



North York Moors National Park

NYMNPA

22/01/2024

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Report prepared for:

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South Moor Farm, Dalby
Old dew pond restoration



Forestry England



North York Moors
National Park



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South Moor Farm, Dalby Dew Pond Restoration Management Brief 2023

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1.0 Introduction

1.1 In June 2023 Tim Jones, Project Officer, Birds on the Edge visited South Moor Farm and met Bob to take a look at a historic Dew Pond in need of restoration. Birds on the Edge is looking to restore ponds in locations that are high priority for Turtle Doves, as easily accessible freshwater is of great importance to Turtle Doves for them to make “milk” from seeds with which to feed their young. Estimates suggest that around three quarters of ponds in England and Wales were lost during the 20th century, because of both deliberate destruction (filling in and draining) and gradual colonisation by plants. This represents a substantial loss of both valuable habitats and easily accessible water sources for wildlife. Restoration of historic dew ponds provides the perfect opportunity to provide water for wildlife in otherwise dry landscapes in a form that is easily accessible to turtle doves and other wildlife due to the ponds’ gently sloping sides.

2.0 Site Description

2.1 The site includes the remains of an historic dewpond on South Moor Farm located at SE 90747 90078, at 230m elevation. It is a free draining site that, before the advent of piped water for drinking troughs, would have been lacking in water for livestock. It would therefore have been a prime site for the creation of a dewpond.

The pond sits in a small area of grassland adjacent to a public footpath. There are large forestry plantations 90m to the east and the surrounding fields are largely pasture. The pond is totally dry and is only discernible from the surrounding field by a small depression, it does not hold water at any time of the year. There is no change in vegetation in the pond as the rest of the field. The ground relief and vegetation suggest that the original pond was roughly circular in shape, approx. 12m in diameter, approx. 114m² in area (not accounting for the curve of the pond profile).



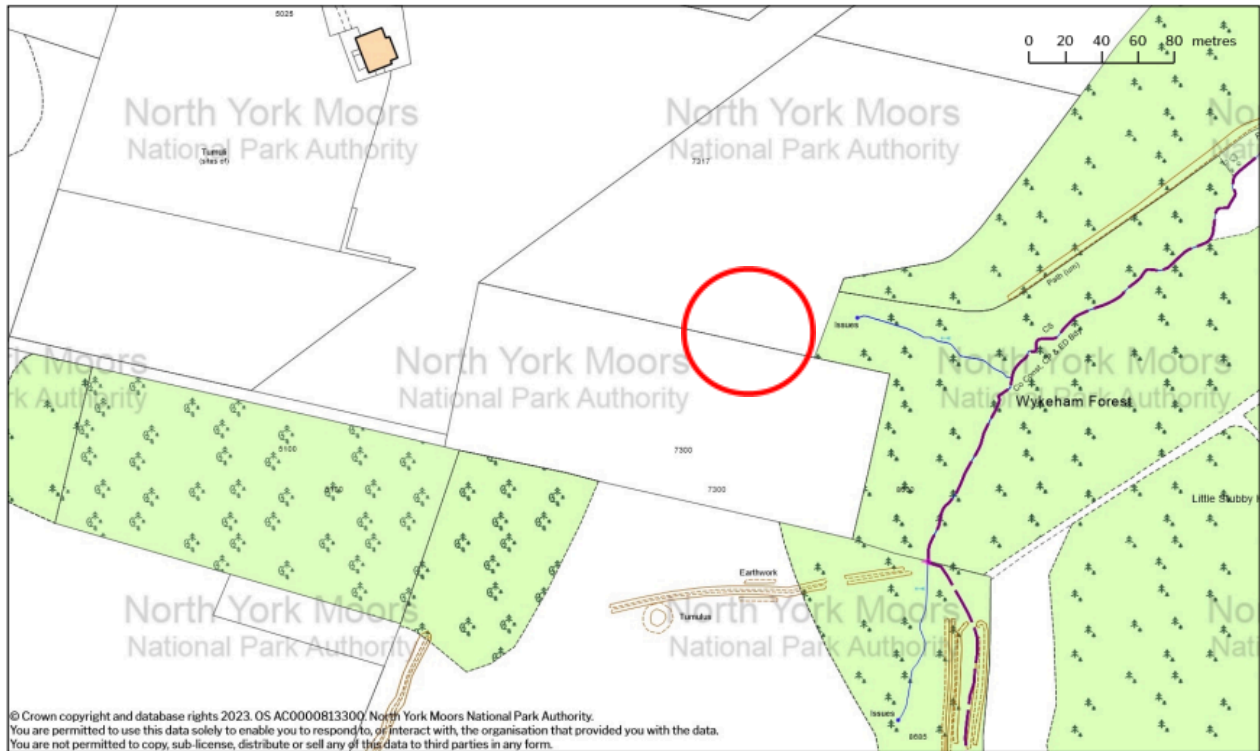
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Location Plan of

