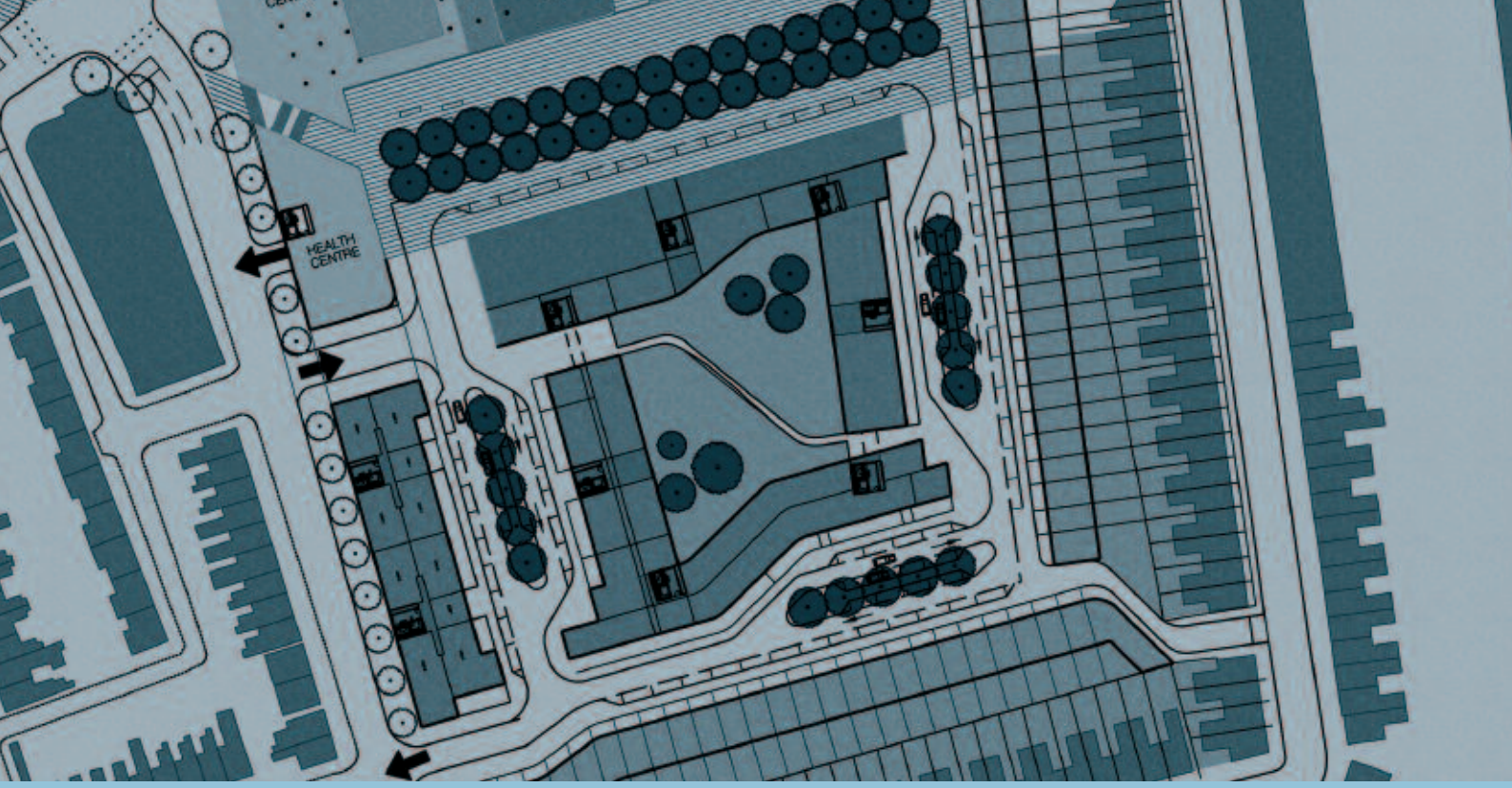


5 Illustrative masterplan

5.1 INTRODUCTION

This illustrative masterplan demonstrates an interpretation of the key parameters in the preceding sections and incorporates the mandatory requirements listed in Section 3 and the design principles presented in Section 4. In this possible interpretation, the masterplan has been structured around a series of character areas, which relate to the main urban spaces and their specific qualities. The requirements of, and development opportunities for, each character area are detailed in section 5.3. This information is presented in a matrix specific to individual blocks and is provided as a reference guide for developers and their design teams.

FIGURE 5.1.1 Plan view of the illustrative proposal

5.2 ILLUSTRATIVE MASTERPLAN OUTLINE

The illustrative masterplan adheres to the 'tried and tested' traditional urban elements of streets and squares in order to assimilate the development into the existing context. The masterplan builds to the perimeter of the block in order to activate the edges of the site whilst incorporating buildings which are responsive to their immediate context i.e. the roads and building types adjacent. Lower scale townhouses are assigned to the southern and eastern sides of the site in response to the immediate existing domestic context.

The masterplan assigns mixed-use facilities to the lower levels along Woolwich Road and lower Vanbrugh Hill in order to activate the street edge.

Due to the sloping nature of the site, which is already partially cut from the former hospital building, under-croft parking has been incorporated. In order to create a focus and a unique sense of place to the masterplan, a Public Square has been defined above the under-croft parking. The square has been set back from Woolwich Road due to the inimical nature of that environment. Nevertheless, maximum visual and physical connection between the road and the Public Square is intended to ensure community use and ownership. The activity within the Public Square is to be maximised with mixed-use on all sides at ground level.

Apartment buildings centred around a private communal courtyard are located to the centre of the site and surrounded by a series of streets which are configured to make a positive contribution to the urban realm.

The buildings along Vanbrugh Hill reduce in scale and height in response to the immediate context.

FIGURE 5.2.1 Aerial view of the illustrative proposal

FIGURE 5.2.2 View of Public Square

FIGURE 5.2.3 View of Public Square

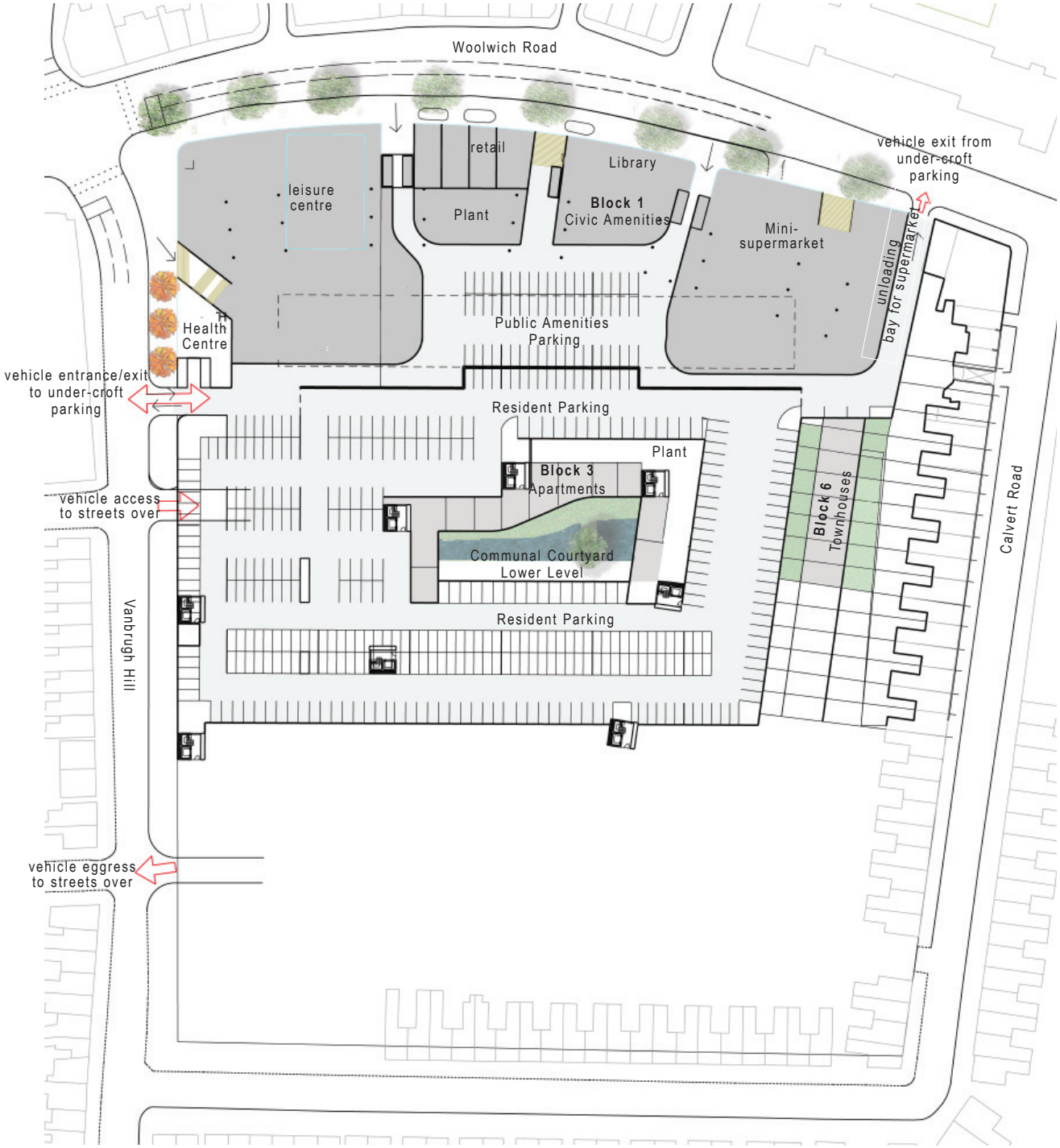


FIGURE 5.2.4 Lower Ground Floor - Woolwich Road level and Under-croft Parking

FIGURE 5.2.5 Upper Ground Floor - Public Square, Streets and Communal Courtyard

FIGURE 5.2.6 Level 1 plan

5.3 CHARACTER AREAS

CONTENTS

Character areas within the Heart of East Greenwich masterplan have been defined on a spatial rather than a block basis. Each area will have differing characteristics, based on location and proposed uses for that area. The character areas defined do not represent specific development parcels, but instead provide a method of appraisal to ensure proposals respond to the immediate setting and relate to adjacent areas in accordance with parameters set out in this document.

There are zones of overlap between character areas particularly at edge conditions.

The following section provides a detailed description of the character areas established within the illustrative masterplan along with a matrix, which outlines the key parameters defining each space.

CHARACTER AREAS

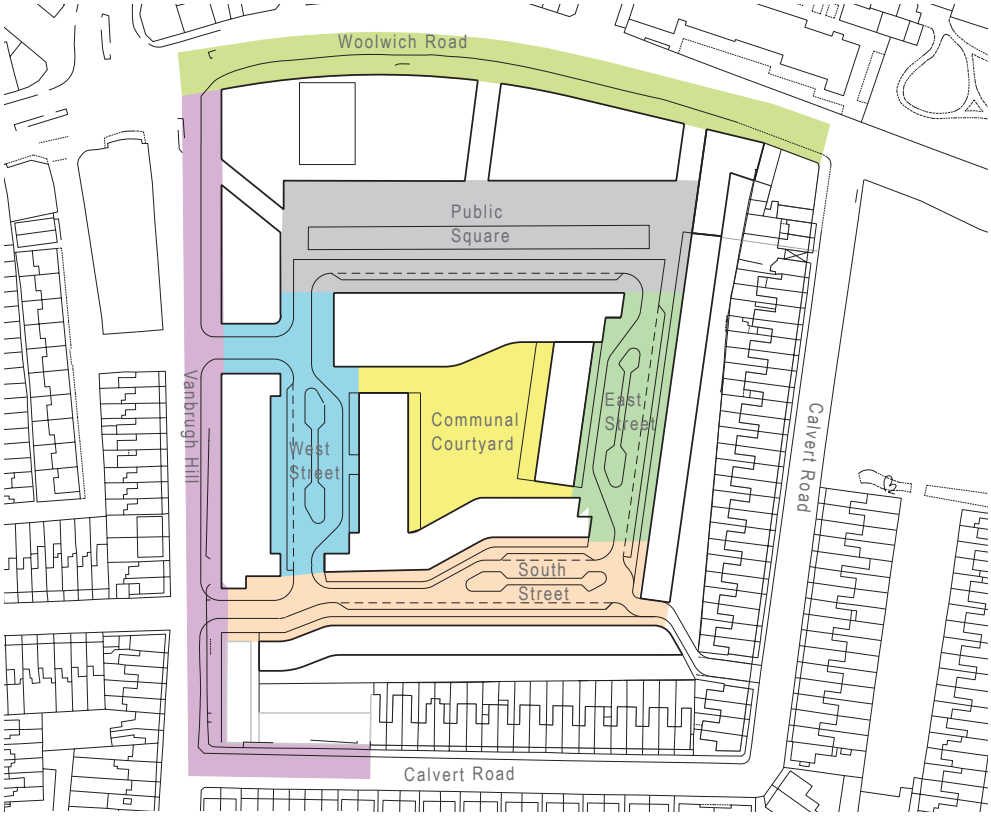
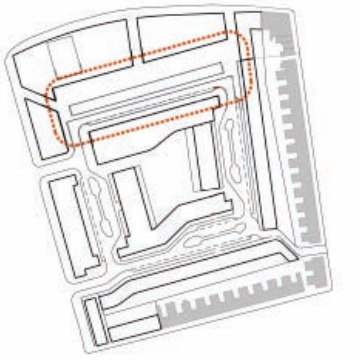


FIGURE 5.3.1 Character Areas

5.3.1 CHARACTER AREA KEY

PUBLIC SQUARE

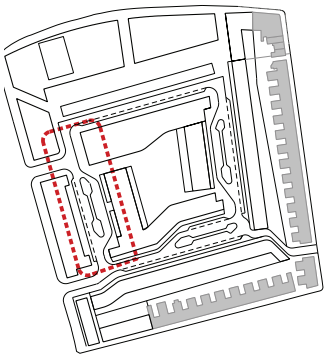
The main formal public space is clearly defined and flanked by a mix of uses with active frontages directly onto the square. At least some of the civic facilities, including under-croft car parking, are arranged with access directly via the new square to provide both indoor and outdoor public focus for the whole community and to ensure regular footfall through the new square. Commercial or live/work facilities are proposed along the southern edge of the square. The vision is for the square to be predominately hard surfaced but with other soft landscape interventions. A variety of areas are suggested to encourage a mixture of uses and points of focus within the space. Areas with soft landscape including trees are included whilst water features are introduced to act as points of focus and as part of a sustainable drainage system. A controlled amount of traffic is indicated on the southern edge of the square. A public 'green' space is suggested at first floor level to the northern side of the square, which benefits from the south aspect. (Refer to the Landscape section for further details of the Landscape Strategy). Access for all is a priority.



Public Square

WEST STREET

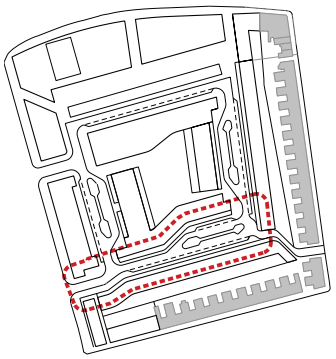
A residential street of three and four-storey apartments to both sides of the street, which widens at the centre, is suggested to create a sense of place. The street is split into two one-way roads by a line of centrally located trees. This character area is of medium density within the development. Car parking spaces are integrated within the landscape strategy. An alternative layout would be to have the road narrowed to allow a set back of Block 5 from Vanbrugh Hill. It is suggested that mews style cottages, potentially with live-work facilities, could be considered to the western side of this character area to provide an alternative housing typology.



Street to west side of site

SOUTH STREET

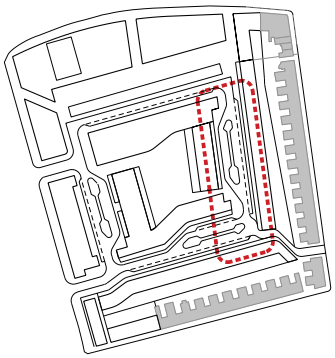
This street is lined with townhouses (or stacked maisonettes) on one side and four-storey apartments opposite, and has a smaller residential scale than the other streets. The street contains residential gardens dominated by soft landscape and central tree lined roadways. The curving profile to the block opens the width of the space and provides a central focus to the street forming a natural traffic calming measure and opportunity for informal play. Car parking spaces should be integrated within the landscape strategy.



Street to south side of site

EAST STREET

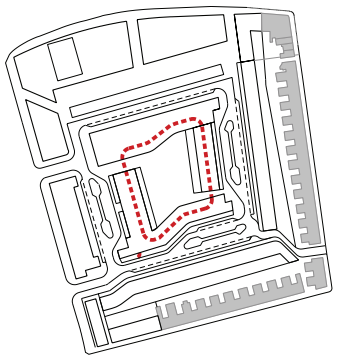
A residential space with four-storey townhouses to the east and four-storey to seven-storey apartments to the west. The building to the west is set back to provide a sense of relief to the facade, create a sense of place and accommodate integrated traffic calming measures. The street is split into two one-way roads by a line of centrally located trees. Smaller scale four-storey townhouses are to the south end of the space whilst the large scale Public Square ends the north end of the space. This character area has a variety of scales within the development.



Street to east side of site

COMMUNAL COURTYARD

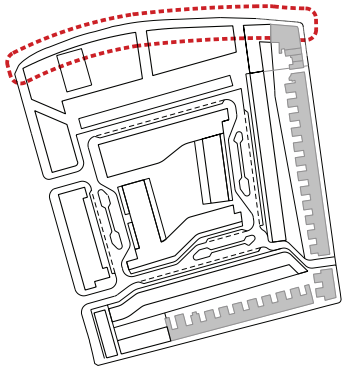
The perimeter buildings are four-storey except on the northern side where the building increases to seven storeys to provide greater scale to the Public Square. Apartments with balconies should look into the space whilst at ground level the apartments have their own private gardens which open onto the central communal garden. The landscape steps to provide gardens to the lower ground floor apartments on the north side of the space. The communal square should provide a variety of spaces and uses which shall be fully integrated with the landscape strategy (refer landscape section for further details). The north-western and south-eastern corners of the blocks are articulated to provide visual connections to surrounding spaces and a sense of relief to the space.



Communal Courtyard

WOOLWICH ROAD

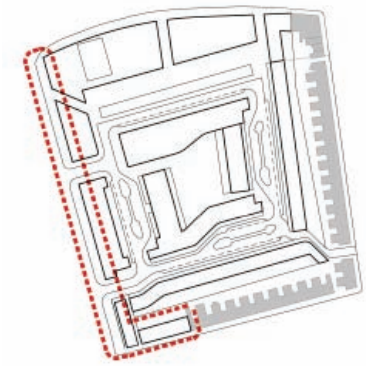
The Woolwich Road character area forms the main urban boundary to the site with two storeys of mixed-use development at the lower level and apartments above. The building varies between four and nine storeys (the upper levels set back), the block being lower at the east end in response to the buildings adjacent. This character area has a large scale and high density. Proposals will demonstrate methods of articulating the facade to provide relief to the long elevation. At least three generous entrances from Woolwich Road into the Public Square behind are provided along the length of the facade whilst transparency to the lower levels should provide a visual connection.



Woolwich Road

VANBRUGH HILL

The Vanbrugh Hill character area is predominantly residential and smaller in scale than Woolwich Road. The buildings vary in height in response to the existing buildings on the opposite side of the road. The building at the junction with Woolwich Road is approximately seven storeys (the upper levels set back) whilst the adjacent block is seven storeys (the upper levels set back) reducing to five storeys. A dual fronted health centre is accommodated at the lower level over two floors. The block to the eastern side accommodates three-storeys of apartments and is generally more residential in character.



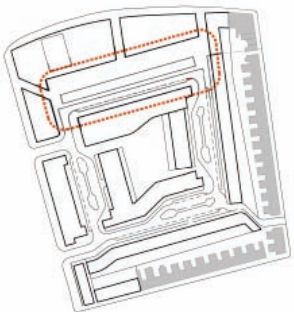
Vanbrugh Hill

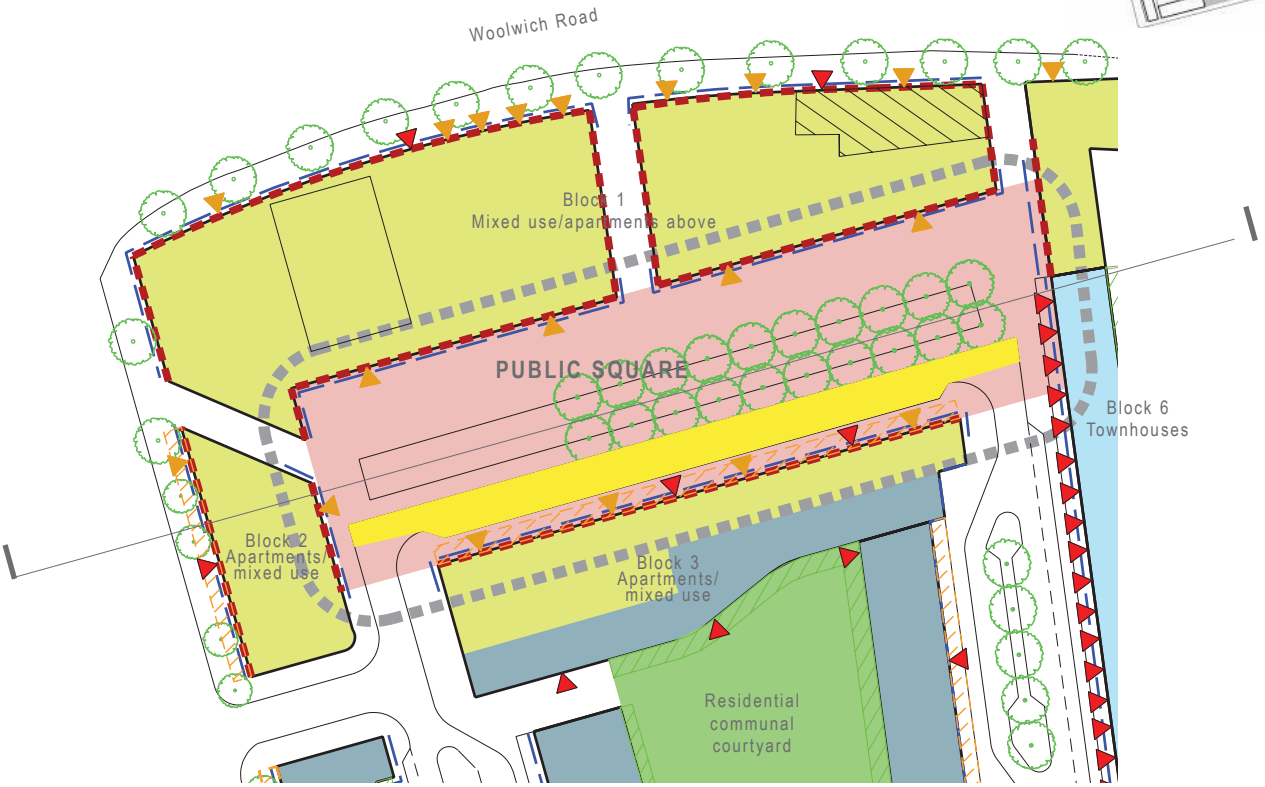
5.3.2 CHARACTER AREA MATRIX

PUBLIC SQUARE

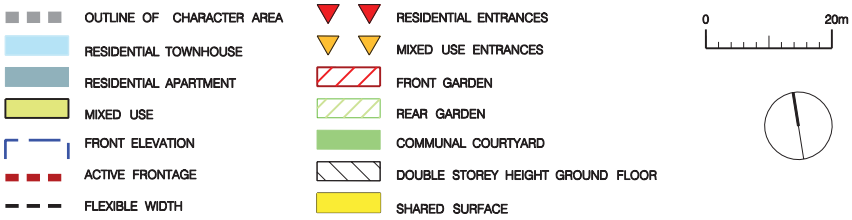
The Public Square is the key public space within the development and is envisioned to be a vibrant space able to facilitate a multitude of functions and activities. The perimeter buildings are with commercial frontage at grade adding activity to the square. Limited amounts of traffic should be able to pass through the square with traffic calming measures. This character area has the largest scale and highest density of the development.
Below is a matrix of the key elements of the illustrative masterplan.

