

# ***Centrica***

## ***Design and Access Statement***

Long Duration Energy Storage

Barry Power Station

June 2025



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## ISSUE AND REVISION RECORD

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## 1 Introduction

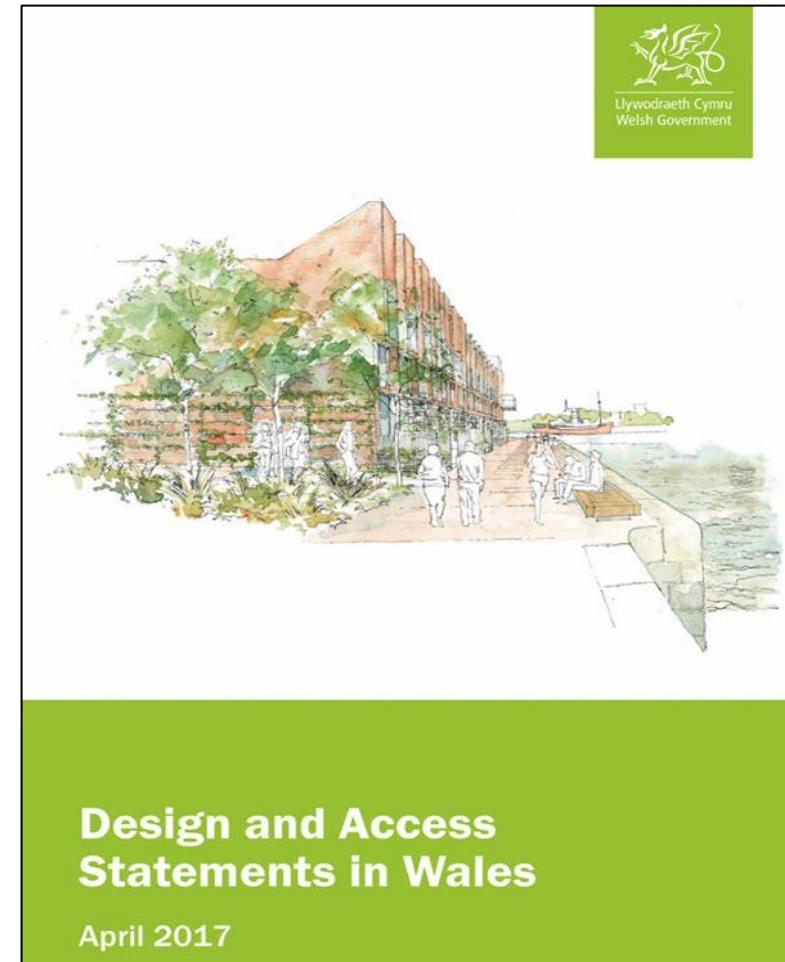
### 1.1 Background

1.1.1 This Design & Access Statement (DAS) has been prepared by Centrica Power to support a full planning application for Long Duration Energy Storage (LDES) on land at the former Barry Power Station on Sully Moors Road, Barry.

1.1.2 The description of the development is set out below:

*‘Construction and operation of a 50MW long duration energy storage facility associated access, equipment and infrastructure.’*

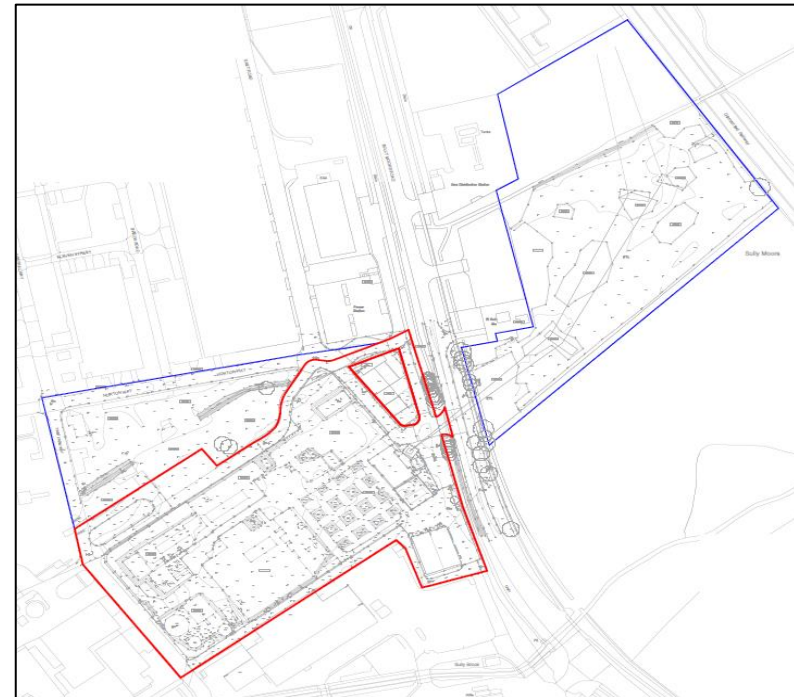
1.1.3 This DAS has been prepared in accordance with the Town and Country Planning (Development Management Procedure) (Wales) Order 2012 (as amended), Planning Policy Wales (February 2024), Technical Advice Note 12: Design (March 2016) and Welsh Government Guidance on Design and Access Statements in Wales (April 2017).



