

# Ageing in Community

An investigation in architectural interventions that accommodate ageing in place

Jessica Doherty

B.Arch 2023  
Technological University of Dublin

Existing Housing Retrofit,  
New Build Community Centre and  
Communal Gardens Project

SDG 3 - Good Health and Wellbeing

SDG 8 - Economic Growth

SDG 11 - Sustainable Cities and Communities

# Contents

## **Introduction**

- Ireland's ageing population and Identifying a Need 5

## **Research**

- Traditional and current housing and support options 6
- The benefits and desire to age in place 12
- Health benefits of social interaction and a connection to nature 15

## **Concept and Design Development**

- Initial concepts and brief 16
- Choosing a site 19
- Site analysis 20
- Final Concept 25

## **Proposal**

- Communal Facility 28
- Retrofitted Housing 39
- Communal Gardens 44

## **Conclusion**

47

## **Bibliography**

48

## **Appendix**

51

## Acknowledgements

I want to thank the School of Architecture, Building and Environment staff for my education over the years, especially Sima Rouholamin and Martin Spillane, for their help, guidance and inspiration this past academic year.

Thank you to my family and friends for their unwavering support, encouragement and constant belief in me over the challenging years while in college. I can not thank you enough.



“IN IRELAND, 27% OF PEOPLE OVER THE AGE OF 65 LIVE ALONE”

*Issue of interest related to sustainability and radical action  
(Semester 1)*

## Introduction

Over the last couple of decades, there has been a demographic shift in the population's age across Ireland, which is said to continue into the future. 'The older population (i.e. those aged 65 years and over) is projected to increase very significantly from its 2016 level of 629,800 persons to nearly 1.6 million by 2051' (Central Statistic Office, 2018).

**That is an increase of approximately 150%.**

Of those people aged 65 and over, in Ireland, 26.7 per cent live alone, which is 156,799 people (Central Statistic Office, 2018). Many of these people live in houses much larger than they require. 'Of those aged 60 and over and living alone, the majority (58.7%, n=114,848) were living in a house with five rooms or more.' Five rooms being a three-bed house. (Alone, 2018) Meaning many homes across Ireland are not being fully utilised as the residents want to stay and age in place within their community.

This radical increase in the population's age raises urgent questions and concerns about the social sustainability of the existing housing and support options for older people.

This thesis aims to respond to these concerns by investigating different options for creating sustainable and resilient communities and neighbourhoods with older people at the centre. While exploring the transformative action required to help accommodate ageing in place.

# Traditional and Current Housing and Support Options

There are varying levels of need among older people. They range from people capable of living entirely independently to people who need full-time care.

As a person ages, so do their needs. When a home becomes too big for the current needs of its resident, they may decide to move into a smaller home that better suits their requirements.

Greenwich housing, by Bell Phillips Architects, is a type of housing, bungalows, explicitly designed for older people to rightsize. There are 22 homes across five different sites in Greenwich (Porteus & Park, 2018), each with huge dormer clerestory windows that pop above each house's roofline, allowing the bungalows to sit comfortably within different urban situations (Bell Phillips Architects, 2022). Without losing privacy, this allows for a glimpse of connection between the home and the street while also allowing in a lot of natural light

and adding to the scale of the space.

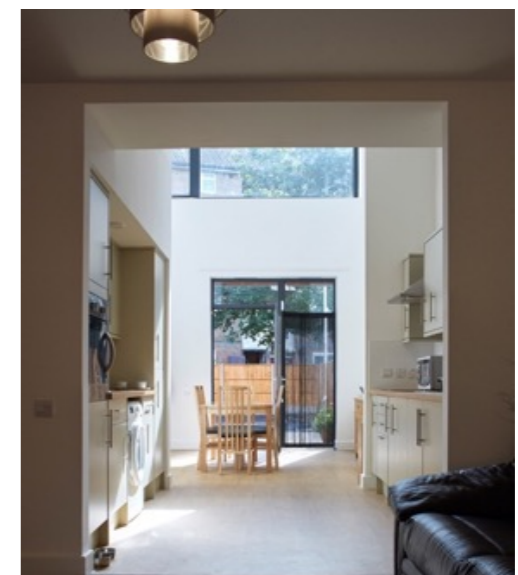
In addition, the open plan living kitchen and dining arrangement allows for flexibility in how the residents use the space, as does the second bedroom, which can be used as a study or hobbies room, a spare bedroom for visitors or grandchildren, or can be adapted for a live-in carer if needed. (Porteus & Park, 2018)



Section edited to show natural light in building



Greenwich Housing



Open plan kitchen, living and dining

Another option for rightsizing would be moving into an independent living facility. These are places usually for singles and couples that can look after themselves but want to live with others their age in a community setting. They live in their own small homes or apartments within a scheme that would often have communal spaces for activities and promote social interaction between the residents providing a sense of togetherness which can help combat loneliness.

New Ground CoHousing in High Barnet, London, is an excellent example of building a community among older people. It was designed by Pollard Thomas Edwards (PTE) for OWCH, Older Women CoHousing and Hanover Housing Association, housing women aged 51-87. It comprises 25 apartments, with a mix of 1-bed, 2-bed and 3-bed units with shared communal spaces such as a common room and communal garden. It has one single entrance and stair and lifts core with a shared common room beside it, creating a heart to the community, which helps to encourage social interaction (Porteus & Park, 2018).



Speculative garden use



Garden space actually in use

A key point in the project was the arrangement of the apartments, 'L' shape in plan (fig. 11); it was essential that the houses felt united by a common outlook over the shared garden, seen through the courtyard arrangement. What works well about this scheme is the immense sense of community created through the design of the overall building and the communal spaces while keeping the importance of individuality and identity of each resident's homes based on their needs.



New Ground CoHousing

Chobham Manor Plan



Chobham Manor section through model



Another option is a multigenerational home. According to (Cooks-Campbell, 2022), "A multigenerational home is a household made up of three or more generations living together under one roof. Typically, that is 2-3 related adult generations, as well as children.'

Multigenerational housing has many benefits, as having intergenerational families living together provides its own inherent support system. The older generation can provide childcare and support the children, while the adults can provide care for their parents and grandparents as they become more dependent as they age. These families tend to split housework and bills evenly while often having separate living rooms and spaces, with home design playing a prominent role in successful multigenerational living.

There are many benefits to multigenerational living; they tend to have enhanced relationships among family members, convenient and trustworthy child care, and a positive impact on people's mental and physical health, to name a few (Generations United, 2021). However, there are also some negatives, such as less privacy, family conflicts and caregiver burnout (Cooks-Campbell, 2022). It also might

not be a viable option for many people or families.

An example of a mixed development with multigenerational housing is a scheme by PRP Architects called Chobham Manor in the UK. It provides over 800 homes modelled on London's traditional family neighbourhoods and includes a new housing typology for the UK, the multigenerational home. The scheme comprises of three or four storey dwellings, with 3 or 4 bedrooms adjacent to an additional two-storey, self-contained, 1-bed dwelling, a granny annexe.

The two-story dwelling can be adapted and used by multiple types of occupants, from grandparents to young couples, a student or family member with a disability that wants to live independently but also remains nearby. (Firth & Patel, 2014) Each dwelling has its own entrance from the street to create separation and a sense of own space, while a small courtyard in between links the two dwellings and creates a connection. These flexible, larger homes allow for the evolving nature of family life while creating close family proximity and a level of independence. (PRP, 2022)



Many studies show immense benefits when older people interact with the younger generation. For example, research shows that there tends to be an increase in physical activity and the general mood of older people when they spend time with children. Other benefits include decreasing loneliness, which can help them feel valued. There are many benefits for children too, as it can boost their confidence and learn new skills (Hospice of the Piedmont, 2021). This interaction can be done through the home environment, where grandparents or elderly relatives or family friends live or spend much time in a home with a younger generation.

Some nursing homes offer accommodation to students in exchange for companionship. They live with low rent or rent-free in exchange for spending their free time helping the elderly residents.

Another scheme that encourages interaction between older and younger generations is for people with a spare room can rent it at a low rent or even rent-free in exchange for some light support and companionship. These schemes often have a unique system for pairing people up so both parties have matching requirements



Humanitas retirement village



Elder Home Share Ireland

and preferences. People are usually reference-checked, and a trial occurs for a month before fully committing. (Fig. 20)

Grandfamilies are a household where a grandparent or grandparents are the primary caregivers for their grandchildren, usually raising the children on their own or with other family members. These families may happen when a parent can no longer look after the children. More than 2.6 million children are being raised in grandfamilies in the United States. (Generations United, 2020)

Currently, there are issues around grandfamily housing. As they are not a typical family, finding housing that accommodates their specific needs can be challenging. However, several housing schemes and apartment complexes have been designed and built specifically for grandfamilies, with both generations in mind. Grandfamily Apartments in Chicago, designed by Landon Bone Baker Architects, is an example.

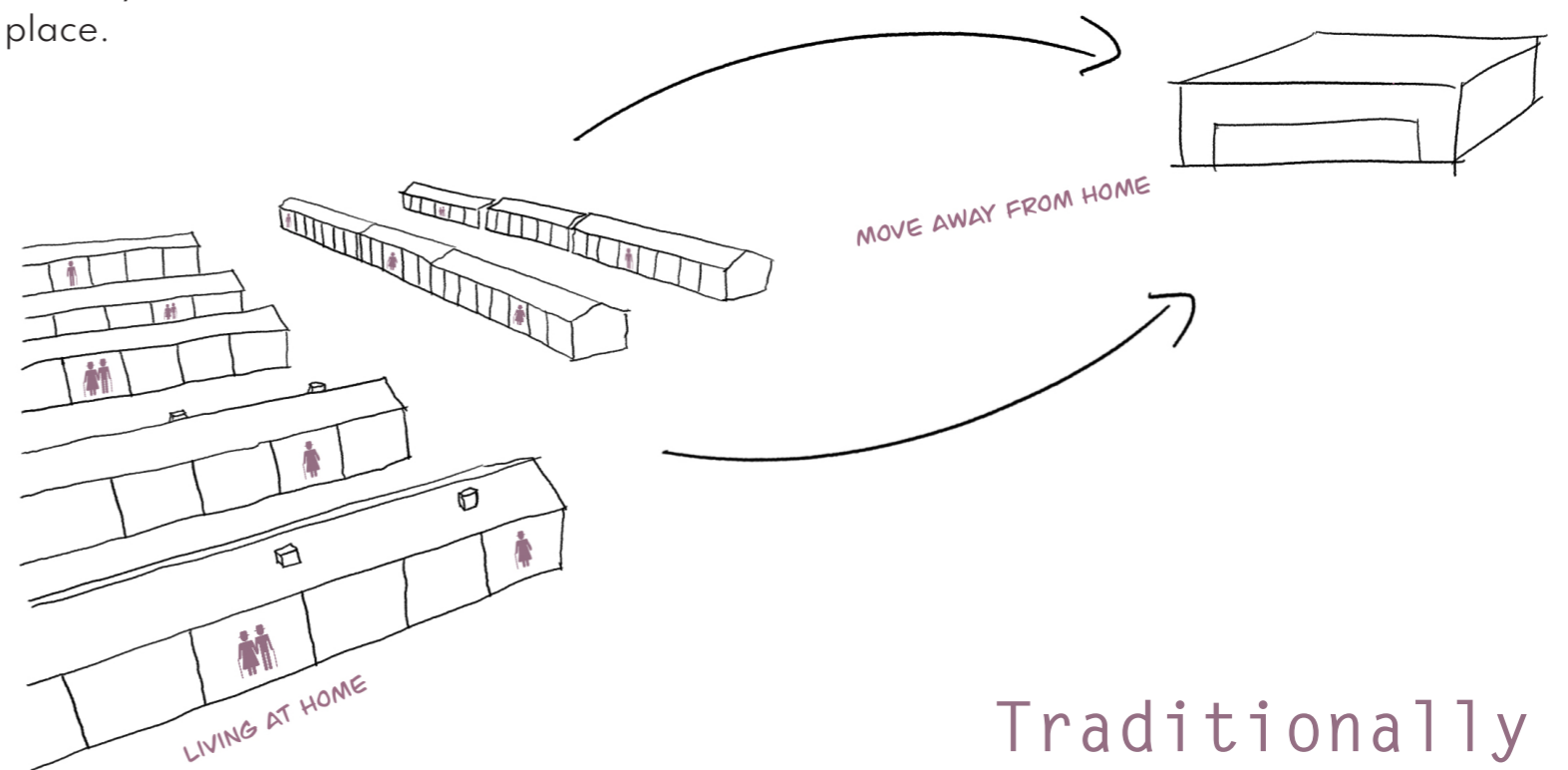
It is housing that is both handicaps accessible for the older generation and toddler-proof for the youth. These schemes offer additional support by

As we age, we inherently need more support, and this is traditionally done by moving away from one's home and community into a facility that caters to supporting older people.

One of these options would be assisted living. Similar to independent living communities, they can be large apartment complexes with on-site medical facilities and recreational centres, or they could also be single old-age residential care homes with a few residents. This option would be for someone who wants the extra reassurance of having professionals around if they encounter any problems.

Lastly, specialised care would be for people with long-term illnesses and untreatable and terminal conditions. Palliative care is usually where people stay for the last stages of their life and are provided with comfort and support in their final time. A dedicated centre for this purpose is often a hospice.

Once someone leaves their home to go to a facility, they usually never return; that is why it is essential to keep people living independently for as long as possible. Despite the many options, most people would rather stay in their own homes and age in place.



‘A vital component of successful ageing is functional independence and good quality of life. Good housing conditions are important to maintain good mental and physical health. This is particularly relevant for older adults who tend to spend more time at home than younger adults.’

(Orr, Scarlett, Donoghue, & McGarrigle, 2016)

# Ageing in Place

Ageing in place generally refers to older adults remaining in their own homes and communities as they age instead of relocating or moving into an institutional setting. The American CDC defines ageing in place as ‘The ability to live in one’s own home and community safely, independently, and comfortably, regardless of age, income, or ability level.’ (CDC - Centres for Disease Control and Prevention, 2009).

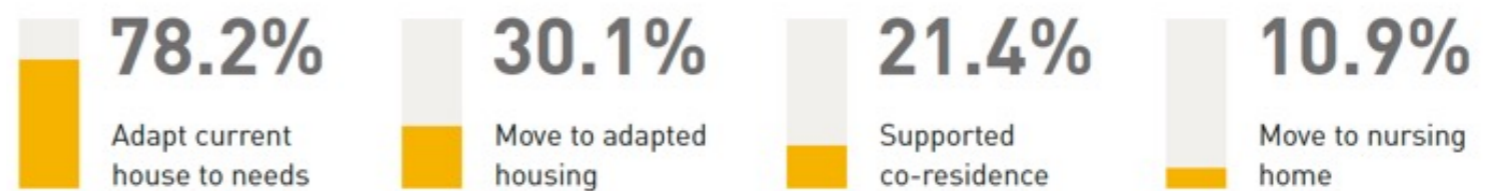
Ageing in place is proven to have many benefits for a person. For example, when older people stay in their homes, they tend to have much more independence and freedom than living in a nursing home or assisted care facility. In addition, they can continue living the lifestyle they want in a familiar place while being closer to friends and family (Companions For Seniors, 2019).

A study carried out across Ireland by (Healthy & Positive Ageing Initiative) found that 78.2% of the people surveyed aged 55 and older would adapt their current house to meet their needs instead of moving elsewhere.



HomeAdvisor’s Ageing in Place Report

## PERCENTAGE WHO FELT POSITIVE ABOUT EACH HOUSING OPTION



Attitudes towards future housing options

However, sometimes this is not possible for older residents to stay and age in place. Housing upkeep problems, such as difficulty carrying out maintenance in conjunction with deteriorating building conditions or a lack of facilities, can all contribute to the decision to downsize or move to a new home.

These upkeep problems could be lessened by retrofitting the existing housing to bring them up to a more manageable and sustainable standard.

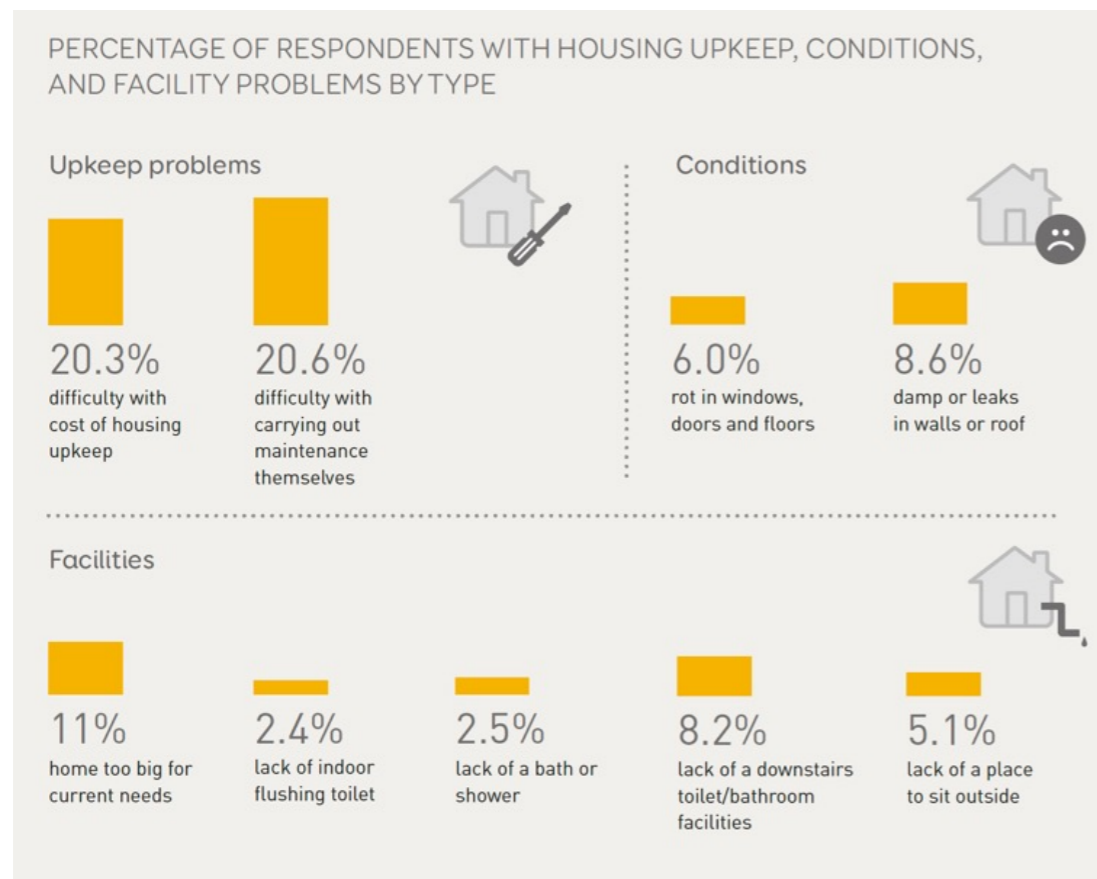


Fig. 1 – 5 Photos of the Granby Winter Garden

Most of Ireland’s current housing stock dates back to when fossil fuels, greenhouse gasses, carbon emissions and climate change were not a concern for most people. Therefore, most buildings were not designed to retain heat efficiently or to last and adapt as necessary. Although reducing carbon emissions is a big part of retrofitting existing housing stock, there are other aims as well, future-proofing houses and providing comfort for residents while lowering their heating and electricity costs and providing healthy airflow. These interventions help people stay in their homes comfortably for longer, which accommodates ageing in place.

