

URBAN LIVING SPD

Learning from recent higher density schemes in Bristol



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Introduction



Background

The Bristol Local Plan is currently being reviewed, providing an opportunity to develop new thinking on how we can make best use of our limited land supply to successfully deliver higher density development. In support of this, we will be preparing a new Supplementary Planning Document (SPD) entitled 'Urban Living – Making successful places at higher densities'.

It is almost twenty years since the Government's Urban Task Force report 'Towards an Urban Renaissance' (1999) was published. This set out a clear vision for compact, characterful urban areas where people could live without reliance on the private car. The approach helped to introduce city centre living in new apartment blocks, creative approaches to mixing land uses and a renewed interest in delivering a higher quality public realm. The report was highly influential on planning policy nationally and in Bristol contributed to the revival in urban living in the city centre. The Government remains committed to delivering higher density development, reaffirming this in its recent Housing White Paper (Fixing Our Broken Housing Market: 2016).

The themes of the Urban Task Force report remain valid to the renewed challenges that Bristol faces today as we seek to deliver the City's growth agenda, set out in Bristol City Council's Corporate Strategy and the West of England Spatial Plan, as well as the wider aspirations for higher density development set out by the Government's Housing White Paper.

With this in mind, the Urban Living SPD will be informed by the successes and challenges of a selection of higher density schemes built in the city in recent years. It will also set out the Council's ambition to extend the compact city ethos beyond the city centre, to parts of the city that have historically been developed to lower density, more suburban forms and where higher density development has not created a high quality environment.

Case study review

To inform the production of the SPD, a number of case study reviews have been undertaken. The case studies have been selected by the City Design Group (CDG) at Bristol City Council. In selecting case studies CDG has sought to identify examples from a variety of settings (city centre, urban, suburban). Case studies are primarily mixed use with a residential emphasis. However, the Urban Living SPD has the objective of increasing densities across land uses, and therefore a hospital, civic centre and business park have been included within the case studies.

The selected case studies are generally considered to be good examples of higher density development built in the city (and just beyond) since 2000. However it should be noted that many of these schemes were permitted and built prior to the adoption of the current Site Allocations and Development Management Plan (July 2014) and the publication of the Technical housing standards- nationally described space standard (DCLG March 2015). Therefore the case studies are not held up as current policy/ guidance compliant development or exemplars in all aspects of the scheme. Instead their role is to illustrate ways in

which a particular issue or issues have been addressed and to identify lessons that can be transferred to other situations and ultimately inform the preparation of the Urban Living SPD.

It has not been within the scope of this document to explore case studies from further afield. Although learning points from widely recognised best-practice examples such as Copenhagen (Denmark), Freiburg (Germany) and Stockholm (Sweden) have informed the preparation of the Urban Living SPD.

Research methodology

Case study reviews of each scheme have involved the following:

- desk-based review of planning application;
- site visits accompanied by the scheme promoter (with the exception of the Invicta and Quakers Friars schemes);
- where possible, discussions with the relevant planning officer;

A brief overview, description of development and table of quantum is provided for each scheme based on the completeness and quality of available information. Observations are set out on the final page of each case study. These do not seek to cover every aspect of the scheme, rather draw out particular successes and/ or challenges which inform the learning points drawn out at the end of the document. These observations are drawn from analysis of relevant planning documents, feedback from planning case officers, City Design Group officers and developers.

In order to supplement and provide a balanced view, we had been keen to establish the views of those people who are the real experts on their success- the people who live and work there. This has proved challenging, as it was felt inappropriate to contact residents in the immediate aftermath of the Grenfell Tower tragedy. However, media coverage since this tragedy has provided some useful insight, as has the Hackitt Review.

Understanding densities

A key aspect of this study has been to provide robust and comparable measurements of density across all schemes.

An understanding of density is helpful to estimate the capacity/development potential of a particular site before a scheme has been designed. It can:

- help Bristol City Council identify and deliver sources of new housing to meet strategic and local demand/need (e.g. Strategic Housing Land Availability Assessments and affordable housing and Community Infrastructure Levy viability assessments);
- inform estimates of likely future population changes and demand for school places, health services etc; and
- help landowners and prospective developers identify development potential and undertake initial land valuations.

Net densities have been provided for all schemes. Densities are expressed as both dwellings per hectare (dph) and as plot ratios (the ratio between the total proposed floor space and net site area). In calculating densities for mixed use sites, we have adopted an approach to measuring densities used in the London Local Plan. Further details on our approach to measuring density is provided in Appendix A.

Understanding Bristol's context:

To help create a picture of Bristol's existing density profile and allow further comparison, a number of examples have been provided from various neighbourhoods across the city.

Acknowledgements

We are grateful to the following people who have made time available to show us around the selected schemes, and share with us their expertise in delivering these schemes on the ground:

Wapping Wharf: Stuart Hatton (Umberslade)

Finzels Reach: Gavin Bridge (Cubex) and Martin Kendal (The Bush Consultancy)

Paintworks: Ashley Nicholson (Verve Properties)

Junction 3: Jonathan Platt (gcp Architects)

Keynsham Civic Centre: Derek Quilter & Emily Price (Bath and North East Somerset Council)

Gainsborough Square: Sarah McQuatt (United Communities HA) and Suzanne Wilson (Lockleaze Neighbourhood Trust)

Southmead Hospital: Tricia Down (North Bristol NHS Trust)

Filwood Business Park: Paul Owens and Sarah Classick, (Bristol City Council)

We are also grateful to Anna Brookes and Lauren May, both students at the Architecture and Planning School at UWE who assisted preparing case studies.

Understanding Bristol's context

Bristol's density profile

Understanding the historic patterns of density found in the city is important to inform new policy, as is understanding more recent developments and the societal trends expected to shape future densities.

Historically a low-rise city, Bristol's urban fabric is made up of many different building types, scales and densities set out across the city's unique topography. The city has undergone many phases of development, with growth generally characterised by a densely developed city centre, with lower densities moving outwards (see Fig 1).

A number of sample residential neighbourhoods have been selected from across Bristol which illustrate a variety of settings, density levels, building typologies and areas of development. Net and gross residential densities have been provided for all areas (see Appendix A for definition).

Each sample neighbourhood is then assessed in terms of its accessibility to a range of key local services. Finally, a broad assessment is provided of each neighbourhood's potential to change to accommodate increased densities.

When one talks about higher density development, many people automatically think of the high rise estates of the 1950s-1970s. However, as the sample studies show, some of the City's most highly regarded areas such as the Georgian and Victorian suburbs of Clifton and Southville are actually built at higher densities. The modern density of an area like Clifton can be 3 or 4 times the density of the original development as many properties are now subdivided for flats or in multiple occupancy.

The lowest densities can be found in the interwar suburbs such as Hillfields and the 1970s suburbs such as Henbury. However, it is important to note that low density residential areas such as this do not generally provide much scope for intensification.

Areas of post-war tower blocks can provide opportunities for lower rise urban infill. This approach has been successful in Barton Hill. However, it is important that such an approach delivers sufficient usable open space for local residents.

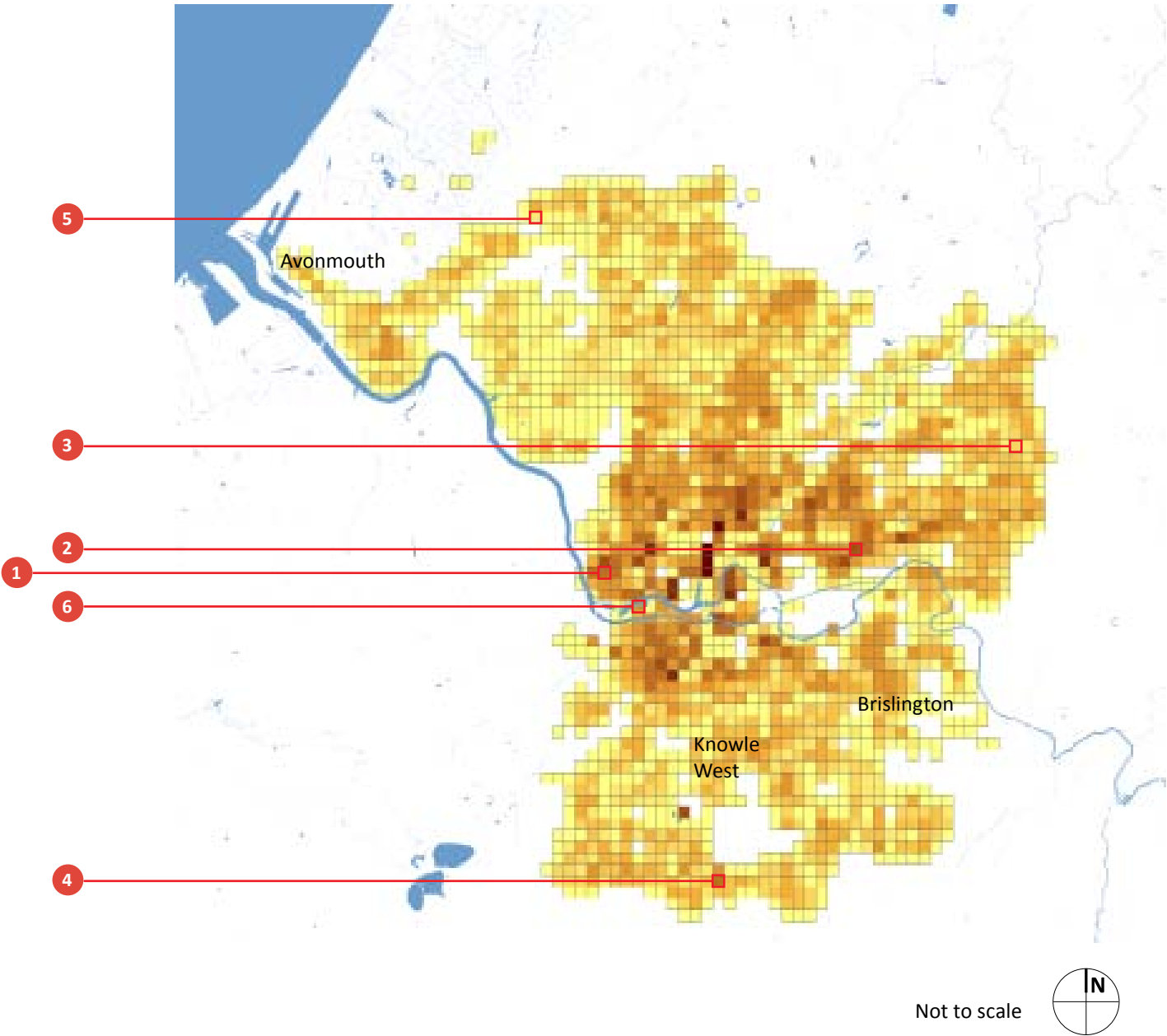
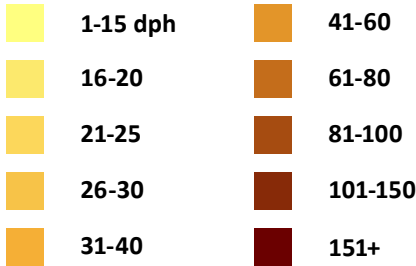
In recent years, with renewed confidence in the market, Bristol has seen increasing levels of development and major planning applications seeking to build at much higher densities. The highest residential densities have been achieved in the city centre largely as a result of the conversion of commercial towers to residential use, the extensive development of student accommodation and the regeneration of Harbourside.

Broadly speaking, the higher the residential density is, the more accessible its residents are to a range of local facilities.

Fig 1: Gross residential density in Bristol

The urban area of Bristol divided into 4 hectare squares coloured to depict the gross density of residential dwellings in each.

Numbers refer to the neighbourhood examples covered in the following pages.



Understanding Bristol's context

Area name, architectural period, predominant building height

4 hectare area (200m x 200m)
Figure ground plan

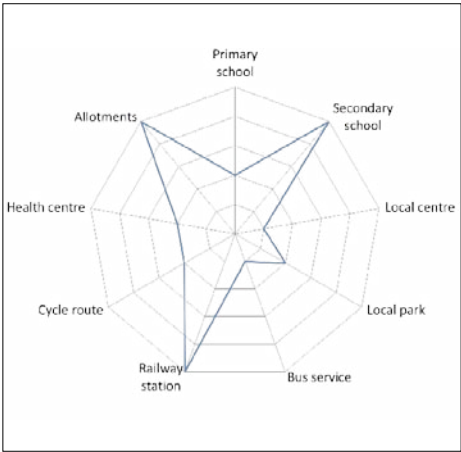
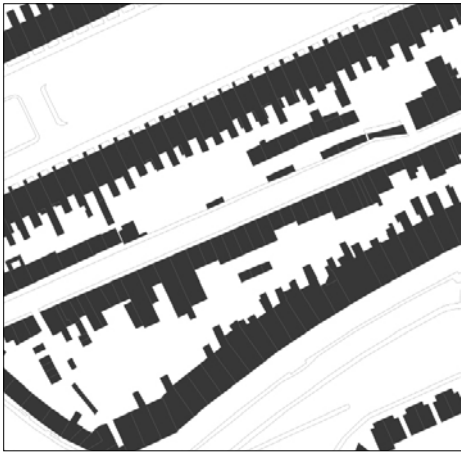
4 hectare area (200m x 200m)
Aerial view

Key services within 1km.

Grid rings of spider diagram indicate 200m distances.

Density and adaptability

1 Clifton
Georgian terraces - 4-5 storeys



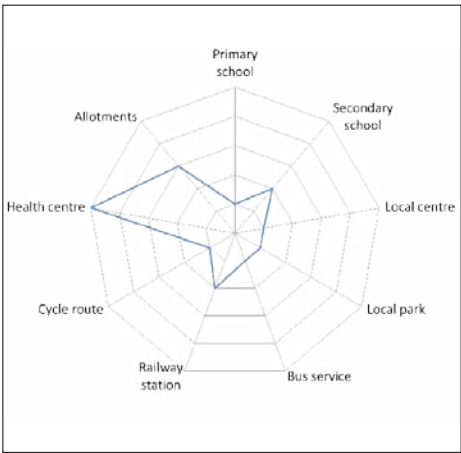
Gross density - 93 dph

Net density - 133 dph

The majority of buildings are already subdivided to create the optimal density of the existing urban fabric. There is continuing pressure on the ability to extend into basement areas for flats and rear extensions creating less than optimal living spaces and increasing issues such as refuse storage, parking and cycle storage.

The area is generally well served, although the nearest state secondary school is over 1km in distance. Most other key services are in walking distance.

2 Barton Hill
Victorian terraces - 2-3 storeys



Gross density - 80 dph

Net density - 107 dph

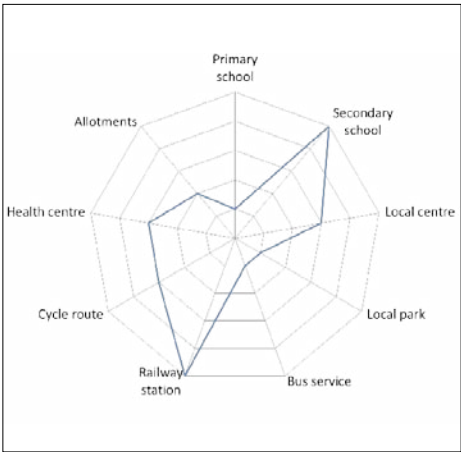
At 80dph this is at the upper limit of terraced suburbs.

Some properties already sub-divided into flats and there is a small proportion of properties in multiple occupancy (HMOs).

Further sub-division of the existing housing stock is likely to lead to the reduced liveability of the neighbourhood.

Very well situated for local services in a walkable neighbourhood.

3 Hillfields
Inter-war semis - 2 storeys



Gross density - 22 dph

Net density - 30 dph

Hillfields is at the lower end of the residential density of inter-war housing estates. Later estates tend to be 30-40dph. The building stock is almost entirely 3 bedroom houses that limits opportunities for community development in terms of smaller units for start up homes or flats.

Opportunities for denser areas potentially lie on the fringe of these types of estates.

However, the area is well served for local services with the exception of a railway station which is beyond 1km in distance.

Understanding Bristol's context

Area name, architectural period, predominant building height

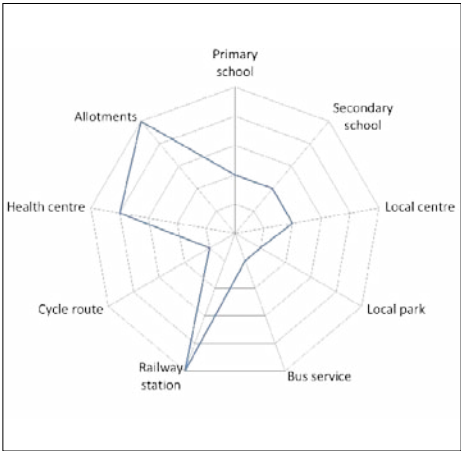
4 hectare area (200m x 200m)
Figure ground plan

4 hectare area (200m x 200m)
Aerial view

Key services within 1km. Grid rings of spider diagram indicate 200m distances.

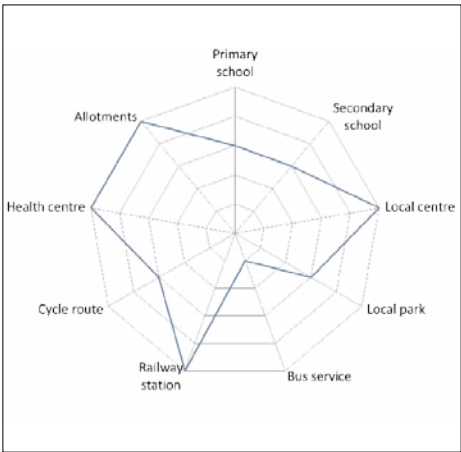
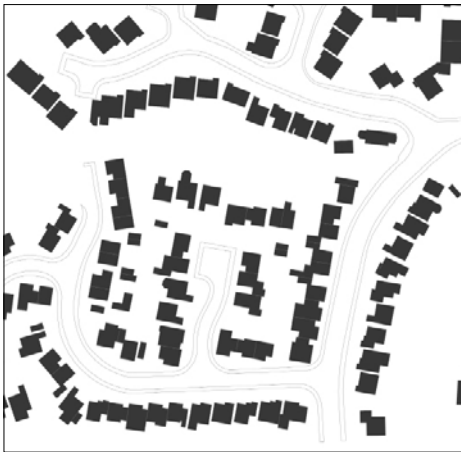
Density and adaptability

4 Hartcliffe
Post-war tower blocks - 16 storeys



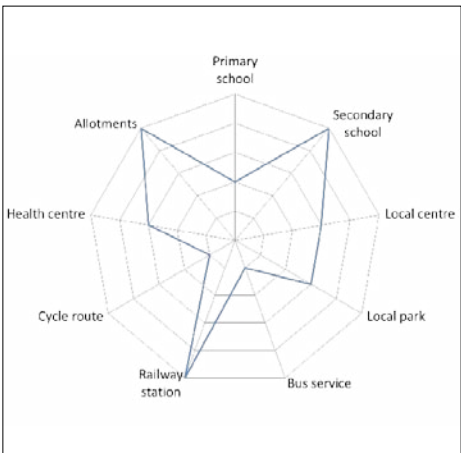
Gross denisty - 65 dph
Net density - 128 dph
This building form makes an inefficient use of land with under used spaces around the blocks.
Recent infill has begun to address the gross density of the area.
The area is generally well connected to key local services with schools, a park, bus service and local centre within 400m. However, the area remains relatively isolated from the city centre and the nearest district centre.
The bus service is a critical connection for this outlying neighbourhood.

