D J Edge

Green Infrastructure Statement & Net Benefit for Biodiversity Report

for

Cop House Farm

16th January 2025

ELM Associates is the trading name of Environmental Land Management Associates Ltd a company incorporated in England No. 11780848. Trading address: Higher Hall, Edge Lane, Malpas, Cheshire. SY14 8LA

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Green Infrastructure Statement & Net Benefit for Biodiversity Report	Cop House Farm Flink Road Saltney Ferry CH4 0BW
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Local Environmental Record Centre data files sourced from Cofnod can be provided. Contact the author of this report to discuss file sharing.

1 Green Infrastructure Statement

1.1 Purpose

This report is to support the requirement for a Green Infrastructure Statement and Net Benefit for Biodiversity assessment, relating to the proposal for a solar ground array installation at Cop House Farm.

The report outlines the ways in which this development addresses the requirements of Planning Policy Wales which came into effect in October 2023.[1] This Green Infrastructure Statement includes an assessment of habitats and species with and in the environment of the proposed development site, including site surveys, baseline data assessment including habitat and species surveys, and uses this information to identify the priorities and opportunities available on the site to build a plan for a Net Benefit for Biodiversity. In the absence of a Welsh biodiversity metric the Natural England Statutory Biodiversity Metric condition assessments were used to assist with the condition assessments of the habitats. The biodiversity enhancement plan considers the ways of delivering multi-functional outcomes appropriate to the site, following the step-wise approach to ensure that measures have been taken to avoid, minimise, mitigate and compensate for impacts on habitats and species.

This ecological assessment and biodiversity plan has been designed to comply with Welsh Government policy PPW12, standard reporting guidelines provided within both the British Standard Biodiversity – Code of practice for planning and development – BS 42020:2013 (BSI, 2013) and the Chartered Institute of Ecology and Environmental Management Guidelines for Ecological Report Writing (CIEEM, 2015).

The Environment (Wales) Act 2016 requires planning authorities to assess potential developments to protect against loss and to ensure that there is a net benefit for biodiversity and ecosystem resilience. This requires applicants to:

- assess the species and habitats regarded as being of 'principal importance' for the purpose of maintaining and enhancing biodiversity around a site
- safeguard protected species and existing biodiversity assets from direct, indirect or cumulative adverse impacts in and around a development site

[1] https://www.gov.wales/addressing-nature-emergency-through-planning-system-update-chapter-6-planning-policy-wales

- secure the maintenance and enhancement of resilient ecological networks by improving diversity, extent, condition and connectivity.

2 Introduction and Site Context

2.1 Site Location and Description

The site is located at Cop House Farm, approximately 3km west of Saltney along the canalised River Dee, and is an area of 18,650m^2 centred on approximate OS Grid Reference SJ3606 6557, as shown on Map 2.1 below. The site and surrounding land are at sea level and located on historically drained floodplain. The site and surrounding areas area largely agricultural land, with the River Dee SSSI located approximately 500m north of the site.

The site consists of 1.865 ha (4.60 acres) of modified grassland as classified under the UK Hab methodology, and in an agricultural land use sense can be described as improved agricultural land sown with a short-term agricultural grass and herb forage mix (herbal ley). The land is currently managed by cattle grazing. The planning proposal is to install a 0.99MW AC connected solar farm comprising 2,500 x 570 watt panels.

2.2 Land Tenure

All land within the site is owned by and within the control of the Edge family.

2.3 Survey Data

The site was subject to UK Habitat Classification Assessment by ELM Associates Ltd on 16th September 2024 by Nicola Hall, an agricultural advisor with 32 years of continuous employment within the environmental research and consultancy sectors. The site survey was supplemented by a Local Environment Record Centre (LERC) data request for habitat and species records within a 2km radius of the site. Digital data were source from Cofnod Wales[2], the LERC centre for Flintshire Council. The data files sourced from Cofnod can be provided, if required (contact the author of this report).

2.4 Survey Validity

The results of this report are considered to be valid for up to two years from the date of the report.

[2]Cofnod – North Wales Environmental Information Service www.cofnod.org.uk

Map 2.1 – Location Plan site showing site boundary in red, River Dee SSSI boundary and associated watercourse

3 Ecological Assessment Summary

3.1 Site Baseline

The following section provides a description of the baseline habitat present within the site.

