

Arventus Skylark Metric – Worked Example to support User Guide

1. Introduction

This document sets out a worked example for the Arventus Skylark Metric. It should be used in conjunction with the Arventus Skylark Metric User Guide Version 1.0, which details how to ‘Start a New Project’ and input the Project Details.

2. Glossary

Term	Definition
Adjusted Area	The total land area of a Field in hectares after removing any land within 50m of an existing boundary and any tree/structure of greater than 1m in height
Developed Area	The land area in hectares which will experience a change to the current land use as a result of the Proposed Development (excluding proposed skylark mitigation areas)
(Proposed) Development Site	The area encompassing the entire Developed Area
Edge Adjusted	This is the area of land within an adjacent field which includes a 50m offset from all boundaries. When considering offsite adjacent fields this should also only include habitat no greater than 200m from the Internal Foraging Buffer Edge.
Edge Effect	A term used to describe the reduction in potential nesting habitat (due to skylark predator avoidance behavior) as a result of creating a buffer from field boundaries and structures. A buffer of 50m from all existing boundaries and any tree/structure of greater than 1m in height is applied within the Metric
Field	A defined area separated from adjacent land by defined boundaries
Field Area	The total land area of a Field in hectares
Field Reference	The number/letter allocated to a particular Field within the Metric

Foraging Area	The area of suitable habitat available for skylarks to feed
Foraging Resource	Food available within an area for skylarks to eat
Foraging Uplift	The increase in potential skylark territories as a result of an increase in Foraging Resource within a defined Foraging Area
Ha	Hectares
Internal Foraging Buffer Edge	The internal extent of the defined Foraging Area within either a Development Site or Mitigation Field
Mitigation Field Perimeter	The perimeter of a proposed field to be used for skylark mitigation
Project Boundary	The Red Line Boundary
Proposed Development	The works which are detailed within the planning application/consent
Red Line Boundary	The planning application/consent boundary
Unadjusted Area	The total land area of a Field in hectares (with no allowance for the Edge Effect)
Undeveloped Area	The land area in hectares of any land within a Field which is outside of the Developed Area.

3. Worked Example

Figure 1 shows the Red Line Boundary (Planning Application Boundary) for this worked example. *This is not based on a real development and the location has been randomly selected.*



Figure 1 – Red Line Boundary

Step A - Baseline Habitat

Each field within the Red Line Boundary should be given a reference (i.e. F1, F2, F3 etc). The User then needs to measure the area of each field. Figure 2 shows the field boundaries, Field References and areas of the three fields which make up the example site.



Figure 2 – Fields F1, F2 and F3 with areas measured

This information, along with cropping/habitat schedules, should then be used to complete the Metric ‘Habitat Baseline’ screen, as shown in Figure 3 below.

Baseline Habitat

Manage and update your project's baseline habitat data with ease.

Managing Baseline Habitat

Define the starting condition of the habitat before any development or mitigation measures are applied. This ensures accurate biodiversity assessments and future comparisons.

How to Update Habitat Data

- Click on any cell to edit its value directly.
- Use the "Add Row" button to insert new habitat records.
- Assign habitat types for each of the first five years.
- Review all data before proceeding to ensure accuracy.

ADD ROW

Habitat Type Years 1-5							
Field Reference	Field Area (ha)	Year 1	Year 2	Year 3	Year 4	Year 5	Actions
F1	6.82	Cereals: Eng ▼	Root Crops: Eng ▼	Cereals: Eng ▼	Brassicas: Eng ▼	Brassicas: Eng ▼	
F2	7.71	Cereals: Eng ▼	Root Crops: Eng ▼	Brassicas: Eng ▼	Cereals: Eng ▼	Cereals: Eng ▼	
F3	16.26	Cereals: Eng ▼	Root Crops: Eng ▼	Brassicas: Eng ▼	Brassicas: Eng ▼	Cereals: Eng ▼	
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Figure 3 – Screenshot of example Arventus Skylark Metric Baseline Habitat Screen

Step B - Habitat Edge Adjustment

This step requires the measurement of field areas excluding a 50m buffer from all field boundaries or structures such as trees/pylons. See Figure 4.



Figure 4 – ‘Edge Adjusted’ field areas

This information is then used to fill in the Metric’ Habitat Edge Adjustment’ screen, as shown in Figure 5 below.

Habitat Edge Adjustment

Why Edge Adjustment Matters

Habitat edge adjustments account for the nesting behaviour of skylarks which results in the avoidance of potential nesting habitat near to field boundaries and structures.