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By: Tim Jones

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Fig 1: Location of remnant dew pond (Earthlight, accessed 23/08/2023)



Fig 2: Aerial photo from 2023 showing outline of remnant dew pond (Google Maps, accessed 23/08/2023)

3.0 Current Site Value: Wildlife and Historical Features

The vegetation in the remnant dew pond is dominated by grasses. Being in a sheep field there were no notable plants of note seen in or around the pond.

As the pond holds no water it is not of value for aquatic species or amphibians.

Although the grassland around the pond is of general value as an undisturbed habitat for invertebrates, small mammals and birds, it is not of significant conservation value.

3.1 Habitat Networks / Connectivity

The pond would provide a very valuable source of water for Turtle Doves and other wildlife in the area. The combination of linear habitat features linking woodland and a restored pond could be of particular benefit to bats, many of which feed on flying invertebrates which spend their initial life stages in water.

3.2 Wildlife Designations

The nearest SSSI is Troutsdale and Rosekirk Dale Fens which is designated for its fen and mire communities, it is 2000m to the south.

3.3 European Protected Species

In terms of species of conservation interest, there are plenty of records of Turtle Dove in the surrounding Dalby Forest from 2023.

As the pond no longer holds water Great Crested Newts are not a worry, there are also no records in the surrounding area.

3.4 Turtle Doves

Turtle Dove population has declined in both the UK and Europe to such an extent there may now be fewer than 100 birds nesting in the whole of Yorkshire. Only 50 years ago it was classed as a common bird, however now it is listed on the IUCN red list as vulnerable.

South Moor Farm, Dalby would provide a suitable place for Turtle Doves because it has suitable habitat and there are existing populations nearby.

4.0 Historical Features

- 4.1 The pond itself is a historic feature appearing on maps from at least 1892, so care should be taken not to deepen the pond profile or damage historic construction features.

The pond is close to two Scheduled Monuments:

- Embanked pit alignments, linear earthworks, round barrows and cairns on Edderston Low Moor, 126m to the south
- Round barrow cemetery, 460m to the north-west

The nature of the works and access into the pond means that excavation work would be very unlikely to have any impact. However, it is still important for the contractor to be made aware of the location of the scheduled monuments and the importance of not approaching it with machinery, dumping spoil on it or in any way causing damage or disturbance to it.

Miles Johnson, Head of Historic Environment at the NYMNP commented:

5.0 Benefits of creation, landscape and environmental

- 5.1 The restoration of this pond that fails to hold water through the summer, into a surface water feature will benefit to wildlife at South Moor Farm, Dalby and the immediate surrounding area.

The pond would benefit Turtle Doves by providing easily accessible water which they need in order to create “pigeon milk” to feed their young. This consists of seed they consume and then regurgitate mixed with water to create a milky substance.

Restored ponds are of particular potential value to species such as:

- Barn Owls (*Tyto alba*) - as they are vulnerable to drowning when trying to drink from deep water, so a pond with gently sloping sides may provide a safe drinking spot for them.
- Swallows (*Hirundo rustica*) and House Martins (*Delichon urbicum*)– as it would help to increase food for them by providing habitat for those invertebrates whose larvae live in water and as the pond may provide both freshwater and a source of mud for nest-building.
- Bats - many bat species feed particularly on flying insects whose larvae live in water.

The dew pond is likely to benefit and attract a wide range of other wildlife particularly by providing drinking water for birds and mammals, habitat and breeding sites for amphibians (newts, toads and frogs) and habitat for aquatic invertebrates (e.g., great diving beetle) and invertebrates whose larval stage live in water (e.g., dragonflies and damselflies).

