The natural choice for good advice

Biodiversity Net Gain Plan

New Hall Solar Farm

June 2023

A report by

Colin Hicks BSc (Hons) MCIEEM, Principal Ecologist

Western Ecology, 1 Geffery Close, Landrake, Saltash, Cornwall PL12 5HA Telephone: 0800 622 6828
Email: office@westernecology.co.uk

Report details

Site address:	New Hall Farm, New Hall Lane, Overton, Wakefield, West Yorks WF4 4RP
Grid reference:	SE 259 161
Report date:	1st June 2023
Report author:	Colin Hicks BSc (Hons)
Report reference:	WOR - 3839

Declaration of compliance

Code of Professional Conduct

The information which we have prepared is true, and has been prepared and provided in accordance with the Chartered Institute of Ecology and Environmental Management's Code of Professional Conduct. We confirm that the opinions expressed are our true and professional bona fide opinions.

Table of contents

1. Introduction 4
1.1. Background 4
2. Methodology 4
2.1. Classification of habitats 4
2.2. Mapping and condition of baseline habitats 4
2.3. Mapping of proposed development and associated habitats 4
2.4. Biodiversity Net Gain calculation 5
3. Biodiversity Net Gain Summary Figures 6
3.1. Principles of net gain 6
3.2. Summary of results 7
4. Planting, management and targets 8
4.1. Hedgerow plantings 8
4.2. Grassland – other neutral 8
4.3. Grassland – modified grassland 9
5. Conclusion 9
Map 1. Habitat baseline 10
Map 2. Proposed habitats 11

1. Introduction

1.1. Background

Western Ecology has been commissioned to complete a Biodiversity Net Gain calculation for New Hall Solar Farm. A solar array is proposed.

2. Methodology

A phase 1 habitat survey of the site was completed by James Gilroy BSc (hons) MSc in October 2023 and a habitat map is included here as Map 1.

2.1. Classification of habitats

The existing habitats were classified using the Phase 1 Habitat Survey methodology developed by the Joint Nature Conservation Committee (JNCC, 2010) and modified by the Institute of Environmental Assessment (IEA, 1995). The main plant species were recorded and broad habitat types mapped according to both the Phase 1 Habitat Survey methodology, and the UK Habitats Classification definitions (UK Habitat Classification Working Group, 2018). Plant species were identified according to Stace (1997).

2.2. Mapping and condition of baseline habitats

Habitats were characterised as described above and mapped using a combination of OS background mapping and aerial imagery. Professional judgement was used to make condition assessments of habitats, when applicable. Baseline habitats are as follows:

Habitat areas within development footprint

- Cropland – non-cereal crops = 50.7761ha Condition assessment NA.
- Cropland – Arable filed margins game bird mix = 1.4231ha. Condition assessment NA
- Grassland – other neutral grassland = 0.1819ha. Poor condition. Failing criteria A and B.
- Grassland – modified grassland = 0.0108ha. Poor condition. Failing criteria A and B.
- Heathland shrub – mixed scrub = 0.1298ha. Good condition. This habitat will be retained.
- Woodland forest – Other woodland mixed = 0.5207ha. Moderate condition. Failing criteria. This habitat will be retained.
- Urban – bare ground = 0.4263ha. poor condition. Failing all criteria
- Urban – developed land sealed surface = 0.0118ha. Condition assessment NA.

Hedgerow lengths within development footprint

- Species-rich native hedgerow with trees = 1.684km. Good condition. This habitat will be retained.
- Native hedgerow = 1.944km. Good condition. This habitat will be retained.

2.3. Mapping of proposed development and associated habitats

Proposed habitats associated with the site are shown in Map 2 and taken from the Landscape and Ecology Enhancement Plan ref1299/14c.

Habitat creation within development footprint

- Grassland – modified grassland = 24.4ha Poor condition.
- Grassland – other neutral grassland = 25.9ha Good condition.
- Cropland - Arable field margins game bird mix = 1.5ha. Condition assessment NA
- Urban – developed land sealed surface = 1.03ha. Condition assessment NA.

Hedgerow creation within development footprint

- Species rich native hedgerow = 0.68km. Good condition.

2.4. Biodiversity Net Gain calculation

This calculation uses the Defra 4.0 metric utilising the guidance, technical supplements and habitat condition assessment sheets provided by Natural England, and following CIEEM Biodiversity Net Gain: Good practice principles for development (2016). Areas are measured in ha and lengths in km.

