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GREEN INFRASTRUCTURE STATEMENT AND BIODIVERSITY ENHANCEMENT

Details of retained landscaping/habitat/green infrastructure

Green Infrastructure

- Section Seven of this report presents a green infrastructure statement. This statement is proportionate to the scale and nature of the development and describes how green infrastructure has been incorporated into the proposal. This statement provides an effective way of demonstrating positive multi-functional outcomes which are appropriate to the development site.

- In accordance with the provision of Chapter 6 of Planning Policy Wales (Distinctive and Natural Places) and Local Planning Policy, biodiversity enhancement measures should be incorporated into the landscaping scheme of any proposed works to maximise the ecological value of the site. The proposed scheme seeks to follow the Stepwise Approach as detailed within the updated Chapter 6 of PPW.

- The ecological condition of the Site before and following development has been identified through dialogue with the client and with the use of photographic evidence. The information present herein gives a broad overview of the Site circa Winter 2024 (prior to inspection / PEA survey). Using this available evidence, we can ascertain that prior to any works taking place, the Site was dominated by a bramble scrub with several large leylandii, at least one mature ash and at least one mature birch tree. In the UK, dense bramble thickets provide valuable

habitat for a diverse range of wildlife. They offer shelter, nesting sites, and food sources for a variety of species, including birds like song thrushes and blackbirds, mammals like hedgehogs and small rodents, and numerous invertebrates, such as butterflies, bees, and spiders, whilst providing important ecological benefits. Policy Wales (12) emphasises the importance of high-quality replacement planting and securing a net gain in biodiversity. In order to achieve this, it is proposed to replace trees at a ratio of 3-to-1 with native trees/shrubs. This instance, this will be achieved with the introduction of a species-rich native hedgerow along a portion of the eastern boundary to include a species-rich under canopy (herbaceous) seed-mix. This mix of native shrubs and herbs will contribute to supporting biodiversity locally and maintaining connectivity along the eastern boundary.

Avoid: The location of the groundworks has been identified and developed with the intention of minimising impacts on the existing biodiversity and landscape features of the location, and features such as the existing building have been incorporated rather than demolished. The most significant area of notable habitat loss is of an overgrown bramble scrub, which dominated the outside space post-development. This was re-moved circa January 2025.

Minimise: To prevent any adverse impact upon the potential roosting, commuting and foraging habitats for bats adjacent to the proposed unit (post development), specifically on the adjacent tree-lined feature of semi-natural ancient woodland); a sensitive lighting scheme is recommended and where necessary should be incorporated into the plans. The lighting plan for the site should be functional and directional only and kept to a minimum, servicing the public areas of the proposed development (as required for safety and security). It is to be achieved using baffles and screens, if necessary, to ensure no light spill on any

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2 https://www.legislation.gov.uk/ukpga/1981/69

The retained or planted vegetation (including off-site vegetation). The sensitive lighting scheme follows advice
detailed in 'Bats and Artificial Lighting in the UK: Technical Guidance Note 08/23' (2023)[3].

Mitigate: Habitat creation measures have been integrated into the site layout proposal to compensate for minor habitat losses. These measures include a sensitive landscape design within the amenity space, incorporating native and diverse grass seed mixes for lawns and under-canopy areas, the planting of native trees and shrubs, and the installation of structural enhancements such as roosting and nesting boxes.

Compensation: on-site compensation for impacts on nesting birds and roosting bats will be delivered by way of:

- new roosting opportunities for bats,
- new nesting opportunities for birds,
- new foraging opportunities for bees (and other invertebrates), and:
- the addition of species-rich hedge with under canopy seed-mix consummate with the eastern boundary.
- The addition of three native trees and lawn with a species-rich seed mix along the northern boundary.

Implementation and Maintenance: The owners of The Former Salvation Army Building will implement these plans and maintain the enhancement features in perpetuity. Should the bird or bat box fail or become damaged they will be replaced. Likewise, the planting scheme will be implemented and maintained by the owners.

Summary: It is concluded that appropriate and proportionate mitigation/compensation is to be delivered on-site through habitat creation and enhancement.

