

# Sustainable Residential Quality

## Exploring the Housing Potential of Large Sites



Llewelyn-Davies

**Sustainable Residential Quality**  
Exploring the Housing Potential  
of Large Sites

*Llewelyn-Davies*

in association with  
Urban Investment  
Metropolitan Transport Research Unit

January 2000

## **Acknowledgements**

The study team would like to thank the Steering Group for their help, support and guidance throughout the study, and acknowledge the particular insights provided by the expert panel which was formed to advise the study.

### **Steering Group**

The Steering Group was chaired by John Lett of LPAC and included:

Debbie McMullen LPAC

Jeni Fender LPAC

Jennifer Walters LPAC

Tony Thompson Government Office for London

Samantha Scougall Government Office for London

Peter Livermore London Transport

Dave Norris Housing Corporation

Duncan Bowie Housing Corporation

### **Expert Panel**

Professor Kelvin McDonald Director, National Housing and Town Planning Council

Martin Jewell Planning Director, Fairview Homes

Jeremy Peter Land and Planning Officer, House Builders Federation

John MacFarlane Development Manager, Circle Thirty Three Housing Trust Ltd

Paul Finch Editor, Architects Journal

Clare Chettle Head of Development, East Thames Housing Group

Paul Cooke Development Director, Laing Partnership Housing

### **Llewelyn-Davies Study Team**

Study Director

Dr Patrick Clarke

Study Managers

Andrew Bayne and  
Christina von Borcke

Urban Design

Neil Parkyn  
Christina von Borcke  
Paul Drew

Harini Septiana  
Alan Simpson

Planning Policy

Arja Lehtimaki  
Iona Cameron

### **Transport**

Keith Buchan (MTRU)

Chris Wood (MTRU)

### **Housing Development Advice**

John Goulding (Urban Investment)

### **Graphics and Production**

Bally Meeda

Christina von Borcke

Edmund Whitehouse

Helen Brunger

### **Perspectives**

Richard Carman

# Contents

	<b>List of Figures</b>	<b>IV</b>		<b>Part III Conclusions &amp; Implications for Policy &amp; Practice</b>	<b>109</b>
	<b>Study Overview</b>	<b>V</b>			
<b>1.</b>	<b>Setting the Scene</b>	<b>1</b>	<b>7.</b>	<b>Conclusions and Implications for Policy and Practice</b>	<b>111</b>
1.1	Background	1	7.1	Introduction	111
1.2	Earlier studies of Sustainable Residential Quality	1	7.2	Planning and design principles for large sites	111
1.3	Densities in London - an historic perspective	1	7.3	A framework for assessing the potential of large sites	113
1.4	The evolving planning policy context	5	7.4	Implications for affordable housing provision	115
1.5	Objectives of this study	8			
1.6	Study approach	8			
1.7	Report structure	9			
1.8	A disclaimer	9			
				<b>Appendices</b>	
<b>Part I</b>	<b>Estimating the Potential for Large Sites</b>	<b>11</b>	<b>Appendix I:</b>	Tile Sheets for 24 Case Study Sites	
<b>2.</b>	<b>Characteristics of Large Housing Sites</b>	<b>13</b>	<b>Appendix II:</b>	Key Design Principles: Sustainable Residential Quality: new approaches to urban living	
2.1	Introduction	13	<b>Appendix III:</b>	Key Elements of Development Appraisal	
2.2	Setting the sample framework	13	<b>Appendix IV:</b>	Habitable Rooms to Dwellings Conversion Factors	
2.3	Key site characteristics	14	<b>Appendix V:</b>	Bibliography	
<b>3.</b>	<b>Generic London Housing Types</b>	<b>17</b>			
3.1	Introduction	17			
3.2	Introducing the modular approach	17			
3.3	The generic housing types	18			
<b>4.</b>	<b>Developing a Density Matrix for Large Sites</b>	<b>39</b>			
4.1	Introduction	39			
4.2	Method and approach	40			
4.3	Conclusions	46			
<b>Part II</b>	<b>Realising the Potential of Large Sites</b>	<b>49</b>			
<b>5.</b>	<b>Principles of a Design-led Approach to Large Sites</b>	<b>51</b>			
5.1	Introduction	51			
5.2	Key principles	51			
5.3	Strategic urban design principles	52			
5.4	Design principles for sustainable movement	59			
5.5	Establishing a positive and creative planning and development process	62			
<b>6.</b>	<b>Design Case Studies</b>	<b>65</b>			
6.1	Introduction to the case studies	65			
6.2.	A disclaimer	66			
	Detailed Case Study 1	67			
	Detailed Case Study 2	75			
	Detailed Case Study 3	85			
	Detailed Case Study 4	95			
6.3	Case study conclusions	105			

## List of Figures

1.1	Historic Densities and Environmental Quality of London's Residential Environment	4
1.2	Milestones in the Development of Planning Policy for Sustainable Residential Quality, 1990 - 1999	6
<b>Part I Estimating the Potential of Large Sites</b>		
2.1	Distribution of Large Sample Sites	14
2.2	Distribution of 24 Case Study Sites	15
2.3	Characteristics of 24 Case Study Sites	16
4.1	SRQ I Matrix	40
4.2	Tiling Methodology	41
4.3	Location of Case Studies	42
4.4	Setting of Case Studies	42
4.5	Location/Setting of Case Studies	42
4.6	Tile Compatibility	43
4.7	Case Study 1 - Tile Application	44
4.8	Summary of Achieved Densities for 24 Case Study Sites	47
4.9	Density Matrix for Large and Small Sites	48
<b>Part II Realising the Potential of Large Sites</b>		
5.1	Individual Scores for Accessibility to Facilities and Public Transport	60
5.2	Combined Accessibility Score	60
6.1	Comparison of Densities	108
<b>Part III Conclusions &amp; Implications for Policy &amp; Practice</b>		
7.1	Density Matrix for Large and Small Sites	114

### Appendices

III.1	Key Aspects of Development Appraisals	
IV.1	Habitable Rooms per Dwellings for Different Locations and Settings	
IV.2	Conversion of Density Matrix to Units per Hectare	

# STUDY OVERVIEW

## Background

Large sites are an important strategic resource. As well as meeting community needs for housing, employment and leisure they provide the opportunity to stimulate area regeneration, to support the development of more sustainable modes of transport and to improve the range and quality of facilities available to local people.

The development of large sites must therefore be planned with care: as fully integrated urban neighbourhoods catering for people of different ages and income groups and well supported by public transport and local facilities.

This study seeks to extend the application of the Sustainable Residential Quality approach, developed initially in relation to small town centre sites, to large sites across London. Its main focus is on establishing a strategic context for exploring the housing potential of large sites. In particular it seeks to forge more effective linkages between:

- good quality urban design;
- accessibility to public transport, local facilities and car parking requirements; and
- housing capacity.

It is essentially concerned to extend Londoners' housing choices and to secure a high standard of residential amenity.

## Main study findings

The main study findings are to do with urban capacity, residential quality and housing choice. The study concludes that:

- There is potential to significantly increase residential densities and at the same time improve the environmental quality of new residential development. This can be achieved through a creative design-led approach which responds to the particular characteristics of a site, its surroundings and the needs of future residents.
- The approach achieves both increased density and improved quality because the objective of quality is addressed through design rather than by applying general planning standards. These are not only insensitive to the different character of places and the range of different types of housing required; they are also wasteful of space.
- In particular the approach seeks to ensure that the amount of space required for roads and car parking is kept to the minimum necessary taking account of non-car accessibility. Replacing conventional road hierarchies with layouts based on more traditional perimeter block structures also brings a range of qualitative benefits. For example:
  - ensuring a continuity to the fronts and backs of dwellings;
  - supporting safe and secure streets;
  - providing a legible urban form; and
  - allowing for convenient and direct pedestrian movement across and through sites.

- The recommended approach is consistent with the need to provide a range of housing choice and to meet the community's requirement for affordable housing. Specifically, it need not imply a return to high rise housing or a departure from well established and popular housing forms.
- Even on suburban sites, net development densities of 250 HRH (c. 50 dwellings per hectare) can be achieved with mix of terraced, semi-detached and detached houses with gardens. Widening the choice to include apartments with a mix of private and communal open space, can increase densities to between 300 and 400 HRH ( c. 115 dwellings per hectare).
- On more urban sites densities of up to three to four times LPAC's current density maxima (i.e. up to 1,100 HRH) can be achieved subject to a high level of accessibility to public transport and facilities, a strong existing built context and a high quality of design.
- A new policy approach to density is required which reflects this very wide range of appropriate densities and which seeks to optimise the housing potential of sites with a high level of accessibility to public transport and facilities. This should provide for net residential densities of between 150 and 1,100 Habitable Rooms to the Hectare. This range should be calibrated in relation to pedestrian accessibility to public transport and facilities, but must also be sensitive to differences in the established character of places.
- **Design principles:** UDP's should give greater emphasis to the principles of good design and place making. Planning briefs and design statements should be required as part of submissions for planning permission.
- **Access to facilities and public transport:** a new approach is required to evaluate a site's accessibility to local facilities and public transport. This should provide the basis for determining the appropriate level of car parking, as well as for identifying measures to facilitate greater walking, cycling and public transport use. Improvements to non car access should be rewarded with increased densities and reduced requirements for parking.
- **The walking environment:** much greater emphasis must be given to the potential of walking as the base mode of access to local facilities and to public transport networks. This means greater attention to establishing safe and direct walking routes through new development areas and to improving the quality of the walking environment generally.
- **Integrating public transport into new development:** the development of large sites can provide opportunities for new or enhanced bus services. The opportunities, particularly for new or re-routed services through sites, must be identified early in the planning process so that the needs of buses and passengers are built into the design from the outset.
- **Social inclusion:** large sites must be planned as fully integrated neighbourhoods catering for people of different ages and income groups. The creation of separate enclaves of 'executive,' general market and affordable housing should be resisted.
- **Affordable housing:** the SRQ approach can contribute to meeting affordable housing needs, but requirements for different dwelling types must be matched carefully to the potential of sites taking account of location and the established urban grain.
- **Community facilities:** large sites can contribute to improving the range and quality of community facilities, but requirements for new provision should be based on analysis of existing facilities in the

## More detailed implications for policy and practice

The study points to the need for changes to conventional policy and practice approaches if the benefits of an SRQ approach are to be realised. The main implications are as follows.

- **Urban design and architecture:** Developers must invest more in design to achieve high quality development at higher densities. This means less reliance on standard types and greater freedom for designers to respond to the potential of individual sites.

surrounding area. Development contributions to the improvement of existing facilities may be preferable to new provision.

- **The culture of planning and development:** Boroughs and developers must work together with other stakeholders to achieve high quality development. Boroughs should consider establishing development enabling teams to help bring forward significant projects.
- **Design and development skills:** Boroughs need to develop a stronger design capability as well as a better appreciation of market and development processes. Training programmes, secondments and recruitment of specialist staff will need to be promoted and resourced.

## About the study

The study was commissioned in December 1998 by the London Planning Advisory Committee together with the Department of the Environment, Transport and the Regions, the Government Office for London, London Transport and the Housing Corporation.

The study was undertaken by a team led by planning and design consultants Llewelyn-Davies and including specialist inputs from the Metropolitan Transport Research Unit and Urban Investment.



# 1 Setting the Scene

## 1.1 Background

This is the Report of the study of Sustainable Residential Quality III: Exploring the Housing Potential of Large Sites. The study was commissioned in December 1998 by a client group led by the London Planning Advisory Committee (LPAC) and including the Department of the Environment, Transport and the Regions (DETR), the Government Office for London (GOL), London Transport and the Housing Corporation. The study was undertaken by a consultancy team led by Llewelyn-Davies and including Urban Investment and the Metropolitan Transport Research Unit (MTRU).

The study is the latest in a long line of LPAC projects concerned with optimising London's housing capacity while maintaining and enhancing the quality of the urban environment and fostering more sustainable patterns of urban living. Earlier studies have included:

- The Quality of London's Residential Environment (1994);
- Offices to Other Uses (1997);
- Possible Future Sources of Large Housing Sites in London (1998);
- Dwellings Over and In Shops (1998); and
- One-Person Households and London's Housing Requirements (1998).

## 1.2 Earlier studies of Sustainable Residential Quality

In particular, this study builds on two earlier studies of Sustainable Residential Quality. The first of these Sustainable Residential Quality: new approaches to urban

living (SRQ I 1998) highlighted the potential for higher density well designed housing on vacant, derelict and under-used land in the "ped-sheds" around London's network of town centres. The study illustrated how a site specific "design-led" approach could achieve more intensive forms of urban housing than are possible under current UDP policies and standards, while maintaining a high standard of design and amenity.

A series of 50 design case studies provided the basis for a Density, Location and Parking Matrix indicating a series of different density ranges appropriate to sites with different levels of accessibility to public transport and local facilities. This Matrix was subsequently incorporated into LPAC's Interim Advice on Sustainable Residential Quality. At present this Matrix relates only to small sites of up to 1 ha (0.5ha in Inner London).

The second study Sustainable Residential Quality II provided a short summary describing the principles of the SRQ approach (1998) and an Approach and Method Statement (1999), setting out a step by step guide to help London Boroughs in applying the SRQ approach to identifying the potential of small (up to 1ha) ped-shed sites.

## 1.3 Densities in London - an historic perspective

### Introduction

In any comprehensive review of this kind, it is useful to set the subject of study within a wider, historical perspective, not only as a means of validating current assumptions but also because any residential prototypes (such as those illustrated in Chapter 3) in a city such as London

ought to acknowledge past patterns of development and relevant historical lessons.

### **Historic Approaches to Density Measurement**

Discussions of urban density in London have tended to focus upon the concept of 'net residential density' and were expressed initially in terms of persons per hectare (ppH). The LCC's 1943 County of London Plan, for example, identified three density zones. The Outer Zone was averaged at 240 ppH; the Intermediate Zone was averaged at 336 ppH while the Inner (core) Zone rose to an average of 494 ppH. Such simplistic patterns of concentric density bands were a familiar feature of post-war redevelopment strategies across Europe.

The Greater London Development Plan adopted the measurement of Habitable Rooms to the Hectare (HRH), but established the London wide density maxima at the lower end of the ranges set in the 1943 County of London Plan, i.e. 125-250 HRH (equating to 50-100 habitable rooms to the acre). It is this range which has been carried through into LPAC's Strategic Advice and the UDP's of the London Boroughs.

### **Historical Perceptions of Density**

This policy of limiting residential densities reflected deep seated perceptions that higher density housing was synonymous with overcrowded and unsanitary living conditions. Indeed in literature, politics and social commentary of London through its recent history runs a continuous theme of opposition, even escape, from what the metropolis is believed to present as an undesirable environment for its residents. As Donald Olsen wrote in his "The Growth of Victorian London" (1976)

*"The eighteenth-century country house, the nineteenth-century suburban villa and the twentieth-century New Town reflect the conscious decisions of their builders to create an environment as different as possible from the metropolis. The distrust of London, or what London was thought to represent, is not confined to the Cobbetts and Ruskins and Howards and their immediate followers, but is shared by the inarticulate multitudes as well".*

Such sentiments underlie many of the periods of London's urban development in the 19th and early 20th century, when the emerging middle classes aspired to a single family "house on the ground", however dimensionally constrained. To generations of clerks such as H G Wells' Mr Polly of Lewisham the house was a potent symbol of escape from tenemental life and a mark of personal progress and success.

Yet much of the attraction for households in London lay in the sheer variety of opportunities and diversions available, not only to residents of the long-established inner districts but also open to those living in the emerging outer suburbs, accessed by fast-improving, high capacity public transport. These opportunities are contrasted, again by Olsen with those available in the hybrid Garden Cities and today's New Towns.

*"Their failure to establish themselves as the standard environment of our time, while dormitory suburbs multiply, suggests that even today people who can choose, prefer the artificialities of Golders Green and the banalities of Chalcots to the more moral and bracing atmosphere of Welwyn and Crawley." (Olsen ibid)*

Nonetheless contemporary commentators tended to associate, without question but with some emotive evidence, multi-family tenements with cramped and unsanitary conditions. The form itself became tainted by association, whereas architects such as John Nash had demonstrated that the shared dwelling could achieve high levels of elegance and decorum.

### **Challenging Established Perceptions of Density**

While most politicians and practitioners would endorse Ebenezer Howard's maxim "Nothing gained by overcrowding", there is now a considerable body of research into sustainable urban environments at higher densities, beginning with the pioneering studies undertaken by the Martin Centre at Cambridge University in the late 1960s. These demonstrated that successful residential quarters could be designed at densities within the LCC's 'Intermediate' zone (and higher) with most if not all dwellings having private gardens and garages built in, yet with the prevailing building height remaining at three storeys or lower.

A series of innovative public housing schemes for such Boroughs as Islington and Camden, from the 1970s onwards, proved that the Martin Centre's theoretical calculations could be fully realised in practice with typical outcomes in density terms of between 310 to 390 ppH without loss of privacy, amenity or compromising housing mix and choice. What these successful projects also demonstrated was that their site planning and detailed design generally required a higher standard of professional performance and a greater confidence on the part of the Councils which commissioned them, certainly compared to standard housebuilder's products of the same period.

Arguments for and against the adoption of higher densities for urban sites are often clouded by misconceptions over the characteristics of the main building typologies available. Despite the evidence of the Cambridge researchers that identical numbers of residents could be accommodated either in terraced houses on the ground or in high-rise blocks to quote the two contrasting extremes the misconception has persisted that high-rise forms of development automatically mean higher densities, while often in practice the plot ratios and dwelling outputs are identical in both cases. The difference lies in the physical form itself and not in the numbers accommodated.

Analysis of the Victorian terraces so typical of London's inner suburbs, prepared by Harley Sherlock and others, reveal that a typical net residential densities for these quarters would be in the order of 385 ppH, assuming contemporary space standards and housing mix. Such a mismatch of planning standards with what are visibly successful pieces of urban fabric, yet which considerably exceed currently permitted net residential densities, has actually led to the progressive depopulation of some quarters of London.

For all their critics, such city-scale residential projects as the Foundling Estate in Bloomsbury have succeeded in matching historical high residential densities but reinterpreted in a contemporary built form and with higher space standards for each resident. Likewise, high density is very often synonymous with high values. The Edwardian mansion blocks of Kensington, the 1930s "moderne" flats of Maida Vale and the standard Victorian terraces of Fulham or Wandsworth achieve net urban densities as high as anything found in Europe, yet without loss of environmental quality.

The root confusion, as Sherlock and others have clearly identified, is between density and intensity. The latter term is usually taken to mean an urban environment perceived as being acceptably dense and vital, while retaining personal amenity, privacy and wellbeing.

Clearly, the general public's perception of which environments are acceptably intense and which are regarded as over-intense will vary widely between individuals. Living in cities is, to a degree, a matter of personal choice or habit. It could be argued that the failure of much recent development to create successful and liveable urban quarters is because they have been built to inappropriately low densities.

## Density & Quality in London: Evidence from Earlier Research

The earlier LPAC/GOL study of *The Quality of London's Residential Environment* (1994) included analysis of 50 residential areas running in a broad east-west transect across London.

While clearly not comprehensive this survey throws useful light on the densities achieved during different periods of London's development, as well as on the relationship between density and environmental quality.

Figure 1.1 which is reproduced from the study shows the 50 case study areas and their respective environmental strengths and weaknesses sorted into four main historic periods.

The analysis shows that the pre 1914 case study areas display by far the highest densities of any period with the exception of the period 1945 - 1979 (where the case studies were dominated by large public estates including high-rise development). Indeed none of the pre 1914 areas had a density of less than 200 Habitable Rooms to the Hectare (HRH) and five had densities of between 420 and 830 HRH. Interestingly this range of densities is very broad in comparison to later periods and in particular to the post 1980 case studies.

The average density for the inter-war case study areas was less than half the pre-war average (i.e 172 HRH compared to 380 HRH) reflecting the substantial suburban expansion of the period. The range of densities was also more limited with most of the case study areas varying within a narrow band of between 100 and 170 HRH.

Densities for the post 1980 case studies were higher than the inter-war average at 215 HRH but were clearly influenced by strategic density policies. Indeed, of the 15 case study areas, only four had densities outside the established GLDP/LPAC range of 125-250 HRH and almost half lay within the 175-225 HRH range.

Figure 1.1 also highlights some interesting changes in the pattern of environmental strengths and weaknesses over time. For example, the pre 1919 environments consistently scored well in terms of landscape quality, architectural character, visual cohesion and quietness, but (as one would expect) scored badly in terms of the convenience of car parking.



Some of these positive themes were also associated with inter-war case study areas, particularly in terms of the degree of visual cohesion, privacy and quietness. But in addition neighbourhoods of this period were also identified as having a high degree of legibility and spaciousness.

The picture of strengths and weaknesses for the post 1980 case studies was more mixed. While the study identified a number of recurrent strengths including landscaping, architectural character and privacy as well as convenient parking, it also highlighted a number of consistent weaknesses which undermined environmental quality. These included poor layout and a low quality of public realm, a lack of visual cohesion as well as poor relationships to the surrounding context.

Above all the analysis of the 50 case study areas demonstrated that environmental quality and development density are not related. Indeed as the photographs opposite indicate the study shows that some of London's most desirable and enduring residential environments were built at densities well above those set by today's UDP policies.

1.4

## The evolving planning policy context

Against this historic context, the Sustainable Residential Quality studies have contributed to a series of important developments in the national planning policy approach to new residential development. This has been forged in response to the need to accommodate the substantial household growth indicated by the Government's 1992 based household projections and by the international commitment to plan for sustainable development.

Figure 1.2 highlights some of the key milestones in the development of planning policy and practice towards the planning of new residential development and the assessment of urban housing potential.

Of particular importance to the SRQ studies was the Government's response to the debate on household growth "Planning for the Communities of the Future". This key Policy Statement commended the SRQ study as showing *"how combining an innovative design-led approach to building new homes with a more flexible approach to planning policy, particularly density and car parking standards, can unlock the full potential of sites for housing which the blanket application of standards often prevents"* (Cm 3885 para.77).

**Clanricarde Gardens, Kensington & Chelsea  
1067HRH (834 gross)**



**Tredegar Square, Tower Hamlets 412 HRH (225 gross)**



**Wakehurst Road, Wandsworth 400 HRH (267 gross)**



**Woodgrange Estate, Newham 307 HRH**



**Figure 1.2: Milestones in the Development of Planning Policy for Sustainable Residential Quality**

Year	Central Government	Other Key Events	LPAC Policy and Studies
1990-91	<p><b>'This Common Inheritance: Britain's Environmental Strategy'.</b> Renewed interest in planning and a major review of planning policy guidance.</p> <p><b>Town and Country Planning Act 1990/91</b> re-introduces "plan-led" system.</p>	<p>Rio <b>Earth Summit</b> establishes Local Agenda 21 for reduction of green house emissions.</p>	
1994	<p>Revised <b>PPG13</b> advises authorities to:</p> <ul style="list-style-type: none"> <li>• concentrate higher density housing in areas well served by public transport and facilities</li> <li>• reduce or waive the requirement for off-street car parking</li> </ul> <p>Discussion <b>document "Quality in Town and Country"</b> marks a renewed commitment to securing high quality design through the planning system.</p>	<p>Joseph Rowntree Foundation publish <b>"Providing More Homes in Urban Areas"</b> highlighting the potential to make better use of urban land.</p>	<p><b>1994 Strategic Advice</b> published. Recommends integrated approach to density, public transport accessibility, car parking, residential quality, amenity and design</p> <p><b>1994 Housing Capacity Study</b> published.</p> <p><b>"The Quality of London's Residential Environment"</b> demonstrates no relationship between density and quality and highlights the amount of space given over to roads and car parking in new developments.</p> <p><b>"Putting London Back on its Feet"</b> Pedestrian Study published</p>
1995		<p><b>Household Projections</b> indicating an 629,000 increase in London's household population between 1991 and 2016.</p>	
1996	<p>Green Paper <b>"Household Growth: where shall we live?"</b> exploring the issues raised by the household projections.</p>		<p><b>Offices to Other Uses</b> published.</p>
1997	<p><b>PPG1</b> revised to further emphasise the benefits of mixed use development and good design. Authorities advised to allocate "the maximum amount of housing to previously developed sites within urban areas, which have access to a range of transport and other facilities"</p>	<p><b>Review of Urban Capacity Studies</b> published by UK Round Table. Highlights the need to challenge existing planning policies and standards in assessing urban housing capacity</p>	

Year	Central Government	Other Key Events	LPAC Policy and Studies
1998	<p><b>Planning for the Communities of the Future</b> Recognises need for urban capacity studies to test alternative assumptions about density, car parking and road layouts. Commends the SRQ approach.</p> <p><b>Transport White Paper</b> establishes integrated approach to land-use and transport.</p>	<p>DETR publishes <b>Sustainable Development Good Practice Guide</b></p> <p>DETR publishes <b>Places, Streets and Movement</b></p> <p><b>House of Common's Select Committee</b> Housing Inquiry recognises that local authorities must be at the centre of urban regeneration and should "adopt a helpful and imaginative approach to proposals for urban development, particularly in respect of the density, layout and number of car parking spaces they require" (para. 246).</p>	<p><b>Possible Future Sources of Large Scale Housing Land in London</b> published.</p> <p><b>Dwellings over Shops</b> published.</p> <p><b>One Person Households</b> published exploring the housing preferences of one person households, and how they might relate to existing and future housing supply.</p> <p>LPAC publish <b>SRQ I</b> highlighting the potential of a design-led approach to making most of urban sites for housing.</p> <p>SRQ II advised London Boroughs on the approach of SRQ I.</p>
1999	<p>Consultation draft of the revised <b>PPG3</b>. Authorities told to:</p> <ul style="list-style-type: none"> <li>• avoid too much low density development and provide for higher density housing in and around existing centres and close to public transport;</li> <li>• promote improved layouts of development which promote good quality urban design, higher density and which put the needs of people and communities before those of the car.</li> </ul>	<p>Joseph Rowntree Foundation publishes <b>"Sustainable Renewal of Suburban Areas"</b> considering how suburbs could be improved.</p> <p>The <b>Urban Task Force</b> publish their report placing urban design at the forefront of Urban Renaissance.</p>	

This potential to create high quality living environments through imaginative design and reduced provision for off street car parking is developed further in the Consultation Draft of the Revised PPG3 on Housing. This requires local authorities to *"increase the density of development at and immediately around places with good public transport accessibility, such as town, district and local centres, or in public transport corridors"* (para. 39) and to *"revise their parking standards to allow significantly lower levels of parking in all housing developments"* (para. 42).