Depending on seed bank and management, dew ponds can also support a diverse mix of aquatic and marginal plants such as water crowfoots and water mint.

6.0 Consultations

6.1 Consultations were undertaken with:

- the North York Moors National Park Authority in terms of the historic environment record, historic maps, previous dew pond restoration projects and historically appropriate restoration techniques, habitat surveys and protected species records.

7.0 Site Plan

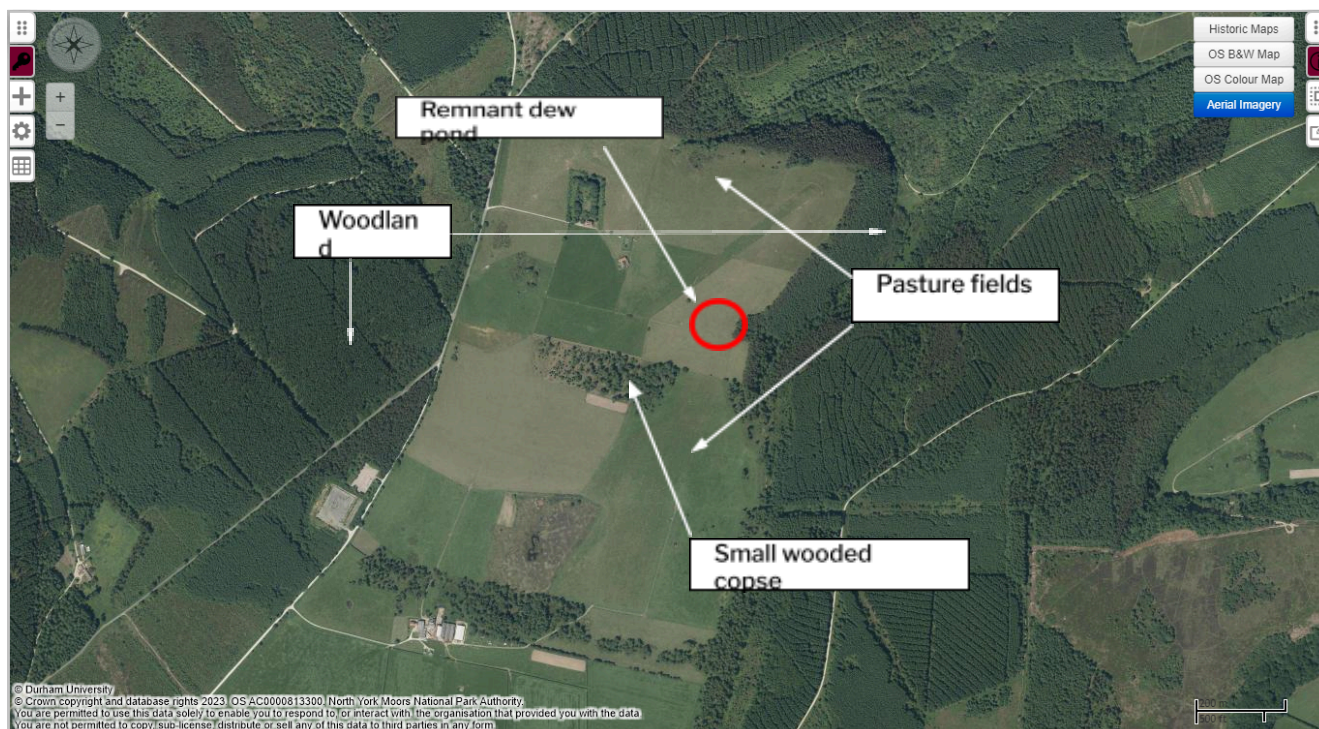


Fig. 3: Site plan and habitats around pond

8.0 Site Photo



Fig. 4: Photo of the pond, June 2023

9.0 Summary of Proposed Work

9.1 The purpose of the work is to restore the dew pond so that it holds water for the benefit of wildlife. The work will also restore a beautiful and valuable historic feature which will enhance the local landscape. It is important that the new pond has the same profile, depth, and shape as the original pond. The gently sloping sides are important not only because they are a distinctive feature of historic dew ponds but also because they allow wildlife to safely access the water, unlike many modern ponds with steep sides.