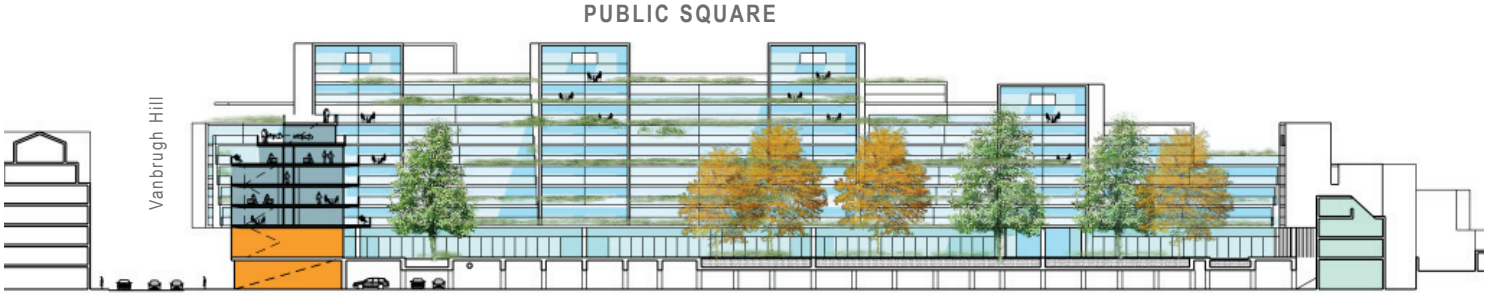
BLOCK NO	BLOCK 1	BLOCK 2	BLOCK 3	BLOCK 6
BUILDING USE CHAPTER 5.4	Ground Level Mixed-use: offices, shops, library, cafe, leisure centre Upper Levels Residential: apartments	Ground Level Mixed-use: health centre, Apartments Upper Levels Residential: apartments	Residential: apartments live/work units	Residential: Townhouses (or double stacked maisonettes)
BLOCK DEPTH CHAPTER 5.7	Varies due to stepped section12m minumim apartment depth. (not including balconies)	15m (not including balconies)	15 - 22m depth (not including balconies) flexible edge shown on plan	16-20m block depth 9m building depth
SIZE CHAPTER 5.8	Indicative block footprint: 4500m^2 (at lower level) Unit number: 205 apartments (approx) including east end of public square Typology examples: Apartment A or B	Indicative block footprint: 540m^2 Unit number: 37 apartments (approx) Typology examples: Apartment A or B	Indicative block footprint: 580m^2 Unit number: 87 apartments (approx) Typology examples: Apartment A or B	Indicative block footprint: 540m^2 Unit number: 22 apartments (approx) Typology examples: Townhouse
HEIGHT CHAPTER 5.7	6-9 storey datum (including mixed use storeys) setbacks to higher levels	6-storey datum 7+ storeys with setback	4-storey datum 7+ storeys with setback	4 storey datum top floor setback
CEILING HEIGHTS CHAPTER 5.7/5.8	Residential: 2.7m floor to floor Mixed Use: 3.5m floor to floor (Double height ground floor 6.2m floor to floor minimum)	Residential: 2.7m floor to floor Mixed Use: 3.5m floor to floor (Double height in some locations)	Residential: 2.7m floor to floor	Residential: 2.7m floor to floor
PARKING CHAPTER 5.5	To basement	To basement	On street and basement	On street
BOUNDARIES CHAPTER 5.7	Street terraces, Public Square Shared entrances	Street terraces Shared entrances	Rear gardens Shared entrances	Street entrance, front garden rear garden
ENTRANCES CHAPTER 5.8	Shared entrances to provide through access for residents Mixed use accessed from Woolwich Road, under-croft and Public Square	Shared entrances to provide through access for residents Mixed use accessed from Vanbrugh Hill and Public Square	Ground floor apartments to have own front doors from under-croft parking Shared entrances off Public Square. Shared entrances to provide access to communal courtyard for residents	Own front doors at street level
PRIVATE OPEN SPACE CHAPTER 5.7/5.8	Top floor apartments/ duplexes: Balconies and roof terraces Upper floor apartments: Balconies	Top floor apartments/ duplexes: Balconies and roof terraces Upper floor apartments: Balconies	Top floor apartments/ duplexes: Balconies and roof terraces Upper floor apartments: Balconies Lower Ground floor apartments: Front gardens	Balconies and roof terraces Front and rear gardens at ground level





Parameter plan of Public Square



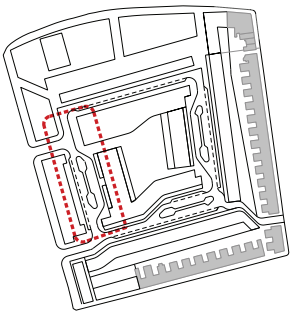


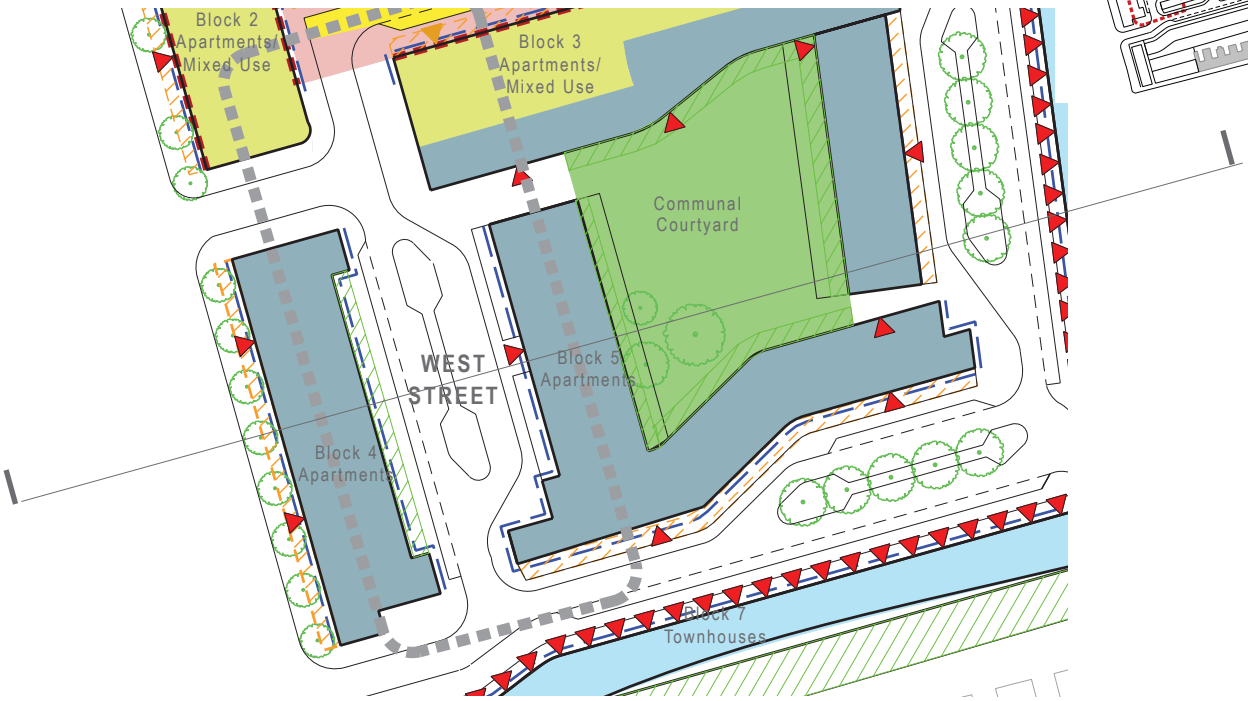
Section through Vanbrugh Hill and Public Square

WEST STREET

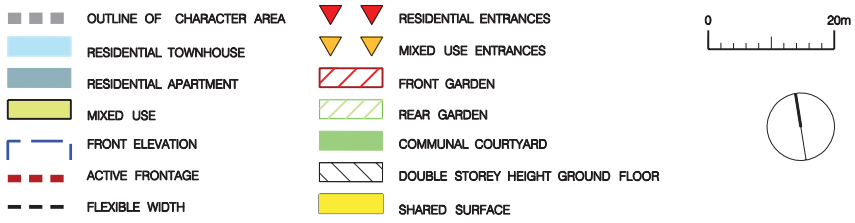
A residential street of three-storey apartments on the west side and four-storey apartments on the east side. The street is split into two one-way roads by a line of centrally located trees in order to create a sense of place. This character area is of medium density within the development. Car parking spaces should be integrated within the landscaping strategy. (Refer Landscape section for further details). Four-storey townhouses terminate the end of the street to the south whilst the larger density Public Square terminates the space to the north.
Below is a matrix of the key elements of the illustrative masterplan.

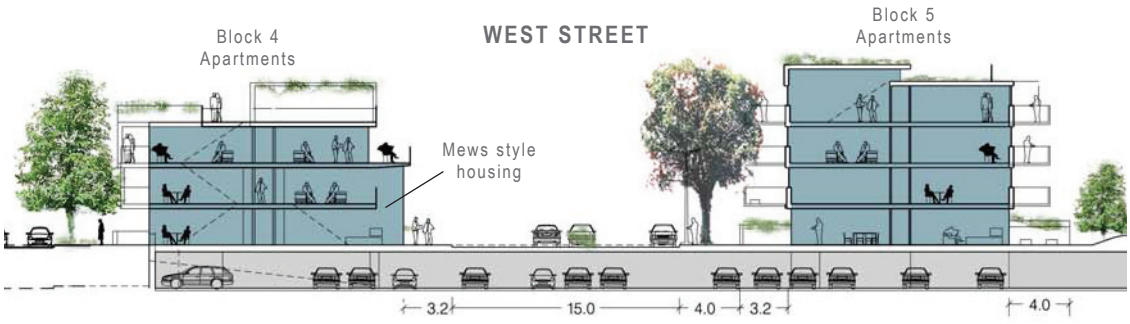
BLOCK NO	BLOCK 3	BLOCK 4	BLOCK 5	BLOCK 7
BUILDING USE CHAPTER 5.4	Residential: apartments live/work units	Residential: apartments	Residential: apartments	Residential: Townhouses (or double stacked maisonettes)
BLOCK DEPTH CHAPTER 5.7	15 - 22m depth (not including balconies) flexible edge shown on plan	15 - 18m depth (not including balconies)	12m minumim apartment depth. (not including balconies)	16-20m block depth 9m building depth
SIZE CHAPTER 5.8	Indicative block footprint: 580m^2 Unit number: 87 apartments (approx) Typology examples: Apartment A or B	Indicative block footprint: 1000m^2 Unit number: 33 apartments (approx) Typology examples: Apartment A or B	Indicative block footprint: 2100m^2 Unit number: 128 apartments (approx) including east end of public square Typology examples: Apartment A or B	Indicative block footprint: 540m^2 Unit number: 37 apartments (approx) Typology examples: Townhouse
HEIGHT CHAPTER	4-storey datum 7+ storeys with setback	3-storey datum	4-storeys datum	4-storey datum top floor setback
CEILING HEIGHTS CHAPTER 5.7/5.8	Residential: 2.7m floor to floor	Residential: 2.7m floor to floor	Residential: 2.7m floor to floor	Residential: 2.7m floor to floor
PARKING CHAPTER 5.5	On street and basement	On street and basement	To basement	To street
BOUNDARIES CHAPTER 5.7	Rear gardens Shared entrances	Front & rear gardens Shared entrances	Street terraces, Communal courtyard, Shared entrances	Street entrance, front garden rear garden
ENTRANCES CHAPTER 5.8	Ground floor apartments to have own front doors from under-croft parking Shared entrances off Public Square. Shared entrances to provide access to communal courtyard for residents	Ground floor apartments to have own front doors at street level Shared entrances off Vanbrugh Hill and west street.	Shared entrances to provide through access for residents	Own front doors at street level
PRIVATE OPEN SPACE CHAPTER 5/7/8	Top floor apartments/ duplexes: Balconies and roof terraces Upper floor apartments: Balconies Ground floor apartments: Front gardens	Top floor apartments/ duplexes: Balconies and roof terraces Upper floor apartments: Balconies Ground floor apartments: Front and rear gardens	Top floor apartments/duplexes: Balconies and roof terraces Upper floor apartments: Balconies	Balconies and roof terraces Front and rear gardens at ground level



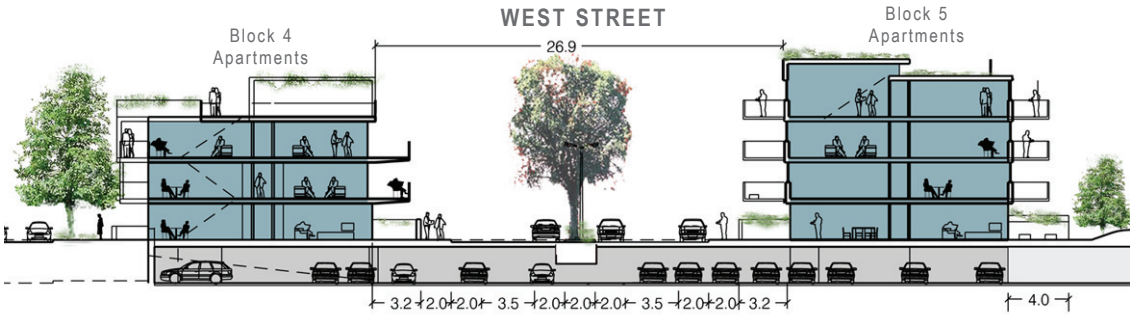


Parameter plan of West Street

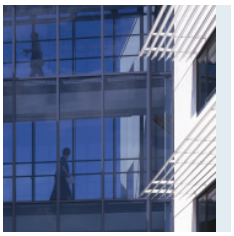




Cross section through West street -Alternative with Mews style housing to block 4



Cross section through West street

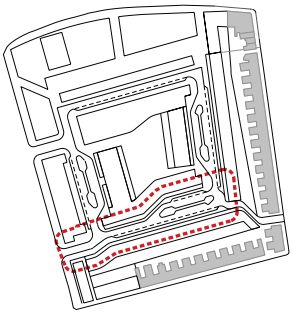


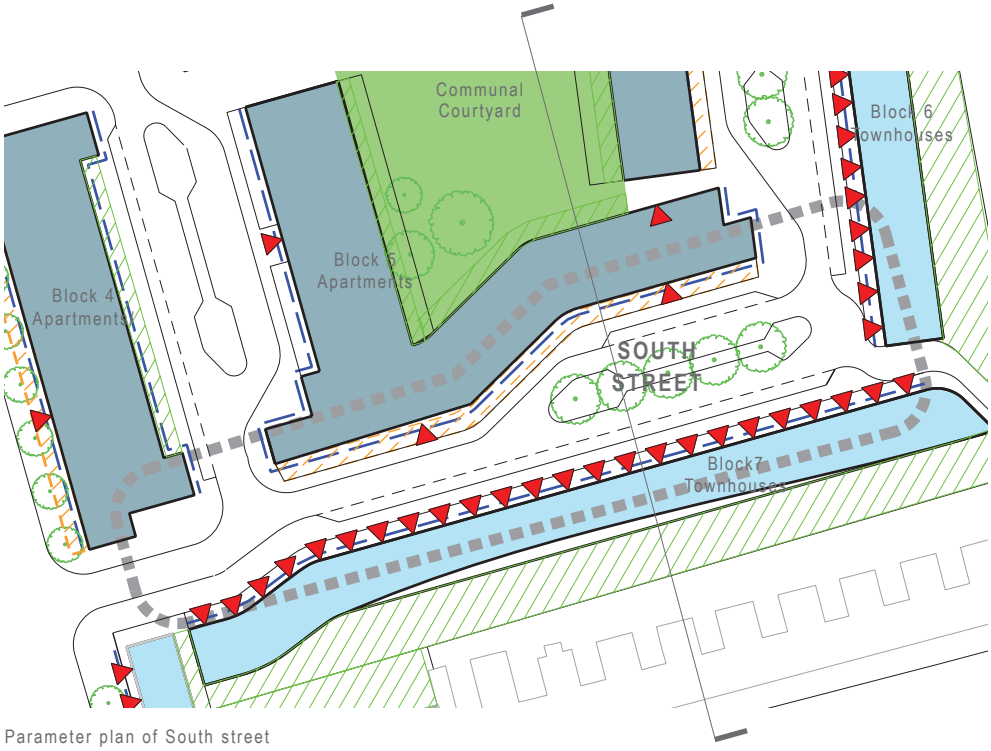
SOUTH STREET

Residential spaces with four-storey townhouses to the south and four-storey apartments to the north. The inflected building profiles provide relief to the facade, create a sense of place and accommodate traffic calming measures to the road. The street is split into two one-way roads by a line of centrally located trees. Four-storey townhouses are to the east end of the space whilst the west end has three-storey apartments and opens onto Vanbrugh Hill. This character area has a smaller scale within the development.

Below is a matrix of the key elements of the illustrative masterplan.

BLOCK NO	BLOCK 4	BLOCK 5	BLOCK 6	BLOCK 7
BUILDING USE CHAPTER 5.4	Residential: apartments	Residential: apartments	Residential: Townhouses (or double stacked maisonettes)	Residential: Townhouses (or double stacked maisonettes)
BLOCK DEPTH CHAPTER 5.7	15 - 18m depth (not including balconies)	12m minumim apartment depth. (not including balconies)	16-20m block depth 9m building depth	16-20m block depth 9m building depth
SIZE CHAPTER 5.8	Indicative block footprint: 1000m^2 Unit number: 33 apartments (approx) Typology examples: Apartment A or B	Indicative block footprint: 2100m^2 Unit number: 128 apartments (approx) including east end of public square Typology examples: A or B	Indicative block footprint: 540m^2 Unit number: 22 apartments (approx) Typology examples: Townhouse	Indicative block footprint: 540m^2 Unit number: 37 apartments (approx) Typology examples: Townhouse
HEIGHTS CHAPTER 5.7	3-storey datum	4-storey datum	4-storey datum top floor setback	4-storey datum top floor setback
CEILING HEIGHTS CHAPTER 5.7/5.8	Residential: 2.7m floor to floor	Residential: 2.7m floor to floor	Residential: 2.7m floor to floor	Residential: 2.7m floor to floor
PARKING CHAPTER 5.5	On street and basement	To basement	On street	On street
BOUNDARIES CHAPTER 5.7	Front & rear gardens Shared entrances	Street terraces, Communal courtyard, Shared entrances	Street entrance, front garden rear garden	Street entrance, front garden rear garden
ENTRANCES CHAPTER 5.8	Ground floor apartments to have own front doors at street level Shared entrances off Vanbrugh Hill and west street.	Shared entrances to provide through access for residents	Own front doors at street level	Own front doors at street level
PRIVATE OPEN SPACE CHAPTER 5.7/5.8	Top floor apartments/ duplexes: Balconies and roof terraces Upper floor apartments: Balconies Ground floor apartments: Front and rear gardens	Top floor apartments/ duplexes: Balconies and roof terraces Upper floor apartments: Balconies	Balconies and roof terraces Front and rear gardens at ground level	Balconies and roof terraces Front and rear gardens at ground level





Parameter plan of South street

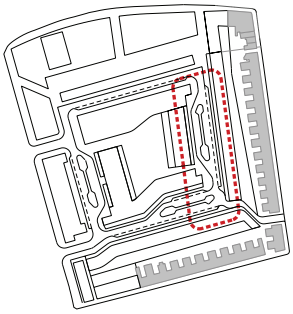
OUTLINE OF CHARACTER AREA
RESIDENTIAL TOWNHOUSE
RESIDENTIAL APARTMENT
MIXED USE
FRONT ELEVATION
ACTIVE FRONTAGE
FLEXIBLE WIDTH
RESIDENTIAL ENTRANCES
MIXED USE ENTRANCES
FRONT GARDEN
REAR GARDEN
COMMUNAL COURTYARD
DOUBLE STOREY HEIGHT GROUND FLOOR
SHARED SURFACE
0
20m

Cross section through residential streets (Places) - Apartments and Townhouses

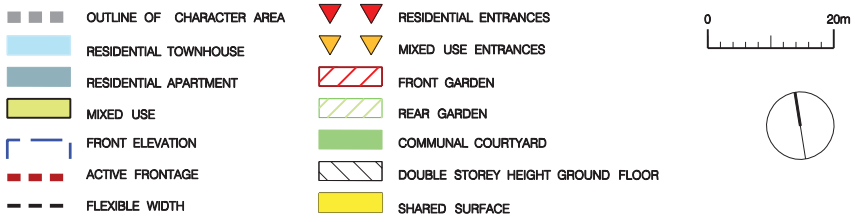
EAST STREET

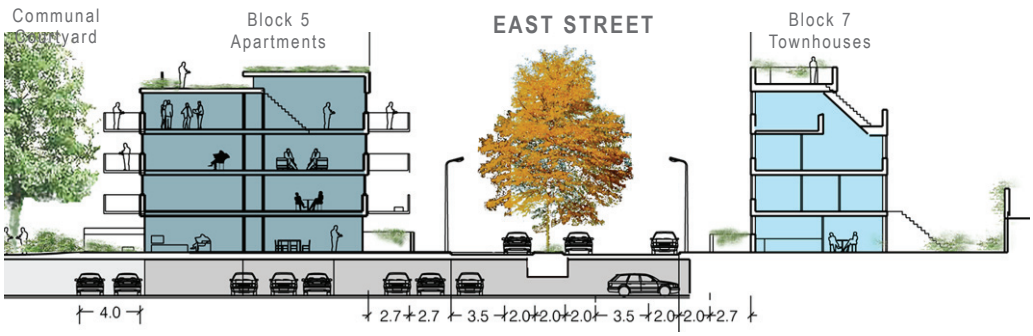
A residential space with 4-storey townhouses to the east and four-storey to seven-storey apartments to the west. The building to the west is set back to provide a sense of relief to the facade, create a sense of place and accommodate traffic calming measures to the road. The street is split into two one-way roads by a line of centrally located trees. Smaller scale four-storey townhouses are to the south end of the space whilst the large scale Public Square ends the north end of the space. This character area has a variety of scales within the development.
Below is a matrix of the key elements of the illustrative masterplan.

