

- HGV
- Van
- Standard (Scottish Opera)
- Tractor
- Scottish Opera Blue Badge
- PBSA Blue Badge

Parking

Scottish Opera

The existing site offers circa 65 standard car parking spaces between two courtyards adjacent to the Scottish Opera warehouse, however the exact number is hard to determine as some demarcation lines have faded and some spaces have been covered with storage units. The open space at the intermediate level offers flexible zone for HGV parking.

The review of the existing provision suggests that the amount of parking spaces exceeds the current requirements as many parking spaces appear unoccupied by the staff, occupied by HGVs or blocked by waste skips. In addition, introduction of Workplace Parking Levy by Transport (Scotland) Act 2019 with an aim to reduce the number of cars and traffic and encourage sustainable modes of transportation would inevitably enforce reduction of staff car parking spaces for all businesses.

With that in mind, the proposal shows the following distribution of parking spaces:

- Parking area for 4 x HGVs
- 1 x Tractor parking space
- 4 x Van parking spaces
- 24 x standard staff car parking spaces
- 2 x Blue Badge Spaces; 1 in each L0 courtyard and within 45m from the building entrance

PBSA

PBSA blocks are the car-free development meaning it only requires statutory accessible drop off as part of the scheme.

Accessible parking provision for new PBSA blocks forms a part of Level 1 courtyards with convenient and step-free access into PBSA internal amenity spaces. The provision includes:

- 4 x Blue Badge spaces; 2 spaces in each courtyard and within 45m from the building entrance

Cycle Parking

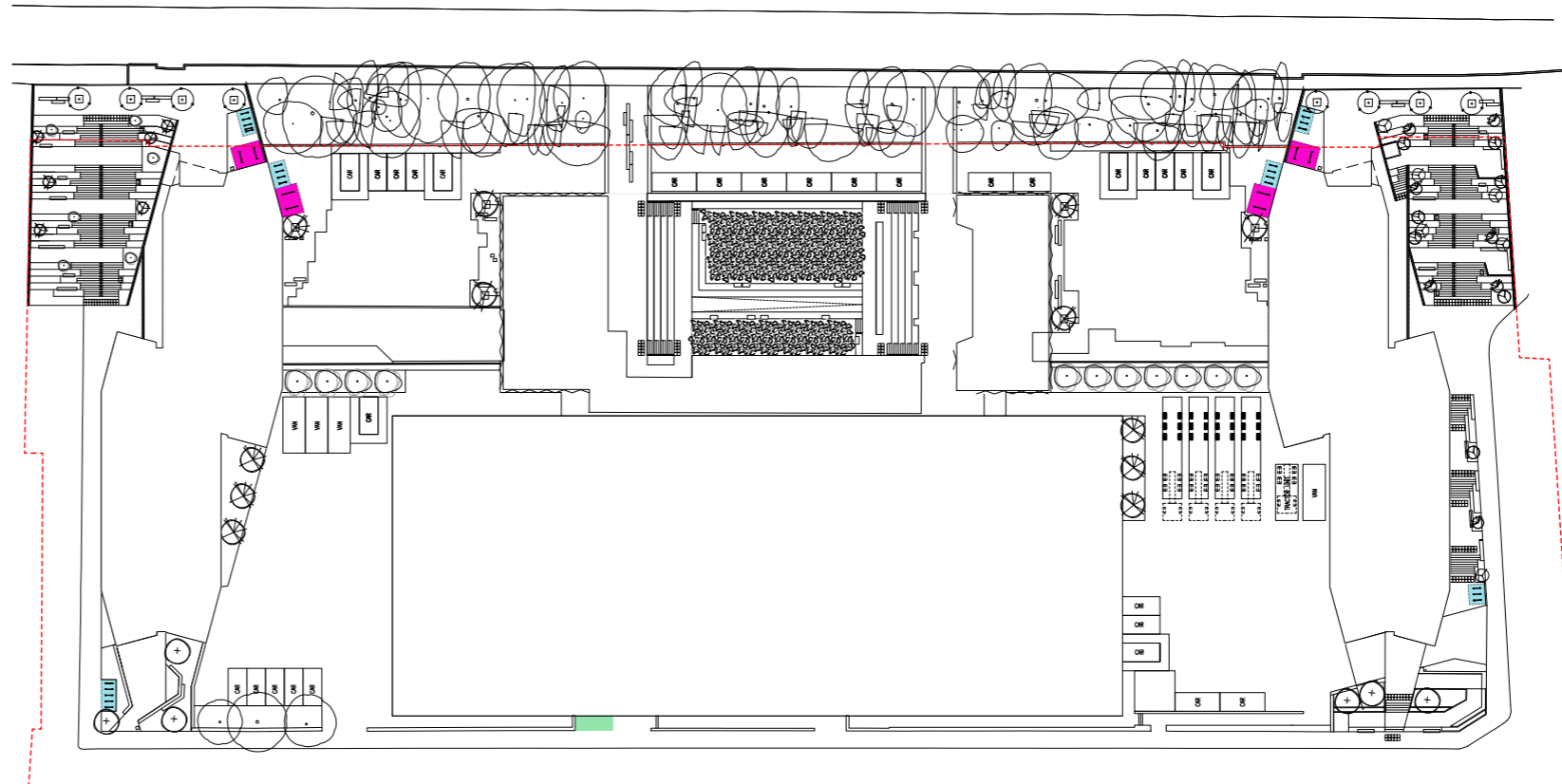
Visitor cycle parking

The design allows for 72 visitor cycle parking spaces evenly distributed between 7 external locations: 1 in front of existing entrance to Scottish Opera Warehouse from Edington Street, 2 within Level 0 Public Plazas, 2 within Level 1 Courtyards and 2 within Level 3 Public Plazas adjacent to the towpath.

The Cycling by Design (2021) document covering Scotland notes that 'Provision for 'non-standard' cycle vehicles should also be made.' Moreover, as the canal path links to the National Cycle Route 754 and Sustrans are currently working on improving accessibility along their routes, the project sees that adding non-standard stands could be a positive contribution to the overall environment. Therefore, 20% to all visitor spaces are designed for non-standard vehicles such as cargo bikes, hand cycles, tandem bikes and many other.

Proposed visitor cycle parking provision across the site is:

- 56 standard cycle parking spaces (including 8 existing spaces on Edington Street)
- 16 non-standard cycle parking spaces



- Existing Cycle Stands
- Non-Standard Cycle Stands
- Standard Cycle Stands

Left:
Cycle parking diagram
showing provision of visitor
spaces for SO and PBSA



Safety, Accessibility & Inclusivity

The new Public Realm is designed in accordance with Inclusive Design requirements set out in Glasgow City Council Supplementary Guidance 1 – The Placemaking Parts 1 & 2 and BS8300-1:2018. The measures to create accessible and inclusive external environment include:

- Wheelchair Parking bays within 45m from building entrance
- Step-free access to all main entrances to PBSA and Scottish Opera buildings
- Sufficient path widths to allow for convenient passing
- Logical layout with clear sightlines
- Provision of integrated bike ramp for sections of stepped landscape
- Provision of covered and secure cycle parking for PBSA blocks as well as standard and non-standard visitor cycle stands as part of external environment to promote sustainable transport and alternative modes of mobility

