

8.0 Site Strategies

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8.1 Vehicle & Pedestrian Access

Vehicle Access

There is one point of access for vehicles via Grantchester Street, Grantchester Meadows and Owlstone Road to the south west corner of the site. Here access is controlled by a gate operated by Queens’ College porters at the adjacent Porter’s Lodge.

Within the site, vehicle access is strategically located to minimise impact to landscape spaces whilst balancing emergency and maintenance access.

Pedestrian Access

Pedestrians can reach the site via footpaths along Grantchester Street, Grantchester Meadows and Owlstone Road. These streets enable easy access to Newnham Village. There is also access through Paradise Local Nature Reserve via a boardwalk close to the eastern site boundary creating a more direct pedestrian connection to and from the centre of Cambridge.

Existing entrances to Blocks A & B are retained and improved through site landscaping and wayfinding along a central site spine, whilst entrances to post-graduate housing are set out along the northern façades with canopies marking individual houses.



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8.2 Car Parking & Deliveries

Car Parking

There are 8 accessible car parking spaces accommodated on site with each able to be allocated to a student occupant of one of the eight accessible study bedrooms. Car parking spaces are distributed across the site to ensure travel distances to each house are manageable.

Further to the accessible bays, a car parking space is also provided adjacent to the Porters’ Lodge for staff use.

Car parking bays have been tracked and this information can be found in the transport statement.

Deliveries

Access to the site for deliveries, as other vehicles, is controlled by porters. A bay is indicated in the entrance courtyard for use by delivery vehicles whilst unloading items. All post / deliveries are stored in pigeon-holes in the Porters’ lodge for student collection.

EV Charging

It is proposed that 5 spaces will be provided with 7kW charging points from day one, with the infrastructure set up to implement charging for the remaining spaces in the future.

Start / End of Term

The proposed accommodation is intended for postgraduate students who will inhabit the site year-round. Drop-offs at the start/end of term for existing accommodation used for undergraduate students is managed by the porters.

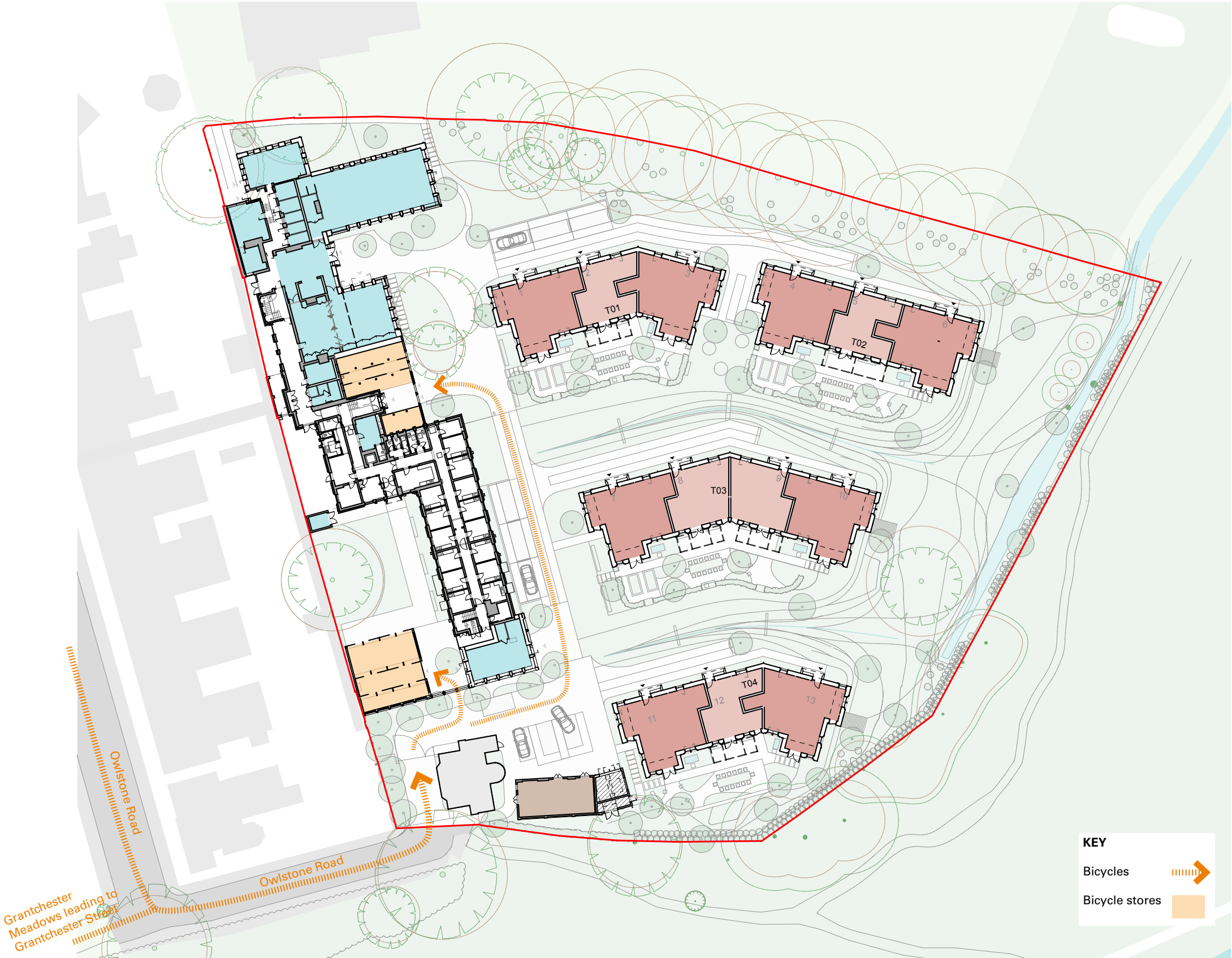


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8.3 Bicycle Access & Storage

Bicycle Access

Cycles can use the one point of access via Grantchester Street, Grantchester Meadows and Owlstone Road to the south west corner of the site. It is a 5 minute cycle from the site into the centre of Cambridge.



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8.3 Bicycle Access & Storage

Bicycle Storage

Storage is organised in 2 dedicated stores on site. A first by the site entrance and a second is located off the central spine route through the site.

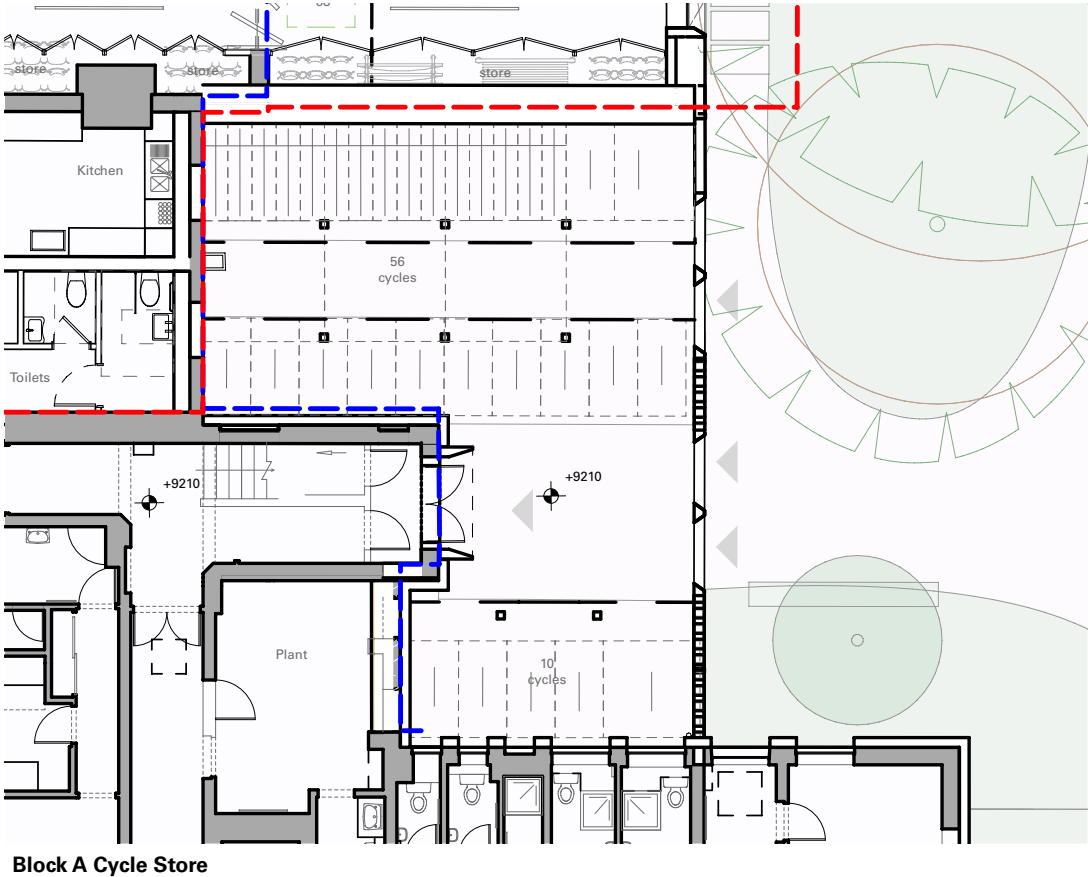
The site has an existing 120 storage spaces which have been re-provided alongside new spaces for use by new residents, visitors and staff.