The Draft Guidance recognises the particular opportunities which exist close to town centres and other places with good access to public transport and facilities. Here it may *"not be possible nor desirable to provide any off-street parking....and where there is on-street parking control, the provision of 'car-free' housing should be encouraged"* (para.44).

These concerns about making efficient use of urban land cannot be considered in isolation from other important objectives. Of particular concern to this study is the effective provision of affordable housing. Here too there continue to be important developments in policy and practice with the emphasis increasingly on the creation of mixed tenure and socially inclusive communities. This raises issues about how best to accommodate affordable housing within private sector led developments and the need to ensure that the housing forms provided are appropriate to local needs.

- Provide guidance on the planning and design principles to be followed in seeking to make the best

## 1.5 Objectives of this study

Against this emerging policy background this study was commissioned to extend the application of the "design-led" SRQ approach to larger sites of over 0.5ha in Inner London and 1ha in Outer London. The specific study objectives are to:

- Provide a framework within which Boroughs can assess the development densities and capacities appropriate to large sites with different locational, physical, market and development characteristics;
- Explore how the SRQ approach might contribute to meeting affordable housing needs, taking account of the requirements for family accommodation and the provision of related facilities;
- Examine the relationships between housing capacity and public transport accessibility, particularly in terms of the potential for improved public transport to contribute increased housing capacity; and

## 1.8 A disclaimer

In undertaking the research we were guided by a Steering Group representing each of the client bodies as well as by an expert panel. We are grateful for their advice and guidance. We were also assisted by many of the London Boroughs in the provision of information on the nature of sites and the local policy contexts.

It is important to point out that the selection of case study sites and the design options explored is the consultants' work alone. It does not imply any endorsement of the local authority, land owners, LPAC, GOL, DETR, the Housing Corporation or London Transport. The design case studies are examples of how innovative, good quality housing development could be achieved. They are not meant to be indicative of how these specific sites should be developed, nor should they be construed as such.

In particular we would stress that the application of the nine generic housing tiles described in Chapter 4 and illustrated in Appendix I was conducted as a desk exercise and did not include detailed site analysis. The appropriate form of development for these sites must emerge from a site specific design-led approach and the generic housing tiles attributed to the sites in Appendix I should be taken as indicative of the density which may be achievable but not necessarily of the built form implied.



**PART I**  
**Estimating the Housing Potential of Large Sites**

**PART I**



## 2 Characteristics of Large Housing Sites

### 2.1 Introduction

The starting point in considering the potential of large housing sites is the nature of the sites themselves. This Chapter examines the main characteristics of the likely future supply of large housing sites. It must be stressed from the outset that the purpose of the analysis is not to provide a definitive analysis of the nature of large sites. Rather it is intended only to ensure that the sample of sites selected for analysis is representative of the sorts of sites which are likely to come forward in future.

### 2.2 Setting the sample framework

The starting point in establishing a sample frame was LPAC's Form 1 (Large Sites (10 or more units gross) and Conversion) Database. This is a composite database holding details of all identified large sites in London. These include those sites:

- identified by the 1994 Housing Capacity Study;
- identified by the Offices to Other Uses Study;
- identified by the Potential Future Sources of Large Scale Housing Land in London;
- identified by Borough UDPs;
- with extant planning permissions as of 1 January 1997 (may include sites completed or started since 1.1.97);
- identified by planning briefs or other guidance, but which have not yet been included in the UDP; and
- not identified above, but which the Borough considers as suitable for housing and wishes to include.

For the purposes of this study, taking into account the Circular 6/98 "Planning and Affordable Housing"

definition of inner and outer London Boroughs for affordable housing purposes, the definition of a large site is:

- "(a) *housing developments of 25 or more dwellings or residential sites of 1 hectare or more, irrespective of the number of dwellings;*
- (b) *in Inner London, housing developments of 15 or more dwellings, or residential sites of 0.5 of a hectare or more, irrespective of the number of dwellings;...*"

For the purposes of analysis a number of categories included on the database were to be discounted:

- sites without planning permission identified in the study "Possible Future Sources of Large Housing Sites in London" (LPAC 1998);
- sites identified in the "Offices to Other Uses Study", unless they were identified in LPAC's 1994 Housing Capacity Study or in the relevant UDP;
- sites which were recorded as under construction, completed or with full planning permission; and
- sites that did not fit the definition of a large site set out in Circular 6/98.

These adjustments reduced the number of eligible sites from nearly 3500 site entries to just under 600. In addition, 139 of these entries included no record of site size, either by area or number of dwellings. From the remaining sample of 434 sites we sought an initial sample of 50 sites to examine large sites in different locations and their physical and policy characteristics. The pattern of the 434 sites by size and location is illustrated in Figure 2.1.

Significantly, it can be seen from Figure 2.1 that almost half (45%) of this sample of large sites are located in the 1-2 hectares size category. Furthermore, it also shows

that despite the perception that Inner London is already heavily developed, 36% of sites over 5 hectares identified in this sample fell within Inner London.

A random sample of 75 was selected and tested in discussion with LPAC and the relevant Boroughs with some sites being discounted and others added. In the end 41 sites were selected as part of the first round sample.

2.3

## Key site characteristics

For each of the 41 sites a short information sheet was completed with the assistance of the relevant Boroughs. This collected basic information on:

- Location (by LPAC's standard sub-sectors);
- Site area;
- Physical characteristics;
- Current, previous and surrounding uses;
- UDP designation and policy position;
- Level of accessibility to public transport and facilities; and
- Local authority expectations for non-residential uses or affordable housing provision.

This was supplemented by planning briefs, where available and a map (1:2500 where possible) of each site.

The key characteristics of the 41 sites can be summarised as follows:

### Inner East

- Most sites flat or with gradual slope, minority with steeper slopes;
- Majority of sites irregularly shaped;
- Majority of sites vacant;
- Most designated for residential use; and
- Public transport accessibility considered poor for most sites.

### Inner West

- Mostly flat or with gradual slopes;
- All sites, except one, were either rectangular or square;
- Majority of sites vacant;
- Majority of sites do not have specific UDP land use designation;
- All sites (with one exception) considered to have good public transport accessibility.

### Outer East

- Mainly flat sites, but one with varying levels;
- A mix of shapes including one long thin site;
- Majority of sites vacant;
- Public transport accessibility fair to good for most sites.

### Outer West

- Even split between flat and sloping sites;
- Most sites are either square or rectangular, but a few are long and thin;
- Some sites in "soft uses" and could be windfall sites;
- Broad range of UDP designations from residential to mixed-use;
- Public transport accessibility good for most sites.

**Figure 2.1: Distribution of Large Sample Sites**

Site Category	1		2		3		4			
	Number of Dwellings		Number of Dwellings		Number of Dwellings		Number of Dwellings			
Site Area (ha)	0.50-0.99		1.00-1.99		2.00-4.99		5.00+		Total	
	No.	(%)	No.	(%)	No.	(%)	No.	(%)	No.	(%)
Inner East	2	3	33	17	17	18	14	18	66	15
Inner West	12	19	31	16	17	18	14	18	74	17
Outer East	18	29	39	20	28	29	27	34	112	26
Outer West	31	49	93	47	34	35	24	30	182	42
Total	63	15	196	45	96	22	79	18	434	100

For the most part, sites had relatively good accessibility to public transport and local facilities, yet surprisingly the majority of sites in the Inner East sector were categorised as poor. To a degree, this may reflect the “depth” of some Inner London boroughs, such as Southwark and Lewisham, which front the Thames in central London but extend well into a more suburban and less accessible setting to the south. The same can also be said of Haringey to the north, towards its boundary with Barnet and Enfield.

Common across all four location sectors was that most sites were vacant, derelict or underused. In contrast to this, the topography and geometry of sites were quite diverse - there were several irregularly shaped sites as well as the more orthodox rectangle - and many sites were on slopes of varying degrees of steepness.

Following this analysis, 24 sites were selected to reflect, as closely as possible, the different physical characteristics, surrounding uses, planning policy context and access to public transport and facilities, as well as ensuring a representative sample in spatial and size distribution terms. The distribution of case study sites is shown in Figure 2.2 and their characteristics are summarised in Figure 2.3.

In reaching a representative sample that took account of both the different site characteristics as well as spatial and size distribution, the sample of 24 sites was skewed. As a result, 46% (11) of the 24 sites are between 2-5 ha as opposed to 22% (96) from the large sample of 434. Furthermore, 16% (4) of the 24 sites fall between 1-2 ha

compared to 45% (196) of the large sample. However, it still stands true for both samples that over 63% of sites range between 1-5 ha.

These 24 case studies now provide the basis for the assessment of potential site capacities and development densities in Chapter Four.

**Figure 2.2: Distribution of 24 Case Study Sites**

<b>Site Category</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	
<b>Number of Dwellings</b>	<b>15-24</b>	<b>25-49</b>	<b>50-99</b>	<b>100+</b>	
<b>Site Area (ha)</b>	<b>0.50-0.99</b>	<b>1.00-1.99</b>	<b>2.00-4.99</b>	<b>5.00+</b>	<b>Total</b>
	<b>No.</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>	<b>No.</b>
Inner East	2	2	2	-	6
Inner West	1	-	2	2	5
Outer East	1	-	3	2	6
Outer West	-	2	4	1	7
Total	4	4	11	5	24

**Figure 2.3: Characteristics of 24 Case Study sites**

Site	1*	2*	3*	4*	5*	6*	7*
1	3	4	Doctors Surgery and nursery	F	I	30%	MU
2	4	2	-	F	O & R	25%	R
3	1	1	-	F	CP	25%	MU
4	1	1	Open space	F	A	25%	R & OS
5	2	1	-	F	V	0%	-
6	2	1	-	F	V	0%	MU
7	3	1	-	F	OS	40%	R
8	3	1	-	F	O	25%	E
9	4	2	-	F	V	0%	R & E
10	1	2	Medical centre	F	CP	33%	R, E & OS
11	3	2	-	F	V	-	-
12	3	2	-	F	-	25%	-
13	4	3	Open space, school & sheltered housing	F	V	33%	MU & R
14	4	3	Open space, community, recreation & education facilities	S	V	20%	MU
15	1	3	-	S	-	20%	MU
16	3	3	Educational and community facilities	F	E	25%	R & E
17	3	3	Primary school, health centre and community facilities	F	V	25%	R & H
18	3	3	-	S	-	25%	R & E
19	2	4	Children's play area	F	OS	25%	R
20	3	4	Health centre & open space	F	H	30%	R
21	2	4	Healthy living Centre	F	V	40%	R
22	3	4	Educational facilities and town centre improvements	F	V	25%	R
23	3	4	Open space	F	O	25%	R & MU
24	4	4	Surgery, community centre, children's play & open space	F	O	25%	R

\* **1 Size:** 1 (0.50-0.99); 2 (1.00-1.99); 3 (2.00-4.99); 4 (5.00+)

**2 Location:** 1 (Inner East); 2 (Inner West); 3 (Outer East); 4 (Outer West)

**3 LPA Expectations for non-residential uses**

**4 Topography:** F (flat); S (sloping)

**5 Current Site Use:** I (industry); O (offices); R (residential); CP (car park); OS (open space); V (vacant); H (hospital)

**6 LPA expectation for affordable housing**

**7 UDP Land-use designation:** MU (mixed-use); R (residential); OS (open space); E (employment); H (hospital)

## 3 Generic London Housing Types

### 3.1 Introduction

This Chapter introduces the nine generic housing types which are used to estimate the capacities and development densities of the 24 Case Study Sites. The process of applying these types to the Case Study Sites is described in the following Chapter. Here we explain the types by breaking them down to their individual development characteristics. This is supported by illustrations of recent and historic development examples of each type.

### 3.2 Introducing the modular approach

Identifying a credible unit or "building block" of urban composition is a challenge which has faced many studies of this broad scope. It can be seen, for instance, in the pioneering studies undertaken by the MHLG, by the LCC New Towns Division and latterly by the GLC, as well as the generic density/built form research associated with the Martin Centre in Cambridge.

Subsequent investigation by leading housing architects and their client agencies has provided a rich (if fragmented) set of urban/residential prototypes which have been built and are therefore now available as measures of potential site capacity, varying space standards or highway assumptions or, indeed, contrasting "styles" of urban place making.

Historically, London has always been subject to area-wide "modular" thinking. The Bedford and Grosvenor Estates, for example, Cubbitt's Pimlico and many of John Nash's

master plans were built up of "pattern book" elements-modular combinations of building plots, mews, squares, streets and open spaces.

In the case of Pimlico, James Cubbitt was able to 'fine tune' his stable of house types, frontages, property values, street proportions and higher value locations to produce a buildable, saleable, efficient, but also highly civilised, urban quarter. Indeed, documentary evidence reveals that Cubbitt's planning of the Pimlico estate was the outcome of very sophisticated manipulation of "pattern book" or modular elements. The street grid, length of terrace, corner treatments, special sites were all selected within a precision and confidence which still today command our professional respect.

Hence the use of "models", "clusters", "modules", "pattern elements" or (our term) "tiles" is both historically relevant to and resonant in London as well as being a thoroughly realistic way of understanding large urban sites and using them as a starting point for the development process.

In the context of this present study, the clear advantage of a modular approach is that it allows development densities to be calculated for a large number of sites with a reasonable degree of precision without the need to prepare full master plans for each and every site. Such a "generalising" approach is essential, given the need to derive broad estimates for sites with a wide variety of factors influencing site capacity and achievable densities.

## The generic housing types

A set of generic house types forming modular elements or "tiles" was identified from the analysis of published sources, analysis of Ordnance Survey mapping and in discussions within the research team as well as with eminent housing architects. The main criteria used to assess the generic types were that they should:

- Be well proven and relevant in both historic and contemporary development practice;
- Be successful and familiar in terms of the creation of enduring places of quality; and
- Relate closely to present and future housing typologies from a market standpoint.

In terms of affordable housing it is important to appreciate that local authorities will require that the affordable housing being provided meets their assessed housing needs as set out in their housing strategy. The predominant short-term need is usually for family accommodation, but some local authorities may require a mix of dwelling sizes to address longer-term needs for smaller households. Consideration of these requirements will be an important first step in assessing the possible dwelling mix that could be produced from various tile types. The tile types illustrated here are flexible enough to incorporate affordable housing. This should not result in a reduction in density in terms of number of habitable rooms, but there is likely to be a lower number of dwellings due to a greater proportion of larger dwellings.

Four main generic groups were identified with each group broken down into sub-types as follows:

- **Low density detached houses (Tile type A)**
  - **A1** low density detached houses, 'enclave layout'
  - **A2** low density detached and semi-detached houses, street based layout
  - **A3** semi-detached houses, cul-de-sac layout
- **Terraced houses (Tile type B)**
  - **B1** terraced houses, street based layout
  - **B2** terraced houses, integral parking (town houses)
- **Flats (Tile type C)**
  - **C1** grouped flats, perimeter block layout
  - **C2** free standing block of flats
  - **C3** grouped flats, perimeter block layout

- **Mixed development (Tile type D)**
  - **D1** super block with mixed houses and flats.

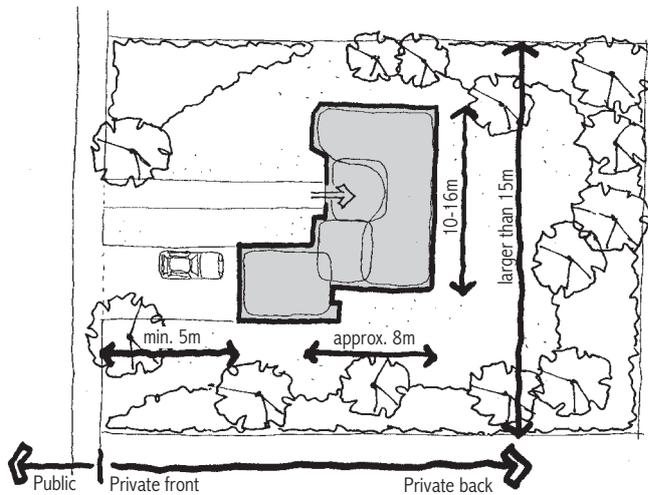
It should be noted that Tile Type A1 has been included to illustrate the full spectrum of housing types. However, in the context of policy objectives of making efficient use of urban land, such low density forms of development would need to be carefully justified in relation to the particular circumstances of a site and its surrounding context.

The following pages present an analysis of each of the nine generic housing tiles. This considers the arrangement of housing units, the layout principles and arrangement of car parking as well as providing an illustration of the 'abstracted' type and photographs of both historic and recent London examples. This is supported by a summary data sheet setting out some of the key statistical information in terms of typical block sizes, densities, levels of car parking and the suitability of the type for affordable housing.

It should be noted that each of the generic tiles includes an allowance for circulation access space between adjoining tiles. This is achieved by including an allowance for half the width of an access road around each tile where appropriate.

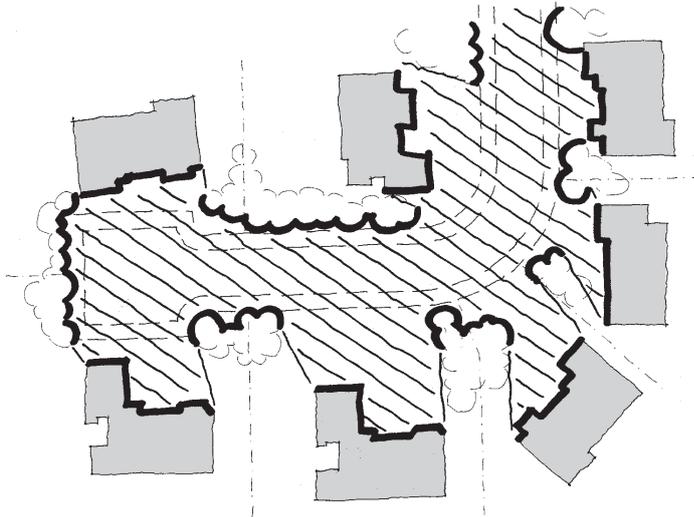
# **Generic Tile Types**

### Type Attributes



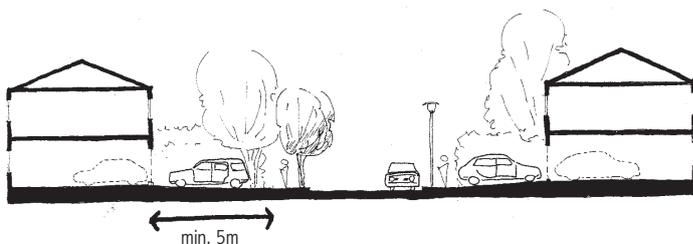
- "Leafy" villas on large plots in enclave setting.
- Accepts a wide variety of architectural styles often following individual designs at high cost and high value.
- A strong planting framework places houses in soft surroundings.
- Large garages and driveways cater towards a car-based community.
- Applicable only as a small element in high-value locations at lowest end of the density range in sub-urban areas.

### Layout Principles



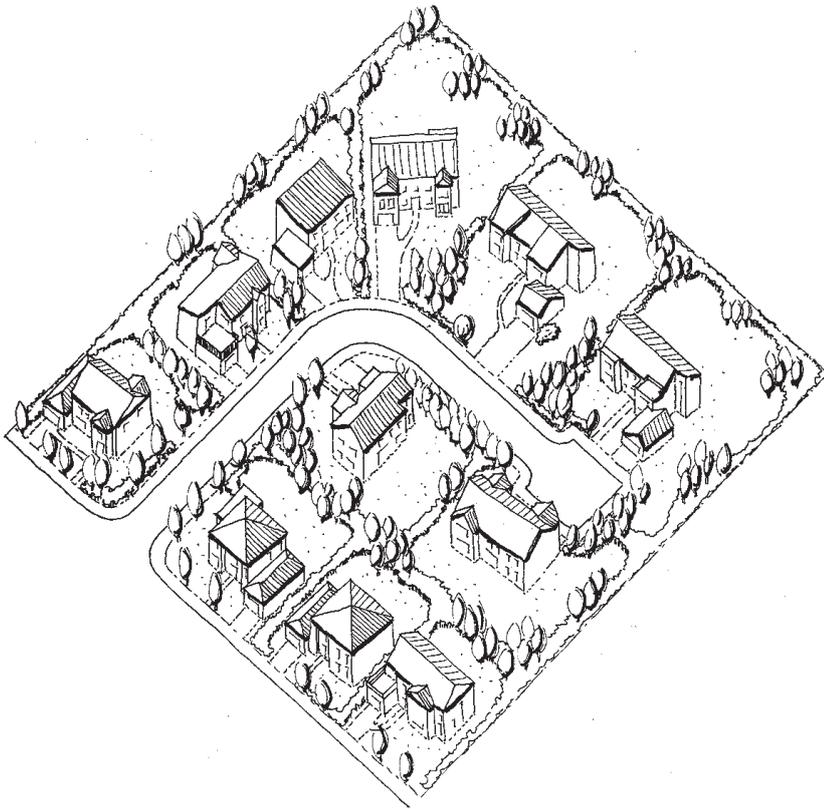
- Variable planting and setbacks create a semi-public/private streetscape in appearance making the public street less significant than the large houses.
- Suitable for suburban and country-edge situations as well as urban "windfall" or backland sites assuming smaller plots and higher densities.

### Parking Format



- Double garages are typical with additional on plot parking.
- Some on street parking is available as a result of wide frontage plots.
- Less importance is placed on pedestrian circulation as cul-de-sac layout impedes through-movement.

Illustrative View



London Examples



Recent



Recent



Historic



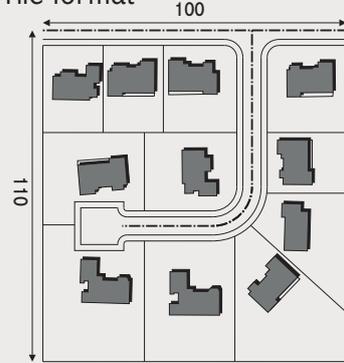
Historic

Description

A<sup>1</sup>

Low-density detached houses

Tile format



Units : 11  
 Habitable Rooms : 8 per unit (avg.)  
 Total HR per tile : 88

Density

Habitable Rooms/ha : 80  
 Units/ha : 10  
 Habitable Rooms/acre : 29.4

Parking

On-plot : 2-4 space/unit  
 On-street : 0 spaces/unit (CPZ)  
 Total Spaces : 33 on-plot

Affordable Housing Type?