The proposed ecological mitigation and enhancements fit with the DECCA Framework by;

- Increasing diversity within local ecosystems by providing additional species and opportunities to further improve net-gain biodiversity. This will be achieved through structural enhancements to create a range of environmental conditions which will therefore have the potential to support a different and more diverse assemblage of species compared to baseline conditions.
- Improving/maintaining connections within and between ecosystems, by creating new habitat in locations that will directly link with existing habitats of value, e.g., existing hedgerows and tree lines.
- Improving ecosystem resilience and adaptability to future pressures, through the planting of trees (car- bon capture, shading), the management of surface water runoff (continued vegetation cover, surface water interception) and the creation of greater variations in ground cover and vegetation structure capable of offering niche habitats to a wide range of flora and fauna.

Therefore, because of the ecological measures embedded within the proposed scheme, it is expected that there will be a demonstrable net benefit for biodiversity. The Site has been identified as being of low value, with immediate on-site impacts adequately mitigated on-site - and net gain being achieved primarily through the addition of features (see Section 7.2). All habitats retained/created/enhanced on site, will be subject to domestic management, with this management plan being proportionate for this setting and maintained in perpetuity.

Biodiversity Enhancement Plan

Under the Environment (Wales) Act 2016, public authorities (including local councils and the National Parks), 'must seek to maintain and enhance biodiversity in the exercise of functions; in relation to Wales, and in so doing promote the resilience of ecosystems, so far as consistent with the proper exercise of those functions.' This replaces the section 40 duty in the Natural Environment and Rural Communities Act 2006

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3 https://www.bats.org.uk/news/2023/08/bats-and-artificial-lighting-at-night-ilp-guidance-note-update-released

(NERC Act 2006), in relation to Wales, which states that; 'All public authorities have a statutory duty to conserve biodiversity in all of their functions.'

Local authorities are legally required to make efforts to protect and enhance wildlife and its habitat and this is executed, in part, through the requirement of an ecological assessment for planned development sites and, therefore, we recommend the following principles of design should be followed.

In accordance with the provision of Chapter 6 of 'Planning Policy Wales' (Distinctive and Natural Places) and 'Local Planning Policy', biodiversity enhancement measures should be incorporated into the landscaping scheme of any proposed works to maximise the ecological value of the site.

- **Enhancement for Bats:** In line with the National Planning Policy Framework, the development should aim to enhance the Site for bats. Two Beaumaris Bat boxes[4], or similar artificial roost(s) should be in- stalled on the southern elevation, near the south-eastern corner of the building, providing access to the adjacent woodland. This to be provided within the curtilage of the owners' property, with the purpose of providing roosting habitat for species such as pipistrelle. In general, bats seek warm places, and for this reason boxes should be located where they will receive full/partial sun, although installing features in a variety of orientations will provide a range of climatic conditions. Position boxes at least 3m (ideally 6m) above ground to prevent disturbance from people and/or predators. The most suitable location is at the southern elevation, directly below the eaves.
- **Enhancement for Birds:** This area is to be enhanced to provide additional opportunities for breeding birds. One 1SP Schwegler Sparrow Terrace[5] (or similar) be attached to the northern gable of the building, as high as possible, facing north or northeast. The nesting boxes must be of a woodcrete construction to ensure longevity.
- **Enhancement for Hedgehogs:** This area is to be enhanced to provide additional opportunities for hedgehogs. One hedgehog hole[6] (or similar) be attached to the base of any new garden fence.
- **Enhancements for Birds and Invertebrates:** Enhancement for the local bird and invertebrate populations to be provided in the form of tree planting and seed mixes for green areas (see below).
- To support invertebrates locally; the planting of native trees

and shrubs including x1 hazel[7], x1 mountain ash[8], and x1 downy birch[9], and the inclusion of a species rich lawn mix[10] over the lawn and under canopy seed-mix[11] under a new hedge. These flowering lawn mixtures contain slow growing grasses with a selection of wildflowers that respond well to regular short mowing[12]. The establishment, and ongoing maintenance of broadleaves trees is provided by The Woodland Trust[13].

