BIODIVERSITY METRIC ASSESSMENT

SWEETBRIAR SOLAR FARM

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1 INTRODUCTION

This report has been prepared on behalf of Lightrock Power Ltd ('the Applicant') in relation to a planning application made to North Lincolnshire Council for the construction of a proposed ground mounted solar photovoltaic ('PV') farm and associated infrastructure ('the Development') on land approximately 6 km north west of Immingham, North East Lincolnshire (the Site).

The layout and technical details of the Development are provided in the associated Planning, Design and Access Statement (PDAS) and accompanying figures. The Site Layout is shown on Planning Drawing 2 of the planning application and the Landscape Mitigation Plan shown on Planning Drawing 3.

The updated National Planning Policy Framework[1] (NPPF) published in July 2021 states (Paragraph 174) that:

"Planning Policies and decisions should contribute to and enhance the natural and local environment by… minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures."

The Planning Policy Guidance (PPG) for the Natural Environment[2], updated in July 2019, states (paragraph 020) that:

"Net gain in planning describes an approach to development that leaves the natural environment in a measurably better state than it was beforehand."

The updated PPG provides examples of how biodiversity net gain can be achieved. Suggested measures include "*creating new habitats"* and *"enhancing existing habitats".*

It is now mandatory for developments to achieve at least a 10% Biodiversity Net Gain, following the passing into law of the Environment Act 2021[3].

This report uses the Department for Environment, Food & Rural Affairs (DEFRA) Biodiversity Metric 3.0 Calculation Tool Beta Test[4] (published July 2021) to calculate a quantifiable amount of biodiversity units produced post-construction, and compare this to the baseline biodiversity unit's pre-construction to determine if the Development will result in a net gain or net loss in biodiversity.

2 METHODOLOGY

2.1 Overview

This report has been produced in accordance with the methodology set out in the following guidance documents:

- The Biodiversity Metric 3.0 – User Guide – Beta Test[5]; and

[1] Ministry of Housing, Communities and Local Government (2021) National Planning Policy Framework [Online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1004408/NPPF_JULY_2021.pdf (Accessed November 2021)

[2] Ministry of Housing, Communities and Local Government (July 2019) Natural Environment [Online] Available at: https://www.gov.uk/guidance/natural-environment (Accessed November 2021)

[3] Legislation.gov.uk *Environment Act 2021* Available from: https://www.gov.uk/government/news/world-leading-environment-act-becomes-law (Accessed November 2021)

[4] Natural England (2019) the Biodiversity Metric 2.0 [Online] Available at: http://publications.naturalengland.org.uk/publication/6049804846366720 (Accessed November 2021)

[5] Natural England (2021) The Biodiversity Metric 3.0 – User Guide – Beta Version [Online] Available at: http://publications.naturalengland.org.uk/publication/6049804846366720 (Accessed November 2021)

- The Biodiversity Metric 3.0 – Technical Supplement – Beta Test[6].

Appendix 1 shows the inputs and results produced by the metrics, as well as the completed metric workbook. The Phase 1 Habitat Survey Map and Landscape Mitigation Plan are presented in Appendices 2 and 3 respectively.

The following documents submitted as part of the planning application have been used to inform this report:

- Ecological Impact Assessment Report[7]; and
- Phase 1 Habitat Survey Map[7] (Appendix 2); and
- Landscape Mitigation Plan (Appendix 3).

2.2 On-site Assessment

2.2.1 Baseline, Pre-construction Biodiversity Units

Baseline habitat information was taken from the Phase 1 Habitat Survey[7] (Appendix 2) undertaken in March 2021 by a professional Ecologist.

Identified baseline habitats within the Site include:

- Poor semi-improved neutral grassland;
- Improved grassland;
- Arable land;
- Hardstanding;
- Scattered trees – broadleaved;
- Species-poor intact hedgerow; and
- Species-poor hedgerow with trees.

The location of these habitats can be found in Appendix 2.

The list of habitats provided in the DEFRA calculator are not all directly comparable with the habitats identified within the Application boundary. As a result, professional judgement has been used to best match habitat types to those available within the DEFRA calculator.