Yes  Unlikely, due to

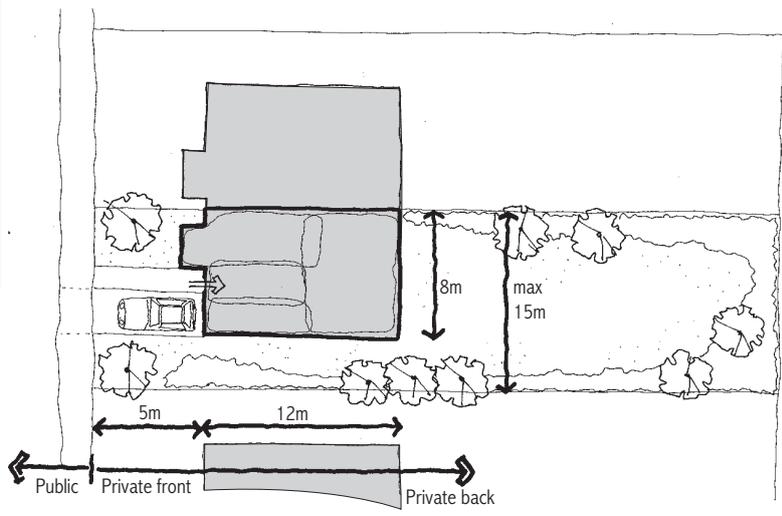


Tile Compatibility

Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

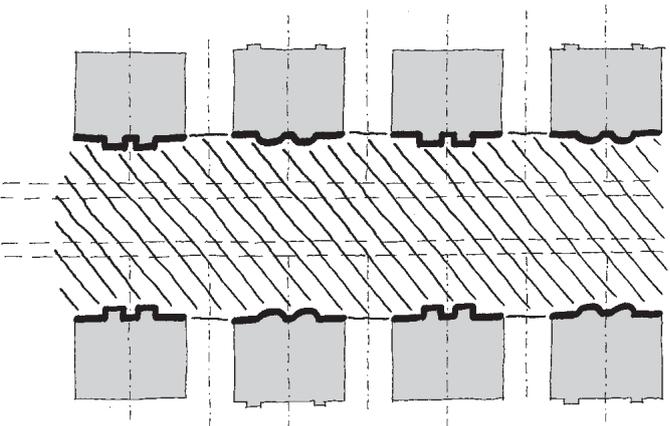
TILE TYPE - A<sup>2</sup>

Type Attributes



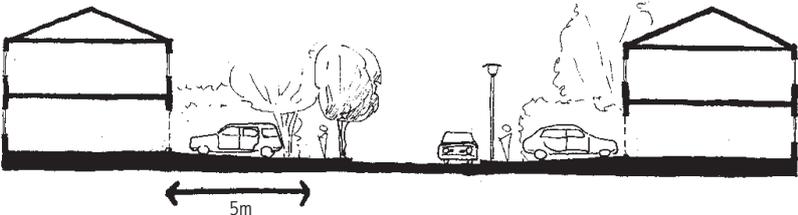
- Typical "villa" formation suited to urban, high value streets as infill or redevelopment.
- Plot retains wide frontage allowing for more privacy through buffer planting.
- Seldom implemented as full urban block due to high site acquisition costs.
- Can be used as modular element in structuring of high value windfall sites such as a former hospitals.

Layout Principles



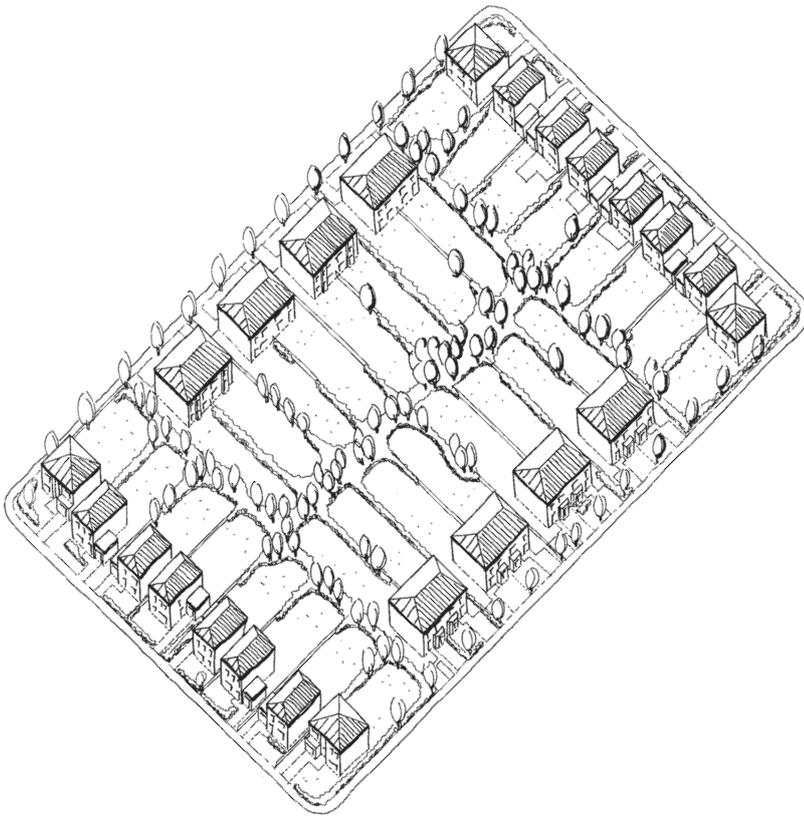
- Street based layout describing a more urban and formal layout.
- Privacy achieved through large plot sizes and on-plot landscaping.
- Houses can be grouped for greater presence (as historically in Maida Vale, Notting Hill Gate, Holland Park and Dulwich).

Parking Format



- Garages are common but not necessary, mostly on-plot parking.
- Some on street parking is available as a result of wide frontage plots.

Illustrative View

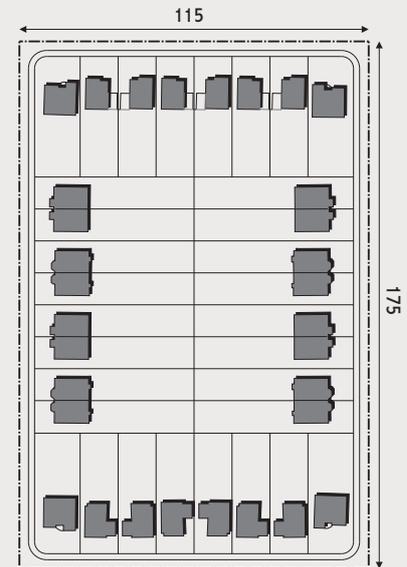


Description

A<sup>2</sup>

Semi-detached houses

Tile format



Units : 32  
 Habitable Rooms : 6 per unit (avg.)  
 Total HR per tile : 192

Density

Habitable Rooms/ha : 96  
 Units/ha : 16  
 Habitable Rooms/acre : 38.6

Parking

On-plot : 1-2 space/unit  
 On-street : 1 spaces/unit (CPZ)

Total Spaces : 44 on-plot

Affordable Housing Type?

Yes  Unlikely, due to

Tile Compatibility

London Examples



Recent



Recent



Historic

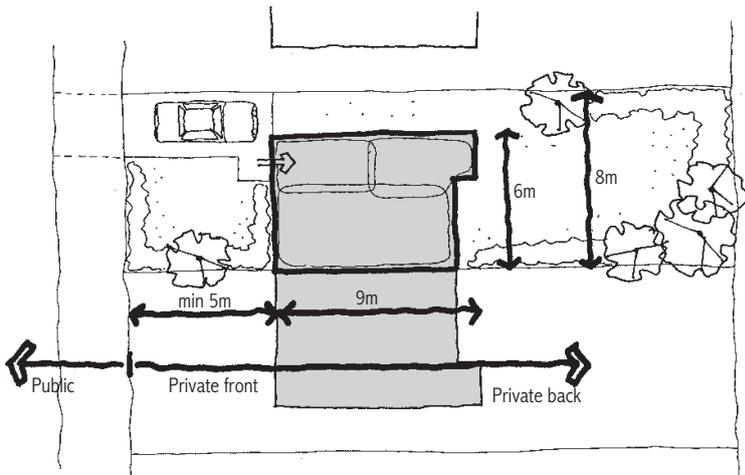


Historic

Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

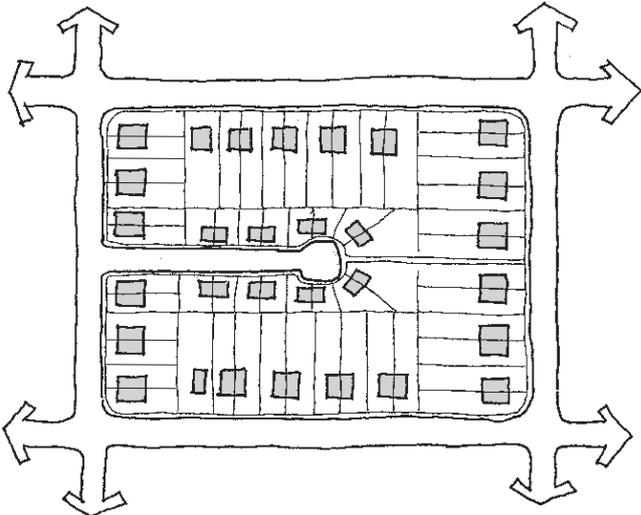
**TILE TYPE - A<sup>3</sup>**

Type Attributes



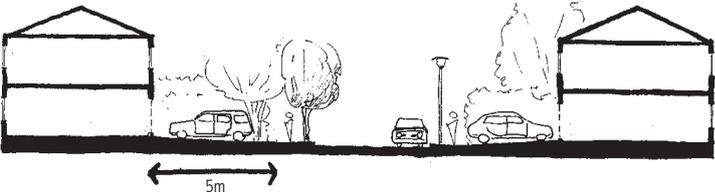
- A smaller scale variant of tiles A1 and A2.
- Plots are tighter and smaller than in A2 allowing for less soft landscaping to soften the road space.

Layout Principles



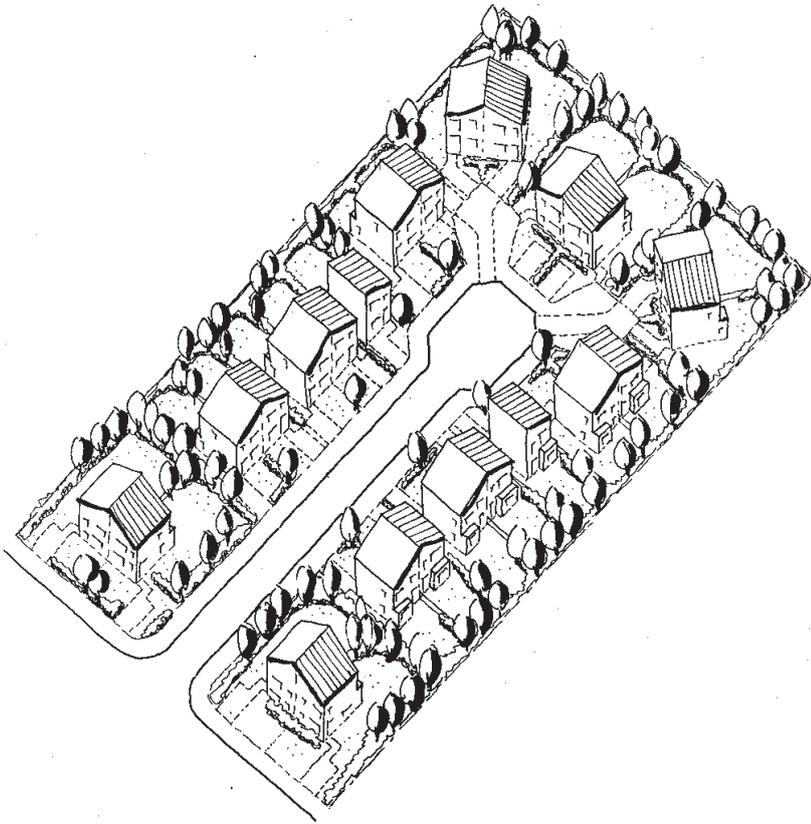
- Basic format within typical 60-70 metre width.
- Development can be shortened from a maximum of 120 metres to suit local site circumstances.
- Today most commonly appears as infill development on large plots where the back of gardens are purchased to create cul-de-sac development.
- A maximum of three cul-de-sacs can be implemented side-by-side.
- Single entry point into site with central road access ending in a turn around also permitting emergency and service access.
- Tile often enhanced by pedestrian path leading out at head of cul-de-sac to a traffic - free footpath network (i.e. Radburn - type layout).

Parking Format



- On-plot parking is most common, sometimes in garage.
- One on-street parking space is available per unit on wide roads, otherwise street parking can only take place on one side of the road reducing on-street parking to 0.5 spaces per unit.

## Illustrative View



## London Examples



Recent



Recent



Historic



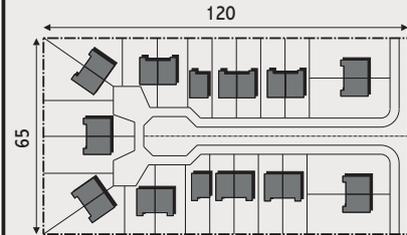
Historic

## Description

**A<sup>3</sup>**

### Semi-detached houses

#### Tile format



Units : 24  
 Habitable Rooms : 5 per unit (avg.)  
 Total HR per tile : 120

#### Density

Habitable Rooms/ha : 154  
 Units/ha : 30.8  
 Habitable Rooms/acre : 62.2

#### Parking

On-plot : 1 space/unit  
 On-street : .3 spaces/unit (CPZ)  
 Total Spaces : 24 on-plot

#### Affordable Housing Type?

Yes Subject to funding,  
 management & design

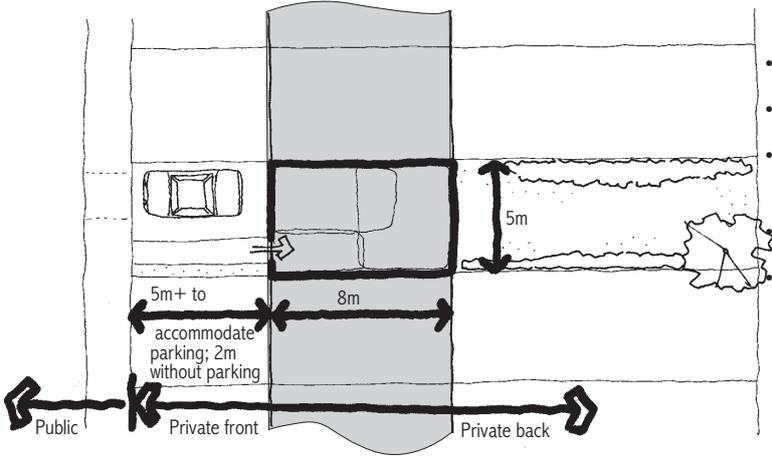


#### Tile Compatibility

Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

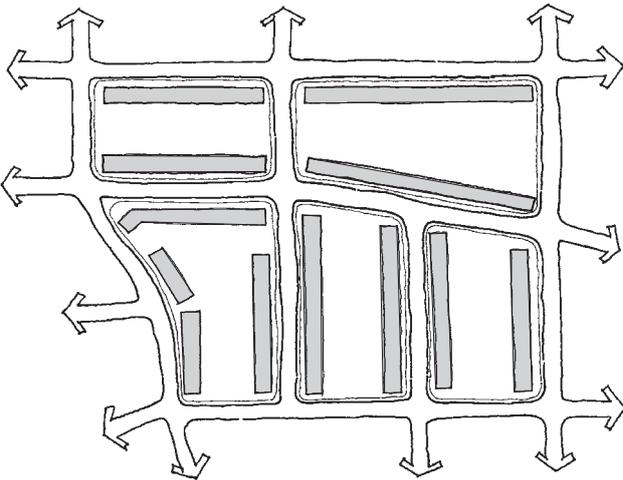
**TILE TYPE - B<sup>1</sup>**

Type Attributes



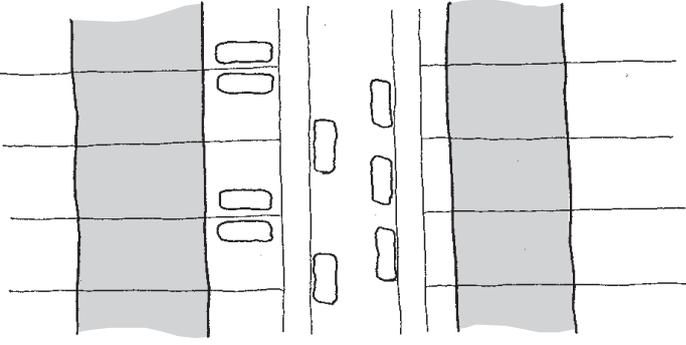
- Typically 2 storey height (3 storey including attic).
  - Tried and tested 'London' type (1870's onwards).
  - Flexible internal plan suits changing personal circumstances.
- Simple, robust structure.  
Distinct front (public) and back (privacy).

Layout Principles



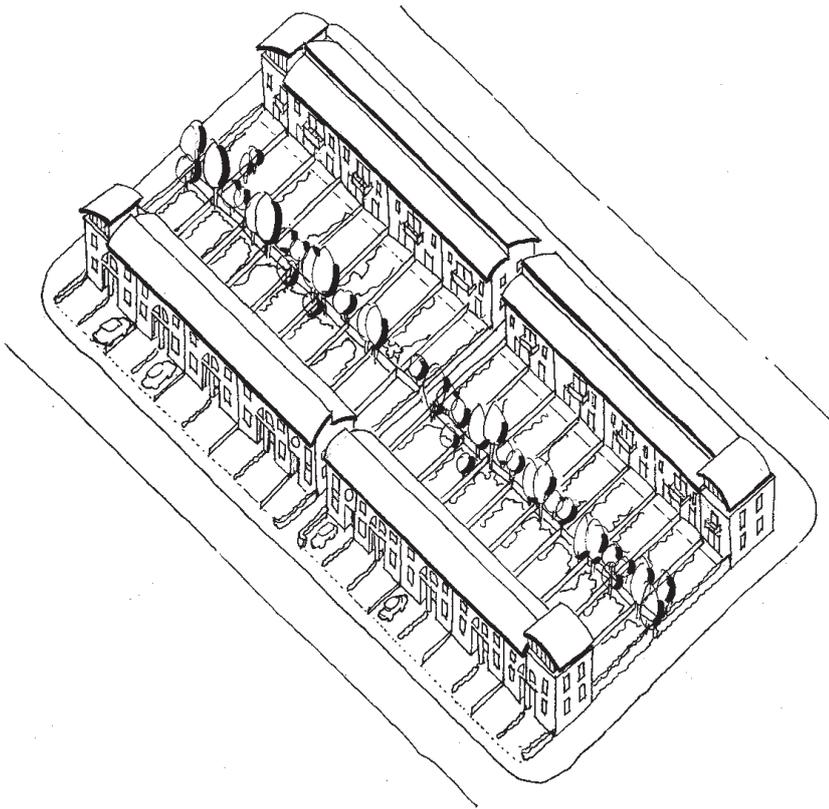
- Very efficient rectilinear format.
- Converging terraces possible if min. rear garden depth is maintained.
- 2/3 storey flats at end-of-terrace or along flank is possible.
- Terrace length can vary between 90-120 metres.

Parking Format



- On plot parking possible if a minimum setback of 5m is provided. With occasional street parking a ratio of 1:1.5 can be achieved but, this option creates a very car dominant streetscape.
- For smaller setbacks on-street parallel parking can typically accommodate one car per frontage (1:1 ratio). This creates a safer walking environment for pedestrians and a clearer distinction between public and private

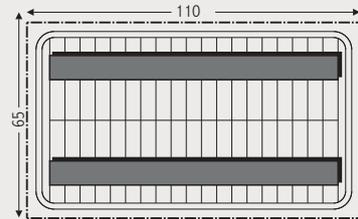
Illustrative View



Description  
**Terraced houses**  
**street based layout**

**B<sup>1</sup>**

Tile format



Units : 38  
 Habitable Rooms : 5 per unit (avg.)  
 Total HR per tile : 190

Density

Habitable Rooms/ha : 264  
 Units/ha : 52.8  
 Habitable Rooms/acre : 107

Parking

On-plot : 1 space/unit  
 On-street : 0.5 spaces/unit (CPZ)  
 Total Spaces : 38 on-plot

Affordable Housing Type?

Yes  Subject to funding,  
 management & design

Tile Compatibility

Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes crown Copyright and may lead to prosecution or civil proceedings.

London Examples



Recent



Recent



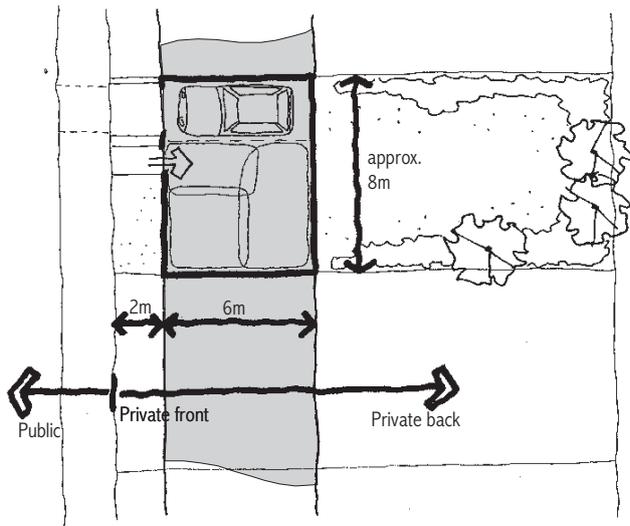
Historic



Historic

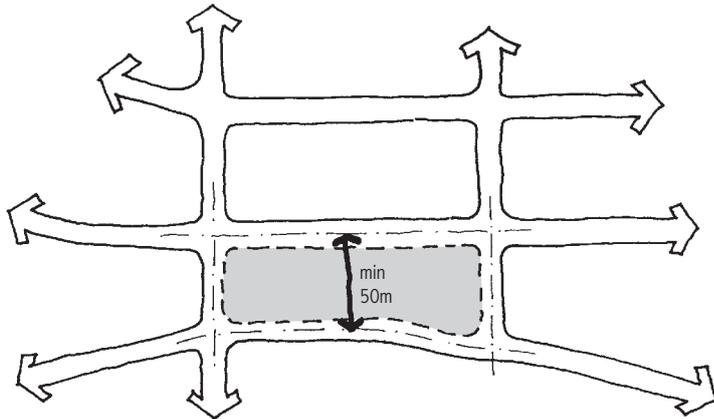
TILE TYPE - B<sup>2</sup>

Type Attributes



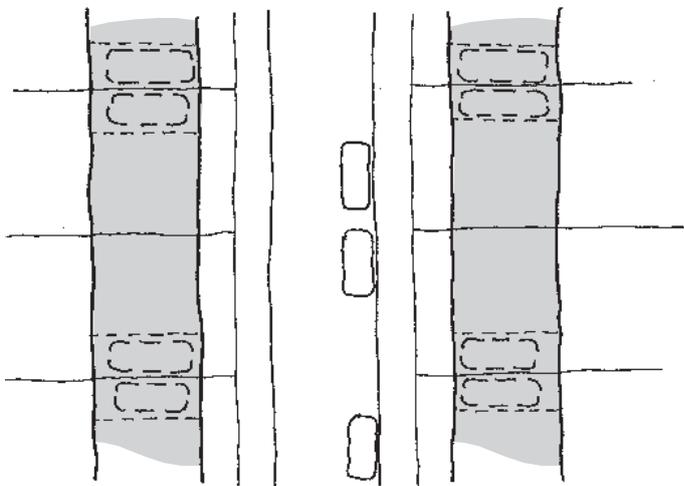
- Flexible wide frontage house types with maximum light and air.
- Variety of house shells and variants possible.
- Integral garage without compromising appearance of street frontage.

Layout Principles



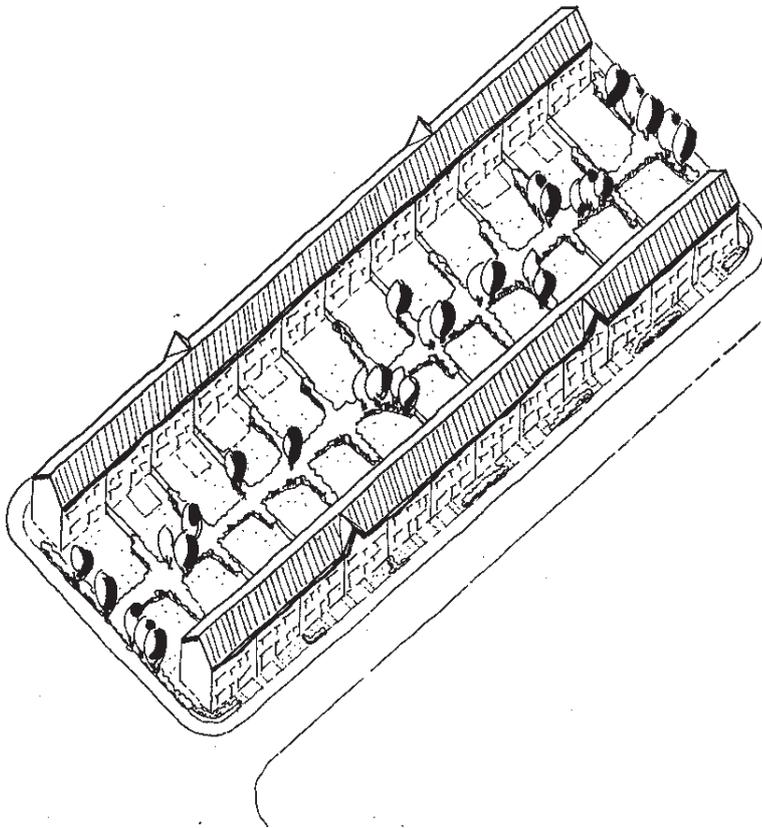
- Efficient format when available width does not allow for standard terraced houses.
- Less efficient in density terms than Tile B1 but still makes efficient use of urban land.
- Modern version of the standard terrace as it incorporates on-plot parking.

