

5 Year Landscape Maintenance & Management Plan

Project Name: Banbury 200 - Southam Road, Banbury
Project Address: Southam Road, Banbury, OX16 2FW

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Rev. E

Compiled by:



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1 Introduction

- 1.1 Urban Wilderness Ltd was commissioned by S+SA Architects to create a Landscape Management Plan for the Southam Road, Banbury, OX16 2FW.
- 1.2 The Management Plan is broken down into two main sections; section 2, landscape management objectives and in section 3, Soft Landscape Maintenance including:
 - o Tree, shrub, hedge, herbaceous and turf planting (including establishment and replacements)
- 1.3 The appendix contains 388-T-001 Softworks General Arrangement which should be read in conjunction with the text.

2 Landscape Management Objectives

- 2.1. The maintenance objectives are split into two distinct groups to clarify the responsibility for the various maintenance tasks, namely during (i) the Works Contract period (including plant establishment and Defects Liability Period) and (ii) the subsequent post-Completion period. During both these periods, the relevant contractor is responsible for regular horticultural maintenance. This is to ensure that the design is maintained at the same high level throughout its lifetime.
- 2.2. The main contractor will be responsible for remedying all plant failures; as well as inadequate workmanship during the Defects Liability Period.

Maintenance: Establishment Period (year 0 – 2)

(During Works Contract and 1-year Defects Period following Practical Completion)

- 2.3. A one-year aftercare maintenance period is built into the implementation contract to cover the following; tree, shrub, hedge, and wildflower meadow planting (including establishment and replacements)
- 2.4. During this period the contractor is responsible for all soft maintenance operations, including the replacement of all tree, shrub, hedge and herbaceous planting which has failed during the Defects period. A full-time landscape maintenance contract will be arranged following the end of the Defect Liability period. However, the Facilities Management team will also employ a qualified landscape contractor to carry out the day-to-day maintenance tasks during the Defects period to ensure that watering, feeding, grass mowing, hedge cutting and other essential operations are carried out regularly to maintain the soft landscaping.

Access

- 2.5. For landscape maintenance purposes vehicular access will be via the main entrance at Southam Road.

Facilities

- 2.6. The appointed Landscape Maintenance Contractor will liaise directly with the Facilities Management team regarding the following onsite requirements:
 - Contractor parking
 - Storage of equipment
 - Water usage and standpipe locations

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- Additional specific requirements

Weeds

- 2.7. All planting areas will be maintained to ensure consistent control of annual and perennial weeds. The use of chemicals is permitted, although the use of hand tools is preferred to prevent any possible negative environmental effects (such as contamination of surface water or ingestion by domestic animals).

Trees & Hedges

- 2.8. Trees and hedges will be maintained with good horticultural practice encouraging the vigorous growth and long-term health of all structural planting. The aim will be to present a landscape which is functional and easy to maintain. It is anticipated that this will be achieved through a balanced approach to tidiness and natural form. While hedging by definition will require regular cutting, the trees have been chosen on account of their habit and form and should require minimal annual maintenance. Tree and hedging plant failures will be replaced in the next available winter planting season.

Shrubs & Herbaceous

- 2.9. Shrubs and Herbaceous plants will be maintained with good horticultural practice encouraging the long-term health and vigorous growth of all ornamental planting. This will be achieved with minimum use of chemicals, all the while promoting optimum display of flowering periods and stem colour. Defective plants will be addressed to original high-quality specification ensuring ongoing design accomplishment.

Wildflower/Grassland Area

- 2.10. The wildflower and grass areas are to be maintained so as to optimise year-round functionality and flowering. This will be achieved through an annual maintenance program which minimizes the use of chemicals wherever possible and includes a regular review process highlighting any areas for reinstatement or change in maintenance regime.

Low Growing Native Thicket / Scrub

- 2.11. The low grown native thicket/scrub will be maintained with good horticultural practice encouraging the vigorous growth and long-term health of all structural planting. The aim will be to present a landscape which is functional and easy to maintain while providing native planting which is of value to wildlife. It is anticipated that this will be achieved through a balanced approach to tidiness and natural form. The species have been chosen on account of their habit and form and should require minimal annual maintenance. Any plant failures will be replaced in the next available winter planting season.

