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The Bush Framework Masterplan

Prepared by LUC

in association with

SQW

Goodson Associates

Goodson Cole Transportation

Cameron Rae Architects

December 2012

EUROPE & SCOTLAND
European Regional Development Fund
Investing in your Future

THE UNIVERSITY OF EDINBURGH

Scottish Enterprise

Midlothian

Project Title: The Bush Framework Masterplan

Client Steering Group: Midlothian Council
Scottish Enterprise
The University of Edinburgh

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Contents

Tables

Figures

1 Executive Summary

Introduction

1.1 Midlothian Council, Scottish Enterprise and the University of Edinburgh have commissioned LUC (Land Use Consultants) and a supporting consultant team to prepare a strategic framework masterplan for the various clusters of specialist bioscience research and business at Bush Estate (Edinburgh Technopole), Easter Bush, Pentlands Science Park, Biocampus and Roslin Biocentre in Midlothian, hereafter referred to as 'The Bush'.

1.2 The study has presented an opportunity to consider The Bush framed against the current challenging economic climate in combination with a strategic review of recent and planned developments. It has also presented an opportunity to consider improved integration, legibility and movement of The Bush as well as how the area may develop and grow in the future.

1.3 This document sets out the findings of the study and concludes with a series of strategic recommendations and a masterplan to guide future development. It also sets out the first steps in establishing a new governance framework for The Bush.

1.4 The Bush Framework Masterplan will have a variety of uses including:

- An overarching framework masterplan for the various sites and organisations within The Bush;
- A supporting strategy document for funding opportunities and promoting investment;
- A strategic reference document for determining relevant planning applications;
- A strategic reference document for future Midlothian Local Development Plan reviews;
- A strategic bridging document to link to the Midlothian Economic Recovery Plan and the Midlothian Economic Development Framework, and the relevant economic sector action plans;
- A strategic bridging document to link to the Midlothian Community Plan and the Single Outcome Agreement.

Consultation

1.5 A stakeholder workshop was held at the Midlothian Innovation Centre on the 7th December 2011. It was attended by over 30 stakeholders representing various organisations with direct interest in the study area.

1.6 The following topics were presented and discussed:

- Project Introduction;
- Baseline Analysis;
- The Physical Environment and Identity;
- Movement, Transportation and Infrastructure;
- The Socio – Economic Future and Capacity for Growth.

1.7 The stakeholder workshop provided a forum to raise awareness of the project. It also enabled the consultant team to gather further valuable information and insight on key constraints and opportunities for the area as well as highlighting the aspirations of the many different stakeholders.

1.8 In addition to the workshop, a number of separate consultation meetings were held to discuss specific and / or technical aspects of the project.

1.9 In February 2012 a short consultation paper was prepared to summarise the draft recommendations underpinning The Bush Masterplan Framework. These recommendations took the form of a series of strategic objectives that had been identified by the project team based on analysis of environmental, physical and socio economic conditions, discussions with the Client Steering Group, the stakeholder workshop and other consultations.

1.10 This Consultation Paper was issued to all stakeholders who had been contacted previously about the project and they were encouraged to provide feedback on the content.

1.11 A second consultation paper, comprising an Executive Summary, was issued to all stakeholders in May 2012.

1.12 Feedback gained from stakeholder engagement has influenced the content of the study report at the various stages of the project.

Baseline Analysis

1.13 The baseline analysis of The Bush Study Area was undertaken which included consideration of the following:

- Existing landscape context and setting;
- Historic context;
- Characterisation of the site;
- Topography and Hydrology;
- Built form;
- Views, Vistas and Landmarks;
- Current Development Allocations;
- Pedestrian and Cycling Connectivity;
- Public Transport;
- Road Infrastructure;
- Orientation and Way-finding;
- Drainage and Water;
- Existing planning policy;
- Socio-economic context.

Conclusions and Recommendations

1.14 The baseline analysis stage of the project informed the development of a series of conclusions and recommendations in the form of a series of socio economic (SE) and physical environment (PE) strategic objectives as follows:

Socio-economic

Strategic Objective SE1

1.15 Raise awareness with key stakeholders of the collective gain in working together to fully achieve the economic potential of The Bush

Strategic Objective SE2

1.16 Establish a strong governance structure inclusive of all key partners to oversee the strategic direction of The Bush and manage its future development

Strategic Objective SE3

1.17 Establish a central (virtual) 'hub' of shared facilities and information to encourage social and business interaction

Strategic Objective SE4

1.18 Promote The Bush under one environmental and life sciences brand

Physical Environment

Strategic Objective PE1

1.19 Ensure that the necessary utility infrastructure is in place to accommodate future development and expansion

Strategic Objective PE2

1.20 Improve the main gateways into the site and create a hierarchy of orientation nodes, including development of proposals for improvements to the A702(T) / Bush Loan junction

Strategic Objective PE3

1.21 Reinforce Bush Loan and Bush Farm Loan as the main access spines of the site

Strategic Objective PE4

1.22 Improve pedestrian and cycling access and connectivity throughout The Bush

Strategic Objective PE5

1.23 Identify and preserve potential future road infrastructure requirements between Easter Bush Campus, Midlothian Innovation Centre and BioCampus, and within Technopole

Strategic Objective PE6

1.24 Encourage integrated and sustainable development expansion

Strategic Objective PE7

1.25 Support the establishment of commercial incubation facilities operated by Roslin Biocentre at The Bush

The Bush Masterplan

1.26 The Bush Masterplan brings together the Physical Environment recommendations within one proposals plan.

1.27 Some of the key components contained within the Bush Masterplan include:

- The existing detailed development masterplans and frameworks (most notably Edinburgh Technopole and Easter Bush) shall be respected;
- The identification of new development areas, in addition to those areas currently allocated for development via the Local Plan, is currently not required;
- There should be a focus on better integrating existing isolated campuses institutions via improved pedestrian and cycling connectivity throughout The Bush;
- Detailed technical designs for the A702 (T) / Bush Loan junction need to be developed in consultation with Transport Scotland;
- Public Realm improvements are required for Primary and Secondary nodes, as well as Bush Loan;
- There is a need to strengthen the landscape framework of The Bush especially with consideration to the eastern parts of the site.

Action Plan

1.28 The key actions within the Action Plan include:

- Establishing a Governance Structure;
- Further detailed discussions and consultation with key stakeholders such as Transport Scotland and utility service providers;
- Developing strategies for environmental improvements, road and junction design, branding, signage and a path network.

The Bush Masterplan

2

Site Description and Analysis

2 Site Description and Analysis

Study Area

2.1 The Bush includes the principal sites in Midlothian with an active or planned role within the biotechnology sector. These sites, including Bush Estate / Technopole, Easter Bush Campus of the University of Edinburgh, Pentlands Science Park, Edinburgh Bio-campus and Roslin BioCentre are concentrated to the north and west of the village of Roslin and adjacent to the village of Bilston a few kilometres south of Edinburgh. The study area is located less than a kilometre to the east of Pentland Hills Regional Park, the eastern boundary of which is demarcated by the A702 road. The town of Penicuik is situated 2km to the southwest of the study area. **Figures 2.1**, **2.2 and 2.3** illustrate the wider context of the area.

2.2 Midlothian has a well-established association with biotechnology research and innovation, and The Bush represents a key part of Edinburgh Science Triangle (EST). The EST was set up in 2004 as a collaborative marketing initiative by Scottish Enterprise, three local authorities (Midlothian, West Lothian and City of Edinburgh) and seven science parks located within the wider Edinburgh city region. Four of these science parks are located in Midlothian:

- Roslin BioCentre;
- Edinburgh Technopole;
- Pentlands Science Park; and
- the BioCampus.

2.3 The others are:

- Edinburgh BioQuarter;
- Alba Innovation Park in Livingston; and
- Heriot-Watt Research Park.

Figure 2.1 Study Area Location

Biocampus

Gowkley Moss

Easter Bush

Technopole

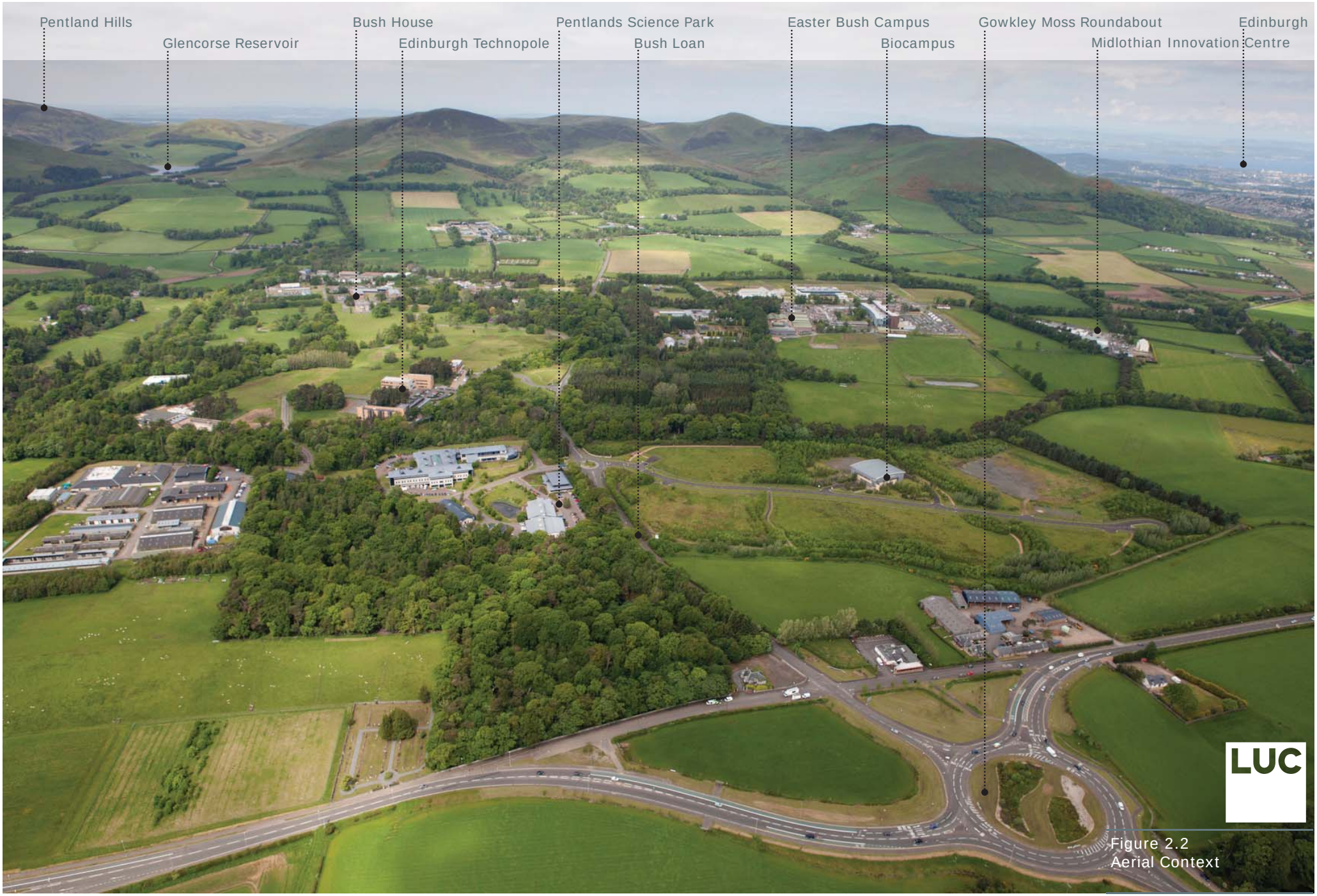


Figure 2.2
Aerial Context

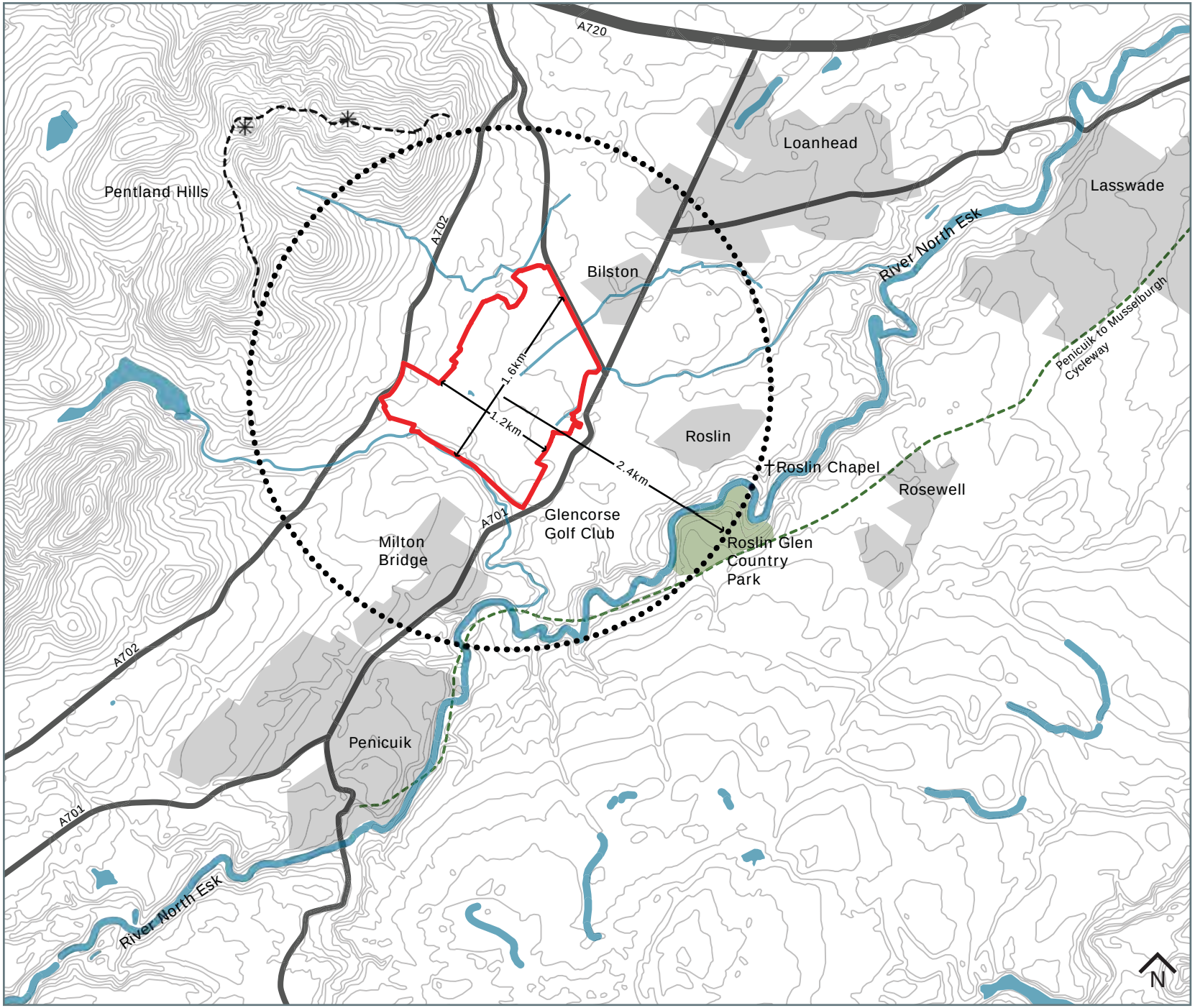
Landscape Context and Setting

2.4 The character of the area local to The Bush is strongly influenced by the meeting of two distinct geographies – the lowland river valley of the North Esk, and the range of hills that forms the Pentlands, a prominent hill range within the wider area.

2.5 Bush Estate is one of several designed landscapes located on the gentle slopes that run west to east between the Pentland Hills and the River Esk. These designed landscapes are generally set among arable and pastoral agricultural land, though signs of the proximity of Edinburgh are apparent i.e. a network of roads feed through the area, connecting several commuter towns and villages. There are also a number of commercial or industrial features present in the area consistent with an urban fringe landscape.

2.6 The mix of land use contributes to a fine balance between the type of development associated with the city periphery, and the high quality of the landscape framework created by extensive policy woodlands, the incised valley of the Esk, and the pronounced presence of the Pentland Hills.

2.7 This part of Midlothian also contains a number of recreational facilities in close proximity to the study area, including Roslin Glen Country Park, Flotterstone Inn and nearby Ranger Centre (a significant access point to the Pentland Hills), Castlelaw Fort, Glencorse Golf Club and the Penicuik to Musselburgh Foot and Cycleway. The nearest villages to the site are Bilston to the north and Milton Bridge to the south.



Legend

- Core study boundary
- 10m contours
- Settlements
- Road network
- Water courses
- Penicuik to Musselburgh Cycleway
- Important viewpoints

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Figure 2.3
Landscape Context

Study Area Boundary

2.8 As the brief for The Bush has developed, there have been a number of iterations of the study area boundary. In the earliest stages of the project Midlothian Council confirmed the scope of the masterplan area as including the following sites:

- Roslin BioCentre;
- Easter Bush Campus;
- Edinburgh Technopole / Bush Estate; and
- Pentlands Science Park.

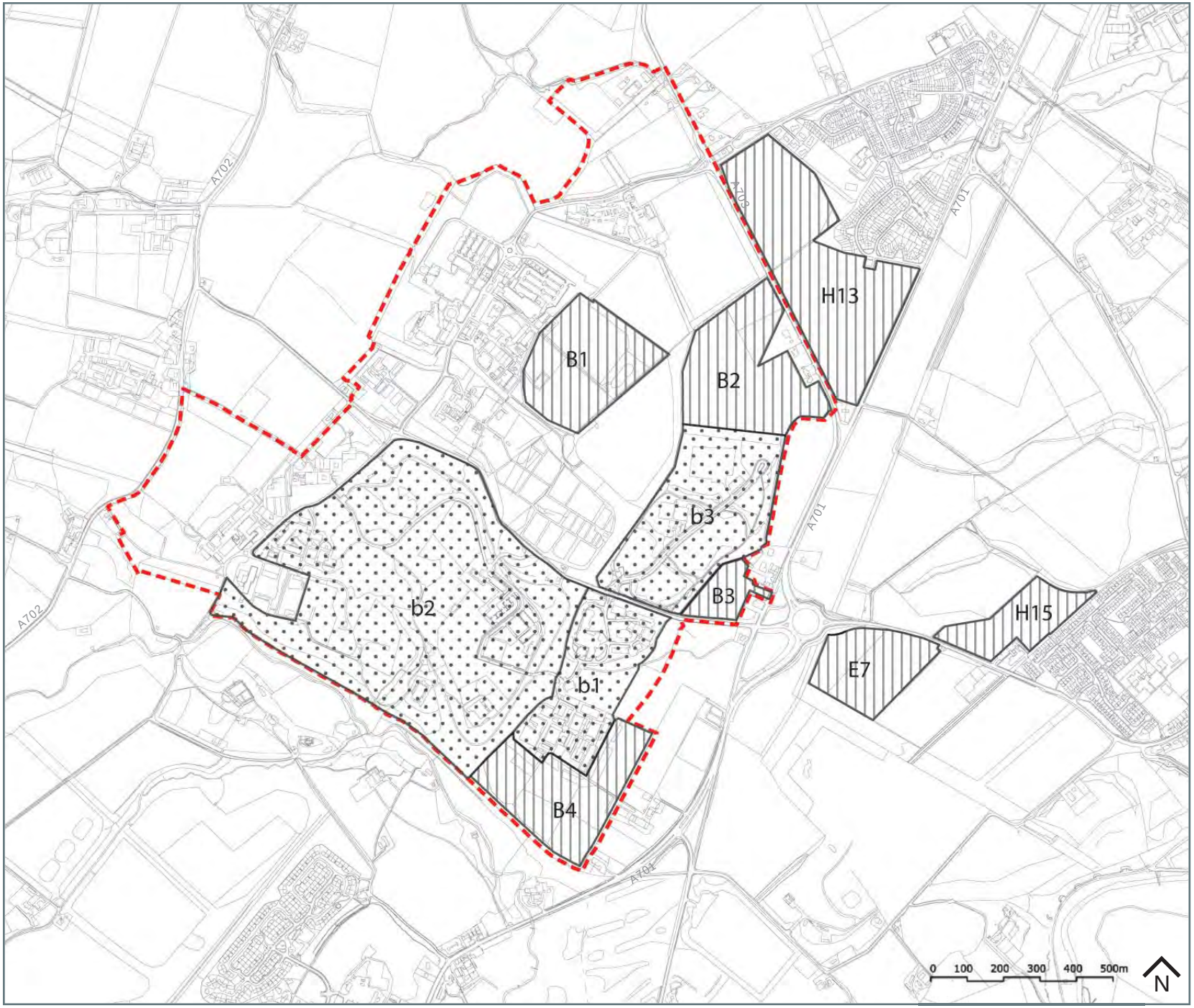
2.9 The Consultants Brief provided during the tendering process also alluded to consideration of Local Plan allocations of a total of 25 hectares, for biotechnology and other knowledge-based industries within the Green Belt, comprising the following four sites:

- B1 Easter Bush;
- B2 Gowkley Moss North;
- B3 Gowkley Moss South; and
- B4 New Milton.

2.10 During the inception stage of the project, this scope was refined and expanded to include the following additional sites:

- BioCampus;
- Forestry Commission Northern Research Station;
- Midlothian Innovation Centre; and
- Local Plan allocation E7 Oatslie (for business/industry).

2.11 The final agreed study area boundary for the purpose of this study and report is illustrated in **Figure 2.4**.



Legend

- Core study boundary
- Potential future development plots identified in Local Plan
- Existing serviced development plots

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Figure 2.4
Study Area Boundary

Characterisation

2.12 The character of the study area is shaped by its physical attributes (topography and landscape framework), historical development and current uses. Views throughout the study area to the Pentland Hills strongly influence its character as do the main landscape typologies: the designed landscape in the southwest and the agricultural landscape in the northeast.

2.13 While the influence of the designed and agricultural landscape is still evident, the study area has undergone a series of changes in the past 50 years which further refine and differentiate character. The study area can be broken down into ten characters units, illustrated in **Figure 2.5**, and described with a series of tables and photographs in **Appendix 1**. By identifying the different character units within the study area, their essential qualities, both positive and negative, can be drawn upon to inform an understanding of constraints and opportunities, and are valuable in forming an overall vision for future development proposals. Summaries of some of the key areas are provided below.

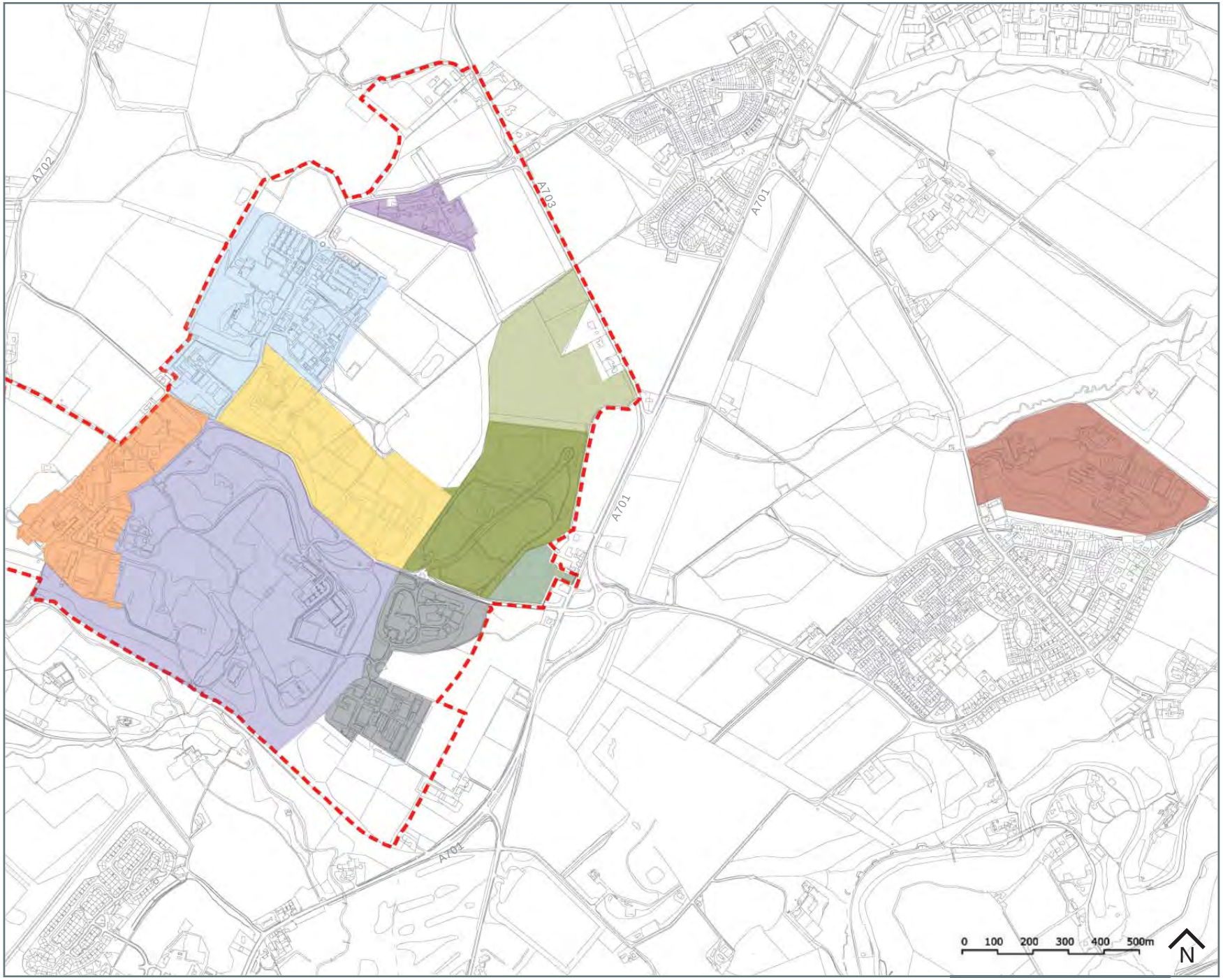
2.14 Easter Bush Campus comprises are mix of large, modern educational and research buildings typical of a university 'greenfield' campus. The site encourages pedestrian activity through clear routes between buildings, designated pedestrian crossings, and coherent signage and lighting. Links to the north and south are reinforced by a segregated shared surface for pedestrians and cyclists. Easter Bush Campus also benefits from a café open to members of the public. It also has a gym, only available for use by staff and students.