Parking Format



- On-plot parking includes integral single garage with possible single hard standing space if setback allows.
- On-street parking limited to one space per house to allow for access to integral garages.

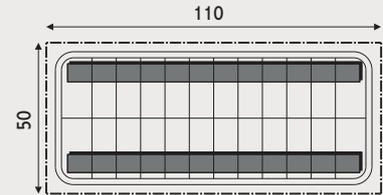
Illustrative View



Description  
**Terraced houses**  
**Integral parking**

**B<sup>2</sup>**

Tile format



Units : 24  
 Habitable Rooms : 5 per unit (avg.)  
 Total HR per tile : 120

Density

Habitable Rooms/ha : 218  
 Units/ha : 43.6  
 Habitable Rooms/acre : 96.8

Parking

On-plot : 1 space/unit  
 On-street : 0.5 spaces/unit (CPZ)

Total Spaces : 24 on-plot

Affordable Housing Type?

Yes      Unlikely, due to



Tile Compatibility

Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

London Examples



Recent



Recent



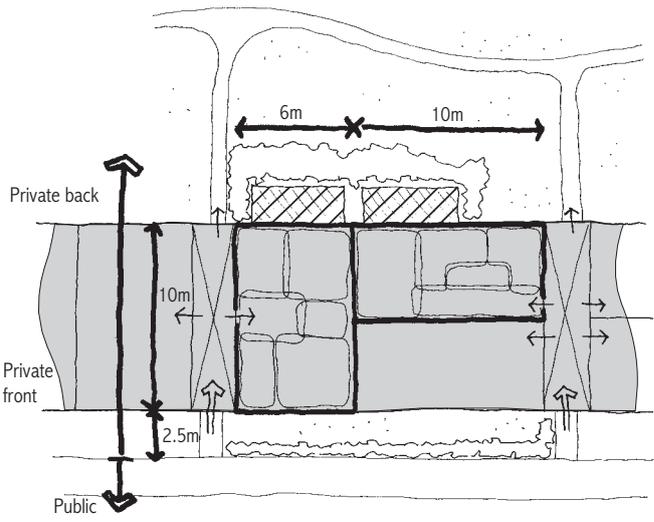
Historic



Historic

TILE TYPE - C<sup>1</sup>

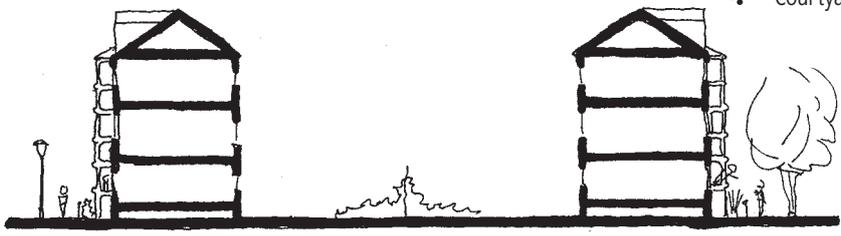
Type Attributes



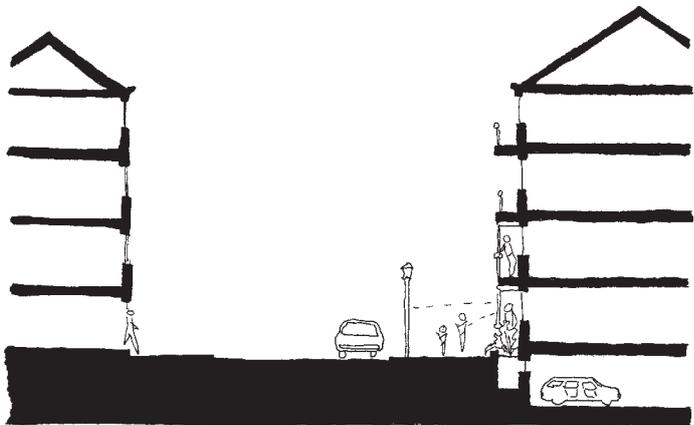
- Through-flats with double aspect within 10m typical building width. Single aspect units with wide frontage are possible as an alternative.

Layout Principles

- Four storey form is effective in defining street front and providing a strong urban edge.
- Central courtyard can form attractive quality focus either as communal space for entire block or for each set of communal stairs.
- Courtyard is well protected from external traffic noise.

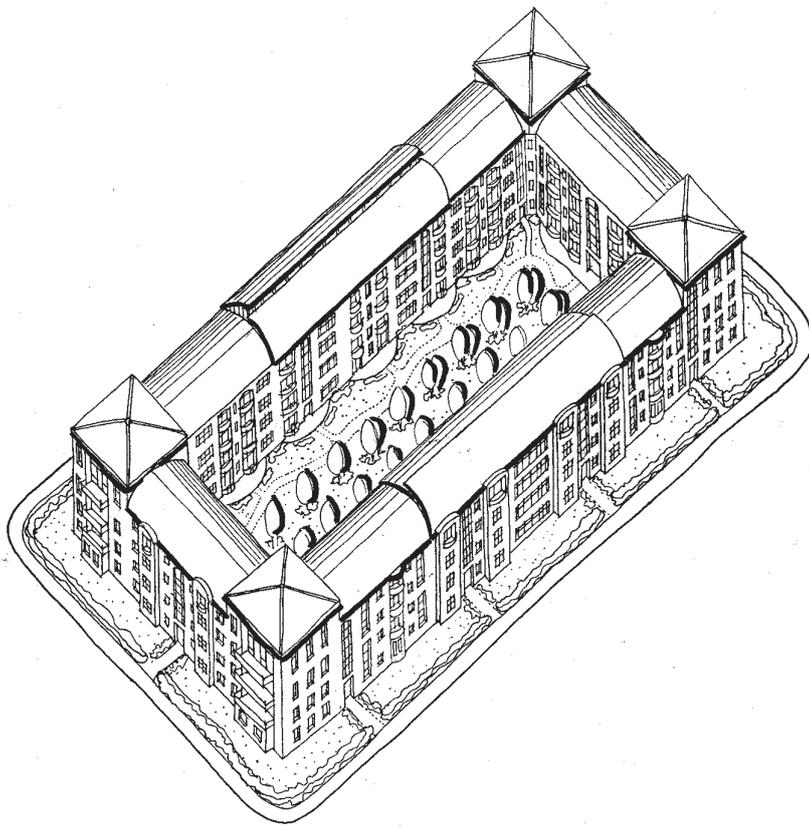


Parking Format



- On-street parking available for about 50% of units.
- Undercroft parking can serve all units without need for additional site area or on-street parking.
- Half-level undercroft can provide privacy for lowest level of flats by slightly raising them above street level allowing views out onto the street, but not into the unit.

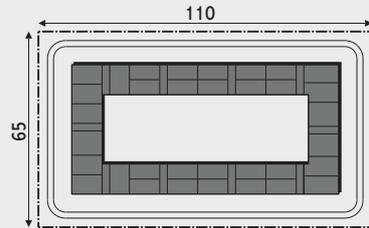
Illustrative View



Description  
**Grouped flats**  
**perimeter block layout**

C<sup>1</sup>

Tile format



Units : 112  
 Habitable Rooms : 3 per unit (avg.)  
 Total HR per tile : 336

Density

Habitable Rooms/ha : 467  
 Units/ha : 155  
 Habitable Rooms/acre : 190

Parking

On-plot : 0.4 space/unit  
 On-street : 0.6 spaces/unit (CPZ)  
 Total Spaces : 70 on-plot (u/c)

Affordable Housing Type?

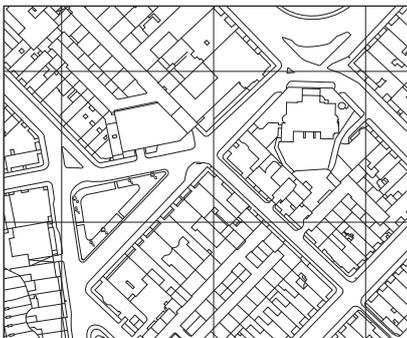
Yes  Subject to funding, management & design

Tile Compatibility

London Examples



Recent



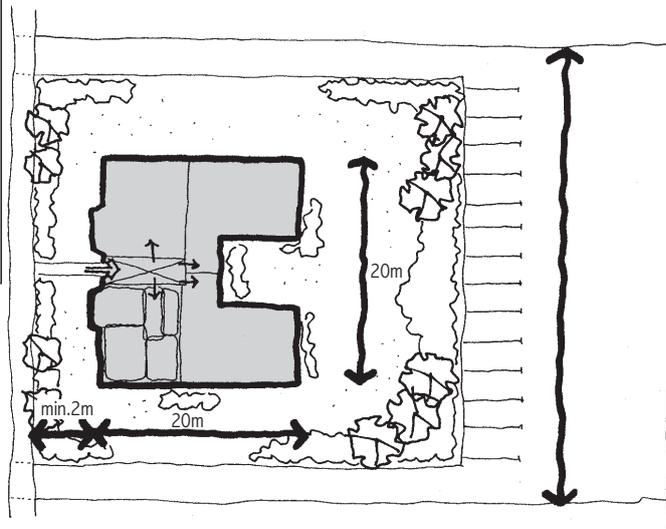
Historic



Historic

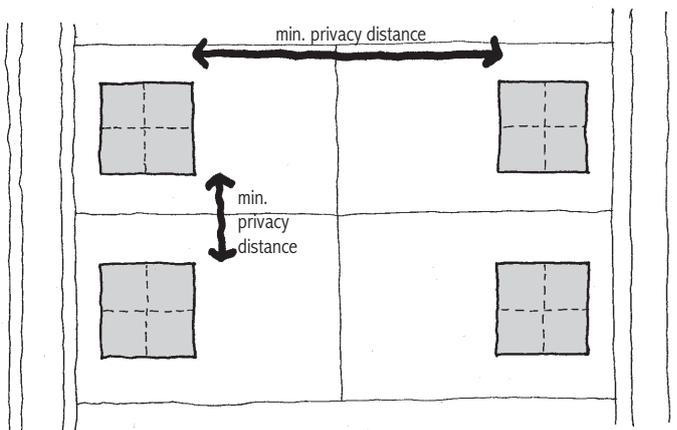
Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

Type Attributes



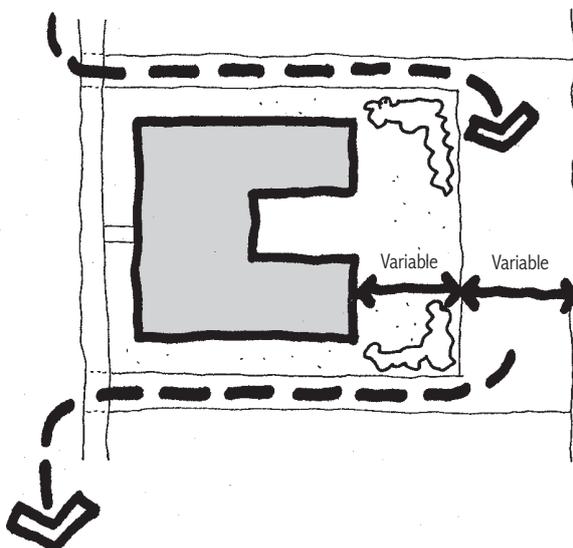
- Free-standing block form (typically with 3-4 flats per floor) commonly used for single plot development.
- Scale of building complements Victorian villas and thus often found as re-development of a former villa.
- Wide plot required to allow building aspect to side as well as back and front.
- Did not commonly occur in London before 1940's.

Layout Principles



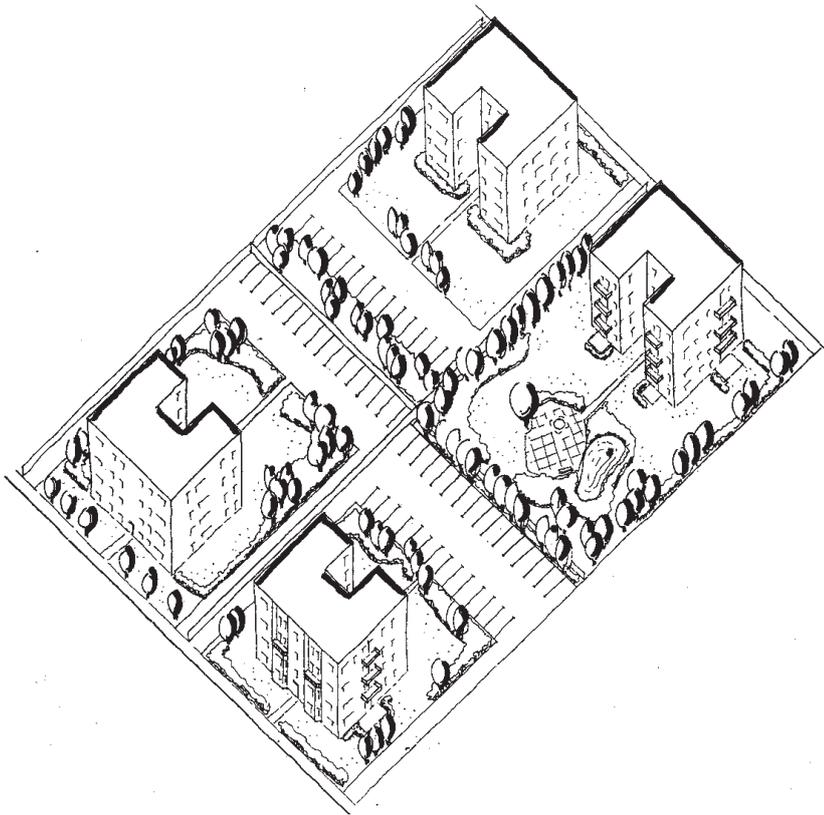
- Providing less on-plot parking at the rear of each segment can reduce tile depth, as long as a minimum privacy distance of 20m is provided between building faces.
- Spacing allows for main aspect of two of four flats to

Parking Format



- On-plot parking available as open surface spaces at the back of the site accessed by private driveway along the side of the property.
- Lower standards of parking can reduce area allocated per plot thus providing opportunities for more landscaped areas and communal gardens. A maximum parking standard of 2:1 can be readily achieved.

Illustrative View

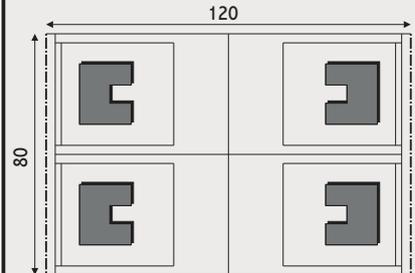


Description

C<sup>2</sup>

Free standing flats

Tile format



Units : 64  
 Habitable Rooms : 3 per unit (avg.)  
 Total HR per tile : 192

Density

Habitable Rooms/ha : 200  
 Units/ha : 66.7  
 Habitable Rooms/acre : 81

Parking

On-plot : 1 space/unit  
 On-street : 0 spaces/unit (CPZ)  
 Total Spaces : 64 on-plot

Affordable Housing Type?

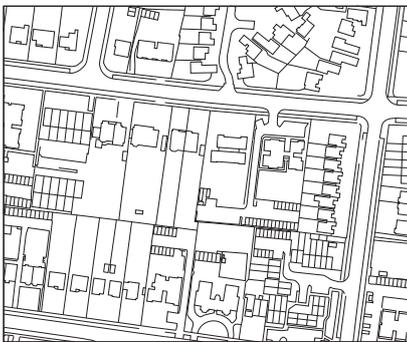
Yes Subject to funding, management & design



Tile Compatibility

Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

London Examples



Recent



Recent



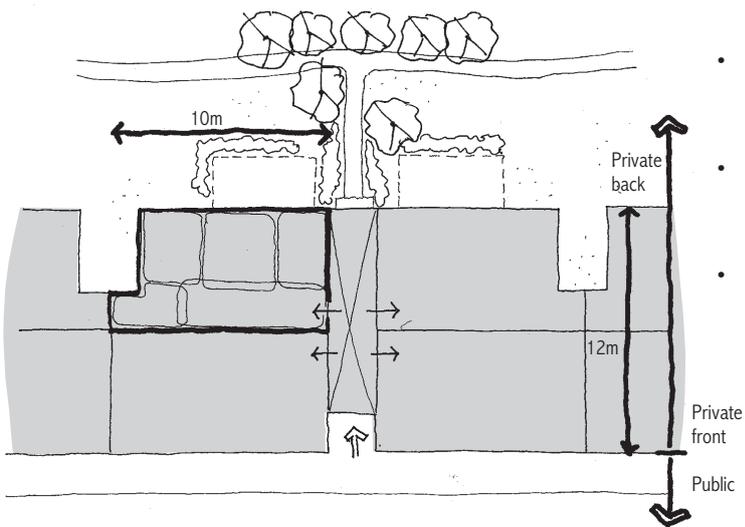
Historic



Historic

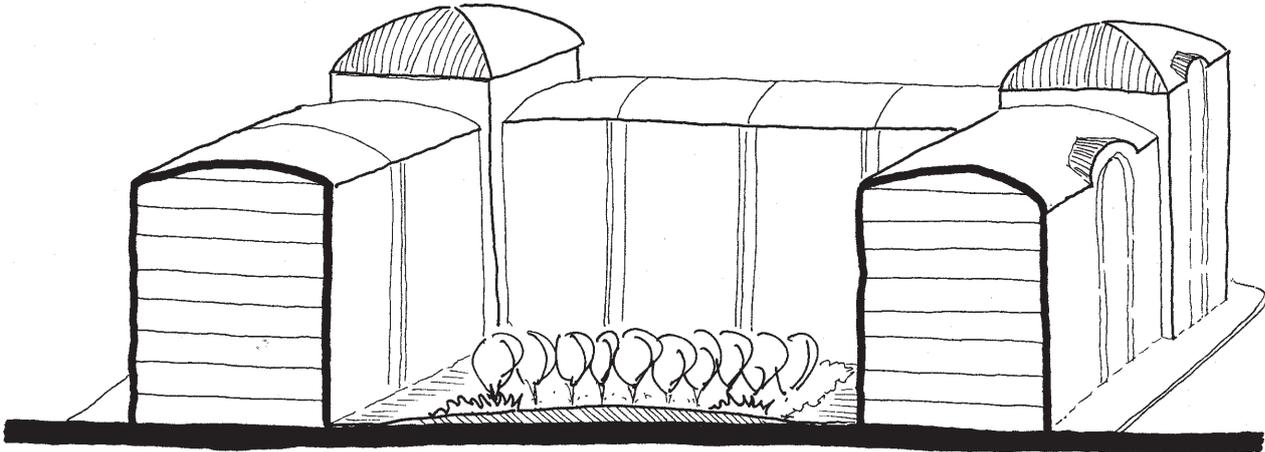
TILE TYPE - C<sup>3</sup>

Type Attributes

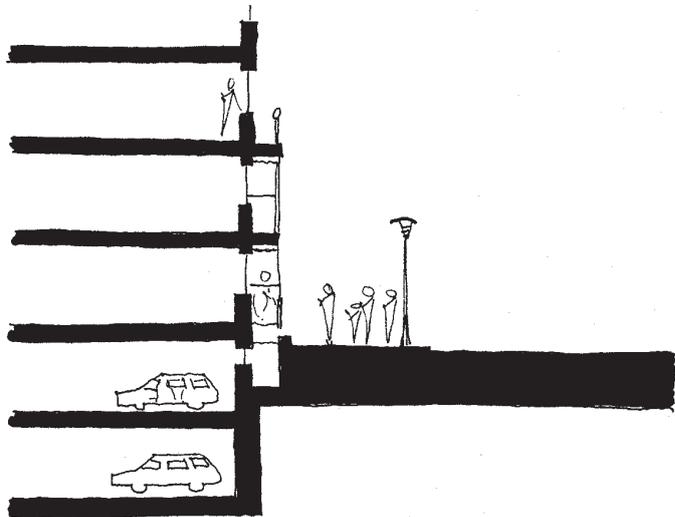


- Based on Edwardian "Mansion Flats" model and later exemplars such as 1930's pied à tere (Dolphin Square, St John's Wood, Marylebone).
- Appropriate inner urban form, also valid for wide outlook sites such as London Docklands riverside and adjacent to large open spaces.
- Single aspect, wide-frontage flats assumed in relatively

Layout Principles

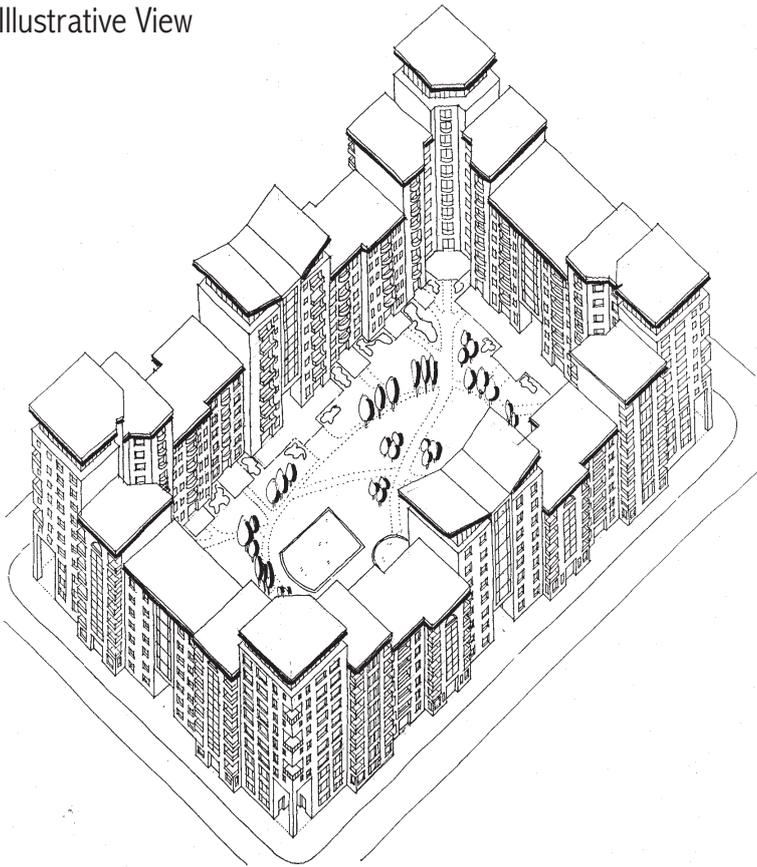


Parking Format



- Central Courtyard provides urban "oasis" but requires intensive, quality / landscape treatment.
- Imposing street facade which implies a similarly substantial neighbour(s) - or riverfront / major open
- No on-street parking spaces assumed.
- Parking can be accommodated undercroft as 0.5:1 or undercroft plus one basement parking level for 1:1

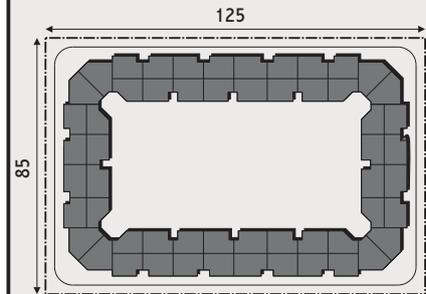
Illustrative View



Description  
**Grouped flats**  
**perimeter block layout**

C<sup>3</sup>

Tile format



Units : 448  
 Habitable Rooms : 2.5per unit(avg.)  
 Total HR per tile : 1120

Density

Habitable Rooms/ha : 1056  
 Units/ha : 423  
 Habitable Rooms/acre : 426

Parking

On-plot : 0.8 space/unit  
 On-street : 0 spaces/unit (CPZ)  
 Total Spaces : 345 on-plot (u/c)

Affordable Housing Type?

Yes Subject to funding,  
 management & design



Tile Compatibility

Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

London Examples



Recent



Recent



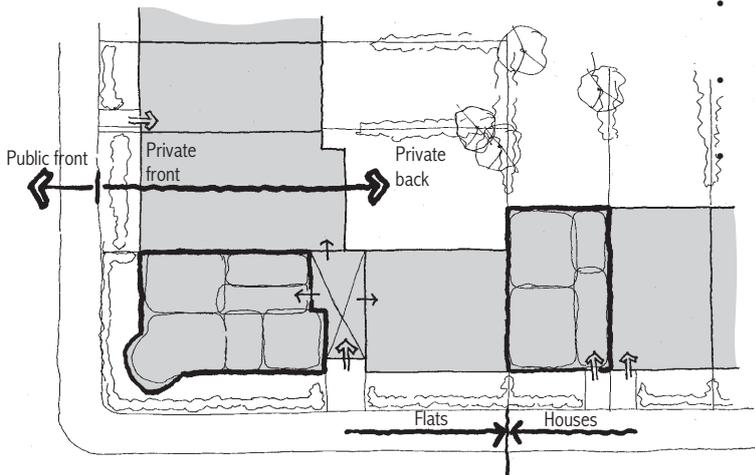
Historic



Historic

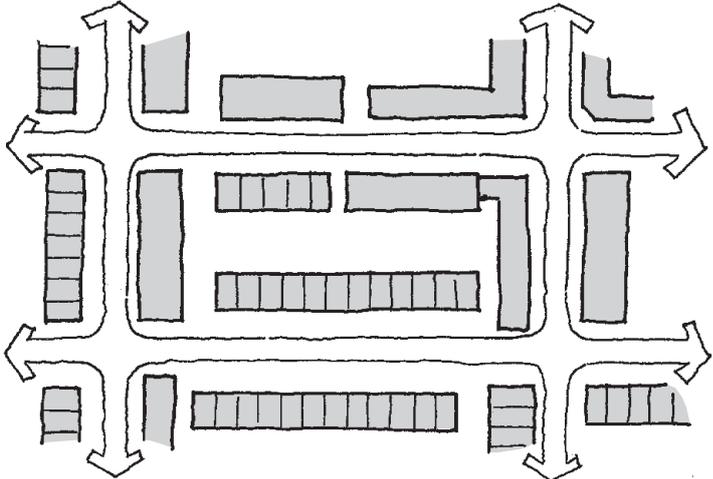
**TILE TYPE - D<sup>1</sup>**

Type Attributes



- Flexible mix of flats and houses, planned for mutual compatibility and privacy.
- Varied building form designed in three dimensions, able to include a wide variety of types.
- Retains street-based architecture to form a strong built edge on the four block faces.

