

Land of Hopewell Street, Stairfoot, Barnsley
Ecological Impact Assessment (EcIA) of proposed battery
storage facility

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1.0 INTRODUCTION

1.1 Terms of Reference

SLR Consulting Ltd was commissioned by Abbey Power Solutions to undertake an Ecological Impact Assessment (EcIA) of a proposed battery storage facility on land off Hopewell Street, Stairfoot, Barnsley, South Yorkshire (approximate central OS grid reference SE 3665 0591).

1.2 Proposals and Site Description

Proposals involve the installation of a 53m x 45m battery storage facility comprising eight containers, and associated transformers and power converters, which shall be located within a 2.4 metre tall fenced enclosure. The northern, western, and eastern boundaries of the storage facility will be planted with a 4 metre wide belt of species-rich native woodland/scrub, with the southern boundary having a 3 metre wide belt, to provide screening and achieve some ecological gain.

The existing access road which runs from Hopewell Street, in the east, to the existing electricity sub-station, further west, will be the means of access to the facility's compound; the existing access road will not need to be widened or upgraded.

An earlier design proposal for the battery storage facility involved an alternative location, to the west of the existing sub-station, *circa* 100 metres from the current location. This alternative location is referred to in this report as the 'original site'. A suite of ecological surveys were undertaken in the original site during the summer of 2016, including an initial Extended Phase I Habitat Survey, desk study, bat foraging surveys and reptile presence/absence surveys; the results of these surveys have been included in this report as they are relevant to the ecological assessment of the current application site.

Although the footprint of the battery storage facility will measure 53m x 45m, the 30m x 30m area immediately to the east of it (between the facility and Hopewell Street) will be impacted by 'cut and fill' during construction works. This area was therefore also included in the assessment, and is hereafter referred to as 'the Site'.

The Site lies on land on the north side of Stairfoot, a suburban area located two kilometres to the south-east of the centre of Barnsley. The Site comprises mostly un-managed rank grassland, tall herb and scrub. There is a large vegetated mound of spoil in the eastern part of the Site.

A short distance to the north of the Site the land slopes steeply down to a former railway line cutting which is now part of the Trans-Pennine Trail. Land to the east is formed of residential properties and back gardens. Land to the south is similar in character to the Site, consisting of a mix of un-managed rank grassland and scrub, beyond which there is a partially-used allotment garden and south of this a live railway line with marginal scrub and trees. Land immediately to the west is occupied by an electricity sub-station.

2.0 SURVEY METHODOLOGY

2.1 Extended Phase I Habitat Survey of the Current Application Site

An Extended Phase I Habitat Survey was undertaken by an experienced ecologist from SLR Consulting Ltd on the 13th of December 2016, in accordance with standard methods (JNCC, 2010). Noteworthy ecological features, within the Site or immediately adjacent to it, were identified using Target Notes.

In addition to general habitat classification and mapping, a botanical species list was also compiled¹, with the abundance of each species being estimated using standard 'DAFOR' codes: **D**ominant, **A**bundant, **F**requent, **O**ccasional, **R**are (**L**ocally being used as a prefix where appropriate). The complete Site list is contained in Appendix B of this report.

Habitats and features with potential to support protected and/ or conservation priority fauna, together with any field signs of such species, were searched for. This included a search for evidence of badger (ostensibly setts) and a search for habitats with potential to support reptiles, breeding birds, and roosting and/ or foraging bats.

The following table, adapted from current best practice guidelines (Collins, 2016), was used as a guide to assess the bat roosting potential of trees located within the Site, and adjacent to the Site boundary:

Table 2-1:
Guidelines for Assessing the Potential Suitability of Trees for Bats

Suitability	Description Roosting habitats
Negligible	Negligible habitat features likely to be used by roosting bats.
Low	A tree of sufficient size and age to contain Potential Roost Features (PRFs) but with none seen from the ground or feature seen with only very limited roosting potential.
Moderate	A tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type).
High	A tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

Searches were also undertaken for plants listed on Schedule 9 of the Wildlife and Countryside Act (1981) as amended, such as Japanese knotweed (*Fallopia japonica*) and Himalayan balsam (*Impatiens glandulifera*).

¹ Botanical nomenclature follows Stace (1997).

2.2 Desk study

The Barnsley Biological Records Centre (BBRC) was contacted to obtain ecological data for the original site (located *circa* 100m to the west of the current Site) and land within a 2 km radius. Information was requested for designated sites² and species of conservation concern at a national, regional and/or local level³. In addition, South Yorkshire Bat Group was contacted to obtain records for bats within a 2 km radius from the centre of the original site. This data was provided in May and June 2016, and is therefore up to date and relevant.

The Natural England web site 'MAGIC' www.magic.co.uk was also searched for statutory areas, using a 2km radius for Sites of Special Scientific Interest, and 5km for Natura 2000 sites (Special Protection Areas, Special Areas of Conservation, and Ramsar sites).