As the site is bound by topographic conditions of adjacent roads, the public footpaths along Corn Street and Sawmillfield Street need to remain at the existing gradient, which varies between 1:8 and 1:10. In addition, there is an approximately 8m height difference between street level and towpath that is currently bridged with a small set of stairs at the top of Sawmillfield Street. Due to this topographic constraint, creating ramped access at both ends of the development would compromise the design of the external environment and offer minimum benefits to the existing public realm. Therefore, the design offers solutions to create accessible routes across the various levels of the development, such as:

- Compliant route to the Ground Level of all buildings from Edington Street
- Wheelchair parking at the intermediate level with compliant access to Level 1 of all buildings
- Compliant route connecting towpath level to Level 3 of all buildings
- External platform lift to access walled garden space

The proposed external design is intended to become a new focal point for locals and visitors, offering a range of spaces for planned and spontaneous encounters. The key landscape goals for adding to the existing public environment are:

- Improving permeability of the site by adding new physical and visual links to Speir's Wharf
- Activating canal landscape and encouraging regular activities such as markets, water sport competitions and others to take place
- Improving safety and legibility of the site by adding lighting and signage along main access routes
- Fostering learning about local plants, trees and wildlife
- Enabling conversations between different members of the community
- Encouraging a variety sustainable method of transport

Right:
Examples of landscape elements for improved accessibility and inclusivity across the development

Biodiversity & Ecology

Preliminary Ecological Assessment:

Summary

The open spaces of the Site are mostly Phase 1 habitat type J5 hard standing. Within the development site there are several stands of mostly young shrubs and broadleaved trees, with a few semi-mature trees. These habitats approximate most closely to Phase 1 habitat type A1.1.2 broad-leaved plantation woodland. None of these habitats or the plant species present are protected or rare.

The key ecological issues for this development are the protection of the root protection zones of retained trees, and biodiversity enhancement in compliance with National Planning Framework 4 policy 3c.

The Preliminary Ecological Appraisal Report concludes that there is no evidence for nearby protected sites which could be adversely impacted or potentially constrain this development, nor of any protected species being within the Site.

With the exception of mitigation for birds potentially breeding within trees and shrubs which could be disturbed during breeding attempts, and a precautionary otter protection plan, no further mitigation is necessary. These requirements can be secured through appropriately worded planning conditions.

Project Biodiversity Enhancements

The project is informed by an understanding of the existing characteristics of the site and its local ecological context. The proposal will retain most of the existing trees that are of Category B 'Good' as identified in Arboricultural Survey and look to integrate nature-based solutions where possible. This will include future management of the natural assets to ensure that the objectives are met.

The new tree and planting strategies are in line with recommendations highlighted in PEA, Arboricultural Surveys and National Planning Framework 4 and are aimed on significant biodiversity enhancements and nature networks, linking to and strengthening habitat connectivity within and beyond the development. The project is aiming to add around 50 new trees which are native to Scotland and UK environment and will provide homes for wildlife across the year. The ornamental planting will consist of mix of native shrubs, grasses and perennials, attracting pollinators and other insects to the site.

As recommended in the Draft NFP4 Statement section of the PEA report, the project will make biodiversity enhancements, where possible, to:

- Tree and Shrub Planting
- Wildflower area
- Hedgehogs habitat
- Bats habitat
- Birds habitat
- Invertebrates habitat

We see this development as an opportunity to make a positive contribution to address national biodiversity, habitat and climate change issues.



Left: Photographs of the existing site showing current state of tree planting and other vegetation



Landscape Management and Habitat creation principles

Trees and Shrub Planting

There are a number of interventions in the proposal which will create new and change existing habitats as the project progresses. These changes will be carried out sensitivity so that there is minimum disruption to nesting or hibernating animals and in line with current guidelines and legislation. With the addition of nest and roost boxes in new structures and the proactive management of the new planting areas there will over time be an increase in the diversity of species across the site. The long-term programme of surveying will inform the active management of the site, guiding resources to where they are needed most, and highlighting success stories.

Diversity of Species

There will be limited opportunity for new planting areas across the new development, therefore where it does exist the planting palette will be considered to work hard to provide a diversity of species giving seasonal variation and habitat for bees, butterflies and other LBAP promoted species. In addition, we will strive to maximise the extent of any retain vegetation, shrubs and trees, to provide as many age and species diverse, and rich habitats across the site as possible.

Hibernacula, Refugia Bat Boxes and Bird Boxes

The proposal will include for specific nesting, roosting and hibernating sites across the area. Ideally these would be constructed with the help of local wildlife groups, ecologists and schools. These could include specific nest boxes for sparrows, swifts, and also integrated bat boxes and bee bricks that can be built into suitable structures. Bug hotels and hibernacula can be constructed with local youth groups to encourage awareness and excitement in the nature.

Nesting birds

The proposal will add new nest boxes and improve the food sources through increasing insect habitats.

Bats

There are many opportunities to add roost sites to the existing perimeter trees and structures along with standalone bat rocket boxes. This will increase the opportunity for bats to thrive here especially when coupled with an increase in insect's habitat.

Butterfly

The existing vegetation contains several food plants for a variety of species of butterflies. The proposed planting will encourage butterfly species by providing greater diversity of food plants, and a connected habitat to the canal towpath and embankments.

Bees

There are 200 species of bee in Britain, 14 are described by Nature Scotland, in detail for identification in Scotland. There are many different habitats that this diversity requires to thrive from stonewalls to open grassland and woodland. This site has the potential to attract and cater for many of them. The south/west facing slopes to the canal are of particular benefit and attraction to bees.



Right: Examples of plant and tree species for improved biodiversity

Tree Strategy

Existing Trees

The Arboriculture Survey conducted by AV Arboriculture on 19th and 29th of December 2023 has identified:

- No Trees marked as Category 'A' (40+ years)
- 173 Trees marked as Category 'B' (20 – 40 years)
- 3 Trees marked as Category 'C' (10 – 20 years)
- 8 Trees marked as Category 'U' (less than 10 years)

Within recorded trees, the survey identified:

- No Trees classes as 'Mature'
- 77 Trees classed as 'Early-mature'
- 105 Trees classed as 'Young'
- 2 Trees classed as 'Dead'

There are 5 tree species that have been identified:

- *Betula pendula* (Silver Birch)
- *Betula pubescens* (Downy Birch)
- *Acer platanoides* (Norway Maple)
- *Salix caprea* (Goat Willow)
- *Sambucus nigra* (Common Elder)