## 2 The Site and Surroundings

### 2.1 Site Location

- 2.1.1 The former Barry Power Station site is located on the western side of Sully Moors Road, circa 3km east of Barry Town centre and 1km north of the Bristol Channel.
- 2.1.2 The power station was formerly a Combined Cycle Gas Turbine (CCGT) power station and prior to that the site was extensively developed for chemical manufacturing.
- 2.1.3 The proposed LDES will be built on land associated with the former power station site while land to the north is included within the application as an area set aside for a construction compound and land to the eastern side of Sully Moors Road as an area set aside for biodiversity net benefit.



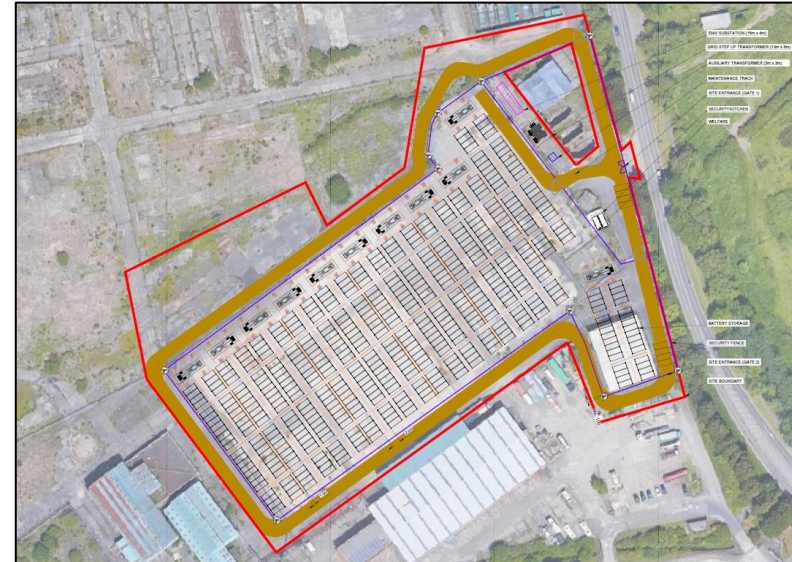
**Site Location Plan**

## 2.2 Land Uses

2.2.1 To the north is Horton Way and cleared industrial land; to the east is pastureland; to the south is a warehouse and office building operated by Barry Training Services, Sully Brook and partially cleared industrial land; and to the west there is a redundant warehouse building adjacent to partially cleared industrial land.

2.2.2 The wider setting of the site is industrialised with Bakelite Synthetics UK Limited to the south and Dow Silicones UK to the west.

2.2.3 In terms of the LDES site itself, the site covers an area of approximately 2.2 Hectares and includes an existing substation that is being retained and so falls outside of the planning application boundary.



**Site Context Plan**

## 2.3 Access

2.3.1 The site is currently accessed via the existing highway network. There is a main gate located on Sully Moors Road with alternative accesses provided off Horton Way and adjacent to Barry Training Services.

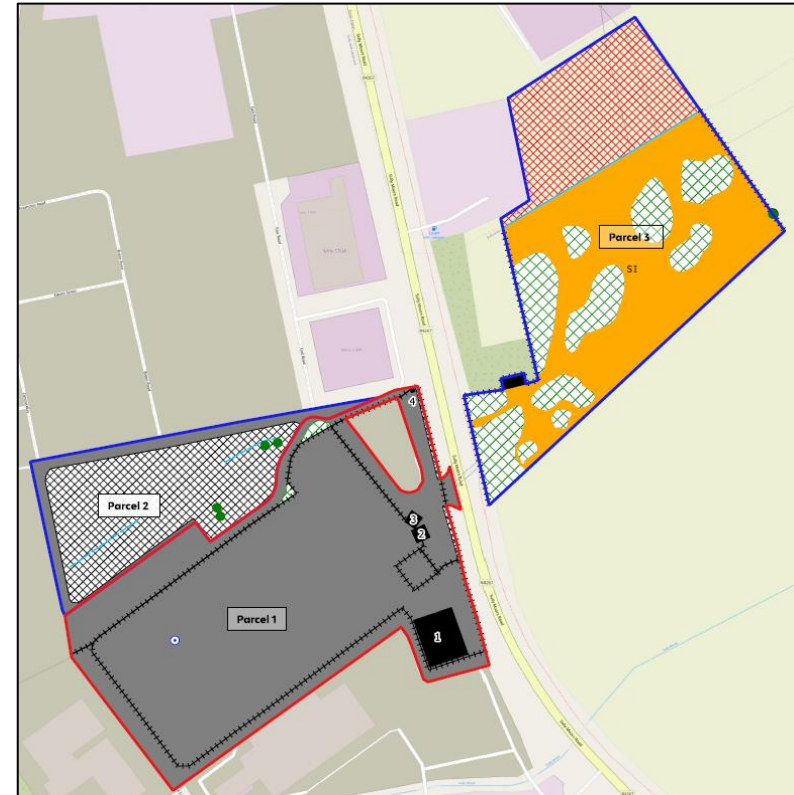
2.3.2 There are no public rights of way within the site and is situated within the designated urban boundary. It is not covered by any statutory or non-statutory designations or assets that relate to biodiversity, landscape or cultural heritage. However, there are SINCs, SSSIs and a Wildlife Trust reserve within 1km of the site.