BLOCK NO	BLOCK 3	BLOCK 5	BLOCK 6	BLOCK 7
BUILDING USE CHAPTER 5.4	Residential: apartments live/work units	Residential: apartments	Residential: Townhouses (or double stacked maisonettes)	Residential: Townhouses (or double stacked maisonettes)
BLOCK DEPTH CHAPTER 5.7	15 - 22m depth (not including balconies) flexible edge shown on plan	12m minimum apartment depth. (not including balconies)	16-20m block depth 9m building depth	16-20m block depth 9m building depth
SIZE CHAPTER 5.8	Indicative block footprint: 580m^2 Unit number: 87 apartments (approx) Typology examples: Apartment A or B	Indicative block footprint: 2100m^2 Unit number: 128 apartments (approx) including east end of public square Typology examples: Apartment A or B	Indicative block footprint: 540m^2 Unit number: 22 apartments (approx) Typology examples: Townhouse	Indicative block footprint: 540m^2 Unit number: 37 apartments (approx) Typology examples: Townhouse
HEIGHTS CHAPTER 5.7	4-storey datum 7+ storeys with setback	4-storeys datum	4-storey datum top floor setback	4-storey datum top floor setback
CEILING HEIGHTS CHAPTER 5.7/5.8	Residential: 2.7m floor to floor	Residential: 2.7m floor to floor	Residential: 2.7m floor to floor	Residential: 2.7m floor to floor
PARKING CHAPTER 5.5	On street and basement	To basement	On street	On street
BOUNDARIES CHAPTER 5.7	Rear gardens Shared entrances	Street terraces, Communal courtyard, Shared entrances	Street entrance, front garden rear garden	Street entrance, front garden rear garden
ENTRANCES CHAPTER 5.8	Ground floor apartments to have own front doors from under-croft parking Shared entrances off Public Square. Shared entrances to provide access to communal courtyard for residents	Shared entrances to provide through access for residents	Own front doors at street level	Own front doors at street level
PRIVATE OPEN SPACE CHAPTER 5/7/8	Top floor apartments/ duplexes: Balconies and roof terraces Upper floor apartments: Balconies Ground floor apartments: Front gardens	Top floor apartments/ duplexes: Balconies and roof terraces Upper floor apartments: Balconies	Balconies and roof terraces Front and rear gardens at ground level	Balconies and roof terraces Front and rear gardens at ground level



Parameter plan of East Street



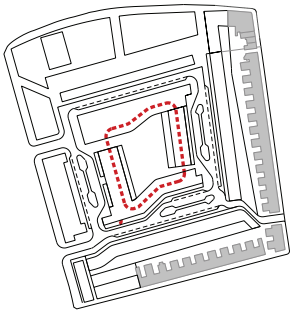


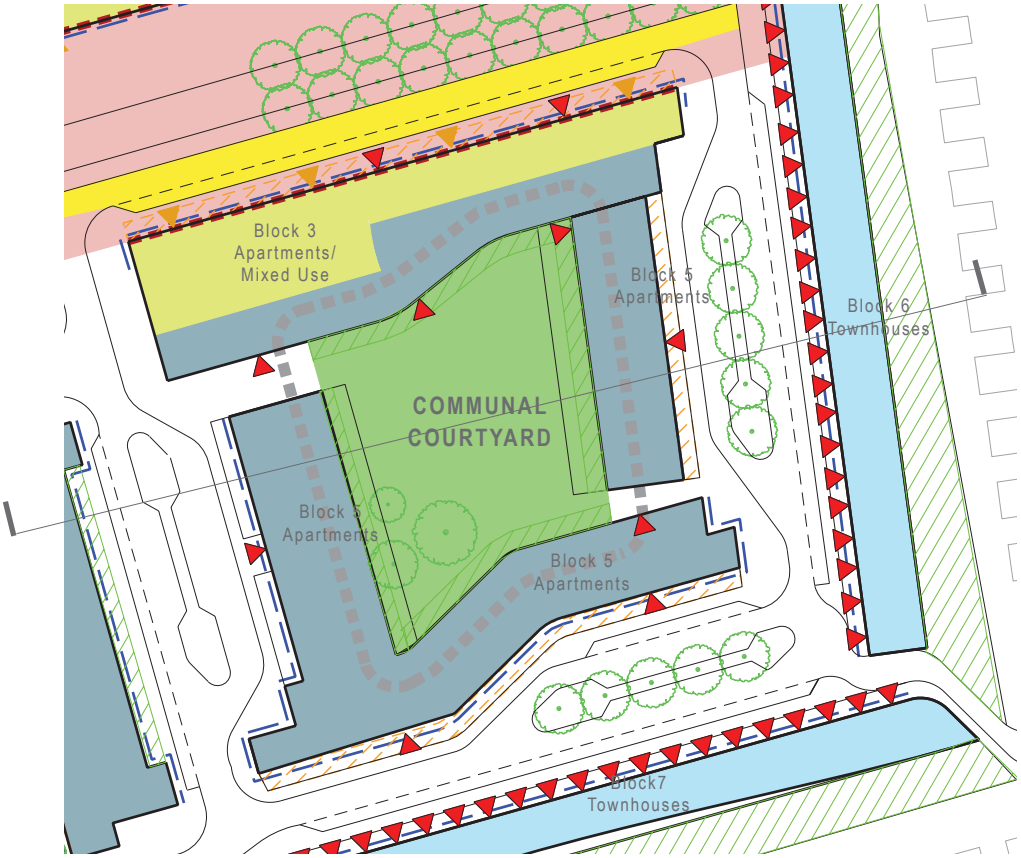
Cross section through East Street - Apartments and Townhouses

COMMUNAL COURTYARD

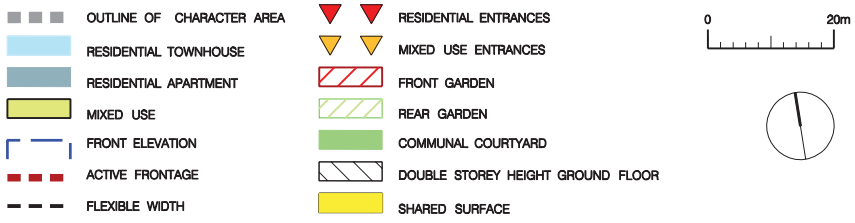
The perimeter buildings are four-storey high except on the north side where the building increases to 7-storeys to provide greater scale to the Public Square. Apartments with balconies should look into the space whilst at ground level the apartments have their own private gardens which open onto the central communal garden. The landscape steps to provide gardens to the lower ground floor apartments on the north side of the space. The communal square should provide a variety of spaces and uses which shall be fully integrated with the landscape strategy (refer Landscape section for further details). The north-west and south-east corners of the blocks are articulated to provide visual connections to surrounding spaces and a sense of relief to the space.
Below is a matrix of the key elements of the illustrative masterplan.

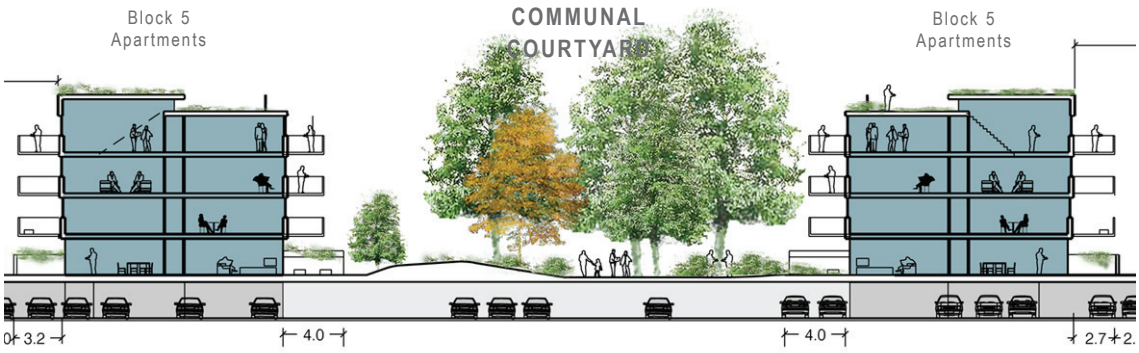
BLOCK NO	BLOCK 3	BLOCK 4
BUILDING USE CHAPTER 5.4	Residential: apartments live/work units	Residential: apartments
BLOCK DEPTH CHAPTER 5.7	15 - 22m depth (not including balconies) flexible edge shown on plan	15 - 18m depth (not including balconies)
SIZE CHAPTER 5.8	Indicative block footprint: 580m^2 Unit number: 87 apartments (approx) Typology examples: Apartment A or B	Indicative block footprint: 1000m^2 Unit number: 33 apartments (approx) Typology examples: Apartment A or B
HEIGHTS CHAPTER 5.7	4-storey datum 7+ storeys with setback	3-storey datum
CEILING HEIGHTS CHAPTER 5.7/5.8	Residential: 2.7m floor to floor	Residential: 2.7m floor to floor
PARKING CHAPTER 5.5	On street and basement	On street and basement
BOUNDARIES CHAPTER 5.7	Rear gardens Shared entrances	Front & rear gardens Shared entrances
ENTRANCES CHAPTER 5.8	Ground floor apartments to have own front doors from under-croft parking Shared entrances off Public Square. Shared entrances to provide access to communal courtyard for residents	Ground floor apartments to have own front doors at street level Shared entrances off Vanbrugh Hill and West Street.
PRIVATE OPEN SPACE CHAPTER 5/7/8	Top floor apartments/duplexes: Balconies and roof terraces Upper floor apartments: Balconies Ground floor apartments: Front gardens	Top floor apartments/duplexes: Balconies and roof terraces Upper floor apartments: Balconies Ground floor apartments: Front and rear gardens



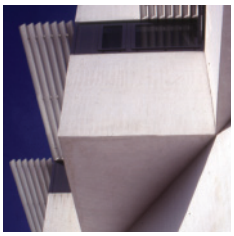


Parameter plan of Communal Courtyard





Cross Section

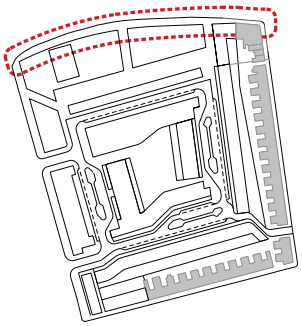


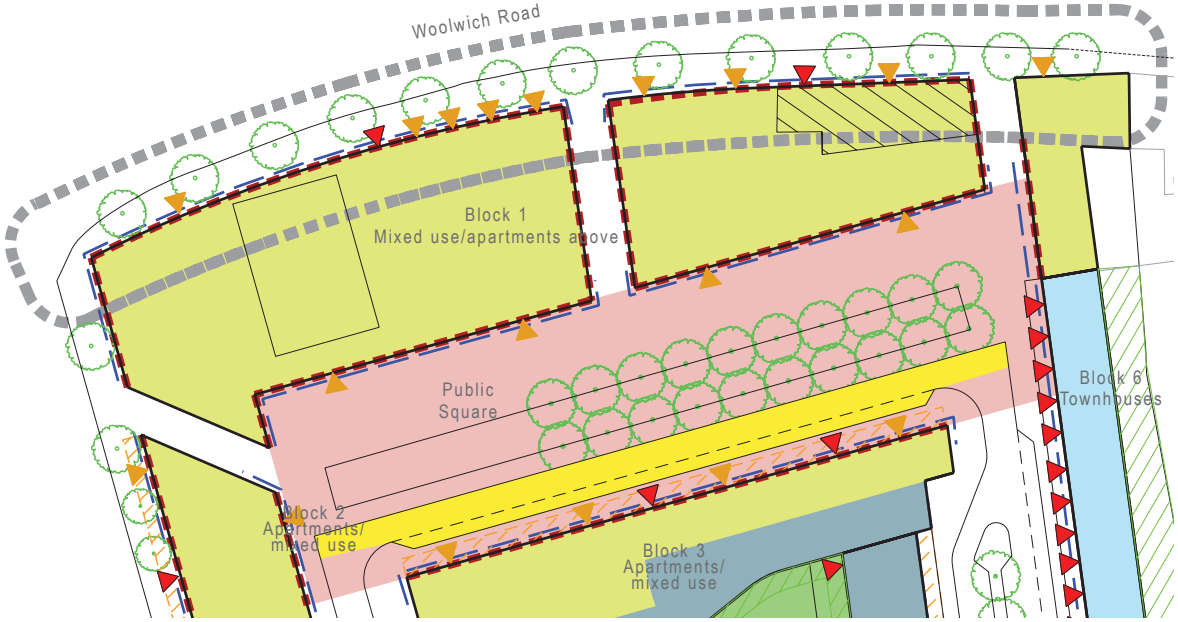
WOOLWICH ROAD

The Woolwich Road character area forms the main urban boundary to the site with 2-storeys of mixed use development at the lower level and apartments above. The building varies between 4 to 9-storeys (the upper levels set back) with the block being lower at the east end in response to the buildings adjacent. This character area has a large scale and high density. Proposals should demonstrate methods of articulating the facade to provide relief to the long elevation. At least three generous entrances from Woolwich Road into the Public Square behind should be provided along the length of the facade whilst transparency to the lower levels should provide a visual connection. A landscape design strategy should be developed in conjunction with the Heart of East Greenwich development team and local authority requirements (refer Landscape section for further details).

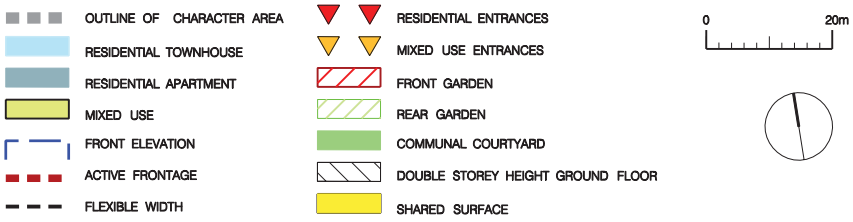
Below is a matrix of the key elements of the illustrative masterplan.

BLOCK NO	BLOCK 1
BUILDING USE CHAPTER 5.4	Ground Level Mixed-use: offices, shops, restaurants, live/work units Upper Levels Residential: apartments
BLOCK DEPTH	15m fixed by streets with 2.4m colonnade (not including balconies)
SIZE (Ch. 9)	Indicative block footprint: 1725m^2 Unit number: 110 apartments (approx) Typology examples: Apartment A
HEIGHTS CHAPTER 5.7	6-9 storey datum (including mixed use storeys) setbacks to higher levels 8+ storey landmark
CEILING HEIGHTS CHAPTER 5.7/5.8	Residential: 2.7m floor to floor Mixed Use: 3.5m floor to floor (Double height ground floor 6.2m floor to floor minimum)
PARKING CHAPTER 5.5	On street and basement
BOUNDARIES CHAPTER 5.7	Colonnade Street terraces Shared entrances
ENTRANCES CHAPTER 5.8	Shared entrances to provide through access for residents Mixed use accessed from Avebury Boulevard
PRIVATE OPEN SPACE CHAPTER 5.7/5.8	Top floor apartments/ duplexes: Balconies and roof terraces Upper floor apartments: Balconies





Parameter plan of Woolwich Road



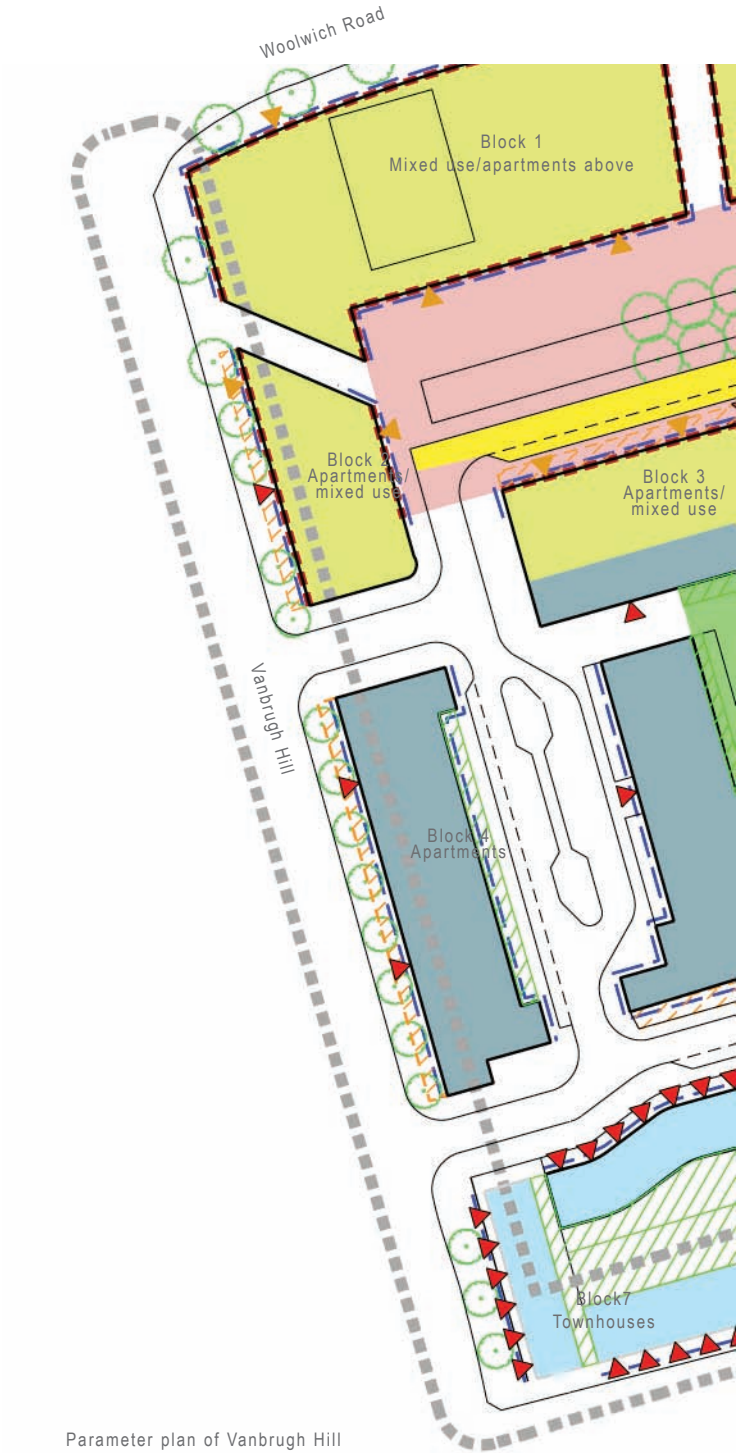
Elevation along Woolwich Road

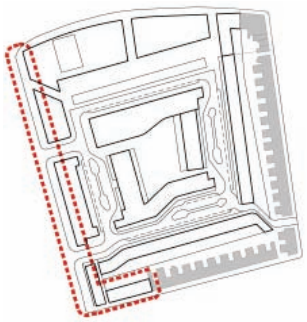
VANBRUGH HILL

The Vanbrugh Hill character area forms is predominantly residential and smaller in scale than Woolwich Road. The buildings vary in height in response to the existing buildings on the opposite side of the road. The building at the junction with Woolwich Road is approximately 7-storeys (the upper levels set back) whilst the adjacent block is 7-storeys (the upper levels set back) reducing to 5-storeys high. A dual fronted health centre is accommodated at the lower level. The block to the east side accommodates 3-storeys of apartments and is generally more residential in character. A landscape design strategy should be developed in conjunction with the Heart of East Greenwich development team and local authority requirements (refer Landscape section for further details).

Below is a matrix of the key elements of the illustrative masterplan.

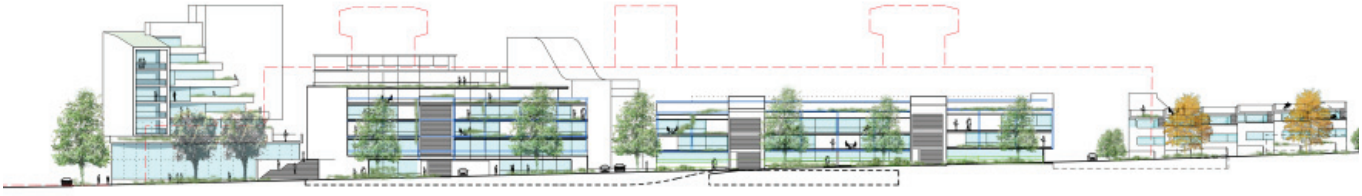
BLOCK NO	BLOCK 1	BLOCK 2	BLOCK 4	BLOCK 7
BUILDING USE CHAPTER 5.4	Ground Level Mixed-use: offices, shops, library, cafe, leisure centre Upper Levels Residential: apartments	Ground Level Mixed-use: health centre, Apartments Upper Levels Residential: apartments	Residential: apartments	Residential: Townhouses (or double stacked maisonettes)
BLOCK DEPTH CHAPTER 5.7	Varies due to stepped section12m minumim apartment depth. (not including balconies)	15m (not including balconies)	15 - 18m depth (not including balconies)	16-20m block depth 9m building depth
SIZE CHAPTER 5.8	Indicative block footprint: 4500m^2 Unit number: 205 apartments (approx) including east end of public square Typology examples: Apartment A or B	Indicative block footprint: 540m^2 Unit number: 37 apartments (approx) Typology examples: Apartment A or B	Indicative block footprint: 1000m^2 Unit number: 33 apartments (approx) Typology examples: Apartment A or B	Indicative block footprint: 540m^2 Unit number: 37 apartments (approx) Typology examples: Townhouse
HEIGHTS CHAPTER 5.7	6-9 storey datum (including mixed use storeys) setbacks to higher levels	6-storey datum 7+ storeys with setback	3-storey datum	4 storey datum top floor setback
CEILING HEIGHTS CHAPTER 5.7/5.8	Residential: 2.7m floor to floor. Mixed Use: 3.5m floor to floor (Double height ground floor 6.2m floor to floor minimum)	Residential: 2.7m floor to floor. Mixed Use: 3.5m floor to floor (Double height in some locations)	Residential: 2.7m floor to floor	Residential: 2.7m floor to floor
PARKING CHAPTER 5.5	To basement	To basement	On street and basement	On street
BOUNDARIES CHAPTER 5.7	Street terraces, Public Square Shared entrances	Street terraces Shared entrances	Front & rear gardens Shared entrances	Street entrance, front garden rear garden
ENTRANCES CHAPTER 5.8	Shared entrances to provide through access for residents Mixed use accessed from Woolwich Road, under-croft and Public Square	Shared entrances to provide through access for residents Mixed use accessed from Vanbrugh Hill and Public Square	Ground floor apartments to have own front doors at street level Shared entrances off Vanbrugh Hill and West Street.	Own front doors at street level
PRIVATE OPEN SPACE CHAPTER 5.7/5.8	Top floor apartments/ duplexes: Balconies and roof terraces Upper floor apartments: Balconies	Top floor apartments/ duplexes: Balconies and roof terraces Upper floor apartments: Balconies	Top floor apartments/ duplexes: Balconies and roof terraces Upper floor apartments: Balconies Ground floor apartments: Front and rear gardens	Balconies and roof terraces Front and rear gardens at ground level





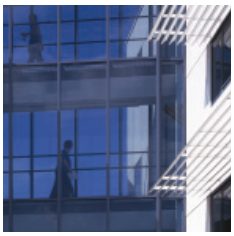
Parameter plan of Vanbrugh Hill

OUTLINE OF CHARACTER AREA
RESIDENTIAL TOWNHOUSE
RESIDENTIAL APARTMENT
MIXED USE
FRONT ELEVATION
ACTIVE FRONTAGE
FLEXIBLE WIDTH
RESIDENTIAL ENTRANCES
MIXED USE ENTRANCES
FRONT GARDEN
REAR GARDEN
COMMUNAL COURTYARD
DOUBLE STOREY HEIGHT GROUND FLOOR
SHARED SURFACE
0
20m