The Defra Metrics v3.0 uses UK Habitats definitions to assign against each Phase 1 Habitat type identified during survey, with Table 2.1 showing the translation of each Phase 1 Habitat type identified to the relevant UK habitat type.

Table 2.1: Phase 1 Habitats to UK Habitats Translation

Phase 1 Habitat Type	UK Habitat Type
Hardstanding	Urban – Developed Land: sealed surface
Cultivated/disturbed land - arable	Cropland – Cereal crops
Improved grassland	Grassland – Modified grassland
Broadleaved parkland/scattered trees	Woodland and Forest – Wood-pasture and parkland
Hedge with trees – species poor	Native hedgerow with trees
Intact hedge - species-poor	Native hedgerow

The condition of each of these habitats has been determined by a professional ecologist during the Phase 1 Habitat survey.

[6] Natural England (2019) The Biodiversity Metric 3.0 – Technical Supplement – Beta Edition [Online] Available at: http://publications.naturalengland.org.uk/publication/6049804846366720 (Accessed November 2021)
[7] Arcus Consultancy Services Ltd. (2021) Ecological Impact Assessment. *Sweetbriar Solar Farm*

2.2.2 Post Construction Biodiversity Units

The Development will require the removal of areas of existing arable land and improved grassland. Grassland and arable field verges will be retained, whilst native species grass and meadow mix suitable for sheep grazing will be created throughout the Site, under the solar panels and within existing arable fields. Areas of existing improved grassland will be enhanced with native species grass and meadow mix around and under the solar panels. Outside of crop and grazing habitat areas, wildflower grassland and woodland will be created.

Additional native species hedgerows with trees will be planted. Further details on habitat creation and prescriptions can be found in the Outline Landscape and Biodiversity Management Plan (LBMP) and the LMP (Appendix 3)[8].

Following construction, new habitats as stipulated in the LMP[8] will be created, which include:

- Developed Land – the footprint Development and access tracks;
- Native species hedgerows with trees;
- Native species woodland mix;
- Native species grass and meadow mix; and
- Native species grass and wildflower meadow mix.

Further details on measures used to enhance or create these habitats, management prescriptions, and monitoring of habitat establishment are detailed within the Outline LBMP.

3 RESULTS

3.1 On-site Assessment

Full results produced by the Defra Metrics v3.0 calculator can be found in Appendix 1 of this report.

The results of the Defra Metrics v3.0 calculations have shown that there will be a 167.7% net gain in biodiversity habitat units on-site. The number of habitat units on-site will increase from 88.53 to 236.99. There will be a 341.33% net gain in hedgerow units within the Site, which will have increased from 4.58 to 20.21 units. These calculations far exceed the upcoming statutory 10% biodiversity net gain target.

3.2 Summary

Through habitat creation and enhancement, the Development will deliver an overall **net gain of 167.7%.**

[8] Arcus (2022) *Landscape Mitigation Plan: Sweetbriar Farm, Lincolnshire* (Drawing No. 4157-DR-LAN-101A)

APPENDIX 1 – BIODIVERSITY METRICS INPUTS AND RESULTS

Sweet Briar Solar Farm

Headline Results

Return to results menu

On-site baseline	*Habitat units*	88.53
	Hedgerow units	4.58
	River units	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	236.99
	Hedgerow units	20.21
	River units	0.00
On-site net % change (Including habitat retention, creation & enhancement)	*Habitat units*	167.70%
	Hedgerow units	341.33%
	River units	0.00%
Off-site baseline	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	0.00
	Hedgerow units	0.00
	River units	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	148.47
	Hedgerow units	15.63
	River units	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	167.70%
	Hedgerow units	341.33%
	River units	0.00%
Trading rules Satisfied?		Yes

Sweet Briar Solar Farm

A-1 Site Habitat Baseline

Condense / Show Columns | Condense / Show Rows | Main Menu | Instructions

	Habitats and areas			Distinctiveness		Condition		Strategic significance				Ecological baseline
Ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic Significance multiplier	Suggested action to address habitat losses	Total habitat units
1	Grassland	Modified grassland	8.56	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required	17.12
2	Cropland	Cereal crops	33.534	Low	2	N/A - Agricultural	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required	67.07
3	Urban	Developed land; sealed surface	0.383	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Compensation Not Required	0.00
4	Woodland and forest	Wood-pasture and parkland	0.01	V.High	8	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Bespoke compensation likely to be required	0.16
5	Grassland	Modified grassland	2.09	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness or better habitat required	4.18
6												

