# Apatura Energy - P108 Currie – Wester Hermiston

## Sustainability Statement

## Apatura Energy

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# Executive Summary

This report summarises the broader sustainability considerations for the proposed Wester Hermiston Data Centre Campus in Edinburgh. It outlines how the development's sustainability strategy aligns with relevant national and local policies set out in Scotland's Fourth National Planning Framework (NPF4) and Edinburgh City Plan 2030.

The sustainability strategy of the proposed data centre development aims to reduce the site's contribution to the causes of climate change by setting ambitious yet achievable whole-life embodied carbon targets, effectively managing construction and operational waste, reducing water consumption, prioritising the wellbeing of occupants, enhancing biodiversity, and supporting sustainable travel to and from the site.

**Whole Life Embodied Carbon**

For a data centre development project like Wester Hermiston Data Centre Campus to be aligned with current UK and Scottish standards and targets, an upfront life embodied carbon aspiration target of 555 $kgCO_{2e}/m^2$ (GIA) has been set. This is based on the emerging UK Net Zero Carbon Building Standard (UK NZCBS) and assuming that the data centres will be on site in 2030. Whole life embodied carbon and material considerations are detailed within Section 3.0.

**Waste**

Waste will be managed effectively during both the construction and operation phase of the building, following the waste hierarchy principles in line with NPF4 Policy 12 and Scotland's Zero Waste Plan. A waste management plan will be developed to manage construction waste. In addition to that, appropriate provision will be made to manage and store operational waste to facilitate recycling. Waste management considerations are detailed within Section 4.0.

**Water**

The development will aim to reduce water demand and consumption through the use of low flow fittings throughout as well as accurate and detailed metering of water use, as detailed in Section 5. A preliminary high-level flood risk assessment undertaken for the proposed development demonstrates that there is no significant risk of flooding from any source affecting the site.

**Health and Wellbeing**

The development will be designed to promote health and wellbeing by prioritising acoustic, thermal, and visual comfort, as well as good access to natural light for building occupants. A preliminary assessment of outdoor noise conditions at the proposed site has demonstrated external noise levels may be acceptable for natural ventilation provision without compromising occupant's acoustics comfort. However, detailed noise surveys will be undertaken at subsequent project stages to inform the optimal ventilation strategy and ensure that both acoustics and thermal comfort requirements are met. Health and wellbeing consideration are detailed within Section 6.

**Ecology**

A Preliminary Ecologic Assessment has been carried out to identify the likely ecological constraints associated with the project and outline recommendations for avoidance, mitigation, compensation, and enhancement of biodiversity in line with national and local policy considerations.

**Pollution**

Local pollution will be minimised through the following actions:

- The products of combustion such as NOx and SOx will be eliminated by featuring no on-site combustion for the provision of heating, cooling, and domestic hot water as detailed within Section 8.1.
- Nuisance from external light and noise pollution will be avoided by following relevant guidance and appropriate standards as detailed within Section 8.2 and 8.3.

**Transport**

The site offers reasonably good accessibility by sustainable modes of transport, benefiting from its proximity to traffic-free cycling routes and strong public transport links to key destinations across the city. This reduces the need for building users to rely on private car travel, supporting national and local planning policies that prioritise active and sustainable travel over private car dependence.
The decarbonisation of remaining car use is further supported through the provision of electric car re-charging infrastructure within the development's parking facility Secure cycle parking is also provided to encourage active travel. Transport considerations are outlined within Section 9.

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# 1.0

# Introduction

# 1.0 Introduction

This report summarises the broader sustainability considerations for the proposed Wester Hermiston Data Centre Campus in Edinburgh. It outlines how the development's sustainability strategy aligns with relevant national and local policies as defined in Scotland's Fourth National Planning Framework (NPF4) and Edinburgh City Plan 2030, respectively.

The strategy aims to reduce the site's contribution to climate change by setting ambitious yet achievable whole-life embodied carbon targets, effectively managing construction and operational waste, reducing water consumption, prioritising the wellbeing of occupants, enhancing biodiversity, and supporting sustainable travel to and from the site.

Please note that a separate report has been prepared by Cundall to outline the proposed development's energy strategy (document reference: ADC-CDL-XX-XX-T-SY-70220).

## 1.1 Proposed development

The proposed 77-acre site is located to the north of Heriot-Watt University, west of Hermiston and the City Bypass, and will connect to the Currie Substation to the south. The site lies within the green belt and is bordered by the canal and the M8 to the north. To the south, it is bounded by the A71 and a number of non-residential buildings.

*Figure 1-1: Proposed Wester Hermiston site*

The site's strategic location and strong grid connectivity make it well suited to meeting Scotland's increasing demand for secure, high-capacity digital infrastructure. Its proximity to major research, education, and innovation hubs further enhances its potential to contribute to Scotland's digital economy.

The proposed development encompasses a 200 MW data centre campus with a total building footprint of approximately 54,690 m$^2$. Data halls will be located in low-profile buildings set back from site boundaries, with ancillary plant, equipment yards, and secure parking positioned to maintain efficiency and minimise visual impact.

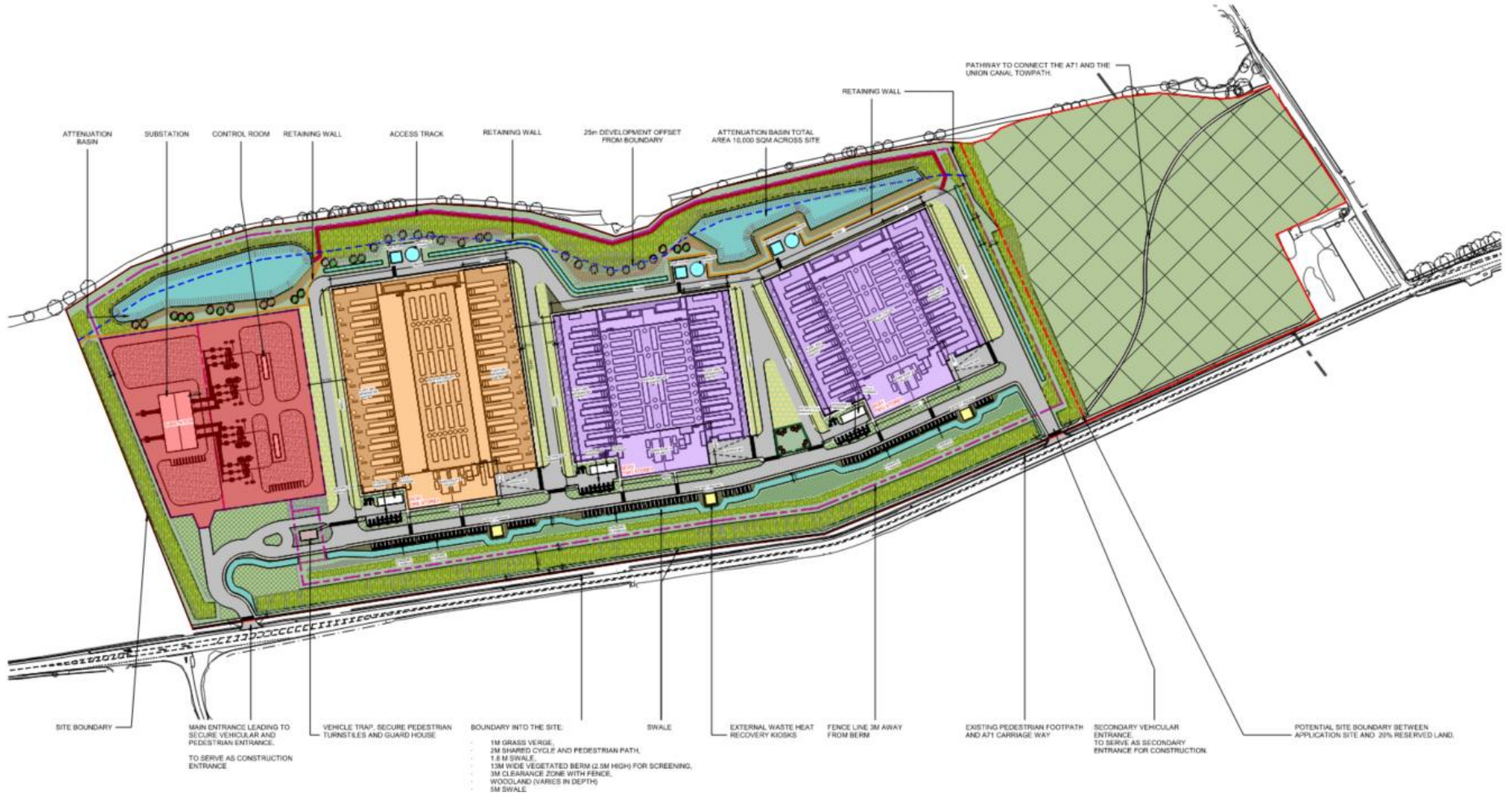



*Figure 1-2: Proposed site plan*

As shown in *Figure 1-2*, the proposed development will include two identical two-storey 48 MW data centre buildings (DC01 and DC02, coloured purple on the plan) and one single-storey 36 MW data centre building (DC03, coloured orange).