2.3 Reptile Presence/ Absence Survey of the Original Site

Abbreviated reptile presence/ absence surveys were carried out on the original site (located *circa* 100 metres to the west of the current Site) during May and June 2016. The initial survey of that site on the 27th of May was supplemented with two further searches for reptiles; these took place on the 31st of May (which included the deployment of five reptile refuges), and the 3rd of June 2016 (which included the checking of these refuges). During each of the survey visits, reptiles were also searched for using 'passive searching', aided by the use of binoculars, to view distant grass tussocks, and other potential basking sites. The weather conditions, and start and finish times, are illustrated in the table below.

Table 2.3: Weather Conditions during the Reptile Surveys of the Original Site

Date	Time	Weather Conditions
27/5/2016	11.00 – 15.00 hrs	16°C; light to gentle south-westerly breeze; dry; 80% cloud
31/5/2016	10.00 – 11.00 hrs	13°C; moderate to fresh northerly breeze; dry; 100% cloud
03/6/2016	09.00 – 10.00 hrs	14°C; calm (no wind); dry; 100% cloud (but hazy sunshine)

2.4 Bat Survey

The original site was assessed as having some potential to support foraging bats. A limited amount of bat survey work was therefore undertaken; this involved a single evening walked transect, along with the deployment of two static bat detectors (Anabats), one within the original site itself, and the along the well-wooded Trans Pennine Trail (disused railway line, used as a cycle path), a short distance to the north.

² Designated sites include those protected under national or international legislation, such as Sites of Special Scientific Interest (SSSI), and local sites afforded protection under the planning system, such as County Wildlife Sites (CWS) and Regionally Important Geological and Geomorphological Sites (RIGS).

³ This includes species protected under international and national legislation as well as species included in the UK and/or local Biodiversity Action Plans, Red Data Book taxa, and Red or Amber listed birds of conservation concern.

2.4.1 Evening Walked Bat Transect of the Original Site

The bat transect survey took place on the evening of 1st June 2016. It commenced at 21.10 hrs (15 minutes before sunset) and lasted for approximately 2.5 hours. The weather conditions during the survey are shown in the table below.

Table 2.4.1: Weather Conditions during the walked bat transect of the Original Site

Date	Time	Weather Conditions
2/6/2016	21.10 – 23.41 hrs	10°C; moderate to fresh northerly breeze; dry; 80%-100% cloud

The transect route encompassed the original site, and immediately surrounding habitat, including the current Site. It involved eight sample points, located on a loop; each of the points was sampled for five minutes, on three occasions (i.e. for 15 minutes in total, throughout the evening), and a record of the bat activity recorded at each, made.

2.4.2 Static Bat Detector Survey of the Original Site

Two static bat detectors (Anabats) were deployed over three nights (Tues 31st May to Thursday 2nd June 2016, inclusive), one was placed within the original site itself, next to some elder scrub (at SE 36533 05919) and the other circa 50 metres to the north-east of the original site, along the well-wooded Trans Pennine Trail (disused railway line, used as a cycle path), to act as a 'control'.

2.5 Limitations

2.5.1 Field survey

Field survey of the current Site was undertaken at a sub-optimal time of the year in respect of recording flora. However, this is not considered to be a significant limitation given that the habitats contained within the Site are of limited ecological value.

A lack of evidence of a protected species at the time of field survey does not necessarily preclude them from being present intermittently, or at a later date.

2.5.2 Desk Study

Desk study data is unlikely to be exhaustive, especially in respect of species, and is intended mainly to set a context for the study. It is therefore possible that protected species not identified during the data search may occur on or within the vicinity of the Site.

2.6 Quality Assurance and Environmental Management

The surveyors involved in this project are members of the Chartered Institute of Ecology and Environmental Management (CIEEM), and followed the code of professional conduct set out by CIEEM when undertaking the ecological work.

3.0 SURVEY RESULTS

3.1 Results of Desk Study

3.1.1 Statutory Sites

The Site itself does not contain any statutory sites of nature conservation value.

Stairfoot Brickworks Site of Special Scientific Interest (SSSI) lies approximately 1.6km to the south-east of the Site (at SE 381 048). This 0.12 ha site has been designated because of its geological value (Aegiranum Marine Band), but its citation does not indicate that it has specific ecological value. No other SSSIs occur within 2km of the Site boundary.

The Dearne Valley Park Local Nature Reserve (LNR) lies approximately 560 metres to the north of the Site, beyond the A628 Pontefract Road (central grid reference SE 360 069). This site is also known as 'Cliff Wood', and is a Local Wildlife Site (see Section 3.1.2, below). This mixed use reserve, developed from relict habitats and reclaimed colliery land around a river valley, supports a mixture of acid oak woodland with a mosaic of wetland habitats. Some areas are managed as amenity woodland, and there is a children's play area and two large ponds (one run by an angling club). A network of footpaths and a concessionary cycleway run the length of the LWS.