2.15 Bush House is the focal point of the Technopole Science Park. There is a marked difference between the density and layout of development to the front and rear of the building. To the northwest and rear of Bush House there is a core cluster of low-density buildings, and to the front of the house larger scale modern buildings are dispersed and set among mature woodland policies and by a large expanse of open grassland with a scattering of mature specimen trees. A long sinuous drive connects these two areas, with a lit footway on one side. To the rear of Bush House pedestrian movement is limited with the majority of roads between buildings lacking a defined footway. To the front of the house pedestrian movement is encouraged, with established recreational paths through policy woodland connecting into a wider path network and into the Pentland Hills. Signage and branding of Technopole somewhat confused, particularly at the two main entranceways from Bush Loan.

2.16 Pentlands Science Park is well-contained by mature woodland, operating as a secure site with principal gated access from Bush Loan, and a secondary gated access into Technopole. Relatively modern office buildings and laboratories are centred next to the main gateway, with agricultural or industrial units grouped to the rear of the site set within former agricultural land and screened by relatively young structure planting. Buildings are set within an ornamental landscape, though outdoor pedestrian access is limited. There are several occupants of the site and the café operates as the main hub of interaction.

2.17 Biocampus represents the most underdeveloped part of the study area. BioCampus was initially developed 10 years ago but remains vacant, currently with only one building completed. The road, utilities and landscape infrastructure has been completed to accommodate several more development plots. At present, movement is by an arterial road running the full length of the site and culminating in a turning circle, and a pedestrian network of peripheral paths, complemented by a maturing landscape framework, which similarly do not connect to neighbouring areas. There is only one entrance and exit to the site.

2.18 There is limited integration between each component part of the study area in terms of use and function. In common, each area is purposefully set up to accommodate a range of occupants set in a network of buildings which encourages cross-exchange and interaction. Each character area promotes itself as national centre of excellence in biotechnology, whether in life sciences or animal biosciences, research, teaching, learning or manufacture. Each has its own identity and strengths, and there is some recognition of the benefits and opportunities of collaboration between different zones. Overall, zones are currently considered separate entities and as a result there is a lack of cohesion between them, with very little in the way of communal facilities.



Legend

- Midlothian Innovation Centre
- Easter Bush Campus
- Gowkley Moss North
- Forrestry Commission Northern Research Centre
- Biocampus
- Gowkley Moss South
- Roslin Biocentre
- Bush Estate West
- Pentlands Science Park
- Bush Estate / Edinburgh Technopole

Figure 2.5
Midlothian Biosciences Cluster Characterisation

Historic Context

2.19 The Bush first appears in historic records around 1722, when several farms were purchased by Robert Moubray of Castlelaw, a solicitor and Writer to the Signet. This land brought together provided the early framework of Bush Estate. Around this time, a single track of similar alignment to the current A702 road ran from Hillend to Flotterstone and along the most westerly boundary of The Bush, and did not become readily passable until around 1760. During Moubray's ownership the land was drained, a property constructed and extensive planting operations took place both within and around The Bush.

2.20 In 1746 Bush was passed from Robert Moubray to his son, and then on to his granddaughter who in 1748 married Robert Archibald Trotter and received the policies to The Bush. Robert Archibald Trotter was responsible for much of the extended tree planting which created the informal parkland or picturesque setting of the designed landscape. This was met with some concern from neighbouring farmers due to the shading that would be caused by dense woodland groups.

2.21 Robert Archibald Trotter's son employed architect brothers R and J Adam to carry out alterations to Bush House in 1791, which included the reorientation of the house frontage from the south façade to the east, and the addition of single storey stables block and office court. Together Robert Archibald Trotter and his son established much of the arrangement which is still seen today, including the creation of a glen feature next to the Glencorse Burn which marks the southwest boundary of the estate.

2.22 In 1868 the second Robert Archibald Trotter, the grandson of the first, inherited the estate and oversaw the construction of the walled garden to the rear of Bush House (now occupied by the modern SELECT building), and the introduction of planted roundels to the east. In 1894 the estate passed to Thomas Coutts Trotter and to Alexander Edmund Coutts Trotter in quick succession. Alexander Edmund Coutts Trotter oversaw alterations to the house between 1894-95 by architect Sir Robert Rowan Anderson, which included a new wing, changes to the pitch of the roof and the removal of an exterior balcony on the east façade. No further significant changes took place until 1935, when the owner, R. D. Trotter established the Pinetum and associated water feature to the north of the house.

2.23 During the Second World War the house and estate were requisitioned by the Army for use as an ammunitions depot, after which it was acquired by the Centre for Rural Economy in 1946. Since 1946 a number of research institutes have been established in purpose-built buildings throughout the estate. The Institute of Terrestrial Ecology established their headquarters here in 1969. The Kellogg Institute established a series of buildings centred around a quadrangle on land to the south of Bush House. The Scottish Centre of Agricultural Engineering established here in 1963. Pentlands Science Park was developed between 1994 and 1999 in the southeast of Bush Estate, and Edinburgh Technopole was established in 1998, incorporating Bush House and grounds to the south east.

2.24 During the same period the School of Veterinary Studies at the University of Edinburgh became established at Easter Bush, in the area northeast of Bush Estate, previously dominated by agriculture. In 1947 the School began using Home Farm, at the core of Easter Bush, as a commercial farm for teaching purposes. In 1962 the Easter Bush Veterinary Centre and Large Animal Hospital were built at Easter Bush. Since 1998 a number of additional buildings have been established, including the Hospital for Small Animals, oncology centre and a new teaching building, which will allow the School to increase its student intake and provides state-of-the-art facilities. In 2011 the Roslin Institute moved to a new state-of-the-art building located at Easter Bush Campus combining research activities of Scotland's Rural College and the Royal (Dick) Veterinary School.

2.25 Other developments in the study area since the Second World War include the establishment of Bush Nursery and the Forestry Commission Northern Research Station in the 1950s and 1960s, and the Scottish Plant Breeding Station at Pentlandfield during the 1950s. The Scottish Plant Breeding Station vacated the site at the start of the 1980s and it is now the home of Midlothian Innovation Centre, established in 2002, at around the same time as BioCampus was developed adjacent to Pentlands Science Park.

Agricultural Land

Bush House

Bush House

Hospital for Small Animals

Physical Analysis

Topography and Hydrology

2.26 Aligned in a northeast to southwest direction, the North Esk river valley is located to the southeast of the Pentland Hills and runs parallel to the hills. The Bush is located between these two features on the undulating grounds created by the glacial erosion of underlying carboniferous sedimentary rocks. More resistant Devonian volcanic rocks make up the Pentland Hills and are locally prominent but modest in height, rising to just below 580m at the highest summit. The North Esk river valley is generally well-contained and steep-sided with sections of exposed rock face enveloped by sharply sloping woodland edges.

2.27 The undulating ground of the study area is broken by several small streams originating from the Pentland Hills, including Glencorse Burn, Bilston Burn and Kill Burn as shown on **Figure 2.6**. This area was formerly boggy, made drier by eighteenth century planting of policy woodland and creation of drainage systems which also made the land viable for agricultural practices.

Views to the Pentland Hills

Woodland and fields

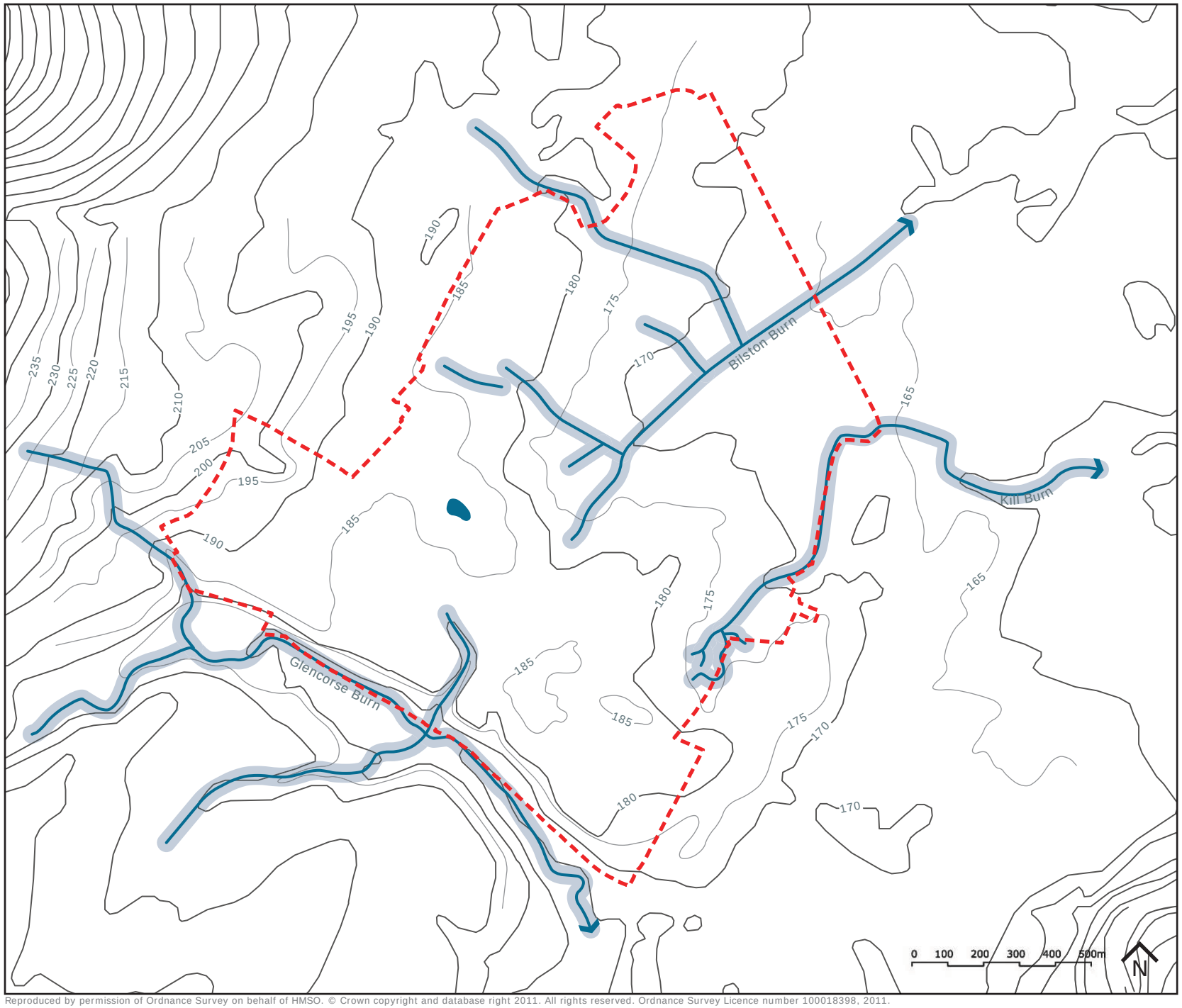


Figure 2.6
Topography and Hydrology

Landscape Framework / Green Infrastructure

2.28 The landscape framework of The Bush and context reflects the northeast to southwest grain of the land described above. To the northwest of the study area the Pentland Hills rise above the well-developed valley and contrast in their relative lack of settlement - their rough and irregular quality set against a more gentle and orderly pattern below.

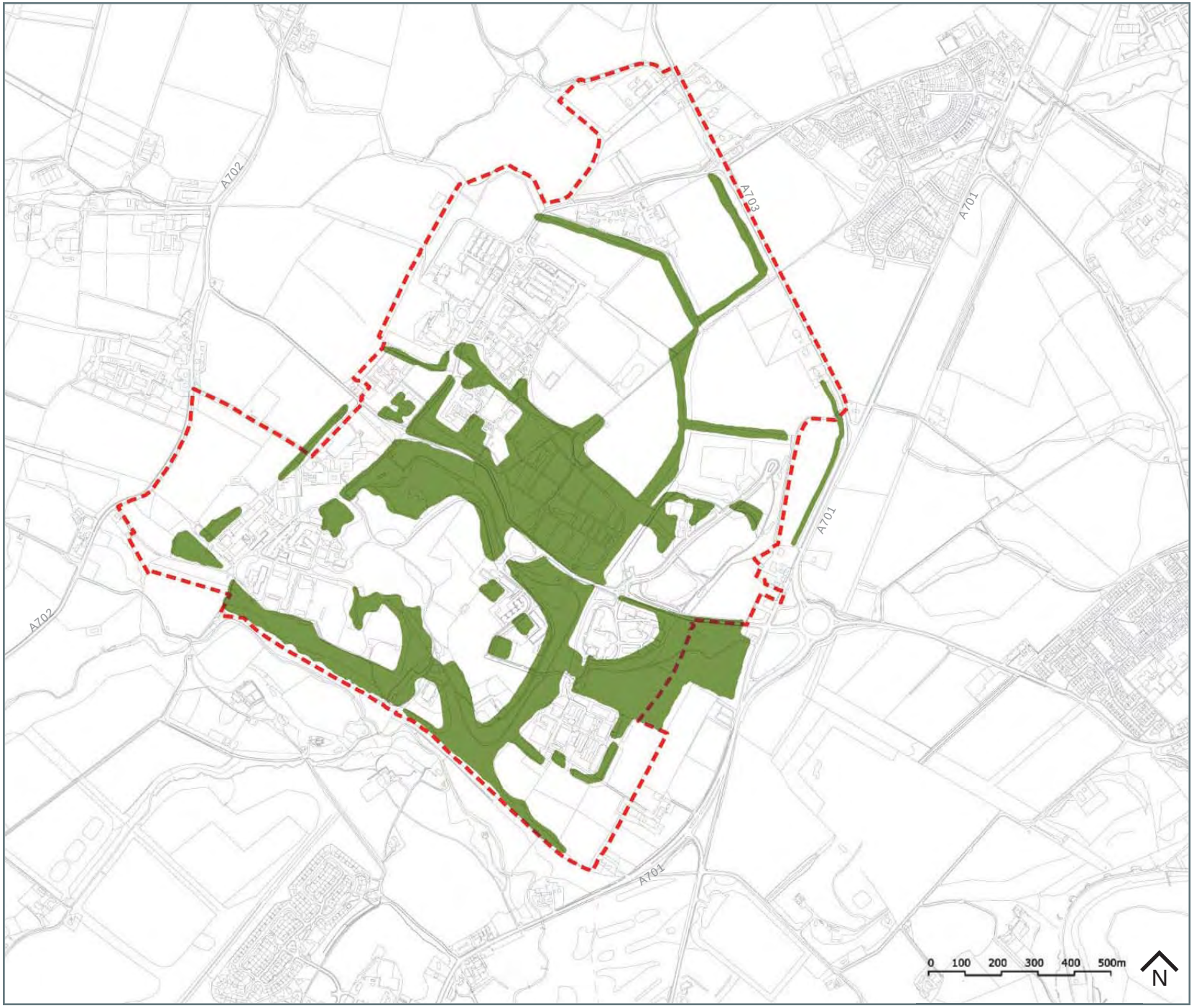
2.29 The Pentland Hills comprise a range of habitats including grassland, heather moor, broadleaf woodland, open water and wetland, with little or no areas of exposed rock visible from within the study area. A number of farmsteads occupy the lower flanks of the hills on this southeast side, surrounding by improved pasture and mixed woodland shelterbelts. Running broadly parallel to lower flanks of the Pentlands, the North Esk river is located around 2-3 km to the southeast of the hills, its steep sides often heavily wooded with broadleaf species. Of particular note is ancient woodland of Roslin Glen, forming part of Roslin Glen Country Park along which the Penicuik to Musselburgh Foot and Cycleway runs. Between these two features, the Pentland Hills and the North Esk river, Bush is situated amongst a well-developed area balancing a combination of settlement, road infrastructure, agriculture and designed policy landscape.

2.30 Locally, the study area is influenced by both the policy landscape of the former Bush Estate, and the remnant agricultural landscape of Easter Bush, comprising pastoral and arable fields. These two areas can broadly be identified by the division of Bush Loan, a road which separates the estate to the southwest and agricultural landscape to the northeast. Bush Estate and Technopole is contained by extensive mature policy woodland, which forms broad, curving, informal swathes, bordered by trim beech hedgerows, and contains wide open expanses of grassland. The agricultural landscape of Easter Bush is somewhat fragmented by post-war development, including the coniferous plantations of the Northern Research Station and young informal native planting associated with BioCampus. The straight, rigid and even lines of shelterbelt planting remain, and surrounding roads are generally lined with native hedgerows and post-and-wire fencing.

2.31 **Figure 2.7** shows the existing structure landscape framework within the study area.

Buildings set within mature landscape framework at Technopole

Green infrastructure on Bush Loan



Legend

Existing woodland

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Figure 2.7
Landscape Framework

Figure Ground Analysis / Built Form

2.32 The built form of The Bush is characterised by clusters of development in three main areas: Bush Estate in the west; Pentland Science Park and Edinburgh Technopole in the south; and Easter Bush in the northwest. Several smaller peripheral building groups exist elsewhere, with Midlothian Innovation Centre in the north and residential properties located at Gowkley Moss in the southeast, and along the eastern boundary of the study area. The density of the built form is illustrated in **Figure 2.8** and this is compared with the existing landscape framework in **Figure 2.9**.

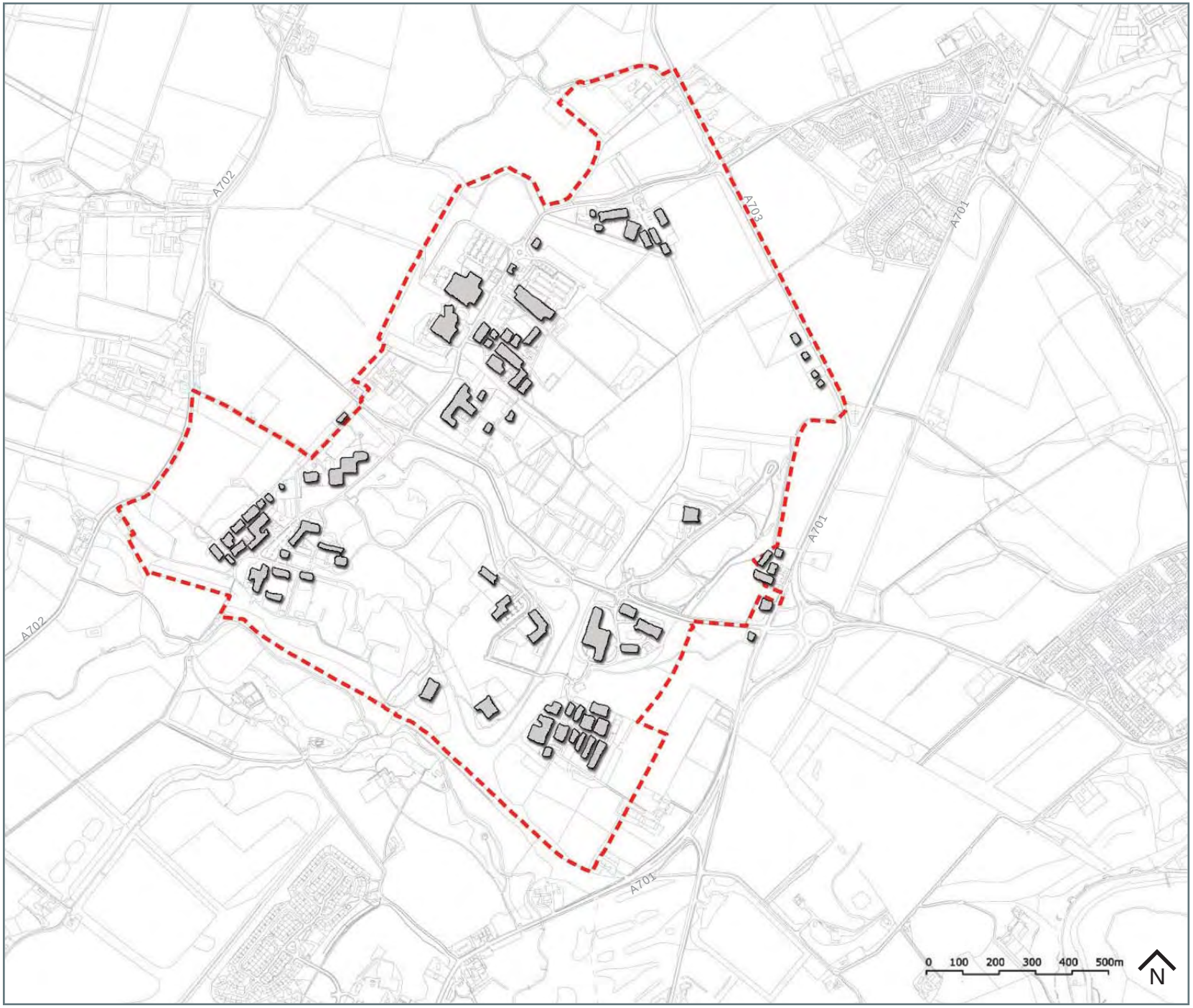
2.33 **Figure 2.10** indicates the historic development of The Bush. Bush House is the earliest building remaining in the study area, dating from the mid-eighteenth century, an A-listed classical mansion along with its stables, laundry house, courtyard walls and gates. Some of the lodge houses dating from the mid-nineteenth century also remain. Adjacent to Bush House and grouped to the northwest of the house, are several 1950-60s one and two storey industrial or commercial buildings associated with the development of the Centre of Rural Economy. To the southeast of Bush house a number of large office/lab buildings have recently been integrated in existing mature woodland groups as initial development of Edinburgh Technopole.

2.34 Pentlands Science Park was established in the 1990s in the southeast of Bush Estate, taking advantage of existing gaps within the policy woodland. It comprises two groups of buildings – one of offices and labs and the other of agricultural buildings. Security is an important feature of the site and a manned booth marks the entrance way to the northerly group of office buildings.

2.35 Easter Bush comprises a collection of older 1960s buildings small in scale, and larger twenty-first century landmark buildings, with the exception of some older farmhouse buildings. In general the smaller scale buildings are situated to the south of Easter Bush and tie in with the 1950-60s buildings of the Northern Research Station. Larger landmark buildings are generally located to the north and are the result of the recent incoming of Roslin Institute and Scottish Agricultural College to the existing Royal (Dick) Veterinary School, marking its importance as the research hub for these sectors of the University of Edinburgh.

