
Battery Energy Storage System Land at Ball Green Farm, Staffordshire Alternative Sites Assessment

Anesco Ltd

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**Battery Energy Storage System
Land at Ball Green Farm, Staffordshire
Alternative Sites Assessment**

Prepared on Behalf of Anesco Ltd

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1.0 INTRODUCTION

- 1.0 This Alternative Sites Assessment has been prepared by Barton Willmore on behalf of Anesco Ltd (the 'Applicant') to accompany a full planning application for a proposed battery energy storage system ('BESS') on Land at Ball Green Farm, east of Bemersley Road, Ball Green, Staffordshire Moorlands (the 'Site'). The description of development is as follows:

Construction of a temporary 49.35MW battery storage facility, to include a compound, a DNO control room, a customer substation, security fencing, landscaping and other associated infrastructure.

- 1.1 The Site is located in the Stoke Green Belt. Whilst there is no explicit test for the location of battery energy storage systems in the Local Plan, the National Planning Policy Framework ('the Framework') or Planning Practice Guidance ('PPG'), the Alternative Site Assessment ('ASA') seeks to identify if there are any potentially more suitable sites situated on non-Green Belt or brownfield land.
- 1.2 There is no set guidance at a local or national level as to how the ASA should be undertaken and the methodology used.
- 1.3 The assessment comprises a theoretical exercise carried out to support the planning application and will assist the decision maker in understanding the Applicant's approach that led to its selection of the Site as its preferred location for the Ball Green Farm BESS. It explains the factors that determine what constitutes an appropriate site for a BESS; it identifies the land options considered by the Applicant as potential site for a BESS; and considers the range of relevant planning factors that led the Applicant to conclude that the Site performed better than any of the potential alternatives and is therefore, the most suitable.

2.0 PROPOSED METHODOLOGY

- 2.1 As noted in Section 1 of this report, there is no guidance at a local or national level as to how the ASA should be approached or the methodology that should be followed.
- 2.2 Whilst there is no specific guidance as to the methodology that needs to be followed, there is a generally accepted approach, which includes the following:
1. Defining the grid connection opportunity and identification of the study area;
 2. Undertaking a sieving exercise;
 3. Formulate short-list of sites; and
 4. Assessing sites on the short list.
- 2.3 Further details of the methodology are set out below:
- Search area to be a 2km radius from the grid connection which the application site is due to connect to;
 - Sites to be sourced from Staffordshire Moorlands brownfield land register, the Strategic Housing Land Availability Assessment, the Employment Land Study, the Local Plan and any land for sale on Right Move;
 - Setting a minimum site threshold of 1.8ha as this amount of land is required to sufficiently accommodate a 49.25MW BESS application.
- 2.4 Within the methodology, the locational constraints of BESS will be set out below. There are several locational requirements that are necessary to ensure that a BESS can be deployed and operated effectively.

Locational Requirements

Grid Connection

- 2.5 Firstly, a grid connection needs to be established with sufficient capacity to connect a BESS. For battery storage both 50MW import capacity and 50MW export capacity is required at the grid connection.

Distance from Grid Connection

- 2.6 The BESS must be located within a 2km radius from the Point of Connection (POC). It is necessary that the BESS is located as close as possible to the POC for commercial and practical reasons which are set out as follows:

- The closer to the grid connection the BESS is, the more effective the energy transfer is due to the shorter cable routes and therefore, less energy is likely to be lost through cabling;
- The further away from the POC the more that must be spent on the cable, which has a significant impact on the viability of the project; and
- A longer cable route results in more disturbance, both environmentally and locally.

2.7 Due to the nature of battery energy storage systems, which import as well as export energy from the grid (solar and wind energy only exports to the grid for example), the extent of such viability criteria become even more critical. This severely restricts the potential locations such a development can be deployed.

2.8 Ultimately, Anesco have an agreed offer from the District Network Operator to connect to a specific grid connection, so the search area has to focus around the connection, particularly as a BESS becomes unfeasible beyond 2km from the connection. For example, nothing would be gained by identifying non-Green Belt land if it did not meet the location requirements, such as not being within proximity of a suitable grid connection.

Land Use Considerations

2.9 There are a number of land uses that also need to be considered when sifting sites to be considered for BESS. Firstly, a BESS cannot be located within a built up area nor a heavily industrial area. In these locations the BESS is more likely to be competing with other land uses for capacity on the National Grid, particularly industrial estates which are very intensive in terms of energy consumption, meaning that points of connection within proximity have limited capacity.