9.2 Where there is open water in a pond it is preferable to undertake restoration work in winter, between early November and late February, to avoid disturbance to breeding amphibians. However, in this case, as there is virtually no open water in the pond, so doing the work in summer would be a possibility.

9.3 The restoration of the pond should include the following steps:

1. Excavate the pond down to the level of the original lime-based pond liner, taking care not to damage it. Remove spoil to a site on-farm which will not cause environmental problems such as run-off of soil into watercourses or cover existing valuable habitat. Any necessary exemptions or licenses should be acquired by the landowner from the Environment Agency.
2. Assess the state of the original lime-based liner. In traditional dew ponds the lime layer was not the waterproofing layer, rather it served to stop worms or vegetation damaging the waterproofing clay layer above. A few cracks and imperfections will not stop it doing its job.
3. As a precaution smooth the surface of the hole and line with a heavy terram-type non-woven weed membrane. If the underlying surface is very jagged (e.g., bedrock) the area can be lined with a thin layer of sand to protect subsequent layers. It is important that the original profile, shape and depth of the pond is maintained, and that the pond is not deepened, or the sides made any steeper.
(Note – while it would be preferable, for both historical and environmental reasons, to create a new lime layer if the old one is badly damaged, this is a very costly and specialist job for which the skills and knowledge are scarce.)
4. Once the weed membrane is ready the clay layer can then be added. The clay layer should be 6-8 inches thick, applied in at least 2 different layers and “puddled” by driving a small 360 tracked excavator back and forth across the pond compressing the clay to create a plasticine-like consistency. It is important that the clay isn’t too wet, and the weather conditions are fine. You can add water to drier clay using a watering can to get a good consistency.
5. Once the clay is ready, a layer of wheat straw is laid down against the clay. The straw serves to wick moisture along the clay layer, preventing it from drying out and cracking in dry weather, when water levels in the pond are low.
6. A final layer of stone, sourced as locally as possible, is then placed over the straw to further protect the clay from drying and also provide protection from the feet of farm animals.
7. Depending on the weather and time of year, the ponds can then be left to naturally fill with rainwater. If dry weather is forecast, and you are able to, you can add water to the pond to prevent the clay drying out. If possible, collected rainwater is the best thing to use, otherwise a small quantity of mains water could be used. Mains water should not be added to the pond once the pond has filled naturally as the added chlorine is harmful for aquatic wildlife.

