FOOTPRINT ECOLOGY

Feasibility study for the sustainable management of Monkwood Green

Final report

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Footprint Contract Reference: 461
Date: August 2018
Version: Final draft
Recommended Citation: Underhill-Day, J. C., Underhill-Day, N, & Panter, C. 2018. Feasibility study for the sustainable management of Monkwood Green Final report. Unpublished report to Grimley Parish Council.

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Acknowledgements

Our thanks to Lisa Stevens for promptly answering all our queries and supplying us with background information. We are also grateful to all those who gave up their time to answer our questions about the history and management of Monkwood Green and to Nicholas Button from Natural England for his help and guidance.

1. Introduction

1.1 Footprint Ecology has been commissioned by Grimley Parish Council to provide a feasibility study of sustainable management for Monkwood Green Common in order to inform entry of the Common into the Countryside Stewardship (CS) scheme.

1.2 Although the main management of this grassland site will be grazing and haying, there are several other features which will need to be managed including a number of ponds, a ditch system and scrub.

2. Summary of biodiversity interest and recorded changes

2.1 Monkwood Green Common is a Site of Special Scientific Interest (SSSI) designated for its damp, acidic, species-rich grassland containing a wide variety of native grasses and herbs including grass vetchling, lady's bedstraw and Dyer's greenweed. There is also an increasing population of green-winged orchids. An absence of hay cutting over part of the site had encouraged colonies of grassland ants and the ant hills also support a rich flora with wild thyme and devils-bit scabious. Petty whin is also present at its only site in the county and supports the uncommon moth *Coleophora genistae*.[1]

2.2 In the past, the common would have been intensively managed by cutting and grazing, and even as late as 1945 the aerial photographs show a completely open site with virtually no trees or scrub. A decline in the economic value of many commons, including Monkwood Green, since that time, has resulted in the growth of coarse vegetation and scrub and a decline in ditch and pond management. There has also been a tendency to cut rather than graze, the latter having the attendant problems of stock containment and the dangers of increasing road traffic.

2.3 Those parts of the site which have been grazed rather than cut, have retained a pasture flora and numerous meadow ant hills, which would be damaged or destroyed by cutting. Most of this area is within compartments 3 and 4 (see Map 1). Much of the remainder of the site has been cut but would benefit from the reintroduction of grazing[2]. Scrub has been cleared in parts of compartments 3 and 4 recently although more work is needed.

2.4 The ditches appear to be mostly dry except in wet weather in winter, and the ponds, which date to at least the first half of the nineteenth century, have not been consistently managed, with several not appearing to have been managed for some time. The ponds may contain important archaeological sediments and the Worcestershire Archive and Archaeological Service advises that conservation management should ensure the profile or surrounding earthworks are not damaged and are maintained through scrub management.

2.5 Sheep grazing was reintroduced onto the south eastern section of compartment 3 (Map 1) in 2017 using electric fencing. The continuation and extension of a viable grazing scheme is the major issue for the management of the common. This report therefore considers the options for stock containment for initial consideration by the Parish

[1] Most of the information on the biological features of the site is contained in Betts, C. J. 2018 v1.5. Management Plan for biodiversity. Unpub. Report to Grimley Parish Council.
[2] This is the most appropriate management in the opinion of Natural England, contained in their views on the management of Monkwood Green given in 2003 and quoted in the management plan (Betts, C. J. 2018 v1.5)

Council, as a first step towards a wider consultation and reaching a consensus on a way forward.

3. Past and recent management

3.1 The following sections provide a brief overview of management that has taken place on the Common since its SSSI notification in 1986. The descriptions are not comprehensive because detailed records have not been kept during this period, and thus only key schemes or initiatives are described. A great deal of management has gone undocumented particularly as it will have been carried out for different reasons and by different people or groups, most notably management by commoners and/or farmers for farming reasons, management instigated by Natural England and its predecessors to maintain the condition of the SSSI, and management undertaken by the Parish Council as owner and steward of the Common. Management has been undertaken by a variety of people, including commoners, local farmers, residents, contractors, volunteers of the Residents' Group, the Worcestershire Wildlife Trust, Highways, the Environment Agency and the various Utilities. The minutes of the regular Parish Council meetings contain a record of formal works undertaken, and thus provide an important record of past management, particularly in recent years.

Grassland Management: Grazing and Hay Cutting

3.2 The Common would have been traditionally grazed by a mixture of stock including sheep, cattle, horses, pigs, geese, ducks and poultry, managed by commoners and smallholders; consequently, much of the common has developed a flora representative of permanent pasture, although some areas may also have been cut for hay, with grazing of the aftermath (grass regrowth). It is likely that grazing pressure would have been higher historically than the present day, producing a more extensive short-cropped sward. Our understanding is that currently none of the commoners exercise their rights of grazing. During interviews, one long-standing resident described past grazing on the Common by up to 60 cattle, presumably during the 1970s. However, a management brief in 1994 states that only light grazing would have taken place historically, although the evidence for this view is unclear. Since the common was notified, it has had regular site visits and condition reports by officers from Natural England and its predecessors. Prior to this, the level and nature of grassland management is not documented but descriptions from long-standing residents suggest the Common was more extensively and permanently grazed, and cut, over a wider area than the present day, with a much shorter sward and almost complete absence of scrub and trees across most of the area.

3.3 One of the earliest condition reports describes "continuous light grazing by cattle up until the 1980s", with the site comprising "areas with long grass tussocks, short 'lawn-like' grazed areas, ant hills and light scrub". By the late 1980s, grazing appears to have

become more sporadic and localised to only a few areas, with grassland becoming "rank and overgrown" in other areas.

3.4 During the early 1990s there was a six to seven-year period of localised tethered pony/horse grazing, by animals owned by the then resident of the Fox Inn, and more occasionally by travelling people with horses. A report in 1995 mentions horse grazing was limited to *circa* 10% of the site, with a lack of grazing and a decline in condition of the rest of the Common.

3.5 In the late 1980s, a cutting regime was prescribed for some parts of the Common, comprising one annual cut, using a tractor in some compartments, and manual cutting for areas containing ant hills and petty whin. A report in 1991 noted that grass cuttings had not been removed; this is a recurring theme which causes nutrient enrichment, favouring faster-growing species.

3.6 Since the mid-1990s, grazing with sheep and cattle has been intermittent, and mostly confined to areas west of Sinton Green Road. Grazing has been undertaken using electric fencing, more often in wetter areas where cutting has proved more difficult. A three-year Wildlife Enhancement Scheme (WES) was set up by the statutory body and Grimley Parish Council in 1997, and was later extended to 2008. The map below shows the Common split into three major management areas; original WES management prescriptions were as follows:

- compartment A - to be cut for hay and aftermath grazed by cattle or sheep;
- compartment B - to be heavily grazed by cattle in late summer and autumn, with light grazing over the winter and spring;
- compartment C - to be grazed by tethered horses.

3.7 The aim was to produce a sward height of 2-10 cm over 80% of the area, with stock encouraged to drink from the main pond in the north-west, and at two further ponds on the Common near The Woodlands and The Fox Inn respectively. Initially, several Highland cattle were purchased by the Parish Council and leased to one of the Commoners for grazing on the Common. During the course of the scheme, the number of Highland cattle expanded, with 10 recorded on the common by the NE officer in 2005 within an electrically fenced area; however, the scheme eventually ceased as a result of ongoing problems (see Section 4 below). Hay cutting was also carried out during this time.

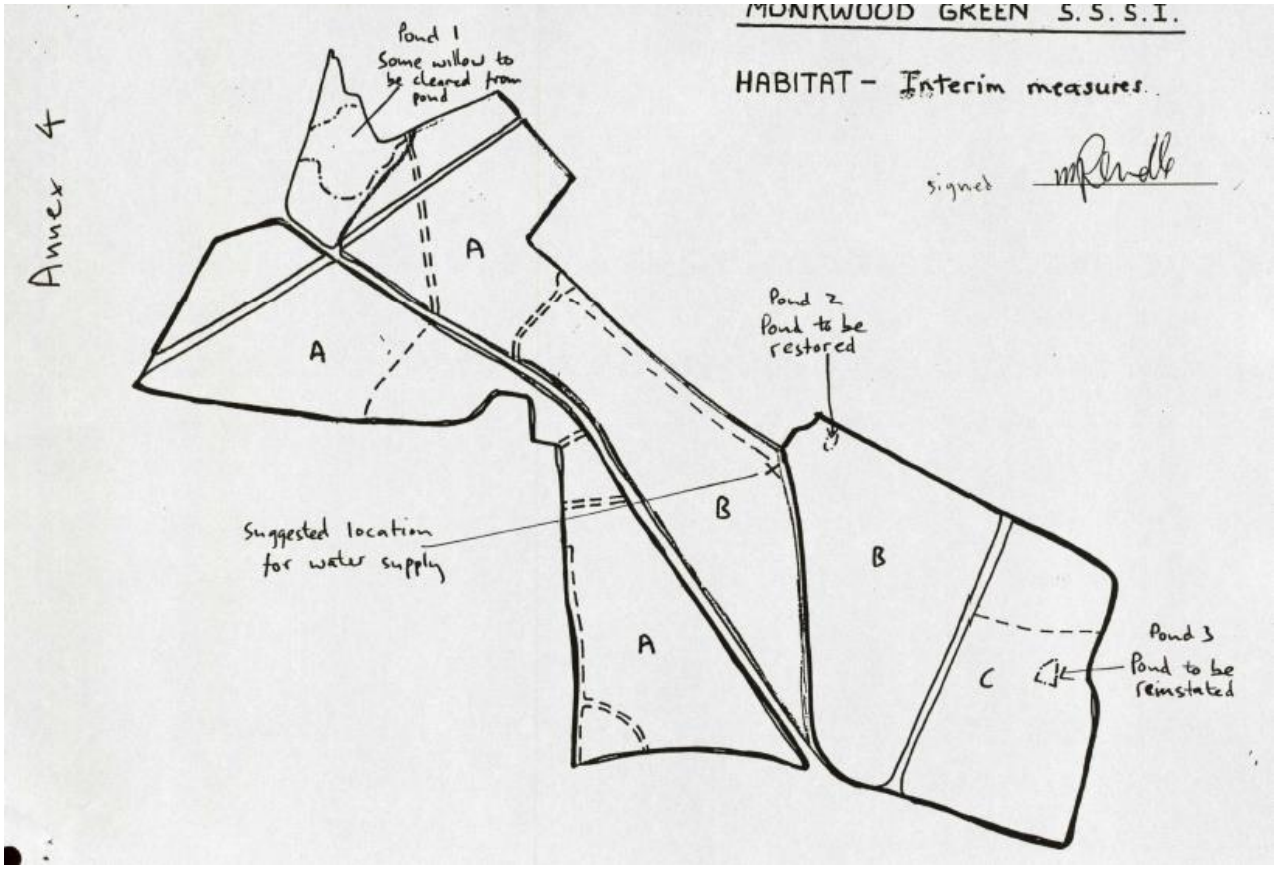
3.8 Since the Wildlife Enhancement Scheme ended, intermittent grazing, predominantly by sheep, has mostly been confined to the western end of the Common. Cutting has continued in recent years, under the direction of the Parish Council, particularly in the flatter, drier areas, with some success in halting the spread of woody species, but also in areas containing ant hills. However, cutting has not been consistent. Some topping (i.e. cutting the top layer of grass only) has also been undertaken by a local resident/farmer.

3.9 Compartment 2 has been grazed intermittently and topped in 2017 and 2018 by one commoner (who used their own electric fence) and the southern part of compartment 3 has been sheep grazed over the same period by another commoner using the electric fence owned and provided by the Parish Council.

