle and bus movement, as well as cycles and pedestrians;
- Raised tables shall not be used within the site-wide street network. This is to maintain a vibration free environment for sensitive equipment and experiments within laboratories;
- The existing primary bus stops shall be retained in the locations shown and shall be incorporated into the proposed landscape design of the street.

Creating a low speed environment

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- Traffic calming measures to reduce the dominance of motor vehicles and help slow traffic to a target speed of 20mph shall be introduced along existing and proposed streets;
- Traffic calming measures may include elements such as: change of surface material at crossing points; on-street parking; vertical elements and median strips to reduce the appearance of street width; and varied planting;
- Pedestrian and cycle crossing points shall be incorporated at key locations along the existing primary streets. These shall be located to ensure strong connections across the site for cyclists and pedestrians, but also to slow traffic speeds along the existing streets. The locations for crossing points are shown in the Streets and Green Links Section 03.

Cycle movement and parking

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- Cycle routes shall be provided within the key streets as shown in Figure 16, either off-street, on shared footways or on street within a low-speed environment. See Section 03 for more detail;
- A new pedestrian & cycle route shall be located within The Green, between JJ Thomson Avenue and High Cross, and shall be a continuation of the existing cycle route that crosses the site from Clerk Maxwell Road to JJ Thomson Avenue;
- The existing primary strategic pedestrian & cycle route shall be retained within the Southern Ecological Corridor, and shall be extended to the western site boundary to connect to the Coton Footpath and the M11 footbridge;
- Cycle hubs accommodating large numbers of cycle parks shall be located adjacent to primary cycle routes. These facilities shall be located within built form to ensure limited visual impact on the adjacent public spaces;
- Large areas of cycle parking shall not be located in the key spaces. These shall be provided in the zones shown in Figure 16, and also: within the ground/ lower floors of any multi-storey parking structure; consolidated within covered and secure major cycle parking hubs, or in secondary open spaces within the development;
- Only very limited areas of cycle parking for visitors shall be provided within the key spaces. These shall only be located adjacent to shared facilities or building entrances;
- Cycle parking provision shall comply with Cambridge City Cycle Parking Standards. Cycle racks and stands shall conform to the design and dimensions set out in Cambridge City Cycle Parking Standards.

Servicing

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- Servicing and service yards, shall not be visible from the key spaces and primary streets. Service yards shall be screened by new development or the woodland buffer at the site edges.

Car parking

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- Any multi storey car parking structures shall be located in the zones indicated on the diagram: along the northern, western and eastern site edges - but not along the southern development edge;
- Lower ground or basement parking shall be located along Charles Babbage Road;
- Car parking areas in basement or semi-basement and their access points shall not be visible from and shall be located away from the primary streets;
- Clear pedestrian routes to all major car parking areas and structures shall be provided. Pedestrian access shall be carefully considered to ensure that users can access parking easily and safely;
- Surface car parking shall be permitted along the woodland buffer edge to the west of the site;
- Surface car parking within public realm shall be kept to a minimum (disabled parking only) and shall be integrated well into the public realm design;
- On street parking on primary streets shall be used for disabled only and no more than 4 parallel parking bays are allowed in a row.

1.4. Urban structure

1.4.1 The proposed development aims to transform West Cambridge through promoting a new density of development. A greater population density can then support a range of research activities, as well as a wider variety of social amenities and active uses. These amenities will be focused in the key spaces and streets and built form will define these spaces, and form a clear spatial hierarchy and range of different spaces types.

1.4.2 To enable this spatial hierarchy to be formed, an associated hierarchy of frontages has been developed and the frontage types are described in the following pages. Existing buildings will be incorporated and contribute to this new urban structure (if they are to be re-modelled in the future).

1.4.3 In addition to a new frontage hierarchy, a series of site gateways and potential locations for building accents have been defined.

1.4.4 The Listed Schlumberger Research building will remain the primary site landmark and development and development frontage will ensure that this building remains a key visual focus for the site.

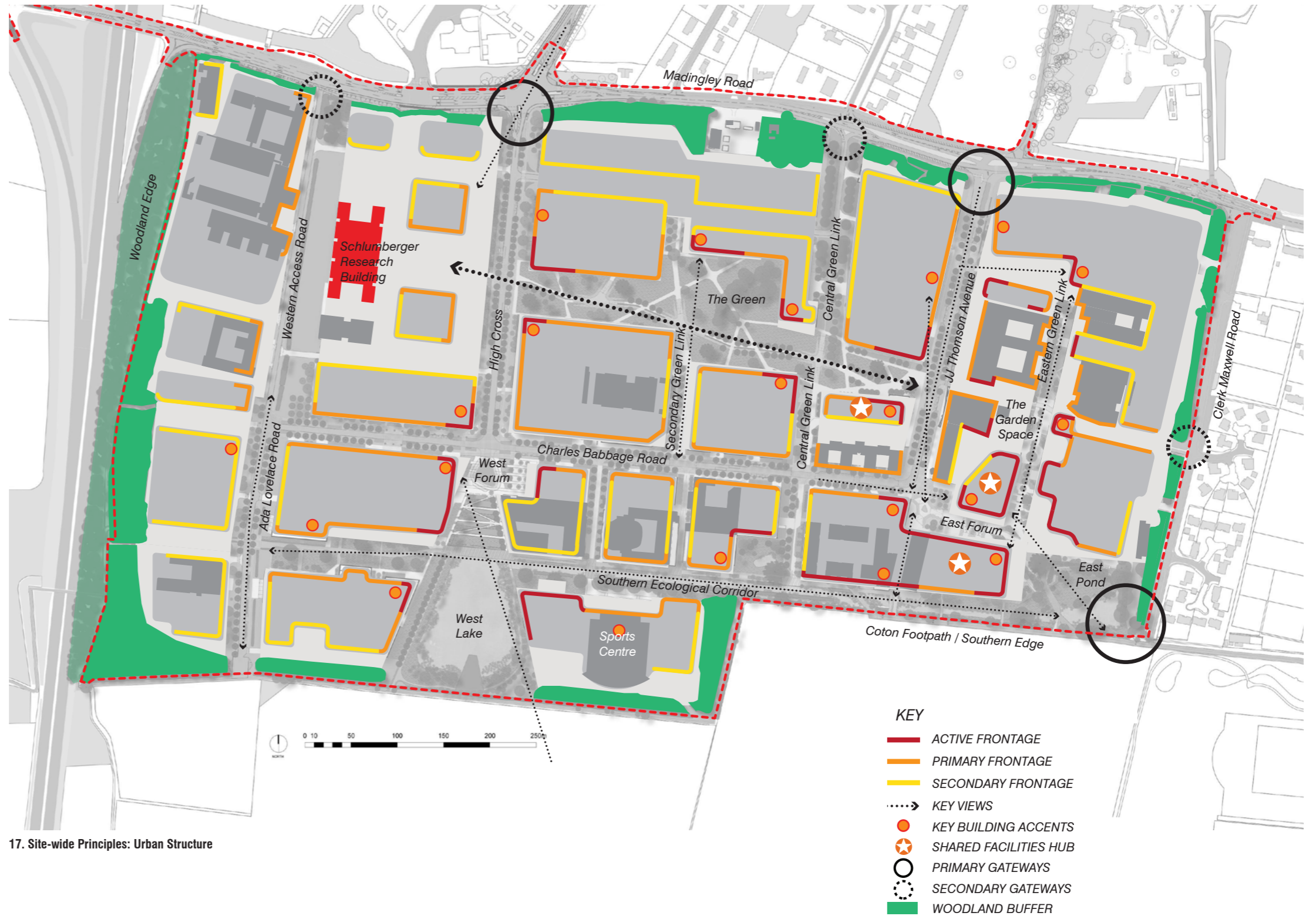
1.4.5 The diagram in Figure 17 shows the arrangement of the different types of frontage (for existing buildings and new development), the site gateways and potential locations for building accents across the site.

Incorporating existing buildings

1.4.6 Key principles for incorporating existing buildings are as follows:

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- New development shall provide an appropriate setback from existing buildings to facilitate daylight/sunlight (consistent with BRE standards) and ventilation into existing internal and external spaces;
- Proposed development shall allow for good levels of daylight to all external building facades (new and existing buildings), allowing a view of the sky from all occupied areas;
- Where space use allows and where inlets can be at least 10m from sources of external pollution (car parking, roads, plant exhausts, etc), design shall seek that all occupied areas have access to natural ventilation;
- If existing buildings are to be remodelled at any point in the future, they should be re-configured in accordance with the principles set out within this document. Where existing buildings are to be re-modelled, the relevant reserved matters application will set out the interventions to be carried out.



17. Site-wide Principles: Urban Structure

Site gateways, landmarks and building accents

1.4.7 The main site access points as existing do not present West Cambridge as a place of quality or describe the activities that are/will be present. It is the intention that any proposed buildings and landscape in these vicinities, working together, will improve the visual quality of these gateway/entrance locations.

1.4.8 Key principles for gateways and building accents are as follows:

- The Listed Schlumberger Research building shall remain the primary landmark for the site. New development and spaces shall work together to define a new and appropriate setting for this building;
 - High quality development and landscape shall work together to re-define the primary access gateways on Madingley Road at JJ Thomson Avenue and High Cross;
 - High quality development and landscape shall form a new primary access gateway (pedestrian and cycle only) to the south of the site at East Pond, connecting to the Coton Footpath;
 - Any building accents shall be consistent with the approved maximum building heights as set out in Parameter Plan 05;
- Other secondary gateway locations should be located along Madingley Road and Clerk Maxwell Road;
- The gateways should describe different characters to aid legibility and to relate to the key street or space within the site they are associated with. The gateway at JJ Thomson Avenue should have a character which will form a balance between building and landscape elements, while the gateway at High Cross should be broader and more landscape dominated;
- Building accents should be located so that they visually connect with and are associated with the key spaces as set out within this document;
- Where buildings terminate key views (as set out in the Figure 17), built form should provide additional interest/accents. Height may be increased at these points to create variety in skyline and massing, but shall remain in accordance with Parameter Plan 05.

Frontage types

Primary frontages

1.4.10 These frontages are highly visible, and are located to provide strong definition, enclosure and overlooking to the key spaces and primary streets, namely: East and West Forums, The Green, the Southern Ecological Corridor, JJ Thompson Avenue, High Cross, Charles Babbage Road, Western Access Road and the Eastern Green Link.

1.4.11 These frontage types will not contain active uses, but will accommodate major and minor building entrances and lobbies.

1.4.12 Key principles for Primary Frontages are as follows:

- Primary frontages shall be of high quality design and be well articulated with fenestration, other façade elements and/or use of materials;
- Car parking access shall not be located along these frontages at ground level;
- Any car parking located within the ground or lower ground floors of these frontages shall be well integrated into the frontage design and shall not reduce overlooking of the adjacent street or public space;
- Provision for servicing of buildings shall not be located in primary frontage locations;
- Primary frontages shall incorporate building entrances to new and existing development and/or fenestration, providing a degree of overlooking to public space.



18. Primary Frontages

Active frontages

1.4.13 These are primary frontages that also feature and give prominence to the activity held within the related building and provide greater animation to the adjacent public realm. Active uses proposed within the development will range from major canteens, cafés and shops to be located on ground floors only; to academic break out space, major circulation spaces, study spaces and meeting rooms which could also be located on upper levels.

1.4.14 Major entrances and lobbies to buildings are also defined as components of active frontages (since they provide a high degree of activity in the public realm).

1.4.15 The development will cluster active frontages at the key spaces: the East and West Forums, the East Pond gateway space, and at highly visible locations along The Green and the Southern Ecological Corridor frontages.

1.4.16 Key principles for ground floor and upper floor Active Frontages are as follows:

- Ground floor active frontage shall ensure high levels of physical connection and visual transparency between internal spaces and adjacent external public realm;
- Ground floor active frontages shall provide a high degree of overlooking to adjacent public realm;
- Car parking and car parking access shall not be located along these frontages at ground level; and car parking shall not be visible within the ground floors of these frontages;
- Service areas and plant shall not be located at active frontage locations (both ground and upper floors);



19. Active frontages



20. Active Frontages: entrances to buildings

- Activity from within the ground floor active frontage should spill-out into adjacent public realm; for example cafe tables and chairs, outdoor teaching space, etc;
- Activity on upper floors should also feature as part of an active frontage, and this type of active frontage should relate to any academic social spaces set above ground floor;
- The inclusion of upper level active frontages can bring additional animation and overlooking to key spaces and provide further variation to frontages. These elements should be celebrated within the frontage design and should contribute an additional sense of activity within the adjacent public space;
- This upper level activity should be considered primarily on frontages overlooking The Green (providing views back to the city centre skyline) and on the Southern Edge (providing south facing views over open countryside) as well as other active frontage locations (see Figure 17).

Secondary frontages

1.4.17 These frontages are located where good enclosure and definition of spaces is required. These are less visible frontages which overlook and enclose secondary spaces and streets such as: Ada Lovelace Road, tertiary streets and Green Links.

1.4.18 Key principles for Secondary Frontages are as follows:

- These frontage types should have a lesser quality of design articulation than primary frontages, but should still provide a level of interest and articulation;
- These frontage types should provide enclosure to secondary or ancillary spaces.



21. Secondary Frontages

Facade treatment

1.4.19 Key guidelines for the material treatment of facades are as follows:

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- Transparent façades shall be used for active frontages and for publicly accessible parts of the proposed buildings;
- Colour choice of façade materials shall be carefully considered, as very light or reflective facade treatments can have greater impact on the surrounding landscape and views to the development;
- Highly visible façades, located at sensitive edges and/or facing key spaces shall be treated using high quality materials and detailing;
- Some research buildings will have greater requirements for servicing areas and/or sensitive technical areas which will result in some blank façades. These blank façades shall provide variation and interest through use of setbacks, varied roofline and use of materials and planting;
- Treatment of façades shall be sensitive in scale and the use of materials;
- Materials for less visible façades shall be robust and designed to age well.

Frontage lengths

1.4.20 It is anticipated that the type of uses that will make up the West Cambridge development, will require relatively large format floor plates. In addition, the development strategy rests on the creation of large multi-storey car parking structures. Both these types of buildings and structures may give rise to long, unbroken frontages.

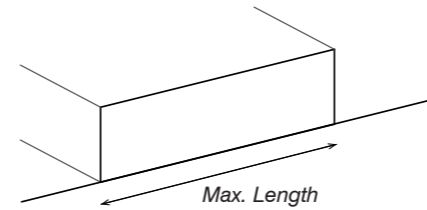
1.4.21 To mitigate this and ensure that longer frontages can still contribute to creating character and variation, a set of principles are set out which provide possible design strategies to minimise long, unbroken frontages. This page and the following (Figures 24 and 25) provide a description of these strategies which include:

- variation in build-to line, height or roofscape;
- a variety of architectural treatment related to architectural elements and/or materials;
- gaps, setbacks and variation in building line (further requirements are provided in the following Sections);
- Landscaped gaps and setbacks, incorporating trees.

1.4.22 The key principles for the treatment of long frontages are set out below:

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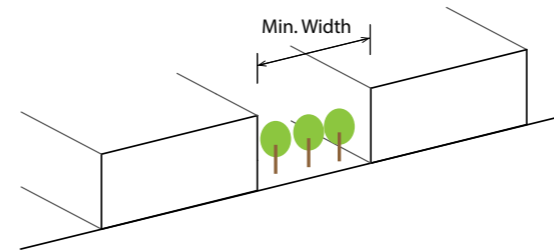
- The maximum length of an uninterrupted building frontage and/or roof line shall not exceed 50m;
- The frontages longer than 50m shall employ at least one of the strategies described on in Figure 24 and above for breaking the long frontages. The choice of one or more of the strategies will depend on the location on the site: some strategies will be better suited for the site edges (for example using planting adjacent to woodland buffers) others will be required along streets or key spaces (for example varying roof lines and building lines).



Max. Length

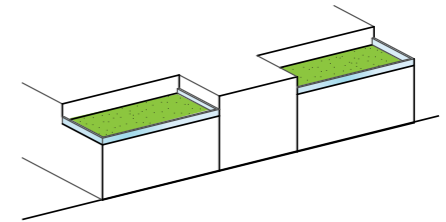
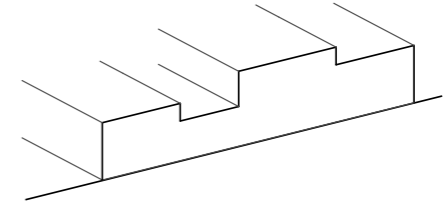
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Maximum length of uninterrupted building frontages and/or rooflines shall be limited to 50m.

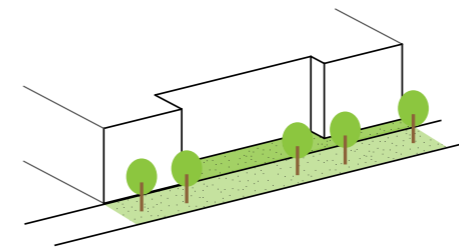
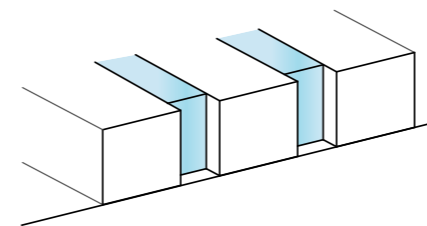
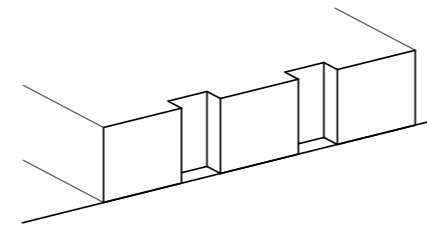


Min. Width

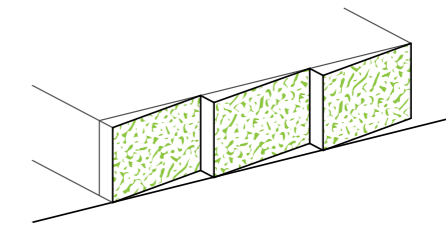
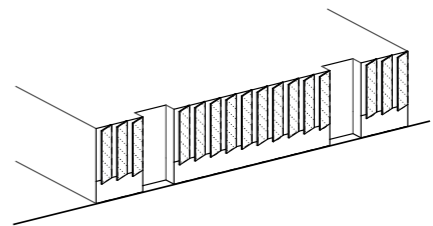
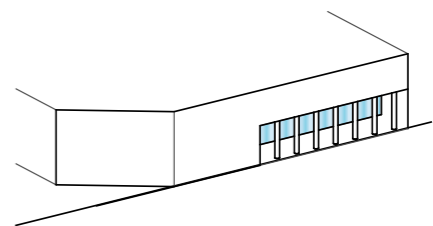
In a number of places, landscaped gaps and links are protected by parameter plans and/or design guidelines and their minimum width is defined. In addition to these gaps, where possible, landscaped frontage breaks should be introduced to break long frontages and provide additional greenery to the site.



Variation in rooflines: by variation in height or by partial setback of upper floors or arrangement of cores. Setbacks and lower parts of roofs may be usable terraces and edge planting or green/brown roofs may be considered. The partial upper floor setbacks shall be minimum 1m deep. This document provides dimensions for setbacks in the specific locations where they are required.



Variation in plan: by introducing indents, glazed gaps, partial building set backs (variation in building line), setbacks with foreground landscaping and trees etc.



Variation in facade elements and treatments: introduction of colonnades or overhangs, chamfers or treatment with different materials etc. Use of planting: foreground planting and climbers on trellises, which could be particularly useful in cases of blank façades



22. Longer frontages - use of setbacks and roof line variation



23. Longer frontages - use of setbacks and incorporating landscape

24. Principles for longer frontages

Multi-storey car parking structures (MSCPS)

1.4.23 As part of the West Cambridge movement strategy a number of multi storey car parking structures are proposed. These will be located at the edges of the site to minimise traffic movements within the site, ensuring that a pedestrian and cycle orientated environment can be created and maintained within the heart of the site. Some of these structures will be located close to residential areas and Conservation Areas on Madingley Road, and so the treatment of these structures becomes important to ensure that visual impacts are minimised on the surrounding areas.

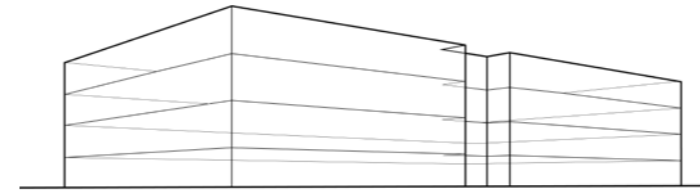
1.4.24 Guidelines for the treatment of large volume MSCPS are as follows:

- Car parking structures shall conform to maximum height parameters and any additional height or frontage guidelines contained within this document that are applied to their location;
- Lengths of unbroken frontages on MSCPS shall be limited to 50m;
- Frontage lengths longer than 50m shall be broken by introducing one or more of the strategies and/or other measures described in the following text and in Figure 25, which achieve the effect of introducing variety and breaking down the frontage length.

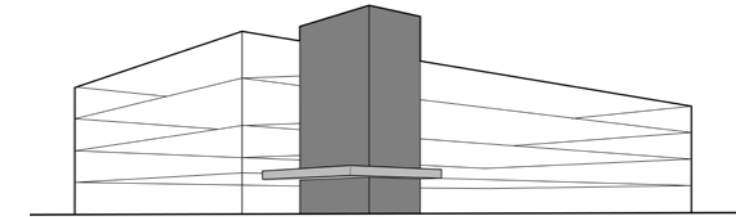
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1.4.25 In order to achieve further articulation of these buildings and frontages, the following strategies should be applied. These can be applied individually or one or more strategies can be employed along a frontage. The appropriate strategies include:

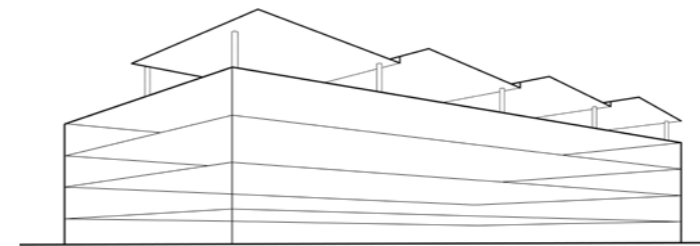
- Massing should be varied by using indents and setbacks;
- Larger volumes of MSCPS should be broken by adjoining smaller volumes of parking and/or by varying their heights; by introducing simple floor plate variations between different floors; by detaching or treating cores separately, etc.;
- Any pedestrian access points should be celebrated and made visible and vertical cores should be formally separated;
- Variation in roof line should be introduced by accentuating cores, introducing oblique roof lines, varying roof elements or dimensions of facade elements, etc.;
- At the site edges vegetation should be used, for example: by planting trees along frontages; partially raising adjacent terrain and planting on it, etc. Care should be taken to ensure that planting is placed in locations in that will receive adequate sunlight for growth;
- Facade materials should be varied: either vertically or horizontally;
- Using transparent facade materials, especially on ground and top levels;
- Where appropriate, interest should be introduced through integrating or wrapping MSCPS with other uses (such as cycle parking, storage facilities etc.) on ground floors. This would be important particularly in zones with higher visibility and footfall.



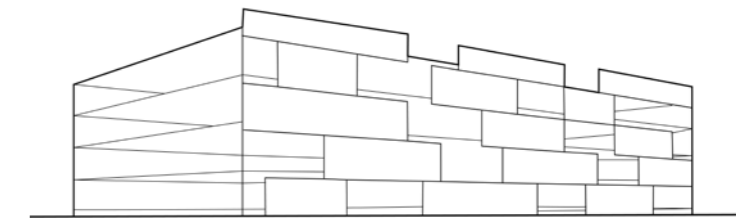
Variation in building line - breaking long car park frontage with a 'notch'



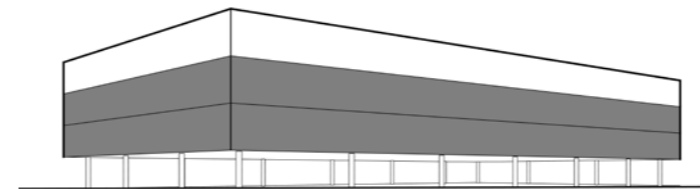
Variation in building line - celebrating cores and access points



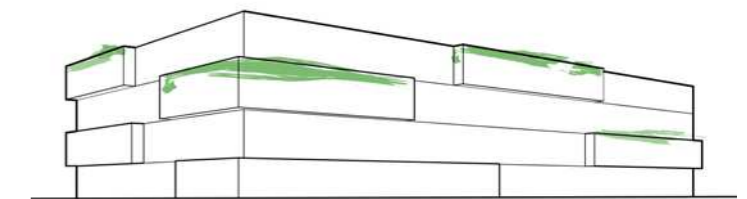
Variation in massing and roof line - through set backs or creating rhythm and breaking the eaves line



Variation in massing and roofline - breaking the eaves line



Materials - forming a base, middle and top



Materials - projections may be used to break up frontage and add planting

25. Car parking structures - consideration must be given to limiting frontage length and variation in massing and roofline and uses of materials

Vertical variation in materials and variation in massing by treating the core separately



26. Parking structure in La Coruna:



27. Climbing plants on simple screen structure



28. Use of natural materials



29. Celebrating entrances and cores



30. Variation in massing and material

1.5. Massing, roofscape and skyline

1.5.1 The new development will transform the West Cambridge site by introducing a new urbanity and greater density of development. Managing this new density to provide interest, variation in roof line, as well as form new roof-scape in a purposeful and legible way, is a key driver for both the planning Parameters and the Guidelines held within this document.

1.5.2 Both the Guidelines and Parameter Plans serve to manage the proposed development at the edges of the site to ensure reduced visual impact for residential and Conservation areas adjacent to the site and landscapes further afield.

1.5.3 The heights are generally taller towards the centre of the site around The Green. Guidelines within this document ensure that this space receives good daylight and sunlight penetration.

1.5.4 Although heights are generally taller in the centre of the site, around the Listed Schlumberger Research building heights have been kept lower to ensure that this iconic building remains the key site landmark within the site.

1.5.5 Parameter Plan 05 sets out the maximum height envelopes, and ensures that lower development is located at the site edges and higher development tends to be located within the central part of the site.

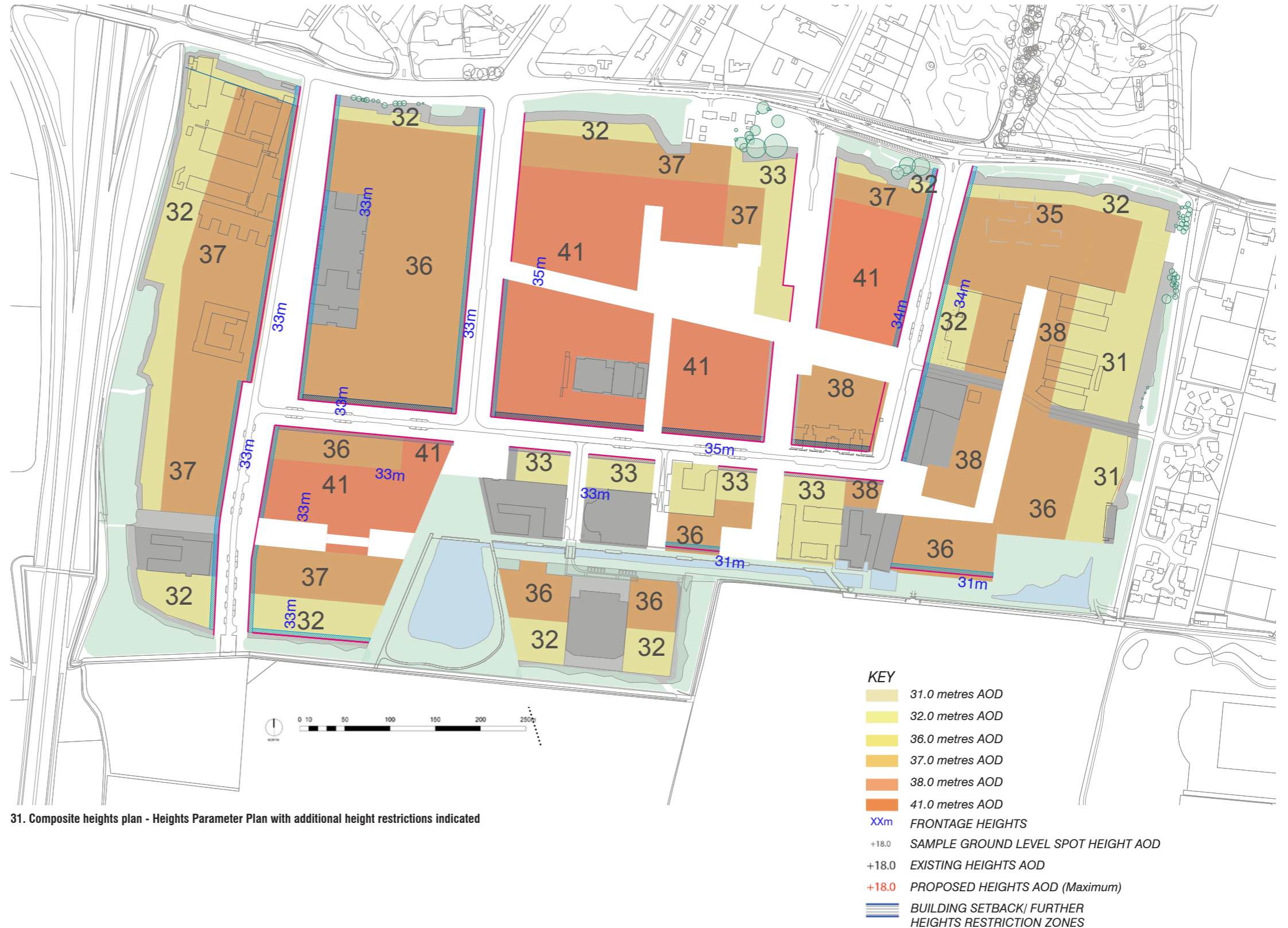
1.5.6 Figure 31 on this page reproduces Parameter Plan 05, but also indicates the areas where there are additional height restrictions.

1.5.7 The guidelines within other sections of this document provide the detail of these additional height restrictions. The additional restrictions vary according to location within the development. For example, some restrictions ensure that development heights are held below the height of the woodland buffers at the site edges, others protect the character and good functioning key spaces, ensuring good daylighting and sun penetration for outdoor uses, while others ensure that appropriate enclosure and definition is applied to the existing streets.

1.5.8 The following applies site-wide:

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- The additional height restrictions described within later sections of this document shall be adhered to, and are found in the following sections of the document:
 - Key spaces – see Section 02;
 - Streets and Green Links – see Section 03;
 - Site edges – see Section 04.



Roofscape and skyline

1.5.9 A key aim of the development is to create a varied roofscape and new skyline for the site.

1.5.10 Key guidelines for creation of a new site-wide roofscape and skyline are as follows:

- Development shall be located and formed in ways that ensure that the key public spaces are not excessively over-shadowed, and good daylighting and sun penetration is allowed to key active/spill out external spaces (consistent with BRE standards);
- The development of continuous roof lines of consistent height along the key spaces, streets and Green Links shall be avoided and preference shall be given to compositions with varying roof lines and accents;
- Where buildings terminate key views, built form should respond with building accents. Height may be increased at these building accent locations, consistent with the approved building height parameters;
- The use of rooftop public or communal spaces or outdoor terraces should be considered to help vary the skyline and provide views from development across to the city centre skyline and to open countryside to the south.

1.5.11 Further guidelines for building accents are provided in Section 01 - site-wide Urban structure, of this document.

M

Treatment of plant

1.5.12 Research laboratories with controlled environments, which are expected to constitute a significant proportion of buildings at West Cambridge, are likely to require large areas of plant and servicing.

1.5.13 Based on the existing buildings on the site and examples from elsewhere, the plant requirements are expected to be either: minimal (for buildings with predominantly office type space); medium (for buildings with some serviced laboratories); or large (for buildings with a significant portion of serviced and/or some highly serviced laboratories). The different types of requirements will require different approaches in design. The buildings already existing on site provide examples of possible treatments:

- Minimal rooftop plant - e.g. William Gates Building;
- Minimal amount of side plant - plant as a separate structure (e.g. Maxwell Centre);
- Medium amount of rooftop plant – up to an additional storey of development (up to +5m) with a setback e.g. Electrical Engineering Building;
- Large amount of rooftop plant – plant required to occupy entire roof with up to 2 additional storeys of development (up to +7m) e.g. Chemical Engineering and Biotechnology or Material Sciences and Metallurgy buildings;
- Medium or large amount of side plant - plant occupying significant parts of facade on all or most levels (not just the top level), e.g. Cavendish III proposals;
- Flues e.g. Physics of Medicine, Chemical Engineering and Biotechnology.

1.5.14 The following sets out the principles for all of the types of plant listed above. Further location specific guidelines in terms of height restrictions and frontage set backs are provided in other sections of this document.

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- Rooftop plant areas shall be within the height parameters set in the Parameter Plan 05;
- The impact of plant (and rooftop plant in particular) on building design and on open spaces shall be carefully considered from the concept stage of design;
- Wherever possible, plant shall be placed on roofs in locations where it will not be visible from the public realm;
- Any plant required to be provided as a separate structure shall not be located next to or within the Key spaces;
- Screening or parapets around plant locations shall be employed to reduce visibility of plant locations and reduce clutter;
- Long distance views shall be considered in the location of plant;
- Plant should be considered as a way to add variation and interest in the roofscape.

1.5.15 For Medium and Large amounts of plant and flues, the following guidelines will be applied:

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- This kind of plant shall be considered as part of architectural concepts and building massing as an additional storey of the building. The roof plant will unavoidably be visible from public realm and so shall be treated with appropriate materials;
- Visual impact of large plant areas shall be reduced by breaking their volume and providing variation in rooflines;
- Any parts of building facade related to plant shall not be inferior to the rest of facade in materials and treatment;
- If larger flues are required, they shall be treated as part of the architectural concept design and placed in locations that don't overwhelm key open spaces.

Flues

- Flues may exceed the set heights by 8m. In cases where technical (including the environmental) reasons require flue heights to exceed the set heights by more than 8m, the building height should be adjusted to allow the flues to comply to the height restriction set in the Parameter Plan 05;
- Where possible, flues should be screened and set back from main elevations to reduce their impact on public realm;
- Flues should be used to add variation and interest in roofscape.



32. Rooftop Plant - minimal - impacts can be minimised by setting back from frontage line



33. Rooftop Plant - medium plant integrated within the elevation of the building



34. Rooftop Plant - screening of a large amount of rooftop plant space



35. Rooftop Plant - flues can be above the Maximum Building Heights set in Parameter Plan 05

1.6. Land use and amenities

1.5.16 A key aim of the proposed development is to promote collaboration through co-location, adjacencies and sharing of facilities. The development proposal has considered the opportunities for collaboration and facilities will be included which provide both efficiency of use, and work and leisure opportunities for the university and commercial occupants.

1.5.17 The majority of uses on the site are either academic or commercial and these are blended across the site. This academic and commercial allocation will also include social amenities, some in the form of major Shared Facilities hubs. In addition, there is a provision for other catering and retail facilities, which are categorised as Land Use Class A1-A5.

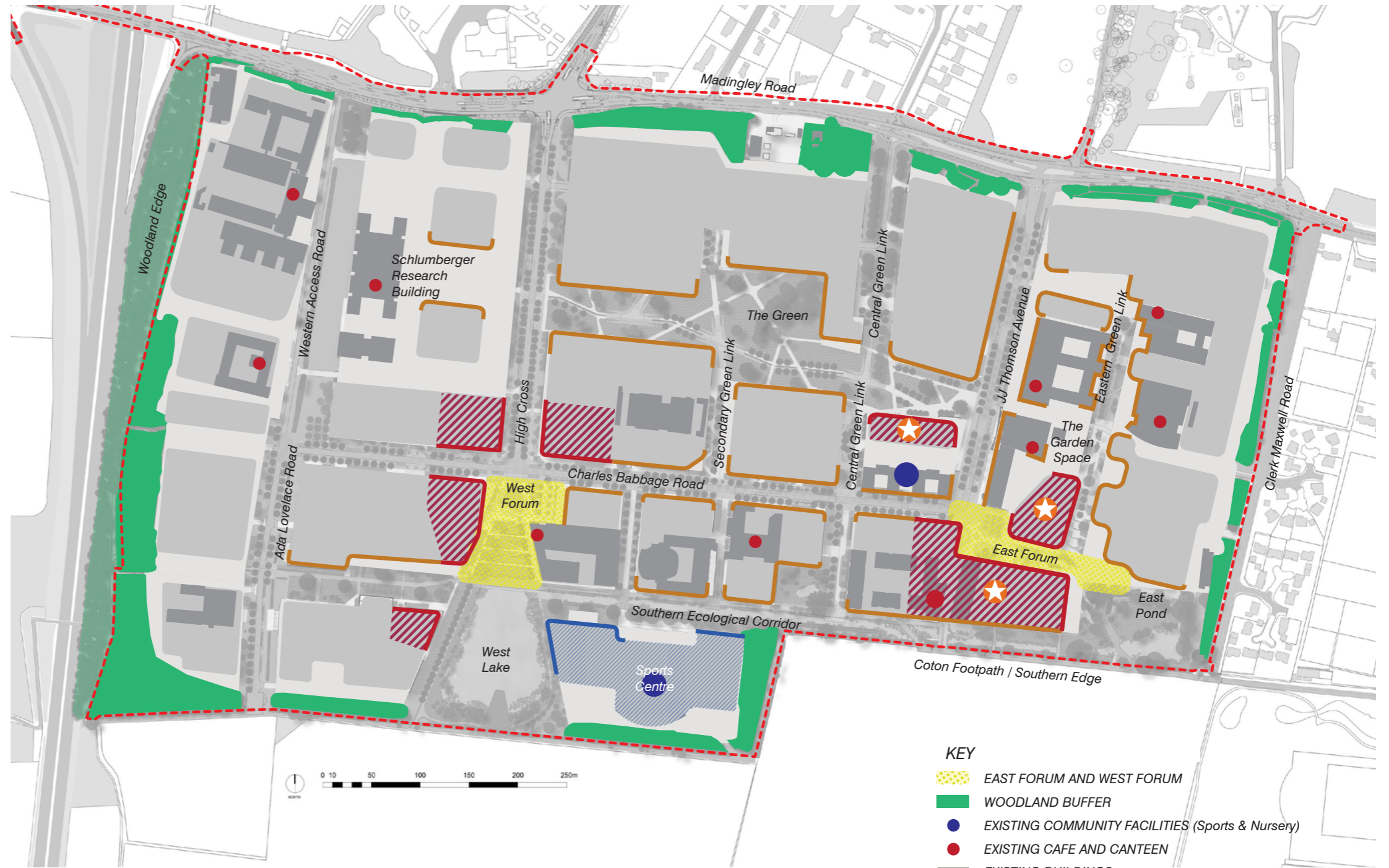
1.5.18 There are two types of amenity zones identified on the plan in Figure 36: Primary and Secondary amenity zones.

Primary amenities zones

1.5.19 Key guidelines for the Primary amenities zones are as follows:

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- Primary amenities zones are locations where amenities with site-wide reach and importance shall be located. These include: large catering facilities; cafes and retail; clusters of meeting and teaching spaces; study/library spaces and other similar spaces. Some of the academic amenities can be located on upper floors, but any large catering facilities, retail or cafes shall only be located on ground floors. This is to ensure that ground floors animate the key areas of public realm;
- Primary amenities zones shall primarily be located in the East and West Forums;
- Major academic social amenities shall be located outside of the 'security line' of the building within which they are located, so they can be accessible not only to building users, but also to a wider group of users and visitors;
- Additional primary amenities shall be located in extensions of the East and West Forums. This includes amenity zones on interfaces of The Green with JJ Thomson Avenue and West Forum with the Southern Ecological Corridor;
- If the required provision of primary amenities exceeds spatial capacities at the primary amenity zones, they should also be located along secondary amenity frontages. If this is the case, these spaces should be visible and accessible to wider site users.



36. Site-wide Principles: Land Use and Amenities

KEY

- EAST FORUM AND WEST FORUM
- WOODLAND BUFFER
- EXISTING COMMUNITY FACILITIES (Sports & Nursery)
- EXISTING CAFE AND CANTEEN
- EXISTING BUILDINGS
- PRIMARY AMENITIES ZONE
- SECONDARY AMENITIES FRONTAGE
- SPORTS AND COMMUNITY ZONE
- SPORTS AND COMMUNITY ACTIVE FRONTAGE
- SHARED FACILITIES HUB

Secondary amenities frontages

1.5.20 Key guidelines for Secondary amenities zones are as follows:

- Amenities shall appear at minimum sporadically (i.e. they are not required to occupy the entire marked length of frontage as indicated in Figure 36). This is to ensure some activation and overlooking of primary streets and spaces outside of the Forum spaces;
 - Uses that shall occupy Secondary amenities zones shall be major building entrances, entrances with extended social use, academic social spaces such as meeting and teaching spaces; study/library spaces and other similar spaces. In addition, smaller scale spaces such as coffee points/small cafés, gathering spaces shall be located along these frontages;
 - Secondary amenity frontages shall be located along The Green, JJ Thomson Avenue and Charles Babbage Road, Southern Ecological Corridor and the Eastern Green Link;
- There should be a provision of sports and community use around the existing Sports Centre. This is also the preferred location for a potential additional nursery;
- if any existing building is to be reconfigured in the future - consideration should be given to the introduction of active uses at ground floors overlooking the key spaces such as JJ Thomson Avenue, the Eastern Green Link and the Southern Ecological Corridor.

Shared Facilities hubs

1.5.21 Guidelines in relation to the Shared facilities hubs and any community activity hubs are as follows:

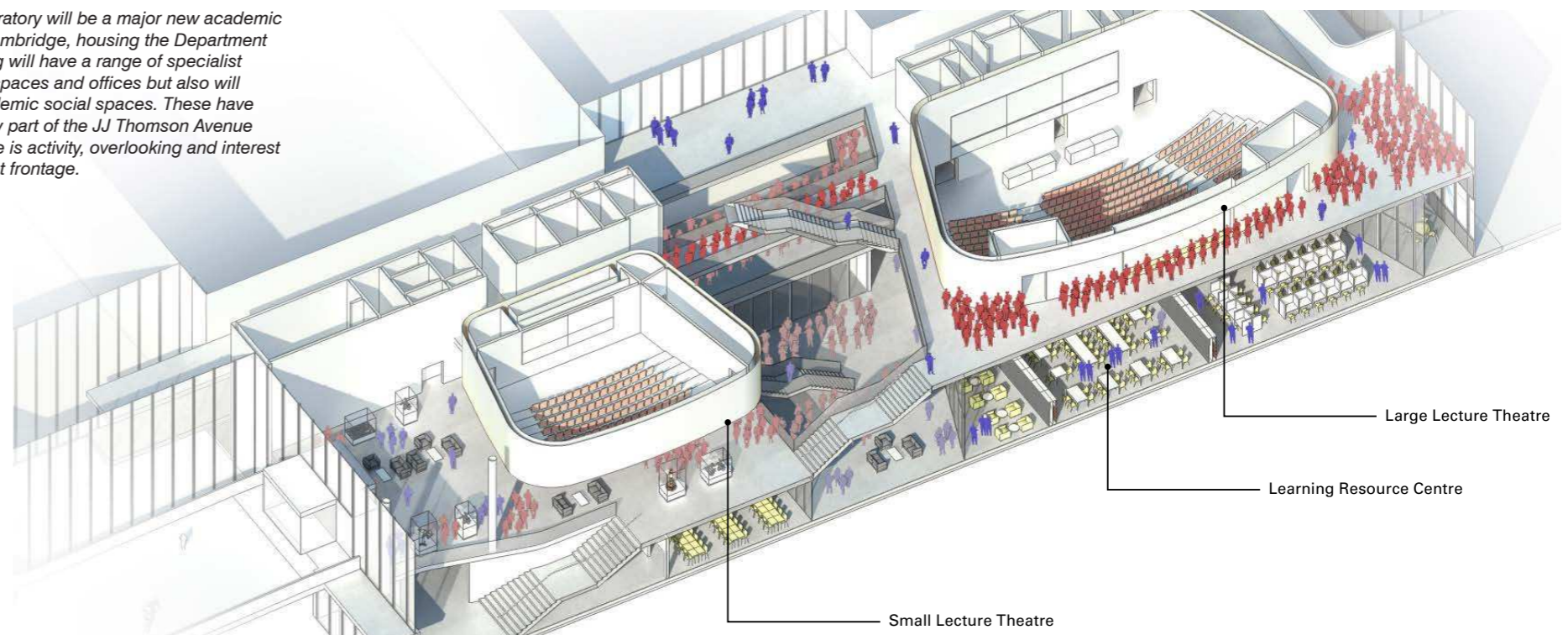
- Shared facilities should include:
 - Shared teaching facilities for University purposes;
 - Shared services for University purposes;
 - Catering facilities open to University, visitors, and commercial occupants;
 - General formal and academic less formal meeting facilities open to University, visitors, and commercial occupants;
- These hubs should be accessible by a range of site users, visitors, and the general public. They should provide a range of facilities, and act as a focal point for local events, promotions and day-to-day activities.

The JJ Thomson Garden Shared Facilities hub will provide new shared social and academic facilities. These will be accessible to all site users and include: a major canteen, cafe, meeting rooms and study spaces. The building provides ground floor active uses to JJ Thomson Garden and JJ Thomson Avenue as well as locates other social and active spaces on upper floors overlooking and further animating The Green. The building's frontage has a high degree of transparency on ground floor especially but is designed so that the range of active/social uses will be visible throughout the levels of the building.

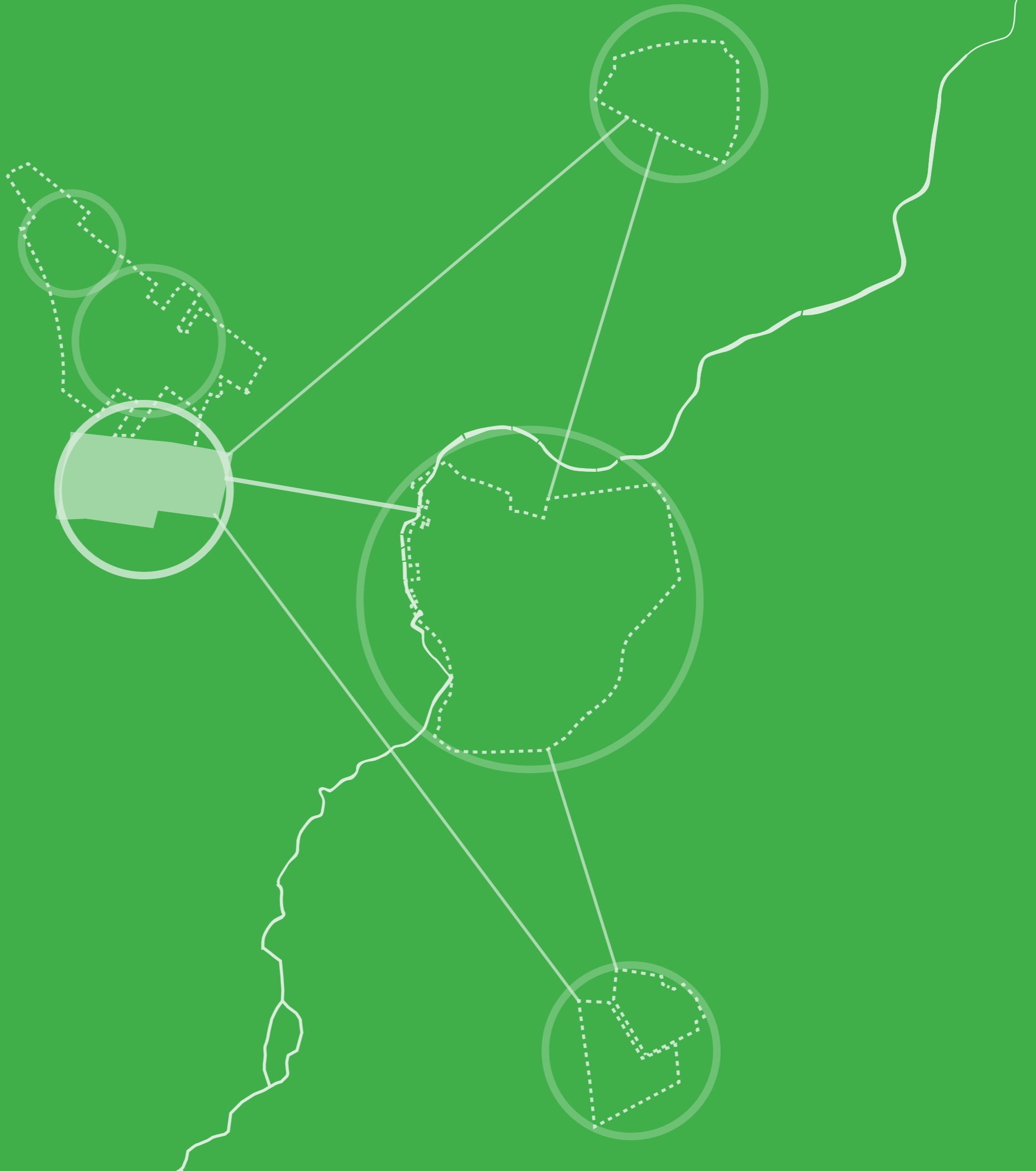


37. Emerging proposals for the Shared Facilities Hub at JJ Thomson Gardens

The Cavendish III Laboratory will be a major new academic building within West Cambridge, housing the Department of Physics. The building will have a range of specialist laboratories, teaching spaces and offices but also will require a range of academic social spaces. These have been located to occupy part of the JJ Thomson Avenue frontage to ensure there is activity, overlooking and interest along this Primary street frontage.



38. Academic activity on upper floors - emerging Cavendish III Laboratory proposed active frontage to JJ Thomson Avenue



KEY PLACES

02

2. KEY PLACES

2.1. Introduction

2.1.1 The proposed development is structured around four **Key Places** which will play a vital role in defining the character of the site. These are: **West Forum, East Forum, The Green** and the **Southern Ecological Corridor**.

2.1.2 The intention is for a gradual transformation over time as new academic and commercial occupiers move in. Streets and spaces will be upgraded in-line with new development coming forward, for example JJ Thomson Garden, parts of the Central Green Link and the upgrade of JJ Thomson Avenue will take place in parallel with the development of the new Cavendish III Laboratories.

2.1.3 In this section, guidelines are provided for each of these Key Places.

2.1.4 These guidelines refer to:

- Public realm and landscape, including their character and structure, and principles for landscape design;
- Urban structure; and
- Access and movement.

2.1.5 The guidelines are supported by indicative visualisations based on the illustrative masterplan, explaining key concepts and illustrating some of the guidelines.

2.1.6 The following guidelines apply to all key places:

M

- Buildings fronting onto key places shall be designed to provide interesting and articulated façades, with entrances, shared spaces and visual connections between outdoor and indoor spaces through extensive fenestration at ground floor, including use of glazed façades. Extensive blank walls to these frontages shall be avoided.



39. West Cambridge Key Places: West Forum, East Forum, The Green and the Southern Ecological Corridor



40. West Cambridge Illustrative Masterplan - view of the East Forum

2.2. West Forum

Public realm and landscape

2.1.7 The West Forum has been designated as an important social hub for the West Cambridge site. It is located at the end of High Cross and at its junction with Charles Babbage Road. From here it connects across the levels of the site to the Southern Ecological Corridor and West Lake.

2.1.8 Key guidelines for the West Forum spaces are as follows:

- The West Forum shall be composed of the West Forum Upper Square, a paved 'urban' space and the West Forum Terraces, a series of green terraces connecting to the Southern Ecological Corridor and West Lake;
- The development around West Forum Upper Square shall be of relatively higher density and development shall transition towards lower density and lower heights at the southern edge of the site.

Access and movement

- The West Forum spaces shall be pedestrian only spaces. Movement of motor vehicles and cyclists is rationalised and confined to primary and secondary streets and routes, as shown in Figure 42.

Cycle movement and parking

2.1.9 Key guidelines for cycle movement and parking are as follows. The hierarchy of routes as shown in Figure 42 is mandatory but the alignment may vary:

- The strategic pedestrian and cycle route shall be maintained through the Southern Ecological Corridor. Another dedicated cycle route shall be located along High Cross;
- Cycle parking hubs shall be located to the west of Ada Lovelace Road. These shall be accessed directly from the strategic pedestrian and cycle route;
- Large areas of cycle parking shall not be located within the West Forum spaces or the Southern Ecological Corridor;
- Cycle parking should also be located with other car parking structures along Charles Babbage Road.

Movement of motor vehicles

2.1.10 Key guidelines for movement of motor vehicles are as follows:

- Servicing shall be primarily from Ada Lovelace Road;
- There shall be no vehicular access along the eastern frontage overlooking the West Forum spaces and West Lake;
- The West Forum shall accommodate the primary arrival and drop-on/drop-off location for the west of the site;
- If required, additional servicing should occur from Charles Babbage Road only.

Car parking

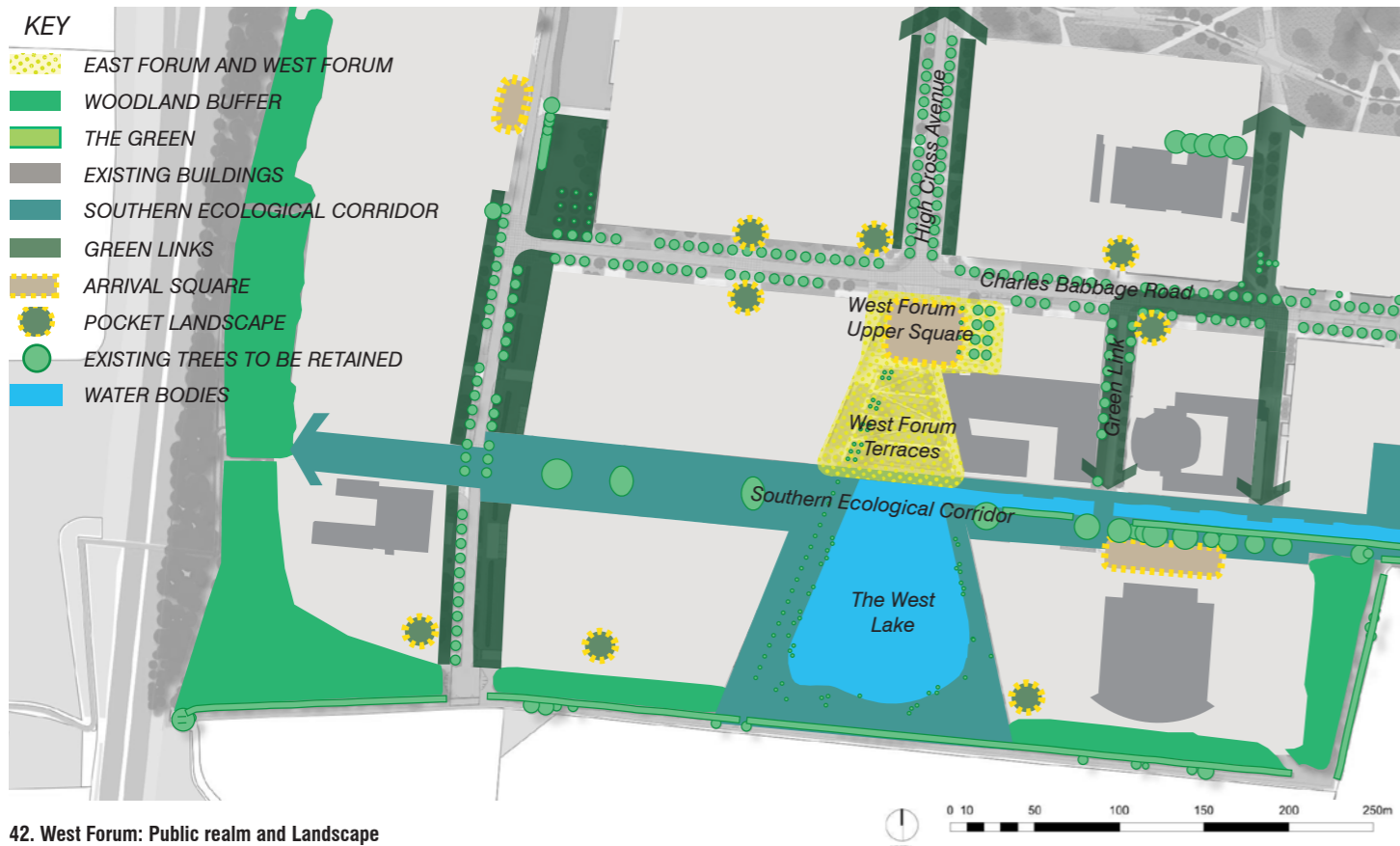
2.1.11 Guidelines for car parking are as follows:

- Car parking structures shall be located away from the West Forum spaces, and primarily to the west of Ada Lovelace Road, and linked by clear pedestrian routes;

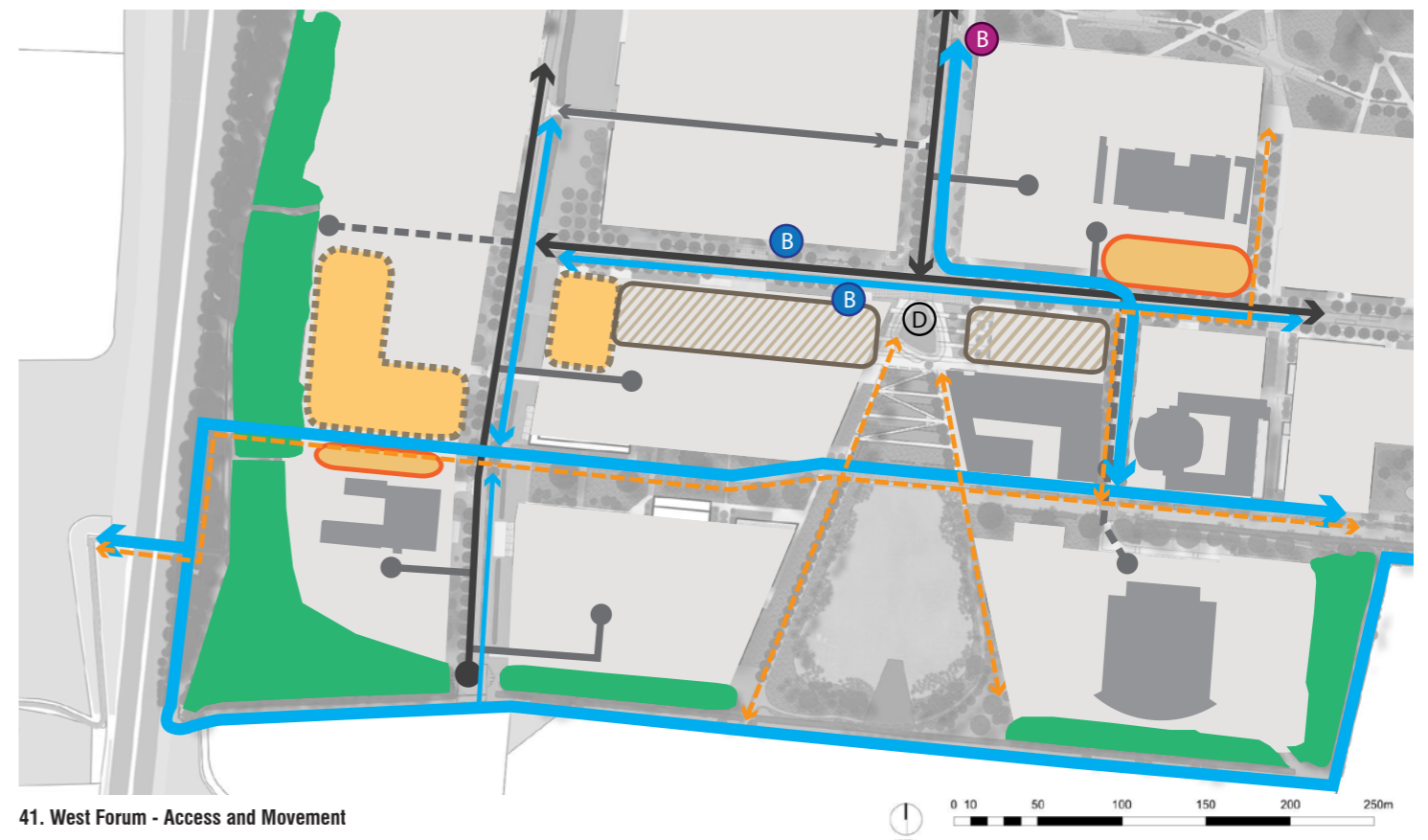
- Any additional car parking should be accommodated along Charles Babbage Road, using the topography of this part of the site to accommodate the car parking below street level, in a semi basement.

KEY

- WOODLAND BUFFER
- CYCLE HUB
- CYCLE+MSCP/ PARKING ZONE
- UNDERCROFT CAR PARKING
- DROP-OFF/ DROP-ON AREAS
- EXISTING BUS STOPS RETAINED
- POTENTIAL ADDITIONAL BUS STOPS
- OFF-SITE BUS STOPS
- PEDESTRIAN ROUTE
- CYCLE ROUTE
- PRIMARY VEHICULAR ROUTES
- SECONDARY/SERVICE VEHICULAR ROUTES
- SHARED SURFACE
- VEHICULAR ACCESS POINT
- CYCLE/PEDESTRIAN ACCESS ONLY



42. West Forum: Public realm and Landscape



41. West Forum - Access and Movement

Urban structure

2.2.1 The proposed urban structure aims to intensify the use of and increase the enclosure of the West Forum. Frontage types and built form is organised to provide visual accents and activity to this key place.

