



St John's Court, Newport

Ecological Enhancement and Habitat Management Plan (EEHMP)

R01

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1.0 Introduction

1.1 Purpose

- 1.1.1 Tir Collective has been instructed by Newport City Homes (NCH) to prepare this Ecological Enhancement and Habitat Management Plan (EEHMP) which relates to the proposed residential development on St John's Court, Rogerstone in Newport. The proposed re-development is located on two parcels of land and includes the demolition of 1-23 Oak Road and redevelopment to provide residential homes including landscape, access, parking and associated works. The site has a number of mature trees, several of which are included within a Tree Preservation Order (TPO) entitled 'TPO 3 of 2022 Newport City Council.'
- 1.1.2 The EEHMP has been prepared by Tir Collective with input from the project Ecologist. The EEHMP should be read alongside the Landscape proposal drawings and ecological surveys which accompany the planning application as follows:
- Landscape Strategy v9 (TC23173-1 LA100)
 - Planting Plan v9 (TC23173-1 LA101)
 - Landscape Specifications v9 (TC23173-1 LA102)
 - Green Infrastructure Management Plan (TC23173-1 LA104)
 - Preliminary Ecological Assessment (PEA) (Ecological Services Ltd. January 2020)
 - Bat Survey Report (Ecological Services Ltd. September 2022)
 - Tree Survey (Steve Ambler & Sons Tree Specialists Ltd. September 2022)

1.2 Scope

- 1.2.1 A condition of the planning approval for the redevelopment of the St John's Court, Newport site requires that:

*"Ecological Enhancement and Habitat Management Plan:
Prior to any above ground building construction, an ecological enhancement and habitat management plan shall be submitted to and approved in writing by the Local Planning Authority. This plan shall accord with the recommendations of the Green Infrastructure Statement and shall include:
Locations and specifications of bird boxes and bat boxes.
Frequency of management.
Who will be responsible for the management."*

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2.0 The site

2.1 Existing landscape and ecological features

- 2.1.1 The site is located at St John's Court, Rogerstone, Newport, and comprises two parcels of land: a north site and a south site. The north site currently contains 23 flats, which have been identified as no longer meeting the future needs of NCH residents. The south site is currently vacant, with existing vegetation including TPO (Tree Preservation Order) trees and native hedgerows. It previously had an over 55's residential block, which was demolished approximately 13 years ago.
- 2.1.2 The Arboricultural Implications Assessment (AIA) conducted by Steve Ambler & Sons in May 2022, notes that there is existing vegetation on both the north and south sites, including Category A and B TPO trees and tree groups.
- 2.1.3 The PEA (January 2020) confirms that much of the site is currently buildings with associated tarmac, roads, parking areas and paved footpaths. In addition *"Small areas of paved hardstanding sit adjacent to some of the buildings and are provided for the flats to dry clothing."* Private gardens are present, which are mapped as amenity grassland. At the south site there is a large expanse of semi improved grassland which appears to be used for recreational purposes. The grassland is maintained through regular mixing. The PEA confirms that *"Species noted within the grassland sward include daisy, dandelion, a species of buttercup, ribwort plantain, annual meadow grass and yarrow."*
- 2.1.4 The PEA (January 2020) confirms that the potential of the site as habitat for great crested newts, dormice, bats, otter, badger, birds, reptiles and amphibians was assessed. The PEA identified that the buildings within the development site boundary have low potential for use by roosting bats. Activity surveys were recommended during the bat active season of May to September inclusive to establish the presence or likely absence of roosting use by bats.
- 2.1.5 A bat survey has been prepared for the site by Ecological Services Ltd. In September 2022. During the survey Common Pipistrelles (*Pipistrellus pipistrellus*), bats were observed emerging from Block 5. Common Pipistrelles are a common species of bat and are often found roosting in buildings.

3.0 The Proposed Development

- 3.1.1 The proposed development includes the retention of Category A and B trees and tree groups within the north site. Vegetation along the southern and eastern edges of the south site will also be retained. To compensate for the loss of some trees within the south site, new tree planting is proposed throughout.
- 3.1.2 A Jubilee commemorative tree, currently located within the southwest corner, will be relocated to the south-eastern side of the proposed building, in the south site.

- 3.1.3 A public open space is proposed within the south site, incorporating a range of features including SuDS features to enhance visual interest and biodiversity. The space will also include raised planters for growing areas, benches and pergolas.
- 3.1.4 The planting strategy includes a variety of flowering and fruiting species to provide visual contrast and year-round interest. A native hedgerow is proposed along the eastern and southern boundaries to provide screening, enhance visual amenity, and contribute to increasing biodiversity. Mixed shrub and herbaceous planting are proposed in public areas throughout the site to offer seasonal interest and support biodiversity.
- 3.1.5 SuDS features are proposed within the public spaces and rear gardens of the properties in the north site, incorporating a mix of shrubs and herbaceous planting and species-rich grass suitable for both dry and damp conditions. These features are proposed to enhance visual interest and biodiversity, in addition to fulfilling drainage functions.

3.2 Maintenance aims

- 3.2.1 Within the first 5 years of establishment of the landscape proposals, the general maintenance objectives are as follows:
 - Manage the retained and proposed trees and vegetation throughout the site in a healthy and safe environment with the aim of strengthening the wildlife corridors and visual amenity.
 - Establish new planting throughout the site in the first 12 months.
 - Ensure the landscape proposals are managed and maintained in a way that enhances the site's biodiversity and habitat value whilst maximising visual amenity.
 - Translocate the 'Jubilee commemorative tree' by specialists to the location shown on drawing LA100 Landscape Strategy, produced by Tir Collective.

The following paragraphs provide further details in relation to the existing/ proposed features/ habitats and their maintenance requirements.

3.3 Existing trees

- 3.3.1 Existing trees are being retained where practicable, which are shown on drawing LA100 Landscape Strategy. A small number of trees and tree groups will need to be removed to accommodate the development, and one tree will be translocated from the south-western corner to the south-eastern side of the proposed building within the south site.
- 3.3.2 Retained trees will need to be protected in line with BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations. This will include the installation of protective fencing, such as a Heras fence, to reduce the potential for impacting the Root

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Protection Area (RPA). The protective fence will be installed prior to construction to ensure no impacts occur to the RPAs. No machinery, digging, or storage of materials, chemicals, cabins, or vehicles will be permitted within these RPAs during the construction phase.

- 3.3.3 Tree work may need to be undertaken. Tree growth and form will need to be monitored annually. Tree work should be undertaken in accordance with BS 3998:2010 – Recommendations for Tree Work, including:

- Removal of any dead, diseased or damaged wood where it is a Health and Safety risk;
- Crown reduction to maintain clearance from buildings;
- Crown raising to maintain enough clearance for vehicular and pedestrian routes; and
- Removal of any crossing branches.

3.4 Tree planting

- 3.4.1 Tree planting is proposed in publicly accessible spaces and within the rear gardens of private properties. All new trees will be planted in accordance with BS 8545:2014 Trees: from nursery to independence in the landscape – recommendations.

- 3.4.2 **Creation:** refer to the landscape strategy plans for locations of the proposed trees and an implementation specification.

- 3.4.3 **Protection:** trees will be planted with an underground guying system to support them from falling over in the initial establishment period following implementation. The landscape plans provide details of the type of system proposed.

- 3.4.4 **Enhancement:** the tree planting across the site will offer structure, interest, and contribute towards amenity and biodiversity enhancements.

- 3.4.5 **Management and Maintenance:** trees are to be managed with the long-term aim of developing healthy, upright, clear stem, structural specimen trees. Maintenance commitments will be minimal after the initial establishment period although the following will need to be undertaken:

- Watering, including during periods of drought;
- Mulching once a year as necessary;
- Tree replacements if necessary;
- Tree stakes to be removed after no more than two growing seasons;
- Selective pruning to improve health, free form and longevity;
- Selective thinning in the long term to allow space for the trees to develop; and
- Pest and disease control.

- 3.4.6 Pruning of any tree will not be undertaken between March to August inclusive to protect breeding birds. If this cannot be avoided, a nesting bird check will be undertaken within 48hrs of the works, or immediately prior by a suitably experienced ecologist, to identify nests and enforce suitable buffer zones (5-10m expected) until the young have fledged.

3.5 Hazel Coppice

- 3.5.1 Hazel coppices are proposed within the northern side of the south site, near the existing trees to be retained, to enhance biodiversity and to create visual interest.
- 3.5.2 **Creation:** Refer to the landscape strategy plans for locations of the proposed hazel coppices, and an implementation specification.
- 3.5.3 **Protection:** Hazel coppices will be planted as transplant sized shrubs, 60-80cm high from 'day 1' implementation. They will not need to be protected, unless there is risk of grazing by rabbits and other mammals. Spiral tree/shrub guards could be implemented if required.
- 3.5.4 **Enhancement:** the hazel coppices will offer visual interest in south site and help to increase biodiversity.
- 3.5.5 **Management and maintenance:** maintenance commitments for the hazel coppices will be minimal after the initial establishment period although the following will need to be undertaken:
- Watering, including during periods of drought;
 - Mulching once a year as necessary;
 - Plant replacements if necessary;
 - Litter removal; and
 - Pruning as necessary.
- 3.5.6 Once established, the stools will be cut on a 10-year cycle ideally 1/5th every two years, to maintain vigour. Brash will be piled close to the stools to provide habitat.

3.6 Proposed native hedges

- 3.6.1 Native hedges are proposed along boundaries of the parcels as shown on landscape strategy layouts, connecting with existing vegetation whilst providing some screening. The native hedges will comprise a mix of the following species:
- *Acer campestre* 20%
 - *Corylus avellana* 20%
 - *Ilex aquifolium* 5%
 - *Ligustrum vulgare* 35%

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- *Viburnum opulus* 20%
- 3.6.2 **Creation:** Refer to the landscape strategy plans for planting locations, planting groupings and densities, and an implementation specification
- 3.6.3 **Protection:** Hedge planting will not need to be protected during the establishment period.
- 3.6.4 **Enhancement:** Native hedge planting will help create a diverse landscape proposal, increase biodiversity and combat climate change through storing greenhouse gasses. Native hedges will also produce a valuable food source for wildlife, provide changes in colour, and homes for wildlife.
- 3.6.5 **Management and maintenance:** maintenance commitments will be minimal after the initial establishment period although the following will need to be undertaken:
- Watering, including during periods of drought;
 - Mulching once a year as necessary;
 - Plant replacements if necessary;
 - Checking tree and shrub guards and any canes following strong winds;
 - Litter removal; and
 - Pruning as necessary.
- 3.6.6 The following should be undertaken to benefit breeding and wintering birds, foraging and commuting bats, and invertebrates:
- For the planting of hedgerow transplants, the soil surface does not need to be broken up if it is already friable and uncompacted.
 - Hedgerow transplants at 80-100cm high or 100-125cm high will be planted as a double staggered row 25cm apart. The selected species diversity is representative of the local area.
 - Strimming of vegetation around transplants along the new hedge line to a total width of approximately 60cm will be undertaken during April, June and August.
 - During the first winter the hedgerow will be lightly trimmed removing no more than 150mm from the tops of all young hedgerow plants, to encourage branching.
 - During years 2-4, hedgerows will be allowed to develop naturally in height and width. It is advised that hedgerows are lightly cut back annually by 25% to encourage branching out.
 - During years 5-20, these hedgerows will be allowed to develop to 3m high and 2m wide. At this stage 50% of each length of hedgerow will be cut annually on rotation between October-February inclusive, to 3m high and 2m wide. The habitats 1-2m either side of the

hedgerow base can be cut to 100mm during the same period. Retained hedgerows will require trimming from year 1 onwards to achieve the specification above and to manage 50% of such hedgerows annually.