3.10 A site visit by the NE Officer in 2015 described the grassland as herb-rich (MG5 *Cynosurus cristatus – Centaurea nigra* or in English crested dog's-tail – common knapweed under the National Vegetation Classification), but with some areas becoming rank, including peripheral areas which were losing herbs through their transition to MG1 (*Arrhenatherum elatius* False-oat grass grassland) and MG9 (*Holcus lanatus - Deschampsia cespitosa* Yorkshire fog – tufted hair grass grassland.

3.11 In 2017 grazing was undertaken by *circa* 20 Welsh Mule sheep in the northern part of the Common; this was thought to be the most significant number of grazing stock on the Common for 25-30 years. Grazing was undertaken rotationally, between April and September, in compartments contained by electric fencing, with the stock owned by a local farmer. First impressions from those involved suggest that the grazing successfully reduced the abundance of dominant coarse grasses, particularly tufted hair-grass, while the farmer was apparently pleased with the condition of the sheep. Those involved were also satisfied that the grazing had no adverse effects on the petty whin plants, while helping to reduce the smothering vegetation around them.

3.12 Over the years several proposals have been put forward for cattle grids on the roads. A map from 1992 shows three grids on the adjacent roads and mention is made in a management brief of grids on the two access roads in 1994 and on another undated map for a single cattle grid on the minor access road crossing the common. Halcrow produced drawings and apparently costed a scheme in 2000. We have seen no evidence that any of these proposals was taken to a formal application.



Locations of management areas as prescribed in the 1997 Wildlife Enhancement Scheme

Other Management

Scrub, tree and hedgerow management

3.13 Traditionally, continuous grazing by cattle, sheep and other stock would have sustained the common as open grassland and prevented scrub from developing. Commoners rights of estovers also formed a significant part of past management of scrub and trees, and would have included pollarding of the trees on the common and removal of other woody plant material for a range of uses.

3.14 With the cessation of traditional grazing practices, scrub encroachment has become a major threat to the open grassland areas. Scrub clearance working parties were organised in the late 1980s, while each successive management initiative has included scrub clearance either by hand-tools or more recently by machinery. For example, a monitoring report from 1988 mentions the Worcestershire Wildlife Trust team carrying out scrub clearance along the woodland edge and removal of isolated shrubs. Mechanical scrub control also took place in the early 1990s to try and maintain the site's interest, but was suspended in 1994 due to vehicular rutting damage in areas of damp ground.

3.15 In recent years, significant efforts have been made by volunteers of the Residents' Group to fell trees and cut back encroaching scrub, with strimming in some areas in order to get at areas of scrub more easily. However, human scrub control has been sporadic since notification of the site and is not sustainable in the long-term.

3.16 Management objectives set out in 1994 by English Nature included maintaining light scrub of varying age class and species composition, maintaining pollards, and enhancing the petty whin population. A survey map (*c.* 1991) shows this species to be more widespread across the Common than it is currently; in 2016 approximately 10 plants were counted. Because petty whin has declined on the Common, both in distribution and frequency, efforts have been made over the last couple of years to mark out the individual petty whin shrubs, and carefully remove other scrub and coarse grasses around them through a combination of careful strimming and use of hand-tools. In conjunction with recent grazing (2017) the plants have responded positively. It is possible that this species remains dormant within the seedbank, or persists as small plants in smothered by coarser grasses such as tufted hair-grass, and thus more consistent grazing may help this species to become re-established more widely across the Common.

3.17 While bramble, hawthorn and gorse management has formed the bulk of scrub control, intermittent tree and sapling removal has been undertaken on the Common. Some necessary pollarding of the peripheral willow and black poplar has taken place in recent years. Historically, this would have been undertaken more frequently with much shorter periods between management; this has been confirmed by one of the long-term residents. Some pollarding was previously undertaken by one or more local residents, commoners or farmers, but more recently by outside contractors, with felled trees, branches and pollarded material shredded into piles.

3.18 The boundary hedgerows are the responsibility of adjacent landowners; some hedgerows are tightly managed by annual flailing while others have become tall and gappy. Some of the hedgerows contain fencing within them; some fences are intact, others need repairing or replacing.

Pond and ditch management

3.19 Currently, there are four ponds on the site, although none are permanent and may dry out during the summer. There are also other smaller and more temporary pools of water scattered across the Common, particularly during the winter, some of which may have historically been more permanent, while others could be more recent as a result of a lack of ditch maintenance and impaired drainage. Additional ponds were formerly present to the south-east of the Fox Inn and in the north-east corner of the site, both mapped in 1994 by officers from English Nature; the former pond is believed to have been filled in some years ago leaving a depression which still holds water over the winter period; the latter pond was mapped with a note to deepen and enlarge, but has apparently disappeared.

3.20 Ponds were traditionally used to water livestock, with the resulting trampling of the margins providing additional habitats. Water levels in the largest pond in the north-west of the Common are known to fluctuate; the pond is shallow and periodically dries out. On one such occasion, in 1991, the scarce mudwort *Limosella aquatica* was recorded; this annual species requires muddy pond or river bank edges which are usually lost through a lack of grazing. The pond margins are currently well-vegetated with regenerating willow and bulrush; no management has been undertaken on this pond in recent years and it is no longer used to water livestock.

3.21 The pond to the west of the Fox Inn has recently (2016/7) been managed, with help from the Duckworth Trust. Scrub vegetation within and around the pond was cleared and the pond deepened by dredging. The pond near The Woodlands has also undergone some restorative vegetation clearance over the winter of 2017/8.

3.22 The Common has a ditch and drain network which is understood to have been mapped. A survey was undertaken in 2005, which recorded ditches along many of the tracks, including a woodland boundary bank and ditch on the north-east boundary. A monitoring report from 1988 mentions the Worcestershire Wildlife Trust team cleaning out a ditch on the north-east boundary, adjacent to Monk Wood. However, ditches bordering the public highways were formerly managed by the Highways Agency in the past, but this ceased some 10 years ago. Currently the ownership of the ditches bordering the roads are being disputed by the Parish Council and Highways Agency.

3.23 In recent years, some ditch management has been undertaken by volunteers of the Residents' Group, aided by a local contractor. Currently, most of the ditches are thought to flow to some extent during periods of wet weather but will require regular management to prevent accumulation of vegetation and silt in the future. Blocking of drains, ditches, and overflow of ponds to which some ditches are linked, is a possible cause of localised waterlogging, pooling of water and associated increase in rushes. Ditch management is therefore important in maintaining the botanical diversity and preventing the spread of rush.

4. Management Issues

4.1 Table 1 provides a summary of issues identified during consultation with key stakeholders. The following paragraphs outline some of the key issues with respect to future management of the Common.

4.2 The timing of grazing and cutting is a critical factor in the success of future management. Currently there is a wide perception by commoners and others that grazing or cutting from mid-July onwards is too restrictive, and those who graze or cut would like the timing to be earlier (in April or May) depending on the winter/spring weather conditions and natural growth cycle of the grassland. Consultation with Natural England has confirmed

they are flexible on this issue; however, if grazing occurs earlier, and over a longer period, grazing pressure should be lighter and/or undertaken rotationally to achieve the desired condition of the Common according to its SSSI status. The phrase in paragraph 3.4 above, of "*areas with long grass tussocks, short 'lawn-like' grazed areas, ant hills and light scrub*" provides a good descriptive target of structural variation at which to aim. Timing, rotational grazing/cutting and stock levels should form a key aspect of further consultation and agreements with commoners and graziers.

4.3 Due to the risks and administrative burden associated with Bovine Tuberculosis, it is likely that grazing will only be successfully reinstated using sheep. Worcestershire is a high-risk area for bovine tuberculosis where annual testing is compulsory. Farmers are also required to carry out pre and post-movement testing at their own expense, where animals are moved on and off a common, except where there is a TB Control Plan for the common approved by a vet.

4.4 Welsh Mule sheep were successfully grazed on the Common in 2017 but purely lowland breeds may be less successful in some areas where coarser grasses dominate, particularly during the first few years of a grazing plan.

4.5 There are a range of additional issues concerning containment, particularly electric fencing, animal husbandry, water availability for stock, theft of stock or equipment, access and potential conflicts between grazing and other users of the Common; in many cases there are some relatively simple and practical solutions to avoid or reduce the likelihood of such problems from arising.

4.6 Water troughs could be sited in the locations shown on Map 11.

4.7 If regular grazing is reinstated, many of the issues concerning cutting and scrub control should disappear, although grazing will not remove existing scrub. However, it is assumed that cutting and scrub management will still be needed in some areas but current restrictions, for example on vehicular access, stump removal or burning, tend to create additional problems resulting in different forms of damage, or requiring excessive human effort or additional costs to overcome. Some of these restrictions are seen as unnecessary and tend to deter commoners, residents and local contractors from becoming involved. A balance between restrictions, potential damage and practical management should resolve these issues, for example, an agreement with Natural England on an appropriate location and suitable protocol for burning scrub cuttings would avoid problems associated with piles of shredded material/chippings.

4.8 Some pond and ditch management has been undertaken in recent years, although there is currently only intermittent ditch management.

Table 1. Monkwood Green: Summary of Management Issues

Actions	Issues	Notes	Potential Solutions
Grazing	Unwillingness to graze across the whole Common	Commoners tend to graze their 'local' patch nearest to their dwelling/farm.	PC to agree in advance areas to be grazed and cut
	Lack of current stock containment and facilities to bring stock on to and off the Common	May only be applicable to grazing by external contractors	Depending upon the source of grazing stock, a moveable crush and corral may be a good investment.
	Different aims of grazing	Primary aim by commoners/graziers is benefit to stock. Primary aim by Natural England is for conservation grazing to maintain the SSSI status of the Common.	Compromise needed if grazing to be successful.
	Timing of grazing: perception of too strict grazing conditions imposed by Natural England.	Graziers/potential graziers would like to graze earlier (i.e. spring) to benefit from the higher nutritional value of the grassland during this period. The grass is too coarse to graze in late summer (July).	Rotational grazing (earlier some years, later in others) may provide appropriate management
	Stock type	Lowland breeds less likely to graze successfully on Common compared to upland breeds, which will take the coarser grasses.	PC need to source appropriate breed. May need to test breeds before including on more permanent basis
	Theft (rustling) of stock	Perceived problem but no stock thefts have occurred to our knowledge	
	Theft of electric fencing equipment	A fencing battery was stolen from the Common some 15 years ago.	Measures will be needed to deter/prevent thefts. (e.g. below ground lockable box)
	Electric fencing batteries not being replaced	This has resulted in failure to contain stock in fenced areas.	Regular checks required
	Stock not being sufficiently contained and escaping to other	Caused by lack of appropriate animal husbandry and/or failure	Regular checks and appropriate husbandry

Actions	Issues	Notes	Potential Solutions
	areas, including the public highways	of electric fencing. Potential risk of road traffic accidents.	required. Traffic calming measures may also help.
	Electric fencing management	Lack of vehicular/mowing access prevents cutting along the line of the electric fence prior to installation (to prevent short-circuiting). Hand-strimming is inefficient and too time-consuming.	Could allow small mowers to cut line, but should vary from year to year to prevent same line from being cut continually
	Lack of appropriate animal husbandry	Animals left to escape and wander without regular checks. Causes conflicts with other users of the Common.	Appropriate husbandry required.
	Concern over Bovine Tuberculosis (TB)	Concern over mixing of stock. There is also an administrative burden associated with cattle due to TB and associated legal/statutory compliancy.	Sheep grazing is likely to be more acceptable
	Cattle perceived by some locals as threatening	This includes local dogwalkers.	Sheep grazing is likely to be more acceptable
	Sheep worrying by dogs	Has potential to cause conflicts between different user groups.	Education required
	Hedgerows not stockproof	Some hedgerows are quite gappy and/or support fencing in poor condition.	Hedgerows gapped up by planting and re-fencing where necessary.
	Lack of water for stock in some compartments	Recent grazing in the western part of the site within electrically fenced compartments has required water to be provided manually.	Provision of water source south of road (compartments 1 and 2), to include water troughs
	Risk of sheep foot infections	If left to grow long, coarse grasses may cause cuts and infections to sheep's feet according to one grazier.	