There are no Natura 2000 sites within 5km of the Site boundary.

3.1.2 Non-Statutory Sites

The Site itself does not contain any non-statutory wildlife sites (or form part of such a site).

However, the Site lies *circa* 560 metres to the south of Cliff Wood Local Wildlife Site (also known as Dearne Valley Park Local Nature Reserve, site reference 634). The citation for this site (Appendix C) states that the woodland it supports contains a number of plant species of botanical interest, including broad-leaved helleborine (*Epipactis helleborine*); yellow archangel (*Lamiastrum galeobdolon*); and wood horsetail (*Equisetum sylvaticum*), amongst others, which are reported to be ancient woodland indicator species, within South Yorkshire.

Willow tit (*Poecile montanus*), a 'Red List' bird species⁴, and species of principle importance⁵ is reported to breed within this LWS.

The proposed battery storage facility also lies *circa* 590 metres to the west of Stairfoot Disused Railway Local Wildlife Site (site reference 1161). The citation for this site (Appendix C) states that it supports a number of ancient woodland indicator species, such as dog's mercury (*Mercurialis perennis*); wood millet (*Milium effusum*); and bluebell (*Hyacinthoides non-scripta*).

⁴ Eaton, M; Aebischer, N; Brown, A; Hearn, R; Lock, L; Musgrove, A; Noble, D; Stroud, D, and Gregory, R (2015). Birds of Conservation Concern 4: the Population Status of Birds in the United Kingdom, *British Birds* 108, 708-746.

⁵ As listed in Section 41 of the Natural Environment and Rural Communities (NERC) Act, 2006.

No other non-statutory sites lie within 2km of the Site.

The Site lies within the Dearne Valley Green Heart 'Nature Improvement Area'.

3.1.3 Protected and Notable Species

Over 250 species records were provided by the Barnsley Biological Records Centre, mostly relating to birds for the 10km grid square SE3505, in which the Site sits.

Birds

Bird records were provided for lesser redpoll (*Carduelis cabaret*); cuckoo (*Cuculus canorus*); house sparrow (*Passer domesticus*); yellowhammer (*Emberiza citronella*); reed bunting (*Emberiza schoeniclus*); lapwing (*Vanellus vanellus*); kingfisher (*Alcedo atthis*); goldeneye (*Bucephala clangula*); skylark (*Alauda arvensis*); shoveler (*Anas clypeata*); linnet (*Carduelis cannabina*); goldfinch (*Carduelis carduelis*); stock dove (*Columba oenclus*); house martin (*Delichon urbica*); kestrel (*Falco tinnunculus*); swallow (*Hirundo rustica*); grey wagtail (*Motacilla cinerea*); goldcrest (*Regulus regulus*); starling (*Sturnus vulgaris*); blackbird (*Turdus merula*); song thrush (*Turdus philomelos*); mistle thrush (*Turdus viscivorus*); willow warbler (*Phylloscopus trochilus*); green woodpecker (*Picus viridis*); dunnoek (*Prunella modularis*); bullfinch (*Pyrrhula pyrrhula*); and willow tit (*Poecile montanus*).

Many of these records relate to Cliff Wood LWS/ Dearne Valley Park (where specified), or simply 'Barnsley'; none appear to relate to the Site itself.

Reptiles

No reptile records were returned within the desk study, either for the Site, or the 2km search area around it.

Amphibians

Two records were provided for common toad (*Bufo bufo*) and a single record for common frog (*Rana temporaria*), for Cliff Wood LWS/ Dearne Valley Park.

Invertebrates

A limited number of butterfly and moth records were provided, namely for wall (*Lasiommata megera*), cinnabar (*Tyria jacobaea*); small heath (*Coenonympha pamphilus*); and dingy skipper (*Erynnis tages*); mainly for Dearne Valley Tip, and quarry.

A single record was provided for white-clawed crayfish (*Austropotamobius pallipes*), for the River Dearne, within Dearne Valley Park (SE 363066), dating from 2010.

Mammals (other than bats)

A single record was provided for hedgehog (*Erinaceus europaeus*) for Cliff Wood LWS, and three water vole (*Arvicola amphibius*) records were provided for Dearne Valley Park (each involving a sighting of two animals).

Bat records

The Barnsley Biological Records Centre provided a number of bat records, mainly relating to Holyle Mill, within Dearne Valley Park. These included noctule (*Nyctalus noctula*) records in 1987; soprano pipistrelle (*Pipistrellus pipistrellus*) records dating from 2001, and a number of common pipistrelle (*Pipistrellus pipistrellus*) records. A common pipistrelle record, involving a count of 20 bats emerging from a roost, was also provided for 19 Tredis Close, Barnsley (SE358070), in 1995.