Elevation along Vanbrugh Hill

5.4 LAND USE & BUILDING TYPES



CONTENTS

LAND USE AND BUILDING TYPES

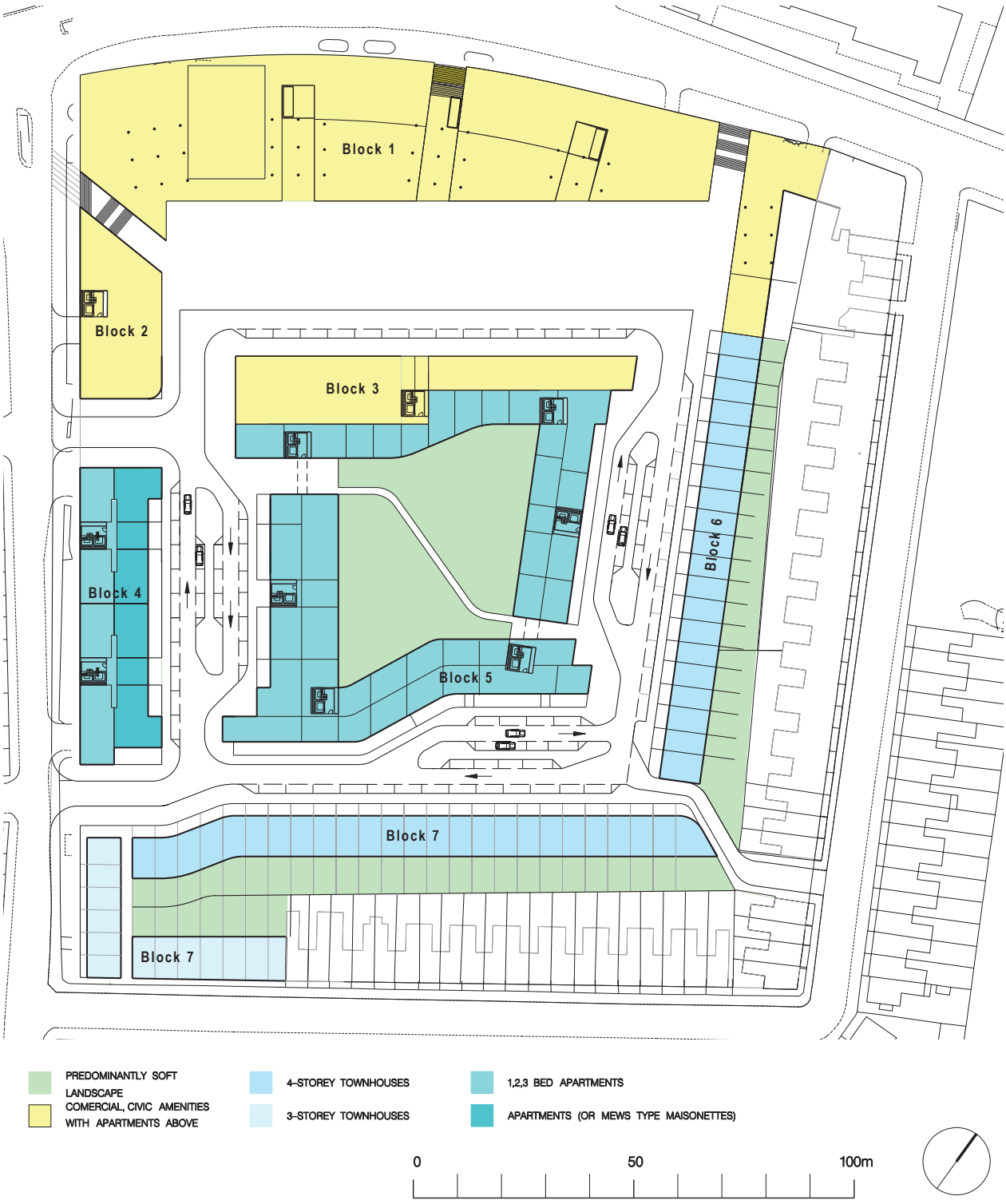


FIGURE 5.4.1 Land Use and Building Types

5.4.1 BUILDING TYPES

The development will be predominately residential and should contain a broad mix of apartments, townhouses with the potential for live-work units and other forms of urban living. The illustrative masterplan proposes a split of apartments and townhouses in the region of 90% apartments to 10% townhouses. However, the development will need to adhere to the Greenwich UDP policy which requires 35% of residential floorspace to provide for family accommodation. The commercial and retail space are concentrated along Woolwich Road and the Public Square while Civic facilities are provided along the Woolwich Road and the lower end of Vanbrugh Hill with some access off the Public Square. These areas will be central to the life of the development both in terms of location and as a focal point for providing community activities. A strong green aesthetic is developed and the edges between ground level landscape and built form are blurred where possible and compatible with other uses.

APARTMENTS

The apartments all provide generous balconies and/or space roof gardens. All ground floor apartments have been designed with private gardens/patios.

TOWNHOUSES

All townhouses have private gardens and have been designed to maximise areas for roof gardens and terraces. The building design should be able to suit a number of residential demands, for example, conversion to stacked maisonettes.

LIVE/WORK

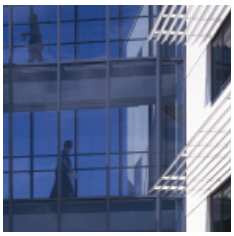
Workspaces are located to provide active frontage at ground level with direct access from the new Public Square. The living spaces have their own entrances as well as being linked to the workspace to maximise flexibility.

COMBINED EAST GREENWICH AND HEALTH CENTRE FACILITIES

The illustrative masterplan provides a location for a combined community library, leisure, local service centre and health centre in accordance with Greenwich Council's brief and fully integrated with the remainder of the development:

HEALTH CENTRE FACILITIES

A new Health Centre is included to replace the existing Vanbrugh Health Centre. The brief requirements defined by Greenwich District Council and the PCT are to provide a GP practice that includes minor surgery, District + School Nurse and Home Visitor services, podiatry, speech + language, child psychology, and dental services and potentially a mental health facility (subject to funding).



Within the illustrative masterplan the Health Centre is located at the lower end of Vanbrugh Hill with dual frontage onto both the road and the Public Square behind, to place it at the heart of the development and make it easily accessible from the adjacent neighbourhoods. The Health Centre is intended to have a strong street presence to signal an open and welcoming presence to the surrounding community. Vegetation is intended if possible to play a notable role in the exterior design of this centre, emphasising the latest research findings on the key role of urban greenery in, for example, the purification of the air, stress release and facilitation of convalescence.

LOCAL SERVICE CENTRE

The Illustrative masterplan accommodates the Council's local service centre on the upper floor level which provides a presence onto Woolwich Road and direct physical and visual links onto the Public Square behind.

LIBRARY

The illustrative masterplan locates the Library along Woolwich Road and provides a frontage onto the Public Square. The proposal is a split level with a double height space to provide drama and a variety of spaces to meet brief requirements.

FIGURE 5.4.2 Residential apartments

FIGURE 5.4.3 Cafe at Dulwich Picture Gallery

FIGURE 5.4.5 Mixed-use

LEISURE CENTRE

The present Arches Leisure Centre has exceeded capacity and new more up-to-date facilities are to be provided within the Heart of East Greenwich development. The Illustrative masterplan allows for the Council requirements of a 'Fitness and Healthy Living Zone' and a 'Wet Zone' which can be accessed from a single entrance. The Leisure Centre is at a key location within the site and has strong links with Woolwich Road and the Public Square to meet the aspirations of Greenwich Council.

OUTDOOR COMMUNITY FACILITIES

An all-weather play area, fenced within the central private courtyard, has been considered as part of the masterplan and may form part of the overall development and maintenance strategy. Any facilities will not be floodlit however due to the close proximity to the residential neighbourhood; and will have to be carefully managed, possibly in conjunction with the Leisure Centre.

5.5 TRANSPORT, STREET LAYOUT AND PARKING

CONTENTS

This section outlines the illustrative masterplan's response to the requirements of the mandatory standards as regards transport, street layout and parking. The proposal defines the street hierarchy prioritising pedestrian routes whilst integrating parking and vehicular traffic. The design aspires to create a fully permeable public open space of the highest quality, combined with an integral approach with the landscape strategy to ensure a cohesive and high quality public realm.

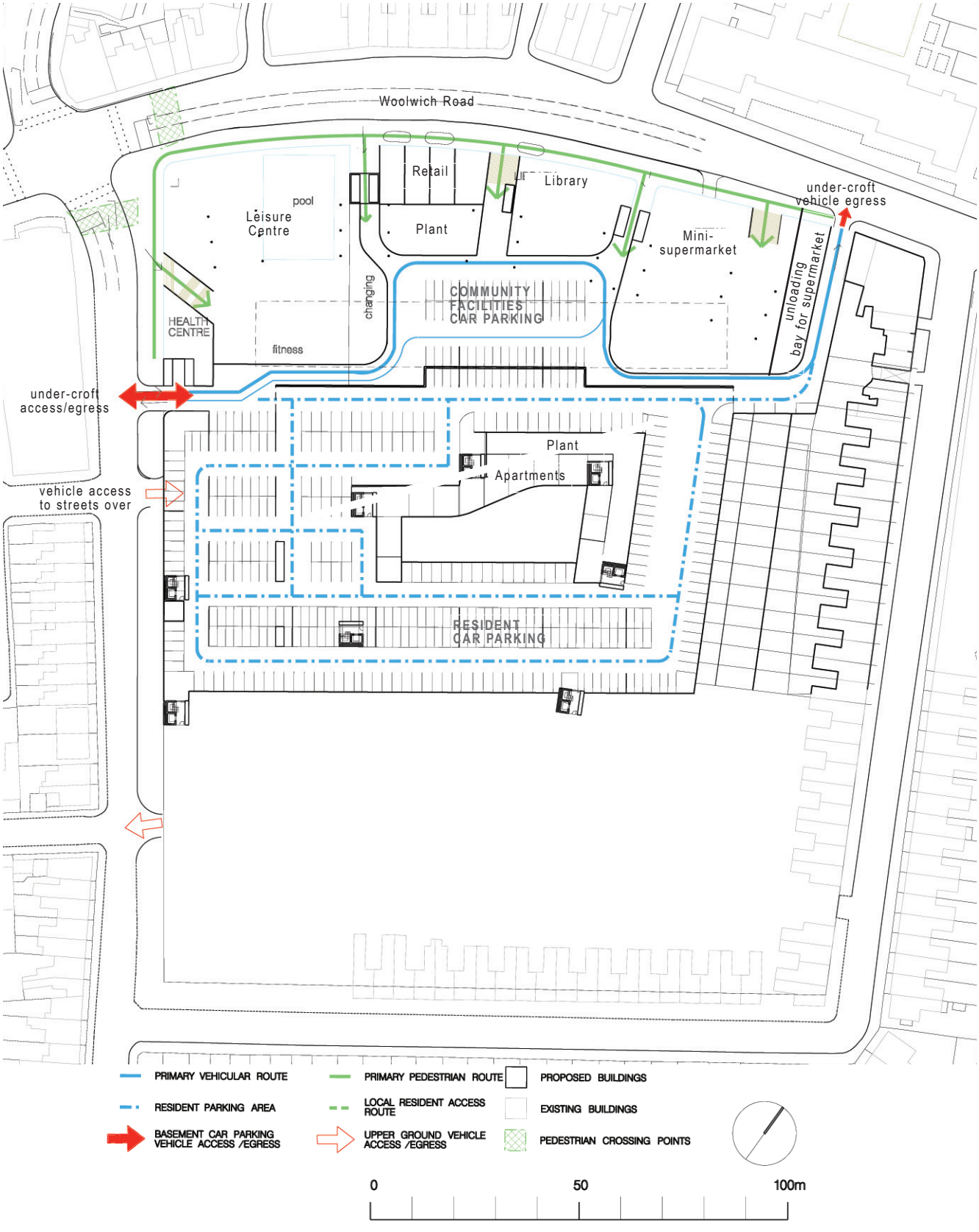


FIGURE 5.5.1 Lower Ground Floor - Woolwich Road level and Under-croft Parking

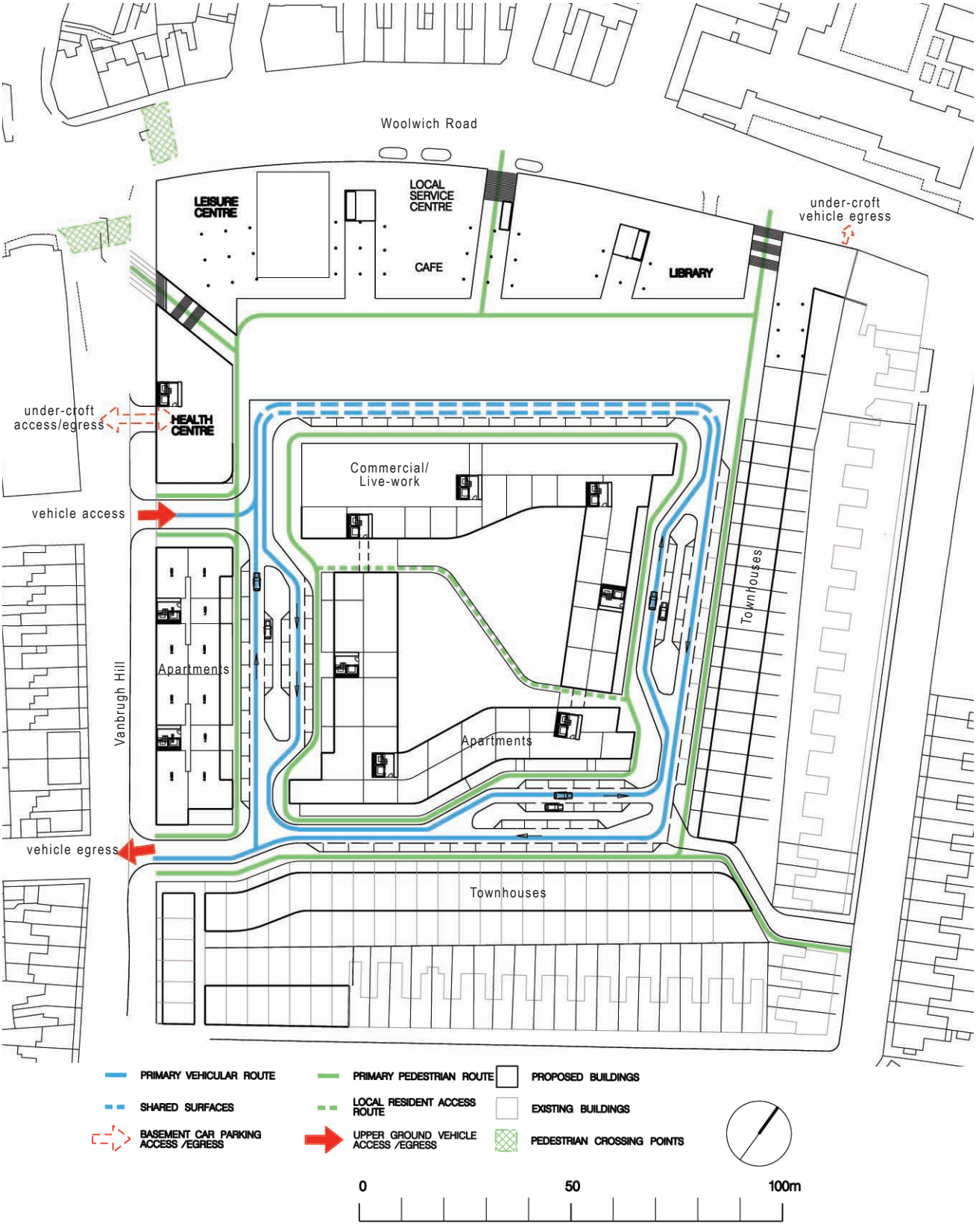


FIGURE 5.5.2 Upper Ground floor - Public Square Level

5.5.1 TRANSPORT AND MOVEMENT

The priority and emphasis of movement within the Heart of East Greenwich development will be towards walking. A decrease in street width and a reduced speed limit combined with wide pavements and a Public Square used predominantly by pedestrians will help to activate new pedestrian routes. Clear desire lines and visual links must be established both into and across the site, to allow maximum permeability.

CONNECTIONS TO EXISTING

The proposal aims to encourage the links between the Heart of East Greenwich development and adjacent neighbourhoods by promoting green, attractive, legible and secure pedestrian access routes to and from the development predominantly along Woolwich Road and Vanbrugh Hill but also into Calvert Road. Vehicular access/egress is proposed along Vanbrugh Hill with egress also onto the Public Square from the under-croft.

PRIMARY ROUTES

Through vehicular movement and commercial traffic in the Heart of East Greenwich will be discouraged. Primary pedestrian routes onto and through the site will be encouraged with the Public Square and streets intended to create “places”. The use of active frontages along the surrounding roads and around the Public Square and the provision of wide pavements will help to stimulate pedestrian activity and develop prioritised routes.

STREET WIDTHS

The street layout indicated is intended to create a sense of place, with different character areas in each street thereby meeting a goal of the masterplan of encouraging increased pedestrian activity. The proposed masterplan accommodates but is not overrun with cars, and creation of a sense of place leads the design. The proposal uses inflected building forms to create a sense of place and as a means to calm traffic.

Dimensional configuration of the illustrative design

TYPE	Width (building face to building face)
Public Square	35m
Residential Streets:	
Western side of site	16.5m(minimum) - 27.0m
Southern side of site	16.5m(minimum) - 27.0m
Eastern side of site	18.0m(minimum) - 27.0m
Residential Courtyard	40m

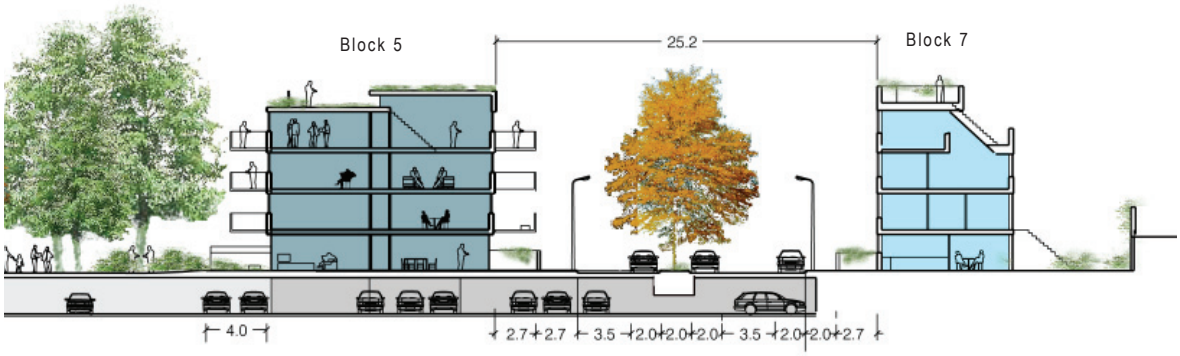


FIGURE 5.5.3 South Street - Apartments and Townhouses

FIGURE 5.5.4 East Street - Apartments and Townhouses

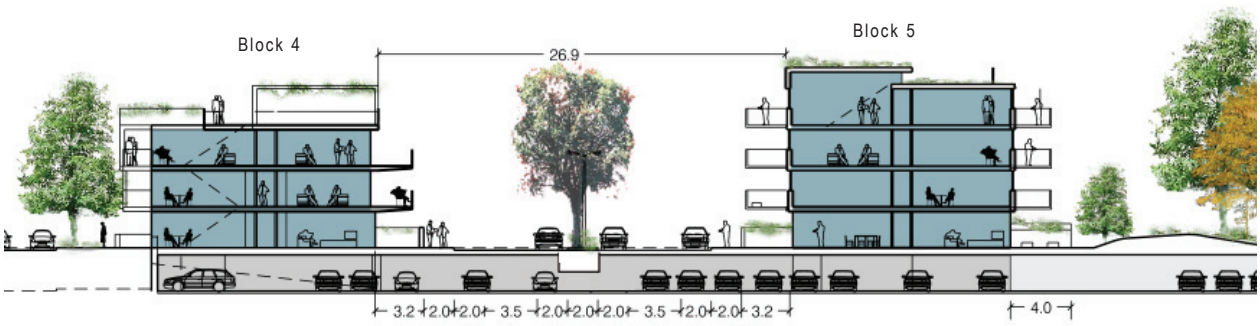
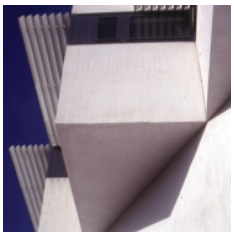


FIGURE 5.5.5 West Street - Apartments



PEDESTRIAN AND CYCLE ROUTES

The street geometry is intended to provide, direct, safe and legible pedestrian and cycle routes that are connected to the main road. Entrances into the site are intended to be clear and to signal and encourage access to maximise the use of the Public Square and its facilities to the wider community. Cycling is also to be encouraged by providing secure parking for bicycles in the undercroft and in the civic space.

PUBLIC TRANSPORT

Public transport provisions around the Heart of East Greenwich development site are presently being reviewed. Schemes should endevour to incorporate, where appropriate, any proposals which are planned in the surrounding urban realm and developers should liase with appropriate authorities to guarentee co-ordination with other bodies.

FIGURE 5.5.6 La Ramblas, Barcelona. Tree-lined pedestrian space with traffic routes

5.5.2 INTEGRATION OF PARKING

The illustrative masterplan provides the majority of car parking in the under-croft area with additional parking directly off the streets and would meet the requirements of 0.5 parking spaces per dwelling.

UNDER-CROFT PARKING

Access to the under-croft parking is via Vanbrugh Hill, whilst egress is also via Vanbrugh Hill and Woolwich Road. The illustrative masterplan divides the under-croft car park into two zones. The majority is provided for resident parking whilst the zone towards Woolwich Road is allocated for the staff and users of the community facilities. The proposal provides direct access from the under-croft into the communal courtyard gardens rather than circulating through the stair core, but could similarly allow direct access to lower ground floor maisonettes within the central residential block. Natural ventilation to the car parking is to be achieved via grilles at strategic locations to minimise impact on the spaces above.

SERVICE VEHICLES

Within the illustrative masterplan service vehicle routes are proposed through the community side of the under-croft space to service the rear of the community and retail facilities. Street layouts have been configured to accommodate rubbish collection vehicles.

FIGURE 5.5.7 On-street car parking Underground car parking

5.6 LANDSCAPE

CONTENTS

INTRODUCTION

The following section outlines the illustrative masterplan's response to the landscape requirements outlined in Section 4.

By recognising the layers and patterns of the existing urban landscape in the local area and developing new distinguishing elements, the proposed landscape design is intended to both integrate the masterplan and give individual identity and provide environmental, social and economic functions within the different character areas.

Fundamentally, the landscape design is intended to be integral to the overall masterplan from inception. While establishing an overall cohesive landscape strategy, the landscape has an opportunity to follow the theme of different 'character areas' that respond to local context and create local distinctiveness.

5.6.1 PUBLIC SQUARE AND STREETS

The public realm is structured around a network of tree-lined streets that provide clear links between the new square and existing urban fabric.

STREET PLANTING

Street trees are to be planted in trenches with irrigation systems fed by green water or roof/surface runoff, with bore-hole or mains back-up, with a minimum of 2 m2 of permeable surface per tree using either granite sets, metal grids or under planting to maintain soil aeration and irrigation. Proposals demonstrate an integrated planting strategy with car parking requirements and scale responsive to the particular street identified.

The illustrative masterplan indicates plantable areas at the base of street trees. This is intended to encourage local participation in streetscape maintenance and appearance (on the model of Bonnington Square, Vauxhall, London and its surrounding neighbourhood). These could be extended 'mini-allotments' for the growing of useful crops (herbs, vegetables, flowers) by residents possibly in partnership with a resident eco-facilities management centre.