Actions	Issues	Notes	Potential Solutions
	Paths network	Local path network, particularly along the Common's boundaries, used extensively by dog-walkers. Electric fencing might block this open access.	Will need consultation to identify most commonly used paths and agree on appropriate management.
	Maintenance of vehicular access	Fields of crops to south of Common accessed by farm vehicles.	Currently, electric fencing located to allow access but may need to be in agreed plan.
Grass cutting	Timing of cutting (as for grazing)	The nutritional value of hay significantly declines the later the cut; consequently, late-cut hay provides poor forage that nobody wants.	Rotational cutting (i.e. at different times in successive years) will help to provide some suitable forage
	Damage to ant hills from cutting machinery.	Significant damage to areas with ant hills occurred several years ago, understood to be external contractors.	All areas containing ant hills mapped and no cutting to be undertaken in these areas
	Vehicular damage to grassland, including rutting, especially in wetter areas	Damage from heavy machinery has occurred in the past including from Ryetec machinery used by external contractors.	Cutting to be undertaken only in dry periods
	Vehicles becoming stuck in wet ground	A cutting vehicle had to be dug/dragged out on one occasion.	Cutting to be undertaken only in dry periods
	Grass cuttings not adequately picked up	This results in enrichment of the soil and will favour the coarser grasses/weeds leading to loss of species-richness.	Cuttings to be removed. PC to check.
	Cuttings lumped into piles and/or thrown in the scrub	Has apparently occurred in the past. Will cause nutrient enrichment as above.	PC to check on work carried out by external contractors
	Regrowth of trees and damage to vehicles and mowing machinery from cut stumps	Stumps have been treated in the past to prevent regrowth, not always successfully. Unseen cut stumps have caused machinery damage in the past.	Adequate treatment to prevent regrowth, and stump removal to avoid machinery damage will prevent these problems.

Actions	Issues	Notes	Potential Solutions
	Dog faeces not being picked up and contaminating the hay	This presents a biological risk to livestock if hay used either as feed or bedding.	Continued education of dog walkers necessary. Possible installation of bin at appropriate location.
	Localised over-frequent mowing by residents, either of grass strips or areas of nettles	Occurs close to dwellings or along vehicular access routes.	Education of local residents.
	Rush infestation	This can be caused by a combination of waterlogging, lack of grazing and excessive ground disturbance, for example by vehicular damage.	Ditch management may help to reduce waterlogging in certain areas. Rush management may be required.
	Unnecessary payments to contractors	There is a perception that the Parish Council has overpaid external contractors in the past.	Budgeted appropriately
	Difficulty of finding mowing contractors	Because of restrictions on timing/vehicular access, local contractors have been reluctant to continue cutting. Also contractors are more likely to be found if they are able to sell the hay, but needs to be from earlier cuts.	PC to agree appropriate timings, on rotational basis, and level of vehicular access
	Mistrust of external contractors	Perception that external contractors do not understand the Common, are not briefed adequately, carry out a poor job and/or damage the Common.	Best to use local contractors, or contractors likely to be involved in the long-term, and who will gain a good understanding of the management aims.
	Green-winged orchids	More cutting than grazing over the last few decades is thought to have favoured this 'meadow' species and helped it to spread. Therefore, it may decline from areas grazed earlier in the season.	Areas of orchids mapped, and management adjusted to benefit this species.

Actions	Issues	Notes	Potential Solutions
Tree and scrub clearance	Contractors leaving piles of brash or shredded material	Piles of chippings left after scrub management have required clearance at an additional cost to the Parish Council	Chipping directly into trailer, or burning brash, will prevent accumulation of piles of chippings.
	Lack of vehicular access for scrub management	Some former contractors have expressed a willingness to help clear shredded material from the Common, but have not been allowed access (i.e. material could be shredded directly into trailer at source and taken off immediately)	PC to agree vehicular access in some cases, but only in appropriate weather & ground conditions
	Boundary trees not pollarded regularly enough	Boundary willows and poplar used to be pollarded more frequently.	PC to agree rotational management schedule for pollarding.
	Uncontrolled burning practices	Previous fires created to burn scrub cuttings were left unattended or have been carried out in inappropriate conditions or areas	PC and NE to agree on locations and controlled protocol for burning brash.
	Burning not currently allowed	Due to past events, burning is not currently allowed but would solve the problem of what to do with cleared scrub if undertaken according to an agreed plan	As above
	Decline in local volunteers	Volunteers of the local resident's group have carried out significant scrub clearance in recent years, but numbers have since dwindled. Human scrub control is not sustainable in the long-term.	PC to advertise locally. More permanent involvement by Wildlife Trust.
Ponds and Ditches	Blocked drains and ditches	Can result in localised areas of pooled water and an increase in areas dominated by rush.	Agreed ditch management schedule.

Actions	Issues	Notes	Potential Solutions
	Dispute with Highways over ownership of ditches	Once resolved, appropriate ditch management should be reinstated.	
	Ponds being filled in	A pond to the south of the Fox Inn was apparently filled in.	Possible reinstatement of old pond after consultation.
	Great crested newts restricting pond and ditch works	Presence of this species could restrict management at certain times or of certain features.	Sensible agreement is needed with Natural England on management works which could impact this species.
	Ponds unlikely to provide main water source for grazing animals	Mains water is provided in the north of the Common, with an associated water trough.	Similar water provision would benefit other areas (e.g. compartments 1 and 2).
Boundary hedgerows	Any newly installed peripheral fencing could restrict easy access to the boundary hedgerows	If fencing is installed, this could restrict the reach of flailing equipment and prevent adequate hedgerow management	PC to consult and agree with adjacent landowners on hedgerow management.
	Access to cut from the Common is too restrictive	Ideally, hedgerows need to be cut on both sides as specialised machinery not available.	As above

5. Legal issues, restrictions and constraints

Archaeology

5.1 There are no scheduled ancient monuments on the common, nor any earthwork records. The ponds on the common, which date from at least the first half of the 19th century may have important archaeological sediments and care should be taken that management does not damage their profile or surrounding earthworks with advice sought prior to dredging. There is potential for small scale industrial evidence like quarrying and the potential for earlier boundaries and earthworks and a walk over survey would be recommended.

Common land

5.2 The whole of the common is registered common land and is subject to rights of common for grazing, estovers and turbury. The registered rights allow grazing by large numbers of sheep and cattle, together with horses, pigs, geese, ducks and poultry.

5.3 There is a full right of public access on foot at any time under the Countryside and Rights of Way Act 2000. However, the right of access is subject to the restrictions contained in Schedule 2 of the Act, the most important of which are; no vehicles, no animals other than dogs, no metal detectors, no damage to vegetation, no organised games or camping, no fires and no commercial activities. In addition, dogs must be on a short lead between March 1st and July 31st or in the vicinity of livestock and gates must be shut or fastened.

5.4 Under the Commons Act 2006, new temporary, movable or permanent fencing, buildings, ditches, trenches, embankments, or other barriers to access may not be erected, ditches or ponds dug, or land covered with hard surfacing without the consent of the Planning Inspectorate (PINS). There are some limited exemptions under the exemption Order (SI 2587/2007) which includes erection of temporary fencing for grazing for the lesser of 10% of the register unit (in this case the whole common) or 10ha.

Cattle Grids on the Public Highway

5.5 On public highways, it is necessary to consult the Highways Authority before settling on a potential site for a cattle grid. The procedure for installing a cattle grid is set out in the Highways Act 1980. Cattle grids can be proposed by anyone but will be installed and subsequently maintained by the Highways Authority. Usually the proposer pays the costs of installation and a commuted sum to the Highways Authority for subsequent maintenance. If the Highways Authority does not agree to the installation of a grid (for example on a busy highway for road safety reasons) then it cannot proceed.

5.6 Monkwood Green is crossed by two roads with a third dividing the common but terminating on the common itself where it splits into several tracks to dwellings and farms. These roads would all need to have cattle grids if the whole common (excluding minor road verges and other areas) was to be grazed.

5.7 If there are any objections to a cattle grid on the Highway, then the matter has to be referred to the Minister who may make a decision or refer it to PINS for a recommendation, which could lead to a public inquiry. Consent for a grid on the highway and a bypass road and gate on the common can be granted under the Highways Act and a second application for the bypass road and gate under the Commons Act will not be required.

SSSI Designation

5.8 Monkwood Common is a Site of Special Scientific Interest and as such is protected against those operations considered damaging by Natural England. These are listed under the SSSI designation details and include ploughing, rotovating or re-seeding, changes in mowing or cutting regimes, application of fertiliser, manure or lime, new drainage works and changes in grazing regimes. Any changes included in the list are subject to the consent of Natural England.

5.9 Currently Monkwood Green has been assessed as being in favourable condition by Natural England.

5.10 However, if the site was to be assessed as unfavourable declining due to lack of management, then Natural England has powers under the Countryside and Rights of Way Act 2000 in respect of the management of SSSIs to require the restoration or conservation of the flora and fauna for which the land is of special interest by formulating a management scheme for the land.

5.11 Where it appears to NE that the owner or occupier is not giving effect to the scheme and as a result the flora and fauna for which the land is of special interest is not being adequately restored or conserved, it may serve a management notice requiring the carrying out of work on the land.

Livestock

5.12 As any grazing scheme for Monkwood Green is likely to be for a short period in the summer, and with busy roads nearby, whatever the form of fencing, stock will have to regularly checked. This implies that an existing local grazier with alternative land on which stock is grazed would be the most suitable grazier on the Common. As grazing will be

confined to the summer, there should be no need for supplementary feeding, which would require the consent of Natural England as a potentially damaging operation[3].

Cattle

5.13 Cattle are likely to be useful in reducing the amount of rank vegetation. As they are large ruminants, they are relatively unselective feeders and are likely to take longer, coarser forage than smaller species. Dead material may make up a larger proportion of the diet than in other ruminants. Cattle are more likely to create a tussocky sward than other species although they can create an even, short sward if grazing pressure is high. They are also likely to create more bare ground and larger degree of micro-topographical variation due to their greater weight, particularly in wet habitats.

5.14 Cattle are less discriminatory than sheep when grazing and are more likely to cause damage by uprooting and trampling. Cattle are not likely to play a major role in scrub management. They may break up scrub stands by trampling and pushing through them, and, although not predominantly browsers, they are nonetheless known to eat species including gorse, birch, willow and aspen.

5.15 Cattle show particularly strong herding behaviour. In general, when moving between feeding areas, cattle will move together, often in single file, along paths. The location of water may have a key role in determining movements across a site, particularly if water is not available on preferred grassland communities.

5.16 Cattle have a more significant impact through dunging than other species. Dung is concentrated at habitual resting sites and is a valuable habitat for invertebrates and fungi particularly when the animals have not been treated with Ivermectin.