5 Henbury
1970s detached housing - 2 storeys



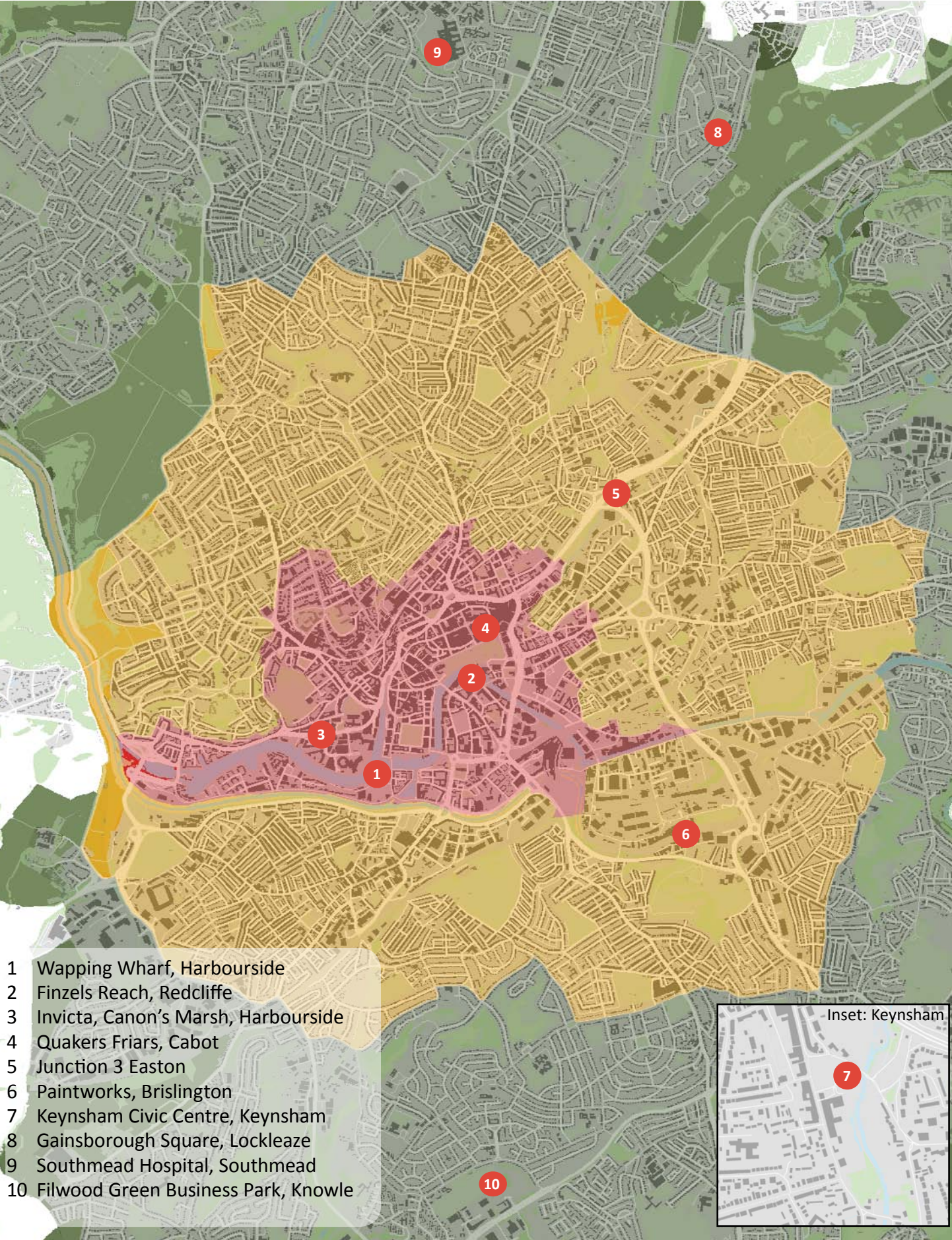
Gross density - 25 dph
Net density - 30 dph
The layout and building form significantly constrains the ability to increase the density of this type of neighbourhood.
The form and layout combined with the provision of integral garages results in a car dependent community with limited access to walkable key services.

6 Baltic Wharf
1980s apartments - 4 storeys



Gross density - 61 dph
Net density - 89 dph
A relatively inefficient site layout with limited scope for adding density without a comprehensive redevelopment.
The repeated building form does not respond to natural topography or existing routes.
The area is well connected in terms of cycling, pedestrian and bus routes, although the nearest railway station is over 1km away.
Other key services are within walking distance.

10 case studies



City Centre

The city centre area is as defined in the Bristol Local Plan. Typically an area with very dense development, a mix of different uses, large building footprints and typically buildings of four to six storeys. Most areas are within a 5-minute walk of public transport



1



2



3



4

Urban

Urban areas are predominantly characterised by dense development such as terraced housing, apartment blocks, a mix of different uses, medium building footprints and typically buildings of two to four storeys, located within a 1,600m distance or 20-minute walk from the city centre or within a 400m radius or 5-minute walk of a town or district centre, or along main arterial routes.



5



6



7

Outer urban

Suburban areas are predominantly characterised by lower density development, for example detached and semi-detached houses with small building footprints and typically buildings of two to three storeys. They are generally located further than 1,600m from the City Centre, and further than 400m radius of town centres and district centres, although they can include local centres.



8



9



10

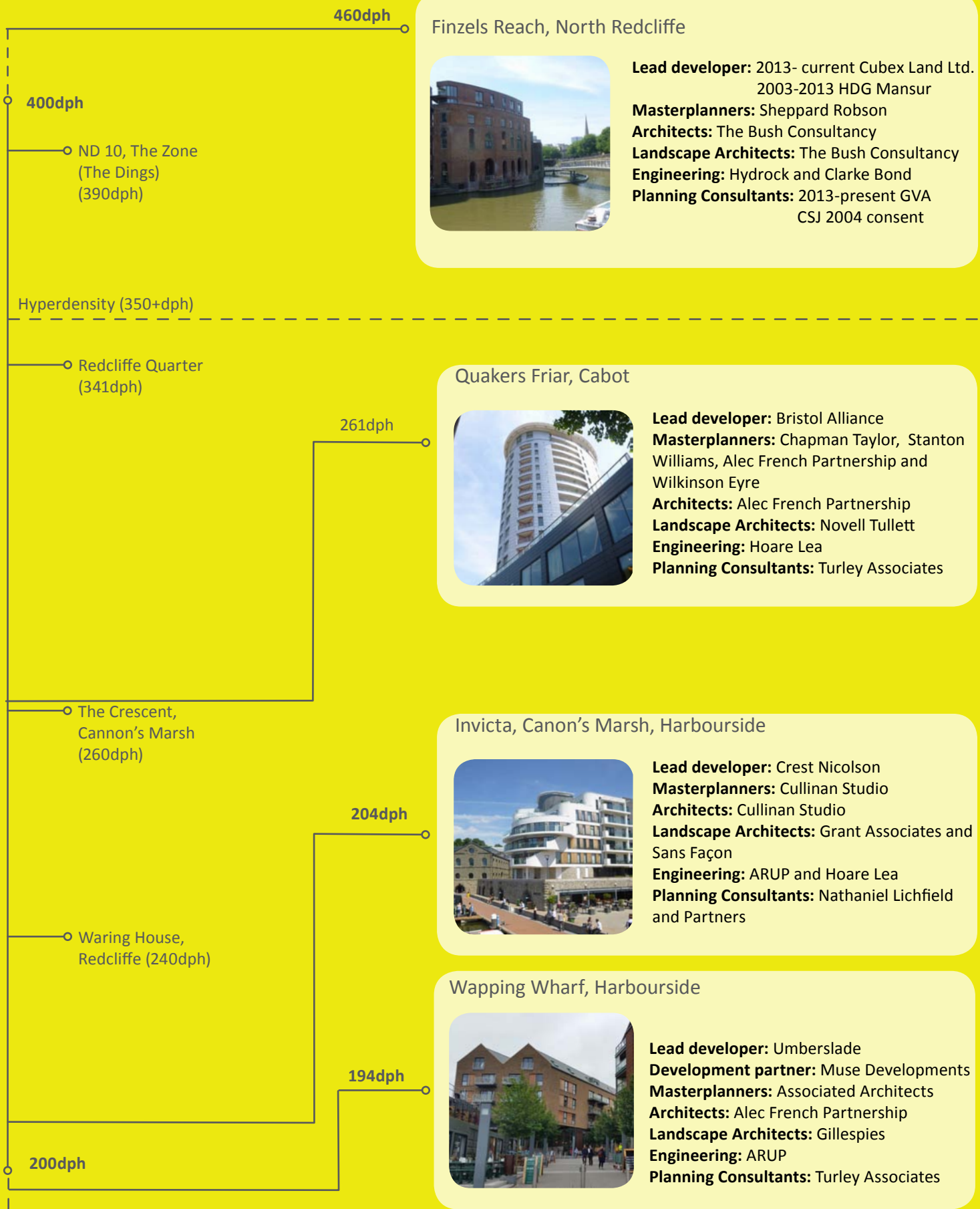


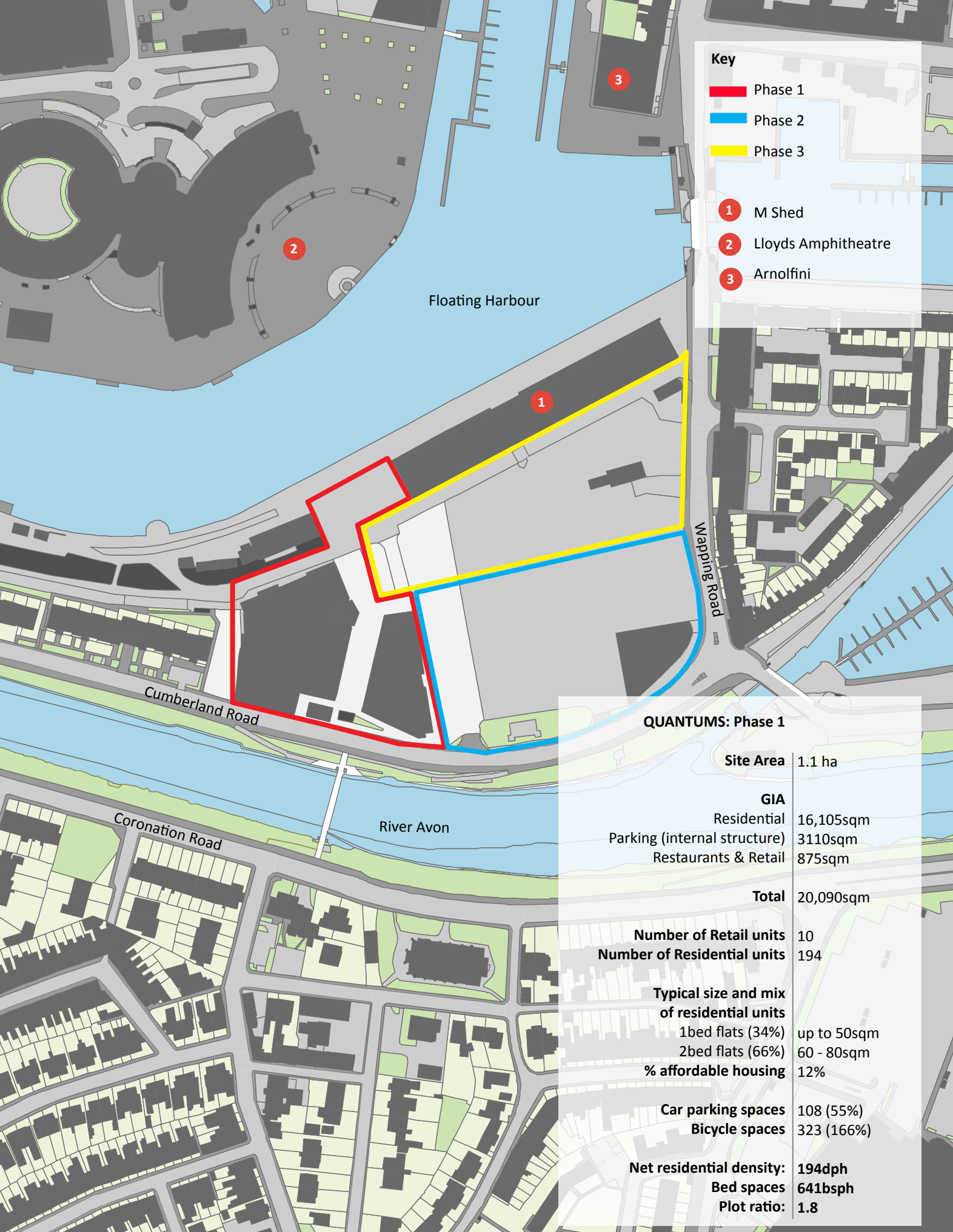
City Centre Area		
1. Wapping Wharf, Harbourside		10
2. Finzels Reach, North Redcliffe		14
3. Invicta, Canon's Marsh, Harbourside		18
4. Quakers Friars, Cabot		21

Image: A new transitional space set between private courtyards and the public street created by KBHT with Ginkgo at Wapping Wharf, Harbourside

Photo: Jamie Woodley

Case Studies: City Centre





- Key**
- Phase 1
 - Phase 2
 - Phase 3
- 1 M Shed
 - 2 Lloyds Amphitheatre
 - 3 Arnolfini

QUANTUMS: Phase 1	
Site Area	1.1 ha
GIA	
Residential	16,105sqm
Parking (internal structure)	3110sqm
Restaurants & Retail	875sqm
Total	20,090sqm
Number of Retail units	10
Number of Residential units	194
Typical size and mix of residential units	
1bed flats (34%)	up to 50sqm
2bed flats (66%)	60 - 80sqm
% affordable housing	12%
Car parking spaces	108 (55%)
Bicycle spaces	323 (166%)
Net residential density:	194dph
Bed spaces	641bsp
Plot ratio:	1.8

Wapping Wharf, Harbourside

Reasons for selection

Wapping Wharf is an example of mixed-use, city centre development located on Bristol’s historic Harbourside. This high density medium rise development has created a new harbourisde destination that champions independent businesses.

Brief history

Historically occupied by the New Gaol and shipyards, the site has been largely derelict and under-used since the 1950s. The site was bought by the family-owned development company Umberslade in 2003. Outline planning permission for the whole site was granted in 2007 with the development masterplan, based on a site design brief by the Council, providing a robust yet flexible framework to co-ordinate the site’s build out in three phases. Phase 1 of the development, secured planning permission in October 2012 and was completed in Spring 2016. Work on Phase 2 of the development is currently underway. When all phases of the development are complete, the project will deliver over 600 homes (20% affordable), alongside retail, commercial and leisure uses.

Location and Context

Located in the city centre, directly south west of Queens Square in the zone between the Floating Harbour and the tidal River Avon, the site lies behind and to the west of M-shed. The location forms a transitional zone between the commercial city centre and the urban suburbs of south Bristol, including Bedminster and Southville, which are connected by Goal Ferry Bridge. Buildings heights range from 2-6 storeys.

The site is highly accessible; less than 15mins walk to Temple Meads Station and Broadmead as well as being located on the new Metrobus Route, along Cumberland Road, which is due to open in 2018.



Wapping Wharf, Harbourside



Phase 1 Area

Right: Masterplan: Associated Architects 2013
Left: Aerial Perspective view of scheme looking south towards St Paul's Church.



Description of development

Site layout: The layout of Phase 1 has largely been determined by the existing desire line between Goal Ferry Bridge and Museum Street. Development is arranged in a series of courtyard blocks which clearly define public and private realms.

Height and massing: Building heights range from 4-6 storeys across Phase 1. Building heights have been limited to maintain a visual link across the harbour to the historic cranes and to St Paul's Church in Southville. Development form utilises the natural level change across the site, sloping down from Cumberland Road to Museum Street, allowing car parking to be provided at basement level, and private amenity space at first floor.

Public realm/ private realm: A new pedestrian route has been created running north/ south through Phase 1. Shops and cafes are located at ground floor either side, with residential above. Access is provided for residents from this route to private courtyards at first floor level. These spaces have been enhanced by the integration of a public art to create an attractive threshold space. The public realm utilises high quality materials and street furniture, creating a distinct sense of place. A new area of public space has been created at the harbours edge next to Mshed, with the

potential to accommodate markets and community events.

Mix of uses: The completed development will comprise residential, retail, office, community workspace, hotel, leisure uses and car parking. Phase 1 is predominantly residential (12% of which is affordable), with ground level activity provided through small scale shops, restaurants and cafes (some permanent, some housed in temporary structures).

Car parking and servicing: Residents car parking is provided at basement level, with allocated spaces for each flat. The majority of servicing and refuse is also managed underground.

Environmental performance: Residential units on Phase 1 have achieved Level 3 of the Code for Sustainable Homes.

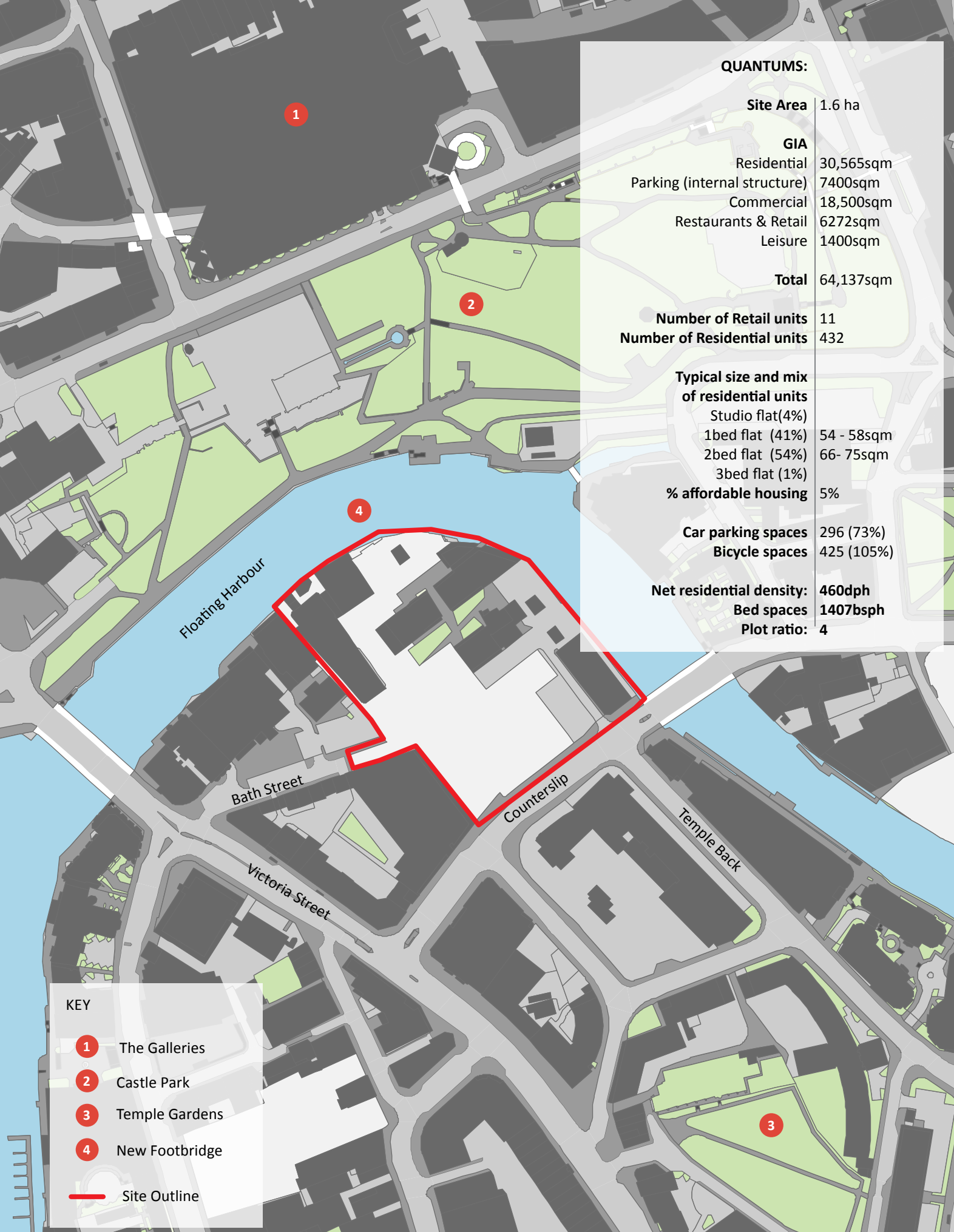
Design quality: A varied material palette including brick and corten steel, combined with a contemporary interpretation of a harbourside vernacular, has contributed to an attractive composition of buildings.



Photo: Chris Bahn

Observations

- **Masterplan approach:** The constructed development represents the first phase of the wider 4.25 Ha site masterplan, which could take an additional 5-10 years to complete. A Statement of Masterplan Principles accompanied an Illustrative Masterplan as part of the Outline Planning Consent. This document represents the mandatory elements and fixes the essential public/ private realm structure, the quantum, scale and use classes of development, historic buildings and important views to be protected. The document and associated Outline Consent offer a robust framework to ensure a coordinated site planning approach, whilst allowing flexibility to respond to changing conditions.
- **Public realm:** Gaol Ferry Steps is the focal space within the scheme, and has rapidly become a popular destination. High quality paving materials, street furniture and lighting have created a welcoming space throughout the day and into the evening. Semi-mature trees have softened the space.
- The public realm is owned and managed by the lead developer, Umberslade. Whilst this restricts the Council's control over this space, it does ensure that the developer has a long term vested interest in the development and its upkeep.
- The new street has been designed as a shared pedestrian/ cycle space. High footfall has ensured the successful occupation of all ground floor retail/commercial units. However the volume of movement has created a number of traffic management issues relating to conflict between cyclists and pedestrians; these matters are being resolved by Umberslade in dialogue with the City Council.
- **Meanwhile Uses:** The scheme has successfully created a thriving cluster of small businesses, predominantly restaurants housed within Cargo containers. The scheme demonstrates how a site can be temporarily animated pending the long-term redevelopment of an area.
- **Residential amenity:** Attaining this medium-rise high density development has necessitated the inclusion of a significant number of single aspect flats. Some of these flats face one another across privacy distances of 15 metres or less. This has a compromising impact upon residential amenity. The private shared courtyard gardens are consequently relatively small and do not allow sufficient space for residents to congregate and socialise; although there are signs of people personalising space within these areas.
- Apartments are however provided with good sized usable balconies and private patio spaces.



QUANTUMS:	
Site Area	1.6 ha
GIA	
Residential	30,565sqm
Parking (internal structure)	7400sqm
Commercial	18,500sqm
Restaurants & Retail	6272sqm
Leisure	1400sqm
Total	64,137sqm
Number of Retail units	11
Number of Residential units	432
Typical size and mix of residential units	
Studio flat(4%)	
1bed flat (41%)	54 - 58sqm
2bed flat (54%)	66- 75sqm
3bed flat (1%)	
% affordable housing	5%
Car parking spaces	296 (73%)
Bicycle spaces	425 (105%)
Net residential density:	460dph
Bed spaces	1407bsph
Plot ratio:	4

Finzels Reach, Redcliffe

Reasons for selection

Finzels Reach is an example of a hyper density, mixed use regeneration scheme in the City Centre which seeks to reuse historic buildings alongside a series of new buildings. Far exceeding the density of both Wapping Wharf and Invicta, the scheme is also one of the first sites bringing forward large scale Private Rented Sector accommodation (PRS) in Bristol.

