

Portus + Whitton

landscape architects



Proposed Lake at Norton Hall, Mickleton GL55 6PX

LANDSCAPE & ECOLOGICAL MANAGEMENT PLAN

In respect of Planning Ref
23/01522/FUL, Condition 6
dated 25.01.2024

Rev B 19th March 2024

Client

c/o Irwin d'Silva
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GL55 6PX

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1. INTRODUCTION

Purpose of LEMP

1.1 Portus + Whitton, working with Windrush Ecology, have been commissioned to prepare a Landscape and Ecological Management Plan (LEMP) to discharge Condition 6 of Planning Ref 23/01522/FUL dated 25.01.2024 in respect of a proposed lake and associated landscape works at Norton Hall, Mickleton, Glos GL55 6PX.

1.2 Condition 1 requires:

The development hereby permitted shall be implemented in strict accordance with the following approved plans: Proposed Lake and Landscape (Drawing No. 1 REV B); Tree Retention and Removals Plan (Drawing no. 2 REV B); Proposed Lake Cut and Fill Plan (Drawing No. 3 REV B); Proposed Site Layout Phasing Plan (Drawing No. 4)

1.3 Condition 6 requires:

Prior to the commencement of Phase 2 as shown on Drawing Proposed Lake Phasing (Drawing No. 4), of the development hereby permitted a Landscape and Ecological Management Plan (LEMP) shall be submitted to, and approved in writing by, the Local Planning Authority. The content of the LEMP shall include, but not necessarily be limited to, the following information:

- i. Landscape and ecological trends and constraints on site that might influence management;*
- ii. Aims and objectives of management;*
- iii. Appropriate management options for achieving aims and objectives; iv. Prescriptions for management actions;*
- iv. Preparation of a work schedule (including an annual work plan capable of being rolled forward over a 5-10 year period);*
- v. Details of the body or organisation responsible for implementation of the plan; vii. Ongoing monitoring and remedial measures;*
- vi. Timeframe for reviewing the plan; and*
- vii. Details of how the aims and objectives of the LEMP will be communicated to the occupiers of the development.*

The LEMP shall also include details of the legal and funding mechanism(s) by which the long-term implementation of the plan will be secured by the developer with the management body (ies) responsible for its delivery.

The plan shall also set out (where the results from monitoring show that the conservation aims and objectives of the LEMP are not being met) how contingencies and/or remedial action will be identified,

agreed and implemented. The LEMP shall be implemented in full in accordance with the approved details.

1.4 This report, which has been informed by the Ecological Assessment prepared by Windrush Ecology, has been prepared to explain and support the environmental enhancements that are proposed for the wider land ownership surrounding the application site.

1.5 The Application red line area covers 6 ha. This LEMP however covers a slightly larger area that includes the following features to be managed:

- Existing parkland trees
- Existing parkland grassland
- Proposed lake, the construction of a part of which has already commenced
- Proposed silt pond
- Proposed parkland trees
- Proposed Woodland
- Reversion of arable cultivation to permanent species-rich pasture

Other nearby features that are present, eg field hedgerows, an arboretum plantation and an existing lake, are not included in this LEMP as their management will be subject to a further planning application involving the wider estate.

1.6 The Applicants' intention is to make better use of the land both for production and biodiversity. They plan to revive the land for sustainable food production. The remaining pasture would be managed by grazing at low stocking rates, and for hay. No chemicals or fertilizers not approved by the Soil Association would be used.

1.7 This LEMP aims to guide future management of both the existing and proposed features and habitats and sets out a framework for management of the site for a 10 year period. It should be read alongside the approved Portus+Whitton drawing no.s, which are included in this report:

- *1778.L.1 revD Lake Masterplan*
- *1778.L.2 revC Tree Removals&Retentions.*

Approach

1.7 The focus of the report is on the management of the site's existing and proposed landscape features. It sets out a basic framework for management which has in part been informed by surveys and advice from Ted Bodsworth of Windrush Ecology. The baseline conditions are described in Section 2, and the proposals, aims and objectives are set out in Section 3.

Management Prescriptions

Management objectives have been derived from the desired outcomes for the key ecological features identified from the baseline. The management prescriptions (Sections 4 & 5) have been provided for each of the features identified in the management objectives.

Monitoring, review and responsibilities

A programme of monitoring has been determined (Section 6), based on the management objectives of the site. The purpose of the monitoring is to ensure successful implementation of the management plan, establish the effectiveness of mitigation and management measures and, where appropriate, implement remedial actions and guide changes in management to ensure that objectives are met. Section 6 also identifies the mechanism for review of the LEMP and responsibility for delivery of management actions.

Maintenance Schedules

The Work Schedule (Section 7) sets out the programme of management and maintenance activities over the ten years of the plan. The LEMP will be reviewed and updated at the end of the first 5-year period.

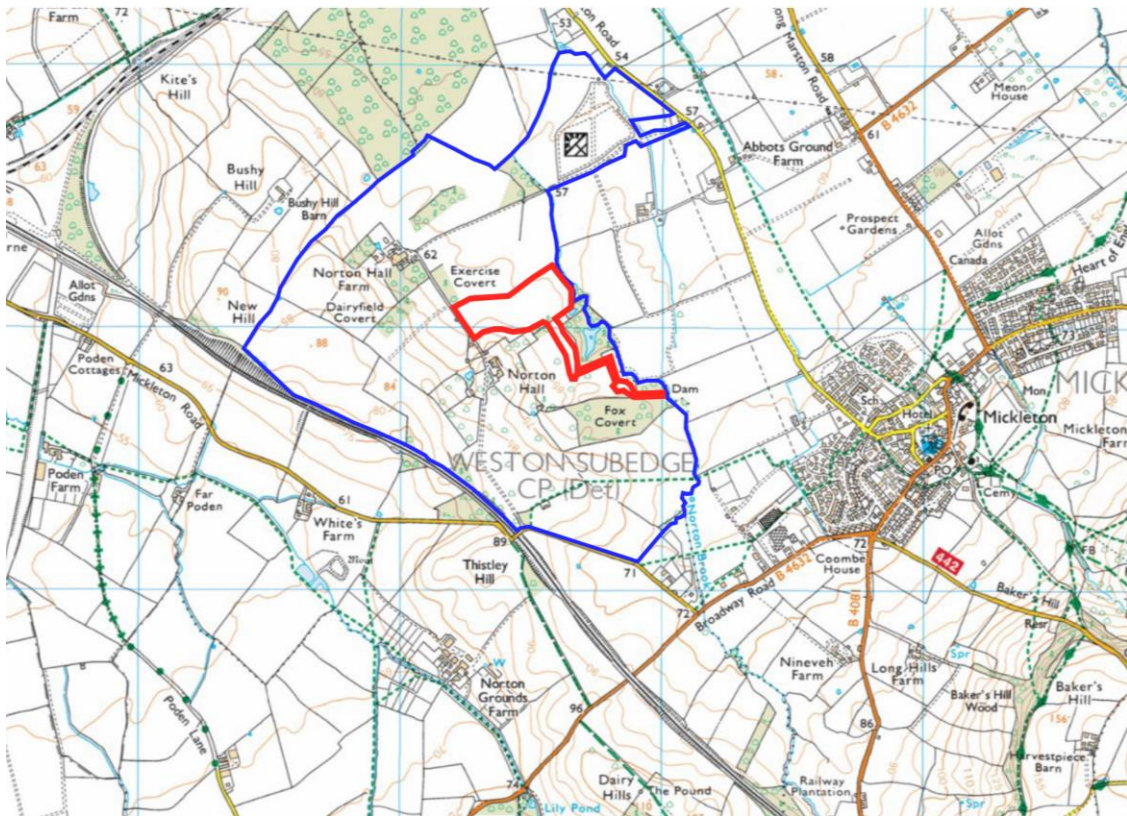


Figure 1 Location Plan NTS

2. EXISTING SITE

Site Location

- 2.1 Norton Hall is located approximately 1.2km to the north-west of the village of Mickleton in Gloucestershire GL55 6PX (see **Figure 1**).