A number of records were also provided for Daubenton's bat (*Myotis daubentonii*) for Dearne Valley Park, and Ardsley Railway Tunnel (visible in crevices) in 1987 and 1994 respectively. A single record for Natterer's bat (*Myotis nattereri*) was also recorded for Ardsley Railway Tunnel (visible in crevices) in 1989.

A number of additional bat records were provided by the South Yorkshire Bat Group. The group provided 270 bat records in total, mostly relating to common pipistrelles, including for roosts within buildings in nearby towns, such as Worsborough and Barnsley. None of the bat records appear to relate to the Site itself.

Records of note included a noctule or Leisler's bat (*Nyctalus leisleri*) emerging from SE351034 (near Worsborough Mill) in 2012, a count of 125 common pipistrelles emerging from a house in Lund Crescent, Burton Grange (SE376072) in 2007, an injured whiskered (*Myotis mystacinus*) bat on Doncaster Road (SE383056), and a large number of Daubenton's bat records for the River Dearne, at Old Mill Lane, Barnsley (SE351072).

3.2 Results of Botanical Survey/ Habitat Descriptions of Current Site

The Site contains a mixture of dense and continuous scrub, poor semi-improved/ improved grassland and tall herb/ ruderal vegetation.

Land to the north slopes down to the Trans Pennine Trail, a disused railway line, which is well-wooded along this section; the Trans Pennine Trail is a popular cycling track. An existing electricity sub-station lies immediately to the west of the Site, beyond which (i.e. to the west) lies open rough grassland and dense to scattered scrub (which contained the original site). Land to the east of the Site consists predominantly of residential properties and rear gardens. Land to the south of the Site comprises a mix of rough grassland, tall herb and scattered scrub. Further to the south there is an actively used allotment garden beyond which there is a live railway along the margins of which there is much scrub and tree cover.

The arrangement of the habitats within the Site are illustrated in Drawing 1.

3.2.1 Scrub

Scrub is distributed mainly alongside the northern boundary of the Site, where a poorly defined line of goat willow (*Salix caprea*), garden privet (*Ligustrum vulgare*), young ash trees/ saplings (*Fraxinus excelsior*), hawthorn (*Crataegus monogyna*) and elder (*Sambucus nigra*) occur (Plate 1). Dense bramble (*Rubus fruticosus* agg.), extends southwards, in

places. There is very little scrub outside of this area apart from a small broom (*Cytisus scoparius*) bush and a young elder.



Plate 1: View (looking west) across the Site showing part of the northern boundary along which the majority of scrub occurs. The photograph was taken from the top of the mound situated in the eastern part of the site (see Plate 2). The fence forming the boundary of existing electricity sub-station can be seen on the left hand side of this photograph.

3.2.2 Grasslands

The grassland within the Site is characterised by two main types, both reflecting more or less un-managed poor semi-improved to improved grasslands of limited diversity.

The majority of the grassland, including the large mound in the eastern part of the Site (Plate 2), comprises a tall and coarse sward featuring a mix of false oat-grass (*Arrhenatherum elatius*), cock's-foot (*Dactylis glomerata*), smooth-stalked meadow-grass (*Poa pratensis*), timothy (*Phleum pratense*) and Yorkshire fog (*Holcus lanatus*). Herbs in this grassland are locally frequent but not diverse, and include cleavers (*Galium aparine*), cow parsley (*Anthriscus sylvestris*), hogweed (*Heracleum sphondylium*), creeping buttercup (*Ranunculus repens*) and dandelion (*Taraxacum officinale* agg.).

An informal pathway, most likely used by dog-walkers and people taking a short cut to the allotment gardens, runs through the Site; vegetation on this path is shorter due to regular trampling.



Plate 2: View (looking east toward adjoining residential area of Stairfoot) of a part of the main area of un-managed grassland within the Site featuring rank tall swards of fine leaved fescue (which can be seen in the foreground in this view) and coarser timothy/cock's-foot and false oat-grass grasslands (which here can be seen occupying the mound).

There is a localised increase in the diversity of herbs and mosses in areas close to the access road leading up to the existing electricity sub-station, in the southern part of the Site (Plate 3). The grassland here contains fine-leaved but rank red fescue (*Festuca rubra*)-rich swards with occasional herbs such as creeping buttercup, ribwort plantain (*Plantago lanceolata*) and common vetch (*Vicia sativa*).

Grassland immediately on the northern side of the access road is characterised by an increase in the cover of herbs and mosses. Herbs include red bartsia (*Odontites verna*), ribwort plantain, and Hairy bittercress (*Cardamine hirsuta*), and mosses include rough-stalked feather-moss (*Brachythecium rutabulum*) and capillary thread-moss (*Bryum capillare*).