As buildings account for a staggering 49% of energy consumption in Ireland, retrofitting reduces energy bills and contributes to reducing national energy consumption. In addition, an energy-efficient home provides short- and long-term benefits as it can increase the property’s resale value and reduce bills. (House2Home, 2020)

Across the world, there is an upturn in a circular economy approach that encourages ‘retrofit first’ and the reuse of existing buildings over building new ones. Retrofitting existing buildings reduces carbon emissions compared to new builds. ‘Reusing empty homes

could make an initial saving of 35 tonnes of carbon dioxide per property by removing the need for the energy locked into new build materials and construction.’ (The Empty Homes Agency, 2008)

In Ireland, this approach is also being encouraged with various grants and green loans available to those carrying out retrofitting projects. Under the Irish government’s Climate Action Plan, greenhouse gas emissions must be reduced by 51% by 2030, and net-zero emissions must be achieved by 2050. The National Residential Retrofit Plan aims to retrofit 500,000 homes to a Building Energy Rating of B2 or higher by 2030. (Department of the Environment, Climate and Communications, 2022)

To help achieve this, people deep retrofitting will be able to avail of grants to cover 46-51% of the overall cost (Dwyer, 2022). SEAI grants can cover up to €25,000 of the costs for a deep retrofit to bring the home up to a B2 rating however there are different types of grants available, each worth different amounts based on the different types of homes and the different types of retrofitting. (Sustainable Energy Authority of Ireland, 2017)

‘It is generally accepted that ageing in place, in their own home, is optimal for older people in terms of independence, health and well-being, and for the state through reduced demand for institutionalised aged care.’

(Maltz, Hunter, Cohen, & Wright, 2014)

# Social Interaction and a Connection to Nature

A significant issue in old age is social isolation and its adverse effects on health, both mental and physical. A strong association between living alone and loneliness can be linked to a significantly poorer quality of life (The Irish Longitudinal Study on Ageing, 2019). For example, lonely people are 32% more likely to die earlier than their well-connected peers. In addition, social isolation can lead to a 50% increase in the risk of dementia, a 29% increase in the risk of heart disease and a 32% increase in the risk of stroke (National Academies of Sciences, Engineering, and Medicine, 2020). These increased health risks make isolation the greatest enemy of old age.

Ireland and the UK have much higher isolation rates in older age than southern Europe, where cultures tend to have a much stronger sense of family obligations, which stretch out into the wider community. Unfortunately, older people in Ireland tend to have built-in

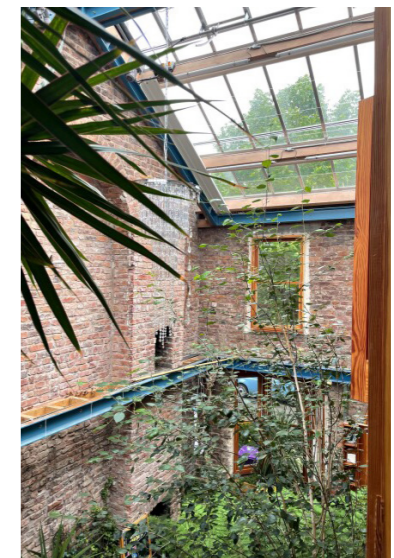
barriers as they do not want to become a burden to their family and friends (Castle & Greengross, 2014).

Designing housing and neighbourhoods that actively encourage social interactions while accommodating older people's physical and mental health needs and creating areas that encourage social sustainability and engage the community is crucial.

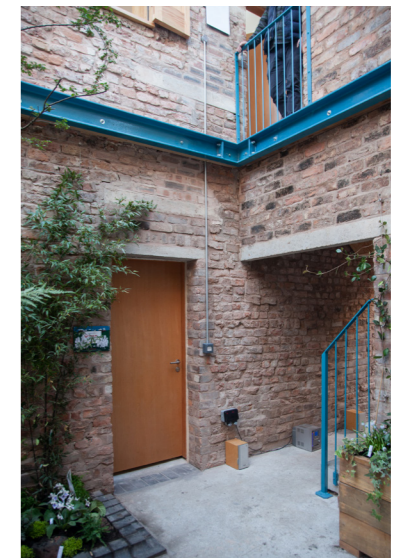
Granby Winter Garden, designed by assemble studio in the UK, have converted derelict terrace houses into a shared garden used by local residents and the wider neighbourhood. The Granby Winter Garden is part of an ongoing project to restore houses on Cairne Street, bringing them into community ownership and creating a focal point for neighbourhood activity. (Assemble, 2019)



2



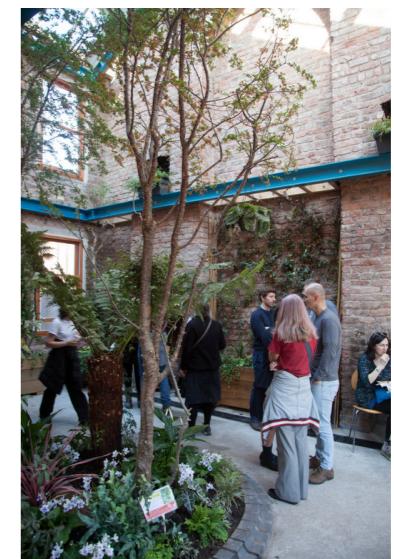
1



3



4



5

1 - 5 Photos of the Granby Winter Garden

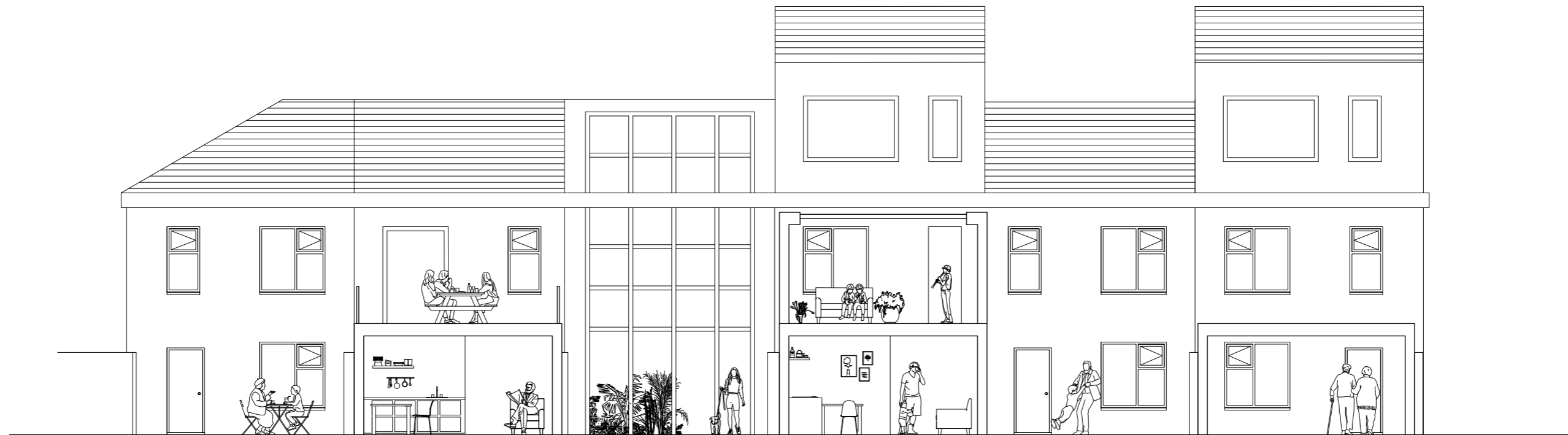
# Initial Concept and Brief

The initial thesis proposal came about in the first semester while we were based on a site in Cabra for a group retrofitting project. It started with the idea of designing a scheme around small-scale individualised interventions to keep older people in their own homes scattered within their existing local community with the primary goal

of 'increasing variety while retaining community'. In addition, I was looking at a secondary goal of creating a communal garden space at the back of the building to encourage social interaction and a connection to nature by taking over part of the extensive existing back gardens.

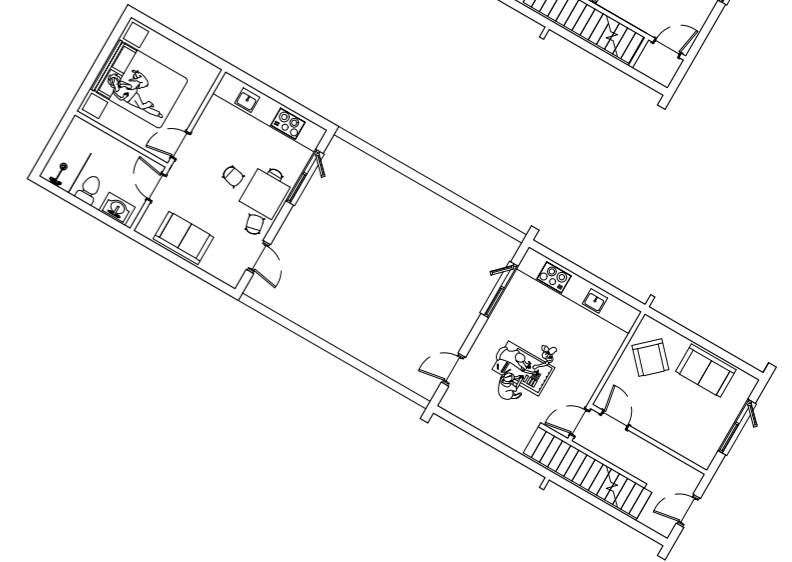
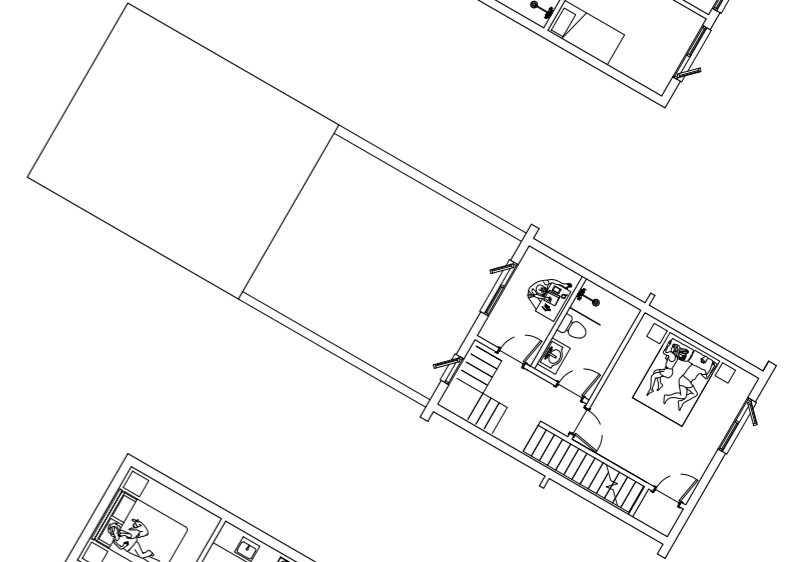
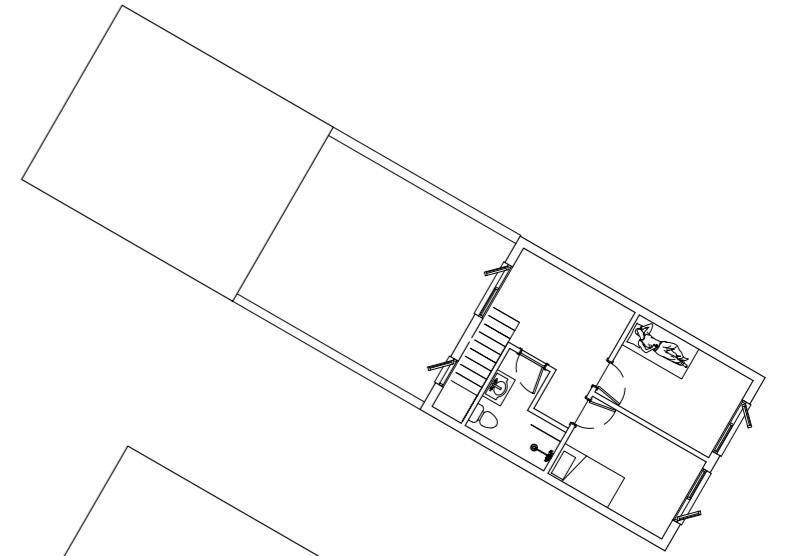
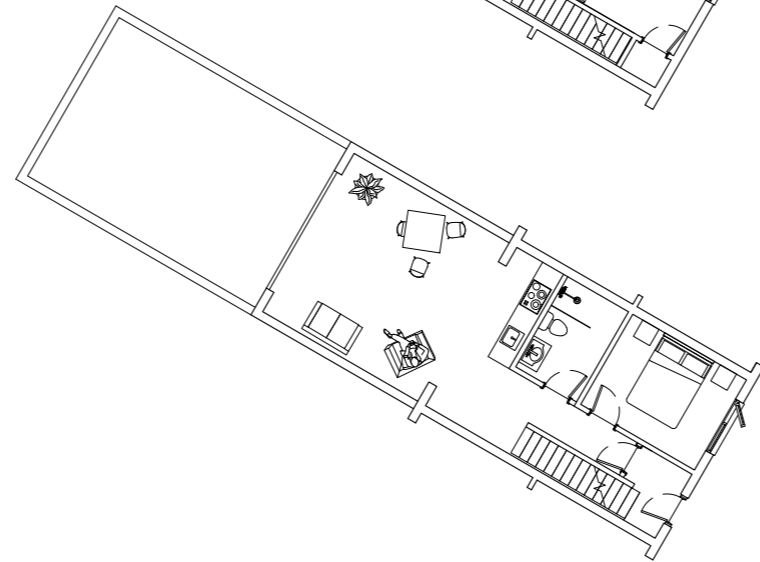
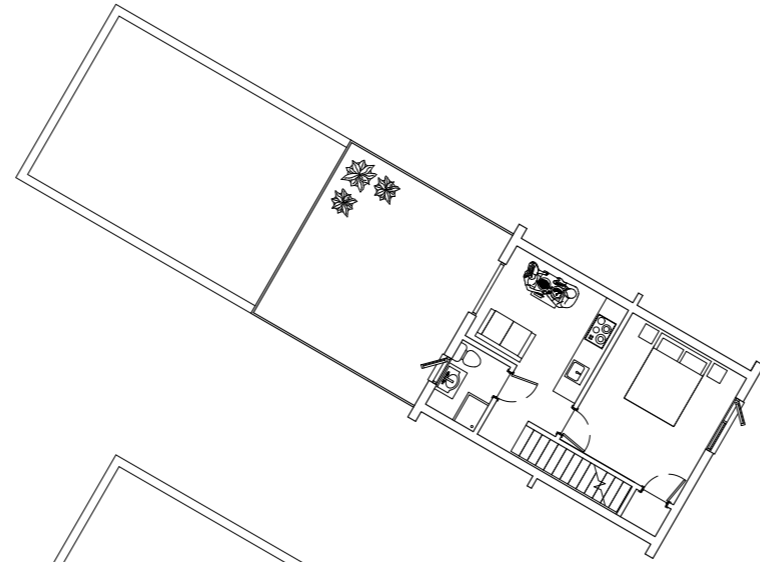
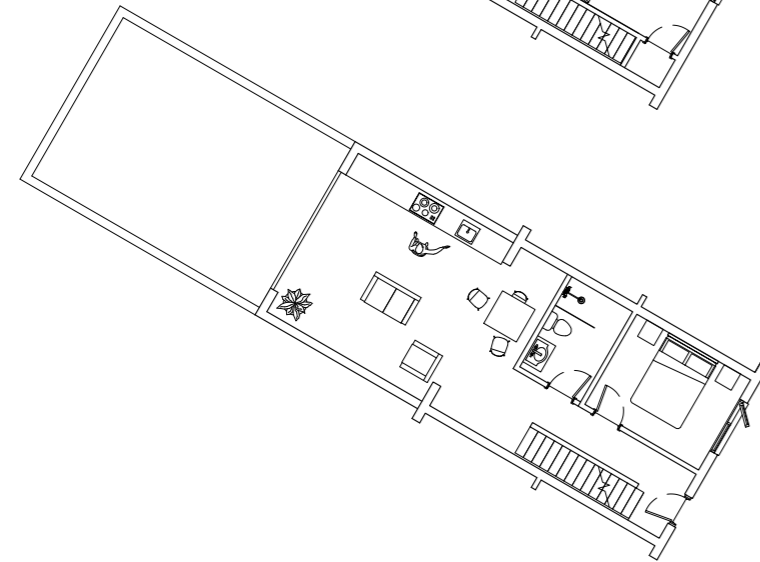
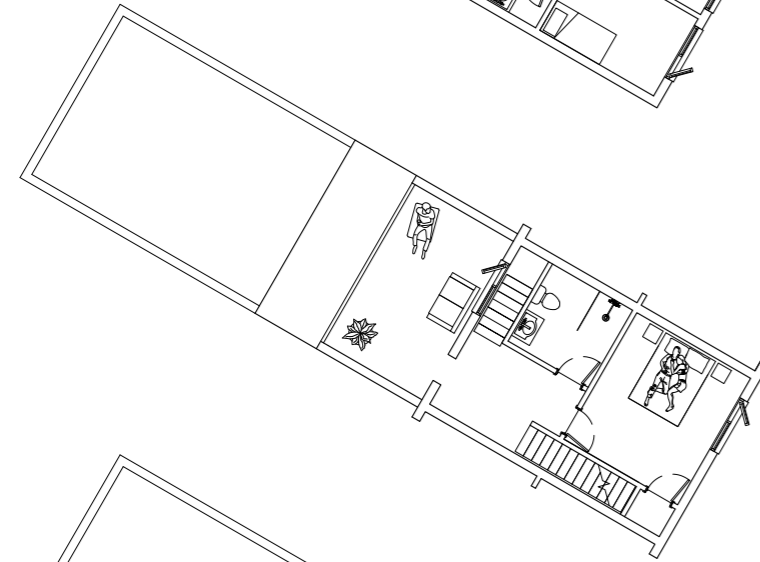
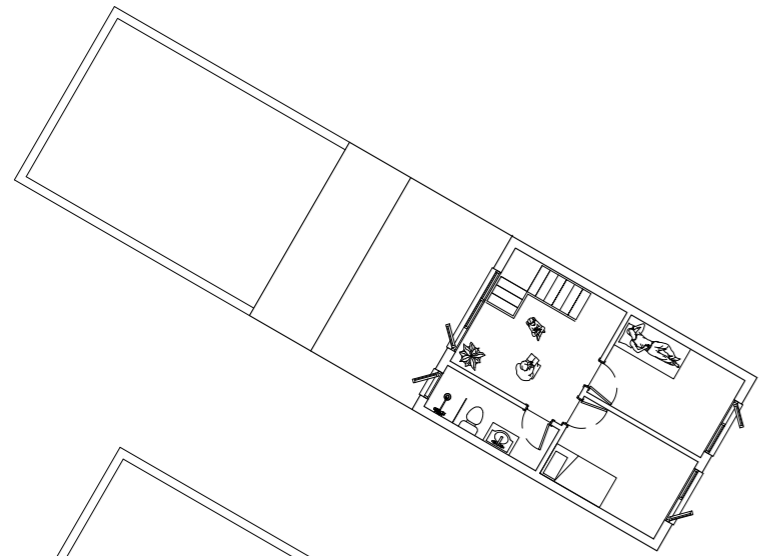