3.7 Ornamental shrubs, hedges, herbaceous plants and bulb planting.

3.7.1 **Creation:** Refer to the landscape strategy plans for planting locations and an implementation specification.

3.7.2 **Protection:** Planting will not need to be protected during the establishment period.

3.7.3 **Enhancement:** Mix shrubs, hedgerows, herbaceous and bulb planting are provided throughout the site, near car parks and public open space, to enhance amenity and biodiversity value, to create a pleasant living environment for residents, and to provide colour, texture and seasonal interest.

3.7.4 **Management and maintenance:** Shrubs are relatively maintenance free, but care should be taken to ensure that they establish successfully. Shrubs are a diverse group of plants with many different requirements in terms of watering, pruning, feeding etc. and consequently, general good horticultural practice should be continually applied with regards to different species' requirements.

3.7.5 It will be necessary to undertake occasional formative pruning of certain ornamental shrubs (refer to **Appendix 4**); this should be done with respect to the overall form and shape of the shrub. Species selection and the location of planting should ensure that shrubs will not require severe pruning. It is not intended that the shrub planting will be cut back on a frequent basis.

3.7.6 Maintenance commitments for the ornamental shrubs will be minimal after the initial establishment period although the following will need to be undertaken:

- Watering, including during periods of drought;
- Mulching as necessary;
- Plant replacements if necessary;
- Litter removal; and
- Pruning and pest and disease control as necessary.

3.7.7 Herbaceous plants will need to be cut annually and divided as required.

3.7.8 Spring flowering bulbs are proposed within short grass, planted randomly. Dead foliage will need to be cut a minimum of six weeks after the end of flowering. The foliage will need to be yellow and straw-like before cutting. Bulbs will also need to be watered until this time.

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3.8 Species-rich grass

- 3.8.1 Species rich grass areas will be provided within the public spaces on both the north and south sites. A single seed mix is proposed for use in both dry areas and SuDS features (damp areas), as follows:
- Emorsgate EM8 - Meadow Mixture for Wetlands (or equivalent), with 20% wildflowers and 80% grasses.
- 3.8.2 **Creation:** Refer to the landscape strategy plans for the species-rich grass locations and an implementation specification.
- 3.8.3 Once bare (or near bare soil) is achieved through general development, the top 50mm of soil will be rotovated. This could be using a power harrow or pedestrian rotavator. If the existing grassland is still present, to avoid the release of soil carbon and to protect the current plant species diversity present in this area (which was considered moderate at the site), the turf should be cut to 30mm and lightly harrowed to break up the vegetation mat and surface soil layer. This will ensure that native species are retained, and ultimately additional plant species added. Where root protection areas of trees are present, only a cut to 30mm should be undertaken and the area raked with a soil rake to break the vegetation mat and soil surface (thus protecting tree roots).
- 3.8.4 **Protection:** Species-rich grass areas will not need to be protected during the establishment period.
- 3.8.5 **Enhancement:** The mixture for species-rich grass contains "species suitable for seasonally wet soils and is based on the vegetation of traditional floodplain and water meadows".
- 3.8.6 **Management and maintenance:** The areas should be maintained with the long-term objective of developing a diverse meadow, enhancing biodiversity and providing visual amenity.
- 3.8.7 **Species rich grass:** Species rich grass, shown in public spaces and within SuDS features, shall be sown at a rate of 5g/m² with a suitable seed mix such as **EM8: Meadow Mixture for Wetlands** (by Emorsgate Seeds or equivalent). Ensure that the ground is not highly fertile prior to sowing. Establish and cut in accordance with manufacturer's recommendations.
- 3.8.8 **Growing guide** (ref: <https://wildseed.co.uk/mixtures/view/9>).
- 3.8.9 **Ground preparation:** Endeavor to select ground that is not highly fertile and does not have a problem with perennial weeds. Good preparation is essential to success so aim to control weeds and produce a good quality seed bed before sowing.
- 3.8.10 To prepare a seed bed first remove weeds using repeated cultivation. Then plough or dig to bury the surface vegetation, harrow or rake to produce a medium tilth, and roll, or tread, to produce a firm surface. (more on preparation)

- 3.8.11 Sowing: Sowings on ground prone to winter flooding are safest either in the early autumn or in spring once the land has drained. Most plants need time to grow mature enough to withstand flooding.
- 3.8.12 The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution and avoid running out, divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed but firm in with a roll, or by treading, to give good soil/seed contact.
- 3.8.13 Aftercare - First year management: Most of the sown meadow species are perennial and are slow to establish. Soon after sowing there will be a flush of annual weeds, arising from the soil seed bank. These weeds can look unsightly, but they will offer shelter to the sown seedlings, are great for bugs, and they will die before the year is out. Resist cutting the annual weeds until mid to late summer, especially if the mixture contains Yellow Rattle, or has been sown with a nurse of cornfield annuals. Then cut, remove and compost. Early August is a good time. This will reveal the young meadow, which can then be kept short by mowing through to the end of March of the following year.
- 3.8.14 Dig out any residual perennial weeds such as docks.
- 3.8.15 Management once established: In the second and subsequent years EM8 sowings can be managed in a number of ways which, in association with soil fertility, will determine the character of the grassland. The best results are usually obtained by traditional meadow management based around a main summer hay cut in combination with autumn and possibly spring mowing.
- 3.8.16 Meadow grassland is not cut from spring through to late July/August to give the sown species an opportunity to flower.
- 3.8.17 After flowering in July or August take a 'hay cut': cut back with a scythe, petrol strimmer or tractor mower to c 50mm. Leave the 'hay' to dry and shed seed for 1-7 days then remove from site.
- 3.8.18 Mow the re-growth through to late autumn/winter to c 50mm and again in spring if needed.
- 3.8.19 Wetland habitats are characteristically quite variable in composition, reflecting local drainage and management. Conditions can vary, for instance, between the highs and lows in ridge and furrow grassland. Localised differences may require a targeted approach. For example, boggy areas which remain waterlogged for much of the year may be best sown with pond edge mixture EP1.
- 3.8.20 EM8 is a complete mix composed of 20% native wildflowers and 80% slow growing grasses (by weight). The flower and grass components are also available to order separately as EM8F for the flower component and EG8 for the grass component.

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3.9 Proposed SuDS features

- 3.9.1 The SuDS proposal includes bio retention areas and rain gardens which are planted areas with engineered soils over drainage layers that allow water to soak into the ground or piped to another destination.
- 3.9.2 The SuDS features are proposed within the public open spaces and in the private rear gardens of the units situated in the north site. They are planted with species that will tolerate dry conditions and occasional inundation.
- 3.9.3 The SuDS features will need to be inspected and maintained appropriately to ensure that their systems function correctly and as designed. Inspections and maintenance will be required during the establishment of the vegetation and in the long term.
- 3.9.4 Sediment removal is necessary to ensure that sediment control measures continue to function as designed, together with the anticipated frequency and appropriate means of sediment removal and disposal. Maintenance activities should ideally be undertaken monthly (and no less than three monthly), at the same time as other routine maintenance activities. Maintenance activities would include:
- Mowing amenity grass and species-rich grass
 - Cutting/pruning vegetation
 - Removing silt
 - Inspecting inlets and outlets – jetting pipes, removing accumulated grass and blockages
 - Remedial work if required
 - Weeding
 - Removing tree stakes and ties
 - Replacement planting

3.10 Ecological enhancements

- 3.10.1 The following ecological enhancement measures are based on the findings of the Preliminary Ecological Appraisal (PEA), Bat Survey Report and the Green infrastructure Statement. These measures aim to reduce and mitigate any negative impacts associated with the proposed development:
- **Bat friendly lighting:** A bat-sensitive lighting plan should be implemented to minimise disturbance to foraging and commuting bats.
 - **Bat boxes:** Ibstock Type A bat bricks should be installed as detailed in the Bat Survey (September 2022). These features will provide new roosting opportunities for crevice

dwelling bat species and will be integrated into the wall cavity of the new face brick element.

- **Bird boxes:** A range of bird nesting features should be installed, including stretcher bond brick-fronted bird bricks, Sparrow Terrace Boxes, and Swift Eco Habitats. These features will be supported by planting schemes designed to enhance habitat connectivity. Bird boxes and bricks should not be installed on south-facing elevations to avoid overheating.
- **Hedgehog-friendly fencing:** All fencing should allow the movement of small mammals, such as hedgehogs, across the site. This can be achieved by either maintaining a continuous gap of approximately 5 cm at the base of the fence or incorporating hedgehog access holes at regular intervals.
- **Native species tree planting and hedgerow creation:** Native tree species and hedgerows should be planted throughout the site, particularly along the site boundaries, to enhance biodiversity and habitat connectivity. Where possible, the use of mature specimen planting is recommended to increase survival rates and reduce the risk of vandalism. The creation of wildflower areas subject to low frequency cutting would also help to improve habitat diversity within the site.
- **SuDS and planting for biodiversity:** Sustainable Drainage System (SuDS) features should be planted with native species to enhance biodiversity, support pollinators, and provide visual amenity. Bio-retention areas should be designed to retain water for the majority of the year to maximise ecological benefit.

4.0 Management, maintenance and monitoring

4.1.1 The landscape proposals are to be managed and maintained by Hedyn, housing association.

4.1.2 This EEHMP includes the following appendices that provides further details on the maintenance of the proposals and timeframes.

- Appendix 1: Annual maintenance programme
- Appendix 2: Detailed maintenance schedules
- Appendix 3: Pruning techniques
- Appendix 4: Typical maintenance clauses: NBS Q35
- Appendix 5 : LA100-104 Landscape strategy layouts and specification and Green Infrastructure Management Plan

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4.2 Maintenance

- 4.2.1 The use of pesticides and herbicides should be minimised in the interests of biodiversity and best practice. Where possible, weeds should be removed by hand. Pests should only be treated when they are affecting the establishment/ health of thriving plants.
- 4.2.2 The client should be notified if any invasive plant species are discovered onsite. Invasive species should be eradicated by the most suitable and efficient means possible and must avoid contaminating the wider site.
- 4.2.3 Maintenance operations must also avoid the disturbance of wild birds and animals. The maintenance operative should also be aware of statutory obligations, including the protection of nesting birds.

4.3 Tree/ plant replacements

- 4.3.1 Should any trees or plants die within the first year, become seriously damaged or diseased or are removed, they are to be replaced in the following planting season as detailed in the landscape proposals and schedules.
- 4.3.2 Following the first growing season and up to five years following planting, should any trees fail to establish, die, become seriously damaged or diseased or are removed, they are to be replaced in the following planting season as detailed in the landscape proposals and schedules.
- 4.3.3 Following the first growing season and up to five years following planting, should any plants fail to establish, die, become seriously damaged or diseased or are removed, they are to be replaced in the following planting season, if appropriate, with others of a similar size and species to those detailed in the landscape proposals and schedules to ensure there are no gaps in the planting beds.

4.4 Monitoring

- 4.4.1 Monitoring is fundamental to the success of this management plan and is required to assess biodiversity changes and identify potential issues. It allows assessments of changes to be identified when compared to baseline data. This should allow iterative management of the proposed operations, responding to site circumstances and the success rate of different plant species and habitats. This will also allow the informed assessment and management of the quality of maintenance operative's services on site, and in response to the site establishment, growth and the prevailing site conditions.
- 4.4.2 The monitoring commitment for the proposed scheme is Years 1 and 3 post construction. A report is to be provided to the LPA. The site shall be monitored at the optimal time of year (subject to specific ecological requirements) by an experienced ecologist.

