Landscape and Ecology Management Plan

A1290 Dualling & Northern Employment Area Phase 1 Road, IAMP

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Durham Wildlife Services
Rainton Meadows
Chilton Moor
Houghton-le-Spring
Tyne & Wear
DH4 6PU

info@dwsecology.co.uk

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	Name	Signature	Date	Version
Prepared by	Karen Devenney MCIEEM Associate Technical Director		20/02/2024	V1
Reviewed by	Sacha Elliott MCIEEM Principal Ecologist		20/02/2024	V1
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1.0 INTRODUCTION

1.1 Background

Durham Wildlife Services Ltd. was commissioned by IAMP LLP and Esh Construction in November 2023 to provide an Ecological Landscape Environment Management Plan (LEMP) in relation to proposed dualling of the A1290 road within the International Advanced Manufacturing Park (IAMP), Sunderland. This report has been updated in July 2025 to include phase 1 of the new road into the Northern Employment Area (NEA). The approximate National Grid Reference for the centre of site is **NZ338591**. This Ecological LEMP has been designed with the objectives of compliance with all relevant environmental legislation and to draw together the ecological mitigation necessary for the site.

A range of surveys have been carried out across the site from 2014 to date including a range of protected species surveys. Most recently a site walkover was carried out to ensure no ecological changes had occurred to site.

1.2 Site Description

The site is the A1290 road which runs along the eastern boundary of the IAMP site within East Boldon, Sunderland. Where the road is due to be widened, the site takes in grassland, with some higher quality grassland present and some previously arable land. A short section of new road is to be constructed to connect the current IAMP infrastructure with what will be the southern end of the Northern Employment Area (NEA). The habitat across this part of the site is modified, species-poor grassland.

The local area is newly developed with a range of large warehouses and industrial buildings. The large Nissan factory is approximately 840m south of site, dominated by warehouses and hard standing. Both the east and west is bounded by residential housing (around 540m east and 2.3km west). The west of site is currently more open, with a series of arable and pasture fields and the River Don flowing throughout.

1.3 Plan Objectives

The principal objective is for this plan is to make recommendations that will increase the area's wildlife value post development.

1.4 Development Description

Proposals are for a section of the A1290 road to be widened into a dual carriageway, between the A19/ A1290 Downhill Lane junction and the southern access from International Drive. A section of new road will be constructed to connect International Drive with what will be the NEA.

2.0 PROJECT BACKGROUND

2.1 Planning Permission and Pre-Commencement Works

The proposal currently has granted planning permission from Sunderland City Council and South Tyneside Council subject to various conditions.

2.2 Background to Ecological Surveys and Assessment

Previous survey works have been undertaken on the IAMP site since 2014 and include multiple habitat surveys, wintering and breeding bird surveys, brown hare surveys, bat transect surveys at dusk and dawn, and a biodiversity net gain survey/report. All other relevant reports have been submitted to Sunderland and / or South Tyneside council over the years. In December 2023, a site walkover was completed to ensure no ecological changes had occurred on site. This was repeated on 26th January 2024 and 27th June 2025.

2.3 Summary of Ecological Baseline

Please refer to the Ecological report (Durham Wildlife Services, 2022) for full details of the ecological baseline. A Biodiversity Metrics Calculation has also been completed in version 3.1 (Ecology Solutions 2022).

Key Findings of the Ecological Surveys

Site Connectivity

The area due to be widened is part of a wildlife corridor as identified within the Burton Reid Wildlife Corridor Network Review document (2020). The larger area is relatively open with the River Don providing some connectivity. Farmlands and grass pastures provide lower quality connectivity within the landscape, also. On a larger scale, the area is surrounded by residential areas which limits some connectivity, but a large area of mostly green space runs west and east throughout the district. Connectivity through the site itself, along the edges of the A1290, is intermittent. Some connectivity lies along the southern edge of the road, in the form of small pockets of woodland habitat, which is almost entirely being retained. Other trees, scrub and hedgerows, which are due to be lost by the proposals, are sparse and isolated and offer poor connectivity.

Habitats

The habitat survey revealed 10 habitats are present on site, under the UK Habitat Classification method. Habitats include no/low value habitats such as developed land; sealed surface road and priority habitat lowland meadow, with hedgerows, grassland, scrub, and woodland all also recorded (DWS, 2022).

3.0 SUMMARY OF WORKS

3.1 Prior to Commencement of Works

1) Vegetation removal will be timed to be undertaken outside the bird nesting season, which is March to September inclusive, or if this is not possible will be checked by a suitably qualified ecologist a maximum of 48 hours prior to removal.

2) A Biodiversity Champion will be appointed (such as the site manager) who has the authority to influence and successfully implement biodiversity protection.

3) All contractors are to undergo ecological induction prior to commencing work on the site, ideally carried out by the Biodiversity Champion, where ecological features are to be constructed.

3.2 Prior to completion of construction works.

1) Landscape planting as per infrastructure landscape drawings that have been approved under the hybrid applications (Sunderland reference: 21/02807/HE4 and South Tyneside reference ST/1722/FUL) and updated in July 2025 (Southern Green Drawings 1271_401 to 1271_405 Infra Ph1_Detailed Softworks) to be completed prior to completion of project.

2) Additional habitat creation and enhancement works across the three areas shown in Figure 2, Appendix A.

3.3 Long term mitigation and monitoring following completion.

1) A minimum of 30 years management and monitoring of habitats across the site to ensure they are developing as they should.

2) Any issues will be fed back to the project team and relevant stakeholders to ensure the issues are rectified.

3) This management plan will be kept on site and the nominated Biodiversity Champion will ensure it is adhered to.