Site Description

- 2.2 The wider estate of Norton Hall comprises buildings (such as the Hall itself, as well as farm buildings), arable farmland, parkland, grassland, woodland, standing water and running water (Noleham Brook).
- 2.3 The focus of this LEMP is an area of land to the north, north-east and east of Norton Hall where there is a proposal to create a lake; this area is referred to as the 'Site' within this report. The approximate Ordnance Survey grid reference for the centre of the site is SP 1453 4399. The proposed lake will occupy an arable field (to the north) and an area of improved grassland (to the south); the grassland forms part of a wider area of parkland. In addition to the lake, there is a proposed sediment pond to the south-eastern area of the site.
- 2.4 In landscape terms, the site sits outside the Cotswolds National Landscape. It adjoins an area of Ancient and Semi-natural Woodland but the Site is not subject to any Tree Preservation Orders. The Site is located within the Norton Hall Cotswold District Special Landscape Area, the role of the SLA is to protect, enhance and facilitate better management of the best of the areas landscape outside the Cotswold AONB. SLAs are focussed on larger scale areas which are of higher landscape value. It highlights the *parkland at Norton Hall with mature trees including oaks, woodland and estate fencing*, as being particularly important.
- 2.5 The wider Norton Hall Estate covers 180 ha including gardens, historic parkland, arboreta, woodland, arable and pastoral land. The Site itself comprises an area of mature parkland to the east of the Hall, with several veteran, mature trees and younger trees. A woodland belt divides the parkland an arable field to the north. with two mature Oak trees.
- 2.6 The woodland belt consists of mature trees, conifers often planted in dense groups, a line of Holm Oaks to the northern boundary, and more recently planted specimen trees.
- 2.7 To the east of the Application Site, on low ground, is an area woodland and an existing lake hidden within trees and not visible from the Hall and wider park. Norton Brook bounds the woodland to the east.

2.8 To the south east, the Application site runs through a plantation of Poplars where it meets the existing weir at Norton Brook.

2.9 There are no public footpaths or roads, with public views into the site, in close proximity of the Site.

Summary of Ecological Features & Protected Species

2.10 A full ecological assessment, informed by detailed ecological surveys, has been undertaken for the site during 2022 (Windrush Ecology Ltd, 2022). The existing ecological features within the site are shown on the Phase 1 habitat plan which can be found in Appendix 1.

2.11 Sites of Nature Conservation Importance

2.11.1 Statutory Sites

There are no statutory sites of nature conservation importance, such as Sites of Special Scientific Interest, within 1km radius of the site. There are no international sites of nature conservation importance, such as Special Areas of Conservation, within a 5km radius of the site.

2.11.2 Non-statutory Sites

There are no non-statutory sites of nature conservation importance within the site, or within the 1km search radius around the site.

2.11.3 Habitats of Principal Importance

Habitats of 'principal importance' that occur within the site, as shown on the MAGIC website include Traditional Orchards (**Figure 2**) and Lowland Mixed Deciduous Woodland (**Figure 3**). However, Traditional Orchards are not considered to be present within the site, and the areas of Traditional Orchard through which the lake will be created, as shown on Figure 2, are not Traditional Orchards but areas of parkland tree planting. Whilst two young cherry trees will be removed, these are not being used for fruit production, and do not form an orchard. Similarly, the area of Lowland Mixed Deciduous Woodland through which the proposed lake will be created (Figure 3) is not considered to be a woodland. In this area there are planted trees within Norton Hall Lake Page 3 amenity grassland, which form a parkland habitat. This area does not comprise a woodland. The proposed pipe line linking the proposed sediment pond within the south-eastern area of the site will pass through an area of woodland (which is shown as Lowland Mixed Deciduous Woodland on MAGIC). However, this area of woodland appears to be a plantation, with trees planted in rows. MAGIC does not show any areas of woodland as ancient woodland, or ancient replanted woodland. The parkland habitats are not shown

on MAGIC as parkland or wood pasture.

Habitats

2.12 Arable land

The northern section of the site comprises an arable field. This has narrow grassy margins that are typical of arable land, with cock's-foot *Dactylis glomerata*, false oat *Arrhenatherum elatius* being dominant and ruderals including broad-leaved dock *Rumex obtusifolius*, creeping thistle *Cirsium arvense*, creeping buttercup *Ranunculus repens* and cleavers *Galium aparine*. The habitat is species-poor, typical of cultivated arable land, and considered to be of negligible ecological value.

2.13 Scattered Trees

There are two scattered trees within the arable field, one mature oak *Quercus robur* and one dead oak. Both trees are considered to be of local ecological value. Both trees will be retained and protected.

2.14 Parkland

The southern section of the site, including the proposed sediment pond, is an area of parkland with amenity grassland and planted trees. The majority of the trees are non-native and have been planted as an arboretum. The trees are of a mixture of ages, with some veteran trees within the wider landholding (but not within the site), mature trees, semi-mature trees and young trees, some of which appear to have been very recently planted. The grassland of the parkland within the site is agriculturally improved and managed through regular and more infrequent mowing; no grazing livestock are present. The sward is dominated by common grass species including perennial rye *Lolium perenne*, meadow foxtail *Alopecurus pratensis*, cock's foot and false oat grass, with herbs in low abundance including white clover *Trifolium repens*, creeping buttercup, dandelion *Taraxacum officinale*, yarrow *Achillea millefolium* and thyme-leaved speedwell *Veronica serpyllifolia*. The grassland habitat is species-poor and typical of agriculturally improved grassland. Taken as a whole, the parkland habitat is considered to be a habitat of 'principal importance' as listed within Section 41 of the NERC Act 2006, namely 'wood pasture & parkland', and is considered to be of ecological value at the county level. However, when broken down into its component parts, namely improved grassland and planted trees, the individual habitats are of lower ecological value. The improved grassland is considered to be of value only at the site level, whilst the value of the trees depends on a number of factors including species (many non-native species are present), age and condition. Trees that are to be affected by the works are all young or semi-mature and are considered to be of ecological value at the site level only. Trees in this area do not form a Lowland Mixed Deciduous Woodland, nor are they a Traditional Orchard (as indicated on MAGIC).

