Royal Botanic Gardens
Kew

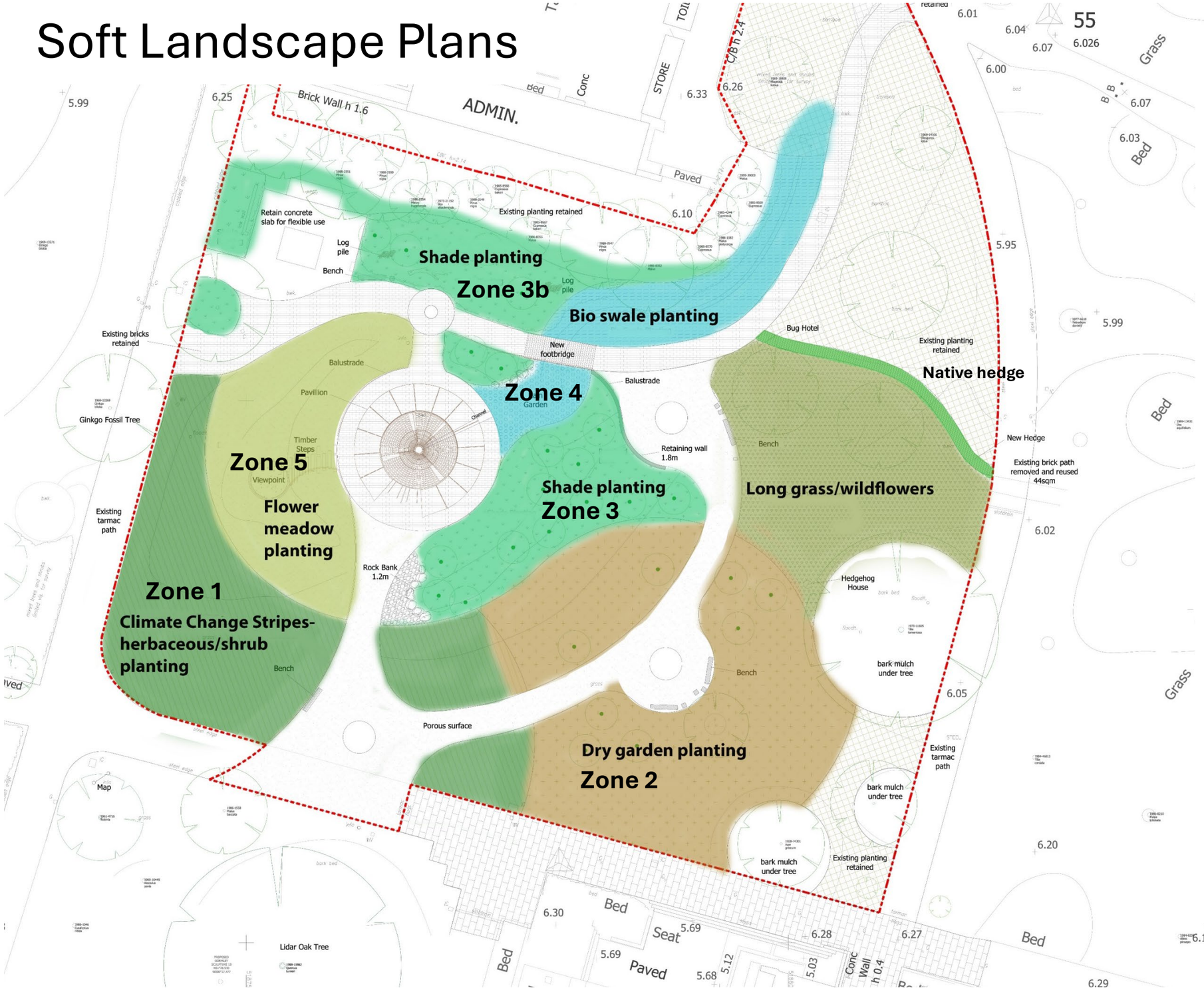
The Carbon Garden

Soft and Hard Landscape Plans

Landscape Planting & Maintenance

For planning condition **U0176270 Hard and Soft Landscaping Works (Plan)**

Soft Landscape Plans



Kew Royal Botanic Gardens

Carbon Garden

Planting zones

Zones 1 and 2 have detailed planting plans.

Zones 3 and 4 will be planted with a mix of the listed plants, arranged to create a naturalistic planting scheme. The exact arrangement will be determined during planting.

Zone 3b will include the new plants listed to complement the existing planting.

Zone 5 will be left as existing grass with the addition of perennials and shrubs to create patches of colour and structure within the long meadow grass.

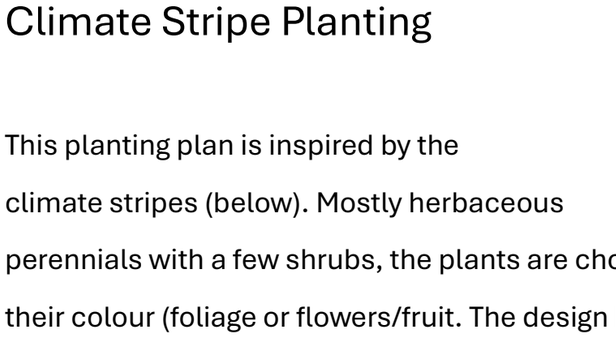
The long grass/wildflower zone will be created by sowing native plant seed onto the existing grass.

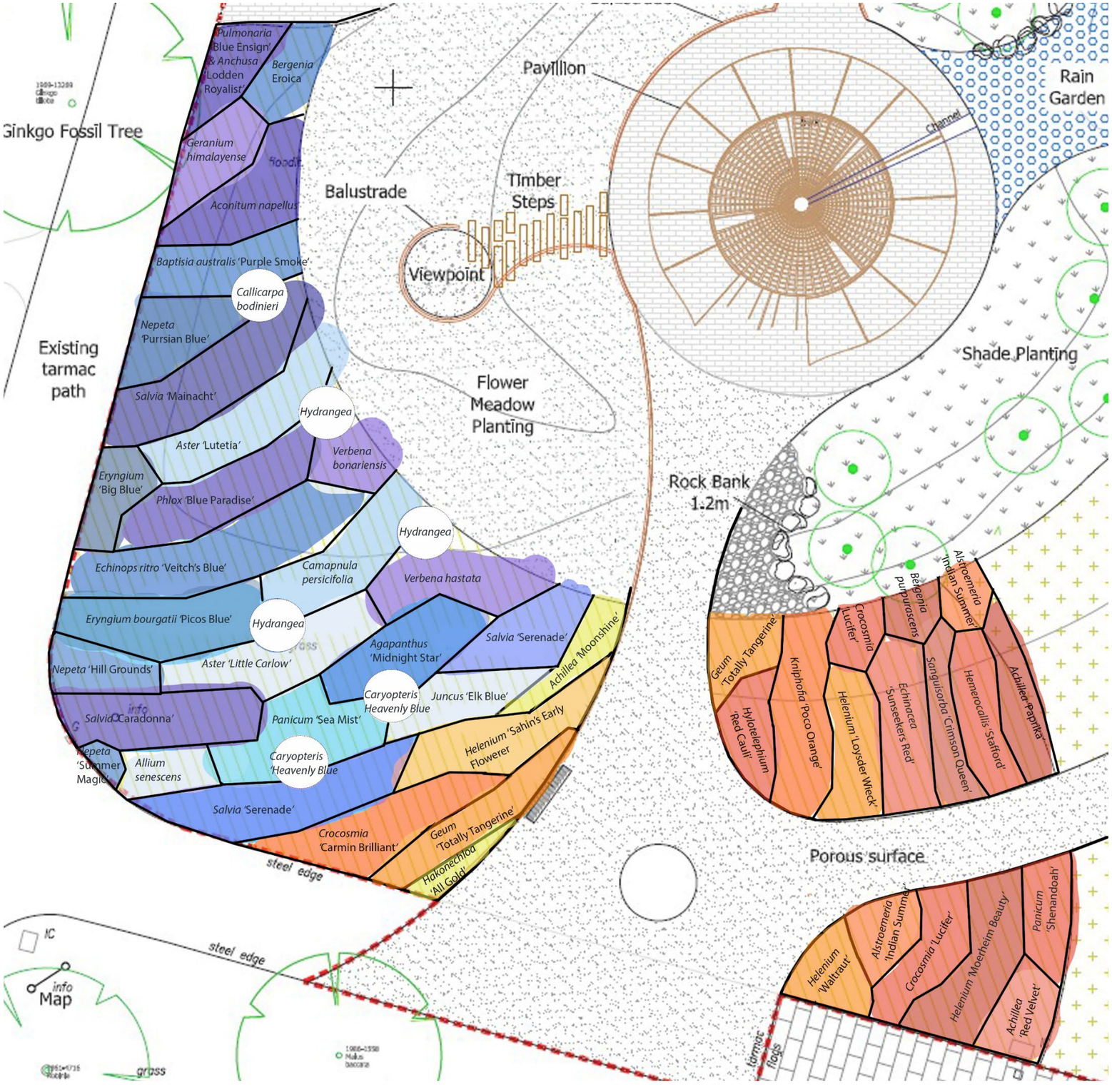
A **hedge** of native species will be planted along the northern boundary of the wildflower meadow.

