



Overview & Scrutiny Committee

Tree Maintenance Working Group

March 2015

Foreword

The purpose of this Scrutiny activity was to investigate tree maintenance issues.

The Scrutiny Working Group was made up of Members of the Overview and Scrutiny Committee: myself (Chair of the Scrutiny Panel); Councillors Rufia Ashraf, Anna King and Suresh Patel, together with one other non-executive Councillor Dennis Meredith.

It was a short sharp Scrutiny activity that took place between February 2015 and March 2015.

I would like to convey my sincere thanks to members of the Scrutiny Working Group for their work and input on this Scrutiny activity, and the officers who supported the group – Mick Tyrrell, and Tracy Tiff, Scrutiny Officer.

The Scrutiny Working Group received evidence from Officers of Northampton Borough Council, Northamptonshire County Council and Northampton Partnership Homes.

The Working Group also carried out a site visit to various locations in the town, the findings of which informed the evidence base of this Scrutiny activity.

Key conclusions and recommendations are contained within the report.



Councillor Phil Larratt

Chair, Scrutiny Tree Maintenance Working Group

Acknowledgements to all those who took part in the Review: -

- Councillors Rufia Ashraf, Anna King, Dennis Meredith and Suresh Patel who sat with me on this Scrutiny Working Group
- Nainesh Patel, Northamptonshire County Council; David Hackforth, Interim Head of Planning, Phil Scott-Collins, Arboriculture Officer, Northampton Borough Council; Sheila Tolley, Executive Director and Madeline Mills, Estates Manager, Northampton Partnership Homes for providing expert advice to inform this Review
- Mick Tyrrell, Contracts Manager, and Tracy Tiff, Scrutiny Officer, for their support to this Scrutiny activity

NORTHAMPTON BOROUGH COUNCIL

Overview and Scrutiny

Report of Overview and Scrutiny Tree Maintenance Working Group

1 Purpose

- 1.1 The purpose of this Scrutiny activity was to investigate tree maintenance issues.

2 Context and Background

- 2.1 Following the motion that was carried at full Council on 15 September 2014:

'There are many areas of the Eastern District where historic planting of the wrong kind of tress in the residential areas cause a number of problems for residents - from light being blocked from homes, to fallen debris, to damage to property from roots. 'This Council resolves to develop a plan to consider removing trees that are identified as problematic and consider replacing them with smaller tress more suited to residential areas. 'This Council recognises this issue is complex and many trees are located on housing land that will soon be managed by Northampton Partnership Homes so therefore refers this matter to the Overview and Scrutiny Committee to consider.'

The Overview and Scrutiny (O&S) Committee agreed at its meeting on 26 January 2015 that an Overview and Scrutiny Working Group would be set up to look at tree maintenance issues and report back its findings to the March 2015 meeting of the Overview and Scrutiny Committee.

- 2.2 An O&S Working Group was established comprising Councillor Phil Larratt (Chair); Councillors Rufia Ashraf, Anna King, Dennis Meredith and Suresh Patel. A short, sharp Scrutiny activity commenced in February 2015 and concluded in March 2015.
- 2.3 This scrutiny activity links to the Council's corporate priorities, particularly corporate priority 2 – Invest in safer, cleaner, neighbourhoods – creating an attractive, clean and safe environment.
- 2.4 The Working Group established that the following needed to be investigated and linked to the realisation of the Council's corporate priorities:
- Background data, including:

- [Overview and Scrutiny Tree Maintenance Task and Finish Group report \(2006\)](#)
- Tree related complaints
- Tree Maintenance budgets
- Site Visits
- Witness Evidence:

Internal

Director of Regeneration, Planning and Enterprise

External

Assistant Director, Highways, Transport and Infrastructure,
Northamptonshire County Council (NCC)
Chief Officer, Northampton Partnership Homes (NPH)

3 Evidence Collection

3.1 Evidence was collected from a variety of sources:

3.2 Background reports

3.2.1 [Overview and Scrutiny Tree Maintenance Task and Finish Group report \(2006\)](#)

The report comprised seven recommendations:

- Consider the draft Tree Policy as the basis for a Northampton Borough Council Tree Policy.
- Seek public consultation on the draft Tree Policy.
- Give consideration to further resources to ensure the thorough maintenance of trees and the delivery of the Tree Policy.
- Require tree related complaints to be dealt with by an Administration Officer to free up the Tree Inspectors to undertake their inspections so that every tree within the borough is checked every twelve months for safety.
- Review the agreement with Northamptonshire County Council regarding tree cuttings to be undertaken.
- Carry out further work on involving citizens in awareness raising in tree maintenance.
- Consider including the maintenance of hedgerows in a future Policy.

3.2.2 Tree Related Complaints

3.2.2.1 There are many and varied reasons why Northampton Borough Council (NBC) receives complaints about trees, some of which include:

- Blocking out light from windows
- Blocking light from garden
- Blocking light to solar panels
- Blocking satellite/digital signal
- Touching or too close to property
- Overhanging into garden
- Confirmed root damage to property
- Potential root damage to property
- Spoiling view
- Dropping leaves/blossom/seeds/sap into garden
- Dropping leaves/blossom/seeds/sap onto car
- Encroaching on roads or blocking vision of vehicle users and pedestrians

3.2.2.2 The issues that residents report are not unique to any particular parts of the borough.

3.2.2.3 Any variations between areas tend to be on the number of complaints that are received rather than the type. The higher the density of trees around properties, the more complaints that are generated.

3.2.2.4 The most frequent complaint relates to trees blocking light or satellite signals, and trees overhanging people's property, particularly gardens. These are also probably the most difficult ones to resolve, if they can be resolved at all.

3.2.2.5 In law, there is no absolute right to light and is a policy that is adopted by the Council. That is not to say that the available light cannot be improved, as work carried out to rectify another issue may result in improved light. However, Northampton Borough Council (NBC) would not consider carrying out any works to trees, purely to increase the amount of light.

3.2.2.6 Residents can cut any trees back to their boundary, although the Working Group recognises that this can become an unmanageable task as the trees grow in height. NBC will only carry out work where trees are growing to within two metres of residential structures such as houses or garages. Due to the proximity of many rear gardens to tree belts, it is a very regular complaint, particularly in Northampton East.

3.2.3 Tree Maintenance Budgets

3.2.3.1 The contract payment (budget for the tree service) is £332,000 per annum. This includes managing of the service by Enterprise and all of the maintenance work that is carried out to the trees.

3.2.3.2 The Housing Revenue Account (HRA) makes a contribution to the budget in relation to work that is carried out to the trees on HRA land. The annual grounds maintenance recharge to HRA is not broken down into the specific

services that are provided and is received into the contract budget as a lump sum.

3.2.3.3 Northampton Borough Council allocates £86,000 of the £186,500 grant it receives from Northamptonshire County Council (NCC), towards the trees budget. This leaves £100,500, to pay for the grass cutting, hedge/shrub maintenance and weed spraying on highways land.

