

NEW CITY COURT

Landscape Strategy - Addendum

MRG Studio

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Image (above):
Main consultation queries
addressed in this report

Can we do more for
green infrastructure at
ground level?

What other grading
options have been
considered for
accessibility?

How feasible is a real
woodland up at this
level?

How can we further broaden
the range of habitats and
conditions on these roofs?

Could the focus on upper floors shift more
towards innovation in urban landscape
ecologies and knowledge-sharing?

How will the bugs get up there?

A landscape strategy report was submitted as part of the applications for planning permission and listed building consent (LBS refs 21/AP/1361 and 21/AP/1364) in April 2021 for the redevelopment of New City Court. This addendum sets out the changes proposed to these applications as a result of the work that has been undertaken since April to further develop the landscape and public realm design.

Consultation with the Bankside Open Spaces Trust (BOST) in late April helped to distil the purpose and value of this scheme as a 'landscape lab' experimenting in the creation, management and monitoring of an authentic woodland atop a tall building in this urban environment in central London.

We are thankful for BOST's queries and encouragement, and our responses to their promptings are included in this report.

Following this consultation, we have worked with our project ecologists to focus the design priorities more on the diversity and viability of wildlife on the terraces, in addition to the amenities they are providing to the building occupants.

To support this work, we have also been in conversation with other specialists such as Buglife, whose generous advice and insight are incorporated in this work.

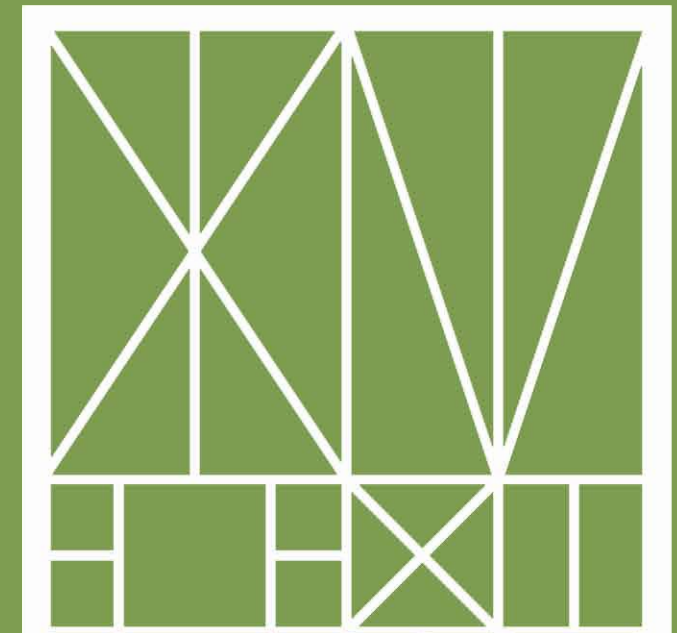
The main changes to the scheme since April have focused on strengthening its ecological benefits:

- Addition of south-facing planted balconies
- Broadening of the range of habitats to be created across the roof terraces, particularly on Level 26
- Proposals to further improve viability of wildlife on the terraces (eg invertebrate translocation and seed bank implantation)
- Increasing the planting on the ground floor, focusing on vertical elements such as walls, building columns and wind mitigation panels
- Setting out the principle of post-construction ecological monitoring and a commitment to share the data publicly
- Update of the Urban Greening Factor calculations

We have also revisited early grading studies in response to stakeholder queries regarding accessibility between Kings Head Yard and the courtyard.

Following an internal review of health and safety risks across the landscape, we introduced inner balustrades on the Level 26 terrace.

These changes are reflected in this addendum.

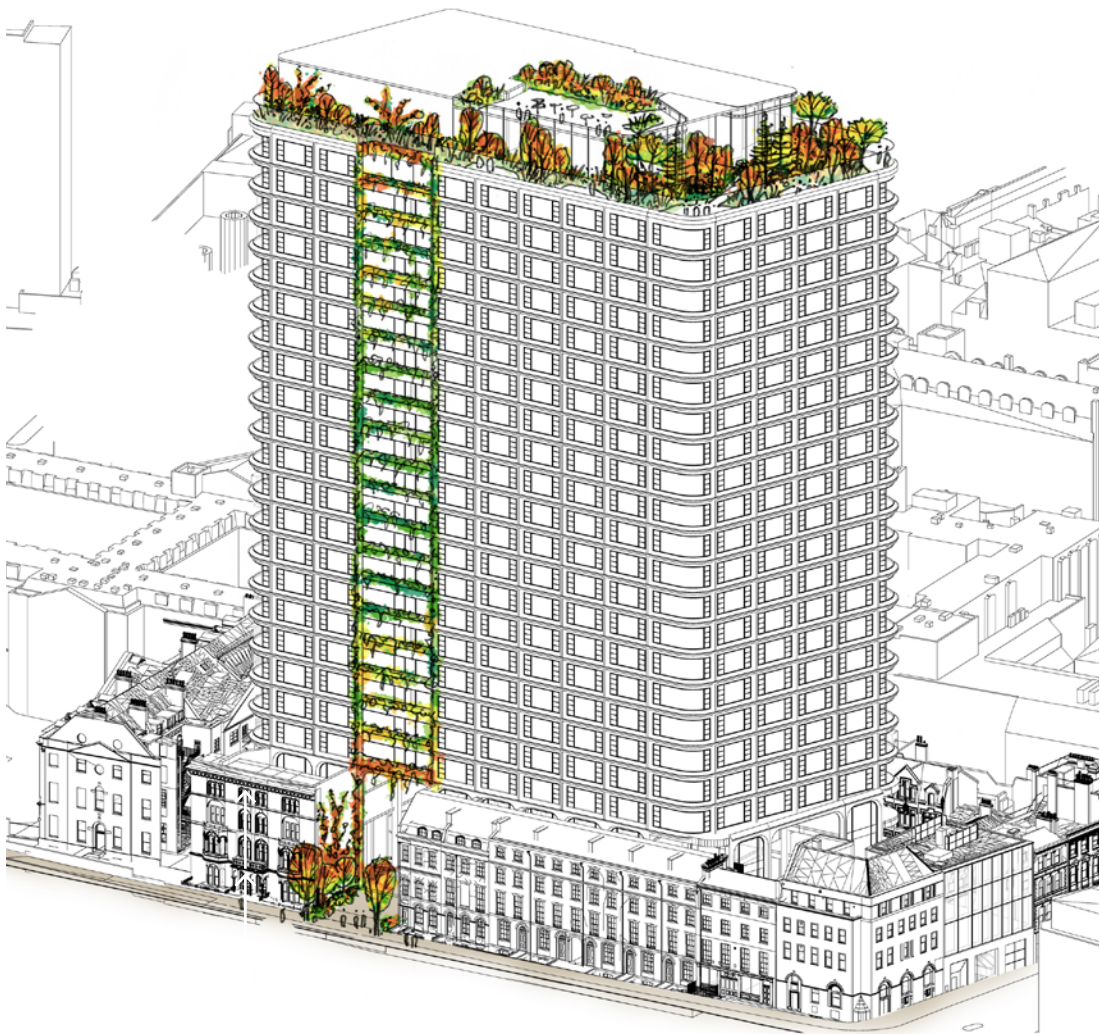


Landscape strategy developments

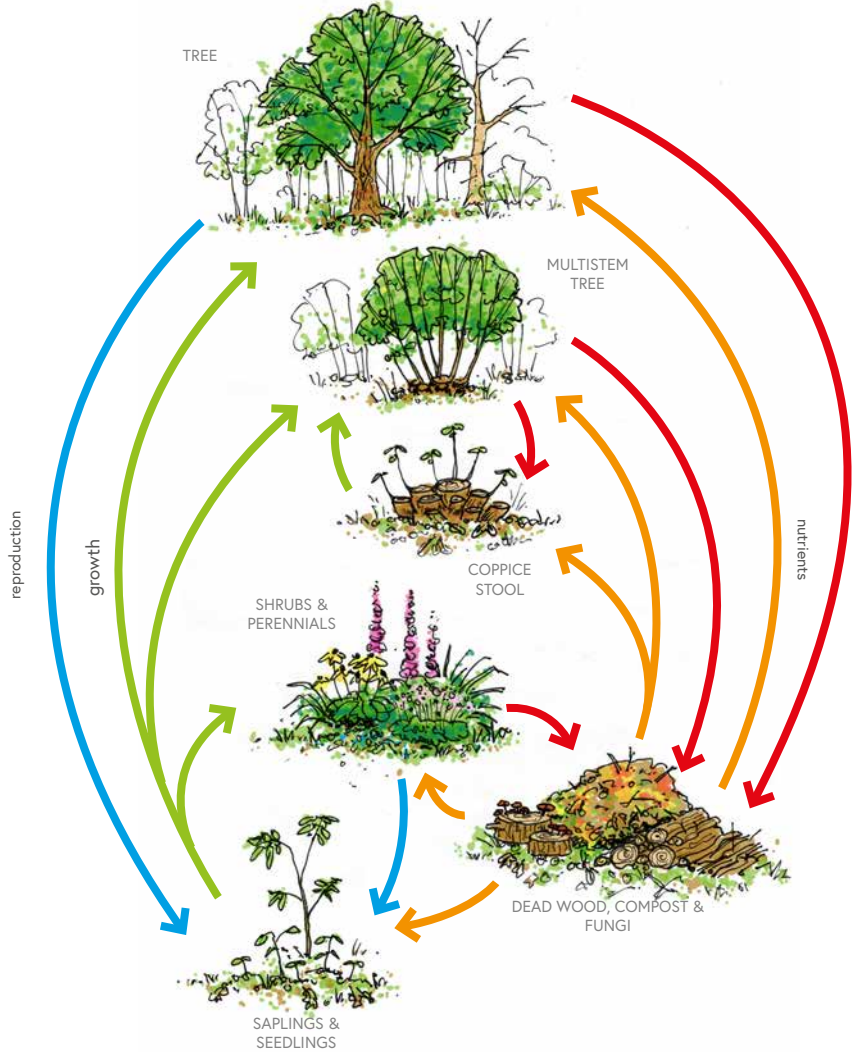


A 'Landscape Lab'

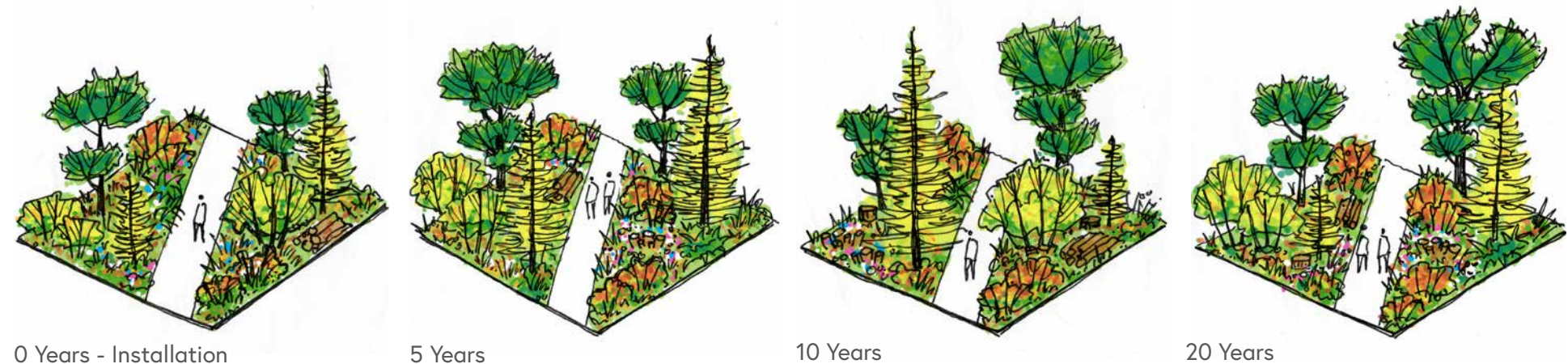
Creating and measuring habitat success



An early landscape concept sketch of ecological connectivity in landscape amenity



Coppicing as a means to keep trees and shrubs smaller, promote biodiversity in the understorey. Allow lopped branches to decompose and home invertebrates such as beetles.



0 Years - Installation

5 Years

10 Years

20 Years

Coppicing rotations to create and maintain a woodland garden in continuous movement as sunlight reaches different parts of the woodland floor

The landscape scheme presented in the planning application proposed a woodland garden that would be managed by ecologically-led principles whilst providing landscape and public realm amenity. Whilst many of these methods are established on the ground, their use on podium landscapes at height will be experimental and test some existing boundaries.

Data collected from the monitoring of habitats on tall buildings in urban environments is much needed by ecologists and landscape architects to inform contemporary landscape design.

Our consultation with BOST shifted the priority from amenity provision to the creation of authentic ecologies, their monitoring and the sharing of the data for the wider public good, a 'Landscape Lab'.

The 'Landscape Lab' will provide an opportunity to contribute to this growing body of knowledge. The gathering and sharing of data and a programme of monitoring and analysis will provide greater benefit to a wider public than the creation of one publicly accessible rooftop garden.

Creating habitats differently

A key purpose of the landscape will be to sustain a range of species that have the greatest chances of establishing and thriving in the conditions created across the different habitats.

We will work with the project ecologists and specialist advisors such as the London Wildlife Trust and Buglife charities to identify suitable target faunal species and their particular food chains in the development of planting palettes and soil types that make up the habitats.

Invertebrates in turn will perform a range of functions across the landscape: as pollinators, as plant refuse recyclers and as prey for predators such as birds and bats.

Access through wildlife refuge

Access to and through the narrower L24 wildlife ribbon should be largely limited to maintenance only, to be timed with the living cycles and rhythms of the flora and fauna to minimise disturbance during vulnerable periods. When these periods might occur each year will be explored further in Stage 3 when target species will be more defined.

Consultation with Bankside Open Spaces Trust (BOST)

Main queries and responses



BOST were generally supportive of the principle of creating new meaningful, quality open space, and were interested to see further detail on the construction and future operation and maintenance of these proposals. A summary of their queries and our design responses is presented below and shown in more detail on subsequent pages of this report.

BOST queried the ecological enhancements proposed at the higher storey, as it was felt unlikely that pollinators would be able to navigate to this height in high wind conditions. Wildlife colonisation of sites on tall buildings has been documented around the world, particularly where brownfield conditions have been re-created for rare invertebrates and birds to find sanctuary. Species that find their way up many stories include spiders, beetles, flies and bees. Part of the experiment at New City Court will be on testing the re-creation of woodland ecologies, rather than brownfield habitats early in their successional processes.

Whilst the New City Court building may be taller than many documented examples, we proposed to combine and apply various methods to improve the likelihood of successful colonisation:

- Vertical stepping stones: We understand that a progressive chain of resources can lead wildlife higher and higher above ground, reducing the reliance on colonisation by flight.
- Translocation: We are looking into bringing invertebrates or their larvae/eggs in soils or aggregates that are re-used/recycled from the ground level and used on roof tops to introduce invertebrate and plant species to the site to kick-start colonisation processes.
- 'In situ' seedbank: We are looking to incorporate seeds into the soils mixes to jump-start the transport of seeds that might be expected of birds and winds.

Once invertebrates reach these habitats, our landscape will need to provide them reasons to stay and to return in the form of resources for feeding and sheltering. Further development of the landscape design will focus on creating suitable conditions in which their predators and prey will also thrive.

BOST supported the idea of a garden for educational purposes. Because some of the proposed methods of creating and maintaining the landscape apply approaches used in other contexts on the ground, BOST advocated that the experimental and innovative nature of the project could be the focus of the proposals, rather than the provision of amenity for public use, although the latter would also be managed in concert with the ecology. Should these ecologically-led proposals not turn out to be successful, a similar woodland garden could be sustained using more traditional methods of maintenance, ie regular and routine plant nourishment through imported soil improvers, plant replacement and arboricultural management.

BOST welcomed the proposed use of primarily native trees and plants of local provenance where possible, as well as peat-free suppliers. We will be working with contractors and suppliers to use imported soils that are peat-free and also contract-grown plants grown in peat-free soils. We hope careful procurement can help contribute to the horticultural industry's shift towards peat-free soils throughout the supply chain.

BOST and other consultees have advocated for more green infrastructure to be created at ground level. Because the ground plane needs to be kept relatively open for the kinds of footfall anticipated on the site, we have targeted vertical surfaces (walls, columns and wind mitigation panels) to increase green infrastructure.

Inter-floor connectivity

Addition of south-facing balconies

The landscape strategy submitted in the planning application proposed a 'green ladder' of balconies on the north-facing facade to connect the woodland garden to the New City Court entrance on the ground at St Thomas Street.