Cabra Site



*Increasing Variety While Retaining Community*



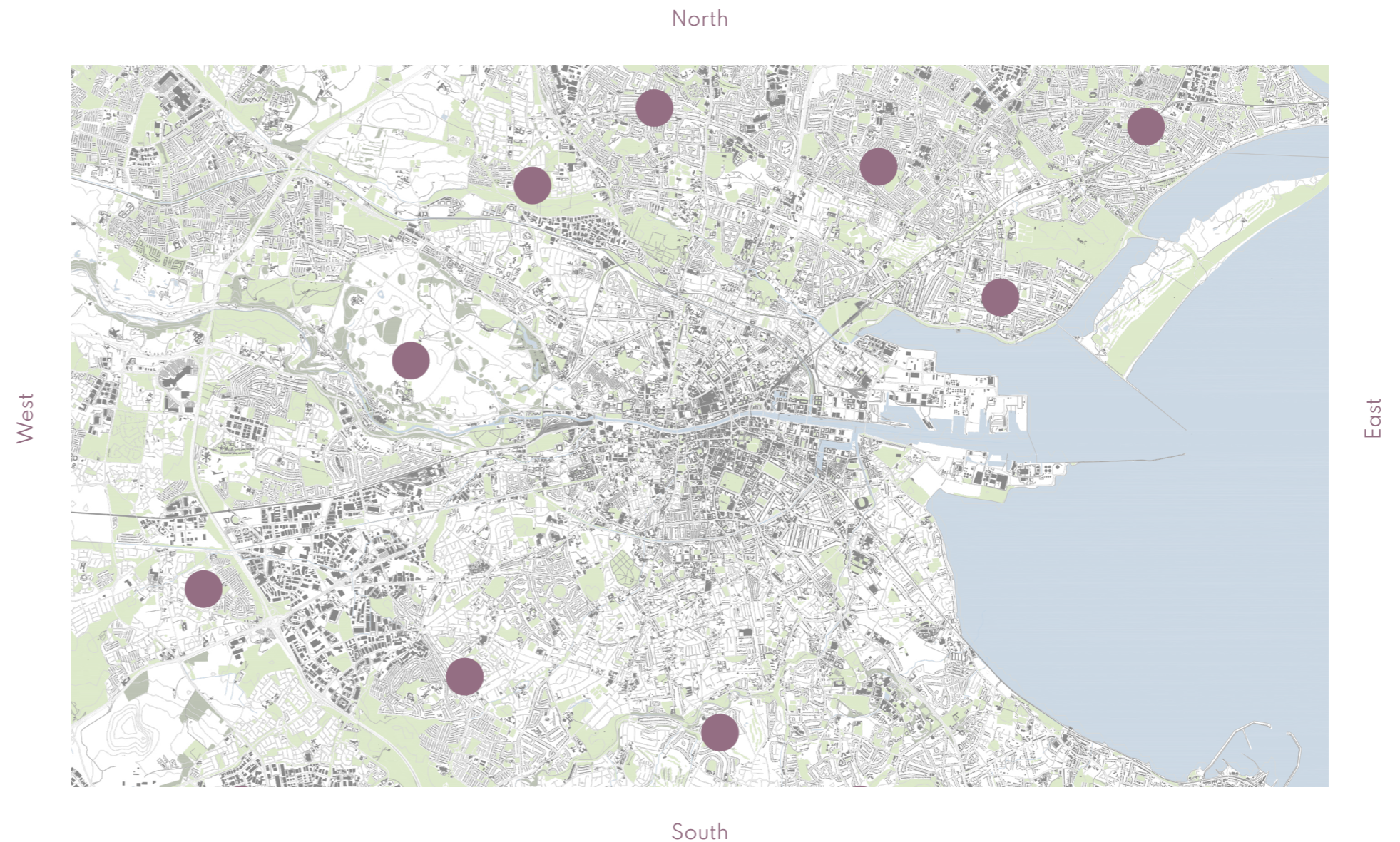


*Individual Interventions*

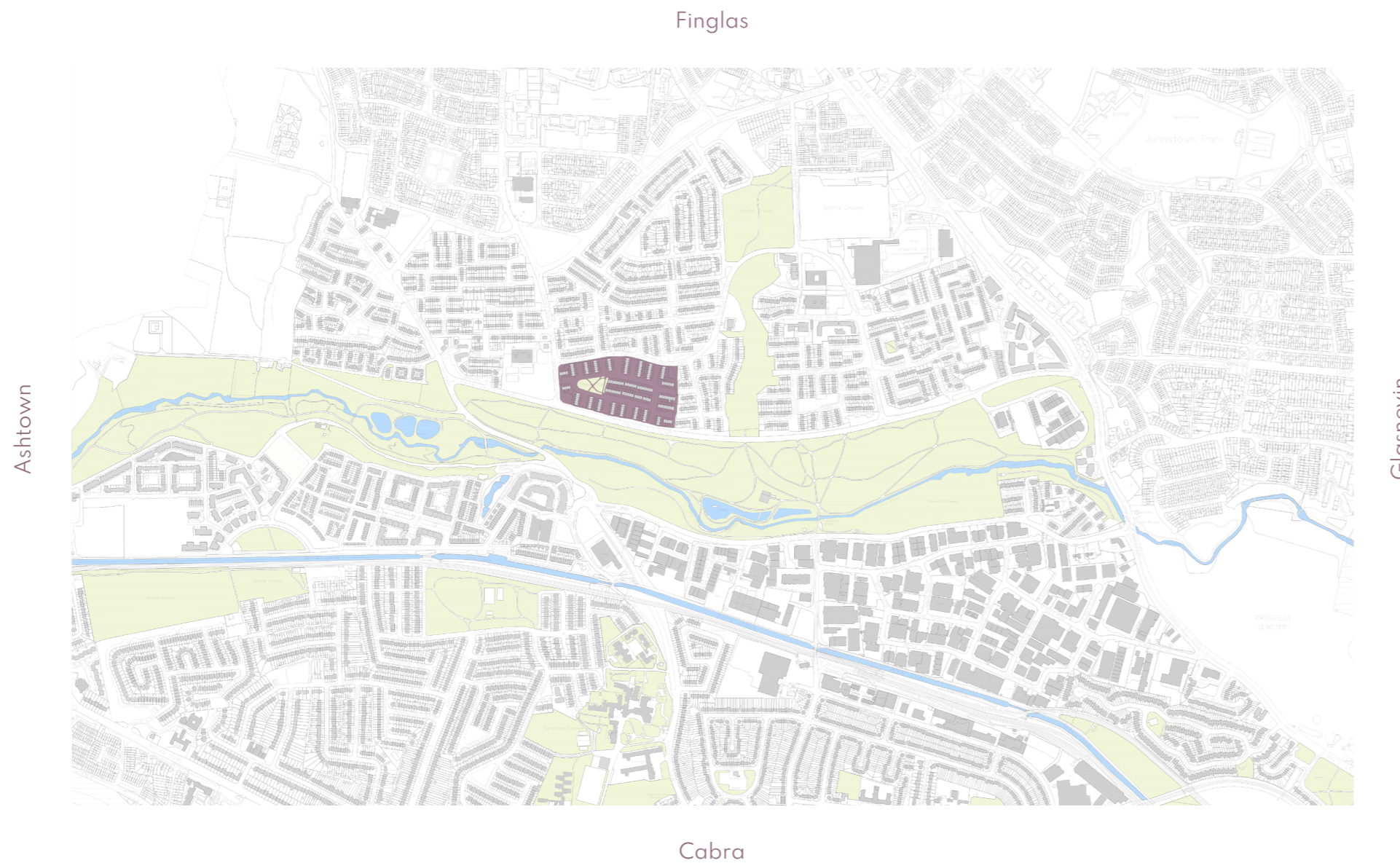
However, given the urgency around the issue of an ageing population, I felt a more radical approach was necessary. So, in the second semester, I moved away from individualised interventions and more towards the block as a whole with an emphasis on ‘creating sustainable communities with older people at the centre’.

The aim of this thesis idea was that it could be applied to multiple different sites across Dublin and Ireland where needed. Creating a central hub within existing communities that older people can go to to get support or move to when they feel it is time to downsize. It could be run through a series of different management methods depending on the area’s specific needs, such as MUDS, developer/management companies, co-op boards, and cohousing schemes.

The project’s main aim is to create somewhere where older people in the area can live, thrive, and happily age in place with a sense of community, with a secondary aim to connect with the locals, encouraging social interaction with the elderly residents while giving back to that local neighbourhood.



## Choosing a Site



The decision to move away from the site in Cabra (the semester one site) came after researching different sites in Finglas, on the northern side of the Tolka Valley. The location in Finglas appears to have a greater need as it has more issues and problems compared to the Cabra site, such as anti-social behaviour, joy ridding, a lack of identity, and feeling very disconnected from the Tolka Valley area.

There are smaller blocks and clusters of houses, but the houses are slightly bigger, with three beds and smaller back gardens. The road network is much more closed off, with only one vehicle access point to the side and dead-end roads to prevent joyriding. However, they are wider roads with lots of space for parking that do not appear to be fully underutilised.

# Site Analysis

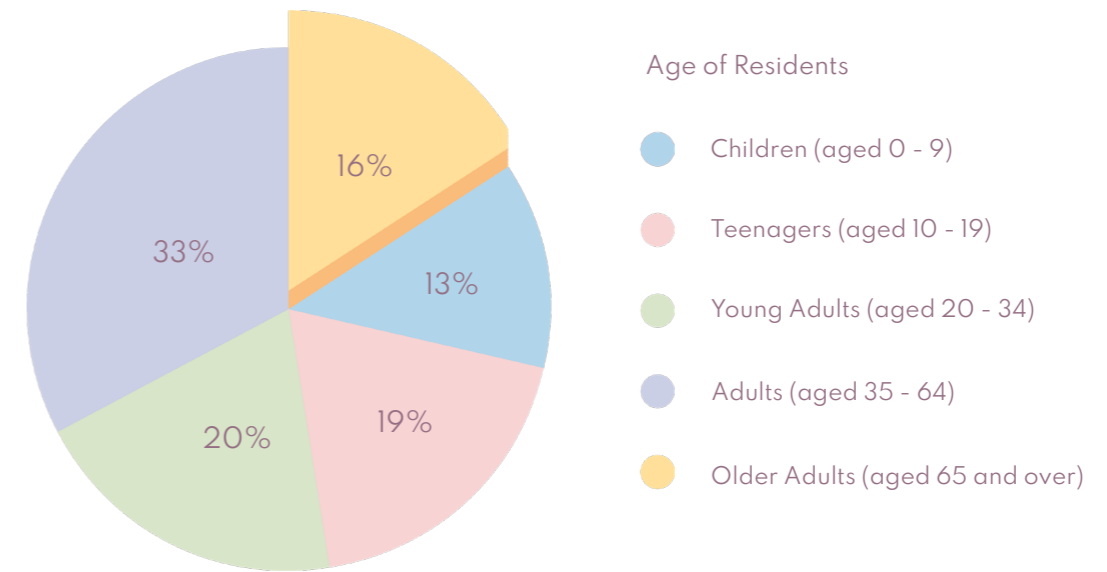
The housing on the site was built in the 1950s and is in relatively good condition however would strongly benefit from being retrofitted.

The area is classified as 'disadvantaged, very disadvantaged'. There are limited amenities surrounding the site, meaning that it is a prime example of somewhere that would greatly benefit from the type of scheme this thesis is proposing.

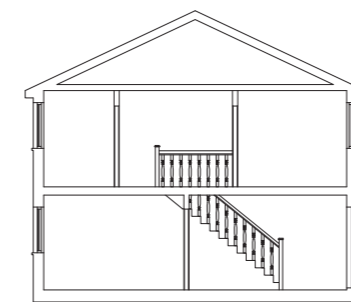
On the site, 31% of the homes are

owned with a mortgage and 33% are owned with no mortgage, with 12% private rent and 17% local authority rent. In addition, 27% of the site is under-occupied, with 1 or 2 (couples) people living in a single home and 15% of the site is occupied by one single person living alone.

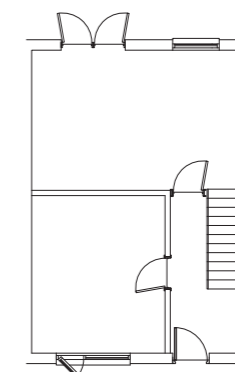
There are currently 178 homes on the site as a whole, with 534 residents with a site density of 3 people per unit, equating to 35 units per hectare and 106 beds per hectare.