	Retention category biodiversity value						Bespoke compensation agreed for unacceptable losses	Comments	
Ref	Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area lost	Units lost		Assessor comments	Reviewer comments
1	0.31	8.25	0.62	16.50	0.00	0.00		Improved grassland	
2	0	0	0.00	0.00	33.53	67.07		Arable crops	
3	0.383	0	0.00	0.00	0.00	0.00		Tracks and roads	
4	0.01	0	0.16	0.00	0.00	0.00		Scattered Broadleaved trees	
5	0	2.09	0.00	4.18	0.00	0.00		Poor Semi-improved Neutral Grassland	
6									

Sweet Briar Solar Farm

A-2 Site Habitat Creation

Condense / Show Columns | Condense / Show Rows

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Post development/ post intervention habitats																								
Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness		Condition		Strategic significance			Temporal multiplier					Difficulty multipliers				Habitat units delivered	Comments	
			Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied		Assessor comments	Reviewer comments
Grassland	Other neutral grassland	29.42	Medium	4	Fairly Poor	1.5	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	3	0	0	Standard time to target condition applied	3	0.899	Low	Standard difficulty applied	Low	1	158.63	Native species grassland	
Woodland and forest	Other woodland; broadleaved	0.43	Medium	4	Fairly Poor	1.5	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	7	0	0	Standard time to target condition applied	7	0.779	Low	Standard difficulty applied	Low	1	2.01	Woodland mix	
Grassland	Other neutral grassland	3.03	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	20.28	Wildflower planting	
Urban	Developed land; sealed surface	0.657	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	0	0	0	Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Medium	0.67	0.00	Road and Substation	

Sweet Briar Solar Farm

A-3 Site Habitat Enhancement

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	Baseline habitats										Post development/ post intervention habitats																									
											Proposed Habitat (Pre-Populated but can be overridden)		Change in distinctiveness and condition		Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance			Temporal risk multiplier				Difficulty risk multipliers				Habitat units delivered	Comments	
Baseline ref	Baseline habitat	Total habitat area	Baseline distinctiveness band	Baseline distinctiveness score	Baseline condition category	Baseline condition score	Baseline strategic significance category	Baseline strategic significance score	Baseline habitat units	Suggested action to address habitat losses	Proposed Broad Habitat	Proposed habitat	Distinctiveness change	Condition change						Strategic significance	Strategic significance	Strategic position multiplier	Standard time to target condition/years	Habitat enhanced in advance/years	Delay in starting habitat enhancement/years	Standard or adjusted time to target condition	Final time to target condition/years	Final time to target multiplier	Standard difficulty of enhancement	Applied difficulty multiplier	Final difficulty of enhancement	Difficulty multiplier applied		Assessor comments	Reviewer comments
1	Grassland - Modified grassland	8.56	Low	2	Poor	1	Low Strategic Significance	1	17.12	Same distinctiveness or better habitat required	Grassland	Other neutral grassland	Low - Medium	Lower Distinctiveness Habitat - Fairly Poor	8.25	Medium	4	Fairly Poor	1.5	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.833	Low	Standard difficulty applied	Low	1	44.12	Improved grassland enhanced to native species grassland grazing mix	
5	Grassland - Modified grassland	2.09	Low	2	Poor	1	Low Strategic Significance	1	4.18	Same distinctiveness or better habitat required	Grassland	Other neutral grassland	Low - Medium	Lower Distinctiveness Habitat - Fairly Poor	2.09	Medium	4	Fairly Poor	1.5	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	5	0	0	Standard time to target condition applied	5	0.833	Low	Standard difficulty applied	Low	1	11.18	Poor state improved neutral grassland enhanced to native species grassland grazing mix	