- The planting of a native hedge[14] is recommended along a proportion of the eastern boundary the boundary of the site. The exact location of this is shown on the plans in the document 25-013 Treharris_SA Building-Planning-P07C-Proposed Externals. For hedges, double rows are better for wildlife than single rows, as they are wider and provide more shelter and habitat. The wider the hedgerow the better. Rows to be planted at least 40cm apart with 4-6 plants per metre. The UK Biodiversity Action Plan identifies 130 priority BAP species including 104 in Wales (following the 2007 revised list) known to be significantly associated with hedgerows, including their trees, banks, basal flora and immediate margins. While few of these species are dependent on hedge- rows alone, the loss of hedgerows, or a decline in their quality, would be likely to have an adverse effect on their populations. Hedgerows are of particular importance to the conservation of threatened lichens (10 species), invertebrates (72), reptiles and amphibians (5), birds (20) and mammals (11).
- The planting of species which attract night flying insects is encouraged as this will be of value to foraging bats, for example: evening primrose (*Oenothera biennis*), goldenrod (*Solidago virgaurea*), honeysuckle (*Lonicera periclymenum*) and fleabane (*Pulicaria dysenterica*).
- Invasive plant species: Vigilance should be used throughout the course of the works to ensure that the works are not causing invasive plant species to spread in the wild.
- The proposed native trees/hedging will maintain connectivity across the site and increase biodiversity at this species poor location.
- The proposed native trees/hedging will mitigate the loss of scrub at the site and provide additional nesting opportunities, increase local invertebrate diversity and

Bat friendly lights

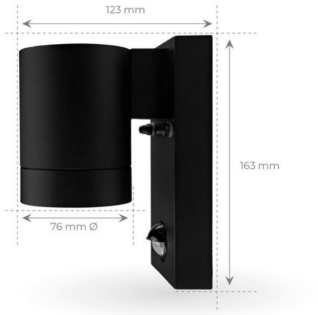
Outdoor Wall Light with Sensor Colorado - Black - IP54

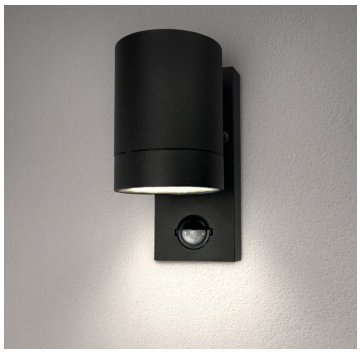
The light will be fitted on the wall at a height of 2400mm

Beautiful round wall lamp for outdoors with an up & down effect and including motion sensor. This up & down lamp is made of high-quality black aluminium and has 2 GU10 fittings. This is a very nice eye-catcher for the front or back door. This wall lamp is easy to attach to the wall with 2 supplied screws and plugs.

Splash- and dustproof
The exterior cylinder wall lamp has an IP54 certification. This means that the outdoor lighting is splash-proof and can therefore be used outside. This allows the black outdoor wall light to be mounted against the house or serve as facade lighting.

3 Year Warranty
The garden wall light with sensor has a warranty of three years and a CE Certificate. The curved outdoor wall light has a black aluminium housing and the glass is 5 mm thick. The outdoor lamp is supplied without a GU10 bulb. It is advisable to order this. It is possible to pair the wall light with a dimmable GU10 bulb.





Dimmable GU10 LED Bulb - 3W - 2700K - 345 Lumen - Full Glass
Replace your old halogen spotlight for this energy-efficient GU10 LED lamp. Nowadays, the GU10 Bulb has become indispensable when it comes to lighting for recessed spotlights or ceiling lamps. This dimmable GU10 LED Bulb from the Ledvion brand is a 3W LED Bulb. This lamp uses high-quality SMD LED chips.

What native species will be included in the seed mix?

Description

Shade, hedgerow & woodland wildflower mix

The shade, hedgerow & woodland wildflower mix is a general purpose wildflower mix with a good range of flowering species which are traditionally found in shaded areas such as woodlands and under hedgerows in the UK. The mix contains only native sourced wildflower seed and can be used in a broad range of situations, particularly where there is a desire to increase the environmental value of grassland areas.

