



ARCUS

BIODIVERSITY METRIC ASSESSMENT

SOAY SOLAR FARM AND GREENER GRID PARK

STATKRAFT UK LTD

JULY 2022



Prepared By:

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1 INTRODUCTION

Arcus Consultancy Services Limited (Arcus) has been instructed by Statkraft UK LTD to undertake a Biodiversity Metric Assessment (BMA) of land at Thornton, near York, East Riding of Yorkshire (the Site), approximately centred on National Grid Reference SE 76204 46514.

The planning application is for a proposed Solar Farm and Greener Grid Park (the Development) which includes associated soft and hard landscaping.

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 in Figure 2 of the planning application.

The updated National Planning Policy Framework¹ (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 Environment², 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".

The Application was submitted in December 2021, following which the layout and technical details of the Development have been amended to incorporate minor design changes. Due to design minor design changes associated with the Development, this report and the BMA has been updated in July 2022.

This report uses the Department for Environment, Food & Rural Affairs (DEFRA) Biodiversity Metric 3.1 Calculation Tool Beta Test³ (republished July 2021) to produce a quantifiable amount of biodiversity units produced post-construction, and compare them 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 3.1 – User Guide – Beta Test⁴; 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 21/07/21)

² Ministry of Housing, Communities and Local Government (July 2019) Natural Environment [Online] Available at: <https://www.gov.uk/guidance/natural-environment> (Accessed 21/07/21)

³ Natural England (2021) the Biodiversity Metric 3.1 [Online] Available at: <http://nepubprod.appspot.com/publication/6049804846366720> (Accessed 08/06/22)

⁴ Natural England (2021) The Biodiversity Metric 3.1 – User Guide – Beta Version [Online] Available at: <http://nepubprod.appspot.com/publication/6049804846366720> (Accessed 08/06/22)

- The Biodiversity Metric 3.1 – Technical Supplement – Beta Test⁵.

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

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

- Preliminary Ecological Appraisal and Phase 1 Habitat Survey Map; and
- Updated Landscape and Ecology Mitigation and Enhancement Plan (July 2022).

2.2 On-site Assessment

2.2.1 *Baseline, Pre-construction Biodiversity Units*

Baseline habitat information was taken from the Phase 1 Habitat Survey undertaken in December 2019 by a professional Ecologist. An updated site assessment was completed in July 2021 identified baseline habitats within the Site include:

- Arable land;
- Poor semi-improved grassland;
- Improved grassland;
- Standing Water- pond;
- Running Water- ditches;
- Broadleaved Woodland (semi-natural and plantation);
- Mixed Woodland (plantation);
- Bracken;
- Buildings;
- Tall ruderal vegetation;
- Bare ground;
- Hedgerows; and
- Lines of 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 Site. As a result, professional judgement has been used to best match habitat types to those available within the DEFRA calculator. This follows the approach set out in the applicable guidance documents.

The condition of the habitats has been determined by a professional Ecologist and the area or length of habitats have been estimated using online mapping.

2.2.2 *Post Construction Biodiversity*

The creation of the access route will require removal of small areas of treeline to accommodate an access track. The area of the Site containing the Development will also predominantly require the removal of grassland and cropland habitat, with another small area of treeline habitat between the Greener Grid Park area and the existing Thornton National Grid Substation removed to accommodate the 'wayleave' for connecting overhead lines which will be subject to further design by National Grid.

Grassland to arable field verges will be retained, whilst grazing grassland will be created throughout the Site under the solar panels and within existing arable fields. Outside of the grazing habitat areas, wildflower grassland, scrub and woodland will be created. Additional native species hedgerows with trees will be planted, whilst existing hedgerows will be

⁵ Natural England (2021) The Biodiversity Metric 3.1 – Technical Supplement – Beta Edition [Online] Available at: <http://nepubprod.appspot.com/publication/6049804846366720> (Accessed 08/06/22)

enhanced by gapping up and by the addition of tree planting. Further details on habitat creation and prescriptions can be found in the Biodiversity Enhancement Management Plan (BEMP).

Following construction, new habitats as stipulated in the Landscape and Ecology Mitigation and Enhancement Plan will be created which include:

- Developed Land – the footprint of the Development and access track;
- Native species tree planting;
- Native species hedgerow;
- Native species woodland;
- Native species shrub planting;
- Mixed native scrub and tussock grassland;
- Grass meadow mix;
- Native species grass and wildflower mix;
- Native species tussock grassland; and
- Bird crop cover strips; and
- Sustainable Urban Drainage System (SuDS) Ponds.

3 RESULTS

3.1 On-site Assessment

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

The metric has shown there to be a 134.46 % net gain in biodiversity habitat units on-site. The number of habitat units on-site has increased from 318.11 to 745.83. There is also a 22.30% net gain in hedgerow units within the Site which have increased from 50.16 to 61.35.