Brief history

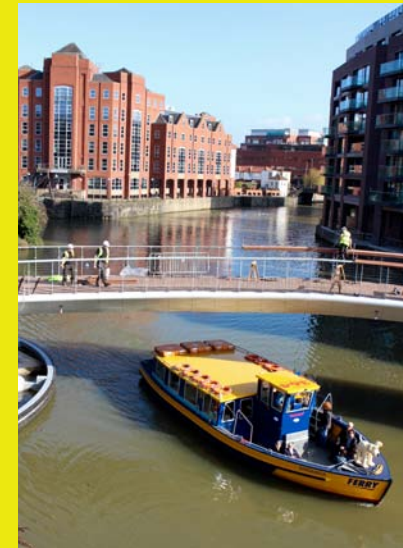
Formerly occupied by the Finzels sugar refinery, and most recently Courage's Brewery, the site retains several listed buildings which serve as a reminder of Bristol's rich history. Since gaining planning approval in 2005 for the selective demolition of unlisted buildings and redevelopment to provide a mixed-use scheme, harbourside walkway and pedestrian and cycle bridge, the scheme has been subject to a number of variations over the intervening years. The development of Finzels Reach began in June 2007, led by HDG Mansur, however work stopped in 2011. Bristol based developers Cubex and its funding partner Palmer Capital completed the purchase of the site in November 2013, and following a commercial reassessment of the scheme, continued to develop out the site.

Location and Context

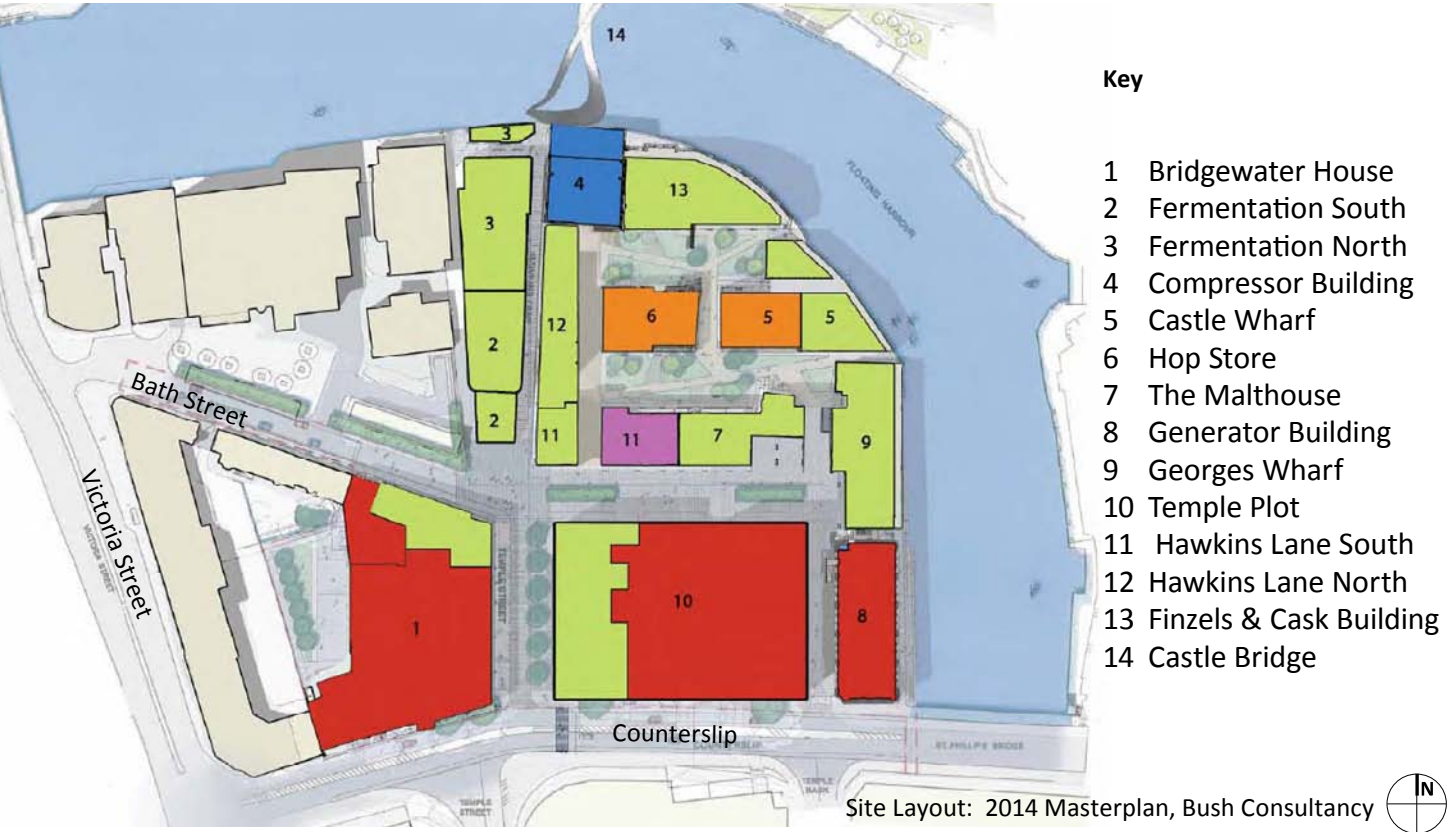
Finzels Reach is a prominent city centre site on the Floating Harbour facing Castle Park. Located within Redcliffe Conservation Area, to the north is the city's main retail centre, to the south is the enterprise zone of Temple Quarter. The site has good accessibility, served by buses routed along the nearby Counterslip and Victoria Street. Temple Meads train station is within a 10-minute walk. Pedestrian and cycle connections have been further improved by the construction of a new pedestrian bridge across the floating harbour into Castle Park. The ferry stop at Castle Park has also been restored as part of the development.



Photos: AWW Website



Finzels Reach, Redcliffe



Description of Development

Site layout: A masterplan approach was taken, designed to reflect and enhance the fine grain of historic development on the site. As such the layout of the site is largely determined by the retained historic buildings, and the desire to reinstate an historic route through the site. The site comprises development of courtyard apartment blocks to the north east and larger scale office blocks to the south.

Height and massing: The buildings vary from 3 to 11 storeys in height. The retained fermentation buildings and the compressor building are the smallest in height. Hawkins Lane (Plot 11) is the tallest at 11 storeys, however most buildings vary from 7 floors upwards. These heights, together with the reinstatement of historic routes results high levels of enclosure.

Public realm/ private realm: A main pedestrian route runs through the site from north to south following the desire line from Castle Park into the site via Castle Bridge. Active uses are focussed along the key routes, along with landscaping arranged in large scale planters. The development also seeks to complete the harbourside walkway along the north and east edge of the site. Semi- private space is provided by courtyards in between the residential blocks to the east of the site. The public realm is privately owned.

Mix of uses: This is a genuinely mixed use scheme. Residential predominate, but there are also offices, a hotel, restaurants and cafes. The tenure mix varies across residential blocks, as does the design response. For example, the block containing PRS units places a greater emphasis on high quality communal spaces and less on private amenity space.

Car parking and servicing: Parking across the site has been accommodated within a large basement area, covering most of the east of the site, accessed from Counterslip. This provides allocated parking to residents and commercial users, with vertical circulation cores linking to upper level accommodation. Bin stores are also below ground level, allowing for an uncluttered public realm.

Environmental performance: Residential units have targeted Level 4 of the Code for Sustainable Homes. The office development at Temple Plot has achieved BREEAM Outstanding .

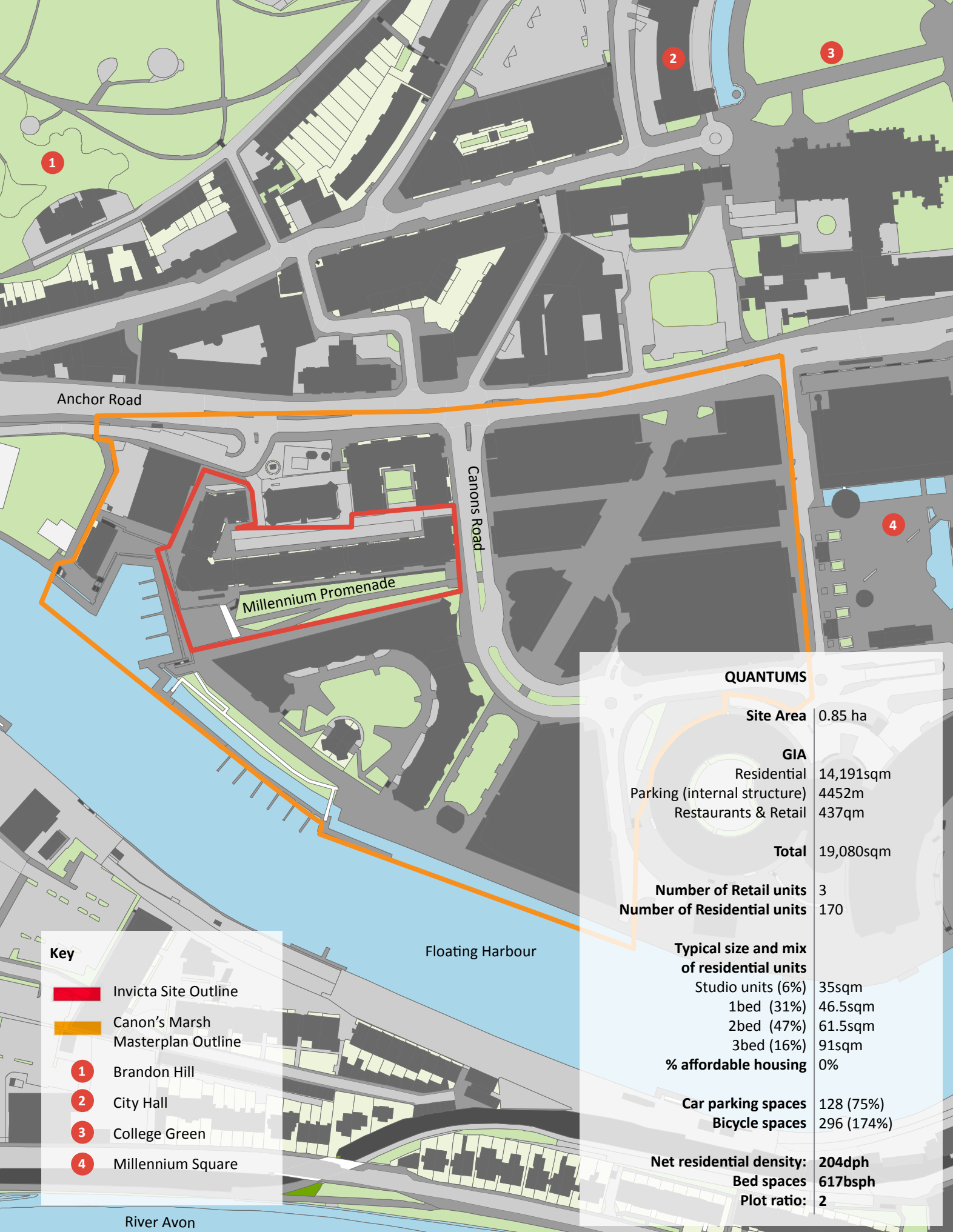
Design quality: The scheme seeks to establish a successful balance between new and old. A number of retained historic buildings are in the process of being restored, while some historic walls from buildings which have been demolished have been successfully integrated into contemporary new buildings. A relatively simple palette of materials helps unify the development.



Photo: AWW website : <http://aww-uk.com/project/mixed-use-finzels-reach/>

Observations

- **Masterplan approach:** With such a complex site being built out over several phases, the masterplan has been a useful tool in retaining the original vision for the site and maintaining a whole-site understanding when individual buildings come forward.
- The masterplan has proved flexible enough to keep pace with the changing economic climate and maintain investor interest. Key changes include the recent shift towards the Private Rented Sector (PRS), and the decision to split the largest development plot (10) for 230,000 sqft of office space into two more manageable and marketable plots.
- **Public and Private Realm:** The scheme demonstrates the commercial advantages in implementing as much of the public realm as early as possible, enabling potential purchases to comfortably access the site and then to envisage the completed development. Mature landscaping allowed the first residents to enjoy the development from the offset.
- Developer feedback suggests it would be useful if future s106 agreements could relate to the phasing of the public realm (at present agreements focus solely on the phasing of buildings).
- No communal private space is provided for residents. The courtyard spaces are semi-private, allowing informal public access. This is currently being reviewed, with an option that these spaces are made private use only.
- The degree to which this affects the public realm of the site, will depend heavily on the success of the finished main public walkway and its qualities and sense of place so that the restricted access to the courtyards are not seen as a loss to the public realm. It should be noted that these courtyards are very enclosed, with tight separation distances between units particularly to the east of the site.
- **Residential amenity:** Net residential densities are much higher within this scheme than other comparable city centre schemes. The impacts of this are evident by the tight separation distances, reduced outlook of single aspect units and consequently small courtyard areas. Living at such high densities may suit a PRS model where tenants typically rent for shorter terms, but has proved more challenging in successfully accommodating less transient affordable housing tenants.
- **Car parking and Servicing:** While accommodating car parking and bin storage in a basement level allows priority to pedestrians at street level, it does however limit the amount of significant scale landscape, such as street trees, due to the restricted loading capacity onto the basement level.



- Key**
- Invicta Site Outline
 - Canons Marsh Masterplan Outline
 - 1 Brandon Hill
 - 2 City Hall
 - 3 College Green
 - 4 Millennium Square

QUANTUMS	
Site Area	0.85 ha
GIA	
Residential	14,191sqm
Parking (internal structure)	4452m
Restaurants & Retail	437qm
Total	19,080sqm
Number of Retail units	3
Number of Residential units	170
Typical size and mix of residential units	
Studio units (6%)	35sqm
1bed (31%)	46.5sqm
2bed (47%)	61.5sqm
3bed (16%)	91sqm
% affordable housing	0%
Car parking spaces	128 (75%)
Bicycle spaces	296 (174%)
Net residential density:	204dph
Bed spaces	617bsph
Plot ratio:	2

Invicta, Canons Marsh

Reasons for selection

The Invicta building is the final and arguably the most successful phase of the Canons Marsh development, one of Bristol's most high profile (and sometimes controversial) harbourside developments.

Brief history

The site was historically a focus of the industrial activity associated with the docks. Industrial and commercial activity continued on the site until 1960, with commercial port activity at Canon's Marsh finally coming to an end in 1970. Following the demolition of some of the site's industrial buildings, it was primarily used for car parking.

The redevelopment of Bristol Harbourside has been a long-standing strategic objective for Bristol City Council. The vision for the area was set out in the Bristol City Centre Strategy, originally published in 1998. The completion of the adjacent @Bristol science museum at the end of the 1990s, gave a huge boost of confidence to the city's ability to creatively redevelop the Harbourside as a visitor destination.

Following Crest Nicholson acquiring the site, extensive public consultation was carried out to inform the preparation of a masterplan for the area, completed by Crest in 2000. Outline planning permission was secured in 2003 in accordance with this masterplan. Planning permission for Invicta was secured in 2011.

Location and Context

Invicta is located in Canon's Marsh, in the Harbourside neighbourhood of Bristol City Centre. Canon's Marsh is a large, mixed use development site on the north of the Floating Harbour. The surrounding buildings are predominately 4-6 storey residential and commercial blocks with ground floor level retail units lining main pedestrian routes and spaces. The Millennium Promenade (aka Brunel Mile) passes through the site. This is an important strategic walking and cycling route connecting Temple Meads Station with the SS Great Britain. Pedestrian accessibility around the harbour is also good following a thirty year programme of successively opening up access to the waterway. The site has good public transport accessibility, with buses stopping on the nearby Anchor Road and a ferry landing stage on the harbour's edge.



Invicta, Harbourside



Description of Development

Site layout: The layout of the site is derived from the masterplan. Invicta, comprises three blocks, arranged to complete one side of a perimeter block. The longest block extends from Canon’s Way to a harbour inlet and fronts onto the Millennium Promenade. The block then returns at the western end of the site, to form an attractive quayside space

Height and massing: The building is 4,5 and 6 storeys in height plus basement. The taller elements are focused at the ends of the block, creating a bookend effect to the lower elements in the middle section.

Public realm: This section of the Millennium Promenade comprises of a gently sloping pedestrian and cycling route which incorporates a sustainable urban drainage system (SUDS). A separate public footway also runs along the ground floor residential units, connecting back round to Anchor Road.

Private realm: Apartments have generous sized balconies, and the rear courtyards benefit from some soft landscaping and trees. However the communal space to the rear is neither genuinely accessible to the public, or securely private realm and is dominated by car parking.

Mix of uses: The scheme is predominately residential providing a mix of 1,2 and 3 bed apartments. Commercial units (retail, restaurant/café/bars) are focused at the lower street level around the harbour inlet to the west.

Car parking: The scheme provides relatively high car parking provision compared to other, more recent, city centre residential developments and is accommodated to the rear of the building both at ground and at basement level.

Servicing: Servicing is provided from the rear of the building in the semi-private interior to the perimeter block. Bins are stored in the basement.

Environmental performance: Achieved Code For Sustainable Homes Level 3.

Design Quality: The scheme adopts a contemporary, residential interpretation of the harbourside context, introducing vertical rhythm through a mix of render, dark brick and timber cladding along the main block, and utilising the role of large balcony spaces to articulate the main elevation onto Millennium Promenade.

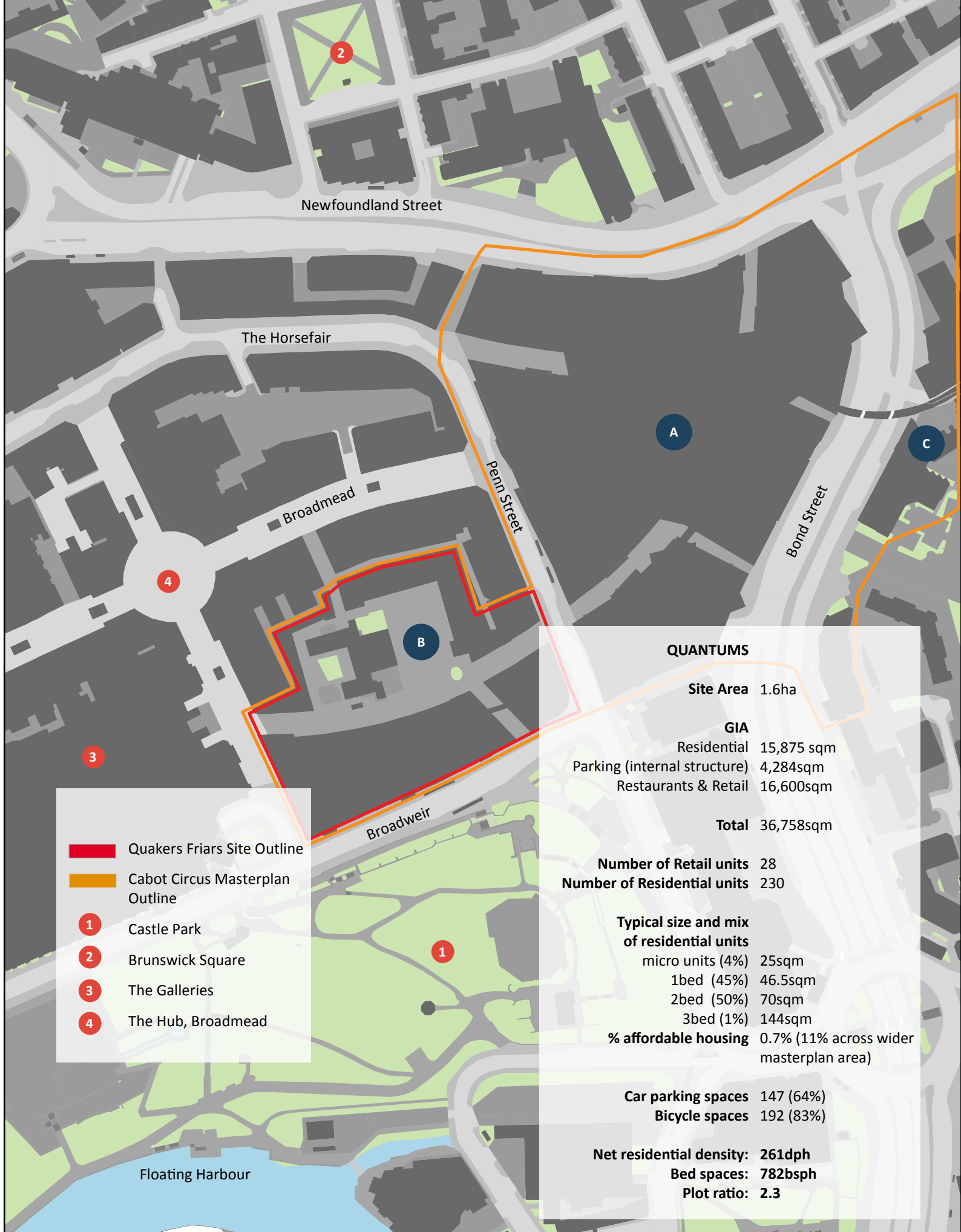


Observations

- **Masterplan Approach:** As one of the last phases of the Canon’s Marsh masterplan area to be built out, the scheme has learned from the criticisms of earlier phases, in particular the quality and articulation of the architecture, whilst still responding to the broader design principles secured by the masterplan.
- **Public Realm:** The completion of Millennium Promenade represents a significant achievement in terms of the city centre’s pedestrian and cycling network. The area also provides sustainable urban drainage in a visible and interactive way, with a series of collection dishes, channels and rills irrigating the planting along the way. It is an enjoyable space to walk through, or dwell, with framed views to the SS Great Britain. The route terminates at the harbour’s edge, where the water can be enjoyed from a series of intimate spaces. Unlike earlier phases of Canon’s Marsh where

water front buildings have struggled to create a relationship with the water’s edge, here bars and restaurants teem with life, and spill out onto the quayside.