3. Biodiversity Net Gain Summary Figures

3.1. Principles of net gain

Ten principles setting out good practice for achieving Biodiversity Net Gain[1] have been applied as follows:

Principle	Principle met?	Comments
Utilise the mitigation hierarchy to minimise impact on biodiversity	Yes	No valued habitats to be lost.
Eliminate negative impacts on biodiversity that cannot be offset elsewhere	Yes	Realistic potential for net gain met with proposals
Involve all pre-development and post-development stakeholders in forming mandatory net gain solutions	Yes	Landowners involved. No other realistic stakeholders
Understand the potential risks and variable factors to achieving biodiversity net gain	Yes	Risks involved with habitat management minimised: realistic habitat types and condition enhancements proposed
Determine a suitable method to secure measurable net gains for biodiversity	Yes	To be provided in a management plan via monitoring regime
Ensure the best possible outcomes from biodiversity net gain	Yes	Realistic potential for net gain within the Site, with more than 10% gain to be achieved within development footprint
Offer nature conservation that exceed the BNG requirements	Yes	Potential for more than 10% gain to be achieved for hedgerow and habitat units
Focus on generating long-term environmental benefits from biodiversity net gain	Yes	Proposed habitats can realistically be managed for the long-term
Cover all areas of sustainability, incorporating economical and societal factors	Yes	Proposed habitats enhance the environment for people and local wildlife.

[1] https://cieem.net/wp-content/uploads/2019/02/Biodiversity-Net-Gain-Principles.pdf

3.2. Summary of results

Summary of percentage change and biodiversity net gain in units; detail taken from Defra 4.0 Metric, 'Headline Results' sheet. This predicts an **141.03%** net gain in habitat areas (177.80 units) and **12.68%** gain in hedgerow units (5.85 units). Trading rules have been satisfied.

New Hall Solar Farm

Headline Results

Scroll down for final results ⚠

Return to

On-site baseline	*Habitat units*	126.07	
	Hedgerow units	46.17	
	Watercourse units	0.00	
On-site post-intervention (Including habitat retention, creation & enhancement)	*Habitat units*	303.88	
	Hedgerow units	52.03	
	Watercourse units	0.00	
On-site net change (units & percentage)	*Habitat units*	177.80	141.03%
	Hedgerow units	5.85	12.68%
	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*	177.80	
	Hedgerow units	5.85	
	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*	177.80
	Hedgerow units	5.85
	Watercourse units	0.00
Total net % change (Including all on-site & off-site habitat retention, creation & enhancement)	*Habitat units*	141.03%
	Hedgerow units	12.68%
	Watercourse units	0.00%
Trading rules satisfied?	Yes ✓	

Unit Type	Target	Baseline Units	Units Required	Unit Deficit	
Habitat units	10.00%	126.07	138.68	0.00	Unit requirement met or surpassed ✓
Hedgerow units	10.00%	46.17	50.79	0.00	Unit requirement met or surpassed ✓
Watercourse units	10.00%	0.00	0.00	0.00	Unit requirement met or surpassed ✓

4. Planting, management and targets

Planting and on-going site management will be undertaken by suitably experienced operatives/contractors employed by site operator for the operational life of the development.

4.1. Hedgerow plantings

0.68km of species rich native shrub hedgerow will be created.

Target (30 year objective)
The target habitat condition is 'Good' as follows:

1. Height >1.5m
2. Width >1.5m
3. Gap between ground and base of canopy <0.5 m for >90% of length
4. Gaps make up <10% of total length and no gaps greater that 5m
5. >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length
6. Plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground.
7. >90% of the hedgerow or undisturbed ground is free of damage caused by human activities.
8. >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species

4.2. Grassland – other neutral

25.9ha of other neutral grassland habitat will be created comprising 14.5ha of tussocky grassland and 11.4ha of low intensity grazed meadow.

Target (30 year objective)
Target habitat condition for this habitat is 'Good' as follows:

1. The grassland is a good representation of the habitat type it has been identified as, based on its UKHab description - the appearance and composition of the vegetation closely matches the characteristics of the specific grassland habitat type. Indicator species listed by UKHab for the specific grassland habitat type are consistently present.
2. Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.
3. Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.
4. Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.
5. Combined cover of species indicative of sub-optimal condition[2] 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.
6. There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition1 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.