Layout Principles



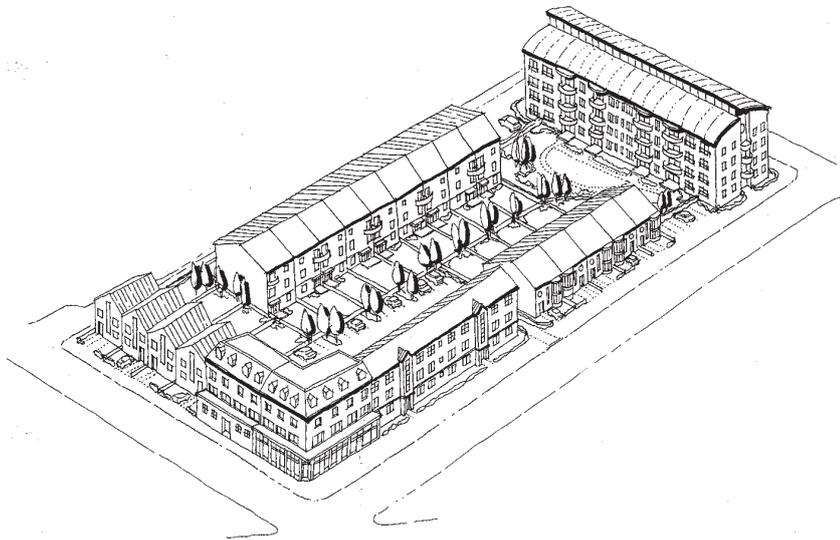
- Well suited to urban and (some) suburban contexts.
- Can include its own minor semi-private communal courtyard.
- Mixed use possible such as corner shops or community facilities.

Parking Format

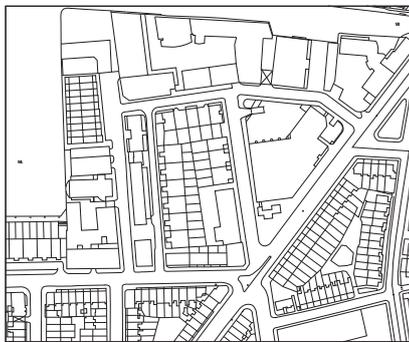


- Parking as (maximum) 50% on-street spaces, plus balance as half-level undercroft and on-plot frontage spaces for the terraced houses.
- Additional spaces provided by localised undercrofting.

## Illustrative View



## London Examples



Recent



Recent



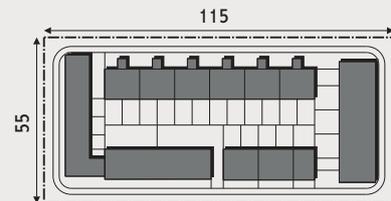
Historic

## Description

**D<sup>1</sup>**

### Super block

### Tile format



Units : 88  
 Habitable Rooms : 3 per unit (avg.)  
 Total HR per tile : 264

### Density

Habitable Rooms/ha : 419  
 Units/ha : 139.7  
 Habitable Rooms/acre : 169.2

### Parking

On-plot : 0-1 space/unit  
 On-street : 0.5 spaces/unit (CPZ)  
 Total Spaces : 59 on-plot

### Affordable Housing Type?

Yes Subject to funding,  
 management & design



### Tile Compatibility

Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.



# 4 Developing a Density Matrix for Large Sites

## 4.1 Introduction

This Chapter describes how we applied the nine generic housing tiles to 24 case study sites to produce estimates of their potential development density. The purpose of the analysis is to extend and refine the Density, Location and Parking Matrix, which was developed for small sites in SRQ I.

The small sites matrix identified three different locational categories, each with different levels of accessibility to public transport and local facilities:

- Ped-shed sites i.e. those within 800 metres of a town centre (10 minute walking distance);
- Sites located along public transport corridors; and
- Currently remote sites.

It then related these sites with these different locational characteristics to the three design options which had been undertaken for 50 small sites across London. Each of these options reflected different assumptions about planning and design standards and particularly in terms of car parking provision.

The resulting Density, Location and Parking Matrix is reproduced in Figure 4.1. In comparison to LPAC's established density range of 125-250HRH (which itself was derived from the earlier GLDP range of 50-100 HRA) the Matrix indicated a density range of 150-700HRH depending on the level of accessibility to public transport and local facilities. This Matrix was incorporated into LPAC's Interim Advice on Sustainable Residential Quality (LPAC Report 20/98).

A key objective of this study is to refine and extend this matrix so that it can be applied to large sites of over 1ha

(0.5ha in inner London). A number of important issues arise in thinking about the application of the existing matrix to large sites. These include:

- The much greater variety of site sizes. The majority of large sites (45% of large sample) are between 1 and 2ha in size, but some are much larger (20% of sample greater than 5ha). How might site size influence achieved residential densities?
- The need to incorporate affordable housing. Many of the small gap and infill sites considered in SRQ I were below the threshold for affordable housing provision, but this will not be the case for large sites where it is expected that affordable housing should be provided on site as part of the development. How might this affect residential densities?
- The need to include supporting community and social infrastructure and other non-residential uses on site. With the exception of ground floor retail units, most of the small sites were exclusively residential. With large sites there is an expectation that other supporting facilities such as open space and schools will be needed. Again meeting these needs can be expected to impact on achieved residential densities.
- Significant variations in the level of public transport accessibility. While SRQ I concentrated on areas with good accessibility to public transport and facilities some large sites will be much more remote. Here higher levels of car parking provision may be needed.
- The likelihood that large sites will include a much wider range of house types (and densities) than

**Figure 4.1: SRQ I Matrix**

CAR PARKING	2 SPACES PER UNIT (Design Option 1)				1 SPACE PER UNIT (Design Option 2)				NO CAR PARKING (Design Option 3)															
DWELLING MIX	Mostly Houses		Mix		Mix		Mostly Flats		Mix		Mostly Flats													
LOCATION	150-250		200-300		250 ← → 500		500 ← → 700		500 ← → 700		500 ← → 700													
Sites within Town Centre "ped-sheds"	150-250		200-300		250 ← → 500		500 ← → 700		500 ← → 700		500 ← → 700													
Selected Design Examples >	26	20	16	18	17	19	21	24	27	1	12	3	7	16	26	24	20	3	12					
	23	27							4						4	11	7	1						
Sites along Transport Corridors & sites close to Town Centre "ped-sheds"	150-250		200-300		200 ← → 400		300 ← → 500		300 ← → 500		300 ← → 500													
Selected Design Examples >	16	18	23	29	17	21	24	30	29	28	17	8	10	31	1	17	28	8	10	23	18	26	24	
									18	24	21	30												
Currently Remote Sites	150-250		200-300		200 ← → 300		250 ← → 450		250 ← → 450		250 ← → 450													
Selected Design Examples >	16	18	23	29	17	21	24	30	29	28	17	8	10	31	17					16	10	23	18	19
									18															

small sites where one type of housing often predominated.

- The possibility to trigger new or increased public transport provision through substantial new development.

In addition, while SRQ I focused mainly on 'ped-shed' areas around town centres this study looks at sites with the full range of locational characteristics and settings and takes account of varying housing market conditions and different types of housing need.

While these considerations highlight some of the underlying complexities, there is also a need to keep the Matrix simple and straightforward. It is intended to provide a strategic and conceptual framework for assessing the potential capacity sites rather than acting as a prescriptive blue print.

The starting point for this study was the belief that the small sites matrix met these objectives well and that, if possible, its logic should be built on and extended rather than replaced by a more complex approach.

4.2

## Method and Approach

The method for estimating the potential capacity of the 24 case studies had four basic stages which followed sequentially from each other. Each stage was split into a number of tasks.

To illustrate how the method was applied, Case Study 1 is used as a worked example. Figure 4.2 summarises the key steps followed in applying the generic housing tiles to each case study site.

### STAGE 1 UNDERSTANDING THE SITE

**STEP 1: Review the Context.** The first step was concerned with defining the characteristics of the surrounding area by collecting basic information regarding:

Planning policy issues:

- The level of affordable housing provision expected on site;
- Requirements for significant open space provision as part of the development;
- Requirements for other community facilities or non-residential uses such as schools, or employment uses.

Site characteristics:

- The topography of the site;
- Its development setting in terms of the urban structure and built form of areas around the site;
- Accessibility to public transport and local facilities (good, moderate or poor for each).

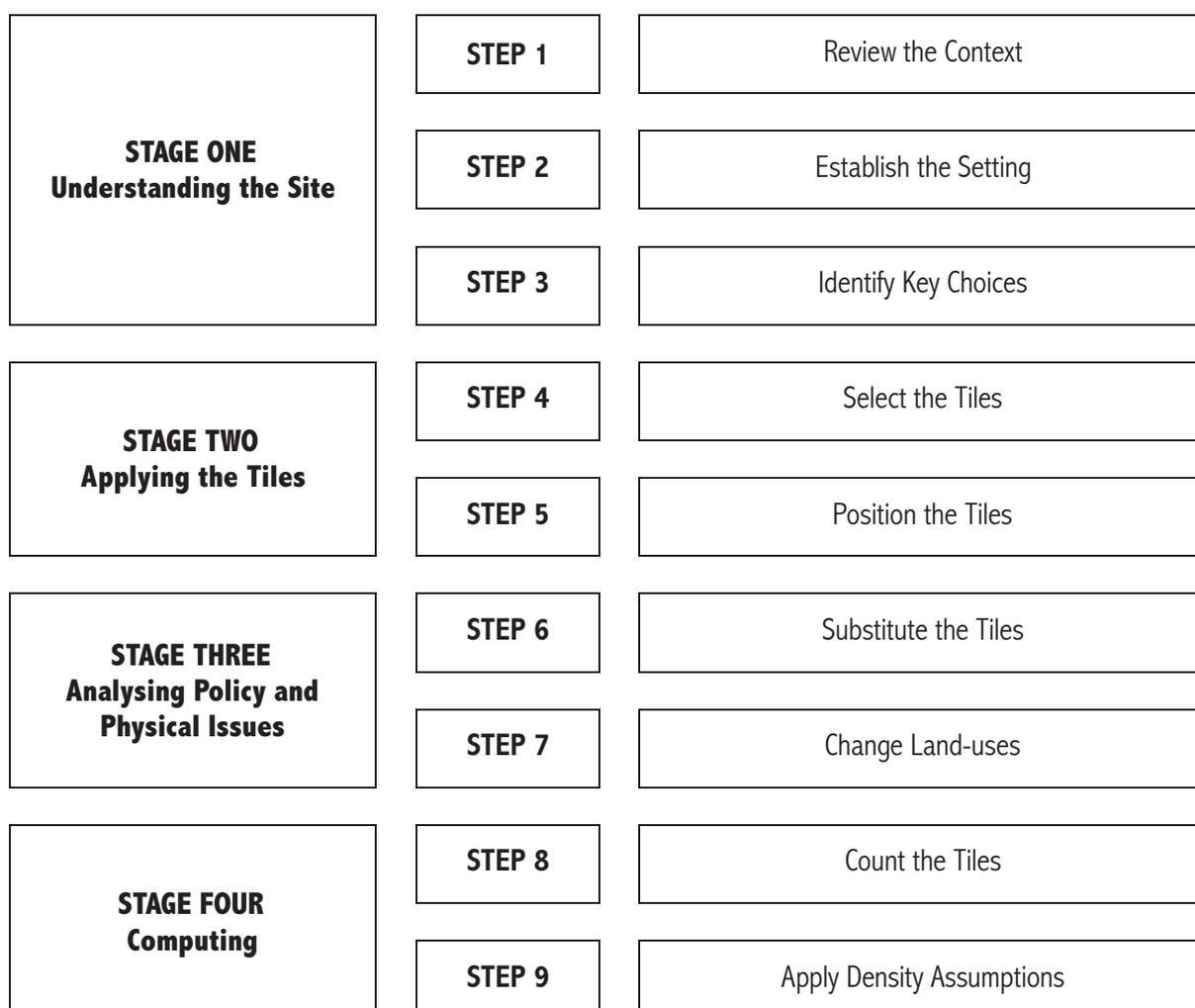
In collecting this information, discussions with the Borough planning officers and an analysis of Ordnance Survey mapping was conducted. This exercise was desk-based and none of the 24 sites were visited at this stage.

This basic site information was used in two main ways. First, it enabled the requirements for non-residential uses to be identified so that appropriate areas of each site could be set aside. Second, it provided a means of classifying the sites by location in terms of the level of accessibility to public transport (see Figure4.3):

- Sites within a ped-shed (i.e. those within 800m of a town centre);
- Sites located along public transport corridors, but outside a ped-shed; or
- Currently remote sites (i.e those not in either of the above).

**STEP 2: Establish the Setting.** The second step involved classifying the area into types of urban setting. Analysis of the Ordnance Survey mapping provided important information regarding the nature of the surrounding area, particularly in terms of the urban grain, land uses, the form of existing housing (e.g. Victorian terraces, inter-war semis etc) and significant areas of local facilities and open spaces (see Figure4.4).

**Figure 4.2 Tiling Methodology**



**Figure 4.3: Location of Case Studies**

Location	Number of Sites	(%)
Sites within Town Centre "Ped-Shed"	10	42
Sites along Transport Corridors & Sites close to Town Centre "Ped-Shed"	11	46
Currently Remote Sites	3	12
<b>Total</b>	<b>24</b>	<b>100</b>

**Figure 4.4: Setting of Case Studies**

Setting	Number of Sites	(%)
Central	3	12
Urban	12	50
Suburban	9	38
<b>Total</b>	<b>24</b>	<b>100</b>

This information on the 'setting' of the sites proved essential in deciding which of the nine generic housing tiles were appropriate for each site. From this analysis, it was possible to classify each site into one of three broad categories of 'site setting':

- Central (very dense development, large building foot prints and buildings of 4-6 stories and above e.g. larger town centres and much of Central London)
- Urban (dense development, with a mix of different uses and buildings of 3-4 stories e.g. town centres, along main arterial routes and substantial parts of Inner London); and
- Suburban (lower density development, predominantly residential of 2-3 stories e.g. some parts of Inner London, much of Outer London).

It is important to stress that these categories of "site setting" are to do with the established urban grain and character of the place rather than being tied to specific geographical locations. Specifically the category of "central" does not imply a Central London location but rather a very urban building and land use context.

This classification of site setting was then incorporated within each of the locational categories, giving a finer differentiation of locational categories. The emerging matrix and distribution of Case Studies is shown in Figure 4.5.

**Figure 4.5: Location/ Setting of Case Studies**

Location	Setting	Number of Sites	(%)
Sites within Town Centre "Ped-Shed"	Central	3	13
	Urban	6	25
	Suburban	1	4
Sites along Transport Corridors & Sites close to Town Centre "Ped-Shed"	Urban	6	25
	Suburban	5	21
Currently Remote Sites	Suburban	3	12
	<b>Total</b>	<b>24</b>	<b>100</b>

**STEP 3: Identify Key Choices** Following on from Steps 1 and 2, the next Step involved a site specific analysis and identification of the key choices regarding appropriate locations for higher density tiles, affordable housing, non-residential uses (where applicable) and the direction and location of key public transport and cycle/pedestrian routes and nodes on and around the site.

## STAGE 2: APPLYING THE TILES

**STEP 4: Select the Tiles** Steps 1 to 3 provided the basis for selecting the most relevant generic housing tiles to apply to each of the case study sites. Step 4 involved carefully selecting tiles to apply to each site under three development options each with different assumptions about the form of housing and the level of car parking provided, bearing in mind the different building heights and densities that each tile implies.

The selection of appropriate tiles must not only respond to the site's "setting", but also be compatible with adjacent tiles on the site. Figure 4.6 illustrates which tiles have been used in combination. The pattern of use that emerges demonstrates the compatibility of tiles in terms of building height, density and appropriate built form. For example, the lower density A type tiles (density range 88-192 HRH) are rarely applied on the same site as tile types C and D (density range 200-1056 HRH). They have only been applied on sites greater than 5 ha where there is greater scope for different housing types. Tile A1 was never used, and has only been included as a generic housing tile to demonstrate the range of housing types in London.

In addition, the inherent characteristics of each tile offers the "in-built" flexibility to sub-divide the tiles into

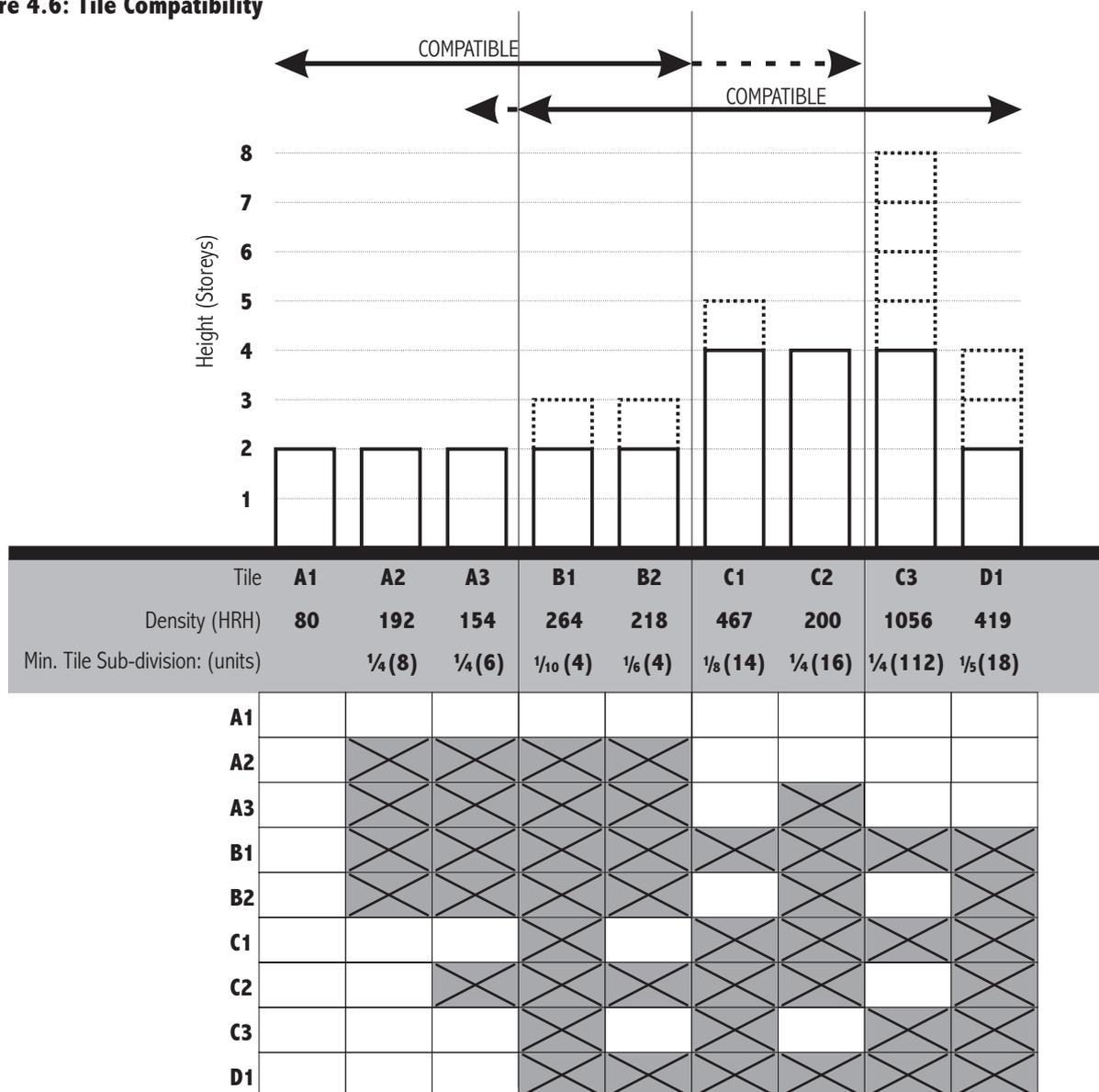
halves, quarters, eighths, etc. In this regard the higher density C3 tile type (mansion block) can be sub-divided vertically (i.e. into a four storey block) as well as into small areas. The smallest division recommended for each tile, and the number of units it implies, is shown in Figure 4.6. Sub-dividing tiles beyond this would undermine the whole point of the simplicity of the tiling approach.

**STEP 5: Position the Tiles.** This step involves positioning the first tiles along the main/strongest edge (see Figure 4.7). For case study 1, this meant placing tile type C2 (Flats) along the northern edge with blocks facing the street and tile type B1 (terraced houses) facing the western edge and terraced housing opposite to mirror the existing street pattern and built form.

Tiles must also be chosen to reflect sensitive edges of the site and adjacent tiles' density and building heights. It may be appropriate to leave a "breathing" space between tiles i.e. providing open space or a wider road between higher density tiles. However, all tiles have been constructed in manner that incorporates land as far as the centre line of the surrounding road. This is important because while the application of the tiles as illustrated opposite gives the impression of unbroken development, in reality each tile includes an allowance for roads, circulation and set backs.

The degree to which tiles can be repeated on a single site not only depends on the surrounding site context and setting, but the tiles' density assumptions.

Figure 4.6: Tile Compatibility



**Figure 4.7: Case Study 1 - Tile Application**



### **STAGE 3: ANALYSE PLANNING POLICY AND PHYSICAL ISSUES**

**STEP 6: Substitute the Tiles.** Following the first attempt to apply the tiles in Stage 2, we revisited the site context and "setting" to double check that the choice of tiles is appropriate and meets the range of criteria set for each site, i.e. the required level of affordable housing; the height of buildings with respect to those of the surrounding area; and the need to respect the physical site constraints.

This might mean substituting tiles for lower density alternatives, as well as considering the suitability of tile types to meet the affordable housing needs.

**STEP 7: Change Land-Uses** Where applicable, this step involved substituting tiles for non-residential uses, such as open space, schools or community facilities.

## STAGE 4: COMPUTING THE DENSITY

**STEP 8: Count the Tiles.** This step involved adding up the fractions of each tile type.

For Case Study 1 this meant:

$$\begin{aligned} \text{B1} \quad & 3/8 + 1 + 1/2 + 1/8 + 3/8 + 1/4 \\ & 3/8 + 8/8 + 4/8 + 1/8 + 3/8 + 2/8 = 21/8 \\ & = \mathbf{2.625 \text{ tiles}} \end{aligned}$$

$$\begin{aligned} \text{C2} \quad & 1/4 + 1/4 + 1/4 = 3/4 \\ & = \mathbf{0.75 \text{ tiles}} \end{aligned}$$

**STEP 9: Apply Density Assumptions.** Once the total number of each of the tile is calculated, the habitable rooms per tile assumption identified on the relevant Tile Information Sheet (see Chapter 3) can be applied.

For example:

$$\text{B1} \quad 2.625 \text{ tiles @ } 190 \text{ HR/tile} = 498.75 \text{ HR}$$

$$\text{C2} \quad 0.75 \text{ tiles @ } 192 \text{ HR/tile} = 144 \text{ HR}$$

$$\text{Total HR for site} = 642.75$$

$$\text{Gross Site Area} = 3.12 \text{ ha}$$

$$\mathbf{HRHA} = 642.75/3.12 = \mathbf{206.01}$$

The number of units per hectare is calculated using an assumption about the average number of habitable rooms per dwelling. For Tile type B1 this is assumed to be 5 HR/unit and for C2 it is 3 HR/unit. All assumptions are illustrated on each Tile Information Sheet in Chapter 3.