Bush House with expansive grass lawn

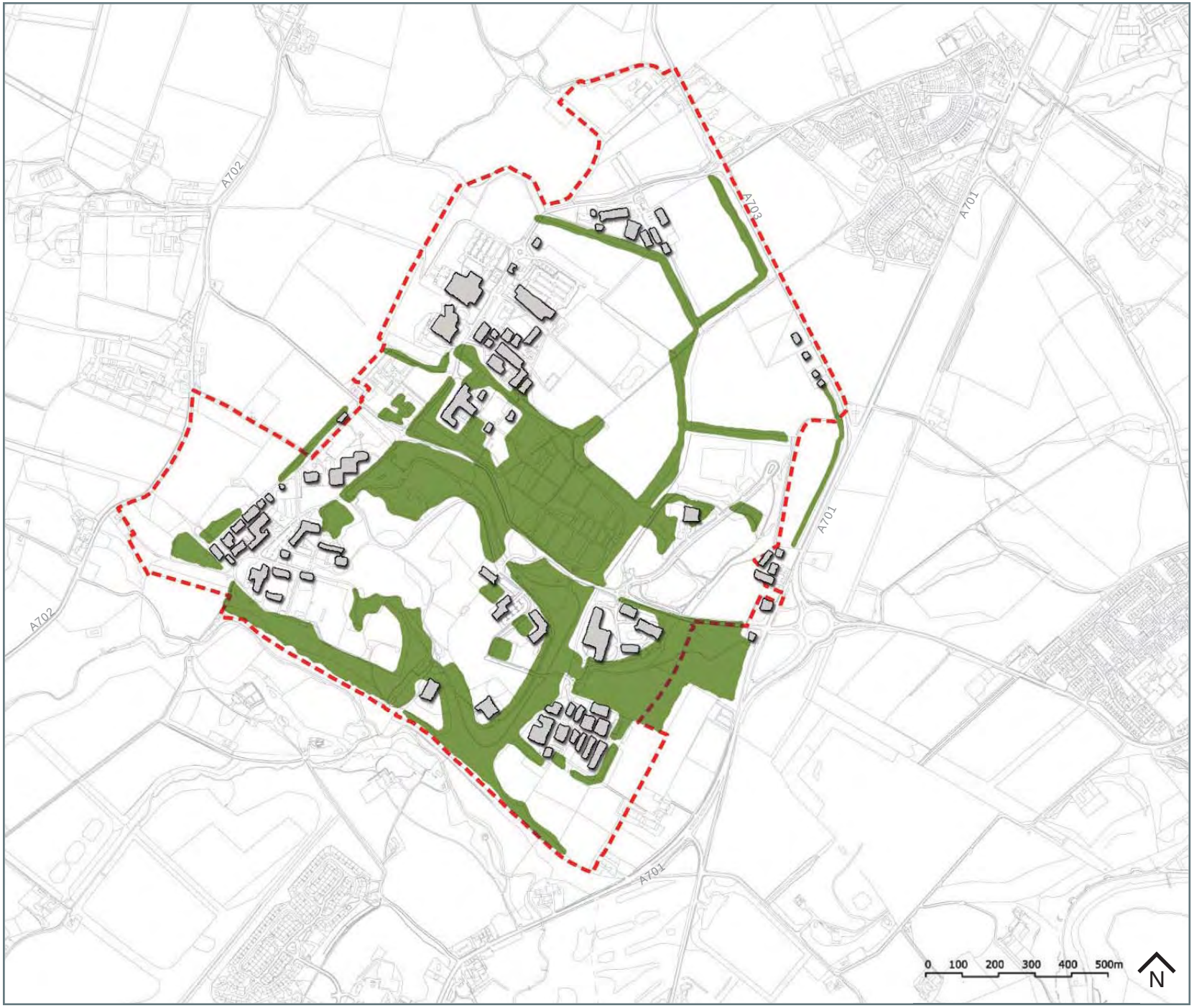
Roslin Institute



Legend

Existing buildings

Figure 2.8
Figure Ground Analysis

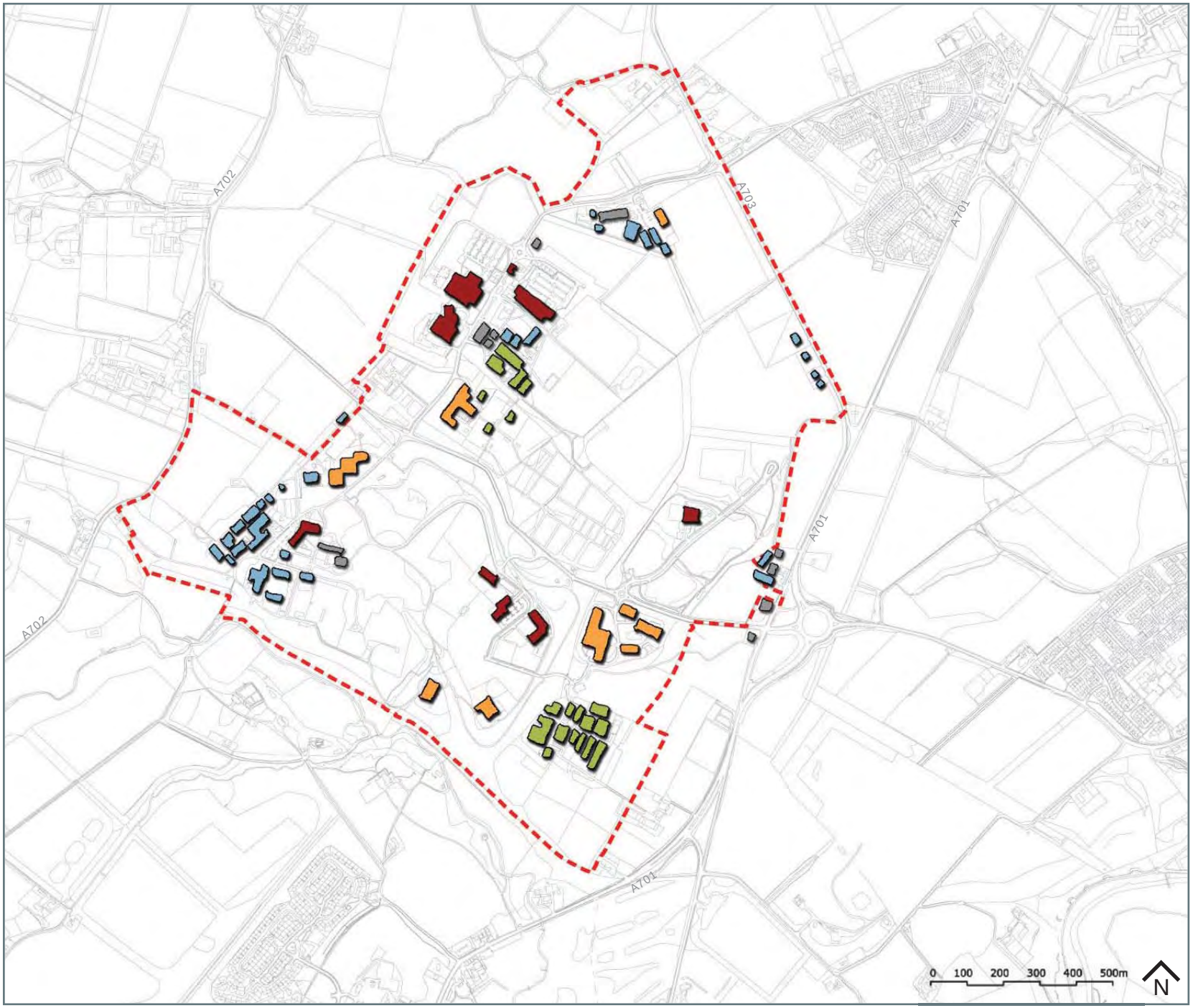


Legend

Existing woodland

Existing buildings

Figure 2.9
Figure Ground Analysis and Landscape Framework



Legend

- Historic Pre 1900 Buildings of good or high quality
- Low quality – Mid – late 20th Century Buildings
- Utilitarian sheds and storage buildings
- Good Quality late 20th Century Buildings
- High Quality 21st Century Buildings

Figure 2.10
Historical Figure Ground Analysis

Spatial Sequence - Views, Vistas and Landmarks

2.36 The most notable landmark throughout much of The Bush is the Pentland Hills, with the group of hills to the north of Glencorse Reservoir most prominent, including Caerketton (450m), Allermuir (493m), Castlelaw (488m) and Woodhouselee Hill (382m). Visibility throughout the site is often limited by the presence of policy woodland and shelterbelts. It is the close proximity of the Pentlands next to the relatively flat study area which creates views of the hills in which the A702 road corridor is disguised by surrounding woodland, and the hills appear to rise directly above the trees. This localised woodland enclosure combined with hillside views contributes to a rural quality and sense of relative remoteness.

2.37 The spatial experience created by woodland enclosure corresponds to the two overarching characteristics of the study area - the designed landscape in the southwest and the agricultural landscape in the northeast. In both cases the pattern comprises a sequence of open grassland areas, defined by woodland edges. The comparative distinction between this pattern in the designed landscape and the agricultural landscape is related to layout, density and age. In the designed landscape the density gives a greater and more immediate sense of enclosure, and the maturity of the policy woodland contributes to a sense of permanency. In the agricultural landscape the layout feels regular and manmade, the density is reduced providing a limited transparency to shelterbelts, and the age of the trees suggests the rotation of planting necessary to maintain function as a wind barrier or visual screen. This influences the rural quality of the study area to varying degrees and is further influenced by the built form. The two main access routes of Bush Loan and Bush Farm Road provide clear examples of how the overarching characteristics of the site combined with built form, influence spatial sequence.

2.38 Bush Loan operates as a country road generally in keeping with the characteristics of the designed landscape. The middle section of the road, at the heart of the study area, is lined with mature woodland and beech hedges. Built development is generally well-screened but marked by focal entrance points with gate piers or feature walls. Visibility opens out more at either end of Bush Loan as it meets with the A701 and A702 within an agricultural landscape. In the southeast, an open field allows clear views of the BioCampus building which appears in isolation as a landmark, with development at Easter Bush screened by woodland. In the northwest, the visual prominence of the Pentlands is heightened due to their proximity.

2.39 Bush Farm Road in contrast to Bush Loan is strongly influenced by the built environment, particularly around Easter Bush where the presence of roadside woodland diminishes to a single broken avenue of mature trees, and buildings are oriented to form a roadside frontage to both sides. Several of the larger buildings form distinctive landmarks and their style and scale creates the impression of a hub of activity. At the northeastern end of Bush Farm Road as it links to A703, an agricultural influence is more apparent with Midlothian Innovation Centre at lower density than Easter Bush and occupying only one side of the road.

View looking northwest to Bush House and Pentland Hills Regional Park beyond, from Bush Estate

Bush Loan

View looking south across existing pasture to Bush Estate, from Easter Bush

Bush Farm Road

LUC

Figure 2.11
Views, Vistas & Landmarks

Pedestrian and Cyclist Connectivity

2.40 Generally pedestrian movement within The Bush is largely restricted to pavements associated with the existing road infrastructure. Cyclists are also restricted to using the existing roads although there have been some notable improvements at Easter Bush Campus.

2.41 The local settlements of Roslin and Bilston can only be accessed by crossing the A701 and A703, respectively. These busy roads present a barrier to pedestrian and cyclist movements. This is addressed in part by the provision of an independent signalised crossing on the A701 to the immediate north of the Gowkley Moss roundabout, and the recent introduction of the new signalised junction on the A703 Seafield Moor Road at Easter Bush Farm Road.

2.42 Although Seafield Moor Road is not designated as a cycle route, the new facilities at the signalised junction allows cyclists to cross the A703 and continue north along Seafield Road, providing access to the A701 where formal cycling facilities are available.

2.43 Cycling lanes are provided intermittently along the A701. To the south of The Bush on-road cycle lanes are provided on both sides of the A701 as it passes through Milton Bridge. Northwards, intermittent on-road cycle lanes are provided on both sides of the A701 between Gowkley Moss roundabout and Straiton.

2.44 Access to Edinburgh Technopole and the Bush Estate is gained via two main junctions on Bush Loan, these accesses are connected via a main drive. The main drive benefits from a lit footway on one side of the carriageway.

2.45 Edinburgh Technopole also makes use of the available green space and provides a number of off road recreational paths for both pedestrians and cyclists around the boundary woodland areas of the Bush Estate.

2.46 Bush Loan links the A702(T) to Gowkley Moss roundabout. Sections of footway are provided intermittently along its length. Between the A702(T) and the existing western Bush Estate access a footway is provided on the north side of the carriageway. This footway is of a good standard. Eastbound, between the western Bush Estate access and the main access to the Pentlands Science Park, a footway is provided on the southern side of the carriageway. This footway is of a good standard and is lit. Lit footways are provided on both sides of the carriageway between Pentlands Science Park and the Gowkley Moss roundabout.

2.47 Formal crossing points on Bush Loan are available on the southern approach to the roundabout access to Pentlands Science Park. These are associated with existing nearby bus stops on the Loan and are in close proximity to the Gowkley Moss roundabout. These crossing facilities comprise pedestrian refuge islands and dropped kerbs.

2.48 Bush Farm Loan provides direct access to Easter Bush Campus and also links Bush Loan to the A703 Seafield Moor Road. Bush Farm Loan benefits from a new segregated pedestrian / cyclist shared use route, partially lit, running along its full length on the north side of the carriageway. There is also an existing footway running along the northern side of the carriageway between Bush Loan and Easter Bush. A zebra crossing connects the two footways and the north and southbound bus stops which are provided within the Easter Bush Campus.

2.49 The University's 2010 staff and student travel survey identified that approximately 3% of the staff and student respondents cycled to Easter Bush Campus as their main mode of travel. The majority of these journeys begin within Edinburgh. A similarly low proportion of respondents made the journey on foot – this includes undertaking their journey either by walking, running, wheelchair or mobility scooter.

2.50 The opportunity exists to develop a network of segregated shared use pedestrian / cycle routes throughout The Bush. This will reduce the current reliance on the road infrastructure which in turn will help promote alternative means of travel to / from the site.

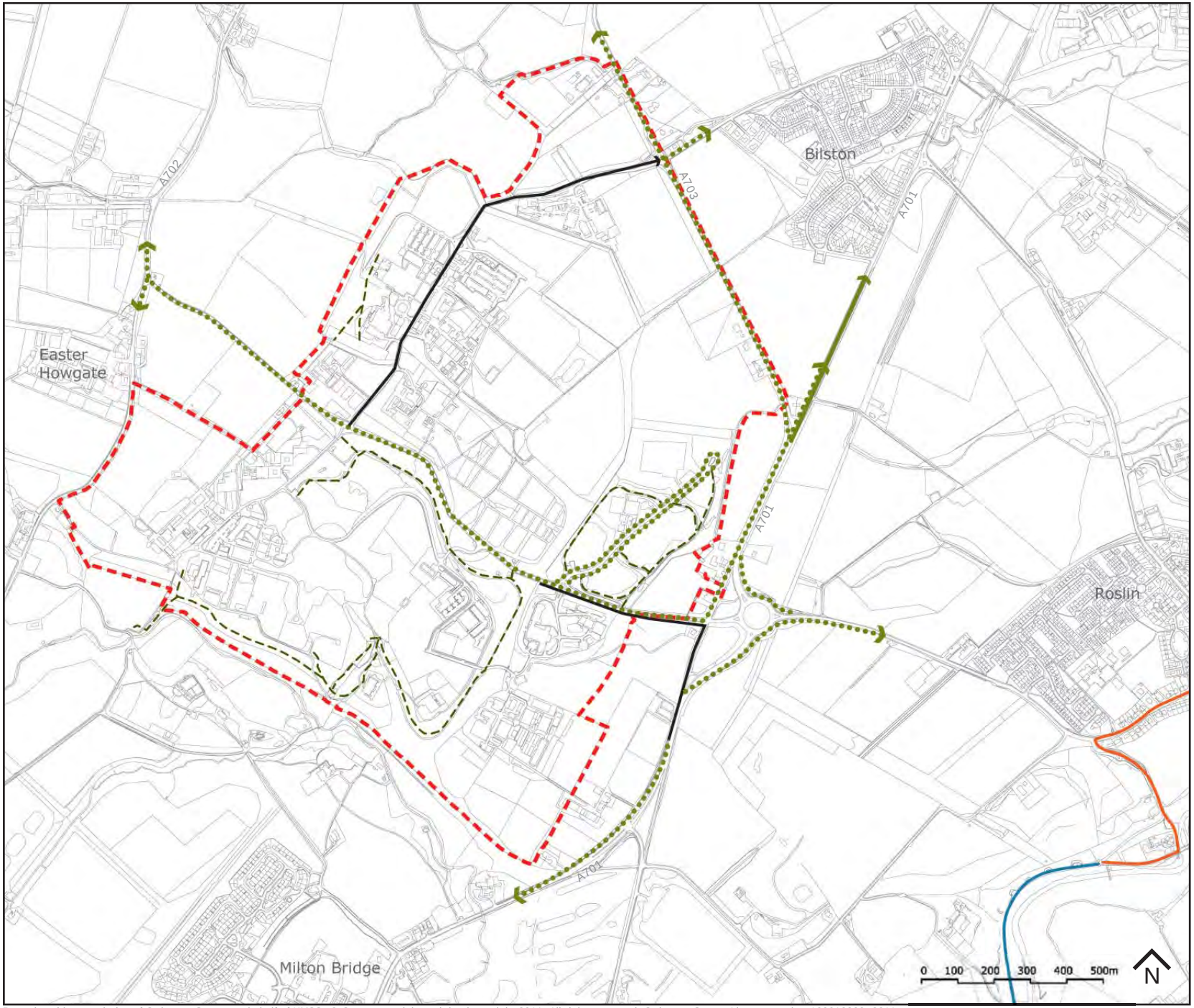


Figure 2.12
Pedestrian and Cycle Access

Public Transport Movement and Nodes

2.51 Several bus services run through The Bush following existing road infrastructure.

2.52 There are bus stops located on Bush Loan and Bush Farm Road and are within a 5 minute (400 metre) walk of a significant area of the Bush Estate and the Bush Area. All of the Bush Area is within a 10 minute (800 metre) walk of a bus stop.

2.53 The Bush is served by 6 to 8 buses per hour at peak times, providing direct access to Edinburgh, Penicuik and Straiton Park & Ride. Between the morning and evening peaks these services operate to / from The Bush on a reduced frequency. Lothian Buses' Service 67 which serves The Bush is currently subsidised by the University of Edinburgh.

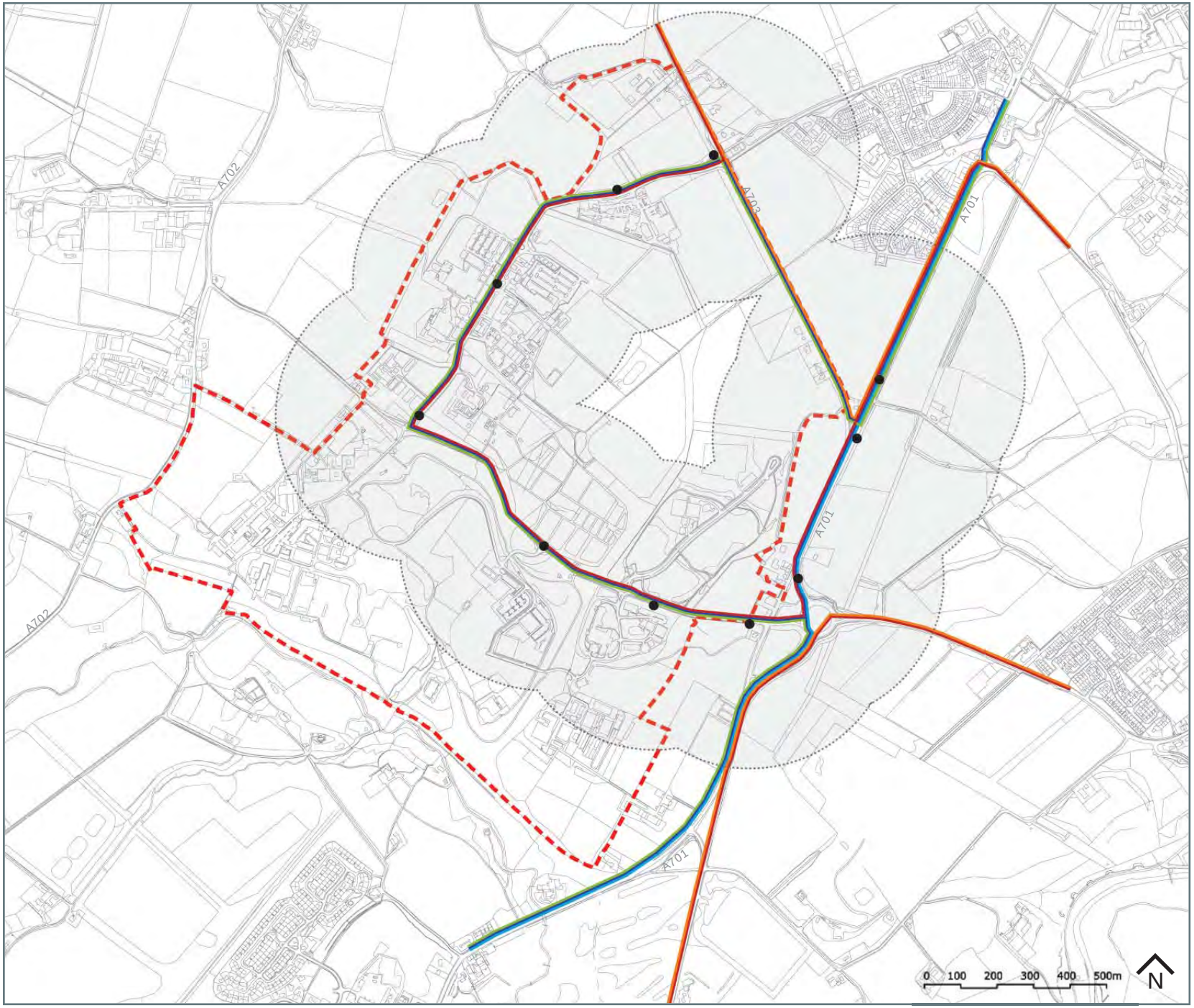
2.54 Further bus services run along the A701 and A703 Seafield Moor Road also serving Edinburgh and Penicuik. These are within a 15 minute (1.2 km) walk of the site. Access to these bus services provides the availability of bus travel at weekends and also more options in terms of the number and frequency of routes throughout normal working hours.

2.55 **Figure 2.13** illustrates the principal bus routes which either serve The Bush directly or can be accessed from stops a short walk from all the premises on the site. The principal bus services are operated by Lothian Buses, with First Group operating a further two services which can be accessed on the A701 Penicuik Road.

2.56 A majority of bus stops within The Bush benefit from a bus stop flag, shelter and timetable information. Bus stops on the A703 Seafield Moor Road and A701 in the vicinity of The Bush are equipped with bus shelters and timetable information. Bus stops on the A701 also benefit from having real time information installed.

2.57 A large part of Edinburgh is accessible within a 45 to 60 minute bus journey of The Bush. To the south a large part of Penicuik is within a 45 minute bus journey of the Bush Area. Peebles in the Scottish Borders is also accessible by a 60 minute bus journey operated by First Group (Service 62A).

2.58 The current bus provision is considered to adequately serves the current development of The Bush. However, there is a need for further enhancement and careful consideration should be given to further internal road infrastructure and how either existing or enhanced bus services can be tailored to utilise development expansion.



Legend

Bus routes
15
15A
37
47
67
Bus Stop Location
Approximately 5 minute walk (400m) to bus stop

Figure 2.13
Public Transport Links

Table 2.1 Existing bus services

Bus Service	Route	Weekday		Saturday		Sunday
		Morning Peak	Evening Peak	Off Peak		
Lothian Buses						
15 / 15A *	QMU-P'bello-M'bank-St Andrew Sq-M'side-F'head-Bush-Bilston-Roslin-A'dinny-Pencuik	30 mins	-	30 mins		
37	S'knowes-WGH-City Centre-Bridges-Liberton Brae-Straiton-Loanhead-Penicuik-Deanburn/Ladywood	15 mins		15 mins (30 mins eve)		20 mins
47/X47 #	Granton-WGH-City Centre-Bridges-Liberton Brae-Straiton-P&R-Bush-Penicuik-Ladywood/Deanburn(X)	15 mins		30 mins		60 mins
67	St Andrew Sq-Waverley Bdg-Potterrow-K Buildings-Straiton P&R-Bush-PSP-Penicuik	20 mins	-	60mins	-	-
First Group						
141	N'hall-QMU-Stoneybank-M'burgh-Dalkeith-B'rigg-L'wade-Straiton-L'head-Bilston-Roslin-A'dinny-P'cuik-Straiton	30 mins		60 mins		
62A	St Andrew Sq-Newignton-Liberton-Bilston-Roslin-P'cuik-Peebles-I'leithen-Gala-BGH-M'rose	30 mins		60 mins	30 mins	60 mins

* Service 15A, operates weekdays only. P'cuik bound operates a 15 min frequency into Bush in the morning peak then 60 mins thereafter until 17:00. City bound operates on a 60 min frequency into Bush all day until 19:00 and approx 20 mins in morning peak.

Service 47 enters Bush for Penicuik and city bound journeys in the morning and evening peaks only, respectively. X47 – express service, city and Penicuik bound in the morning and evening peaks only, respectively.

2.59 **Table 2.1** summarises the existing bus services which serve The Bush directly / indirectly.

2.60 Results from the University's staff and student travel survey determined that 10% of staff travelled by public transport to Bush. Conversely, an impressive 41% of the student respondents indicated that they travelled by public transport to their place of study. The survey also considered the proximity of the existing bus services in relation to the home addresses of the respondents, and concluded that there was good bus provision. It was also concluded that these services also provided the best opportunity and coverage to serve any likely future public transport demand to The Bush.

Bus stop on Bush Loan south

Bush Loan south

Shared pedestrian and cycling route

Signalled crossing on the A703

Road Infrastructure

2.61 The Bush is very well located for access to the local and strategic road networks. Bush Loan and Bush Farm Loan provide access to the local area and also links to the A701, A703 and A702 Trunk Road corridor. These primary routes provide access to the A720 Edinburgh City Bypass and city centre to the north, with Penicuik and other towns and villages to the south.

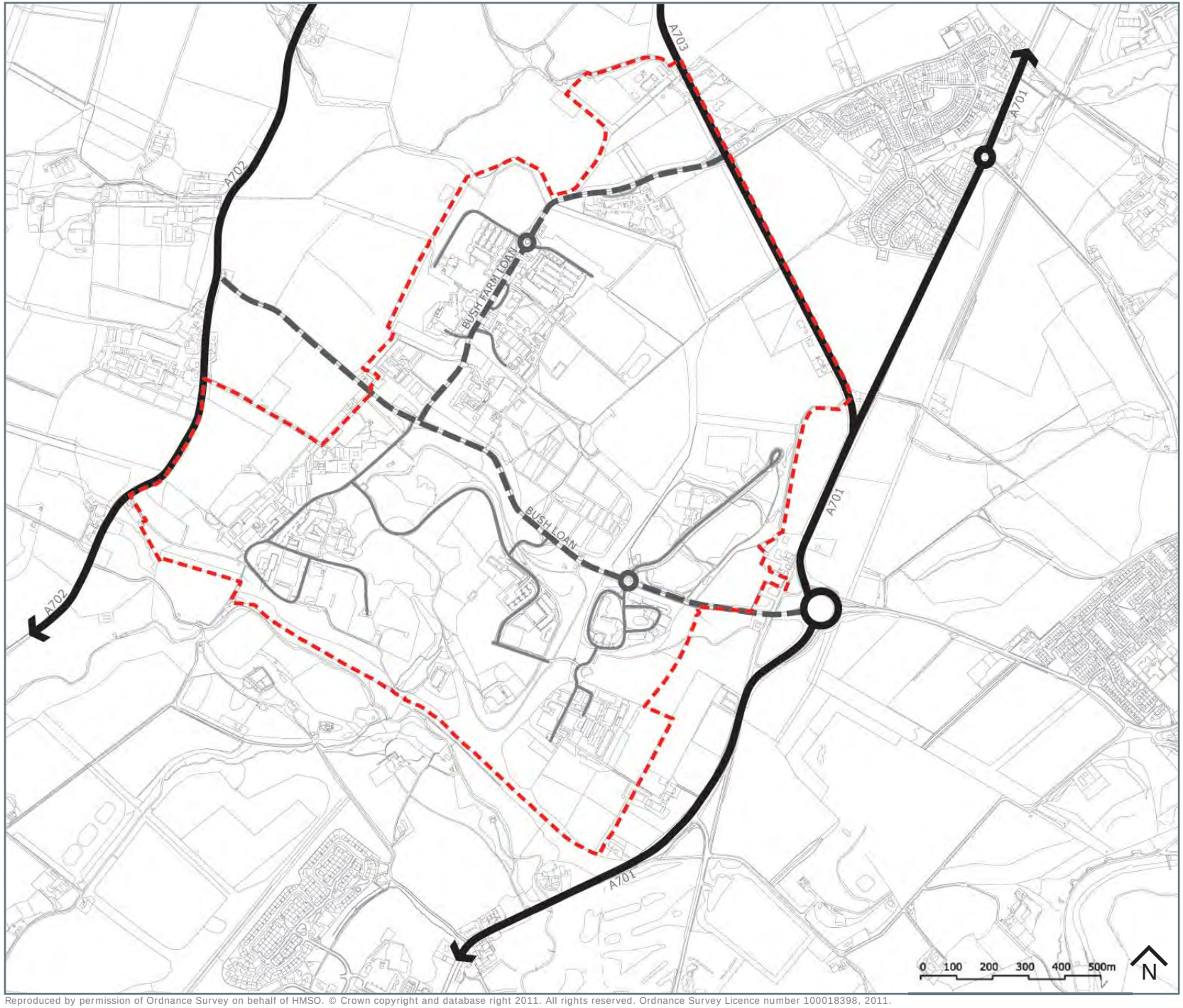
2.62 Bush Loan is a single carriageway road which runs east to west providing a link between the A701 and the A702(T). Bush Loan provides access to a number of facilities within The Bush including Edinburgh Technopole, Bush Estate and Pentlands Science Park. Bush Loan is subject to a 60mph (national) speed limit between the A702(T) and the western Bush Estate access. Beyond this point it is reduced to a speed limit of 30mph. Its junction with the A702(T) takes the form of a simple priority controlled junction.