5.17 Most breeds of cattle have been developed to be reasonably tractable and do not become stressed when handled. They are more adapted to confined situations such as barns and being transported than ponies. As a consequence, they may be more suitable where regular handling and transportation are required. They are generally unaffected by dogs. Bulls, frisky young bullocks and cows with very young calves can be a problem on sites with visitor access. Dairy bulls should not be used on sites with public access.

5.18 There are several schemes where cattle have been successfully contained by invisible fencing and also some schemes which have not worked. This may reflect the degree of commitment of the graziers, local conditions or breed type. Invisible fencing is not recommended against main or busy roads.

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[3] The following review is partly based on a previous review led by Footprint staff for a NE research report.

Ponies

5.19 Ponies have been shown to have significantly different patterns of habitat use to cattle. As non-ruminants they have a greater throughput of forage than cattle or the equivalent number of sheep and are more likely to eat poor quality (e.g. dead) forage. It has been suggested that one pony may be the equivalent of at least two cattle in terms of forage intake. Unlike sheep, they are considered not to preferentially graze flower heads and may be better in maintaining flower-rich swards. Observational information suggests that ponies can nevertheless be selective, particularly in the summer, and they show more seasonal variation in their diet than cattle and sheep. In enclosed areas of grassland, they are likely to produce a mosaic of long and short patches through avoidance of latrine areas.

5.20 Ponies are likely to play a limited role in managing scrub although they can kill gorse by grazing regenerating plants following burning, and they have been observed to kill coppiced birch *Betula* sp. by browsing the re-growth. Oak *Quercus* sp. and willow *Salix* sp. may also be eaten. Ponies may however help open scrub by pushing through it.

5.21 Although the location of water can influence grazing behaviour on a site, in general, ponies are less likely to be influenced by supplementary feed and water than cattle and sheep, although this may vary with breed and background. However, as with other livestock, their use of a site is influenced by the presence of shelter (e.g. woodland or scrub).

5.22 Ponies are more likely to revert to wild behaviour than cattle, and unless initially 'broken' and subsequently handled regularly, can become problematic to handle. However, they are more likely than other stock to be offered (often inappropriate) food by visitors and may learn to congregate in areas where there is greatest public presence such as entrances, picnic areas and roadsides. In addition, ponies may bite or kick if the expected food is not forthcoming. Ponies are generally robust in the face of harassment by dogs and may fend them off. The presence of stallions may be problematic in areas with regular horse-riders. Ponies are more commonly outwintered than other livestock types. The use of collars for invisible fencing with ponies is still experimental.

Sheep

5.23 Sheep are more selective grazers that cattle as they require higher quality forage and have a more variable diet. On grass communities they tend to produce a short sward due to their ability to crop closely. Their light weight makes them less likely to damage swards than cattle and ponies, although they are less suited to wet sites. Sheep are predominantly grazers, and most breeds will not preferentially select scrub, although Hebridean sheep are known to be an exception.

5.24 The relatively small size of sheep makes them easier to handle than cows and ponies. Most sheep breeds are relatively easy to manage with a sheepdog. Their size also makes them suitable for small sites that require short periods of grazing. Their water requirement is also much less than larger animals, which is an advantage where water supply is problematical. However, they are often considered to be somewhat more disease prone than other livestock. They are highly susceptible to harassment by dogs and may be inappropriate in areas frequented by dog-walkers. Sheep cannot be used with invisible fencing.

6. Fencing options

Fencing systems

6.1 There are basically three fencing systems which could be adopted at Monkwood Green Common for containing stock; permanent fencing, electric fencing and invisible fencing.

6.2 There are a number of different but not mutually exclusive solutions in use on commons around the UK including:

- Permanent perimeter standard stock fencing– e.g. on part of the Pebblebed heaths in Devon, Ebernoe Heath and Graffham Common in Sussex
- Time limited perimeter standard stock fencing – e.g. Hindhead and the Devil's Punchbowl in Surrey, Iping Heath in Sussex
- Seasonal grazing in electric fenced enclosures – e.g. parts of the Pebblebed heaths in Devon, Martin Down in Hampshire
- Invisible fencing – e.g. Burnham Beeches in Buckinghamshire, Epping Forest in Essex
- A mixture of perimeter standard stock fencing and invisible fencing – Hazeley Heath in Hampshire,
- Standard stock fencing and cattle grids across public highways – e.g. Ashdown Forest in Sussex, Hartland Moor and Holt Heath in Dorset,

Permanent fencing

6.3 Permanent fencing can be used on the perimeters, or across commons to enclose grazing animals. It will include gates or grids to allow public access and access for properties with access routes crossing the common. Access provision may take the form of field, equestrian, pedestrian or combined gates, or cattle grids with by-pass gates for livestock, horses or horse drawn vehicles. Gates are required across statutory rights of way (for which Highways Authority consents are required) and across any regularly used unofficial path.

Advantages and disadvantages

6.4 Permanent fencing has the advantage of a long life (up to 25 years if properly maintained), needs little regular maintenance, unless damaged, and represents the most stock proof solution to containing animals. If well-constructed it can cope with irregularities in ground levels and conditions. Permanent fences are expensive compared with other solutions, they can be intrusive on open ground and they are always in place, even when not in use and gates need regular adjustment. Once permanent fencing is installed, commoners could exercise their grazing rights which, in total on Monkwood Green, far exceed the capacity of the common and could lead to overgrazing. Such fencing requires the consent of the Planning Inspectorate (PINS) under the Commons Act 2006.

Electric fencing

6.5 Electric fencing also requires consent from PINS. The fencing may be seasonal, for a fixed term each year or permanent, and may be moved around to more than one defined location. It may be possible to leave any gates in situ after the fencing has been removed, say, in winter. Any fenced enclosure will need access maintained for the public while it is in place.

Advantages and disadvantages

6.6 Electric fencing is easy to put up and take down or move, it is inexpensive, convenient, flexible and useful for grazing small areas or for short periods. Once removed it can be easily stored. However, erecting and taking down fencing can be time consuming, it is less robust than permanent fencing and where it abuts onto a busy road, it could need checking daily. Vegetation needs to be cleared to prevent shorting. Such fencing requires the consent of the Planning Inspectorate under the Commons Act 2006. There should be health and safety notices at regular intervals and special arrangements for access need to be made at each entrance and path. It is difficult to run electric fencing across access tracks, so cattle grids or gates would be needed for track crossings. By its very nature, electric fencing, though easily repairable, is temporary and is likely to have only a short life. It can also be easily damaged, turned off, broken or stolen.

Commons consent

6.7 Any permanent fencing or temporary electric fence and all associated structures will require consent from PINS under the Commons Act 2006. Prior to seeking such approval, a full public consultation is required together with consents from landowners and possibly others (e.g. Natural England on SSSIs). To carry out consultations and prepare and submit an application can take up to 18 months (See Appendix 2). Written representations on the application will be considered by PINS who may make a decision on this basis or call a public hearing or inquiry. They are more likely to call a hearing or inquiry if the matter is very complex or there are a large number of objections. This may take a further 5-8 months. In recent years, most fencing schemes on commons which

have been fully consulted upon and for which the applications have been well considered and prepared have been approved, most, without the need for a public inquiry.

Temporary electric fencing enclosures

6.8 The authorisation under Schedule 1 of the Works on Common Land (Exemptions) (England) Order 2007 allows the enclosure of up to 10% of each common unit or 10 ha, whichever is the less, without an application under section 38 of the Commons Act 2006. Monkwood Green is just under 10ha in area and is all registered as a single unit. Therefore, the maximum area which could be enclosed at any one time under this provision is about 1ha. However, if fences were moved twice during the season 3ha could be grazed, about 30% of the common in any one year.

Invisible fencing

6.9 In recent years a new form of barrier, "invisible fencing" has been installed on a number of commons. This has been used with cattle but is currently not suitable for sheep. Invisible fencing contains or excludes livestock by creating a virtual (invisible) fence which animals are trained to respond to. It works by a central transmitter box being connected to a wire that runs around the perimeter of a chosen area. The transmitter sends a coded AM or FM (depending on the manufacturer) radio signal which is transmitted through the boundary wire. This wire may be laid on the ground or buried, with the latter method being invariably used on publicly accessible sites for security. The collar mounted receiver unit the animal wears, houses an AM or FM receiver. As the animal moves towards the radio signal the receiver unit emits an audible noise to indicate to the animal to stop and turn back. If the animal continues towards the wire the receiver unit issues a corrective shock that is delivered through the conductive material on the inside of the collar.

6.10 All animals need to be trained annually under controlled conditions to become familiar with the system. To aid the animal during training, visual training aids are required. The animal therefore has something to hear, something to see and ultimately something to feel. Once trained, animals generally respond to the audible noise alone without the need for further stimuli.

Advantages and disadvantages

6.11 These systems have now been trialled successfully at a range of sites across the country over the last five years or so, many of which have common land status and associated public access. However, invisible fences are not fool proof - animals can still cross them, for example if being chased by dogs, and once on the other side cannot get back without a further shock unless the fence is turned off. Invisible fencing has been used with success at several sites including Epping Forest and Burnham Beeches, but has not been successful at Ashdown Forest. Experience has shown that livestock can cross the cable if frightened or panicked and that the system may occasionally fail. A judgement has to be

made as to the possible consequences of stock escaping from an invisibly fenced enclosure onto the roads. Invisible fences can be effective crossing under minor roads but neither users nor suppliers regard the system as sufficiently fool proof against animals escaping onto main and busy roads. The cattle have to be trained which means that it can be very time-consuming particularly if the same livestock are not used regularly.

6.12 Other wild or domestic animals, people with heart pacemakers, hearing aids etc. are unaffected. Invisible fences do not normally require the consent of the Planning Inspectorate under the Commons Act 2006. They have the advantage of making no visible change to the common and there is no requirement for gates to be opened/closed on entering the common.

6.13 it should be noted that the systems are not currently approved by DAFF and are therefore not eligible for grant aid through Countryside Stewardship. Further details are available in the Invisible fencing best practice guide (Dagley *et al*. 2016).

Road and track crossings

6.14 Issues will arise if stock proof boundaries need to cross roads or tracks on the Common. Here the options are grids or invisible fencing. There are big differences in the costs and procedures necessary for placing cattle grids on public highways and on private tracks.

6.15 If a proposal is put forward for a cattle grid on the public highway, prior to agreeing a grid location, the Highways Authority may require one or more traffic censuses and Safety Audits as well as hydrological studies or other preparatory work. Once agreed, the location of a proposed grid must be advertised and if there are one or more objections, the matter is referred to the Secretary of State, who may make a decision, or refer the matter to PINS to hold a public Inquiry. The commonest reason for objection to a cattle grid on a highway is from concerns about noise. A cattle grid on the public highway must include a bypass gate for horse riders and carriages and driven animals and may also include warning signs and traffic calming measures. Consent for placing the bypass gate and track on the common can be granted under the Highways Act and does not require separate Commons Act consent. The land on which the bypass is built will become dedicated Highway.

6.16 It is also possible that the Highways Authority suggest that they would be more likely to regard using the Highways Act as 'expedient', if the process has been tested with a planning application. This means that the Project's proposer would have to make a planning application and that there would be costs involved in drawing up the plans and making the application.

6.17 The costs of supplying and installing cattle grids on public highways are speculative. Each Highway Authority may require different designs or specifications, may seek different levels of information on proposed sites, such as traffic censuses, and may set a different

level for a commuted sum to cover subsequent maintenance. The result can be widely different levels of cost from Authority to Authority. No figures are currently available in Worcestershire so comparables have been sought in other counties. The most recent (grids were installed early in 2015) and closest of these has been a scheme at Minchinhampton and Rodborough Commons in Gloucestershire which is ongoing.

