

# Biodiversity Metric 3

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# Biodiversity Metric 3 for Local Authority Planners - Contents

NATURAL  
ENGLAND

- Introductions & housekeeping
- An introduction to Biodiversity Metric 3
- Using Biodiversity Metric 3
- Interpreting the outputs
- Case study
- Top tips
- Bad practice and error messages



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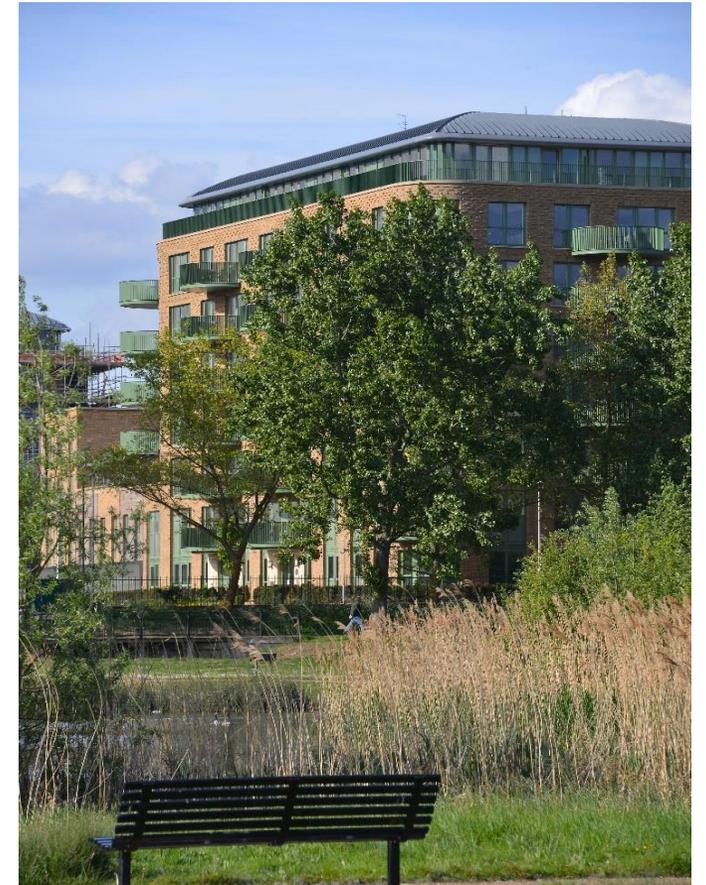
- Q & A via Sli.do

# The Importance of the Metric

*Biodiversity net gain is an approach to development and/or land management that aims to leave the natural environment in a measurably better state than beforehand.*

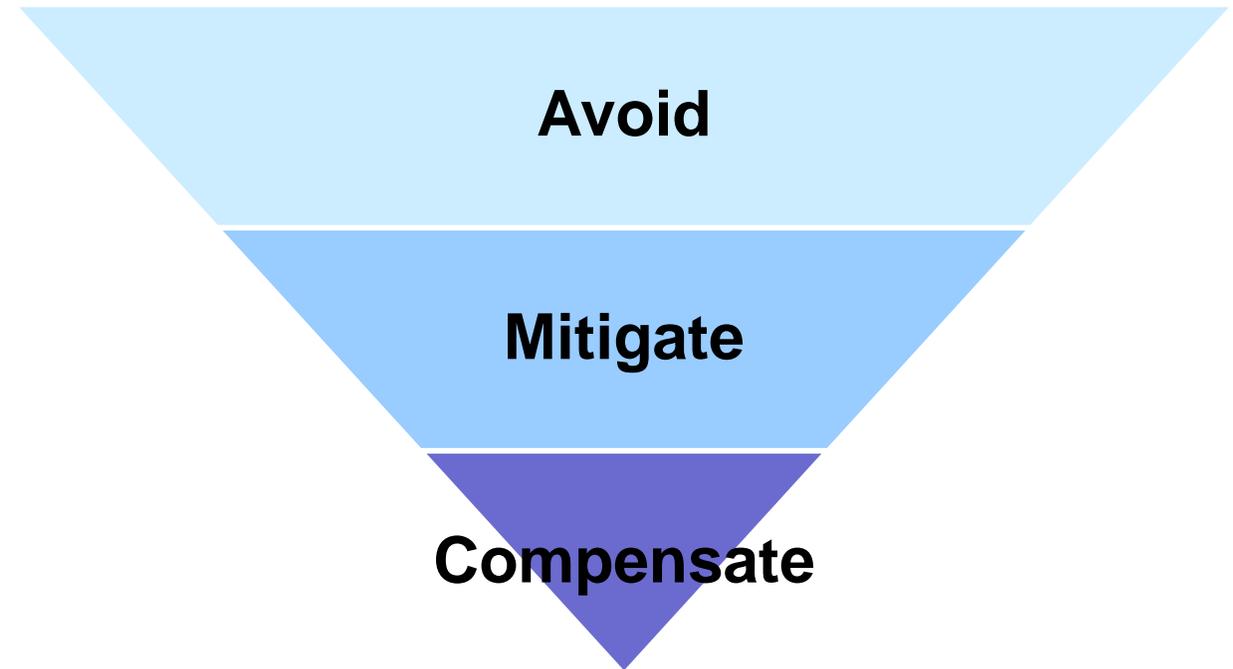
## The Metric :

- Is a tool for auditing and accounting for biodiversity losses and gains.
- Uses habitats as a 'proxy' measure and translates into biodiversity units
- All intertidal and terrestrial habitats plus linear habitat types
- Establishes a baseline and forecasts a proposed outcome.
- Provides confidence and consistency of approach
- Aids communication to non technical audiences.
- Simple yet sound



# The Metric and the Mitigation Hierarchy

- The metric sits within a decision framework based on the mitigation hierarchy
- It is a tool to aid decision making NOT a decision tool
- The metric recognises the importance of place. It seeks to:
  - enhance biodiversity in the locality of impacts
  - contribute to England's ecological network by creating more, bigger, better and joined areas for biodiversity.
- The core principles of Biodiversity Net Gain e.g.: additionality, not trading down etc. should be applied



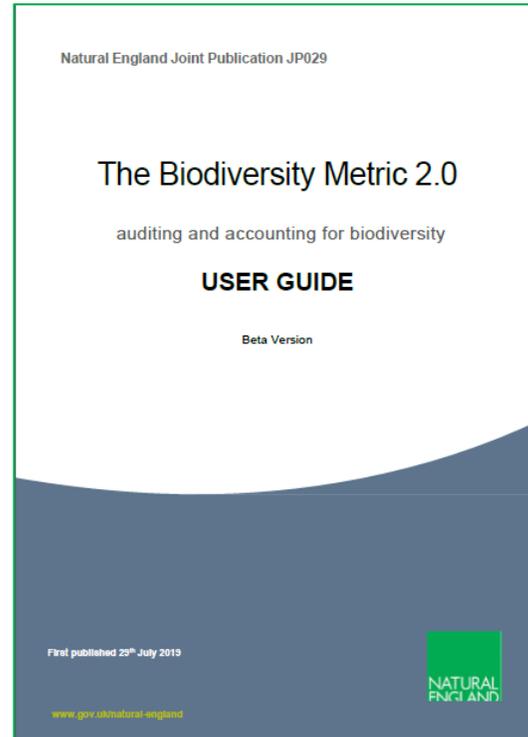
# Metric Applications



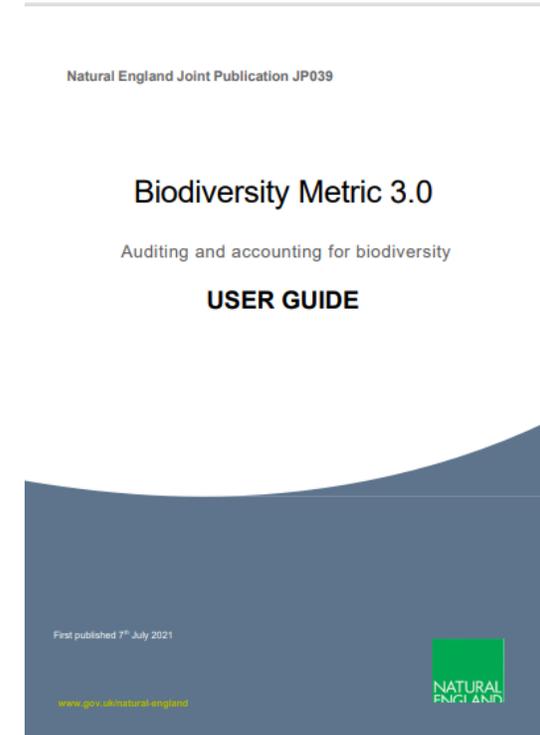
# Metric Background and Context



Pilot Defra Metric  
(2012)