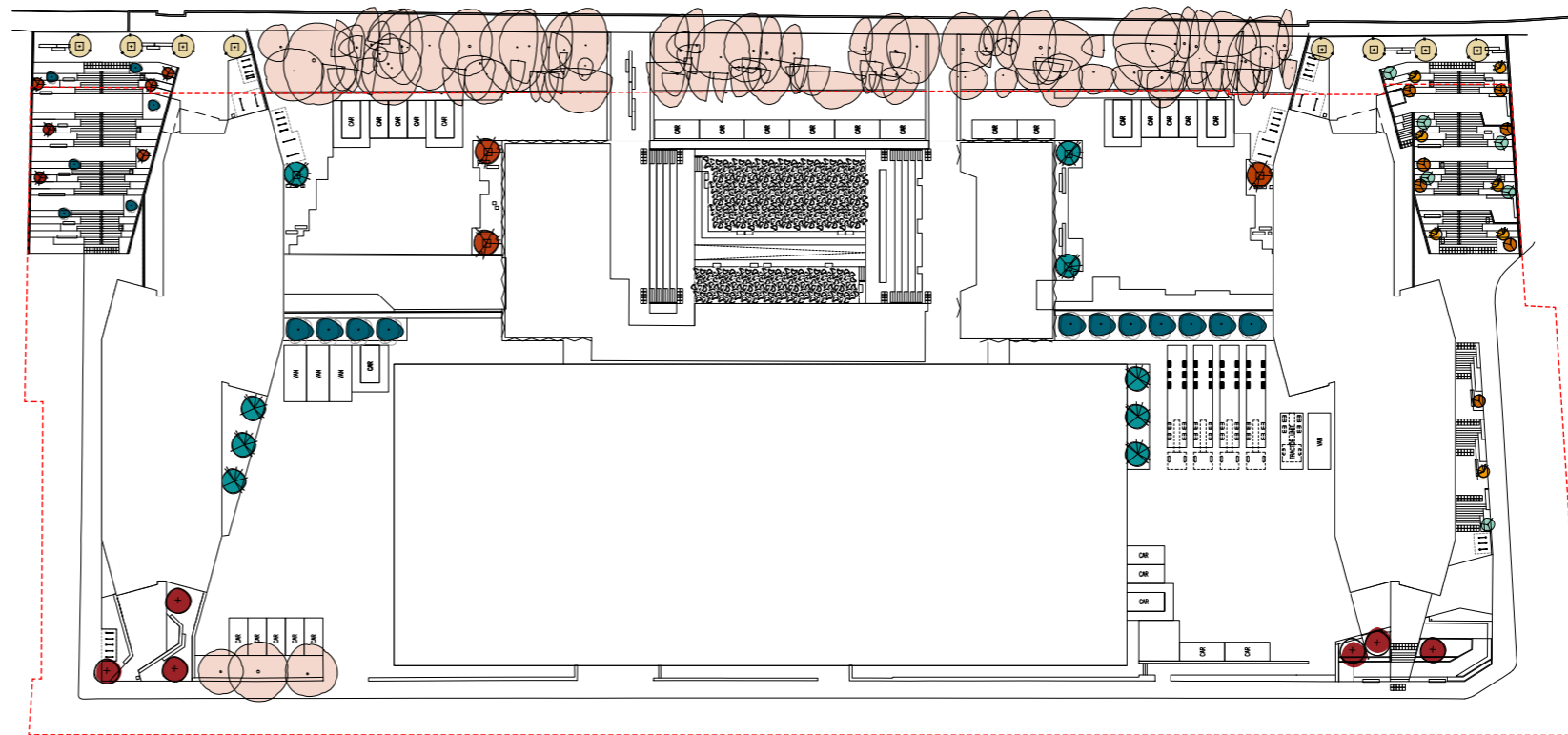
Tree Proposals

The general consideration is to ensure that the perimeter trees to the east boundary are integrated where possible with the development and that any building edges, boundary fences or railings are considerate of the tree Root Protection Areas, RPA. In the likely event of tree felling the development will ensure that there is an equivalent level of tree planting proposed across the site.

The project is proposing circa 60 new trees to be added on multiple levels offering more diversity to species and working with spatial design considerations for creating better and more usable external environment.

The orientation of the site combined with existing and proposed locations for the building creates unique environmental conditions where some areas of the site will have sun exposure throughout most of the day whilst others will be overshadowed for long periods of time. Therefore, this was an important aspect when considering the selections of tree species for each of the public areas.

The two plazas at the corners of Edington St will be created as a result of the reducing the size of service yards and making these intersection



- Existing Trees Retained
- Tree Type 1 - *Sorbus aucuparia*
- Tree Type 2a & b - *Pinus sylvestris* (2 Sizes)
- Tree Type 3a & b - *Carpinus betulus* (2 Sizes)
- Tree Type 4 - *Fagus sylvatica*
- Tree Type 5 - *Betula Pendula*
- Tree Type 6 - *Betula Nigra*
- Tree Type 7 - *Crataegus monogyna*

points open to the public. There are a few trees that will need to be lost due to necessity to adjust site levels and make areas more accessible and inclusive. To compensate this, the project will add 6 new Semi-Mature trees that will enhance local biodiversity and create better overall environment for people and wildlife. The areas in the service yards that will need to be made clear of any trees vegetation to improve usability of the space, as they are currently planted in slopping soft landscape. The proposal is to add a row of 11 Semi-Mature evergreen trees along the retaining wall between Level 0 and Level 1 to soften visual appearance of the wall and create an immediate improvement to wind tunnels created between the buildings. We also propose to add 12 new trees to the perimeter of service yards on L0 & L1, to break up the hardstanding of the areas.

These trees will be located in the areas that will not be affected by tracking.

The proposed landscape stairs to south and north of the site will be integrated with standard and multistem trees scattered within planting beds. Although some groups existing trees will be lost, the new trees will add better value to overall biodiversity of the site.

Where new PBSA bridges are proposed, the landscape will include new tree planting to continue existing line of trees along the canal to maintain green corridor for visual and biodiversity impact. The proposed species will add a pop of colour to the canal promenade, marking the entrance to the new development.

Left: Diagram showing retained & proposed trees

Right: Selection of proposed tree species including details of berries, flowers or bark where applicable



Carpinus betulus
(European Hornbeam)

Standard Tree
25-30cm



Pinus sylvestris
(Scots Pine)

Standard Tree
20-25cm



Betula Pendula
(Silver Birch)

Standard / Multistem Tree
14-16cm



Betula Nigra
(River Birch)

Standard / Multistem Tree
14-16cm



Sorbus aucuparia
(Mountain Ash Rowan)

Standard Tree
20-25cm



Prunus avium
(Wild Cherry)

Standard Tree
20-25cm



Fagus sylvatica
(Beech)

Standard Tree
40-45cm



Crataegus monogyna
(Hawthorn)

Standard Tree
20-25cm



Tree Management

Objective

To manage the existing trees on site, retain as many as appropriate and to enhance the landscape asset with additional planting, managing the trees across the site for the long term.

