



Hensingham House Phase 3, Hensingham, Whitehaven

Biodiversity Net Gain Calculation



A report by
Rigby Jerram
For Thomas Milburn Properties Ltd
26 June 2024

Rigby Jerram Ecological Consultants
4 Bankfield
Kendal
Cumbria
LA9 5DR
Tel & Fax: 01539 726618
e-mail: rigby@jerramecology.co.uk

Contents

1. Introduction	3
2. Methodology.....	3
3. The Calculation.....	3
3.1. Baseline Conditions	3
3.2. Post Development Conditions	5
3.3. Results	5
4. Habitat Creation and Enhancement Specifications	6
5. Photographs.....	8
6. Maps	12

1. Introduction

This report describes the methodology used to calculate the Biodiversity Net Gain arising from the proposed housing development at Hensingham House, Whitehaven. It has been commissioned by Thomas Milburn Properties Ltd, the developers.

2. Methodology

The Biodiversity Net Gain calculation has been made using the Statutory Biodiversity Net Gain Calculation Spreadsheet.

The development site was surveyed on 25th June 2024, whilst the proposed off-site habitat creation site at Tarnside, Braystones was surveyed on 5th May 2023.

The information from this report and site plans was digitised in ArcGIS to allow area measurements of the habitat types present to be made for input into the Biodiversity Metric. The results of this digitisation are shown in Map 1.

Site Habitat Creation data was derived from CDL Architecture, Planning & Design's revised site layout dated June 2024, Drawing No. DS/TMP/SP/9/24.

3. The Calculation

3.1. Baseline Conditions

Tables 1, 3 and 4 shows the baseline habitat data for the development site whilst Table 3 shows the baseline data for the off-site habitat creation site at Tarnside, Braystones.

Table 1: Site Habitat Baseline Data

Habitats and areas			Distinctiveness		Condition		Baseline Habitat Units	Retention		
Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Score	Condition	Score		Area Retained	Area Enhanced	Units Lost
Grassland	Other neutral grassland	0.40	Medium	4	Poor	1	1.58	0.00	0.00	1.58
Heathland and shrub	Bramble scrub	1.21	Medium	4	Condition Assessment N/A	1	4.84	0.00	0.00	4.84
Urban	Vegetated garden	0.02	Low	2	Condition Assessment N/A	1	0.04	0.00	0.00	0.04
Urban	Artificial land, unsealed surface	0.03	V. Low	0	N/A - Other	0	0.00	0.00	0.00	0.00
Urban	Developed land, sealed surface	0.0016	V. Low	0	N/A - Other	0	0.00	0.00	0.00	0.00
Total Area		1.66					6.46	0.04	0.00	6.46

Table 2: Off-Site Habitat Baseline Data

Habitats and areas			Distinctiveness		Condition		Baseline Habitat Units	Retention		
Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Score	Condition	Score		Area Retained	Area Enhanced	Units Lost
Urban	Bare ground	0.1534	Low	2	Moderate	2	0.61	0.1534		0.00
Heathland and shrub	Bramble scrub	0.0874	Medium	4	Condition Assessment N/A	1	0.35	0.0874		0.00
Heathland and shrub	Gorse scrub	0.8039	Medium	4	Moderate	2	7.07	0.8039		0.00
Grassland	Other neutral grassland	0.8348	Medium	4	Good	3	11.02	0.8348		0.00
Lakes	Ponds (priority habitat)	0.1758	High	6	Moderate	2	2.32	0.1758		0.00
Wetland	Reedbeds	0.4358	High	6	Good	3	8.63	0.4358		0.00
Grassland	Modified grassland	1.409	Low	2	Poor	1	2.82	0.52	0.4445	0.89
Grassland	Other neutral grassland	0.2707	Medium	4	Moderate	2	2.17		0.2707	0.00
Heathland and shrub	Willow scrub	0.1914	Medium	4	Moderate	2	0.61	0.1914		0.00
	Total Area	4.36					34.99	3.20	0.72	0.89