4.0 ECOLOGICAL MITIGATION AND ENHANCEMENT

4.1 Introduction

This Landscape & Ecology Management Plan provides a framework for wildlife enhancements across the site. The infrastructure landscape drawings updated in July 2025 (Southern Green Drawings 1271_401 to 1271_405 Infra Ph1_Detailed Softworks show the locations of these features. Figure 2, Appendix A shows the location of additional habitat enhancement and creations works outside of the redline boundary.

4.1.1 General

- The landscaping scheme is designed to benefit wildlife and biodiversity.
- The habitat management plan in section 5 is to ensure appropriate long-term management of the habitats of ecological value.

4.2 Enhancements for Habitats

4.2.1 Tree Planting

The proposed landscape scheme includes planting of individual standard trees. Species planted will be a mixture of native, native cultivars and non-natives. Planting should take place between mid-November and late March; in winter roots are dormant and more able to cope with being moved. A detailed planting specification for these newly planted trees can be found in document 1271-405 Infrastructure Landscape Proposals Sheet 5 (Southern Green). This provides information on soil preparation, root barrier installation, tree pits and staking. All trees will be double staked and tied. The tie should be checked every 6 months and enlarged, when necessary, as the tree grows. Any failures should be replaced.

Species List:
Acer campestre 'Elegant'
Acer platanoides
Acer platanoides 'Cleveland'
Acer rubrum 'Armstrong'
Alnus glutinosa
Betula pendula
Betula pubescens
Carpinus betulus 'Streetwise'
Fagus sylvatica
Malus 'Rudolph'
Malus sylvestris
Pinus sylvestris

Prunus avium
Pyrus calleryana 'Chanticleer'
Salix alba
Sorbus aucuparia 'Asplenifolla'
Tilia cordata
Tilia cordata 'Winter Orange'
Ulmus 'New Horizon'

Aim & Objectives:

The newly planted trees to be in "Moderate Condition". Following Biodiversity Metrics 3.1 guidance, this will be done by ensuring:

- The tree is a native species or more than 70% within the block are native species.
- The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).
- There is little or no evidence of an adverse impact on tree health by anthropogenic activities such as vandalism or herbicide use. There is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.
- More than 20% of the tree canopy area is oversailing vegetation beneath.

4.2.2 Woodland Planting

The proposed woodland planting on site will be native species of local providence. Planting should take place between mid-November and late March; in winter roots are dormant and more able to cope with being moved. Care should be taken to not plant in rows to give the woodland a more natural feel. Spacing between trees should be varied, with at least two metres between plants. Any failures should be replaced.

Species List:
Acer campestre
Alnus glutinosa
Betula pendula
Cornus sanguinea
Corylus avellana
Crataegus monogyna
Ilex aquifolium
Lonicera periclymenum
Malus sylvestris
Pinus sylvestris
Prunus avium
Prunus spinosa

Salix cinerea
Sambucus nigra
Viburnum lantana
Viburnum opulus

Aim & Objectives:

The newly planted woodland to be in "Moderate Condition". Following Biodiversity Metrics 3.1 guidance, this will be done by ensuring:

- At least two age classes of tree are present.
- There is no significant browsing damage evidence.
- No invasive species are present.
- Five or more native tree or shrub species are present across the woodland parcels.
- > 80% of canopy trees and >80% of understory shrubs are native.
- Two classes of woodland regeneration are present in woodland; trees 4-7cm diameter at breast height (dbh), saplings and seedlings.
- Tree mortality is less than 10%, no pests or diseases and no crown dieback.
- There are three or more storeys across all survey plots.
- There is less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground.

4.2.3 Scrub Planting

The proposed scrub planting on site will be native species of local providence. Planting should take place between mid-November and late March; in winter roots are dormant and more able to cope with being moved. Care should be taken to not plant in rows to give the scrub a more natural feel. All whips or cell grown planting stock should have biodegradable Tubex tree guards. Any failures should be replaced.

Species List A
Acer campestre
Betula pendula
Cornus sanguinea
Corylus avellana
Crataegus monogyna
Ilex aquifolium
Ligustrum vulgare
Malus sylvestris
Prunus spinosa
Viburnum lantana
Viburnum opulus

Species List B:

Cornus sanguinea

Corylus avellana

Crataegus monogyna

Ilex aquifolium

Ligustrum vulgare

Malus sylvestris

Prunus spinosa

Sorbus aucuparla

Viburnum lantana

Viburnum opulus

Aim & Objectives:

The newly planted scrub will be in "Moderate Condition". Following Biodiversity Metrics 3.1 guidance, this will be done by ensuring:

- There are at least three woody species, with no one species comprising more than 75% of the cover.
- There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.
- There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover.

4.2.4 Hedgerow Planting

Native species rich hedgerow is due to be added site. Hedgerow planting should take place between November and March. Prepare the ground so the soil becomes friable (has a crumbly texture) and is free of other growth prior to planting. Planting should be in a staggered double row 30cm with 40cm between each plant within a row (where trees not present). All plants will be protected with a hedge establishment fence detailed in 1271-405 Infrastructure Landscape Proposals Sheet 5 (Southern Green). Any failures should be replaced.

Native hedge and tree species of local providence should be used. Both www.treesplease.co.uk/ and www.cheviot-trees.co.uk/ are northeast companies that sell hedgerow plants and provide additional advice on planting.

All hedgerow plants should be kept clear of weeds until they are established. Herbicide can be used but avoid doing this in the summer when the hedgerow is in leaf. Consult with a suitably

qualified agronomist to determine suitable winter herbicides. Alternatively, this should be done by hand.