- **Private Realm:** The rear of Invicta is less successful. This ‘semi-public’ space is dominated by car parking, which in comparable developments is wholly located in the basement or podium. This space could have been an opportunity to add green infrastructure or make the space more usable by its residents by making it a private, secure space.
- While the introduction of threshold space to individual entrances which provide direct access to ground floor units from the footway gives the development a more inhabited feel, there is a notable lack of personalisation and habitation of these threshold spaces. Careful attention needs to be given to function and design of these spaces to achieve an adequate sense of privacy while also allowing people to comfortably use and personalise these spaces.



Quakers Friars, Broadmead

Reasons for selection

Quakers Friars is the final phase of the Cabot Circus development, a mixed use retail-led scheme. Set around the Grade I listed Friary Buildings. The scheme also includes one of the few recently constructed, purpose built residential towers in the City.

Brief history

Formerly occupied by post war retail units, Bristol Alliance (a partnership between Land Securities and Hammerson) brought forward proposals for complete redevelopment of the area, together with realignment of the Inner Ring Road, to create a major new retail centre. Outline Planning Permission for the whole area was secured in 2002, setting out key design principles within a Masterplan covering the 3 key areas, A B and C (see map).

The Quakers Friars area (B), designed by Alec French, secured detailed planning permission in 2005 and provides a new civic space with restaurants, cafes and small specialist shops set around the Listed Friary buildings. A new retail spine provides a link between the retail to the east (A), and the existing retail at Broadmead and the rest of the City centre.

Residential accommodation is provided in a new landmark tower, rising over the main retail block, and above the retail components.

Cabot Circus opened in September 2008, after a 10 year planning and building project costing £500 million.

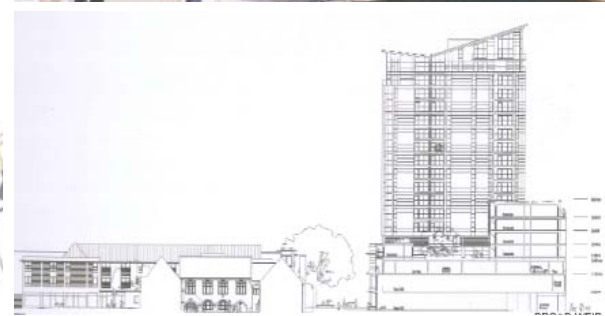
Location and Context

Located to the east of the City Centre, Cabot Circus is located directly adjacent to the Broadmead Shopping area and is bound by Castle Park to the South and the Inner Ring Road to the north. The neighbourhood of St Paul's lies to the north of Newfoundland Street with Old Market and St Judes to the west across Bond Street.

The area is extremely well serviced with local amenities and bus routes. Pedestrian and cycle access is also very good throughout the area, with a connection to the Bristol-to-Bath Railway path via Castle Park.



Quakers Friars, Broadmead



Left: Public realm masterplan 2005 Novell Tullett

Right: Artist impression of Tower from Quakers Friars courtyard and contextual section across Quakers friars courtyard to Castle Park (right) 2005 Alec French

Description of Development

Site layout: The layout of the site is derived from the area masterplan. Quakers Friars comprises three blocks arranged around the Grade I listed Friary Buildings, separated by Philadelphia Street which links Broadmead to Cabot Circus.

Height and massing: The buildings range from 3-storey around Quakers Friars Courtyard up to 8-storeys onto Broad Weir. The tower element rises to 14 storeys on top of 3 floors of retail. The tower was located to provide casual overlooking to Castle Park and create a prominent landmark improving legibility of both the park and new retail centre.

Public realm: High quality public realm has been introduced around the Friary buildings, greatly improving the setting of the heritage asset. The palette of materials provides a continuity between the Cabot Circus development and priorities pedestrian movement.

Private realm: The majority of apartments have reasonable sized balconies. The apartments in the Broadweir block benefit from a communal courtyard, while the tower also has a small garden area at the base. All apartments in the tower have access to private balconies.

Mix of uses: This phase of Cabot Circus contains the largest residential element, set above retail units at ground and first floor. A number of restaurants are clustered around Quakers Friars courtyard. There is also a gym, letting agent and mobility office.

Car parking: The scheme provides relatively high car parking provision compared to other, more recent, city centre residential developments and is accommodated at 3rd floor level, accessed from Broadweir.

Servicing: The majority of the development is serviced from Broadweir, providing direct access to bin stores and back-of-house retail areas. Some servicing is required from Philadelphia street, which operates under restricted access times.

Environmental performance: Achieved BREEAM Very Good/ Excellent and EcoHomes Very Good and received a Civic Society Environmental Award.

Design Quality: The scheme adopts a contemporary approach to the retail elements, while still responding to the significance of the Listed buildings. The more restricted palette of materials to the residential elements provides continuity with the Cabot Circus development, while the cladding on the tower element demonstrates an overtly contemporary response, highlighting the elliptical form.

Observations

- **Masterplan Approach:** As a later phase of development, securing detailed planning some 3 years later than the original outline application, the masterplan ensured the over arching principles were carried out, while allowing some flexibility in the detailed allocation of land use and design.
- **Mix of Uses:** Quakers Friars represents a successful mix of retail and residential use in an urban block. By utilising higher floor to ceiling heights at Ground Floor, to provide mezzanine levels, the amount of retail space has been optimised, while ensuring active frontage to Philadelphia Street and around the Friary buildings.
- Residents parking is also innovatively incorporated at 3rd floor level, which has the added benefit of providing separation between the retail units and residential units.
- The Broadweir elevation is less successful in that this has become a 'back-of-house' with bin stores and car park access resulting in a relatively blank frontage. Although some units have been introduced at ground floor, such as the restaurant on the corner of Broadweir and Narrow Weir.
- **Tall Building:** The Eclipse tower, as it has become known, is a positive example of how a tall building, located in the right place, can enhance a development. Its location, determined from an understanding of key strategic and local views, enhances the legibility of the area- particularly Castle Park. It also provides an element of much need overlooking to the Park.
- The tower also helps to optimise the residential density of the scheme and together with the other apartments adds a significant amount of residential use into this part of the City.
- By locating the tower on top of the retail use, many of the potential microclimate impacts on the public realm, such as wind turbulence, have been significantly reduced. However the impact of the tower not 'coming to ground' also results in an underwhelming presence on the street, such as the nondescript pedestrian entrance from Broadweir.
- This is similarly the case along the rest of the Broadweir block, representing a wider issue of designing entrances to residential development above street level.
- Following the Grenfell Tower tragedy, tests have found the tower element uses a similar cladding material. Potential remedial action is currently being investigated by the building owners.



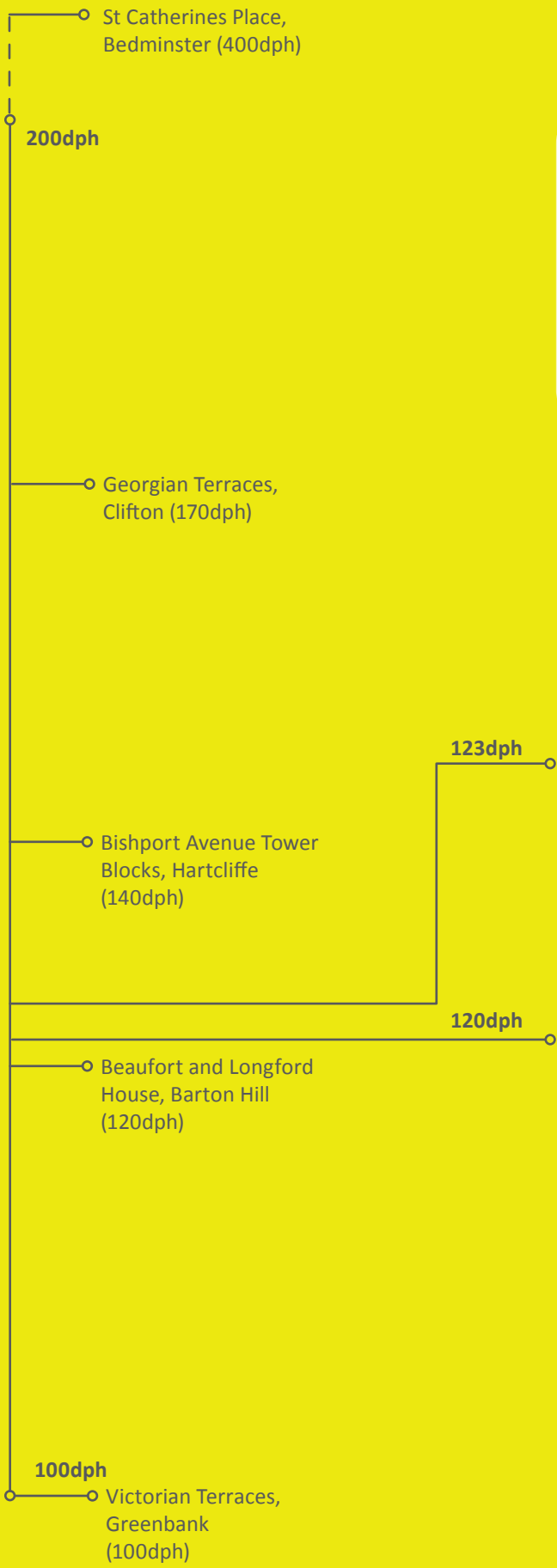


Urban		
4. Junction 3, Easton		28
5. Paintworks, Brislington		32
6. Keynsham Civic Centre, Keynsham		36

Image: Louvred screen to the library building creating a striking entrance feature at J3, Easton.

Photo: David Martyn

Case Studies: Urban



Keynsham Civic Centre, Keynsham



Lead developer: Bath & North East Somerset Council and Wilmot Dixon
Masterplanners: AHR
Architects: AHR
Landscape Architects: Novell Tullett
Engineering: Hydrock and Max Fordham
Planning Consultants: CSJ Planning

Paintworks (Phase 3), Brislington

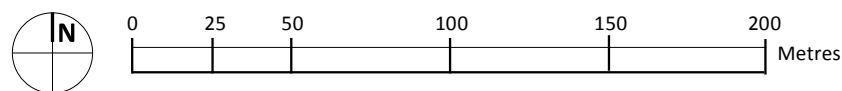
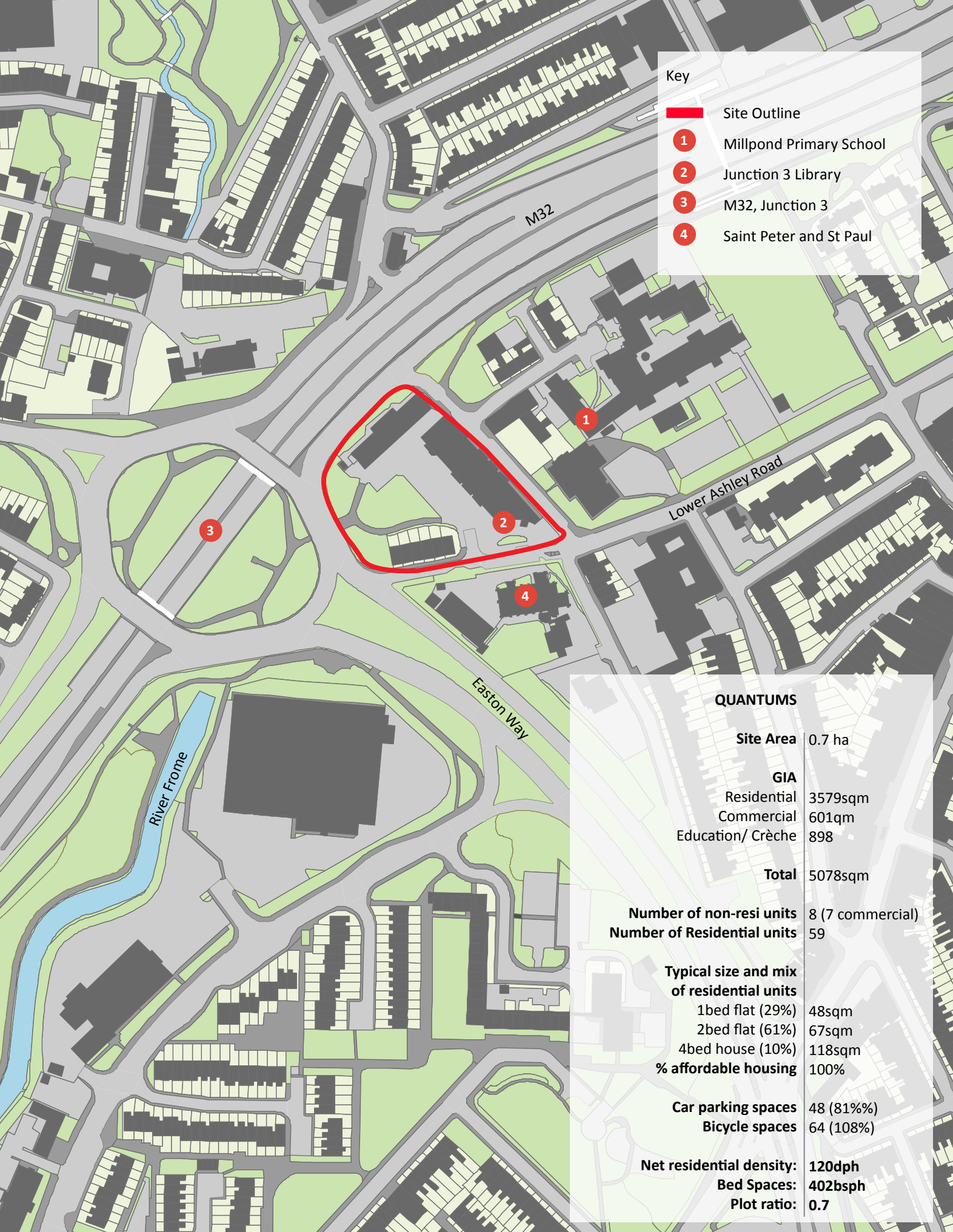


Lead developer: Verve
Development partner: Crest Nicholson
Masterplanners: Verve
Architects: Stride Treglown
Landscape Architects: Pegasus
Engineering: Reuby Stag
Planning Consultants: CSJ

Junction 3, Easton



Lead developer: Knightstone Housing
Development Partners: Bristol City Council Library Services, The Scarman Trust and SPAN.
Masterplanners: gcp
Architects: gcp
Landscape Architects: City Design Group, Bristol City Council
Engineering: Hyder
Planning Consultants: gcp



Junction 3, Easton

Reasons for selection

Junction 3 is an award-winning mixed-use development in Easton, comprising a new library, residential flats, town houses and workspace. It illustrates how good partnership working can realise the potential of a difficult urban site

Brief history

The site originally formed part of a typical Victorian suburb. However the construction of the M32, in 1975, resulted in the site being cleared and dislocated from the surrounding neighbourhood significantly damaging the link between Easton and St Paul's, forcing pedestrians to use underpasses that were perceived as unsafe. Junction 3 is partially located on the land that became redundant road space following the construction of this motorway.

By 1997, the site was allocated for employment use in the Adopted Local Plan. However the challenging site, in multiple ownerships, had a sewer running through it, meant the site remained vacant for many years, attracting anti-social behaviour. However, recognising the site's potential, a local architect brought together a number of third sector organisations, with a lead developer to realise the opportunity. The development was ultimately led by Knightstone Housing Association, working alongside Bristol City Council's Library Services, The Scarman Trust and the national charity SPAN.

The project secured £1.9m Big Lottery funding for the library and £2.9m from the Homes and Communities Agency for the housing. The scheme was granted planning permission in 2009 and was completed in 2013.

Location and Context

Junction 3 is located in the Easton neighbourhood, one mile north of the city centre, immediately adjacent to the M32 motorway. Easton has a strong, vibrant multi- cultural community, and good public transport links including rail services. It has a fairly fragmented townscape, with Victorian terraces located next to post-war housing estates (low and high-rise) and low-density trading estates.



Junction 3, Easton



3D view site layout, GCP 2009



Description of Development

Site layout: The development comprises three blocks arranged around a new public green space. A diagonal pedestrian and cycling route extends through the site connecting the underpass beneath the M32 with Millpond Street; this route corresponds to the underground sewer.

Height and massing: The development varies from three to seven storeys, and is very prominent in the townscape, particularly from the M32.

Public realm/private realm: A new public space has been created at the heart of the scheme, with pedestrian and cycle movements passing through either side of this space. Private rear gardens are provided for the townhouses, separated from the public space by a footpath. The level change is also utilised to raise part of the private gardens above street level, to help improve privacy.

Mix of uses: The scheme is predominantly residential, providing 100% affordable housing. The scheme also provides a new library and ground floor workspaces.

Car parking: Surface level parking is provided within the site, with some on-street spaces along Millpond Street for residents, business and visitors. The six town houses are each allocated a space.

Servicing: Buildings are serviced from both surrounding streets (Millpond Street and Lower Ashley Road) as well as a new internal street which provides access to a communal bin area.

Environmental performance: The development has received a BREEAM 'Excellent' rating for the Creative learning centre and crèche and Code for Sustainable Homes 3 for residential units.

Design quality: A prominent and iconic building has been created through the use of bold building forms and colours, the use of super-graphics and the creation of a striking corner entrance into the site. The unique roofscape is highly visible from the M32 and provides a landmark when approaching the city centre from the north east.



Photo: GCP website :<http://www.gcparch.co.uk/mixed-use/>

Observations

- **Mix of uses and stakeholder engagement:** Junction 3 demonstrates the advantages of early engagement to bring together a range of diverse end users. The partnership between the housing association, a number of third sector organisations and the Council's Library service, meant each were able to more cost-effectively realise their development objectives within a single development, than they would have been separately.
- Early dialogue with the Council's Planning Department was considered important, ensuring the scheme integrated emerging ideas and plans for the area, for example, delivering key pedestrian and cycle routes, meeting the local housing need and delivering employment units.
- Recognising that a housing association is not necessarily experienced in delivering workspace, advice was sought from the developers of the Paintworks. This expertise proved invaluable in terms of identifying the right specification for the workspaces and pursuing a minimum car parking provision based on relevant experience from nearby.
- **Mixed and Balanced Communities:** The development has created a mix of 100% affordable 1-2bed flats together with large family town houses, which were all important requirements identified in the local housing study.
- Whilst the scheme was successful in delivering 100% social housing, this would not have been possible without public subsidy (in this case from the Homes and Communities Agency).
- **Private Realm:** Complex site constraints, including the sewer and access requirements, limited the layout options for the site. This has resulted in a unconventional configuration of private space, which fronts onto the public footway and green space in the centre of the site. The lack of activity in this space, and under-use of private gardens is evidence of this awkward relationship. However the natural surveillance from the development has created a safer and more welcoming environment which has meant the underpass, under the M32 feels safer and is used more by a pedestrians and cyclists.
- **Catalyst for investment:** Junction 3 illustrates that challenging sites can be redeveloped with persistence. The site provides 97 jobs for local people over the lifetime of the project (including during construction), as well as providing training and learning opportunities for the community.
- The development has also attracted independent business to the immediate area.