Key Considerations

- **Adjusted Area:** The effective habitat area after applying necessary reductions.

Field Reference	Field Area adjusted for 'Edge Effect' (ha)
F1	2.35
F2	3.02
F3	9.19

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Figure 5 – Screenshot of completed Arventus Skylark Metric Habitat Edge Adjustment Screen

Step C – Development Area

This step requires a measurement of the Developed Area of each of the fields, both adjusted and unadjusted for Edge Effect. If only part of a Field is to be developed, then only the area to be developed should be included in the 'Developed Area' columns of the Metric. The User will also need to measure the Undeveloped Area of the Field to determine if this is smaller or larger than 5ha. The User then puts a 'Yes' or 'No' in the 'Undeveloped > 5 (ha)' column.

Upon completion of this step of the Metric the 'Total Baseline Territories Displaced' is calculated. This forms the basis of how many territories will need to be mitigated.

Two scenarios are included below to assist Users when completing this Step. However, please note that as Scenario 1 is more commonly encountered this is taken forward for the remainder of this Worked Example; Scenario 2 is included for information purposes only.

Scenario 1 – Undeveloped Area of the Field is less than 5 ha

Where only part of a Field is to be Developed and the remaining Undeveloped Area is less than 5ha, the Metric will include this undeveloped area as being 'lost' to nesting skylarks as the Undeveloped Area is considered to be too small to be suitable for skylark nesting. The Metric will calculate this automatically once you select 'No' in the 'Undeveloped > 5 (ha)' column. Figure 6 below shows how the areas are measured in this scenario.



Figure 6 – Scenario 1 - Measuring ‘Developed Area’

How the measurements for Scenario 1 (above) should be input into the Metric is shown in Figure 7 below.

Development Area



Assessing Development Impact

The development area includes all land designated for development which will result in a change to or loss of habitat. This should not include land being proposed for mitigation which should be included in the 'Mitigation Land' section of the Metric.

Key Considerations

- **Creation of additional boundaries:** Habitat reductions due to new site boundaries or infrastructure creating an additional 'edge effect'.

Field Reference	Developed Area (Unadjusted)	Developed Area (Adjusted)	Undeveloped > 5 (ha)	Additional Loss from New Boundary	Total Area of potential Territory Loss (ha)	Skylark Territories Displaced
F1	6.92	2.35	No ▼	0.00	2.350	0.247
F2	7.71	3.02	No ▼	0.00	3.020	0.325
F3	13.18	6.87	No ▼	0.00	9.190	0.965
Total Baseline Territories Displaced:						1.537
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Figure 7 – Screenshot of completed Arventus Skylark Metric Developed Area Screen for Scenario 1

Scenario 2 – Undeveloped Area of the Field is greater than 5 ha and therefore there is a new Boundary Feature

Where only part of a Field is to be Developed and the remaining Undeveloped Area exceeds 5ha, the boundary treatment, whether a new fence, hedgerow or equipment, will create a new Edge Effect. Therefore, an additional 50m offset must be measured from the non-development side of the Development Boundary (yellow area on Figure 8 below) and is included within the Metric to ensure this loss of nesting habitat is accounted for.