B-1 Site Hedge Baseline

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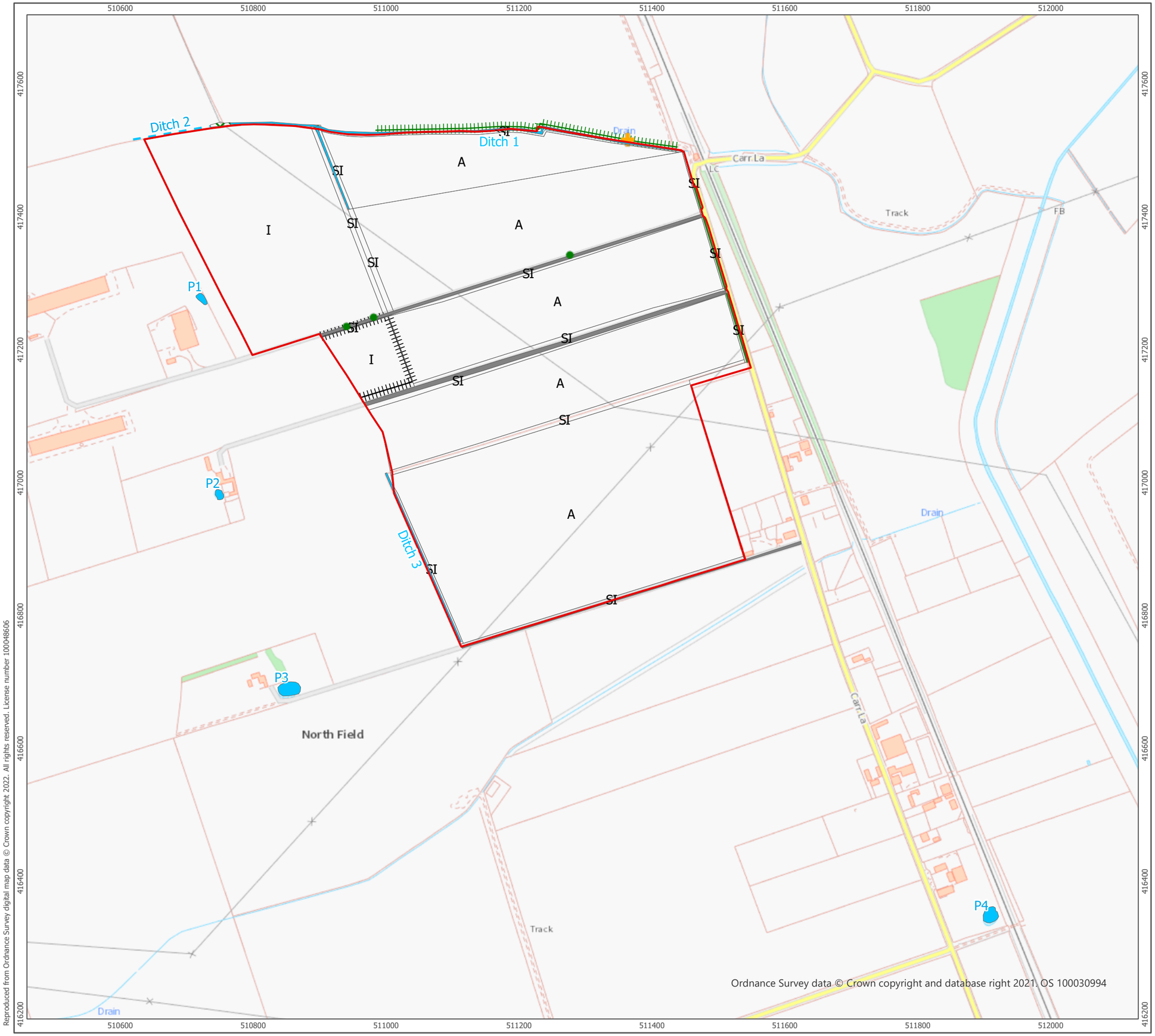
	UK Habitats - existing habitats			Habitat distinctiveness		Habitat condition		Strategic significance			Suggested action to address habitat losses	Ecological baseline	Retention category biodiversity value						Comments	
Baseline ref	Hedge number	Hedgerow type	Length KM	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier		Total hedgerow units	Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost	Assessor comments	Reviewer comments
1		Native Hedgerow with trees	0.98	Medium	4	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	3.92	0.98		3.92	0.00	0.00	0.00	Species poor hedgerow with trees	
2		Native Hedgerow	0.33	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.66	0.33		0.66	0.00	0.00	0.00	Species poor hedgerow	
3																				