2.15 Woodland (Plantation)

The proposed pipeline that links the sediment pond to the Norton Brook (see below) passed through an area of plantation woodland, following an existing track of bare ground. The woodland has no characteristics of ancient woodland, including no ancient woodland indicators in the ground flora, and the trees appear to have been planted in rows. The canopy is dominated by Poplar, and includes oak, ash, with hawthorn and elder noted in the understorey. The ground flora includes stinging nettle *Urtica dioica*, clover *Trifolium repens*, creeping buttercup and ivy *Hedera helix*. MAGIC indicates that this area is Lowland Mixed Deciduous Woodland, but this area is considered to be a plantation woodland. Plantation woodland is considered to be of ecological value at the local level.

2.16 Running Water

Much of the eastern site boundary is marked by the Norton Brook, a running watercourse. The brook is a shallow and narrow (approximately 30 to 50cm wide) watercourse that is densely shaded for much of its length. There is little or no marginal, aquatic or submerged vegetation, which is likely to be a result of this dense shading. It is considered that this brook does meet the criteria for a habitat of 'principal importance' as listed within Section 41 of the NERC Act 2006 (Rivers), as it is semi-natural and forms a headwater of the River Avon. Given this, the running water habitat is considered to be of district ecological value.

2.17 Summary of Habitat Evaluation

The following table summarises the evaluation of habitats, in order of increasing value.

| Habitat | Value (geographic frame of reference) |
|---|---------------------------------------|
| Arable land | Negligible |
| Improved grassland (component of parkland) | Site |
| Young and semi-mature trees (component of parkland) | Site |
| Plantation woodland | Local |
| Scattered trees (within arable land) | Local |
| Running water | District |
| Parkland (within the wider landholding) | Count |

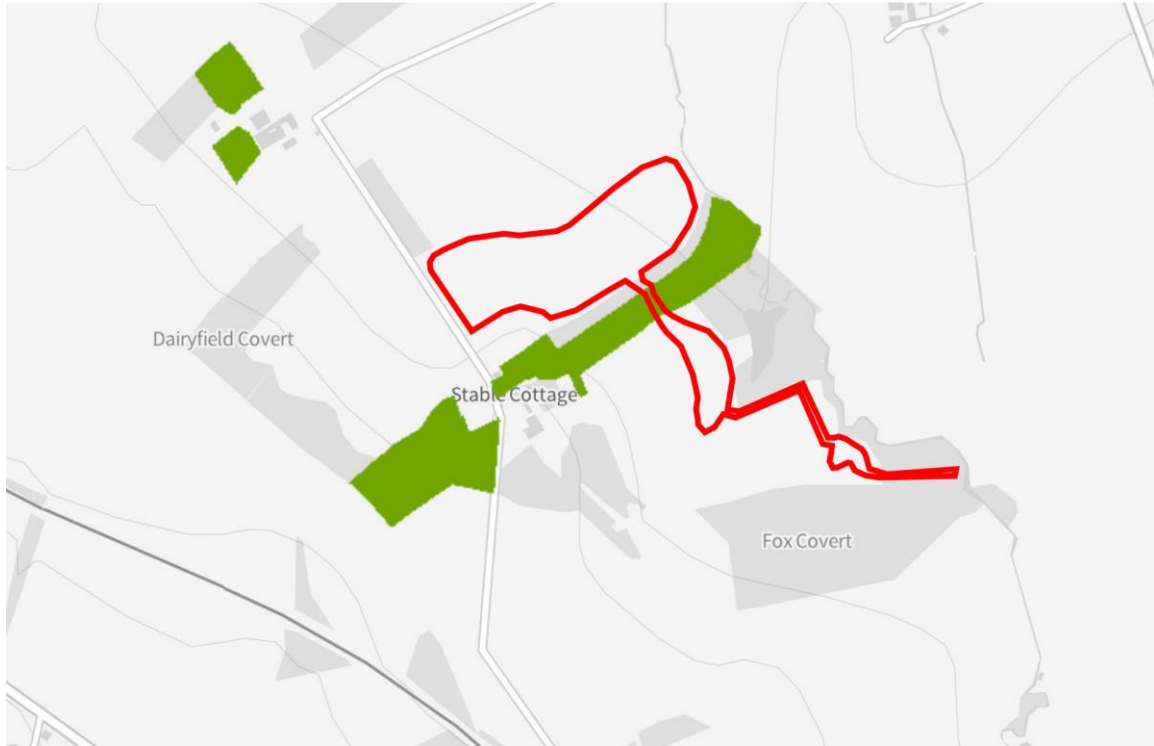


Figure 2 The green shaded areas are indicated as being 'Traditional Orchards' on the MAGIC website

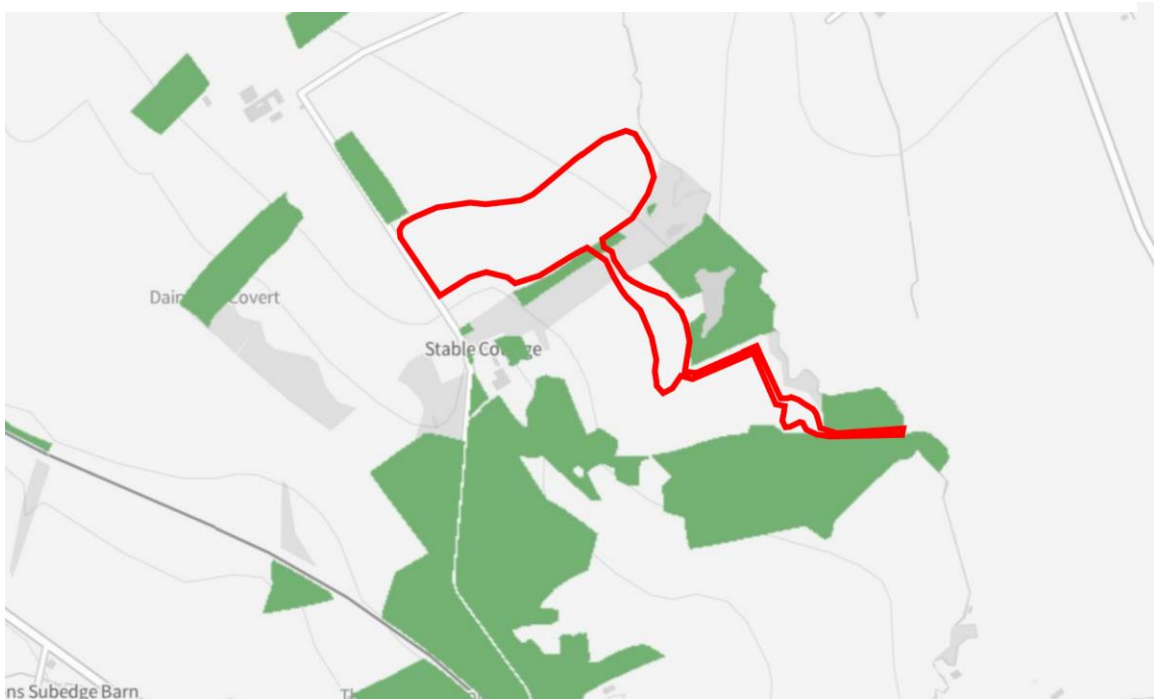


Figure 3 The green shaded areas are indicated as being 'Lowland Mixed Deciduous Woodland' on the MAGIC website.

