



# **Astley Ainslie Feasibility Study**

**Report 02 FINAL**

Main document

**Zone 2 Feasibility Study**    October 2021

This report has been prepared by a team commissioned by the Astley Ainslie Community Trust, funded by the Scottish Land Fund, the Architectural Heritage Fund Scotland and donations from the Trust's members.

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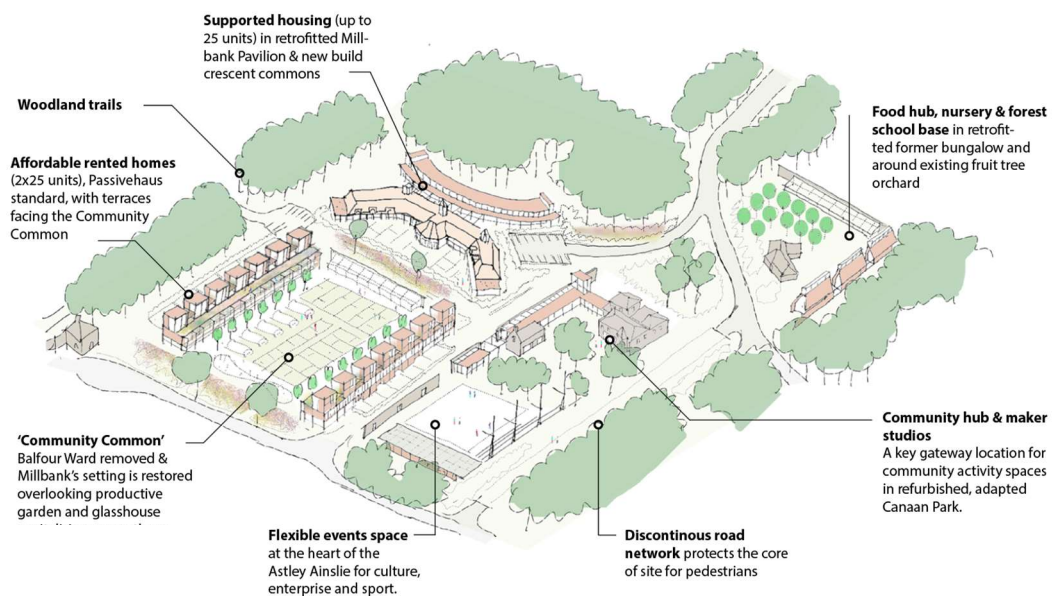
# 1. Executive Summary

This identifies the opportunities and constraints arising from community ownership of Zone 2 and maps AACT objectives onto the various sub zones in tandem with the recommendations identified in the business case. Its focus involves spatial analysis of the site along with illustrations to support the various business models for the site.

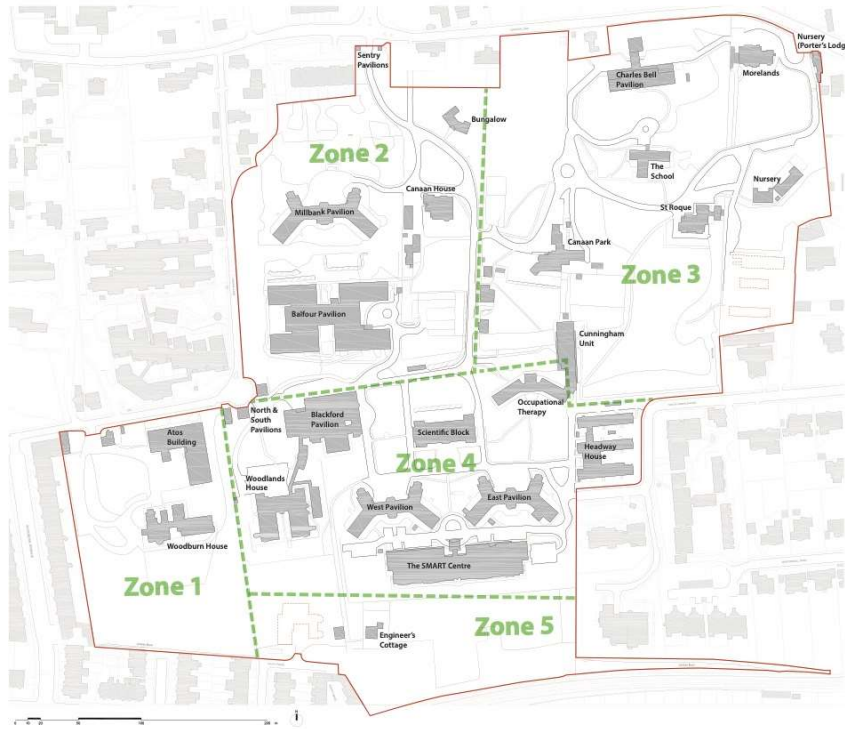
Report 2 identifies the social and environmental value of preserving and enhancing the existing greenspace and the community benefits that could be obtained by maximising the reuse of the existing buildings on the site.

A key decision presented to AACT within this report is whether housing development should be a part of the brief given the high costs associated with this.

Significant opportunities for meanwhile uses exist within the Balfour building and Canaan House.



# Orientation map



## 2. Introduction

### 2.1. Purpose of this report

During 2020, AACT commissioned a Feasibility Study and Social Enterprise Plan to develop a vision and viable model for community ownership, development, and operation of the Astley Ainslie site following the likely disposal of the site by NHS Lothian in the mid 2020s. The Astley Ainslie site presents the opportunity for pioneering, community-led development that delivers many of the Scottish Government's sustainability, health and community objectives within a historic, central site previously bequeathed for the public good.

This report conveys the findings of the second of three parts of a comprehensive study. The focus of this second part has been an appraisal of the opportunities and challenges for community ownership of the northeast section of the site referred to in this report as Zone 2

The aim of this second report is to create a series of recommendations that will serve as a foundation for more detailed, area specific studies. This will include a high-level appraisal of the how the community's objectives can best be met across Zone 2 and the opportunities presented by connections to the surrounding site and wider neighbourhood. This appraisal will assess how as potential custodians of the site, AACT could also influence the site's future development by other partners through ownership and/or models of governance.

The Covid-19 pandemic has triggered a major reassessment of the value of accessible green space, in particular its role in alleviating the rise in mental health issues. Systemic shortages during this period have highlighted the benefits of creating space for local circular economies to develop. Concepts such as the 'fifteen-minute city' and pilot projects such as the 'Transition Towns' movement provide a glimpse of how shared governance of localised food production, energy generation, and education can improve the resilience of urban communities.

As a consequence of the pandemic, the decision on the date of the sale of the site was put on hold in Spring 2021, pending a Scottish Government spending review of public assets.

Community asset transfer of Zone 2 of the Astley Ainslie site is an opportunity to pioneer community-led delivery of the Scottish Government's community empowerment agenda in a high value, high-profile urban location, with a focus on health, wellbeing, collaboration, and sustainability.

The context of this report within the wider study:

- Report 1 - A whole site evaluation. Published January 2021
- **Report 2 (this report) – SLF funded study for Zone 2**
- Report 3 – SLF funded Social Enterprise Plan for the 'primary zone'.

## 2.2. The Astley Ainslie Community Trust (AACT)

AACT was established in 2018 by volunteer locals who believe that the Edinburgh community will directly and substantially benefit from community ownership of the Astley Ainslie site, which would include continued or enhanced public access to the grounds and many of the buildings. AACT is aiming to use the mechanism of Community Asset Transfer under the Community Empowerment (Scotland) Act 2015 to acquire all or part of the site towards delivering this community benefit.

AACT is an association consisting of more than 400 members with an Executive Committee of six. AACT has chosen to register as a Scottish Charitable Incorporated Organisation (SCIO).

The background of Executive Committee members draws on a variety of skills and disciplines including forestry, architecture, law, psychology, political representation, archiving and curation, hospitality, housing, childcare, ecology, academia and telecommunications.

The Community Boundary (area from within which membership is drawn) is geographically defined for the purposes of the Community Empowerment (Scotland) Act.

The statutory community body engaged in the disposal process of the AAH site is the Astley Ainslie Community Engagement Group (CEG), consisting of representatives from the four relevant community councils (Marchmont & Sciennes, Morningside, Merchiston, and Grange & Prestonfield) and the Grange Association. AACT works closely with AACEG to ensure NHS Lothian and CEC keep the community informed and consulted.

AACT has received guidance/support from Community Ownership Support Services (COSS, part of DTAS), Scottish Land Fund, and Community Land Scotland.



## 2.3. Conclusions from Report 01 Whole Site Evaluation

Community-led development of the Astley Ainslie site would yield an array of social, environmental, and economic benefits to the community.

The recommendation was that the balanced model (illustrated in section 7.3 of Report 01) best delivers the community vision for the whole site. Within that, a community-led development prioritising re-use and green space of Zone 2 is key. AACT should therefore focus its efforts on the transfer of Zone 2 while being open to opportunities in other parts of the site that also deliver the community vision. This will allow AACT to formulate a robust proposal for Zone 2 for funding within the constrained timeline, while continuing to explore development partnerships in the wider site.

A presentation of highlights from this summary took place at the Trust's AGM, held online on 3<sup>rd</sup> December 2020 with subsequent discussion in breakout rooms and online feedback.

## 3. The site

### 3.1. The location



The Astley Ainslie hospital site is approximately 20 minutes' walk south from Edinburgh's old town.

### 3.2. The neighbourhood

The neighbourhood, within a 15-minute walking distance, has opportunities for harnessing many positive environmental and social outcomes.

### 3.2.1. Localised transport network

The area's localised transport network now includes accessible bus stops, cycleways, speed control zones and quiet routes.

If these quiet routes are maintained, then the site forms an important link between the Meadows in the north with Blackford Hill and the Hermitage to the south.