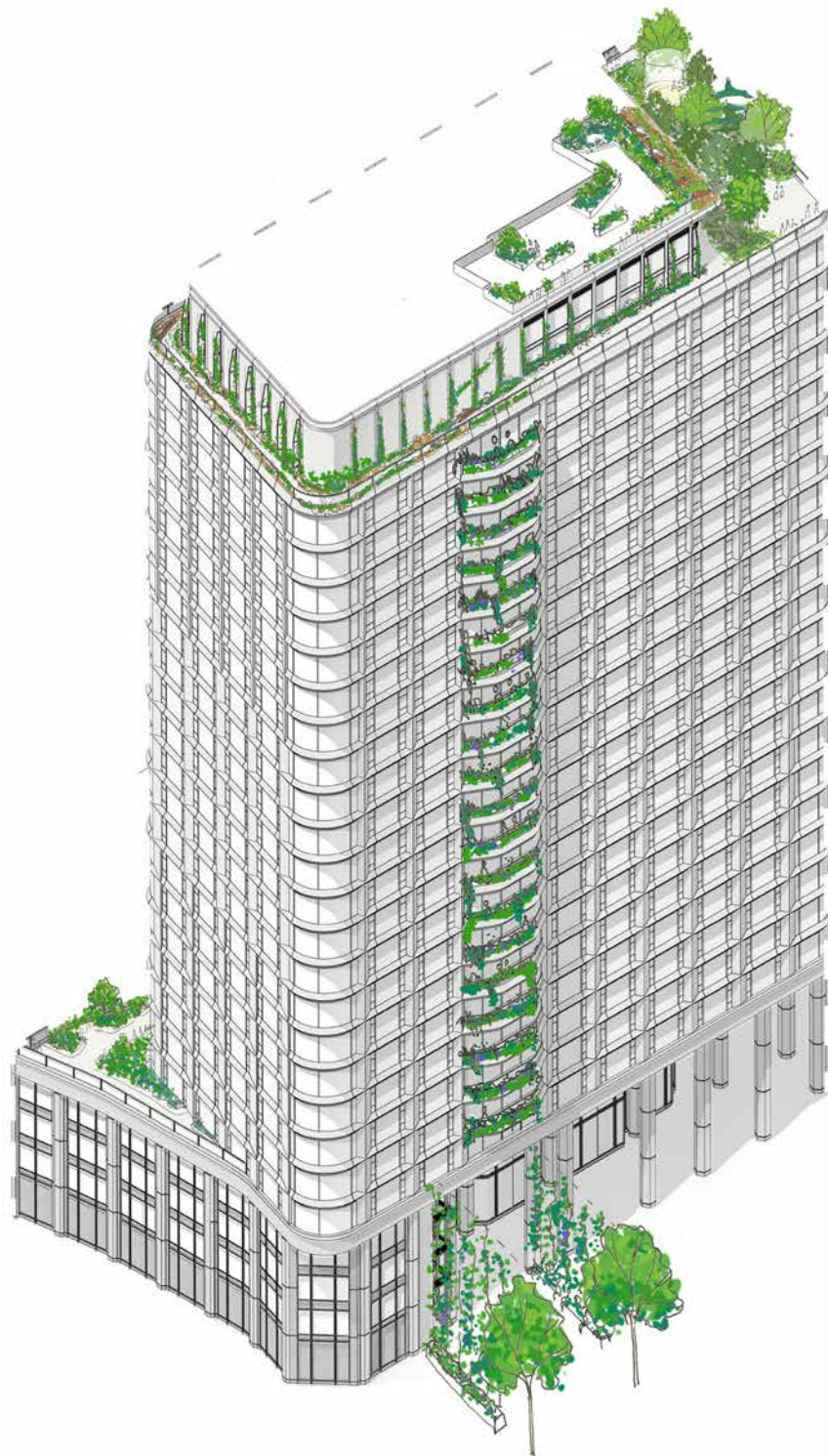
Since then, the building design has added south-facing balconies which allow the woodland garden to be connected to the ground-level planting in the Kings Head courtyard, and brings these resources a little closer to the terrace on Level 3.

Creating green ladders on both the north- and south-facing sides of the building will allow different kinds of planting to support a wider range of wildlife.

Whereas the south-facing balconies will receive abundant natural light, they will also be more exposed to the prevailing winds, which can be drying or alternately amplify the effects of driving rain.

Conversely, although the north-facing balconies are mostly overshadowed, they are also more protected on the leeward side of the building.

Climbing plants on the wind mitigation panels at the south-west corner of the building will also help to connect these green resources from the balconies to the ground.



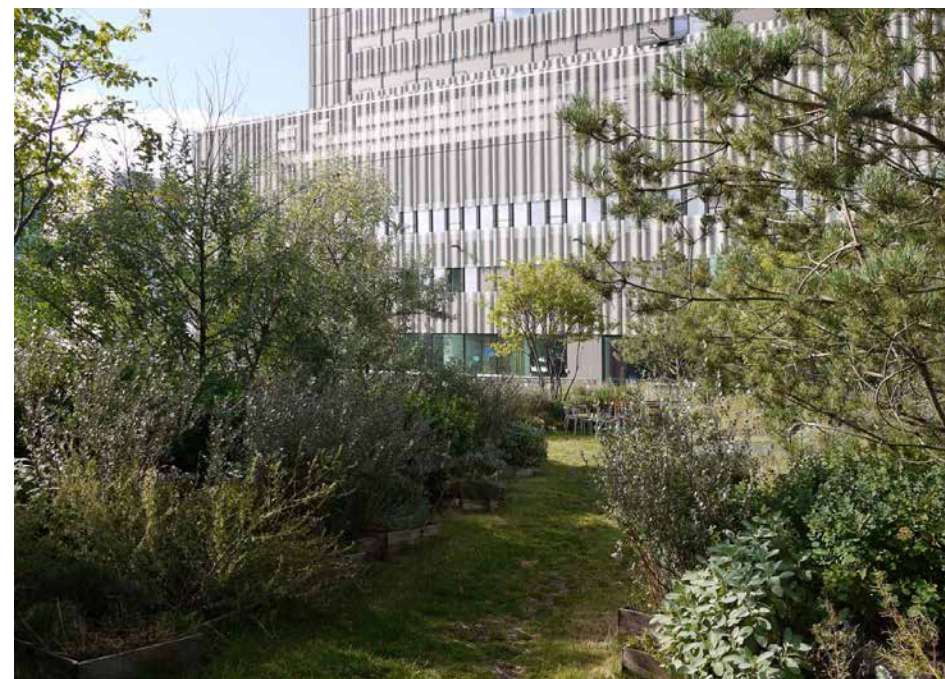
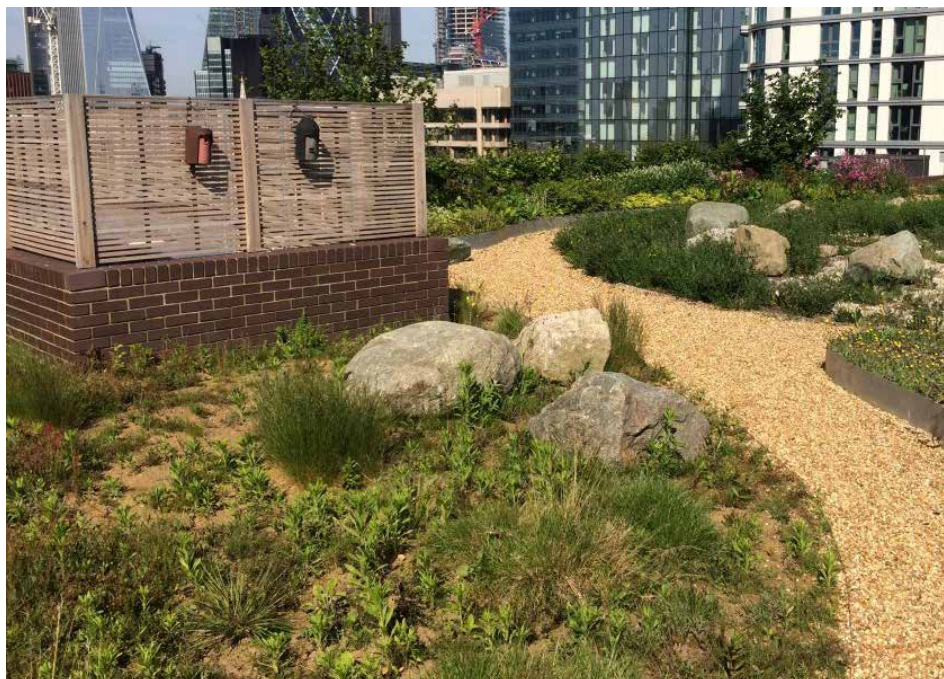
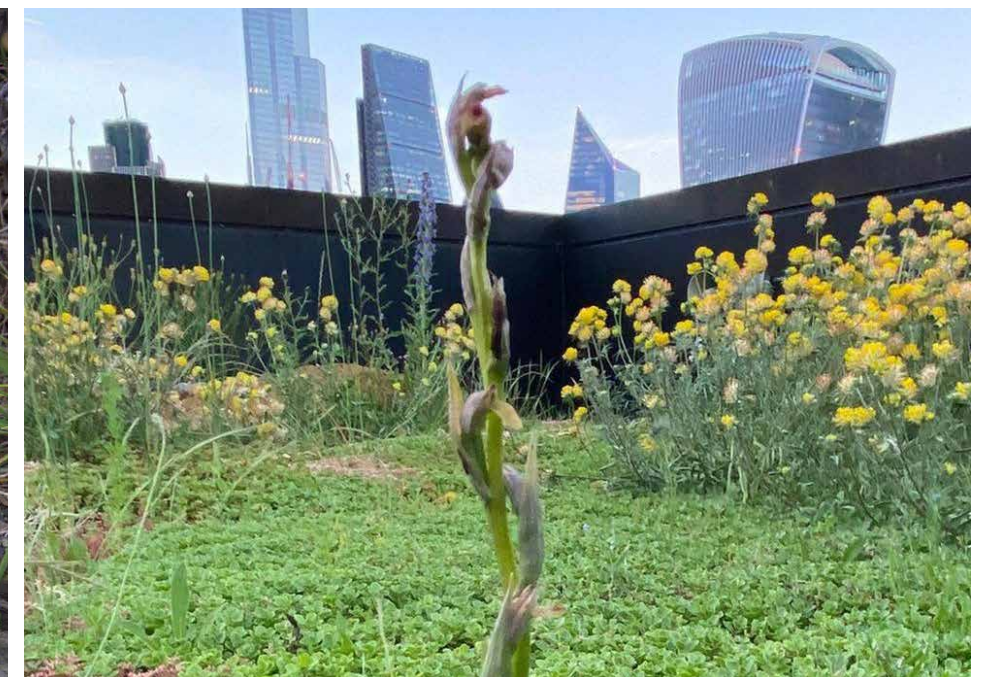
North facade: green ladder balconies



South facade: green ladder balconies

Ecologically rich roof landscapes

A study of urban ecology precedents and their approaches to creating and maintaining them



Goodman's Fields Wildlife Sky Gardens

Over 4,600m², this ambitious intensive green roof scheme provides a network of biodiverse habitats not usually found on high-rise developments. These enable local and migrating species to forage, shelter and breed, without interference from people or domestic animals.

On the 8th and 9th floors these roofs host London's only rooftop chalk meadow as well as a mosaic of micro-habitats.

Pixel Park, Zurich

Built in 2014, this seventh-floor roof garden was designed as a series of stacked wooden boxes that slowly decompose to create a topographically varying terrain and also nourish the forest floor life cycle.

Nomura bank, London

This inventive green roof hosts the only wild habitat of the orchid *serapias parviflora*. The gardens consist of several green roofs and terraces as well as a twelve-bed kitchen garden.

15 specimens, along with other orchids, were found on the building's 11th floor green roof by Nomura's in-house ecologist. In addition to this, the roofs have also been home to one of the UK's rarest breeding birds, the Black Redstart.

GPE working in partnership with other sites and entities

Wild West End: biodiversity and ecological connectivity in the heart of London



Roof terrace at Elsley House, a property of Great Portland Estates

As members of the Wild West End partnership, Great Portland Estates are working with the West End's largest property owners to encourage birds, bees and bats back into the heart of London, and create greater connections with nature for residents, visitors and workers to enjoy.

In 2020 WWE commissioned a survey of sixteen green spaces within the West End, including GPE's Elsley House. This research broadened an established programme monitoring birds and bats to include invertebrates. The study used key pollinators (butterflies, bumblebees and honeybees) as proxy indicators to evaluate the biodiversity benefits of these green spaces. Management and design were key considerations to increase the quality and diversity of pollinators.

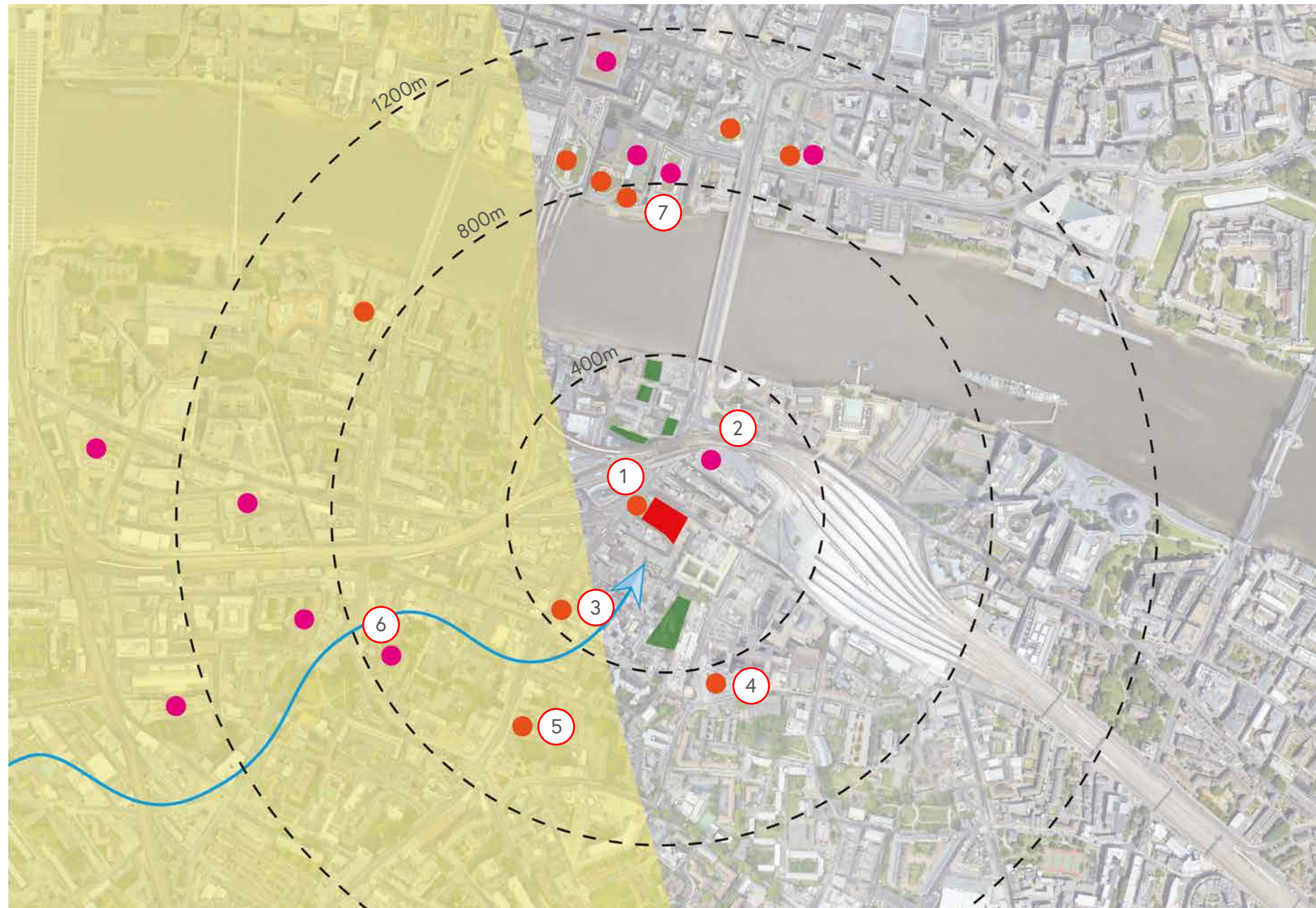
Five key recommendations emerged from the study: increase plant diversity and pollinator-friendly flowers; prolong the duration of flowering; reduce mowing/maintenance and create a 'rewilded' patch; increase nesting opportunities for bees; work collaboratively with partner sites to maximise the quantity of potential sites.

These strategies are integral to the New City Court proposals.



Building invertebrate diversity and density

Green roof connectivity: Island bio-geography theory



We are exploring how the New City Court landscape could contribute to Buglife's B-Line network of pollination sites that run through London from Hertfordshire to Surrey and beyond.

Planting in the woodland garden, the wildlife ribbon and the green ladders will aim to create new habitat for insects that lack suitable resources at ground level, facilitate movement and dispersal between roof terraces, and serve as refuges for declining and rare species.

Invertebrate colonisation of the roof garden and terraces can take place by three means:

- 1) Active flight (prevailing south-westerly winds)
- 2) Passive flight (air currents)
- 3) Translocation (intentional and non-intentional)

Dispersal ability will vary according to height above ground of these spaces and the maintenance regimes put in place.

Invertebrate species dispersal will also vary according to how quickly they adapt to environmental factors (the microclimates created) and the maintenance regime of the green roof areas.