- KEY**
- ACTIVE FRONTAGE
 - PRIMARY FRONTAGE
 - SECONDARY FRONTAGE
 - - - - - KEY VIEWS
 - KEY BUILDING ACCENTS
 - ★ SHARED FACILITIES HUB
 - PRIMARY GATEWAYS
 - SECONDARY GATEWAYS
 - WOODLAND BUFFER



44. West Forum - Urban Structure

Building accents and gateways

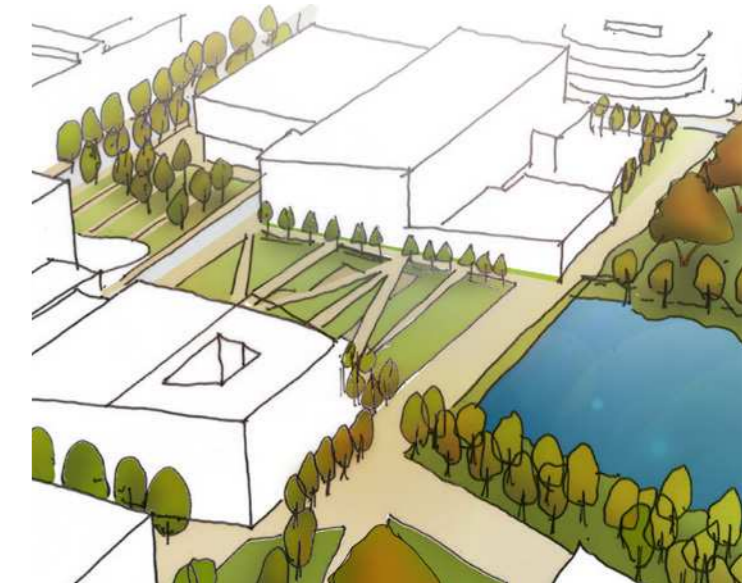
2.2.2 Key guidelines for building accents and gateways are as follows:

- All development heights shall conform to approved maximum height parameters;
- A building accent shall be located on one corner at the junction of High Cross and Charles Babbage Road. This accent shall have a strong visual connection with the West Forum Upper Square. This location serves to mark the West Forum spaces within the development;
- Development shall form a primary/active frontage to the West Forum spaces. This frontage will be viewed from across the West Lake and consideration should be given to use of materials, building line and skyline to ensure that a coherent urban element is formed;
- Other building accents should be located to mark corners, terminate views and relate to key spaces, such as where the Southern Ecological Corridor meets the West Forum/West Lake space.

Frontage types

2.2.3 The diagram in Figure 44 shows the location for the three types of proposed frontage:

- **Active Frontages:** new development shall form new active frontage to the West Lake, the West Terraces and the West Forum Upper Square spaces. These frontages may comprise ground floor active uses, building entrances and lobbies. These uses shall have the opportunity to spill out into the adjacent public realm;
- **Primary Frontages:** shall extend along the Southern Ecological Corridor, West Lake, Charles Babbage Road and High Cross;
- Development along the Southern Edge shall respond to long distance views. Long frontages here shall be broken/varied and additional tree planting and landscape shall be introduced to provide a softer, woodland edge;
- **Secondary frontages:** more informal frontages shall be located along adjacent Green Links and Ada Lovelace Road.



43. West Forum - West Forum Terraces



45. West Forum - Active frontage, views and building accents

West Forum - Landscape principles

2.2.4 Guidelines for the West Forum spaces are as follows:

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- The West Forum Upper Square and West Terraces shall retain their existing characters, but any interventions shall ensure that the spaces feel part of a visually integrated series of spaces;
- The spaces constituting West Forum shall have a strong visual relationship with the proposed built form around the edges of the space;
- Integration of landscape shall be achieved through a common approach to any new planting or public art and any new street furniture and lighting.

West Forum Upper Square

2.2.5 Guidelines for the West Forum Upper Square are as follows:

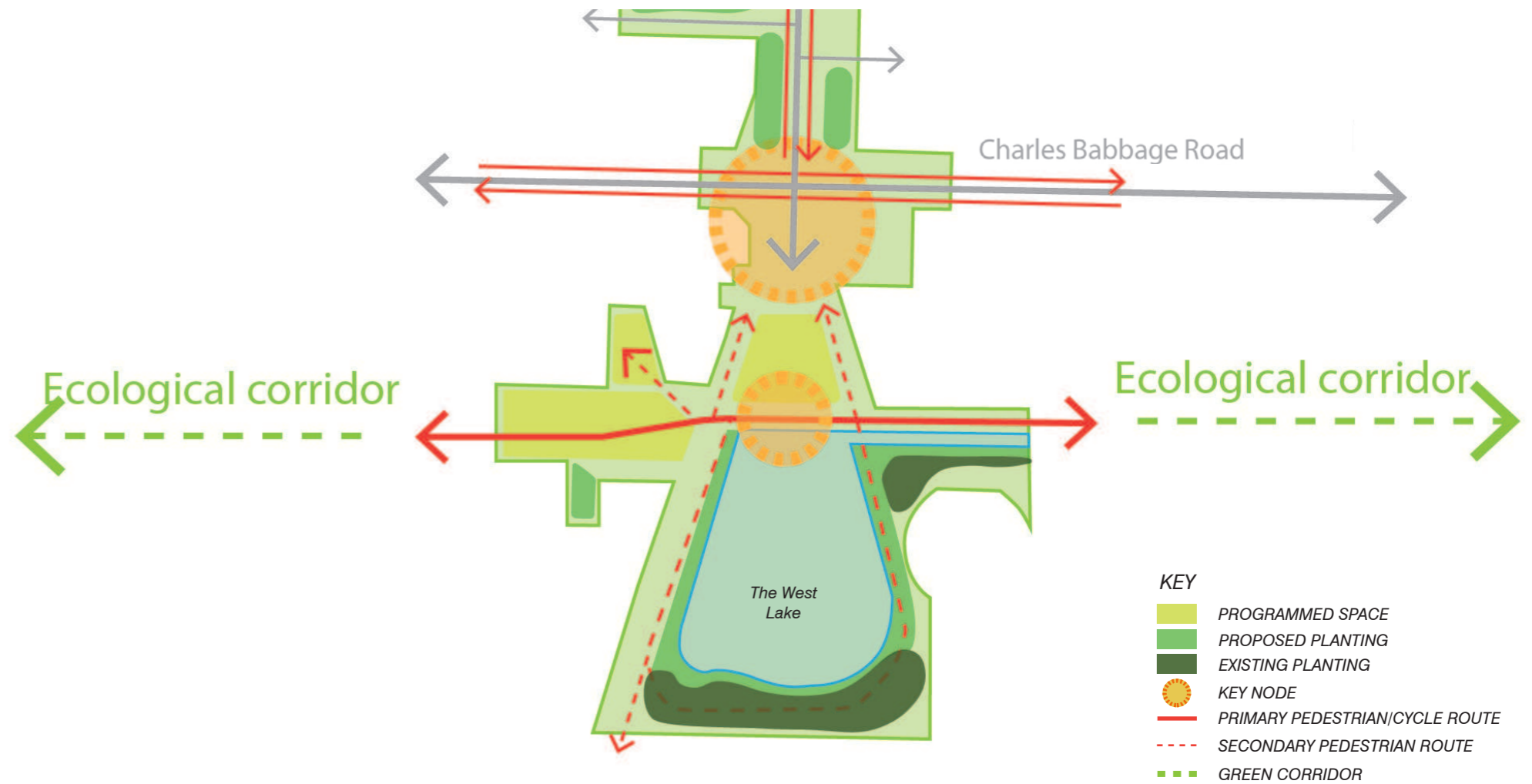
- The West Forum Upper Square shall be reconfigured in order to provide a vehicular central drop-on/drop-off. This facility shall be designed so that it promotes pedestrian movement and minimises conflicts between pedestrians and vehicles;
- The design of the Upper Square shall ensure clear visibility of the West Lake and wider countryside to the south;
- The existing planting shall be retained and be integrated in the new layout.

West Forum Terraces

2.2.6 Guidelines for the West Forum Terraces are as follows:

- The existing structure and ramp configuration shall be retained;
- New hedges and grasses planting shall be incorporated throughout the slope/terraces and contribute to forming/defining new, sheltered seating areas;

- Additional steps should be built into the terraces and designed to allow for seating and gathering.



46. West Forum: Public space structure, activity, uses and character.

Surface/paving treatment

2.2.7 Guidelines for surface/paving treatment are as follows:

M

- The West Forum Upper Square will continue to be the more urban space and so shall retain a high percentage of paved area. The West Forum Terraces shall remain with the lesser amount of paved area with the exception of its pedestrian routes/ramps and formal seating areas;
- There shall be unhindered paved areas along key pedestrian and cycle routes to allow ease of access and movement.

Bicycle stands and circulation

2.2.8 Key guidelines for bicycle stands and circulation are as follows:

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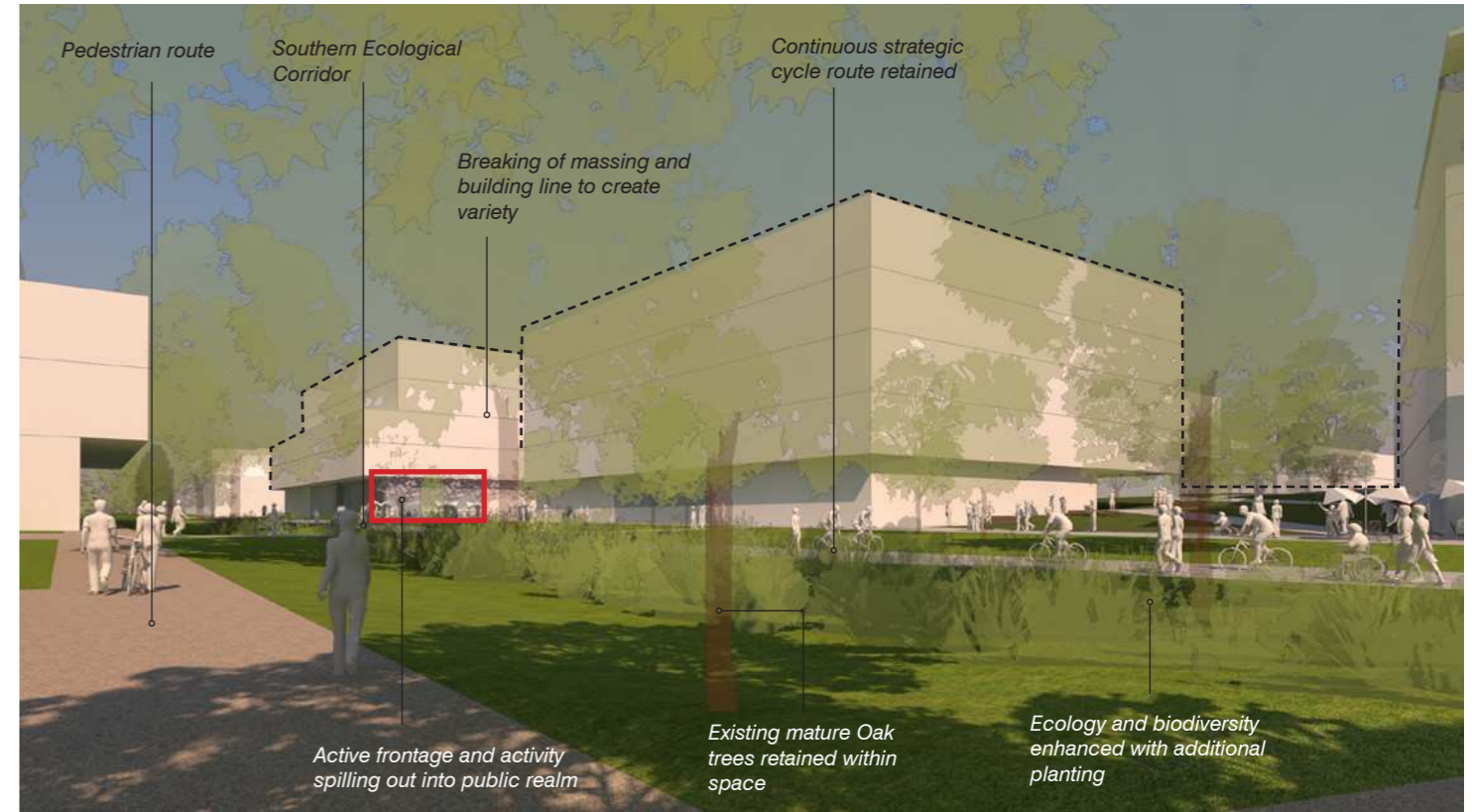
- Cycle movement shall be discouraged within the West Forum Upper Square and through the West Forum Terraces;
- Cycle parking shall be kept to a minimum within the key spaces, with only a few spaces at building entrances if required. Major areas of cycle parking shall be located within development and parking structures.

Planting

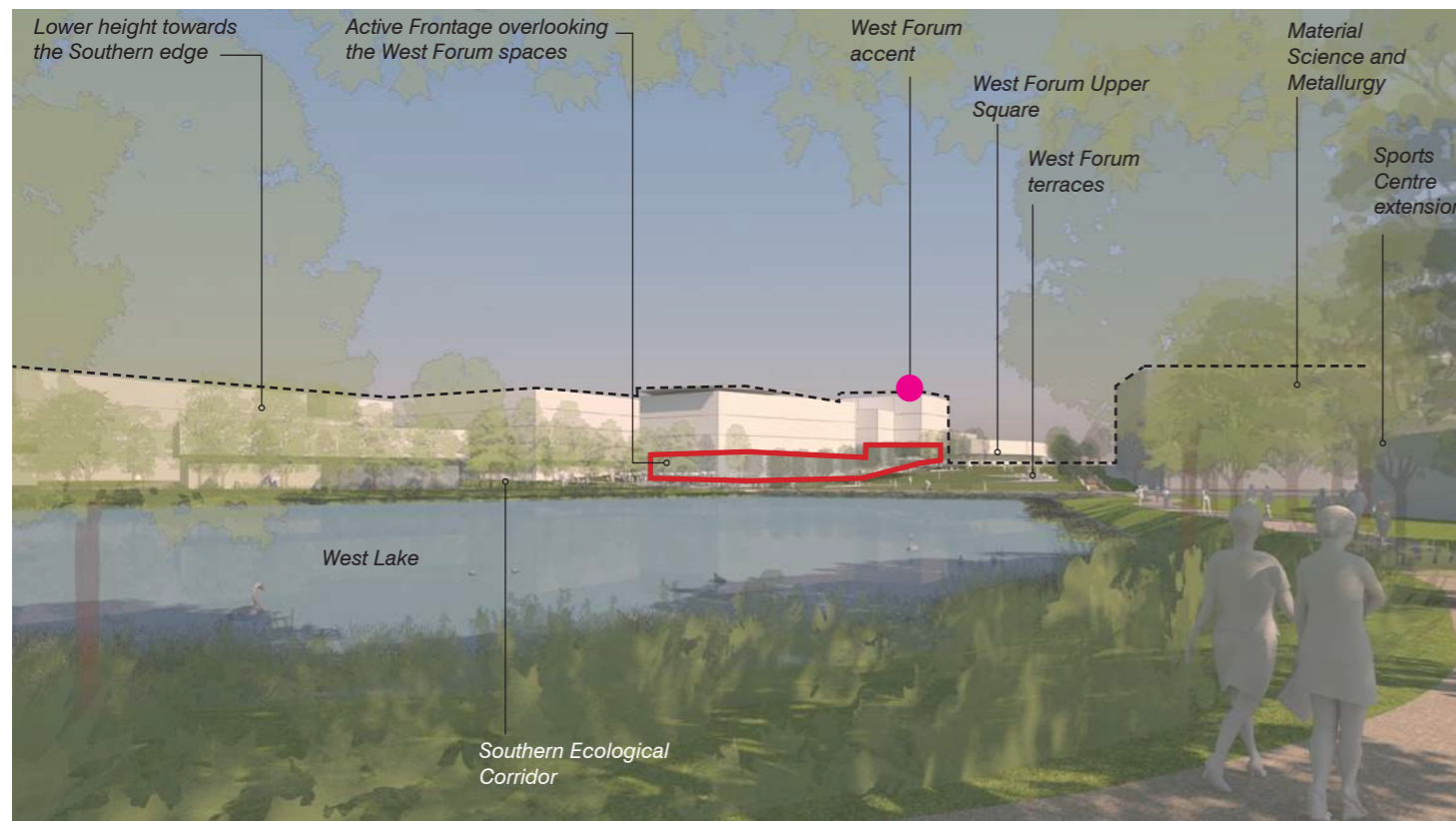
2.2.9 Guidelines for planting at West Forum are as follows:

M

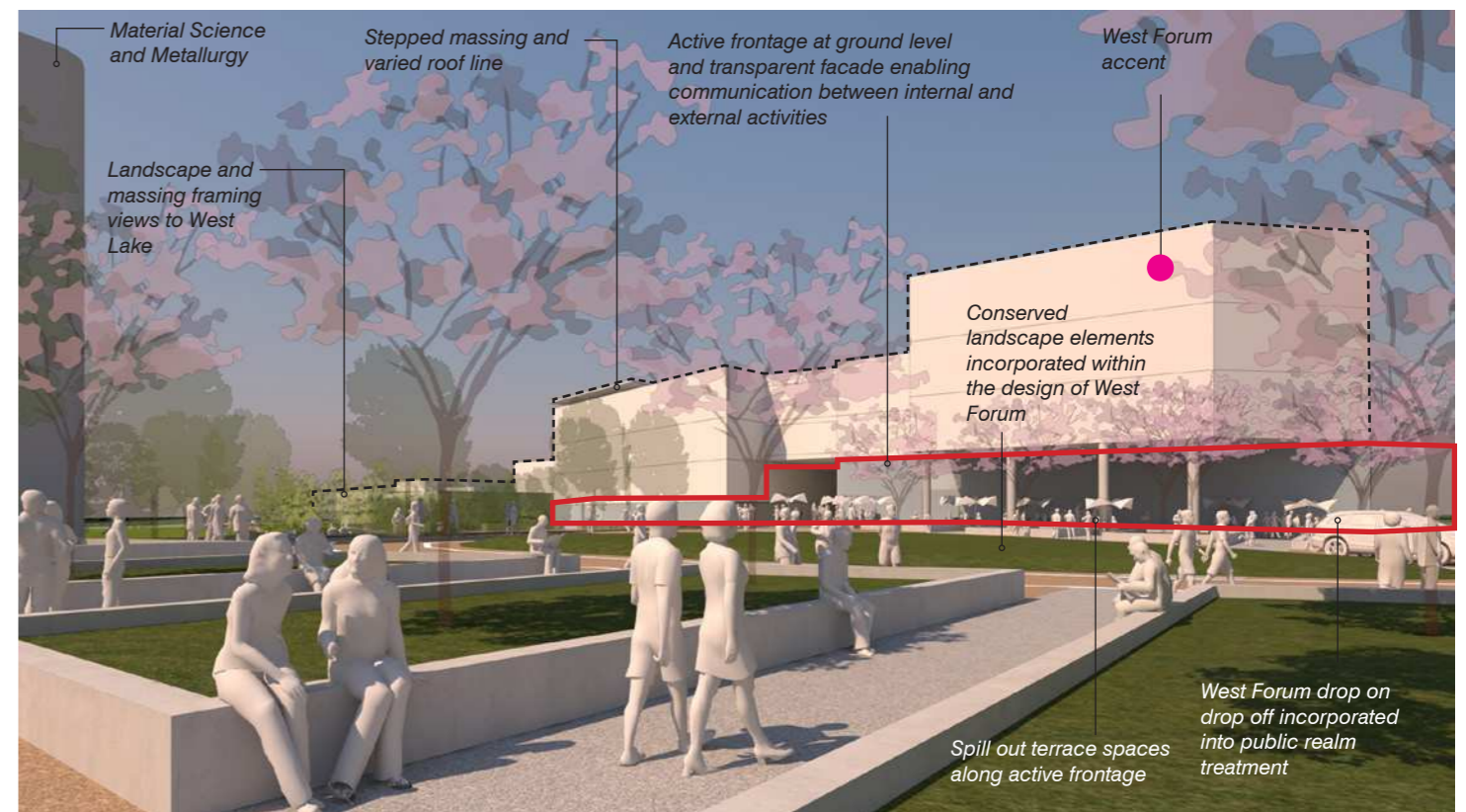
- The arrangement of planting in Upper Square shall reflect the formal arrangement of planting along High Cross;
- Planting shall reinforce the visual connection from the upper areas to the wider landscape and the Southern Ecological Corridor;
- Existing trees and planting within the West Lake, West Forum Terraces and Upper Square shall be retained and incorporated into any new public realm design;
- Planting and landscape should be relatively ordered along the West Forum Upper Square (tree grids) as well as the West Forum Terraces (existing trees kept) and more informal along Southern Ecological Corridor and West Lake.



47. West Forum - Southern Ecological Corridor with the view through the West Green Link on the right



48. West Forum - West Lake - Skyline and active frontages



49. West Forum - Upper Square

2.3. East Forum

Public realm and landscape

2.2.10 The East Forum is conceived as a primary social hub for the West Cambridge site. The East Forum is located at the end of JJ Thomson Avenue and at its junction with Charles Babbage Road, from where it connects down to the East Pond and the Southern Ecological Corridor.

2.2.11 The key guidelines for the East Forum spaces are as follows:

M

- The East Forum shall be composed of the East Forum Upper and Lower Squares, and the East Forum Steps which connect the squares. The Lower Square connects to the reinvigorated East Pond space;
- Designs of the East Forum spaces shall encourage pedestrian activity, with activity within the spaces coordinating with active frontages and uses within new development;
- The design of the spaces shall describe their differing role, yet ensure that the spaces feel part of a visually integrated series of spaces;
- The East Forum spaces and the East Pond shall be pedestrian only and highly restricted for vehicular movement.

Access and movement

Cycle movement and parking

2.2.12 Key guidelines for cycle movement and parking are as follows. The hierarchy of routes as shown in Figure 51 is mandatory but the alignment may vary:

M

- The East Forum spaces shall be pedestrian only spaces, with cycle movement discouraged;
- Cycle routes shall be located around the edges of the East Forum area, as shown in Figure 51;
- The strategic pedestrian and cycle route shall be maintained through the Southern Ecological Corridor;
- Other cycle routes shall be provided on both sides of JJ Thomson Avenue;
- The pedestrian and cycle access point on Madingley Road (to the north) shall be maintained;
- Areas of cycle parking shall be provided in the zones shown in Figure 51 within primary cycle parking hubs. These hubs shall be consolidated within covered parking structures, incorporated into built form on ground or lower ground floors or in secondary open spaces within the development.

Movement of motor vehicles

2.2.13 Key guidelines for the movement of motor vehicles are as follows:

M

- The East Forum shall be pedestrian only spaces and movements of motor vehicles shall be confined principally to JJ Thomson Avenue and Charles Babbage Road;
- Through-routes for motor vehicles between Clerk Maxwell Road and JJ Thomson Avenue shall be avoided;
- Principal drop-on/drop off facilities shall be located only on JJ Thomson Avenue and Charles Babbage Road.

- An new service access point along Clerk Maxwell Road should be provided if required, in accordance with the Access Parameter Plan

Servicing

2.2.14 Key guidelines for servicing are as follows:

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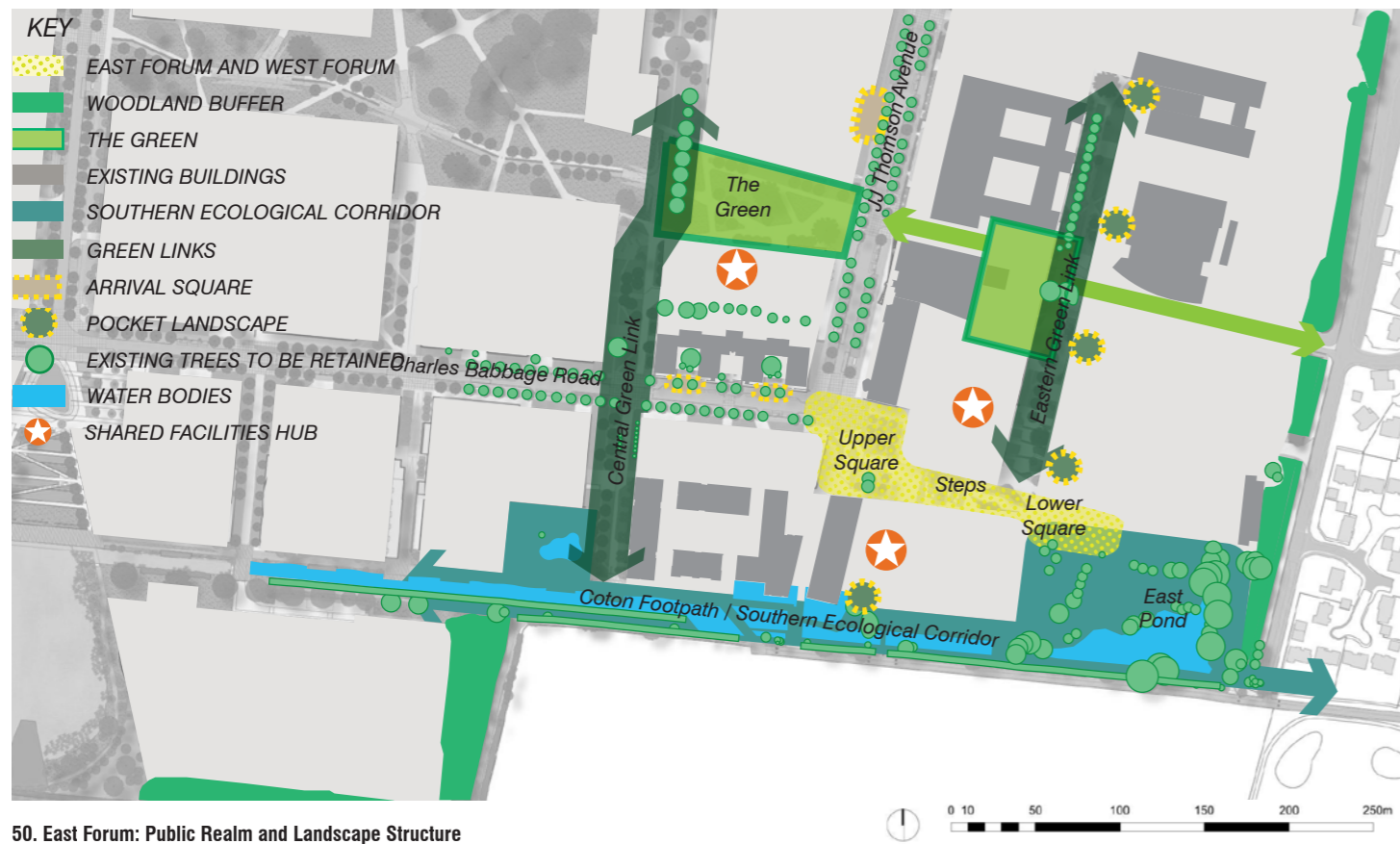
- Service yards, and movement shall not be visible from the East Forum spaces;
- Service access routes shall be designed so as to not reduce pedestrian and cycle priority through the Eastern Green Link;
- During early phases of development, limited and temporary servicing should be allowed along the east-west pedestrian and cycle link to serve existing buildings and service structures, if required.

Car parking

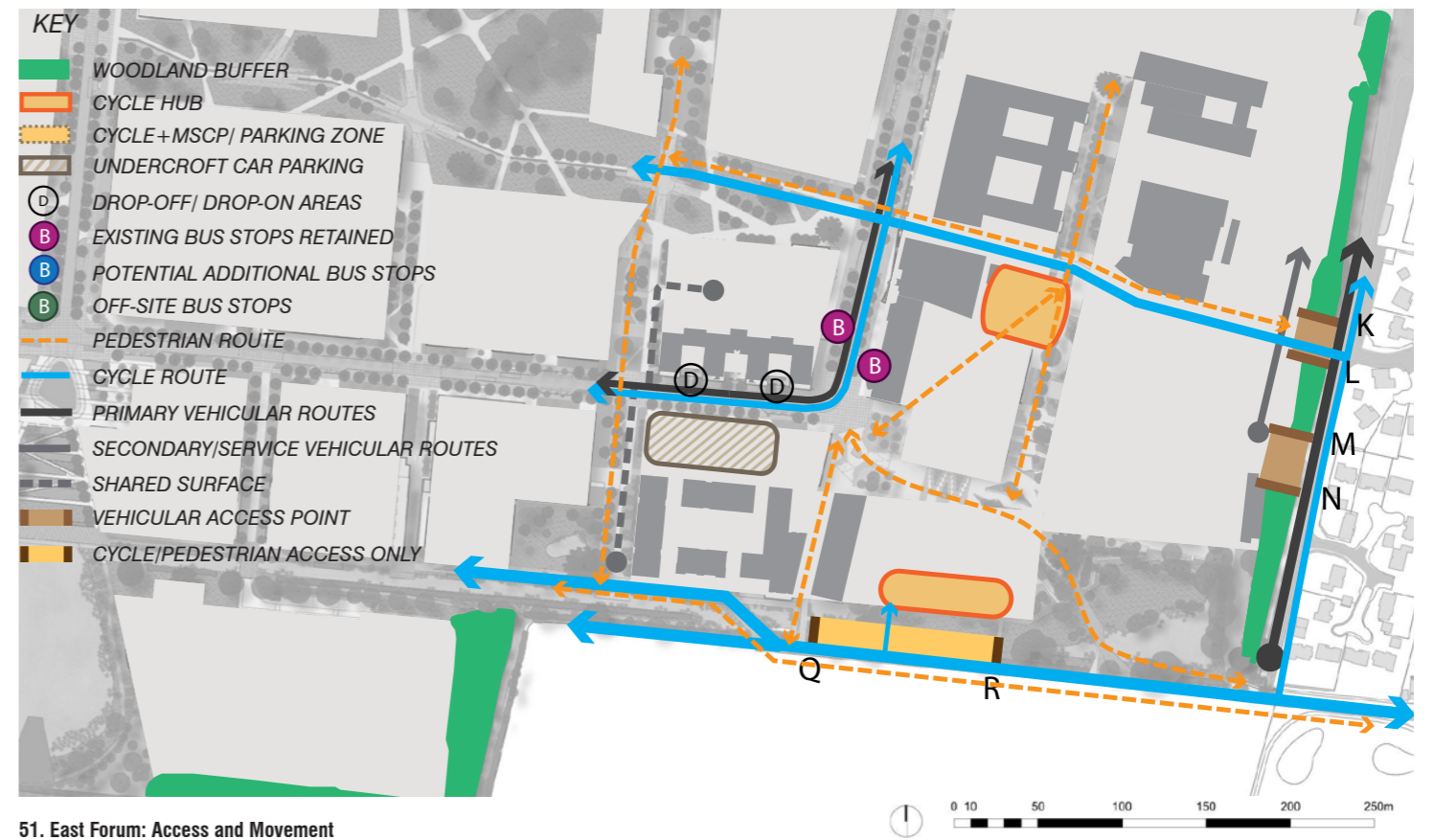
2.2.15 Key guidelines for car parking are as follows:

M

- Multi-storey car parking structures shall not be located in this area;
- Car parking in basement/semi-basement shall be allowed in lower ground floors along Charles Babbage Road. These shall be well integrated into the building frontages and not compromise overlooking of this street.



50. East Forum: Public Realm and Landscape Structure



51. East Forum: Access and Movement

Urban structure

2.3.1 The proposed urban structure of the East Forum area aims to establish a new arrangement of open spaces, introduce new key pedestrian links and intensify the use of and activity within the area. Several public spaces (new and existing) will converge in this area and new development frontage and building accents will guide the movement between these open spaces.

2.3.2 Significant existing buildings are expected to be retained, including Physics of Medicine and the Maxwell Centre, Hauser Forum and Broers Building, plus the Southern Residences and Northern Residences, which contain University housing and a day-care nursery on ground floor.

2.3.3 The East Forum area will form a new gateway experience for those arriving at West Cambridge by the Coton Footpath.

2.3.4 Figure 53 on this page describes the urban structure and arrangement of development frontage, building accents and gateways relating to this area.

Building accents and gateways

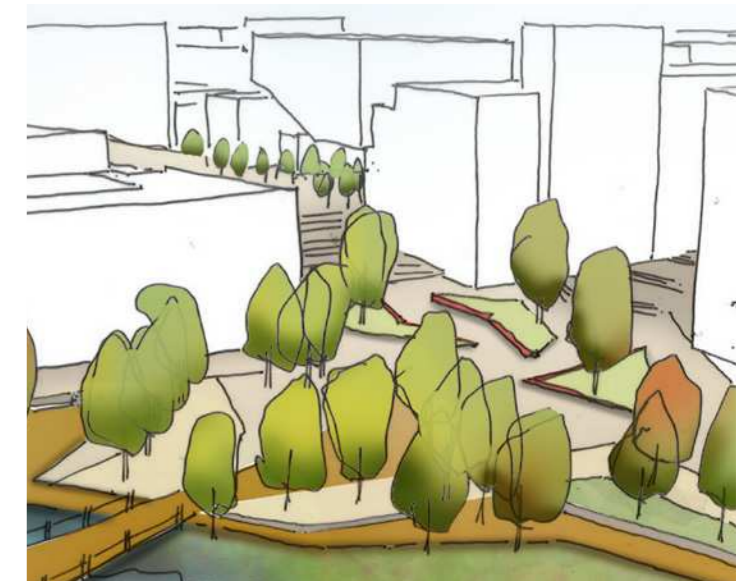
2.3.5 Key guidelines for building accents and gateways are as follows:

- All development heights shall conform to approved maximum height parameters;
- Development shall form a new gateway experience, for those arriving along the Coton Footpath, at East Pond, and form a high quality southern frontage to this space;
- Building accents should be located in three locations: at the Upper Square (to mark the space and terminate views from JJ Thomson Avenue); at the East Steps, to mark the termination of the Eastern Green Link; and on the corner of JJ Thomson Avenue and The Green. This last location responds to views from the East Forum Upper Square, ensuring that the two spaces communicate and are strongly visually connected. Height may be increased at these points to create variety in skyline and massing, consistent with the approved building height parameters.

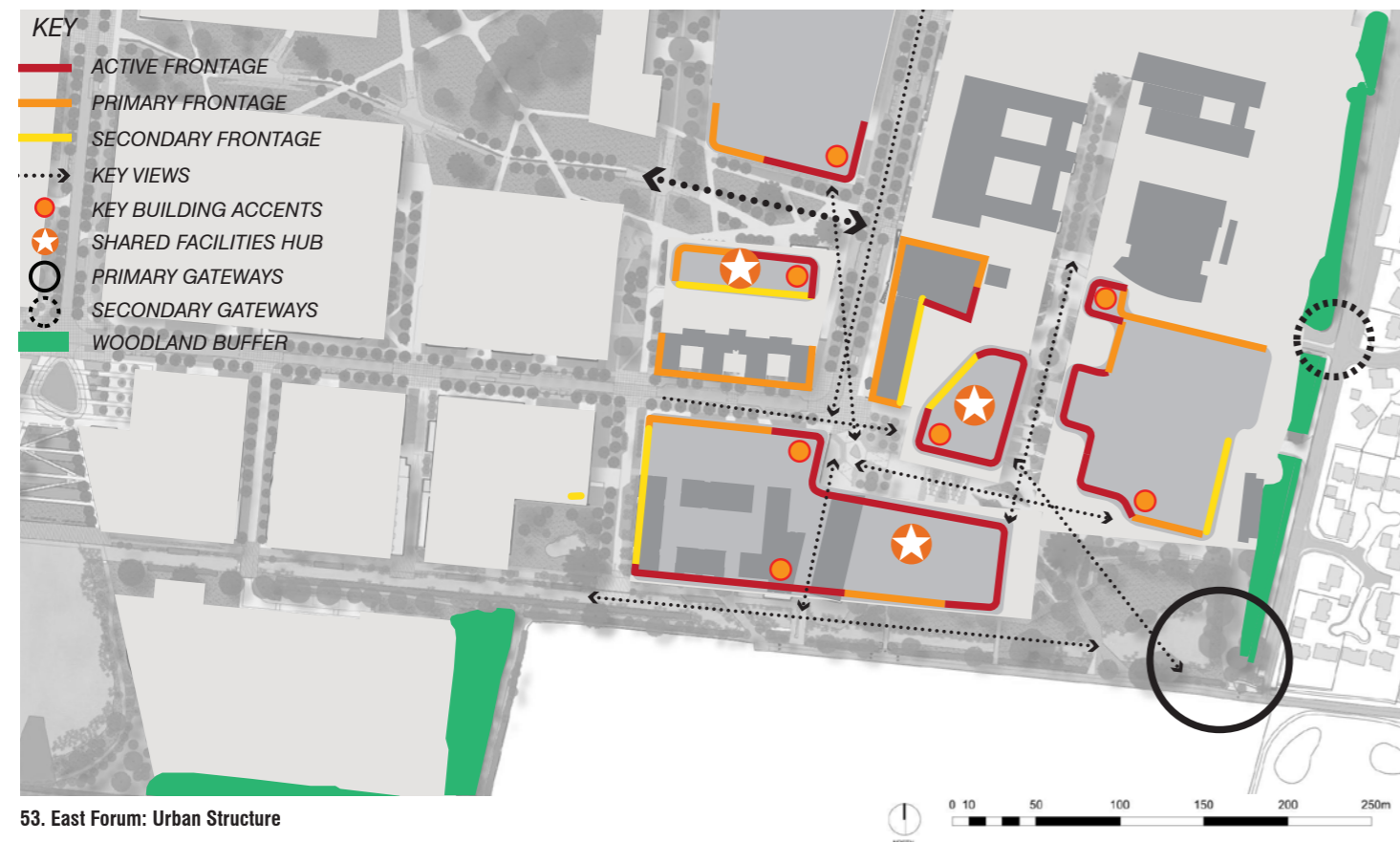
Frontage types

2.3.6 Figure 53 shows the location for the three types of proposed frontage: active, primary and secondary frontages: Active, primary and secondary frontage types are organised to encourage high levels of activity within the East Forum space:

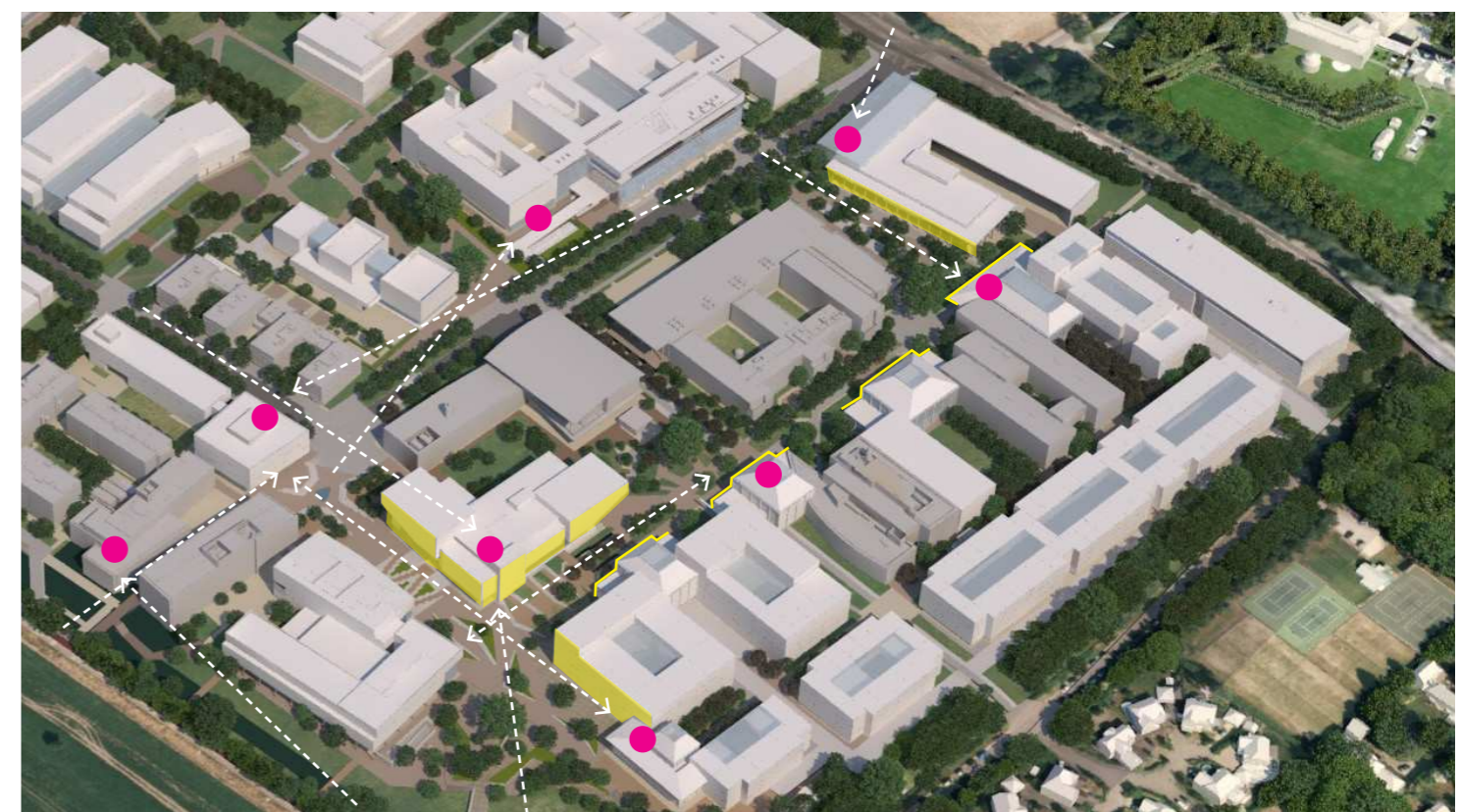
- **Active Frontages:** shall be located along the East Forum spaces, on the The Green and within the Eastern Green Link. This is to ensure a high level of activity, footfall and overlooking within these spaces;
- **Primary Frontages:** shall be located to address other key spaces and streets, including JJ Thomson Avenue and Charles Babbage Road;
- **Secondary frontages:** should be located to address internal courts and secondary spaces within the development.



52. East Forum - East Forum Steps



53. East Forum: Urban Structure



54. East Forum - Active frontage, views and building accents

East Forum - Landscape principles

East Forum Upper Square

2.3.7 Guidelines for the East Forum Upper Square are as follows: **M**

- The Upper Square shall be the most active space within the East Forum and shall be designed so as not to hinder pedestrian movement and shall allow clear visibility of destinations and routes;
- The East Forum Upper Square shall provide spaces for active uses to spill out into the public realm;
- High quality surfaces should be used to indicate that this is a key focal point within the site.

East Forum Lower Square

2.3.8 Guidelines for the East Forum Lower Square are as follows: **M**

- The Lower Square is a crucial node where several key pedestrian routes converge. The space shall be carefully designed to minimise conflicts;
- The design shall allow for places where active uses can spill out of buildings, particularly along south facing frontages;

East Forum Steps

2.3.9 Guidelines for the East Forum Steps are as follows: **M**

- This space connecting the Lower Square and Upper Square shall facilitate movement between these spaces, but also provide for informal congregation. The steps & ramps shall allow for informal seating and gathering and for activity to spill out from shared facilities and active buildings;
- An accessible route shall be provided and ramps shall be incorporated within the design of the steps for disabled access;
- Landscape planting should be incorporated through the steps at different levels.

Surface/paving treatment

2.3.10 Guidelines for surface/paving treatment are as follows: **M**

- The percentage of paved area shall gradually increase from East Pond, which should have the least amount, to East Forum Upper Square which should have the most paved area;
- There shall be unhindered paved areas along key pedestrian and cycle routes to allow ease of access;
- The East Forum Upper Square and East Forum Lower Square being spaces where routes converge, shall have design that assists orientation and way-finding.

Bicycle stands and circulation

2.3.11 Guidelines for bicycle circulation are as follows: **M**

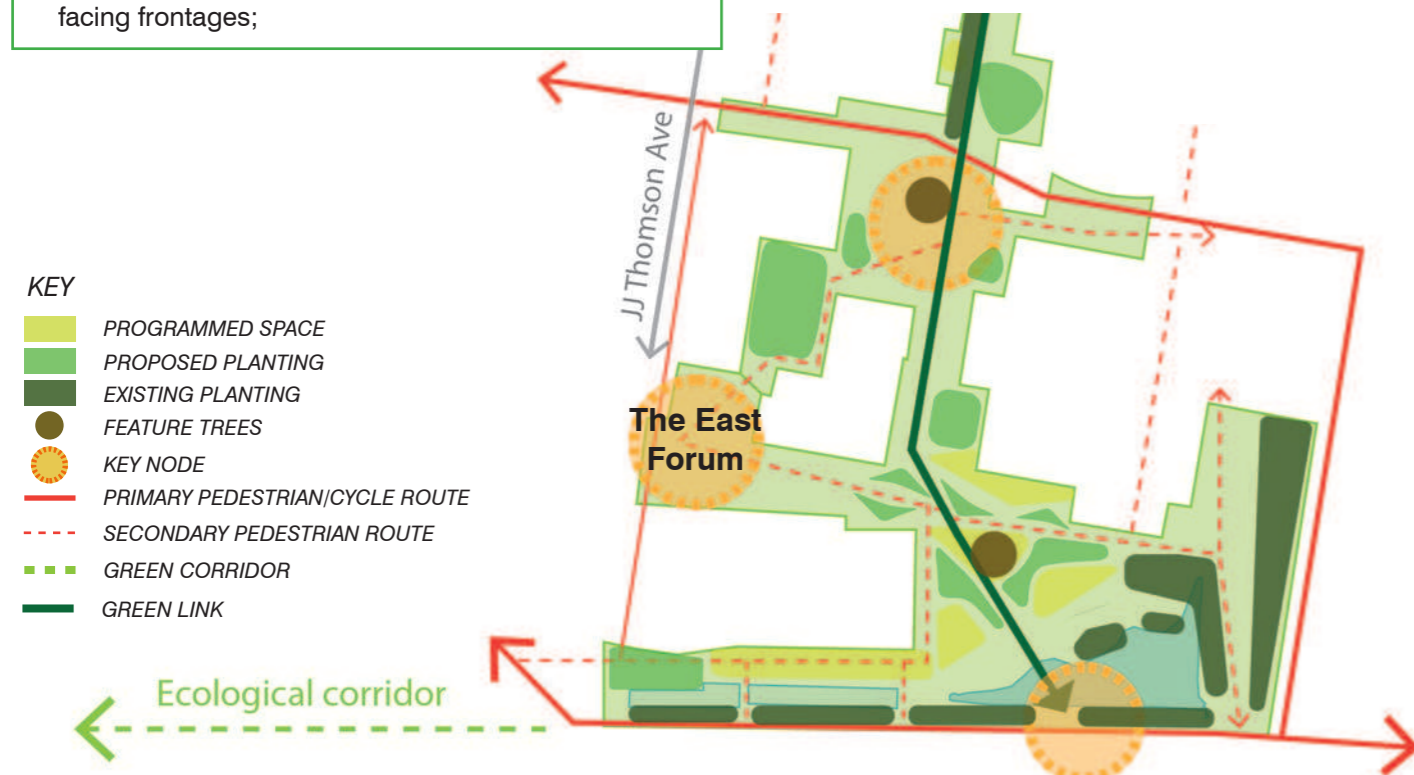
- Cycle movement shall be discouraged within the East Forum spaces, except along the southern and eastern edges of the East Pond;

- Cycle parking shall be kept to a minimum within spaces (a cycle hub shall be located within adjacent buildings).

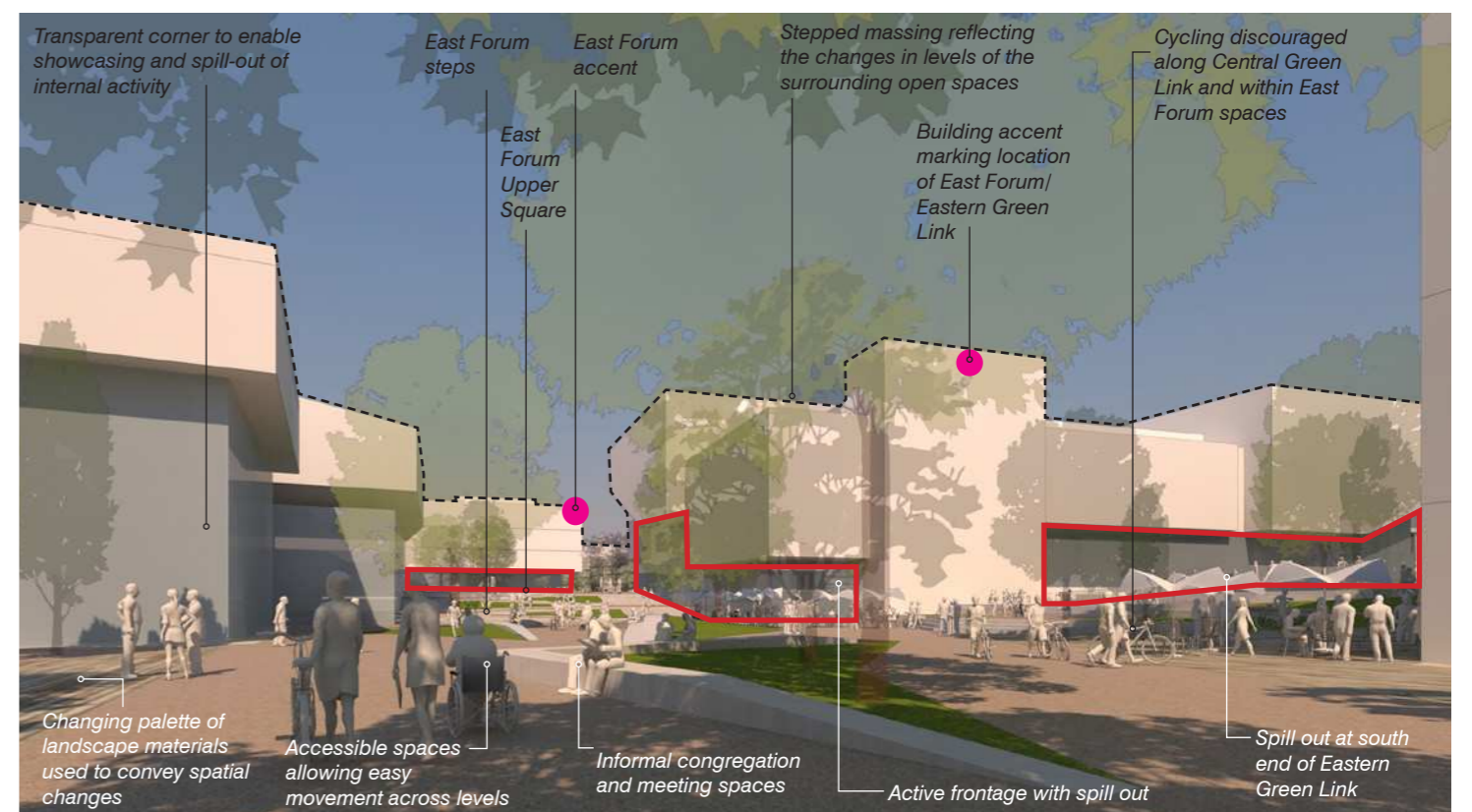
Planting

2.3.12 Guidelines for planting are as follows: **M**

- Existing mature planting and hedgerows within the East Pond area and along the Southern edge shall be maintained with the appropriate tree buffer zone. New tree planting shall be accommodated within the East Pond space (to the north of the pond) to ensure that new development is set within landscape;
- A clear visibility of shared facilities and building entrances is important and care shall be taken to coordinate new tree planting in conjunction to entrance lobbies;
- Landscape design should gradually change from being informal/natural along East Pond to more ordered (tree grids) close to East Forum Upper Square.



55. East Forum: Public space structure, activity, uses and character.



56. East Forum Lower Square

2.4. The Green

Public realm and landscape

2.4.1 The Green has an important role in the site-wide landscape network. It is substantial new green space for the site, occupying its centre and orientated east to west between JJ Thomson Avenue and High Cross.

2.4.2 The space allows new views to be opened up between the eastern and western part of West Cambridge, allowing a key view corridor to be formed to the Listed Schlumberger Research Building, from the eastern part of the site and so promoting greater legibility. This alignment also has the potential to visually connect the site to the Kings College Chapel within the city centre.

2.4.3 The creation of this new public open space will provide the Listed Schlumberger building with a new setting and vantage point.

2.4.4 The key public realm guidelines for The Green open space are as follows:

- The Green shall consist of several connected Gardens which will be delivered in phases. The layout and design of the whole space shall distinguish each Garden, whilst forming a coherent series of connected spaces;
 - The Green shall form a key view corridor from JJ Thomson Avenue to the Schlumberger Research Building roof structure;
 - The Green shall contain a key pedestrian and cycle route through the site;
 - Groups of existing mature trees shall be retained and incorporated into the design of the new space;
 - In addition, a 'Garden Space' between Clerk Maxwell Road and JJ Thomson Avenue shall be formed as part of this chain of Gardens;
- M
- A Garden space within the Schlumberger compound should also be formed and visually connected to the main sequence of Gardens, ensuring that the Schlumberger Research Building remains the key site landmark and the focal point of this space;
 - The view corridor to Schlumberger also provides the opportunity to provide views to Kings College Chapel, especially from high level. Consideration should be given to higher level spaces within the surrounding proposed development that can celebrate/capture this view;
 - Integration of landscape should be achieved through a common approach to planting, lighting, street furniture and surface materials.



57. The Green: Public Realm and Landscape Structure



58. The Green: Central Garden sketch

KEY

- EAST FORUM AND WEST FORUM
- WOODLAND BUFFER
- THE GREEN
- EXISTING BUILDINGS
- SOUTHERN ECOLOGICAL CORRIDOR
- GREEN LINKS
- ARRIVAL SQUARE
- POCKET LANDSCAPE
- EXISTING TREES TO BE RETAINED
- WATER BODIES
- VIEW CORRIDOR - SCHLUMBERGER to KINGS CHAPEL
- SHARED FACILITIES HUB

Access and movement

Cycle movement and parking

2.4.5 Key guidelines for cycle movement and parking are as follows. The network of routes as shown in Figure 59 is mandatory but the alignment may vary:

M

- A continuous cycle/pedestrian route shall be provided between Clerk Maxwell Road and High Cross. This route forms part of the continuous east-west pedestrian/cycle connection through The Green;
- Areas of cycle parking shall be provided in the zones shown on the diagram opposite and also: within the ground/lower floors of any multi-storey parking structure; consolidated within covered cycle parking structures or hubs or in secondary open spaces such as within the adjacent Green Links.

Movement of motor vehicles

2.4.6 Principles for movement of motor vehicles are as follows:

M

- In order to prioritise pedestrians and create a pedestrian friendly environment, movements of motor vehicles shall be restricted within The Green open space;
- There shall be no movement of motor vehicles across or through The Green other than emergency vehicles;
- Movements of motor vehicles shall be confined to Charles Babbage Road, High Cross and JJ Thomson Avenue and to the north side of The Green;
- Some movement of motor vehicles shall be allowed along the Green Links to the north and south of the space, to service proposed development;
- A new access lane north of The Green shall provide service access and access to car parking from High Cross;
- Principal pick-up/drop-off should be located on High Cross, if required. Secondary locations for drop-off should be along the northern access lane and within the adjacent Green Links;
- A new access lane south of the Schlumberger Research building should be created, if required.



59. The Green: Access and Movement

Car parking

2.4.7 Principles for parking are as follows:

M

- Car parking structures shall only be located in the zones indicated on the diagram above;
- Pedestrian routes to any car parking structure shall be provided and be carefully considered to ensure that users can access this structure easily and safely.

KEY

- WOODLAND BUFFER
- CYCLE HUB
- CYCLE+MSCP/ PARKING ZONE
- UNDERCROFT CAR PARKING
- DROP-OFF/ DROP-ON AREAS
- EXISTING BUS STOPS RETAINED
- POTENTIAL ADDITIONAL BUS STOPS
- OFF-SITE BUS STOPS
- PEDESTRIAN ROUTE
- CYCLE ROUTE
- PRIMARY VEHICULAR ROUTES
- SECONDARY/SERVICE VEHICULAR ROUTES
- SHARED SURFACE
- VEHICULAR ACCESS POINT
- CYCLE/PEDESTRIAN ACCESS ONLY

Urban structure

2.4.8 Due to location and configuration of The Green, the surrounding development will be highly visible and plays an important role in defining and invigorating this new public realm. Frontage types and built form will be arranged to encourage activity within The Green.

2.4.9 The development located around The Green will form the view corridor to the Schlumberger Research building and ensure that it is maintain it as a key site landmark. See Parameter Plan 04.

2.4.10 Building zones to the north side of The Green will also form new frontage to JJ Thomson Avenue and High Cross, contributing to their transformation in character and forming new gateways along Madingley Road.

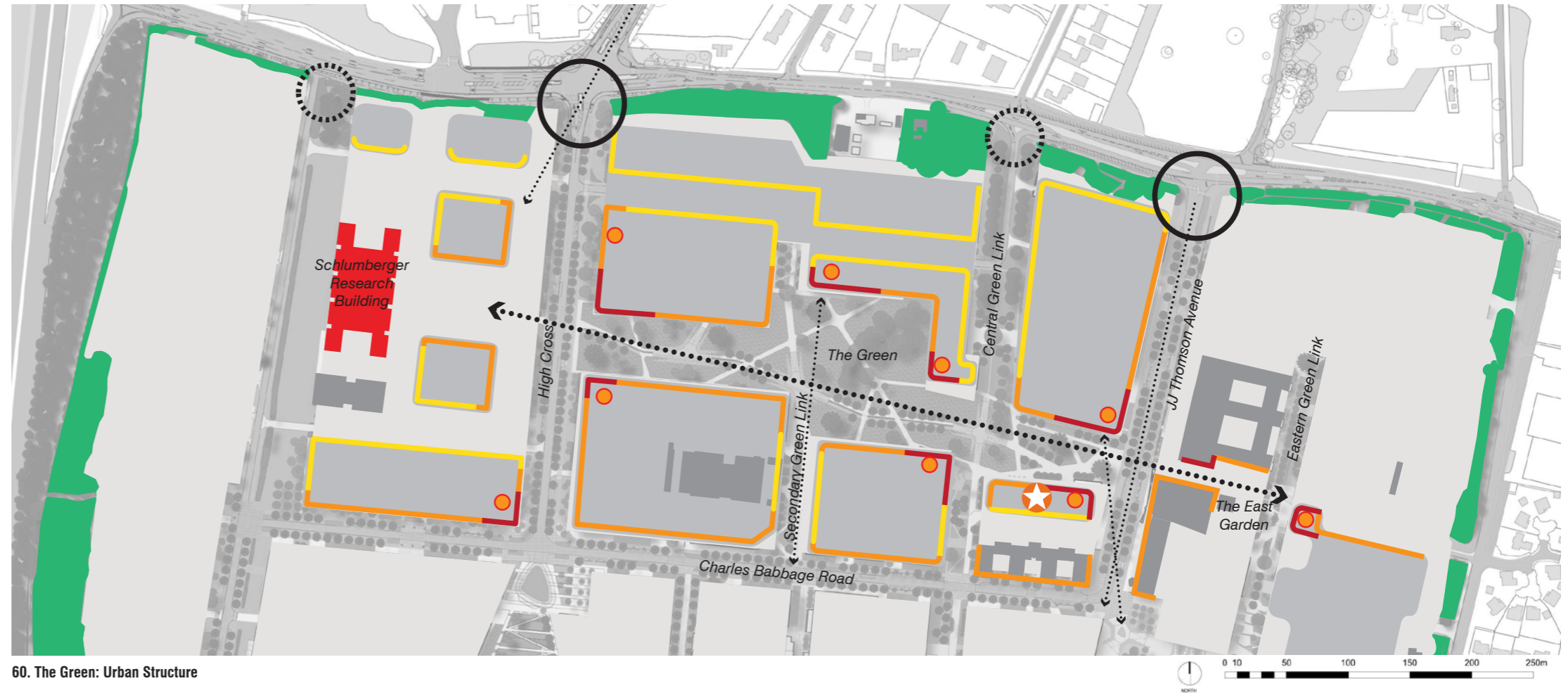
2.4.11 Figure 60 describes the urban structure framework and the arrangement of development frontage, landmarks, building accents and key gateways within this character area.

Building accents and gateways

2.4.12 Principles for building accents and gateways are as follows:

M

- Any taller elements (building accents) shall be located on the northern frontage of The Green and massing to the south side of The Green shall be lower to ensure that this primary green space has good daylighting and sun exposure;
- The building accent locations should also relate to ground floor active uses and other social spaces and should also terminate views from the north-south Green Links;
- Building accents should be located to terminate key views across the space, to aid legibility and draw movement through the space, and to relate to more active places within the space;
- Development should be set back to form a new gateway experience at the entrance to the West Cambridge site at High Cross;
- Development should form a gateway experience at the entrance to the West Cambridge site at JJ Thomson Avenue.