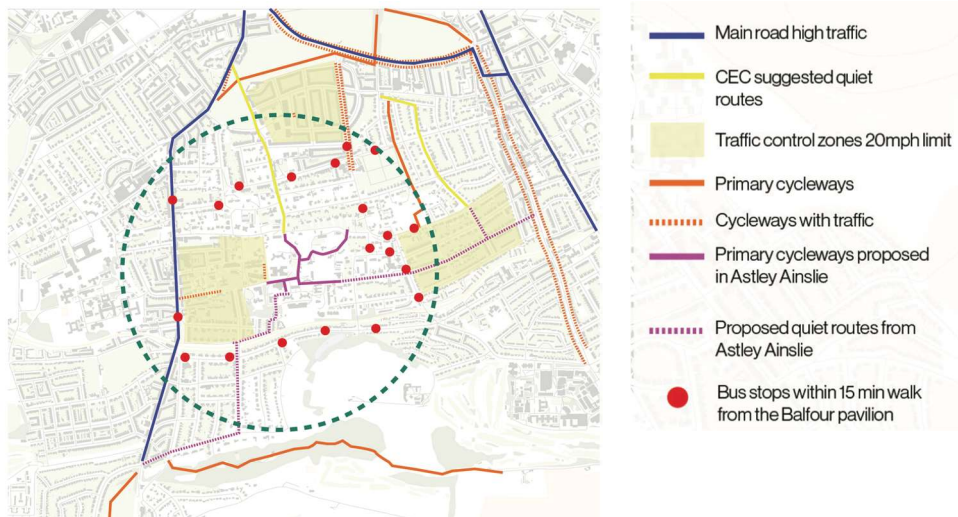


Figure by HarrisonStevens. Refer to Landscape Appendix for more detail

### 3.2.2. Accessible green space

The neighbourhood's dependency on the Astley Ainslie as an accessible green space is apparent in the next diagram which indicates in grey those residential areas that are beyond an 800m walk to green space



Figure by HarrisonStevens. Refer to Landscape Appendix for more detail

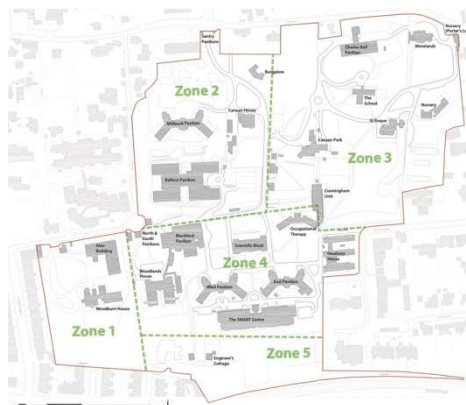
### 3.2.3. Local amenities

A cluster of schools immediately to the west of the site would greatly benefit from access to the Astley Ainslie's green space for health, recreation, play and education. There is an under provision of play spaces and public allotments.



Figure by HarrisonStevens. Refer to Landscape Appendix for more detail

### 3.3. The Astley Ainslie site as a whole



The Astley Ainslie site is in South Edinburgh, on a south-facing slope dropping south from Bruntsfield towards Blackford Hill, offering a sheltered, sunny aspect. It is important public land – the central part of a green corridor extending from Tollcross to the City Bypass. The grounds extend to approximately 20 hectares (50 acres). These include designed landscapes, policy woodlands, wetland, and plantation woodland.

The zones indicated in this site plan are indicative of relatively distinct characters, designated by this team as part of the earlier study (Report 1).

The site has a history of health provision, from a 16th century plague hospital, chapel, and cemetery catering to the victims and survivors of plague. Some remains have not been excavated, with indications of previous use such as stone carving and wells.

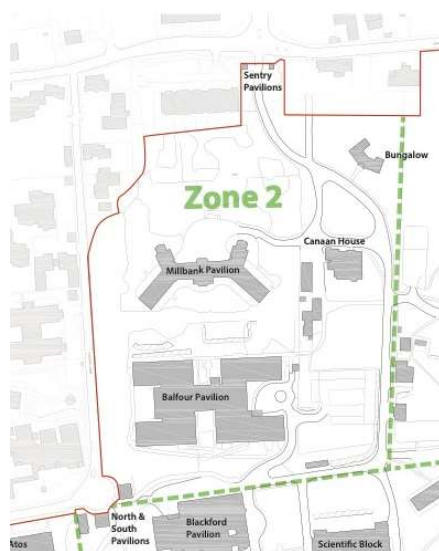
Until the early 19th century, the site was farmland providing Edinburgh with provisions. The earliest building, at Morelands, was built to provide respite from the city for town dwellers. The owners planted gardens and grew exotic plants from the Americas and Asia such as the Giant Redwood, the Monterrey Cypress, and the Bhutan Pine.

The Trustees of David Ainslie bought the land in 1920 to provide a convalescent hospital for the sick and disabled from the Royal Infirmary. The Royal Botanic Gardens provided plants, seeds, and expertise to improve the gardens. The Trustees undertook research and a pioneering interest in occupational therapy, buying more land in 1945. In 1948, the NHS took over the properties and the bequest. The AAH is the last convalescent hospital in Scotland.

There are approximately twenty buildings on the site, with utility structures. There are five 19th century villas; buildings constructed for the Astley Ainslie Institution in the 1920s and 30s, such as the butterfly pavilions and the consultants' bungalow. Others include wartime huts and modern buildings: The School, the Balfour and Charles Bell pavilions, Atos building, and the new Smart Centre.

The biodiversity value of the site in relation to its position in the city is high. The City of Edinburgh Council recorded 2000 trees (from the year 2000) including native tree species such as Sessile oak and Silver birch, mature specimens of exotic trees a seminatural shelter belt, mixed plantation woodland and a Norway spruce plantation. The collection of exotic trees may be second only to the Royal Botanic Gardens of Edinburgh.

### 3.4. Zone 2 – the northwest



Report 1, published in December 2020, was an evaluation of the whole of the Astley Ainslie site. In that report, the blend of different building types and landscape characters in zone 2 was shown to offer a wide range of opportunities and the greatest range of potential community benefits and project outcomes. It is therefore the key focus of this report.

Formerly two Victorian villas, Canaan House and Millbank House, set in extensive open grounds, this zone has changed considerably in a relatively uncoordinated way. It has elements added post Second World War; a boarded up 'butterfly' ward (Millbank

Pavilion), a former Superintendent's cottage and iron gates with sentry pavilions, and a late 20<sup>th</sup> century H-plan brick and concrete care facility building (Balfour Pavilion).

It includes the site's central north/south landscape spine and the key north site access point from Newbattle Terrace/Whitehouse Terrace.

It has a good interface with the more active west boundary of site and links to another key site access point from Canaan Lane

More detailed site analysis follows in Section 4 of this report

### 3.5. Ownership, title and burdens

The site is an assembly of plots acquired by the NHS over many years. Ongoing wayleaves and other burdens will have liability implications affecting the site's future. We understand that the AACT is in the process of receiving legal advice, in parallel to this study, to better understand the detail of the various titles that make up the site. This advice will be key to the Trust's decisions regarding community ownership.

### 3.6. Surveys, site investigation, services and wayleaves

A reasonable quantity of original drawings of buildings on the whole site were accessed through the City of Edinburgh's Plan Store, some of which were scanned, others photographed. A selection of these relating to zone 2 are included in the appendix. The Plan Store's records are meant to function as a repository for all planning, Listed Building Consent and Building Warrant applications; however, the records were by no means comprehensive. There were considerable gaps in information relating to modern alterations and the entirety of the Balfour Pavilion is missing, peculiar as it was presumably built in recent times (1980's).

Access into buildings was not possible due to this study taking place during Covid related restrictions through 2020 and 2021. The NHS estates team were contacted but were not able to provide us with further information about the buildings, services or title which might indicate burdens or wayleaves, citing the impact of Covid on their resources. Detailed topographic, measured and condition surveys as well as on-site investigation were beyond the scope of this study.

Table 1  
Total numbers and percentages of the 10 most commonly occurring tree species in Astley Ainslie grounds

Species	Total numbers	Percentage of Total	Percentage over 60cm diam.
Sycamore	346	20	33
Holly	180	10	-
Yew	133	8	5
Lime	133	8	51
Cherry	110	6	9
Birch	93	5	1
Beech	66	4	38
Cypress	58	3	7
Laburnum	56	3	2
Horse Chestnut	52	3	62

A tree survey (92 page) by RH Watson, 1998 is held on file (extract, right) and lists the quantity of different species in defined areas but its tree location plan is low resolution and almost illegible. Efforts to trace the original copy through the council were unsuccessful. A further character and quality appraisal (10 page) of the treescape (A Scott, 1997) is also on file. A landscape

assessment including a tree survey is apparently being commissioned by the NHS presumably to help their own development appraisal for the future sale of the site. Depending on its precise scope, this will be a valuable report in future and continued effort should be made to have access to it as soon as it is issued.

With these information limitations in mind, the internal layouts of buildings, present uses and precise footprint areas have had to be interpolated from Ordnance Survey data and the historic drawings retrieved from the council only.

## 4. Site analysis

### 4.1. Topography

Zone 2 has a gentle downwards slope from north to south with sections of only relative steep incline in certain areas such as an embankment approx. 3m high between the Millbank and Balfour Pavilions. This may have been formed as part of cut and fill excavations to create a level site platform for the Balfour Pavilion's deep footprint.

The modest slope generally presents more opportunities than challenges, benefitting south facing solar orientation and giving great views of Blackford Hill and glimpse of the Pentlands.

Only Ordnance Survey data was available for this study. A topographic survey should be undertaken in any subsequent design development stage.

### 4.2. Landscape

#### 4.2.1. General description

Set within residential districts of Morningside, Greenhill and the Grange the site provides a break from the rhythm of the garden villa and mansion block typology. The history of the site has been medical and restorative from the 18<sup>th</sup> century with a productive garden planted with an orchard and large trees, and a historic legacy of horticulture evidenced by the traces of glasshouse ranges for food production.

Blonde sandstone walls and gate houses mark the boundary of the site with ornate wrought iron fences and mature trees of beech, sycamore and lime along Whitehouse Terrace.

This park landscape has been added to over the years from the Royal Botanic



Gardens Edinburgh and others planting specimen trees to add beauty and diversity to the tree canopy.