*Existing Site Access*

## 2.4 Ecology and Biodiversity

- 2.4.1 The Hayes Point to Bendrick Site of Special Scientific Interest (SSSI) is located 0.7km south of the site and the Severn Estuary Special Protection Area (SPA) and Special Area of Conservation (SAC) are 4km south of the site.
- 2.4.2 The power station site contains bare ground, scattered scrub and buildings all of which are habitats of negligible importance.
- 2.4.3 The land to the east of Sully Moors Road comprises semi-improved grassland with dense scattered stands of bramble, species-poor intact hawthorn hedgerow and a mature oak. There is also a stream bisecting the land.



***Habitat Features Plan***

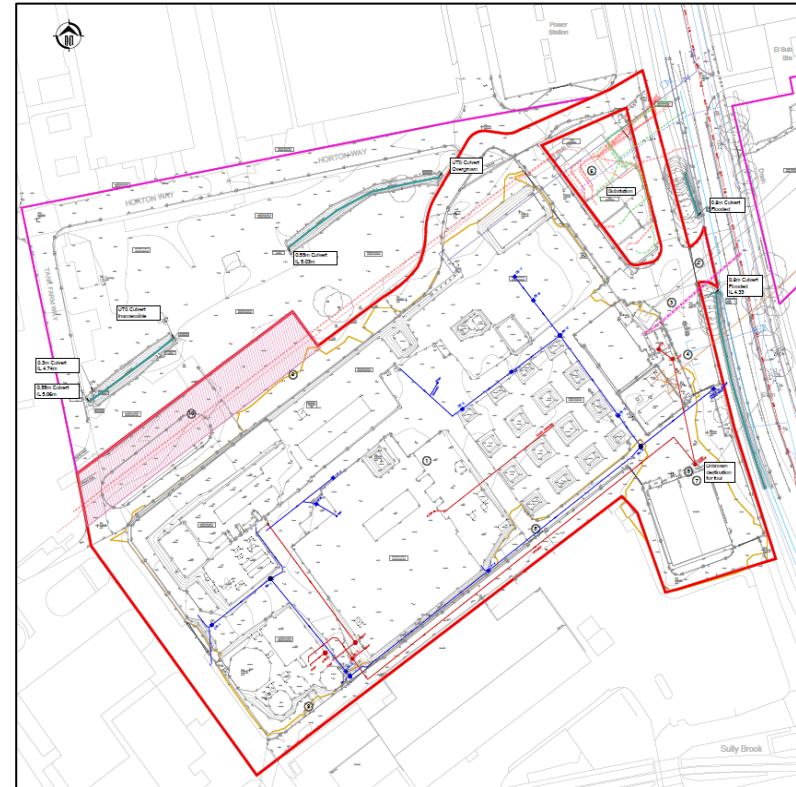
## 2.5 Watercourses and Drainage

2.5.1 The main development plateau is at 7.20m AOD which positions it outside of the 1:100+ CC flood risk zone.

2.5.2 In relation to watercourses, there is a ditch within the site boundary which links to the adjacent watercourses which are, in themselves, Sully Brook tributaries.

2.5.3 Existing exceedance and overland flows follow the topography of the site & convey flows towards the boundaries and ditch network.

2.5.4 The primary surface water drainage for the site drains towards the ditch abutting Sully Moors Road before routing west within the wider catchment.



**Constraints Plan**

### 3 Planning Policy

#### 3.1 Context

3.1.1 The Development Plan comprises Future Wales – the National Plan 2040 (published February 2021) and the Newport Local Development Plan 2011-2026 (adopted January 2015). Material considerations include national policy in the form of Planning Policy Wales (PPW).

#### 3.2 Future Wales – The National Plan 2040

3.2.1 Future Wales The National Plan 2040 (FW) was published in February 2021 and sets out the national development framework for Wales outlining the direction for development to 2040.

3.2.2 The Plan acknowledges the impacts of a climate emergency and an ecological emergency and identifies key priorities, risks and opportunities to achieve the sustainable management of natural resources, including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of communities.

3.2.3 Policy 17 – Renewable and Low Carbon Energy and Associated Infrastructure states the WG’s strong support for the principle of developing renewable and low carbon energy from all technologies and at all scales to meet future energy needs. It states that in determining planning applications for renewable and low carbon energy development, decision-makers must give significant weight (our emphasis) to the need to meet Wales’ international commitments and our target to generate 70% of consumed electricity by renewable means by 2030 in order to combat the climate emergency.



### 3.3 Planning Policy Wales (PPW)

3.3.1 Planning Policy Wales (PPW) was revised in February 2024 and sets out the land use planning policies of the Welsh Government. The primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required by the Planning (Wales) Act 2015, the Well-being of Future Generations (Wales) Act 2015 and other key legislation.