3.2.4 Site Visits

On Monday, 16 February 2015 the O&S Tree Maintenance Working Group carried out a site visit to:

- Barley Hill Road, Southfields
- Spelhoe Street, Off Barley Hill Road, Southfields
- Greendale Square, Ecton Brook
- Open space adjacent to Blacky More Community Centre, Butts Croft Close, East Hunsbury
- Rea Close, East Hunsbury
- Main Road, Duston, near to Hawkstone Close
- Melbourne House, off Abbey Street, St James

Highways

Whilst travelling to various locations, the Working Group observed that branches were obscuring signs in a number of places, such as:

- A43 – in a number of locations
- Lings Way - signage and traffic lights obscured by trees
- The A45 just before the slip road into Wootton

Barley Hill Road, Southfields

Four large trees were observed, two with a lot of ivy climbing on them, blocking residents' light in the nearby houses. One tree was very close to a property and large branches were observed over-hanging the footway.

These three photographs were taken of the area:



Spelhoe Street, Southfields

Large trees were observed that reportedly block residents' light.

Shrubs were cut back nicely in the area.

These two photographs were taken of the area.



Greendale Square, Ecton Brook

Two very large trees were seen on the small open space next to the car park at Greendale Square. The trees had been crown lifted. A number of tall silver birches were observed in the area. The roves of properties in the area were thick with moss. Trees to the rear of 9, Greendale Square, and adjacent properties, were observed by the Working Group. These block light and prevent anything growing, including grass lawns, in the rear gardens.

These three photographs were taken of the area:



Open Space, Adjacent to Shard Close, East Hunsbury

Around the edge of the open space are a number of tall trees and overhanging and overgrown shrubs. One tree in particular, has encroached onto the roof of 33, Shard Close, causing the resident to re-locate their satellite dish as the tree prevented a signal, knocking the TV aerial out of position. Squirrels are also abundant in the trees and could easily access the roof of this property. Vegetation overhangs the parking area in front of the houses. Large trees to the side and rear of 31, Shard Close, affect light preventing any growth in the garden and are causing the footpath down the garden of the property to be lifted and become uneven.

These four photographs were taken of the area:



Rea Close, East Hunsbury

The Working Group observed an old field hedge that had been there prior to the estate being built and retained as a planning requirement. A number of trees and branches were seen growing out of the ancient hedgerow, very close to a property.

These two photographs were taken of the area:



Main Road, Duston – Near Hawkstone Close

The Working Group observed a large tree on the highway to the rear of a property in Hawkstone Close. Brick walls had been built to the rear of the other properties, except to the rear of number 3 Hawkstone Close, which had a wooden fence, erected in-front of the large tree. It was evident that some branches had been lopped from the tree.

The Working Group met with the resident of 3 Hawkstone Close who informed of problems, danger and expense that the tree had created, such as the roots lifting the base of his shed, blocked drains, flooded kitchen, and a blocked gas flue which had created an expensive boiler replacement and kitchen refurbishment. The resident had installed deep gutters with brushes attached to prevent them getting blocked. The tree to the rear of 3 Hawkstone Close had a Tree Preservation Order on it.

These four photographs were taken of the area:



Melbourne House, off Abbey Street, St James

Big trees were seen next to Melbourne House affecting light to properties; some branches encroached on the balconies of some of the flats. The trees are on housing land.

These two photographs were taken of the area:



3.3 Expert Advisors

3.3.1 Key witnesses provided inform to inform the Scrutiny activity at the meetings of the Working Group held on 25 February 2015 and 11 March 2015.

Assistant Director, Highways, Transport and Infrastructure, Northamptonshire County Council (NCC)

Salient points of evidence:

- Over the last few years the budget for tree maintenance has reduced. There was a particular reduction in 2008; since this date there has been an ongoing reduction. The budget for 2015/2016 will be finalised shortly.
- The provision of the service for tree maintenance is for managing and looking after trees on safety grounds.
- Northamptonshire County Council (NCC) pays NBC £186,000 for all of the work that NBC carries out on its behalf. The annual budget of £186,000 for maintenance includes grass cuttings, weed and tree maintenance.

- An Inspection Programme, and recording software, for trees is being piloted in Daventry. The software records the specific species of trees and the maintenance programme required. The Working Group supported this Programme and asked whether the software could be rolled out in Northampton too.
- An NCC IT Programme has been introduced whereby should someone damage street furniture, including trees, they would be required to replace it.
- In June 2014 a new Guidance Policy was introduced by NCC – appendix 1. Consultation on the Guidance Policy took place with various key Agencies, included the Borough and District Councils. The Guidance Policy looks at existing trees and the planting of further trees. Under the Guidance Policy, Planners have to look at the Guidance before making recommendations. The Guidance Policy is a live, working document.

Director of Regeneration, Enterprise and Planning, Northampton Borough Council (NBC)

Key points:

- Existing trees and hedgerows precede development and they are retained as they contribute to the environment and wildlife habitat irrespective of whether they are protected.
- Good practice guidance is used in respect of the relationship between trees, hedges and buildings. The key is to ensure that this guidance is followed.
- There have been changes to criteria. The Local Plan 1987 looks for the retention of trees, hedges and woodland. The Joint Core Strategy has a different level of retention of green infrastructure and includes the retention of trees and hedges etc.
- Tree issues could feed into and be defined in the Local Development Framework.
- Planning conditions can protect a hedgerow and it was highlighted that there is a lot of mature hedgerows running through Hunsbury and Wootton for example. This is more of a maintenance issue although they can be a problem for residents.
- Commuted sums for maintenance are requested.
- If a tree falls within the boundary of a property it would be the responsibility of the resident to maintain it.
- If a tree is given protected status, it is aimed to exclude development from the surrounding area. The property in Hawstone Close is outside the root protection area, at a “reasonable distance”.

- If the location of a tree becomes the basis of refusing a planning application; developers could take it to appeal. British Standard BS5837 Trees in relation to design, demolition and construction – is the guidance that is used to work out the root protection areas of retained trees.
- Other issues that are taken into consideration include shade over the garden.
- There is no ongoing protection for unprotected trees.
- The development at Grange Park tends to have kept hedges within open spaces.
- The Arboricultural Officer liaises with planners regarding development proposals and states the space that trees require; he also makes recommendations regarding tree maintenance.

Executive Director, Northampton Partnership Homes (NPH)

Salient points:

- Formal complaints are logged onto a database; extracts are taken from this to identify the types of complaints received. Limited complaints have been received regarding overgrown trees; there are more complaints in the system about overgrown shrubs. There is no trend or overall pattern with respect to reporting of overgrown trees.
- NPH has had problems obtaining details of the forward planning for the maintenance of trees from Enterprise who appear to have no overall Tree Maintenance Programme
- The Council has a Policy not to fell healthy trees
- Any trees within residents' gardens can be trimmed/felled by NPH.
- A mapping exercise is underway to agree and delineate NPH managed land and NBC retained land. The mapping exercise will be completed by 31 March 2015. This exercise may help to identify who will have responsibility for problematic trees.
- NPH does not have a specific budget for trees
- NPH expressed an interest in using NCC's Inspection software to record trees on its land.

