



Image: attenuation area and tree planting at Jamie's Farm

Method Statement: Outcome Measure 4

HEREFORDSHIRE NATURAL FLOOD MANAGEMENT PROJECT

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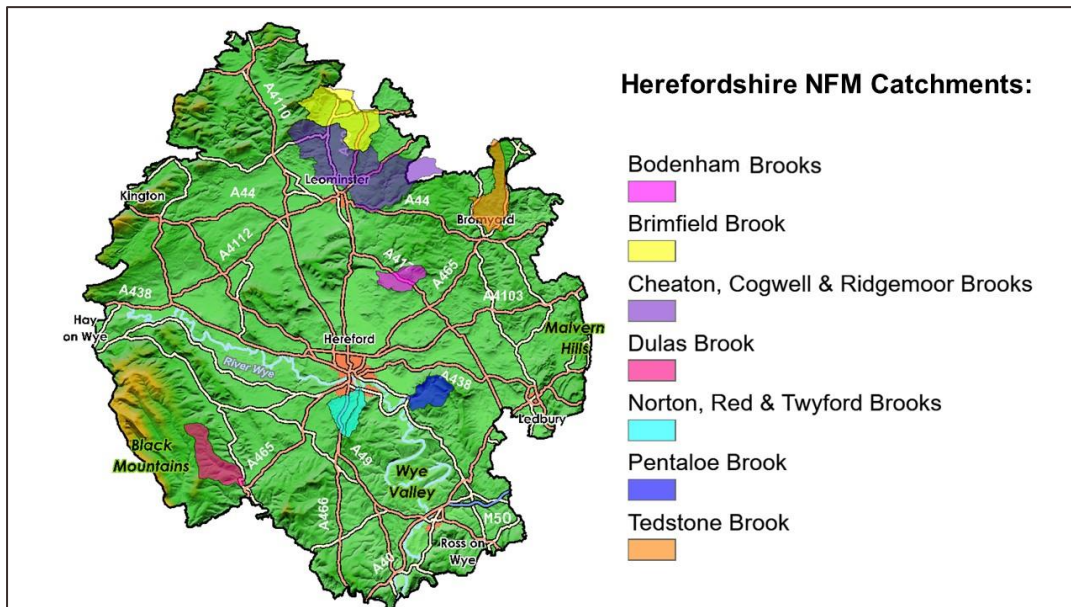
Version	Date published	Details
Version 1	September 2024	Overview of Herefordshire NFM Project’s approach to monitoring and delivering OM4 targets.

1 Introduction

1.1 Herefordshire Natural Flood Management project

The Herefordshire Natural Flood Management (NFM) Project seeks to work collaboratively with landowners and communities within seven priority sub-catchments (Figure 1-1), identifying opportunities to work with natural processes to slow the flow of water within the catchment and reduce the flood risk to downstream communities. Environment Agency funding comprising, Flood Defence Grant in Aid and Local Regional Flood Risk Management Committee monies has been secured until 31 March 2027 to deliver the project. As part of the agreed business case, Herefordshire Council (project lead) must seek to deliver agreed Outcome Measures (see Section 2). This document aims to outline how the project will monitor and deliver Outcome Measure 4 targets. Further information about the project can be found on the [council's NFM webpage](#).

Figure 1-1 Herefordshire NFM Project catchment areas



1.2 Outcome Measure 4

Projects funded through Defra's Flood and Coastal Erosion Risk Management (FCERM) partnership funding strategy are expected to deliver a variety of [Outcome Measures \(OM\)](#), including economic benefits (OM1), reduced flood risk to properties (OM2), improved protection to properties against coastal erosion (OM3) and environmental improvements (OM4). There are two categories of OM4; OM4a hectares of habitat created or enhanced, and OM4b kilometres of river enhanced. [Table 1 and Table 2 in the 'Partnership funding; Supporting guidance for Outcome Measure 4'](#) provide additional detail about OM4.

2 OM4 targets for Herefordshire NFM Project

2.1 OM4 targets

Table 2-1 and Table 2-2 summarise the OM4a and OM4b targets detailed in the Partnership Funding Calculator for the Herefordshire NFM Project. The methodology for how these targets were calculated is outlined in Appendix C.

Table 2-1 Herefordshire NFM Project OM4a targets

OM4a habitat type	Before project condition	Target condition at end of project (31 March 2027)*
Intertidal habitat	-	-
Woodland	10.5 ha Poor	10.5 ha Good
Wet woodland	2.3 ha Poor	2.3 ha Good
Wetlands and wet grassland	10.7 ha Poor	10.7 ha Good
Grassland	11.4 ha Poor	11.4 ha Good
Heathland	-	-
Ponds and lakes	0.7 ha Poor	0.7 ha Good
Arable land	1,300 ha Poor	1,300 ha Good
TOTAL:	1,335.6 ha	1,335.6 ha

*targets detailed in PF calculator and updated in July 2024

Table 2-2 Herefordshire NFM Project OM4b targets

OM4b river enhancement	Target condition at end of project (31 March 2027)*
Comprehensive restoration	-
Partial restoration	29.3 km
A single, major physical improvement	-
TOTAL	29.3 km

*targets detailed in PF calculator and updated in July 2024

2.2 Aims for each habitat type

As detailed in Table 2-1 and Table 2-2, by the end of the project's benefits period (25 years), the project is aiming to deliver 1,335.6 ha of habitat in 'good' condition and 29.3 km of watercourse which is considered to have 'partial restoration'. Table A-1 in Appendix A details the key features associated with achieving 'good' condition for each OM4a habitat type and Table B-1 in Appendix B details the criteria for achieving 'partial restoration' (OM4b) of rivers. The project will use this information to guide delivery.

As a project we will also aim to deliver the following:

At locations with OM4a woodland and wet woodland habitat:

- We will aim to create woodlands which have diverse shrub and field layers beneath the '*distinct, sometimes open canopy*' (Table A-1).
- For existing woodland, where appropriate, we will encourage the landowner to undertake management practices such as thinning or felling to enhance the woodland habitat.

At locations with OM4a grassland habitat:

- By working alongside organisations such as [Herefordshire Meadows](#), we will encourage landowners to create species rich grasslands/meadows using techniques such as seed broadcasting and sourcing seed from local donor sites.

At locations with OM4a arable habitat:

- We will encourage landowners to create/maintain diverse, species rich field margins which not only help to slow the flow of water but also create excellent habitat.

On top of the OM4 habitats detailed within this document, the project will be working with landowners and encouraging them to plant hedgerows, in particular in locations which intercept and slow down overland flow pathways. We will encourage landowners to plant and maintain diverse, species rich hedgerows. Native species should be planted when possible and landowners should be encouraged to plant a standard tree at regular intervals along the hedge line, e.g. every 10m.

3 Our approach to OM4s

3.1 Assumptions

The Herefordshire NFM project has made the following assumptions in recording its OM4s:

1. The condition of the habitat recorded as an OM4, is the condition we expect to achieve by the end of the project's benefits period i.e. after 25 years (as per [Business Case](#)).
2. NFM measures implemented as a direct result of advice received from either project funded Catchment Advisors at the [Wye and Usk Foundation](#) and [Severn Rivers Trust](#) or Herefordshire Council's NFM Project Team are considered to be a direct benefit of the Herefordshire NFM project and will therefore be recorded as an OM4 output.
3. The project will provide landowners with best practice guidance on habitat management and maintenance (relating to OM4a and OM4b habitats). The project makes the assumption that the landowner will then, to the best of their ability, make every effort to maintain and manage the OM4 habitats for as long as possible, ideally for a period of 25 years. Based on this assumption, the project will record these sites as delivering OM4a and OM4b targets.