The low concrete wall located in the south-western part of the Site (Target Note 2) also supports frequent moss cover and along it an assemblage of tall ruderals, including common ragwort (*Senecio jacobaea*) and locally frequent yarrow (*Achillea millefolium*).

To the east of the mound illustrated in Plate 2, the grassland is coarse, with patches of dense bramble, other scrub and tall ruderal vegetation, which is scattered in places (Plate 4).



Plate 3: View (looking north from the main access road to the existing electricity sub-station) of the main area of un-managed poor semi-improved/improved grassland, here showing a mix of fine leaved and coarser swards. Grassland beside the track features a few localised stands of more diverse swards along with increased moss cover.



Plate 4: View (looking east from top of mound) of habitat located on the eastern side of the mound which consists largely a mix of dense bramble and some scattered scrub, along with coarse poor semi-improved grassland and stands of tall ruderals (comprising mainly common nettle and rosebay willowherb). Most of the eastern boundary that can be seen here is formed of a section of tall garden privet.

3.2.3 Tall herb/ ruderal

Apart from the species associated with the area of rough grassland described above, tall ruderals comprise mainly of a few stands of rosebay willowherb (*Chamerion angustifolium*) and common nettle (*Urtica dioica*) with broad-leaved dock (*Rumex obtusifolius*) being only occasional

3.2.4 Invasive Species/ Japanese knotweed

A patch of Japanese knotweed, measuring *circa* 12 metres x 3 metres, lies immediately to the south of the access road leading into the existing sub-station (Target Note 1 and Plate 5).



Plate 5: View (looking east) of a patch of Japanese knotweed (measuring 12 metres x 3 metres located to the south of the access track which leads into the existing electricity sub-station, from Hopewell Street (which can be seen in the background).

3.3 Protected species

3.3.1 Bats

The Site itself does not contain any buildings or mature trees. All shrubs and young trees located on or near to the northern Site boundary were closely inspected and assessed for their potential to support roosting bats. None of these were assessed as having above Negligible potential.

3.3.2 Birds

A total of four bird species were recorded during the visit. These were blue tit (*Cyanistes caerulea*), bullfinch (*Pyrrhula pyrrhula*), great tit (*Parus major*) and magpie (*Pica pica*). Of these species Bullfinch is an amber list Bird of Conservation Concern (BoCC)⁶. The Site appears to provide suitable habitat for nesting by a range of urban and urban fringe passerine bird species due to the extent of dense scrub it contains.

3.3.3 Reptiles

The Site, comprising mostly of rank un-managed grassland and scrub, provides suitable habitat for the potential presence of reptiles. However, no reptile species were found during surveys undertaken on the original site, in May and June 2016 (refer to Section 3.4.1 below).

3.3.4 Badger

No setts or other evidence of badger activity was recorded within, or adjacent to, the Site.

3.4 Protected Species Surveys of Original Site

3.4.1 Reptiles

No reptiles were recorded during any of the three reptile presence/ absence surveys conducted in late May or early June 2016, and no reptile records were provided by the Barnsley Biological Records Centre, for the original site or land within a 2km radius. As the current application site lies only 100 metres or so from the original site, and supports similar habitats (a grassland/ scrub mosaic) it is therefore concluded that the Site does not support an established reptile population.

3.4.2 Bats

3.4.3 Walked transect

A single walked transect was undertaken on 1st June 2016, the route of which included the western part of the current Site as far east as the southern edge of the mound illustrated in Plate 2.

Very little bat activity was recorded. A total of seven bat passes, all involving a single common pipistrelle bats, were recorded during the transect walk. All of this activity was recorded on land west of the existing electricity sub-station with most activity occurring along the northern boundary of the original site.

The results of the walked bat transect are summarised in the table overleaf (also refer to Drawing 2).

⁶ Eaton, M; Aebischer, N; Brown, A; Hearn, R; Lock, L; Musgrove, A; Noble, D; Stroud, D, and Gregory, R (2015). Birds of Conservation Concern 4: the Population Status of Birds in the United Kingdom, *British Birds* 108, 708-746.

Table 3.4: Results of Walked Bat Transect undertaken on 1st June 2016

Point (Drawing 2)	Time	Notes
A	22.06 hrs	Single faint common pipistrelle pass, of bat foraging along Trans Pennine Trail
B	22.18 hrs	Single common pipistrelle bat seen commuting across the original site, presumably to access foraging areas along the Trans Pennine Trail
C	22.24 hrs	Single common pipistrelle bat seen commuting across the original site, presumably to access foraging areas along the Trans Pennine Trail
D	23.16 - 23.21 hrs	Four common pipistrelle bat passes, presumed to be the same bat, suggesting a bat foraging along the Trans Pennine Trail