2.63 Easter Bush Farm Road is a single carriageway road running north to south linking Bush Loan to the A703 Seafield Moor Road. Easter Bush Farm Road is again subject to the national speed limit and provides access to the University of Edinburgh's Easter Bush Campus. The A703 Seafield Moor Road / Easter Bush Farm Road / Seafield Road staggered priority controlled junction was recently upgraded to traffic signal control (including pedestrian crossings and cycle improvements) as part of the expansion of the University's facilities at Easter Bush.

2.64 The A701 runs north to south passing to the east of The Bush and provides access to a number of towns and villages between Edinburgh city centre and Penicuik. It is of single carriageway construction and is subject to a speed limit of 40mph as it passes to the east of The Bush.

2.65 The A702 is a single carriageway Trunk Road and is subject to the national speed limit to the west of the Bush Estate. It runs north to south and provides a link between Edinburgh city centre and the M74 at Abington to the south.

2.66 The A703 Seafield Moor Road is of single carriageway standard and runs in a southeast to northwest direction and provides a link between the A701 to the south of Bilston and the A702(T), south of Hillend. It is located to the north of The Bush and is subject to the national speed limit over the majority of its length. Its junction with the A701 was altered in recent years from a roundabout to traffic signal control as part of bus priority works along the A701 corridor in conjunction with the new Park & Ride site at Straiton (to the north), rather than for reasons of operational capacity. Moreover it was recognised by the authorities that its capacity would be reduced by the changes. Further enhancements at this junction are pedestrian crossings on the Seafield Moor Road and A701 (southbound) approaches, and a cycle advanced stop line on the A701 (northbound) approach.



Legend

- A roads
- Minor roads
- Internal roads

Figure 2.14
Road Infrastructure

Orientation & Way finding

2.67 Directional signing on the roads surrounding The Bush and within the site is generally fairly poor. Advanced Direction Signs on the approaches to Gowkley Moss Roundabout refer to, 'Bush - Science Research, Biotechnology and Veterinary Centres – Agricultural College.'

2.68 Further into the site from Gowkley Moss visitors are presented with 'feature' signs for Edinburgh Technopole and the Edinburgh Research Triangle to either side of the main entrance.

2.69 Carrying on westwards along Bush Loan there are a few 'flag' type signs for Edinburgh Technopole. There is a 'flag' sign at each of the east and west entries to Edinburgh Technopole. At the western access to Edinburgh Technopole but pointing north onto Easter bush Farm Road there are separate 'flag' signs for, 'Midlothian Innovation Centre,' 'Dick Vet Animal Hospitals,' and 'Forest Research.' It is clear from this that 'flag' signs have been added as facilities have been developed.

2.70 From the A702(T) junction there are north and southbound approach 'flag' signs for Pentlands Science Park and a feature sign for Edinburgh Technopole at the entry into Bush Loan.

2.71 At the A703 Seafield Moor Road / Easter Bush Farm Road junction there are 'flag' signs for the 'Midlothian Innovation Centre,' and 'Forest Research.'

2.72 At present there is an incoherent signing strategy in The Bush which is not just restricted to information signs but also road and gateway signs. From a road signing perspective sign clutter needs to be rationalised with single 'flag' signs replacing the multiple signs at specific locations.

2.73 Additional wayfinding should be provided using standardised information signs rather than is currently the case with different sign legends for each occupant. A standardised information sign can still permit the use of company/occupant logos. On particular premises occupiers should be at liberty to use their own specific signs for internal wayfinding.


Easter Bush Campus
The Roslin Institute & Scottish Agricultural College
Parking
Deliveries


THE ROSLIN INSTITUTE
BUILDING


edinburgh
TECHNOPOLE


PENTLANDS
SCIENCE PARK


Moredun


Edinburgh
Technopole


Bush Estate
University of Edinburgh
FASTGLASS WINDSCREENS
Centre for Ecology & Hydrology


EUWD Bush Workshops


The Fleming Building


Forest Research
An agency of the Forestry Commission
Northern
Research
Station


midlothian
innovation
centre


Biocampus

Drainage, Water & Power

Storm Drainage

2.75 Over the recent years site specific masterplans have started to be implemented throughout the study area. Each of these masterplans has identified the need to deal with storm water in a sustainable and controlled manner. Each site has implemented various types of SuDS control systems to attenuate and cleans storm water runoff from the various developed building roofs and hard standing areas.

2.76 This type of system is in accordance with current statutory requirements and is complementary to the rural location of the study area. It would be proposed that the storm water for future developments is handled at a local area level as currently implemented. A regional level single point of attenuation and cleansing would be neither cost effective nor in keeping with the aspirations of SEPA and the flood authorities.

2.77 High quality, aesthetic SuDS installations will enhance the local environment and if controlled can provide an amenity for the area.

2.78 Further development of the study area will require to assess and develop appropriate regional strategies for dealing with storm water in a consistent and appropriate manner.

Foul Drainage

2.79 The general layout of the Scottish Water foul drainage and water supply apparatus is noted on the layout plan. As with the storm drainage, over the recent years site specific masterplans have started to be implemented throughout the study area. The foul drainage schemes capable of supporting the various completed masterplans have been installed and upgrading of connections to the gravity sewer system have been implemented throughout the site, for example the connection of the Technopole drainage through Moredun to the trunk sewer. It is a similar situation to the storm drainage, the various area infrastructure has been implemented with the expansion of the sites to confirm with the consented masterplans. Unfortunately it appears that the Scottish Water infrastructure may not be sufficient to support the total needs of the study area.

2.80 Scottish Water were contacted as part of this study and responded as follows:

"I've commented that it's likely we'll need a Drainage Impact Assessment. This is because the sewers serving this area are not particularly big and already drain a significant area. Any significant increase in flows is likely to require some form of network reinforcement."

2.81 Clearly it is imperative that meetings are held with Scottish Water at the next stage of this study to identify the specific constraints within the Scottish Water network and negotiations held to discuss phasing options to allow a cost effective implementation of upgrade measures. This is one of the key recommendations of this masterplan study.

Flooding Risk

2.82 The Bush study area has been assessed using the SEPA flood map and the general topography of the site. It is not considered that the area will be susceptible to flooding as long as local storm drainage is dealt with in an appropriate manner as discussed above.

Water Supply

2.83 The new water supply trunk mains feeding Edinburgh from the Glencorse WTW skirts the West end of the study area as shown on the layout plan. Despite the proximity of this trunk main, the supply of water to the study area may not be sufficient for the consented masterplans of the area. Scottish Water were contacted and responded as follows:

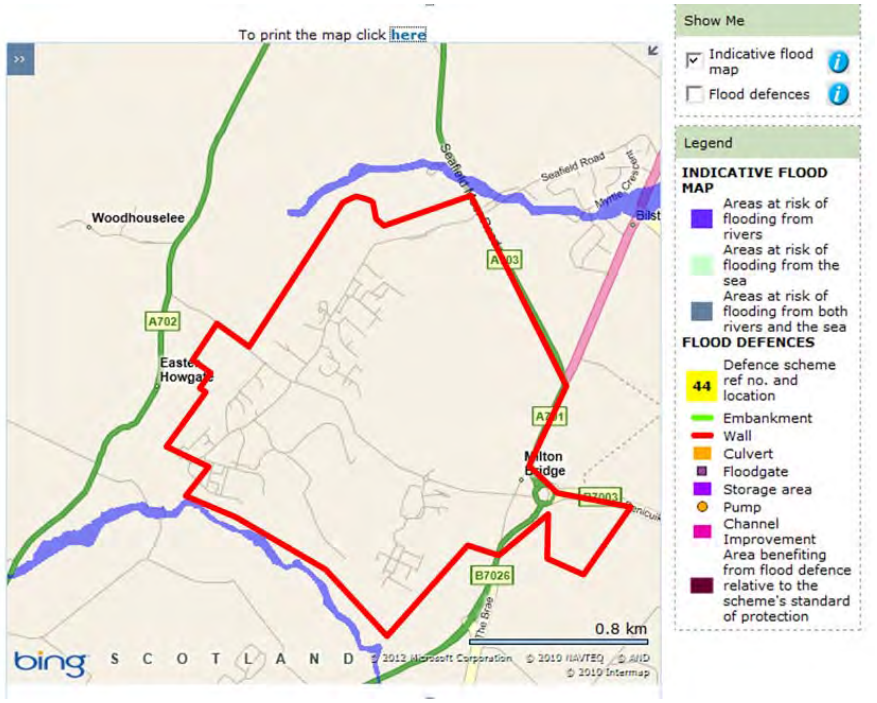
"It's very difficult to comment without detailed proposals, however I would point out that at present the easter bush is dual supplied part direct feed via west regional mains and part via storage at Hillend TWS tanks. This is an unusual set up as a concession given during the recent development of the site. The problem being the lack of distribution storage to the direct feed means the supply is vulnerable and does not guarantee the appropriate levels of service we would aspire toward for key customers etc."

2.84 Again it is recommended that within the next stage of the study, detailed negotiations with Scottish Water are held to discuss phasing options and infrastructure upgrade costs.

Power

2.85 A phased site wide electrical infrastructure strategy needs to be been established to support any future development within The Bush. This will require consultation with Scottish Power to establish current capacity and the likely infrastructure upgrades that may be required in the future.

2.86 A similar strategy may be required for Gas and telecom service providers to ensure future development and expansion is not constrained.



Extract from SEPA flood map

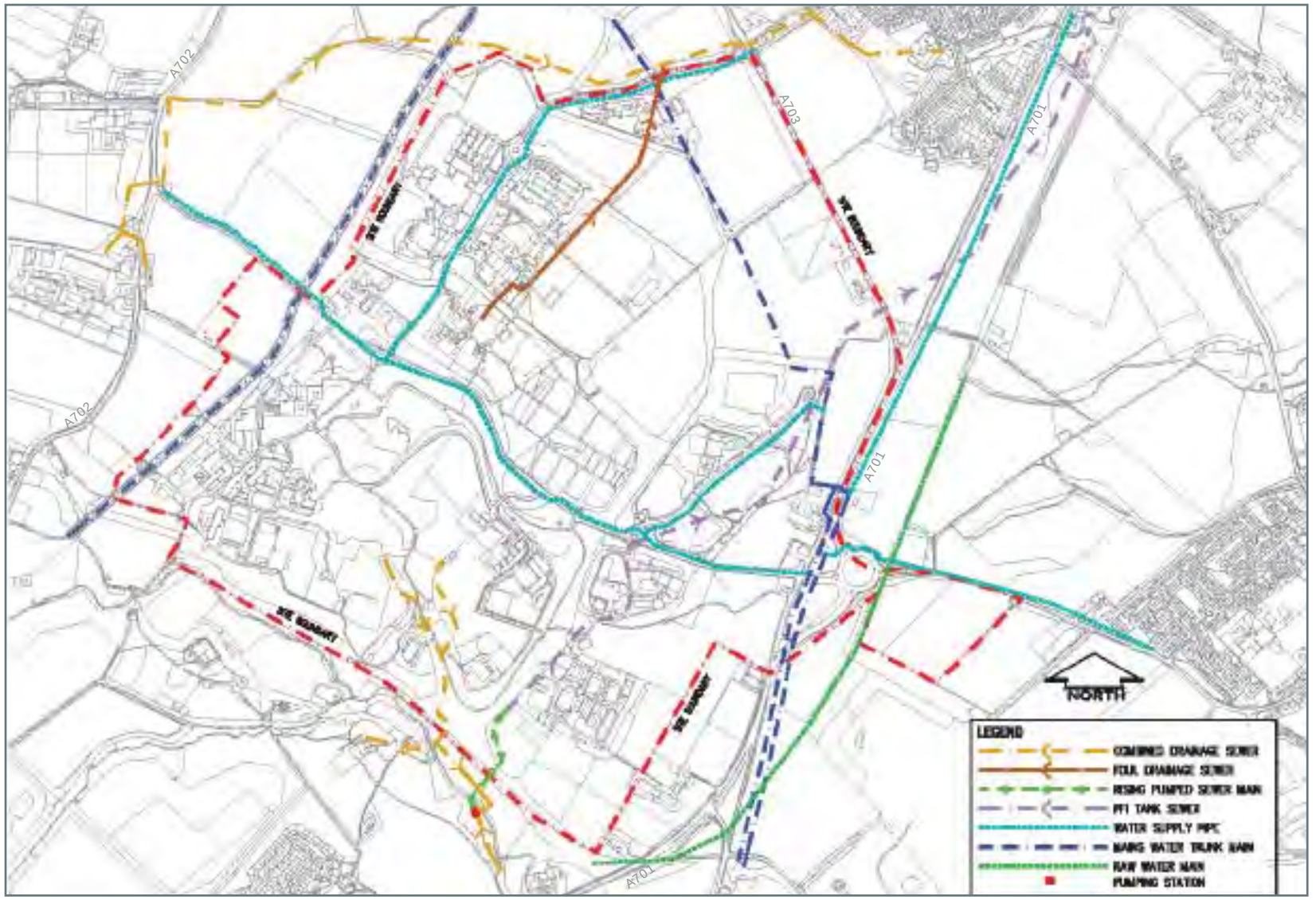


Figure provided by Goodson Associates

Figure 2.15
Utilities

3

Policy Context and Development Plans

3 Policy Context and Development Plans

Policy Context

National Planning Policy

3.1 The National Planning Framework for Scotland 2, 2009, sets out strategic development polices to guide Scotland's development to 2030. The plan states that the planning system has an important role to play in improving the environment, for example, by strengthening green infrastructure and safeguarding and enhancing urban and rural biodiversity.

3.2 One of the legislation's Statements of Need is the Central Scotland Green Network, a strategic network of woodland and other habitats, active travel routes, greenspace links, watercourses and waterways, providing an enhanced setting for development and other land uses and improved opportunities for outdoor recreation and cultural activity. This development is aimed at delivering a better environment in Central Scotland which in turn will help to ensure that it can compete economically at a European and global scale.

3.3 Location and design of integrated habitat networks; alignment and design of active travel routes and access provision; location, design and layout of any new recreational or cultural facilities; visual and noise impacts; effects on communities; carbon impact; effects on the historic environment and cultural heritage; and effects on the natural environment, including existing habitats and species are all listed as factors which should be addressed.

3.4 The Framework highlights the importance of place to a modern knowledge economy as a Key Challenge. Businesses choose to locate where they can recruit well-educated, talented people and capital flows to places which have the sort of physical and social infrastructure which supports innovation. Well-qualified, creative people are attracted to places which offer a variety of economic opportunities, a stimulating environment, amenities for a wide range of lifestyles and good connections to other high quality places. Successful places have strong, positive identities. They are cosmopolitan, well-connected and diverse, offering opportunities for a wide range of creative interaction. The environmental quality, built heritage and cultural life of Scotland's cities and towns are therefore strong economic assets and planning policies must place emphasis on supporting and enhancing them.

3.5 The relationship between transport and land use is central to this agenda with changes to transport due to Climate Change stated as a Key Challenge. This will mean a shift from car-based travel to walking, cycling and public transport. The promotion of effective active travel networks and efficient public transport systems can play an important part in reducing the need for car-based commuting. The framework states that individual business locations need to be well connected with each other and readily accessible from residential areas by sustainable modes of travel. To ensure that Scotland is a good place to do business and an attractive tourism destination, we need to promote high quality environments and good transport interchange facilities at our air, rail and sea gateways.

3.6 Scottish Planning Policy, 2010, emphasizes the importance of sustainable development through location, layout and design. It states that the design should act to:

- contribute to the reduction of greenhouse gas emissions in line with the commitment to reduce emissions by 42% by 2020 and 80% by 2050, contribute to reducing energy consumption and to the development of renewable energy generation opportunities;
- protect and enhance the cultural heritage;
- protect and enhance the natural environment, including biodiversity and the landscape;
- maintain, enhance and promote access to open space and recreation opportunities;

- take into account the implications of development for water, air and soil quality; and
- support healthier living by improving the quality of the built environment, by increasing access to amenities, services and active travel opportunities, and by addressing environmental problems affecting communities.

Regional Planning Policy

Edinburgh and Lothians Structure Plan 2015

3.7 The Edinburgh and Lothians Structure Plan 20152004, sets out a long-term direction for the region with regard to development, land-use and transportation. Prepared by a collaboration of 4 Councils, City of Edinburgh, East Lothian, Midlothian and West Lothian, it contains a broad framework which can then be progressed further, in more detail and to specific sites within Local Plans.

3.8 The foremost objective of the structure plan is to 'provide in full for the development needs of Edinburgh and the Lothians in accordance with the principle of sustainable development, whilst maintaining and enhancing the environmental heritage that underpins the areas quality of life.' The plan aims to achieve this through:

- maintaining and enhancing economic competitiveness through objectives such as identifying main economic growth sectors, strategic development locations for these and infrastructure improvements required for these;
- promoting a more inclusive society, for example by increasing leisure facilities in locations easily accessible by foot, cycle or public transport;
- protecting and enhancing both the natural and built environment with focus on maintaining a continuous greenbelt around the city as well as the landscape settings around smaller settlements, emphasising the preference of brownfield sites for future development and protecting the natural environment affected by development; and
- integrating land-use and transport by reducing transport requirements through strategic development locations and improved foot, cycle and public transport links as well as identifying transport infrastructure improvements.

3.9 Fifteen Core Development Areas are set out to provide the land necessary for growth in the area until 2015. The A701 corridor, defined in the structure plan as 'extending from Straiton to Penicuik and including the communities of Loanhead/Straiton, Bilston, Roslin, Auchendinny and Penicuik' is one of those proposed. Recommended improvements include the re-opening of the Penicuik railway line, the extension of the Edinburgh Tram and general improvements to the A701 road layout. Although it is stated that Penicuik may not have the capacity for significant further growth, the Bush Estate, Technopole, Gowkley Moss Biocampus, University of Edinburgh and the Roslin Institute, and the biotechnology sector has the scope for further growth. The plan also suggests that the development of housing along the A701 corridor, in conjunction with transport improvements, may reduce commuting requirements. Due to much of the A701 corridor being within the Green Belt, some limited Green Belt releases may be possible without compromising its objectives.

3.10 With regard to Economic Developments, Policy ECON3 makes proposals to develop clusters of new technology, knowledge based industries, which are of strategic importance to the Scottish economy, will be encourage. These should include the allocation of up to 25 Ha of land along the A701 corridor, to be identified in the Local Plan.

3.11 To achieve sustainable transport, the plan identifies specific schemes including road improvements along the A701 between Straiton and Milton Bridge and tram and train extensions to Penicuik.

3.12 In order to protect the region's varied natural and built environment:

3.13 ENV 1 D states that core paths, prime agricultural land and sites of archaeological interest for example should be protected by, and defined within, the Local Plan;

3.14 ENV 1 E states that Local Plans should define flora and fauna of local importance within a Local Biodiversity Action Plan, including proposals for their protection and enhancement;

3.15 ENV 2 emphasises the importance of maintaining a continuous Green Belt;

3.16 and ENV 3 considers that development in the countryside should not be allowed without alternative sites in urban or brownfield locations being first considered.

SES Plan Proposed Plan, 2011

3.17 The Planning (Scotland) etc Act 2006 introduced a new statutory development plan framework replacing structure and local plans with strategic development plans (SDP) and local development plans (LDP). The Strategic Development Plan (SDP) for South East Scotland (SES), the City of Edinburgh, East Lothian, Fife, Midlothian, Scottish Borders and West Lothian, looks at the future spatial development of the area. The SDP takes into account existing development plans, national planning policy and other strategies including for example the National Planning Framework (NFP2) and the Scottish Planning Policy.

3.18 The Proposed Plan is currently at the Examination stage. The provisional timetable for the Reporters concluding the Examination and submitting their findings is Summer 2013. Thereafter it is up to SESPlan to take the necessary steps to formally approve the plan.

Local Planning Policy

Midlothian Local Plan, 2008

3.19 The Midlothian Local Plan, 2008 interprets the vision of the structure plan at a local level, providing a policy framework which guides growth and development in order to ensure that 'Midlothian is a welcoming and enriching place to live, work and visit'. The Plan emphasizes the importance of improvements to the A701 corridor in order to facilitate Core Development Areas whilst helping to reduce commuting. These improvements relate to public transport with increased bus networks and also the potential reopening of the Penicuik rail line.

3.20 Policy RP2 aims to protect the Greenbelt by ensuring that developments illustrate the identity of the Midlothian area, do not encroach or cause the coalescence of existing settlements, don't impinge on the important landscape setting of Edinburgh and its surrounding settlements and that countryside is provided for recreational means. Policy RP3 then sets out several major non-conforming land uses in the greenbelt including the Bush Estate, University of Edinburgh and the Roslin Institute which will be permitted due to their established activity.

3.21 Policy RP4 relates to the protection against the permanent loss of 'prime' agricultural land, requiring demonstration that no alternative land is feasible to avoid this loss.

3.22 Policy RP5 details that developments will not be permitted which cause damage or loss of woodland, groups of trees or TPOs. Hedges of particular importance such as those which are fundamental to landscape character, provide vital shelter or are of significant amenity, habitat or biodiversity value are also included within this policy. In an exception, replacement trees will need to be planted.

3.23 Policy RP8 covers effects on water environment in order to prevent development having an adverse effect. This aims to ensure that the best policy and standards for SUDS design are put in place and that wastewater must be controlled and managed in a manner which will not result in any contamination of ground or surface water.

3.24 Policies RP13, RP14 and RP15. Environmental legislation relating to protected species, protected habitats as well as the findings of the Midlothian Biodiversity Action Plan, require developments to carry out an appropriate level of survey and assessment and where necessary deliver mitigation techniques and habitat enhancement or replacements.

3.25 Policy RP32 relates to public rights of way, cycle ways, bridleways and designated core paths and ensures that no development is permitted which would cause the loss, without a satisfactory alternative being provided, of these important routes through the countryside.

3.26 A number of sites are listed within the plan which are considered suitable for development. ECON2 applies to the current development locations allocated as B1 (Easter Bush), B2 (Gowkley Moss North), B3 (Gowkley Moss South), B4 (New Milton) and ECON1 applies to E7 (Oatslie). Although all of these sites are located within the Green Belt the plan acknowledges the economic importance of the biotechnology industries and so seeks to provide the best locations for this sector to grow.

Midlothian Local Development Plan and Main Issues Report

3.27 The Midlothian Local Development Plan is the first of the new style development plans introduced by the Planning (Scotland) etc Act 2006 for Midlothian. The first stage of the MLDP is to prepare a Main Issues Report (MIR). The Council anticipates that consultation on the MIR will take place in Spring 2013.

MEDF Animal Biosciences Plan, 2011

3.28 The MEDF Animal Biosciences Plan, 2011 prepared in accordance with the Midlothian Economic Development Framework (MEDF) following the Economic Development Framework for the area which was published by Midlothian Council and Scottish Enterprise in 2007. This Action plan was commissioned following the production of action plans focussing on construction, education, environmental and life sciences and public and tourism sectors. The document states that 4 main organisations are central to the University of Edinburgh which includes the Animal Bioscience sector of the Midlothian region: the Roslin Institute; the Royal (Dick) School of Veterinary Sciences; the Moredun Group located at the Pentlands Science Park; and the Scottish Agricultural College (SAC).

3.29 Amongst others, the report lists the following actions as important for the growth of the Animal Biosciences sector: promotion and marketing of the Roslin / Bush / Pentlands area, as a hub for Animal Biosciences, as an important action and suggests the rebranding of the 'Midlothian Cluster with the possibility of establishing 'EBRC (Easter Bush Research Consortium) as Europe's centre of excellence for Animal Bioscience'.

3.30 Assessment of the transport needs for staff and students to and from the site, Edinburgh City centre and other outlying areas.

3.31 Preparation of a masterplan for the future infrastructure of the site as well as locations for shared facilities, a proposed hub for the area and a prediction of the Science Park's capacity.

MEDF Life Sciences Plan Sector Action Plan, 2010

3.32 The MEDF Life Sciences Sector Action Plan, 2010 is an Action Plan prepared for the Life Sciences Sector in accordance with the Midlothian Economic Development Framework published in 2007. Actions advised refer to the promotion of the subject in schools, the backing of training and apprenticeships and as well as the general promotion of the Life Sciences sector in Midlothian.