The vision within the illustrative masterplan is for the residential streets to have large trees lining the central reservations. Street planting is intended to enhance the separate identity of character areas. The existing boundary trees are retained where possible.

FIGURE 5.6.1 near Bonnington Square, Vauxhall

FIGURE 5.6.2 Tree-lined streets Maida Vale, London

FIGURE 5.6.3 Pocket park NYC

FIGURE 5.6.4 Parc de Bercy Paris

FIGURE 5.6.5 mixed surfaces

FIGURE 5.6.6 Plan of illustrative masterplan

PUBLIC SQUARE

The new Public Square is considered to be one of the main public realms of the illustrative masterplan. The landscape design strategy accommodates a diverse array of uses and functions, and incorporates a variety of 'focal points' and spaces within. The space is approximately 120 x 30m in size and is shown as primarily hard-paved with a roadway for limited amounts of traffic. Trees and some soft landscape areas are proposed which allow a wide range of intensities of use and varied materials and surfaces.

Tree species used have notable value to desirable native wildlife and the canopy is interlinked/ semi-continuous.

Formal water features/fountains with still and running water are proposed to provide a multitude of benefits from improving micro-climate and air quality amelioration in the square to drinking for wildlife (e.g. songbirds) especially in drought conditions, to storing rainwater for cooling. The water is proposed to be kept clean biologically by incorporating in the order of 40% cover of aquatic plants, circulating and use of non-chemical phosphorus competitor products.

A raised area to the northern side of the square at first floor level with facilities including allotments or horticultural activities, shrubs and small trees is considered an integral part within the Public Square and a fundamental part of the landscape strategy.

The aim of this is to ensure the creation of a 'green oasis' even if many residents chose not to green their private terraces and roofs.

FIGURE 5.6.7 Potential private gardens above Public Square

FIGURE 7.11 View of Public Square looking north-west

FIGURE 5.6.8 View of Public Square looking west

WOOWLICH ROAD

The Landscape Design for Woolwich Road includes appropriate elements of greening, which at the very least maintain the environmental functions (especially landscape, ecological air quality and social functions) of the existing trees, and ideally improving on this. Planted evergreen walls are proposed to provide aesthetic and air cleaning benefits to the immediate environment.

VANBRUGH HILL

The Landscape Design for Vanbrugh Hill includes large trees which will provide degrees of privacy to the new and existing residential accommodation.

PLANTING

The planting strategy fulfils both visual ornamental considerations, and provides a diverse wildlife habitat. The strategy sets a precedent for improving the aesthetic and ecological composition of the area. The streets within the development boundary are divided into a series of overlapping sub-spaces, with distinct planting characters. There will also be a strategy for vertical surfaces throughout. The plant species provide a colour palette in terms of flower, berry and year-round changing leaf colour to give clear identities to all the areas, whilst creating strongly distinct and long-lasting seasonal planes of colour and texture and provide functional wildlife habitat to animate the landscape throughout the year.

FIGURE 5.6.9 Bonnington Gardens Vauxhall

FIGURE 5.6.10 Streets and Squares

FIGURE 5.6.11 Street trees

Informal teaching areas

Trees within sets

FIGURE 5.6.12 Shared surfaces

Soft landscape

Integrated seating/lighting

5.6.2 OPEN SPACE

Play provision is an integral part of the illustrative development, both public and communal areas are to incorporate equipped and casual play areas. Planting is proposed that will give fragrance, colour and wildlife interest year-round, whilst changes in level will encourage imaginative play.

CASUAL PLAY AND EQUIPPED PLAY

Casual play or non-prescriptive play is integrated into the landscape of the communal courtyard and potentially the Public Square. The use of interesting and appropriately biodiverse planting, varying materials, ecologically but safely designed water features and public art help stimulate imaginative play. The residential communal courtyard also provides space for equipped play. The type of equipment may include basketball hoops, slides, swings, sand pits, climbing and balancing structures etc.

FIGURE 5.6.13 Landscaped communal gardens, Bercy Paris

FIGURE 5.6.14 Water features, Lyric Square Hammersmith

FIGURE 5.6.15 Outdoor terraces to apartments

5.6.3 PRIVATE OPEN SPACE

A variety of private open spaces are included within the Illustrative masterplan. Townhouses and apartments provide a range of private gardens, balconies, roof terraces and rooftop spaces arranged around a network of public spaces and private communal courtyards.

RESIDENTIAL COMMUNAL COURTYARD

The Residential Communal Courtyard is overlooked by residential units and enclosed by a continuous uniform boundary wall to create sheltered, communal “outdoor rooms”. Sun and shade determine planting strategies for different areas south-facing. Full advantage is to be taken of south-facing areas in terms of nectar plants and wildlife value, colourfully planted or grassy sitting areas. Shaded areas are to be characterised by an appropriate woodland/wood parkland style planting, with displays of native vernal flowers.

The courtyard is intended to have a distinctive verdant landscape character to provide for a variety of needs:
A pond will provide and maintain good wildlife habitat, located in the northern part of the courtyard to maximise its solar gain, though in this location it should is provided with partial tree shade. The pond is to be the terminus of a linear water feature that traverses the whole courtyard providing the noise of flowing and falling water, cooling effects and purification functions as well as continuous wildlife habitat.

FIGURE 5.6.16 Part plan of Communal Courtyard

FIGURE.6.18 water features

FIGURE 5.6.17 landscaped courtyard to a hospital in Basel

FIGURE 5.6.19 Biodiverse vegetation established from seed on a low-nutrient lightweight substrate to a roof in Basel

5.6.4 PRIVATE GARDENS

The landscape design to the Private Gardens shall provide an environment, which 'feels' coherent with the surrounding space and encourages the resident to develop their gardens.

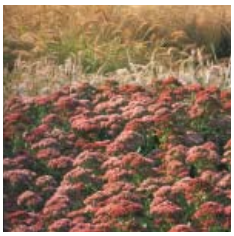
The private gardens are recommended to include the following elements (also refer to section on Biodiversity).

- Healthy, weed-free topsoil at reasonable depth suitable for growth of safely comestible fruit and vegetables over 80% of these spaces
- Robust fencing, pre-planted with climbing vegetation.
- Planted specimen trees in every other garden.
- Other mature berry-bearing shrubs and fruit trees in the gardens in peripheral beds, providing instant maturity that can always be modified by residents, but which may in many cases act as a stimulus for further gardening.
- A bird box for appropriate species set at 2 m height on boundary fences for each garden. See Biodiversity by Design A Guide For Sustainable Communities. Town and Country Planning Association 2004.

Literature should be developed for each prospective new householder explaining the philosophies behind the new development and the opportunities to grow food and enhance the area for wildlife that are presented by the carefully contrived landscape design of public areas. This guidance should suggest 10 or so practical ways in which gardens can embrace permaculture techniques and be practically enhanced to accommodate wildlife habitat, and pointing out the key BAP species of the area including Stag Beetle, a species which thrives in gardens locally. Guidance should also be given on the facilities and advice available through the Community Garden Trust which may include advice on growing food, herbs, roof greening, wall greening etc.

FIGURE 5.6.20 Private gardens and terraces

5.6.5 ROOFS ON MAIN DEVELOPMENT BLOCKS



The roofscape is considered as an integral part of the landscape design which therefore should be seen as integral to the biodiversity strategy.

The illustrative masterplan indicates buildings occupying over a third of the site, with an overall roof space of approx. 9,500m2. Exclusion of these from the designed landscape would therefore constitute a very sub-optimal use of available potentially vegetated space.

The illustrative masterplan seeks to install the following percentage of extensive low nutrient 'eco-roof' with the specific goal of supporting the target habitats/species/groups listed in this section:

Block 1	30%
Block 2	30%
Block 3	75%
Block 4	80%
Block 5	75%

These areas are intended to be made accessible for guided public groups on occasion, maintenance staff and green roof research workers by agreement with the development's Facilities Management Company or indeed as communal wild gardens for residents, assuming adequate safety provision could be incorporated.

Consideration is given to make all non-accessed roofs vegetated in some suitable and innovative way. Products such as 'Top Moss' (Registered Trade Mark) and other relatively low-cost vegetating systems are fully explored, where roof structures are not able to take heavier loadings of substrate and planting.

Roofs not allocated to cover as low nutrient eco-roofs are considered as potential sites for communal roof gardens for growing food or herbs as per the illustrated examples. A Community Garden Trust headquarters is established on one such space, following the successful example of the RISC Garden in Reading. This centre, run by a community group in association with the London Wildlife Trust and Trust for Urban Ecology, provides advice on sustainable gardening and horticulture, roof and facade gardening and other aspects of sustainability throughout the year. It also sells plants such as herbs to local residents.

FIGURE 5.6.21 Grey water treatment roof

FIGURE 5.6.22 Green roofs with photovoltaics

FIGURE 5.6.23 Chive roof garden

FIGURE 5.6.24 RISC, roof garden, Reading

FIGURE 5.6.25 Community Garden

5.6.6 FACADES

The illustrative masterplan attempts to incorporate a vegetated facade within the enclosed Public Square to promote the achievement of a green but public ‘oasis’ set back from the busy street, and also looks to incorporate elements of vegetated facade on all other south facing building exposures, where feasible. An effective element of vegetated facade along the Woolwich Road will act as a noise, wind and dust attenuator and to announce the verdant nature of the development.

Permanent nest boxes are proposed for every terraced dwelling, suitable for House Sparrow, Blue Tit or Wren. On apartment blocks, House Martin (x20) and Swift (x20) nesting refuges are to be built into the fabric of the building in suitable locations

Every effort is to be made to incorporate vegetated facades into a system of sustainable urban drainage, making the link from green roofs to ground level vegetated filter drains and ponds.

FIGURE 5.6.26 Planted walls

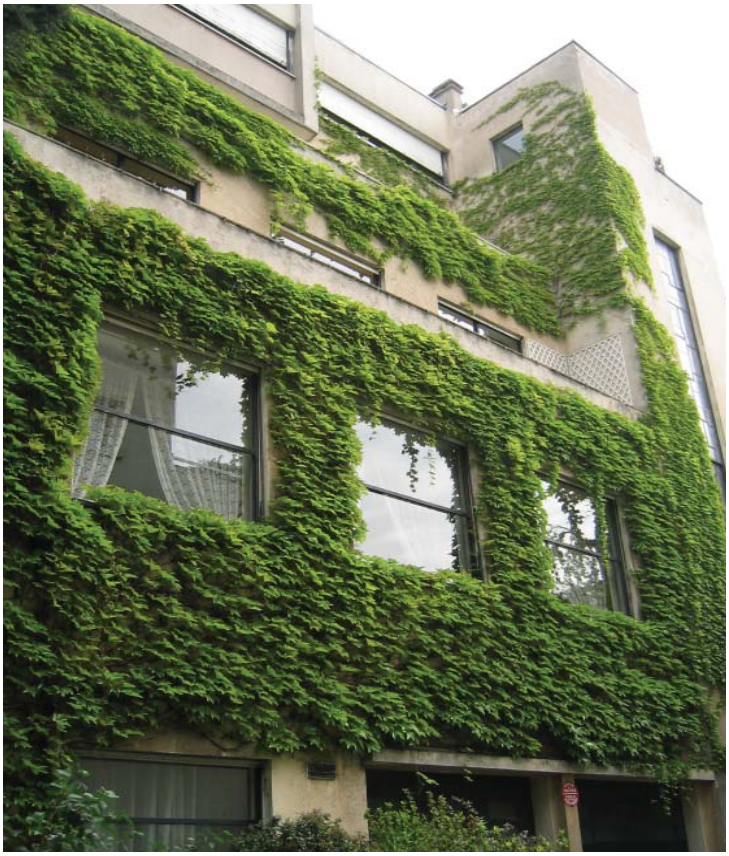


FIGURE 5.6.27 Planted facade

FIGURE 5.6.28 Wall

FIGURE 5.6.29 Stepped terraces

FIGURE 5.6.30 stepped terraces

5.6.7 BIODIVERSITY

The following are areas within the development considered conducive to the habitation of the species listed:

STREETS

Relevant London Biodiversity Action Plans

·
· Parks, Squares and Amenity Grassland
· Bats
· Mistletoe

The illustrative masterplan seeks to ensure that the streets are designed so as to possess a green and leafy 'feel' and provide resources for native wildlife including native plants, birds and bats. The proposals set in train a long-term plan to graft Mistletoe (London BAP species) on selected street trees.

The plan includes vegetated lateral flow swales/vegetated soil sink drains using perennial emergent plant species such as Iris to lend visual amenity and wildlife habitat.

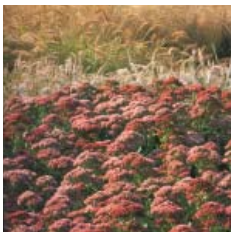
SOUTH-FACING FACADES AND THE FACADE TO THE PUBLIC SQUARE

Potentially relevant BAP habitats and species to vegetated facades include:

· Black Redstart Phoenicurus ochruros
· House Sparrow Passer domesticus
· House Martin Delichon urbica
· Humble Bumble Bombus humilis
· All bat species

Other relevant species of note, occurring within 2km of the site that could be aided by vegetated facades include:

· Song Thrush Turdus philomelos
· Blackbird Turdus merula
· Dunnock Prunella modularis
· Linnet Carduelis cannabina
· Starling Sternus vulgaris
· Holly Blue butterfly Celastrina argiolus
· Goldfinch Carduelis carduelis
· Song Thrush Turdus philomelos
· Five-banded Digger Wasp Cerceris quinquefasciata
· Shrill Carder Bee Bombus sylvarum



ROOFS

Potentially relevant BAP habitats and species to roof spaces include:

- Wasteland
- Acid Grassland
- Black Redstart Phoenicurus ochruros (the site lying within a ‘known key area for this species’
- House Sparrow Passer domesticus
- House Martin Delichon urbica
- Humble Bumble Bombus humilis
- All bat species

Other relevant species of note, occurring within 2km of the site that could be aided by vegetated roofs include:

- Round-leaved Crane’s-bill Geranium rotundifolium
- Goldfinch Carduelis carduelis
- Song Thrush Turdus philomelos

FIGURE 5.6.31 Examples of green roofs

PRIVATE COURTYARD

The site is on the northern edge of the stronghold of distribution of Stag Beetles Lucanus cervus in east London and this species should readily colonise suitable habitat,

The enclosed semi-private nature renders it suitable for progressing elements of the following Biodiversity Action Plans in the LBAP:

- Parks, Squares and Amenity Grassland
- Woodland
- Bats
- House Sparrow
- House Martin
- Stag Beetle

and suitable to benefit other noteworthy species found in the wider area including:

- Treecreeper Certhia familiaris
- Chiff-chaff Phylloscopos collybita
- Song Thrush
- Blackbird
- Roesel's Bus Cricket Metrioptera roselii
- Common Frog Rana temporaria
- Water Soldier Stratioides aloides

FIGURE 5.6.32 Examples of green outdoor space

The pond within the central courtyard is designed as a true haven of biodiversity designed with multiple levels and maximised edge length and ecozone (see previous Section 7.5.1 as to size and nature of this). Planting includes a diversity of non-invasive attractive aquatic, emergent and marginal species including e.g. Flowering Rush Butomus umbellatus, Sweet Flag Acorus calamus and White Water Lily Nymphea alba.

The woodland design within the courtyard is redolent of former native woodland cover of the area. The indications from nearby designated sites (see Ecological Context Report) are that the original cover of the site would have been based on alluvium. Species present in the historic past on this substrate would probably have included: Common Alder Alnus glutinosa, Pedunculate Oak Quercus robur, Scot's Pine Pinus sylvatica and Yew Taxus baccata.

The illustrative masterplan allows for the installation of 'loggeries' (following the guidance in the Stag Beetle Conservation Advice note published by English Nature and the Wildlife Trusts) within a demarcated long-grass habitat near to the pond. These would also serve as Song Thrush anvil sites.

Ensure provision of both native Ivy Hedera helix in vertical installations (permitting it to flower and fruit) and native Holly Ilex aquifolium within the courtyard.

Include sufficient areas of native shrubs with non-native shrubs providing berries for birds and good cover to attract breeding song-birds such as Blackbird and Song Thrush.

Swathes of woodland ground flora are included, based on native typologies but with some inclusion of non-native species from parallel communities to extend flowering times.

Areas supporting night-flowering species that attract moths and hence bats are also included.

FIGURE 5.6.33 Flowering Rush

5.7 BLOCK PRINCIPLES

CONTENTS

INTRODUCTION

In this section the street blocks and the boundaries required in Section 4 are addressed. The intention is to create blocks with a strong street frontage that clearly defines public and private areas based on allowing informal surveillance of the surrounding space is a key issue informing the design. The illustrative masterplan also responds to the scale and massing of the existing context.

BLOCK PRINCIPLES

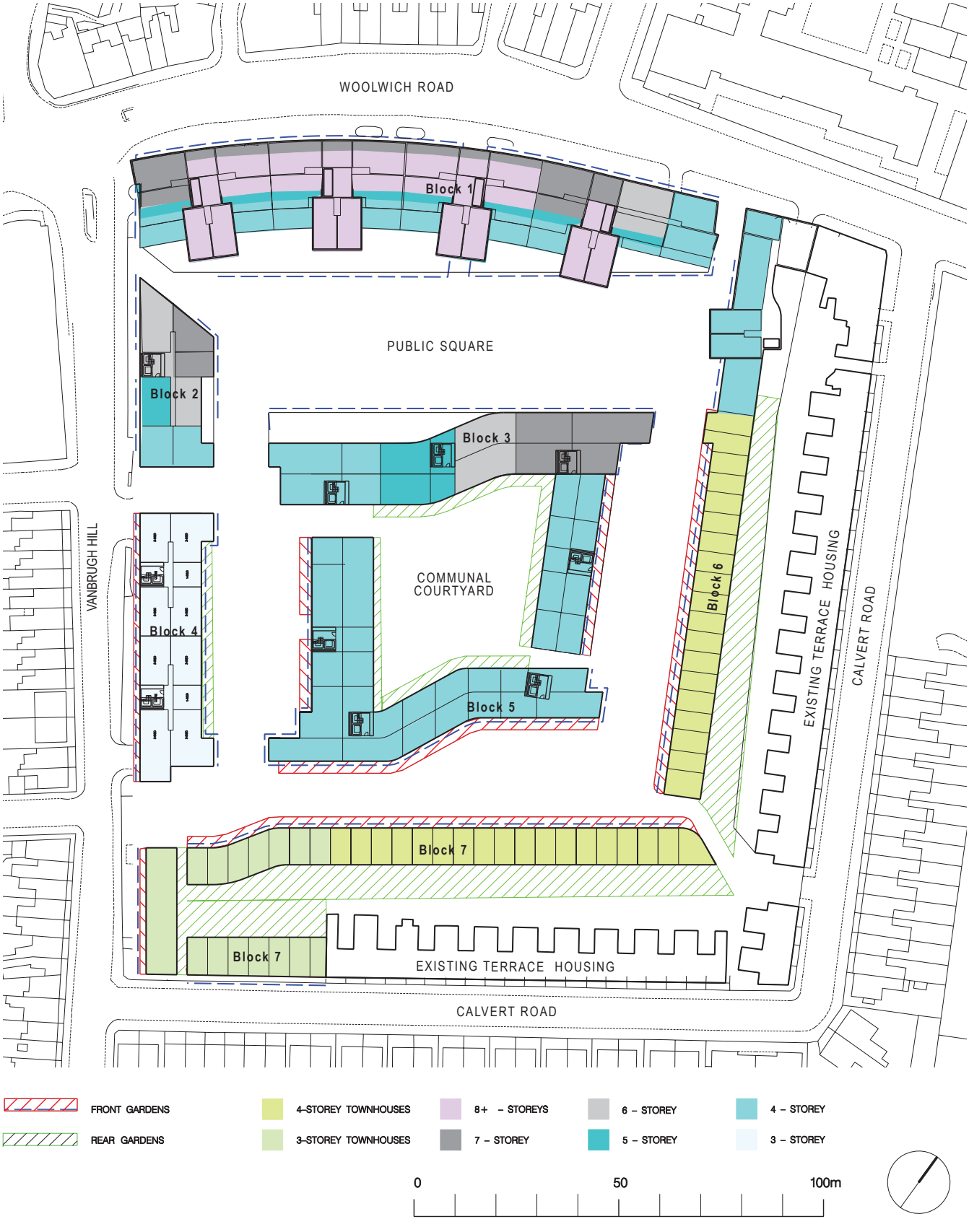


FIGURE 5.7.1 Block Principles

5.7.1 BLOCK STRUCTURE

Successful urban places are generally defined and enclosed by buildings. Building frontages overlook the public realm and are arranged around a clear hierarchy of public and private spaces. The form of the blocks as set out in the illustrative masterplan is integral to the urban form within the Heart of East Greenwich development and must be respected.

LINEAR BLOCKS, TERRACES, COURTYARD BLOCKS

Within the illustrative masterplan blocks along Woolwich Road and Vanbrugh Hill constitute linear blocks. The linear block is set between existing primary roads and either the new residential street or Public Square. The Blocks are required to address their two sides and have more complex servicing requirements, but also offer dramatic end conditions to blocks, multiple aspect dwellings and potential for landmark buildings. Terrace townhouses are located along the south and east sides of the site and are intended to respond in scale and massing to the existing terraces adjacent. A Courtyard block is formed around the central communal space and allows distinction in design between back and front in formality/informality, hard/soft articulation and material differences. The blocks respond to their immediate context and are intended to provide a clear definition to the spaces they surround.

BLOCK HEIGHT

Within the illustrative masterplan apartment buildings vary between nine-storeys and three-storeys in height, the heights being responsive to their immediate context.

BLOCK DEPTH

The street layout within the illustrative masterplan demonstrates a method by which a sense of place surrounding buildings is to be achieved. An inclusive strategy for items such as landscape design and cars is incorporated within the masterplan in determining the block depths. Inflections are indicated within the layout as a means to provide a sense of place whilst also providing inherent traffic controlling measures.