3.2 Summary

Through habitat creation and enhancement, the Development will deliver an overall net gain of 134.46%.

APPENDIX 1 – BIODIVERSITY METRICS INPUTS AND RESULTS

On-site baseline	<i>Habitat units</i>	318.11
	<i>Hedgerow units</i>	50.16
	<i>River units</i>	25.22
On-site post-intervention (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	745.83
	<i>Hedgerow units</i>	61.35
	<i>River units</i>	25.22
On-site net % change (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	134.46%
	<i>Hedgerow units</i>	22.30%
	<i>River units</i>	0.00%
Off-site baseline	<i>Habitat units</i>	0.00
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	0.00
	<i>Hedgerow units</i>	0.00
	<i>River units</i>	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	427.73
	<i>Hedgerow units</i>	11.19
	<i>River units</i>	0.00
Total on-site net % change plus off-site surplus (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	134.46%
	<i>Hedgerow units</i>	22.30%
	<i>River units</i>	0.00%
Trading rules Satisfied?	Yes ✓	

Retention category biodiversity value						Bespoke compensation agreed for unacceptable losses	Assessor comments
Area retained	Area enhanced	Baseline units retained	Baseline units enhanced	Area habitat lost	Units lost		
8.47	0	16.94	0.00	106.41	212.82		
0.56	0	1.12	0.00	6.62	13.24		Access tracks and large bare ground field (recently cleared and completely unvegetated)
0	0	0.00	0.00	0.21	0.00		
1.214	0	2.43	0.00	0.00	0.00		Bracken stand with no edge habitat or clearings.
0.33	0	0.66	0.00	0.00	0.00		Dominated by bracken, limited edge habitat and clearings
0.851	0	13.62	0.00	0.00	0.00		Sparse plantation woodland.
0.666	0	2.66	0.00	0.00	0.00		Plantation north-east of Warren House. Young trees of same age, planted in rows
1.817	0	7.27	0.00	0.00	0.00		Brickpit Plantation. Himalayan Balsam present. Young trees of same age, planted in rows.
0.284	0	1.70	0.00	0.00	0.00		Himalayan Balsam present.
0.435	0	0.87	0.00	0.54	1.08		Species poor, heavily grazed by horses, to include small area of grassland adjacent to substation to be
0	0	0.00	0.00	0.67	2.69		Tussocky arable field margins with common grass species, teasel and sunflower locally dominant
0.568	0	1.14	0.00	17.71	35.42		Perennial rye grass and white clover abundant, typical for a managed agricultural grassland. Verges
0.165	0	0.66	0.00	0.00	0.00		Holly and scotch broom, limited extent on field margin
0.085	0	1.02	0.00	0.00	0.00		Pond surrounded by scrub and bracken in north-east of site.

0.066	0	0.79	0.00	0.00	0.00		Birckpit Plantation northern pond. Himalayan balsam in immediate vicinity.
0.041	0	0.49	0.00	0.00	0.00		Birckpit Plantation southern pond. Himalayan balsam in immediate vicinity.
0.125	0	1.00	0.00	0.00	0.03		Woodland adjacent to existing substation and east of BESS.
0	0	0.00	0.00	0.15	0.45		Coniferous plantation strip south of access track and BESS.
15.68	0.00	52.37	0.00	132.32	265.74		

Total area lost (excluding area of Urban trees and Green walls)	132.32
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Soay Solar Farm and Greener Grid Park

A-2 Site Habitat Creation

Condense / Show Columns

Condense / Show Rows

Main Menu

Instructions

Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness		Condition		Strategic significance		
			Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier
Grassland	Other neutral grassland	92.92	Medium	4	Fairly Poor	1.5	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1
Grassland	Other neutral grassland	14.08	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1
Cropland	Arable field margins tussocky	5.46	Medium	4	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1
Heathland and shrub	Mixed scrub	6.46	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1
Woodland and forest	Other woodland, mixed	1.12	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1
Heathland and shrub	Mixed scrub	0.6	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1
Cropland	Arable field margins pollen & nectar	0.63	Medium	4	Condition Assessment N/A	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1
Lakes	Temporary lakes, ponds and pools	0.04	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1
Urban	Developed land, sealed surface	2.26	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1
Urban	Developed land, sealed surface	8.73	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1
Urban	Developed land, sealed surface	0.02	V.Low	0	N/A - Other	0	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1