Replacements

- 2.12. During the Contract Works and Defects Liability periods, plant failures will be replaced by the Main Contractor, or its nominated subcontractor, at their own cost. This includes:
- Theft of plants
 - Malicious damage
- 2.13. Any plants found to be defective during the five year post practical completion period as a result of the following will be at the Main Contractor's expense.

- Failure
 - Lack of vigour
 - Being not in accordance with the specification
- 2.14. Replacement of plants should be undertaken a maximum of two times. If the plant fails for a third time, a Landscape Architect or trained Horticulturalist will be appointed to review the cause of plant failure and make recommendations for mitigation.
- 2.15. All plant replacements should occur within the correct planting season according to the specific requirements of the following plant types:
- *Woody Plants*
Optimally, trees, shrubs and hedges should be planted within the dormant season (November to March) using bare root, root balled or air-pot grown nursery stock. If planting is required at other times of year, containerised stock should be used instead, with plants watered regularly.

Maintenance: From Completion (year 2-5)

(From Completion Onwards)

- 2.16. Following Contract Completion and discharging of all the Main Contractor's liabilities and responsibilities, the maintenance of all hard and soft landscape elements will be passed to a competent Landscape Maintenance Contractor, as appointed by Facilities Management team, for a minimum period of four years. The breakdown of landscape operations required is given in the following section.

3 Soft Landscape Maintenance

- 3.1. All Soft Landscape Maintenance should be undertaken in compliance with the requirements of BS 7370:1991.
- 3.2. The appointed landscape maintenance contractor will be expected to use his professional knowledge and discretion in both (i) producing a detailed annual programme of maintenance operations and (ii) applying these standards of work to the contract area.

Weed Control

- 3.3. Within the two-year establishment period, all planting beds should be kept weed free to ensure full and rapid establishment of all plant species. Frequency: once per month during active growing season (April-October).
- Do not allow strimmers or other mechanical tools closer than 200mm of the base of any plant. Operations within this zone should be carried out with hand tools.
 - Contact herbicide can be applied to emergent weeds. A non-residual herbicide such as glyphosate is recommended.
 - Loosen soil within the planting beds, taking care not to damage the roots of plants within the planting bed. Planting beds to be maintained weed-free.
 - Ensure the minimum amount of soil and mulch is removed during weeding.
 - Dispose of all weeds off site rake planting beds, with minimum disturbance to plants, to an even condition.

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- Re-mulch as necessary to maintain 50mm deep weed suppressing layer.

Trees

Objective

- 3.4. For the establishment and maintenance of all trees identified in Urban Wilderness Drawing 388-T-001.
- 3.5. All tree works to be undertaken by suitably qualified maintenance contractor able to work to BS 3998:2010 'Tree Work. Recommendations'.
- 3.6. New trees planted will include: *Fagus sylvatica*, *Sorbus* 'Joseph Rock', *Carpinus betulus* 'Frans Fontaine', *Corylus colurna*, *Prunus padus* 'Watereri' and *Pyrus calleryana* 'Chanticleer'.

Maintenance: Establishment Period (year 0-2)

Watering

- "Water in" each tree after planting with 40-50 litres of water. Frequency: once per week, during dry periods during the growing season.

Cultivation

- Weed planting beds as per paragraph 3.3.
- Monthly inspection for wind firmness: trees to be firmed as necessary. Where tree is beyond a slight lean it should be staked and tied. Upon subsequent inspection if tree has firmly established, remove all staking and ties.
- Replacement: if a tree fails as a result of disturbance it should be replaced in the next planting season at the Contractors expense.
- Stakes to be kept in situ for two years, with an annual check on tree ties undertaken in early Spring to prevent abrasion and deterioration of the stem bark.

Maintenance (year 2-5)

Watering

- Water each tree with 40-50 litres of water following 10 days without rain. Frequency: Weekly during growing season (May-September) and until natural rainfall resumes.