3.2 Method for assessing and recording OM4a and OM4b

Following an initial site visit from the Catchment Advisor and a subsequent NFM Advisory report being issued to the landowner, any NFM recommendations which relate to the delivery of OM4 targets i.e. those relating to the OM4 habitats detailed in Table 2-1 or a section of watercourse which relates to OM4b river enhancement (Table 2-2), which the landowner wishes to take forward will undergo the following actions relating to the assessment and recording of OM4 targets:

1. **Survey:** At the location of the proposed NFM intervention, an initial assessment will be conducted by the Catchment Advisor which identifies the current type of habitat present and its condition.
 - For sites relating to OM4a delivery, the survey sheet contained in Appendix C will be completed.
 - For sites relating to OM4b delivery, an adapted version of the [River Naturalness survey](#), referred to as an OM4b survey, will be completed (Appendix D).
 - Photographs and maps of the existing site will also be collected.
2. **Survey data saved/inputted into OM4 tracker:** The following data will be saved onto the project's MS Teams SharePoint site; scanned OM4a and OM4b survey sheets, photos and maps of the site.
 - Survey data detailing existing conditions, alongside corresponding areas of OM4a 'good' habitat delivery or OM4b 'partial restoration' of rivers which have/will be achieved through the project's delivery of NFM will be recorded within the project's OM4 tracker excel sheet.

- River Naturalness survey data will also be inputted onto the [Cartographer website](#) by the Herefordshire NFM Project Officer and feed into the national citizen science monitoring programme.
- 3. **NFM implemented:** Landowner implements recommended NFM measure related to OM4a or OM4b targets, following guidance and support from the relevant Catchment Advisor or NFM Project Team.
- 4. **Best practice guidance on habitat management shared:** The NFM Project Team will provide landowners with best practice guidance on habitat management and maintenance (relating to OM4a and OM4b habitats). The project assumes that the landowner will then, to the best of their ability, make every effort to maintain and manage the OM4 habitats for as long as possible, ideally for a period of 25 years.
- 5. **Post NFM delivery photos:** After the implementation of the NFM measure, site photographs are taken and saved onto the project's MS Teams SharePoint site.
- 6. **GIS mapping of OM4s:** All sites related to OM4a and OM4b delivery will be mapped by the Herefordshire NFM Project Officer within GIS.

A representative sample of each of the OM4a habitat types and OM4b sections of watercourse will be re-surveyed through the project to assess habitat development and to provide assurance that the OM4a and OM4b targets will be achieved through project delivery.

3.3 Approach – OM4a

Through the project we are supporting landowners to deliver a wide variety of NFM measures, funded through several grant schemes e.g. the project's [NFM Construction grant scheme](#), [Countryside Stewardship \(CS\)](#) schemes, [Sustainable Farming Incentives \(SFI\)](#) (3 year agreement) and [England Woodland Creation Offers \(EWCO\)](#).

To achieve the OM4a targets detailed in Table 2-1, we have assumed that areas of newly created habitats, funded through the scheme options detailed in Table 3-1, will deliver 'good' habitat conditions by the end of the project's benefits period i.e. after 25 years. As such, areas of habitat relating to these grants will be recorded on the project's OM4 tracker as an OM4a deliverable for 'good' condition.

Through the project, we will encourage landowners to manage and maintain habitats to achieve 'good' condition (Table A-1). Grant funded items detailed within Table 3-2, alongside advice and guidance from the Catchment Advisors and NFM Project Team, will assist landowners in doing this. For example, a landowner receives funding through the NFM Construction grant scheme to plant 0.5 ha of trees. We would record this on the project's OM4 tracker as resulting in 0.5 ha of 'Good' woodland habitat being delivered.

In order to deliver OM4a arable habitat in 'good' condition, the project will work with landowners to encourage and support them in altering their land management practices to a system which meets the criteria of a 'good' arable habitat (Appendix A, Table A-1). The project assumes that at locations where the landowners have signed up to arable land management practices within national funding schemes such as CS and SFI (as detailed in Table 3-2), 'good' arable habitat will be maintained and therefore this area of land will be recorded as OM4a 'good' arable habitat. Fields which have undergone soil improvement works alone, would not be recorded as delivering OM4a.

Table 3-1 Funding schemes that will enable the creation of OM4a habitats

OM4a habitat type	Grant funding available to create habitat
Woodland and wet woodland	<p>NFM Construction Grant Scheme:</p> <ul style="list-style-type: none"> • NFM15 Tree planting • NFM17 Landowner innovation <p>Countryside Stewardship:</p> <ul style="list-style-type: none"> • TE4: Supply and plant tree <p>England Woodland Creation Offers:</p> <ul style="list-style-type: none"> • Supply and plant a tree <p>Sustainable Farming Incentive:</p> <ul style="list-style-type: none"> • AGF1: Maintain very low density in-field agroforestry on less sensitive land • AGF2: Maintain low density in-field agroforestry on less sensitive land
Wetlands and wet grassland	<p>NFM Construction Grant Scheme:</p> <ul style="list-style-type: none"> • NFM10 Wetland area • NFM17 Landowner innovation <p>Sustainable Farming Incentive:</p> <ul style="list-style-type: none"> • LIG1 and LIG2: Manage grassland with very low nutrient inputs (outside SDAs and in SDAs)
Grassland	<p>NFM Construction Grant Scheme:</p> <ul style="list-style-type: none"> • NFM17 Landowner innovation <p>Countryside Stewardship:</p> <ul style="list-style-type: none"> • GS2: Permanent grassland with very low inputs (outside SDAs) • GS5: Permanent grassland with very low inputs in SDAs • GS3: Ryegrass seed-set as winter food for birds • GS4: Legume and herb-rich swards • AB1: Nectar flower mix • SW7: Arable reversion to grassland with low fertiliser input <p>Sustainable Farming Incentive:</p> <ul style="list-style-type: none"> • IGL2 Winter bird food on improved grassland • AHL1: Pollen and nectar flower mix • AHL3: Grassy field corners and blocks
Ponds and lakes	<p>NFM Construction Grant Scheme:</p> <ul style="list-style-type: none"> • NFM08 Attenuation ponds • NFM7 Landowner innovation
Arable land*	N/A

*As per the [OM4 guidance](#), 'Environmental outcomes should not be used to contribute towards creating arable land'. Therefore this table does not include any funding scheme options that enables the creation of arable land. OM4a arable land targets will be associated to changes in land management practices and the presence of good field margins (Table 3-2).

Table 3-2 Funding schemes that will help support ongoing ‘Good’ practice and maintenance of OM4 habitats

OM4a habitat type	Grant funding available to support ongoing ‘Good’ practice and maintenance of OM4a habitats
Woodland and wet woodland	<p>NFM Construction Grant Scheme:</p> <ul style="list-style-type: none"> • NFM13a – Fencing – post, stock netting, 1 barb • NFM13b – Permanent electric fencing • NFM13c – Metal field gate • NFM13d – Wooden field gate <p>Countryside Stewardship:</p> <ul style="list-style-type: none"> • TE11: Tree surgery • SB1: Scrub control and felling diseased trees • FG1: Fencing • WD1: Woodland creation – maintenance payments • WD2: Woodland improvement <p>England Woodland Creation Offers:</p> <ul style="list-style-type: none"> • Annual maintenance payments for 15 years • Various options for tree protection e.g. wraps • Various options for fencing and associated gates to protect woodland • Vegetation management options
Wetlands and wet grassland	<p>Countryside Stewardship:</p> <ul style="list-style-type: none"> • SW12: Making space for water
Grassland	<p>NFM Construction Grant Scheme:</p> <ul style="list-style-type: none"> • NFM01 – Grassland aeration • NFM02 – Grassland sward lifting <p>Sustainable Farming Incentive:</p> <ul style="list-style-type: none"> • NUM2: Legumes on improved grassland • IGL3: 4m to 12m grass buffer strip on improved grassland • LIG1 and LIG2: Manage grassland with very low nutrient inputs (outside SDAs and in SDAs)
Ponds and lakes	
Arable land*	<p>NFM Construction Grant Scheme:</p> <ul style="list-style-type: none"> • NFM03 Arable subsoiling • NFM04 Catch/cover cropping • NFM05 Under sowing maize • NFM17 Landowner innovation <p>Sustainable Farming Incentive: One or a combination of the following grants:</p> <ul style="list-style-type: none"> • SAM1: Assess soil, test organic matter and produce a soil management plan • SAM2: Multi-species winter cover crops • SAM3: Herbal leys • IMP3 – Companion crop on arable and horticultural land • AHL4: 4m to 12m grass buffer strip on arable and horticultural land <p>When used to create high level field margins:</p> <ul style="list-style-type: none"> • AHL1: Pollen and nectar flower mix • AHL2: Winter bird food on arable land • AHL3: Grassy field corners and blocks • IGL1: Take improved grassland field corners or blocks out of management • IPM2: Flower-rich grass margins, blocks, or in-field strips