Post development/ post intervention habitats											
Standard time to target condition/years	Habitat created in advance/years	Delay in starting habitat creation/years	Temporal multiplier			Difficulty multipliers				Habitat units delivered	Comments
			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		
3	0	0	Standard time to target condition applied	3	0.899	Low	Standard difficulty applied	Low	1	501.01	Native species grassland and meadow mix for sheep grazing. Located in shaded position under solar panels.
10	0	0	Standard time to target condition applied	10	0.700	Low	Standard difficulty applied	Low	1	118.32	Wildflower grassland
1	0	0	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	21.08	Tussocky grassland. Located on field boundaries, adjacent hedgerows.
5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	43.25	Mixed scrub to be planted over tussock grassland
30	0	0	Standard time to target condition applied	30	0.343	Low	Standard difficulty applied	Low	1	3.08	Mixed woodland planting to increase connectivity and increase extent of existing woodland habitat.
5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	4.02	Mixed shrub planting
1	0	0	Standard time to target condition applied	1	0.965	Low	Standard difficulty applied	Low	1	2.43	Bumble bird mix
3	0	0	Standard time to target condition applied	3	0.899	Medium	Standard difficulty applied	Medium	0.67	0.29	Ephemeral scrapes
0	0	0	Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Medium	0.67	0.00	Proposed Tracks
0	0	0	Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Medium	0.67	0.00	Substation/BESS area
0	0	0	Standard time to target condition applied	0	1.000	Low	Standard difficulty applied	Medium	0.67	0.00	Inverters

B-1 Site Hedge Baseline

Condense / Show Columns

Condense / Show Rows

Main Menu

Instructions

Baseline ref	UK Habitats - existing habitats			Habitat distinctiveness		Habitat condition		Strategic significance			Suggested action to address habitat losses	Ecological baseline Total hedgerow units
	Hedge number	Hedgerow type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier		
1	1	Native Hedgerow with trees	0.26	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	2.08
2	2	Native Hedgerow with trees	0.31	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	2.48
3	3	Native Hedgerow with trees - Associated with bank or ditch	0.21	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	2.52
4	4	Native Hedgerow - Associated with bank or ditch	0.26	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	2.08
5	5	Native Hedgerow	0.23	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.46
6	6	Native Hedgerow with trees - Associated with bank or ditch	0.34	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	4.08
7	7	Line of Trees - Associated with bank or ditch	0.1	Low	2	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.60
8	8	Native Hedgerow with trees	0.27	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	2.16
9	9	Line of Trees - Associated with bank or ditch	0.17	Low	2	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	1.02
10	10	Line of Trees	0.21	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.84
11	11	Line of Trees - Associated with bank or ditch	0.18	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.72

Baseline ref	UK Habitats - existing habitats			Habitat distinctiveness		Habitat condition		Strategic significance			Suggested action to address habitat losses	Ecological baseline Total hedgerow units
	Hedge number	Hedgerow type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier		
12	12	Native Hedgerow with trees	0.34	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	2.72
13	13	Native Hedgerow	0.22	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.44
14	14	Native Hedgerow with trees	0.23	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	2.76
15	15	Native Hedgerow with trees	0.13	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	1.56
16	16	Native Hedgerow	0.17	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.34
17	17	Line of Trees - Associated with bank or ditch	0.11	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.22
18	18	Line of Trees - Associated with bank or ditch	0.1	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.20
19	19	Native Hedgerow with trees	0.2	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	1.60
20	20	Native Hedgerow with trees	0.24	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	1.92
21	21	Native Hedgerow with trees	0.21	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	1.68
22	22	Native Hedgerow with trees	0.36	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	2.88

Baseline ref	UK Habitats - existing habitats			Habitat distinctiveness		Habitat condition		Strategic significance			Suggested action to address habitat losses	Ecological baseline Total hedgerow units
	Hedge number	Hedgerow type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier		
23	23	Native Hedgerow with trees	0.2	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	1.60
24	24	Native Hedgerow	0.21	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.42
25	25	Line of Trees - Associated with bank or ditch	0.23	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.46
26	26	Native Hedgerow	0.38	Low	2	Poor	1	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.76
27	27	Native Hedgerow with trees - Associated with bank or ditch	0.16	High	6	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	1.92
28	28	Native Hedgerow	0.44	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	1.76
29	29	Native Hedgerow with trees	0.24	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	1.92
30	30	Native Hedgerow with trees	0.37	Medium	4	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Like for like or better	4.44
31	31	Line of Trees	0.08	Low	2	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.48
32	32	Line of Trees	0.05	Low	2	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.20
33	33	Line of Trees	0.14	Low	2	Good	3	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1	Same distinctiveness band or better	0.84

