



## Bishop Auckland Bus Station and Car Park

### SUSTAINABILITY ASSESSMENT

BL000034-JAC-XX-XX-AS-EN-00002 | P01

12/01/23



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### Document history and status

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## Executive Summary

This sustainability statement sets out our approach to achieving the stated aims of the project and its sustainability targets. It covers a broad range of considerations, such as construction methods, material selections, building fabric, and building performance. The design team have worked closely with the Bishop Auckland project team and followed local planning requirements to develop sustainably robust design solutions. We have reviewed options for technologies and challenged the brief to find practical approaches for alignment with compliance and in pursuit of optimal practical solutions. The key sustainability components that are considered include an energy strategy, renewable energy targets, CO2 emissions, natural daylighting and services. These factors have informed the design solutions regarding material selection, the building fabric, ventilation strategy, lighting etc. Local environmental factors are also considered such as ecology, local transport, with acoustic performance / noise considerations.

The proposals set out in this document adopt a positive and holistic approach to sustainable design. A range of strategies have been considered and progressed to minimise the environmental impact of the project.

At RIBA Stage 3, a BREEAM assessment was carried out for the scheme and will be targeting a 'Very Good' rating for the bus station building as a minimum.

Other than functional requirements, sustainability has been a key design driver behind the development of the bus station design solution. This has ranged from the form of the building, massing, profile, through to the choice of architectural finishes. In addition to creating a sustainable building, these elements also become a key part of the architectural identity of the building. The proposed bus station incorporates a number of sustainable strategies including:

- High performance construction materials to reduce energy loss.
- Sustainable & low carbon or recyclable construction materials (e.g., Glulam).
- Green roof to provide biodiversity.
- Natural ventilation strategy to reduce energy consumption.

The building services design of this facility will also include a number of sustainable solutions, this is in line with current industry best practice and Durham County Council's announcement of a climate emergency. The following sustainable technologies have been considered in this design:

- High efficiency LED luminaires for all public and non-public areas (internal and external).
- Rooftop Photovoltaic arrays.
- Naturally ventilated passenger waiting hall.
- Energy efficient Heating Ventilation & Air Conditioning (HVAC) system to back of house rooms.
- Air Source Heat Pumps included within the design.
- Water efficient sanitary fittings are planned along with on-site rainwater harvesting.
- Water leak detection solutions

## 1. Introduction

This sustainability statement supports the multi-disciplinary design work undertaken by Jacobs for a new bus station and car park in the town centre of Bishop Auckland. This document is based upon the designs developed by Jacobs within the Concept Design Study and the RIBA Stage 3 developed design completed in December 2022.

This project forms part of the wider regeneration of Bishop Auckland town centre. The proposed bus station and surface car park will be constructed in the location of an existing bus station site, near to the historical town centre and market square. The bus station will provide improved facilities for tourists and locals alike. The new car park will provide additional parking provision for an anticipated increase in tourists visiting the town centre.

The design brief client requirements for the project include:

- A new bus station to accommodate 8 DIRO bus bays and 2 layover bays. Design of bus station should target a Carbon Neutral design and aim to achieve a minimum BREAAAM Very good rating.
- An at grade surface car park that provides approx. 125 no. car parking spaces, including an allowance for electric vehicle charging.

In addition to fulfilling the functional project requirements, the proposals documented within this report also aim to make a wider positive contribution to the town by enhancing the quality of the local environment to the site, reducing traffic movement, and establishing a stronger connection between the project site and the town centre.

The RIBA Stage 3 design phase started with a design validation process of the previous design completed at RIBA Stage 2 Concept, including a range of optioneering studies and investigations. These were based on the recommended next steps from the Concept Design and ongoing Stakeholder feedback received. The design process has involved a multi-disciplinary design approach to drive the maximum value from the proposals, with each discipline providing specialist input, which has in turn helped shape the design proposals ready for a planning application submission.

The proposed site layout is arranged with the car park located to the west and the bus station on the east. A widened public realm area is formed in the north-east corner of the site, providing safe routes for the car park and bus users into the wider town. The proposed site layout seeks to minimise opportunities for spaces that encourage anti-social behaviour with natural surveillance from the buildings.

The movement of vehicles and pedestrians played a central role in the development of the proposed site layout. At Concept Design it was proposed to part-pedestrianise Clayton Street. Through a review of the proposals, including access to properties, refuse vehicles, delivery vehicles, emergency services, this road is proposed to remain accessible to vehicles. In order to give increased priority to pedestrians, the road is narrowed to its minimum, widening the public realm space in front of the bus station. This area of improved public realm provides a visually clear and safe route for movement from both the car park and bus station towards the town centre.

The proposed bus station building includes a waiting hall which provides a welcoming gateway to the town centre for passengers arriving to Bishop Auckland. This 'transparent' double height waiting hall, creates a sense of activity and openness, providing natural surveillance to the area outside. The building also takes a holistic approach to sustainable design, with each step of the design process having been carefully considered to ensure that the carbon footprint of the building is kept to a minimum. The bus station design incorporates sustainability design principles in the form of encouraging biodiversity on site, renewable technologies, maximising daylighting with natural ventilation in the main waiting hall area.

The proposed surface car park is set away from adjacent residential properties and distanced from the conservation area to the north of the site. Within the car park landscaped features soften the visual impact on its immediate urban context.

This Sustainability Statement supports Durham County Council's planning application. The bus station design will be taken forward to Detailed Design by the current design team and follow a traditional procurement route.

The design has developed in association with stakeholders and consultees at Durham County Council.

Planning policy, investment, and guidance documents have been referenced in the advancement of the design which includes

- The Approved Documents (The Building Regulations) – As amended for section Part L (2020-2021)
- Future High Streets Fund
- National planning policy framework 2021
- Local codes and guidance

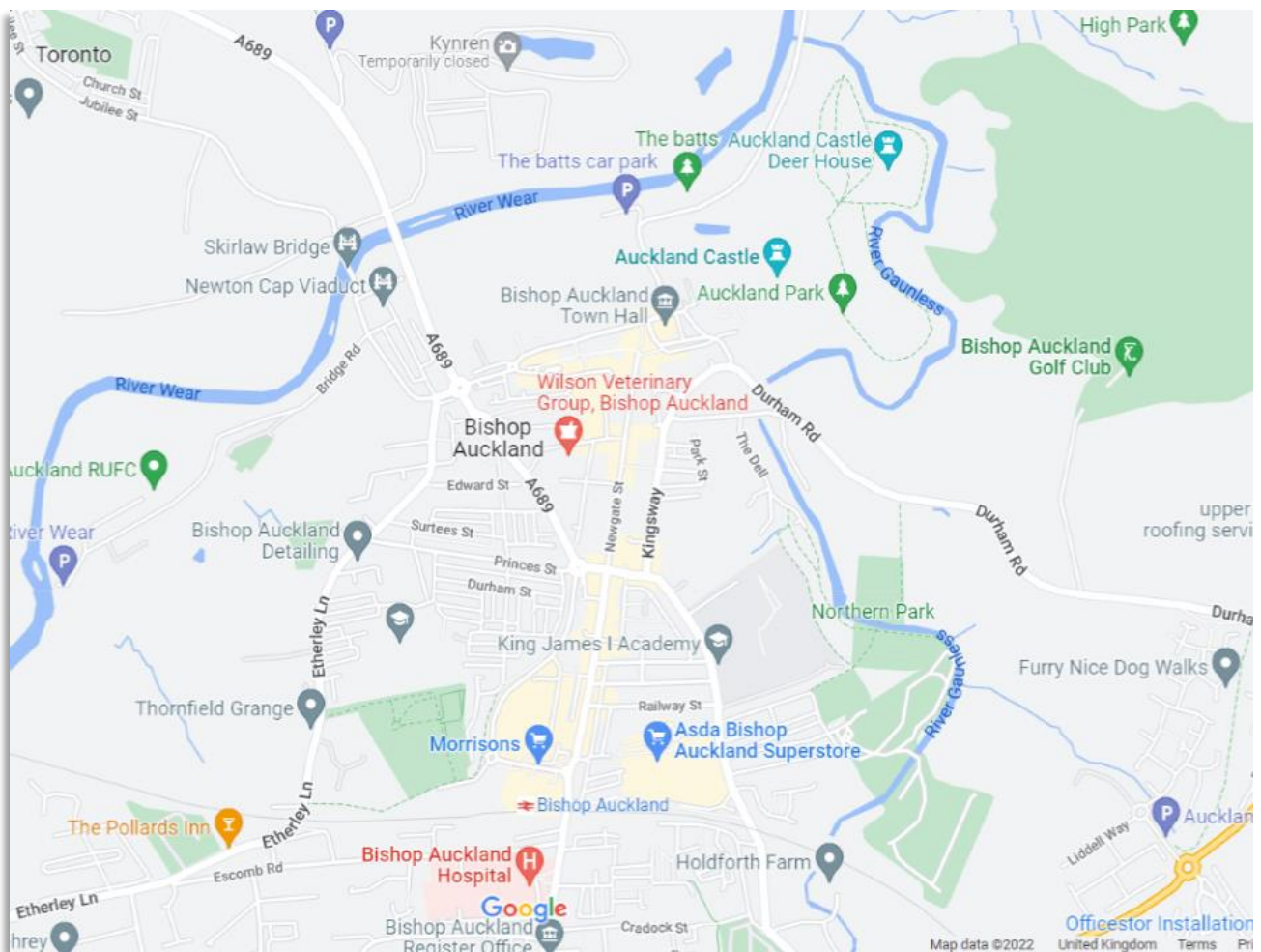


Figure 1 Bishop Auckland is located between the River Wear and River Gaunless. It is an ancient town with significant cultural heritage.