Zone 1

Climate Stripe Planting

This planting plan is inspired by the climate stripes (below). Mostly herbaceous perennials with a few shrubs, the plants are chosen for their colour (foliage or flowers/fruit. The design has a traditional mix of plants, to represent the situation now and the recent past– irrigation will be required and regular maintenance, as would be expected in a traditional herbaceous border, e.g. cutting back in late autumn/winter and a mulch of composted plant waste applied (from RBG Kew compost heap).





Plant List Zone 1

	plants per m2	Quantity		Zone
Achillea Moonshine	5	80		1
Achillea Paprika	5	55		1
Achillea Red Velvet	5	45		1
Aconitum napellus	3	45		1
Agapanthus Northern Star	3	50		1
Allium senescens	7	49		1
Alstroemeria Indian Summer	4	28		1
Anchusa Lodden Royalist	5	15		1
Aster Little Carlow	5	85		1
Aster pyrenaeus Lutetia	5	80		1
Baptisia australis Purple Smoke	5	40		1
Bergenia Erioca	5	50		1
Bergenia purpurascens	5	25		1
Callicarpa bodinieri	single	1	shrub	1
Campanula persicifolia	5	65		1
Caryopteris Heavenly Blue	single	3	shrub	1
Crocosmia Carmin Brilliant	7	170		1
Crocosmia Lucifer	5	90		1
Echinacea Sunseekers Red	7	105		1
Echinops ritro Veitch's Blue	5	145		1
Eryngium Big Blue	5	45		1
Eryngium bourgatii Picos Blue	5	80		1
Geranium himalayense	5	55		1
Geum Totally Tangerine	5	85		1
Hakonechloa All Gold	7	40	grass	1
Helenium Loysder Wieck	5	65		1
Helenium Moerheim Beauty	6	110		1
Helenium Sahin's Early Flowerer	6	110		1
Helenium Waltraut	5	45		1
Hemerocallis Stafford	3	36		1
Hydrangea serrata Bluebird	single	3	shrub	1
Hylotelephium Red Cauli	5	45		1
Juncus Elk Blue	7	90	grass	1
Kniphofia Poco Orange	5	95		1

Nepeta Hill Grounds	5	45		1
Nepeta Purrsian Blue	5	60		1
Nepeta Summer Magic	5	12		1
Panicum Sea Mist	3	45	grass	1
Panicum Shenandoah	5	50	grass	1
Phlox Blue Paradise	4	72		1
Pulmonaria Blue Ensign	5	35		1
Salvia Caradonna	5	90		1
Salvia Mainacht	5	100		1
Salvia Serenade	5	100		1
Sanguisorba Crimson Queen	5	40		1
Verbena bonariensis	5	35		1
Verbena hastata	3	54		1

Zone 2

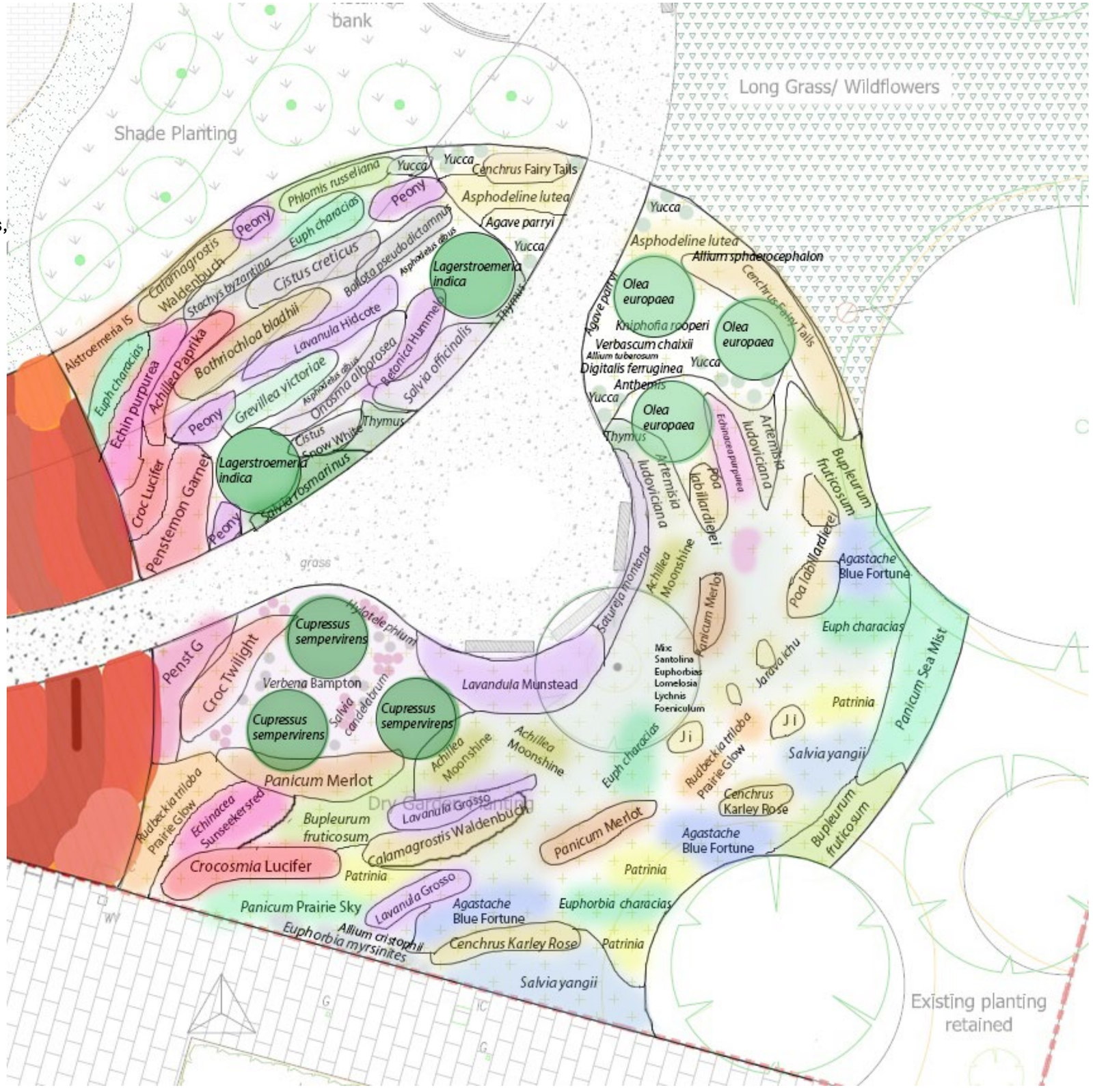
Dry Garden (Climate Change zone)

The plants in zone 2 have been chosen for their drought tolerance. A mixture of biennials, perennials, subshrubs and shrubs from a predominantly Mediterranean climate. There will be little irrigation required, especially once the plants have established. This area presents a possible future palette of garden plants as the climate warms.