Terraces and balconies across façades and at different levels of the building will also help to contribute to species dispersal and connectivity.

Habitats on the south-westerly prevailing wind side will likely receive more passive flight species, whereas invertebrates that require shelter could be more concentrated on the north-westerly side.

Indicative species may include invertebrates from the following families: Araneae (spiders), Coleoptera (beetles), Hymenoptera (wasps, ants, bees) and Lepidoptera (butterflies and moths).

- New City Court site
- Intensive [amenity use] green roof
- Extensive biodiverse green roof
- Green space/gardens/parks at ground floor
- Buglife B-line

- | | |
|---------------------------|---------------------------------------|
| ① 31 Borough High Street | ⑤ 61 Lant street |
| ② 1-25 London Bridge Road | ⑥ Kings College student accommodation |
| ③ 127 Borough High Street | ⑦ Nomura Bank |
| ④ Guys Hospital | |



Coleoptera: beetles



Araneae: spiders



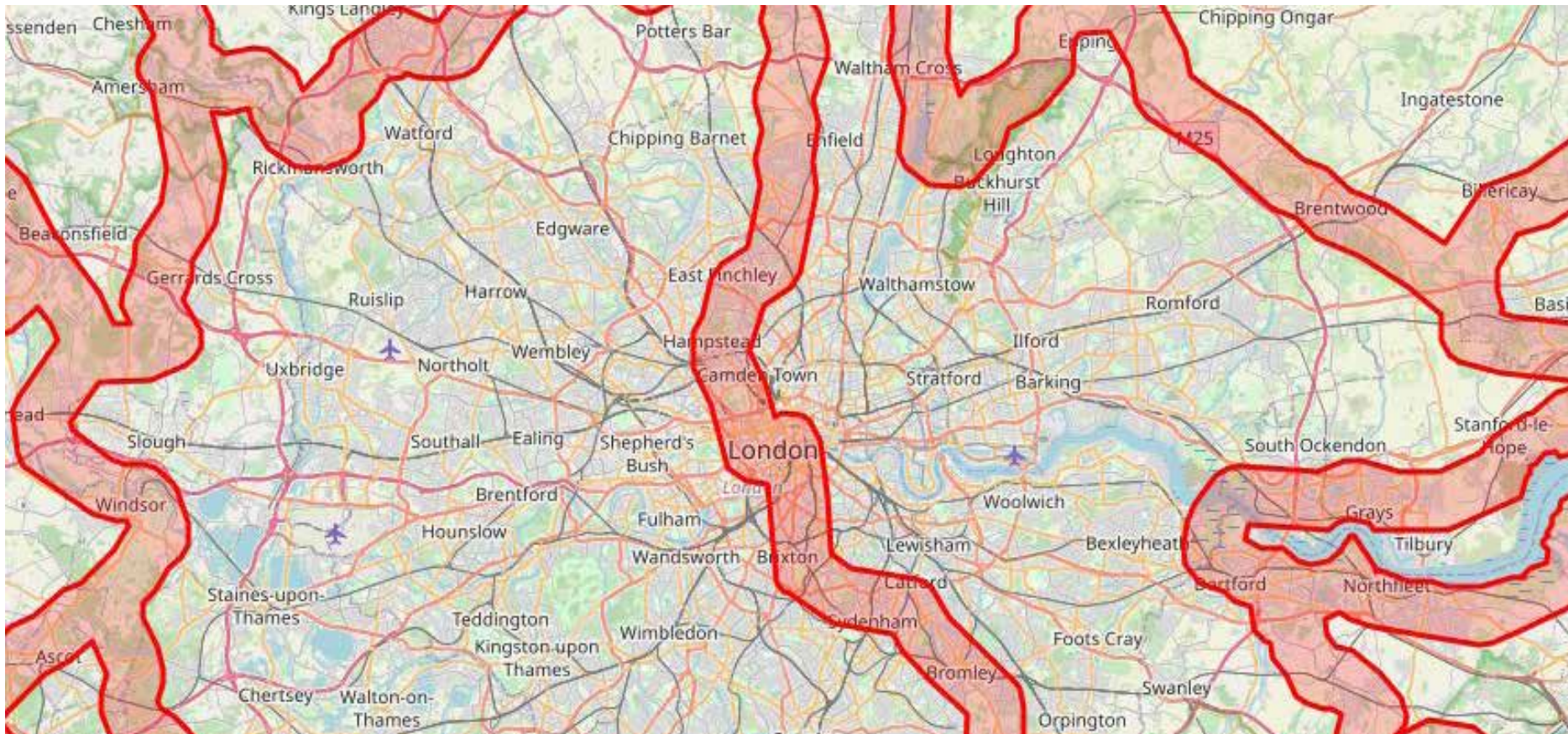
Lepidoptera: butterflies and moths



Hymenoptera: Bee, wasps and ants

Ecological connectivity for invertebrates

The B-line through London and beyond

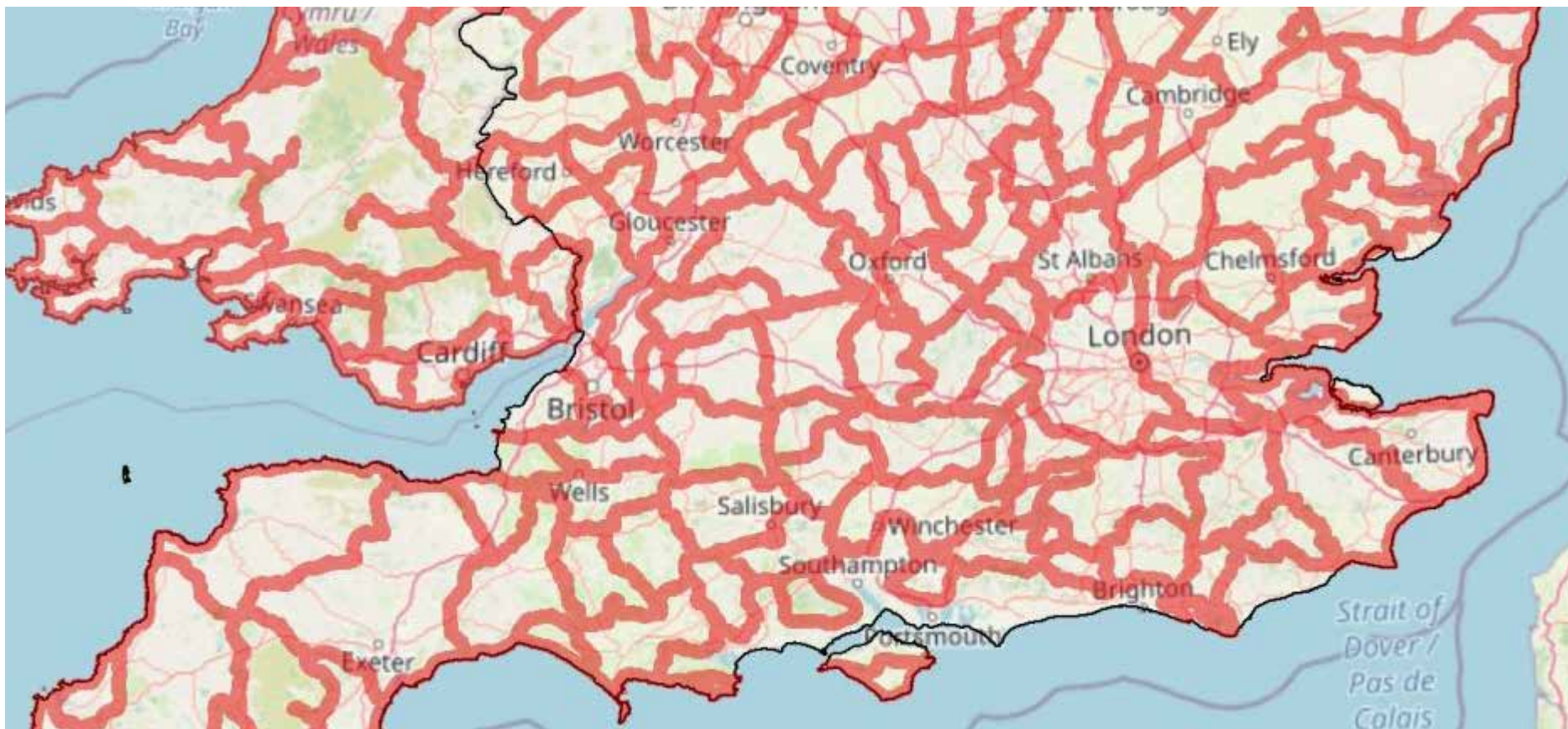


This local system also connects to a wider network across the country.

These maps from Buglife show their scheme B-lines, an ambitious project to combat habitat fragmentation and create 'insect pathways' through our countryside and towns.

B-lines focus on creating wildflower-rich stepping stones that link wildlife areas together, creating a network, like a railway weaving across the British landscape. This will provide large areas of brand new and restored species-rich terrain benefiting pollinators and also a host of other wildlife that forms their ecosystems.

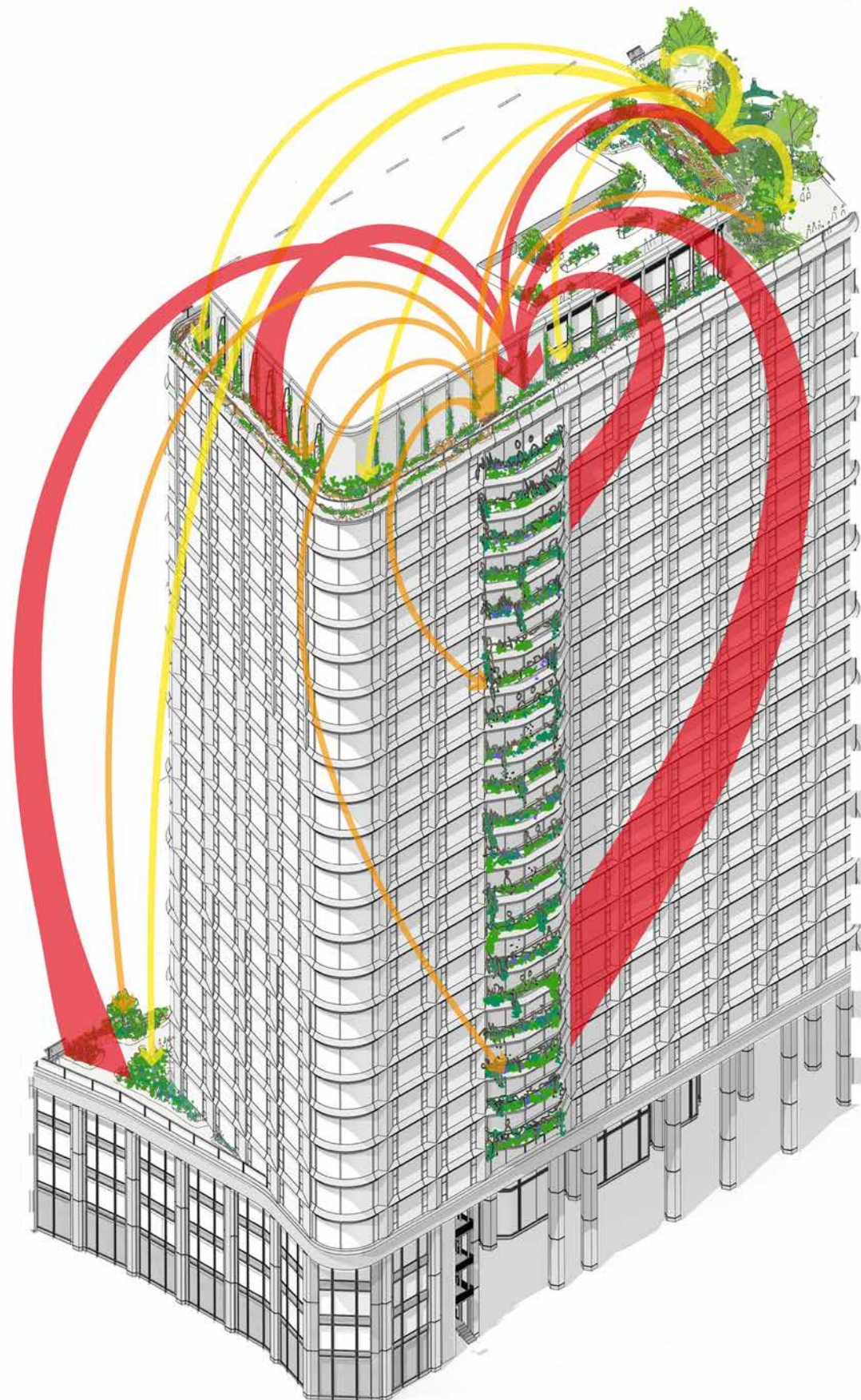
We hope to work with this important initiative in the development of the New City Court scheme. We will be looking to work in partnership with other specialists as well in future design stages.



Source: <https://www.buglife.org.uk/our-work/b-lines/>

Green waste circularity and sustainability

Keeping waste on site for re-use on the terraces and balconies



The ecologically-led maintenance strategy proposed in the planning application submission applies woodland lifecycles of decay, decomposition and re-growth, and traditional management techniques such as coppicing, to prioritise healthy ecosystems over the continuous preservation of a fixed landscape composition or visual.

We propose to collect all arisings (including autumn leaves, clippings, weeds and pruning cuttings) to be composted on Level 24 and re-used as a mulch on borders and planters across all terraces.

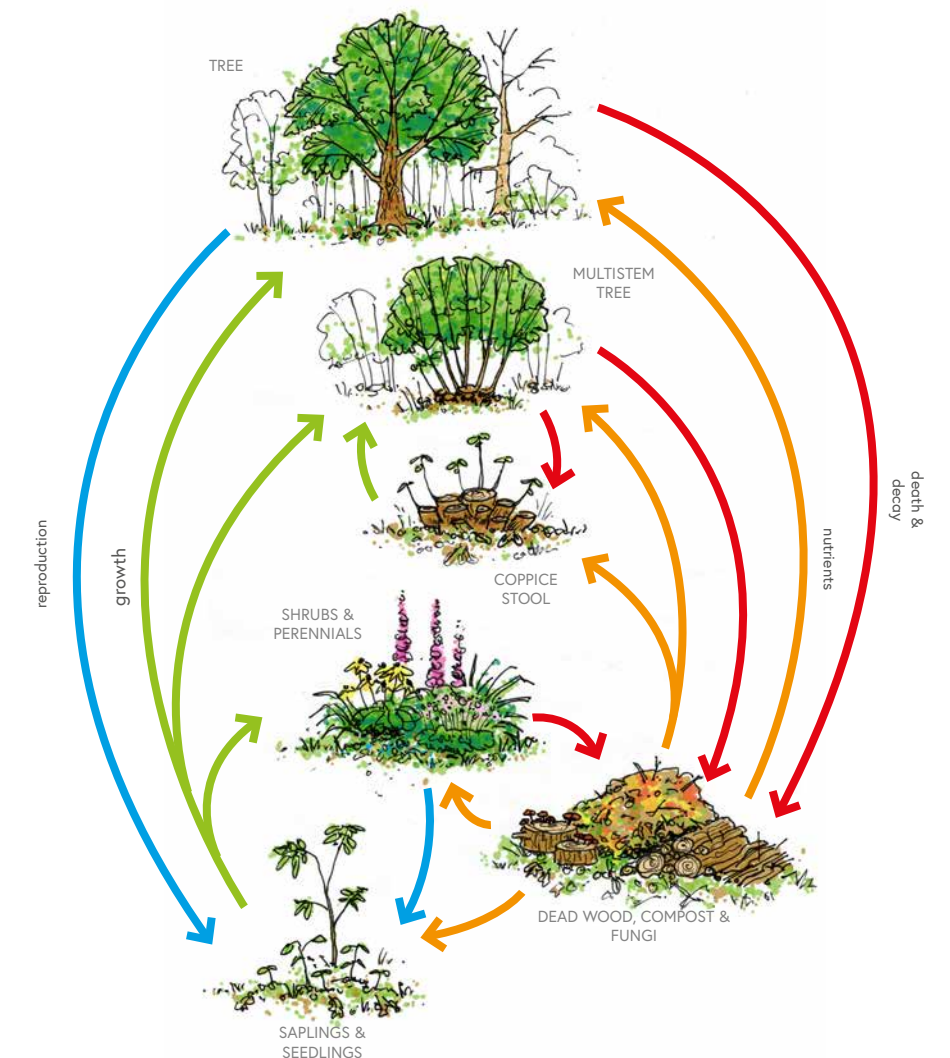
Initially, the time needed for the green and brown waste to break down into usable compost will not allow sufficient quantity or quality mulch to be produced in the first year, and therefore some imported mulch will be necessary.

Large compost material could be manually shredded to speed up the process of decomposition, and some logs, branches and twigs can be left intact in piles to provide refuges for invertebrates during winter or as perches for birds.

Additional green waste such as cardboard and coffee grounds would be a useful source of brown waste in controlled amounts.

LEGEND

- Dead wood
- Green waste
- Compost



Monitoring ecological growth

Public data share



The monitoring of invertebrate quantity and diversity across all areas of the site will contribute data to a growing body of academic and scientific work considering the benefits of ecological sites at height in dense urban environments.