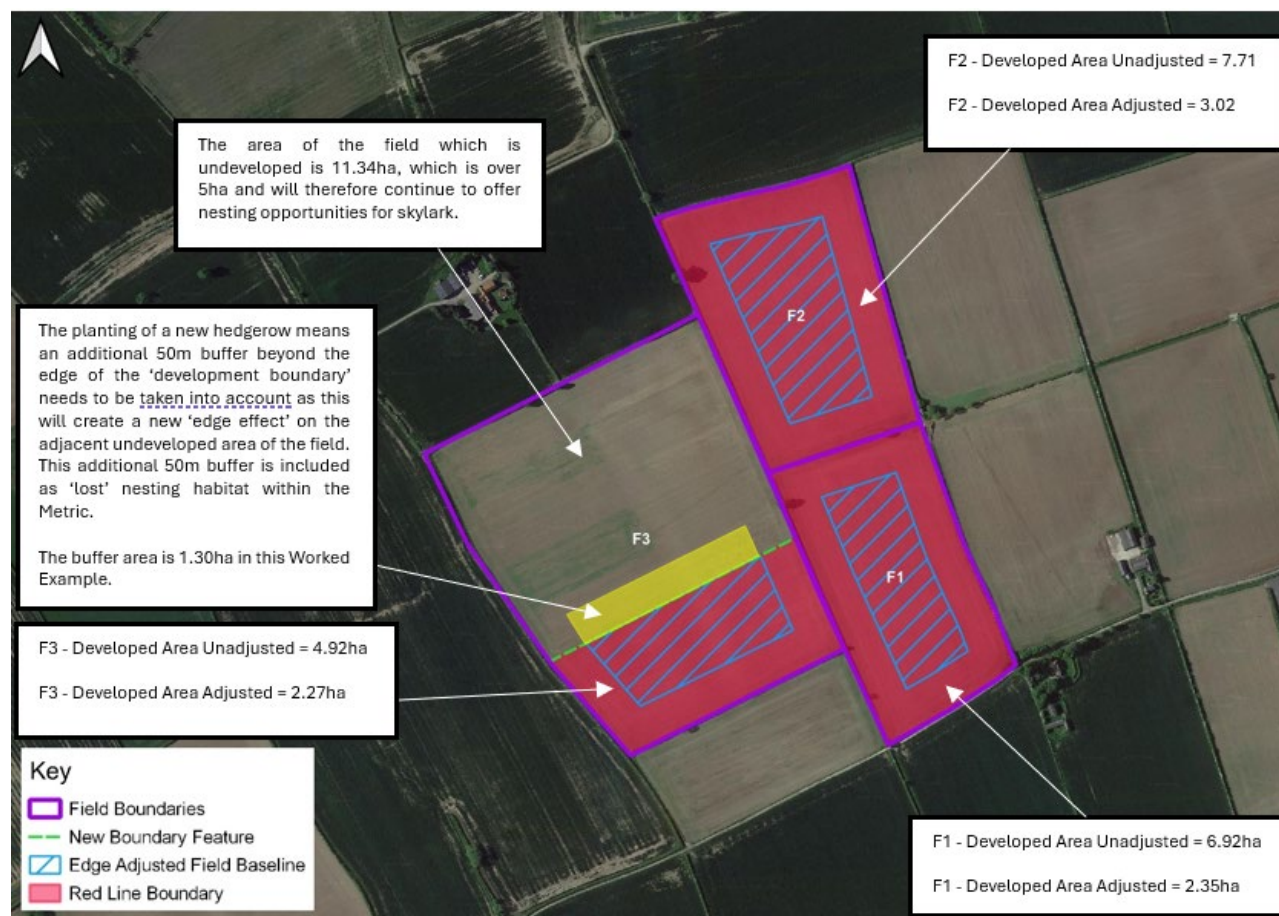


Figure 8 – Scenario 2 - Measuring 'Developed Area'

How the measurements for Scenario 2 should be input into the Metric is shown in Figure 8 below.

Development Area

Assessing Development Impact

The development area includes all land designated for development which will result in a change to or loss of habitat. This should not include land being proposed for mitigation which should be included in the 'Mitigation Land' section of the Metric.

Key Considerations

- **Creation of additional boundaries:** Habitat reductions due to new site boundaries or infrastructure creating an additional 'edge effect'.

Field Reference	Developed Area (Unadjusted)	Developed Area (Adjusted)	Undeveloped > 5 (ha)	Additional Loss from New Boundary	Total Area of potential Territory Loss (ha)	Skylark Territories Displaced
F1	6.92	2.35	No ▼	0.00	2.350	0.247
F2	7.71	3.02	No ▼	0.00	3.020	0.325
F3	4.92	2.27	Yes ▼	1.30	3.570	0.375
Total Baseline Territories Displaced:						0.947
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Figure 8 – Screenshot of completed Arventus Skylark Metric Developed Area Screen for Scenario 2

Step D – Foraging Requirements

To calculate the total available Foraging Area on site, measure the land area within 50m* of the Development Boundary perimeter. This does not need to take into account individual field boundaries. See Figure 9 below.

*50m is the recommended starting point but this can be adjusted if needed.



Figure 9 – Available Foraging On-site. Example uses a 50m buffer, this can be adjusted if needed.

The measured 'Area of Foraging Available On-Site' is input into the Metric. This is then automatically compared against the minimum area of foraging that would be required to mitigate the 'Total Baseline Territories Displaced'. See Figure 10 below.

Foraging Requirements



Defining Foraging Requirements

Additional foraging benefits for Skylarks nesting on land adjacent to a proposed development site can be delivered depending upon the size and type of habitat creation within a development boundary. Within the Metric this foraging benefit is referred to as the 'Foraging Uplift'.

Key Considerations

- **Required Foraging Land:** The minimum area needed to maintain skylark populations.
- **Onsite Foraging Allowed:** The portion of land designated for foraging within the site.
- **Available Foraging Uplift:** The net gain or shortfall after considering adjustments – See Foraging Uplift Delivered section of the Metric.