3.3.2 PPW is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars and policy clarification letters, which together with PPW provide the national planning policy framework for Wales.

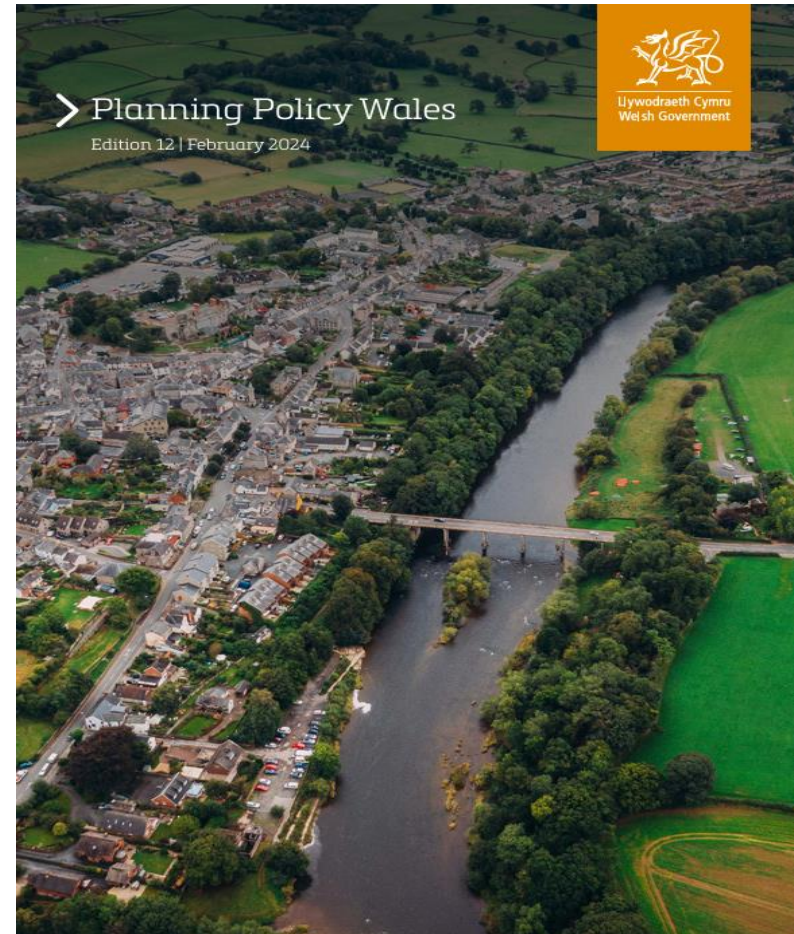
3.3.3 The benefits of renewable and low carbon energy, as part of the overall commitment to tackle the climate emergency and increase energy security, is of paramount importance (pp. 5.7.7). The policy notes that the planning system should optimise energy storage and maximise renewable and low carbon energy generation (pp. 5.7.7).

3.3.4 Paragraph 5.7.12 recognises that *“Energy storage has an important part to play in managing the transition to a low carbon economy. The growth in energy generation from renewable sources requires the management of the resultant intermittency in supply, and energy storage can help balance supply and demand. Proposals for new storage facilities should be supported wherever possible.”*

3.3.5 Paragraph 5.9.7 states *“The local balance of the energy network will be a crucial consideration...and planning authorities should consider the best places for local renewable energy generation to help improve the resilience of the grid in the future.”*

3.3.6 PPW advises that a green infrastructure statement should be submitted with all planning applications and that this will be proportionate to the scale and nature of the development proposed describing how green infrastructure has been incorporated into the proposal. The green infrastructure statement will be an effective way of demonstrating positive multi-functional outcomes which are appropriate to the site in question.

3.3.7 Section 6.4 describes biodiversity and ecological networks and provides a summary of the Step-Wise Approach and how it should be used to *"maintain and enhance biodiversity, build resilient ecological networks and deliver net benefits for biodiversity by ensuring that any adverse environmental effects are firstly avoided, then minimised, mitigated, and as a last resort compensated for"* (paragraph 6.4.11). Paragraph 6.4.12 states the Green Infrastructure Statement must provide evidence that the step-wise approach has been followed and a scheme of enhancements provided to ensure a net benefit for biodiversity.



### 3.4 Vale of Glamorgan Local Development Plan (LDP)

3.4.1 The Vale of Glamorgan Local Development Plan (LDP) 2011-2026 was adopted in 2017 and forms part of the statutory development plan, which means that it has full weight in determining planning applications. It sets out the vision, objectives and policies for the plan period.

3.4.2 In the LDP, the power station landholding is identified as forming part of a very large existing employment site, known as 'The Chemical Complex, Barry' under policy MG16(02) whilst the land to the east of Sully Moors Road is identified as a Green Wedge under policy MG18(2).