For case study 1, the number of units per hectare is worked out as follows:

$$\text{B1} \quad 498.75 \text{ HR @ } 5 \text{ HR per unit} = 100 \text{ units}$$

$$\text{C2} \quad 144 \text{ HR @ } 3 \text{ HR per unit} = 48 \text{ units}$$

$$\text{Total Units} = 148$$

$$\mathbf{\text{Total Units/ha}} = 148/3.12 = \mathbf{47.4}$$

Density figures derived for each site and development option were calculated as both a gross and net density. While the gross density considers the full site area, net density figures only include access roads within the site, private garden space, car parking areas and incidental open spaces. The net density therefore excludes: major distributor road; schools; larger open spaces serving a wider area; and landscape buffer strips. These definitions

of density are consistent with those set out in the DETR research report "The Use of Density in Land Use Planning". Chapter 8 of that report sets out definitions and guidance on the measurement of density at different stages of the planning and development process.

In cases where no open space or larger community facility was included on the site, gross and net densities are the same.

The Case Study Sheets showing the desk-top analysis and tile application to the 24 Case Studies are in Appendix I. The analysis included on each Case Study Sheet comprises of:

- A broad contextual analysis examining the urban structure, connectivity and public transport, the location of local centres and open space;
- Links and land uses of the surrounding area which informed the choice of housing tiles and the way they were applied to the site;
- A summary of the key characteristics of each site and relevant planning policy considerations;
- A categorisation in terms of the site's location and built form setting;
- A map showing how the generic housing tiles have been applied to the site for one of the options considered; and
- A summary of the dwelling mix for each of the options pursued identifying the tiles used, dwelling types, number of habitable rooms, number of car parking spaces provided and net and gross densities achieved.

As with the small sites matrix of SRQ I, design options were not pursued for some cells in the matrix where it is felt that the form of development would not generally be consistent with strategic objectives of optimising housing potential and fostering sustainable development. For example, no low density options with 1.5-2 parking spaces per unit were prepared for ped-shed sites and no higher density options with reduced car parking provision were prepared for remote sites. These unfavoured options are represented in the matrix through blank cells.

## Conclusions

The application of the generic housing tiles to the 24 case study sites produced net residential densities ranging from 140HRH to 1,100HRH. Figure 4.8 summarises the density results for the different options considered on each site.

Overall, we found that there was a close similarity between the net densities achieved for the 24 large sites and those which emerged from the analysis of small sites in SRQ I. Two main factors explain this:

- The majority of the large sites are fairly small (i.e. between 1 and 2 ha). Approximately half of the case study sites were less than 3ha in size and 9 of the 24 sites were smaller than 2ha; and
- Discounting non-residential uses such as open space and using a net density effectively removes the impact of the requirement for non-residential uses from the density calculation.

Nevertheless, the densities calculated for the case study sites are very sensitive to the choice of housing tiles. In this regard, we found that the “setting” of sites was a very significant determinant of the tiles selected.

On the basis of the analysis of 24 large sites we draw two main conclusions:

- First, that it is possible to produce a single matrix which relates to both large and small sites; and
- Second, that building consideration of the development setting of sites into the locational categories of the matrix would be a useful refinement to the existing small sites matrix.

On the basis of this analysis Figure 4.9 sets out the suggested density matrix for small and large sites. The ranges indicated are tested in Chapter 6 against a site-specific design-led approach. This testing is important to ensure that the density figures derived from the desktop tiling approach described in this chapter are consistent with those produced by a preliminary master plan approach.

**Figure 4.8: Summary of Achieved Densities for 24 Case Study Sites**

Case Study	Site Category in Matrix*	Area (ha)	Option 1			Option 2			Option 3		
			Tiles	hr/ha		Tiles	hr/ha		Tiles	hr/ha	
				net	gross		net	gross		net	gross
1	3	3.12				B1,C2	206	206	C1,D1	422	422
2	6	5.16							B1,C3	734	666
3	6	0.41							C3	1093	1093
4	1	0.81	B1,B2	191	191						
5	3	1.68				C1,D1	321	296	C1,C2	387	357
6	3	1.70				B1,D1	284	284	C3	823	823
7	2	2.59	A2,B1	187	187	B1,C2	223	202			
8	5	3.77				B1,C1	399	365	C1,C3	562	535
9	5	5.05				C3,D1	463	433	C3	652	610
10	6	0.83							C3	1012	1012
11	5	2.59				C2,D1	361	361	C1,C3,D1	664	664
12	1	2.96	C2	192	16						
13	2	12.88				A3,B1,B2,C2	184	175	B1,B2,D1	320	272
14	3	20.02				B1,B2,D1	266	226	B1,B2,D1	339	287
15	3	0.68				B2,D1	282	282	C1	432	432
16	5	2.35				C1,D1	368	368	C1,C3	720	659
17	1	4.16	A2,A3,B2	196	159						
18	3	3.15				B1,D1,	256	204	C1,D1	371	297
19	4	1.50				B2,C2	231	231	D1	322	322
20	2	3.75	A2,B2	165	165	B1,C2,D1	243	243			
21	5	1.33				B1,C2	204	204	C1,C3	547	547
22	5	3.36				C1,D1	385	351	C1,C3	617	617
23	2	3.30	B2	191	165	B1,C2,D1	250	215			
24	2	6.12	A3,B2,C2	155	137	B2,D1	263	241			

\* 6-1 indicates the accessibility index as displayed in the matrix

**Figure 4.9: Density Matrix for Large and Small Sites**

	<b>Option 1</b>	<b>Option 2</b>	<b>Option 3</b>
<b>Car Parking Provision</b>	High 2 – 1.5 spaces per unit	Moderate 1.5 – 1 space per unit	Low Less than 1 space per unit
<b>Predominant Housing Type</b>	Detached & linked houses	Terraced houses & flats	Mostly flats

<b>Location</b>	Accessibility Index	<b>Setting</b>			
Sites within Town Centre "Ped-Shed"	6 ↑ ↓ 4	<b>Central</b>			<b>650 – 1100</b>
		Case Study Examples			2 3 10
		<b>Urban</b>		<b>200 – 450</b>	<b>450 – 700</b>
Case Study Examples		8		8	
			9 11 16 21 22	9 11 16 21 22	
<b>Suburban</b>		<b>150 – 250</b>		<b>250 – 350</b>	
Case Study Examples		19		19	
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3 ↑ ↓ 2	<b>Urban</b>		<b>200 – 300</b>	<b>300 – 450</b>
		Case Study Examples		1	1
				5 6 14 15 18	5* 6* 14 15 18
<b>Suburban</b>		<b>150 – 200</b>	<b>200 – 250</b>		
Case Study Examples		7 13 20 23 24	7 13 20 23 24		
Currently Remote Sites	2 ↑ ↓ 1	<b>Suburban</b>		<b>150 – 200</b>	
		Case Study Examples		4 12 17	

**Definition of Site Setting:**

- **Central** (very dense development, large building foot prints and buildings of 4-6 stories and above e.g. larger town centres and much of Central London)
- **Urban** (dense development, with a mix of different uses and buildings of 3-4 stories e.g. town centres, along main arterial routes and substantial parts of Inner London); and
- **Suburban** (lower density development, predominantly residential of 2-3 stories e.g. some parts of Inner London, much of Outer London).

Shaded Case Study reference numbers refer to the Case Studies selected for the detailed design-led approach as discussed in Chapter 6

**PART II**  
**Realising the Potential of Large Sites**

**PART II**



# 5 Principles of a Design-led Approach to Large Sites

## 5.1 Introduction

The previous three chapters have been concerned with how the development potential of sites can be estimated and with the development of the Density, Location and Parking Matrix. This analysis is intended to provide a strategic framework for assessing the development potential of sites and to assist Boroughs in undertaking housing capacity assessments.

This and the next chapter move beyond this strategic analysis to consider how large sites should be developed so as to optimise their contribution to London's housing capacity and to sustainable development and urban quality objectives. This Chapter sets out some of the key urban design, movement and development principles. These are then illustrated further in the following chapter through five detailed case studies.

## 5.2 Key principles

The principles considered in this chapter build on those set out in Sustainable Residential Quality I for small sites and many of these principles apply equally to large sites. However, with larger sites a number of broader considerations also arise.

The key difference is that while small sites can often be considered as 'sites', as size increases sites must be seen more in terms of development areas representing the opportunity to create a new part of the urban fabric; a fully integrated urban neighbourhood catering for people of different ages and income groups and well related to the public transport networks. In the context of this study a number of implications arise from this:

- A series of strategic urban design principles need to be understood and applied;
- Large sites must be planned around the needs of walking and cycling and linked into the public transport networks; and
- A positive and creative planning and development process is needed to realise the full potential of large sites.

The following sections set out the main issues to be considered in each of these key areas.

## Strategic urban design principles

The urban design principles outlined in this section operate through several spatial scales, the strategic, local, and neighbourhood, and are concerned with movement, structure, form, use, image, and community. They are equally concerned with the physical and social nature, location and role of place and space, and its connectivity and continuity within the extended urban hierarchy.

The urban design principles have been developed as a guide to local authorities and developers in the preparation of development briefs and development plan documentation. The need for an urban design strategy in the preparation of development documentation is now well established. Good urban design practice can help to deliver sustainable urban development:

- where the impact of the motor car might be reduced and the needs of the pedestrian and cyclist enhanced;
- where public open space might be realised as an asset to the community and not a burden to the local authority;
- where attractive public places become the settings and generators of attractive built form; and
- where higher densities can be achieved as a consequence.

Whilst not claiming to be fully comprehensive in the imperfect science and art of urban design, the principles are intended to act as a series of triggers to the creation of connected urban mixed use and residential neighbourhoods. The principles set out on the following pages should be seen as complementing those set out in SRQ 1. These micro “building related” principles are reproduced as Appendix II to this report.

## Movement

Establishing good access and circulation to and through a site, its relationship and connection with immediate surrounding facilities and movement patterns, and the ease with which that continuity is established and maintained, are the seeds for successful urban development.

The generators of new urbanism are to be found within the surrounding urban hierarchy, and the long term success of newly created urban settings will rely upon such conditions being maintained. Preparation of development brief and development plan documentation mean, giving priority to pedestrian movement, clearly defining routes and safe movement patterns for pedestrians and cyclists, providing efficient public transport and pedestrian linkages to transport stops.

Detailed considerations should be given to:

- **new and existing routes and desire lines** both within the site and across the whole of the site perimeter so that pedestrian movement is uninterrupted by vehicle based layouts, cul-de-sacs or boundary walls;
- **direct, secure and attractive pedestrian linkages**, to strategic, local, and neighbourhood amenities and transport routes, shops, places of work, entertainment, schools and colleges;
- **efficient and attractive public transport** connecting discreet communities and neighbourhoods to local and central facilities such as shops, places of work, entertainment, schools and colleges;
- **safe movement for all modes of transport**, motorised, pedestrian, cycle, within streets and movement corridors; pedestrian and cycle routes integrated with the mainstream of movement patterns, keeping cyclist and pedestrian movement as an integral part of road and street patterns;
- **a quality street environment** which helps to integrate the spatial needs of differing modes of movement, pedestrian, vehicular, and cycle.



## Structure

The relationship of site location to surrounding built form, landscape, open space, movement patterns, building and land uses, and prevailing micro-climatic conditions provide a framework for new development. Buildings and activities that refer to those around them gain over those that do not.

In the preparation of development brief and development plan documentation a survey of surrounding built form, landscape, tree and hedge lines, together with patterns of movement will provide the framework for new designs and development. Consideration should be given to:

- **networks of movement through and across the site can organise and structure development** by responding to existing and potential routes and movement patterns. Care needs to be taken in surveying and understanding how people move about the area and the paths they take;
- **scale and massing of built form**, particularly where changes in form and density occur, should be designed in context and with reference to the existing built form, at the edges of sites, at junctions and connections with adjacent development, and at points of entry to the site;
- **land shape and landscape structure**, may act as a frame to development, shaping and defining neighbourhoods, centres, landmarks and focal points. In detail design, street planting, private garden to street relationships, public pathways and roadways complement this structure;
- **orientation characteristics** of access, micro climate, property fronts and backs, and aspect, will influence issues of site design, access and circulation. Places and spaces to enjoy the sun, to protect from the wind and rain, and particularly for play and recreation both as public parks and amenity areas, and as incidental space;
- the **right to light**, is a fundamental need for all habitable rooms in both existing and new dwellings, and dictates dimensional discipline in the spaces between buildings, remembering also the differing characteristics of south light and north light;
- **catalysts for neighbourhood repair**, and the integration of new development, can generate area improvement within and around the site and provide improved facilities.



## Form

A strong block structure clearly defines spaces and places between buildings, and can weave routes and street patterns with spatial quality and continuity. These spaces and places, streets and routes become the connections with surrounding neighbourhoods, centres, and established route, street, place and space patterns, providing a high degree of urban integration.

In the preparation of development brief and development plan documentation a planning and design response to prevailing site characteristics, constraints and opportunities will provide the clues and cues for the formal composition of new development, through:

- **defining development blocks through existing routes and patterns of movement;** creating streets as patterns and desire lines, maintaining established and significant routes across the site can generate development structure and form whilst maintaining desire lines and existing public places which generate activity, neighbourhood identity, and community focus, as well as being movement corridors;
- **providing eyes on the street,** with entrances and windows looking onto the street where residents overlook and effectively 'police' the street;
- **a clear demarcation of fronts and backs** of properties, with the definition of public and private space, being accessible and protected respectively;
- **the configuration of built form,** the shape, height, rhythm and grain of the building patterns, street and buildings lines, setbacks, and the space between buildings;
- **the density of built form,** dependant upon setting, the density of buildings, their spatial relationship, use, and occupancy.



## Use

The mix of development tends to be guided by its location, surrounding uses and activities, market demands, and the demographic characteristics of the population. In urban settings single use or zoned areas of activity tend to lack vitality, whereas mixed use areas can be exciting, economically viable and sustainable serving the community well.

Similarly neighbourhoods which provide a mix of residential types, both in terms of tenure and economic characteristics, produce rich social settings. In the preparation of development brief and development plan documentation the allocation of uses is the primary determinant of activity, and activities are core to the vitality and viability of urban settings. The most successful urban settings tend to be characterised by patterns of mixed use, mixed tenure, and mixed economy:

- **mixed uses**, introduce a range of activities and services into a discreet location within a defined community;
- **mixed tenures**, provide a spectrum of occupancy types in both housing and commercial property. Neighbourhoods with a mix of family, single person and elderly person accommodation are richer than those formed on only one dwelling type.
- **mixed economies**, offer differing economic status and a range of property value types within a neighbourhood or community's housing and mixed use activities;
- **relationships to local and town centres**, pedestrian distances and accessibility to centres of activity (e.g. Pedshed areas) will inform the development mix and spatial allocation of uses;
- **buildings without programme**, the provision of buildings which may be used for a number of differing activities through the lifetime of the building;
- **triggering support services and amenities** through additions in the local population may benefit wider neighbourhoods and communities in terms of the range and quality of available services and facilities.



## Image

Urban areas need to be accessible, legible and understandable. The degree to which we understand and relate to urban settings determines our enjoyment of urban spaces and the community they harbour.

In the preparation of development brief and development plan documentation, the designation of public place, its civic and community role, and particularly the treatment of public areas in the use of materials, landscape and street trees, street furniture and lighting, and its maintenance, will create the image of an area. The main elements are:

- **routes, roads and pathways**, should provide clear and direct circulation and access to facilities and services, both within a neighbourhood and beyond;
- **edges and boundaries** to the development need to be well defined, not for reasons of exclusivity, but to give shape and identity to neighbourhoods, town centres, and public parks;
- **nodes of activity** help to give mass to commercial and leisure functions where activities and uses support one another and provide choice. Areas form their identity not only from their form but also their activity nodes such as shops, cafes and restaurants.
- **districts** are the primary components of urban areas which whilst being mixed in use, predominantly housing, or commercial in character can inherit distinctive identities;
- **landmarks** provide direction, orientation and guidance in and around urban areas and should be designed into development accordingly by highlighting intersections, corners and entrances;
- **patterns of built form**, land use, open space, mixed densities and mixed uses, make up the urban character and 'urban grain' of communities, towns, and cities; discernible patterns can assist in planning and designing urban development.



## Community

The role of the community in urban design is central. In the preparation of development brief and development plan documentation community consultation and community provision are core issues in the process.

The involvement of the community at early stages in the planning and design process is both a necessary and valuable component, whilst the careful consideration of the needs of the community should inform initial briefing and strategic urban design thinking. Careful consideration should be given to:

- **community provision**, in the form of facilities for education and health through to amenity and recreation are necessary early inputs to the plan making process;
- **mixed communities**, mixed social and economic groupings tend to be successful communities, environmentally, economically, and socially.
- **community ownership**, or whose city, ...town, ... neighbourhood is it anyway?, gives rise to issues of public ownership and civic responsibility; community inclusion in all aspects of planning, provision, and management tends to engender civic pride, responsibility, and ownership;
- **community management** provides communities and their representatives with the opportunity to take control of their lives and environment through parish or community council type structures.



## Design principles for sustainable movement

### Existing approaches to movement

Traditional approaches to site design have tended to focus on the site as an isolated entity with a few identified "connections" to the outside world. This has largely been the result of assuming a motorised traffic viewpoint: once using a vehicle, access is a question of finding a specific link to a network, either public or private. This network will have its own hierarchy from local to strategic roads or from local bus to longer distance train.

Issues are usually ones of the capacity of the junction between the site's road system and the existing road network or of whether to enlarge the network in the immediate vicinity of the site.

Car circulation within sites is usually of low priority since internal delays are relatively unimportant. Bus access sometimes includes internal circulation but this is both rare and limited in scope.

### New principles: the base mode for movement

Viewing the question of residential development from the kerb up gives a different picture. The important concept of permeability (fine networks which are linked to individual buildings and for which the basic mode is walking) changes the whole attitude to site access. The links to the outside world are extensions of the fine internal network. The design of these should integrate the external transport system with the internal circulation and access system.

This implies that a layered design approach is needed. First the need for access from front door to local facilities (on or off site) should be considered. This starts with walking and next considers cycling. Both these modes need directness, quality and security, especially walking. This implies level, direct routes with open (not defensive) frontages and where the impact of motorised traffic is limited by careful streetscape design. Social and play activities become easy and safe, and they not only mix well, with walking and local cycling they can be supportive in terms of an active, non-threatening environment.

There is no illusion here that such designs will automatically result in welcoming and secure spaces. Social problems and deprivation will not be cured by transport policy. What these designs will do is provide the

conditions under which sustainable forms of transport can flourish.

### Permeability and door to door movement

The second level of access relates to the external transport network. Here again the base modes are foot and cycle. In the case of the latter, links to cycle networks for longer distance journeys, for example to intermediate employment or shopping areas are the key. The journey must be considered not from the site perimeter but from the front door. This applies even more strongly to walking.

For journeys by foot the key access for longer distance travel is to the public transport network and in many cases this will be beyond the site. However, for larger sites, as in this study, public transport may access the development, and as the site grows it becomes capable of supporting its own internal public transport corridor, again linked to the external network.

However, in many cases (and for most of the case studies in this project) the key is identifying the external public transport network and accessing it by foot. From the motorised viewpoint the quality of the road environment is basically a speed related view. For people on foot not only is the pace different, but also the quality of the walking environment is more perceived and therefore more important. Again the principle is for secure and direct routes to public transport access points such as stations and bus stops.

If the site layout is guided by the soft modes first, then supplemented by public transport, the road mode can then be accommodated. However, the designs which flow from this approach will tend to be rather different from many of the current pattern book layouts. Cul de sacs with tortuous footpaths or walking links which are shoehorned between back walls (and thus virtually un-useable after dark) would tend not to be the norm. Instead housing would front onto safe streets integrating all modes of movement.

### Parking

The final issue is thus how much parking and how to cater for it. Parallels from business development can be found which are helpful here, for example the concept of relating density of development to non-car access (both to facilities and activities and to public transport). Thus the number of parking spaces per hectare may not change much, but the dwellings, rooms or persons per hectare may rise with accessibility.

How is non-car accessibility in this context to be measured? Clearly access to work, shopping, leisure, healthcare and education is important and the non-car modes can be linked through multi-modal journeys, the most basic of which is walking to the bus stop.

In the long term access to transport of all kinds, including the car through car clubs, will provide an acceptable answer for those unwilling to give up owning one. Car clubs, street fleets and travel discount clubs are beginning to be seen as part of access planning for residential development, complementing the stick of lower parking provision and the carrot of improved alternatives.

There is also a strong social message here: such provision actually extends the use of cars to those who cannot afford them. This may seem a risky tactic, but the evidence is that the increase in car use from those previously without their own is far outweighed by the reduction in use from those who previously did. Equalising the marginal cost and convenience of the modes is of itself a major force in changing travel choice. The idea of including soft schemes such as these instead of hard schemes like roundabouts or an extra traffic lane will take some getting used to. It is, however, likely to be the common currency of designing access to residential development in the future.

### Assessing sustainable access

As ever the requirement is for a system which is simple to use and gives a reasonable and balanced indication of accessibility. As with all systems, even the most elaborate models, an element of judgement is present. The principles on which the assessment is carried out can be set down and then the choice is how far it is necessary to quantify each element.

Two factors are important in relation to residential sites: access to other networks, particularly public transport, and access to facilities (see Figure 5.1). The former allows longer distance travel to larger centres for work or non-work purposes (eg shopping, leisure or education). The latter assesses how far residents will need to travel to get to the places they need. This tends to focus on non-work facilities such as shops, open space/recreation, and again education (particularly primary schools).

Covering these two elements starts to capture both the need to travel and the availability of non-car alternatives if there is a need to travel. It should be noted that there has been significant work on quantifying public transport

**Figure 5.1: Individual Scores**

<b>Public Transport Access</b>		
Good	Average	Poor
3	2	1
<b>Local Facilities Access</b>		
Good	Average	Poor
3	2	1

accessibility (PTALs), although the precise scores can be slightly misleading and where routes actually go needs to be taken further into account. Interpretation is important. As far as access to facilities is concerned, it is very difficult to produce numerical values because of the hugely variable nature of facilities and their qualitative aspects. For example a badly run shop (or even primary school) may not be counted as a realistic alternative by those people who are deciding whether or not to travel.

This links to an important aspect to access - it can be changed by a variety of means. Thus it is not simply a question of supplying more buses or wider footways - the quality of the destination is important and the idea of active travel planning by shops, schools or workplaces will influence accessibility. Examples of the latter are school initiatives such as the "walking bus", green commuter planning and home delivery projects. This also emphasises the contribution that investment in improving the quality of local centres and the walking routes to them can make to encouraging greater pedestrian access.

A combined score can be produced by combining public transport accessibility and the walkability of local facilities. This is the approach used for the case studies presented in the next chapter. The base line is to produce a matrix as set out in Figure 5.2.

Notes:

- Local facilities should be classified so as to identify Schools, Shops, Post Office/bank/Building Society, Doctor/Dentist, Café/Restaurant within walking distance.

**Figure 5.2: Combined Score**

Local Facilities Accessibility	Public Transport Accessibility		
	Good	Average	Poor
Good	6	5	4
Average	5	4	3
Poor	4	3	2

- Producing the scores can be done using judgement or simple assessments (e.g. is the bus stop walkable, how many buses an hour) or more complex (e.g. using the PTAL Index).
- It also follows that for large sites the immediate surrounding area is relevant as well as facilities on site. In addition, some parts of a large site will score differently from others, thus zones with different scores can be identified.

The case studies presented in the following chapter adopt this approach to assessing the accessibility of sites and highlight some of the key considerations to be taken into account in conducting travel assessment 'from the kerb up'.

### Exploring the potential for new or improved bus services

The development of large sites can provide important opportunities to enhance public transport provision. In most cases this will mean new or improved bus services. It is important that the potential for enhanced bus services is identified early in the planning process and preferably as part of the strategic appraisal described in Section 5.5 below. This will enable the potential for new or enhanced services to be considered with London Bus Services Ltd. and the service providers as well as ensuring that the needs of buses and passengers are built into the layout and design of the development from the outset.

The starting point for considering the potential for new or enhanced bus services is an appreciation of bus network planning objectives. Those used by London Transport Buses seek a network which:

- **Frequent:** the aim is to run buses at the highest justifiable level of frequency with adequate capacity for peak periods, as it is important to minimise passenger's waiting time. Concentrating services is important; it is preferable to run one service every 5-10 minutes rather than two services with 15/20 minute frequencies;
- **Simple:** bus networks can be difficult to understand and market. The aim is to make services easy for passengers to understand and remember. To achieve this it is important that all-day services can be sustained and not just at peak periods;
- **Reliable:** providing even service intervals when frequencies are high and running to time when they

are low. If new development is likely to generate additional car traffic an important consideration in planning the development will be to mitigate the impact of this on buses, for example, through bus priority measures or bus gates. If journey times are extended even by small increments by diverting an existing service through a new development area then routes may cost more to operate as additional buses and drivers may be required in order to maintain service reliability.

- **Comprehensive:** providing service to all areas and recognising the needs of local people (including the elderly and people with disabilities). However, this aim of comprehensiveness needs to be carefully balanced against the need to provide a frequent service on each individual route..