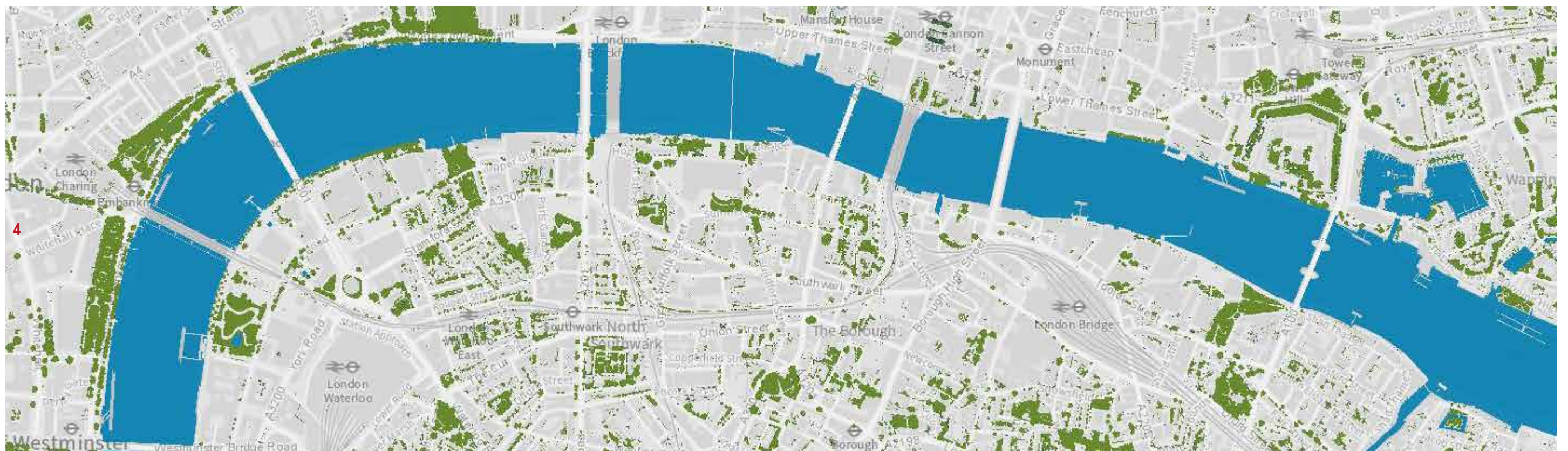
Ecologists will use established invertebrate surveying techniques to quantify the diversity of species. Vegetation surveys will describe the mix of plant species available to pollinators as food or for refuge.

This data could be mapped on to detailed terrain models at micro- and macro scales, supporting work being undertaken in institutions such as Greenwich University, University of East London and Reading University.

Beyond species counts, this data could also include micro-climatic and micro-topographic conditions created, including aspect, elevation, temperate, air, soil and moisture.

Partnering with academics, private and commercial organisations as well as public bodies will enable the site to be used as a resource to support this important work across London, the UK and beyond.

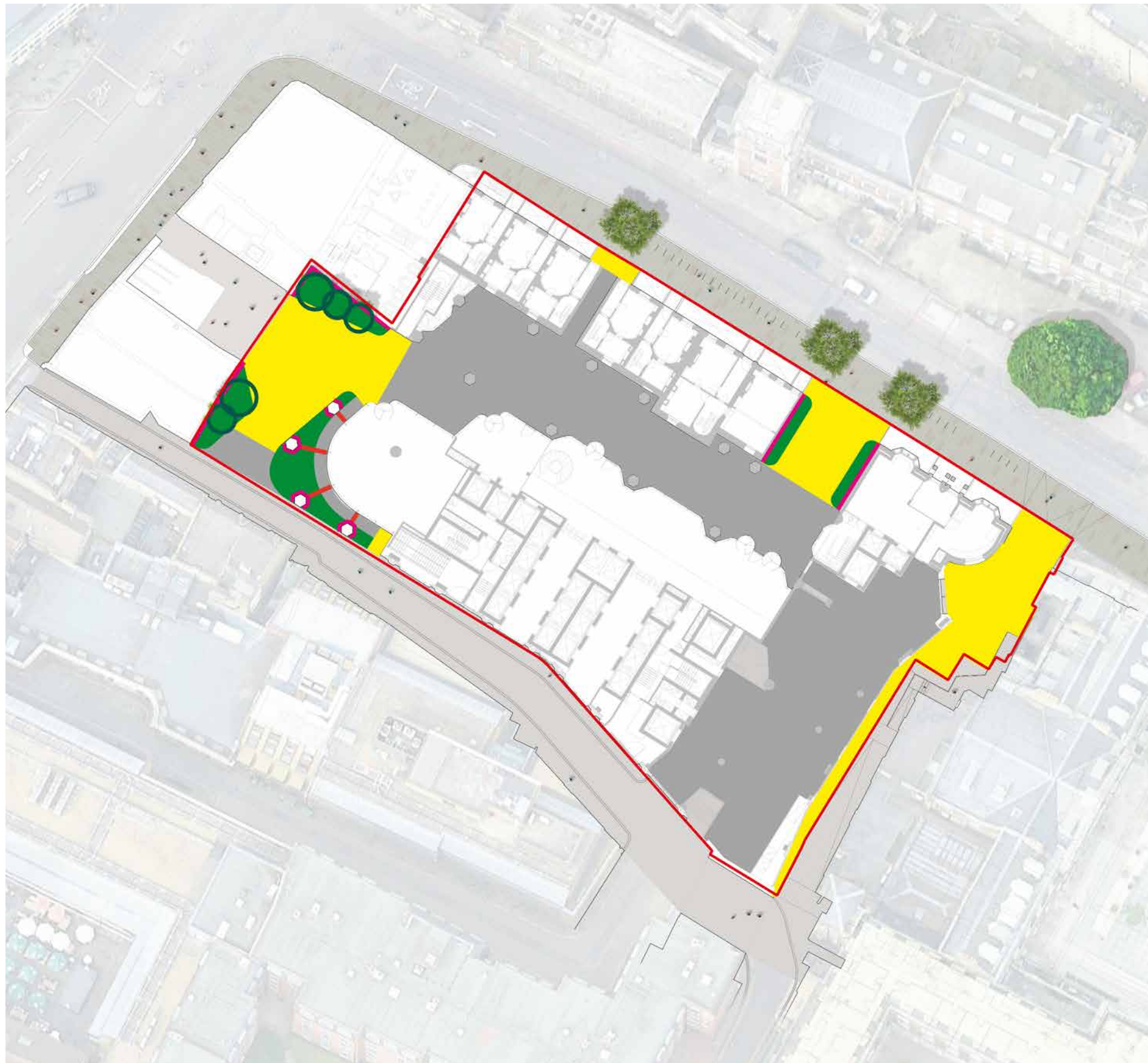
Image (below) from <https://apps.london.gov.uk/green-cover/>



Urban Greening Factor Measurement: Ground floor

Since UGF figures were last run in April, we have added more climbing plants to the ground floor landscape.

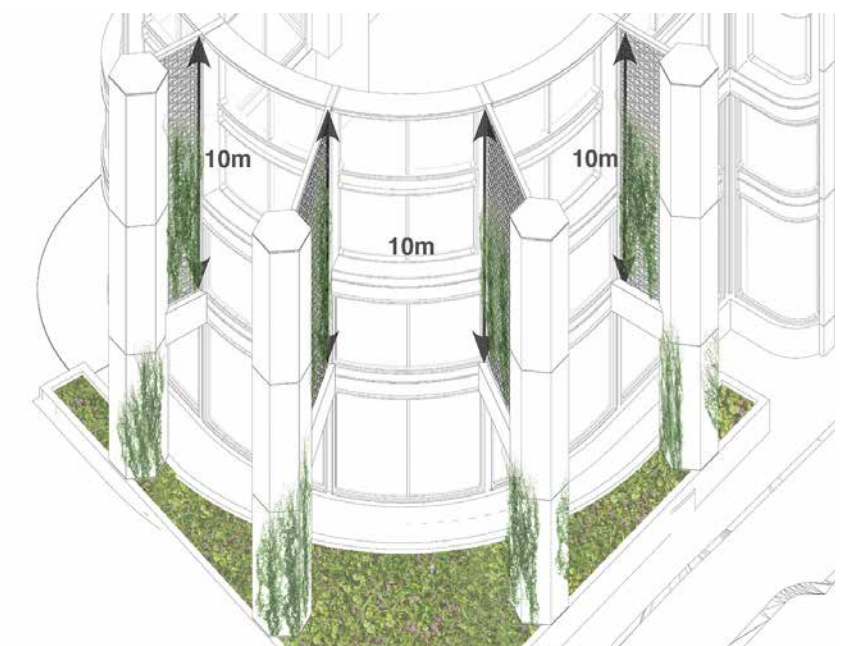
Additional climbing plants are now proposed to grow up the colonnade in the Kings Head Courtyard, and more vigorous evergreen species incorporated into the climbing plant mix on the wind mitigation panels.



Ground floor area diagram



Climbing plants on the flank walls of the existing terraced houses



Climbing plants on wind mitigation panels and base of columns

Urban Greening Factor

Measurement: Roof terraces and balconies

The diagrams below show the areas measured for the roof terraces at Levels 1, 3, 24, and 26, as well as the balconies.

The addition of planting on the south-facing balconies has contributed to an increase in the overall UGF.

The total UGF achievable across all the levels of landscape is 0.44.

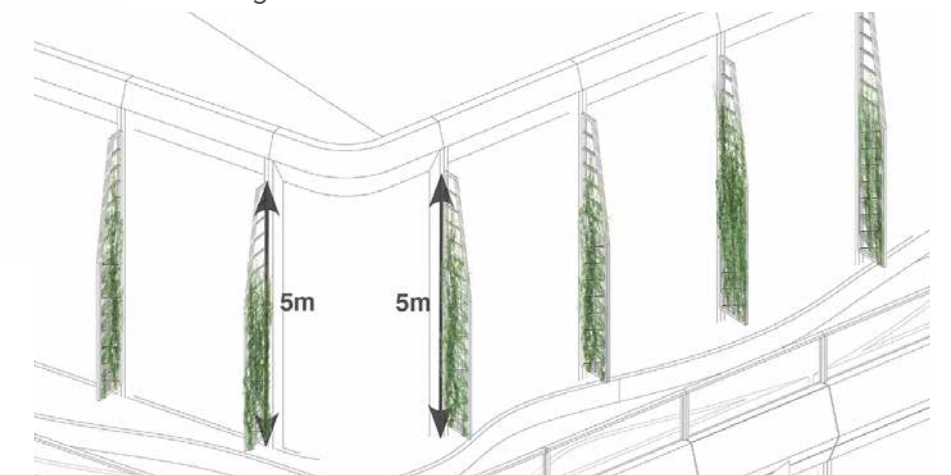
We note, however, that this figure could be up to 0.48 if the areas occupied by the Georgian terraces (which cannot be greened, due to their heritage status) were to be included.



Level 24 area diagram

Level 26 area diagram

Levels 01, 03 & balconies area diagram



Wind mitigation panels at Level 24

Urban Greening Factor

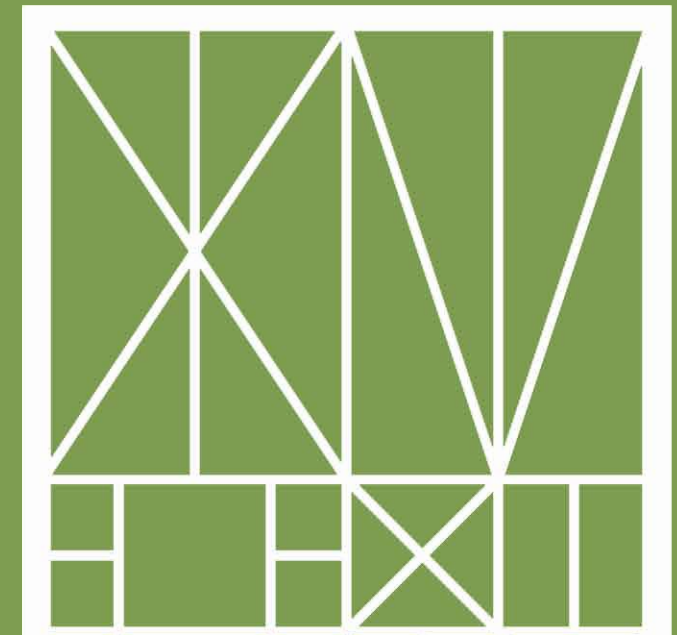
Updated calculations

Amendments to the proposed scheme since April have resulted in an increase in the UGF from 0.41 to 0.44.

We note the London Plan policy minimum requirement for predominantly commercial development is UGF 0.3.

Location		Description	#	Factor	Area (m2)	Score	Notes
Ground Floor							
St Thomas Street Entrance		Vegetation over structure (raised planter)	2	0.8	22.3	17.84	Intensive green roof
		Climbing plants (building flanks - vertical area)	2	0.6	154.8	92.88	Climbing 9m high
		Permeable paving (proposed area)	1	0.1	93.1	9.31	
King's Head Courtyard		Trees (planted in natural soils)	5	0.8	52.2	41.76	
		Vegetation over structure (raised planter)	3	0.8	109.5	87.60	Intensive green roof
		Climbing plants (building flanks - vertical area)	2	0.6	94.8	56.88	Climbing 4m high
		Climbers (along base columns)	4	0.6	68.8	41.28	4nos. Base columns 4m high
		Climbers (along wind mitigation panels)	4	0.6	70.4	42.24	Climbing 8m high
		Permeable paving (proposed area)	1	0.1	190	19.00	
		Sealed surface (stairs and ramps)	2	0	46	0.00	
Beak Alley East Passage		Permeable paving	1	0.1	174	17.40	
		Sealed surface (loading bay area)	1	0	488.3	0.00	
Internal space		Sealed surface (Gallery)	1	0	464.4	0.00	
		Sealed surface (Passage between Georgian terraces)	1	0	15.8	0.00	
Level 1							
Level 1 Green roof		Vegetation over structure (ecological green roof)	1	0.7	9.5	6.65	Extensive green roof
Level 3							
Level 3 Terrace		Vegetation over structure (raised planter)	4	0.8	94	75.20	Intensive green roof
		Permeable paving	1	0.1	88.5	8.85	
Level 24							
Woodland		Trees (planted in natural soils)	24	0.8	194.6	155.68	Woodland trees
		Vegetation over structure (woodland area)	2	0.8	198.7	158.96	Intensive planting
		Permeable paving (paths and glade areas)	1	0.1	79.8	7.98	
Terrace		Vegetation over structure (raised planter)	2	0.8	46.6	37.28	Intensive planting
		Climbers (along top storey building bays)	22	0.6	112.5	67.50	Climbing 2.5m high
		Permeable paving	1	0.1	226.3	22.63	
Wildlife corridor		Vegetation over structure (wildlife corridor)	2	0.7	109.1	76.37	Extensive green roof
		Climbers (along building bays, full height)	22	0.6	300	180.00	Climbing 5m high
		Climbers (along wind mitigation panels)	18	0.6	197.7	118.62	Climbing 5m high
		Permeable paving (winding path)	1	0.1	75.9	7.59	
Level 26							
Level 26 Terrace		Vegetation over structure (raised planters)	4	0.8	57.9	46.32	Intensive green roof
		Vegetation over structure (moveable planters)	16	0.8	7.7	6.16	Intensive green roof
		Vegetation over structure (ecological green roof)	1	0.7	43.3	30.31	Extensive green roof
		Permeable paving	1	0.1	153.2	15.32	
Balconies (L4 to L23)							
North Balconies		Vegetation over structure (raised planter)	20	0.7	48	33.60	balconies repeat from L4 to L23
		Permeable paving	20	0.1	162	16.20	
Juliet Balconies 1		Vegetation over structure (raised planter)	21	0.7	46.2	32.34	balconies repeat from L3 to L23
Juliet Balconies 2		Vegetation over structure (raised planter)	7	0.7	12.6	8.82	balconies repeat from L17 to L23
Total score						1538.57	
Red line boundary (total area in m2)						3512	
Urban Greening Factor Score						0.44	

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Landscape design updates



Ground floor design strategies

Levels and accessibility: Constraints



The landscape proposal needs to meet existing levels at King's Head Yard and St Thomas Street. It also needs to accommodate and allow access to all the new building entrances as well as the LUL entrance and retail units at the South of the London Underground.

The most challenging area is the level difference between King's Head Courtyard and King's Head Yard.