6.18 It should be noted that the proposers of schemes on the highway will usually be bound to use designers and contractors, with whom the Highways Authority has existing contracts or agreements. Because of this, any work has to be programmed into their busy schedules well in advance of the idealised start date.

6.19 Current estimates of the cost of grids on the public highway, including carrying out the necessary surveys, installing a cattle grid and bypass to the specification approved by the Highways Authority and providing a commuted sum for subsequent maintenance, can be between £30,000 and £40,000. However, the cost of cattle grids with bypass gates on access points on the common, which would cater for domestic use serving one or more private properties would be in the region of £4,000-£5,000. Our approximate costings have used the lower of these figures for grids on highways and tracks.

6.20 In view of the cost and the small size of the Common at Monkwood Green, it is felt that the installation of cattle grids on Monkwood Road (for which two grids would be needed) would not be a financially viable solution. However, if finance was available and the installation of cattle grids here was accepted by the Highway Authority, it could be done. The options which follow therefore include a cattle grid only on the unclassified public highway crossing the common.

Public access

6.21 A statutory right of public access on foot to almost all common land was granted by the Countryside and Rights of Way Act 2000. This applies to Monkwood Green Common. Under Schedule 2 of the act a range of activities by those entering the land were banned, including the use of vehicles, lighting fires, camping, using a metal detector etc without authorisation and dogs are required to be kept on a short lead in the vicinity of livestock.

7. Options for containing stock

7.1 The options are based on the compartment Map 1 which shows the Common divided into six compartments with labels showing the adjoining properties and roads. The access points to properties with gates or grids are also shown. Further maps (2 to 10) show the various fencing options. The lines of proposed fences shown in the options are approximate at this stage. It is recognised that there may be numerous other variations of the options for fencing, but those provided show the main alternatives. The area of each compartment is shown in Table 2.

7.2 If an option is chosen which requires the consent of PINS then this will also be subject to a public consultation. This would involve members of the public who visit or are concerned for the future of the common, commoners, adjoining owners and a number of organisations. For the consultation detailed proposals would be put forward including fence lines, numbers, types and locations of access gates, grids etc. Some works may, by agreement, take place off the common (e.g. perimeter fencing).

7.3 For the feasibility study, a list of main stakeholders was agreed with the Parish Council, and with one exception (who did not respond to repeated approaches), all have been contacted.

Table 2. Compartment areas at Monkwood Green (Map 1)

Compartment No.	Area (ha)
1	1.34
2	1.47
3	4.26
4	1.25
5	0.71
6	0.72

7.4 The management plan recommends that the eastern part of compartment 3 and compartment 4 are grazed, but some of the options would allow more extensive grazing particularly to compartments 2 and the north western part of compartment 3.

Permanent fencing

7.5 Map 2 shows the boundaries of compartments 1, 2, 3 and 4 with permanent fencing. For present purposes we have assumed that a new fence would be required along all the boundaries (although if this option is chosen, consultations with adjoining owners may determine that there will be some lengths where there are existing hedges, fences and ditches where new or additional, fencing may be unnecessary). A cattle grid with bypass gate is shown on the track to Green Farm, at the road entrance to the track to The Woodlands, at both entrances across compartment 1 to the properties to the west and by the road to the back of The Fox Inn. There are existing gates at each end of the public footpath in the north-west. All other entrances to adjoining properties appear to be gated or gridded. The grid on the unclassified public highway is set back to be away from 'Moorland', but without being too close to the properties on the western edge of the Common and the location shown is approximate. Altogether then, the design shows five cattle grids on private access tracks and one on the highway. The cattle grids will need bypass gates and there are 5 additional pedestrian gates for access.

7.6 If the fence runs along boundary of the properties on the western boundary to compartment 1, there could be problems of animals damaging hedges, or getting into gardens if gates are left open (bearing in mind that stock will not be on the common for long and that people may forget that they have been brought on and leave gates open) and potential problems with stock and cars particularly at night. This could cause conflicts which will be avoided if fence is on the other side of track and residents can come and go on a stock-free route.

7.7 This would be a permanent and effective solution for containing stock on the largest area of the Common and would be suitable for cattle or sheep. However, it would be an expensive solution and would have the greatest impact on the open landscape of the Common and it would require the consent of PINS and the agreement of the County Council under the 1980 Highways Act.

7.8 A variation of the above is shown on Map 3 with permanent fencing only on part of compartment 3. This would be at much lower cost with only a single cattle grid and bypass gate on the access track and five pedestrian gates. This would allow the most sensitive part of the common to be grazed but would have similar but slightly less landscape disadvantages as the more expensive option shown on Map 2.

7.9 A further variation for permanent fencing is shown on Map 4 with cattle grids on two roads to allow the whole common to be grazed as a single unit. This would be by far the most expensive solution but would reduce the amount of permanent fencing alongside the roads.

Electric Fences

7.10 Electric fences would be erected only when the various compartments of the common were being grazed and could be taken down at other times. Such fences could be used for either sheep or cattle but have the major disadvantage that they would need grids with bypass gates where crossing access tracks. The need for grids and bypass gates could be reduced by subdividing compartment further, but this could result in very small grazing areas and a disproportionate amount of time spent moving fences and stock. A final decision will of necessity be a balance between the costs of putting in grids and gates and the practicalities of grazing small compartments.

7.11 Map 5 shows an option for electric fences around compartments 1, 2, 3 and 4. At the north-western end of compartments 2 and 3, the electric fence has not been taken to the end of the common, as there would have to be a cut off at the termination of the public highway with at least two cattle grids and a bypass gate to avoid cattle getting on the road.

7.12 Under this option, grazing is not proposed in compartments 1, 5 or 6. Compartment 1 has an access track running along the front of the houses and from this there are further tracks onto the unclassified road across the Common and onto Moseley Road. If all these were avoided with an electric fence on the inside of these tracks, the resultant grazing area would be small but could be grazed along with part of compartment 5, (also avoiding the access tracks) if considered desirable. Compartment 6 consists of road verges which are not suitable for grazing on their own.

7.13 Electric fencing would be comparatively cheap and for convenience, it might be decided to leave the corner and any intermediate posts in place. There will however be a necessary time input in erecting, taking down and moving fences and checking them more frequently than permanent fences. It might also be necessary to cut vegetation to prevent shorting.

7.14 Gates can also be a problem in electrically fenced enclosures and it will be necessary to maintain access to all parts of the common at all times. This can be done using gate handles (electric fencing gates) or manufactured metal or wooden gates with the fence wires buried underneath. On Map 5 all gates are shown as pedestrian gates with the wires taken beneath the gateway. Manufactured gates could be removed (or moved between compartments) when not in use and the gate posts left in situ. If this scheme were to be adopted, a public consultation may show a preference for electric fencing gates (two insulated handles at each end of the wire crossing an opening) rather than for permanent posts left for gates to be hung when the fencing is erected, at least on some openings. Gate positions shown on Map 5 could be moved.

7.15 The provision for enclosing up to 1ha of the common at any one time under the regulations (see para. 2.8 above), would allow up to 3ha to be grazed without PINS

consent if the fences were moved twice. This could allow compartment 4 and the southerly end of compartment 3 to be grazed, the most biodiverse parts of the grass common (Map 6, option 2, variation 1). It would not promote a more extensive scheme to reintroduce grazing to those parts of the common which are cut for hay but could constitute a useful interim measure while a more ambitious scheme is addressed.

Invisible fences

7.16 Invisible fences could be taken under the Public highway across the common (subject to the approval of the Highways Authority) and under access tracks to houses and farms. Installation would not require the consent of PINS providing no trenches needed to be dug to install a power supply (the system can work off the mains or batteries), but under this system grazing would be confined to cattle. The main concern will be the possibility of failure and the speed and frequency of traffic on Moseley Road. The investigation of traffic levels could involve payment of fees to the Highways Authority for existing data or new traffic surveys. Neither of these is part of the current brief. Assuming however the risks are at an acceptable level, the option for invisible fencing is shown on Map 7. Here, invisible fencing could be installed around the whole of compartments 1, 2 and 3, and a separate loop around compartments 4 and 5.

7.17 A variation on this (Map 8) would be to graze the western part of compartment 3 together with compartment 2, and separately the eastern part of 3 with compartment 1. This would have the advantage of half the area of the main block of compartments having two loops of fencing between the grazing stock and Moseley Road. On Map 9, the same arrangement is shown but with the electric fencing taken under the road to join Compartments 4 and 5 to the main common.

7.18 There are a number of other options, mixing the types of fencing. For example, permanent fencing to Compartments 1, 2 and 3 and electric fencing to compartment 4, shown on Map 10, or permanent fencing to part of compartment 3, as in option 1, variation 1, and electric fencing to other compartments.

7.19 The main considerations will be cost, the frequency and speed of traffic on Moseley Road, the willingness of graziers to put up and take down electric fencing or train cattle for invisible fencing and whether fencing will be needed for both sheep and cattle.

7.20 Costs are approximate as installation costs will need to be obtained from local contractors. The road grid has been costed at £30,000 and track grids (with bypass gates) at £4,000 including installation. For the invisible fencing option, it has been assumed that five cows would be collared.

7.21 The lengths of fencing and number of gates and grids required under each option are shown in Table 3 and the approximate costs of the options and variations ex VAT based on the proposals in Maps 2 to 10 are shown in Table 4. These costs give a guide as to the comparative costs between the various options.

7.22 Map 11 shows the proposals for approximate locations for water troughs and pipework and a permanent corral. It is anticipated that stock watering in Compartment 4 would be from a connection to the water supply to the nearby houses and Inn but might be achieved with a temporary trough and grazier's bowser. The corral needs to be located close to a road and away from houses.

Table 3: Lengths of fencing (m) for each option

Comp. No	Length of fencing (m)	Road grids with bypass gates	Track grids with bypass gates	Pedestrian mobility gates
Map 2 Option 1	2118	1	5	5
Map 3 Option 1 V1	1065		1	5
Map 4 Option 1 V2	2159	3	5	4
Map 5 Option 2	2251	-	3	7[4]
Map 6 Option 2 V1	1356			7
Map 7 Option 3	2216			
Map 8 Option 3 V1	2330			
Map 9 Option 3 V2	1888			
Map 10 Option 4	2118	1	5	4

Table 4: Approximate Costs of fencing options with new fencing

Option	Proposed works	Approx. Cost[5]
Map 2 Option 1	Permanent fence around compartments 1, 2 and 3, and separately 4, with a grid on the public highway and 5 grids on private access tracks, all with by-pass gates and 5 pedestrian/mobility gates	£65,000
Map 3 Option 1 Variation 1	Permanent fencing around compartment 3 with one cattle grid on private access track with bypass gate and 5 pedestrian/mobility gates	£12,500
Map 4 Option 1 Variation 2	Permanent fencing around all compartments (except 6) with 3 grids on two public highways, 5 grids on private access tracks and 4 pedestrian/ mobility gates	£125,000
Map 5 Option 2	Electric fencing to compartments 1, 2, 3 and 4 with three cattle grids on private access tracks with bypass gates, and 11 pedestrian/mobility gates (electric fencing kit for Comp 3 already owned by PC)	£16,500

[4] Seven gates for two compartments to be grazed with a spare gate available as these can be moved between compartments with the electric fencing. In all, eleven gateways are shown with permanent posts and gates moved between gateways when fences are in place.
[5] The prices shown are very approximate and do not include VAT. To get accurate costs formal quotations should be invited.