The planting on the east side of the path will include a large area of low shrubby species mixed to create the appearance of a Mediterranean scrub. Aromatic plants like thyme, sage and lavender will provide scented foliage.

Grasses provide some structure for much of the year and spiky plants like Yucca, Agave and asphodels, will merge with the wildflower meadow to the north.

The trees here will complement the planting stye, with typical Mediterranean species: olives (*Olea europaea*), Italian cypress (*Cupressus sempervirens*) and crepe myrtle (*Lagerstroemia indica*).



Plant List Zone 2

	Plants per m2	Quantity		Zone
Achillea Moonshine	5	45		2
Achillea Paprika	5	20		2
Agastache Blue Fortune	3	54		2
Agave parryi	single	6	exotic	2
Allium tuberosum	single	20		2
Alstroemeria Indian Summer	4	16		2
Anthemis E C Buxton	single	40		2
Artemisia ludoviciana	3	25		2
Asphodeline lutea	3	30		2
Asphodelus albus	single	15		2
Ballota pseudodictamnus	3	15		2
Betonica Hummelo	5	20		2
Bothriochloa bladhii	4	30	grass	2
Bupleurum fruticosum	1	32	shrub	2
Calamagrostis Waldenbuch	3	40	grass	2
Cenchrus Fairy Tails	3	42	grass	2
Cenchrus Karley Rose	5	35	grass	2
Cistus creticus	2	11	shrub	2
Cistus salvifolius	3	9	shrub	2
Crocosmia Lucifer	5	55		2
Crocosmia Twilight Fairy Crimson	7	50		2
Digitalis ferruginea	single	20		2
Echinacea Leuchstern	7	70		2
Echinacea Sunseekers Red	7	50		2
Euphorbia barrellieri	mix	30		2
Euphorbia characias	2	40		2
Euphorbia myrsinites	3	20		2
Euphorbia rigida	mix	20		2
Foeniculum vulgare Purpureum	mix	30		2
Grevillea victoriae	1	7	shrub	2
Hylotelephium Purple Emperor	5	20		2
Jarava ichu	3	13	grass	2
Kniphofia rooperi	single	15		2
Lavandula Grosso	3	30		2
Lavandula Hidcote	5	30		2
Lavandula Munstead	5	65		2

Lomelosia cretica	mix	50	seed	2
Onosma alboroea	5	25		2
Paeonia mascula	3	15		2
Paeonia peregrina	3	7		2
Paeonia tenuifolia	5	7		2
Panicum Merlot	3	45	grass	2
Panicum Prairie Sky	5	45	grass	2
Panicum Sea Mist	3	45	grass	2
Patrinia scabiosifolia	3	50		2
Penstemon Garnet	5	70		2
Phlomis russeliana	3	13		2
Poa labillardierei	3	25	grass	2
Rudbeckia triloba Prairie Glow	7	100		2
Salvia candelabrum	single	12		2
Salvia officinalis	3	20		2
Salvia rosmarinus	2	10	shrub	2
Salvia yangii	5	105		2
Santolina rosamirinifolia	mix	50		2
Satureja montana	5	30	shrub	2
Silene (Lychnis) coronaria	mix	30		2
Stachys byzantina	4	15		2
Thymus	9	45	mixed	2
Verbascum chaixii	single	30		2
Verbena Bampton	3	50		2
Yucca filifera	single	13		2
Yucca rostrata	single	7		2

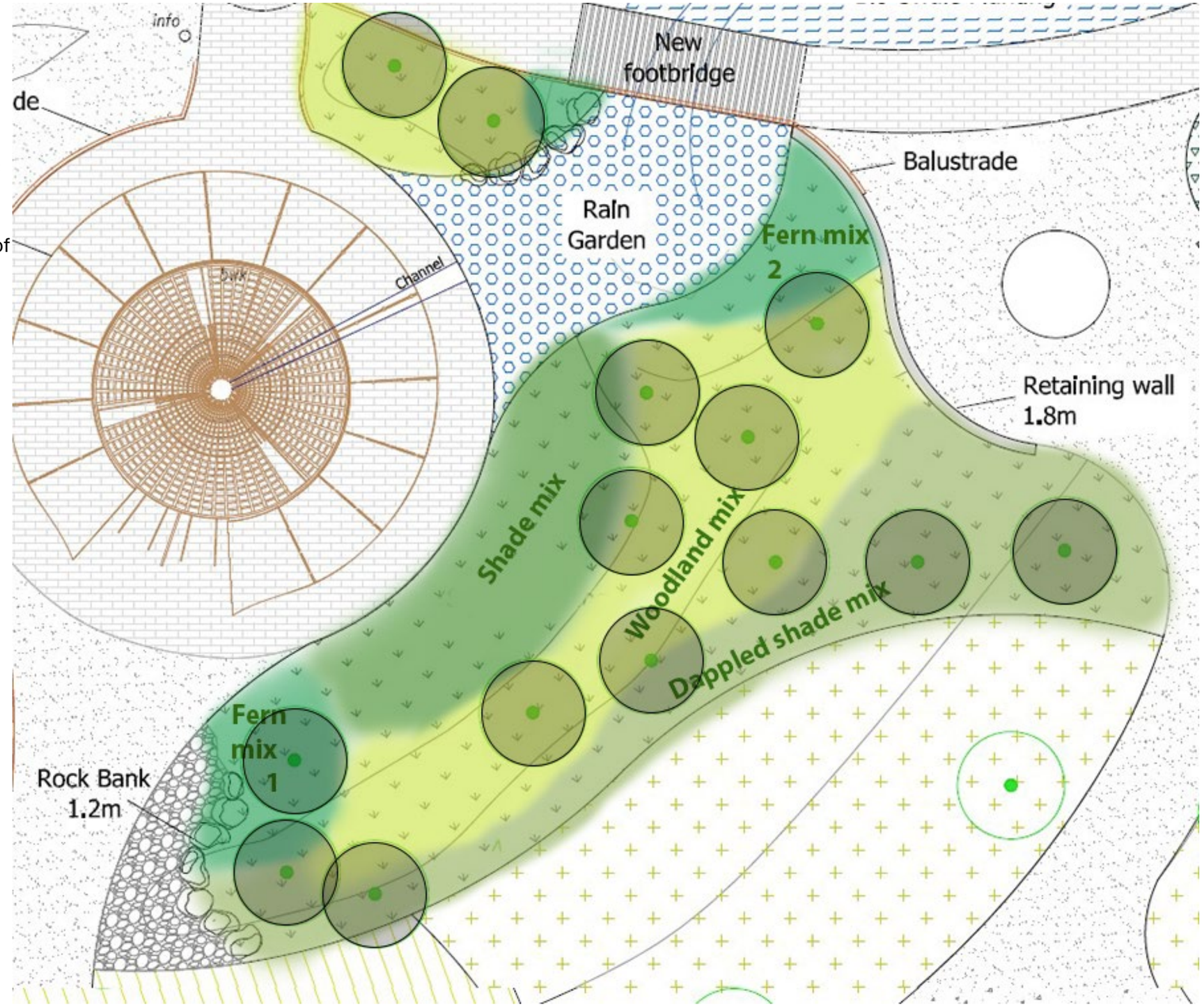
Zone 3

Shade Planting under trees

Under the trees (see separate list) planted on the bank to the east of the pavilion will be a range of plants that tolerate some shade. The amount of shade will vary across the zone so the planting plan shows a range of woodland and shade/semi -shade plant mixes.