Cultivation – Tree Works

- Apply course organic mulch (preferably well-rotted horse manure) around the base of each tree. Frequency: once yearly in early Spring.
- Tree Inspections:
 - For all newly planted trees, except *Prunus* (cherry) species: Undertake inspection for dead or damaged wood. Frequency: yearly, between end-November and February. Remove all deadwood using either secateurs or a sharp pruning saw.
- For *Prunus* (cherry) species: undertake pruning during active growing season as emerging sap in this species contains protective anti-fungal properties and helps promote natural healing.
- Other guidance:
 - Protect surrounding structures and plants during pruning.
 - Pruning should result in a natural and well-balanced crown appearance.
 - Pruning should be back to source stem.

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- Pruning arisings to be removed off site.
- Do not apply any surface dressings to pruning wounds or pruning scars.
- For all mature trees on site, ensure that a suitably qualified tree surgeon (preferably Arboricultural Association accredited) is appointed to undertake all necessary tree works which arise during the maintenance period, due to storm damage, etc. Wherever possible, trees should be left to reach their respective mature growth habit and height. Only the bare minimum of tree work should be undertaken to ensure the health, longevity and safety of the tree population on site.

Hedging

Objective

- 3.7. For the establishment and maintenance of all hedge plants identified in Urban Wilderness Drawing 388-T-001.
- 3.8. The formal hedgerow consists of *Fagus sylvatica*.

Maintenance: Establishment Period (year 0-2)

Watering

- “Water in” each whip after planting until wet to full rooting depth (approx. 300mm).

Cultivation

- Weed planting beds as per paragraph 3.3.
- Undertake monthly inspection for wind firmness in the first year, with whips to be firmed as necessary.
- Do not prune for first year.
- In year 2, in late February (before bird nesting season) prune the leaders back to 900mm high.
- In establishment period only, use hand tools for pruning.

Maintenance (year 3-5)

Watering

- Water each plant after until wet to full rooting depth (approx. 300mm) following 10 days without rain. Frequency: once per week, during dry periods during the growing season.

Cultivation

- In year 3, in late February, cut the hedge to a rectilinear form to 1.5m-high using mechanical pruning equipment. An additional cut can be made after July (following the end of the Bird Nesting season)
- During visit after of the growing season to check all plants and remove any dead foliage/wood and any damaged element of the plant using hand tools.

Shrubs

Objective

- 3.9. For the establishment and maintenance of all shrubs identified in Urban Wilderness Drawing 388-T-001.

Maintenance: Establishment Period (year 0-2)

Watering

- “Water in” each shrub after planting until wet to full rooting depth (approx. 300mm). Frequency: once per week, during dry periods during the growing season.

Cultivation

- Weed planting beds as per paragraph 3.3 and maintain weed-free.
- Monthly inspection for wind firmness, with shrubs firmed-up as necessary.

Maintenance (year 2-5)

Watering

- Thoroughly water shrubs following 10 days without rain. Frequency: Weekly during growing season (May-September) and until natural rainfall resumes.

Cultivation

- Undertake annual inspection of all shrubs in October (at the end of the growing season), removing any dead foliage/wood or damaged limbs.
 - Protect surrounding structures and plants during pruning.
 - Pruning should result in a natural and well-balanced shape.
 - Pruning should be back to source stem.
- Pruning: Prune the following shrubs:
 - *Skimmia japonica*, rarely needs pruning, but if it is needed this should be carried out after flowering has finished in Spring.
 - *Sarcococca humilis*; in late winter or early spring, if needed prune back any shoots to retain a natural and well-balanced shape.
- Any growth which will obscure windows, signs or sight-lines shall be removed
- Remove all deadwood using either secateurs or a sharp pruning saw to avoid bacterial infection of affected plants.

Wildflower Meadow Areas

Objective

- 3.10. For the establishment and maintenance of all wildflower meadow areas identified in Urban Wilderness Drawing 388-T-001.

Autumn Sown:

Maintenance: Establishment Period (year 0-2)

Cultivation

- During the first year the meadow should be mowed regularly this will maintain a balance between faster growing grasses to slower growing wildflowers.
- Year One: First cut early June, then monthly during July, August, September and October. Cutting height 70-100mm. Ensure that all arisings are collected and disposed off-site.
- Thereafter: Cut from mid-July to early September. This can be done as one cut but preferably, and if the meadow is big enough, you will cut it in sections leaving a week to a fortnight between cuts.

