HERIOT WATT UNIVERSITY

Edinburgh campus
Strategic masterplan

2015

Final Draft for internal review

www.hw.ac.uk

Values

All Heriot-Watt endeavors will embody our shared values of:

Pursuing Excellence
Shaping the Future
Outward Looking
Pride and Belonging
Valuing and Respecting Everyone

Contents

1 Introduction

This strategic masterplan and vision will help define the next phases of development of the university, facilitating further investment in keeping with our position in world education.

The guiding rules and principles for future development of the Edinburgh Campus are set out within this masterplan. It will help guide and control how development within and management of the University estate is planned and implemented to achieve a consistent approach across the whole campus.

The masterplan provides the context for additional investment and development of facilities over the next decade and sets out how we wish to expand to provide all those things expected of a leading campus. The masterplan recognises the strong historic framework of the site and the need over time to renew some existing amenities, as well as developing new facilities and uses within a high quality campus environment for our students, staff and visitors.

The masterplan has been prepared following extensive technical and design work and internal and external consultation to review evolving development options. City of Edinburgh Council, Sportscotland and the Scottish Government have been a key part of this process.

The masterplan document governs the physical environment of the University campus. It is informed by the University Strategic Plan, and in turn by the Estates Strategy. Specific design guides and action plans will be developed from this masterplan and remain subservient to it.

This masterplan has been prepared on behalf of Heriot-Watt University by the following project team :

Muir Smith Evans
Ian White Associates Landscape Architects
Arup (drainage)
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MUIR SMITH EVANS
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IAN WHITE ASSOCIATES LANDSCAPE ARCHITECTS

2 Executive summary

Landscape

The landscape of the Riccarton Campus is one of its defining qualities. Over time this quality can be eroded through incremental additions and losses; implementing a clear masterplan with guidance on management and design will allow the benefits offered by a beautiful and ordered campus landscape to be maximised. The masterplan shall seek to:

- Manage the woodland estate for long-term succession;
- Conform to a defined range of landscape elements that provide structure, visual coherence, legibility and a clear hierarchy of places and spaces;
- Improve the central valley through thinning of overgrown vegetation and dense trees to open-up significant views and features, increasing light, safety and a sense of interconnecting spaces;
- Create a legible and attractive point of entry
- Create a main arrival space at the heart of the campus;
- Create a series of significant external social spaces, interconnected with adjacent buildings;
- Provide a consistent avenue setting for the road network
- Contain and subdivide car parks using formal planting of hedges and specimen trees
- Integrate the research park, continuing the landscape grain from the core campus
- Seek always to present the University through the quality and civility of its physical setting

Movement

The movement of people and connectivity of uses is a key component of the masterplan strategy. The masterplan shall:

- Promote a reduction in car use by encouraging other modes of transport
- Establish ‘shared space’ principles for the design of new roads and the progressive conversion of existing roads
- Improve connectivity of the existing path network and open up new lines for walking and cycling based on uses and desire lines;
- Maintain priority for pedestrians and cyclists including shared surfaces across the campus;
- Provide well lit shared walking/ cycling / jogging tracks around the campus and connecting to networks beyond;
- Complete the loop road for all forms of transport to make peripheral parts of the campus more accessible, linked to a circular bus route serving all parts of campus;
- Redistribute car parking to peripheral locations, to reduce traffic in the core area
- Improve the integration of the research park, with more direct path routes

The guiding rules and principles for future development of the Edinburgh Campus are set out within this masterplan. It will help guide and control how development within and management of the University estate is planned and implemented to achieve a consistent approach across the whole campus.

Buildings

The masterplan does not include specific building designs. It sets the context and guidelines for individual new buildings which should conform to the Design Guide and:

- Respond positively to the landscape setting, with windows and active frontage at ground floor level
- Be consistent in scale and massing,
- Adhere to the key principles of frontage development with a consistent building line and landscape specification;
- Use a limited palette of sustainable, good quality materials to refresh the 'feel' of the campus and to provide sustainable forms of development and design for the future;
- accord with Design Guidance for the architecture of building fabric repair and renewal;
- Identify opportunities to improve permeability, flexibility and architectural presence of key buildings;
- Seek to integrate the research park with the University core area.

Uses

The masterplan promotes a mixed use campus that integrates research, academic, social and administrative buildings together with student residences. The masterplan also recognises the need to develop commercial uses including hotel, retail and catering oulets to serve the working, visiting and resident student population. The masterplan therefore:

- Clearly identifies areas for renewal and future development and consolidation of existing uses;
- Seeks to establish and re-organise existing campus uses into a more logical hierarchy and hub;
- Recognises the potential for a retail and social hub to provide more on site facilities and encourage less food-shop commuting off site;
- Seeks to integrate uses and provide for active ground floor uses wherever possible;
- Provides for complementary hotel, conference and leisure facilities required to ensure the campus is more outward looking and interactive with surrounding communities;
- Seeks to provide for extended use and activity through weekends
- will encourage passive policing through design.

Sustainability

The masterplan encourages all forms of sustainability including landscape design, building design, transport and re-cycling:

- On site recycling facilities at source are to be expanded and the recycling hub will be considered as part of longer term re-orientation of campus maintenance facilities to a new location;
- A Biodiversity Plan will be produced to guide management of the estate
- Sustainable drainage will be intergrated into current and future developments and through retro-fitting during renewals
- Improvements to footpaths, cycle-routes and bus circulation will encourage green travel

Design Guidance and Review

An appendix to the Masterplan, the Design Guide will define the characteristics and specifics of design to be applied to any new development, refurbishment or maintenance undertaken on campus :

- The Design Guide will be a core briefing document for all designers involved in projects at the University
- A Design Review Committee will assess proposals and engage in dialogue with designers to ensure understanding of and adherence to the Design Guide

3 Background & Context

The heirarchy of University Plans

The Strategic Masterplan is one part in a heirarchy of core documents.

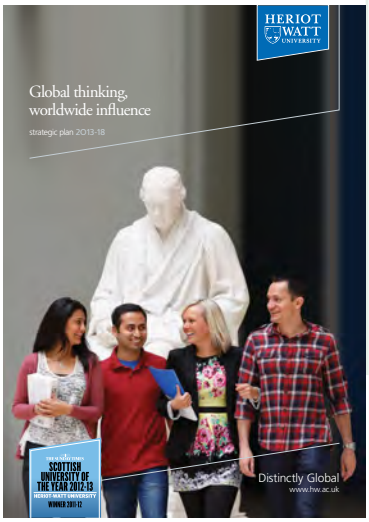
The University Strategic Plan sets the ambition and objectives for the University, renewed on a 5-yearly basis. It is the governing Plan.

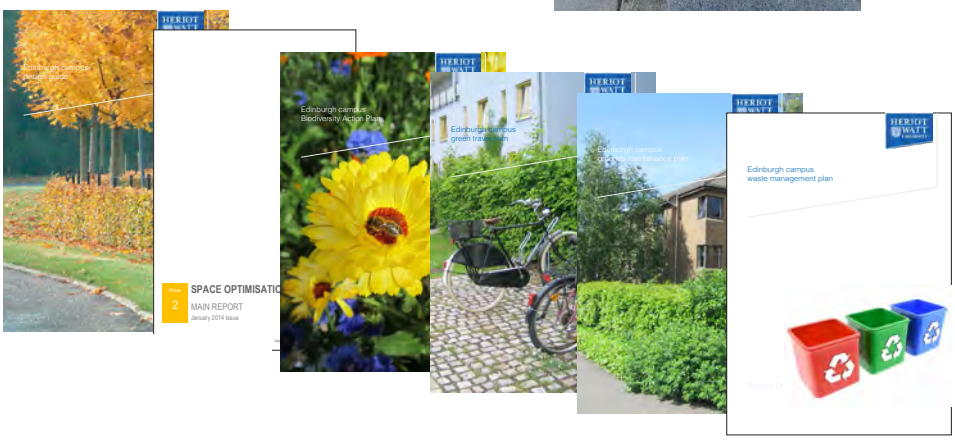
The Masterplan provides specific strategies and guidance for management and development of the campus, to set a long-term framework within which the Estates Strategy can be delivered.

The Estates Strategy sets the objectives for the campus estate over

Other plans beneath the Masterplan will elaborate on aspects that affect the physical envrionment of the campus :

- Design Guide
- Space Optimisation Strategy
- Biodiversity Plan
- Green Travel Plan
- Grounds Maintenance Plan
- Waste Management Plan
- Infrastructure Plan





The Strategic Masterplan provides a credible structure for the next stage of evolution of the Riccarton Campus.

The core purpose of the Strategic Masterplan will be to:

- make tangible the University's strategic development aims and objectives;
- provide, in association with the University's Estates Strategy, a framework within which specific projects will be delivered in a coherent way;
- provide a document and set of agreed principles that should be used and responded to by designers and design teams involved in future development proposals across the campus;
- provide greater certainty in advance of significant investment.

The Strategic Masterplan does not provide detailed layouts or design.

It is expected that applications for individual sites or groups of sites within the area covered by the Masterplan will be designed in accordance with the Design Guide contained in the Masterplan.

Status in Planning

The masterplan is supported by planning policy and is required to satisfy the Local Development Plan

The Estate Strategy

The core objectives of the Estate Strategy are that the University campus should be :

Agile

To provide greater capacity to support growth in research and student population and the facilities necessary for that, the estate must be easily adapted to emerging requirements;

Enhanced

To meet the University's strategic Objectives there is a need to provide flexible, responsive and stimulating quality spaces to enhance the learning, working and student experience and reflect the University's leading brand of global education;

Innovative

To support growth of research and improved research standing, create cohesive environments that break down the barriers between disciplines and create opportunities for inter-departmental teaching and research;

Connective

To support excellence in research and teaching, discourse remains at the heart of the academic experience; the spaces and facilities in which people connect on campus will be designed to allow interaction to happen with ease in a wide expanse of connective space, both internal and external;

Integrated

To provide environments that support integration delivery central university services, information services and student services based on clustering of facilities in a series of 'hubs' providing easy access to resources and facilities within the each cluster;

Student Centred

To provide a rich landscape of learning, social and living spaces on campus by creating spaces and facilities that enable a seamless social and academic experience.

Global

To make the global learning and research activities and the distinct identity a visible part of the campus and experience and to other campus locations;

Green

To capitalise on the natural assets of the Riccarton Campus, striving for a campus architecture and landscape that exploits vistas and makes use of outdoor connections to benefit health, wellbeing and lifestyle.

Sustainable

To take an environmentally responsible approach to the development of the Estate and strive for optimal use of space, high BREEAM ratings in new developments and to achieve University Carbon reduction targets; and,

Optimised

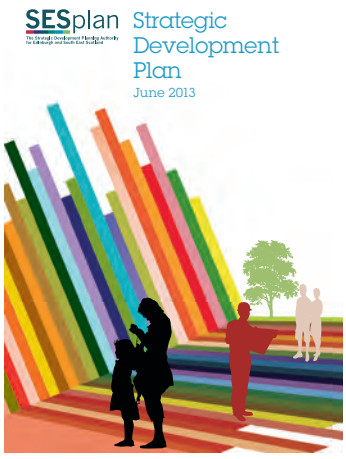
To make best use of the University investment in the estate by ensuring optimal use of space and improving utilisation of the physical estate so that capital expenditure can be directed effectively.

4 Planning Policy Context

The key planning policy point of reference is the development plan which includes SESPlan (2013) and The Rural West Edinburgh Local Plan (2011).

SESPlan provides the strategic and spatial policy guidance for the Edinburgh and Lothians area. Its overreaching objective is to foster a healthier, more prosperous and sustainable city region which continues to be internationally recognised as an outstanding area in which to live, work and do business.

SESPlan contains eight core aims and an overall spatial strategy aimed at meeting key challenges of climate change, demographic change and sustainable economic growth.



The SESPlan core aims are summarised as follows:

- Enable growth in the economy by developing key economic sectors, acting as the national hub for development and supportir local and rural development;
- Set out a strategy to enable delivery of housing requirements to support growth and contribute to meeting housing need in the mo sustainable locations;
- Integrate land use and transport, reduce the need to travel and cut carbon emissions by steering new development to the most sustainable locations;
- Conserve and enhance the natural and built environment;
- Promote green networks including through increasing woodland planting to increase competitiveness, enhance biodiversity and create more attractive, healthy places to live;
- Promote the development of urban brownfield land for appropriat uses;
- Promote the provision of improved infrastructure to enhance connectivity within the area, between the area and other parts of t UK and elsewhere to support economic growth and meet the nee of communities; and,
- Contribute to the response to climate change through mitigation and adaptation, promoting high quality design & development

The Rural West Edinburgh Local Plan (RWELP) specifically identifies the Heriot-Watt University Campus at Riccarton. The site lies within the greenbelt but is identified as a compatible 'Major' use.

The local plan states that special circumstances apply to Heriot-Watt University's Riccarton Campus which is recognised by the Structure Plan as strategically important to the Edinburgh and Lothian economy. However, development of these uses should still be carefully controlled and respect their landscape and greenbelt settings. There are a number of key guiding principles of the plan aimed at the following:

- integrating land use and transport to achieve more sustainable forms of development;
- Protecting natural heritage, biodiversity and landscape character;
- Seeking environmentally sustainable forms of new development;
- Reducing the need to travel;
- Recognising the many, often competing, demands on the countryside and to absorb growing recreational pressures;
- Resisting major new developments not needed to meet defined strategic or local needs; and,
- Ensuring high standards of design in new development.

Policy ED 7 - Heriot Watt University's Edinburgh Campus at Riccarton is the key policy of relevance in the RWELP Policy ED 7 states that:

"A. Development for the following purposes will be supported within the boundary of the Riccarton Campus, as defined on the Proposals Map, provided proposals accord with the approved campus masterplan:

- *Academic teaching and research;*
- *Facilities ancillary to the University, including student residential accommodation and sport and recreational facilities; or*
- *Research and development of products or processes. Acceptable development activities in this category include the production of prototypes but not the production or manufacture of goods on a scale intended for commercial distribution to the general market. Occupiers will also be required to demonstrate direct functional linkages with the University's academic activities. Prior to issuing any consents, applicants will need to enter into a Section 75 agreement with the Council to ensure proposed developments conform to these requirements.*

B. Within the overall Campus boundary, proposals will be required to be acceptable in terms of:

- *scale and location;*
- *public transport accessibility;*
- *access arrangements, junction capacities and levels of traffic generation;*
- *high quality screening and landscaping;*
- *habitat protection and enhancement;*
- *impact on green belt objectives and neighbouring uses; and*
- *retaining the amount and quality of playing field provision, in accordance with Policy E 51.*

C. Uses which do not conform to the approved masterplan will only be permitted where it can be demonstrated that they have clear and strong functional links to the University. The campus uses set out in part (A) will not be permitted outside the defined boundary of Riccarton Campus where normal green belt policy will apply."

Supporting text and specific reference to the Riccarton Campus is contained within paragraphs 6.32 and 6.33 of the plan which state that:

"The Edinburgh Campus at Riccarton comprises Heriot-Watt University and its research park. A masterplan for the whole campus was approved by the Council as supplementary planning guidance in January 2001. It provides an integrated land use and transportation framework to guide the growth of the campus. The masterplan allows for the further expansion of the research park for research and development uses which have strong links to the University's academic work. Expansion of the university itself is also included, with areas allocated for new student accommodation and new Northern and Southern campuses. Some of the land currently used as playing fields will be built on, but grassed pitches of at least equivalent quantity and quality will be provided on land to the south of the existing campus boundary, maintaining a green buffer between the campus and the railway. The new playing fields will be phased with the development of the Southern Campus to ensure that continuity of provision is maintained at all times. A summarised masterplan diagram is included for illustrative purposes in Appendix I but the approved masterplan itself will be the basis for development control decisions."

"As with the Airport and Showground, when considering proposed development within the campus, careful consideration will be given to the nature of the use, scale and location, accessibility by public transport, access arrangements, levels of traffic generation, screening and landscaping, and habitat protection and enhancement to ensure that development proposals do not undermine green belt objectives and overall sustainable development aims."