Species List:
Cornus sanguinea
Corylus avellana
Crataegus monogyna
Ilex aquifolium
Prunus spinosa
Rosa arvensis
Viburnum opulus

Aim & Objectives:
The newly planted hedgerow will be in "Moderate Condition". Following Biodiversity Metrics 3.1 guidance, this will be done by ensuring:

- A height of at least 1.5 m average along length.
- Width of at least 1.5 m average along length.
- Gap between the ground and base of canopy should be <0.5 m for >90% of length.
- Gaps make up <10% of total length and no canopy gaps >5 m.
- >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of length on at least one side of the hedge.
- >90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species.
- >90% of the hedgerow or undisturbed ground is free of damage caused by human activities.

4.2.5 Grassland Creation

Grassland planting on site is due in the form of grassland road verges, central reservations and species rich grasslands. All grassland planting should be undertaken with a native species mix of local or UK provenance. A series of different grasslands are proposed depending on location:

- Species rich grassland mix or turf to the front of the grass. Emorsgate EM2 Standard General Purpose Meadow mix is a suitable seed mixture, with Wildflower Turf Ltd, Meadowscape Pro Landscape Turf a good turf option for these areas.
- Low growing wildflower mix or turf to the central reservations using MeadowSow Low Grow Seed by Wildflower Turf or similar.
- Species rich grassland mix to the rear of the grass verges. This should be a more shade tolerant mix such as Emorsgate EH1 hedgerow mix.
- Grass verges along road kerb line using seed or turf such as Meadowscape Pro landscape turf by Wildflower Turf or similar.

- Green hay or local providence seed should be sought for the road verge adjacent to the Lowland Meadow grassland.

To prepare the site for planting all perennial weeds such as nettles, docks, and thistles should be removed, possibly by spraying with an appropriate weed killer. Where bare ground, the ground should be cultivated to a depth of at least 10cm (on badly drained or compacted soils, plough to at least 25cm) and a fine tilth prepared. Do this as early as possible, ideally two months before the planned sowing date, to encourage any weed seeds in the surface soil to germinate.

It is essential to control any weeds before sowing grassland mixes. When weeds reach a height of 2cm a non-residual herbicide such as glyphosate should be used to control and eradicate the weeds without disturbing the soil surface.

Soil depth for the central reservation areas needs to be at a minimum depth of 100mm.

Seed sowing

The ideal time for sowing wildflower mixtures is the late summer/autumn, ideally the last week in August or first week in September. Alternatively, a spring sowing could take place from March onwards although it should be avoided on soils with a large weed seed bank (lots of weeds are programmed to germinate in spring).

Sow the seed evenly by hand at 4 or 5 g per m² (4g/m^2 for Emorsgate mixes and 5g/m^2 for Wildflower Turf) and then raked or harrowed into the top 3 mm of soil surface. Avoid rolling late autumn sowings, because there is usually plenty of available soil water for germination and rolling before winter tends to cap the soil.

<u>Aim & Objectives:</u>

Most of the newly created neutral grassland will be in “Moderate Condition”, except for the area adjacent to the Lowland Meadow grassland, which will aim to be in “Good Condition”. Following Biodiversity Metrics 3.1 guidance, this will be done by ensuring:

- The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition summarised below). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward.
- 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.
- Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.

- Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.
- 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 condition 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.

To achieve good condition, the following must also be achieved:

- There are greater than 9 species per metre squared.

UkHab Descriptions

Other Neutral Grassland:

Has to meet at least 3 of these criteria:

- Cover of perennial ryegrass *Lolium perenne* and white clover *Trifolium repens* is less than 30%
- Cover of wildflowers and sedges is over 20%.
- Over 8 species per m^2.
- At least one grass species not generally sown for agricultural purposes (e.g. rye grass, timothy *Phleum pratense*, cock's-foot *Dactylis glomerata*, meadow fescue *Festuca pratensis*) is abundant.

A range of herbs and grasses are indicative to this grassland and include yarrow *Achillea millefolium*, ribwort plantain *Plantago lanceolata*, red clover *Trifolium pratense*, and meadow buttercup *Ranunculus acris*. A full list is provided within the UK Habitat Classification definition.

4.2.6 Lowland Meadow Grassland

In addition to the landscaping along the roadside, management of an adjacent area of Lowland Meadow grassland will be carried out to get this existing priority habitat from poor to good condition. Part of this grassland will be lost by the proposals and the retained area (the southern area shown in Figure 2) is a mosaic of Lowland meadow and neutral grassland with management proposed to get the neutral grassland areas from moderate to good quality.

Aim & Objectives:

For the areas of Lowland Meadow and Other Neutral Grassland adjacent will aim to be in "Good Condition". Following Biodiversity Metrics 3.1 guidance, this will be done by ensuring:

- The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition summarised below). Wildflowers,

sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward.

- 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.
- Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.
- Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.
- 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 condition 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.
- There are greater than 9 species per metre squared.

UkHab Descriptions

Other Neutral Grassland:

Has to meet at least 3 of these criteria:

- Cover of perennial ryegrass and white clover is less than 30%
- Cover of wildflowers and sedges is over 20%.
- Over 8 species per m^2.
- At least one grass species not generally sown for agricultural purposes (e.g. rye grass, timothy, cock's-foot, meadow fescue) is abundant.

A range of herbs and grasses are indicative to this grassland and include yarrow, ribwort plantain, red clover, and meadow buttercup. A full list is provided within the UK Habitat Classification definition.

Lowland Meadow:

Has to meet two of the three criteria:

- Over 15 species per m^2.
- Over 30% cover of broadleaved herbs and sedges (excluding white clover and creeping buttercup)
- Less than 10% cover of perennial rye grass and white clover.

