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Rother District Council

Biodiversity Audit

Mill Salts, Tillingham Avenue, Rye

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1.1. Introduction

In March 2023, MKA Ecology Ltd was commissioned by Rother District Council to undertake Biodiversity Audits of 23 sites owned and managed by the district council. The aims of the biodiversity audits were to provide baseline information on the type and quality or condition of these areas with a view to identifying measurable opportunities for positive biodiversity interventions using the Biodiversity Metric. This report refers specifically to Mill Salts, Tillingham Avenue, Rye.

1.2. Methodology

The audits were performed using standard methodologies; habitats were defined according to the UK Habitat Classification and habitat conditions were assessed assist the 'Biodiversity Net Gain' metric schema (Natural England, 2023). By assigning values to habitats by their 'distinctiveness' or rarity, and their condition, the overall measurable biodiversity contained within the surveyed sites was calculated using the Defra Biodiversity Metric (v4.0). In principle, larger/longer, more valuable and better condition habitats score more highly. A detailed methodology is provided at the end of this document.

1.3. Site status

The site is not located within the High Weald National Landscape (formerly known as Area of Outstanding Natural Beauty (AONB). It is situated on the boundary between Romney Marsh and the High Weald National Character Areas (NCA).

Mill Salts, Tillingham Avenue, Rye is not currently covered by any international, national or local nature conservation designations. The site lies within Rother, Brede and Tillingham Woods Biodiversity Opportunity Area (BOA; Sussex Biodiversity Partnership, 2024). Target habitat types for this BOA for creation, restoration and management are woodland, meadows and wetlands.

1.4. Site description

The survey area is shown on the map in Figure 1. Within this report this area is referred to as the Site or Mill Salts. It is located at TQ 91598 20580, at the centre of Rye, 2km north of the coast. The Site is predominantly composed of neutral grassland, with a small area of hardstanding on the eastern boundary, and a line of trees along a path leading out to a public car park in the north. The River Tillingham runs along the Site's northern and western boundary.

The Site is 0.15km west of Lowland Deciduous Woodland and 0.3km north of Coastal and Floodplain Grazing Marsh, as identified by Natural England (2023c).

The table below shows the habitats which are present at Mill Salts. Detailed descriptions of each habitat type are given in Section 1.16. As Rother District Council is not responsible for management of the River Tillingham, this habitat was not included in the assessment.