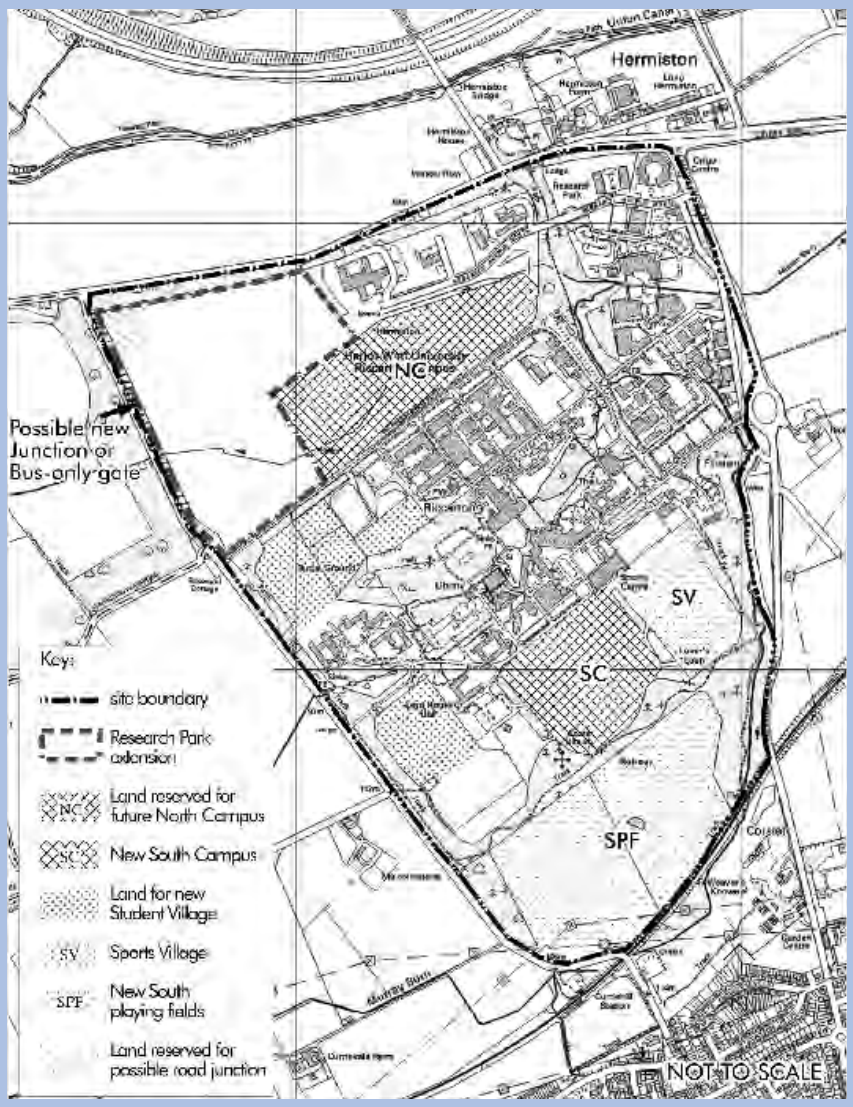
This new Strategic Masterplan should provide guidance for future development and for City of Edinburgh Council. It is an update and iteration of the key principles and uses outlined by the 2001 document and is largely consistent with it. It will be relevant to emerging local development plan policy and for assessing specific future applications but should be considered as a flexible and evolving framework that promotes the development of the campus for the next 10-15 years.

In addition to the specific policy reference of Policy ED7, a number of other policies also apply encouraging sustainable forms of development, environmental issues, promoting quality in design. These are briefly summarised in the table overleaf.

Policy E 1	Sustainable Development - encourages development consistent with the plan objectives for sustainable development. Development that is not sustainable will not be permitted. Account will be taken of the extent to which the development will conserve energy and environmental resources; avoid pollution; make efficient use of land and infrastructure; avoid reliance on the private car for access; and maintain or increase biodiversity.
Policy E 4	Environmental Impact - states that all development proposals should fully take into account the likely effects on the environment and include measures necessary to mitigate any adverse effects.
Policy E 5	Development in Green Belt and Countryside Areas and the supporting policy (Policy E6 - Design and Amenity Criteria for development in the Green Belt and Countryside) states that acceptable development should meet a number of specific criteria. Policy ED 5 and ED 7 are specifically identified as appropriate forms of development in terms of the requirements of Policy E 5 (and E 6).
Policy E 15	Protection and Enhancement of Trees and Woodland seeks to retain trees wherever possible and where development unavoidably involves the loss of woodland, trees or hedgerows, there should be equivalent replacement planting.
Policy E 20	Nature Conservation - seeks to maintain and improve the nature conservation and biodiversity value of the countryside when considering development proposals.
Policy E 30	Non-Scheduled Archaeological Remains - requires an initial field evaluation in consultation with the council's archaeologist.
Policy E14	Designed Landscapes - proposed development which would adversely affect designed landscape features that are worthy of retention, including non-inventory historic gardens, surviving features of designed landscapes and mature public parks, will only be permitted if the adverse effect has been minimised and is outweighed by public benefits arising from the development.
Policy E31	Archaeology - The council will seek to negotiate management agreements with landowners of important archaeological sites in order to provide for their future preservation, and where appropriate, provide for access and interpretative facilities for the benefit of the public. The Council will also encourage the provision of such facilities through private enterprise

Policy E 32	Listed Buildings - seeks to retain the integrity of Listed Buildings affected by new development. There is a presumption in favour of retention of Listed Buildings under the terms of Policy E 33 - Listed Buildings – Uses. There is a general presumption in favour of the retention of a Listed Building in, or its restoration to, its original use unless this is clearly inappropriate, in which case the aim should be to identify the best viable use with minimum impact upon the special architectural and historic interest of the building.
Policy E 33	Listed Buildings - presumption in favour of the retention of a Listed Building in, or its restoration to, its original use unless this is clearly inappropriate, in which case the aim should be to identify the best viable use with minimum impact upon the special architectural and historic interest of the building.
Policy E34	Setting of Listed Buildings - to protect the setting and character of Listed Buildings and country houses, development in their grounds will only be permitted where the relationship of the original buildings to their policies is not compromised.
Policy E 41	Relates to the Design of New Development - encourages high standards of design and requires careful visual and physical integration with its surroundings in terms of scale, form, siting, street pattern, alignment and materials. It should prevent intrusions into views of the city's landmarks, natural features and skyline.
Policy E 42	Design Quality of New Development - requires a positive contribution to the overall character of its context and immediate setting.
Policy ED 10	Airport Safeguarding - requires that the height and design of buildings will be controlled to ensure airport operations and aircraft movements are not inhibited, in line with the requirements of The Town and Country Planning (Safeguarded Aerodromes, Technical Sites and Military Explosives Storage Areas) (Scotland) Direction 2003.
Policy TRA 2	Transport Impact of Development Proposals - states that development will not be permitted where it would have a significant adverse impact on the ability of the existing road network; public transport operations; air quality; or road safety, residential amenity and walking/cycling.
Policy TRA 4	Provision for Pedestrians, Cyclists and Car Parking in Development Proposals - requires that development proposals should make specific provision for the needs of cyclists and pedestrians and that car parking should be sited and designed to minimise impact on visual (and residential) amenity.

Other material planning considerations



Summarised masterplan from Appendix 1 of the Rural West Edinburgh Local Plan 2011; Ordnance Survey mapping crown copyright under licence to Edinburgh Council.

The Appendix notes "This is a summary of the Masterplan; its purpose is solely to indicate the main new land use and transportation proposals within the overall campus, including the Research Park. The Masterplan, as approved by the Council in Hanuary 2001, will be used for development control purposes and in the event of any inconsistency, the approved Masterplan will take precedence."

City of Edinburgh Local Development Plan – Proposed Plan (2)

The Edinburgh City Local Plan (whilst still formally part of the Development Plan) is being replaced by the Edinburgh Local Development Plan. Policies in the proposed plan are generally consistent with the existing development plan. The policies summarised below are from the proposed plan published in June 2014. This is still subject to consultation and not part of the formal development plan at present but represents the most up to date policy position of City of Edinburgh Council and will be a relevant and material consideration in determination of the application.

The Riccarton campus continues to be recognised as a Special Economic Area and the site is identified as a major use within the greenbelt and will be removed from the current greenbelt status. The plan recognises that the campus comprises Heriot-Watt University and the adjacent business park and that in 2013, it was identified as the preferred location for a National Performance Centre for Sport. Its main purpose is academic teaching and research and business uses with a functional link to the University. There is currently 20.28 hectares of undeveloped land available within Riccarton Research Park.

Specifically Policy Emp 3 applies to Riccarton University Campus and Business Park. The policy supports the future development of Heriot-Watt University and expansion of the adjacent business park for research and development and other business uses which have strong links to the University's academic activities.

Policy Emp 3 Riccarton University Campus and Business Park

"Development for the following purposes will be supported within the boundary of Riccarton University Campus and Business Park, provided proposals accord with the approved masterplan and other relevant local development plan policies.

1. *Academic teaching and research*
2. *Uses ancillary to the University, including student residential accommodation and sport and recreational facilities; and*
3. *Business uses, including the research and development of products and processes, where a functional linkage with the University's academic activities can be demonstrated."*

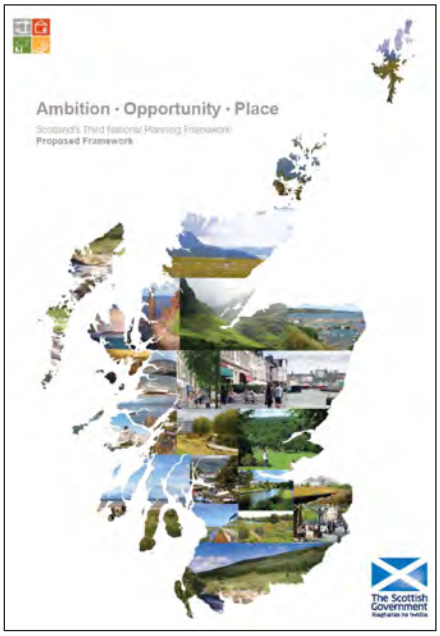
Edinburgh Design Guidelines

The Supplementary Planning Guidelines were approved as council policy in May 2013. They provide guidance to encourage place-making and good design of buildings and the public realm as well as outlining more detailed guidance on maintaining key viewpoints and view corridors.

Scottish Government Policy

Scottish Government has published 16 National Outcomes which are the core policy objectives covering social, physical and economic principles.

National Planning Framework 3 (NPF 3) was laid before the Scottish Parliament on 23rd June 2014. Its primary purpose is to guide Scotland's spatial development to 2030. It sets out strategic development priorities to support the overarching objective of promoting sustainable economic growth.



The key aims of NPF3 are to make Scotland:

- A successful, sustainable place
  We have a growing low carbon economy which provides opportunities that are more fairly distributed between, and within, all our communities. We live in high quality, vibrant and sustainable places with enough, good quality homes. Our living environments foster better health and we have reduced spatial inequalities in well-being. There is a fair distribution of opportunities in cities, towns and rural areas, reflecting the diversity and strengths of our unique people and places.
- a low carbon place
  We have seized the opportunities arising from our ambition to be a world leader in low carbon energy generation, both onshore and offshore. Our built environment is more energy efficient and produces less waste and we have largely decarbonised our travel.
- a natural, resilient place
  Natural and cultural assets are respected, they are improving in condition and represent a sustainable economic, environmental and social resource for the nation. Our environment and infrastructure have become more resilient to the impacts of climate change.
- a connected place
  The whole country has access to high-speed fixed and mobile digital networks. We make better use of our existing infrastructure, and have improved internal and international transport links to facilitate our ambition for growth and our commitment to an inclusive society.

NPF3 makes specific reference to West Edinburgh as a "significant location for investment with the airport, the National Showground and the National Performance Centre for Sport at Heriot Watt University opening in 2016."

Scottish Planning Policy (SPP) 2014 is a non-statutory statement of Scottish Government policy on how nationally important land use planning matters should be addressed. As a statement of Ministers' priorities it is a material consideration that carries significant weight, though it is for the decision maker to determine the appropriate weight in each case.

SPP sets out the Government's vision for economic growth and investment. It states that planning authorities should respond to the diverse needs and locational requirements of different sectors and sizes of businesses and take a flexible approach to ensure that changing circumstances can be accommodated and new economic opportunities realised. It also supports development which will provide new employment opportunities and enhance local competitiveness.

A core part of the SPP is the focus on sustainable economic development and that planning authorities in determining planning applications should attach significant weight to the economic benefit of proposed development as a material consideration, particularly the creation of new jobs, recognising and responding to economic and financial conditions.

Current Developments

This masterplan is part of capturing and shaping ongoing investment in the campus estate with key functional linkage to the university activities and existing campus facilities. As part of the campus development process, there are a number of current development proposals subject to separate planning applications:

- National Performance Centre for Sport (NPCS);
- Hotel associated with NPCS;
- Blood Transfusion Service building;
- The Lyell Centre;
- 450 bed student residences; and,
- Compensatory car parking as a result of loss associated with NPCS.

These are all key development proposals captured by and consistent with the Strategic Masterplan. Some were not envisaged at the time of the 2001 masterplan, but are consistent with key policy requirements and are compatible with core university functions.

5 Masterplan Concepts

Key Concepts

The masterplan is underpinned by a number of key concepts, bringing clarity and direction at the large scale. These principles are then explored in more detail to provide the strategy for each key element of the masterplan.

Landscape Framework

Connectivity

Legibility

Vehicle Flow

Buildings

Infrastructure

Cycling

Development

A Landscape Framework

The landscape of the Riccarton Campus is one of its defining qualities and securing the long-term vitality of this resource is a key part of this Masterplan.

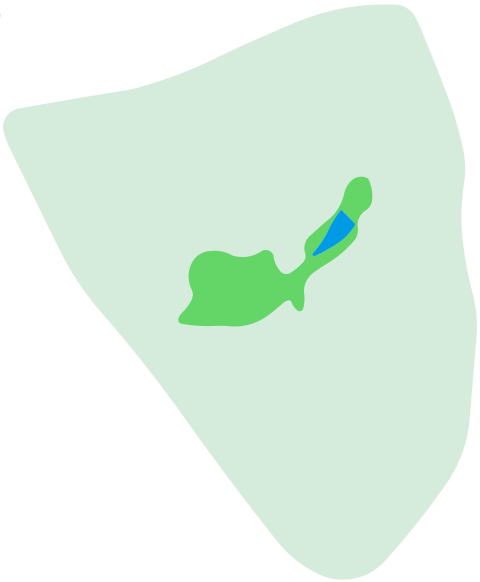
Over time the quality can be eroded through incremental change. An audit of the current situation has revealed what works well and what is failing, where plantings require management intervention to ensure continued value, and where there are opportunities to create new landscape elements that benefit the University.

The landscape structure of Riccarton consists of 3 key elements, adapted from the previous Riccarton House estate. These set a template for the campus, defined by strong boundaries, a focal garden valley and a clear arrival sequence. Within this framework, the details of a University campus are arranged.

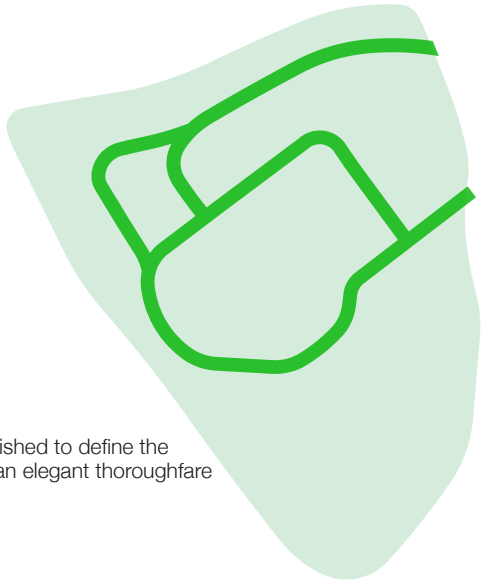
Retention and enhancement of the 3 elements of the landscape framework are vital.

