

PROPOSED DWELLINGS AT PENTLAND HOUSE, CHAPEL DROVE, HOLBEACH DROVE



BIODIVERSITY NET GAIN REPORT

FINAL

Prepared by:

Philip Parker Associates Ltd
White Row Cottage
Leziate Drove
Pott Row
King's Lynn
Norfolk
PE32 1DB

Prepared for:

Mr G Cole

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CONTENTS

1.0	Executive summary
2.0	Introduction
3.0	Methodology
4.0	Baseline Conditions
5.0	Proposed Biodiversity Net Gain
6.0	Proposed Habitat Design
7.0	Conclusion
8.0	References

Drawings

Drawing D2	Baseline habitat plan
Drawing D3	Biodiversity net gain design

Appendix

Appendix A	Calculations – Headline results
Appendix B	Condition assessment tables
Appendix C	Species list for each habitat group
Appendix D	Surveyor/company experience and qualifications

DOCUMENT HISTORY				
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1.0 EXECUTIVE SUMMARY

- 1.1 Biodiversity net gain is the name given to a process of biodiversity offsetting whereby any habitat loss caused by a new development is mitigated to ensure that there is an overall increase in biodiversity post-development. As part of the initial development plans, developers are increasingly required to demonstrate that biodiversity net gain can be achieved. To establish the best way to protect the habitats on site, a metric is used. To achieve biodiversity net gain, developers must show evidence that a development will increase the biodiversity value of a site. This statistic is presented in the value of a biodiversity net gain metric called 'biodiversity units'. The 10% net gain requirement in England became compulsory from the 12/02/2024 for larger developments and from the 02/04/2024 for small sites.
- 1.2 To accompany the planning application for the demolition of a barn and greenhouse for the construction of two dwellings at Pentland House, Chapel Drove, Holbeach Drove, a Biodiversity Net Gain (BNG) report has been prepared. The field survey was undertaken at the site by senior ecologist Rebecca Easter of Philip Parker Associates Ltd on the 04/03/2025.
- 1.3 The statutory biodiversity net gain metric was used to calculate the baseline and proposed habitats.
- 1.4 Table 1 below shows the change of all unit categories on site.

Table 1 **Summary table of net unit change**

Category	Baseline units	Proposed Units	Change in units
Habitat	0.34	0.38	+10.07%
Hedgerow	0.0	0.0	N/A
Watercourse	0.0	0.0	N/A

2.0 INTRODUCTION

- 2.1 Swann Edwards Architecture are preparing a planning application for the demolition of a barn and greenhouses for the construction of two new dwellings on land at Pentland House, Chapel Drove, Holbeach Drove. The Biodiversity Net Gain Assessment will accompany the application to the local planning authority, South Holland District Council.
- 2.2 The following report includes the findings of the surveys and has been prepared following guidance in the Biodiversity Net Gain Report and Audit Templates prepared by the Institute of Ecology and Environmental Management (CIEEM) (2021).
- 2.3 The BNG assessment will estimate the anticipated net gain provided by the development with the information available at the time of this report's production. The biodiversity net gain calculations can only provide an assumption for the future biodiversity change on and off site.

3.0 METHODOLOGY

HABITAT BASELINE

- 3.1 The field survey was conducted on the 04/03/2025 by senior ecologist Rebecca Easter to assess the baseline habitats and habitat conditions on site.
- 3.2 The habitats present within the red line boundary were recorded on site using the UK Habitat Classification. All habitats and their area of coverage were subsequently mapped using QGIS mapping software.
- 3.3 Calculations were undertaken using the Statutory Biodiversity Metric Calculation Tool. The habitat plan formulated with QGIS software was used to calculate the habitat baseline and to measure each component area.