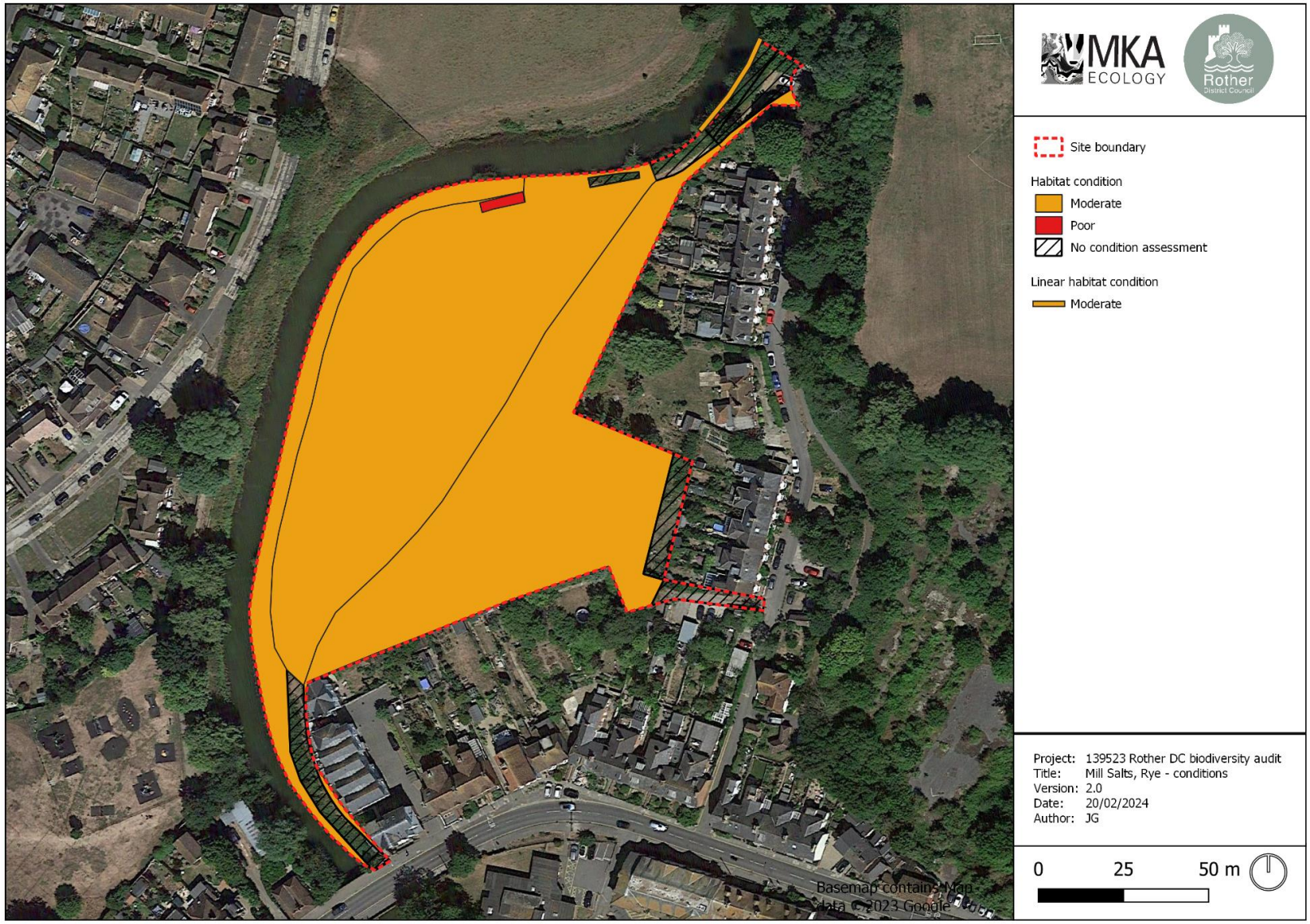
Habitat type	Description
Other neutral grassland (including Arrhenatherum neutral grassland)	A widespread grassland type, distinguished by an absence of strong calcareous or acidic indicator species, and low occurrence of palatable grasses typical of modified grassland. A sub-type of this habitat is characterised by dominance of false oat-grass *Arrhenatherum elatius*.
Bramble scrub	Dense scrub dominated by bramble *Rubus fruticosus agg.*
Mixed scrub	Dense scrub containing a mixture of species with no one species dominating.
Developed land; sealed surface	Areas of road, carpark and paths.
Artificial unvegetated; unsealed surface	Unsealed surfaces including children's play areas.
Line of trees	Native and non-native trees planted in distinct lines throughout the park.

1.5. Maps

The maps presented below show the existing habitats at Mill Salts, Tillingham Avenue, Rye, and their conditions. Quadrats ($1m^2$) were used to determine the average number of species per square metre in the grassland, which informs the condition assessments for Biodiversity Net Gain.

Figure 1: UK Habitats Classifications map

Figure 2: Condition assessments



1.6. Photographs

Photograph 1: Arrhenatherum neutral grassland

Photograph 2: Other neutral grassland (river bank)

Photograph 3: Bramble scrub

Photograph 4: Mixed scrub

Photograph 5: Developed land; sealed surface

Photograph 6: Artificial unvegetated; unsealed surface and line of trees

1.7. Priority habitats

There are no Priority Habitats formally identified on-site. The grassland parcels currently have limited potential to qualify as Floodplain Grazing Marsh HPI. This habitat type is normally characterised by its hydrological and management regime. No current management regime appears to be in place for this site (it is not grazed) and modifications to the River Tillingham (dredging) suggest that the river is no longer functionally connected to the floodplain in this location.