QUANTUMS: Phase 3

Site Area 2.3 ha

GIA
Residential 17,422sqm
Parking (internal structure) 8000qm
Commercial 6299sqm
Retail/ Restaurants 417sqm

Total 32,138sqm

Number of non-resi units 92
Number of Residential units 221

Typical size and mix of residential units

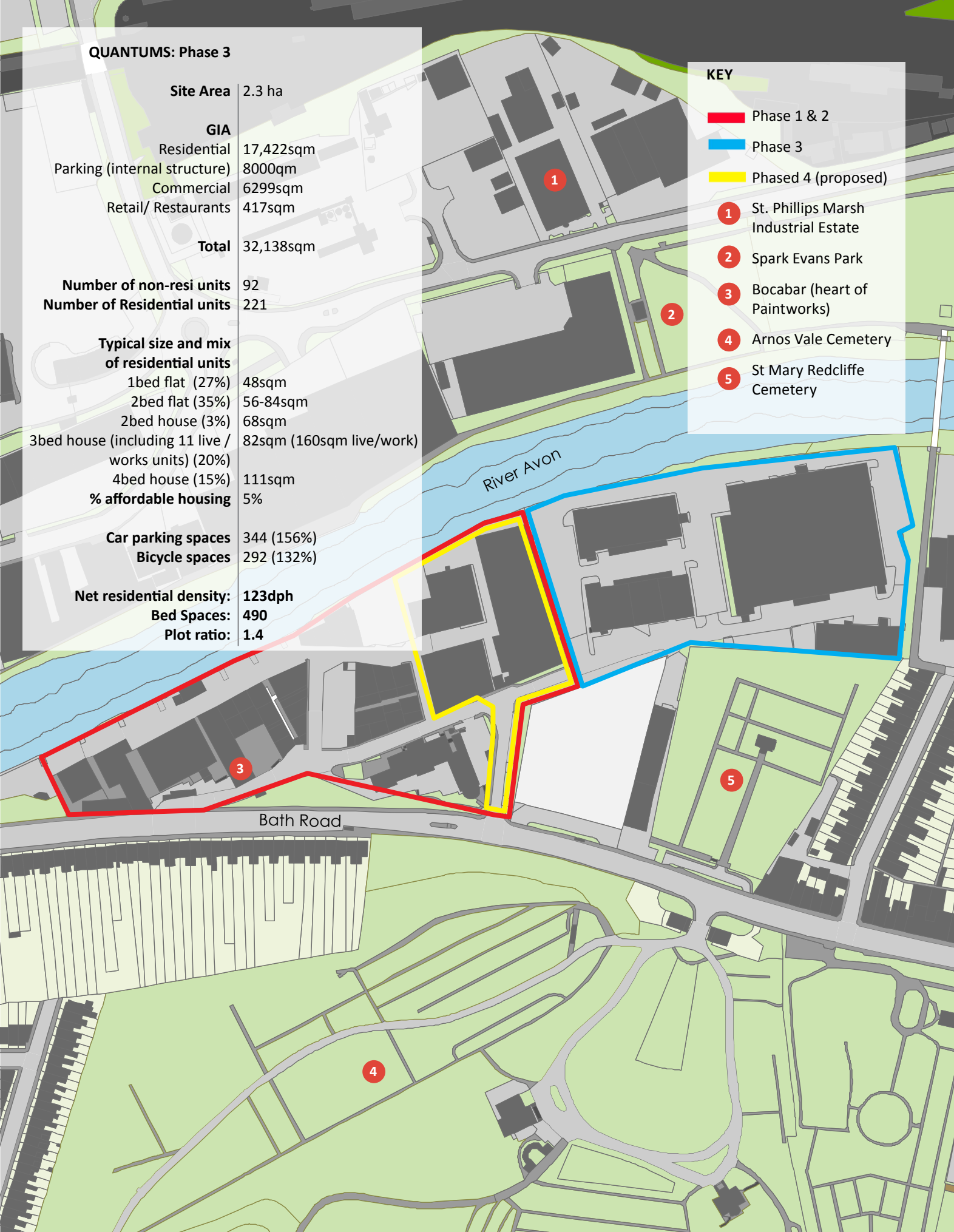
1bed flat (27%) 48sqm
2bed flat (35%) 56-84sqm
2bed house (3%) 68sqm
3bed house (including 11 live / works units) (20%) 82sqm (160sqm live/work)
4bed house (15%) 111sqm
% affordable housing 5%

Car parking spaces 344 (156%)
Bicycle spaces 292 (132%)

Net residential density: 123dph
Bed Spaces: 490
Plot ratio: 1.4

KEY

- Phase 1 & 2
- Phase 3
- Phased 4 (proposed)
- 1 St. Phillips Marsh Industrial Estate
- 2 Spark Evans Park
- 3 Bocabar (heart of Paintworks)
- 4 Arnos Vale Cemetery
- 5 St Mary Redcliffe Cemetery



0 25 50 100 150 200 Metres

Paintworks, Brislington

Reasons for selection

The Paintworks is a genuinely mixed use, edge of city centre development which has sought to create a unique local identity. By creatively adapting existing industrial buildings and integrating quirky new buildings, the scheme represents a good example of the viable conversion of these types of buildings for alternate uses.

Brief history

Formerly developed as a Paint Factory in the mid 1900's until ceasing to operate in the late 1990s, the whole of the Paintworks site was acquired by Verve Investments Ltd in 2004. Verve developed the first two phases of the Paintworks which involved the creation of studios/offices, live/work and residential spaces in the shells of the existing buildings. Phase 3 is currently under construction, developed by Verve and Crest Nicholson, primarily focused on residential new build to the east of the site. Phase 4 has achieved planning permission and envisages a centre for the Paintworks set around a new plaza along with further residential and commercial development.

Location and Context

The Paintworks is located just south of the city centre, along the river Avon and falls within the Temple Quarter Enterprise Zone; more recent proposals coming forward have been assessed against the Temple Quarter Spatial Framework. Surrounding development varies in character. There are relatively low-density uses, with industrial uses across the river and Victorian residential streets to the south and east, Arnos Vale Cemetery is located opposite. The Paintworks site is bookended by two vacant development sites.

There are good public transport facilities along the Bath Road, and Temple Meads train station is within a 15 minute walking distance of the site. There is a cycle/pedestrian route along the river Avon, linking the site via Cattlemarket Road to Arena Island and the City Centre.



Paintworks, Brislington



Description of development

Site layout: The layout of Phases 1 and 2 was largely determined by the retained industrial buildings, resulting in characterful lanes and little courtyards. Phases 3 and 4 are predominantly new build and set out around a main diagonal connection from Bath Road to the pedestrian/ cycle bridge across the River Avon.

Height and massing: Phase 1 and 2 are predominantly 2 storey, reusing the existing buildings. Phase 3 range from 2-8 storeys, with the taller buildings fronting the river and main diagonal route, with smaller scale buildings onto the rest of the streets within the site.

Public realm/ private realm: Within Phase 3 a main pedestrian walkway runs diagonally through the site, creating a desire line towards the riverside walkway to the north. Large areas of pedestrianised routes have allowed for flexibility in the treatment of the public realm in both materials and street furniture. Private space is provided to the rear of residential blocks, with some private garden space provided at first floor level.

Mix of uses: There are varying uses across the site including office and workspaces, restaurants and cafes, community space, art gallery and residential. Retail use is restricted, as the site is not designated as a local centre.

Car parking and servicing: Surface level car parking is focused along the river frontage in Phase 1 and 2. Phase 3 includes a two acre underground car park, allowing residential streets to be totally pedestrianised. The refuse is also managed underground.

Environmental performance: Phase 3 of the development has achieved a BREEAM 'Very Good' rating.

Design quality: A strong sense of place has been created in Phase 1 and 2, through the adaptive reuse of former industrial buildings and honest interventions in the fabric of these buildings. This character is continued into Phase 3, albeit with predominantly new build. The size of the development allows the opportunity to introduce greater variety in building styles and materials across the site. As such the scheme does not rigidly apply a uniform architectural style or material palette resulting in a visually pleasing and quirky townscape of new and old.



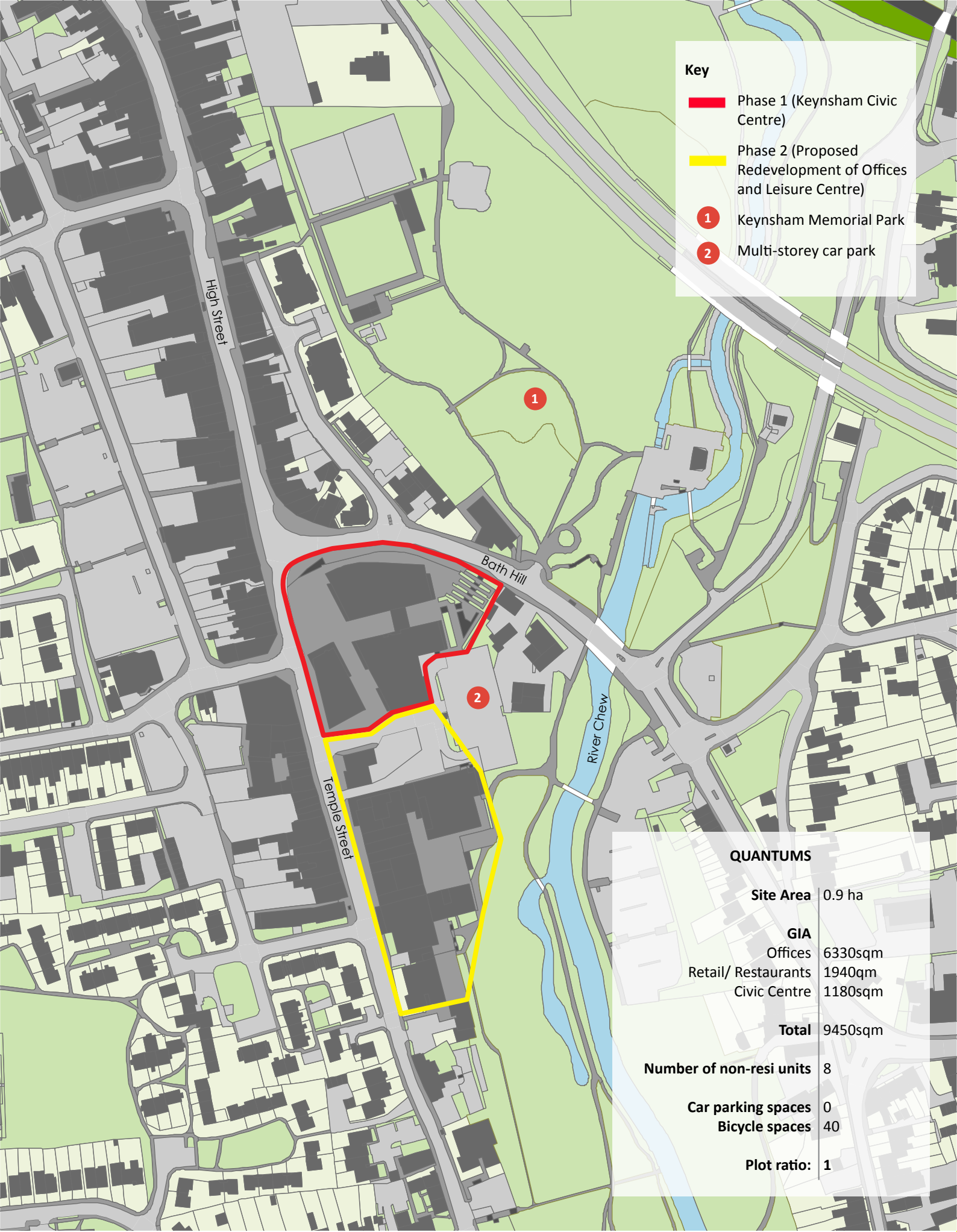
Photo: Chris Bahn

Observations

- **Development Approach:** Verve Properties has been able to demonstrate a viable reuse of a range of dilapidated industrial buildings to create a new vibrant community. As such, it challenges the conclusions of many viability assessments that claim such adaptive reuse is not realistic.
- Phases 1 and 2 demonstrate an alternative development model that is not reliant on traditional commercial investors or housebuilders. Historic industrial buildings have been incrementally brought back into use as small workshop spaces, with funds being re circulated for subsequent phases.
- Phase 3 has involved a joint venture with a housebuilder, but still working to the vision established by Verve Properties. This in turn has led to a significant uplift in residential values compared to similar units in the area.
- **Unique sense of place:** Many new developments are built with straight lines and square blocks. The Paintworks, by making use of the existing infrastructure, results in a quirky layout which has been determined by the existing buildings, and the character of streets focuses on the human experience of the scheme.
- This unique placemaking approach has been successful in attracting galleries and social enterprises drawn to the unusual buildings.
- There are very few brownfield sites in the city

which are bigger than 2 hectare. At this scale the development, while needing to respond to local character, begins to generate its own context, particularly in the centre of the site. In this case a dramatic change in scale is achieved between Bath Road and the River frontage, without having an overbearing impact on the surroundings.

- **Unique and adaptable workspaces:** Verve Properties sought to understand the needs of small, creative businesses using the space, shaping the space accordingly. Through this process it was found that similar, often competing, small businesses like to cluster providing support and mutual benefit of shared resources and communal facilities.
- **Residential Amenity:** The provision of secure private amenity space is a success of the scheme. However the separation distances are quite tight and the configuration of apartments at the end of these blocks has yet to be tested/ monitored from an amenity and privacy point of view.



Key

- Phase 1 (Keynsham Civic Centre)
- Phase 2 (Proposed Redevelopment of Offices and Leisure Centre)
- 1 Keynsham Memorial Park
- 2 Multi-storey car park

QUANTUMS	
Site Area	0.9 ha
GIA	
Offices	6330sqm
Retail/ Restaurants	1940qm
Civic Centre	1180sqm
Total	9450sqm
Number of non-resi units	8
Car parking spaces	0
Bicycle spaces	40
Plot ratio:	1

Keynsham Civic Centre

Reasons for selection

Keynsham Civic Centre is a mixed-use, high density development in a high street setting, located within Keynsham Conservation Area. It acts as an exemplar for sustainable building design and provides a strong community focus , delivering a mix of active uses and high quality public realm.

Brief history

Formerly occupied by the Council Offices, a set of dilapidated buildings from the 1970s, and a failing 1960s retail precinct, the decision to redevelop the site was as a result of Bath and North East Somerset Council reviewing its property assets, with a view to rationalising office space and reduce on-going costs. Following the closure of the Cadbury's factory, Somerdale and subsequent loss of employment in the town it was critical that the scheme represent a positive landmark development signalling the first phase of wider regeneration in the town, and reflect the strong sense of civic pride. After gaining full planning permission in October 2012, the site was developed out and occupied by November 2014, on time and on budget.

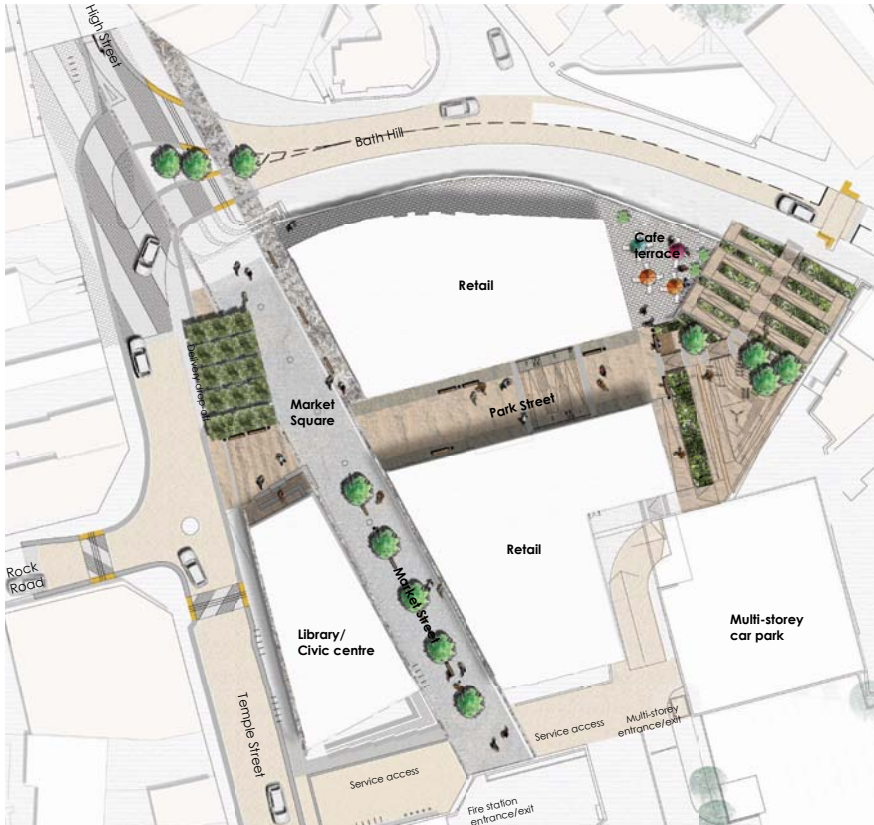
Location and Context

Keynsham is a town and civil parish between Bristol and Bath, with a population of 16,000. The Civic Centre is located at the end of the high street and is highly visible in the townscape situated on the high point of town, overlooking the Memorial Park. The prevailing building height is two-three storeys, however the previous buildings set the precedent for the scale, being significantly taller than the surroundings.

With a thriving high street, and large residential catchment, the town is well served by public transport, with regular bus services to both Bristol and Bath, and the train station is within easy walking distance of the site.



Keynsham Civic Centre



Description of development

Site layout: The Civic Centre comprises three blocks. The two larger blocks are set back from the high street, while the smaller block to the west of the site is orientated so that it aligns with the high street, creating a striking visual focal point.

Height and massing: The Civic Centre is four storeys tall, with additional units at street level along Bath Hill utilising the significant level difference across the site. The natural topography, together with the increased scale above the prevailing two storey height makes the building a prominent feature in the townscape.

Public realm/ private realm: The redevelopment of the site has not only increased the total amount of accommodation on site but also increased the provision of public realm to 50% of the total ground floor area. A public plaza has been formed to the north west of the site, along with two pedestrianised street connections north-south and east-west through the site. This included the provision of a new connection to the Memorial Park via landscaped cascading steps and ramp providing level access to the park to the north east.

Mix of uses: The scheme provides high quality, flexible office space to the upper floors of the two larger blocks, with retail and cafe uses at ground floor. A library and council one-stop-shop are provided in the smaller Civic Centre block.

Car parking and servicing: Despite being situated next to a retained multi-storey car park, there is no allocated parking for the development. Servicing is provided from Temple Street, with an off-street loading bay.

Environmental performance: The entire design and build process was driven by an ambitious sustainability target. Key design decisions, such as the orientation and optimal floor plate depth (12m) were determined to maximise natural ventilation and day light. As a result all the buildings have a high environmental performance, receiving a DEC 'A' rating.

Design quality: The roof line and building materials have produced a striking building creating a visual landmark in the area. In response to community engagement the Civic Centre and retail podium is clad with local Blue Lias stone, with standing seam brass to the upper floors, reflecting the town's industrial past.

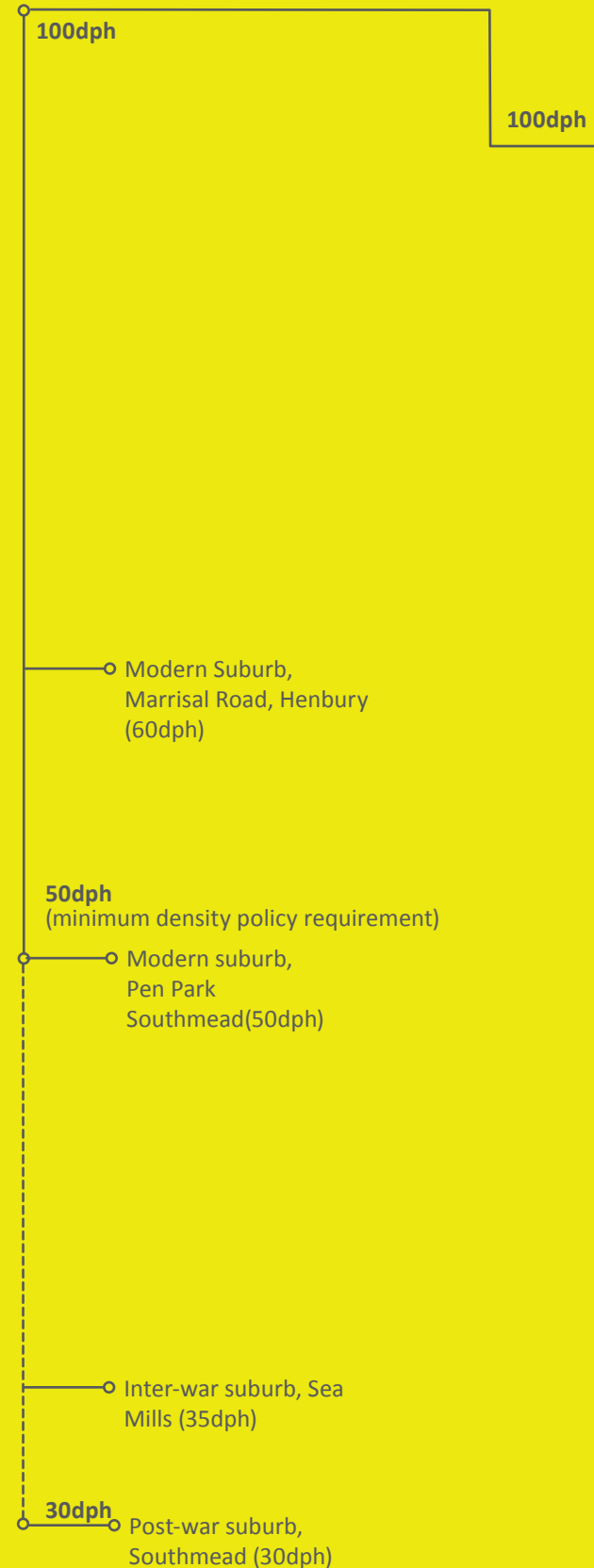


Observations

- **Environmental Performance:** The design team decided to strive for a 'Display Energy Certificate A' rating rather than BREEAM as it was felt this was a more ambitious environmental performance standard. A process of on-going monitoring and commissioning support through the BSRIA Soft Landings framework has helped deliver the desired performance, with the building on target to achieve DEC A rating in 2017.
- This aspiration formed the basis of a very clear client brief and positively impacted the evolution of the scheme throughout the design process.
- Consideration of the environmental performance of the project from initiation, through site planning and detailed design has turned out to be mutually beneficial in providing some of the positive design outcomes, such as the level of public realm able to be provided and reduced running costs of the building which were initially expected to be £300,000, but was in fact £7000.
- The building is a hybrid CLT (cross laminated timber) structure. This sped up the construction time, reducing costs as well as significantly reducing the embodied carbon. This structure has also allowed for thick insulation and no additional internal finish was required.
- **Adaptable work space:** The redevelopment of the site has reduced the office floorspace by nearly 1000sqm, while increasing the number of staff from 450 to 650. The office spaces are open, creating a flexible space which allows the staff to collaborate and work efficiency throughout the building.
- This intensification of use has allowed for additional uses to be provided across the site, such as the convenience supermarket and cafe/restaurant as well as large areas of public realm, which has had a positive impact on the high street. Anecdotal evidence suggests a greater level of activity throughout the high street, which is evidenced by consistently occupied units.
- **Mixed -uses:** The success of the mix-use development may well be due to the intensification of the site. The development attracts a variety of users and both the community and client were keen to secure a food store to anchor this end of the high street and support adjacent retailers.
- While occupation rates are now high, some of these units were vacant for some time. Most commercial developers would be deterred by this, however the Council's long term interest meant they were more able to 'absorb' the cost of vacant units until a critical capacity was reached to bring the units into use.