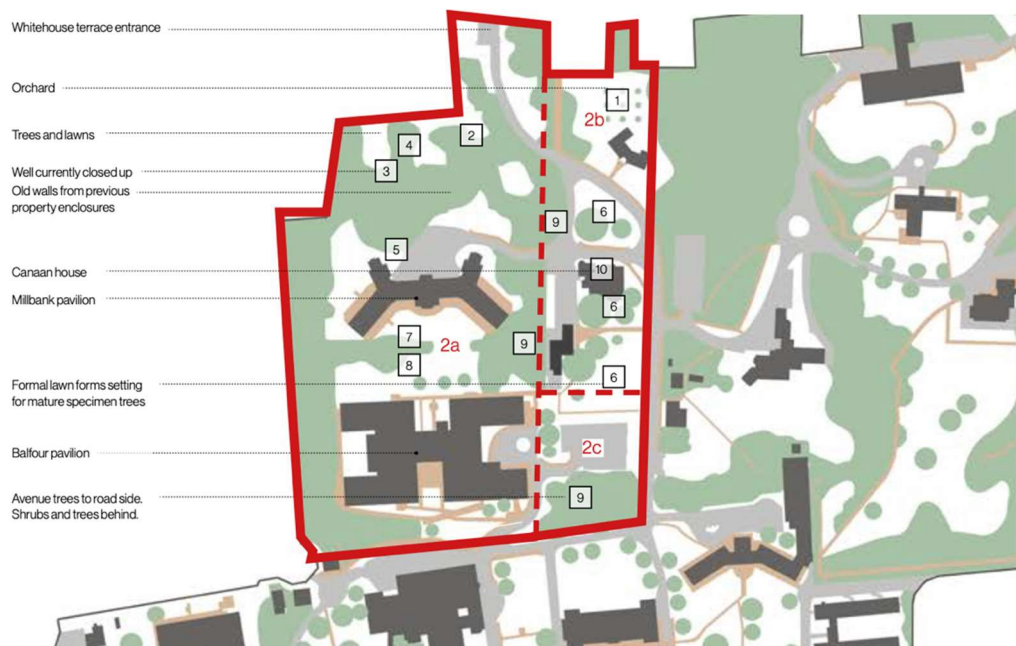
Set evenly through this garden landscape are a series of medical buildings that are set back from and connected by small sinus roads. Often adjacent to each building are small carpark areas and service yards with low levels of lighting and many signs.

The low-rise butterfly typology of the winged building provides a south facing aspect that creates a warm microclimate that has been colonised for seating and quiet contemplation spaces.

The grounds have been planted in island beds of rhododendron, and other flowering shrubs along with avenues of Cherry trees. Entrances and along footpaths are flanked by seasonal bedding.

The open aspects of the site contrast with the surrounding context that whilst leafy are defined by high boundary walls, these areas provide glimpses towards Blackford Hill and visual connections to the distant landscape beyond.

#### 4.2.2. Key landscape & natural assets



- The orchard (01) is set formally within an open lawn the orchard provides a valuable community benefit.
- St Roque Stones (02). This section of wall features the Gothic carved stones from the ancient Chapel of St Roque. Currently these are tucked away out of site near the Northwest entrance road. This connects to the previous site plots demarcated by old Victorian walls (03) dividing the landscape creating a more secretive, private garden space. As a celebration of the history of the

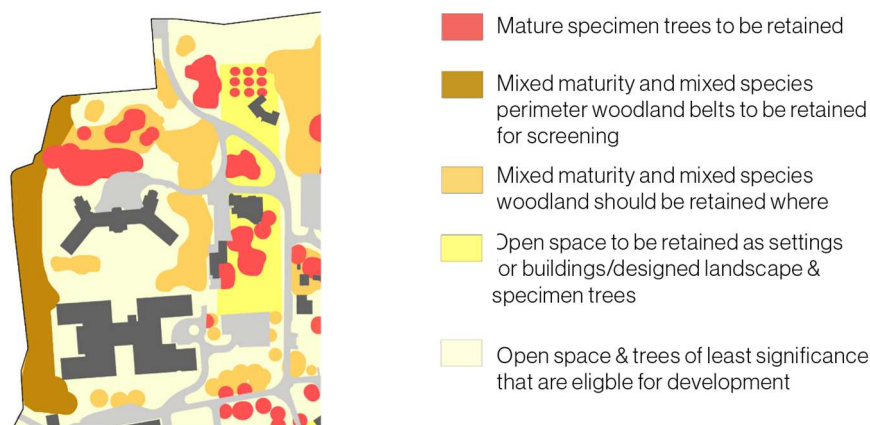
site these boundaries can be utilised again to determine land-use plots. There is opportunity to open up the landscape and make the Gothic stones more accessible and known.

- The Well (04) One of two wells currently on site that are blocked up. There is opportunity to reinstate waterways across the site creating new habitats and tranquillity which lends itself to the site's history of healing within the landscape and nature.
- Significant specimen trees (05 & 06) are dotted throughout the site and are essential to the landscape and history. Scots Pine, Sweet Chestnut, Holm Oak, Cedars and Bhutan Pine are but a few mature specimen trees that bring a unique significance to this site comparable only to the Royal Botanic gardens in Edinburgh. Trees should be retained and given prominence within the landscape and root protection zones clearly adhered to.
- Millbank pavilion features formal lawns, shrubs and trees surrounding it providing spaces for recreation and a setting for the architecture. Should the building be retained these garden surrounds can be utilised further for community gardens/activities. The site is divided by a slope between Millbank pavilion and Balfour pavilion to the south creating a natural divide between plots.
- A central belt of trees (09) that follow an old stone wall is a mix of mature avenue trees with creeping overgrowth, shrubs and young tree. There is opportunity to open up some of this space whilst retaining specific trees.



### 4.2.3. Tree ‘heat map’

A detailed arboriculturist’s report is beyond the scope of this report but the following ‘heat map’ has been prepared by HarrisonStevens based on a visual survey and site visits only. This is adequate to visualise the relative significance of the trees. This has informed all ideas for the future of the site.



## 4.3. Buildings

The following descriptions are based on desktop analysis of information retrieved from a variety of sources including the City of Edinburgh Council’s Plan Store and Historic Environment Scotland’s published information. Notes on general condition are provided below but are not considered extensive as access was not possible during the period of this study due to Covid restrictions. Full condition surveying of all buildings on this extensive site was not within the scope of this initial study

### 4.3.1. Canaan House



Canaan House is a category C Listed villa dating from circa 1805, currently in use as administrative offices. It was purchased as part of the original Astley Ainslie bequest in 1921 and used as residence of its first medical officer (1920’s) & other medical staff.

**Heritage value** - It is one of the oldest houses in the Grange with largely intact late 19th century interior scheme with timber panelled doors and timber chimneypieces. Its listing notes ‘decorative plasterwork, particularly fine in its public rooms. There is a late 19th century timber staircase a Rinceau frieze of floral plasterwork to the skylight over stair. A reasonable sized area of garden ground connects with the villa’s south elevation and includes some significant tree specimens.’ It has later additions made in 1877 (Peddie & Kinnear) / 1904. Drawings

held on file include those showing a planned small air raid shelter in solum of the northwest corner, and other minor internal alterations in the 1980's

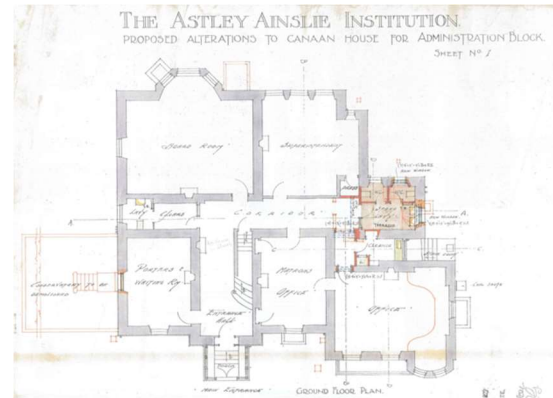
Sanitary accommodation and the majority of drainage connections appear to remain located at the west end of the central corridor.

The raised upper ground floor along with presumably restricted door opening width are limitations on the building's present accessibility.

**Area** - Its Gross Internal Floor Area is estimated at approximately 1050m<sup>2</sup>

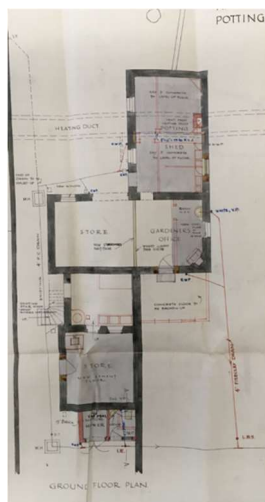
**Condition** – Sandstone walls, slate roof and presumably timber floors and roof structure with timber windows and cupola. It is assumed to be in reasonable condition due to ongoing occupation as offices by NHS Lothians

**Drawings** – refer to appendix for a more complete set of plans, sections and elevations retrieved from the council's Plan Store



Plan of proposed alterations to Canaan House for administration block (1927). City of Edinburgh Plan Archive

#### 4.3.2. The Estate Office



This is a partly single and partly two storey structure that is an outbuilding to Canaan House. It was formerly stables to Canaan House and converted to 'offices, stores and potting shed for gardener' in 1932 along with the other major healthcare building programme for the site as a whole.

While of no particular noteworthy architectural heritage value, caution should be taken to determine whether Historic Environment Scotland consider the building to be covered by the same category C listing as the adjacent Canaan House.

#### 4.3.3. The Bungalow

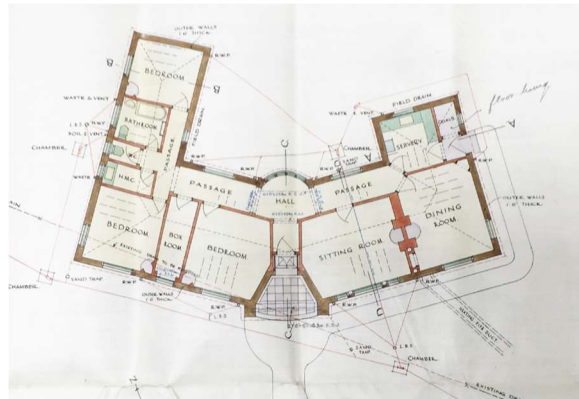
This was formerly the hospital Superintendent's house which has been converted for use as offices for medical consultants.



**Heritage value.** It is category C-listed built in 1932 and designed by the Edinburgh practice, Auldjo Jamieson & Arnott who designed most of the other medical buildings at the time including the butterfly wards. It is a single-storey neo-Georgian house with unusual C-plan and an attractive asymmetric façade composition with a distinctive chimney

with central window.

It sits in an area of open lawn with no sign of any former private garden boundary creating an unusual sense of being a private dwelling within institutional land. Even gardener's cottages elsewhere in Edinburgh have some private land. A grid of fruit trees has been planted to its northwest.