## 1.1 Project Background

Bishop Auckland is the beneficiary of ongoing public and private sector investment into a range of regeneration projects. This includes *The Auckland Project* which invests in the growth of the town centre, focussing on historical attractions to improve the local economy and draw tourists to the town. The number of visitors to the town is predicted to grow rapidly to an estimated 750,000 visitors per year by 2028. To support the increase in visitor numbers, Durham County Council (DCC) is seeking to redevelop the existing town centre bus station site, to provide a new bus station facility and surface car park. The proposed bus station facility will provide an indoor waiting area with public and staff facilities. This will offer a significant improvement to the existing external bus waiting shelters, by improving passenger comfort and the holistic visitor experience when arriving in Bishop Auckland. The new car park will support the growing tourism demand by providing additional car parking capacity near the town centre with wheelchair accessible bays and electric vehicle charging infrastructure.

## 1.2 The Proposed Development

The project site is located within close proximity to the high street, market square and other local amenities and nearby tourist attractions. The site is currently used for bus stands with some parking. The site includes service-yard / support environment with predominately hardscaped surfaces. The site is framed within the A689, Newgate Shopping Centre, Clayton Street, Grainger Street and Saddler Street. There is a combination of commercial units that back onto and face the site, coupled with a small component of residential properties and offices beyond the site boundary. The site is broadly sparse with a small number of trees, seating benches, and a number of tall lighting masts to facilitate the current bus and parking arrangements. Good access is afforded to the site so large vehicles can access the site with ease.

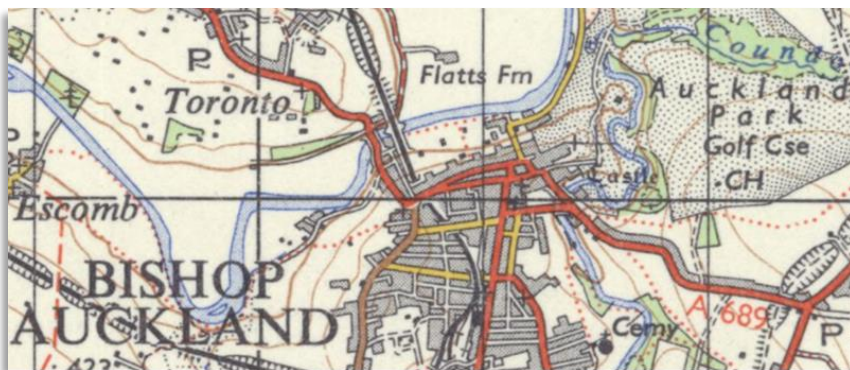


Figure 2 Historic Map – 1968 Shows the bus station / car park location is within an established developed urban zone.

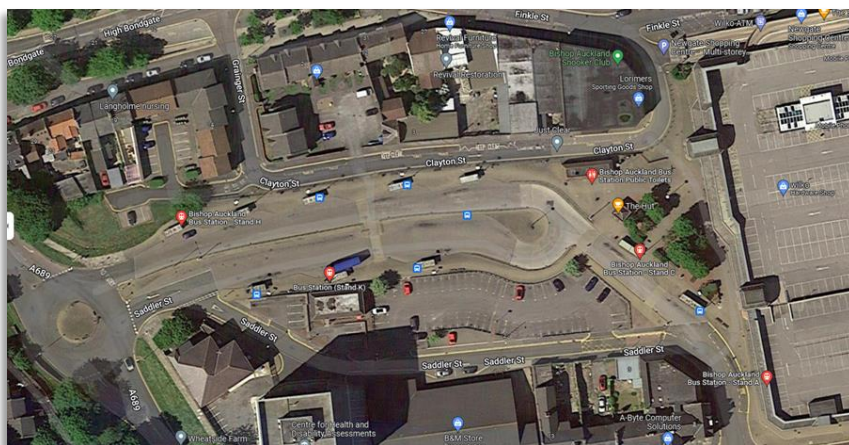


Figure 3 Existing site arrangement which shows proximity to nearby buildings and amenities.

## 2. Policy Context

### 2.1 National Planning Policy – Framework (NPPF)

Coupled with the statutory planning and building standards that are applied to new developments in the UK, there are several government strategies and initiatives that seek for sustainable developments to be implemented. The NPPF focuses on sustainable development with three primary objectives: economic, environmental, and social.

The relevant documents and planning policies aligned to the project include:

- National Planning Policy Framework (July 2020)
- Act of Parliament – Climate Change and Sustainable Energy Act (2006)
- Act of Parliament – Sustainable and Secure Buildings Act (2004)
- Act of Parliament – The Climate Change Act (2008)
- Act of Parliament – The Planning and Energy Act (2008)
- Act of Parliament – The Energy Act (2013)
- Act of Parliament – The Deregulation Act (2015)
- The Paris Agreement (2015)
- The Building Research Establishment (BRE) – BREEAM Assessment
- The Carbon Plan (2011)
- The Department for Transport Road to Zero (2018)
- The Department for Communities and Local Government (CLG) – Towards Zero Carbon Development (2006)
- The Department for Transport – Meeting the Energy Challenge (2007)
- Fixing the Foundations – The Productivity Plan – Creating a more Prosperous Nation (July 2015)
- Our Energy Future (DTi – 2003)



## 2.2 Regional Planning Policy

Bishop Auckland Town Council Policies are aligned with the County Durham Regional Planning Policy.

Relevant policy documents followed for this project include:

- Air Quality, Light and Noise Pollution
- Biodiversity and Geodiversity
- Contaminated and Unstable Land
- Delivering Sustainable Travel
- Green Infrastructure
- Protected Species
- Renewable & Low Carbon Energy
- Sustainable Design in the Built Environment
- Sustainable Development
- Sustainable Minerals and Waste Resource management

## 2.3 Local Planning Policy

Bishop Auckland Town Council Policies are broadly aligned with the County Durham Local Plan.

Regeneration initiatives are currently being considered for Bishop Auckland. This project will contribute to the broader regeneration ambitions for the town and community.

## 2.4 Durham County Council Climate Emergency

Durham County Council declared a climate emergency in February 2019 and set the targets as listed below:

- 1) Reduce the councils carbon emissions by 60% by 2030
- 2) Investigate further actions County Durham could pledge to become carbon neutral by 2050

## 2.5 Location & Policies

### Regional Policies

Durham County Council / Bishop Auckland policies which are applicable (County Durham Plan 2020) include:

- Policy 21. Delivering Sustainable Transport
- Policy 24. Provision of Transport Infrastructure
- Policy 26. Green Infrastructure
- Policy 29. Sustainable Design

- Policy 32. Contaminated and Unstable Land
- Policy 33. Renewable and Low Carbon
- Policies 35 and 36. Water Management and Water Infrastructure
- Policy 41. Biodiversity & Geodiversity
- Policy 43. Protected Species and Nationally and Locally Protected Sites
- Policy 47. Sustainable Minerals and Waster Resource Management

### **Local Policies**

Durham County Council / Bishop Auckland policies which are applicable include:

- Watercourses
- New Trees and Hedgerows
- Public Transport
- Parking
- Cyclist Facilities

## **2.6 Travel**

Local travel is supported by a good network of buses and provisions to change from one mode of transport to another. Bishop Auckland is a town focused on pedestrian needs. The town offers a range of popular attractions, coupled with coffee shops, retail offers, offices, and good transport links from buses, road, and rail.

The new bus station project seeks to build on social connectivity in the community and promotes public transport with buses. Electric Vehicle (EV) car usage will increase in the years ahead. The car park with proposed EV charging facilities will support the increase of EV cars in preference to petrol or diesel cars.

This project is designed to deliver on sustainable transport. In time, the local buses and coaches will progressively phase out the use of fossil fuels, the combination of access to sustainable travel, coupled with an efficient transport hub follow planning criteria.

The proposed site is travel accessible, being near major roads, the rail network, and within close proximity to a range of transport options.