Storage breakdown:

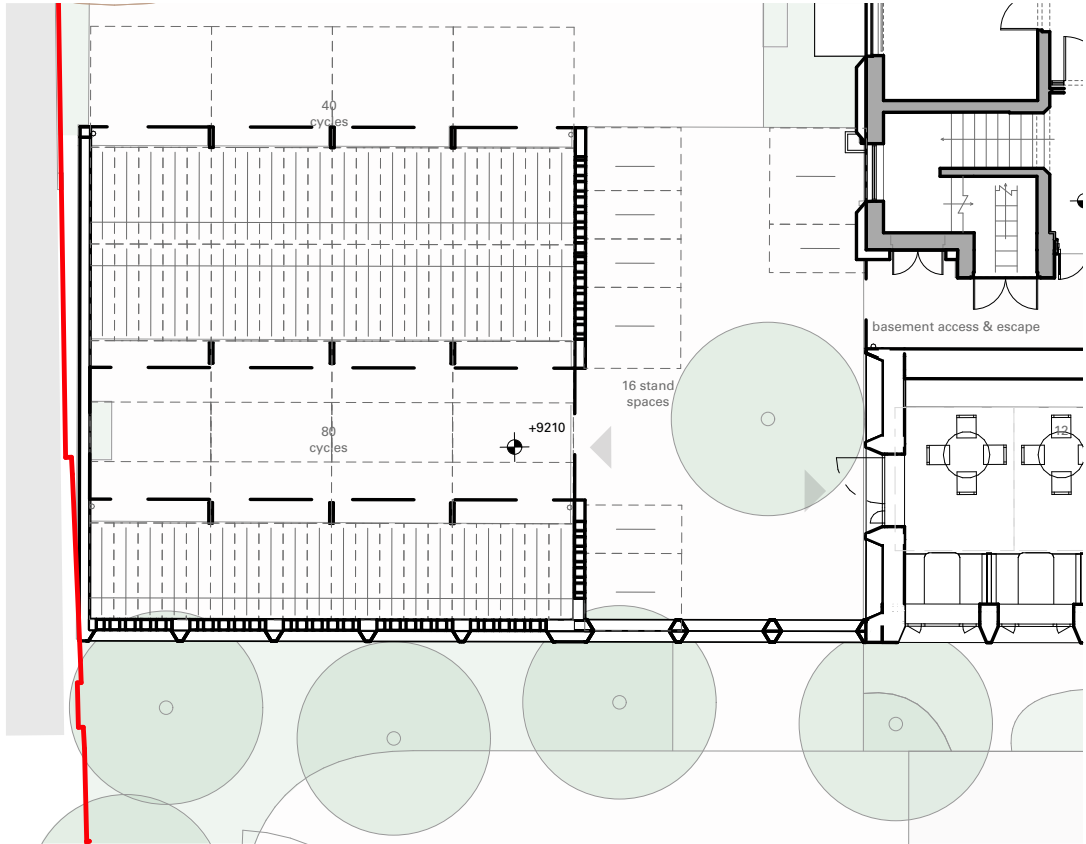
- 1:1 Storage provision for residents
- 147 student cycle storage spaces
- 1:5 Spaces for visitors
- 29 visitor cycle storage spaces
- Spaces for staff + Study Centre visitors
- 24 cycle storage spaces

Total 200 cycle storage spaces

- 40 sheffield stand spaces (20%)
- 10 accessible sheffield stand spaces (5%)
- 150 double stack stand spaces (75%)

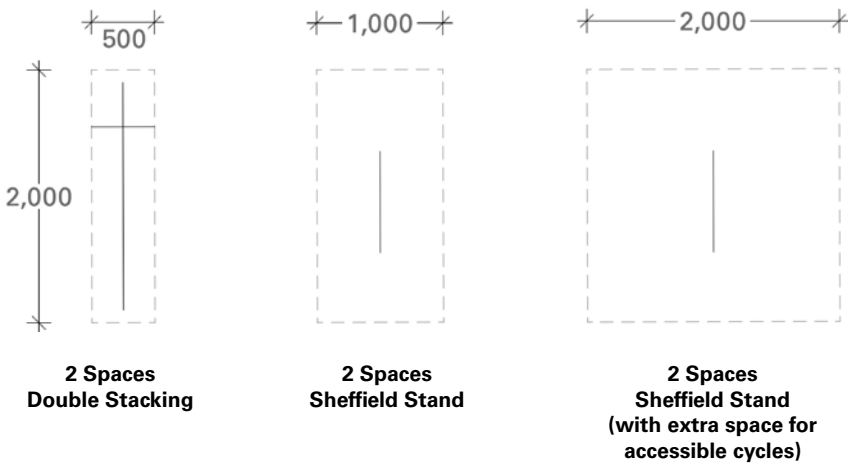


Block A Cycle Store

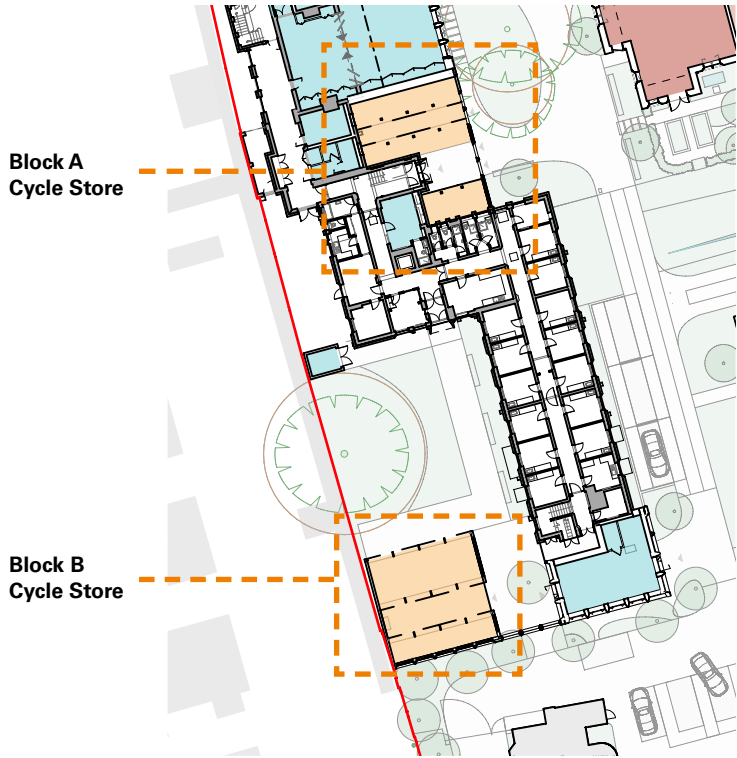


Entrance / Block B Cycle Store

KEY - Cycle Storage Type



KEY - Cycle Store Location Plan



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8.4 Emergency Vehicle Access