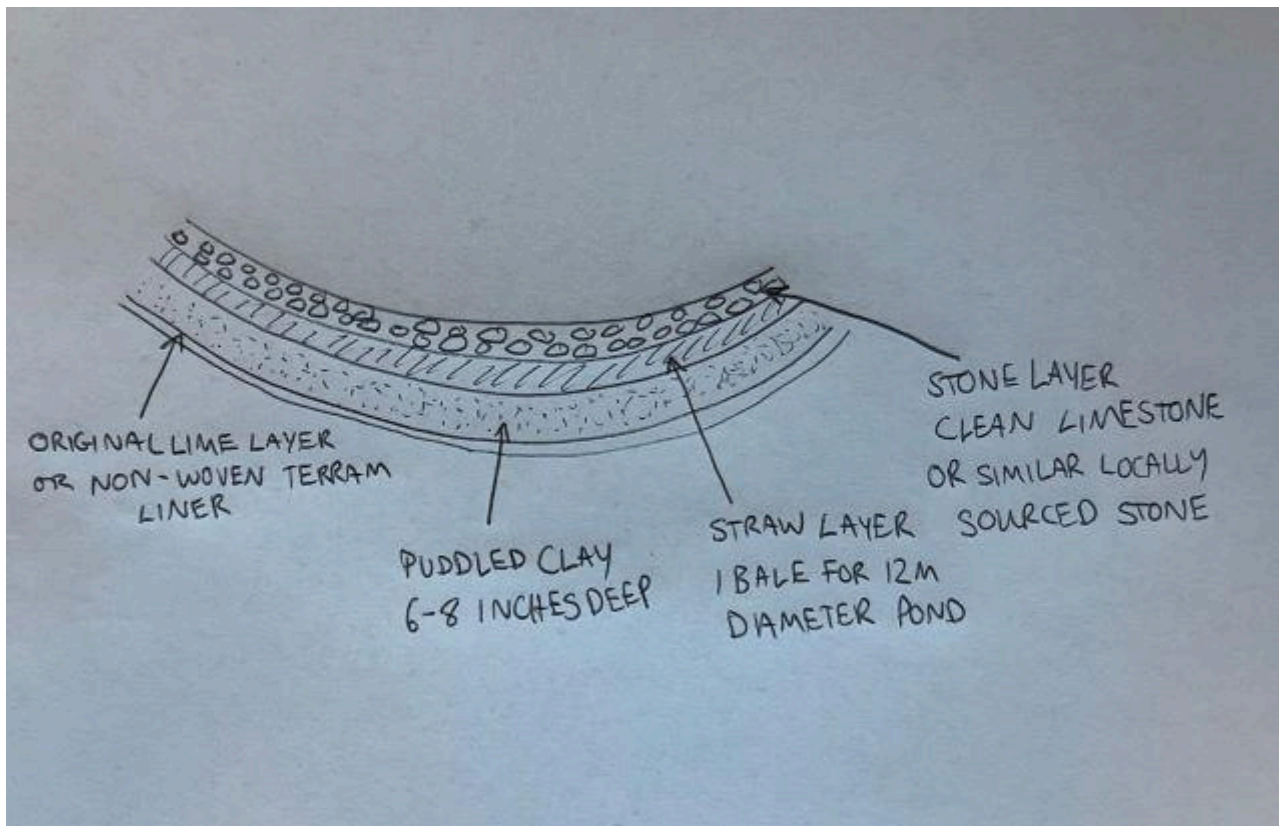


Fig 7: Diagram of the separate layers to be created in the dew pond lining.

10.0 Costs and Capital Work Programme

Task or Item	Month	Estimated Time	Estimated Cost	Outcome
Excavate pond and dispose of soil	TBC	½ day	TBC	Pond site cleared down to original lime pond lining. Assess condition of lime lining and need for a weed membrane. Dispose of spoil to appropriate site.
Archaeological watching brief	TBC	½ day	TBC	Recording previous construction of dew pond
Fit membrane	TBC	½ day	TBC	A thick non-woven Terram-type membrane.
Adding Clay and puddling	TBC	1 da	TBC	Clean clay with no stones, twigs or organic matter. Small (1.5 tonne) tracked excavator to do construction and “puddle” clay without damaging it, as a heavier

				wheeled machine might. A complete layer of clay over the whole pond base, puddled to the right consistency make a waterproof lining.
Adding straw	TBC	½ day	TBC	Wheat straw. Spread the straw to fully cover the clay liner, to prevent drying and cracking of the clay.
Stone	TBC	1 day	TBC	Stone (e.g. 40mm clean). Clean stone should be used, so as not to introduce too much sediment or make the water too alkaline. Spread to make a complete protective layer over the clay
Delivery and collection of all plant and materials to site	TBC	/	TBC	
TOTAL		3 days	TBC	

11.0 Future Management

11.1 The pond will, at intervals, require some management to clear vegetation that has encroached into the pond. The frequency with which management will be needed is site-dependent and influenced by surrounding vegetation and sources of seed, organic matter (esp. leaf litter), nutrients and sediment.

The following rules of thumb could be used to decide when active management becomes necessary:

- if over half the pond's area is covered with vegetation, remove some vegetation to maintain the area of open water.
- if the depth of water in the pond is reduced by more than half due to leaf litter or sediment, remove some of the litter/sediment to prevent nutrient enrichment and drying out of the pond and to limit vegetation growth.
- as soon as any woody species (shrubs or tree saplings) become established, remove immediately to prevent deep roots piercing the waterproof clay lining.