## **2.7 Biodiversity**

The site in its current form has surface treatments of predominantly concrete, hardstanding, asphalt, and roadway access contained within a built-up environment. There is very little in terms of landscaped features in and around the site area. Around 19 trees are located with seating to the east of the site (West) of the shopping centre.

The proposed development will play a role in enhancing biodiversity. It is proposed to introduce trees and appropriate planting to the car park in regular patterns and to the edges of the bus station to visually enhance the area. In time as these trees establish, they will offer local ecology more access to engage with the space. The

bus station site is within access to green space and the local rivers and once the trees are established more biodiversity will become more evident on this site.

The addition of trees and their positioning within the site also adds value to the local community in the adjoining streets. The proposed sitewide landscaping strategy will soften the urban general appearance of the area.

The green roof to the bus station will attract and support biodiversity within its immediate microclimate.

Proposed Sustainable Urban Drainage (SuDs) areas will comprise of a simplistic, low maintenance palette of grasses that are tolerant of both drier and wetter conditions throughout the year. Tree planting in these areas will also be simplistic in form and character and will be supplied as clear stem, heavy standard trees to visually enhance the bus station northern facade.

Nine existing trees will be impacted by the proposed works and require removal. There are 34 new tree species proposed which means there will be a net increase of 15 trees on the site as a result of the project.



Fig. 33 Landscape planting strategy

**Key:**

- Individual tree (Betula pedula)
- Individual tree (Pyrus Chanticleer)
- Individual tree (Prunus padus)
- Individual tree (Prunus serrula)

**Low level shrub planting:**

- Ruscus aculeatus
- Vinca minor f. Alba
- Thymus pulegioides 'Foxley'
- Salix reticulata
- Achilleas
- Betonica officinalis
- Calamintha, Dianthus
- Sarcococca hookeriana

**SuDs feature - low level planting:**

- Eulalia 'Gnome', Miscanthus sinensis
- Juncus spp.
- Carex pendula
- Iris pseudacorus

**Seeding (flowering lawn mix)**

%	Latin Name	Common Name
<b>Wildflowers:</b>		
4	Galium verum	Lady's Bedstraw
0.5	Leontodon hispidus	Rough Hawkbit
1	Leucanthemum vulgare	Oxeye Daisy - (Moon Daisy)
3.7	Lotus corniculatus	Birdsfoot Trefoil
3	Primula veris	Cowslip
4	Prunella vulgaris	Selfheal
3.5	Ranunculus acris	Meadow Buttercup
0.3	Trifolium pratense	Wild Red Clover
<b>Grasses:</b>		
8	Agrostis capillaris	Common Bent
40	Cynosurus cristatus	Crested Dogstail
28	Festuca rubra	Red Fescue
4	Phleum bertolonii	Smaller Cat's-tail

Figure 4 Proposed Landscape Architecture planting strategy

## 2.8 Landscape and Heritage Context

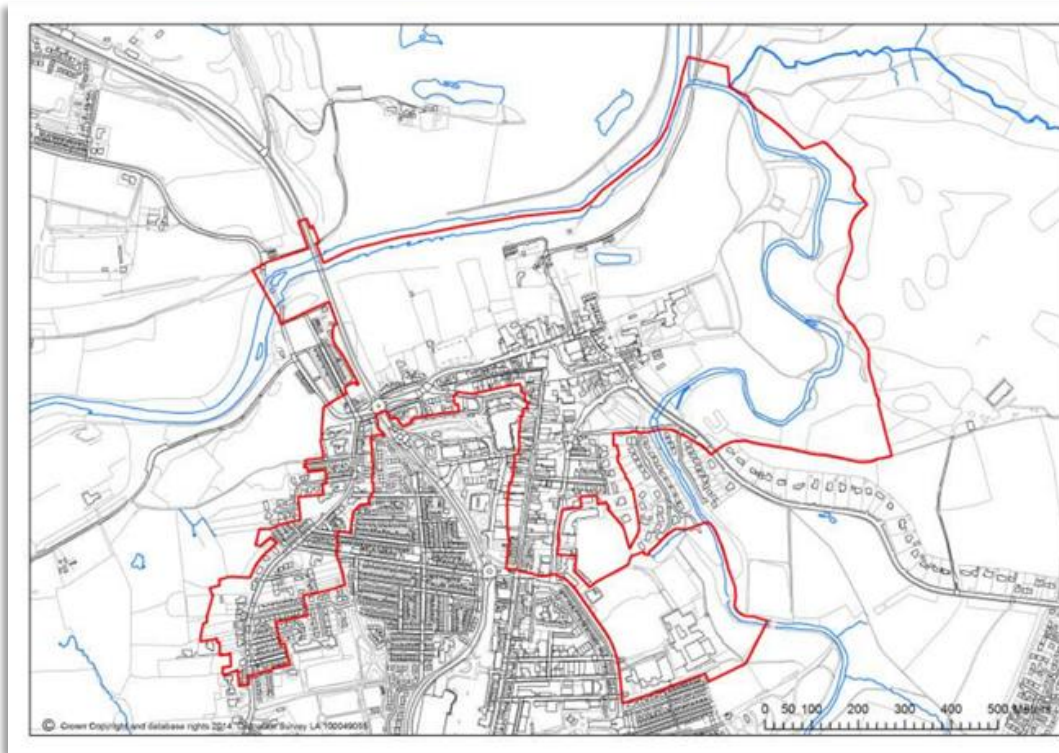


Figure 5 Designated area of Conservation interest (indicated in Red) – Ref- Bishop Auckland Town Council (2014)

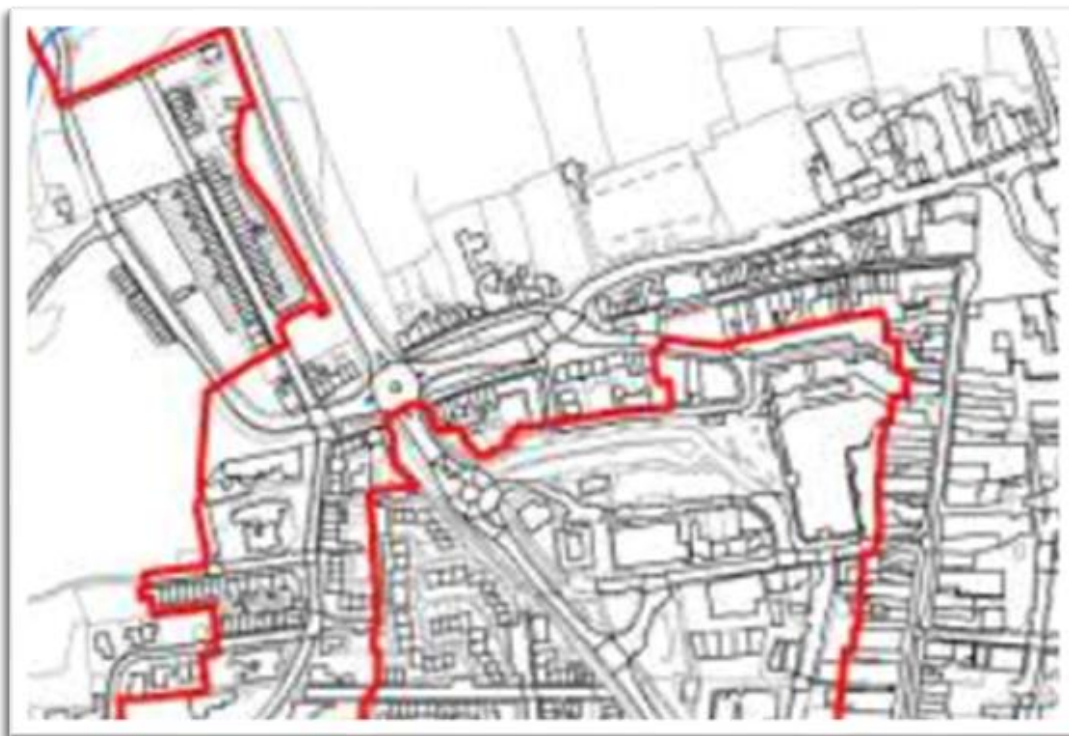


Figure 6 The proposed bus station and car park are outside of the conservation area.

The development site is outside of the core area identified in Bishop Auckland as being of particular interest for conservation.

All most all of the buildings in near proximity to the development site are contemporary and not known to feature heritage fabric.

The development site is mostly void of buildings, there are only small structures, lighting columns and signage with supporting services within the space.

Close to the site, there are buildings identified within a local conservation zone. The design for the bus station and car park have developed into an inviting, functional and community styled building which presents as a public space and transport node. The style and form of the building it pleasing to the eye, it is fitting within the near and wider context and uses architectural qualities to respond to the function and location. The material selection is practical and of quality components which are aligned with the site and the project brief.

The Bus station and car park are not within direct vision of the heritage elements within the community and are not on a sightline with the palace / castle.

