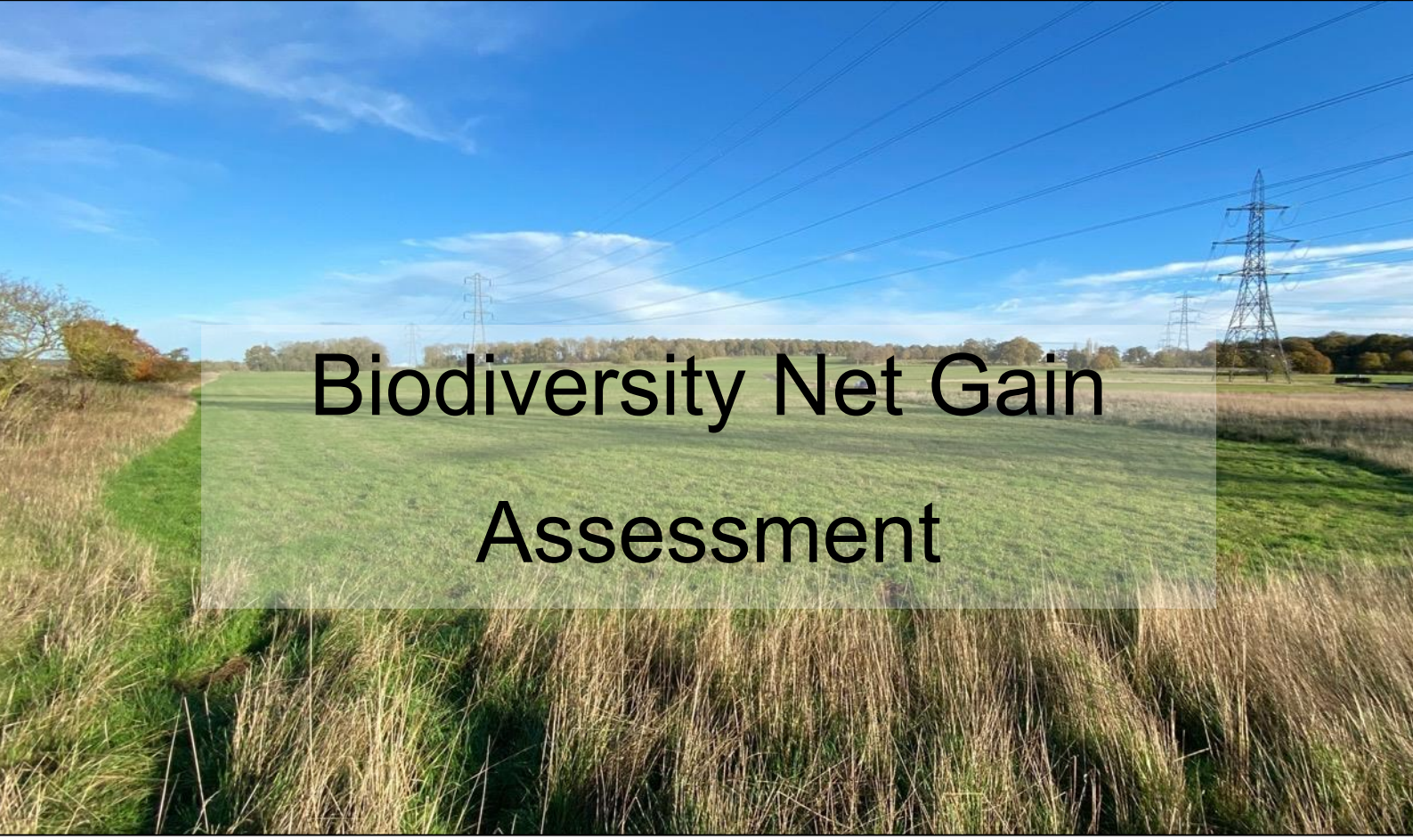

Biodiversity Net Gain Assessment

Culham Battery Storage

On behalf of Statera Energy

December 2024

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1 Executive Summary

Report purpose	This report identifies the results of a quantitative Biodiversity Net Gain Assessment undertaken of proposals for a 420 megawatt battery storage facility, with 248 sound insulated lithium ion battery units housed within standard shipping containers and 31 larger noise insulated inverter houses to accommodate the inverters and transformers. The facility is proposed within c. 26ha of land north of the Culham Science Centre (approximate central grid reference: SU 52879 96551). A Biodiversity Net Gain Assessment (BNG) is mandatory under Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021) and required in accordance with Policy ENV3 from the South Oxfordshire District Council Local Plan (adopted December 2020). This report functions to satisfy the requirements of the following part of that policy: *"All proposals should be supported by evidence to demonstrate a biodiversity net gain using a recognised biodiversity accounting metric".*
Date and methods of survey and assessment	Three baseline habitat condition assessments of the site was undertaken on 12 July 2022, 16 November 2022 and 11 January 2024 and the results used to populate the Statutory Biodiversity Metric based on planting plans provided by Stratera Energy (drawing reference Dwg No. SL254_L_X_GA_1). Ecological advice for maximising biodiversity gain potential within the layout was provided during the detailed design stage and incorporated within the plans. The mitigation hierarchy and all other best practice principles for biodiversity net gain were followed during the design process.
Key findings	The Application scheme and Appeal scheme have marginal differences in red line boundaries, being 26.91ha and 25.37ha respectively. The Application scheme has a baseline value of 65.29 habitat units and the proposals will achieve 109.11 habitat units, delivering a gain of 43.82 habitat units i.e. 67.11% increase and 5.10 hedgerow units. The Appeal scheme has a baseline value of 66.11 habitat units and the proposals will achieve 107.16 habitat units, delivering a gain of 41.05 habitat units i.e. 62.10% increase and 5.21 hedgerow units. Both schemes are securing significant biodiversity net gains and the trading rules are satisfied as a result of the proposals. Features such as bird boxes, bat boxes and insect boxes are not considered within the biodiversity metric calculation but will be incorporated within the site which will further enhance the site for wildlife, as detailed within the Ecological Impact Assessment (Ecology by Design, 2024). This assessment has robustly demonstrated that the proposals will result in a biodiversity net gain, satisfying the mandatory 10% net gain requirement under the Environment Act 2021 and Policy ENV3 from the South Oxfordshire District Council Local Plan and ensuring a biodiversity gain will be achieved as part of the proposals. Post-consent, this report should be used to inform a detailed Biodiversity Net Gain Habitat Management and Monitoring Plan (HMMP). A HMMP will be required to ensure the long-term delivery of the habitats contributing to the quantitative net gain calculated by this report.

2 Introduction

2.1 Background

2.1.1 Ecology by Design were commissioned by Stratera Energy to undertake a Biodiversity Impact Assessment (BIA) of proposals for a battery storage facility north of Culham Science Centre, Thames Lane, Culham, OX14 3ES at approximate central grid reference SU 52879 96551.

2.1.2 Ecology by Design have undertaken various surveys at the site between July 2022 and November 2024 including:

- An extended UKHab Habitat Survey;
- Daytime tree assessments for bats; and
- Monitoring of potential badger setts.

2.1.3 The results of the above are set out within the Ecological Impact Assessment report (Ecology by Design, 2024).

2.2 Site Description

2.2.1 The site is approximately 26ha in extent and comprises four large fields along with a portion of a fifth field used for non-cereal crops (permanent modified grasslands harvested for hay and silage) and two areas of other neutral grassland. The fields had been mown when the survey was conducted in January 2023, with small strips on the field margins remaining unmown. There are occasional scattered trees and scrub within the site.

2.2.2 In the wider landscape, there is mixed woodland immediately north of the site, the River Thames runs from east to west 130m north of the site, there are additional non-cereal fields to the north and south-west and Culham Science Centre to the south-east.

2.2.3 Soilscapes (https://www.landis.org.uk/soilscapes/) indicates the soils of the site comprise slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils.

2.3 Proposals

2.3.1 The proposals are for the development of a battery energy storage system (BESS) connected directly to the National Grid, with BESS compound area, National Grid cable sealing end compound, substation upgrade works and associated infrastructure works including access, drainage and landscaping.

2.4 Relevant Policy and Legislation

2.4.1 Policy ENV3 from South Oxfordshire District Council Local Plan (adopted 2020) states: *"Development that will conserve, restore and enhance biodiversity in the district will be supported. All development should provide a net gain in biodiversity where possible. As a minimum, there should be no net loss of biodiversity. All proposals should be supported by evidence to demonstrate a biodiversity net gain using a recognised biodiversity accounting metric..."*

2.4.2 The Environment Act 2021 stipulates a 10% Biodiversity Net Gain above baseline conditions is required for all developments in England and is mandatory from 12th February 2024.

2.4.3 The National Planning Policy Framework (NPPF) (MHCLG, 2024) states that development proposals should seek opportunities for securing measurable net gains for biodiversity. It also outlines that development proposals should follow a 'mitigation hierarchy' by which loss of biodiversity should preferably be avoided as a first course of action, mitigated as a second, or compensated for as a last resort.

2.5 Aims of Report

2.5.1 This report is a Biodiversity Net Gain Assessment (BNG) of the proposals at the site. It has been produced following a site visit to evaluate the baseline habitats present and a review of the proposed habitats in accordance with the guidance provided alongside the Statutory Biodiversity metric (DEFRA, 2023b) and industry standard guidance (CIEEM *et al*., 2019; BSI, 2021).

2.5.2 This report is intended to satisfy the requirements of ensuring a net gain in biodiversity within Policy ENV3 and the Environment Act 2021 read in conjunction with the detailed landscape proposals (Stratera Energy drawing reference: Dwg No. SL254_L_X_GA_1).

2.5.3 This report will be submitted to South Oxfordshire District Council alongside a completed copy of the Biodiversity Metric Statutory Calculation Tool (DEFRA, 2023a) to inform the Application scheme and Appeal scheme. GIS shapefiles will be available on request.

2.5.4 This report addresses a quantitative biodiversity net gain assessment only, it should be read in conjunction with the Ecological Impact Assessment (Ecology by Design, 2024) which addresses all other ecological considerations such as designated sites and protected species.

2.6 Personnel

2.6.1 The site visit, mapping and completion of the Statutory Metric (DEFRA, 2023a) was undertaken by Ecology by Design Senior Ecologist Anna Spence BSc (Hons), MSc, MCIEEM who has seven

years' experience carrying out habitat surveys. The report, metric and associated figures were reviewed by Principal Ecologist Karen Lunan BSc (Hons), MSc, MCIEEM who has 18 years' experience as an ecologist.

2.6.2 Anna and Karen have both received specific training in the use of the DEFRA Statutory metric and are suitably qualified and accomplished in habitat evaluation and use of GIS to complete a biodiversity impact assessment metric on a site of this nature.

3 Methods

3.1 Desk Study

3.1.1 The Ecological Impact Assessment (Ecology by Design, 2024) includes a detailed desk study to inform the application which is not discussed further within this report.

3.2 Biodiversity Impact Assessment

Compliance with Best Practice

3.2.1 A biodiversity impact assessment was undertaken using the statutory biodiversity metric (DEFRA, 2023a) in accordance with all relevant best practice guidelines (CIEEM *et al*., 2019; BSI, 2021). The 10 'Principles of Biodiversity Net Gain (CIEEM, *et al*., 2019) were followed:

- Principle 1 – Apply the mitigation hierarchy
- Principle 2 – Avoid losing biodiversity that cannot be offset by gains elsewhere
- Principle 3 – Be inclusive and equitable
- Principle 4 – Address risks
- Principle 5 – Make a measurable net gain
- Principle 6 – Achieve the best outcomes for biodiversity
- Principle 7 – Be additional
- Principle 8 – Create a net gain legacy
- Principle 9 – Optimise sustainability
- Principle 10 – Be transparent

Methodology

3.2.2 To calculate the net impact on biodiversity as a result of the proposals, the Statutory Biodiversity Metric (DEFRA, 2023a) was completed in accordance with the accompanying user guide and technical supplements (DEFRA, 2023b). The Metric calculation was completed with baseline data from a site visit and proposals data from the proposed landscape scheme.