3.33 The Plan also suggests that a review would be advantageous in order to ascertain how improving infrastructure could benefit the Life Sciences sector.

Core Paths Plan, 2009

3.34 Core Paths Plan, 2009, sets out the core path network for Midlothian, illustrating designated Core Paths along with other significant paths, routes and road links and aspirational core paths. The core path network has a number of aims including; connecting residential areas, greenspaces, amenities, other attractions and connecting Edinburgh City to its surrounding countryside and; forming a basic, safe framework for outdoor recreation and sustainable active travel.

3.35 Core paths 48 & 48a are located within the Bush Estate and 47a connects the Pentlands Science Park to the A701 at Gowkley Moss South. Route 47, an 'other path' provides a loop around the perimeter of Bush while 49 extends from Bush out into the wider countryside and a road link passes through the study area along Bush Farm Road.

Future Development

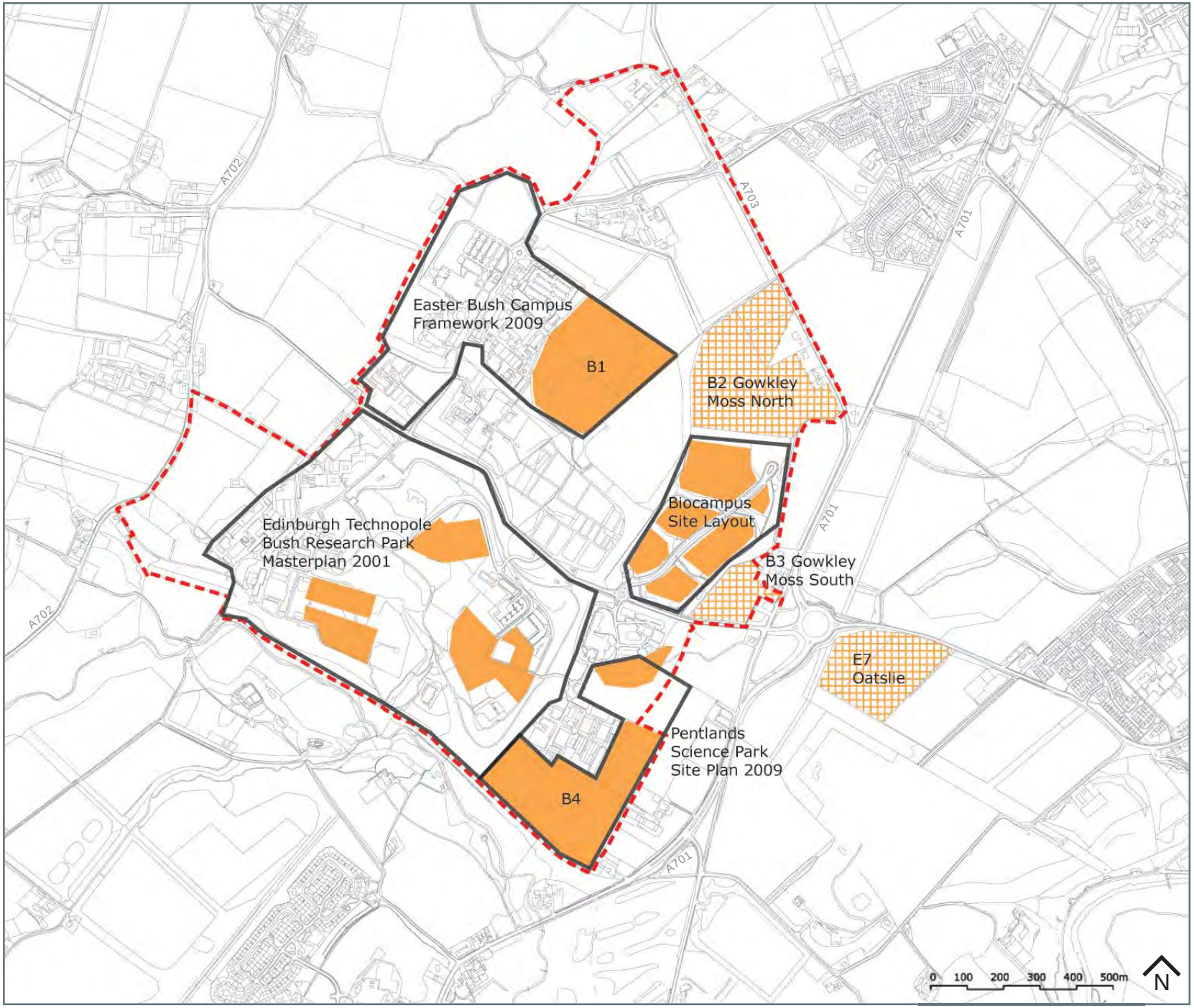
Development Allocation

3.36 The Midlothian Local Plan (2008) set out proposals under ECON2 'Biotechnology and Other Knowledge-Based Industries', for development of this type and related manufacturing on four sites within the study area. These allocations are intended to meet the strategic land requirements of the Edinburgh and Lothians Structure Plan 2015, which identifies the need to provide land to further develop this nationally-significant economic sector. The allocated sites are covered by Local Plan Policy RP3 'Major Non-Conforming Land Uses in the Green Belt', which permits development at Easter Bush Campus.

Table 3.1 Sites Allocated in Midlothian Local Plan under Policy RP3

Site Ref.	Name	Existing Use	Size (hectares)
B1	Easter Bush	Pasture (and pond)	7.5
B2	Gowkley Moss North	Pasture	7.5
B3	Gowkley Moss South	Pasture	2.5
B4	New Milton	Pasture	7.5
E7	Oatslie	Pasture	2.5

3.37 The size of each site has been defined as the developable area rather than the full extent of each site boundary, to enable development to be appropriately accommodated within the existing setting, and to allow for any additional structure planting which may be required for screening.



Legend

- Development plot with outline design proposals
- Potential future development plots identified in Local Plan
- Existing Masterplan boundaries

Figure 3.1
Development Allocations, Masterplans and Frameworks

Development Masterplans and Frameworks

Easter Bush Framework, 2008

3.38 The Easter Bush Framework sets out the proposed extension to the existing Edinburgh University Veterinary Campus. The framework will be used to guide development of animal health care, education and related research on this site which gained outline planning consent in 1991. The masterplans within the report were a condition of that planning consent and were developed to show the long-term development intentions for the Easter Bush development.

3.39 The framework sets out a 4 phase strategy with much of the infrastructure, public transport improvements and cycle routes recommended for implementation in the first phases. The further 3 phases look into the long term future of the site.

3.40 Although the site falls within the Edinburgh Greenbelt and so is considered a 'non-conforming' development according to the Midlothian Local Plan, the council accepts the location as suitable for the development in accordance with its outline consent.

3.41 With respect to accessibility of the site, the framework details the parking facilities and one existing bus service which runs hourly connecting the site to the city during the week.

3.42 A basic pedestrian access strategy is shown which illustrates footpath links to buildings within the site which will be realised from phase 2 onwards. Connections to the surrounding landscape and Edinburgh City have been considered through proposals for a combined cycle and pedestrian route along the main road into Edinburgh as well as off-road routes to neighbouring Gowkley Moss, Pentlands Science Park and Edinburgh Technopole.

3.43 A core access strip of open space is proposed central to the development, only a small proportion of which committed to the current development. The division of the site by a main road has been considered and mitigation methods such as raised crossings have been designed.

3.44 The framework sets out a detailed plan of existing, proposed and longer term tree structure which is dependent on future development phases. The most important element of these proposals is the strengthening and extensions of the existing perimeter tree belts. Trees proposed within car parking areas aim to screen visibility from the Pentland Hills. Parkland trees are proposed as a mixture of ornamental and native species although no species are specified.

Technopole Masterplan, commissioned in 1998

3.45 A landscape management plan with the aim to conserve the existing landscape features was developed in 1998. The informal landscape of the historic Bush House includes an Arboretum believed to have been implemented between 1821 and 1852, a walled garden and a Pinetum containing numerous exotic evergreen species introduced around 1868 – 1894.

3.46 Edinburgh Technopole also has a management plan for the protection of European Protected Species which was prepared in 2007. This extensive report focuses on the preservation of habitats and protected species. A broad variety of habitats on site are recorded within the report. The surveys showed evidence of Great Crested Newts and some indication of bat roosts within trees.

3.47 The report sets out a number of objectives which aim to maintain and enhance the populations of Great Crested Newt and bats at Edinburgh Technopole.

Technopole Transport Study

3.48 A recent transport study commissioned by Grosvenor Technopole Investment Limited (the former owner) reviewed the levels of development at Edinburgh Technopole and The Bush generally (Pentlands Science Park, Easter Bush, Gowkley Moss BioCampus and Midlothian Innovation Centre) up to 2010. It reviewed the level of transport infrastructure already in place and the transport measures required to support future development in phases over a period of 15 years. In attempting to provide an indication of the infrastructure that may be required, 3 separate scenarios for future levels of road traffic were assumed in the study:

- A phased future development programme with travel patterns (mode share) remaining unchanged from the existing situation.
- A phased future development programme, as above, but with a reduction in the number of people travelling to/from the Bush area by private car (modal shift). This would be a key outcome of the implementation of a 'green' Travel Plan in the Bush area.
- A phased future development programme, modal shift and a reduction in the level of traffic using the A701 to / from Penicuik which is predicted to result from improvements identified for the A702(T) / Mauricewood Road junction. This improvement involves the upgrading of the existing junction from priority control to a roundabout and is linked to key future housing developments in Penicuik identified in the adopted Local Plan.

3.49 The results of the study identified a number of key outcomes in terms of transport access:

- Road infrastructure within The Bush would be able to support the predicted future travel demands generated by development.
- The A702(T) / Bush Loan priority junction is currently nearing capacity and it is predicted that mitigation will be required at this junction post 2015 as a result of future development. The study was inconclusive as to the appropriate mitigation that would be required as it is dependent on a number of factors – rate of development, the effect of improvements at the A702(T) / Mauricewood Road junction and the effectiveness of a Bush Area Travel Plan in encouraging a shift primarily from single occupancy car journeys to/from the site.
- Future year capacity problems are predicted for the A701 / A703 Seafield Moor Road signalised junction with or without further development in The Bush. The local authority has however acknowledged that the changes at this junction were for the purpose of improving bus priority and pedestrian / cycle movements and not for increasing its capacity. Assumptions made in regard to the re-routing of traffic to / from Penicuik resulting from the completion of improvements to the A702(T) / Mauricewood Road junction as part of this study are key to reducing predicted capacity problems. A timescale for the delivery of the Mauricewood improvements is unknown. Further capacity improvement can be achieved by a reduction in car driver mode share but this would depend on the success of the Bush Area Travel Plan.

3.50 Notwithstanding the conclusions above any future development masterplan will need to consider what additional road infrastructure is required and when to satisfy the need of all road users and to improve the overall site accessibility.

3.51 A critical item of additional infrastructure will be the upgrading of the A702 (T) / Bush Loan priority junction. All previous transport studies have recognised the lack of capacity at this junction as a constraint on future development of The Bush. At present there is no definitive upgrading proposal, and those that have been prepared are based upon retaining the existing junction location, which may not offer the best overall solution.

4

Socio-Economic Analysis

4 Socio-Economic Analysis

4.1 The stimulus for the Bush Framework Masterplan was a perception of only partially realised potential: the distinctive set of world-class life sciences research institutions, education and other related activities at The Bush, together with a sense that, despite substantial investment over a decade or more, and recognition in public policy, the area was still to achieve the expected level of economic benefit. This could have resulted from:

- An unexpectedly adverse economic situation;
- Specific physical constraints on further development;
- Institutional blockages.

4.2 The Bush is and should be capable of competing with other renowned life sciences locations around the world such as:

- Lyon BioParc;
- Kansas City Animal Health Corridor;
- Cornell Institute for Biotechnology and Life Science Technologies;
- Stockholm – Uppsala Life Sciences.

4.3 This part of the report examines the rationale for the development of a biosciences cluster, the extent to which this has already been created The Bush, and the factors which appear to have frustrated its more rapid development. It includes:

- The strategic backdrop to the development of Midlothian Biosciences Cluster:
- The socio-economic context;
- An assessment of economic performance;
- Implications and recommendations for future actions.

Strategic Context

Fit with National Strategies

4.4 As highlighted in the **Scottish Life Sciences Strategy**[1] and **Scottish Government Economic Strategy**[2], the life sciences sector continues to be a priority sector for the Scottish Government and for Scottish Enterprise. In the refreshed life sciences strategy, 'wellbeing' is identified as one of the four areas of future opportunity for Scotland which includes plant, animal and nutritional sciences aimed at promoting health benefits in food and drink.

4.5 The life science capabilities (in businesses and the research-base) and facilities already present in Midlothian, focused both on human and animal science, constitute not only the 'jewels in the crown' of the local economy but form a very significant cluster of excellence for the sector and for the economy of Scotland as whole. As promoted by Scottish Enterprise (SE).

Scotland is a global leader in animal bioscience and has the largest concentration of animal science related expertise anywhere in Europe. The vast majority of this activity is reported to be located in Midlothian.

4.6 The importance of life sciences to the Scottish economy appears to have been reflected in a recent announcement by the Scottish Government on the creation of four 'enterprise areas' (thematic rather than the geographic based enterprise zones in England)[3]. The four designated sectors are life sciences; low carbon/renewables north; low carbon/renewables east; and general manufacturing and growth. Businesses will be incentivised to move to certain locations relevant to these sectors.

[1] Life Sciences Scotland (2011), Scottish Life Sciences Strategy 2011
[2] Scottish Government (2011), Government Economic Strategy
[3] http://www.bbc.co.uk/news/uk-scotland-highlands-islands-16593720

Interestingly, the recent press coverage specifically mentions the relevance of SE's BioCampus which forms part of the site being considered by this research, but not the adjacent Technopole Science Park.

Fit with Regional and Local Strategies

4.7 The Midlothian Economic Development Framework (MEDF) was launched by Midlothian Council and Scottish Enterprise in 2007. The Framework highlights the area's main assets in terms of key sectors (life sciences, a strong and diverse education sector), rural environment and geographic location (proximity to Edinburgh which has supported population growth). It states the population of Midlothian is expected by 2020 to have reached between 95,000 and 112,000 (in 2001 it was just under 81,000). During the same period, the Framework estimates that between 4,000 and 10,000 additional jobs will be required in Midlothian. Discussions with local stakeholders acknowledged that some of these projections, developed pre-recession, may be somewhat optimistic and we return to this point later.

4.8 In order to develop and grow the local economy, the Framework prioritises the following sectors: construction, education, environmental sciences, life sciences, public sector and tourism, each of which have their own action plan. Although there is some overlap with life sciences, animal biosciences was added as a priority sector in its own right.

4.9 The four most relevant action plans to the development of The Bush are summarised in Table 4.1.

Table 4.1 Fit with Local Strategies

Priority sector	Summary
Life Sciences Action Plan	Highlights around 1,000 life science-related jobs generating around £70m GVA for local economy. Also suggests that there are around 20 life science companies in Midlothian Introduces the main locally based organisations in the sector: Moredun Foundation, Roslin Institute, Royal (Dick) School of Veterinary Studies, and Scottish Agricultural College. Highlights the importance of Easter Bush Research Consortium and Edinburgh Science Triangle as means of developing/ promoting the sector.
Animal Biosciences Action Plan	Highlights that there around 1,700 local jobs relating to animal biosciences, which equates to over 10% of the total employment for Europe. It is estimated that this generates around £115m for the local economy. It reinforces that Midlothian has a world-wide reputation in the sector. The main organisations central to the Action Plan once again are the Roslin Institute, the Moredun Group, Royal (Dick) School of Veterinary Studies, and Scottish Agricultural College. It also highlights that some of the companies based in the area's science parks (Pentlands Science Park, Roslin BioCentre, and Edinburgh Technopole) are involved in the sector. Two main market drivers are identified: convergence of animal and human health (with implications for links between Bush/Easter Bush and the Bioquarter); and the impact of population growth on demand for food.
Education Action Plan	States that Midlothian has a higher level of education-related employment (14%) than the Scottish average (8%). Includes reference to Jewel and Esk College, Newbattle College and the Scottish Qualifications Authority but also highlights the University of Edinburgh facilities based at Bush/ Easter Bush. *From a closer analysis of the most recent BRES/ABI data for 2010 it would seem that the level of Higher Education employment (i.e. University of Edinburgh) in Midlothian is being under-estimated. Part of this may be because of where the host organisation is based (i.e. in the city rather than in Midlothian)*
Earth Sciences Action Plan	Highlights that in 2008 Forest Research employed around 92 staff in the Northern Station and 39 PhD students (15 from Scottish universities). Other local organisations involved in relevant activity include the Centre for Ecology and Hydrology (part of NERC), and local company Dryden Aqua.

Source: Midlothian Council (2009-11)

The continuing development of The Bush is central to supporting the Council's priority sectors of life sciences, animal biosciences and education and fits with the Scottish Government and Scottish Enterprise's focus on wider life sciences.

Socio-economic Context

4.10 The last 30 years has seen dramatic change in Midlothian's economy with a shift from traditional industries, in particular coal mining, to more R&D and service sectors. Much effort has recently gone into developing the area as a hub for biotechnology and life science industries. Whilst the major sectors have changed, the size of the area's population has remained approximately the same. For example, over the last decade while Edinburgh, East Lothian and especially West Lothian witnessed significant population growth (all between 8-10%), Midlothian's population has remained around 81,000[4]. During the same period, Scotland's population has grown by 3% (Table 4.2).

4.11 Despite these figures Midlothian has experienced quite a lot of house building in recent years and there is a significant amount of committed house building projects in the pipeline. Once these developments are realised they will have an influence on population figures indicating a trend towards population growth. The most recent census results are going to be released early in 2013 and this will provide a more up to date population perspective.

Table 4.2 Population change in Midlothian over the last 10 years

Year	Midlothian	Scotland
2000	81,100	5,062,900
2005	79,200	5,094,800
2010	81,100	5,222,100
% change 2000-10	0%	3%

Source: NOMIS, Mid-Year Population Estimates

4.12 Due to the proximity of Midlothian to Edinburgh, it is perhaps unsurprising that nearly half of local residents work in the city[5]. Overall, Midlothian has one of the highest out-commuting rates in Scotland at 53%, behind only East Dunbartonshire, East Renfrewshire and Clackmannanshire[6]. In the context of creating a sustainable local economy (i.e. through providing local jobs within Midlothian itself), the continuing development of employment and economic activity in the Bush/ Easter Bush area is all the more important.

Economic Profile

4.13 In 2010, Midlothian had a workforce of just over 24,200 employees. Based on broad sector definitions, most jobs in Midlothian are to be found in wholesale / retail (18%), education (13%), construction (11%) and health (11%). In the context of the activity taking place at the Bush, it is interesting to note the higher than average (Scottish) levels of employment in the education sector and professional / scientific activity. These two set of figures would, for example, cover jobs at the University of Edinburgh incorporating the Roslin Institute and the Royal (Dick) School of Veterinary Studies animal hospital, Moredun Research Institute, Scottish Agricultural College and Forest Research (part of the Forestry Commission).

Change in employment in key sectors

4.14 Similar to the population in Midlothian, the number of local jobs has remained around the 25,000 mark for most of the last 10 years. Between 2008 and 2010 (latest available data), there was actually a drop in employment from nearly 27,000 down to just over 24,200.

4.15 In earlier sections, we refer to the Midlothian Economic Development Framework. This includes an ambition of growing the number of jobs by 10,000 by 2020. On the evidence of the last 10 years (even allowing for potential sampling errors in the ONS

[4] Using Mid-Year Population Estimates for 2000 to 2010

[5] Based on Census 2001 results (still awaiting 2011 results)

[6] Scottish Government (2011), Local Area Labour Markets in Scotland Statistics from the Annual Population Survey 2010

data), this would seem extremely optimistic. Similarly, in relation to the priority sectors of life sciences and animal biosciences, the levels of employment (based on 'best-fit' SIC codes) have consistently been around the 1,000 or 5% mark.

Taking into account the increase in university-based employment at the Easter Bush campus over the last few years, employment at The Bush is an important element in Midlothian, but does not currently provide more than 10% of all jobs in the area; its share in the total has not grown substantially.

Economic Performance

Economic impact to date

4.16 We now go on to take a closer look at the organisations based at The Bush and review the scale of economic activity. **Table 4.3** summarises the range of research-based or commercial organisations based at the site and scale of employment. From these different employment figures, it is estimated that there are around 1,700 employees based at The Bush.

Table 4.3 Overview of organisations and facilities

Activity	Name	Facilities	Area of activity	Scale of activity and employment impact	Employment number (approx.)
Research / High Education	Roslin Institute (University of Edinburgh)	In 2011, the Institute moved to a new £60m building in University of Edinburgh's Veterinary Campus across the road from the Vet School. Prior to this it was based in the village of Roslin. In 2008, it became part of the Royal (Dick) School of Veterinary Studies, University of Edinburgh.	It carries out top class basic and translational research in animal health and welfare, their implications for human health and the role of animals in the food chain. The Institute's work is aimed at preventing and treating veterinary diseases and developing sustainable farm animal production systems. Roslin is the birth place of Dolly, the first mammal cloned from a cell taken from an adult animal.	Following the opening of the new facilities in 2011, there are now around 480 staff[7]. In 2011, an economic impact study of the Roslin Institute found that in 2009/10, the Institute contributed £40.1m GVA to the Scottish economy and supported 1,179 jobs across the UK.[8]	480 320
Higher Education	Royal (Dick) Vet School (University of Edinburgh)	In September 2011 a new £42 million teaching facility was opened aligned with the Roslin Institute that forms one of the world's largest vet school campuses.	It provides research, teaching and CPD for veterinary practice	Following the opening of the new facilities in 2011, there are now around 320 university staff based at Easter Bush	?
Research	Scottish Agricultural College (SAC)	SAC has facilities and land on the Bush Estate.	SAC supports the development of land-based industries through research, education and consultancy work		?
Research	Moredun Institute (Moredun Foundation)	Moredun Research Institute has been based at the Pentlands Science Park since 1999.	The Institute is a leading player in animal disease research and veterinary science. It is a charitable company which receives funding from research programmes from Scottish Government and EU. It is internationally recognised for its work on infectious diseases of sheep, cattle, pigs and other livestock.	210 jobs (2010 figures[9]) An economic impact study of the Moredun Group found that the Group contributed £35.8m GVA to the Scottish economy and supported 668 jobs across the UK[10].	210

[7] Figures provided by University of Edinburgh
[8] Biggar Economics (2011), Economic Impact of the Roslin Institute
[9] Biggar Economics (2010), Moredun Group Economic Impact Study
[10] Biggar Economics (2010), Moredun Group Economic Impact Study

Activity	Name	Facilities	Area of activity	Scale of activity and employment impact	Employment number (approx.)
Commercial	Roslin BioCentre	It was created in 1997 to provide accommodation and support facilities to spin-outs from the Roslin Institute and other academic activity. The incubation centre provides office and laboratory space. It is also home to EST and Nexxus networking bodies.	Roslin Biocentre is a thriving scientific community, reflected by an impressive array of world-leading research intensive companies and a wide range of flourishing commercial life science related organisations. Roslin Biocentre benefits from international recognition as the birth place of Dolly the sheep, the first cloned mammal. Roslin is an internationally known name in the field of life sciences- "it opens doors". Additionally, a number of key networking organisations are located at the Biocentre, providing new companies with the opportunity to quickly integrate into the Scottish life science community and offering specialist advice, encouraging knowledge transfer and innovation.	The centre has 23 tenants employing c.150 people (2010 figures[11])	150
Commercial	Edinburgh Technopole (University of Edinburgh and LaSalle)	The park offers office and laboratory space options are available in units from 50 sq m to 50,000 sq m.	The Edinburgh Technopole science park is a joint venture between the University of Edinburgh and LaSalle.	The park is currently home to 21 tenants employing between 250-300 people	275
Commercial	Pentland Science Park (Moredun Foundation)	160,000 sq ft of high class offices and laboratories housing Moredun and a range of commercial companies. The park has high occupancy levels and is looking to develop a further 20 acres adjoining the existing park	The park's tenants have access to Moredun's animal facilities – incl. high containment facility, post-mortem facility, on-site incinerator and highly skilled staff in veterinary science. The park has strong links with the University of Edinburgh (Moredun and the University have a joint laboratory on site) and the Scottish Agricultural College (SAC)	The park is home to five divisions of the Moredun Group and 17 other tenants employing 205 people (2010 figures[12])	205
				TOTAL	1335+

Source: EST brochures (2011), Biggar Economics, University of Edinburgh and Grosvenor

[11] Biggar Economics (2011), Economic Impact of the Roslin Institute
[12] Biggar Economics (2010), Moredun Group Economic Impact Study

Importance to the Local Economy

4.17 As we have already discussed, Midlothian's labour market depends on providing workers for neighbouring areas, in particular the city of Edinburgh. There is also a (smaller) reverse flow from the city to Midlothian. However, it is important to emphasise that in the context of increasing numbers of university staff moving to the Easter Bush campus that a sizeable proportion (potentially around 30-40%) of those currently working at The Bush site live in Midlothian and are therefore contributing significantly to the wider local economy.

Current examples of collaboration

Easter Bush Research Consortium (EBRC)

4.18 The main mechanism for collaboration between the different research organisations has been the Easter Bush Research Consortium (EBRC) which brings together 450 scientists from the University of Edinburgh, the Roslin Institute and the Royal (Dick) School of Veterinary Studies, and the Moredun Research Institute and the animal sciences researchers of the SAC. This was set up in 2008. According to its website, 'the partnerships within the EBRC, and integration with clinical practice and education in the Royal (Dick) School of Veterinary Studies, provide major opportunities for application and exploitation of the research of the consortium partners'.