2.10 Built up areas are often highly residential which is incompatible with a BESS. BESS transmit a level of noise and therefore, a Noise Assessment accompanies the planning application submission to assess the impact of the development on nearby sensitive noise receptors. As a residential use would be a sensitive noise receptor, a BESS is considered an incompatible land use in the proximity of a residential area.

Environmental and Physical Constraints

2.11 Such projects must also be in areas where there are no construction hazards. Factors such as topography, flood risk and access can all contribute to this and thus locations are selected very carefully to ensure there are little to no risks during both construction and ongoing maintenance of the project.

- 2.12 There is also a preference to locate such projects outside of designations such as AONB's, National Parks and SSSIs.
- 2.13 As such, there are a range of locational requirements that dictate where a BESS can be located and will inform the assessment of alternative sites.

3.0 ASSESSMENT

- 3.1 This Section of the ASA follows the methodology outlined in Section 2 of the report, which includes defining the grid connection opportunity, undertaking a sieving exercise, formalising a list of sites and then undertaking an assessment of the suitable and available sites.

Stage 1 – Defining the grid connection opportunity and identifying the study area

Grid Connection Opportunities

- 3.2 Prior to the selection of the Site, import and export capacity of substations in the Staffordshire Moorlands District and surrounding authoritative boundaries were searched to understand where a grid connection was possible. Figure 3.1 below shows the substations that currently have sufficient export capacity, whilst Figure 3.2 shows the substations with sufficient import capacity. The green markers represent sufficient capacity availability whilst the blue, orange and red markers highlight insufficient capacity. The two figures have been sourced from the District Network Operator.
- 3.3 It should be noted that as the DNOs grid offer has been accepted for the proposed BESS, the POC for the Site no longer shows on the map as having capacity so is not shown in Figure 3.1 and 3.2 below.