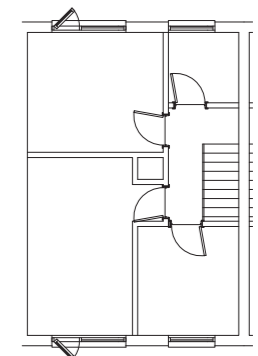
Front Elevation



Section

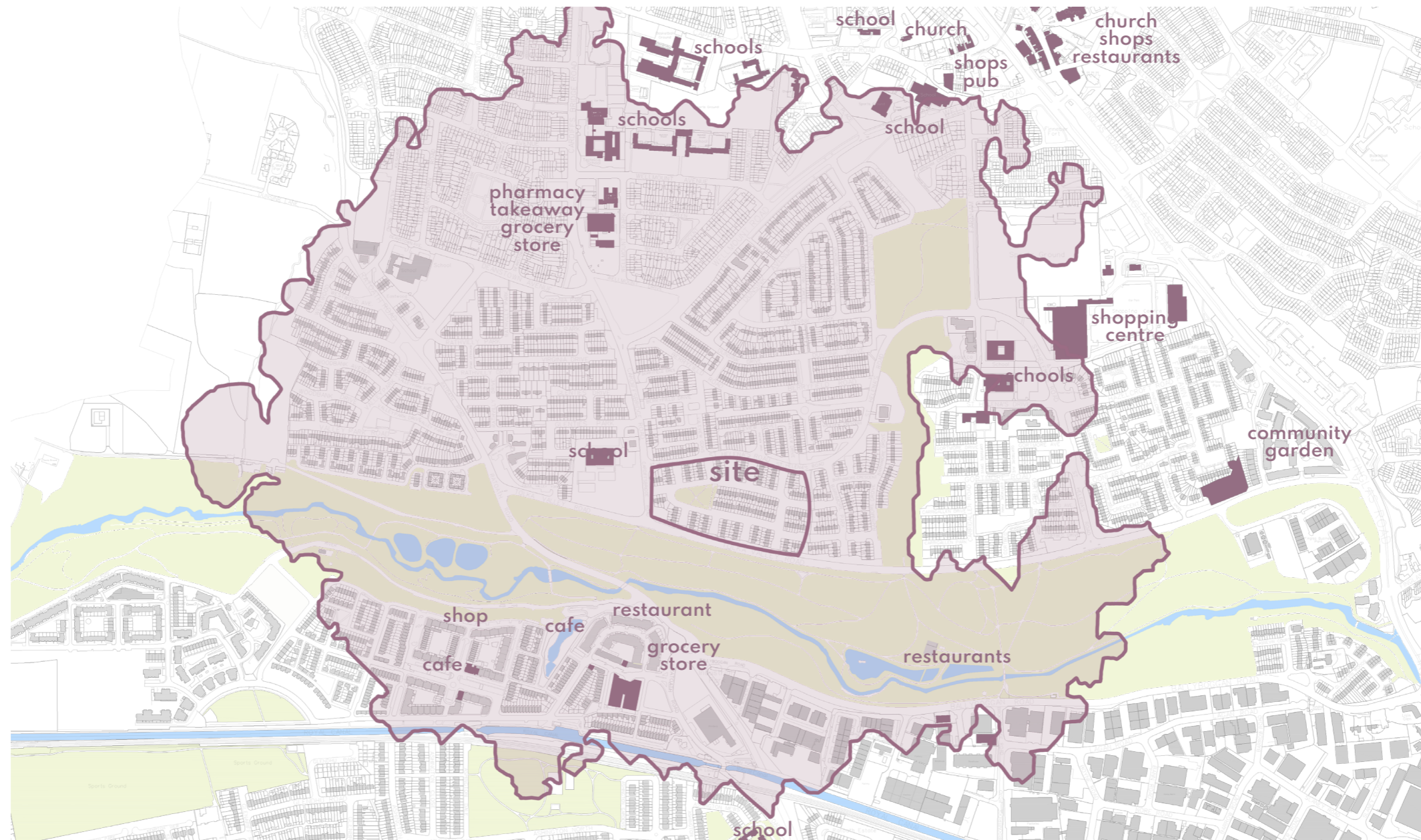


Ground Floor



First Floor

*Amenities with in a 15 minute walk of the site*





1



2



3



4

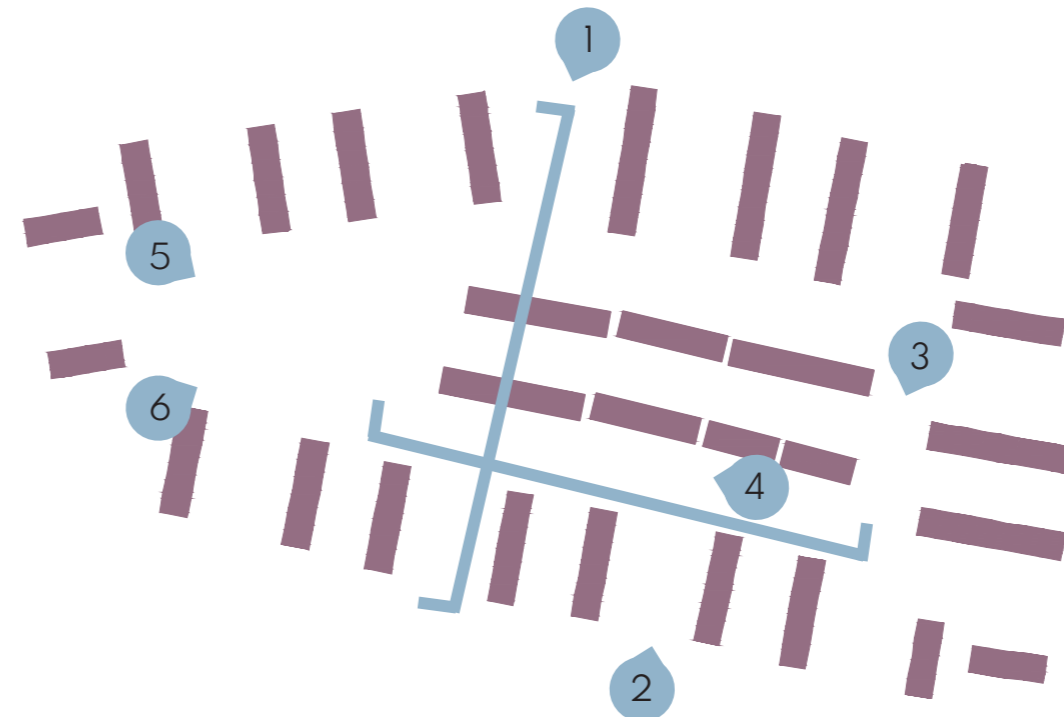


5

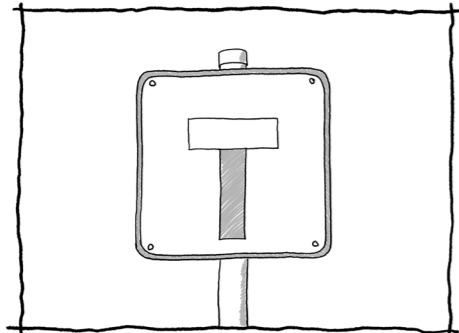


6

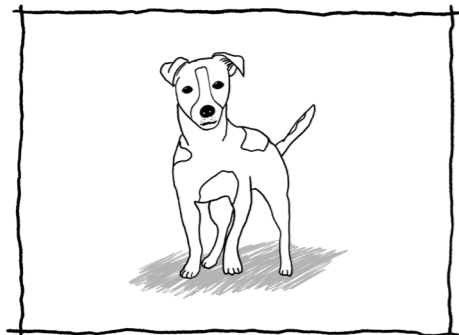
Site Photos



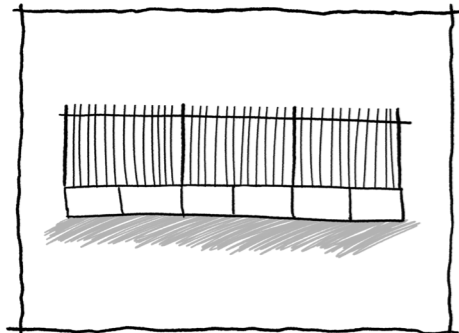
Initial Site Observations



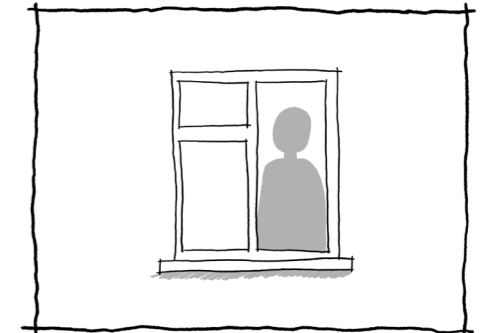
only one entrance and exit



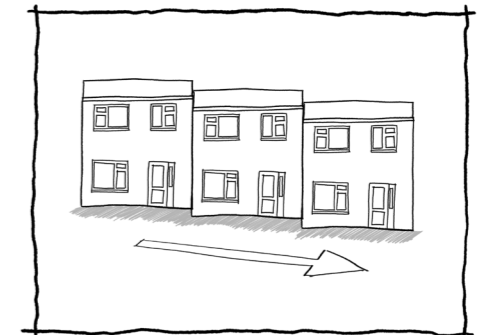
dogs roaming around freely



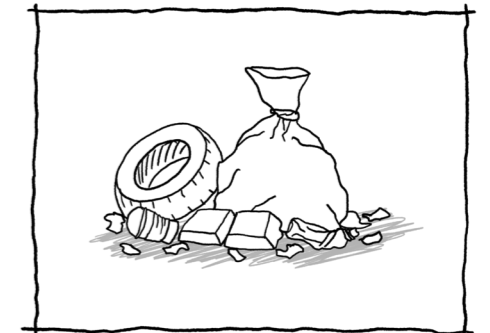
fences and walls block access through



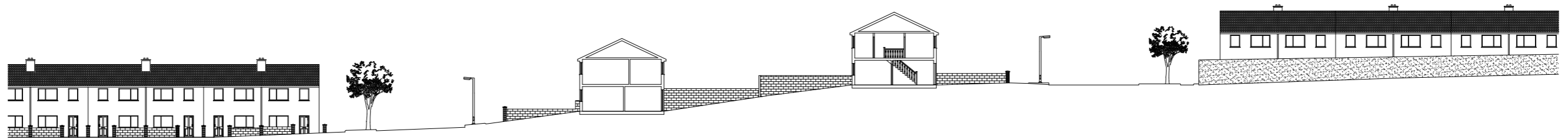
very little passive surveillance during the day



sloped site



rubbish dumped and scattered



*Site Section*



*Site Elevation*



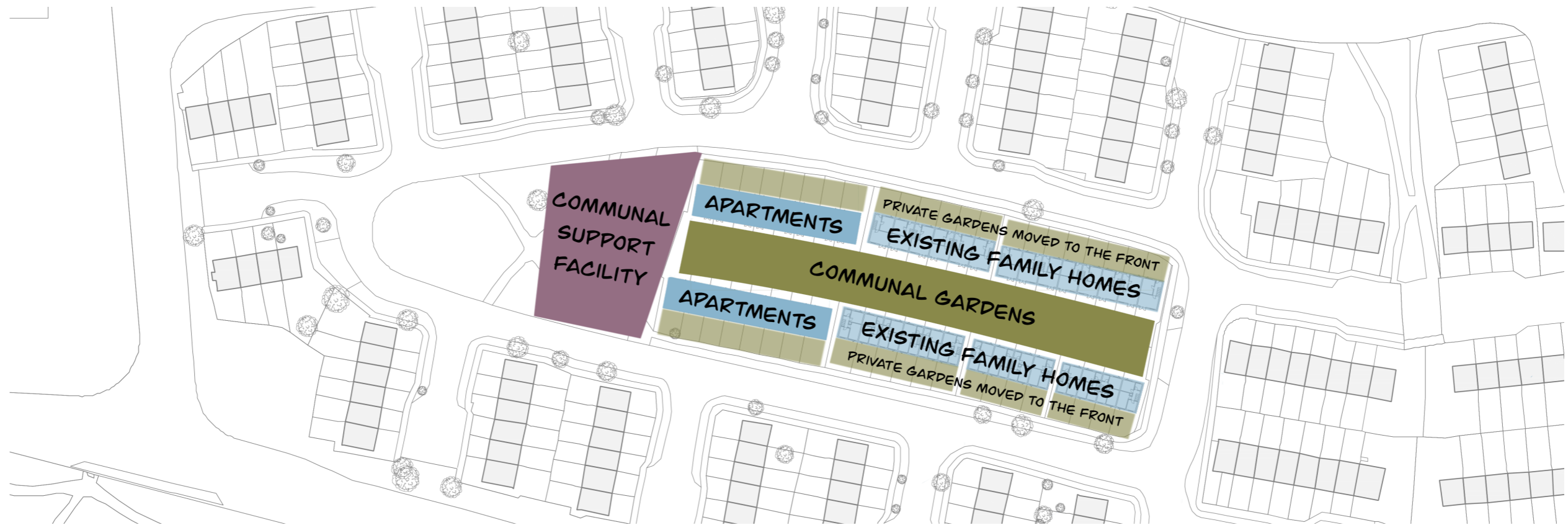
# Final Concept

Once the site was analysed, the block in the centre of the site was chosen as the best place for this thesis design proposal and investigation. Having the scheme in the centre means people will automatically move around the housing and communal spaces as they move through the site and be more likely to engage with the other people in the scheme.

If it was off to the side, people could overlook it, and there would not be as much engagement. It was also the largest of the blocks, which is the most appropriate for the number of residents it would require to house. Having elderly housing at the heart of the site also helps prevent anti-social behaviour through passive surveillance, especially during the day

when people are at work or are less active.

The project comprises three parts: a communal support facility, retrofitted housing and a large communal garden. They are arranged as seen in Fig. X below.



# Proposal

## Thesis Development Research Findings

1. As a person ages, they need **more support**.

This is traditionally in the form of a home carer or moving away to a retirement village or nursing home.



2. People want to **age in place**.

They want to stay in the community they have been a part of for a significant period of their life with the people they know in familiar surroundings.



3. Health benefits **social interactions** and a **connection to nature**.

Many studies have shown the physical and mental health benefits linked to higher social interactions and exposure to nature.



## How these findings can be applied:

### **Communal Support Facility**

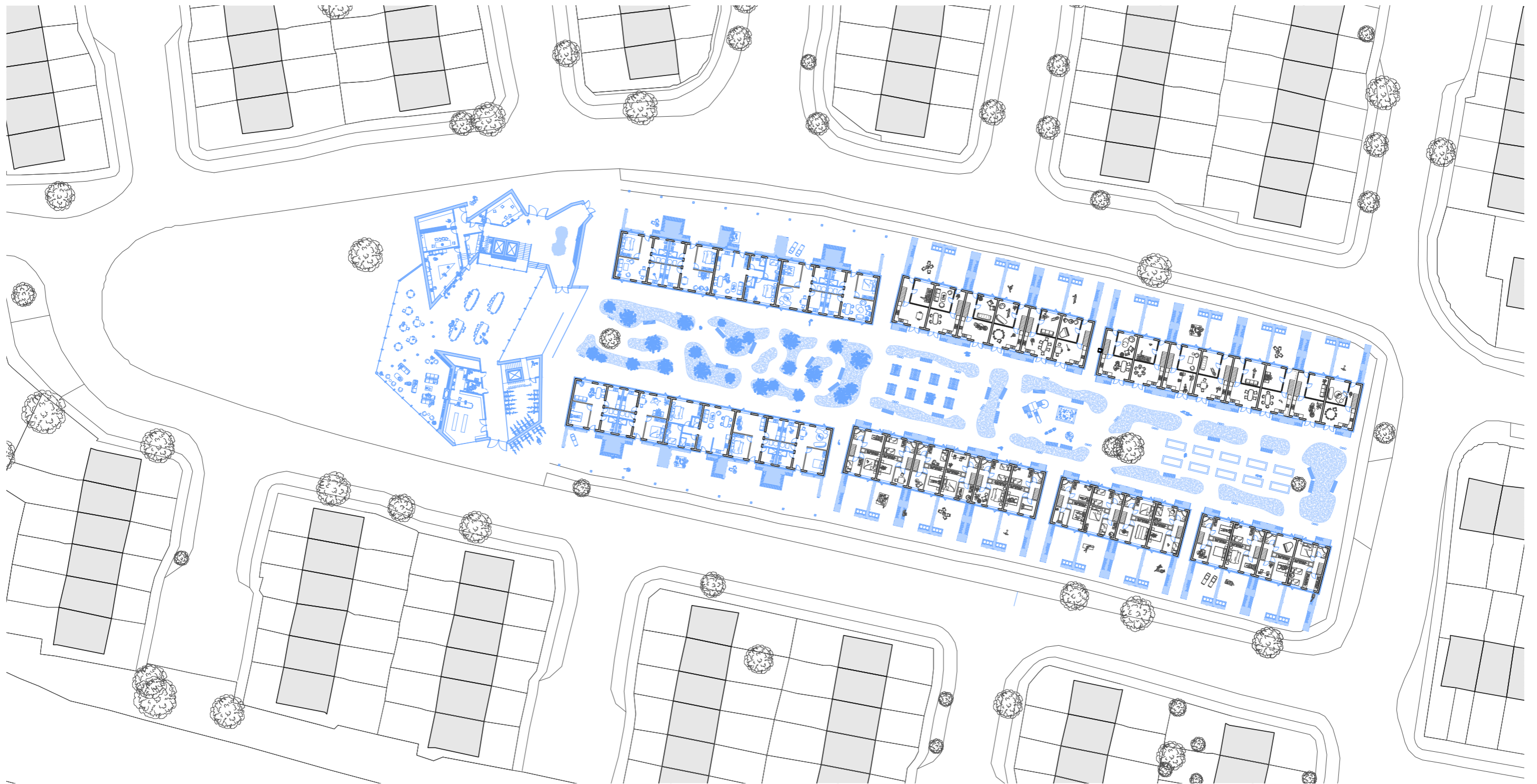
Local residents can get help and support with an onsite doctor and facilities, such as fitness centre to encourage activity, a restaurant for people who struggle to cook for themselves, a place that encourages social interaction etc

### **Universally Accessible Apartments**

Having these apartments would be an attractive rightsizing option within the existing community. This would allow people to move to a more appropriate home without leaving the area.

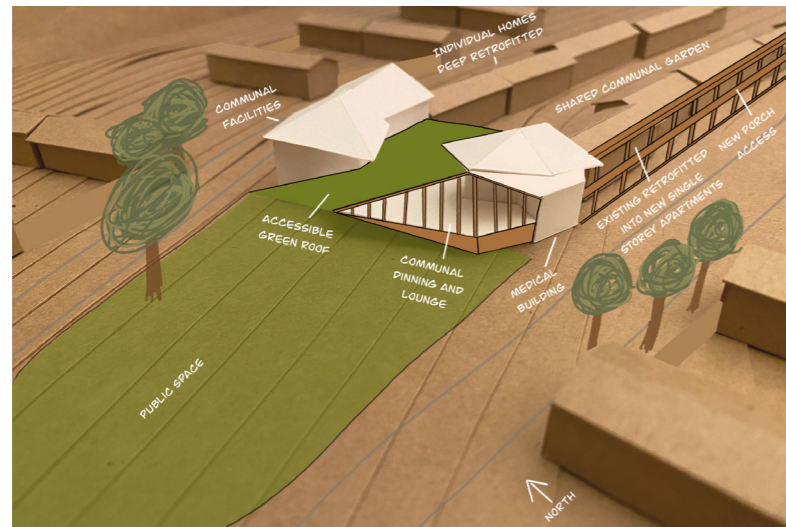
### **Communal Gardens**

Communal and shared garden spaces would increase the level of nature in the area and encourage social interaction through activity spaces such as communal allotments.



Site Plan

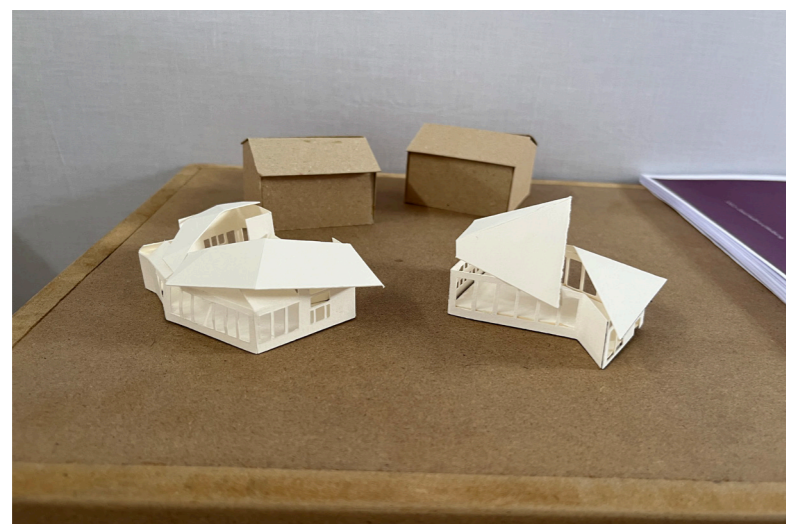
# Communal Support Facility



Early  
Concept  
Model



Site  
Model



Early  
Sketch  
Models

This community support facility is somewhere locals can come to during the day and get the support that they may need, similar to the support you would get in a nursing home, only at the end of the day instead of going back to a small room they return to their own home. This means they can retain their independence and freedom while receiving the extra support they need without moving away from their local community.

In line with the south housing block, the building's solid part is the main communal support with resources, an arts and crafts studio, workspaces, a meeting room, a laundry room, a games room and a fitness area. To the north end, the other solid part of the building contains a pharmacy, covered bike storage, a communal tool shed, and a medical centre primarily used by other residents. However, it can also be used by locals when needed.

In the middle is a communal dining

and lounge area where people who may no longer feel comfortable cooking for themselves can get meals while interacting with other locals. This double-height space faces both the existing public green space and the new communal gardens, one on each side. It is possible at points to see from one side to the other through the building to create a sense of openness.

As the new community support facility was taking part of the existing public green space on the site, it felt only fair to add an accessible green roof over the middle double-height space that could overlook the communal gardens and take advantage of the lovely views of the park and Tolka Vally to the north of the site.

## Community Resources



**games and fitness rooms** for both mental and physical activities

**crafts room** classes e.g. knitting, sewing, art, stain glass painting, etc

**work room** club meetings, computers, activities etc resource for locals

**lobby and support** concierge and staff for extra support

**staff area** changing rooms, canteen, offices

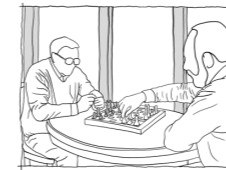
**kitcen** where meals are prepared for local residents



**large open space** adaptable space that can be used for large activities e.g. bingo nights, quizzes, talks etc

**dinning area** large tables to encourage social interaction while dinning

**quieter table area** smaller tables, can be used to sit alone, do work, play chess or checkers



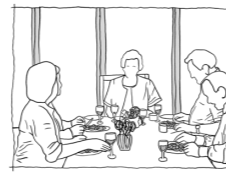
**lounge area** cozy area to sit by the fire place and read or relax, have a chats with a friend, a mini library space

**medical rooms** GP rooms for general examinations, check ups, minor treatments mainly for older population but also a night doctors for other residents

**staff area** doctors offices, area to relax between appointments

**pharmacy** resource for the local community

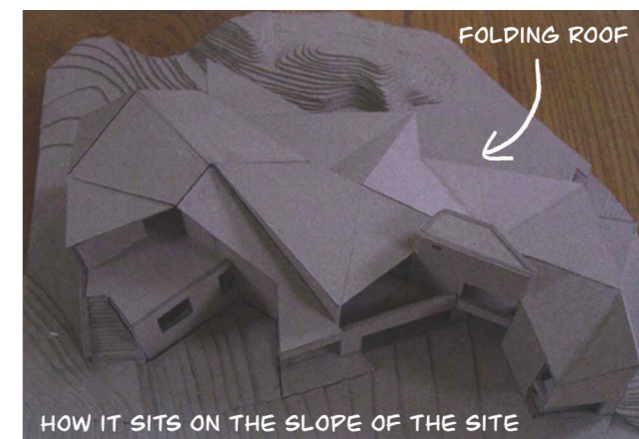
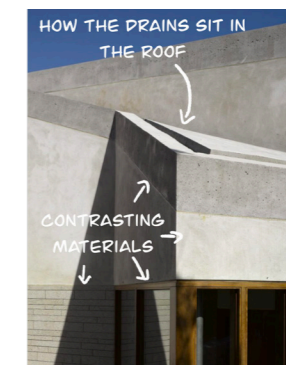
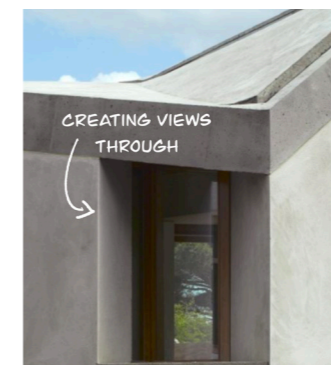
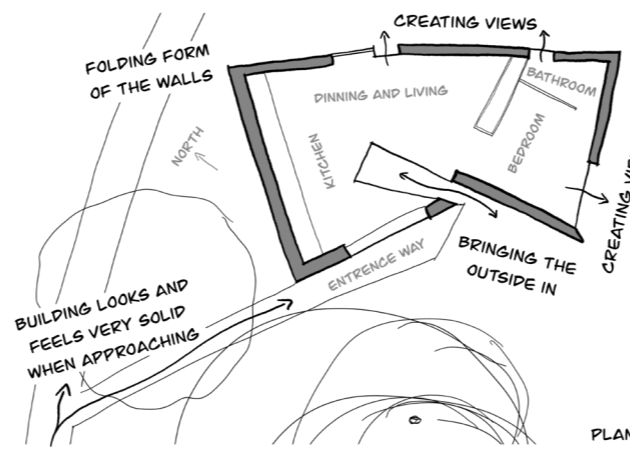
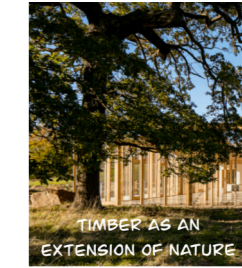
**bike storage** place to keep bikes with community bike share

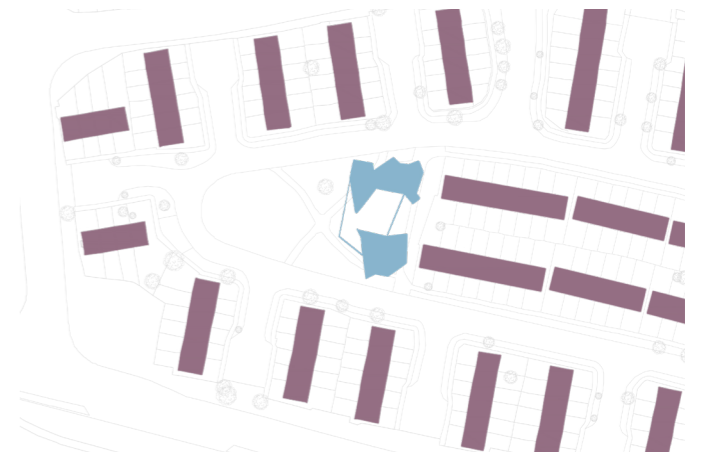
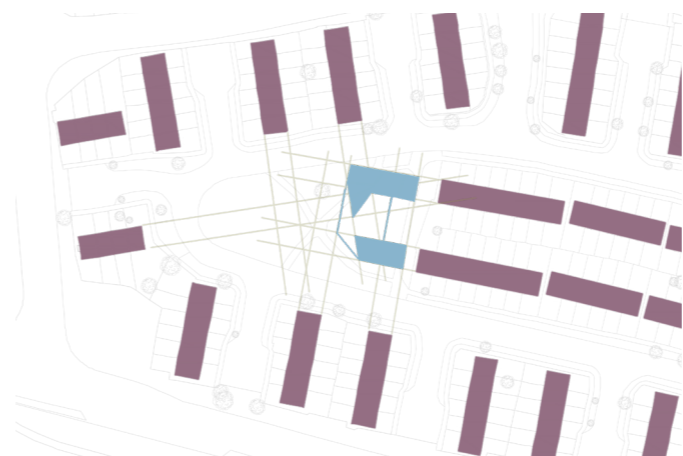
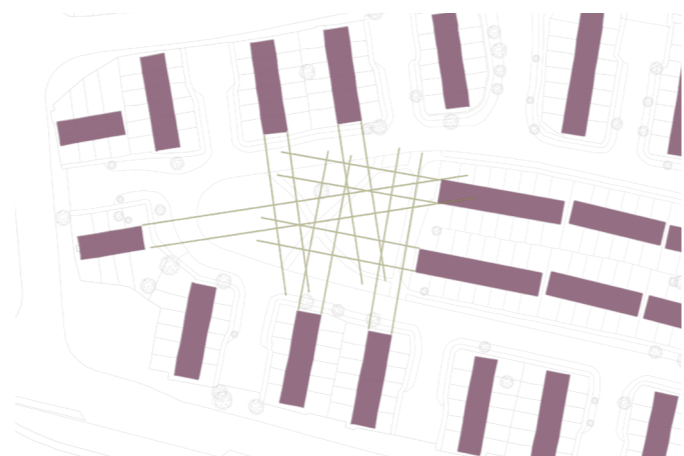


For the design of the new build communal support facility, it made sense to contrast the surrounding architecture of the existing houses with something that would stand out and draw people in.

The form of the building continues the strong line of the two rows of housing on the centre block, with two solid elements with a more light and open space in the centre to connect the existing public green space on the site with the new communal gardens at the back of the houses. I used the lines of the surrounding housing blocks to create a grid system to create a shape for the communal facility, pulling and pushing parts out to create particular views and entrances.

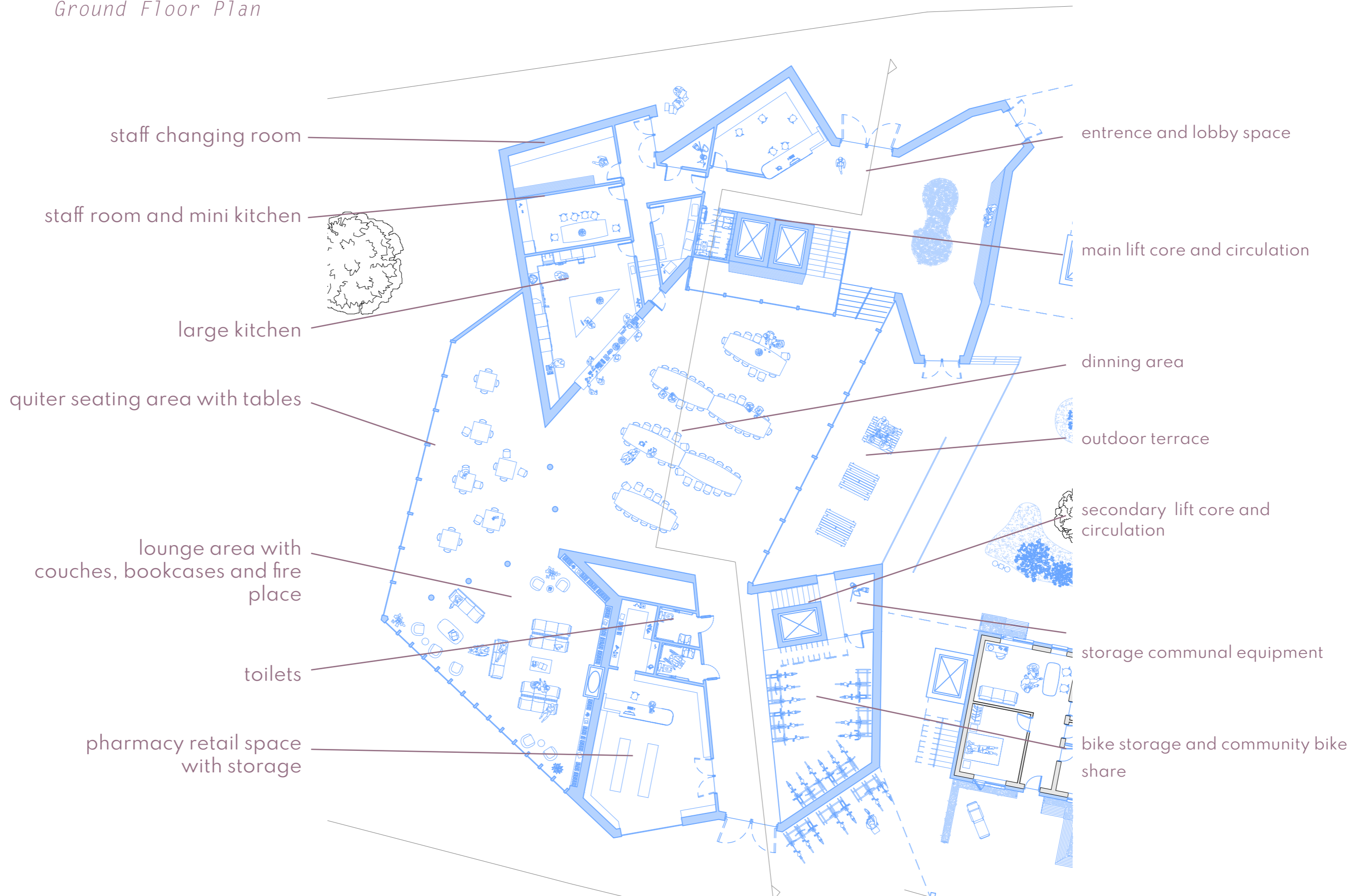
The form of the two solid elements of the communal building in line with the existing housing rows takes inspiration from projects with folding, origami-like architecture and shape, creating specific views of Tolka Vally and the surrounding area. They feel very solid in contrast to the area between these two forms, which is more open with lots of glazing and the use of timber as an extension of the nature outside.





*Design Process*

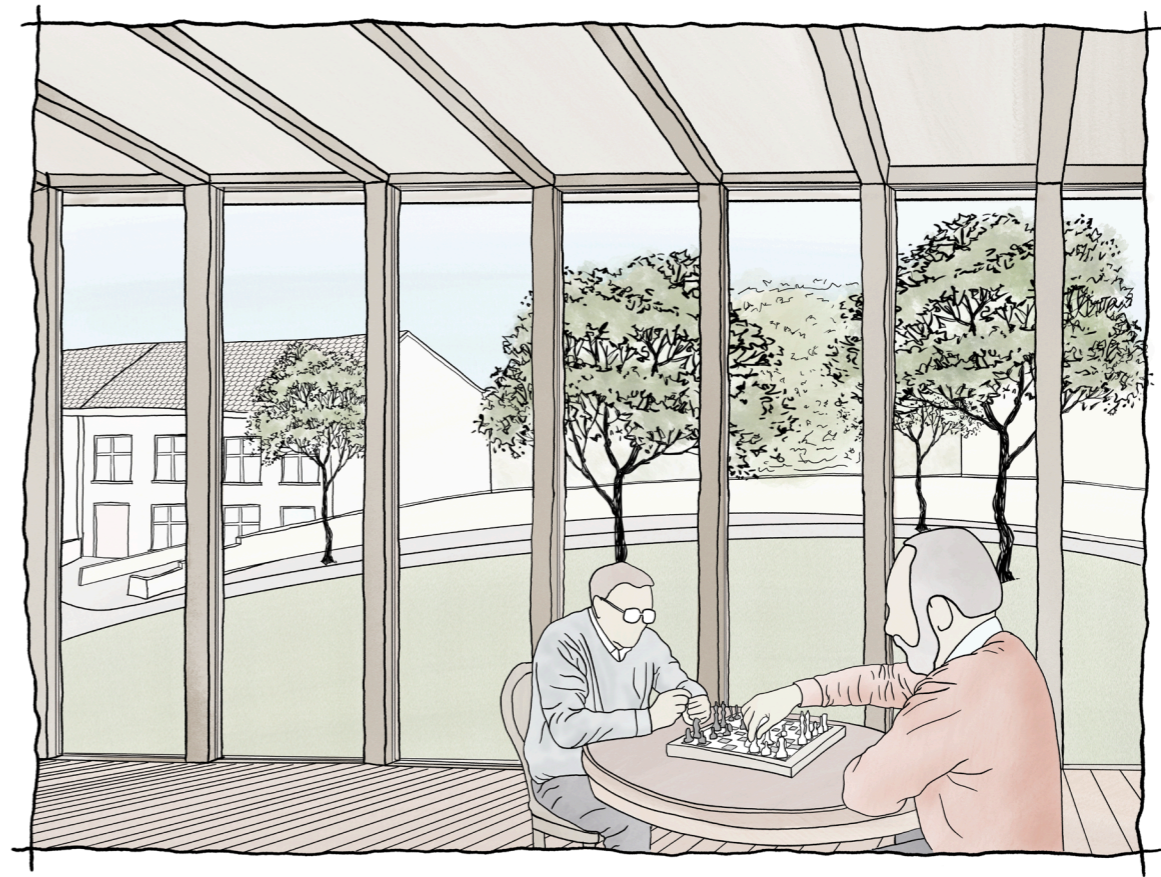
Ground Floor Plan







*Kitchen*

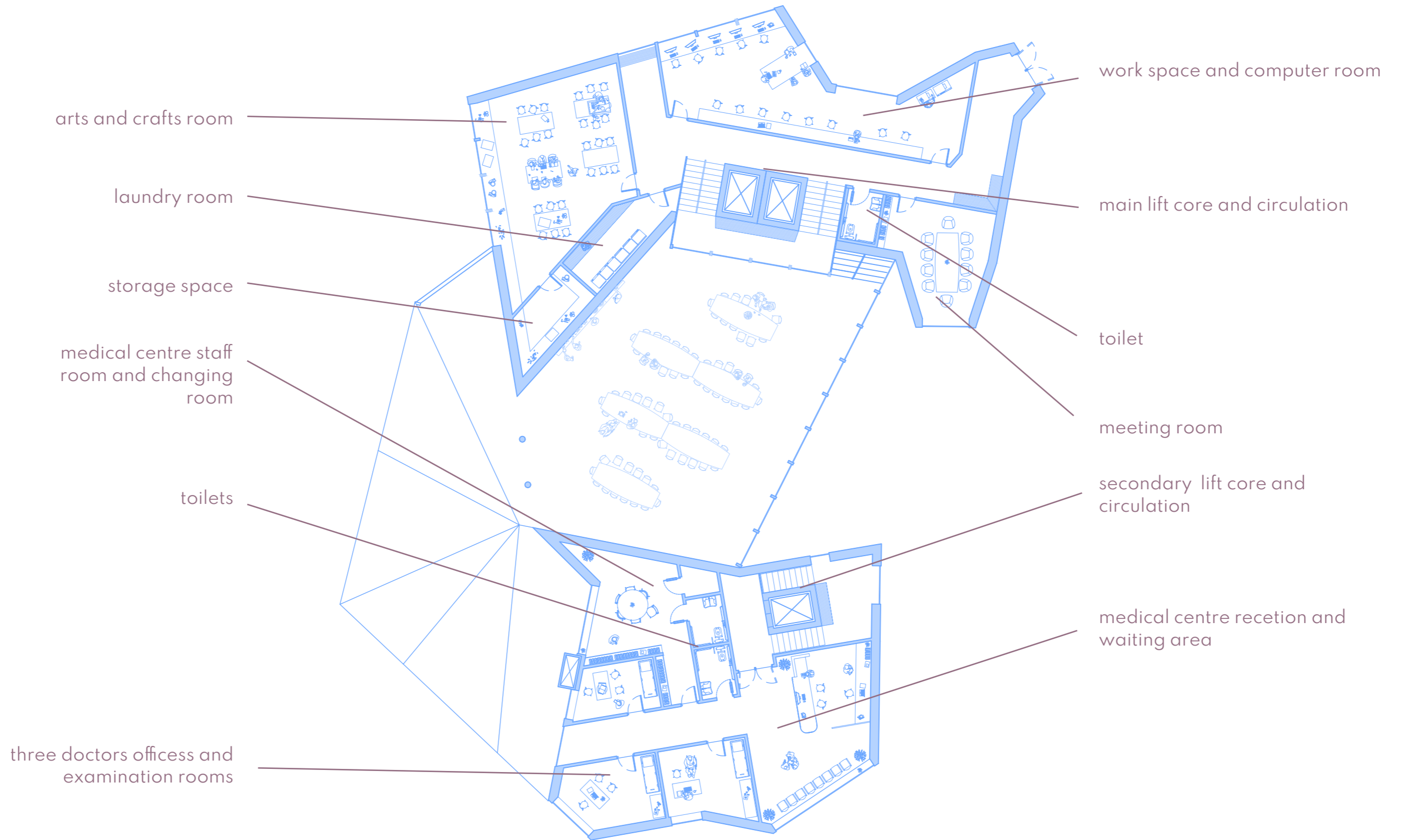


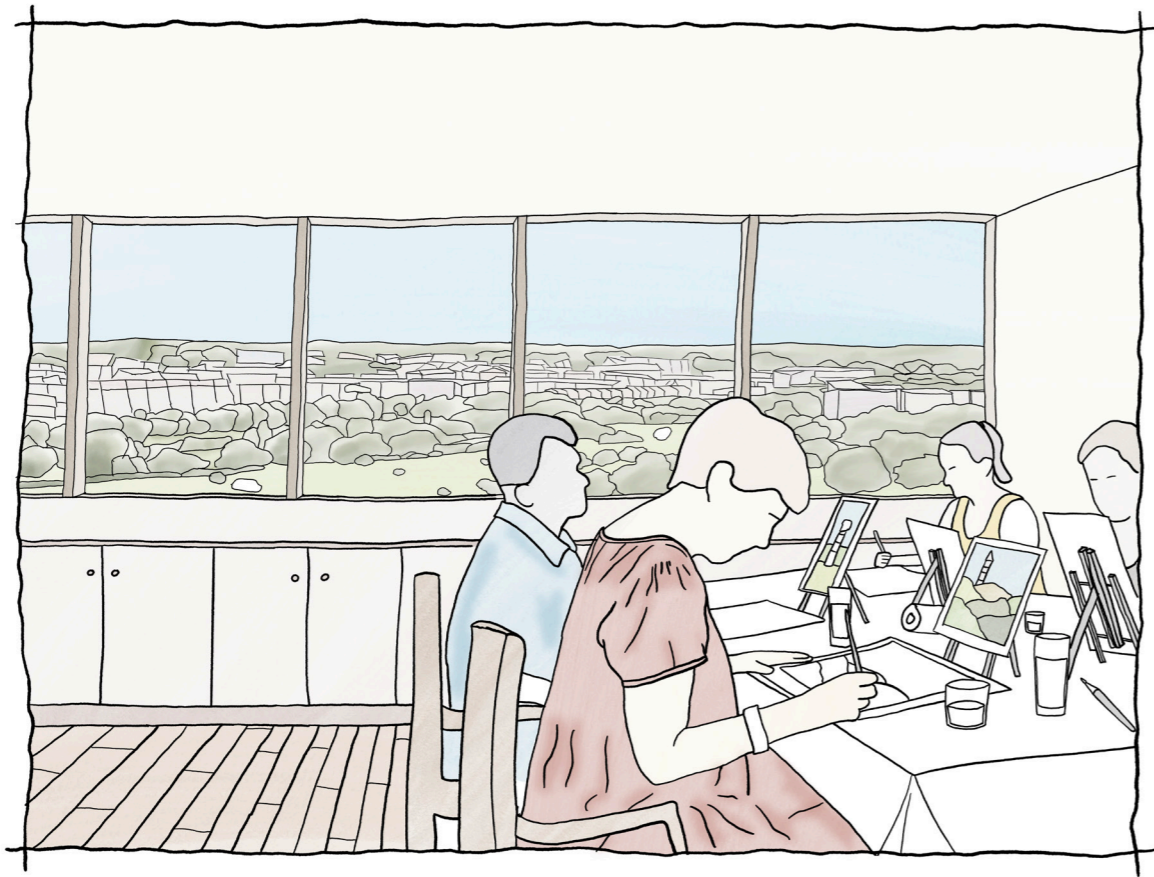
*Quieter Dining Area*



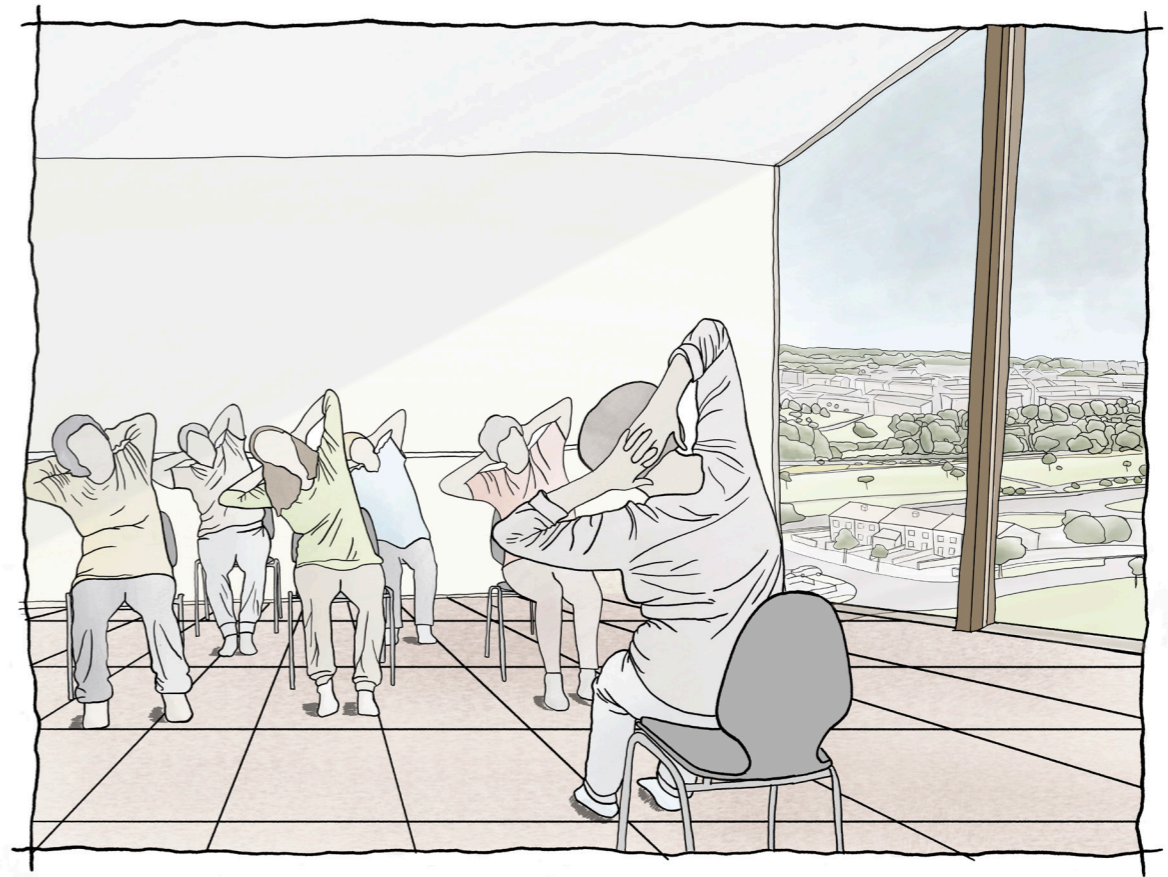
*Communal Dining Area*

First Floor Plan



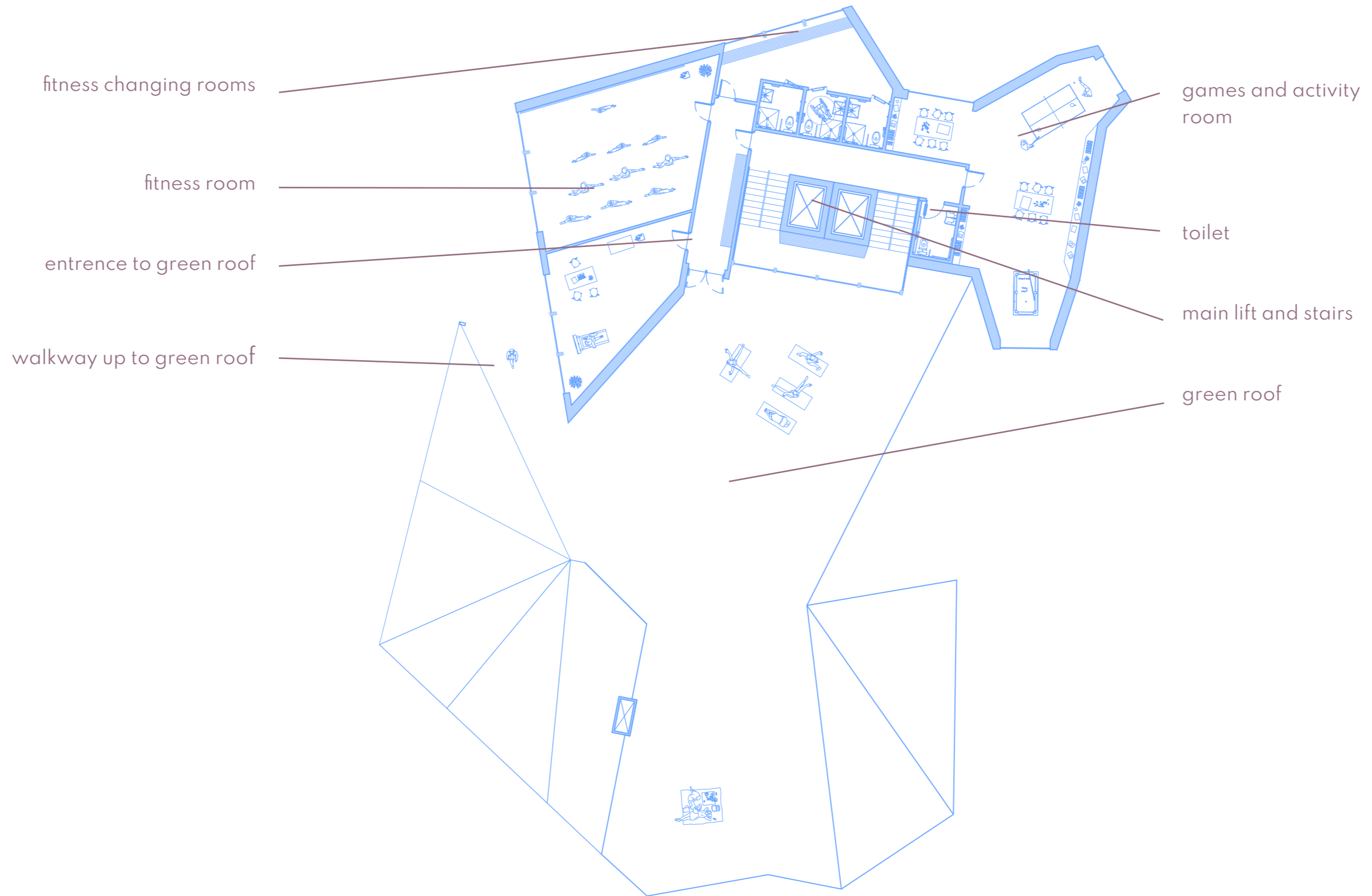


*Arts and Crafts Room*



*Fitness Room*

Second Floor Plan



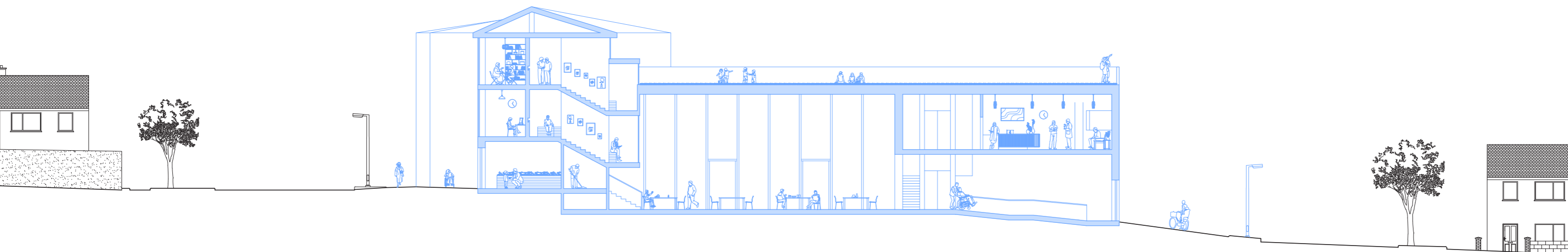
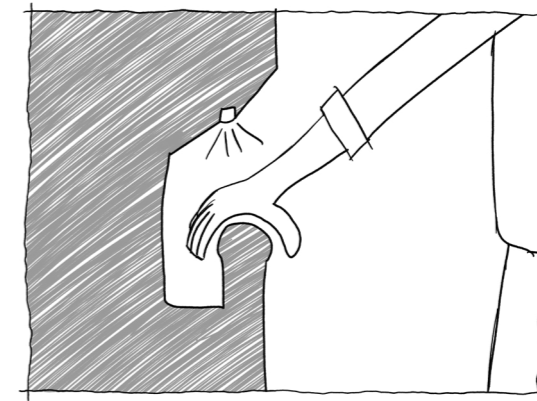
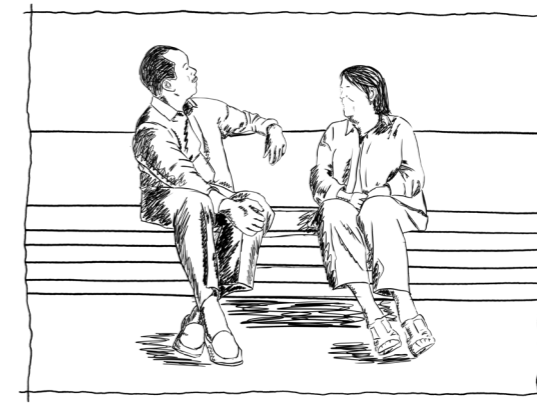
The building has been designed to be universally accessible and inclusive, with subtle supports in place to help accommodate the varying needs of older people and reduce the stigma that can sometimes be associated with these types of interventions.

There are built-in handrails into all of the walls, which are an attractive option for support, so they are there if needed but so that they do not stick out and interfere with passers-by.

Anti-slip flooring with some cushioning helps to combat the potential damage with falls.

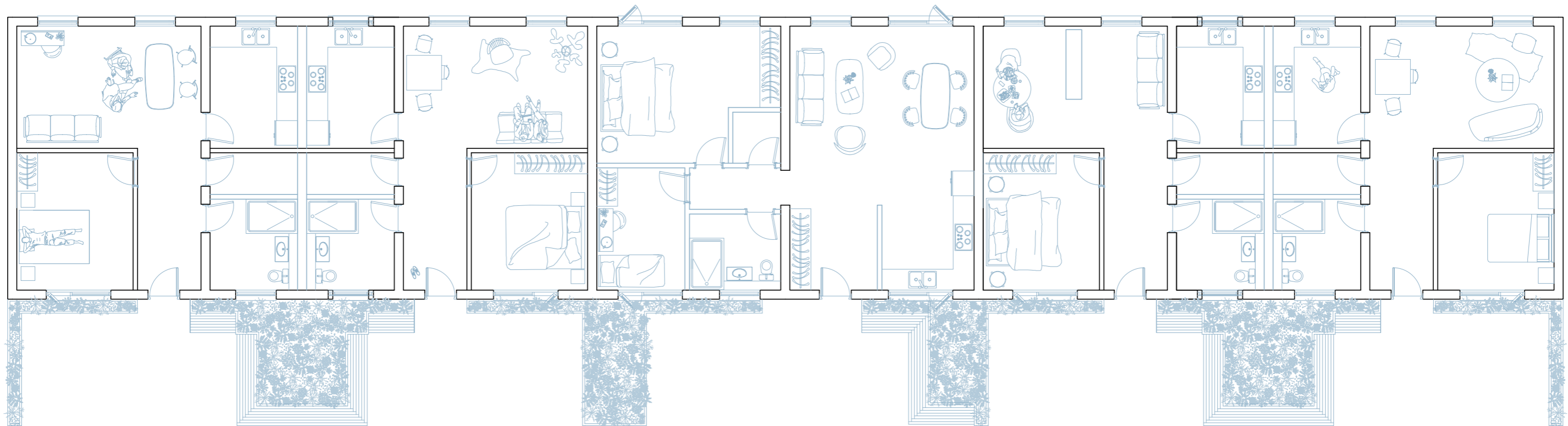
All of the bathrooms are fully assessable to reduce the stigma around using them. This is because people may require the extra support they offer but may not want to admit that to themselves or others. Therefore only having fully assessable bathrooms eliminated any shame or embarrassment that may arise around it.

There are many benches throughout the whole site for easy resting and encouraging social interaction.



*Section Through Communal Support Facility*

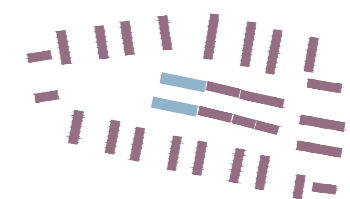
# Retrofitted Housing



The two blocks closest to the communal support facility have been retrofitted and redesigned into universally accessible apartments to accommodate people in the area who may no longer want or be able to live in their own two-story homes. This could be for several reasons, including loss of mobility or the size of the house itself is

no longer appropriate.

Having these apartments in the community will reduce the need for people to move out of the area to find a suitable housing option and accommodate people ageing within their community.



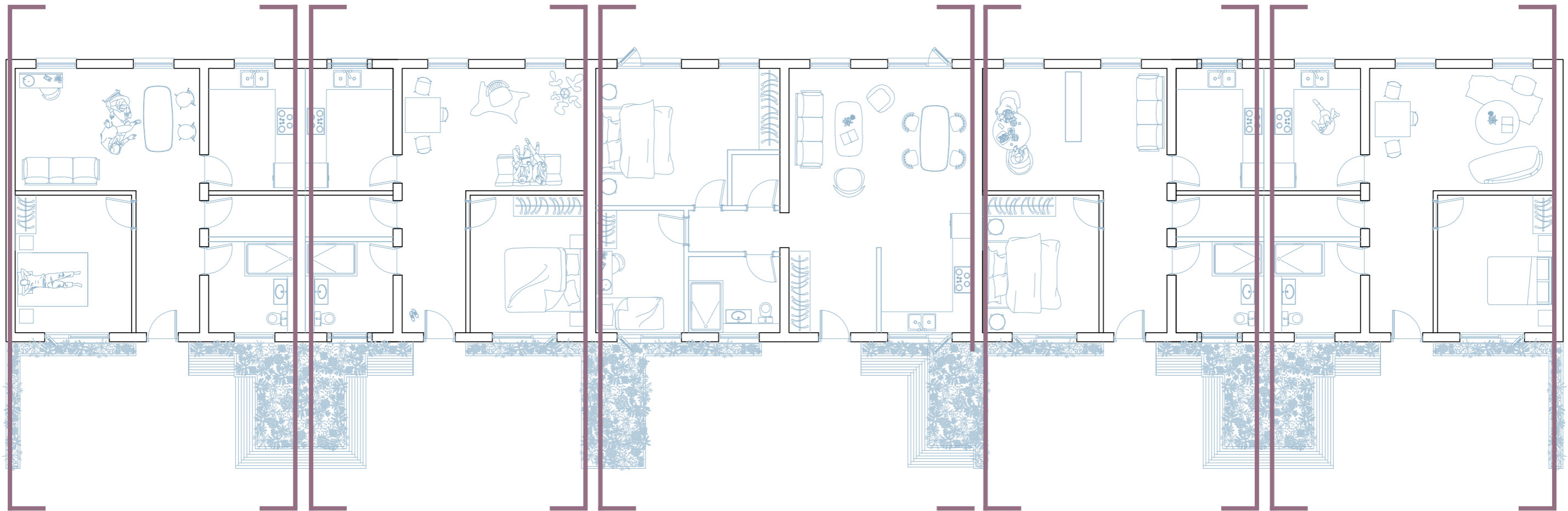
1-Bed Unit

1-Bed Unit

2-Bed Unit

1-Bed Unit

1-Bed Unit



Universal Design Features:

- 1500mm x 1500mm clear zone in front of entrance
- 300mm clear zone to door edge
- 1500mm turning circle in each room
- 2100mm x 2400mm min enlarged bathroom
- Large shower with a shallow tray
- 800mm clear zone around bed



*Retrofitting an existing building is defined as making energy-efficient changes to a building to reduce carbon emissions.*

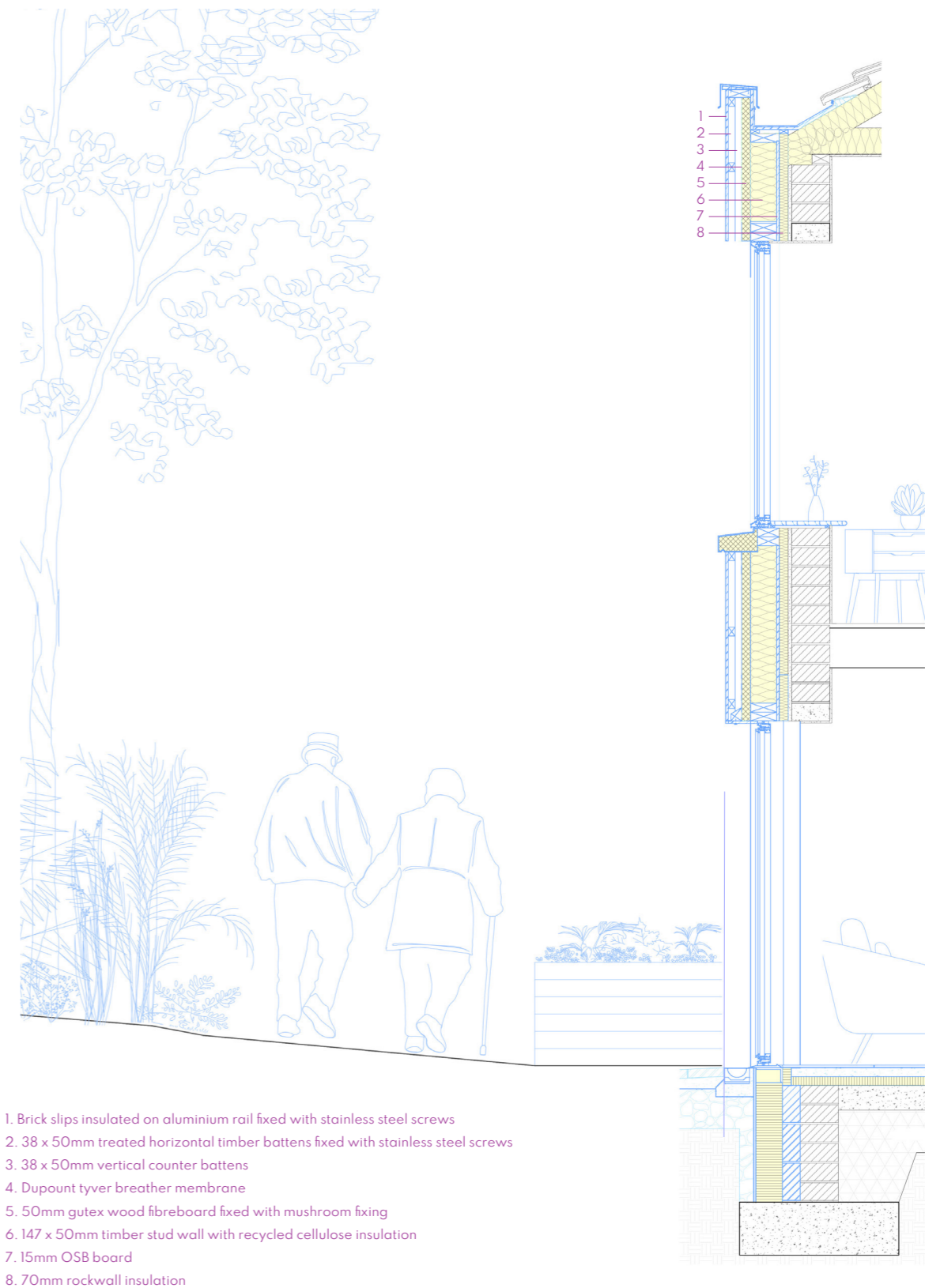
In Ireland, most retrofits are shallow retrofits where incremental improvements are made over time. These can include upgrading attic insulation, upgrading a boiler, adding pumped cavity wall insulation or heating controls to separate heating water upstairs and downstairs, among other things. This type of retrofit tends to be more widely accessible due to the ease and cost of the interventions compared to a more invasive approach involved in a deep retrofit; however, they also have fewer benefits (The Bonkers.ie Podcast, 2021).

A deep retrofit is defined as carrying out multiple energy upgrades simultaneously to achieve a BER of A-rating (Sustainable Energy Authority Of Ireland, 2017). The (Sustainable Energy Authority of Ireland, n.d) has listed what you would need to do to improve your home and bring it up an A-rating.

The main thing involves reducing heat loss within the building. Up to 35% of

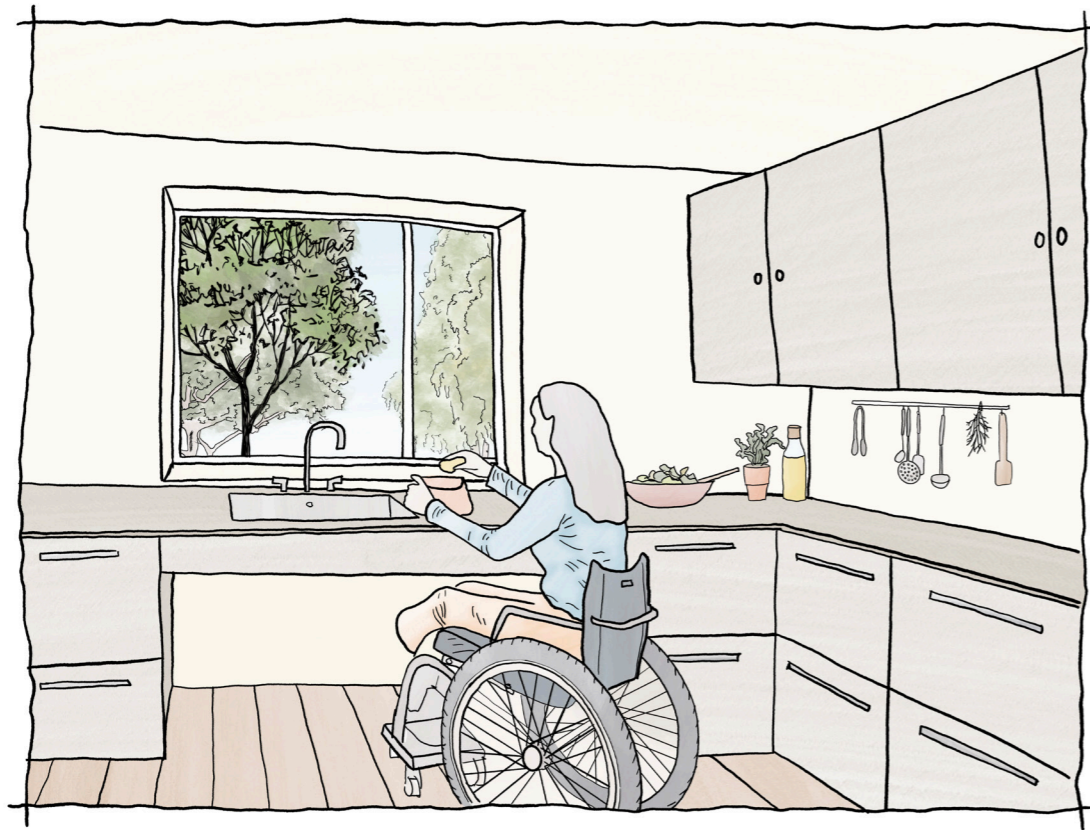
the home's heat can be lost through external walls, up to 30% through the roof, and up to 10% through the floors; this can be combated by adding or installing wall insulation, attic/roof insulation and floor insulation. In addition, depending on the windows and door's age, about 10% of heat can be lost through them, so replacing them with the current standards is crucial.

Furthermore, due to the improvement in the airtightness in a building after adding the proper insulation, it is vital to add a proper ventilation system to improve the air quality in the home, both for the building's health and the occupant's health. The next step would be installing a renewable heating system to support the transition from fossil fuels. This renewable heating system could include installing a heat pump to improve comfort levels and reduce costs. Finally, solar panels can be added to generate heating for water and power electrical devices within the building.



1:20 Technical Section Retrofitted Housing

Fig. 1 - 1:20 Technical Section ©A3



*Kitchen in universally accessible  
apartments*



*New Private Front Garden of existing  
retrofitted houses*

*Section through universally accessible apartments*

*Sustainable features*

home for life as residents can upscale or down scale as necessary

communal garden for enhanced community engagement with activity spaces and allotments for growing food

solar panels on south facing roofs to generate energy



deep retro fit and sustainable construction methods

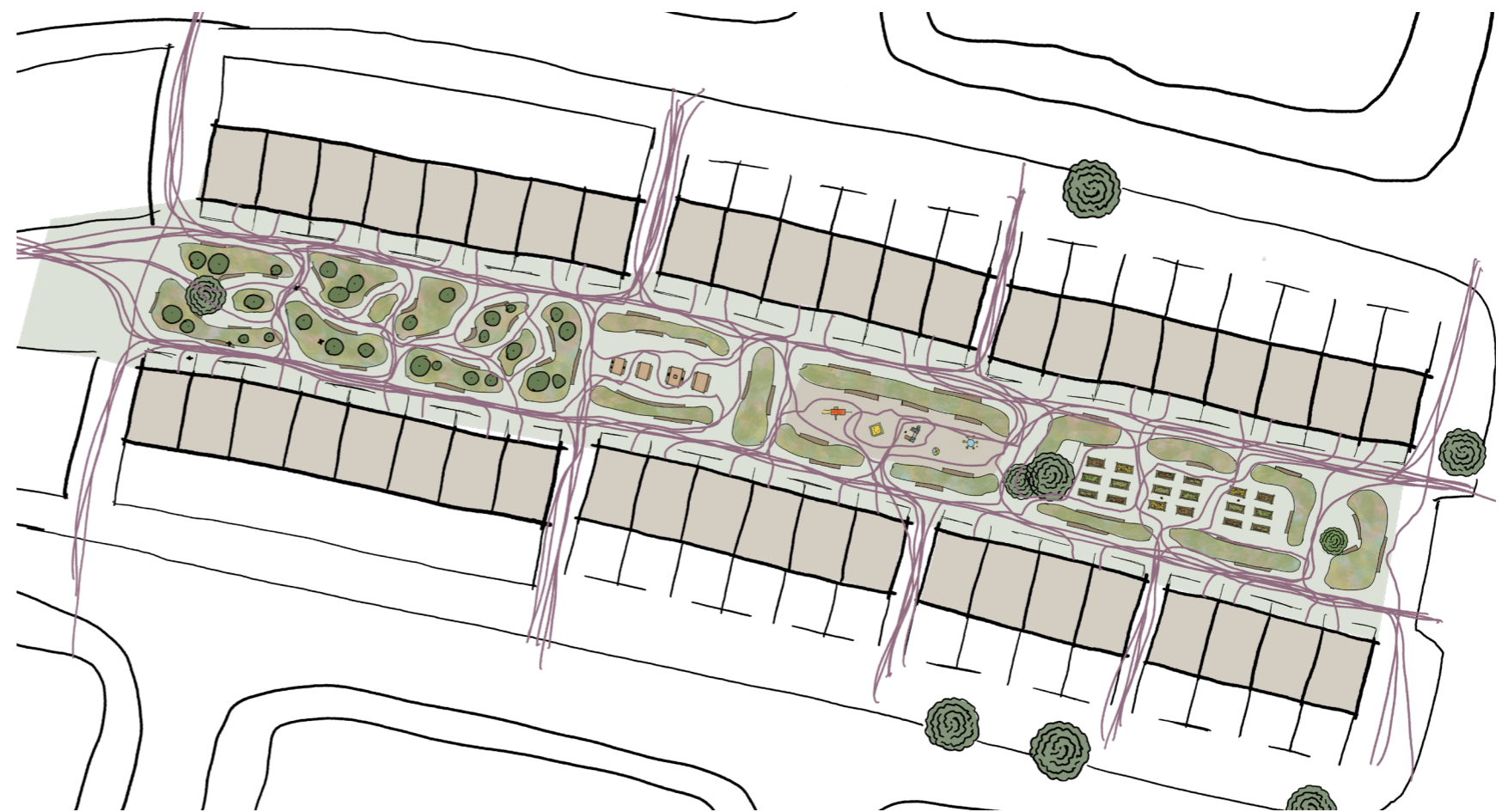
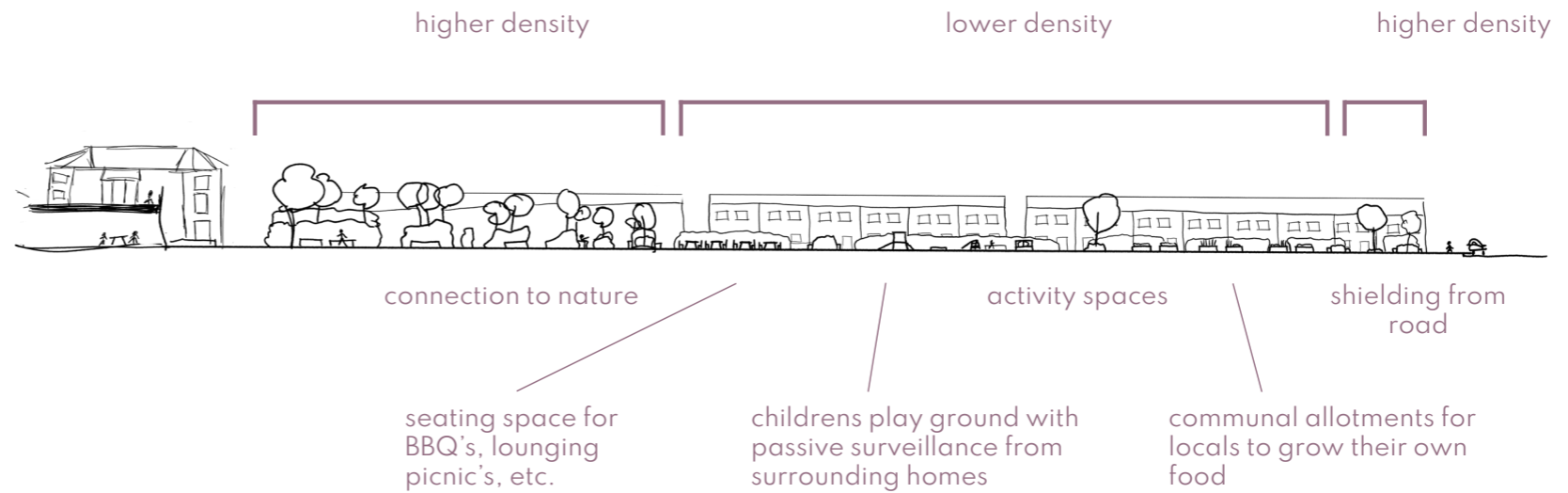
rain and waste water collection and reuse - toilets, watering plants etc,