Table 3: On-Site Linear (Hedgerow) Habitat Baseline

Habitat type	Length km	Distinctiveness		Condition		Baseline Units	Retention		
		Distinctiveness	Score	Condition	Score		Length Retained	Length Enhanced	Units Lost
Native hedgerow	0.033	Low	4	Good	3	0.22	0.033	0.00	0.00
Native hedgerow	0.069	Low	2	Good	3	0.46	0.069	0.00	0.00
Non-native and ornamental hedgerow	0.025	V Low	2	Poor	1	0.03	0.025	0.00	0.00
Non-native and ornamental hedgerow	0.008	V Low	4	Poor	1	0.01	0.103	0.00	0.01
Non-native and ornamental hedgerow	0.013	V Low	4	Poor	1	0.01	0.05	0.00	0.01
Total length	0.15					0.72	0.13	0.00	0.02

Table 4: On-Site Linear (Watercourse) Habitat Baseline

Habitat type	Length km	Distinctiveness		Condition		Baseline Units	Retention		
		Distinctiveness	Score	Condition	Score		Length Retained	Length Enhanced	Units Lost
Other rivers and streams	0.006	High	6	Moderate	2	0.08	0.006	0.00	0.00
Total length	0.01					0.08	0.01	0.00	0.00

3.2. Post Development Conditions

Tables 5 to 8 show the habitat creation and enhancement proposed. The watercourses table is not shown as there is no change from the existing situation in terms of habitat units present and habitat condition.

Table 5: Site Habitat Creation Data

Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness		Condition		Habitat Units Delivered
			Distinctiveness	Score	Condition	Score	
Urban	Developed land; sealed surface	0.93	V. Low	0	N/A - Other	0	0.00
Urban	Vegetated garden	0.52	Low	2	Condition Assessment N/A	1	1.00
Grassland	Other neutral grassland	0.197	Medium	4	Moderate	2	1.45
Heathland and scrub	Mixed scrub	0.008	Medium	4	Moderate	2	0.06
Total area		1.60			Total Units		2.51

Table 6: Off-Site Habitat Creation Data

Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness		Condition		Habitat Units Delivered
			Distinctiveness	Score	Condition	Score	
Heathland and shrub	Gorse scrub	0.4445	Medium	4	Moderate	2	3.27
Total area		0.44			Total Units		3.27

Table 7: Off-Site Habitat Enhancement Data

Broad Habitat	Proposed habitat	Area (hectares)	Distinctiveness		Condition		Habitat Units Delivered
			Distinctiveness	Score	Condition	Score	
Grassland	Other neutral grassland	0.4445	Medium	4	Moderate	2	3.03
Wetland	Reedbeds	0.2707	High	6	Good	3	3.55
Total area		0.72			Total Units		6.58

Table 8: On-Site Linear Habitat Creation

Habitat type	Length km	Distinctiveness	Score	Condition	Score	Units Delivered
Native hedgerow	0.044	Low	2	Moderate	2	0.15
Total Length		0.44			0.15	

3.3. Results

Table 9 shows the headline results from the calculation. A net biodiversity gain of 30% is achieved by using off-site habitat creation and enhancement at Tarnside Caravan Parks, whilst a 17% net gain for hedgerows is achieved with on-site habitat creation. It is not possible to achieve a net gain for the watercourses component as there is only 6m of stream within the site boundary. It should however

be noted that there is no net loss of watercourse biodiversity as a result of the proposals. Despite the introduction of an outfall to the stream the watercourse condition remains moderate.

Table 9: Hensingham Phase 3 Headline Results

On-site baseline	<i>Habitat units</i>	6.46
	<i>Hedgerow units</i>	0.72
	<i>Watercourse units</i>	0.08
On-site post-intervention (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	2.51
	<i>Hedgerow units</i>	0.85
	<i>Watercourse units</i>	0.08
On-site net % change (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	-61.11%
	<i>Hedgerow units</i>	17.56%
	<i>Watercourse units</i>	0.00%
Off-site baseline	<i>Habitat units</i>	34.99
	<i>Hedgerow units</i>	0.00
	<i>Watercourse units</i>	0.00
Off-site post-intervention (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	42.59
	<i>Hedgerow units</i>	0.00
	<i>Watercourse units</i>	0.00
Off-site net % change	<i>Habitat units</i>	21.71%
	<i>Hedgerow units</i>	0.00%
	<i>Watercourse units</i>	0.00%
Combined net unit change (Including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	3.65
	<i>Hedgerow units</i>	0.13
	<i>Watercourse units</i>	0.00
Spatial risk multiplier deductions	<i>Habitat units</i>	1.68
	<i>Hedgerow units</i>	0.13
	<i>Watercourse units</i>	0.00
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	<i>Habitat units</i>	1.96
	<i>Hedgerow units</i>	0.13
	<i>Watercourse 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>	30.38%
	<i>Hedgerow units</i>	17.56%
	<i>Watercourse units</i>	0.00%
Trading rules Satisfied?	Yes✓	