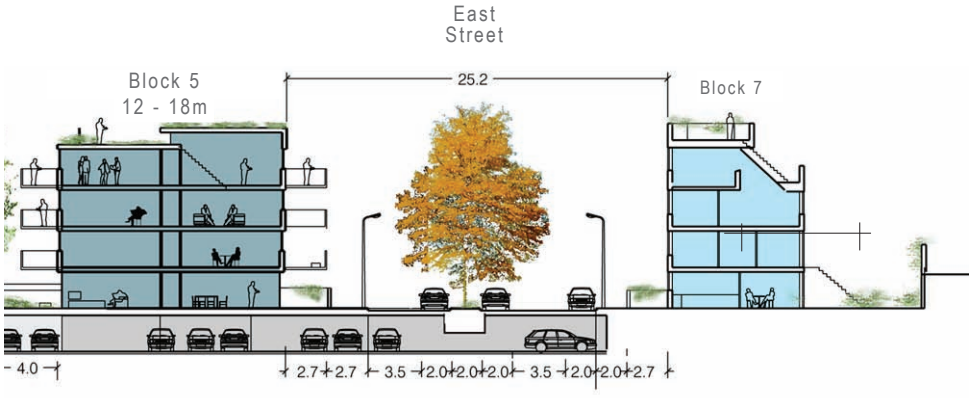


FIGURE 5.7.2 Section through East Street

FIGURE 5.7.3 Residential blocks with communal outdoor space

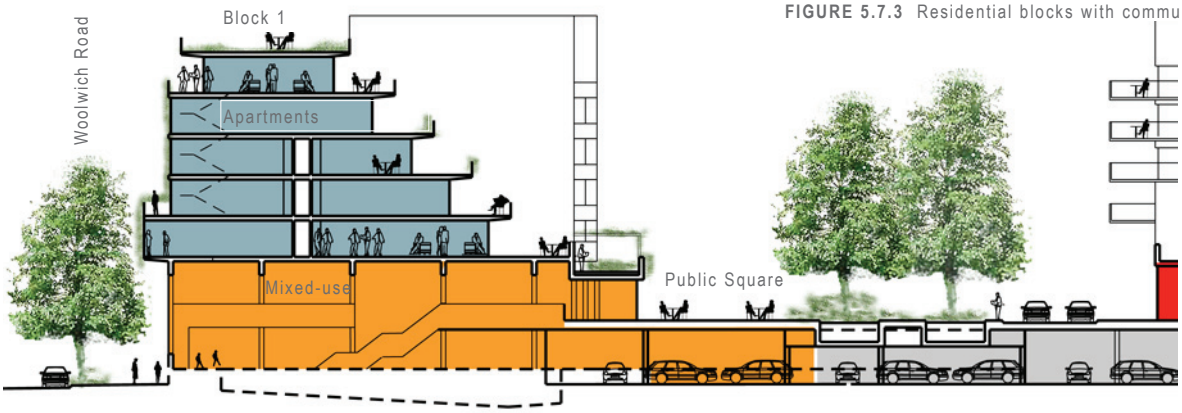


FIGURE 5.7.4 Massing and mixed use block to Woolwich Road

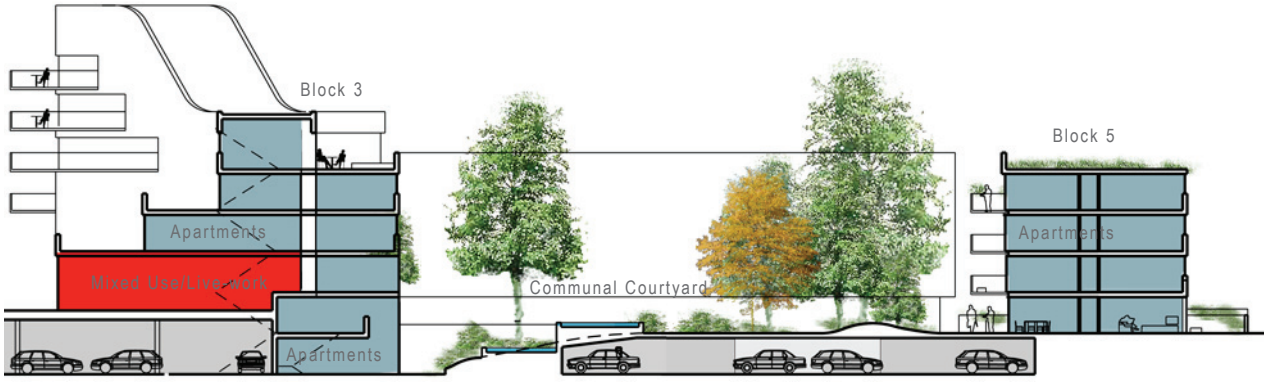


FIGURE 5.7.5 Massing and mixed use block to comunal courtyard

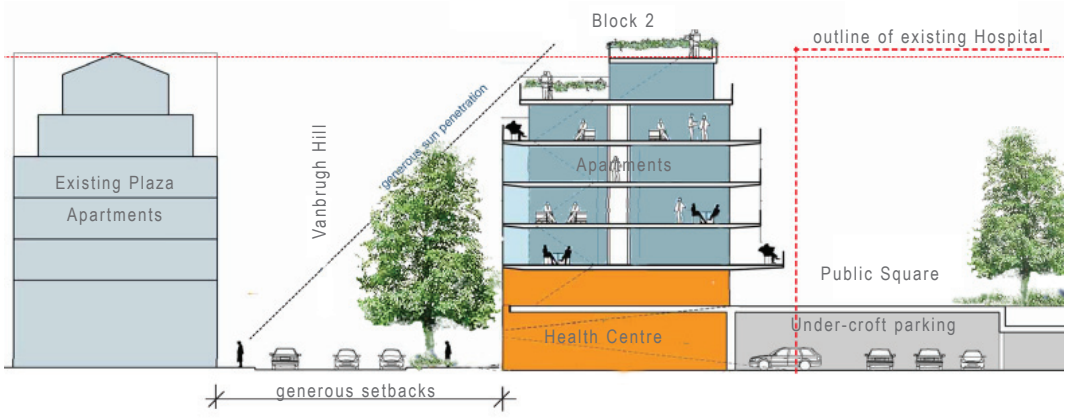


FIGURE 5.7.6 Mixed Use blaock to Vanbrugh Hill

GATEWAYS

Gateway entrances are indicated on the plan. They provide focal points between the surrounding context and the public areas within the site. The Gateways are intended to signal and encourage access to maximise the use of the Public Square and its facilities. The massing of the building to the lower end of Vanbrugh Hill “inflects” to allow views into the Public Square or residential streets beyond.

MIX OF USES

Mixed-use blocks provide commercial/retail space, leisure/health centre facilities, a library, cafe and local service centre at lower ground and upper ground floor levels. Residential accommodation is provided on upper levels, with public and private open space for the residential apartments provided at roof/terrace level. This distribution begins to describe a horizontal layering within the block structure

COMMUNAL COURTYARDS

The courtyard block is formed around a central communal space. All residents of the apartments surrounding the courtyard garden are intended to have access to this secure outdoor space.

Apartments with private gardens at ground level and townhouses are proposed to have access directly from their rear garden into a communal courtyard; residents on upper floors are to have access to the courtyard through the entrance foyer of their apartment block. The main entrance from the street is intended to provide both security and high visual permeability.

The proposal provides direct access from the under-croft parking into the communal courtyard gardens rather than circulating through the stair cores. Alternatively, single aspect lower ground floor accommodation/utility space could provide direct access both to the under-croft and to the courtyard.

FIGURE 5.77 View of Public Square looking north west

FIGURE 5.7.8 Elevation to the west end of the Woolwich Road block which affords the potential for a landmark element

FIGURE 5.7.9 Gateway residential buildings

FIGURE 5.7.10 Communal courtyards

FIGURE 5.7.11 Communal courtyards

UNDER-CROFT CAR PARKING

Within the illustrative masterplan under-croft parking is proposed to be provided for all apartment blocks. The area of parking is not necessarily defined by the outline of the block but runs under the buildings and expands under the communal courtyard to maximise parking. The position and number of entrance/exit points into the under-croft have been defined but will require further consultation with the Highways Authority.

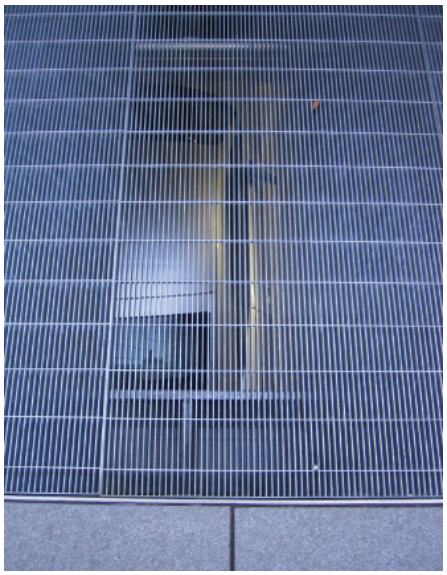


FIGURE 5.7.12 Ventilation grilles flush with paving

FIGURE 5.7.13 Underground parking with circulation cores to apartments above

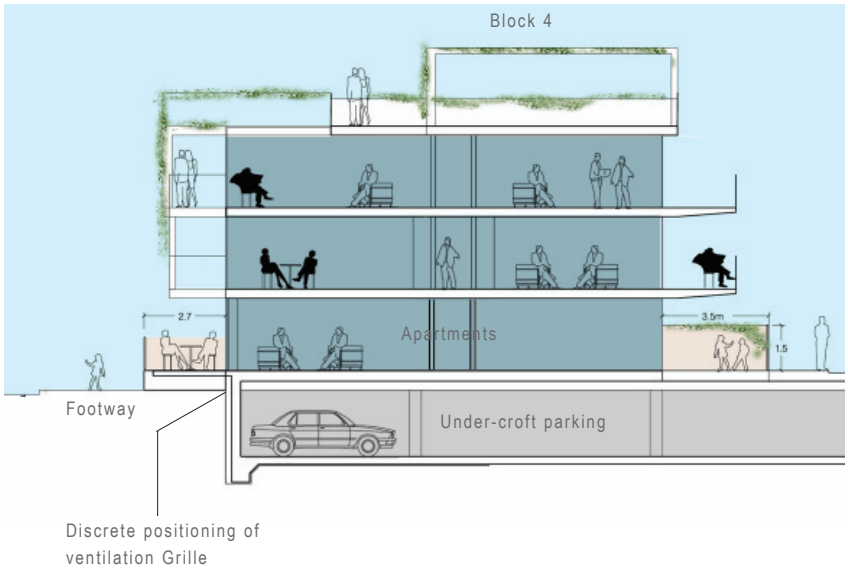


FIGURE 5.7.14 Cross section through Block 4 along Vanbrugh Hill Road

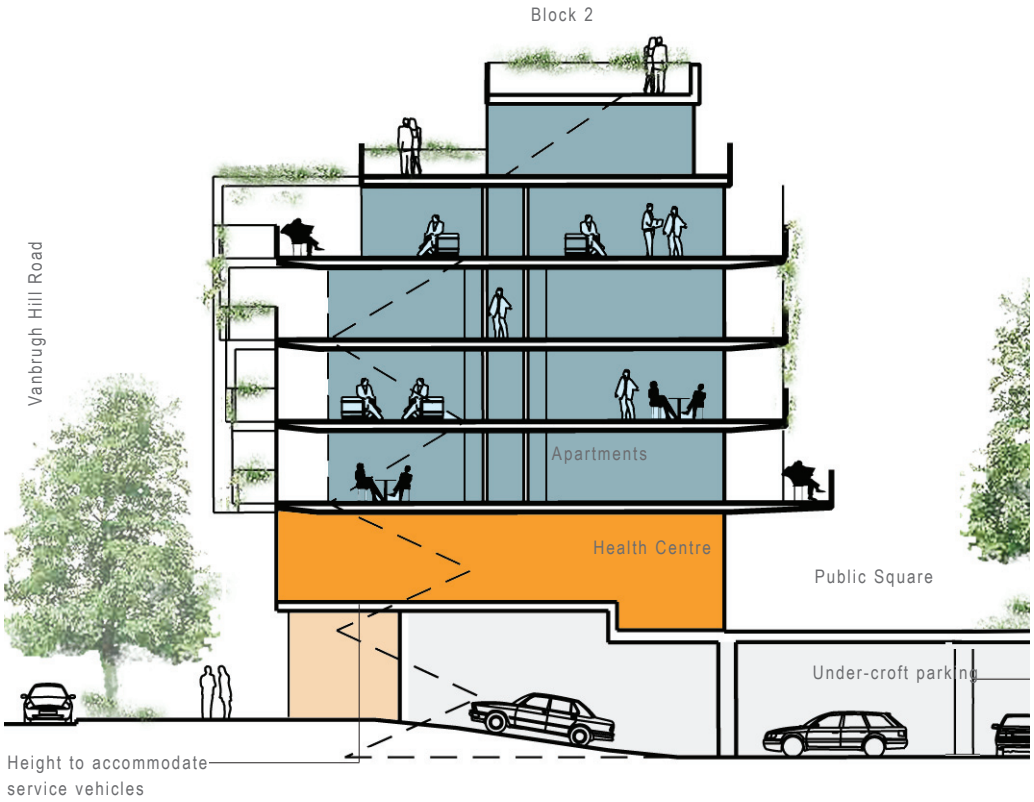


FIGURE 5.7.15 Cross sections through under-croft car park entrance off Vanbrugh Hill minimising blank frontage

5.7.2 BOUNDARY TREATMENTS

The treatment of boundaries is fundamental in creating a safe and secure environment and a unified uncluttered streetscape. The boundaries defined in the illustrative masterplan are as follows:

- **Active frontage boundaries (Woolwich Road, lower Vanbrugh Hill)**
- **Active frontage boundaries (Public Square)**
- **Terraces (with shared entrances)**
- **Front gardens**
- **Rear gardens**

BOUNDARY UNIFORMITY

The vision for the surfacing materials and landscape design of the illustrative masterplan is to respond to the immediate context when at boundary conditions.

ACTIVE FRONTAGE BOUNDARIES (WOOLWICH ROAD AND VANBRUGH HILL)

Active frontage boundaries are to accommodate activity from within the ground floor of a mixed-use building e.g. library. This boundary line of the property is to be minimally expressed to create a fluid transition from inside to outside. The positioning of ventilation grilles is carefully considered to ensure the quality of outdoor space is not affected.

Entrances onto the site are configured to have a distinctive street presence to provide legibility of access and signify the importance of the Public Square beyond.

ACTIVE FRONTAGE BOUNDARIES (PUBLIC SQUARE)

Active frontage boundaries to the Public Square accommodate activity from within the upper ground floor of the mixed-use building. This boundary line is intended to maximise the connection or relationship between inside and outside and encourage activity/use.

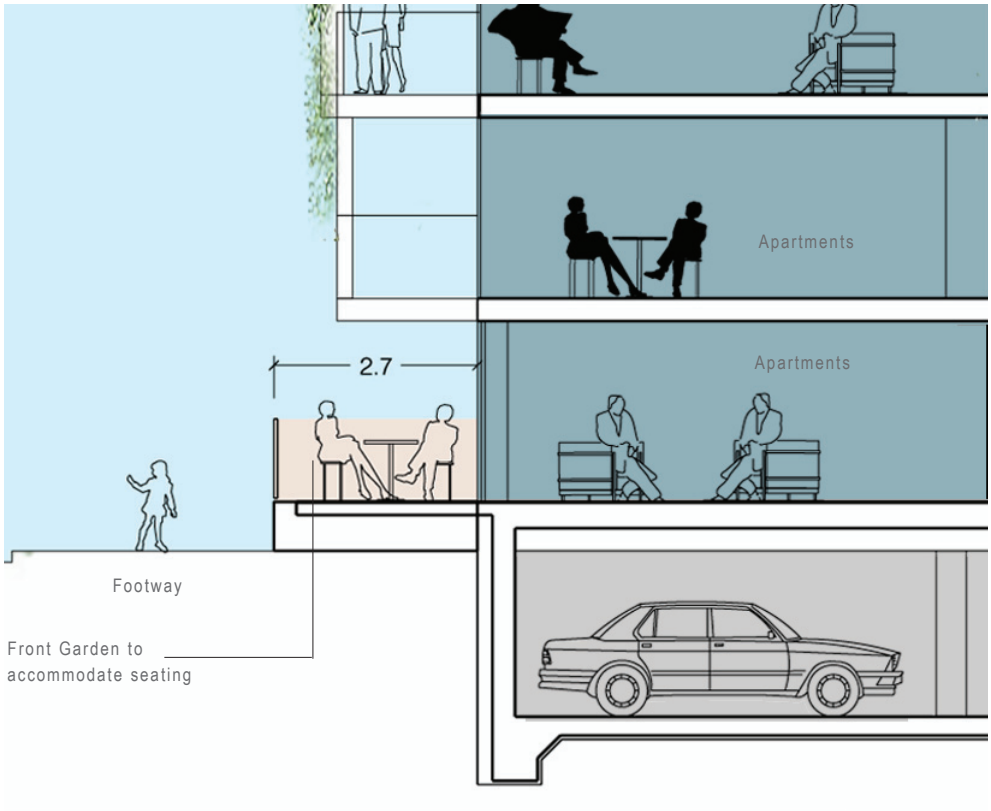


FIGURE 5.7.16 Typical Front Garden to Apartments along Vanbrugh Hill

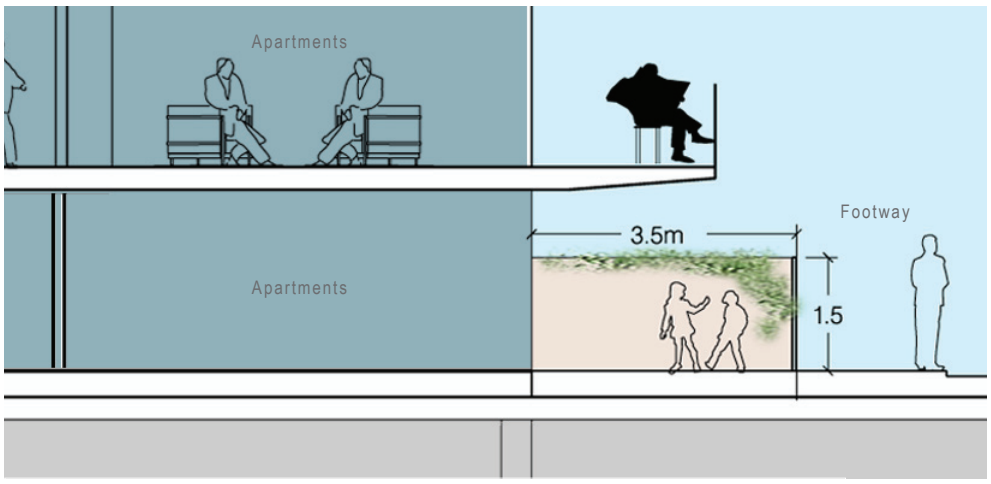


FIGURE 5.7.17 Typical Rear Garden to Apartments

RAISED GARDEN BOUNDARY (PUBLIC SQUARE)

Communal gardens along the north perimeter of the Public Square are raised above the square level to form an active green edge, creating privacy and security for residents whilst also providing passive surveillance for the square. This area is to be an area with soft landscape providing the community with horticultural opportunities, allotments and green space and also potentially defined by hedging to provide permanent greenery at the edge of the Public Square. The terrace is raised one level above the Public Square but 1.2m lower than the apartments to provide privacy to the residents. The boundary to the apartments is defined by a 1.0m high solid wall designed as an extension of the building. The boundary provides a continuous and coherent perimeter to the Public Square.

TERRACES (WITH SHARED ENTRANCES)

Shared entrances to apartment blocks are configured to have a distinctive street presence and provide legibility of access.

FRONT GARDENS

Front gardens to townhouses and ground floor apartments provide privacy to residents and define the boundary with the street. A combination of hard and soft structured landscape design is envisaged.

REAR GARDENS

Rear gardens to townhouses and ground floor apartments provide private outdoor space to the dwellings.

Ventilation grilles to car parks are intended to be minimised within the illustrative masterplan and be located outside private gardens. The intention is to maximise the area of grille adjacent to a shared entrance to reduce the impact within the private gardens.

FIGURE 5.7.18 View into the Public Square

FIGURE 5.7.19 Soft landscape and metal grilles

FIGURE 5.7.20 Front gardens/shared entrances with soft edges and integral concrete bench

FIGURE 5.7.21 Gardens and terraces

5.7.3 UTILITIES & ANCILLARY STRUCTURES

5.7.3 UTILITIES & ANCILLARY STRUCTURES

The design, location and consideration of utilities is integral to the design of the blocks and will not have a negative effect on the environment. The main principles of the illustrative masterplan are to include the use of a common services layout to minimise the area used to provide services and to limit the impact on the public realm (both in construction and repair).

5.8 BUILDING PRINCIPLES

CONTENTS

INTRODUCTION

This section sets out the illustrative masterplan's response to key building principles, facade parameters, internal planning, the design of architectural features and the selection of materials. Common principles apply throughout the Heart of East Greenwich development to ensure that a coherent and enduring vision is achieved.

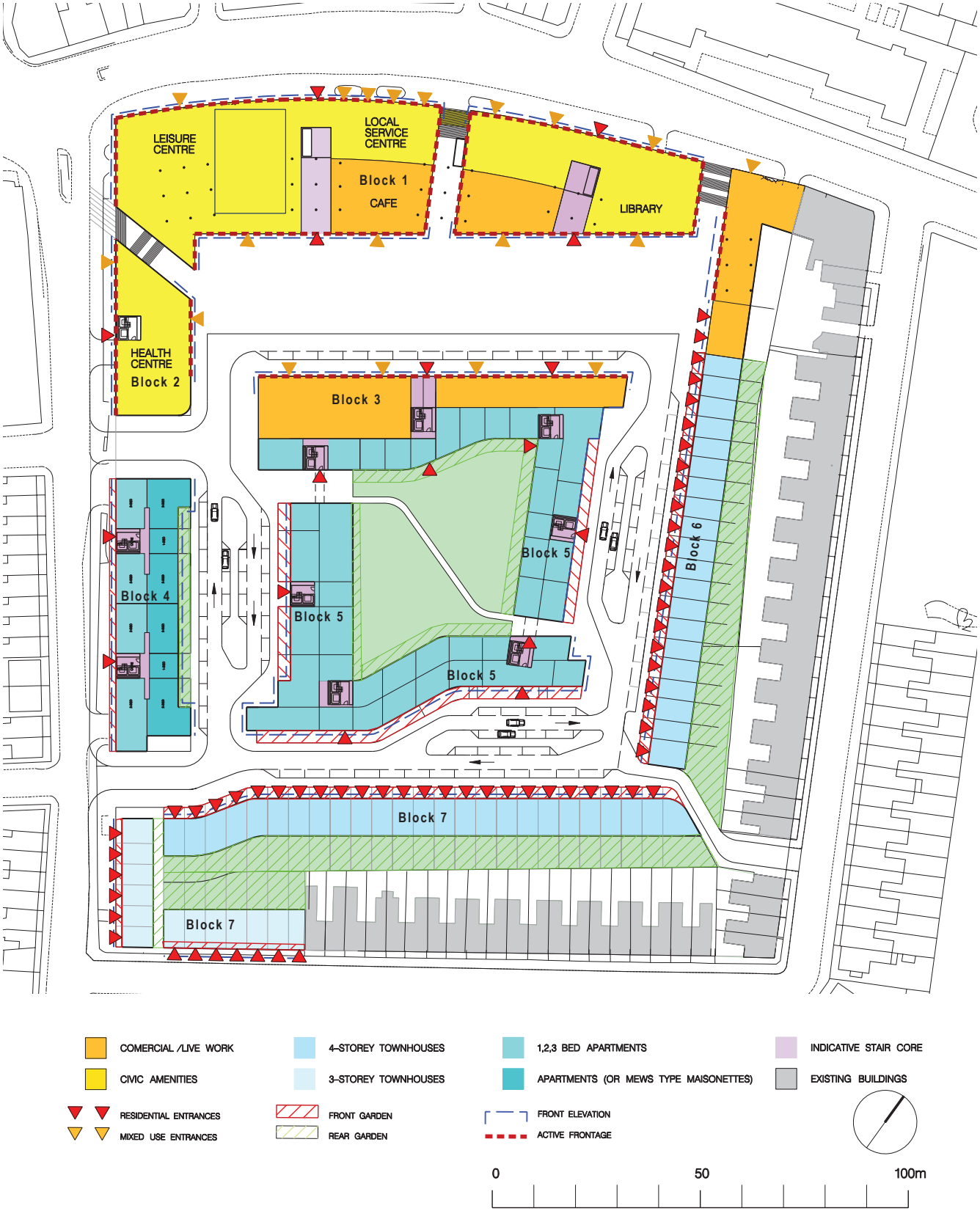


Figure 5.8.1 Site plan

5.8.1 FACADES: COMMONALITY / CONTRAST

Parameters for the articulation of building facades are set to ensure the optimum mix of continuity and contrast within the Heart of East Greenwich development. There should be a similarity within each character area and where there are overlaps between character areas, there is the opportunity to contrast with adjacent developments.