The site comprises species-poor modified grassland which is a sown herbal ley mix used for grazing.

The sward is dominated by the following species which are agricultural varieties: perennial rye grass, *Lolium perenne*, hybrid rye grass *Festulolium*, Timothy *Phleum pratense*, *white* clover, *Trifolium repens,* red clover *Trifolium pratense and* ribwort plantain *Plantago lanceolata*. Within the sward there is also occasional chickweed, *Stellaria media,* broad-leaved dock *Rumex obtusifolius*, pineapple weed*, Matricaria discoidea*. At the time of the visit, the area was wet and slightly poached at the gateway area. Under the Statutory Biodiversity Metric condition criteria, the grassland is assessed as 'Moderate' condition modified grassland due to it passing/failing the following criteria outlined in the Technical Supplement coniditon assessments. The habitat baseline status is shown in Figure 3.1 below and summarised in Table 3.1.

Figure 3.1: Baseline Habitat is 1.87 ha of g4 modified grassland in moderate condition.

Table 3.1 Condition Criteria for modified grassland habitat.

CRITERIA	PASS/FAIL	COMMENT
A There are 6-8 vascular plant species per m2, including at least 2 forbs. This criterion is essential for achieving Moderate or Good condition	Pass	There are on average of 6-8 plant species per m^2, sown herbal ley mix plus some agricultural weeds. These are agricultural varieties, not typical of species that would be found in old pasture that is permanent grassland
B Sward height is varied	Pass	The sward height varied from 5 – 15cm
C Some scattered scrub is present, but scrub accounts for less than 20% of total grassland area	Fail	No scrub present
D Physical damage is evident in less than 5% of total grassland area	Pass	Poaching and bare waterlogged soil >5% of area
E Cover of bare ground is between 1 and 10%	Pass	Bare ground only at gateway, approx. 1% on survey date.
F Cover of bracken is less than 20%	Pass	No bracken noted
G There is an absence of invasive non-native plant species (INNS)	Fail	INNS recorded at edge of site
Overall score	Passes 5 out of 7 criterial but fails essential criteria A so is assessed as **Moderate** overall.	

3.2 Adjacent to site features

Eastern boundary

The eastern boundary of the site is a holding boundary and has the farm's main drainage ditch running along the boundary. On the other side of the ditch there is an area of land in other ownership which is a formerly industrial site that may have been used for waste storage but has in recent decades been colonised with woody scrub. The woodland edge has a dense infestation with Japanese knotweed which runs up to but not across the ditch. On the side in the ownership of the Edge family, grazing has prevented the Japanese knotweed from colonising the bank and spreading into the field. The enhancement plan needs to incorporate measures to maintain control over the spread of this invasive species onto the solar installation site. Maintenance of grazing has been discussed, but an advisory mown grass margin will also be incorporated into the enhancement plan.

Southern boundary

Along the southern boundary runs the railway line which serves as the main route between Chester and North Wales.

Western boundary

Along the western boundary of the site is an existing hedgerow that was planted by the Edge family in 2018, to fill a gap in the hedgerow boundary on the lower part of the field. This is a native species hedgerow with at least 5 species, which has since grown to be a good continuous hedgerow that has reached equivalent height and width dimension with the rest of the boundary and provides continuity along that boundary to its point of intersection with the railway line verge. This hedgerow will be retained to provide screening for the site.

Figure 3.2: Aerial images showing the location and quality of the hedgerow along the western boundary

	
Hedgerow gap 2016[3]	Continuous hedgerow along boundary 2024[4]

Northern boundary

The site is currently open to the rest of the field at the northern boundary and is currently separated at times by a single strand of barbed wire fencing, to allow for rotational cattle grazing.

[3] Aerial image sourced from Cheshire Tithe Maps Online https://maps.cheshireeast.gov.uk/tithemaps/
[4] Aerial image sourced from Google Earth (Date range: 17/5/23 – 12/10/2024

3.3 Habitats of Principal Importance

A local record search was commissioned on a 2km radius around the proposed development site. The search defined the habitats shown in Table 3.1 and shows that the location of the site is within an area classified as Coastal floodplain and grazing marsh. These are shown in Map 3.1 and summarised in Table 3.2.