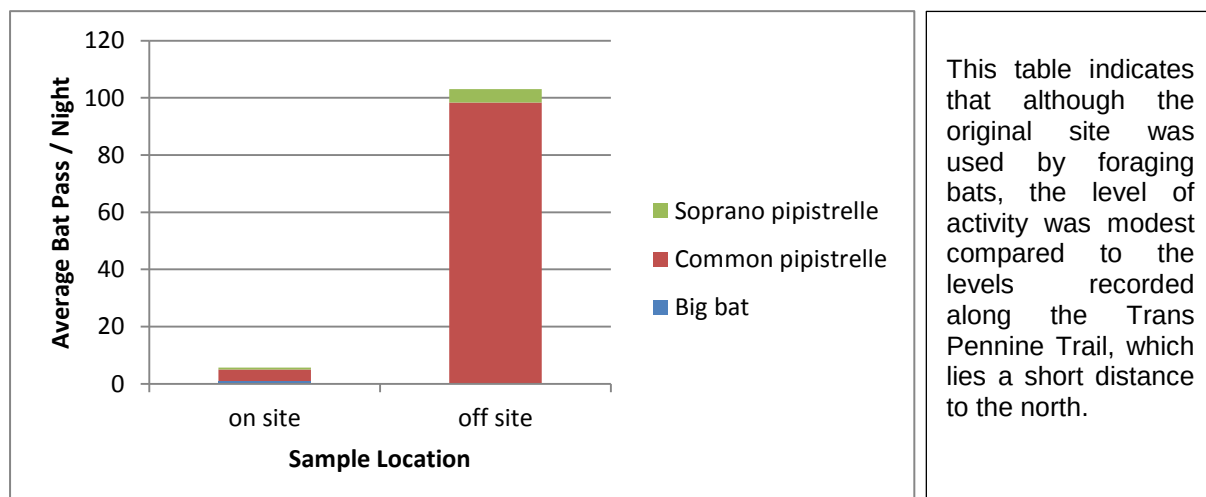
3.4.4 Static bat detector surveys

The static bat detector (Anabat) placed within the original site recorded a total of 17 bat passes (12 common pipistrelle passes, three 'big bat' (most likely noctule) passes, and five soprano pipistrelle passes) over the course of the three night sampling period.

In contrast, the static bat detector placed along the Trans Pennine Trail (i.e. at the 'control' site) recorded a total of 309 bat passes (295 common pipistrelle and 14 soprano pipistrelle passes), over the same sampling period.

A comparison between the two sites is shown in Figure 3.2 below, and in Drawing 2:

Figure 3.2: Results of Static Bat Detector Surveys



4.0 IMPACT ASSESSMENT

4.1 Botanical Interest

Construction of the battery storage facility would result in the loss of a small area of poor semi-improved grassland/ scrub mosaic of low intrinsic nature conservation value.

The loss of the scrub will be compensated for by the planting of 4 metre wide woodland/ scrub belts along the western, northern and eastern sides of the proposed battery storage facility, with a 3m wide band of scrub planting on the southern side, adjacent to the access road. This shall consist of a diverse range of native species, including hawthorn, blackthorn, dog rose, and holly.

Re-profiled land to the east of the battery storage facility, to be affected by dug and fill operations during construction, will be seeded using a suitable native species seed mix such as Emorsgate Seeds EM10 Tussock mix <http://wildseed.co.uk/mixtures/view/10>.

4.2 Japanese knotweed

An area of Japanese knotweed (measuring circa 12 metres x 3 metres) exists immediately to the south of the access road leading to the electricity sub-station (Target Note 1 in Drawing 1). Although not 'on Site' there is scope to inadvertently spread this invasive Schedule 9 plant, during construction (for example, if a fragment of foliage or root were snapped off by site machinery). The Japanese knotweed shall therefore be treated, prior to the commencement of construction works.

4.3 Reptiles

Although the Site, superficially at least, contains habitats of potential value reptiles, earlier surveys of the original site (located *circa* 100 metres to the west of the current application site, and consisting of a very similar grassland/ scrub mosaic) did not find them to be present, and there is an absence of records in the desk study data provided by the Barnsley Biological Records Centre. Therefore it is considered unlikely that reptiles occur on Site, and no specific sensitive working methods are proposed.

4.4 Birds

The Site is considered likely to support a limited range of common passerines, including a number of species likely to nest within dense scrub. In order to reduce the impact upon breeding birds, the site shall, if possible, be cleared outside of the main bird breeding season, which for most species extends between March and August inclusive. If this is not possible, then a search for active bird nests shall take place, by a suitably qualified ecologist, prior to the commencement of site clearance works. Should any active bird nests be found, the nests will be retained, along with a suitable buffer zone, until fledging has occurred.

The proposed scrub/ woodland planting around the Site boundaries, as described in Section 4.1, will provide adequate replacement habitat for breeding birds, as well as a source of food (including winter berries).