Retention category biodiversity value						Comments
Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost	
0	0.26	0.00	2.08	0.00	0.00	OBJECTID 3. Defunct hedge with trees. Hawthorne hedge with bracken adjacent access track. Failed categories: B2, C1
0.31	0	2.48	0.00	0.00	0.00	OBJECTID 4. Hawthorn hedge with native tree species. Fails C1 and C2. Adjacent arable field, nettle and cleaver present (indicative nutrient enrichment).
0.21	0	2.52	0.00	0.00	0.00	OBJECTID 6. Trees within managed hawthorne hedge, associated with wet ditch. Failed categories: A2, B2.
0.26	0	2.08	0.00	0.00	0.00	OBJECTID 9. Defunct hawthorn hedgerow associated with wet field drainage ditch. Failed categories: A2, B2, C1, C2.
0.23	0	0.46	0.00	0.00	0.00	OBJECTID 10. Defunct hawthorn hedge. Failed categories: A1, A2, B2, C1, C2.
0.34	0	4.08	0.00	0.00	0.00	OBJECTID 11. Hawthorn hedge with native tree species, associated with dry ditch. Nettle and cleaver present (indicative nutrient enrichment). Failed categories: A2, B2, C2.
0.1	0	0.60	0.00	0.00	0.00	OBJECTID 16. Line of mature native tree species associated with wet ditch.
0.27	0	2.16	0.00	0.00	0.00	OBJECTID 17. Managed hawthorn hedge with native trees at N extent.
0.17	0	1.02	0.00	0.00	0.00	OBJECTID 27. Line of mature trees associated with field drainage ditch.
0.21	0	0.84	0.00	0.00	0.00	OBJECTID 28. Line of immature trees with continuous canopy.
0.18	0	0.72	0.00	0.00	0.00	OBJECTID 30. Line of immature trees with continuous canopy, associated with drainage ditch.

Retention category biodiversity value						Comments
Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost	
0.34	0	2.72	0.00	0.00	0.00	OBJECTID 32. Managed hawthorn hedge with mature native trees dispersed throughout. Failed categories: C1 and C2.
0	0.22	0.00	0.44	0.00	0.00	OBJECTID 33. Defunct hawthorn hedge between two arable fields. Failed categories: A1, A2, B1, C1, C2.
0.23	0	2.76	0.00	0.00	0.00	OBJECTID 34. Managed hawthorn hedge with mature native trees dispersed throughout. Failed categories: A1, A2, B1, C1, C2.
0.13	0	1.56	0.00	0.00	0.00	OBJECTID 35. Managed hawthorn hedge with mature native trees dispersed throughout. Failed categories: A1, A2, B1, C1, C2.
0	0.17	0.00	0.34	0.00	0.00	OBJECTID 36. Defunct hawthorn hedge between two arable fields. Failed categories: A1, A2, B1, C1, C2.
0.11	0	0.22	0.00	0.00	0.00	OBJECTID 37. Semi-mature trees with broken canopy associated with field drainage ditch.
0.1	0	0.20	0.00	0.00	0.00	OBJECTID 38. Semi-mature trees with broken canopy associated with field drainage ditch.
0	0.2	0.00	1.60	0.00	0.00	OBJECTID 39. Managed hawthorn hedge on arable boundary with mature native trees dispersed throughout. Failed categories: A1, A2, C2.
0	0.24	0.00	1.92	0.00	0.00	OBJECTID 40. Managed hawthorn hedge on arable boundary with mature native trees dispersed throughout. Failed categories: A1, A2, C2.
0	0.21	0.00	1.68	0.00	0.00	OBJECTID 41. Managed hawthorn hedge on arable boundary with mature native trees dispersed throughout. Failed categories: A1, A2, C2.
0	0.36	0.00	2.88	0.00	0.00	OBJECTID 42. Managed hawthorn hedge on arable field boundary associated with drainage ditch. Native trees dispersed throughout. Failed categories: A1, A2, C2.

Retention category biodiversity value						Comments
Length retained	Length enhanced	Units retained	Units enhanced	Length lost	Units lost	
0.2	0	1.60	0.00	0.00	0.00	OBJECTID 44. Managed hawthorn hedge on arable field boundary associated with drainage ditch. Native trees dispersed throughout. Failed categories: A1, A2, C2.
0	0.21	0.00	0.42	0.00	0.00	OBJECTID 46. Defunct hawthorn hedge between two arable fields. Failed categories: A1, A2, B1, C1, C2.
0	0.23	0.00	0.46	0.00	0.00	OBJECTID 48. Line of mature trees, broken canopy, associated with ditch.
0	0.38	0.00	0.76	0.00	0.00	OBJECTID 49. Defunct hawthorn hedge between two arable fields. Failed categories: A1, A2, B1, C1, C2.
0.16	0	1.92	0.00	0.00	0.00	OBJECTID 51. Hawthorn hedge, associated with arable drainage ditch. Native trees spread throughout. Failed categories: A1, A2, C2.
0	0.44	0.00	1.76	0.00	0.00	OBJECTID 53. Intact hawthorn boundary hedge. Failed categories: C1, C2.
0	0.24	0.00	1.92	0.00	0.00	OBJECTID 54. Managed hawthorn hedge on arable field boundary associated with drainage ditch. Native trees dispersed throughout. Failed categories: A1, A2, C2.
0.37	0	4.44	0.00	0.00	0.00	OBJECTID 56. Hawthorn hedge with mature oak trees. Failed categories: C2, B1.
0.08	0	0.48	0.00	0.00	0.00	OBJECTID 57. Mature trees, continuous canopy.
0.05	0	0.20	0.00	0.00	0.00	OBJECTID 59. Line of immature spruces, continuous canopy.
0.14	0	0.84	0.00	0.00	0.00	OBJECTID 64. Line of mature oaks on woodland edge, continuous canopy.