Habitats of Principal Importance are recognised as the most important habitats in the UK and are listed within the Natural Environment and Rural Communities Act (2006).

1.8. Biodiversity units

The biodiversity units at Mill Salts, based on broad habitat types, are shown in the table below.

Habitat type	Total biodiversity units
Other neutral grassland	11.16
Arrhenatherum neutral grassland	1.10
Bramble scrub	0.24
Mixed scrub	0.02
Developed land; sealed surface	0.00
Artificial unvegetated; unsealed surface	0.00
Total habitat units	**12.52**
Linear features type	**Total biodiversity units**
Line of trees	0.13
Total hedgerow units	**0.13**

1.9. Invasive non-native species

No invasive non-native species were recorded at Mill Salts.

1.10. Constraints

Below are detailed some constraints relating to protected and notable species, which should be considered as part of habitat enhancement or creation programmes. It should be noted that most risks associated with protected species constraints can be easily avoided with appropriate planning.

- Presence of nesting birds within the hedgerows, dense scrub and trees.
- Presence of reptiles in grassland and scrub habitats.
- Potential use of the habitats onsite by foraging and commuting bats.

- Potential presence of hedgehogs *Erinaceus europaeus*.
- Potential presence of badger *Meles meles* setts (no setts recorded during the site visit).

1.11. Opportunities

The following sections detail the potential opportunities for creating new habitats or enhancing existing habitats at Mill Salts, and also measures to provide further opportunities for priority species. Priorities identified within the Rother, Brede and Tillingham Woods BOA (see Section 1.3) centre around management, restoration and creation of wetlands, meadow and woodlands.

Opportunities - Habitats

Habitat type	Opportunities
Neutral grassland	The poor species and structural diversity within both neutral grassland types, as well as the presence of undesirable species, indicates that this habitat is deteriorating through lack of management. Suggested interventions to improve condition are: • Implement a more regular rotational mowing regime to create greater variety in sward height. Cut and collect arisings to reduce nutrient inputs; • Regular management to keep levels of scrub encroachment and growth of undesirable species below threshold levels; • Increase botanical diversity within the sward as a longer-term goal. Soil sampling is recommended to inform appropriate management; • Subject to flood risk feasibility, investigate ways to re-connect the site with the adjacent River Tillingham, through wetland habitat creation, such as ditches, backwaters and scrapes. If feasible, in time the site could qualify as Floodplain Grazing Marsh and contribute to local habitat restoration targets (Sussex Biodiversity Partnership, 2024).
Scrub	Bramble at this site should be managed so it does not encroach into the grassland. Mosaics of mixed native woody scrub could be encouraged to grow within the grassland sward to provide a habitat mosaic, but covering no more than 10% of the total area.
Line of trees	This habitat feature currently consists of a single tree species (ash), with many individual trees afflicted by ash dieback. Interventions to improve condition would be: • Increase length/extent and reinforce existing trees by planting a greater variety of native tree species; • Selective felling of the ash trees may become necessary as they succumb to ash dieback. Partly to align with biosecurity protocols, timber and brash could be stacked on the river bank to form log piles. Where

Habitat type	Opportunities
	feasible, trees could be reduced to single stems and ring-barked to provide standing deadwood features. There is also scope to increase tree planting across the site, using wetland specialist tree species such as willow *Salix sp.* and alder *Alnus glutinosa*. This habitat forms a key part of wetland and floodplain mosaics.
Wet woodland *(habitat creation)*	There may be scope to create small areas of woodland, using wetland specialist tree species. These should be concentrated on lower lying areas, especially if these areas could be re-connected to the floodplain and incorporated within wetland restoration (see comments above on enhancing neutral grassland).