B-2 Site Hedge Creation

Condense / Show Columns | Condense / Show Rows | Main Menu | Instructions

		Proposed habitats		Habitat distinctiveness		Habitat condition		Strategic significance			Temporal multiplier					Difficulty risk multipliers				Hedge units delivered	Comments	
Baseline ref	New hedge number	Habitat type	Length km	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier	Standard Time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Standard or adjusted time to target condition	Final time to target condition/years	Final Time to target multiplier	Standard difficulty of creation	Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied		Assessor comments	Reviewer comments
1		Native Species Rich Hedgerow with trees	2.7	High	6	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	1	0	0	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	15.63	Proposed Native Species Hedgerow with Trees	
2																							

APPENDIX 2 – PHASE 1 SURVEY MAP



LIGHTROCKPOWER

ARCUS

- Hardstanding
- A — Cultivated/disturbed land - arable
- I — Improved grassland
- SI — Poor semi-improved grassland
- Scrub - dense/continuous
- Standing water
- Intact hedge - species-poor
- Hedge with trees - species-poor
- Fence
- Dry ditch

Bat Roost Assessment

- Moderate
- Broadleaved parkland/ scattered trees

1:5,500 Scale @ A3

0 100 200 m

NORTH

Produced By: MS/JMO/BL	Ref: 4157-REP-032
Checked By: DH	Date: 13/12/2021

Phase 1 Habitat Survey Map
Figure 1

Sweetbriar Solar Farm
EcIA

P:\GIS\Ecology\Projects\4157 Sweet Briar Farm, Lincolnshire\4157 Sweet Briar Farm, Lincolnshire.aprx\4157-REP-032 Fig01 Phase 1 Habitat Survey

APPENDIX 3 – LANDSCAPE MITIGATION PLAN

N

PDA 1

PDA 2

PDA 3

PDA 4

PDA 5

PDA 6

PDA 7

PDA 8

PDA 9

PDA 10

PDA 11

PDA 12

PDA 13

0 20 40 60 80 100 120 140 160 180 200m

SCALE 1:2000

KEY

- Planning Application Boundary
- Existing Overhead 33kV Powerline
- 6m Buffer of Existing Overhead 33kV Powerline
- Existing Overhead 400kV Powerline
- 14m Buffer of Existing Overhead 400kV Powerline
- Existing Underground 11kV Powerline
- 6m Buffer of Existing Underground 11kV Powerline
- Existing Gas Pipe
- 12m Buffer of Existing Gas Pipe
- Existing Track to be Retained
- Existing Public Rights of Way
- Existing Vegetation to be Retained
- Existing Grass Verge to be Retained
- Existing Drainage
- Proposed Native Species Tree
- Proposed Native Species Hedgerow with Tree
- Proposed Native Species Woodland Mix
- Proposed Native Species Grass and Meadow Mix for Sheep Grazing (located around and under solar panels)
- Proposed Native Species Grass and Wildflower Meadow Mix
- Proposed Track
- Proposed Fence
- Proposed Entrance Gate
- Proposed Half Table of Solar Panels
- Proposed Full Table of Solar Panels
- Proposed Inverter
- Proposed CCTV
- Proposed Substation Compound
- Indicative Bat Box Location
- Indicative Mammal Gate Location
- Bird Cover Crop
- Visibility Splay

REVISION SCHEDULE

Rev	Date	Description
A	20.01.22	Revised to comply with the latest layout (WM)

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL OTHER RELEVANT DOCUMENTATION.
2. ALL DIMENSIONS , CHANGES, LEVELS AND COORDINATES ARE IN METERS UNLESS DEFINED OTHERWISE.
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STATUS: **FOR PLANNING**

BASE:

GRID REFERENCE: TA 111173

PROJECT: Sweetbriar Farm, Lincolnshire

TITLE: Landscape Mitigation Plan

CLIENT: Lightrock Power

DATE: 08.12.21 SCALE: 1:2000@A1

DRAWN: WM DRAWING NO.: 4157-DR-LAN-101

CHECKED: WW REVISION: A

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