B-2 Site Hedge Creation

Condense / Show Columns

Condense / Show Rows

Main Menu

Instructions

		Proposed habitats		Habitat distinctiveness		Habitat condition		Strategic significance		
Baseline ref	New hedge number	Habitat type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic position multiplier
1		Native Species Rich Hedgerow	4.1	Medium	4	Moderate	2	Area/compensation not in local strategy/ no local strategy	Low Strategic Significance	1

Temporal multiplier						Difficulty risk multipliers				Hedge units delivered	Comments
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
5	0	0	Standard time to target condition applied	5	0.837	Low	Standard difficulty applied	Low	1	27.45	Native hedgerow planting

C-1 Site River Baseline

Condense / Show Columns

Condense / Show Rows

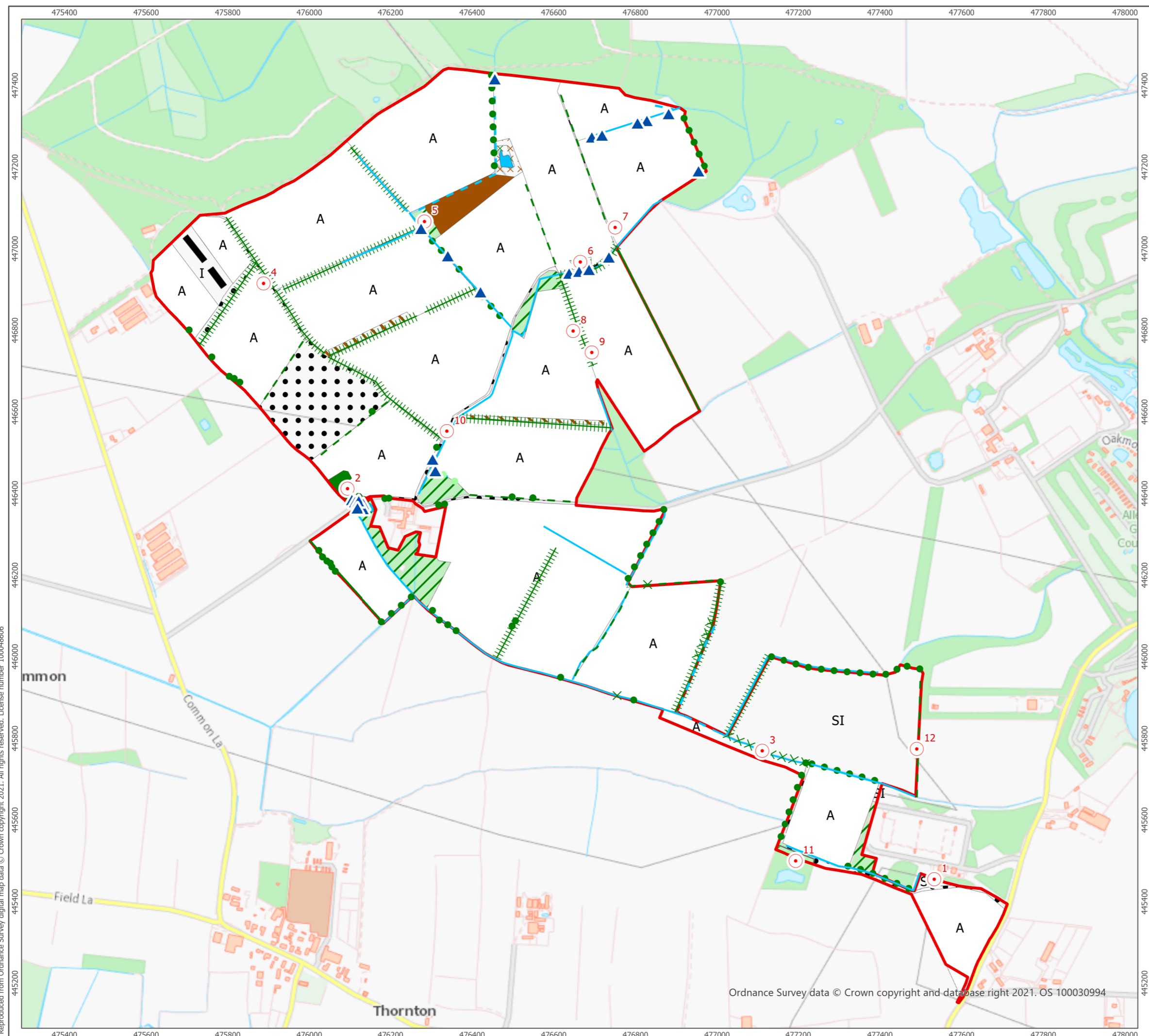
Main Menu

Instructions

Existing river type			Habitat distinctiveness		Habitat condition		Strategic significance			Watercourse encroachment		Riparian encroachment		Suggested action	Ecological baseline
Baseline ref	River type	Length (km)	Distinctiveness	Score	Condition	Score	Strategic significance	Strategic significance	Strategic significance multiplier	Extent of encroachment	Multiplier	Extent of encroachment	Multiplier		Total river units
1	Ditches	0.21	Medium	4	Poor	1	Low potential/action not identified in any plan	Low Strategic Significance	1	No Encroachment	1	No Encroachment	1	Restore	0.84
2	Ditches	0.23	Medium	4	Poor	1	Low potential/action not identified in any plan	Low Strategic Significance	1	No Encroachment	1	No Encroachment	1	Restore	0.92
3	Ditches	0.26	Medium	4	Fairly Poor	1.5	Low potential/action not identified in any plan	Low Strategic Significance	1	Minor	0.8	Minor	0.95	Restore	1.19
4	Ditches	1	Medium	4	Poor	1	Low potential/action not identified in any plan	Low Strategic Significance	1	Minor	0.8	Minor	0.95	Restore	3.04