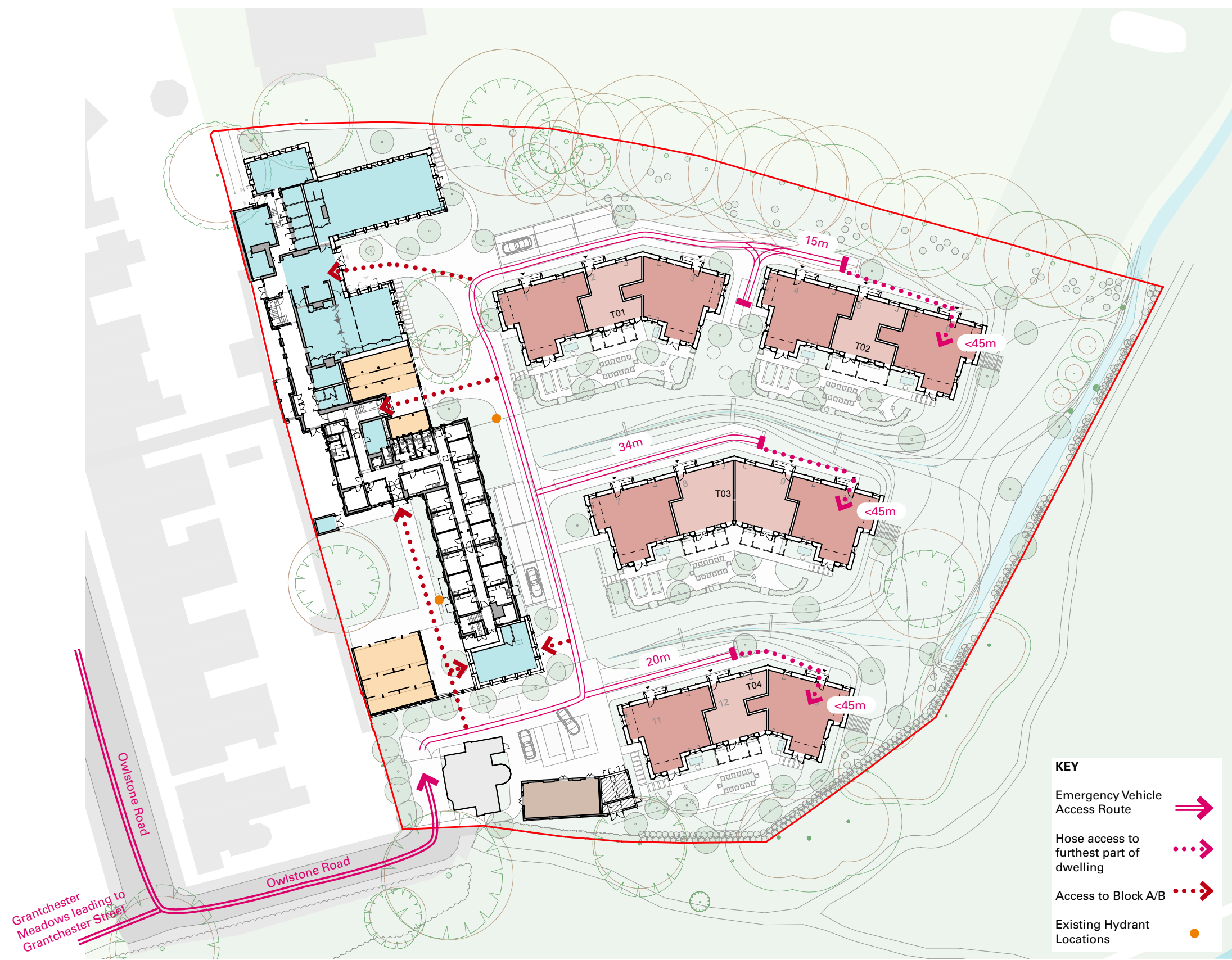
Emergency Vehicle Access

Emergency vehicles use a series of service roads to access different areas of the site. A fire service vehicle can reach within 15m of each dwelling entrance with all parts of the dwellings within 45m hos distance from the rear of a pumping appliance.

A turning head is provided at the north of the site between Terrace 01 and 02, whilst the service road accessing Terrace 04 is within a recommended 20m reversing distance. The road serving Terrace 03 exceeds 20m at 34m, but as this is expected to only be used very infrequently and would have a significantly detrimental impact on the landscaping, is considered reasonable.

Access to the communal study space proposals is from the main spine route through the site with all existing access points to Block A and B maintained.

All routes through the site have been tracked, with this information contained within the Transport statement.



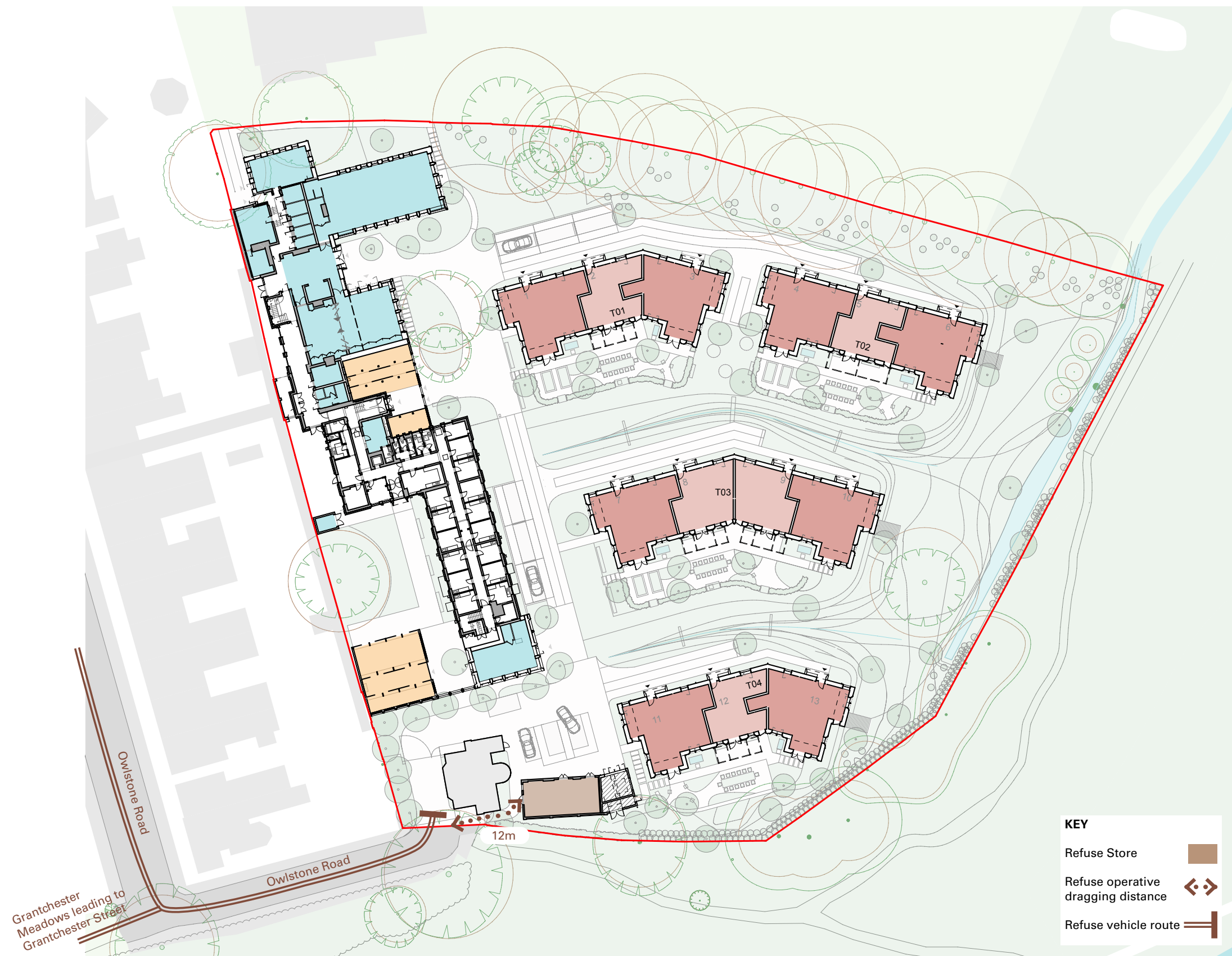
8.0 Site Strategies

8.5 Refuse

Refuse Collection

Refuse is proposed to be collected from the site entrance via a gateway to the south of the Porter’s Lodge as is currently undertaken. Refuse containers can be dragged between a store located in the existing stores building to a stopping point at the end of Owlstone Road.

A continuation of the current waste collect strategy within the site is proposed. Waste from communal areas is collected and transported to the refuse store by staff, whilst students are required to bring waste from study bedrooms to the refuse store themselves.



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8.5 Refuse

Refuse Storage

Refuse storage for the proposed post-graduate housing and student study centre has been calculated in line with Cambridge City Council’s Recycling and Waste Guide for Developers and the RECAP Waste Management Design Guide SPD.

For 60 students, the proposed storage capacity is:

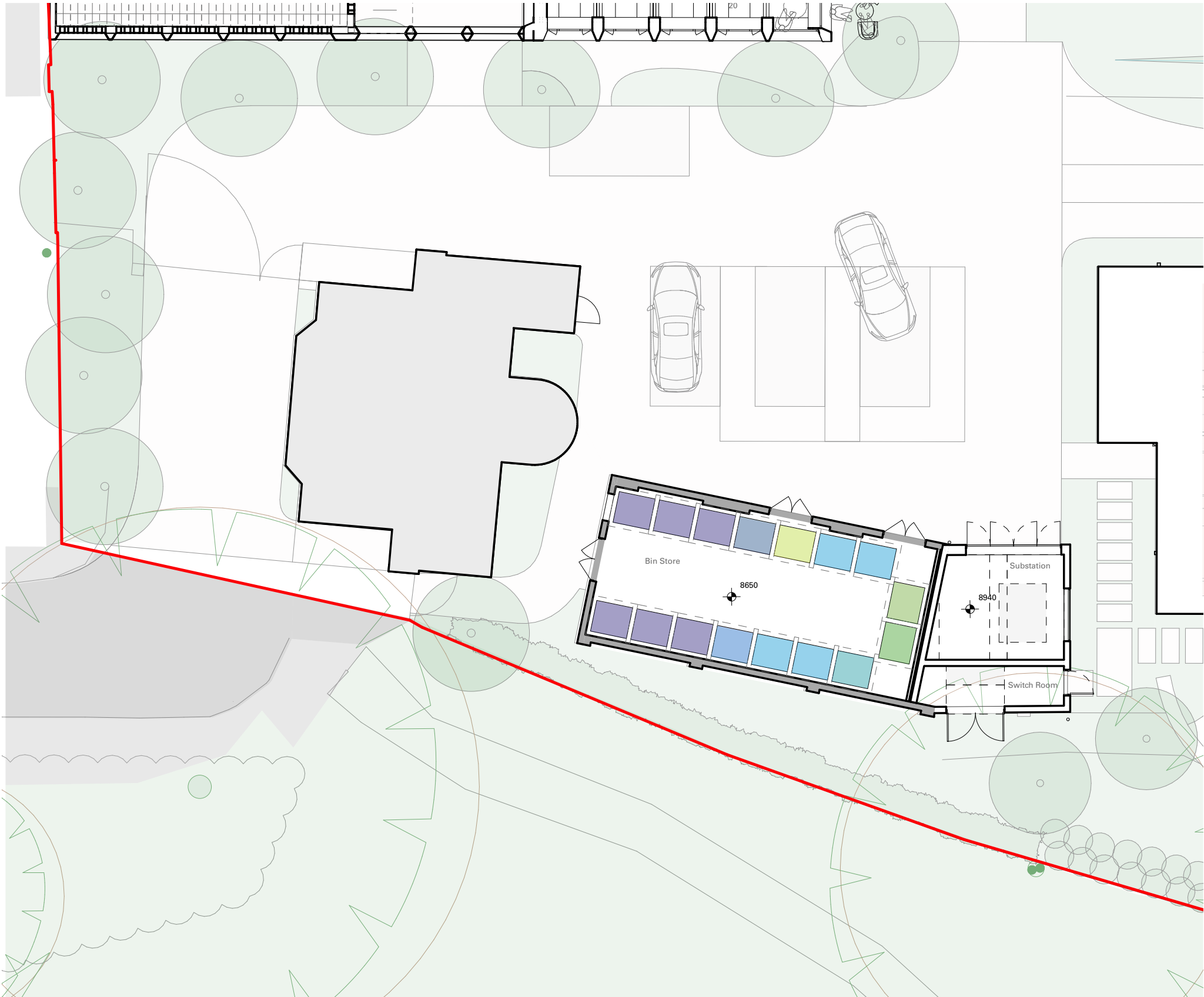
- 3000 litres Recycling
- 3 x 1100 ltr bins (purple)
- 3000 litres General/residual
- 3 x 1100 ltr bins (blue)
- 1500 litres Compostable
- 2 x1100 ltr bins (green)

For the study centre, taking the ‘Offices’ type as the most applicable from the RECAP guidance, for the proposed 810m2 GFA:

- 2100 ltrs required, 50/50 proposed split:
- 1 x 1100 ltr Recycling (purple)
- 1 x 1100 ltr General (blue)

Existing provision on site will also be retained:

- 3 x 1100ltr recycling (purple)
- 2 x 1100ltr general (blue)
- 1 x 1100ltr clinical/washroom (yellow)
- 1 x 240ltr compostable (consolidated into larger 1100 bins)



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8.6 Operations and Maintenance

Maintenance of Terrace Roofs

Access to the roofs of the proposed terrace blocks will be via an access hatch from a communal area within the house. A parapet of min.1.1m will enable access to inspect and maintain both PVs and rooftop plant.

Maintenance of Study Centre Roofs

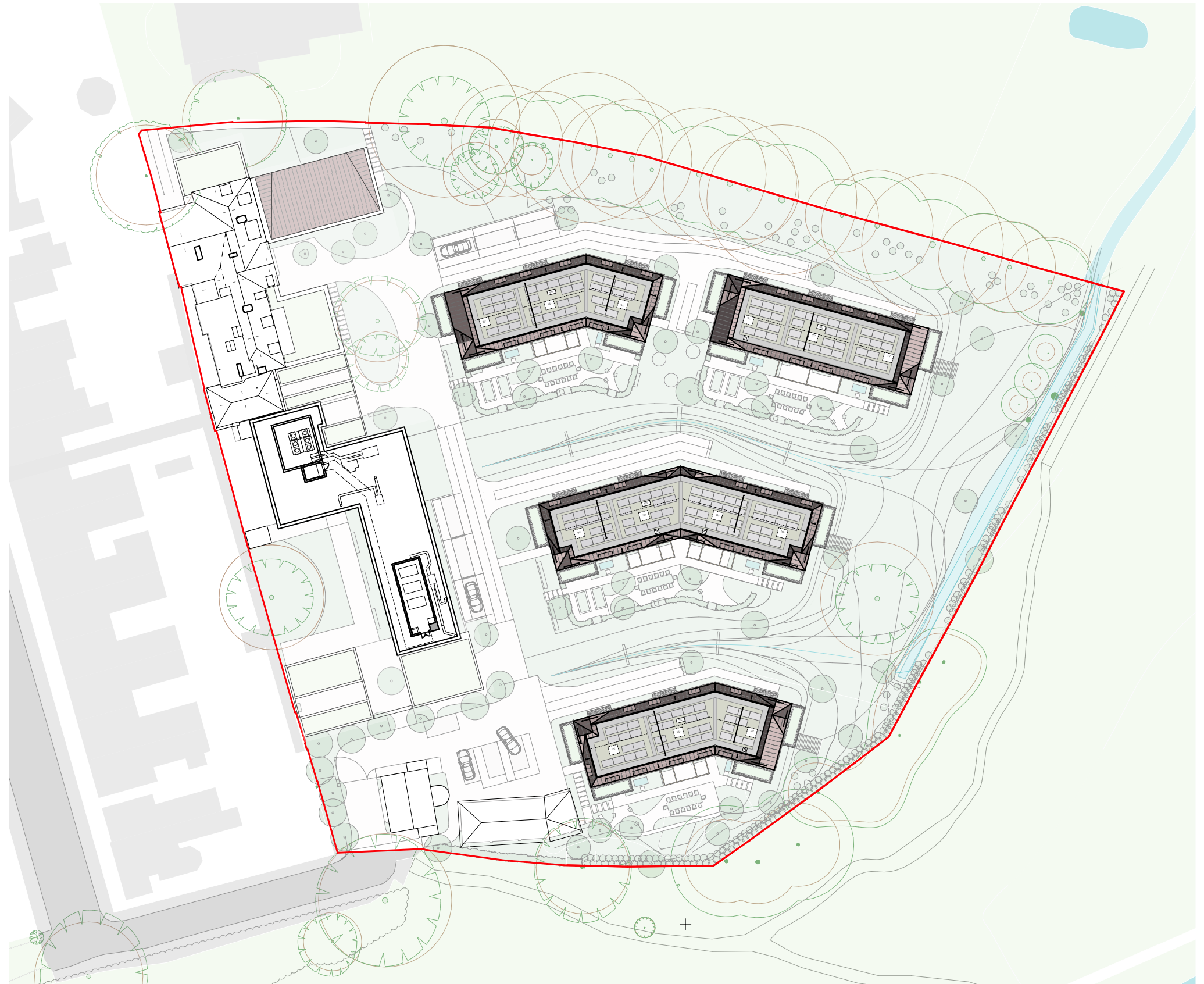
Single story study centre roofs are accessed via cherry picker or temporary scaffolding and a mansafe system will enable safe access.