60. The Green: Urban Structure

Frontage Types

2.4.13 Figure 60 also shows the locations for the three types of proposed frontage: active, primary and secondary frontages:

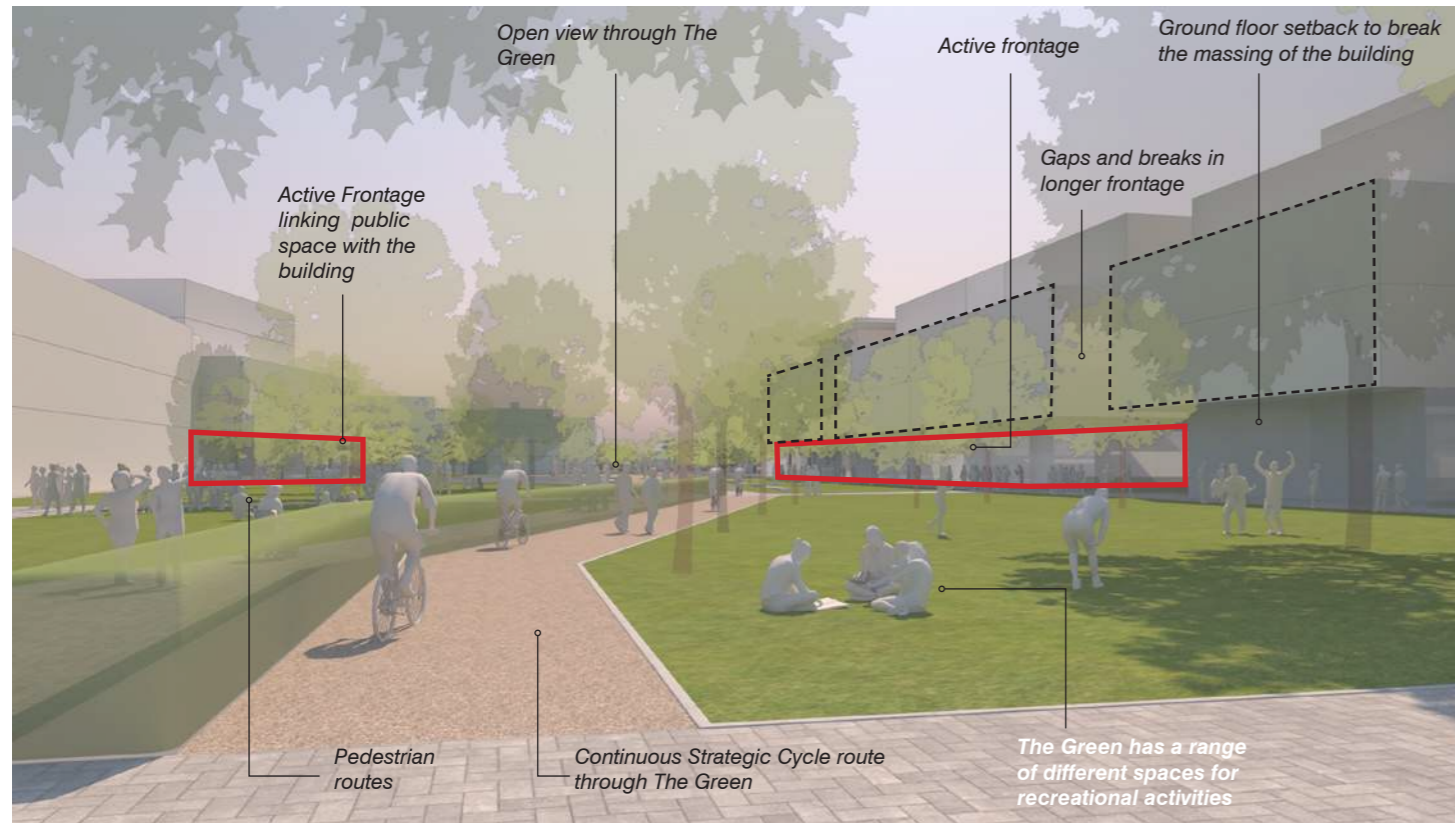
M

- **Active Frontages:** shall be primarily located at key locations along the north and south frontages of The Green, and in the new development facing The East Garden. These shall have ground floor active uses, or building entrances to activate these locations and help create the desired social activity within the space. These uses should have the opportunity to spill out into the public realm and parkland adjacent to the buildings;
- **Primary Frontages:** shall be located along both frontage of The Green as well as along Charles Babbage Road, JJ Thomson Avenue and High Cross. These frontages shall ensure a coherent frontage and strong enclosure and overlooking to these spaces;

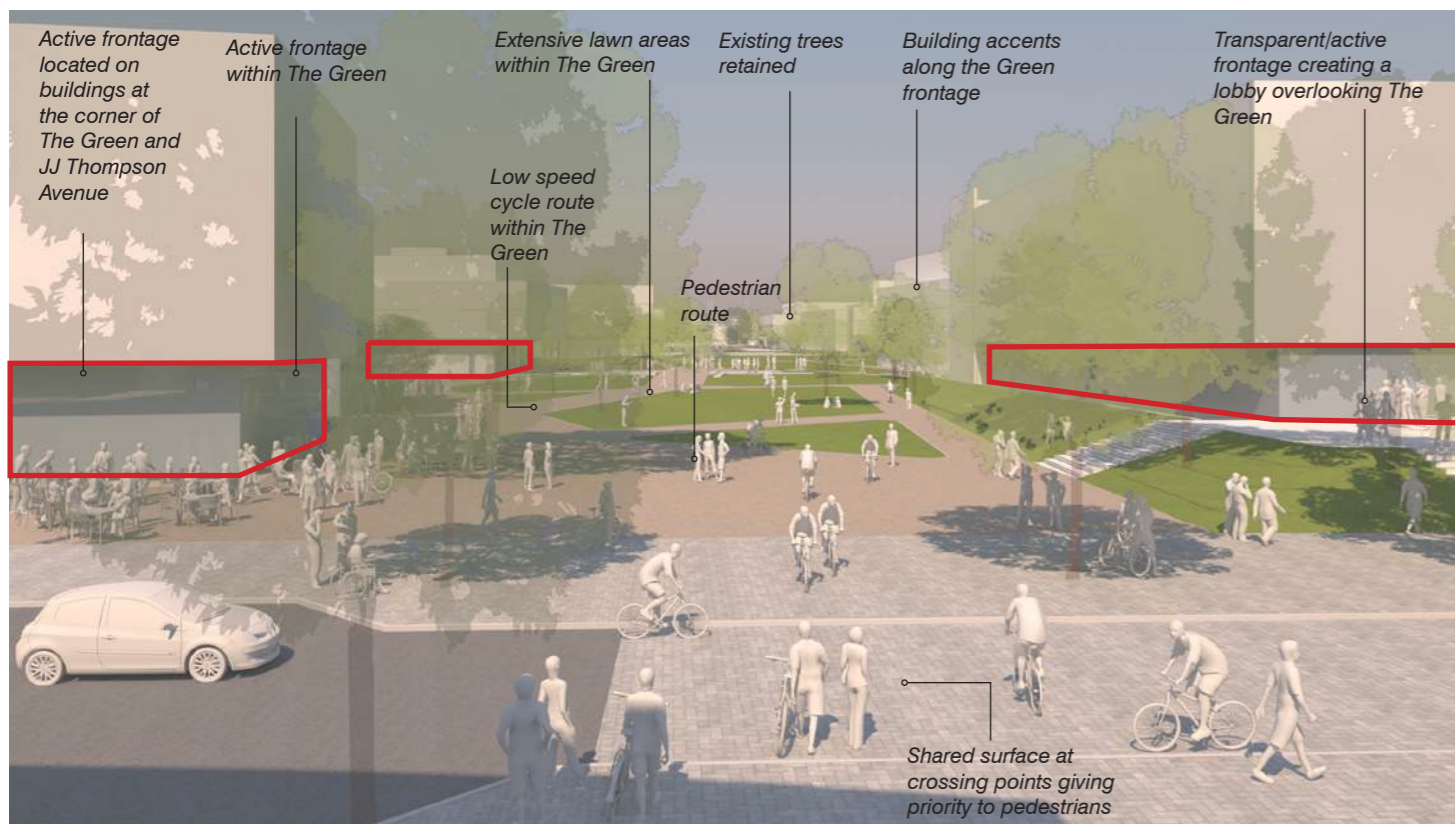
- **Secondary frontages:** more informal frontages should be located along the Green Links and other lanes and courtyard spaces. These frontages shall provide a degree of overlooking to the spaces. There is more flexibility in terms of locating service access along this frontage;
- At active frontage locations consideration should be given to introducing high level academic social or active spaces and/or roof terraces, where they could provide key views back to the city skyline.

KEY

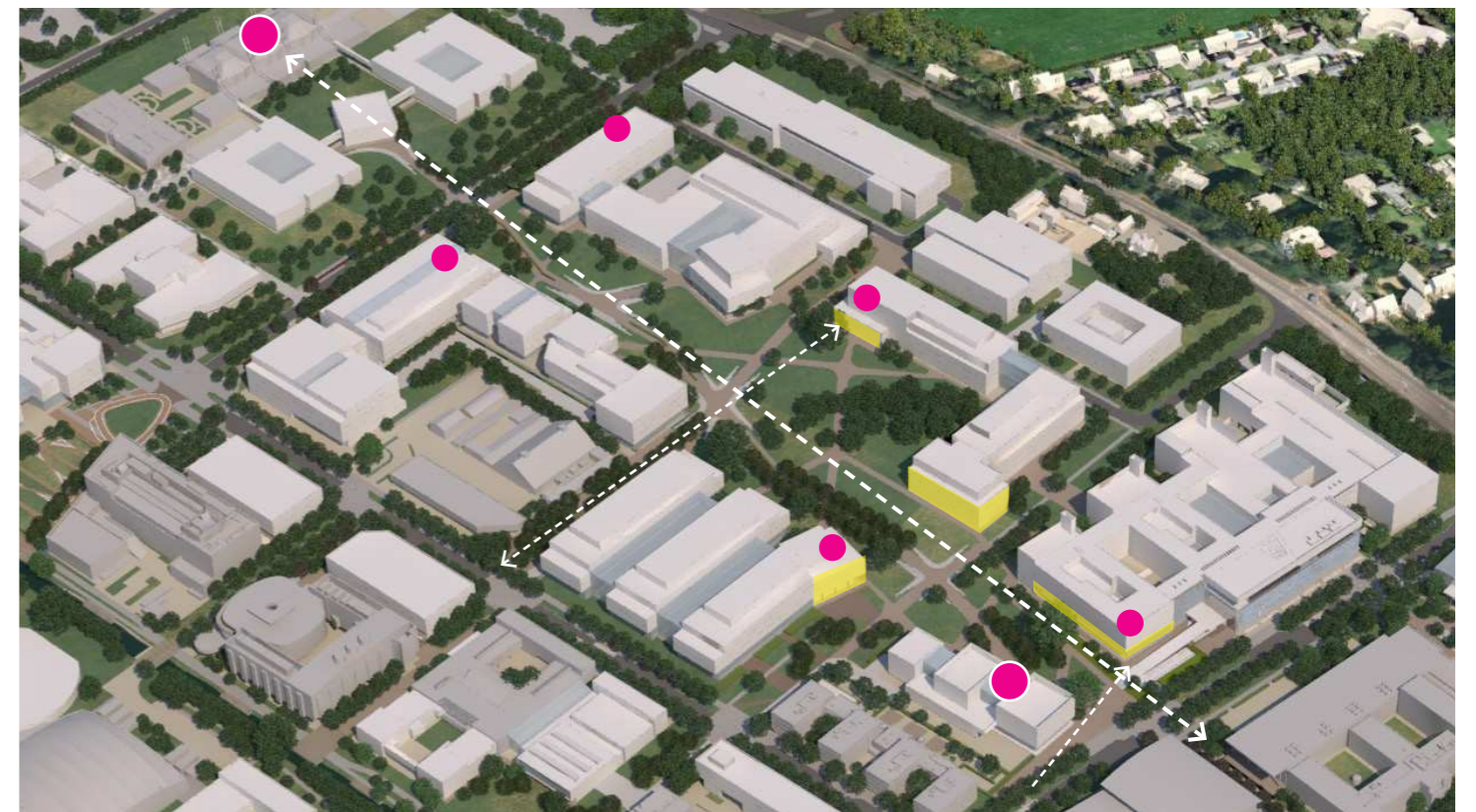
- ACTIVE FRONTAGE
- PRIMARY FRONTAGE
- SECONDARY FRONTAGE
- KEY VIEWS
- KEY BUILDING ACCENTS
- ★ SHARED FACILITIES HUB
- PRIMARY GATEWAYS
- SECONDARY GATEWAYS
- WOODLAND BUFFER



62. The Green - view from High Cross



63. The Green: View from JJ Thomson Avenue



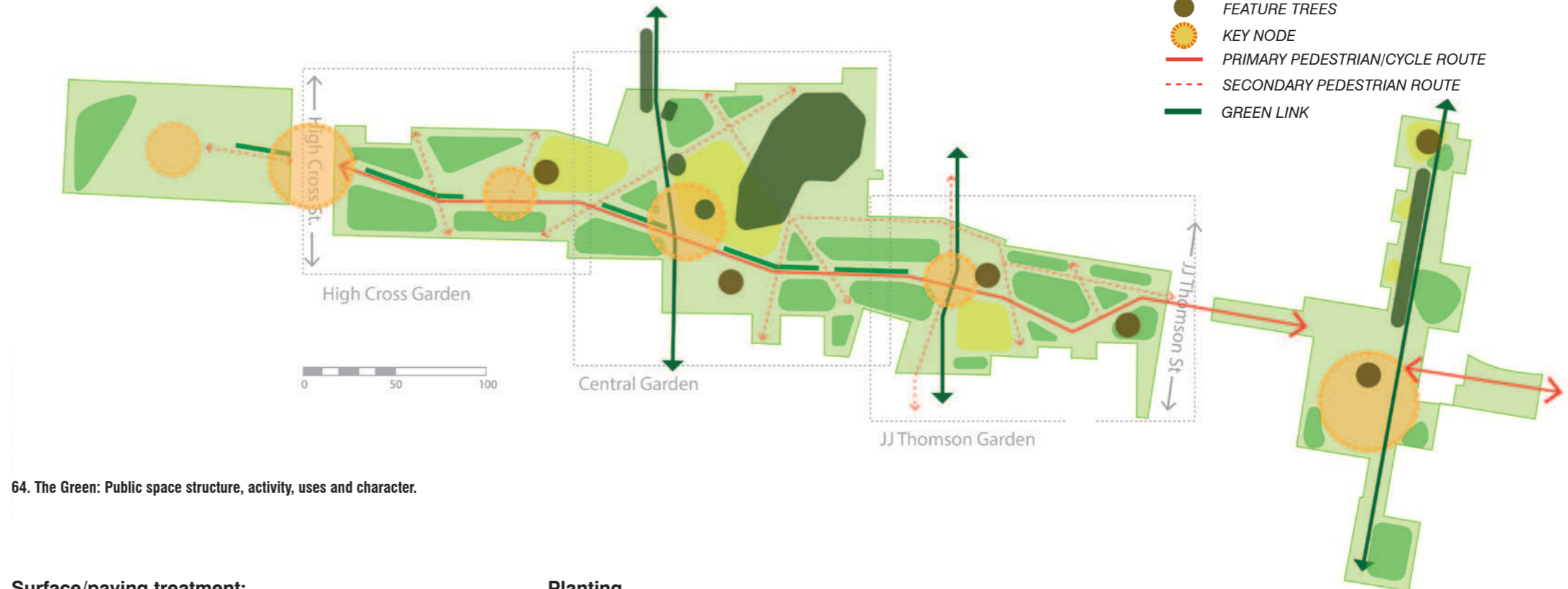
61. The Green - Massing and Landmarks

Landscape principles

2.4.14 Guidelines for The Green open space are as follows:

- Each of the Gardens associated with The Green shall incorporate and acknowledge their different role and character, yet form its part in a coherent series of connected spaces. The layout and the development edge of The Green will be defined through further design, respecting the planning parameters and preserving the existing trees;
- The Green shall be a predominantly green space and shall be landscaped in a way that creates a feel of a natural setting;
- The landscape design of the space shall maintain the view corridor between the Schlumberger Research building in the west to JJ Thomson Avenue in the east;
- Design shall accommodate a strategic pedestrian path and cycle route, which connects through the space between JJ Thomson Avenue and High Cross and is a continuation of the existing east-west cycle route to Clerk Maxwell Road;
- The Green, being a space where multiple routes converge, shall be carefully designed to ensure that routes and desire lines are maintained and conflicts between cyclists and pedestrians are minimised;
- A landscaped East Garden space shall also be provided at the intersection of the existing east-west pedestrian and cycle route and the Eastern Green Link (to the east of JJ Thomson Avenue);

- The design within the East Garden space should be consistent with the design and materials for the rest of The Green to the west;
- The landscape design should consider the introduction of a range of uses that are relevant to the adjacent buildings – outdoor spaces such as teaching breakout spaces, quiet gardens and informal activity spaces.



64. The Green: Public space structure, activity, uses and character.

Surface/paving treatment:

2.4.15 Principles for surface/paving treatment are as follows:

- The Green shall be a predominantly green, recreational open space. The portion of soft surface shall be minimum 70%. The paved area shall be restricted to pedestrian and cycle routes and spill out spaces from active uses along the frontages;
- Small paved areas should be provided along active building frontages to encourage activity to spill out and in places where ease of access and movement is required;
- In the JJ Thomson Garden & East Garden, the proportion of paving should be higher than 30% so as to accommodate pedestrian flows.

Bicycle Stands and Circulation

2.4.16 Principles for bicycle stands and circulation are as follows:

- Cycle parking shall be kept to a minimum within the space (cycle parking shall be located within or between buildings or on the adjacent Green Links);

Planting

2.4.17 Principles for planting are as follows:

- Existing mature trees which are to be retained shall be incorporated in the new landscape design, and tree root zones protected;
- Large feature tree planting shall be provided at a minimum of 5 key locations, such as at the gateways to The Green or key nodes within the space. Where large trees are planted they shall be given the proper environmental conditions and space to grow to maturity;
- Newly planted trees shall not hinder key views through the space and shall allow clear visibility of shared facilities and building entrances;
- Any area between building frontage and edge of open space shall be landscaped in a way similar to The Green, without visible barriers such as fences;
- In cases where buildings are set back from the edge of the open space, and if hedges are planted, they shall be located next to the building rather than marking the plot boundary / edge of the open space;

- New tree planting should be added to reinforce movement corridors, vistas and focal points;
- Planting should be relatively ordered along the strategic pedestrian and cycle route. Selective avenues of trees and hedge planting should be incorporated along the strategic route to assist in orientation and wayfinding;
- Planting and landscape should be informal in character alongside the proposed development, where trees and hedges planted in front of building frontages may partially cover them.

The Green: Minimum size and extents

2.4.18 In addition to the area and location shown in the Parameter Plan 04, the Parameter Statement also secures additional minimum requirements that must be achieved within the specified flexibility zones.

2.4.19 The additional minimum requirements for The Green open space must be:

- A view corridor with minimum 20m width between JJ Thomson Avenue and High Cross;
- Width at any cross section must be a minimum 40m.

2.4.20 The overall size of The Green between JJ Thomson Avenue and High Cross is secured at 2.9 ha by the Planning Statement (Open Space). This overall area must consist of three distinct gardens (from east to west): JJ Thomson Garden, West Green and High Cross Garden. Additional guidelines specified for minimal dimensions of these spaces follow below.

2.4.21 For JJ Thomson Garden (Section 1-1, Figure 66):

- Location of the northern maximum build to line and the area of minimum width 40m is defined;
- The total area of this Garden must be minimum 0.5 ha, (resulting in average width of 47.5m).

2.4.22 For the Central Garden (Section 2-2, Figure 67):

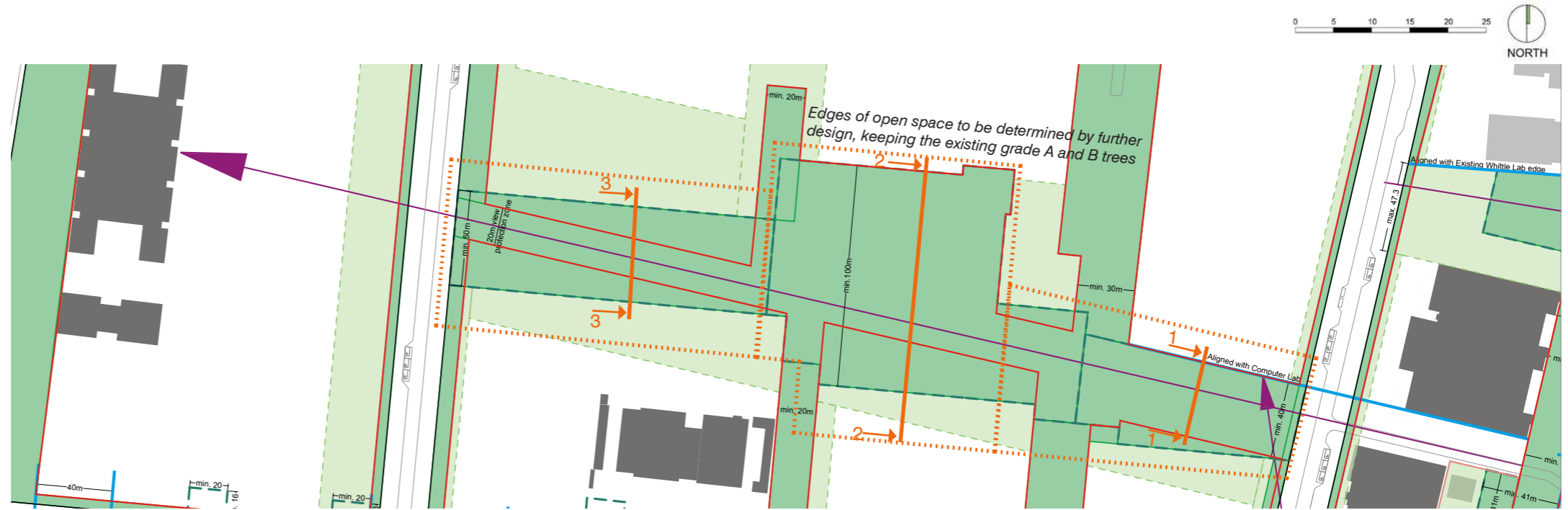
- Minimum width of 100m must be achieved over length of 100m (i.e. an area of minimum 100mx100m must be provided);
- The total area of this Garden must be minimum 1.6 ha (resulting in average width of 100m).

2.4.23 For the High Cross Garden (Section 3-3, Fig. 69):

- The total area of this Garden must be minimum 0.8ha, (resulting in average width 50m).

2.4.24 In addition to the minimum size defined in the Parameter Statement The Green also must provide:

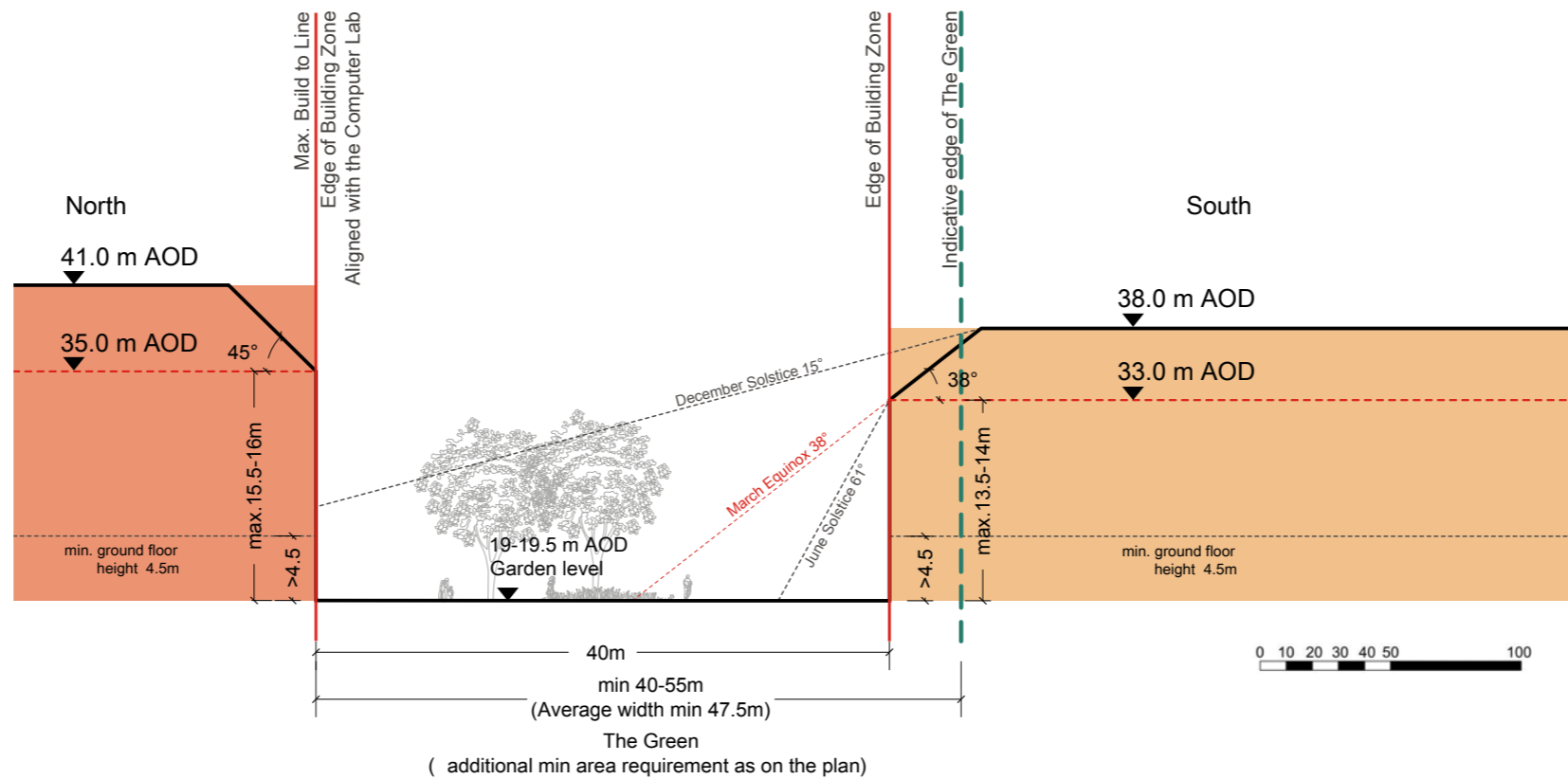
- a minimum of two open lawn areas - each lawn area must be a minimum of 1,500m² and each must include an area with minimum dimensions of 25x30m; and
- an area for informal recreation with minimum dimensions of 15x30m.
- The open lawn areas and informal recreation areas must not be located in areas without any sun on 21st March.



65. The Green: Defining the Extent of the Open Space

KEY

- Area secured in the Parameter Plan 4
- Flexibility zone defined in the Parameter Plan 4
- - - Indicative boundary of area secured in the Parameter Plan 4
- Building Zone edge (location of open space secured in Parameter Plan 4)
- Max. Build to Line
- Building set back zone
- ⋯ Section Zone



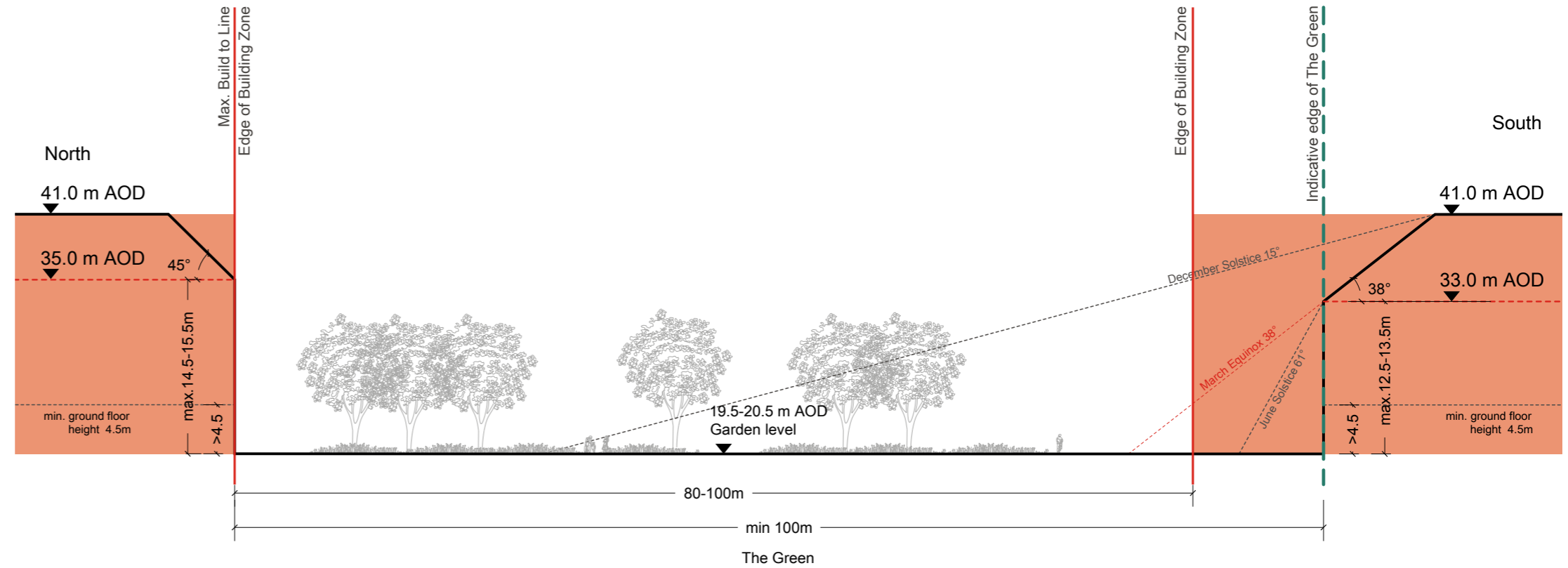
66. The Green: At JJ Thomson Avenue Garden / Section 1-1 (Parameter Heights 38m and 41m AODAt)

The Green: Additional height considerations

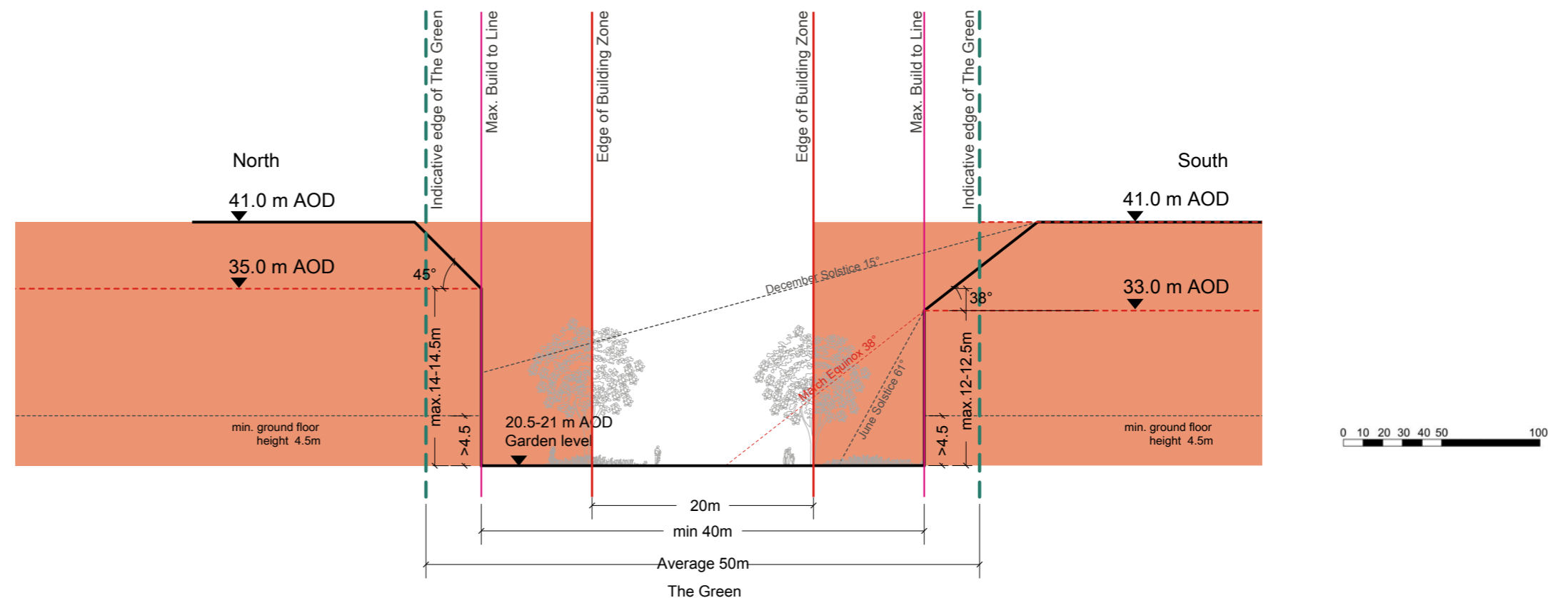
2.4.25 Additional height restrictions apply to the northern and southern frontages of The Green open space. The aim of these restrictions is to form a well scaled frontage to the space and allow for variation and interest. See Figures 66-68.

2.4.26 The following apply to development to the northern and southern frontages of The Green:

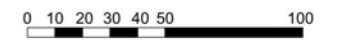
- Building heights and the layout of open space must be such that for each of the three Gardens within the space, the area without any sun exposure on 21st March does not exceed 1/4 (25%) of the overall area of that Garden;
- The development frontage must not exceed the set height of 33m AOD on the southern side and 35m AOD on the northern side of The Green, regardless of the width of the space at that point. Above those heights, the buildings must stay within the envelopes which arise from the set maximum frontage heights to the heights set in parameter plans with angles of 45° (North) or 38° (South);
- Particular consideration must be made so that rooftop plant spaces do not dominate the views from within The Green: plant spaces must be set back or screened, or treated as part of the facade or otherwise carefully treated;
- Any set back areas between proposed building frontages and the edge of The Green must not be used for service or any back of house purposes;
- Any area between building frontage and edge of The Green should be used for entrances or extended activities such as seating or seating with tables.



67. The Green: At the Central Garden / Section 2-2 (Parameter Heights 41m AOD)



68. The Green: At High Cross Garden / Section 3-3 (Parameter Heights 41m AOD) (additional min area requirement as on the plan)



2.5. Southern Ecological Corridor

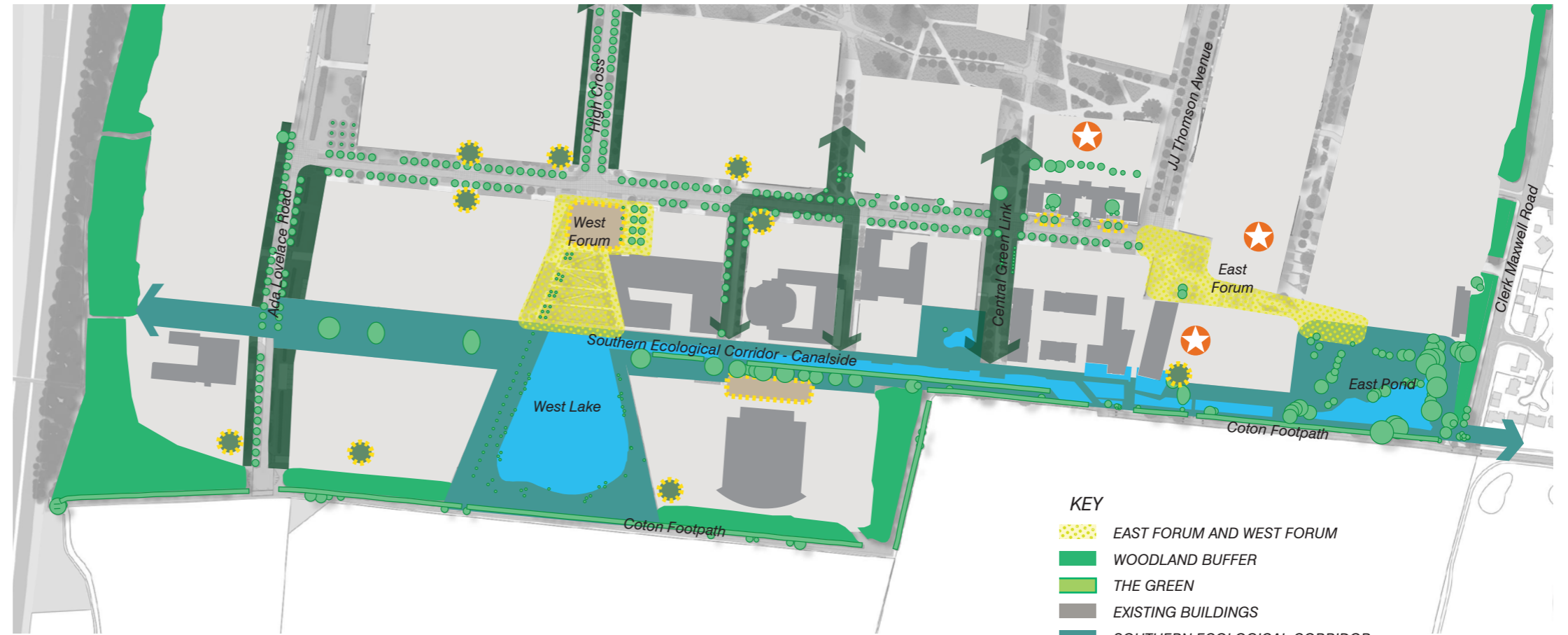
Public realm and landscape

2.5.1 The Southern Ecological Corridor is an important east-west element in the overall landscape network. It is formed mainly from existing, established spaces and landscapes and incorporates a strategic east-west pedestrian and cycle route.

2.5.2 The key public realm guidelines for the Southern Ecological Corridor are as follows:

M

- The Southern Ecological Corridor shall be a predominantly green space and shall be appropriately landscaped to enrich its natural setting;
- Any new landscape design shall distinguish places with individual character along the Corridor whilst forming a coherent overall space;
- Large feature tree planting shall be provided at a minimum of 5 key locations along the Southern edge. Where these trees are planted they shall be given the proper environmental conditions and space to grow to maturity and shall be provided with a 15m buffer, in accordance with the Woodland Management Plan;
- Any new planting along the Southern Ecological Corridor shall be indigenous;
- The existing West Lake, canal and East Pond are part of the overall drainage strategy. Any re-profiling of the edges should aim to enhance bio-diversity value;
- The existing water bodies shall be re-profiled in line with the site-wide drainage strategy. The planting strategy shall aim to increase bio-diversity and include a range of appropriate habitats;
- Existing mature trees and hedgerows within the space shall be retained as per Section 1.2 of the Site-wide guidelines;
- The space shall be a highly permeable space, with a key connection through and connections crossing the space. The space shall be carefully designed to minimise conflicts;
- The existing north-south tertiary streets to the north shall be transformed through additional landscaping into Green Links and allow greater pedestrian connection to the Southern Ecological Corridor;
- Supplemental new planting to the Southern edge must be provided to ensure a soft edge to the site and a transition to open countryside. Long views from the West Forum and Green Links to the southern countryside should be carefully crafted.



69. Southern Ecological Corridor: Open Space Structure



70. Southern Ecological Corridor: converges with the West Forum at West Lake

KEY

- EAST FORUM AND WEST FORUM
- WOODLAND BUFFER
- THE GREEN
- EXISTING BUILDINGS
- SOUTHERN ECOLOGICAL CORRIDOR
- GREEN LINKS
- ARRIVAL SQUARE
- POCKET LANDSCAPE
- EXISTING TREES TO BE RETAINED
- WATER BODIES
- ★ SHARED FACILITIES HUB

Access and movement

Cycle movement and parking

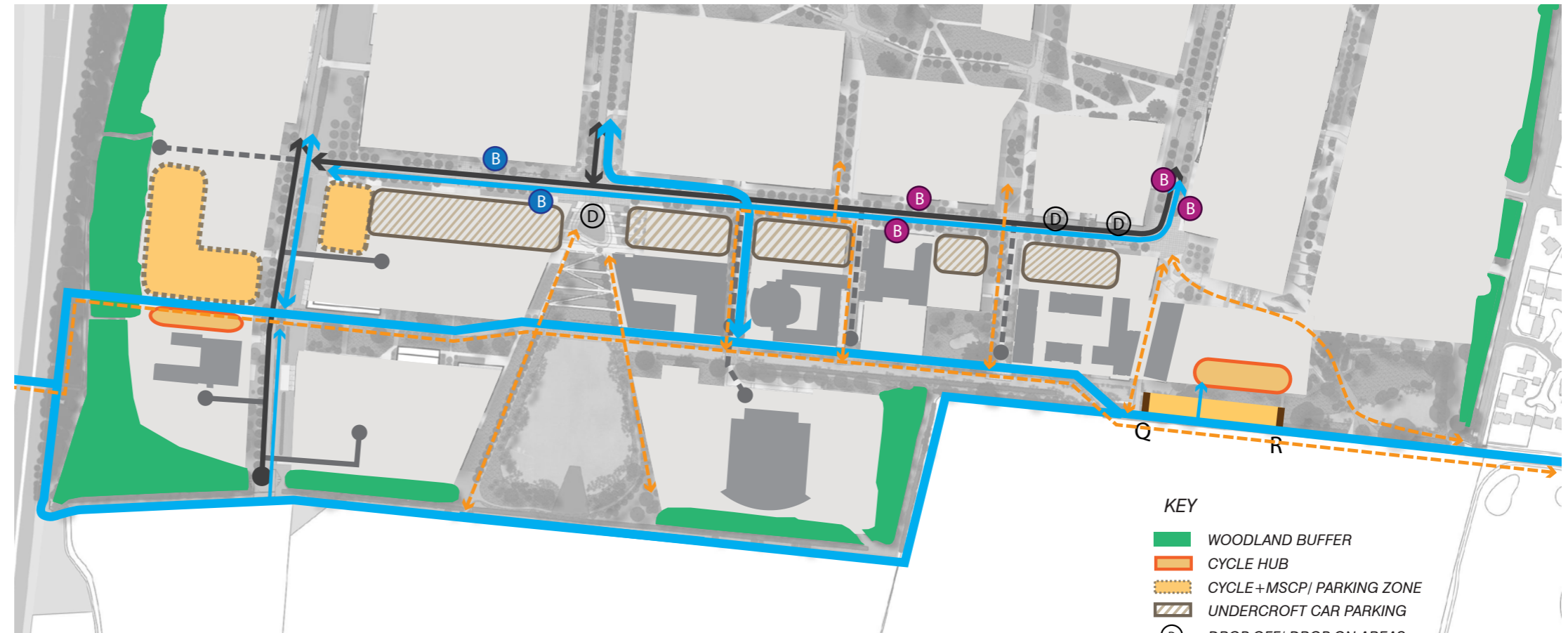
2.5.3 Key guidelines for cycle movement and parking are as follows. The hierarchy of routes as shown in Figure 71 is mandatory but the alignment may vary: **M**

- The primary strategic pedestrian and cycle route shall be retained within the Southern Ecological Corridor, and shall continue westwards to the western boundary of the site where it shall connect to the existing Coton Footpath and the pedestrian/cycle bridge over the M11.
- A cycle hub, accommodating large numbers of cycle parking spaces shall be located to the east of the Corridor and shall be accessed directly from the Coton Footpath. This facility shall be located within built form to ensure limited visual impact on the key adjacent public space;
- Large areas of cycle parking shall not be located in the open spaces of the Southern Ecological Corridor;
- Only limited/smaller areas of cycle parking for visitors should be provided within the key open spaces. These should be located close to shared facilities and/or building entrances;
- Other cycle parking areas should be provided along other key cycle routes, such as along Charles Babbage Road;
- Green Links should accommodate cycle movement as well as some smaller areas of cycle parking without conflict with pedestrian.

Movement of motor vehicles

2.5.4 Principles for movement of motor vehicles are as follows: **M**

- There shall be no movements of motor vehicles along or across the Southern Ecological Corridor, with the exception that motor vehicle access shall be provided to the Sports Centre and the proposed nursery, if located adjacent to it. This crossing of the Southern Ecological corridor shall be designed so that pedestrian and cycle movements retain priority;
- Primary drop-off points shall be provided in the West Forum and East Forum areas. Additional drop off shall be accommodated along Charles Babbage Road.



71. Southern Ecological Corridor: Access and Movement

- KEY**
- WOODLAND BUFFER
 - CYCLE HUB
 - CYCLE+MSCP/ PARKING ZONE
 - UNDERCROFT CAR PARKING
 - DROP-OFF/ DROP-ON AREAS
 - EXISTING BUS STOPS RETAINED
 - POTENTIAL ADDITIONAL BUS STOPS
 - OFF-SITE BUS STOPS
 - PEDESTRIAN ROUTE
 - CYCLE ROUTE
 - PRIMARY VEHICULAR ROUTES
 - SECONDARY/SERVICE VEHICULAR ROUTES
 - SHARED SURFACE
 - VEHICULAR ACCESS POINT
 - CYCLE/PEDESTRIAN ACCESS ONLY

Servicing

2.5.5 Principles for servicing are as follows: **M**

- Servicing access shall be from along the Green Links, accessed from Charles Babbage Road;
- Service access routes shall be designed so as to not reduce pedestrian and cycle priority through these spaces.

Car parking

2.5.6 Principles for car parking are as follows: **M**

- Car parking shall be restricted to lower ground floors along Charles Babbage Road. These areas shall be well integrated into the building frontages and not compromise the overlooking of this street;
- Surface car parking shall be kept to a minimum and only within Green Links and Charles Babbage Road (disabled parking and limited visitor parking only) and shall be integrated will into the public realm design.

Urban structure

2.5.7 The proposed urban structure around the Southern Ecological Corridor aims to provide a better defined frontage and increase overlooking to this space.

2.5.8 This open space overlaps with East Forum and West Forum spaces and provides a strategic connecting route and visual element along the southern edge.

2.5.9 This area is highly visible both from within the site as well as from long views across the agricultural fields in the south. New development will form frontage in response to these views.

2.5.10 Figure 72 on this page describes the urban structure framework and the arrangement of development frontage, building accents and any key gateways relating to this area.

2.5.11 Key principles for urban structure are as follows: **M**

- Development along the southern edge shall be set behind the existing woodland buffer. Additional landscape and tree planting shall be used to provide a softer, greener development edge;
- For the area west of the West Lake, the Open Space Parameter Plan specifies the mandatory area which ensures the existing Grade A trees are protected. In addition to this area, within the flexibility zone additional area shall be provided so the total area is minimum 0.7 ha, resulting in average width of 41 m.
- Along the Southern Ecological Corridor, significant existing buildings are expected to be retained, including the Sports Centre, Materials Science and Metallurgy, Hauser Forum and Broers building and others. The new development should provide some variation to the building lines set by these existing buildings.

Building Accents and Gateways

2.5.12 Principles for building accents and gateways are as follows: **M**

- Unobstructed views along the Southern Ecological Corridor shall be maintained to aid legibility;
- At the East Pond development frontages shall combine with development within the East Forum area to form a new southern gateway from the Coton Footpath;
- Any new building accents (taller elements) shall be located at East and West Forum spaces, where they will capture the views from the Ecological Corridor. The guidelines for these landmarks are provided in East and west Forum sections;

- Additional accent buildings should be located to terminate views and relate to key spaces, such as where the Southern Ecological Corridor meets the West Forum/ West Lake, or at the intersection of Southern Ecological Corridor and Ada Lovelace Road.

Frontage types

2.5.13 The diagram in Figure 72 locates the three types of frontage: active, primary and secondary frontages: **M**

- Active Frontages:** These frontage types shall be located to encourage high levels of activity within the East Forum spaces, including at the East Pond, at West Forum, including key points adjacent to the West Lake;
- Primary Frontages:** shall be located along the Southern Ecological Corridor;
- Secondary frontages:** shall primarily form the Green Links and frontages screened by planting along site edges. These provide more informal frontage to these spaces;

- Active ground floor frontages should also be located along the Southern Ecological Corridor to take advantage of the southern aspect;
- At these active frontage locations consideration should be given to introducing high level active spaces.

KEY

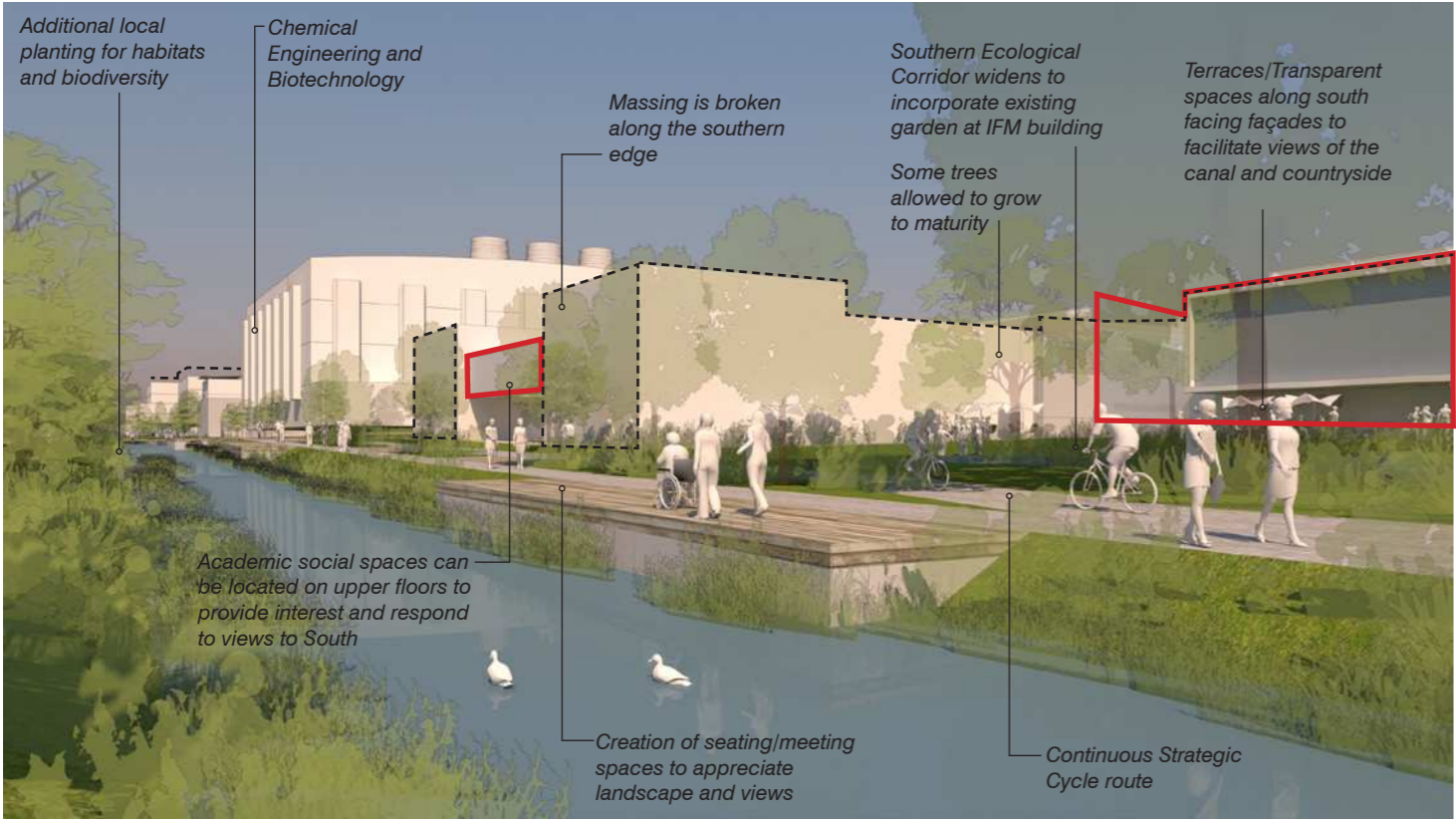
- ACTIVE FRONTAGE
- PRIMARY FRONTAGE
- SECONDARY FRONTAGE
- KEY VIEWS
- KEY BUILDING ACCENTS
- SHARED FACILITIES HUB
- PRIMARY GATEWAYS
- SECONDARY GATEWAYS
- WOODLAND BUFFER



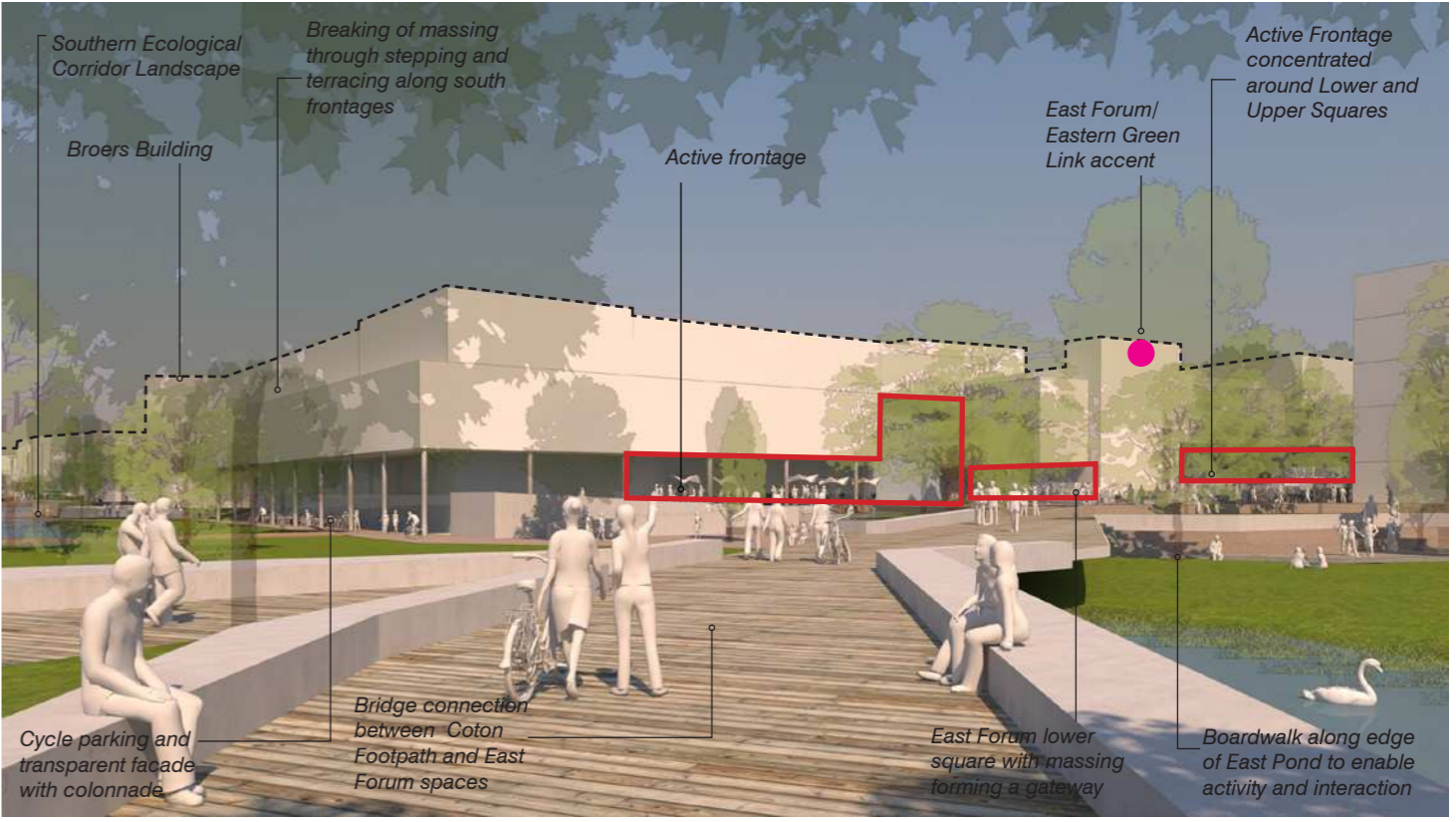
72. Southern Ecological Corridor: Urban Structure



73. Key Views



74. The Southern Ecological Corridor: Canal Frontage



75. Southern Ecological Corridor - East Pond and Southern Gateway

Landscape principles

Canalside

2.5.14 The Canalside is an existing section of the Southern Ecological Corridor. Guidelines for the Canalside area are as follows: **M**

- New/additional seating and gathering spaces shall be designed into the Canalside area;
- The strategic pedestrian path and cycle route shall be retained within the Southern Ecological Corridor.

West Lake and East Pond

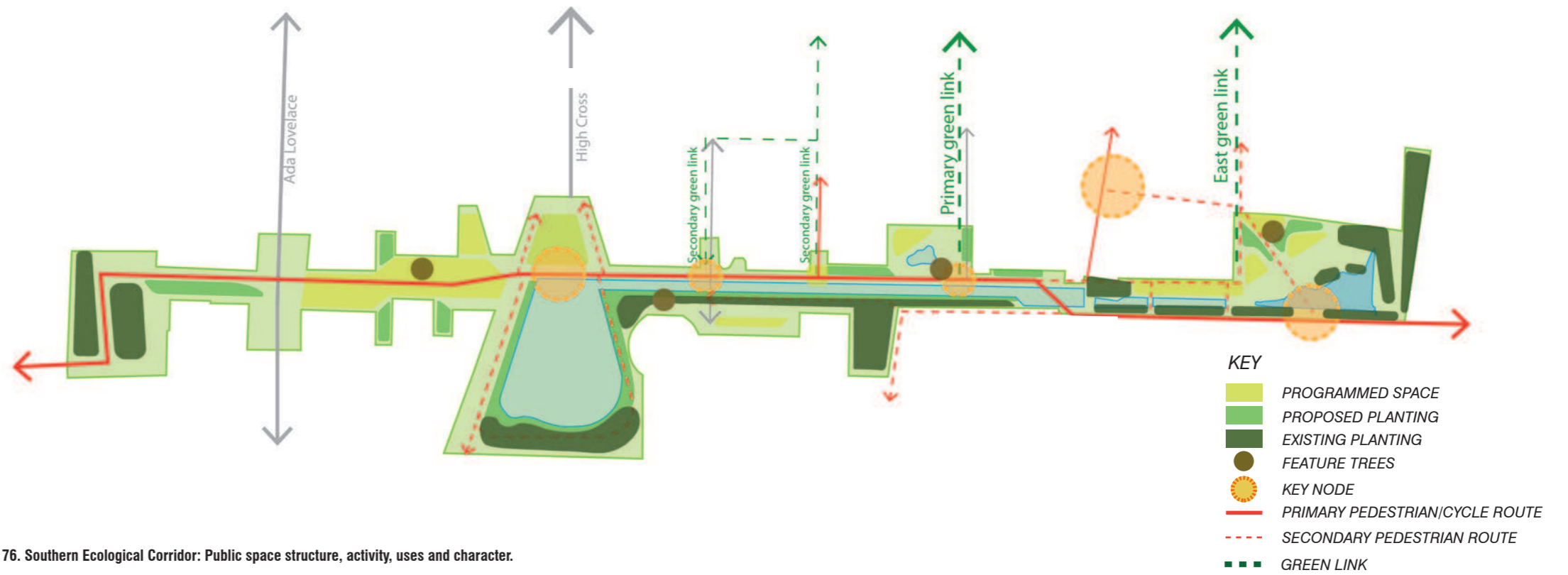
2.5.15 West Lake and East Pond are existing spaces now to be incorporated into the Southern Ecological Corridor. Guidelines for the West Lake and East Pond spaces are as follows: **M**

- The West Lake & East Pond shall remain predominantly green spaces and shall be appropriately landscaped to enrich the natural setting;
- These spaces shall be active spaces - the design of the spaces shall provide places to dwell, south facing terraces and informal lawns;
- The East Pond shall become a new southern gateway into the site. The space shall be visible from Coton Footpath and a new pedestrian-only route shall be provided between the Coton Footpath and the East Forum spaces. A route over the pond may be considered but cycle movements shall be discouraged along this route;
- The existing pedestrian path shall be retained around the West Lake to bring people closer to the water and promote recreational activity.

Green Links

2.5.16 Principles for the Green Links are as follows:

- Existing tertiary streets shall be transformed to form Green Links - pedestrian orientated spaces that incorporate pedestrian routes, cycle parking, hard and soft landscape and servicing for buildings along their length;
- Wherever the Green Links have to accommodate shared pedestrian and service access, care shall be taken to facilitate ease of access with least conflict to pedestrians.



76. Southern Ecological Corridor: Public space structure, activity, uses and character.

Surface/paving treatment

2.5.17 Guidelines for surface/paving treatment are as follows: **M**

- The extent of paved areas shall be restricted to key pedestrian and cycle routes and seating areas or gathering spaces.

Bicycle Stands and Circulation

2.5.18 Principles for bicycle stands and circulation are as follows: **M**

- Cycle parking shall be kept to a minimum within the key gathering spaces;
- Cycle parking should be located within or between buildings or on the adjacent Green Links.

Planting

2.5.19 Principles for planting are as follows: **M**

- Existing trees and hedgerows shall be maintained as per Section 1.2 of the site-wide guidelines;
- Any new planting along the Southern Ecological Corridor shall be indigenous;
- Large feature tree planting shall be provided at a minimum of 5 key locations. Where these trees are planted they shall be given the proper environmental conditions and space to grow to maturity and shall be provided with a 15m buffer, in accordance with the Woodland Management Plan;
- To the water body edges, marginal planting shall be provided to create a natural look, increase biodiversity and provide a range of appropriate habitats. This planting shall be appropriate to the soil and environmental conditions at the water edges;
- Any area between building frontage and edge of open space, should be landscaped in a way similar to the public realm, without visible barriers such as fences. If hedges are planted, they should be located next to the building rather than marking the boundary;

- Clearing of under-storey vegetation should be considered to open views from the development and assist in way-finding, in particular at the new southern gateway at the East Pond.