Appendix 1 – Annual Maintenance Programme

4.4.4 The following annual maintenance programme is suggested to ensure the maintenance work is carried out at the most beneficial time. The requirement for the individual maintenance operations will be informed by ongoing monitoring.

4.4.5 For all seasons, the following will need to be undertaken:

- Inspections, including adjusting tree stakes and ties when necessary and after strong winds;
- Watering - water when necessary and through periods of drought to ensure the planting / grass areas continue to thrive;
- Pest and disease control; and
- Litter removal.

Action	Tree planting	Bulbs	Shrub planting	Herbaceous plants	Species-rich grass	Amenity grass	SuDS features	Native hedgerows, Hazel coppice, and native planting groups
January								
Inspections, including adjusting tree stakes and ties when necessary, and after strong winds.	x						All SuDS features: Monthly, or as required	x
Watering	x	x	x	x	x	x	If necessary	x
Pest and disease control	x	x	x	x	x		All SuDS features	x
Litter removal	x	x	x	x	x	x	All SuDS features: Monthly, or as required	x
Remedial actions							All SuDS features: Monthly, or as required	
February								
Weed control	x	x	x	x		x	All SuDS features	x
Amenity grass cutting and trim edges (remove cuttings from site)						x		
March								
Fork over planting beds (aeration)	x		x	x			All SuDS features	x
Prune trees, prune native hedges, coppice hazels, prune native planting groups, and prune shrubs.	x		x				Rain gardens: prune shrubs	Coppice hazels on rotation once every 10 years. Prune native hedgerows and planting groups, as necessary.
Amenity grass cutting and trim edges (remove cuttings from site)						x		
Reseed							As required or if bare soil is exposed	

Action	Tree planting	Bulbs	Shrub planting	Herbaceous plants	Species-rich grass	Amenity grass	SuDS features	Native hedgerows, Hazel coppice, and native planting groups
Cutting of Species-rich grass: first year management – cut to 50mm height to remove the annual weeds. Remove from site. Undertake first cut in August, then keep short until the end of March for the first year.					x		All SuDS features contain species-rich grass	
April Apply fertiliser (first year only)	x		x	x		x	Avoid applying fertiliser if possible within SuDS features	
Weed control	x	x	x			x	All SuDS features	
Amenity grass cutting and trim edges (remove cuttings from site)						x		
Review and top up bark mulch			x					
May Weed control	x	x	x			x	All SuDS features	x
Amenity grass cutting and trim edges						x		
Cut bulbs minimum 6 weeks after flowering		x						
June Amenity grass cutting and trim edges						x		
July Weed control	x	x	x	x		x	All SuDS features	x
Amenity grass cutting and trim edges (remove cuttings from site)						x		
August Amenity grass cutting and trim edges (remove cuttings from site)						x		
Cutting of Species-rich grass: first year management – cut to 50mm height to remove the annual weeds. Remove from site. Undertake first cut in August, then keep short until the end of March for the first year.					x		All SuDS features contain species-rich grass	
Hay cut of species-rich grass: second and subsequent years , to 50mm high. Leave the 'hay' to dry and shed seed for 1-7 days then remove from site.					x		All SuDS features contain species-rich grass	
September Weed control	x	x	x	x		x	All SuDS features	x
Lightly fork over planting beds (aeration)	x							x
Amenity grass cutting and trim edges (remove cuttings from site)						x		
Cutting of Species-rich grass: first year management – cut to 50mm height to remove the annual weeds. Remove from site. Undertake first cut in August, then keep short until the end of March for the first year.					x		All SuDS features contain species-rich grass	
Species-rich grass: dig out any residual perennial weeds such as docks.					x		All SuDS features contain species-rich grass	
October Amenity grass cutting and trim edges (remove cuttings from site)						x		

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Action	Tree planting	Bulbs	Shrub planting	Herbaceous plants	Species-rich grass	Amenity grass	SuDS features	Native hedgerows, Hazel coppice, and native planting groups
Cutting of Species-rich grass: first year management – cut to 50mm height to remove the annual weeds. Remove from site. Undertake first cut in August, then keep short until the end of March for the first year.					x		All SuDS features contain species-rich grass	
<u>Mowing</u> of species-rich grass: second and subsequent years , to 50mm high.					x		All SuDS features contain species-rich grass	
Divide or cut herbaceous plants				x			All SuDS features	

Appendix 2 – Detailed Maintenance Schedules

Tree planting

Action	Details	Timing	Standard
Watering	Water to establish trees and thereafter during periods of drought. Water should be applied slowly to avoid soil erosion.	When necessary	As a general guide to provide an adequate soaking of dry soil, the following are minimum quantities required: • 1.5 - 2.0m high: 10 litres • 3.0 - 5.0m high: 20 litres • 6.0 – 8.0m high: 40 litres • 9.0 – 10.0m high: 100 litres Refer to Appendix 4: Q35/ 110; 155; 160
Weed control	Hand weed to remove all weeds and their roots around the trees (within the planting beds) using a hoe, trowel or fork. Apply herbicide to kill re-growth when required	February; April; May; July	Refer to Appendix 4: Q35/ 645; 650; 657
Fertilizer	Applications of fertilizer to be carried out early in the growing season in first year (further application to be advised by monitoring)	April	Ensure correct fertilizer application. Refer to Appendix 4: Q35/ 695
Tree stakes/ties	Tree stakes will be needed for at least three years and should be replaced if broken or decayed	-	Stakes and ties to be inspected at least once a month and after very heavy winds. Adjust ties if necessary to conform to stem growth or to prevent chafing. Refer to Appendix 4: Q35/ 510
Pruning	At the appropriate season for the species, pruning to be carried out to remove all damaged diseased or dead wood	When required	Refer to Appendix 4: Q35/ 540 - 580
Pest and disease control	To be carried out if necessary and in accordance with best practice	When required	To eradicate all pests and disease to a high standard
Litter removal	Collect and remove all extraneous rubbish	January	Refer to Appendix 4: Q35/ 190
Tree stakes	Trees stakes to be removed after no more than two growing seasons	March-April	Refer to Appendix 4: Q35/ 510

Native hedge planting, Hazel coppice and native planting

Action	Details	Timing	Standard
Watering	Water to establish hedgerows, coppice and native planting and thereafter during periods of drought. Water should be applied slowly to avoid soil erosion.	When necessary	Water is to soak into the ground, it is not sufficient to dampen the surface. Water must be applied slowly to avoid damage to plants. Refer to Appendix 4: Q35/ 110; 155; 160

St John's Court, Newport

Ecological Enhancement and Habitat Management Plan (EEHMP)

Action	Details	Timing	Standard
Weed control	Hand weed to remove all weeds and their roots around the trees (within the planting beds) using a hoe, trowel or fork. Apply herbicide to kill re-growth when required	February; April; May; July	Refer to Appendix 4: Q35/ 645; 650; 657
Fertilizer	Applications of fertilizer to be carried out early in the growing season in first year (further application to be advised by monitoring)	April	Ensure correct fertilizer application. Refer to Appendix 4: Q35/ 695
Pruning	At the appropriate season for the species, pruning to be carried out to remove all damaged diseased or dead wood	When required	Refer to Appendix 4: Q35/ 540 - 580
Pest and disease control	To be carried out if necessary and in accordance with best practice	When required	To eradicate all pests and disease to a high standard
Litter removal	Collect and remove all extraneous rubbish	January	Refer to Appendix 4: Q35/ 190

Ornamental shrubs, hedges, herbaceous and bulb planting

Action	Details	Timing	Standard
Watering	Watering shall be carried out to maintain vigorous plant growth	When necessary	Water is to soak into the ground, it is not sufficient to dampen the surface. Water must be applied slowly to avoid damage to plants. Refer to Appendix 4: Q35/ 110; 155; 160
Weed control	Hand weed a minimum of 4 times per year. Apply herbicide to kill re-growth when required	February; April; May; July	Refer to Appendix 4: Q35/ 645; 650; 657; 670
Fork over planting beds (Aeration)	Prick up trodden or compacted soil surfaces to aerate the soil without damaging the plants.	March/ September	Refer to Appendix 4: Q35/680
Fertilizer	Applications of fertilizer to be carried out to shrubs early in the growing season in first year (further application to be advised by monitoring). No fertilizer application to bulbs	April	Ensure correct fertilizer application. Refer to Appendix 4: Q35/695
Pest and disease control	to be carried out if necessary and in accordance with best practice	When required	To eradicate all pests and disease to a high standard
Pruning	At the appropriate season for the species, pruning to be carried out to remove all damaged diseased or dead wood.	February - October	Shrubs: Prune to ensure the plant is kept well balanced and in good shape. (Refer to Appendix 3 for pruning techniques) Refer to Appendix 4: Q35/ 540 - 580
Litter removal	Collect and remove all extraneous rubbish	January	Refer to Appendix 4: Q35/ 190

Species-rich grass planting

Action	Details	Timing	Standard
Watering	-	When necessary	Refer to Appendix 4: Q35/ 110; 155; 160
Weed control	Hand weed a minimum of 4 times per year. Apply a selective herbicide to kill re-growth when required	February; April; May; July	Refer to Appendix 4: Q35/ 645; 650; 657
Mowing	first year –Undertake first cut in August to 50mm high. Remove from site. Then keep short until the end of March for the first year. second and subsequent years , to 50mm high.	August – October; March October for 2 nd and subsequent years	Refer to Appendix 4: Q35/ 540 - 580
Pest and disease control	To be carried out if necessary and in accordance with best practice	When required	To eradicate all pests and disease to a high standard
Litter removal	Collect and remove all extraneous rubbish	January	Refer to Appendix 4: Q35/ 190

Amenity grass

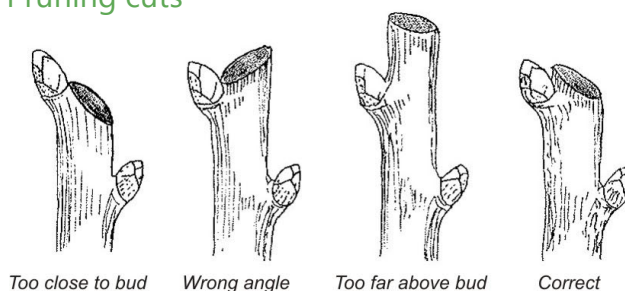
Action	Details	Timing	Standard
Watering	-	When necessary	Refer to Appendix 4: Q35/ 110; 155; 160
Mowing	The grass area shall be managed to a height of 25mm	March - October	Refer to Appendix 4: Q35/ 170; 220; 225; 235; 240; 265
Weed control	Hand weed a minimum of 4 times per year. Apply a selective herbicide to kill re-growth when required	February; April; May; July	Refer to Appendix 4: Q35/645; 650; 657
Raking/Scarifying	Relieve thatched conditions and remove dead grass in the autumn over the whole of the grassed areas.	September	Appendix 4: Q35/ 300
Spiking (Aeration)	Aerate to increase water, nutrient and oxygen movement into the soil	September	Refer to Appendix 4: Q35/ 295
Fertilizer	Applications of fertilizer to be carried out early in the growing season in first year (further application to be advised by monitoring)	April	Ensure correct fertilizer application. Refer to Appendix 4: Q35/ 695
Pest and disease control	to be carried out if necessary and in accordance with best practice	When required	To eradicate all pests and disease to a high standard
General	If surface is disturbed by over use, restore by firming or lifting with a fork	When required	-
Litter removal	Collect and remove all extraneous rubbish	January	Refer to Appendix 4: Q35/ 190

Appendix 3 – Pruning techniques

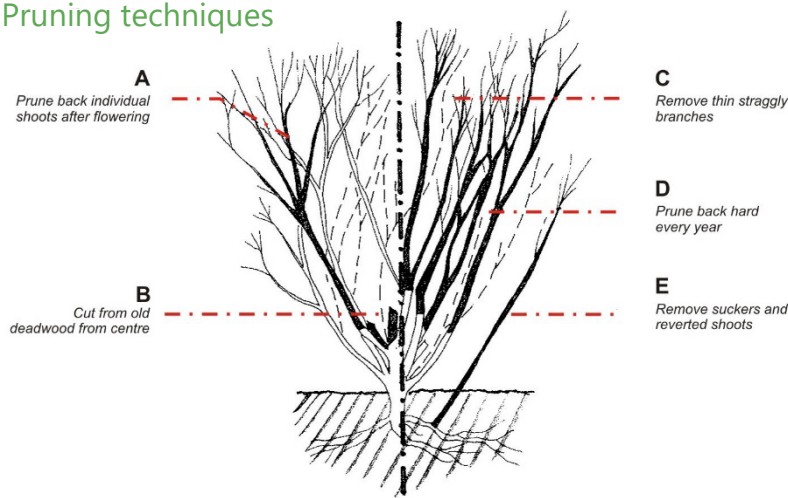
General

- All pruning cuts shall be made in accordance with BS 7370;
- Pruning shall be undertaken to promote flowering and fruiting in accordance with the species and age of the plant;
- Stems shall only be removed to retain the natural appearance of the individual plant species;
- All damage, diseased or deadwood material shall be removed from trees/shrubs;
- Any crossing or rubbing branches are to be removed from trees/shrubs;
- Plants may be permitted to overlap hard areas e.g., paving. If growth restricts the use of the paving, it will be necessary to trim by shortening long growths NOT by cutting indiscriminately along the edge; and
- Ground cover plants should not overhang grass areas because of the difficulty in keeping edges trimmed, prune back encroaching.

