

Biodiversity Net Gain Assessment

Land at Meadow Road, Reading

July 2025

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Land at Meadow Road, Reading

15/07/2025

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Document Control:

Project no.:		Project name:		
13338		Land at Meadow Road, Reading		
Version:	Written by:	Checked by:	Authorised by:	Date:
V1	Robert Anthony	Richard Schofield	Richard Schofield	10 June 2025
V2	Robert Anthony	Richard Schofield	Richard Schofield	15 July 2025

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1. Introduction

Project Background

- 1.1 Phlorum Limited was commissioned by Spring BC to compile a Biodiversity Net Gain Assessment in relation to the proposed development of Meadow Rd, Reading RG1 8LB hereafter referred to as “the site”).
- 1.2 This Biodiversity Net Gain (BNG) calculation and accompanying report have been prepared to support the BREEAM assessment for the proposed development, specifically addressing the requirements of credit LE 03 (Managing Negative Impacts on Ecology).
- 1.3 Version 2 (V2) was produced to update the BNG with updated landscaping plans.

Site Description and Context

- 1.4 The site comprised buildings, and hardstanding.
- 1.5 The site is located in an urban area of Reading. Residential buildings are located to the north, south and east of the site. To the west are industrial buildings.
- 1.6 The National Grid Reference for the centre of the site is SU 70959 74199. The survey area extended over approximately 0.9 hectares (ha).

Description of Development

- 1.7 Design proposals include the demolition of the existing structures on the site, and the redevelopment of 4 buildings, subdivided into 11 units with ancillary office accommodation, service yards, car parking and associated landscape.

Documentation Provided

- 1.8 This document has been developed with reference to the findings contained within the previous ecological report:
 -  Preliminary Ecological Appraisal (PEA) (Phlorum 2024).

2. Methodology

Establishing the Baseline Habitat

- 2.1 The desktop study involved conducting database searches for statutory and non-statutory designated sites, legally protected species and features of interest within a 2km radius of the site. This was carried out by Phlorum (Phlorum, 2024).
- 2.2 Phlorum carried out a site walkover visit on 13th November 2024 to assess the baseline habitat conditions of the site, following the guidance set by the Joint Nature Conservation Committee, handbook for Phase 1 surveys (JNCC 2010).
- 2.3 However, the description of the site habitats has used the code/referencing from The UK Habitat Classification User Manual Version 2.0 (UKHab 2023). UKHab uses primary habitat codes, either on their own or followed by one or more secondary codes. Each individual code is separated by a space. Habitats were described and mapped (Figure 1: Appendix A).

Calculating Biodiversity Net Gain/Loss

- 2.4 A Biodiversity Net Gain (BNG) assessment involves making a comparison between the biodiversity value of the present habitat, prior to development (i.e. the baseline) and the predicted biodiversity value of the habitats following completion of the development (i.e. post-development). The comparison is made in terms of 'biodiversity units', with a 'biodiversity metric' providing the mechanism to allow biodiversity values to be calculated and compared.
- 2.5 If the baseline habitat has recently been disturbed/cleared then the baseline is taken as 30th January 2020.
- 2.6 The calculation of Biodiversity Net Gain (BNG) was undertaken using The Statutory Biodiversity Metric (DEFRA 2023, as amended). The metric uses site habitats, as areas and linear lengths, to calculate a score for the site. Each habitat is scored according to its relative biodiversity value. This value is then adjusted depending on various factors, to calculate the 'biodiversity units' for each habitat.

Baseline Calculation

- 2.7 Site baseline habitats are assessed based on the following:
 -  Terrestrial areas;
 -  Terrestrial linear lengths; and
 -  Aquatic linear lengths.

- 2.8 The baseline habitat map from the Preliminary Ecological Appraisal is used to calculate the individual parcels of habitats on the site, such as terrestrial areas (e.g. woodland, grassland), terrestrial lengths (e.g. hedgerows) and aquatic lengths (e.g. streams, rivers). Each area is measured in *hectares* and each linear feature in *kilometres*.
- 2.9 The Statutory Biodiversity Metric calculator requires habitats present on site to be described using the UKHabs Classification System.
- 2.10 Once the UKHabs habitat names, and areas/lengths have been measured the parcels need to be assessed against the following criteria:
-  Habitat Distinctiveness – The calculator creates an automated score based on the type of habitat present. Highly diverse habitats, particularly those habitats of Principal Importance under the NERC Act (2006) or Annex 1 habitats in the Habitats Directive (1992) score 'high', whilst sites with low diversity such as arable crops have 'low' scores.
 -  Habitat Condition – An assessment of the quality of the habitat parcel assessed during the baseline surveys.
 -  Strategic Significance – An assessment based on the information set out in local plans or policies.
- 2.11 The calculator realises the importance of individual trees but there is no UKHabs habitat for these in the area calculation. As a result, the 'Street tree helper', which allows numbers of trees to be converted to an area in hectares is used, regardless of if the tree is a street tree or isolated tree in another habitat. Trees are categorised as 'small', 'medium', 'large' or 'very large'. The condition of the tree can then be assessed as 'poor', 'moderate' or 'good'.

