

Habitat Management and Monitoring Plan



Amethyst Lane, Reading

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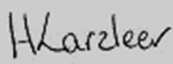
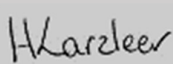
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Where field investigations have been carried out, these have been restricted to a level of detail required to achieve the stated objectives of the work.

This work has been undertaken in accordance with the quality management system of RSK ADAS Limited.

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1 Introduction

1.1 Background

This report has been commissioned by Gleeds Cost Management Limited in support of their development at Amethyst Lane, Reading, Berkshire RG30 2EZ (hereafter referred to as 'the site', grid reference: SU 69488 72676). The proposed works include the demolition of the structures on site, and the construction of housing and community facilities within the site. This includes 17 residential dwellings and a respite facility on site.

ADAS completed a Biodiversity Net Gain (BNG) Assessment (ADAS, 2023a) for the site in line with local and national policy which shows that the proposed development will result in an increase in area habitats of 10.74% and an increase in linear habitats 78.08%. True net gain in either area or linear units cannot be achieved as the trading rules of the metric have not been satisfied (Biodiversity Metric 4.0 – User Guide, 2023), due to the loss of scrub habitat on-site and loss of hedgerow with trees. These habitats are of medium distinctiveness and in order to satisfy trading rules needs to be replaced with the same or better habitat on-site or as per Reading Borough Councils Policy EN12 in exceptional circumstances compensated off-site. The creation of habitats within the site do not compensate for the habitats lost as a result of the development, and the BNG Assessment proposes that 140 off-site small¹ (or 16 medium² or 95 small and 5 medium – to be determined by the Reading Borough Council Planting Team) Urban Trees are planted to offset the loss and achieve 10% gain in habitat areas. The current designs have been prioritised to achieve local housing targets, and whilst the trading rules are not met for scrub with an uncompensated loss of 0.21 units, and 0.05 linear units for hedgerow with trees, the site in general is exceeding the 10% minimum for areas by 0.74% and achieving a substantial increase in linear units (78.08%)

Planning approval was granted for the proposed development on 15 March 2024 (planning reference 230613) with condition 35, below, in relation to habitat creation and management:

No development shall commence on site above ground floor slab level until a habitat enhancement Scheme (incorporating the Mitigation and Recommendations of Bat Survey 1051939/ MPT69105-824(01) version 02 dated September 2023) has been submitted to and

¹ Small trees are those classed in the Biodiversity Metric User Guide as having a diameter at breast height between 7 and 30cm.

² Medium trees are those classed in the Biodiversity Metric User Guide as having a diameter at breast height between 30 and 90cm.

approved in writing by the Local Planning Authority. The Scheme shall include a timetable for implementation and ongoing maintenance. The habitat enhancement Scheme shall be carried out as approved at all times thereafter.

REASON: To avoid harm to habitats and species and secure biodiversity enhancement in accordance with Policy EN12 of the Reading Borough Local Plan 2019.

Accordingly, ADAS has been commissioned to produce a Habitat Management and Monitoring Plan (HMMP) for the site. The ecological assessments and recommendations included in the ADAS BNG report and the ADAS Bat Survey Report (ADAS, 2023b) have been used to inform this document.

1.2 Objectives of the report

This report has been produced in accordance with the British Standard (BS) for Biodiversity – Code of practice for planning and development, BS42020:2013.

The objectives of this report are to:

1. Fulfil the requirements of the above-referenced planning condition;
2. Identify persons responsible for implementation and funding of the works;
3. Ensure that all ecological features to be created as part of the development are correctly installed and establish successfully;
4. Provide aftercare and long-term management objectives for a period of 30 years that will ensure all ecological features achieve the target conditions outlined in the BNG Assessment report;
5. Provide a schedule and criteria for monitoring that will allow for identification of progress or issues in a timely fashion;
6. Set out requirements for reporting on monitoring results, recommendations and contingency measures or changes to proposed management measures in the event that habitats are failing to achieve the target conditions; and
7. Identify a mechanism to secure the agreement and implementation of these contingency measures.

This will ensure that a biodiversity net gain is secured for the site, in accordance with the rationale for the planning condition detailed above.

1.3 Structure of the report

The remainder of this report is structured in the following manner:

- Section 2 Responsibilities: Describes the delivery, management and funding responsibilities for the development.

- Section 3 Legislation and Policy Background: Describes the national, county and district level planning policy relevant to biodiversity net gain matters in relation to the proposed development.
- Section 4 Proposed Development: Describes the proposed development.
- Section 5 Retained Ecological Features: Describes the baseline biodiversity features which are being retained and protected during development and provides the baseline biodiversity units. Describes how retained ecological features on site will be protected during construction.
- Section 6 Habitat Objectives: Describes the habitat creation and enhancement objectives for the development.
- Section 7 Assessment of Habitat Conditions: Describes the Defra Biodiversity Metric condition scoring and how it will be used to measure the success of the habitat objectives for the development.
- Section 8 Creation of Ecological Habitats: Describes the installation and establishment specifications for the proposed habitats to be created.
- Section 9 Management of Ecological Habitats: Describes the long-term management requirements for habitats on site to achieve their biodiversity net gain objectives.
- Section 10 Monitoring: Describes the ongoing habitat monitoring and reporting requirements for the development.
- Section 11 Remediation or Adaptive Management: Describes the mechanisms to agree and set out remediation or alternative management approaches as required.

1.4 The Author

This document has been prepared by Rajan Jandu MSci, an Ecological Consultant and a 'qualifying' member of Chartered Institute of Ecology and Environmental Management (CIEEM).

2 Responsibilities

2.1 Management Responsibilities

Reading Borough Council will be responsible for the management of pre-construction and construction activities, including the protection of relevant ecological features on the site, the implementation of the final development landscape plans and for the long-term management and monitoring obligations set out in this document. Reading Borough Council will also be responsible for all communication, monitoring, audit mechanisms and reporting of control measures outlined in this report, with the support of the appointed landscape contractor or management company.

Reading Borough Council will appoint a suitably qualified principal contractor or management company to undertake the landscape maintenance and management in line with this HMMP. As a minimum, the landscape contractor or management company will be a registered member of the British Association of Landscape Industries (BALI) or similar approved governing body or institute.

It is the responsibility of the principal contractor or management company (appointed by Reading Borough Council (or those legally responsible for the proposed development site)) to ensure that the measures within this report are adopted and any deviation from what is proposed in this report is recorded.

Ongoing management will be the responsibility of the end user tasked with overseeing the site post-construction. They will be responsible for all communication, monitoring, audit mechanisms and reporting of control measures outlined in this report, with the support of the appointed landscape contractor or management company. This document will be passed on to all relevant parties at project hand-over. The appointed contractor will be legally obligated to provide a detailed site-specific method statement, and any task-specific risk assessments, including Control of Substances Hazardous to Health Regulations (COSHH) assessments.

The site will be managed to comply with all relevant health and safety legislation, best practice standards, approved codes of practice (ACOP's) and Health and Safety Executive (HSE) guidance, including CDM 2015. It will be the responsibility of the appointed landscape contractor or management company to fulfil the role of Reading Borough Council. This places an obligation on the landscape management company to ensure that any contractor understands and fulfils their health and safety role and any work undertaken on the site will follow the guidelines of the HSE.

2.2 Funding Responsibilities

This plan and its delivery, including long-term monitoring and management as well as any corrective contingency measures, will be implemented and funded by Reading Borough Council.

3 Legislation and Policy Background

3.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) (Department for Levelling Up, Housing and Communities, 2023), is a policy framework document which provides a range of important principles. Paragraph 180 of the NPPF states that decisions should contribute to and enhance the natural local environment by:

‘Minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures.’

Paragraph 181 goes on to state:

‘... take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.’

When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles (paragraph 186):

‘opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.’

3.2 The Environment Act (2021)

Para 2 (3) of Schedule 14 of The Environment Act 2021 makes it mandatory for all new developments (with some limited exceptions) to achieve a biodiversity net gain (BNG) of at least 10% by the time the development is completed compared to the pre-development biodiversity value of the onsite habitat. This percentage may be amended in the future by the Secretary of State. Please note that some Local Policies stipulate a higher target than this.

The Bill allows three methods for securing biodiversity net gains:

1. enhancement of the biodiversity of land to which the planning permission relates;
2. the allocation of registered offsite biodiversity gain to any development for which the planning permission is granted; and
3. the purchase of biodiversity credits for any such development.

A biodiversity gain statement must set out whether, and if so how, the biodiversity gain objective applies in relation to development where the onsite habitat is irreplaceable, how the development will

minimise any adverse effects to the onsite habitat, and what the evidence must be produced to show how the biodiversity net gain has been met upon completion of the development.

Biodiversity gains will need to be maintained for at least 30 years after the development is completed.

3.3 Local Policy

The Reading Borough Council Local Plan (adopted November 2019) makes provision for protecting biodiversity and the green network in Policy EN12, which states the following in relation to biodiversity net gain:

“On all sites, development should not result in a net loss of biodiversity and geodiversity, and should provide a net gain for biodiversity wherever possible.

Development should:

- *Protect and wherever possible enhance features of biodiversity interest on and adjacent to the application site, incorporating and integrating the into development proposals wherever practicable; and*
- *Provide new tree planting, wildlife friendly landscaping and ecological enhancements (such as wildlife ponds, bird and bat boxes) wherever practicable.*

In exceptional circumstances where the need for development clearly outweighs the need to protect the value of the site, and it is demonstrated that the impacts cannot be: 1) avoided; 2) mitigated; or 3) compensated for on-site; then the new development will provide off-site compensation to ensure that there is “no net loss” of biodiversity. Provision of off-site compensation shall be calculated in accordance with nationally or locally recognised guidance and metrics. It should not replace existing alternative habitats, and should be provided prior to development.”

4 Proposed Development

The proposed development includes the demolition of all three buildings currently on site to facilitate construction and associated hard and soft landscaping and infrastructure of 17 new residential dwellings within the northern, eastern and western sides of the site, as per the plans provided by the client in November 2023 (RBC-ALR_HTA-A_DR_0101_Proposed Site Plan-REV L.pdf; Appendix 1). This report is to be implemented in conjunction with the document RBC-ALR_HTA-L_RP-0001, provided by the client (HTA Design, 2023). Of the new houses, 30% will be affordable housing, and a respite centre will also be constructed on site.

Hard landscaping will include the creation of an access road into the site from the east end of Amethyst Lane and through the centre of site. Eighteen hardstanding parking spaces will be also provided along the internal access road all with electric charging provisions. At the south end of the site a car park with an additional two electric charging spaces and a minibus drop-off point will be provided.

Soft landscaping includes private amenity grass lawns associated with the residential housing, with community green spaces in the centre and southwest of the site – part of which will be managed as a ‘sensory garden’. There will be 43 small and medium native trees planted throughout the site – 22 of those within the green spaces and 21 within the private gardens – and the existing trees along the north of the side of the site will be retained. Along the western side of the street will be Rain Garden planting.

In addition, planting of off-site Urban Trees within the wider areas of Reading Borough is proposed, the exact location and specification will be decided by Reading Borough Council’s Planting Team but will include native trees species and include either 140 small; 16 medium or; 95 small and 5 medium trees.

Habitats to be created as part of the development, along with their target conditions are set out in Section 6.

A positive planning decision was received from the Local Planning Authority (Reading Borough Council) 15 March 2024 (planning application number: 230613).

5 Retained Ecological Features

5.1 Baseline Features

5.1.1 On-site Baseline Features

Table 1 and Table 2 below provide a summary of the ecological features present on the proposed development site (ADAS, 2023a) which will be protected and retained under the proposed development.

Table 1: Summary of Retained Baseline On-site Area Ecological Features

UK Habitat classification	Baseline Area (ha)	Baseline Condition	Retained (ha)	Total baseline habitat units retained
Urban Tree	0.25	Moderate	0.07	0.62
Total	0.25	-	0.07	0.62

Table 2: Summary of Retained Baseline On-site Linear Ecological Features

UK Habitat classification	Baseline Length (km)	Baseline Condition	Retained (km)	Total baseline linear units
Line of Trees (LT1)	0.02	Moderate	0.01	0.05
Native Hedgerow with Trees (H1)	0.03	Moderate	0.03	0.28
Total	0.05	-	0.04	0.33

5.1.1 Off-site Baseline Features

Table 3 below provides a summary of the ecological features present in and around the proposed development site (ADAS, 2023a) which will be protected.

The plans laid out in this report include the planting of Urban Trees (140 small; or 16 medium or 95 small and 5 medium) off-site which are assumed to be planted within modified grassland verges. The locations of these verges are yet to be decided by the client. However, as this habitat is to be retained and with Urban Trees not contributing to the off-site habitat area, there is no impact on the metric calculations. Instead, an estimate of the area of Modified Grassland required for the planting of Urban

Trees is included in Table 3 below. This area is the area of canopy and root protection area for Urban Trees as calculated in the metric and does not take into account spacing between trees. As a precautionary approach and to allow for an estimate of the habitat units, the condition for this habitat is assumed to be Moderate.

Table 3: Summary of Retained Baseline Off-site Ecological Features

UK Habitat classification	Baseline Area (ha)	Baseline Condition	Retained (ha)	Total baseline habitat units retained
Modified Grassland	0.57	Moderate	0.57	2.28
Total	0.57	-	0.57	2.28

5.2 Protection of Retained Ecological Features

There are two trees, in the southeast and southwest corners of the development, that are considered to be of ecological value in the context of the site. These will be retained as part of the ADAS BNG (ADAS, 2023a) recommendations (see Appendix 1a) and will require protection during construction. Protection measures for birds, bats and other wildlife must be implemented in accordance with the recommendations within the ADAS PEA report (ADAS, 2022) and must be in line with legislative requirements.

Works will be designed to avoid impacts to retained trees and hedgerows during the construction phase of the works. Tree root and ground protection measures will be implemented in accordance with guidance provided in BS5837:2012 *Trees in Relation to Design, Demolition and Construction (Recommendations)*.

5.2.1 Site Preparation: General Measures

Prior to the start of work, the following steps will be taken to minimise environmental impacts:

- Works access routes and works zones will be planned and agreed in advance;
- Defined work areas will be clearly delineated using appropriate fencing around the development area;
- No unauthorised construction works, machinery, workers or storage of materials will be allowed outside of these areas or into the surrounding grassland;
- Plant and vehicles will be kept on areas of hardstanding where possible; and

- Material which can contaminate the soil, e.g. diesel oil and vehicle washings, must not be discharged on the site. A suitable pollution control plan will be in place throughout the development period.

A recording programme will be implemented for all site preparation and construction operations that will including the following details:

- Weather;
- Date the operation took place;
- Who carried out the operation;
- Success of the operation;
- Necessary alterations that affected the operation (e.g. to prevent wildlife disturbance); and
- Any wildlife disturbance caused.

5.2.2 Trees

Tree root and ground protection measures will be implemented in accordance with guidance provided in BS5837:2012 *Trees in Relation to Design, Demolition and Construction (Recommendations)*.

To avoid compaction, there will be no vehicle or plant access within root protection areas. Where appropriate, protective fencing will be used. Where accidental compaction has occurred, advice will be sought from an Arboricultural Consultant.

Care will be taken when planning site operations to ensure that wide or tall loads, or plant with booms, jibs and counterweights will operate without encountering retained trees. Such contact may result in serious damage to trees and might make their safe retention impossible.

5.2.3 Birds

The development will require trees and hedgerows to be removed. These provide suitable nesting opportunities for birds. Trees and hedgerows must be removed or pruned outside of the main bird nesting season (March-August inclusive). If this is not possible, then a check for nesting birds will be required by a competent person/ecologist no more than 48 hrs prior to vegetation works. If any nests are found, the nest will be safeguarded with at least a 5 m exclusion buffer until no longer in use. Completion of nesting must be confirmed by a competent person.

5.2.4 Badgers

Two setts in close proximity were identified on site through the PEA report (ADAS, 2022). These setts were monitored and determined to not be in current use despite Badgers being active on the site (ADAS, 2023c). As such it has been determined that these setts are not a constraint on the planned works.

Despite this, a pre-works check must be carried out by a suitably qualified ecologist. This will be to determine whether the setts have become active between the monitoring carried out in 2023 and the commencement of the planned works.

If the setts show signs of activity, then certain works that could disturb the setts must not take place within 20 m of the setts. This will include works such as ground excavations. This buffer area may be increased to 30 m depending on topography and the direction of the badger tunnels. A Natural England licence will be required for any works that could potentially damage the setts (such as heavy machinery) to proceed.

5.2.5 Bats

The development will require trees and buildings to be removed which could impact roosting bats. Reading Borough Council will appoint a suitably qualified ecologist to obtain the necessary bat license from Natural England before works can commence. This ecologist must also ensure measures in accordance with the license are implemented and adhered to.

6 Habitat Creation and Enhancement Objectives

The BNG Assessment has set out the following habitat creation and enhancement objectives in relation to the proposed development.

6.1 Habitat Features

The new on-site area habitats are based on the development plan in Appendix 1 and the landscape plan in Appendix 2 and are summarised in Table 4, with new linear features summarised in Table 5, and off-site features summarised in Table 6. The objectives for each habitat are to reach the stated condition targets within the required timeframe.

Table 4: Summary of On-site Area Habitat Creation

Habitat type	Area (hectares)	Condition	Time to target condition (years)	Strategic significance	Total habitat units
Other Neutral Grassland	0.02	Moderate	6	Location ecologically desirable but not in Local Strategy	0.13
Rain Garden (verges)	0.01	Moderate	4	Location ecologically desirable but not in Local Strategy	0.04
Mixed Scrub	0.01	Moderate	6	Location ecologically desirable but not in Local Strategy	0.07
Urban Tree	0.10*	Moderate	28	Location ecologically desirable but not in Local Strategy	0.34
Other Green Roof	0.01	N/A	2	Area/compensation not in local strategy/ no local strategy	0.02
Vegetated Garden	0.10	N/A	2	Area/compensation not in local strategy/ no local strategy	0.19
Ground Level Planters	0.03	N/A	2	Area/compensation not in local strategy/ no local strategy	0.06
Developed Land; Sealed Surface	0.38	N/A - Other	1	Area/compensation not in local strategy/ no local strategy	0.00
Total	0.56	-			0.84

* The metric calculator does not include the area measurement of Urban Trees in the total area due to overlap in habitats.

Table 5: Summary of On-site Linear Habitat Creation

Linear type	Length (km)	Condition	Time to target condition (years)	Strategic significance	Total habitat units
Native Hedgerow	0.20	Moderate	6	Formally identified in local strategy	0.74
Total	0.20	-			0.74

Table 6: Summary of Off-site Area Habitat Creation

Habitat type	Area (ha)	Condition	Time to target condition (years)	Strategic significance	Total habitat units
Urban Tree	0.57	Moderate	28	Formally identified in local strategy	1.93
Total	0.57	-			1.93

6.2 Wildlife Features

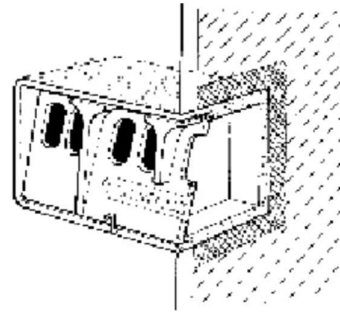
Habitat objectives will include the addition of ecological mitigation features, as per Section 6 of the Bat Survey Report, to enhance the ecological value and biodiversity of the site. The Proposed Bat and Bird Box Location Plan (Appendix 3) shows the locations where the features are to be installed within the site.

6.2.1 Bird Boxes

A minimum of eight bird boxes will be installed in the newly built dwellings to ensure that no nesting opportunities are lost. Seven bird boxes will be installed in the eastern aspects of buildings facing the eastern border of the site. One further bird box will be installed towards the top of the northern gable end of the western building. Woodcrete or woodstone nest boxes, such as Schwegler 16 Swift Box or the 1SP Schwegler Sparrow Terrace, or similar (see images from NHBS website below) must be installed. These boxes have a 35 mm hole, are durable and low maintenance and can be integrated into a brick wall. Boxes such as these can be suitable for a variety of bird species including Swifts (*Apus apus*), House Sparrows (*Passer domesticus*), and other small birds. They can also, as with the Schwegler 16S Swift Box, be constructed to allow entry to certain birds and deny entry to others, should this be desirable.



1SP Schwegler Sparrow
Terrace



1SP Schwegler Sparrow
Terrace (as built into a
wall)



Schwegler 16S Swift Box



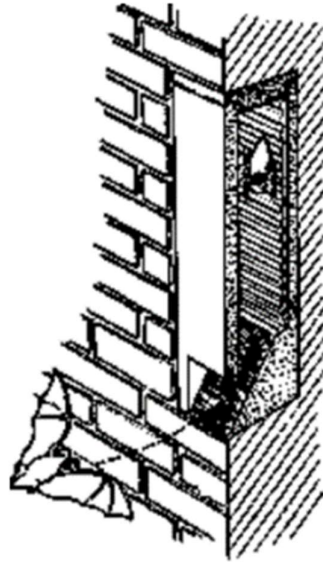
Schwegler 16 Swift
Box

6.2.2 Bat Boxes

To enhance the site for bats, a minimum of eight artificial bat boxes (e.g. Schwegler 1FR Bat Tube or similar – see images from NHBS website below) must be built into the newly constructed dwellings. Bat boxes and tubes of this type can sit flush with the brickwork and can be built directly into the wall. Two will be placed on the western aspect of the northern building, with a further two on the southern aspect of the same building. A further three bat boxes will be placed on the eastern building, with two on the eastern aspect and one on the southern aspect. A final bat box will be placed on the eastern aspect of the western building.



Schwegler 1FR Bat Tube



Schwegler 1FR Bat Tube (as
built into a wall)

6.2.3 Bee Bricks

Bee bricks will be installed as part of the construction process for the new buildings. Two bricks will be installed, both in the northern building. One will be placed in the eastern aspect and the other in the western aspect as per the plan in Appendix 3.

7 Assessment of Habitat Conditions

To determine whether the habitat objectives for the site have been achieved, the site will be assessed at appropriate intervals of time by a suitably qualified ecologist. Habitats on site will be assessed and given a condition score for the relevant version of the Defra Biodiversity Metric (version 4.0 for this development) using guidance provided by Natural England (Natural England, 2023a, 2023b).

The condition score is a means to measure the quality of a habitat based on a series of physical characteristics and typical species of a particular habitat type. To aid in assessment, the Biodiversity Metric 4.0 Technical Supplement (Natural England, 2023b), provides 'condition assessment sheets'. These provide a list of positive indicators for each habitat. The number of positive indicators a particular habitat meets will determine the relevant condition for that habitat.

The relevant condition sheets for the habitats present within the development are provided in Appendix 4.

8 Creation of Ecological Habitats

The BNG Assessment has set out the following habitat creation and enhancement recommendations in relation to the proposed development.

8.1 Habitat Features

The installed landscaping scheme will follow the landscaping plan, document 'HTA-A_DR_0101' received October 2023, as shown in Appendix 2 and must be installed by a suitably qualified contracting team. This plan will introduce habitats of wildlife value to the proposed development, enhance the immediate surroundings by incorporating native flora across the site and fulfil the biodiversity net gain targets for the development. A schedule of works covering the construction installation period and management post-construction is provided in Appendix 5.

8.1.1 Urban Habitats

Urban habitats including the Vegetated Garden and Ground Level Planters do not have biodiversity condition targets and will be installed in line with the landscape plan specifications.

8.1.2 Grassland – Other Neutral Grassland

Species-rich Neutral Grassland will be created including the open community spaces along the east of the site. The target condition for this habitat is 'Moderate'.

This grassland area will be sown with a meadow mixture suitable for a range of soil types, containing a minimum of eight different wildflower and four different native grass species, such as Emorsgate EM1 General Purpose Meadow mix or equivalent.

For establishment the seed mix must be surface sown in autumn (September to October) or spring (March to May). A first flush of annual weeds is likely to develop which must be left in place to provide cover for seedlings. If spring sown and during the first year of establishment the area must be cut once during mid- to late-summer (late-July to August) to 60 mm. All arisings must be removed from the site to retain low soil fertility and prevent competitive species from dominating. Localised cultivation and seeding must be repeated if any substantial bare patches remain after one year, or if this is required to eradicate any substantial infestations of undesirable species.

8.1.3 Mixed Scrub

The new area of Mixed Scrub proposed will comprise four or more native woody species, with no one species accounting more than 75 % of the total cover. Species proposed include Common Hawthorn (*Crateagus monogyna*), Hazel (*Corylus avellana*), Guelder Rose (*Viburnum opulus*), Dog Rose (*Rosa canina*) and European Gorse (*Ulex europaeus*).

Planting will take place between November and March. This should avoid droughts, hard frosts (most likely to occur in January and February) or particularly cold, windy periods. With pot-grown plants, check that the plant is not root-bound and, if it is, loosen the root ball before planting in the ground.

Bare-root shrubs will be soaked for approximately 30 minutes prior to planting. They will then be placed in pits at least 600 mm wider than the root ball and 750 mm deep with the bottom 300 mm broken up prior to planting. Good quality topsoil, taken from the parcel of removed Modified Grassland where possible, will be used to backfill the pits. Avoid backfilling above the 'nursery line, the mark at the base of the plants' stems indicating at what level the plant was originally grown. Rabbit (*Oryctolagus cuniculus*) guards will be put in place to protect smaller stock. Whips must be planted approximately 1 m apart from each other to allow space to grow.

During the first two years, weeding will be carried out around the plants to help them to establish quicker however, this will be done sparingly to minimise soil disturbance.

The suppliers planting and establishment guidelines must be followed for each shrub species.

8.1.4 Other Green Roof

Four different areas of roof space, totaling 195.2 m², will be planted and seeded as Other Green Roofs. Substrate depth will be a uniform 80 mm within the parcels. The average weight of an Other Green Roof can be up to 80 kg / m².

All parcels must contain both wildflower and sedum species. A mixture of native wildflower plugs / seeding and laying of sedum blankets is recommended. Sedum species must include English Stonecrop (*Sedum anglicum*) and White Stonecrop (*Sedum album*) or similar.

The wildflower seed mix, EM1F Basic General Purpose Wild Flowers, will be sufficient as high biodiversity isn't necessary for Other Green Roofs. Seeding will be done in Autumn or Spring and the mixes must be surface sown along with an inert carrier such as sand. If there is a first flush of weeds, these will be left uncut between April and August as they will offer shelter to the wildflower seedlings. The first August after seeding, the weeds will be cut and all arisings removed.

8.1.5 Urban Trees

There will be diverse planting of deciduous, evergreen and coniferous trees on and off the site. Native, pollen-rich trees will be planted in order to provide habitat for small mammals and encourage a strong invertebrate population which in turn will support populations of foraging and commuting bats shown to use the site.

The following guidelines will be adhered to:

- Tree stock will be of good shape and without elongated shoots. Stock will be free from pests, diseases, discolouration, weeds and physiological disorders;
- Ideally trees will be planted at irregular spacings to create a more natural landscape, within the specification of one per 50 m.
- Tree pits will be 75 mm deeper than the root system and wide enough to accommodate roots when fully spread. Break up pit bottoms to a depth of 200 mm with a slightly raised centre. Treat bottom of pit with soil ameliorant. Scarify pit sides. Use excavated material to backfill;
- Tree shelters will be used as necessary (Tubex or similar);
- Any stakes required will be softwood, peeled chestnut, larch or oak, straight, free from projections and large or edge knots with pointed lower end. Stake size to be 30 mm diameter;
- Position stake close to tree on windward side and drive vertically to at least 300 mm into bottom of pit before planting. Consolidate backfill material around stake and cut off just below lowest branch of tree; and
- Use rubber ties to secure tree firmly but not rigidly to stake with at least two ties.

8.1.6 Native Hedgerow

A total of 0.02 km of Native Hedgerow will be planted with Blackthorn (*Prunus spinosa*), Field Maple (*Acer campestre*) and Dog Rose whips, so that no one species comprises more than 75 % of the mix. Whips must be no less than two years old with a minimum height of 600 mm. The target condition of H2 is 'Moderate'.

The hedgerow will be planted in double staggered rows 450 mm apart in trenches or individual pits large enough to accommodate roots without constriction. A spiral Rabbit guard and cane will be applied to each plant for protection and support. New hedgerows must be planted between November and March, avoiding periods of hard frost and waterlogged conditions. Whips will be planted in continuous lines.

Water well after installation and provide a thick mulch. Young hedgerows will require watering in dry conditions and the regular reapplication of mulch during establishment.

Plants must be supplied from an approved local nursery and must conform to either the 'British Standard 3936-1:1992 Nursery Stock Part 1: Specification for Trees and Shrubs' (BS3936) or the 'National Plant Specification' (NPS) produced by the Horticultural Trades Association (HTA).

8.1.7 Rain Garden

Rain gardens are designed to slow surface water run-off. As such the species planted must be able to exist in close proximity to each other to provide a thick root network. Typical density is 6 to 10 species per square metre. The excavation for a Rain Garden will be graduated from the edges to the centre

which will be a maximum depth of 450 mm (Bray et al., 2012). Species suggested include Bugle (*Ajuga reptans*), Yellow Flag Iris (*Iris pseudocorus*), Dogwood (*Cornus sanguinea*), Wild Garlic (*Allium ursinum*), Royal Fern (*Osmunda regalis*) and Soft Rush (*Juncus effusus*). Plants with existing strong roots are advisable and as such two year old plugs/whips are preferable.

A berm is required to act as a buffer and must be roughly 300 mm wide, 100 mm tall and well compacted. The berm will be seeded with grass or wildflower mixes. The berm will need a permeable channel running perpendicularly through it of 150 mm width. This channel must run to the direction of a nearby drain.

8.2 Wildlife Features

8.2.1 Bird boxes

The eight nest boxes are to be placed on the newly built dwellings (see Appendix 3). These must be installed between 1.5 m and 3 m from the ground.

The nest boxes must be fixed according to the following prescriptions:

- Located in unobstructed areas allowing for a clear flight path;
- Positioned so that the entrance is not exposed to strong sunlight or winds;
- Positioned so that the boxes can be safely removed utilising a ladder for any required maintenance (although it is best to leave the nest boxes undisturbed if possible); and
- Positioned in a location where it cannot be accessed by domestic animals or easily interfered with by humans.

8.2.2 Bat boxes

The eight bat boxes must be positioned on the newly built dwellings as outlined in Section 6.2.2 (see Appendix 3). They must be placed at a secure location, as high as possible but at least 3.5 m above the ground, according to the following prescriptions:

- Located in dark areas away from artificial lighting;
- Situated on the southerly/westerly aspects of the trees to provide summer roost sites;
- Positioned in an area relatively free of obstacles to give the bat a clear line of flight; and
- Positioned in locations where they cannot be accessed by domestic animals or easily interfered with by humans.

8.2.3 Bee Bricks

Bee bricks must be installed at least 1 m off the ground and must be located close to plants beneficial to pollinators such as Lavendar (*Lavandula angustifolia*), buddleja (*Buddleja sp.*) and Honeysuckle (*Lonicera periclymenum*).

9 Management of Ecological Habitats

The following sections outline the requirements to reach the target condition for each of the ecological features associated with the site. General maintenance must be carried out in line with the Landscape Maintenance Strategy (RBC-ALR_HTA_RP-0001), with additional recommendations below to ensure targeted net gain outcomes are achieved. A schedule of works covering pre-construction, construction and management post-construction is provided in Appendix 5.

9.1 Habitat Features

9.1.1 Urban Habitats

The Vegetated Garden and Ground Level Planters do not have biodiversity condition targets and so do not require specific management for biodiversity. As a minimum, undesirable weeds and non-native invasive species will be controlled.

9.1.2 Grassland – Other Neutral Grassland

The grassland on site will be managed to achieve a target ‘Moderate’ condition over a five-year period with a one year delay in creation.

The grassland must be managed to meet the minimum habitat requirements of ‘other neutral grassland’, which is to have less than 30% cover of Perennial Rye-grass (*Lolium perenne*) and between 9 and 15 further species per m² present. At least 3 of the 6 criteria described in Appendix 4 must also be reached to achieve the target condition. It is expected that the criteria for sward height variability may not be achieved, but all others are deemed feasible.

From the second year of establishment and onwards two cuts to 50 mm must be done annually, during late-summer (late July to early August) and October. Arisings must be left in place to shed seed for 1-7 days before being removed from the site, to retain low soil fertility and prevent competitive species from dominating. Any undesirable weed species must be controlled to ensure that the target species are not outcompeted.

9.1.3 Mixed Scrub

The planting block of Mixed Scrub is expected to achieve the targeted ‘Moderate’ condition after five years after a one year delay in creation, meeting at least 3 of the 5 assessment criteria.

The Mixed Scrub must be managed to meet the minimum habitat requirements to achieve these conditions over the target duration. This will be achieved by having at least three woody species present, with no one species comprising more than 75 % of the cover; and an absence of invasive species with undesirable species making up less than 5 % of the ground cover. The scrub will also need

to have a well-developed edge to this adjacent habitat. This could be achieved by having scattered scrub and tall grassland/and or herbs (mown to no less than 7 cm) between the edge of the scrub planting and neighbouring habitats.

Scrub beds must be kept weed free until established. Any tree guards will be checked twice annually and replaced if required, until the plants are established. The planting area will be checked annually, replacing any losses for the first three years with the same species initially planted, or different species if agreed with the project ecologist in advance. Any trimming of shrub must be carried out outside of the bird nesting season i.e. between October to March.

9.1.4 Other Green Roof

Other Green Roofs are designed to be low maintenance. They will need a visit once or twice a year for any plants failing to establish to be reseeded. Undesirable plant species such as grasses and weeds will be hand pulled.

9.1.5 Urban Trees

To ensure the Urban Trees meet their target conditions, the following management requirements and methods will be met:

- Prune trees as required to promote healthy growth and natural shape;
- Remove dead, dying and diseased wood as required; and
- Any cut vegetation or deadwood will be retained on site and utilised as habitat piles to enhance the area for small mammals, reptiles and other species.

9.1.6 Native Hedgerow

The hedgerow on site will be managed to achieve a target 'Moderate' condition over a five-year period with a one year delay in creation.

Once established, the hedgerows will be managed to a minimum height of approximately 3 m (unless already matured beyond that height), which is optimal for wildlife. Hedgerows will be cut back between late September and February (inclusive), with the long-term aim to create tall, thick hedgerows, with a strong, bushy base. Hedgerows will be allowed to grow to a width of approximately 2 m and will not be management less than 1.5 m.

Hedgerows will be cut on 3-year rotational basis across the site to ensure there is suitable hedgerow habitat on site at any one point. A third of the hedgerows on site will be cut back each year, resulting in a hedgerow being cut back every 2 years.

In the longer term, the hedgerow must be maintained to a height of between 3 m and 5 m. Best practice management principles must be continued, such as: trim on a 3-yearly schedule; trim only one side of

the hedgerow in a given year; trim between January and March to avoid potential effects on nesting birds and to allow the berry crop to be used by wintering birds.

9.1.7 Rain Garden

Hand weeding is required within the first two years post-planting to encourage the plants to establish (Bray et al., 2012). Once the plants have matured the high density should suppress weed growth. Remove 50 % of any dead or dying plants during the Winter months. The remaining dead plants will be of use to wildlife. An annual cut in the months September to November is permitted and any arisings must be removed.

9.2 Wildlife Features

9.2.1 Bird boxes

Bird boxes must be left undisturbed within the bird nesting season (March – August inclusive).

It is recommended that annual inspections of all the installed boxes are carried out by a suitably experienced individual, to ensure they are in a good state of repair and kept clean. Guidance is given below:

- Cleaning out and maintenance of the Woodcrete nest boxes will be conducted over winter between October and January to minimise the risk of disturbing breeding birds. Care must be taken to ensure that no breeding is taking place during this period and that birds are not flushed out during inclement weather conditions before the boxes are cleaned.
- If it is necessary, delouse boxes. A dry, short-lived natural based insecticide, such as pyrethrum powder, will be used.
- Checking of the overall state of the box, including the proper fixing of the box where they are surface mounted, will also be carried out.
- If there is any sign of water ingress the boxes will need to be either repaired or replaced.
- Any necessary repairs must be carried out before the next breeding season.

Nest boxes will be left untouched during the breeding season (March to August inclusive) to avoid disturbance. Inspections when the nest box contains any young may cause the parents to desert the nest, and cause death of the young nestlings.

9.2.2 Bat boxes

The bat boxes specified are maintenance free so no regular maintenance or cleaning will be required.

An annual visual check of bat boxes will be conducted to ensure that the boxes are still present and free from damage. Any missing bat boxes must be replaced.

Bats are a European protected species and therefore if any disturbance, including repair and maintenance works to the bat boxes are required, a licensed ecologist or bat worker must be consulted for further advice.

9.2.3 Bee Bricks

Bee bricks are maintenance free so no regular maintenance or cleaning will be required. An annual visual check will be conducted in October to check for debris within the holes and any cracks in the brick structure. A Tube brush will be used to break up and remove any hard debris. Any damaged bricks must be removed and replaced. Pesticides must not be used within 10 m of the bee bricks.

10 Monitoring

10.1 Post-construction Verification Visit

Within the first year of completion of construction a suitably qualified ecologist must visit the site to evaluate whether the as-built landscape plans are in accordance with the proposed development design. This will include a review of planting to ensure specifications for installation have been followed. Any amendments or shortfalls will be identified.

Should the as-built landscape plan differ from the original designs, more detailed information may be required to ensure transparency about what has been delivered. Where differences occur, an updated copy of the biodiversity metric (using the same version as initially prepared) must be submitted.

Where shortfalls are identified these will be discussed with Reading Borough Council. Alternative planting or management recommendations will be formulated using standardised protocols and methods and must be agreed with Reading Borough Council before being enacted. In this case an update or addendum to this report will be submitted.

10.2 Site Assessment

Each year following habitat installation, for a total of five years, the site will be visited and evaluated by a suitably qualified ecologist with good botanical identification skills.

Evaluation of the habitats is to be completed by a walkover survey of the site, recording all species present, assessing each habitat against the relevant biodiversity metric condition table assessment and, for grassland areas, giving a DAFOR³ scale figure for each species. The survey must be undertaken between May and August. The assessment will also identify any habitats deemed to require remedial measures or changes to the proposed management. Appendix 4 sets out the condition criteria that will be reviewed for each habitat.

After the initial five-year monitoring period, an ecologist will visit the site every five years for a minimum 30-year period to monitor the status of habitats, review the progress of any changes or remedial measures and advise of any further modifications or remedial measures required, as detailed above.

10.3 Monitoring Report

At years 1, 4, 5, 6, 10, 20 and 30 a formal monitoring report will be prepared that will summarise the progress of each habitat and include biodiversity reconciliation calculations. The monitoring survey results will be detailed in a short report which will include an updated condition assessment,

³ DAFOR = Dominant, Abundant, Frequent, Occasional and Rare. L is also used, standing for Local.

highlighting which criteria have shown improvement and noting where remediation measures may be required. Full results of any botanical surveys will be included in the report appendix including but not limited to: a list of species present; a DAFOR scale figure for each species; overall percentage of wildflowers to grassland; percentage of bare ground; and percentage of injurious weeds.

This report must be submitted to Reading Borough Council to demonstrate the progress of habitats on site, update on the progress of previous remedial measures, summarise how management is meeting the objectives and note where changes in management have been advised.

Table 7: Summary of monitoring reports required

Monitoring Report	Contents
Year 1	The Year 1 monitoring report must contain a clear statement to confirm that the habitats established on site conform to the proposed landscape planting plan. Any deviations must be described and explained.
Year 4	The Year 4 monitoring report must contain a clear statement to confirm the final biodiversity units that have been delivered for the 'Moderate' condition Rain Garden.
Year 5	Following the Year 5 review, a short-form report must be produced to demonstrate the management of the site, update on the progress of remedial measures, summarise how management is meeting the objectives and note where appropriate changes in management have been advised.
Year 6	The Year 6 monitoring report must contain a clear statement to confirm the final biodiversity units that have been delivered for the 'Moderate' condition Other Neutral Grassland, Mixed Scrub and Native Hedgerow.
Year 10	Following the Year 10 review, a short-form report must be produced to demonstrate the management of the site, update on the progress of remedial measures, summarise how management is meeting the objectives and note where appropriate changes in management have been advised.
Year 20	Following the Year 20 review, a short-form report will be produced to demonstrate the management of the site, update on the progress of remedial measures, summarise how management is meeting the objectives and note where appropriate changes in management have been advised. This report will also update on the progress of the Urban Trees planted on and off-site and determine whether any remedial measures are required for them to meet their target conditions.
Year 30	The Year 30 final monitoring report must state whether all habitats which have successfully established on site have continued to meet, or have exceeded, their targeted conditions. This report will highlight the whether the Urban Trees planted on and off-site have met their target conditions.

11 Remediation or Adaptive Management

In the event that remediation measures are deemed to be required, either due to failed management or unforeseen circumstances e.g. droughts, flooding etc. these must be discussed with Reading Borough Council. Alternative approaches to the management or monitoring will be formulated using standardised protocols and methods and must be agreed with Reading Borough Council before being enacted. In this case an update or addendum to this report will be submitted.

Amendments to management may be made, provided they adhere to Natural England guidance and recognised best practice.

12 References

- ADAS, (2022).** *Amethyst Lane Preliminary Ecological Appraisal.*
- ADAS, (2023a).** *Amethyst Lane Biodiversity Net Gain Assessment.*
- ADAS, (2023b).** *Amethyst Lane Bat Survey Report.*
- ADAS, (2023c).** *Amethyst Lane Badger Sett Monitoring Report.*
- CIEEM, CIRIA, IEMA, (2016).** *Biodiversity Net Gain: Good practice principles.*
- CIEEM, (2018).** *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. September 2018.*
- HTA Design LLP, (2023).** *Amethyst Lane, Reading Landscape Management Strategy – RBC-ALR_HTA-L_RP-0001*
- Natural England, (2023a).** *The Biodiversity Metric 4.0: auditing and accounting for biodiversity: User guide.*
- Natural England, (2023b).** *The Biodiversity Metric 4.0 User Guide – Technical Annex 2.*
- NPPF, (2023).** *National Planning Policy Framework: Biodiversity and Geological Conservation.* Department for Communities and Local Government, Norwich.
- The British Standard Institute, (2013).** *BSI Standards Publication, Biodiversity — Code of practice for planning and development BS 42020:2013.*
- The British Standard Institute, (2021).** *BSI Standards Publication, Process for designing and implementing Biodiversity Net Gain – Specifications BS 8683:2021.*

Appendix 1: Proposed Development

See following page.

Design Amendments in response to RBC Planning comments:

Street Arrangement - swale replaced with raingarden planting relocated to western side of street, reconfigured pedestrian access improves legibility, proposed junction simplified to improve visibility & manoeuvrability

Accommodation - Reduction of 4no. family homes in northern terrace. New fully 2 storey arrangement promotes direct sunlight into rear gardens

Blocks A B & C - footprints adjusted to increase rear garden sizes and distance from boundary

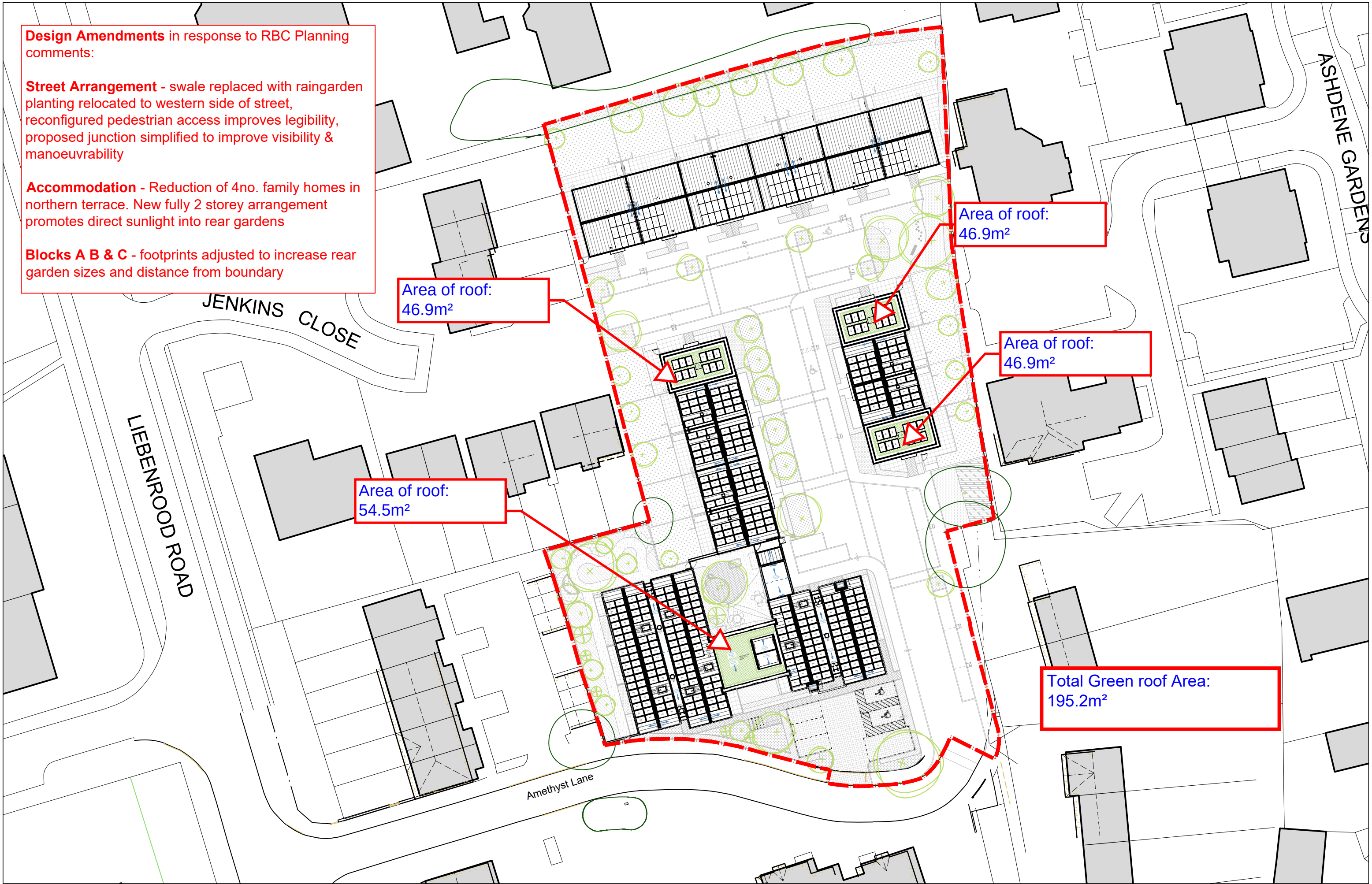


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Street Arrangement - swale replaced with raingarden planting relocated to western side of street, reconfigured pedestrian access improves legibility, proposed junction simplified to improve visibility & manoeuvrability

Accommodation - Reduction of 4no. family homes in northern terrace. New fully 2 storey arrangement promotes direct sunlight into rear gardens

Blocks A B & C - footprints adjusted to increase rear garden sizes and distance from boundary



Area of roof:
46.9m²

Area of roof:
46.9m²

Area of roof:
46.9m²

Area of roof:
54.5m²

Total Green roof Area:
195.2m²

Appendix 2: Landscape Planting Plan

See following page.

Do not scale from drawings unless by agreement with HTA. Use figured dimensions only. Check all dimensions on site prior to commencing the works. Drawing to be read in conjunction with other relevant consultant information.

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- KEY
- Application boundary
- Soft Landscape
- H1 - Hedge Planting - Instant mixed native hedge 1-1.2m high
 - PT1 - Mown amenity grass/lawn (turf) to private gardens
 - PT2 - Species rich lawn turf
 - PT3 - Shade tolerant wildflower / species rich turf
 - PT4 - Raingarden planting
 - PT5 - Privacy planting
 - PT6 - Scrub planting
 - PT7 - Respite Facility planting
 - PT8 - Sensory garden planting
 - PT9 - Shade tolerant groundcover planting
 - PT10 - Climbing plants
- T1 - Proposed Trees (note tree canopies drawn at +50 years)
- S1 - Proposed Feature Shrubs

Refer to Soft Landscape Schedule for further details of planting proposals

- Existing Trees
- RPA (root protection area)
 - Tree Canopy

Refer to Arboricultural Impact Assessment for further details on existing trees, and Arboricultural Method Statement for details of proposed works within tree RPAs.



D	25.10.23	RBL	Revisions following change to building footprints
B	03.05.23	RBL	Issued for Planning
A	18.04.23	RBL	Planning GA for comment - DRAFT
+	05.04.23	RBL	Planning GA for comment - DRAFT
Rev	Date	Drawn	Description

FOR PLANNING

client / project

Reading Borough Council

Amethyst Lane

drawing title

Landscape Planting Plan

drawing number

RBC-ALR HTA-L DR 0902

scale @ A1

1:200

originated by

RBL

revision

D

project code

RBC-ALR

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Appendix 3: Bat Box, Bird Box and Bee Brick Plan

See following page.

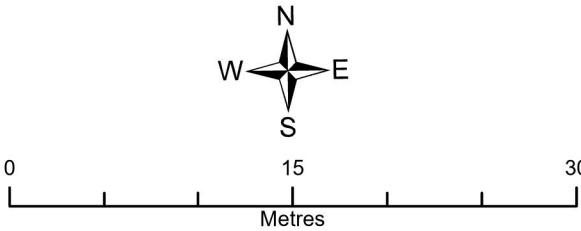


Amethyst Lane, Reading RG30 2EZ

Bee, Bird and Bat features locations

- Bee Brick
- Bird Box
- Bat Box
- Proposed Buildings (Rough)

Drawn by Pascoe Midgley 02/07/2024, Verified by Rajan Jandu 02/07/2024



1:400 at A3 size

Maxar, Microsoft

ADAS, The Old School,
Stillhouse Ln,
Bristol BS3 4EB
Tel +44 (0)117 947 1006

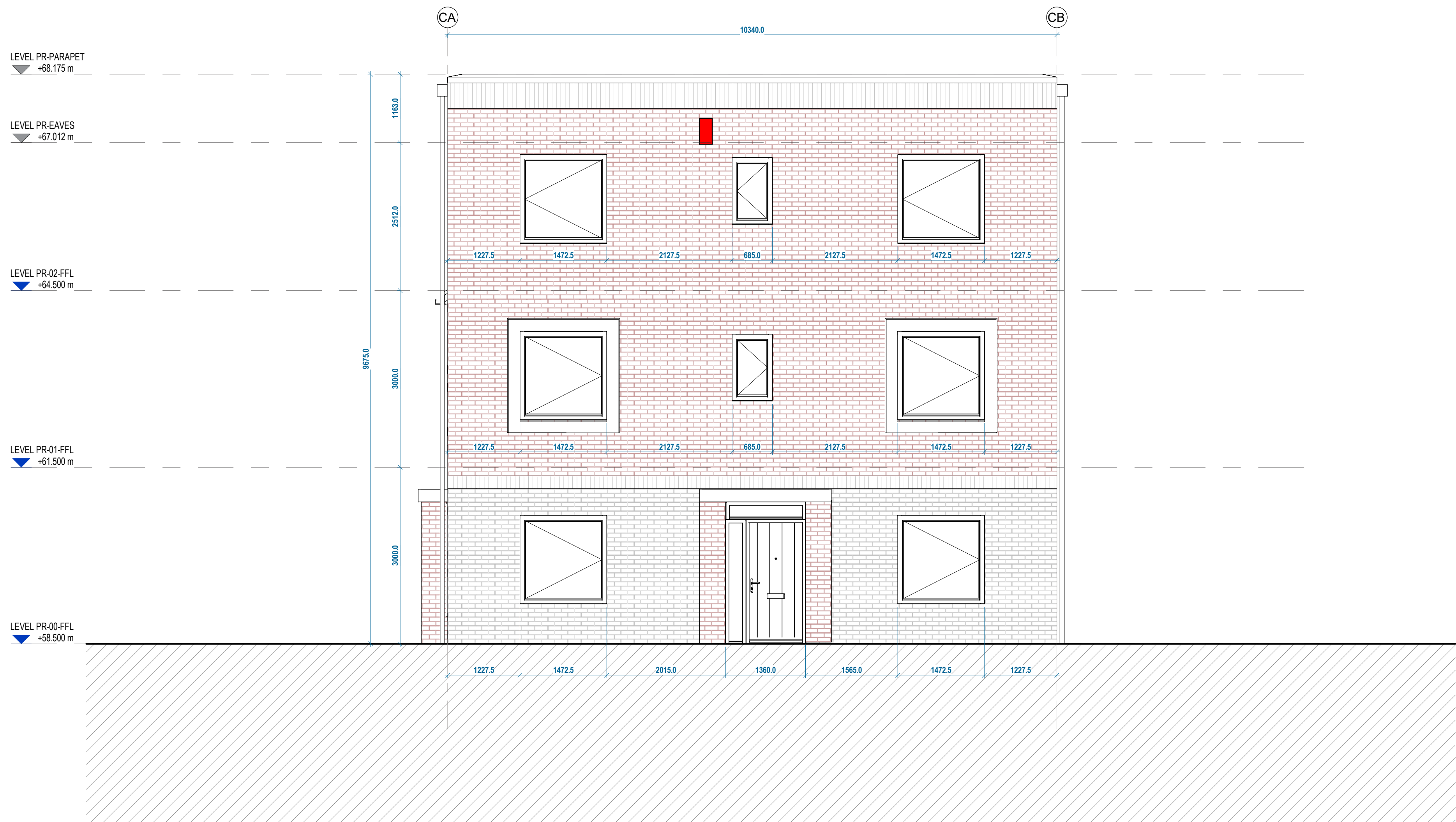


REVISIONS

P01	For Coordination	20/06/24
P02	Updated to Include Habitat Boxes	28/06/24
P03	Updated Bat Box Location	03/07/24



Block C East Elevation
1 : 50



Block C South Elevation
1 : 50

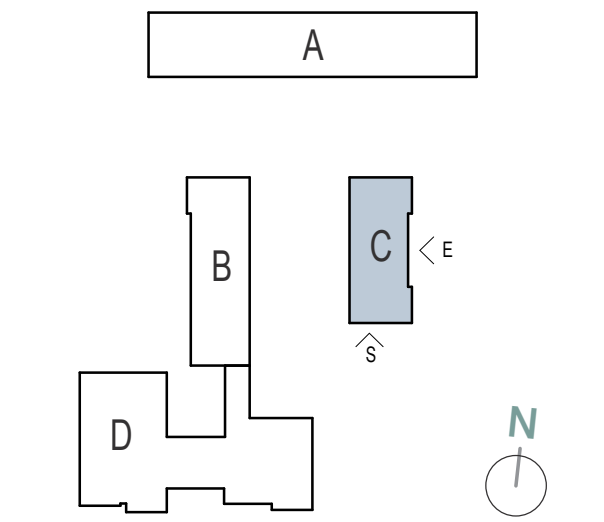
- Integrated Bat Box to match Brickwork
- Integrated Bird Box to match Brickwork
- Integrated Bee Box to match Brickwork

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AMETHYST LANE READING

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BLOCK C ELEVATIONS 2
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DATE
19/06/24

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2024-017

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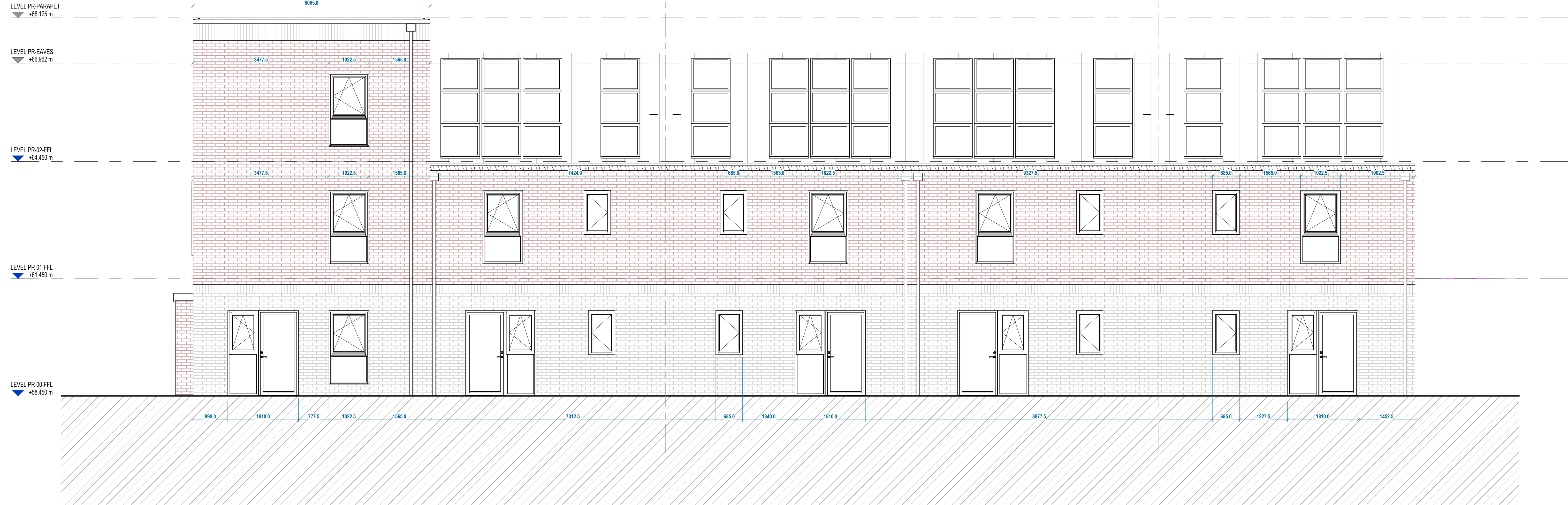
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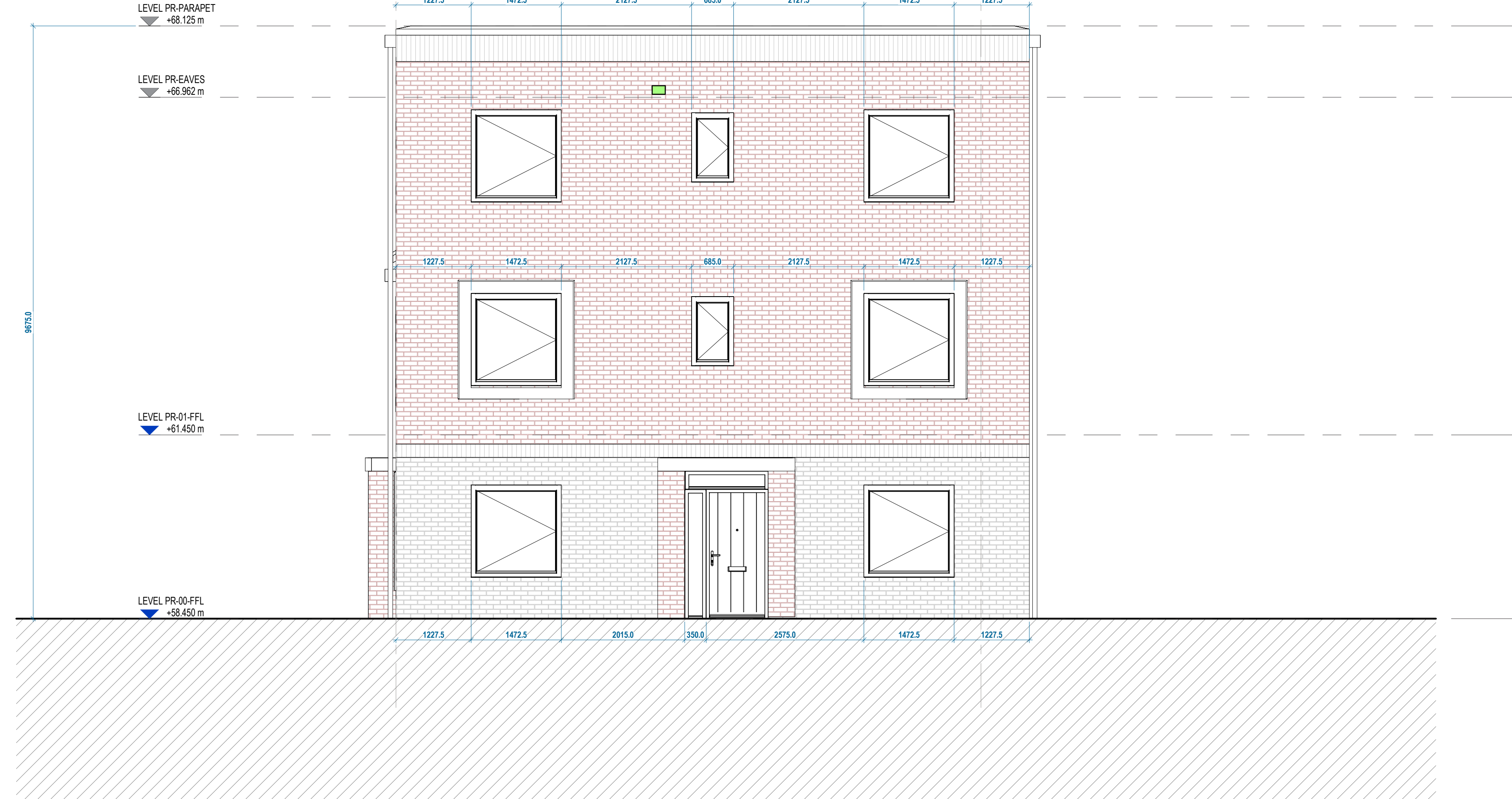
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Block B West Elevation



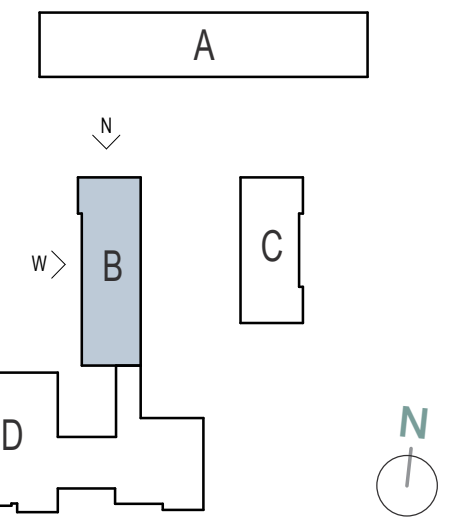
Block B North Elevation
1 : 50

-  Integrated Bat Box to match Brickwork
-  Integrated Bird Box to match Brickwork
- Integrated Bee Box to match Brickwork

A STAGE 4 : NOT FOR CONSTRUCTION

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@ A0 DATE 19/06/24

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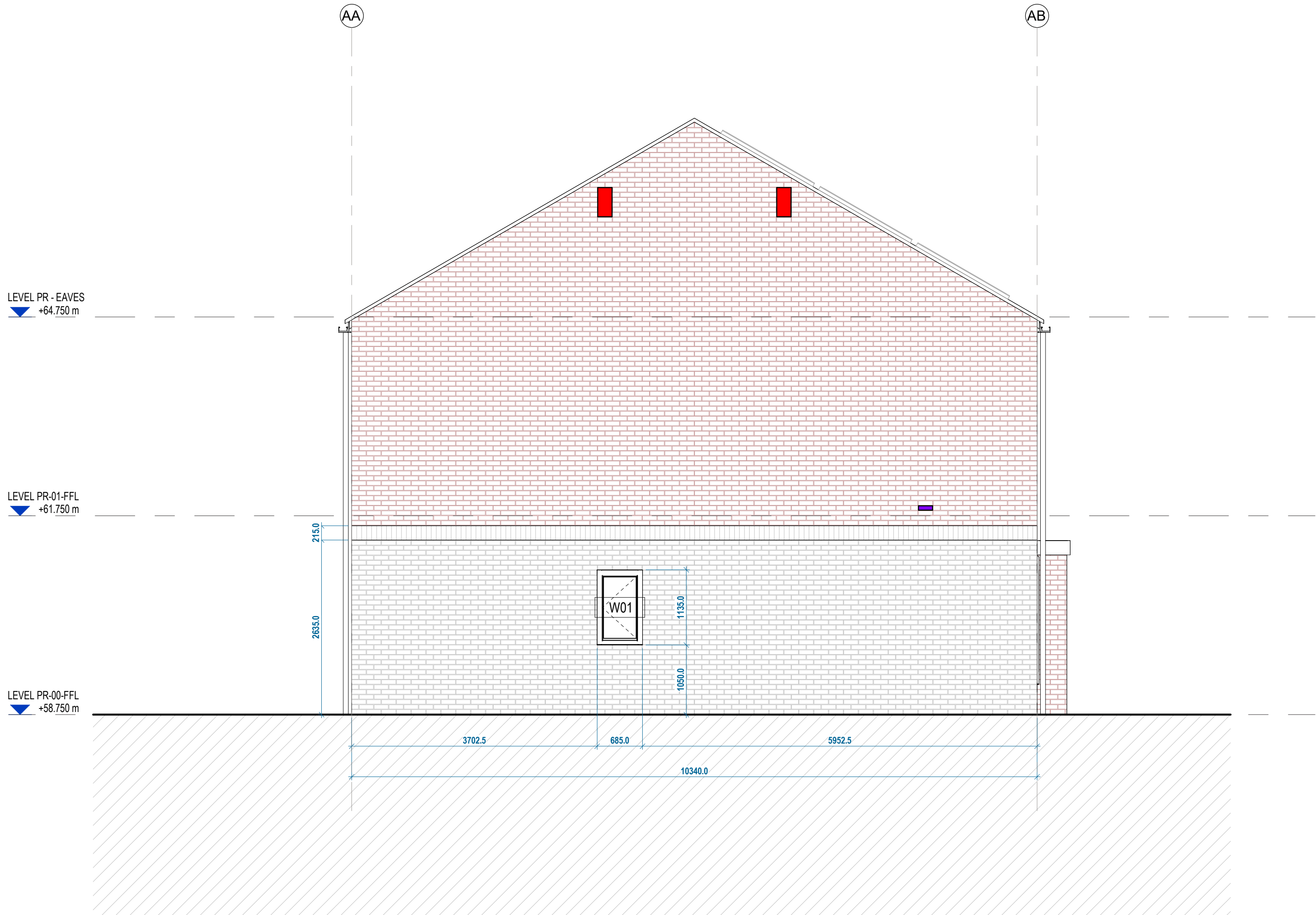
INTENT	SUITABILITY	REVISION
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INTENT





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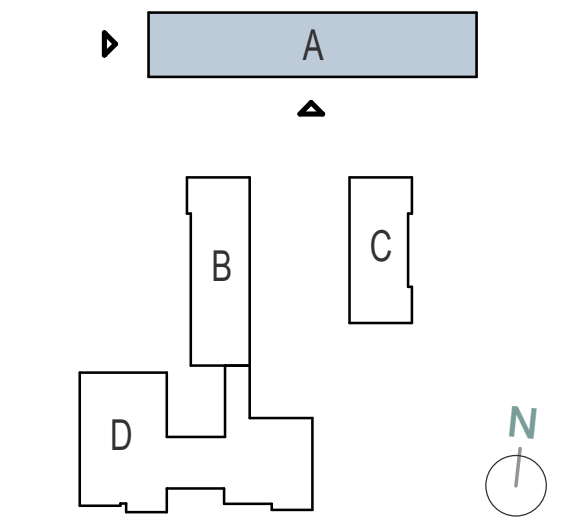


Block A West Elevation
1 : 50

Integrated Bat Box to match Brickwork
Integrated Bird Box to match Brickwork
Integrated Bee Box to match Brickwork

RIBA STAGE 4 : NOT FOR CONSTRUCTION

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TITLE
BLOCK A ELEVATIONS 2
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06/06/24

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2024-017

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24017-MET-ZA-XX-DG-A-4101

DOCUMENT PURPOSE
DESIGN INTENT

SUITABILITY
S1

REVISION
P03



Appendix 4: Condition Assessment Tables

Area Habitats

Other Neutral Grassland Condition Assessment (Medium distinctiveness)			
Criteria		Y/N	Notes
1	The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type. Wildflowers, sedges, and indicator species for the specific habitat type are very clearly and easily visible throughout the sward. NB – This criterion is essential for achieving moderate condition for non-acid grassland types.		
2	Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm)		
3	Cover of bare ground between 1% and 5%, including localised areas, for example, rabbit warrens.		
4	Cover of bracken less than 20% and cover of scrub (including bramble) less than 5%.		
5	There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.		
6	There are greater than 9 species per metre squared. NB – This criterion is essential for achieving good condition for non-acid grassland types.		
	Condition:		

Condition Assessment Results: Non-acid grassland types		
Number of attributes that must pass criteria to meet condition	Category	Achieves
Passes 5 of 6 criteria, including essential criterion 1.	Good	
Passes 3 or 4 of 6 criteria, including essential criterion 1.	Moderate	
Passes 0, 1, 2 of 6 criteria, OR Passes 3 or 4 criteria excluding criterion 1 and 6.	Poor	

* Species indicative of sub-optimal condition for this habitat type include: Creeping Thistle *Cirsium arvense*, Spear Thistle *Cirsium vulgare*, Curled Dock *Rumex crispus*, Broad-leaved Dock *Rumex obtusifolius*, Common Nettle *Urtica dioica*, Creeping Buttercup *Ranunculus repens*, Greater Plantain *Plantago major*, White Clover *Trifolium repens*, Cow Parsley *Anthriscus sylvestris*.

Mixed Scrub Condition Assessment			
Criteria		Y/N	Notes
1	Habitat is representative of UKHab description (where in its natural range). There are at least 3 woody species with no one species comprising more than 75% of the cover (except common juniper, sea buckthorn, or box, which can be up to 100% cover).		
2	There is a good age range – all of the following are present: seedlings, young shrubs and mature shrubs.		
3	There is an absence of invasive non-native species (as listed on schedule 9 of WCA, 1981) and species indicative of sub-optimal condition make up less than 5% of ground cover.		
4	The scrub has a well-developed edge with scattered scrub and tall grassland/or herbs present between the scrub and adjacent habitat(s).		
5	There are clearings, glades, or rides present within the scrub, providing sheltered edges.		
	Condition:		

Condition Assessment Results: Mixed Scrub		
Number of attributes that must pass criteria to meet condition	Category	Achieves
Passes all 5 criteria.	Good	
Passes 3 or 4 of the 5 criteria.	Moderate	
Passes 2 or fewer of the 5 criteria.	Poor	



Urban Tree Condition Assessment			
Criteria		Y/N	Notes
A	The tree is a native species (or at least 70% within the block are native species).		
B	The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).		
C	The tree is mature (or more than 50% within the block are mature) ¹ .		
D	There is little or no evidence of an adverse impact on tree health by human activities (such as vandalism, herbicide or detrimental agricultural activity). And there is no current regular pruning regime, so the trees retain >75% of expected canopy for their age range and height.		
E	Natural ecological niches for vertebrates and invertebrates are present, such as presence of deadwood, cavities, ivy or loose bark.		
F	More than 20% of the tree canopy area is oversailing vegetation beneath.		
	Condition:		

Condition Assessment Results: Urban Tree		
Number of attributes that must pass criteria to meet condition	Category	Achieves
Passes 5 or 6 criteria	Good	
Passes 3 or 4 criteria	Moderate	
Passes 2 or fewer criteria	Poor	



Rain Garden Condition Assessment			
Criteria		Y/N	Notes
A	Vegetation structure is varied, providing opportunities for vertebrates and invertebrates to live, eat and breed. A single structural habitat component or vegetation type does not account for more than 80% of the total habitat area.		
B	The habitat parcel contains different plant species that are beneficial for wildlife, for example flowering species providing nectar sources for a range of invertebrates at different times of year.		
C	Invasive non-native plant species (listed on Schedule 9 of WCA¹) and others which are to the detriment of native wildlife (using professional judgement)² cover less than 5% of the total vegetated area³. Note - to achieve Good condition, this criterion must be satisfied by a complete absence of invasive non-native species (rather than <5% cover).		
	Condition:		

Condition Assessment Results: Rain Garden

Number of attributes that must pass criteria to meet condition	Category	Achieves
Passes all 3 core criteria; AND Meets the requirements for Good condition within criterion C.	Good	
Passes 2 of 3 core criteria; OR Passes 3 of 3 core criteria but does not meet the requirements for Good condition within criterion C.	Moderate	
Passes 0 or 1 of 3 core criteria.	Poor	

Linear Habitats

Hedgerow Habitat Types Condition Assessment (Native Hedgerow)			
Criteria		Y/N	Notes
A1	Height: >1.5 m average along length		
A2	Width: >1.5 m average along length		
B1	Gap – hedge base: Gap between ground and base of canopy <0.5 m for >90% of total length.		
B2	Gap – hedge canopy continuity: Gaps make up <10% of total length and no canopy gaps >5 m.		
C1	Undisturbed ground and perennial vegetation: >1 m width of undisturbed ground with perennial herbaceous vegetation for >90% of its length: - Measured from outer edge of hedgerow, and - is present on one side of the hedge (at least)		
C2	Undesirable perennial vegetation: plant species indicative of nutrient enrichment of soils dominate <20% cover of the area of undisturbed ground (indicator sp. Include nettles, cleavers, and docks).		
D1	>90% of the hedgerow and undisturbed ground is free of invasive non-native and neophyte species (neophytes are plants that have naturalised in the UK since AD 1500). See below table*		
D2	Current damage: >90% of the hedgerow or undisturbed ground is free of damage caused by human activities (could include evidence of pollution, piles of manure, rubble, excessive hedge cutting)		
Condition:			

Condition Assessment Results: Hedgerows without trees

Category	Maximum number of attributes that can fail to meet 'favourable condition' in criteria	Achieves
Good	No more than 2 failures in total; AND No more than 1 in any functional group.	
Moderate	No more than 4 failures in total; AND Does not fail both attributes in more than one functional group.	
Poor	Fails a total of more than 4 attributes; OR Fails both attributes in more than one functional group.	

*Criterion D1: Invasive and Neophyte Species

Recently introduced species refer to plants that have naturalised in the UK since AD 1500 (neophytes). Archaeophytes count as natives. For information on archaeophytes and neophytes see the JNCC website¹, as well as the BSBI website² where the 'Online Atlas of the British and Irish Flora'³ contains an up-to-date list of the status of species. For information on invasive non-native species see the GB Non-Native Secretariat website⁴.

Footnote 1	Cheffings, C. M. et al. (2005) <i>The Vascular Plant Red Data List for Great Britain.</i> Species Status 7: 1-116	https://hub.jncc.gov.uk/assets/cc1e96f8-b105-4dd0-bd87-4a4f60449907
Footnote 2	Botanical Society of Britain and Ireland (BSBI). <i>Definitions: wild, native or alien?</i>	https://bsbi.org/definitions-wild-native-or-alien
Footnote 3	BSBI and Biological Records Centre (BRC) (2022) <i>Online Atlas of the British and Irish Flora.</i>	https://plantatlas2020.org
Footnote 4	GB Non-Native Species Secretariat (GBNNS) (2022)	https://www.nonnativespecies.org

Appendix 5: Schedule of Works

See following page.

Work phase	Feature	Task	Timetable
Site setup and pre-works	General Measures	Prior to the start of work, the following steps will be taken to minimise environmental impacts: • Works access routes and works zones will be planned and agreed in advance; • Defined work areas will be clearly delineated using appropriate fencing around the development area; • No unauthorised works, vehicles, machinery, workers, or storage of materials will be allowed outside of these areas or into the surrounding grassland; • Plant and vehicles must be kept on areas of hardstanding where possible; and • Material which can contaminate the soil, e.g. diesel oil and vehicle washings, will not be discharged on the site. • A suitable pollution control plan will be in place throughout the development period. Maintenance of protective fencing and exclusion zones must continue throughout construction.	Prior to start of works
	Retained Urban Trees	No unauthorised works, vehicles, machinery, workers, or storage of materials will be allowed within the protected areas. Root protection zones must be demarcated and observed at all times.	Throughout works
	Birds	Trees and hedgerows must be removed or pruned outside of the main bird nesting season (March-August inclusive). If this is not possible, then a check for nesting birds will be required by a competent person/ecologist no more than 48 hrs prior to vegetation works.	Throughout works

Work phase	Feature	Task	Timetable
		If any nests are found, the nest will be safeguarded with at least a 5 m exclusion buffer until no longer in use. Completion of nesting must be confirmed by a competent person.	
	Bats	A known bat roost has identified within building 3. Works in this area will require a license. The method statement and conditions included in this document must be followed to ensure works do not result in temporary loss of roosting habitat, disturbance, injury or killing of roosting bats.	Prior to start of works
	Badgers	The setts on site have been identified as inactive. A pre-works check must be carried out by a qualified ecologist to ensure the setts have not become active in the interim. If the setts are determined to be active and works are planned within 20 m a licence must be sought from Natural England before works can proceed.	Prior to start of works
	Other wildlife	Nocturnal mammals such as Hedgehog are likely to pass through the site. Any excavations which cannot be infilled before nightfall, will be covered overnight to prevent animals falling in and becoming trapped. If not possible, the excavations must have a sloped edge or a plank provided at no greater than a 45° angle, to allow trapped animals to escape. Excavations will be checked for the presence of trapped animals at the beginning and end of each day. Any open-ended pipes must be capped to avoid animals entering these.	Throughout works
Operational Phase (year 1)	Mixed Scrub	A year post the start of construction the Mixed Scrub will be planted. The new plants must be established according to the following recommendations:	Between November and March, depending on soil type and conditions

Work phase	Feature	Task	Timetable
		- Plants must be supplied from an approved local nursery and must conform to either the 'British Standard 3936-1:1992 Nursery Stock Part 1: Specification for Trees and Shrubs' (BS3936) or the 'National Plant Specification' (NPS) produced by the Horticultural Trades Association (HTA). - Plant whips 1 m apart in individual pits large enough to accommodate roots without constriction; - Water well after installation and provide a thick mulch; - Protect using either rabbit-proof fence on both sides or individual tree shelters (commonly spiral guards, tubes or quills).	
	Other Neutral Grassland	A year post the start of construction the grassland will be seeded. Grassland will be sown with a seed mix containing a minimum of eight different wildflowers and four native grass species. First flush of annual weeds must be left in place to provide cover for the seedlings. If spring sown the area must be cut in late summer to 60 mm with all arisings being removed.	Between September and October or March and May depending on the seed mix.
	Urban Trees	A year post the start of construction the Urban Trees will be planted on and off-site. The following guidelines must be adhered to in planting the Urban Trees: Tree stock will be of good shape and without elongated shoots. Stock will be free from pests, diseases, discolouration, weeds and physiological disorders;	Between November and March, depending on soil type and conditions

Work phase	Feature	Task	Timetable
		▪ Ideally trees will be planted at irregular spacings to create a more natural landscape, within the specification of one per 50 m. ▪ Tree pits will be 75 mm deeper than the root system and wide enough to accommodate roots when fully spread. Break up pit bottoms to a depth of 200 mm with a slightly raised centre. Treat bottom of pit with soil ameliorant. Scarify pit sides. Use excavated material to backfill; ▪ Tree shelters will be used as necessary (Tubex or similar); ▪ Any stakes required will be softwood, peeled chestnut, larch or oak, straight, free from projections and large or edge knots with pointed lower end. Stake size to be 30 mm diameter; ▪ Position stake close to tree on windward side and drive vertically to at least 300 mm into bottom of pit before planting. Consolidate backfill material around stake and cut off just below lowest branch of tree; and ▪ Use rubber ties to secure tree firmly but not rigidly to stake with at least two ties.	
	Other Green Roof	The Sedum Blankets will be laid on the roof once construction has been completed. Substrate depth must be a uniform 80 mm within the parcels. The average weight of an Other Green Roof can be up to 80 kg / m². ▪ All parcels must contain both wildflower and sedum species. ▪ A mixture of native wildflower plugs / seeding and laying of sedum blankets is recommended. Sedum species must include English	Autumn or Spring depending on seed mixes used

Work phase	Feature	Task	Timetable
		Stonecrop (<i>Sedum anglicum</i>) and White Stonecrop (<i>Sedum album</i>) or similar. ▪ The wildflower seed mix, EM1F Basic General Purpose Wild Flowers, will be sufficient as high biodiversity isn't necessary for Other Green Roofs. ▪ Seeding will be done in Autumn or Spring and the mixes will be surface sown along with an inert carrier such as sand. ▪ If there is a first flush of weeds, these must be left uncut between April and August as they will offer shelter to the wildflower seedlings. ▪ The first August after seeding, the weeds will be cut and all arisings removed.	
	Rain Garden	A year post the start of construction the Rain Garden will be planted. ▪ Species density must be 6 to 10 species per square metre. ▪ The excavation for a rain garden will be graduated from the edges to the centre which will be a maximum depth of 450 mm. ▪ Plants with existing strong roots are advisable and as such two year old plugs/whips are preferable. ▪ A berm is required to act as a buffer and must be roughly 300 mm wide, 100 mm tall and well compacted. The berm will be seeded with grass or wildflower mixes. The berm will need a permeable channel running perpendicularly through it of 150 mm width. This channel will run to the direction of a nearby drain.	Between November and March, depending on soil type and conditions and the species planted

Work phase	Feature	Task	Timetable
	Native Hedgerow	A year post the start of construction the Native Hedgerow will be planted. The new plants must be established according to the following recommendations: - Plants must be supplied from an approved local nursery and must conform to either the 'British Standard 3936-1:1992 Nursery Stock Part 1: Specification for Trees and Shrubs' (BS3936) or the 'National Plant Specification' (NPS) produced by the Horticultural Trades Association (HTA). - New hedgerows must be planted between November and March, avoiding periods of hard frost and waterlogged conditions; - Plant whips in a double staggered row 450 mm apart in trenches or individual pits large enough to accommodate roots without constriction, with roughly half a meter between rows; - Whips must be no less than 2 years old of a minimum height of 600 mm; - Water well after installation and provide a thick mulch; - Young hedgerows will require watering in dry conditions and the regular reapplication of mulch during establishment; and - Protect using either rabbit-proof fence on both sides or individual tree shelters (commonly spiral guards, tubes or quills).	Between November and March, depending on soil type and conditions
		During establishment, the following measures will be taken: - Boundary beds around the hedgerows must be kept clear of weeds by maintaining a full thickness of mulch; - Hand pull aggressive and noxious weeds from the hedgerows while minimising disturbance to desirable hedgerow species;	Between November and March, depending on soil type and conditions

Work phase	Feature	Task	Timetable
		Ensure that the hedgerow is not damaged by use of mowers, nylon filament rotary cutters and similar power tools.	
	Bat boxes, bird boxes, bee bricks	Bat boxes, bird boxes and bee bricks must be built into and attached to the new buildings organically and be considered throughout construction. The locations of these features are highlighted in Appendix 3.	Throughout the year
Operational phase (year 2)	Mixed Scrub	Check plant guards twice annually and replace as required until plants are established.	Throughout the year
		Any undesirable species must be controlled to ensure that the planted species are not outcompeted. Weeding must be done sparingly and with minimal invasiveness to limit soil disturbance.	March to October
	Other Neutral Grassland	If after one year there are still areas that are still bare or if there are areas persisting with undesirable species, localised cultivation and seeding will be required.	Between September and October or March and May depending on the seed mix.
	Urban Trees	- Prune trees as required to promote healthy growth and natural shape; - Remove and replace dead, dying and diseased wood as required with fresh whips; and - Any cut vegetation or deadwood will be retained on site and utilised as habitat piles to enhance the area for small mammals, reptiles and other species.	Throughout the year

Work phase	Feature	Task	Timetable
	Other Green Roofs	One visit to conduct hand weeding will be required in the first two years post planting. 50 % of any dead or dying plants must be removed and replaced if necessary.	December to February
	Rain Garden	Hand weeding will be required in the first two years post planting. 50 % of any dead or dying plants must be removed and replaced if necessary with the remaining being left in the rain garden.	December to February
	Native Hedgerow	During establishment, the following measures will be taken: • Boundary beds around the hedgerows must be kept clear of weeds by maintaining a full thickness of mulch; • Young hedgerows will require watering in dry conditions and the regular reapplication of mulch during establishment; • Hand pull aggressive and noxious weeds from the hedgerows while minimising disturbance to desirable hedgerow species; • Ensure that the hedgerow is not damaged by use of mowers, nylon filament rotary cutters and similar power tools; • Replace hedgerow whips which have failed to thrive with equivalent species that match the size of adjacent plants; and • Check plant guards twice annually and replace as required until plants are established.	Throughout the year
	All features	Monitoring: Year 2 monitoring visit to be undertaken by a suitably qualified ecologist to evaluate success of management and to ascertain whether year 2 targets have been achieved.	May to August

Work phase	Feature	Task	Timetable
Operational phase (year 3)	Mixed Scrub	During the third year weeding will be carried out around the plants to help them to establish quicker, however this will be done sparingly as soil disturbance must be minimised. Trimming of the shrubs will also be done outside of the nesting bird season. The grassland around the edge of the planting must be allowed to grow long to provide a protective buffer for the planting. • Ensure that the hedgerow is not damaged by use of mowers, nylon filament rotary cutters and similar power tools; • Replace whips which have failed to thrive with equivalent species that match the size of adjacent plants; and • Check plant guards twice annually and replace as required until plants are established.	Winter (between November and March).
	Other Neutral Grassland	From the second year of establishment and onwards two cuts to 50 mm must be done annually. Arisings must be left in place to shed seed for 1-7 days before being removed from the site. Any undesirable weed species must be removed by hand to ensure that the target species are not outcompeted and not damaged by more invasive weeding techniques.	August to October
	Urban Trees	▪ Prune trees as required to promote healthy growth and natural shape; ▪ Remove and replace dead, dying and diseased wood as required with fresh whips; and ▪ Any cut vegetation or deadwood will be retained on site and utilised as habitat piles to enhance the area for small mammals, reptiles and other species.	Throughout the year

Work phase	Feature	Task	Timetable
	Rain Garden	Hand weeding will be required in the first two years post planting. 50 % of any dead or dying plants must be removed and replaced if necessary with the remaining being left in the rain garden.	December to February
	Native Hedgerow	During the third year weeding will be carried out around the plants to help them to establish quicker, however this will be done sparingly as soil disturbance must be minimised. Trimming of the shrubs will also be done outside of the nesting bird season. • Ensure that the hedgerow is not damaged by use of mowers, nylon filament rotary cutters and similar power tools; • Replace hedgerow whips which have failed to thrive with equivalent species that match the size of adjacent plants; and • Check plant guards twice annually and replace as required until plants are established.	Winter (between November and March).
Operational phase (year 4 onwards)	Mixed Scrub	During subsequent years weeding will be carried out around the plants, however this will be done sparingly as soil disturbance must be minimised. Trimming of the shrubs will also be done outside of the nesting bird season. Until the end of the third year, whips which have failed to thrive must be replaced with equivalent species that match the size of adjacent plants.	October to March
		In the long term, scrub will be managed following the guidance below: • Cut back between October and February (inclusive), to avoid potential effects on nesting birds and to allow the berry crop to be used by wintering birds; • Removal of undesirable species including invasives and weeds; • A complex, well-developed edge of scattered scrub, tall forbs or tall grassland will be encouraged;	October to February

Work phase	Feature	Task	Timetable
		• Prune trees and shrubs only as required to promote healthy growth and natural shape; and • Remove dead, dying, diseased wood and suckers as required.	
	Other Neutral Grassland	From the second year of establishment and onwards two cuts to 50 mm must be done annually. Arisings must be left in place to shed seed for 1-7 days before being removed from the site. Any undesirable weed species must be removed by hand to ensure that the target species are not outcompeted and not damaged by more invasive weeding techniques.	August to October
	Urban Trees	▪ Prune trees as required to promote healthy growth and natural shape; ▪ Remove and replace dead, dying and diseased wood as required with fresh whips; and ▪ Any cut vegetation or deadwood will be retained on site and utilised as habitat piles to enhance the area for small mammals, reptiles and other species.	Throughout the year
	Rain Garden	An annual cut to keep the natural shape is permitted if judged to be necessary and any arisings must be removed.	August to November
	Native Hedgerow	During subsequent years weeding will be carried out around the plants, however this will be done sparingly as soil disturbance must be minimised. Trimming of the shrubs will also be done outside of the nesting bird season.	October to March
		In the long term, hedgerows will be managed following the guidance below:	October to February

Work phase	Feature	Task	Timetable
		• Cut on a 3-year alternating basis, with no more than 50% of either hedgerow being cut at a time to ensure there is suitable hedgerow habitat on site at any one point; • Cut back between October and February (inclusive), to avoid potential effects on nesting birds and to allow the berry crop to be used by wintering birds; • Allow hedgerows to grow to a width of approximately 2m and do not trim to less than 1.5 m width; • Allow hedgerows to grow to a height of 3 m to 5 m. • Prune trees and shrubs as required to promote healthy growth and natural shape; and • Remove dead, dying, diseased wood and suckers as required.	
	All features	Monitoring: Subsequent monitoring visits by a suitably qualified ecologist to evaluate success of management to be undertaken in years 1-5, 10, 15, 20, 25 and 30. Monitoring reports will be provided in years 1, 4, 5, 6, 10, 20 and 30.	May to August