4.3. Grassland – modified grassland

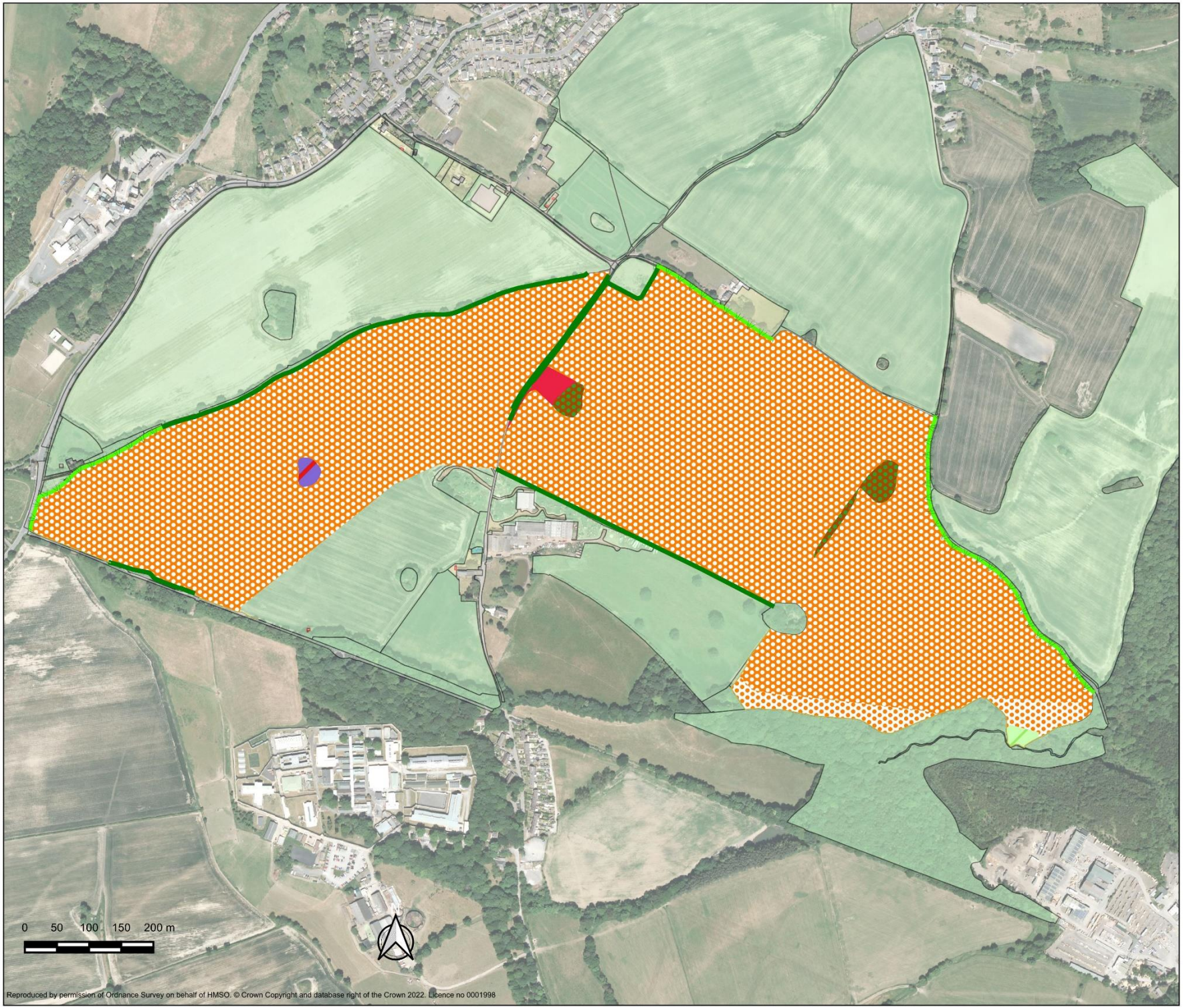
24.4ha of other modified grassland habitat will be created in association with the solar arrays.

Target (30 year objective)
Target habitat condition for this habitat is 'Poor' as follows:

1. Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20 per cent is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.
2. There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981).

5. Conclusion

Informed by Landscape and Ecology Enhancement Plan ref1299/14c, a measured biodiversity net gain in excess of 10% is achievable at this site. This will align the development with National Planning Policy.



Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown Copyright and database right of the Crown 2022. Licence no 0001998

western ECOLOGY

1 Geffery Close
Landrake
Saltash
Cornwall
PL12 5HA

Tel: 0800 622 6828
email: office@westernecology.co.uk

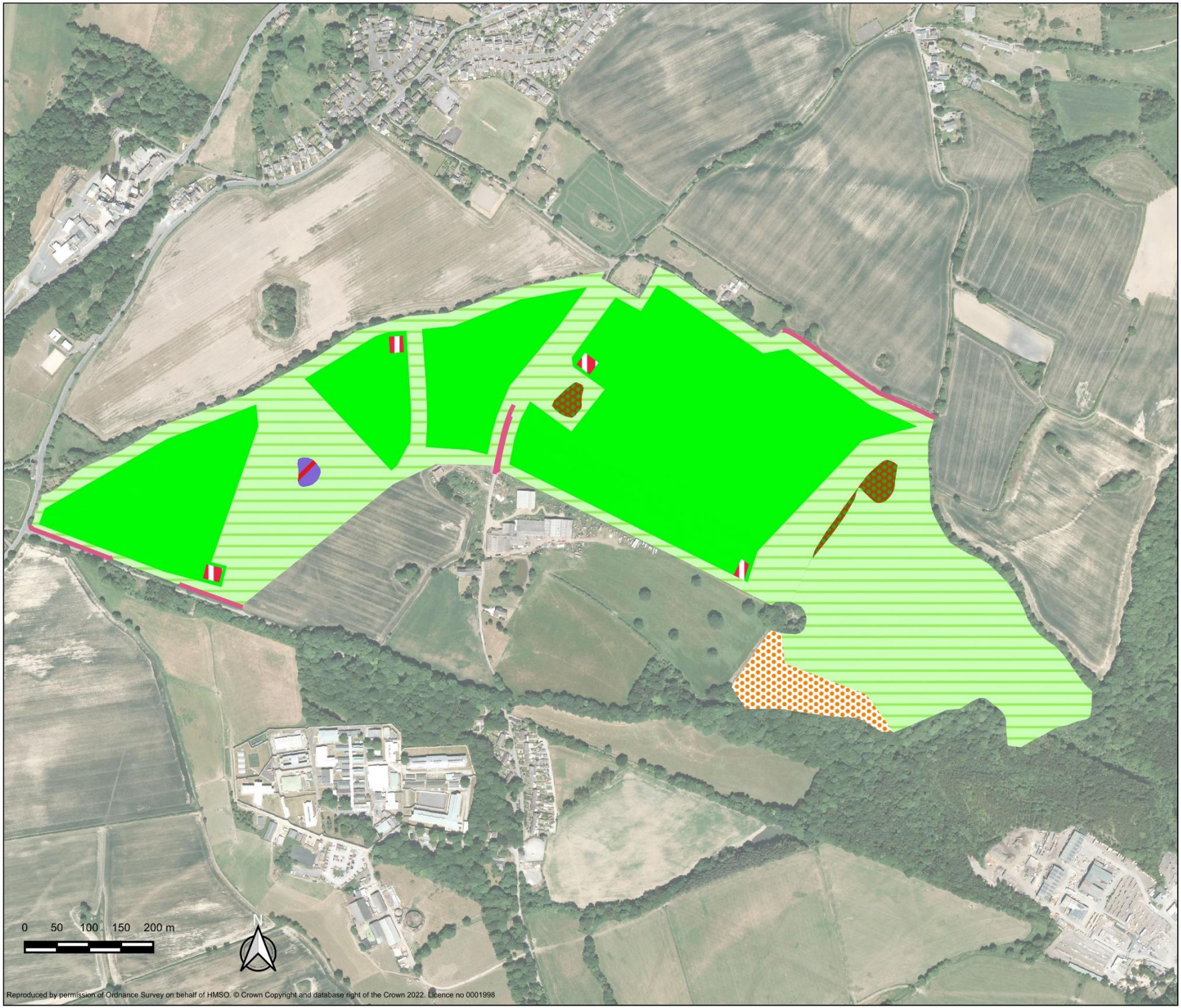
Legend

- Species-rich native hedgerow with trees
- Native hedgerow
- g3 - neutral grassland
- g4 - modified grassland
- w1h - other woodland mixed
- h3 - dense scrub
- c1a - arable field margins
- c1d - non-cereal crops
- u - urban bare ground

Title: Map 1. Habitat baseline

Project: New Hall Solar Farm

Checked by: CDH Version: 01
Date: 01/06/2023



Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown Copyright and database right of the Crown 2022. Licence no 0001998

western ECOLOGY

1 Geffery Close
Landrake
Saltash
Cornwall
PL12 5HA

Tel: 0800 622 6828
email: office@westernecology.co.uk

Legend

- w1h - other woodland mixed (retained habitat)
- h3 - dense scrub (retained habitat)
- g3c - other neutral grassland
- g4 - modified grassland
- c1a - arable field margins
- u1b - developed land. sealed surface
- Species-rich native hedgerow

Title: Map 2. Proposed habitats

Project: New Hall Solar Farm

Checked by: CDH Version: 01
Date: 01/06/2023