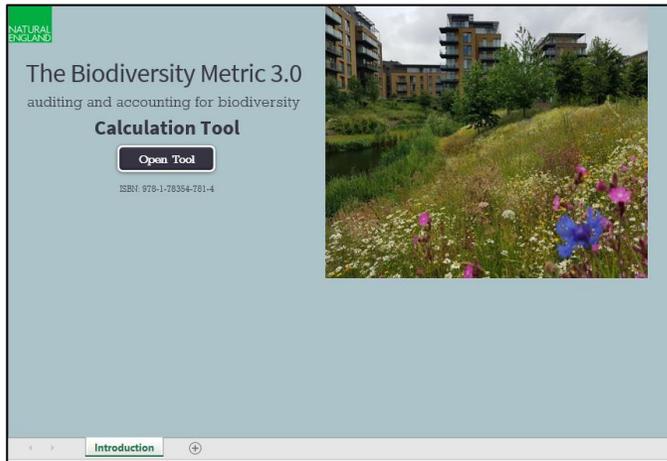


Beta Version of Metric  
2.0  
(2019)



Biodiversity Metric  
3.0  
(2021)

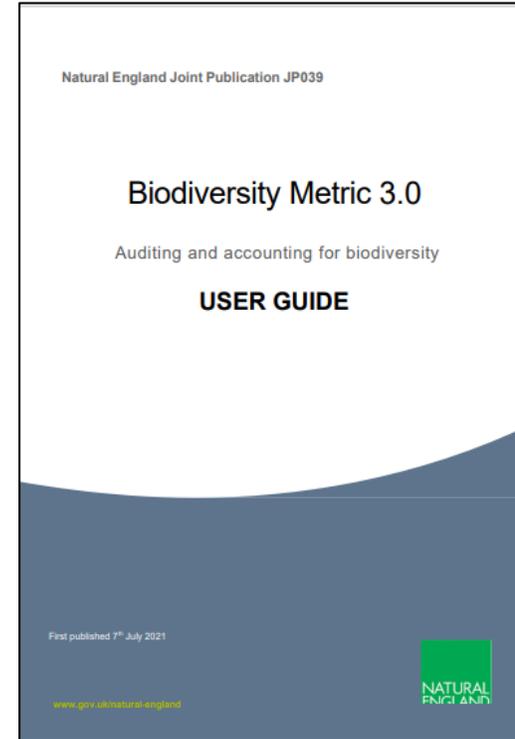
# Metric Toolkit



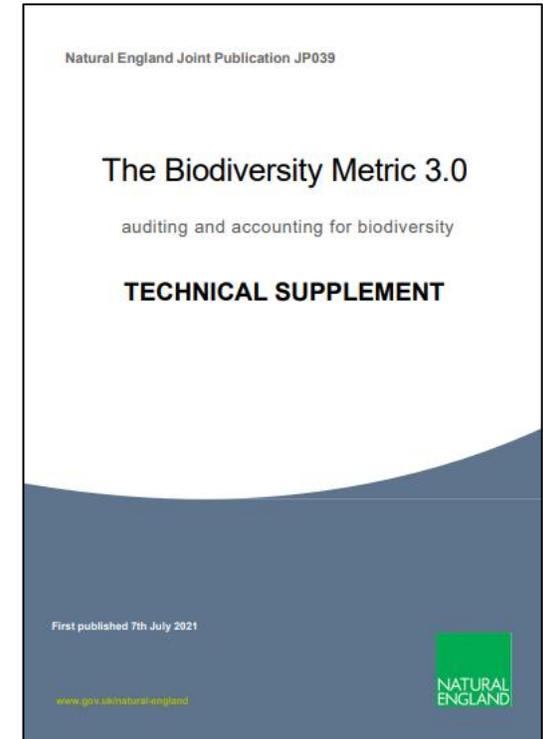
Calculation Tool

<b>The biodiversity metric 3.0: auditing and accounting for biodiversity</b> Condition assessment sheets (Excel format)	
ISBN 978-1-78354-782-1	
1	
2	[Taken from <i>Biodiversity Metric 3.0: Auditing and accounting for biodiversity - Technical Supplement</i> ]
3	
4	The method for assessing habitat condition is split into three main steps, all of which are
5	⇒ <b>STEP 1: Considerations before assessing condition</b>
6	⇒ <b>STEP 2: Choosing the right condition sheet</b>
7	⇒ <b>STEP 3: Using condition sheets</b>
8	
9	<b>Step 1: Considerations before assessing condition</b>
10	The following points must be considered <b>before</b> undertaking a condition assessment survey:
11	a) Surveyors must have access to condition sheets (see <b>Tabs 1-25</b> ) and sufficient copies of the sheets. These may be either digital or hard copies.
12	b) The habitat type of the parcel(s) to be assessed must be determined before consideration can be given to the condition sheets. If habitat type cannot be accurately recorded, for example due to recent felling or intentional severe damage, the condition score of Good should be allocated to the habitat parcel as a precaution.
	<a href="#">INSTRUCTIONS</a>   <a href="#">ASSESSMENT PRO FORMA</a>   <a href="#">HABITAT DEFINITIONS</a>   <a href="#">SELECTING CONDITION SHEETS</a>