HABITAT SCORE

- 3.4 The following habitat scores and areas are used to calculate the units provided by each habitat area.
- **Distinctiveness**
The distinctiveness is already assigned by the metric to each habitat and was calculated using national records of occurrence and rarity of each habitat.
 - **Condition assessment**
Whilst on site, a condition assessment was undertaken on the habitats present to determine their quality. The condition sheets list indicators which need to be met before a habitat can reach the threshold for each habitat condition.
 - **Strategic significance**
The strategic significance of the site is determined by the site's connectivity and significance and gives additional value to habitats which are in preferred locations. The strategic significance uses local biodiversity plans and designations to identify priority habitats.

3.5 Limitations

The habitat survey was conducted in March which was outside of the optimal period for plant identification. As the species list for the site was quite small, it has been assumed that several more species were present per m², but this is still under the six species per m² for grassland poor condition.

3.6 **Mapping**

Habitat areas (pre-development) have been measured using QGIS mapping which uses aerial positioning. The positioning is not always completely accurate but any differences in area will be small and will not significantly impact on the overall score.

4.0 BASELINE CONDITIONS

- 4.1 The habitats listed below were recorded within the application site and as such, have been included within the on site baseline assessment. See Drawing D1 for extent and location of habitat. For condition assessment results, see Appendix B.

ON SITE HABITAT

Modified grassland (G1 – G3)

- 4.2 The grassland was present to the north and west of the site. The grassland was species-poor and the species present were indicative of nutrient-rich ground.



Figure 1 – Modified grassland to the west of the buildings



Figure 2 – Modified grassland to the north and west of the site

- 4.3 **Condition score:** The modified grassland was in a **poor** condition.
- 4.4 **Strategic significance:** The modified grassland was deemed **not to occur in a local strategy area or in an ecological significant location** due to its unlikeness in supporting protected species.

Bare ground (U1)

- 4.5 The inside of the greenhouses consisted of bare ground which had been previously used for growing flowers. Some of the greenhouse were vegetated internally with weeds but this was outside of the application area (the greenhouses were no longer in use for horticulture). The area included within the application at the time of the assessment was bare ground.



Figure 3 – Bare ground within the greenhouse

- 4.6 **Condition score:** The bare ground was in **poor** condition
- 4.7 **Strategic significance:** The bare ground did not occur in a **local strategy area** and was **deemed not to be in an ecological significant location** due to it being unlikely to support protected species.

Developed land, sealed surface

- 4.8 The buildings and concrete hardstanding were present centrally and to the west of the site.



Figure 4 – Concrete hardstanding and buildings

- 4.9 **Condition score:** N/A
- 4.10 **Strategic significance:** The developed land, sealed surface did not occur in a **local strategy** or in an **ecologically desirable location** due to the habitats unlikeliness to support protected species.

BASELINE HABITATS ON SITE

4.11 Table 2 below shows the baseline habitats.

Table 2 The baseline habitat units on site

Habitat type	Description	Area (ha)	Distinctiveness	Habitat units	Area to be lost/enhanced or retained
On site					
Grassland	Modified grassland	0.11	Low	0.22	All lost
Urban	Bare ground	0.0612	Low	0.12	All lost
Urban	Developed land, sealed surface	0.0376	Very low	0.0	All retained
Total		0.21ha		0.34 units	

5.0 PROPOSED BIODIVERSITY NET GAIN

- 5.1 The habitats and areas noted in Section 5 below are based on the current development plan provided by Swann Edwards Architecture. See Drawing D2 for proposed locations of habitat.

ON SITE

HABITAT CREATION

Developed land, sealed surface U5

- 5.2 Two dwellings and patio will be created on site using sealed materials such as concrete.
- 5.3 **Condition assessment: N/A**
- 5.4 **Strategic significance:** The proposed developed land, sealed surface will not be **in a local strategy or in an ecologically desirable location.**
- 5.5 **Temporal modifier:** The developed land, sealed surface will be created within 0 year of the development commencing therefore it will score a 1 in the metric

Vegetated garden U6

- 5.6 The two dwellings will have associated front and rear gardens.
- 5.7 **Condition assessment: N/A**
- 5.8 **Strategic significance:** The proposed vegetated garden will not be **in a local strategy or in an ecologically desirable location.**
- 5.9 **Temporal modifier:** The vegetated garden will be created within 1 year of the development commencing therefore it will score a 0 in the metric

Other neutral grassland G4

- 5.10 An area of other neutral grassland will be created to the south of the development area.
- 5.11 **Condition assessment: Moderate**
The proposed neutral grassland to be sown is to achieve a moderate habitat condition by meeting the following criteria;

- Planted with a suitable seed mix to achieve the appearance and composition to match the neutral grassland habitat type (UKHAB definition)
- Any bare patches will be reseeded
- Mowing will reduce the chance of bracken growing
- Mowing will reduce the occurrence of non-native species appearing in grassland.

5.12 **Strategic significance:** The proposed neutral grassland does **not occur in a local strategy area and was deemed not to be in an ecological significant location** due to limited connection to other similar habitat or better quality habitat.

5.13 **Temporal modifier:** The neutral grassland will be sown within 1 year of the development commencing therefore it will score a 0 in the temporal modifier column.

Individual trees T1 and T2

5.14 Two small trees will be planted on site within the new area of grassland to the south of the site.

5.15 **Condition assessment: Moderate**

The proposed individual trees are to be planted to achieve a moderate habitat condition by meeting the following criteria;

- Native species – following a planting scheme recommended by PPA
- Canopy continuous (individual trees automatically pass this criteria)
- Little or no evidence of an adverse impact caused by anthropogenic activities (vandalism or herbicide use). There is no current pruning regime so trees will reach over 75% of their expected canopy for age and height. This will be achieved by only pruning where necessary such as tree/limbs dangerous for people's safety.

5.16 **Strategic significance:** The proposed tree planting will **not be in a local strategy or in a location which is ecologically desirable** due to the trees being isolated on site with limited direct connectivity to off site habitat.

5.17 **Temporal modifier:** The new trees will be planted within 1 year of the development occurring therefore they will score a 0 in the metric.

Table 3 Proposed areas of on site habitat creation

Broad habitat category	Proposed habitat	Area (ha)	Distinctiveness	Units gained
On site				
Grassland	Other neutral grassland	0.018	Medium	0.12
Individual trees	Rural trees	0.0081	Medium	0.02
Urban	Vegetated garden	0.12	Low	0.23
Urban	Developed land, sealed surface	0.07	Very low	0.0
Total		0.21ha		0.38 units

Table 4 Net habitat area and unit change

Habitat Baseline	Area (ha)	Units	Proposed	Area (ha)	Units
On site					
Modified grassland	0.11	0.22			
Bare ground	0.0612	0.12			
Developed land, sealed surface	0.0376	0.0	Created	0.07	0.0
			Other neutral grassland	0.018	0.12
			Individual trees	0.0081	0.02
			Vegetated garden	0.12	0.23
Total	On site 0.21ha	On site 0.34 Units	Total	On site 0.21ha	On site 0.38 Units

6.0 PROPOSED HABITAT DESIGN

6.1 This section includes mitigation and enhancement works which can occur on site but cannot be included within the metric and therefore it does not gain any credit within the Biodiversity Net Gain Metric.

6.2 Bat boxes

The following will be installed as enhancement;

- Two integrated bat boxes will be installed into a suitable wall elevation on each dwelling.
The box should be positioned as high as possible, away from the influence of lighting.

6.3 Bird boxes

The following will be installed as enhancements

- One house sparrow *Passer domesticus* terrace to be erected on each dwelling;
- One swift *Apus apus* box to be erected on each dwelling;
- The bird box should be installed on an eastern or northern elevation.
- Bird combs to be omitted from the new roof to allow birds to access.

7.0 CONCLUSION

- 7.1 The table below shows the baseline units, the proposed habitat creation units, and the percentage change of units;

Table 5 Summary table of net unit change

Category	Baseline units	Proposed Units	Change in units
Habitat on site	0.34	0.38	10.07%
Hedgerow	0.0	0.0	N/A
Watercourse	0.0	0.0	N/A

- 7.2 This produces a positive change in habitat units on site.
- 7.3 There are no hedgerows within the red line boundary therefore they were not included within the metric
- 7.4 There are no qualifying ditches or rivers within 5m or 10m of the site respectively.
- 7.5 The habitat type, condition and size as set out in this report must be achieved to reach 10% on the site. This will be secured with a habitat management and monitoring report, plus subsequent monitoring visits by ecologists.
- 7.6 This report is based on the site visit undertaken on the 04/03/2025. This report presents a true reflection of habitats present and wildlife usage on the site at the time of the survey and remains valid for a period of 12 months from the date of this report.

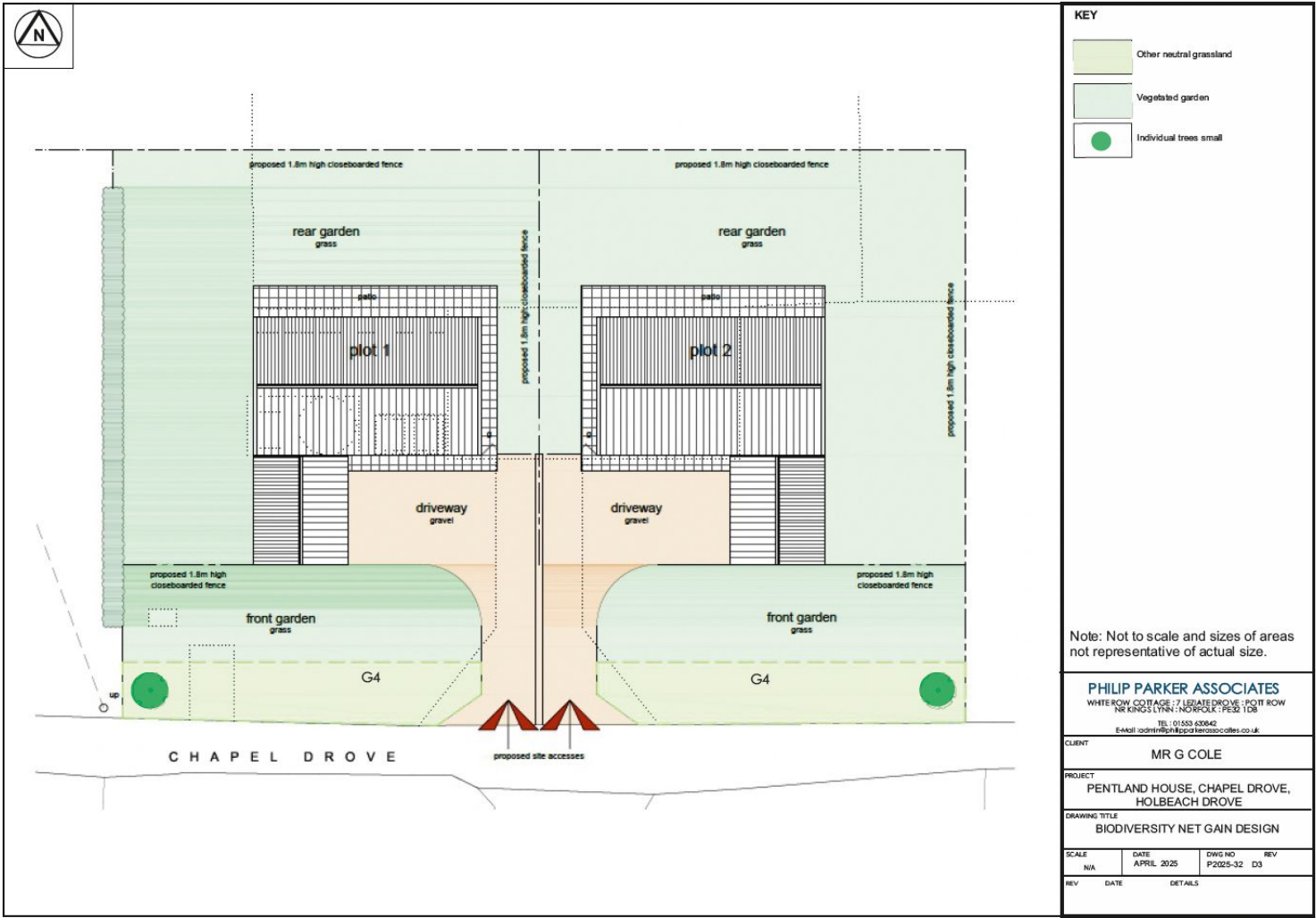
8.0 REFERENCES

- **Butcher, B., Carey, P., Edmonds, R., Norton, L., Treweek, J., 2020.** *UK habitat classification – Habitat Definitions V1.1*
- **CIEEM (2018).** Guidelines for ecological impact assessment in the UK and Ireland – Terrestrial, freshwater, coastal and marine.
- **CIEEM (2021).** Biodiversity Net Gain Report and Audit Templates Chartered Institute of Ecology and Environmental Management, Winchester, UK.
- **Gurnell, A., Shuker, L., (2022).** The MORPH survey: Technical reference manual 2022.
- **Natural England, (2023).** The Biodiversity Statutory Metric – Calculation tool
- **Natural England, (2023b).** The Biodiversity Statutory Metric – Users guide

DRAWING D2 BASELINE HABITAT PLAN



DRAWING D3 BIODIVERSITY NET GAIN DESIGN



APPENDIX A CALCULATIONS – HEADLINE RESULTS

Pentland House, Chapel Drive, Holbeach Drive		Return to results menu	
Headline Results			
Scroll down for final results			
On-site baseline	Habitat units	0.34	
	Hedgerow units	0.00	
	Watercourse units	0.00	
On-site post-intervention (including habitat retention, creation & enhancement)	Habitat units	0.38	
	Hedgerow units	0.00	
	Watercourse units	0.00	
On-site net change (units & percentage)	Habitat units	0.03	10.07%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%
Off-site baseline	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site post-intervention (including habitat retention, creation & enhancement)	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Off-site net change (units & percentage)	Habitat units	0.00	0.00%
	Hedgerow units	0.00	0.00%
	Watercourse units	0.00	0.00%
Combined net unit change (including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	0.03	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Spatial risk multiplier (SRM) deductions	Habitat units	0.00	
	Hedgerow units	0.00	
	Watercourse units	0.00	
FINAL RESULTS			
Total net unit change (including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	0.03	
	Hedgerow units	0.00	
	Watercourse units	0.00	
Total net % change (including all on-site & off-site habitat retention, creation & enhancement)	Habitat units	10.07%	
	Hedgerow units	0.00%	
	Watercourse units	0.00%	
Trading rules satisfied?	Yes ✓		

Unit Type	Target	Baseline Units	Units Required	Unit Deficit
Habitat units	10.00%	0.34	0.38	0.00
Hedgerow units	10.00%	0.00	0.00	0.00
Watercourse units	10.00%	0.00	0.00	0.00

No additional area habitat units required to meet target ✓
No additional hedgerow units required to meet target ✓
No additional watercourse units required to meet target ✓

APPENDIX B CONDITION ASSESSMENTS

Modified grassland – on site habitat

Table 6 Condition assessment for modified grassland

Criteria for modified grassland		Criteria achieved (Y/N)
		G1, G2, G3
1	There are 6-8 vascular plant species per m2 present, including at least 2 forbs (this may include those listed in Footnote 1). Note - this criterion is essential for achieving Moderate or Good condition.	N
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.	N
3	Some scattered scrub (including bramble) may be present, but scrub accounts for less than 20% of total grassland area. Note - patches of shrubs with continuous (more than 90%) cover should be classified as the relevant scrub habitat type.	Y
4	Physical damage is evident in less than 5% of total grassland area. Examples of physical damage include excessive poaching, damage from machinery use or storage, erosion caused by high levels of access, or any other damaging management activities.	Y
5	Cover of bare ground is between 1% and 10%, including localised areas (for example, a concentration of rabbit warrens).	Y
6	Cover of bracken less than 20%.	Y
7	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981).	Y