## **2.9 Flood Risk / Water Management**

In accordance with the Environment Agency's indicative flood map the Site is located within a Flood Zone 1 area, which is classed as having less than 1 in 1000 (<0.1%) chance of river flooding in any one year.

It is proposed to maintain similar flow paths in line with the existing site. Surface water flows will be conveyed west to east via a below ground gravity piped network and discharge to the existing surface water lateral that serves the existing site.

In accordance with requirements of Durham County Councils Surface Water Management Plan (SWMP), it is proposed to restrict peak flows from the new development to equivalent greenfield runoff rates.

The surface water system to serve the proposed development will follow best practice using sustainable drainage systems (SUDS) to both intercept storm water at source and treat the runoff from roofs, hardstanding's and other impermeable areas.

Due to the large level difference across the site, it is proposed to cascade the network with several flow controls and associated below ground attenuation at both the higher parking area to the west and at the bus station turning area to the east.

Total Peak flows from the proposed development will be restricted to greenfield runoff rates for the respective 1in1yr, 1in30yr and 100yr return periods events using a complex control chamber.

Attenuation will be provided to accommodate all storms up to and including the 100yr RP event with an additional 45% allowance for climate change.

By incorporating the above measures, the Proposed Development complies with the requirements of the National Planning Policy Framework by protecting the users of the development and reducing the flood risk to third parties beyond the Site. Appropriate levels of treatment will be provided within the combination of proposed SUDS measures to minimise the risk of contamination to the receiving watercourse.

## 2.10 Socio-Economic Considerations

This project evolved based on regeneration for the community and the need to respond to anticipated population growth. This project is important on a number of levels as it will become the primary public transport hub for the local community. The bus station is where for many their first impressions of the town are made. Visitors who arrive in the town by bus will be influenced by their personal experience and the way finding journey as they spend time in the town. A functional and attractive building as a hub and landmark point of reference will add value to the locality.

Good bus connections and improved supporting facilities will be more rewarding for visitors. These proposed improvements will have an immediate impact on the quality of arrival experience. The new car park with strategic landscaping will complement the bus station and will provide a refreshed appearance which in turn will transform the value and function of the wider area.

It is possible that in the future, the car park space could be used to support local events or pop-up initiatives. The spatial arrangement has scope to enable future initiatives to play a role in the local economy.

The project will provide new local employment opportunities both during the development process and once in operation. This project is anticipated to be a catalyst in the broader projects and vision the local community are seeking.

### 3. Design, Construction & Management

The key regional and local policies which are considered within the design include:

- Sustainable Development
- Sustainable Design in the Environment
- Air Quality, Light and Noise Pollution
- Biodiversity and Geodiversity
- Protected Species
- Water Management
- Sustainable materials and Waste Resource Management
- Parking
- Cyclists Facilities
- Pollution Prevention – General
- Pollution Prevention - Anti Pollution Development
- Recycling

#### 3.1 Design

##### 3.1.1 Materials & Sustainability

###### Glazing – Bus Station

A band of glazing runs along the full length of the waiting hall. The eastern wall is glazed in addition to provide increased natural surveillance and views into the bus station from the eastern approach adjacent to the Newgate Shopping Centre.

Windows are also introduced to the two office spaces, for natural light, views out, and increased natural surveillance of the southern pedestrian approach to the bus station waiting hall.

Vandalism is a concern for the bus station, with a high specification required to reduce the likelihood of people smashing the glazed panels. The specification of the glazing will be reviewed further at detail design.

###### Stone Cladding

The accommodation block is a largely solid object adjacent to the transparent waiting hall, with large amounts of privacy required for the plant and WC spaces. To relate to the history and character of the town, a buff stone cladding is proposed. Introduction of a slightly textured finish should be considered at detailed design as it will deter graffiti.

This stone cladding is continued as a plinth underneath the glazing to the waiting hall. By raising the glazing up, the lower panels are not easily kicked by vandals.

###### Timber Cladding

The solid areas of the façade are softened with a vertical timber fin cladding, wrapping around the accommodation block. This timber cladding is kept at a higher level to minimise the opportunities for vandalism.

Around the top of the building, the cladding extends. The use of timber externally relates to the internal timber structure proposed in the waiting hall, while visually showing this as a new and sustainable building for the town.

### **Waiting Hall Roof**

The proposed roof covering is an extensive sedum green roofing system. This creates a soft and natural approach to the building as well as expressing its environmental credentials.

Extensive green roofs are low maintenance, compared to meadow/grass types. This type of green roof has a range of benefits, including providing a rainwater buffer, increasing biodiversity, extending the life span of the roof and requiring minimal maintenance. Green roofs are also aesthetically pleasing and can increase feeling of well-being.

Internally, the material palette is intentionally limited, in order to create a clean and calm aesthetic. The primary structure of the building which is formed from a glulam timber frame system, is expressed which provides a warmth and natural quality and establishes a structural rhythm which reinforces the spacing of the bus bays. Cross laminated timber boards (CLT) form the roof deck over the glulam structure, are a sustainable and low embodied carbon alternative to a steel or concrete deck.

Steel cruciform columns are proposed to support the timber roof, this enables timber inserts to be used, giving the appearance of timber but with the robustness that they are only aesthetic and if vandalised can be replaced.

A slatted timber acoustic ceiling is proposed internally between the glulam beams to conceal the services and integrate the light fittings.

### **Accommodation Block Roof**

This is proposed as a flat roof with 1:40 falls created in tapered insulation above a concrete roof slab. This will enable photovoltaic panels to be located here, with an access hatch up from the staircase below.

### **Flooring**

The flooring strategy will be developed further at detailed design. Ceramic tiles are proposed for the main waiting hall area, allowing colour/tone to differentiate different waiting areas. Entrance matting is provided at all public entrances.

#### **3.1.2 Occupant Controls**

Lighting and building services are to be provided with local controls. This aligns with BREEAM requirements and enable the operators to control the internal environment. The lighting controls include PIRs for efficiency and these will also act as absence detection to extinguish the lighting at times when areas are vacated.

#### **3.1.3 Water Usage**

##### **Water efficiency**

The specification of the sanitaryware will be developed at detailed design stage including consideration of water saving toilets or air flush toilets. The flat roof over the accommodation block will also be used to collect rainwater. A rainwater storage tank is provided at first floor level which will be used to assist the flushing of the public male and female toilets, greatly reducing the water consumption of the building.

#### **3.1.4 Rainwater Harvesting**

Rainwater harvesting is proposed to be located at first floor level in the Bus Station to provide a non-potable cold water supply to serve all WC cisterns in the Bus Station toilet areas. In addition, two bib taps will be provided



for the washing down of bin stores and irrigation of the green roof above the bus station waiting hall. Water for the rainwater harvesting system will be collected from the bus station roof area over the offices & welfare facilities. The rainwater harvesting system will be provided with bacterial control treatment in the form of a UV filter directly after the outlet of the duplex booster pumps. Initial calculations have indicated that a water saving efficiency of approximately 50% can be achieved with the rainwater harvesting system which should result in substantial consumption reduction. The rainwater harvesting system has been allocated to achieve the necessary BREEAM requirement.

### **3.1.5 Sunken Rain Gardens**

Rain gardens are proposed around bus station building. Flows from the green roof, overflow from the rainwater harvesting system, and localised hard-standing areas in the immediate vicinity north of the bus station building will convey into the rain garden. Subject to the detailed design, the rain gardens will be tanked with an impermeable liner due to the anticipated poor infiltration rates of the underlying strata.

### **3.1.6 Hot and Cold Water**

For the retail unit a separate mains cold water supply will be taken from the utility mains. This will run below ground and enter the plant room lobby where it will be sub-metered and provided with leak detection. This will be capped off at low level and a dry pipe will run to the retail with both ends being capped and a spool piece being provided for future chlorination / connection being required by a future retail tenant.

### **3.1.7 Natural Light**

The project site has good access to natural light throughout the year, given the relatively low height of surrounding buildings. The main exception to this being Vinovium House which is in the southwest corner of the site. This building is 10 storeys tall and will cause some shading, most during the winter when the sun is lower. The neighbouring Newgate Centre has some impact on sun light in the mornings, and there are no buildings near the west of the site. Most of the site is hardscaped with a mixture of block paving and asphalt. Other than the nineteen existing trees that are located throughout the site, it is generally quite an urban environment with few natural aspects. The interior spaces within the building will benefit from good natural illumination which helps to save energy when coupled with daylight sensors.

### **3.1.8 Internal & External Lighting**

Internal and external lighting is described in more detail within lighting statement supporting the planning application. All proposed lighting is LED based which offers the highest efficiency. All light sources will be controlled to allow dimming (power load trimming to be applied) and coupled with occupancy and daylight sensors. Lighting is designed to have a long service life and is to be specified so that integral lighting LED modules can be replaced to reduce disposal and/or recycling costs when maintenance works are required. All lighting will be linked to a photocell and time clock (with DALI-2) dimming. This enables the lighting to be programmed and set to reduce energy use.