3.4 Approach – OM4b

As detailed in Table 2-2, the Herefordshire NFM Project aims to deliver 29.3 km of watercourse which is considered to have 'partial restoration' (OM4b). As detailed in Table B-1, Appendix B, partial river restoration is defined as:

- *“A partial restoration of the river channel has been achieved where habitats are enhanced and some of the physical modifications or engineering structures have been removed, altered or minimised to enable partial natural functioning of the river.*
- *Natural processes are reinstated to some degree and some physical habitat features are able to form and evolve, but are limited by the ongoing presence of physical modification and/or structures. This can include newly cut channels in which the ‘channel form’ (due to its main use or another pressure) is not natural, but the design enables some degree of natural river processes to operate and physical habitat features to form.”* [Table 2, EA, 2020](#)

As a project we consider NFM measures which deliver the following benefits as delivering OM4b benefits:

- Measures which create roughness within the channel through the installation of debris
- Measures which enhance the river channel habitats through the creation of shade, varied channel depths or varied sediment size
- Measures which re-naturalise the channel and remove modifications
- Measures which increase the [Water Framework Directive](#) (England and Wales) Regulations 2017 status of the watercourse
- Measures which reduce the amount of suspended sediment that enters the channel from runoff

The following NFM measures will be considered as delivering OM4b 'Partial restoration':

- Leaky dams (natural style)
- Riparian tree planting which creates shaded sections within the river channel
- Riparian buffer strips – created through fencing off sections of watercourse and allowing them to re-naturalise with vegetation.
- Locations where livestock poaching has been prevented - created through fencing off sections of watercourse
- In-field buffer strips adjacent to watercourses
- Cross drains on trackways linked to ford crossings
- Sediment traps near watercourses which directly reduce sediment loading into the river channel
- Gateway re-locations which directly reduce sediment loading into the river channel
- Re-meandering of watercourse – unlikely to be undertaken within this project
- Hedge planting across surface water flow pathways that directly reduce sediment loading into the river channel

The following sets out how we will calculate the length of watercourse that has benefitted from 'partial restoration' in order to measure delivery against the OM4b target detailed in Table 2-2.

For in-channel NFM features such as leaky dams:

$$\text{Length of OM4b} = \text{Length of watercourse containing NFM features} + \text{Length of watercourse impacted by NFM features}$$

Example:

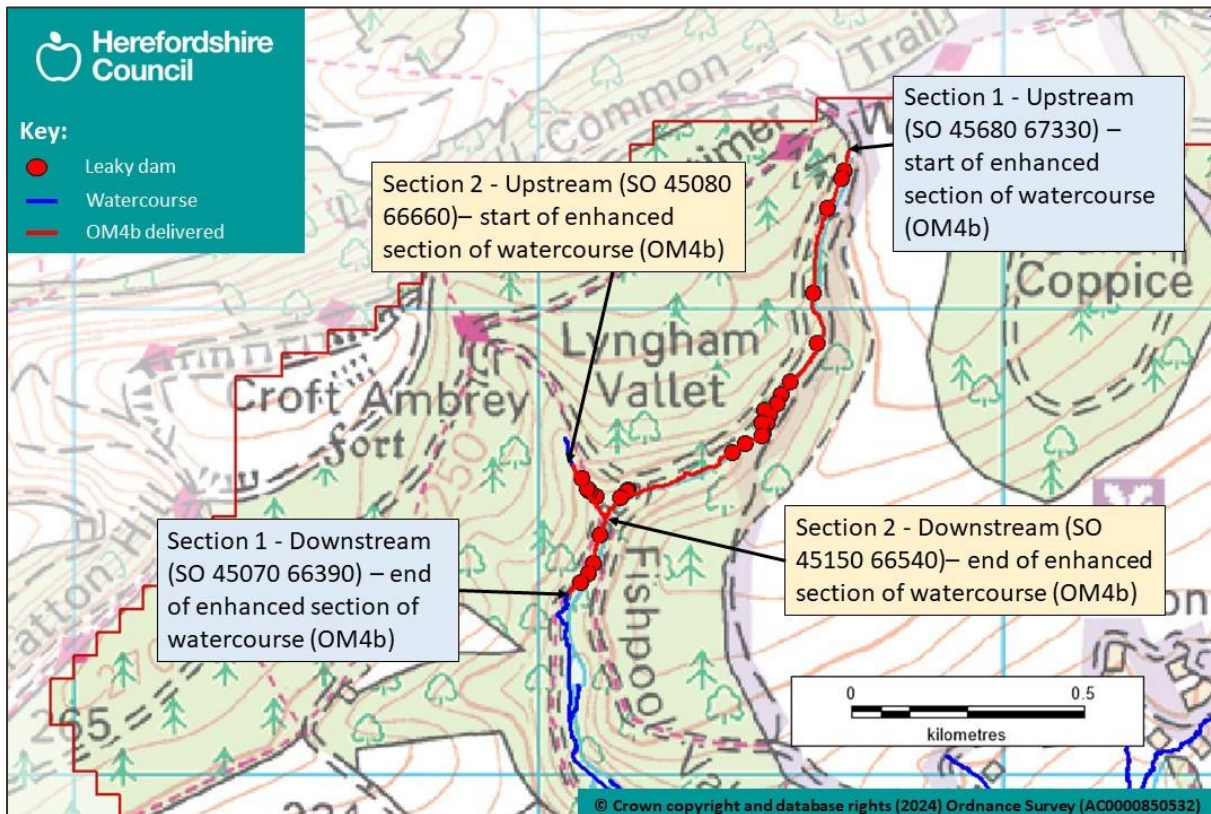
Figure 3-1 shows two sections of watercourse which have delivered OM4b. Section 1 has had 23 leaky dams installed along it, Section 2 has 4 leaky dams installed along it.

The length of OM4b delivered through the installation of 23 leaky dams in Section 1 (in-channel NFM measures) would be calculated using the following method:

- Upstream leaky dam location: SO 45659 67294
- Downstream leaky dam location: SO 45091 66408
- Length of watercourse containing NFM features: 0.11 km
- Upstream impact extent: SO 45680 67330
- Downstream impact extent: SO 45070 66390
- Length of watercourse impacted by NFM features: 0.07 km

OM4b delivered: 0.18 km

Figure 3-1 Map showing two examples of how to calculate OM4b delivery associated with in-channel NFM interventions e.g. leaky dams



For riparian NFM features adjacent to the channel e.g. riparian tree planting, riparian buffer strips:

$$\text{Length of OM4b} = \text{Length of river channel with NFM feature adjacent to it e.g. riparian buffer} + \text{Length of watercourse impacted by NFM features}$$

For NFM features which reduce suspended sediment entering the watercourse from a distinct surface water flow pathway e.g. cross drains on trackways linked to ford crossings and sediment traps:

$$\text{Length of OM4b} = \text{Length of watercourse impacted by NFM features}$$

The project will assume that the length of watercourse impacted/benefitting from this type of NFM intervention will be the distance between the surface water flow pathway impacted by the NFM intervention and the next main downstream surface water flow pathway. SciMap Erosion Risk mapping will be used to help calculate this distance.

For re-meandering of a watercourse:

$$\text{Length of OM4b} = \text{Length of watercourse re-meandered}$$

The project assumes that NFM measures delivering OM4b following the approach detailed above and funded through the scheme options detailed in Table 3-3, will deliver OM4b ‘partial restoration’ of river habitat by the end of the project’s benefits period i.e. after 25 years. As such, lengths of watercourse relating to these grants will be recorded on the project’s OM4 tracker as an OM4b deliverable for ‘partial restoration’ of the river.

Whilst we note that leaky dams will degrade over time, they will also naturally replenish. The project will monitor the leaky dams installed through the project, regularly checking their integrity, e.g. after a flood event and undertaking maintenance activities where appropriate.