Original plan of the Superintendent's Bungalow (1932). City of Edinburgh Plan Archive

**Area** - Its Gross Internal Floor Area is estimated at approximately 170m<sup>2</sup>

**Condition** – Sandstone walls, slate roof and presumably roof structure with timber windows. It is assumed to be in reasonable condition due to ongoing occupation as offices by NHS Lothian

**Drawings** – refer to appendix for a more complete set of plans, sections and elevations retrieved from the council's Plan Store

#### 4.3.4. Millbank Pavilion

**Heritage value** – The Millbank Pavilion, also designed by Edinburgh practice Auldjo Jamieson & Arnott, replaced the Victorian former Millbank House. It was built in 1928 as a ward for convalescence of patients recovering from tuberculosis and, interesting to present day readers, features an 'isolation unit'. More recently it was used for orthopaedic rehabilitation, generally of older people.



Although recently reviewed for Listing, and declined, Historic Environment Scotland should be approached again with an appeal for a further Listing review, as this provides much evidential value of a significant historic use of the site.

Much can be learnt from the Millbank and the East and West Pavilions about building design for post pandemic recovery. Buildings such as these with a narrow plan, that are daylight, have naturally ventilated spaces with direct access to sunny terraces are all features that are valued more than ever.

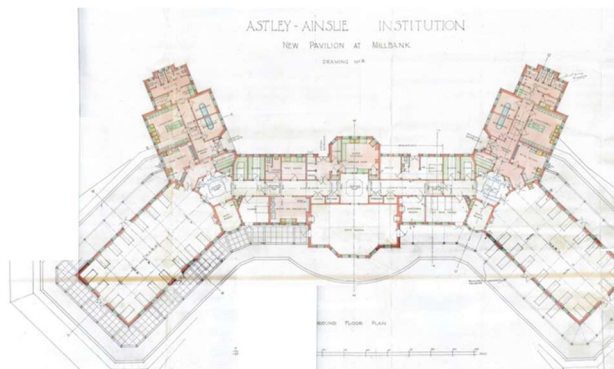
It has distinctive south facing wall head dormers illuminating the former wards in its wings and cupolas at the nodes in its central circulation.

**Area** - Its Gross Internal Floor Area is estimated at approximately 1180m<sup>2</sup>

**Condition** - it is a single storey building, built with brick and render walls, clay tile pitched roofs and copper clad flat roof. It has been vacant and boarded up for a few years and is suffering from neglect and accumulating graffiti. Derelict buildings are more prone to deterioration. Without occupation, inspection routines often become ad hoc and damaging water ingress gets overlooked. Boarding up limits the building's ability to ventilate naturally and the absence of any heating limits its ability to stay dry. The risk of arson remains quite high especially on a site that has only occasional passers-by.

Despite these risks, buildings in more evident states of disrepair, even slated for demolition, have been saved. With reasonable effort, similar buildings have become revitalised assets.

**Drawings** – refer to the appendix for a more complete set of plans, sections and elevations retrieved from the council's Plan Store



#### 4.3.5. Balfour Pavilion

It is understood to have been opened in 1983 and have been used for elderly care and orthopaedic rehabilitation and includes the staff and visitor Café & shop.



From the arrangement of windows, we determine that it mostly consists of small wards or single bedrooms, evidently built with adjoining bathrooms. Some larger open spaces exist in the southeast corner where the café is. It is a single storey building built in brick and concrete with large monopitch concrete tile and interlinking flat roofs.

Without access permitted inside the Balfour Pavilion, or even internal plans being made available from the NHS or in the council's Plan Store, we can only speculate about the building's likely layout and make some broad suggestions about its re-use, whether meanwhile or long-term.

**Area** - Its Gross Internal Floor Area is estimated at approximately 3550m<sup>2</sup> (from OS data only)

**Condition** – Very limited assessment of its condition is possible except to say that, at the time of writing, some areas appear to remain occupied on the east side and areas on the west side appear to be closed down. Without full occupation and likely limited confidence in the building's future it might be reasonable to expect only a rudimentary repair and maintenance regime.

**Drawings** – No drawings were available. None were traceable in the council's plan store.

#### 4.3.6. Car park

This presently functions as a central location for parking. We have not uncovered any evidence of any former building occupying this site. It appears to have once been the south end of the garden of Canaan House. Evidence of the former stone boundary wall remains. It may have been levelled to suit the car park arrangement

A significant services trench crosses the north edge of the car park



#### 4.4. Site access points

**Newbattle Terrace/Whitehouse Terrace/Whitehouse Loan** – North. This access point is within zone 2 and, whilst not currently used for vehicles, is a significant asset for this zone. Its listed sentry pavilions and cast-iron gates in a treelined setting, very visible at the southern end of Whitehouse Loan, defines the garden-like character of the whole Astley Ainslie site.



When considering this access point's future, it should be remembered that service vehicle access and drop offs to Canaan House, the bungalow and the Millbank Pavilion currently have to traverse through the centre of the site to reach these buildings entrances, creating vehicle movements up and down the 'spine' of the site. As part of a

wider vision, where vehicles are generally prevented crossing through the centre of the Astley Ainslie site and using this spine, it may be beneficial to re-open this northerly access point to a few vehicles at least to occasionally access these three buildings. Working with the existing constraints (i.e., the listed gates and a single carriageway), a future arrangement is envisaged that might create a managed junction that prioritises pedestrians and cyclists, and holds back vehicles so that they enter and leave via the single carriageway through gates held in the open position.



**Canaan Lane - West** – Zone 2 adjoins the west access point at the corner of Canaan Lane. Despite Canaan Lane being constrained in width by adjacent plots, the existing site entrance between the two Listed Gatehouses is the most direct access to many

amenities and bus connections in Morningside. Notably, the pavement connection heading west on the south side of the road is interrupted by a building and pedestrians have to cross the carriageway to the other side of the road.

We imagine that the physical constraints on this node will limit any possibility of significant increase in vehicle movements and that improvements for non-vehicular connections should be prioritised instead.



**Canaan Lane – North West** – Consideration should be given to forming a new access point halfway along the north south section of Canaan Lane. There are obvious constraints to doing so, such as carriageway



restrictions, trees and boundary walls, but the benefits would mean an alternative, very direct access to the existing Millbank and Balfour sub-zones enabling alternative development scenarios.

**Spaces for People** - Canaan Lane, Newbattle Terrace and Whitehouse Loan form part of the 'Greenbank to Meadows Quiet Connection'. This is a part of the wider 'Spaces for People'



project which consists of transport related temporary measures taken during the Covid pandemic and funded by the council and Sustrans. The consequences of the measures are likely to significantly reduce vehicle movements and speed to the benefit of pedestrians, cyclists and wheelchair users.

## 5. Planning

### 5.1. Planning policy context

#### City Plan 2030

This document sets out how the council intends to develop the city's built environment strategically between 2020 and 2030. The first engagement stage 'Choices for City Plan 2030' took place between January and April 2020 and responses are being reviewed currently. Once adopted, it will be used to inform the more detailed future Local Development Plan.

Some of the proposals are based on a commercial needs analysis created before the Covid-19 pandemic.

It indicates 500 homes for the Astley Ainslie might be considered appropriate as part of a mixed-use development subject to further review and detailed study.

#### The Local Development Plan and relevant NPPF objectives

The most recent LDP was adopted in November 2016. Development of a new LDP is expected following the adoption of the strategic City Plan 2030. Consultation is anticipated later in 2021. This will be a significant opportunity for AACT to make representations on the future use of the Astley Ainslie site.

#### Place Brief (2021)

The CEC place brief is currently ongoing but subject to delays from arising from the Covid-19 pandemic. The CEC team have produced Place Briefs for a few other sites in Edinburgh, most recently for future development of a site at Leith Walk / Halmyre Street which involved public consultation. While not prescribing specific building uses, Place Briefs seek to coordinate future development through discussion with landowners and developers with the Planning Authority.

### 5.2. Dialogue with Planning

The team met with Lesley Porteous (CEC Planner and Regeneration Project Manager) and Alison Wood (CEC Spatial Policy Officer) in September 2020 and in February 2021 and a number of broad themes were discussed that were in alignment with many of AACT's own objectives. Key points discussed were the benefits of the proposal for:

- connecting to the active transport network
- tying in with the local amenity for – 20min city (what is missing locally)

- car free centre with cul-de-sac roads preferred
- linking Place Brief with community consultation

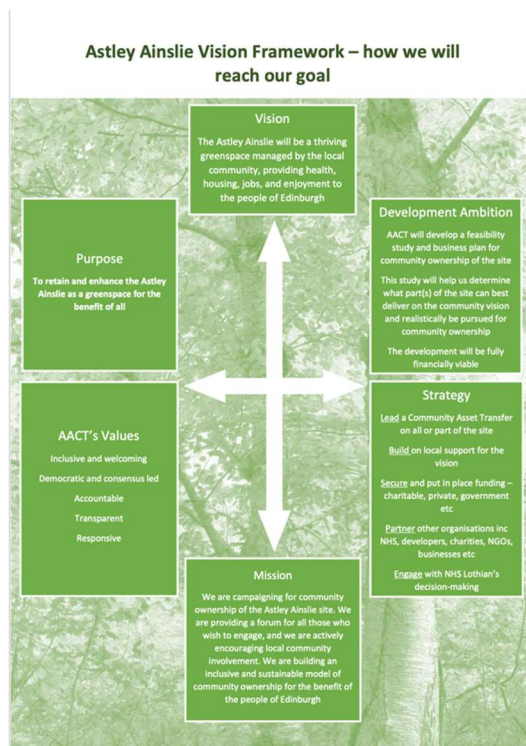
### 5.3. Dialogue with Parks and Recreation

The team met Des Hackett DH (CEC Parks and Recreation), March 2021, to outline the community's vision and find areas of alignment with department and funding objectives. DH explained some background to the green energy generation project at Saughton Park and Edinburgh's ecological coherence plan. DH expressed interest in supporting the community's ambition.

## 6.AACT Brief & vision

### 6.1. AACT's Vision Framework

AACT has defined a framework that clearly sets out its vision, purpose, values, mission, strategy and ambition.



## 6.2. Objectives

The following objectives are taken from AACT's 2019 Visioning Report, listed here in a loose order of hierarchy only.

### **Nature & greenspace**

A key generator for a range of community benefits involves maximising access to the natural environment for educational use, skills training, food growing and recreation. Site strategies explored varying mixtures of the following programme elements.