Existing Situation

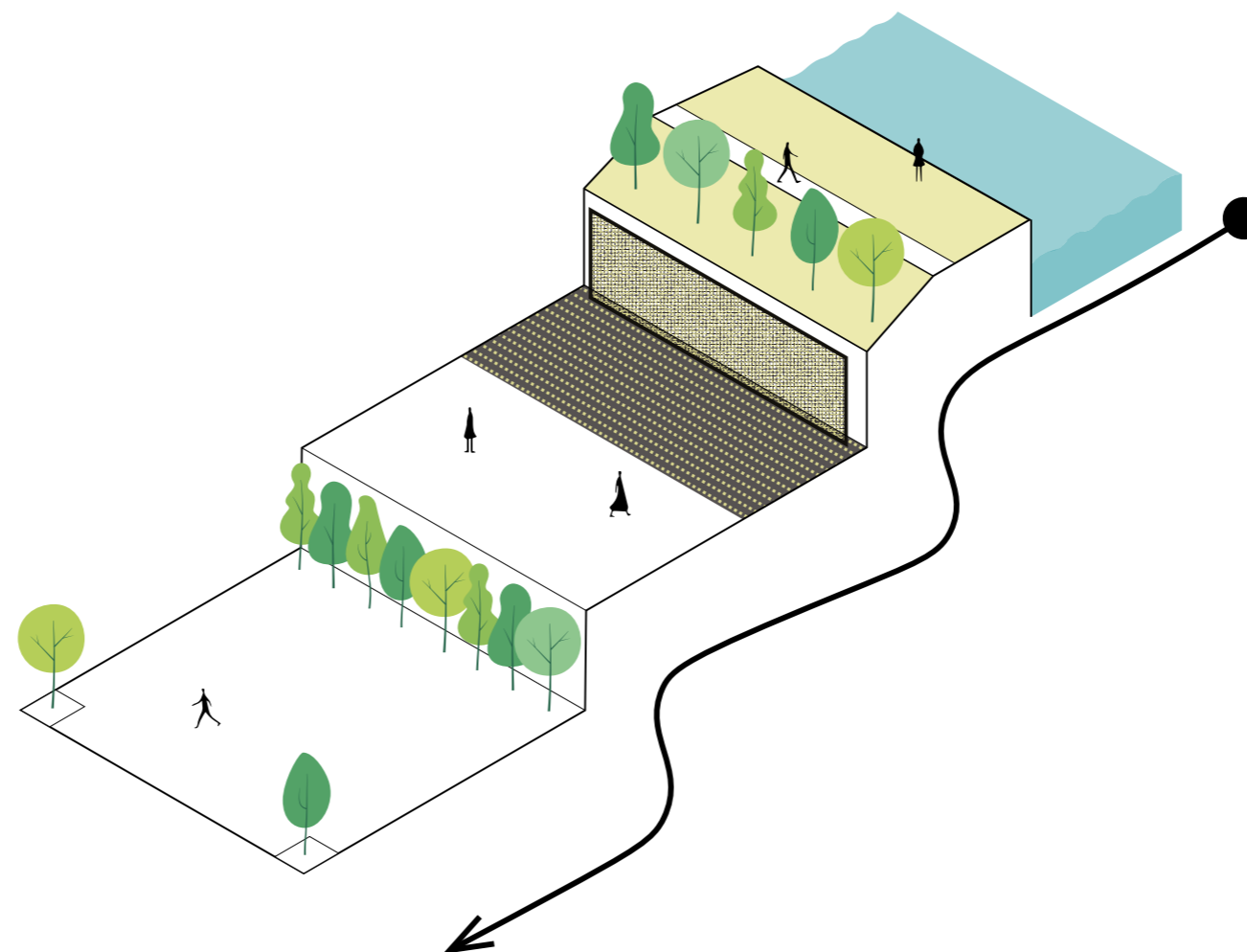
The trees on the site are a mix of overgrown planted trees and hedgerows with some self-seeded pioneer trees. Species diversity is non-existent, with four to five species across the whole site. The age range is also very narrow. The conditions into which the majority of the trees are growing are poor, shallow soils, lack of water and air, compacted root systems and an extent of hard landscape surrounding the trees. The tree survey carried out by AV Arboriculture in December/January informs us that the trees are also of category C which do not provide significant landscape value to the site. The proposed tree planting sets out to enhance the diversity, improve the age structure and to ensure that the growing areas for the new trees are appropriate for long term successful establishment.

Proposals

The group of predominantly willow trees along the canal towpath provide a visual screen and shelter to the site. These are the most significant trees relating to the development and it is proposed to retain the screen of trees where possible. The majority of the trees along the towpath will be retained with selected felling proposed for the creation of new paths and connections into the proposed PBSA and Scottish Opera development. There are four points along the towpath where these connections are necessary. At the north and south ends of the development trees will be replaced with semi mature feature trees which 'signpost' the new entrances into the public realm.

To the west boundary along Eddington Street there are a number of existing Norway Maple trees which provide an edge to the street. To create new welcoming public spaces to the north and south entrances the existing boundary wall and trees will be removed. The trees will be replaced with new semi-mature trees in the entrance plaza spaces, which define the pedestrian scale of the spaces against the tall PBSA buildings.

In the centre of the existing site a group of self-seeded trees providing limited landscape value



are to be replaced with new native tree planting which help to mitigate against the strong winds at ground level and to screen the services yards from overlooking PBSA and Scottish Opera buildings. A new retaining wall has had to be constructed which requires the existing trees to be felled. The replacement trees will provide a screen and enhance the biodiversity of the core of the site.

Trees to the south of the site which are to be felled to facilitate the development are replaced with native trees planted into the stepped landscaped terraces to the southeast and northeast corners. The selection of the trees in these terrace spaces are native species and specific to the south and north shade or sunny specific aspect.

New trees are proposed to increase the diversity of the site but are also located to mitigate against strong ground floor winds generated by the geometry of the proposed buildings and the prevailing winds, and to create a human scale to the public spaces created around the tall buildings.

A tree can create shelter and shade and form a safe and appealing place to sit and relax,

converse with friends, and provide screening from overlooking rooms above. These human scale interventions are described in more detail in later sheets in this DAS.

Planting Detail and Protection

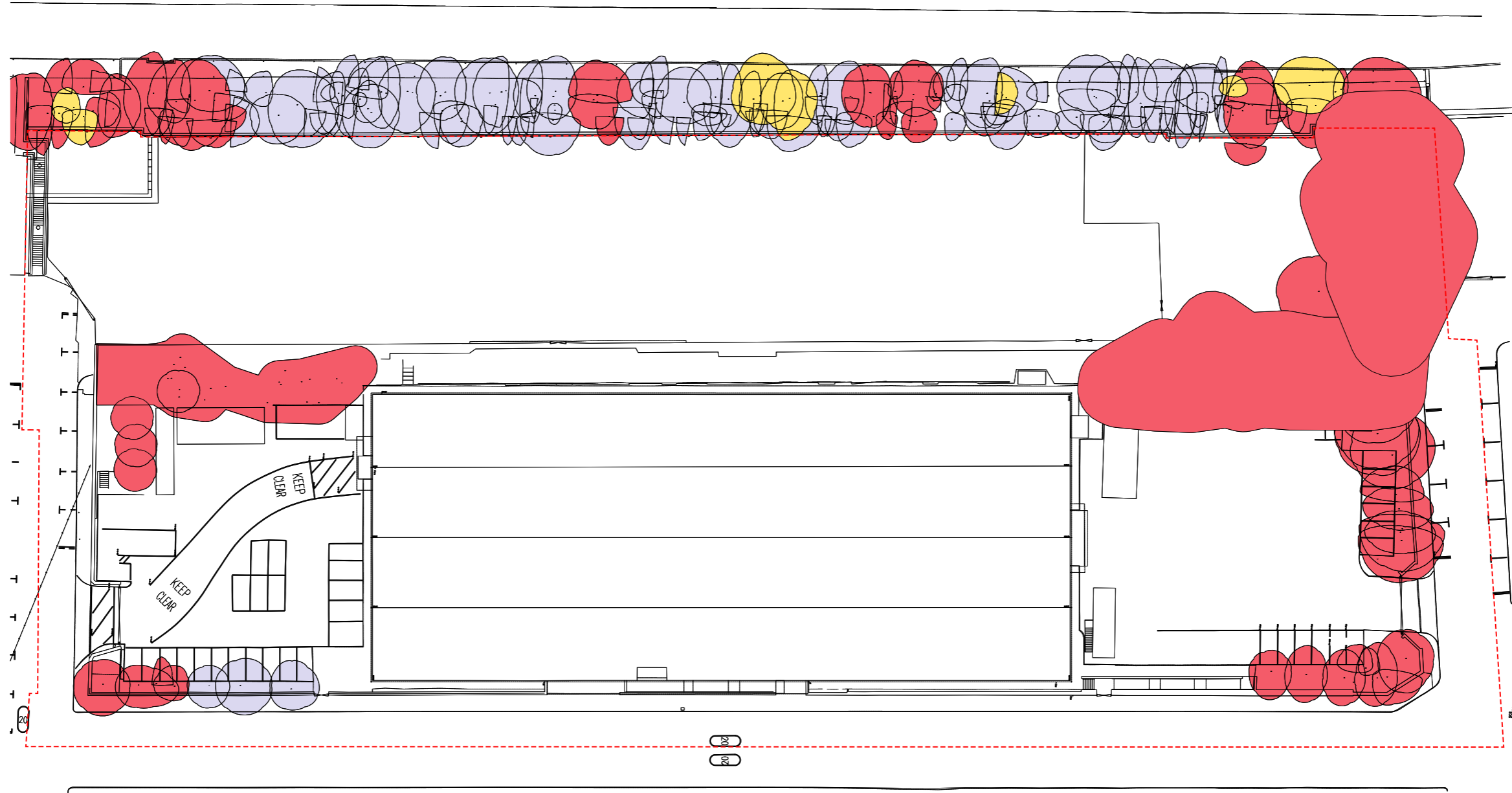
The diagram opposite illustrates the trees to be removed and those retained. Existing trees to be retained will be protected with the appropriate protective fencing around their Root Protection Area all in accordance with the BS 5837:2012. New trees will be provided a minimum of 15m³ of growing medium in a mix of underground cells or in terra firma.