Post Development Calculation

- 2.12 The post development areas are calculated by initially assessing the areas/length of habitats retained, enhanced, and created plus any offsite areas created or enhanced.
- 2.13 A 'Habitat Condition' and 'Strategic Significance' assessment are carried out on the post-development habitats. Where habitats have been created or enhanced, additional factors are considered, such as time taken for each of these habitats to reach target condition (temporal multiplier) and the difficulty of recreating these habitats (difficulty multiplier).
- 2.14 The baseline biodiversity score and post-development score are then calculated and compared the biodiversity impact loss or gain is calculated for each habitat (e.g. terrestrial habitat, terrestrial linear and /or linear aquatic habitat).
- 2.15 If needed offsite enhancement and/or creation of habitats can be carried out and assessed.
- 2.16 The site, and if needed the offsite enhancement, are then managed for at least 30 years via legal agreements, such as planning obligations or conservation covenants.

Caveats

- 2.17 The BNG calculates habitats and only provide a score to represent the biodiversity on site. As a result, compensation and mitigation should be designed using appropriate expertise and common sense.
- 2.18 As only habitats are calculated an increase in biodiversity due to increase in fauna (e.g. birds, bats, insects, reptiles, amphibians, or other mammals) is not included. The creation of bird/bat/insect boxes, log piles, and/or hibernacula's can significantly enhance the ecosystems on a site, but these enhancement are not calculated by the BNG calculator. The BNG calculator is a good guide to help increase biodiversity but habitats need both flora (plants) and fauna (animals) enhanced to ensure healthy and sustainable ecosystems.
- 2.19 The existing levels of protection provided to certain habitats or protected species are not changed by this calculator. The impact on protected species are not considered by the calculator, and must be assessed separately.
- 2.20 In nature the boundaries between ecological habitats are not usually an easily defined line, unless human impact such a hard surface (e.g. buildings/roads), fences, ploughing, and/or felling has occurred. As a result, the habitat areas used are based on best judgement and therefore are subjective.
- 2.21 The calculator requires area measurements in *hectares* and linear measurements in *kilometres*, which for small sites can result in smaller areas/lengths not being recorded when only 2 decimals places area used.
- 2.22 As isolated trees are measured separately the overall area of all the habitat parcels can be greater than the actual site area.
- 2.23 The calculator cannot take account of all site-specific features and circumstances that may affect the true value of certain habitats or dictate the nature of habitat creation and enhancement. Such features and circumstances may make it impossible to satisfy trading rules for medium and high distinctiveness habitats, even where a clear net gain for biodiversity is being delivered.
- 2.24 Whilst the calculator provides a valuable guide as to how a development will affect biodiversity, it should be considered as a guide to be used in combination with pragmatic and knowledge-based judgement when reaching conclusions as to how effective biodiversity enhancement will be delivered.

Exemption

- 2.25 Under the Biodiversity Gain Requirements (Exemptions) Regulations 2024 some sites are exempt from having to carry out a BNG assessment.
- 2.26 Regulation 4 states if a development does not impact on 'priority habitat' and that the site has less than 25m² of habitat on site that has biodiversity value (i.e. soft landscaping), plus less than 5m in length off onsite linear habitat (e.g. a hedge or water course) then it is exemption from BNG.

- 2.27 As a result, based on Regulation 4, this site appears exempt from BNG requirements. However, as stated earlier, this BNG report has been prepared to support the BREEAM assessment for the proposed development, specifically addressing the requirements of credit LE 03 (Managing Negative Impacts on Ecology).