3.2.3 A site visit was undertaken to collect baseline data on the existing habitats and their condition within the site. In accordance with the Statutory Biodiversity Metric user guide (DEFRA, 2023b) no specific minimum mappable unit was used; baseline data was collected on site on 12 July 2022, 16 November 2022 and 11 January 2024 and digitised using Ordnance Survey mapping and google satellite imagery during January 2024 at a scale of 1:250 using professional judgement, site notes and experience in cases where feature boundaries were not readily apparent.

3.2.4 Proposed habitats were manually digitised using an image file of Dwg No. SL254_L_X_GA_1 (Appendix 1) georeferenced using QGIS version 3.28.5 'Georeferencer' plugin; the georeferenced raster file is available on request in various formats. Full details of the habitat classifications are outlined within the biodiversity metrics submitted alongside this report and accompanying GIS shapefiles available on request in various formats.

3.2.5 In order to avoid rounding errors, area and length values were entered into the statutory metric to the level of accuracy calculated by the QGIS 3.28.5 function $area/$length as a decimal ('real') number attribute.

3.2.6 Existing and proposed habitats were categorised based on the UK Habitats Classification Scheme (UKHab Ltd, 2023) and conditions were assessed in accordance with the accompanying guidelines for the DEFRA statutory metric (Annex 1 to Natural England, 2023b).

3.2.7 The personnel were suitably qualified to conduct the assessment, as detailed in Section 2.6.

3.3 Limitations and Constraints

3.3.1 Industry standard principles were employed for the biodiversity impact assessment where appropriate to the current project. Any deviation from best practice was circumstantial and minor and did not have a significant impact on the conclusions made which are considered valid and robust. A full break down of the industry standard principles involved and any justifiable deviation is available on request if required.

3.3.2 The habitat assessment was conducted in July and November 2022 and January 2024. Whilst November and January are outside the optimal period given many species are not in flower, species composition was readily identified given the common and widespread habitats present within the site, therefore, this is not considered to have constrained the identification of habitat types, habitat condition or assessment of potential impacts.

4 Results and Interpretation

4.1.1 Baseline and proposed habitat condition assessments are recorded within the DEFRA Statutory Metric submitted alongside this report and accompanying GIS shapefiles (available on request in various formats).

4.1 Habitats Baseline

4.1.1 The baseline habitats and their retention category (lost/retained/enhanced) are illustrated on Figures EBD_2513_DR001 - EBD_2513_DR002 at Appendix 2 and detailed within Table 4.1 below. Detailed condition assessment results are presented alongside justification in Appendix 4.

Table 4.1: *Habitat types identified during the baseline condition assessment*

Habitat type	Description
Modified grassland	The vast majority of the site comprises modified grassland which is either mown for hay or used for sheep grazing. The modified grassland exhibits poor species-diversity and a uniform sward height. Species present include perennial ryegrass (*Lolium perenne*), cock's-foot (*Dactylis glomerata*), sterile brome (*Bromus sterilis*), Yorkshire fog (*Holcus mollis*), timothy (*Phleum pratense*), false oatgrass (*Arrhenatherum elatius*), soft brome (*Bromus hordeaceus*), red fescue (*Festuca rubra*), wall barley (*Hordeum murinum*) annual meadowgrass (*Poa annua*). Forbs were rarely offering within the field and included field pansy (*Viola arvensis*), common poppy (*Papaver rhoeas*) and scentless mayweed (*Tripleurospermum inodorum*).
Other neutral grassland	The margins of the modified grassland fields were typically 1-2m wide with a uniform grass-dominated sward height of 1m height, with frequent false oatgrass, Yorkshire fog, cock's-foot, perennial ryegrass and yarrow (*Achillea millefolium*), occasional agrimony (*Agrimonia eupatoria*) and wild parsnip (*Pastinaca sativa*), rarely occurring nettle (*Urtica dioica*), hogweed (*Heracleum sphondylium*), curled dock (*Rumex crispus*), wild carrot (*Daucus carota*), field bindweed (*Convolvulus arvensis*), creeping cinquefoil (*Potentilla reptans*) and bramble (*Rubus fruticosus* agg.). Along the central access road white stonecrop (*Sedum album*) was also present.
Mixed scrub	In the east of the site is 0.33ha of mixed scrub which appears to have been planted in c. 2010 and is typically 3m height with some already existing pedunculate oak (*Quercus robur*) or faster growing trees cherry (*Prunus* sp.) and douglas fir (*Pseudotsuga menziesii*) being up to 7m height. The scrub is species-rich, containing frequent hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*) and dogwood (*Cornus sanguinea*), occasional hazel (*Corylus avellana*), ash (*Fraxinus excelsior*), wayfaring tree (*Viburnum lantana*), and European larch (*Larix decidua*) and rarely occurring walnut (*Juglans regia*), cherry, sycamore (*Acer pseudoplatanus*) and Scots pine (*Pinus sylvestris*). The understorey is typical of the field margins.
Bramble scrub	In the south-east of the site is 0.52ha of scrub dominated by bramble c. 1m height including rarely occurring scattered elder (*Sambucus nigra*), hawthorn and rose (*Rosa* sp.).

Scattered trees	There are infrequent scattered trees within the site including turkey oak (*Quercus cerris*), ash, plum (*Prunus* sp.), large-leaved lime (*Tilia platyphyllos*), apple (*Malus* sp.) and pedunculate oak (*Quercus robur*).
Developed land, sealed surface	Hardstanding roads bisect the site, and a small substation building is present towards the south.

4.1.2 The Application scheme has a baseline value of 65.29 habitat units and the Appeal scheme has a baseline value of 66.11 habitat units.

4.1.3 No hedgerow or river habitats are within or adjacent to the site so the metric does not include an assessment of these units.

4.2 Retained/Enhanced/Lost Habitats

4.2.1 The retention category of baseline habitats (retained/enhanced/lost) is illustrated on Drawing EBD_2513_DR002 at Appendix 2. The proposals include the retention of existing scattered trees, small areas of other neutral grassland and the access tracks (developed land). The remainder of the habitats will be lost. The habitats at the south-east adjacent to Thame Lane will be re-instated post development and have therefore been categorised as 'lost' and 'created' under the metric.

4.3 Proposed Habitats

4.3.1 Site layout proposals used to inform the proposals are provided at Appendix 1; our interpretation of these habitats for input into the metric is illustrated on drawing EBD_2513_DR003 at Appendix 2. Detailed condition assessments for the proposed habitats are provided at Appendix 5 alongside justification.

4.3.2 To achieve the condition assessments and habitat classifications detailed below, implications to the necessary management regime have been agreed with Stratera Energy. These implications are included, where relevant, within the recommendations in Section 5; these recommendations will need to inform the detailed Biodiversity Net Gain Habitat Management and Monitoring Plan (HMMP) for the site.

4.3.3 The habitats proposed within the site for the Application / Appeal scheme are detailed below.

Developed Land

4.3.4 A portion of the site will comprise developed land, sealed surface covering approximately 9.7932ha / 8.0675ha of the Application scheme and Appeal scheme respectively for which no condition assessment is required.

SuDS

4.3.5 An attenuation basin covering approximately 0.2351ha will be created towards the west of both schemes. The basin will be sown with a grassland seed mix tolerant of seasonal inundation with as Emorsgate Seeds EM8 meadow mixture for wetlands or similar and will achieve good condition. This will deliver multifunctional benefits, satisfying paragraph 182 of the NPPF (MHCLG, 2024).

Wildlife pond

4.3.6 A wildlife pond measuring 0.066ha will be created in the north of the site for both schemes. The pond will have good water quality, have semi-natural habitat for at least 10m from the pond edge, will not be connected to other waterbodies and will have water levels which fluctuate naturally. The pond is therefore likely to achieve moderate condition.

Other neutral grassland

4.3.7 A total of 10.7127ha / 11.5368ha (of the Application scheme and Appeal scheme respectively) of other neutral grassland will be created and/or retained and managed to achieve moderate condition by passing the following criteria; (i) the vegetation closely matching characteristics of other neutral grassland with indicator species throughout the sward, (ii) no bracken and cover of scrub less than 5%, and (iii) absence of invasive species. It may fail the following criteria (i) cover of bare ground being 1-5% and (ii) sward height being varied and (iii) there being greater than 9 species per meter square.

4.3.8 Roughly 50% of the existing grassland will be power harrowed in strips, seeded with a species-rich seed mix and then managed as a traditional hay meadow with an annual cut in the summer, removing risings. The remaining 50% of the grassland would be bare ground following harrowing to allow natural seeding to occur.

4.3.9 A suitable seed mix would comprise the Emorsgate basic general purpose meadow mixture or similar. The grassland will be mown annually within late-July or August and all arisings will be removed. This will serve to remove nutrients and minimise scrub encroachment.

4.3.10 Any invasive species will be identified and removed.

Other broadleaved woodland

4.3.11 2.1781ha / 2.5043ha of other broadleaved woodland will be created in the Application scheme and Appeal scheme respectively, targeting moderate condition. The woodland will be comprised of at least five native species and managed to prevent the establishment of invasive species and allow a varied structure with a mixture of different aged trees to develop.

Mixed scrub

4.3.12 Areas of mixed scrub totalling approximately 1.6165ha / 1.4467ha will be created within the open space at the north and west of the Application scheme and Appeal scheme respectively. The scrub will include at least three woody native species with no single species comprising more than 75% of the habitat and will be managed to ensure invasive non-native plants do not become established. The scrub will also be allowed to develop edge habitat with scattered scrub and tall forbs/grassland between it and the adjacent other neutral grassland. As such, it is anticipated the mixed scrub will reach moderate condition under the metric.

Hedge Planting

4.3.13 The proposals include the planting of approximately 0.2km of native hedgerow, 0.73km of native hedgerow with trees and 0.08km of native tree line. Subject to the implementation of an appropriate management scheme, the hedgerows are anticipated to meet the criteria for good condition whilst the native tree line will be of moderate condition.

Further Enhancements

4.3.14 Enhancement features such as bird boxes, bat boxes and insect boxes are not considered within the biodiversity metric calculation but will be incorporated within the site which will further enhance the site for wildlife, as detailed within Section 5 of the Ecological Impact Assessment (Ecology by Design, 2024).

4.4 Metric Calculation Result

4.4.1 The Application scheme has a baseline value of 65.29 habitat units and the proposals will achieve 109.11 habitat units, delivering a gain of 43.82 habitat units i.e. 67.11% increase and 5.10 hedgerow units.

4.4.2 The Appeal scheme has a baseline value of 66.11 habitat units and the proposals will achieve 107.16 habitat units, delivering a gain of 41.05 habitat units i.e. 62.10% increase and 5.21 hedgerow units.

4.4.3 Both schemes are securing significant biodiversity net gains and the trading rules are satisfied as a result of the proposals.