Table 3-3 Funding schemes that will result in OM4b ‘partial restoration’ of rivers

Funding scheme	Funding options to support delivery of OM4b ‘partial restoration’ of river
NFM Construction Grant Scheme	<p>In channel NFM:</p> <ul style="list-style-type: none"> • NFM11 In-ditch seepage barriers • NFM12 Leaky dams • NFM17 Landowner innovation <p>NFM out of river channel but delivering OM4b benefits:</p> <ul style="list-style-type: none"> • NFM07 Sediment traps • NFM13a Fencing – post stock netting, 1 barb • NFM13b Permanent electric fencing • NFM13c Metal field gate • NFM13d Wooden field gate • NFM13e Gateway re-location • NFM14 Cross drains • NFM15 Tree planting • NFM16a Hedge planting • NFM16b Standard hedgerow tree • NFM17 Landowner innovation • NFM18a – 18d – NFM Facilitation options e.g. provision of alternative livestock drinking troughs
Countryside Stewardship	<p>In channel NFM:</p> <ul style="list-style-type: none"> • RP32: Small leaky woody dams • RP33: Large leaky woody dams • RP12: Check dams

Funding scheme	Funding options to support delivery of OM4b 'partial restoration' of river
	<p>NFM out of river channel but delivering OM4b benefits:</p> <ul style="list-style-type: none"> • BN7: Hedgerow gapping-up • BN11: Planting new hedges • FG1: Fencing • FG2: Sheep netting • FG3: Permanent electric fencing • FG12: Wooden field gate • RP2: Gateway relocation • RP5: Cross drains • RP7: Sediment ponds and traps • RP10: Silt filtration dams or seepage barriers • TE1: Planting standard hedgerow tree • TE4: Supply and plant tree • LV3: Hard bases for livestock drinkers • LV7: Livestock troughs • SW1: 4m to 6m buffer strip on cultivated land • SW2: 4m to 6m buffer strip on intensive grassland • SW4: 12m to 24m watercourse buffer strip on cultivated land • SW8: Management of intensive grassland adjacent to a watercourse • SW11: Riparian management strip • SW12: Making space for water • SW15: Flood mitigation on arable reversion to grassland • SW16: Flood mitigation on permanent grassland
Sustainable Farming Incentive	<p>NFM out of river channel but delivering OM4b benefits:</p> <ul style="list-style-type: none"> • HRW3: Maintain or establish hedgerow trees • AHL4: 4m to 12m grass buffer strip on arable and horticultural land • IGL3: 4m to 12m grass buffer strip on improved grassland
England Woodland Creation Offers	<p>In channel NFM:</p> <ul style="list-style-type: none"> • Small leaky woody dam (1 to 2.99 metres) • Large leaky woody dam (3 to 5 metres) <p>NFM out of river channel but delivering OM4b benefits:</p> <ul style="list-style-type: none"> • Supply and plant tree • Supplement for use of individual tree wraps • Supplement for use of individual tree shelters • Post and wire fencing • Sheep netting • Temporary electrical fencing • Metal field gate • Wooden field gate • Hard base for livestock drinkers • Pasture pump and associated pipework • Ram pump and associated pipework • Livestock trough • Pipework associated with livestock troughs • Culvert

Appendix A - OM4a habitats and conditions

Table A-1 Description of OM4a habitat types and conditions. Information taken from [\(Table 1, EA, 2020\)](#)

Habitat type and description	Description of 'Poor' habitat condition	Description of 'Medium' habitat condition	Description of 'Good' habitat condition
<p>Intertidal habitat - These habitats are found between the high and low tide marks. The habitats most commonly associated with FCERM works are salt marshes and mud flats.</p>	<p>Habitat shows signs of damaging management or use (for example, drainage, inappropriate grazing), pollution or obvious and damaging erosion. Few of the species expected for the type of habitat are present.</p>	<p>Natural processes will support the habitat being created or enhanced.</p> <p>Management regime (includes no management where appropriate for the habitat) generally appropriate for the site, but some minor issues are present.</p> <p>Habitat shows signs of physical damage, but its structure is still considered robust and will recover if natural processes are established.</p> <p>For existing habitats, some but not all of the expected species are found on the site and evidence is provided that the habitat will continue to recover within the benefits period of the project.</p> <p>For new habitats, there is evidence that the habitat will establish within the benefits period of the project.</p>	<p>Natural processes are optimal for the type of habitat. Management regime (includes no management where appropriate for the habitat) and the conditions to maintain the habitat are in place, and evidence is provided that this will continue for at least the benefits period of the project.</p> <p>For existing habitats, most of the expected species are found on the site and evidence is provided that the habitat will recover within the benefits period of the project.</p> <p>For new habitats, there is evidence that the habitat will establish or recover within the benefits period of the project.</p>
<p>Woodlands and wet woodland - Vegetation dominated by trees more than 5 m high when mature, which forms a distinct, although sometimes open, canopy (areas of trees with a canopy greater than 20%). This includes felled, young or newly planted woodland.</p> <p>For wet woodland trees are typified by trees associated with wet soils such as alder, birch and willow.</p>	<p>Signs of damaging management (damaged trees, excessive poaching or grazing impacts), high proportion of non-native species and few of the species you would expect to see in the woodland type.</p>	<p>Management regime generally suitable for the site (includes no management where appropriate for the habitat), but a few minor issues may be evident. Trees are of similar age and height structure throughout the woodland. Some standing or fallen deadwood is present.</p> <p>For existing habitats, some but not all of the expected species are found on the site, and evidence is provided that the habitat will continue to recover within the benefits period of the project.</p>	<p>Management regime (includes no management where appropriate for the habitat) is optimal for the type of habitat and will continue for at least the benefits period of the project.</p> <p>For existing habitats, most of the expected species are found on the site and a diverse age structure is present or there is evidence that the habitat will recover within the benefits period of the project.</p> <p>For new habitats, there is evidence that the species being planted are appropriate for the habitat and the habitat will establish or recover within the benefits period of the project.</p>

Habitat type and description	Description of 'Poor' habitat condition	Description of 'Medium' habitat condition	Description of 'Good' habitat condition
<p>There is no minimum size for areas of trees that have the definite characteristics and feel of a woodland and are managed as woodland.</p>		<p>For new habitats, there is evidence that the species being planted are appropriate for the habitat and will establish within the benefits period of the project.</p>	
<p>Wetlands and wet grassland - Wetlands and wet grassland habitats include, flood plain wetland mosaics, reedbeds and bogs.</p> <p>They are found on flood plains, on the fringes of open water, in valleys, in basin-like depressions, and also around springs and flushes. Often have peat soils present (in either wet, dry or drained state and of any depth).</p> <p>Water regimes may be where the soil is waterlogged, with the water table close to or above the surface for most of the year or where periodic surface water flooding results in a distinctive wet grassland habitat or mosaic.</p>	<p>Site shows signs of damaging management, low water levels (drying out or inappropriate drainage) or poor water quality. Few of the species you would expect to see in the habitat type present.</p>	<p>Management regime generally suitable for the site (includes no management where appropriate for the habitat), with no obvious/known sources of pollution. Water levels vary within expected ranges for the type of habitat.</p> <p>For existing habitats, some but not all of the expected species are found on the site, and evidence is provided that the habitat will continue to recover within the benefits period of the project.</p> <p>For new habitats, there is evidence that the species being introduced are appropriate for the habitat and the habitat will establish within the benefits period of the project.</p>	<p>Management regime (includes no management where appropriate for the habitat) is optimal for the type of habitat and will continue for at least the benefits period. Water quality and quantity is optimal for the type of habitat.</p> <p>For existing habitats, most of the expected species are found on the site, and there is evidence that the habitat will recover within the benefits period of the project.</p> <p>For new habitats, there is evidence that the species being introduced are appropriate for the habitat and the habitat will establish within the benefits period of the project.</p>
<p>Grassland - Land under permanent natural or semi-natural grassland, dominated by grassland species with very little (if any) dwarf shrub, wetland or wooded species within the sward.</p> <p>Grassland habitats include lowland and upland grasslands and meadows.</p>	<p>Habitat not managed for biodiversity, low number of the species you would expect to see in the particular type of grassland. Includes habitats managed mainly for amenity purposes.</p>	<p>Habitat in some form of management, but not optimal for the type of grassland.</p> <p>For existing habitats, some but not all of the expected species are found on the site, and evidence is provided that the habitat will continue to recover within the benefits period of the project.</p> <p>Total cover of wildflowers and sedges less than 30%, excluding white clover, creeping buttercup and injurious weeds.</p> <p>For new habitats, there is evidence that the species being introduced are appropriate for the habitat and the habitat will establish within the benefits period of the project.</p>	<p>Species-rich grassland of all priority habitat types with appropriate management and most of the expected species found, and there is evidence that the habitat will recover within the benefits period of the project.</p> <p>Wildflower and sedges above 30%, excluding white clover <i>Trifolium repens</i>, creeping buttercup <i>Ranunculus repens</i> and injurious weeds.</p> <p>For new habitats, there is evidence that the species being introduced are appropriate for the habitat and the habitat will establish or recover within the benefits period of the project.</p>
<p>Heathlands - Heathland with at least 25% cover of heathers and other dwarf</p>	<p>Shows signs of damaging management that is affecting the habitat. This</p>	<p>Management regime is generally suitable (includes no management where appropriate for the habitat). For existing habitats, some but not all of the expected</p>	<p>Management regime (includes no management where appropriate for the habitat) is optimal for the type of habitat and will continue for at least the benefits period.</p>