3. Biodiversity Net Gain Assessment

Existing Habitats

- 3.1 The existing habitats identified on site during the site walkover were buildings and hardstanding. The habitat map can be seen in Appendix A.
- 3.2 The landscape scheme can be seen in Appendix B.
- 3.3 Where relevant, the following habitats will be referred to using the UK Habitat Classification¹ to help inform the Biodiversity Net Gain (BNG) for the site.
- 3.4 The following habitats will be lost:
-  **Buildings:** Buildings on-site will be lost.
 -  **Developed Land. Sealed Surface:** Areas of hardstanding on-site will be lost.
- 3.5 The following habitats will be created:
-  **Individual Trees:** 52 individual trees will be planted throughout the site. Species will include European hornbeam (*Carpinus betulus*), field maple (*Acer campestre*), common hawthorn (*Crataegus monogyna*), cherry (*Prunus spp.*), and English oak (*Quercus robur*).
 -  **Native Hedgerow:** Native hedgerow will be planted along the northern border of the site. Species will include field maple (*Acer campestre*), common hazel (*Corylus avellana*), common hawthorn (*Crataegus monogyna*), common holly (*Ilex aquifolium*), blackthorn (*Prunus spinosa*), and guelder-rose (*Viburnum opulus*).
 -  **Other (Non-Native and Ornamental) Hedgerow:** Ornamental hedgerow will be planted along the southern border of the site, and areas around the site. Species will include garden privet (*Ligustrum ovalifolium*).
 -  **Modified Grassland:** Areas of modified grassland will be planted throughout the site, primarily around the planted trees and hedgerows. This will be a species rich lawn turf, and grass mixture for hedgerows and woodland.
 -  **Developed Land. Sealed Surface:** Areas of hardstanding on-site will be created to provide footpaths, and access roads.
 -  **Buildings:** Four buildings will be created on-site.

¹ UKHab Ltd (2023) The UK Habitat Classification Version 2.0 (at <https://www.ukhab.org>)
13338 Bng V2

Headline Results

- 3.6 The headline results, including total unit and percentage change are shown in Table 1 below.

Table 1: Results

	Habitat Area Units (Terrestrial area)	Habitat Length Units (Terrestrial linear length)	Aquatic Length Units (Aquatic linear length)
On-site Baseline	0.00	0.00	N/A
On-site post- intervention	0.88	0.34	N/A
Total net unit change	+0.88	+0.34	N/A
Total net % change	44141.10%	33789.43%	N/A

- 3.7 The Trading Rules requirement of the BNG assessment are satisfied for the site.
- 3.8 As the site had no baseline habitats of ecological value, even small additions of planting result in a high percentage net gain. A net gain of approximately 43000% has been calculated, though this should be interpreted with caution given the low ecological baseline.

Results Summary

- 3.9 The existing area habitats on the site are considered by the Biodiversity Net Gain assessment to have a value of **0.00 units**. The post-development area habitats are considered by the Biodiversity Net Gain Assessment to have a value of **0.88 units**. This is a **+0.88 net change** in habitat units which equates to a **44141.10% net gain**. As the baseline value is zero, even small habitat gains result in disproportionately high percentage changes; this figure should be interpreted with this context in mind.
- 3.10 The existing linear habitats on the site are considered by the Biodiversity Net Gain assessment to have a value of **0.00 units**. The post-development area habitats are considered by the Biodiversity Net Gain Assessment to have a value of **0.34 units**. This is a **+ 0.34 net change** in habitat units which equates to a **33789.34% net gain**. Due to the absence of any baseline linear habitat, percentage gains are significantly inflated and should be viewed in context of the very low starting point.
- 3.11 This reflects the replacement of buildings and hardstanding with individual trees, native hedgerow, non-native hedgerow, modified grassland, hardstanding, and buildings.
- 3.12 There are no aquatic habitat features on the site pre- or post-development.
- 3.13 Trading Rules for the site are satisfied/are not satisfied for habitat area units, and habitat length units.

4. Discussion

- 4.1 A Biodiversity Net Gain Assessment has been carried out for the proposed development of Meadow Road, Reading. The site comprised of buildings, and hardstanding.
- 4.2 Design proposals include the demolition of the existing structures on the site, and the redevelopment of 4 buildings, subdivided into 11 units with ancillary office accommodation, service yards, car parking and associated landscape.
- 4.3 An overall net gain of **44141.10%** in habitat units from the existing baseline has been calculated. As the baseline value is zero, even small habitat gains result in disproportionately high percentage changes; this figure should be interpreted with this context in mind. This reflects the replacement of buildings and hardstanding with individual trees, native hedgerow, non-native hedgerow, modified grassland, hardstanding, and buildings.
- 4.4 Trading Rule requirement of the BNG assessment are satisfied.
- 4.5 There may also be significant gains for ecology on the site that are not captured by the BNG Assessment, such as species-specific enhancements including bird and bat boxes.
- 4.6 A Habitat Management and Monitoring Plan (HMMP) will be required to demonstrate how the post development habitat will be maintained, who is responsible for creating and enhancing it, and who is responsible for its maintenance, management and monitoring over a 30-year period.