Table 3.2 Habitats of Principal Importance within 2km radius of the site

HABITATS OF PRINCIPAL IMPORTANCE	AREA (HA)
Coastal floodplain and grazing marsh	658 ha
Coastal saltmarsh	18.6 ha
Traditional orchards (3 sites)	0.14 ha
Lowland fen	0.13ha

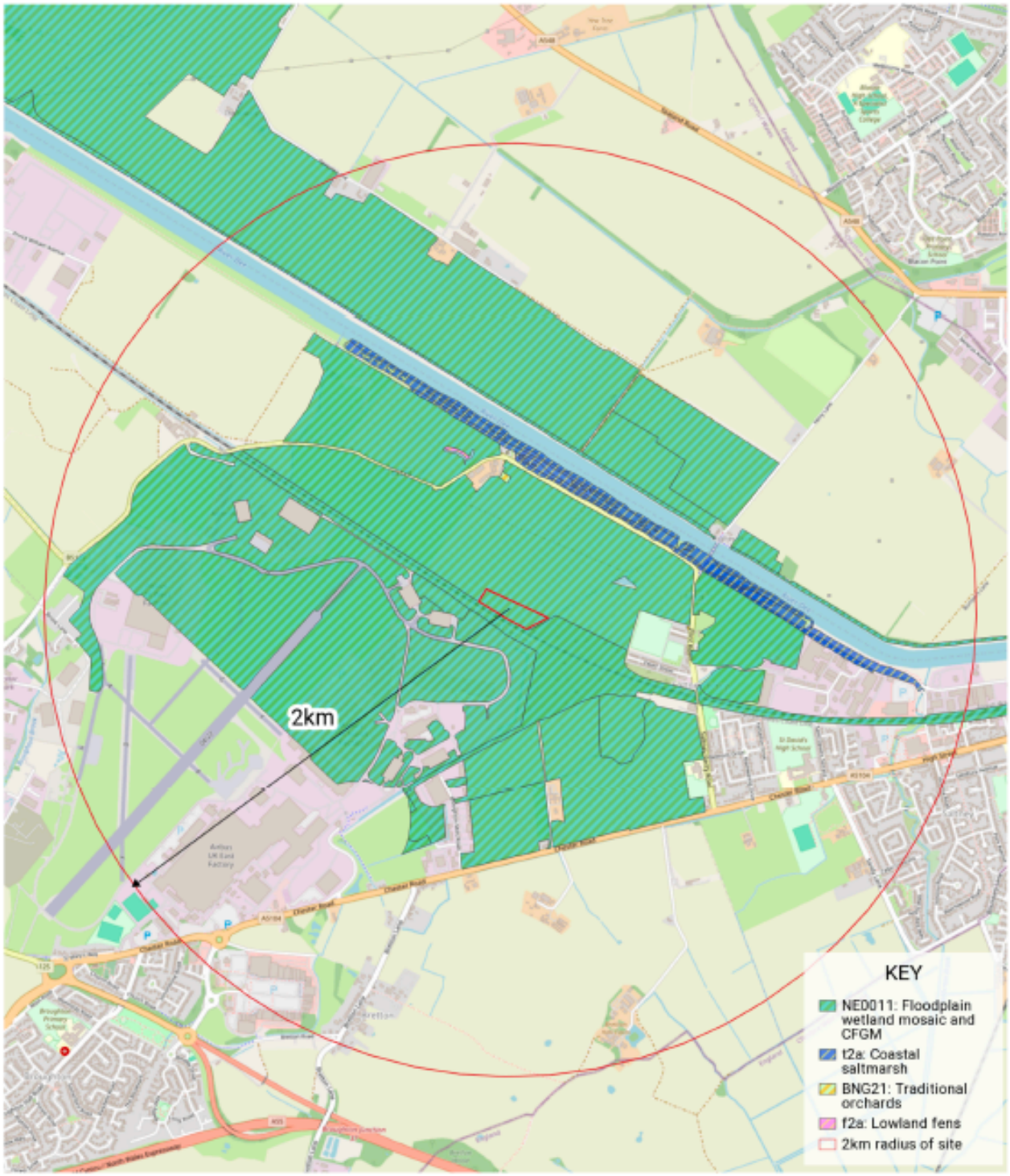
3.4 Species of Principal Importance

A local record search was commissioned on a 2km radius around the proposed development site. A full set of species records is provided in Appendix 1. The location of records of Category 1 species are shown on Map 3.2 (excluding non-mobile species e.g. fish records from River Dee).