Opportunities - Species

Species	Opportunities
Invertebrates (saproxylic)	*Standing deadwood piles:* The creation of 'stumperies' with large volume wood (as generated by management works) dug into the soil (eg: PTES, 2016). *Artificial rot-holes:* Cavities cut into stumps to mimic rot holes. These often fill with water and provide habitat for the larvae of a range of specialist invertebrates. This recommended particularly for the orchard.
Invertebrates (pollinators)	Increasing the proportion of wildflowers within the grassland will create additional foraging habitat for pollinators.
Invertebrates (generalist)	'Bug hotels,' 'bee banks' and log piles could be installed around the Site.
Amphibians	Creation of a wildlife pond within one of the grassland parcels would add a high value habitat to the existing habitat mosaic, particularly of value to local amphibian populations.
Reptiles	Reptiles could be supported through creation of bespoke reptile refugia and hibernacula, providing additional areas for basking and foraging.

1.12. Key targets for the short and long term

Short-term targets

Some key targets for upcoming 5 to 10 years:

- New tree planting;
- Trial regular mowing regime on neutral grassland;

- Increase sward diversity and reduce scrub and undesirable species within neutral grassland;
- Investigate feasibility of wetland habitat creation.

Long-term targets

Some key targets for long term planning;

- Increase botanical diversity of neutral grassland;
- Complete wetland creation projects, if feasible.

1.13. Further monitoring work/other activities

Specific surveys for protected and priority species could be undertaken for bats, invertebrates and reptiles, to understand if and how these species groups use the site. There are survey methods for all these species which can be undertaken by volunteers; groups could be supported by a licensed ecologist or local specialist if needed.

These targeted surveys could be supplemented by regular Bioblitz surveys at the site, carried out by volunteer groups, to monitor general species diversity.

Soil sampling, is recommended to inform management activities to enhance grassland habitats.

1.14. Future risks to condition

- Potentially increased levels of recreational pressure;
- Changes in management and land use;
- Tree disease;
- Impacts of climate change on the habitats present, such as increased drought, fire and flood risk; and
- Introduction and spread of invasive, non-native species.

1.15. Habitat descriptions and conditions

Grassland
UKHabs habitat types present (secondary codes in brackets) **g3c – Other neutral grassland** **g3c5 – Arrhenatherum neutral grassland**
Description **g3c – Other neutral grassland** The east bank of the River Tillingham forms part of the site boundary. This bank is steep; its gradient and the presence of a bund dominated by common nettle *Urtica dioica* in the neighbouring grassland suggests this section of the river has been subject to dredging and re-grading in the past. The bank is now lined by a strip of neutral grassland characterised by wetland species. These include hairy willowherb *Epilobium hirsutum*, meadowsweet *Filipendula ulmaria*, Purple loosestrife *Lythrum salicaria*, figwort *Scrophularia nodosa* and, at the water's edge, reed canary grass *Phalaris arundinacea*. False oat-grass is also present, along with common couch *Elymus repens*, creeping thistle *Cirsium arvense*, common nettle and hogweed *Heracleum sphondylium*. Some small saplings of sycamore *Acer pseudoplatanus* and elder *Sambucus nigra* are also growing in the sward. The vegetation at the time of the survey visit was tall and dense, with no apparent regular management. **g3c5 – Arrhenatherum neutral grassland** The majority of the grassland at Mill Salts can be categorised as this habitat type. False oat-grass is abundant, along with common couch *Elymus repens* and meadow foxtail *Alopecurus pratensis*. The centre of the site exhibits a slightly different species composition, with perennial rye-grass *Lolium perenne*, meadow barley *Hordeum secalinum*, Yorkshire fog *Holcus lanatus* and rough meadow-grass *Poa trivialis* more prominent. Herbaceous species are rare, and mainly comprise cleavers *Galium aparine*, curled dock *Rumex crispus*, common nettle, creeping thistle *Cirsium arvense* and greater plantain *Plantago major.* The latter three species are all classed as undesirable for neutral grassland. Apart from paths mown through the middle and along the river bank, the grassland does not appear to be regularly managed.
Condition **g3c – Other neutral grassland** Moderate condition. Condition is limited by a lack of variety in sward height; high occurrence of undesirable species (primarily creeping thistle); and poor species diversity (although this grassland parcel is notably more diverse than the adjacent grassland). **g3c5 – Arrhenatherum neutral grassland**