Window Cleaning

It is proposed that windows are cleaned from the exterior of buildings to limit the impact of privacy on resident students. Windows can be pole cleaned, with more extensive cleaning or maintenance work able to be carried out via cherry picker access. Refer to Landscape Design Document for cherry picker set down locations.

Maintenance of Landscape / Gardens

The gardens and landscape will be maintained by Queens' College gardening and maintenance teams. A Gardeners store has been accommodated in the courtyard of Block B.



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8.7 Site Security

Access

Access to the site is limited to one entry point at the south-west corner. Gates are managed by College Porters who control entry for vehicles and visitors, whilst entry for student residents is via key-pad controlled gate.

Existing garden walls border neighbouring gardens and a portion of the boundary with the primary school to the north, whilst the remainder of this boundary is defined by a chain link fence and dense planting.

The boundary with the neighbouring Paradise Local Nature Reserve has been carefully considered is proposed to be enhanced by estate fencing and improved planting within the site boundary.

A site lighting strategy has been developed to ensure safe access to buildings across the site.

Students have fob access to their dwellings and individual rooms. New exterior doorsets will be PAS24 rated for security.



9.0 Sustainability

This section summarises the Sustainability targets, principles and strategies at Owlstone Croft. Refer to Max Fordham’s Sustainability and Energy Statements for further information.

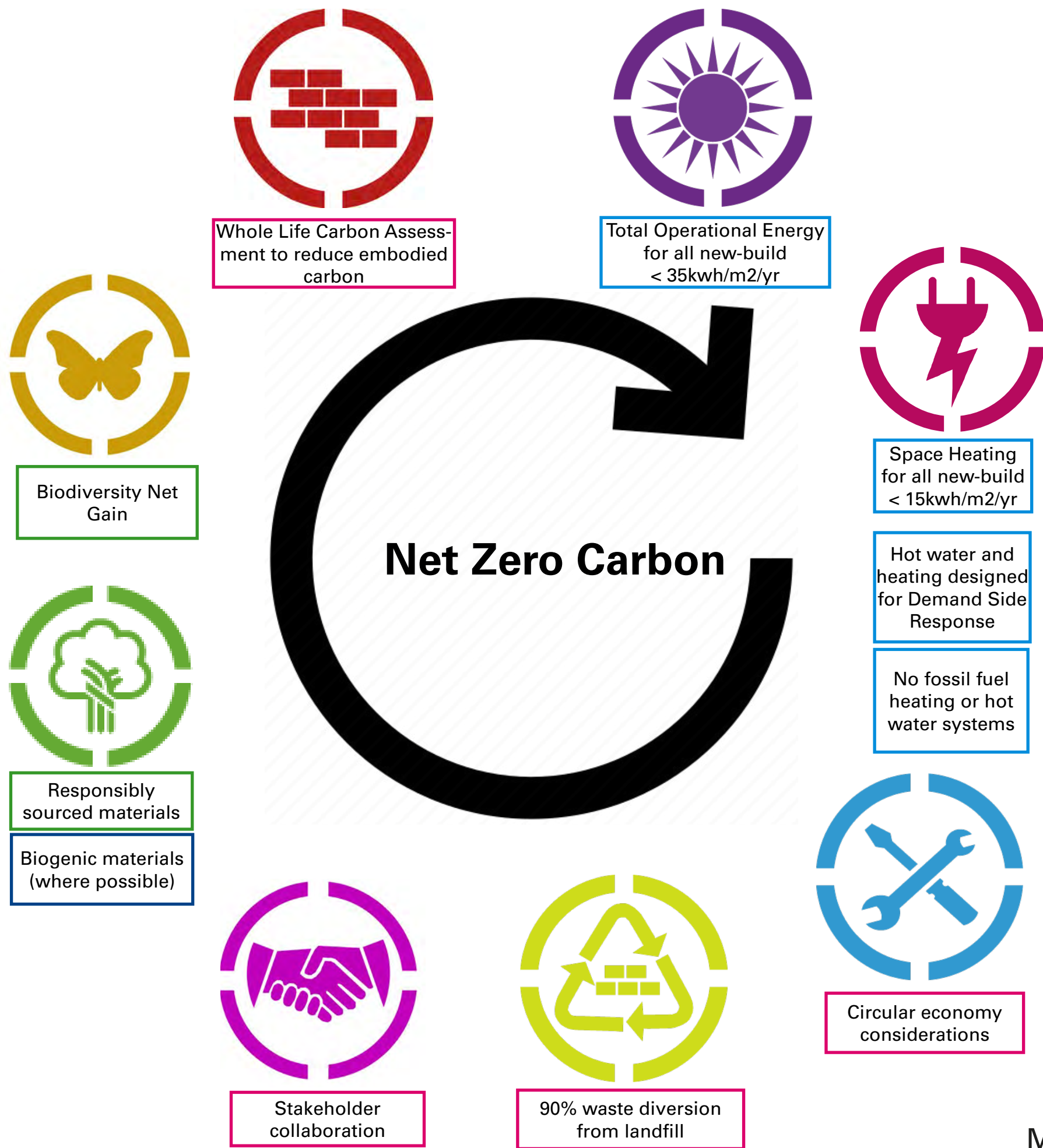
9.0 Sustainability

9.1 Bespoke Sustainability Targets

Designed to meet the following sustainability criteria:

- New build postgraduate accommodation to be Passivhaus certified.
- Net Zero Carbon in operation.
- Fossil fuel free development.
- Hot water and heating designed for Demand Side Response.
- On-site renewable energy generation.
- Whole Life Carbon Analysis to reduce embodied carbon.
- Circular economy considerations - reusability and recyclability of materials.
- Significant Biodiversity Net Gain on site.
- On-site green and blue infrastructure for future climate adaptations.
- Construction and operational waste will follow a 'reduce, reuse, recycle' hierarchical approach. The team will aim to divert 90% of non-hazardous waste from landfill.