Maintenance (year 3-5)

Cultivation

- Mow the meadow to 70-100mm at the end of the active growing season and when all flowers have faded and set seed (usually around early October). Remove all arisings off site thereafter to retain a low-fertility soil substrate.

Spring Sown:

Maintenance: Establishment Period (year 0-1)

Cultivation

- During the first year the meadow should be mowed regularly this will maintain a balance between faster growing grasses to slower growing wildflowers
- Year One: First cut early August, then monthly during September and October. Cutting height 70-100mm. Cutting height 70-100mm. Ensure that all arisings are collected and disposed off-site.
- Thereafter: Cut from mid-July to early September. This can be done as one cut but preferably, and if the meadow is big enough, you will cut it in sections leaving a week to a fortnight between cuts.

Maintenance (year 3-5)

Cultivation

- Mow the meadow to 70-100mm at the end of the active growing season and when all flowers have faded and set seed (usually around early October). Remove all arisings off site thereafter to retain a low-fertility soil substrate.

Low Grown Scrub/Thicket & Native Whip Planting

Objective

- 3.11. For the establishment and maintenance of all low grown thicket identified in Urban Wilderness Drawing 388-T-001.

Maintenance: Establishment Period (year 0-2)

Planting

- Plant the specified 2+1 whips in a 1m x 1m matrix, grouping 9 whips of one species together within the 1m x 1m matrix.
- The species include: *Cornus sanguinea*, *Corylus avellana*, *Crataegus laevigata*, *Crataegus monogyna*, *Euonymus europaeus*, *Ilex aquifolium*, *Ligustrum vulgare*, *Prunus spinosa* and *Viburnum opulus*.

Watering

- "Water in" each whip after planting until wet to full rooting depth (approx. 300mm). Frequency: once per week, during dry periods during the growing season.

Cultivation

- During years 0-2 the main aim is to allow the whips to establish,
- Weed planting beds as per paragraph 3.3 and maintain weed-free for the first two years.
- Monthly inspection for wind firmness, with shrubs firmed-up as necessary.

Maintenance (year 2-5)

Watering

- Thoroughly water plants following 10 days without rain. Frequency: Weekly during growing season (May-September) and until natural rainfall resumes.

Cultivation

- Undertake annual inspection of all shrubs in October (at the end of the growing season), removing any dead foliage/wood or damaged limbs.
- Remove all deadwood using either secateurs or a sharp pruning saw to avoid bacterial infection of affected plants.
- In year 3 take out one in 3 plants, again in Year 5 and year 10. This is to allow for the species to mature while not overcrowding or outcompeting with each other.

4 British Standards

4.1. As well as the HTA standards described above the soft landscape works should meet the following British Standards:

Topsoil handling, stripping and storage

- BS ISO 15799:2003 Soil quality - guidance on ecotoxicological characterization of soils and soil materials
- BS 3882:1994 Specification for topsoil and AMD 9938
- BS 6031:1981 Code of practice for earthworks
- BS 7562-4:1992 Planning, design and installation of irrigation schemes guide to water resources
- BS 4428:1989 guide of practice for general landscape operations (excluding hard surfaces) AMD 6784

Quality of Trees and Shrubs

- BS 3936-1:1992 Nursery stock specification for trees and shrubs
- BS 3936-5:1985 nursery stock specification for poplars and willows
- BS 3936-10:1990 nursery stock specification for ground cover plants

Maintenance of gardens/ Landscapes

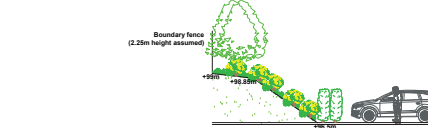
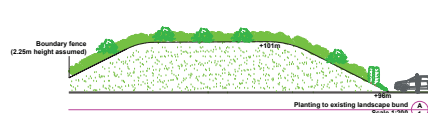
- BS 7370-3:1991 grounds maintenance recommendations for maintenance of amenity and functional turf (other than sports turf)
- BS 3998:1989 recommendations for tree work and AMD 6549