4. Habitat Creation and Enhancement Specifications

To achieve a biodiversity net gain off-site habitat creation and enhancement is required. It is proposed that an area of land at Tarnside Caravan Park, Braystones is used for this as it is owned by the developer. At Tarnside an area of land, which is currently species-poor semi-improved grassland is to be enhanced by the introduction of native wildflowers, either in the form of plug plants, or as seed sown into scarified grassland and through the planting of gorse scrub. The proportion of enhanced grassland to scrub will be 50:50. If plant plugs are used the species should include common knapweed *Centaurea nigra*, ribwort plantain *Plantago lanceolata*, yarrow *Achillea millefolium*, bird's-foot trefoil *Lotus corniculatus*, cuckoo-flower *Cardamine pratensis*, greater burnet *Sanguisorba officinalis* and wood crane's-bill *Geranium sylvaticum*. Plants should be of Cumbrian origin and a minimum of 8,000 plugs should be planted. Native Cumbrian wildflowers can be obtained from <https://www.cumbriawildflowers.co.uk/>. If seed is used Cumbria Wildflower's

Neutral Hay Meadow Wildflower Seeds Only mix is recommended. To cover the 0.44ha of grassland to be enhanced 13.5kg of seed will be required.

The gorse should be planted in clumps varying in size from 5 to 10m in diameter. Planting at a 1m spacing this will require 20 plants for a 5m diameter clump and 78 plants for a 10m diameter clump. The total number of plants required for 0.44ha is 4,400. Plants should be planted with a biodegradable spiral guard supported by a bamboo cane.

Once the gorse scrub and wildflower grassland is established at Tarnside the area should be lightly grazed, ideally with cattle.

In addition to this common reed *Phragmites australis* is to be planted into the wet grassland surrounding the areas of open water to extend the reedbed that is already present. Approximately 5,000 reed plugs will be required to create 0.27ha of reedbed.

In addition to this off-site habitat creation, it is proposed that the central area of public open space within the development site is seeded with a herb-rich grassland mix containing native wildflowers which will persist if closely mown. Such species include ribwort plantain *Plantago lanceolata*, yarrow *Achillea millefolium*, bird's-foot trefoil *Lotus corniculatus*, common sorrel *Rumex acetosa* and common cat's-ear *Hypochaeris radicata*. These can be sown within a grass mix of crested dog's-tail *Cynosurus cristatus*, red fescue *Festuca rubra*, smooth meadow-grass *Poa pratensis* and common bent *Agrostis capillaris*. This grassland mix will also be used to create herb-rich grassland along the length of the surface water outfall pipe to the beck and over the foul water pumping station.

The success of planting of trees and shrubs should be monitored on an annual basis for the first five years and every five years from then on. Planting failures should be replaced at least once during the first five years.

The maps below shows the areas to be planted with scrub and wildflower plugs/seeded.

5. Photographs



Photo 1 Overgrown beech hedge along eastern boundary



Photo 2 Bramble scrub



Photo 3 Coarse grassland in centre of site



Photo 4 Slope down to beck with bramble scrub to left and mown species-poor grassland to right



Photo 5 Leylandii hedge on north side of church



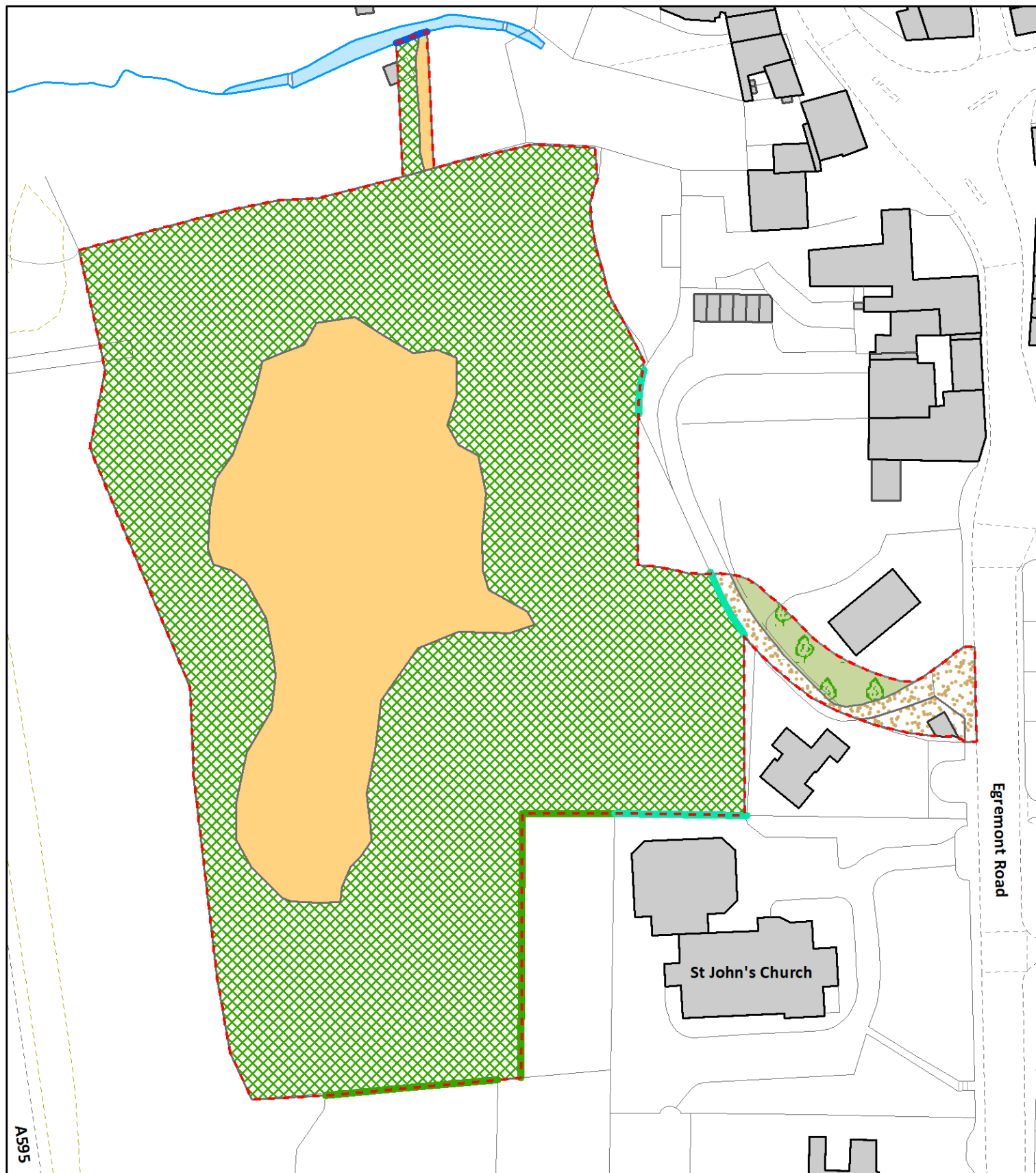
Photo 6 Lopped hawthorn hedge in midground on west side of church with overgrown hedgerow on southern site boundary behind



Photo 7 Proposed habitat creation and enhancement area at Tarnside Caravan Park



Photo 8 Proposed habitat creation and enhancement area at Tarnside Caravan Park

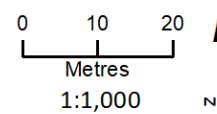


Hensingham House Phase 3

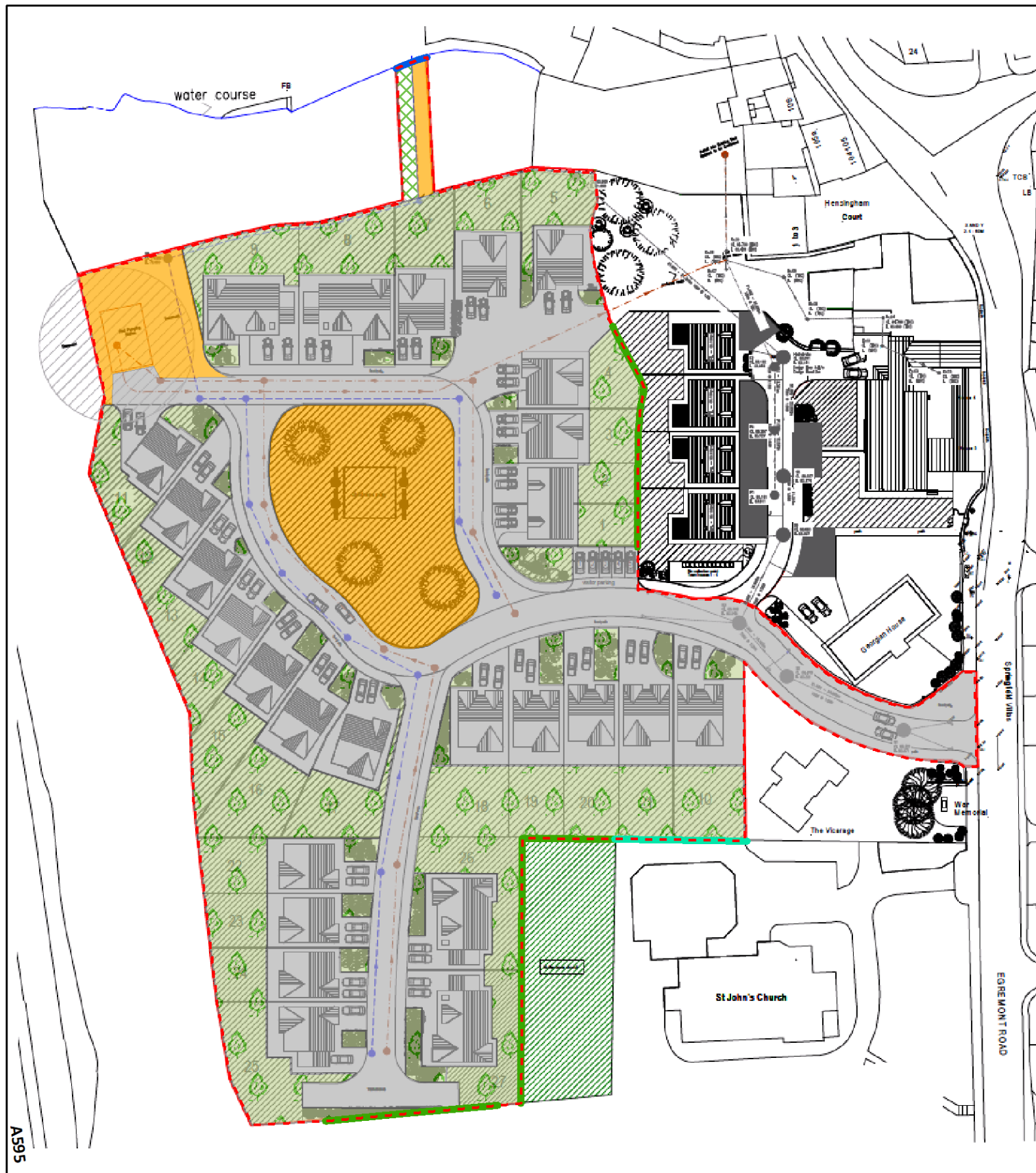
Map 1 Existing Habitats

- | | |
|---------------------------------|--------------------------|
| Boundary | Native hedgerow |
| Bramble scrub | Ornamental hedgerow |
| Other neutral grassland | Other rivers and streams |
| Developed land sealed surface | |
| Developed land unsealed surface | |
| Garden | |

Drawn by R Jerram 26 June 2024



4 Bankfield, Kendal LA9 5DR
Tel: 01539 726618
rigby@jerramecology.co.uk
www.jerramecology.co.uk



Hensingham House Phase 3 Map 2 Post Development Habitats

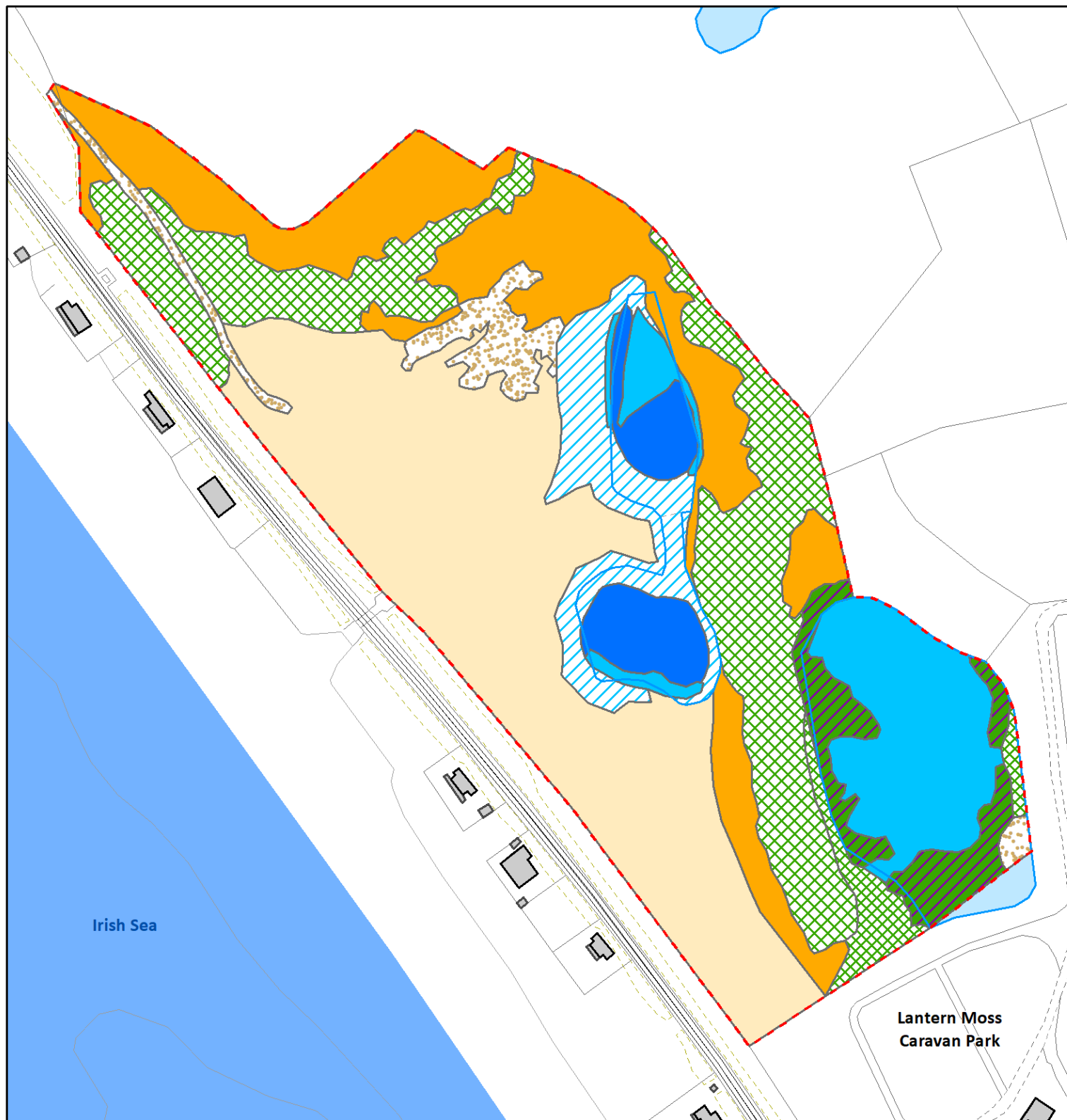
- Boundary
- Mixed scrub
- Other Neutral Grassland
- Garden
- Houses & Road
- Native hedgerow
- Ornamental hedgerow
- Other rivers and streams

0 10 20
Metres
1:1,000

Drawn by R Jerram 26 June 2024



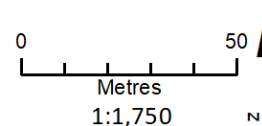
4 Bankfield, Kendal LA9 5DR
Tel: 01539 726618
rigby@jerramecology.co.uk
www.jerramecology.co.uk



Hensingham House Phase 3

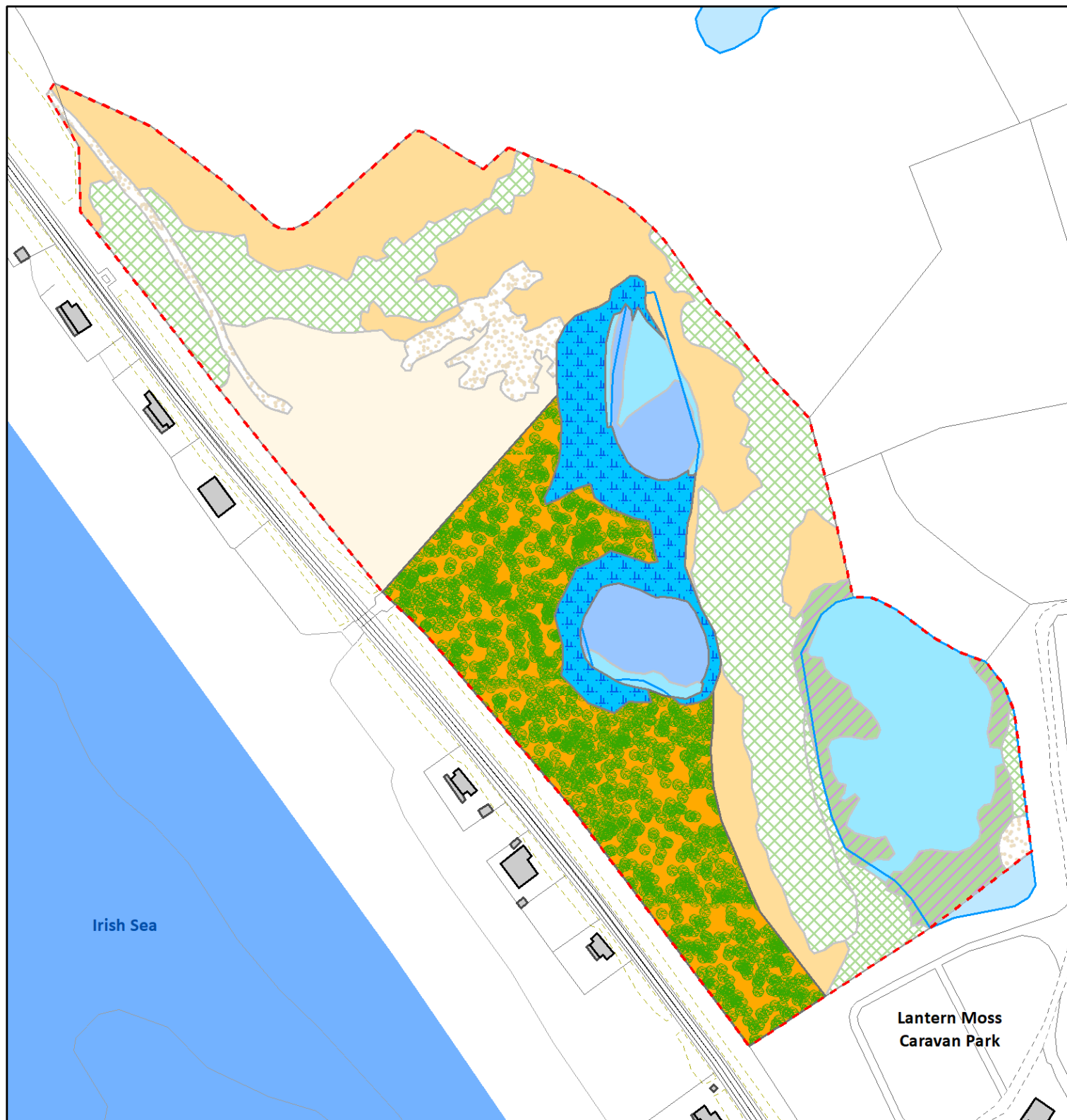
Map 3 Tarnside Caravan Park Existing Habitats

- | | |
|-------------------------|-----------------------------|
| Site boundary | Wet other neutral grassland |
| Gorse scrub | Modified grassland |
| Willow scrub | Reedbed |
| Bramble scrub | Pond |
| Other neutral grassland | Bare ground |



Survey by R Jerram 5 May 2023

Drawn by R Jerram 26 March 2024



Hensingham House Phase 3

Map 4 Tarnside Caravan Park Habitat Creation

 Site boundary

Existing Habitats

Gorse scrub

Willow scrub

Bramble scrub

Other neutral grassland

Wet other neutral grassland

Modified grassland

Reedbed

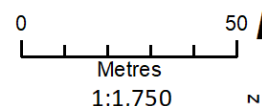
Pond

Bare ground

Habitat Creation

Other neutral grassland - gorse scrub mosaic (50:50)

Reedbed



Survey by R Jerram 5 May 2023

Drawn by R Jerram 26 March 2024