### **3.1.9 Photovoltaics (PV)**

The proposed photovoltaic cell layout, accounts for the mechanical services equipment and angled line of cladding. The layout is shown in Figure 7. It employs thirty panels arranged in rows to fit around the required mechanical equipment and updated hatch location. With this PV panel arrangement, the Part L compliance assessment carried out shows that the building could continue to meet the net-zero requirements set out.

The passenger's waiting area has been excluded from this compliance assessment for the following reasons:

- The wall separating the office block from the passenger waiting area is designed as an external wall with minimum U-value of 0.26 W/ (m<sup>2</sup> ·K).
- This area is naturally ventilated.
- No heating or cooling system is proposed for this area.

This approach needs to be agreed with DCC's Building Control department.

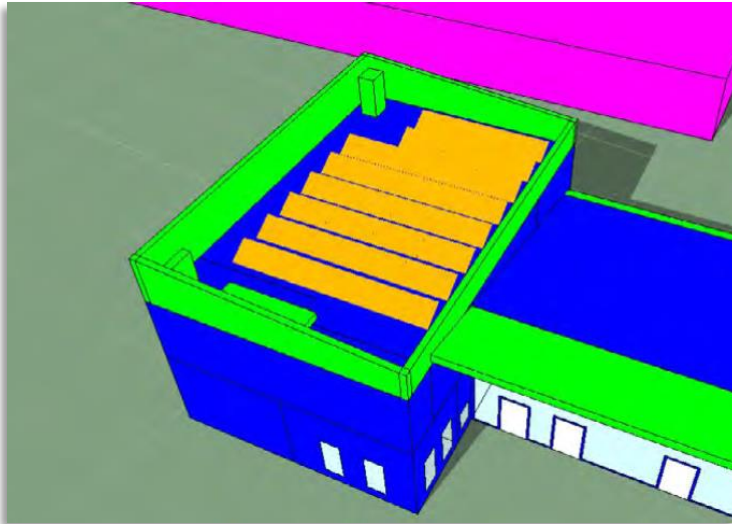


Figure 7 PV Layout as applied to the accommodation building

### 3.1.10 Noise Pollution

Noise and vibration arise from various activities associated with demolition and construction sites. It is not possible to prevent noise arising, however measures can be implemented to ensure it does not exceed acceptable threshold levels. Best Practicable Means (BPM) should be implemented to ensure that noise and vibration arising from the site is compliant with the thresholds stated within British Standard BS5228: 2009 'Noise and Vibration Control on Construction and Open Sites. Threshold Values Noise levels arising from the construction site, between 07.30- and 18.00-hours Monday –Friday and between 8.00 and 13.00 Saturdays, outside the nearest window of the occupied room closest to the site boundary should not exceed the following:

#### Monday –Friday 07.30 - 18.00

- 70 dB (LAeq 10hrs) in rural, suburban, and urban areas away from main road traffic and industrial noise.
- Road traffic and industrial noise.
- 75 dB (LAeq 10hrs) in urban areas near main roads in heavy industrial areas.

#### Saturdays 8:00 and 13:00

- 70 dB (LAeq 5hrs) in rural, suburban, and urban areas away from main road traffic and industrial noise.
- 75 dB (LAeq 5hrs) in urban areas near main roads in heavy industrial areas.

Note: When sites are near especially sensitive receptors such as schools and hospitals or where the existing ambient noise level is low, then other criteria should be considered and discussed with the LA environmental

health department. Monitoring to ensure noise arising from a construction site is within the threshold levels stated above should be undertaken. The scheme should be tailored dependant on the risks posed by both the location and specific works being carried out. However, it is expected that the hierarchy of monitoring contained within the following table should be followed:

Level of monitoring	Frequency	Type of monitoring
Minimum level of monitoring for all sites	Twice daily	Site boundary walk around by site supervisor to subjectively consider the noise arising from the site
During short terms noisy works or following receipt of a complaint	To coincide with noisy works or lead by details of complaint	Monitoring undertaken with hand held handheld noise meter at worst affected receptor and/or where complaint arises from, by site supervisor
When site is in close proximity to especially sensitive receptors or where particularly noisy activities such as demolition is to be carried out in close proximity to residential properties and/or where a significant number of complaints arise in relation to noise	To be informed by competent person but should include a both continuous un-manned and short term manned	Specific monitoring strategy agreed with local authority, to be carried out by competent person.

## 3.2 Demolition

### Site Clearance

The site consists of light structures and mainly block paving. The site clearance activities will consist of initially removing all street furniture, lighting columns, pedestrian barrier, bollards, and bus shelters. The hard surfaces could then be broken out using a medium excavator and hydraulic breaker. The material could be stockpiled on the site and suitable material could be processed for reuse within the site. Unsuitable material should be removed from site for recycling. All works should be completed in accordance with the Principal Contractor's material management plan and Site Waste Management Plan (SWMP). Sources of suspected contamination such as fuel and oil spills or cold tar should be isolated and sent for testing prior to disposal. The brick buildings on the site should be cleared internally. This includes any asbestos that has been identified as part of the demolition survey. The buildings could then be deconstructed using a medium excavator and a demolition grapple. During the works a water mist cannon should be used to suppress dust generation. All demolition activities should be undertaken during daylight hours and ideally planned to take place in summer months to maximise productivity and reduce weather risk.

### Site Levelling

The site has a natural fall across it by some circa 6m. The design is sympathetic to this fall with the surface level car park being constructed in accordance with the original levels to reduce the volume of earthworks, in some locations i.e., around the substation and northern section of the car park with localised retaining structures. Once the site clearance has been undertaken the site should be profiled to prepare for the surface car park, new bus station and substation building construction.

An assessment of the existing street lighting will be required, and temporary provisions allowed for during the duration of the project and throughout the construction phase.

### **3.3 Construction**

In summary, the indicative construction schedule spans approx. 14 months. The preliminary construction schedule considered by DCC allows 1 month of terminal float and adopts a conservative logic throughout to build in contingency for design development and third party interfaces such as discharge of planning conditions and utility diversions that will develop as the project develops. The schedule considers time for procurement, mobilisation, and utilities diversion works as well as the inclusion of terminal float. The high-level durations for each element, excluding procurement and design, of the scheme are considered as follows:

- Site mobilisation by contractor – 1.5 months
- Utility diversions – 1.5 months
- Site clearance – 2.5 months
- Surface car parking and bus stands – 3 months
- New substation construction – 3.5 months
- Bus station construction – 7 months
- Landscaping and finishing works – 3 months

### **3.4 Management**

All systems are designed to be monitored and energy meters will be provided for each system, therefore a detailed understanding of energy use can be made. Post occupancy evaluation can be made as part of the management to review the initial occupancy and assess how the building is performing.

Detailed O&M (Operation and maintenance manuals) will be required from the principal contractor to ensure that all systems are fully documented, together with projected equipment life and routine servicing requirements.

For all buildings to retain their performance as simulated, there will need to be a strategy in place for the general monitoring and management of this building and the services provided within.

## 4. Carbon & Energy Analysis

Reducing carbon emissions and the built environment's contribution to climate change is a key factor within the County Durham Plan. Policy 29 – Sustainable Design within the County Durham Plan states that all buildings are required to:

*'Minimise greenhouse gas emissions, by seeking to achieve zero carbon buildings and providing renewable and low carbon energy generation and include connections to an existing or approved district energy scheme where viable opportunities exist. Where connection to the gas network is not viable, development should utilise renewable and low carbon technologies as the main heating source'.*

### 4.1 Building Regulations Part L

Approved Document Part L of the UK Building Regulations sets the standards for energy efficiency within buildings. For a building to meet current regulations, its components must exceed the minimum requirements set within the approved document. These include elements such as the fabric performance and efficiency of building service systems.

It should be noted that a revised Approved Document Part L came into force in June 2022. This revision includes stricter limits on building energy components, and the inclusion of 'primary energy usage' in assessing Part L compliance. As a building notice was not submitted before 15th June 2022, the design is required to comply with new Part L regulations.

### 4.2 Energy Efficiency & Passive Design Study

Improvements to the building's design to improve energy and thermal efficiency are proposed following the "energy hierarchy" system, which recommends that the impact of buildings should be minimised by:

- Using less energy (Be Lean),
- Supplying energy more efficiently (Be Clean)
- Using renewable energy (Be Lean)

In descending order of priority and in line with this approach, the following items are identified as areas in which the design of the building could improve its energy efficiency:

- Site Location
- Local Weather
- Microclimate
- Building Layout
- Building Form
- Building Fabric
- Thermal Mass or Other Fabric Thermal Storage
- Building Occupancy Type
- Daylighting Strategy
- Ventilation Strategy
- Adaptation to Climate Change

In a passive design study carried out as part of the design development, the Building Layout, Form, and Fabric, as well as Thermal Fabric Storage and Daylighting Strategy were identified as the areas in which the bus station could potentially be adapted to improve its efficiency, and as such were investigated further.