- Community gardens; allotments, orchards, Physic Garden, foraging, beekeeping, forestry, arboretum
- Sport
- Play
- Outdoor learning
- Environmental art. Permanent and temporary projects
- Woodland – wild
- Land management skills and training
- Botanical research and education – form links with Royal Botanic Gardens of Scotland

### **Homes**

An ambition to provide more low-cost, climate-led housing through community-owned development, and housing provision for e.g. key workers, to balance market driven private developer residential development. Community ownership will allow a greater level of detailed assessment of need and higher levels of provision than the affordable housing ratios required by the Local Authority.

- Community-led housing
- Co-housing
- Supported independent living and care homes.
- Intergenerational living
- Highly adaptable housing
- Housing linked to productive green space

### **Community hub**

A response to the high demand for community spaces in the area.

- Creative / Arts; Gallery space, lettable studio space, performance and event space, art therapy & music recording studios
- Enterprise; crafts/maker centre, workshops
- Gathering space
- Café / Restaurant
- Guest accommodation

### **Health and wellbeing**

Community-led and community-based modes of delivering better health outcomes.

- NHS well-being agencies
- Patient respite facilities
- Therapeutic treatment
- Hospice
- Carer's centre
- Occupational Therapy
- Community gardens. Membership and volunteer models offering opportunities to grow food, build communities and promote active lifestyles. The garden teams could run regular events, workshops and courses

#### Outdoor learning, recreation, and access

An expansion of the existing provision using more of the available green space.

- Paths & routes; walking, cycling, wheelchair accessible, safe routes, interpretive wayfinding
- Outdoor play; bike trails, camping, adventure play, skateboarding
- Leisure pool
- Forest School

## 7. Zone 2 Proposals

### 7.1. Introduction

The whole estate provides an informal parkland setting to an area of Edinburgh where there is a demonstrable under provision of greenspace (Section 3.2.2). The pandemic has demonstrated just what a valuable resource greenspace is to people's health and well-being. Its amenity value has been recognised in the CEC 'quiet ways' and greenspace strategy, supported by the Place Brief. It is this aspect of the estate that has stimulated community action and cohesion around the large mature trees, space to cycle and walk and connect with nature.

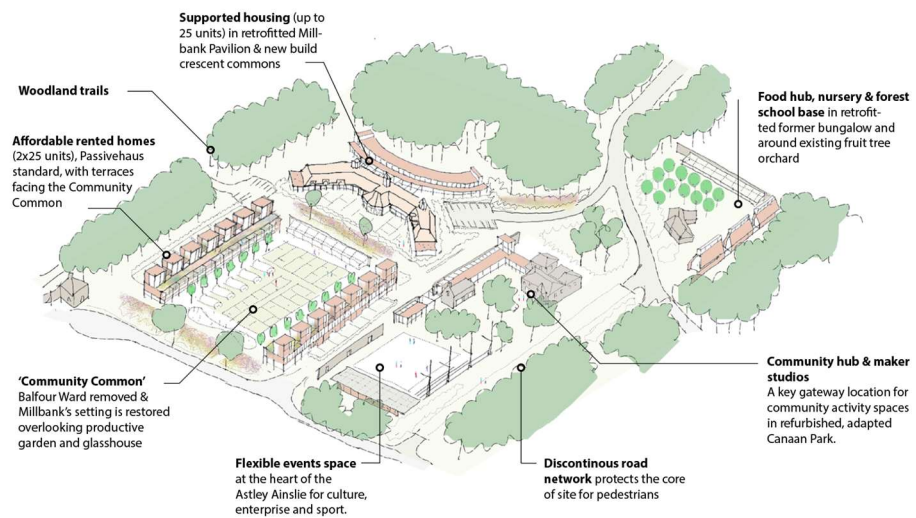
This is why it is important that the character and value are recognised, supported and enhanced at all stages in the estate's future. There is a Community Guardian role for AACT in the future that enables continued access to greenspace. This is documented in the appendix. The role would draw on the skills and experience of CEC and various charities to enable nature and community to thrive.

The ecosystem of services throughout the whole estate needs to be addressed so that stormwater storage, daylighting a stream, pollution control and cooling of the air, all have benefits beyond the site's boundary. We see many of these characteristics and opportunities in Zone 2 which can act as a catalyst and exemplar for the rest of the site in the future.

With its varied mixture of landscape and building assets and its strategic location within the whole Astley Ainslie site, Zone 2 presents numerous opportunities and challenges. Whilst the focus here is deliberately Zone 2 alone, it has not been considered in isolation, but within the context of the wider Astley Ainslie site, the whole neighbourhood and even the city as a whole.

Similarly, at the other end of the scale spectrum, its sub parts strive to be self-sustaining elements that also benefit and support each other, developing a localised circular economy, i.e. the growing projects link with the food hub activities which link with the education activities on the site and nearby which link to other care services.

The future of the site could incorporate many different projects delivered over various timeframes. The illustration below imagines a snapshot of a scenario at one moment in time. It is presented as a realisable vision.



## Meanwhile use

The natural landscape is the constant as we chart the path of the development and is essential to its success. As the site evolves so too must the landscape, by planting, maintaining and adding to the biodiversity so the asset value grows. The starting point for any change is collaboration in a space set in the landscape to provide a neutral meeting area for dialogue and discussion that can generate the leadership, energy and learning essential to the success of the estate.

An indication of potential meanwhile uses are noted under each subsequent sub heading here, the matter is explored in more detail in Report 03

## Evaluation

The suitability of proposals has been evaluated against many relevant factors. Construction cost estimation (Section 8 and Appendix) and high-level evaluation of the financial viability of each option (Report 3), has been considered throughout, during design development and in discussion with the AACT Feasibility Study Group.

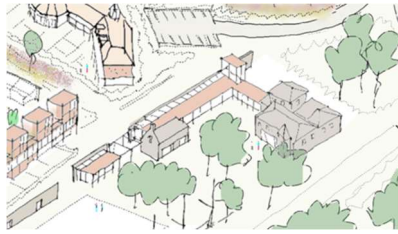
Phasing and meanwhile uses are significant areas of consideration for project viability. While some indication of potential meanwhile uses are noted under each subsequent sub heading here, the matter is explored in more detail in Report 03

This following section of this report considers each sub-zone individually.



## 7.2. The sub-zones (excluding the Balfour Pavilion site)

### 7.2.1. Canaan House / Community Hub and Maker Spaces

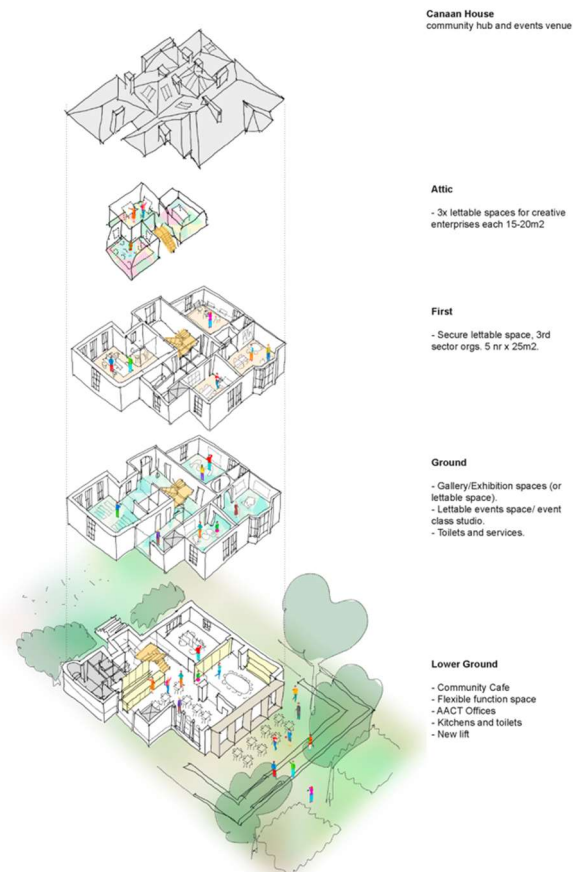


**Community Hub.** Canaan House's location on the main north south axis of the site and nearest the principal site access from the north towards the city centre, makes this an ideal site for the most publicly accessible building within the community owned zone. We envisage it as being the place of orientation for the numerous community enterprises and activities within the wider site.

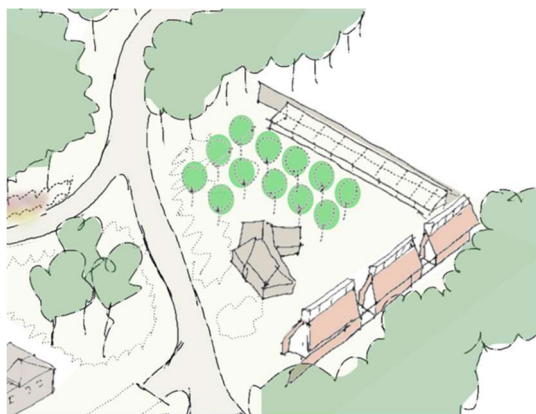
Whilst its C Listing makes adaptation more challenging it may also be an opportunity to attract funding. Similar listed buildings are commonly adapted to suit modern accessibility and energy conservation requirements. Opportunities include finding matches between the generously proportioned, well orientated principal rooms with the community activities that are in demand. Challenges include forming a new accessible entrance and location for vertical circulation that does not undermine the villa's integrity. New entrances to Listed buildings are common and, as well as a challenge, are also an opportunity to express reuse and revitalisation as well as a chance to extend at ground level.

**Maker spaces.** The former villa plot has its outbuildings along the west boundary slightly south of the villa itself. Some of these structures have character and potential for adaption, some do not. We envisage consolidating the boundary wall and the more adaptable elements with a simple linear building that for artisan makers and artists to use as workshop studios. This activity would enliven the west edge of the garden terrace of the villa, ideally suited to locate a café terrace or beer garden.

**Meanwhile opportunities and phases.** It is currently functioning as offices and could continue to do so under a short-term lease while other proposals are developed.



### 7.2.2. The Bungalow / Nursery, Forest school and Food Hub



**Food Hub.** Building off the Astley Ainslie’s resource of generous garden ground, the walled garden nearby, and future opportunities for community market gardening, this site could form a positive introduction to the community-led redevelopment area in Zone 2. A number of possible stakeholders and partners could come together to form a food or cookery school. We envisage a vibrant cooking centre that inspires, supports

and develops a love of cooking in people of all ages and levels of experience from young children to experienced chefs.