Horticulture

- BS EN 12579:2000 Soil improvers and growing media - sampling
- BS EN 13037:2000 Soil improvers and growing media - determination of pH

Turf

- BS 3969:1998 Recommendations for turf for general purposes
- BS 4428:1989 Code of practice



Planting Schedule

Trunk - Irregular spacings located as per planting plan

No.	Abb.	Botanical Name	Common Name	Height	Specification
19	BEF JAC	Betula utilis jacquemontii	White-barked Himalayan Birch	250-300cm	RB 2x Standard Clear Stem 175-200cm: 4 bks
27	CAR FOW	Carpinus betulus 'Frans Fontaine'	Hornbeam 'Frans Fontaine'	250-300cm	RB 2x Standard Clear Stem 175-200cm: 3 bks
22	PRU WAT	Prunus padus 'Waterfall'	Bird Cherry 'Waterfall'	250-300cm	RB 2x Standard Clear Stem 175-200cm: 3 bks
24	PRU CHA	Prunus cerasifera 'Chanticleer'	Flowering Pear 'Chanticleer'	250-300cm	RB 2x Standard Clear Stem 175-200cm: 3 bks
31	SOR LUT	Sorbus aria 'Lutescens'	Whitebeam 'Lutescens'	250-300cm	RB 2x Standard Clear Stem 175-200cm: 3 bks
24	SOR ROC	Sorbus Joseph Rock'	Rosow 'Joseph Rock'	250-300cm	RB 2x Standard Clear Stem 175-200cm: 3 bks
Total: 147					

Formal Hedging - *Hedgerows planted in double staggered rows at 300mm centres

No.	Abb.	Botanical Name	Common Name	Height	Specification	Total Linear Length
1500	FAQ STL	Fagus sylvatica	Common Beech	125-150cm	B 2x Feathered 2 bks	1096.916m

Ornamental Shrubs

No.	Abb.	Botanical Name	Common Name	Height	Specification	Pod Size	Density
150	Dir cly	Dirca corymbosa 'Hortensia clypeata'	Common Dogwood	30-40cm	Bushy 2 bks	5cm	1cm ²
500	Wb div	Wiburnum divaricatum	David Viburnum	30-40cm	Bushy 4 bks	5-7.5L	2cm ²
60	Wb dir	Wegelia divaricata 'Ruby'	Wegelia 'Ruby'	40-60cm	Branched 2 bks	5L	2cm ²
Total: 837							

Herbaceous Planting

No.	Abb.	Botanical Name	Common Name	Specification	Pod Size	Density
555	Dir Pur	Dirca purpurea	European Dogwood	Full Pot	5L	4cm ²
818	Ger AB	Geranium macrorrhizum 'Aburn'	Balkan Cranesbill 'Aburn'	Full Pot	5L	4cm ²
446	Mer str	Mertensia straminea	Shuttlecock Fern	Full Pot	5L	2cm ²
Total: 1818						

Bulbs - *Planted at 10cm spacings

No.	Abb.	Botanical Name	Common Name	Specification
2000	Pra rose	Hyacinthoides non-scripta	Common Bluebell	Grade 0/1
1746	Ner Tet	Narcissus 'Tete a Tete'	Daffodil 'Tete a Tete'	Grade 10/12
Total: 3806				

NTM - Native Thicket Mix - *Planted at 1m centres

No.	Botanical Name	Common Name	Height	Specification	% Cont.
391	Common Hazel	Common Hazel	40-60cm	B 1+1 - Transplant - seed raised - Branched 2 bks	20%
391	Corylus avellana	Common Dogwood	40-60cm	B 1+1 - Transplant - seed raised - Branched 2 bks	10%
391	Corylus sanguinea	Common Hawthorn	40-60cm	B 1+1 - Transplant - seed raised	20%
196	Corylus avellana	Common Hazel	40-60cm	B 1+1 - Transplant - seed raised	10%
196	Ilex aquifolium	Common Holly	40-60cm	150cm min. 1+0 - Seeding - Call grown	10%
196	Ligustrum vulgare	Common Privet	40-60cm	B 1+1 - Cutting - Branched 2 bks	10%
196	Prunus spinosa	Blackthorn	40-60cm	B 1+1 - Transplant - seed raised - Branched 2 bks	10%
196	Rubus idaeus	Guelder Rose	40-60cm	B 1+1 - Transplant - seed raised - Branched 2 bks	10%
Total: 1998					