3. DEVELOPMENT PROPOSALS

- 3.1 In summary, the proposed development comprises the creation of a conservation lake of approx. 1.2 ha and a silt / wildlife pond, following the natural contours and extending the parkland character into the arable field to the north, as illustrated in **Figure 4** below. The proposals are intended to improve biodiversity and landscape character.
- 3.2 The design of the lake reflects the 18th & 19th century tradition of serpentine parkland lakes as at the nearby Croome Court, Worcestershire, or at a smaller scale at Sezincote, Gloucestershire. Its narrow form allows it to pass through the existing tree belt with minimum loss of trees.
- 3.3 The landscape proposals include:
- marginal aquatic planting
 - parkland tree planting
 - woodland planting
 - reversion of arable land to pasture and creation of species-rich grassland.
- 3.4 The proposals have been informed by the Aboricultural Survey Report prepared by Barton Hyett Associates and submitted as part of the planning application.
- 3.5 The proposed settlement/wildlife pond would accept water from Norton Brook via a rebuilt weir. The existing pipework that supplies the old lake would be replaced, with a spur off to supply the new lake. The pond has been designed to desilt the water through controlling the flow through settlement areas and aquatic planting.
- 3.6 All spoil would be retained on site and spread over field to the north, creating a very low-profiled mound that would result in an almost imperceptible change to the existing gently undulating landform. The mound would rise gently from the lakeside at 61.6m AOD to a maximum height of 63m AOD.

Strategic Landscape & Ecological Management Aims & Objectives

3.7 The aims for the landscape and habitat management are:

- To implement and complete the planting and seeding works during the first planting season following completion of the construction works and/or occupation of the house, whichever is later.
- To plant and maintain of all new trees in accordance with *BS 8545:2014 Trees: from nursery to independence in the landscape*
- To combine this with the wider landscape improvements and conservation programme already being implemented by the Applicants across the estate
- To conserve the rural character and scenic quality of the site and assist the assimilation of the proposed development into its wider landscape setting.
- To help deliver the objectives of the Cotswold District Council's Green Infrastructure objectives.
- To conserve existing native vegetation on the site.
- To conserve and develop site biodiversity.
- To achieve an environmentally and economically sustainable management level for the site that is sensitive to future changes.
- To replace with appropriate materials or species all trees and plants which die, become over-mature, diseased or unsafe.
- To use plant materials of British provenance and, where practical, from local sources.
- To avoid the use of chemicals, pesticides and herbicides other than those approved by The Soil Association.

Landscape & Ecological Proposals

3.3 The proposals include the following landscape and ecological enhancements:

- Retention, protection and specialist care of existing parkland trees
- Enhancement of the adjacent improved grassland and through management.
- Conversion to parkland / wood pasture of the arable field to the north
- Establishment of native species woodland within the existing and extended parkland
- Creation of new species-rich pasture across the arable field and to areas disturbed by construction.

3.4 These proposals are set out on **Figure 4** below.

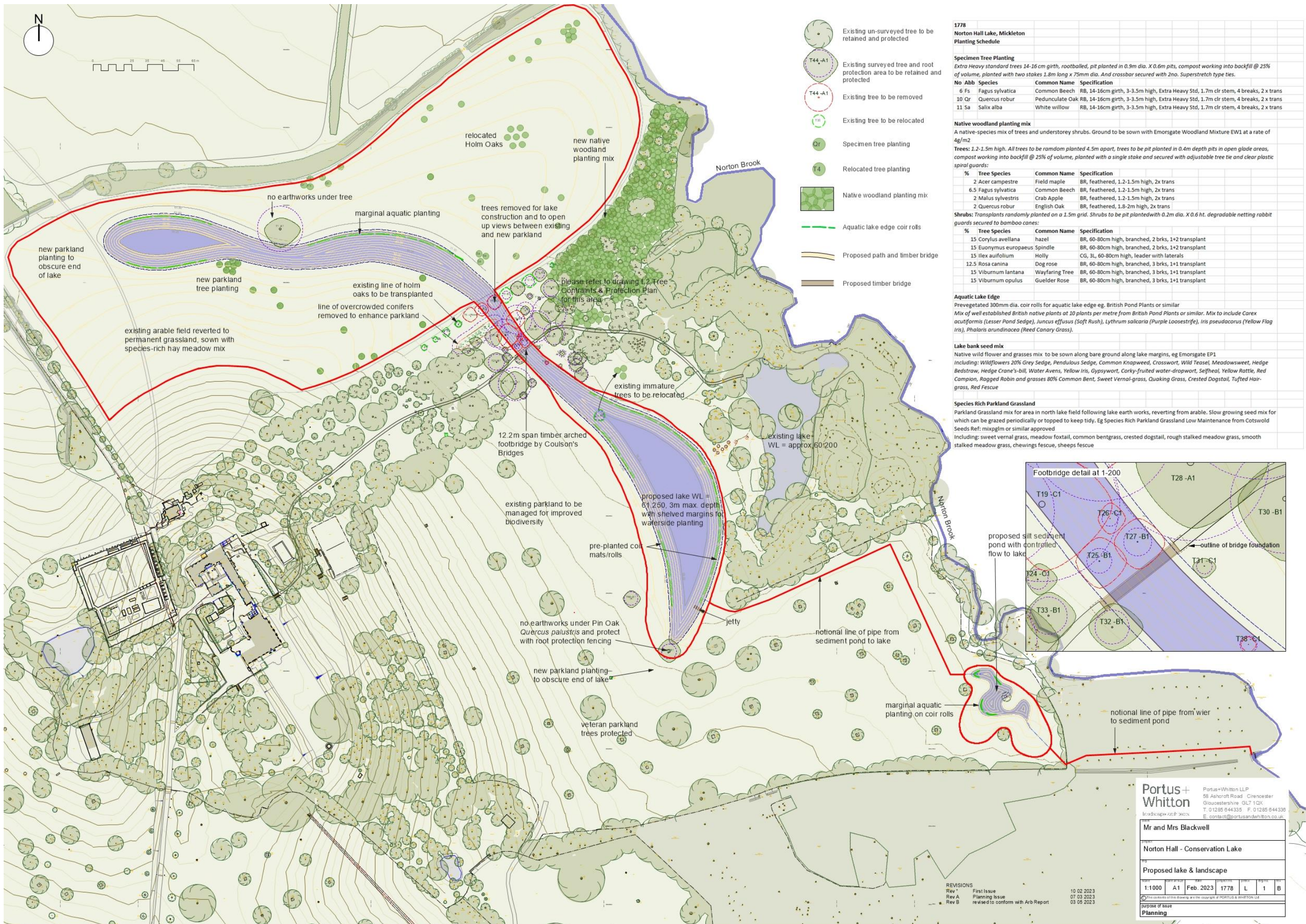


Figure 4 Landscape Proposals, as approved under Planning Ref 23/01522/FUL: Portus + Whitton drawing no. 1778.L.1 rev B, Proposed Lake and Landscape

4. MANAGEMENT OF EXISTING LANDSCAPE FEATURES

4.1 This section provides a Management Plan for the care and management of the existing trees and grassland, as illustrated in **Figure 5**.