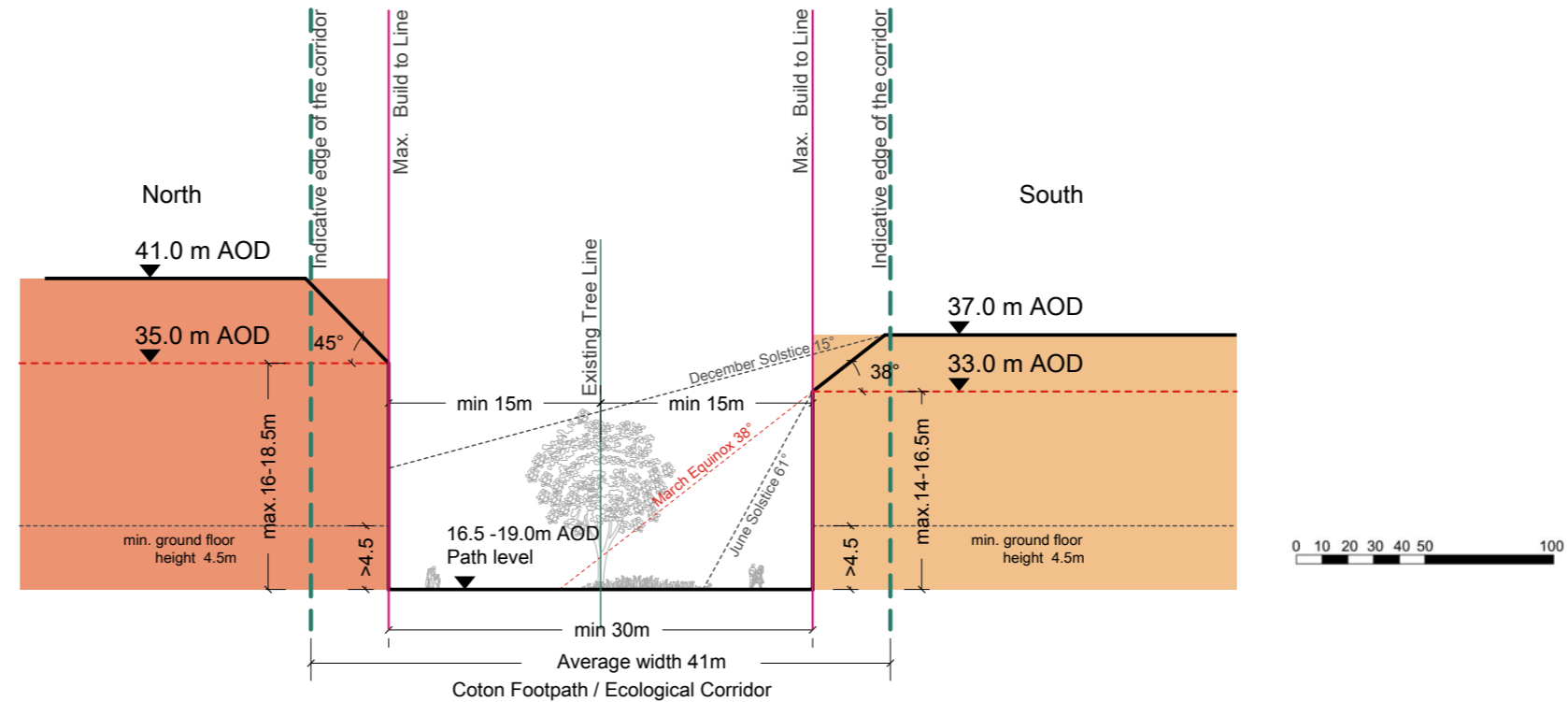
Additional height considerations

2.5.20 Additional height restrictions apply to the northern and southern frontages of the Southern Ecological Corridor. The aim of these restrictions is to form a coherent frontage to the space but allow for variation and interest in response to long distance views from the south. In addition it is important to ensure that development does not overshadow key spaces and routes within the space.

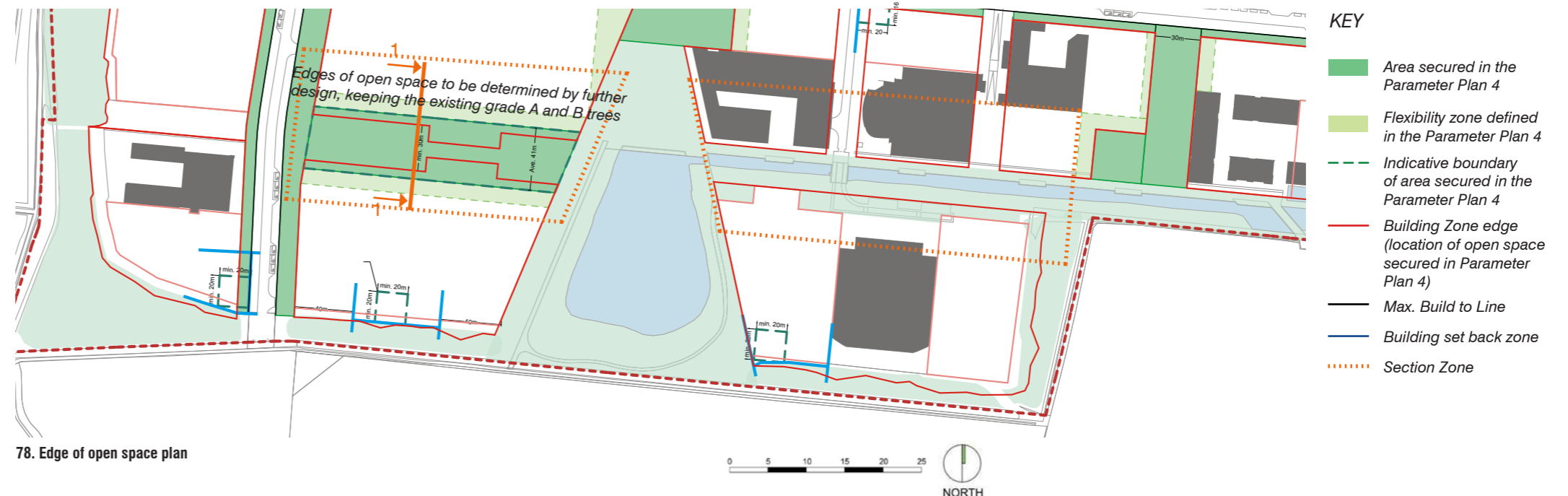
2.5.21 Key additional height considerations for the Southern Ecological Corridor are as follows:

M

- The width between buildings at any given cross section shall be minimum 30m;
- The area of open space within the Corridor to the west of the West Lake shall be minimum 0.7ha (as secured in the Parameter Plan 04), resulting in minimum average width of 41m). This ensures that the existing Grade A trees are protected and retained within the space;
- Development frontage shall not exceed the set height of 33m AOD on the southern side and 35m AOD on the northern side of the space. Above those heights, the buildings shall stay within envelopes which rise from the set maximum frontage heights to the heights set in parameter plans with angles of 45° (North) or 38° (South), as shown in Figure 77;
- Particular consideration shall be made so that rooftop plant spaces do not dominate the views from within the Southern Ecological Corridor: plant shall be set back, screened, treated as part of the facade or otherwise carefully treated to minimise visual impact;
- Any setback area between building frontage and edge of open space, should be used for entrances or extended activities such as seating or seating with tables. These zones should not be used for service / any back of house purposes;
- Buildings may be built to the edge of the open space or be partially set back.

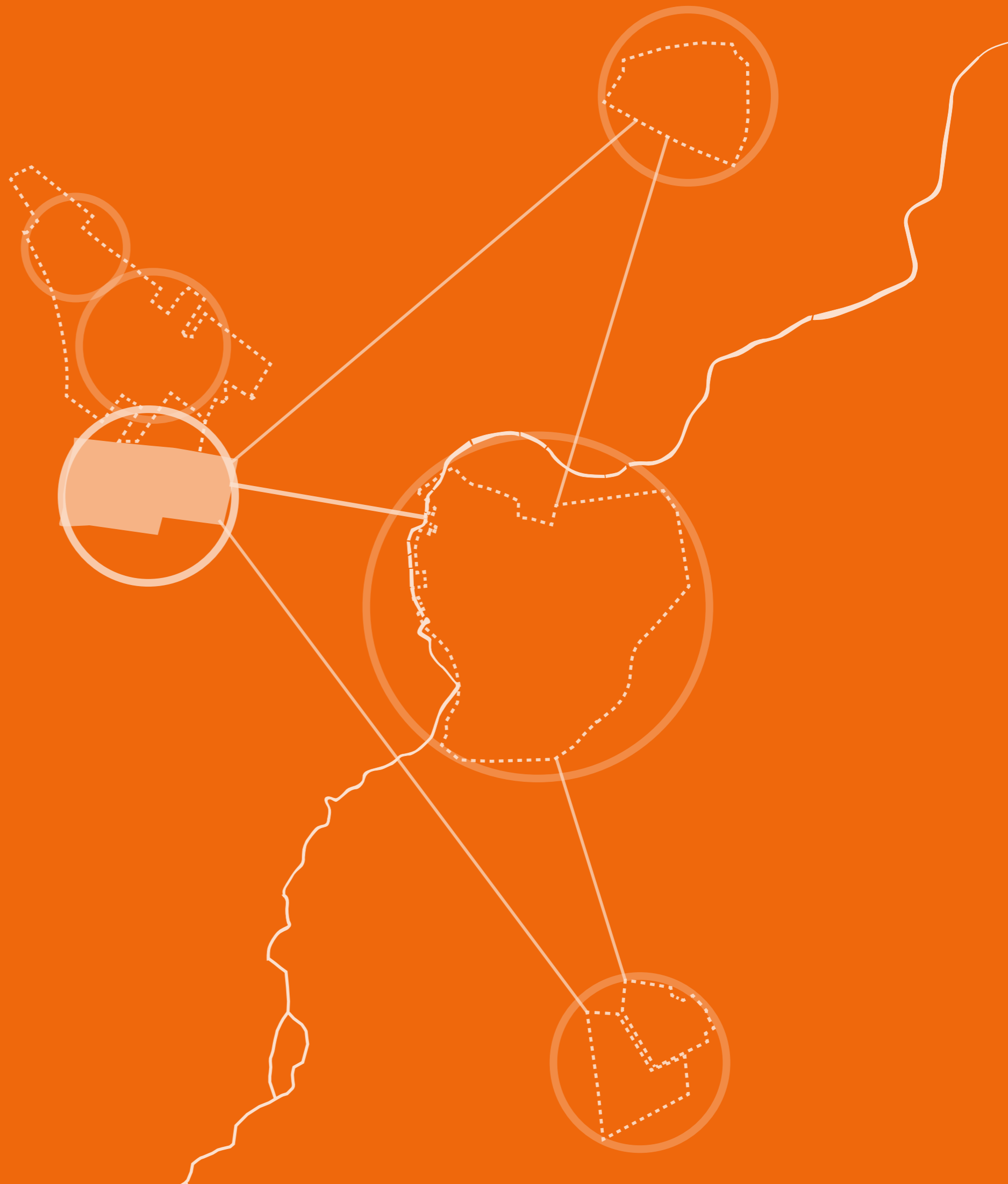


77. Southern Ecological Corridor West Section 1-1 (Parameter Heights 37m and 41m AOD)



78. Edge of open space plan

- KEY**
- Area secured in the Parameter Plan 4
 - Flexibility zone defined in the Parameter Plan 4
 - Indicative boundary of area secured in the Parameter Plan 4
 - Building Zone edge (location of open space secured in Parameter Plan 4)
 - Max. Build to Line
 - Building setback zone
 - Section Zone



STREETS AND GREEN LINKS

03

3. STREETS AND GREEN LINKS

3.1. Introduction

3.1.1 The primary street structure within the site was established by the 1999 masterplan. There are four key streets, shown in Figure 79: High Cross, JJ Thomson Avenue, Charles Babbage Road, and Western Access/Ada Lovelace Road. The first three of the streets form the main access and circulation loop formed by the 1999 masterplan, and have been completed relatively recently. Their roadways, kerbs and foot paths are in good condition and street trees have been planted along their length.

3.1.2 The proposed development retains all four of the existing streets, and proposes changes in the character of these streets, both in relation to the adjacent built form, as well as their public realm and landscape treatment.

3.1.3 It is intended that these transformations will take place gradually with implementation over time as development comes forward.

3.1.4 In addition to the four key streets, guidelines for two Green Links are provided: the Eastern Green Link and the Central Green Link.

3.1.5 The following guidelines apply to the four primary streets:

M

- The three north-south running streets and the Central Green Link shall have building to building width of minimum 30m;
- The primary streets shall accommodate the movement of motor vehicles, cycles and pedestrians;
- All of the primary streets apart from the Western Access/Ada Lovelace Road shall accommodate bus movement;
- Traffic calming measures to reduce the dominance of motor vehicles and help slow traffic to a target speed of 20mph shall be introduced along existing streets;
- Traffic calming measures, to reduce the dominance of vehicles, to slow traffic and create a shared use space with pedestrian priority, shall be provided. These

measures may include elements such as: change of surface material at crossing points; on-street parking; vertical elements and central street markings to reduce the appearance of street width; and varied planting;

- Raised tables shall not be used within the West Cambridge site. This is to maintain a vibration free environment for sensitive equipment and experiments within laboratories;
- Built form along key streets shall incorporate variable and interesting roof-lines;
- Service access and service yards shall not front the primary streets and shall be contained within buildings or enclosed by development;
- The visual impact of car parking in basement or semi-basement areas shall be minimised and access should be located away from the primary streets;
- The existing trees identified for retention (Section 1.2) shall be incorporated into the new street design, and buffers/set backs to maximum build-to line provided, as specified in the 'West Cambridge Masterplan EIA Arboricultural Impact Assessment Report';
- On-street parking shall be used for disabled parking only and no more than four parallel parking bays shall be allowed in a row;
- Proposed planting to the street verges shall comprise a mix of tree species, shrubs, grasses, ground cover and lawn to create a varied and pedestrian scale street-scape;
- The existing underground utilities shall be incorporated. These vary from one side to the other, therefore different planting treatments shall be applied in different locations along the streets in response, as shown indicatively in the Appendix 5.2;



79. West Cambridge - Streets and Links

KEY
█ KEY STREETS
█ GREEN LINKS

- Gaps and partial setbacks should be used to break longer frontage lengths, in accordance with Section 1.4;
- Rooftop plant should be set back or effectively screened to ensure that its visual impact on the streets is minimised;

- New streetscape planting should provide typical planting depth of subsoil & topsoil as follows:

Trees:	900mm
Shrubs:	600mm
Grasses:	400mm
Ground-covers:	400mm
Lawn:	200mm



80. High Cross - existing photo looking south from Madingley Road junction



81. JJ Thomson Avenue - existing photo looking south



82. Charles Babbage Road - existing photo looking east from High Cross



83. Western Access Road - existing photo looking south

3.2. High Cross

Street transformation

3.1.6 High Cross is one of the existing streets established through the 1999 masterplan. The proposed development retains this street as an important part of the site's urban structure and enhances its role and character.

3.1.7 This street is the main entrance and approach road into the site for public transport and motor vehicles as well as for many pedestrians and cyclists. It forms a key pedestrian and cycle link to the North West Cambridge Development and its new Local Centre in the north.

3.1.8 The street corridor visually continues the chain of green landscapes that run north-south through the North West Cambridge Development, into the West Cambridge site, and to the West Forum and West Lake - it is important that this street is maintained as a wide, generously landscaped street.

Character

3.1.9 Guidelines for the transformation of character of High Cross are as follows:

- Buildings shall be setback from the street to allow for a wider, generously landscaped street corridor;
- On the west side of the street the Listed Schlumberger Research building shall remain visible as a key site landmark;
- The profile of the street shall be changed to allow for some on-street disabled parking, pedestrian footpaths and separate cycle routes.

Surface/paving treatment

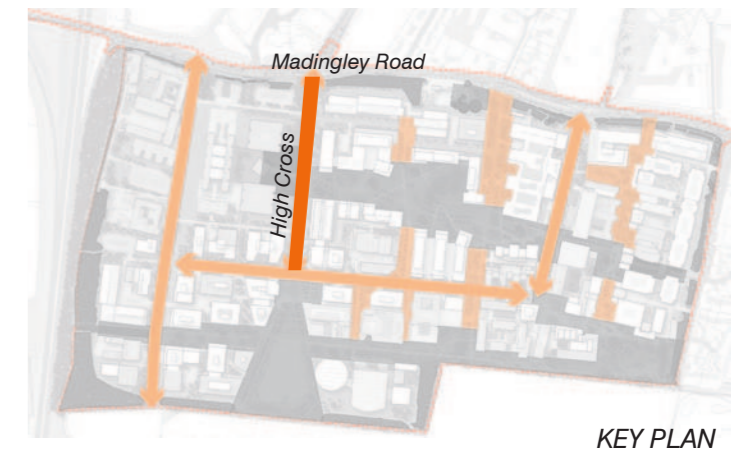
3.1.10 Guidelines for the surface/pavement treatment of High Cross are as follows:

- Cycle movement shall be accommodated on or off street and a dedicated cycle route or a shared foot & cycle path shall be formed to both sides of the street;
- Pedestrian and cycle crossing points shall be incorporated at key locations, such as: at The Green and at the West Forum. The road surface shall change to denote the crossing point and help to slow traffic;
- Central street markings should be considered as part of the traffic calming measures along this street, serving to visually reduce the width of the street;
- An Arrival space should be created along the street for any expanded Schlumberger Research building. This Arrival space should be carefully integrated into the design of the street. Use of similar materials or a careful transition of materials should be considered.

Landscape and planting

3.1.11 Guidelines for the landscape and planting for High Cross are as follows:

- Street trees to High Cross are Non-mandatory to be retained (see Section 1.2), as they are young, category C trees in a poor state. Replacement with an appropriate street tree shall be considered. Refer to the 'High Cross Oak Tree Investigation Report', October 2016 for tree species recommendations (see Appendix 5.3);
- In the setback zones, trees shall be planted to soften the existing lines of parallel trees and partially obscure building frontages. Space shall be provided for some trees to grow to maturity;
- Large feature tree planting shall be incorporated at key locations, such as: the gateway to Madingley Road and the interface with The Green. Large tree species must be given the proper environmental conditions and space to grow to maturity;
- Where building setbacks and gaps occur the landscape design within these shall reflect the street design so that no visible boundaries can be seen;
- Rain Gardens shall be provided to collect water runoff from the carriageway. The location of these shall consider the existing street trees and underground utilities, and be planted with a variety of species that are appropriate for the Rain Garden and the roadside environment;
- Rain Gardens shall be a minimum of 1.5m wide and 6m in length. Refer to Appendix 5.2 for plans & sections of underground utilities;
- At the gateway with Madingley Road, additional trees should be planted within the spaces created by building setbacks, to create a gateway with a landscaped and green character.



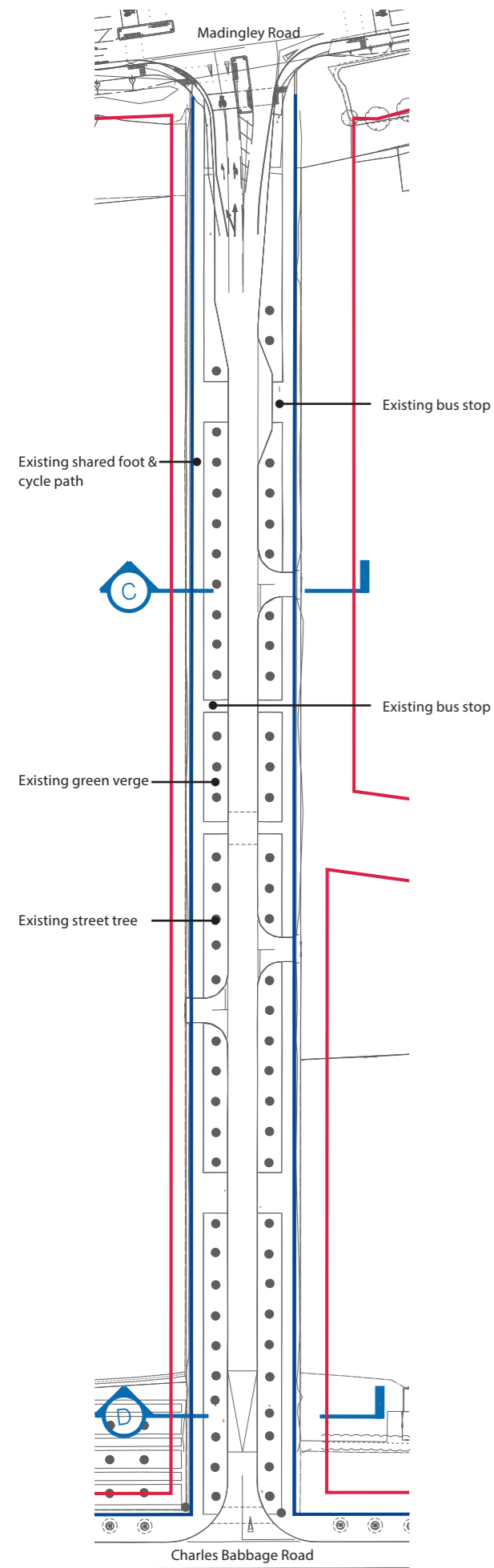
KEY PLAN



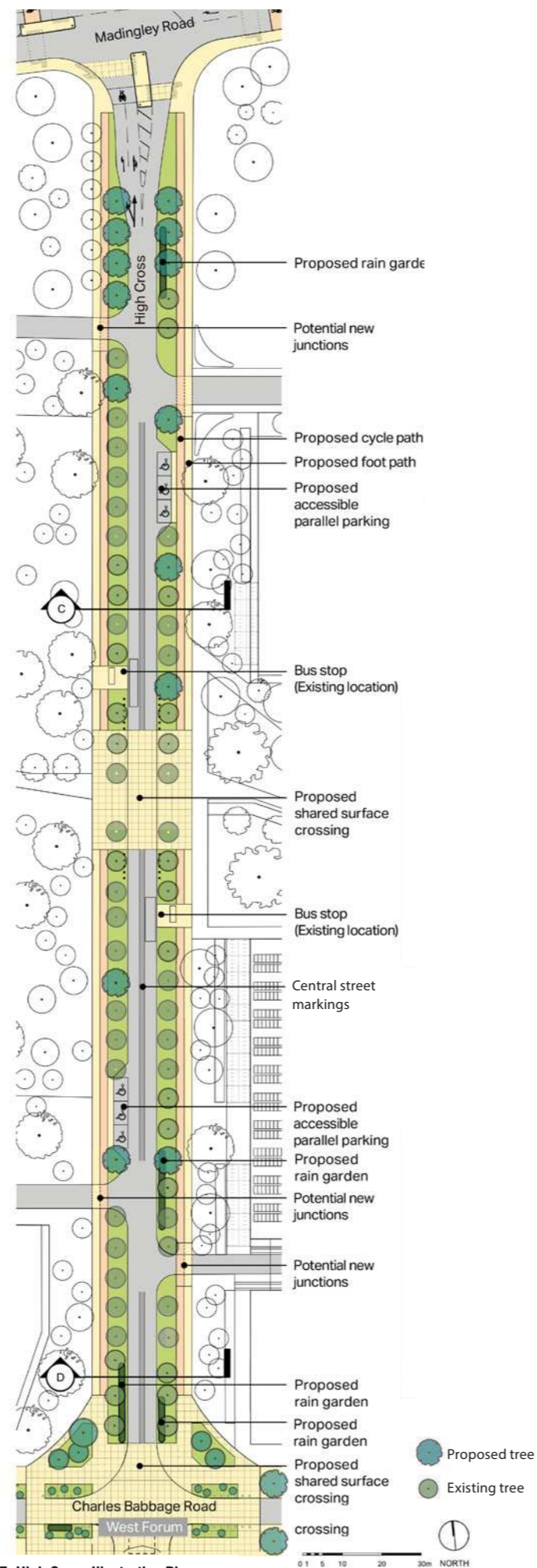
84.High Cross looking towards the Schlumberger Research Building



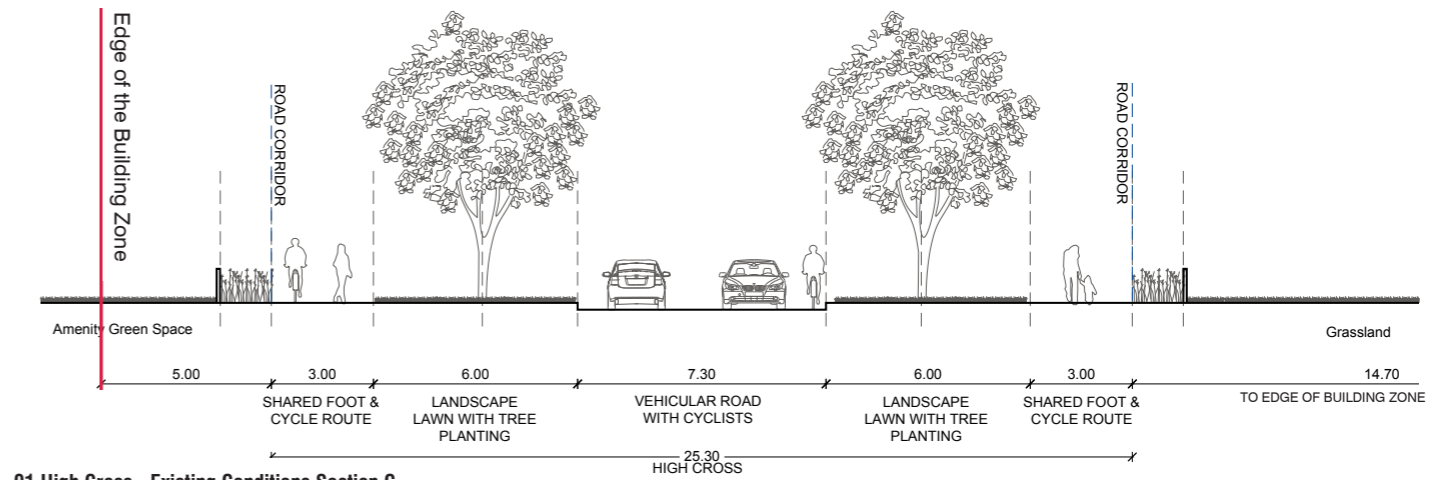
85.High Cross looking south



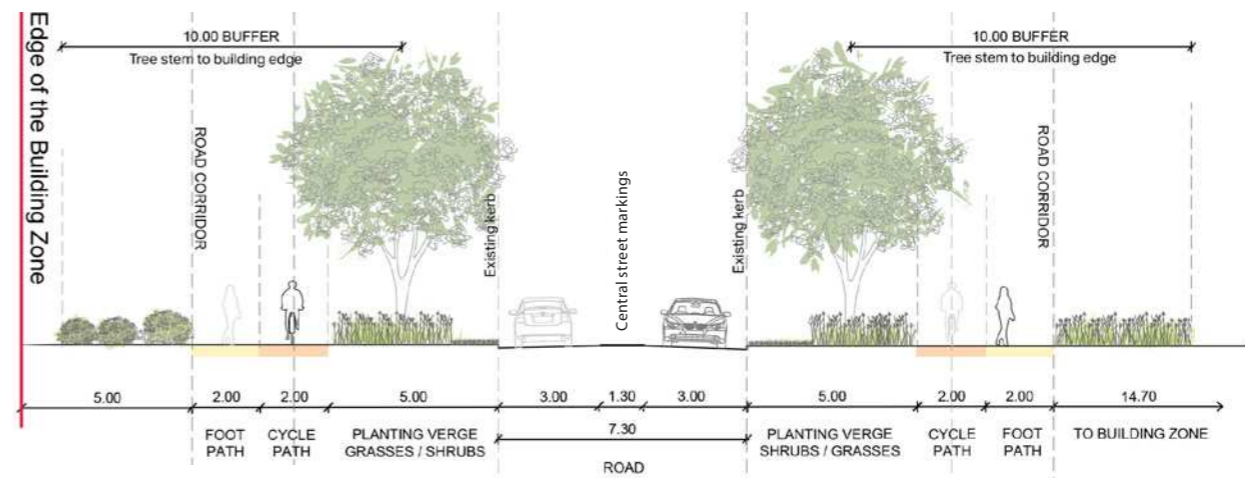
86. High Cross Existing Conditions Plan



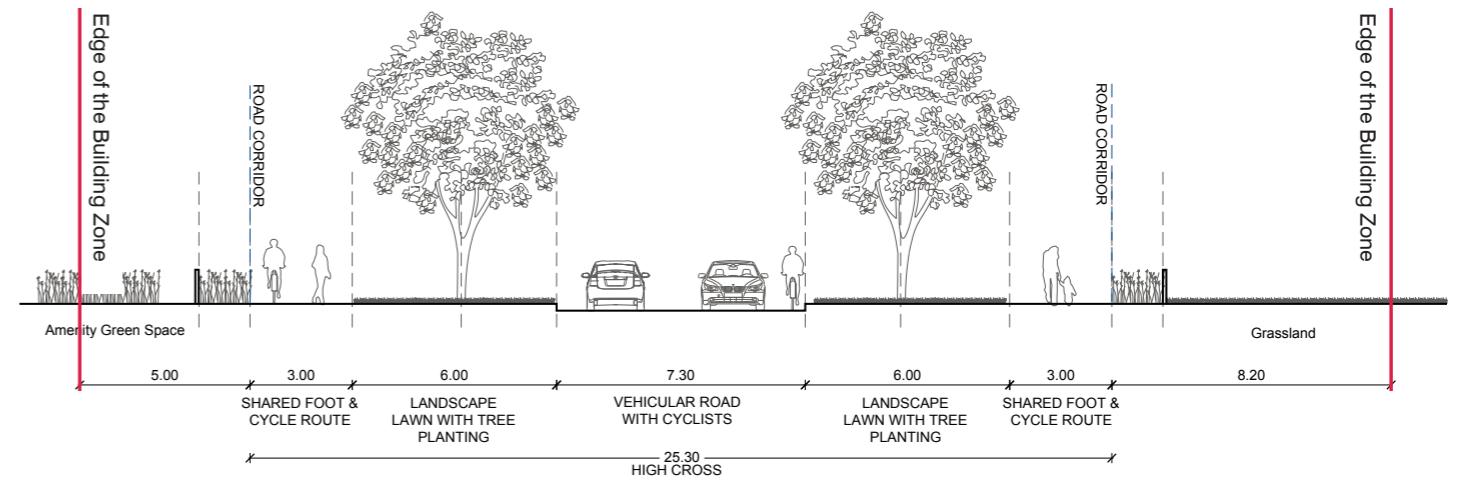
87. High Cross Illustrative Plan



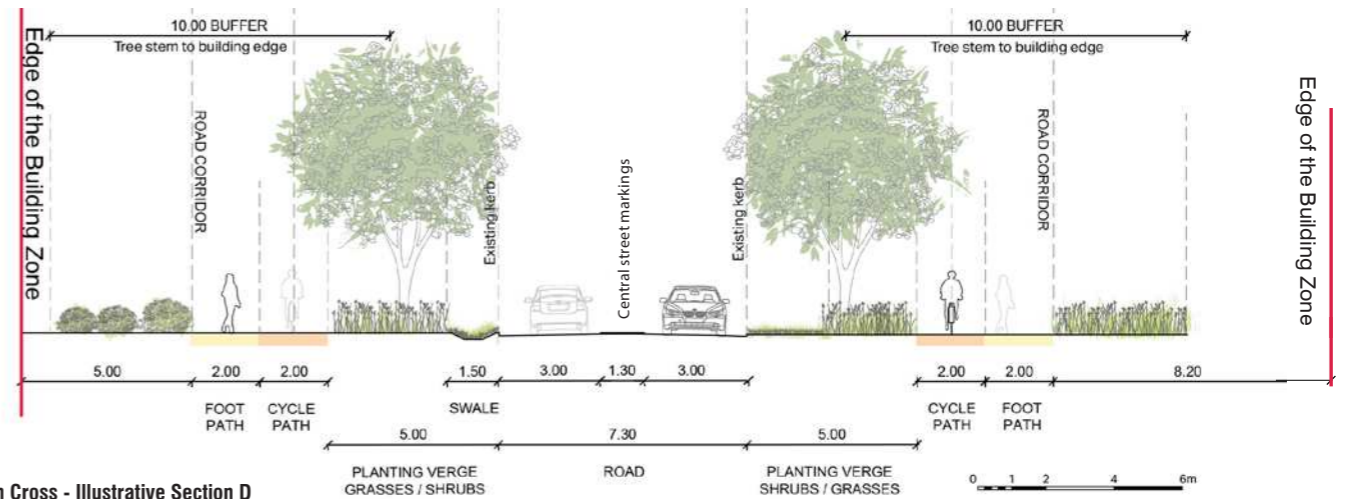
91. High Cross - Existing Conditions Section C



88. High Cross- Illustrative Section C



89. High Cross - Existing Conditions Section D



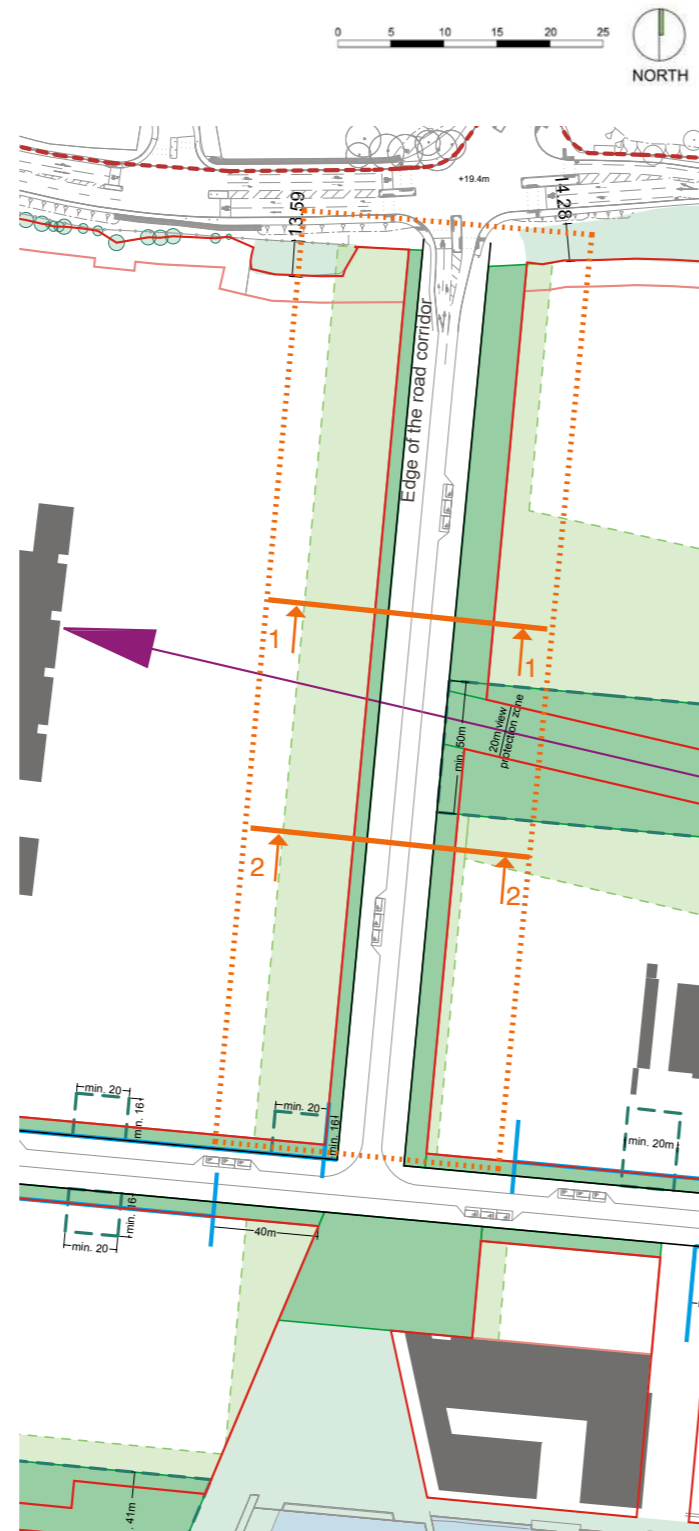
90. High Cross - Illustrative Section D

Heights and street frontage

3.2.1 The following provides the requirements for heights and street frontage along High Cross. On the plan in Figure 92, the darker green colour denotes zones of open space secured through Parameter Plan 04. Other requirements for High Cross are set out in the Parameter Statement.

3.2.2 The guidelines for heights and street frontage are as follows:

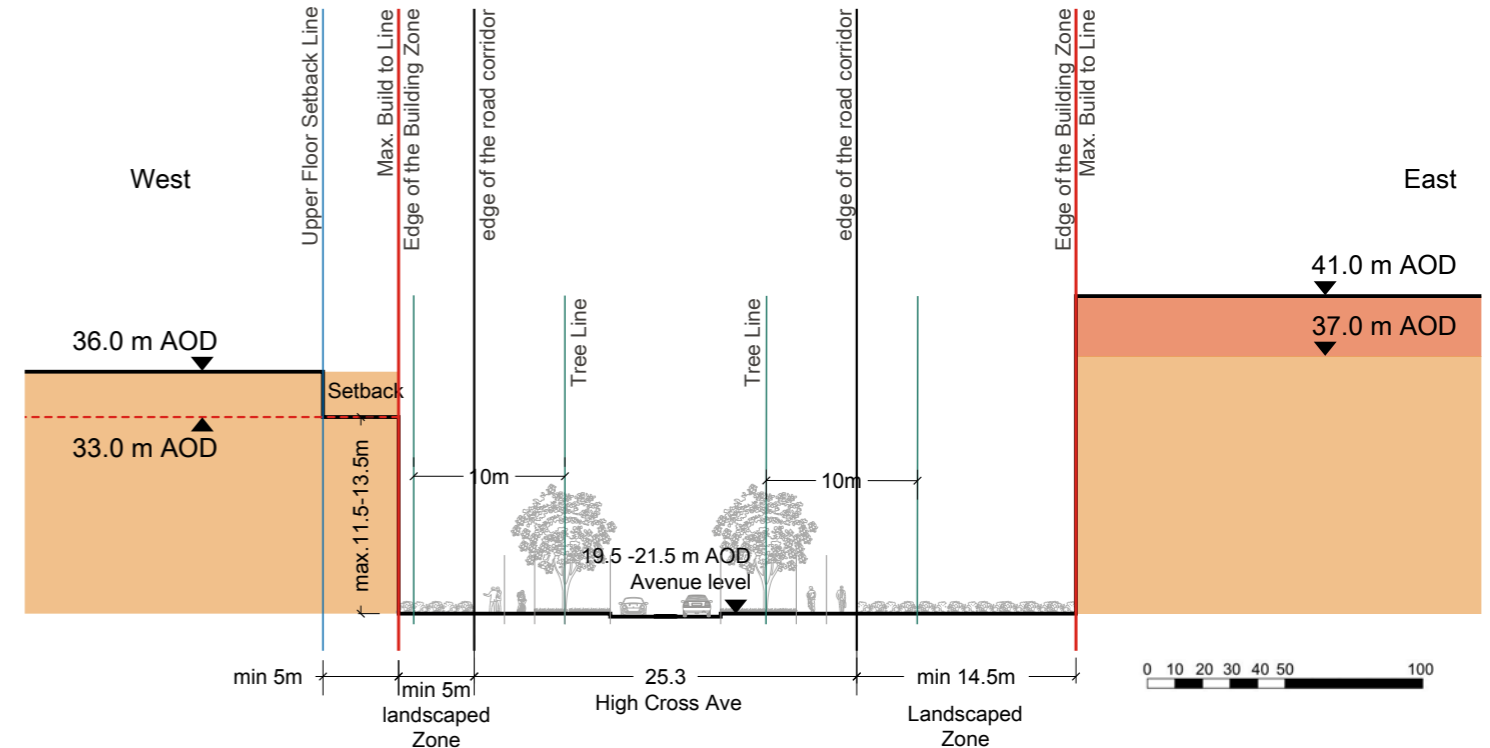
- Max. build-to lines shall be setback from the road corridor by at least 8m on the eastern side and by at least 5m on the western side of the street (thus, together with the road corridor of 25.3m, the width between buildings along High Cross shall be minimum 38.3m in the south and 44.8m minimum in the north). The setbacks secure the required buffers between the stems of the existing tree and future development frontage, and exceed the recommended 10m;
- These setback zones shall incorporate soft landscape and shall be treated and landscaped as part of the street and not fenced off. Smaller areas of cycle parking may be provided within these zones;
- On the western side of the street, an additional landscaped area for larger trees shall be provided. This shall include an additional partial setback from the maximum build to line, which may vary along the length of the road, but shall provide an equivalent overall area to a 5m setback (i.e. be of average width 5m as measured from the edge of the Building Zone or 10m measured from the edge of the road corridor);
- At the southern end of the street, an additional frontage height restriction of 33m AOD (to the west) and 35m AOD (to the east) shall be applied. Any development above these heights shall be set back by a minimum of 5m from the primary frontage line;
- In the central part of the street, a zone of lower development height shall be established to maintain the views of the Schlumberger Research building roof structure. The exact positioning of this lower zone shall be such to allow views of the roof-line (tent structure) from The Green.



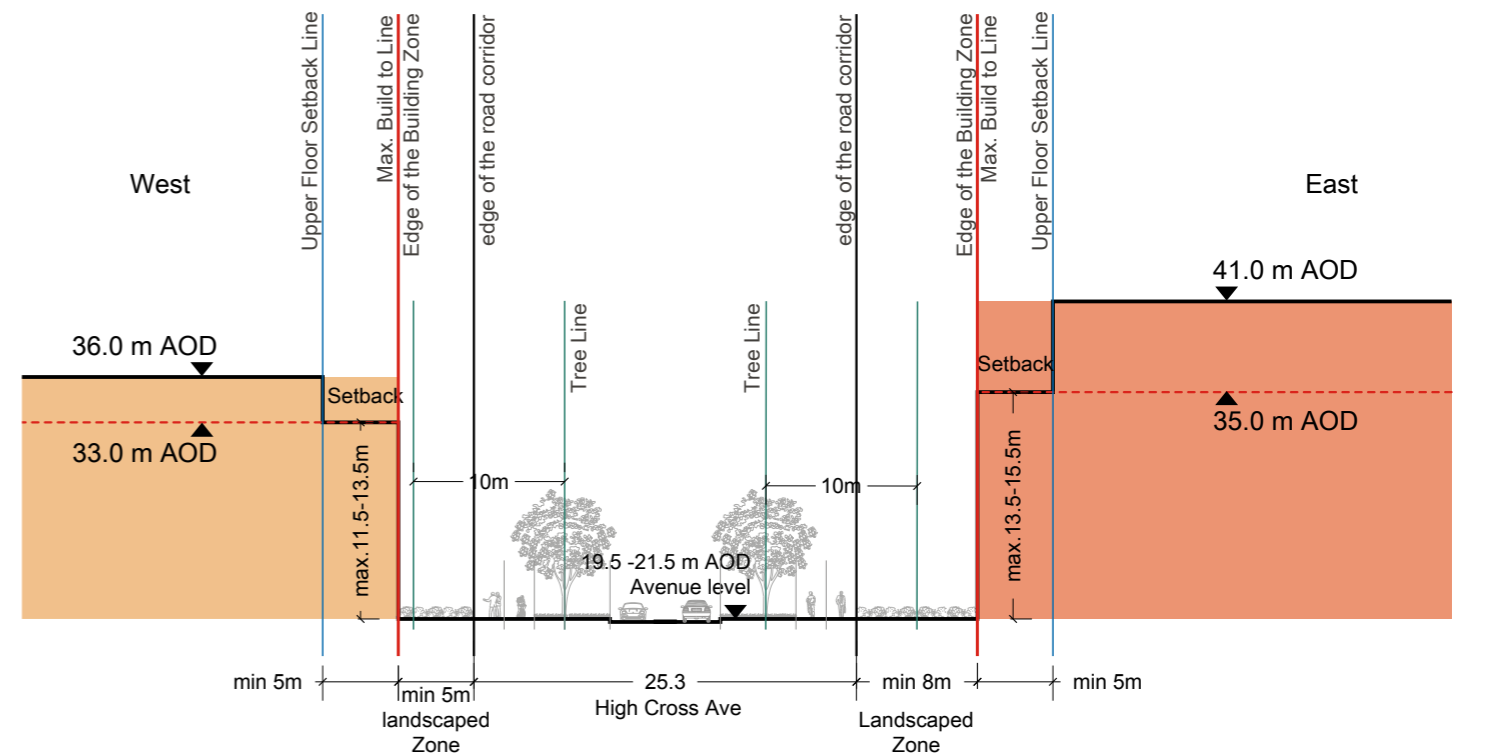
92. High Cross Avenue

KEY

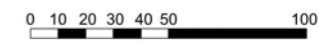
- Area secured in the Parameter Plan 4
- Flexibility zone defined in the Parameter Plan 4
- Indicative boundary of area secured in the Parameter Plan 4
- Building Zone edge (location of open space secured in Parameter Plan 4)
- Max. Build to Line
- Building set back zone
- Section Zone



93. High Cross Avenue Section 1-1 (Parameter Heights 37m and 41m AOD)



94. High Cross Avenue Section 2-2 (Parameter Heights 37m and 41m AOD)



3.3. JJ Thomson Avenue

Street transformation

3.3.1 JJ Thomson Avenue is one of the existing streets established in the 1999 masterplan. The proposed development retains this street as an important part of the site's urban structure and enhances its role and character.

3.3.2 It is the second of the main entrances and approach roads into the site for public transport, motor vehicles, pedestrians and cyclists.

3.3.3 It forms a strong connection between West Cambridge and the North West Cambridge Development, especially to existing and proposed academic areas at Maddingley Rise. It will form a connecting spine for a new greater academic cluster spanning both University sites.

3.3.4 With significant new development and new academic departments on both sides of the street, JJ Thomson Avenue has the potential to become more lively and animated than at present.

3.3.5 As a key approach road into the site it will accommodate a new Arrival space that will serve new developments on both the east and west of the street.

Character

3.3.6 Guidelines for the transformation of character of JJ Thomson Avenue are as follows:

M

- Increased activity shall be generated by locating new development frontage, building entrances, drop-off/drop-on areas (if required) and an Arrival space along the street, as well as by promoting pedestrian and cycle movement along and across the street;
- The profile of the street shall be changed to allow for some on-street parking for disabled users, a shared foot & cycle path and additional planting;
- Variation in building lines shall be introduced, but set backs shall be limited to ensure that the street is clearly defined and enclosed. Areas created by any setbacks shall provide for additional planting and trees;
- Space for larger trees shall be provided at the interface with The Green open space.

Surface/paving treatment

3.3.7 Guidelines for the surface/pavement treatment of JJ Thomson Avenue are as follows:

M

- Cycle movement shall be accommodated on or off street and a shared foot & cycle path must be formed to both sides of the road;

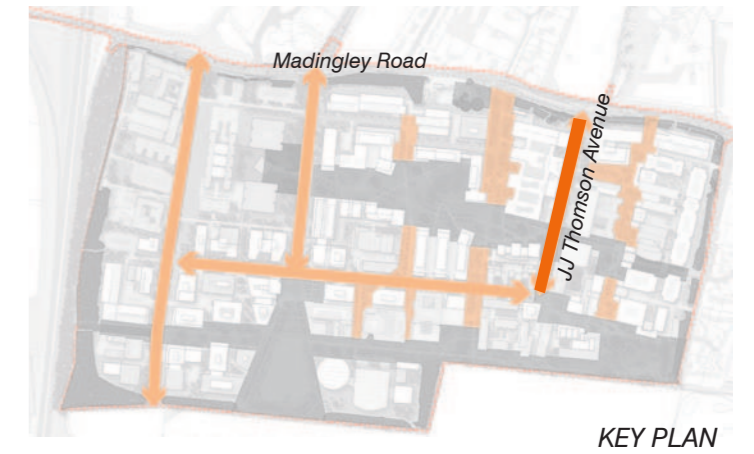
- Pedestrian and cycle crossing points must be incorporated at key locations, such as: in the north at the Arrival space, at The Green and at the East Forum. The road surface shall change to denote a shared surface crossing point and help to slow traffic;
- The street should incorporate drop-off/ drop-on points at appropriate locations along its length;
- There should be paved areas along the street to allow ease of access and movement and encourage activity to spill out from any active frontages and building entrances;
- Central street markings should be considered as part of the traffic calming measures along this street, serving to visually reduce the width of the street;
- Small areas of cycle parking should be located along the street, if required.

Landscape and planting

3.3.8 Guidelines for the landscape and planting for JJ Thomson Avenue are as follows:

M

- New building frontage shall have building setbacks and shall vary in building line to provide pocket landscapes and foreground landscape;
- Where building setbacks occur, landscape shall be predominantly soft and planted and the design shall reflect the street design so there are no visible boundaries;
- Rain Gardens shall be provided to collect water runoff from the carriageway. These shall consider the existing street trees and underground utilities, as shown indicatively in the Appendix 5.2, and be planted with a variety of species that are appropriate for the Rain Garden and the roadside environment;
- Large feature tree planting shall be incorporated at key spaces such as the gateway to Maddingley Road and the interface with The Green. Large tree species shall be given the proper environmental conditions and space to grow to maturity.



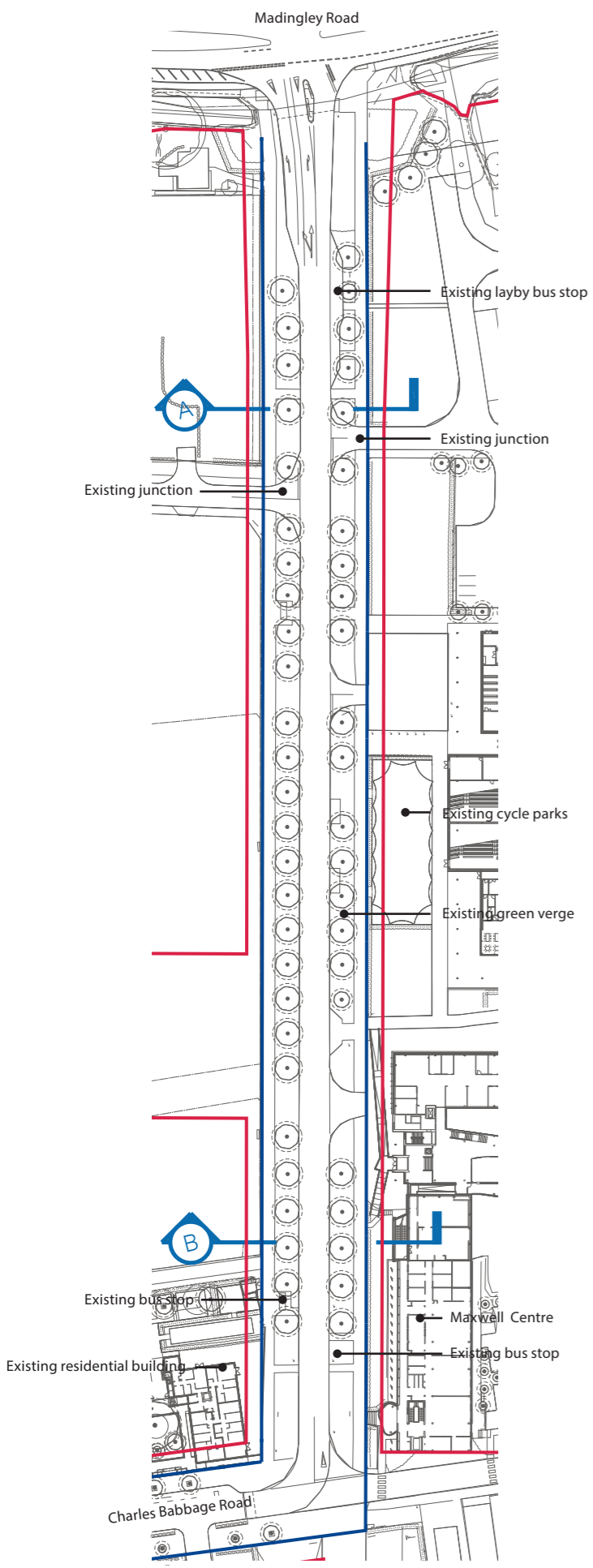
KEY PLAN



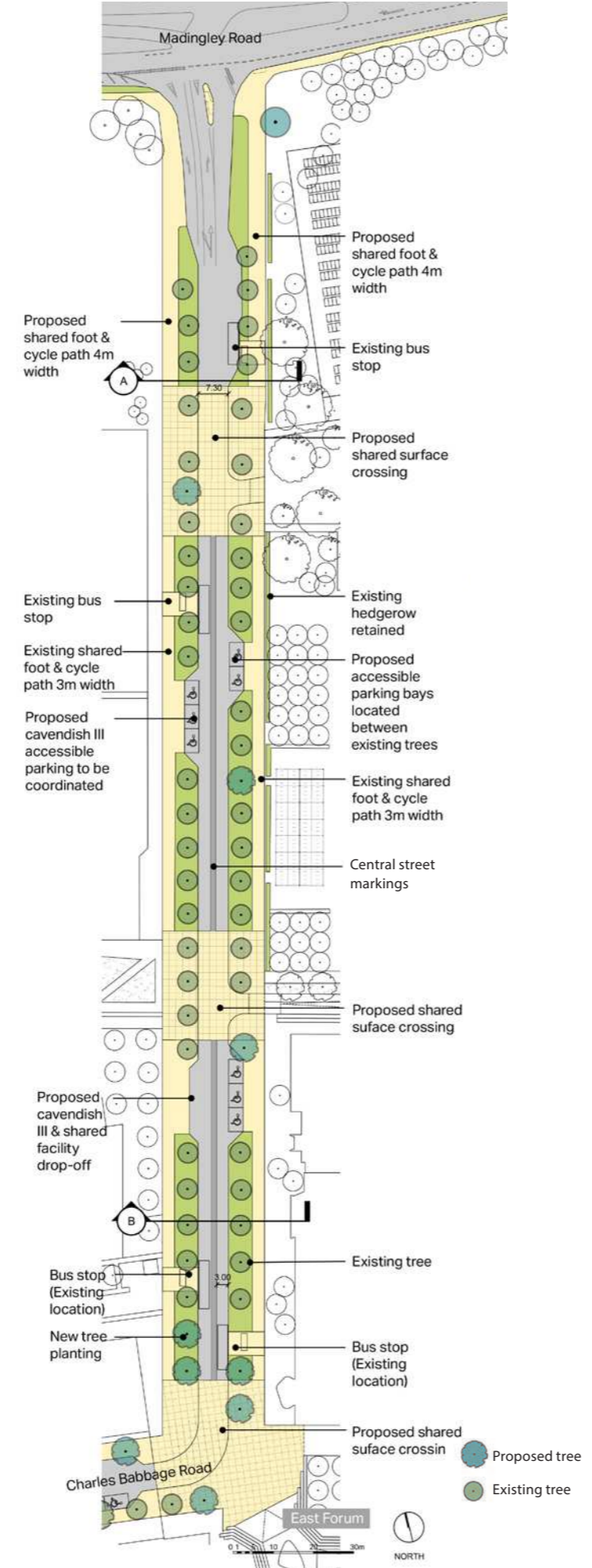
95. JJ Thomson Avenue looking north from East Forum



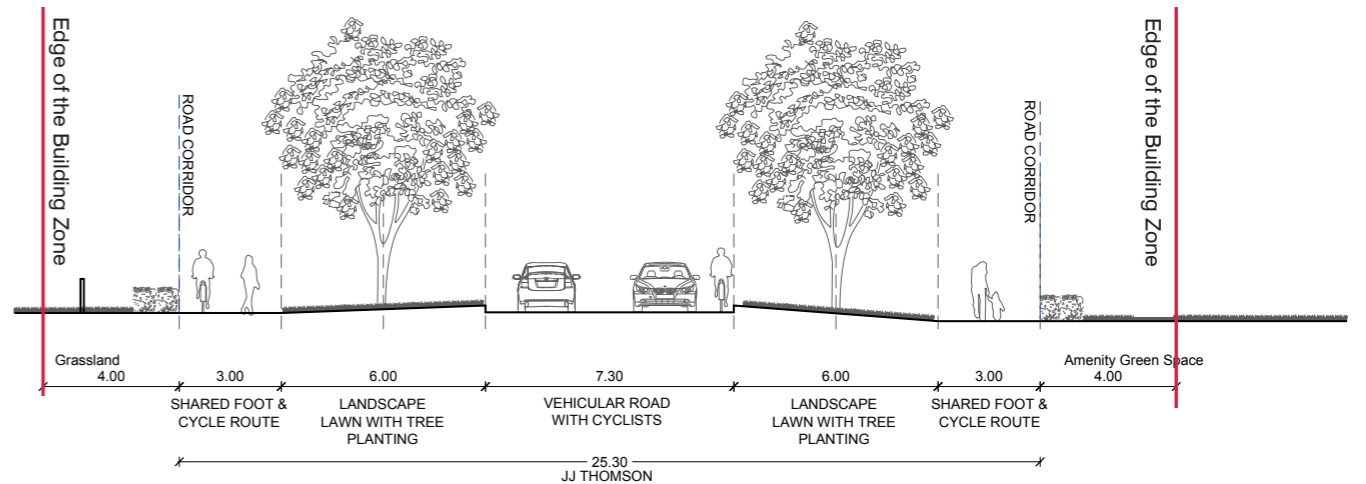
96. JJ Thomson Avenue looking south from Maddingley Road



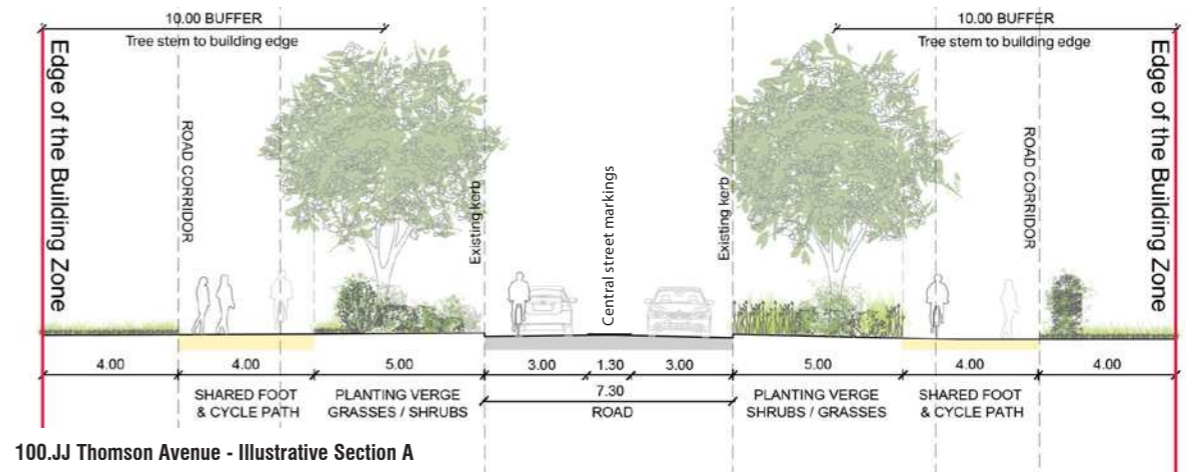
97.JJ Thomson Avenue Existing Conditions Plan



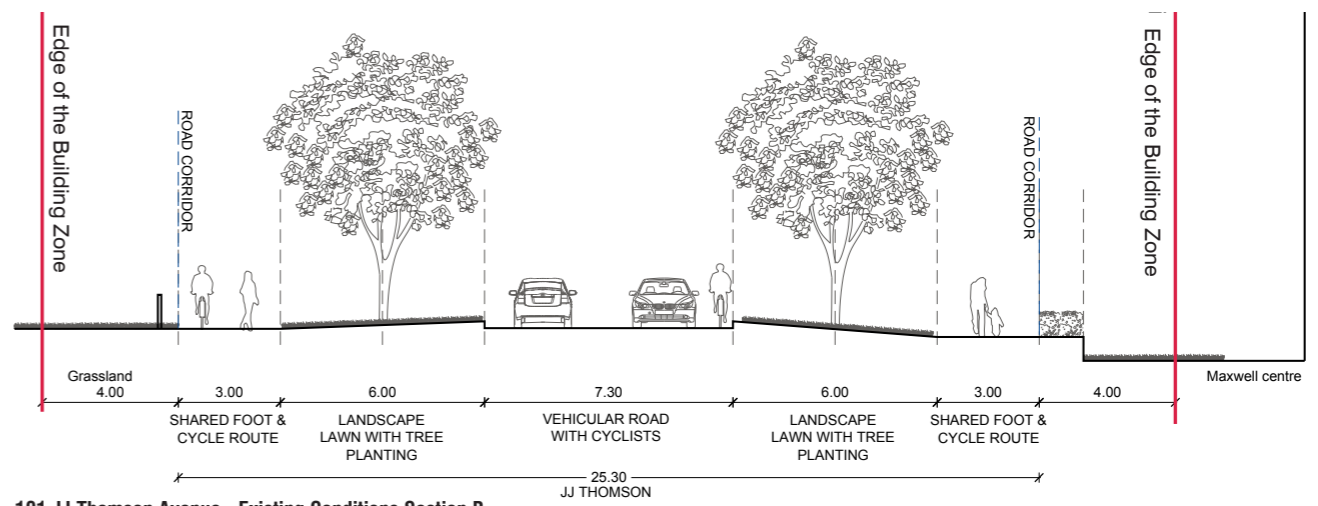
98.JJ Thomson Avenue Illustrative Plan



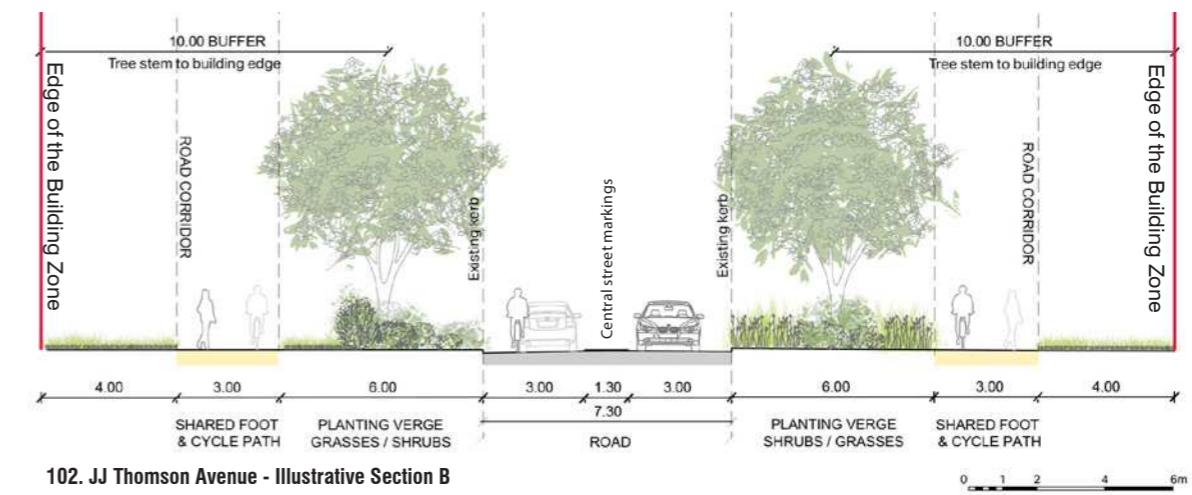
99.JJ Thomson Avenue - Existing Conditions Section A



100.JJ Thomson Avenue - Illustrative Section A



101.JJ Thomson Avenue - Existing Conditions Section B



102.JJ Thomson Avenue - Illustrative Section B

Arrival spaces

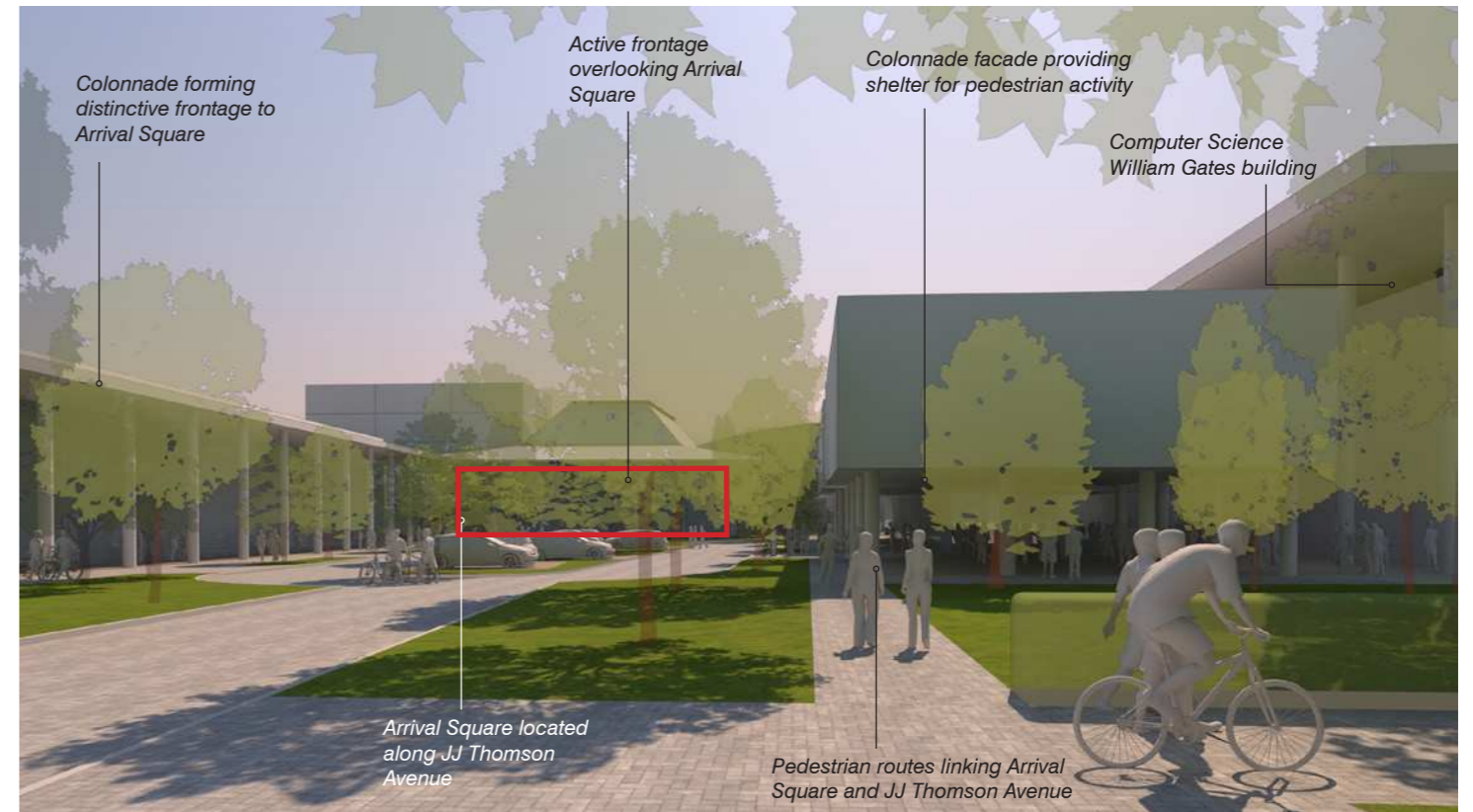
3.3.9 Guidelines for the Arrival space along JJ Thomson Avenue are as follows:

M

- An Arrival space for the eastern academic cluster shall be located off JJ Thomson Avenue to the east of the street. Direct visual connections between JJ Thomson Avenue and the Eastern Green Link shall be provided to aid legibility for those arriving at this point;
- The Arrival space shall be designed to create a shared pedestrian/vehicle space with pedestrian priority;
- Surface treatments should avoid overwhelming use of tarmac and up-stand kerbs instead having a flush surface material similar to the surrounding footpaths. Planting should be used to soften the perimeter of the vehicle pick-up/drop-off areas.