Long-term

In order to ensure the long-term establishment of the new trees and continued survival of the existing it is proposed that a management plan is in place. The management plan will follow best practice in tree care, and will set out a 5, 10, 15 and 20 year plan for the health and establishment of the trees to maturity.

Left:
Conceptual diagram showing principle of hard & soft transition from towpath to Eddington Street

Right:
Diagram showing proposed tree retention and removal



- Retained Trees
- Removed Trees- Result of Proposed Development
- Removed Trees- Result of Tree Survey Recommendations

Planting Strategy

Existing Planting

The Preliminary Ecology Assessment identified the small number of plant species present on site, including:

- *Prunus laurocerasus* (Cherry laurel)
- *Cotoneaster horizontalis* (Wall Cotoneaster)
- *Deschampsia caespitosa* (Tufted Hairgrass)
- *Epilobium ciliatum* (Fringed Willowherb)
- *Erigeron annuus* (Fleabane)
- *Buddleia* (Butterfly bush)
- *Epipactis helleborine* (Broad-leaved Helleborine)
- *Chamerion angustifolium* (Rosebay willowherb)
- *Rumex crispus* (Curly dock)
- *Agrostis stolonifera* (Common Bent grass)
- *Trifolium repens* (White clover)
- *Taraxacum spp.* (Dandelion)

The assessment confirmed that none of the existing plant species present are protected or rare.

Planting Proposal

Similar to the tree strategy, the selection for planting species has been assessed in relation to the designed areas, including key considerations such as:

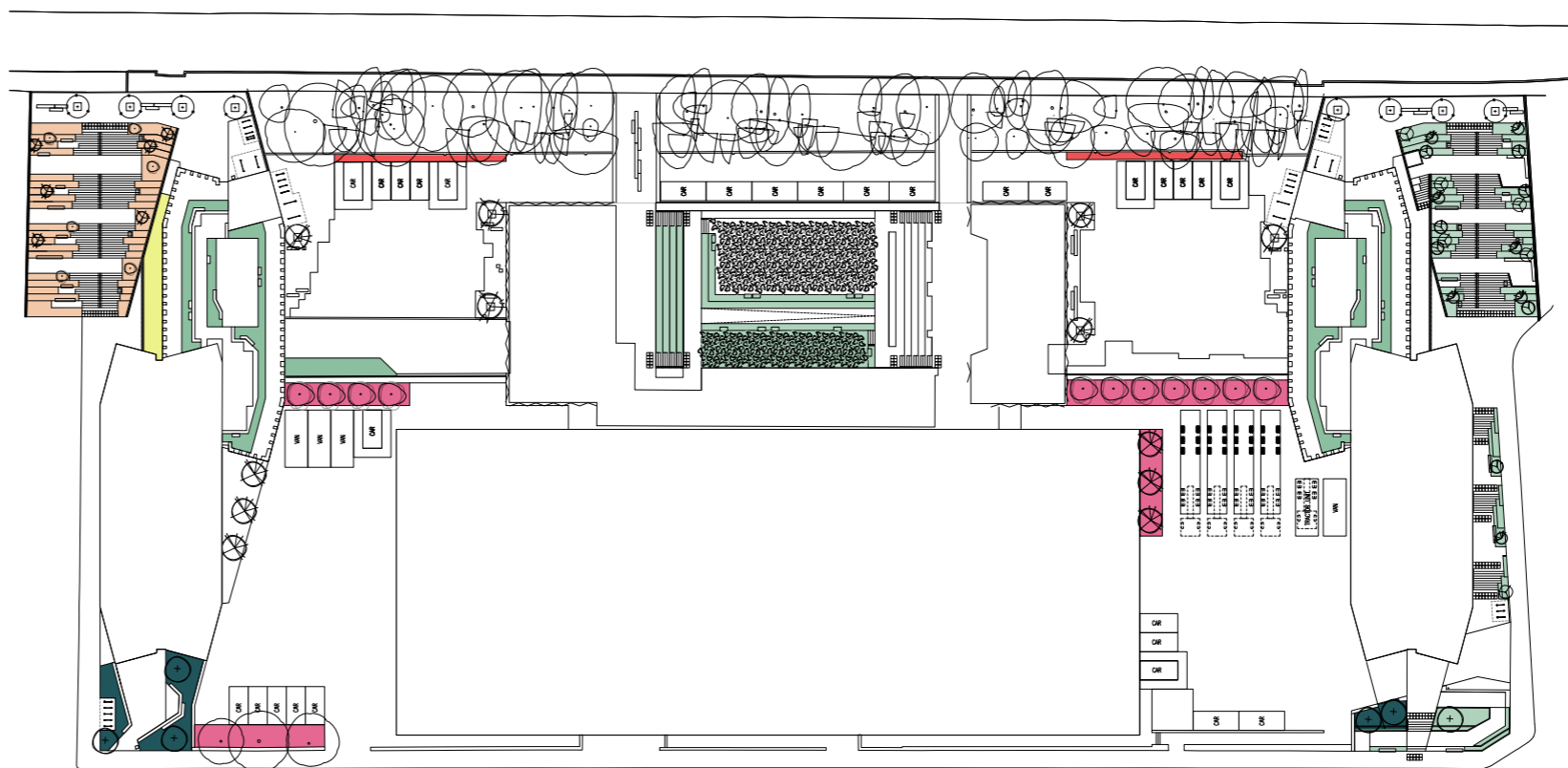
- Native species and biodiversity
- Seasonal variation
- Sun and wind exposure
- Size, form and structure
- Growing conditions
- Spatial characteristics

Proposed selection of species have been divided into three planting mixes:

- South-facing planting (tolerant to the large amount of sun exposure)
- North-facing planting (shade-tolerant)
- Raingarden planting

Each of the planting mixes consists of shrub, grasses, ferns, perennial and bulb species, which would be tailored to each spatial condition on site. For example, grasses would look good planted in the passing areas where there might be some wind exposure to play to their swooshing nature. Plants with nice smells or berries can be good to be planted next to seating nooks so people can explore those when having a rest.