Pruning cuts



Pruning techniques



Taken from Landscape Management & Maintenance Handbook, Jones, Hing P (1990)



Appendix 4 – Typical Maintenance Clause NBS: Q35

Q35 Landscape maintenance

To be read with Preliminaries/ General conditions.

GENERALLY

110 NOTICE

- Give notice before:
 - Application of herbicide.
 - Application of fertilizer.
 - Watering.
 - Each site maintenance visit.
- Period of notice: 2 days.

130 REINSTATEMENT

- Damage or disturbance to soil structure, planting, grass, fencing, hard landscaping, structures or buildings: Reinstate to original condition.

155 WATERING

- Supply: Potable mains water.
- Quantity: Wet full depth of topsoil .
- Application: Do not damage or loosen plants.
- Compacted soil: Loosen or scoop out, to direct water to rootzone.
- Frequency: As necessary for the continued thriving of all planting.

160 WATER RESTRICTIONS

- General: If water supply is, or is likely to be, restricted by emergency legislation, submit proposals for an alternative suitable source of water. Obtain instructions before proceeding.

170 DISPOSAL OF ARISING

- General: Unless specified otherwise, dispose of arisings as follows:
 - Biodegradable arisings: Remove to recycling facility.
 - Grass cuttings: Remove to recycling facility.
 - Tree roots and stumps: Remove from site.
 - Shrub and tree prunings: Remove to recycling facility.
 - Litter and nonbiodegradable arisings: Remove from site.

180 CHIPPING OR SHREDDING

- General: Not permitted on site.

190 LITTER

- Extraneous rubbish not arising from the contract work: Collect and remove from site.

195 PROTECTION OF EXISTING GRASS

- General: Protect areas affected by maintenance operations using boards/tarpaulins. Do not place excavated or imported materials directly on grass.

197 CLEANLINESS

- Soil and arisings: Remove from hard surfaces.
- General: Leave the works in a clean, tidy condition at completion and after any maintenance operations.

GRASSED AREAS

210 MAINTENANCE OF GRASSED AREAS

- General: Maintain turf in a manner appropriate to the intended use.
- Soil and grass:
 - Condition: Maintain a healthy vigorous sward, free from disease, fungal growth, discolouration, scorch or wilt.
 - Waterlogging and compaction: Prevent.
 - Damage: Repair trampling, abrasion or scalping.
- Ornamental lawns: Maintain reasonably free from moss, excessive thatch, weeds, frost heave, worm casts and mole hills.
 - Edges: Neat and well defined, in clean straight lines or smooth flowing curves.
- Litter and fallen leaves: Remove regularly to maintain a neat appearance.

220 GRASS CUTTING GENERALLY

- Before mowing: Remove litter, rubbish and debris.
- Finish: Neat and even, without surface rutting, compaction or damage to grass.
- Edges: Leave neat and well defined. Neatly trim around obstructions.
- Adjoining hard areas: Sweep clear and remove arisings.
- Drought or wet conditions: Obtain instructions.

225 TREE STEMS

- Precautions: Do not use mowing machinery closer than 100 mm to tree stems. Use nylon filament rotary cutters and other hand held mechanical tools carefully to avoid damage to bark.

250 LEAF REMOVAL

- Operations: Collect fallen leaves.
- Special requirements: None.
- Disposal: Remove from site for recycling.

265 MOWING GENERAL AREAS

- Grass height: Maintain between 25 and 50 mm.
- Arisings: Spread evenly over cut areas.

290 ROLLING

- Location: All lawns.
- Timing: After all risk of frost heave.
- Roller: Contractor's choice.
- Operations: Consolidate turf and reduce frost heave.

300A SCARIFYING

- Location: Planting beds, paths, manhole covers and the like.
- Timing: Contractor's choice.
- Operations: draw back soil and reform edges to clean straight lines of smooth flowing curves, sloping slightly back from vertical.
- Arisings: Remove.

309 EDGES TO SEEDED AREAS

- Location: Planting beds and around newly planted trees.
- Timing: After seeded areas are well established.
- Edges: Cut to clean straight lines or smooth curves. Draw back soil to permit edging.
- Arisings: Remove.

- 310 RE-FORMING GRASS EDGES
- Location: Planting bed edges and Service access cover edges.
 - Edges: Draw back soil and re-form edges to clean straight lines or smooth flowing curves, sloping slightly back from vertical.
- 320 LEVELLING HOLLOWS AND BUMPS IN TURF
- Standard: To BS 7370-3, clauses 12.4 and 12.5.
- 325 RELIEVING SURFACE COMPACTION IN TURF
- Standard: To BS 7370-3.
 - Method: Contractors choice.
 - Top dressing: Not required.
 - Depth: n/a.
- 330 SELECTIVE HERBICIDE
- Location: as directed.
 - Herbicide: Contractors choice.
 - Areas not to be sprayed: Wildflower areas.
- 345 CONTROL OF JAPANESE KNOTWEED
- Operations: Spot treat in June and September during suitable weather conditions and when plants are growing vigorously.
 - Herbicide: Contractor's choice.
 - Application: Contractor's choice.
 - Arisings: Remove to an appropriately licenced facility.

SHRUBS/TREES/HEDGES

- 500 ESTABLISHMENT OF NEW PLANTING
- Duration: 24 months from the date of practical completion.
 - Weed control:
 - Method: Keep planting beds clear of weeds by contractor's choice of method, subject to approval by LA.
 - Area: Maintain a weed free area around each tree and shrub, minimum diameter the larger of 1 m or the surface of the original planting pit.
 - Soil condition: Fork over beds to keep soil loose, with gentle cambers and no hollows. Do not reduce depth or effect of mulch.
 - Watering: When instructed.
- 502 ESTABLISHMENT OF NEW PLANTING - FERTILIZER
- Time of year: March or April.
 - Type: To be approved by LA.
 - Spreading: Spread evenly. Carefully lift and replace any mulch materials.
 - Application rate: To be approved by LA.

510 TREE STAKES AND TIES

- Inspection/ Maintenance times: As per the contract.
- Stakes:
 - Replace loose, broken or decayed stakes to original specification.
 - If longer than half of clear tree stem height, cut to this height in spring. Retie to tree firmly but not tightly with a single tie.
- Ties: Adjust, refix or replace loose or defective ties, allowing for growth and to prevent chafing.
 - Where chafing has occurred, reposition or replace ties to prevent further chafing.
- Removal of stakes and ties: During spring when no longer required to support the tree.
 - Fill stake holes with lightly compacted soil.

520 REFIRMING OF TREES AND SHRUBS

- Timing: After strong winds, frost heave and other disturbances.
- Refirming: Tread around the base until firmly bedded.
- Collars in soil at base of tree stems, created by tree movement: Break up by fork, avoiding damage to roots. Backfill with topsoil and refirm.

540 PRUNING GENERALLY

- Pruning: In accordance with good horticultural and arboricultural practice.
 - Removing branches: Do not damage or tear the stem or bark.
 - Wounds: Keep as small as possible and cut cleanly back to sound wood.
 - Cutting: Make cuts above and sloping away from an outward facing healthy bud, angled so that water will not collect on cut area.
 - Larger branches: Prune neither flush nor leaving a stub, but using the branch bark ridge or branch collar as a pruning guide.
- Appearance: Thin, trim and shape each specimen appropriately to species, location, season, and stage of growth, leaving a well balanced natural appearance.
- Tools: Use clean sharp secateurs, hand saws or other approved tools. Trim off ragged edges of bark or wood with a sharp knife.
- Disease or infection: Give notice if detected.
- Growth retardants, fungicide or pruning sealant: Do not use unless instructed.

545 PRUNING OF EXCESSIVE OVERHANG

- Timing: As instructed.
- Operations: Remove growth encroaching onto grassed areas, paths, roads, signs, sightlines and road lighting luminaires.
- Special requirements: Allow ground cover plants to partially overlap paths and lawns.

550 PRUNING OF EXCESSIVE HEIGHT

- Timing: As instructed.
- Operations: Remove excessive height As instructed.

555 PRUNING TREES AND SHRUBS

- Standard: To BS 7370-4.
- Special requirements: None.

570 FORMATIVE PRUNING OF YOUNG TREES

- Standard: Type and timing of pruning operations to suit the plant species.
- Time of year: Do not prune during the late winter/ early spring sap flow period.
- Young trees up to 4 m high:
 - Crown prune by removing dead branches and reducing selected side branches by one third to preserve a well balanced head and ensure the development of a single strong leader.
 - Remove duplicated branches and potentially weak or tight forks. In each case cut back to live wood.
- Whips or feathered trees: Do not prune.
- Operatives: Member of the Arboricultural Association.

575 PRUNING ORNAMENTAL SHRUBS

- General: Prune to encourage healthy and bushy growth and desirable ornamental features, e.g. flowers, fruit, autumn colour, stem colour.
- Suckers: Remove by cutting back level with the source stem or root.

580 PRUNING FLOWERING SPECIES OF SHRUBS AND ROSES

- Time of year:
 - Winter flowering shrubs: Spring.
 - Shrubs flowering between March and July: Immediately after the flowering period.
 - Shrubs flowering between July and October: Back to old wood in winter.
 - Rose bushes: Early spring to encourage basal growths and a balanced, compact habit.

620 REMOVAL OF DEAD PLANT MATERIAL

- Operations: At the end of the growing season, check all shrubs and remove all dead foliage, dead wood, and broken or damaged branches and stems.

630 DEAD AND DISEASED PLANTS

- Removal: Within one week of notification.
- Replacement: In the next scheduled round of replacement planting.

635 REINSTATEMENT OF SHRUB/ HERBACEOUS AREAS

- Dead and damaged plants: Remove.
- Mulch/ matting materials:
 - Carefully move to one side and dig over the soil, leaving it fit for replanting.
 - Do not disturb roots of adjacent plants.
- Replacement plants:
 - Use pits and plants: To original specification or to match the size of adjacent or nearby plants of the same species, whichever is the greater.
 - Additional requirements: Submit details and cost of plants before ordering.
- Dressing: Slow release fertilizer:
 - Type: Submit proposals.
 - Application rate: 50 g/m².