103. JJ Thomson Avenue: view looking south



104. JJ Thomson Avenue: Arrival Space for the Eastern Cluster

Heights and street frontage

3.3.10 The following provides the requirements for heights and street frontage along JJ Thomson Avenue. On the plan in Figure 105, the darker green colour denotes zones of open space secured through Parameter Plan 04. Other requirements for JJ Thomson Avenue are set out in the Parameter Statement.

3.3.11 The guidelines for heights and street frontage are as follows:

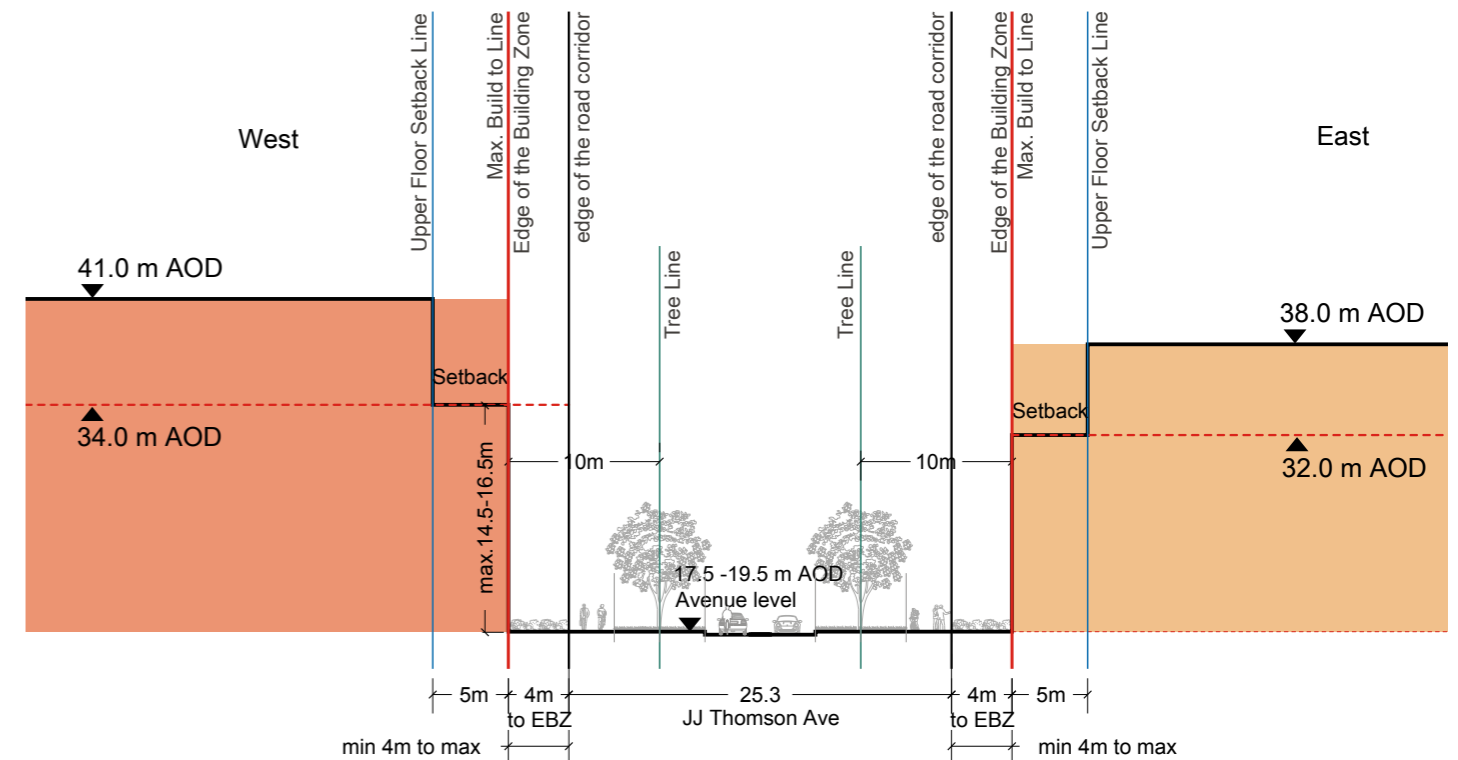
- Building Zones are set to allow for a 10m buffer between the stems of the existing trees and the proposed building faces (maximum Build to Line). This provides an additional zone of minimum 4m between the edge of the road corridor and the building faces on each side. Thus, together with the road corridor width of 25.3m, the width between buildings along JJ Thomson Avenue shall be minimum 33.3m;
- In the southern part of JJ Thomson Avenue (see Section 2-2) an additional set back zone shall be provided to allow views from the East Forum towards the eastern part of The Green and the south-east corner of the Cavendish III building. The maximum Build to Line shall be set back from the edge of the road corridor by minimum 8m (minimum 4m from the edge of the Building Zone);
- The setback zones between the building(s) and the street shall be soft or hard landscaped and may accommodate smaller cycle parking areas. These zones shall be treated as part of the street and not fenced off;
- An additional frontage height restriction of 34m AOD (to both sides of street) should be applied for a minimum of 5m from the edge of the Building Zone.



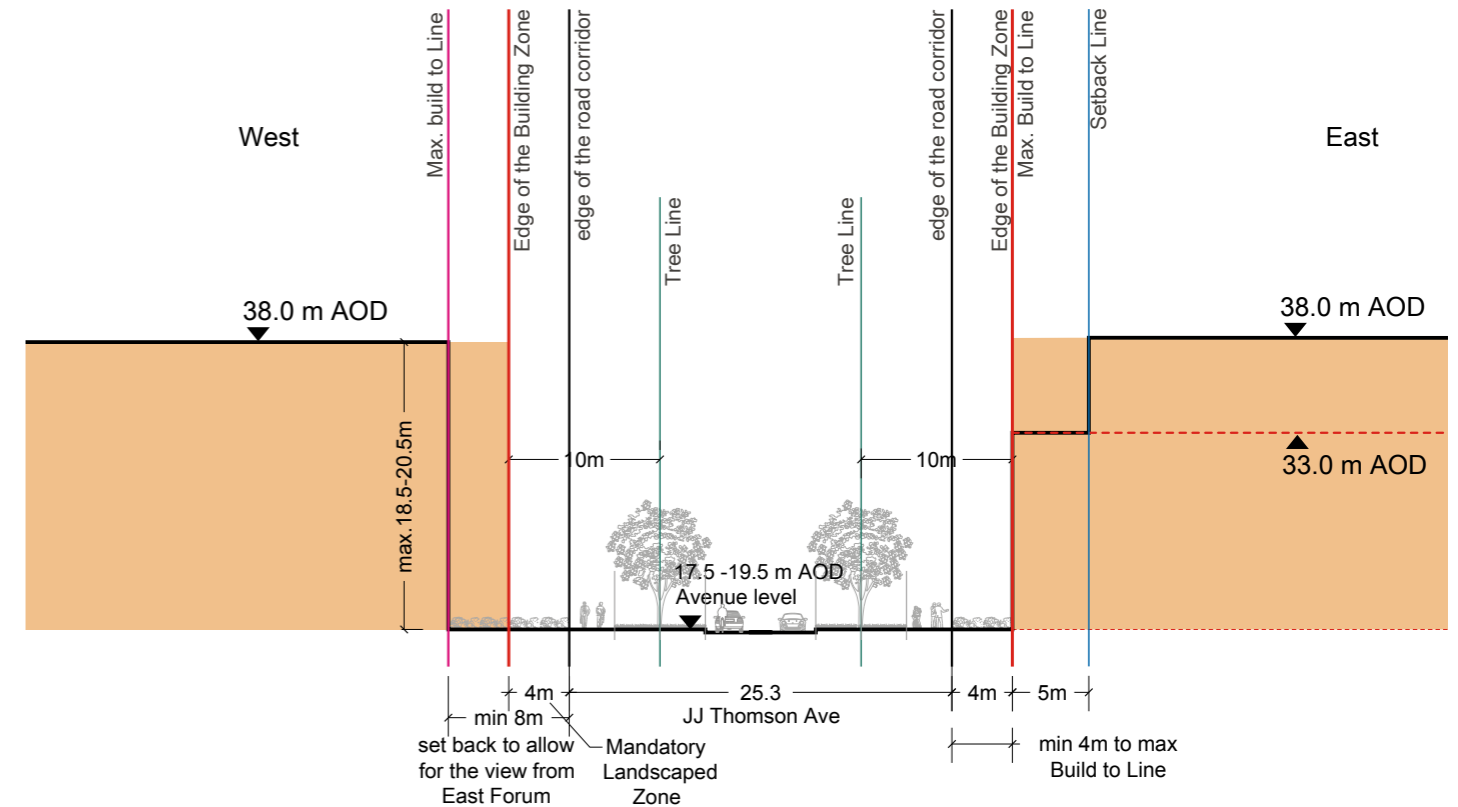
105. JJ Thomson Avenue Avenue

KEY

- Area secured in the Parameter Plan 4
- Flexibility zone defined in the Parameter Plan 4
- - - Indicative boundary of area secured in the Parameter Plan 4
- Building Zone edge (location of open space secured in Parameter Plan 4)
- Max. Build to Line
- Building set back zone
- Section Zone



106. JJ Thomson Avenue Section 1-1 (Parameter Heights 41m and 38m AOD)



107. JJ Thomson Avenue Section 2-2 (Parameter Heights 38m and 38m AOD)



3.4. Charles Babbage Road

Street transformation

3.4.1 Charles Babbage Road is one of the existing streets established in the 1999 masterplan. The proposed development retains this street as an important part of the site's urban structure but aims to transform its role and character into a pedestrian and cycle friendly street, clearly defined by new development on both sides, but with setbacks and pockets of green spaces to allow the existing trees to grow to medium and large size.

3.4.2 In terms of cycle movement, the general principle is that cycling will predominately take place on-road within a street that is designed to result in vehicle speeds of less than 20 mph. This low speed environment will also enable more informal crossing points and greater pedestrian permeability.

3.4.3 The transformation of Charles Babbage Road will be the key to establish a strong link between the East and West Forums.

Character

3.4.4 Guidelines for the transformation of character of Charles Babbage Road are as follows:

- The existing Alan Reece building (IfM) and Northern Residences building are the only existing buildings which address the street directly. However, the alignments of IfM and Northern Residences provide insufficient space for growth of the plane trees planted along the street. The new development shall be set back further from these alignments but with guidelines to establish a good enclosure of the street and formation of a good, protected micro-climate;
- The profile of the street shall be changed to allow for some on-street parking, shared pedestrian and cycle routes and additional planting;

- The current corridor profile should be altered to achieve a greener character, with pocket landscapes and additional planting to provide pedestrian comfort;
- The street should be animated by building entrances, lobbies and other smaller social spaces along the street. Active frontage should be located and activity greatest in the areas adjacent to East and West Forums.

Surface/paving treatment

3.4.5 Guidelines for the surface/pavement treatment of Charles Babbage Road are as follows:

- Cycle movement shall be accommodated on or off street and a 3.2m shared foot & cycle path shall be formed to both sides of the street;

- Pedestrian and cycle crossing points shall be incorporated at key locations, such as: at the West and East Forums and at the north-south Green Links. The road surface shall change to denote the crossing point and help to slow traffic;

- Paved areas shall be provided next to active parts of buildings and building entrances, to allow ease of access and movement and encourage activity to spill out from buildings;

- The zones between building faces and the edge of pedestrian paths should vary in treatment but the treatment should be responsive to the adjacent building frontage. Possible treatments may include paving, limited cycle parking; soft landscape etc;

- Small areas of cycle parking may be located along the street.

Landscape and planting

3.4.6 Guidelines for the landscape and planting for Charles Babbage Road are as follows:

- The straight linear alignment of the street shall be softened/varied with pocket landscapes and gaps as indicated in Figure 123;

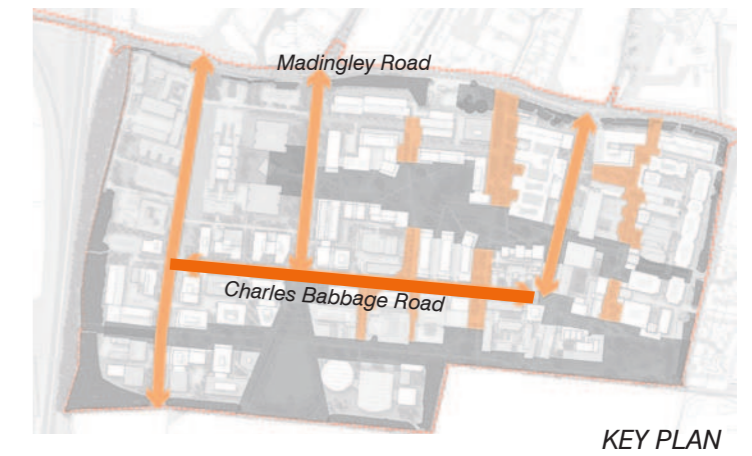
- Pocket landscapes shall have a soft treatment and planting;

- Any street trees planted next to pocket landscapes and gaps shall be allowed to grow to maturity. Planting shall be added in these areas to provide soft landscape and to assist in orientation and wayfinding;

- Some street trees to Charles Babbage Road are young, category C trees in a poor state and replacement of trees that are not flourishing with an appropriate street tree shall be considered. All new/replacement tree planting will include improved rooting zones, e.g. a rootcell system. Refer to the 'Tree Condition Survey Charles Babbage Road', August 2008 for guidance (see Appendix 5.3);

- Rain Gardens shall be provided to collect water runoff from the carriageway. These shall consider the existing street trees and underground utilities, as shown indicatively in the Appendix 5.2, and be planted with a variety of species that are appropriate for the Rain Garden and the roadside environment;

- Planting should be relatively ordered/regular along the street, with a limited number of species used.



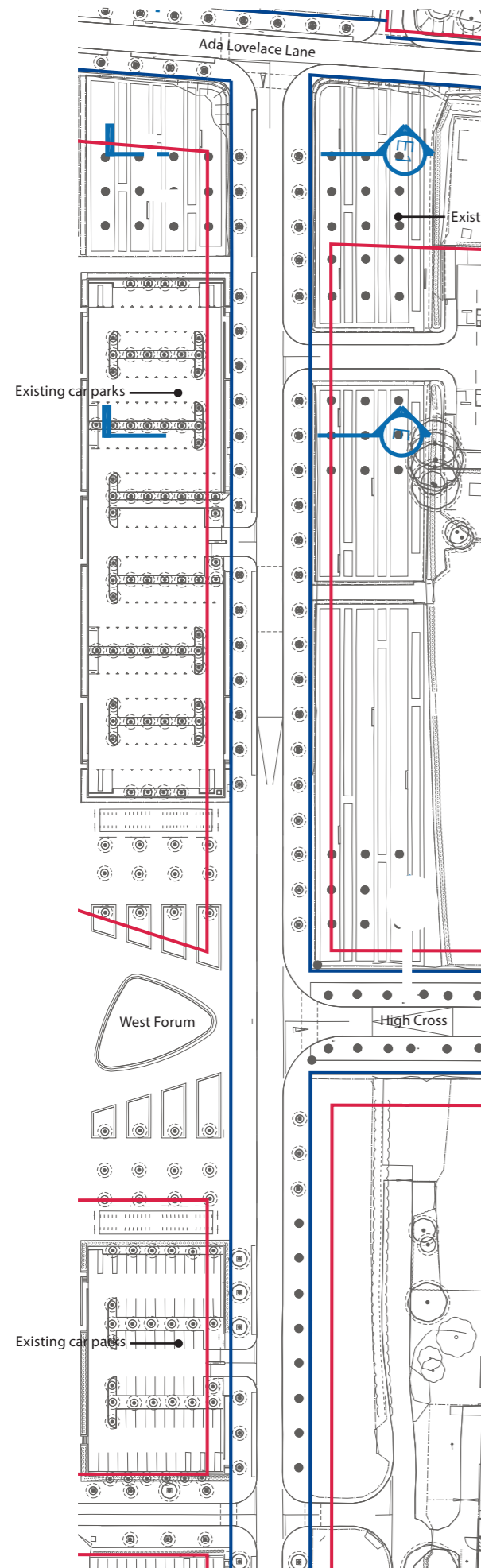
KEY PLAN



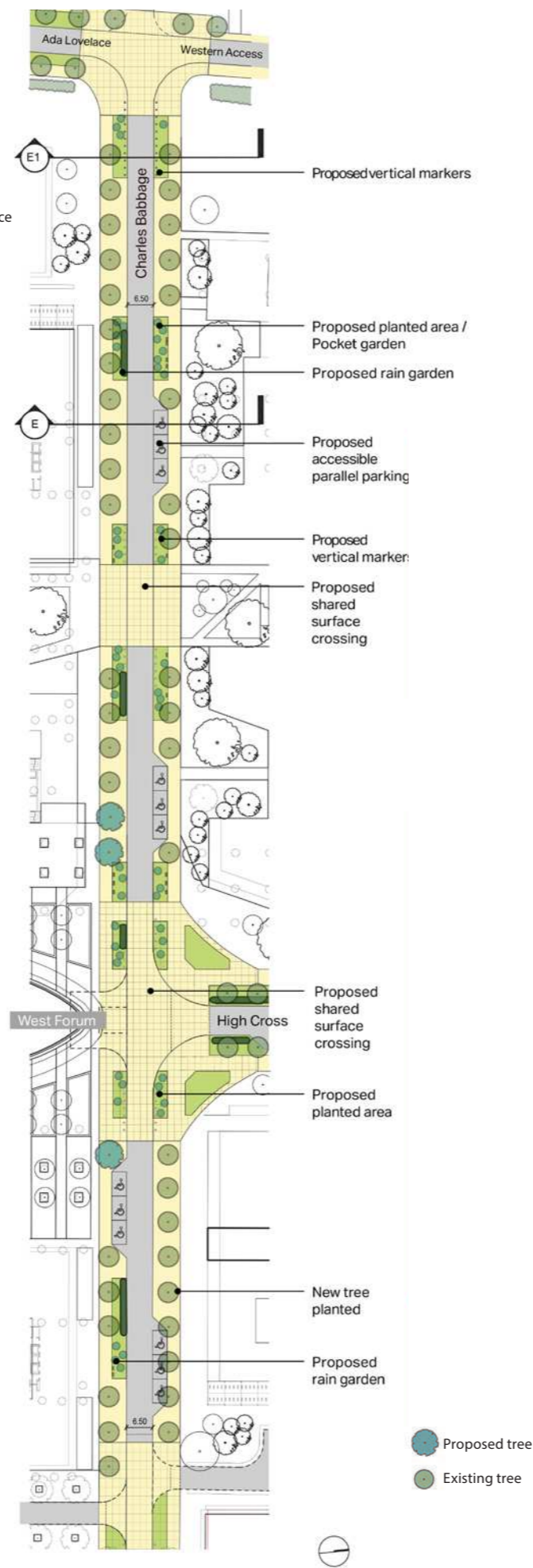
108. Charles Babbage Road looking east



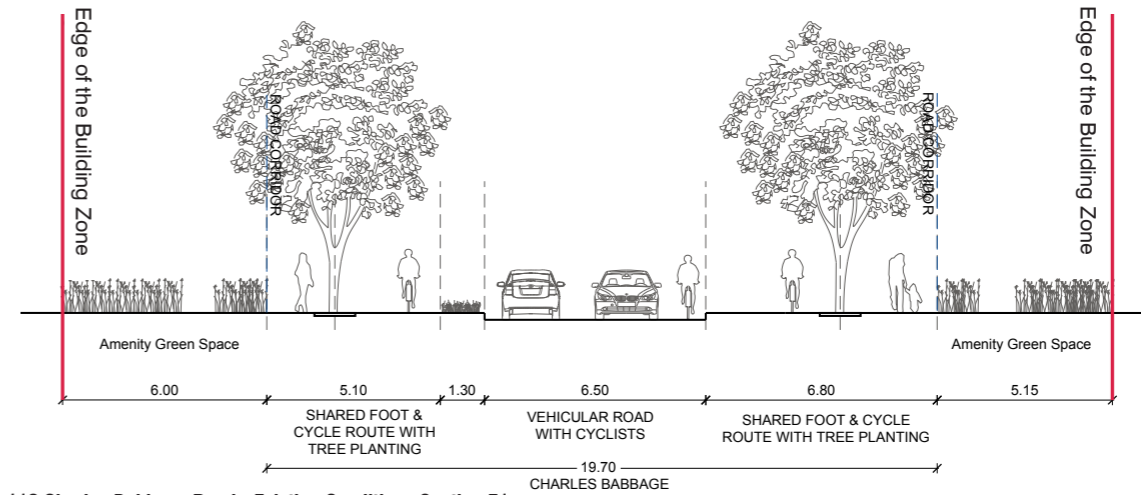
109. Charles Babbage Road looking west at North Residences



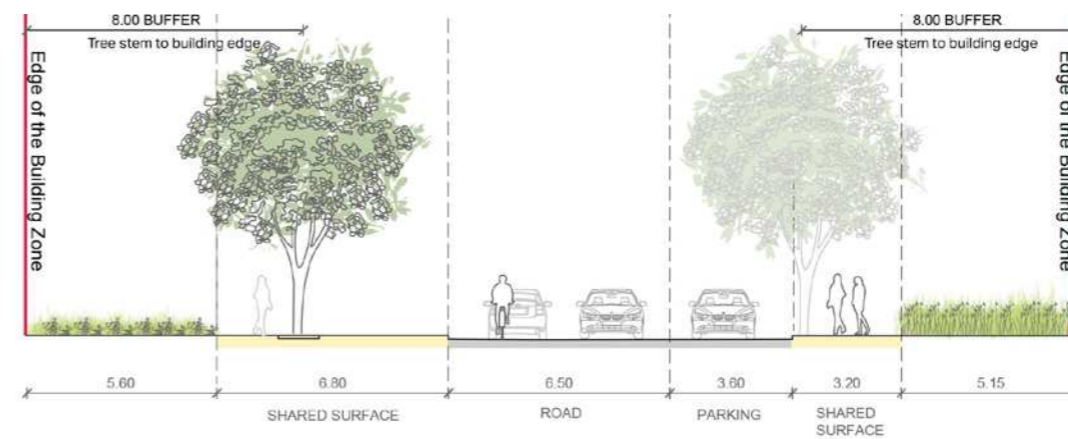
110. Charles Babbage Road West Existing Conditions Plan



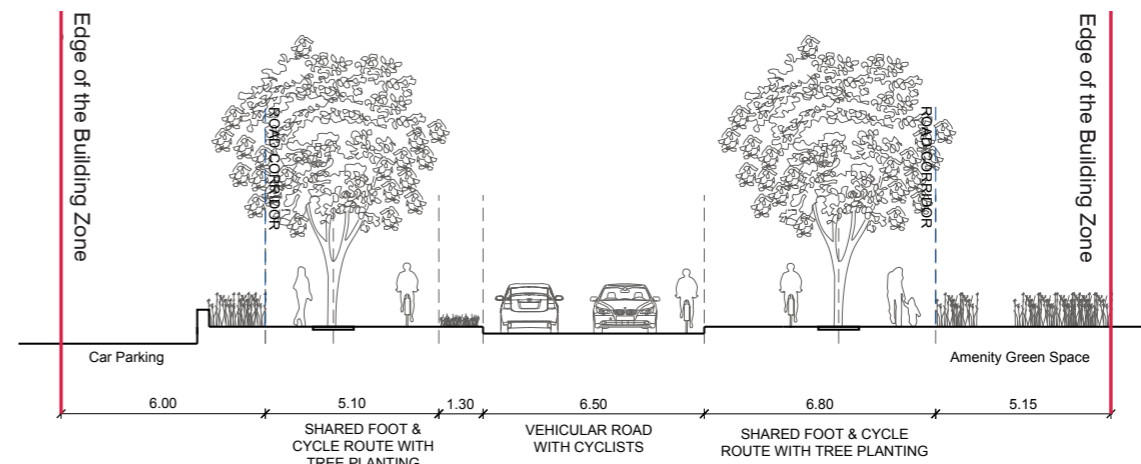
111. Charles Babbage Road West Illustrative Plan



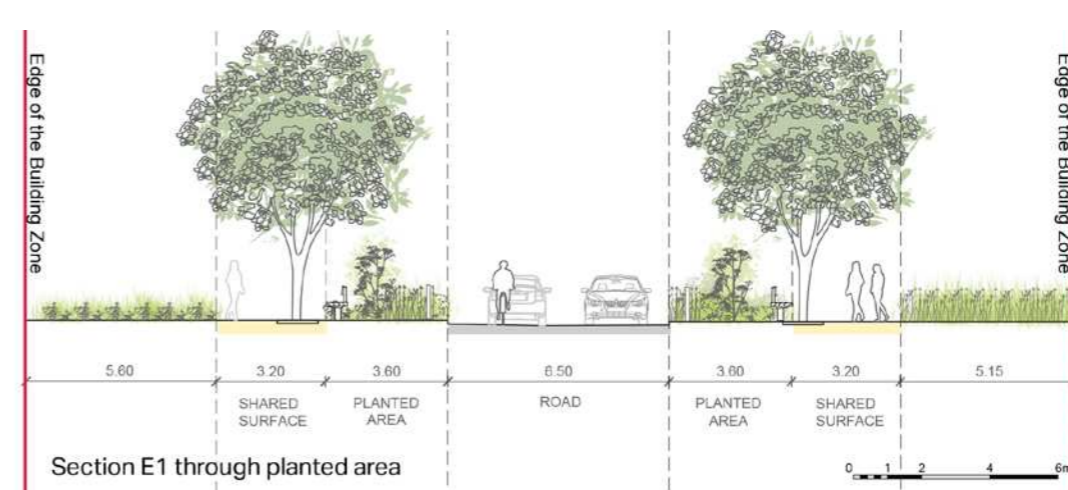
112. Charles Babbage Road - Existing Conditions Section E1



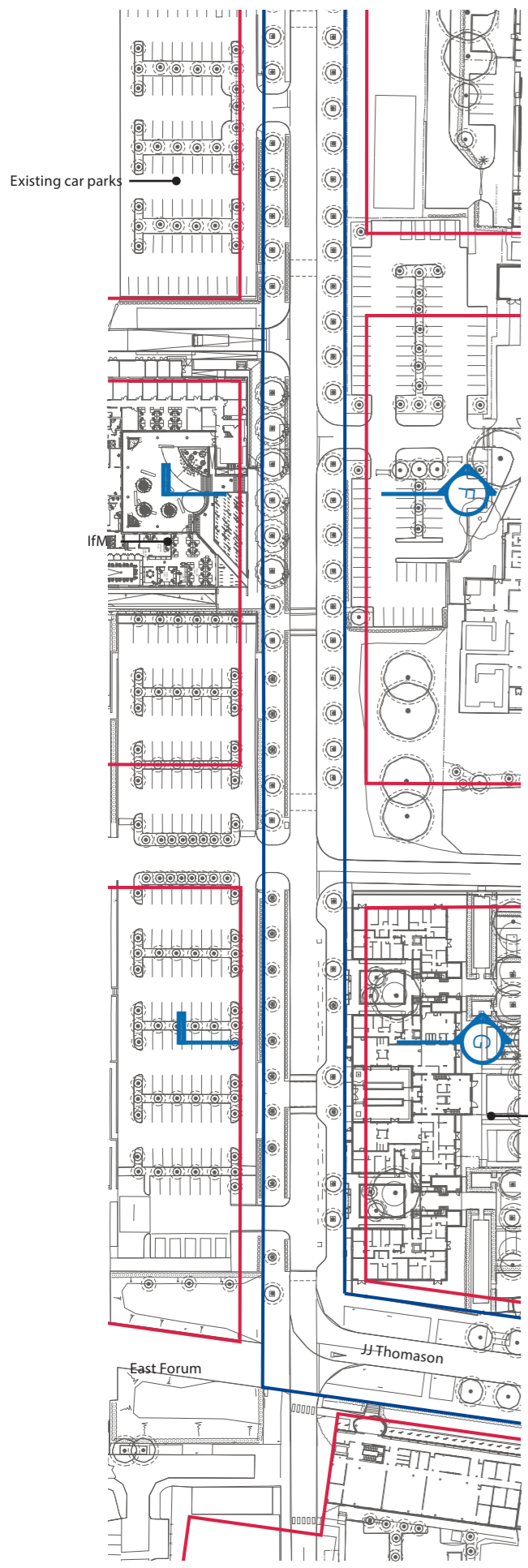
113. Charles Babbage Road - Illustrative Section E1



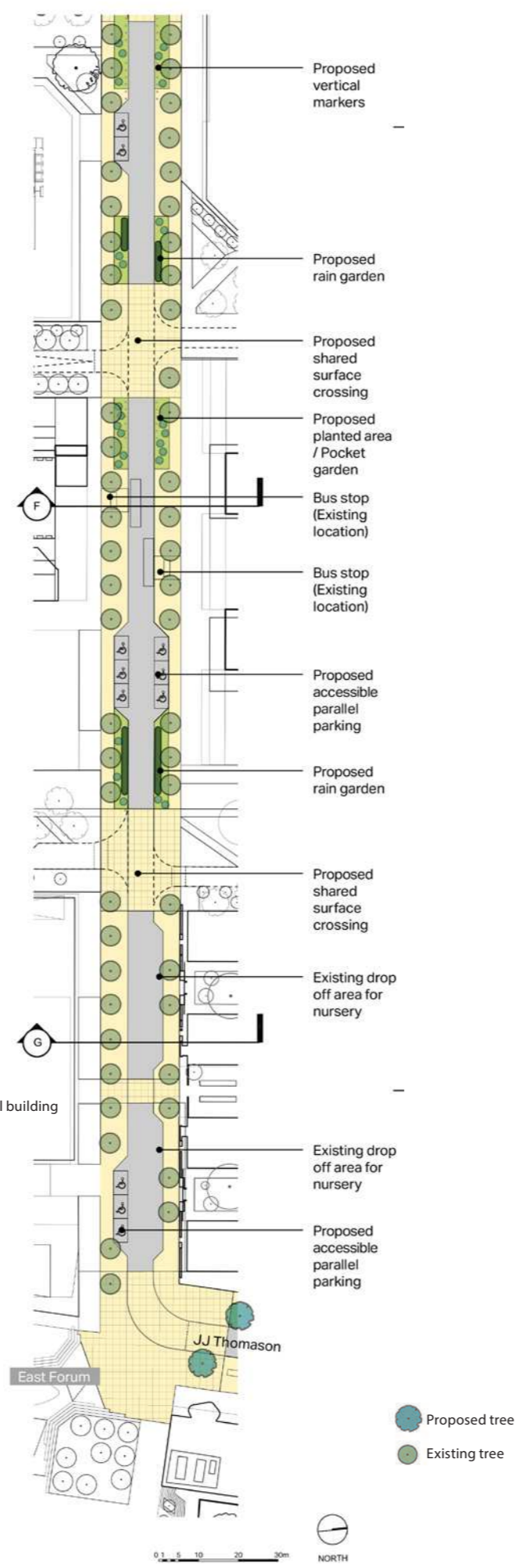
114. Charles Babbage Road Existing Conditions Section E



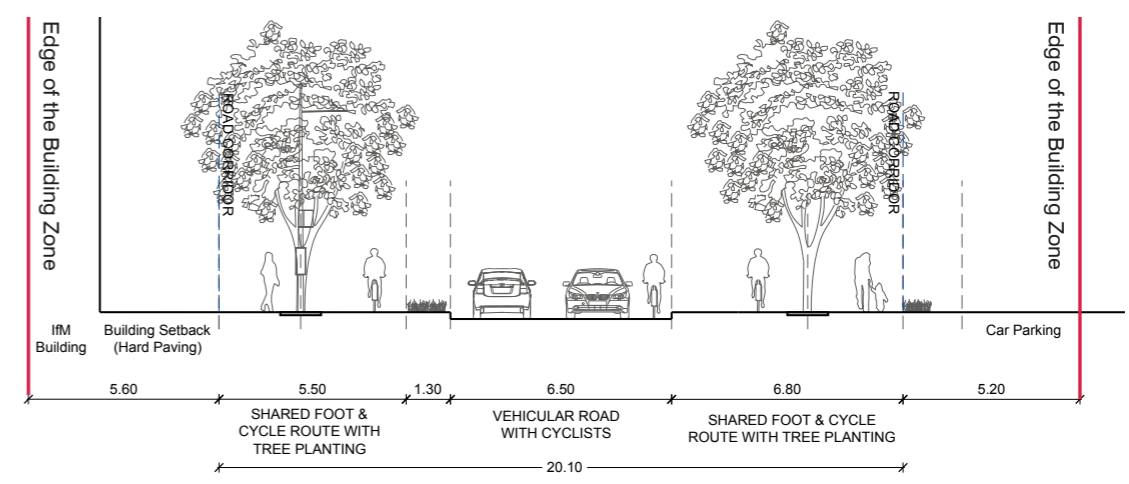
115. Charles Babbage Road - Illustrative Section E



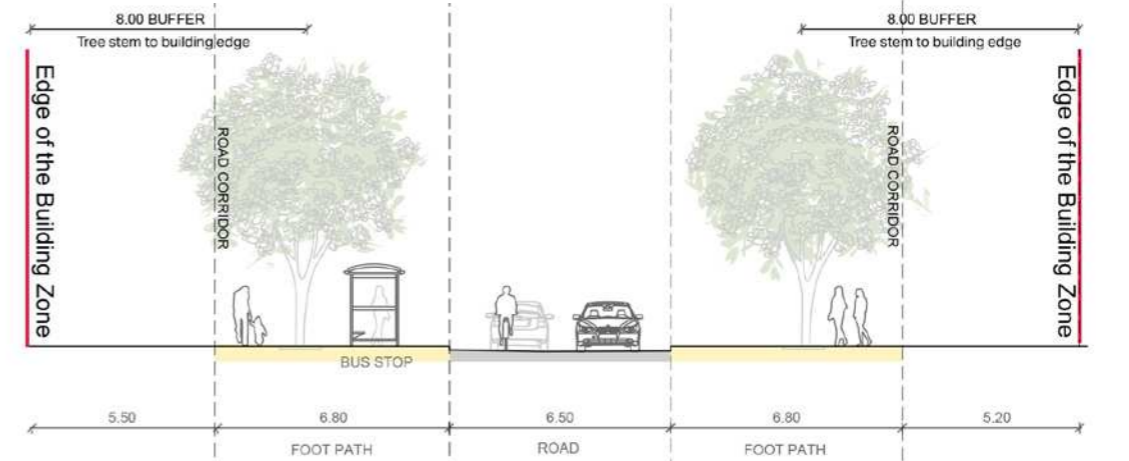
116. Charles Babbage Road East Existing Conditions Plan



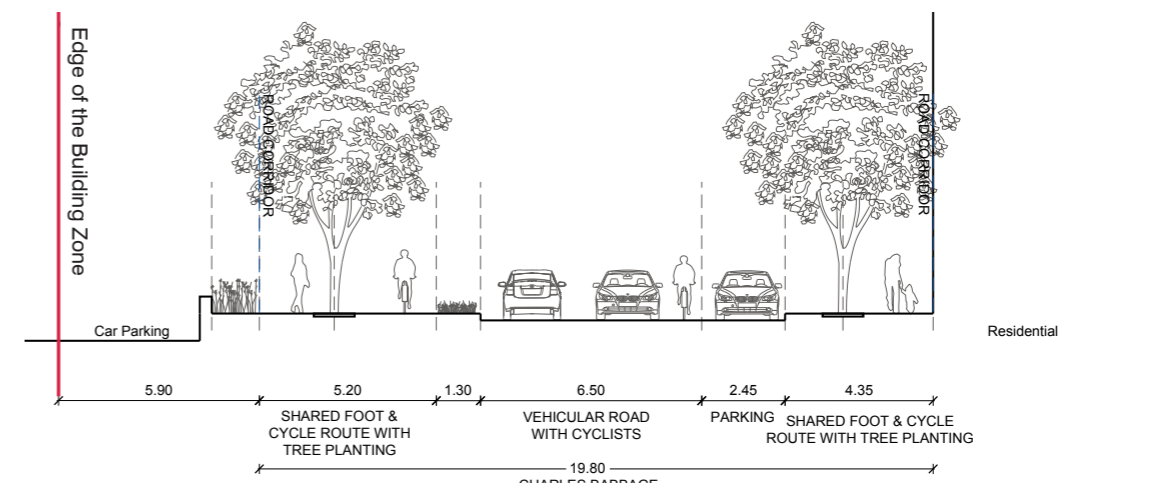
117. Charles Babbage Road East Illustrative Plan



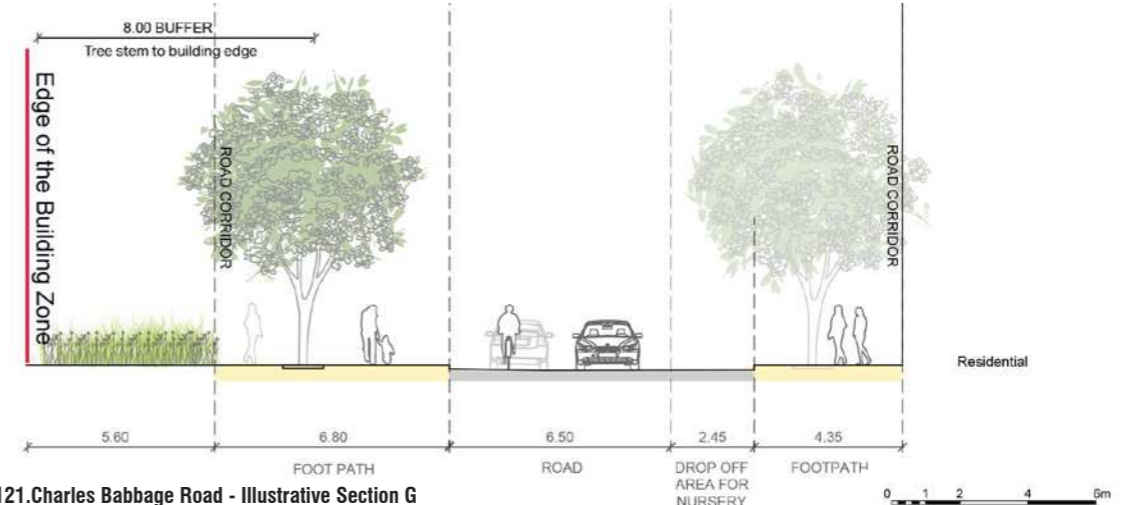
118. Charles Babbage Road Existing Conditions Section F



119. Charles Babbage Road - Illustrative Section F



120. Charles Babbage Road Existing Conditions Section G



121. Charles Babbage Road - Illustrative Section G

Heights and street frontage

3.4.7 The following provides the requirements for heights and street frontage along Charles Babbage Road. On the plan in Figure 123, the darker green colour denotes zones of open space secured through Parameter Plan 04. Other requirements for Charles Babbage Road are set out in the Parameter Statement.

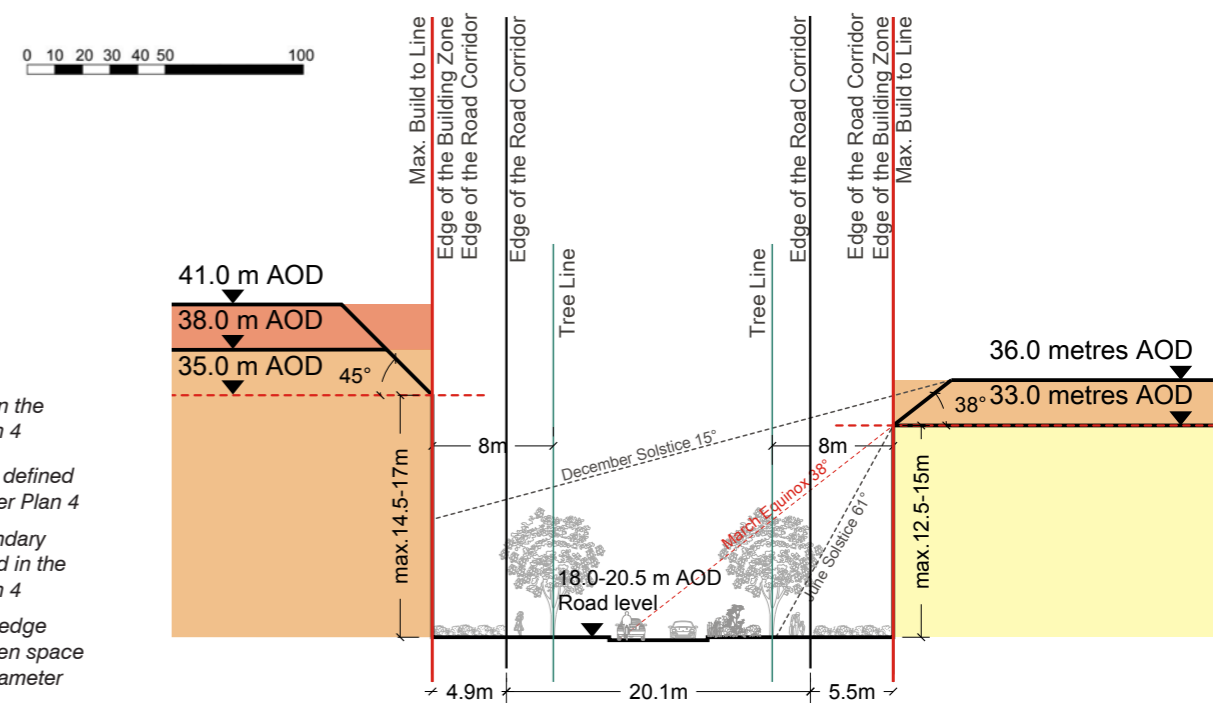
3.4.8 The guidelines for heights and street frontage are as follows:

- The heights on the southern side of the street shall be lower to allow good daylight/sunlight penetration into the street, in accordance with approved height parameters;
- Building Zones are set to allow for a 8m buffer between the stems of the existing trees and the proposed building faces (maximum Build to Line). Thus, the total road corridor width and the width between buildings along Charles Babbage Road shall be a minimum of 30.5m;
- In addition to the 8m buffer, additional pocket spaces shall be provided to allow large species trees to grow to maturity. These spaces shall be a minimum 20m wide and minimum 16m deep from the edge of the Building Zones. The pocket spaces shall be distributed as shown in Figure 123: min. of 2 spaces between L1 and L1; min. of 1 space between L2 and L2; min. of 1 space between L3 and L3; and 1 space between L4 and L4. Planting shall be added to these pocket spaces;
- These spaces shall be located to provide a minimum 12m buffer from at least one of the existing street trees;
- The street frontage shall not exceed the set height of 35m (in the north) and 33m (in the south). From the frontage set height, the building heights shall stay within the envelopes which rise to the heights set in parameter plans with angles of 45° (North) or 38° (South);
- Long frontages dedicated to servicing, car parking and/or blank façades shall be avoided. External plant and storage structures (on frontage or separate structures) shall be minimised;

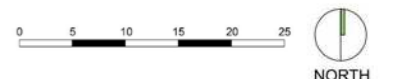
- The heights on the northern side of the street should have variation in roof-line;
- The setbacks within plots along the road corridor should be treated with a hard landscape (as a continuation of the street treatment) or should be planted to provide additional greenery in the street. Cycle parking areas may also be located within this zone;
- Activity along the street should be promoted by locating main entrances to buildings directly onto the street.

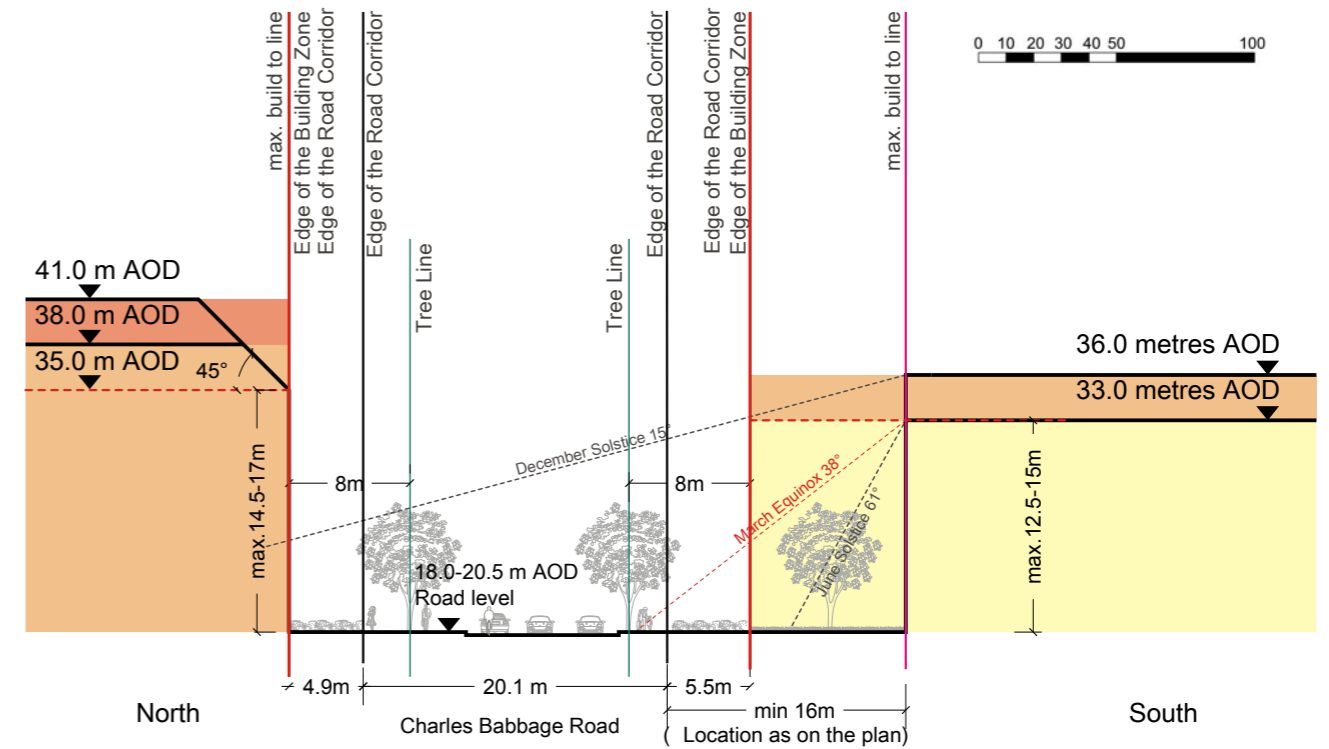


123. Charles Babbage Road



122. Charles Babbage Road Section 1-1 (Parameter Heights 37m, 38m and 41m AOD)

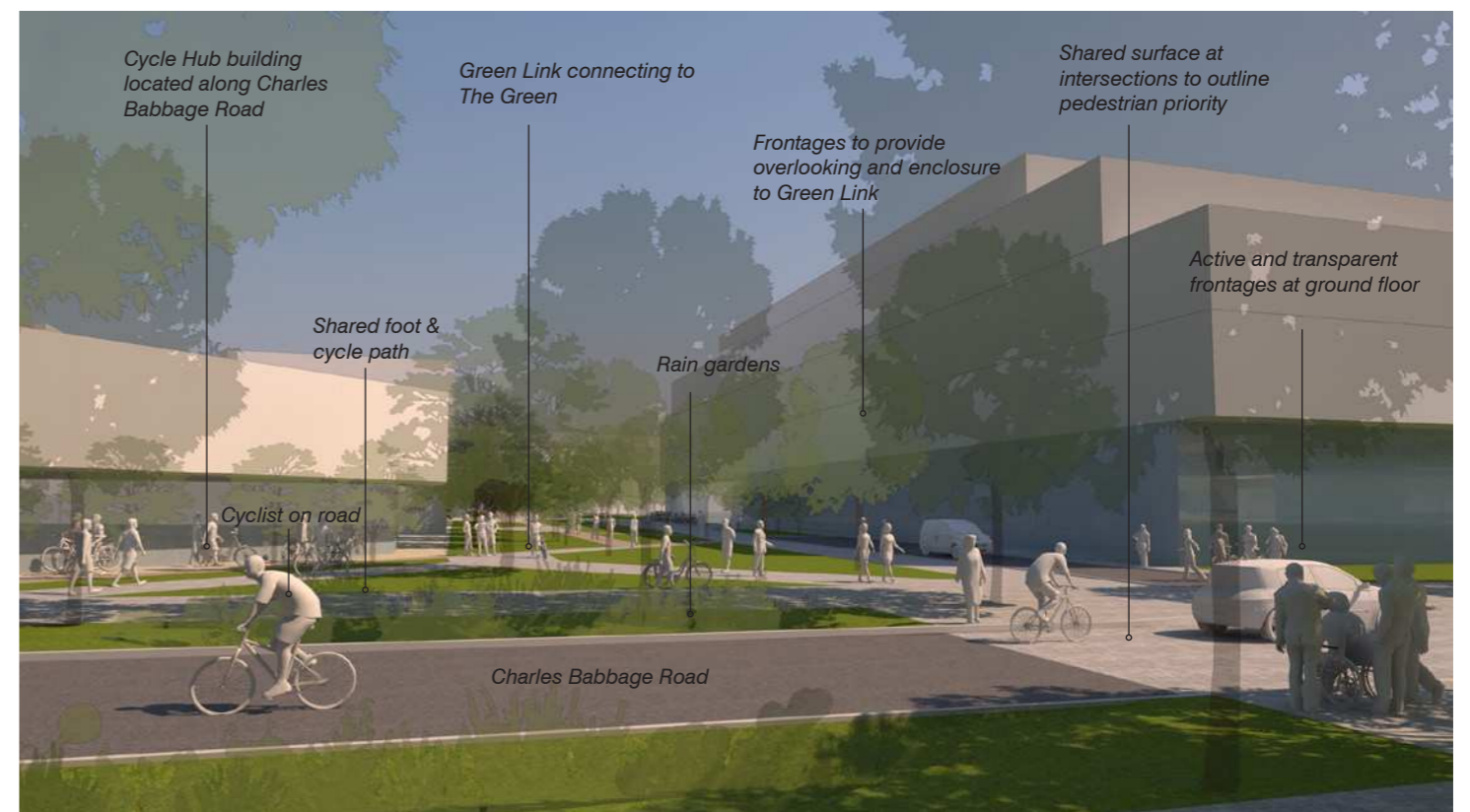




124. Charles Babbage Road (Section 2-2)



125. Charles Babbage Road looking East



126. View along the northern part of the Central Green Link across Charles Babbage Road

3.5. Western Access/Ada Lovelace Road

Street transformation

3.5.1 Western Access / Ada Lovelace Road is a street that existed on the site prior to the 1999 masterplan. The proposed development incorporates this street as an important part of the new landscape framework.

3.5.2 In the proposed development this street will, in the longer term, form a new access from Madingley Road and will also be transformed to provide a landscaped north-south green street, contributing to the new landscape framework for the site.

Character

3.5.3 Guidelines for the transformation of character of Western Access/Ada Lovelace Road are as follows:

- The existing green and informal character of this street shall be maintained. New sympathetic planting shall be introduced to further green this corridor;
- The re-design of this street shall accommodate additional traffic without detrimental effect on the character of the street and pedestrian and cycle comfort;
- Buildings shall have full or partial setbacks to provide pocket and/or foreground landscapes;
- On the east side of the street the setbacks shall be more generous as a consequence of the existing gas pipe 30m easement. Because of the easement, the planting types on this side shall be restricted to low level grasses, groundcovers and shrubs only;
- Gaps shall be provided between buildings on the western side of the street to allow for additional planting which can allow the western Woodland edge to extend visually towards this edge of the street;
- Rain gardens shall be provided to collect water run-off from the carriageway. These shall consider the existing street trees and underground utilities and be planted with a variety of species that are appropriate for the rain garden and the roadside environment;
- Any future development should be set back from the road to allow for pockets of foreground landscapes.

Surface/paving treatment

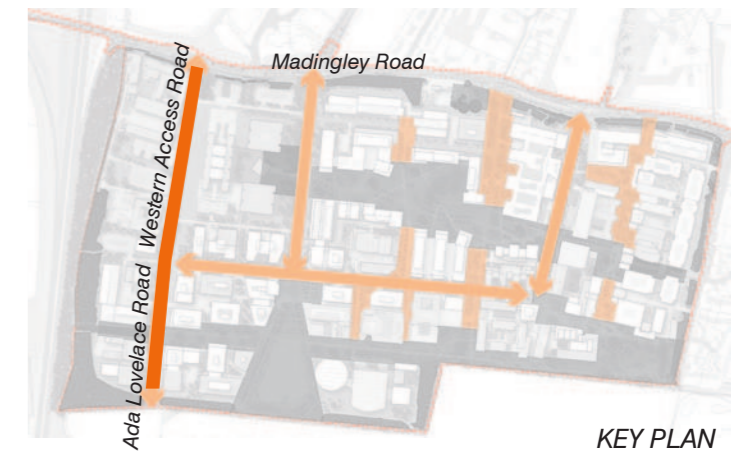
3.5.4 Guidelines for the surface/pavement treatment of Western Access/Ada Lovelace Road are as follows:

- Ada Lovelace Road shall incorporate a pedestrian pavement to both sides of the street;
- To the Western Access Road, cycle movement shall be accommodated off road on a bi-directional cycle path to the east side of the street;
- The street should incorporate arrival spaces and drop-off/drop-on points if required, at appropriate points along its length;
- There should be paved areas along the street to allow ease of access and movement and encourage any activity to spill out from building entrances.

Landscape and planting

3.5.5 Guidelines for the landscape and planting for Western Access/Ada Lovelace Road are as follows:

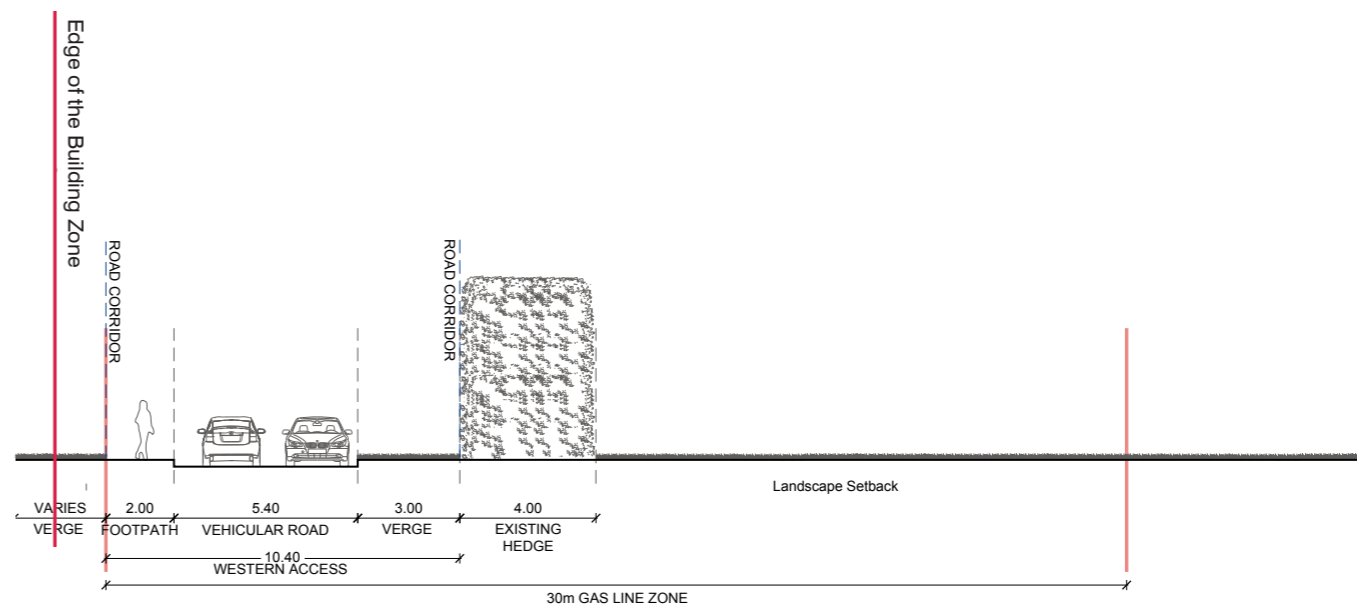
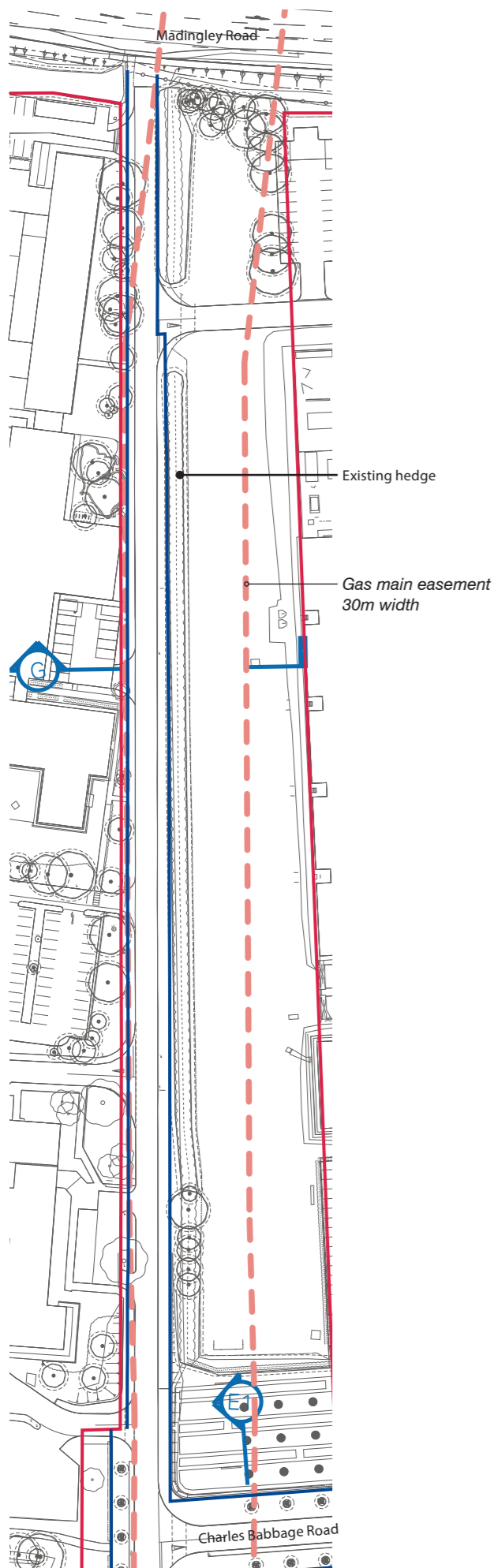
- The hedgerow alongside the Schlumberger Research Building shall be retained and, where needed, reinforced with a variety of species to create a continuous, bio-diverse hedge;
- No new tree or large shrub planting shall be allowed within 10m of the underground HP gas pipeline and the planting to this corridor shall incorporate low level planting only;
- Where building setbacks occur they should be planted and the landscape design should respond to the design of the street but also react to the building frontage and the uses within;
- Additional woodland areas should be planted between buildings, to reinforce the informal character and bring the woodland character of the site edge to the western side of the street.