The components of the different mixes are indicated in the plant list below. The plants will be arranged randomly, to create a variety of foliage patterns and forms, with a subtle colour palette of flowers.

The aim is to create a self-sustaining planting That once established will require minimal Weeding and occasional irrigation during dry spells.



Plant List Zone 3

	Quantity		Zone	Mix
Alchemilla mollis	45		3	dappled shade
Asplenium scolupendrium	25	fern	3	fern 2
Blechnum spicant	20	fern	3	fern 1
Brunnera Jack Frost	40		3	woodland
Brunnera macrophylla	40		3	woodland
Campanula latifolia	30		3	dappled shade
Carex Blue Zinger	40	grass	3	dappled shade
Centranthus ruber Albus	30		3	dappled shade
Cyclamen hederifolium	40	bulb	3	dappled shade
Cyclamen repandum	40	bulb	3	shade
Cyrtomium fortunei	30	fern	3	fern 2
Digitalis purpurea	35	seed	3	dappled shade
Dryopteris cycadina	20	fern	3	shade
Dryopteris erythrosora	20	fern	3	fern 2
Dryopteris felix-mas	10	fern	3	fern 1
Epimedium grandiflorum	30		3	fern 2
Epimedium pinnatum	50		3	woodland
Epimedium warleyense	35		3	shade
Erigeron karvinskianus	35	seed	3	dappled shade
Euphorbia amygdaloides	30		3	woodland
Euphorbia griffithii	30		3	dappled shade
Eurybia divaricata	20		3	fern 1
Galium odoratum	40		3	woodland
Geranium macrorrhizum	50		3	woodland
Geranium phaeum	30		3	woodland
Geranium sylvaticum	30		3	dappled shade
Gillenia trifoliata	30		3	shade
Hakonechloa macra	50	grass	3	dappled shade
Hakonechloa macra	50	grass	3	woodland
Helleborus foetidus	30		3	woodland
Helleborus x hybridus	40		3	shade
Heuchera sanguinea	40		3	dappled shade
Hosta Devon Green	40		3	shade
Hosta sieboldiana	10		3	fern 2
Hosta Sum and Substance	25		3	shade
Iris foetidissima	30		3	woodland
Iris sibirica Shaker's Prayer	15		3	fern 2

Iris sibirica Sparkling Rose	20		3	fern 2
Luzula nivea	20	grass	3	fern 1
Mertensia virginica	25		3	woodland
Papaver cambricum	20		3	woodland
Polygonatum verticilatum	25		3	shade
Polypodium vulgare	40	fern	3	shade
Polystichum munitum	10	fern	3	fern 1
Polystichum polyblepharum	45	fern	3	woodland
Rodgersia aesculifolia	25		3	shade
Sarcococca confusa	20	shrub	3	dappled shade
Sarcococca hookeriana	20	shrub	3	woodland
Tiarella cordifolia	40		3	woodland
Vinca minor	30		3	woodland

Zone 3b

Shade Planting – along existing woodland border at the back of garden. A mixture of shade/semi-shade tolerant groundcover and shrubs to complement existing planting.

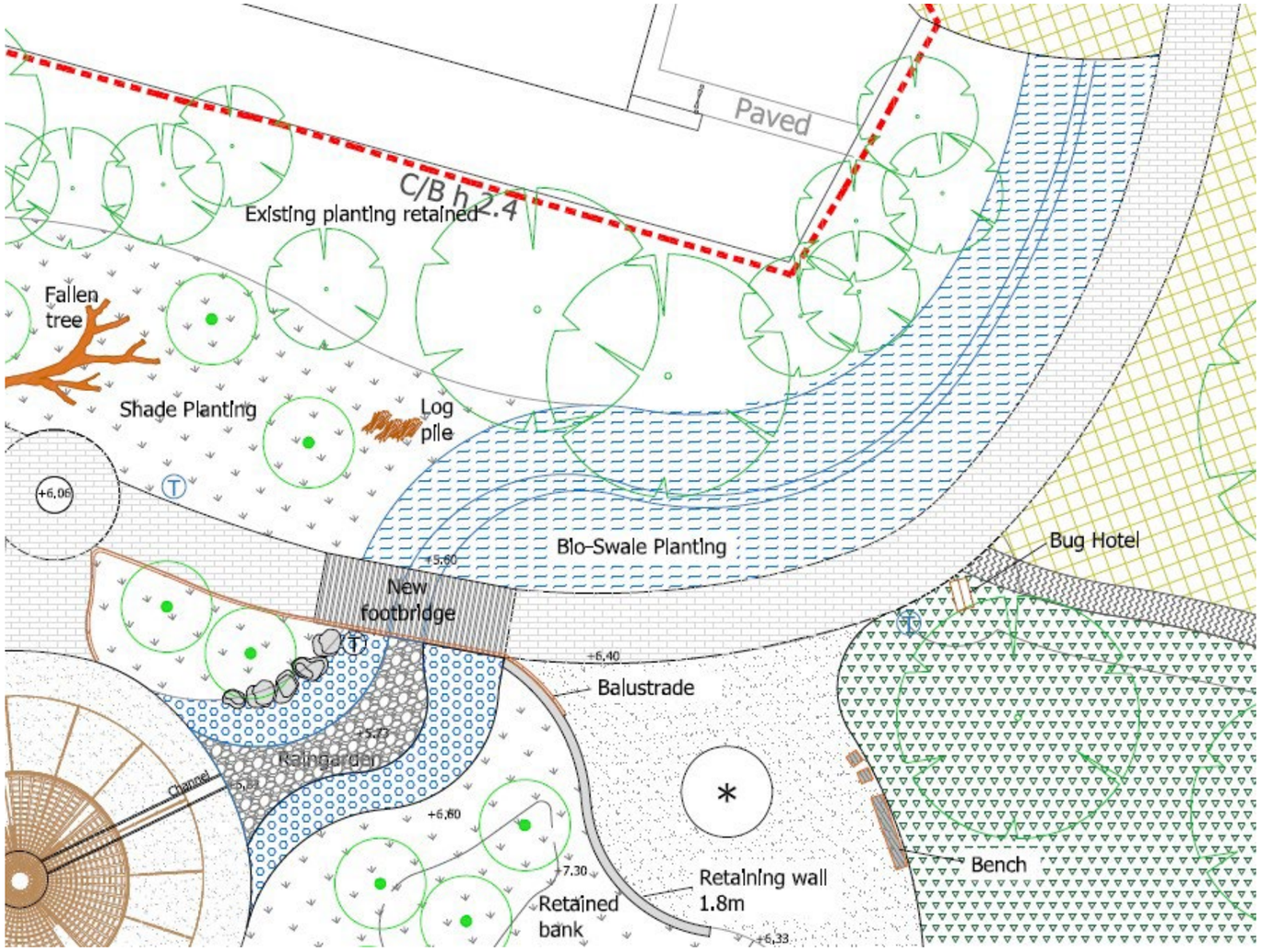
	Quantity		**Zone**	
Cephalanthus occidentalis	single	5	shrub	3b
Daphne laureola	single	7	shrub	3b
Epimedium pinnatum	part of mix	35		3b
Hydrangea arborescens	single	7	shrub	3b
Kirengeshoma palmata	single	10		3b
Mahonia eurybracteata	single	10	shrub	3b
Phuopsis stylosa	part of mix	45		3b

Zone 4

Swale and Rain Garden

The pool area and existing stream bed will be planted with a mix of moisture tolerant perennials. These are not aquatic plants but a selection of species that will cope with periods of wet soil. They will be planted among the pebbles and stones to create a rain garden that takes the runoff from the pavilion roof, and a bio-swale that leads under the bridge and along the stream channel into the existing bamboo planting.