Product Summary

Type of Mix	Main Flowering Period	Sowing Rate	Bag Weight	Bag Coverage
20% wildflower & 80% grass	June - September	5 g/m^2	0.25 kg	50 m^2
			1 kg	200 m^2
100% wildflower	June - September	2 g/m^2	0.25 kg	125 m^2

Mixture

Wildflowers

Scientific Name	Common Name	80/20 mix	100% mix
Achillea millefolium	Yarrow	1.2%	6.0%
Agrimonia eupatoria	Agrimony	2.0%	10.0%
Alliaria petiolata	Hedge garlic	0.8%	4.0%
Arum maculatum	Lords-and-ladies	0.1%	0.5%
Campanula trachelium	Nettle-leaved bellflower	0.6%	3.0%
Centaurea nigra	Common knapweed	2.0%	10.0%
Digitalis purpurea	Foxglove	1.6%	8.0%
Galium album	Hedge bedstraw	0.8%	4.0%
Geranium pyrenaicum	Hedgerow crane's bill	0.2%	1.0%
Geum urbanum	Wood Avens	1.4%	7.0%
Hypericum hirsutum	Hairy St John's wort	0.8%	4.0%
Knautia arvensis	Field scabious	1.6%	8.0%
Prunella vulgaris	Selfheal	1.6%	8.0%
Silene dioica	Red campion	1.6%	8.0%
Stachys sylvatica	Hedge woundwort	1.0%	5.0%
Teucrium scorodonia	Wood sage	1.2%	6.0%

Torilis japonica	Upright hedge parsley	0.6%	3.0%
Verbascum thapsus	Greater mullein	0.1%	0.5%
Vicia sepium	Bush vetch	0.4%	2.0%
Vicia sylvatica	Wood vetch	0.4%	2.0%

Grasses

Scientific Name	Common Name	80/20 mix
Agrostis capillaris	Common bent	8.0%
Anthoxanthum odoratum	Sweet vernal grass	1.6%
Brachypodium sylvaticum	Wood false brome	0.8%
Cynosaurus cristatus	Crested dogstail	24.0%
Deschampsia cespitosa	Tufted-hair grass	3.2%
Festuca rubra ssp commutata	Chewings fescue	20.0%
Festuca rubra ssp litoralis	Slender creeping red fescue	12.0%
Poa nemoralis	Wood meadow grass	6.4%
Poa trivialis	Rough meadow grass	4.0%

Application Recommendations

Where to use:

The shade, hedgerow & woodland wildflower mix is suitable for sowing onto most low-moderate nutrient soil types in areas where there is partial shade such as open woodlands. For maximum species diversity sow onto low nutrient soils which are well-drained.

Soil pH	Soil Types	Soil Fertility	Topography	Soil moisture
Any	Any	Low nutrient	UplandLowland	Well drained

When to use:

In general, the best time for sowing perennial wildflower seeds is late summer/autumn (late August-October) when there is likely to be consistent moisture and warmth without extremes of cold or dry. Spring (late March-May) is usually considered the next best time to sow perennial wildflower seed, particularly if the ground is likely to be waterlogged over the winter.

Application Window

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
		Y	Y	Y			Y	Y	Y		

How to use:

Prepare the ground	
New Seed Bed	**Overseeding**
Remove unwanted vegetation Cultivate the soil to a depth of 150 mm removing the stones and debris Level, then firm the seedbedRake the surface to product a fine tilth	Cut the grass short as possible and remove the clippings Remove excess thatch to allow the seed to reach the soil surfaceIf compacted, aerate the soil
Provide water	
If there has been little rainfall irrigate gently and slowly to fully wet through the soil profile	
Sow seed	
Sow seeds evenly using the correct sowing rate for the seed mixBecause sowing rates for wildflower seed are low, it is usually helpful to mix the seed with a carrier material such as slightly damp sandPress the seeds into the soil using a roller or the back of a rake to ensure good seed to soil contact	
Provide water	
Keep the soil surface moist but not wet until the seeds have germinated AND established Irrigate slowly and gently to avoid disturbing the seeds	

Management & aftercare

Suggested mowing regime											
Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Leave uncut unless growth is vigorous		Cut and collect clippings	Allow to flower and seed				Cut and collect clippings		Leave uncut unless growth is vigorous		

Many grasslands and meadows are traditionally managed by grazing but mowing and removing the clippings can be used to replicate the process of hay cutting and grazing. It is important to remove clippings to avoid nutrients being returned to the soil. Soils for wildflowers are usually low in nutrients to encourage species diversity.

What species will be included in the native hedge?

Instant Mixed Native Hedging

Our very own **CountryHedge** is a species rich mixed native hedge designed to improve biodiversity options for ecologists, landscapers and developers. Grown in trough containers that are 85cm wide - 30cm high - 30cm deep. The hedging will fill 100cm wide, this easy to plant method cuts planting time and will provide an instant effect from day 1.