5	Ditches	0.1	Medium	4	Fairly Poor	1.5	Low potential/action not identified in any plan	Low Strategic Significance	1	No Encroachment	1	No Encroachment	1	Restore	0.60
6	Ditches	0.7	Medium	4	Fairly Poor	1.5	Low potential/action not identified in any plan	Low Strategic Significance	1	Minor	0.8	Minor	0.95	Restore	3.19
7	Ditches	0.25	Medium	4	Fairly Poor	1.5	Low potential/action not identified in any plan	Low Strategic Significance	1	No Encroachment	1	No Encroachment	1	Restore	1.50
8	Ditches	0.27	Medium	4	Fairly Poor	1.5	Low potential/action not identified in any plan	Low Strategic Significance	1	Minor	0.8	Minor	0.95	Restore	1.23
9	Ditches	0.37	Medium	4	Poor	1	Low potential/action not identified in any plan	Low Strategic Significance	1	Minor	0.8	Minor	0.95	Restore	1.12
10	Ditches	0.59	Medium	4	Fairly Poor	1.5	Low potential/action not identified in any plan	Low Strategic Significance	1	No Encroachment	1	No Encroachment	1	Restore	3.54
11	Ditches	0.18	Medium	4	Fairly Poor	1.5	Low potential/action not identified in any plan	Low Strategic Significance	1	No Encroachment	1	No Encroachment	1	Restore	1.08
12	Ditches	0.46	Medium	4	Fairly Poor	1.5	Low potential/action not identified in any plan	Low Strategic Significance	1	No Encroachment	1	No Encroachment	1	Restore	2.76
13	Ditches	0.33	Medium	4	Fairly Poor	1.5	Low potential/action not identified in any plan	Low Strategic Significance	1	Minor	0.8	Minor	0.95	Restore	1.50
14	Ditches	0.23	Medium	4	Moderate	2	Low potential/action not identified in any plan	Low Strategic Significance	1	No Encroachment	1	No Encroachment	1	Restore	1.84
15	Ditches	0.11	Medium	4	Fairly Poor	1.5	Low potential/action not identified in any plan	Low Strategic Significance	1	No Encroachment	1	No Encroachment	1	Restore	0.66
16	Ditches	0.05	Medium	4	Poor	1	Low potential/action not identified in any plan	Low Strategic Significance	1	No Encroachment	1	No Encroachment	1	Restore	0.20