Management of the central valley landscape is critical to success. Currently this feature acts to divide the campus into halves, and is itself rather a backwater, hidden behind buildings and dense vegetation. To free up the core, it is vital that vegetation is controlled and a landscape that encourages activity emerges.

Woodland perimeter and subdivisions strengthened



Retained valley landscape brought into the dynamic life of the University



Avenue planting established to define the primary road route as an elegant thoroughfare

Connectivity

Too much of the campus core is clogged by poorly arranged built form, incomplete or indirect path routes and timidity in managing the vegetation.

Establishing clear, direct and good quality path routes through the core area is essential. Routes should run along the east-west 'spines' and connect at right angles between them, creating a grid of routes that offer convenience and sociability. The grid will extend across the research park area.

A new square at the University entrance links sports to the academic and social. It forms a civic space in which markets, gatherings and social life can be played out. It expresses the character of the University - outward-looking and welcoming.

Clarity and Legibility

Consistency of landscape elements across the whole campus will bring together the Research Park with the original University area and imbue a sense of assurance and distinction throughout.

Landscape management will seek to open up visibility so that way-finding is easier and paths more apparent.

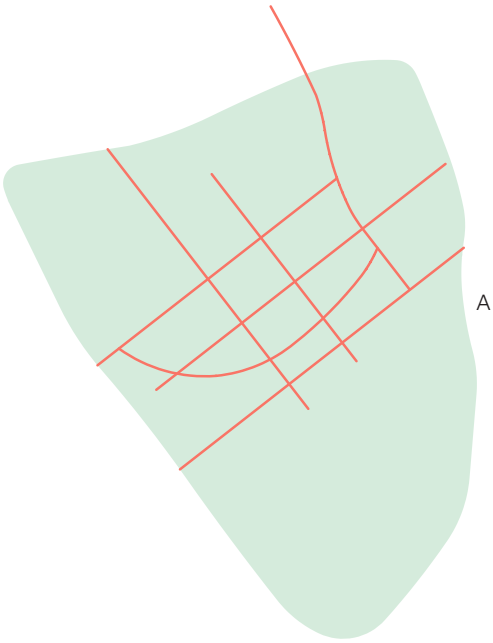
A Landscape Design Code will control new projects and guide renewals.

Vehicle flow

Completion of the loop road will improve bus operations and allow the new square to function free of bus turning.

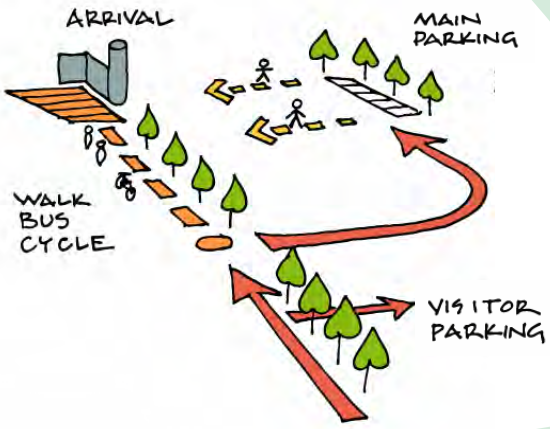
A 'cars turn-right' approach to the car parking provision, relocating car parking to the perimeter road from core areas, provides clarity and opens up the research park as an alternative access route.

The University travel plan envisages growth in green travel modes and reduction in car parking demand from the current University population.



A grid of path routes is fully connected

Arrival sequence resolved and car parking relocated to periphery

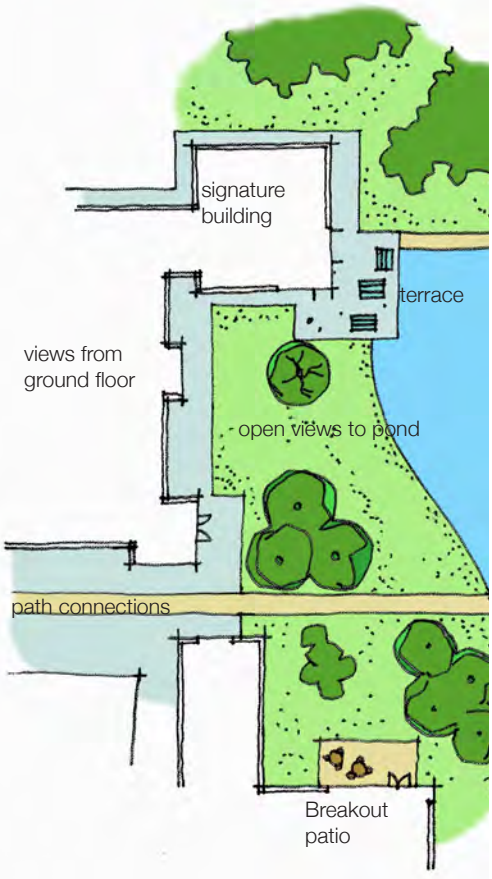


Principal vehicle circulation enhanced to complete loop route

Buildings

The degree of positive interface between buildings and the landscape will be a focus for renewals and internal re-organisations of existing buildings and an absolute briefing requirement for new buildings. Key frontages onto high quality landscape spaces will be a priority for treatment; active elevations at the ground floor are very important to the creation of a friendly character and sense of bustle. The role of existing buildings in hindering connectivity, both physical and visual, will be reviewed and, where feasible, improvements made.

The arrangement of back-of-house areas, service access and bin stores is haphazard and needs to be rationalised in conjunction with renewal of the waste collection service.



Infrastructure

Fluvial and pluvial flooding impose limits over only small parts of the campus. SuDS for future developments offer the opportunity for habitat and amenity benefits.

Existing buried services beneath the western part of the University grounds impose some limitations on building. A co-ordinated plan for infrastructure will be developed to guide development and management.

Street lighting renewals and new projects will utilise modern, low energy white-light fittings, with effective horizontal cut-out to limit light pollution.

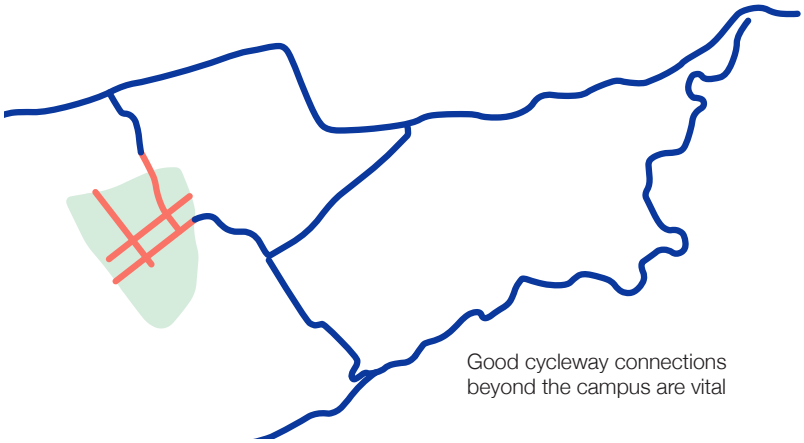
The campus drainage network can contribute to wetland habitat

A Cycling Campus

The University benefits from a young, healthy population and links to strategic cycle routes. A growth in cycling for travel can be promoted through investment in convenient routes, clear waymarking and provision of attractive and secure cycle-parking facilities.

The move towards shared surfaces will improve conditions on campus for cyclists. Upgrading key path routes to shared cycle routes will make travel across the campus more convenient whilst reducing potential conflict.

Gaps in the wider network of cycle routes to Heriot Watt from Edinburgh inhibit many potential cyclists from using this mode of travel to work. The University will promote improvements to the wider network beyond the campus in order to secure better cycleway links.



Good cycleway connections beyond the campus are vital

Development

The masterplan promotes a mixed use campus that integrates research, academic, social, commercial and student residences. It provides flexibility of use types; this permits mixing or separation according to requirements.

Vacant sites with potential for development are identified; some of these are car park areas in the heart of the University, where development would create a denser, more walkable core to the campus.

Hotel, conference, leisure and sporting facilities are outward-looking and offer interaction with local communities. Greater life on campus at weekends and in the evenings can be encouraged through the mix of facilities and the character of the place.

Future expansion of the sports grounds can be accommodated in the greenbelt immediately south of the current campus boundary.

Potential Development Sites currently vacant

1. Research Park Ph 2 contains large vacant plots ready for development
2. Aptuit site is cleared ready for re-development
3. Vacant site proposed for hotel
4. Temporary car park is suited to academic expansion
5. Opportunity to create signature building that engages with the sensitive lochside setting
6. Car park site is well-suited to development that engages with the valley garden and bridges between academic and residential areas
7. Small site convenient for academic expansion
8. Vacant site proposed for future residential expansion
9. Plot suitable for ancillary/support development
10. Car park offers area for future expansion of sports facilities
11. Car park convenient for academic expansion

6 Landscape

The Woodland Garden near to the Gibson-Craig burial ground

The generous, green campus is a defining characteristic of Heriot Watt Edinburgh

When the University was established at Riccarton the layout exploited a rich estate landscape to form a beautiful, mature setting. This green character is one of the University's defining characteristics, and can be a very positive feature in distinguishing it from other education institutions. Yet, over time this quality can be eroded through incremental additions and losses. Implementing a clear masterplan, with guidance on management and design, will allow the benefits offered by a beautiful and ordered campus landscape to be maximised and continued into the future.

The Past : A Designed Landscape

Riccarton was a designed landscape with a very distinct form (1), which provides the basic setting for the University (2). The original landscape structure has strongly influenced the layout of the campus and the main elements of the original design are still evident - the perimeter woodland (3), the main avenue (4) which leads to the core buildings on the site of the original house (5) and the wooded central valley (6).

The general health of the woodland is good (7) and provides a robust framework which also contains fine specimen trees (8). There are indications that longterm issues of succession need to be recognised (9), that systematic thinning is required (10) and that rhododendron control should be considered (11).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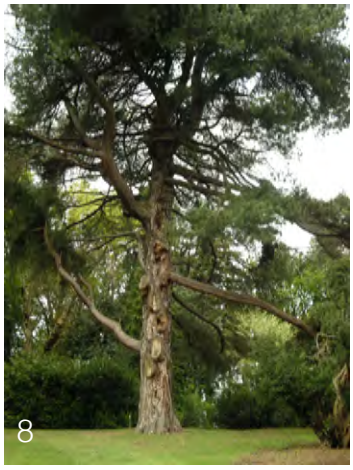
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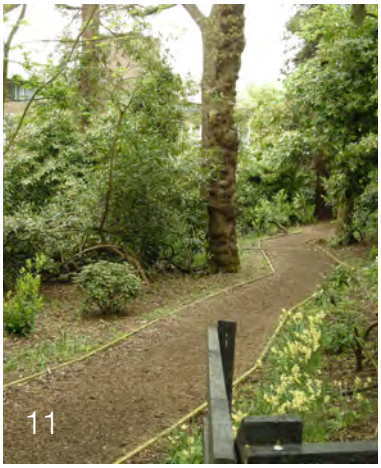
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The Present : Roads and parking

The landscape setting of the campus defined by the perimeter planting is further divided by intermediate belts of woodland. These provide visual containment for building groups and define sites for future development (12).

Where woodland belts are absent (13) the quality of the campus is reduced. Similarly, where the primary circulation routes for vechicles are defined by avenue planting (14) (15) or woodland (16) they are pleasant and provide a sense of order.

The absense of avenue planting has a strong influence on the appearance of the landscape (17).


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Car parks are enclosed by robust hedge planting (18), however some larger areas require further sub-division (19) and stronger enclosure on their edges (20). Some areas require improvement to meet the general standard (21). Connections between parking areas and main pedestrian routes require careful consideration, as do the treatment of service zones (22). There are a few instances of a need to control parking (23) and to avoid a proliferation of signs (24).


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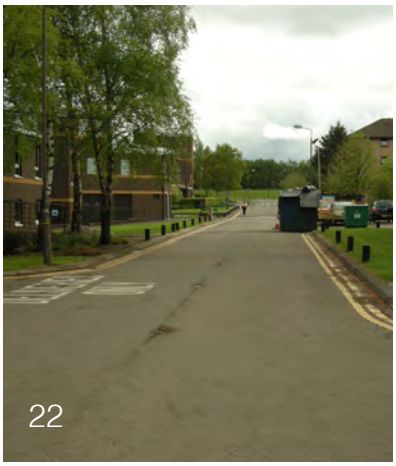
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The Present : Buildings and landscape

The central valley and lochan which were strong features of the original design have become overgrown and obscured, therefore do not fulfill their full potential (25 & 26). Principal buildings and routes in the core of the campus lack a positive relationship with these features, being hidden behind dense vegetation or lacking appropriate windows and entrances (27 & 28). These include the Library (29 & 31), the Student Union (32) and the Refectory.

The Lawn is calm and elegant, but divorced from the buildings near to it. Other buildings also have a poor relationship with surrounding spaces; the bridge link in particular suffers from restricted views and inappropriate decorative landscape within what should be a generous, picturesque setting. (33). Service areas back onto attractive landscape areas (34).


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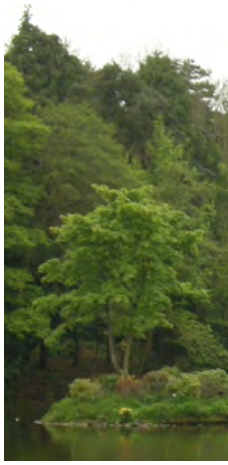


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The quality of setting in the northern campus is very poor largely due to the density and form of buildings (35) together with a reduced amount of planting (scale and species) (36). The appearance of recent buildings in the western part of the campus appears fragmented with an over-emphasis on shrub planting (37) and is not well related to the perimeter and intermediate woodland.


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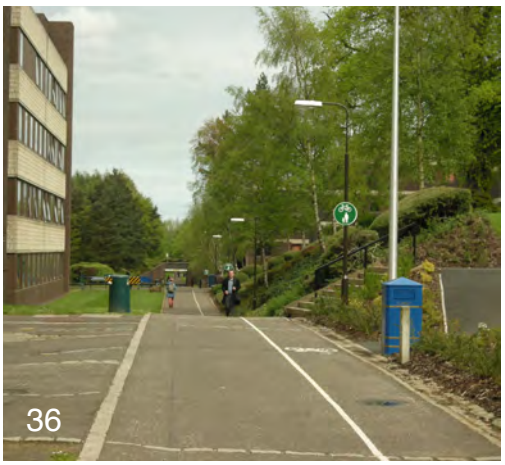
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The Present : Connections

The quality of the main pedestrian routes throughout the campus is varied. To the north of the core buildings and providing links to the Research Park “The Way” is clear attractive and effective (38 & 39). It should be extended westwards to connect to future development sites (40 & 41). To the south of the core buildings the main spine is segmented, less well defined and occasionally confusing (42 - 44). Legibility is poor and landscape treatment inconsistent (45 - 47). Path connections across the central valley are important, most require improvements to surfacing (49), visibility (50) and to remove obstacles to free access (48). Some informal, indirect paths should be upgraded to open up links to new residences and bring the central valley


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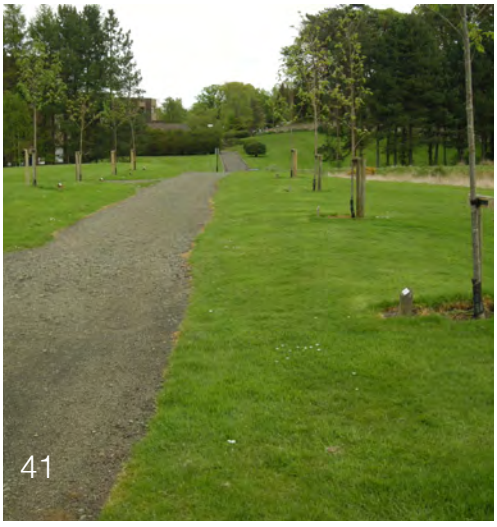
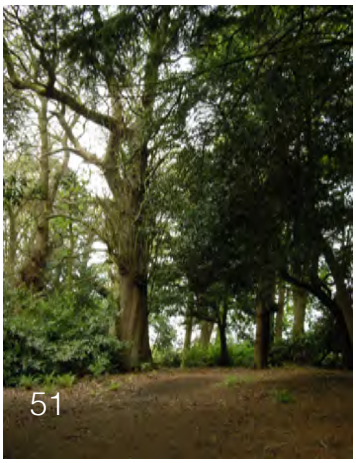
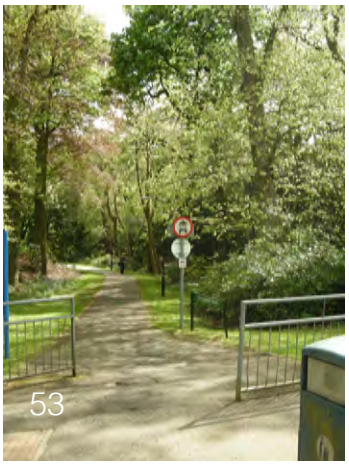
area into greater use as an attractive route (51).