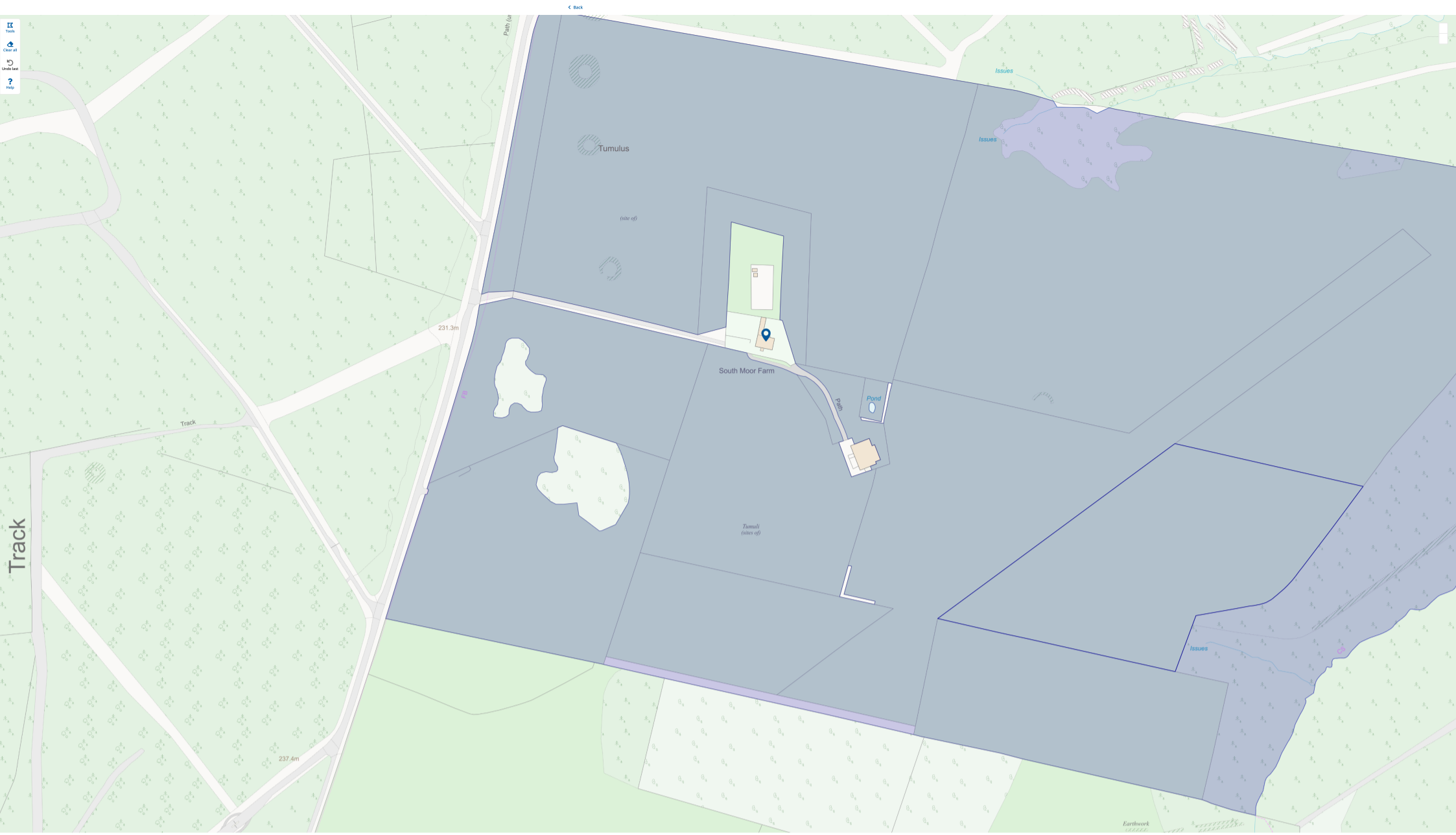
Vegetation and silt can be removed by digging, either by hand if sufficient labour is available or by careful use of a mini-digger. Care must be taken not to puncture the clay lining with either method.

When removing vegetation or silt, it is important for the wildlife living in the pond not to remove all vegetation or silt in one go. No more than half should be removed at any one time and material should be left on the bank for 24 hours to give creatures a chance to find their way back into the water. Management should only be undertaken in late autumn/winter to avoid disturbance to breeding amphibians and birds.

Saplings and shrubs need to be removed as soon as they become visible, so should be possible to remove by hand-pulling.