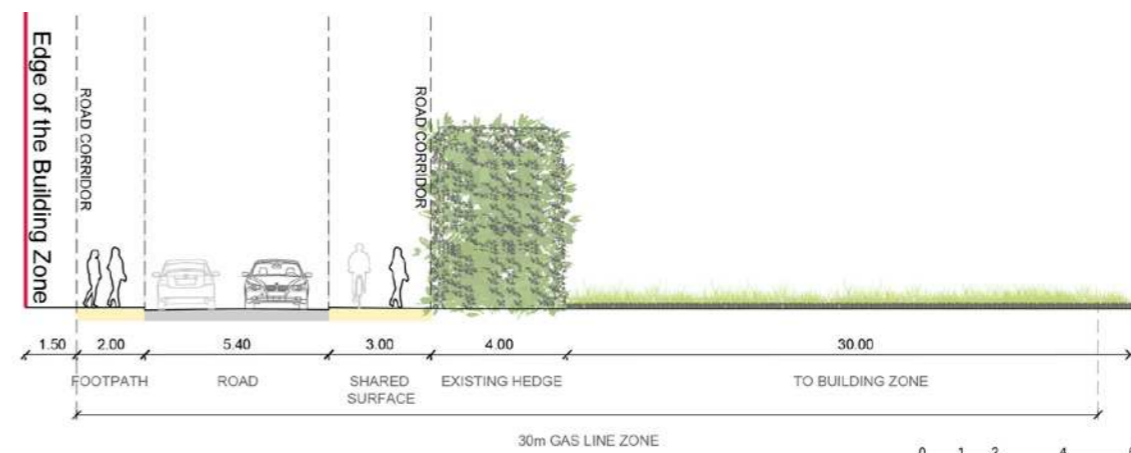
127. Western Access looking south



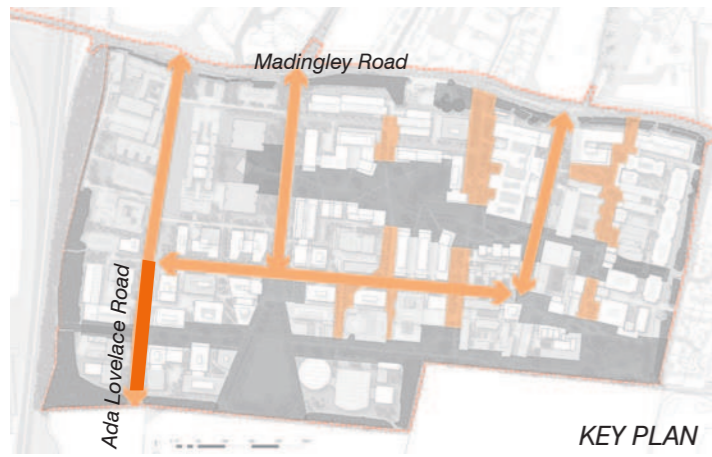
128. Ada Lovelace Road looking south



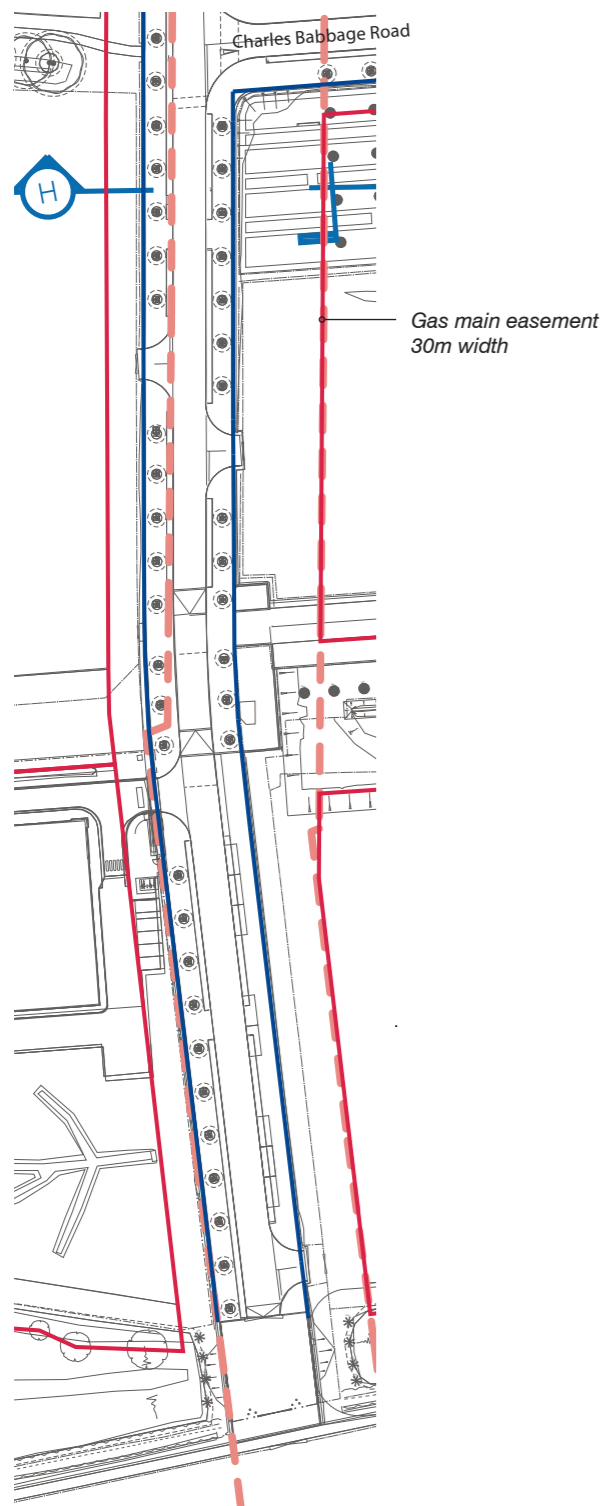
131. Western Access - Existing Conditions Section H



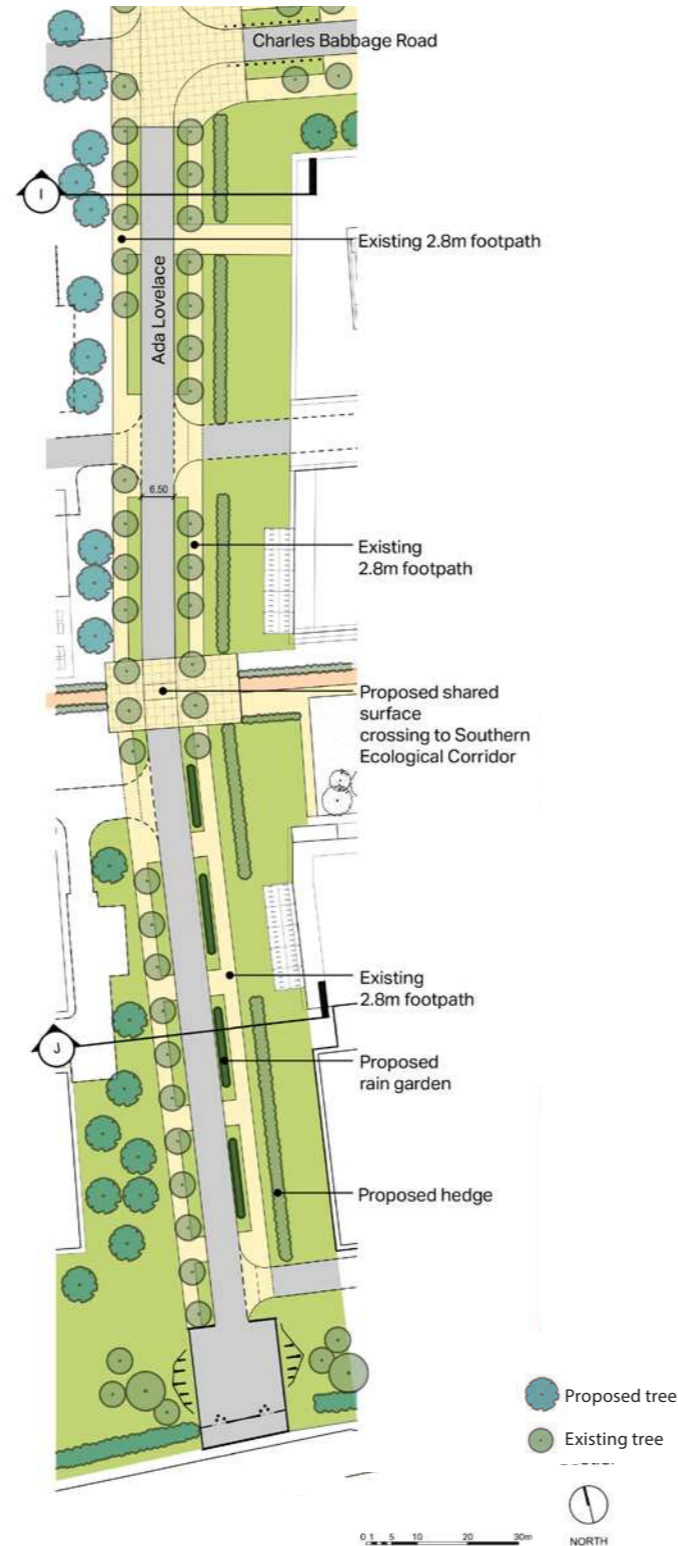
132. Western Access - Illustrative Section H



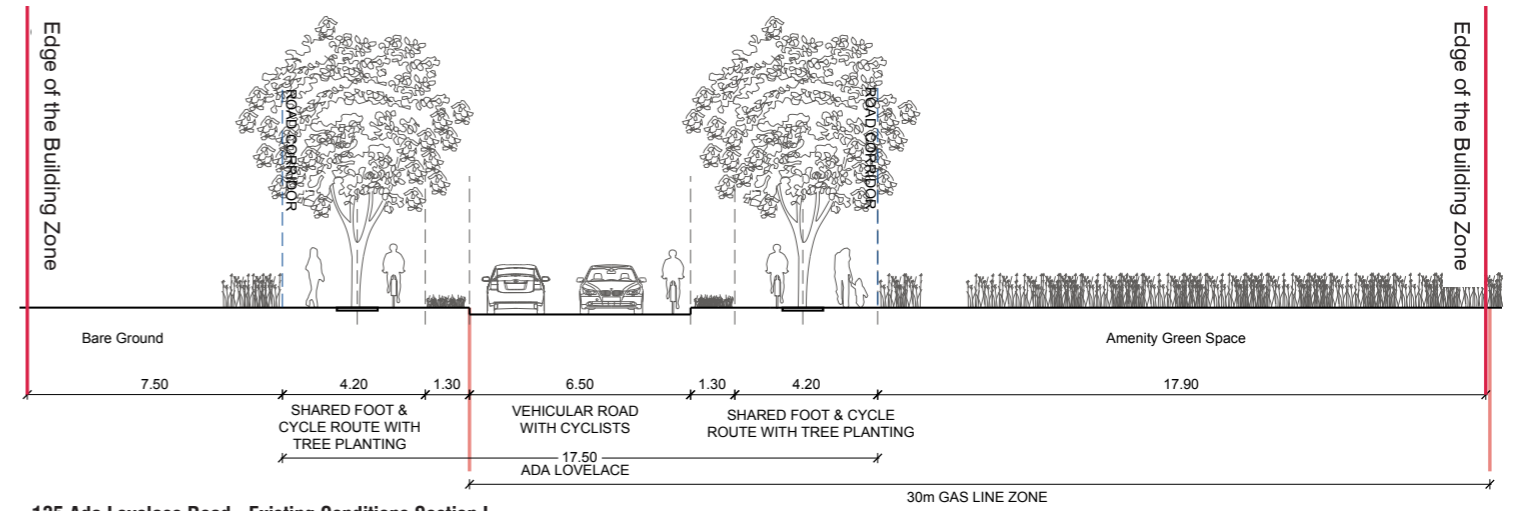
KEY PLAN



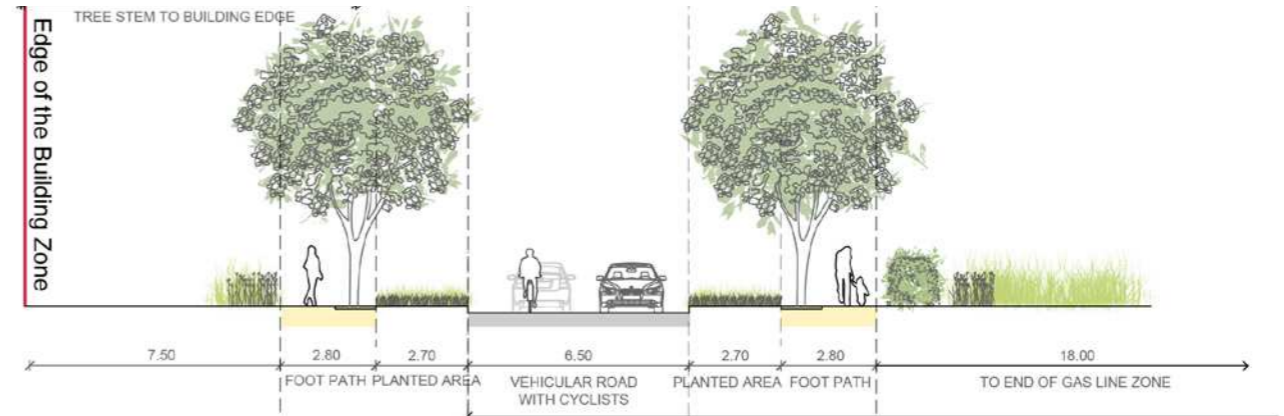
133. Ada Lovelace Road Existing Conditions Plan



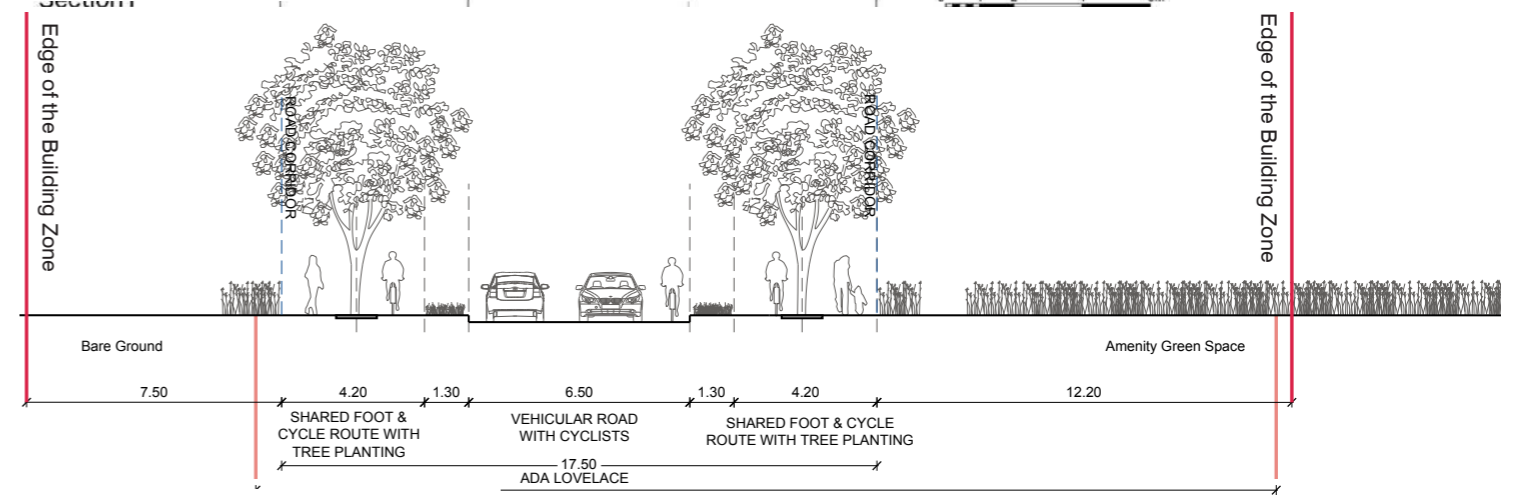
134. Ada Lovelace Road Illustrative Plan



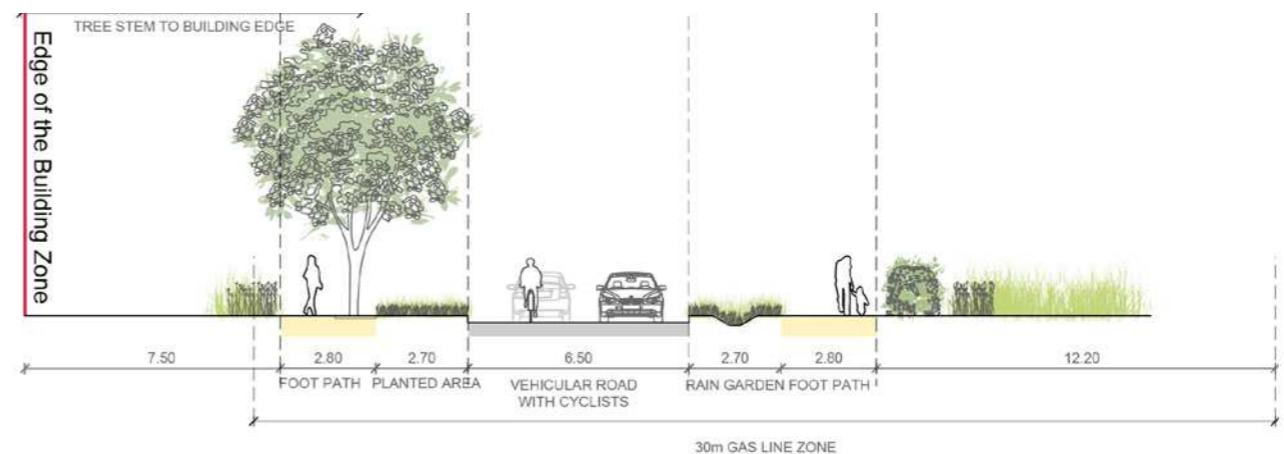
135. Ada Lovelace Road - Existing Conditions Section I



136. Ada Lovelace Road - Illustrative Section I



137. Ada Lovelace Road - Existing Conditions Section J



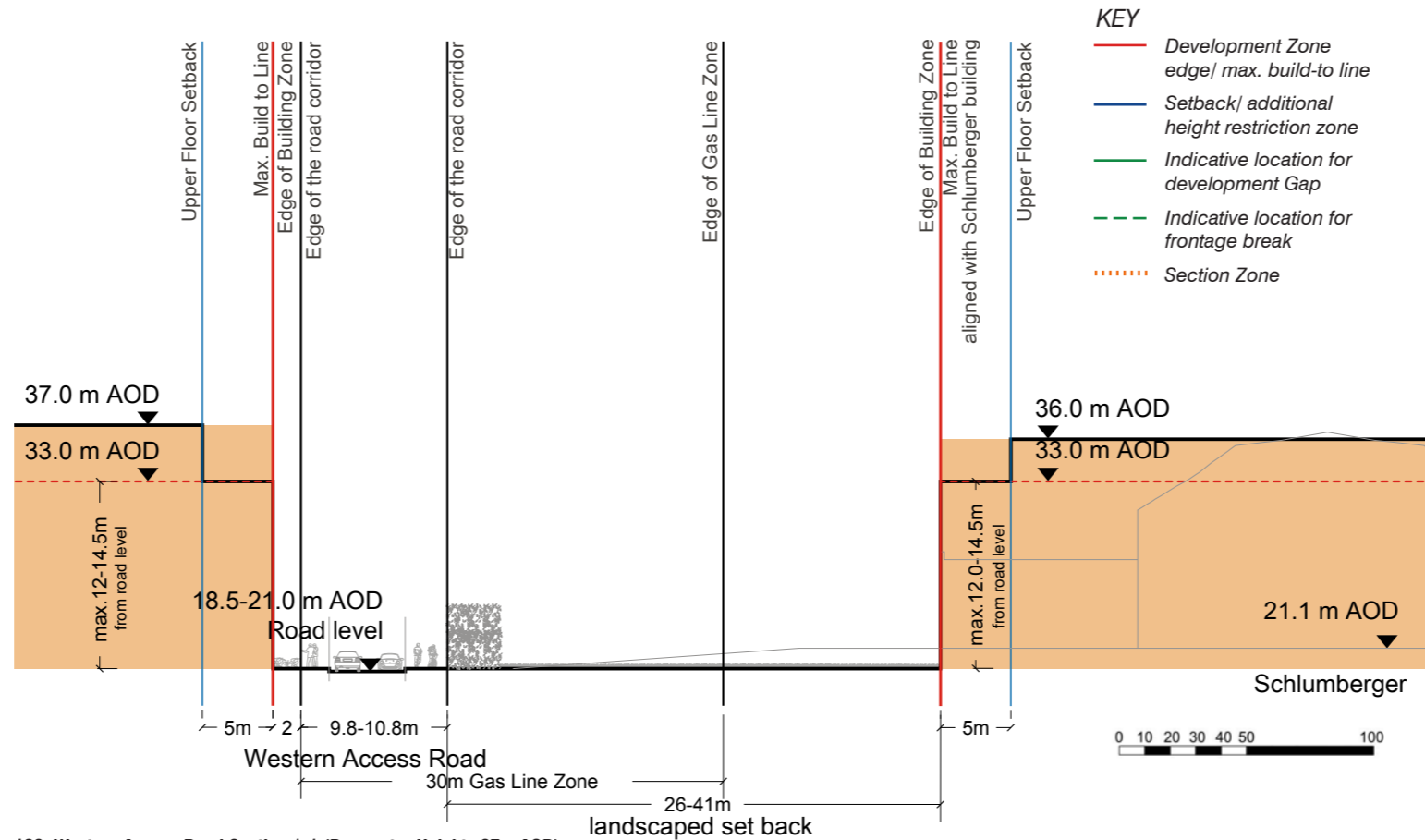
138. Ada Lovelace Road - Illustrative Section J

Heights and street frontage

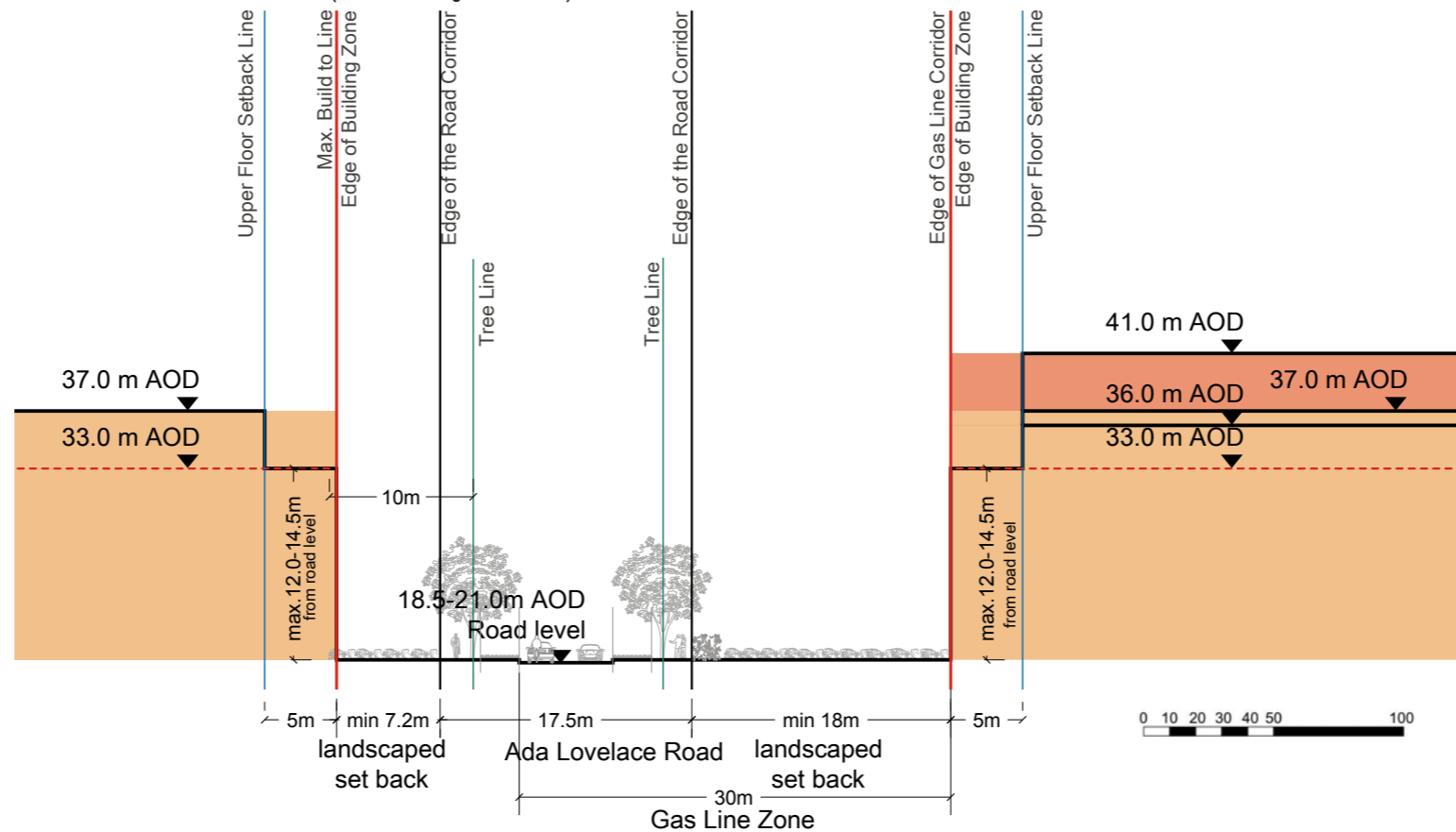
3.5.6 The following provides the requirements for heights and street frontage along Western Access/Ada Lovelace Road. On the plan in Figure 141, the darker green colour denotes zones of open space secured through Parameter Plan 04. Other requirements for Western Access/Ada Lovelace Road are set out in the Parameter Statement.

3.5.7 The guidelines for heights and street frontage are as follows:

- M
 In accordance with the approved heights parameters, heights along Western Access Road shall respond to the existing low density character in this location. Heights shall be taller around the junction with Charles Babbage Road. Heights shall then reduce again along Ada Lovelace Road towards the Southern edge;
- Along Western Access Road (Section 1-1) the edge of the Building Zone on the eastern side shall be set to be aligned with the existing frontage of the Schlumberger Research Building. On the western side, the existing buildings limit the width of the corridor and the edge of the Building Zone shall be set back from the edge of the road corridor by 2m;
- Along Ada Lovelace Road (Section 2-2) the edge of the Building Zone shall be set to the edge of the gas line corridor. On the western side, the edge of the Building Zone shall be set back to allow a 10m buffer from the existing tree line, to protect the trees and allow them to grow;
- Maximum Build to Lines shall align with the edges of Building Zones;
- Zones between the edges of the road corridor and the edges of the Building Zones/maximum Build to Lines shall be landscaped with predominantly soft landscapes. Only areas leading to entrances and spill out uses shall be treated with hard landscaping;
- An additional frontage height restriction of 33m AOD shall apply along the street and any development above this height shall be set back by a minimum of 5m from the predominant building frontage;
- Activity should be promoted by locating main entrances to buildings along the street.



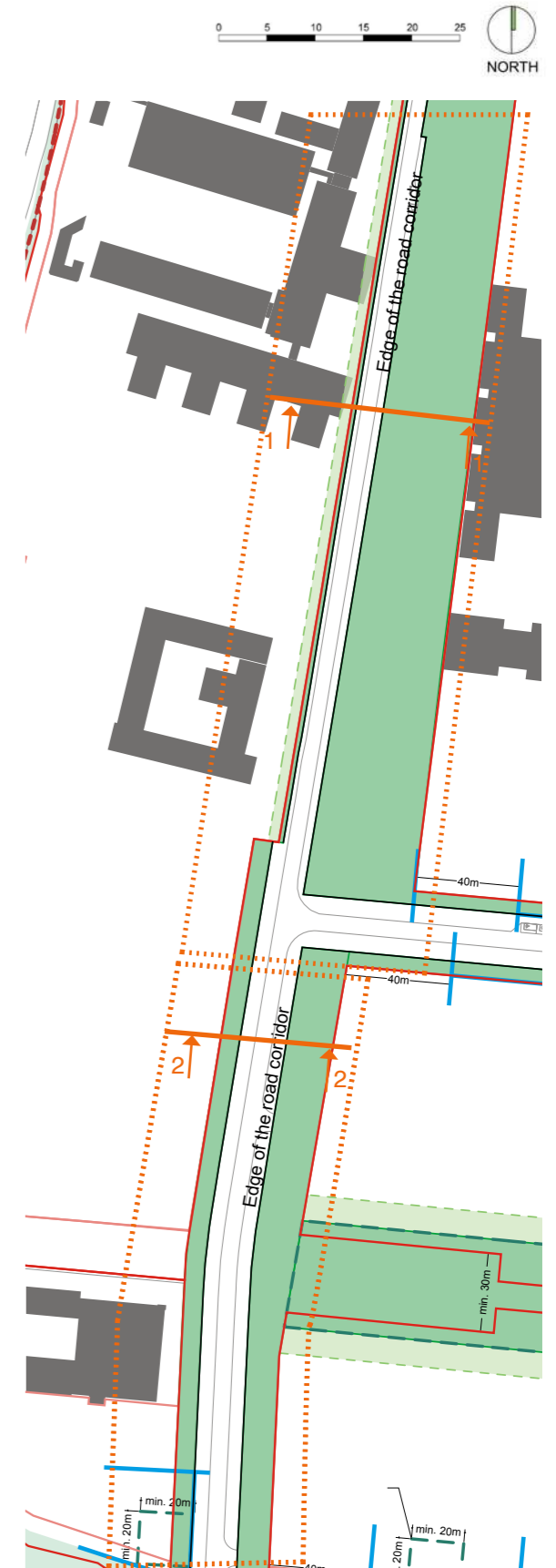
139. Western Access Road Section 1-1 (Parameter Heights 37m AOD)



140. Ada Lovelace Road Section 2-2 (Parameter Heights 37m and 41m AOD)

KEY

- Development Zone edge/ max. build-to line
- Setback/ additional height restriction zone
- Indicative location for development Gap
- Indicative location for frontage break
- Section Zone



141. Western Access Road / Ada Lovelace Road

3.6. Eastern Green Link

Street transformation

3.6.1 The Eastern Green Link will be formed from existing access roads and spaces within the east of the site. At present these access roads are car orientated and lack pedestrian activity.

3.6.2 In the proposed development, this new Green Link will form a new pedestrian orientated corridor that unifies and integrates both the retained and proposed buildings within the eastern part of the site and forms a key north-south link between the proposed eastern developments and the Forum Spaces to the south of the site.

3.6.3 Key spaces will be formed along this Green Link: the Arrival space in the north and the Garden space at the intersection of the Green Link and the existing footpath and cycle link. This garden space is seen to be an extension of The Green open space into the eastern part of the site.

Character

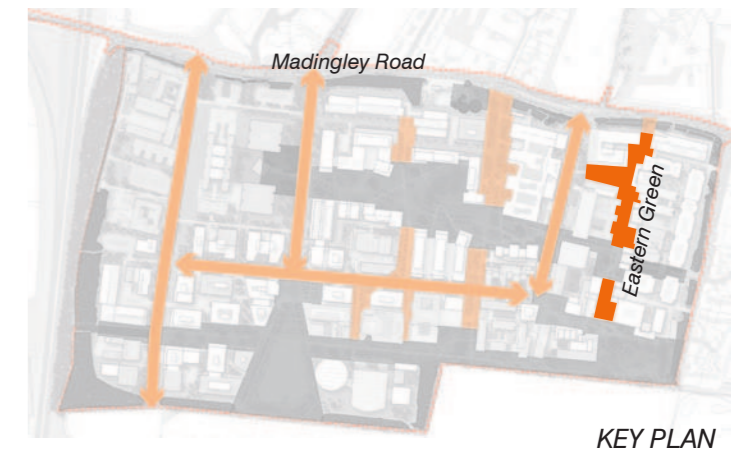
3.6.4 Guidelines for the transformation of character of the Eastern Green Link are as follows:

- Connecting many existing and new buildings, it is envisaged that this Link will be a very lively and intensively used by pedestrians. In order to achieve this, the Link shall be a predominantly hard space with tree planting and pockets of softscape;
- While the minimum set width shall be narrower in comparison with other links, the profile of the Link shall vary in width to achieve pockets of landscape between the buildings, as illustrated on Figure 143;
- In order to revive the frontages of the existing buildings along this Link, new lobby and social spaces should be added.

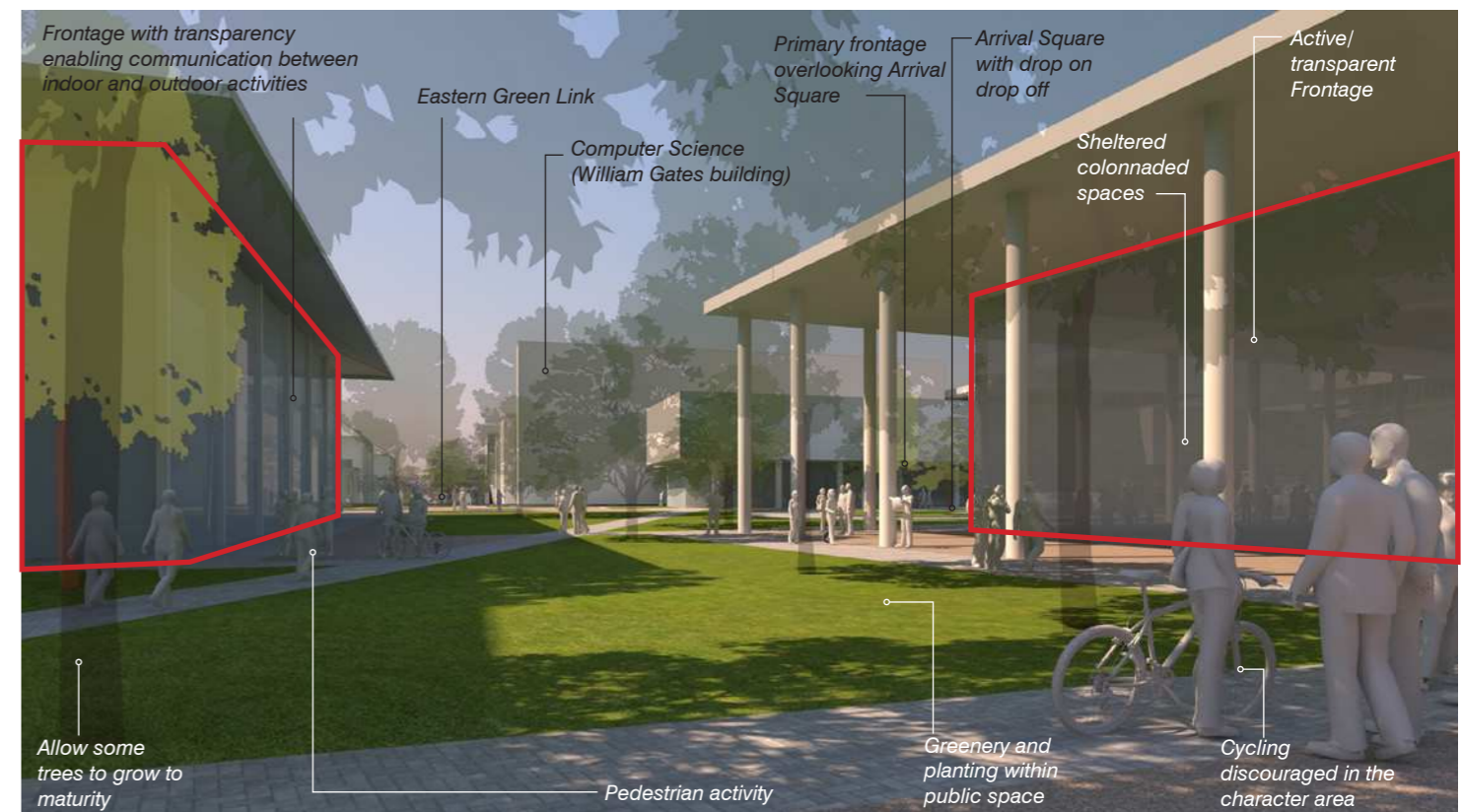
Landscape and planting

3.6.5 Guidelines for the landscape and planting for the Eastern Green Link are as follows:

- The landscape treatment of the Eastern Green Link shall be visually coherent to ensure it acts as an integrating feature through this area;
- The public realm design of this space shall serve to prioritise pedestrians and discourage cycling through this space;
- Along the Eastern Green Link, nodes or small scale gathering points shall be formed with the use of, for example, planting and/or seating elements. The placement of these gathering spaces shall consider aspect, environmental conditions, legibility and pedestrian desire lines;
- A specific treatment shall be formed for the intersection of the Eastern Green Link with the The Green/Garden Space. The surface treatment of the north-south pedestrian space shall be continued across the east-west pedestrian and cycle route to indicate the continuation of this connection and pedestrian priority across this space;
- A group of existing common Ash trees (no. G009) within the space and located to the rear of the William Gates Building shall be retained and incorporated within the design of the Green Link;
- Limited/smaller areas of visitor cycle stands should be located close to building entrances, if required.



KEY PLAN



142. Eastern Green Link: view looking south towards The East Garden

Heights and street frontage

3.6.6 The following provides the requirements for heights and street frontage along the Eastern Green Link. On the plan in Figure 143, the darker green colour denotes zones of open space secured through Parameter Plan 04. Other requirements for the Eastern Green Link are set out in the Parameter Statement.

3.6.7 The guidelines for heights and street frontage are as follows:

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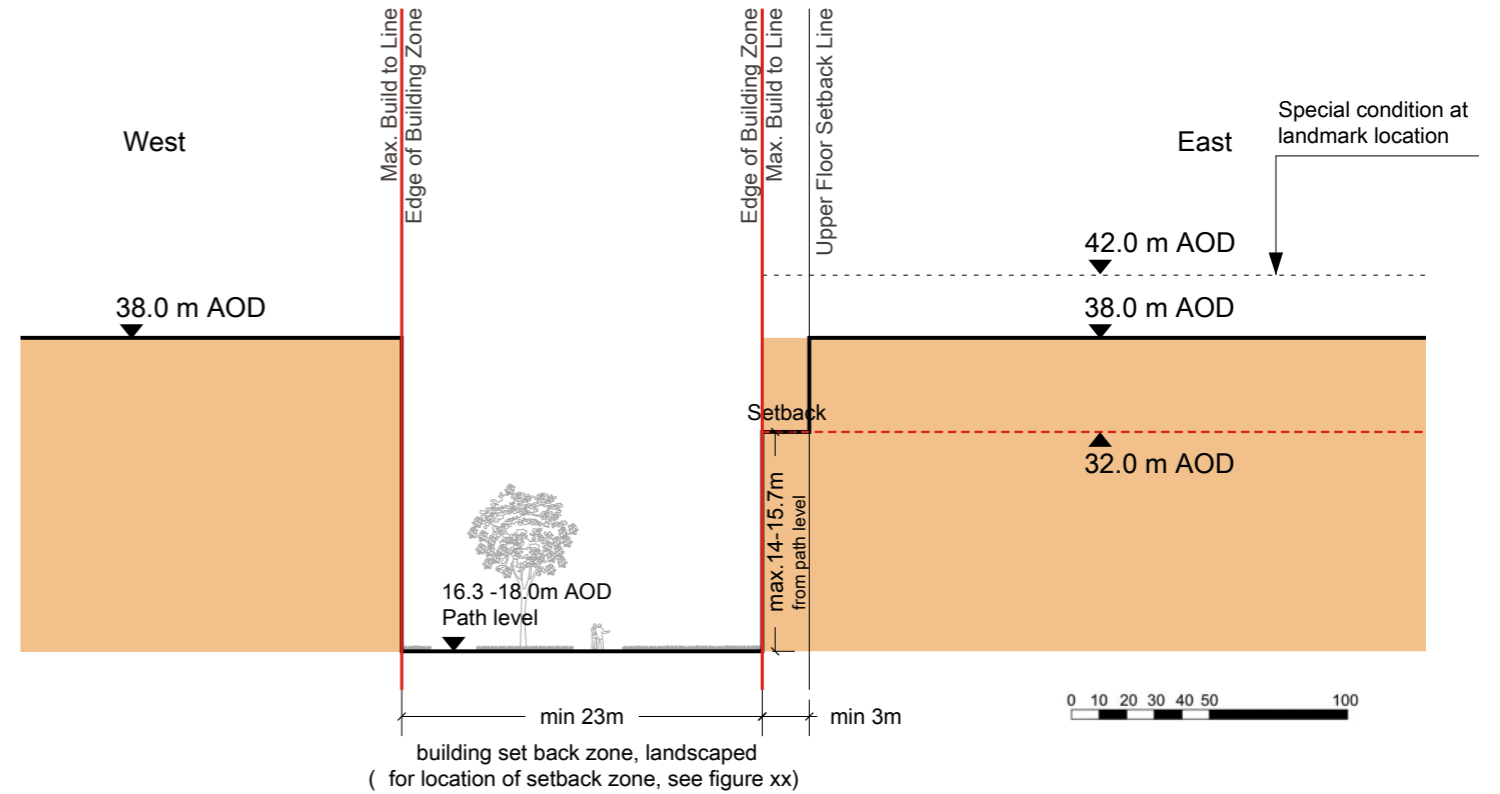
- The edge of the Building Zone on the western side shall be aligned with the existing Computer Laboratory (Willam Gates Building). On the eastern side the edge of the Building Zone shall be aligned with the northern wing of Roger Needham Building. Thus, the width of the Eastern Green Link at any given cross section shall be a minimum of 23m;
- An open space shall be created south of the east-west cycle route (south of the Computer Laboratory), and shall have a minimum total width of 36m and minimum length of 41m, as shown on the Figure 143. This space shall form a secondary focus space for the Eastern cluster of development and shall be a continuation of The Green open space;
- On the eastern side of the Green Link, four pocket landscapes shall be created, adding to the minimum width of the Link to a minimum total of 36m. Each of these spaces shall have a minimum length of 20m;
- Two of the pocket landscapes shall be north of the primary cycle route and relate to entrances of Electrical Engineering and Roger Needham buildings;
- At least two of the pocket landscapes shall be in the zone between L3 and L3;
- At the northern end, the Green Link shall connect with the proposed Arrival Space. The minimum width between buildings at the point of this connection shall be 10m;
- At its southern end, the Green Link shall connect with the East Forum spaces. The minimum width between buildings at the point of this connection shall be 10m;
- An additional frontage height restriction of 32m AOD shall apply along the eastern edge of the Building Zone. Any development above this height shall be set back from maximum build to line by a minimum of 3m.



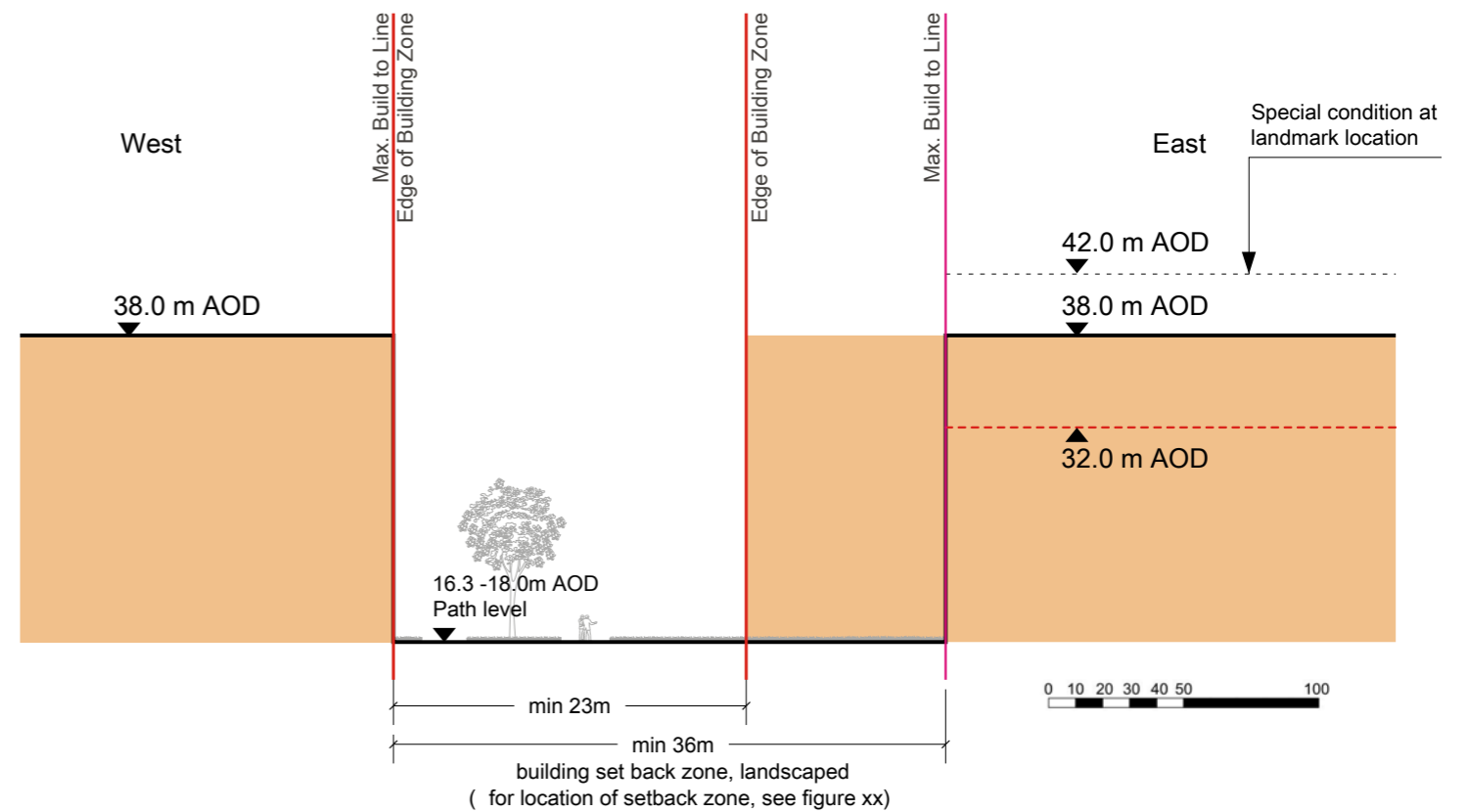
143. Central Green Link within Eastern Character Area

KEY

- Area secured in the Parameter Plan 4
- Flexibility zone defined in the Parameter Plan 4
- - - Indicative boundary of area secured in the Parameter Plan 4
- Building Zone edge (location of open space secured in Parameter Plan 4)
- Max. Build to Line
- Building set back zone
- Section Zone



144. Central Green Link within Eastern Character Area Section 1-1 (Parameter Heights 38m AOD)



145. Central Green Link within Eastern Character Area Section 2-2 (Parameter Heights 38m AOD)

3.7. Central Green Link

Street transformation

3.7.1 This Green Link will be formed from the existing former access to the Vet School (between Madingley Road and Charles Babbage Road) and from the existing service lane located west of Northern and Southern Residences.

Character

3.7.2 Guidelines for the transformation of character of the Central Green Link are as follows:

- In the north, this corridor shall incorporate high quality existing trees and re-purpose the public realm to provide pedestrian friendly amenity space, pedestrian and cycle routes and areas for cycle parking. Parts of this link shall also include vehicular access routes with limited use (servicing);
- To the south of Charles Babbage Road, the Green Link shall be widened to provide for additional planting. At its southern end, the Green Link shall include a wider width between building frontages which shall help soften the Southern edge (frontage overlooking the agricultural fields), and provide space for trees to grow to mature size.

Landscape and planting

3.7.3 Guidelines for the landscape and planting for the Central Green Link are as follows:

- Any vehicular access routes in the zone south of The Green shall be provided as shared surfaces with the width of maximum 6.5m - see Figures 149, 152 and 153;
- Adjacent to the existing residences, a landscaped buffer shall be provided, with the width of minimum 4m - see Figure 149;
- Landscape buffers shall be predominantly soft. Areas of hard landscapes shall be allowed for access and servicing/drop-off;
- Any new large species trees shall be planted in a zone which leaves a minimum 10m distance to the maximum build to line, to allow space for them to grow to maturity;
- Any surface in the root protection zone of the protected trees shall be permeable;



146. Central Green Link

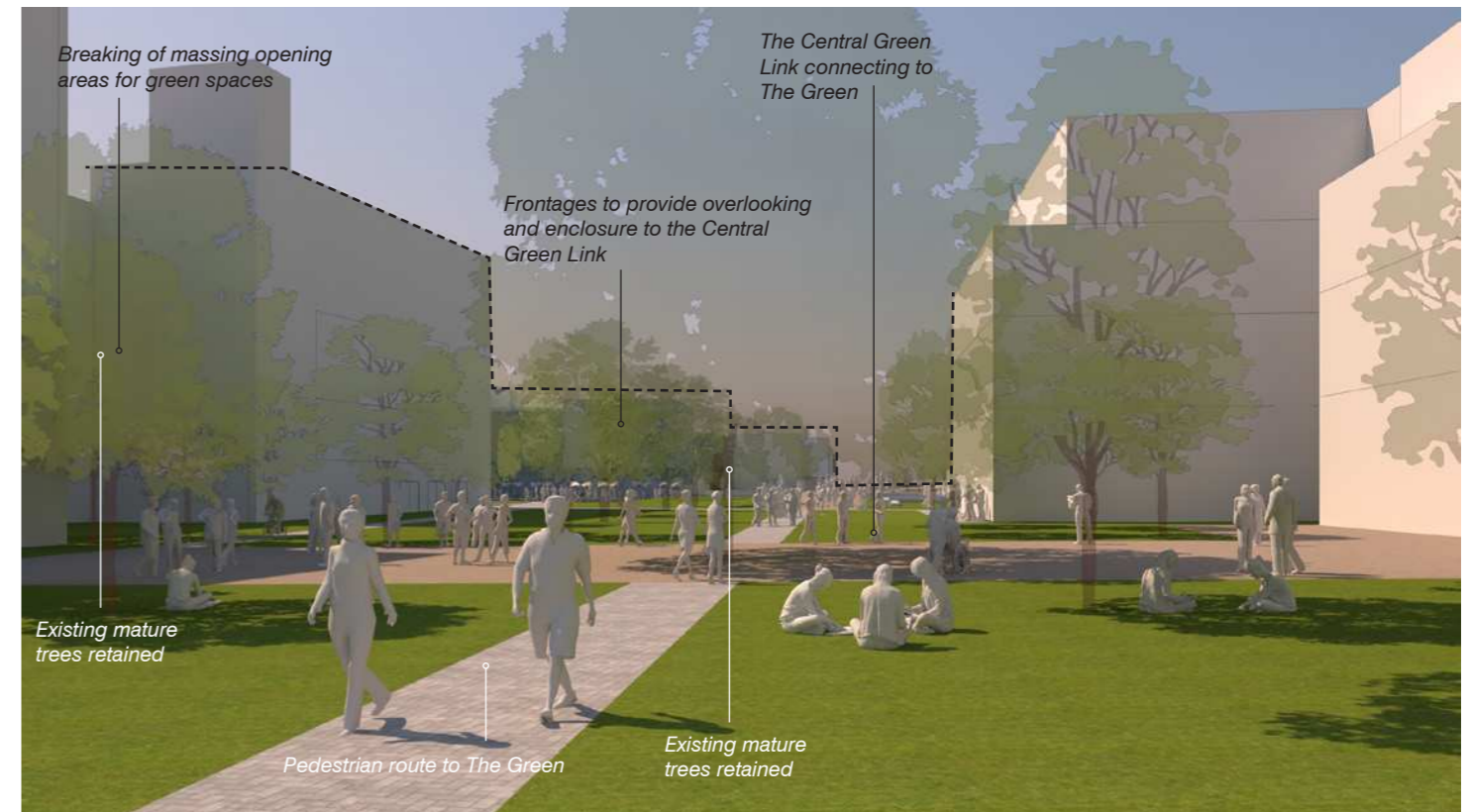
- Cycle parking should be located along building frontages within the Green Link;
- Along the link nodes or gathering points should be formed with the use of, for example, planting and/or seating elements. The placement of these spaces should consider aspect, environmental conditions, legibility and pedestrian desire lines.

KEY

- Area secured in the Parameter Plan 4
- Flexibility zone defined in the Parameter Plan 4
- - - Indicative boundary of area secured in the Parameter Plan 4
- Building Zone edge (location of open space secured in Parameter Plan 4)
- Max. Build to Line
- Building set back zone
- ⋯ Section Zone



KEY PLAN



147. Central Green Link: view looking south

Heights and street frontage

3.7.4 The following provides the requirements for heights and street frontage along the Central Green Link. On the plan in Figure 146, the darker green colour denotes zones of open space secured through Parameter Plan 04. Other requirements for the Central Green Link are set out in the Parameter Statement.

3.7.5 The guidelines for heights and street frontage are as follows:

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- Maximum building heights within the Green Link shall be lower to the south of Charles Babbage Road and at the north along Madingley Road;
- New frontage shall ensure that there is good enclosure and shall provide some natural surveillance and overlooking of this space;
- In accordance with the Design Guidelines for frontages (Section 1.4) small landscaped pocket spaces shall break up the length of longer frontages.

3.7.6 Further guidelines applicable to the Green Link to the north of The Green are as follows:

M

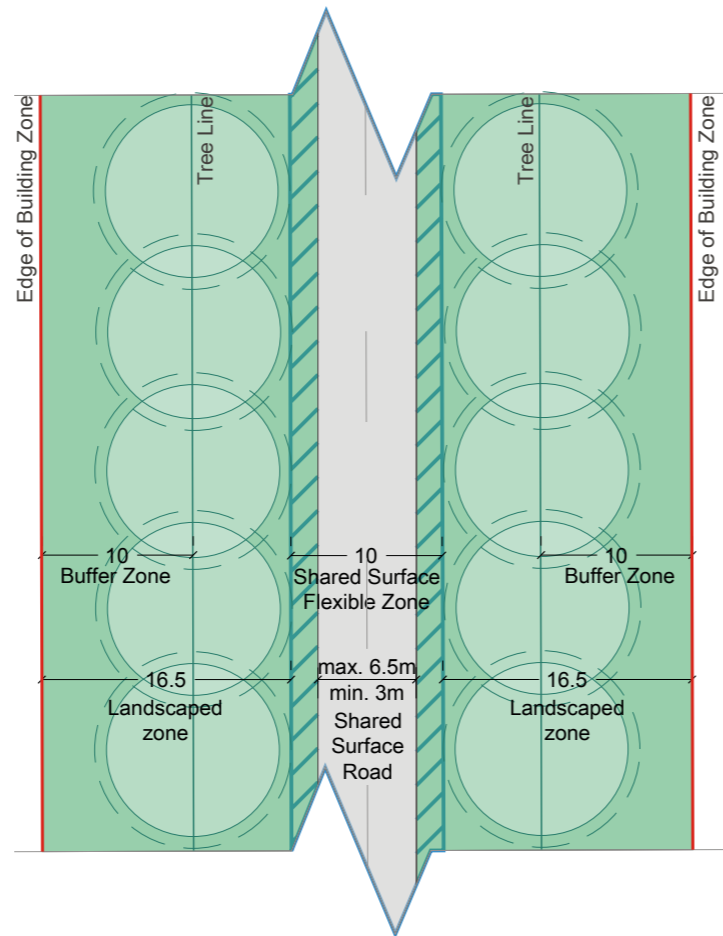
- Minimum width of the open space shall be 30m;
- Building frontages shall be set back a minimum 10m from the lines of the existing lime trees, resulting in building to building width of minimum 43m in this part of the Central Green Link;

- An additional frontage height restriction of 34m AOD should apply along both frontages along the Green Link and any development above this height should be set back by a minimum of 3m from the predominant building frontage.