Owlstone Croft: Certification and Frameworks

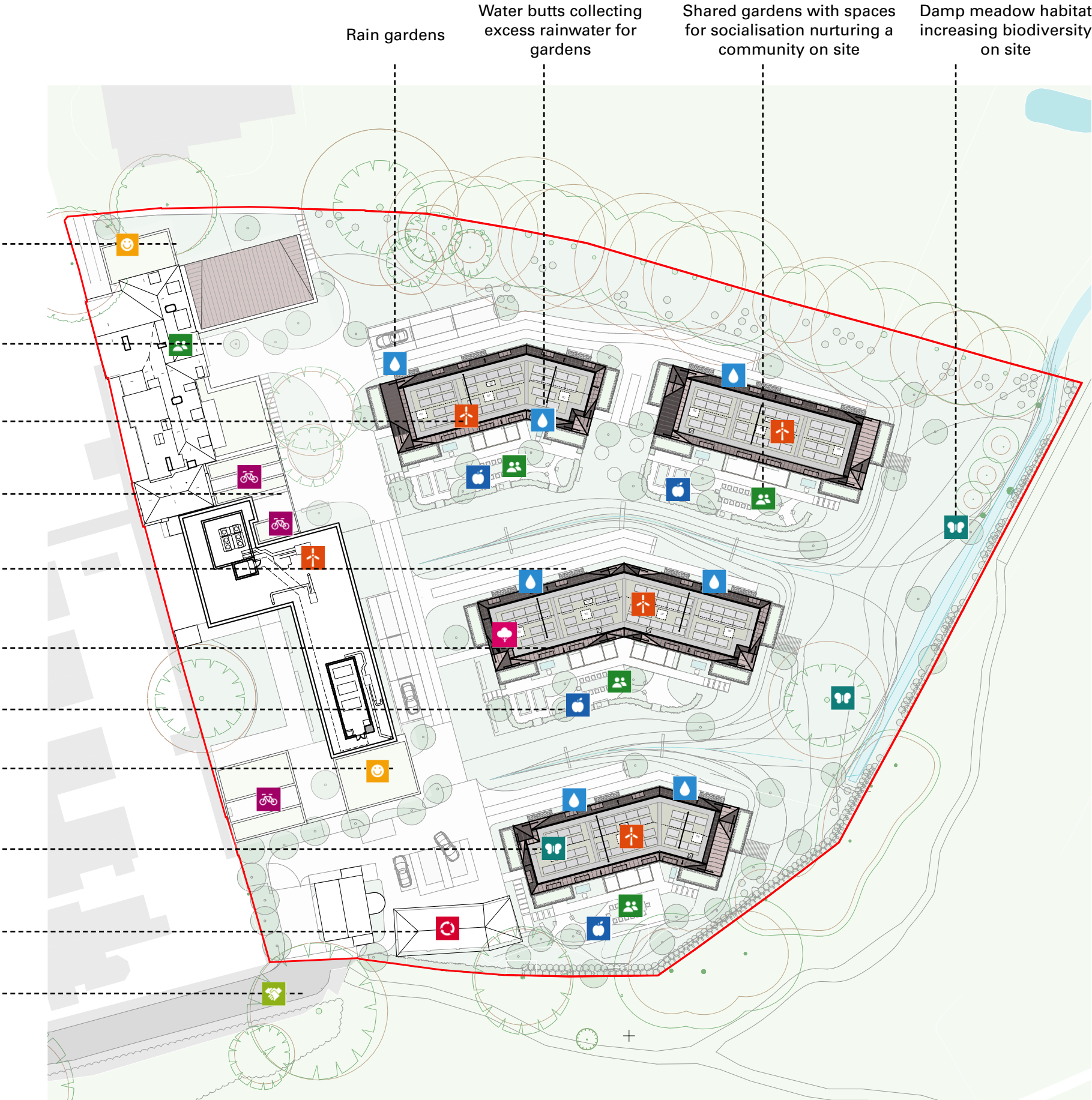


9.0 Sustainability

9.2 Sustainable Design Principles

The sustainable ambitions for the project have informed the scheme’s development. A holistic approach to sustainability will ensure the development of a thriving community in a vibrant setting.

- Gym promoting good health and well-being
- Study centre contributes to cultural life of the college with spaces for individual and group study
- PVs / on site energy generation
- Active travel: cycle stores
- Low embodied carbon materials & net-zero in construction and use
- New buildings orientated for passive solar design
- Fruit trees in communal gardens
- Cafe / meeting place
- Green roofs planted for biodiversity
- Recycling facilities
- Walking distance to local amenities



9.0 Sustainability

9.3 Passivhaus

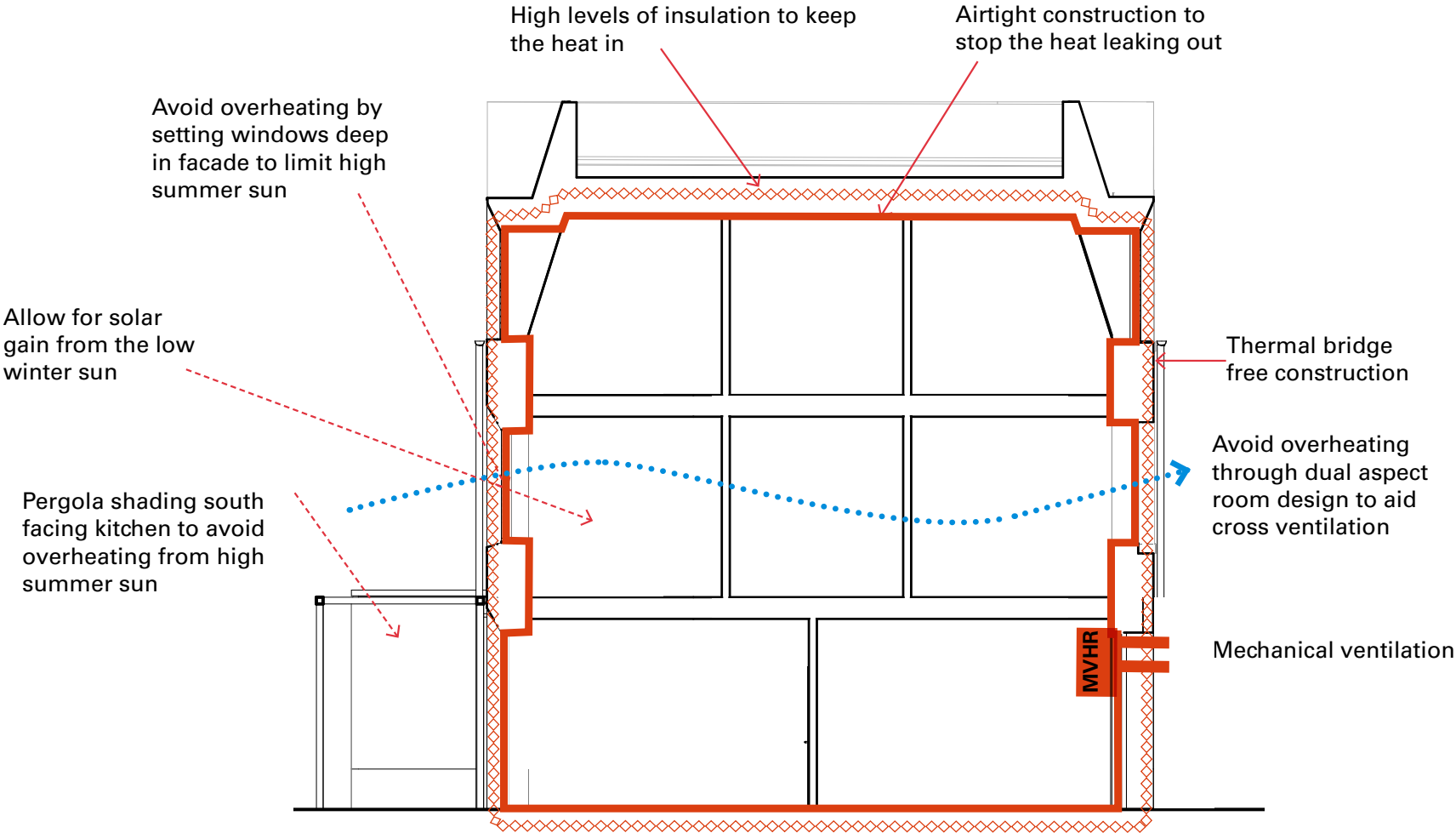
Passivhaus buildings provide a high level of occupant comfort while using very little energy for heating. They are designed to meet the comfort and energy criteria developed by the Passivhaus Institute in Germany. A certified Passivhaus scheme will have had a rigorous quality assurance process to ensure that the performance gap between design and operation is as small as possible.

The four residential terraces as well as the extensions to Blocks A and B have been modelled in PHPP (Passivhaus Planning Package) to assess against different Passivhaus Standards. The new postgraduate accommodation aim to achieve the Passivhaus Classic Standard, whereas the extensions to Blocks A and B aim to achieve the Passivhaus Low Energy Building Standard.

There are a number of metrics buildings need to target in order to achieve Passivhaus. Two of the most important are the space heating demand and the whole building energy demand ('PER' – Primary Energy Renewable).

The limits for the two different standards are in the table below.