These connections should anticipate future developments. With careful design routes through woodland can be safe and attractive (52 & 53).







The Present : Spatial quality

The main “arrival” space at the University is ill-defined, disordered, dominated by vehicles and quite ordinary (54 - 57). It should be re-designed to reflect its importance. This could be done by providing a clear entrance, unifying the southern edge of the space which appears fragmented and strengthening the tree planting. The sequence of the arrival experience from the main entrance to the campus to the core buildings works only in part and should be reconsidered to reflect its importance so that it can fullfill the same function, at least in spirit, as the avenue in the original designed landscape (58). Currently the clarity of this avenue is lost at the roundabout, where road alignment and furniture intervene (59), the tree planting changes (60) and small shrubberies add to the clutter (61).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Amongst the buildings lie some sheltered spaces with potential for greater social use (62) if the balance and mix of planting and paving were to be changed.

Consideration should be given to strengthening spaces which are a focus for social activity throughout the campus (63 - 65). Wetland areas should be fully integrated to create attractive spaces and increase biodiversity (66 - 68).


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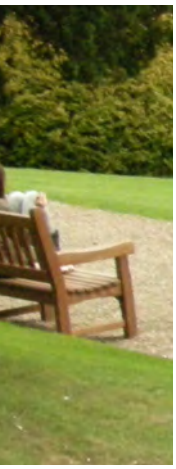


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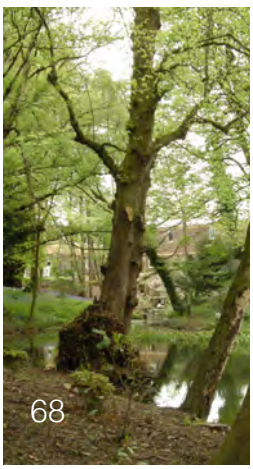
68

The Present : Grounds maintenance and horticulture

The standard of grounds maintenance and horticulture is satisfactory in maintaining a tidy and presentable environment (70). However taking a long-term view there is perhaps an over reliance on decorative shrub planting using non native species and short-lived tree species (71 & 72). Decorative shrub planting can be very effective (73) as can the use of groung cover planting (74). Some plant associations do not conform to contemporary views on planting design where the emphasis is on natural associations (75). Inappropriate choice of species can involve additional maintenance (76) and result in a harsh finish. Better organisation of external spaces could reduce the need for shrubbery (77). Where trees make an important contribution to the quality of spaces care thought should be given to longterm succession (78). Throughout


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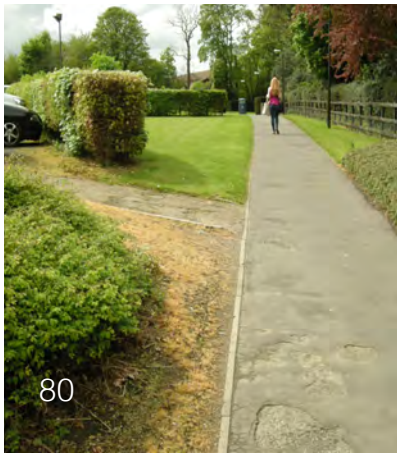
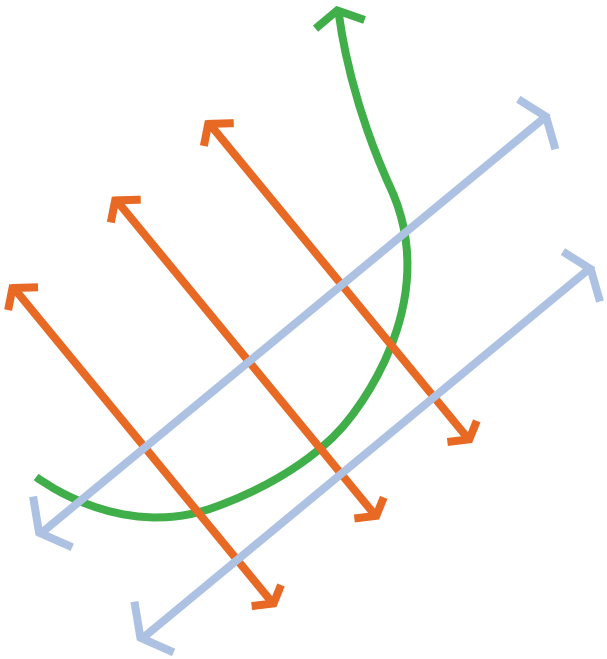
the campus there is a need for a comprehensive programme of repairs and improvements to surfaces (79 - 81).



The Future : A ten point landscape strategy is intended to conserve and improve the longterm quality of the campus setting:

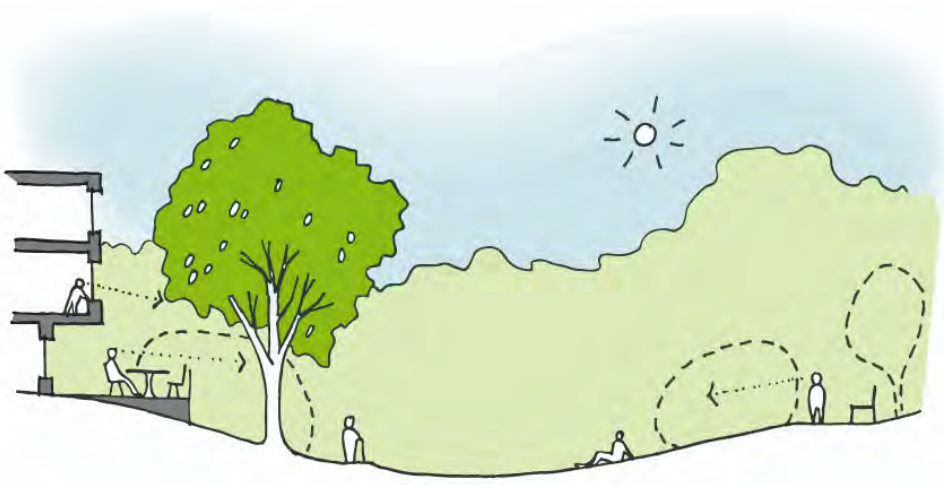


1 Improve and extend pedestrian spine routes and cross links

Make clear, attractive and direct connections between paths; improve legibility of routes; renew surfaces and address barriers to disabled use

2 Improve the central valley to reveal major features and increase use

Remove dense evergreen shrubs; re-surface paths; open up the views from adjacent buildings and re-organise functions to exploit the outlook

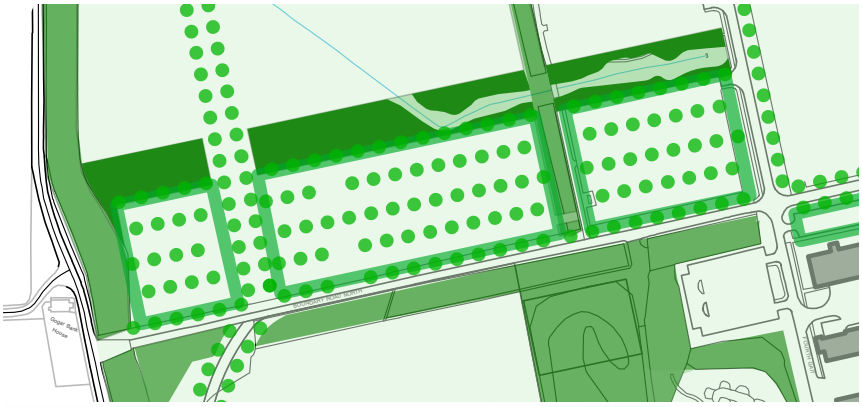


3 Extend avenue planting to reflect the primary road system

Creating a consistent and well-ordered appearance to the perimeter of the core area

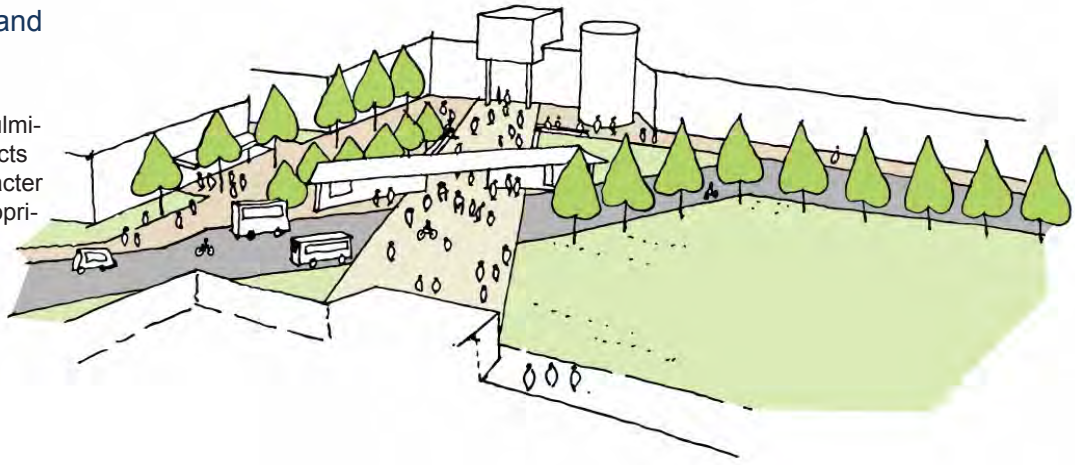
4 Extend and strengthen woodland structure planting

Advance planting to subdivide development areas, reinforce the University boundary and connect woodland habitat



5 Create a new arrival space and transport hub

De-clutter the arrival sequence, culminating in a new square that connects ‘body and mind’ and has the character of quality, civility and energy appropriate for the University’s front door.



6 Create a series of significant social spaces

Bringing activity into the landscape, bridging between different academic and research disciplines and exploiting properly the quality of the setting

7 Improve the quality and connections of parking areas, redistributing parking away from the core area

Create strong enclosure, clarity of layout and of pedestrian connections into the University buildings

8 Review landscape management to improve long-term quality and biodiversity

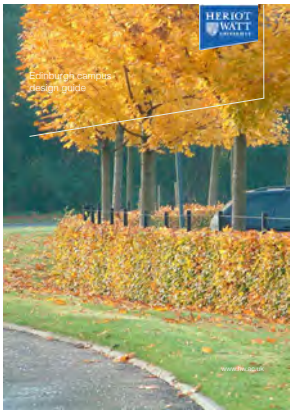
Plan for sequential replanting or reversion to other landscape treatment (such as floral meadow) where better suited to form, function and usage of the space

9 Integrate SuDS to increase amenity and biodiversity

Build upon the heritage of lochans, rills and burn, expanding beyond the central valley and into all parts of the campus

10 Implement a Landscape Design Guide to ensure coherence

Establish a limited palette of good quality materials, furniture and consistent planting typologies. Control individual developments. Audit and de-clutter signs and road 'furniture'



The Design Guide

The Design Guide is a separate document beneath the Masterplan.

The aim of the Design Guide is to steer capital and maintenance operations to achieve the objectives of the masterplan. The campus should be viewed holistically and any works undertaken within it should be to the quality and consistency required to raise the impact of the landscape and architectural composition.

The Design Guide is to ensure a high standard of design and management of the University Estate. It will inform the design team for new developments and refurbishments, as well as University staff managing renewal and maintenance operations. It provides detail on the design objectives and, in some instances, specific criteria, for development, renewal and maintenance operations on the campus.

The design guide will help designers and managers :

- to achieve a robust and healthy landscape setting for the University
- to recognise and protect the long-established landscape features, including mature trees, that contribute to the campus character
- to achieve consistency of design and appearance across the whole campus
- to achieve a hierarchy of attractive external spaces which are correctly distributed, inter-related and well-managed
- to integrate new and refurbished buildings and infrastructure in a manner that is elegant, encourages engagement and improves the campus environment

The design guidelines include the following coverage:

- Woodland Structure-planting and management
- Building design principles - frontages, character
- The historic landscape core management of vegetation, re-planting, access network, maintaining visibility zones
- Heritage structures – management, visibility
- Road corridor landscape – avenue trees, verges and hedgerows
- Legibility – key views, defined walking routes, signing
- Accessibility – the design of crossings, gradients, surfaces
- Pedestrian and cycling connectivity – path improvements, strategic links
- Signing strategy – including audit and proposals for removal
- Biodiversity – Strategies for vegetation management; species protection/promotion
- Furniture – approved furniture types to be used, with design guidance
- Drainage infrastructure
- Specification of soiling, planting and maintenance works
- Specification for bin enclosures

Design Review

Any significant landscape and external works implemented on the campus should be designed by or with the involvement of a Chartered Landscape Architect. The design must accord with the Masterplan objectives and guidance. Design of landscape must be an integral part of the site planning process from the outset, not relegated to the final stage of project design.

Design proposals should be reviewed by Estate Management against the Masterplan and these Landscape Design Guidelines, before approval.

New woodland with defining hedge

Thinning of trees and dense shrubbery

Establish new avenues

Landscape Structure

Woodland belts
Extended rotation forestry
Selective thinning and replanting
Manage for diverse age structure, native habitat and canopy structural diversity

New woodland
Native woodland mix with understorey shrubs and ground flora
Establishment management
Temporary fencing and weed control up to canopy closure

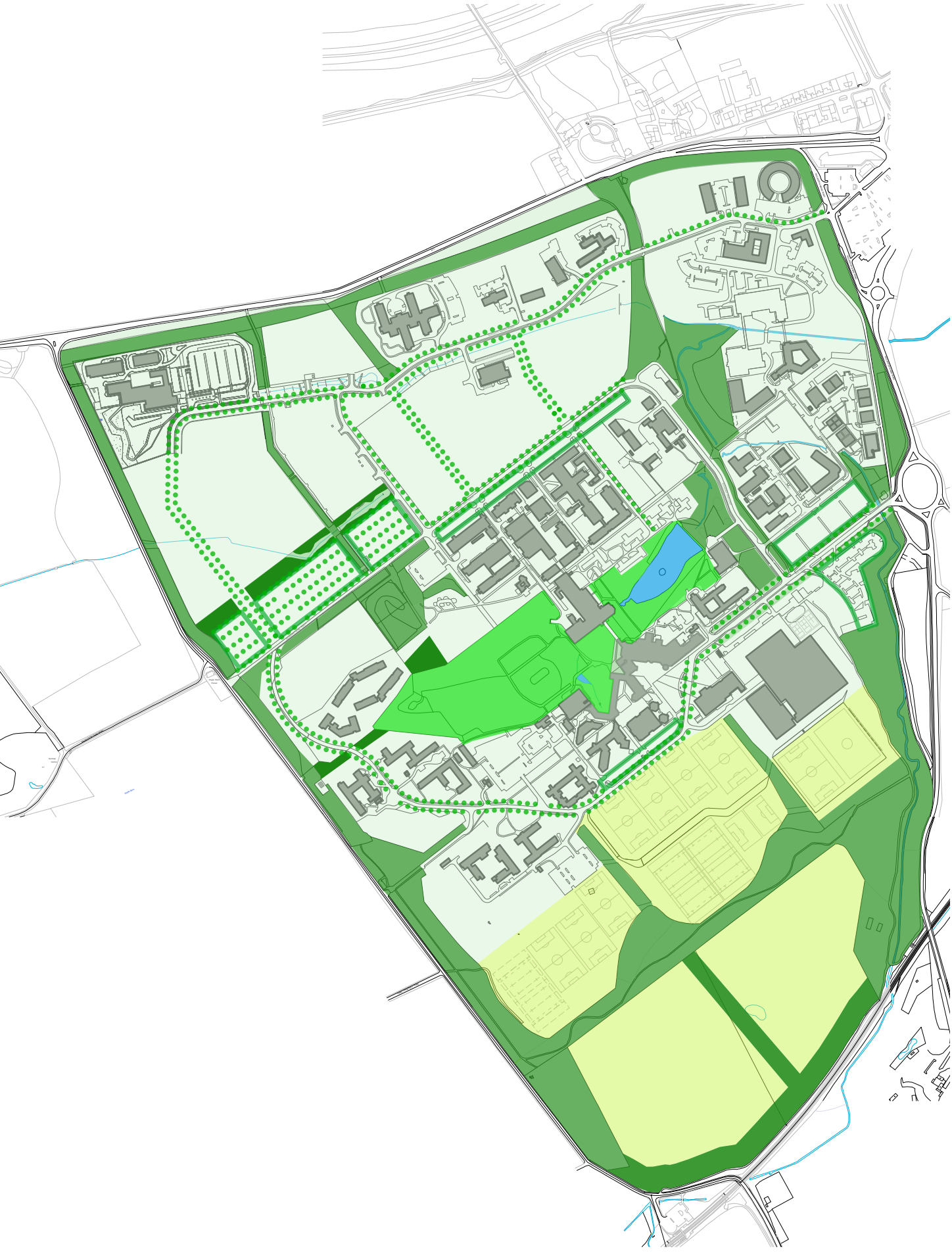
Core landscape area
Ornamental woodland, lawns and lochside
Extensive removal of dense shrub layer to open views
Selective thinning, especially of conifer stands
Replanting for succession of large native and exotic trees
Manage for diverse age structure, native habitat and canopy structural diversity
Path surfacing to improve access
Seating and comfort