Passive design analysis resulted in a recommendation to improve the thermal performance of the exterior blockwork of the accommodation block to  $0.22\text{W/m}^2\text{K}$ , lower than required by Part L 2021, as well as increasing the thickness of the first-floor slab to 300mm from 200mm and adding glazing to the southern façade of the operator's office, to reduce the heating load in the winter. These measures resulted in a 3.1% improvement in the Building Emission Rate (BER). The passive design study conducted previously under the 2013 Part L requirements made other recommendations for improvements to the building thermal fabric, however due to the update to the requirements these now fall in line with the baseline and cannot be considered to be "improvements".

Daylight is utilised for the main public areas within the bus station. Daylight sensors and occupancy sensors will limit the energy usage.

### 4.3 Low/Zero Carbon Technologies

A range of low/zero carbon (LZC) technologies were considered as part of the conducted LZC study. Technologies considered "wholly inappropriate" for this application were discarded immediately, with the remaining technologies assessed for viability. Three technologies were deemed to be potentially viable:

- Photovoltaic Panels (Electrical Energy)
- Photovoltaic Glazing (Electrical Energy)
- Solar Hot Water (Thermal Energy)

Of these three, only the two photovoltaic (PV) systems were taken forward, as it was decided that with the limited roof space available on the bus station accommodation block, an array of PV panels would be more effectively aid in reducing net carbon emissions.

Feasibility studies concluded that the cost of photovoltaic glazing combined with shading from the bus terminal concourse roof renders this solution ineffective, and as such an array of PV panels mounted on the roof of the accommodation block was selected as the preferred solution.

Previous designs for the rooftop array had to be updated due to the updates to building regulations Approved Document Part L. This resulted in a requirement for more panels (30 up from 24), and a re-design of the timber-clad parapet of the bus station accommodation building roof.

With the inclusion of the PV array, the building's BER is reduced to  $-0.5\text{kgCO}_2/\text{m}^2$ , and the system is projected to pay itself back over a 16-year period, with assumed energy price increases of 3% annually.

### 4.4 BREEAM Summary & Recommendations

BREEAM (formerly Building Research Establishment Environmental Assessment Method) is a nationally and internationally recognised environmental assessment method and rating system for buildings owned and licenced by BRE Global Ltd.

BREEAM sets the standard for best practice in sustainable building design, construction and operation and has become one of the most comprehensive and widely recognised measures of a building's environmental performance. It includes several sustainability categories for the assessment: Management, Energy, Health and wellbeing, Transport, Water, Materials, Waste, Land use and ecology and Pollution. Each of these categories addresses influential factors, including low impact design and carbon emissions reduction; design durability and resilience; adaption to climate change; and ecological value and biodiversity protection.

Jacobs has been appointed by Durham County Council to provide BREEAM assessment services for the proposed Bishop Auckland Bus Station project. The proposed scope of the BREEAM Assessment is limited to the proposed new bus station building (i.e., public, staff and ancillary areas) and associated external areas. It excludes the proposed adjacent surface car park

A qualified and licensed BREEAM Assessor and BREEAM Advisory Professional (AP) was appointed to carry out an initial review ('Pre-Assessment') and develop an indicative BREEAM strategy (i.e., list of recommended target credits). During RIBA Stage 2 and Stage 3 BREEAM pre-assessment, review meetings with key project team members were held and each potentially applicable BREEAM UK New Construction Version 6.0 credit was assigned a 'credit status': Baseline, Target, Potential Additional, and Unlikely.

The results of the BREEAM Pre-Assessment indicate:

- a 'Baseline' BREEAM credits score of 22.35%. These credits are considered to be technically achievable (at the time of the Pre-Assessment) and likely to be achievable without any changes to current proposals.
- a "Target' BREEAM credits score of 43.05%. These credits are likely to require some additional resources and/or changes to current proposals but considered to be less onerous and/or more certain than credits categorised as 'Potential Additional' or 'Unlikely'.

By complying to all 'Baseline' and "Target' credits the Bishop Auckland Bus Station can achieve BREEAM rating of 'Very Good' with a score of 65.4%. If BREEAM potential rating of 'Excellent' is to be pursued compliance with requirements would need to be demonstrated for at least 70% of BREEAM credits. This means that some of the 'Potential Additional' will need to be investigated and compliance evidenced.

All BREEAM scores and ratings are subject to meeting the 'BREEAM minimum standard' requirements according to BREEAM Technical Manual.

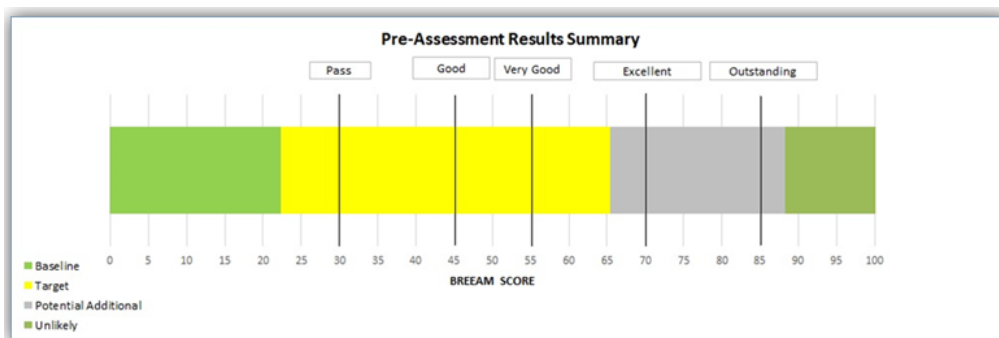


Figure 8 Summary of RIBA Stage 3 BREEAM Pre-Assessment results

### Summary of planned BREEAM requirements for implementation.

The project is planning to adopt sustainable management practices in connection with design, construction, commissioning, handover and aftercare. The construction site is going to be managed in an environmentally and socially considerate and responsible manner, encouraging continuous improvements and utility consumption reduction, improving resource efficiency, and maximising the recovery of material during demolition and diverting non-hazardous waste from landfill.

Visual and thermal comfort of the users will be assessed as well as acoustic performance of the occupied spaces. The building design considers and will consider security needs and safe external site areas to ensure occupants safety and personal wellbeing.

The design team aims for specification and design of energy efficient building solutions, systems, and equipment that support the sustainable use and management of energy during the building's operation. The building's energy consumption is planned to be reduced through the adoption of passive design solutions, low or zero carbon (LZC) energy source, and specification of energy efficient external lighting.

Reducing potable water consumption over the lifetime of the building is planned by specifying efficient sanitary fittings, installing leak detection systems, and also flow control devices.

The project team will focus also on construction product efficiency, environmental impact, responsible sourcing and product durability. The design will aim to reduce the impact of refrigerant gas emissions, night-time light pollution and impact of external noise from the building.



## 5. Conclusion

Durham County Council have expressed an aspiration for the building to be carbon neutral. This is in accordance with the Council's Climate Emergency Response Action Plan: 2020 to 2022 (which defines 'carbon neutral' as: having no CO2 emissions that are not also compensated for by additional carbon off-setting).

The current proposal for the new Bishop Auckland Bus Station is on target to being carbon neutral through the inclusion of a number of whole-life carbon reduction measures. These include:

- Use of glulam timber for structural elements (reduced embodied carbon)
- Efficient thermal envelope with high levels of insulation
- Natural ventilation and no heating provided for the waiting hall
- Demand-responsive, efficient heating, and cooling systems for the accommodation block
- High efficiency lighting (including zoning and controls for daylight and occupancy)
- On-site energy renewables (photovoltaic array on accommodation block roof)
- Electricity as fuel source for heating/ cooling (operational stage carbon impact will reduce over time as grid carbon intensity decreases).

Durham County Council is adopting BREEAM for the Bus Station development. This includes a commitment to review, quantify, and implement further carbon reduction opportunities as the project progresses.

The proposed bus station design embraces a holistic approach to sustainable design and where suitable, sustainable aspects of the design have been expressed and celebrated to shape the identity of the building.

Consideration has been given to a range of aspects which impact a building's carbon footprint including principles such as the embodied carbon of materials, structural efficiencies, reducing energy consumption, and how the building harnesses natural energy sources.

This project is a response to the need to improve the public transport offer in Bishop Auckland and seeks betterment by reducing the reliance on fossil fuel-based vehicles. The car park element of the project features electric vehicle charging points and low energy lighting. In time more EV charging points will be required, therefore flexibility and future proofing has been factored into the design.

In response to climate change, this project has mitigated fuel combustion on site to support the building. There is no gas supply provision proposed or required. The electrical power grid is progressively becoming cleaner and will eventually become net carbon zero – thus over time the building will become increasingly more sustainable as power technologies develop.