Retention category biodiversity value						Comm
Length retained	Length enhanced	Units retained	Units enhanced	Length Lost	Units Lost	Assessor Comments
0.21	0	0.84	0.00	0.00	0.00	OBJECTID 5. Arable ditch, choked with duckweed (indicator of eutrophication).
0.23	0	0.92	0.00	0.00	0.00	OBJECTID 7. Arable drainage ditch, no aquatic vegetation.
0.26	0	1.19	0.00	0.00	0.00	OBJECTID 8. Arable drainage ditch, clear, no aquatic vegetation. Ditch crossing proposed.
1	0	3.04	0.00	0.00	0.00	OBJECTID 14. Arable drainage ditch, clear, limited aquatic vegetation. Duckweed and himilayan balsam present. Ditch crossing proposed.
0.1	0	0.60	0.00	0.00	0.00	OBJECTID 15. Arable drainage ditch, clear, limited aquatic vegetation (duckweed present).
0.7	0	3.19	0.00	0.00	0.00	OBJECTID 19. Arable drainage ditch, limited aquatic vegetation, bankside vegetation recently cleared. Ditch crossing proposed.
0.25	0	1.50	0.00	0.00	0.00	OBJECTID 20. Arable drainage ditch adjacent hedge, almost dry and densely vegetated on the banks with scrub species. Ditch crossing proposed.
0.27	0	1.23	0.00	0.00	0.00	OBJECTID 26. Arable drainage ditch adjacent hedge, almost dry and densely vegetated on the banks with scrub species. Ditch crossing proposed.
0.37	0	1.12	0.00	0.00	0.00	OBJECTID 29. Adjacent access track. Vegetation: willowherb, soft rush, cattail, watercress. Not flowing, water is clear. Himilayan balsam present. Ditch crossing proposed.
0.59	0	3.54	0.00	0.00	0.00	OBJECTID 30. Arable drainage ditch adjacent hedge, almost dry and densely vegetated on the banks with scrub species. Ditch crossing proposed.
0.18	0	1.08	0.00	0.00	0.00	OBJECTID 45. Arable drainage ditch adjacent hedge, limited vegetation.
0.46	0	2.76	0.00	0.00	0.00	OBJECTID 47. Arable drainage ditch adjacent hedgerow, grass banks, limited aquatic vegetation.
0.33	0	1.50	0.00	0.00	0.00	OBJECTID 50. Arable drainage ditch adjacent hedgerow, grass banks, limited aquatic vegetation. Ditch crossing proposed.
0.23	0	1.84	0.00	0.00	0.00	OBJECTID 52. Drainage ditch with broad grass fringe and limited aquatic vegetation. Joins woodland ditches.
0.11	0	0.66	0.00	0.00	0.00	OBJECTID 55. Arable drainage ditch adjacent tree line, steep grass banks, limited aquatic vegetation.
0.05	0	0.20	0.00	0.00	0.00	OBJECTID 58. Ditch between woodland and arable field, bare banks, limited to no vegetation and drying. Himilayan balsam present.

APPENDIX 2 – PHASE 1 SURVEY MAP



- Site Boundary
- Broadleaved woodland - semi-natural
- Broadleaved woodland - plantation
- Mixed woodland - plantation
- Scrub - scattered
- Other tall herb and fern - ruderal
- I Improved grassland
- SI Poor semi-improved grassland
- Bracken - continuous
- Bracken - scattered
- Standing water
- A Cultivated/disturbed land - arable
- Buildings
- Bare ground
- Broadleaved Parkland/scattered trees
- ××× Scrub - scattered
- Coniferous Parkland/scattered trees
- Running water
- - - Defunct hedge - species-poor
- Intact hedge - species-poor
- ||||| Hedge with trees - species-poor
- - - Dry ditch
- ⊙ Target Note
- × Scrub - scattered
- Broadleaved parkland/scattered trees
- ▲ Himalayan Balsam