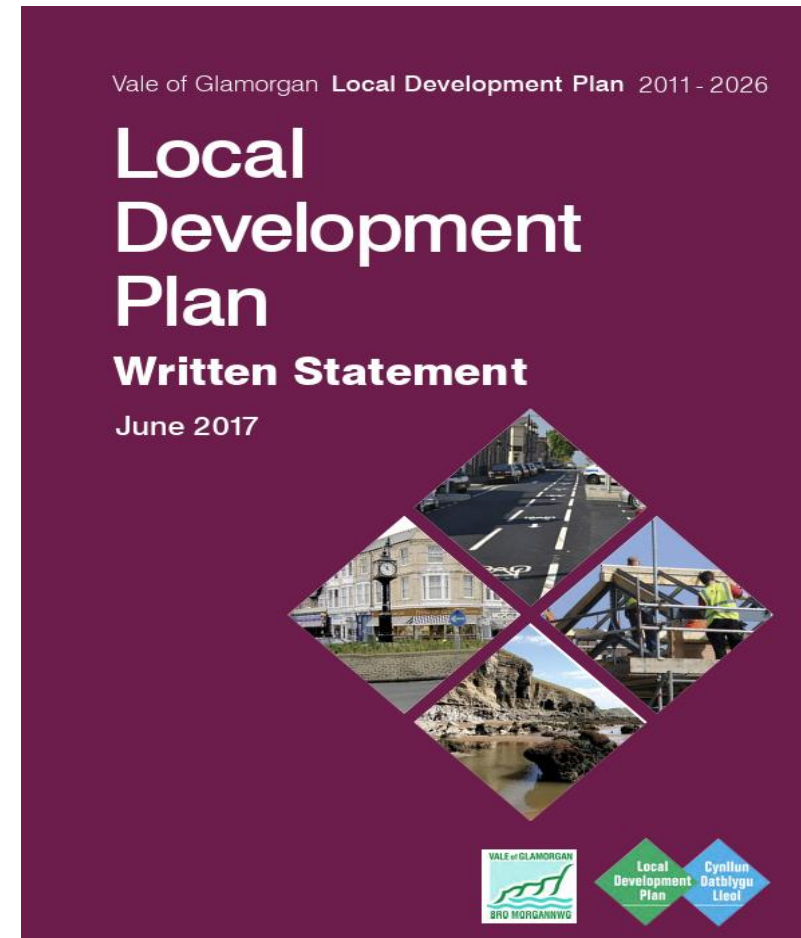
3.4.3 Policy MD16 protects the loss of existing employment sites and premises to non-employment use, unless:

- The proposal is for ancillary or sui generis uses that would not singularly or cumulatively lead to a material change in the nature of the employment site; or
- The existing employment use has unacceptable adverse impacts on amenity or the environment; or

- Land of equal or better quality is made available for employment uses elsewhere; or
- It is demonstrated that the site or premises is no longer suitable or viable for employment purposes; and
- The proposal would not prejudice existing or neighbouring employment uses, have an unacceptable impact on amenity or the environment and would not lead to a material change in the nature of the employment site.

3.4.4 An Economic Development, Employment Land and Premises Supplementary Planning Guidance (SPG) was adopted in March 2023. It states in para. 4.3.9 that Policy MD16 “*seeks to protect the loss of all employment sites and premises currently in, or previously in employment use in order to support a diverse local economy.*” Therefore, given the previous use was energy, and the proposed use is similar (also energy) then it falls under sui generis as stated in para. 6.3.4 and complies with Policy MD16.2.1.

- 3.4.5 Policy MG18 identifies green wedge areas to prevent the coalescence of settlements and retain openness of land including land immediately opposite the application site. In these areas, development which prejudices the open nature of the land will not be permitted.
- 3.4.6 The existing Local Plan also contains Policy MD19 which supports Low Carbon and Renewable Energy Generation proposals and, although Battery Energy Storage Systems are not classified as renewable energy themselves as they do not generate, LDES will play a crucial role in enabling renewable energy sources like solar and wind to be more effective as they support the transition to a cleaner grid by reducing reliance on fossil fuels and improving the efficiency of renewable energy sources.



## 4 The Proposed Development

### 4.1 Introduction

4.1.1 Barry Power Station was operational from September 1998 until March 2019 and was demolished in 2019 and 2020. The demolition works included demolition and removal of the 60m high stack, Gas Above Ground Installation, Turbine Hall, Admin Block, Water Treatment Plant and Fuel Oil Tanks.

4.1.2 However, following the announcement from DESNZ that the UK needs up to 7.7 GW of LDES by 2035 and 22 GW by 2050 and the creation of the LDES Cap and Floor Scheme to encourage LDES investment by providing a minimum revenue floor in order to manage high capital costs and long build times, Centrica have reviewed their landholdings and identified two sites within their portfolio that meet the LDES criteria one of which is Barry



***Barry Power Station (July 2012)***



***Barry Power Station (May 2025)***

## 4.2 Use

- 4.2.1 Centrica are proposing to develop Long Duration Energy Storage (LDES) following the announcement by the Department of Energy Security and Net Zero (DESNZ) in March 2025 of the LDES Cap and Floor Scheme.
- 4.2.2 The scheme provides a regime for developers seeking to invest in LDES as renewable energy sources are critical for the energy transition but the intermittent nature of renewables is a challenge. LDES provides a solution to this challenge in that they store excess electricity that can be released when needed therefore providing a consistent and secure supply of energy to consumers.
- 4.2.3 The LDES scheme identifies Vanadium Flow Batteries as an eligible technology. They are self-contained and use vanadium redox flow technology to store energy in aqueous solution that never degrades. It is non-flammable unlike tradition li-on BESS and requires little maintenance and upkeep.