Map 6 Option2 Variation 1	Electric fences to parts of compartment 3 and in two parcels on compartment 4 with 7 pedestrian/mobility gates	£4,000
Map 7 Option 3	Invisible fencing to compartments 1,2, 3, 4 and 5 with one road crossing	£10,500
Map 8 Option 3 Variation 1	Invisible fencing to compartments 1and part of 3, 2 and part of 3, and 4 and 5 with two road crossings	£11,000
Map 9 Option 3 Variation 2	Invisible fencing to compartments 1and part of 3, 2 and part of 3, and 4 and 5 with 4 road crossings	£9,500
Map 10 Option 4	Permanent fence around compartments 1, 2 and 3, and separately, electric fencing around compartment 4, with a cattle grid and bypass gate on the public highway and 5 cattle grids with bypass gates on private access tracks, and 4 pedestrian/mobility gates	£61,500
Map 11	Five water troughs and a permanent corral	

8. Considerations and recommendations

Stock containment and management

8.1 As a preamble to this section we should emphasise that any scheme should be subject to a public consultation and that where an application is to be made to PINS, such a consultation is strongly recommended in their guidance. Issues on which the views of the public, commoners, graziers, local, organisations and others should be sought include the scheme itself, location of fencing, details of locations and types of access, type of stock, stock handling and watering facilities, volunteers' inputs and associated matters. This would include asking local walkers and dog walkers about their regular routes onto and across the common. Therefore, at this stage unneccessary precision on matters which will be subject to public consultation and possible change will be unproductive. If a grazing scheme goes ahead, then as part of the preparations, local walkers and dog walkers could be offered a familiarisation course on an established grazing site.

8.2 The ideal features of any system of grazing/haying and stock containment at Monkwood Green Common would contain the following elements:

- Given that the size of the entire site is only about 10ha, stock containment should be at a reasonable cost;
- Stock containment should be eligible for grant aid;
- Given the difficulties of finding graziers and suitable stock, stock containment should be suitable for either sheep or cattle, although bovine TB is likely to deter any cattle grazing;

- Stock containment should offer reasonable certainty of preventing stock escaping onto the busy road;
- Stock containment system should impose a minimal burden on the grazier for erection and maintenance, water supply, stock training and welfare;
- Stock containment should allow maintenance of hedges and ditches;
- Stock containment should allow access to adjoining properties at all times;
- Adequate arrangement for watering stock should be available in all grazed compartments;
- There should be adequate arrangements for moving stock between compartments and on and off site;
- Any system of grazing/haying should prioritise the southern part of Compartment 3 and compartment 4 for grazing and compartments 1, 2 and the northern part of 3 for either grazing or haying every year;
- Limits on grazing/haying need to be flexible to allow some earlier grazing/haying on part of the site every year;
- Arrangements need to cater for stock-free areas at all times for dog walkers;
- A grazing/haying system needs to be effective at controlling scrub and managing the grass sward without damaging important features and species;
- A system for managing the Common by grazing/haying should be consistent with public access at all times and the interests of adjoining owners and occupiers; and
- Any proposed scheme should be the subject of extensive consultation with the local community and achieve a high level of consensus.

8.3 With these points in mind, our observations and recommendations are as follows:

8.4 Any stock containment system which includes cattle grids on the public roads would impose long delays in implementation and an unacceptable cost. Even one cattle grid could effectively cost up to £40,000, the equivalent of £4,000 per ha. We therefore recommend that this option is not taken further.

8.5 Invisible fencing offers an attractive option as it could contain stock without any impact on the open landscape of the common and does not require any consent from PINS. However, it would not give reasonable certainty of keeping cattle from escaping onto the main road, it cannot be used with sheep, it would require the grazier to undertake a training programme for all cattle coming onto the common and it would not attract grant aid. It may be that some of these disadvantages will be removed in time as the system is further developed and perhaps gains greater acceptability, but for the present we do not consider it suitable for Monkwood Green Common.

8.6 Both permanent fencing and temporary electric fencing require a public consultation and an application to, and consent from, PINS so either one or the other or a combination of the two would incur the same procedures.

8.7 Permanent fencing on the edge of the common without cattle grids at road crossings would be intrusive in the open landscape as fences would extend alongside all the roads including the road across the main area of the common (and the effect on landscape is a

matter which PINS have to take into consideration when considering a fencing application) and would be in place whether or not cattle or sheep were present.

8.8 However, permanent fencing around the edges of the Common where it abuts fields or housing or alongside the access drive to The Woodlands offers an attractive long-term stock proof boundary, with minimal impact on the open nature of the common, protection of the adjoining land from escaping stock and the maintenance of existing access. This permanent fencing option would be subject to the need to cut hedges and maintain ditches, would require consultation with adjoining owners and in some places where hedges and ditches are already an adequate barrier to stock, could be an unnecessary expense. It also raises the question of whether adjoining owners have a responsibility to 'fence against the common', a grey area legally which has not been tested in the courts as far as we are aware and seems to depend on local tradition and custom. However, we believe that this option should be investigated further to see whether it would be practical, acceptable and affordable in whole or in part.

8.9 The provision of electric fencing could allow grazing by sheep or cattle, would be removed when not in use, could allow compartments or parts of compartments to be grazed at whatever times and for whatever periods were agreed and would be a relatively inexpensive option. Putting up and taking down electric fencing is an additional burden and if access tracks were crossed, cattle grids would be the most convenient option which would increase the cost but would be a one-off expense. Temporary electric fencing is vulnerable to theft and vandalism, access points for pedestrian access would need to be provided and an application would need to be submitted to PINS. However, electric fencing has worked in the past on the common and seems to have been broadly accepted as the solution to instituting grazing on the common by the local community. We believe this is the option which should be adopted with or without some peripheral permanent fencing.

8.10 If permanent or electric fencing is installed, there is no reason why the commoners could not exercise their grazing rights. As these include inter alia rights for 88 cattle and 242 sheep there is considerable scope for overgrazing should even a proportion of the commoners exercise some of their rights. However, the rights do not include the ability to put up fencing for which the owner's consent (and that of PINS) is required. In practice this means that some control can be exercised by putting up and taking down electric fencing (assuming no commoner would graze without fencing against the roads, but that control could not be exercised if the fence is permanent.

8.11 **Our major recommendation therefore is to take forward the scheme shown on Map 5 as Electric fencing Option 2 Variation 1.** This would require two sets of electric fencing with one around the southern part of Compartment 3, and the other available for compartment 4 (as shown with a cattle grid on the track from the back of the Fox Inn and the cable buried beneath the track by the gate. It is anticipated that the electric fencing around the southern area of Compartment 3 could be in place for some weeks but that

the fencing around Compartment 4 could be moved to other Compartments as required. If the Fox Inn was prepared to forgo the access to the rear during the times that stock were grazing Compartment 4, a saving could be made on the installation of a grid and bypass gate.

8.12 More detailed approximate costing for this option is shown in Table 5 but estimated costs will need to be confirmed by formal quotes if this option is activated.

Table 5 Costings for recommended option (Map 5)

Proposed works	Approx. Cost (£)[6]
One set of electric fencing with reels and wire, spare wire, intermediate and corner posts, connectors, batteries with chargers, solar panel for battery, energisers, underground cable and tubes for gateways, warning signs and earthing spikes	1,650
Purchase and install seven gates with fittings and posts	2,310
Purchase and install four sets of additional posts	300
Five water troughs (cattle or sheep)	400
330M piping for water troughs buried with two road crossings	850
Moveable corral	3,600
Permanent corral	2,500-4,000

8.13 An application to PINS could be made with the areas to be electric fenced identified, and a condition inserted that only two areas would be fenced at any one time.

8.14 Access to temporary fenced enclosures could be via permanent gates (with the fencing wires installed under the gate with connectors when the fence is up), or via handles and hooks attached to the wires themselves. Where the fencing is expected to be up for some time the former solution would be more suitable with the gates themselves removed and stored when no temporary fencing is installed and just the gateposts left in place.

[6] The prices shown are very approximate and do not include VAT. To get accurate costs formal quotations should be invited.

Elsewhere, PINS have accepted an arrangement where gates are locked open when no grazing is taking place, but this is more intrusive than posts only and leaves the gates vulnerable to theft. Where the fence is to be up for a short period then handles may be more practical, given that at any one time only a part of the common will be grazed and walkers and dog walkers will have a choice of places to go where no stock are present. Electric fences would be removed when not in use so that the impact on the open landscape of the common would only be when the fences were up.

8.15 The provision of water has been a problem in the past and relying on the ponds is not wholly satisfactory as the water quality may not be suitable and the ponds can dry up. Moreover, the provision of troughs connected to the mains giving clean reliable supplies of water for stock, would provide a helpful inducement for a grazier considering whether to put stock on the common. Furthermore, as the pipework for the troughs (if buried) requires PINS consent, this could be included in any application and if approved would be a one-off expense. We therefore recommend that water troughs be installed permanently on the common in the locations shown on Map 11. Water troughs would cost between £100-300 each depending on whether they were for sheep or cattle.

8.16 Putting stock on the common and taking them off or moving them between compartments can also be a problem particularly if fences are being moved at the same time. In addition, it may be necessary to confine animals for short periods for treatment or testing. If a fixed corral is provided then stock would have to be driven to it, which could include crossing roads. A possible location is shown on Map 11which is close to the road for loading/unloading and on the edge of the two compartments where grazing is proposed every year. The cost will depend on the design and size and whether it is suitable for cattle, sheep or both, but could be in the region of £2,500-£4,000. The provision of a moveable corral suitable for cattle or sheep should be considered as an alternative as it gives more flexibility but would require storage when not in use. It is assumed that the grazier would supply his own crush if one was needed. The cost of a cattle handling facility would be in the region of £3,600.

Grazing

8.17 With electric fencing (possibly with some boundary permanent fencing) grazing could be by sheep or cattle. To some extent this will be determined by what stock are available locally and the views of the grazier. As mentioned previously, cattle must be TB tested and this involves costs to the grazier and going through the bureaucratic procedures. Sheep can be more time consuming to manage than cattle but are more vulnerable to dog attacks. Whichever stock are chosen, in our view, the whole site should be either cut or grazed to maintain the flower-rich sward. The issue of timing has also arisen. In the past, the flower-rich nature of the site was maintained by grazing or haying at the convenience of the farmer and in most years this would have involved grazing starting as soon as the grass was in suitable condition and hay cutting when the grasses were at

their most nutritious as seed was setting. However, in some years due to farming considerations or weather, these operations would have been later.

8.18 Earlier surveys established that the common is mostly a mosaic of pasture and grazed hay meadow plant communities on brown earth soils in the lowlands. Historically, the treatment for such areas has involved winter grazing, closure of the area to animals at the beginning of May and taking a hay cut, followed by after grazing, or on slightly more acid soils, grazing only (Rodwell 1992). The presence of ant hills on parts of the site suggests that some areas have been grazed and not cut in recent years but there is no information on grazing practices in earlier times. In the absence of grazing, hay-cutting will prevent reversion to scrub and woodland over time.

8.19 The effect on the sward of cutting rather than grazing and vice versa is difficult to predict as it is not known whether hay-cutting and after-grazing was a common practice in the past on this common. The plant communities present today are consistent with the management described by Rodwell for hay meadows, although it seems likely (from the commons registrations at least) that grazing rather than hay cutting was the main management at least in the last century. Cutting is a sudden and catastrophic management which removes all tall vegetation at one time destroying much of the habitat for invertebrates in a single operation. The effects can be modified by leaving edges uncut or cutting adjoining areas at different times. Earlier cutting will discourage coarser vegetation and help to retain a wider plant diversity but will reduce the production of seed.