The buildings will also include office facilities, covering a total floor area of approximately 6,300 m$^2$. The campus is currently planned to accommodate 136 car parking spaces (including EV charging points), 15 accessible parking spaces, 8 motorcycle spaces, and 131 cycle parking spaces, however this will be subject to detailed review during design development at subsequent project stages.

# 2.0

# Planning Policy

## 2.0 Planning Policy

Sustainable, inclusive growth is a priority in Scotland. The planning system aims to facilitate it through the creation of high-quality developments, which deliver long-term benefits for the public whilst protecting and enhancing natural resources. This is supported by a number of national and local development policies, as summarised below (please refer to *Figure 2-1* below). Planning in Scotland has undergone major transformation and now contains a number of new policies which favour sustainable development.

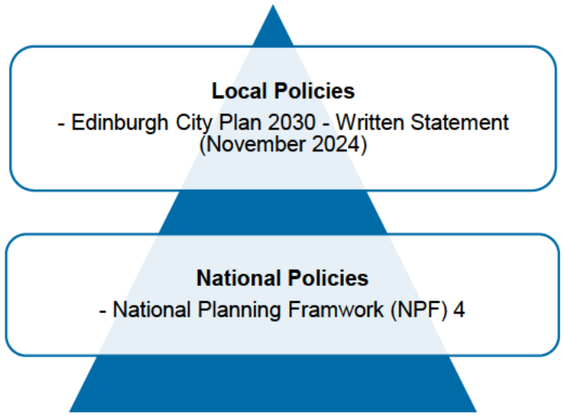



*Figure 2-1: Scottish hierarchy of national and local planning policies*

This sustainability strategy presents the aspects of the design that are considered important to achieving the goal of a sustainable development. It sets out the relevant policies and outlines how the requirements of each of these policies will be met by the proposed Wester Hermiston Data Centre Campus.

### 2.1 National Planning Framework

In February 2023, the Scottish Government adopted the Scotland's Fourth National Planning Framework (NPF4), which replaced the previous NPF3 and the Scottish Planning Policy (SPP) 2014 and removed the need for the development of regional policies (Strategic Development Plans), where such matters are now covered by the NPF4.

NPF4 comprises Scottish Government's long-term spatial strategy to 2045, including national planning policy on a range of topics such as energy, climate change, biodiversity, local living, digital and other infrastructure. It also embeds the UN Sustainable Development Goals and Scotland's National Outcomes.

NPF4 is driven by an overarching goal to address climate change and the nature crisis but has four key outcomes in support of this as illustrated in *Figure 2-2*.

*Figure 2-2: NPF4 Key Outcomes*

The first key outcome of the NPF4 focuses on the development of a **national spatial strategy for Scotland 2045** detailing how Scotland will plan its future places in line with six spatial principles as follows:

- **Just transition**: empower people to shape their places and ensure the transition to net zero is fair and inclusive.
- **Conserving and recycling assets**: make productive use of existing buildings, places, infrastructure, and services, locking in carbon, minimising waste, and building a circular economy.
- **Local living:** support local liveability and improve community health and wellbeing by ensuring people can easily access services, greenspace, learning, work, and leisure locally.
- **Compact urban growth**: limit urban expansion, thus optimising the use of land to provide storage, flood risk management, blue and green infrastructure, and biodiversity.
- **Rebalanced development**: target development to create opportunities for communities and investment in areas of past decline and manage development sustainably in areas of high demand.
- **Rural revitalisation**: encourage sustainable development in rural areas, recognising the need to grow and support urban and rural communities together.

By applying the above six spatial principles, Scotland aims to support the planning and delivery of:

- **Sustainable Places**: where we reduce emissions, restore, and better connect biodiversity (NPF4 Key outcome 2)
- **Liveable Places**: where we can all live better, healthier lives (NPF4 Key outcome 3)
- **Productive Places**: where we have a greener, fairer, and more inclusive wellbeing economy (NPF4 Key outcome 4)

*Figure 2-3: NPF4 Sustainable Development Goals*

The specific NPF4 policies addressed in this document are outlined below. Please note that energy-related policies are covered separately within the Energy Statement report prepared by Cundall for the proposed Wester Hermiston Data Centre Campus (document reference: ADC-CDL-XX-XX-T-SY-70220).

**Policy 1 – Tackling the climate and nature crises**

This policy intends to encourage, promote and facilitate developments that address the global climate emergency and nature crisis.

**Policy 2 – Climate mitigation and adaptation**

This policy intends to encourage, promote and facilitate development that minimises emissions and adapts to current and future impacts of climate change. This is achieved by ensuring that:

a) Development proposals will be sited and designed to minimise lifecycle greenhouse gas emissions as far as possible.

b) Development proposals will be sited and designed to adapt to current and future risks from climate change.

**Policy 3 – Biodiversity**

This policy intends to protect biodiversity, reverse biodiversity loss, deliver positive effects from development and strengthen nature networks.

a) Development proposals will contribute to the enhancement of biodiversity.
b) Proposals for local development will include appropriate measures to conserve, restore, and enhance biodiversity in accordance with national and local guidance.
c) Any potential adverse impacts will be minimised through careful planning and design.

**Policy 12 – Zero Waste**

This policy intends to encourage, promote, and facilitate developments that.

a) are consistent with the waste hierarchy
b) reuse existing buildings and infrastructure

c) minimise demolition and salvage materials for reuse
d) minimise waste, reduce pressure on virgin resource and enable building materials, components, and products to be disassembled, and reused at the end of their useful life
e) use materials with the lowest forms of embodied emissions, such as recycled and natural construction materials
f) use materials that are suitable for reuse with minimal reprocessing

Development proposals that are likely to generate waste when operational, including residential, commercial, and industrial properties, will set out how much waste the proposal is expected to generate and how it will be managed including:

a) provision to maximise waste reduction and waste separation at source
b) measures to minimise the cross-contamination of materials, through appropriate segregation and storage of waste; convenient access for the collection of waste; and recycling and localised waste management facilities.

**Policy 13 – Sustainable transport**

This policy intends to encourage, promote and facilitate developments that prioritise walking, wheeling, cycling and, public transport for everyday travel and reduce the need to travel unsustainably.

a) Development proposals will be supported where they demonstrate that the transport requirements generated have been considered in line with the sustainable travel and investment hierarchies and where appropriate they:
   i. Provide direct, easy, segregated, and safe links to local facilities via walking, wheeling, and cycling networks before occupation
   ii. Will be accessible by public transport, ideally supporting the use of existing services
   iii. Integrate transport modes
   iv. Provide low or zero-emission vehicle and cycle charging points in safe and convenient locations, in alignment with building standards
   v. Supply safe, secure and convenient cycle parking to meet the needs of users and which is more conveniently located than car parking
   vi. Are designed to incorporate safety measures including safe crossings for walking and wheeling and reducing the number and speed of vehicles
   vii. Have taken into account, at the earliest stage of design, the transport needs of diverse groups including users with protected characteristics to ensure the safety, ease and needs of all users; and
   viii. Adequately mitigate any impact on local public access routes.
b) Where a development proposal will generate a significant increase in the number of person trips, a transport assessment will be required to be undertaken in accordance with the relevant guidance.
c) Development proposals for significant travel generating uses will not be supported in locations which would increase reliance on the private car, taking into account the specific characteristics of the area.