Avenues
Protect and manage existing mature avenue trees
Replanting for long-term succession
Planting of new roadside avenue trees to improve the character of the road corridor
Avenue trees established as boundaries to development plots

Car parking
Enclosure within native mixed hedging
Consistency of approach
Footpath connections into core area

General landscape
Increase area of meadow grassland and ecotones
Incorporate SuDS elements
Increase stocking of large tree species
Reduce extent of ornamental shrubs

Sports fields
Highly maintained grassland

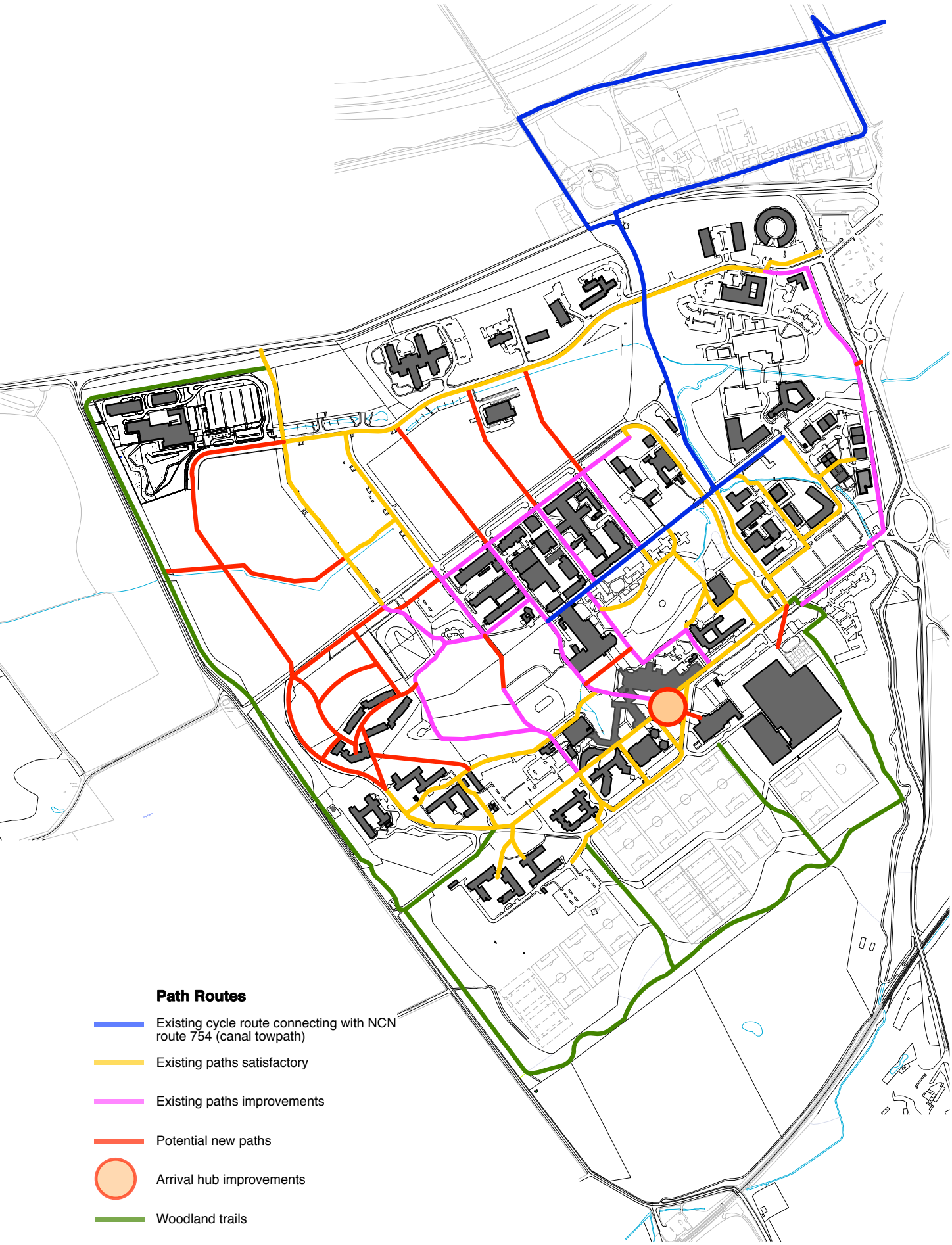


Social Spaces

Path connections

Social spaces - in order of significance

1. The Square
   Arrival hub and link between academic and sport
2. Student Union
   Bustling, pub garden atmosphere
3. Lochside
   Sylvan, calm setting with flexible lawn space
4. The Lawn
   Sheltered sunny aspect, ornamental gardens expanded Library terrace, path improvements
5. New residences courtyard
   Sheltered garden courtyard overlooked from residences; local hub
6. Residences courtyard
   Sheltered garden courtyard overlooked from residences; local hub
7. Millennium Garden
   Quiet and secluded


Path Routes
Existing cycle route connecting with NCN route 754 (canal towpath)
Existing paths satisfactory
Existing paths improvements
Potential new paths
Arrival hub improvements
Woodland trails

7 Transport

Cycling alongside the Murray Burn

The University will seek to reduce private car use and increase participation in more sustainable and healthy travel modes, by providing attractive facilities and encouraging green travel

Open and well lit main path routes in the core of the campus

Secure and weatherproof cycle parking

Convenient bus services from the core area

Introduction

The manner in which people travel to and around the campus has significant implications on health, the environment and perceptions of the University. Walking, cycling and public transport all offer benefits over private car use and can contribute to carbon reduction, improved health and a safer environment both on and off campus.

Current Situation

The existing transport network in and around the University is well developed and offers a range of transport modes. The site is particularly well served by buses that provide a link to the city centre, while walking and cycling links are also in place.

However, the edge of city location, lack of a railway station in immediate proximity, and an abundance of car parking space at inexpensive rates, have resulted in a high level of modal share as car journeys.

The masterplan contains measures that will improve the practicality and attractiveness of alternative travel modes. Together with the Green Travel Plan, the aim is to drive up the modal share of walking, cycling and public transport.

Walking

The University is a compact site with helpful proximity between residential, social, academic and support functions. Walking is the most practical means of travel within the campus. The network of routes needs to be improved so that it offers convenience, accessibility, capacity and comfort. Walking should be perceived as the logical and attractive means to get about the University and must take priority over vehicles.

The extensive network of footpaths consist of three primary shared use (walking & cycling) routes running through the campus; one runs east to west and the remaining two run north to south. These routes are all around 3m width and have street lighting. These main routes connect with footways running along all the roads within the campus. There are zebra crossings, the locations of which impose indirect routes upon pedestrians; barrier rails alongside the roads constrain free movement and are unattractive.

North-south path routes in the campus are weak. The legibility and continuity of many pedestrian routes is poor, particularly where they meet the numerous service gaits.

The central valley gardens act as an obstacle to pedestrian movement; there is no clear and direct route through the valley west of the dam crossing at the student union. Formalised, surfaced paths running along the central valley are also weak. Measures to improve the surfacing and natural daylight of paths through the gardens are required, to bring this area much more into use and make it feel a vibrant part of the University instead of a relict of the past.

Pedestrians arriving from the Hermiston Gait Park & Ride (P&R) site do so via the footway on Riccarton Mains Road and the signal-controlled pedestrian crossing at Research Avenue North.

Pedestrians arriving from areas north of the site are likely to make use of the pedestrian crossing on Calder Road, which provides a safe route across this busy road.

Cycling

Cycling is an efficient and health-giving way to reach the campus. Edinburgh has an extensive network of cycleways off-road or on quiet streets, promoted through the Innertube Map and SPOKES.

However, this network becomes sparse towards the urban edge adjacent to Riccarton. The A720 ring-road forms a real barrier. Achieving safe and legible routes through this urban fringe zone is crucial to attracting new cycle journeys originating in central, southern and eastern parts of the city. This will require collaboration between the City Council, University, Sustrans, Spokes and key user groups :

- to identify bottlenecks and missing links
- to design the route improvements
- to achieve consents and funding required for construction
- To waymark and publicise the route improvements as part of the wider network.

HWU is convenient to the Union Canal Cycleway (NCN 754), which runs as a traffic-free route right in to the heart of Edinburgh. Although an attractive route, it has the disadvantages of being narrow, unlit and occasionally subject to anti-social activity. NCN 75 takes the Water of Leith and offers a more challenging traffic-free route via Juniper Green. It suffers the same disadvantages as NCN 754, with added hills; it is joined 2 miles south of the campus. Improved signing from the campus is required.

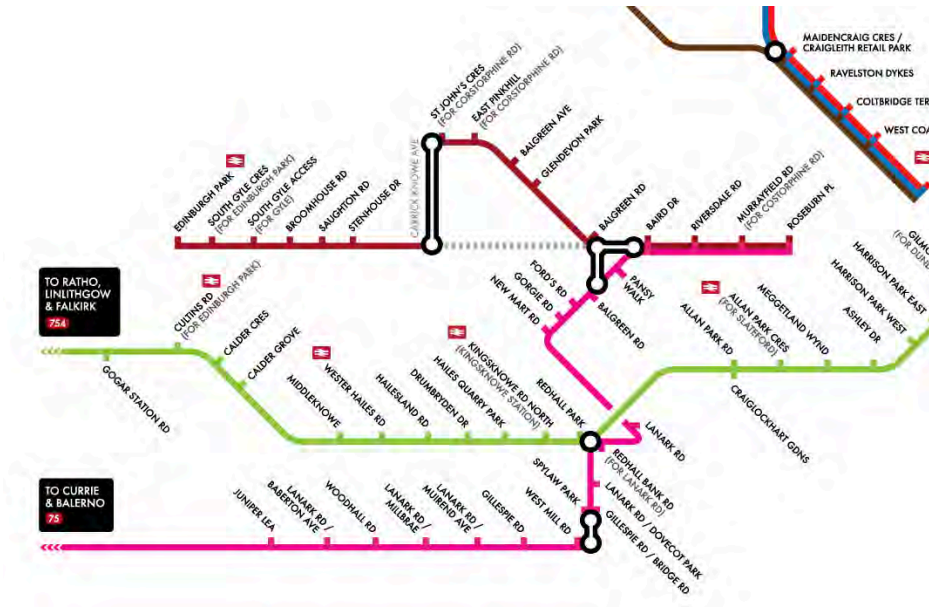
Cycle access to the campus is provided at North Lodge on the Calder Road and at The Avenue main entrance. Sections of the pedestrian path network beyond the campus are signed as local cycle routes for shared use.

Within the campus cyclists can make use of the internal road network and the shared-use (walking and cycling) routes. The internal road network is of a good standard and is subject to an advisory 20mph speed limit, considered to be conducive to encouraging cycle trips.

The move towards shared surfaces will improve conditions on campus for cyclists. Some key path routes need upgrading in width and surface if they are to function as shared cycle routes, thereby making travel across the campus more convenient whilst reducing potential conflict with pedestrians.

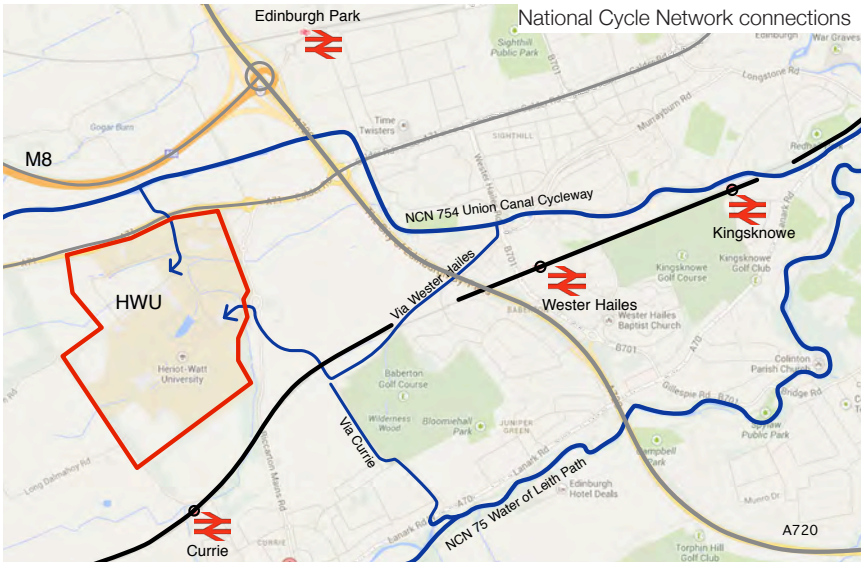
There are c. 210 cycle parking spaces on the campus; a mixture of covered and uncovered Sheffield-type stands and some cycle lockers. Demand comfortably exceeds supply; new cycle parking needs to be provided, both as part of new development projects and as standalone infrastructure investment.

Transition Heriot Watt operate a bike pool scheme for short-term hire on campus. They also have tool kits located at various points around the site, and run cycle maintenance workshops. Both of these schemes should be extended at pace with development on the campus.



Extract from the Innertube Map : Heriot Watt University is currently absent (copyright thebikestation.org.uk)

National Cycle Network connections



Public Transport

Buses should penetrate right to the heart of the campus but need not dominate the arrival square. Completion of the perimeter loop road will allow service coverage to extend whilst relieving the arrival space of onerous bus-turning manouvres.

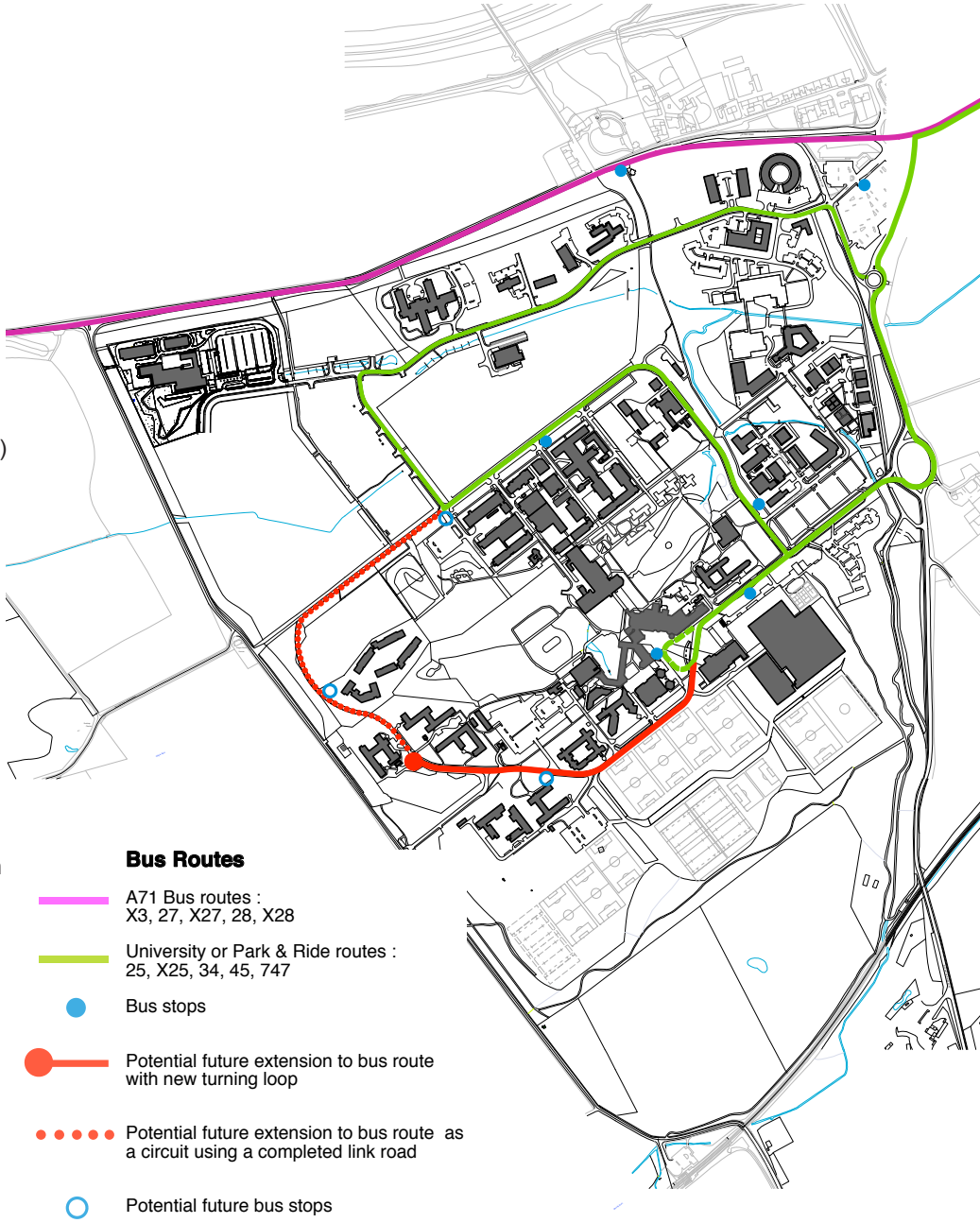
There are a number of frequent local and express bus services from Edinburgh City Centre and residential areas to the south and west of the city, including night bus services to HWU. The University is served by approximately 20 buses each hour to Edinburgh City Centre, with bus stops being located at:

- The Avenue (Leonard Horner Hall)
- The main reception; and
- Boundary Road North at Gait 2.

There are also bus stops at North Lodge on the A71 Calder Road and at the park & ride site; these have shelters with seating and provide services to the wider area including Livingston and Bathgate.

Railway stations are located at Curriehill, located approximately 0.9 miles to the south, and Edinburgh Park located approximately 2 miles to the north. Curriehill Station is located on the Edinburgh – Shotts – Glasgow line while Edinburgh Park Station is on the Stirling – Edinburgh line and the Edinburgh – Bathgate – Glasgow line. These services provide direct access from a wide catchment of towns and villages. During the weekday period, the University can be reached by 7 rail services an hour in each direction.

The Edinburgh tram route is located at Edinburgh Park railway station. It offers services in to Edinburgh and outwards to the airport.



There are a number of planned improvements to public transport serving the local area which will further support sustainable travel. The orbital bus route being promoted by SEStran to link with Park & Rides and key travel generators around the periphery of the city would be a key improvement for HWU because,at present, services are focussed on links between the campus and the City Centre. HWU are fully supportive of the proposals and, once details are better defined, will seek to ensure that the University maximises the benefits that the new services can provide.

Local Road Network

Riccarton Mains Road provides the main vehicle access into the campus, via the roundabout, and the Hermiston Gait P&R as well as acting as a link road between the A71 and the A70.

The A71 Calder Road along the northern boundary of the campus provides a key arterial route into the City Centre and to the A720 City Bypass from the west. It is a district distributor road, carrying large volumes of traffic including frequent bus services between West Lothian and Edinburgh City Centre/ The M8 / The City Bypass.

Curriehill Road runs along the western boundary of the campus. It is a single carriageway road of 6m width and experiences a significant degree of fast rat-running traffic; this factor has lead CEC to look unfavourably upon the use of the University western gate by vehicles.

Campus Roads

The internal road network functions adequately but could be made more efficient, attractive and inclusive through the following improvements :

- Completion of the western section of the road as a loop would enable bus services to operate in a ring around the core of the campus
- As an interim measure, prior to completion of the road loop, the bus turning area will be relocated to in front of Robin Smith Hall, enabling remodelling of the arrival square
- The current bus terminal will be recreated as a civic square, through which the road passes as a shared surface
- An audit of signing and barriers will lead to removal of roadside clutter and a more civilised pedestrian environment
- A Signing Strategy will form part of the Design Guide, to improve visual clarity
- The new car parks will emphasise an anti-clockwise circulation for cars, reducing traffic volume through the new square.
- Shared surfaces will be progressively introduced to prioritise the pedestrian environment

Car Sharing

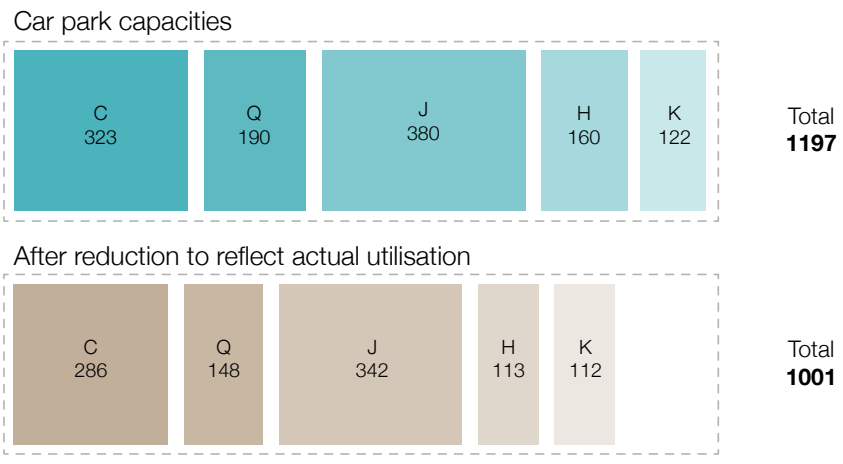
Transition Heriot Watt promote a car-share scheme co-ordinated by Tripshare and supported by Sestran. Car sharing can work well where there is a large single institution together with strong internal communication; promotion through the Green Transport Plan and through green initiatives help to drive uptake.

Car Parking

A study of car parking capacity, patterns of usage and levels of occupancy has been undertaken (refer to Technical Appendices). The study has identified that some overcapacity exists, however:

- development of the NPCS will lead to the net loss of 313 spaces in car park C (and part of W);
- Car parks within the core area of the campus operate at high levels of occupancy;
- During event days, such as Graduations or major conferences, all of the car parks reach capacity and there is extensive parking on roads and temporary areas

There are currently several sites used as car parking that would be better utilised for new buildings due to their location in the core part of the campus, adjacencies to other buildings and



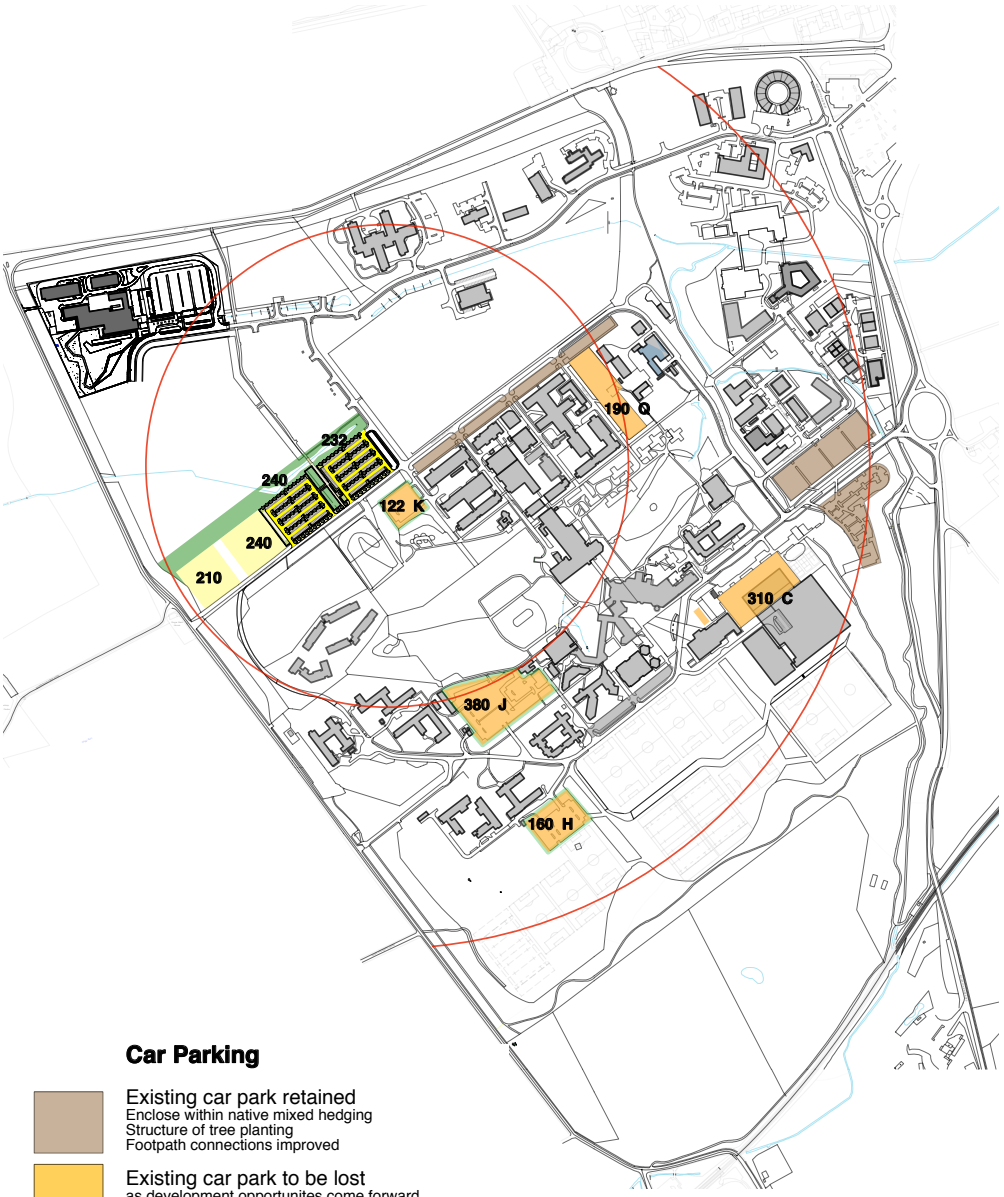
potentially positive relationship to the Valley gardens. The Masterplan proposes that the new car parking be expandable to accommodate numbers displaced from these car parks as and when their redevelopment occurs.

The location of the proposed new car parking adheres to the principal established in the original University design, whereby cars were to be left at the periphery and the central area was a pedestrian environment. Utilising a site that is less favoured for development (due to buried services and a peripheral location), whilst incorporating a strong landscape structure within and surrounding the car park, this location will encourage cars to avoid the proposed entrance square; arrival via the Research Park North road is feasible, reducing peak traffic at The Avenue.

The car parks identified for removal offer the following alternative uses:

- J University building that exploits the valley-side location
- Q University building fronting onto a key green link
- K University building to 'bridge the gap' towards the residences
- H Future sports expansion

The University has committed to increasing the modal share taken by public transport, cycling and car sharing. This will lead to a net reduction in overall car parking provision based upon current levels and including those additional developments currently committed; this is consistent with the green travel objectives of both the University and City of Edinburgh Council.



Car Parking

Existing car park retained
Enclose within native mixed hedging
Structure of tree planting
Footpath connections improved

Existing car park to be lost
as development opportunites come forward

Proposed new car park : Phase 1
Structure of tree planting
Enclose within native mixed hedging
Planting of new roadside avenue trees to improve the character of the road corridor
Footpath connections established

Proposed new car park : Phase 2
As for Phase 1.
Constructed concurrently with redevelopment of existing car park sites

122 K Car park capacity and identifier

5 & 10 minute walking radii
(400m & 800m distance)

8 Surface Water Management

Drainage as landscape, in the Research Park

Tall native marginal habitat should be increased on campus as part of sustainable drainage infrastructure

Introduction

Sustainable Urban Drainage Systems will be required for all future developments on the campus. Such systems provide an opportunity for wider amenity and habitat improvements - native marginal plant habitats are attractive and biodiverse - and make the campus more physically robust in dealing with future climate change.

The heritage of watercourses and ponds at Riccarton can be utilised as part of the drainage network. They should also be managed to improve their habitat potential, for instance by introducing more areas of shelving margins instead of vertical edges that support little marginal habitat.

Both flood risk and drainage issues will have to be addressed. A full Flood Risk Assessment will be carried out to define areas at risk of flooding and in turn define the areas suitable for development. A Drainage Assessment will also be undertaken, to provide an over-arching view of the existing drainage systems serving the site and identify constraints to development.

Flood Risk Assessment

The SEPA flood map identifies the Murray Burn as providing a localised flood risk to a strip of land along its course through the University grounds (see plan over page).

In order to better define the extent of this risk area, and to provide a baseline study to inform the design of future developments on the campus, a campus-wide Flood Risk Assessment will be undertaken. This will provide an assessment of flood risk from all sources and mechanisms. A base model will initially be created to define the existing scenario; this model will then be updated to assess the impact of the various proposed developments across the site. This assessment will be used to inform the developing masterplan but, if kept up to date, could also be used to support all future development and management across the Heriot-Watt campus. The flood risk assessment has been split into two distinct phases.

The Level 1 scoping exercise has been undertaken, inspecting site watercourses and reviewing the available information on flood risk. Consultation has been carried out with the local authorities. The first phase will be completed once the full scope of the second phase has been agreed with SEPA and The City of Edinburgh Council.

The second phase will be based around a full flood risk modelling exercise and is likely to consist of :

- Specification and review of the topographical survey;
- Hydrological assessment and hydraulic modelling;
- Assessment of flood risk and possible mitigation measures;
- Preparation of a full Level 2 Flood Risk Assessment report.

The full extent of the scope of the Level 2 Flood Risk Assessment will only be fully defined on completion of the Level 1 exercise.

Drainage Assessment

The campus wide Drainage Assessment will provide a comprehensive review of the existing foul and surface water systems serving the university site. It will be used to inform the developing masterplan and form the basis of any Drainage Assessments for future developments.

The assessment will allow any existing constraints to development to be identified, while a coordinated approach will allow locations to be identified for SuDS features which

Attractive SuDS in the Research Park

could serve multiple developments, saving space and money.

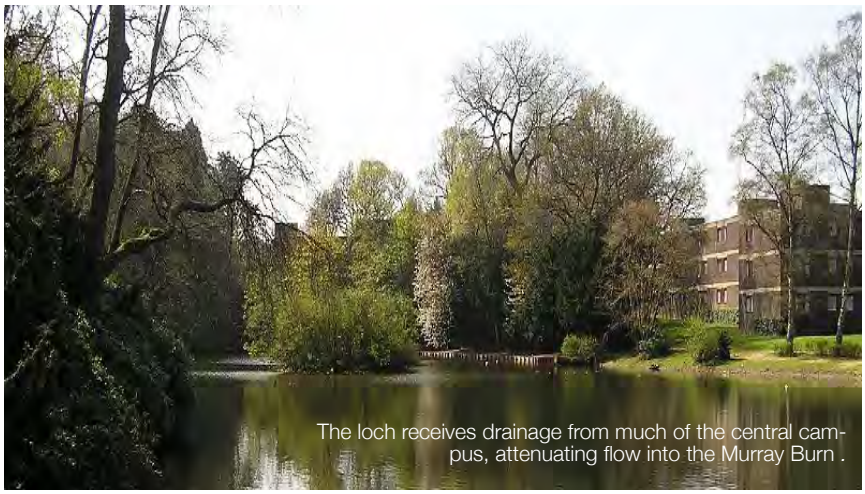
The scope of the drainage study includes:

- Consultation with Heriot-Watt University and Scottish Water to gather all existing information;
- An appraisal of the availability and adequacy of existing drainage information;
- Site inspection;
- Specification and review of the topographical, drainage and CCTV survey requirements;
- Detailed hydraulic modelling of the existing system;
- Preparation of a report detailing the condition and capacity constraints of the existing drainage system;
- Preparation of drawings showing the drainage layout on site.

Sustainable Drainage

Sustainable Urban Drainage Systems will be required for all future developments on the campus. Such systems should be exploited as an opportunity to provide habitat and amenity as well as drainage infrastructure.

Example of a grass swale on the research park extension. This part of the campus has been designed with SuDS already integrated.



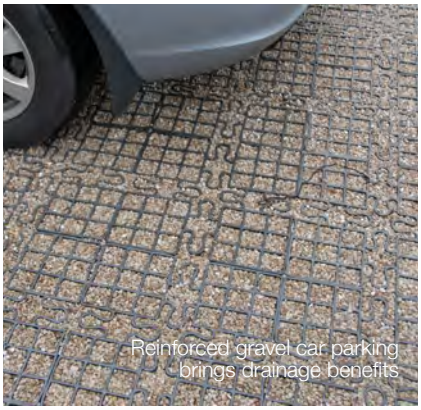
The loch receives drainage from much of the central campus, attenuating flow into the Murray Burn .

Native marginal plant habitats are attractive and biodiverse. Swales and wetlands created for SuDS should interconnect with existing habitats to provide a more integrated habitat network within the campus and across its boundaries. This will become a feature of the Biodiversity Action Plan.

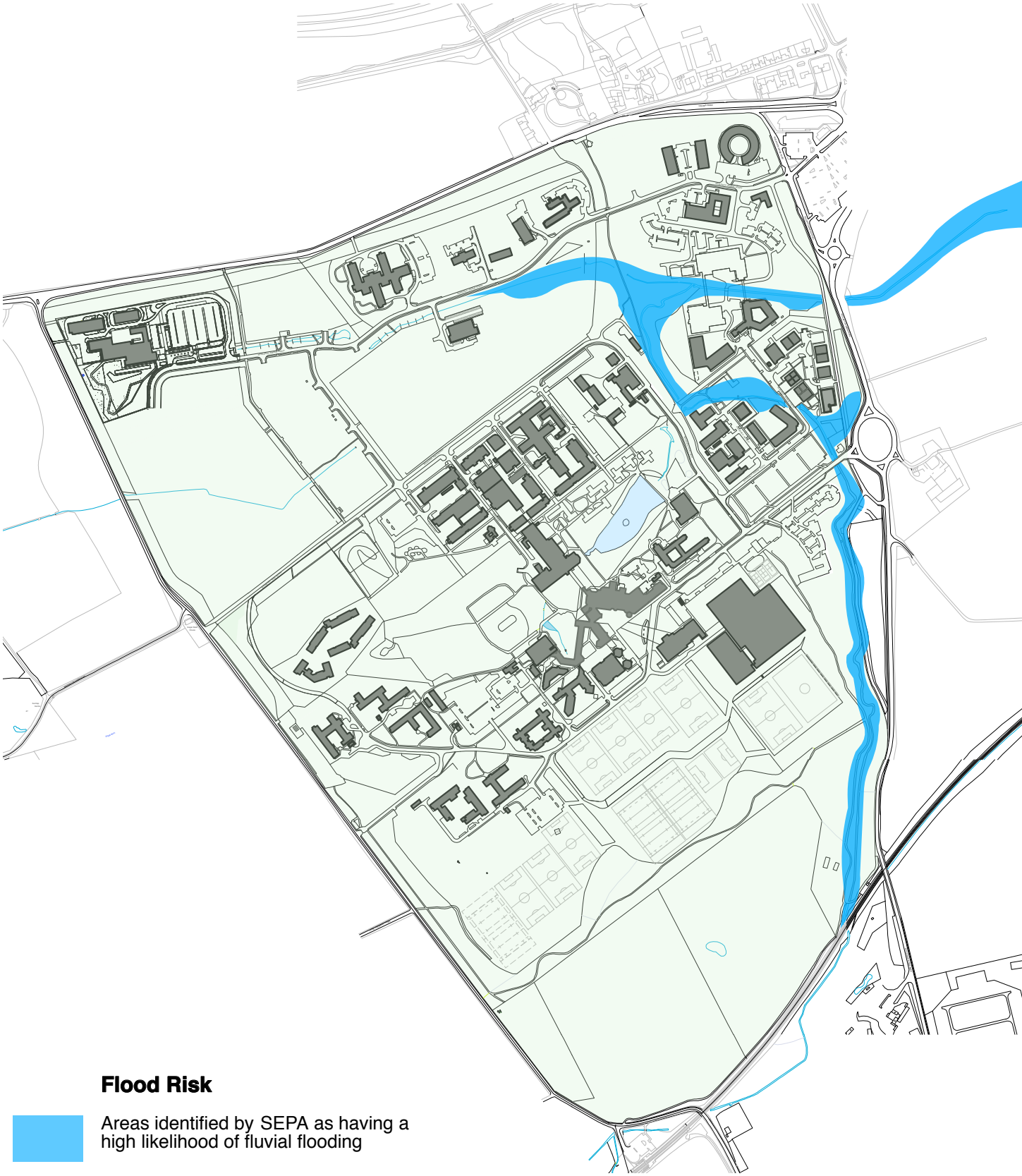
Retro-fitting of SuDS as drainage and paving is renewed, or to address localised pluvial flooding, benefits the resilience of the campus infrastructure. The following approaches to SuDS will be promoted :

- Open grass swales to convey and filter run-off
- Attenuation basins of wet meadow grassland
- Limited small water-bodies with tall marginal plants surrounding
- Core car parking to be of permeable block paving
- Peripheral car parking to be reinforced gravel with permeable construction

The University lies within the safeguarding zone for Edinburgh airport and is therefore subject to restrictions aimed at reducing bird hazard to aircraft. SuDS features and new wetlands must be designed to address the requirements of Advice Note 6 produced by the Airport Operators Association.



Reinforced gravel car parking brings drainage benefits



Flood Risk

Areas identified by SEPA as having a high likelihood of fluvial flooding

9 Cultural Heritage

The formal Lawn

Cultural Heritage

Description

The University occupies a site that includes what was formerly the designed landscape surrounding Riccarton House; parts of the former gardens and elements of the designed landscape survive today, interspersed amongst the modern university buildings. Riccarton House was originally a 16th century tower house and the home of Sir Thomas Craig, an authority on feudal law, whose later family have an important place in the history of Lothian estate improvements. The House formerly stood on the site now occupied by the University Library; the formal gardens extended to the west and northwest from the House and parkland lay to the southeast.

The designed landscape, as constituted in the 18th century by Thomas Craig, was in the form of a regular rectangular ground plan, defined by plantation shelter belt strips. The house and gardens were remodelled and enhanced in the 19th century by Sir James Gibson-Craig (1765-1850) and, later, by his son William (1797-1878). The layout of the gardens and designed landscape today owes much these two men.

The enclosing plantation strips survive, particularly along the south and west sides defined by stone walls on both the outer and inner sides, separating the woodland from farmland on either side. The Pinetum, adjoins the campus entrance at the east gate and contains many surviving specimen trees and provides a shaded location for visitors' car parking.

The Avenue, the original principal thoroughfare and access to the House, survives today as the main University Campus traffic access points from both the East Gate and the West Gate. A pedestrian only access is facilitated from the North Gate, past the category A listed North Lodge.

Of the gardens that lay to the north of the main house much stills survives and is well maintained by the University. The formal lawn and curling pond lie to the north of the library and from here a grassy walk (The Velvet Walk) leads to the Gibson-Craig burial ground, which includes Sir James Gibson-Craig's tomb. The Walled Garden and Gardener's Cottage (category B listed) and ancillary buildings survive in good condition; although, the Walled Garden is presently hard landscaped and used as a car park.

To the east of the Library lies the Fire Pond (fed by a natural stream) and the Ice-house (a category C listed building). All are in good condition. From the Fire Pond, a sluice gate feeds water to a channel which carries water to the Loch, which forms a pleasant recreational area between the Hugh Nisbet Building and the Students Union. In the vicinity of the fire pond, amidst the planting and relict woodland, several surviving minor structural features survive: a covered cistern (somewhat overgrown with moss and ferns); two small stone footbridges cross the stream entering and leaving the Fire Pond; and the remains of steps leading to what was a footbridge over the carriageway to the house (which itself survives to the north of the Library).

These key elements of the Riccarton designed landscape have been successfully incorporated into the existing campus and are an integral part of the University's character. Their retention, continued management, conservation and, where practicable, restoration form a key component of the University Campus-wide masterplan.

Elsewhere, large parts of the University Campus have been subject to considerable landscaping and modification and undisturbed green-field sites are restricted to peripheral areas. Archaeological evaluation in 2002 on the site of the Research Park, Phase 2, revealed only deposits and features relating to relatively modern cultivation and no archaeologically significant features or deposits were found. Similarly, an evaluation in 2010 on the site of proposed student accommodation in the south-east of the campus found only field drains and the truncated remains of rig and furrow cultivation. There are though records of prehistoric finds and sites in the general area and whilst there have been no significant archaeological discoveries to date across the campus site, future finds cannot be ruled out, particularly in green-field areas that have seen no modern disturbance; such as those areas between Boundary Road North and the A71 Lanark Road.

Compliance with Planning Policy

Development proposals must comply with the planning policies set out in the Rural West Edinburgh Local Plan (adopted June 2006), including future amendments or revisions as they come forward. The relevant policies concerning heritage are:

E14 (Designed Landscapes). Proposed development which would adversely affect designed landscape features that are worthy of retention, including non-inventory historic gardens, surviving features of designed landscapes and mature public parks, will only be permitted if the adverse effect has been minimised and is outweighed by public benefits arising from the development.

E15 (Protection and Enhancement of Trees and Woodland). Where development proposals are acceptable in principle, the survival and retention of healthy mature trees

must be accommodated throughout the construction period and in the proposed layout of buildings. Where development unavoidably involves the loss of woodland, trees or hedgerows, the developer will be required to undertake equivalent replacement planting.

E30 (Non - Scheduled Archaeological Remains - Archaeological Evaluation). Before any planning application involving development proposals that affect a site of archaeological significance is determined, the applicant will be required to undertake an archaeological field evaluation in consultation with the Council's Archaeologist to determine the interest and importance of archaeological remains. Where a planning application involves development proposals that affect any other site that may have archaeological interest, any permission that is granted will be subject to a condition that requires implementation of a scheme of investigation prior to commencement of development. Wherever possible, the in situ preservation of any remains of importance will be sought. Where preservation is not practicable, a full archaeological investigation, including recording and analysis of the remains and publication of the results, may be required before development commences.

E31 (Archaeology - Management, Education and Awareness). The Council will seek to negotiate management agreements with landowners of important archaeological sites in order to provide for their future preservation, and where appropriate, provide for access and interpretative facilities for the benefit of the public. The Council will also encourage the provision of such facilities through private enterprise

E33 (Listed Buildings – Uses). There will be a presumption in favour of the retention of a listed building in, or its restoration to, its original use unless this is clearly inappropriate, in which case the aim should be to identify the best viable use with minimum impact upon the special architectural and historic interest of the building.

E34 (Listed Buildings – Uses). To protect the setting and character of listed country houses, development in their grounds will only be permitted where the relationship of the original buildings to their policies is not compromised.

Summary of Key Principles

- To preserve, conserve and maintain the formal gardens area north of the Library and around the Loch. No new development proposals will be brought forward that would encroach on, or overwhelm the setting of, the formal gardens.
- To retain the physical link between the formal gardens and the Gibson-Craig burial ground and to maintain the character of the Velvet Walk.
- To maintain the integrity of the Avenue as a thoroughfare connecting the east and west gates.
- To preserve, conserve and, where possible, restore the walled garden to recreational use and to preserve the adjoining buildings; including giving consideration of new use for those buildings to facilitate their ongoing maintenance as opportunity arises.
- To manage and maintain the relict aspects of the former designed landscape; including the Pinetum and plantation shelterbelt woodland strips.
- To preserve, conserve and maintain the designed landscapes surviving west and south boundary walls and other relict internal dry-stone walls.
- To continue to promote and provide interpretation of the heritage and history of the University Campus site and Riccarton House.


Gardeners Cottage.

Cultural & Landscape Heritage

Surviving plantation woodlands from Riccarton House designed landscape
Include stone wall boundary enclosure

Surviving gardens of Riccarton House designed landscape
Including ornamental ponds

Built features of cultural heritage interest

1. The North Lodge
   Category A listed
2. Gardener's Cottage
   Category B listed
3. Walled Garden
   Category B listed
4. East and West Lodges
   Not listed
5. Gibson-Craig burial ground
   Walled enclosure with tomb
6. Ice House
   Category C listed
7. Footbridges and carriage bridge
   Group of stone features
8. The Avenue
   Original principal route to Riccarton House
9. Pinetum
   Large specimen trees amongst car parking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10 Environment

Peacock butterfly will favour meadow grassland on campus, using the old buildings and trees whilst hibernating.

Sustainability

Heriot-Watt University fully recognises its responsibility to develop in a sustainable and socially responsible manner and will continue to protect and enhance the natural and cultural heritage of the Edinburgh Campus, to utilise effective controls, to prevent broader environmental impacts and to engage with and work to benefit local communities.

TRANSITION HERIOT-WATT Our low carbon community

The University operates an Environmental Policy which defines specific sustainability performance objectives in areas including:

- Procurement: minimising environmental impacts by adopting a sustainable approach to the purchasing of goods and services.
- Water: promoting conservation methods and working towards best practice through effective monitoring and targeting systems.
- Energy and greenhouse gas emissions: reducing energy consumption and associated emissions of greenhouse gases via the use of efficient energy management systems and the promotion of effective reduction methods and technologies. Significant progress has been made in managing energy related greenhouse gas emissions and activity in this area will continue to be prioritised in accordance with the University's status as a signatory to the Universities and Colleges Climate Commitment for Scotland.
- Waste: operating responsible and effective waste controls including the prioritisation of waste minimisation and recycling to divert waste from landfill disposal. The University has substantially increased recycling rates and will continue to implement projects to reduce waste and improve the sustainability of end of life disposal.
- Control of pollution: assessing risks and operating effective controls to reduce or eliminate the release of potential pollutants.
- Biodiversity: recognising the value of biodiversity and the importance of protecting and enhancing the diverse range of species and habitats on campus.
- Transport: implementing effective transport plans and promoting modal shift towards more sustainable transport options, including enhanced use of public transport and facilitating car sharing.
- Engagement & community: encouraging the involvement of staff and students in environmental and sustainability issues, and considering the likely environmental effect of University activities and developments on the local community.

Waste Management

Effective waste management processes are integral to managing the sustainability of the University's operations and to ensuring regulatory compliance. Wastes generated by the University and tenant organisations include a number of segregated recyclable streams, a municipal solid waste (MSW) stream and a range of hazardous wastes including electrical and electronic wastes, clinical wastes, chemical wastes and radioactive wastes.

Paper and cardboard wastes are deposited within trailers located across the campus, collected by the Recycling Team and transferred by utility vehicle and trailer to the Recycling Centre adjacent to the Estates Office.
Nearly 3 tonnes of paper and cardboard waste are collected by the Recycling Team weekly. In addition to these services the local authority operates a number of paper banks situated across the campus. Specialist contractors provide confidential paper waste disposal services, mainly utilising on-site mobile shredders.