Habitat type and description	Description of 'Poor' habitat condition	Description of 'Medium' habitat condition	Description of 'Good' habitat condition
<p>shrubs, or previously heathland in a degraded state below this.</p> <p>Species typically comprises heathers, gorses, fine grasses, wildflowers, mosses and lichens in a complex mosaic.</p> <p>Habitat covers the full altitudinal range of heathlands.</p>	<p>can be physical damage to the vegetation and includes activities such as excessive poaching, damage from using or storing machinery, burning sensitive areas or unmanaged/ excessive public access activities. Includes areas where the heather and dwarf shrub cover is below 25%, but still frequent through the area (fragmented heathland).</p>	<p>species are found on the site, and evidence is provided that the habitat will continue to recover within the benefits period of the project.</p> <p>For new habitats, there is evidence that the species being introduced are appropriate for the habitat and the habitat will establish within the benefits period of the project.</p>	<p>Most of the expected species are found on the site. Cover of trees and scrub less than 15%, injurious weed cover less than 5%.</p> <p>For existing habitats, there is evidence that the habitat will recover within the benefits period of the project.</p> <p>For new habitats, there is evidence that the species being introduced are appropriate for the habitat and the habitat will establish or recover within the benefits period of the project.</p>
<p>Ponds and lakes - Lakes generally cover water bodies over 2 ha in area. Expert judgement should be used to decide if a water body between 1 and 2 ha area is described as a pond or as a lake.</p> <p>Ponds generally cover all water bodies up to 1 ha in area. They include sunny or shaded and temporary or permanent ponds at any stage of succession, from newly created ponds to ones that are completely overgrown.</p> <p>They also include scrapes and other temporary ponds, which may be dry at certain times of the year.</p>	<p>Shows signs of damaging management that is affecting the habitat. Water quality is poor (indicated by things like algal blooms and scums, and obvious sources of pollution). Few of the species you would expect to see in the type of pond or lake are present. Unmanaged invasive weeds are present.</p>	<p>Management regime generally appropriate for the site (includes no management where appropriate for the habitat), with no obvious/known sources of pollution. Water levels vary within expected ranges for the type of habitat.</p> <p>For existing habitats, some but not all of the expected species are found on the site, and evidence is provided that the habitat will continue to recover within the benefits period of the project.</p> <p>For new habitats, there is evidence that the species being introduced are appropriate for the habitat and the habitat will establish within the benefits period of the project.</p>	<p>Management regime (includes no management where appropriate for the habitat) is optimal for the type of habitat and will continue for the benefits period. Water quality and quantity is optimal for the type of habitat.</p> <p>For existing habitats, there is evidence that the habitat will recover within the benefits period of the project.</p> <p>For new habitats, there is evidence that the species being introduced are appropriate for the habitat and the habitat will establish or recover within the benefits period of the project.</p>
<p>Arable land* - Land under cultivation, includes temporary grass leys.</p>	<p>Intensively managed, cropped annually, few field margins or semi-natural areas.</p>	<p>Cropped annually with moderate levels of field margins and semi natural areas.</p>	<p>Extensively managed, cropped annually with high levels of field margins.</p>

**"Environmental outcomes should not be used to contribute towards creating arable land. When considering enhancement, care must be taken to ensure that there will be no cross subsidy or potential double funding with other schemes or programmes of work, for example agri-environment schemes.*

Habitat condition relates to the ecological condition of the land, not the food production condition.” ([Table 1, EA, 2020](#))

Appendix B – OM4b Categories of watercourse enhancement

Table B-1 Description of OM4b categories of watercourse enhancement. Information taken from [\(Table 2, EA, 2020\)](#)

Category	Description
<p>Comprehensive restoration of natural processes, habitats and removal of physical modifications (includes creating new channels with minor physical modifications that do not inhibit natural river processes)</p>	<p>Comprehensive restoration is achieved where habitats are enhanced and all physical modifications (including river engineering structures), which restrict the natural functioning of the river corridor have been removed apart from minor modifications (for example, small outfalls). The modifications do not limit biodiversity or natural river processes: the ability for physical habitat features to form and evolve.</p> <p>A scheme that includes newly cut channels can be considered a comprehensive restoration if reinstating the natural channel planform, for example re-meandering a previously straightened section.</p>
<p>Partial restoration of natural processes, habitats and partial removal of physical modifications (includes creating new channels with some physical modifications and partial functioning of natural processes)</p>	<p>A partial restoration of the river channel has been achieved where habitats are enhanced and some of the physical modifications or engineering structures have been removed, altered or minimised to enable partial natural functioning of the river.</p> <p>Natural processes are reinstated to some degree and some physical habitat features are able to form and evolve, but are limited by the ongoing presence of physical modification and/or structures. This can include newly cut channels in which the ‘channel form’ (due to its main use or another pressure) is not natural, but the design enables some degree of natural river processes to operate and physical habitat features to form.</p>
<p>A single major physical or habitat enhancement</p>	<p>In this category only one physical pressure is improved by the project, for example by reinstating natural banks or improving fish passage by removing or modifying structures,</p> <p>Wherever possible, weir modification should provide additional benefits and help restore natural processes. For example, reducing weir heights benefits river processes by lowering artificially raised water levels and reducing the length of channel affected by the ponding effect of the weir.</p> <p>For fish passage, OM4 benefits may be claimed for the distance to the next physical barrier. Where distances are large, you will need to make a judgement on the length of qualifying benefits.</p>

Appendix C - Methodology for calculating estimated OM4 targets

In order to estimate the OM4 benefits associated with the successful delivery of the Herefordshire NFM project, the following methodology has been adopted.

OM4a:

In the first instance, the total area of each catchment has been noted (Table B-1). Based on the assumptions and approaches detailed within this document, discussions were then held with the Catchment Advisors at Wye and Usk Foundation (WUF) and Severn Rivers Trust (SRT). Using their expert knowledge of the catchments and landowners, WUF and SRT, estimated the total area of each OM4a habitat type that they felt could realistically be delivered through this project in each of the catchments (Table B-2). These values were then used to calculate the total OM4a targets for the Herefordshire NFM project.

Table B-1 Size of each of the NFM catchment areas

Catchment	BOD	CCR	DUL	PEN	RNT	TED	BRIM
Total catchment area (km²)	17	74	20	12	13	21	30.2
Total catchment area (ha)	1,700	7,400	2,000	1,200	1,300	2,100	3,020

Table B-2 OM4a targets for the Herefordshire NFM catchment areas

OM4a habitat type	BOD Target (ha)	CCR Target (ha)	DUL Target (ha)	PEN Target (ha)	RNT Target (ha)	TED Target (ha)	BRIM Target (ha)	Overall OM4a target for project (ha)
Intertidal habitat	-	-	-	-	-	-	-	0.0
Woodland	4	1	1	1	1	1	1.5	10.5
Wet woodland	0.2	0.6	0.3	0.3	0.3	0.3	0.3	2.3
Wetlands and wet grassland	3.5	2	1.5	1	1	1	0.7	10.7
Grassland	1.5	5	2	0.5	1	1	0.4	11.4
Heathland	-	-	-	-	-	-	-	0.0
Ponds and lakes	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.7
Arable land	200	500	50	50	200	200	100.0	1,300.0
TOTAL:	209.3	508.7	54.9	52.9	203.4	203.4	103.0	1,335.6

Note, the catchments do not have intertidal habitat or heathland within them.