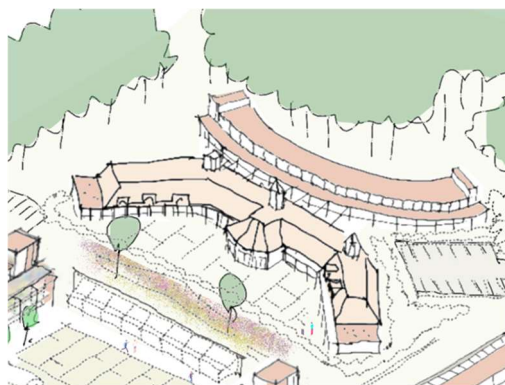
**Nursery / Forest school.** The former house would suit conversion to a nursery and/or as a base for a forest school providing basic facilities such as WCs. A secure outdoor space could be provided at the building’s rear.

**Meanwhile opportunities and phases.** It is currently functioning as offices and could continue to do so under a short-term lease while other proposals are developed.

### 7.2.3. Millbank Pavilion / Supported housing

Two strategic approaches were considered for the continuation of living with care & support at the Millbank Pavilion.

**Supported housing option** More of us are living longer lives at home and fewer are using care homes. When the latter is the only option, care needs tend to be greater requiring greater personal supervision now and, in the future, than for care home residents ten or twenty years ago. Housing that is fully accessible (e.g. with wider door openings and circulation spaces and wet room showers) is in demand especially if a care worker or warden is situated on site. The Millbank Pavilion suits conversion and subdivision to this type of housing reasonably well and an outline of this is illustrated in the ‘Hybrid Approach’ (7.3.3) with a crescent shaped extension on the north side that forms a terrace of new build single storey units. This indicates a total of approx. twenty five one and two bedroom supported housing units when combined with the Millbank Pavilion.

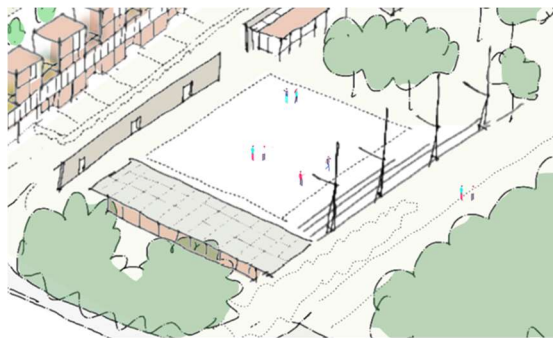


**Intergenerational care hub option.** Conversion to a care facility with individual bedrooms and shared social spaces was considered initially. The building’s layout has a central spine corridor serving a series of smaller rooms that could be adapted

as bedrooms with en-suite bathrooms, and the wards at either end could be subdivided into further private rooms. Ideas for linking this with a forest school built as an extension on the north side forming a central courtyard were considered, forming a care hub that would be intergenerational. However, the scale of development (potentially 12-15 beds) is considered low for this sector and below a threshold where staff ratios make it feasible. The Covid pandemic has unsettled the market for care accommodation, and it is uncertain what model of provision will prevail. Demand appears to be diminishing in the local area. This option is still a possibility but would require development with a stakeholder or partner who has experience in this highly regulated sector.

#### 7.2.4. The car park / flexible events space

**The events space** – the existing car park in the south east corner of zone 2 occupies a prominent position at the intersection of the principal north south and east west routes through the site as a whole. It is the former southern end of the garden setting of the former villa Canaan Park and a key part of the envisaged primary publicly accessible zone of the Community Commons.



We propose that it remains an outdoor space and altered from a car park to a lively accessible events space. With public realm improvements to ground surfaces, forming a terraced embankment along its eastern edge and high-quality outdoor lighting and perhaps canopy structures.

This key space could be transformed into a social, cultural and commercial heart of the Astley Ainslie. With vision, energy and regular programme management, a small team, based in the adjacent community hub could reimagine Canaan Park to accommodate scheduled activities such as food and maker markets, outdoor performances or small-scale sports events. Edinburgh's old town has a number of similar events spaces many of which are public spaces that are re-appropriated during the festival period. The Morningside, Grange area currently has limited capacity in this regard and this facility would draw footfall and attract visitors to experience the Astley Ainslie site.

Ground source heat energy could be captured from below this open space (the surface need not be soil or grass to do so), this would be enough to supply heat for the adjacent re-development of Canaan Park.

A facilities building with WCs and lockable equipment storage and points for power water and WIFI would be beneficial with potential PV arrays on its roof.

## 7.3. The Balfour Pavilion and car park site.

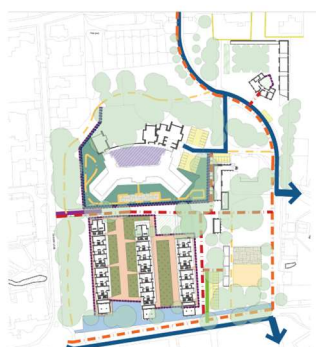
To identify a preferred approach that both meets the community's needs and is also financially viable, several different options have been explored, with three options taken forward for more detailed evaluation.

The options that have been developed for further evaluation are:

**Housing priority approach** – This option creates approx. 10,000m<sup>2</sup> (gross excluding undercroft parking) residential development equivalent to approx. 70-90 new build dwellings on the Balfour Pavilion site.

**Open space priority approach** – This option takes a different approach to the Balfour Pavilion site and envisages replacing it, rather than with housing, with approx. 5500m<sup>2</sup> of more open space that could be used for a variety of outdoor activities as well as for ground source heat generation.

**Hybrid approach** – This option leaves most of the Balfour Pavilion site, once demolished, for open space activities and ground source heat generation in a new 'Community Common' and includes an element of new-build community-led housing



**Housing Priority Approach**  
(Jan/Feb 2021)

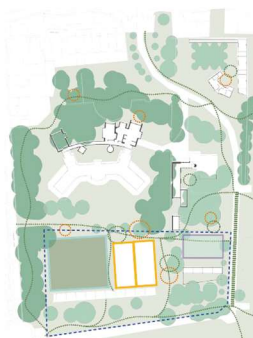
Balfour ward site - 70-90 dwellings in three n/s fingers & undercroft parking

Millbank - Care facility & forest school

Bungalow - Nursery & food hub

Canaan Park - Community hub & maker studios

Car park - Events space



**Open Space Priority Approach**  
(Feb/Mar 2021)

Balfour ward site - Open space/Park Power (GSHP)/Market garden/MUGA

Millbank - Care facility & forest school

Bungalow - Nursery & food hub

Canaan Park - Community hub & maker studios

Car park - Events space



**Hybrid Approach** (more detail next slides)  
(Mar 2021)

Balfour ward site - 'Community Common' with 2 x 25no dwellings

Millbank - Supported housing (up to 25 units)

Bungalow - Nursery/forest school & food hub

Canaan Park - Community hub & maker studios

Car park - Events space

### Rejected further options included

- replacement of the whole of the Millbank Pavilion with new build community-led housing (in addition to the housing indicated on the Balfour Pavilion site in the housing priority approach) and,
- the adaptive re-use of the Balfour Pavilion used as artist studios.

**Evaluation** – The suitability of proposals has been evaluated against many relevant factors. Construction cost estimation (Section 8 and Appendix) and high-level evaluation of the financial viability of each option (Report 3), has been considered

throughout, during design development and in discussion with the AACT Feasibility Study Group.

Further detail of the design of each approach follows in this section with detailed evaluation presented in a table in Section 9

### 7.3.1. Housing priority approach

This optional approach prioritises developing community-led housing only on the footprint of the Balfour Pavilion site after demolition. It anticipates the car park site being developed as an accessible outdoor flexible events space (described in 7.4.3 below).



Clockwise from bottom left:

- Communal gardens between blocks with balcony edges.
- Three finger blocks orientated north south allows greatest sunlight penetration to gardens in between.
- Maisonettes at lower levels and apartments above with balconies enable a mix of households, all with access to outdoor space.

It envisages 70-90 dwellings with a range of unit types (1, 2 and 3 bedroom properties) that provisionally have average floor areas between those typical in the affordable and private sectors. Determination of the type and split of tenure types is considered in Report 03.

The new build community-led housing is shown arranged in three four storey blocks running from north to south on the Balfour Pavilion site. This arrangement creates dual east and west aspect apartments with balcony outdoor spaces that overlook open spaces in between blocks. These semi private open spaces are wide and open to sunlight. These would have access restricted to pedestrians only and be for shared community amenity with fringes of private garden spaces. The Balfour Pavilion's footprint and development volume means that housing could be developed here to various scales of mass and density. At four and a half storeys, it is

illustrated at the likely upper end of that range. Indicative plans show how a range of housing unit types could fit within a regulating grid that places common stairs and potentially lifts at 25-30m centres. Larger maisonette units at ground floor would suit families and apartments on upper levels would vary between one, two and three bedroom units. Continuous balconies wrapping round all four sides of each block would give all residents direct access to the outside and rooftop glazed spaces would include a community room that could be used as a growing area.

A limited extent of undercroft parking is proposed for this option, and if required this could accommodate between 50-70 vehicles (0.75-1 per dwelling). Housing demand, at least in the private sector, has made undercroft parking a viable alternative to surface parking as evident in the recent neighbouring development of Woodcroft by Queensberry Property and Telereal Trillium.

Emergency and service vehicle access – areas of communal bins should have lorry access with space for turning. The local authority has distance limits from lorry pull-in locations to reach bin stores and the Building Regulations determine maximum distances from dwellings to bin stores. A strategy that provides lorry access to the four corners of the housing sub zone should satisfy these requirements. Similar access will be required for fire tender access although this can be mitigated by strategically locating wet or dry risers.

### 7.3.2. Open space priority approach

This option considers forming accessible green space for various outdoor community activities on the footprint of the Balfour Pavilion site and car park after demolition and does not include housing.

This option has the greatest capacity for ground source heat generation through boreholes. A preliminary study for this has been carried out by Kensa Consulting, a UK leading manufacturer and installer of ground source heat technology, and their report is appended. It has provisionally determined that the open area is adequate for an array of bore holes sufficient to supply the heat demand of the supported housing development envisaged for the redeveloped and extended Millbank Pavilion.