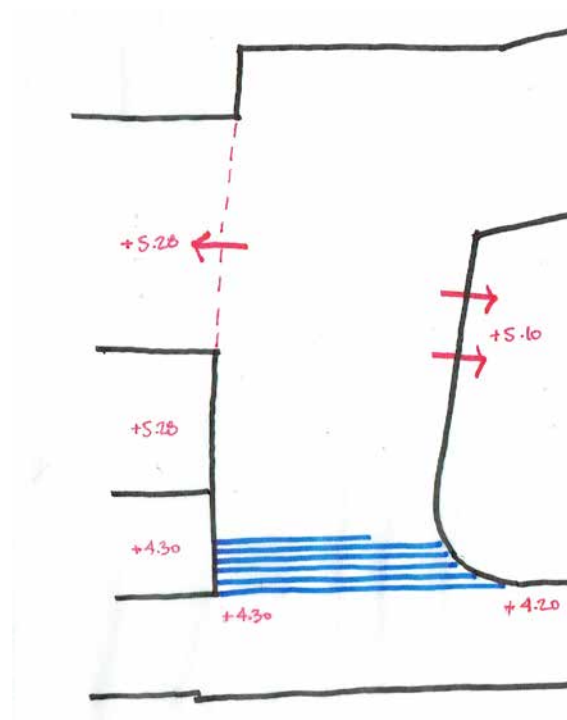
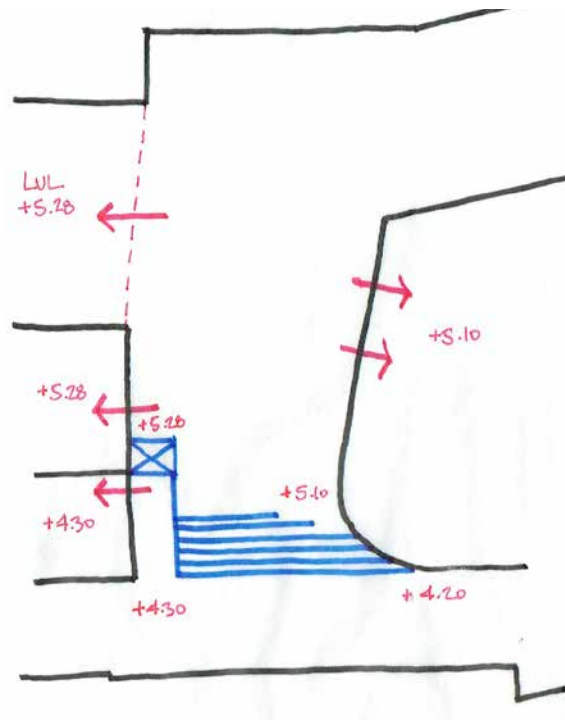
The exit of the underground station in King's Head Courtyard is +5.28.

The existing top of kerb level at the edge of King's Head Yard is +4.20 in the centre.

The level difference between the two areas is 1 meter. In the following pages we show options that have been considered to create inclusive access that meets these constraints.

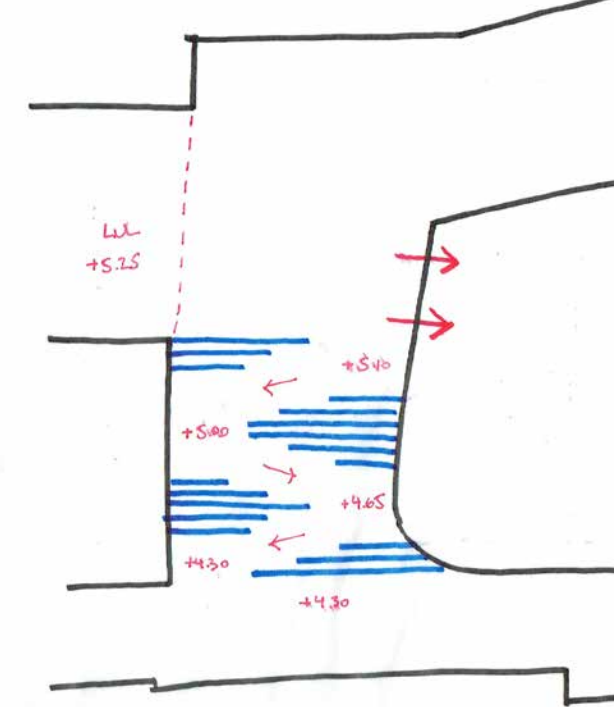
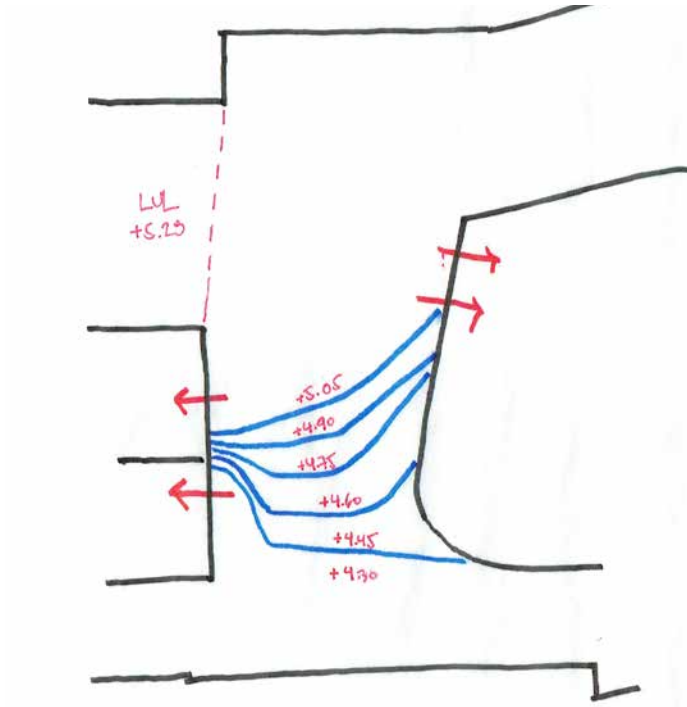
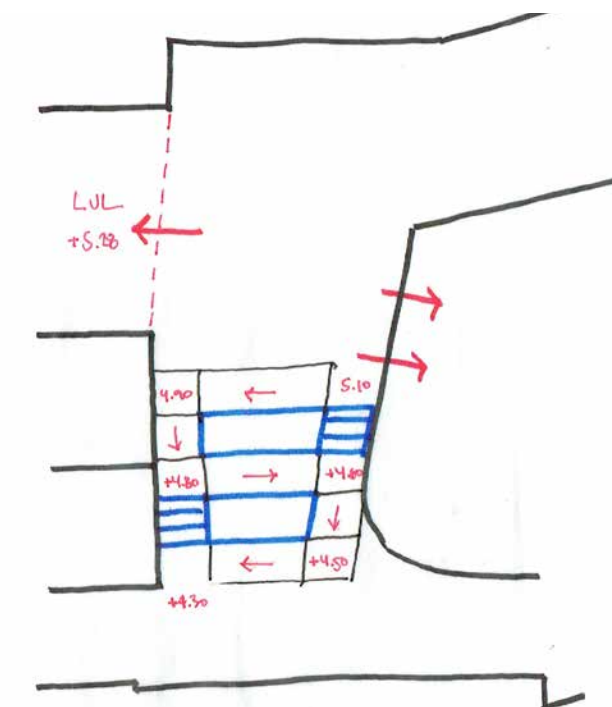
Ground floor design strategies

Levels and accessibility: Options



Several options to resolve the level difference between the main courtyard and King's Head Yard have been explored. These included an external lift, sloped paths, terracing and feathered steps.

The preferred option (shown overlaid) is a stepped approach with a sloped path under the colonnade. This keeps a large part of the courtyard flat and clear, and allows planting to frame the space from three sides.



Ground floor design strategies

Levels and accessibility: Preferred grading strategy



Level diagram

The proposed grading strategy will provide level access to all building entrances and create a large, flat area in the middle of the courtyard which can be clear and open to allow free pedestrian flows during busy periods and be used for temporary events at other times.

The courtyard is delineated from Kings Head Yard by generously proportioned steps, and a sloped path along the colonnade of the new building will provide an accessible connection to Kings Head Yard.

A sloping plane will connect the north building entrance with the pavement level at St Thomas Street.

The Beak Alley connection will comprise several sloping planes to marry the site into the existing levels at its edges.

- +0.00 Existing levels
- +0.00 Proposed levels
- 1:50 Slope
-  Stairs
- Sloped path



Existing level changes from King's Head Yard to the Courtyard

Ground floor design strategies

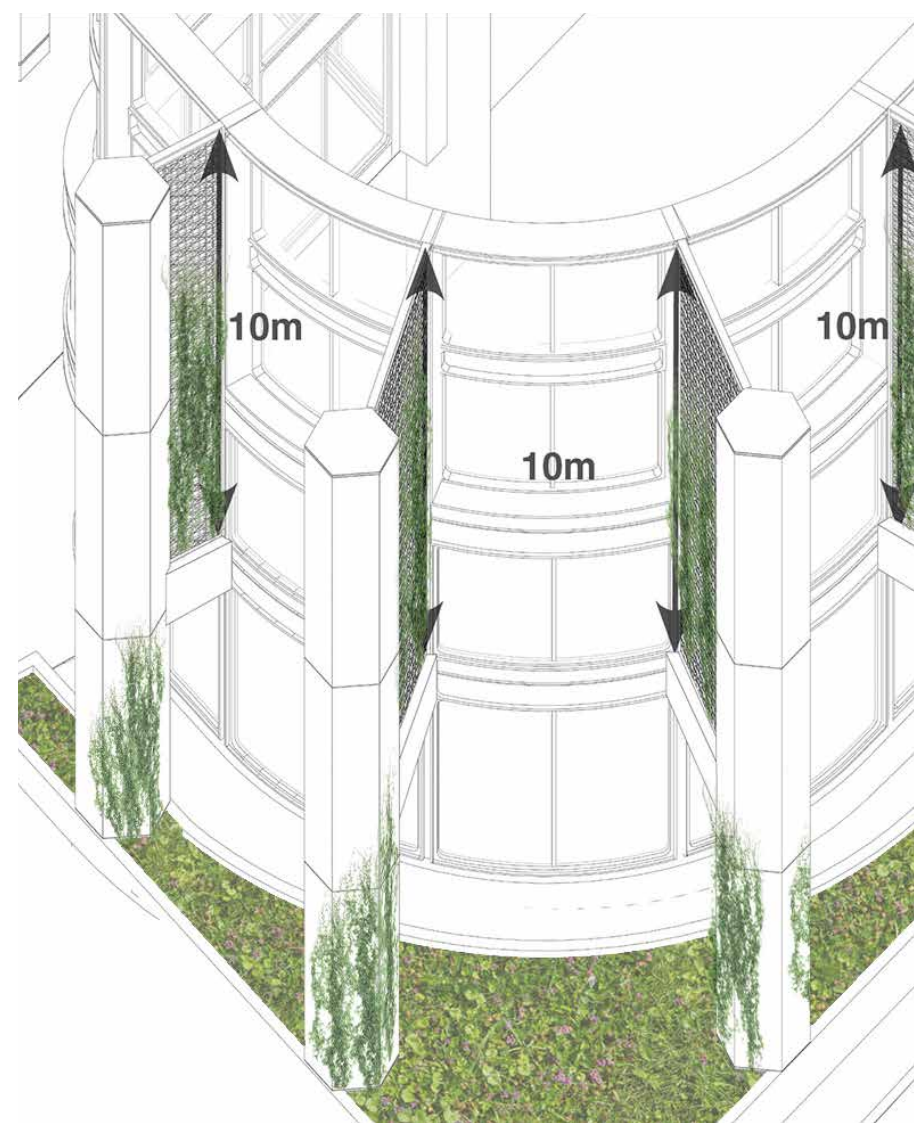
Inclusive access



For visitors arriving from London Bridge Underground station towards Kings Head Yard wishing to avoid steps, various accessible routes will be possible with slopes at less than 1:20.

GF public realm soil profiles

Planter depths, Kings Head Courtyard climbers and trees



Appropriate soil provision is key to the successful establishment and long-term health of trees and plants, particularly in urban situations and podium landscapes.

Tree and plants will be planted in generous beds with soil profiles designed to meet their particular needs.

All trees and large shrubs on the ground and on the terraces will be anchored by underground guying systems.

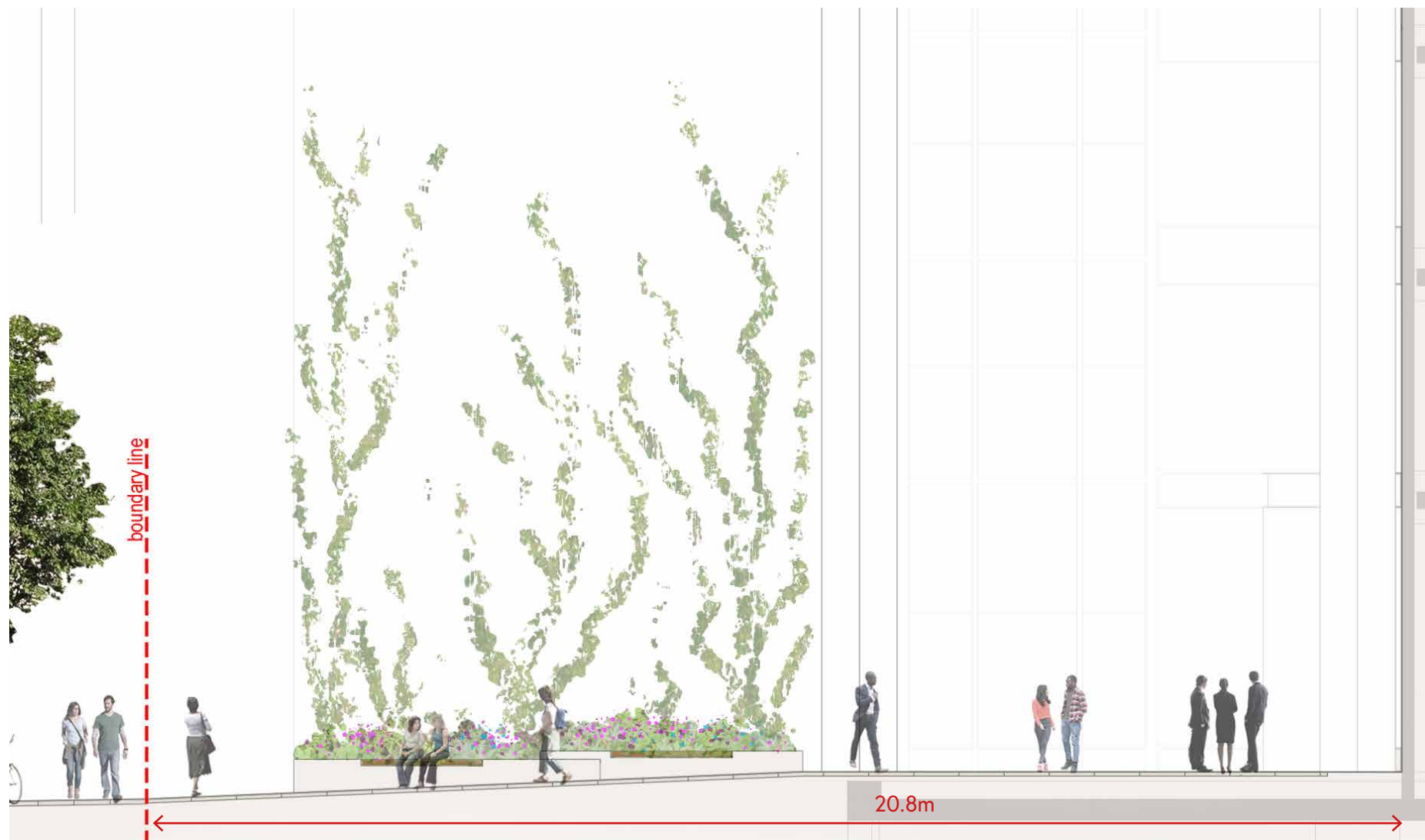
The balconies along the 'Green ladders' on the south- and north-facing façades meet the ground at planters in the King's Head Courtyard and the St Thomas Street entrance. The climbers running up the pillars and on to the wind mitigation panels also help to bridge the gap between the elevations.

Although raised planters are proposed to shape these public spaces and provide integrated seating, most of the soil profiles will sit below the finished ground levels.

These greater depths and extents allow more shared rooting spaces between trees and plants, promoting healthy growth and longevity.