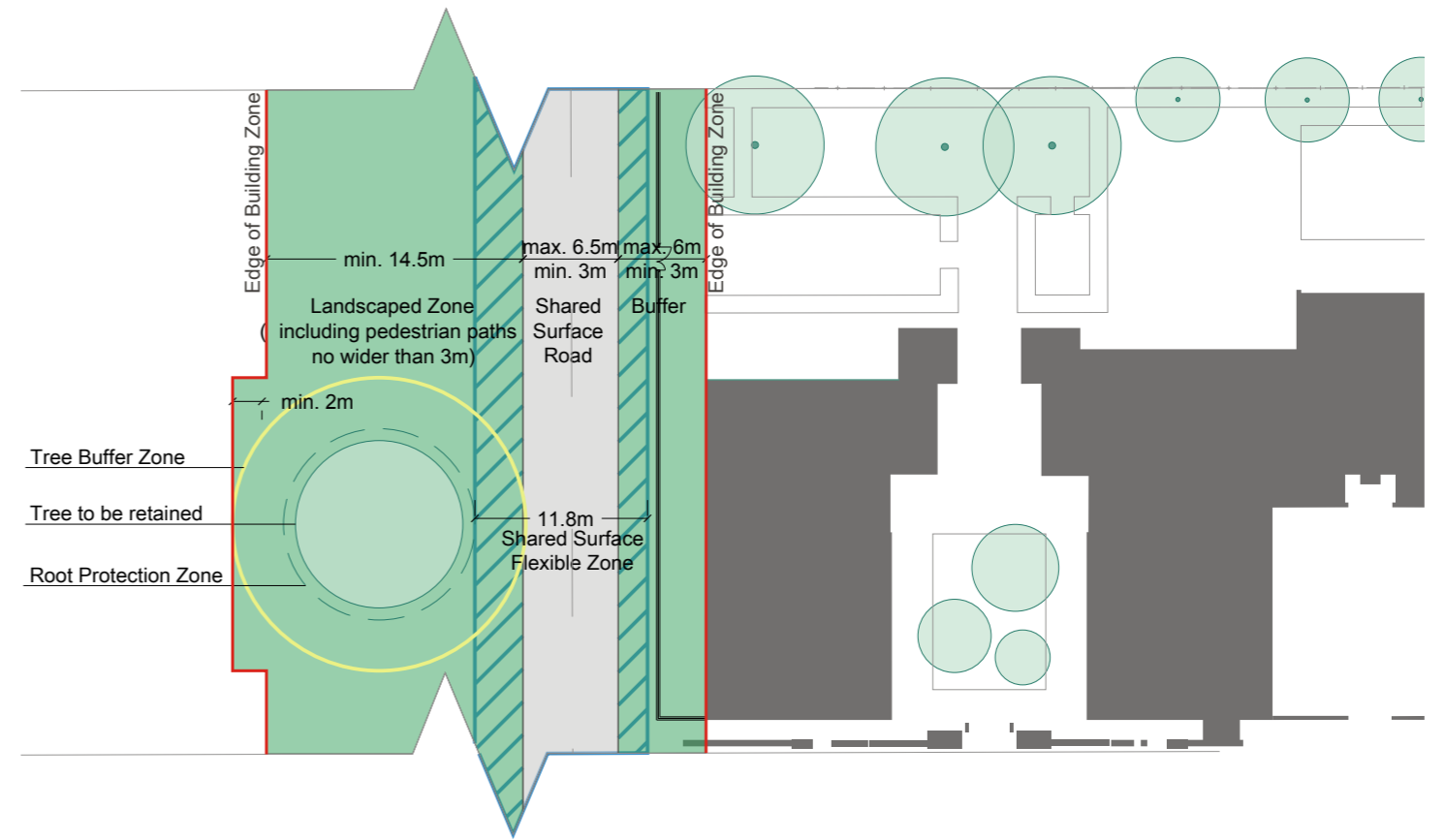
3.7.7 Further guidelines applicable to the Green Link to the south of The Green are as follows:

M

- Building to building width shall be minimum 30m;
- In the zone south of The Green and north of Charles Babbage Road, an additional frontage height restriction of 34m AOD shall apply along the frontage and any development above this height shall be set back by a minimum of 3m from the predominant building frontage;
- In the zone south of The Green and north of Charles Babbage Road, an additional setback shall be secured to ensure the tree protection zone, as indicated on Figure 149;



148. Central Green Link / Lime Avenue 1-1: Indicative schematic plan showing space for the existing trees, access routes and landscaping

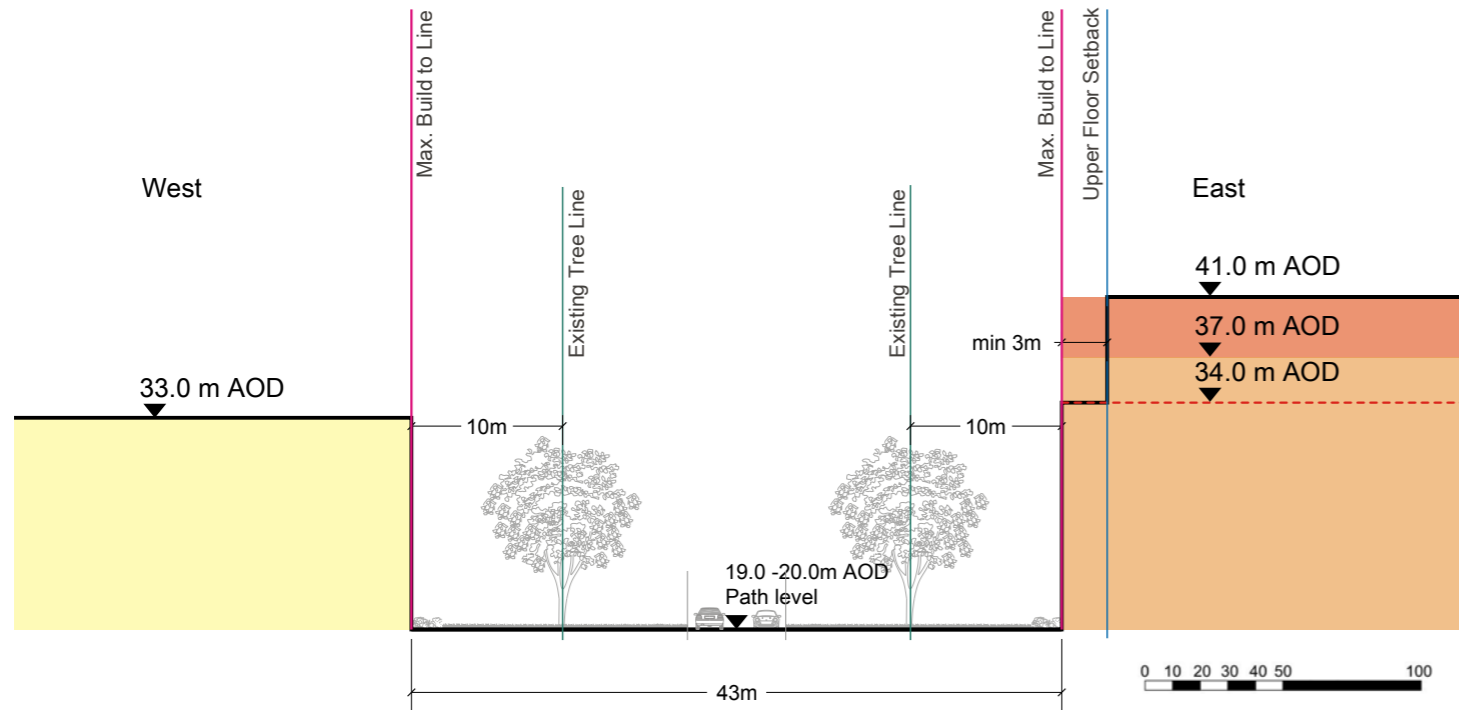


149. Central Green Link 3-3: Indicative schematic plan showing space for the existing trees, access routes and landscaping

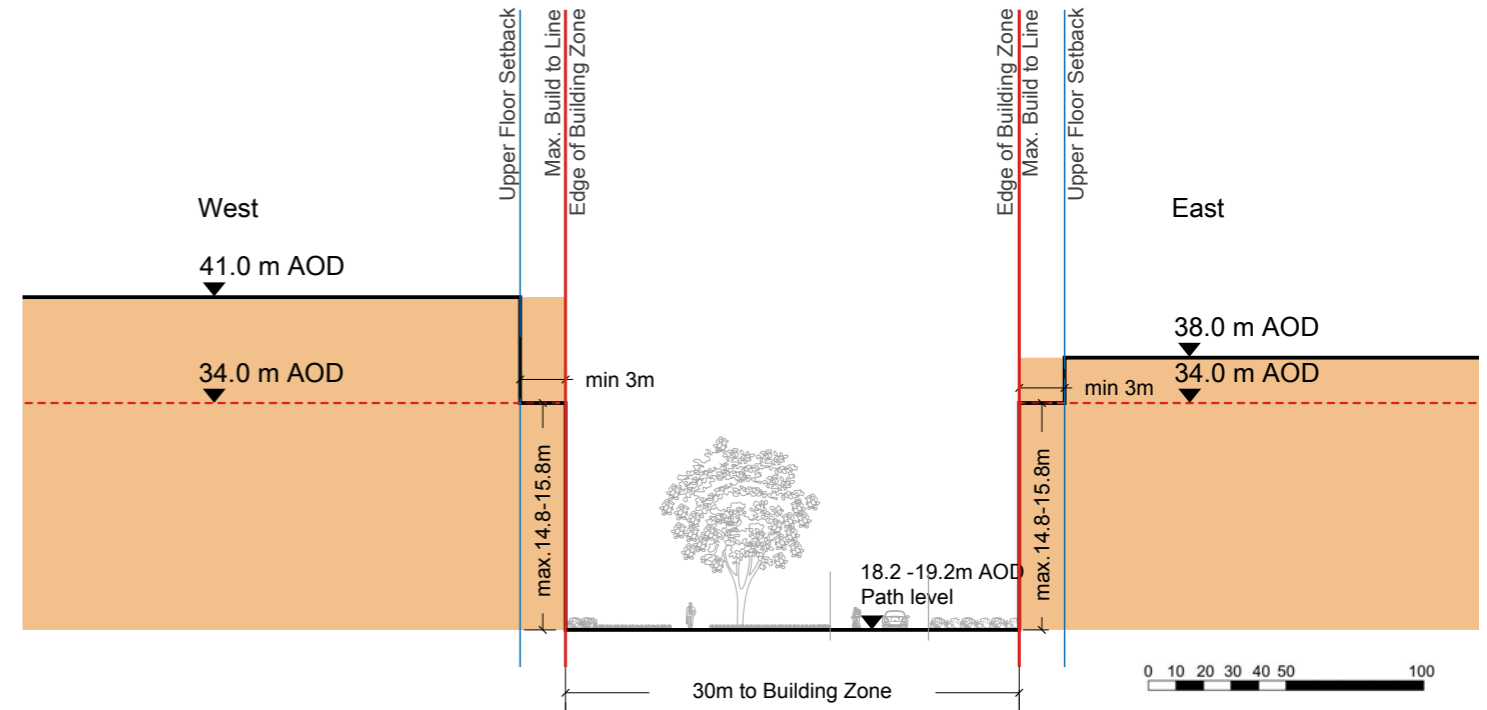
- In the zone south of Charles Babbage Road, the minimum heights set in the Parameter Statement shall be 33 and 36m AOD. No further frontage restrictions shall be required along this part of the Green Link;
- A wider space of minimum 30x30m shall be created at the southern end of the Central Green Link, and conditions shall be established to allow for one or more large trees to grow to maturity.

KEY

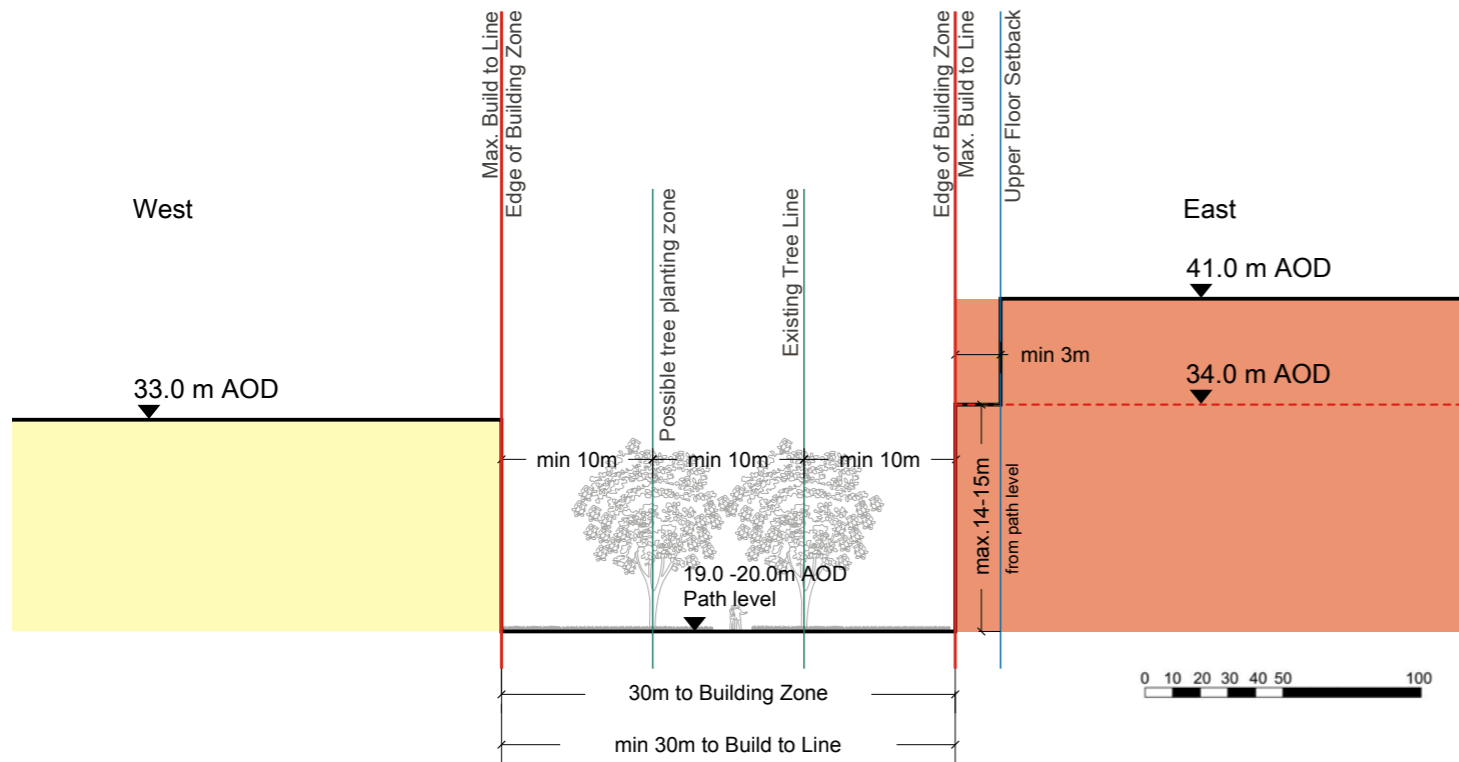
- Building Zone edge (location of open space secured in Parameter Plan 4)
- Area secured in the Parameter Plan 4
- Existing trees to be retained
- Tree Root Protection zone
- Tree Buffer Zone
- Shared Surface Road
- Shared Surface Flexible Zone
- Existing Building



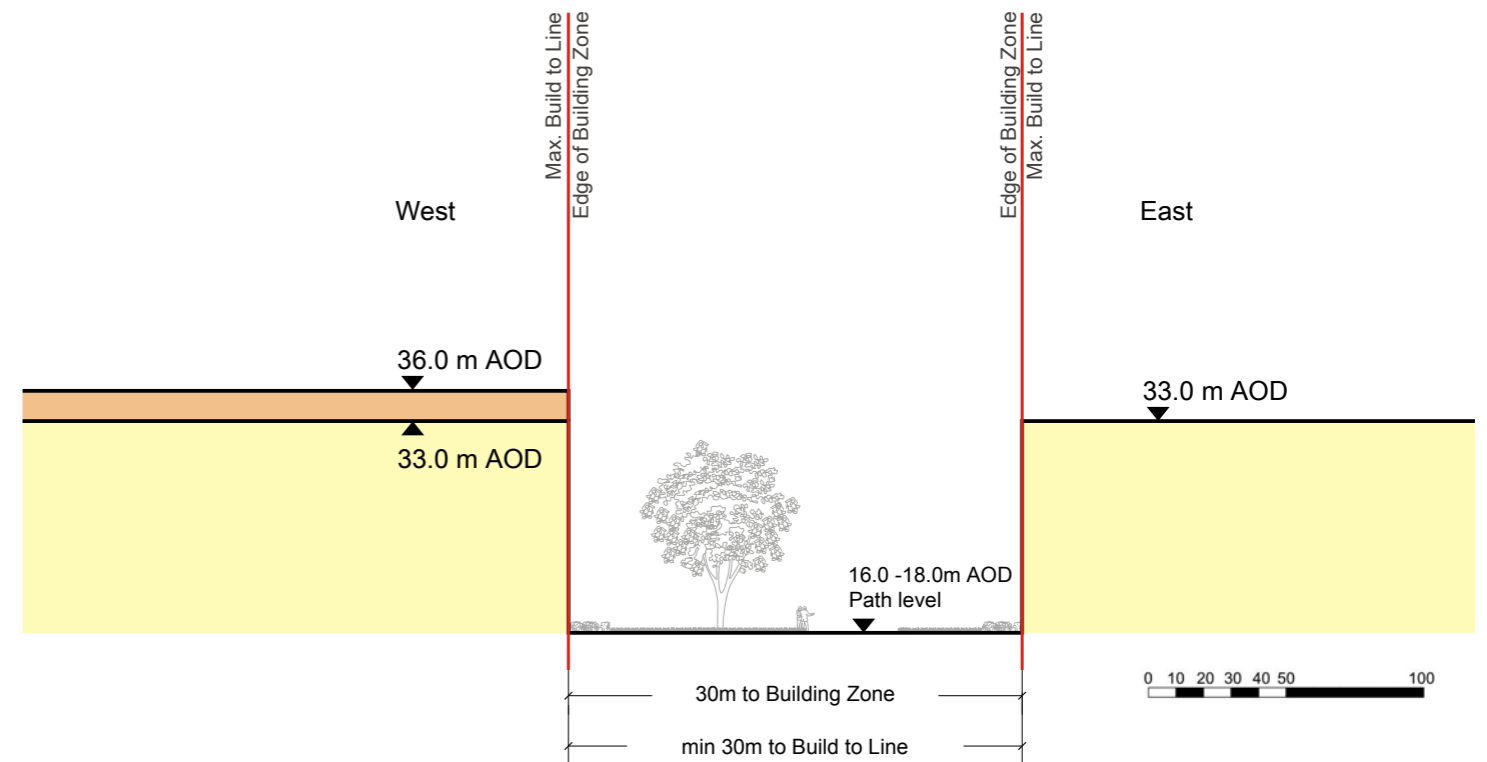
150. Central Green Link Section 1-1 (Parameter Heights 41m AOD)



152. Central Green Link Section 3-3 (Parameter Heights 41m and 38m AOD)



151. Central Green Link Section 2-2 (Parameter Heights 41m AOD)



153. Central Green Link Section 4-4 (Parameter Heights 36m and 33m AOD)

Cycle connections to the north

3.7.8 Junctions and crossing points to the north of the the West Cambridge site have been examined with the aim of maximising pedestrian and cyclist movement across Madingley Road, and ensuring safety and strong connections between the site and surrounding developments and infrastructure.

3.7.9 Madingley Road can present a barrier to accessibility, hence the need to ensure safe and efficient crossings for Pedestrians and Cyclists.

3.7.10 Bringing a new pedestrian and cycle network through the West Cambridge site with strong links across Madingley Road to NWCD will ensure that both sites are strongly connected to the city centre via the Coton Footpath and the proposed Ridgeway.

3.7.11 The key north south pedestrian and cycle routes through the site linking Madingley Road and the Coton Footpath are High Cross, JJ Thomson Avenue, Clerk Maxwell Road and the Western Access/Ada Lovelace Road. As development progresses, these links will be supported with improved crossings on Madingley Road, where found to be necessary.

3.7.12 Within the context of the adopted Adaptive Phased Approach for assessing mitigation for West Cambridge, the University will work with the County Council to deliver quality junctions providing a reasonable balance of capacity for all modes at the appropriate time within the development delivery.

3.7.13 Pedestrian and cyclist controlled crossings exist on Madingley Road:

- at Madingley Road / High Cross junction – where facilities have been improved as part of the NWCD development. This junction will need to be enhanced during the duration of the West Cambridge development;
- at Madingley Rise / JJ Thomson Avenue – where a new at-grade toucan crossing has recently been delivered.

3.7.14 As part of the West Cambridge development, pedestrian and cyclist improvements are proposed at the following crossing points on Madingley Road:

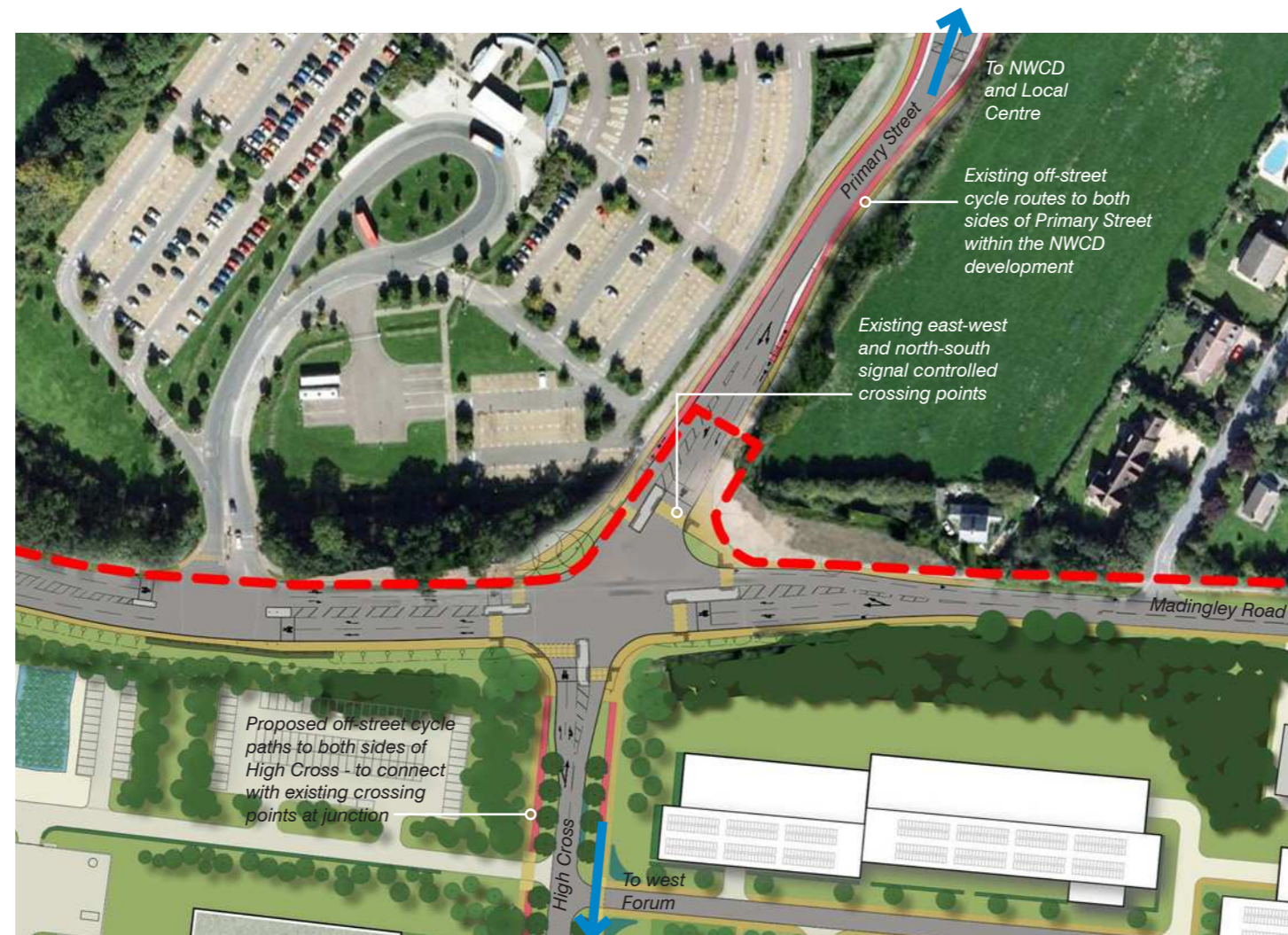
- Observatory Drive / Clerk Maxwell Road – an enhanced uncontrolled, informal crossing with enhanced islands of Madingley Road is proposed;
- at a later phase, a new toucan crossing within the Madingley Road / Western Access Road traffic signal controlled junction.

High Cross

3.7.15 The guidelines that apply to the High Cross junction are as follows:

M

- Existing facilities are considered sufficient during the initial phases of development and shall be retained. The junction provides signalised north-south crossing points across Madingley Road for pedestrian and cyclists which connect to the cycle paths on both sides of the Primary Street within NWCD. The proposed off-street cycle routes along both sides of High Cross shall connect with these existing crossing points;
- This junction should be enhanced in later phases of development to ensure that higher levels of pedestrian and cycle movement can be safely accommodated.



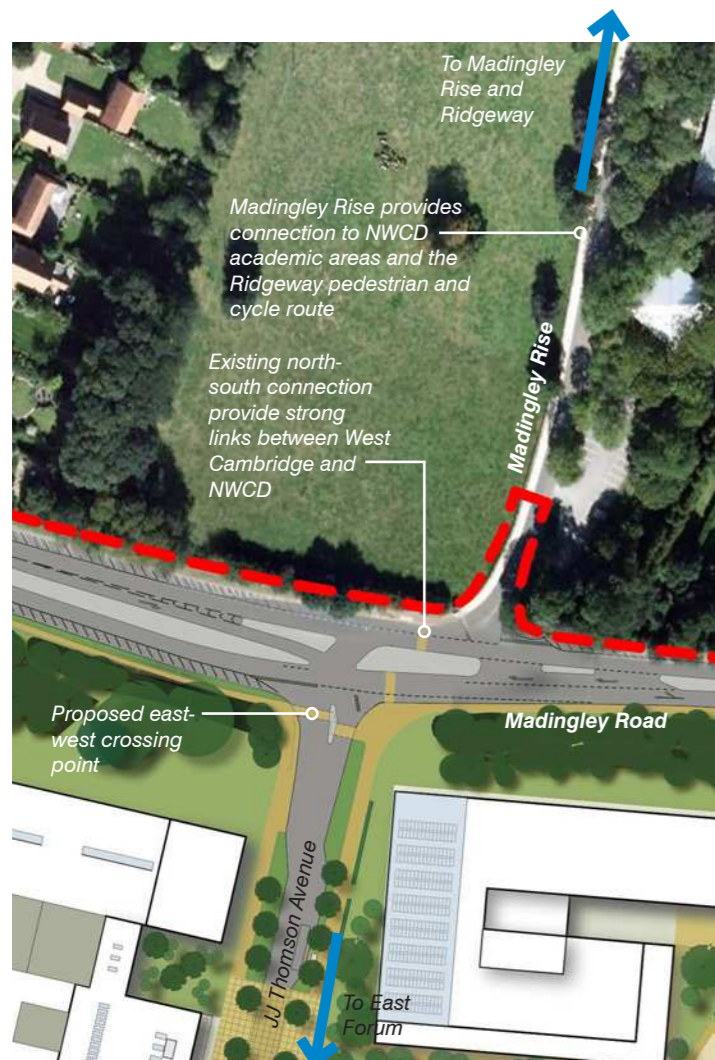
154. Pedestrian & cycle connection across Madingley Road - at High Cross

JJ Thomson Avenue

3.7.16 The guidelines that apply to the JJ Thomson Avenue junction are as follows:

M

- Existing facilities are appropriate and shall be retained. The junction provides a signalised north-south crossing point across Madingley Road for pedestrian and cyclists, ensuring strong connection to Madingley Rise academic uses, NWCD and the proposed Ridgeway cycle route;
- The existing provision shall be enhanced with a new east-west crossing point across JJ Thomson Avenue at the north. This ensures that connections can be made to the proposed shared cycle/footpaths on both side of the street.

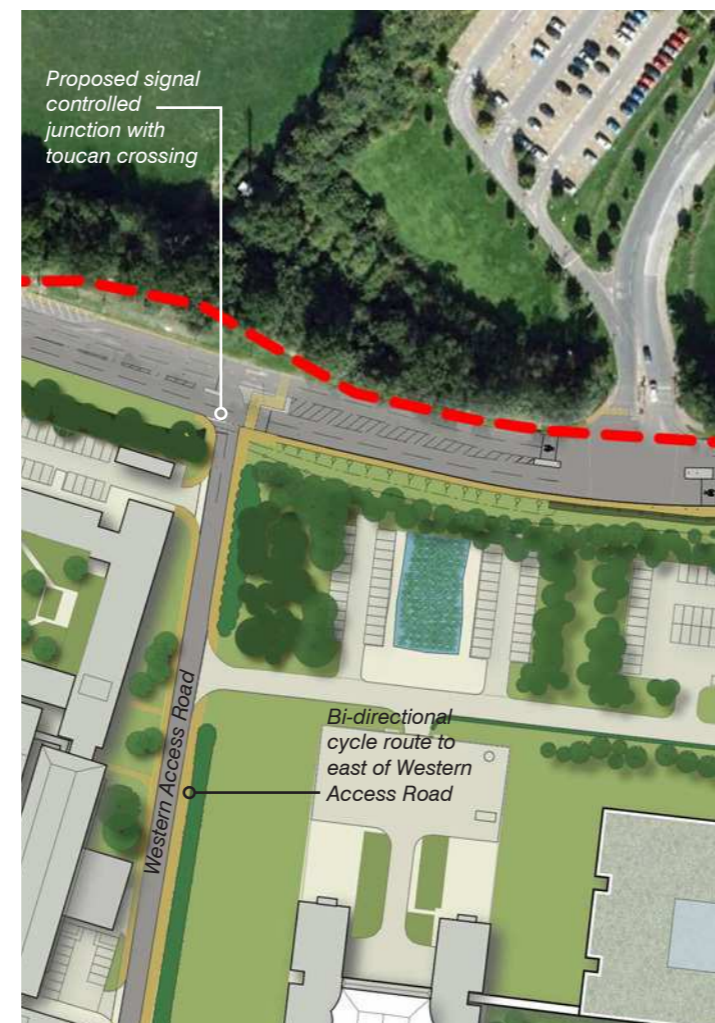


156. Pedestrian & cycle connection across Madingley Road - at JJ Thomson Avenue

Western Access Road

3.7.17 The guidelines that apply to the Western Access Road junction are as follows:

- at a later phase of development, a new toucan crossing should be provided within a new Madingley Road / Western Access Road traffic signal controlled junction. This will connect the bi-directional cycle route along the Western Access Road with the pedestrian and cycle path along the north side of Madingley Road.

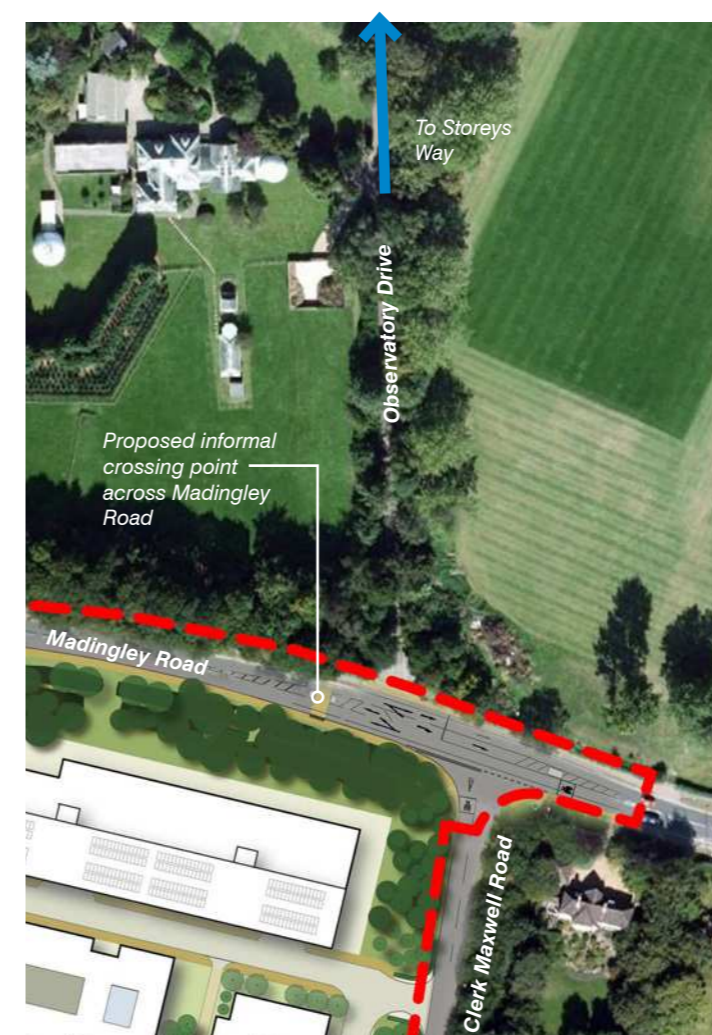


155. Pedestrian & cycle connection across Madingley Road - at Western Access Road

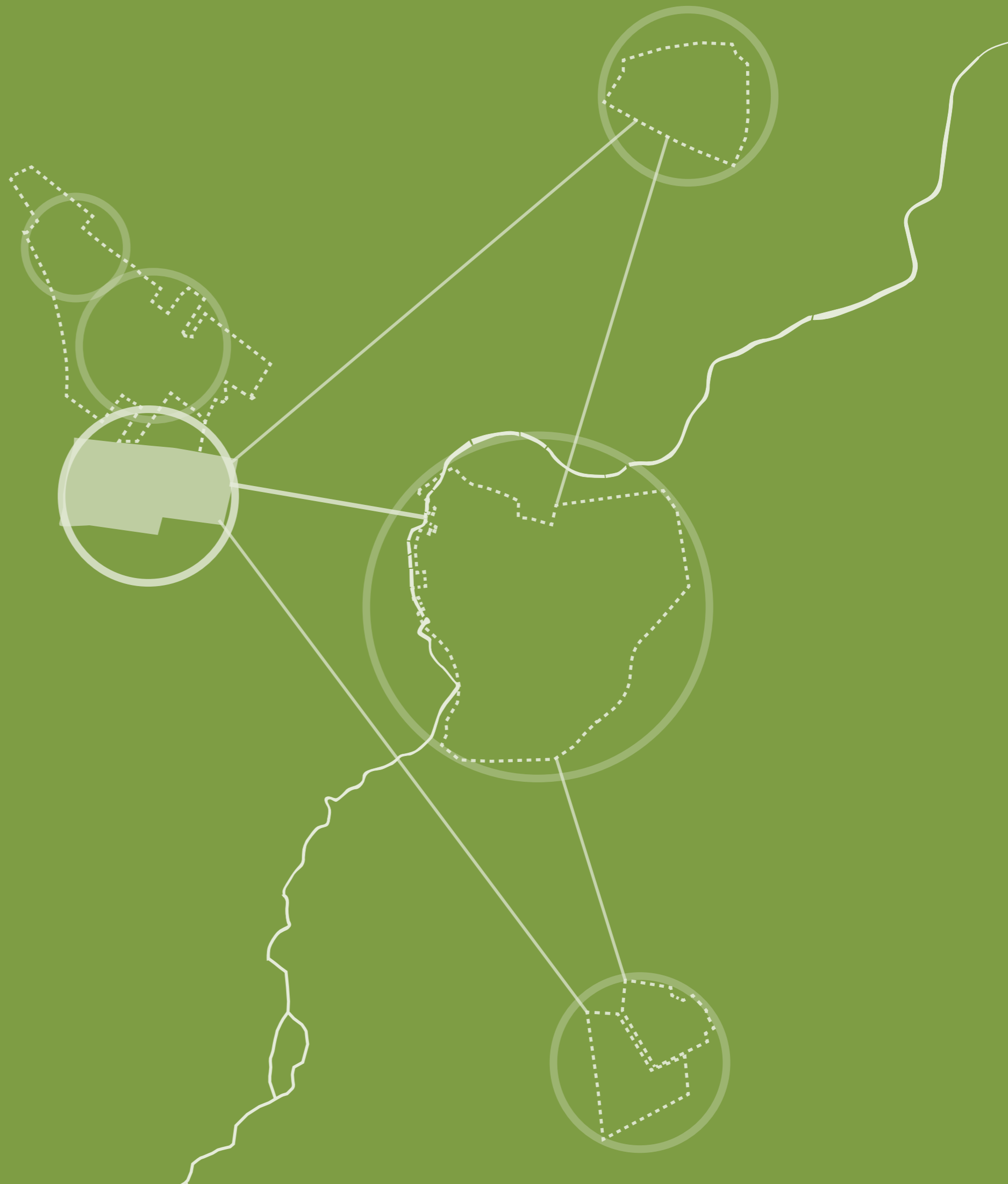
Clerk Maxwell Road

3.7.18 The guidelines that apply to the Clerk Maxwell Road junction are as follows:

- an enhanced uncontrolled, informal crossing with enhanced islands shall be provided. This will ensure strong connections between the Coton Footpath and Observatory Drive via Clerk Maxwell Road.



157. Pedestrian & cycle connection across Madingley Road - at Clerk Maxwell Road



SITE EDGES

04

4. SITE EDGES

4.1. Introduction

4.1.1 With the exception of part of the Southern edge, the West Cambridge site is framed by a significant woodland buffer which contains the site and limits its visibility from the immediate surroundings.

4.1.2 The woodland buffer is an important element of the character of Madingley and Clerk Maxwell Roads, as well as this part of the city, to which the woodlands lend a semi-rural feel.

4.1.3 Along the Western edge, where the site is bordered by the M11 motorway in a cutting, the woodland edge provides a green setting for the site in longer views from the west and also along the bridleway that runs north-south through the woodland.

4.1.4 By contrast, the Southern edge of the site is much more open, only partially framed by woodlands along its western (less developed) part. Upper parts of several existing buildings are visible from distant views, across the agricultural fields to the south. This southern frontage of the development was one of the key elements of the 1999 masterplan: the planned building heights were taller along this edge and a colonnade was proposed to run along the length of the Coton Footpath, establishing a very well defined, distinctive civic frontage.

4.1.5 To the north and east of the site are two Conservation Areas: The Conduit Head Conservation Area and the West Cambridge Conservation Area, each containing a number of listed buildings. The woodland buffer and tree planting at the edge of the site contributes the setting of these areas.

4.1.6 The Guidelines aim to maintain and enhance the green character of the site edges to better visually integrate the development with its surroundings, by controlling development along the edges (height, length and material appearance of buildings), and also by ensuring the site itself retains a green character consistent with this part of Cambridge. The guidelines also aim to provide space and good conditions for additional planting to strengthen boundaries.

4.1.7 The following guidelines apply to all site edges: **M**

- The existing woodland buffers shall be maintained as per Section 1.2 'Retention of Existing Trees' and, where needed, space allowed for supplementary planting. Any additional planting shall follow the objectives set out in the 'West Cambridge Masterplan Woodland Management Plan';
- These design guidelines shall be read in conjunction with the 'West Cambridge Masterplan EIA Arboriculture Impact Assessment Report' and the 'West Cambridge Masterplan Woodland Management Plan' and recommendations shall be implemented;
- Any visible frontages facing onto Madingley Road, the eastern boundary, or the southern boundary (such as at site entrances), shall have a high quality architectural treatment. Generally, the woodland buffer shall be reinforced to limit visibility into the site;
- Where service areas, multi storey car parks and development 'backs' are located along the edges, they shall be screened by the existing woodland buffer, supplemented where necessary with additional planting and sensitively designed;
- Gaps between frontages should be used to break frontage lengths in accordance with Section 1.4 of these Guidelines. Gaps should be appropriately planted, ensuring that some individual trees can grow to maturity;
- Any visible security boundaries and gates to service areas should be of good quality and material and where possible set within planting;
- Limited views into the site should be provided at key gateway points in the north. Two key gateway points should be established on Madingley Road, which provide links across Madingley Road to the North West Cambridge Development and Madingley Rise.



158. West Cambridge - Site edges



159. Madingley Road site edge



160. Southern site edge



161. Clerk Maxwell Road site edge

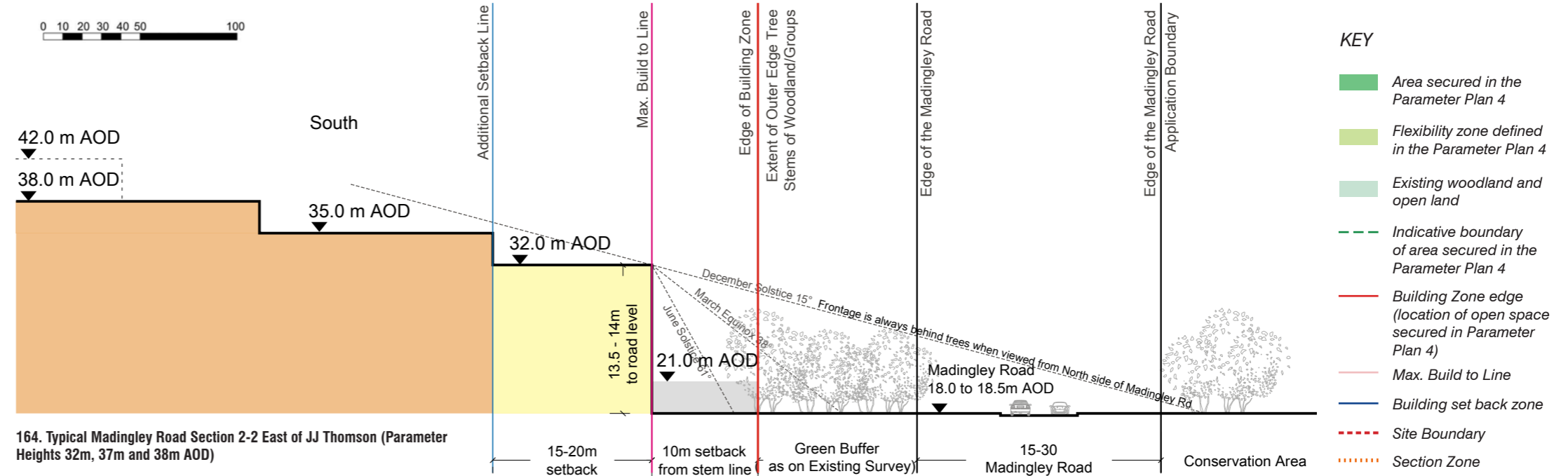
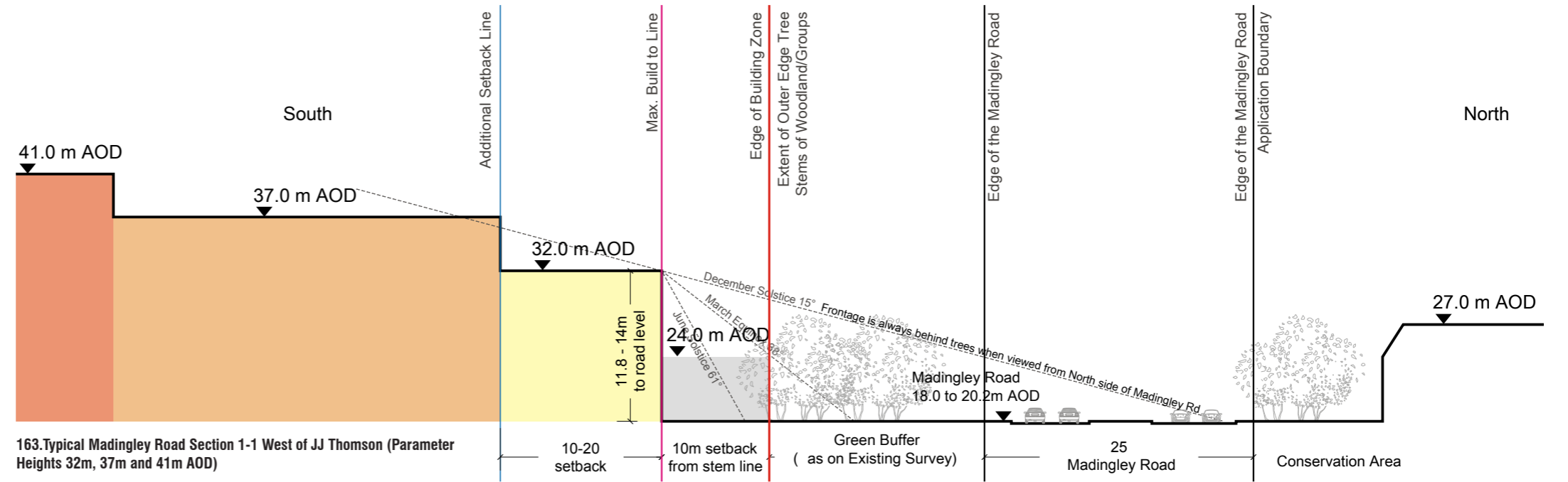


162. Western Woodland edge

4.2. Madingley Road edge

4.2.1 Key guidelines for the Madingley Road site edge are as follows:

- Madingley Road is a key approach road into the city from the west. Development visibility shall be minimised, but any visible development here shall be of high quality to provide an appropriate visual statement which is sensitive to the character of Madingley Road;
- The buffer along the Madingley Road edge shall serve as a screening element for the proposed development. The buffer shall be supplemented where needed, as set out in the 'West Cambridge Masterplan Woodland Management Plan'



- KEY**
- Area secured in the Parameter Plan 4
 - Flexibility zone defined in the Parameter Plan 4
 - Existing woodland and open land
 - - - Indicative boundary of area secured in the Parameter Plan 4
 - Building Zone edge (location of open space secured in Parameter Plan 4)
 - Max. Build to Line
 - Building set back zone
 - - - Site Boundary
 - Section Zone

Frontage heights and development zone

4.2.2 Max AOD heights are established in Parameter Plan 5 which include rooftop plant but exclude flues. The following guidelines apply to any development along the Madingley Road site edge:

- Rooftop plant shall not be located within the 32m AOD zone;
- Any rooftop plant within 20m of the Southern edge of the woodland buffer shall be effectively screened in views from the north, to reduce any visual impact from Madingley Road;
- Any rooftop plant within the 37m or 41m AOD zones shall be effectively screened in views from the north, to reduce any visual impact from Madingley Road;
- External plant and/or storage structures (on frontage or separate structures) shall be minimised and shall not be visible from the West Cambridge and Conduit Head Road Conservation Areas, or associated listed buildings;
- Frontages longer than 50m shall follow the guidelines set out within Section 1.4, 'Urban Structure'.

Landscape and planting

4.2.3 Key guidelines for landscape and planting for the Madingley Road edge are as follows:

- Any gaps or setbacks in development frontages shall contain landscape planting and greenery to soften the development edge.



165. Development Zones and additional height restrictions along Madingley Road

4.3. Southern edge

4.3.1 Along the southern edge, the goal will be to minimise the visual impact of the proposed development from long distance views and provide a better micro-climate in the open spaces, particularly related to reducing glare from the sun and exposure to wind.

Frontage heights and development zones

4.3.2 Max AOD heights are established in Parameter Plan 05 which include rooftop plant, but exclude flues. The following guidelines apply to development along the Southern edge:

- Along the Southern edge additional height restrictions and setbacks apply, as shown in Figures 166 and 167 - frontages adjacent to the southern boundary shall not exceed 31m AOD;
- Rooftop plant shall be set back from the Southern Building Zone edge and there shall be effective screening of all rooftop plant, when viewed from the south;
- Frontages facing the southern landscape shall have a high quality architectural treatment and materials. Materials and facade design shall respond to this south facing location, and ensure that spaces within and outside of buildings are comfortable and fit for purpose;
- PV's, Green/Blue or Brown roofs should be considered on both roofs and/or south facing frontages and should be well integrated within the facade design and located to avoid visual impact;
- New development frontage should be built to the Building Zone edge but partial setbacks may be provided in order to facilitate diversity of edge conditions and a variable

width of landscaped zone adjacent to the Southern Ecological Corridor.

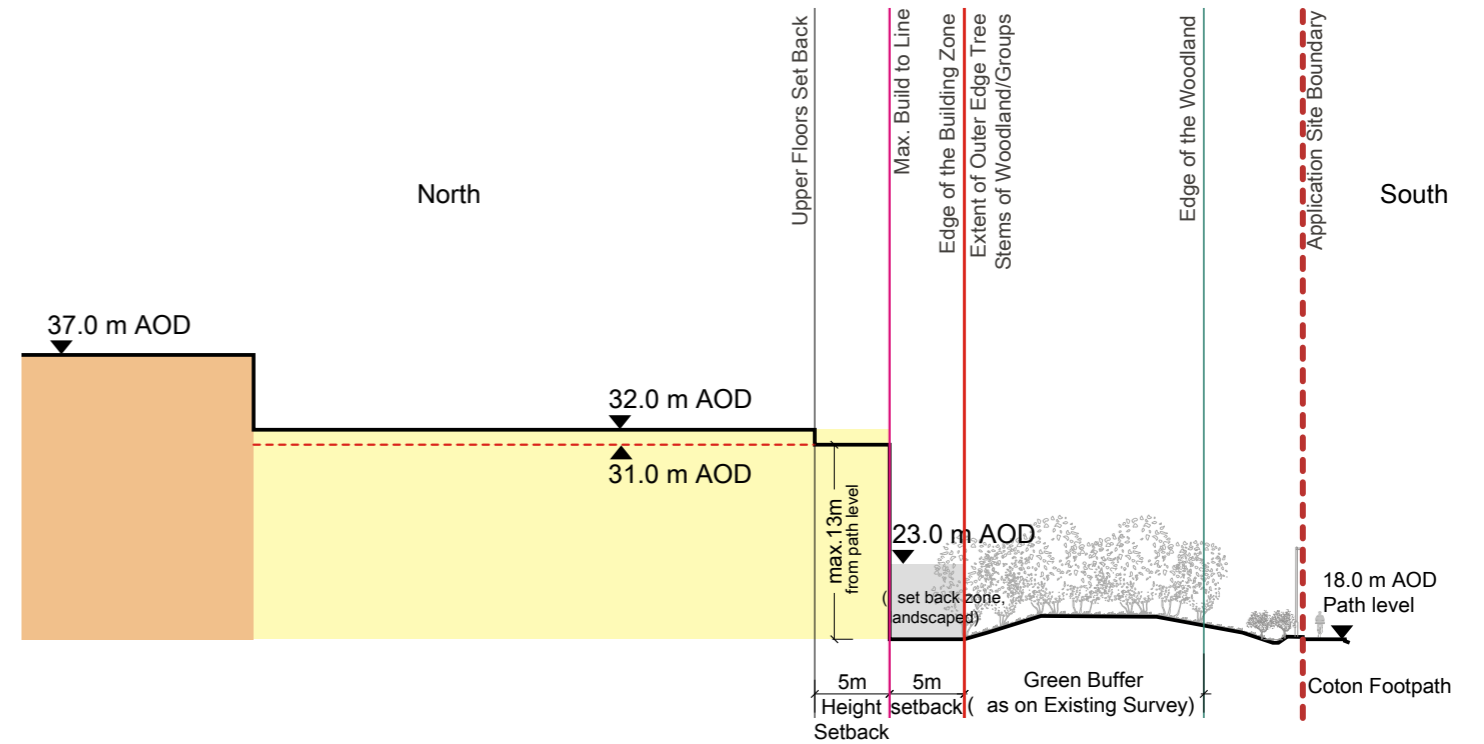
Landscape and planting

4.3.3 Key guidelines for landscape and planting for the Southern edge are as follows:

- A 5m landscaped setback zone between max. build to line and woodland buffer shall be established in accordance with the 'West Cambridge Masterplan Woodland Management Plan' and Parameter Plan 04;
- Existing planting shall be protected and enhanced to increase bio-diversity and include a range of appropriate habitats. In addition planting shall seek to establish 'Biodiversity Corridors' and improve links into the wider countryside and other areas of publicly accessible open space such as the Coton Countryside Reserve and the City Wildlife Site;
- The existing green buffer to the Southern edge in the west shall be retained and reinforced to create a visual sense of enclosure for West Forum and West Lake;
- Large feature tree planting shall be provided at a minimum of 5 key locations. Where these trees are planted they shall be given the proper environmental conditions and space to grow to maturity and shall be provided with a 15m buffer, in accordance with the Woodland Management Plan;
- New landscape areas (including pocket landscapes and setback zones) should be planted without barriers such as fences and should visibly link to the adjoining Southern Ecological Corridor and/or woodland buffer.



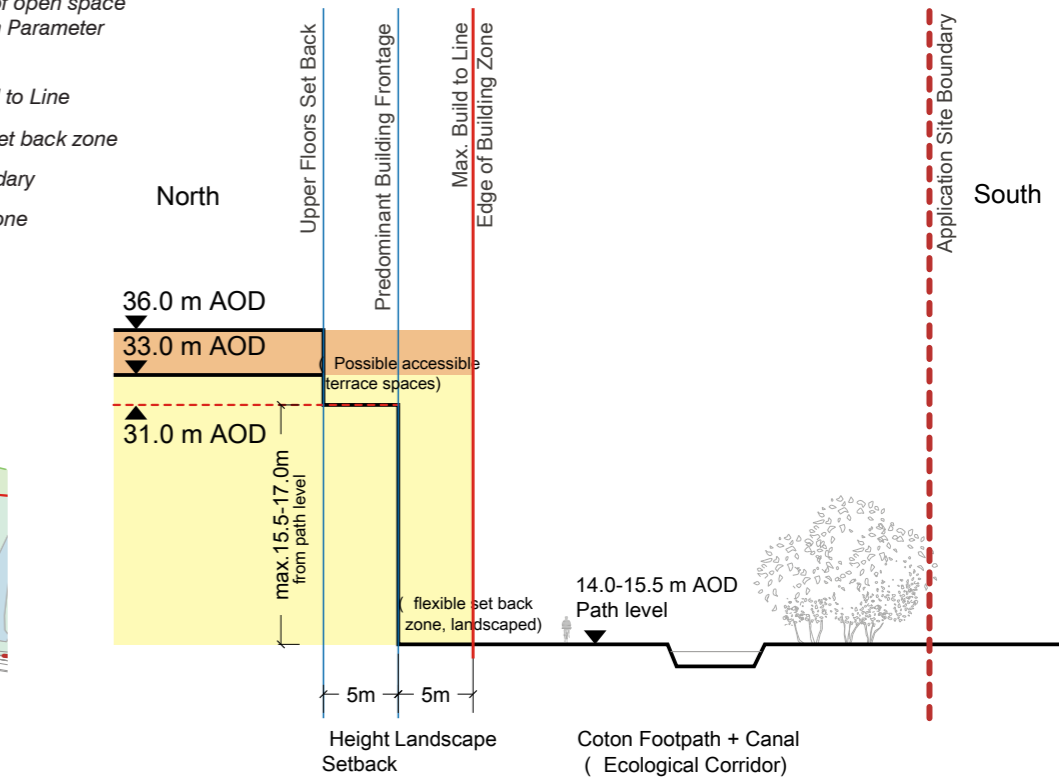
168. Development Zones and additional height restrictions along the Southern edge



166. Coton Footpath Section 2-2 West (Green Belt edge) (Parameter Heights 32m and 37m AOD)

KEY

- Area secured in the Parameter Plan 4
- Flexibility zone defined in the Parameter Plan 4
- Existing woodland and open land
- Indicative boundary of area secured in the Parameter Plan 4
- Building Zone edge (location of open space secured in Parameter Plan 4)
- Max. Build to Line
- Building set back zone
- Site Boundary
- Section Zone



167. Coton Footpath Section 1-1 East (Green Belt edge) (Parameter Heights 33m and 36m AOD)

4.4. Clerk Maxwell Road edge

4.4.1 The aim of the height restrictions along Clerk Maxwell Road is to ensure that development does not impact on the character of the road and the amenity of adjacent residential properties. Maximum development heights step down along this edge to ensure that development is effectively screened by the existing woodland buffer and bund.

Frontage heights and development zone

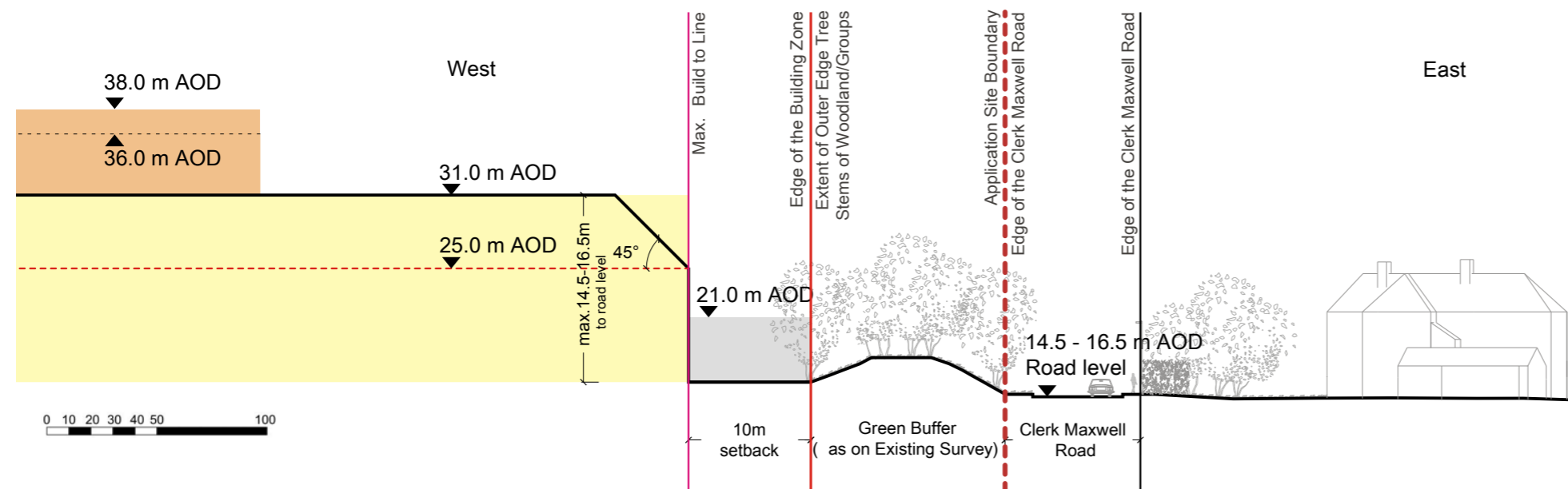
4.4.2 Max AOD heights are established in Parameter Plan 05 which include rooftop plant, but exclude flues. The following guidelines apply to development along the Clerk Maxwell Road edge:

- The development frontages along the eastern edge shall not exceed the set Parameter Height of 31m AOD;
- At the eastern edge of the Building Zone the built form shall comply with an additional height restriction of 25m AOD. From this line, the development heights shall remain within envelope rising by 45° angle to the parameter height of 31m AOD;
- Rooftop plant shall be set back from the predominant building line or effectively screened.

Landscape and planting

4.4.3 Key guidelines for landscape and planting for the Clerk Maxwell Road edge are as follows:

- The existing woodland buffer shall be maintained as per Section 1.2 'Retention of Existing Trees' and, where needed, space allowed for supplementary planting. Any additional planting shall follow the objectives set out in the 'West Cambridge Masterplan Woodland Management Plan';
- A 10m landscaped setback zone between max. build to line and woodland buffer shall be established in accordance with the 'West Cambridge Masterplan Woodland Management Plan' and Parameter Plan 04;
- Any additional access points along Clerk Maxwell Road shall be located to minimise tree loss and in accordance with Parameter Plan 03 and the Parameter Statement.



169. Clerk Maxwell Road Section 1-1 (Parameter Heights 38m, 36m and 31m AOD)

KEY

- Area secured in the Parameter Plan 4
- Flexibility zone defined in the Parameter Plan 4
- Existing woodland and open land
- - - Indicative boundary of area secured in the Parameter Plan 4
- Building Zone edge (location of open space secured in Parameter Plan 4)
- Max. Build to Line
- Building set back zone
- - - Site Boundary
- - - Section Zone



170. Development Zones and additional height restrictions along Clerk Maxwell Road

4.5. Western Woodland edge

4.5.1 The Western Woodland edge will remain a strong landscape buffer between the development and M11.

4.5.2 Key guidelines for the Madingley Road site edge are as follows:

M

- Any new development on this edge will need to be set sensitively within this landscape and shall follow the recommendations set out in 'West Cambridge Woodland Management Plan'.

Frontage heights and development zone

4.5.3 Max AOD heights are established in Parameter Plan 05 which include rooftop plant, but exclude flues. Development zones and heights for these areas are set in the Parameter Plans. No further height restrictions are proposed. The following guidelines apply to development along the Western Woodland edge:

- Rooftop plant should be screened and/or grouped to avoid visual clutter in distant views.

Landscape and planting

4.5.4 Key guidelines for landscape and planting for the Western Woodland edge are as follows:

M

- Any new landscaped gaps between buildings shall be a minimum of 20m from building face to building face;

- This woodland should contribute further to the character of this part the site, for example by allowing woodland planting to extend towards the Western Access / Ada Lovelace Road. This will allow the woodland character to be more visually apparent within the site.