Figure 5 Existing trees and grassland to be managed.

4.2 Existing Free-standing Parkland Trees

Description

A mix of parkland trees, including veterans and more recent arboretum trees, around the lake margins and within the arable field.

Management Objectives

- Maintain and protect specimen trees as historic landscape features.
- Conserve trees of special interest and value through ecological surveying and monitoring.

Management Operations

- Inspect mature trees every 3-5 years by a trained forester/arborist for condition and safety, and carry out appropriate surgery. Remedial work will be carried out to any dead or dangerous trees if they pose a public health and safety risk.
- Retain dying and dead standing trees and monoliths for their habitat value, subject to safety considerations.
- If recommended by trained forester/arborist, temporarily fence off root zones around veteran trees to protect them from cattle
- If recommended by trained forester/arborist, undertake root irrigation of veteran trees using appropriate liquid fertilizer, and/or ground decompaction using an airspade.

4.3 Existing improved grassland*Description*

Improved grassland currently managed by mowing and occasional grazing by sheep.

Management Objectives

- Retain and improve the existing sward.
- Implement a programmed grazing and cutting management regime to increase bio-diversity and scenic value
- Improve soil health by avoiding all cultivations, fertilizer applications and herbicide use.

Maintenance Operations

- Allow the meadow to flower before taking a 'hay cut' between June and August. Cut grass to 100mm with approved disc mower (not a flail mower) to facilitate easy collection and removal.
- Arisings to be left for a period of a week to allow to dry and shed seed. Then rake and remove all arisings from site, eg as bales.

5. MANAGEMENT OF NEW FEATURES

5.1 This section provides a Management Plan for the establishment of the new lake, trees, woodland and grassland areas, as illustrated in **Figure 6**

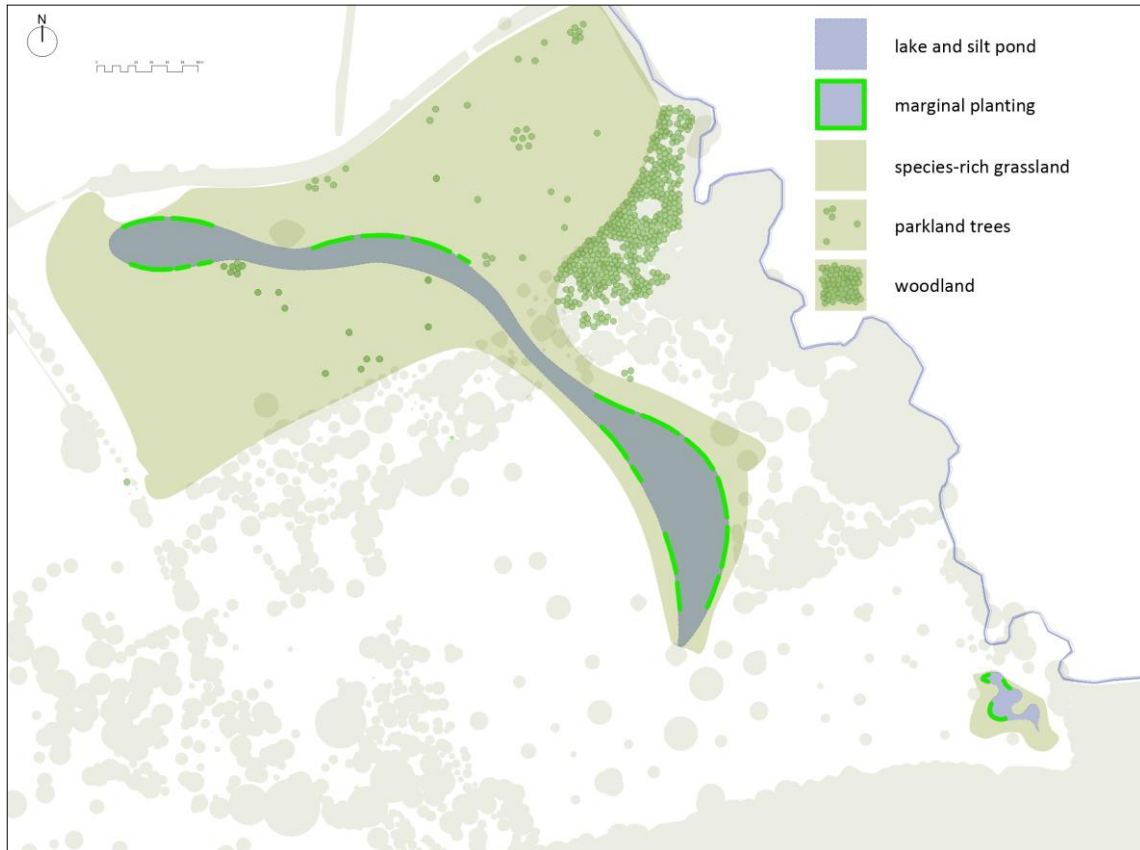


Figure 6 Proposed features

5.2 Lake and Silt Pond

Description

A 1.2 ha. clay-lined lake with up to 3 metres depth in the centre and perimeter shelves for marginal planting. The lake is to be supplied from the Norton Brook via an underground pipe and a silt settlement pond. The settlement pond's serpentine form and planting is designed to reduce flow rates to allow silt to settle. Lake and pond margins to be planted with native-species aquatic plants, as set out in the planting schedule at Appendix 2

Management Objectives

- Provide landscape and ecological enhancement, particularly for amphibians and invertebrates, and promote site biodiversity.
- Provide scenic variation.
- Recreate a historically typical parkland feature.

Maintenance Operations

- Vegetation control – pond margins: The objective shall be to maintain a herbaceous vegetation with no woody plants so as to allow plenty of sunlight onto the pond. Cut back areas of heavy or invasive growth of marginal plants in autumn by scythe or heavy-duty strimmer to a height of 40-75mm. Woody plants such as willow shall be removed entirely. Do not use Herbicide.
- Vegetation control – aquatic planting: The objective shall be to maintain an open water area of between 80% and 90% of the pond surface. Removed extensive areas of floating plant growth such as blanket weed and duckweed in spring and summer, using a net. Reduce areas of heavy or invasive growth of emergent plants every 4-6 years by cutting back in autumn or by removing roots with a mechanical digger and disposing. Do not use Herbicide. Remove fallen leaves and dead vegetation at the same time, in autumn or winter. No more than half the pond area to be cleared in any one year.
- Silt removal – settlement pond: Carry out on a 5-10 year rolling programme, using a 360° excavator with a long-reach jib. Starter clumps of aquatic vegetation to be set aside and replanted after each de-silting. Arisings to be spread over surround ground to max 300mm depth.

5.3 New Free-standing Parkland Trees*Description*

Specimen trees proposed around the new parkland and lake, as set out in the planting schedule at Appendix 2. Trees to be individually protected with stock-proof cages.