The species in the plant list will be planted in small groups amongst a mixed groundcover.



Plant List Zone 4

	Quantity		Zone
Acorus Ogon	45		4
Ajuga reptans	30		4
Caltha palustris	35		4
Carex divulsa	35		4
Eriophorum vaginatum	40		4
Geum rivale	35		4
Iris Gerald Darby	30		4
Iris pseudacorus	10		4
Lobelia cardinalis Queen Victoria	30		4
Lychnis flos-cuculi	40		4
Lythrum salicaria	30		4
Onoclea (Matteuccia) struthiopteris	45	fern	4
Osmunda regalis	20	fern	4

Zone 5

Flower Meadow

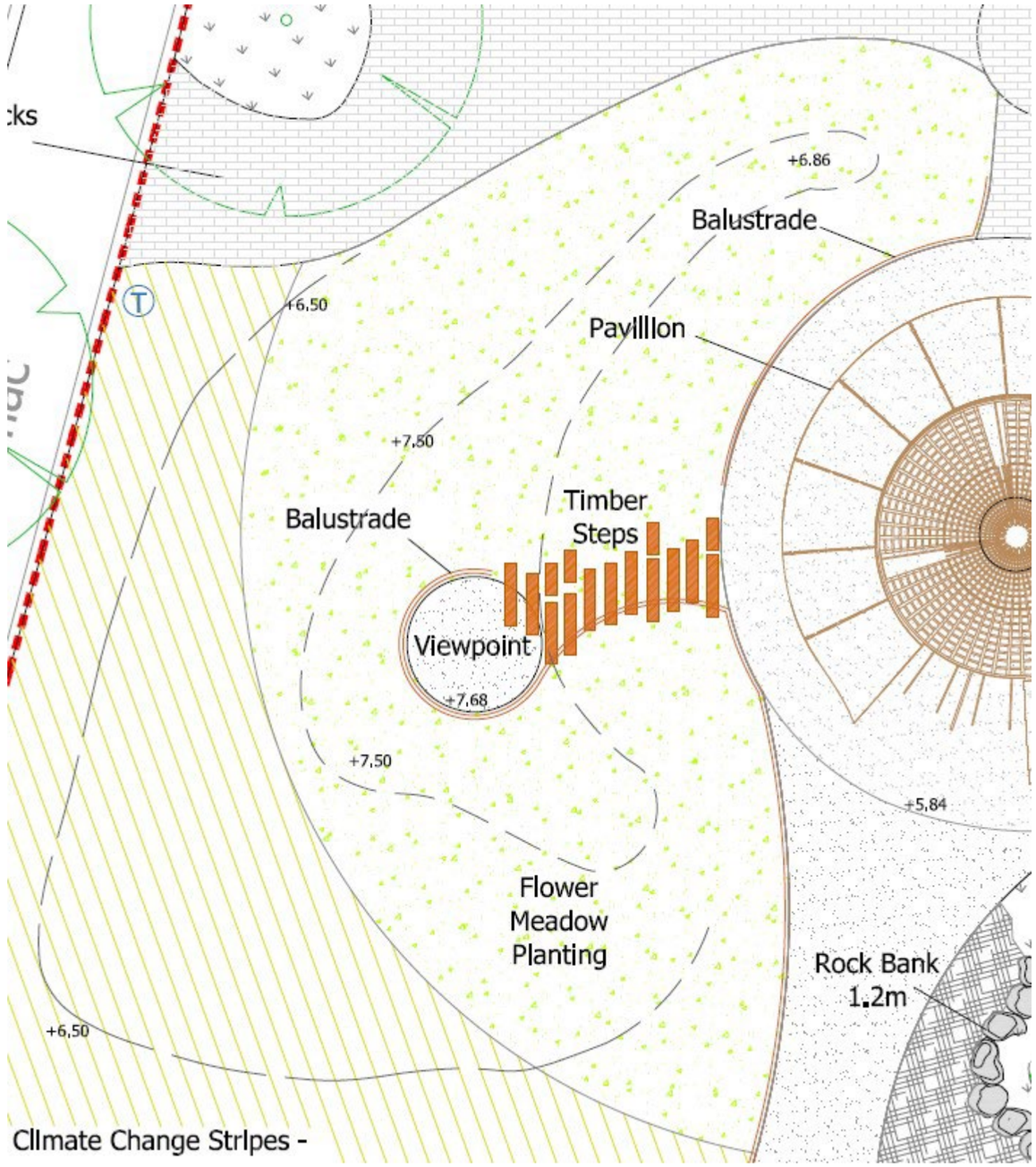
The existing grass on the bank to the west of the pavilion will be mostly retained, with small areas cut out to plant shrubs, like gorse (*Ulex europea*) and heather (*Erica carnea*), and patches of blue moor grass (*Sesleria*). The aim is to represent a moorland or heathland around the proposed viewpoint.

On the lower slopes, meadow and prairie plants from the UK and elsewhere will be planted to merge the grassy meadow with the climate stripe planting around the edge. These will be planted in the grass and allowed to seed around.

Careful maintenance will be required to ensure these added plants are allowed to flourish in the tough grass. The grass will need to be cut, with all arisings taken away, in late summer.

Plant List Zone 5

	Quantity		Zone
Amsonia tabernaemontana	35		5
Daucus carota	50		5
Erica carnea	35	small shrub	5
Eschscholzia californica	seed		5
Filipendula rubra Venusta	35		5
Geranium pratense	45		5
Lamium galeobdolon	50		5
Penstemon digitalis	35		5
Salvia pratensis	50		5
Sanguisorba officinalis	35		5
Sesleria Summer Skies	100	grass	5
Ulex europaea	5	shrub	5



Wildflower Meadow

A typical seed mix for a native flower meadow is shown below. It will depend on the seed mix purchased but all plants will be UK native species. Seed will be sown into the prepared lawn. The grass will be cut back, with all arisings removed, in late summer or early autumn, to allow time for plants to set seed.

The wildflower meadow will show how biodiversity can be increased by introducing native species and reducing the mowing of grass to allow wildflowers to flourish. In turn this will attract a range of insects. It is something anyone with a garden can do to promote biodiversity. A native hedgerow will be planted along the northern edge of the meadow.