At least 4 indicator species should be present or at least three occasional from the list provided within the UK Habitat Classification definition. This includes (but not exclusive to) common bird's-foot trefoil *Lotus corniculatus*, common knapweed *Centaurea nigra*, agrimony *Agrimonia eupatoria*, cowslip *Primula veris*, meadow vetchling *Lathyrus pratensis*, eyebright

Euphrasia officinalis agg., sneezewort *Achillea ptarmica*, meadowsweet *Filipendula ulmaria,* glaucous sedge *Carex flacca*, and great burnet *Sanguisorba officinalis*. All of these species have already been recorded within this area of Lowland Meadow (DWS 2022).

4.2.7 Swales

Drainage swales are due to be created on site. The swale will be planted up with a species rich neutral grass mix suitable for wetter conditions such as Emorsgate EG8 Meadow Mixture for Wet Soils, or similar native species of local provenance. The swale should feature some shallow edges to allow any wildlife to crawl out. Seed should be sown evenly by hand, at 4g/m^2 in late summer/ autumn, as per the "Other Neutral Grassland" creation above.

Aim & Objectives Neutral Grassland:

The grassland across the swales will aim to be in "Moderate Condition". Following Biodiversity Metrics 3.1 guidance, this will be done by ensuring:

- The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition summarised below). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward.
- 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.
- Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.
- Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.
- 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 condition 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.

UkHab Description

Other Neutral Grassland:

Has to meet at least 3 of these criteria:

- Cover of perennial ryegrass and white clover is less than 30%
- Cover of wildflowers and sedges is over 20%.
- Over 8 species per m^2.
- At least one grass species not generally sown for agricultural purposes (e.g. rye grass, timothy, cock's-foot, meadow fescue) is abundant.

A range of herbs and grasses are indicative to this grassland and include yarrow, ribwort plantain, red clover, and meadow buttercup. A full list is provided within the UK Habitat Classification definition.

Aim & Objectives Swale/Ponds:

The swales have been recorded as ponds within the biodiversity metrics and will achieve "Moderate Condition". Following Biodiversity Metrics 3.1 guidance, this will be done by ensuring:

- The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution.
- Less than 10% of the pond is covered with duckweed or filamentous algae.
- Pond water levels should be able to fluctuate naturally throughout the year. No obvious dams, pumps or pipework.
- There is an absence of non-native plant and animal species.
- The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities.
- In non-woodland ponds, plants, be they emergent, submerged or floating (excluding duckweeds), should cover at least 50% of the pond area that is less than 3 m deep.
- The surface of non-woodland ponds is no more than 50% shaded by woody bankside species.

4.2.8 Farmland Bird Habitat Creation

An area of land just outside of the red line boundary (northern area in Figure 2) will be enhanced to benefit farmland birds. This will include enhancement and extension of the existing hedgerow, creation of a ditch in association with this, and tussocky neutral grassland creation across the rest of the parcel. The hedgerow will be enhanced/extended following section 4.3.4 above.

Ditch

The ditch should be created between August and November when birds have finished nesting, and the ground is dry enough to support machinery. The newly created ditch should have gentle sloping/shallow edges of less than 45^{o} with the aim of tussocky grassland developing along the edge using the same mixture recommended across the rest of the parcel as detailed below. The shallow edges allow for feeding areas for waders and their chicks as well as preventing chicks becoming trapped (RSPB 2005). The ditch should be broad and shallow, 1 metre to 2 metres wide and 30cm deep in the centre. Water depth in the scrape or gutter in early spring should be up to 25cm over half of the area, and 25cm to 50cm over the rest.

Tussocky Grassland

To create this grassland, Emorsgate EM10 Tussock Meadow Mixture is recommended. To prepare a seed bed first remove weeds using repeated cultivation. Then plough or dig to bury the surface vegetation, harrow or rake to produce a medium tilth, and roll, or tread, to produce a firm surface.

Seed is best sown in the autumn or spring but can be sown at other times of the year if there is sufficient warmth and moisture. The seed must be surface sown at a rate of 4g per m². This can be applied by machine or broadcast by hand. To get an even distribution and avoid running out divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed, but firm in with a roll, or by treading, to give good soil/seed contact.

5.0 MANAGEMENT PLAN

5.1 Management of Habitats

5.1.1 Newly Planted Trees and scrub

Weeding

Weed each spring in the first couple of years after planting. This should be done by hand, or if necessary, a glyphosate based chemical weed killer. This will kill weeds effectively and break down quickly in the soil, causing minimal effect to the environment. Care would need to be taken to not harm newly planted trees and scrub.

Tree guards

Ties and guards should be checked every six months and adjusted/replaced if necessary. Once the tree is sturdy the tie and stake should be removed, with any waste materials removed from site. Any trees lost should be replaced the following winter.

5.1.2 Hedgerow

During the first year, in spring and summer particularly, weed management will be necessary around the hedge as the plants develop, with hand-pulling recommended. Once the hedge has established weeds can be allowed to develop beneath the hedgerow base, however undesirable species such as nettles, cleavers, and docks should not make-up more than 20% of the ground flora around the hedge, and therefore these species will require monitoring and management.

The hedge will be trimmed in at least the first 2 years to encourage bushy growth, allowing the hedge to become taller and wider at each cut. After that it will be cut no more than one year in three, unless there are access issues, and will be allowed to reach at least 1.5 metres tall and 1.5 metres wide. Heights should vary, to benefit different species of bird, with some allowed to grow up to 3 metres. The hedgerow will be cut on rotation, so that only 1/3 of the total length is cut in each year. Hedgerow cutting must take place outside of the breeding bird season to ensure breeding birds are left undisturbed. Ideally, cutting will take place in late winter, after the hedgerow species have fruited.