Objectives

- To restore a characteristic feature to the estate landscape
- To enhance biodiversity

Maintenance Operations (Year 1)

- Checking trees: Check all tree ties, stakes and stock proof cages. Adjust ties/stakes if too loose, too tight or if chaffing is occurring. Replace broken stakes.
- Formative pruning: Prune back any damaged, dead or diseased shoots/branches to healthy wood, in accordance with good horticultural practice to maintain healthy well-shaped specimens.

- Weed clearance: Keep a 1m diameter weed-free circle around each tree by herbicide application or hand weeding in late spring, mid-summer and late summer.
- Mulching: At the end of the first year, re-mulch trees to a depth of 50 mm with a circle of mulch around the base of each new tree.
- Watering: Water all trees during the growing season following any dry periods of 7 days. Each tree is to receive between 10 litres for a small tree and 50 litres for a large tree.
- Plant Failures: Remove and replaced any dead or defective plants that appear within the first 12 months.

Maintenance Operations (Year 2 onwards)

- Inspection & tree surgery: Inspect trees and undertake appropriate surgery to ensure prolonged life. Any dead dying material and branches that are severely crossing over within the crown will be cut back and basal shoots / suckers removed. Plants will be pruned in accordance with good horticultural practice to maintain healthy well-shaped specimens. Where appropriate tree crowns will be lifted to 3m.
- Checking trees: Check all tree ties and the stake and adjust if too loose, too tight or if chaffing. Check trees for any sign of wind rock/throw. Replace any broken stakes. In years 5-6, remove stakes and ties if the trees are firmly rooted. Repair tree cages if they become damaged.
- Replacements: Replace any dying, dangerous or windblown specimens with the same species, including any trees that have either failed or that show strong indication of poor future growth. Trees will be replaced with originally specified species/cultivar unless there are sound arboricultural reasons not to do so.

5.4 New Woodland Planting

Description

New woodland planting is proposed around the north field and at each end of the lake, as set out in the planting schedule at Appendix 2.

Objectives

- To frame views of the lake and park
- To enhance biodiversity
- To provide long-term a source of thinnings for wood-fuel

Maintenance Operations (Year 1)

- Checking tree & shrub guards: In spring, check all tree ties and the stake and adjust if too loose, too tight or if chaffing. Check trees for any sign of wind rock/throw. Replace any broken stakes. In years 5-6, remove stakes and ties if the trees are firmly rooted.
- Formative pruning: Cut out any dead, diseased, damaged wood in winter.
- Weed clearance: Spray off 0.6m diameter circles around trees and shrubs to keep them weed-free. Any remaining coarse weed growth will be strimmed.
- Plant Failures: Replace any dead plants with the same species, including any trees that have either failed or that show strong indication of poor future growth. Trees will be replaced with originally specified species/cultivar.

Maintenance Operations (Year 2 onwards)

- Checking tree & shrub guards: In spring, mesh / spiral guards and tree shelters will be checked and secured and any defective guards replaced. In years 3-4 mesh / spiral guards and tree shelters will be removed. Stock-proof fencing to be checked and repaired if damaged.
- Formative pruning: Cut out any dead, diseased, damaged wood in winter.
- Coppicing: Coppice hazel and weak-growing trees on a 7-10 year rotation.
- Replacements: Replace any dying, dangerous or windblown specimens with the same species, including any trees that have either failed or that show strong indication of poor future growth. Trees will be replaced with originally specified species/cultivar unless there are sound arboricultural reasons not to do so.

5.5 Species-Rich Grassland

Description

Species-rich grassland is proposed for the extended park and lake margins disturbed by construction works, as set out in the planting schedule at Appendix 2.

Objectives

- Provide landscape and ecological enhancement, promoting biodiversity at a local level.
- Restore a traditional landscape feature to the countryside that is also a local priority habitat.

Maintenance Operations (Year 1)

The ground will have been thoroughly cleared of weeds prior to sowing nevertheless the new sowings on bare soil may in the establishment year be dominated by a flush of annual weeds arising from the soil seed bank and by grass growth.

- Weed control: Spot-treat local areas of particularly invasive or pernicious weed growth, such as creeping thistle.
- Mowing: Leave meadow areas uncut to flower. Take the first "hay crop" in mid-summer (July) following flowering, using a disc mower (not a flail) to a height of 40-75mm. Leave the cut grass to dry in-situ to disperse seeds, removing the dried 'hay' within 7 days of cutting. Dependant on the rate of growth following the summer cut, carry out 1 or 2 autumn cuts through to November.

Maintenance Operations (Year 2 onwards)

In the second year from sowing, meadow areas will be left uncut to flower. The first "hay crop" will be taken in mid-summer following flowering. In subsequent years, more quickly establishing pioneer perennials will grow vigorously, but the meadow will become more diverse as slower establishing species appear. Growth will become less vigorous as nutrients become fixed in root systems and herbage.

- Mowing: Carry out a summer cut in July, using a disc mower (not a flail) to a height of 40-75mm. Leave the cut grass to dry in-situ to disperse seeds. Remove the dried 'hay' within 7 days of cutting.
- Grazing: Remove all grazing stock between late March and July. Re-introduce cattle/sheep at low stocking rates to graze the re-growth to min 50mm, through to late autumn/winter and again in spring if needed.

6. MONITORING, REVIEW & RESPONSIBILITIES

Implementation

- 6.1 The implementation of this Management Plan will be funded by the Applicants and coordinated by the Applicants' Estate Manager with advice when required from their professional consultants and will be undertaken by experience farm labour.

Monitoring & Reporting

- 6.2 The existing and proposed parkland would be monitored on an annual basis to assess the need for possible further intervention to optimise the chances of a natural recovery of a more diverse flora and the results presented to the LPA. If it is found that a more interesting natural flora does not start to develop by year 3 following the commencement of the proposed management regime, consideration will be given to over-seeding with a native meadow flora mix.
- 6.3 The results will be presented to both the LPA during the period of aftercare and on an annual basis to the Thames Valley Environmental Records Centre (TVERC).

Management Plan Review

- 6.4 The results from the annual monitoring process will inform and influence future management operations. This management plan will be reviewed after 5 and 10 years or more frequently if deemed necessary.