This project is a hub for travel and follows the industry practices to drive down energy cost and use. In practical terms this is achieved by a fabric first approach coupled with high performance building components and efficient space planning.

The proposed building submitted for planning approval achieves impressive sustainability credentials with the minimisation of energy use and embodied carbon as key drivers behind the iterative design development.

## **Appendix A. Regional Planning Policies - Durham County Council / Bishop Auckland County Durham Plan (Version Adopted 2020)**

The County Durham Plan was adopted in 2020. The key policies that address sustainable development which have been considered include:

### **Policy 21. Delivering Sustainable Transport**

The transport implications of development must be addressed as part of any planning application, where relevant this could include through Transport Assessments, Transport Statements and Travel Plans. All development shall deliver sustainable transport by:

- a) delivering, accommodating, and facilitating investment in safe sustainable modes of transport in the following order of priority: those with mobility issues or disabilities, walking, cycling, bus and rail transport, car sharing and alternative fuel vehicles;
- b) providing appropriate, well designed, permeable, and direct routes for walking, cycling and bus access, so that new developments clearly link to existing services and facilities together with existing routes for the convenience of all users;
- c) ensuring that any vehicular traffic generated by new development, following the implementation of sustainable transport measures, can be safely accommodated on the local and strategic highway network and does not cause an unacceptable increase in congestion or air pollution and that severe congestion can be overcome by appropriate transport improvements;
- d) ensuring the creation of new or improvements to existing routes and facilities do not cause unacceptable harm to the natural, built, or historic environment; and
- e) developments in the vicinity of level crossings (both vehicular and pedestrian) will be expected to assess the potential increase in risk at each crossing affected and indicate the appropriate mitigation required to reduce or remove such risks.

All development should have regard to the policies set out in the County Durham's Strategic Cycling and Walking Delivery Plan and, where possible, contribute to the development of a safe strategic cycling and walking network and in particular the routes set out in Local Cycling and Walking Infrastructure Plans.

The following principles will be used to determine cycle and parking provision in development:

- cycle parking or secure cycle storage should be provided to facilitate increased cycle ownership and use;
- car parking at residential developments should ensure that a sufficient level is provided for both occupants and visitors, to minimise potential harm to amenity from footway parking. On street and footway parking should be avoided where it would have an unacceptable impact on highway safety, or a severe impact on the road network;
- car parking at destinations should be limited to encourage the use of sustainable modes of transport, having regard to the accessibility of the development by walking, cycling, and public transport; and
- appropriate provision for electric vehicle charging, including charge points and laying of cables, should be made on both residential and non-residential development where parking is provided.

The council is preparing a Parking and Accessibility Supplementary Planning Document that reflects the principles set out above. Developments should have regard to the Parking and Accessibility Supplementary Planning Document following adoption by the council.

### **Policy 24. Provision of Transport Infrastructure**

New and improved transport infrastructure will be permitted where it meets all of the following criteria:

- a) is necessary to improve the existing highway network and/or public transport infrastructure;
- b) minimises and mitigates any harmful impact upon the built, historic, and natural environment and the amenity of local communities including by incorporating green infrastructure; and
- c) makes safe and proper provision for all users which prioritises the movement of pedestrians, cyclists, and public transport.

Transport infrastructure proposals should also meet at least one of the following criteria:

- a) supports economic growth;
- b) enhances connectivity either within the county or with other parts of the region; or
- c) accommodates future development sites.

### **Policy 26. Green Infrastructure**

Development will be expected to maintain and protect, and where appropriate improve, the county's green infrastructure network. This will in turn help to protect and enhance the county's natural capital and ecosystem services. Development proposals should incorporate appropriate Green Infrastructure (GI) that is integrated into the wider network, which maintains and improves biodiversity, landscape character, increases opportunities for healthy living and contributes to healthy ecosystems and climate change objectives.

#### **Loss of Provision**

Development proposals will not be permitted that would result in the loss of open space or harm to green infrastructure assets unless the benefits of the development clearly outweigh that loss or harm and an assessment has been undertaken which has clearly shown the open space or land to be surplus to requirements. Where valued open spaces or assets are affected, proposals must incorporate suitable mitigation and make appropriate provision of equivalent or greater value in a suitable location. Where appropriate there will be engagement with the local community.

#### **New Provision**

Development proposals should provide for new green infrastructure both within and, where appropriate, off-site, having regard to priorities identified in the Strategic GI Framework. Proposals should take opportunities to contribute to existing green infrastructure projects in the locality including those identified in the Infrastructure Delivery Plan. New Green Infrastructure will be required to be appropriate to its context and of robust and practical design, with provision for its long-term management and maintenance secured. The council expects the delivery of new green space to make a contribution towards achieving the net gains in biodiversity and coherent ecological networks as required by the National Planning Policy Framework (NPPF). Proposals for new residential development will be required to make provision for open space to meet the needs of future residents having regard to the standards of open space provision set out in the Open Space Needs Assessment (OSNA). Where it is determined that on-site provision is not appropriate, the council will require financial contributions secured

through planning obligations towards the provision of new open space, or the improvement of existing open space elsewhere in the locality.

### **Public Rights of Way**

Development will be expected to maintain or improve the permeability of the built environment and access to the countryside for pedestrians, cyclists, and horse riders. Proposals that would result in the loss of, or deterioration in the quality of, existing Public Rights of Way (PROWs) will not be permitted unless equivalent alternative provision of a suitable standard is made. Where diversions are required, new routes should be direct, convenient, and attractive, and must not have a detrimental impact on environmental or heritage assets.

### **Policy 29. Sustainable Design**

All development proposals will be required to achieve well designed buildings and places having regard to supplementary planning documents and other local guidance documents where relevant, and:

- a) contribute positively to an area's character, identity, heritage significance, townscape and landscape features, helping to create and reinforce locally distinctive and sustainable communities;
- b) create buildings and spaces that are adaptable to changing social, technological, economic and environmental conditions and include appropriate and proportionate measures to reduce vulnerability, increase resilience and ensure public safety and security;
- c) minimise greenhouse gas emissions, by seeking to achieve zero carbon buildings and providing renewable and low carbon energy generation, and include connections to an existing or approved district energy scheme where viable opportunities exist. Where connection to the gas network is not viable, development should utilise renewable and low carbon technologies as the main heating source;
- d) minimise the use of non-renewable and unsustainable resources, including energy, water and materials, during both construction and use by encouraging waste reduction and appropriate reuse and recycling of materials, including appropriate storage space and segregation facilities for recyclable and non-recyclable waste and prioritising the use of local materials;
- e) provide high standards of amenity and privacy, and minimise the impact of development upon the occupants of existing adjacent and nearby properties; and
- f) contribute towards healthy neighbourhoods and consider the health impacts of development and the needs of existing and future users, including those with dementia and other sensory or mobility impairments.

Landscape proposals should:

- g) respond creatively to topography and to existing features of landscape or heritage interest and wildlife habitats;
- h) respect and where appropriate take opportunities to create attractive views of and from the site;
- i) reflect in the detailed design any features characteristic of the locality such as boundaries, paving materials and plant species;
- j) create opportunities for wildlife including through the use of locally native species;
- k) make appropriate provision for maintenance and long term management; and

- l) in the case of edge of settlement development, provide for an appropriate level of structural landscaping to screen or assimilate the development into its surroundings and provide an attractive new settlement boundary.

### **Places and Spaces**

Major development proposals and those which affect, or add to, the public realm should:

- m) create a well-defined, easily navigable and accessible network of streets and spaces which respond appropriately to local context, to ensure that:
  - a. the public realm, including new roads, paths and other rights of way, open spaces, hard and soft landscaping, boundary features and other structures, are designed to be functional, well-managed safe and durable, taking into account the lifetime needs of its users;
  - b. convenient access is provided for all users whilst prioritising the needs of pedestrians, cyclists, public transport users, people with a range of disabilities, and emergency and service vehicles;
  - c. connections are made to existing cycle and pedestrian networks;
  - d. the public realm benefits, where possible, from natural surveillance;
  - e. amenity open space is designed with regard to the local micro-climate including sunlight, shade and shelter; and
  - f. private and communal amenity space is well-defined, defensible and appropriate in its design, size and location to the needs of its users.

### **Policy 32. Despoiled, Degraded, Derelict, Contaminated and Unstable Land**

Development will not be permitted unless the developer can demonstrate that:

- a) any existing despoiled, degraded, derelict, contaminated or unstable land issues can be satisfactorily addressed by appropriate mitigation measures prior to the construction or occupation of the proposed development;
- b) the site is suitable for the proposed use, and does not result in unacceptable risks which would adversely impact on the environment, human health and the amenity of local communities; and
- c) all investigations and risk assessments have been undertaken by an appropriately qualified person.

### **Policy 33. Renewable and Low Carbon Energy**

Renewable and low carbon energy development in appropriate locations will be supported. In determining planning applications for such projects significant weight will be given to the achievement of wider social, environmental and economic benefits.