Figure 3.1: Substations with 50MW Export Capacity

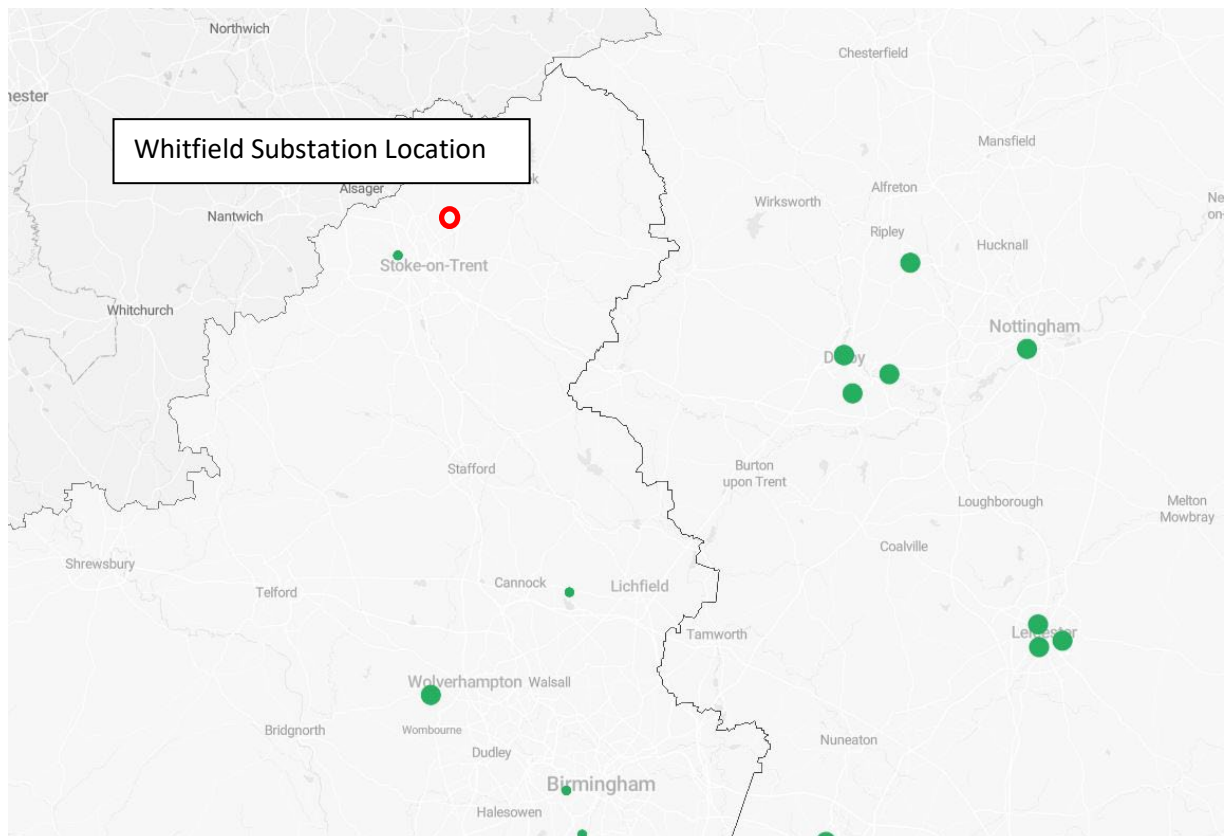
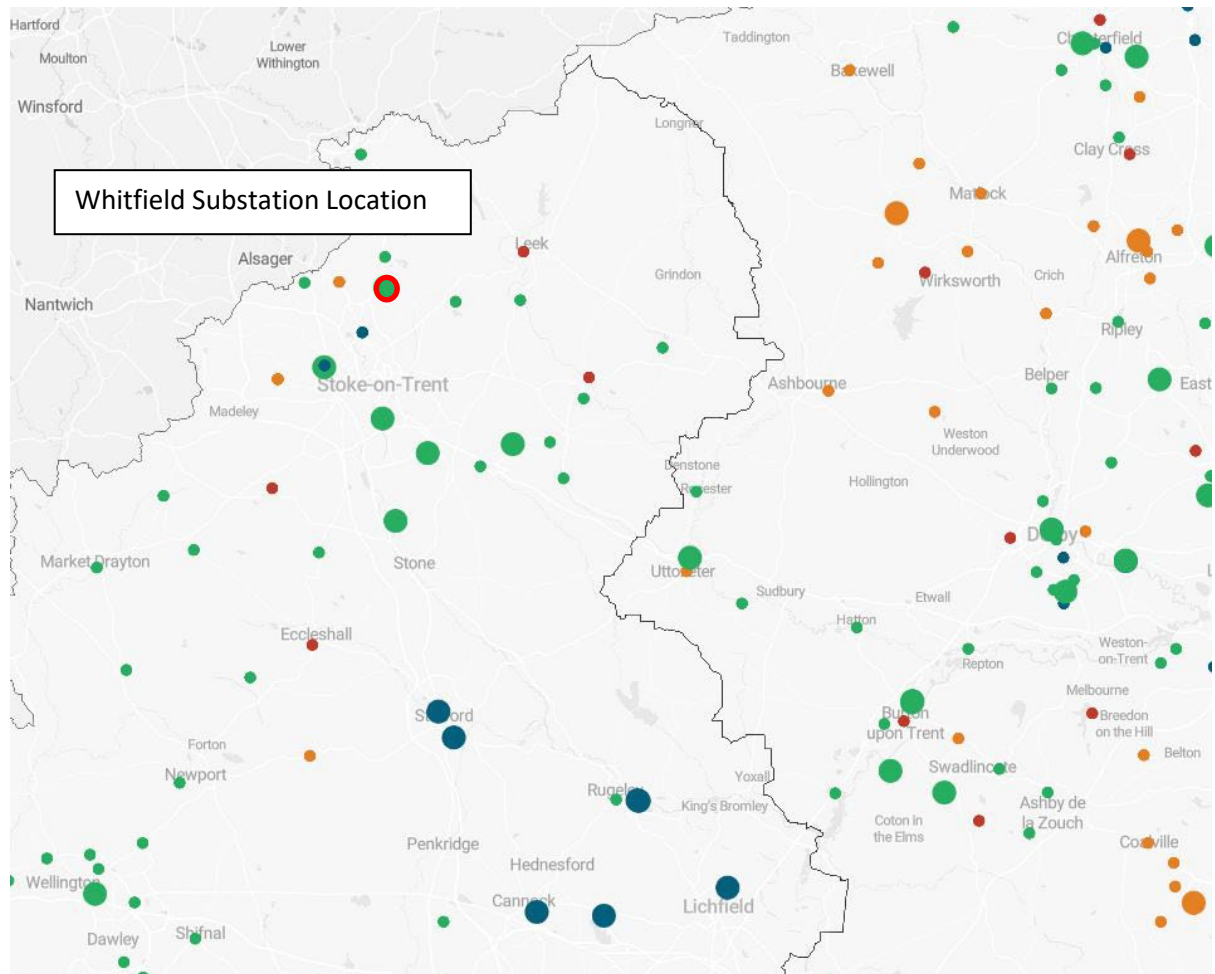


Figure 3.2: Substations with 50MW Import Capacity



- 3.4 Whilst Figure 3.2 shows a number of substations in the Staffordshire Moorlands District with import capacity, a substation with both import and export capacity is required to connect a Battery Energy Storage System. As such, when comparing the information in both figures above, which covers several authoritative boundaries, there is only the substation in Staffordshire Moorlands District which has capacity to accommodate the generation (export) and demand (import) capacity. No grid connections with both import and export are available outside of the Green Belt within the District.
- 3.5 As such, only this grid connection opportunity exists within the Staffordshire Moorlands District for a BESS to effectively connect to, which is located in the Green Belt. This grid connection has been secured by the Applicant.

Identifying the Study Area

- 3.6 With the grid connection established and secured, the study area needs to be defined. A 2km radius has been drawn up around the POC to define the study area, as shown in Figure 3.3 below.

Figure 3.3: POC 2km Study Area



(Source: Google Earth)

- 3.7 The west of the radius is located within the authoritative boundary of Stoke on Trent City Council and to the east is Staffordshire Moorlands District Council. The eastern part of the 2km radius around the POC is situated entirely within the Green Belt. As such, given that no other substations have capacity in the district, there are no suitable sites located in the District that are situated outside of the Green Belt.

Undertaking a Sieving Exercise

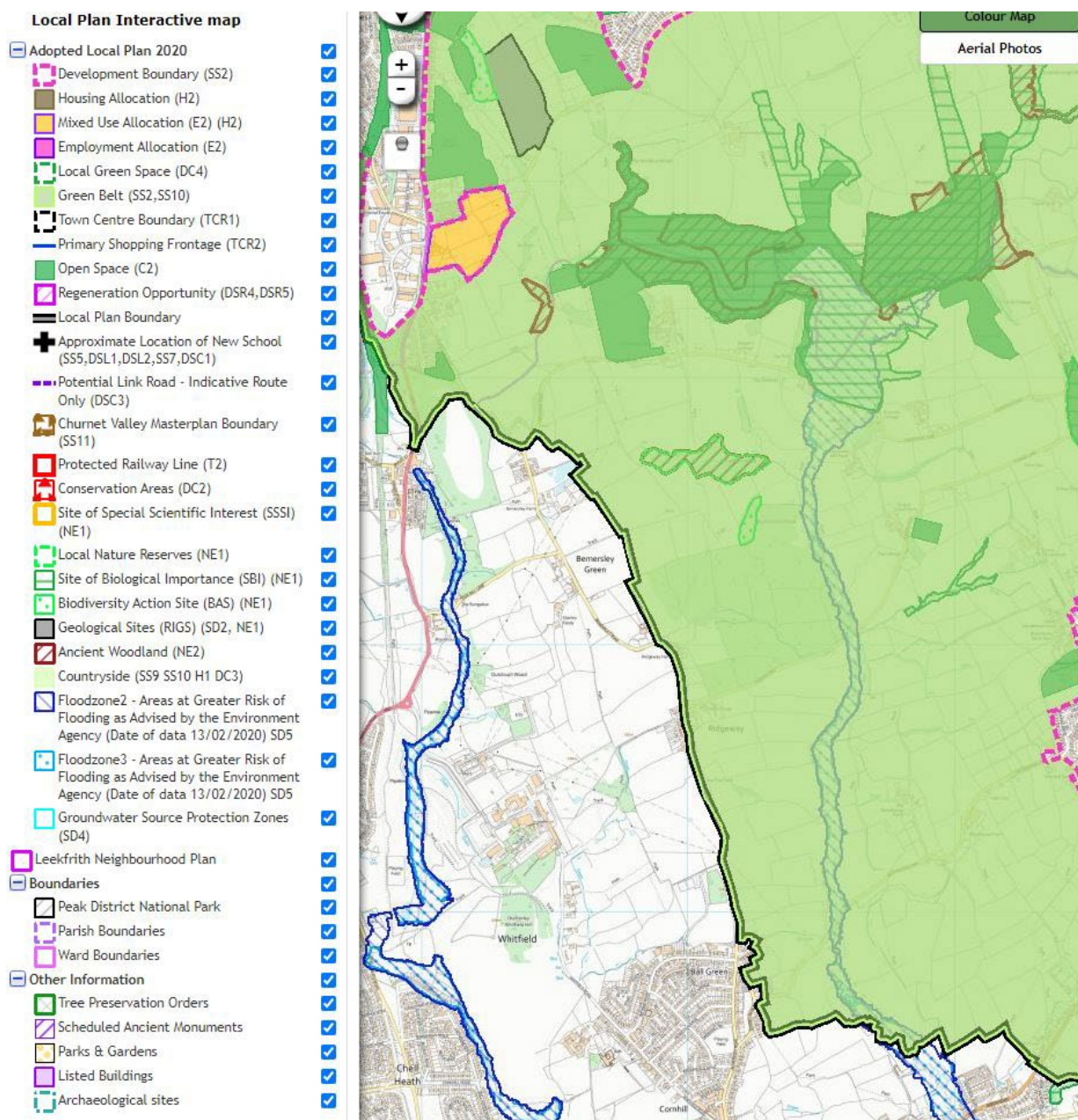
Land Use Considerations

- 3.8 There are a number of land uses that also need to be considered when sifting sites to be considered for BESS. A BESS is incompatible within built up and residential areas and industrial estates.
- 3.9 Figure 3.3 shows that partly to the north, west and south west of the POC is heavily built up. The built up areas to the west and the south west are outside of the authoritative boundary of the District. The industrial estate to the south of Brown Lees, to the north of the radius, is located within the District. However, this part of the radius is discounted for incompatibility and viability reasons.

Environmental and Physical Constraints

- 3.10 Within the study area outside of built up areas, a search of environmental and physical constraints has been undertaken in the district using MAGIC maps and the Local Plan Policies Map. Figure 3.4 shows an extract of the Local Plan Policies Map for the study area.