The façades within the illustrative Masterplan have been configured to create a variety of commonality and contrast. Commonality has been used to create cohesion within each space via the use of height/ profile, material including vegetation, colour and rhythm. Equally, contrast has been used at selected locations to demarcate input 'events' (such as gateways) within the facade.

BOTTOM, MIDDLE & TOP

The general configuration of the facades in the illustrative masterplan is to divide them into horizontal three zones. The "bottom" zone of the buildings provides a continuum of frontage that is sub-divided with some or all of the following elements: shared residential entrances, residential, retail and commercial units where appropriate.

The "middle" zone (above the first two floors) uses a range of architectural components to create commonality or groupings. A similar spacing of balconies, winter gardens and fenestration has been used to unite different developments.

The "top" zone of the buildings is more individual especially when the top storeys are sufficiently set back from the street.

Vegetation is intended to play a key role here including roof vegetation and vegetation climbing up or cascading down walls.

FIGURE 5.8.2 Commonality of frontage

FIGURE 5.8.3 Contrasting frontage

FIGURE 5.8.4 Repeating frontage

FIGURE 5.8.5 Planted facade

FIGURE 5.8.6 Bottom, Middle and Top

5.8.2 FACADE PARAMETERS

By co-ordinating the basic design elements of the facades, a sense of "harmonious diversity" has been established throughout the development to create unique character areas.

ENTRANCES

Mixed-use entrances to dual aspect linear blocks are located to provide access off the main street, i.e. the Woolwich Road or when located within the development, the entrances are located, to provide access from the principal space adjacent to the block. The shared entrance to linear blocks provides access from both streets.

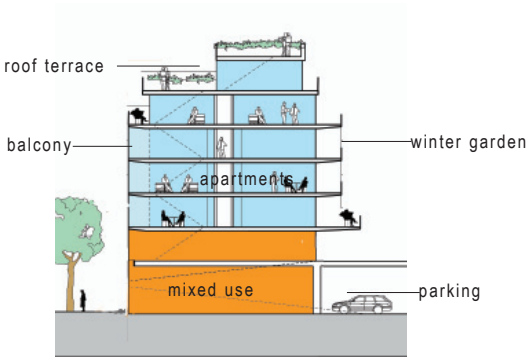


FIGURE 5.8.7 Key building elements

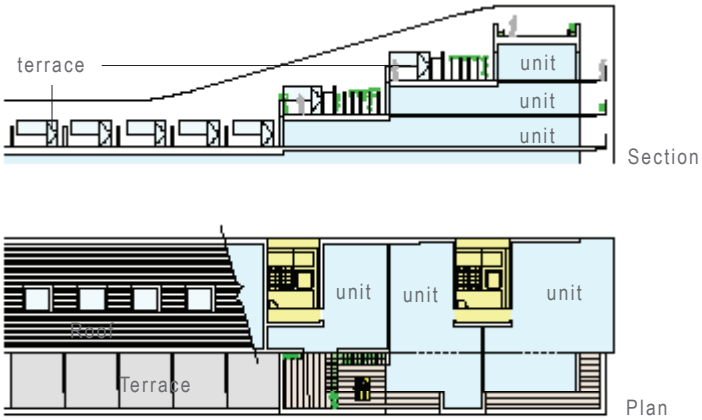


FIGURE 5.8.8 Habitable roofspace - apartments

FIGURE 5.8.9 Communal roof terrace

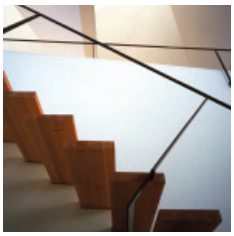
Private roof terraces

Private roof terraces

FIGURE 5.8.10 Winter garden

Balcony

Double height ground floor mixed-use



5.8.3 PLANNING PRINCIPLES

This section describes the internal arrangement and relationship of residential communal and private spaces proposed in the illustrative masterplan. The main principles for each accommodation type are outlined and illustrated by example typologies.

PRINCIPAL ROOMS

Principal Rooms, such as living areas, have been orientated where possible to maximise opportunities for solar harvesting and to overlook residential streets and are intended to open onto private outdoor space (balcony, roof terrace or garden) through large glazed openings. In linear blocks (blocks that address more than one street), principal rooms have been distributed on both elevations to avoid front and back elevational distinctions.

OTHER ROOMS

Within the illustrative masterplan master bedrooms are larger than the other bedrooms and are given priority in orientation and views; en-suite bathrooms have been provided to the master bedroom in the typical example.

FIGURE 5.8.11 Communal / active roof space Ground floor residential lobby Deep projecting balconies

5.8.4 TOWNHOUSE PRINCIPLES

The continuous terraces of three to four-storey townhouses indicated in the illustrative masterplan are innovative in design and utilise the upper floor levels and roofscape for principal rooms with interlocking volumes, roof lights, roof gardens and terraces.

FRONT DOOR & CIRCULATION

Front doors to townhouses are of a uniform design. Projecting / add-on porches are not considered appropriate within the illustrative masterplan. Stairs and landings have natural light.

STACKED MAISONETTES

A shared front door is proposed within the illustrative masterplan so that the street front appearance matches a townhouse entrance. The upper units maximise the use of outdoor roof space.

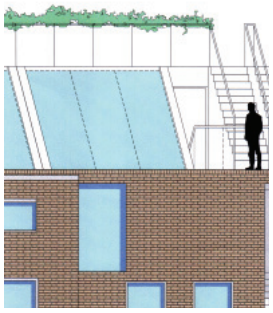


FIGURE 5.8.12 Townhouse roof terrace

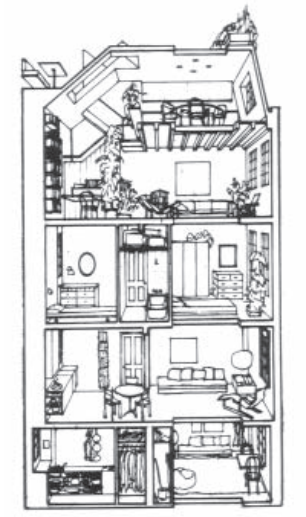


FIGURE 5.8.13 "Upside down" townhouse

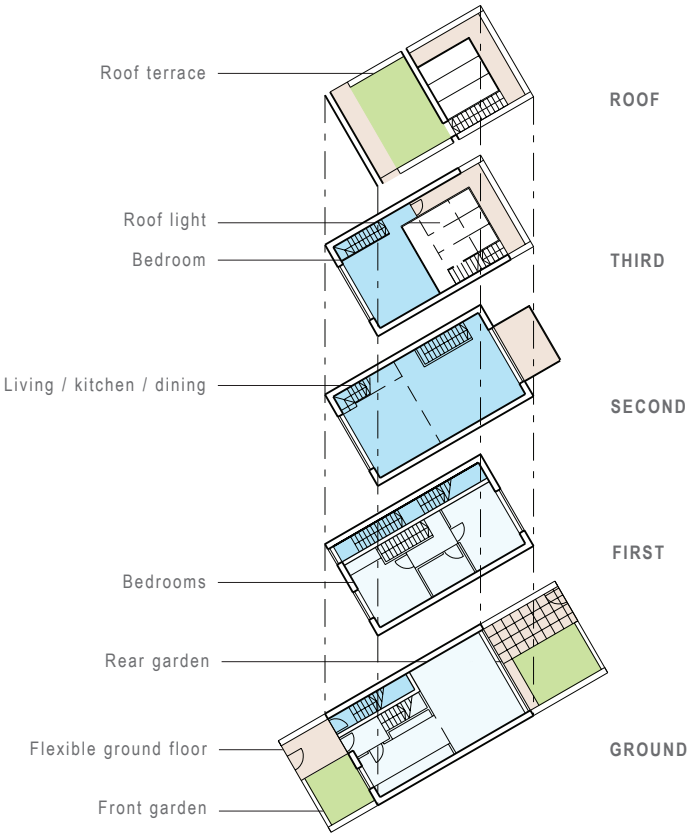


FIGURE 5.8.14 Townhouse typology example

TYPICAL TOWNHOUSE

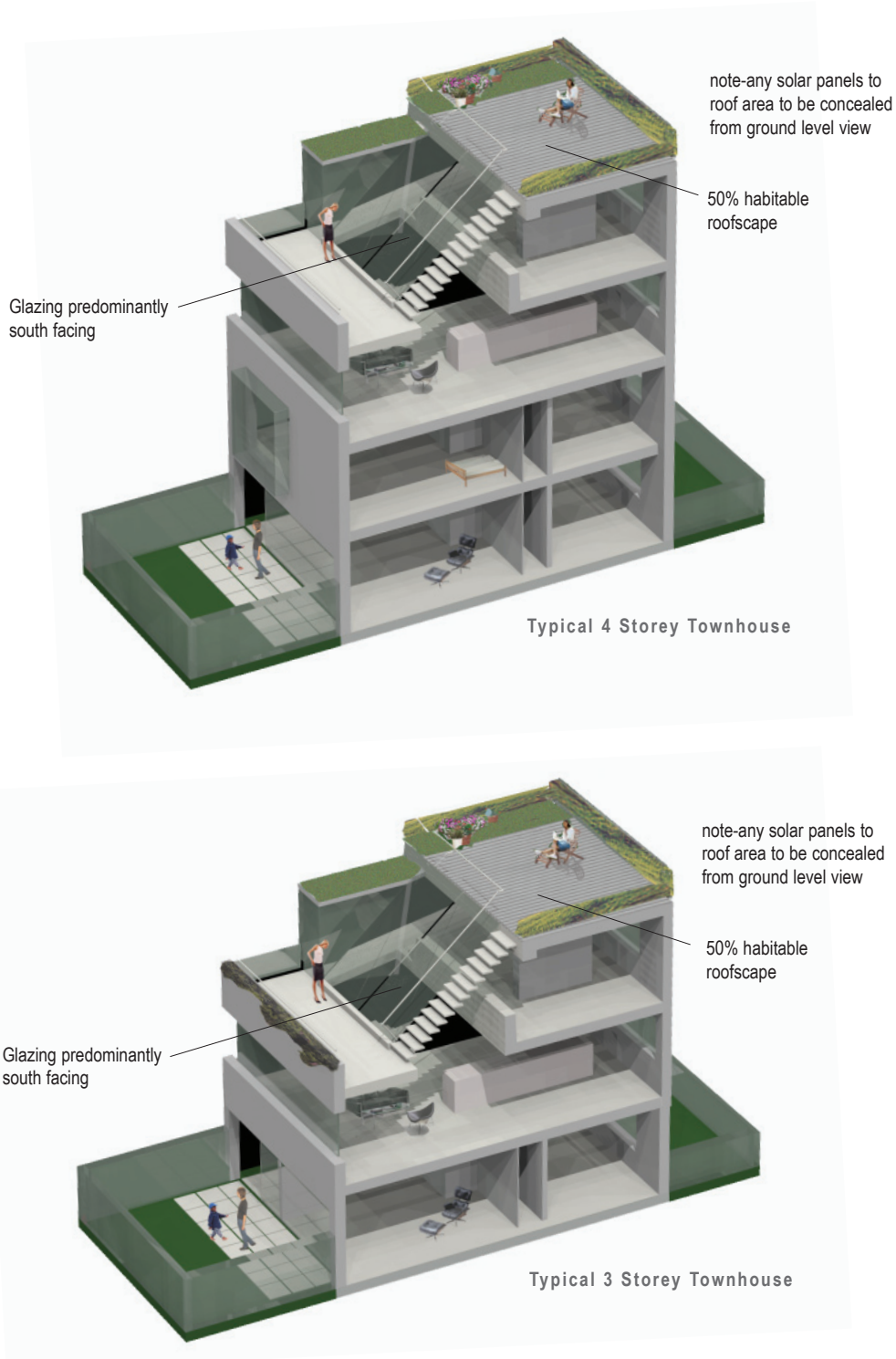


FIGURE 5.8.15 Townhouse Typology

5.8.5 APARTMENT PRINCIPLES

The aim of the illustrative masterplan is to complement high-density urban apartment living with generous internal space standards (SDS) and private open space through roof terraces and balconies.

SHARED ENTRANCES & CIRCULATION

The shared entrances are planned to generously accommodate the circulation core, refuse store, letterboxes and an area for management facilities. In dual frontage blocks the shared entrance will be used to unite both street frontages where possible. Stairs and lifts serve all floors including the parking level.

DUPLEX APARTMENTS

Duplex apartments are arranged with the bedroom and bathroom accommodation at entrance level, allowing for the other floors to have maximum open plan living/dining/kitchen accommodation.

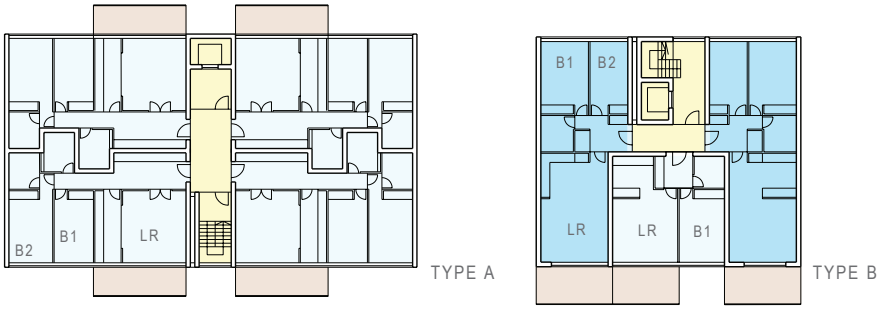


FIGURE 5.8.16 Single and dual aspect apartment typology examples

Roof light and terrace

Natural light and glazing

Double height space

FIGURE 5.8.17

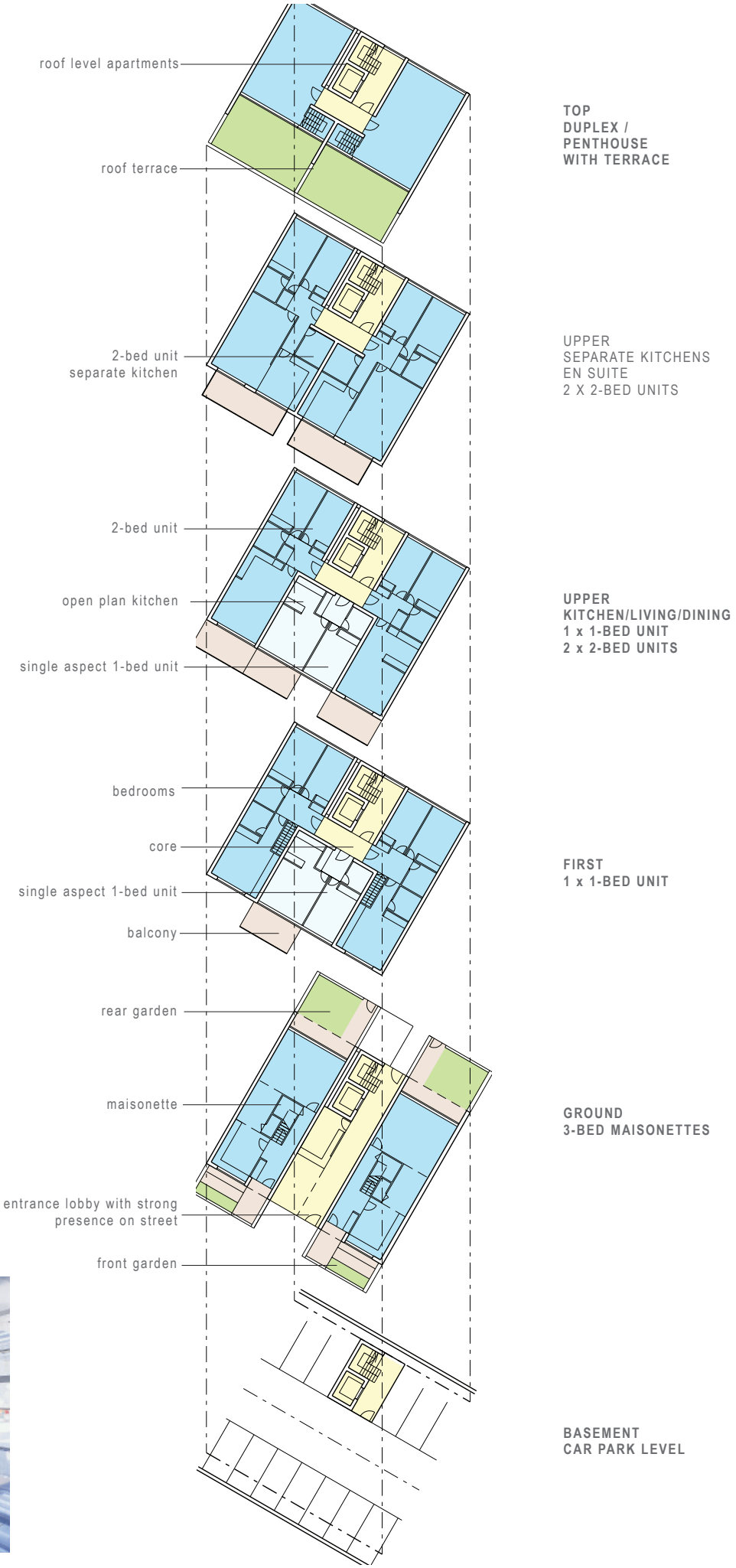


FIGURE 5.8.19 Apartment block example

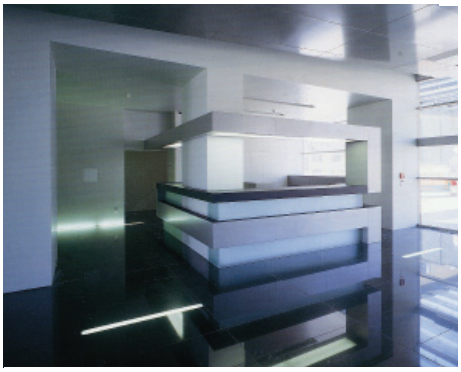


FIGURE 5.8.18 Shared entrance to apartments

TYPICAL APARTMENT

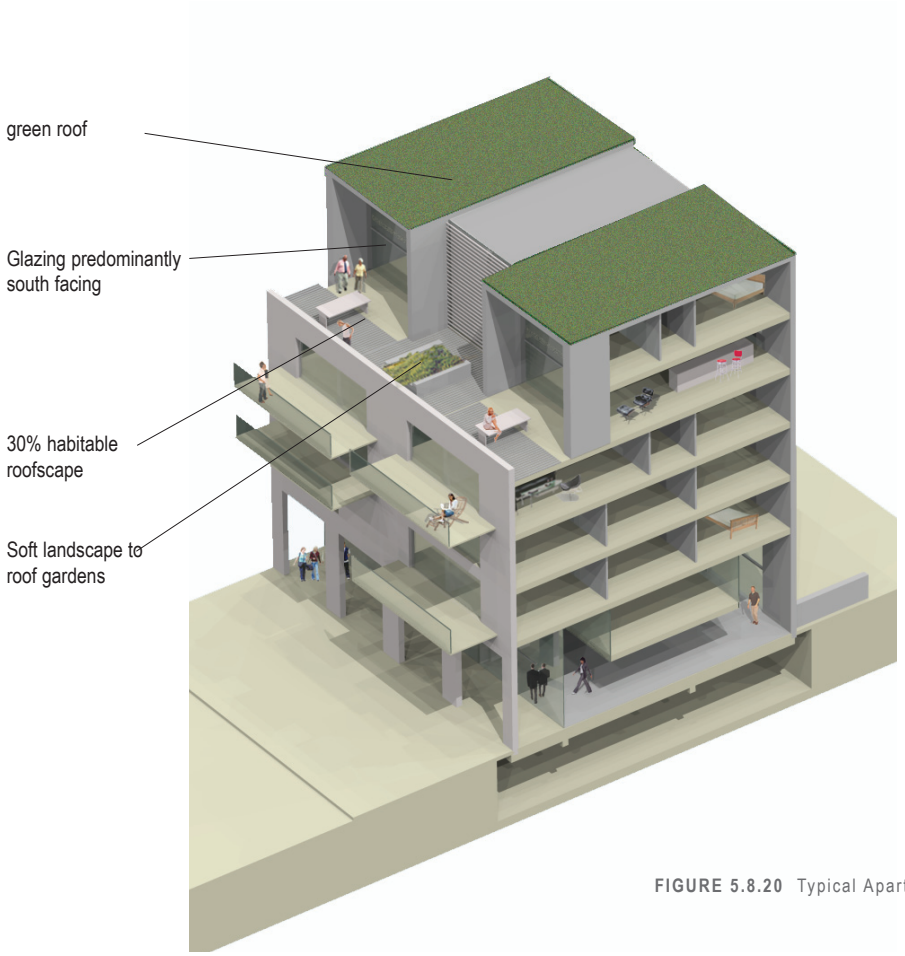


FIGURE 5.8.20 Typical Apartment

5.8.6 MIXED USE PRINCIPLES

Mixed-use facilities within the illustrative masterplan are to provide flexibility of use over time and be capable of providing accommodation for a number of needs. Large unit sizes, generous floor-to-floor heights with large spans are incorporated. Potential conflicts between uses, such a noise transmission, must be avoided through careful design.

FLEXIBILITY OF USE

Accommodation designated as mixed-use should offer maximum flexibility for providing retail, office, restaurant, café/bar and live/work units and also include the option of reverting to private residential use.

LIVE/WORK

Workspaces are located to provide active frontage at ground level. The living space should have its own entrance as well as being linked to the workspace

ACTIVE FRONTAGES

The activities within the ground floor units revealed by maximising transparency and seek to encourage footfall throughout the length of the frontage.

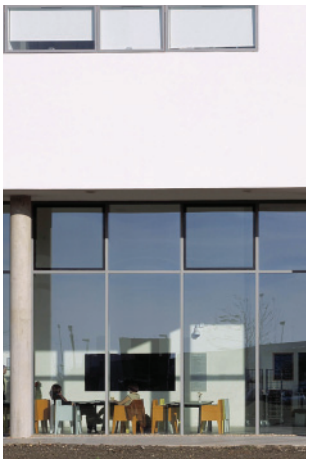


FIGURE 5.8.21 Active frontages

5.9 CREATING A SUSTAINABLE DEVELOPMENT

CONTENTS

INTRODUCTION

This section, together with the sustainable standards Appendix attached seeks to provide recommendations and supporting information in order to achieve the sustainability standards set out in Section 3. In addition, the illustrative masterplan has been designed in accordance with the passive design principles at set out in section 4 in order to maximise the benefits of solar harvesting and good daylighting through the location, orientation and size of windows and roof lights.

5.9.1 ENERGY

The proposal shows a rational approach to the energy hierarchy, passive means, renewable means, and active means. The following proposals will help to achieve the energy standards for the development:

SUPERINSULATION AND LOW EMISSIVITY WINDOWS

The inclusion of superinsulation and triple glazed low emissivity, argon filled windows will greatly improve the ability of the residential units to reduce their heating energy and improve comfort conditions in both winter and summer. The U-values for thermal insulation and windows are established with due consideration given to the storage affects of the thermal mass of the buildings, such that dwelling with normal levels of occupancy will be largely self-heating in cold weather by virtue of internal heat gains. This will have direct affects on reducing the installed capacity of heating systems and operating costs. Particular consideration will be given to avoid cold bridging. The insulating benefit of green roofs and facades will also be considered in the achievement of the required standards.