6 Key Findings

- 6.1 After all of the evidence was collated the following conclusions were drawn:
- 6.1.1 There are many and varied reasons why Northampton Borough Council (NBC) receives complaints about trees, which include:

- Blocking out light from windows
- Blocking light from garden
- Blocking light to solar panels
- Blocking satellite/digital signal
- Touching or too close to property
- Overhanging into garden
- Confirmed root damage to property
- Potential root damage to property
- Spoiling view
- Dropping leaves/blossom/seeds/sap into garden
- Dropping leaves/blossom/seeds/sap onto car
- Encroaching on roads or blocking vision of vehicle users and pedestrians

6.1.2 The Working Group recognises that trees and ancient hedgerows are important for many reasons, including wildlife, but was concerned at how massive and overgrown they have become in certain areas and consequently how much of a potential nuisance they can cause residents.

6.1.3 Whilst travelling to various locations on its site visits, the Working Group observed that branches were obscuring signs in a number of places. Evidence received confirmed that issues of this nature are now covered by the Guidance Policy that Northamptonshire County Council introduced in June 2014. The Working Group welcomed the production of the Guidance Policy 2014, noting that it makes reference to both existing trees and the planting of new trees.

6.1.4 The evidence received highlighted that there has never been a Court case regarding the right to light. A Policy reflecting this has been adopted by the Council. The Working Group acknowledged that the available light can be improved, as work carried out to rectify another issue may result in improved light. The Working Group felt that people do have a right to light, satellite and digital signals, and energy from solar panels. Consideration should be given to the planting and maintenance of trees taking these matters into account.

6.1.5 The Working Group welcomed the Inspection Programme and software for trees that is being piloted in Daventry. The software records the specific species of trees and the maintenance programme required. It was felt that it would be beneficial for the software to be rolled out for NBC to use.

6.1.6 The Working Group welcomed the IT Programme that NCC has introduced whereby should someone damage street furniture, including trees, they would be required to replace it. The Working Group felt that it would be useful for a presentation on this IT Programme to be given to all Councillors at Northampton Borough Council.

- 6.1.7 The Working Group commended the NBC app. – Report It; welcoming its usefulness and speed of reporting. NCC does not have the provision of a similar app. The Working Group agreed that it would be useful for the Report It app. to be widened as a countywide app; for example one reporting app. for the whole county; or at least one reporting app. for NBC and NCC.
- 6.1.8 The Working Group welcomed the fact that developers provide a commuted sum for tree maintenance through the S106 / CIL process when developing sites and would like to see this continued. The Scrutiny Panel acknowledged that all trees require maintaining at some point. There is a need for Planners to put in conditions regarding the distance of retained and new trees and hedges from development plots, and their maintenance so as to afford the development plots the right to light. The Working Group felt that commuted sums should be ring-fenced.
- 6.1.9 The Working Group welcomed work that is being undertaken by Northampton Partnership Homes (NPH) and NBC regarding a land ownership mapping exercise and that this work could link with the Inspection Programme for trees being piloted by NCC when it is rolled out to Northampton.
- 6.1.10 The Working Group agreed that the current Tree Maintenance Policy, produced following the recommendations of the O&S Tree Maintenance Task and Finish Group (2006) is not a corporate policy and requires updating. There is a need for a Corporate Tree Policy for all trees in the Borough, including trees on Northamptonshire County Council land and Northampton Partnership Homes managed land. An updated Tree Policy should be subject to full, open and transparent consultation and written in plain English. The Working Group further felt that an updated Tree Policy should be all embracing, include a Tree Maintenance Policy, make reference to relevant Planning and Highways policies, and specify maintenance for trees and hedgerows.

7 Recommendations

- 7.1. The O&S Tree Maintenance Working Group recommends to Cabinet that:
- 7.1.1 In noting its effectiveness, the NBC app. – “Report It”, use is widened and developed so that there is preferably one reporting app. for the whole county, or more realistically at least one reporting app. for NBC and NCC.
- 7.1.2 A presentation on the Northamptonshire County Council IT Programme regarding damage caused to street furniture, including trees, is given to all Councillors at Northampton Borough Council.

- 7.1.3 When the software that is being used in relation to the Tree Inspection Programme that is being piloted in Daventry is rolled out in Northampton and becomes available for use by NBC, it be used by NBC to record all trees and hedges on NBC and NPH managed land.
- 7.1.4 In the planning process consideration is given to the retention and planting of trees and hedges and the maintenance thereof, while affording the ongoing right to light to nearby properties. The Tree Planting and Retention Policy be detailed within the Joint Development Framework; with a view to delivering low on-going maintenance costs and that a Policy is adopted to ensure trees are not planted close to properties or in the vicinity of properties; alleviating problems encountered by residents as detailed in this report.
- 7.1.5 A Policy of thinning out trees in Parks and Open Space throughout the Borough is adopted and funded over a five year period to ensure that remaining trees are able to reach their full growth and maturity.
- 7.1.6 An on-going Forward Maintenance Plan for trees, recognising the right to light, is developed, funded and implemented over a five year period. This should be linked to the tree inspection software.
- 7.1.7 A revised Corporate Tree Policy, including a Tree Maintenance Policy and recognising the right to light, is developed and adopted. This should be in plain English. It should be an all embracing policy, making reference to relevant Planning, Highways and NPH policies. In this digital and green energy age, the policy should seek to establish policies that address the right of residents to receive satellite / digital signals and light to solar panels. The Maintenance Policy should cover the maintenance of trees and hedgerows.
- 7.1.8 Full consultation should be undertaken on the revised Corporate Tree Policy, including the Maintenance Policy therein.
- 7.1.9 Parish Councils should be consulted in developing the new Tree Policy and encouraged to adopt the policy in respect of land in their ownership.
- 7.1.10 A review of the effectiveness of the Corporate Tree Policy, including the Tree Maintenance policy therein, takes place within five years.

Overview and Scrutiny Committee

- 7.1.11 The Overview and Scrutiny Committee, as part of its monitoring regime, reviews the impact of this report in six months' time.