Case Studies: Outer Urban



Gainsborough Square, Lockleaze



Lead developer: United Communities
Masterplanners: Kendall Kingscott Ltd. and Bristol City Council
Architects: Kendall Kingscott Ltd.
Landscape Architects: City Design Group, Bristol City Council
Engineering: Craddy Pritchards Davidson
Planning Consultants: Kendall Kingscott Ltd.

Filwood Business Park, Knowle West



Lead developer: Bristol City Council
Masterplanners: New Masterplanning
Architects: Stride Treglown
Landscape Architects: Stride Treglown
Engineering: Halcrow
Planning Consultants: Stride Treglown

Southmead Hospital, Southmead

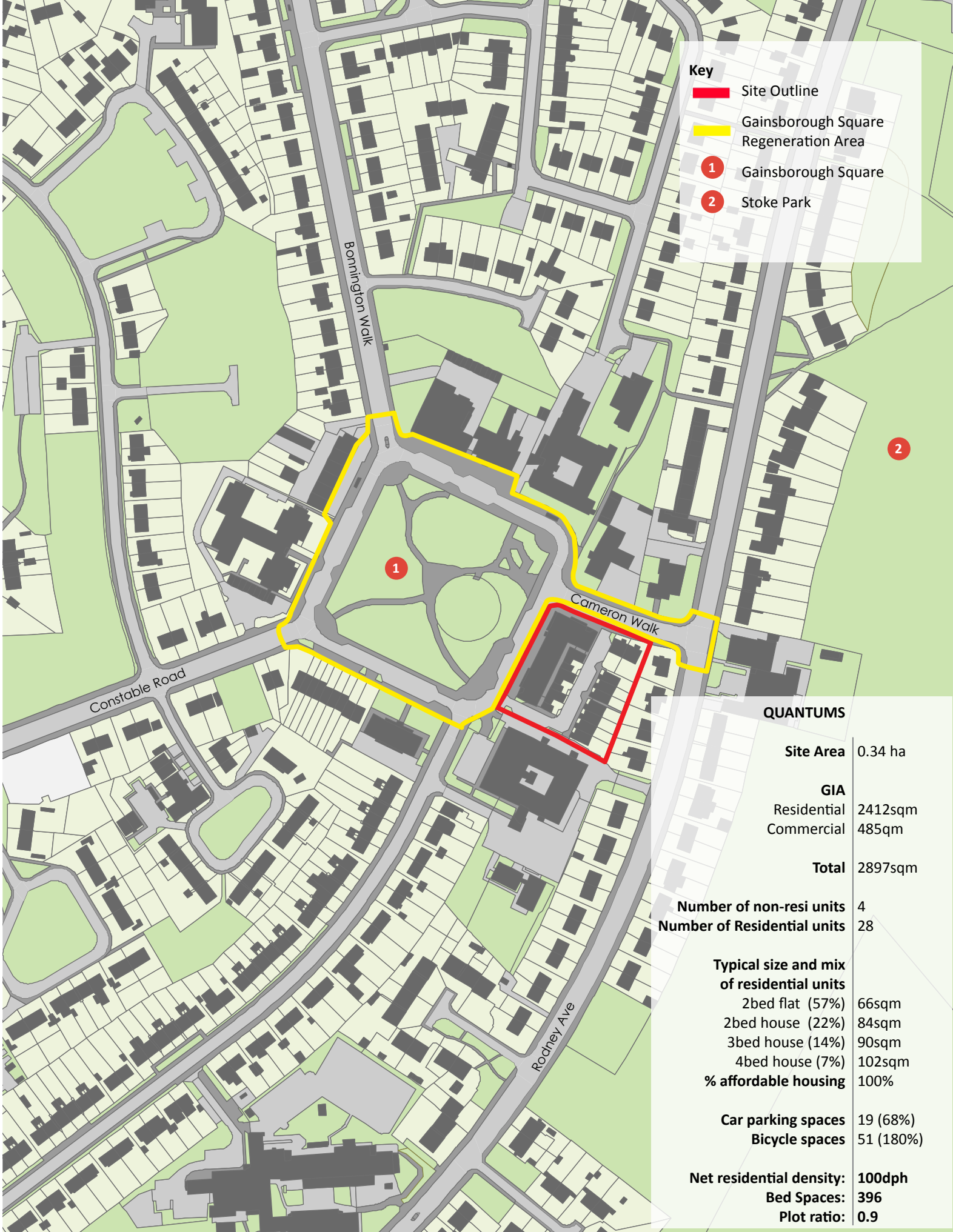


Lead developer: North Bristol NHS Trust
Development partners: Carillion
Masterplanners: BDP
Architects: BDP
Landscape Architects: BDP and Cooper Partnership
Engineering: TPS and DSSR
Planning Consultants: CSJ Planning

Suburban

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Image: A new bespoke Pavilion by MUF at Gainsborough Square as part of the regeneration project, Lockleaze



Gainsborough Square, Lockleaze

Reasons for selection

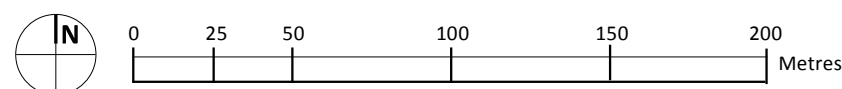
This mixed-use infill development on Gainsborough Square provides apartments and a community focus in an area otherwise dominated by low-density family housing. Alongside significant investment in the square, the project represents the first stage in a wider regeneration programme for the area.

Brief history

Since the early 2000s, Lockleaze has been the focus of a series of regeneration and planning initiatives. The Lockleaze Vision document (2009) was prepared by Bristol City Council in conjunction with the community and was used to secure around £2.5million funds to regenerate the public square. The document also identified a number of opportunity sites around the square, including this prominent, yet derelict site to the south east of the square. In 2012, the housing association United Communities and Lockleaze Neighbourhood Trust brought together ward councillors, residents and agencies to develop ideas for bringing the council owned site back into use. The land was subsequently sold to the housing association with an agreement that it provided a new community hall within a new development. Planning permission was secured in December 2012 and following a fund-raising effort the development was completed in the autumn of 2014.

Location and Context

Located three miles north of the city centre, Gainsborough Square is located within the outer suburb of Lockleaze. A typical 1940s-1950s post war estate, the area mainly consists of low rise, one and two storey houses. Bound by Stoke Park to the east, a railway line to the west and with limited vehicle through-routes, the area is relatively isolated. However the are is relatively well served by public transport, with bus routes 24/25 stopping in the square and with future bus links to the Wallscourt Farm development and Filton area to the north. A mix of uses currently surround the square including small local shops, a vacant pub and housing.



Gainsborough Square, Lockleaze



Description of development

Site Layout: The mixed-use apartment block fronts onto Gainsborough Square, providing natural overlooking of the space. To the rear of the block is a new mews street with terrace housing lining both sides of the street.

Height and massing: The apartment building fronting onto the square is 3-storeys with a flat roof. The houses to the rear of the site are 2-storeys with an asymmetric gable fronted roof form helping to create a rhythm along the terrace.

Public Realm/ Private Realm: The apartment block is set back sufficiently to enable the creation of a wide tree-lined pavement, incorporating parking bays. The mews street is designed as a shared space, which also incorporates tree planting. The street is designed to allow refuse vehicles to access the bin stores. All apartments have balconies, whilst houses either have small rear gardens or gated courtyard spaces to the front.

Mix of Uses: The scheme is predominantly residential, providing a mix of houses (12) and flats (18) with a community hub at ground level providing a hall for hire, business space and outreach for local children's centre

Car parking and servicing: The majority of parking is accommodated on-street in designated bays, with the courtyard house types having on-plot car ports, set back within gates.

Environmental Performance: The scheme has achieved Code for Sustainable Homes Level 4 and BREEAM Very Good. Despite being a relatively constrained site, the housing units have been configured to make best use of natural daylight.

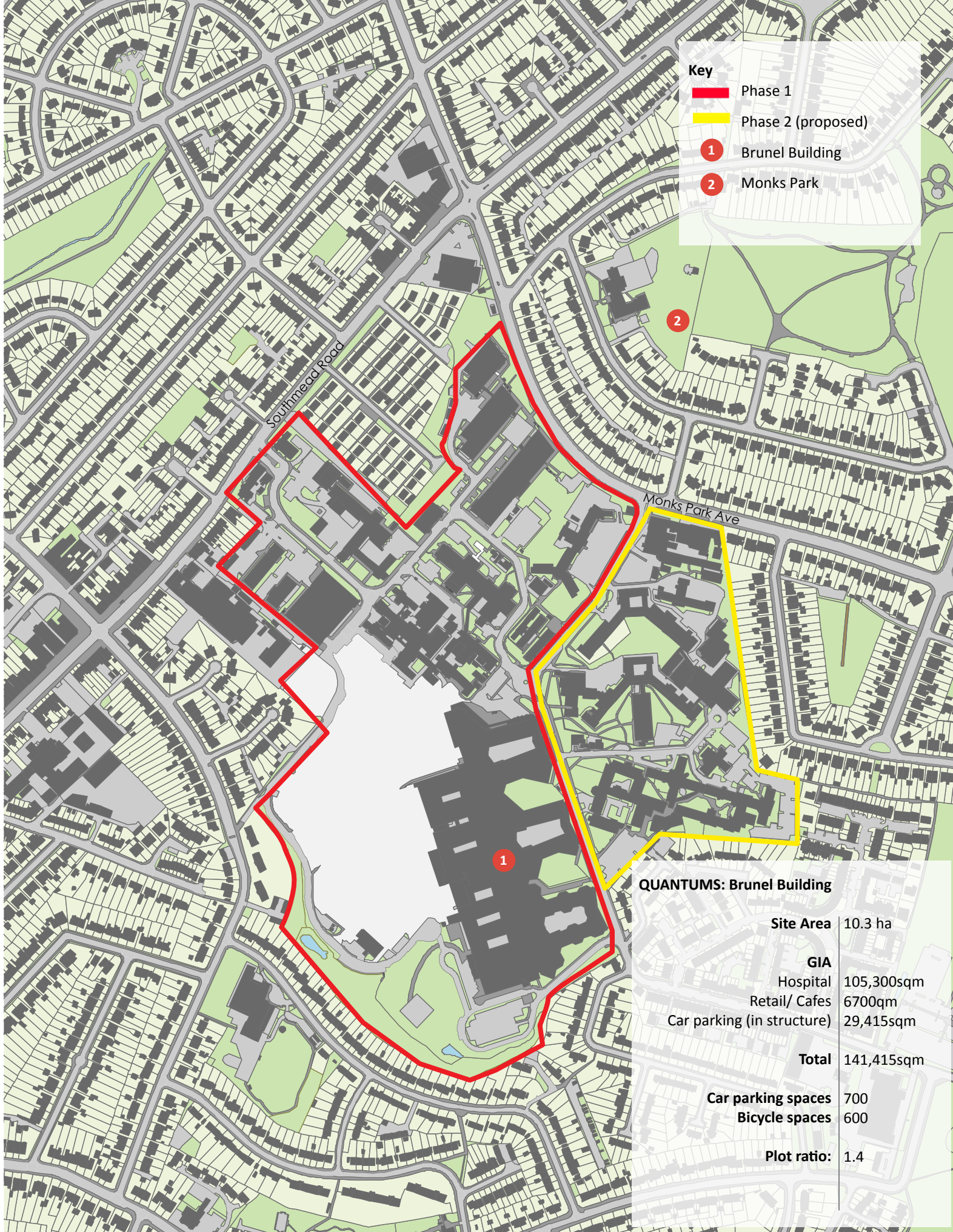
Design Quality: The scheme adopts a contemporary style, including the use of mono-pitch roofs and , brightly coloured render panels together with dark facing brick and modern balconies overlooking the square and has received an award from the Bristol Civic Society.



Photo: Dan Brickley Creative Commons

Observations

- **Stakeholder engagement:** Thorough community engagement by United Communities throughout the design and development stages, together with a wider consultation process in relation to the regeneration of the square, has proved essential in enabling higher density to be welcomed to the area.
- **Creating mixed and balanced communities:** The Lockleaze area has a high proportion of family-size housing with very limited amounts of smaller accommodation for people living alone or wanting to down-size. By understanding the existing housing provision and local need, the scheme has been able to provide unit sizes that will provide more choice to residents who would prefer to live in a smaller unit. The housing provided is 100% affordable.
- **Increasing suburban densities:** In townscape terms, this scheme could have delivered 1-2 additional storeys, without overwhelming the square, although the topography results in the square occupying the highest point in the Lockleaze area, increasing the prominence of the scheme in wider views. However, in a suburban context such as this, achieving even higher residential densities appears to be constrained by an aspiration to deliver a dedicated car parking space per unit, and the marginal viability of delivering lifts within blocks.
- **Catalyst for change:** The combination of a striking building accommodating a new community facility with investment in the adjacent square, is helping to change perceptions of the area resulting in an uplift in confidence and quality of development. This is likely to bring further investment into Lockleaze.
- **Management:** Access and servicing needs to be carefully considered in higher density schemes. Simple oversights, such as a failure to paint a line in the highway to prevent parking adjacent to a bin store, can create on-going management and maintenance issues. Similarly, unintended use of the building and surrounding spaces by residents can cause unanticipated future management issues, for example, in this scheme residents have tended not to use the car ports provided, preferring instead to park on-street. This points to the need for on-going dialogue between the managers of the scheme and the highway authority post-completion.
- **Residential amenity:** United Communities were keen that apartments exceeded building regulation requirements for sound insulating to reduce any future management issues. Unit sizes also exceed minimum space standards.



Southmead Hospital

Reasons for selection

Southmead Hospital is an example of how large, non-residential use such as schools, universities and leisure facilities can use land more efficiently, and in doing so create a sense of place. This low-density campus-style hospital is gradually being intensified, and further integrated into the surrounding community.

Brief history

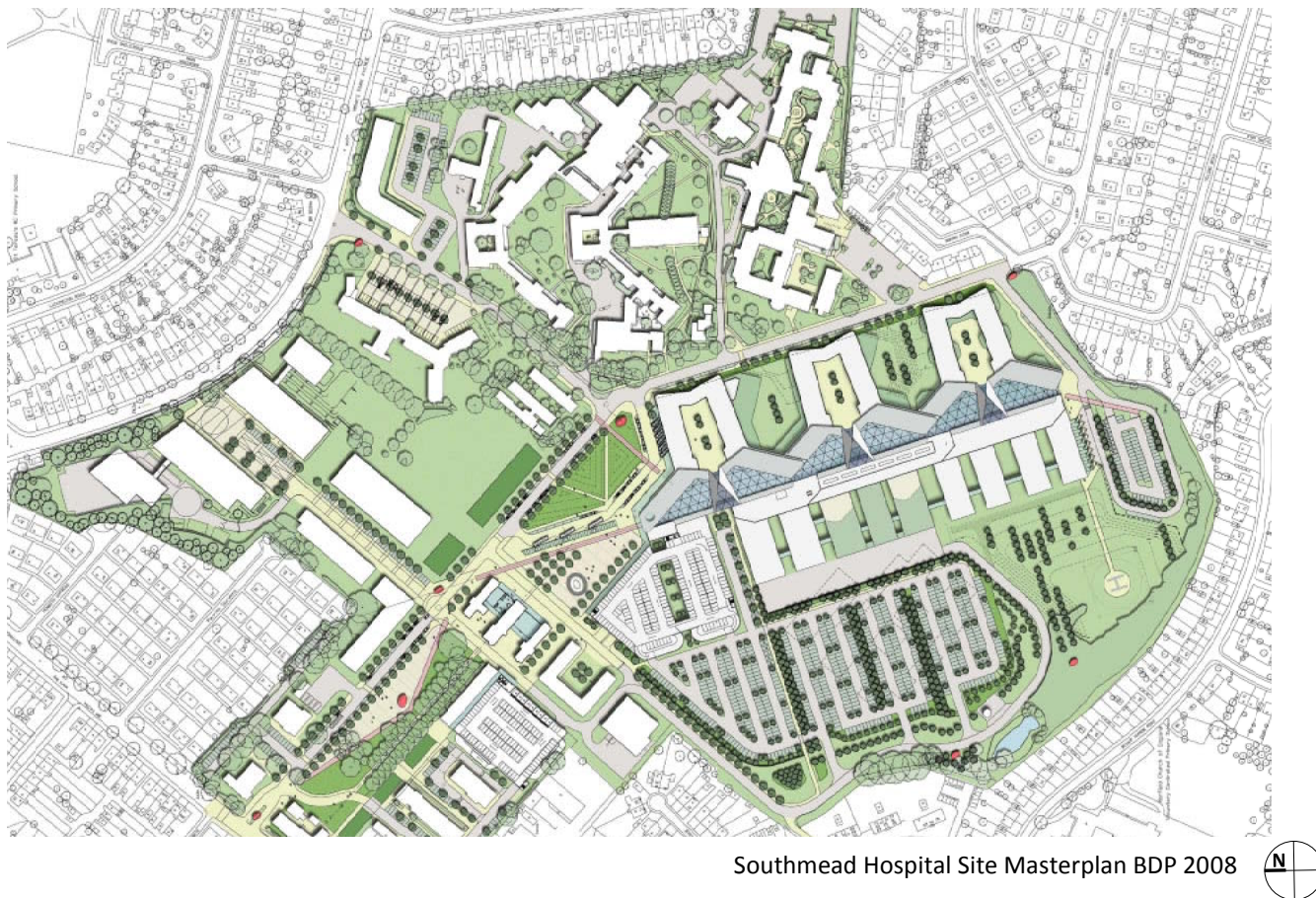
The hospital first opened in 1902 as a 64 bed workhouse and has expanded ever since. Southmead Infirmary was built in 1924 and was later renamed Southmead Hospital. In 2005, a major expansion was planned which included moving most services from Frenchay Hospital to the Southmead site. The NHS Trust commissioned a masterplan for the site which was approved 2009. This sets out a phased redevelopment of the whole site which is likely to take 20years+ to fully deliver. The first phase included the Brunel Building which opened in 2014.

Location and Context

The hospital is located 4.5 miles north of the city centre in the Southmead area. The neighbourhood is an example of large scale residential development based on the Garden City principles, with the first phase built out in the 1930s by the Bristol Corporation, with further development after World War II. Consequently the area is developed to relatively low densities, predominantly two storey residential, with a local centre at the heart of the estate. The area is well served by good community infrastructure and has very good public transport links with up to 35 buses/ hour serving the hospital and surrounding streets.



Southmead Hospital



Southmead Hospital Site Masterplan BDP 2008

Description of development

Site Layout: The Southmead Hospital site is made up of four quarters, arranged around a central 'heart' where the main entrance to the hospital is located. The Brunel Building provides a linear internal foyer lined with hospital facilities on both sides. There are three blocks to the east of the foyer space, achieving general privacy distances of 18m.

Height and massing: The Brunel Building is six storeys, plus the plant room and so was defined as a tall building. Prominently located on a high point, the building is highly visible on the skyline from surrounding areas, and in views from as far as three miles away.

Public Realm/ Private Realm: A number of new and enhanced pedestrian and cycle routes have been established throughout the wider site, including the improved connection to Monks Park Avenue. A large plaza has been created at the main entrance to the Brunel Building, providing generous space around bus stops and soft landscaped amphitheatre space in front of the sleeved visitor car park. Patient only gardens have been created in the courtyard spaces between the east blocks, with soft landscaping and quiet contemplation areas. Whether these are managed as private spaces is unclear, as access is provided into one courtyard space from a ground floor, public cafe.

Mix of Uses: The scheme is predominantly hospital use, with associated offices, servicing and small scale retail and cafes/ canteens.

Car parking and servicing: The site provides a large amount of car parking, provided by a combination of multi- storey and surface car parking for both staff and visitors. While these areas do take up a large amount of land within the site, this is softened by a well designed and structured landscape scheme.