GF public realm soil profiles

Planter depths, St Thomas' Street climbers and trees

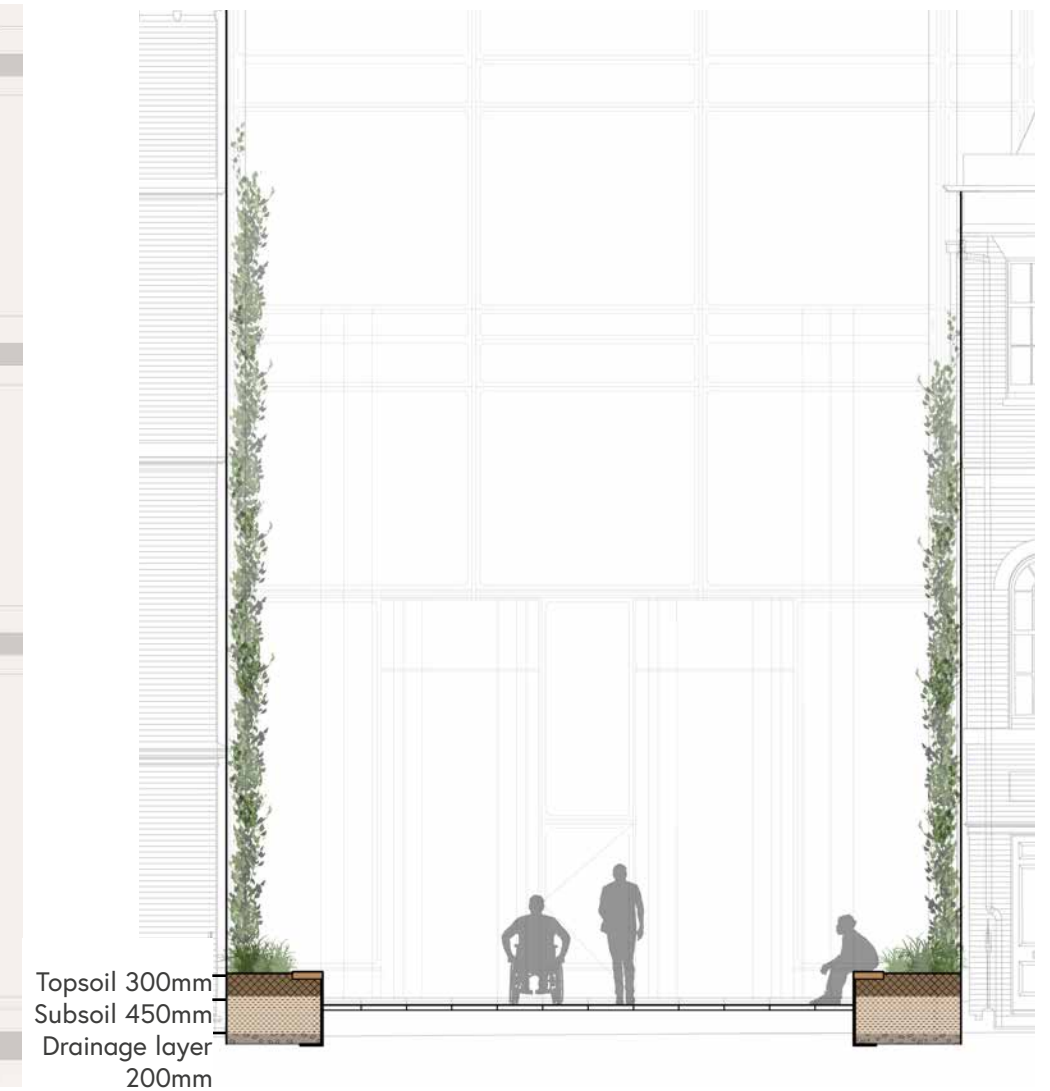


St Thomas Street - Longitudinal section

The trees and flanking walls of the site entrance to the site from St Thomas street provide way points and help bring the scale of the building down to human scale.

The planter extends beneath the paving to provide more soil depth to support climbing plants of this scale.

These climbing plants also help act as stepping stones for insects and other invertebrates to find their way to the higher floors.



St Thomas Street



GF public realm indicative plant palette

Indicative shade-tolerant, wildlife-friendly species

1



Corylus avellana



Corylus maxima 'purpurea'



Crataegus monogyna - Hawthorn



Crataegus monogyna - Hawthorn

Our studies of how the external areas receive sunlight and are overshadowed throughout the day and across the seasons has revealed that much of these areas will be in partial shade most of the time.

The planting palette has been developed to suit these conditions whilst creating seasonal interest and resources for wildlife.

1 King's Head Courtyard trees and shrubs

Borders on the perimeter of this new public realm space will be richly layered with UK native tree and shrub species including multi-stems with catkins, early spring flowers and rich autumn berries.

2 King's Head Courtyard perennials

Shade-tolerant ground cover and perennials will combine evergreen foliage with plants selected to stretch the flowering season from late winter to autumn.

3 St Thomas Street trees and climbers

Semi-mature clear-stem trees along St Thomas Street will signal the entrance to the New City Court entrance and gallery. Species with a distinctive crown shape such as *Ulmus 'New Horizon'* are being considered.

Climbers on the flank walls of the Georgian terrace will include scented climbers, combining evergreen and deciduous species to provide further seasonal interest and food for pollinators.

2



Eupatorium cannabinum



Galium odoratum



Stachys officinalis



Hedera helix - English ivy

3



Ulmus 'New Horizon' - Elm



Clematis cirrhosa sp. Freckles



Lonicera periclymenum

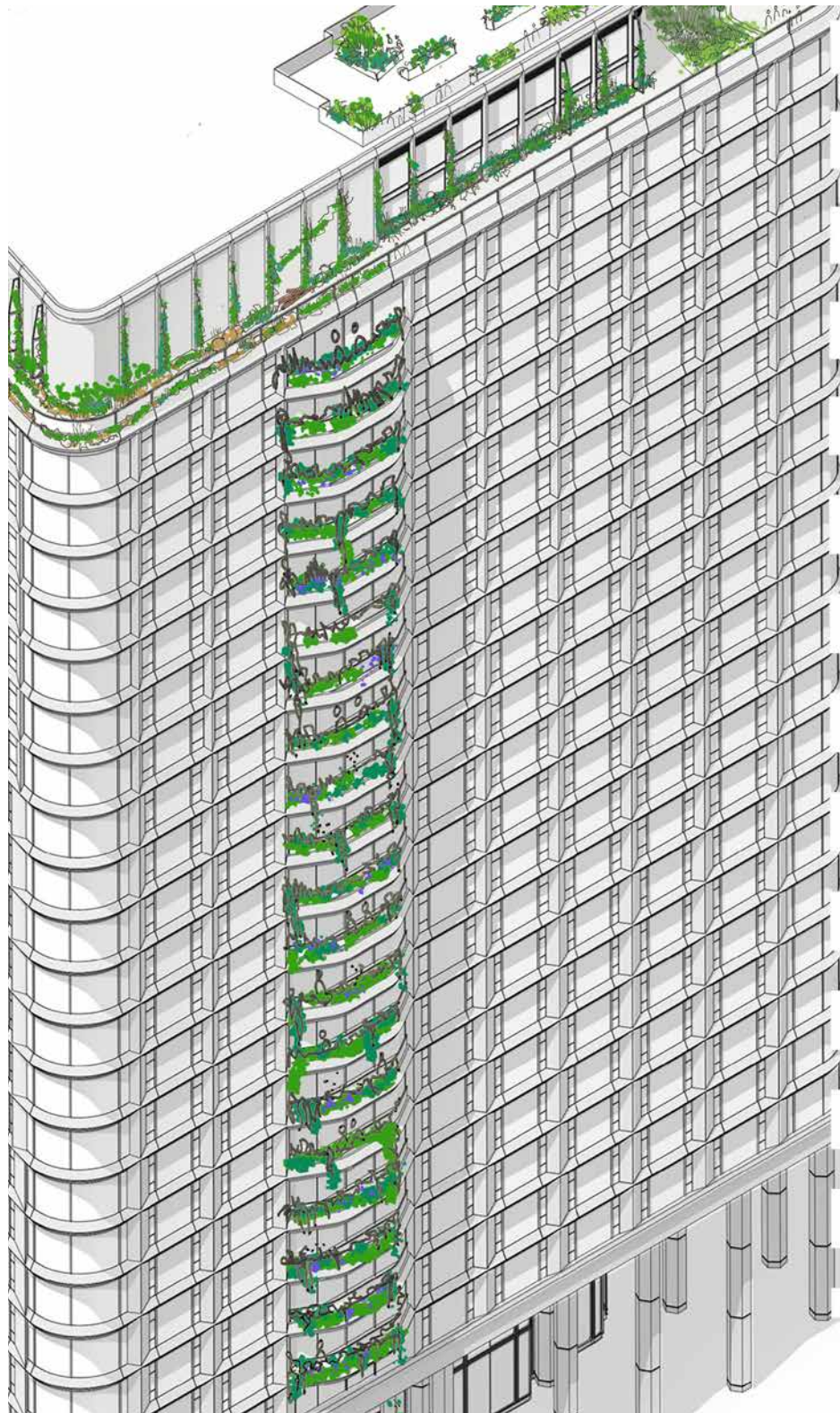


Gymnocarpium dryopteris - Oak fern



Green Ladder Connectivity

Implementation of changes



North facade: green ladder balconies

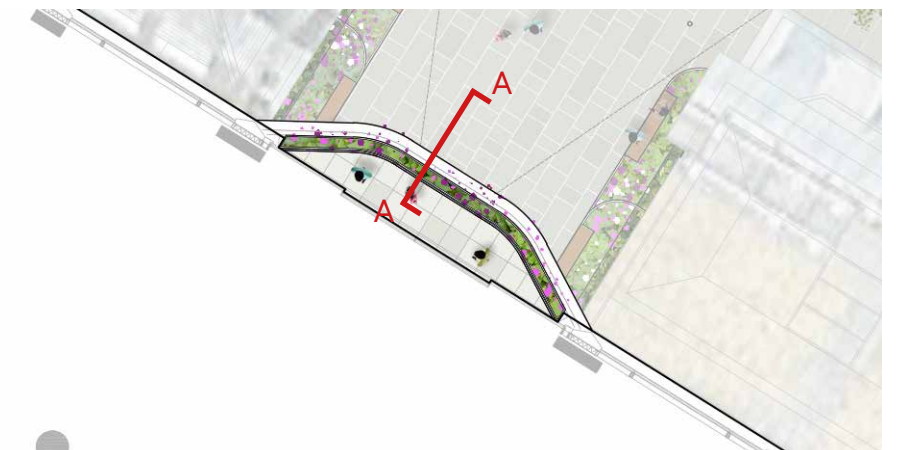
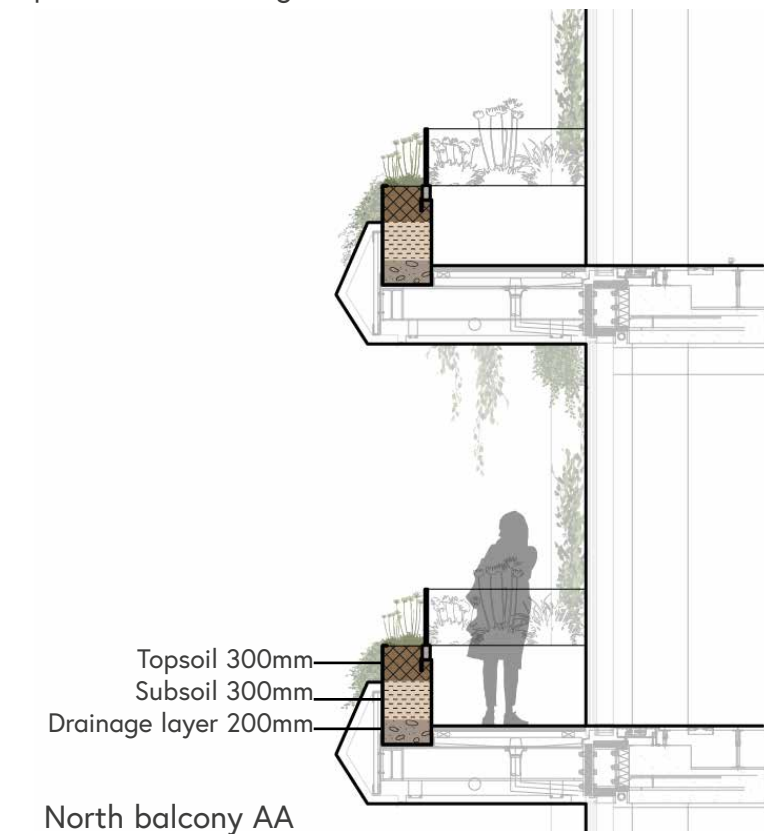


South facade: green ladder balconies

Our ecologists have highlighted the importance of not only bringing invertebrates and micro- and macro-fauna to roof and balconies, possibly with some translocations at the start, but also providing reasons to for them to stay and return.

Sunlight-rich south-facing balconies sustain more brightly coloured flowering plants. They will also be more exposed to the prevailing winds, which can bring some invertebrates and displace others if exposed.

North-facing balconies are overshadowed and also more protected on the leeward side of the building, creating leafy shelter with some pollinator-attracting flowers.



North facing balcony planting

Indicative shade-tolerant pollinators

1



Geranium sanguineum - bloody cranesbill



Primula vulgaris - Primroses



Anemone nemorosa - Wood anemone



Pulmonaria angustifolia sp. - Lungwort

Planting on the north-facing balconies aims to introduce long-season, nectar-rich and shade-tolerant British native species.

These include mainly woodland floor flora from the British Isles, but with additional flowering plants from further afield to extend the pollinating season where appropriate.

1- Spring-flowering

Early season pollinators providing dense coverage.

2- Summer-flowering

Flowering perennials will provide food and pollen even in shady areas

3- Late summer-flowering

Extend the season into late summer.

4- Autumn- and winter-flowering

Winter flowers will provide pollen for ground bees and other invertebrates.

2



Centaurea scabiosa - greater knapweed



Dryopteris affinis - Male fern



Hyacinthoides non-scripta - English bluebells



Campanula latifolia - broad-leaved bellflower

3



Euphorbia amygdaloides - Wood spurge



Geranium sp.



Astrantia helleborifolia - Masterwort



Prunella vulgaris - selfheal

4



Eranthis hyemalis - Winter Aconites



Liriope muscari - Lily turf



Helleborus foetidus - stinking hellebore



Hebe caledonia - Shrubby veronica



South-facing balcony planting

Indicative sun-loving, drought-tolerant

1



Allium sphaerocephalon - chives



Primula vulgaris - Primroses



Narcissus pseudonarcissus - Daffodil



Pulmonaria angustifolia sp. - Lungwort

Planting on the south-facing balconies aims to introduce long-season, nectar-rich and sun-loving British native species.

These include mainly coastal flora from the British Isles, but with additional Mediterranean flowering plants to extend the pollinating season where necessary.

1 Spring-flowering

Early season pollinators providing dense coverage.

2



Anchusa azurea 'Dropmore' - Alkanet



Catananche caerulea - Cupid's dart



Nepeta racemosa - Catmint



Monarda didyma - Bee Balm

2 Summer-flowering

Prolific flowering perennials will provide ample food and pollen.

3 Late summer-flowering

Extend the season into late summer.

4 Autumn- and winter-flowering

Winter flowers will provide pollen for ground bees and other invertebrates.

3



Santolina chamaecyparissus - Cotton lavender



Cistus x hybridus - rock rose



Achillea millefolium - Achillea



Humulus lupulus 'Aureus' - Golden hop

4



Sedum - stonecrop



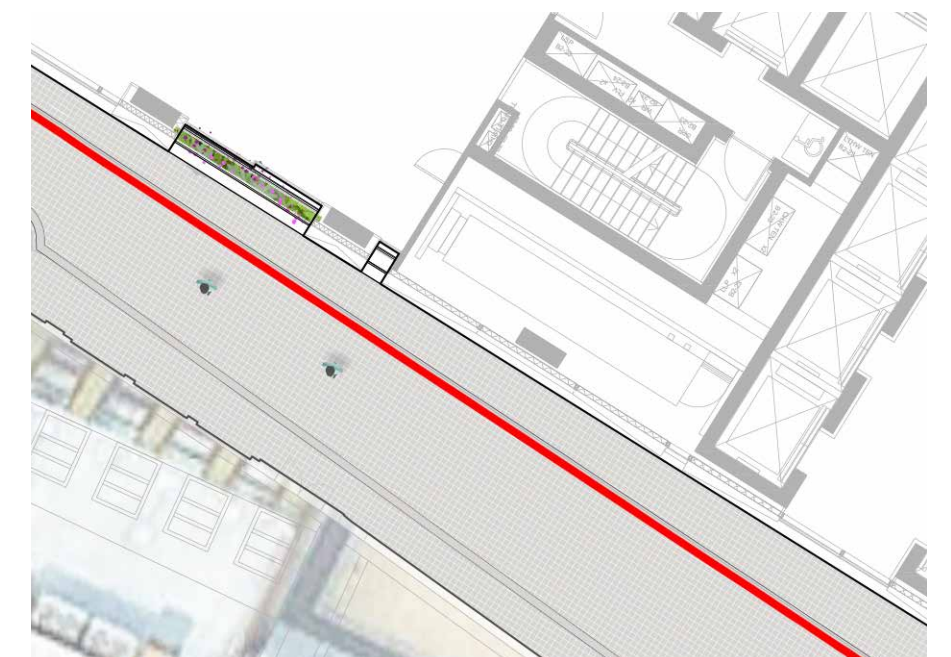
Liriope muscari - Lily turf



Smyrniolus olusatrum - alexander



Erica carnea - winter heathers



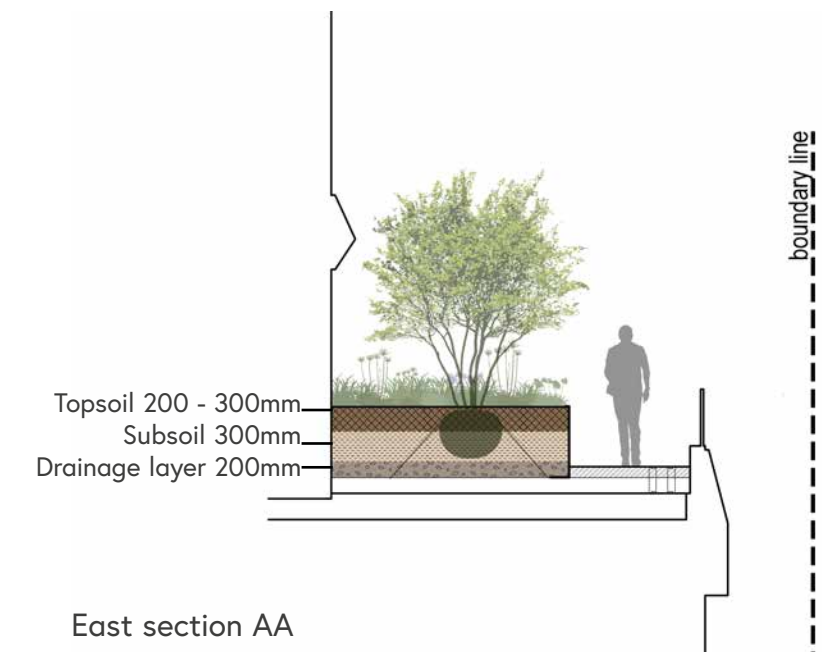
L3 terrace build up sections

Drought-tolerant south-east pollinators



The purpose of this terrace has shifted towards connecting the ground floor ecology with new south-facing balconies whilst still providing external amenity space for workers in the adjacent offices.