A series of rain gardens are proposed at the lower



Left: Diagram showing proposed soft planting areas

Right: Selection of proposed plant species listed below

levels of the site to reduce the extent of below ground drainage by providing sustainable drainage solution. The rain gardens will slow down and cleanse water before it is returned to the piped network. By allowing the surface water to infiltrate into the ground and allowing plants to utilise the rainwater without the requirement for drainage or further treatment, the surface water will be treated as an asset rather than having to be dealt with through expensive off-site treatment. A suitable list of plant species is proposed for raingarden areas

South-facing planting

- (Pa) *Pennisetum alopecuroides* 'Red head'
- (As) *Allium sphaerocephalon*
- (Eg) *Epimedium grandiflorum* 'Lilafee'
- (Ep) *Eryngium planum* 'Blue Hobbit'
- (Ag) *Agastache* 'Blue Fortune'
- (Ct) *Crocus tommasinianus* 'Whitewell Purple'
- (Hn) *Hyacinthoides non-scripta*
- (Sc) *Stipa calamagrostis*
- (Pe) *Perovskia atriplicifolia* 'Blue Spire'
- (Hm) *Helenium* 'Moerheim Beauty'
- (Nr) *Nepeta racemosa* 'Walkers Low'
- (St) *Sanguisorba* 'Tanna'
- (Di) *Dicentra* 'Aurora'
- (Sb) *Stachys byzantina*

North-facing planting

- (Da) *Dryopteris affinis* 'Cristata'
- (Gn) *Galanthus nivalis*
- (Br) *Brunnera macrophylla* 'Jack Frost'
- (Ti) *Tiarella* 'Iron Butterfly'(sh)
- (Ca) *Carex muskingumensis* 'Silberstreif' (v)
- (Sa) *Sarcococca hookeriana* var. *humilis*
- (Ef) *Euonymus fortunei* 'Emerald 'n' Gold' (v)
- (Gp) *Geranium phaeum*
- (Hb) *Hosta* 'Bressingham Blue'/sieboldiana
- (Dr) *Dryopteris erythrosora*
- (Lm) *Liriope muscari*
- (Lu) *Luzula sylvatica* 'Marginata' (v)
- (Df) *Dryopteris filix-mas*
- (Ln) *Dryopteris filix-mas*

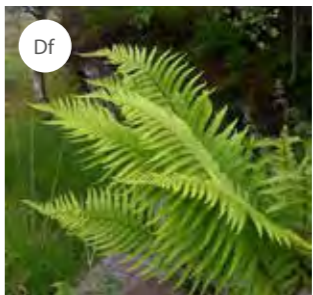
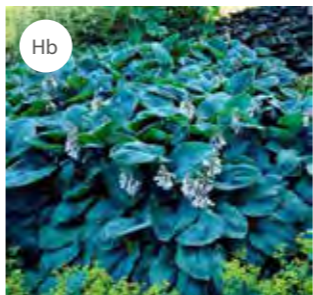
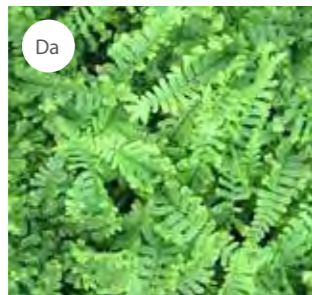
- ST1- Herbaceous & Ornamental (South Facing)
- ST2- Herbaceous & Ornamental (North Facing)
- ST3- Raingarden Planting
- CT1- Climbing Plants
- WT1- Wildflower Mix

Raingarden planting

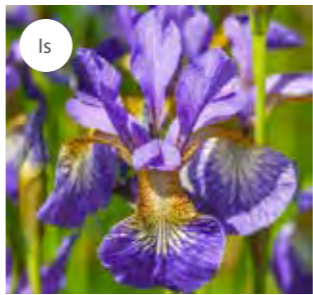
- (Ps) *Polystichum setiferum* 'Pulcherimum Bevis'
- (Am) *Achillea millefolium*
- (Cs) *Cornus sanguinea* 'Midwinter Fire'
- (Ve) *Veronicastrum virginicum* f. *roseum*
- (Ca) *Calamagrostis x actiflora* 'Karl Foerster'
- (Ec) *Erica carnea* f. *alba* 'Winter Snow'
- (Eu) *Eupatorium cannabinum*
- (Sp) *Succisa pratensis*
- (Cp) *Caltha palustris*
- (Ec) *Eupatorium cannabinum*
- (Sn) *Salvia nemorosa* 'Caradonna'
- (Is) *Iris sibirica* 'Tropic Night'
- (Aj) *Ajuga reptans* 'Burgundy Glow'
- (St) *Stipa tenuissima*



South-facing landscape
(Sun exposure)



North-facing landscape
(Full & Partial Shade exposure)



Raingarden planting
(Sun exposure)

Hardworks Strategy

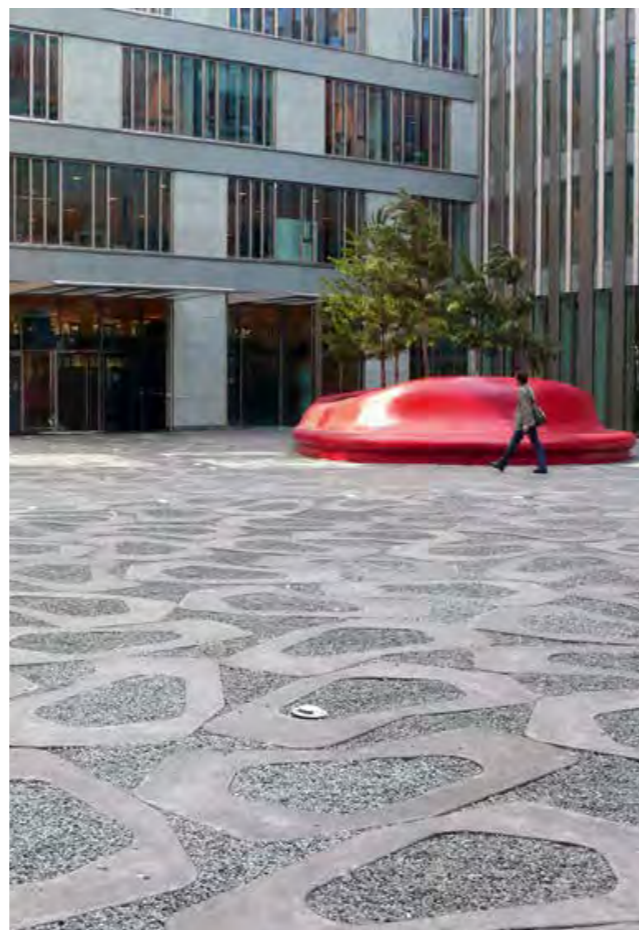
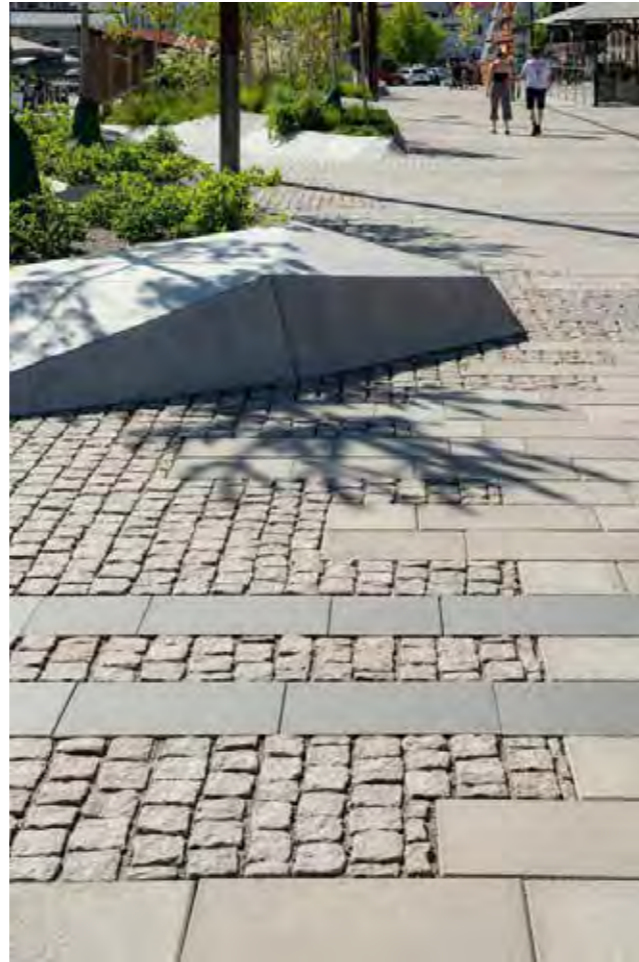
The design proposals will use materials that are durable, have a long lifespan and, where possible, sourced from within the UK and Europe. All hardworks materials will be assessed based on their sustainability credentials and longevity benefits with consideration to extraction process and production of harmful emissions.