Grassland
Moderate condition. Condition is limited by poor species diversity; a lack of variation in sward height (other than path mowing, there is no variation in sward height); and high occurrence of undesirable species within the sward.

Heathland and scrub
UKHabs habitat types present (secondary codes in brackets) **h3d - Bramble scrub** **h3h - Mixed scrub**
Description **h3d - Bramble scrub** **h3h - Mixed scrub** Stands of both habitat types are scattered within the grassland through the far north and south ends of the site, associated with the river bank. The mixed scrub consists of hawthorn *Crataegus monogyna*, bramble *Rubus fruticosus agg.* and elder *Sambucus nigra*.
Condition **h3d - Bramble scrub: N/A - other** **h3h - Mixed scrub** Poor condition. There are no invasive non-native species, and the habitat is surrounded by other natural vegetation. Condition is limited by a lack of species, age and structural diversity within the habitat parcel.

Linear features
UKHabs habitat types present (secondary codes in brackets) **w1g6 – Line of trees**
Description **w1g6 – Line of trees** A short line of immature ash *Fraxinus excelsior* trees lines the west side of the path leading out of the north end of the site.
Condition **w1g6 – Line of trees**

Linear features
Moderate condition. There are no gaps in the canopy, the tree line is comprised of native species, and surrounded by natural vegetation. However, as the trees are immature, they do not contain veteran features; and the trees are suffering from ash dieback.

Urban
UKHabs habitat types present (secondary codes in brackets) **u1b – Developed land; sealed surface** **u1b6 – Other developed land** **u1c – Artificial unvegetated, unsealed surface**
Description **u1b – Developed land; sealed surface** Describes access paths from surrounding development into the site. **u1b6 – Other developed land (828 vegetated garden)** A small parcel in the east of the site is fenced off and currently in use as a garden. **u1c – Artificial unvegetated, unsealed surface** Describes a carpark and footpath in the north of the site.
Condition **u1b – Developed land; sealed surface:** N/A - other **u1b6 – Other developed land:** N/A - other **u1c – Artificial unvegetated, unsealed surface:** N/A - other

1.16. References

Butcher, B., Carey, P., Edmonds, R., Norton, L., & Treweek, J (2020) *The UK Habitat Classification User Manual Version 1.1* http//www.ukhab/org/.

Natural England (2023a) *Biodiversity Metric 4.0 Calculation Tool*. Natural England: York.

Natural England (2023b) *The Biodiversity Metric 4.0 – User Guide*. Natural England: York.

Natural England (2023c) Priority Habitats Inventory (England) Available at: https://www.data.gov.uk/dataset/4b6ddab7-6c0f-4407-946e-d6499f19fcde/priority-habitats-inventory-england. Downloaded 30/10/2023.

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PTES (2016) *Build a log pile for stag beetles.* People's Trust for Endangered Species (PTES). Available at https://ptes.org/wp-content/uploads/2016/11/Build-a-log-pile-for-stag-beetles.pdf

Sussex Biodiversity Partnership (2024). *Biodiversity Opportunity Areas.* https://sussexlnp.org.uk/boa/. Accessed 19/01/2024.

SxBRC (2023) *Sussex Biodiversity Records Centre: data search of protected and priority sites and species in Rother District.* Received 05/06/2023.