Prevailing winds create warm and wet micro-climate conditions on the south-west facing aspect, whilst the east-facing terrace will be naturally sheltered.



East section AA



L3 indicative planting palette

Exposure-tolerant pollinator-friendly plants

1



Myrtus communis - Myrtle tree



Viburnum opulus - Viburnum



Hippophaes rhamnoides - Sea Buckthorn

We have considered a balance of species diversity with repeating pollinator plants that flower simultaneously to provide the "ladder" continuity for pollinators.

1 Multi-stem shrubs

The micro-climate of this terrace is in parts warm and sunny as well as windy. Shrubs will be used to filter the wind, providing shelter for visitors and ecology.

2 Ground cover and perennials

With a sunny aspect, plant species that thrive in the Mediterranean and have long-flowering periods will make the best of seasonal conditions.

2



Pervoskia atriplicifolia - Blue Spire



Lavandula angustifolia - English lavender



Chamaemelum nobile - Chamomile

3 Climbers

Providing green vertical coverage will provide refuge for ecology in addition to seasonal flowers for pollinators.

3



Humulus lupulus - Hops



Lonicera periclymenum



Parthenocissus quinquefolia

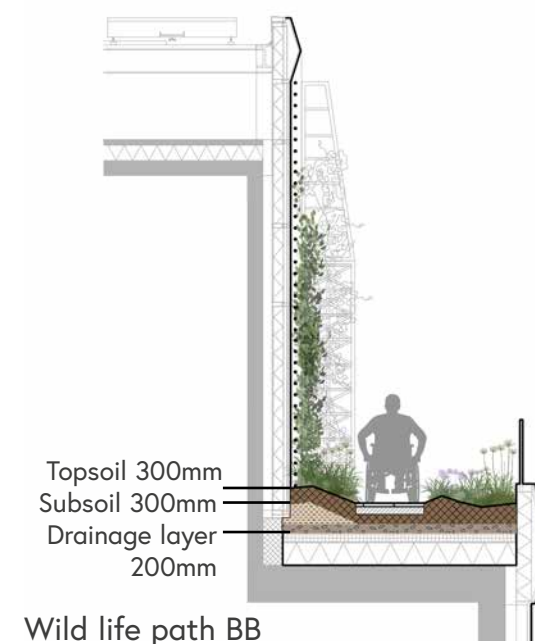
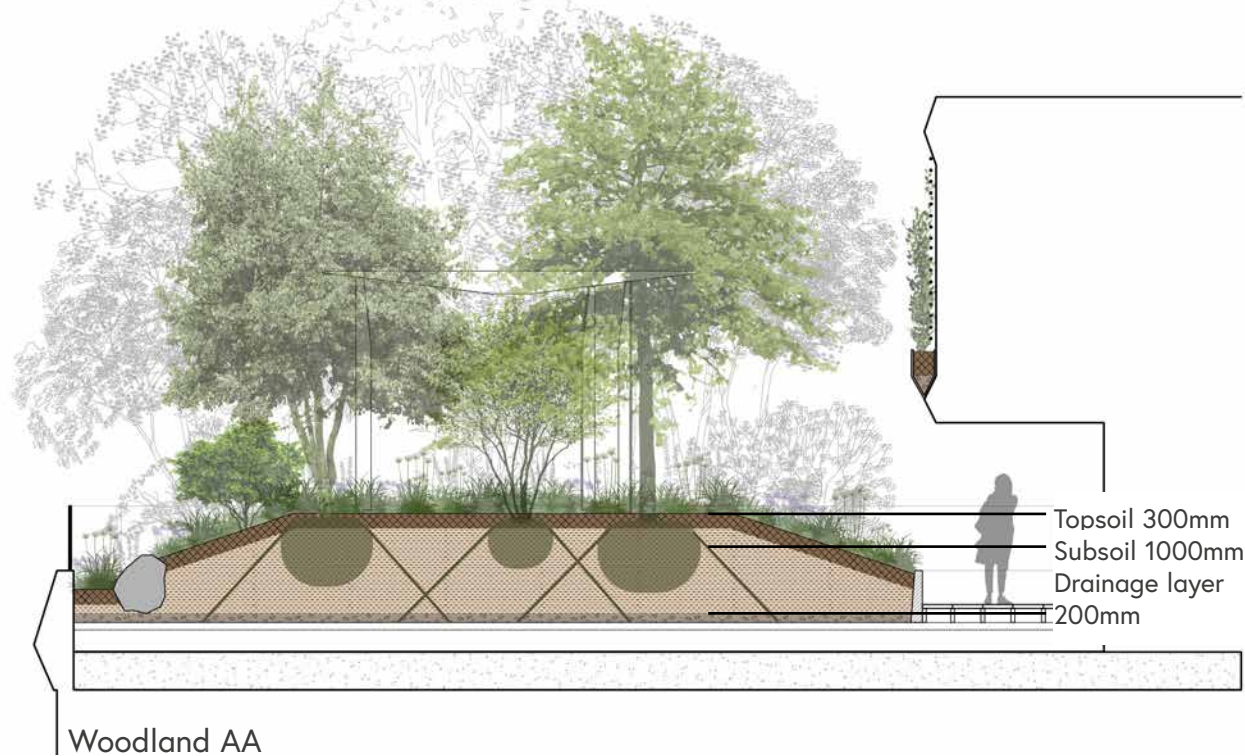


L24 Woodland sections

Authenticity of woodland ecology

Large contiguous soil volumes at this terrace will enable trees to develop underground root systems more closely resembling woodland life on the ground. Trees and shrubs will be managed by coppicing, which both controls their size/scale, and also encourages vigorous plant health. This regenerative cycle will help the woodland to be vibrant and flourish over the long term.

Leaf litter piles and log piles, combined with a maintenance approach that avoids too much tidying up, will help to safeguard and promote the biodiversity of woodland, rather than preserve a particular fixed, clean visual or aesthetic and preventing it from evolving over time.



L24 Woodland Indicative planting palette

Trees, shrubs and perennials

1



Pinus mugo - dwarf mountain pine



Betula penula - silver birch



Sambucus nigra - elderflower

1 Trees & Shrubs

Predominantly woodland themed with native and naturalised species that provide year round pollen and berries. Trees will include native species that can be coppiced such as birches, hazel, dogwoods and elder. Evergreen trees will include slow-growing species such as Pinus mugo and Ilex aquifolium. Shrubs will include a mixture of deciduous and evergreens providing perching and refuge for birds and invertebrates.

2 Perennials

An understorey layer to the multi-stem trees and shrubs above, these perennials will provide dense ground level habitats and food for pollinators throughout the year.

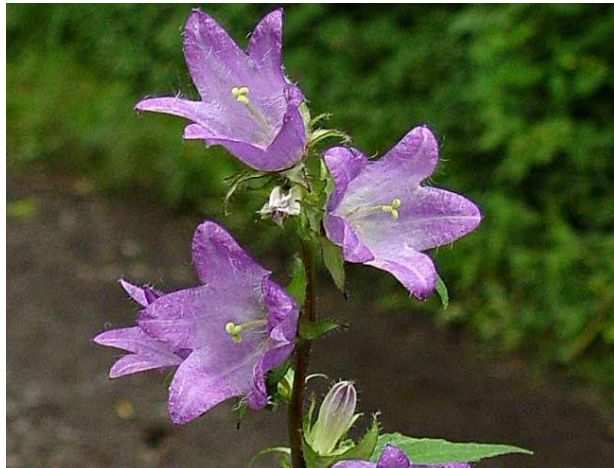
2



Viola riviniana - common dog violet



Stachys officinalis - betony



Campanula trachelium - bellflower

3 Bulbs

Winter-flowering species such as galanthus will provide a good nectar source when other plants are dormant. Muscari will provide late November nectar before hibernation.

3



Convallaria majalis - lily-of-the-valley



Galanthus nivalis - snow drops



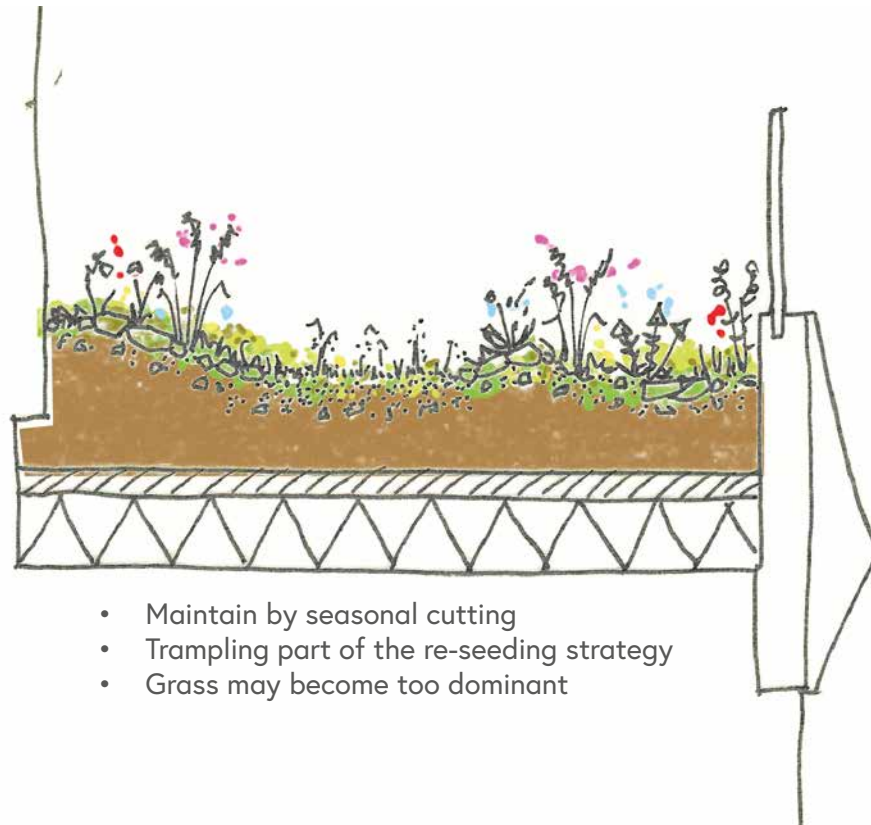
Muscari neglectum - grape hyacinth



L24 Wildlife ribbon

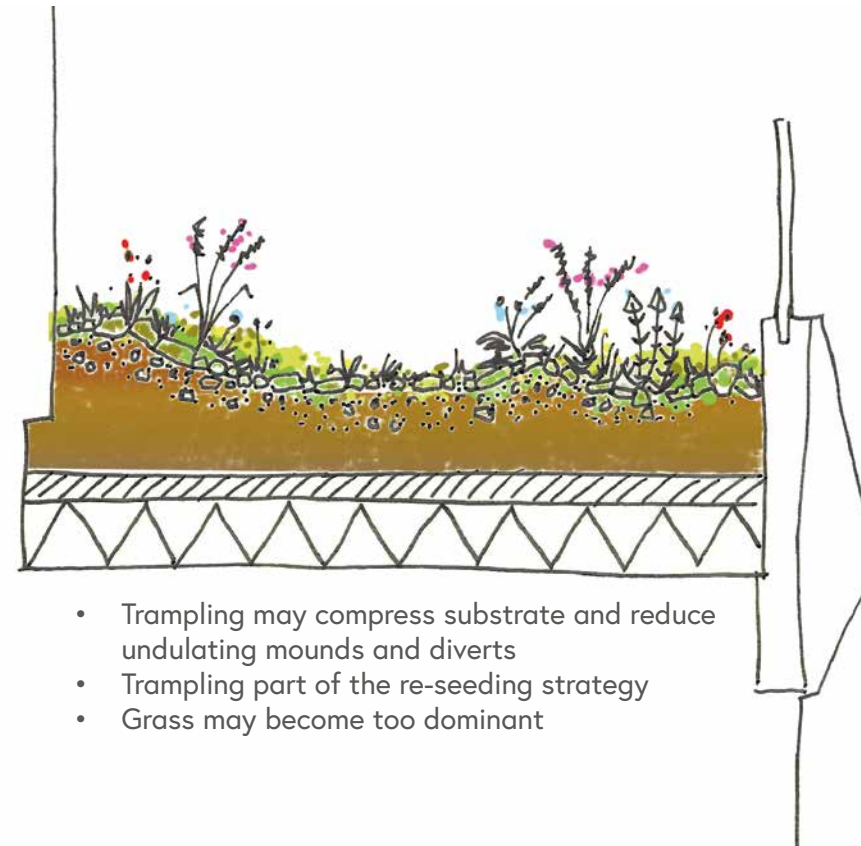
Access, maintenance and materials

Grass



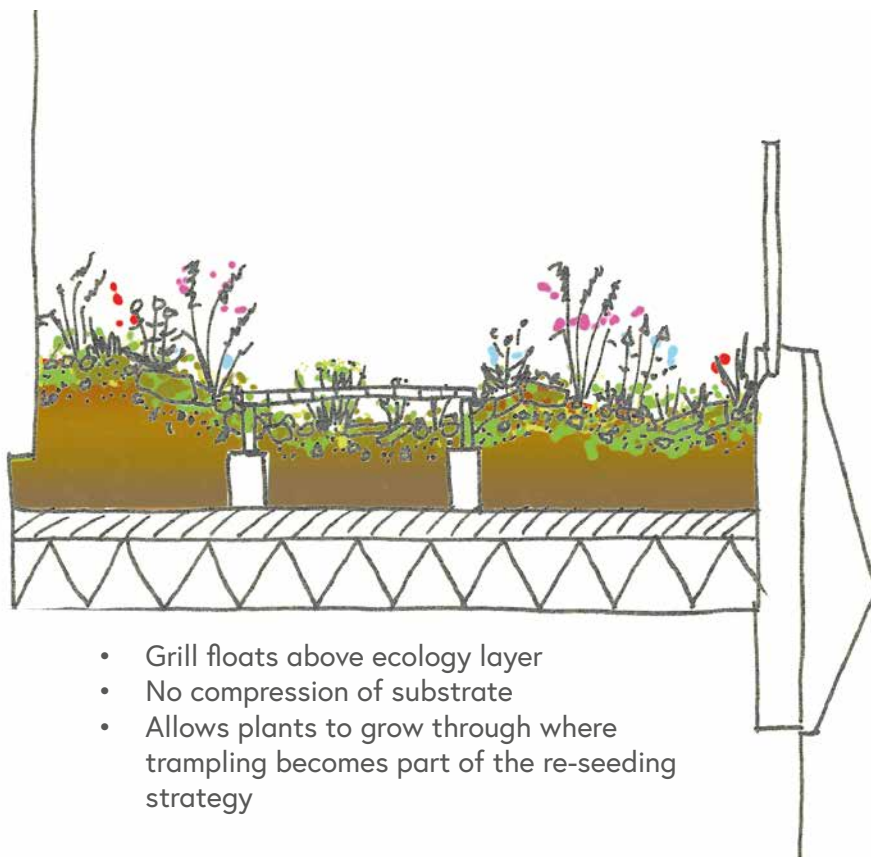
- Maintain by seasonal cutting
- Trampling part of the re-seeding strategy
- Grass may become too dominant

Gravel



- Trampling may compress substrate and reduce undulating mounds and diverts
- Trampling part of the re-seeding strategy
- Grass may become too dominant

Grill

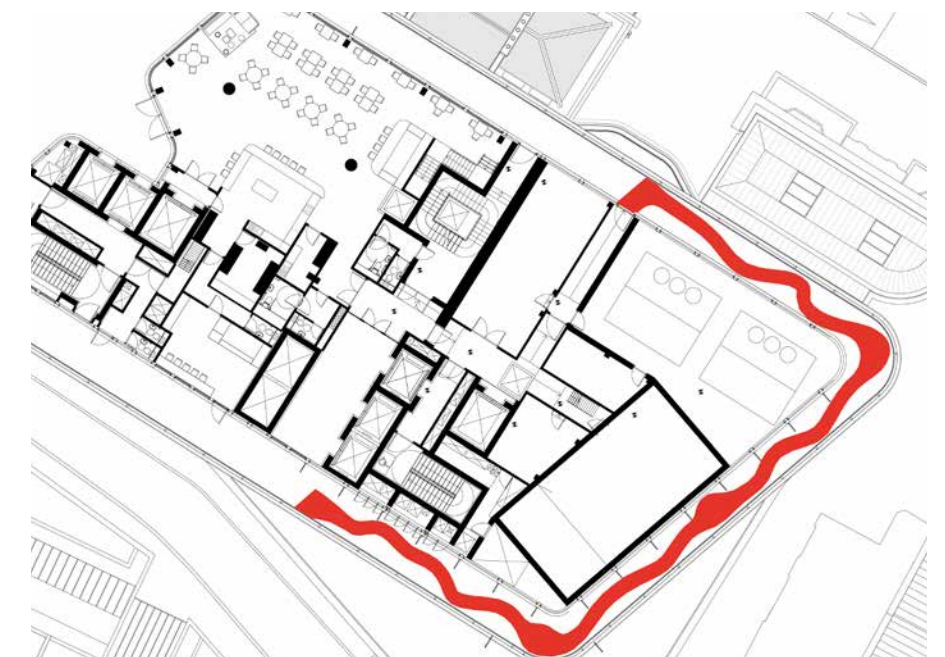


- Grill floats above ecology layer
- No compression of substrate
- Allows plants to grow through where trampling becomes part of the re-seeding strategy

We have been exploring how to achieve high ecological integrity with the maintenance and occasional visitor access.