In addition, two willow tit nest boxes will be erected on posts within the Site, or on the inside of the perimeter fencing. Willow tit is a species which is in decline nationally, and is reported to occur in the area. The nest boxes shall be placed *circa* 2 metres from the ground, facing east, and shall be filled with sawdust or wood shavings (as this species prefers to excavate a new nesting chamber each year, and more readily adopts nest boxes if they contain a material which has to be removed by the birds).

4.5 Bats

The permanent loss of a small area (*circa* 53 metres x 45 metres) of grassland, scrub and tall herb/ ruderal vegetation within the Site would not result in an appreciable impact upon the local bat population. The provision of the woodland/ scrub buffer, as described in Section 4.1, will provide suitable conditions for foraging bats. We would also recommend retention of the shrubs and trees (particularly the goat willows) that form the northern boundary of the Site.

As the Site does not contain any buildings or trees with potential for roosting bats, there will not be an impact upon the local bat roosting resource. In order to enhance the Site for roosting bats, three bat boxes shall be erected on the inside of the perimeter fencing, or on a tall post set within the perimeter fence. These boxes will be installed *circa* 3 metres, or more, above the ground; they will be of a design which is self-cleaning (i.e. where bat droppings fall from the box, rather than accumulate within it).

The ecological enhancement proposed above are consistent with the status of the Site, located as it is, within the Dearne Valley Green Heart 'Nature Improvement Area'.

5.0 CLOSURE

This report has been prepared by SLR Consulting Limited with all reasonable skill, care and diligence, and taking account of the manpower and resources devoted to it by agreement with the client. Information reported herein is based on the interpretation of data collected and has been accepted in good faith as being accurate and valid.

This report is for the exclusive use of Abbey Power Solutions; no warranties or guarantees are expressed or should be inferred by any third parties. This report may not be relied upon by other parties without written consent from SLR.

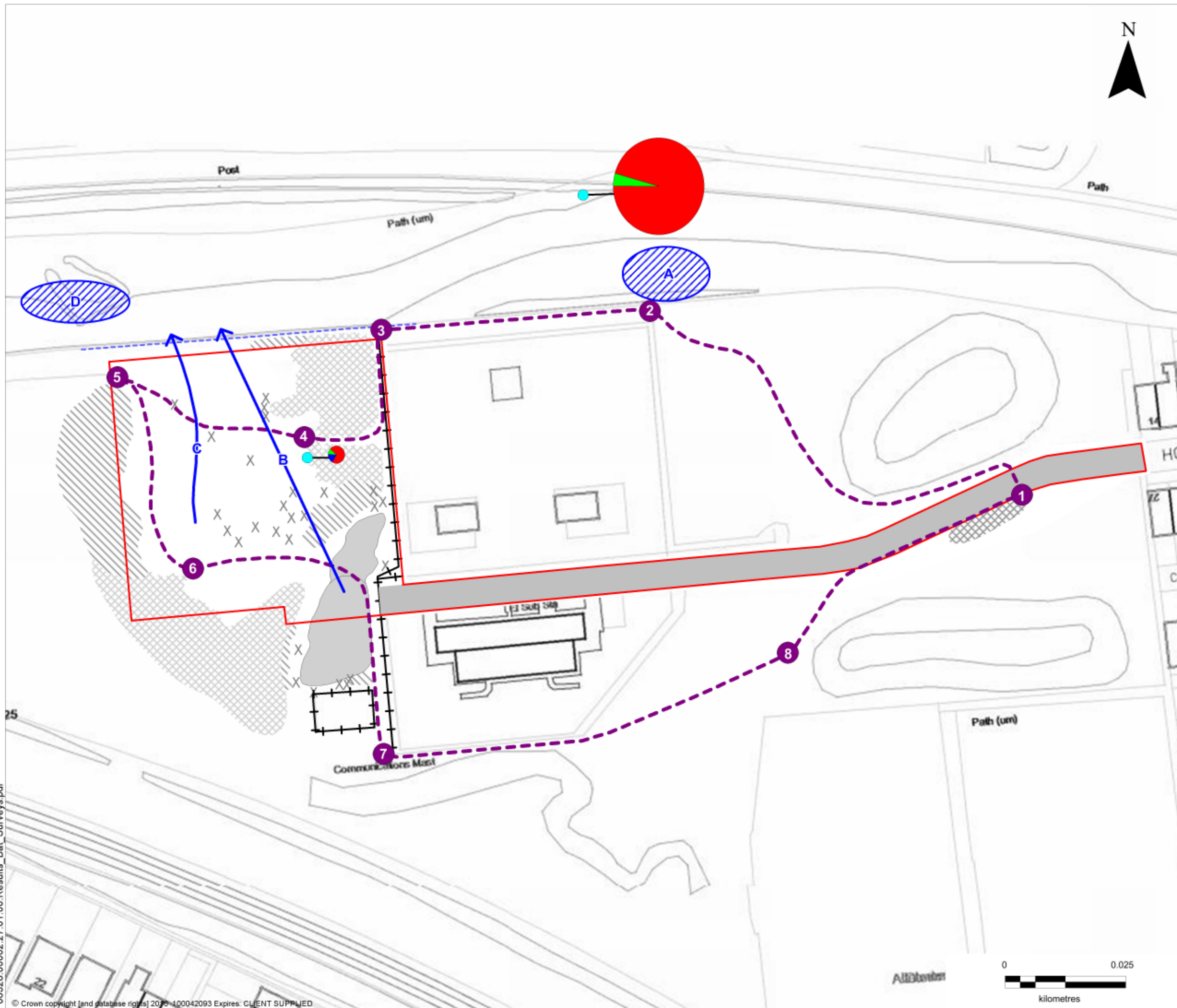
SLR disclaims any responsibility to the client and others in respect of any matters outside the agreed scope of the work.