640 THINNING BY REMOVAL OF SURPLUS PLANTS

- Plants to be thinned: Shrub beds.
- Standard: BS 7370-4.
- Timing: As per the contract.
- Roots:
 - Disturbance to adjacent plants: Minimise.
 - Soil: Refill holes with topsoil to leave an even graded surface.
 - Mulch: Maintain mulch as original specification.
 - Adjacent plants: Make good any minor damage immediately.
- Plants for retention: Select plants with a strong healthy habit.
- Mature planting density: 4 plants per m².

645 WEED CONTROL GENERALLY

- Weed tolerance: At all times, weed cover less than 5% and no weed to exceed 100 mm high.
- Adjacent plants, trees and grass: Do not damage.

650 HAND WEEDING

- General: Remove weeds entirely, including roots.
- Disturbance: Remove the minimum quantity of soil, and disturb plants, bulbs and mulched surfaces as little as possible.
- Completion: Rake area to a neat, clean condition.
- Mulch: Reinstall to original depth.

655 WEED CUTTING BY HAND OR MACHINE

- Undesirable grass, brambles and herbaceous growth: Cut down cleanly to a maximum height of 50 mm.
- Herbicides: Give notice before use.

657 HERBICIDE TO KILL REGROWTH

- Type: Suitable foliar acting herbicide to kill regrowth.
- Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

665 WEED CONTROL WITH WINTER HERBICIDE

- Type: Suitable residual soil acting herbicide.
- Time of year: Unless otherwise agreed, complete before end of March.
- Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

670 WEED CONTROL WITH SUMMER HERBICIDE

- Type: Suitable foliar acting herbicide.
- Timing: Allow recommended period for herbicide to take effect before clearing dead weeds.

675 DIGGING OVER

- General: Dig over beds. Do not damage existing plants, bulbs and roots.
 - Depth of dig (minimum): 100 mm.

680 SOIL AERATION

- Compacted soil surfaces:
 - Prick up: To aerate the soil of root areas and break surface crust.
 - Size of lumps: Reduce to crumb and level off.
 - Damage: Do not damage plants and their roots.

685 SOIL LEVEL ADJUSTMENT

- Level of soil/mulch at edges of beds: Reduce to 50 mm below adjacent grass or hard surface.
- Arisings (if any): Spread evenly over the bed.

690 MAINTENANCE OF LOOSE MULCH

- Thickness (minimum): 50 mm.
- Top up: As required.
- Mulch spill on adjacent areas: Remove weeds and rubbish and return to planted area.
- Weeding: Remove weeds growing on or in mulch by hand weeding or herbicide treatment.

695 FERTILIZING ESTABLISHED TREES AND SHRUBS

- Time of year: During April or May.
- Type of fertilizer: Slow release.
- Application: Spread evenly.
- Rate: As manufacturer's recommendations.

715 WOODLAND THINNING

- Mature planting density: 4 plants per m².
- Timing: Thin in stages in accordance with the agreed management plan.

720 COPPICING

- Material to be coppiced: *Coryllus* species.
- Standard: Good forestry practice.
- Cut stems: 200 mm.
- Finish: Leave sloping upward towards the centre to promote rainwater runoff.
- Brash: Stack around coppice stool to alleviate deer damage.
- Coppiced timber: Stack.

TREE WORK

810 TREE WORK GENERALLY

- Identification: Before starting work agree which trees, shrubs and hedges are to be removed or pruned.
- Protection: As section A34.
- Standards: To BS 3998 and Health & Safety Executive (HSE) 'Forestry and arboriculture safety leaflets'.
- Removing branches: Cut as Arboricultural Association Leaflet 'Mature tree management'. Cut vertical branches similarly, with no more slope on the cut surface than is necessary to shed rainwater.
- Appearance: Leave trees with a well balanced natural appearance.
- Chain saw work: Operatives must hold a Certificate of Competence.
- Tree work: To be carried out by an approved member of the Arboricultural Association.

815 ADDITIONAL WORK

- Defective, diseased, unsafe or weak parts of trees additional to those scheduled for attention: Give notice if detected.

820 PREVENTION OF WOUND BLEEDING

- Standard: To BS 3998, clause 8.

825 PREVENTION OF DISEASE TRANSMISSION

- Standard: To BS 3998, clause 9 and Appendix B.

830 CLEANING OUT AND DEADWOODING

- Remove:
 - Dead, dying, or diseased wood, broken branches and stubs.
 - Fungal growths and fruiting bodies.
 - Rubbish, wind blown or accumulated in branch forks.
 - Wires, clamps, boards and metal objects, if removable without causing further damage and not part of a support structure that is to be retained.
 - Other unwanted objects, e.g. tree houses, swings.
 - Climbing plants as instructed by LA.

835 CUTTING AND PRUNING GENERALLY

- Tools: Appropriate, well maintained and sharp.
- Final pruning cuts:
 - Chainsaws: Do not use on branches of less than 50 mm diameter.
 - Hand saws: Form a smooth cut surface.
 - Anvil type secateurs: Do not use.
- Removing branches: Do not damage or tear the stem.
- Wounds: Keep as small as possible, cut cleanly back to sound wood leaving a smooth surface, and angled so that water will not collect on the cut area.
- Cutting: Cut at a fork or at the main stem to avoid stumps wherever possible.
Large branches: Remove only if unavoidable.
 - Remove in small sections and lower to ground with ropes and slings.
- Dead branches and stubs: When removing, do not cut into live wood.
- Unsafe branches: Remove epicormic shoots and potentially weak forks that could fail in adverse weather conditions.
- Disease or fungus: Give notice if detected. Do not apply fungicide or sealant unless instructed.

840 CROWN REDUCTION/ SHAPING

- General: Cut back selectively to lateral or sublateral buds or branches to retain flowing branch lines without leaving stumps.
- Operations: As instructed by LA.

845 CROWN LIFTING

- Clearances: Remove branch systems to give clearance.
 - Height: As instructed by LA.
- Removing branches: Remove whole branches back to the stem, or cut lower portions of branches back to lateral or sublateral buds or branches. Do not leave stumps.

850 CROWN THINNING

- Removing branches: Remove inward growing, crossing, rubbing, dead and damaged branches.
- Thinning: Selectively remove secondary and small live branch growth evenly throughout the crown.
 - Quantity: As instructed by LA.
- Cutting: Make no cuts of more than 25 mm diameter.
 - Branches: Cut back to lateral or sublateral buds or branches without leaving stumps.
- Appearance: Leave a uniform and well balanced structure of branches and foliage.

855 CUTTING TREE ROOTS

- Excavating: Use hand tools only.
- Protected area: Do not cut roots within an area which is the larger of:
 - The branch spread of the tree.
 - An area with a radius of half the tree's height, measured from the trunk.
- Outside protected area: Give notice of roots exceeding 50 mm in diameter. Do not cut without approval.
- Cutting:
 - Cutting: Make clean smooth cuts with a hand saw.
 - Wounds: Minimize. Avoid ragged edges.
 - Finishing: Pare cut surfaces smooth with a sharp knife.
- Backfilling:
 - Protection: Cover cut roots with clean sharp sand.
 - Material: Backfill with original topsoil.

860 REMOVING TREES, SHRUBS AND HEDGES

- Standards: To BS 3998, Appendix A and Health & Safety Executive (HSE)/ Arboricultural and Forestry Advisory Group Safety Leaflets.
- Existing services: Check for below and above ground services. Give notice if they may be affected.
- Shrubs and smaller trees: Cut down and grub up roots.
- Tree stumps:
 - Removal: Remove mechanically to a minimum depth of 300 mm below ground level.
 - Removal by winching: Give notice. Do not use other trees as supports or anchors.
- Protection: As section A34.
- Work near retained trees: Where tree canopies overlap and in confined spaces generally, take down trees carefully in small sections to avoid damage to adjacent trees that are to be retained.
- Filling holes:
 - Material: Use as-dug material and/ or imported soil as required.
 - Finishing: Consolidate and grade to marry in with surrounding ground level.

865 BARK DAMAGE

- Wounds:
 - Do not attempt to stop sap bleeding.
 - Bark: Remove ragged edges using a sharp knife.
 - Wood: Remove splintered wood from deep wounds.
 - Size: Keep wounds as small as possible.
- Liquid or flux oozing from apparently healthy bark: Give notice.

870 CAVITIES IN TREES

- Investigation: Remove rubbish and rotten wood. Probe the cavity to find the extent of any decay, and give notice.
- Water filled cavities: Do not drain.
- Sound wood inside cavities: Do not remove.
- Cavity openings: Do not cover.

HARD LANDSCAPE AREAS/FENCING**910 HARD SURFACES AND GRAVEL AREAS**

- Herbicide: Apply a suitable foliar acting or residual herbicide. Allow recommended period for herbicide to take effect before clearing arisings.
- Hard surfaces: Remove litter, leaves and other debris.
- Surface gutters and channels: Remove mud, silt and debris.
- Drainage gullies: Empty traps and flush clean.
- Gravel areas: Rake over. Remove weeds, litter, leaves and debris, and level off.
- Repairs to flexible bituminous pavings: In accordance with the original paving specification or BS 7370-2, clause 4.12.
- Stain removal: In accordance with BS 7370-2, table 4.

920 FENCING

- Fences: Inspect and repair to maintain protection against stock.

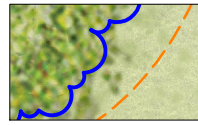
930 GRAFFITI REMOVAL

- Method: As instructed.
- Subsequent treatment: As instructed.
 - Finish: As instructed.

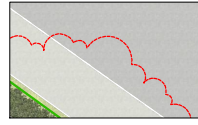
Appendix 5 – LA100-104 Landscape strategy layouts and specification and Green Infrastructure Management Plan



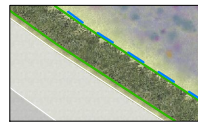
Site boundary



Existing trees to be retained with Root Protection Areas (RPA) shown as an orange dashed



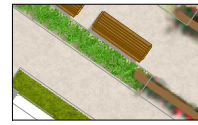
Existing trees to be removed



Proposed native hedge to provide an edge to the development and to help increase biodiversity.



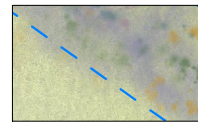
Proposed trees to improve amenity and provide visual interest



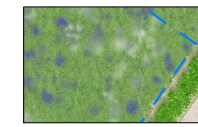
Low-level ornamental hedge to define spaces within the gardens



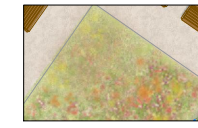
Mixed shrub and herbaceous planting areas for interest, colour and texture



Sustainable drainage feature to provide visual interest and biodiversity enhancements. SuDS to include shrubs/ herbaceous species/ grass seeding suitable for both dry and damp conditions.