Ornamental Bulb Mix 1 - *Planted at 10 cm pod

No.	Botanical Name	Common Name	Height	Specification	% Cont.
500	Hyacinthoides non-scripta	Common Bluebell	Grade 0/1	20%	
905	Narcissus 'Tete a Tete'	Daffodil 'Tete a Tete'	Grade 10/12	75%	
Total: 1207					

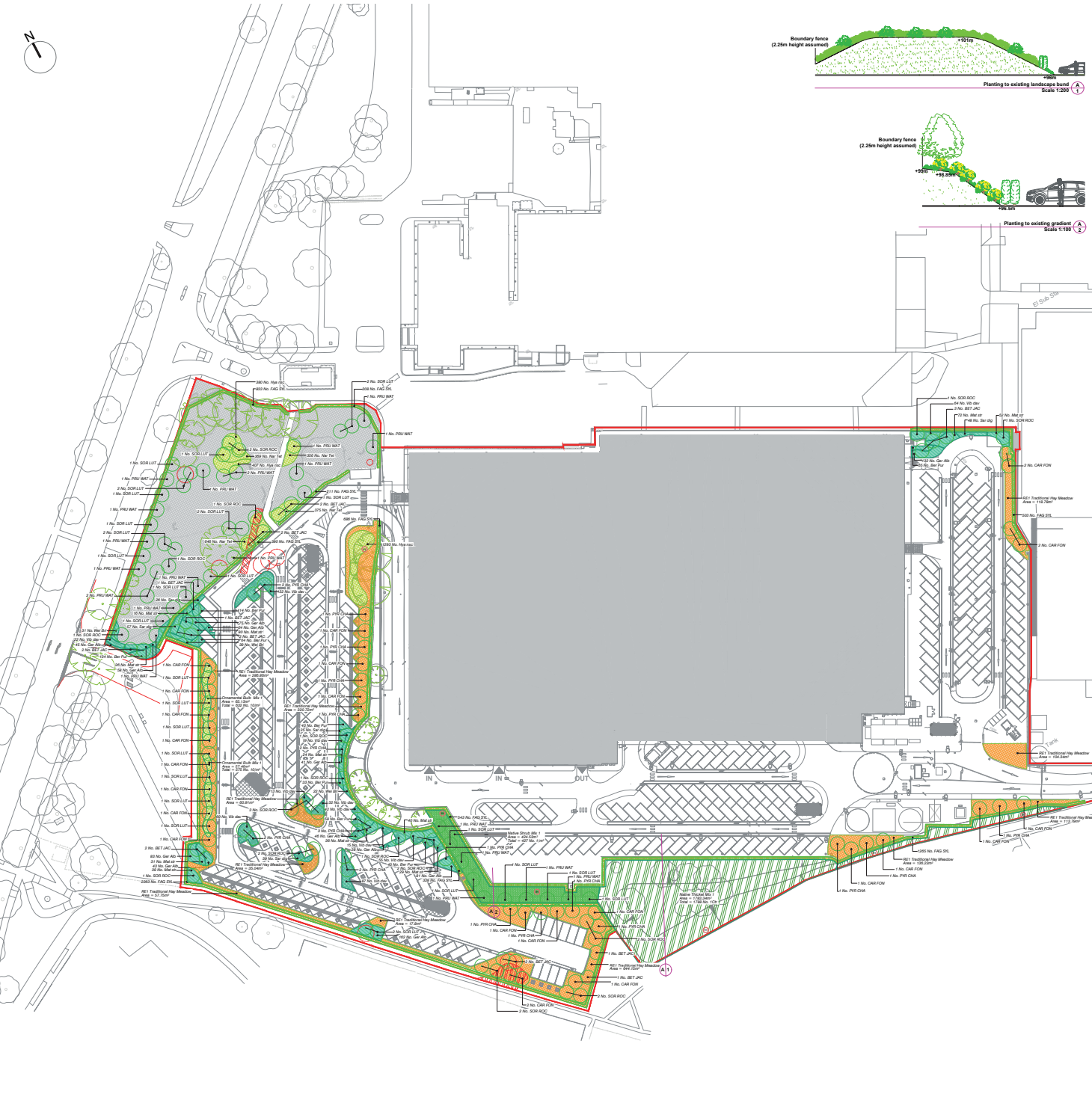
NBM1 - Native Shrub Mix - *Planted at 1m centres