7. MAINTENANCE WORK SCHEDULES

TABLE 1 - ANNUAL MAINTENANCE OF EXISTING LANDSCAPE FEATURES (YEARS 1 to 10)

| Task | Season | Area | Action | Frequency |
|------|-----------------|--------------------|---|--|
| 1 | July - November | Improved Grassland | <u>Mowing</u> : Main summer cut between June and August, growth to be cut back to a height of 40-75mm. The cut grass is to be dried on site and turned regularly to assist in drying and dispersal of seeds prior to being removed from site. After Main Cut, either: Sward to be grazed, or: Additional cuts to be carried on through to Autumn - ideally twice from the time the Hay is removed to the end of November. | 2 or 3 |
| 2 | Winter | Existing Trees | <u>Inspection & Remedial Work</u> : Annual inspection of mature trees by a trained Arboriculturalist. Safety check, then prune "un-safe" dead, decaying or damaged trees as required. | Annual (or more as safety requires) |

TABLE 2 - NEW PLANTING ESTABLISHMENT (YEAR 1)

| Task | Season | Area | Action | Frequency (per year) |
|------|-----------------------|------------------------|--|----------------------|
| 1 | Spring - Summer | Aquatic Planting | <u>Vegetation removal</u> : Extensive areas of floating plant growth such as blanket weed and duckweed shall be removed with a rake or net in spring and summer. | 2 |
| 2 | Spring through Autumn | Woodland | <u>Pruning</u> : of individual trees and shrubs shall be carried out using skilled labour only and adopting correct horticultural practice, check the species for best time to prune. | 1 |
| 3 | Spring through Autumn | Woodland | <u>Weed clearance</u> : All planted areas are to be kept weed-free by hand weeding and/or herbicide treatment | 3 (minimum) |
| 4 | Spring through Autumn | Woodland | <u>Watering</u> All trees, hedges and planting areas (for grass areas see below) are to be watered during the growing season following any dry periods of 7 days. Planting areas are to be brought up to field capacity at each visit and the tree is to receive 10-50 litres. | As required |
| 5 | Summer through Autumn | Species-rich Grassland | <u>Mowing</u> : In the first year the meadow grass will be cut to a height of 50mm every 2 months or when the sward reaches 150mm height. All arisings will be removed. For meadow mixes with annuals, the first cut should be delayed until after these have flowered. | 3 |
| 6 | Autumn | Aquatic Planting | <u>Vegetation removal</u> : Removal of excess vegetation from within the pond shall take place annually in late autumn to give 20% to 50% open water. Fallen leaves and dead vegetation shall be removed in autumn or winter. | 1 |
| 7 | Winter | Trees | <u>Formative pruning</u> : Any damaged shoots/branches are to be pruned back to healthy wood. Plants are to be pruned in accordance with good horticultural practice to maintain healthy well-shaped specimens. <u>Checking</u> : All tree ties and the stake are to be checked and adjusted if too loose, too tight or if chaffing is occurring. Any broken stakes are to be replaced. | 1 |
| 8 | Winter | Woodland | <u>Formative pruning</u> : Any damaged shoots/branches are to be pruned back to healthy wood. Plants are to be pruned in accordance with good horticultural practice to maintain healthy well-shaped specimens. <u>Checking</u> : Check and secure all mesh/spiral guards and replace if necessary. | 1 |
| 9 | All year | All Areas | <u>Plant Failures</u> : Replace dead trees, shrubs and grass/turf in next suitable growing season in accordance with good horticultural practice. | As required |

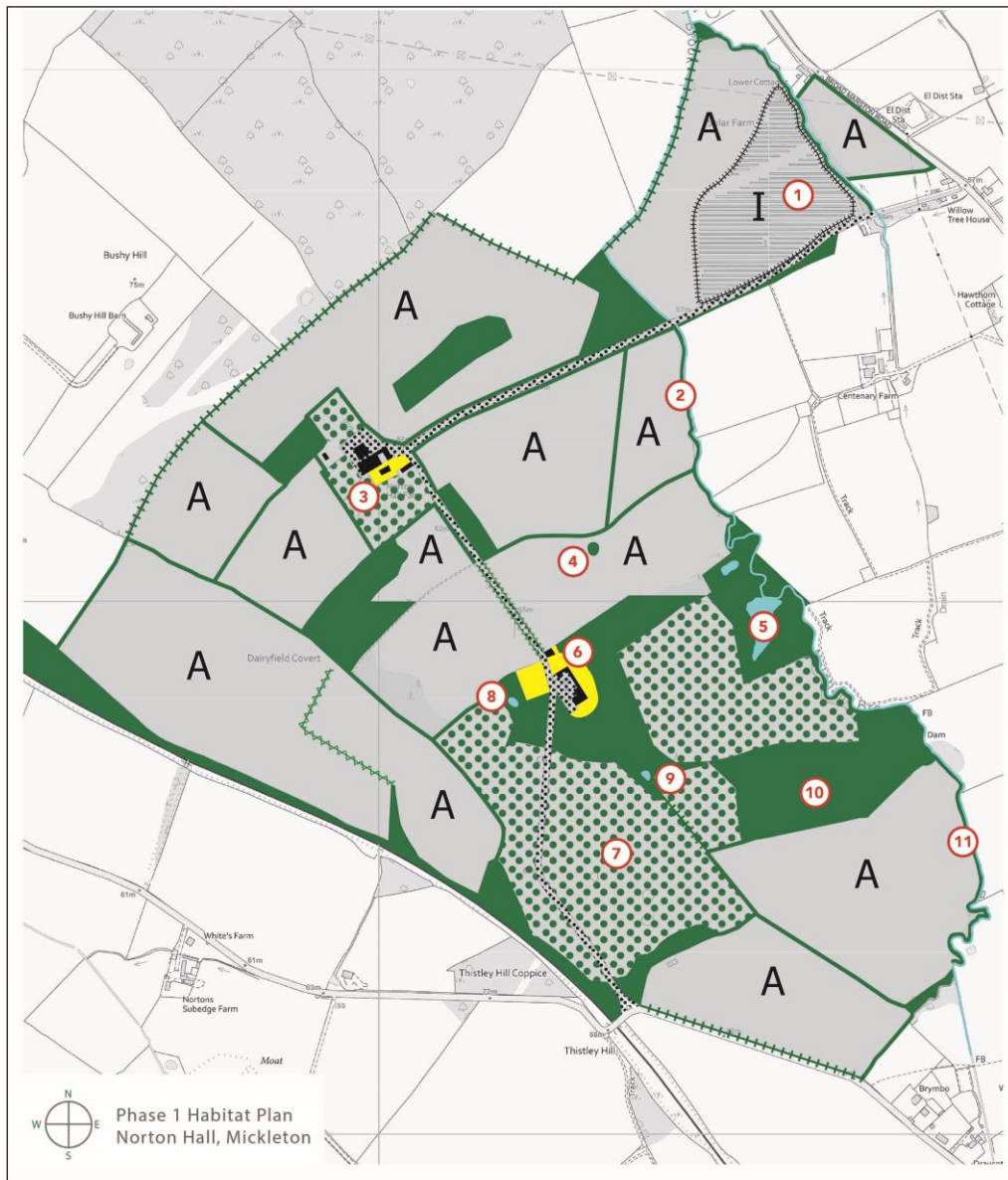
7 MAINTENANCE WORK SCHEDULES (Cont'd)