5.1.3 Other Neutral Grassland

First Year

The grasslands should be cut regularly over the first year to a height of 40-60mm, avoiding Spring and early summer.

Annual cut and rake

Species-rich grassland needs to be grazed or cut otherwise the grasses will grow tall and dense and shade out smaller plants. Grazing is not considered suitable for the grassland creation outside of the areas shown in Figure 2. Areas shown in Figure 2 could be managed with either cut and rakes or grazing, or both. All grasslands should undergo an annual late summer (late July/ August, occasionally into September) cut and rake. All cut material should be removed from site, otherwise the cuttings will smother the sward and add to the fertility of the soil, leading to a decline in species richness. Pockets of undesirable tall ruderal species (e.g., rosebay willowherb *Chamerion angustifolium*) and bramble scrub may require more frequent cuts (and rakes) over the summer to prevent them from flowering/ setting seed. If required, care must be taken to ensure only undesirable species undergo this treatment. Varying the timing of the cut is important to maintain diversity with some later cuts (late August/ early September) to allow later flowering species to flower, and early cuts to reduce grasses (late July/early August). This can be rotated across the habitat, with different sections mown at different times, or the timing of the cut can be varied on an annual basis. Later cuts should be less frequent because of the importance of the early cut to reduce vigorous grasses. Swath turning or tedding should be undertaken to assist seed shedding. An additional cut is also required at the end of the growing season to replace the lack of aftermath grazing.

Scrub Monitoring

The areas of grassland habitat should be monitored to ensure that scrub does not encroach into the grassland. Should encroachment occur, plants will be removed via hand pulling in the first instance with scrub being cut back/felled if encroachment continues. Scrub clearance works should avoid the bird nesting period (March- September). After felling, all stumps should be treated with a suitable herbicide to prevent re-growth.

5.1.4 Grassland Central Reservations

The grassland habitat created across the central reservations should be managed in year one as per section 5.1.3 above. After year one, these areas of grassland should be cut every 4-6 weeks over the main growing season to a height of 50-70mm so that it does not become suitable foraging habitat for barn owls.

5.1.5 Lowland Meadow Grassland

The management below should be carried out across the entire parcel (Figure 2) which includes Lowland Meadow and Other Neutral Grassland.

Grazing Regime

Grazing should be used to maintain the lowland meadow grassland in good condition. In year 1, a prolonged period of grazing is recommended to help remove the undesirable plants such as

saplings and woody plants and create a more favourable environment for the growth of the broadleaved forbs desired to meet the 'good' condition assessment. Goats are ideal for this task with cattle brought onto the site later in the year to control sward. Care should be taken to ensure the goats do not graze too much of the dense scrub that is to be retained for the birds, so these areas may need to be temporarily fenced off in the first year.

In subsequent years, grazing should take place in late summer and early autumn, once the wildflowers have set seed, to open up the sward and create areas for germination and new growth. Grazing should avoid the spring and early summer when ground nesting birds such as skylark and lapwing may be present. Grazing must also avoid spring to mid-summer to allow herbs to flower and set seed.

Alternatively, an annual cut and rake as per section 5.1.3 could be undertaken, with aftermath grazing by cattle so that the sward height is about 10cm over winter without extensive poaching or damage to the ground. If grazing is not possible, a second cut and rake is required at the start or end of the growing season to replace the aftermath grazing (March-April/October).

Appropriate stocking densities should be applied. The recommended density for year-round grazing is 0.7 LU (Livestock Unit) per hectare. The area to be managed is approximately 1.6 hectares so this is a year-round stocking level of 2.2LU. As grazing will be seasonal this can be increased to approximately 9 LU if grazing is to last for 3 months per year.

Scrub Control & Undesirables

A large amount of scrub is currently present across this grassland. Dense areas should be retained for birds (see Figure 2), with all individual trees and saplings removed. This needs to be monitored to ensure no further scrub encroachment. Should encroachment occur, plants will be removed via hand pulling in the first instance with scrub being cut back/felled if encroachment continues. Scrub clearance works should avoid the bird nesting period (March- September). After felling, all stumps should be treated with a suitable herbicide to prevent re-growth.

Pockets of undesirable tall ruderal species (e.g., rosebay willowherb *Chamerion angustifolium*) and bramble scrub may require more frequent cuts (and rakes) over the summer to prevent them from flowering/ setting seed.

5.1.6 Swale

The system should be monitored with litter and blockages removed as necessary. Any grassland planting within dry areas should undergo a late summer cut and rake, as per 5.1.3 above for Other Neutral Grassland. Wet areas should not be mown. Maintenance should be carried out in Autumn with dead plants replaced as necessary and silt removal carried out as necessary. Only a

third of the silt should be removed at any one time. Any materials removed from ponds/wet areas should be left in-situ for a minimum of 2 days to ensure any animals present can re-enter the water.

5.1.7 Farmland Bird Habitat Management

Hedgerow and any required ditch management will follow sections 5.1.2 and 5.1.5 above, but with no cut and rake.

Grassland Management

The aim for the northern parcel shown in Figure 2 is to create a short sward grassland with occasional tussocks, which is the favoured habitat for species such as lapwing. The aim will be for an average sward height of 5cm.

It is vital to have a predominantly short sward in place over winter to encourage breeding in the following spring. Over winter, the aim should be for the majority of the sward to be short with some bare patches for winter feeding and a few taller tussocks or clumps to give cover for the chicks next spring.

The sward structure is probably ideal if (Natural England TIN 090).:

- There is little dead plant litter.
- Scattered bare ground covers up to 10% of the area.
- Short sward, less than 5 cm tall covers more than 70% of the area.
- Scattered clumps 10-15 cm, or occasional taller tussocks make up about 20% of the sward.