The material palette will reference the industrial history of the site and utilise reclaimed materials where possible. From existing site materials, the clay bricks from sections of the removed perimeter wall can be reused as new external walling or as a crushed subbase layer to new surfacing.

The surfacing for the shared areas with occasional vehicle overrun will be of appropriate structural characteristics whilst keeping in with the site-wide design principles.

The public spaces adjacent to the building are designed to have areas of permeable paving to assist with surface water runoff. The proposals include permeable products and systems that are suitable for both pedestrian and heavy vehicle overrun to ensure durability and usability of the new public spaces.

The paving strategy for the walled roof garden will make use of a unique unit pattern combined with grass and planted areas. Other sections will include permeable paving systems to assist with surface water management.



Left:
Selection of materials for hard
landscape and edging



Street Furniture Strategy

The proposed design will improve accessibility & safety of the area whilst creating usable pockets of space for public and student use. The street furniture elements are designed to reflect the industrial history of the Speir's Wharf by introducing reclaimed granite setts, rustic log-style benches and pre-weathered steel elements such as tree grilles, railings and cycle stands.

The lighting along the path is proposed to add a layer of safety and security, whilst insuring it creates low level of light pollution. Colour temperature will be considered by using light to bring out textures and colours of materials on the ground plain. Warm colour ranges and temperatures below 2700 kelvin are a better environment for insects and wildlife.



Right:
Selection of materials for
street furniture and lighting

Corner Plazas

North-West Plaza

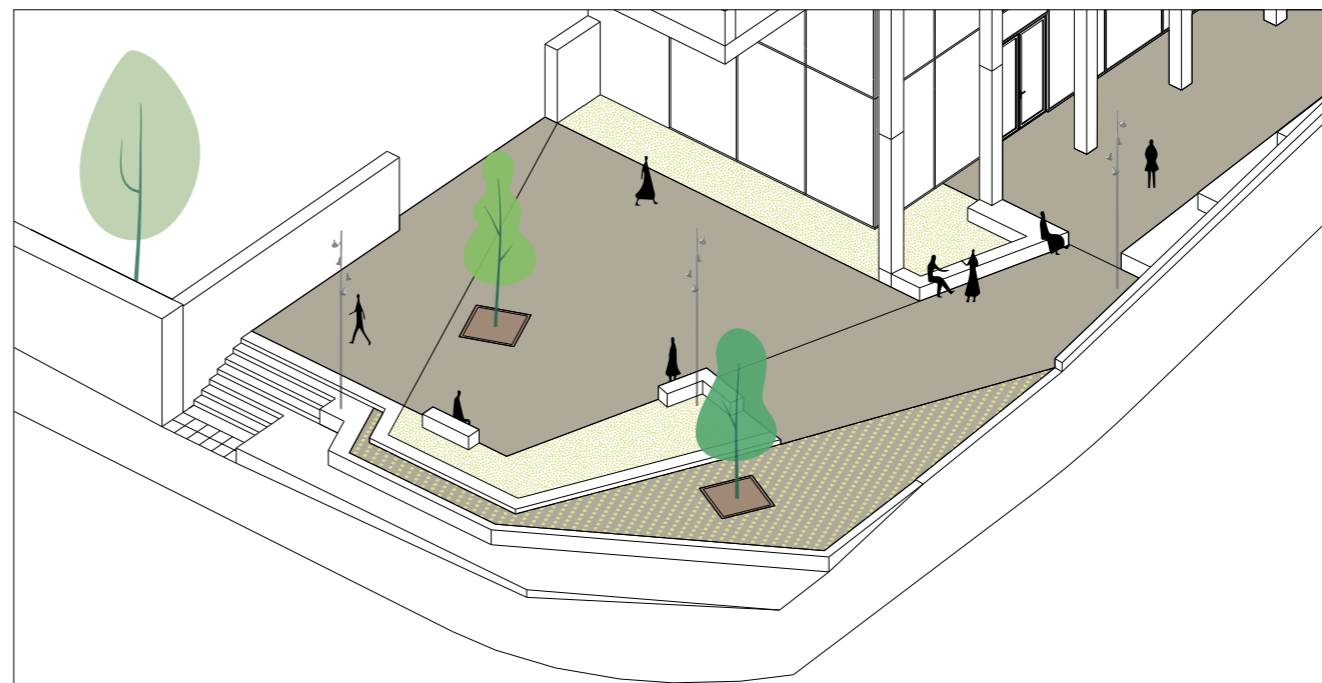
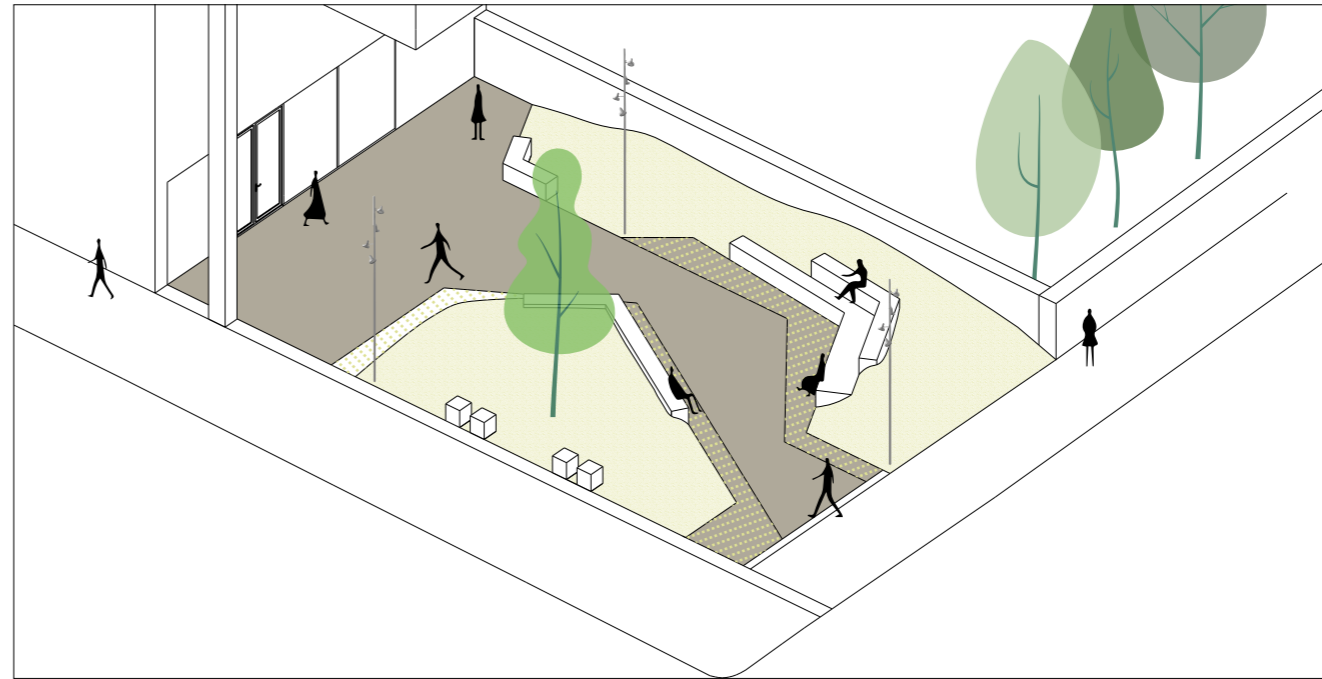
The North-West plaza will offer a connection between the street level and entrance to the PBSA block with an opportunity to act as a spill-out space from the ground level of building. The central area of the plaza can accommodate temporary events for both the public and residents. The plaza has been designed to feature pockets of seating and rest points, enclosed by planting and rain gardens.