OM4b:

Using the Environment Agency's [Detailed River Network dataset](#), the total length of watercourse within each catchment was calculated (Table B-3). Based on the assumptions and approaches detailed within this document, discussions were then held with the Catchment Advisors at Wye and Usk Foundation (WUF) and Severn Rivers Trust (SRT). Using their expert knowledge of the catchments and landowners, WUF and SRT, estimated the total length of watercourse that they felt could realistically be enhanced and deliver OM4b through this project in each of the catchments (Table B-4). These values were then used to calculate the total OM4b target for the Herefordshire NFM project.

Table B-3 Total length of mapped watercourse within each catchment

Catchment	BOD	CCR	DUL	PEN	RNT	TED	BRIM	TOTAL
Total length of DRN in catchment (km)	28.86	127.08	48.69	23.16	24.96	37.24	62.43	352.43

Table B-4 OM4b targets for the Herefordshire NFM catchment areas

OM4b river enhancement	BOD	CCR	DUL	PEN	RNT	TED	BRIM	TOTAL
Comprehensive restoration								0.0
Partial restoration	5	5	5	3	4	3	4.3	29.3
A single, major physical improvement								0.0
TOTAL:	5	5	5	3	4	3	4.3	29.3

Appendix C – OM4a survey sheet

Part 1 – Site and survey information

Site name	
Catchment	
Surveyor	
Date and time of survey	
Planned NFM measures <i>Please detail what NFM measures will be delivered at this site, including dimensions and areas affected e.g. 0.5ha woodland</i>	

Please provide the following supporting information:

- Photos of each existing habitat type, noting any key features or evidence of existing condition
- Map of survey area – the map should show the whole survey area, clearly marking the location and extent of each existing habitat type.
- Map of proposed OM4a habitat – the map should clearly show the location and extent of each OM4a habitat type that will be delivered at this site.

Part 2 - Habitat overview – existing

Existing habitat type	Grid reference <i>Central location</i>	Total area of habitat (ha)	Area of habitat (ha) in:			Notes
			Poor condition	Medium condition	Good condition	
Woodland						
Wet woodland						
Wetlands and wet grassland						
Grassland						
Ponds and lakes						
Arable land						
Other (please state)						

OM4a survey – supporting info

The following information should be used to help you determine the habitat type and its condition. Information is based on [Table 1 in the 'Partnership funding; Supporting guidance for Outcome Measure 4'](#) (Environment Agency, 2020)

WOODLAND and WET WOODLAND

Habitat description - Woodland: Vegetation is dominated by trees (>5m when mature), which form a distinct canopy (>20% canopy), although gaps in the canopy can exist.

Habitat description – Wet Woodland: Vegetation is dominated by trees (>5m when mature), which form a distinct canopy (>20% canopy), although gaps in the canopy can exist. Typical trees present are associated with wet soils e.g. alder, birch and willow. Soils are frequently wet or seasonally wet e.g. due to flooding, soil type or proximity to waterbody. Often found along watercourses, on floodplains, edges of lakes, in peaty hollows and on the margins of fens, bogs and mires. Wet woodland can be found as a small pocket of woodland within a larger drier woodland. See the [Woodland Trust website](#) for more information.

Common non-native tree species (UK): Beech (copper), Cedar, Field Elm, Apple, Cherry (sour), Plum (cherry), Horse chestnut, Chesnut (sweet), Leyland cypress, Lawson cypress, Huntingdon Elm, Eucalyptus, Douglas Fir, Western Hemlock, European larch, Norway maple, Monkey puzzle, Holm oak, Red oak, Turkey oak, Pear, Black pine, London plane, Plum, White poplar, Norway spruce, Sitka spruce, Sycamore, Walnut, Black walnut, Western red cedar, Irish yew (See [Woodland Trust website](#) for more details about each of these non-native species)

Woodland types and expected tree species (UK):

Coniferous woodland: Douglas fir, Corsican pine, Lodgepole pine, Norway spruce, Sitka spruce, Hybrid larch, Noble fir, Western hemlock, Yew, Scots pine

Broadleaved woodland: Ash, Beech, Hazel, Oak, Small leaved lime, wild cherry, Rowan, Sycamore, Silver birch

Wet woodland: Alder, Birch (downy), Willow (bay), Willow (white), Willow (crack), Willow (grey)

Typical good management practices:

- Promote a diverse structure by using techniques such as thinning, coppicing, formative pruning and pollarding. More information available on [Woodland Trusts website](#).
- Retain cut wood and leave stacks and piles of wood on the ground as decaying wood provides an excellent habitat for wildlife.
- Support the establishment of future veteran trees (large older trees)
- Maintain/ create open areas of wooded habitat and glades, which support areas of scrub, grassland, heathland and wet vegetation. Mechanical cutting or animal grazing can assist with this.

For more information and guidance on woodland management, please visit the [Woodland Trusts website](#) or [Forest Research website](#).

Checklist for habitat condition – woodland and wet woodland	
Poor habitat condition:	<input type="checkbox"/> Signs of damaging management practices e.g. damaged trees, excessive poaching or grazing impacts <input type="checkbox"/> High proportion of non-native species <input type="checkbox"/> Few of the species you would expect to see in that woodland type
Medium habitat condition:	<input type="checkbox"/> Management regime generally suitable for the site (includes no management when appropriate for the habitat), however a few minor issues may be evident <input type="checkbox"/> Trees are of a similar age and height structure throughout the woodland <input type="checkbox"/> Some standing or fallen deadwood is present <input type="checkbox"/> Some but not all of the expected species are present <input type="checkbox"/> Evidence that habitat will continue to recover within the benefits period of the project i.e. 25 years
Good habitat condition:	<input type="checkbox"/> Optimal management regime in place (includes no management when appropriate for the habitat) which will be in place for at least the length of the benefits period of the project i.e. 25 years <input type="checkbox"/> Most of the expected species are present <input type="checkbox"/> Trees have a diverse age structure <input type="checkbox"/> Evidence that habitat will recover within the benefits period of the project i.e. 25 years <input type="checkbox"/> Newly planted woodlands – evidence that species being planted are appropriate for habitat and will establish within the benefits period of the project

WETLANDS AND WET GRASSLAND

Habitat description – Wetlands and wet grasslands: Land that is either permanently or seasonally inundated by water, which supports a diverse range of species which are adapted to live in these conditions. These habitats are located on floodplains, on the fringes of open water, in valleys, in basin-like depressions and around springs and flushes. The water regime in these habitats may result in the soils being waterlogged and peat is often present in the soils (either wet, dry or in a drained state, of any depth). The water table may be close or above the ground surface for most of the year and the land may be subject to periodic surface water flooding.

Examples of this habitat type include: [ditches](#), [scrapes](#), [fens](#), [reedbeds](#), [wet grassland](#), flood plain wetland mosaics, [peat bogs](#)

Typical wetland and wet grassland vegetation species:

Wetland trees: Willow (*Salix*), Alder (*Alnus*), Birch (*Betula*), Poplar (*Populus*)

Wetland plants: Marsh marigold, Cuckooflower, Ragged robin, Purple loosestrife, Orchids, Meadowsweet, Great reedmace, Flowering rush, Hemp agrimony, Common fleabane, Devil's-bit scabious,

For more information, see [Wildfowl and Wetlands Trust website](#)

Typical good management practices:

- Most wetland vegetation species are associated with low soil-nutrient availability. It is therefore recommended that wetland areas are not sprayed with fertilisers, slurry or farmyard manure. Runoff from silage or manure should not be allowed to enter the wetland habitat.
- Dead stock should not be buried in wetlands as their remains could leach nutrients into the habitat.
- Avoid altering the water table of the wetland e.g. by drainage or by diverting flows into the habitat.

- Having an appropriate grazing or cutting regime is important as it helps remove nutrient rich vegetation, prevents vegetation succession to coarser grassland species or scrub and provides opportunities for slower growing species to survive. It is recommended that wetland grazing stops for 3 to 4 months in the summer to enable plants to flower and seed. Grazing should then be re-introduced for a short period in the autumn or winter.
- To support invertebrate species, create a varied vegetation structure with at least a quarter of the habitat being tussocky.

For more information see [Technical Note T519](#), produced by the Scottish Agricultural College.