Area of foraging land required onsite to achieve no net loss of territories (ha)	Area of onsite Foraging allowed for (Ha)	Available Foraging Uplift
11.071	11.5	1.596

Figure 10 - Screenshot of completed Arventus Skylark Metric Foraging Requirements Screen

Step E – Foraging Uplift Delivered

This is calculated by measuring suitable habitat within 200m of the Internal Foraging Buffer Edge. The measured areas must ensure a 50m offset from all offsite boundary features, as well as any hedgerows/fence lines that are present along the Red Line Boundary (in the example site all Red Line Boundaries include hedgerows). Only adjacent fields of suitable skylark nesting habitat which are greater than 5ha should be included. Adjacent fields should be given a reference number, e.g. AF1, AF2, AF3 etc. See Figure 11 below.



Figure 11 – Measurements for Foraging Uplift Delivered

The measured Adjusted Areas of the adjacent fields as well as the baseline habitats of the adjacent fields are then input into the Metric as shown in Figure 12 below. Once all areas have been entered, the Metric will calculate 'Total Territories Provided'. Note that this is the maximum number of additional territories which could be provided given the amount of suitable adjacent habitat available. The Metric will compare this number with the number of territories that could be delivered based on the 'Available Foraging Uplift Onsite' in Step E (the lower of the two is carried forward to the final results).

Foraging Uplift Delivered



Calculating Foraging Uplift

Foraging uplift measures the additional habitat value created through mitigation efforts, supporting skylark populations by improving foraging areas. This ensures compliance with biodiversity regulations and enhances sustainability.

Key Considerations

- **Edge-Adjusted Area:** The functional habitat available after applying boundary corrections.
- **Habitat Type:** Determines the baseline ecological value and its uplift potential.
- **Territories Provided:** The number of skylark territories supported based on habitat adjustments.

[ADD ROW](#)

Field Reference	Edge-Adjusted Area (Ha)	Habitat Type	Territories Provided	Actions
AF1	3.12	Rotational Crop	0.454	
AF2	2.39	Rotational Crop	0.348	
AF3	2.15	Rotational Crop	0.313	
AF4	0.15	Rotational Crop	0.022	
AF5	0.89	Rotational Crop	0.129	
AF6	2.7	Rotational Crop	0.393	
AF7	6.23	Rotational Crop	0.906	
AF8	0.42	Rotational Crop	0.061	
AF9	1.9	Rotational Crop	0.276	
Total Territories Provided:			2.902	
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Figure 12 - Screenshot of completed Arventus Skylark Metric Foraging Uplift Delivered Screen

Step F – Project Results

Clicking 'COMPLETE AND RESULTS' at the end of Step E takes the User to the Project Results Screen. See Figure 13 below for the results for the worked example.