Table 7 Condition assessment result

Score criteria	Score
Passes 6 or 7 of 7 criteria including passing essential criterion 1	Good
Passes 4 or 5 of 7 criteria including passing essential criterion 1	Moderate
Passes 0, 1, 2 or 3 of 7 criteria; OR 4, 5 or 6 of criteria but failing criterion 1	Poor

Bare ground – on site habitat

Table 8 Condition assessment for Bare ground

Criteria for bare ground		Criteria achieved (Y/N)
		U1
1	Vegetation structure is varied, providing opportunities for vertebrates and invertebrates to live, eat and breed. A single structural habitat component or vegetation type does not account for more than 80% of the total habitat area.	N

Criteria for bare ground		Criteria achieved (Y/N)
		U1
2	The habitat parcel contains different plant species that are beneficial for wildlife, for example flowering species providing nectar sources for a range of invertebrates at different times of year.	N
3	"Invasive non-native plant species (listed on Schedule 9 of WCA1) and others which are to the detriment of native wildlife (using professional judgement) ² cover less than 5% of the total vegetated area ³ . Note - to achieve Good condition, this criterion must be satisfied by a complete absence of invasive non-native species (rather than <5% cover)."	Y

Table 9 Condition assessment result

Score criteria	Score
Passes 6 or 7 of 7 criteria including passing essential criterion 1	Good
Passes 4 or 5 of 7 criteria including passing essential criterion 1	Moderate
Passes 0, 1, 2 or 3 of 7 criteria; OR 4, 5 or 6 of criteria but failing criterion 1	Poor

APPENDIX C SPECIES LIST FOR EACH HABITAT GROUP

Modified grassland

An area of managed grass was present to the west and south of the barn, this comprised of perennial ryegrass *Lolium perenne*, sticky mouse-ear *Cerastium glomeratum*, nettle *Urtica dioica*, dandelion *Taraxacum officinale*, groundsel *Senecio vulgaris*, spear thistle *Cirsium vulgare*, cranesbill spp *Geranium* spp, willowherb spp *Epilobium* spp and speedwell spp *Veronica* spp

APPENDIX D SURVEYOR/COMPANY EXPERIENCE AND QUALIFICATIONS

We, Philip Parker Associates, are ecological consultants suitably qualified with fifty years of combined experience in this sector. We have been undertaking habitat assessments under the new UK habitat classification since it was released in September 2022 (now using version 2) and have been completing and submitting biodiversity net gain assessments successfully since the release of the metric version 3.1 in April 2022.

In, particular Polly Godfrey has a BSc in Ecology and Conservation and has been working at Philip Parker Associates for three years. During this time she has undertaken and submitted a number of Preliminary Ecological Appraisals and Biodiversity Net Gain assessments (under metrics 3.1, 4 and statutory). Polly is also certified to undertake MORPH river condition assessments.

All surveyors have a university degree at BSc level or above in a relevant field of this sector. Our surveyors regularly train with a FISC level 4 Botanist Julia Masson, and any plants which cannot be identified are passed over to ensure that they are identified correctly.

Our surveyors have attended a number of conferences and virtual symposiums (many organised by CIEEM) to ensure that our knowledge of biodiversity net gain remains up to date.

**Philip Parker Associates Ltd
White Row Cottage
Leziate Drove
Pott Row
King's Lynn
PE32 1DB**

**Tel : 01553 630842 Mob : 07850 275605
Email : admin@philipparkerassociates.co.uk**