Figure 3.4: Local Plan Policies Map Extract

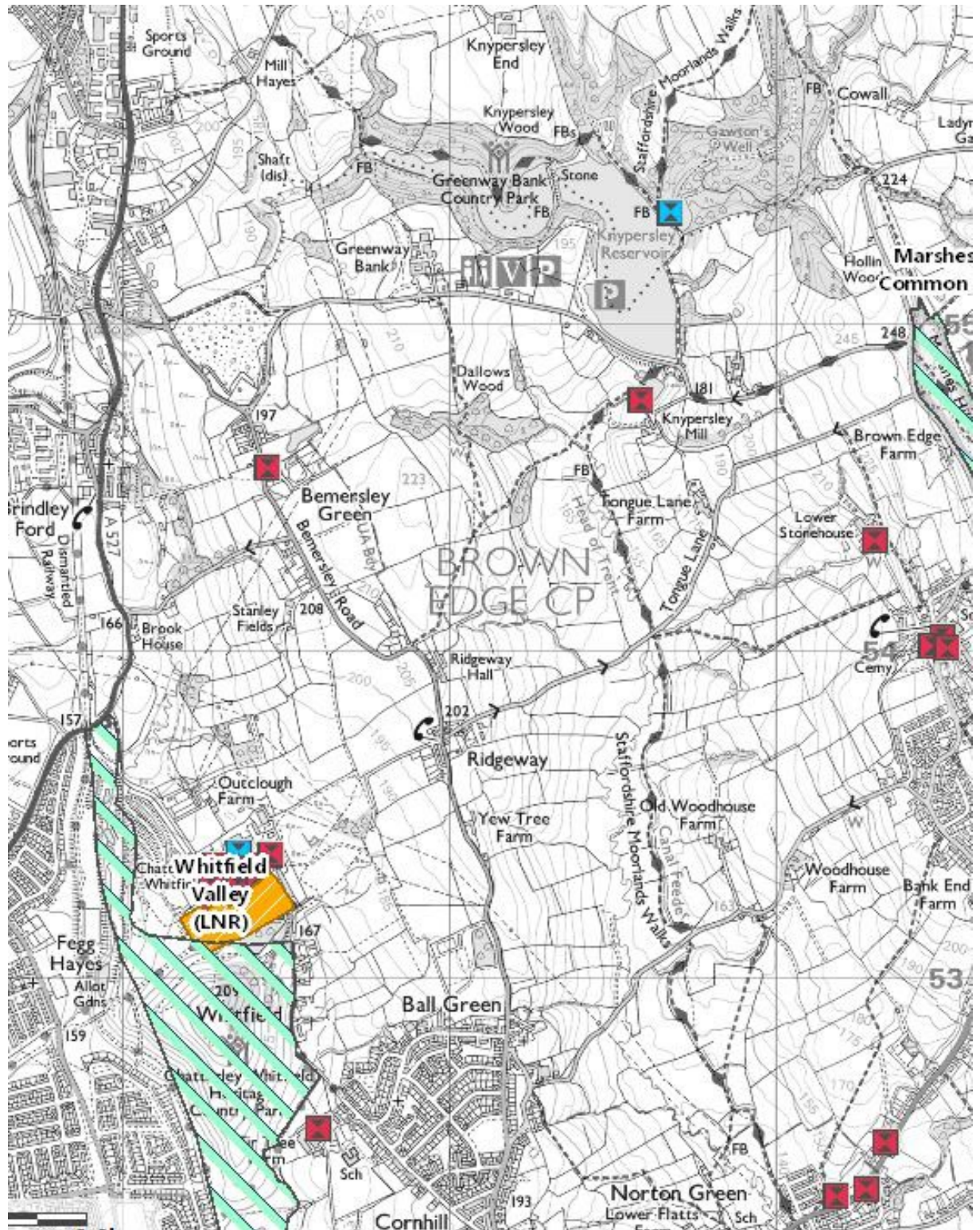


(Source: Staffordshire Moorlands District Council)

- 3.11 The map highlights areas of Flood Zone 2 and 3 to the north east of the Site as well as Open Space allocations and therefore, would be inappropriate to locate a BESS in these locations.

- 3.12 The extract from MAGIC Maps in Figure 3.5 below also highlights the listed buildings within the 2km search area which shows a location near Bemersley Green or Knypesrsley Mill would not be suitable due to the proximity to a listed building.

Figure 3.5: MAGIC Maps Extract



(Source: magic.defra.gov.uk)

Brownfield Land Register

- 3.13 Staffordshire Moorlands Council last updated their brownfield land register in 2021 and this version has been used to source sites within the 2km radius, which as noted in paragraph 2.3, must have a minimum site area of 1.8 hectares.
- 3.14 A search of sites within the Brownfield Land Register highlighted that there were no available sites within the 2km search radius.

Strategic Housing Land Availability Assessment

- 3.15 The Strategic Housing Land Availability Assessment ('SHLAA') for Staffordshire Moorlands was last updated by the Council in July 2015 and was used as part of the evidence base to inform the Local Plan.
- 3.16 A search of sites within the SHLAA highlighted three sites within the 2km study area of suitable size to accommodate a BESS:
- 364/BE034 – Land off Gorsey Bank, Brown Edge – 3.38ha;
 - 2007/BE049 – Land to Rear of Cemetery, Church Road, Brown Edge – 4.2ha; and
 - 2008/BE050 – Land to West of Boardmans Bank, Brown Edge – 2.3ha.
- 3.17 All three sites are located in the Green Belt.
- 3.18 Site 364/BE034 is located adjacent to the settlement of Ball Green and is therefore, not suitable for a battery energy storage scheme as highlighted in paragraph 2.10. Furthermore, part of the site has recently been granted planning permission for an agricultural building and associated works (ref. SMD/2021/0179) at Ball Green Farm. Therefore, with the time that has passed since the SHLAA was updated and the planning application submitted and granted last year, it would be reasonable to assume that the site is no longer available for development, in addition to it being unsuitable for a BESS.
- 3.19 Site 2007/BE049 is located adjacent to the settlement of Brown Edge. Again, given its proximity to residential properties, the site is unsuitable for a BESS. As such, our Client's Site is a more suitable site for the development. The site is also located further from the POC than our proposed Site and therefore, is sequentially less preferable from an operational perspective. As highlighted, locating further from the POC increases the possibility of losses through longer cable runs.
- 3.20 Site 2008/BE050 is also located in proximity to residential properties, on the edge of the settlement of Brown Edge, and adjacent to a cluster of farm buildings. The site assessment form also notes that the site is *"identified in the L & S Character Assessment as important to*

the setting of the village". Furthermore, the Site is also located further from the POC than the Applicant's Site on the edge of the radius. Considering these cumulative factors, our Client's site is not constrained by either factors and therefore, would be a more suitable site for the proposal.

- 3.21 Unfortunately, none of the sites which meet the search criteria are suitable to be taken through to the site assessment stage.

Employment Land Study

- 3.22 The Employment Land Review ('ELR') for Staffordshire Moorlands was last updated by the Council in 2017 and was used as part of the evidence base to inform the Local Plan.
- 3.23 The Employment Land Schedule 2013 accompanies the ELR but shows no available employment land within the 2km study area.
- 3.24 Although prepared in 2008, the Employment Land Study – 2026 update ('ELS') is also available online. Of the Schedule of Employment Sites in Table 3.2, it appears that only Site ID 39 – Power Nash Industrial Estate and Brown Lees Industrial Estate is located within the study area. However, Table 6.3 indicates that there is currently no vacant land on the site with 0.8ha of opportunity land. In combination with the industrial estate location, the site would not be a suitable alternative for a BESS.

Staffordshire Moorlands Local Plan

- 3.25 The Local Plan was only adopted in 2020 and is therefore a recent and up to date plan. Proposed allocations within Local Plans can be considered as part of ASA, however, given the plan is recently adopted, it is not considered appropriate to consider allocated sites which have not yet been built out. It is too early to establish whether such sites are not coming forward due to deliverability issues and as such, we do not consider sites currently allocated for housing or employment to be an appropriate source of sites.

Land for Sale

- 3.26 An online search of Right Move shows no available land for sale at this current time within the 2km search area of the District.

The Proposed Site

- 3.27 From a review of relevant planning documents, it is clear that there are no available alternative sites to locate the proposed BESS on non-Green Belt or brownfield land. Whilst Figures 3.4 and 3.5 show that there are somewhat limited constraints in terms of ecological designations

and heritage assets within the study area on greenfield land, there is no evidence highlighting that other plots of land are available for the proposed development. All land within the study area is Green Belt.

3.28 Conversely, the proposed Site is available with a willing landowner and therefore, development can come forward on the Site. Furthermore, the Site has considerable locational advantages as a suitable location for the proposed development:

- Close to a suitable and viable grid connection, located approximately 1km from the POC;
- Access will be facilitated from Bemersley Road which follows the field boundaries. Bemersley Road is suitable for construction traffic;
- The Proposed Development is compatible with neighbouring land uses;
- There are limited views of the Site from public receptors;
- There are no nearby residential receptors;
- The Site is located in Flood Zone 1 and is therefore at a low risk of flooding;
- There are no known archaeological features within the development area;
- There are no statutory heritage assets on or in close proximity to the site; and
- The Staffordshire Moorlands administrative boundary is heavily constrained by the Green Belt, particularly to the west of the District. The chosen site is the only one in close proximity to a connection point which is available and without any development constraints which would likely stop any prospect of the development progressing.

3.29 Therefore, there is no other land in close proximity which provides locational and grid connectivity benefits such as the Site identified through this planning application.

4.0 CONCLUSIONS

- 4.1 The purpose of the ASA was to provide evidence to assist with the planning application for the construction of a 49.35MW battery storage facility on Land at Ball Green Farm, east of Bemersley Road, Ball Green.
- 4.2 The ASA has outlined a methodology to assess sites against the requirements for a battery energy storage system and the available points of connection have been established in the District and further afield. The ASA has identified that no other POC with import and export capacity are available within the District and therefore, no non-green belt sites are available which could accommodate the development. A study area has then been established within a 2km radius around the POC.
- 4.3 A list of sites was collected within the study area via the Council's publicly available sources – brownfield land register, SHLAA, ELS and Local Plan, and no sites met the selection criteria due to locational constraints. A search of Right Move for land available for sale also provided no results within the study area.
- 4.4 As such, it has been demonstrated that there are no brownfield sites or other sites which are known to be available which are suitable or available to accommodate the proposed development. The proposed Site is ready, available and suitable for a BESS and as such, it the most preferable site for development, as demonstrated through this ASA.
- 4.5 As required in Paragraph 151 of the NPPF, developers must demonstrate very special circumstances to locate renewable energy projects in the Green Belt. This ASA supports this case highlighting that no other sites are available for this development outside of the Green Belt in the District.