## 2.2 Edinburgh City Plan 2030

*Figure 2-4: Edinburgh City Plan 2030 (Written Statement)*

The Edinburgh City Plan 2030 is the statutory local development plan for Edinburgh, formally adopted in November 2024. It sets out policies and proposals relating to the development and use of land in the Edinburgh area, and where new infrastructure and community facilities are required. Central to the plan is the implementation of environmental policies focused on climate change mitigation and adaptation, protecting green spaces, enhancing biodiversity, supporting physical and mental wellbeing, reducing flood risk, and improving air quality. The main policies that the proposed Wester Hermiston Data Centre Campus aims to encompass in its design are listed below.

**Policy Env 7: Sustainable Developments**

All detailed proposals involving the construction of one or more buildings must incorporate all reasonably practicable measures to **address the climate emergency** and **contribute to sustainable living**, with this being demonstrated through a **Sustainability Statement**, which addresses the following:

a) How the proposal integrates measures to both mitigate and futureproof the building against the effects of the climate emergency, particularly with regard to the increased frequency and severity of extreme temperature and storm/rainfall/flooding events as well as sea level rise and erosion.
b) How the proposal encourages all forms of active travel and shall be accessible by those of all ages and levels of mobility, including those with disabilities.
c) For new buildings, the statement shall set out how the development has been designed to be of long-life construction and allow future adaptation for different uses as well as utilising construction materials that have low or negative embodied greenhouse gas emissions and are local and/or sustainably sourced and/or recycled and capable of re-use at the end of a building's lifecycle as far as reasonably practicable.

**Policy Env 8: New Sustainable Buildings**

To make sure that new buildings are:

i. sustainable and play their part in addressing the Climate Emergency; and
ii. exceed the current carbon dioxide emissions targets with at least half of this target met through the use of **low and zero carbon generating technologies**.

proposals must demonstrate the following:

a) All reasonably practicable measures, predominantly through ultra-high fabric energy efficiency, have been taken to achieve a **'net zero' level of operational greenhouse gas emissions**
   Operational emissions, in the context of this policy, refers to the use of heating, hot water, lighting, ventilation, and cooling systems.
   New developments require to embed ultra-high fabric energy efficiency into their design and construction, with the optimal approach being for them to be built to Passivhaus standards. To ensure that they can meet or exceed the net zero requirement, the incorporation of low and zero carbon generating technologies is also supported.
   The ability to achieve net zero greenhouse gas emissions should be evidenced by a statement submitted with applicable applications.
b) Where appropriate, **green roofs** have been provided where new roofs are of a pitch capable of supporting these and that these roofs provide wildlife habitat and waster attenuation
c) Provision is made for facilities for the separate **collection of dry recyclable waste and food waste**.

**Policy Env 21: Protection of Biodiversity & Policy Env 37: Designing-in Positive effects of Biodiversity**

All proposals should **safeguard habitat features of biodiversity value and priority species**. This includes sites and species identified in the Edinburgh Biodiversity Action Plan (EBAP) and Green Blue Network section of the Edinburgh Design Guidance.

In addition to safeguarding existing features, proposals must also create **enhancement in terms of biodiversity value**, which should be demonstrated by complying with the mitigation hierarchy outlined within Policy Env 37 (Designing-in Positive effects for Biodiversity) as follows:

a) Avoid impact whenever possible by identifying existing species, spaces, and features of biodiversity on-site and including these within new developments
b) Where impact cannot be avoided, this effect must be minimised
c) Any remaining adverse impacts must be wholly mitigated by new biodiversity measures

d) Additional improvements must then be included to tilt the balance of impact from neutral to an overall positive effect for biodiversity, for example through incorporating measures to improve the conservation status of notable species.

**Policy Env 35: Reducing Flood Risk**

Development proposals must demonstrate that they **do not increase flood risk** elsewhere or within the site itself, including failing to allow for the effect of future climate change or where the layout of the development does not adopt the precautionary principle.

The Climate Emergency is increasing and exacerbating flood risk from a wide range of causes, particularly through rises in sea level and increasing the frequency and severity of extreme rainfall events which cause floor risk from coastal, fluvial, and surface water flood risk. Proposals should account for contemporary predictions of climate change in addressing the requirements of this policy.

**Policy Inf 5: Location of Major Travel Generating Development**

Proposals for major development, which would generate significant travel demand will not be supported where there is a reliance on private car use. Such uses will only be permitted on suitable sites with very **good accessibility by sustainable transport**. Proposals must demonstrate their suitability using the following evidence:

a) the accessibility levels of the site by sustainable modes other than the car using existing or planned sustainable transport and,
b) impact of any travel demand generated by the new development on the existing road and public transport networks.

The location and design of the proposed scheme should demonstrate it follows the **sustainable transport hierarchy** with priority given to walking, wheeling, cycling, and public transport. Travel plans are a tool that encourages behaviour change of future users to more sustainable travel choices and are expected to play a role in achieving mode share targets and should be encouraged in major developments.

**Policy Inf 6: Cycle Parking**

Non-domestic developments (such as offices and other employment uses, retail, leisure and entertainment) must provide a range of cycle parking and storage options for both employees and visitors, reflecting the expected length of stay, and be designed in accordance with the standards set out in Council guidance.

# 3.0

# Whole Life Embodied Carbon & Materials

# 3.0 Whole Lfe Embodied Carbon & Materials

## 3.1 Whole Life Embodied Carbon

The built environment contributes to nearly 40% of the global emissions. 11% of this arises from the upfront and construction activities that are associated with the building materials and construction activities. These emissions are termed as *"embodied carbon"*, and they are becoming a greater percentage of a building's emissions over its lifetime as they become more energy efficient and the energy network decarbonises.

The embodied carbon element includes the emissions associated with raw materials extraction, the manufacture and transport of materials, to installation/ construction, maintenance, minor and major refurbishments, deconstruction, and the reuse of building materials, as shown by the life cycle modules in Figure 3-1.

### 3.1.1 Assessment Methodology

The use category and lifecycle modules follow BS EN 15978: 2011: (Sustainability of construction works — Assessment of environmental performance of buildings — Calculation method). This standard aligns with the RICS Professional Statement: Whole Life Carbon assessment for the built environment (referred to as the 'RICS PS' for the remainder of this document)[1]. The RICS PS serves as a guide to the practical implementation of the BS EN 15978 principles. It sets out technical principles and calculation details and will be used as the methodology for assessing this development. This ensures that embodied carbon assessments have consistency in their assessment and reporting across the built environment industry.

The whole life carbon assessment accounts for all components relating to the project during all life stages. Embodied Carbon emissions are attributed to four main categories taken from BS EN 15978. The categories are:

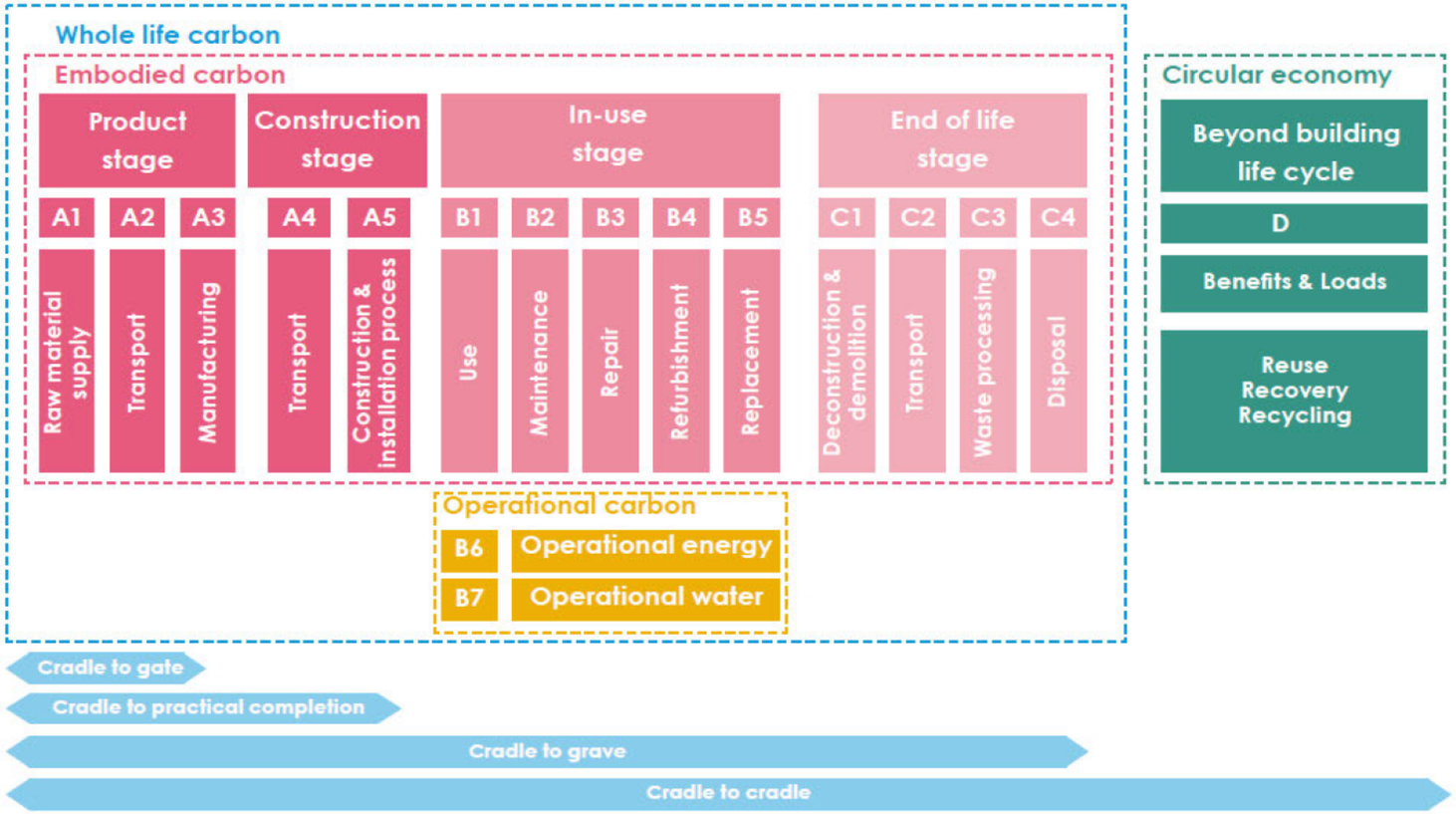



*Figure 3-1: Life Cycle Modules as per BS EN 15978 and RICS methodology*

- **Product Stages** (module A1 to A3): The carbon emissions generated at this stage arise from extracting the raw materials from the ground, their transport to a point of manufacture and then the primary energy used (and the associated carbon impacts that arise) from transforming the raw materials into construction products.
- **Construction (module A4 to A5):** These carbon impacts arise from transporting the construction products to site, and their subsequent processing and assembly into the building.
- **In-Use Stages (module B1 to B5):** This covers a wide range of sources from the embodied carbon emissions associated with the operation of the building, including the materials used during maintenance, replacement, and refurbishment. Operational estimations of energy use are excluded from embodied carbon assessments. Key stages are the replacement stage, B5.
- **End of Life Stages (module C1 to C4):** The eventual deconstruction and disposal of the existing building at the end of its life takes account of the on-site activities of the demolition contractors. No 'credit' is taken for any future carbon benefit associated with the reuse or recycling of a material into new products.
- **Benefits and loads beyond the system boundary (module D):** Any potential benefit from the reuse, recovery and recycling potential of a building or a building product. This module has been included within the assessment scope of this study but excluded in the final results.

### 3.1.2 Embodied Carbon Targets

The project is using the UK Net Zero Carbon Building Standard (UK NZCBS) as a starting point for targets for the scheme. The UK NZCBS is in pilot stage with an update expected in the new year so targets may change. The current assumption is that the data centres will be on site in 2030. The targets noted for embodied carbon are reduced year on year to allow the building industry to meet the carbon budgets within the goal of achieving Net Zero by 2050.

Upfront targets relate to the initial construction stage (Stage A1-A5). Whole life carbon relates to the full building lifecycle including replacement events and end of life scenarios for the various building materials. There are currently no targets within the UKNZCBS for whole life carbon.

| Indicator | 2029 | 2030 | Unit |
|---|---|---|---|
| Upfront embodied carbon (A1-A5) | <600 | <555 | $kgCO_2e/m^2$ (GIA) |

*Table 3-1: Upfront Embodied Carbon Targets*

[1] *Royal Institution of Chartered Surveyors (2017), RICS Professional Statement: Whole Life Carbon assessment for the built environment. 1st Edition. Available at: https://www.rics.org/globalassets/rics-website/media/news/whole-life-carbon-assessment-for-the--built-environment-november-2017.pdf*

#### 3.1.3 Policy Alignment

The whole life carbon assessment aligns with the principles of NPF4. Measuring and reducing whole life embodied carbon helps reduce carbon emissions as being part of the aim for Scotland to be Net Zero by 2045. Undertaking a whole life carbon assessment aligns with the NPF4 Policy 1 (Tackle Climate and Nature Crisis).

The WLECA will help the project minimise its embodied carbon emissions over the full design life of the building (please refer to Cundall's Whole Life Embodied Carbon report, document reference: ADC-CDL-XX-XX-T-SY-70225). The report will also promote low carbon materials, with a focus on biogenic materials, alongside a low carbon design, supporting the principles of a Just Transition.

Please refer to Section 2 of this report for further details on the content and intent of the relevant policies.

#### 3.1.4 Next steps

The embodied carbon will be continually assessed through the design stages. We will continually promote a low carbon design that follow the hierarchy below. Reduction options will be explored as the design progresses and will be tested and assessed by the design team and the client.

##### 3.1.4.1 Low Embodied Carbon Design Hierarchy

It is useful to consider and follow the low embodied carbon design hierarchy to facilitate reducing carbon density throughout the design process. The six steps of the hierarchy are:

- **Build Less** – Can existing elements be reused or challenge if new elements required
- **Build Light** – Minimise new material use and promote high design utilisation that is to be balanced with rationalisation for buildability.
- **Build Wise** – Repurpose and recycle materials using circular economy and whole life carbon principles.
- **Build Lower Carbon** – Prioritise natural, low carbon materials, while considering material efficiency.
- **Build for the Future** – Design for flexibility and durability to ensure carbon sinks are long-life.
- **Build Collaboratively** – Consider end-of-life and prioritise circular economy principles.

##### 3.1.4.2 Circular Economy considerations

We will also promote circular economy principles within the design as these go hand in hand with a low carbon building. We will ensure that end of life of materials is considered and also promote the use of materials with high recycled content or that are biogenic.

### 3.2 Materials

#### 3.2.1 Responsible Sourcing and Procurement

All timber used for basic or finishing building elements in the scheme should be sourced from responsibly managed and sustainable forests or plantations. Such timber products are the only truly renewable construction material in common use and the responsible management of forests for timber helps to lock in $CO_2$. By maximising the use of timber for structural or finishing purposes, the embodied carbon impact of the development can be reduced.

The proposed Wester Hermiston Data Centre development recognises the importance of using locally sourced, sustainable materials, i.e. materials that can be supplied without any adverse effect on the environment. Therefore, where practical, materials should be sourced from local suppliers, reducing the environmental impacts and $CO_2$ emissions associated with transportation to the site.

#### 3.2.2 Recycled Materials

Scope for increased recycling will be incorporated by specifying recycled materials where possible and ensuring that even where new materials are used, these can be recycled at the end of the building's life. Specifying materials with a high-recycled content is also another method of saving processing or manufacturing energy. The recycled content of a material can be described as either post-consumer or post-industrial to indicate at what point in the life cycle a material is reclaimed.

#### 3.2.3 Durability and Resilience

To ensure the longevity of the materials used in the building construction and avoid the need for replacement, durability and protection measures should be specified, where appropriate. This will prevent damage to vulnerable parts of the building.

The building elements will also be designed to incorporate appropriate measures to limit material degradation due to environmental factors. This includes degradation due to factors such as temperature variation, water/moisture damage, pollutants etc.