Achillea millefolium – Yarrow

Carex flacca – Glaucous Sedge

Euphrasia officinalis – Eyebright

Hypocharis radicata – Catsear

Leontedon hispidus – Rough Hawkbit

Leucanthemum vulgare – Oxeye Daisy

Linum catharticum – Fairy Flax

Lotus corniculatus – Birdsfoot Trefoil

Plantago lanceolata – Ribwort Plantain

Primula veris – Cowslip

Prunella vulgaris – Selfheal

Ranunculus acris – Meadow Buttercup

Rhinanthus minor – Yellow Rattle

Scorzoneroides autumnalis – Autumn Hawkbit

Silene dioica – red campion

Trifolium pratense – Wild Red Clover

Trifolium repens- White clover

Grasses:

Anthoxanthum odoratum – Sweet vernal-grass

Arrhenatherum elatius – False Oat-grass

Bromopsis erecta – Upright Brome

Cynosurus cristatus – Crested Dog's-tail

Festuca rubra – Red Fescue

Helictochloa pratensis – Meadow Oat-grass

Lolium perenne – Perennial Ryegrass

Trees

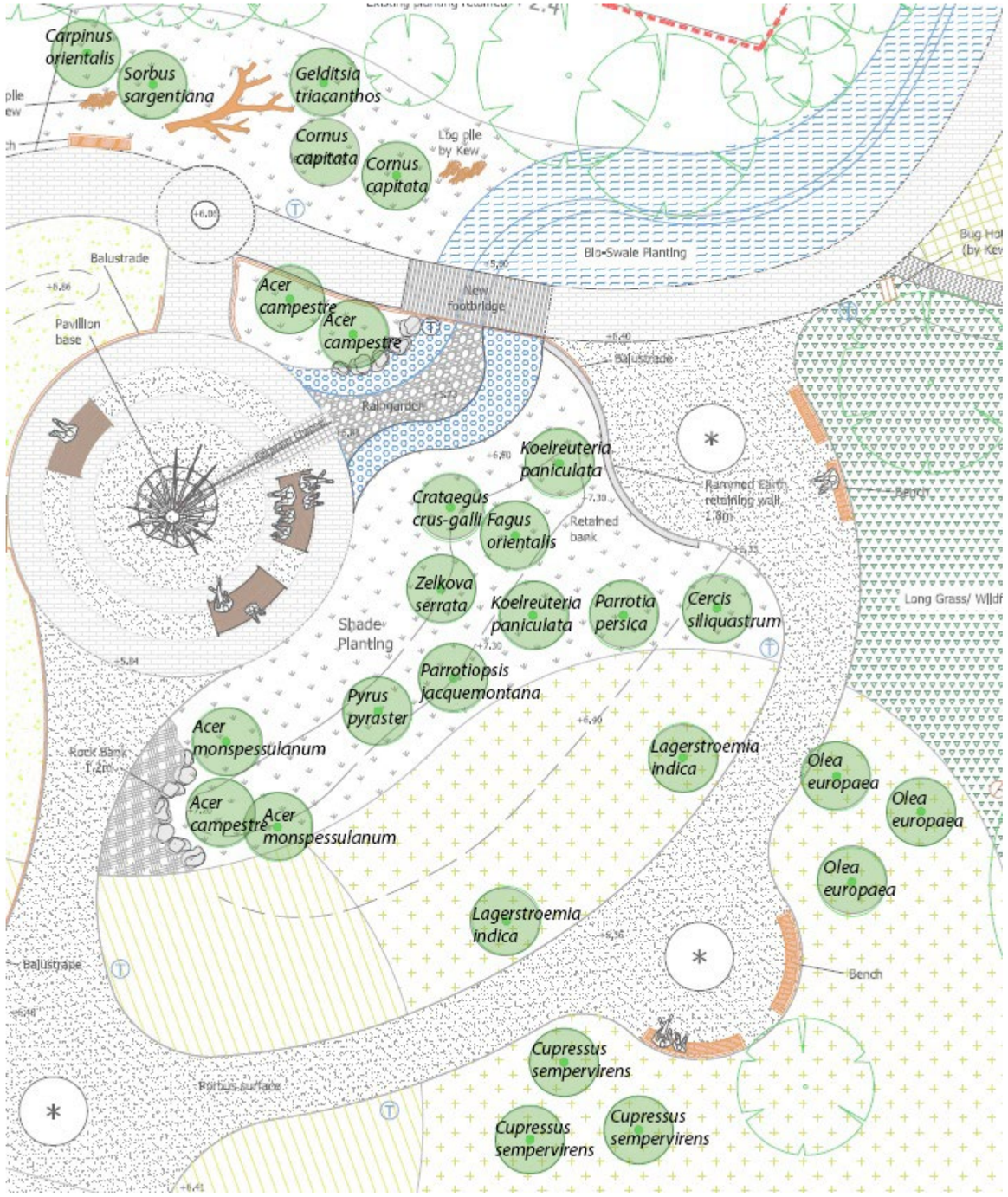
Details of tree sizes and planting methodology will be submitted separately as part of the planning condition U0176269 Tree planting

The plan on the right shows the location of the proposed trees to be planted in the Carbon Garden.

They have been selected for their resilience to climate change, being more drought and heat tolerant than other commonly planted species that may suffer in the near future.

The list has been approved by Kevin Martin, Head of Tree Collections at Kew and one of the authors of Kew's Landscape Succession Plan.

All tree, shrub and hedge planting shall be carried out in accordance with the relevant British Standards (BS 3936:1986 [parts 1, 1992, and 4, 1984]; BS 4043: 1989; and BS 4428:1989).



Carbon Garden Landscape Planting and Maintenance

Landscape planting

All the soft landscaping of the Carbon Garden will be carried out by RBG Kew's experienced Horticulture teams. The planting will take place from March to June 2025, with bulbs planted in autumn of the same year.

Trees will be planted first, using root-balled trees ranging from 2 to 4 metres tall. These will be delivered to Kew Gardens by the suppliers and transported through the gardens and planted under strict supervision of Kew's Arboriculture team, led by Kevin Martin, Head of Tree Collections. All tree, shrub and hedge planting shall be carried out in accordance with the relevant British Standards (BS 3936:1986 [parts 1, 1992, and 4, 1984]; BS 4043: 1989; and BS 4428:1989).

Planting of all perennials, grasses and shrubs will take place from April to June, once the ground has been prepared by Kew's Horticulture team. The majority of the plants will be delivered to Kew in 9cm to 2 litre pots. Larger shrubs will be in pot sizes of 10 to 20 litres or more.

Preparation of the soil will vary according to the zone being planted.

Zone 1 (Climate Stripe planting) will have soil improved with Kew's composted plant material that will provide nutrients and moisture retention for the range of herbaceous perennials.

Zone 2 (Dry Garden) will have a layer of crushed brick and/or concrete, mixed with sharp horticultural sand, to a depth of *c*. 100mm over the existing soil, which will remain mostly undisturbed. This layer will proved the free draining substrate required by the drought tolerant plants in this zone, while allowing the plants to reach the more nutrient rich soil beneath.

Zones 3 and 3b (Shade Planting) will have perennial weeds removed before planting into existing soil. The areas will be mulched with Kew's composted plant material to help retain moisture and provide extra nutrients to help with plant establishment.

Zone 4 (Rain Garden and Swale) will need little soil improvement as the stream and pool are already surrounded by moisture retentive soil.

Zone 5 (Flower Meadow) will have pockets of soil cut into the existing grass for additional plants, mulched as in Zone 3.

The Wildflower area will be prepared by cutting and scarifying the existing informal lawn before seed is sown in spring. Additional sowing may take place in autumn, depending on the performance of the first sowing and the plants that grow spontaneously once the grass is left to grow long.

The native hedge will be bought as 'instant hedging' from a reputable supplier (e.g. Practicality Brown, who supplied the very successful hedge around the Children's Garden), in 1 m sections, planted to form a hedge 10m in length or more. The hedge will be planted in spring and once established, trimmed to *c*. 1.8 m tall.