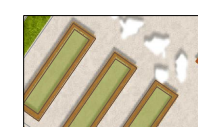
Bio-retention area with mixed shrubs and perennials



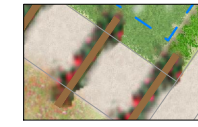
Species-rich grass with annual planting - where extending into RPA of existing trees the existing grass area will be scarified and over seeded



Ornamental hedge to define spaces within the gardens



Growing space with raised planters and a storage shed



Pergola with climbing plants

St Johns Crescent,
Rogerstone

Landscape Strategy LA100

0 5 10 15 20 25 m

Scale 1:250@A1 / 1:500@A3



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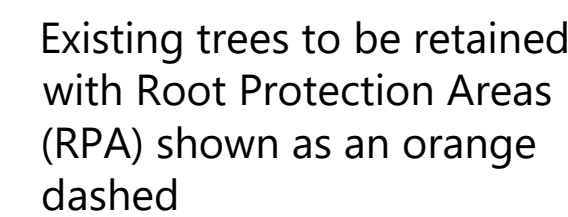
Planting Plan

LA101

Refer to drawing LA102 for plant schedules and specifications



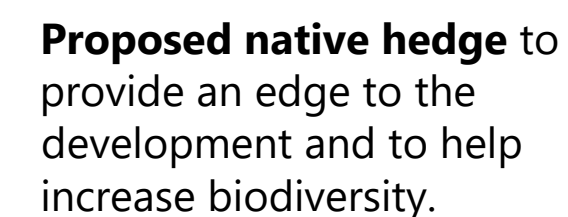
Site boundary



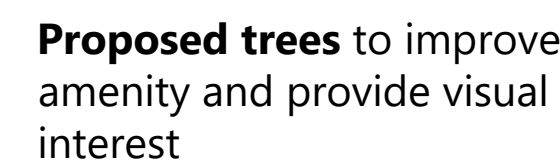
Existing trees to be retained
with Root Protection Areas
(RPA) shown as an orange
dashed



Existing trees to be removed



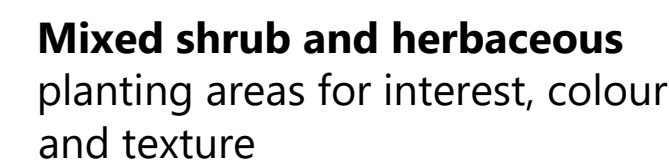
Proposed native hedge to provide an edge to the development and to help increase biodiversity.



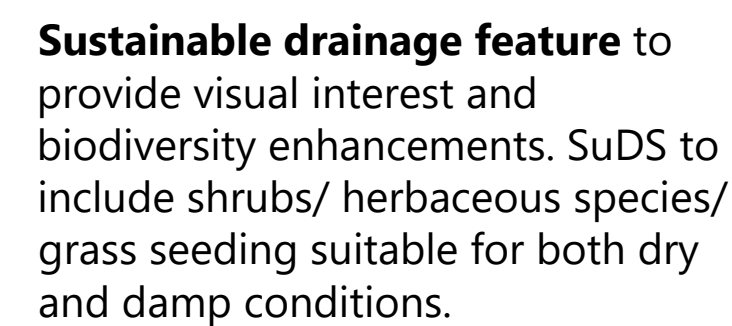
Proposed trees to improve amenity and provide visual interest



Low-level ornamental hedge to define spaces within the gardens



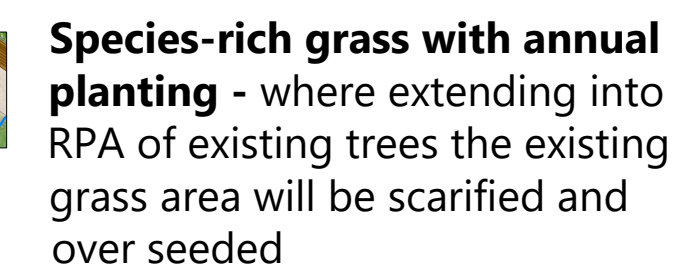
Mixed shrub and herbaceous
planting areas for interest, colour
and texture



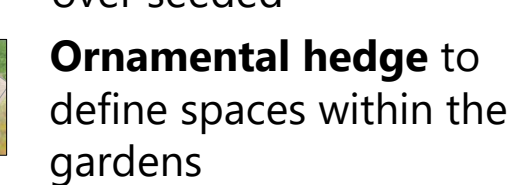
Sustainable drainage feature to provide visual interest and biodiversity enhancements. SuDS to include shrubs/ herbaceous species/ grass seeding suitable for both dry and damp conditions.



Bio-retention area with mixed shrubs and perennials



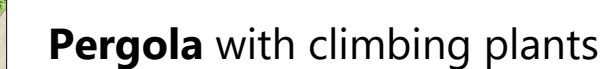
Species-rich grass with annual planting - where extending into RPA of existing trees the existing grass area will be scarified and over seeded



Ornamental hedge to define spaces within the gardens



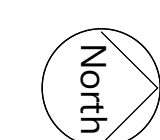
Growing space with raised planters and a storage shed



Pergola with climbing plants



Scale 1:250@A1 / 1:500@A3



TC23173_L Strategy v9.dwg September 2025



Floor 7, Brunel House, 2 Fitzalan Road, Cardiff, CF24 0EB
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Plant schedule

Tree	Number	Species	Specification	Grth	Height
4		Acer campestre 'Sibirsk'	3c; Extra Heavy Standard; clear stem minimum 200cm; 5 breaks; RB	12-14cm	350-425cm
1		Alnus spathul	3c; Extra Heavy Standard; clear stem minimum 200cm; RB	16-18cm	400-450cm
3		Amelanchier x grandiflora 'Robin Hill'	3c; Extra Heavy Standard; clear stem 175-200cm; 5 breaks; RB	14-16cm	420-490cm
1		Crataegus x prunifolia	3c; Extra Heavy Standard; clear stem 175-200cm; 5 breaks; RB	14-16cm	400-450cm
1		Gleditsia triacanthos 'Sunburst'	3c; Extra Heavy Standard; clear stem 175-200cm; 5 breaks; RB	14-16cm	400-450cm
1		Malus 'Everest'	3c; Extra Heavy Standard; clear stem 175-200cm; 5 breaks; RB	14-16cm	400-450cm
2		Prunus avium 'Landscape Bloom'	3c; Extra Heavy Standard; clear stem 175-200cm; 5 breaks; RB	14-16cm	400-450cm
2		Prunus schmidtii	3c; Extra Heavy Standard; clear stem 175-200cm; 5 breaks; RB	14-16cm	400-450cm
Total :151					

Shrubs	Number	Species	Specification	Height	Pot Size	Density
13		Corylus avellana	Branched; 3 breaks	60-80cm	3L	Counted
18		Lavandula angustifolia 'Hidcote'	Bushy; 5 breaks	30-40cm	1.5L	0.7C/cr
16		Rosmarinus off. 'Miss Jessop's Upstart'	Bushy; 5 breaks	30-40cm	5L	0.7C/cr
Total :127						

Mix 1	Species	Specification	Height	Pot Size	Density
	Alchemilla mollis	Full pot	2L	0.6C/cr	
	Carex grayi	Full pot	2L	0.45C/cr	
	Cornus alba 'Sibirica'	Branched; 4 breaks	60-80cm	5L	1C/cr
	Eucyrtus fortunei 'Emerald Gaiety'	Bushy; 5 breaks	25-30cm	5-7.5L	0.7C/cr
	Hebe alberti	Branched; 4 breaks	5-7.5L	0.7C/cr	
	Heuchera 'Key Lime Pie'	Full pot	2L	0.45C/cr	
	Knapfholia 'Royal Standard'	Full pot	2L	0.6C/cr	
	Periclydena ternstroemii	Several shoots; 11 breaks	5-7.5L	0.6C/cr	
	Perovskia 'Blue Spire'	Bushy; 3 breaks	20-30cm	2L	0.5C/cr
	Prunus laurocerasus 'Otto Luyken'	Bushy; 5 breaks	40-60cm	5-7.5L	0.7C/cr
	Sarcococca hookeriana humilis	Bushy; 5 breaks	25-30cm	7.5L	0.7C/cr
	Sedum 'Autumn Joy'	Full pot	2L	0.6C/cr	
	Skimmia japonica 'Rubella'	Bushy; 4 breaks	40-60cm	7.5L	0.6C/cr

Mix 2	Species	Specification	Pot Size	Height	Density
	Chamae x nemata	Bushy; 5 breaks	7.5L	40-60cm	1C/cr
	Cistus corbariensis	Bushy; 6 breaks	5-7.5L	40-60cm	0.7C/cr
	Eucyrtus fortunei 'Emerald Gaiety'	Bushy; 5 breaks	5-7.5L	25-30cm	0.7C/cr
	Hebe alberti	Branched; 4 breaks	5-7.5L	0.7C/cr	
	Hypericum 'Hidcote'	Bushy; 5 breaks	7.5L	40-60cm	1C/cr
	Potentilla fruticosa 'Abbotswood'	Bushy; 3 breaks	5-7.5L	40-60cm	0.7C/cr
	Prunus laurocerasus 'Otto Luyken'	Bushy; 5 breaks	5-7.5L	40-60cm	0.7C/cr

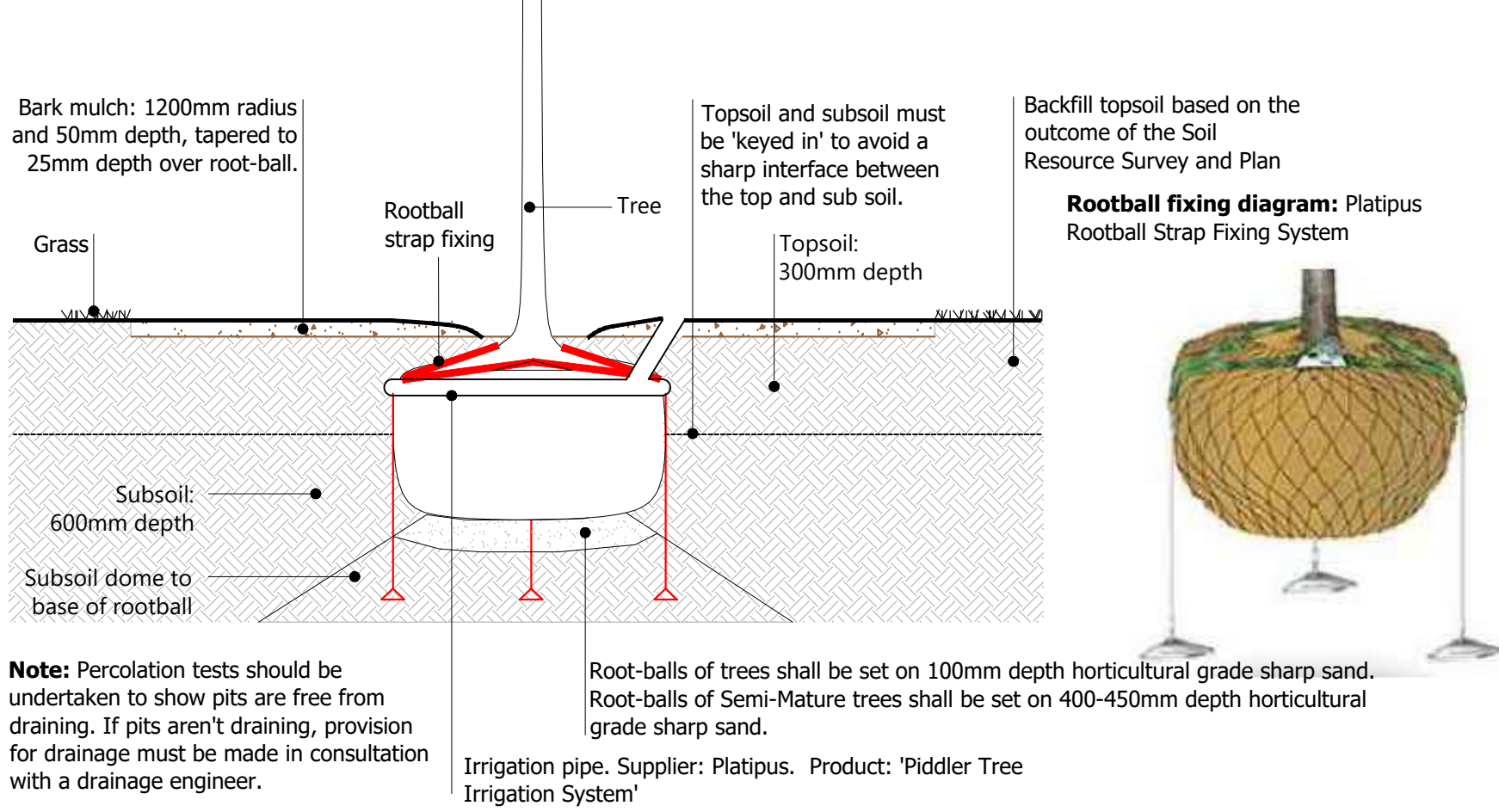
Mix 3	Species	Specification	Height	Pot Size	Density
	Knapfholia 'Royal Standard'	Full pot	2L	0.6C/cr	
	Sorata japonica 'Fire Light'	Bushy; 7 breaks	30-40cm	5-7.5L	0.7C/cr
	Sorata tenuissima	Full pot	2L	5-7.5L	0.5C/cr