Within the vicinity of the site, at 166m from the site boundary the closest record of a Category 1 species is a skylark record dating from 2008.

There are no records of Category 2 or Category 3 species within less than 350m of the proposed site.

Map 3.1 Habitats of Principal Importance within 2km of the site



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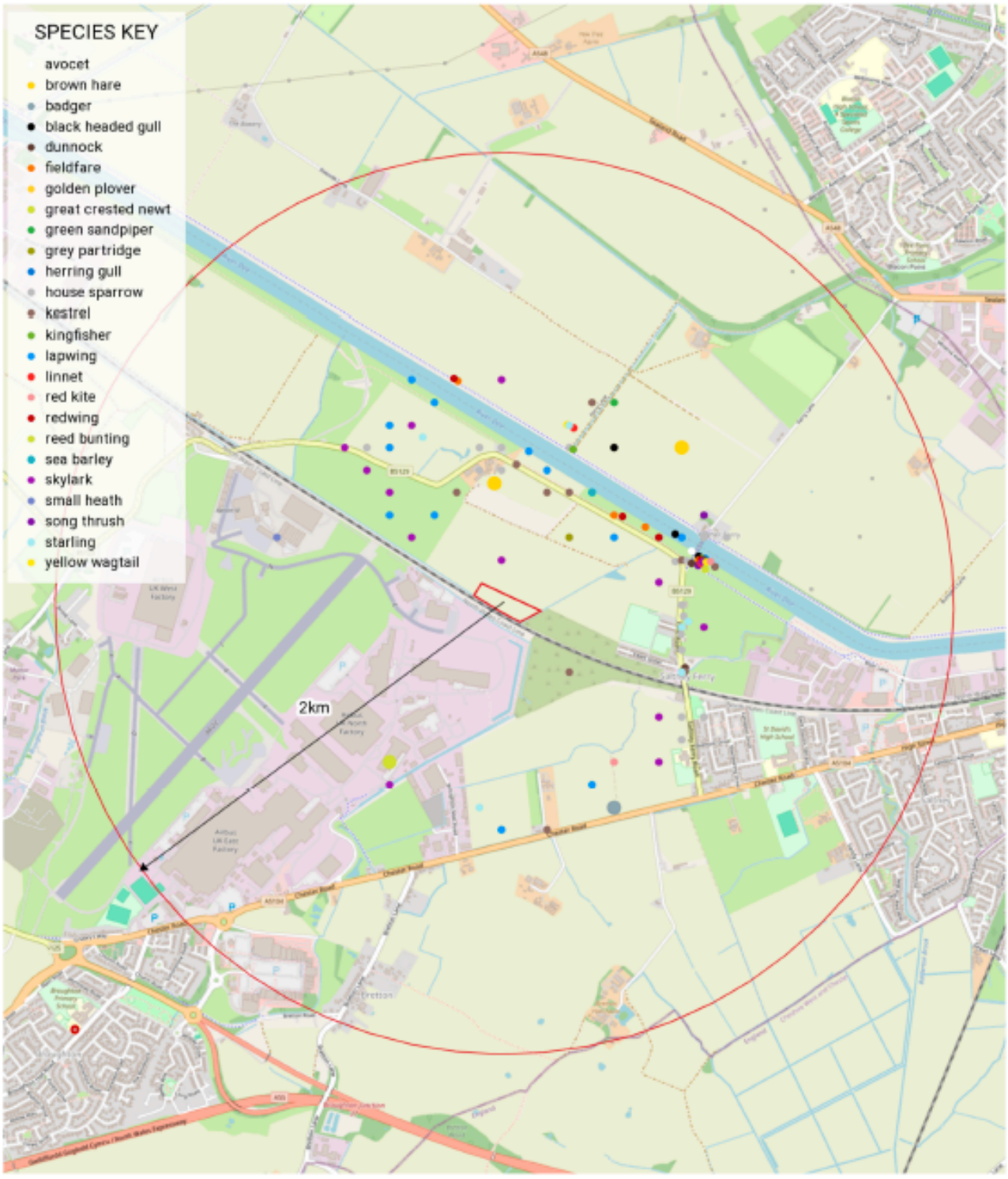
Scale 1:21342 (at A4)

Map 3.2 Category 1 species within 2km of the site



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500 m
Scale 1:22120 (at A4)

N

3.5 Habitat Assessment

The site itself falls within the area classified as Floodplain Coastal and Grazing Marsh, therefore the Statutory Biodiversity Metric condition criteria were applied to assess the condition of the site in relation to the habitat classification. The site was assessed as 'Poor' condition floodplain coastal grazing marsh due to it passing/failing the following criteria outlined in the Technical Supplement of the metric. This is summarised in Table 3.2 below.

Table 3.2 Condition Criteria for Floodplain wetland mosaic and Coastal Floodplain and Grazing Marsh

CRITERIA	PASS/FAIL	COMMENT
A The water table is at, or near the surface throughout the year - this could be open water or saturation of soil at the surface. There is no artificial drainage, unless specifically to maintain water levels as specified above. Note - this criterion is essential for achieving Good condition.	Fail	Water table not at the surface, artificial drainage.
B The parcel represents a good example of its specific habitat type - the appearance and composition of the vegetation closely matches its UKHab description, with vascular and non-vascular characteristic indicator species consistently present.[5]	Fail	No indicator species present
C The water supplies (groundwater, surface water and or rainwater) to the wetland are of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.	Pass	No evidence of water pollution
D Cover of scrub and scattered trees are less than 10%	Pass	No scrub or trees
E Cover of bare ground is less than 5%	Pass	Bare ground only at gateway, approx. 1% on survey date.
F There is an absence of invasive non-native plant species (as listed on Schedule 9 of WCA) and species indicative of suboptimal condition make up less than 5% of ground cover.	Fail	Not within site boundary, but high risk of INNS due to Japanese knotweed along adjacent boundary ditch

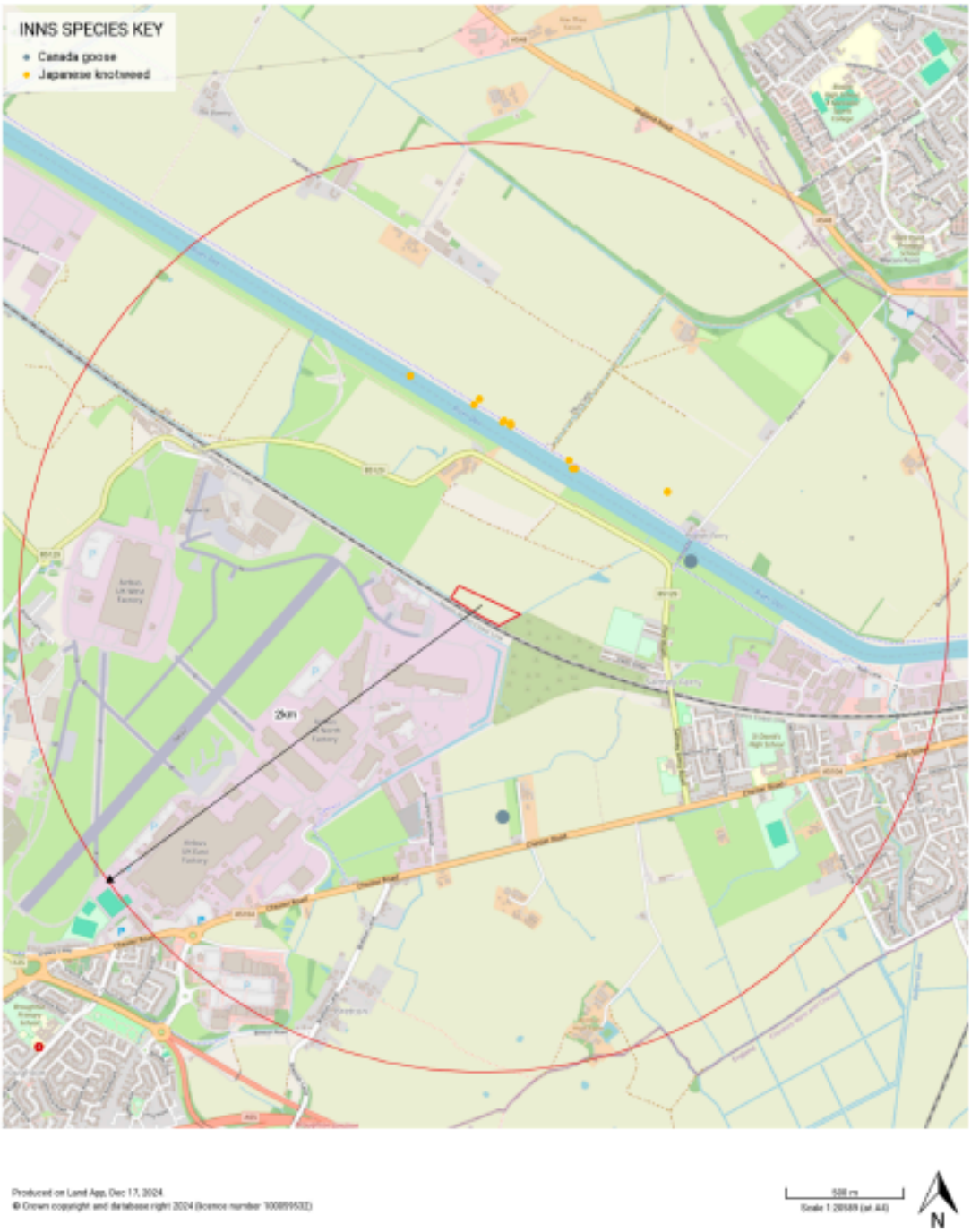
[5] UK Habitat Classification Field Key for assessment of indicator species (subscriber documents)

CRITERIA	PASS/FAIL	COMMENT
J All ditches recorded within the habitat achieve Good condition as assessed using the Ditch condition sheet.	Fail	Ditch assessment is 'Poor' as passes fewer than 8 criteria required for 'Good' condition, failing on range of species present, physical damage, minimum summer water level, and absence of non-native plant/animal species
Overall score	Passes 3 out of 7 criterial but fails essential criteria A so is assessed as **Poor** overall.	

3.6 Invasive Non-native Species

A search of records of Invasive Non-native Species (INNS) showed the presence of Canada goose and Japanese knotweed, as shown in Map 3.3 below. While records of Japanese knotweed are confined to the banks of the River Dee, dating from 1999 to 2013, the site visit showed the presence of this invasive species in very close proximity to the site, being present in the adjacent land to the east of the site, across the drainage ditch.

Map 3.3 INNS records within 2km of the site



4 NET BENEFIT FOR BIODIVERSITY PLAN

4.1 Management Objectives

The management objectives for the proposed development must ensure that a step-wise approach to maintaining and enhancing biodiversity is achieved for the site, following guidance outlined by the Welsh Government[6]. This requires demonstration of the following steps:

1. In the first instance, developments must avoid damage to the existing habitats and species, their abundance and ecosystem functioning in the wider site environment
2. The work should minimise the extent of the impact of the development on the site, maintaining the largest possible extend of existing habitat to support biodiversity and ecosystem function
3. Where there is impact, to put in place mitigation measures to limit the negative effects of a development, and/or restore habitats immediately
4. Where necessary, the management plan should include measures to compensate on-site for impacts with biodiversity impacts
5. Only if not possible on-site, the management plan can include measures to compensate off-site
6. When this step-wise approach is not followed, and no mitigation and enhancement measures are possible, planning authorities may refuse planning permission

4.2 Step-wise approach

The proposes management plan for the solar array installation follows the step-wise approach required of planning developments, and will be implemented as outlined in Table 4.1 below.

[6] Addressing the Nature Emergency through the Planning System (Letter with supporting Annex to Heads of Planning from the Minister for Climate Change, October 2023).

Table 4.1 Step-wise approach to maintaining and enhancing biodiversity on the development site

MITIGATION STEP	MANAGEMENT PROPOSAL
AVOID	The development will avoid any damage to existing habitats and species, their abundance and ecosystem functioning within the site and in the wider site environment. This will include: Ensuring all site vehicle access uses the existing access track to the site area, avoiding parking or storage of vehicles or equipment on the wider field within which the site is located, to ensure that there is no actual or potential impact to the use of the wider field by species such as wading birds.
MINIMISE	The impact of the development will be minimised by ensuring that all installation works are contain within the site boundary, and that no permanent structures associated with the development are located outside of the site. Temporary impacts during the installation e.g. vehicle wheelings or temporary storage of equipment will be minimised by ensuring that surfaces are protected e.g. using ground mats.
MITIGATE	Where disturbance to the site is caused, e.g. by installation of underground pipework, immediate mitigation will be undertaken to ensure that earthworks are repaired and restored by reseeding to achieve grassland cover equivalent to the rest of the wider site. Potential negative impacts that may result from a change in management leading to the risk of spread of non-native species from the adjacent area will also be mitigated against in the management plan.
COMPENSATE ON SITE	The proposal outlined here to compensate for development impacts will be fully implemented within 12 months of the works. This will include: - Sward enhancement of the site with resilient native grass species, clovers and herbs, prior to the works, to ensure that the sward can be maintained as permanent grassland. - Installation of a new species rich native hedgerow boundary to enhance the site's biodiversity value and increase connectivity of habitats from the site to the wider landscape.

5 BIODIVERSITY ENHANCEMENT PLAN

The management prescriptions for the site are set out in Figure 5.1 and Table 5.1 below. The Habitat Enhancement and Management Plan will be implemented in stages as indicated in the timings column in accordance with the management task, as will the appropriate timing of required habitat maintenance once established. The prescriptions cover a 10-year period and include both the start-up works and continued management post-intervention, but the management plan should be reviewed so that recommendations can be implemented over a period of at least 30 years. This is inclusive of primary establishment of habitats and subsequent management regimes.

5.1 Enhancement and Management Plan Summary

The site enhancement plan is designed to maintain and enhance the ecological networks on site, by improving the diversity, extent, condition and connectivity of habitats. Three enhancement elements will be implemented, which are outlined in detail in Table 5.1:

Grassland sward enhancement - the existing grass sward will continue to be modified grassland in the short term, but will be amended to increase the resilience in its suitability for future management under solar panels by oversowing with a mix of native meadow grasses, native legumes and herbs that will be more suitable permanent pasture, which can then be managed by occasional mowing or grazing with sheep, if these become available. The aim is to change the structure of the grass cover away from short-term productive agricultural species towards those that are typical of species rich permanent pastures.

New Hedgerow boundary – a new species rich hedgerow will be planted across the northern site boundary, providing both a biodiversity enhancement and a green barrier which will mitigate visual impact on the landscape. The hedgerow will contain at least 5 native hedgerow species and will be a double staggered row, protected by appropriate stock fencing on both sides.

INNS Control Plan – the risk of the spread of Himalayan balsam or other non-native invasive species from the boundary watercourse and adjacent site on the proposed development site will be managed by maintaining a mown margin along the site perimeters adjoining the watercourse and railway line.

Figure 5.1 Biodiversity Enhancement Plan

Table 5.1 Management Prescriptions & Timings

Enhancement / Management Task	Rationale	Detail	Management Task	Timings
Grassland sward enhancement 1.87 ha	Changing the structure and content of the grass sward from productive but short-lived agricultural species to a more suitable grass mix for long term grassland cover will improve suitability for future site management, and provides an improvement in species diversity of native grassland species, which will provide a valuable nectar and pollen source for pollinators, invertebrates and other species on site and in the wider environment.	Suggested species mix suitable for wet grassland sites: Red fescue 20% Sheeps Fescue 20% Smooth stalked meadow grass 15% Crested dogstail 10% Rough stalked meadow grass 10% Common bent 5% White clover 5% Meadow foxtail 3% Legumes and herbs 12% e.g. Greater burnet Self-heal Yellow rattle Lady's bedstraw Black knapweed Ribwort plantain Meadowsweet Common sorrel Meadow vetchling Birds-foot trefoil Devil's bit scabious	Preparation: Mow or graze area as short as possible. Soil test prior to establishment, correct pH with lime application to achieve a pH of 6.0 - 6.5 Establishment: broadcast or shallow direct drill at a seed rate of 10kg/acre, followed by a light press. Weed control: monitor for the presence of injurious weeds e.g. docks & creeping thistle. Control by topping and removing weeds. Consider chemical spot weed control in future, if required, when the site is de-designated from organic certification. Year 1 and 2: Assess sward and record species presence and frequency. If species content reduces in diversity, oversow by adding simple mixes of species that are seen to thrive on site. Mow regularly to ensure grass growth does out compete the legume and herb plants. Years 3 to 10: Manage the sward by cutting late in the summer (ideally from July onwards) or light grazing with low stocking rate early and late season, to provide an opportunity for flowering and seed set.	Establishment: March to early May August to late September