12.0 Monitoring and Review Scheme

Task	Year /Month	Estimated Cost	Outcome	Responsibility
Advice on excavation (if necessary)	TBC	TBC	Advice on how far/what to excavate	BOTE project
Assess original lime layer (if needed)	TBC	TBC	Help to decide if lime liner needs replacing with weed membrane	BOTE project
Record any archaeological finds (if needed)	TBC	TBC	If original lime lining has to be removed and/or if any significant finds.	BOTE project
Advice on restoration (if needed)	TBC	TBC	Advice re methodology, materials etc.	BOTE project
Annual records of pond development	Annually from 2024	N/A	Annual photos and written records of water level, plant cover and wildlife. Email to conservation@northyorkmoors.org.uk	Landowner



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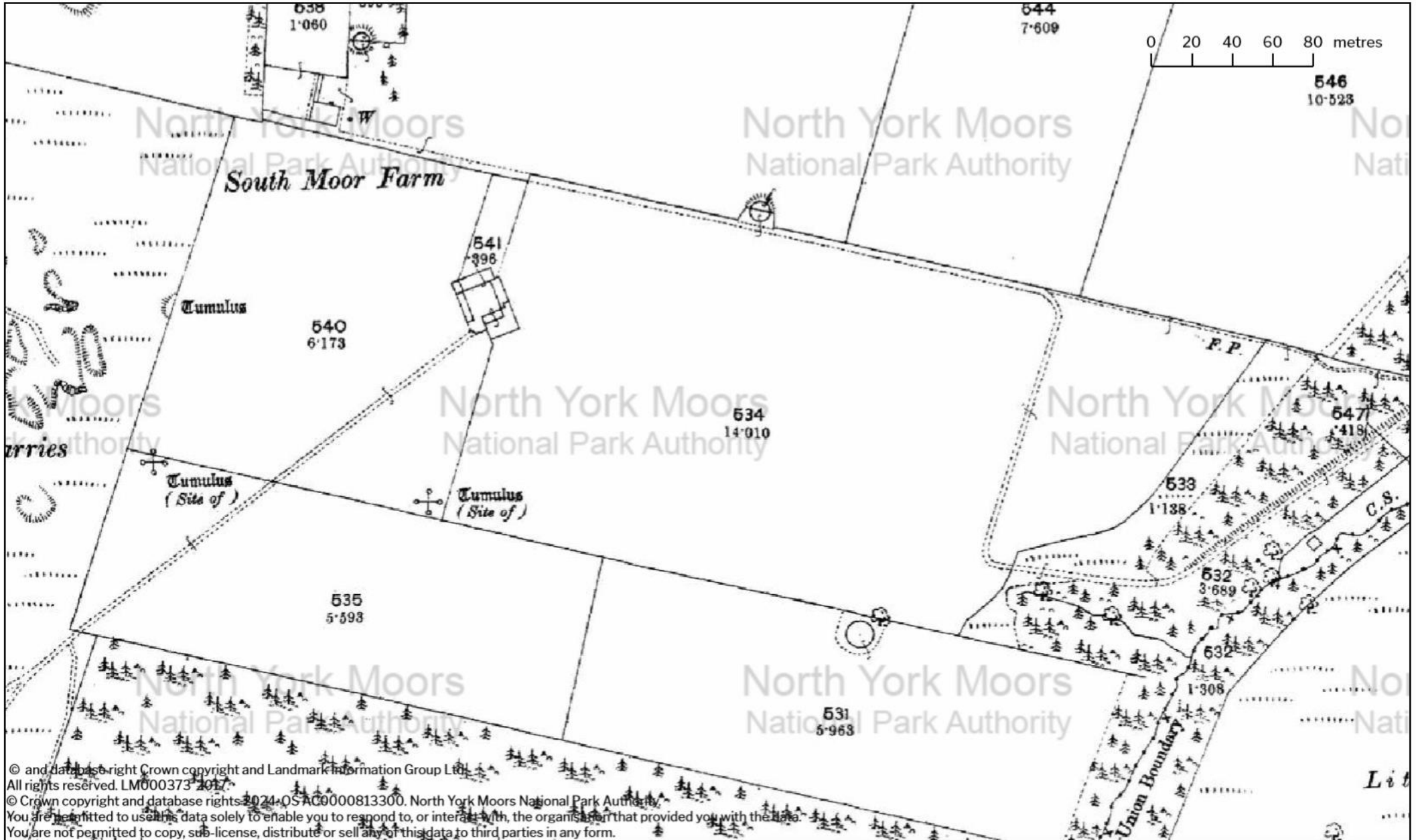
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