#### 3.2.4 Healthy Materials`

Volatile Organic Compounds (VOCs) are emitted as gases (commonly referred to as off-gassing) from certain solids or liquids. VOCs include a variety of chemicals, some of which are known to have short-term and long-term adverse health effects. Concentrations of many VOCs are consistently higher indoors (up to ten times higher) than outdoors. VOCs are emitted by a wide array of products numbering in the thousands. Examples include paints and lacquers, paint strippers, cleaning supplies, pesticides, building materials, furnishings, adhesives, Urea-Formaldehyde Foam Insulation (UFFI), pressed wood products (hardwood plywood wall panelling, particleboard, fibreboard), and furniture made with these pressed wood products.

'No' or 'low' VOC paints are available from most standard mainstream paint manufacturers. The 'eco-friendly' paints are made from organic plant sources and powdered milk-based products. The design team should select internal finishes and fittings with low or no emissions of VOCs and comply with European best practice levels as a minimum.

# 4.0

# Waste

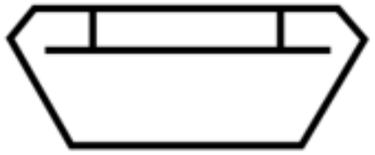
# 4.0 Waste

Under EU legislation, the UK will have to ensure that less than a third of its waste is sent to landfill sites by 2020; the figure at present is about 80%. To achieve this target, the UK Government has implemented several measures, including landfill tax aiming to discourage disposal of waste to landfill. Reducing waste is an important means of:

- reducing unnecessary expenditure.
- reducing the amount of natural resources used for production of new materials.
- reducing energy for waste disposal.
- reducing levels of contamination and pollution arising from waste disposal.

The following sections outline the waste management considerations that will be integrated into the design of the proposed development.

## 4.1 Construction Waste Management



During the construction phase, a large amount of waste material will be generated through construction and refurbishment works. In typical building construction, the primary waste products in descending percentages are wood, asphalt/concrete/masonry, drywall, roofing, metals, and paper products.

Prior to commencement on site, a Resource Management Plan (RMP) should be developed and implemented. This should comply with the requirements of current legislation and industry best practice (e.g. BREEAM). As a minimum this is advised to include:

- A target benchmark for resource efficiency.
- Procedures and commitments for minimising non-hazardous waste.
- Procedures for minimising hazardous waste.
- A waste minimisation target and details of waste minimisation actions to be undertaken.
- Procedures for estimating, monitoring, measuring, and reporting on hazardous and non-hazardous site waste and demolition waste, where relevant (waste data obtained from licensed external waste contractors needs to be reliable and verifiable).
- Monthly reporting of all construction waste data throughout the project must be checked against what would be expected based on the stage of the project, invoices, etc. to validate completeness of waste reporting data.
- Procedures for sorting, reusing, and recycling construction waste into defined waste groups, either on site or through a licensed external contractor.
- Procedures for reviewing and updating the RMS.
- The name of the job title of the individual responsible for implementing the above.

## 4.2 Operational Waste

As a minimum, storage facilities will be provided for the separation, collection, and storage of common recyclable materials such as paper, glass, plastics, and metals. The collection points shall be easily accessible to all the building users.

The main aim will be to recycle as much as possible. This will be achieved by making sure that waste recycling facilities are strategically placed in convenient locations.

Dedicated storage space for recyclable materials generated by the site during operation shall be:

- Clearly labelled for recycling.
- Placed within accessible reach of the buildings.
- Placed in a location with food vehicular access to facilitate collections.
- Of a capacity appropriate to the building type, size, and predicted volumes of waste that will arise from daily or weekly operational activities and occupancy rates.

## 4.3 Policy Alignment

The waste management strategy for the proposed Wester Hermiston Data Centre Campus will align with NPF4 Policy 12 (Zero Waste) by adhering to the waste hierarchy, prioritising waste prevention, reuse, recycling and recovery, with landfilling considered only as a final option, and by incorporating circular economy principles from the early design stages. Scotland's Zero Waste Plan and the waste hierarchy are also embedded within Edinburgh's City Plan 2030, providing the overarching framework for sustainable waste management across the city.

Please refer to Section 2 of this report for further details on the content and intent of the relevant policies

# 5.0

# Water

# 5.0 Water

## 5.1 Water efficiency

Water consumption in the UK has risen by 70% over the last 30 years. Trying to meet the increasing demand by locating new sources of water supply is both expensive and damaging to the environment. Therefore, the following proposals focus on reducing the demand for water and managing the existing resources.

Scottish Water estimates that the average water consumption is 165 litres per person per day in Scotland, with this being the highest figure across the UK. Water consumption has generally increased over the last few decades and is expected to continue to rise based on water consumption for sanitary facilities, laundry, drinking, washing, and external use. Reducing water consumption can help save energy and reduce $CO_2$ emissions in relation to the following areas:

- Treating water so it is suitable for drinking.
- Distribution and delivery of water.
- Collection and pumping of wastewater.
- Treatment of wastewater.
- Heating of water for health and hygiene.

The aim is to minimise internal and external potable water use within the development. Good water management can contribute to reducing the overall level of water consumption, maintaining a vital resource and, having environmental as well as cost benefits in the life cycle of the building.

The following water saving measures will be considered throughout the proposed Wester Hermiston Data Centre Campus.

- ***Dual Flush Cisterns on WC's*** - These units can provide a single flush of 4L and/or a full flush of 6L. It is proposed that these are used throughout the development in order to minimise water consumption.
- ***Flow Restrictors to Taps*** - Flow restrictors reduce the volume of water discharging from the tap. Spray taps have a similar effect and are recommended to reduce both hot and cold-water consumption. Low flow taps in one of the above forms should be considered for all areas.
- ***Low Flow Showers*** - The average shower uses 15 litres of water a minute. By restricting the output of the showers in the development to a maximum of 9 litres/ minute, a 40% water saving can be achieved. Flow rate can be reduced to 6 litres/minute without compromising on water pressure and hence will be considered as the design develops.
- ***Data Hall Plant*** – services plant serving the data hall will be selected to minimise water consumption on site as the design develops.

## 5.2 Water monitoring

In 2017, approximately 5.3 billion cubic meters of water were abstracted for water supply, making up over half of all water abstracted in the UK. To reduce this figure, accurate information on usage is required for management of a building's water consumption. Water meters will be specified on the main supply and include sub-metering where appropriate.

The Building Management System (BMS) that is to be considered for the proposed scheme should be able to record and monitor water consumption throughout the building and on a floor-by-floor and zone-by-zone basis.

## 5.3 Leak prevention and detection

To minimise the risk of major water leaks occurring, a water leak detection can be installed. The flow rate of the incoming water meter will be monitored by a leak detection system, which will highlight when there is a significant rise in water consumption, indicating a major leak within the development.

The leak detection system can be standalone or integrated within the BMS. It should feature programmable thresholds to suit the specific consumption of the development and an audible alarm if those thresholds are exceeded.

## 5.4 Irrigation

External irrigation can also contribute towards significant water consumption if not appropriately managed. External planting will primarily utilise plants which are adapted to the local climate and can rely on precipitation alone for most of the year. Where irrigation is required, this will be water efficient.

In addition, landscape enhancements and external watering point should be considered and agreed with architects and landscape consultants.

## 5.5 Flood risk assessment

A preliminary high-level flood risk assessment has been undertaken for the proposed development to estimate the surface water flooding probability. Initial results indicate that small areas within the site are subject to surface water flood risk; however, this risk is confined to limited pockets in the northern and south-eastern parts of the site. The site is also bounded by an unnamed burn to the west and by the Union Canal to the north. These present only a limited risk of river flooding to the area around the site, with the identified areas of potential flooding remaining outside the site boundary (please refer to *Figure 5-1*).

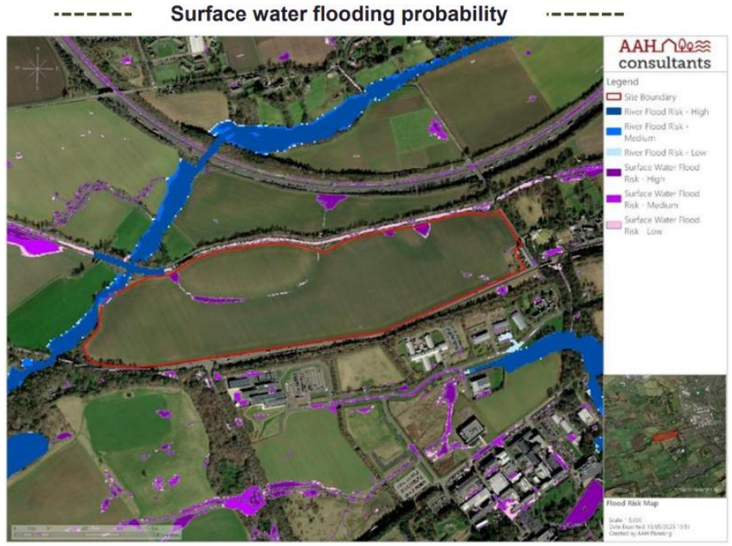



*Figure 5-1: Surface water flooding probability provided by AAH consultants*

# 6.0

# Health & Wellbeing

# 6.0 Health & Wellbeing

There has been a growing awareness and interest in the importance of providing healthy and productive environments for building occupants. As design for health and wellbeing becomes increasingly prevalent and public focus on the topic grows, many business owners and developers are increasing their focus on incorporating health and wellbeing in built environment design across all building types.

The proposed Wester Hermiston Data Centre development will aim to provide a healthy environment for its users, embedding health and wellbeing principles throughout the design. This includes creating spaces that promote natural daylight, good air quality, thermal comfort, acoustic comfort, and access to green areas.

## 6.1 Acoustics

Acoustic conditions can have a significant impact on health and wellbeing. Sites located near major roads, rail lines, airports, and other noise sources often experience noise nuisance. Excessive noise can force building occupants to choose between acoustic discomfort and overheating if windows must remain closed. To develop an effective solution that avoids such compromises, it is essential to determine and evaluate the external noise environment. This should then inform the optimal ventilation strategy for the proposed buildings.

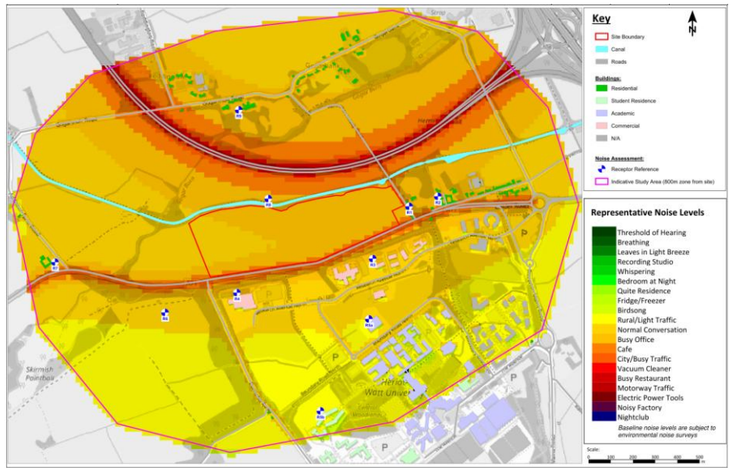



*Figure 6-1: Acoustic Baseline (existing) Noise Levels (replicated from: https://noise.environment.gov.scot/map.html for road and rail noise L den)*

A preliminary assessment of outdoor conditions at the proposed site has been undertaken by Cundall. Figure 6-1 presents the existing noise levels in and around the area. As shown, the noise levels at the location designated for the proposed buildings are generally comparable to those of a “busy office” across most of the site. The internal noise levels within the proposed buildings are expected to be in the range of 50–55 dB, which is close to the upper threshold for office areas at which natural ventilation can be provided without occupants experiencing acoustic discomfort. It should be noted that the lower permissible noise limit for meeting rooms and cellular offices is more stringent than those for open-plan offices, which may make natural ventilation more challenging to achieve through openable windows without introducing excessive noise.

In this early stage of the project, no noise surveys have been carried out at the site to date. Extensive noise surveys will be carried out as the project progresses to quantify noise levels at representative locations on the development’s facades for indoor ambient noise assessment and consequently, will inform the preferred ventilation strategy for the office areas of the proposed development.

## 6.2 Ventilation

Ventilation requirements and proposed strategies for the development can be broken down into the following components:

- **Background fresh air** – To enable everyday activities to be undertaken, it is anticipated that the background fresh air requirements will be served by a mechanical ventilation system (specifications to be in line with Scottish Building Regulations and industry best practice).
- **Limit summertime overheating risk** – To manage internal high temperatures, mechanical cooling is to be employed and will prioritise enhanced mechanical ventilation rates over comfort cooling.

The potential for utilising openable windows to introduce fresh air to spaces and address summertime overheating will be explored at subsequent stages of the design. If deemed viable, this would offer a mixed-mode ventilation strategy for the office areas of the proposed development. However, it is important to note that several factors including exposure to noise and air quality must be investigated further, before any conclusions are made.

Air quality is a critical consideration in determining the appropriate ventilation strategy for the proposed development. Sites in areas with substantial levels of airborne contaminants and toxins put building users at risk of respiratory ailments if they are exposed over longer periods of time. In such situations, mechanical ventilation with appropriate filtration is recommended to mitigate the impact of poor ambient air quality. Therefore, ambient air quality should be assessed, as it will play a key role in determining the most effective ventilation solution.

## 6.3 Daylight and Sunlight

Access to daylight and sunlight is a key consideration for human health and wellbeing, supporting natural circadian rhythms, and providing a source of vitamin D. Maximising daylight can also enhance visual comfort, reduce reliance on artificial lighting, and contribute to energy efficiency. To achieve these benefits, a preliminary daylight and sunlight assessment is recommended to be undertaken early in the design process for the proposed Wester Hermiston Data Centre development. Early-stage analysis helps identify areas where building massing, orientation, or glazing arrangements may need to be revised, avoiding later design changes that could be costly or disruptive.

## 6.4 Climate Change Risk Assessment

A climate change risk assessment has been produced by Cundall to assess the risks associated with climatic changes on the development, develop recommendations to manage and reduce these impacts, and align the development with NPF4 in support of the Climate Change Adaptation theme.

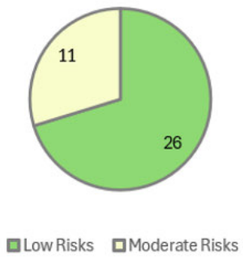



*Figure 6-2: Number of risks under each category assessed during risk rating at Stage 2.*

Eleven moderate and twenty-six low risks have been identified for the site across the 2020-2039 (2030s) time horizon; please note that these risks do increase over time during the later 2040-2059 (2040s) and 2060-2079 (2060s) time horizons.

The 2030s are focussed on, due to the 20–25-year lifespan of the on-site plant equipment. The highest risk to the given location is from the natural hazard of extreme heat, but this is effectively mitigated by good design practice, such as not using evaporative cooling, designing chilled-water to operate at higher 20-30C temperatures to protect the chillers against de-rating at higher ambient temperatures, allowing for the higher coastal humidity in the system specification, and a SUDS system across the site.

The operational provision of cool jackets for on-site staff also significantly reduces the risk to human health and wellbeing; while these are intended for internal use where the ambient temperatures are always expected to be high, they may also be worn externally during heatwaves. The provision of multiple access routes and ability to operate all systems remotely also decreases the indirect risks from all natural hazards, though putting the latter into practice will depend on the operator’s security protocols. However, risks do increase during the later 2040s- and 2060s-time horizons, principally through cascading societal risks and increasing changes in the projected climate.

For further details, please refer to the Climate Change Risk Assessment report (document reference: ADC-CDL-XX-XX-T-SY-70224).

# 7.0

# Ecology

# 7.0 Ecology

## 7.1 Ecology and Biodiversity

As well as a climate crisis, the UK faces a biodiversity crisis with a rapid decline in biodiversity in recent years. The built environment can respond to this through sustainable land use, habitat protection and creation as well as improvement of long-term biodiversity for the site and surrounding land.

A Preliminary Ecological Appraisal (PEA) has been prepared for the proposed Wester Hermiston Data Centre Campus by R&D Ecology. The aim of this PEA is to identify the likely ecological constraints associated with the project and outline recommendations for avoidance, mitigation, compensation (where necessary), and enhancement for ecology. An extended Phase 1 habitat survey was undertaken in June 2025, which identified 13 habitat types within the survey area (please refer to the Phase 1 Habitat Map included in Figure 7-1). The habitats were assessed for their potential to support protected and notable species present within the local area.

For further details, please refer to the Preliminary Ecological Appraisal report (document reference: RDECO00174/491/01/A).

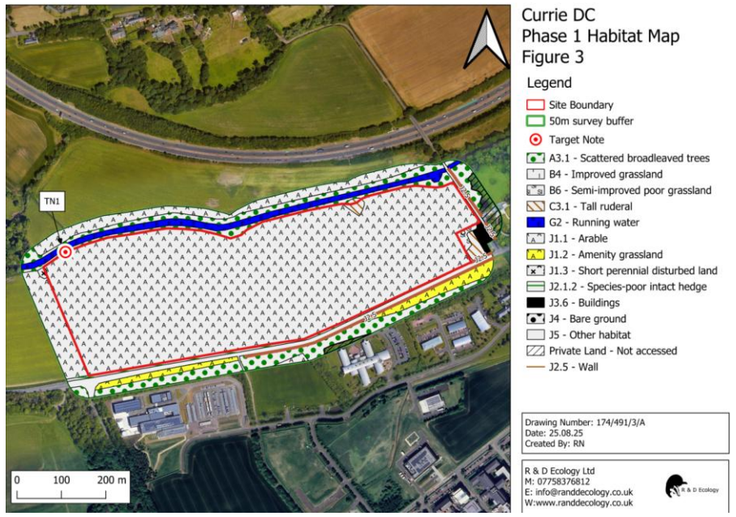



*Figure 7-1: Phase 1 Habitat map (extracted from the PEA developed by R&D Ecology)*

Based on the PEA report, the following enhancements are recommended to be considered at subsequent project stages to address the biodiversity net gain requirements of Policy 3 of NPF4 as well as Policy Env 21 and Policy Env 37 of the Edinburgh City Plan 2030 (see Section 2.2 for reference):

- Soft landscaping as part of the Proposed Development to include planting of native shrubs and trees
- Creation of SUDS ponds, with appropriate sowing / planting of native aquatic / wetland plants
- Creation of wildflower meadow
- Installation of wildlife boxes (bird, bat, hedgehog, invertebrate).

## 7.2 Arboriculture

A tree survey has been carried out by Land Use Consultants across the proposed site, with the findings being detailed in a Tree Survey Schedule. This approach ensures that trees and hedgerows are considered and protected during construction wherever possible. A total of 26 individual trees, 31 groups, and 3 hedges were surveyed beyond the redline boundary as their size canopy spread, or rooting zone could be impacted by development within the site.

*Figure 7-2: Tree survey for the proposed site*

To the north, the site features a mix of willow, poplar, birch, hawthorn, and maple, with most trees in good condition and providing valuable screening to the Union Canal. Hedges run along the eastern and southern boundaries, although the southern hedge becomes increasingly fragmented toward the east. None of the surveyed trees are subject to a Tree Preservation Order, nor are any classified as veteran trees or ancient woodland.

For further information, please refer to the Arboricultural Impact Assessment prepared by Land Use Consultants in October 2025.

# 8.0

# Pollution

# 8.0 Pollution

## 8.1 Air Quality

Global concern for environmental pollution has risen in recent years as concentrations of harmful pollutants in the atmosphere are increasing. Buildings have the potential to create major pollution arising from their construction and operation, largely through pollution to the air (dust emissions, NOx emissions, ozone depletion and global warming), but also through pollution to watercourses and ground water.

Nitrous oxides (NOx) are emitted from the burning of fossil fuels and contribute to both acid rain and to global warming in the upper atmosphere. At ground level, they react to form ozone, a serious pollutant and irritant at low level. Burners in heating systems are a significant source of low-level NOx, while power stations (and therefore electric heating) are a significant source of NOx in the upper atmosphere.

The proposed Wester Hermiston Data Centre development is taking action to minimise the above impacts by featuring no on-site combustion for the provision of heating, cooling, and hot water. All services will be electrically driven, which significantly helps to negate any negative impact of the development on the local air quality.

Air quality around the site is influenced mainly by road traffic. The A71, which borders the southern boundary, carries around 15,000 vehicles per day, while the M8 motorway to the north carries close to 70,000 vehicles daily. These existing routes are the dominant sources of air pollution in the area.

The nearest sensitive receptors are residential properties located around 10 meters from the eastern boundary. Other nearby buildings, such as offices and Heriot-Watt University facilities, are not considered significant pollution sources. There are no designated ecological receptors within 5 km; the closest is Wester Craiglockhart Hill Site of Special Scientific Interest (SSSI), around 5.2 km east. Initial baseline modelling shows existing concentrations are well below national air quality objectives.

## 8.2 Night Sky Pollution

External lighting encompasses vehicle and pedestrian access lighting, security lighting, facility illumination, and general feature lighting. Lighting will be designed to meet relevant mandatory requirements and aesthetic considerations. The preferred strategy is to provide a balance between adequate external lighting for safe and secure operation of the site without unnecessary illumination or power consumption.

The intention is to be a good neighbour and not to introduce nuisance glare or light pollution of the night sky from misdirected or unnecessary lighting. Feature lighting, where required, will be focussed on the task/subject. The external lighting design will take into consideration the relevant guidance from the British Standards and other recommended documents.

## 8.3 Noise Pollution

Developments can have an adverse impact on their local surroundings by creating nuisance noise that did not exist before. It is therefore important to understand and limit these noises to avoid disturbances and ensure wellbeing for building users and neighbours.

Additionally, any new items of building services plant will need to be selected, mounted, and attenuated such that the local authority noise criteria are achieved. It is proposed that noise from any new items of building services plant associated with the development be designed to meet the BS4142:2014 requirements.

# 9.0

# Transport

# 9.0 Transport

The transport of people between buildings is the second largest source of $CO_2$ emissions in the UK after energy use in buildings and remains the main source of many local pollutants. Energy use and emissions from transport are growing at 4% per year, and at the same time the effects of climate change are becoming more severe.

The following sections outline the transport options that are available to the proposed site located north of Heriot-Watt University, west of Hermiston and the City Bypass. Overall, the site offers reasonably good accessibility by sustainable modes of transport.

## 9.1 Walking

A well-lit pedestrian network with footways and crossings along the A71 provides safe walking routes, with multiple bus stops and Hermiston Park & Ride within a 10–20-minute walk and Curriehill rail station within 30 minutes.

## 9.2 Cycling

Cycling connectivity is very good, with National Cycle Route 754 adjacent to the site via the Union Canal towpath, offering a traffic-free link to Edinburgh city centre, complemented by shared-use paths and access to NCR75 for wider connections; several rail stations and local settlements are reachable within a 20–40-minute cycle.

National Cycle Network Route 754 starts on Route 7 and uses the towpath of the Forth and Clyde canal from Bowling, through north Glasgow, to the Falkirk Wheel; and then the Union Canal towpath (joining Route 75) into the heart of Edinburgh.

The campus is planned to accommodate 131 cycle parking spaces to further promote sustainable travel options in line with Policy Inf 6 (Cycle Parking) within the Edinburgh City Plan 2030.

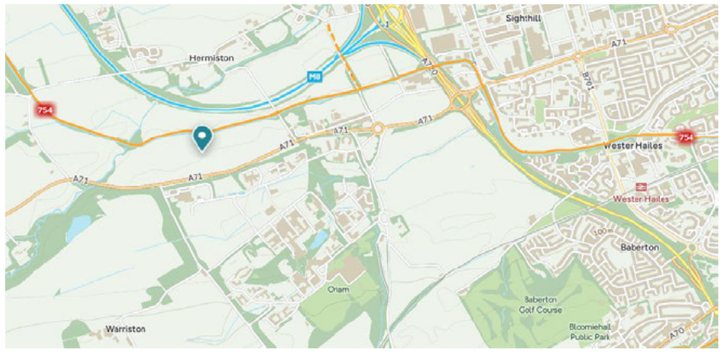
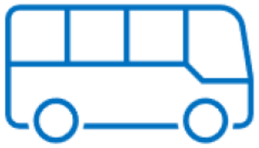



*Figure 9-1: National Cycle Network near West Hermiston site (source: 55.916513, -3.332494 | OS Maps)*

## 9.3 Public Transport



Public transport provision is also good, with nearby bus stops and Park & Ride offering frequent services to Edinburgh and surrounding areas, while Curriehill and Edinburgh Park rail stations provide regular ScotRail services to major destinations, reducing reliance on private car use and supporting sustainable travel options.

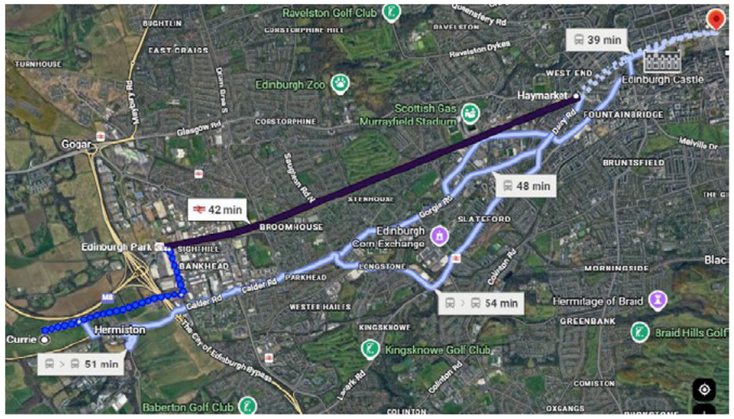



*Figure 9-2: Access to Edinburgh City Centre (Google maps photo).*

## 9.4 Electric vehicles

While public transport access to the site is ample, it is envisaged that there may still be a reliance on private car usage. To promote the shift from traditional petrol and diesel vehicles to Ultra Low Emission Vehicles (ULEVs), the proposed parking facility at the site will be equipped with 136 car parking spaces including electric vehicle charging points.

## 9.5 Policy alignment

Non-reliance on private car to travel to and from the site is aligned with national and local planning requirements, as set out in Policy 13 (Transportation) of Scotland's Fourth National Planning Framework (NPF4) and Policy Inf 5 (Location of Major Travel-Generating Development) of the Edinburgh City Plan 2030 (for further details, please see Section 2 of this report). These policies aim to promote developments that enhance connectivity and prioritise active travel and public transport over private car use.

# 10.0

## BREEAM

# 10.0 BREEAM

BREEAM (Building Research Establishment's Environmental Assessment Method) is the world's leading and most widely used environmental assessment method for buildings. It sets the standard for best practice in sustainable design and has become the de facto measure used to describe building's environmental performance.

The objectives of BREEAM are to visibly promote low environmental impact buildings, set criteria and standards that go beyond regulatory requirements, thus challenging the market to deliver innovative solutions that meet these higher expectations. It also aims to raise awareness among owners, occupiers, designers, and operators about the benefits of buildings that minimise environmental impact.

BREEAM groups its sustainability rating under the following nine headings:

| BREEAM Category | Commentary |
|---|---|
| Management | *Commissioning and construction site management.* Responsible construction practices will be implemented. Monitoring and management of on-site operations will limit the local environment impact and disturbance to neighbours. |
| Health & Wellbeing | *Indoor and outdoor aspects.* Thermal, acoustic, and visual comfort should be considered and assessed as part of the proposed development. |
| Energy Use | *Operational energy and $CO_2$ aspects.* A feasibility review has been undertaken to assess the viability of a range of Low Zero Carbon Generation Technologies (LZCGTs) and establish the most appropriate on-site low or zero carbon energy sources. |
| Transport | *Transport related CO2 and sustainable travel options.* The location and design of the proposed development actively support sustainable travel modes, thereby minimising dependence on private car travel to and from the site. |
| Water | *Consumption and water efficiency.* Water saving measures will be considered throughout to minimise water consumption. |
| Materials | *Environmental implications of building materials.* The life cycle environmental impact should be reduced as far as practical through reuse of materials and specification of low carbon materials. The proposed development shall be designed to be durable and resilient to its everyday operations |
| Waste | *Operational and construction waste resource efficiency.* Waste shall be reduced through all stages of the development, through reuse and recycling where possible. |
| Land Use & Ecology | *Ecological value of the site.* A list of measures have been identified for consideration at subsequent stages of the project to address the enhance biodiversity net gain. |
| Pollution | *Air & Water pollution.* NOx emissions have been eliminated as there is no on-site combustion. Measures shall be incorporated to reduce the likelihood of disturbance arising because of noise from fixed installation of the development. External lighting shall meet best practice recommendations. |

*Table 9-1: BREEAM categories*

The overall BREEAM rating of a building is determined by the number of 'credits' achieved. These credits correspond to specific management, design, and performance aspects set out by BREEAM. To attain a particular rating, the building must meet all relevant mandatory credits along with additional optional credits that contribute to its overall score. This total score is then used to determine the final BREEAM rating awarded to the building.

The threshold for an 'Excellent' rating is 70% and for 'Outstanding' rating is 85%.

The proposed Wester Hermiston Data Centre Campus is targeting BREEAM accreditation as a core design goal. This means considering environmental impact at every stage, from site layout and energy efficiency to water conservation, biodiversity, and community benefit. A preliminary BREEAM assessment is planned to be undertaken during the early design stages, ensuring the design approach is independently reviewed and verified from the outset.

# 11.0

## Conclusions

# 11.0 Conclusions

The proposed Wester Hermiston Data Centre development prioritises sustainable design across several key areas. These sustainability measures include:

- **Whole-life embodied carbon**: an upfront embodied carbon aspiration target of 555 $kgCO_{2e}/m^2$ (GIA) has been set for the proposed data centre development. This is based on the emerging UK Net Zero Carbon Building Standard (UK NZCBS) and assumes that the proposed development will be on site in 2030.

  The whole life carbon assessment undertaken for the development aligns with the principles of the NPF4 Policy 1 (Tackle Climate and Nature Crisis). Measuring and reducing whole life embodied carbon helps reduce carbon emissions as being part of the aim for Scotland to be Net Zero by 2045.
- **Building materials**: prioritising sustainable, locally sourced, and recycled material whenever feasible.
- **Waste management:** applying waste hierarchy principles for both construction and operational waste.

  The waste management strategy for the proposed data centre campus will align with NPF4 Policy 12 (Zero Waste) by adhering to the waste hierarchy, prioritising waste prevention, reuse, recycling and recovery, with landfilling considered only as a final option, and by incorporating circular economy principles from the early design stages. Scotland's Zero Waste Plan and the waste hierarchy are also embedded within Edinburgh's City Plan 2030, providing the overarching framework for sustainable waste management across the city.
- **Water conservation:** incorporating low-flow fittings and accurate metering to reduce water consumption.
- **Health and wellbeing**: integrating measures that prioritise thermal, visual, and acoustics comfort, creating a healthy environment for building users. A Climate Change Risk Assessment has been undertaken to align the development with NPF4 in support of the Climate Change Adaptation theme
- **Ecology and Biodiversity**: aligning with local policy requirements through the consideration of biodiversity enhancement strategies. A Preliminary Ecological Assessment has been carried out for the proposed development to identify, amongst others, enhancements that are recommended to be considered at subsequent project stages to address the biodiversity net gain requirements of Policy 3 of NPF4 as well as Policy Env 21 and Policy Env 37 of the Edinburgh City Plan 2030.
- **Pollution:** eliminating on-site combustion and adhering to appropriate light and noise guidelines to minimise environmental impacts.
- **Transport**: promoting active and sustainable travel modes over reliance on private car and providing EV charging infrastructure within the development's parking facility to support the decarbonisation of any remaining car use.

Non-reliance on private car to travel to and from the site is aligned with national and local planning requirements, as set out in Policy 13 (Transportation) of Scotland's Fourth National Planning Framework (NPF4) and Policy Inf 5 (Location of Major Travel-Generating Development) of the Edinburgh City Plan 2030, with these policies aiming to promote developments that enhance connectivity and prioritise active travel and public transport over private car use.

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