Condition Assessment



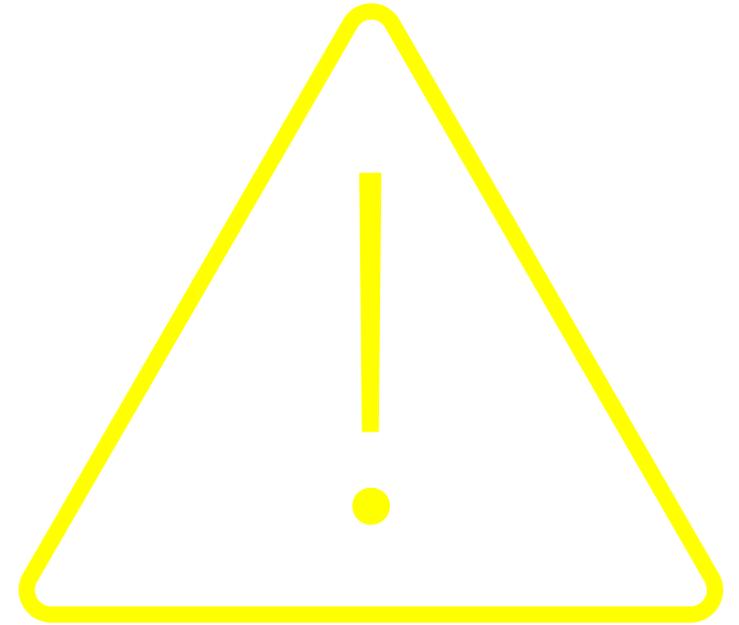
User Guide



Technical Supplement

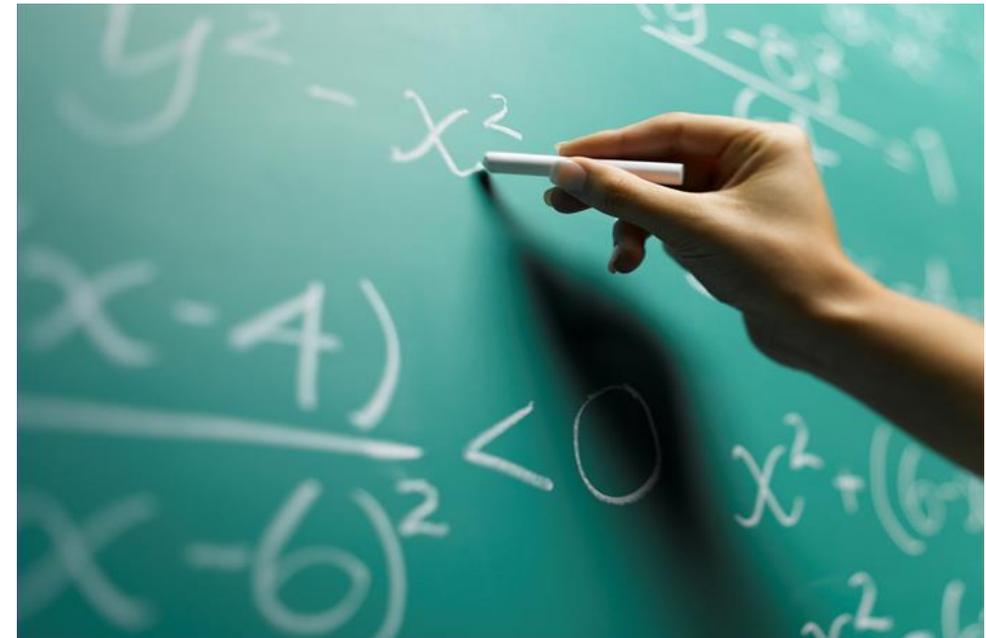
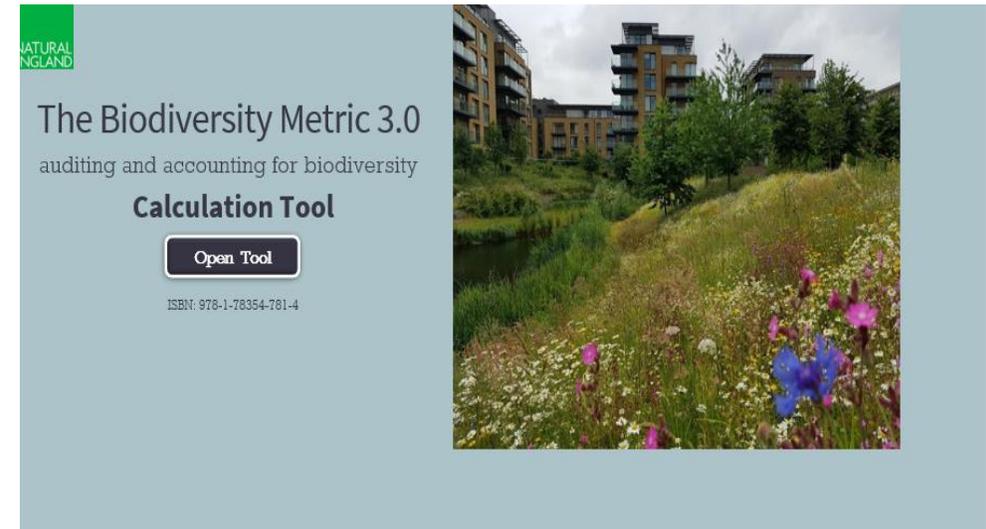
# Limitations

- The metric uses habitats as a proxy for biodiversity
- Although this is a rational means of measuring biodiversity value, it is a simplification of the 'real world'
- While the scoring of habitats is informed by ecological reasoning and the available evidence, the outputs are not scientifically precise or absolute values
- The generated biodiversity unit scores are a proxy for the **relative** biodiversity worth of a habitat or site



# Biodiversity Metric 3.0

- Baseline calculations based upon Habitat:
  - Size
  - Type
  - Condition
  - Spatial location
- The calculation is repeated for the 'post-intervention' scenario
- Also factors in delivery risk (auto populated based on habitat type)
- Baseline deducted from post intervention



## Quality Measures

Distinctiveness

A score based on the type of habitat present.  
e.g. modified grassland has a “Low” distinctiveness score, lowland meadows are “Very High”

Condition

A score based on the biodiversity value of the habitat relative to others of the same type. This is determined by condition criteria set out in the technical supplement

Strategic significance

A score based on whether the location of the development and/or off-site work or the habitats present/created have been identified as significant for nature

The metric operates by applying a score to each of these elements. It then multiplies the size of each habitat parcel with each of these ‘quality’ scores to produce a number that represents the **biodiversity unit** value of each habitat parcel

## Delivery risk

The '**post-intervention**' scenario is measuring predicted changes rather than existing habitats.

Additional factors to account for the risk associated with creating, restoring or enhancing habitats are also considered.

Difficulty of creating or restoring/enhancing a habitat

A pre-assigned score based on how difficult the habitat type is to create or restore/enhance

Temporal risk

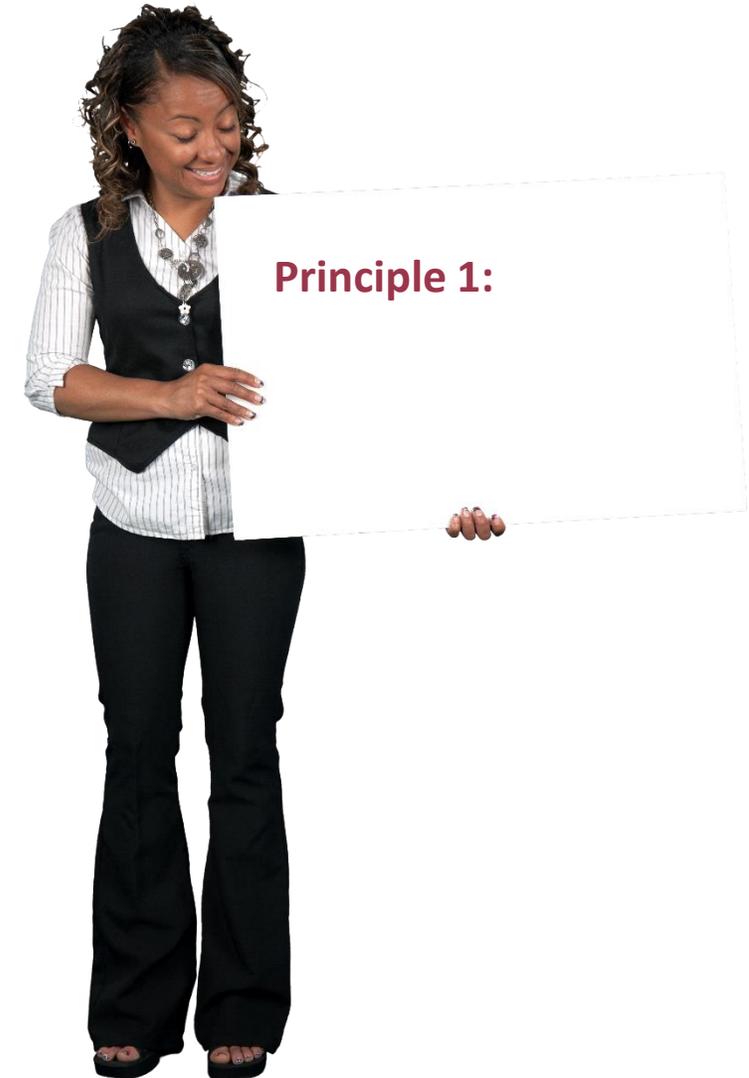
'Time to target condition' A pre-assigned score based on how long the habitat type takes to establish and reach a target condition.

Spatial Risk

'Spatial risk' A score based on distance between the site of habitat loss and the site where creation/enhancement is provided

# Principles for using the metric

- **Principle 1:** The metric does not change the protection afforded to biodiversity
- **Principle 2:** Biodiversity metric calculations can inform decision-making where application of the mitigation hierarchy and good practice principles conclude that compensation for habitat losses is justified
- **Principle 3:** The metric's biodiversity units are only a proxy for biodiversity and should be treated as relative values
- **Principle 4:** The metric focuses on typical habitats and widespread species; important or protected habitats and features should be given broader consideration.



# Principles and rules for using the metric

- **Principle 5:** The metric design aims to encourage enhancement, not transformation, of the natural environment
- **Principle 6:** The metric is designed to inform decisions, not to override expert opinion
- **Principle 7:** Compensation habitats should seek, where practical, to be local to the impact
- **Principle 8:** The metric does not enforce a mandatory minimum 1:1 habitat size ratio for losses and compensation but consideration should be given to maintaining habitat extent and habitat parcels of sufficient size for ecological function

# Rules for using the metric

- **Rule 1**: Biodiversity unit values need to be calculated prior to the intervention and post-intervention for all parcels of land / linear features affected.
- **Rule 2**: Compensation for habitat losses can be provided by creating new habitats, or by restoring or enhancing existing habitats.
- **Rule 3**: ‘Trading down’ must be avoided. Losses of habitat are to be compensated for on a “like for like” or “like for better” basis.

Losses of irreplaceable or very high distinctiveness habitat cannot adequately be accounted for through the metric.



# Rules for using the metric

- **Rule 4**: Biodiversity unit values generated by biodiversity metric 3.0 are unique to this metric and cannot be compared to unit outputs from version 2.0, the original Defra metric or any other biodiversity metric.

Furthermore, the three types of biodiversity units generated by this metric (for area, hedgerow and river habitats) are unique and cannot be summed.

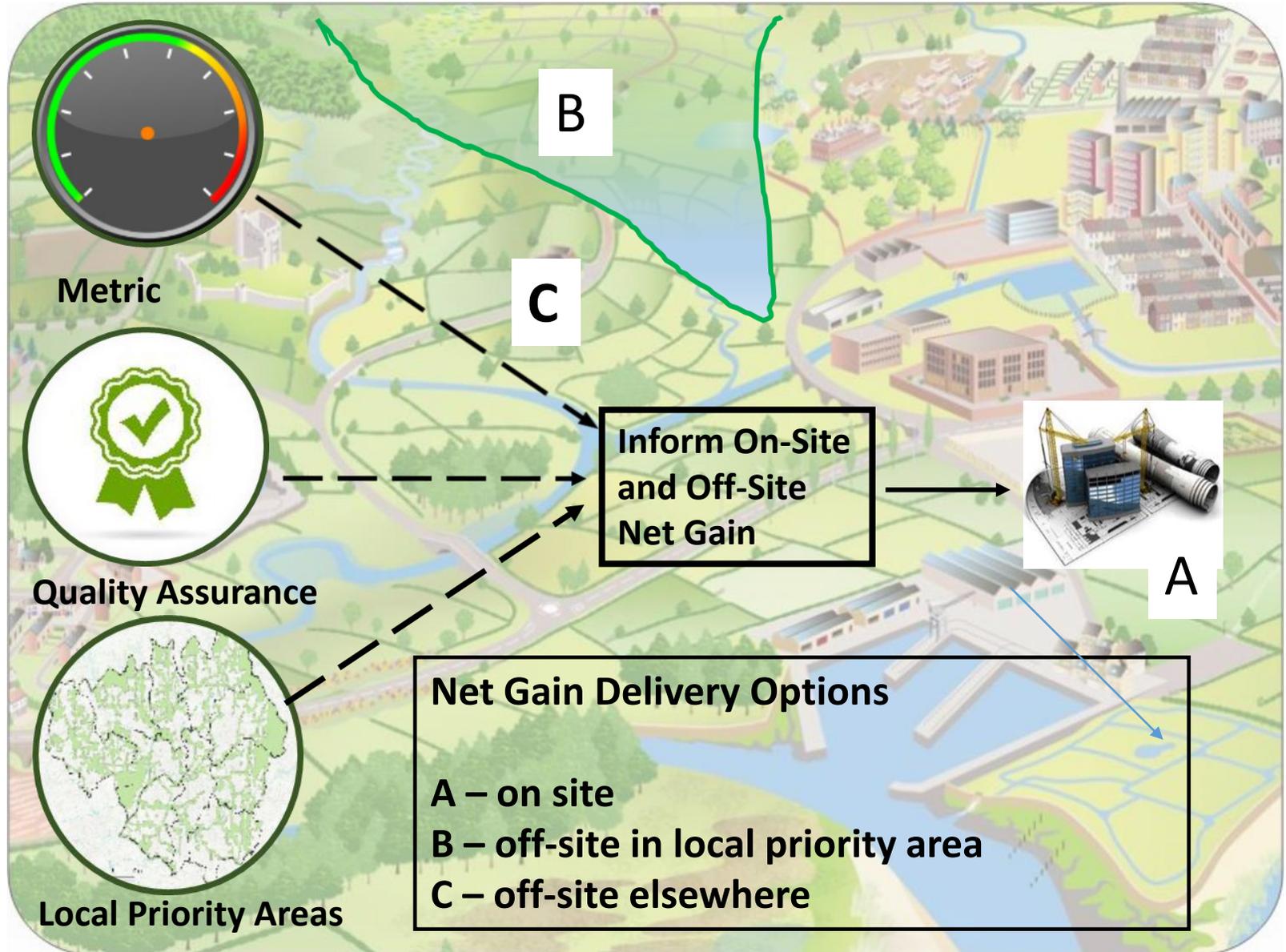
- **Rule 5**: It is not the area/length of habitat created that determines whether ecological equivalence or better has been achieved but the net change in biodiversity units.
- **Rule 6**: Deviations from the published methodology of biodiversity metric 3.0 need to be ecologically justified and agreed with relevant decision makers.

# Net Gain Where? Delivery Options + Influences

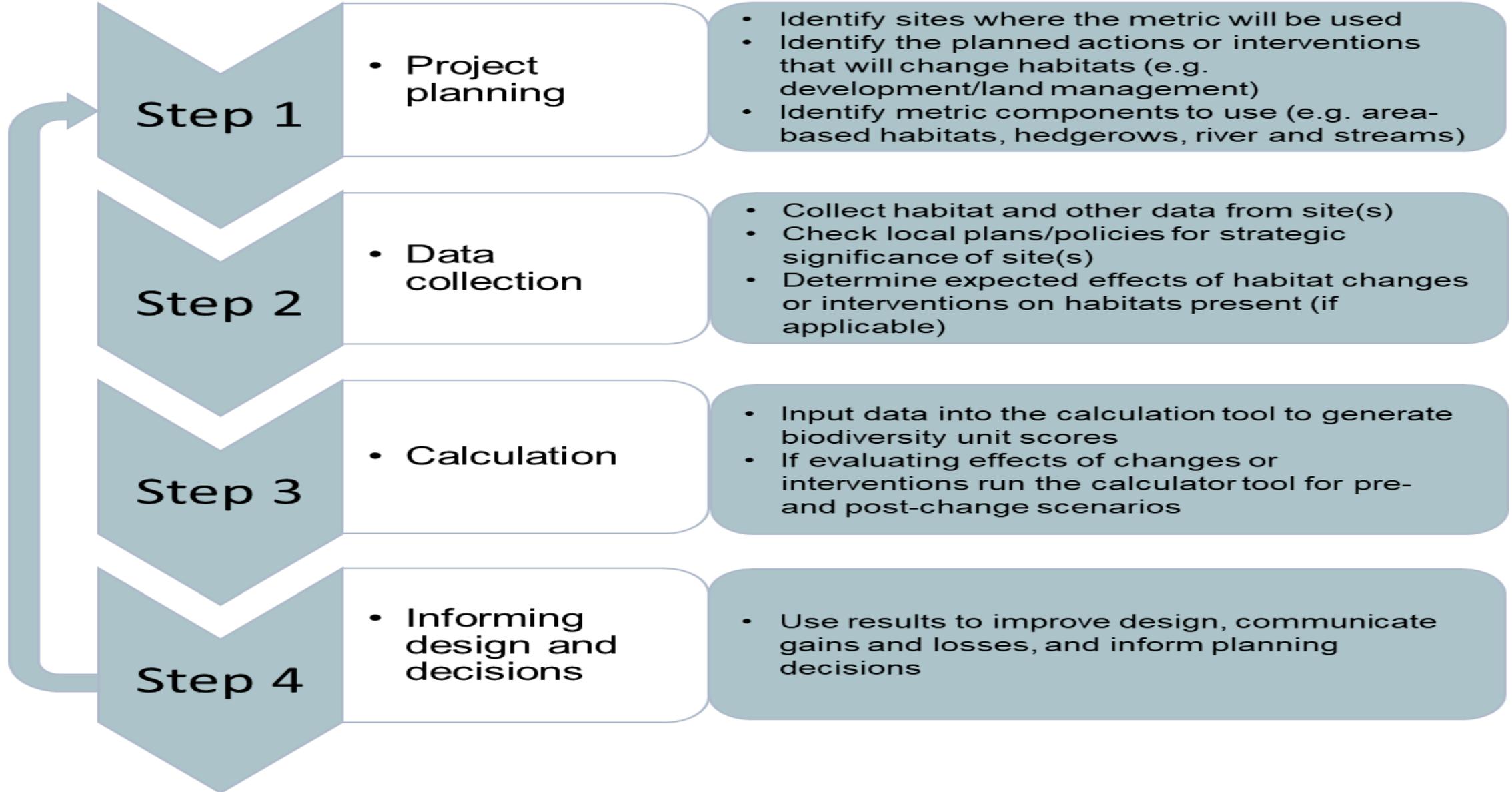
On-Site



Local/Strategic – Metric can be linked to other LPA strategies



# Key Process Steps



# Using Metric 3 – Ecological Consultants/Developers

- On the Main Menu work from left across to right: Baseline to Post development.
- Click the green 'On Site Habitat Baseline' button.
- Input/review data in the white columns.
- Complete a new row for each habitat found on site.
- Enter/review data for any habitats to be retained, enhanced etc. in the white columns to the right.
- When finished click the 'Main Menu' button and enter post development data in the same way.

The Biodiversity Metric 3.0 - Calculation Tool  
Main menu

Start page   Instructions   Technical data   Results

Urban tree helper

Tree size	Tree number	Area
Small		0.0000
Medium		0.0000
Large		0.0000
Total	0.00	0.0000

Start here! 1 → 2 → 3 → 4

On-site baseline   On-site post development   Off-site baseline   Off-site post development

A-1 On-site habitat baseline (circled in red)

A-2 Habitat creation   A-3 Habitat enhancement

B-2 Hedgerow creation   B-3 Hedgerow enhancement

C-1 On-site river baseline   C-2 River creation   C-3 River enhancement

D-1 Off-site habitat baseline

D-2 Off-site habitat creation   D-3 Off-site habitat enhancement

E-1 Off-site hedge baseline   E-2 Off-site hedge creation   E-3 Off-site hedge enhancement

F-1 Off-site river baseline   F-2 Off-site river creation   F-3 Off-site river enhancement

A-1 Site Habitat Baseline

Condense / Show Columns   Condense / Show Rows

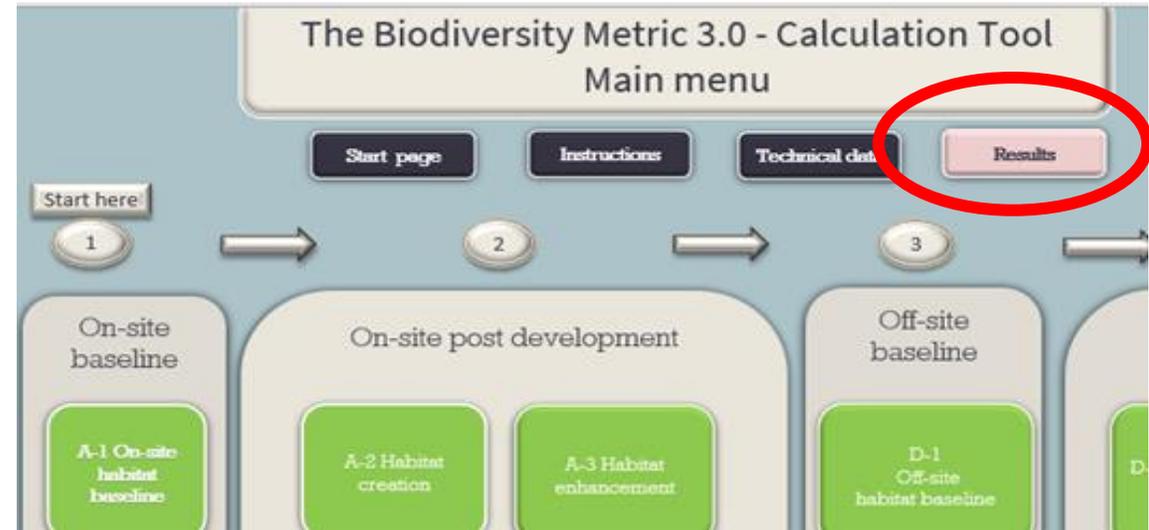
Main Menu   Instructions

Habitats and areas				Distinctiveness		Condition		Strategic
Ref	Broad habitat	Habitat type	Area (hectares)	Distinctiveness	Score	Condition	Score	Strategic significance
1	Grassland	Modified grassland	2.71	Low	2	Poor	1	Area/compensation not in local strategy local strategy
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

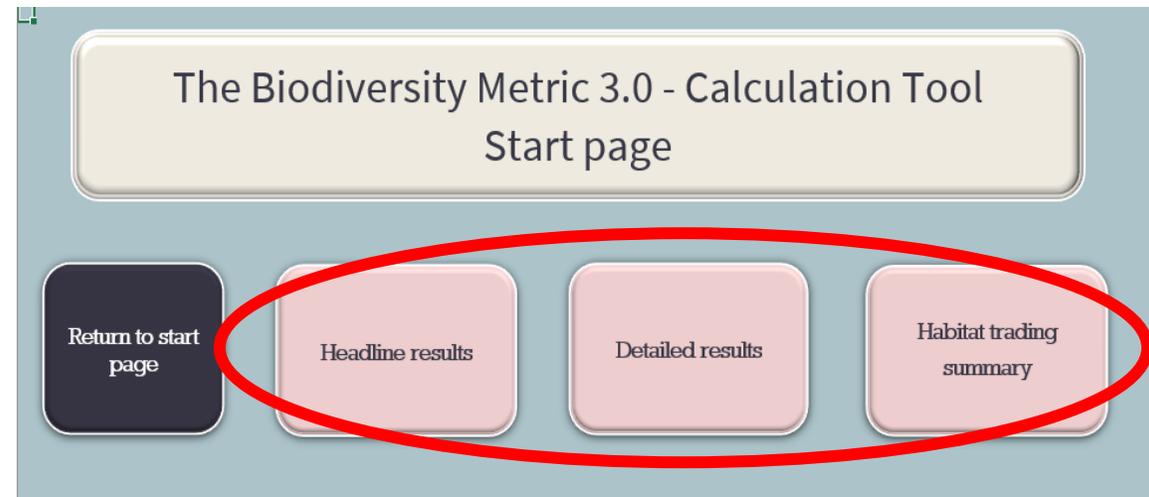
(A red circle highlights the 'Main Menu' button and a red arrow points to the 'Broad habitat' column header.)

## Using Metric 3 – LPA Planners/Ecologists

Click on the 'Results' to see if the project has achieved a forecast net biodiversity gain.



In the 'Results' screen users can view 'Headline results', 'Detailed results' and the 'Habitat trading summary'.



## The 'Headline results' provide:

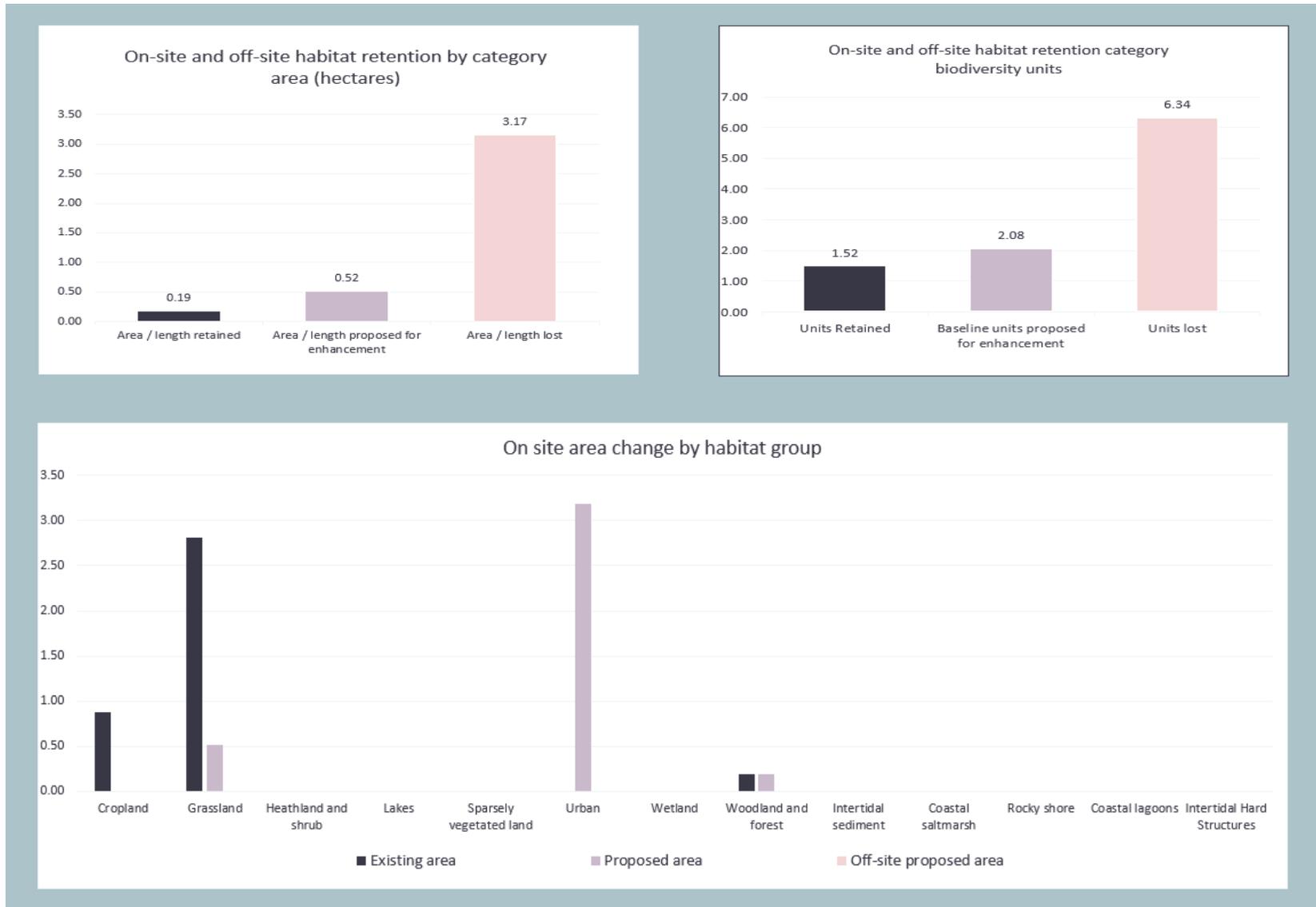
- A breakdown of the biodiversity units lost or gained onsite and off site
- The percentage change.
- An indication if the habitat trading rules have been met

On-site baseline	<i>Habitat units</i>	9.94
	<i>Hedgerow units</i>	1.83
	<i>River units</i>	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	10.97
	<i>Hedgerow units</i>	2.81
	<i>River units</i>	0.00
On-site net % change (Including habitat retention, creation & enhancement)	<i>Habitat units</i>	10.35%
	<i>Hedgerow units</i>	53.57%
	<i>River units</i>	0.00%

Trading rules Satisfied?	Yes
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# 'Detailed results' also provide a visual representation of the results



# Results in Metric 3.0

The 'Trading summary' shows the loses and gains in each habitat type and provides a cross check that the metric trading rules have been correctly applied.

Trading Summary		
Distinctiveness Group	Trading Rule	Trading Satisfied?
Very High	Bespoke compensation likely to be required	Yes
High	Same habitat required	Yes
Medium	Same broad habitat or a higher distinctiveness habitat	Yes
Low	Same distinctiveness or better habitat required	Yes

Low Distinctiveness				
Habitat group	Group	On site unit change	Off Site Unit Change	Project wide unit change
Cropland - Cereal crops	Cropland	0.00	0.00	0.00
Cropland - Cereal crops other	Cropland	0.00	0.00	0.00
Cropland - Horticulture	Cropland	0.00	0.00	0.00
Cropland - Intensive orchards	Cropland	0.00	0.00	0.00
Cropland - Non-cereal crops	Cropland	0.00	0.00	0.00
Cropland - Temporary grass and clover leys	Cropland	-1.76	0.00	-1.76
Grassland - Modified grassland	Grassland	-4.58	0.00	-4.58
Grassland - Bracken	Grassland	0.00	0.00	0.00
Heathland and shrub - Rhododendron scrub	Heathland and shrub	0.00	0.00	0.00
Lakes - Ornamental lake or pond	Lakes	0.00	0.00	0.00
Sparsely vegetated land - Ruderal/Ephemeral	Sparsely vegetated land	0.00	0.00	0.00
Urban - Bioswale	Sparsely vegetated land	0.00	0.00	0.00
Urban - Allotments	Urban	0.00	0.00	0.00
Urban - Facade-bound green wall	Urban	0.00	0.00	0.00
Urban - Ground based green wall	Urban	0.00	0.00	0.00
Urban - Ground level planters	Urban	0.00	0.00	0.00
Urban - Extensive green roof	Urban	0.00	0.00	0.00
Urban - Introduced shrub	Urban	0.00	0.00	0.00
Urban - Rain garden	Urban	0.00	0.00	0.00
Urban - Sand pit quarry or open cast mine	Urban	0.00	0.00	0.00
Urban - Urban Tree	Urban	0.03	0.00	0.03
Urban - Sustainable urban drainage feature	Urban	0.31	0.00	0.31
Urban - Vacant/derelict land/ bareground	Urban	0.00	0.00	0.00
Urban - Vegetated road	Urban	1.76	0.00	1.76

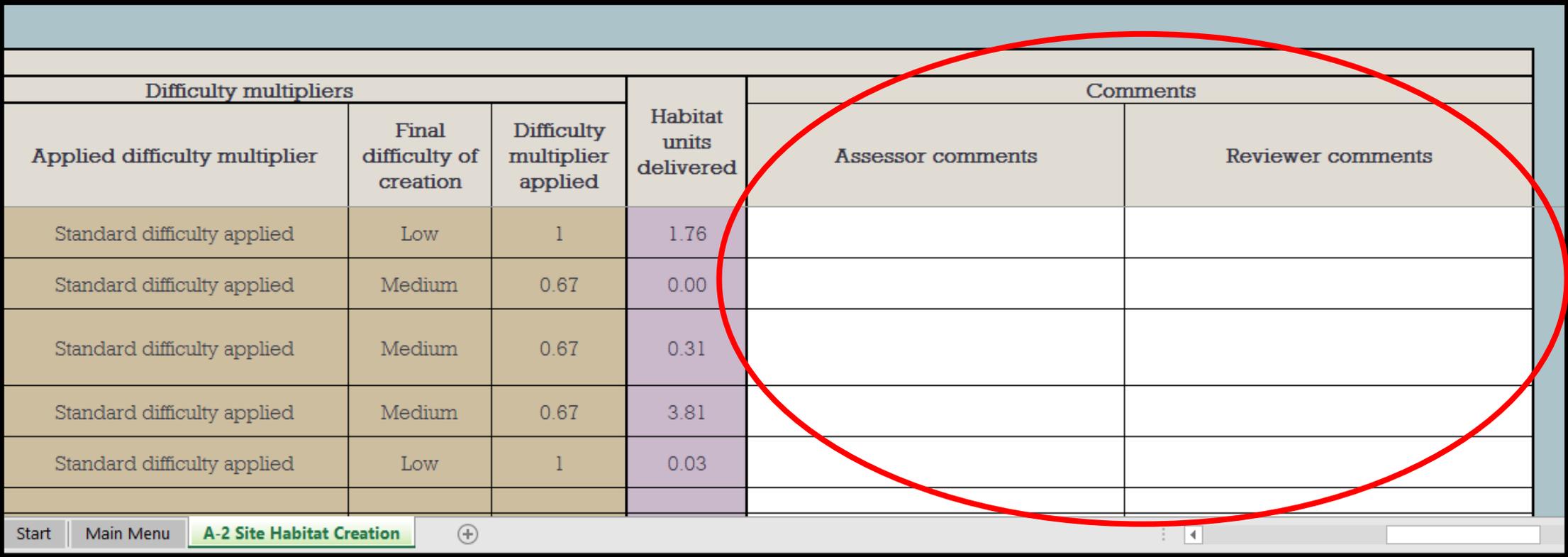
# Review details if necessary

To ensure transparency all the detail of the calculations is visible and can be reviewed by the LPA if necessary

Case Study						
A-2 Site Habitat Creation						
Columns	Condense / Show Rows					
nu	Instructions					
Proposed habitat	Area (hectares)	Distinctiveness		Condition		Strategic
		Distinctiveness	Score	Condition	Score	Strategic significance
Vegetated garden	0.91	Low	2	Poor	1	Area/compensation not in local strategy local strategy
Developed land; sealed surface	1.28	V.Low	0	N/A - Other	0	Area/compensation not in local strategy local strategy
Sustainable urban drainage feature	0.13	Low	2	Moderate	2	Area/compensation not in local strategy local strategy
Intensive green roof	0.85	Medium	4	Moderate	2	Area/compensation not in local strategy local strategy
Urban Tree	0.009	Medium	4	Moderate	2	Location ecologically desirable but not local strategy

# Check assessor comments

The comments section at the end of each row is a useful mechanism for justifying why a particular decision has been made.



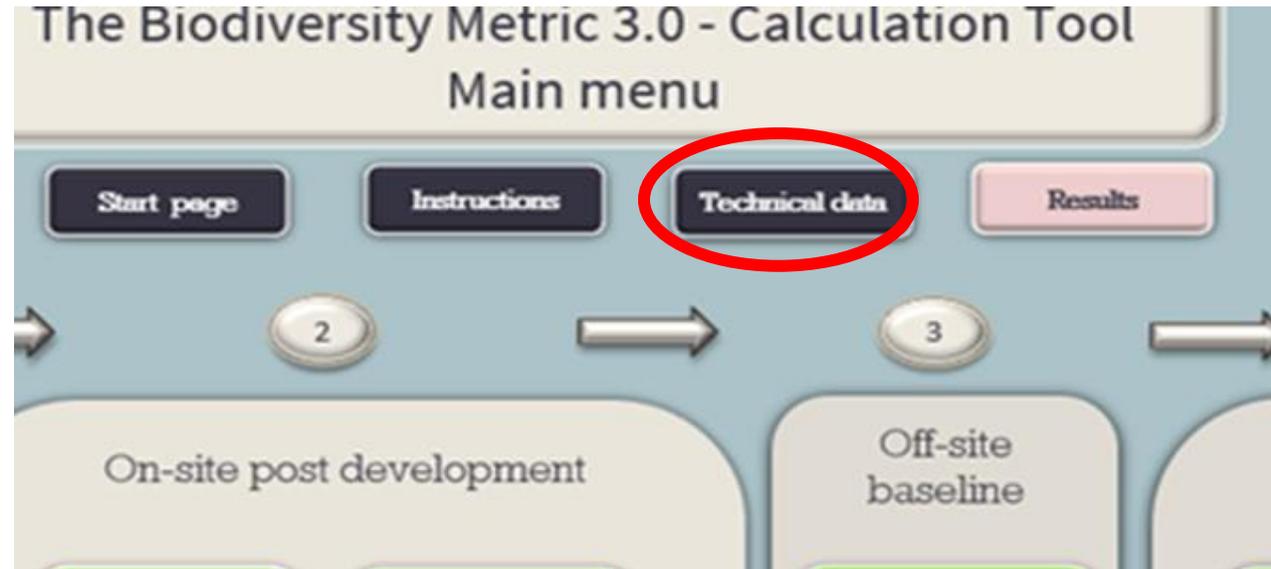
Difficulty multipliers			Habitat units delivered	Comments	
Applied difficulty multiplier	Final difficulty of creation	Difficulty multiplier applied		Assessor comments	Reviewer comments
Standard difficulty applied	Low	1	1.76		
Standard difficulty applied	Medium	0.67	0.00		
Standard difficulty applied	Medium	0.67	0.31		
Standard difficulty applied	Medium	0.67	3.81		
Standard difficulty applied	Low	1	0.03		

Start | Main Menu | **A-2 Site Habitat Creation** | (+) | [Navigation icons]

# Calculation Tool – additional functions

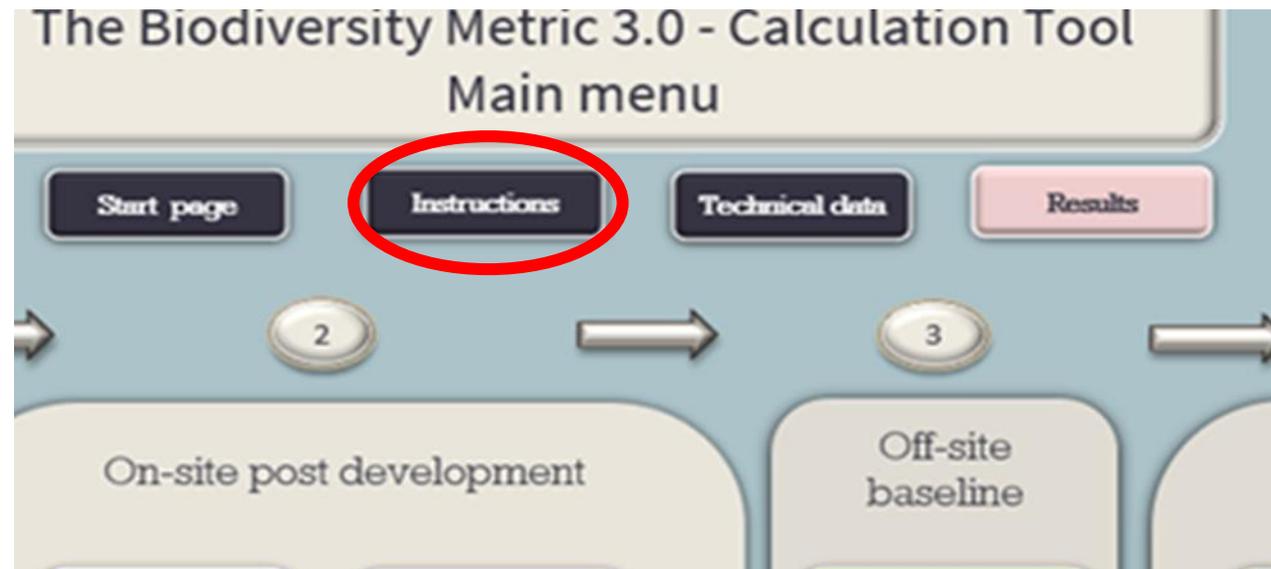
## Technical data

Contains all the technical data tables and a conversion tool to Phase 1



## Instructions

A copy of the Calculation Tool Short Guide can be accessed from the 'Instructions' button



# Metric 3.0 – Net Gain on site - A Case Study

- The development site was 3.88 ha - a mixture of poor condition intensive agricultural grassland, a small area of neutral grassland in poor condition and moderate condition woodland.
- The site was bounded by species rich hedgerow
- The proposal was for a 3.04 ha development with a 70/30 split between developed area and gardens.

The Biodiversity Metric 3.0 - Calculation Tool Main menu

Start page    Instructions    Technical data    Results

Urban tree helper

Tree size	Tree number	Area
Small		0.0000
Medium		0.0000
Large		0.0000
<b>Total</b>	<b>0.00</b>	<b>0.0000</b>

Start here

1    2    3    4

On-site baseline    On-site post development    Off-site baseline    Off-site post development

A-1 On-site habitat baseline    A-2 Habitat creation    A-3 Habitat enhancement    D-1 Off-site habitat baseline    D-2 Off-site habitat creation    D-3 Off-site habitat enhancement

B-1 On-site hedge baseline    B-2 Hedgerow creation    B-3 Hedgerow enhancement    E-1 Off-site hedge baseline    E-2 Off-site hedge creation    E-3 Off-site hedge enhancement

C-1 On-site river baseline    C-2 River creation    C-3 River enhancement    F-1 Off-site river baseline    F-2 Off-site river creation    F-3 Off-site river enhancement

A-1 Site Habitat Baseline

Condense / Show Columns    Condense / Show Rows

Main Menu    Instructions

Habitats and areas				Distinctiveness		Condition		
Ref	Broad habitat	Habitat type	Area	Distinctiveness	Score	Condition	Score	Strategic sign
1	Grassland	Modified grassland	2.29	Low	2	Poor		Area/compensation not in local strat
2	Grassland	Other neutral grassland	0.52	Medium	4	Poor	1	Area/compensation not in local strat
3	Woodland and forest	Other woodland; broadleaved	0.19	Medium	4	Moderate	2	Area/compensation not in local strat
4	Cropland	Temporary grass and clover leys	0.88	Low	2	N/A - Agricultural	1	Area/compensation not in local strat
5								
6								
7								
8								
9								
10								
11								

Start    Main Menu    Results    Headline Results    Detailed Results    Trading Summary    A-1 Site Habitat Baseline    A-2 Site ...

# Metric 3.0 – Net Gain on site - A Case Study

➤ Just over a 10% net gain in area based habitats was achieved by:

**Creating** - a green roof, gardens, sustainable urban drainage and urban trees;

**Retaining** - the woodland;

**Enhancing** - and the neutral grassland to moderate condition

➤ A 12% net gain in hedgerows was achieved by a combination of **retaining and enhancing** existing hedgerows and a small amount of hedge **creation**

Case Study							
A-2 Site Habitat Creation							
Condense / Show Columns		Condense / Show Rows					
Main Menu		Instructions					
Broad Habitat	Proposed habitat	Area	Distinctiveness		Condition		St
			Distinctiveness	Score	Condition	Score	
Urban	Vegetated garden	0.91	Low	2	Poor	1	Area/compe
Urban	Developed land; sealed surface	1.28	V.Low	0	N/A - Other	0	Area/compe
Urban	Sustainable urban drainage feature	0.13	Low	2	Moderate	2	Area/compe
Urban	Intensive green roof	0.85	Medium	4	Moderate	2	Area/compe
Urban	Urban Tree	0.009	Medium	4	Moderate	2	Area/compe

Case Study		
Headline Results		Return to results menu
On-site baseline	Habitat units	9.94
	Hedgerow units	1.83
	River units	0.00
On-site post-intervention (Including habitat retention, creation & enhancement)	Habitat units	10.97
	Hedgerow units	2.06
	River units	0.00
On-site net % change (Including habitat retention, creation & enhancement)	Habitat units	10.35%
	Hedgerow units	12.34%
	River units	0.00%



## Top Tips

- All applications should be supported by the submission of the full metric spreadsheet and not just screenshots of it, as numbers could have since been changed
- If a project has been developed using metric 2.0, there is currently no necessity to recalculate everything using metric 3
- Have they achieved a minimum 10% (under mandatory BNG) gain in area, rivers and hedgerows?
- Check the rationale and evidence underpinning the decisions on habitat type and condition. Is there a management plan to suggest that it will be practical?
- Check the detailed results. Are losses and gains at the broad habitat level appropriate and have the habitat trading rules been met?
- Ensure the enhancement tab has been used correctly, and creation should not have been used instead

# Bad Practice/ Error messages

The key data is auto populated and error flags/check messages incorporated. However there are still areas where the tool can be incorrectly applied:

- Look out for attempts to under value baseline – consider choice of habitat type and condition
- Look out for attempts to over value the proposed habitat and future condition
- Is the redline boundary appropriate? Check for attempts to reduce liability by amending red line boundary
- Have the rules and principles been correctly applied?
- Look further into any habitats that are high distinctiveness on a development site, or anything in good condition – is this really possible?
- If habitat created in advance function is used? – check evidence
- Ensure the strategic significance tab has been used correctly – does it align with local plans, strategics and/or policies? - check evidence

# Summary

- The metric is fundamental to Net Gain
- It is useful conversation starter and moves the conversation about ecological impacts to the beginning of the design process
- It is additional to existing approaches for species, designated sites, irreplicable habitats
- It uses habitats as a proxy for biodiversity and requires ecological expertise
- It sits within the existing decision making framework based on the mitigation hierarchy



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**Thank you for your time**

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