This option sees the south of site 2 as a one continuous open space. This would be used for community growing spaces and could even achieve market garden quantities of food production should an operator be found. The production of food in urban areas has shown multiple benefits both in the nutrient content of the food, the reduction in carbon from transport, and community resilience in supporting and knowing who and where the food was produced. This is supported by CEC in the open space and food strategy.

In addition, a multi games hard surface area is proposed on the existing carpark. These spaces are under provided for in this area of the site and can attract revenue and support from a community of informal sports clubs such as five-a-side football, hockey and basketball. These spaces can also be used for Saturday markets and community events as they can provide power and lighting.

Green space uses could include:



See Appendix for more detail

### 7.3.3. Hybrid approach



After reviewing the two approaches above with the AACT Feasibility Study group, a further approach was requested for consideration that combines a smaller element of housing with a generous allowance of space for outdoor activity.

As an alternative to a concentrated block of housing that may create an imbalance to the site, two slim wings of lower density housing, three to four storeys tall are proposed aligning with the symmetry of the revealed Millbank Pavilion and frame a generous 70 x 70m open space. This would have a stepped profile low in the south and higher to the North to allow South facing roof terraces.

This space complements the network of smaller villa garden areas, woodland areas



and grass squares, providing much needed accessible space for urban agriculture either as a community market garden or individual allotments.

**The ‘Community Common’** – with the Balfour Pavilion building demolished and cleared, this area will have an excellent south facing aspect on a level area without significant shading from trees. It is well suited to a number of accessible outdoor activities. Formerly used by the owners of Millbank House (demolished 1920’s) as a productive garden with impressive glass houses evident from old maps.

In this option we envisage a community food growing project and market gardening initiative that would form part of a local circular economy. This could be joined to the Food Hub, Morningside High Street, the adjacent events space for food market and training events, forest schools and nurseries and a venue for events. It could provide healthy fresh food for the care home and local residents along with high value crops and flowers for sale locally. There are precedent studies involving similar enterprises that have provided both community benefits and generated revenue.

Ground source heat energy could be captured from beneath this open area via a linked array of boreholes providing heating for an adjacent building – either for the dwellings themselves and/or for the supported housing in the adapted Millbank Pavilion.

A series of productive polytunnels or glasshouses will allow a greater variety of fruit, vegetables and flowers to be produced, along with generating heat for an air source heat pump. Options exist for closed loop filtration systems involving fish farming in combination with hydroponic systems that could be developed in conjunction with Heriot Watt University. Chilled storage units would also increase the profitability of the market garden.

To help pollinate the plants, an apiary club could be part of the group producing honey and increasing the productivity of the crops. Surrounding this Common would be an orchard of fruit trees and berry bushes diversifying the available food.



The southern boundary can be converted into a semi wetland landscape, by adapting the natural depression on the site and linking to the aim of a site wide water treatment system. This can store rainwater, clean it and cool it before it filters back into the soil. It would also set a precedent for daylighting the existing culverted stream at a later date in zone 5. These urban wetland areas are rare and useful for increasing biodiversity and habitat for amphibians and invertebrates but also provide education opportunities when linked to the forest school. This network of water storage that is being proposed would also act as a pathway for wildlife through the site.

**The housing** – maisonettes and apartments are arranged in two linear wings running north south either side of the 'Common'. Slim in plan, the wings start wider on the ground floor where they are either maisonettes or commercial units, generating income for the community and different profiles of activity during working hours. Apartments occupying upper levels are accessed via common stairs linked to a footpath network either side of the 'Common' rather than directly to roads and pavements. All dwellings are dual east west aspect with plentiful glazing and benefitting from solar gain.

The dwellings create a series of terraces that benefit from the south aspect and creates a sense of sociability where the life of the common extends onto the façade and roof of the building. Each dwelling is defined through terraces or recessed entrances to create a sense of individuality within the collective block. The dwellings are designed to have efficient room layouts with adequate space to suit the Lifetime Homes standards, encouraging a mix of small families and older residents with the flexibility to accommodate different tenure types.

Parking would be limited to surface areas for a small pool of electric vehicles operated by the successful car club already operating in the local area, along with the required disabled parking provision aligned with the number of dwellings. Edinburgh's first car-free housing development was Slateford Green for Canmore in 1999 and an increased demand for housing in relatively central locations such as this, that has no private individual parking designation, is anticipated.

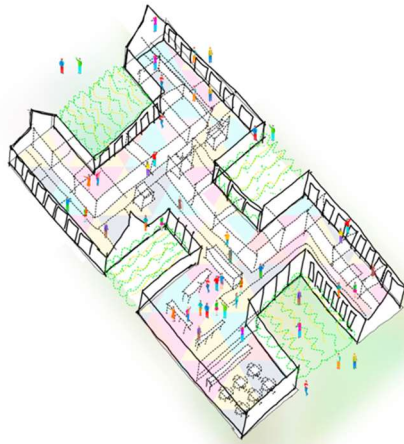
Emergency and service vehicle access – areas of communal bins should have lorry access with space for turning. The local authority has distance limits from lorry pull-in locations to reach bin stores and the Building Regulations determine maximum distances from dwellings to bin stores. A strategy that provides lorry access to either end of both wings of housing should satisfy these requirements. Similar access will be required for fire tender access although this can be mitigated by strategically locating wet or dry risers.

#### 7.3.4. Meanwhile and re-use : Balfour Pavilion

An alternative future to demolition and new-build is re-use. There are increasing numbers of examples of creative adaptation of existing buildings for quite radically different purpose to those that they were originally designed for. It is no longer just

buildings of architectural significance that are retrofitted. This change comes from a developing public awareness of the value of resources, especially the embodied carbon in existing buildings. There is a nascent supply chain of dismantled and re-purposed building materials. Retro-fitted interiors have become an established aesthetic and arguably an expectation for any new space for creative industries.

Relatively recent local examples include Summerhall in Edinburgh's former veterinary school, Codebase in 1960's offices in High Riggs and artists' studios in the former rubber factory at Castlemills, Fountainbridge.



Without access permitted inside the Balfour Pavilion or even internal plans being made available from the NHS or in the council's Plan Store, we can only speculate about the building's likely layout and make some broad suggestions about its re-use, whether meanwhile or long-term.

It is likely to consist mostly of small wards or single bedrooms, evidently built with adjoining bathrooms. Some larger open spaces existing in the south east corner where the café is.

These spaces might only need limited adaptation to form creative studios offering spaces for artists and spaces on affordable a short lease basis.

The success of such a venture would depend on developing a strong identity with the place and building community of like-minded individuals with a lively programme of social and cultural activities.

## 7.4. Transport and access.

Sam Shortt Consulting were engaged to review the high-level access and circulation strategies for development of Zone 2. The full Briefing Note is available in the Appendices to this report.

In summary, it establishes the key transport related planning policies from National to local level, that will determine the eventual transport plan, considers the context of the surrounding streets and networks and the parking provision.

The relatively car-free nature of the site is a key part of its essential character and relates directly to its environmental value. Any future vision should set stringent targets that limit vehicle movements within the site and prevent any displacement of vehicles through neighbouring areas.

A model should be developed where vehicles should never have to cross the centre of the site unless for emergency purposes. The existing roads that cross the centre of the site should be either grubbed up and public realm environmental improvements made, or at least, demoted to single lane, shared surfaces, with pedestrian and cycle priority, and vehicles limited to emergency services vehicles only.

A key issue identified in this statement relates to the standard of the road network within the site and the likely need for its reconstruction, at least wherever there is development.

“The existing Astley Ainslie street network sits within a privately owned site and will have developed over time. It is considered very unlikely that the network has ever been adopted for maintenance purposes by the Council. It is also highly unlikely that the network (road construction, surfacing, drainage and lighting etc.) has ever been constructed to adoptable standards and these features would need to be brought up to an acceptable standard at some cost should it be desirable to have the street network adopted.” In outline proposals for cost estimation in this report, where elements of the road network relating to Zone 2 are used, cost allowance has been made (see Cost Estimation in Appendix)

## 7.5. Park Power – ground source heat energy

Ground beneath public open space is an underutilised resource for providing affordable renewable energy. The relatively extensive network of open spaces within the Astley Ainslie could be a source of renewable ground source heat energy. Key drivers towards wider adoption of a similar approach will be the impact of legislation that bans the use of gas as fuel for heating new homes in 2025. Major incentives in the form of grants or development of carbon offset trading rules will likely motivate change too.

Recent exemplar projects, such as the installation of extensive ground source arrays, heat pumps and river micro hydro generation at Saughton Park, Edinburgh, show how open space can be a key asset in the journey towards zero carbon.

This study took a high level look at how AACT might capitalise on the site as an energy generator. We held discussions with John Maslen (JM) of GreenSpace Scotland – a non profit organisation working with public and voluntary sector clients to develop renewable energy solutions. JM considers the site to be an excellent opportunity to demonstrate park power benefits.

Typical installations consist of:

- Vertical boreholes 100-200m deep laid out on a 10m x 10m grid are most likely to generate the maximum output with highest efficiency. NB these are considered ‘shallow’ vs geothermal which is much deeper.
- Can work round tree roots and under non ‘green’ surfaces.
- ‘Slinky’ or loop GSHP lower cap ex but less efficient and lower output.

- Consider ways to generate electricity for powering pumps – e.g. solar, micro hydro at Saughton.

Discussions continued with engineer representatives from Kensa, a leading UK provider of GSHP equipment who commonly provide high level feasibility studies for speculative landowners. They carried out a desktop study only, reviewing borehole records from the British Geological Survey and made assumptions about the thermal performance of adapted buildings. Reports from Kensa are in the appendices of this report and indicate the approximate heating loads of three key components of the vision and the respective scale of capital expenditure required for each.