DRAWING 1:

EXTENDED PHASE I HABITAT SURVEY

DRAWING 2:

RESULTS OF BAT SURVEYS



NOTES

LEGEND

BAT TRANSECT RESULTS

--- BAT TRANSECT ROUTE

① BAT TRANSECT SAMPLE POINTS

→ COMMON PIPISTRELLE FLIGHT LINE

▨ COMMON PIPISTRELLE RECORDED FORAGING

STATIC DETECTOR RESULTS

● STATIC DETECTOR SAMPLING POINT

AVERAGE BAT PASSES / NIGHT

100
50
10

■ SOPRANO PIPISTRELLE
■ COMMON PIPISTRELLE
■ BIG BAT

ADD RENEWABLES

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HOPEWELL STREET BATTERY FACILITY, STAIRFOOT

RESULTS OF BAT SURVEYS

DRAWING 2

SCALE 1:750 @ A3

DATE JUNE 2016

APPENDIX A

TARGET NOTES ASSOCIATED WITH DRAWING 1

Number	Description
1	 Patch of Japanese knotweed (12m x 3m) on the south side of the access road leading to the existing electricity sub-station.
2	 Low concrete wall with sloping extensions at either end adjacent to existing electricity sub-station. The function of this structure is not known. It supports some locally frequent moss cover and plants such as yarrow are particularly frequent around it.

APPENDIX B: BOTANICAL SPECIES LIST

English Name	Scientific Name	Abundance
Mosses		
Rough-stalked feather-moss	<i>Brachythecium rutabulum</i>	LF
Capillary thread-moss	<i>Bryum capillare</i>	F-LF
Grasses, sedges and rushes		
Yorkshire fog	<i>Holcus lanatus</i>	F-LA
Cock's-foot	<i>Dactylis glomerata</i>	F-LA
Red fescue	<i>Festuca rubra</i>	F
Common couch	<i>Elymus repens</i>	O-LF
Timothy	<i>Phleum pratense</i>	F
Smooth meadow grass	<i>Poa pratensis</i>	F
False oat-grass	<i>Arrhenatherum elatius</i>	F
Herbs		
Common vetch	<i>Vicia sativa</i>	O
Cleavers	<i>Galium aparine</i>	LF
Broad-leaved dock	<i>Rumex obtusifolius</i>	O
Dandelion	<i>Taraxacum officinale</i> agg.	O-LF
Common ragwort	<i>Senecio jacobaea</i>	O
Ribwort plantain	<i>Plantago lanceolata</i>	O-LF
White clover	<i>Trifolium repens</i>	O
Hairy bittercress	<i>Cardamine hirsuta</i>	LF
Red bartsia	<i>Odontites verna</i>	O
Creeping thistle	<i>Cirsium arvense</i>	O
Creeping buttercup	<i>Ranunculus repens</i>	LF
Cow parsley	<i>Anthriscus sylvestris</i>	LF
Hogweed	<i>Heracleum sphondylium</i>	LF

English Name	Scientific Name	Abundance
Rosebay willowherb	<i>Chamerion angustifolium</i>	LA-LD
Common nettle	<i>Urtica dioica</i>	LA-LD
Yarrow	<i>Achillea millefolium</i>	LF
Woody Species		
Bramble	<i>Rubus fruticosus</i> agg.	F-LD
Broom	<i>Sarothamnus scoparius</i>	F
Elder	<i>Sambucus nigra</i>	F
Hawthorn	<i>Crataegus monogyna</i>	F
Ash	<i>Fraxinus excelsior</i>	O
Goat willow	<i>Salix caprea</i>	LF
Garden privet	<i>Ligustrum vulgare</i>	LD

APPENDIX C:

DESK STUDY DATA FROM THE BARNSELY BIOLOGICAL RECORDS CENTRE