



Design and Access Statement

New Passivhaus dwelling at Tower Street, Barnsley which is accessible and adaptable to the requirements of M4 Category 2

Client :Mr and Mrs Barton

Project Ref: 23_122 / DAS

Revision -A 2.02.24

Rev B 05.02.24

Rev C 06.02.24 Planning Submission

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Cover - Proposed view from Tower Street to the south
 Opposite - Proposed view from south west.

1. INTRODUCTION

1.1 Background to the Applicant's Planning Application

The applicants are owners of the site to the south of 52 Tower Street. The applicants have lived in Barnsley for 38 years and would like to live in a Passivhaus, none of which currently exist in the area, so they would like to build one in the Barnsley area where they have worked for over 30 years. There is currently planning permission for two houses on the site. This application is for one dwelling with associated parking, access and garden areas.

1.2 Client Brief

Main features

- Passive design and sustainable - fossil fuel free
- Light and airy interior
- Four bedrooms:
 - ◊ One downstairs with easy access to a toilet and shower
 - ◊ The master bedroom with access to an en suite (note this could be upstairs or downstairs)
 - ◊ At least two of the remaining bedrooms to take a double bed for visitors and for these to have access to another bathroom.
- A bath in one of the bathrooms
- Large open plan living area with access to outside space for eating and sitting. A good sized kitchen, a dining area and lounge
- A utility/technical/plant room
- Built in storage
- A low maintenance enclosed garden
- A single garage plus car port with covered access to the house. The garage/car port to be integral/easy access to property
- Parking area for visitors (at least 2 cars)
- Very secure
- Double height living space, feature staircase
- Technologically up to date
- Accessible outdoor dining area from the kitchen dining area.
- Walk in larder
- Sheltered/covered entrance

The design for the new dwelling should incorporate a 'lifetime' home approach, with living and sleeping accommodation on the ground floor level and spacious circulation with a wet room accessible at the entry level. The design will incorporate the structure (in the ground floor store) for installing a future lift into the master bedroom. With this in mind the dwelling has been designed to the requirements of Approved Document M(2) Category 2 - Accessible and adaptable homes

The client would like to design to the Passivhaus energy standard; to provide a low carbon building, with a healthy, comfortable internal environment with low running costs.

This Design and Access Statement will describe the design process and technical studies that inform the design.

1.3 Planning Policy

13.1.1 Policy Context - Planning Response to Pre App Enquiry

The site is located within Urban Fabric which has no specific allocation subject to compliance with all relevant Local Plan Policies.

The starting point for all applications is Local Plan Policy GD1.

H4: Residential development on Small Non-Allocated sites – Proposals for residential development on sites below 0.4 hectares (including conversions of existing buildings and creating dwelling above shops) will be allowed where the proposal complies with other relevant policies in the Plan.

D1: High Quality Design and Place Making – This policy sets the overarching design principles for the borough. Development is expected to be of high-quality design and will be expected to respect, take advantage of and reinforce the distinctive, local character and features of the local area.

T3: New development and sustainable travel – New development is expected to be located and designed to reduce the need for travel, be accessible to public transport and encourage smarter ways to travel rather than unsustainable use of the private car.

T4: New development and highway improvement - New development will be expected to be designed and built to provide all transport users within and surrounding the development with safe, secure and convenient access and movement.

Poll1: Pollution Control and Protection - Development will be expected to demonstrate that it is not likely to result, directly or indirectly, in an increase in air, surface water and groundwater, noise, smell, dust, vibration, light or other pollution which would unacceptably affect or cause a nuisance to the natural and built environment or to people.

CC2 – Sustainable Design and Construction- Development will be expected to minimise resource and energy consumption through the including of sustainable design and construction features where this is technically feasible and viable.

Adopted SPD's

<https://www.barnsley.gov.uk/services/planning-and-buildings/supplementary-planning-documents/>

- Parking
- Biodiversity and Geodiversity Design Of Housing Development
- Trees and Hedgerows

13.1.2 Relevant Policies NPPF Dec 23

Paragraph 11

Plans and decisions should apply a presumption in favour of sustainable development.

For plan-making this means that:

a) all plans should promote a sustainable pattern of development that seeks to: meet the development needs of their area; align growth and infrastructure; improve the environment; mitigate climate change (**including by making effective use of land in urban areas**) and adapt to its effects;

Paragraph 70

70. Small and medium sized sites can make an important contribution to meeting the housing requirement of an area, and are often built-out relatively quickly. To promote the development of a good mix of sites local planning authorities should:

a) identify, through the development plan and brownfield registers, land to accommodate at least 10% of their housing requirement on sites no larger than one hectare; unless it can be shown, through the preparation of relevant plan policies, that there are strong reasons why this 10% target cannot be achieved;

b) seek opportunities, through policies and decisions, to support small sites to come forward for community-led development for housing **and self-build and custom-build housing**;

c) use tools such as area-wide design assessments, permission in principle and Local Development Orders to help bring small and medium sized sites forward;

d) **support the development of windfall sites through their policies and decisions – giving great weight to the benefits of using suitable sites within existing settlements for homes;..**

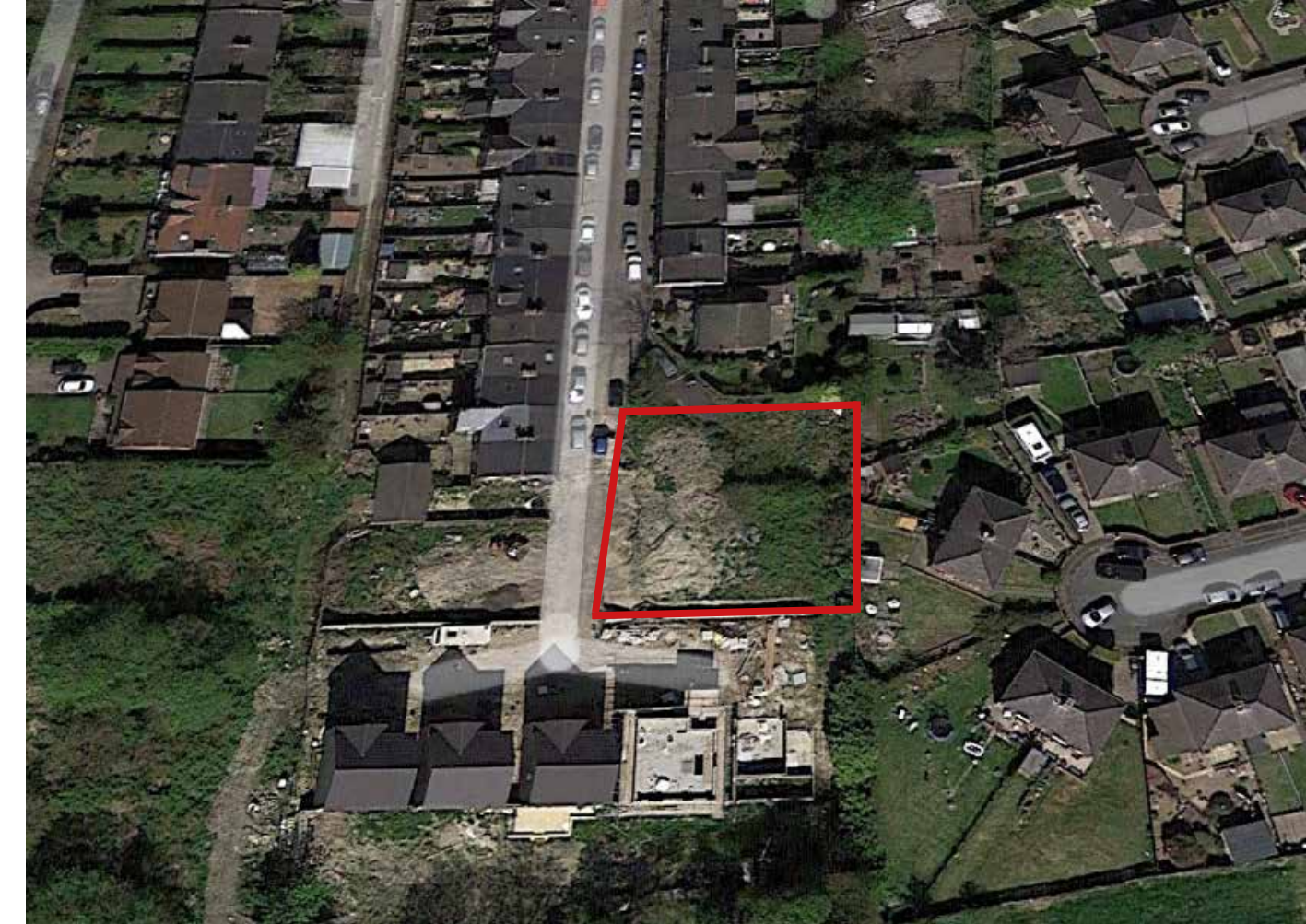
1.4 Neighbour Consultation

Mr and Mrs Barton have carried out door to door consultation with neighbours on Tower Street, and on Columbia Street where properties abut the site to the East. The responses are as follows:

No 3 the Heights - have no issues with the proposals.
No 4 the Heights - visited on several occasions, not available
52 Tower Street - very supportive of the plans
Nos 61 and 63 Tower Street - rental properties not available to comment
No 16 Columbia Street - has no issues with the proposals
No 17 Columbia - is reported to be currently empty.



Map 09/2008



Map 04 2020



Map 05 2022



Map 06 2023

2. SITE CONTEXT

2.1 Application Site - Tower Street context

The site is situated at the southern end of Tower Street in Worsbrough Common, just outside the Town Centre. The site was previously used for allotments, with the southern area already developed for town houses.

Tower Street comprises stone fronted Victorian terraced properties forming a uniform street scene, characterised by the sloping eaves and regular front doors with a stone step at the back of pavement. The street rises towards the south terminating with the gated development of modern detached dwellings planning approval ref: 2017/1116. The town-houses are 3 storeys to the frontage with integral garages, 2 stories to the rear to access raised gardens. The town-houses are a very dominant punctuation to the street scene. The materials complement the character of the existing street scene using artificial stone and slate to replicate the existing materials of Tower Street. The gables to the front elevation introduce a new architectural element to the street scene.

To the east side of the street is a detached dwelling, (No.52) set back from the building line which is not visible at the lower end of the street. (see image on the right). The house is of similar materials to the existing terraces. The house is located on the north side of the application site.

On the west side of Tower street, planning permission for a single dormer bungalow of artificial stone and slate roofs has been granted on the west side of Tower Street opposite the site (2020/00684 outline & 2021/0943 reserved matters), set back slightly from the prevailing building line in a similar way to number 52.

The site is roughly square in shape with semi-detached dwellings to the east at Columbia Street with rear gardens which abut the site.

The site levels remain at the former level of the old allotments. The ramp forming the previous access is not within the site boundary and used as parking on plot for number 52. Levels at the southern edge meet the road level. The site is overgrown and prone to littering.

On the application site, previous planning permission was granted by 2018/1399, with S106, for 2 detached dwellings with integral garages and driveways directly off the street, on the same orientation and building line as the adjacent property (no 52). The gardens at the rear are at the existing levels with external steps to access the garden.

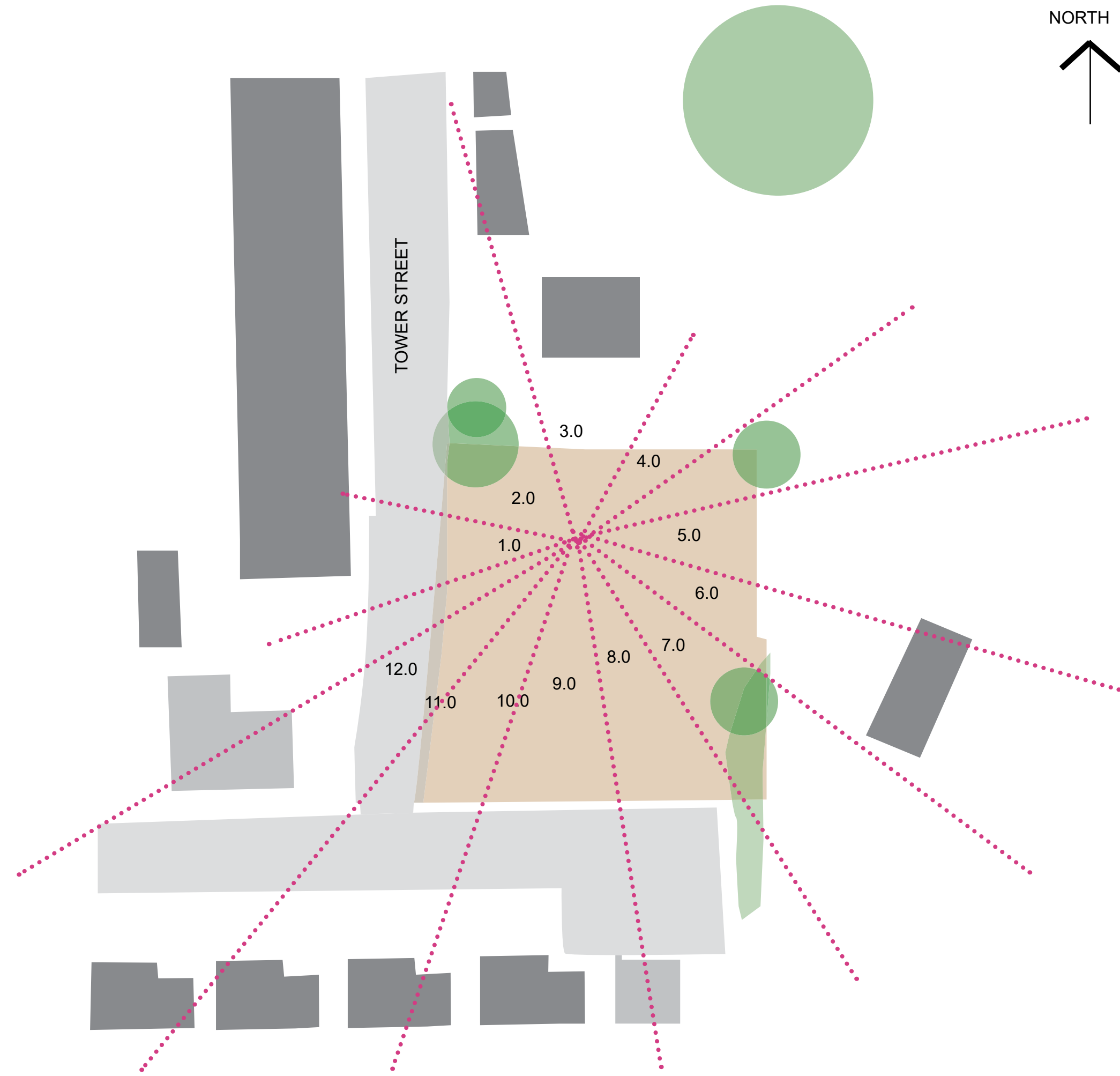
The previous approved scheme would require a substantial volume of excavation to reduce the ground floor level to street level and require the excavation material to be removed from site.



2.2 Existing Site

Aerial photographs of the site (opposite) show the development of the site from September 2009 to June 2023. The allotment site originally sloped evenly up to the south. The town houses were formed with a reduced levels in front of the properties, leaving the application site banked up from the new boundary wall. The bungalow to the west side of the street remains incomplete and the fifth town house is yet to be built.

SITE PHOTOS



Photo_1



Photo_2



Photo_3



Photo_4



Photo_5



Photo_6



Photo_7



Photo_8



Photo_9



Photo_10



Photo_11



Photo_12

3. SITE ANALYSIS

3.1 Wider Built context

Local listed buildings

WORSBROUGH GENN LANE (top right) is described as:-
Farmhouse with attached outbuilding and garden wall. c.1700 for Dr. William Elmhirst, house extensively rebuilt 1964. Coursed, squared sandstone, stone slate roof. 2 storeys with attics, 3 windows to 1st floor; house linked by external steps to small outbuilding on right, front garden wall incorporates dog kennel beneath mounting steps at front right corner.

LOCKE TOWER (image below)

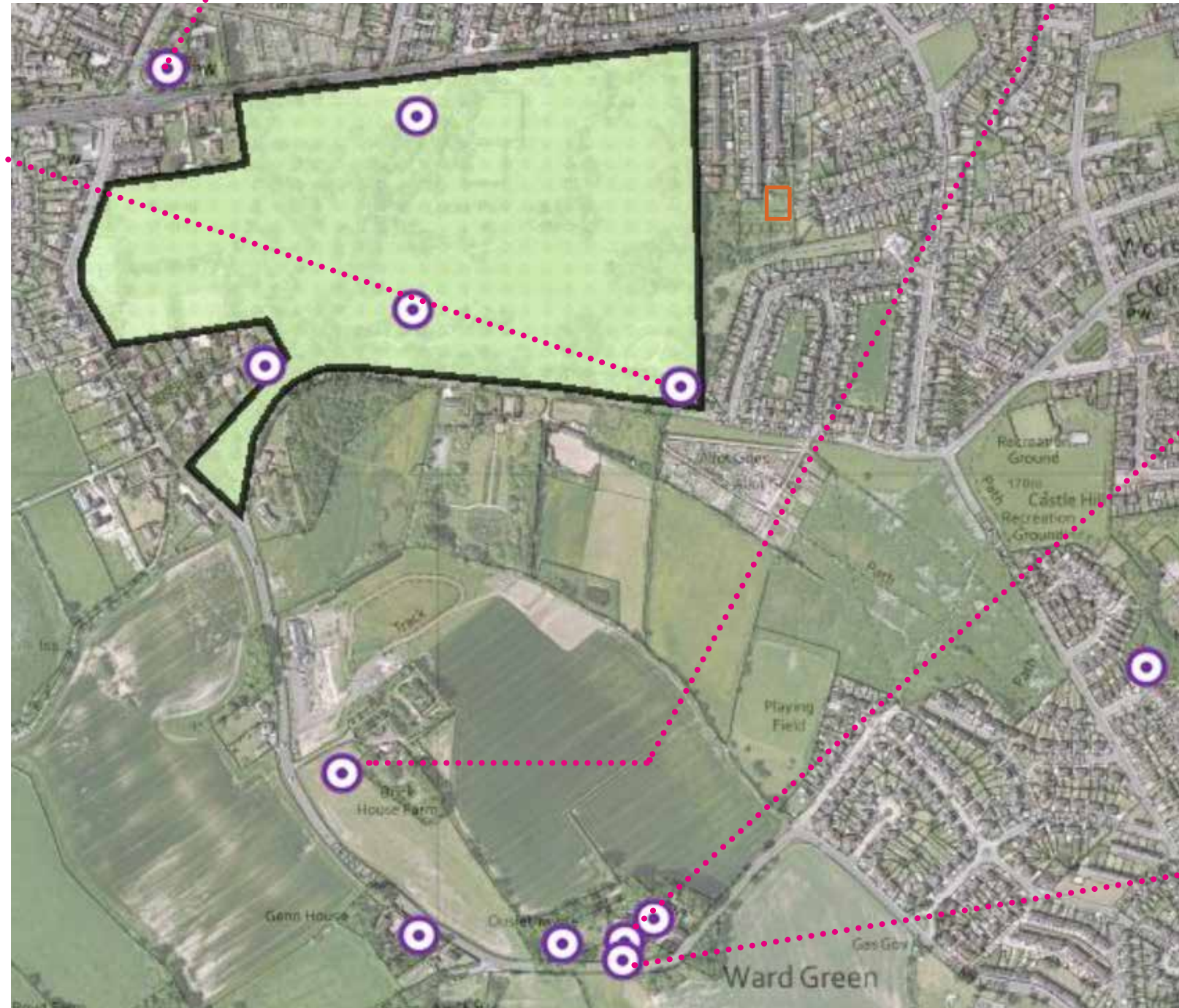
Joseph Locke was a railway pioneer. Sheffield born, he was hugely popular in Barnsley and never forgot the town where he moved to as a small boy. Following his death in September 1860, Locke's widow, Phoebe, announced that she intended to create a 'recreation ground' for the people of Barnsley.



Locke Park Tower is designated at Grade II* for the following primary reasons:

- * As a rare example of a structure in a C19 public park dedicated to a woman other than Queen Victoria, and also commissioned by a woman
- * An interpretation of a difficult brief combining a memorial to Phoebe Locke, wife of Joseph Locke the railway engineer, with pleasure observatory for use by the people of Barnsley
- * Designed by Richard Phené Spiers, Master of Architecture at the Royal Academy Schools.
- * Built in 1877 it is at the vanguard of democratising elite building types previously restricted to the use of private individuals by combining the vocabulary of mausolea with belvederes and bringing them into the public realm
- * As an integral part of the overall design of Locke Park (Grade II), forming both a furthest point to walk to from the entrances and a structure from which to overlook the park, and landscape beyond.

CHURCH OF ST EDWARD, PARK ROAD Grade II listed (top left) Parish church, 1900-02. Designed by Goodwin S Packer of Southport. Gothic Revival style. Coursed dressed stone with ashlar bands and dressings.



SITE ANALYSIS

OUSLETHWAITE HALL GRADE II listed, description:-

Part of the Elmhirst estate. Deeply-coursed, dressed sandstone, 3 storeys, 5 bays; with 2-storey single-bay wing set back on right extending as rear wing. Main facade: raised ashlar quoins. 3-step stylobate to Doric porch with full entablature enclosing panelled door with decorative radial glazing bars in overlight.

WALL WITH STEPS TO FRONT OF OUSLETHWAITE HALL

Central gate piers approached by steps on two sides of stone platform; retaining walls formed by convex panels of stonework divided by ashlar pillars. Gate piers have roll-moulded edges and square section which reduces in moulding at top.



The vernacular sandstone buildings, and the boundary walls and steps are features that are important in the wider area around the site.



HISTORIC MAPS

Tower Street was extended to the south by 1907, a large area of allotments existed to the east side of the terrace and the area to the north of Park road was gradually built up with predominantly terraced housing.



1894 MAP

'Reproduced with the permission of the National Library of Scotland'



1907 MAP

'Reproduced with the permission of the National Library of Scotland'

3.0 SITE ANALYSIS
3.2 Wider Site Context



figure 1



figure 2



figure 3



figure 4

Site Context

- 1.0 Allotments
- 2.0 Green spaces
- 3.0 Park and Garden of Historic Interest
- 4.0 Green Belt

Site area outlined in red.

Architectural Character of the surrounding area as shown in the images to the right.

The street is stone facing to the street, with some brickwork to gable elevations. The stone coursing is larger towards the bottom of the property. Lintols and sills are stone and original stone steps are present.

The sloping eaves to the terraces on Tower Street emphasizes the gradient to the south.

The site is not entirely visible on approach until adjacent to the site. Number 52 has an embankment to the north side of the site, which is used for parking.

Parking is on road, except for the new town houses, where garages are provided.



figure a - typical terraced house. Stone facing is graduated above ground floor with smaller format coursing



figure b - Properties facing towards Locke Park, have finer details around the front door and roofs are stepped in pairs of houses

figure g - Rear alley way to terrace on west side of Tower Street (right)

figure c - number 52 not visible from this point



figure d - number 52 visible at the southern end of street



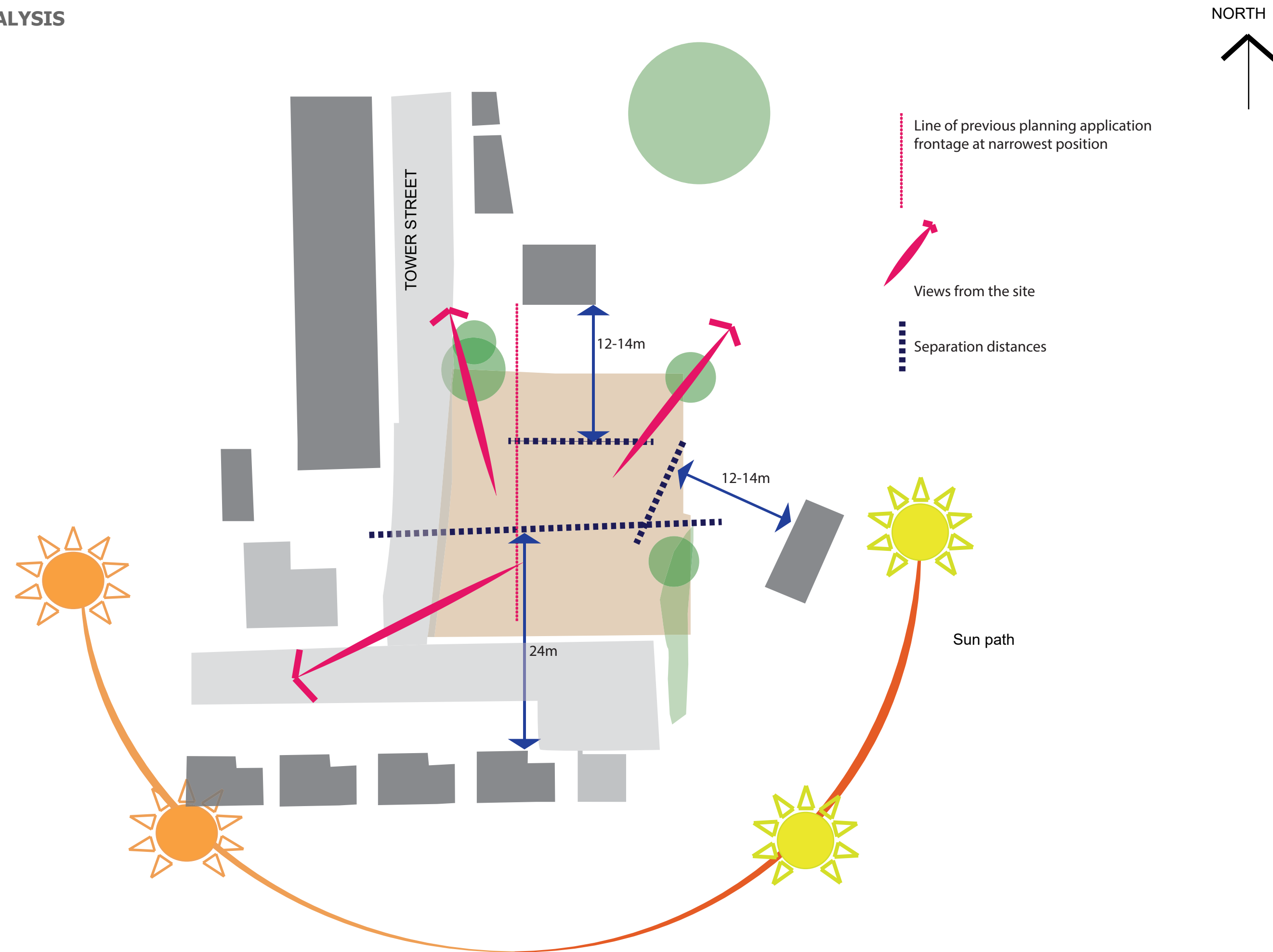
figure e - end terrace is a new property or rebuilt



figure f - boundary wall collapsed, dormer bungalow foundations beyond



SITE ANALYSIS



4. ARCHITECTURAL DESIGN

4.1 NEW PASSIVHAUS DWELLING, TOWER STREET

The design of the new dwelling and its orientation on the site is a response to the study carried out of the site context, both in the immediate vicinity and the wider context of the neighbourhood. Design decisions have been based on careful analysis of the site climatic conditions and the local context and character of the surrounding properties; we also studied the views into and out of the site and considered the effect in the design development (see site photos).

Policy GD1 General Development
Proposals for development will be approved if:

- There will be no significant adverse effect on the living conditions and residential amenity of existing and future residents

Pre App Response

Where front elevations face a road, dwellings should be an appropriate distance apart. The Council will accept a minimum of 12 metres where the dwellings are of the same storey, and it will achieve a street scape that reflects local character

Our design

The dwelling is designed so that the front of the property is single storey, compensating for the elevated ground level by reducing the height of the street elevation. The site sections demonstrate that the separation distance is more than 12m. The entrance, facing the street is on the north side of the dwelling and set back 18m from the facing properties.

Pre App Response

The minimum back-to-back dimension between facing habitable rooms, (i.e. any room used or intended to be used for sleeping, cooking, living or eating purposes), should be 21 metres (+3m for additional storeys)

Our design

The dwelling is designed to Passivhaus principles, locating habitable spaces on the south side of the dwelling. The 2 storey element is placed to the rear of the property. The eaves height is below the eaves height of the 3 storey town houses. The separation distance of the habitable rooms is 25m from the town houses to the south, in accordance with the minimum distance requested. Our site plan drawing no 23-122-110 illustrates how we meet the separation distances set out in the Barnsley DESIGN OF HOUSING DEVELOPMENT guidance.

4.2 Key design drivers:

Client brief :-

- ◇ A lifetime home, adaptable to become an accessible dwelling with living, sleeping and bathroom accommodation on the ground floor
- ◇ Level, covered access from a vehicular arrival point
- ◇ Enhance the street scape by including local characteristics, using stone facing materials, boundary walls to define the edge of the property and define the street

edge as local precedents.

- ◇ Topographical drivers - responding to adjacent levels and scale
- ◇ Responsive to the views from the site, sun positions and local wind patterns.
- ◇ High performance for the building fabric and capture of available solar gains to meet the Passivhaus standard.

4.3 Layouts and space planning

D1: High Quality Design and Place Making – This policy sets the overarching design principles for the borough. Development is expected to be of high-quality design and will be expected to respect, take advantage of and reinforce the distinctive, local character and features of the local area.

The layout of the dwelling is a result of a series of meetings with the client and understanding the design drivers and meeting their needs for a lifetime home, within the Worsbrough Common district of Barnsley, close to Locke Park, transport routes and local facilities.

The house is designed around passive solar principles with habitable spaces facing south. The entrance is located on the north side of the building accessed via steps from the street level into an entrance area with another door leading to the rear parking area and garage location.

The entrance leads into the heart of the house, a large open plan living, dining kitchen space at ground floor level. The staircase is adjacent to the entrance and open to this space providing easy connection to the upper floor.

The living room has a double height space into the roof space at the west side.

Located on the east side of the ground floor is an accessible bedroom, shower room and storage.

At first floor level, the bedrooms are situated on the south elevation with bathrooms located on the north side of the dwelling, in line with Passivhaus principles for solar layout of habitable rooms facing south.

4.4 Scale and Massing

23.1 Infill Development (Barnsley Design of Housing Development)
The eaves and ridge heights of dwellings should usually be comparable with the heights of adjacent dwellings.

The proposed new dwelling is part single storey and part 2 storey; the location of the single storey living room to form the street frontage brings the eaves line to approximately the ridge height of number 52 and provides an intermediary level stepping down in scale from the 3 storey town houses that sit at the top of Tower Street.

The properties on Columbia Street to the east of the site, are 2 storey and eaves height is approximately level with the eaves of the 2 storey element to the rear of the proposed dwelling.

Locating the garage with a green roof to the north side of the property provides a 'buffer' to the boundary with number 52 and is lower in height than the previously approved scheme.

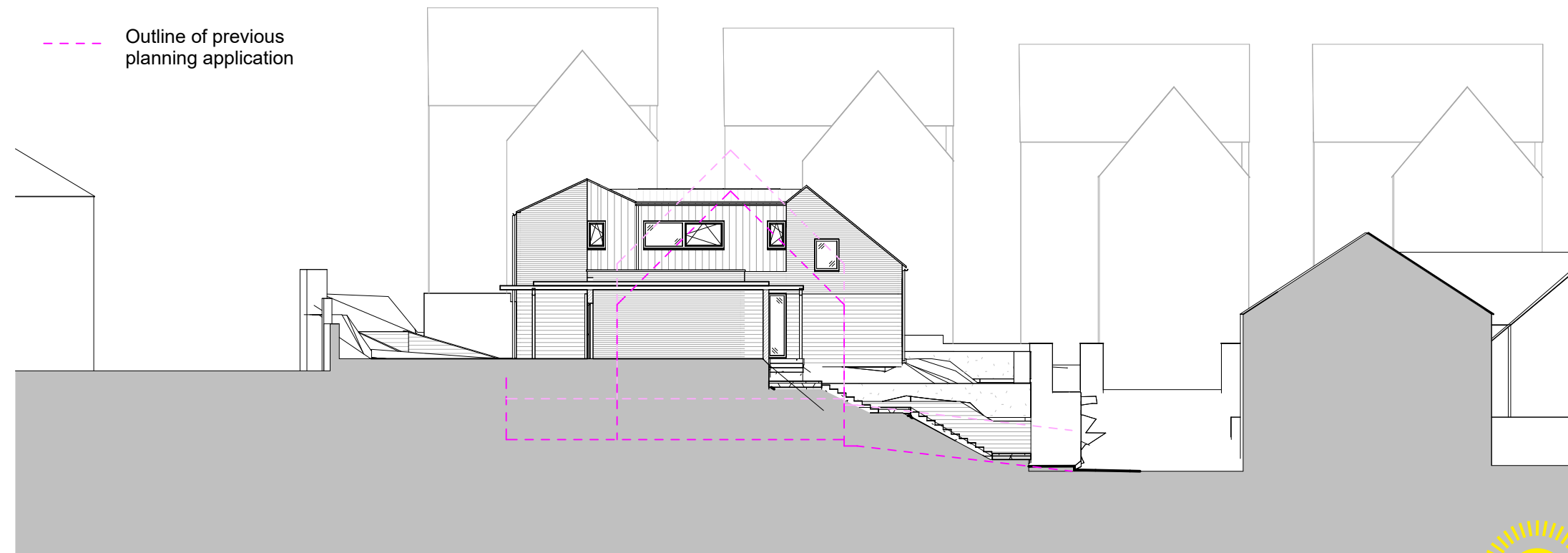
SCALE AND MASSING

1 Section
1 : 200

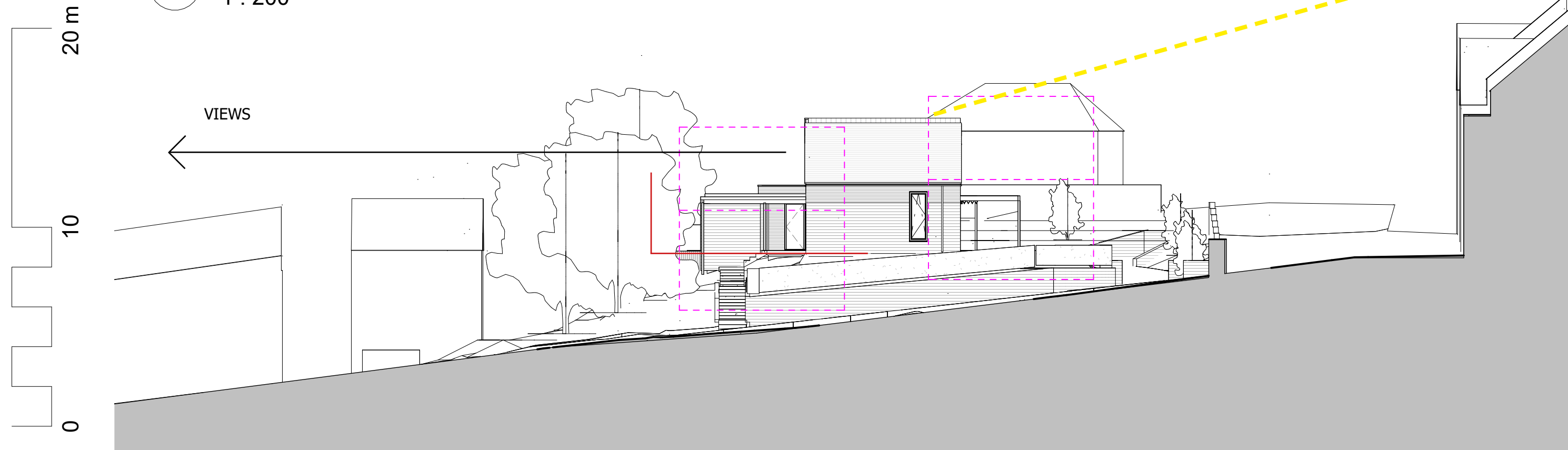
Outline of the previous planning permission is shown in a dashed magenta coloured line.

The proposed dwelling, is part single storey and part 2 storey with a ridge height to the street lower than the previously approved houses.

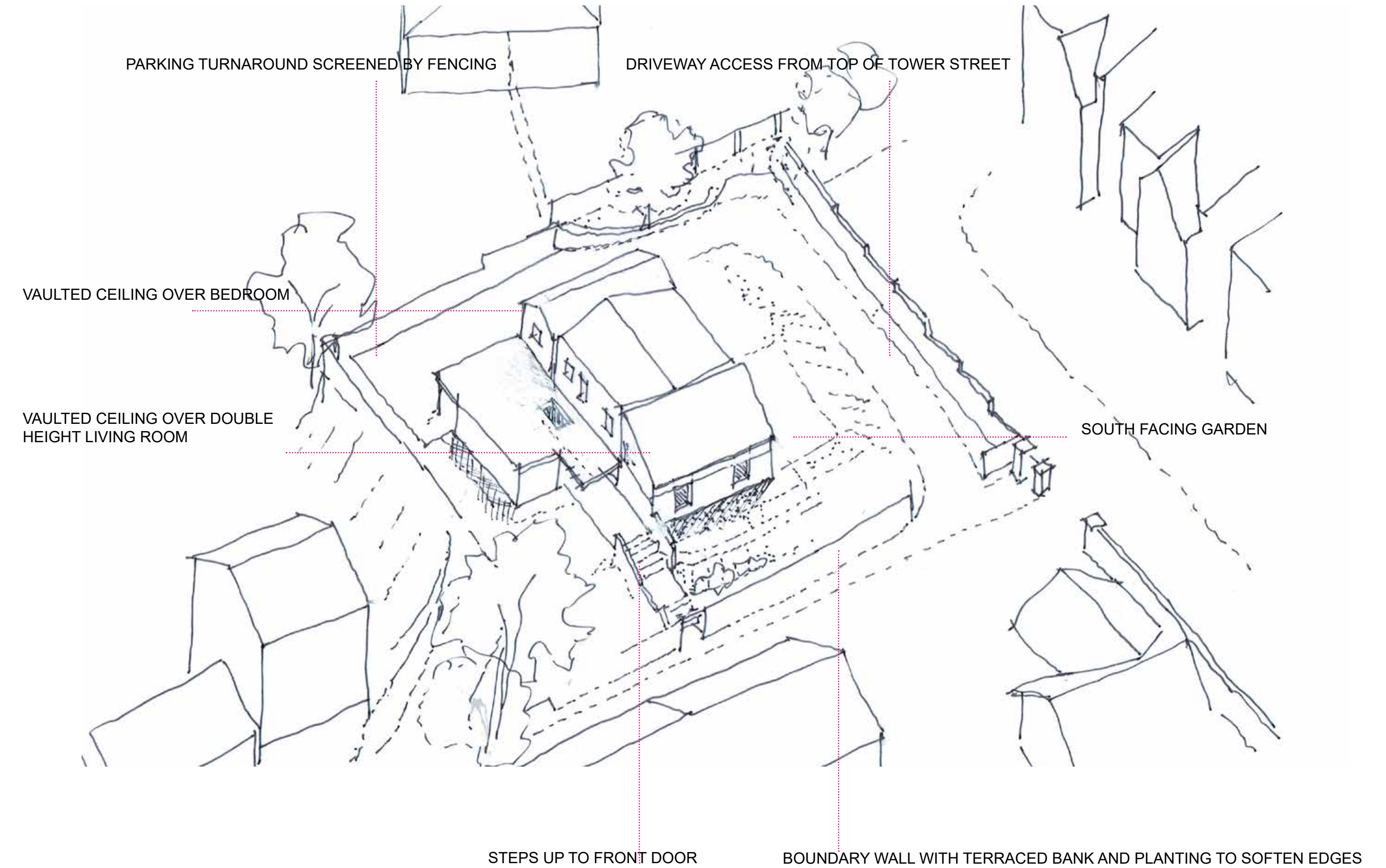
The proposed new dwelling sits in the centre of the site and has less impact on the dwelling number 52 Tower street, being set back away from the northern boundary.



2 Section
1 : 200



MASSING CONCEPT SKETCH



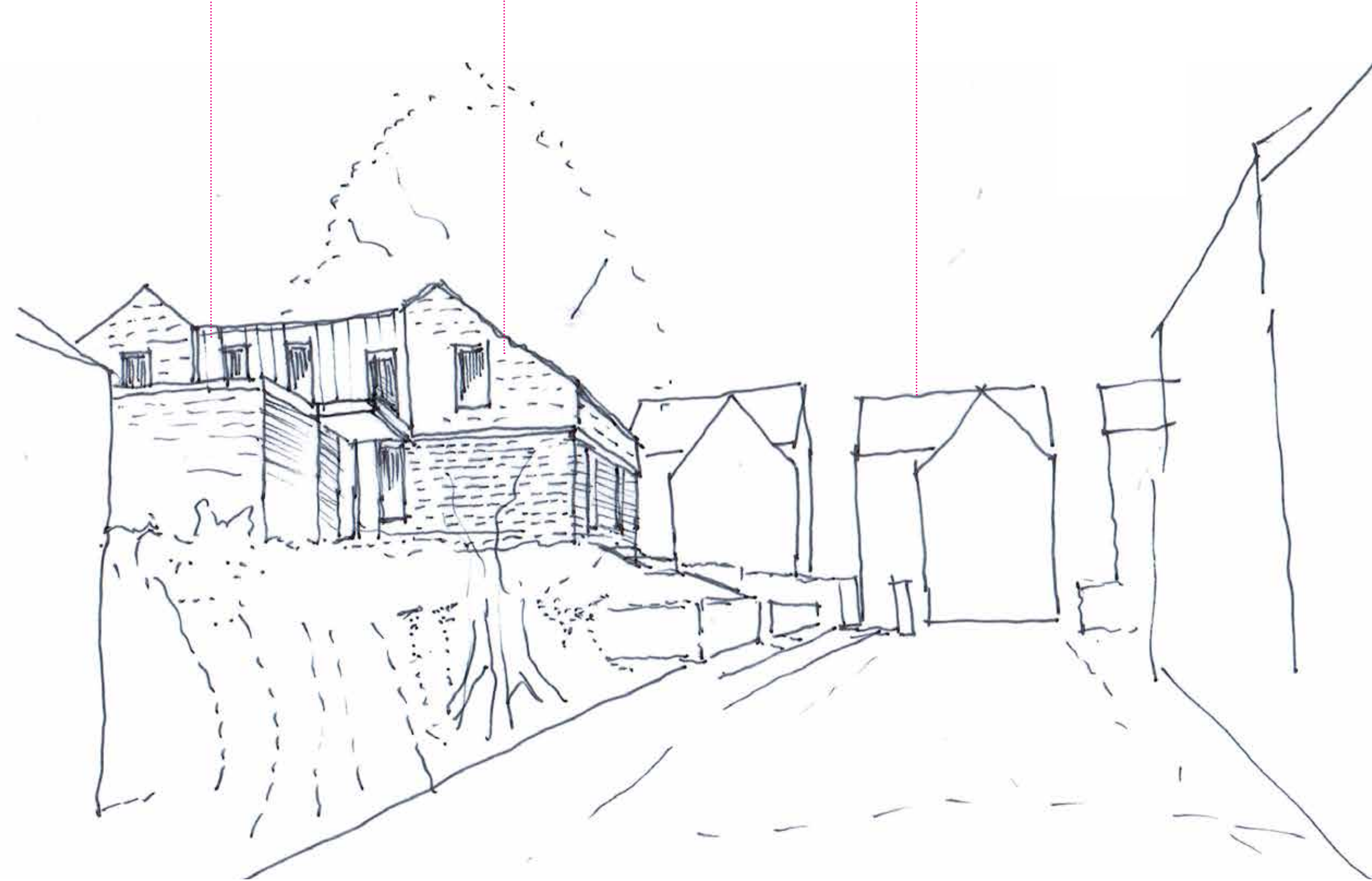
CONCEPT DESIGN DEVELOPMENT SKETCHES

STANDING SEAM METAL CLADDING

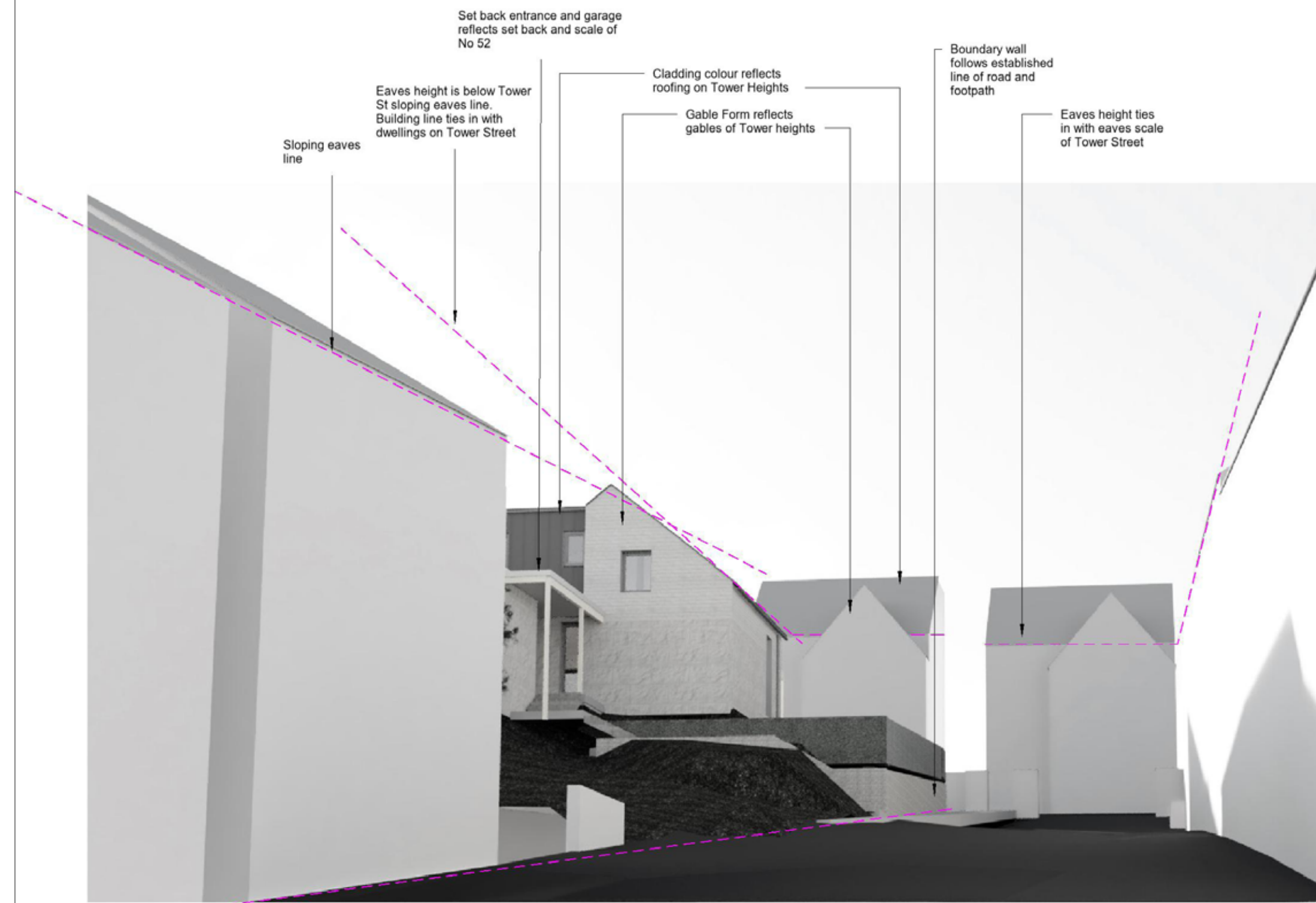
STONE FACING MATERIAL

3 STOREY TOWN HOUSES

STONE FACED TERRACES



SCALE AND MASSING FINAL CONCEPT



NOTES

The contractor is responsible for checking dimensions, tolerances and references. Verify any discrepancies with the architect before proceeding with the work. Where an item is covered by drawings of different scales the larger scale drawing is to be worked to. Construct to figured dimensions only.

Date	Rev	Revision / author / checker

Purpose of Issue Planning

Project Tower Street, Barnsley

Drawing 19
Context-Street View

Drwg. no 23-122-126 **Rev**

Drawn JNBP **Checked** SD

Scale @A3 **Date** 02/05/24

DESIGN PRECEDENTS MATERIALS AND FORM

Examples of form and material expression below and right



HAB HOUSING (LEFT)



ALLISTER GODFREY ARCHITECTS



BAUFRITZ

4.5 External Lighting

Animal behaviours are affected by too much artificial light at night, this can disturb migration, food searching (difficulties due to too much brightness) and sleep.

To avoid light pollution external lighting is minimised, avoiding blue/white lights and light spillage into the night sky. The dwelling will be sensitively designed to avoid light pollution. The windows will have blinds to avoid light spillage in the evening, with the circulation spaces utilising dimmable light fittings to reduce the artificial light.

The entrance door has a canopy with recessed downlighting underneath, the rear parking area in front of the garage will also have recessed downlighting under the covered area. The entrance footpath and steps are illuminated by low level downlighting recessed along the stone walls which would be activated by movement sensors. Lights would be LED, warm white and fully controllable.

4.5 Accessibility and Lifetime Home

The dwelling will be designed to Building Regulations Approved Document Part M4 (Category 2) Accessible and Adaptable Buildings

The dwelling must cater for the changing needs of the clients and accessibility. The 16 point Design Criteria for the Lifetime Home is the starting point for the design and demonstrates the adaptability of the plan to meet this standard.

1. A parking place has a wider space - 3300mm width.
2. The car spaces have direct access to the house.
3. The approach to the rear entrances is level (from the parking area) between parking space and rear entrance (i.e. gradient not exceeding 1:60, and/or no cross-fall exceeding 1:40).
4. All entrances are illuminated with accessible level access over the threshold. The approach to the main entrance is under a roof canopy.
5. Provision for a fully wheelchair accessible lift is included (see example opposite).
6. The width of the internal doorways and the front door are a min 800mm clear opening width. Corridors are minimised on the ground floor. First floor min width is 900mm and adequate 1500mm dia turning spaces are included. Doors to the master bedroom are a minimum 750mm clear approached head on.

There is 300mm to the side of the leading edge of the entrance door and master bedroom.

7. There is space for turning a wheelchair in dining areas and sitting rooms and 1200mm clear between kitchen units.

8. The living room and kitchen dining area is located at entrance level

9. A bedroom is also provided at the entrance level.

10. A wheelchair accessible entrance level WC is provided in the wet room (therefore with accessible showering).

11. Walls in bathrooms and WCs will be capable of taking adaptations such as handrails.

12. In addition to the ground floor sleeping and bathroom accommodation, the design incorporates an identified space for a potential through-the-floor lift into the master bedroom (area 1000x 1500).

13. Structural provision in the joists for a ceiling hoist will be made from the ground bedroom to the bathroom.

14. The main bathroom is designed to incorporate ease of access to the bath, WC and wash basin.

15. Living room windows have low sills for views out and at least one opening light in each habitable room should be approachable and usable by a wide range of people – including those with restricted movement and reach.

16. Switches, sockets, ventilation and service controls are located between 450 and 1200mm from the floor, including the following: Electrical switches & sockets, TV / telephone / computer points, consumer service units, central heating thermostatic and programming controls, radiator temperature control valves, and mains water stop taps/controls.



4.6 Electric Vehicle Charging point

The garage will have a charging point for an electric vehicle. A roof mounted Photovoltaic system is planned to generate renewable electricity and the potential for battery storage is being investigated.

4.7 Refuse Storage and Collection

The refuse storage is located at the bottom of the driveway. There is ample space for recycling storage in the refuse store. The wheelie bins will be stored behind a low wall with timber gates.

4.9 Highways and Parking

1.6 The design and location of garages should be subservient to dwellings. Integral garages should be set back from the frontage of the dwelling

The proposals demonstrate that we have met this criteria.

4.10 Surface Water Drainage

LP28 The presumption is that Sustainable Drainage Systems (SuDS) will be used. The design of surfacing in the landscape proposals incorporates permeable solutions to reduce the surface water run off.

Green roof areas are included for water attenuation.

5. STRUCTURAL SOLUTIONS - OFF SITE PREFABRICATION

5.1 Timber frame construction

An off site timber frame construction method is the preferred solution for the design. We are liaising with timber frame manufacturers, experienced in building to Passivhaus standard (see example of a previous project on the right).

Components are manufactured off-site and the insulated panels are delivered to site. The building frame is quickly erected with membranes in place, leaving it watertight and airtight.

Once the building is at this stage, it enables an early air test to be carried out, which de-risks a difficult target associated with traditional construction.

Timber frames are low in embodied energy, this method can speed up construction and provide well insulated, airtight construction required to meet the stringent targets of Passivhaus.

This method would reduce construction time on site, which would be a benefit on an urban site such as Tower Street.



Tower Street, Barnsley - Passivhaus dwelling

6. ENVIRONMENTAL DESIGN

Passivhaus Design and Sustainability National Planning Policy Framework Section 12. Achieving well-designed and beautiful places states:-

139. Development that is not well designed should be refused, especially where it fails to reflect local design policies and government guidance on design55, taking into account any local design guidance and supplementary planning documents such as design guides and codes. Conversely, significant weight should be given to:

b) outstanding or innovative designs which promote high levels of sustainability, or help raise the standard of design more generally in an area, so long as they fit in with the overall form and layout of their surroundings.

The dwelling has been designed as a 'fabric first' construction in line with the Passivhaus Trust's methodology towards Zero Carbon; only by first reducing the energy demand of the dwelling to a minimum should we then consider meeting the residual energy demand through renewable technologies. The embodied carbon of the heating system can have a significant effect on the total embodied carbon of the dwelling, therefore the smaller the demand the smaller the size of the chosen system and embodied carbon accordingly.

The orientation of the building is particularly important to capture the solar gains during the heating period. The graph (TOP RHS) shows the net energy gain during the heating period. By minimising the north facing apertures we minimise transmission losses.

Thermal modelling with the PHPP (Passivhaus Planning Package) has been undertaken for the proposed building form. (See image RHS). By the Energy Demand method, the heating demand must be less than 15kWh/m² per annum; the results (shown opposite) indicate we are achieving this target. Therefore, for this dwelling with a Treated Floor Area of 151m², this equates to a total Space heating of 2.265kW.

Zero Carbon can be targeted by using Renewable technologies for electricity and heat. The south facing roof to the main house is suitable for PV panels and the use of an air source heat pump is being considered for hot water and heating. The Primary Energy consumption will also be measured to meet the Passivhaus Standard.

Mr and Mrs Barton have committed to building a Certified Passivhaus and commissioned Zero Energy to carry out Certification for the dwelling.

7.

Passive House-Verification

10.4a EN PHPP

Photo or drawing: [Blank]

Building: NEW RESIDENTIAL 2 STOREY DWELLING
 Street: LAND ADJACENT TO 52 TOWER STREET
 Postcode/City: S70 1QS | BARNSELEY
 Province/Country: S YORKS | GB-United Kingdom/ Britain
 Building type: 1-Freestanding single family house
 Climate data set: GB0012a-Waddington, Altitude corrected
 Climate zone: 3. Cool-temperate | Altitude of location: 161 m

Home owner / Client: MR AND MRS BARTON
 Street: 55 HUDDERSFIELD ROAD
 Postcode/City: S75 1DR | BARNSELEY
 Province/Country: SOUTH YORKSHIRE | GB-United Kingdom/ Britain

Architecture: PHI LOW CARBON
 Street: PROFOLK, BANK CHAMBERS
 Postcode/City: SK1 | STOCKPORT
 Province/Country: GREATER MANCHESTER | GB-United Kingdom/ Britain

Mechanical engineer: [Blank]
 Street: [Blank]
 Postcode/City: [Blank]
 Province/Country: [Blank]

Energy consultancy: [Blank]
 Street: [Blank]
 Postcode/City: [Blank]
 Province/Country: [Blank]

Certification: ZERO ENERGY
 Street: [Blank]
 Postcode/City: [Blank]
 Province/Country: [Blank]

Year of construction: [Blank] | Interior temperature winter [°C]: 20.0 | Interior temp. summer [°C]: 25.0
 No. of dwelling units: 1 | Internal heat gains (IHG) winter [W/m²]: 2.4 | IHG summer [W/m²]: 2.4
 No. of occupants: 2.9 | Specific heat capacity [Wh/K per m² TFA]: 60 | Mechanical cooling: [Blank]

Specific building characteristics with reference to the treated floor area		Criteria	Alternative criteria	Fulfilled? ²
Space heating	Treated floor area m ²	151.3	-	-
	Heating demand kWh/(m ² a)	15	-	Yes
Space cooling	Heating load W/m ²	11	10	Yes
	Cooling & dehum. demand kWh/(m ² a)	-	-	-
Airtightness	Frequency of overheating (> 25 °C) %	5	-	Yes
	Frequency of excessively high humidity (> 12 g/kg) %	0	20	Yes
Moisture protection	Pressurisation test result n ₅₀ 1/h	0.6	0.6	Yes
	Smallest temperature factor f _{Rand,25 m²KW} -	0.70	0.46 0.28	Yes
Thermal comfort	All requirements fulfilled? -	-	-	Yes
	U-value W/(m ² K)	-	1.12	-
	U-value W/(m ² K)	-	1.34	-
	U-value W/(m ² K)	-	1.46	-
Non-renewable Primary Energy (PE)	U-value W/(m ² K)	-	0.61	-
	PE demand kWh/(m ² a)	64	-	-
Primary Energy Renewable (PER)	PER demand kWh/(m ² a)	54	60 60	Yes
	Renew. energy generation (in rel. to projected building footprint area) kWh/(m ² a)	0	- -	-

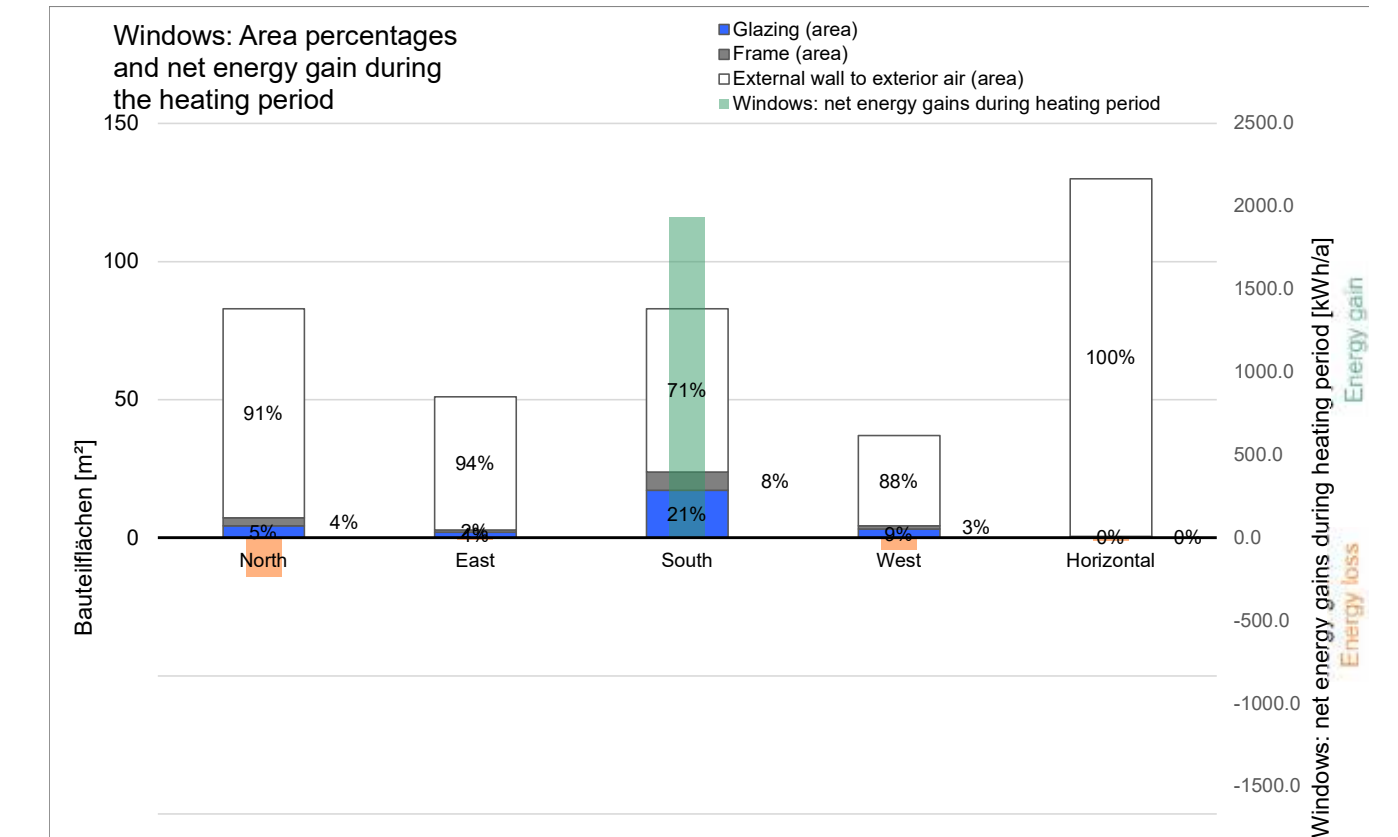
I confirm that the values given here have been determined following the PHPP methodology and based on the characteristic values of the building. The PHPP calculations are attached to this verification.

Task: [Blank] | First name: JeremyPoulter | Surname: [Blank] | City: [Blank] | Issued on: [Blank] | Signature: [Blank]

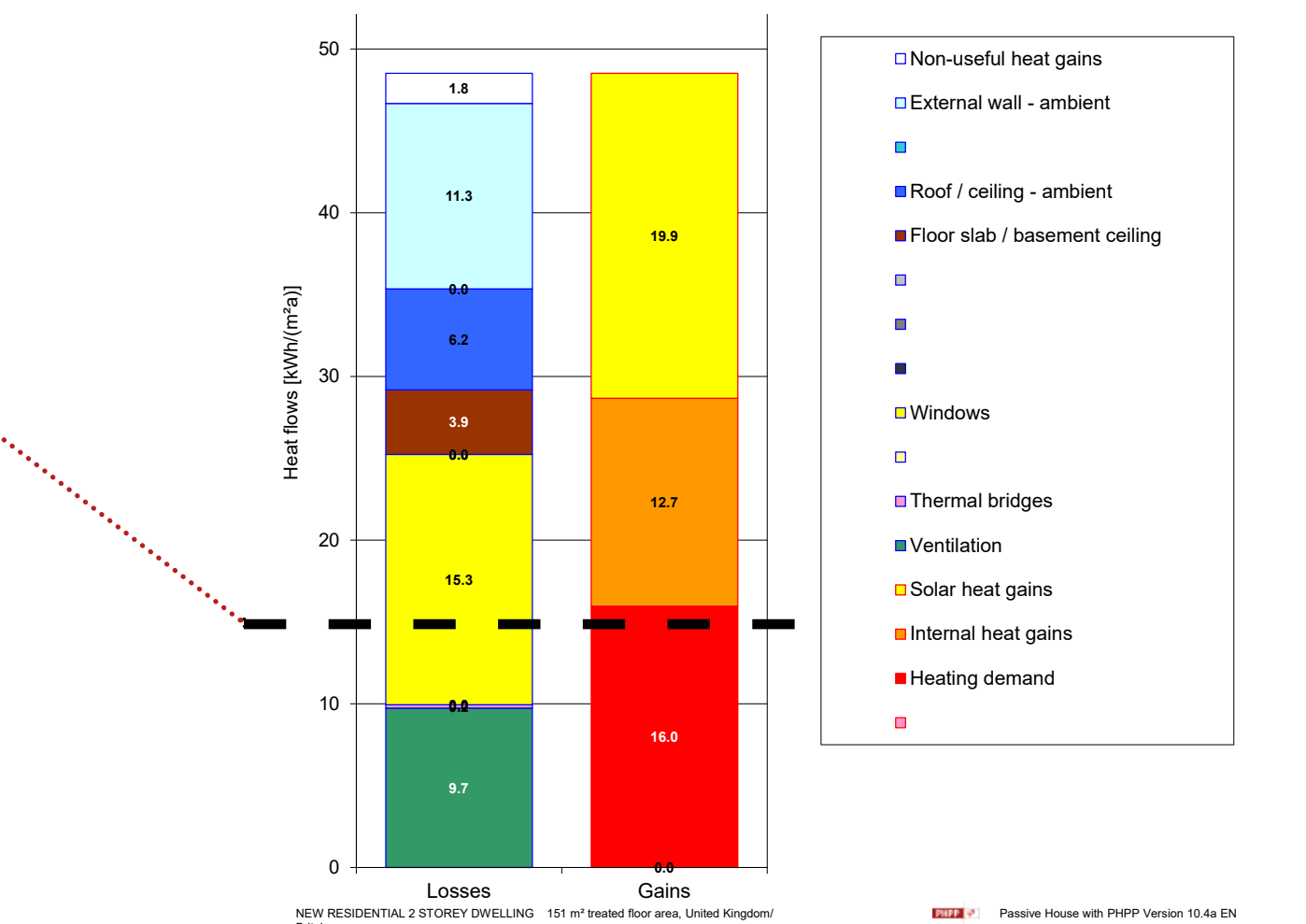
Passive house Classic? Yes

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WINDOWS: NET ENERGY GAIN DURING HEATING PERIOD



ENERGY DEMAND BALANCE GRAPH



8. MATERIALS

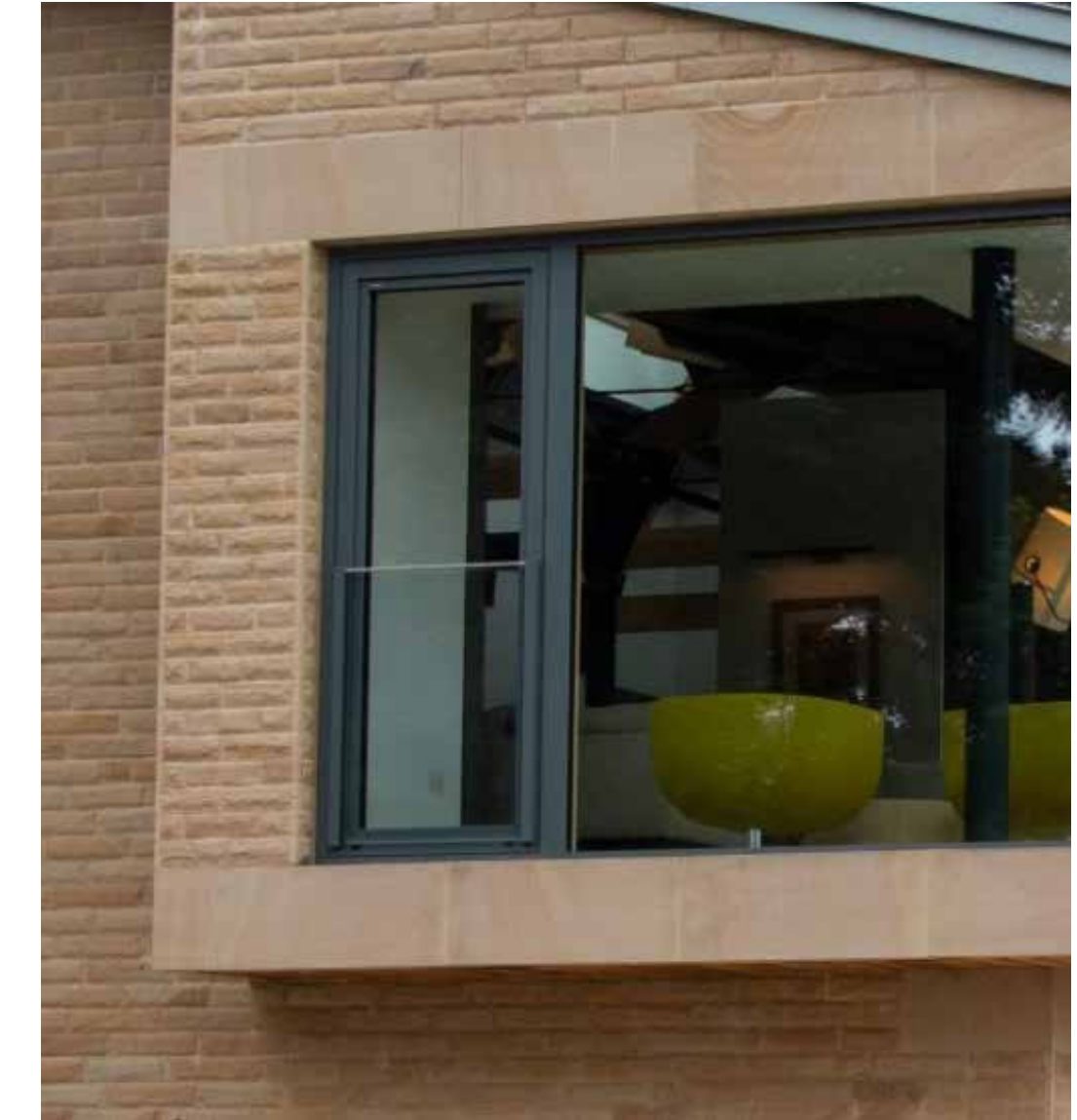
The materials have been selected for low embodied energy. The stone firmly anchors the building to the ground and references the distinct character of the neighbourhood. The Inventory of Embodied Carbon and Energy 2019 says 'general stone' has a carbon footprint of 0.079kg carbon per kg of stone. Concrete's is 0.15kg/kg and steel is 2.8kg/kg. Stone has lower embodied energy than bricks and is the natural choice for the facing material.

The roof facing the street is clad in slate to match the rest of the houses, whilst at the back and part of the first floor, steel standing seam cladding is utilised, as a lightweight building component it reduces the loading for the structure, which reduces the weight of the building and the carbon footprint.

The following precedent images are selected to illustrate:-

- ◇ Walls: Base and part upper: stone walling - stone colour to match local stone
- ◇ Walls: Upper (part) : steel standing seam cladding
- ◇ Roof: Natural slate to street and standing seam low mono pitched roofs with PV panels or film to south
- ◇ Windows: Internorm aluminium faced timber windows and doors

MATERIALS - SAMPLE BOARD



-
- 1.0 PV panels fixed to steel standing seam roofing
 - 2. Vertical standing seam steel cladding
 - 3a+b. Horizontal format stone facing, to be weathered as per example
 - 4. Internorm aluminium faced timber windows

9. LANDSCAPE DESIGN

Landscaping Policies 13.1 (Barnsley Design of Housing Development)

The scheme should be designed to help the development fit into its surroundings and soften its visual impact.

Policy GD1 General Development (NFFP)

Proposals for development will be approved if:

They include landscaping to provide a high quality setting for buildings, incorporating existing landscape features and ensuring that plant species and the way they are planted, hard surfaces, boundary treatments and other features appropriately reflect, protect and improve the character of the local landscape Any adverse impact on the environment, natural resources, waste and pollution is minimised and mitigated;

12.1 Landscape Design(Barnsley Design of Housing Development)

A landscape plan is included in the submission (See opposite). The design incorporates soft landscaping with natural grasses to soften the setting of the new dwelling.

Proposals include the enhancement of biodiversity on the site, with planting of native species for hedgerows, natural grasses and wildflower planting, and a sedum roof for rainwater attenuation.

A Tree Survey has been undertaken by Woodsage Consulting, see the report Arboricultural Impact Assessment WC-240.1a of trees immediately on the site and along the boundaries.

12.2 Ecology

Wildscape consultants have undertaken an Ecological Impact Assessment for the site the results of which are contained with their report, included in our submission.

10. Conclusion

National Planning Policy Framework Section 12. Achieving well-designed and beautiful places states:-

135. Planning policies and decisions should ensure that developments:

- a) will function well and add to the overall quality of the area, not just for the short term but over the lifetime of the development;
- b) are visually attractive as a result of good architecture, layout and appropriate and effective landscaping;
- c) are sympathetic to local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change (such as increased densities)

We have taken into account the Pre Application comments and are submitting a revised design for a single 1-2 storey dwelling. The amended design has a positive relationship with the street scape and addresses the varying scale of the properties on Tower Street whilst adhering to the separation distances set out in the Pre App response and the South Yorkshire Design Guide.

The choice of slate roofing and natural stone walling materials to the street elevation, reflects the local character of slate roofs local stone. A new stone wall and native hedgerows defines the boundary at the back of pavement and a low stone wall follows the profile of the steps up to the entrance of the property making a positive contribution to the urban street scene and providing a high quality public face for the dwelling.

The decision to work with the existing site levels (the original allotment ground levels) is for environmental reasons, reducing the amount of material to be removed from site, and reducing the risk of deeper excavations in a mining area and the recommendations to retain the depth of cover over the coal seams.

Passivhaus standard is a benchmark for new housing (adopted in Scotland for all new dwellings) and reduces carbon in line with government targets. The dwelling is orientated to benefit from solar gain from the south, another reason for maintaining the site levels. The ground floor level aligns with the first floor of the town houses to the south and is in keeping with the scale of the surrounding development.

In conclusion, we have studied the local character to inform our design and the landscape setting of the dwelling, including the scale of the dwelling in keeping with the street without compromising the innovative design required for Passivhaus standard. Passivhaus is a quality assurance standard that will deliver energy savings in use for the lifetime of the dwelling.

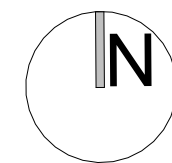
We believe these proposals do accord with relevant national and local plan policies and by virtue of being in accord with these policies, do represent sustainable development.

Underlying the whole NPPF is the presumption in favour of sustainable development. As these proposals do represent sustainable development, we respectfully request that planning approval be granted.

Proposed Site Plan

1 : 250

0 10 20m



Hedgrow (above stone walling)

- Native hedgerow mix:-
- Hornbeam *Carpinus betulus*
- Hawthorn *Crataegus monogyna*
- Hazel *Corylus avellana*
- Spindle *Euonymus europaeus*

Planting area 1 - Grasses

- Imperata cylindrica* 'Rubra' blood grass (syn. Red Baron)
- Stipa tenuissima* pony tails or angel hair (syn. *Stipa tenuifolia*)
- Calamagrostis x acutiflora* 'Karl Foerster' feather reed grass

Planting area 2

- Dogwood* (*Cornus sanguinea*)
- Ferns
- Asplenium scolopendrium* hart's tongue fern or horse tongue
- Polypodium vulgare* common polypody

- Tree T1**
- Replacement Ash
- Rowan (Mountain ash) *Sorbus aucuparia*

- Tree T2**
- Weeping birch *Betula pendula* Youngii

Meadow grass and wildflower mix:-

- Grassed areas including Meadow Grass, Cocksfoot and Yorkshire Fog
- Wildflowers- Birdsfoot Trefoil, Corn Cockle, Ribwort Plantain, red flowering clover, Vetch, Poppy, Yarrow, cornflower, black knapweed, wild carrot, hedge bedstraw, corn marigold and chamomile

Sedum Roof including British sedums

- Sedum Album* - White stonecrop, Biting Stonecrop - golden moss,
- Sedum Anglicum* - English Stonecrop,
- Sedum Fosterianum*

- Driveway resin bound rubber permeable paving with block edging

- Terrace - stone paving

Site boundary - planning. Site area = 949m2