5. Conclusions and Recommendations

Conclusions

- 5.1 A Biodiversity Net Gain Assessment has been carried out for the proposed development of the Meadow Road, Reading. An overall net gain of **44141.10%** in habitat units from the existing baseline has been calculated. As the baseline value is zero, even small habitat gains result in disproportionately high percentage changes; this figure should be interpreted with this context in mind.
- 5.2 This reflects the replacement of buildings and hardstanding with individual trees, native hedgerow, non-native hedgerow, modified grassland, hardstanding, and buildings.
- 5.3 It should be noted that the BNG assessment does not capture other methods of ecological enhancement such as the inclusion of bat and bird boxes.

Recommendations

- 5.4 It is recommended that a Habitat Management and Monitoring Plan (HMMP) is produced for the site.

6. References

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Figures and Appendices

Appendix A

Habitat Map

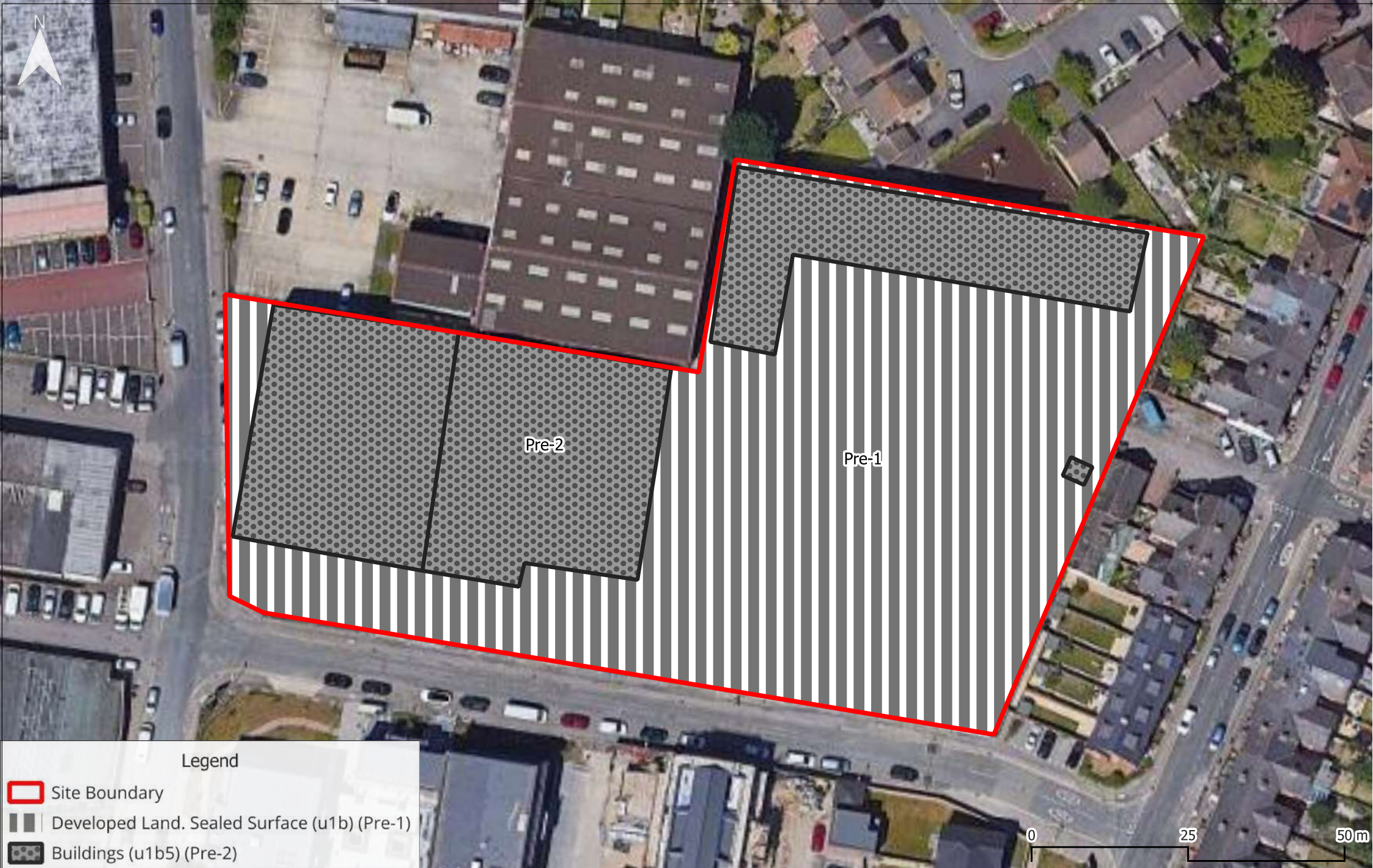


Figure 1 - Pre-development BNG map for Meadow Road, Reading

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Appendix B

Post Development Landscape Plan



Figure 1 - Post-development BNG map for Meadow Road, Reading

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