SuDS Mix	Species	Specification	Pot Size	Height	Density
	Calamagrostis acutiflora 'Karl Foerster'	SL	Full pot		0.7C/cr
	Caryopteris clandonensis 'Heavenly Blue'	3L	Branched; 4 breaks	30-40cm	0.6C/cr
	Geranium 'Johnson's Blue'	3L	Full pot		0.5C/cr
	Iriza alba	2L	Full pot		0.5C/cr
	Perovskia 'Blue Spire'	2L	Bushy; 3 breaks	20-30cm	0.5C/cr
	Verbena bonariensis	2L	Full pot		0.45C/cr

SuDS Mix 2	Species	Specification	Pot Size	Height	Density
	Achillea 'Terraviva'	SL	Full pot		0.5C/cr
	Calamagrostis acutiflora 'Karl Foerster'	SL	Full pot		0.7C/cr
	Cornus sanguinea 'Midwinter Fire'	3L	Branched; 3 breaks	40-60cm	0.7C/cr
	Hydrangea macrophylla 'Mantel'	3L	Branched; 3 breaks	20-40cm	0.6C/cr
	Hydrangea paniculata 'Little Lime'	3L	Branched; 3 breaks	30-40cm	0.6C/cr
	Hypericum 'Hidcote'	3L	Branched; 5 breaks	30-40cm	0.6C/cr
	Iriza pseudoceras	2L	Full pot		0.6C/cr
	Penstemon alpestris 'Hamlet'	2L	Full pot		0.6C/cr
	Rutbeckia 'Goldsturm'	2L	Full pot		0.5C/cr
	Verbena bonariensis	2L	Full pot		0.45C/cr

Native Boundary Hedgerow	Number	Species	Specification	Pot Size	Height	Density	Percentage Contribution
531		Acer campestre	1+2; Transplant - seed raised; B		100-125cm	0.3C/cr Double Staggered at 0.25m offset	20%
531		Corylus avellana	1+2; Transplant; B		80-100cm	0.3C/cr Double Staggered at 0.25m offset	20%
127		Ilex aquifolium	Leader with laterals; C		40-60cm	0.3C/cr Double Staggered at 0.25m offset	5%
923		Ligustrum vulgare	Bushy; 5 breaks		10L	100-125cm 0.3C/cr Double Staggered at 0.25m offset	15%
531		Viburnum opulus	1+2; Transplant - seed raised; branched; 3 breaks; B		100-125cm	0.3C/cr Double Staggered at 0.25m offset	20%
Total :2653							

Tree pit detail



Implementation specification - generally

Ground preparation: Protect retained trees/areas of retained soil where structural landscaping is proposed in accordance with an approved Arboricultural Method Statement and Tree Protection Plan. Tree protection fencing shall be erected as noted within an Arboricultural Method Statement and Tree Protection Plan. The fence is to maintained for the duration of the works. Protection of existing trees against damage to be in accordance with the BS 5837:2012 - Trees in relation to design, demolition and construction - Recommendations. Protective fence to be approved by the LPA. Any excavations shall be in accordance with B.S. 8000 part 1:1989.

Imported soil: Soils may need to be imported to make up for any deficiency of soil on site.

Subsoil: Where required, supply approved imported subsoil to B.S. 8601:2013 Specification for subsoil and requirements for use - Multipurpose subsoil, to make up any deficiency in on-site subsoil.

Topsoil: Where required, supply approved imported topsoil to B.S. 3882:2015 Specification for topsoil - Multipurpose topsoil, to make up for any deficiency in on-site topsoil. Certification of soil shall be in accordance with BS 8601/3882.

- Soil profiles:** Soil profiles outside of retained, in-situ soil, should comprise:
- 300mm topsoil over 600mm subsoil for trees planted within shrubs or where trees are planted in grass areas.
 - 300mm topsoil over 300mm subsoil for shrub planting areas (with no trees) and the adjacent grass areas, and 150mm topsoil over 150mm subsoil for grass areas only.

Excavation: Any excavations in order to win soil for re-use as part of landscaping must be undertaken in accordance with BS 3882:2015, BS 8601:2013 and the 2009 DEFRA Construction Code of Practice for the Sustainable Use of Soils on Construction Sites.

Trees: excavate a few centimeters shallower than root-ball and twice its width with sloping, scarified sides. Root-balls of trees shall be set on a 150mm depth of horticultural grade sharp sand. Semi-Mature trees shall be set on a 400-450mm depth of horticultural grade sharp sand. **Shrubs:** excavate 300 x 300 x 300mm depth.

Backfilling: Trees: Backfill to reinstate 300mm over 600mm profile and do not add compost or fertiliser unless soil analysis demonstrates the need. If compost is applied it should be worked in generally to the top 150mm, not back-filled into tree pits. Shrubs: Backfill to reinstate soil profiles provided above and do not add compost or fertiliser unless soil analysis demonstrates the need.

Cultivation: Do not cultivate tree and shrub planting soils, only cultivate prior to planting if the soil is compacted (for example due to site/construction activities). For grass seeding areas, cultivate topsoil to a loose friable tilth suitable for grass seeding. Collect and remove from site all stones, builders' rubble and other deleterious material over 50mm in any dimension.

Amenity grass: Grass areas to be sown at a rate of 35g/m² with a suitable grass seed mix such as Germinal A19. Initial grass cutting and edge trimming down to 50mm. **All back gardens are to be turfed.**

Planting areas: Plant specification to be in accordance with the HTA National Plant Specification. Tree planting to be in accordance with BS 8545:2014 - Trees from nursery to independence in the landscape recommendations.

Tree planting: No tree to be planted that does not conform in full with **Table 1, p.21, BS 8545:2014**, to be established via nursery inspections prior to and on delivery of trees. The positioning of proposed trees are to avoid underground services. **No tree to be substituted by an alternative without formal agreement by the LPA, but prior consultations with nurseries should clearly establish availability.**

Tree anchoring: Rootball fixing strap system to be provided by Platipus to secure the trees.

Supplier: Platipus. Product: Tree Anchoring with Strap. Product Code: RF1s/RF2s (depending on tree size). Ref: www.platipus-anchors.com/applications/tree-and-irrigation/rootball-fixing-system---strap/

Note: Above ground stake supports for trees shall only be used where ground anchoring methods prove ineffective, but shall not be used to support trees with defective root-balls. Staking shall comprise x3 untreated wooden stakes set with two to the SW side and attached low (never more than one-third tree height) using flexible ties such as hessian nature-ties, arbor-tie or rubber straps. Ties shall allow for flexure without abrasion of the stem and all stakes and ties shall be removed before the third growing season.

Root barriers: Root barriers shall be installed (to be provided by GreenBlue Urban. Product: ReRoot 2000) and at a suitable depth to protect buried services. It shall be installed approximately 250mm parallel to the buried services and within 3m of the proposed trees.

Bark mulch (other than SuDS): Provide and spread evenly over all planting areas an organic graded bark flakes or similar approved bark mulch to a depth of 50mm. For trees, and in particular those planted in grass, apply a 50mm depth of mulch to give Mulching shall be free from toxins, pathogens and other extraneous substances harmful to plant, animal or human life. Ensure that all weeds have been cleared and that the soil have been watered thoroughly prior to mulching.

Mulching of SuDS with planting: The use of an organic mulch should be avoided for systems where there is an overflow pit, owing to the risk of clogging. Spread a layer of clean stone gravel, 20mm particle size, to a depth of 50-70mm, as an alternative to standard organic mulches over the SuDS to protect the soil from erosion. No geotextile/ membrane to be installed under the gravel.

Species-rich grass: Emorsgate EM8, or similar. All areas outside the RPA of retained trees to be cultivated and sown at a rate of 5g/m². Where species rich grass extends into RPA of retained trees the existing grass will be cut and the surface scarified to break up the thatch of the existing grass. The grass will then be cut short and all cut grass removed. Emorsgate EM8, or similar will then be sown at a rate of 5g/m² in late summer/ autumn onto the scarified surface.

The seeded area will be cut regularly for 6 months after seeding, to around 3cm to prevent the grass from out competing the seedling wildflowers.

Maintenance: All landscape areas to be maintained in accordance with B.S. 7370 Part 3:1991 and Part 4:1993; including weed control, and adjustment to tree stakes and ties. Refer to the below.

General notes: Substitutions, if made, should be similar in size, form and water demand. Plants shall be arranged to avoid straight lines and geometric patterns.

Soft landscape areas to be maintained in accordance with **B.S. 7370 Part 3:1991** and Part 4:1993. The maintenance of trees should be in accordance with **BS 3998:2010** and **BS 8545:2014**. Maintenance operations to successfully establish plants shall be carried out for the first 5 years after planting.

Maintenance operations for successful plant establishment shall include watering; weed control; fertiliser application; pest and disease control; pruning; and litter picking. Watering for trees should follow an irrigation plan in accordance with BS 8545:2014 and must be in anticipation of drought.

Tree pruning should be in the winter months or summer (July-August). Cherries must be pruned only in the summer months after flowering.

The replacement of failed trees should occur once reasons for failure have been identified and amendments to the specification are made as necessary. Shrubs which die, are removed or become seriously damaged shall be replaced in the next planting season with others of similar size and species, to be agreed in writing by the Local Planning Authority. For all new landscape areas, the following maintenance programme shall be undertaken:

Inspections:	January - December. Replace dead plants when necessary.
Watering:	When necessary in accordance with an irrigation plan.
Pest and disease control:	January.
Litter removal:	January - December
Weed control:	February - May; July; and September.
Prune:	Winter months or summer.
Fork over planting beds:	March.
Cut grass and trim edges:	March - October.
Apply fertiliser:	April.
Lightly fork over planting beds:	September.
Rake / scarify grass	September.
Mulch:	Mid to late spring.

Watering: Water trees in accordance with an irrigation plan as per BS 8545:2014. Watering shrubs shall be carried out to maintain vigorous plant growth. Water shall soak into the ground; it is not sufficient to dampen the surface. Water must be applied slowly to avoid damage to plants.

Weed control: Hand weed to remove all weeds and their roots using a hoe, trowel or fork. Apply a herbicide to kill re-growth when required.

Fertiliser: Applications of fertiliser to be carried out early in the growing season. Ensure correct fertiliser application. Inspect once a month and after very heavy winds. Adjust ties if necessary to conform to stem growth or to prevent chafing.

Pruning: At the appropriate season for the species, pruning to be carried out to remove all damaged diseased or dead wood. Prune shrubs to ensue the plant is kept well balanced and in good shape. For trees, pruning shall be in accordance with **BS 3998:2010**. **The proposed native hedge along the site frontage of St Johns Crescent will be maintained to a height of 1.6m high.**

Pest and disease control: To be carried out if necessary and in accordance with best practice.