Landscape Maintenance

The maintenance of the new landscape in the Carbon Garden will be carried out by the horticultural staff who currently maintain the plantings in that part of Kew Gardens. Kew has approximately 150 horticultural staff maintaining the collections and landscapes within the Gardens. For labour intensive tasks, teams are pulled together to work in a particular area. For regular maintenance, teams have allocated areas for which they are responsible, under the guidance of team leaders and supervisors. The Carbon Garden will be included in the regular maintenance programme for that part of the Kew site, with a dedicated supervisor.

Horticultural tasks can be classified as weekly/regular, seasonal and long-term, as set out below.

Weekly/regular tasks

- Checking for watering requirements. Plants and soil will be regularly inspected for watering requirements. This will vary according to season and weather conditions. Also, different zones of the planting will have different watering requirements depending on type of plant and their drought tolerance. Horticultural supervisors at Kew have extensive knowledge of a wide range of plants and their requirements. These supervisors will train and monitor the staff carrying out watering checks and the health of the plants in the landscape and suggest appropriate care. Watering points will be used to irrigate areas that require watering, using a new water efficient system being developed by RBG Kew's Estates team. Timers can be used to ensure irrigation is carried out early in the morning or late in the evening.
- Plants in the drought tolerant planting areas of the landscape, such as *Euphorbia*, *Nepeta*, and *Salvia*, will require much less irrigation once established than the plants in the shade tolerant planting areas and the climate stripe planting.
- Checking signs of pests and diseases on the plants. Regular inspections will be made and appropriate action taken to control pests and diseases. Use of pesticide sprays will be limited in line with RBG Kew's policy to minimise the use of chemicals. Problems may be solved by removal of plants or part thereof, to prevent spread of the pest and/or disease. Priority will be given to cultural and physical controls to limit the occurrence of pests and diseases that can damage or kill plants.
- Tidying of plants and beds. Removal of dead or damaged foliage and stems, clearing of detritus and litter.

Seasonal tasks

- **Winter**: Pruning of larger shrubs to maintain form and remove damaged branches. Mulching of beds in all but the dry garden zone, with fresh mulch to feed the plants and suppress weed growth later in the year. Cutting back of ornamental grasses and herbaceous perennials that have been retained to display seed heads.
- **Spring**: General tidying to keep new weed growth down and remove unsightly new growth on the plants. Care will be taken to retain seedlings from plants that will be encouraged to self-seed, such as *Eschscholzia californica* and *Digitalis purpurea*. Begin regular checks of water requirements of the plants, especially during dry spells. Begin cutting of the small area of grass sward surrounding the site. Checks on the health of existing and new trees.
- **Summer**: Irrigation of beds as required, especially during warm and dry weather. General tidying of plants, removing unsightly growth and dead leaves and stems. Dead heading of flowering plants to promote production of new flowers, particularly in the climate stripes zone.
- **Late summer**: cutting of long grass in the Wildflower meadow and zone 5. All arisings to be removed from the area and composted. This will reduce the nutrients available for the grass, which can otherwise become too dominant. This cutting should only be carried out once the seeds of the wildflowers have dispersed and so timing may vary according to the season.
- **Autumn**: Leaf clearing on a regular basis to remove the fallen leaves of the existing large trees and new trees. Cutting back of some herbaceous perennials, leaving those with prominent seed heads to provide interest, as well as food resources for birds and other wildlife, to encourage biodiversity in the site. Removing unwanted seed heads and collecting the seed to use for propagating new specimens.
- Checks made on existing trees as part of the Tree Risk Assessment programme for the whole of Kew. Extra checks will be made on this site due to the number of visitors and the presence of seating near some of the trees.

Long-term maintenance:

Some plants may need replacing, especially some of the herbaceous perennials that have a shorter lifespan than most woody plants. A rolling programme of plant replacement is necessary, using our in-house propagating facilities to produce more material.

Some plants that do well will need lifting and dividing or thinning out to maintain the display.

As the new trees grow, they will come under the regular tree survey to ensure they remain safe. Any trees that die or are damaged will be replaced to maintain the tree cover.

The new planting will be constantly monitored to ensure the maintenance standards are kept and the Carbon Garden provides an attractive and inspiring display.

Habitat management plan

Details of the ecological enhancement scheme will be submitted separately for planning condition U0176272 Ecological Enhancement

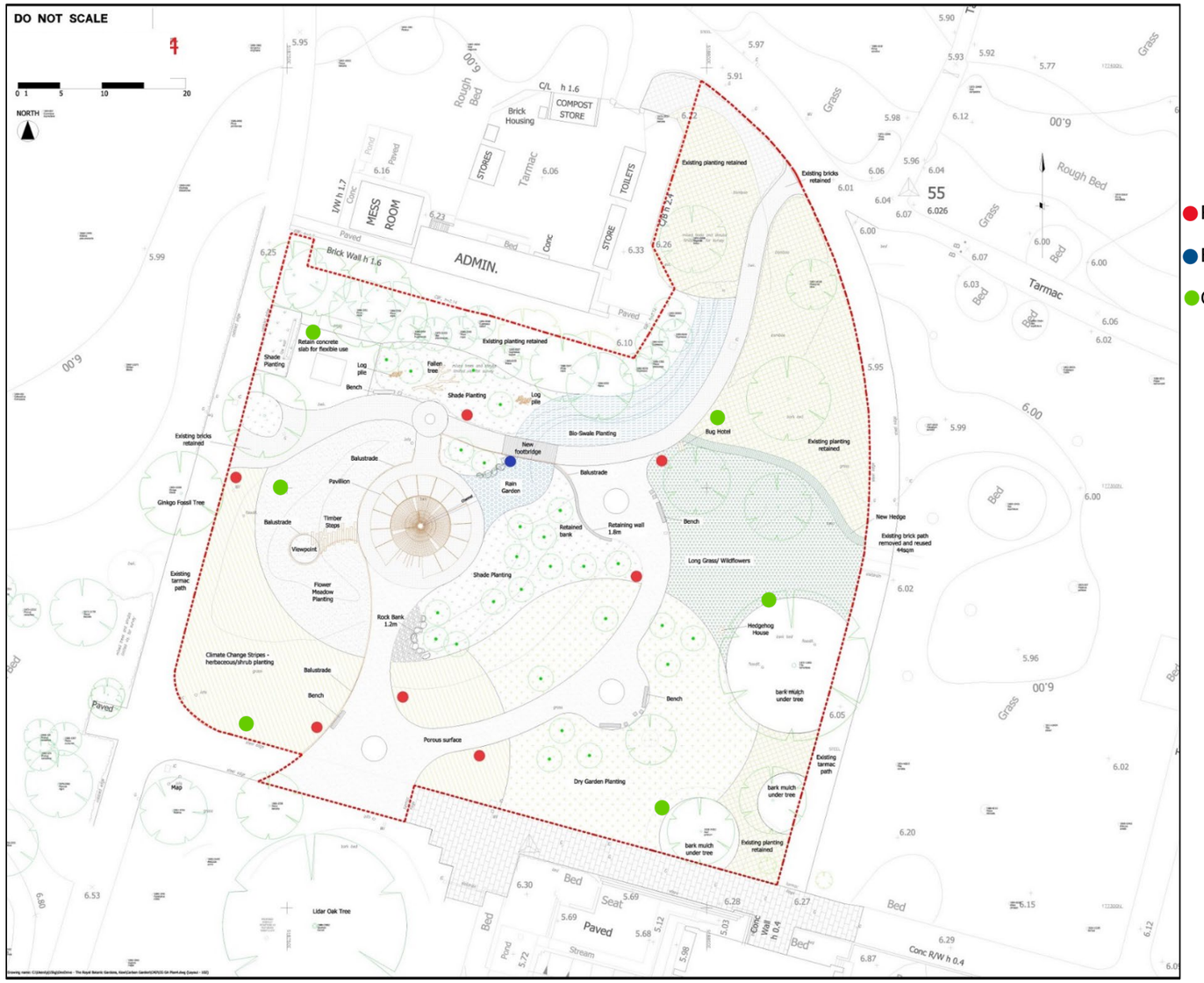
- Regular maintenance as detailed above will ensure the various habitat conditions are maintained and remedial action will be taken as necessary to restore and/or improve.
- The hedgerow of native woody species will be monitored and replanted if necessary. The hedge will be trimmed in autumn to ensure growth is healthy and suitably dense, and the habitat is maintained.
- The long grass areas in the Wildflower and Flower Meadow zones will be cut in late summer or autumn, as described in the maintenance schedule above. This will encourage more spontaneous germinations and promote biodiversity.
- A mix of non-native and native species will be used to create the bioswale. Regular maintenance will ensure the habitat condition will be maintained and pollution levels managed. Cutting back in late autumn and winter will be carried out to keep the swale functioning.
- The trees planted on the bank to the east of the pavilion will eventually grow to create a woodland habitat but with climate resilient species that should survive the changing climate of London over the next 50 years or more. Trees will be regularly inspected. Any pruning will be carried out in the winter months to avoid disturbing wildlife. This new habitat will merge with the existing trees on and around the site creating an area high in biodiversity. Trees will be reinstated in case of failure.
- Existing trees along the northern boundary of the site will be regularly inspected. Pruning to be carried out in winter and the planting beneath will be enhanced as described above. Debris from pruning and log piles incorporated to increase the habitat range.
- During construction existing habitats will be disturbed as little as possible and any maintenance will be carried out at the appropriate time of the year. Tree protection will be out in place to protect existing trees and their root protection zones.