Environmental Performance: The building has received a BREEAM 'Excellent' rating. Environmental features included rainwater harvesting, natural ventilation, SUDs, highly insulated building fabric and use of 30% renewable energy source. Particular attention has been made to integrating green infrastructure into the building through a series of top lit winter gardens which extend deep into the building. Careful consideration has gone into making use of every space including using the roof space as seating areas and herb gardens for staff.

Design Quality: The Brunel Building is a light and airy place. It provides a series of comfortable spaces for visitors to wait. High quality materials, legible entrances and circulation cores together with corridors that terminate with views to the outside all contribute to a well-designed environment.



Observations

- **Masterplan approach:** The Design Framework is intended to ensure that future development within the site occurs in a structured and coordinated manner, creating an attractive and functional place through the efficient use of land and organisation of uses and activities. The content of the Framework is robust, yet allows for flexibility to respond to changing conditions.
- The Framework is underpinned by the desire to use the development opportunity to contribute towards neighbourhood renewal and regeneration. There is a desire to move away from a segregated campus model towards a spatially integrated piece of town. For example, the Trust has opened up new legible street connections through the site and has created public spaces that aim to draw local residents into the site.
- **Building Heights:** Sensitively absorbing such a large building into a two storey suburban context has proved something of a challenge. In addition to its physical scale, the building also sits on a topographical high point within the cityscape. In response to this challenge, the architectural team sought to break up the physical massing and form of the building as far as practicable, whilst using the natural ventilation wind towers to add interest to the skyline. Whilst the function of the building merits landmark status, its landscape and visual impact are, in places, excessively imposing especially when approached from the south.
- **Car/ cycle parking:** The Planning Consent required the provision of 2,700 car parking spaces across the entire site, primarily for staff members. A significant amount of the required staff parking has been accommodated within a large surface level car park to the immediate west of the main building. In order to make more effective use of this land, the parking area incorporates SUDS measures and structural planting and has been integrated as part of a wider area of private amenity space that serves the hospital's 8,500 staff.
- Since the opening of the main hospital facility, it has transpired that there is an over-provision of staff parking and an under-provision of visitor parking, in part due to the success of the Travel Plan encouraging staff to use more sustainable transport. The Trust are therefore looking into the reallocation of elements of parking provision.
- The Brunel building delivered two multi- storey car parks, one of which is accessed directly off the main Square. This car park has been successfully screened behind a 'sleeve' of active uses fronting and animating the Square including offices, a small foodstore and a community workshop.
- On street car and cycle parking have been carefully designed-in to new street designs, helping to animate the public realm whilst providing useful traffic calming.



Filwood Green Business Park, Knowle West

Reasons for selection

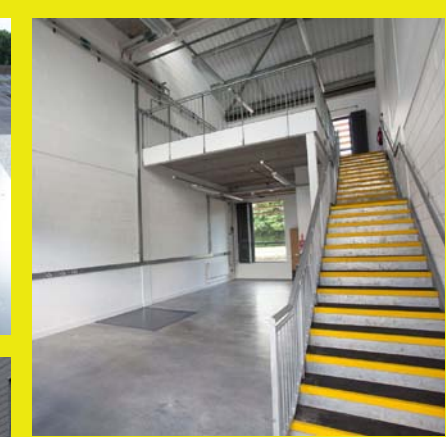
Filwood Green Business Park is an example of a high density industrial park and is one of the most environmentally friendly industrial buildings in the West of England. The development provides a flexible layout, allowing businesses to grow in a high-quality working environment.

Brief history

The site is located within Knowle West, an area of multiple deprivation. Investment in the area is being co-ordinated through the Knowle West Regeneration Framework, adopted in 2009 and expected to take over 20 years to deliver. Forming part of the wider Filwood Park masterplan area, the site posed a number of constraints including: the location of mains pipe line, restricting the development area; contamination of land; the a lack of green transport modes to the site at the time of the masterplan; and limited scope to provide typical levels of car parking associated with commercial/ business park use. However despite these constraints, the design has innovatively addresses these issues and the business park has proven to be very successful with a 90% occupancy rate after two years of opening. The project benefited from public subsidy, allowing the innovative industrial/ commercial model to be delivered in this location.

Location and Context

Filwood Green Business Park is located in Knowle West, 5 miles from the city centre, a low-density, suburban neighbourhood in south Bristol. The area has lacked in community infrastructure, particularly employment opportunities and is very reliant on the private car. Plans to deliver a cycle route connecting Temple Meads and Filwood Broadway, which passes the business park, are underway and MetroBus stops, when completed will be located within walking distance of the site, meaning the city centre will be 10 minutes away rather than 30 minutes by car.



Filwood Green Business Park, Knowle West



Filwood Green Business Park 3D perspective from DAS

Description of development

Site Layout: Filwood Business Park is made up of two buildings fronting onto its street boundaries, creating a courtyard in the centre with a picnic area, secure car and cycle parking. A wetland ecology area is located to the west of the site.

Height and massing: The scheme sits comfortably in its context with the height ranging from 2-3 storeys and forms a strong corner element onto Hengrove Way.

Public Realm/ Private Realm: The scheme has contributed to the improvement of the public realm immediately around the site, along with wider cycle improvements as part of the neighbouring Filwood Park development. Private internal and external communal space has successfully been created within the site, providing versatile break out space for workers.

Mix of Uses: The business park comprises a flexible mix of workshops, offices and a shared work hub.

Car parking: The scheme provides the minimum number of car parking spaces recommended by the Highways Authority in this location for this type of use. Evidence so far shows that the businesses are working well with this arrangement.

Servicing: Servicing is provided from the private courtyard area.

Environmental Performance: A key objective of the design brief was to ensure a high performance-building. Key design decisions, such as site layout and development form considered the need to achieve 100% natural ventilation and maximise natural light into all units, whilst utilising elevation design, such as the timber fins, to prevent solar gain and glare.

Design Quality: Both the internal and external appearance of the scheme are very different to the average industrial business park. The use of green roofs, timber and brightly coloured cladding create a striking and locally distinctive building. Details such as the roof overhangs create thresholds between inside and outside spaces. The timber fins which run along the curved edge of the building focus attention towards the main entrance.



Observations

- **Environmental Performance:** By having a clear and focused brief for the development, and creative design-thinking centred on the environmental performance, the scheme has achieved its target of BREEAM ‘Outstanding’ accreditation.
- The 600 PV panels produce 40% of the energy for the building, saving an estimated 46 tonnes of carbon dioxide a year.
- The building materials are high performing (A/A+ green guide to specification) reducing the energy demand by 30%.
- The landscaping scheme sought to achieve a higher quality environment and reduce air pollution by incorporating green roofs, a wetland ecology area, planting and food growing areas.
- **Adaptable work space:** The workshops vary in size, lighting, services and access,providing a wide choice of spaces for the end users.
- Most of the workshops are two floors to maximise floor area and are able to expand further. Some of the internal walls are non-structural allowing businesses to grow without needing to relocate.
- All the workspaces have good natural lighting and 100% natural ventilation through acoustic vents to reduce traffic noise; mitigating the impact of Hengrove Way.
- The building is almost fully accessible, apart from the mezzanine floors in the workshops. However space has been made available so that a lift can be installed at a later date if required.
- The workhub is a shared space for the individual businesses to use. It is a double-height space, with natural light, ventilation and acoustic control; which has created a pleasant working environment. This space brings businesses together and builds a strong community.
- **Car parking:** By investing in sustainable transport modes around the site and challenging the conventional parking standards for this type of use, the scheme has successfully demonstrated that a lower level of parking can support business use in more suburban areas of the city. Indeed it is felt that the level of car parking could have been further constrained on the site.

Making successful places at higher densities:

Key Learning points

Placemaking/viability

All of the case studies were selected because in their own unique way, they have either raised the quality of existing place, or have created a successful new place. Most of the case studies are also well known in their local neighbourhood, providing an important focal point for the community. A number of case studies are rapidly becoming places that people seek out from across the city, attracted by their unique sense of place and character. Indeed, the success of Wapping Wharf is demonstrated by the nomination for a national placemaking award (Academy of Urbanism, 2017). It appears clear from the case studies that quality placemaking has enhanced the commercial viability of these schemes, leading to high levels of occupancy, and higher sales values than would otherwise be expected.

Masterplans and spatial frameworks

The larger, more complex sites have usefully prepared masterplans to support the outline application. The masterplan typically sets out the vision for the site, and the anticipated phasing of the buildings and public realm. However, the experience from some of the more complex sites, suggests that there is sometimes a need to deviate from the original masterplan, particularly when delivery timescales are long, sites are sold on and the end user is not known at the outset. Deviations from the original consent (even relatively minor) are considered by developers to be overly onerous (Finzels Reach). This may point to the need for the preparation of a more loose-fit spatial framework at the outline stage rather than

a more rigid masterplan. A spatial framework sets out the parameters within which a development can come forward and as such is less prescriptive than a masterplan.

Timescales and stakeholder engagement

The timescales for producing an initial masterplan or spatial framework should not be underestimated. Early involvement of the planning authority and the local community are essential to ensure that the development delivers on wider aspirations for the area e.g. transport and movement, housing and community need, public realm improvements etc. The success of many of these case studies can in large part be attributed to taking time at the outset to understand the needs of the likely end users, and the wider neighbourhood need.

Design and Access Statements (D&A)

The quality of the D&A Statements for the case studies has been disappointing. They are an important tool to help deliver well-designed, inclusive places, but the varying quality of those submitted suggests the need for further guidance to meet the planning authorities expectations. This is particularly important for the more complex high density schemes, where an understanding of the design rationale is essential to assess a scheme. For example, it would be useful if information on development quantum and densities could be set out in the D&A Statement in a consistent manner to enable comparable analysis of schemes.

Residential amenity

Designing at higher densities with a mix of uses creates challenges for residential amenity – noise, overlooking, security etc. Challenging urban sites and aspirations to intensify density have resulted in schemes with limited external private or communal space and reduced privacy distances, with varying success. These case studies demonstrate that it is possible to reduce privacy distances if apartments are dual aspect; habitable rooms are not positioned opposite one another, and ground level threshold spaces are created. However, single aspect apartments need more generous privacy distances, as do houses to accommodate back gardens.

Provision of and access to private outdoor amenity space is mixed across the case studies. Where communal space is provided, the quality and function is compromised by significant overshadowing due to tight separation distances and increased building heights, or unfortunate orientation.

While a high proportion of apartments, particularly in the city centre area, are provided with balconies there is great variety in the size and orientation challenging the useability of these spaces, particularly in north facing units.

It was also observed that none of the flatted schemes provided on-site provision for childrens' play, despite there being evidence of children within the schemes.

The case studies demonstrate a varied response to the provision of entrance and lobby facilities, circulation cores, corridors and on site facilities. Privately rented schemes (PRS) have placed more emphasis on the

quality of these internal spaces, as they tend to attract shorter-term, more transient tenants who value on site facilities such as common rooms and gyms more than communal private space.

Public realm

Most of these schemes have delivered a high quality public realm, that has helped the development successfully integrate with the surrounding neighbourhood. The public realm associated with higher density schemes appears to be more intensively used than in low density areas, and as such needs to be well-designed to meet the competing needs placed on it. High quality materials, active ground floor uses, a comfortable micro-climate and pedestrian priority are all now reasonable baseline requirements for higher density schemes. However, a common failing is the lack of adequate green infrastructure provision and in particular street trees.

The most successful schemes clearly distinguish between public realm (accessible to all) and the private realm (accessible to residents only); the creation of 'semi-public' space invariably creates longer term management problems.

The private ownership of the public realm is common in higher density schemes, particularly in the city centre.

These case studies demonstrate that there are commercial advantages to delivering the public realm early on in the phasing of a scheme and to a high quality.

Building height and form

All the schemes have buildings which are higher than those in their immediate context. Larger sites tend to offer greatest potential for increasing building heights as these sites can often define their own setting (Paintworks).

Most of the case studies comprise mid-rise blocks arranged to enclose a private communal courtyard space, demonstrating that higher densities can successfully be delivered using familiar urban forms. Quakers Friars is the only case study which incorporates a tall building. The success of the tower is directly related to the careful assessment of key strategic and local views and its relationship with key City Centre facilities such as Castle Park as well as the retail centre.

In a suburban context, schemes tend to be 3-storeys, in an urban context 3-7 storeys and in the city centre 5-9 storeys. Height tends to be limited by what is considered acceptable in terms of visual impact, but also by what is viable in different contexts, with build costs tending to be higher for taller buildings and constrained sites e.g. the provision of a lift in a suburban context is likely to be prohibitively expensive, which in turn will limit building heights.

Creating mixed and balanced residential communities

Higher density developments can often help diversify the local housing offer, addressing local deficiencies. However, the end occupiers are often different to that envisaged at the design and planning stage. For example, it has proved difficult to attract families to the larger city centre apartments and conversely, apartments created in suburban areas predominantly for single people have attracted families looking for affordable accommodation.

There is a fear that higher density buildings attract a more transient community, which undermines its successful integration into the wider neighbourhood. This fear is likely to be justified for a PRS model based on typical rental periods of six months.

A key area where schemes are failing to deliver mixed and balanced communities is in delivering the amount of affordable housing required through the Local Plan. In some cases, public subsidy has been required to ensure schemes remain viable whilst delivering affordable housing. There needs to be flexibility in terms of the types of affordable housing required; social rented, part-ownership, aged-living etc.

Mixed-uses

Most of the case studies have provided a vertical mix of uses, with the most publicly accessible uses at ground level where they can animate the public realm. Meeting the planning authority's ambitions for a mix of uses, particularly active ground floor uses can be difficult. Not all developers have experience or can raise the funds for mixed use schemes.

A number of the case studies (Junction 3, Keynsham Civic Centre) demonstrate an appetite from the third sector/public bodies to instigate complex mixed use developments, where a commercial developer/house builder is brought in as a partner, with multiple benefits. Some of the case study schemes would have liked to mix uses further by bringing in more retail, but have found difficulties with planning policy which seeks to protect existing retail centres (Paintworks, Southmead Hospital). Meanwhile uses are an increasing feature of large phased sites, successfully animating sites pending redevelopment (Wapping Wharf).

Work spaces

Whilst much of the discussion surrounding increasing densities focuses on residential densities, there is the need (and potential) to increase densities of employment spaces. Filwood Business Park uses land much more efficiently than other business parks in the city, demonstrating that industrial uses can be located at first or second floor. Keynsham Civic Centre demonstrates how office space can be used more intensively and flexibly whilst creating a comfortable environment. Other case studies demonstrate how work spaces can be incorporated successfully into the ground level of mixed use schemes, providing ground level animation and round the clock activity.

Servicing, management and maintenance

Most of the case studies have relatively unobtrusive servicing arrangements with waste tending to be stored in a basement (city centre context) or in a

ground level compound (urban or suburban setting). The larger schemes like Southmead Hospital tend to consolidate deliveries within a single loading facility. Schemes demonstrate that failure to have a robust and well-considered servicing strategy in place can have costly on-going management costs.

Most of the schemes have dedicated management companies responsible for maintaining internal and external spaces, as well as servicing and waste. While this ensures a general level of upkeep it also has a direct impact on the level of service charges and leaseholder costs.

Environmental performance

Establishing environmental performance as a key objective of the design brief and allowing this to determine key site planning, layout and design decisions has demonstrated that achieving exemplary environmental performance does not necessarily mean increasing costs (Keynsham Civic Centre). Case studies have shown that there are clear advantages to being able to naturally ventilate and light a building in terms of user comfort and energy savings. Schemes such as Keynsham Civic Centre and Southmead Hospital have shown that this is possible when building depths are no greater than 12m. These schemes were then able to dispense with costly and often unsightly roof top plant, which in turn created opportunities for roof lights, bringing light deep into the core of the building via atria and winter gardens.

This approach also creates more opportunities for green infrastructure to be designed in such as cost-saving SUDS and green or brown roofs

Higher density development also provides greater opportunities to utilise technology and building fabric to improve environmental performance, for example potential to connect to District Heat networks.

Car/ cycle parking

Most case studies have sought to accommodate car parking as efficiently as possible, ensuring that it does not dominate the public realm. This is proving to be easier in a city centre area context where residential parking provision tends to be lower and basements and podiums are viable. In urban and suburban areas, that are less well served by local amenities and public transport, and basements are not viable, parking tends to be provided on-plot or on-street. In these locations, developers have sought to reduce the car parking requirement for their sites, but have tended to meet local opposition related to concerns about the impact on surrounding streets.

The compact city ethos does not yet seem to be delivering the anticipated reduction in reliance on the private car, with car parking provision in the central area being typically 70%.

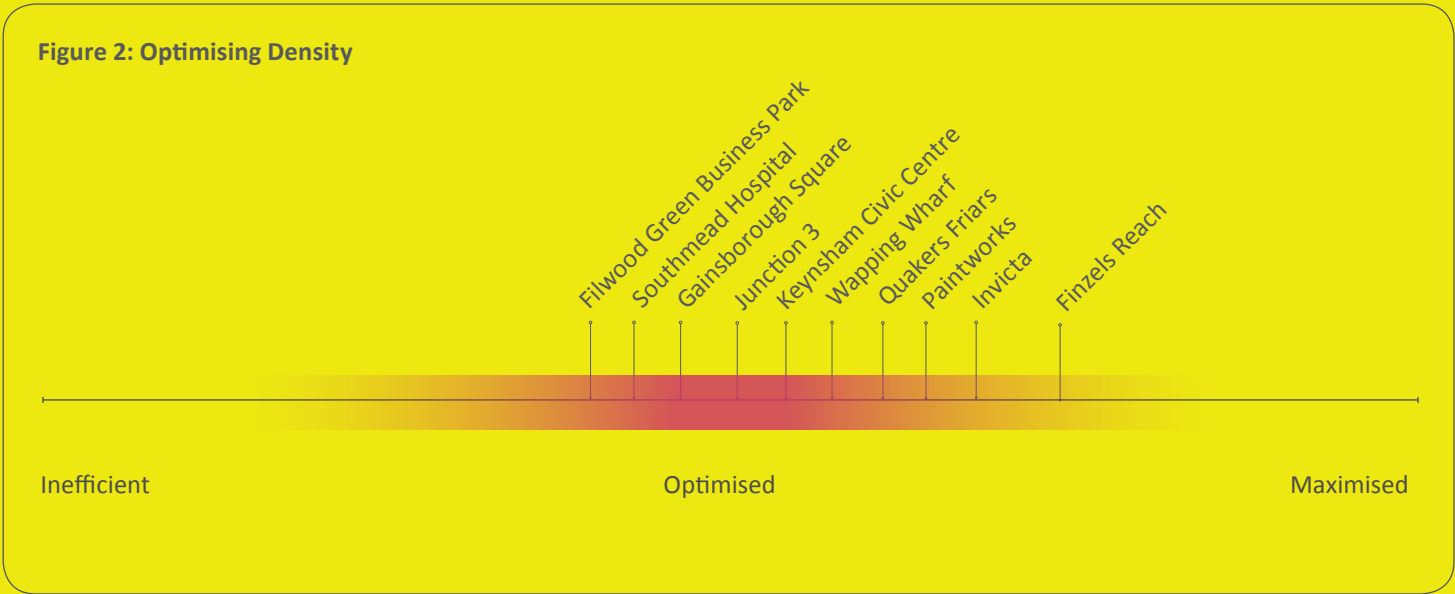
There is less expectation of being able to park at work, demonstrated at Keynsham Civic Centre where employee parking is no longer provided, and Southmead Hospital experiencing a significant shift to public transport by its employees. Where large, multi-storey public car parks are provided, their visual impact has been mitigated; by sleeving with other development at Southmead Hospital or by its integration with a high quality public realm scheme in Keynsham.

Significant levels of cycle parking provision are required in higher density schemes, which is typically provided in car parking areas, or in dedicated cycle stores within communal areas. However many case studies show a reluctance of bicycle owners to use communal cycle storage facilities, instead preferring to store an expensive bike in their own apartment.

Design Quality

Innovative and contemporary design approaches, which clearly relate to the local context, have proven to be particularly successful, as has the restoration and integration of heritage assets (Finzels Reach, Quakers Friars and Paintworks). Many of the schemes demonstrate the use of high quality, robust, natural materials. However viability, tight construction programmes and changes in construction techniques, such as the increasing use of untested rainscreen cladding, are challenging the on-going delivery of this. Increasing constraints on the articulation of elevations, such as reduced depth of window reveals in ‘standard’ construction is also challenging the delivery of high quality, well detailed buildings. Design and build contracts also require a greater level of monitoring and review to ensure quality standards are maintained throughout the development process.

There is widespread acceptance that higher density schemes call for high quality design. Indeed, design quality is often invoked as a prerequisite for permitting schemes that breach previously accepted norms. But in some cases the focus appears to be on aesthetic, contextual or stylistic considerations rather than more fundamental aspects of design that effect the liveability of the scheme.



Optimising Density

Urban Living is the product of optimising densities by balancing the efficient and effective use of land with aspirations for a positive response to context, successful placement and making quality places to live.

The figure above (figure 2) aims to provide a quick-view assessment of the selected case studies performance in terms of ‘optimising density’.

This is the result of a qualitative judgement on the information available and experience from site visits and anecdotal evidence.