Building/sub zone	<b>Millbank Pavilion</b>	<b>Canaan House</b>	<b>Bungalow</b>
New use	Adapted as supported housing	Adapted as Community hub	Food hub
Annual heating load	830,000 kWh	600,000 kWh	143,000 kWh
Total borehole depth	8363m	5714m	1645m
<b>Carbon saving</b>	<b>180,000kg CO2 / yr</b>	<b>157,760kg CO2 / yr</b>	<b>37,550kg CO2 / yr</b>
NOx saving	36500g /yr	26400g/yr	6294g / yr
Gas equivalent running cost	£31,000 / yr	£22,600 / yr	£5460 / yr
Elec for Heat Pump (space heating)	£29300 / yr	£21,800 / yr	£5200 / yr
Capital Total Project	£732,000	£528,200	£192,800

The capital investment is considerable, but it should be borne in mind that presently energy options are limited to gas and electricity, both of which rely on infrastructure that was created through large public investment in previous decades. As carbon reduction targets gear up, alternatives to these established options are likely to be incentivised and localised infrastructure may be subsidised.

The electrical energy required for the heat pumps is also a major consideration. Successful models typically get this energy from renewable sources. At the Saughton Park an additional £700,000 funding was received for the innovative micro hydro scheme in the Water of Leith to reduce the annual electrical consumption of the pumps.

## 8. Cost estimation

Alan Brown, Associate Quantity Surveyor at Thomson Gray Construction Consultants, Edinburgh prepared cost estimation advice.

The following is an extract from the summary page of their more detailed reporting of the overall capital development cost of the entire ambition for Zone 2 as described in the 'Hybrid Approach' (refer to earlier section 7.3.3 of this report for detail).

Its purpose is to inform the financial appraisal and funding viability sections of Report 3. While there is of course some efficiency of scale, it is not anticipated that all elements would be delivered in a single phase. Instead, the table below can be used to give indications of the scale of capital that would be required to develop each element in turn. Allocations of shares of infrastructure costs, such as roads and service connections, have been made against for each element heading.

<b>Summary of Estimate</b>			
<b>Construction Costs</b>	<b>: Astley Ainsley Zone 2</b>	<b>Overall Construction Cost</b>	<b>Cost per m<sup>2</sup></b>
3.1	Housing - Balfour Pavilion Site	<b>£9,797,000</b>	£3,033
3.2	Supported care housing - Millbank Pavilion Site	<b>£4,563,000</b>	£2,563
3.3	Ground Source Heat Pump Installation	<b>£947,000</b>	
3.4	Nursery (Existing Bungalow / Forest School)	<b>£370,000</b>	£2,114
3.5	Canaan House Refurbishment	<b>£1,815,000</b>	£1,729
3.6	Creative Studios / maker space / Canaan Extension	<b>£1,452,000</b>	£2,412
3.7	Market gardening/ greenspace project	<b>£553,000</b>	£1,784
3.8	Urban Food Hub / Cookery School	<b>£800,000</b>	£2,067
3.9	Shared services building and flexible events space	<b>£1,356,000</b>	£2,260
3.10	Communal Distributer Roads and Planted Areas	<b>£1,005,000</b>	
<b>Total Construction Cost</b>		<b>£22,658,000</b>	<b>£2,786</b>
<b>Inflation</b>	: Above costs are current day, ie, 1st Quarter 2021. Inflation is excluded		
<b>GIFA</b>	: Housing - Balfour Pavilion Site	3,320m <sup>2</sup>	
	Supported care housing - Millbank Pavilion Site	1,780m <sup>2</sup>	
	Nursery (Existing Bungalow / Forest School)	175m <sup>2</sup>	
	Canaan House Refurbishment	1,050m <sup>2</sup>	
	Creative Studios / Maker Space / Canaan Extension	602m <sup>2</sup>	
	Market gardening/ greenspace project	310m <sup>2</sup>	
	Urban Food Hub / Cookery School	387m <sup>2</sup>	
	Shared services building and flexible events space	600m <sup>2</sup>	

## 9. Evaluation of approaches

Three distinct approaches for proposals have been explored and explained in Section 7 of this report.

Athena Solutions used the PESTLE methodology for evaluation of these different approaches. PESTLE is a mnemonic which in its expanded form denotes P for Political, E for Economic, S for Social, T for Technological, L for Legal, and E for Environmental. It gives a bird's eye view of the whole environment from many different angles that one wants to check and keep a track of while contemplating a certain plan.

Within the 'Political' heading are the three primary stakeholders; City of Edinburgh Council (CEC), the Scottish Land Fund (SLF) and the present landowners (NHS)

		Housing approach		Open space approach		Hybrid approach	
		For	Against	For	Against	For	Against
Political	CEC	If social: helps deliver CEC's social housing target  If private: helps deliver CEC's housing needs targets	Reduced green space, sets precedence for the rest of site	Helps deliver SG Zero Carbon goal  Assist CEC with plans for Park Power in Edinburgh  Access to active travel goals, sustainable community goals  Low capital input for large social benefits to wider CEC, and NHS goals reduced burden. increase in water storage reduced flooding economic benefit downstream	Lack of housing misses target for future provision.  Required natural capital accounting and health impact assessment to quantify return on investment	Place guide aligned, CEC policy Provides both residential units and a new community model, whilst providing programmed green space much needed highlighted in open space strategy 2021. Sets an example for future development on the site and in the city with energy efficient housing, energy generating green space, Figurehead project for COP26 and Cop15.	Under provision of housing in terms of density relative to aims of city.
	SLF	If social: SLF – active development with defined outcomes and KPIs	If private: will not be acceptable to SLF – issue may be avoided by separate funding streams	Low carbon future – community activation around sustainability	Difficult to manage into the future, hard to quantify the benefits as a successful intervention until 10-25yr	Provides activation through a blended provision, larger numbers of stakeholders and actors involved leads to great resilience against reliance on one stakeholder or individual company for success.	Only takes on part of the site, extension to wider site management and setting up of rights of way, water management necessary to determine future of whole site
	NHS	NHS – sets precedence for development shows value of site	If done badly (too dense, base construction) sets up negative site character lower value	People not patient view, politically showing investing in communities to reduce burden on NHS	Hard to quantify – without natural capital assessment, and health impact assessment to prove political benefits.	Provides template and supports for future living standards set out in NHS guidelines on healthy places.	Sets up precedence for low density housing which might appear as less valuable to the commercial sale of site based on the number of units it can support. Reduced profit from the sale.
Economic		If social: Funding – s75 contributions from private developers  Housing Infrastructure Fund available to RSLs  Well-trodden path for funding and returns <b>If private:</b> Can generate significant rental income and profits OR Can generate capital receipts and profits	Will restrict s75 contributions to other community infrastructure  Limited to £84k per home and requires planning permission  Will require social loans to complete financing package – minimal financial returns  Likely to require partnership to enable access to significant funding – reducing returns	Power source will attract impact investors including SNIB funding  Creates the possibility for community-owned energy through e.g. Coop (similar to community hydro)  May help enable financial viability of other community aspirations on Zone 2 (but need to determine financial viability)	Need further information on: Power generated Costs of infrastructure Local power demand Cost savings CO2 savings  To determine financial returns and viability	Higher diversity of income streams with greater emphasis on community rather leads to stronger financial resilience over multiple years, ideal for a phased development of multiple sites. Strong brand and identity is easier to sell and attract a hybrid of funding partners including ESG and low carbon investment. SLF will maybe more supportive with of multistrand vision with strong identity based on community intervention, food culture and low carbon technology.	Difficult to balance books based on bricks and mortar capital investments as large expense with social and ecosystem benefits require detailed analysis and quantifying before returns on investment can be seen. These returns incrementally grow over time but timescales may not suit funding streams. Embryonic financial market for ESG funding in this type of project.

		Housing approach		Open space approach		Hybrid approach	
		For	Against	For	Against	For	Against
<b>Social</b>		<p>Social housing seen as public good</p> <p>Creates mixed-income communities providing social benefits to all</p> <p>Provides opportunity to create alternative designs for city-centre housing</p>	<p>Unclear that this meets community aspirations for the site</p>	<p>Enables management of site for community – access and benefits.</p> <p>Creates opportunity for active social uses of re-greened space in line with community aspirations, CEC and NHS</p> <p>Training in green economy – power generation, and horticulture and arboriculture</p> <p>Meets stated community aspirations for site</p>	<p>Needs sustained management over 10 -25yr period to show returns on investment.</p>	<p>Combined strategy strengths each strand through synergies. Biodiversity and habitat creation is an opportunity for social interaction, health and well-being and education tool. Sheltered housing, linked to a care home embedded in the community that is focused on horticulture and the production of food has proven benefits in helping with dementia and reducing stress, and provided healthy food, when linked to the forest school the benefits are increased through intergenerational awareness and learning.</p>	<p>Requires strong leaders and constant management to be successful, Conflicting interests of different groups can lead to unsuccessful management through time.</p>
<b>Technological</b>		<p>Within current technologies</p>	<p>None</p>	<p>Retaining as “open space” has no technological issues</p> <p>Use for ground energy is a known solution, if site-specific</p>	<p>Concerns whether ground-source heating will be a mainstream choice of power in the future, impacting both potential viability of a Scheme and the long-term technical sustainability</p>	<p>None-sufficient ground area on the site to provide energy source to existing buildings and to new housing</p>	<p>Creating additional housing to be powered by Ground Source energy increases the risks set out for this energy source</p>
<b>Legal</b>		<p>Housing (social or private) likely to be undertaken with housing partner to minimise risks – again, a well-trodden path for community-led housing</p>	<p>AACT will need to enter into partnership agreements to ensure some effect of community control on further developments, tenure allocations etc; this may require the equivalent of a Rural Burden or shared ownership if homes are privately owned; can be complex and difficult to enforce</p>	<p>Use of existing legal mechanisms for governance – as for other community energy projects; further enhanced by use of ESCo mechanisms</p> <p>May be able to form an ESCo for the wider site, to provide energy to future housing developments and help generate funds for sustainability</p>	<p>Need to ensure that AACT is insulated from any ESCo to mitigate risks</p>	<p>As with housing and open space, there are known exemplars and models for legal structures</p>	<p>Will require both the legal solutions for housing partnerships and ownerships, and the legal arrangements for ESCo. Thus, increasing complexity to AACT.</p>
<b>Environmental</b>		<p>Low-carbon homes, with high insulation levels provides an exemplar for the type of housing that may become commonplace after 2025</p>	<p>Housing restricts the ability of the site to deliver green carbon benefits</p>	<p>Social and natural capital benefits of open greenspace; form green urban corridors in the wider landscape; contribute to urban cooling; provide a green energy “battery source” for neighbouring communities</p>	<p>None</p>	<p>Enables hybrid of both more environmentally sustainable housing and green source energy with a more sustainable living and travel approach</p>	