Proposals should include details of associated developments including access roads, transmission lines, pylons and other ancillary buildings. Where relevant, planning applications will also need to include a satisfactory scheme to restore the site to a quality of at least its original condition once operations have ceased. Where necessary, this will be secured by bond, legal agreement or condition.

## Policy 35. Water Management

### Flood Risk and Sustainable Drainage Systems

All development proposals will be required to consider the effect of the proposed development on flood risk, both on-site and off-site, commensurate with the scale and impact of the development and taking into account the predicted impacts of climate change for the lifetime of the proposal. This includes completion of a Flood Risk Assessment (FRA) where appropriate. Development will not be permitted unless:

- a) in the functional floodplain (flood zone 3b), as identified in the Strategic FRA, it is water compatible or essential infrastructure;
- b) in flood zones 2 and 3a it passes the Sequential Test, and if necessary the Exceptions Test, as required by national policy; and
- c) it can be proven through a FRA that the development, including the access, will be safe, without increasing or exacerbating flood risk elsewhere, any residual risk can be safely managed and where possible will reduce flood risk overall.

Regarding surface flood water risk:

- d) for major developments the management of water must be an intrinsic part of the overall development;
- e) on all new development there is no net increase in surface water runoff for the lifetime of the development. Where greenfield sites are to be developed, the runoff rates must not exceed and where possible should reduce the existing greenfield runoff rates. On previously developed land, as close as practicable to a greenfield rate must be achieved. In exceptional cases where the developer can satisfactorily demonstrate that greenfield run-off rates are unachievable, a betterment rate (which should be a minimum of 50% of the existing site run-off rate) will be agreed with the council. Surface water run-off must be managed at source wherever possible and disposed of in the following order:
  - a. to an infiltration or soak away system.
  - b. to a watercourse open or closed.
  - c. To a surface water sewer.
  - d. To a combined sewer.

Disposal to combined sewers should be the last resort once all other methods have been clearly explored and evidenced;

- f) part of the development site is set aside for surface water management and uses measures that do not increase flood risk elsewhere. These measures will supplement green infrastructure networks, thereby contributing to mitigation of climate change, water quality and flooding as an alternative to, or complementary to, hard engineering;
- g) where sites may be susceptible to over land flood flows (as shown in the Strategic Flood Risk Assessment) or lie within a Surface Water Risk Area (as shown in the Surface Water Management Plan) then developers must put adequate protection in place;
- h) the development incorporates a Sustainable Drainage System (SuDS) to manage surface water drainage. Where SuDS are provided arrangements must be put in place for their whole life management and maintenance. Where appropriate' SuDS should contribute to the provision of Green Infrastructure and biodiversity net gains; and
- i) all new development with culverts running through the site must seek to de-culvert watercourses for flood risk management and environmental benefit, unless it can be clearly demonstrated that this is not practical.

Where improvement works are required to ensure that the drainage infrastructure has sufficient capacity to support proposed new development, developer contributions will be required in accordance with Policy 25 (Developer Contributions).

### **Water Quality**

The quantity and quality of surface and groundwater bodies shall be protected and where possible enhanced. All commercial, industrial and major residential development must demonstrate control of the quality of surface water runoff during construction and for the lifetime of the development. New development will be required to incorporate appropriate water pollution control measures.

Development adjacent to, over or in a watercourse should consider opportunities to improve the river environment and water quality.

Development which could adversely affect the quality or quantity of surface or groundwater, flow of groundwater or ability to abstract water will not be permitted unless it can be demonstrated that no adverse impact would occur, or mitigation could be put in place to minimise this impact.

## **Policy 36. Water Infrastructure**

### **Disposal of Foul Water**

In the consideration of development proposals, the hierarchy of drainage options that must be considered and discounted for foul water are (in the following order):

1. connection to the public sewer;
2. package sewage treatment plant (which can be offered to the Sewerage Undertaker for adoption; and
3. septic tank (which must drain into an appropriate soak away and not discharge directly into a watercourse).

Applications involving the use of non-mains methods of drainage (including Septic Tanks/Cess Pits) will not be permitted in areas where public sewerage exists.

### **Sewage and Wastewater Infrastructure**

Proposals for new or extensions/improvements to existing water treatment, waste water, sludge or sewage treatment works will be permitted, unless the adverse impact of development outweighs the need for greater capacity and other benefits.

### **Flood Defence Infrastructure**

Proposals for additional flood defences will be permitted only where it can be demonstrated that the proposal represents the most sustainable response to a particular threat and demonstrates long term maintenance can be achieved.

Proposals which seek to mitigate flooding, create natural flood plains or seek to enhance and/or expand flood plains in appropriate locations will be permitted.

## **Policy 41. Biodiversity and Geodiversity**

Proposals for new development will not be permitted if significant harm to biodiversity or geodiversity resulting from the development cannot be avoided, or appropriately mitigated, or, as a last resort, compensated for.

Proposals for new development will be expected to minimise impacts on biodiversity by retaining and enhancing existing biodiversity assets and features and providing net gains for biodiversity including by establishing coherent ecological networks. Measures should be appropriate, consistent with the biodiversity of the site and contribute to the resilience and coherence of local ecological networks.

Proposals for new development will be expected to protect geological features and have regard to Geodiversity Action Plans, the Durham Geodiversity Audit and where appropriate promote public access, appreciation and interpretation of geodiversity.

Development proposals where the primary objective is to conserve or enhance biodiversity or geodiversity will be permitted, where they accord with other relevant policies in the Plan.

Development proposals which are likely to result in the loss or deterioration of irreplaceable habitat(s) (such as peatlands or lowland fen) will not be permitted unless there are wholly exceptional reasons, and a suitable compensation strategy exists.

## **Policy 43. Protected Species and Nationally and Locally Protected Sites**

All development proposals in, or which are likely to adversely impact upon (either individually or in combination with other developments), any of the following national designations (where not a component of an internationally designated site):

- Sites of Specific Scientific Interest
- National Nature Reserves

will only be permitted where the benefits of development in that location clearly outweigh the impacts on the interest features on the site and any wider impacts on the network of sites.

All development proposals in, or which are likely to adversely impact upon, any of the following local designations:

- Local Sites (Geology and Wildlife)
- Local Nature Reserves (LNRs)

will only be permitted when it can be demonstrated that the benefits of development in that location outweigh the impacts on the local nature conservation interest or scientific interest on the site and any wider impacts on the network of sites.

In all cases where development impacts adversely on a designated site, mitigation, or as a last resort compensation, must be provided and it must be demonstrated that the proposed mitigation or compensatory measures are appropriate to the designations assigned to the site and deliver clear net gains for the habitats and/or species assemblages the site is designated for.

In relation to protected species and their habitats, all development which, alone or in combination, has a likely adverse impact on the ability of species to survive, reproduce and maintain or expand their current distribution will not be permitted unless:



- a) appropriate mitigation, or as a last resort compensation, can be provided, which maintains a viable population and where possible provides opportunities for the population to expand; and
- b) where the species is a European protected species, the proposal also meets the licensing criteria (the 3 legal tests) of overriding public interest, no satisfactory alternative and favourable conservation status.

### **Policy 47. Sustainable Minerals and Waste Resource Management**

The development of a sustainable resource economy in County Durham will be promoted, encouraged and facilitated by:

- a) ensuring that waste is managed in line with the waste hierarchy in sequential order. In particular:
  - a. supporting proposals that minimise waste production; help prepare waste for re-use; and increase the capacity and capability of the county's network of waste management facilities to reuse, recycle and recover value from waste materials; and
  - b. resisting proposals for the disposal of residual waste via landfill or via the incineration of waste without energy recovery unless a need can be demonstrated which cannot be met by existing facilities and by treatment solutions higher in the waste hierarchy
- b) supporting opportunities for on-site management of waste where it arises and encouraging co-location of waste developments with industrial uses so that waste can be used as a raw material;
- c) encouraging all proposals for mineral extraction to minimise the amount of mineral waste produced in extraction, handling, processing and stockpiling; and to maximise the potential for mineral waste to be used in recycling or on-site restoration. If mineral waste is not required for these purposes then where practicable, a market for its potential use should be identified;
- d) encouraging and permitting the concurrent working of two or more minerals from the same site provided that the operation or restoration of the site is not prejudiced or significantly delayed, the overall proposal remains acceptable and does not have an unacceptable adverse impact on either the environment, human health or the amenity of local communities; and
- e) permitting proposals for aggregate recycling facilities including at locations suitable for permanent waste management facilities and also at active quarries and landfill sites. Proposals at active quarries and landfill sites will only be permitted:
  - a. for a temporary period not exceeding the permitted life of the quarry or landfill site;
  - b. provided that the operation or restoration of the site is not prejudiced or significantly delayed; and
  - c. provided that the overall proposal remains acceptable and does not have an unacceptable adverse impact on either the environment, human health or the amenity of local communities.