Figure 1: *Application Scheme Biodiversity Metric Headline Calculator Summary*

On-site baseline	*Habitat units*	65.29		
	Hedgerow units	0.00		
	Watercourse units	0.00		
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	109.11		
	Hedgerow units	5.10		
	Watercourse units	0.00		
On-site net change (units & percentage)	*Habitat units*	43.82	67.11%	
	Hedgerow units	5.10	N/A	Zero baseline units - % cannot be calculated
	Watercourse units	0.00	0.00%	
Off-site baseline	*Habitat units*	0.00		
	Hedgerow units	0.00		
	Watercourse units	0.00		
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00		
	Hedgerow units	0.00		
	Watercourse units	0.00		
Off-site net change (units & percentage)	*Habitat units*	0.00	0.00%	
	Hedgerow units	0.00	0.00%	
	Watercourse units	0.00	0.00%	
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	43.82		
	Hedgerow units	5.10		
	Watercourse units	0.00		
Spatial risk multiplier (SRM) deductions	*Habitat units*	0.00		
	Hedgerow units	0.00		
	Watercourse units	0.00		
FINAL RESULTS				
Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	43.82		
	Hedgerow units	5.10		
	Watercourse units	0.00		
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	67.11%		
	Hedgerow units	N/A	0 baseline units - % cannot be calculated	
	Watercourse units	0.00%		
Trading rules satisfied?	Yes ✓			

Unit Type	Target	Baseline Units	Units Required	Unit Deficit	
Habitat units	10.00%	65.29	71.82	0.00	No additional area habitat units required to meet target ✓
Hedgerow units	10.00%	0.00	0.00	0.00	No additional hedgerow units required to meet target ✓
Watercourse units	10.00%	0.00	0.00	0.00	No additional watercourse units required to meet target ✓

Figure 2: *Appeal Scheme Biodiversity Metric Headline Calculator Summary*

On-site baseline	*Habitat units*	66.11		
	Hedgerow units	0.00		
	Watercourse units	0.00		
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	107.16		
	Hedgerow units	5.21		
	Watercourse units	0.00		
On-site net change (units & percentage)	*Habitat units*	41.06	62.10%	
	Hedgerow units	5.21	N/A	Zero baseline units - % cannot be calculated
	Watercourse units	0.00	0.00%	
Off-site baseline	*Habitat units*	0.00		
	Hedgerow units	0.00		
	Watercourse units	0.00		
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00		
	Hedgerow units	0.00		
	Watercourse units	0.00		
Off-site net change (units & percentage)	*Habitat units*	0.00	0.00%	
	Hedgerow units	0.00	0.00%	
	Watercourse units	0.00	0.00%	
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	41.06		
	Hedgerow units	5.21		
	Watercourse units	0.00		
Spatial risk multiplier (SRM) deductions	*Habitat units*	0.00		
	Hedgerow units	0.00		
	Watercourse units	0.00		

FINAL RESULTS

Total net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	41.06	
	Hedgerow units	5.21	
	Watercourse units	0.00	
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	62.10%	
	Hedgerow units	N/A	0 baseline units - % cannot be calculated
	Watercourse units	0.00%	
Trading rules satisfied?	Yes ✓		

Unit Type	Target	Baseline Units	Units Required	Unit Deficit	
Habitat units	10.00%	66.11	72.72	0.00	No additional area habitat units required to meet target ✓
Hedgerow units	10.00%	0.00	0.00	0.00	No additional hedgerow units required to meet target ✓
Watercourse units	10.00%	0.00	0.00	0.00	No additional watercourse units required to meet target ✓

5 Recommendations

5.1 Biodiversity Net Gain Habitat Management and Monitoring Plan (HMMP)

5.1.1 In order for the anticipated net gain in biodiversity to be realised, the statutory Habitat Management and Monitoring Plan (HMMP) template tool will be used to produce a structured management and monitoring plan to demonstrate how habitat creation, enhancement, management and monitoring will be undertaken. This HMMP could be secured as a suitably worded pre-commencement condition and would need to be referenced by a legal agreement (S106, conservation covenant or similar) to secure the habitat creation/enhancement needed to achieve the net gain in biodiversity.

5.1.2 The HMMP must include the details outlined below:

Habitat Creation and Management

5.1.3 The HMMP must include details of individually referenceable parcels/habitats that are to be created and managed to contribute towards the net gain in biodiversity. The HMMP may make reference to a Landscape and Ecology Management Plan (LEMP) or similar or include detailed habitat creation and management prescriptions within its contents.

Timeframe

5.1.4 The HMMP must cover a period of at least 30 years.

5.1.5 The 'times to target condition' must accord with the details outlined in Appendix 5.

Scope

5.1.6 The HMMP will cover creation and management of any habitats contributing towards the biodiversity net gain result described above with the exception of the following habitat types which are better addressed within a separate LEMP or similar:

- Buildings and hardstanding.

5.1.7 Where habitat parcels are described within both a LEMP and a HMMP, the creation/management prescriptions must align precisely.

Responsible Bodies

5.1.8 The HMMP must outline necessary qualifications/experience for ecologists undertaking monitoring surveys, and must also name responsible bodies for:

- Creation and management of the habitats; and
- Review of monitoring reports.

Monitoring

5.1.9 The HMMP must include provision for independent ecological monitoring and progress reporting over the lifetime of the management period, with provision for rectification works if required. Ecological monitoring must take place yearly as a minimum for five years, with monitoring reports produced to document:

- Commissioned client, site name and purpose of report;
- Background and timeline for project;
- Project description, as built;
- Aims/objectives/scope of monitoring survey;
- Reference to original aims described within this report;
- Survey methods;
- Evidence of technical competence and experience;
- Limitations;
- Clear statements on whether biodiversity unit targets are being met; and
- Details of any rectification works and implications necessary.

5.1.10 The frequency of monitoring will likely be decreased (e.g. to years 5, 10, 15, 25, 30) after five years at the monitoring ecologists' discretion if targets are being consistently met and risk of deviation is considered low.

Condition

5.1.11 The HMMP must make clear which condition criteria (e.g. DEFRA statutory metric) are targeted for each individual habitat so that ecological monitoring reports have a benchmark against which to measure. It may be appropriate to update condition criteria assessment as new versions of the metric are made available; any deviation from the version used within this report should be highlighted and justified.

5.2 Broad Management Prescriptions

5.2.1 The HMMP should be based on the below broad management prescriptions which have been agreed with Stratera Energy during the design stage. Parcel references within the below refer to those on drawing EBD_2513_DR003 (proposed habitats) at Appendix 2.

Newly created other neutral grassland (moderate condition)

5.2.2 The other neutral grassland within the application site must be managed around a traditional 'hay-cut' regime with the exception of informal footpaths which are to be mown regularly to a short height:

- mowing as required to <10mm height between March and mid-April inclusive;
- leaving grassland unmanaged during mid-April to late-July;
- taking a single summer hay cut in early August and remove arisings; and
- mowing monthly to <10mm August-October, removing arisings each mow.

Newly created mixed scrub

5.2.3 The newly planted mixed scrub within the application site will require no specific management beyond periodic brush-cutting and replacement of dead/damaged areas to maintain their current extent.

Newly planted scattered trees and tree line

5.2.4 The proposed trees must be watered as required during the first year, and then will require minimal ongoing management with the exception of inspections, restorative pruning, and replacement of damaged/failed individuals.

Newly created other broadleaved woodland

5.2.5 The newly planted woodland should initially be subject to weed control through the application of mulch or mulch mats around tree bases in early summer or the strimming of vegetation 1m around the base of each tree. Bio-degradable tree guards should be used to protect new trees from potential damage through grazing. New planting growth will be monitored every six months during the first year following planting an annually thereafter for five years, with watering, weed control, tree guard replacement and the replanting of failed specimens undertaken annually.

5.2.6 Once established, tree guards and stakes (if used) will be removed. A site visit will be carried out every five years (commencing year 5 post-construction) of the woodland to monitor the growth/condition and inform if/when any of the following are required:

- Thinning of close-set trees and non-native trees within the canopy;
- Replanting of varied native canopy and understorey species;
- Rotational coppicing of understoreys;
- Continued control of deer populations and piling of brash screening around newly planted/coppiced areas to manage over-grazing; and
- Creation of standing and fallen deadwood features.

5.2.7 Substantial works (other than minor trimming) will take place outside 1st March to 31st August inclusive to avoid impacting nesting birds.

Newly created SuDS and wildlife pond.

5.2.8 The newly created SuDS and wildlife pond will be subject to ongoing management carried out in response to the conditions at the time. This will generally include the removal of litter and larger items of debris, containment and investigation of any pollutions, selective pruning of surrounding vegetation and marginal vegetation, monitoring water conditions (i.e. algal blooms) and monitoring levels of human disturbance and taking remedial action if required.

6 References

BSI (2021). *BS 8683:2021 Process for designing and implementing Biodiversity Net Gain – Specification*. The British Standards Institution Ltd., London.

CIEEM, CIRIA, IEMA (2019). *Biodiversity net gain. Good practice principles for development. A practical guide.* CIRIA C776a. London, 2019.

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DEFRA (2023a). Statutory Biodiversity Metric calculation tool (spreadsheet). DEFRA

DEFRA (2023b). Statutory Biodiversity Metric User Guide (draft). Natural England Joint Publication JP039. DEFRA.

MHCLG (2024). *National Planning Policy Framework*. Ministry of Housing, Communities & Local Government

UKHab Ltd (2023). *UK Habitat Classification Version 2.0* (at https://www.ukhab.org)

Appendix 1 - Site Proposals

Drawing ref. Stratera energy dwg No. 241011_SL254_L_X_GA_1 (overleaf)

N

0 25 50 100 150m

SCALE 1:2,000

Water Treatment Works

Lack Wood

Reservoirs (covered)

Ewer's Copse

Tank

Track

Nuneham and Courtenay Conservation Area

Viewpoint

Existing ground levels retained

1.5m stock proof fence

Existing farm access track upgraded to a macadam surface 3.5m wide

EXISTING WOODLAND/TREES

Wildlife pond

Existing gate

EXISTING TREES

1.5m high stock proof fence

Historic parkland boundary

Main entrance

Camp (disused)

Sports Facility

Hedgestyle

SUBSTATION

FFL 85.50

GATE

WT

Culham Science Centre

THAME LANE

EXTENSION TO SUBSTATION

Emergency services information point

Works to be undertaken by National Grid Electricity Transmission (NGET) as the statutory undertaker for electricity transmission in England and Wales

Legend

- Site boundary
- Land ownership boundary
- Existing hedgerows and trees
- New woodland planting
- New hedgerow
- New scrubland
- Wildflower grass
- Existing tree
- Existing tree
- Stone access track
- Existing macadam track
- Attenuation pond
- Loose permeable gravel
- New macadam track
- 4m high infrared CCTV pole
- Emergency services information point
- Existing contours
- Proposed contours
- Tower maintenance clearance zone
- Public Right of Way (PRoW)
- Viewpoint
- Nuneham and Courtenay Conservation Area
- Historic parkland boundary
- Thames water main
- Railway easement
- Underground electric cable connection
- Overhead electricity line
- Permissive path for the duration of the planning consent
- Inverter building (total 31)
- Transformer
- Battery container (total 248)
- Control room (total 5)
- WT Fire water tank
- Welfare and storage containers
- 4m high wooden acoustic fence
- 1.5m high stock proof fence
- 2.5m high steel weld mesh fence
- 1.8m high deer fence
- Impermeable drainage channel with penstocks to allow drainage from the compound to be controlled in the case of an emergency

STATERA

BALANCING THE GRID

Revision	Date	Comment
A	11.11.24	Proposed connection tower relocated out of the Registered Park and Garden into the proposed BESS compound. Batteries reduced from 296 to 248 and inverters from 37 down to 31. Earth mounding to landscape areas removed. BESS equipment arrangement adjusted to accommodate the connection tower compound. Fire water tanks reduced to two tanks, but of larger diameter, to maintain required capacity.