Further recycling processes are operated for plastic wastes, glass and can wastes, and scrap metal wastes. The University operates four "reverse vending" refund machines to incentivise the recycling of plastic drinks bottles and aluminium cans, with the bagged wastes from the process being consigned for recycling via the main waste contractor.
Food wastes generated in the main hospitality locations across campus are segregated and consigned for off-site disposal via anaerobic digestion.

Municipal wastes are collected within approximately 30 front end loader (FEL) skips located across the campus. The skips are serviced on an as required basis with the wastes consigned to a materials recovery facility (MRF) achieving an approximately 65% diversion from landfill rate.

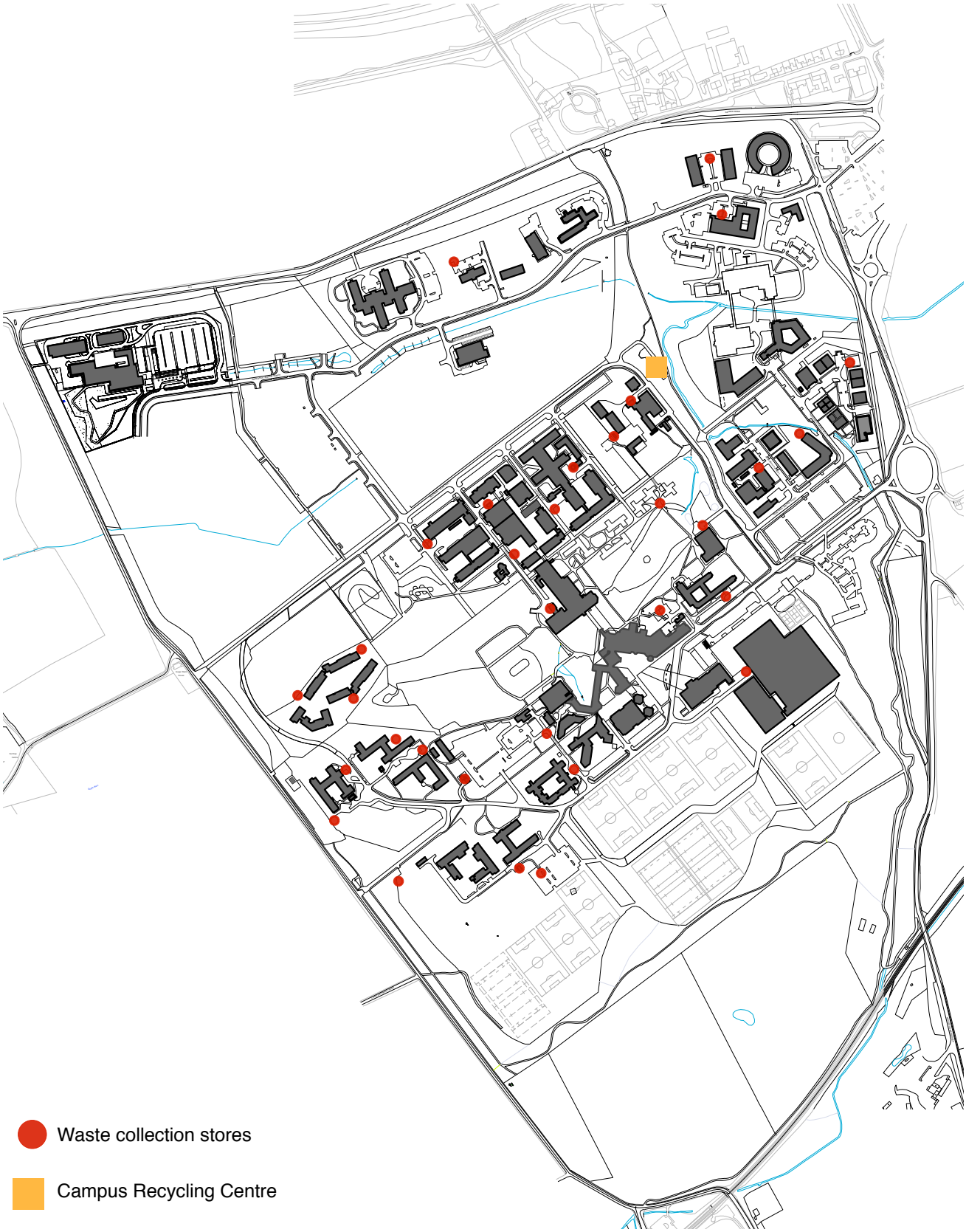
Hazardous waste streams are consigned to appropriately authorised specialist waste facilities, with collections usually completed by the contractor direct from stores situated within relevant facilities across the campus. Hazardous lamp waste and some electrical wastes are stored centrally at the Recycling Centre pending collection.

Future Waste Strategy

The appearance and usability of current waste collection points, particularly for recycling, is poor and outdated. Clusters of varied containers are situated on service roads and yards with inadequate physical and visual containment. The diversity of containers in use and manner of their collection imposes constraints and inefficiencies. The appearance and location of containers does not encourage use by those unfamiliar with the facilities.

The developing strategy for waste and recycling collection sites will target the following objectives:

- Audit of existing sites to identify the sites and features most intrusive or inefficient
- Consolidation to reduce the number of collection points (whilst maintaining total capacity)
- Design and installation of a standard enclosure for all collection points
- Design and planting to improve screening where appropriate
- Standardisation on a 1,280 litre wheeled Eurobin as the basis for all collection units
- Improved branding of receptacles and collection points
- Improved legibility and comfort of routes to collection points


Waste collection stores
Campus Recycling Centre

Ecology

The University campus has considerable potential for biodiversity. It possesses a number of different habitat types in close association, that enhance the setting of the University and contribute to local biodiversity.

The University was developed within the parkland of Riccarton House. This estate comprised farmland, enclosing policy woodlands and a core of formal and woodland gardens containing a small loch. The core gardens were planted with exotic coniferous and deciduous tree and shrub species and also contained native species. Enclosing walls mediated between woodland and surrounding pasture; in this productive agricultural landscape there was not room for wasteland.

Construction of the University in the 1970s provided several key changes to the site vegetation:

- Large areas of building and hardstandings were introduced; the former providing nesting and perching opportunities for birds
- Farmland was taken into permanent grassland, mechanically mown rather than grazed
- Some loss of mature woodland occurred, but there was a net gain in woodland area through planting
- Ornamental shrub plantings and extensive mixed native hedgerows were planted in association with the new buildings and car parks.

More recently, expansion of the research park has created large areas of low-fertility neutral grassland/ meadow, woodland and several small ponds.

Badgers, Bats and Otters are known from observation to be present on the campus; these, and other species, are legally protected. Any proposals for development that might affect them will require detailed surveys and potentially mitigation works agreed with SNH.

In order to protect, maintain and improve the biodiversity of its estate, promoting capital and maintenance works that maximise benefits to wildlife, the following principles will underpin this Masterplan:

- The University will comply with current legislation relating to the conservation of biodiversity and habitats on campus, and where possible set its own higher standards;
- An ecological survey of the whole campus will be obtained, to provide a base-line of information;
- A Biodiversity Plan, which sets objectives for maintaining and improving biodiversity on campus whilst recognising the importance of the Historic Garden and Designed Landscape, will be produced;
- Where appropriate, new habitats will be created through altering maintenance practices or as part of new developments
- The University will work with local and national partners to promote and enhance biodiversity on the campus and in the wider region;
- Consultation between relevant academic staff and management on biodiversity issues will be fostered;
- Staff, student and community awareness of biodiversity issues on campus will be encouraged;
- The campus will be promoted as an educational and recreational resource;

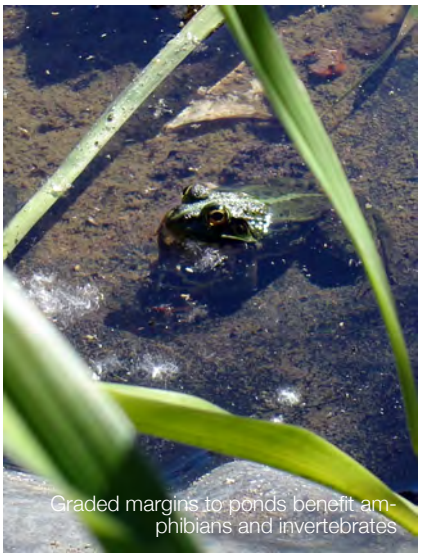
Invasive non-native species are present on the campus (Giant Hogweed along the Murray Burn) and are currently controlled by targeted herbicide use to prevent spread. Vigilance is necessary to prevent further spread of this species or the introduction of other injurious non-native species.

Opportunities to achieve enhanced biodiversity might consist of the following actions :

- Reduction of current mowing frequency to encourage floristic diversity in grasslands.
- Alter some pond margins to create more natural graded slopes suitable for marginal habitat
- Selective removal of dense evergreen woodland shrubs, to improve ground flora
- Sensitive management of mature and senescent trees, to preserve valuable dead-wood habitat and roost sites.
- Selective thinning of University-era plantation woodlands to improve species and structural diversity.
- A strategic view of such changes is necessary, and this suggests that an overarching Biodiversity Plan, informed by the initial ecological survey, is an important early stage in the process.

An ecologist should be consulted during the preparation of any development project on the campus in order to ensure that existing species and habitats are protected and suitable enhancements made where desirable.

Floristic meadow grassland could be introduced in many areas where a mown grass finish is unnecessary.



Graded margins to ponds benefit amphibians and invertebrates

Swales can provide diverse wet meadow habitat

Ecotones between different habitats provide excellent biodiversity

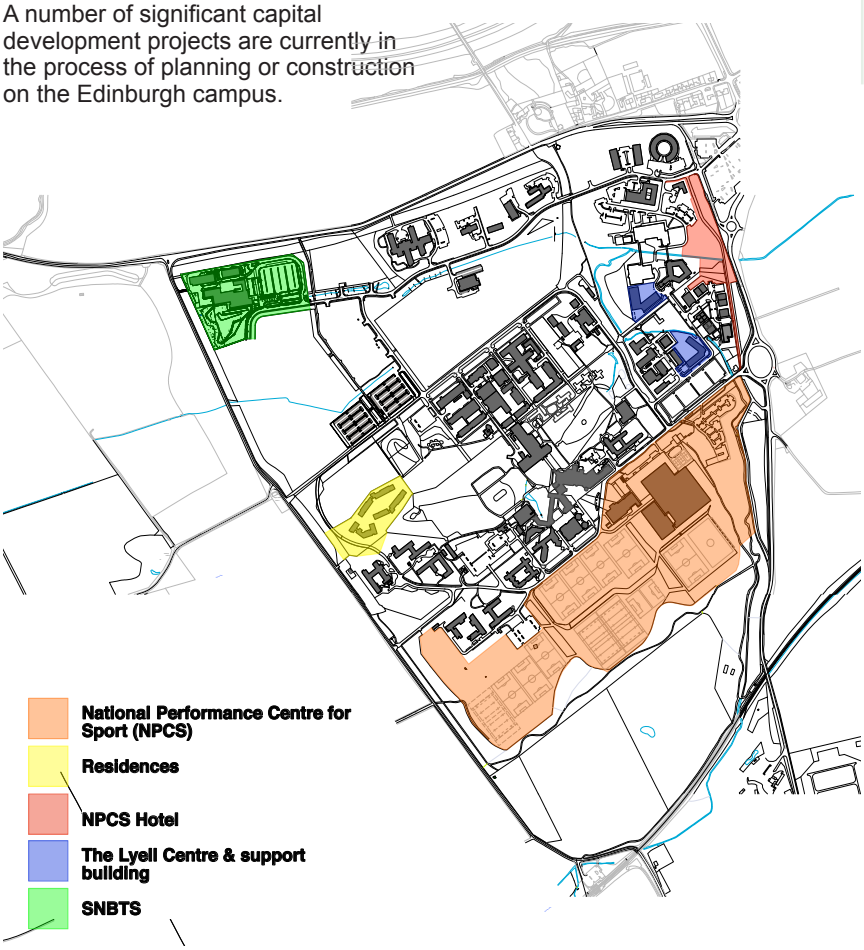
Veteran trees are an extremely valuable habitat type, needing great care

Badgers are present in Hermiston Wood

11 Current Projects

Projects in Planning

A number of significant capital development projects are currently in the process of planning or construction on the Edinburgh campus.



NPCS

Student Residences

National Performance Centre for Sport

The NPCS will be a prestigious new facility that raises the standard of performance in several sports and provides vital supporting services to support athlete development. It will encourage participation in sports and help drive innovation in coaching, training and conditioning.

At its heart lies an all-season indoor football pitch. The buildings will also contain a sports hall, gymnasia, treatment rooms, meeting rooms and a suite of support functions. They will link to the existing University sports facilities. Outside, a range of sports pitches, of both grass and synthetic types, will provide for training and match play.

The Lyell Centre

Jointly funded by UK and Scottish funders, Natural Environment Research Council (NERC), Scottish Funding Council (SFC) and Heriot-Watt, The Sir Charles Lyell Centre will promote innovative research in geoscience, marine ecology, computing, mathematics and engineering. The Lyell Centre will create a world-leading research cluster bringing science and technology together to tackle major issues of natural resource and energy supply in a responsible and sustainable way.

A support facility for storage and support functions will be constructed on the Research Park north of The Lyell Centre. This building will house the extensive samples and archives of the BGS, as well as ancillary office and workshop space. Facilities will be shared with the University.

Lyell Centre

Student Residences

The new student residences will consist of 450 bedrooms together with social spaces and supporting facilities, situated in the north-west quadrant of the campus.

A future phase is allocated for a further 450 bedrooms, laid out to form a complete composition with the initial phase.

Hotel – associated with NPCS

A 170 bedroom hotel is required to support the functioning of the NPCS, accommodating athletes, coaches and support staff during their period at the Centre. This hotel will also support the University Conference Centre, and general use. It will provide a stronger architectural presence and quality than the surrounding research park buildings.

Scottish National Blood Transfusion Service

A new National Centre of Excellence will be established at the Heriot Watt University Research Park, in the north-west corner of the Phase 2 park area. This facility will consolidate several SNBTS activities, including the processing and testing of blood, tissues and cells, quality and regulatory functions, research and development.

The new facility will achieve BREEAM Excellent standard. It will connect into the well-established path and sustainable drainage networks of the Phase 2 research park, and benefit from its close relationship with the University.

12 Consultation

Consultations

This Masterplan will be adopted by the University as a guide to management and development of the Edinburgh campus. Prior to formal adoption a process of consultation within the University and with appropriate external bodies will be undertaken, to refine the Masterplan, explain its function and the proposals within it.

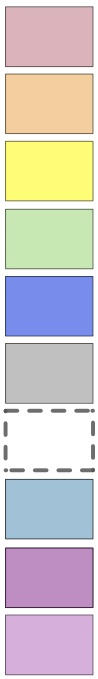
External consultations with planning officers at City of Edinburgh Council have been undertaken. The Masterplan is not intended to be a document formally submitted for adoption as supplementary planning policy guidance.

The masterplan framework forms the basis for specific development proposals to come forward and will supplemented by a Design Guide intended to help maintain a consistent approach for individual projects and proposals.

Stakeholder briefings will take place with local councillors and the relevant community council representatives as part of this process.

13 The Masterplan Framework

Strategic Masterplan



Academic, Research and Support

Student village

Student Union

Sports

NPCS Hotel

Car parking

Car parking site re-allocated

Relocated car parking

Landscape service hub

Recycling centre

Landscape Core area

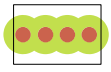
Creative landscape management and measures to increase visibility, improve connections and encourage use by all

Landscape structure

Woodland management, succession planting and local expansion to frame future built development and ensure a robust landscape structure is conserved

Primary road circulation

Avenue planting, connection of footways, restricted materials palette and de-cluttering. New bus turning hub to relieve the arrival square



Future link road

Continue the avenue and make strong pedestrian links across

Arrival Square

A distinguished, civic space that welcomes arrivals and connects sports to academic