'EBRC forms one of the largest groups focussed on the biology of companion and production animals in the world. It undertakes basic and translational science to tackle pressing issues in animal genetics and genomics, development, health and welfare and their implications for human health.'

Edinburgh Science Triangle

4.19 The Edinburgh Science Triangle was set up in 2004 as a collaborative marketing initiative by Scottish Enterprise, three local authorities (Midlothian, West Lothian and City of Edinburgh) and seven science parks located within the city region. Four of these science parks are located in Midlothian:

- Roslin BioCentre;
- Edinburgh Technopole;
- Pentlands Science Park; and
- the BioCampus.

4.20 The others are:

- Edinburgh BioQuarter;
- Alba Innovation Park; and
- Heriot-Watt Research Park.

Socio-economics SWOT

Strengths / Opportunities

4.21 During consultations with local stakeholders, it was stated that a key strength of the area's development has been the significant investment made over the last three years by the University of Edinburgh in building new facilities for the new Roslin Institute (£60m) the Royal (Dick) School of Veterinary Studies (£42m) and the Animal Cancer Care Centre (£5m). Together with associated infrastructure and other building improvements at Easter Bush Campus this has amounted to around £110million of investment in new facilities and improved local infrastructure around the Easter Bush campus. Importantly, the investment has also provided new momentum for the development of The Bush. In 2011 the University of Edinburgh commenced Phase 2 Roslin Institute with a further investment of £20m. Phases 2a and 2b are due to be completed by 2013.

4.22 Another strength identified was the increasing levels of collaboration between local research-based organisations through the Easter Bush Research Consortium (EBRC). Most consultees saw this network as a good example of an increased willingness of research organisations to work more closely on joint research projects and share facilities and expertise. In 2010, a new five-year strategic alliance between Pfizer Animal Health and the EBRC was announced as part of a broader partnership platform to advance excellence in veterinary research and education. It was suggested that without genuine local collaboration, this deal would not have happened. Similarly the decision to relocate the National (UK) Avian Facility to Easter Bush in 2011 was said to be down to closer partnership and sharing of facilities with Moredun Research Institute.

4.23 Many stakeholders noted that more could be made of the area's four internationally known 'brands': the Roslin Institute; Moredun Institute; University of Edinburgh and the incorporation of the Royal (Dick) School of Veterinary Studies. The profile from these organisations has helped secure investment in the area and also helped to attract staff and students. It was suggested that bringing these brands together could help encourage more research facilities to move to the site either from the university or potentially through the Scottish Agricultural College.

4.24 It was also suggested that the site was beginning to create its own labour market with staff moving from one organisation to another, depending on the nature of the research projects being carried out. Although many staff live outside Midlothian and commute in, it was stated that there is an increasing tendency from employees to move to Midlothian (which in itself creates additional benefits in terms of spend in the local economy). This is likely to have increased following the significant jump in university employees in 2011 with the new Easter Bush facilities opening.

Weaknesses / Threats

4.25 In terms of weaknesses, it was felt that the branding and promotion of the area could be a lot better. At the moment each organisation has its own signage and this presents a confused picture for visitors to the site. Stakeholders acknowledged that there is no real joint identity at the moment.

4.26 Although some improvements have been made in local infrastructure (notably around the university campus), it was highlighted that road infrastructure and public transport access needs to be improved. Employees at The Bush are still heavily reliant on car access due to the limited availability of public transport (although the university has subsidised a bus service to go through the site).

4.27 Although there has been collaboration through the EBRC, the area also currently lacks a hub facility - something that would bring together employees from the various organisations. The University has plans for a leisure facility as part of its next phase of development at Easter Bush. In order to assist collaboration, making this or another local amenities available to all employees on site would be important to encourage more social interaction.

4.28 Overall, there was a general sense that the area has not delivered to the economic potential as this was envisaged 10 years ago. Easter Bush is not unique in this respect, but interviewees now

believe that the jobs predictions for the area were unrealistic especially in terms of business employment associated with the commercialisation of research.

4.29 Although two of the science parks in the area have experienced steady growth (Roslin BioCentre increasing from 10 jobs in 2000 up to over 100 now, and Pentlands Science Park currently looking to expand), there was disappointment that there has been limited progress in attracting businesses to the Edinburgh Technopole, and none to date at the BioCampus.

4.30 It was felt that these two science parks have been hit hard by the recession and a downturn in demand for these types of higher end and larger premises. Although Technopole was in theory set up to provide accommodation for spin-outs from the university, there has only been one university spin-out (Dukosi Ltd) that has moved in to the science park (although not technically a spin-off from the Life Sciences sector). Some of the activities envisaged for Technopole and BioCampus may benefit from alignment and synergies at Easter Bush with the Roslin Institute and the Royal (Dick) School of Veterinary Medicine. There was a suggestion that the Technopole could in theory accommodate some facilities from the Roslin BioCentre when it moves in the next two to three years although it is most likely that it will move to land adjacent to the new Roslin Institute. Bringing a new animal bioscience focused incubator facility into the heart of The Bush will help add to the momentum of recent university investment and help further create the critical mass which has developed in recent years.

4.31 There were mixed views on the performance of the Edinburgh Science Triangle initiative. Some stakeholders stated that part of the aim of the initiative was to help attract additional investment (including inward investment) to the area. Although it has provided a mechanism for bringing together the different science parks in Midlothian (and the wider Edinburgh city region), it was observed the initiative has had a limited impact on businesses willingness to move to the area. With the City of Edinburgh Council taking on lead coordination role (from Midlothian Council), it may be a good opportunity to review the role of the EST initiative in relation to wider development of The Bush.

5
Conclusions and Recommendations

5 Conclusions and Recommendations

Introduction

5.1 This chapter of the report has been prepared to summarise the key proposals underpinning the Bush Framework Masterplan. The conclusions and recommendations of this document take the form of a series of strategic objectives that have been developed based on:

- the analysis of current environmental;
- physical and socio economic conditions by the consultant team;
- discussions with the Client Steering Group; and
- stakeholder consultation.

5.2 The strategic objectives for the Bush Masterplan Framework are categorised as either 'Socio-Economic' (SE) or 'Physical Environment' (PE). They are listed in summary here with more details and conceptual illustrative plans on the following pages.

Strategic Objectives - Summary

SE1 - Raise awareness with key stakeholders of the collective gain in working together to fully achieve the economic potential of The Bush

SE2 - Establish a strong governance structure inclusive of all key partners to oversee the strategic direction of The Bush and manage its future development

SE3 - Establish a central (virtual) 'hub' of shared facilities and information to encourage social and business interaction

SE4 - Promote The Bush under one environmental and life sciences brand

PE1 - Ensure that the necessary utility infrastructure is in place to accommodate future development and expansion

PE2 - Improve the main gateways into the site and create a hierarchy of orientation nodes, including development of proposals for improvements to the A702(T) / Bush Loan junction

PE3 - Reinforce Bush Loan and Bush Farm Loan as the main access spines of the site

PE4 - Improve pedestrian and cycling access and connectivity throughout The Bush

PE5 - Identify and preserve potential future road infrastructure requirements between Easter Bush Campus, Midlothian Innovation Centre and BioCampus, and within Technopole

PE6 - Encourage integrated and sustainable development expansion

PE7 - Support the establishment of commercial incubation facilities operated by Roslin Biocentre at The Bush

Socio-economic

Strategic Objective SE1

Raise awareness with key stakeholders of the collective gain in working together to fully achieve the economic potential of The Bush

5.3 There is a sense that The Bush has yet to fully achieve its economic potential. This objective seeks to promote stakeholder unity and an ethos of working together for collective benefit. There is general agreement amongst local partners for the need to work together especially during the current difficult economic climate building on existing groups such as EBRC and EST. However, further progress will require some compromises and internal changes in attitude within the key organisations and institutions. An example of working together may be joint funding of infrastructure projects that could have multiple benefits to several parties.

Strategic Objective SE2

Establish a strong governance structure inclusive of all key partners to oversee the strategic direction of The Bush and manage its future development

5.4 A new governance structure is likely to be required to oversee the strategic direction of The Bush and manage future development. It should include all relevant / interested partners presently involved in developing and using the area.

5.5 The first step will be clarity of purpose. It will be important for the development of The Bush that partners agree why they are working together, the objectives they are seeking to achieve and what success will look like. Midlothian Council and Scottish Enterprise may have a key role in bringing the key partners together as outlined in SE1 and to 'chair' early discussions.

5.6 The next step might be to establish 'The Bush Governance Board' with agreed terms of reference to consolidate action plans and to deliver implementation plans.

Strategic Objective SE3

Establish a central (virtual) 'hub' of shared facilities and information to encourage social and business interaction

5.7 The lack of an obvious centre / core / hub and the lack of freedom of movement across The Bush does not encourage social or business interaction.

5.8 It is therefore suggested that a virtual hub could be created to provide a stimulus for developing a new form of collaboration and for sharing information (e.g. advertisement of events or car sharing opportunities etc). This could take the form of a common intranet system and / or social media forum.

5.9 A physical central hub of shared facilities, such as accommodation and / or conference facilities, within The Bush could be considered in the future if demand is established.

Strategic Objective SE4

The Bush under one environmental and life sciences brand

5.10 There is thought to be an opportunity to promote The Bush under one environmental and life sciences theme or 'brand' which could create economic and social benefits.

5.11 It is recognised, however, that the issue of 'collective' branding is a difficult one for an area with many organisations who each have their own, including some world renowned, individual brands. Any new branding for The Bush would need to take into account the different organisations that are based there, providing an 'umbrella' brand which was seen as a useful identifier / promoter alongside, but not replacing, their own brand identity.

5.12 There may be a case for Midlothian Council and Scottish Enterprise to become more actively engaged in promoting and marketing not only science parks at The Bush but also the research activity which may ultimately generate commercial opportunities downstream.

Physical Environment

5.13 The Physical Environment strategic objectives are illustrated conceptually on the attached plans.

Strategic Objective PE1

Ensure that the necessary utility infrastructure is in place to accommodate future development and expansion.

5.14 This objective seeks to ensure there is a coordinated strategy for the upgrade of utility infrastructure.

5.15 In particular it is known that the Scottish Water infrastructure drainage and supply may not be sufficient to support the total development needs of The Bush. Similarly electricity, gas and telecom infrastructure may require upgrading to accommodate new development.

5.16 It is therefore imperative that consultations are held with utility service providers, based on the Bush Masterplan as a whole, incorporating all proposed future developments, to identify the current supply capacity, upgrade constraints and to discuss short and long term upgrade strategies for the entire Bush site.

5.17 The upgrade of road infrastructure is also identified as a strategic objective in PE2.

Strategic Objective PE2

Improve the main gateways into the site and create a hierarchy of orientation nodes, including development of proposals for improvements to the A702(T) / Bush Loan junction

5.18 This seeks to establish strong legible access and egress points for The Bush i.e. to create clearly identifiable entrances or thresholds so that people know that they have arrived. The site would also benefit from the establishment of a secondary hierarchy of gateways and orientation points.

5.19 The purpose is to improve orientation, legibility and wayfinding, and to improve 'first impressions' of The Bush. Any improvements to the main site gateways should incorporate environmental improvements as well as technical road / junction improvements.

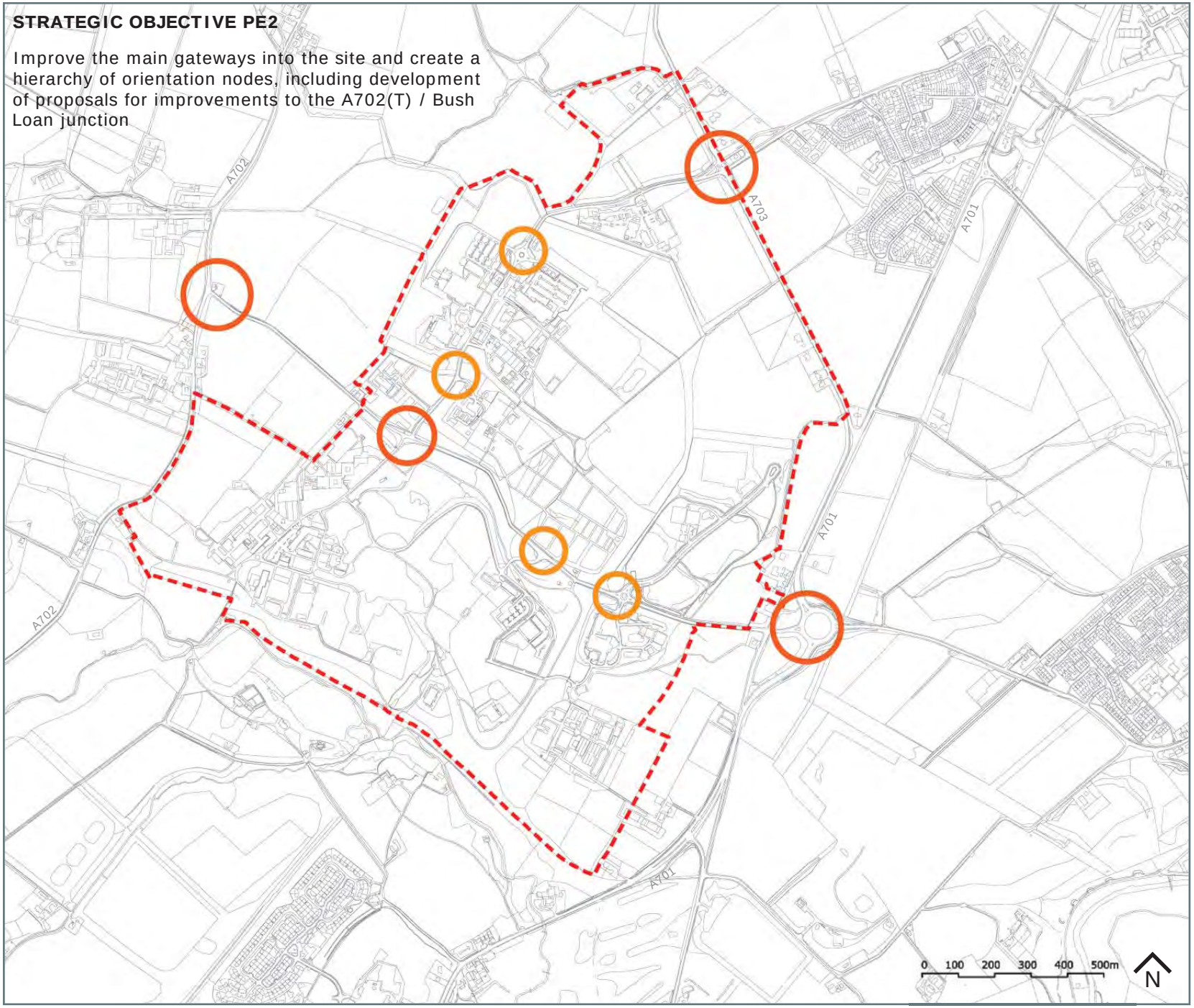
5.20 The delivery of improved gateways and orientation would also include a clear signing strategy. This will require all existing road signs to be updated and provide additional signs where permitted by the relevant regulations and in consultation with the Roads Authorities. Consultation will be required between all interested parties to ensure individual interests.

5.21 A critical item of additional infrastructure will be the upgrading of the A702 (T) / Bush Loan priority junction. All previous transport studies have recognised the lack of capacity at this junction as a constraint on future development of The Bush. At present there is no definitive upgrading proposal, and those that have been prepared are based upon retaining the existing junction location, which may not offer the best overall solution.

5.22 Discussions with officers at Midlothian Council Transportation as part of this study have confirmed that no definitive agreement had been reached with them or Transport Scotland as to appropriate mitigation for the A702 / Bush Loan junction. Consultation therefore needs to continue with both Transport Scotland and Midlothian Council to agree an upgrading strategy for the A702 / Bush Loan junction.

5.23 The assessment of upgrading options will need to include detailed proposals to address the various access requirements, accompanied by costings and a programme for delivery. All mitigation proposals will need to be appraised in accordance with Transport Scotland's Scottish Transport Appraisal Guidance (STAG). A STAG appraisal is required where Government funding, support or approval is sought to justify proposals to change the transport system or in this instance an 'asset'.

5.24 The delivery programme will ultimately hinge on the level of development that could be sustained before the respective changes were triggered. This information will be vital in order for any future planning consent to be granted and also to permit the stakeholders to agree the funding mechanism for their delivery.



Legend

- Core study boundary
- Primary way-finding nodes
- Secondary way-finding nodes

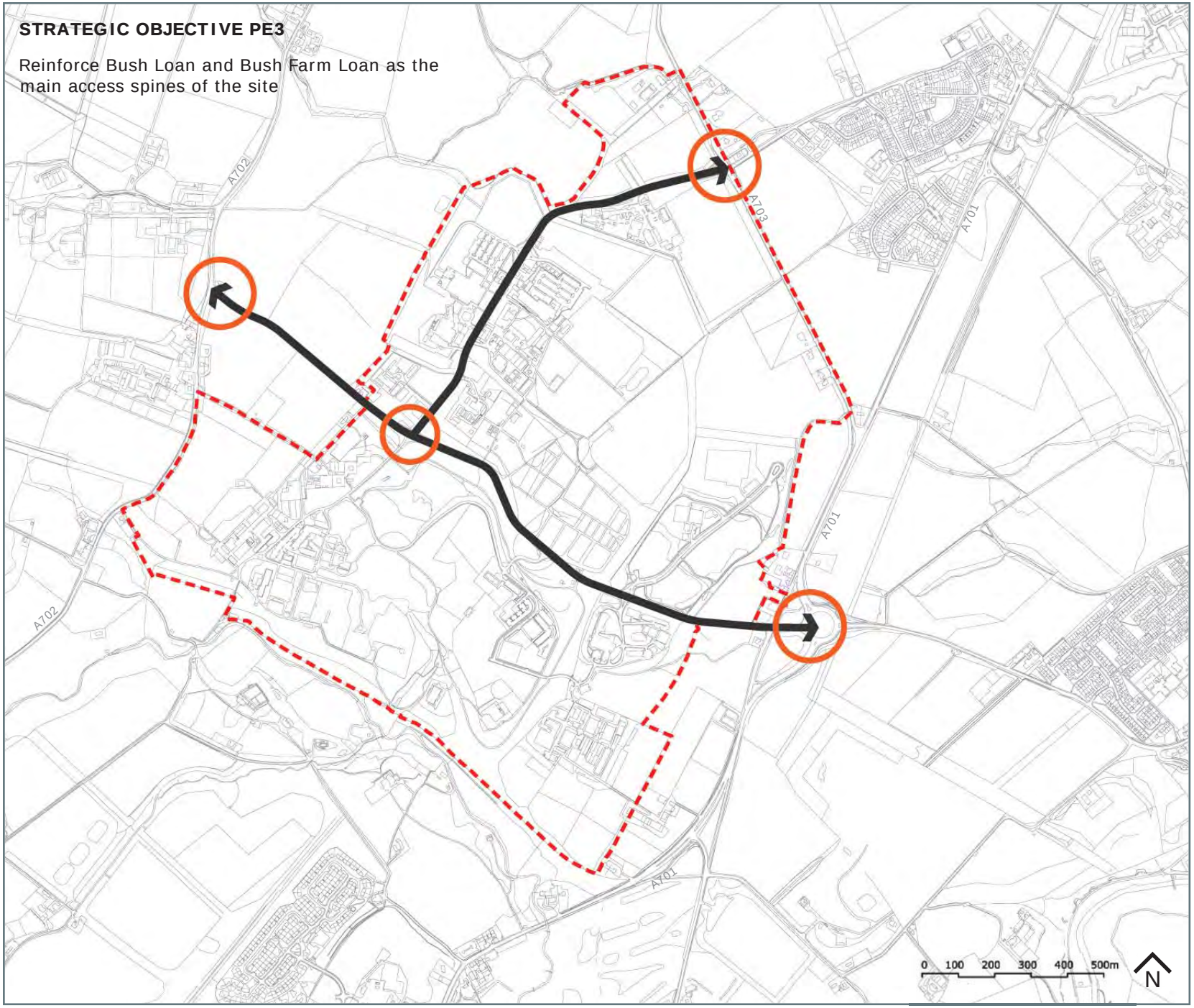
Figure 5.1
Strategic Objective PE2
Scale 1:15,000 @ A4

Strategic Objective PE3

Reinforce Bush Loan and Bush Farm Loan as the main access spines of the site

5.25 This objective seeks to improve orientation, legibility and wayfinding with easily identifiable central spines. This would incorporate the establishment of a primary hierarchy of public realm components along the spine routes of Bush Loan and Bush Farm Loan. Access to the majority of internal institutions would be promoted from these central routes.

5.26 As with Strategic Objective PE2 any improvements to Bush Loan could incorporate environmental improvements as well as technical road / junction improvements.



Legend

- Core study boundary
- Main access spine
- Primary way-finding nodes

Figure 5.2
Strategic Objective PE3
Scale 1:15,000 @ A4

Strategic Objective PE4

Improve pedestrian and cycling access and connectivity throughout The Bush

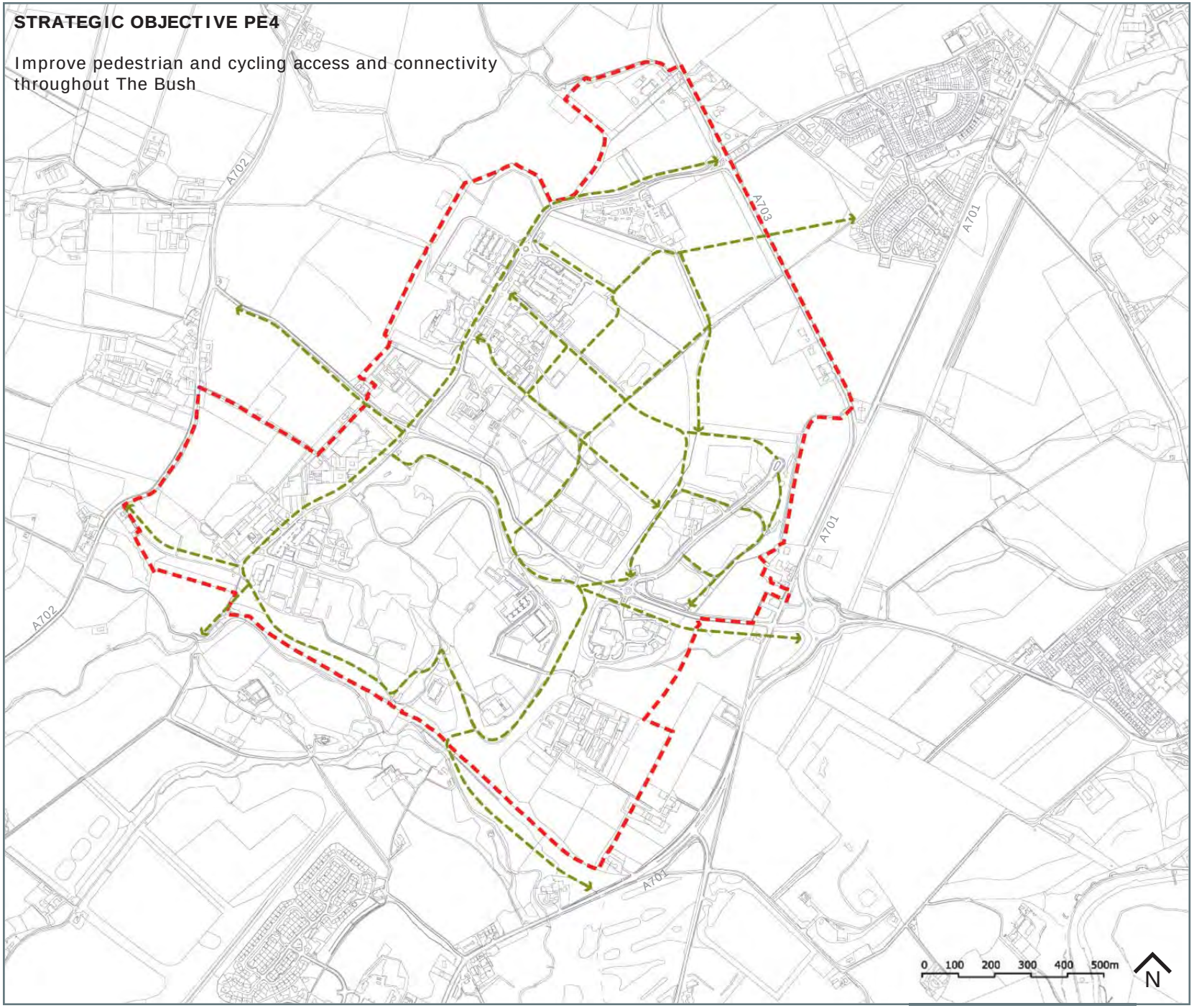
5.28 This objective seeks to strengthen pedestrian and cyclist connectivity throughout The Bush, connecting all institutions and campuses via a green network of paths.

5.29 In particular the objective seeks to improve access between Technopole, Easter Bush Campus, Biocampus and Pentlands Science Park, as well as Midlothian Innovation Centre. These institutions are currently disconnected from one another.

5.30 Pedestrian and cycle connectivity should be provided along off-road routes based on predicted desire lines and that respond to local landscape features and views. The path network should extend to incorporate trees, woodland, meadows, and watercourses to create a series of greenspace corridors. This would provide opportunities for better access and recreation as well as providing a strong landscape framework for future development. The creation of a greenspace network would reinforce the 'green' credentials of The Bush as a desirable place to work and invest. It is fundamental to its marketing image.

5.31 In addition to the creation of an integrated shared path network consideration should be given to improving the public realm of the Technopole / SAC areas in the north of Bush Estate to better integrate with Easter Bush public realm e.g. expand cycle path from Easter Bush into Technopole and providing environmental improvements.