8.20 Most of the characteristic flowers of these neutral grasslands are perennials and have no need to set seed every year to propagate themselves. If grazing or cutting is delayed each year, this allows coarse grasses and herbs to take over and the grassland deteriorates. To avoid this situation early grazing, and hay cutting in the first half of July at the latest is recommended with a late cut every five years in autumn. Early and later cutting could be varied between compartments to avoid all the taller vegetation being cut over the site at one time. Following hay cutting after-grazing will also be beneficial in the autumn. In some years if grazing or hay cutting takes place earlier this should not be damaging to the flora provided it is not a regular occurrence. A record will need to be kept of the dates for these operations each year to allow ongoing monitoring of the biodiversity interest of the site and adaptation of the grazing and haying regime as necessary. A suggested regime to incorporate all these options is presented in Table 6.

8.21 The current arrangement whereby volunteers inspect and clear around the petty whin (*Genista anglica*) plants at intervals during the summer seems to be the best option until a grazing regime has been established which monitoring indicates is maintaining or allowing an increase in the distribution and frequency of the plants.

8.22 If resources permit, permanent quadrats could be set up in each compartment to monitor the results of the management on the plant communities. It is possible that a university could be interested in establishing a student project to do this.

8.23 The grazing and haying operations will need to have been agreed with Natural England in relation to the maintenance of favourable condition of the SSSI and to comply with any terms in a higher tier 10-year agreement if one is entered into.

Other management

8.24 The other management to be considered on the common is scrub control, tree maintenance and management of ditches and ponds. On that part of the site which is an SSSI, the work programme will need to be approved by Natural England (NE).

8.25 Briefly, scrub management will involve the cutting of scrub in the southern part of compartment 3 and in compartment 4, stacking or burning the arisings and treating the stumps (with the exception of gorse) with herbicide. Work to be undertaken by volunteers, helped as necessary by contractors between mid-September and mid-March. We would recommend that agreement be sought with NE for burning cut scrub on site on corrugated iron sheets or similar in agreed locations. Removal of arisings off site using heavy machinery is not recommended due to the risk of soil compaction and drainage impedance. Scrub marked on Map 12 as 1 (total area 0.51ha) has been cleared within the last two years. Scrub areas marked 2 (total area 0.34ha) are older with mature stands of bramble, gorse or mixed scrub with some mature oak and silver birch. Older scrub will need to be cleared in years two and seven (leaving trees) and younger scrub in year three and eight depending on the effects of grazing (see Table 7) and weather.

8.26 Following recommended surveys, if agreed, coppice a quarter of the tree cover from banks of pond 1 in years four and eight. Pollarded trees, (mostly willows and one ash) are shown on Map 12. Some of these trees should be pollarded in year one (solid red circles) while others should be pollarded in year 6 (solid green circles) subject to assessment then. The remainder (open circles-including tree 10 which is not a pollard) do not require pollarding within the management plan period.

8.27 The three smaller ponds to the south and east (numbers 2-111m², 3-123m² and 4-252m² on Map 12) dried up in 2018 and Pond 1-0.16ha, while still holding water was very shallow. The three smaller ponds are about 0.5 deep. Nothing is known about the wildlife of the ponds which are all different in character with the largest pond (Pond 1) much larger than the others and believed to be of considerable age. All the ponds should be surveyed for amphibians and if the presence of great-crested newts is confirmed the necessary licences will need to be obtained, and any work carried out in accordance with the requirements of NE. Otherwise the small ponds should have about a third of the surface vegetation cleared (could be done by volunteers) every year in autumn. The large pond requires a full ecological survey for plants and invertebrates and advice from the

County Archaeologist obtained before any work is contemplated. If agreement is given a quarter of the large pond could be cleared in year 4 and year 8 (Table 7). If regular grazing or clearance of the margins (or part of them) could be instituted, we recommend that advice be sought from NE on the possible reintroduction of mudwort *Limosella aquatica* to the large pond.

8.28 The ditch system shown on Map 12 has not been managed recently and all ditches are to some extent overgrown except where they are heavily shaded by trees. At the time of inspection all were dry, so the direction of flow would need confirmation after winter rain. The ditches are shown as red (clean out if required within next two years) green (clean out if required in year 4) and dark blue (clean out if required in year 6). Culverts along ditch lines may also need to be cleared if blocked. The well should be capped and fenced off.

9. Work programme

9.1 If a decision is made to go ahead with a scheme which requires the consent of PINS, a public consultation and preparation of an application will be required. If PINS give their consent, then estimates will have to be put in hand and the work commissioned and completed. Assuming a decision is made in autumn of 2018 (Year 1) setting up, running and considering the results of a public consultation could be completed by spring 2019 (Year2). An application to PINS, a further period of public consultation and awaiting a decision could result in a final approval by autumn 2019 with estimates obtained and the work commissioned during winter 2019 for the scheme to start in spring 2020 (Year 3). This also presumes that permanent water troughs will be installed with underground piping needing consent from PINS. In the meantime, grazing of 1ha at any one time could continue and troughs provided with a water supply above ground from the existing source or supplied by a bowser.

9.2 Table 6 details the prescriptions for each compartment with alternatives where relevant. At present it is uncertain whether graziers with sheep or cattle will be available, whether PINS will approve a scheme and whether any financial support will be forthcoming from Natural England through a Higher Tier agreement. Natural England will advise on the grant options available under Higher and Middle Tiers

Table 6. Suggested regimes for cutting and grazing compartments

Compartment	Area ha											
		Grazing/Haying Management	Years									
			1	2	3	4	5	6	7	8	9	10
1	1.34	Grazing with sheep or cattle from April/May (depending on season, growth and availability of electric fence from Compartment 4[7]) at a density equivalent to 0.4 LU[8]/ha/yr (for a variable period depending on grass growth and condition of animals. Or (pending approval from PINS in year 2, or if grazier and stock not available)			G	G	G	G	G	G	G	G

[7] The order in which compartments are grazed using the moveable electric fencing could be varied from year to year

[8] LU= Livestock unit. Sheep 0.12LU, Cattle 1LU

1	1.34	Cut for hay depending on grass growth in mid- July and depending on grass recovery carry out after-grazing to achieve a sward length by end September of 5-10 cms. Or Leave uncut 1 year in 5 until late August early September	EC AG	EC AG	EC AG	EC AG	LC	EC AG	EC AG	EC AG	EC AG	LC
2	1.47	Grazing with sheep or cattle from April/May (depending on season, growth and availability of electric fence from Compartment 1) at a density equivalent to 0.4 LU/ha/yr (for a variable period depending on grass growth and condition of animals. Or (pending approval from PINS in year 2 or if grazier and stock not available)			G	G	G	G	G	G	G	G
2	1.47	Cut for hay depending on grass growth in mid- July and depending on grass recovery carry out after-grazing to achieve a sward length by end September of 5-10 cms. Leave uncut 1 year in 5 until late August early September	EC AG	EC AG	LC	EC AG	EC AG	EC AG	EC AG	LC	EC AG	EC AG
3 North of access to The Croft	1.54	Grazing with sheep or cattle from April/May (depending on season, growth and availability of electric fence from Compartment 2) at a density equivalent to 0.4 LU/ha/yr (for a variable period depending on grass growth and condition of animals. Or (pending approval from PINS in year 2 or if grazier and stock not available)			G	G	G	G	G	G	G	G
3 North of access to The Croft	1.54	Cut for hay depending on grass growth in mid- July and depending on grass recovery carry out after-grazing to achieve a sward length by end September of 5-10 cms. Leave uncut 1 year in 5 until late August early September	EC AG	LC	EC AG	EC AG	EC AG	EC AG	LC	EC AG	EC AG	EC AG
3 South of N access to Woodlands	2.72	Grazing with sheep or cattle from April (depending on season and growth) at a density equivalent to 0.4 LU/ha/yr (from April for a variable period depending on grass growth and condition of animals	G	G	G	G	G	G	G	G	G	G
4	1.25	Grazing with sheep or cattle from April (depending on season and growth) at a density equivalent to 0.4 LU/ha/yr (from April for a variable period depending on grass growth and condition of animals	G	G	G	G	G	G	G	G	G	G
5	0.71	Cut for hay depending on grass growth in mid- July. Leave uncut 1 year in 5 until late August early September	EC AG	EC AG	EC AG	LC	EC AG	EC AG	EC AG	EC AG	LC	EC AG

6	o.72	Cut twice, April and September and remove cut material											

Key: G=Grazing by sheep or cattle

EC= Cutting for hay in July depending on weather and grass growth and after-graze in the autumn

LC = Cutting for hay late August/September

AG= After grazing in September/October depending on weather and grass growth

Table 7. Works required for option 2 (Map 5)

Monkwood Green Common Management programme													
Possible CS option	Payment levels from CS if agreed	Season: S = summer, W = winter	Management	Years									
				1*	2	3	4	5	6	7	8	9	10
			Capital works										
FM2	As agreed	S/W	Two sets of electric fencing with: reels and wire, spare wire, intermediate and corner posts, connectors, batteries with chargers, solar panel for battery, energisers, underground cable and tubes for gateways, warning signs and earthing spikes		✓								
			Installation of 11 gateways with seven gates		✓								
LV1	£835 per grid	W	Installation of 3 cattle grids on access tracks		✓								
LV2	80% of costs	S/W	Purchase of stock handling equipment if required OR		✓								
LV2	80% of costs	W	Erection of permanent corral										
LV8	£2.65 per metre	W	Installing 320m pipework for drinking troughs with two road crossings (Map 11)		✓								
LV7	£110 per trough	S/W	Drinking troughs (cattle)		✓								
			Drinking troughs (sheep)										
			Maintenance works										