Checklist for habitat condition – wetland and wet grassland
<p>Poor habitat condition:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Signs of damaging management practices e.g. low water levels resulting in land drying out, inappropriate drainage, poor water quality <input type="checkbox"/> Few of the species you would expect to see in a wetland or wet grassland
<p>Medium habitat condition:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Management regime generally suitable for the site (includes no management when appropriate for the habitat), however a few minor issues may be evident <input type="checkbox"/> No obvious/known sources of pollution <input type="checkbox"/> Water levels vary within expected ranges for the type of habitat <input type="checkbox"/> Some but not all of the expected species are present <input type="checkbox"/> Evidence that habitat will continue to recover within the benefits period of the project i.e. 25 years
<p>Good habitat condition:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Optimal management regime in place (includes no management when appropriate for the habitat) which will be in place for at least the length of the benefits period of the project i.e. 25 years <input type="checkbox"/> Water quality and quantity is optimal for the type of habitat <input type="checkbox"/> Most of the expected species are present <input type="checkbox"/> Evidence that habitat will recover within the benefits period of the project i.e. 25 years <input type="checkbox"/> New wetlands and wet grasslands – evidence that species being introduced are appropriate for habitat and will establish within the benefits period of the project

GRASSLAND

Habitat description – grassland: area of land dominated by grasses, with few dwarf shrub, wetland or woodland plant species. Grassland areas are often used for grazing and are found in both the uplands and lowlands. There are numerous types of grassland including:

- **Unimproved grassland** – area of grassland which has never been ploughed, reseeded or heavily fertilised. It is species rich, often including flowering plants.
- **Semi-natural grassland** – areas of grassland which have developed from a sustained grazing regime and have been fertilised.
- **Improved grassland** – areas of grassland which have a low species diversity, often dominated by rye grass. Land has often been subject to ploughing, reseeded and the heavy application of fertiliser.

Guidance on how to identify the type of grassland present can be found in the [Magnificent Meadows guidance document](#).

Grassland plant species: Cow parsley, Oxeye daisy, Cocksfoot grass, Meadow foxtail, Yorkshire fog grass, Cowslip. Further guidance is available in [‘Plants of Wildflower Meadows’ by Magnificent Meadows](#).

Typical good management practices:

- Manage vegetation – either cut or graze grassland at the end of the summer. If you cut the grassland, allow the cuttings to be left on the ground for a week or so to allow time for the seeds to drop.
- Prevent dominant species such as common nettle, rushes, docks, creeping thistle and cotoneaster from taking hold within the habitat.
- Minimise/ prevent actions which result in soil compaction or poaching e.g. during periods of wet weather, avoid the use heavy machinery or vehicles during and consider removing livestock or reducing grazing pressure. Relocating livestock drinking troughs can also help to minimise compaction issues.
- Undertake hay cuts and grazing re-introductions at a time after the majority of plants have flowered and set seed.
- If livestock are present, follow read [Plantlife's guide to grazing flower-rich pasture](#).

For more information see [Plantlife's guide to maintaining meadows](#) and [Herefordshire Meadows website](#).

Checklist for habitat condition – Grassland
<p>Poor habitat condition:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Habitat not managed for biodiversity. <input type="checkbox"/> Few of the species you would expect to see in the particular type of grassland. <input type="checkbox"/> Includes grassland habitats that are mainly managed for amenity purposes.
<p>Medium habitat condition:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Habitat in some form of management, but not optimal for the type of grassland. <input type="checkbox"/> Some but not all of the expected species are present <input type="checkbox"/> Evidence that habitat will continue to recover within the benefits period of the project i.e. 25 years <input type="checkbox"/> Total cover of wildflowers and sedges less than 30%, excluding white clover, creeping buttercup and injurious weeds. <input type="checkbox"/> New grassland habitat - evidence that species being introduced are appropriate for habitat and will establish within the benefits period of the project
<p>Good habitat condition:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Species-rich grassland of all priority habitat types with appropriate management. <input type="checkbox"/> Most of the expected species are present <input type="checkbox"/> Evidence that habitat will recover within the benefits period of the project i.e. 25 years <input type="checkbox"/> Wildflower and sedges above 30%, excluding white clover Trifolium repens, creeping buttercup Ranunculus repens and injurious weeds. <input type="checkbox"/> New grasslands – evidence that species being introduced are appropriate for habitat and will establish within the benefits period of the project

PONDS and LAKES

Habitat description – ponds: waterbodies up to 1 ha in area, although can potentially include waterbodies between 1 and 2 ha, use expert judgement. Ponds can be sunny or shaded, temporary or permanent and at any stage of succession e.g. newly created to overgrown. They can include scrapes and other forms of temporary pond which may be dry at certain times of the year.

Habitat description – lakes: waterbodies which are over 2 ha in area, although can potentially include waterbodies between 1 and 2 ha, use expert judgement.

Typical ponds and lakes vegetation species:

- **Submerged or oxygenating plants** – release oxygen into water e.g. Spiked water-milfoil, Rigid hornwort, Water violet
- **Floating pond plants** e.g. water lilies, Frogbit, Common water-crowfoot,

- **Marginal/emergent plants** e.g. Water-forget-me-knot, Bogbean, Watermint, Yellow flag iris, Lesser Spearwort
- **Marsh plants** e.g. Marsh marigold, Globeflower, Pillwort, Brooklime

For more information, including examples of non-native species, please see [Wildfowl and Wetlands Trust website](#).

Typical good management practices for ponds:

- **Water quality** - Improve/ maintain good water quality in the pond. Ensure [Farming Rules for Water](#) are adhered to and take actions to reduce nutrient, sediment and pollution inputs into the pond.
- **Variation** - In locations where there are multiple ponds, try to maintain different conditions in each pond to promote colonisation by different species e.g. different depths of pond, sunny and shaded areas and allowing seasonal drying out of pond.
- **Manage bankside vegetation** – to encourage semi-aquatic vegetation growth around the pond, young scrub (<50 years old) should be cut back each year to prevent dense areas of shade. Light grazing on unshaded areas could be used to achieve this, however care should be taken to prevent adverse effects of grazing e.g. poaching and sediment entry into pond/lake. Mature trees and hedgerows should be kept and some scrub and brambles should be left as a source of nectar.
- **Manage aquatic vegetation** – To avoid disturbing breeding birds, amphibians and fish, aquatic vegetation management should be undertaken in the autumn and winter months. Emergent plants should be managed and in some instances removed. For further guidance see [Defra's website](#).

Typical good management practices for lakes:

- **Water levels** – allow water levels to naturally fluctuate throughout the year. These variations will support the creation of marginal habitat which is often submerged during the winter and exposed in the summer.
- **Submerged vegetation** - Do not remove submerged vegetation, unless it's a non-native species. On recreational lakes, vegetation around boathouses and fishing pegs can be removed providing it's less than 20% of total area of lake vegetation.
- **Shoreline vegetation** – aim to manage shoreline vegetation in a way which encourages varied amounts of shade e.g. areas of full shade, dappled shade and open areas. Management practices such as periodic cutting of trees and scrub, tree removal (in locations of marginal vegetation decline) and occasional grazing could be used.
- **Manage fish and fishing** – In lakes with existing native fish populations, angling should be managed to ensure bankside and shoreline vegetation isn't damaged and nutrient levels don't increase due to baiting. Avoid re-stocking if there are no or few fish in the lake. Common carp should be removed as part of a lake restoration programme.
- **Practice good biosecurity** to prevent the spread of invasive non-native species. Further guidance available on [Non-Native Species Secretariat website](#).

Further guidance available on [Defra's website](#) and within '[Restoring England's Special Lakes](#)' guidance document.