171. Western woodland edge



172. Western woodland edge



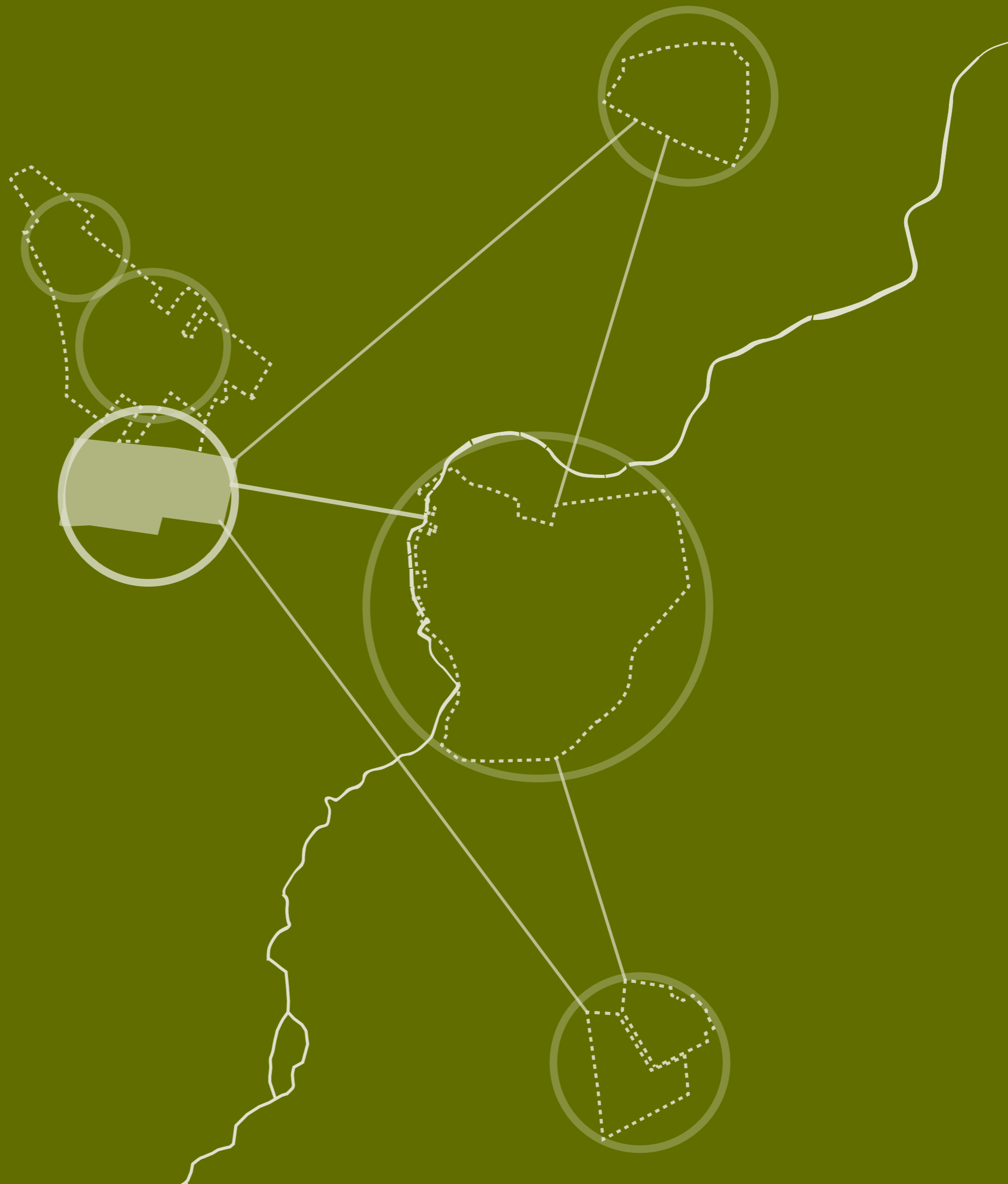
173. Western woodland edge



174. Western woodland edge - Public right of way



175. West Cambridge Illustrative Masterplan - view of the West Forum (West Lake)



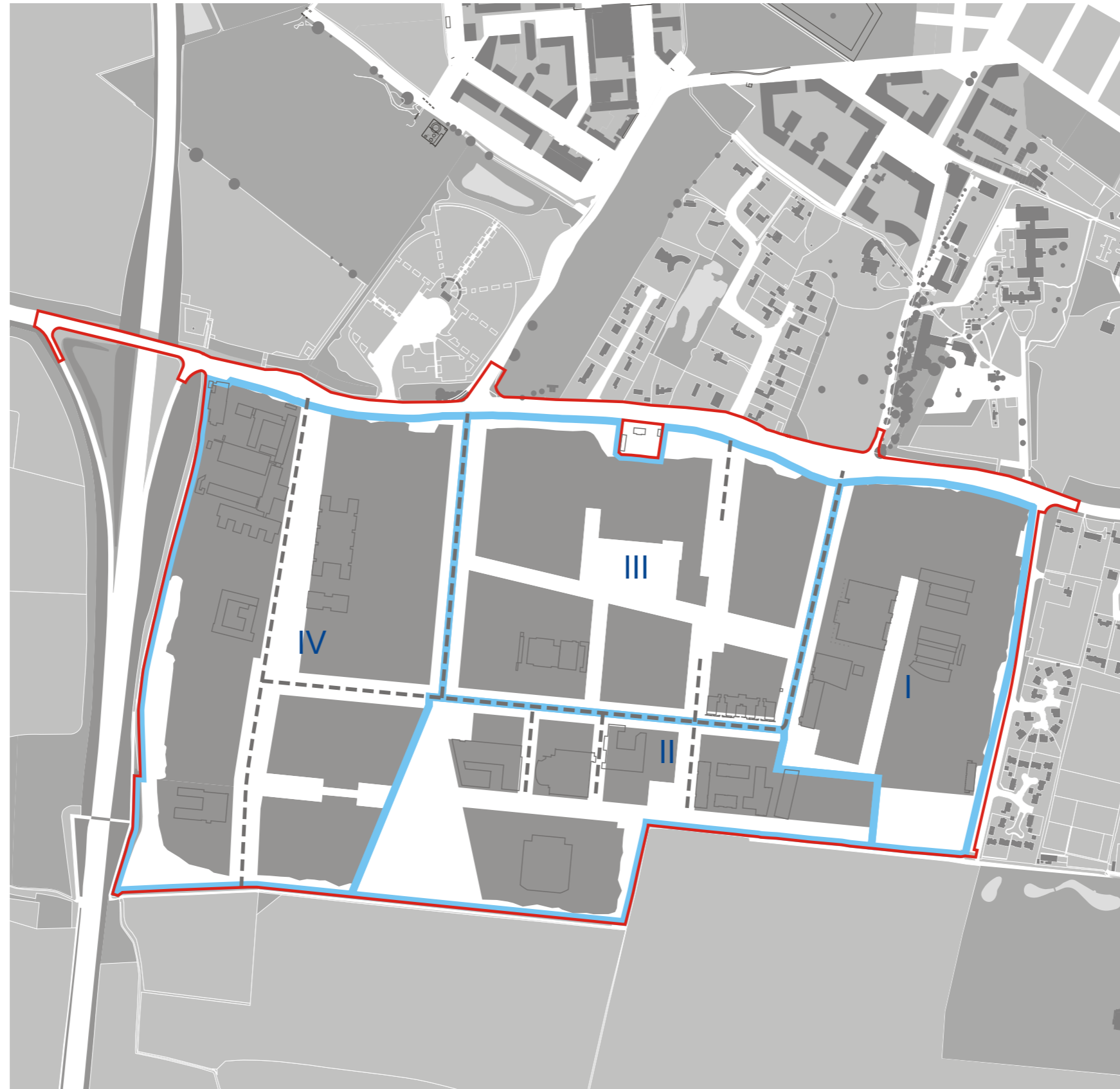
APPENDICES

05

5. APPENDICES

5.1. Parameter Plans

Parameter Plan 1: Development Building Zones



KEY

Contextual Information:

- Existing street
- Existing building to be retained

For Approval:

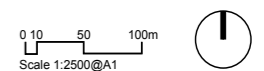
- Application site boundary
- Development zones
- Building zones

All information other than that identified as being for approval is shown for contextual purposes only.

West Cambridge

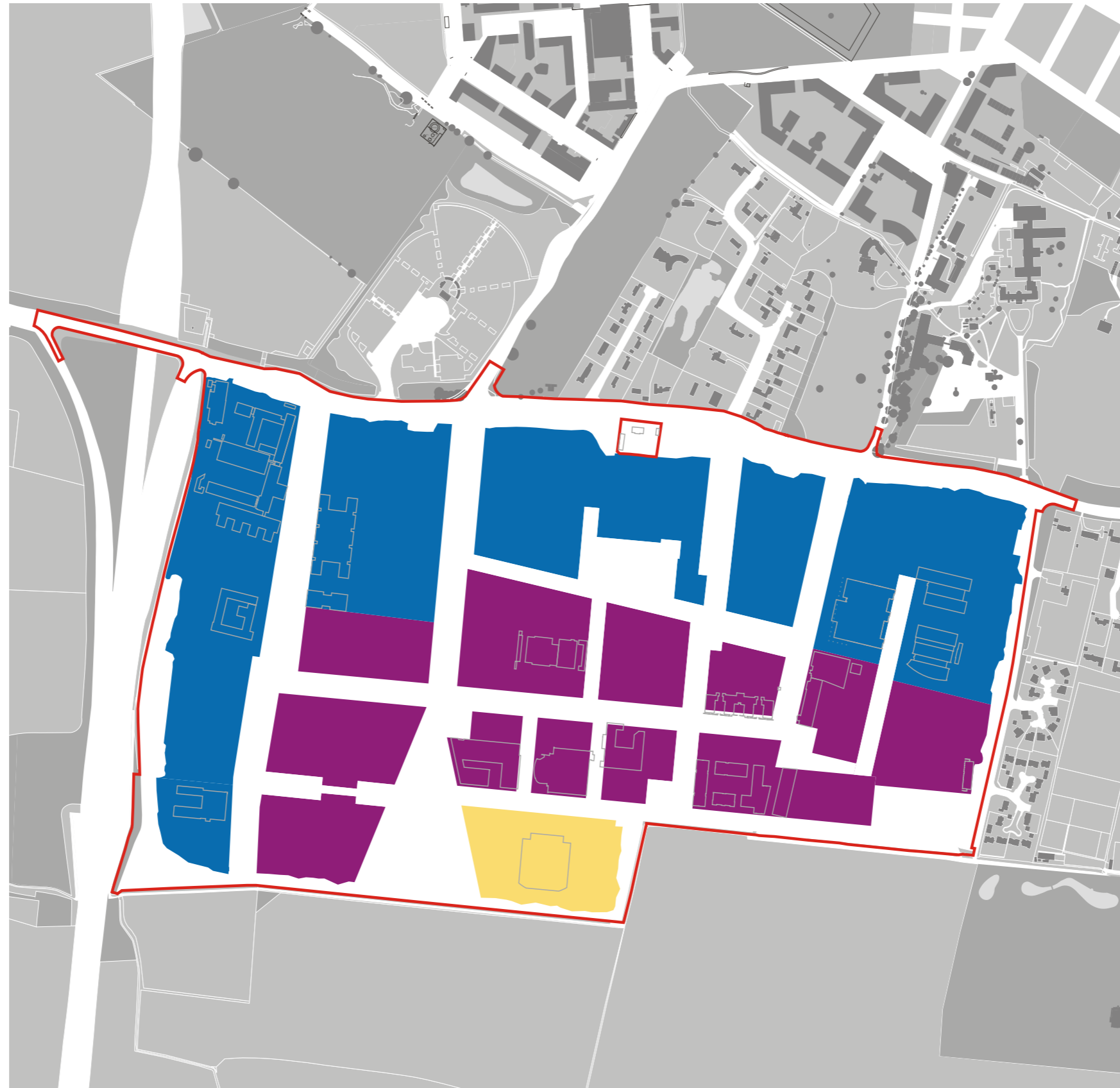
WC/OPA/PAR/01/REV01
- Development Building Zones Parameter Plan

August 2017



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Parameter Plan 2: Land Use



KEY

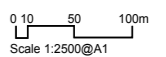
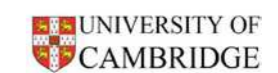
- For Approval:
- Application site boundary
 - Academic & Commercial Mix: D1, B1b, sui generis
 - Mixed Use Zone: A1-A5, B1b, D1
 - Community Uses: D1, D2

All information other than that identified as being for approval is shown for contextual purposes only.

West Cambridge

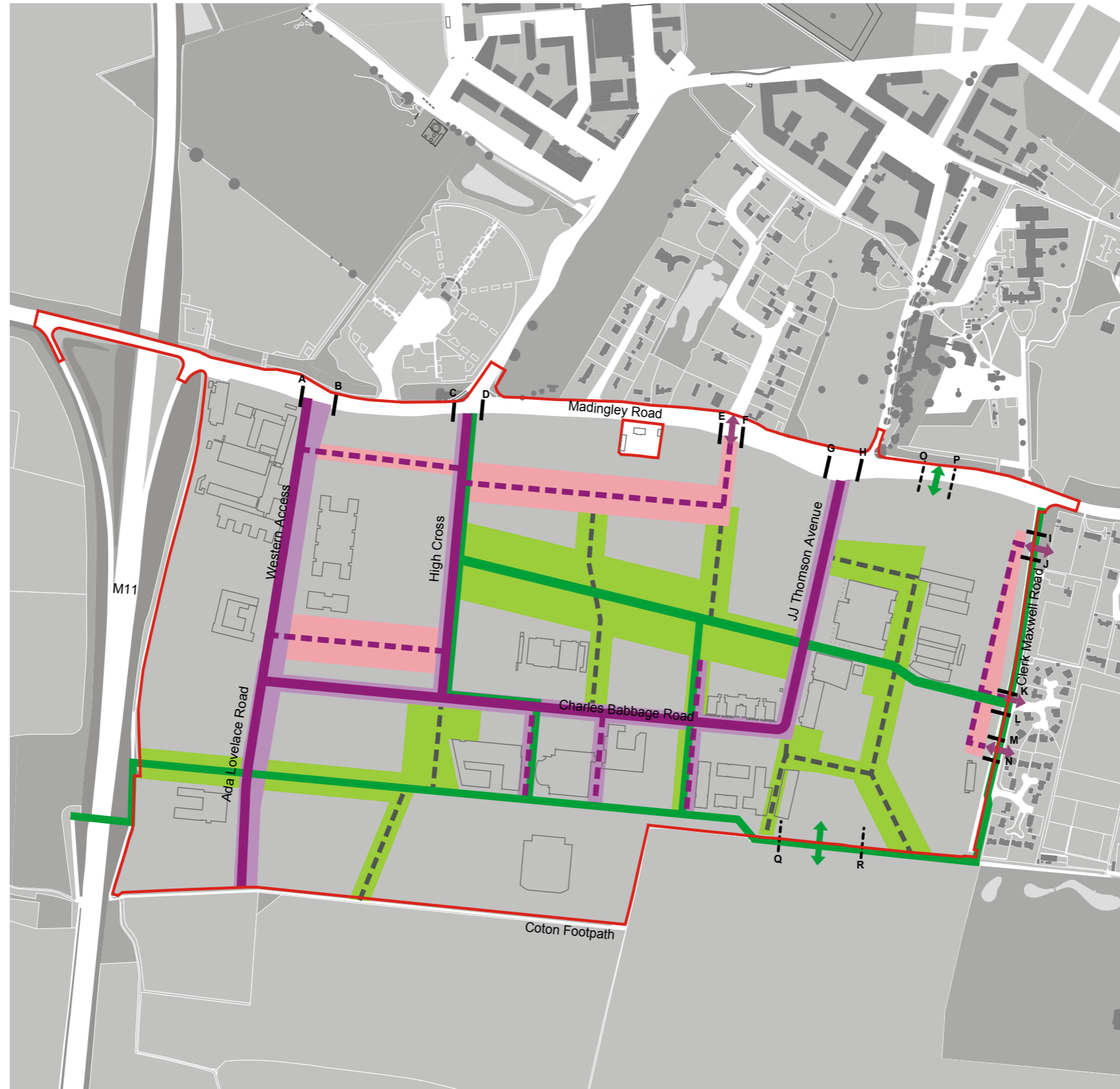
WC/OPA/PAR/02/REV01
- Land Use Parameter Plan

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Parameter Plan 3: Access and Movement



KEY

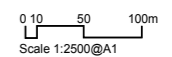
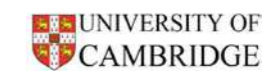
- Contextual Information:**
- Primary street
 - Secondary street
 - Primary pedestrian/cycle route
 - Secondary pedestrian/cycle route
- For Approval:**
- Application site boundary
 - Intervention zone for street
 - Flexible zone for street
 - Secondary Vehicular access/egress points
 - Secondary Vehicular egress only
 - Secondary pedestrian and cycle only access/egress points
 - Flexible zone for pedestrian and cycle routes
 - A** **B** Zones of access points
 - O** **P** General access points for pedestrians and cyclists

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West Cambridge

WC/OPA/PAR/03/REV01
- Access and Movement Parameter Plan

August 2017



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Parameter Plan 4: Landscape and Public Realm



KEY

Contextual Information:

- Existing street/ Pedestrian link
- Existing retained open land
- Retention & Reinforcement of existing woodland edge
- Water Bodies
- Canal / swale

For Approval:

- Application site boundary

Primary landscape and public realm:

- East Forum (Mandatory location)
- West Forum (Mandatory location)
- The Green (Mandatory location)
- The Green minimum area - indicative location
- Secondary landscape and public realm (Mandatory location)
- Additional Secondary landscape and public realm (Indicative boundary)
- Street landscape areas (Mandatory location)
- Flexible zone for landscape and public realm
- Woodland buffer zones

All information other than that identified as being for approval is shown for contextual purposes only.

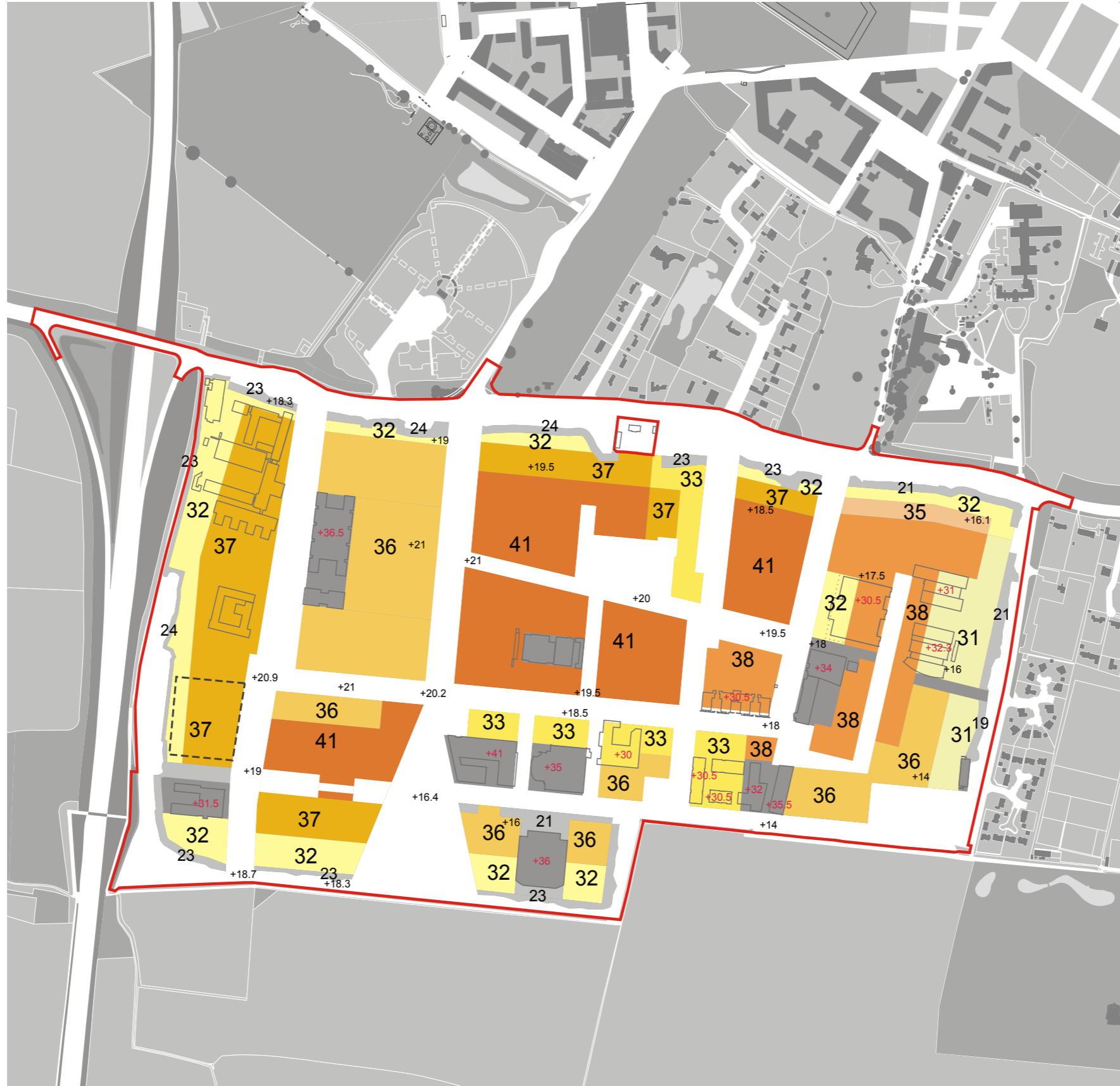
West Cambridge
WC/OPA/PAR/04/REV01
 - Landscape and Public Realm Parameter Plan
 August 2017

UNIVERSITY OF CAMBRIDGE

Scale 1:2500@A1

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Parameter Plan 5: Maximum Building Heights



KEY

Contextual Information:

- +18 Sample ground level spot height AOD
- +18 Existing building height AOD
- Existing Building
- Area within Building Zone where built development is not proposed

For Approval:

- Application site boundary

Maximum building heights

- 31.0 metres AOD
- 32.0 metres AOD
- 33.0 metres AOD
- 35.0 metres AOD
- 36.0 metres AOD
- 37.0 metres AOD
- 38.0 metres AOD
- 41.0 metres AOD

Buffer zones with restricted development (max.AOD height specified on plan)

zone for location of energy centre flue

Building heights include roof plant rooms but exclude exhaust flues.

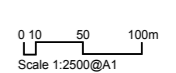
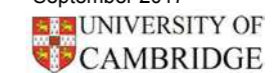
Maximum height of flues to be no more than 8m above maximum building heights.

All information other than that identified as being for approval is shown for contextual purposes only.

West Cambridge

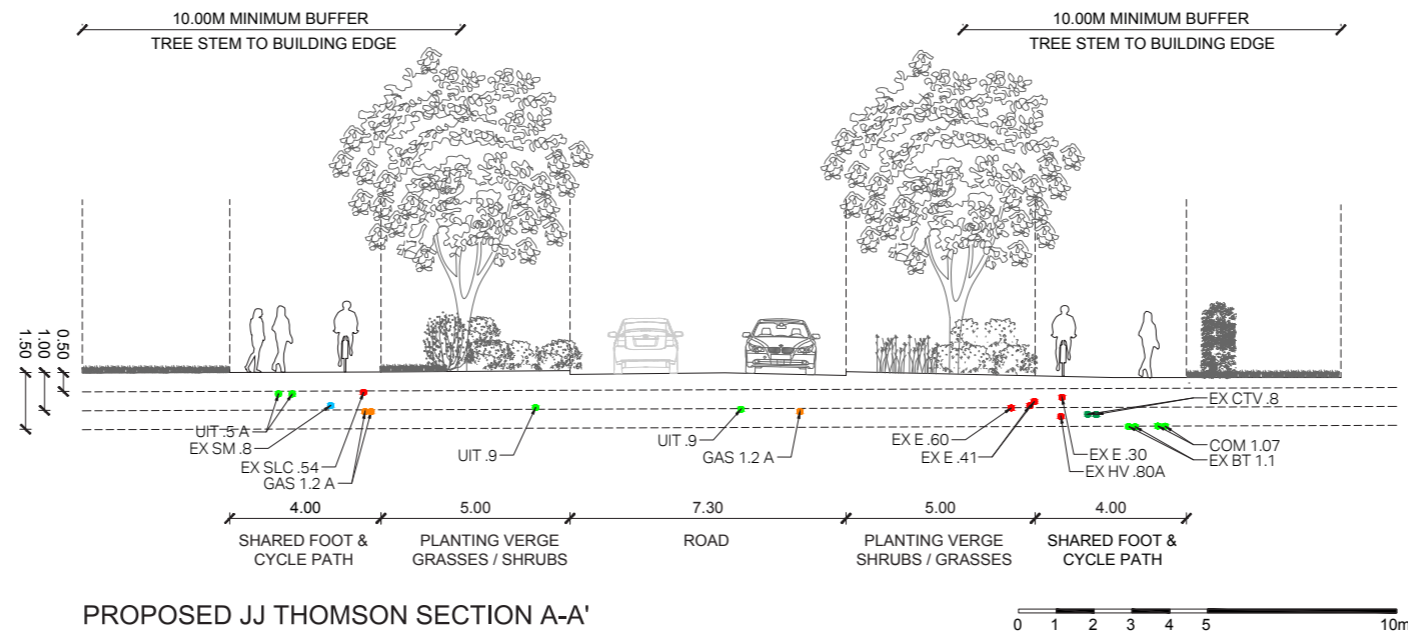
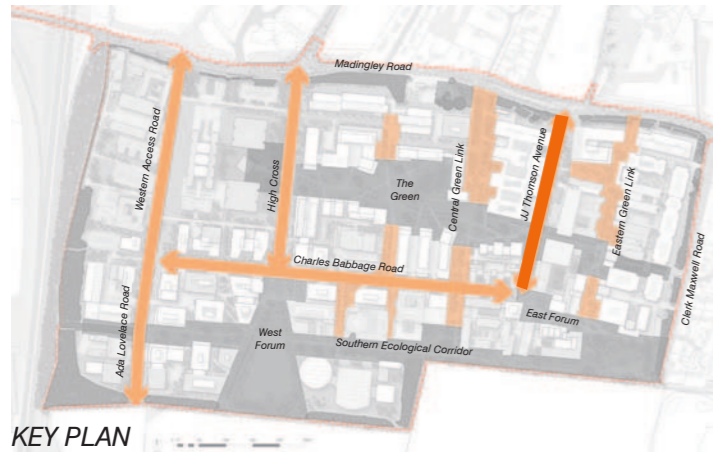
WC/OPA/PAR/05/REV01
- Maximum Building Heights Parameter Plan

September 2017



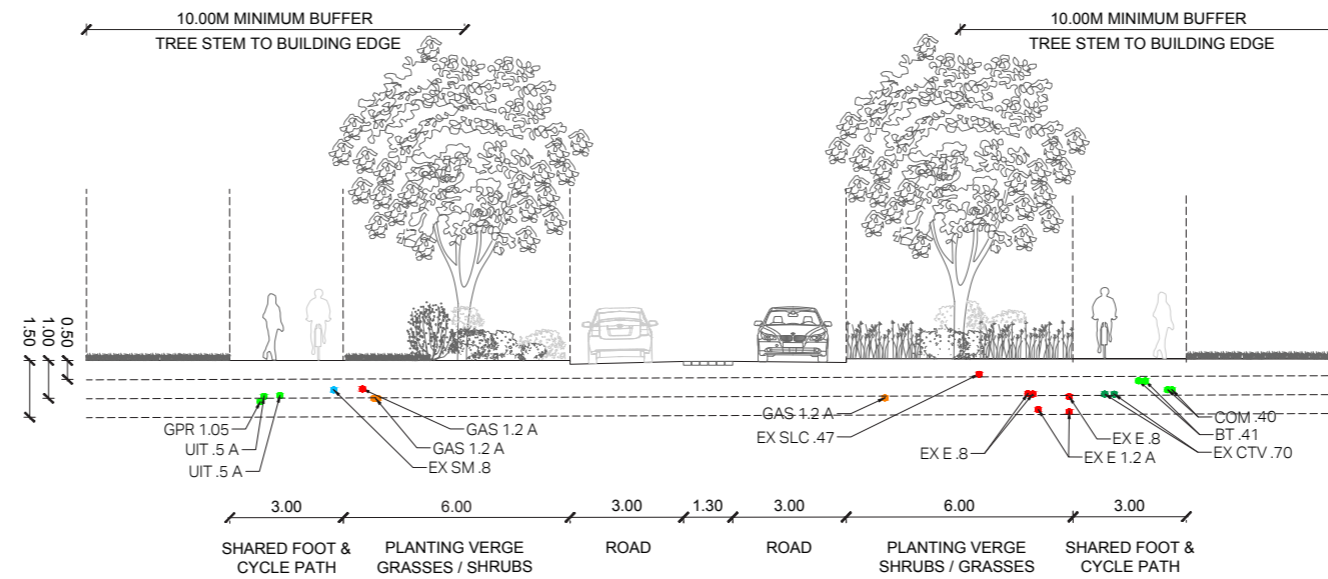
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JJ Thomson Avenue: Utilities

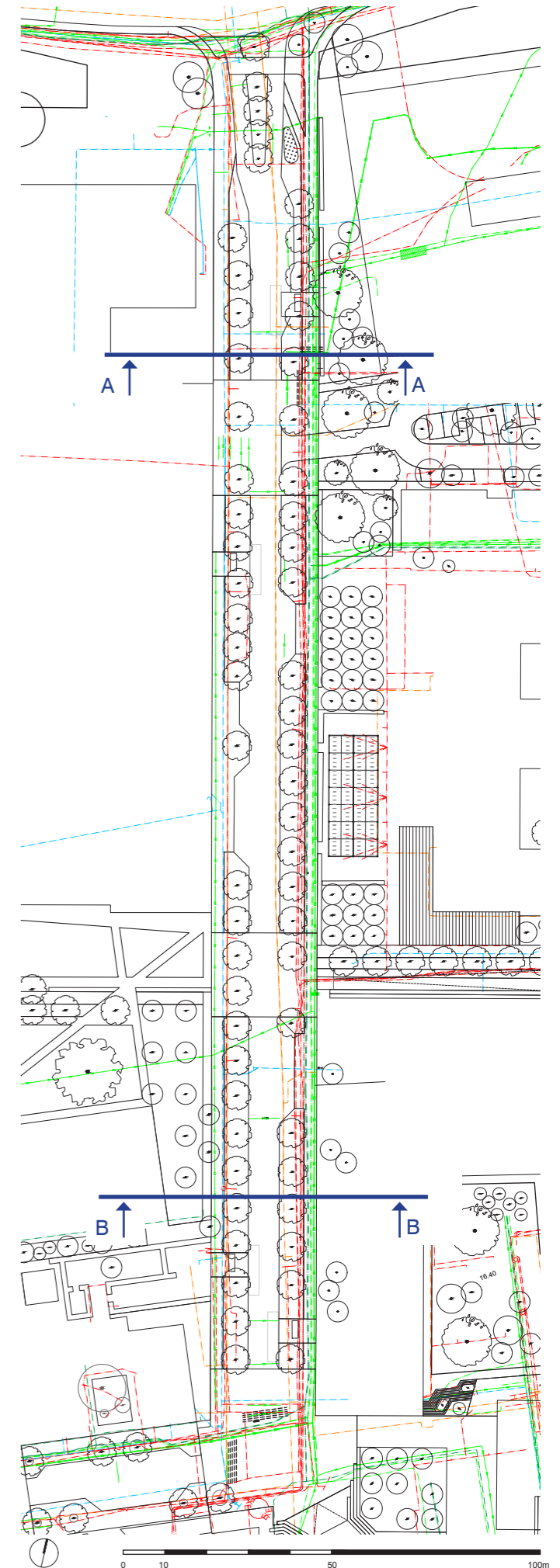


179. Proposed JJ Thomson Avenue Section A-A' (with existing utility overlay, subject to detailed design)

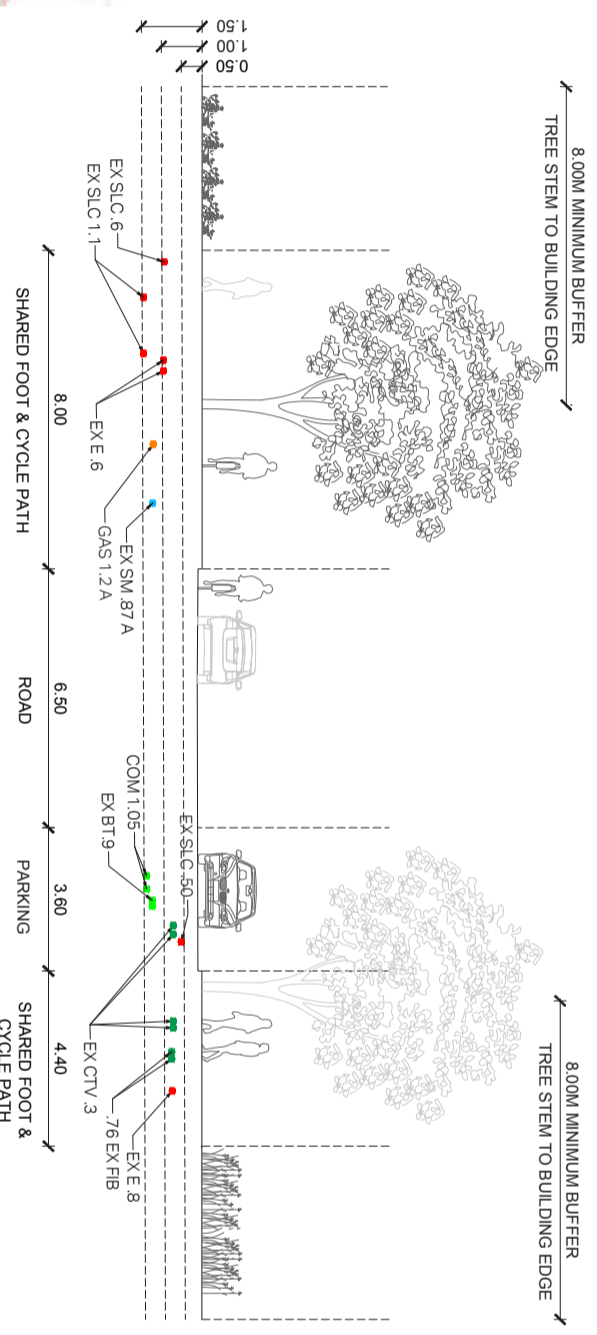
- UTILITIES KEY**
- BT CABLES
 - COMMUNICATIONS CABLES
 - CABLE TV CABLES
 - ELECTRICAL CABLES
 - FIBREOPTIC CABLES
 - GAS MAIN
 - GAS SERVICE
 - GPR TRACE
 - HOT WATER PIPE
 - LIGHTING CIRCUIT
 - SECURITY CABLING
 - UNIDENTIFIED TRACE
 - WATER MAIN
 - WATER SERVICE



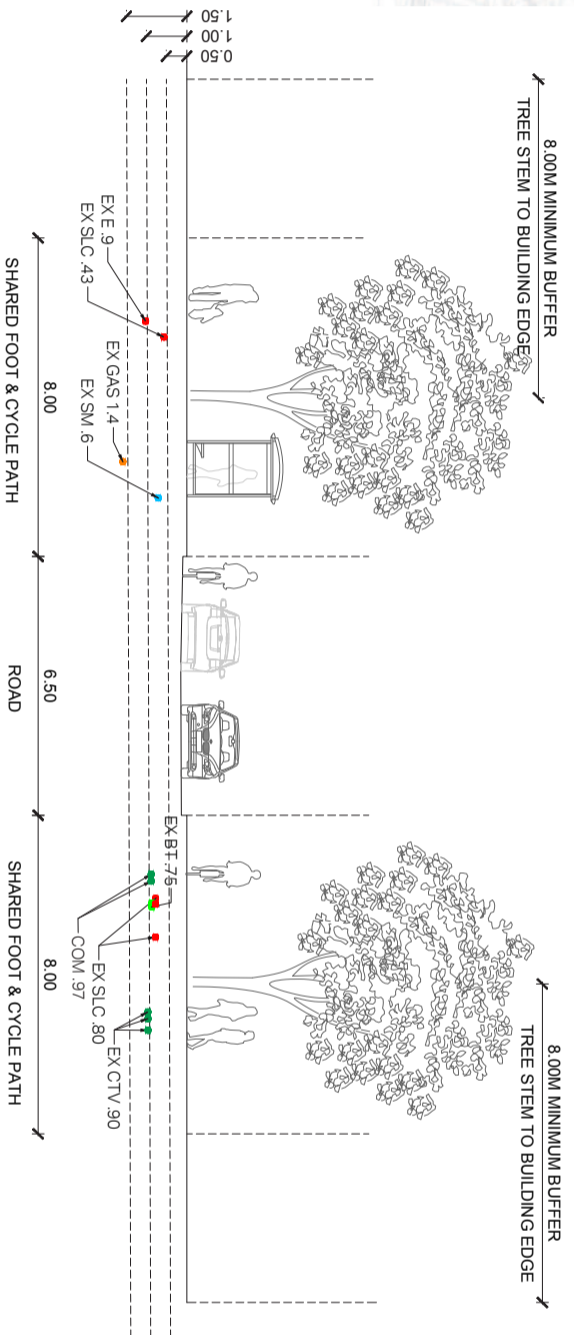
180. Proposed JJ Thomson Avenue Section 'B-B' (with existing utility overlay, subject to detailed design)



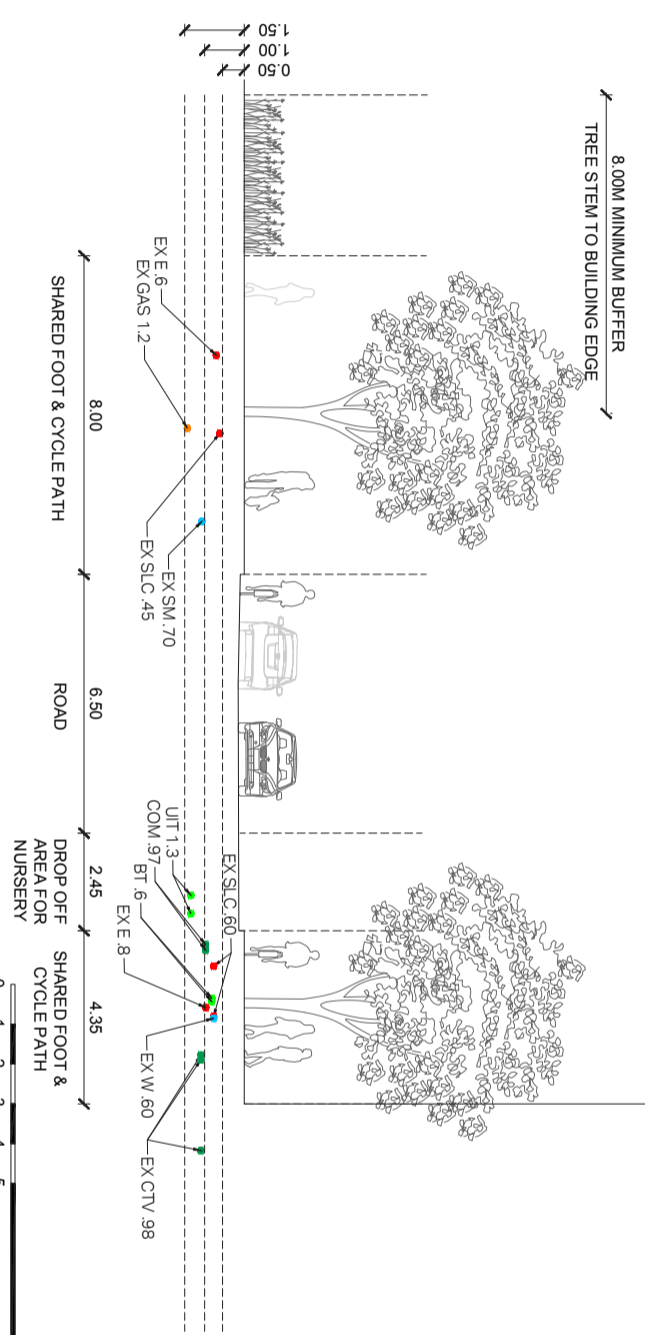
Charles Babbage Road: Utilities



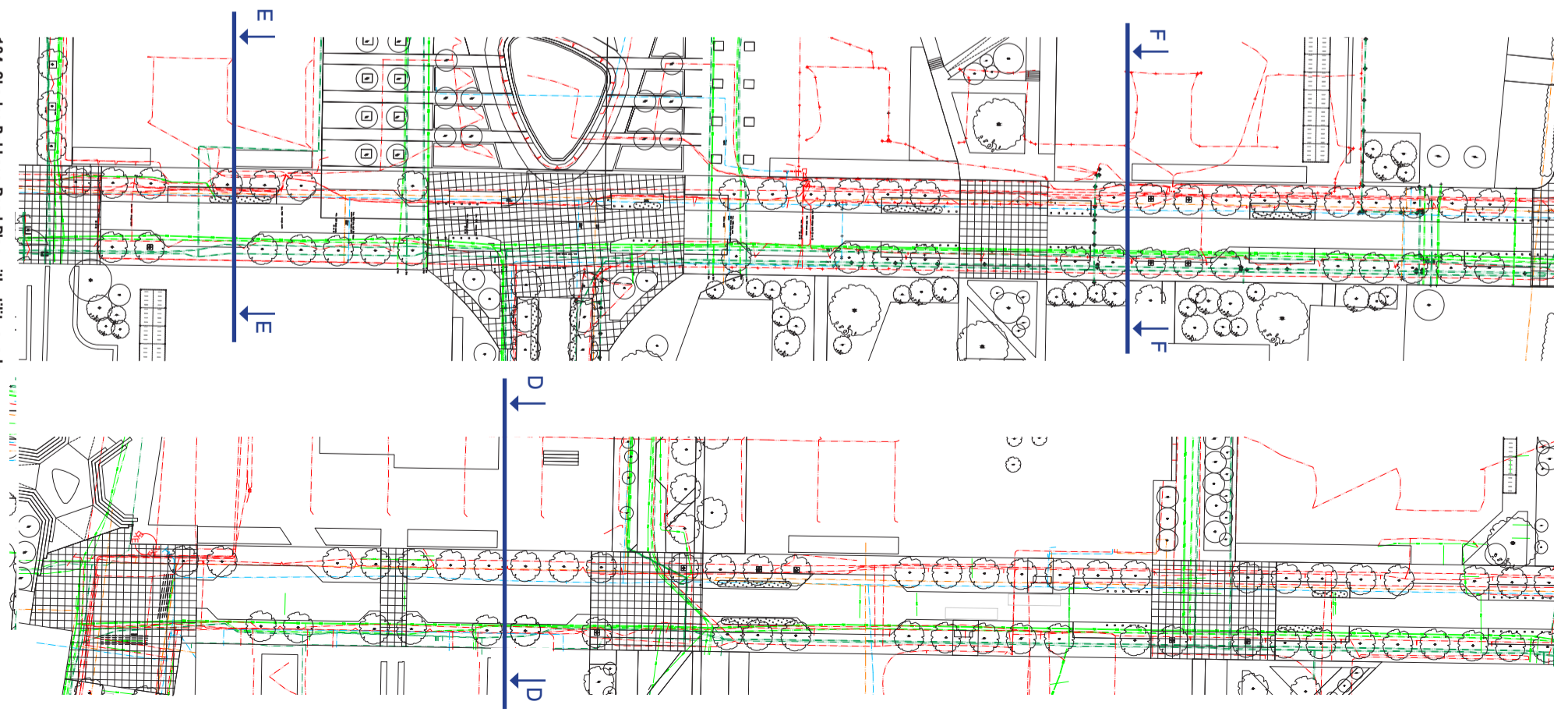
183. Proposed Charles Babbage Road Section D-D' (with existing utility overlay, subject to detailed design)



181. Proposed Charles Babbage Road Section E-E' (with existing utility overlay, subject to detailed design)



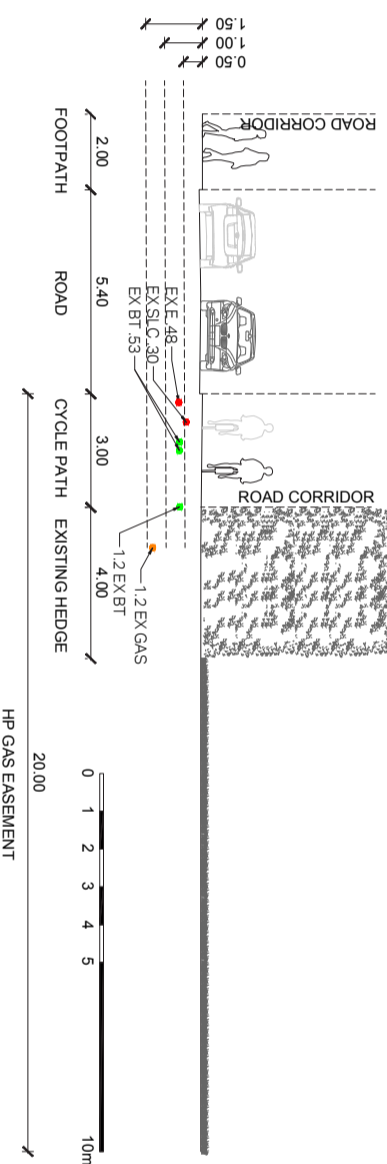
182. Proposed Charles Babbage Road Section F-F' (with existing utility overlay, subject to detailed design)



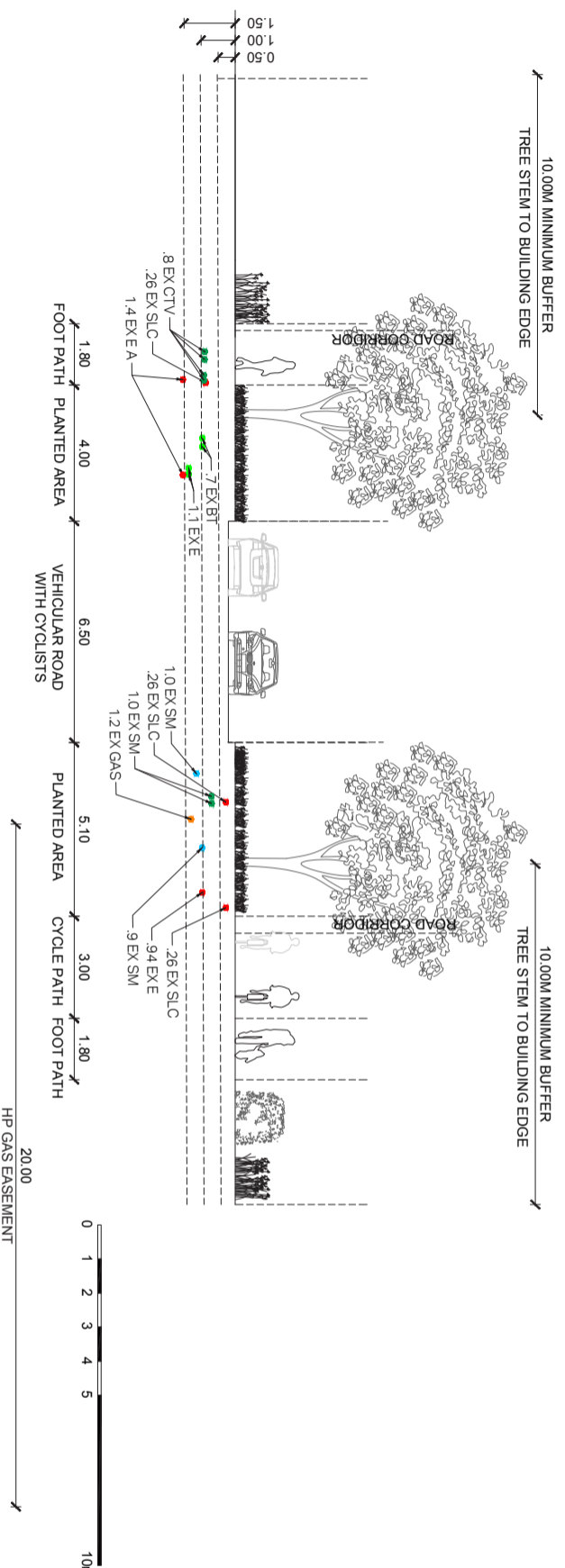
184. Charles Babbage Road Plan with utility overlay

- UTILITIES KEY**
- BT CABLES
 - COMMUNICATIONS CABLES
 - CABLE TV CABLES
 - ELECTRICAL CABLES
 - FIBREOPTIC CABLES
 - GAS MAIN
 - GAS SERVICE
 - GPR TRACE
 - HOT WATER PIPE
 - LIGHTING CIRCUIT
 - SECURITY CABLING
 - UNIDENTIFIED TRACE
 - WATER MAIN
 - WATER SERVICE

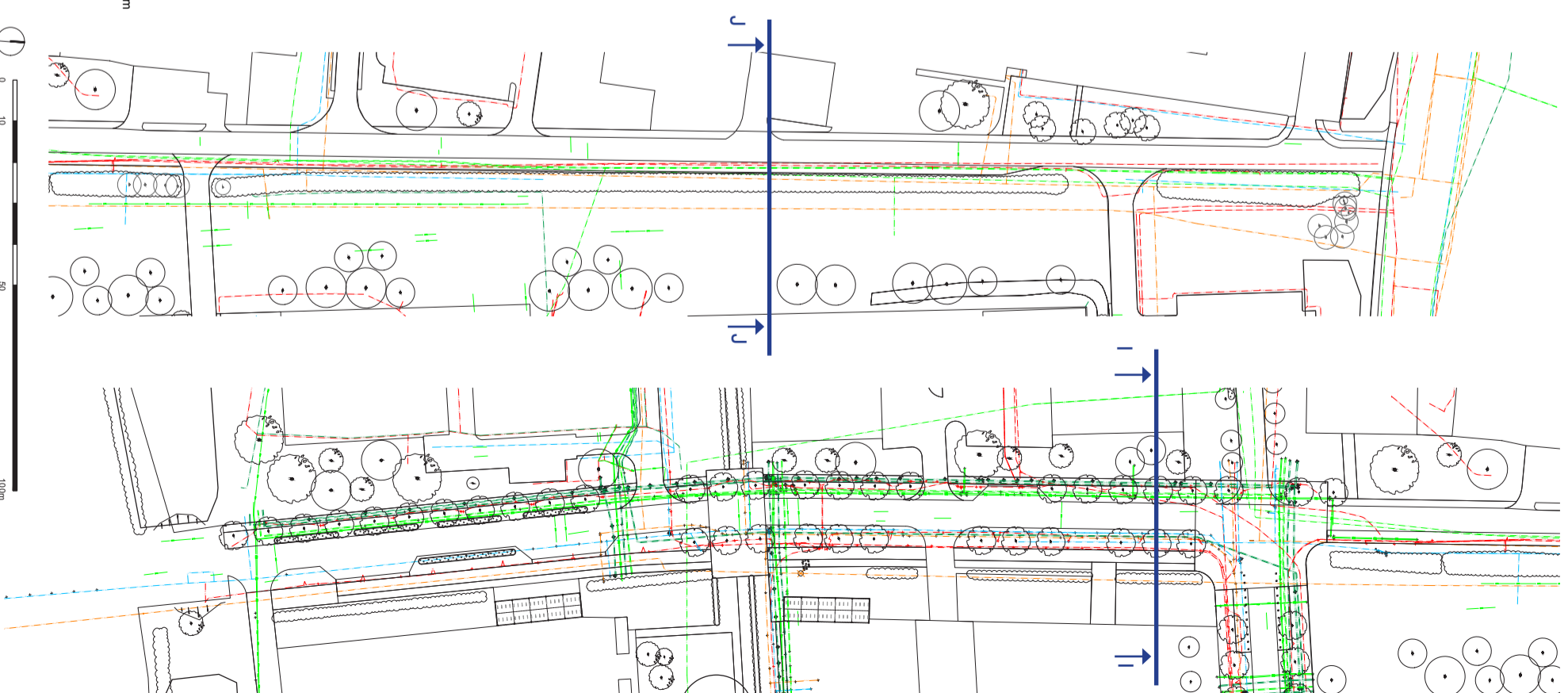
Western Access Road/Ada Lovelace: Utilities



186. Proposed Western Access Road / Section J-J' (with existing utility overlay, subject to detailed design)



185. Proposed Ada Lovelace Road / Section I-I' (with existing utility overlay, subject to detailed design)



187. Western Access / Ada Lovelace Road Plan with utility overlay

- UTILITIES KEY**
- BT CABLES
 - COMMUNICATIONS CABLES
 - CABLE TV CABLES
 - ELECTRICAL CABLES
 - FIBREOPTIC CABLES
 - GAS MAIN
 - GAS SERVICE
 - GPP TRACE
 - HOT WATER PIPE
 - LIGHTING CIRCUIT
 - SECURITY CABLING
 - UNIDENTIFIED TRACE
 - WATER MAIN
 - WATER SERVICE



DAVID BROWN LANDSCAPE DESIGN

5.3. Street tree investigation reports

Matt Allen
University of Cambridge Estate Management
Greenwich House
Madingley Road
Cambridge
CB3 0TX

24th October 2016

Dear Matt

Re: High Cross Access Road, West Cambridge Site – Oak Trees

Following our meeting on site to inspect the pit and rootball of one of the dead or dying Oak trees along the West Cambridge Site access road I write to report my findings, opinion and recommendations.

I understand that the English Oak (*Quercus robur*) trees were planted as 30-35cm rootballed stock in Winter 2013/14 by Pro-scape and that the stock was sourced through Double Yew Nurseries but supplied directly from a continental nursery to site. This formed part of the West Cambridge Phase 4 landscape designed and specified by Grontmij. Topsoil supply and placement was carried out by Breheny.

Google streetview contains images taken in August 2014 which show that the Oaks were already dead and dying stock at that time. I inspected the Oaks on August 4th 2014 at the request of Pro-scape, who were concerned about the deaths and dieback on the Oaks. Photographs taken by Pro-scape at the beginning of July 2014 show the trees beginning to flush into leaf.



At the time of my visit in August 2014 the tree pit soils appeared to be dry and there had been two weeks of dry weather. The damage appeared to be consistent with lack of water due to drought conditions and I recommended watering to make soil water available. No trees were lifted at that time.

I visited site again on 24th October 2016 and the condition of the trees had further declined. Some trees had already been replaced by slightly smaller stock of Oak, which seem to be in reasonable condition for newly planted trees. A sample tree had been lifted to allow inspection of the pit and the root system. The topsoil surrounding the tree was of good quality and of an open sandy clay loam texture. It appeared to be somewhat dry. There was no evidence of compaction and the soil was friable. The pit details appeared to be as shown on the Grontmij drawing with underground guying evident and the irrigation pipe present.

The rootball was of a dense blue-grey with orange flecks (gleyed) clay which was somewhat stiff but still plastic. It was less than 600mm in diameter. When the clay was peeled back, the exposed root system showed extensive soft rot with blackening beneath the dead cortex in places, which was slimy to touch. There was an absence of discernible fine root and the root system was of short severed roots 15-25mm diameter.





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From observation of the decayed root system within the small clay rootball it seems likely that the stock was already in poor condition when supplied to site. If the trees were undercut and lifted in Winter 2013/14 then the inadequate root systems would not have been stressed before planting and would have enough energy to flush into leaf, albeit rather late and weakly in many cases as can be seen below.



Photograph taken by Pro-scape in the first week of July 2014

The dry and sunny spell which followed in late July was sufficient to place a demand on the root system for water which it was not in any condition to meet. Irrigation could not be effective as the weak link was the root system itself, which lacked fine fibrous roots and was contained within a dense clay rootball.

The only likely causal factor in the decline and death of the Oak trees is therefore the original stock quality as delivered to site. The nature of the defect is that, other than the small size of the rootballs, it would not be evident at the time of delivery to site. The surrounding soils are of very good quality for a landscape site and are not a contributory factor. The dry conditions in July 2014 were not prolonged and although the surrounding soils were relatively dry, the scale of effect and the slow coming into leaf shown in the July photograph indicate that the trees were already failing to thrive.

So much for the causes. There is now an avenue of trees where the majority have failed or are failing. Some trees have already been replaced by smaller stock which seems to be establishing well. Decisions need to be taken on how to proceed. Oak is a relatively slow-growing tree species which is noted for transplanting poorly at large stock sizes. The slow growth means that the species is generally more expensive at large sizes as it must spend more time in the nursery to make size. Given the scale of replacement required it is worth looking at either smaller Oak trees or trees of another species altogether (which may be less expensive and available at larger sizes at the same cost). Container grown trees are also more likely to thrive as the container growing medium encourages fibrous root development and there is no



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disturbance or severance of the root system. The safest course of action, in my view, would be to replace with container grown trees of another species at a smaller stock size but to the original tree pit and furnishings specification. Regular watering and monitoring of soil water (moisture content) using Frequency Domain Reflectometry is becoming more widely used. This equipment can take the guesswork out of watering landscape planting beds, which for expensive materials is probably justified. Suitable species which are worth considering for the avenue are:

- Gleditsia triacanthos f. inermis* 'Skyline'
- Juglans nigra*
- Liriodendron tulipifera*
- Platanus orientalis* 'Digitata'
- Tilia cordata x mongolica* 'Harvest Gold'

The final decision will also be driven by the availability of the numbers required in the preferred species and sizes. If I can be of further assistance in this matter please let me know.

Yours sincerely

Dr David Brown PhD DipLD MCIHort FArborA

c.c. Richard Hardwick, Peter Brett Associates

Tree Condition Survey

Charles Babbage Road Cambridge

August 2008

Contents

- 1.0 Introduction
- 2.0 Site description
- 3.0 Assessment of Trees (Methodology)
- 4.0 Conclusion
- 5.0 Recommendations
- 6.0 Appendix

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The Landscape Partnership is registered with the Landscape Institute, the Royal Town Planning Institute, and is a member of the Institute of Environmental Management and Assessment

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1.0 Introduction

- 1.1 The Landscape Partnership has been commissioned by Hannah-Reed to carry out an inspection of planted trees at Charles Babbage Road Cambridge. The trees have been planted in several phases as part of the development of the infrastructure for the site. Concerns regarding the health of the trees have been raised as a significant number of trees have died and the remainder are in a poor or declining condition.

2.0 Site Description

- 2.1 The site is part of an ongoing scheme of infrastructure development. The area is dominated by hard paving and the potential rooting volume of each tree is restricted by the adjacent road and a significant reduction in level to the adjacent car park. The trees access to moisture is restricted to percolation through the sloping paving around each tree pit and the tree pit opening. Applied watering is achieved via a perforated pipe placed in the bottom of the tree pit and capped at the tree pits surface. There is no apparent method of application measurement or indeed watering methodology. The second phase of planting (Planes) appears to have no water pipe system installed. No records of timing or volumes for applied watering were available nor indeed any regime for assessing rainfall.

3.0 Assessment of Trees (Methodology)

- 3.1 It is clear from a visual inspection of the trees that they are dead, dying or declining. The cause of the visual symptoms can be surmised but in order to aid the diagnosis three courses of action were taken:
1. Excavation of the tree pit and removal of the tree
 2. Probing of the tree pit to assess soil moisture levels
 3. Excavation of the root/stem collar to assess depth of planting

Phase 1: Plane Tree Planting

- 3.2 The trees in this phase are in the poorest condition several of which are completely dead. The trees which are alive vary in terms of their condition and it is unlikely that any trees within this phase of planting will develop into acceptable specimens. Two trees were excavated from this phase of the planting as follows:

Tree 1 is a severely damaged example with total canopy death and some vigorous re-growth around the trees main stem. Removal of the tree pit exposed a partially dead root system and a largely dry root ball. Root growth in the top 300mm of the root ball was alive and had

extended beyond the original root ball into the tree pit back fill (Amsterdam Tree Soil). Root activity below 300mm appeared to have been good but was dead. Current growth appeared to be being sustained but was beginning to show signs of drought stress as some leaves were browning at the edges.

It would appear from the size and development of roots outside the original root-ball that for at least two growing seasons root growth was sustained by the tree. Root activity then declined and a significant proportion of the trees root system declined or died. At this point the tree probably defoliated early and produced less and fewer leaves during the following spring flush. The edges of the canopy then died back, resulting in a tree which was severely damaged. During this period of drought stress the upper part of the trees root system was able to survive on the prevailing rainfall and perhaps an erratic watering regime. Recent rainfall appears to have boosted growth which is now dense but restricted to the trees main stem. Despite this apparent renewed vigour the tree will not provide a satisfactory specimen.

Photographs in the appendix below show the condition of the tree and its root-ball.

Tree 2 is a completely dead tree. Removal of the tree from the tree pit exposed a completely dead root system. As with tree 1 there is evidence of good root growth which occurred during the first two growing seasons. Drought stress caused by the erratic availability of soil moisture appears to have lead to a more dramatic decline and eventually the failure of the tree. It was noted during the excavation process that the base of the tree pit appears to have been waterlogged sufficient for the anaerobic conditions to have developed. The volume of soil affected is relatively low and is unlikely to have contributed to the demise of the tree. The pit was not waterlogged when it was excavated despite higher than average rainfall in August and the fact that the tree was not removing moisture form the tree pit because it was dead.

Photographs in the appendix show the root ball of tree 2.

Phase 2: Plane Tree Planting

- 3.4 The trees in the second phase of planting are in leaf but are showing signs of stress, leaf density and size are reduced and the leaves are becoming slightly yellow. As none of the trees have yet died an alternative approach to excavation was used to investigate the condition of the trees. Careful excavation of the surface of several tree pits was carried out and the root ball probed to assess the moisture level within the soil. The following observations were made:

- The material excavated from the top of the tree pit appeared to be railway ballast mixed with topsoil.
- The tree was planted to a depth such that the root/stem collar was 200mm below the surface. New roots had developed from the buried main stem of the tree.
- The area adjacent to the trees root ball was probed with a ranging rod. Virtually no soil adhered to the pole and the material that did was dry.
- There was no evidence of water logging or anaerobic conditions.
- It would appear that a combination of incorrect planting depth and erratic watering is contributing to the current condition of the trees.

Hornbeam Planting North of Charles Babbage Road

- 3.5 Whilst on site a hornbeam was also looked at. The tree appeared to have been planted 75mm deeper than is appropriate.

4.0 Conclusion

- 4.1 The current phases of planting have failed completely in the case of phase 1 Plane trees and appear to be failing in the case of phase 2. It would appear from the evidence of the excavated trees that the main cause of failure has been a lack of managed watering at appropriate times to supplement prevailing rainfall. The erratic nature of the availability of moisture to the trees has been exacerbated by the paving which surrounds each tree pit. This paving is largely impervious although the joints between slabs will allow small volumes of water to percolate, however the slope of the paving to a drain along its edge will remove much of the rainfall before it has the opportunity to soak through the joints. Rainfall availability to the trees is therefore largely restricted to that which falls on the open surface of each tree pit. Moisture availability is further affected by the change in level to the south of the tree pits where the footway is supported by a retaining wall. This creates a moisture gradient which is likely to be increased by the adjacent holly hedge.

5.0 Recommendations

- 5.1 All of the trees in phase 1 should be replaced once a maintenance regime has been devised that provides the information outlined at 5.2 and enables an appropriate watering regime to be implemented.

- 5.2 It is important that trees receive an adequate supply of water to their root systems. Too little and they will not be able to sustain their leaf crop and too much where drainage is poor the roots may die by being waterlogged. In order to make appropriate decisions with regard to watering three important pieces of information are needed as follows:

Tree pit drainage rates

Tree pit drainage rates can be assessed by excavating the pit, measuring the volume, filling it with water and measuring the rate at which it drains. Variations in drainage rates can then be used to inform watering rates. If the applied water does not drain and the pit remains waterlogged, positive drainage may be required or perhaps the location of the tree pit abandoned or moved.

Local rainfall as it happens

Measurement of rainfall on site will provide live information on how much natural water is available to the tree and how much artificial watering may be needed.

The volume of water required by the tree

This information may be available from the nursery based on the volumes that they apply when they are growing the tree. It would need to be increased as the tree increases in size and of course would need to account for the rate at which the tree pit drained.

- 5.3 The trees in phase 2 appear to be suffering from an erratic watering regime and being planted too deep. The impact of the back fill material has not been considered. The origin of the material should be confirmed by the landscape contractor and if the answer is unsatisfactory the material should be screened and the PH checked. In order to improve the current condition of the trees the following action should be taken:
- Fill levels within the tree pit should be reduced to the top of the root ball. The resultant void between root ball and tree grill could be filled with an inert coarse material.
 - The watering regime should be assessed and adjusted to take account of rainfall and tree pit drainage.
 - Roots which have developed from the main stem of affected trees should be removed.
- 5.4 Soil levels around trees planted in open beds should be checked and adjusted as necessary.

**Appendix
Photographs**



Tree 1 partial re-growth around trees main stem



Tree 2 discoloration indicating some water logging of root-ball base



Tree 1 fibrous root growth in top 300mm of root ball
Dead roots at base of root ball



Tree 2 showing reduced root activity than tree 1



Tree with growth restricted to main stem, some evidence of drought stress in browning of leaf margins.



Phase 2 planting showing development of roots on main stem of tree planted too deep



Phase 1 planting showing die back and re-growth