***Vanadium Flow Batteries installed at Oxford Superhub***

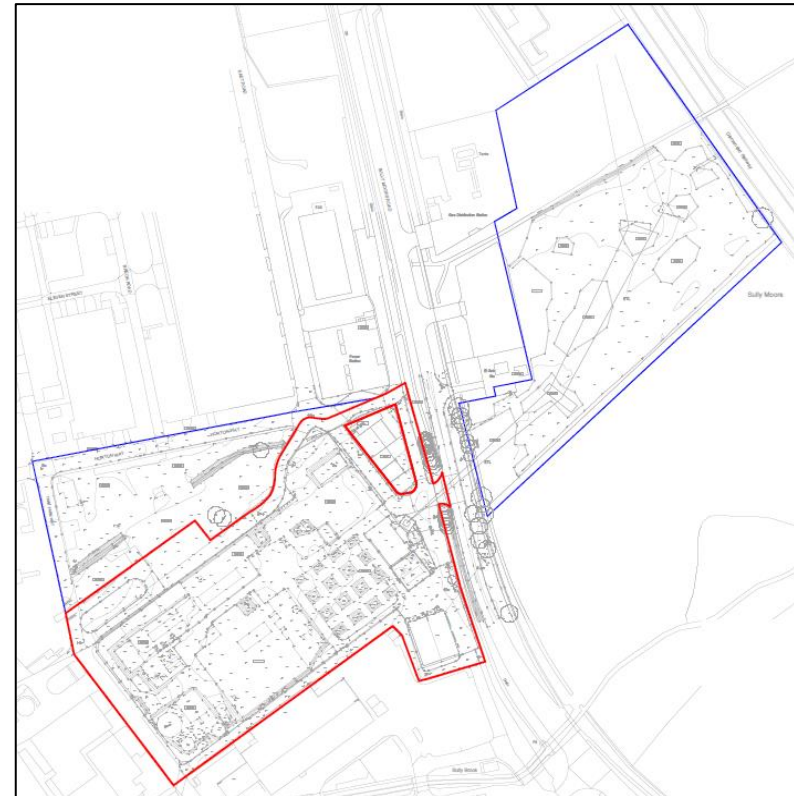
### 4.3 Character – Layout

4.3.1 The proposed site layout comprises two main elements: the main LDES compound on the former power station site which also includes a 33kV substation, a grid step up transformer and an auxiliary transformer and an area of land to the east of Sully Moors Road that is owned by Centrica & is proposed to be used for biodiversity net benefit.

4.3.2 A construction compound is also proposed on land to the north of the former power station site for the duration of the build.

4.3.3 The proposed development comprises the following elements:

- Laying out of containerised battery storage units along with associated inverters mounted on concrete slabs/piers.
- Installation of a 33kV Substation, a step-up transformer and an auxiliary transformer.
- Retention of the existing maintenance track, fence & gates and the installation of CCTV.
- Installation of a pcs container, a security/kitchen container and a welfare container



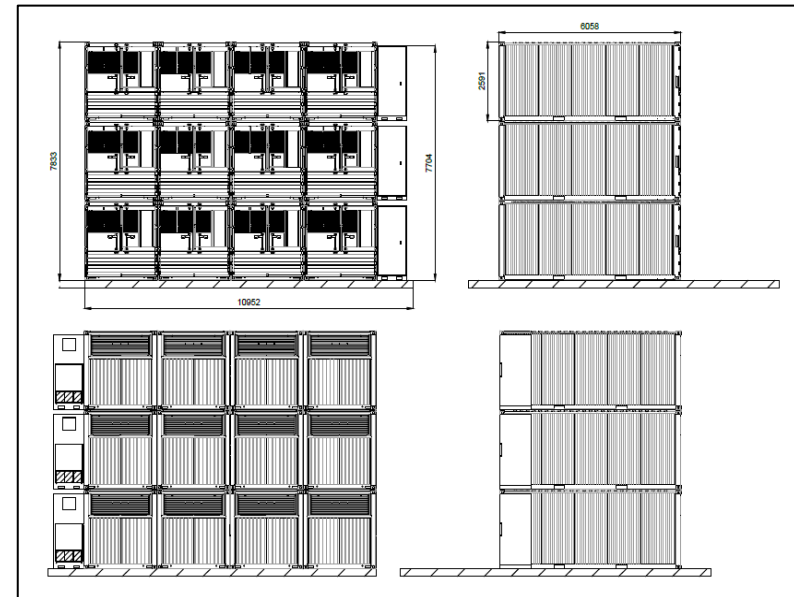
***The LDES Compound including the Construction Compound on the Former Power Station Site and the Biodiversity Net Benefit Area to the North East***

#### 4.4 Character – Amount, Scale and Appearance

4.4.1 The proposed development covers approximately 2.2 Hectares and comprises 20 arrays of 24 strings and 2 arrays of 16 strings.