Checklist for habitat condition – Ponds and lakes
<p>Poor habitat condition:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Signs of damaging management which is affecting the habitat. <input type="checkbox"/> Poor water quality – potentially indicated by algal blooms and scums, obvious sources of pollution. <input type="checkbox"/> Few of the species you would expect to see in the particular type of pond or lake. <input type="checkbox"/> Unmanaged, invasive weeds are present.
<p>Medium habitat condition:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Management regime generally suitable for the site (includes no management when appropriate for the habitat), however a few minor issues may be evident <input type="checkbox"/> No obvious/known sources of pollution <input type="checkbox"/> Water levels vary within expected ranges for the type of habitat <input type="checkbox"/> Some but not all of the expected species are present <input type="checkbox"/> Evidence that habitat will continue to recover within the benefits period of the project i.e. 25 years <input type="checkbox"/> New ponds and lakes habitat - evidence that species being introduced are appropriate for habitat and will establish within the benefits period of the project
<p>Good habitat condition:</p> <ul style="list-style-type: none"> <input type="checkbox"/> Optimal management regime in place (includes no management when appropriate for the habitat) which will be in place for at least the length of the benefits period of the project i.e. 25 years <input type="checkbox"/> Water quality and quantity is optimal for the type of habitat <input type="checkbox"/> Most of the expected species are present <input type="checkbox"/> Evidence that habitat will recover within the benefits period of the project i.e. 25 years <input type="checkbox"/> New ponds and lakes – evidence that species being introduced are appropriate for habitat and will establish within the benefits period of the project

ARABLE LAND

Habitat description – arable land: land under cultivation, including temporary grass leys. Land used for growing crops.

Note: “*Environmental outcomes should not be used to contribute towards creating arable land. When considering enhancement, care must be taken to ensure that there will be no cross subsidy or potential double funding with other schemes or programmes of work, for example agri-environment schemes.*

Habitat condition relates to the ecological condition of the land, not the food production condition.” [Table 1, \(EA, 2020\)](#)

Intensive arable farming - increased productivity through increased inputs e.g. capital and labour. Chemical use is often high compared to land area and often have high outputs per hectare.

Typical intensive arable farming practices include:

- Using herbicides to remove competing plants from cropped fields
- Using pesticides and insecticides to remove animals/insects that feed on crops

Extensively managed arable farming - increased productivity through farming more land. Inputs and outputs per hectare are relatively low.

Typical extensive arable farming practices include:

- Established networks of grass field margins and beetle banks
- Use of wild-bird seed mixes over winter
- Reduced use of herbicides and pesticides
- Providing habitat for pollinators
- Use of catch and cover crops

For information about common arable plant species, threats to these species and how to encourage arable plant growth please see [Defra’s website](#) and the [Plantlife website](#).

Checklist for habitat condition – Arable land**Poor habitat condition:**

- Intensively managed
- Cropped annually
- Few field margins or semi-natural areas

Medium habitat condition:

- Cropped annually
- Moderate levels of field margins and semi-natural areas

Good habitat condition:

- Extensively managed
- Cropped annually
- High levels of field margins

Appendix D - OM4b survey sheet

PART 1 – SITE AND SURVEY INFORMATION

Site name	
Catchment	
Surveyor	
Date and time of survey	
Planned NFM measures <i>Please detail what NFM measures will be delivered at this site, including dimensions and areas affected e.g. 0.5ha woodland</i>	

PART 2 – RIVER NATURALNESS SURVEY (ADAPTED)

This survey is based on the [River Naturalness survey](#), which has been adapted for the purposes of assessing the condition of watercourses relating to the delivery of [OM4b river enhancement](#) from the [Herefordshire Natural Flood Management Project](#).

River/ stream survey location

Survey location (GPS or 10 digit NGR)	
Watercourse code (optional)	
Watercourse name	
Source of watercourse name (tick one)	<input type="checkbox"/> Map data <input type="checkbox"/> Local knowledge <input type="checkbox"/> Personally assigned
Reach length (m)	

Physical naturalness

Think about: Is there artificial or physical modifications to the river e.g. weirs or straightened channels?

What is the variety of bankside vegetation like e.g. simple – dominated by grasses? Is there a lot of tree cover? Has the vegetation been heavily modified e.g. by intensive grazing or chemical applications?

Naturalness class (tick one)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
Confidence class (tick one)	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low

Form(s) of assessment (tick all that apply)	<input type="checkbox"/> Simple visual inspection <input type="checkbox"/> River Habitat Survey (RHS) <input type="checkbox"/> Modular River Survey (MoRPh) <input type="checkbox"/> Other (Please specify) ----- ---
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Additional indicators of physical condition (tick all that apply): <input type="checkbox"/> Livestock poaching on banks of watercourse <input type="checkbox"/> Signs of damaged bankside vegetation <input type="checkbox"/> Signs of damaged in-channel vegetation <input type="checkbox"/> Presence of bankside buffer strips
Notes:

Hydrological naturalness

Think about: impacts to flow e.g. modifications such as water pumping stations or artificial lakes created by impounding the river. The Environment Agency's [abstraction licensing maps](#) can help with this.

Naturalness class (tick one)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
Confidence class (tick one)	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low
Form(s) of assessment (tick all that apply)	<input type="checkbox"/> Simple visual inspection <input type="checkbox"/> EA abstraction information <input type="checkbox"/> Water Framework Directive data <input type="checkbox"/> Other (Please specify) ----- ---

Chemical naturalness

Think about: Is there any evidence of pollution e.g. from nutrients, sediment or pesticides/herbicides? Is there any algal blooms, lots of filamentous algae or sewage fungus growth?

Naturalness class (tick one)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
Confidence class (tick one)	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low
Form(s) of assessment (tick all that apply)	<input type="checkbox"/> Simple visual inspection <input type="checkbox"/> Test kit <input type="checkbox"/> Bankside biological sampling <input type="checkbox"/> Water Framework Directive data <input type="checkbox"/> Other (Please specify) ----- ---
Notes:	

Biological naturalness

Think about: presence of [non-native species](#).

Naturalness class (tick one)	<input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5
Confidence class (tick one)	<input type="checkbox"/> High <input type="checkbox"/> Medium <input type="checkbox"/> Low
Form(s) of assessment (tick all that apply)	<input type="checkbox"/> Simple visual inspection <input type="checkbox"/> National Biodiversity Network data <input type="checkbox"/> Other recording initiative (Please specify) ----- -- <input type="checkbox"/> Other (Please specify) ----- ---
<p>Notes – please detail which non-native species are present:</p> <input type="checkbox"/> Himalayan balsam <input type="checkbox"/> Giant hogweed (don't touch!) <input type="checkbox"/> Japanese knotweed <input type="checkbox"/> Signal crayfish <p>Please detail any other non-native species present:</p>	

Representativeness/ intermittent flow

Is the site representative of the watercourse as defined by the map layer? (tick one)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Uncertain
Does the site have a section containing no water (i.e. a section with intermittent flow)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	
Notes: 			

Site description

Site description:
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Species of interest

Fish (tick all that apply) <input type="checkbox"/> Bullhead (<i>Cottus gobio</i>) <input type="checkbox"/> Brook lamprey (<i>Lampetra planerii</i>) <input type="checkbox"/> Brown trout (<i>Salmo trutta</i>) <input type="checkbox"/> Atlantic salmon (<i>Salmo salar</i>)	Higher plants (tick all that apply) <input type="checkbox"/> Water crowfoots (<i>Ranunculus</i> sp) <input type="checkbox"/> Golden saxifrage (<i>Chrysosplenium</i> sp)
Birds (tick all that apply) <input type="checkbox"/> Dipper (<i>Cinclus cinclus</i>) <input type="checkbox"/> Kingfisher (<i>Alcedo atthis</i>) <input type="checkbox"/> Grey wagtail (<i>Motacilla cinerea</i>)	Bryophytes (tick all that apply) <input type="checkbox"/> Fontinalis sp (Mosses) <input type="checkbox"/> Fissidens sp (Mosses) <input type="checkbox"/> Pellia sp (Thallose liverworts)
Invertebrates (tick all that apply) <input type="checkbox"/> Plectrocnemia sp (Caseless caddis-flies) <input type="checkbox"/> Wormaldia sp (Caseless caddis-flies) <input type="checkbox"/> Lype sp (Caseless caddis-flies)	Notes

Habitat features

Habitat features (tick all that apply):

- | | |
|--|--|
| <input type="checkbox"/> Bankside/riparian flushes or springs | <input type="checkbox"/> Sinuous or multiple channel |
| <input type="checkbox"/> Riparian trees interacting with the channel | <input type="checkbox"/> Riparian wetland |
| <input type="checkbox"/> Woody material in-channel | <input type="checkbox"/> Exposed cobble/gravel/sand |
| <input type="checkbox"/> Waterfall or cascade | <input type="checkbox"/> Moss-covered boulders |
| <input type="checkbox"/> Natural mire-stream transition | <input type="checkbox"/> Fern-filled ghyll/ravine |

Notes: