



WOLD ECOLOGY LTD

2 Redwood Gardens, Driffield, East Riding of Yorkshire. YO25 6XA.
www.woldecology.co.uk

Nafferton Mere, East Yorkshire

Ecological Enhancement Management Plan.

September 2024

	Staff Member	Position
Principal Author(s) :	Daniel Lombard BSc MCIEEM	Ecologist

Disclaimer:

This report and its content are copyright © 2024 Wold Ecology Ltd. All rights reserved.

You may not distribute or commercially exploit the content of this report until a non-draft version of this document has been issued and payment in full has been received by Wold Ecology Ltd.

Any unauthorised redistribution or reproduction of part or all the contents of this report will constitute an infringement of copyright.

This report was prepared by Wold Ecology Limited solely for use by Nafferton Parish Council. This report is not addressed to and may not be relied upon by any person or entity other than Nafferton Parish Council for any purpose without the prior written permission of Wold Ecology Ltd. Wold Ecology Ltd, its directors, employees and associates accept no responsibility or liability for reliance upon or use of this report (whether or not permitted) other than by Nafferton Parish Council for the purposes for which it was originally commissioned and prepared.

In producing this report, Wold Ecology Ltd has relied upon information provided by others. The completeness or accuracy of this information is not guaranteed by Wold Ecology Ltd.

DOCUMENT CHECKING

Revision	Date	Status	Checked
1	27/11/2024	Draft for internal review.	Daniel Lombard B Sc MCIEEM
2	03/12/2024	Draft for client review.	Chris Toohie MSc MCIEEM
3	12/12/2024	Submission of non-draft version for client.	Chris Toohie MSc MCIEEM

This report contains sensitive information concerning protected species and caution should be exercised when copying and distributing to third parties.

Table of Contents.

1.0	Introduction	2
2.0	Methodology	2
3.0	General Description	3
4.0	Method Statement	4
5.0	Management Prescriptions	7
6.0	Location of Mitigation Features	12
7.0	Bibliography	13

1.0 INTRODUCTION

- 1.1 In August 2024, Wold Ecology Ltd was commissioned by Nafferton Parish Council to write an Ecological Enhancement Management Plan for Nafferton Mere (national grid reference TA 05688 58953) in Nafferton, East Yorkshire.
- 1.2 The brief was to provide recommendations for the ecological enhancement of the mere.
- 1.3 The purpose of this report is to prescribe ecologically valuable enhancements to the pond and riparian zones whilst retaining its functionality as for holding water and reducing flood risk. A site with a rich ecological value also has the potential to greatly improve the aesthetic value and the visitor experience to the area.

2.0 METHODOLOGY

- 2.1 Management planning is an important tool in safeguarding sites for future generations although, as yet, there are no statutory obligations for the production of management plans. The LA21 and BAP promote sustainable management of habitats, species and land, with management planning playing a major role in achieving this.
- 2.2 With few natural wildlife habitats remaining in Britain today and the vast majority of nature conservation sites being semi-natural, these habitats require continual management if their complex and fragile conservation value is to be preserved for generations to come.
- 2.3 The role of a management plan.
 - 2.3.1 The role of a management plan can be diverse and complex, but also flexible to meet the needs of the site managers. The basic role of a management plan is to help ensure the long-term conservation of habitats and related flora and fauna. Lambert et al (1990, p3) highlight that “habitats usually need to be managed if their conservation value is to be maintained” and Clarke and Mount (1998, page i) state that “management planning is all about the good stewardship of land”. These two statements can only be continually achieved to an adequate standard through the formalised production of a management plan.
 - 2.3.2 Management planning provides a foundation for monitoring the effectiveness of site management through cyclical reviews and updates of the whole plan. Lambert et al (2000, p16, English Nature) conclude that: “a fixed cycle of five years, from the previous approval date, should be adopted for the review of management plans, unless significant changes on the site result in an earlier revision”.

3.0 GENERAL DESCRIPTION

- 3.1 Location & site boundaries: Nafferton Mere
County : East Yorkshire.
Parish and District : Nafferton.
Grid Reference : TA 05688 58953.
- 3.2 Nafferton Mere is located in the centre of Nafferton village, in a suburban location. The mere is approximately 0.7 hectares and is spring fed from an underlying chalk aquifer, as well as fed by a small, culverted stream from the north before flowing into a sluice which adjoins Nafferton Beck. Nafferton Mere is fed by spring water. Most of the mere's banks are gardens in private ownership with hard engineered surfaces including walls and roads.
- 3.3 The mere is currently suffering from eutrophication from inflows as well as excessive wildfowl numbers which is both reducing water quality and suppressing vegetation growth. This is also likely impacting populations of fish and invertebrates too. Surrounding habitat is of reduced ecological value due to being managed gardens or hard engineered surfaces.
- 3.4 Submerged aquatic vegetation is very limited in the mere with occasional yellow flag *Iris pseudacorus*, brooklime *Veronica beccabunga* and more abundant common stonewort *Chara vulgaris*, vegetation suppression primarily occurs due to the presence of ducks. All edges comprise stone walls, regular cut amenity grassland, and occasional trees, primarily white willow *Salix alba*, sycamore *Acer pseudoplatanus*, grey willow *Salix cinerea* and alder *Alnus glutinosa*. The mere also contains a small island with tree planting.
- 3.5 Habitat Summary
- 3.5.1 A summary of the surrounding habitat is (radius of < 2km from the site):
- Buildings – farm buildings and residential properties
 - Hedgerow
 - Mature trees and woodland
 - Primrose Pit Plantation
 - Arable
 - Mature private gardens
 - Ponds and watercourses
 - Nafferton Slack
 - Spittle Beck
 - Nafferton Beck
 - Nafferton Drain
 - Grazed pasture

4.0 ECOLOGICAL METHOD STATEMENT

4.1 Birds

4.1.1 The parish council is reminded that, under the Wildlife and Countryside Act 1981, as amended (section 1), it is an offence to remove, damage or destroy the nest of any wild bird while that nest is in use or being built.

4.1.2 No removal of tall and dense vegetation or woody vegetation shall take place between mid-February and mid-September inclusive, unless a competent ecologist has undertaken a careful, detailed check of aforementioned for active birds' nests immediately before the vegetation is cleared and provided written confirmation that no birds will be harmed and/or that there are appropriate measures in place to protect nesting bird interest on site. Any such written confirmation will be submitted to the local planning authority.

4.1.3 If nesting birds are found during the watching brief, works that will impact upon the nest will need to stop until the young have fledged.

4.2 Mammals (hedgehogs, otters etc.)

4.2.1 The following measures are recommended for any future work within and adjacent (5m from the water's edge or riparian habitat) to the pond:

- Site personnel will be made aware of the potential presence of mammals on site.
- Any activities that may harm mammals will be identified by a suitably qualified ecologist and measures to minimise any risk will be implemented. This may include the following:
 - Any trenches or deep pits within the development site that are to be left open overnight will be provided with a means of escape should a mammal enter or be covered up. A means of escape could include a roughened plank of wood or similar, placed in the trench as a ramp to the surface. This is particularly important if the trench/pit is liable to fill with water.
 - Any trenches/pits will be inspected each morning to ensure no mammals have become trapped overnight. Should a mammal become trapped in a trench/pit, Wold Ecology will be contacted immediately for further advice.
 - Open pipework greater than 75mm outside diameter will be blanked off at the end of each working day.
 - Care must be taken whilst carrying out vegetation clearance, or strimming. A thorough check of the vegetation prior to removal will help ensure that no hedgehogs are injured or killed during development works. Sleeping hedgehogs frequently suffer severe injuries from strimmers.

4.2.2 The list above is not exhaustive and guidance from a suitably qualified ecologist should be sought.

4.3 Working adjacent to watercourses.

- 4.3.1 Whilst the Parish Council are only responsible for the Mere, horse wash and island, the following recommendations included within this document should be considered for any future works adjacent to the mere which may be undertaken by third parties and adjacent land owners.
- 4.3.2 Run off from site roads and river crossings can contain high levels of silt and pollutants from traffic. Reducing the pollution risk can be achieved by:
- brushing or scraping roads to reduce dust and mud deposits
- 4.3.3 If applicable, fresh concrete and cement are very alkaline and corrosive and can cause serious pollution. Concrete and cement mixing and washing areas will:
- be sited at least 30 metres from Nafferton Mere or surface water drain to minimise the risk of run off entering a watercourse
 - have settlement and re-circulation systems for water reuse, to minimise the risk of pollution and reduce water usage
 - have a contained area for washing out and cleaning of concrete batching plant or ready-mix lorries
 - Wash waters from concrete and cement works will never be discharged in to the water environment.
- 4.3.4 Ensure machinery is properly maintained, check for oil leaks before use. There are risks of pollution from fuel, oils and silt associated with use of machinery which could result in prosecution. Particular attention will be paid to using chainsaws in or near the water's edge as chain oil sprayed during operation easily contaminates the water. Follow the correct procedures and always use biodegradable oil/fuel (e.g. Aspen 2).
- 4.3.5 Ensure fuel, oil and chemical storage on site is secure. Site the storage on an impervious base within a secondary containment system such as a bund. The base and bund walls will be impermeable to the material stored and able to contain at least 110% of the volume stored. Site the storage area above any flood water level and where possible away from high-risk locations (such as within 10 metres of a watercourse or 50 metres of a well, borehole or spring), to minimise the risk of a spill entering the water environment. Biodegradable hydraulic oil in plant will be used when working in or near watercourses.
- 4.3.6 Keep a spill kit with sand, earth or commercial products that are approved for your stored materials, close to your storage area. Train staff on how to use these correctly.
- 4.3.7 In no circumstance will burning take place in the pond or close to the bank edge and ash must not blow or wash into the watercourse as it is harmful to water life
- 4.3.8 Arising from grass cuttings should not be left within 10 metres of the watercourse, as the nitrates from rotting grass washing into the watercourse will negatively impact on water quality and the ecological community within the water.

4.3.9 Accident Plan

Condition	Likelihood	Consequences	Response
Machinery breakdown	Low to medium.	Potential damage to habitat due to spilled fuel or oil.	Call out of hirer to effect repairs. Competent operators will minimise the likelihood of mal-operation leading to a breakdown. Incident commander will be briefed about the environmental hazard.
Machinery fire	Low, since machinery will be maintained.	Potential damage to habitat due to spilled fuel or oil	Call out of fire brigade. Incident commander will be briefed about the environmental hazard.
Toppling of machinery	Low, since competent operators will be used	Damage to equipment. Personal injury. Damage to habitat, if near the watercourse	Pre-emptive: Machinery will be used as far away as possible from the bank, consistent with safe excavation of the final breakthrough from the meanders to the exiting watercourse. Personal injury: first aid kit available on site; ambulance call.
Vandalism	Low to medium Equipment will be in a field,	Minimal. With machines parked away from the watercourse when in use, and damage would be limited to the parking place.	Pre-emptive: As a matter of course, machinery will be parked away from the watercourse at the end of each working day. Machines will be locked when not in use

5.0 MANAGEMENT PRESCRIPTIONS

5.1 Trees

5.1.1 Tree removal

- 5.1.1.1 Consideration should be given to the removal of trees on the island on the centre of the pond. This will increase light penetration to new areas of marginal vegetation and will dissuade ducks from nesting and roosting on the island. Replacement trees of increased ecological value could be planted elsewhere on site to compensate for the loss of these trees. Brash and timber from tree works could be placed around the margins of the island to discourage ducks accessing it. Suitable timber and brash from tree felling may also be used help stabilise/create reefs and planting areas for aquatic vegetation.

5.2 Wildlife Ponds

- 5.2.1 The potential value of the waterbodies to breeding amphibians, breeding birds, invertebrates, plants and small mammals can be significant. Additionally, ponds add a huge aesthetic and educational value to an environment in which site visitors can enjoy.
- 5.2.2 Perhaps the single biggest issue with Nafferton Mere in its current state is disturbance and damage caused by ducks. Wildfowl should not be encouraged to the pond as they create a large range of problems. Mallards *Anas platyrhynchos* in particular graze aquatic vegetation, trample banks, eat amphibian larvae and defecate in the water. These factors increase nutrient input into the water which eventually turns the water green (as a result of algal blooms). This blocks out light and reduces plant growth, the green water then results in the pond having a much reduced ecological value. Most ponds however are capable of supporting nesting moorhens or little grebes *Tachybaptus ruficollis* these species do not exhibit the same problems as ducks and should be encouraged to stay, through minimal disturbance to them.
- 5.2.3 As ducks are already established on the pond it is important to stop feeding them and dissuade other from feeding them. This can be done through interpretation boards which detail the ambitions of the mere and the issues that large concentrated numbers of ducks can cause to the mere.
- 5.2.4 Wildlife ponds should be specifically designed to include a series of buffers around the banks to intercept pollutants and phosphates which may have a negative impact of the water quality and species using the pond. This can be done through the creation of rough grassland and marginal vegetation, all of which offer a sufficient level of protection to the pond and should be maintained.
- 5.2.5 In addition, reefs comprising of yellow flag *Iris pseudacorus* should be considered near the inflow of the stream on the north of the mere. Yellow flag is excellent at phyto-purification, this is a water purification technique based on the use of aquatic plants. This process occurs naturally in ponds, thanks to aquatic plants and bacteria living symbiotically in their roots. This will help filter water entering the pond.

- 5.2.6 Once duck numbers are under control the pond should be planted with a variety of native pond plants. This should ideally be achieved using hessian sacks, but if not, baskets can be used. The species which will be planted are listed below:
Pond Margin (around edges of the pond and the stream)
- Marsh Marigold *Caltha palustris*;
 - Yellow Flag Iris *Iris pseudacorus*;
 - Brooklime *Veronica beccabunga*;
 - Water Plantain *Alisma plantago-aquatica*;
 - Water forget-me-not *Myosotis scorpioides*;
 - Water Mint *Mentha aquatica*;
 - Greater Spearwort *Ranunculus lingua*;
- Submerged
- Fennel-like Pondweed *Potamogeton pectinatus*;
 - Horned pondweed *Zannichellia palustris*
 - Amphibious bistort *Polygonum amphibium*
 - Common Water Starwort *Callitriche stagnalis*;
 - Curled Pondweed *Potamogeton crispus*
 - Common pondweed *Potamogeton natans*
 - Yellow water lily *Nuphar lutea*
- 5.2.7 The aforementioned species have been selected for their value to aquatic coleoptera, aquatic hemiptera, diptera larval development, hymenoptera notable Bumblebees *Bombus*, molluscs i.e. planorbidae, isopods notably *Asellus*, Lepidoptera i.e. orange tip butterfly *Anthocharis cardamines* and brown china mark moth *Elophila nymphaeata*, trichoptera, amphibians and small passerines, notably as foraging habitat during nestling rearing.
- 5.2.8 The planting scheme for the pond and especially the stream should be approved by the local authority and/or drainage board to ensure that any vegetation doesn't cause an issue with flooding.
- 5.2.9 In addition, species choice will be beneficial to odonata (dragonflies and damselflies). In this region southern hawker *Aeshna cyanea*, common darter *Sympetrum striolatum*, broad-bodied chaser *Libellula depressa*, four-spotted chaser *Libellula quadrimaculata*, common blue damselfly *Enallagma cyathigerum*, blue tailed damselfly *Ischnura elegans*, azure damselfly *Coenagrion puella* and emerald damselfly *Lestes sponsa* may all breed.
- 5.2.10 Alternatively, new planting areas can be fenced off with 90cm rabbit fencing.
- 5.2.11 Due to the species selected, water chemistry and abundance of wildfowl, it is unlikely that vegetation will become invasive, at least in the short term. However, over time vegetation should be maintained at around 30-50% coverage of the mere. Cutting and raking are good ways to manage vegetation preferably during September to October, removal of the arising's off site is recommended. Arising's should not be left to rot in or adjacent to the water.

5.3 Birds

5.3.1 In order to increase nesting opportunities for birds, bird boxes will be erected on the wall. These boxes will target species of conservation concern, namely house/tree sparrow and swift. A summary of recommended bird boxes are listed below:

Swift box	Wall/building box	3
Sparrow terrace	Wall/building box	3

5.3.2 Boxes will be placed so that the entrance does not face the prevailing wind, rain, and strong sunlight. The sector from north to southeast should be used, with south facing boxes positioned in more shaded areas.



An example of a suitable swift box which can be mounted on a wall.



An example of a suitable sparrow box which can be mounted on a wall.

5.3.3 It is concluded that the Application Site can be improved as habitat for wetland edge and woodland bird species. The following table highlights appropriate management prescriptions for birds on site.

Species	Management prescriptions
Tree Sparrow, House sparrow, starling, greenfinch	The enhanced pond will provide important foraging habitat for this species in tall marginal vegetation. Invertebrates are an important food resource for breeding birds. Enhancement of surrounding grassland will also significantly help these species as well as provide a winter seed resource for sparrows and finches.
Common swift, swallow and house martin	Improvement of water quality and increase in native marginal vegetation will significantly increase invertebrate numbers. Ponds are an important resource for these species which hawk over the water surface and in the air column above the pond for insects. These are important for provisioning chicks and refilling for migration to Africa.
Kingfisher, little Grebe and Little egret	A reduction in duck numbers will increase fish and invertebrate communities providing increased foraging opportunities for wetland birds which feed on fish and invertebrates.

5.4 Bats

5.4.1 Four Schwegler 2FN bat boxes should be sited on adjacent perimeter trees (subject to landowner permissions) and two Schwegler 1FQ bat boxes should be sited on a supporting wall. Bat boxes could also be placed on the wall or on suitable neighbouring trees. Bat boxes should be erected 3-5 metres above ground level with free flight paths.



Schwegler 1FQ bat box.

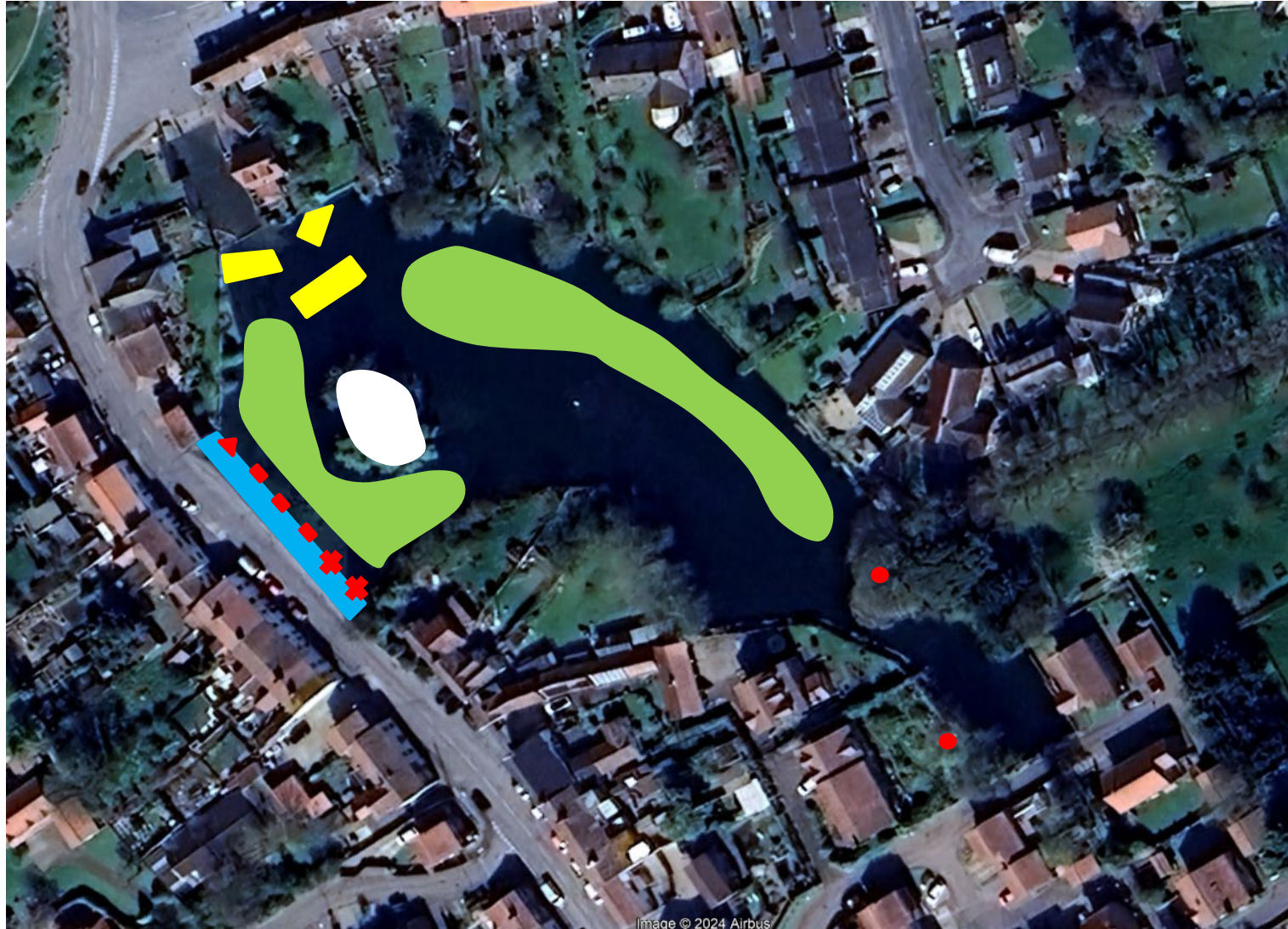


Schwegler 2FN bat box.

5.4.2 These boxes are self-cleaning as they are designed so that the droppings fall out of the entrance. This reduces the possibility of smell during the summer months. For more information on designs and installation of bat boxes see: www.schwegler-natur.de and www.bct.org.uk.

6.0

Suggested location of mitigation features within the Application Site.



Not to Scale

Drawing title:
**Nafferton Mere
 Mitigation Plan**

	Tree removal
	Aquatic vegetation planting
	Iris bed filter
	Aquatic planting
	Tree mounted bat box
	Wall mounted bat box
	Wall mounted Swift box
	Wall mounted sparrow box

Planting is subject to drainage board approval.

WOLD ECOLOGY LTD



2 Redwood Gardens
 Drifffield
 East Yorkshire
 YO25 6XA

T: 01377 200242
 E: info@woldecology.co.uk
 W: www.woldecology.co.uk

'Bat Mitigation Guidelines'. Mitchell-Jones A.J. (2004). English Nature, Peterborough.

'Bird Monitoring Methods: A manual of techniques for key species'. Gilbert G., Gibbons D.W. & Evans J. 1998, RSPB, Sandy.

'Habitats Directive'. European Commission, 1994;

'Habitat Management for Bats - A guide for land managers, land owners and their advisors'. JNCC,2001.

'Handbook for Phase 1 Habitat Survey'. JNCC, 1993. HMSO.

'Natural Area Profile'. English Nature, 1997.

'The Population Status of Birds in the UK'. RSPB, 2002.

'The Wildlife and Countryside Act, HMSO'. Anon, 1981.

'Species Conservation Handbook : Badgers', English Nature. 1995.

'The Handbook of the Birds of Europe the Middle East and North Africa, The Birds of the Western Palearctic'. Cramp, S. and Simmons, K.E.L., 1980, (eds.), 3, 4,5,6,7,8,9,Oxford University Press.