ON BEHALF
STATERA

PROJECT
CULHAM BATTERY ENERGY STORAGE SYSTEM

DATE	22 July 2022
SCALE	1 : 2,000 @ A1
DWG No	SL254__L__X__GA__1__Rev A
APPROVED	CMcD

TITLE

BLOCK PLAN

Appendix 2 - Figures

Figure 1: Application scheme baseline habitats

Figure 2: Application scheme impacts

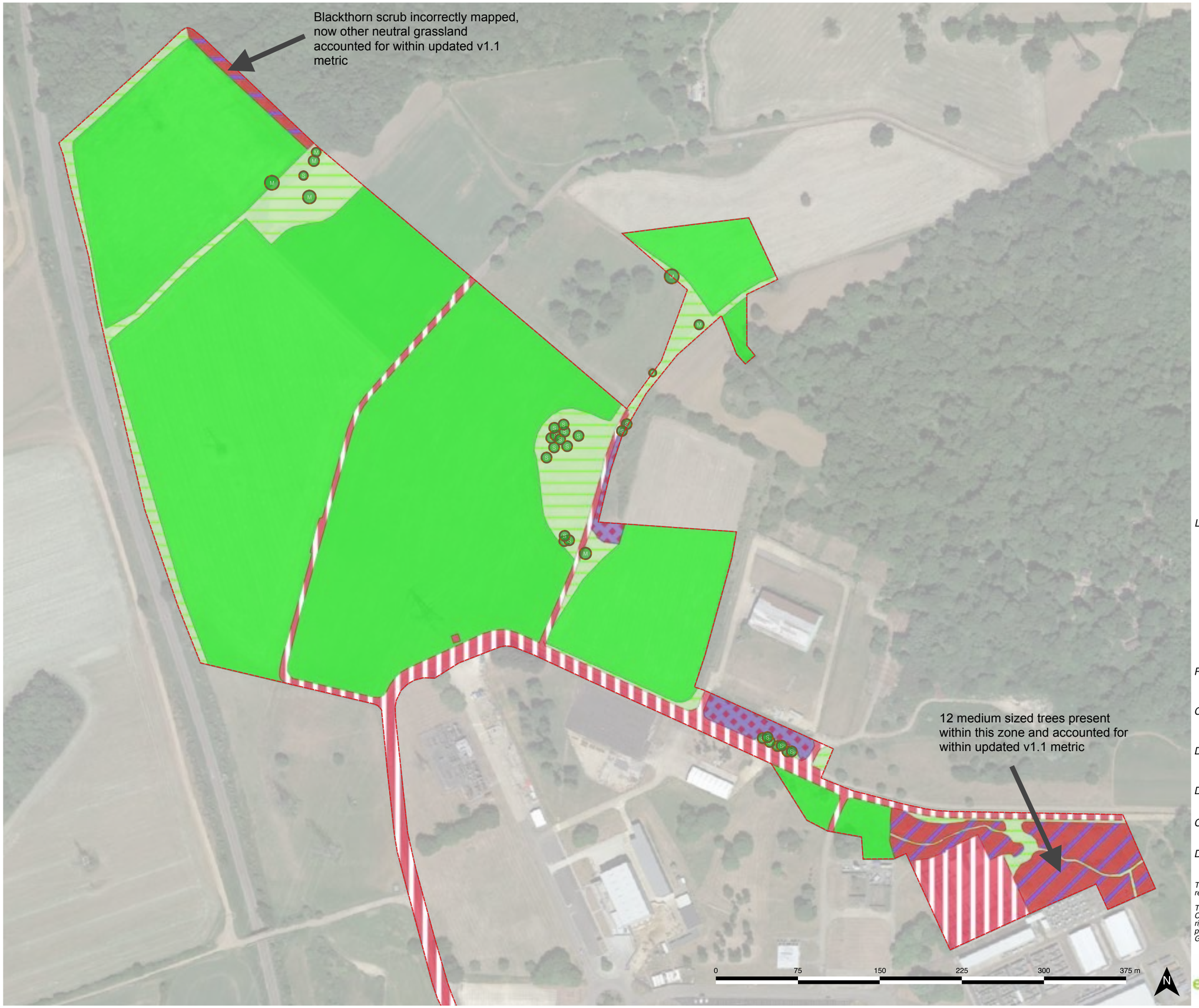
Figure 3: Application scheme proposed habitats

Figure 4: Appeal scheme baseline habitats

Figure 5: Appeal scheme impacts

Figure 6: Appeal scheme proposed habitats

(overleaf)



LEGEND

Site Boundary

- Site Boundary (26.91 ha)
- ~~Blackthorn scrub (0.1357 ha)~~
- Bramble scrub (1.0255 ha)
- Developed land; sealed surface (3.521 ha)
- Buildings (0.0045 ha)
- Mixed scrub (0.281 ha)
- Modified grassland (19.601 ha)
- Other neutral grassland **(2.4793 ha)**
- Rural tree, medium **(19 trees)**
- Rural tree, small **(24 trees)**

Location (1:75,000):

Project:

Culham Battery Storage

Client:

Stratera Energy

Drawing Title:

Application Scheme Baseline

Drawing No.: EBD_2513_DR001

Scale (@A3): 1:3,300

Central Eastings, Northings: 453133, 196452

Date Drawn: 05/04/2024

Drawn by: ASp

Approved by: BG

Hampden House, Monument Park, Chalgrove, Oxon, OX44 7RW

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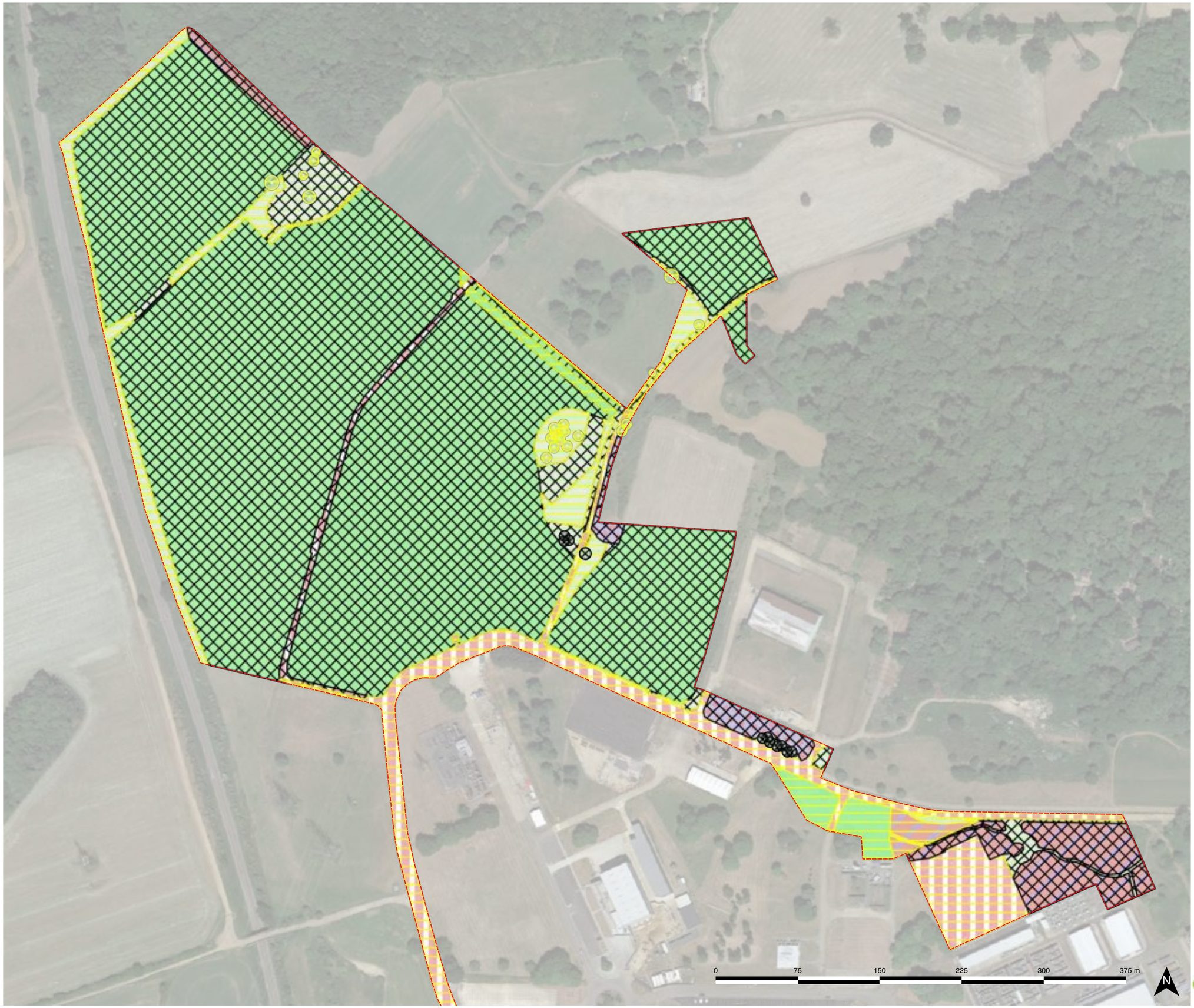

LEGEND

Site Boundary

- Site Boundary (26.91 ha)

Retained Habitats

- Bramble scrub (0.1486 ha)
- Buildings (0.0045 ha)
- Developed land; sealed surface (3.2679 ha)
- Modified grassland (0.5199 ha)
- Other neutral grassland (1.2742 ha)

Lost Habitats

- Blackthorn scrub (0.1357 ha)
- Bramble scrub (0.8769 ha)
- Developed land; sealed surface (0.2531 ha)
- Mixed scrub (0.281 ha)
- Modified grassland (19.0811 ha)
- Other neutral grassland (1.0694 ha)

Retained Trees

- Rural Tree, small (14 trees)
- Rural Tree, medium (6 trees)

Lost Trees

- Rural Tree, small (10 trees)
- Rural Tree, medium (1 trees)

Location (1:75,000):

Project:

Culham Battery Storage

Client:

Stratera Energy

Drawing Title:

Application Scheme Impacts

Drawing No.:	*Scale (@A3):*
EBD_2513_DR002	1:3,300
Central Eastings, Northings:	*Date Drawn:*
453133, 196452	05/04/2024
Drawn by:	*Approved by:*
ASp	BG

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LEGEND

Site Boundary

- Site Boundary (26.91 ha)
- Bramble scrub (0.1486 ha)
- Developed land; sealed surface (9.7932 ha)
- Buildings (0.0045 ha)
- Mixed scrub (1.6165 ha)
- Modified grassland (0.8826 ha)
- Other neutral grassland (11.9869 ha)
- Other woodland; broadleaved (2.1781 ha)
- Ponds (Priority Habitat) (0.0668 ha)
- Sustainable urban drainage feature (0.2351 ha)
- Rural Tree, Small (85 trees)
- Rural Tree, Medium (6 trees)
- Native hedgerow (0.48 km)
- Native hedgerow with trees (0.52 km)
- Line of trees (0.08 km)

0 75 150 225 300 375 m

N

Location (1:75,000):

Project:

Culham Battery Storage

Client:

Stratera Energy

Drawing Title:

Application Scheme Proposals

Drawing No.:	*Scale (@A3):*
EBD_2513_DR003	1:3,300
Central Eastings, Northings:	*Date Drawn:*
453133, 196452	05/04/2024
Drawn by:	*Approved by:*
ASp	BG

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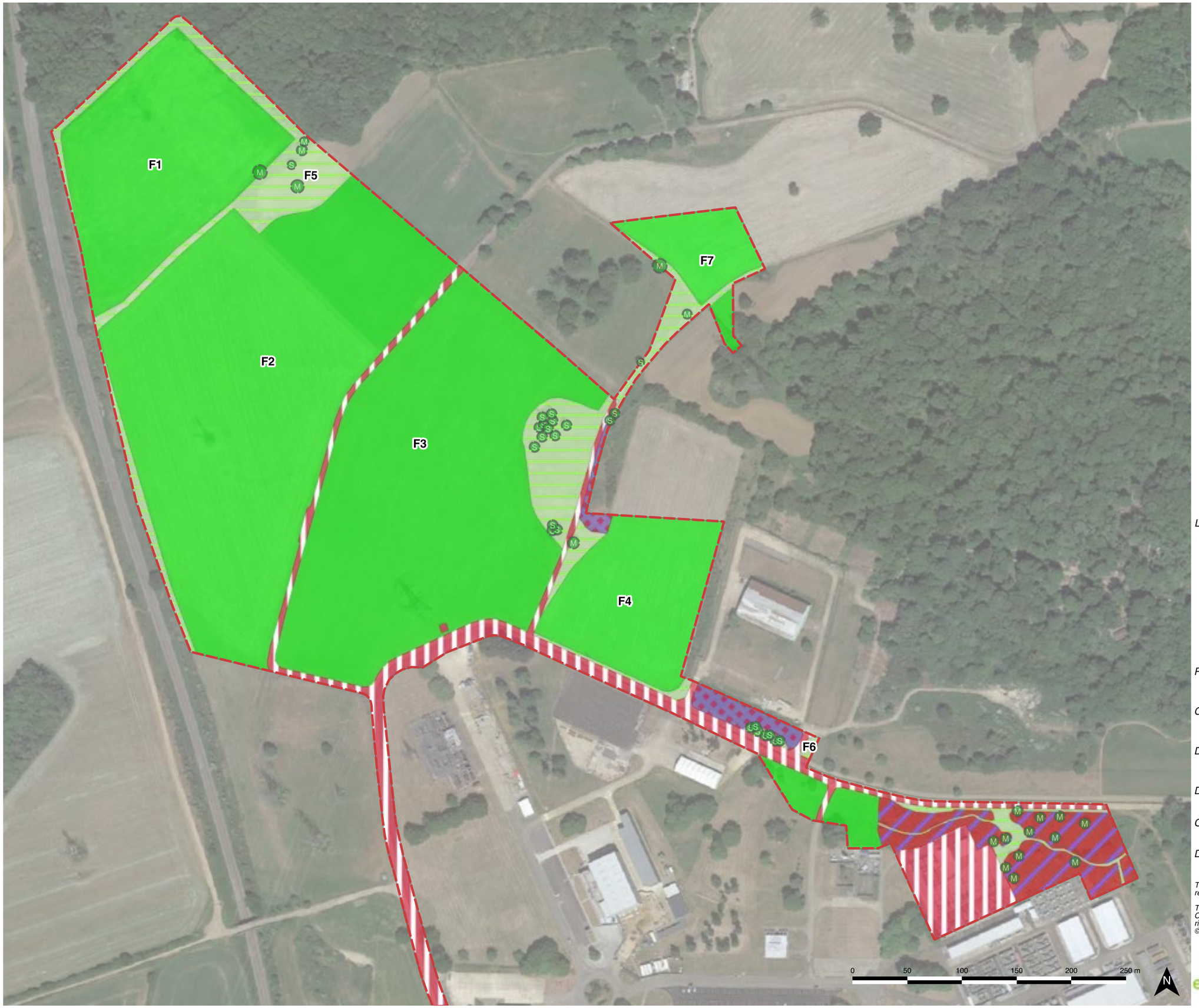


LEGEND

Site boundary (25.37 ha)

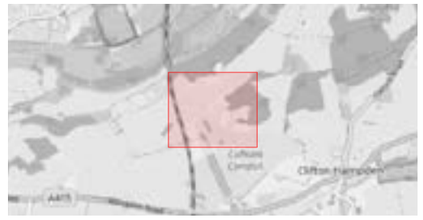
Habitats

- Bramble scrub (0.9931 ha)
- Developed land; sealed surface (2.2073 ha)
- Buildings (0.0045 ha)
- Mixed scrub (0.2677 ha)
- Modified grassland (19.559 ha)
- Other neutral grassland (2.3414 ha)

Trees

- M — Rural tree, medium (19 trees)
- S — Rural tree, small (24 trees)

Location (1:75,000):



Project:

Culham Battery Storage

Client:

Stratera Energy

Drawing Title:

Appeal Scheme Baseline

Drawing No.: EBD_2513_DR001

Scale (@A3): 1:3,300

Central Eastings, Northings: 453144, 196442

Date Drawn: 06/12/2024

Drawn by: JE

Approved by: BG

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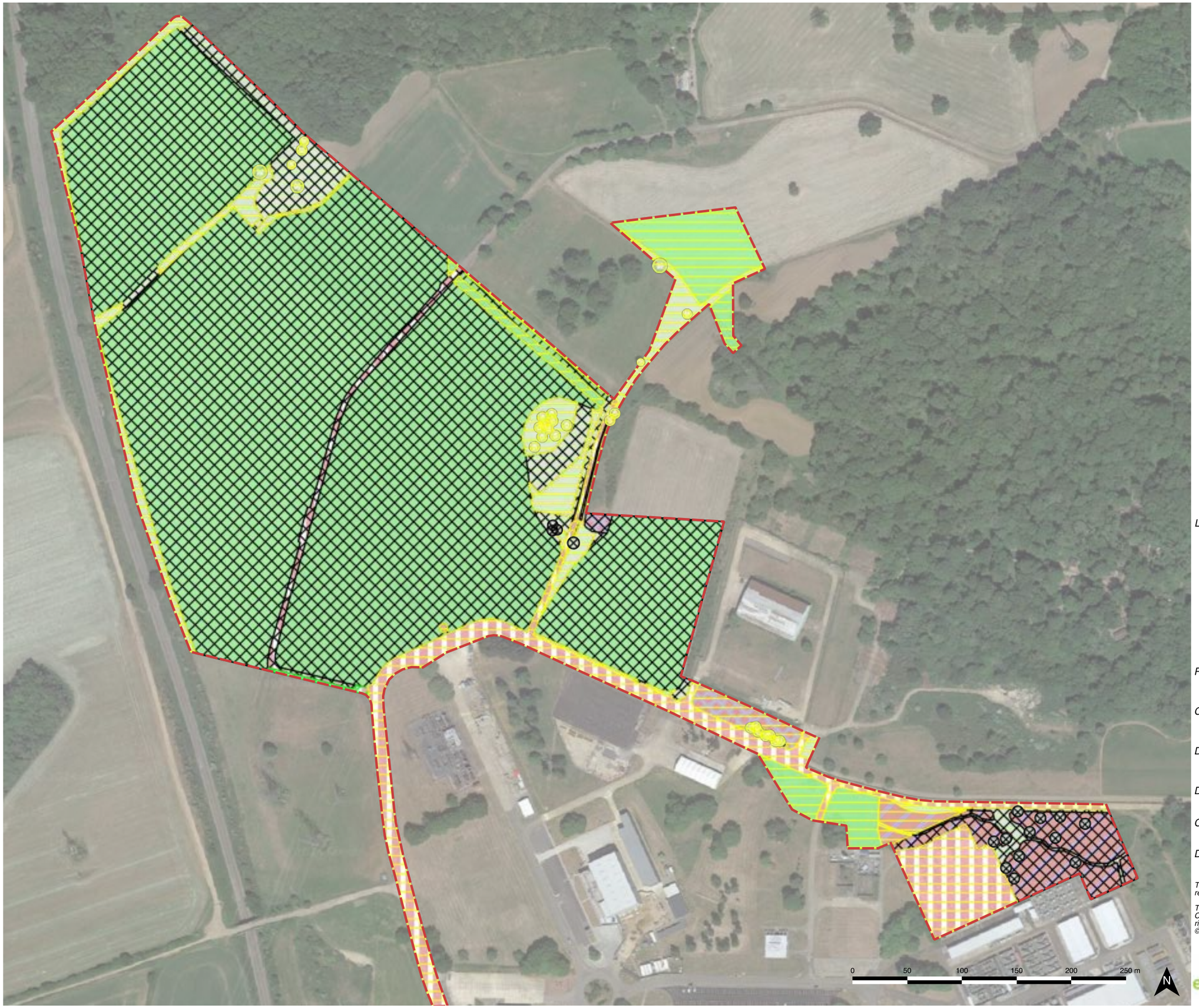


LEGEND

Site boundary (25.37 ha)

Habitats

Retained and enhanced

Developed land; sealed surface (0.0279 ha)

Retained

Bramble scrub (0.1476 ha)

Buildings (0.0045 ha)

Developed land; sealed surface (1.9264 ha)

Mixed scrub (0.2185 ha)

Modified grassland (1.243 ha)

Other neutral grassland (1.2526 ha)

Lost

Bramble scrub (0.8455 ha)

Developed land; sealed surface (0.253 ha)

Mixed scrub (0.0492 ha)

Modified grassland (18.316 ha)

Other neutral grassland (1.0888 ha)

Trees

Retained

S Rural Tree, small (21 trees)

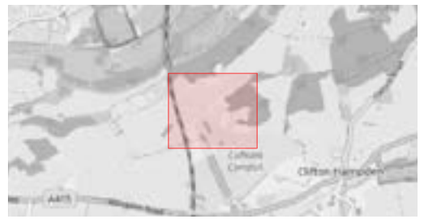
M Rural Tree, medium (6 trees)

Lost

S Rural Tree, small (3 trees)

M Rural Tree, medium (13 trees)

Location (1:75,000):



Project:

Culham Battery Storage

Client:

Stratera Energy

Drawing Title:

Application Scheme Impacts

Drawing No.: EBD_2513_DR002

Scale (@A3): 1:3,300

Central Eastings, Northings: 453144, 196442

Date Drawn: 06/12/2024

Drawn by: JE

Approved by: BG

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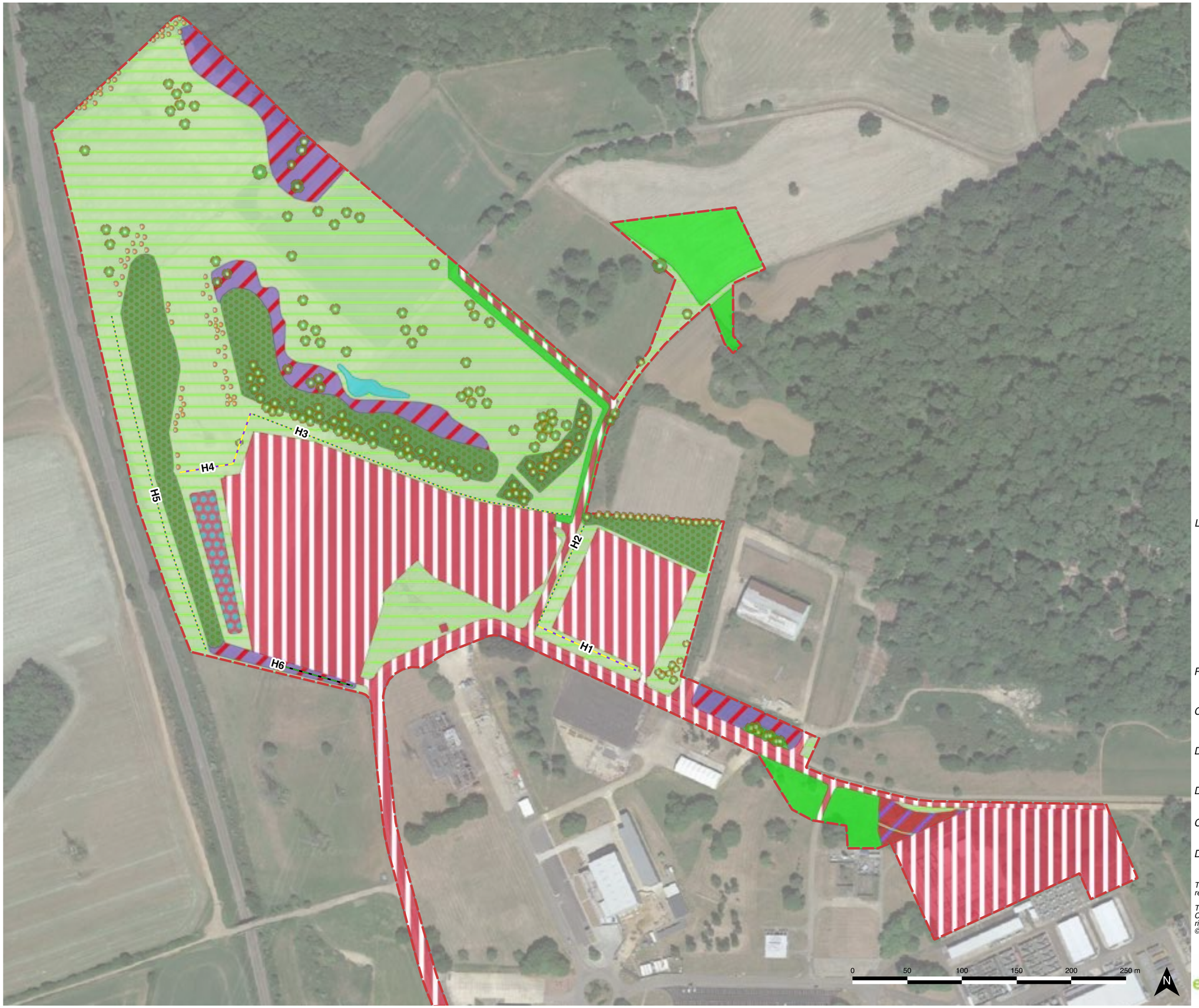

LEGEND

Site boundary (25.37 ha)

Habitats

- Bramble scrub (0.1476 ha)
- Developed land; sealed surface (8.0675 ha)
- Buildings (0.0045 ha)
- Mixed scrub (1.4467 ha)
- Modified grassland (1.3645 ha)
- Other neutral grassland (11.5368 ha)
- Other woodland; broadleaved (2.5043 ha)
- Ponds (Priority Habitat) (0.066 ha)
- Sustainable urban drainage feature (0.2351 ha)

Hedgerows

- Native hedgerow (0.2 km)
- Native hedgerow with trees (0.73 km)
- Line of trees (0.08 km)

Trees

- S Rural tree, small (241 trees)
- M Rural tree, medium (6 trees)

Location (1:75,000):

Project:

Culham Battery Storage

Client:

Stratera Energy

Drawing Title:

Application Scheme Proposals

Drawing No.: EBD_2513_DR003

Scale (@A3): 1:3,300

Central Eastings, Northings: 453144, 196442

Date Drawn: 06/12/2024

Drawn by: JE

Approved by: BG

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Appendix 3 - Photographs

The following photographs were taken during the baseline survey in July 2022.

Photograph 1: Modified grassland

Photograph 2: Other neutral grassland

Photograph 3: Mixed scrub

Photograph 4: Developed Land, sealed surface

Photograph 5: Scattered trees within other neutral grassland at the east of the site

Photograph 6: Bramble scrub in the south-east

Appendix 4 - Baseline Condition Assessment Tables

See accompanying excel spreadsheet

Condition Sheet: GRASSLAND Habitat Type (low distinctiveness)

UK Habitat Classification (UKHab) Habitat Type

Grassland - Modified grassland

On-site or off-site, site name and location	Culham Battery Storage	**Survey date and Surveyor name**	
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	

Habitat Description

Baseline modified grassland

ukhab – UK Habitat Classification			

	Condition Assessment Criteria	Criterion passed (Yes or No)	Notes (such as justification)
A	There are 6-8 vascular plant species per m^2 present, including at least 2 forbs (these may include those listed in Footnote 1). **Note - this criterion is essential for achieving Moderate or Good condition.** Where the vascular plant species present are characteristic of medium, high or very high distinctiveness grassland, or there are 9 or more of these characteristic species per m^2 (excluding those listed in Footnote 1), please review the full UKHab description to assess whether the grassland should instead be classified as a higher distinctiveness grassland. Where a grassland is classed as medium, high, or very high distinctiveness, please use the relevant condition sheet.	N	
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for vertebrates and invertebrates to live and breed.	N	
C	Any scrub present accounts for less than 20% of the total grassland area. (Some scattered scrub such as bramble *Rubus fruticosus* agg. may be present). Note - patches of scrub with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Y	
D	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Y	
E	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens) [2].	N	
F	Cover of bracken *Pteridium aquilinum* is less than 20%.	Y	
G	There is an absence of invasive non-native plant species [3] (as listed on Schedule 9 of WCA [4]).	Y	
	Essential criterion achieved (Yes or No)		No
	Number of criteria passed		4

Condition Assessment Result (out of 7 criteria)	Condition Assessment Score	Score Achieved ×/✓
Passes 6 or 7 criteria including passing essential criterion A	Good (3)	
Passes 4 or 5 criteria including passing essential criterion A	Moderate (2)	
Passes 3 or fewer criteria; OR Passes 4 - 6 criteria (excluding criterion A)	Poor (1)	Y

Suggested enhancement interventions to improve condition score

Footnotes

Footnote 1 – Creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, white clover *Trifolium repens* and cow parsley *Anthriscus sylvestris*.

Footnote 2 – For example, this could include small, scattered areas of bare ground allowing establishment of new species, or localised patches where not exceeding 10% cover.

Footnote 3 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, using professional judgement.

Footnote 4 – Wildlife and Countryside Act 1981 (as amended).

Condition Sheet: GRASSLAND Habitat Type (medium, high and very high distinctiveness)

UK Habitat Classification (UKHab) Habitat Types

Grassland - Lowland calcareous grassland
Grassland - Lowland dry acid grassland
Grassland - Lowland meadows
Grassland - Other lowland acid grassland
Grassland - Other neutral grassland
Grassland - Tall herb communities (H6430) [Not to be confused with the Tall forbs secondary code – see UKHab guidance for details.]
Grassland - Upland acid grassland
Grassland - Upland calcareous grassland
Grassland - Upland hay meadows
Sparsely vegetated land - Calaminarian grassland

On-site or off-site, site name and location	Culham Battery Storage	**Survey date and Surveyor name**	
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	

Habitat Description

Baseline Other neutral grassland - moderate

ukhab – UK Habitat Classification			

	Condition Assessment Criteria	**Criterion passed (Yes or No)**	**Notes (such as justification)**
A	The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to Footnote 3 suboptimal species which may be listed in the UKHab description). [1] **Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.**	Y	
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	N	
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens [2].	N	
D	Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.	Y	
E	Combined cover of species indicative of suboptimal condition [3] and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species [4] (as listed on Schedule 9 of WCA [5]) are present, this criterion is automatically failed.	Y	

Additional Criterion - must be assessed for all non-acid grassland types

F	There are 10 or more vascular plant species per m^2 present, including forbs that are characteristic of the habitat type (species referenced in Footnote 3 and 5 cannot contribute towards this count). **Note - this criterion is essential for achieving Good condition for non-acid grassland types only.**	N	
Essential criterion for Good condition achieved (for non-acid grassland) (Yes or No)		Yes	
Number of criteria passed		3	

Condition Assessment Result	Condition Assessment Score	Score Achieved ×/✓
Acid grassland types (Result out of 5 criteria)		
Passes 5 criteria	Good (3)	
Passes 3 or 4 criteria	Moderate (2)	
Passes 2 or fewer criteria	Poor (1)	
Non-acid grassland types (Result out of 6 criteria)		
Passes 5 or 6 criteria, including essential criterion A and additional criterion F.	Good (3)	
Passes 3 - 5 criteria, including essential criterion A.	Moderate (2)	Y
Passes 2 or fewer criteria; OR Passes 3 or 4 criteria excluding criterion A and F.	Poor (1)	

Suggested enhancement interventions to improve condition score

Notes

Footnote 1 - Professional judgement should be used alongside the UKHab description.

Footnote 2 – For example, this could include small, scattered areas of bare ground allowing for plant colonisation, or localised patches not exceeding 5% cover.

Footnote 3 - Species indicative of suboptimal condition for this habitat type include: creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, white clover *Trifolium repens* and cow parsley *Anthriscus sylvestris*. There may be additional relevant species local to the region and or site.

Footnote 4 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, by applying professional judgement.

Footnote 5 – Wildlife and Countryside Act 1981 (as amended).

Condition Sheet: GRASSLAND Habitat Type (medium, high and very high distinctiveness)

UK Habitat Classification (UKHab) Habitat Types

Grassland - Lowland calcareous grassland
Grassland - Lowland dry acid grassland
Grassland - Lowland meadows
Grassland - Other lowland acid grassland
Grassland - Other neutral grassland
Grassland - Tall herb communities (H6430) [Not to be confused with the Tall forbs secondary code – see UKHab guidance for details.]
Grassland - Upland acid grassland
Grassland - Upland calcareous grassland
Grassland - Upland hay meadows
Sparsely vegetated land - Calaminarian grassland

On-site or off-site, site name and location	Culham Battery Storage	**Survey date and Surveyor name**	
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	

Habitat Description

Baseline Other neutral grassland - poor

ukhab – UK Habitat Classification			

	Condition Assessment Criteria	**Criterion passed (Yes or No)**	**Notes (such as justification)**
A	The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to Footnote 3 suboptimal species which may be listed in the UKHab description). [1] **Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.**	N	
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	N	
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens [2].	N	
D	Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.	Y	
E	Combined cover of species indicative of suboptimal condition [3] and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species [4] (as listed on Schedule 9 of WCA [5]) are present, this criterion is automatically failed.	Y	

Additional Criterion - must be assessed for all non-acid grassland types

F	There are 10 or more vascular plant species per m^2 present, including forbs that are characteristic of the habitat type (species referenced in Footnote 3 and 5 cannot contribute towards this count). **Note - this criterion is essential for achieving Good condition for non-acid grassland types only.**	N	
Essential criterion for Good condition achieved (for non-acid grassland) (Yes or No)		Y	
Number of criteria passed		2	

Condition Assessment Result	Condition Assessment Score	Score Achieved ×/✓
Acid grassland types (Result out of 5 criteria)		
Passes 5 criteria	Good (3)	
Passes 3 or 4 criteria	Moderate (2)	
Passes 2 or fewer criteria	Poor (1)	
Non-acid grassland types (Result out of 6 criteria)		
Passes 5 or 6 criteria, including essential criterion A and additional criterion F.	Good (3)	
Passes 3 - 5 criteria, including essential criterion A.	Moderate (2)	
Passes 2 or fewer criteria; OR Passes 3 or 4 criteria excluding criterion A and F.	Poor (1)	Y

Suggested enhancement interventions to improve condition score

Notes

Footnote 1 - Professional judgement should be used alongside the UKHab description.

Footnote 2 – For example, this could include small, scattered areas of bare ground allowing for plant colonisation, or localised patches not exceeding 5% cover.

Footnote 3 - Species indicative of suboptimal condition for this habitat type include: creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, white clover *Trifolium repens* and cow parsley *Anthriscus sylvestris*. There may be additional relevant species local to the region and or site.

Footnote 4 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, by applying professional judgement.

Footnote 5 – Wildlife and Countryside Act 1981 (as amended).

Condition Sheet: SCRUB Habitat Type

Habitat Types

Heathland and shrub - Blackthorn scrub
Heathland and shrub - Gorse scrub
Heathland and shrub - Hawthorn scrub
Heathland and shrub - Hazel scrub
Heathland and shrub - Mixed scrub
Heathland and shrub - Dunes with sea buckthorn (H2160)
Heathland and shrub - Willow scrub

Habitat Description

Baseline - mixed scrub

For Dunes with sea buckthorn see:	Dunes with sea-buckthorn (Dunes with Hippophae rhamnoides) - Special Areas of Conservation (jncc.gov.uk)		
For other scrub types see:	ukhab – UK Habitat Classification		
On-site or off-site, site name and location	Culham Battery Storage	**Survey date and Surveyor name**	
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	

	Condition Assessment Criteria	**Criterion passed (Yes or No)**	**Notes (such as justification)**
A	The parcel represents a good example of its habitat type - the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range). [1] - At least 80% of scrub is native, - There are at least three native woody species [2], - No single species comprises more than 75% of the cover (except hazel *Corylus avellana*, common juniper *Juniperus communis*, sea buckthorn *Hippophae rhamnoides* (only in its restricted native range), or box *Buxus sempervirens*, which can be up to 100% cover).	Y	
B	Seedlings, saplings, young shrubs and mature (or ancient or veteran [3]) shrubs are all present.	N	
C	There is an absence of invasive non-native plant species [4] (as listed on Schedule 9 of WCA[5]) and species indicative of suboptimal condition [6] make up less than 5% of ground cover.	Y	
D	The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.	N	
E	There are clearings, glades or rides present within the scrub, providing sheltered edges.	N	
	Number of criteria passed	2	

Condition Assessment Result (out of 5 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**
Passes 5 criteria	Good (3)	
Passes 3 or 4 criteria	Moderate (2)	
Passes 2 or fewer criteria	Poor (1)	Y

Suggested enhancement interventions to improve condition score

Condition Sheet: INDIVIDUAL TREES Habitat Type

Habitat Types

Individual trees – Urban trees

Individual trees – Rural trees

Complete a condition sheet for each tree or block of trees.

Please see the separate Line of trees condition sheet for a line of rural trees. You should only use the Line of trees condition assessment and record that habitat type in rural locations.

Habitat Description

Baseline individual trees - rural (non-native)

Individual trees (description applied to the urban or rural environment):

Young trees over 7.5 cm in diameter at breast height whose canopies are not touching.

Urban Perimeter / Linear Blocks and Groups (description applied to the urban environment only):

Groups or stands of trees (size requirement as defined above) within and around the perimeter of urban land. This includes those along urban streets, highways, railways and canals, and also former field boundary trees incorporated into developments. Canopies should predominantly overlap continuously. Groups of urban trees that don't match the descriptions for woodland may be assessed within this category.

On-site or off-site, site name and location	Culham Battery Storage	**Survey date and Surveyor name**	
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	

	Condition Assessment Criteria	**Criterion passed (Yes or No)**	**Notes (such as justification)**
A	The tree is a native species (or at least 70% within the block are native species).	N	
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	N	
C	The tree is mature (or more than 50% within the block are mature) [1].	N	
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	Y	
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	N	
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Y	
	Number of criteria passed	2	

Condition Assessment Result (out of 6 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**
Passes 5 or 6 criteria	Good (3)	
Passes 3 or 4 criteria	Moderate (2)	
Passes 2 or fewer criteria	Poor (1)	Y
Note that 'Fairly Good and Fairly Poor' condition categories are not available for this broad habitat type.		

Suggested enhancement interventions to improve condition score [2]

Condition Sheet: INDIVIDUAL TREES Habitat Type

Habitat Types

Individual trees – Urban trees

Individual trees – Rural trees

Complete a condition sheet for each tree or block of trees.

Please see the separate Line of trees condition sheet for a line of rural trees. You should only use the Line of trees condition assessment and record that habitat type in rural locations.

Habitat Description

Baseline individual trees - rural (native)

Individual trees (description applied to the urban or rural environment):

Young trees over 7.5 cm in diameter at breast height whose canopies are not touching.

Urban Perimeter / Linear Blocks and Groups (description applied to the urban environment only):

Groups or stands of trees (size requirement as defined above) within and around the perimeter of urban land. This includes those along urban streets, highways, railways and canals, and also former field boundary trees incorporated into developments. Canopies should predominantly overlap continuously. Groups of urban trees that don't match the descriptions for woodland may be assessed within this category.

On-site or off-site, site name and location	Culham Battery Storage	**Survey date and Surveyor name**	
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	

	Condition Assessment Criteria	**Criterion passed (Yes or No)**	**Notes (such as justification)**
A	The tree is a native species (or at least 70% within the block are native species).	Y	
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	N	
C	The tree is mature (or more than 50% within the block are mature) [1].	N	
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	Y	
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	N	
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Y	
	Number of criteria passed	3	

Condition Assessment Result (out of 6 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**
Passes 5 or 6 criteria	Good (3)	
Passes 3 or 4 criteria	Moderate (2)	Y
Passes 2 or fewer criteria	Poor (1)	
Note that 'Fairly Good and Fairly Poor' condition categories are not available for this broad habitat type.		

Suggested enhancement interventions to improve condition score [2]

Appendix 5 - Proposed Condition Assessment Tables

See accompanying excel spreadsheet

Condition Sheet: GRASSLAND Habitat Type (medium, high and very high distinctiveness)

UK Habitat Classification (UKHab) Habitat Types

Grassland - Lowland calcareous grassland
Grassland - Lowland dry acid grassland
Grassland - Lowland meadows
Grassland - Other lowland acid grassland
Grassland - Other neutral grassland
Grassland - Tall herb communities (H6430) [Not to be confused with the Tall forbs secondary code – see UKHab guidance for details.]
Grassland - Upland acid grassland
Grassland - Upland calcareous grassland
Grassland - Upland hay meadows
Sparsely vegetated land - Calaminarian grassland

On-site or off-site, site name and location	Culham Battery Storage	**Survey date and Surveyor name**	
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	

Habitat Description

Proposed other neutral grassland

ukhab – UK Habitat Classification			

	Condition Assessment Criteria	**Criterion passed (Yes or No)**	**Notes (such as justification)**
A	The parcel represents a good example of its habitat type, with a consistently high proportion of characteristic indicator species present relevant to the specific habitat type (and relative to Footnote 3 suboptimal species which may be listed in the UKHab description). [1] **Note - this criterion is essential for achieving Moderate or Good condition for non-acid grassland types only.**	Y	
B	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	N	
C	Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens [2].	N	
D	Cover of bracken *Pteridium aquilinum* is less than 20% and cover of scrub (including bramble *Rubus fruticosus* agg.) is less than 5%.	Y	
E	Combined cover of species indicative of suboptimal condition [3] and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area. If any invasive non-native plant species [4] (as listed on Schedule 9 of WCA [5]) are present, this criterion is automatically failed.	Y	

Additional Criterion - must be assessed for all non-acid grassland types

F	There are 10 or more vascular plant species per m^2 present, including forbs that are characteristic of the habitat type (species referenced in Footnote 3 and 5 cannot contribute towards this count). **Note - this criterion is essential for achieving Good condition for non-acid grassland types only.**	N	
Essential criterion for Good condition achieved (for non-acid grassland) (Yes or No)		Y	
Number of criteria passed		3	

Condition Assessment Result	Condition Assessment Score	Score Achieved ×/✓
Acid grassland types (Result out of 5 criteria)		
Passes 5 criteria	Good (3)	
Passes 3 or 4 criteria	Moderate (2)	
Passes 2 or fewer criteria	Poor (1)	
Non-acid grassland types (Result out of 6 criteria)		
Passes 5 or 6 criteria, including essential criterion A and additional criterion F.	Good (3)	
Passes 3 - 5 criteria, including essential criterion A.	Moderate (2)	Y
Passes 2 or fewer criteria; OR Passes 3 or 4 criteria excluding criterion A and F.	Poor (1)	

Suggested enhancement interventions to improve condition score

Notes

Footnote 1 - Professional judgement should be used alongside the UKHab description.

Footnote 2 – For example, this could include small, scattered areas of bare ground allowing for plant colonisation, or localised patches not exceeding 5% cover.

Footnote 3 - Species indicative of suboptimal condition for this habitat type include: creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, white clover *Trifolium repens* and cow parsley *Anthriscus sylvestris*. There may be additional relevant species local to the region and or site.

Footnote 4 – Assess this for each distinct habitat parcel. If the distribution of invasive non-native species varies across the habitat, split into parcels accordingly, applying a buffer zone around the invasive non-native species with a size relative to its risk of spread into adjacent habitat, by applying professional judgement.

Footnote 5 – Wildlife and Countryside Act 1981 (as amended).

Condition sheet: HEDGEROW Habitat Types

Habitat Type

Native hedgerow
Native hedgerow - associated with bank or ditch
Native hedgerow with trees
Native hedgerow with trees - associated with bank or ditch
Species-rich native hedgerow
Species-rich native hedgerow - associated with bank or ditch
Species-rich native hedgerow with trees
Species-rich native hedgerow with trees - associated with bank or ditch

Habitat Description

Proposed Native hedgerow (H1 + H4)

ukhab – UK Habitat Classification

On-site or off-site, site name and location	Culham Battery Storage	**Survey date and Surveyor name**	
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	

Condition Assessment Details

A series of ten attributes, representing key physical characteristics are used for this assessment. Each attribute is assigned to one of five functional groups (A – E) and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria.

This assessment is based on the Hedgerow Survey Handbook [1] and Favourable Conservation Status document [2]. For further clarification please refer to the Hedgerow Survey Handbook.

Best practice would be to record the species, age, spacing and other key information about all trees present along a hedgerow within the 'Habitat Description' box, as well as other key features of the hedgerow.

Hedgerow favourable condition attributes

Attributes and functional groupings (A, B, C, D and E)		Criteria - the minimum requirements for 'favourable condition'	Criteria description	Criterion passed (Yes or No)	Notes (such as justification)
Core groups - applicable to all hedgerow types					
A1.	Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is >1.5 m height).	Y	
A2.	Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (such as blackthorn *Prunus spinosa* suckers) are only included in the width estimate when they are >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).	Y	
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	N	
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5 m	This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall 'gappiness' but are not subject to the >5 m criterion (as this is the typical size of a gate).	Y	
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · Measured from outer edge of hedgerow; and · Is present on one side of the hedgerow (at least).	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow. This criterion recognises the value of the hedgerow base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.	Y	

C2.	Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	The indicator species used are nettles *Urtica* spp., cleavers *Galium aparine* and docks *Rumex* spp. Their presence, either singly or together, does not exceed the 20% cover threshold.	Y	
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA [3]) and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website [4], as well as the BSBI website[5] where the 'Online Atlas of the British and Irish Flora' [6] contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website [7].	Y	
D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (for example, excessive hedgerow cutting).	Y	
Additional group - applicable to hedgerows with trees only					
E1.	Tree class	There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient [8]), and there is on average at least one mature, ancient or veteran tree present per 20 - 50m of hedgerow.	This criterion addresses if there are a range of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species.		
E2.	Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.		

The hedgerow condition assessment generates a weighting (score) ranging from 1 - 3, which is used within the Statutory Biodiversity Metric. The scores for each are set out in the tables below.

Condition categories for hedgerows without trees		
Category	**Category Requirements**	**Metric Score**
Good	No more than 2 failures in total; **AND** No more than 1 failure in any functional group.	3
Moderate	No more than 4 failures in total; **AND** Does not fail both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and C2 = Moderate condition).	2
Poor	Fails a total of more than 4 attributes; **OR** Fails both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and B2 = Poor condition).	1
	Score achieved:	Good

Condition categories for hedgerows with trees		
Category	**Category Requirements**	**Metric score**
Good	No more than 2 failures in total; **AND** No more than 1 failure in any functional group.	3
Moderate	No more than 5 failures in total; **AND** Does not fail both attributes in more than one functional group (for example, fails attributes A1, A2, B1, C2 and E1 = Moderate condition).	2
Poor	Fails a total of more than 5 attributes; **OR** Fails both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and B2 = Poor condition).	1
	Score achieved:	

Suggested enhancement interventions to improve condition score

Condition sheet: HEDGEROW Habitat Types

Habitat Type

Native hedgerow
Native hedgerow - associated with bank or ditch
Native hedgerow with trees
Native hedgerow with trees - associated with bank or ditch
Species-rich native hedgerow
Species-rich native hedgerow - associated with bank or ditch
Species-rich native hedgerow with trees
Species-rich native hedgerow with trees - associated with bank or ditch

Habitat Description

Proposed Native hedgerow with trees (H2, H3 + H4)

ukhab – UK Habitat Classification

On-site or off-site, site name and location	Culham Battery Storage	**Survey date and Surveyor name**	
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	

Condition Assessment Details

A series of ten attributes, representing key physical characteristics are used for this assessment. Each attribute is assigned to one of five functional groups (A – E) and the condition of a hedgerow is assessed according to the number of attributes from these functional groups which pass or fail the 'favourable condition' criteria.

This assessment is based on the Hedgerow Survey Handbook [1] and Favourable Conservation Status document [2]. For further clarification please refer to the Hedgerow Survey Handbook.

Best practice would be to record the species, age, spacing and other key information about all trees present along a hedgerow within the 'Habitat Description' box, as well as other key features of the hedgerow.

Hedgerow favourable condition attributes

Attributes and functional groupings (A, B, C, D and E)		Criteria - the minimum requirements for 'favourable condition'	Criteria description	Criterion passed (Yes or No)	Notes (such as justification)
Core groups - applicable to all hedgerow types					
A1.	Height	>1.5 m average along length	The average height of woody growth estimated from base of stem to the top of the shoots, excluding any bank beneath the hedgerow, any gaps or isolated trees. Newly laid or coppiced hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice). A newly planted hedgerow does not pass this criterion (unless it is >1.5 m height).	Y	
A2.	Width	>1.5 m average along length	The average width of woody growth estimated at the widest point of the canopy, excluding gaps and isolated trees. Outgrowths (such as blackthorn *Prunus spinosa* suckers) are only included in the width estimate when they are >0.5 m in height. Laid, coppiced, cut and newly planted hedgerows are indicative of good management and pass this criterion for up to a maximum of four years (if undertaken according to good practice).	Y	
B1.	Gap - hedge base	Gap between ground and base of canopy <0.5 m for >90% of length	This is the vertical 'gappiness' of the woody component of the hedgerow, and its distance from the ground to the lowest leafy growth. Certain exceptions to this criterion are acceptable (see page 65 of the Hedgerow Survey Handbook).	N	
B2.	Gap - hedge canopy continuity	Gaps make up <10% of total length; and No canopy gaps >5 m	This is the horizontal 'gappiness' of the woody component of the hedgerow. Gaps are complete breaks in the woody canopy (no matter how small). Access points and gates contribute to the overall 'gappiness' but are not subject to the >5 m criterion (as this is the typical size of a gate).	Y	
C1.	Undisturbed ground and perennial vegetation	>1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length: · Measured from outer edge of hedgerow; and · Is present on one side of the hedgerow (at least).	This is the level of disturbance (excluding wildlife disturbance) at the base of the hedgerow. Undisturbed ground is present for at least 90% of the hedgerow length, greater than 1 m in width and must be present along at least one side of the hedgerow. This criterion recognises the value of the hedgerow base as a boundary habitat with the capacity to support a wide range of species. Cultivation, heavily trodden footpaths, poached ground etc. can limit available habitat niches.	Y	

C2.	Nutrient-enriched perennial vegetation	Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.	The indicator species used are nettles *Urtica* spp., cleavers *Galium aparine* and docks *Rumex* spp. Their presence, either singly or together, does not exceed the 20% cover threshold.	Y	
D1.	Invasive and neophyte species	>90% of the hedgerow and undisturbed ground is free of invasive non-native plant species (including those listed on Schedule 9 of WCA [3]) and recently introduced species.	Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website [4], as well as the BSBI website [5] where the 'Online Atlas of the British and Irish Flora' [6] contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website [7].	Y	
D2.	Current damage	>90% of the hedgerow or undisturbed ground is free of damage caused by human activities.	This criterion addresses damaging activities that may have led to or lead to deterioration in other attributes. This could include evidence of pollution, piles of manure or rubble, or inappropriate management practices (for example, excessive hedgerow cutting).	Y	
Additional group - applicable to hedgerows with trees only					
E1.	Tree class	There is more than one age-class (or morphology) of tree present (for example: young, mature, veteran and or ancient [8]), and there is on average at least one mature, ancient or veteran tree present per 20 - 50m of hedgerow.	This criterion addresses if there are a range of age-classes or morphologies which allow for replacement of trees and provide opportunities for different species.	N	
E2.	Tree health	At least 95% of hedgerow trees are in a healthy condition (excluding veteran features valuable for wildlife). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	This criterion identifies if the trees are subject to damage which compromises the survival and health of the individual specimens.	Y	

The hedgerow condition assessment generates a weighting (score) ranging from 1 - 3, which is used within the Statutory Biodiversity Metric. The scores for each are set out in the tables below.

Condition categories for hedgerows without trees		
Category	**Category Requirements**	**Metric Score**
Good	No more than 2 failures in total; **AND** No more than 1 failure in any functional group.	3
Moderate	No more than 4 failures in total; **AND** Does not fail both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and C2 = Moderate condition).	2
Poor	Fails a total of more than 4 attributes; **OR** Fails both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and B2 = Poor condition).	1
	Score achieved:	Good

Condition categories for hedgerows with trees		
Category	**Category Requirements**	**Metric score**
Good	No more than 2 failures in total; **AND** No more than 1 failure in any functional group.	3
Moderate	No more than 5 failures in total; **AND** Does not fail both attributes in more than one functional group (for example, fails attributes A1, A2, B1, C2 and E1 = Moderate condition).	2
Poor	Fails a total of more than 5 attributes; **OR** Fails both attributes in more than one functional group (for example, fails attributes A1, A2, B1 and B2 = Poor condition).	1
	Score achieved:	

Suggested enhancement interventions to improve condition score

Condition Sheet: LINE OF TREES Habitat Type

Habitat Types

Line of trees
Line of trees – associated with bank or ditch
Ecologically valuable line of trees
Ecologically valuable line of trees – associated with bank or ditch

Please see the separate Individual trees condition sheet for linear blocks and groups of trees in an urban setting. You should only use this Line of trees condition assessment and record this habitat type in rural locations.

Habitat Description

Proposed Line of trees (H6)

See the Statutory Biodiversity Metric User Guide.
This assessment is based on the Hedgerow Survey Handbook [1]. For further clarifications please refer to the Handbook.
Where ancient and veteran trees are present within the line of trees, see Footnote 2 for standing advice.

On-site or off-site, site name and location	Culham Battery Storage	**Survey date and Surveyor name**	
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	

	Condition Assessment Criteria	**Criterion passed (Yes or No)**	**Notes (such as justification)**
A	At least 70% of trees are native species.	Y	
B	Tree canopy is predominantly continuous with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide.	Y	
C	One or more trees has veteran features and or natural ecological niches for vertebrates and invertebrates, such as presence of standing and attached deadwood, cavities, ivy or loose bark.	N	
D	There is an undisturbed naturally-vegetated strip of at least 6 m on both sides to protect the line of trees from farming and other human activities (excluding grazing). Where veteran trees are present, root protection areas should follow standing advice [2].	N	
E	At least 95% of the trees are in a healthy condition (deadwood or veteran features valuable for wildlife are excluded from this). There is little or no evidence of an adverse impact on tree health by damage from livestock or wild animals, pests or diseases, or human activity.	Y	
		Number of criteria passed	3

Condition Assessment Result (out of 5 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**
Passes 5 criteria	Good (3)	
Passes 3 or 4 criteria	Moderate (2)	Y
Passes 2 or fewer criteria	Poor (1)	

Suggested enhancement interventions to improve condition score

Footnotes

Condition Sheet: POND Habitat Type			
Habitat Type			
Lakes - Ponds (priority habitat) **Lakes - Ponds (non-priority habitat)** **Lakes - Temporary lakes ponds and pools (H3170)** [Use this condition sheet for Temporary ponds and pools, use Lake condition sheet for Temporary lakes] **Lakes - Ornamental lake or pond** [Use this condition sheet for Ornamental ponds, use Lake condition sheet for Ornamental lakes]			
Habitat Description			
Proposed pond (priority habitat)			
ukhab – UK Habitat Classification			
On-site or off-site, site name and location	Culham Battery Storage	**Survey date and Surveyor name**	
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	

	Condition Assessment Criteria	Criterion passed (Yes or No)	Notes (such as justification)
Core Criteria - applicable to all ponds (woodland [1] and non-woodland):			
A	The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. Turbidity is acceptable if the pond is grazed by livestock.	Y	
B	There is semi-natural habitat (moderate distinctiveness or above) completely surrounding the pond, for at least 10 m from the pond edge for its entire perimeter.	Y	
C	Less than 10% of the water surface is covered with duckweed *Lemna* spp. or filamentous algae.	N	
D	The pond is not artificially connected to other waterbodies, such as agricultural ditches or artificial pipework.	Y	
E	Pond water levels can fluctuate naturally throughout the year. No obvious artificial dams[2], pumps or pipework.	Y	
F	There is an absence of listed non-native plant and animal species [3].	Y	
G	The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.	Y	
Additional Criteria - must be assessed for all non-woodland ponds:			
H	Emergent, submerged or floating plants (excluding duckweed) [4] cover at least 50% of the pond area which is less than 3 m deep.	N	

I	The pond surface is no more than 50% shaded by adjacent trees and scrub.	N	
	Number of criteria passed	6	

Condition Assessment Result	**Condition Assessment Score**	**Score Achieved ×/✓**
Results for woodland ponds which require assessment of 7 core criteria		
Passes 7 criteria	Good (3)	
Passes 5 or 6 criteria	Moderate (2)	
Passes 4 or fewer criteria	Poor (1)	
Results for non-woodland ponds which require assessment of 9 criteria		
Passes 9 criteria	Good (3)	
Passes 6 to 8 criteria	Moderate (2)	Y
Passes 5 or fewer criteria	Poor (1)	

Suggested enhancement interventions to improve condition score

Footnote 1 - A woodland pond will be surrounded on all sides by woodland habitat.

Footnote 2 – This excludes natural dams such as those created by Eurasian beaver *Castor fiber*.

Footnote 3 - Any species included on the Water Framework Directive (WFD) UKTAG GB High Impact Species List should be absent: WFD UKTAG (2021) *Classification of aquatic alien species according to their level of impact*[online]. Available from:

Condition Sheet: SCRUB Habitat Type

Habitat Types

Heathland and shrub - Blackthorn scrub
Heathland and shrub - Gorse scrub
Heathland and shrub - Hawthorn scrub
Heathland and shrub - Hazel scrub
Heathland and shrub - Mixed scrub
Heathland and shrub - Dunes with sea buckthorn (H2160)
Heathland and shrub - Willow scrub

Habitat Description

Proposed - mixed scrub

For Dunes with sea buckthorn see:	Dunes with sea-buckthorn (Dunes with Hippophae rhamnoides) - Special Areas of Conservation (jncc.gov.uk)		
For other scrub types see:	ukhab – UK Habitat Classification		
On-site or off-site, site name and location	Culham Battery Storage	**Survey date and Surveyor name**	
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	

	Condition Assessment Criteria	**Criterion passed (Yes or No)**	**Notes (such as justification)**
A	The parcel represents a good example of its habitat type - the appearance and composition of the vegetation closely matches its UKHab description (where in its natural range). [1] - At least 80% of scrub is native, - There are at least three native woody species [2], - No single species comprises more than 75% of the cover (except hazel *Corylus avellana*, common juniper *Juniperus communis*, sea buckthorn *Hippophae rhamnoides* (only in its restricted native range), or box *Buxus sempervirens*, which can be up to 100% cover).	Y	
B	Seedlings, saplings, young shrubs and mature (or ancient or veteran [3]) shrubs are all present.	Y	
C	There is an absence of invasive non-native plant species [4] (as listed on Schedule 9 of WCA[5]) and species indicative of suboptimal condition [6] make up less than 5% of ground cover.	Y	
D	The scrub has a well-developed edge with scattered scrub and tall grassland and or forbs present between the scrub and adjacent habitat.	Y	
E	There are clearings, glades or rides present within the scrub, providing sheltered edges.	N	
	Number of criteria passed	4	

Condition Assessment Result (out of 5 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**
Passes 5 criteria	Good (3)	
Passes 3 or 4 criteria	Moderate (2)	Y
Passes 2 or fewer criteria	Poor (1)	

Suggested enhancement interventions to improve condition score

Condition Sheet: INDIVIDUAL TREES Habitat Type

Habitat Types

Individual trees – Urban trees

Individual trees – Rural trees

Complete a condition sheet for each tree or block of trees.

Please see the separate Line of trees condition sheet for a line of rural trees. You should only use the Line of trees condition assessment and record that habitat type in rural locations.

Habitat Description

Proposed individual trees - rural

Individual trees (description applied to the urban or rural environment):

Young trees over 7.5 cm in diameter at breast height whose canopies are not touching.

Urban Perimeter / Linear Blocks and Groups (description applied to the urban environment only):

Groups or stands of trees (size requirement as defined above) within and around the perimeter of urban land. This includes those along urban streets, highways, railways and canals, and also former field boundary trees incorporated into developments. Canopies should predominantly overlap continuously. Groups of urban trees that don't match the descriptions for woodland may be assessed within this category.

On-site or off-site, site name and location	Culham Battery Storage	**Survey date and Surveyor name**	
Limitations (if applicable)		**Survey reference (if relating to a wider survey)**	
Grid reference		**Habitat parcel reference**	

	Condition Assessment Criteria	**Criterion passed (Yes or No)**	**Notes (such as justification)**
A	The tree is a native species (or at least 70% within the block are native species).	Y	
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).	N	
C	The tree is mature (or more than 50% within the block are mature) [1].	N	
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.	Y	
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.	N	
F	More than 20% of the tree canopy area is oversailing vegetation beneath.	Y	
	Number of criteria passed	3	

Condition Assessment Result (out of 6 criteria)	**Condition Assessment Score**	**Score Achieved ×/✓**
Passes 5 or 6 criteria	Good (3)	
Passes 3 or 4 criteria	Moderate (2)	Y
Passes 2 or fewer criteria	Poor (1)	
Note that 'Fairly Good and Fairly Poor' condition categories are not available for this broad habitat type.		

Suggested enhancement interventions to improve condition score [2]