Against these broad objectives, London Bus Services Ltd. look at a 5 minute (400m) walking catchment for bus services (i.e. an 800m corridor centred on the bus route with the catchments of individual bus stops overlapping). In assessing the potential for new services associated with the development of a large site the key issues will be:

- What are the public transport needs of the site? (For example, where are the nearest town centres, railway station and secondary school?)
- How many trips will be generated by the development? and
- How does the site relate to the catchment of existing services?

The general preference is to improve an existing bus service (e.g. additional bus(es) and more frequent services) rather than diverting services or creating additional routes. Wider benefits are delivered if existing services are improved.

Where a new or extended service is being proposed LT Bus services will seek to ensure that it is capable of operating over the longer term i.e. to protect overall service stability. This means that even where a developer is providing sponsorship for the first three years of a new service there will still be a requirement for the service to meet normal criteria for subsidy, if required, in due course.

Detailed Case Study 3, presented in the following chapter, examines the potential for a new bus service to run through a new development in relation to these network planning principles.

More detailed guidance on physical planning for bus services is set out in a series of publications prepared for the London Bus Priority Network Steering Group. These offer advice on the siting and design of bus stops, bus friendly traffic calming and on bus priority at traffic signals as well as on a host of other topics. These documents can be obtained from the Bus Priority and Traffic Unit at London Transport Buses.

5.5

## **Establishing a positive and creative planning and development process**

### **Introduction**

These new approaches emphasise the importance of integrated design teams and of creative partnerships between local authorities, developers and other stakeholders including the general public, social housing providers, public transport operators etc.

### **Shortcomings of current practice**

Such partnerships have tended to underpin the most innovative and successful developments, but they are commonly absent from day to day practice. All too often this is characterised by:

- A developer conceiving a scheme in isolation and then seeking to push it through the statutory planning process as fast as possible and with the minimum possible modification;
- A local authority more concerned to control development so as to minimise the potential for local objections rather than to contribute positively to the development of the best possible scheme;
- Key stakeholders such as public transport providers, being consulted on firm proposals rather than being engaged in the initial design and development of the scheme; and
- The local community adopting a defensive attitude rather than recognising the potential for the development to make a positive contribution to improving the quality of the local environment.

These isolated positions go a long way to explaining the unsatisfactory nature of much new residential development. In particular the application of general planning and highway design standards (and in particular on density) provides little incentive for developers to engage with local authorities during the

development of proposals. From a developer's perspective the fastest and most certain route to planning permission is compliance with the standards regardless of the impact on quality.

### **The stimulus of a design-led approach**

A new way of working is needed if the full potential of large sites is to be realised. In this respect a move to a design-led approach provides an important opportunity to establish a new and more positive culture of planning and development. Following a design-led approach, the form of development will emerge from analysis of the strategic and local contexts and of the design possibilities of the site.

The dialogue between a developer, a local authority and the other stakeholders will therefore become much more important in defining the form and nature of development. From a developer's point of view, because good design creates not only better places, but also potentially increased development value, there should be every incentive to engage with local authorities in a positive dialogue about the potential of each site.

### **A design-led process**

The organisation of the planning and development process will vary depending on the nature of the site, the particular objectives being addressed and in terms of who is promoting development i.e. a local authority or a private developer. Nevertheless the key considerations which need to be built into the process and the nature of the dialogue between the parties will be much the same. The starting point is to develop a full understanding of the nature of the site and its context. There are two levels to this analysis: a strategic appreciation; and a more local appraisal of the area surrounding the site.

### **Understanding the context**

The strategic analysis should identify:

- **Wider social, community and economic development initiatives.** For example, is the site part of an existing or potential SRB area?
- **Existing and proposed public transport networks and nodes.** How accessible is the site to public transport? What is the quality of service in terms of frequency, reliability and destinations served? How might the development of the site contribute to improvements in public transport, for

example by adding to patronage on existing routes or by enabling new public transport routes through the site.

- **Existing social and community facilities, including shops, schools, leisure, health care and open spaces.** Where are these located in relation to the site? How convenient is access to them? What deficiencies exist in current provision and how might the development of the site improve provision?
- **Strategic open space, cycle and pedestrian networks, routes and desire lines.** How might the site be integrated with these networks? How might development help close strategic gaps in a network?
- **Other related sites and development opportunities** which may influence the form of development and service provision, particularly in terms of public transport;
- **Local market conditions** in terms of the demand for housing and other uses. For example, is the site located in an area of high or low market demand? What types of housing is the market demanding and what types of need are not being met through the market.

Each of these considerations will have an important influence on the approach taken to a site, in terms of the mix of residential and non-residential uses and supporting community facilities, the form of housing and the nature of affordable housing provision as well as the level of car parking required and the main pedestrian and cycle routes through the site.

### Understanding the Site

The analysis of the site and its more immediate surrounding context should include consideration of:

- The setting of the site in terms of surrounding uses and built form. For example, what are the established building heights, what parts of the site have good aspects or are affected by bad neighbour uses? What is the local landscape structure? How is car parking arranged on surrounding streets?
- The potential pedestrian routes and how these relate to local facilities and public transport stops;
- The need to retain existing buildings or important landscape features within the site; and

- Physical constraints such as ground contamination, overhead power lines or steep slopes.

This analysis will inform the application of the urban design and movement principles set out in Sections 6.3 and 6.4 above. The analysis presented in the next Chapter illustrates how these principles can be applied in relation to four case study sites.

### Articulating the urban design strategy

The output from this analysis could take the form either of a Development Brief (such as where a local authority are seeking to promote development) or an Urban Design Strategy (such as in support of a planning application for development).

Ideally development briefs should be prepared by local authorities with the active involvement of other key stakeholders. The approach should be vision led with roundtable sessions and joint site and community consultation meetings rather than isolated working by correspondence. The aim should be to engage members of the team across the full spectrum of issues rather than on narrow specialisms. It is only through this sort of working that the full potential of sites will be realised.

It does not automatically follow that the lead responsibility for the preparation of a development brief should lie with the local authority. There may well be development interest in a large site before the local authority are able to prepare a brief. In such cases there is no reason why a developer cannot take lead responsibility for the preparation of the brief. In such cases we would see the process and the involvement of key stakeholders as being the same with the local authority contributing as a stakeholder. The key point is that firm proposals for a large site should be worked up on the basis of an agreed brief rather than in isolation.



## 6 Design Case Studies

### 6.1 Introduction to the case studies

This Chapter presents "concept designs" for four case study sites. These have been selected to represent three of the six rows of the Location and Density and Parking Matrix which emerged from the analysis of 24 large sites in Chapter 4.

The purpose of the more detailed design analysis presented in this Chapter is five fold:

- To illustrate how a design-led approach can help create higher density residential environments which extend the range of housing choice and maintain a high quality of amenity;
- To demonstrate how affordable housing can be integrated into private sector led development of large sites so as to promote inclusive communities while recognising the need for efficient housing management;
- To show how concerns to prioritise walking, cycling and public transport can be built into the appraisal of the development potential of large sites and contribute to defining the optimum form of development;
- To test the impact of more intensive forms of development with reduced levels of car parking on the development viability of sites; and
- To verify the density ranges established in Chapter 4 by testing these against a more detailed indicative master plan approach.

The case study analysis involved joint working by a team of planners, urban designers, transport planners and development advisors. Each site was visited by each member of the team and the alternative forms of development for each debated at a round table session.

The background work for each included:

- Discussion with the relevant London Borough regarding affordable housing requirements, the need for community facilities as well as issues of access;
- An audit of the built environment around each site in terms of established building heights, the presence of landmark buildings and key local facilities such as open space;
- A transport analysis focusing particularly on walking and cycling (what facilities can be reached conveniently and safely) and access to public transport (where to, how long and how frequently); and
- A market appraisal in terms of values achieved on recently completed schemes and from discussions with developers active in each locality.

It is important to appreciate that while this analysis is more in-depth than that undertaken for the larger sample of 24 sites it is still fairly rudimentary in comparison to that which we would expect to be undertaken in formulating real development proposals. In particular it did not include site investigation work, analysis of the suitability of buildings for conversion in structural terms or consultation with the local community. Thus while we regard the case study examples as being realistic in terms of the forms of development which could be achieved, we also recognise that they can only be considered as preliminary concept designs.

The presentation of each of the case studies follows a similar format as follows:

- An overview explaining the nature of the site, the particular design and development issues being

considered and how the site relates to the Density, Location and Parking matrix;

- A sustainable transport appraisal looking at access on foot to local facilities and to public transport;
- A brief market overview;
- Concept designs for the site (depending on the number of options being explored) including a layout plan supported by a schedule of accommodation (broken down between market and affordable housing and giving details of car parking provision and non-residential uses) and a perspective showing how the new development would relate to its surroundings;
- A brief design commentary explaining the design intent underlying each option; and
- A general discussion of the performance of each option in terms of development costs and values and the issues arising.

6.2

## **A disclaimer**

It is important to point out that the selection of case study sites and the design options explored are the consultants' work alone. It does not imply any endorsement of the local authority, land owners, LPAC, GOL, DETR, the Housing Corporation or London Transport. The design case studies are examples of how innovative, good quality housing development could be achieved. They are not meant to be indicative of how these specific sites should be developed, nor should they be construed as such.

# Detailed Case Study 1

The site of the Detailed Case Study 1 is located along a main traffic artery in Central London. Neighbouring buildings display a strong presence with up to ten storeys of commercial and residential uses. All the main facilities and public transport nodes are within walking distance.

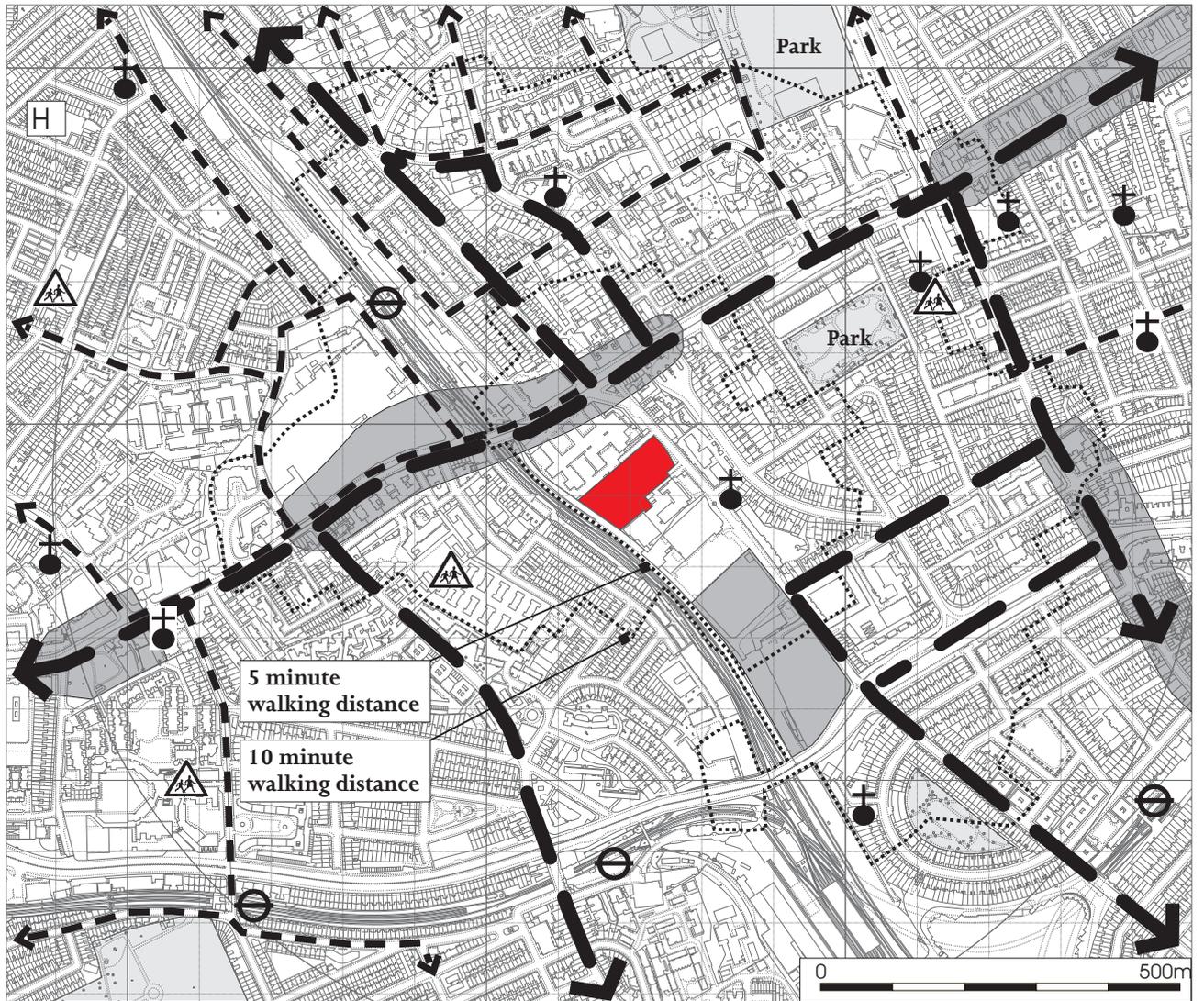
Due to its accessibility and the very urban character of the surrounding area the site has been placed in the town centre “ped-shed” category with a central setting. For this site only one option is being explored.

	Option 1	Option 2	Option 3
<b>Car Parking Provision</b>	High 2 – 1.5 spaces per unit	Moderate 1.5 – 1 space per unit	Low Less than 1 space per unit
<b>Predominant Housing Type</b>	Detached & linked houses	Terraced houses & flats	Mostly flats

Location	Accessibility Index	Setting	Option 1	Option 2	Option 3
Sites within Town Centre “Ped-Shed”	6 ↑ 1 ↓ 4	<b>Central</b>			<b>650 – 1100</b>
		Case Study Examples			2, 3, 10
		<b>Urban</b>		<b>200 – 450</b>	<b>450 – 700</b>
Case Study Examples		8	8	9, 11, 18, 21, 22	
<b>Suburban</b>			<b>150 – 250</b>	<b>250 – 350</b>	
Case Study Examples		19	19		
Sites along Transport Corridors & Sites close to a Town Centre “Ped-Shed”	3 ↑ 1 ↓ 2	<b>Urban</b>		<b>200 – 300</b>	<b>300 – 450</b>
		Case Study Examples		1, 5, 6, 14, 15, 18	1, 5*, 6*, 14, 15, 18
		<b>Suburban</b>	<b>150 – 200</b>	<b>200 – 250</b>	
Case Study Examples		7, 13, 20, 23, 24	7, 13, 20, 23, 24		
Currently Remote Sites	2 ↑ 1 ↓	<b>Suburban</b>	<b>150 – 200</b>		
		Case Study Examples		4, 12, 17	



# Area Analysis



**Legend:**

- Site
- Commercial
- Public Open Space
- A School
- H Health Facility
- + Place of Worship
- Bus routes
- Cycle Network
- + Underground Station

## Transport Analysis

### General situation

This site is located in an area where the local environmental quality has been eroded by heavy and fast moving through-traffic. Despite this the wider area is exceptionally attractive in terms of the urban environment and the range of amenities and services available. Motor vehicle access to the development will be from a one-way, northbound road running past the north eastern side of the site. Traffic in residential areas away from the main roads and gyratories seems to be relatively light and the atmosphere improves as one goes east towards the heart of London.

### Local access and facilities

There are some high street shops and cafés within five minutes walk, along fairly unpleasant roads. The main shopping area with an excellent range of other facilities is ten minutes walk away. Other shopping areas exist within 10-15 minutes walk east of the site, and at a similar distance to the south-west, although the latter has narrow pavements, constant, slow-moving traffic and major arterial roads which need to be crossed. A supermarket and petrol station are 5 minutes south east of the site. A home delivery service operates in the area provided by Marks & Spencer and Tesco as well as specialist operators. There are a

## Transport Analysis con't

number of pubs and churches, a vet, library, postal services, a cinema and tennis courts within ten minutes walk. Open space is most plentiful to the north east, with a very attractive park and a square within ten minutes walk. To the East, a pocket park provides an extremely welcome respite. There is a primary school under ten minutes walk away, but it is unlikely that the development will attract a large child population, given its very urban characteristics.

The site's access road has adequate pavements for the most part, except outside the petrol station, where the path all but vanishes. The traffic is one-way and moves at high speed. There are two long sections of dead frontage on the East side. Heading North the core shopping area is reached by crossing an unpleasant junction. Crossing the railway bridge to the West leads one towards one of the lesser retail high streets, passing a long section of dead frontage along the way. Heading East conditions improve. The pavement is adequate and the road is wider and tree lined, so that the traffic is less noticeable.

East-West movement by foot or cycle is limited to two bridges over the railway lines. One bridge has a narrow, extremely unpleasant pavement and is not a usable cycle route. The second forms the major barrier to north-south movement, with the three junctions at which crossing is feasible although decidedly pedestrian unfriendly. Even at the least problematic junction pedestrian crossings tend to be impeded by queuing vehicles. The only area with dropped kerbs is a stretch of road to the north-east of the site and even these are old and not truly step-free anymore. The one-way system and the heavy traffic on the site access road, in particular, are further barriers to cycling.

### Access to longer-distance non-car transport networks

The site lies within five to ten minutes walk of an underground / mainline station with limited services. Two further underground stations are about fifteen minutes walk away, offering access to two lines. Both of these involve crossing major roads with an unpleasantly large amount of fast traffic.

The best walking option would seem to be towards the underground station to the south east of the site. This entails crossing the access road at the first available opportunity and cutting through by a church and pub to a road which forms the southbound arm of the local one-way system. Although this stretch is not ideal, it seems somewhat less unpleasant than walking the length of the main access road. The route then follows fairly busy main roads, crossing a major arterial route by the least pedestrian unfriendly junction of the three in the area.

Buses are available at reasonable frequencies from the main roads surrounding the site, heading to neighbouring local centres, and central London. The stops are generally adequate,

but the general walking environment, as described above, is a disincentive to reaching them.

Destination	travel time	average number of buses per hour	
		peak	off-peak

A	5	25	17
B	7	12	9
C	12	14	9
D	15	6	3
E	19	5	4
F	20	8	4
G	23	6	4
H	25	7	5
I	28	10	7
J	32	6	5
K	33	12	7
L	35	5	3

The only completed cycle route in the vicinity is the shared-use path along the side of one of the area's parks. Other routes on the Area Analysis Map are proposed routes.

### Overall assessment

The site would seem to warrant a score of 2 for both local facilities and access to strategic networks, suggesting an overall score of 4. Whilst it is not a location into which one would choose to inject more cars, neither is it an attractive place for car-free development. There is also likely to be a demand for car ownership.

# Market Analysis

Without doubt the most valuable of the four case study sites. Situated on a major route in a densely developed part of Central London within a short walk of a popular High Street. The site of 0.81 hectares is adjacent to a new residential development currently being marketed at relatively high values and forms an in-fill opportunity to create high density, high value apartments within an established quality residential area. The site is supported by reasonable public transport links with two tube stations within fifteen minutes walk.

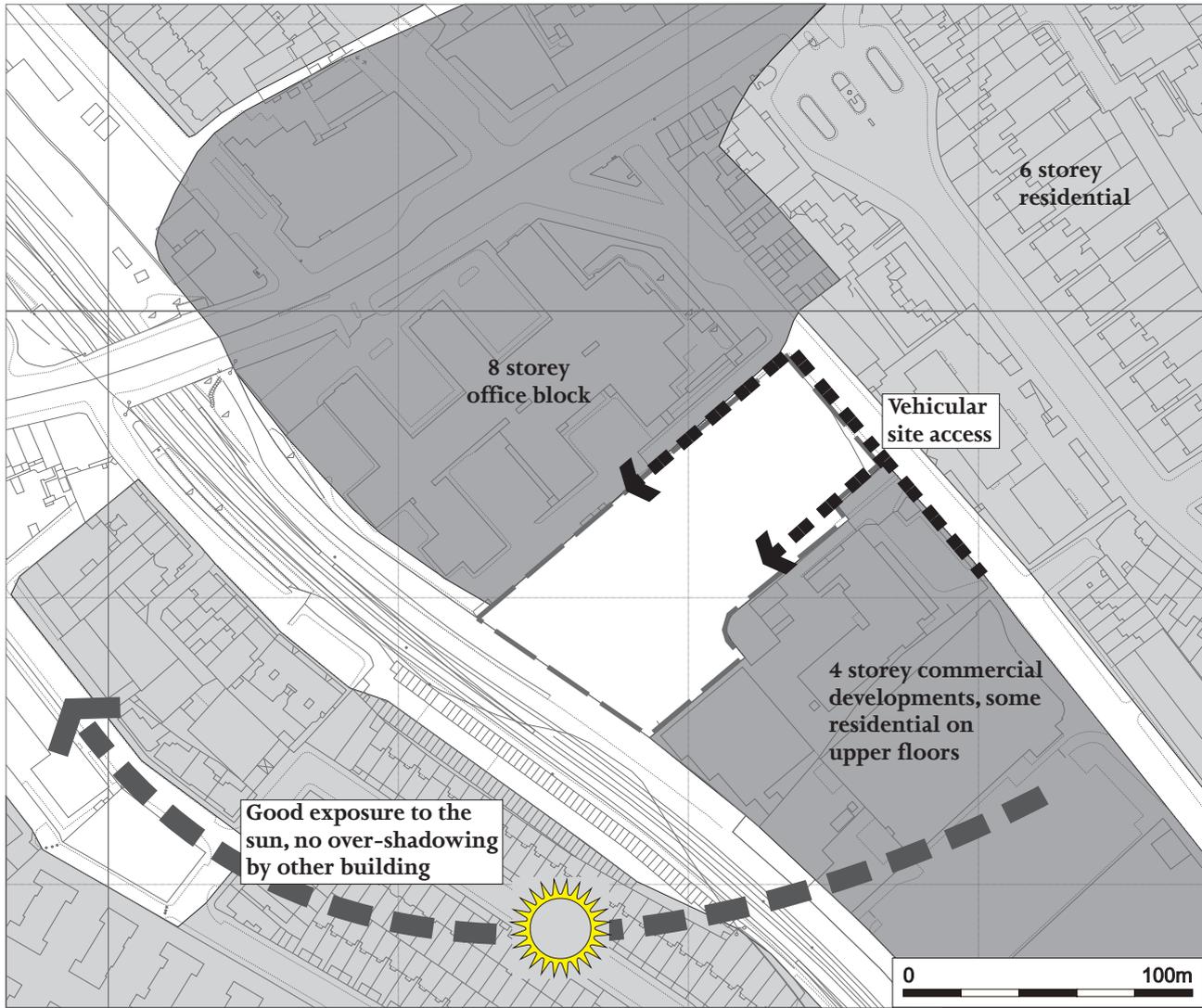
# Development Appraisal

The development generates a very substantial land value as may be expected from a high density scheme in a prime location. The financial analysis highlights two interesting points. First, that a requirement for one third of the dwellings to be affordable housing can be integrated into a high density, high value development. Second, it emphasises the impact that assumed building costs can have on the land value/development surplus.

Two appraisals were conducted, one assuming normal building costs, the other reflecting the high specification implied by the illustrative image overleaf. It was found that the revised building cost reduced the development surplus by more than £2m.