Cutting grasslands

Given the location and size of the parcel, grazing is not an option. Therefore, Short open swards should be created before winter by cutting between August and October. Remove cuttings by gathering or baling to prevent build-up of litter and nutrients.

5.2 Habitat Management Programme

The management operations are scheduled in the habitat management programme in Table 1 (overleaf). This programme provides a work schedule, which includes a 30-year project work plan which will run from 2025 to 2055.

Table 1. Habitat Management Programme

No.	Ecological feature	Activity	Year										Timing
			1	2	3	4	5	6	7	8	9	10-30	
1	Planted trees and shrubs	Plant Trees	✓										November – March.
		Check tie and stake and remove when tree is sturdy.	✓	✓	✓	✓	✓	✓					Every 6 months.
		Replace lost trees.		✓	✓	✓	✓	✓					November – March.
		Remove weeds from around new plants in first year.	✓										May-August.
		Tree pruning (only where overhanging branches, etc. become a health and safety issue).					✓	✓	✓	✓	✓	✓	November – February only when necessary.
2	Hedgerows	Hedgerow planting	✓										November – March.
		Weed pulling to allow unimpeded development of hedgerow	✓										March – September.
		Trimming of hedgerow	✓	✓									November - February
		Cut-back hedge.			✓			✓			✓		November – February.
		Continued removal of undesirable species (nettles, cleavers, and docks)		✓	✓	✓	✓	✓	✓	✓	✓	✓	March – September.
3	Other neutral grassland	Prepare site by removing existing weeds.	✓										
		Sow seeds.	✓										Late August – early September.
		Regular cuts in the first year		✓									July- October
		Late summer cut and rake. Second cut at the start or end of the growing season.			✓	✓	✓	✓	✓	✓	✓	✓	Rotational later July to late August. Occasionally into early September. Second cut in October at end of the growing season.
		Regular cuts (as needed) of undesirable species (e.g., rosebay willowherb) and bramble scrub.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Scrub clearance (if necessary).	✓				✓					Every 5 years	October – February.
4	Grassland	Prepare site by removing existing weeds.	✓										

	Central Reservation	Sow seeds.	✓										Late August – early September.
		Regular cuts in the first year		✓									July- October
		Regular cuts of the central reservation grassland areas			✓	✓	✓	✓	✓	✓	✓	✓	Every 4-6 weeks over the growing season. March-October
5	Lowland Meadow	If the site is not being grazed: Late summer cut and rake. Second cut at the start or end of the growing season.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	Rotational later July to late August. Occasionally into early September. Second cut in October at end of the growing season.
		OR If the site is being grazed: First year intensive grazing to reduce scrub	✓										All year round
		Grazing outside of Spring & early Summer		✓	✓	✓	✓	✓	✓	✓	✓	✓	Between August and February
		Regular cuts (as needed) of undesirable species (e.g., rosebay willowherb) and bramble scrub.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
		Scrub clearance (leaving denser areas)	✓				✓					Every 5 years	October – February.
6	Swale	Grassland creation and management	Following Other Neutral Grassland above (3)										
		Removal of litter as necessary.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	October – December.
		Removal of no more than 1/3 silt.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	October – December.
		Removal of dead plants.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	October – December.
7	Farmland Birds Habitat Parcel	Hedgerow planting	**See Number 2 above.**										
		Create Ditch	✓										August - November
		Prepare site by removing existing weeds.	✓										
		Sow seeds.	✓										Late August – early September.
		Cutting and rake/baling		✓	✓	✓	✓	✓	✓	✓	✓	✓	August - October

6 MONITORING AND REVIEW

6.1 Monitoring

The habitats and ecological features of the site will be subject to regular monitoring. The monitoring work relating to the BNG calculation (Ecology Solutions 2022), and farmland birds will be carried out by a suitably experienced ecologist. A landscape architect will monitor all planting and landscape features. Should habitats not be meeting the aims and objectives detailed in Table 3 below, the ecologist/landscape architect will review this document and recommend suitable revisions and recommendations of remedial action.

Monitoring will be carried out in accordance with the following schedule:

Table 3. Ecological monitoring schedule

Feature	Monitoring	Frequency	Timing
All Newly Planted Trees and Scrub	Visual assessment of stake and tie. Ensure it is in a good state of repair and the tie not too tight around the tree trunk. Monitor for losses and arrange necessary replacements for the following winter.	Biannual until tie/guard removed.	Anytime
Tree Planting	Monitoring aims and objectives: There is little or no evidence of an adverse impact on tree health by anthropogenic activities such as vandalism or herbicide use. There is no current regular pruning regime so the trees retain >75% of expected canopy for their age range and height.	Years 5, 10, 20 & 30.	Any time of year
Woodland Planting	Monitoring aims and objectives: • At least two age classes of tree are present. • There is no significant browsing damage evidence. • No invasive species are present. • Five or more native tree or shrub species are present across the woodland parcels. • > 80% of canopy trees and >80% of understory shrubs are native. • Two classes of woodland regeneration are present in woodland; trees 4-7cm diameter at breast height (dbh), saplings and seedlings. • Tree mortality is less than 10%, no pests or diseases and no crown dieback. • There are three or more storeys across all survey plots.	Years 5, 10, 20 & 30.	Any time of year

	• There is less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground.		
Scrub	Monitoring aims and objectives: • Ensuring that there are at least three woody species, with no one species comprising more than 75% of the cover. • Ensuring there is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover. • There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs. NB. Mature trees won't be present until later in the monitoring schedule.	Years 5, 10, 20 & 30.	Any time of year
Hedgerows	Monitoring aims and objectives: • Ensuring the hedgerow has an average height and width of at least 1.5m along length. • Gap between ground and base of canopy should be less than 0.5m for 90% of length. • Gaps should make-up <10% of total length with no canopy gaps larger than 5m. • Plant species such as nettles, cleavers, and docks dominate less than 20% of undisturbed ground. • Over 90% of the hedgerow is undamaged by human activities. • Over 90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species.	Years 5, 10, 20 & 30.	Any time of year
Other Neutral Grassland	Monitoring aims and objectives: • Ensuring that the appearance and composition of the vegetation on site should very closely match the UKHab description for "Other Neutral Grassland", with wildflowers, sedges, and indicator species for the specific grassland habitat type very clearly and easily visible throughout the sward. • 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) (except for central reservation areas which are to be kept short).	Annually from years 2-5 and in years 10, 20 & 30.	June-July

	• Cover of bare ground to be between 1% and 5%. • Cover of bracken *Pteridium aquilinum* to be less than 20% and cover of scrub and bramble less than 5%. • An absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and the combined cover of species indicative of sub-optimal condition and physical damage accounts for less than 5% of total area. • Greater than 10 species per m^2. Undesirables do not contribute towards the count. – This is only required for the grassland adjacent to the Lowland Meadow habitat to achieve good condition.		
Central Reservation Grassland	Monitor to ensure it is not becoming tall/rank and to remove weeds.	Years 2-30	May-October
Lowland Meadow	Monitoring aims and objectives: • Ensuring that the appearance and composition of the vegetation on site should very closely match the UKHab description for "Lowland Meadow", with wildflowers, sedges, and indicator species for the specific grassland habitat type very clearly and easily visible throughout the sward. • 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). • Cover of bare ground to be between 1% and 5%. • Cover of bracken *Pteridium aquilinum* to be less than 20% and cover of scrub and bramble less than 5%. • An absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981) and the combined cover of species indicative of sub-optimal condition and physical damage accounts for less than 5% of total area. • Greater than 10 species per m^2. Undesirables do not contribute towards the count.	Years 2 - 5 initially then every years 10, 15. 20, 25 and 30.	June - July
Swale	Grassland monitoring should follow Other Neutral Grassland above. Swale monitoring aims and objectives • The pond is of good water quality, with clear water (low turbidity) indicating no obvious signs of pollution. • Less than 10% of the pond is covered with duckweed or filamentous algae.	Annually from years 2-5 and in years 10, 20 & 30.	June - July

	• Pond water levels should be able to fluctuate naturally throughout the year. No obvious dams, pumps or pipework. • There is an absence of non-native plant and animal species. • The pond is not artificially stocked with fish. If the pond naturally contains fish, it is a native fish assemblage at low densities. • In non-woodland ponds, plants, be they emergent, submerged or floating (excluding duckweeds), should cover at least 50% of the pond area that is less than 3 m deep. • The surface of non-woodland ponds is no more than 50% shaded by woody bankside species.		
Farmland Bird Habitat	Monitor hedgerow and ditch as per hedgerow and swale sections above.	Annually from years 2-5 and in years 10, 20 & 30.	June - July
Farmland Bird Habitat	Winter Checks: • Ensure a short sward of scattered bare ground covers up to 10% of the area. • Short sward, less than 5 cm tall covers more than 70% of the area.	Annual	November - February
Farmland Bird Habitat	Walkover during breeding season to determine whether the parcel (Figure 2) is being used by farmland birds. Propose remedial action if required. Check ideal spring water levels (up to 25cm over half of the area, 25cm to 50cm over the rest) and grassland height for breeding birds (5cm).	Annual	April-May

7 REFERENCES

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APPENDIX A

Figures



Legend

Site Boundary

NB. The aerial used in this figure is out of date with additional development having occured since.

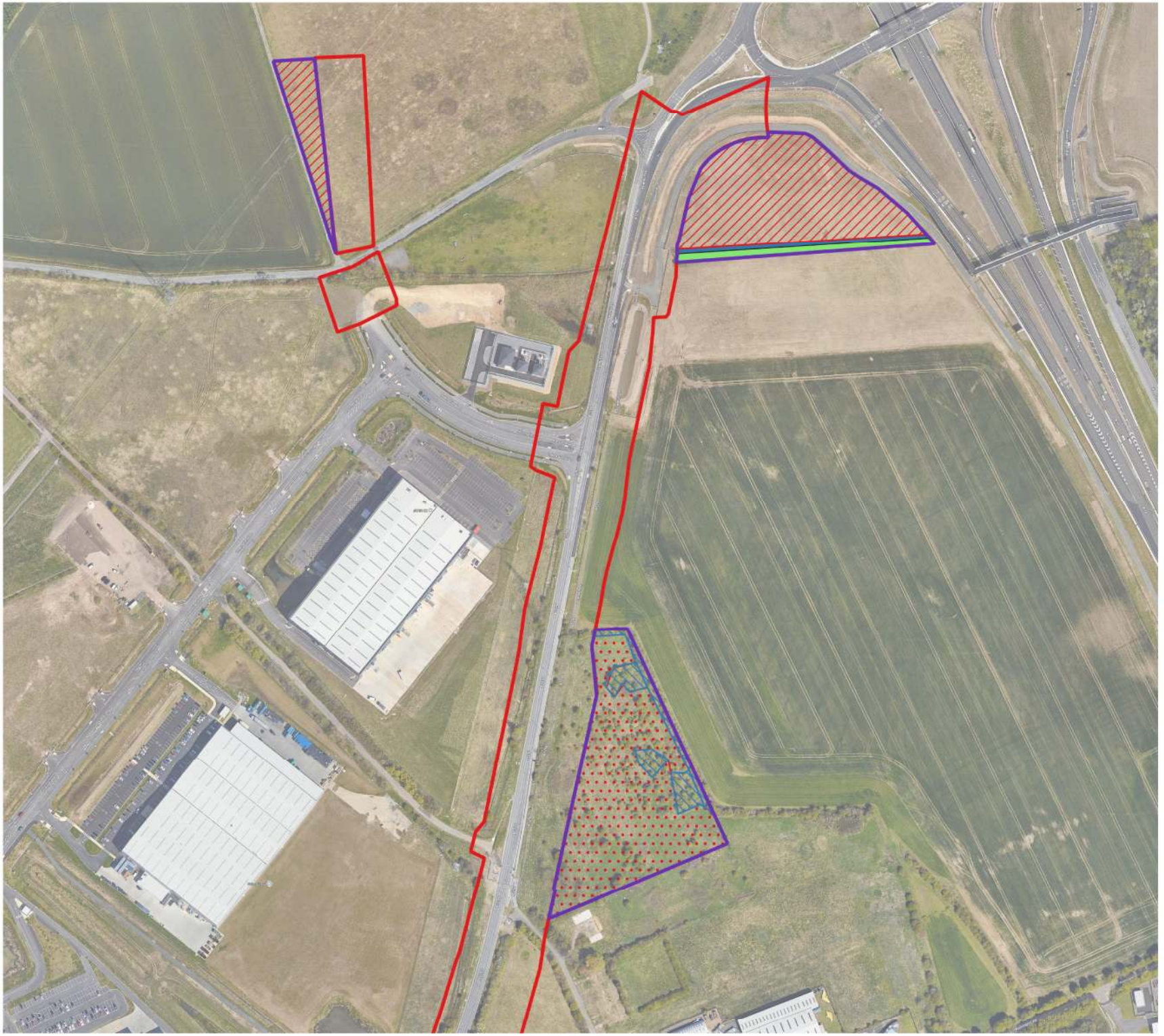
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DWS ECOLOGICAL SERVICES

Rainton Meadows
Chilton Moor
Houghton-le-Spring
Tyne and Wear
DH4 6PU

info@dwsecology.co.uk
www.dwsecology.co.uk

Project	IAMP A1290 Dualling
Title	Site Location
Client	IAMP LLP
Date	25/07/2025
Ref	Figure 1



Legend

- Site Boundary
- Additional Biodiversity Compensation Areas
- Retain Scrub
- Neutral Grassland Creation
- Hedgerow Enhancements
- Grassland Management and Scrub Removal
- Create Ditch

NB. The aerial used in this figure is out of date with additional development having occured since.

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DWS ECOLOGY

Rainton Meadows
Chilton Moor
Houghton-le-Spring
Tyne and Wear
DH4 6PU

info@dwsecology.co.uk
www.dwsecology.co.uk

Project	IAMP A1290 Dualling & NEA Phase 1 Road
Title	Additional Compensation Areas
Client	IAMP LLP
Date	25/07/2025
Ref	Figure 2

APPENDIX B

Report Conditions

DURHAM WILDLIFE SERVICES LTD

REPORT CONDITIONS
A1290 Dualling & NEA Road

This report is produced solely for the benefit of IAMP LLP and no liability is accepted for any reliance placed on it by any other party unless specifically agreed in writing otherwise.

This report is prepared for the proposed uses stated in the report and should not be used in a different context without reference to Durham Wildlife Services Ltd. In time improved practices, fresh information or amended legislation may necessitate a re-assessment. Opinions and information provided in this report are on the basis of Durham Wildlife Services Ltd using due skill and care in the preparation of the report.

This report refers, within the limitations stated, to the environment of the site in the context of the surrounding area at the time of the inspections. Environmental conditions can vary and no warranty is given as to the possibility of changes in the environment of the site and surrounding area at differing times.

This report is limited to those aspects reported on, within the scope and limits agreed with the client under our appointment. It is necessarily restricted and no liability is accepted for any other aspect. It is based on the information sources indicated in the report. Some of the opinions are based on unconfirmed data and information and are presented as the best obtained within the scope for this report.

Reliance has been placed on the documents and information supplied to Durham Wildlife Services Ltd by others but no independent verification of these has been made and no warranty is given on them. No liability is accepted or warranty given in relation to the performance, reliability, standing etc of any products, services, organisations or companies referred to in this report.

Whilst skill and care have been used, no investigative method can eliminate the possibility of obtaining partially imprecise, incomplete or not fully representative information. Any monitoring or survey work undertaken as part of the commission will have been subject to limitations, including for example timescale, seasonal and weather related conditions.

Although care is taken to select monitoring and survey periods that are typical of the environmental conditions being measured, within the overall reporting programme constraints, measured conditions may not be fully representative of the actual conditions. Any predictive or modelling work, undertaken as part of the commission will be subject to limitations including the representativeness of data used by the model and the assumptions inherent within the approach used. Actual environmental conditions are typically more complex and variable than the investigative, predictive and modelling approaches indicate in practice, and the output of such approaches cannot be relied upon as a comprehensive or accurate indicator of future conditions.

The potential influence of our assessment and report on other aspects of any development or future planning requires evaluation by other involved parties.

The performance of environmental protection measures and of buildings and other structures in relation to acoustics, vibration, noise mitigation and other environmental issues is influenced to a large extent by the degree to which the relevant environmental considerations are incorporated into the final design and specifications and the quality of workmanship and compliance with the specifications on site during construction. Durham Wildlife Services Ltd accept no liability for issues with performance arising from such factors

February 2008