Passivhaus Standard	Classic	Low Energy Building
Space Heating Demand	15 kWh/m ² .year	30 kWh/m ² .year
PER	60 kWh/m ² .year	75 kWh/m ² .year



Typical Terrace Section showing Passivhaus design principles

9.0 Sustainability

9.4 Zero Carbon Strategies

The mechanical and electrical services installation has been designed to ensure the development forges a pathway to zero carbon in terms of operational energy. This pathway incorporates the following steps:

1. Minimise the buildings energy consumption through low energy fabric design.
2. Eliminate all use of fossil fuels and electrify plant, to ensure that the benefits of grid de-carbonisation reduce residual energy loads further.
3. Careful design of services installation to minimise residual energy demand for heating, hot water, ventilation and electrical demand.
4. Specify on-site electrical generation to offset any remaining residual energy loads.

Elimination of fossil fuels

Both the terraces and the Block A & B extensions will be provided with heat and hot water via Air Source Heat Pumps (ASHPs). ASHPs will be mounted on the flat roofs of the terraces and on the flat roof of Block B. An ASHP uses electricity as an energy source to generate heat in an efficient manner. Kitchens will use electric ovens and hobs to entirely negate the need for natural gas within the development.

Terraces Design

Heating Installation

The heating installation is provided via underfloor heating throughout with the low flow temperatures required helping to maximise the efficiency of the heat pump. Direct electric panel heaters are proposed in the en-suites, so occupants can dry towels in the summer without the need to turn on the entire wet heating system - reducing distribution inefficiencies.

Hot Water Installation

Each house has a dedicated storage tank for domestic hot water, which is heated via the air source heat pump. To minimise losses in the pipework, each outlet is fed via a single radial microbore pipe. This relatively simple change reduces energy losses associated with hot water by approximately 35%, considerably helping to reduce the developments carbon footprint.

Ventilation

Each house has two mechanical ventilation heat recovery units which recover 80-90% of the heat from exhaust air, using it to preheat the incoming fresh air. One unit supplies all the study bedrooms in the house and a second ventilates the ground floor communal rooms and operates on an occupancy basis. In the kitchen, a recirculation fan will be installed over the hob. This has a carbon filter to remove grease and odours from the air before recirculating it back into the room, avoiding heat losses.

Drainage

A waste-water heat recovery system is proposed, which uses the waste heat from shower water going down a drain to pre heat the water feeding the shower. This is a passive heat recovery technology which requires no maintenance and can recover approximately 30% of the heat.

Lighting

Low energy LED lighting will be used throughout the scheme. Lighting controls will also be used extensively to both daylight dim certain lights where appropriate and/or control other lights on occupancy to ensure that lights are not left on when people are not present in the room.

Photovoltaics

The terrace roofs are provided with as much Photovoltaic Panels as possible without incurring overshadowing.

Block A and B Extensions

The refurbishment of Blocks A&B generally follow the same strategy as that described above for the terraces.

The heat and hot water generation has been electrified through the use of ASHPs – ensuring that fossil fuels are not relied on. In addition to this:

Space Heating

Underfloor heating is generally used, to maximise the efficiency of the heat pumps. The exception to this is the seminar rooms which are heated via

a fan coil unit. This has been selected to provide rapid control of the heating installation to these rooms, so that they can react swiftly to large changes in occupancy of the rooms.

Hot water

Hot water consumption is not expected to form a significant part of the buildings energy load with point of use electric water heaters proposed, to reduce energy losses incurred by water storage or the lengthy distribution pipework.

Ventilation

As per the terraces, MVHR units are provided to each of the rooms. As the occupancy patterns of the different spaces are likely to vary considerably over the course of a day, individual MVHR units are provided to each room so that each room can be controlled as required, without impacting on other rooms.

Lighting

As with the terraces, low energy LED is provided throughout, which will be controlled on both daylight and occupancy sensors as sensibly dictated by the spaces.

Photovoltaics

PV panels are proposed for the roof of Block B where there is free area amongst other plant. These will be installed at a later date when the College have capital to undertake this work.

9.0 Sustainability

9.5 De-Carbonisation of Blocks A & B

De-carbonisation strategy for Blocks A and B

An energy assessment and de-carbonisation strategy has been developed for the existing retained buildings on the Owlstone Croft site. This includes the whole of Block B and the upper floors of Block A (Owlstone House).

The existing consumption of energy has been established by analysis and review of historical electricity and natural gas utility bills. This analysis has been used to establish the baseline 2019 quantity, cost, and carbon emissions (Scope 1 and Scope2), associated with gas combustion and electricity consumption.

The age and condition of existing mechanical and electrical systems has been surveyed and a three-part de-carbonisation strategy has been developed.

Energy demand reduction

The first part of the de-carbonisation strategy makes practical and achievable recommendations for reduction in the overall energy demand of Blocks A and B. For Block A this includes installation of roof insulation, replacement of existing sash windows with double or triple glazed sealed sash windows and new thermal insulation on the inside of the external walls. For Block B this includes new double or triple glazing plus the thermal over-cladding of the external walls.

Electrification

The second part of the de-carbonisation strategy recommends the replacement of the existing natural gas boilers with electrically powered air source heat pumps (ASHP). Separate heat pumps are recommended for heating and hot water production as the operating temperatures differ for these two functions. The proposed heat pumps are located on the existing flat roof of Block B adjacent to the existing lift overrun room and housed within a discrete acoustic enclosure in order to control the break-out of noise during operation of the heat pumps.

Renewable electricity generation

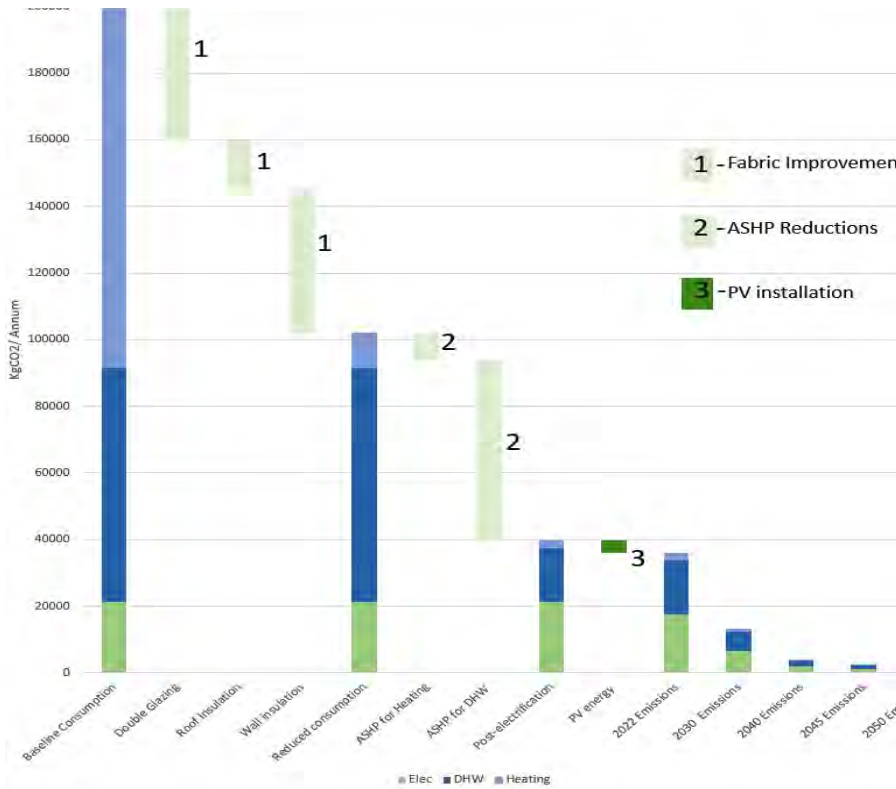
The third part of the de-carbonisation strategy aims to reduce any residual scope2 carbon emissions after energy demand reduction and electrification, by the addition of zero carbon renewable energy generation in the form of photovoltaic (PV) panels located on the flat roof of Block B. The visual impact of such a proposal will be very low particularly as the PV's will be located behind the proposed raised parapet around Block B.

The de-carbonisation strategy will enable all existing natural gas connections to the Owlstone Croft site to be removed.