5.32 Consideration should also be given to providing safe off-road equestrian routes throughout The Bush in support of equestrian activities associated with the area.



Legend

Core study boundary

Potential non-motorised transport routes

Figure 5.3
Strategic Objective PE4
Scale 1:15,000 @ A4

Strategic Objective PE5

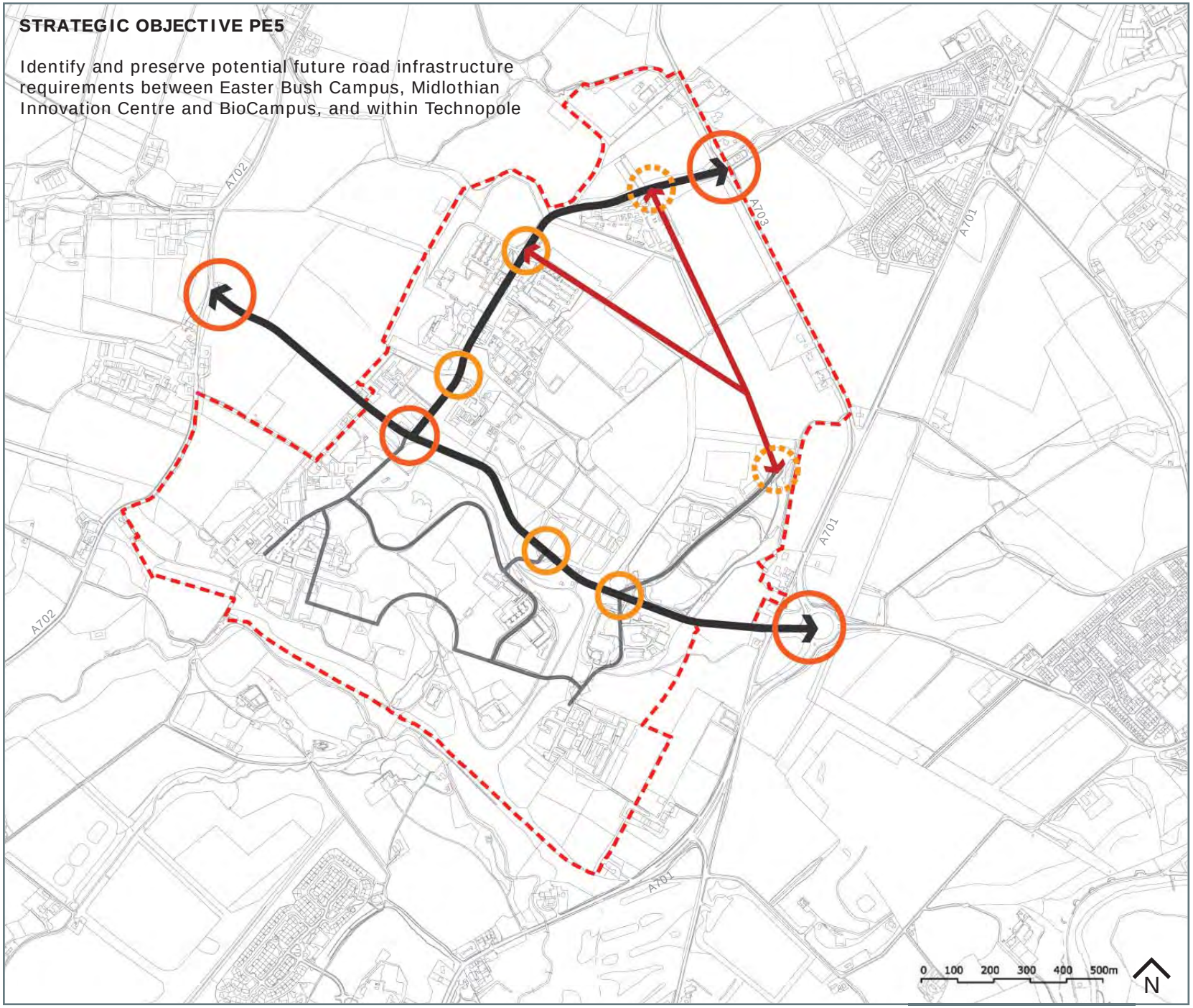
Identify and preserve potential future road infrastructure requirements between Easter Bush Campus, Midlothian Innovation Centre and BioCampus, and within Technopole

5.33 Consideration should be given to identifying future infrastructure connections between Easter Bush Campus, MIC and Biocampus to further improve connectivity and integration between these sites and to permit future access to developable land allocations. This is a long term consideration. A provisional infrastructure corridor should be identified to future-proof any infrastructure expansion requirements.

5.34 The infrastructure corridor should be able to accommodate services, walking and cycling routes, water management and a new access road.

5.35 New road infrastructure would permit future access to developable land allocations currently identified within the Local Plan providing flexible development and investment opportunities. Critically any new road should be capable of accommodating future bus routes. A new access road would also be able to divert through-traffic away from Easter Bush affording opportunities for improving the public realm and reducing traffic dominance at Easter Bush.

5.36 Similarly infrastructure routes within the Technopole masterplan need to be preserved to ensure expansion requirements at this location.



Legend

- Core study boundary
- Main access spine
- Secondary access routes
- Potential future road infrastructure corridors
- Primary way-finding nodes
- Secondary way-finding nodes
- Potential future way-finding nodes

Figure 5.4
Strategic Objective PE5
Scale 1:15,000 @ A4

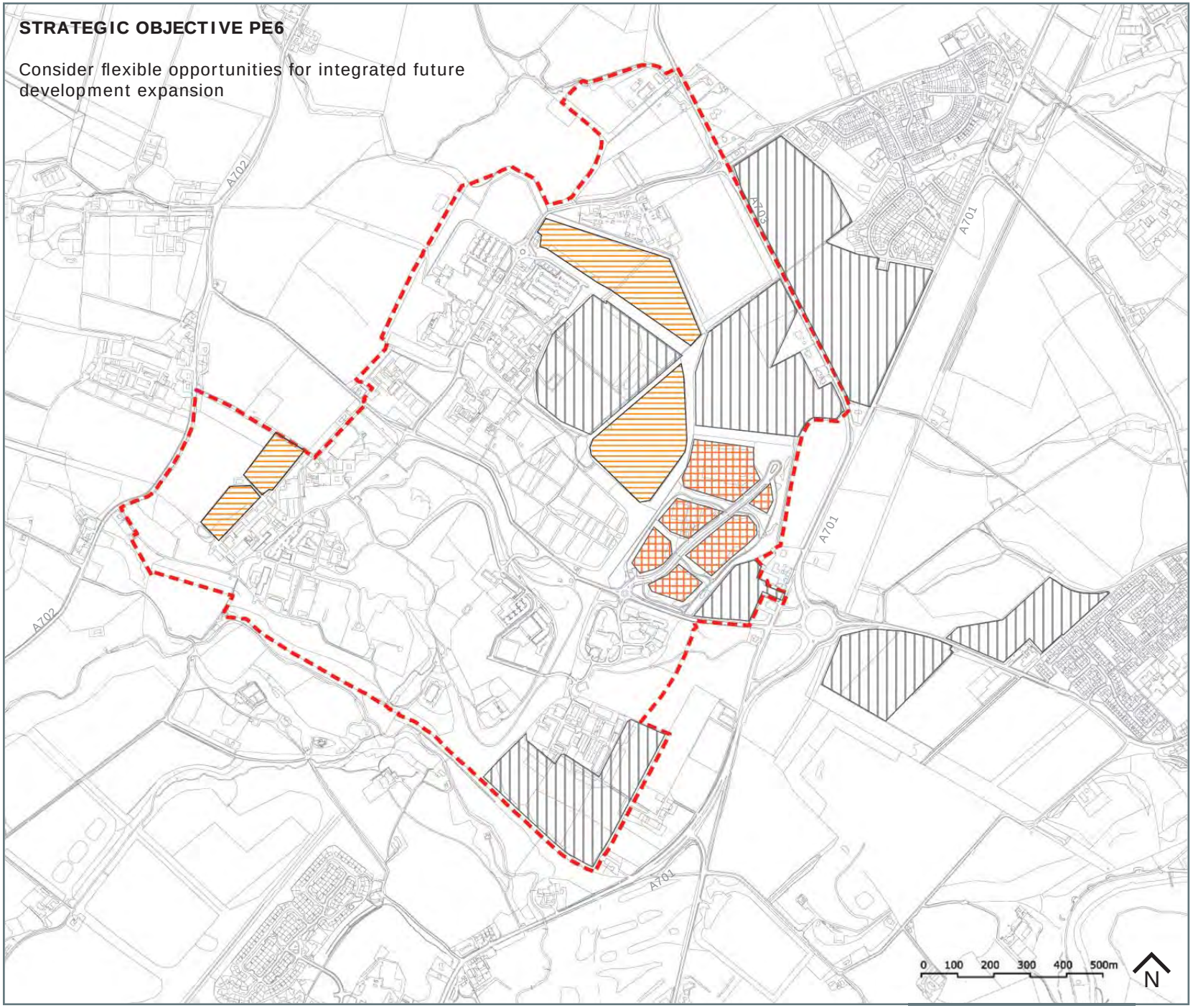
Strategic Objective PE6

Encourage integrated and sustainable development expansion

5.38 This objective encourages the realisation of the existing masterplans and design frameworks in an integrated manner, connecting existing and future development. This would establish direct communication and overlapping of resources rather than the development of isolated clusters within The Bush.

5.39 A sustainable approach to development with an emphasis on carbon reduction should be adopted by all parties at the Bush moving forward. This should consider low carbon infrastructure, renewable energy solutions, smart electrical networks, waste to energy and SUDS. The use, wherever possible, of locally sourced materials and reference to 'Green Guide to Specification' should be considered. Consideration should also be given to external sustainability assessments and evaluations such as BREEAM.

5.40 The creation of a site wide Sustainability Strategy will assist in the delivery of National and Local Policy benchmarks to provide the required levels of low or zero carbon technologies and footprints.



Legend

- Core study boundary
- Existing serviced development plots with outline design proposals
- Potential future development plots identified in Local Plan
- Potential future development allocations

Figure 5.5
Strategic Objective PE6
Scale 1:15,000 @ A4

Strategic Objective PE7

Support the establishment of commercial incubation facilities operated by Roslin Biocentre at The Bush

5.41 The phased consolidation and establishement of new commercial incubation facilities would improve and strengthen legibility and identity of one ‘Animal Bioscience’ cluster in Midlothian. It would also provide opportunities for better consolidation and integration of shared services e.g. public transport.

6
Masterplan

6 Masterplan Framework

Introduction

6.1 The Bush Masterplan is illustrated in **Figure 7.1**. The key components of the masterplan are outlined in generic design guidance in the following paragraphs below. These should be addressed in more detail through specific design exercises supported by thorough technical surveys and consultations.

Development Allocation

6.2 The Bush Masterplan respects the existing masterplans and design frameworks relating to the site area; most notably the Easter Bush Framework (2006) and the Edinburgh Technopole Bush Research Park Masterplan (2001).

6.3 The masterplan recognises that the long term objectives of the Easter Bush Framework and Edinburgh Technopole Masterplan remain unrealised. It is also recognised that the content, vision and objectives of each are still largely valid and therefore the masterplan does not make recommendations in conflict with the content of these earlier documents. The masterplan does however make recommendations to achieve better integration and connectivity of isolated sites / campuses within The Bush.

6.4 In addition to the existing masterplans and design frameworks the Bush Masterplan also respects the current local plan development allocation including: Gowkley Moss North; Gowkley Moss South; and Oatslie.

6.5 The development allocation outlined within the existing development frameworks / masterplans, considered together with the Local Plan development allocation, and the empty serviced development plots at Biocampus, highlight that there is no current requirement for the masterplan to identify additional development areas.

6.6 However, the Bush Masterplan does make reference to the potential new development sites, currently not identified within the Local Plan that should be considered in future Local Plan reviews if there is a need to identify additional areas for development. These areas have been identified for potential future development due to the proximity to existing infrastructure and existing institutions / campus (Easter Bush and Midlothian Innovation Centre).

Primary Gateways

6.7 Strategic Objective PE2 seeks to establish strong legible access and egress points for the study area. There are 3 primary 'gateway' points into the site:

- Gowkley Moss Roundabout
- Seafield Moor Road / Bush Farm Loan Junction (A703);
- Bush Loan / A702 junction.

Bush Loan / A702 junction

6.8 Technical proposals for improvements to the A702(T) / Bush Loan junction need to be developed as this junction is currently identified as a critical constraint to future growth.

6.9 In conjunction with technical road design for a new A702 junction environmental improvements should also be considered for the design and construction of the A702 junction including:

- formal tree avenues;
- a consistent boundary treatment (either formal hedging or timber post and rail fencing);
- feature stone walling and gateway piers;
- Primary hierarchical lighting columns;
- Primary hierarchical signage;
- Public Art or landmark feature(s);
- Ornamental shrub and ground cover planting.

Gowkley Moss Roundabout

6.10 Gowkley Moss Roundabout provides access to the south of the study area. Environmental improvements to this junction could include:

- Formal tree avenues;
- A consistent boundary treatment (either formal hedging or timber post and rail fencing);
- Feature stone walls and gateway piers (or refurbishment of existing estate walling);
- Primary hierarchical lighting columns;
- Primary hierarchical signage;
- Public Art or landmark feature (s);
- Ornamental shrub and ground cover planting.

Seafield Moor Road / Bush Farm Road Junction (A703)

6.11 The Seafield Moor Road / Bush Farm Loan Junction (A703) has been recently improved to incorporate a controlled signalled junction with pedestrian / cyclist access / crossings. There are opportunities to further improve this junction through the incorporation of feature stone walling and gateway piers, and primary signage. Formal tree planting and ornamental shrub planting could also be considered.

Path creation

Signage

Stone wall

Woodland planting

Central Spine - Bush Loan & Bush Farm Loan

6.12 As outlined in Strategic Objective PE3 Bush Loan should present itself as the identifiable central spine for the area; currently it has the character of a rural country lane. There should be consideration given to upgrading this corridor to reflect its status as the main access to high quality research and business campus whilst respecting the historic landscape characteristics of the former Bush Estate. This would require the upgrading and improvement of the existing road infrastructure and associated public realm.

6.13 Improvements to Bush Loan should include:

- a consistent 'distributary road' carriageway width;
- a shared pedestrian and cyclist route adjacent but segregated to the carriageway with grass verges;
- a consistent boundary treatment respecting the estate character (e.g formal hedging or post and rail fencing);
- feature stone walls at road junctions and path nodes;
- stone gate piers and timber gates;
- woodland management of adjacent policies;
- Consistent primary hierarchical lighting columns
- Consistent primary hierarchical signage.

6.14 The incorporation of the above elements would establish the primary hierarchical treatment of public realm within the study area affording access to the majority of internal institutions and secondary routes.

6.15 It is also suggested that the existing footway on Bush Loan, between Pentland Science Park and the A702, be widened to 3m to provide a strategic east-west pedestrian/cycle route through the Bush area. This new link will also act as a spine through the masterplan area, connecting the various elements of the development.

Secondary Routes

6.16 An indicative new road layout has been included within the Bush Masterplan to illustrate how the Local Plan development plots may be accessed in the future as well as how better integration may be achieved between East Bush / Midlothian Innovation Centre and Biocampus / Pentlands Science Park.

6.17 Along with the enhancement of Bush Farm Loan, the new road infrastructure also offers potential to service further potential development sites not currently identified within the Local Plan.

6.18 The new road connects the existing BioCampus access road turning circle and the existing University of Edinburgh Easter Bush Campus / Royal (Dick) School of Veterinary Studies / Roslin Institute roundabout junction with Bush Farm Loan. It is envisaged that this road corridor would form a secondary spine through the site taking the majority of through traffic between Seafield Moor Road (A703) and Bush Loan. This would enhance the public realm areas of Easter Bush Campus by reducing traffic volumes and promoting sustainable transport methods at this location.

6.19 The design of the secondary route should include:

- A consistent 'distributary road' carriageway width;
- Enhancements to Bush Farm Loan;
- Segregated pedestrian (and possibly cycling) access;
- Grass verges;
- A consistent boundary treatment along the entire length (either formal hedging or timber post and wire fencing);
- The implementation of a strong landscape framework (i.e. woodland and hedgerows);
- Secondary hierarchical lighting columns;
- Secondary hierarchical signage
- Localised formal tree avenue planting and ornamental shrub planting (primarily to form strong boundary treatments to development plots).

Secondary Gateways and Orientation Nodes

6.20 A number of environmental improvements could be made to the existing internal junctions that form important orientation nodes and wayfinding points. There may also be a requirement to improve the road infrastructure of these junctions as traffic volume increases (e.g. the upgraded of some existing junctions to roundabouts).

6.21 The design of these junctions should be consistent throughout the site to provide a sense of cohesion and identity. The environmental treatment of these junctions could include:

- Feature stone walls and gateway piers;
- Formal hedging to form boundary treatment;
- Feature trees and ornamental shrub planting;
- Primary or secondary hierarchical lighting and signage dependant on location.

Pedestrian Connectivity and Movement

6.22 The Bush Masterplan illustrates improved pedestrian and cycling connectivity through the creation of a new path network that connects to existing paths throughout the study area.

6.23 The implementation of this new path network would connect the currently disparate isolated campuses of the study area. It is especially important to improve connections between Easter Bush / Midlothian Innovation Centre and Biocampus / Pentlands Science Park / Technopole.

6.24 The path network would also provide a recreational resource reflecting the 'rural' location of the study area and reinforcing the 'green' attributes of the site.

6.25 Shared pedestrian and cycling routes should comprise a minimum 3m wide hard surface path (asphalt or similar), and be bound with grass verges. Boundary treatments (if required) should include post and wire fencing or informal hedgerow planting (unless associated with primary or secondary hierarchical corridors).

6.26 Pedestrian only paths should be formed by a minimum 1.8m whindust (or other non-metalled) surface.

6.27 Consideration should be given to the creation of an circular equestrian exercise route that could be utilised by the Royal (Dick) School of Veterinary Studies. This could be created by a number of options:

- Sand;
- Recycled rubber chips;
- Bark mulch.

6.28 Benches and other street furniture components should be incorporated at key points within the path network taking advantage of key views and vistas, and shelter. Wayfinding signage should be incorporated as well as pedestrian scale lighting on key routes.

Greenspace and Green Infrastructure

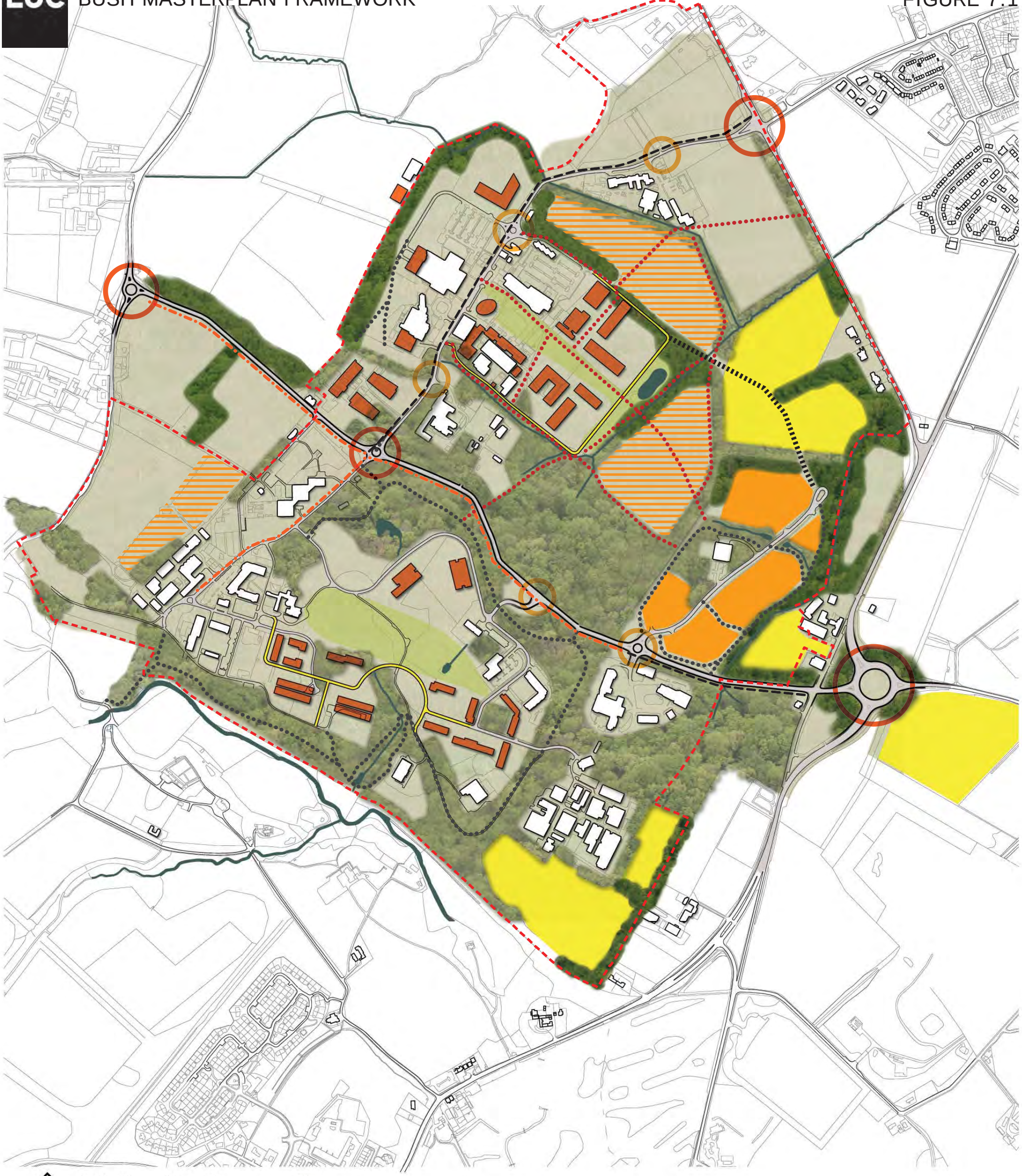
6.29 Greenspaces not identified within existing masterplan frameworks should reflect the semi-rural environment of the site. They should mimic the large open grass lawn of the historic Bush estate as well as agricultural fields. It is likely that they will be informal but structured by woodland and hedgerows again reflecting historic woodland policies.

6.30 Careful consideration should be given to maximising views of the Pentland Hills from all areas of the site.

LUC

BUSH MASTERPLAN FRAMEWORK

FIGURE 7.1



- existing buildings
- indicative potential building footprints
- existing serviced development plots with outline design proposals
- potential future development plots identified in Local Plan
- potential future development allocations
- existing woodland
- proposed woodland
- proposed greenspace
- existing water bodies + water courses
- Bush Loan
- proposed roads within existing masterplan framework
- potential future road infrastructure corridor
- primary way-finding nodes
- secondary way-finding nodes
- existing walking + cycling routes
- proposed walking + cycling routes
- existing cycle route
- proposed cycle route

7
Governance Framework

7 Governance Framework

Raising Awareness of working together

7.1 Even with the recent investments made by the university and some growth in business/ commercial activity e.g. Roslin BioCentre and Pentlands Science Park, there is a sense that the Bush/ Easter Bush site has yet to fully achieve its economic potential. Although the recession has clearly had an impact on demand, this has not been the only reason for the slower than expected progress.

7.2 There is general agreement amongst local partners for the need to work together especially during the current difficult economic climate. Some progress has already been made: this has been happening on the research side through EBRC and the science parks have also worked together through EST (although there were varying opinions on how effective this has been).

7.3 Further progress will require some compromises and internal changes in attitude within the key organisations. But this may be unrealistic for strong institutions unless there is buy-in from the senior representatives of each organisation, based on the belief that further collaboration will be in their own interests as well as creating mutual advantage.

7.4 Given the strength of internal organisational drivers, this is likely to require active leadership, either from a champion in one of the institutions or through initial stimulation from outside. Given its recent investments, the University of Edinburgh might be best placed to bring together the key players, to discuss and agree common objectives for the on-going development of the Bush/ Easter Bush site.

Establish a strong governance structure

7.5 Assuming there is agreement amongst local partners regarding the need for and potential benefits of collaboration, a new mechanism or structure is likely to be required to oversee the strategic direction of the site and handle on-going operational issues. This should be wider than EBRC, in that it should include all relevant/interested partners now involved in developing, using promoting the site. In addition to the EBRC partners, the structure will also need to include the four science parks (Roslin BioCentre, Pentlands Science Park, Edinburgh Technopole and BioCampus), Midlothian Innovation Centre, the Forestry Commission, Midlothian Council and Scottish Enterprise. Some of our stakeholder consultations specifically mentioned the need for the Council and Scottish Enterprise to become more actively engaged in promoting not only the science parks but also the research activity which will hopefully ultimately generate commercial opportunities (e.g. spin-outs) downstream.

Learning from Elsewhere

7.6 Experience elsewhere suggests that the effective use of mechanisms/structures to promote research-led growth results from identifying a specific gap between research, public policy and business and following this through with leadership, branding and creating the capacity to respond to changing opportunities. Neither of these examples is new, but they have evolved over a decade or more, and maintained a strong business focus through a range of activities including network development and marketing/promotion.

Science City York

- York's on-campus Science Park, established in the late 1980s, was a limited success until its host University's research activities grew, and national policy began to take notice of Higher Education spin-outs.
- An initial informal partnership between the City of York Council and the University promoted science as a key driver in the York economy from the late 1990s, based on rapid growth in digital industries, bioscience and creative arts; the 'Science City York' mechanism involved active business leadership, and influenced the then government's innovation policy
- Led by the University, and supported by the then regional development agency, Yorkshire Forward, Science City York then adopted a more formal company structure, with wider involvement and allowing it to play a wider role outside the city.
- This has enabled it to attract wider funding from UK Government and Europe, which supported facilities for meeting, and promoted further development of networks. Science City York's 'embedded business space' technology transfer activities and marketing support are important elements in the University's major new campus at Heslington East.