No.	Botanical Name	Common Name	Height	Specification	% Cont.
64	Cornus sanguinea	Common Dogwood	40-60cm	B 1+1 - Transplant - seed raised - Branched 2 bks	20%
170	Corylus avellana	Common Hazel	40-60cm	B 1+1 - Transplant - seed raised	40%
85	Corylus avellana	Common Hazel	40-60cm	B 1+1 - Transplant - seed raised - Branched 2 bks	15%
43	Eucryphia europaea	Common Spindle Tree	40-60cm	B 1+1 - Transplant - seed raised - Branched 3 bks	10%
43	Ligustrum vulgare	Common Privet	40-60cm	B 1+1 - Cutting - Branched 2 bks	10%
22	Ilex aquifolium	Common Holly	40-60cm	150cm min. 1+0 - Seeding - Call grown	5%
Total: 427					

Grassland RE1 - Traditional Hay Meadow (MGS Grassland) - *Sown at a rate of 50g/m² - Total Area = 2514.478m²

Species	Common Name	Mix Species Contributor
Achillea millefolium	Yarrow	1%
Agrostis capillaris	Common Bent	3%
Arrhenatherum odoratum	Sweet Vernal-grass	7%
Centaurea nigra	Common Knapsweed	3%
Cynodon dactylon	Crested Dog's-tail	25%
Festuca ovina	Sheep's-Fescue	7%
Festuca pratensis	Meadow Fescue	3%
Festuca rubra ssp. ovina	Sheep's-Creeping Red Fescue	30%
Filipendula ulmaria	Lady's Bedstraw	1%
Galium verum	Common Bird's-foot-cress	1%
Leucanthemum vulgare	Chrysanthemum	6%
Phleum bertolonii	Teno	6%
Plantago lanceolata	Ribwort Plantain	3%
Rumex acetosella	Sour-bit	1%
Ranunculus bulbosus	Buttercup	2%
Ranunculus minor	Yolk-wort	1%
Sanguisorba minor	Saint Burnet	1%
Tritium flavescens	Golden Oat Grass	5%
Tritium pratense	Red Clover	2%
Tritium repens	White Clover	2%

- NOTES**
- All information to be verified on site due to the nature of planting. All dimensions to be called with respect to the finished ground level and as shown on the contract is a not responsible, unless otherwise stated in an unamended revision, either written or if not written enter contract or other documents call.
- Site Boundary
 - Grassland RE1 - Traditional Hay Meadow Sown Mix (MGS Grassland), Germin
 - Ornamental Shrub & Herbaceous Planting - Low level border planting of shrubs and ferns
 - Native Thicket Mix - Low ground native scrub/thicket planting to existing bank
 - Native Shrub Mix - Native shrub planting, notch planted at 1m interval min
 - Formal Hedging - Formal hedging to car park boundary, maintained at 1.5m high
 - Proposed trees
 - Ornamental bulb planting
 - Insect hotels (as recommended by Delta Simmons Ecology Report)
 - Insect hotels (as recommended by Delta Simmons Ecology Report)
 - Trees for removal (as per Tree Constraints Plan by Delta Simons)
 - Existing trees & hedgerows (grouped) for removal (as per Tree Constraints Plan by Delta Simons)
 - Existing lawn areas to be retained
- Planting specification assumes planting in dormant seasons between mid November and the end of March



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Project: Bickley 200 Site, Southern Road, Bantley

Working title: Southern General Arrangement Plan

Working package: TENDER

Drawn by: LJM TBR

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