4.4.2 The measurements for the buildings and structures are as follows:

- The battery containers will be laid out in blocks of 4 rows stacked 3 high so will measure 10.95m wide by 6.06m long by 7.83m high.
- The 33kV substation will measure 4m wide by 15m long by 3.65m high.
- The step-up transformer will measure 6.02m wide by 7.79m long by 6.55m high.
- The auxiliary transformer will measure 1.49m wide by 1.66m long by 2.33m high.
- The pcs container will measure 2.1m wide by 1.18m long.
- The security/kitchen container and the welfare container will measure 2.44m wide by 6.06m long by 2.6m high.



*Proposed Elevations of LDES Battery Containers*

- 4.4.3 The proposed development is consistent with the existing character of the area and does not propose any structure taller than the original power station.
- 4.4.4 The location of the proposed development is a former power station which already benefits from electrical infrastructure making it an ideal location to support a LDES development. The proposed development will also secure significant, long-term investment in this vacant urban industrial site.



*Previous Elevations of Barry Power Station*

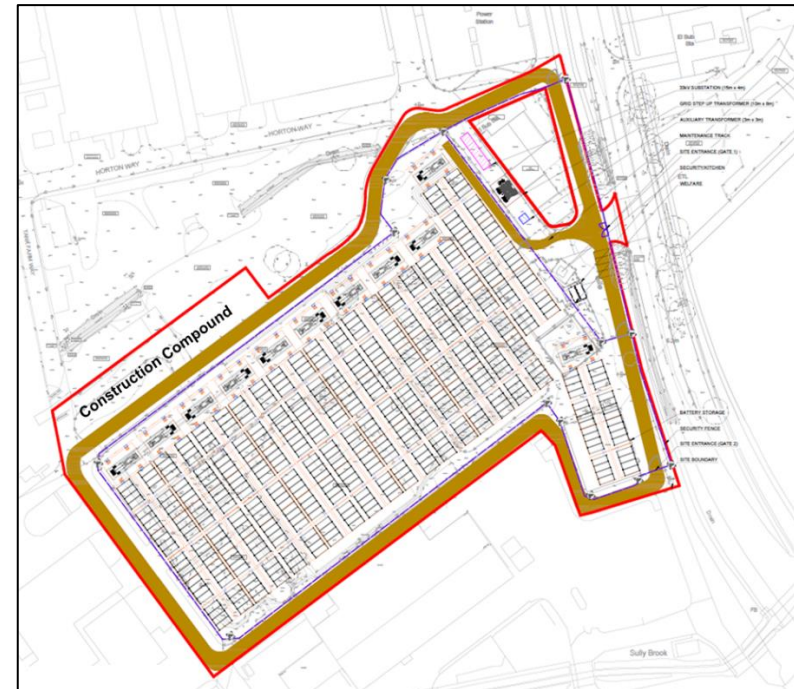
#### 4.5 Movement To, From and Within the Development

4.5.1 The former power station has a main entrance gate allowing access to the site directly from Sully Moors Road. Secondary accesses are also currently available via existing gates off Horton Way along the northern boundary and to the rear of Barry Training Services along the southern boundary.

4.5.2 The existing maintenance track will be retained and connect the main access gate with a gate connecting the LDES compound to the construction compound and a gate connecting the LDES compound to the north eastern corner of Barry Training Services. It will also provide access to the 33kV substation, step-up transformer and auxiliary transformer as well as the security/ kitchen and welfare cabins.

4.5.3 It is anticipated that construction traffic will generate maximum of 50 two-way trips for staff and 30 two-way trips for LGVs and HGVs at the peak of construction. There will be no construction vehicle movements at any time on Sundays or on public or bank holidays.

4.5.4 Once construction is completed and the LDES has been commissioned and is operational, traffic to site will be minimal and for maintenance only.



***Layout Plan showing the Access gates and the Maintenance Track***

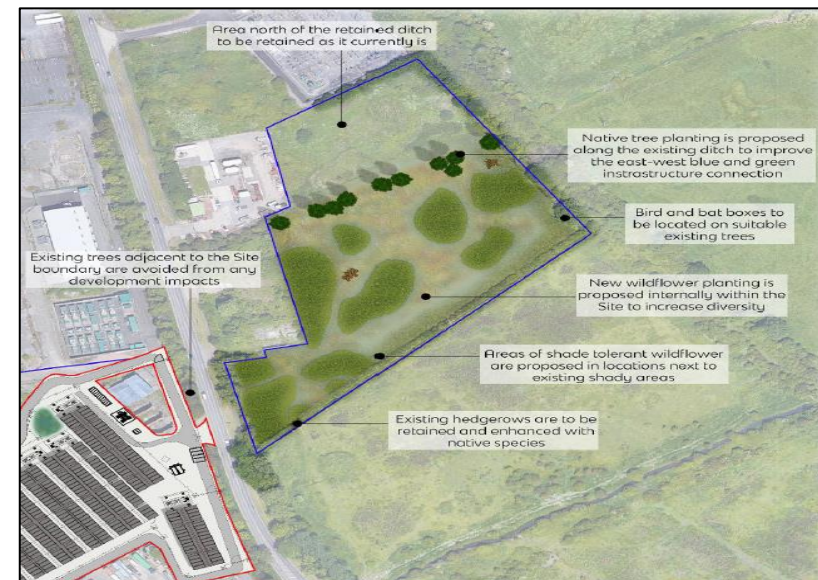
## 4.6 Landscaping

4.6.1 The landscape strategy for the off-site biodiversity net benefit area illustrates the key landscape design concepts, the retention of valuable habitats and the enhancement of green infrastructure features which have guided the preparation of the following landscape proposals:

- Retention, protection and enhancement of the priority habitat hedgerows.
- The creation of wildflower grassland within the semi-improved grassland sward during autumn to control coarser grasses allowing existing forbs and wildflowers to flourish and the introduction of a grassland management strategy.
- Native hedgerow enhancement and planting to improve connectivity, in particular on the eastern boundary, where the hedgerow has large gaps at the base allowing livestock to access the site.
- Site-appropriate native tree planting for birds.
- The creation of attenuation features which could be required to create suitable aquatic habitat for amphibians and invertebrates.

- Enhancements such as bird and bat boxes on suitable retained trees and building structures and the provision of artificial hibernacula for reptiles.

4.6.2 The maintenance and management objectives of the proposals and enhancements are to ensure the overall design concepts are achieved and the planting is established.



***Illustrative Landscape Mitigation and Enhancement Plan***

#### 4.7 Community Safety

- 4.7.1 The site will have one main entrance that will be monitored via CCTV 24/7. Safety and security are of the highest importance, and this would be maintained during construction and the operational phase of the LDES.
- 4.7.2 The wider site boundary treatments will not change as a result of the proposals and community safety will be ensured through the continued security and safety measures in place at the site.
- 4.7.3 Around the LDES site itself the existing security fence is proposed to be retained along with the access gates.

#### 4.8 Environmental Sustainability

- 4.8.1 The site is located within the urban boundary and comprises previously developed brownfield land, meaning that the proposal meets the requirements of local and national planning policy regarding the efficient use of land and the preference for reusing previously developed land.
- 4.8.2 The proposed LDES development will support renewable energy generation, reduce energy wastage and support the transition to a low carbon economy. LDES can improve energy security by ensuring a more balanced and reliable supply of electricity. LDES development, therefore, has an important role to play in the energy network and will supplement the electricity grid during periods when the supply of energy may have fallen below optimum levels for any reason.

## 5 Conclusion

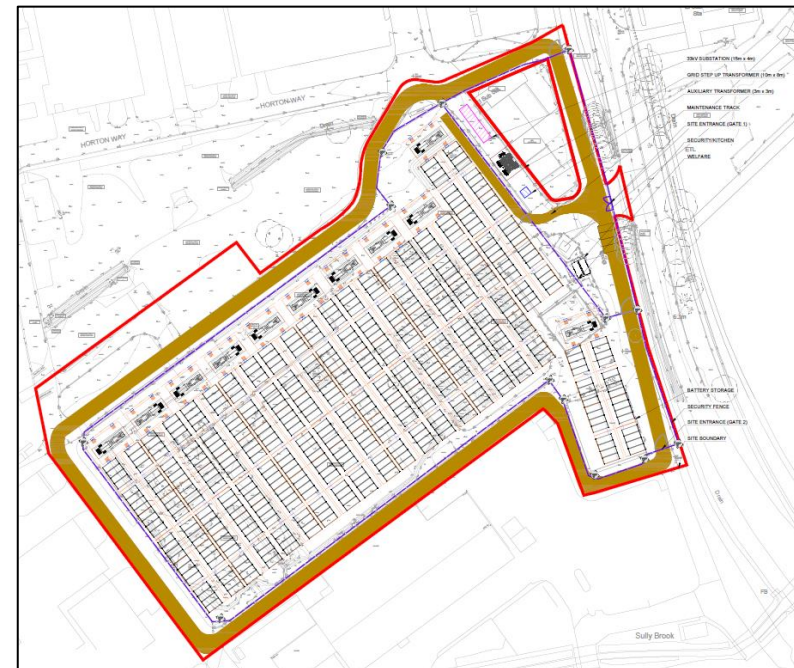
### 5.1 Conclusion

5.1.1 This Design and Access Statement has been prepared in support of a full planning application for the installation of a LDES with associated works.

5.1.2 The proposal seeks to bring vacant, underutilised land on the former Barry Power Station site back into beneficial use for the storage of long duration energy, supporting national objectives to make effective use of land and support renewable energy projects. Overall, the proposal will bring significant sustainability, environmental and economic benefits, whilst resulting in no adverse impacts on highways, landscape and visual effects, ecology, biodiversity, flood risk, ground contamination, air quality and fire safety.

5.1.3 Care has been taken in the design of the proposed development to avoid unacceptable environmental and amenity impacts. Additionally, the project will implement a scheme for landscape and biodiversity enhancements.

5.1.4 The temporary and reversible nature of the development will allow for the site to be returned to industrial use in the future.



***Proposed Layout Plan***

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