1:9,000 Scale @ A3

Produced By: CW	Ref: 3404-REP-022
Checked By: SC	Date: 03/12/2021

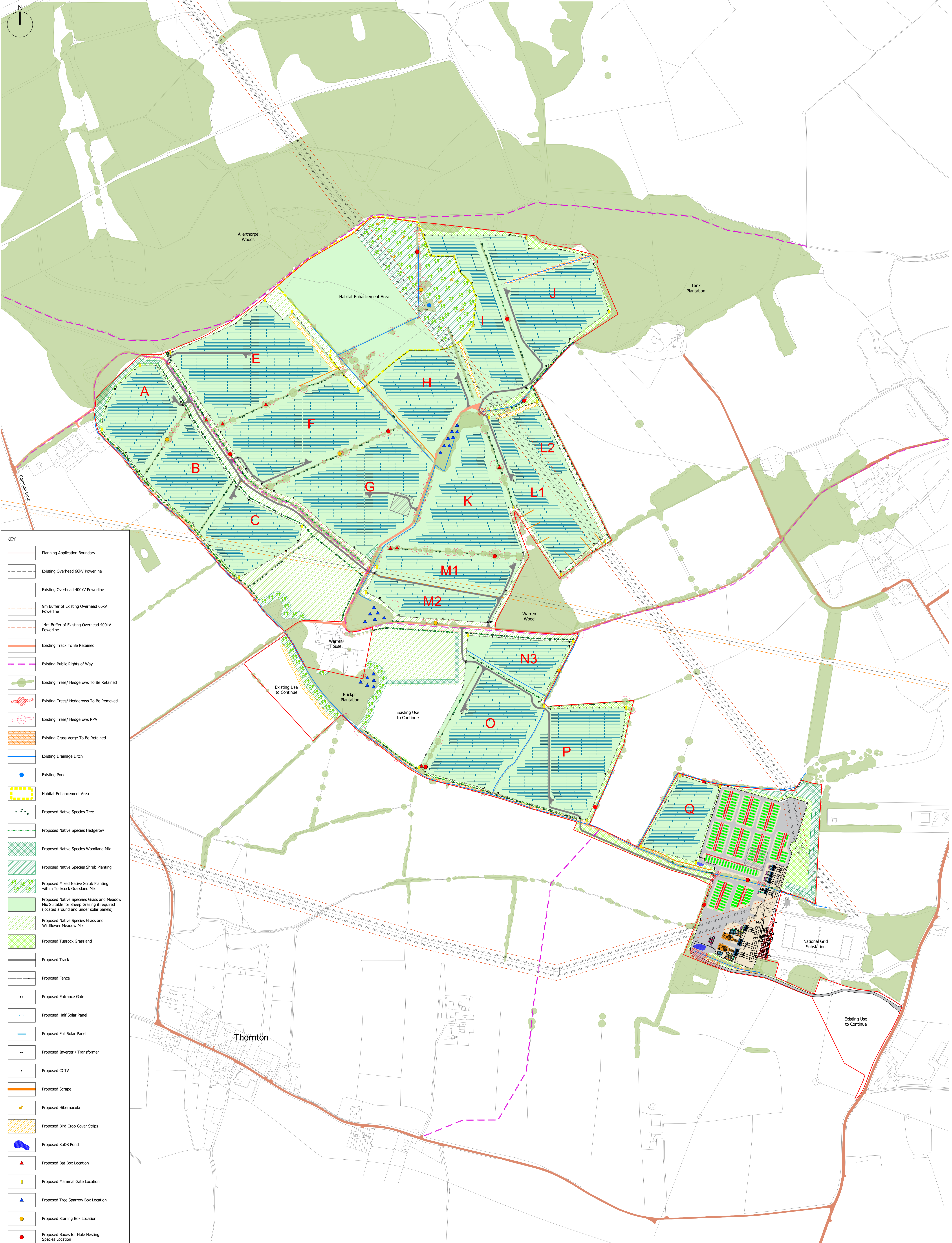
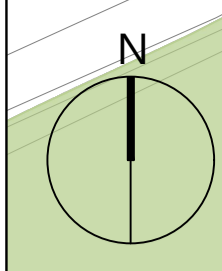
Phase 1 Habitat Survey
Figure 1

**Soay Solar Farm
and Greener Grid Project
Ecological Impact Assessment**

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**APPENDIX 3 – UPDATED LANDSCAPE & ECOLOGY MITIGATION AND
ENHANCEMENT PLAN (JULY 2022)**



KEY

	Planning Application Boundary
	Existing Overhead 66kV Powerline
	Existing Overhead 400kV Powerline
	9m Buffer of Existing Overhead 66kV Powerline
	14m Buffer of Existing Overhead 400kV Powerline
	Existing Track To Be Retained
	Existing Public Rights of Way
	Existing Trees/ Hedgerows To Be Retained
	Existing Trees/ Hedgerows To Be Removed
	Existing Trees/ Hedgerows RPA
	Existing Grass Verges To Be Retained
	Existing Drainage Ditch
	Existing Pond
	Habitat Enhancement Area
	Proposed Native Species Tree
	Proposed Native Species Hedgerow
	Proposed Native Species Woodland Mix
	Proposed Native Species Shrub Planting
	Proposed Mixed Native Scrub Planting within Tucksock Grassland Mix
	Proposed Native Species Grass and Meadow Mix Suitable for Sheep Grazing if required (located around and under solar panels)
	Proposed Native Species Grass and Wildflower Meadow Mix
	Proposed Tussock Grassland
	Proposed Track
	Proposed Fence
	Proposed Entrance Gate
	Proposed Half Solar Panel
	Proposed Full Solar Panel
	Proposed Inverter / Transformer
	Proposed CCTV
	Proposed Scrape
	Proposed Hibernacula
	Proposed Bird Crop Cover Strips
	Proposed SuDS Pond
	Proposed Bat Box Location
	Proposed Mammal Gate Location
	Proposed Tree Sparrow Box Location
	Proposed Starling Box Location
	Proposed Boxes for Hole Nesting Species Location

NOTES:
 1. All locations of proposed bird / bat boxes and mammal gates to be micro sited on site by a qualified ecologist.
 2. For detail of BESS refer to drawing 4259-DR-P-0001.

REVISION SCHEDULE

Rev	Date	Description
A	05.07.22	Revised HEA boundary (WM)

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GRID REFERENCE: SE 764464

PROJECT: Soay Solar Farm and Greener Grid Park

TITLE: Landscape and Ecology Mitigation and Enhancement Plan

CLIENT: Statkraft UK

DATE: 24.06.22 SCALE: 1:3000@A0

DRAWN: WM DRAWING NO.: 5052-DR-LAN-101

CHECKED: CH REVISION: A