CONCLUSION

- 8 Having considered the issues identified, the Working Group concludes that these have been considered as follows:

- **Blocking out light from windows** – Addressed by recommendations at 7.1.4, 7.1.6, and 7.1.7
- **Blocking light from garden** – Addressed by recommendations at 7.1.4, 7.1.6, and 7.1.7
- **Blocking light to solar panels** – Addressed by recommendation 7.1.7
- **Blocking satellite/digital signal** – Addressed by recommendation 7.1.7
- **Touching or too close to property** – A policy that commits the Council to trees not being any closer than 2 metres to a property already exists while other recommendations in this report will also help alleviate this problem
- **Overhanging into garden** – Somewhat addressed by recommendations at 7.1.4, 7.1.6, and 7.1.7
- **Confirmed root damage to property** – This is considered to be an insurance issue and should be pursued accordingly
- **Potential root damage to property** – This is considered to be an insurance issue and should be pursued accordingly
- **Spoiling view** – Not considered as nobody has the right to a view
- **Dropping leaves/blossom/seeds/sap into garden** – Not considered as a significant issue by the Working Group, but problems will be somewhat alleviated by recommendations at 7.1.4, 7.1.6, and 7.1.7
- **Dropping leaves/blossom/seeds/sap onto car** – Not considered by the Working Group. This is mainly a problem relating to Street Trees that are an important aspect of the street scene and enhance the environment but recommendations may have an effect on this issue.
- **Encroaching on roads or blocking vision of vehicle users and pedestrians** – This is a Highway Safety issue and should be pursued in accordance with NCC's Highway Policy

NORTHAMPTONSHIRE HIGHWAYS

Guidance Notes – Highway Cultivation

Trees, hedges, amenity grass and native wildflower verges

Name

[27th May 2014]

Guidance Note – Highway Cultivation

Introduction

This Guidance Note identifies the preferred tree, shrub and grass species for cultivation on the Highway and Highway verges. It should be read in conjunction with the Highway's Act 1980 and the latest Northamptonshire County Council Highways, Transport and Infrastructure Network Management Plan¹.

Northamptonshire County Council encourages the planting of Highway Trees for the health, environmental, economic and aesthetic benefits they bring. From improving air quality and reducing the risk of flooding to encouraging healthy lifestyles and improved public health, the benefits of trees are far reaching.

Highway trees and shrubs

For the purpose of this guidance, a *Highway Tree* is any tree planted within the public highway. As a general rule, trees growing in the highway verge as well as the undergrowth on the verge are matters for the County Council. However, trees growing in the hedgerow are usually owned by and are the responsibility of the adjoining landowner.

Long term, many trees retained for their attributes within new development projects are adopted by the Highways Authority and thus become the responsibility of the County Council. However, adequate resources are required from the developer to ensure the long-term maintenance of adopted trees.

When planting new highway trees it is vital to follow the principle of **the right tree in the right location**. When immature, certain species may seem appealing in urban or rural locations, however, inappropriate planting of the wrong species in the wrong environment or planting too many trees close together can cause a number of unnecessary issues such as; invasive root infrastructure damage, high prevalence to wind damage, reduced visibility on the highway, restricted access on pavements and regular pollarding or felling. All these result in increased maintenance costs.

However, through careful species consideration, **the right tree in the right location** can bring great benefits to people and the environment, through increased drainage to reduce flooding, greater canopy coverage to reduce air pollution and increase shade spots, and improved aesthetics.

This guidance aims to highlight those species of trees and shrubs that complement the different highways environments – urban/residential (roads with a speed limit up to 40mph) and rural (roads with a speed limit greater than 40mph). **Before undertaking any work on trunk roads, consent must be obtained through the Highways Agency.**

¹ Available through the [Northamptonshire County Council website](http://www.northamptonshire.gov.uk). www.northamptonshire.gov.uk

Northamptonshire's trunk roads include the M1, A5, A14, A45 (M1, J15 to Thrapston) and M45 & A43 (M40 to M1).

Building near trees

Often, whilst establishing new developments, existing trees are retained for their amenity value. For new buildings and existing trees to coexist it is essential that adequate protection is offered to the tree/s to avoid unnecessary premature felling from damage caused in the building process. Likewise, it is important that appropriate building techniques are implemented to ensure long term conflict is avoided between trees and buildings.

Achieving sustainability

Conflict between trees and buildings often arises early in the building process. However, some issues can take many years before they are fully realised; such as subsidence. In many cases subsidence could have been avoided altogether by establishing adequate building techniques such as pile foundations.

Other issues are often identified far sooner as a result of development such as trees going into early decline. Again, in many cases, this hazard could have been avoided altogether in the early stages of the building process by offering adequate protection to the tree structure both above and below ground.

If trees are to be retained near to buildings an Arboricultural Report must be established in the planning process. British Standards 5837: 2012 *'Trees in relation to design, demolition and construction - Recommendations'*² establish the principles required for suitable protection to trees whilst building. Likewise, NHBC Standards *'Part 4 Foundations, Chapter 4.2 Building near Trees'*³ establishes suitability of foundations.

In addition conflicts arise between trees and utility services, both overhead cables and underground pipes and infrastructure. When planning to install or maintain utility services in close proximity to trees precautionary measures must be taken to prevent root damage. Likewise when planting new trees, especially in urban/residential areas, **the right tree in the right location** is crucial to avoid direct damage to utility services and root invasion, with careful consideration to tree species selection e.g. smaller mature crown spread near overhead cables. When considering these issues, guidance should be sought from NJUG Publication 10 *"Guidelines for the planning, installation and maintenance of utility services in proximity to trees"*⁴.

Adhering to these standards is essential to maintaining sustainability. Guidance for developers on highway tree adoption on new developments can be found in [Appendix 1](#).

² Available for purchase via the [British Standards Institution website](#).

³ Available via the [National House Building Council website](#).

⁴ Available via the [National Joint Utilities Group website](#).

All trees and shrubs that are proposed for adoption by the highway authority should be wholly located within the extent of the public highway to the full extent of the “mature crown spread” indicated in the tables below.

Suitable species for highway cultivation

Where possible, a predominance of one species or variety should be avoided in order to minimise the risk of widespread ecological disease throughout the County. Preference should be given to native trees and shrubs, but in certain urban and residential situations, better results might be achieved by the use of exotic or naturalised trees and shrubs, which would add wildlife value.

The following trees and shrubs have been selected with a combination of water demand, habit, ecology and benefit to the wider community in mind, whilst providing an asset to the highway scene rather than a liability. This list is for guidance only and is not designed to be an exhaustive selection.

Scientific name	Recommended cultivars/ varieties	Common name	Crown shape	Mature crown spread (m)	Native	Minimum verge width	Soils		Tolerances		Features										
							Acidic	Calcareous	Heavy	Wet	Air pollution	Exposure	Drought	Soil compaction	Autumn colour	Bark interest	Evergreen	Flowering	Fruiting	Other	
Urban/Residential																					
Shrubs and small trees																					
<i>Amelanchier lamarckii</i>	'Robin Hill'	Snowy mespilus	Spreading	8		3m		✓								✓			✓		
<i>Betula albosinensis</i>	'Fascination'	Chinese red birch	Conical	8		3m				✓							✓				
<i>Carpinus betulus</i>	'Fastigiata'		Spreading	10		3m		✓	✓							✓					
<i>Prunus cerasifera</i>		Cherry plum	Spreading	8		3m													✓	✓	
<i>Prunus serrula</i>		Paperbark cherry	Spreading	8		3m											✓				
<i>Prunus sp.</i>	'Pandora'		Spreading	8		3m										✓			✓	✓	Fruits produced only occasionally
<i>Sorbus aucuparia</i>	'Sheerwater Seedling'		Spreading	5		3m	✓													✓	Excellent for pollinators
	'Streetwise'		Columnar	3		3m	✓														Excellent for pollinators
<i>Sorbus commixta</i>	'Embley'		Spreading	5		3m										✓				✓	
Medium trees																					
<i>Acer campestre</i>		Field maple	Spreading	10	✓	4m	✓	✓✓	✓		✓	✓	✓			✓					Excellent for pollinators
	'Elsrijk'		Conical	6		3m		✓			✓		✓	✓		✓					
	'Streetwise'		Conical	5		3m		✓					✓			✓					
	'William Caldwell'		Fastigate	4		3m							✓			✓					
<i>Acer lobelii</i>		Lobel's maple	Fastigate	4		3m															
<i>Betula ermanii</i>		Ermans birch	Columnar	12		3m										✓	✓				
<i>Betula pendula</i>		Silver birch	Conical	14	✓	3m	✓✓	✓	✓		✓✓	✓✓		✓							
<i>Betula pubescens</i>		Downy birch	Spreading	10	✓		✓	✓	✓		✓✓	✓✓					✓				In the wild only found in a few locations in Northants
<i>Betula utilis/jaquemontii</i>		Himalayan birch	Conical	14		3m											✓				
<i>Carpinus betulus</i>	'Frans Fontaine'		Columnar	3		4m		✓	✓												
<i>Ginkgo biloba</i>		Maidenhair tree	Conical	14		3m					✓		✓								
<i>Gledista triacanthos</i>	'Sunburst'	Honey locust	Spreading	10		4m					✓										
<i>Malus trilobata</i>		Erect crab	Columnar	6		2m							✓			✓			✓	✓	
<i>Malus tschonoskii</i>		Pillar crab	Conical	4		3m										✓					
<i>Malus yunnanensis veitchii</i>			Conical	7		3m															
<i>Prunus x hillieri</i>	'Spire'	Erect cherry	Columnar	8		2m										✓			✓		Ensure it is produced on non-suckering rootstock
<i>Pyrus calleryana</i>	'Chanticleer'	Callery pear	Fastigate	10		3m					✓		✓			✓			✓		
<i>Sorbus aucuparia</i>	'Golden Wonder'			6		2m	✓													✓	Excellent for pollinators

Scientific name	Recommended cultivars/ varieties	Common name	Crown shape	Mature crown spread (m)		Minimum verge width	Soils		Tolerances		Features										
				Native			Acidic	Calcareous	Heavy	Wet	Air pollution	Exposure	Drought	Soil compaction	Autumn colour	Bark interest	Evergreen	Flowering	Fruiting	Other	
<i>Sorbus aucuparia</i>		Rowan	Spreading	8	✓	2m	✓	✓	✓		✓	✓✓							✓	Excellent for pollinators. Not native to Northamptonshire	
<i>Sorbus thuringiaca</i>	'Fastigiata'	Rowan/Whitebeam hybrid	Broad columnar	8		3m					✓								✓		
Large trees																					
<i>Acer platanoides</i>		Norway maple	Spreading	18		5m	✓	✓✓	✓		✓	✓✓	✓			✓				Excellent for pollinators	
	'Columnare'		Columnar	4		2m		✓			✓	✓	✓			✓					
	'Crimson Sentry'		Columnar	6		3m		✓				✓	✓			✓					
<i>Acer pseudoplatanus</i>		Sycamore	Spreading	18		3m	✓	✓✓	✓		✓✓	✓✓								Excellent for pollinators	
	'Erectum'		Conical	7		3m															
<i>Acer rubrum</i>	'Armstrong'	Red maple	Fastigate	6		3m	✓			✓	✓					✓					
<i>Carpinus betulus</i>		Hornbeam	Spreading	16	✓	5m		✓	✓												
<i>Carpinus betulus</i>	'Streetwise'		Conical	5		3m										✓					
<i>Corylus colurna</i>		Turkish hazel	Conical	12		5m		✓	✓							✓					
<i>Tilia cordata</i>		Small leaved lime	Spreading	16	✓	3m						✓								Excellent for pollinators. Secretes honeydew. Not suitable close to buildings or parking areas. In the wild scattered and mainly restricted to north of the county	
Rural Highways																					
Shrubs and small trees																					
<i>Cornus sanguinea</i>		Dogwood	Spreading	8	✓	4m											✓				
<i>Corylus avellana</i>		Hazel	Spreading	6	✓	4m													✓		
<i>Crataegus monogyna</i>		Common hawthorn	Spreading	8	✓	4m	✓	✓		✓	✓	✓✓	✓						✓	✓	Excellent for pollinators. Tolerates browsing
<i>Crataegus x lavalleyi</i>		Hybrid cockspur thorn	Spreading	8		4m				✓	✓		✓						✓		
<i>Crataegus x prunifolia</i>		Broad leaved cockspur thorn	Spreading	8		4m				✓	✓		✓			✓				✓	Produces large thorns
<i>Euonymus europaeus</i>		Spindle		4	✓	4m		✓		✓						✓				✓	Largely absent from the west of the county
<i>Hippophae rhamnoides</i>		Sea buckthorn		6		4m														✓	Not native to Northamptonshire
<i>Ilex aquifolium</i>		Holly	Conical	8	✓	4m				✓	✓							✓		✓	Excellent for pollinators. Slow growing
<i>Malus sylvestris</i>		Crab apple	Spreading	8	✓	3m			✓							✓			✓	✓	
<i>Prunus spinosa</i>		Blackthorn	Spreading	8	✓	4m		✓												✓	Excellent for pollinators

Scientific name	Recommended cultivars/ varieties	Common name	Crown shape	Mature crown spread (m)	Native	Minimum verge width	Soils		Tolerances		Features										
							Acidic	Calcareous	Heavy	Wet	Air pollution	Exposure	Drought	Soil compaction	Autumn colour	Bark interest	Evergreen	Flowering	Fruiting	Other	
<i>Rhamnus cathartica</i>		Buckthorn	Spreading	8	✓	4m													✓	✓	
<i>Rhamnus frangula</i>		Alder buckthorn	Spreading	8		4m															
<i>Rosa canina</i>		Dog-rose	Spreading	8	✓	4m													✓		Excellent for pollinators
<i>Sambucus nigra</i>		Elder	Spreading	6	✓	4m													✓	✓	
<i>Viburnum lantana</i>		Wayfaring-tree	Spreading	6	✓	4m													✓	✓	Excellent for pollinators
<i>Viburnum opulus</i>		Guelder rose	Spreading	10	✓	4m									✓				✓	✓	Excellent for pollinators
Medium trees																					
<i>Acer campestre</i>		Field maple	Spreading	10	✓	4m	✓	✓✓	✓		✓	✓	✓		✓						Excellent for pollinators
<i>Acer campestre</i>	'Elsrijk'		Conical	6		3m		✓			✓		✓	✓	✓						
<i>Acer campestre</i>	'Streetwise'		Conical	5		3m		✓					✓		✓						
<i>Alnus glutinosa</i>		Common alder	Conical	14	✓	4m	✓	✓	✓✓	✓✓	✓✓	✓	✓✓								
<i>Betula pendula</i>		Silver birch	Conical	14	✓	3m	✓✓	✓	✓		✓✓	✓✓		✓							
<i>Betula pubescens</i>		Downy birch	Spreading	10	✓	4m	✓	✓	✓		✓✓	✓✓					✓				Found wild in only a few locations in Northamptonshire
<i>Prunus avium</i>		Wild cherry	Spreading	16	✓	5m	✓	✓	✓		✓	✓			✓				✓	✓	Excellent for pollinators. Suckering habit. Not suitable close to gardens and hard surfaces.
<i>Prunus padus</i>		Bird cherry	Spreading	14	✓	3m							✓						✓		Excellent for pollinators.
<i>Sorbus aria</i>	'Majestica'	Whitebeam	Spreading	10		3m	✓✓	✓✓	✓		✓	✓									Excellent for pollinators
<i>Sorbus aucuparia</i>		Rowan	Spreading	8	✓	2m	✓	✓	✓		✓	✓✓								✓	Excellent for pollinators. Not native to Northamptonshire
<i>Sorbus torminalis</i>		Wild service tree	Spreading	15	✓	3m									✓					✓	Very rare in the wild: confined to Rockingham Forest
Large trees																					
<i>Carpinus betulus</i>		Hornbeam	Spreading	16	✓	4m		✓	✓												
<i>Fagus sylvatica</i>		Common beech	Spreading	20	✓	5m			✓			✓	✓		✓						Casts heavy shade
<i>Fagus sylvatica</i>	'Dawyck'	Fastigate beech	Columnar	3		5m						✓									Casts heavy shade
<i>Pinus sylvestris</i>		Scots pine	Conical	10		5m	✓✓	✓	✓		✓	✓✓					✓				Not native to Northamptonshire

Scientific name	Recommended cultivars/ varieties	Common name	Crown shape	Mature crown spread (m)		Minimum verge width	Soils		Tolerances		Features												
				Native			Acidic	Calcareous	Heavy	Wet	Air pollution	Exposure	Drought	Soil compaction	Autumn colour	Bark interest	Evergreen	Flowering	Fruiting	Other			
<i>Platanus x hispanica</i>		London plane	Spreading	20		4m						✓		✓									
<i>Quercus petraea</i>		Sessile oak	Spreading	20	✓	5m																	Rare in the wild: found only at a few sites in the south west and north of the county
<i>Quercus robur</i>		English oak	Spreading	20	✓	5m	✓	✓	✓			✓	✓					✓					
<i>Tilia cordata</i>		Small leaved lime	Spreading	16	✓	4m						✓											Excellent for pollinators. Secretes honeydew. Not suitable close to buildings or parking areas. In the wild scattered and mainly restricted to north of the county
<i>Tilia platyphyllos</i>		Broad-Leaved Lime	Spreading	16	✓	5m						✓											Excellent for pollinators. Secretes honeydew. Not suitable close to buildings or parking areas.

Trees to avoid

The following trees are not suitable for planting in a highway situation for the reasons indicated. However, this list is advisory: a tree which is not suitable in a vehicular area e.g. horse chestnut where ‘conkers’ attract children, may be considered for a grass verge set well back from the highway and adjacent property.

NB: - The full mature crown spread of any fruiting tree or shrub should not overhang any footway, road surface or parking spaces.

Scientific name	Common name	
<i>Acer saccharinum</i>	Silver maple	Weak branch unions – prone to wind damage.
<i>Aesculus sp.</i>	Horse chestnut	All – with the exception of <i>A. Hippocastanum</i> ‘Baumannii’ produce conkers which attracts children in season with the associated danger from traffic. All varieties tend to be large and wide-spreading with a very dense canopy. For these reasons they cannot be recommended adjacent to highways. However they make beneficial trees where space permits.
<i>Ailanthus altissima</i>	Tree of Heaven	Strong suckering habit. However other species that sucker, identified above, may be suitable.
<i>Eucalyptus sp.</i>	Eucalyptus	Liable to become very top heavy and fall in high winds unless correctly managed at an early age.
<i>Laburnum x watereri</i>	Laburnum	Highly poisonous.
<i>Malus sp.</i>	Crab apple	Although suitable <i>Malus</i> species and varieties are listed above, many varieties produce large amounts of fruit which can cause problems on pavements or roadways, particularly in wet weather. Such varieties may be suitable in rural areas.
<i>Populus sp.</i>	Poplar (all)	Vigorous invasive root growth which actively seeks water and damp ground. Should never be planted in paved areas next to buildings or where services are present.
<i>Rhus typhina</i>	Staghorn sumach	Tends to sucker and requires high levels of maintenance.
<i>Robinia pseudoacacia</i>	False acacia	Weak branch unions – prone to wind damage.
<i>Salix sp.</i>	Willow (all)	Vigorous invasive root growth which actively seeks water and damp ground. Should never be planted in paved areas next to buildings or where services are present.
<i>Taxus baccata</i>	Yew	Produces poisonous seeds.
<i>Tilia</i>	Lime	Other than species specified above, not suitable in urban areas, as requires regular pollarding and secretes ‘honeydew’.

Highway verge maintenance

In order to reduce ongoing maintenance of highway grass verges and to ensure they can withstand the future changing climate; preference should be given to slow/low growing, climate resilient, native grass seed mixes.

In this regard, *Perennial Ryegrass* should be avoided for verge seed mixes due to its fast growing nature and frequent cutting requirements. Grass seed mixes of native varieties such as *red fescue*, *bent grass* and *stalked meadow grass* should be chosen as these will yield better results with a harder wearing sward that requires less on-going maintenance. It is also important that these grass seed mixes be sourced locally.⁵

Northamptonshire Highways Team is trialling a 'slow-growing low maintenance' grass seed mix to reduce maintenance costs, resist the future changing climate yet still look visually appealing. This mix, detailed in [Appendix 2](#), should be used as guidance for existing and new highway verges along with the sowing methodology.

Wildflower verges

Northamptonshire County Council encourages, where appropriate, the replacing of some amenity grass areas with traditional wildflower meadows to create visually attractive wildlife friendly spaces, and increase biodiversity. Wildflower meadows grow more slowly than amenity grass and can require less management over the long term.

Through careful species selection, a low/slow growing mix similar to the one in Appendix 2 could be achieved. Suitable wildflower species include: -

Yellow-Rattle (semi-parasitic on grasses to encourage wildflowers), Birds-foot-trefoil, Black Medick, Red Clover, Germander Speedwell, White Clover and Ladies Bedstraw.

Protected Wildflower Verges

At present along Northamptonshire's highways there are 32 Protected Wildflower Verges (see [Appendix 3](#)) stretching 26km and covering over 17 hectares. There are plans to designate a further 5 over the next 3 years and expand a number of the existing verges.

These verges have been assessed by Northamptonshire County Council and Wildlife Trust BCN as being significantly important habitats for wildlife and of high ecological value. As such they are included in the Protected Wildflower Verge scheme to help their continued conservation and can be identified by marker posts at each end.

⁵ A number of local seed suppliers throughout Northamptonshire and nearby counties can be found at: [Local Seed Merchants](#)

Wildflower maintenance and cultivation

Each Protected Wildflower Verge across the county has a specific maintenance regime that focuses on safety for road-users and pedestrians whilst conserving the important ecology. These regimes may just involve a single late summer cut of the verge to allow for wildflowers to flower and set seed, as cutting during the spring growing season could lead to damage. Wildflower verges that are adopted by Northamptonshire Highways will only be cut once a year.

In order for the successful development of these wildflower verges, information and guidance on the cultivation and maintenance required is provided in [Appendix 4](#).

Appendix 1

Guidance to developers - Before highway tree adoption

Section 38 of the Highways Act 1980⁶, allows for the adoption of a highway as maintainable at the public expense by the Highway Authorities, through agreement. Under Section 278 where trees and/or shrubs and grasses are to be retained in adopted land, a commutable sum for maintenance may be sought by the Highway Authorities.

Where trees are to be retained on land adopted by the Highways Authority the minimum requirement expected is as follows: -

1. Provide tree information
2. Carry out an Arboricultural Impact Assessment (AIA).
3. Provide an Arboricultural Method Statement (AMS) to include a tree protection plan.

⁶ [Highways Act 1980](#).

Appendix 2

Northamptonshire Highways pilot 'slow-growing low maintenance' grass seed mix

- 25% Sheep Fescue
- 23% Red Fescue
- 20% Crested Dogstail
- 15% Rough stalked meadow grass
- 5% Native Bent
- 5% Creeping Bent
- 5% Small leaved white clover
- 0.5% Cowslip
- 0.5% Birds-foot-trefoil
- 0.5% Ladies Bedstraw
- 0.5% Black Medick

Sowing on existing highway verges

When re-seeding existing highway verges with a low maintenance grass seed mix the below procedure will help in germination and development of the new grass.

- a) Mow the existing grass down to 25mm.
- b) Spray the existing vegetation with a systemic herbicide to kill all vegetation.
- c) Cultivate the land to produce a fine seed bed removing any large stones or debris.
- d) Drill the seed with a tractor mounted power harrow precision drill at 25g per m², or a similar approved method.
- e) Press the seed in with a roller to produce a firm seed bed with good seed / soil contact.

Sowing on new highway verges

When sowing on **banks no steeper than 20°** i.e. those accessible by tractor, the below guidelines should be followed to assist with germination and development of the verge.

- a) Cultivate the land to produce a fine seed bed removing any large stones or debris.
- b) Drill the seed with a tractor mounted power harrow precision drill at 25g per m², or a similar approved method.
- c) Press the seed in with a roller to produce a firm seed bed with good seed / soil contact.

When sowing on **steep banks and inaccessible areas**, the below guidelines should be followed to assist with germination and development of the verge

- a) Remove any large stones or debris.
- b) Sow the seed with a hydroseeder - this involves mixing the seed with a mulch and water then pumping the mix onto the steep banks, this is highly effective and cost efficient.

Appendix 3

Northamptonshire's Protected Wildflower Verges

Verge Number	Site Name	Road Name	Nearest Village	Length (m)	Average Width (m)	Total Area (m ²)
0	Tiffield Road (east) Verge	No name	Tiffield	550	6	3190
0	Tiffield Road (west) Verge	No name	Tiffield	410	6	2378
1	Aldwincle Road Verge	Lowick Road	Lowick	720	8	5760
2	Laxton & Spanhoe Road Verge (East)	Deene Road	Laxton	870	9	7543
2	Laxton & Spanhoe Road Verge (West)	Deene Road	Laxton	890	9	7716
3	Stanwick Road (East) Verge	Stanwick Road	Stanwick	840	5	3914
3	Stanwick Road (West) Verge	Stanwick Road	Stanwick	840	5	3914
4	Wakerley Great Wood Road Verge	Jurassic Way	Wakerley	1630	8	12307
4	Wakerley Great Wood Road Verge	Jurassic Way	Wakerley	1630	8	12307
5	Litchborough Road Verge	Litchborough Road	Litchborough	132	6	774
7	Evenley Road Verge	Bicester Hill	Evenley	400	3	1000
8	Weston Verge (West)	High Street	Weston	700	9	6293
8	Weston Verge (East)	High Street	Weston	990	10	9603
9	Cotterstock Road Verge (East)	No Name	Cotterstock	1100	5	5577

Verge Number	Site Name	Road Name	Nearest Village	Length (m)	Average Width (m)	Total Area (m ²)
9	Cotterstock Road Verge (West)	No Name	Cotterstock	1100	5	5577
10	Benefield Road verge (East)	Benefield Road	Upper Benefield	1150	5	6095
10	Benefield Road verge (west)	Benefield Road	Upper Benefield	1150	5	6095
11	Easton Maudit Verge	Easton Way	Easton Maudit	237	4	914
12	Farthinghoe Road Verge	A422	Thenford	110	10	1045
13	Hargrave Road Verge (East)	Church Street	Hargrave	390	6	2313
13	Hargrave Road Verge (West)	Church Street	Hargrave	390	6	2313
14	Hartwell Road Verge	Hartwell Road	Hartwell	220	6	1342
15	Middleton Cheney Road Verge (north)	Thenford Road	Marston St Lawrence	490	6	3102
15	Middleton Cheney Road Verge (south)	Thenford Road	Marston St Lawrence	670	6	4241
16	Oundle Cemetery Road Verge	Stoke Doyle Road	Oundle	180	4	632
17	Plumpton Road Verge	Plumpton Road	Weston	550	6	3350
18	Slipton Road Verge	Slipton Lane	Tywell	480	5	2582
19	Wakerley Road Verge (A43) - East	A43	Wakerley	440	8	3595
19	Wakerley Road Verge (A43) - West	A43	Wakerley	490	8	4003

Verge Number	Site Name	Road Name	Nearest Village	Length (m)	Average Width (m)	Total Area (m ²)
20	Warmington Road Verge (North)	Taylors Green	Warmington	190	9	1801
20	Warmington Road Verge (South)	Taylors Green	Warmington	280	9	2654
21	Chacombe Road Verge	Silver Street	Chacombe	88	4	348
22	Wakerley Road Verge (North)	No name	Wakerley	1365	6	7944
22	Wakerley Road Verge (South)	No name	Wakerley	1305	6	7595
23	Radstone Road Verge (East)	Radstone Road	Radstone	107	4	442
23	Radstone Road Verge (West)	Radstone Road	Radstone	588	4	2428
24	Caldecote Road Verge	No name	Caldecott	110	11	1238
25	Loddington Road Verge	Cransley Road	Loddington	300	5	1536
26	Grendon Road Verge	Easton Way	Easton Maudit	200	4	792
27	Cranford Road Verge	Five Willows Farm Road	Cranford St John	17	7	121
28	Top Lodge Verge	Ride beyond houses	Fineshade	205	5	782
29	Clopton - Lilford Road Verge	Clopton	Clopton	330	6	2066
30	Clopton (Ashpole Coppice) Road Verge - East	Clopton	Clopton	350	16	5464
30	Clopton (Ashpole Coppice) Road Verge - West	Clopton	Clopton	350	16	5464

Verge Number	Site Name	Road Name	Nearest Village	Length (m)	Average Width (m)	Total Area (m ²)
31	Ashton Road Verge	Road Hill	Ashton	164	5	757
32	Yardley Hastings Verge	A428	Yardley Hastings	345	8	6604

Appendix 4

Wildflower cultivation and maintenance guidance

There are different choices when it comes to wildflower meadows on verges, dependant on the soil quality and location, and a local seed merchant (as detailed earlier in this notice) will be able to assist in selecting the best option. However it should be considered that: -

- **Perennial meadows** thrive best on poor soils because the grasses compete less with the wildflowers;
- **Annual meadows**, usually of cornfield annuals, need rich soils. These are a good choice where you are converting an existing border.

If seeding is found to be difficult and there is no establishment, alternative options can be sought. This can include plug planting or laying wildflower turf, as was chosen at the Olympic Park.

Ground Preparation

Good ground preparation is the best way to maximise the number of seeds that successfully make the precarious journey from germination to mature plant.

Before sowing wildflower seeds the most important tasks are:-

- to create space by removing or controlling unwanted vegetation and 'weeds' which may compromise results;
- to create conditions in which seedlings can establish and grow.

Sowing

In practice there are two main routes to establishing wildflower seeds and mixtures.

Sowing into bare soil cleared of vegetation - Generally the most successful way to establish wildflowers and grasses from seed is to sow into a clean seedbed that has been first cleared of all weeds and other vegetation and then cultivated to produce optimum conditions for germination.

Sowing into gaps created in existing vegetation - Seed sown into gaps in existing vegetation will grow, but more slowly and less reliably as a result of competition from well established neighbors. Where site assessment reveals that the existing vegetation is worth preserving this approach, although slower, could be more appropriate.

Timing

Seeds need both warmth and moisture to grow and may be sown at any time of year when these conditions are met. August-September and March-April usually produce the best conditions for sowing outside in most parts of the UK. Late autumn sowings should be

avoided on sites prone to water-logging in winter and late spring and summer sowings should be avoided on droughty sites. Sowings into existing grass work best in autumn.

Some plants need to be sown at particular times to fit in with their life cycles or biology. Cornfield annuals (such as cornflower, corn poppy, corn marigold and corncockle) need to be sown in the autumn or before May in the following spring to get a flowering display. Yellow rattle must be sown in autumn.

Sowing rates

Recommended sowing rates for wildflower seed mixtures are much lower than conventional lawn and amenity grass rates (2 - 4g/m² compared with 25 - 50g/m²). This is deliberate, as rather than aiming for rapid ground cover to suppress all weeds, wild seeding aims to allow an extended period of establishment with room for both fast growing grasses and slower germinating flower seeds. There is some scope for increasing or reducing rates to suit circumstances or budget. Be careful not to sow a standard mixture too heavily as even on difficult sites this can lead to overcrowding or an imbalance in the establishing sward - they are designed to work optimally at their specified rate.

Maintenance

The number and timing of cuts required each year will depend on soil fertility (how fast the grass grows). More cuts will be needed on sites with fertile soil but low profile sites on poor soils need less mowing.

First year

Meadow mixtures are composed mainly of perennial species which take at least a full year to establish.

For new sowings on bare soil the first summer will be dominated by a flush of annual weeds arising from the soil seed bank and by grass growth. This annual growth should be controlled by mowing throughout the first year to minimise competition and weed seed production. Cutting should be frequent enough to disperse the cuttings, or if less frequent remove the cuttings.

Where cornfield annuals are sown with a meadow mixture as a nurse crop cutting must be delayed until after flowering. Do not, however, wait for the annuals to set seed, and if the growth begins to collapse cut and remove as soon as possible or the perennial development will be compromised. Once the annual cornfield nurse is cut back in July/ August and the cuttings removed, the sown meadow species will be revealed as small green plants, separated by bare ground. These seedlings will then fill out using the light and space provided.

Sowings into existing grass can be managed as an established meadow, with perhaps extra cutting or grazing where growth is lush. In the case where grasses become dominant try sowing the annual wildflower, yellow rattle (*Rhinanthus minor*) which is semi-parasitic on grasses. Sow this in August and keep the grass mown until March.

Subsequent years

The second year from sowing is the first in which a sown meadow is left uncut to flower, and a first "hay crop" taken in mid summer. The early years of a sown meadow (years 2/3 from sowing) are characterised by the more quickly establishing pioneer perennials such as oxeye daisy and sorrel, and the growth is vigorous. In following years the meadow will become more diverse as slower establishing species like cowslip appear and growth is less vigorous as nutrients become fixed in root systems and herbage.

The character and composition of the meadow will continue to change with time. Eventually a relatively stable community will develop, the balance of which will reflect management, soil fertility and the natural environment of the site. In this way the outcome of each sowing will in practice differ, and will not be a direct reflection of the species balance in the sown mixture.

Seasonal maintenance

Wildflower meadows are usually managed in one of two ways, depending on when most of the plants flower. If you have a meadow with a mixture of summer and spring flowering plants then follow the summer meadow regime. The most important part of meadow management is raking up the cuttings to prevent the build up of rotting vegetation, which stifles wild flowers and favours stronger growing grasses.

Established spring-flowering meadows: Cut in July and for the remainder of the summer to reduce the vigour of coarse grasses and to allow flowers such as cowslips, fritillary, lady's smock, selfheal and bugle to prosper. Leave un-cut from February to July.

Established summer-flowering meadows: Don't cut until late August or September, after wildflowers such as knapweed, devil's bit scabious and lady's bedstraw have set seed. Use this summer-flowering meadow regime for meadows with plants flowering at various times, including spring and summer species.

Weeds and dominant grasses

The main problem that is likely to be encountered is an abundance of weeds or dominant grasses. Perennial weeds (thistles and nettles for example) can either be weeded out by hand or spot treated with a weedkiller based on glyphosate, such as Roundup or Tumbleweed. Lawn weedkillers should not be used, as these will kill the wildflowers you wish to encourage. Where grasses become dominant, try sowing the annual wildflower yellow rattle (*Rhinanthus minor*) which is semi-parasitic on grasses. Sow in August and keep the grass mown until March.