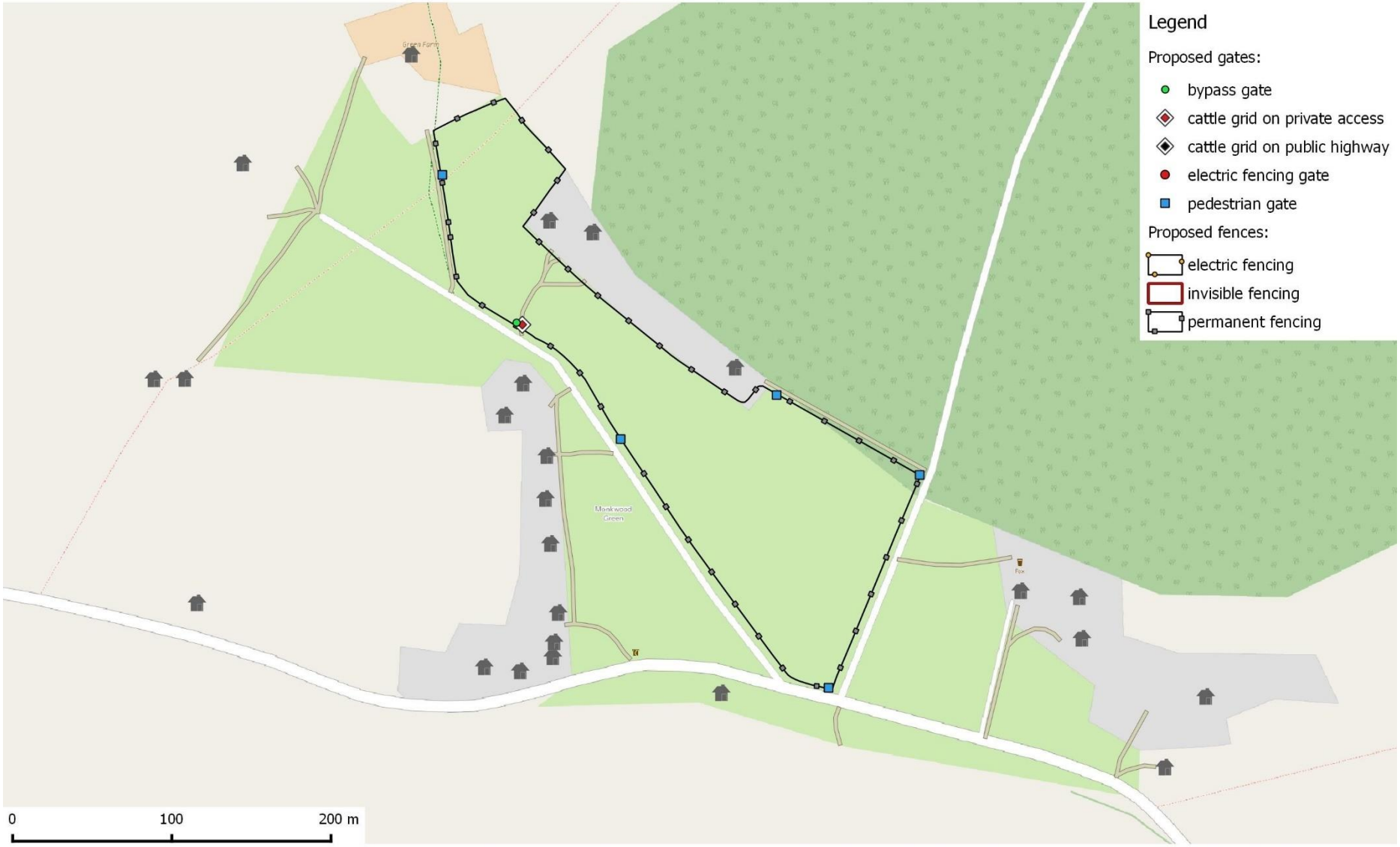
GS7	£145 per hectare	S	Grazing by cattle or sheep	✓ *	✓ *	✓	✓	✓	✓	✓	✓	✓	✓
GS15	£85 per hectare	S	Hay cutting	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
SB1	Various	W	Scrub clearance (0.34ha years 2 and 7, 0.51ha years 3 and 8) (Map 12)		✓	✓				✓	✓		
WT4	£103 per pond	W	Pond Management survey all ponds for amphibians		✓								
			Clear a third of surface vegetation (total 162m^2) to ponds 2, 3 and 4 (Map 12)		✓		✓		✓		✓		✓
			Carry out ecological survey of Pond 1		✓								
			If agreed clean out a quarter of Pond 1 (397m^2)				✓				✓		
		W	Ditch and culvert maintenance										
			Clean out red ditches 1175 m (Map 12)		✓						✓		
			Clean out green ditches 996 m (Map 12)				✓						✓
			Clean out blue ditches 161 m (Map 12)						✓				
		W	Tree pollarding (Map 12, red circles year 1, green circles year 6)	✓					✓				
		S	Cut road verges and splays **	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
* Assuming this is carried out under the 10% rule or without fencing for first two seasons ** We understand that the road verge may have been cut for hay in 2018													

Maps

Map 1: Monkwood Green site map and compartments

Map 2: Permanent fencing option 1.

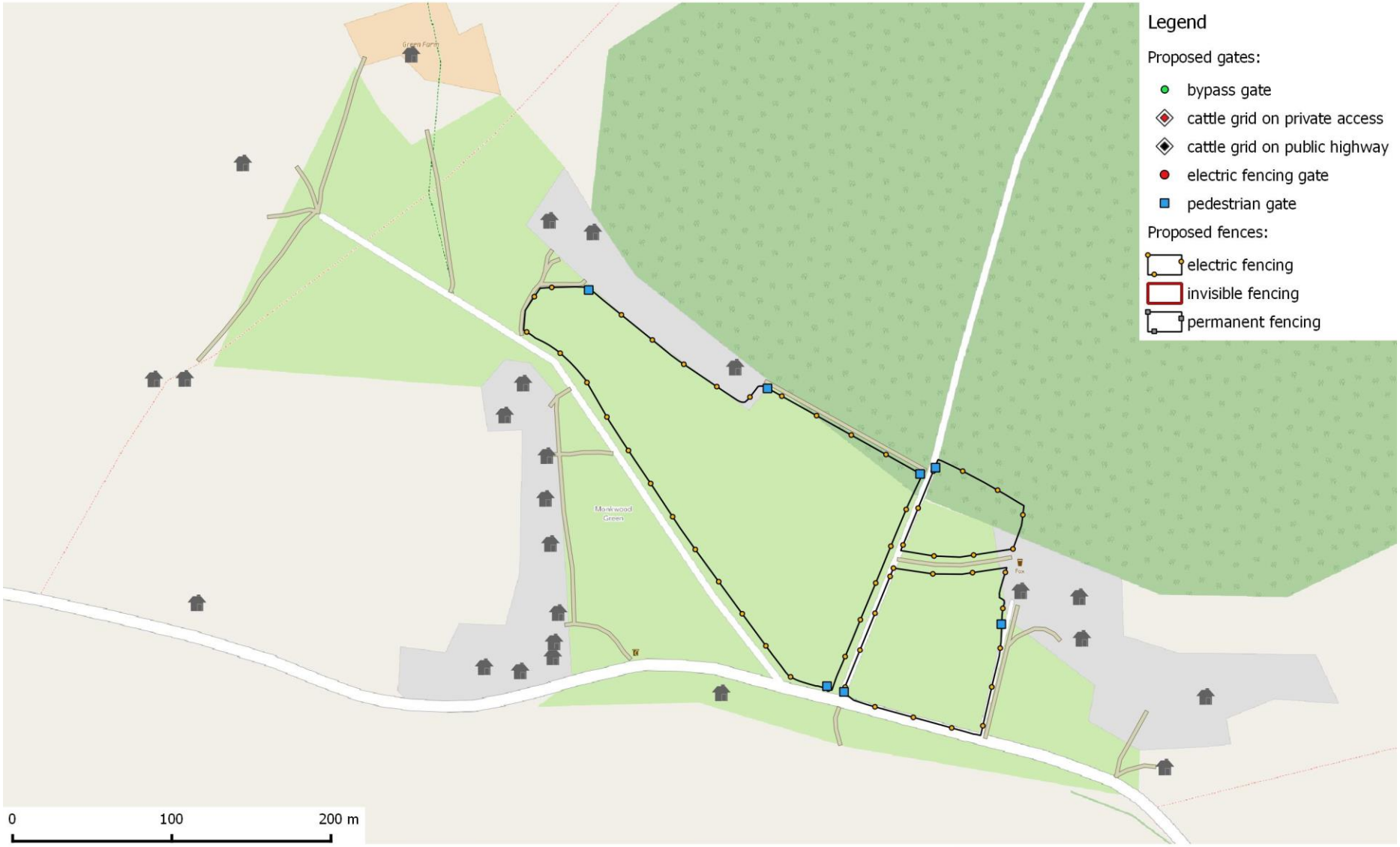
Map 3: Permanent fencing option 1, variation 1.



Map 4: Permanent fencing option 1, variation 2.

Map 5: Electric fencing option 2.

Map 6: Electric fencing option 2 variation 1.



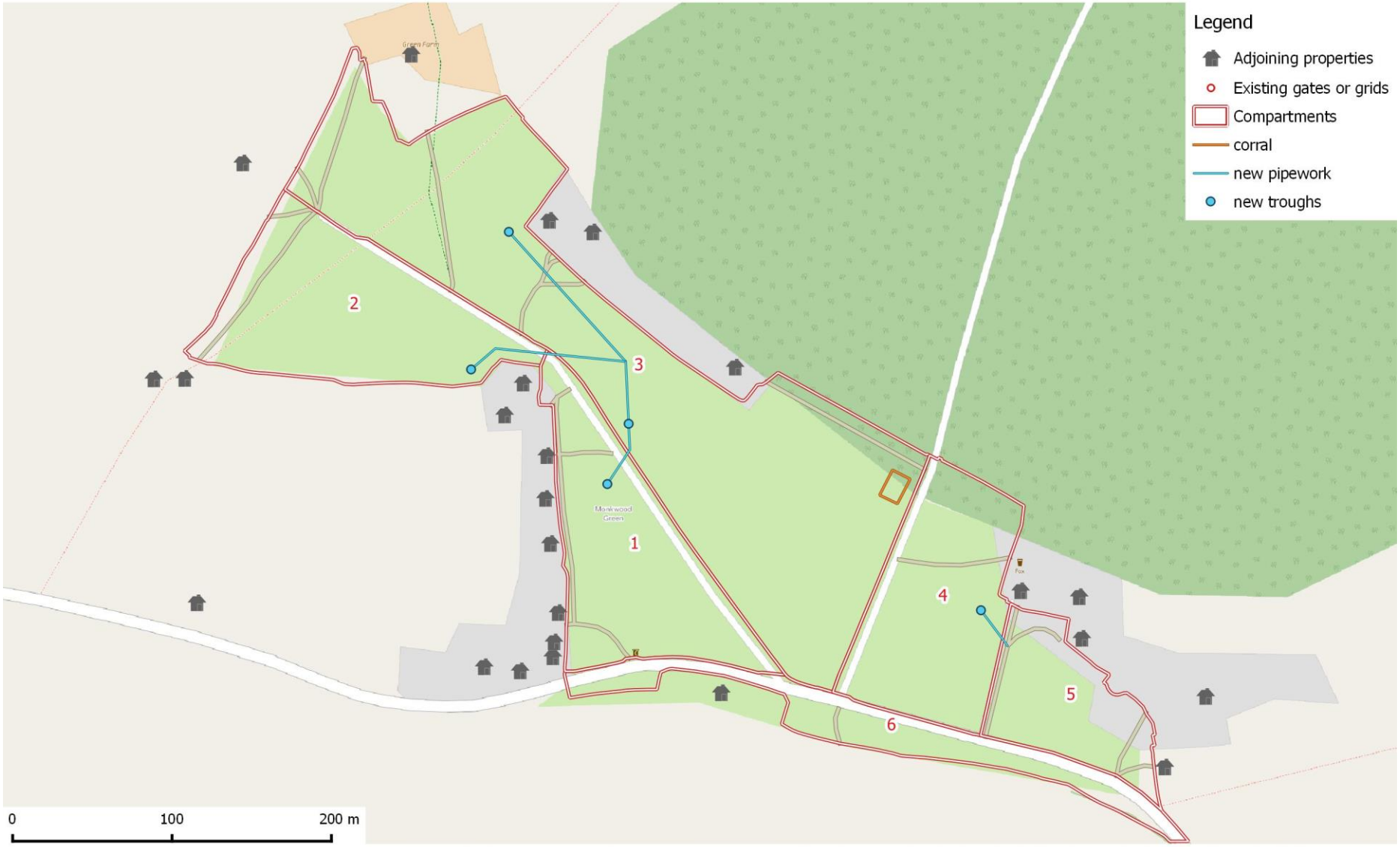
Map 7: Invisible fencing option 3.

Map 8: Invisible fencing option 3, variation 1.

Map 9: Invisible fencing option 3, variation 2.

Map 10: Fencing combination option 4.

Map 11: Monkwood Green grazing infrastructure.



Map 12: Monkwood Green ponds, ditches, scrub and trees