1.17. Surveyors

The survey was undertaken by Lydia Ennis ACIEEM. Lydia has six years' experience undertaking habitat surveys and delivering management advice to landowners. The report was written by Lydia and Joe Gillis, Graduate Ecologist at MKA Ecology Ltd. Joe has a season's experience as an ecologist. The report has been reviewed by Will O'Connor CEcol MCIEEM. Will has over 15 years' experience working as an ecological consultant.

Detailed methodology

UK Habitat Classification

The habitat surveys followed the methodology of the UK Habitat Classification (professional) version 2.0 (hereafter UKHab; UK Habitat Classification Working Group, 2023). UKHab works at two levels: a hierarchical primary habitat classification and a list of secondary codes. The primary classification builds on existing habitat and botanical classifications (e.g., Phase 1, NVC). Habitats are described through an increasingly detailed hierarchy until a match is found. The secondary codes provide a list of environmental qualifiers that capture details for a range of other factors (e.g., hydrological regime, management etc). A given primary habitat area may have many secondary codes attached.

Some modifications to the UKHab were made as follows:

- Amenity grassland was categorised separately as 'g4a', a level 4 code of 'g4 - modified grassland'.
- Native hedgerows were categorised according to the more detailed Biodiversity Metric habitat label (see below). A level 5 hierarchy was created under the existing level 4 code 'h2a - Priority hedgerows' to reflect the differing features that hedgerows might contain in combination:

    - Association with a bank or ditch.
    - Species richness.
    - With/without trees.

Incidental plant species lists were gathered for each habitat and distributions of species estimated (using the DAFOR scale; **D**ominant, **A**bundant, **F**requent, **O**ccasional and **R**are). Full botanical inventories were not feasible within the scope of this work. Botanical lists are provided as a separate appendix to this Biodiversity Audit.

Biodiversity Metric

The Defra Biodiversity Metric 4.0 (Natural England, 2023) has been used for this Biodiversity Audit, with certain modifications as detailed in the Appendix. This method uses habitat as a proxy for biodiversity, whereby habitats are assigned the following 'multiplier' scores:

- Distinctiveness: A measure of the type and importance of a habitat. Habitats that are rare and/or support a wide range of species are more distinctive.

- Condition: A measure of the condition of a given habitat type. The condition is assessed according to a suite of criteria described within the methodology below. It should be stressed that condition in biodiversity terms is not to be confused with traditional perceptions of condition or maintenance. A grassland that might be perceived to be well maintained (e.g. regularly mown) is very likely to be in poor condition. Distinctiveness and condition are also not wholly independent. Some of the factors that lead to poor condition grasslands (intensive mowing or grazing) can also lead to a definition as a lower distinctiveness grassland.
- Strategic significance: Any site that possesses a designation is considered High, those deemed ecologically valuable but without designation are considered Medium, and those with limited ecological value and no designation are classed as Low.

These factors are then multiplied to the area (for habitat parcels) or length (hedgerows, lines of trees) to produce an overall 'biodiversity unit.' Large parcels of habitat or long linear features will score better.

The total number of units is presented for the surveyed areas, each site and by habitat type. Indications of how many units are currently contained within habitats of different conditions are also presented; this will help to indicate the opportunities that might be made to increase measurable biodiversity by improving the condition of existing habitats.

Condition assessments

Each habitat type was assessed for condition using the methodology outlined in the Defra Biodiversity Metric 4.0 (Natural England, 2023). Habitat condition is defined as either good, moderate or poor by assessment against a suite of condition criteria. A habitat in good condition will meet more of the criteria for good condition and fewer of the criteria for poor condition. A habitat in poor condition will meet fewer of the criteria for good condition and more of the criteria for poor condition. For the purposes of this assessment the interim categories of 'fairly good' and 'fairly poor' were not used because they are not clearly defined within the methodology and may present inconsistencies with future audit assessments. The habitat condition sheets were modified for use in the field and are supplied as supplementary data.

Habitats were therefore divided into parcels based upon their condition and minimum mappable unit of habitat area.

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