Appendix A: Calculating Densities

Definitions and assumptions

Site area

The red line boundary shown on each of the case study plans indicates the **net** site area used in the calculations. Generally speaking, site areas correspond to the red line boundary on a planning application and generally excludes adjoining carriageways, paths, rivers, canals, railway corridors and other existing open space.

When establishing net site areas, the following have been included:

- access roads and circulation space within the site (vehicles)
- public realm within the site, including pavements to the edge of the scheme (pedestrians and cyclists)
- private garden space, including communal courtyard spaces
- all car parking areas serving that particular development
- incidental public open space and landscaping including childrens’ play areas

Calculations exclude:

- major distributor roads, including roads to the edge of the development
- open spaces/play spaces serving a wider area
- significant landscape buffer strips

Number of dwellings

Number of dwellings has been established for each scheme through reference to the planning application. It should be noted that self-contained student flats, elderly flats and Private Rented Flats (PRS) are all monitored and count towards the City’s housing targets. For information, of the case studies selected, only one delivers PRS flats, and none deliver student or elderly accommodation.

Size of dwellings

The provision of sufficient living space within new homes is an important element of good housing design. New dwellings across all tenures in Bristol must comply with nationally prescribed space standards set out by the DCLG (March 2015). Typical dwelling sizes are provided for 1-bed, 2-bed, 3-bed flats etc. However it should be noted that the majority of the case studies achieved planning permission prior to the introduction of these standards. Student flats do not have to conform with nationally prescribed standards despite counting towards the Council’s housing targets. It is therefore recommended that for the purposes of calculating residential densities, they are regarded as non-residential floorspace.

Bed spaces (per hectare)

The number of bed spaces for each scheme have been gathered from the planning application information and are measured per hectare (bsph) However as some of these schemes predate current space standards, the schedules of accommodation do not always specify how many bed spaces per bedroom. Where this is the case it has been assumed that all 1bed units include 2 bedspaces, 2bed units include 4 bedspaces and 3-bed units are 5 bedspaces.

Measuring bedspace per hectare offers an estimate of the likely population of the scheme. However it may overestimate this as some dwellings, particularly in private for-sale units, may be under occupied.

Dwelling mix

Where possible, the percentage of 1-bed, 2 bed, 3-bed flats/ houses is provided.

Gross internal area (GIA)

Gross Internal Floor Areas for each scheme have been established by referring to the planning application. It is assumed that the RICS definition of GIA has been used by developers to define floor areas, although

the completeness of the information supplied is of a variable quality. For example GIA for areas of plant are not commonly provided, and so are not taken into account when calculating Plot Ratio.

GIA includes:

- Areas occupied by internal walls and partitions.
- Service accommodation such as WCs, showers, and changing rooms.
- Basement or in-structure car parking
- Lift rooms, plant rooms, etc
- Open-sided covered areas

GIA excludes:

- Open balconies, fire escapes, minor canopies.
- Open vehicle parking areas, terraces and so on.
- Any area with a ceiling height of less than 1.5m (except under stairways).
- Any area under the control of service or other external authorities.

Car parking areas

Whilst developers tend to supply GIA for each Use Class Order, it is not common for information to be supplied on the area allocated to car parking. It was felt that the case study reviews would benefit from an understanding of the amount of area allocated to car parking. Where possible, therefore, the GIA of basement and in-structure car park areas has been measured as part of this review.

Plot Ratio or Floor Area Ratio (PR)

$$\text{Plot Ratio} = \text{GIA} / \text{net site area}$$

Whilst plot ratio calculations for non-residential floorspace have historically been based on Gross External Area, GIA has been used here as this is how information tends to be supplied in planning applications. In practice the difference between GIA and GEA is relatively small. The GIA includes residential, non-residential and in-structure car parking areas.

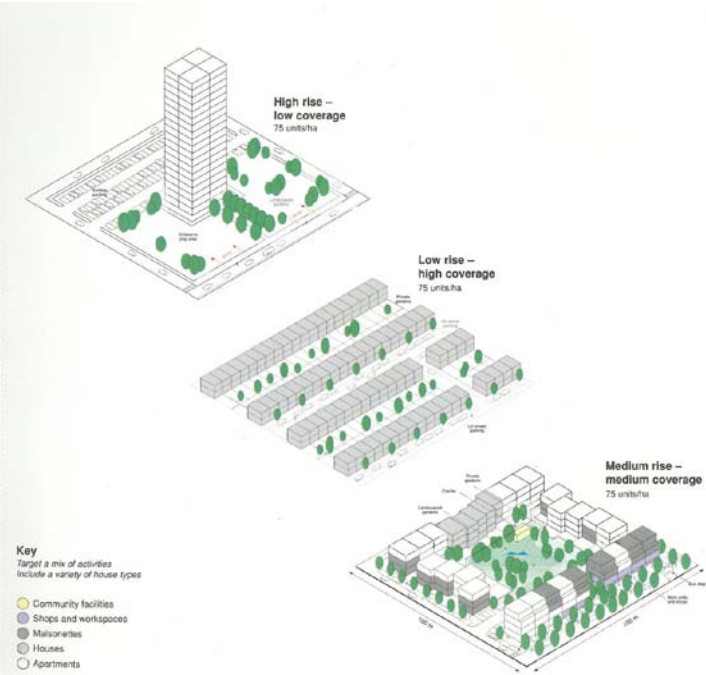


Figure 1: Relationship between density and urban form

A single-story building consuming the entire site can have the same plot ratio as multi-storey tower occupying a much smaller footprint as the following diagrams illustrate.

Measuring densities

Residential schemes

There are a number of ways residential densities can be calculated and expressed. The most commonly used way is dwellings or units per hectare (dph/ uph) and is the approach taken here. A less common but arguably more useful way of measuring densities is habitable rooms per hectare (hr/ha). When comparative residential densities have been supplied for existing established neighbourhoods such as a Victoria suburb, address points/hectare has been used. This measure takes into account and reflects sub-divisions of dwellings.

Non-residential schemes

Non-residential densities are usually expressed as plot ratios. People per hectare is also a useful measure particularly when trying to establish the impact a development may place on the local infrastructure.

Mixed use schemes

It is important that non-residential space is taken into account as part of calculating residential density in mixed-use schemes.

There are a number of approaches that can be taken towards calculating densities in mixed-use schemes. The approach taken in this report is based a methodology developed by architects Maccreeanor Lavington to inform the London Local Plan.

The method takes into account the impact of vertically stacked mixed use development (i.e where housing is on top of non-residential use) by reducing the size of the site area by an amount that is equivalent to the proportion of total non-residential floorspace. The remaining site area is used to calculate net residential density. The worked example set out opposite explains this approach.

Worked examples: Wapping Wharf

Net site area: 1.1ha

Number of dwellings: 194

Residential GIA: 16105sqm + 3110sqm basement car parking

= 19,215sqm (95%)

Non-residential GIA: 875sqm (5%)

Density calculation based on 95% of the site area: 1ha

Net Density: 194/1 = 194dph (using Maccreeanor Levington method)

*A standard density calculation, which does not take account of the non-residential uses produces a density of 176dph (194/1.1)

Finzels Reach

Net site area: 1.6ha

Number of dwellings: 432

Residential GIA: 30,565sqm + 7400sqm basement car parking

= 37,965sqm (59%)

Non-residential GIA: 26,172sqm (41%)

Density calculation based on 59% of the site area: 0.94ha

Net Density: 432/0.94 = 460dph (using Maccreeanor Levington method)

*A standard density calculation, which does not take account of the non-residential uses produces a density of 270dph (432/1.6)

Plot Ratio= Total GIA (64,137sqm) / Site area (1.6) = 4

Quakers Friars

Net site area: 1.6ha

Number of dwellings: 230

Residential GIA: 15875sqm + 4284sqm basement car parking

= 20159sqm (55%)

Non-residential GIA: 16600sqm (45%)

Density calculation based on 55% of the site area: 0.88ha

Net Density: 230/0.88 = 261dph (using Maccreeanor Levington method)

*A standard density calculation, which does not take account of the non-residential uses produces a density of 144dph (230/1.6)

Plot Ratio= Total GIA (36,759qm) / Site area (1.6) = 2.3

Invicta

Net site area: 0.85ha

Number of dwellings: 170

Residential GIA: 14,191sqm + 4452sqm basement car parking

= 18,643 (98%)

Non-residential GIA: 437sqm (2%)

Density calculation based on 98% of the site area: 0.83ha

Net Density: 170/0.83 = 204dph (using Maccreeanor Levington method)

*A standard density calculation, which does not take account of the non-residential uses produces a density of 200dph (170/0.85)

Plot Ratio= Total GIA (19,080sqm) / Site area (0.85) = 2.2

Junction 3

Net site area: 0.7ha

Number of dwellings: 59

Residential GIA: 3579sqm (70%)

Non-residential GIA: 1499sqm (30%)

Density calculation based on 70% of the site area: 0.49ha

Net Density: 59/0.49 = 120dph (using Maccreeanor Levington method)

*A standard density calculation, which does not take account of the non-residential uses produces a density of 84dph (59/0.7)

Plot Ratio= Total GIA (5078sqm) / Site area (0.7) = 0.7

Paintworks

Net site area: 2.3ha

Number of dwellings: 221

Residential GIA: 17,422sqm + 8000sqm basement car parking

= 25,422sqm (79%)

Non-residential GIA: 6716sqm (21%)

Density calculation based on 79% of the site area: 1.8ha

Net Density: 221/1.8 = 123dph (using Maccreeanor Levington method)

*A standard density calculation, which does not take account of the non-residential uses produces a density of 105dph (221/2.3)

Plot Ratio= Total GIA (32,138sqm) / Site area (2.3) = 1.4

Gainsborough Square

Net site area: 0.34ha

Number of dwellings: 28

Residential GIA: 2412sqm (83%)

Non-residential GIA: 485sqm (17%)

Density calculation based on 83% of the site area: 0.28ha

Net Density: 28/0.28 = 100dph (using Maccreeanor Levington method)

*A standard density calculation, which does not take account of the non-residential uses produces a density of 82dph (28/0.34)

Plot Ratio= Total GIA (2897sqm) / Site area (0.34) = 0.9

Measuring densities: Floor Area Ratios

To provide some context to the findings of the case study examples a number of plot ratios have been calculated. These are drawn from across the three setting areas. Case studies comprise built examples in Bristol; built examples from elsewhere in the UK and Europe; and examples from recently approved planning applications and policy guidance (Temple Quarter Spatial Framework).

It should be noted that in calculating plot ratios for 'Built Examples: Bristol', approximate areas have been measured from OS Mastermap base plans in GIS, and are therefore not as accurate as the ratios based on GIA.

It should also be noted that the plot ratios provided are based on a 'close-clipped' boundary of relatively small geographic areas. However, the examples from the rest of the UK/ Europe tend to cover larger areas which serves to reduce their relative plot ratio.

	Central	Urban	Suburban
Case Studies	Wapping Wharf	1.8	
	Finzel's Reach	4	
	Invicta	2	
	Quakers Friars	2.3	
	Junction 3		0.7
	Paintworks		1.4
	Keynsham Civic Centre		1
	Gainsborough Square		0.9
	Southmead Hospital Brunel Building		1.4
	Filwood Green Business Park		0.5
Current Planning Permission/ Policy	Arena Island (Temple Quart Spatial Framework)	2.5	
	Redcliff Quarter, Redcliffe (approved scheme)	4.2	
	St Catherines Place, Bedminster (approved Scheme)		3.8
	Dunmail Residential development, Southmead		0.46
Built Examples: Bristol	Temple Quay (Temple Back East plot 1 and 3)	5.3	
	Asda Bedminster		0.32
	Avonmeads Retail Park, St Phillip's Marsh		0.33
	Imperial Park, Hartcliffe		0.38
	Cater Business Park, Hartcliffe		0.5
Built Examples: National and International	Clifton Down Shopping Centre		2.6
	Southmead Hospital Women and Childrens quarter		0.27
	Broadgate, London	4.2	
	Potsdamer Platz, Berlin	3.4	
	Paddington, London	3.7	
	Manchester Millennium		1.4
	Mayfair, London		2.5
	Convent Garden London		2.5

Appendix B: Planning Officer Views

In researching the case studies, the Planning Case Officers have, where possible, been asked to offer any anecdotal evidence of their experience of delivering the specific schemes identified. Supplementary to this, professional views on current experience with higher density schemes, on current and recently approved planning applications, have also been sought and are set out below:

- Difficulty achieving a policy compliant scheme
- Accommodating car parking in suburban areas
- Higher density schemes being promoted on physically constrained sites
- Too many single aspect flats
- Opportunist location of tall buildings rather than strategic location
- Achieving design quality where the developer does not have a long-term interest in the site
- Adequately communicating design approach through Design & Access Statement
- Ensuring quality through an outline planning application
- Post decision design changes (proliferation of s78/ variations)
- Over-use of conditions
- Under-utilisation of pre-app process to resolve major design issues prior to submission
- Visual Impact /Heritage /Sustainability assessments etc. prepared too late in the planning process to inform design
- Perceived tension between achieving design quality and delivering affordable housing
- Inconsistent supply of comparable data (GIA, densities etc.)
- Land changes ownership at high values which makes it harder to deliver a policy compliant, high quality scheme down the line.

Appendix C: External consultation event feedback

During the course of preparing the ‘Urban Living SPD-Making successful places at higher densities’ Bristol’s planning, design and development community have been engaged through two formal consultation events. The feedback from these sessions are outlined below:

Urban Living SPD – Themes emerging from initial scoping event

16 March 2017

It is important that the Urban Living SPD is informed by a thorough understanding of context. This should cover the whole city and include: views in and out of the city; historic growth of city; heritage assets; topography; movement and accessibility; capacity of existing areas/communities for change.

New guidance needs to provide greater clarity on the areas considered suitable for higher density development. The City’s transport hubs, radial routes and city centre are obvious foci. Less obvious opportunity areas in the south and east of the city, should be proactively explored through spatial frameworks.

Design guidance needs to be informed by existing best practice. Wapping Wharf and Paintworks were identified as good local examples of higher density mixed use developments. We should also learn from the experience of other UK cities, particularly London which has been grappling with these issues for longer.

Design guidance needs to clearly set out what is being sought from higher density development, without being overly prescriptive. Potential topics include: efficient site planning; privacy distances; daylight requirements; single/dual aspect apartments; private and communal open space (courtyards, balconies, winter gardens, roof gardens); public realm design including the role of the natural environment; mixing of uses; active frontages; car parking approaches/storage; and servicing development.

A greater focus is required on building new high density developments that better integrate into the wider neighbourhood. This will involve greater community consultation at an earlier stage to establish local aspirations, concerns and need, and a greater recognition that higher density development places significant pressure on existing community infrastructure such as GP surgeries, public transport and public open space.

Guidance needs to positively say where tall buildings will be encouraged whilst setting out their limitations in terms of delivering affordable housing, using land more efficiently and delivering successful placemaking. Assessment criteria will still be required.

Bristol City Council needs to be more proactive about promoting higher density, higher quality development. This could be achieved through the adoption of a more positive and collaborative planning role, informed through a deeper understanding of local need and market deliverability. It could also be achieved by leading by example in the development of its own land and securing funding to deliver supporting infrastructure.

Urban Living SPD - Summary of themes and feedback from follow-up event:

28 September 2017

General:

Generational and megatrends- there is a need to take a strategic approach to the document and provide adequate future-proofing in response to long-term, generational changes in attitude to issues including:

- Car ownership, storage and use.
- Tenure
- Type and provision of private amenity space
- Flexibility and adaptability of accommodation typologies.

Quality of public and private realm-

- Vibrant, successful places are where street life thrives, with comfortable microclimate and space for activities to occur.
- Both public and private space needs to have a clearly defined function and be appropriately designed for that function. For example providing childrens’ play, quiet spaces etc.

Community Focus-

- Bristol is at its best when its community focussed. Therefore new development needs to support mixed and balanced communities and respond to existing community needs.

Density-

- Still difficulty in defining a consistent method which will allow for a genuine comparison of schemes.
- Should not let this be the defining measure of assessment; focus should be on design quality and integration into an area.
- Importance of understanding relationship between gross and net densities on the character of areas. Should not be seeking to increase densities to the detriment of open space etc.

SPD-

- Generally felt that there is a lot of existing guidance. The SPD should not repeat or duplicate this information, rather signpost to relevant documents.
- Clear assessment criteria and template considered to be positive for all involved parties.
- Proactive promotion of sites for higher density to provide some certainty for developers and investors. Need to manage vision for and aspiration for more outlying areas to encourage a more intense use of sites.

Case Studies:

- Generally well chosen.
- Could draw out other lessons from aspects other than design and location.
- Should include a tall building example.
- Could draw on other existing guidance- CABE, RIBA, AoU etc.

Locational Guidance:

- General consensus around transport nodes and public transport routes, although need to ensure existing infrastructure has capacity for intensification.
- PIWAs- for both intensification of employment use and introduction of high density residential.
- No specific objections to the locations shown on the plan. Additional locations identified including early 20th century estates for intensification – Lawrence Weston, Southmead, Shirehampton, Filwood etc.
- Any specific locations need to be informed by city-wide analysis and character assessment.

Appendix D: Open Space Calculations

Learning Points:

While researching the selected case studies it became clear that there is no formal method for calculating on-site open space provision within individual developments. Current policy does not require a fixed or minimum amount of private/ communal space, with each case being assessed on its merits.

While this approach is widely accepted, there is currently a mixed approach to requiring access to open space particularly within higher density apartment schemes. Recent development shows a general trend resulting in relatively low provision. One and two bed apartments are the most common typologies where it is common to have no access to private balcony/ terrace space and limited provision of and access to useable communal space, particularly on smaller, urban sites.

The lack of private balcony/ terrace provision is often balanced against the constraints of higher density schemes, such as tight separation distances, constrained site boundaries, and a result of privacy and overlooking constraints. Air quality and noise pollution issues can be challenging in urban environments, also resulting in restrictions on private open space. Similarly the lack of useable communal private space is often a result of competing pressures on ground floor space within a scheme such as car and cycle parking, bin storage and servicing requirements.

The Urban Living SPD- Making successful places at higher densities proposes the introduction of an Open Space requirement, similar to that currently used in the London Local Plan.

Comparison calculations:

In order to scrutinise the provision of open space in the case study examples, the London Housing Quality Standard 26 has been used as a baseline. The standard requires a minimum of 5sqm of private outdoor space to be provided for 1-2 person dwellings and an extra 1sqm to be provided for each additional occupant.

It should be noted many schemes, including higher density and tall buildings, do provide levels of private space which satisfy or exceed this space standard.

An assessment of three case study schemes from the City Centre area (Wapping Wharf, Invicta and Quakers Friars) demonstrate the quantitative amount of space is in each case exceeds the current London Quality Standard 26 (see table below).

However access to private space is about 70% across the three schemes, meaning that 30% of residents are entirely dependant on communal outdoor space. Invicta does not provide any communal open space and as such some units have no access to private space within the schemes.

Concerns have also been raised with regard to the quality and functional use of some of the communal courtyard spaces. For example Wapping Wharf, which due to tight separation distances across the courtyard result in overshadowing of the majority of the space for large portions of the day, throughout the year.

These findings suggest the need to more carefully consider the design of private open space, both private and communal, to ensure a quality and useable space improving the overall liveability of the scheme. These considerations should include:

Communal open space:

- Should have a clear purpose and designed to be safe and easily managed and maintained,
- be clearly demarcated from the public realm,
- be overlooked by surrounding development,
- be accessible to disabled people including people who require level access and wheelchair users,
- be accessible to all residents regardless of tenure.
- achieve direct sunlight into communal spaces for a portion of the day.
- achieve adequate day light levels to allow a range of uses and activities throughout the year, as well as supporting successful soft landscaping and opportunities for food-growing.

- take into account opportunities for safe and secure childrens’ play.

Private (balconies/ terraces etc):

- Orientation- to maximise sunlight and limit exposure to prevailing winds.
- Size- to allow practical use of the space
- Ensure appropriate levels of privacy between spaces to allow enjoyment of the space.

Open Space Calculations:

The table below shows the open space provision for the three selected schemes, established from the relevant planning applications, compared to the requirements as set out by the London Housing Quality Standard 26.

	Wapping Wharf	Invicta	Quakers Friars
OPEN SPACE			
Communal (SQM)	950	0	2296
Private (SQM)	1047.5	1513	1009
TOTAL	1997.5	1513	3305
Amount required by London Standard 26 (A minimum of 5sqm of private outdoor space should be provided for 1-2 person dwellings and an extra 1sqm should be provided for each additional occupant.)	1226 sqm 66 1bed units + 128 2bed 4person units =(66x5) + (128x7)	989sqm 63 1 bed units + 69 2bed 3person units + 11 2bed 4person units +27 3bed 5person units =(63x5)+(69x6)+(11x4)+(27x8)	1388sqm 112 1bed 2person units + 116 2bed 4person units + 2 3bed 5person units =(112x5)+(116x7)+(2x8)
Average size of private space	4.5sqm (3x1.5)	6.75sqm (1.5x4.5)	Broadweir = 4.8sqm(1.2x4) Tower= 7.5sqm(3x2.5)
Main form of provison	Balconies	Balconies	Balconies
Number of units with access to private spac (%)	158 81	118 70	167 73

Table 1: Open space calculations based on planning application information.



City Design Group
Growth and Regeneration

Photo: Chris Bahn