Grown in a select blend of compost with fertiliser providing all the necessary feed for 12 months post planting.

CountryHedge contains a random mix of:
Hawthorn (Crataegus monogyna)
Blackthorn (Prunus spinosa)
Field Maple (Acer campestre)
Hazel (Corylus avellana)
English Holly (Ilex aquifolium)
Dog Rose (Rosa canina)
Guelder Rose (Viburnum opulus)
Hornbeam (Carpinus betulus)
Mixed Dogwood's (Cornus)

Detailed establishment, maintenance and management measures:

CountryHedge

Establishment Phase

Site Preparation

- **Soil Testing**: Check pH and nutrient levels. Most hedge plants prefer slightly acidic to neutral soil (pH 6.0–7.0).
- **Weed Control**: Remove all perennial weeds before planting.
- **Soil Improvement**: Incorporate organic matter like compost or well-rotted manure.

Plant Selection

- Choose species based on:
  - **Purpose**: Privacy, windbreak, ornamental, wildlife habitat.
  - **Climate**: Hardy species for your zone.
  - **Growth Habit**: Evergreen vs. deciduous, fast vs. slow-growing.

Planting

- **Spacing**: Depends on species and desired density (e.g., 30–60 cm apart for dense hedges).
- **Trench Planting**: Dig a continuous trench rather than individual holes for uniform growth.
- **Watering**: Water thoroughly after planting and keep soil moist during establishment.
- **Mulching**: Apply 5–8 cm of mulch to suppress weeds and retain moisture.

2. Maintenance Phase

Watering

- **First Year**: Regular watering is critical—1–2 times per week depending on weather.
- **After Establishment**: Water during dry spells.

Feeding

- Apply a balanced fertilizer in early spring and mid-summer.
- Avoid high-nitrogen fertilizers that promote excessive soft growth.

Weed Control

- Maintain a weed-free strip around the base.
- Reapply mulch annually.

Pest and Disease Monitoring

- Inspect regularly for aphids, scale, fungal diseases, etc.
- Use integrated pest management (IPM) strategies.

3. Management Phase

Pruning and Trimming

- **Formative Pruning**: In the first 2–3 years, shape the hedge to encourage dense growth.
- **Maintenance Trimming**:
    - **Frequency**: Once or twice a year for formal hedges; less for informal.

- **Timing**: Late spring or early summer; avoid nesting bird season.
- **Technique**: Trim the sides slightly tapered (wider at the base) to allow light penetration.

Rejuvenation

- For old or overgrown hedges, consider:
  - **Hard Pruning**: Cut back severely in late winter or early spring.
  - **Staggered Cutting**: Rejuvenate over 2–3 years to avoid shock.

Gap Filling

- Replace dead plants or use layering techniques to fill gaps.

Shade, hedgerow & woodland wildflower mix

Establishment Phase

Site Assessment & Preparation

- **Soil Testing**: Check pH (ideal range: 6.0–7.5) and nutrient levels.
- **Weed Removal**: Eliminate existing vegetation using manual methods or herbicide (wait 2–3 weeks before seeding).
- **Soil Conditioning**:
  - Lightly till or rake the soil to loosen the top 5–10 cm.
  - Add organic matter if soil is poor or compacted.
  - Avoid over-fertilizing—wild grasses thrive in lean soils.

Seed Selection

- Choose native or regionally adapted wild grass species based on:
  - **Climate and soil type**
  - **Sunlight exposure**
  - **Purpose**: erosion control, wildlife habitat, aesthetic value

Seeding

- **Timing**: Best in early spring or late autumn (cool, moist conditions).
- **Method**:
  - Broadcast by hand or use a seed spreader.
  - Mix seeds with sand or sawdust for even distribution.
- **Seed-to-Soil Contact**:
  - Lightly rake or roll the area to press seeds into the soil.
  - Do not bury seeds too deep—most need light to germinate.

Mulching

- Apply a thin layer of straw or biodegradable mulch to:

- Retain moisture
- Prevent erosion
- Protect seeds from birds

Watering

- Keep soil consistently moist (not soggy) for 3–6 weeks.
- Use gentle spray to avoid washing away seeds.

2. Maintenance Phase

Watering

- **Establishment Period**: Water 2–3 times per week.
- **After Establishment**: Water only during prolonged dry spells.

Weed Management

- Hand-pull or spot-treat invasive weeds.
- Avoid broad-spectrum herbicides that harm wild grasses.

Mowing

- **First Year**: Mow to 10–15 cm height once grasses reach 20–30 cm.
- **Purpose**: Prevent weed seed production and encourage tillering (side growth).
- **Avoid Cutting Too Short**: It stresses young grasses.

Fertilization

- Generally not required unless soil is extremely poor.
- If needed, apply low-nitrogen, slow-release fertilizer in early spring.

3. Long-Term Management

Seasonal Care

- **Spring**: Light mowing, overseeding if needed.
- **Summer**: Monitor for drought stress and invasive species.
- **Autumn**: Final mow, remove debris, optional overseeding.
- **Winter**: Minimal intervention; grasses go dormant.

Overseeding

- Every 2–3 years to maintain density and diversity.
- Best done in early spring or autumn.

Pest & Disease Monitoring

- Wild grasses are generally resilient.
- Watch for fungal diseases in overly wet conditions.

Habitat Enhancement

- Consider adding wildflowers or native shrubs for biodiversity.
- Avoid chemical treatments that disrupt soil ecology.

Trees

Establishment Phase

Site Selection & Preparation

- **Soil**: All four species tolerate a range of soils but prefer **moist, well-drained**, slightly acidic soils.
- **Light**: Full sun to partial shade is ideal.
- **Shelter**: Protect young trees from strong winds and grazing animals.

Planting Time

- **Best Time**: Late autumn (October–December) or early spring (February–April) when the ground is not frozen or waterlogged.

Planting Technique

1. **Spacing**:
    - Hazel: 2–4 m apart (can be coppiced)
    - Rowan & Downy Birch: 3–5 m apart
2. **Hole Preparation**:
    - Dig a hole twice the width of the root ball and the same depth.
    - Loosen the soil at the base and sides.
3. **Planting**:
    - Place the tree so the root collar is level with the soil surface.
    - Backfill with native soil, firm gently, and water well.
4. **Mulching**:
    - Apply 5–10 cm of mulch around the base (not touching the stem) to retain moisture and suppress weeds.
5. **Protection**:
    - Use tree guards or shelters to protect from deer, rabbits, and voles.

2. Maintenance Phase (Years 1–5)

Watering

- Water regularly during dry spells, especially in the first 2 years.

Weed Control

- Keep a 1 m radius around each tree free of grass and weeds.
- Reapply mulch annually.

Staking

- Stake only if necessary (e.g., exposed sites).
- Remove stakes after 2–3 years to allow natural movement and root strengthening.

Formative Pruning

- Remove dead, damaged, or crossing branches in late winter.
- For hazel, encourage a multi-stemmed form if coppicing is planned.

3. Long-Term Management (Years 5+)

Hazel (Corylus avellana)

- **Coppicing**: Cut back to ground level every 7–10 years to promote vigorous regrowth and biodiversity.
- **Wildlife Value**: Excellent for dormice, birds, and insects.

Rowan (Sorbus aucuparia)

- **Minimal Pruning**: Remove deadwood or shape lightly.
- **Berries**: Attract birds; allow natural regeneration if desired.

Downy Birch (Betula pubescens)

- **Thinning**: If planted densely, thin after 10–15 years to reduce competition.
- **Natural Regeneration**: Encourage self-seeding in suitable conditions.

Monitoring

- Check annually for:
    - **Pests**: e.g., aphids, sawfly larvae
    - **Diseases**: e.g., canker, rust
    - **Structural Issues**: Wind damage, leaning

Details of post-development monitoring

Post-Implementation Monitoring: A monitoring visit by a suitably qualified ecologist will be conducted in the year following completion of works to evaluate the establishment and maintenance of the habitat enhancements.

Funding mechanism

Funding and Implementation: W&L Management Ltd will integrate the management and maintenance of these enhancements into its general maintenance budget from the rental income, ensuring consistent and sustainable implementation.

Responsible person(s)/company :

Long-Term Management Commitment: The habitat enhancements detailed above will be managed and maintained by W&L Management Ltd for a minimum period of 25 years, ensuring their long-term effectiveness and contribution to green infrastructure objectives.