The Cambridge Phenomenon and beyond

- The potential of Cambridge University to act as a significant economic driver was identified in the late 1960s, and Trinity established Cambridge Science Park on land it owned at the edge of the city at the end of that decade
- This property initiative, strongly associated with major research spending at the University was successful in the medium term, although not immediately. It was, however, a relatively small part of the 'Cambridge Phenomenon', the growth of high tech small firms in and around the city, which, particularly in its early years, was based on a mix of research spend, brainpower, enterprise and strong informal networks
- The recognition that the Science Park lacked the type of space and facilities which could stimulate further high tech business start-ups and development, led to another College investing in the nearby 'St John's Innovation Centre', which was actively managed to encourage interaction between researchers and funders, and 'soft marketing' to generate short term licence agreements from people who could make science and technology-based business ideas pay
- The sale, usually to overseas interests, of many of the initial wave of science-based companies in Cambridge, the development of the University's major West Cambridge site, the Addenbrooke's Medipark and the increasing presence in the city of major businesses including Microsoft, have marked the shift to a more corporate phase in science industry in Cambridge. But although the city is expected to continue to grow, most observers note that the links between research and

business continue to operate strongly though a mix of largely ad hoc networks and individual leadership, with development encouraged by a reasonably benign planning policy environment.

7.7 These very different examples suggest that any mechanism for the Bush should be evolved to suit the major players, specific conditions and potential for mutual gain. But the first step will be clarity of purpose. A recent evaluation of the EST initiative by SQW found that a weakness of the initiative was the lack of SMART objectives. It will be important for the development of the Bush site that partners agree why they are working together, the objectives they are seeking to achieve and what success will look like. Based on discussions with stakeholders, the determining factors for continued growth/development will be creating a critical mass/ centre of excellence.

7.8 Some initial 'high level' questions need to be considered by the organisations to establish this clarity of purpose before then going on to develop SMART objectives. We would suggest these will include the following:

- What are the common objectives in relation to the Bush/Easter Bush site?
- Will greater collaboration assist in realising these common objectives?
- What are the barriers to collaboration? Any there likely to be areas of competition/ conflict?
- What would 'success' look like for the area, say by 2020?

Central 'Hub'

7.9 Although the site is not huge, the separate areas within it, the lack of an obvious 'centre/core', the lack of obvious traffic/pedestrian routes across the site and signage, do not encourage interaction. It is therefore suggested that a central hub could be planned and developed, to enable/promote events for, and informal contact between, research scientists, other professionals and businesses working in environmental and life sciences.

7.10 The discussions with stakeholders highlighted that such a hub could help to make the site more cohesive, rather than operating as a collection of organisations that happen to be located close to one another. Acknowledgement of the need for such a facility could be the stimulus for developing a new form of collaboration, initially in the form of an ad hoc group, with all major players represented, to review existing and planned facilities on the site. As well as providing an opportunity to build mutual understanding, present a common case and share costs, creating shared facilities on site will help to encourage both social and more purposeful interaction between employees of different organisations, potentially identifying new business opportunities and stimulating collaboration.

7.11 In the meantime, shared facilities could be developed around a 'virtual hub' using website or intranet system to highlight key contacts, shared facilities, events, development information. The physical hub would take time to finance and build, but could include a leisure facility, café, crèche, shop and bank. Some of these facilities are already being considered by the university for their next phase of development and the way forward might in practice be a University-led development, operated to provide joint-use by other organisations, which would contribute to meeting running costs and enable larger-scale or wider range of provision. In the future, local partners could also investigate the feasibility and demand for larger hotel or conference facilities on site.

Branding

7.12 Going forward, stakeholders believe there are unrealised opportunities at the Bush, and that further development under the environmental and life sciences theme could create economic and social benefits locally (employment); for Edinburgh city region (positioning in an important research area with business implications) and for Scotland (part of a world-class cluster).

7.13 However, the issue of branding is a difficult one for an area with so many different organisations who each have a responsibility of promoting their own activity and premises. For example, Moredun, the University of Edinburgh and Edinburgh Technopole have all invested significant amounts in new signage. Any new branding for the area would need to take into account the different organisations that are based there, providing an 'umbrella' brand which was seen as a useful identifier/promoter alongside, but not replacing, their own brand identity.

7.14 How the area is branded will be a challenging exercise and require a comprehensive review, testing out different options with different audiences (academic, research and business communities) and also taking into account local, national and international views. There may be different perspectives taken by some organisations – for example, it may be the case that Midlothian Council would like a brand that identifies the Midlothian location but Scottish Enterprise and the University of Edinburgh may well prefer that it is linked more explicitly to Edinburgh. The city undoubtedly has wider resonance outside, and we understand that the EST will soon be chaired by City of Edinburgh Council which may also mean that future branding of the site is best linked in with the wider city region.

8
Action Plan

Action Plan

7.15 The suggested Action Plan for the Bush Masterplan Framework is outlined in the table below. It highlights priority actions in terms of 'next steps'.

Area	Actions	Key Parties	Priority
Governance	Raise awareness of the collective benefit of working together. Use the Bush Framework Masterplan as basis for further consultation with stakeholders	Scottish Enterprise Midlothian Council University of Edinburgh	High
Governance	Liaise with key stakeholders to establish governance structure. Establish a Bush Governance Board (BSB), or similar, and identify key individuals to take project forward.	Scottish Enterprise Midlothian Council University of Edinburgh Stakeholders	High
Governance	Determine SMART objectives, existing constraints, priorities and success measures for The Bush.	Bush Governance Board	High
Governance	Develop and establish an 'umbrella' brand. Commission specialist branding consultants to undertake extensive consultation with key stakeholders and develop branding strategy for The Bush.	Scottish Enterprise Midlothian Council University of Edinburgh Bush Governance Board	Medium
Governance	Set up a central virtual hub via a website of intranet system to share information and encourage knowledge and skill exchange.	Bush Governance Board	Medium
Physical Environment	Establish a physical hub of shared facilities	Scottish Enterprise Midlothian Council University of Edinburgh	Low

Area	Actions	Key Parties	Priority
		Bush Governance Board	
Physical Environment	Liaise with Roslin Biocentre to establish new commercial incubation facilities at The Bush to further support work undertaken at the Roslin Institute.	Roslin Biocentre Scottish Enterprise Midlothian Council University of Edinburgh Bush Governance Board	**Medium**
Transport	Commission transportation consultants to consult with Transport Scotland and Midlothian Council and to develop design proposals for improvements to the A702(T) / Bush Loan junction including a STAG appraisal.	Bush Governance Board Midlothian Council Transport Scotland	**High**
Utilities	Commission M&E Consultants to consult with utility service providers to establish current utility capacities and to develop site wide water, power and telecom infrastructure strategies to allow for future development expansion. Solutions should consider sustainability, renewable energy and low carbon solutions.	Bush Governance Board Midlothian Council Utility providers	**High**
Physical Environment	Commission landscape consultants to develop an Environment Improvements Strategy for key gateways and routes in conjunction with road improvements. This should be considered in parallel with the design and implementation of a Wayfinding Strategy, and road / junction improvements.	Scottish Enterprise Midlothian Council University of Edinburgh Bush Governance Board	**Medium**
Physical Environment	Commission landscape consultants to develop a path and cyclist network design strategy, incorporating a signage and wayfinding strategy. This should be considered in parallel with the design and implementation of a Branding Strategy, road / junction improvements and the Environmental Improvements Strategy.	Scottish Enterprise Midlothian Council University of Edinburgh Bush Governance Board	**Medium**

Appendix 1 Characterisation

Tables

Table A1 Midlothian Innovation Centre

Location	▪ Located in the north of the study area on Bush Farm Road, near to the A703 (Seafield Moor Road) junction.
Use	▪ Business and technology centre, a partnership of public and private sectors, between Midlothian Council and New Park Management Limited. ▪ MIC aims to work as a "business village", aspiring to encourage interaction between the businesses based there. ▪ Facilities include: serviced office space, combined workshop/office units, light industrial units, meeting rooms, lecture theatre for up to 40 people, training facilities, free car parking.
Landscape Framework	▪ Mature deciduous shelterbelt to south. ▪ Surrounded mainly by improved pasture, shelterbelts and hedgerows.
Building Style	▪ Mix of old and new buildings, generally 2-4 storeys. ▪ Mix of roof styles - flat, gable, hip etc. ▪ Two or three bungalows neighbouring site.
Visual and Spatial	▪ Overlooks Pentland Hills Regional Park. ▪ Shelterbelt to south visually separates the site from the remainder of the masterplan area. ▪ Visible from A703 on approach as turning on to Bush Farm Road.
Infrastructure	▪ Main access on minor country road (Bush Farm Road) from A703, signposted for Easter Bush. ▪ New footpath and cycle path running separately but alongside Bush Farm Road. ▪ Lothian Buses 15A, 47, 67 stop on A703 and Bush Farm Road.
Public Realm	▪ Some mature formal beech hedges define boundaries, with open frontage to main building and small uneven row of specimen trees. ▪ Signage lime, dark green and white, Calibri font or similar.

Table A2 Easter Bush Campus

Location	▪ Located in the north of the study area, south of Midlothian Innovation Centre, this character unit incorporates both developed and allocated land 'B1'.
Use	▪ The University of Edinburgh Easter Bush Campus includes the Royal (Dick) School of Veterinary Studies, Roslin Institute and Scottish Agricultural College. ▪ A world-leading centre for research in animal biosciences, animal health care and education. Collaboration between the different occupants at Easter Bush is a key component. ▪ Facilities include: new teaching building, campus service area, EBRC main building, Sir Alexander Robertson Building (tropical), large animal hospital, large animal teaching & imaging facility, equine accommodation, hospital for small animals, oncology and imaging centre, sheep facility, leisure hub and café. ▪ 'B1' allocation on the eastern side of the character unit comprises 7.5h pasture, allocated in local plan specifically for biotechnology and other knowledge-based industries, within the green belt.
Landscape Framework	▪ Relatively large area of former agricultural land, enclosed by mixed woodland shelterbelt planting. ▪ Surrounded mainly by improved pasture, shelterbelts and hedgerows. ▪ A block of mature policy woodland separates the EBRC building and stables from the Northern Research Station. Mature deciduous shelterbelt to south.
Building Style	▪ Some original stone farm buildings and cottages. ▪ 1960s 2-storey flat-roofed EBRC and SARB. ▪ Large modern brick farm sheds with corrugated gable roofs. ▪ Modern UoE Dick Vet teaching building in white render, sandstone and glass, 3/4 storeys, grey features, flat roof. ▪ Hospital for small animals, 3-storey, white with veterinary cancer building a smaller single storey dark grey block. ▪ RI/SAC 5-storey landmark building in coloured glass and white render on south side and brown horizontal cladding on north side.
Visual and Spatial	▪ The western part of the site overlooks the Pentland Hills. ▪ The character unit is dissected by Bush Farm Road which provides the main access corridor. ▪ Extent of shelterbelts surrounding give a sense of enclosure. ▪ Several large open car parking areas.

Infrastructure	▪ Bush Farm Road serves as a main access corridor. Access to Bush Farm Road is either from Bush Loan from the south (coming from A701 and A702) or from A703. ▪ Easter Bush is serviced by 15A, 47 and 67 Lothian Buses. ▪ There are off-road cycle routes, jogging/walking routes shown on UoE Travel Map connecting the area to the Pentlands and Technopole. ▪ Path networks are more limited to north and southeast.
Public Realm	▪ Informal lines and small groups of mature trees in intact along Bush Farm Road. ▪ Modern concrete block paving in various styles, brushed steel and polished stone bollards, lighting in some street furniture. ▪ Public open space to the rear of vet school – a small network of paths across a grassy area with large rocky boulders and some tree/shrub planting. ▪ On the junction of Bush Loan and Bush Farm Road, signage UoE signage competes with Technopole signage. ▪ Wide variety of building styles and densities but comprehensive and consistent UoE signage.

Table A3 Gowkley Moss North

Location	▪ Located in northeast of study area, adjoining Easter Bush on west boundary and BioCampus on south. A703 (Seafield Moor Road) forms eastern boundary.
Use	▪ B2 is an area of arable land comprising two large and two small fields, 7.5h in total. It is allocated in the Local Plan specifically for biotechnology and other knowledge-based industries, within the green belt. ▪ Highlighted in Easter Bush Framework as a possible extension to BioCampus.
Landscape Framework	▪ North, west and south boundaries are defined by shelterbelts. More open to east, though broken relationship with A703 due to small group of houses on this boundary.
Building Style	▪ No buildings on site, but some located next to eastern boundary - group of around five 2 storey houses of various styles and ages with hipped roofs.
Visual and Spatial	▪ Currently a shelterbelt of pine trees distinctly separates Gowkley Moss North and BioCampus. Network of existing shelterbelts also separate this site from the rest of the study area. ▪ Housing plots east of character unit break up what would otherwise be a regular field pattern, including a large triangular plot.
Infrastructure	▪ Adjoins A703 but not accessible from this boundary - current accessed via farm track through long thin field southeast of site, from Gowkley Moss Farm.
Public Realm	▪ The site is more open to the east, due to the extent of shelterbelt planting in other directions. ▪ Planting on eastern boundary differs in scale and distribution of shelterbelts as associated with housing.

Table A4 Forestry Commission Northern Research Station

Location	▪ Located at the centre of the study area, between Easter Bush and Technopole.
Use	▪ Northern Research Centre comprises the research centre itself and Bush Nursery which serves as a satellite to FC's Ae station. ▪ NRC provides consultancy, advice and research and hold talks here. ▪ The area to the west of Bush Farm Road is currently leased to FCS by UoE.
Landscape Framework	▪ Unique landscape within character unit due to nature of work undertaken. ▪ Unusual patchwork of coniferous forestry plantation at various stages, with some peripheral pockets of broadleaved plantings or shelterbelts.
Building Style	▪ Flat-roof on single-storey main building of timber and glass, painted black and white. Some additional buildings with either gable or shed-roof top. ▪ A number of greenhouses and polytunnels are associated with Bush nursery. ▪ Small in scale and density when compared to modern Easter Bush buildings.
Visual and Spatial	▪ Long, densely planted stretch of land divided at northwest by Bush Farm Road. ▪ The patchwork coniferous plantation and low density buildings combine to give a strong sense of enclosure. ▪ A thin band of pines means the northwest boundary is more permeable and the low-level buildings can be seen from Bush Farm Road. ▪ The buildings appear somewhat dated in comparison to the newer Easter Bush buildings, however they do currently bear some similarity in terms of the scale of the older EBVC buildings.
Infrastructure	▪ Main access from Bush Farm Road and gated access from Bush Loan. ▪ Bush Farm Road is serviced by 15A, 47 and 67 Lothian Buses. ▪ Benefits from its neighbours – the parkland landscape of Bush Estate and the road and path network of Easter Bush connecting into the Pentlands.
Public Realm	▪ Signage for the Northern Research Centre is standard Forestry Commission style, immediately recognisable, timber painted dark green with white lettering. ▪ The character unit is enclosed by timber and (3) rail fence, sometimes with a beech hedgerow running behind. It generally has a more rural character than Easter Bush or Technopole, and feels slightly dated.

Table A5 BioCampus

Location	▪ Located in the east of the study area, north of Pentland Science Park and east of Easter Bush.
Use	▪ BioCampus was initially developed almost 10 years ago and remains vacant. ▪ BioCampus is a national bio-manufacturing campus equipped for advanced cGMP biomanufacturing but has remained vacant for 10 years. ▪ It is possible that the existing building may be refitted or adapted for a new use. ▪ BioCampus is highlighted in Easter Bush Framework for extension into Local Plan allocated sites 'B2' and 'B3', Gowkley Moss North and South.
Landscape Framework	▪ The planting on this plot is relatively young. ▪ The planting within BioCampus was implemented around a decade ago and starting to mature - in need of some thinning. Older, mature shelterbelts exist on north and west boundaries (mixed to west, pine to north). ▪ The planting comprises native structural planting - broad, curving swathes and mixed hedgerows, with ornamental shrubs associated with the building.
Building Style	▪ One of the proposed buildings (BioCampus Building) is already constructed, but another nine or so have been planned. ▪ Large modern square block, with curved roof. Grey with brown panels and mirrored windows, around 3 storeys high.
Visual and Spatial	▪ Large block building stands out on its own in a relatively flat plot of land, particularly as planting is still relatively young and low in height. ▪ Views of Pentland Science Park and Easter Bush are screened by mature woodland so few other buildings are seen. Pentland Hills can be seen rising above the shelterbelt planting. ▪ Length of road and associated lighting running through site and beyond the building, clearly points to further development, including into site 'B2'.
Infrastructure	▪ Access is from Bush Loan, from the PSP roundabout. ▪ A pedestrian access runs alongside the main road into the plot, and whindust paths run around the perimeter of the site. Lighting runs along main routes, but not whindust paths. Access limited to south. No path networks connecting to Easter Bush, but there is the potential. ▪ Length of road running through site built to accommodate further expansion.
Public Realm	▪ Walking routes provided on site, among newer swathes of structure planting. ▪ Main access road, building and paths seem very formal (mown grass and ornamental shrubs) compared to rest of site which is somewhat overgrown.

Table A6 Gowkley Moss South

Location	▪ Located south of BioCampus and just west of Gowkley Moss roundabout. The eastern boundary meets with Gowkley Moss Farm, a small group of cottages, and a café.
Use	▪ B3 is an area of improved pasture comprising one small arable field, 2.5h in size. Allocated in the Local Plan specifically for biotechnology and other knowledge-based industries, within the green belt. ▪ Highlighted in Easter Bush Framework as a possible extension to BioCampus.
Landscape Framework	▪ Generally surrounded by mature hedgerows. ▪ The Kill Burn runs alongside the western boundary. ▪ This character unit neighbours a café on the east, separated by dense evergreen planting.
Building Style	▪ No buildings currently on site. ▪ Neighbouring buildings include several large dark grey farm sheds, 1/2 storey stone cottages with slate roofs, and the café - a small cottage extended in every direction.
Visual and Spatial	▪ Outlook to Pentland Hills west, which rise above shelterbelts associated with Easter Bush and the policy planting of Technopole (which screens built development within the wider study area). ▪ The building at BioCampus sits in the foreground, only partially screened by its relatively new surrounding planting. ▪ Proximity to A701 and openness of planting means site is highly visible from this busy road.
Infrastructure	▪ Main Access gate from Bush Loan at western corner of character unit and through Gowkley Moss Farm yard. ▪ Located just off A701 and Gowkley Moss roundabout.
Public Realm	▪ Scale of native hedgerow planting around periphery accords with beech hedge on Pentland Science Park boundary. ▪ 'Edinburgh Science Triangle Midlothian Campus' sign on corner somewhat lost by newer Gowkley Moss roundabout and associated redirection of A701.

Table A7 Roslin BioCentre

Location	▪ A satellite character unit of the main study area, located north east of Roslin, just over 1km east of the main study area.
Use	▪ Roslin BioCentre was established in 1997, and is globally recognised for expertise in stem cells, genetics, genomics and bioinformatics. ▪ Facilities include: offices, labs, security, cold room, wash up/autoclave room, specialist waste handling, and animal facilities.
Landscape Framework	▪ Village setting of Roslin. ▪ Well surrounded by dense mixed-woodland shelterbelts. ▪ Road to plant nursery runs along northwest boundary, separated from the site by a hedgerow. North of this minor road is a mature section of woodland associated with the Kill Burn. ▪ Within character unit generally closely mown grass, with pockets of tree planting.
Building Style	▪ Wallace building at site entrance a two storey grey office building with dark blue window panels and hipped roof. Further single storey office building located at centre. ▪ Wallace Building – laboratories, offices and Home Office approved containment unit. ▪ Logan Building at rear of site. One storey traditional built office block. ▪ Children's nursery (Forest friends) at front of site.
Visual and Spatial	▪ Fairly formal style with close mown grass and some ornamental shrubs. ▪ Enclosed by shelterbelts and by mature broadleaved woodland north of the site through which Kill Burn passes. Feels well contained.
Infrastructure	▪ Principal access from east, off B7006. ▪ Paved access from west entrance to most northerly building on site on one side of road - no pavements on other roads through site.
Public Realm	▪ Made secure by gated access and feels very private. ▪ Entrance gate and signage in sandstone.

Table A8 Bush Estate West

Location	▪ Located directly west of Bush House, but distinguished from Technopole due to lack of open estate character.
Use	▪ A science and technology park comprising numerous office and labs. ▪ A number of different businesses are based here including the Scottish Agricultural College (SAC), SELECT (trade association for the electrical contracting industry in Scotland) and the Centre for Ecology and Hydrology (CEH).
Landscape Framework	▪ The extent of the policy woodland retained in this character unit is limited and around buildings. ▪ Low maintenance ornamental shrubs detract from estate character, whilst retained built features such as entrance road and pillars, and 1868 walled garden wall reinforce estate character.
Building Style	▪ Buildings are mixed in style, but generally comprise 1 or 2 storey office-type buildings. Their materials and colours vary and identify various occupants. ▪ SELECT is located within the brick-walled garden and the building reflects this material. CEH building colours are black, red and grey. SAC includes a wide variety of building sizes and styles, all rather worn out.
Visual and Spatial	▪ When approaching from the front of Bush House, this area of low densely packed buildings comes as a surprise and the density feels emphasised by comparison with the openness of Technopole. ▪ The clear branding and separation of the various occupants contributes to an impression of independent operation, rather than the shared facilities and buildings that emphasise exchange between occupants in other parts of the study area.
Infrastructure	▪ Main access is not through the Technopole, but from the western access from Bush Loan, though a pillared entrance with gate house. ▪ Narrow and somewhat dilapidated roads, particularly in the southwest of this character unit, connect different buildings with little in the way of delineated pedestrian routes.
Public Realm	▪ Planting on Technopole side of main access road is generally more mature than that on Bush Estate West side. ▪ Modern black lampposts line the road on the Technopole side. ▪ The parkland landscape and path network of Technopole is accessible nearby, though there is a lack of pedestrian routes connecting the two.

Table A9 Edinburgh Technopole

Location	▪ South of Bush Loan and occupying a large proportion of Bush Estate, Technopole, with which it has a direct road and footpath link is located to the southeast of Bush Estate West and northwest of Pentland Science Park.
Use	▪ Edinburgh Technopole is a science and technology park with flexible office and product development space set within a group of highly specified buildings. ▪ Facilities include: offices, laboratories, accommodation, bio-manufacturing facility, bespoke development at almost any scale, CCTV and security patrols.
Landscape Framework	▪ The grounds still retain some designed landscape features, such as woodland roundels, the pinetum and serpentine pond. ▪ New features are integrated into the estate sensitively, working to reinforce some features such a beech hedging.
Building Style	▪ Bush House is a classical mansion of sandstone and slate, dating from around 1750 and extended in the 1790s. ▪ Several modern office/lab buildings are installed in the southeast of the site - generally 2-4 storeys high, red brick and grey and glass panelling. Several more are planned.
Visual and Spatial	▪ The current building density means the sense of parkland and the visual connection to the Pentlands is retained. ▪ Signage for Technopole is slightly confusing along Bush Loan, sometimes directing travellers in more than one direction. ▪ The present of SAC in both Technopole and Easter Bush is potentially confusing.
Infrastructure	▪ Road network to newer buildings are set out with future expansion in mind and links to Pentland Science Park. ▪ Pedestrian access runs alongside roads and informal paths lead elsewhere around the estate. ▪ Parking is generally located alongside buildings.
Public Realm	▪ Delicate balance of old and new features. ▪ Open space and quality of landscape is widely promoted as a key characteristic of Technopole. ▪ Parkland setting and links to Pentlands considered an "open air gym" including mountain biking, jogging etc.

Table A10 Pentland Science Park

Location	▪ Located southeast of Technopole, Pentland Science Park, with which it has a direct footpath and road link, is located within the densely wooded southeast corner of Bush Estate within an opening in the woodland, and between the two retained gatehouses of Kennels Lodge and East Lodge.
Use	▪ PSP was established in 1994 by Moredun and is occupied by Moredun and other commercial companies, generally specialising in animal biosciences. ▪ Facilities include: stock-holding sheds, a high containment facility, post mortem building, on-site incinerator, catering (Park Café), security, lecture theatre (110) and meeting rooms, attractive grounds.
Landscape Framework	▪ Extensive area of mature mixed woodland in northeast of site associated with Bush Estate and surrounded by well-maintained beech hedgerows. ▪ Office buildings and labs are located within pre-existing opening within woodland. ▪ Agricultural or industrial units are located in former agricultural land, screened by relatively young structure planting.
Building Style	▪ Uniform style of office and lab building throughout site - cream and peach coloured breeze blocks with blue features. ▪ Collection of industrial or agricultural sheds within the southwest section of the character unit. ▪ Security booth located on gated main access.
Visual and Spatial	▪ High level of security apparent – well-screened by woodland with gated access and perimeter fencing. ▪ Ornamental, well-maintained landscape within the site with little or no outlook to other character units.
Infrastructure	▪ Gated access from roundabout on Bush Loan with security booth. This generally operates as the only access to PSP however there is occasional use of a gated access to Technopole, by occupants of Technopole using PSP facilities. ▪ Benefits from good path network of neighbouring Technopole.
Public Realm	▪ Feature wall with pillars marks access in combination with barriers and security booth. ▪ Ornamental landscaping within the site - close mown lawn, shrub beds, benches, pond with fountain.

Appendix 2 Stakeholder List

Stakeholder List

Land Use Consultants Project Team

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Stakeholders

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Archie Paterson, Centre Manager

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Kerry Smith, Development Planner

Chris Collins, Development Planner

Edinburgh Science Triangle

See Malcolm Batemen, Roslin Biocentre. Chairman

See George Walker, PSP