Litter removal: Collect and remove all extraneous rubbish.

Fork over planting beds: Prick up trodden or compacted soil surfaces to aerate the soil without damaging the plants.

Mulching (other than SuDS): Mulching to be topped up annually over the duration of the agreed maintenance period. At the end of the maintenance period, undertake a final mulch. Ensure that the soil is thoroughly moistened prior to remulching, applying water where necessary. Planting beds and trees: re-mulch to a minimum depth of 50 mm.

Mulching of SuDS with planting: The use of an organic mulch should be avoided for systems where there is an overflow pit, owing to the risk of clogging. Spread a layer of gravel as an alternative to standard organic mulches over the SuDS to protect the soil from erosion.

Mowing: Amenity grass areas shall be managed to a height of 40mm. Species rich grass areas to be mowed as advised by the supplier.

Raking/Scarifying: Relieve thatched conditions and remove dead grass in the autumn over all grassed areas.

Spiking (Aeration): Aerate to increase water, nutrient and oxygen movement into the soil.

General: If grass surface is disturbed by over use, restore by firming or lifting with a fork

Any newly planted trees, plants or hedgerows, which within a period of 5 years from the completion of the development die, are removed, become seriously damaged or diseased, or in the opinion of the Local Planning Authority otherwise defective, shall be replaced. Replacement planting shall take place during the first available planting season

Specification for SuDS

Above ground SuDS within the site include Rain Gardens. They are designed as shallow depressions with filtration medium to manage the flow of water and to extract pollutants before the water enters the pipe network. The rain gardens will be planted with a range of shrubs, grasses, and herbaceous species.

Ornamental grass and herbaceous species shall be implemented during the first planting season after the hard landscape has been constructed to prevent damage to the new vegetation and to avoid compaction of soils. Avoid planting if the ground is waterlogged or if the ground is frozen.

Climatic conditions need to be observed with no planting/maintenance to be carried out in extremes of temperature <3°C or > 24°C (without suitable provision for irrigation). If the water supply is, or is likely to be, restricted by emergency legislation then planting/maintenance should be suspended.

Container grown plants: At any time of the year subject to weather conditions.

Maintenance objectives will include regular planting checks and maintenance to ensure that the planting is establishing, and the SuDS elements are consistent with the original design intentions. This will involve continuous / ongoing routine operations throughout the year, for which a detailed maintenance schedule is to be followed.

Regular maintenance and monitoring inspections of rain gardens should be undertaken to maintain SuDS performance and balance. Management and maintenance commitments would be more intense during the in initial establishment period, 1-2 years after planting. This would involve:

- Watering (as necessary)
- Weed control
- Pest and disease control
- Pruning
- Checking and cleaning of inlets and outlets
- Mulching (not bark mulch), and
- Litter picking.

Filter media for Rain gardens

The filter medium should be sufficiently permeable to allow water to pass through it, so that the surface of the retention area does not become waterlogged. It also needs to contain sufficient organic material and plant nutrients to support the proposed vegetation.

Filter media should be correctly specified. Any specification should take into account site specific requirements and constraints. The specification parameters should be clearly stated, so that in the event that a supplier ceases trading the filter material can still be replaced on a like for like basis.

Incorrect specification can cause reduced hydraulic conductivity through over compaction or structural collapse, leading to reduction in treatment capacity and surface ponding, loss of vegetation etc. The filter medium should be correctly installed with an appropriate level of compaction during installation to prevent migration of fine particles.

A filter medium that is placed uncompacted will initially show a very high hydraulic conductivity which will then rapidly decrease. So it is essential that testing of hydraulic conductivity be carried out on the compacted filter medium before installation.

A typical specification for the filter media:

clay and silt (< 0.063 mm) < 5%

fine sand (0.063-0.2 mm) <20%

medium sand (0.2-0.6 mm) 35% to 65%

coarse sand (0.60-2.0 mm) 50% to 60%

fine gravel (2.0-6.0 mm) <10%

The filter medium should be well graded, and the composition should contain limited particle size range.

Organic matter content

Organic matter content should be 3-5% (w/w).

pH

pH should be 5.5-8.5 (1:2.5 soil/water extract).

Electrical conductivity (salinity)

Electrical conductivity (EC) should be < 3300 µS/cm (1:2.5 soil/CaSO4 extract)

Major plant nutrients

Total nitrogen should be 0.10-0.30%

Extractable phosphorus should be 16-100 mg/l

Extractable potassium should be 120-900 mg/l

(Methods of analysis in accordance with BS 3882:2015, unless otherwise stated.)

Mulch layer

The use of an organic mulch should generally be avoided for systems where there potential for attenuation, owing to the risk of the mulch blocking the overflow (e.g Rain gardens). In the case of infiltration systems (with no overflow), a mulch may be used, but there is still a risk of excessive movement of material during high flows. A mulch layer (with a maximum depth of 75 mm) can be spread over the bioretention area to retain some soil moisture. Organic matting that degrades within six months, bonded fibre matric mulches or a layer of gravel can be used as an alternative to standard organic mulches. A gravel mulch may be valuable where there is a need to protect the soil from erosion or decrease the drop to the water storage zone (for safety reasons), while still maintaining an acceptable ponding volume; however, high planting densities should be used, to compensate for the reduced spread of plants.



St Johns Crescent, Rogerstone

Specifications

LA102

Emorsgate Seeds EM8: Meadow Mixture for Wetlands, or similar and approved (to also be used throughout the site)



Suggested Sowing Rates
40kg/ha 16kg/acre 4g/m2

Description
EM8 contains species suitable for seasonally wet soils and is based on the vegetation of traditional floodplain and water meadows. Soils in wet meadows may flood for short periods in winter, but are usually well drained in summer.

Ground Preparation
Endeavour to select ground that is not highly fertile and does not have a problem with perennial weeds. Good preparation is essential to success so aim to control weeds and produce a good quality seed bed before sowing.

To prepare a seed bed first remove weeds using repeated cultivation. Then plough or dig to bury the surface vegetation, harrow or rake to produce a medium tilth, and roll, or tread, to produce a firm surface.

Sowing
Sowings on ground prone to winter flooding are safest either in the early autumn or in spring once the land has drained. Most plants need time to grow mature enough to withstand flooding.

The seed must be surface sown and can be applied by machine or broadcast by hand. To get an even distribution and avoid running out, divide the seed into two or more parts and sow in overlapping sections. Do not incorporate or cover the seed but firm in with a roll, or by treading, to give good soil/seed contact.

First Year Management
Most of the sown meadow species are perennial and are slow to establish. Soon after sowing there will be a flush of annual weeds, arising from the soil seed bank. These weeds can look unsightly, but they will offer shelter to the sown seedlings, are great for bugs, and they will die before the year is out. So resist cutting the annual weeds until mid to late summer, especially if the mixture contains Yellow Rattle, or has been sown with a nurse of cornfield annuals. Then cut, remove and compost. Early August is a good time. This will reveal the young meadow, which can then be kept short by grazing or mowing through to the end of March of the following year. Dig out any residual perennial weeds such as docks.

Management Once Established
In the second and subsequent years EM8 sowings can be managed in a number of ways which, in association with soil fertility, will determine the character of the grassland. The best results are usually obtained by traditional meadow management based around a main summer hay cut in combination with autumn and possibly spring mowing or grazing.

Meadow grassland is not cut or grazed from spring through to late July/August to

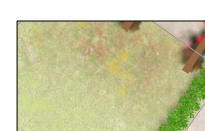


1

Raised timber planters



Supplier: Wood BlocX, or similar
Product: Raised Beds



2

Pergola



Supplier: ArborGardenSolutions,
or similar. Product: Sculpted
Screen Double Beam Pergola



3

Shed



Supplier: Garden BuildingsDirect,
or similar. Product: BillyOh
Planthouse Tongue and Groove
Pent Potting Shed



4

Seat



Supplier: Corido or similar.
Product: Taverners Teak 4 Seater
Garden Bench



5

Resin bound surface finish

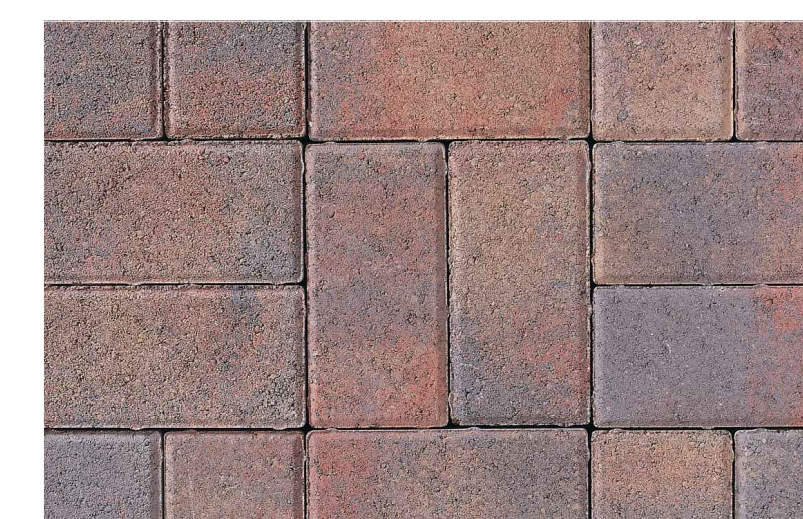


Supplier: Exo supplies or similar.
Product: Exo Autumn Quartz



6

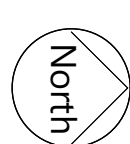
Block paving



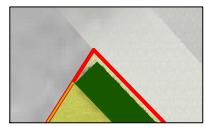
Supplier: Tobermore or similar.
Product: Pedesta (herringbone
pattern, not basket weave)

0 5 10 15 20 25 m

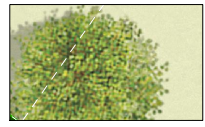
Scale 1:250@A1 / 1:500@A3



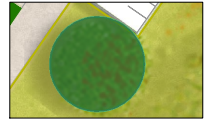
TC23173_L Strategy v9.dwg September 2025



Site boundary



Existing trees to be retained



Proposed trees



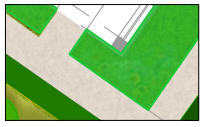
Proposed specimen shrubs



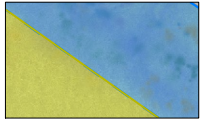
Proposed native hedge



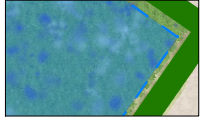
Low-level ornamental hedge



Mixed shrub and herbaceous



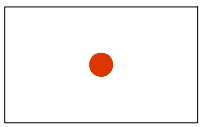
Sustainable drainage features



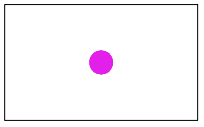
Bio-retention area with mixed shrubs and perennials



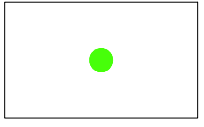
Species-rich grass with annual planting



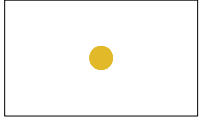
Ecological enhancements:
Ibstock Swift Eco Habitat
Boxes



Ecological enhancements:
Ibstock Type A Bat Bricks



Ecological enhancements:
Sparrow Terrace Boxes



Ecological enhancements:
Standard Nest Boxes



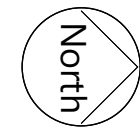
St Johns Crescent,
Rogerstone

Green Infrastructure Management Plan

LA104

0 5 10 15 20 25 m

Scale 1:250@A1 / 1:500@A3



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Floor 7, Brunel House, 2 Fitzalan Road, Cardiff, CF24 0EB
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