South-West Plaza

The South-West plaza will provide level access to PBSA from the public routes, seating areas and an unobstructed vehicle route to the adjacent service yard. The plaza will feature planting suitable for the south-facing landscape, which will also assist with site drainage. By creating a terraced landscape with steps and ramps, the design will provide an accessible route and public space whilst accommodating the existing levels.

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Please note diagrams on this page show design development, please see plan to the right for final proposal.



Left top:
Conceptual diagram for North-West Corner Plaza (part of the development stage)

Left middle:
Conceptual diagram for South-West Corner Plaza (part of the development stage)



Left bottom:
Precedent images illustrating look & feel of the designed spaces

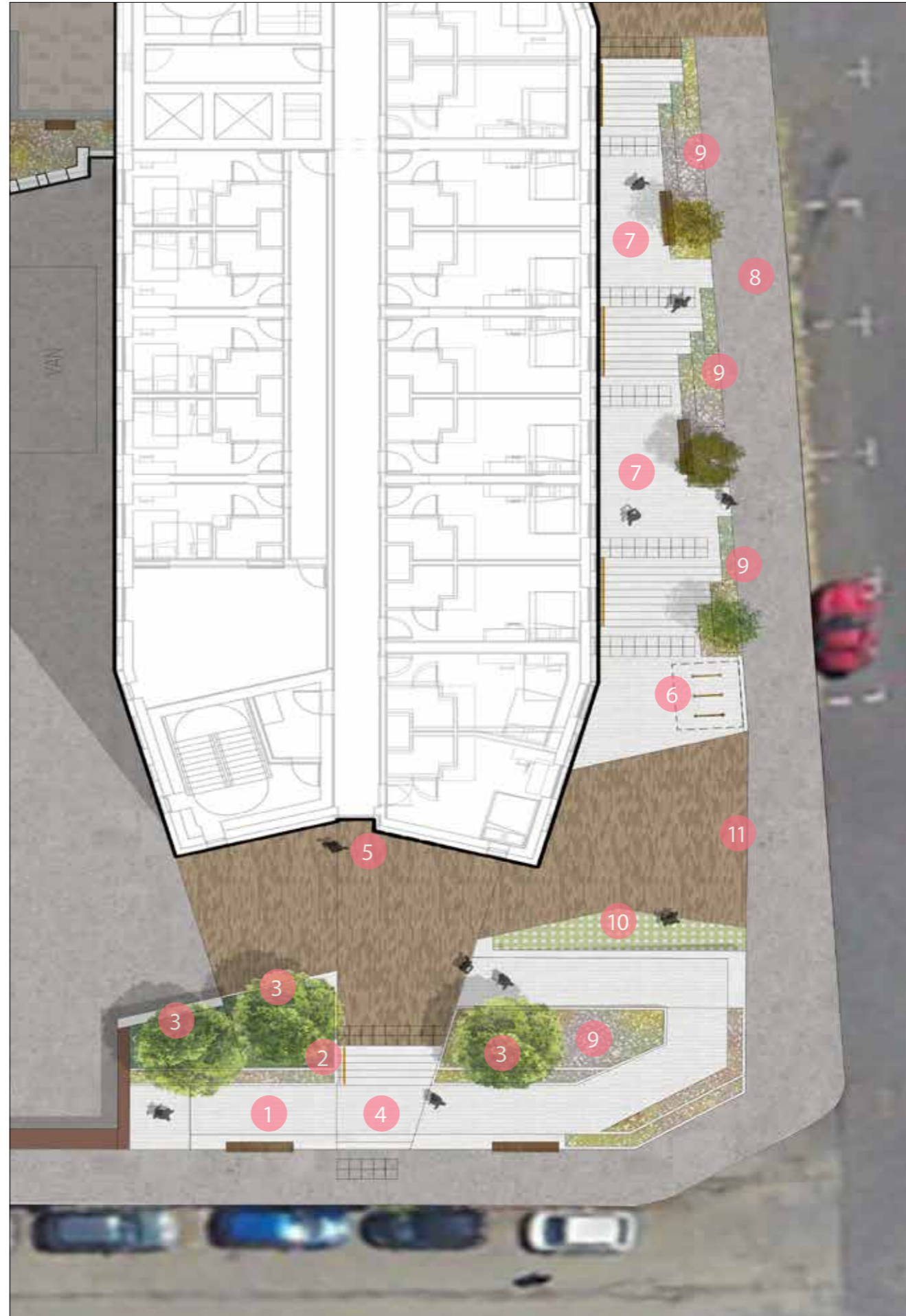
Right:
Illustrative plan showing proposed design for the North-West Corner Plaza

Far right:
Illustrative plan showing proposed design for the South-West Corner Plaza



North-West Plaza: Detailed Area

1. New visitor bike stands
2. Bench seating to the edge of planting
3. Entrance to the PBSA block from the street
4. Sections of permeable grass paving
5. New tree planting (*Sorbus aucuparia*)
6. Retained existing trees in the service yard
7. Existing public path
8. Raingarden planting



South West Plaza: Detailed Area

1. Accessible route to the public plaza
2. Raingarden planting
3. New tree planting (*Sorbus aucuparia*)
4. Stepped access to the plaza from Edington Street
5. Entrance to PBSA block from street level
6. New visitor bike stands
7. Stepped landscape with integrated seating, designed to tie in with existing public path at landing points
8. Existing public path
9. New ornamental planting areas