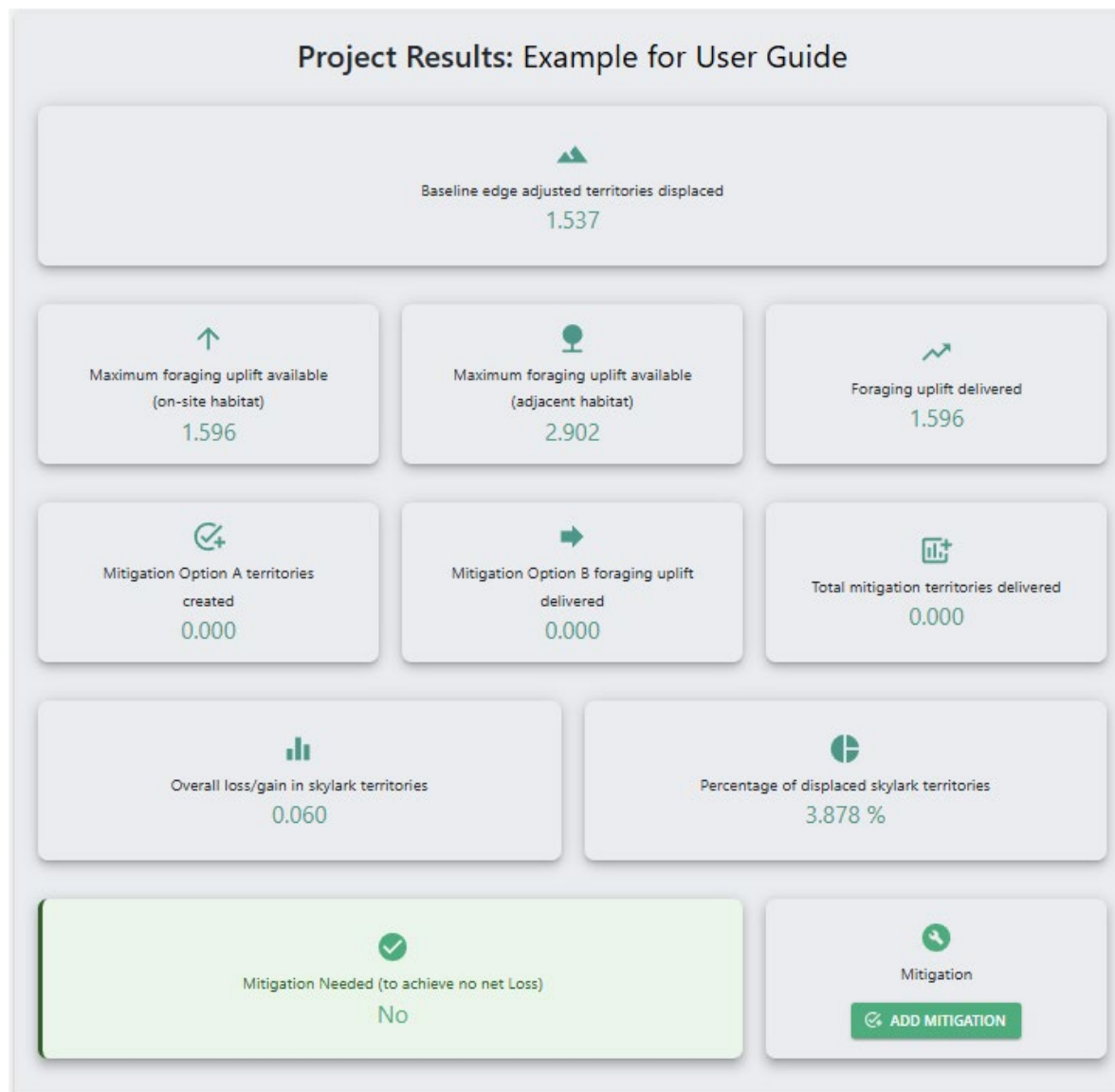


Figure 13 – Results for Worked Example

For this worked example the number of territories delivered by the Foraging Uplift in adjacent fields is sufficient to mitigate for the baseline territories displaced.

If this was not the case, then the User has the option to ‘Add Mitigation’ using the bottom right-hand button. Clicking on this button opens the ‘Mitigation’ Screen as shown below in Figure 14. There are two options for mitigation – Option A and Option B. These are explained in the following sections.

Mitigation

Further Mitigation Required
 The results indicate that additional mitigation is necessary to achieve no net loss of skylark territories.

How to Address This

- **Type A (Fields > 5 hectares):** Large-scale mitigation requiring a 50m buffer from boundary features and structures over 3m in height.
- **Type B (Fields < 5 hectares):** Smaller mitigation sites with simplified requirements, including adjacent field contributions.

Next Steps
 Review the mitigation options below and complete as appropriate.

Mitigation Land – Option A (Offsite Mitigation Field is greater than 5 hectares)
Guidance: ‘Edge Adjusted Area’ excludes a 50m buffer from all boundary features and structures > 3m in height.

+ ADD TYPE A MITIGATION

Reference	Area (ha)	Edge Adjusted Area (ha)	Habitat Type Baseline	Habitat Type Created	Territories Provided	Actions
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Mitigation Land – Option B (Offsite Mitigation Field is less than 5 hectares)

+ ADD TYPE B MITIGATION

Reference	Area (ha)	Internal Foraging Area (ha)	Number of Adjacent Fields	Total Uplift Delivered	Actions
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Figure 14 – Arventus Skylark Metric Mitigation Screen

Mitigation Land – Option A (Offsite Mitigation Field is greater than 5 hectares)

This is a straightforward option for mitigation. For Fields that are >5ha in size the User simply measures the Field Area and then inputs the baseline habitat and the proposed habitat types. The proposed habitat should be high quality grassland akin to set-aside in order to be used for skylark mitigation. The Metric calculates the baseline territory density and then subtracts this from the proposed territory density, the difference is the number of territories delivered by the Mitigation Option A land.

Mitigation Land – Option B (Offsite Mitigation Field is less than 5 hectares)

Where mitigation comprises fields <5ha a similar process as set out in Steps D and E above is followed. These are detailed within the User Guide and the method of measurement is as set out above. Again, the Metric assumes that the mitigation land will be enhanced to high quality grassland akin to set-aside.