Enhancement / Management Task	Rationale	Detail	Management Task	Timings
Mixed native hedgerow planting along site boundary with installation of sheep fencing 260m	Planting a mix of at least 5 different species will ensure species diversity adding to the mosaic of habitats on site, and connecting to existing hedgerows, enhancing the network of habitat corridors available to wildlife in the wider environment	Suggested species mix containing 7 species, to be planted at 9 plants per meter. Mix suitable for medium to wet soils. Hawthorn 50% Blackthorn 20% Field maple 10% Guelder rose 5% Dog rose 5% Holly 5% Hornbeam 5% Total plants: 2,340 Protected with sheep netting set at 1.2m minimum from the hedgerow centre on both sides.	Preparation: Mow area as short as possible. Planting: Plant 2,340 x 60-80 cm bare rooted whips at an average spacing of 9 per meter. Protection: Use 60cm spirals or bio-degradable guards to protect the plants from rabbits and voles Weed control (organic): Use a woodchip mulch to about 15cm depth (or other suitable organic mulching material) around the new hedgerow base to supress grass growth and retain moisture. Ensure that woodchip does not contain conifer species. Year 1 and 2: Assess plants and replace any that have not established on a like for like basis. Ensure grass growth is not out competing the plants, and the mulch is assisting with suppression of the vegetation around each plant. Year 3 to 10: By now the plants should have established and growing well. Remove spirals or guards.	Planting: November-March

Enhancement / Management Task	Rationale	Detail	Management Task	Timings
Control of Invasive Non-native species 4m margins to serve as INNS control zones around the site boundaries Margin also allows for hedge cutting	It is a statutory responsibility to control INNS. Species such as Japanese knotweed and Himalayan balsam presents a threat to the site biodiversity and potentially also the operation and efficacy of the solar installation.	It is important to mitigate against the risk of the spread of invasive non-native species that are present on areas outside of the site boundary. The current grazing management has kept this issue under control, but the new site management must replicate this level of control to prevent the spread onto the site. Japanese knotweed was observed adjacent to the site and is known to spread readily along watercourses and railway lines. Control by prevention of spread will be most effective in mitigating against potential negative impacts.	Monitor: check the boundaries and control zones monthly for the presence of INNS plant species e.g. Japanese knotweed or Himalayan balsam Primary control: Maintain the 4m grass boundary between the solar panels and site boundary with regular mowing whenever the site is not grazed. Treatment: If necessary, in the case of an infestation on site or along the boundaries, you may need to treat chemically by spraying with herbicide and disposing of material in line with guidance.7 Years 1 to 10: and beyond, continue to monitor the site regularly and take action to control INNS.	Mow or graze the margin regularly April to October

[7] https://www.gov.uk/guidance/prevent-japanese-knotweed-from-spreading

6 Delivery of the Habitat Plan

The Edge family will be the body responsible for the delivery of this Habitat Enhancement and Management Plan. It will be the responsibility of The Edge family and their appointed contractors to deliver the practical measures detailed in this plan i.e. ground preparation, planting and ongoing management. It will be The Edge family's overall responsibility to ensure the prescriptions detailed in this management plan are delivered, and any remedial actions arranged and delivered.

If required, a Suitably Qualified Ecologist (SQE) will be appointed to undertake monitoring of measures future years, through funding by The Edge family. They will undertake monitoring and report discrepancies to The Edge family, along with compiling the results of the monitoring for submission to the Local Planning Authority.

7 Photos

Photo 1 Site view from northern boundary (end of track)

Photo 2 Baseline habitat: Modified g4 grassland sward in moderate condition containing sown herbal ley species including red clover, ribwort plantain and forage species.

Photo 3 Japanese knotweed on adjacent site along southeastern boundary