Our analysis of the effectiveness of a range of fabric improvements has established that Blocks A and B have the potential to be transformed into very low energy buildings approaching the EnerPHit certification standards.

It is recognised that the capital cost and extent of work required in order to achieve full EnerPHit certification is likely to be prohibitive for most existing buildings. The practical approach adopted for the de-carbonisation strategy for Blocks A and B is to reduce the overall energy demand of the buildings to a level at or below a target level that is consistent with the aim of a Science Based Target to limit global temperature rise to a maximum of 2 deg C.

To this end an overall energy target of a maximum of 100kWh/m2/annum is proposed for the refurbishment which is consistent with the 'carbon risk real estate monitor' (CRREM) 2024 standard. As the fabric improvement proposals are developed it is anticipated that this maximum total energy target may be bettered.



10.0 Accessibility

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10.1 Access Statement

Summary of Access Provisions

The proposals aim to provide buildings that are accessible to all, and steps have been taken during the design process to ensure that the aims of the Equality Act 2010 can be met. Proposals have been prepared with reference to Building Regulations, Part M, 2015, for both the study centre and new post-graduate housing proposals.

Site Access

There is step free access to the site for pedestrians, cyclists and vehicle users from Owlstone Road via a controlled entry point adjacent to the Porter's Lodge. Here, Porter's are able to provide guidance on directions and access points to various buildings / facilities. Wayfinding strategies have also been considered to anticipate desire lines through the site and provide orientation through clear arrangement of buildings and landscape features. Signage will be accessible to a wide a range of users as possible, using different mediums to communicate information whilst complementing the surrounding environment and providing consistency to aid people in finding their way.

Whilst vehicles are able to navigate the site for maintenance, accessible car parking and emergencies, it is intended that these uses will be relatively infrequent with pedestrians able to use the primary routes through the site.

Building Access

Access to proposed buildings is step free and has been considered to create welcoming and generous spaces. Main entrances have been developed to be direct and visually clear.

External lighting will be provided to ensure routes and entrance-ways are well and evenly lit, and specific facilities such as cycle and refuse stores are picked out.

Post Graduate Dwellings

Within each dwelling level access is maintained across the ground floor and includes access to rear communal gardens. There are a mixture of 4 bedroom and 5 bedroom dwellings with communal spaces located on ground floors and bedrooms split across ground (5 bed dwellings), first and second floors. Each dwelling includes a platform lift adjacent to the stairwell to ensure full accessibility to all parts of the dwelling for all.

Each upper-floor bedroom has been developed to principles set out in BR Part M4(2), whilst the ground floor bedrooms provide additional space to meet BR Part M4(3) standards and enable flexibility in fit-out by the college for any students with specific needs.

Amenity

Each post-graduate dwelling directly opens out to a communal amenity space

shared between each terrace cluster of houses. Landscaping defines these spaces and creates smaller character areas within the overall landscape strategy enabling use by different users.

Parking

8 accessible parking spaces are provided across the site for student use equating to 13% of the proposed student rooms. These spaces are distributed across the site to limit travel distances to dwellings and integrated them within the landscape strategy.

Student Communal Facilities

Student Study Centre and other communal facilities are located around the existing buildings on the ground floor and have level access. Design development has prioritised clear layouts which enable easy use of facilities by all.

Bicycles

Cycle storage for residents and users of the study centre is provided in line with Planning Policy to encourage sustainable transportation. Cycle storage is consolidated in two communal stores easily accessible from primary routes within the site. These stores are located within the secure site and are covered.

There is provision for 5% accessible cycle storage, a further 20% are sheffield stands, whilst the remaining 75% of

storage capacity is through double stacking stands. These will be gas-assisted stands for ease of use.

Public Transport Connections

Newnham Village is connected to two bus routes with stops on Barton Road. These routes both connect to the centre of Cambridge.

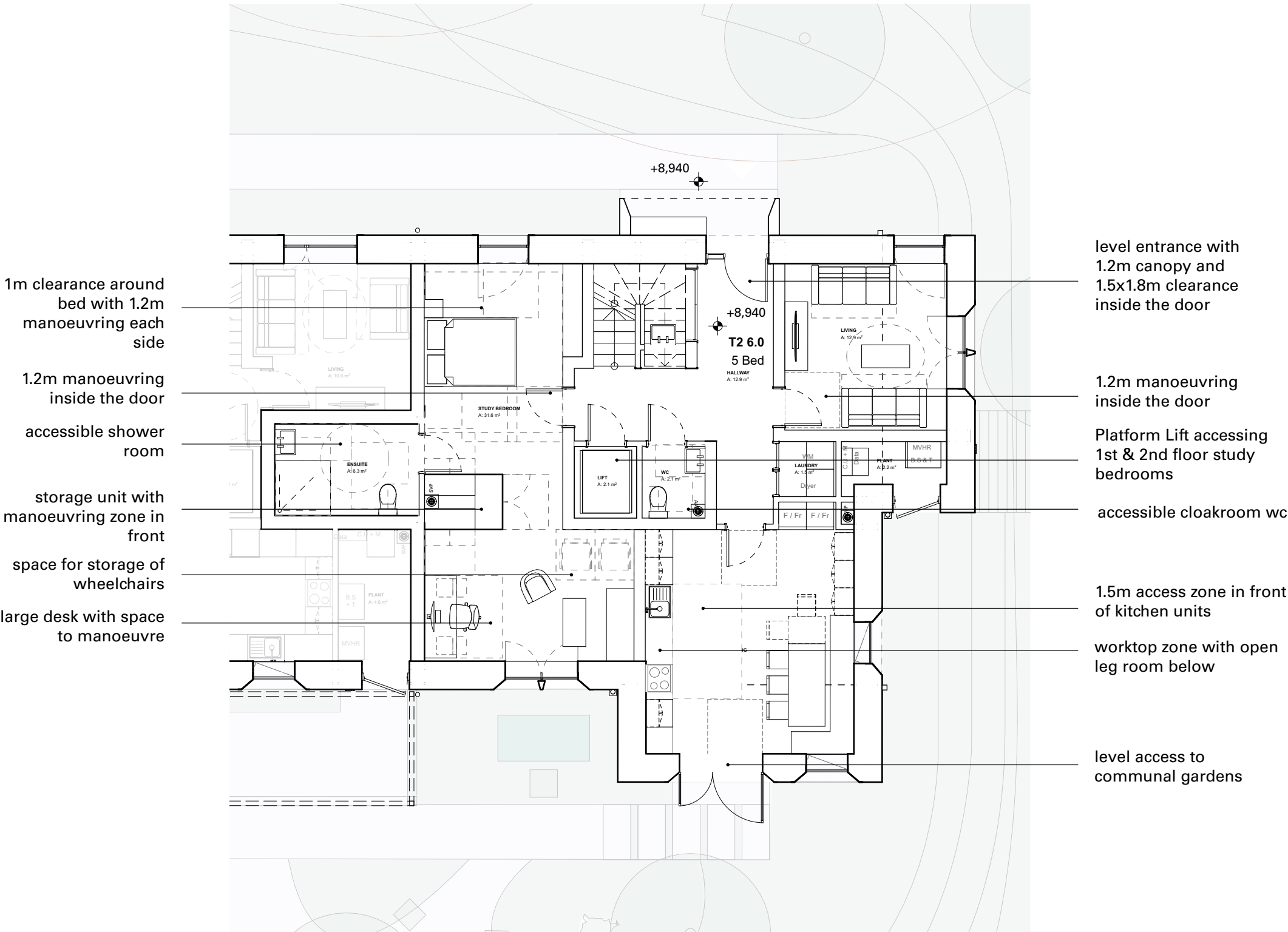
10.0 Accessibility

10.2 Typical 5 Bedroom House with GF Study Bedroom

Accessible Study Bedroom

Each terrace of accommodation is made up of both 4 and 5 bed houses with the 5 bed houses incorporating a ground floor bedroom amongst other communal uses. Care has been taken to ensure this bedroom has a satisfactory level of privacy with landscaping preventing overlooking of ground window windows.

The ground floor study bedroom has a larger floor area to enable furniture to be arranged with generous manoeuvring space as well as space for indoor activities and group study / socialising.



Ground Floor Plan - 5 bedroom house