The following u-values are recommended as an appropriate means of achieving the Dwelling Emissions Rate standard as specified in Section 3:

Element	Area-weighted average u-value (W/m2K)
External Wall	0.2
Roof	0.11
Ground Floor	0.15
Windows, roof windows, Rooflights & External doors	1.5

AIRTIGHT CONSTRUCTION AND VENTILATION

To benefit most fully from superinsulation, it is important that the building enclosures are as airtight as possible. The required limit to air permeability is 5 m3 / (h.m²), when tested at 50 Pa in accordance with the ATTMA publication Air Permeability measurement. It is recommended that all glazing has an air infiltration performance of less than 2 m3/hr per linear m of joint at a test pressure of 300 Pa.

This will require careful detailing, and draught-proofing. Because this will then prevent accidental ventilation (infiltration), some form of planned ventilation will be needed with particular consideration required to avoid condensation.

Preference is for the use of passive ventilation methods such as openable windows and trickle ventilation or passive stack ventilation (PSV). The latter is most appropriate for the townhouses as the use of PSV is generally limited to three-storeys. Where natural ventilation is not possible e.g. due to external noise or air pollution, mechanical ventilation heat recovery systems will be provided with a minimum heat exchange efficiency of 70% and a specific fan power consumption of <1 W/l/s.

THERMAL MASS

The exposure of the structural ceiling slabs is recommended for both residential and commercial areas of the development where feasible to allow better internal climate moderation via ‘thermal mass’.

The thermal mass of the apartment buildings shall be consistent with a Thermal Mass Parameter (TMP) of 19, calculated as set out in Appendix P4 of SAP 2005.

EVAPORATIVE COOLING

Green roofs, green walls, water features and extensive planting and seeding of trees, shrubs and herbaceous plants are all requirements of the development brief for the multiple benefits that they will bring (refer to Landscape section for more details).

Where these are proposed an attempt has been made to quantify or semi-quantify their contribution at different times of the year towards reductions in energy use, through providing evapotranspirative cooling in hot weather and protection from the elements in cooler weather. This analysis has been applied both at the level of individual building or floor of a building, and at the level of the development as a whole in terms of a reduction in the urban heat island effect. Use of models developed abroad has been necessary as data does not exist for the UK.

It is considered that these passive systems for cooling especially of top floor dwelling space should be adequate to achieve acceptable environmental conditions in summer, whilst also adding value through improvements in amenity.

COMMUNITY HEATING

A site-wide district heating system will be provided to serve all apartments and townhouses on the development as well as the non-domestic uses. This is to be designed with a low temperature distribution system to allow the economic operation of CHP and Renewable Energy. Consideration has been given to the future connection of the site to a Borough-wide or local district heating system and the energy centre should be designed to accept a variety of fuel sources in the future e.g. access provided for a solid fuel delivery lorry.

RENEWABLE ENERGY AND CHP

Once the energy efficiency standards have been applied, the development's residual carbon dioxide emissions must be reduced by at least 20% through on-site renewable energy and CHP. When calculating the carbon emissions baseline for the development, the following domestic energy uses have been included:

Energy use	Calculation
Space heating	SAP 2005
Domestic hot water	SAP 2005
Fans and pumps	SAP 2005
Lighting	SAP 2005
Electrical appliances	BREDEM-12
Catering	BREDEM-12

The total energy demand for the non-residential areas has been estimated using benchmark data in the London Renewables Toolkit as well as by an alternative approved method.

A preliminary feasibility study has been undertaken to determine the viability of achieving this standard with various technologies.

Centralised gas-fired CHP and heat driven absorption cooling has been considered as a means of contributing to the 20% carbon emissions reduction standard but is not considered as renewable energy. The potential for specialist design, build, finance and operation of this type of system via an Energy Services Company (ESCo) has been explored, ensuring that this does not compromise the ability to achieve the minimum renewable energy generation requirements of the London Borough of Greenwich and the GLA.

The density of the development prevents the use of large stand-alone wind turbines but small urban wind turbines have been considered to generate a proportion of the target either integrated with the buildings or as part of renewable street infrastructure e.g. combined wind and solar street lighting. The siting and design of any such turbines has considered the potential hazard that they can pose to birds and bats, based on the latest and emerging research on this subject.

The massing of the development allows good solar access to all roof areas. However there is a potential space conflict between solar renewables, habitable roofscape, and amenity green roof area which still needs to be considered carefully. If Photovoltaic Panels are used, these will be integrated with the green roofs to provide the double benefit of increased solar panel efficiency (through evapotranspirative cooling - figures of 15% have been obtained for sites in Switzerland) and the increase in niches available for different species of flora and fauna.

The site currently has two boreholes which have been used for abstraction and recharge and could be used for both heating and cooling to reduce the development's carbon dioxide emissions by around 5%. Additional boreholes may be possible subject to Environment Agency approval along with closed-loop heat pump systems.

Biomass CHP or heating or a combination of biomass and the use of the existing borehole for Ground Source Heating and Cooling are considered to be cost effective methods of achieving the required standard subject to a more detailed technical feasibility analysis. A 100kWe Biomass CHP unit is available commercially and could contribute 15%. The use of the existing boreholes for heating and cooling could contribute the remaining 5%. The developer is free to consider other options provided that they are technically and financially deliverable.

RECOMMENDATION

The following sustainable energy measures are considered to be appropriate for this project and when combined enable the achievement of the above standards:

	Measure	Detail
BUILDING FABRIC	Insulation levels	Wall U-value of 0.2W/m2K, roof U-value of 0.11W/m2K , floor U-value of 0.15W/m2K
	Air-tightness	5m3/m2/hr at 50Pa
	Glazing	Double glazed argon filled U-value 1.5W/m2K with air infiltration performance of < 2m3/m/h at 300 Pa
	Daylight	Room depths limited to 7m
MECHANICAL AND ELECTRICAL SERVICES	Improved boiler efficiency	Communal heating via central plant room and heat main distribution equivalent to SEDBUK A-rated condensing boiler (92% efficient)
	Low energy lighting	100% fixed low energy light fittings
	Aerating or flow restrictor taps	Lower annual hot water demand from water saving measure e.g. monoblock taps with 1.7 litre spray inserts
	Shower flow rate 12l/ min	Lower annual hot water demand from water saving measure using flow restrictor fitted to shower hose or supply pipework
	Waste water heat recovery	Recovery of heat from shower water via heat exchange coil around drainage pipe. 25% of heat lost in-use and 60% of remaining heat recovered as hot water pre-heat
APPLIANCES	Fridge freezer	A+ rating under the EU Energy Efficiency Labelling Scheme
	Dishwasher	A rating under the EU Energy Efficiency Labelling Scheme
	Washer dryer	B rating under the EU Energy Efficiency Labelling Scheme
RENEWABLE ENERGY	Biomass boiler or CHP	Lead biomass boiler or CHP as part of communal heating system sized to achieve 15% carbon emissions reduction
	Ground Source Heating and Cooling	Use of existing boreholes for open loop ground source heating and cooling system to achieve 5% carbon emissions reduction
	Green tariff	Initial sign-up of all apartments to a green electricity provider

BREDEM-12 Model Description. 2001 update (BRE, January 2002)
Integrating renewable energy into new developments: Toolkit for planners, developers and consultants (London Energy Partnership, September 2004)

5.9.2 CONSTRUCTION WASTE

Waste during the construction process must be minimised both through design and through good site practice

Designs have been developed where possible to avoid and minimise waste during the construction phase.

- For example by modular design, with module sizes selected to reduce waste.
- The developer will be required to submit Waste Management Plans with their bids, together with suggestions they may have to avoid waste and increase the recycled content of the buildings.

Waste generation targets for the construction phase are as follows:

	STANDARD	MEASURES TO ACHIEVE
CONSTRUCTION MAXIMUM LANDFILLED		
KPI	35m3/£100k of project value	Design for waste minimisation. Best practice Site Waste Management Plan. Minimise over ordering and damaged goods. Negotiate take-back for packaging. Best practice materials segregation
EPI	14m3/100m2 of built area	

The Heart of East Greenwich Design Team has secured funding for assistance with materials reclamation and can offer the following to the selected developer at no fee:

· Meet with the design team at an early stage to identify potential reclaimed materials that can be readily sourced. Provide advice on the technical feasibility and the relative costs and environmental savings for each material. Advise on procedures for using reclaimed materials.

· Work constructively with the design team as the design progresses to bring suggestions of reclaimed materials to the table.

· Identify appropriate demolition projects and salvage operations from where reclaimed materials can be sourced for the project.

· Identify specific suitable available materials for the team to consider.

· Offer costed proposals for procuring approved materials - i.e. any material, haulage or reprocessing costs.

· Where appropriate, arrange visits for the project team, contractor and sub-contractors to inspect proposed materials prior to extraction.

· Evaluate the environmental benefits of specific proposed reclaimed materials compared with the new alternative in terms of embodied CO_2 or ecofootprint.

· Assist in the management the procurement of all approved materials

RECOMMENDATION

In order to achieve the standard, the developer will need to commit to the following:

- All contracts and briefs to require a commitment to water minimisation, reclamation and recycling and adoption of the site waste management plan
- Ensure that appointed senior managers in all companies involved have responsibilities for waste minimisation
- Set minimum reporting standards for recording waste quantities generated (recommend using the BRE SMARTWaste system)
- Follow best practice in staff training and communication on waste management, including contractors and subcontractors
- Avoid import or export of fill, where possible
- Design reclaimed and recycled materials into the new build where possible
- Require that the design consultants design for waste minimisation and also for deconstruction
- Design to use standard repeated sizes to reduce offcuts
- Demand and assess Site Waste Management Plans from demolition contractors and main contractors as part of the tender process
- Work with contractors to establish take back schemes for packaging and for off-cuts where possible
- Work with contractors to ensure adequate material segregation.

The overall cost of achieving this target should be zero as any investment in staff time and training will be more than recovered through reduced waste disposal costs. Every example in the Envirowise case study book claims overall cost savings.

5.9.3 OPERATIONAL WASTE

With appropriate infrastructure and services provided for residents, it is estimated that average waste arisings per capita may be reduced by 10% and a recycling rate of over 50% could be achieved.

The developer must follow the waste hierarchy when designing the waste management infra-structure and services for Heart of East Greenwich and provide an operational waste management plan:

- Reduce - what information will be given to residents to reduce their waste arisings?
- Re-use - can any services be provided to enable residents to repair and re-use items?
- Recycle - will it be easy for residents to recycle or compost their waste?
- (Recover energy)
- (Landfill)

Apartments usually have lower recycling rates than houses as it is less convenient for residents to recycle if residents have to take their waste to 'bring sites'. Provision of a door-to-door collection service (preferred option) for flats by a green caretaker could address this disparity, or the installation of a system of waste chutes with separate inlets for dry recyclables, organic and residual waste, propelled either by gravity or a vacuum system.

Consideration should also be given to on-site composting, using a system such as the Bokashi Rocket or similar.

Consideration should also be given not just to the physical waste infrastructure required to facilitate collection of recyclables and residual waste, but also to the information and services that could be provided to residents.

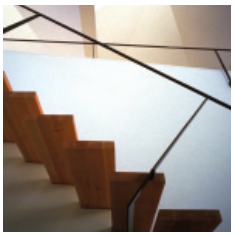
RECOMMENDATION

The developer should discuss options with the London Borough of Greenwich and ensure that any systems proposed have in principle approval based on their experience of specific conditions and practices in the Borough (detailed in the Appendix).

The building and site layout should be developed to encourage the recycling of household waste when suitable collection arrangements are locally available by provision for integrated recycling containers and allowance for on-site composting facilities.

Saving money and raw materials by reducing waste in construction: case studies by Envirowise GG493

http://www.environment-agency.gov.uk/yourenv/eff/1190084/resources_waste/213982/152399/?version=1&lang=_e



5.9.4 MATERIALS

The developer will define and detail their materials procurement principles in their bid, together with their method of compliance/verification.

The use of Life Cycle Assessment techniques is required to select materials. The procurement principles will be required to address the selection and use of materials, the main requirements being to:

- Achieve or exceed the mandatory standards that have been outlined for recycled, reclaimed, and certified materials
- Achieve or exceed the preferred standard outlined for the use of local materials
- Avoid the use of certain specified materials, listed below
- Use only 'A' rated building elements in the Green Guide for Specification, unless there is a very clear reason why not; and
- Calculate the embodied energy for the development

Standard	Strategies	Environmental benefits
30% of materials (by value) to be from reclaimed or recycled sources	Recycled fill material using the following materials either reclaimed or with a higher than standard recycled content: ▪ Concrete, ▪ insulation, ▪ plasterboard, ▪ bricks, (or reclaimed) ▪ blocks, ▪ roof tiles, (or reclaimed) ▪ particleboard, ▪ reclaimed timber	▪ Reduces the embodied energy of construction ▪ Reduces the exploitation of virgin materials. ▪ Use of reclaimed materials is especially beneficial and can give an end result that is more in keeping with the local vernacular
80% of all non reclaimed timber to be certified (by volume or value)	Following timber certified: ▪ Main building elements certified (studwork, beams, joists etc) ▪ All plywood ▪ All non recycled boarding materials ▪ some finishing elements (doors, stairs, banisters or even windows)	▪ Prevents exploitation of fragile ecosystems ▪ Promotes sustainable and socially responsible forestry ▪ Ensures that the product is from a legal source
40% of materials (by weight) from within 30 miles	The following materials sourced locally: ▪ All fill material ▪ Concrete ▪ Local reclaimed timber ▪ Any reclaimed steel or reclaimed materials in landscaping that can be identified	▪ Reduces the embodied energy of construction ▪ Can reduce packaging ▪ Reduction in freight transport has wide benefits; less pollution, road damage, noise etc

Conventional material	Reason to avoid	Alternatives
Aluminium	Very high embodied energy (~200MJ/kg against 2 for timber, 35 for galvanised steel)	Timber Galvanised steel
PVC windows PVC wiring	PVC has a high embodied energy (80MJ/kg) its raw material is non renewable and its manufacture and disposal have significant health impacts (cancer, hormone disruption)	Timber framed windows Non-halogenated cabling
Conventional paints	Relatively high embodied energy (60MJ/kg) and the volatile organic compound (VOCs) have significant health impacts	Low, no VOC paints Natural paints
Chipboard	Most boards use toxic binding resins though alternatives are beginning to appear. Much of the timber content originates from non-sustainable sources.	Low formaldehyde chipboard Tongue and groove

RECOMMENDATION

A preliminary list of local suppliers and suppliers of materials with recycled content is provided in the Appendix

5.9.5 WATER

The developer's proposals are required to show a rational approach to the minimisation of water consumption and the use of rainwater harvesting and storage and water recycling to be incorporated into a site-wide Sustainable Urban Drainage System (SUDS).

The standard to be achieved for domestic internal potable water consumption is <32m3/bedspace/year, achieving 5 EcoHomes credits under Wat1. This has been set in the context of the climate change patterns and predictions for the South-east of England/London and the likely increasing frequency of hose-pipe and landscape irrigation bans which the developer should be aware of.

Particular consideration should be given to the synergies between water consumption reduction, energy for water distribution and hot water production, storage for water recycling systems, SUDS water attenuation systems, and sprinkler systems.

RECOMMENDATION

The following measures have been selected as most appropriate for achieving the required standard:

Water fitting	Recommended measure	Potable water consumption (m3/bedspace/year)
WC	4.5l or 6/3l WCs with siphon flush Combined rain water and grey water recycling used to flush toilets	6*
wash hand basin	Aerating or flow restrictor	2
Shower	Flow restrictors: max. flow rate: 12 l/min	9
Bath	Standard	2
Kitchen sink	No dishwasher or best practice dishwasher	4
Washing machine	Typical practice	7
Dish washer	Typical practice	2

* This is an average across the development assuming that at least 40% of WCs use supplied by rain and grey water systems

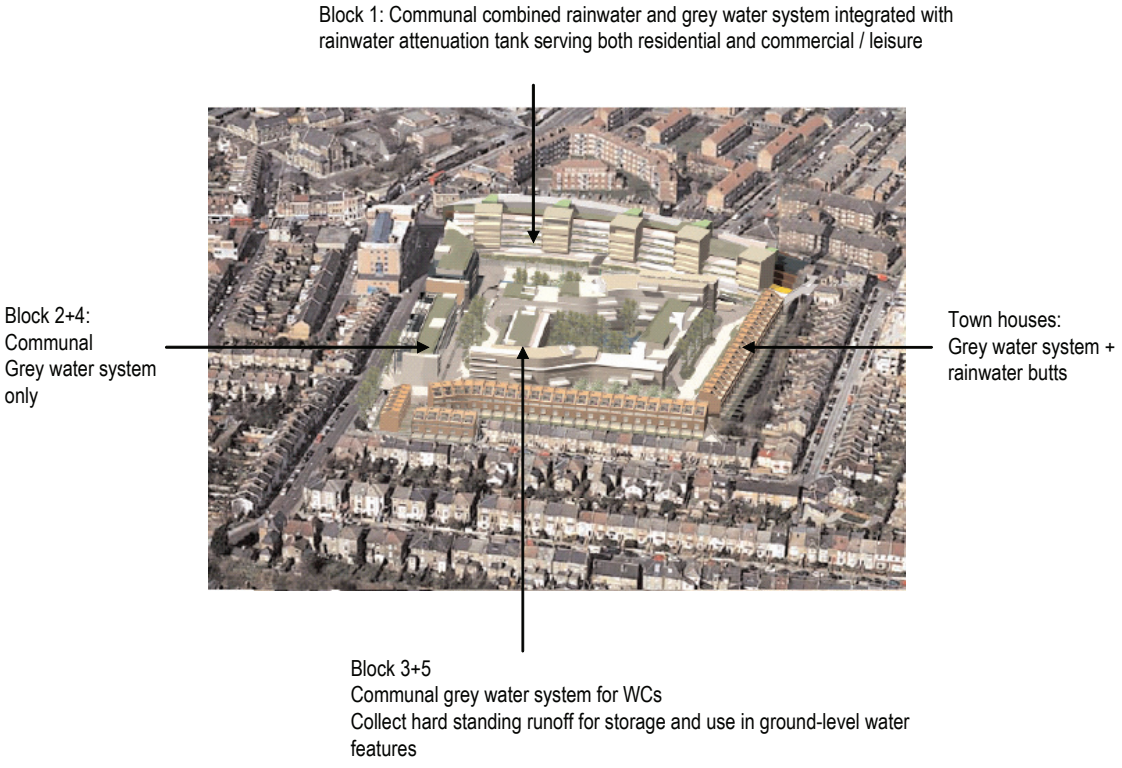
The strategy for on-site water recycling is shown in the figure below. This has been developed in combination with the landscape and architectural illustrative masterplan with respect to the combination of land uses within blocks and the allocation of green roofs.

Block 1 represents the greatest potential for the economic incorporation of water recycling measures as the rain water and non-vehicular accessible hard landscape run-off can be combined with the apartment grey water and re-used within the lower floor commercial areas (the Leisure Centre in particular) avoiding the need for lengthy supply pipework. This is to be combined with the site's rain water attenuation system to benefit from the economies of a shared system. The green roof percentage has been limited to 30% for this block so as not to compromise the availability of rain water.

A higher green roof percentage of 80% has been allocated for Blocks 2-5 as the apartments will generate sufficient grey water to achieve the water recycling standard without the need for the additional collection of rain water.

It is proposed that some of the rain water run-off from the apartments around the central courtyard and the hard landscape run-off within the courtyard itself are used to top-up the ground-level water features and for landscape watering. This should provide some storage for dry periods when it will be important to maintain levels within the water features in order to sustain the associated biodiversity.

Rain water collection butts should be provided for the townhouses for garden watering. Individual dwelling grey water systems are available and may be considered as a means of achieving the water consumption standard on a site-wide basis although priority is expected to be given to communal recycling systems for the apartment blocks due to economies of scale.



5.9.6 SUSTAINING THE DEVELOPMENT

Sustainable development has become a much used (and abused) term, and is used in so many contexts that we often lose sight of what it actually means. Ecological footprinting is a tool that can be used to measure the impact of our infrastructure and lifestyles. WWF's Living Planet Report, published every two years provides a snapshot of each country's ecological footprint against global biocapacity. Comparing the UK's ecological footprint to a "fair share", i.e. global biocapacity divided by global population suggests that if everyone in the world were to consume resources and produce waste on the scale of the average person in the UK, we would need three planets to support us.

The breakdown of the average Londoner's footprint can be seen below :

Materials & waste	44%
Food	41%
Energy	10%
Transport	5%
Degraded land	0.7%
Water	0.3%
Total	100%

The developer should consider how strategies to reduce environmental impact will be maintained over time, through facilities management and estates management functions. Some of these activities may be included within the job description of a concierge or green caretaker role:

- Facilitate internet ordering with collection points and storage for deliveries with communal internet access for those without a computer
- Door to door recycling / compost collection
- Educational role – both ongoing with tenants and links to local schools and colleges
- Information and access to green products (low energy light fittings, natural paints, etc...)
- Establishing community services, e.g. access to nappy laundry services
- Landscape management
- Information about local public transport

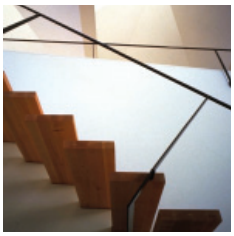
For further information about the types of services and activities that could be provided see Sustainable Facility Management , published by BioRegional.

TRANSPORT

The illustrative masterplan proposes the following sustainable transport measures:

- Car clubs, to provide access to vehicles without the hassle and cost of owning one, and potentially allow up to 20 users to share a vehicle. In 2005, the London Borough of Greenwich selected StreetCar (www.mystreetcar.co.uk) as its current preferred operator and provided 8 bays at four sites across the Borough. There are alternative commercial car club operators that could provide a service (see www.carplus.org.uk).
- Encourage use of alternative fuels through provision of electric vehicle charging points and information about biodiesel or LPG provided on a community intranet or noticeboard
- Use Home Zone design to control access to housing areas to reduce risk for children, pedestrians and cyclists
- Ensure good links with and information about local public transport

Best Foot Forward (2002) City Limits: A resource flow and ecological footprint analysis of Greater London



FOOD

In London, 41% of the average resident's ecological footprint relates to food, some 80% being imported from overseas.

The developer should consider ways in which they can enable residents to reduce the environmental impact of food.

Reducing the impact of food can be achieved by providing opportunities to grow food on-site and promoting local, seasonal and organic food. The convenience food sector has grown by 70% over the past ten years (Mintel research) and basic culinary skills have been lost among some younger generations, engendering a "can't cook won't cook cycle". As well as providing access to sustainable food, it is necessary to stimulate an interest in it.

Development of a sustainable food strategy will include the following:

Growing food:

- Edible landscaping with fruit and nut trees planted and perennial herbs in borders (the University of Greenwich are leaders in the theory of 'food in the landscape'
- Provision of mini-allotments or a community garden for use by residents
- Roof terraces, balconies, even window boxes all provide an ideal environment for growing herbs, summer salad leaves and tomatoes.

Access to sustainable food:

- Provide information on local organic vegetable box schemes and links to local farmers. Orders and deliveries could be co-ordinated by a green caretaker or residents.
- Consider a farmer's stall on-site, selling fresh local produce, co-ordinated with the local successful farmers' market in East Greenwich

Promote skills and interest in sustainable food:

- Provide information and links to seasonal recipes on a community intranet or noticeboard
- Consider workshops and demonstrations to provide an introduction to new foods and recipe ideas for residents (cf. Jamie Oliver's School Dinners effect)
- Hold food events which can offer a fun way for people to meet their neighbours and try out seasonal products.

http://www.bioregional.com/programme_projects/opl_prog/zsquared/Sustainable%20FM%20report%20(06.03.21)%20%20-%20FINAL.pdf