TABLE 3 - NEW PLANTING ANNUAL MAINTENANCE (YEARS 2 - 10)

| Task | Season | Area | Action | Frequency (per year) |
|------|-----------------------|------------------------|--|----------------------|
| 1 | Spring | Trees | <u>Fertiliser</u> : Apply bone-meal and then mulch to tree bases in grass areas. <u>Checking</u> : All tree ties and the stake are to be checked and adjusted if too loose, too tight or if chaffing is occurring. Any broken stakes are to be replaced. Remove ties in Years 5-6 | 1 |
| 2 | Spring | Species-rich Grassland | Remove grazing animals | |
| 3 | Spring | Woodland | <u>Checking</u> : Mesh / spiral guards will be checked and secured and any defective guards replaced. In years 3-4 mesh / spiral guards will be removed. | 1 |
| 4 | Spring - Summer | Aquatic Planting | <u>Vegetation removal</u> : Extensive areas of floating plant growth such as blanket weed and duckweed shall be removed with a rake or net in spring and summer. | 2 |
| 5 | Spring through Autumn | All planted areas | <u>Weed clearance</u> : All planted areas are to be kept weed-free by hand weeding and/or herbicide treatment | 3 (minimum) |
| 6 | July - November | Species-rich Grassland | <u>Mowing</u> : Main summer cut in July with growth is to be cut back to a height of 40-75mm. The cut grass is to be dried on site and turned regularly to assist in drying and dispersal of seeds prior to being removed from site. After Main Cut, either; Reintroduce grazing animals, or; Carry out additional cuts, to be carried on through to Autumn - ideally twice from the time the Hay is removed to the end of November. | 2 or 3 |
| 7 | October-December | All areas | <u>Leaf litter</u> : Collect fallen leaves and compost or dispose of off-site | 3 (minimum) |
| 8 | Autumn | Aquatic Planting | <u>Vegetation removal</u> : Removal of excess vegetation from within the pond shall take place annually in late autumn to give 20% to 50% open water. Fallen leaves and dead vegetation shall be removed in autumn or winter. | 1 |
| 9 | Winter | Trees | <u>Pruning</u> : Cut back any dead dying material and branches that are severely crossing over within the crown and remove basal shoots / suckers | 1 |
| 10 | Winter | Woodland | <u>Pruning</u> : prune to remove any dead diseased or damaged wood. | 1 |
| 11 | All year | All Areas | <u>Plant Failures</u> : Replace dead trees, shrubs, perennials and grass/turf in next suitable growing season in accordance with good horticultural practice. | As required |

APPENDIX 1

PHASE 1 HABITAT PLAN



| Legend | |
|---|-------------------------|
|  | Woodland (broadleaved) |
|  | Parkland |
|  | Hedgerow |
|  | Hedgerow with trees |
|  | Hedgerow (species-rich) |
|  | Fence |
|  | Running water |
|  | Buildings |
|  | Hard-standing |
|  | Arable land |
|  | Improved grassland |
|  | Standing water (ponds) |
|  | Gardens |
|  | Target note |



Project Name
Norton Hall, Mickleton

Production Date
8 December 2022

Project Owner
TB

Windrush Ecology Ltd. (Head Office)
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APPENDIX 2

PLANTING SCHEDULE AND OUTLINE SPECIFICATION

Norton Hall Lake, Mickleton

Planting Schedule

Specimen Tree Planting

Extra Heavy standard trees 14-16 cm girth, rootballed, pit planted in 0.9m dia. X 0.6m pits, compost working into backfill @ 25% of volume, planted with two stakes 1.8m long x 75mm dia. And crossbar secured with 2no. Superstretch type ties.

| No | Abb | Species | Common Name | Specification |
|----|-----|-----------------|-----------------|---|
| 6 | Fs | Fagus sylvatica | Common Beech | RB, 14-16cm girth, 3-3.5m high, Extra Heavy Std, 1.7m clr stem, 4 breaks, 2 x trans |
| 10 | Qr | Quercus robur | Pedunculate Oak | RB, 14-16cm girth, 3-3.5m high, Extra Heavy Std, 1.7m clr stem, 4 breaks, 2 x trans |
| 11 | Sa | Salix alba | White willow | RB, 14-16cm girth, 3-3.5m high, Extra Heavy Std, 1.7m clr stem, 4 breaks, 2 x trans |

Native woodland planting mix

A native-species mix of trees and understorey shrubs. Ground to be sown with Emorsgate Woodland Mixture EW1 at a rate of 4g/m²

Trees: 1.2-1.5m high. All trees to be random planted 4.5m apart, trees to be pit planted in 0.4m depth pits in open glade areas, compost working into backfill @ 25% of volume, planted with a single stake and secured with adjustable tree tie and clear plastic spiral guards:

| % | Tree Species | Common Name | Specification |
|-----|------------------|--------------|--|
| 2 | Acer campestre | Field maple | BR, feathered, 1.2-1.5m high, 2x trans |
| 6.5 | Fagus sylvatica | Common Beech | BR, feathered, 1.2-1.5m high, 2x trans |
| 2 | Malus sylvestris | Crab Apple | BR, feathered, 1.2-1.5m high, 2x trans |
| 2 | Quercus robur | English Oak | BR, feathered, 1.8-2m high, 2x trans |

Shrubs: Transplants randomly planted on a 1.5m grid. Shrubs to be pit planted with 0.2m dia. X 0.6 ht. degradable netting rabbit guards secured to bamboo canes:

| % | Tree Species | Common Name | Specification |
|------|--------------------|----------------|--|
| 15 | Corylus avellana | hazel | BR, 60-80cm high, branched, 2 brks, 1+2 transplant |
| 15 | Euonymus europaeus | Spindle | BR, 60-80cm high, branched, 2 brks, 1+2 transplant |
| 15 | Ilex auifolium | Holly | CG, 3L, 60-80cm high, leader with laterals |
| 12.5 | Rosa canina | Dog rose | BR, 60-80cm high, branched, 3 brks, 1+1 transplant |
| 15 | Viburnum lantana | Wayfaring Tree | BR, 60-80cm high, branched, 3 brks, 1+1 transplant |
| 15 | Viburnum opulus | Guelder Rose | BR, 60-80cm high, branched, 3 brks, 1+1 transplant |

Aquatic Lake Edge

Prevegetated 300mm dia. coir rolls for aquatic lake edge eg. British Pond Plants or similar

Mix of well established British native plants at 10 plants per metre from British Pond Plants or similar. Mix to include *Carex acutiformis* (Lesser Pond Sedge), *Juncus effusus* (Soft Rush), *Lythrum salicaria* (Purple Loosestrife), *Iris pseudacorus* (Yellow Flag Iris), *Phalaris arundinacea* (Reed Canary Grass).

Lake bank seed mix

Native wild flower and grasses mix to be sown along bare ground along lake margins, eg Emorsgate EP1

Including: Wildflowers 20% Grey Sedge, Pendulous Sedge, Common Knapweed, Crosswort, Wild Teasel, Meadowsweet, Hedge Bedstraw, Hedge Crane's-bill, Water Avens, Yellow Iris, Gypsywort, Corky-fruited water-dropwort, Selfheal, Yellow Rattle, Red Campion, Ragged Robin and grasses 80% Common Bent, Sweet Vernal-grass, Quaking Grass, Crested Dogtail, Tufted Hair-grass, Red Fescue

Species Rich Parkland Grassland

Parkland Grassland mix for area in north lake field following lake earth works, reverting from arable. Slow growing seed mix for which can be grazed periodically or topped to keep tidy. Eg Species Rich Parkland Grassland Low Maintenance from Cotswold Seeds Ref: mixpglm or similar approved

Including: sweet vernal grass, meadow foxtail, common bentgrass, crested dogtail, rough stalked meadow grass, smooth stalked meadow grass, chewings fescue, sheeps fescue

APPENDIX 3

TREE REMOVALS AND RETENTIONS PLAN