added porch gardens and access - encourage social interaction

# Communal Gardens

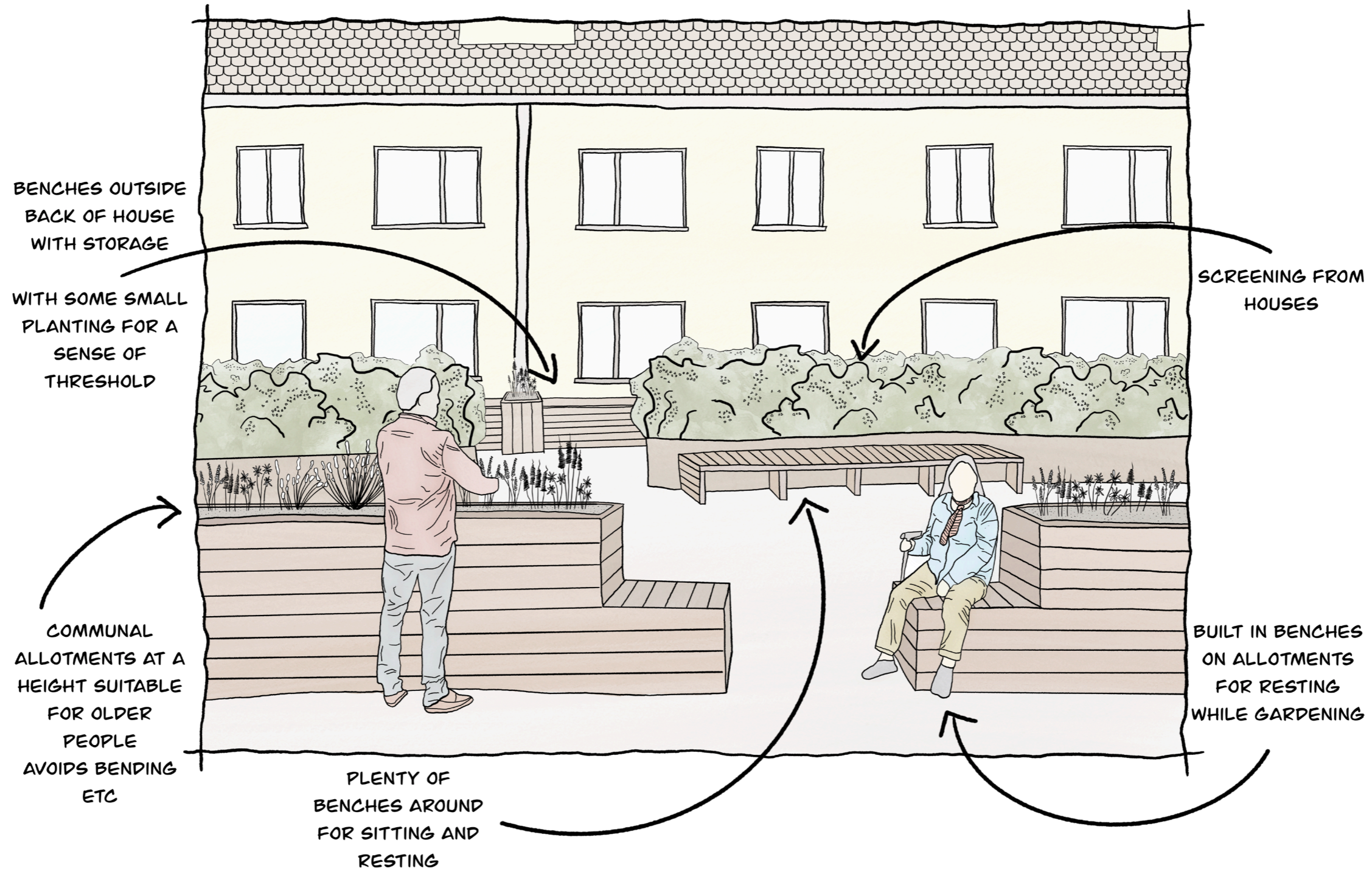
The project involves moving the private back gardens to the front of the houses, which from my site visits, tends to be a place where the residents gather naturally to interact and spend time. This frees up the space between the two rows of housing for communal garden spaces, including communal allotments for planting food, a child's playground, a seating area for gathering and activities and a denser planting area for more of a connection to nature.

Creating functional green spaces and areas where people would assemble and interact would give back to nature, the residents, and the local community. In addition, it would make the site more open and welcoming while combating the current issues of harsh walls and blocked routes. It could almost feel like an extension of the park to the south of the site.



*Creating Movement Through The Site*

# COMMUNAL ALLOTMENTS





*Denser planting in communal garden*

# Conclusion

The Development Plan 2022-2028, under chapter 5 (5.5.1), acknowledges the importance of promoting quality of life for people through ‘healthy placemaking’, with a National Policy Objective (NPO 4) to “ensure the creation of attractive, liveable, well designed, high-quality urban places that are home to diverse and integrated communities that enjoy a high quality of life and well-being”. Now more than ever, this applies to helping an ageing population.

There should be more consideration to improving the focus on age-friendly developments, with commitments to supporting older people staying in their homes and communities for as long as possible while also addressing the shortfall in housing options. The reuse/adaption of the existing 20th-century housing stock is also essential, and how traditional neighbourhoods are configured could also be re-examined.

This thesis aimed to explore ways to help accommodate ageing in the community through interventions that help keep people in their homes and neighbourhoods for longer through ageing in place.

This project as a whole or any of the three main interventions explored in this thesis could be applied to different neighbourhoods across Ireland in an attempt at radical transformative action towards a sustainable future that would improve the lives of the ageing residents. However, due to the extent of the large scope under which this topic was analysed, it leaves a lot of different elements yet to be researched that I would have loved to have gotten to investigate further and hopefully will get to in the future.

# Bibliography

- @NewGCohousing. (2020, September 13). NewGCohousing/status. Retrieved from Twitter: <https://twitter.com/NewGCohousing/status/1305094892536954880>
- Alone. (2018). Housing Choices For Older People In Ireland - Time For Action. Alone.
- Assemble. (2013). Granby Four Streets. Retrieved from Assemble: <https://assemblestudio.co.uk/projects/granby-four-streets-2>
- Assemble. (2015). 10 Houses on Cairns Street. Retrieved from Assemble: <https://assemblestudio.co.uk/projects/10-houses>
- Assemble. (2019). Granby Winter Garden. Retrieved from Assemble: <https://assemblestudio.co.uk/projects/granby-winter-gardens>
- Baeli, M. (2013). Residential retrofit, 20 case studies. London: RIBA Publishing.
- Bell Phillips Architects. (2022). Projects: Greenwich Housing. Retrieved from Bell Phillips Architects: <https://www.bellphillips.com/project/greenwich-housing/#slider-4>
- Buterchi, J. (2021). Intergenerational Living: Building Blocks for All Ages. Housinglin. PRP.
- Castle, H., & Greengross, S. (2014). Remember Who You Are Designing For. Architectural Design - Designing For The Third Age, 14-19.
- CDC - Centres for Disease Control and Prevention. (2009, October 15). Healthy Places Terminology. Retrieved from CDC - Centres for Disease Control and Prevention: <https://www.cdc.gov/healthyplaces/terminology.htm>
- Central Statistic Office. (2018, June). Population and Labour Force Projections 2017 - 2051: Population Projections Results. Retrieved from Central Statistic Office: <https://www.cso.ie/en/releasesandpublications/ep/p-plfp/populationandlabourforceprojections2017-2051/populationprojectionsresults/>
- Companions For Seniors. (2019, January 7). 5 Proven Benefits of Aging in Place for Seniors and Their Families. Retrieved from Companions For Seniors: <https://companionsforseniors.com/2019/01/benefits-aging-in-place-seniors-families/>
- Cooks-Campbell, A. (2022, June 6). One secret more working parents are discovering: Multigenerational living. Retrieved from Better Up: <https://www.betterup.com/blog/multigenerational-home>
- Coyle, C., Buggy, S., Cagney, O., Farragher, L., Lee, C., Patje, D., & Long, J. (2021). Housing with support for older people. Dublin: Health Research Board.
- Department of the Environment, Climate and Communications. (2022, February 8). National Retrofit Plan. Retrieved from gov.ie: <https://www.gov.ie/en/publication/5052a-national-retrofit-plan/>
- Dunham-Jones, E., & Williamson, J. (2011). Retrofitting Suburbia, urban design solutions for redesigning suburbs. New Jersey: John Wiley & Sons.
- Dwyer, O. (2022, February 9). Explainer: Here's how the government's ambitious retrofitting grant scheme is meant to work. Retrieved from The Journal: <https://www.thejournal.ie/retrofit-scheme-ireland-explained-5677209-Feb2022/>
- Farrelly, L. (2014). Redefining, Reinventing and Realigning Design For Demographic Change. Architectural Design - Designing For The Third Age, 8-13.
- Firth, K., & Patel, M. (2014). Regeneration for all generations, the Queen Elizabeth Olympic Park. Architectural Design - Designing For The Third Age, 88-93.
- Generations United. (2020, May). Grandfamilies - General Fact Sheet. Retrieved from Generations United: <https://www.gu.org/app/uploads/2020/05/Grandfamilies-GeneralFactSheet.pdf>
- Generations United. (2021). Family Matters: Multigenerational Living Is On The Rise And Here To Stay . Generations United.
- Generations United. (n.d.). Our Topics: Grandfamilies. Retrieved November 2022, from Generations United: <https://www.gu.org/explore-our-topics/>



grandfamilies/

Griffiths, A. (2015, November 16). Bell Phillips rolls out a model for public housing on six Greenwich sites. Retrieved from dezeen: <https://www.dezeen.com/2015/11/16/bell-phillips-architects-brick-mews-zinc-clad-roofs-cost-effective-housing-greenwich-london/>

Healthy & Positive Ageing Initiative. (n.d.). Housing and Healthy Ageing. Retrieved from [https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiDov3c6av8AhWCSMAKHWRRC4sQFnoECA0QAQ&url=https%3A%2F%2Fassets.gov.ie%2F46015%2F410520fbde364f2cab01b6678aa2c6f6.pdf&usq=AOvVaw3c6Pd\\_Sqk8RjrpTnTTGpFd](https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKEwiDov3c6av8AhWCSMAKHWRRC4sQFnoECA0QAQ&url=https%3A%2F%2Fassets.gov.ie%2F46015%2F410520fbde364f2cab01b6678aa2c6f6.pdf&usq=AOvVaw3c6Pd_Sqk8RjrpTnTTGpFd)

Hospice of the Piedmont. (2021, August 23). Benefits of Seniors and Young Children Spending Time Together. Retrieved from hopva: <https://www.hopva.org/blog/benefits-of-seniors-and-young-children-spending-time-together/>

House2Home. (2020, December 3). 5 Benefits Of Retrofitting Your Home. Retrieved from House2Home: <https://house2home.ie/2020/12/03/5-benefits-of-retrofitting-your-home/>

House2Home. (2020). National Housing Retrofit Scheme. Retrieved from House2Home: <https://house2home.ie/national-housing-retrofit-scheme/>

HousingCare. (2020). New Ground Cohousing. Retrieved from Housing Care: <https://housingcare.org/housing-care/facility-info-162071-new-ground-cohousing-barnet-england>

HTA. (2011). Project: Supurbia. Retrieved from HTA: <https://www.hta.co.uk/project/supurbia>

Leiper, A. (2022). Retrofit or New Build? Retrieved from Net Zero Carbon Guide: <https://www.netzerocarbondesign.co.uk/guide/early-decisions/retrofit-or-new-build/summary>

Levitt, D., & McCafferty, J. (2019). *The Housing Design Handbook*. London and New York: Routledge.

McCafferty, J. (n.d.). Home of the Future. Retrieved from Levitt Bernstein: <https://www.levittbernstein.co.uk/sketchbook-ideas/home-of-the-future/>

Method Homes. (2022). Elemental. Retrieved from Method Homes: <https://www.methodhomes.net/elemental-series>

Modern Architecture London. (2009, April). Winscombe Street. Retrieved from Modern Architecture London: <http://www.modernarchitecturelondon.com/buildings/winscombe-street.php>

Molinsky, J. (2017, January 25). Housing Perspectives: Four Challenges to Ageing in Place. Retrieved from Joint Centre for Housing Studies of Harvard University: <https://www.jchs.harvard.edu/blog/four-challenges-to-aging-in-place>

National Academies of Sciences, Engineering, and Medicine. (2020). *Social Isolation and Loneliness in Older Adults: Opportunities for the Health Care System*. Washington, DC: The National Academies Press.

New Ground Cohousing. (n.d.). We've built our own community. Retrieved from New Ground Cohousing: <https://newgroundcohousing.uk>

Okolicsany, H. (2016, October 17). 78% of Homeowners Aren't Ready for Aging in Place. Retrieved from Remodeling: [https://www.remodeling.hw.net/business/operations/78-of-homeowners-arent-ready-for-aging-in-place\\_o](https://www.remodeling.hw.net/business/operations/78-of-homeowners-arent-ready-for-aging-in-place_o)

Orr, J., Scarlett, S., Donoghue, O., & McGarrigle, C. (2016). *Housing conditions of Ireland's older population: Implications for physical and mental health*. Dublin: The Irish Longitudinal Study on Ageing.

Pérez-Hernández, B., Lopez-García, E., Graciani, A., Ayuso-Mateos, J. L., Rodríguez-Artalejo, F., & García-Esquinas, E. (2018). Housing conditions and risk of physical function limitations: a prospective study of community-dwelling older adults. *Journal of Public Health*, 252-259.

Porteus, J., & Park, J. (2018). *Age-Friendly Housing: Future design for older people*. London: RIBA Publishing.

PRP. (2022). Projects. Retrieved from PRP: <https://www.prp-co.uk/project/chobham-manor-phase-1-361/>

Robson, D., Nicholson, A.-M., & Barker, N. (1997). *Homes For The Third Age : A design guide for extra care sheltered housing*. London: E & FN Spon.

Sustainable Energy Authority Of Ireland. (2017). Deep Retrofit Grant. Retrieved from seai: <https://www.seai.ie/grants/home-energy-grants/deep-retrofit-grant/>

Sustainable Energy Authority of Ireland. (2017). Home Energy Grants. Retrieved from seai: <https://www.seai.ie/grants/home-energy-grants/>

Sustainable Energy Authority of Ireland. (n.d). Upgrading to an A-rated Home, Homeowner Guide. Retrieved from seai: <https://www.seai.ie/publications/Upgrading-to-an-A-Rated-Home.pdf>

The Bonkers.ie Podcast. (2021, July 27). Everything you need to know about retrofitting your home. Retrieved from Bonkers.ie: <https://www.bonkers.ie/podcasts/2021/07/27/everything-you-need-to-know-about-retrofitting-your-home/983/>

The Empty Homes Agency. (2008). New Tricks With Old Bricks . London: The Empty Homes Agency Ltd.

The Irish Longitudinal Study on Ageing. (2019). Loneliness, social isolation, and their discordance among older adults. The Irish Longitudinal Study on Ageing.

Thompson, S. (2022, March 11). Home retrofits: A guide to costs, grants, time frames and best ways to approach the project. Retrieved from The Irish Times: <https://www.irishtimes.com/special-reports/renovate/home-retrofits-a-guide-to-costs-grants-time-frames-and-best-ways-to-approach-the-project-1.4811069>

UK Cohousing. (2021). New Ground cohousing development is an inspiring example not only of how we might live as we get older, but of how to live in cities at all. Retrieved from UK Cohousing: <https://cohousing.org.uk/case-study/new-ground-cohousing-development-inspiring-example-not-might-live-get-older-live-cities/>

# Appendix

## Engaged Writing Submission

The following observations were formed in response to Chapter 5, Quality Housing and sustainable neighbourhoods of the Draft Dublin City Development Plan 2022-2028. These matters are based on research carried out under the Bachelor of Architecture programme at Technological University Dublin.

The Development Plan 2022-2028, under chapter 5 (5.5.1), acknowledges the importance of promoting quality of life for people through 'healthy placemaking', with a National Policy Objective (NPO 4) to "ensure the creation of attractive, liveable, well designed, high quality urban places that are home to diverse and integrated communities that enjoy a high quality of life and well-being". Although this is an important objective, some areas could be explored further to reach their full potential in developing sustainable neighbourhoods and communities in the context of an ageing population. For example, there could be further clarification around the need to provide appropriate housing options for older people to support independent living, ageing in place, and overall health and well-being within the community.

Over the last couple of decades, there has been a demographic shift in the population's age across Ireland, which is said to continue into the future. 'The older population (i.e. those aged 65 years and over) is projected to increase very significantly from its 2016 level of 629,800 persons to nearly 1.6 million by 2051' (Central Statistic Office, 2018). By that time, over a quarter of the population will be in that age group.

A significant issue in old age is social isolation and its adverse effects on health, both mental and physical. Furthermore, a strong association between living alone and loneliness can be linked to a significantly poorer quality of life (The Irish Longitudinal Study on Ageing, 2019). That is why creating quality housing options for older people is integral to creating sustainable

neighbourhoods.

I believe there should be more consideration to improving the focus on age-friendly developments, with commitments to supporting older people staying in their homes and communities for as long as possible while also addressing the shortfall in housing options for older adults who wish to rightsize.

The reuse/adaption of the existing 20th-century housing stock is also essential, and the way traditional neighbourhoods are configured could also be re-examined.

I applaud the intent for 'enhanced greening and creation of urban streetscapes' as stated in QHSN05 and the 'provision of new allotments and community gardens' mentioned in QHSN02. If designed well, more greening and new types of streetscapes would enhance neighbourhoods and help foster a sense of community through encouraged social interaction. This would be valuable for all ages, especially older people.

For Dublin to be a robust and sustainable city, fostering the existing is vital to producing long-lasting foundations for the future. So it would be refreshing to see a type of architecture in Dublin fully supporting the potential of retrofitting existing blocks of houses to accommodate ageing in place.



Sketch examples of enhanced greening and new types of streetscapes