Hard Landscape Plan

For the hard landscape plan see attached drawing **RBG-24-007-104-Hard Landscape Plan_T1**

For existing services see attached drawing **Kew Carbon Garden existing levels and services**, showing the Carbon Garden site, levels and relation to wider area within Kew Gardens.

Proposed irrigation points will be extensions to the existing water supply. Proposed locations for irrigation points and WAP are shown below



- Red dots show new irrigation points
- Blue dot shows existing irrigation point
- Green dots show proposed Wi-Fi access points (WAP)

Materials specification

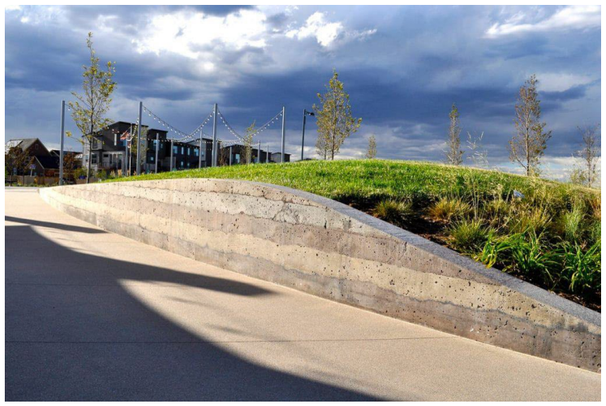
Description	Type	Potential Supplier	Location
Porous resin bound gravel paths. Colour: Rustic Oak or similar agreed Aggregate: 6-10mm with recycled content Depth: 35mm No or minimal dig system, with suitable low impact sub base for occasional light vehicular use (e.g. mini tractor).	Terrabase Rustic Oak with recycled content (bespoke blend)	Addagrip	New path, total area 489m^2 + Viewpoint 9m^2 + Under pavilion 168m^2
Cellular confinement system, perforated, 75mm depth, suitable for occasional vehicular use, clean angular stone infill. Use Geotextile underlay. This zone of the path is no dig or hand dig if necessary, under supervision of RBG Kew.	Cellweb TRP	Geosynthetics	To be used under resin bound gravel on eastern side of path. Area 231m^2
Path edging: recycled aluminium, flexible, 150mm deep, 8mm thick. Fixing: 250mm spiral fixing stakes, 5 per each 2.5m length.	AluExcel	e.g. Kinley	185m of path edge
Re-lay bricks in central pavilion circle according to instructions from architect and RBG Kew			
Natural stone, shallow dished channel from base of pavilion with fall to rain garden, as per architect drawings.	Precast sandstone channel or natural stone pavers to form channel, tbc	tbc	To take rainwater from pavilion roof to rain garden
Crushed brick and concrete from site to be mixed with horticultural sharp sand and spread over dry garden planting zone to depth of *c*. 100mm.			In dry garden. Approx. area 322m^2 Volume required approx. 32.2m^3
Steps: Reclaimed untreated timber sleepers *c*. 250mm x125mm x irregular lengths to make steps up to viewpoint. Anti-slip strips to be incorporated into steps.	Reclaimed untreated railway sleepers	e.g. UK Sleepers	To be set in grass bank leading from pavilion circle to viewpoint
Retaining wall – rammed earth on suitable base. Max height 1.8m, tapering down on each side, 600mm thick, as per instructions from engineer and rammed earth wall consultant.	Using material from site, including soil & crushed brick/concrete	tbc	To retain soil bank at northern end of eastern mound.
Flat sandstone rocks and/or reclaimed paving, irregular shapes, rough/riven surface, sand joints.	Irregular, riven sandstone		Area c. 14m^2 Between resin bound path and rock wall
Rock bank – sandstone blocks of irregular sizes: one layer of stones at base coloured to represent coal, and large stones above – total height *c*. 1.2m	Sandstone blocks, hand selected		Southern end of eastern mound
Rock bank along NW side of rain garden to retain low bank	Boulders, hand selected	Possibly provided by RBG Kew	North side of rain garden
Random sized cobbles/pebbles, mix of roughly 60% 40-90mm and 40% 80-120mm	Scottish cobbles	Stone Warehouse	Main channel of rain garden and swale Area of rain garden 17m^2, plus swale base
Fallen tree, log piles, hedgehog house, bird boxes and bug hotel to be provided and installed by RBG Kew			

Terrabase Rustic Oak porous resin bound gravel

Cellweb, cellular confinement system

Pebbles for rain garden and swale base

Illustration of exposed coal seam to be replicated at rock wall



Example of retaining wall made of rammed earth

Programme

A final programme will be agreed once the contractor has been appointed. The intention is to start work in early to mid-January 2025, with a completion date for the whole garden in July 2025.

January 2025 – early February 2025

Site set up, including hoarding and tree protection.

Site clearance (remove water feature, dilapidated bridge, concrete base to stream, short brick path on east side of site and old interpretation signs).

February 2025 – March 2025

Irrigation supply pipes laid.

Levels for site established - all earth works completed by end of March for protection of amphibians, reptiles and nesting birds.

Path subbase including cellular confinement system and edging.

March 2025 – April 2025

Check for nesting birds, amphibians and reptiles just ahead of installing the retaining wall for low bank, rock wall and associated stone pavement.

Distribute crushed brick/concrete and sharp horticultural sand over dry garden area in readiness for planting.

Lay pebble surface for rain garden and swale.

Plant trees (RBG Kew).

May 2025-June 2025

Planting (by RBG Kew)

Prepare base and drainage channel for pavilion structure.

Install final path surfaces and repair damage to existing brick paths as necessary.

Install timber steps to viewpoint on west bank.

<u>June-July 2025</u>

Install pavilion and new bridge over swale.

Install railings to viewpoint and bridge.

Install interpretation signs.

Install seating.

Install bug hotel, hedgehog house, bird boxes, log piles.

Open garden to public.