We understand that in certain natural habitats, regenerative processes are triggered by spontaneous or anthropomorphic disturbance, so we are exploring how controlled trampling of plants could be part of an intentional management strategy.

However, where weight is applied to the substrate we acknowledge there will be some flattening and this may reduce the undulating surface and corresponding micro-climates created. Some areas of greater compaction would produce a subtle mosaic that could provide opportunities for different plants and invertebrates.



L24 Wildlife ribbon reserve indicative planting palette

Conservation ecology: diversifying growing conditions

1



Echium vulgare - viper's bugloss



Glebionis segetum - corn marigold



Centaurea scabiosa

Wildlife Ribbon reserve

In line with the Woodland strategy, this area of L24 will be led by an "Ecology First" strategy, providing a high quality area for scientific research on bio-diversity at height in urban cities.

We propose minimal year-round public access and specific days for public access for visits, education and at special times. Minimal public access, maintenance only.

1 Sunny, dry

The microclimates of this terrace create a range of distinct conditions for plant pollinators. The south east aspect will be sunny/bright and dry providing conditions akin to the Mediterranean coast.

2



Campanula glomerata



Lychnis flos-cuculi



Filipendula ulmaria

2 Sunny, damp

The microclimate of the South West aspect will provide wetter and sunny conditions for moisture loving species.

3 Shade, damp

The north-west aspect will be suitable for native ferns and will most likely provide refuge habitats as well as foraging.

3



Asplenium scolopendrium



Anemone nemorosa - wood anemone



Polypodium vulgare



L26 Microtopographies and water presence

Scale and seasons

Invertebrates will need a variety of water sources on each terrace throughout the seasons. Some moisture for many invertebrates can be found within the substrate. However, to attract the largest spectrum of species we are considering the provision of permanent and ephemeral water receptacles of differing scales:

- Dish
- Bowl
- Bucket

The Dish

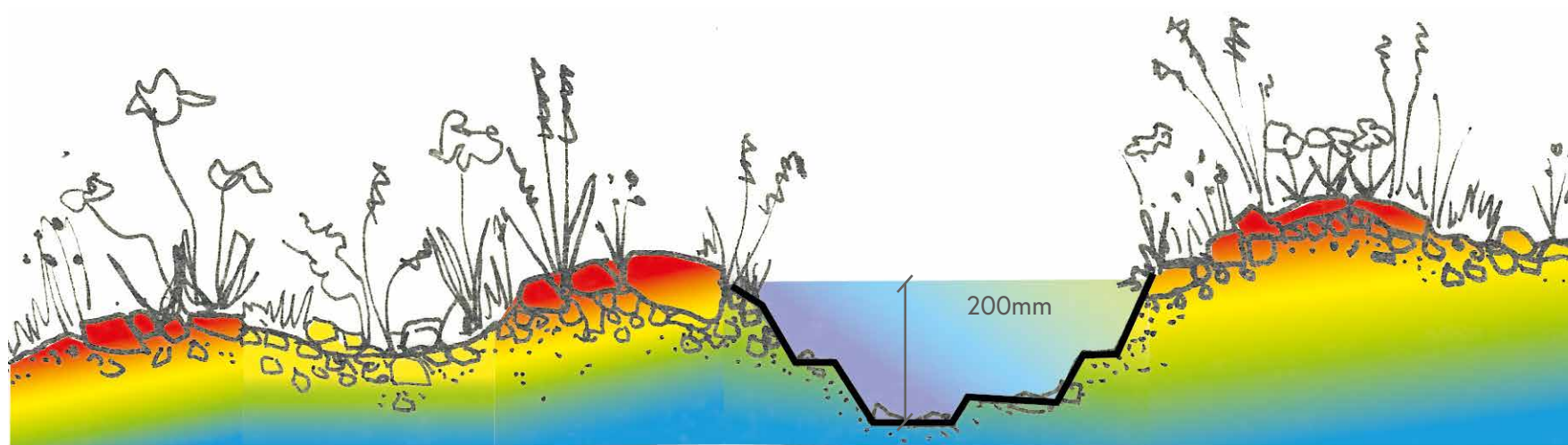
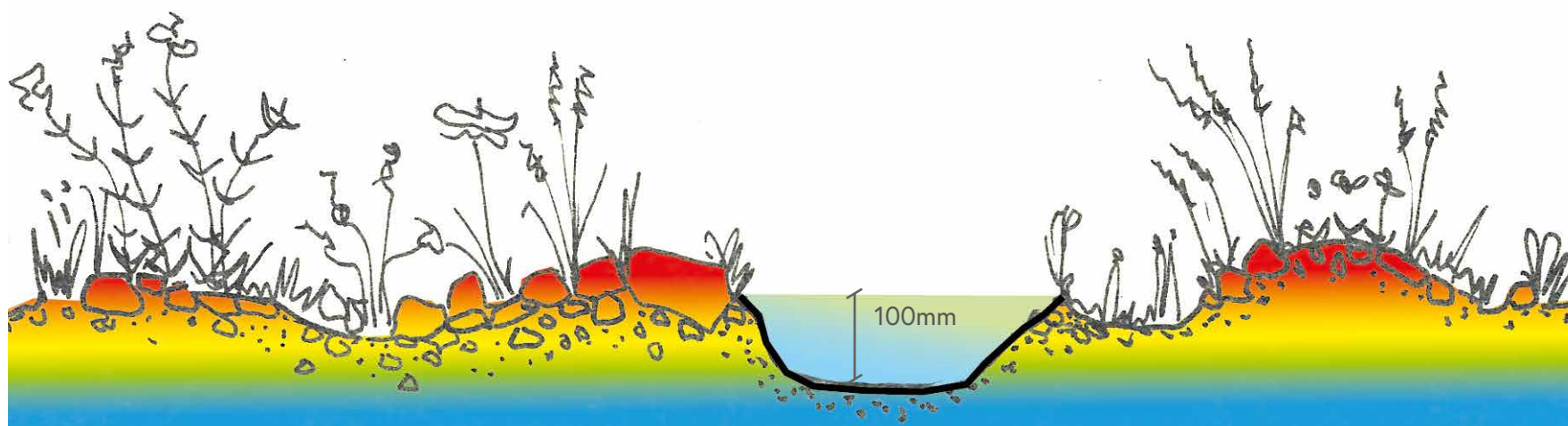
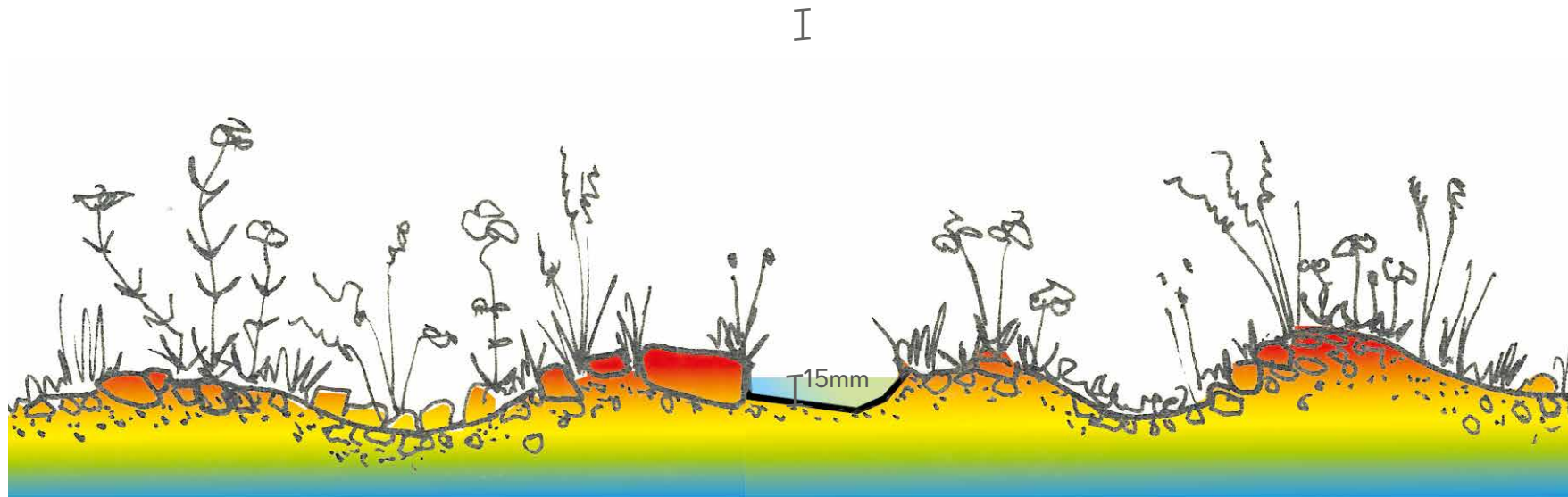
Intended to provide water for butterflies and moths. Depth to 10-15mm.

The Bowl

Intended to provide water for birds and bees (some can also be filled with pebbles/marbles). Depth 100-150mm.

The Bucket

Where we have available build up we are exploring how to provide a series of depths for potential amphibians. Max depth up to 200mm. This requires a relatively wide area for a breeding habitat which we hope to explore in non-public areas of L26 and L03.



L26 Biodiverse green and brown roof indicative planting palette

Broadening microclimate and varying topographic conditions

1



Achillea - Cloth of gold



Sedum spectabile - Brilliant



Primula vulgaris - Primroses

1 Undulating soils

This area can be designed to have fluctuating soil depths and slopes as there would be little disturbance from visitors' trampling.

2 Moisture-retentive soils

On this west-facing biodiverse roof we hope to create moisture-rich, mounded soils to extend the range of plant species for pollinators and invertebrates.

3 Semi-permanent water bodies, marginals

Where we are able to introduce a range of containers (100-150mm) of water, we'd like to provide semi-aquatic and marginal plants to encourage spawning and reproduction of aquatic life.

2



Lychnis-flos-cuculi - Ragged robin



Lysimachia vulgaris - Yellow loosestrife



Sanguisorba officinalis - Great burnet



3



Ceratophyllum demersum - Hornwort



Lythrum salicaria - purple loosestrife

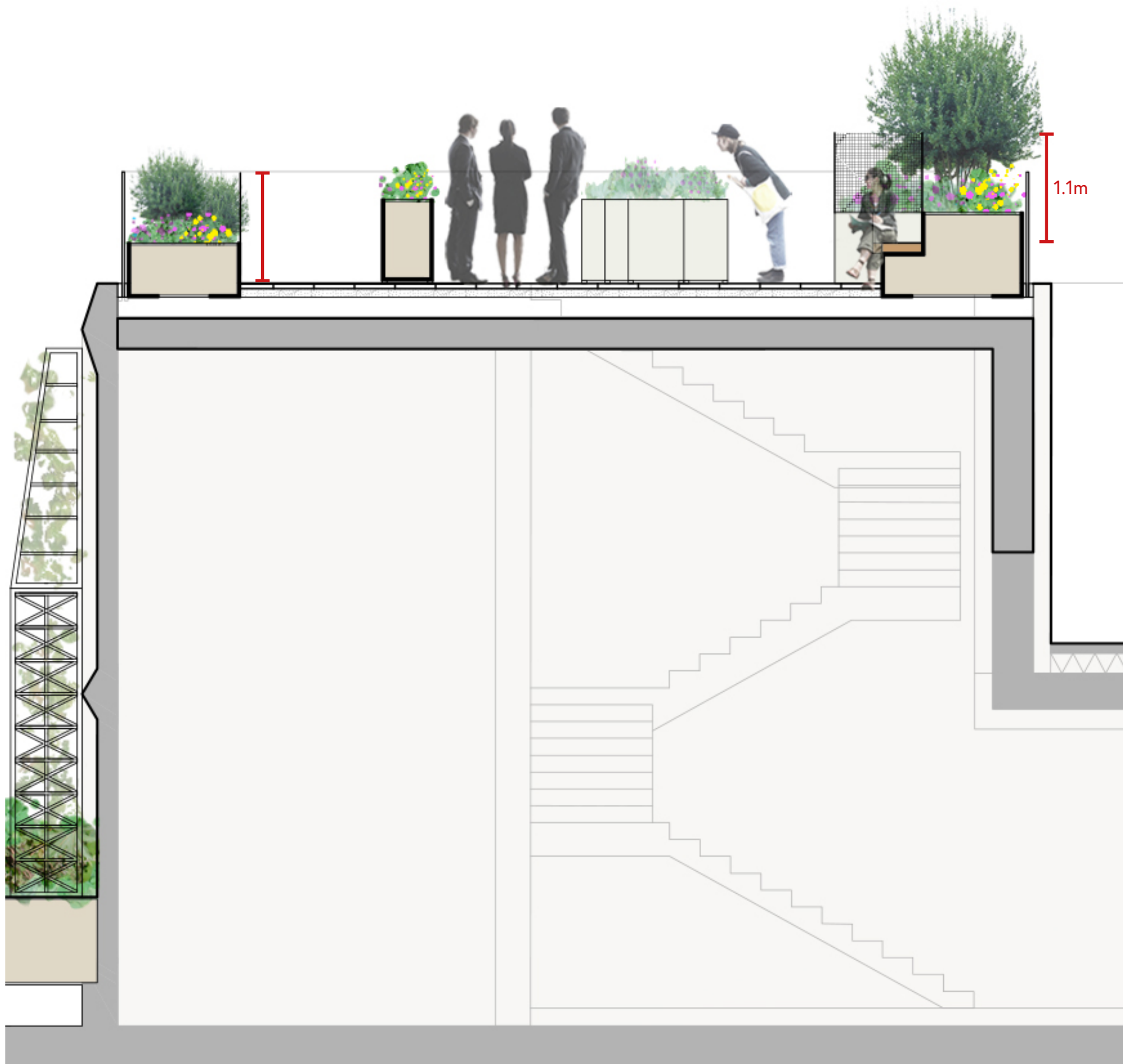


Scirpus cernuus - needle spikerush



L26 Amenity terrace

Inner balustrade



We have added an inner balustrade of 1.1m fine-gauge (CDM-compliant) wire mesh to prevent visitors from stepping on to the planters and then falling over the main balustrade.

The plants would be encouraged to grow over and through these inner balustrades to reduce their visual impact.



L26 Amenity terrace indicative planting palette

Striking colours and forms on the amenity terrace

1



Pinus mugo



Arbutus unedo



Corylus avellana contorta - corkscrew hazel

This terrace has the greatest capacity to host people and events, so the planting is robust and flexible to accommodate the wide range of occasions. The planting will be exposed to all weather conditions, with some shade being provided by the building.

1 Multi-stem shrubs for shelter

This terrace will need some protection from the south-west prevailing winds, so a mixture of evergreen and deciduous multi-stem shrubs will form part of the perimeter planting to the south.

2 Ground cover and perennials

Drought-tolerant perennials will be planted in both the static and mobile planters, providing seasonal interest as much as food for pollinators we are looking to attract.

3 Climbers

Scented climbers will provide seasonal interest through summer months along with some evergreen species to provide continuous foliage over winter.

2



Pulsatilla vulgaris rubra - red pasqueflower



Fritillaria meleagris - snakeshead fritillary



Agapanthus praecox

3



Trachelospermum jasminoides



Golden hops



Lonicera periclymenum - honeysuckle