# Site Analysis



- Commercial
- Residential
- Public Open Space

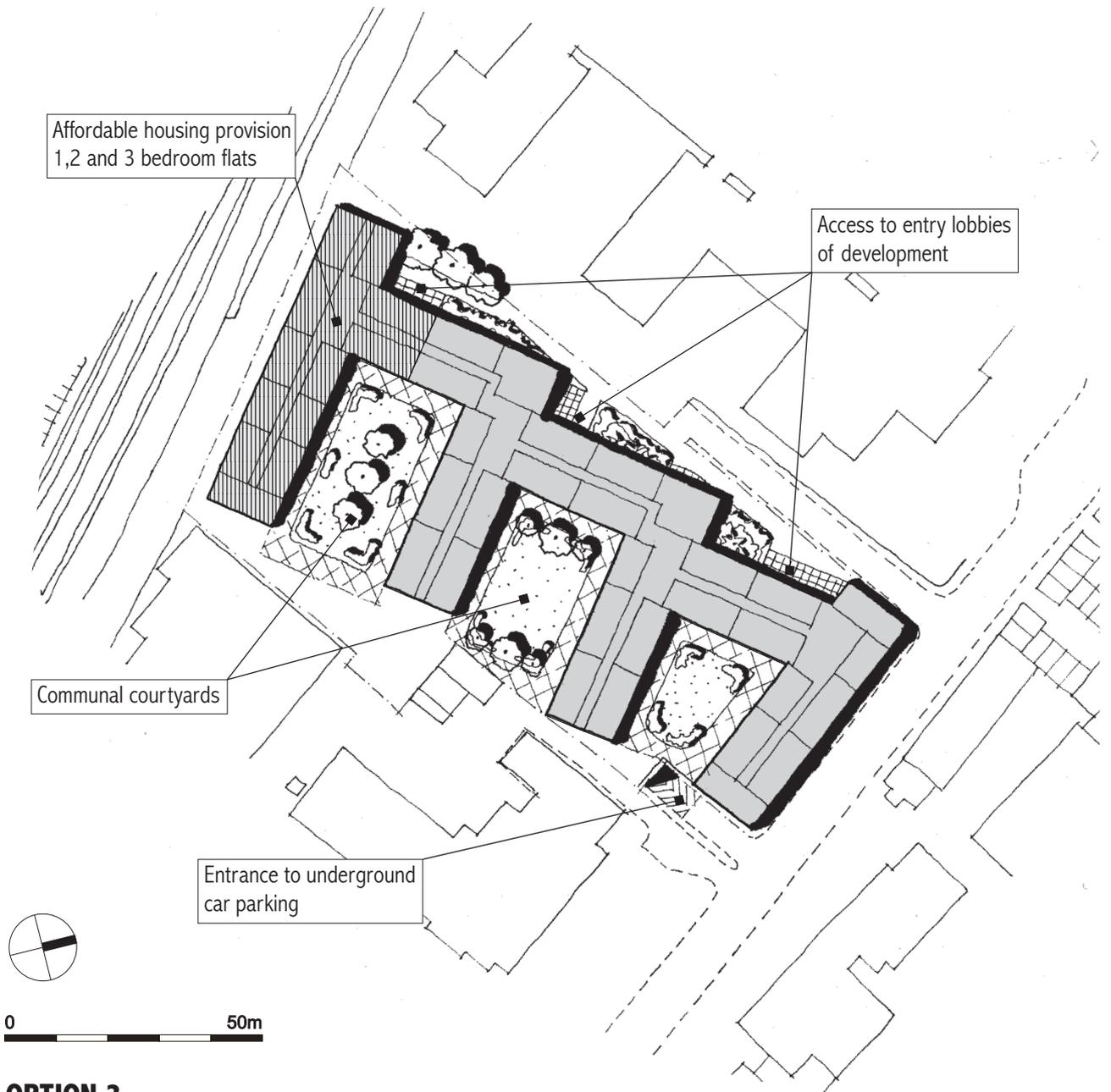
## Notable Site Characteristics

The site is located in an area with a complex building structure where building heights range between 4-10 storeys. The site is accessed from the North-East. No on-site circulation is envisaged due to the small size of the site. To the South-West a steep embankment leads to railway lines acting as a physical access barrier. The benefit of this is good exposure to direct sun light. The site is mainly level and gently sloping to the embankment. At present, the site is used as a surface car park.

## Policy Matters

The UDP designates this site for residential use, offices and open space. For residential dwellings the Council has set a maximum density of 350 Habitable rooms per hectare. The UDP Policy is that development proposed for the site needs to accommodate 33% of dwellings as provision of affordable housing. In addition, the Council is seeking to secure the provision of a medical centre.

# Illustrative Plan - Option 3



## OPTION 3

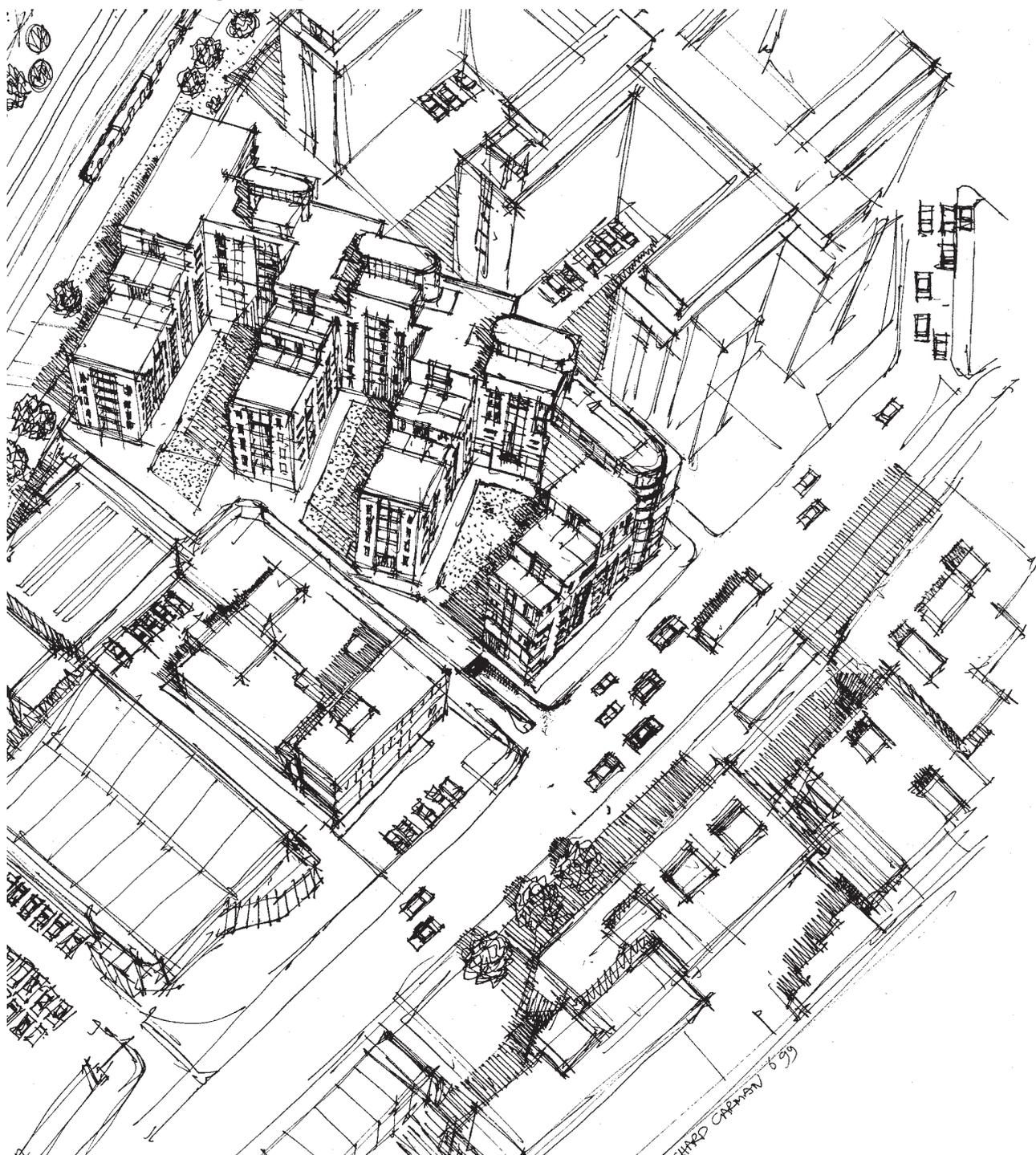
### DEVELOPMENT MIX

UNIT TYPE	DESCRIPTION	UNIT SQ. M.	HRs PER UNIT	UNIT NOS. MARKET HOUSING	UNIT NOS. AFFORDABLE HOUSING	TOTAL UNIT NOS.	HRs NOS.	AREA SQ.M.	PARKING NOS
1 Bed	Flat	54	2	-	12	12	24	648	12
1 Bed	Flat	60	2	28	-	28	56	1680	28
2 Bed	Flat	66	3	-	46	46	138	3036	46
2 Bed	Flat	84	3	144	-	144	432	12096	144
3 Bed	Flat	84	4	-	31	31	124	2604	31
3 Bed	Flat	112	4	14	-	14	56	1568	14
3 Bed	Penthouse	112	4	10	-	10	40	1120	10
<b>TOTAL</b>				<b>196</b>	<b>89</b>	<b>285</b>	<b>870</b>	<b>22752</b>	<b>285</b>

### DENSITY

SITE AREA	NET	GROSS
HA	0.83	0.83
Units/Ha	343	343
Hab Rm/Ha	1,048	1,048
Area/Ha	27,412	27,412

## Illustrative Image - Option 3



## Design Intent - Option 3

In respect to its setting, with multiple storey neighbours in an edge of central London location, with good local facilities, it seems appropriate to develop this site to a high density. A strong presence is being created facing the main road introducing the development. The feathered layout of the building mirrors the building structure of its larger neighbour, while creating pleasant courtyards for the single-aspect units to overlook. The individual building components are accessed from the north side of the building where a residential road and path provide access to three entrance lobbies servicing the individual wings of the

building. This allows the south-facing courtyards to remain private. The courtyards are open to the south ensuring good light penetration of all units.

The individual wings of the building are stepped helping to reduce the perceived mass of the building as well as giving more opportunities for larger terraces for the upper floors.

Due to its location in central London it is justifiable to reduce the parking standards and construct an underground parking structure instead of assuming surface parking.



# Detailed Case Study 2

The site of Detailed Case Study 2 is located just north of a main arterial road into London and within easy reach of both an Underground and Mainline station. This mainly flat site overlooks a stream and lies adjacent to a large public open space which is part of a strategic open space network.

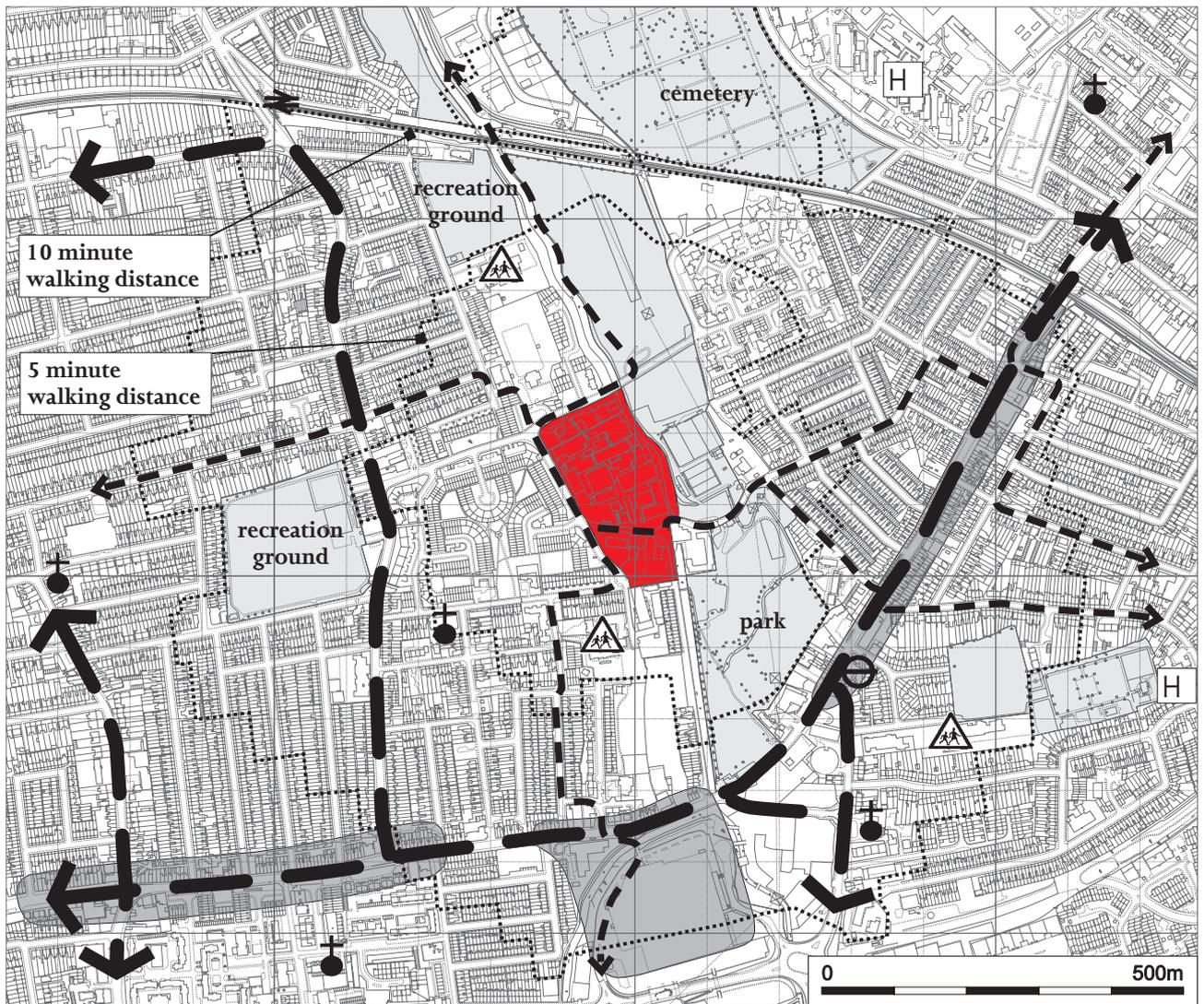
Within the matrix developed in the first part of this study, the site is placed in the Transport Corridor & close to Town Centre “Ped Shed” category with an urban setting. On the following pages two development options are explored creating solutions of different character and density and adhering to different parking standards.

	Option 1	Option 2	Option 3
<b>Car Parking Provision</b>	High 2 – 1.5 spaces per unit	Moderate 1.5 – 1 space per unit	Low Less than 1 space per unit
<b>Predominant Housing Type</b>	Detached & linked houses	Terraced houses & flats	Mostly flats

Location	Accessibility Index	Setting	
Sites within Town Centre “Ped-Shed”	6 ↑ 4	<b>Central</b>	<b>650 – 1100</b>
		Case Study Examples	2, 3, 10
		<b>Urban</b>	<b>200 – 450</b> <b>450 – 700</b>
Case Study Examples	8, 9, 11, 16, 21, 22	8, 9, 11, 16, 21, 22	
Sites along Transport Corridors & Sites close to a Town Centre “Ped-Shed”	3 ↓ 2	<b>Suburban</b>	<b>150 – 250</b> <b>250 – 350</b>
		Case Study Examples	19, 19
		<b>Urban</b>	<b>200 – 300</b> <b>300 – 450</b>
Case Study Examples	1, 5, 6, 14, 15, 18, 5*, 6*, 14, 15, 18	1, 5, 6, 14, 15, 18, 5*, 6*, 14, 15, 18	
Currently Remote Sites	2 ↑ 1	<b>Suburban</b>	<b>150 – 200</b>
		Case Study Examples	7, 13, 20, 23, 24      7, 13, 20, 23, 24
Case Study Examples	4, 12, 17		



# Area Analysis



**Legend:**

Site	School	Bus routes	Railway Station
Local Shopping	Health Facility	Cycle Network	
Public Open Space	Place of Worship	Underground Station	

## Transport Analysis

### General situation

This site is located in a fairly quiet and pleasant area, between an established residential area, a small river and local park. Car access to the site will be from two roads in the west, one at the north end and one to the south. Traffic in the immediately surrounding area seems to be light, but there is a constraint to the south of the site where parked vehicles, whose occupants are accessing nearby housing and employment, obstruct the narrow footpaths along an important pedestrian route to the local shops.

### Local access and facilities

A good range of shops is available within 5-10 minutes walk of the site as well as a large superstore. Other facilities within easy walking distance include:

- Schools (one primary school almost borders the site);
- A doctor's surgery;
- A recreation centre;
- A community centre;

## Transport Analysis con't

- Pubs;
- Recycling banks;
- Churches;
- A library; and
- Postal services.

A hospital is about 15-20 minutes' walk away (unfortunately no buses serving the main retail concentration turn into the hospital). The site is bordered by a river, whose bridges give access to the local park and a large nature park, providing for informal recreation.

The walking environment is generally good, with the roads within the existing residential area to the West of the site quiet and in places traffic calmed. However, they were not viewed at night, so the potential for pavements being obstructed by parked vehicles could not be ascertained. There are also a number of adequate pedestrian cut-throughs. The main foot access south is via a quiet and generally very pleasant road, although it does not have adequate pavements (that on the western side is not continuous and that on the east is officially used for parking).

Going East, towards the high street, there are three options. The longest is via the peasant southbound road discussed above. A shorter route, and also a pleasant one, at least in daylight, is through the park. The other option is across the river and along a road which has through-traffic excluded. The first street of this route feels like a country lane, but further on the pavements are barely usable yet access traffic still expects priority. The parking problem may be caused by the current (industrial) use of the site. The second road on this route has narrow pavements (despite the well-advertised presence of disabled people's houses). There is another road which links across the nature park to the residential area North-West of the high street area, but this is exposed and not easy to leave, and so unlikely to be popular at night on foot. Fortunately, this residential area can easily be reached via another route which has a good-quality path.

The pavements along the roads where retailing and community infrastructure are located are generally adequate, although variable, with dropped kerbs or raised paths over side roads. In parts, the pavements are cluttered and parked on and the arterial routes have heavy traffic.

Access to the superstore is via a signal-controlled crossing, which also leads to a landscaped river-side path to a neighbouring local centre.

### Access to longer-distance non-car transport networks

The nearest Underground station is approximately ten minutes' walk away by the longest reasonable route. Going across the park would cut two or three minutes off the journey. It would not

take more than twenty minutes to walk to the next underground stations in emergencies. Two Tramlink stops are a little further away, but give access to other town centres.

The nearest railway station is about ten minutes' walk away, via quiet residential roads, although the pavements are variable. A half-hourly Thameslink service is available here. However, the station appears to be largely unstaffed and step-free access is only available to the London-bound platform.

A number of bus services operate within easy reach of the site. Stops in the retail areas are adequate, but would benefit from bus boarders. Those on the northern bus route (see Area Analysis map) are poor. The services link the site with other centres to the north, south east and west, with high frequencies during the day and evenings, as set out below.

Destination	travel time	average number of buses per hour	
		peak	off-peak
A	5	5	3
B	8	11	5
C	10	23	11
D	17	14	6
E	22	7	3
F	32	7	3
G	36	5	3

The London Cycle network crosses the South of the site, running East to West. However, it is poorly signed and there are no facilities. The roads used in the area are generally very good for the purpose, except for one small link which uses a narrow footpath. There are also supposed to be completed cycle routes to the North and South, which would appear to use the footpath northbound and the river-side path past the supermarket to the South (which appear quite good as routes). These routes would benefit from enhanced signage.

### Overall assessment

The site would seem to warrant a score of between 2 and 3 for both local facilities and access to strategic networks, suggesting an overall score of 5. Comparatively simple improvements would push these to clear 3s, giving an overall score of 6.

The site would therefore seem to lend itself to either the lower end of conventional parking standards or to active promotion as a car-free development, with its advantages of local facilities and non-car transport options, as long as the following factors can be dealt with:

- cycle route signage and quality;
- pedestrian priority on routes to the high street areas;
- reconfiguration of vehicular access in the area south of the site to improve the quality of pedestrian routes;

Further notes on the design of car-free housing can be found in Annex 1 to SRQ1.

Cycle route quality and signage, and pedestrian facilities need to be addressed in any case, along with:

- permeability (the proposed site plans contribute to this);
- riverside paths (achieved in the proposed site plans);
- access to the park in more places (achieved in the proposed

## Market Analysis

A site of 3.12 hectares in a growing residential part of outer west London near to local facilities and exceptional open space. The site's current use has created the possible risk of contamination which would have to be considered in the event that its use is changed to residential. The local market is wide with large numbers of affordable dwellings interspersed with select developments of houses and flats. The area at large is growing in popularity and forms part of a wider strategy to improve watercourses and reclaim open space from previous industrial uses.

## Development Appraisal

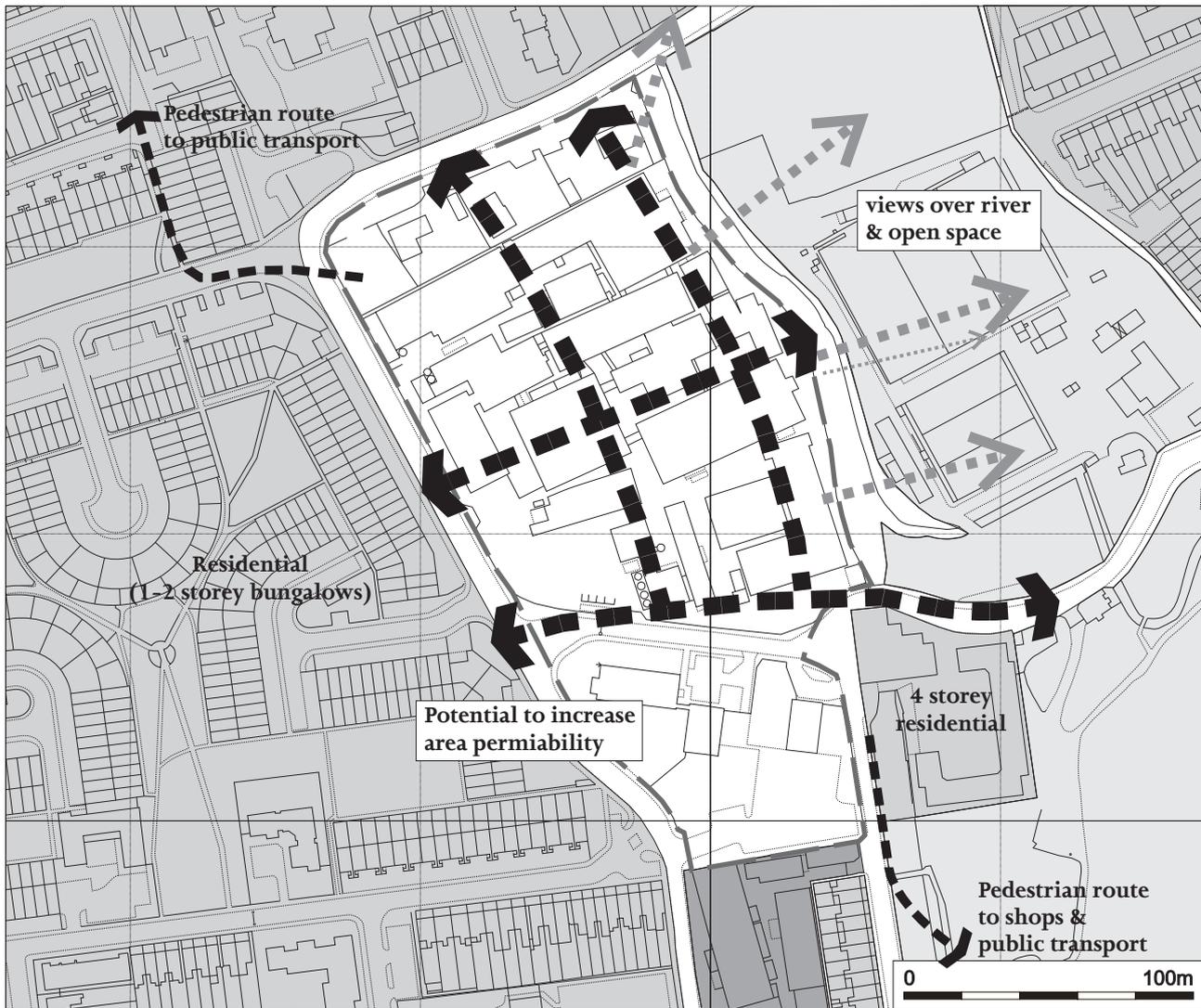
Financial analysis was carried out on each option to determine the likely residual land value after making assessments on rate of sale, construction cost and value. The two options vary significantly in design terms.

Option 2 produces 230 units comprising a total area of almost 17000 sqm whereas Option 3 produces 358 units of almost 25000 sqm; almost 56% more units. In both options provision has been made for approximately 30% of the dwellings to be affordable units. The more dense scheme is in this case more attractive to a developer due to a more imaginative and distinct layout. However the higher risk involved in constructing larger masses of building is a consideration worthy of note.

The river-side attracts higher value units, however for simplicity the revenue has been averaged across the development. Rate of sale also remains unchanged on both options as the market is created by critical mass on such a large site.



# Site Analysis



- Legend:
- Commercial
  - Residential
  - Public Open Space

## Notable Site Characteristics

The site, which is currently used for industrial purposes, is roughly rectangular and gently slopes towards the adjacent river allowing views across to a public open space. Immediate access to this open space is possible. To all other sides the site is surrounded by residential uses (mainly 1-2 storey bungalows and terraces) as well as some commercial uses to the south. An existing road leads across the site linking the surrounding residential area to public transport nodes and local facilities.

## Policy Matters

The site is designated in the UDP for mixed-use and residential development. As part of any new development the Council is seeking to provide a new doctor's surgery and children's nursery. In terms of affordable housing a minimum provision of 30% of all new dwellings on site is sought.

# Illustrative Plan - Option 2



Affordable housing provision, flats & terraces

Different size terraces & townhouses with garden to river & public walkway

Surgery on ground floor with flats above



0 50m

# Illustrative Image - Option 2



## Design Intent - Option 2

The design had been inspired by the existing building structure of the surrounding residential area. Rows of terraces and townhouses and some blocks of flats create a building structure that is not unfamiliar to the area. The street layout aims at integrating the development easily into the existing fabric, allowing for multiple routes to facilities and public open spaces beyond the site boundary. The edge of the river is used as a backdrop to private gardens while public access to the river is maintained along a footpath.

This option provides one off street space per dwelling. However, additional on-street parking the ratio will be even higher.

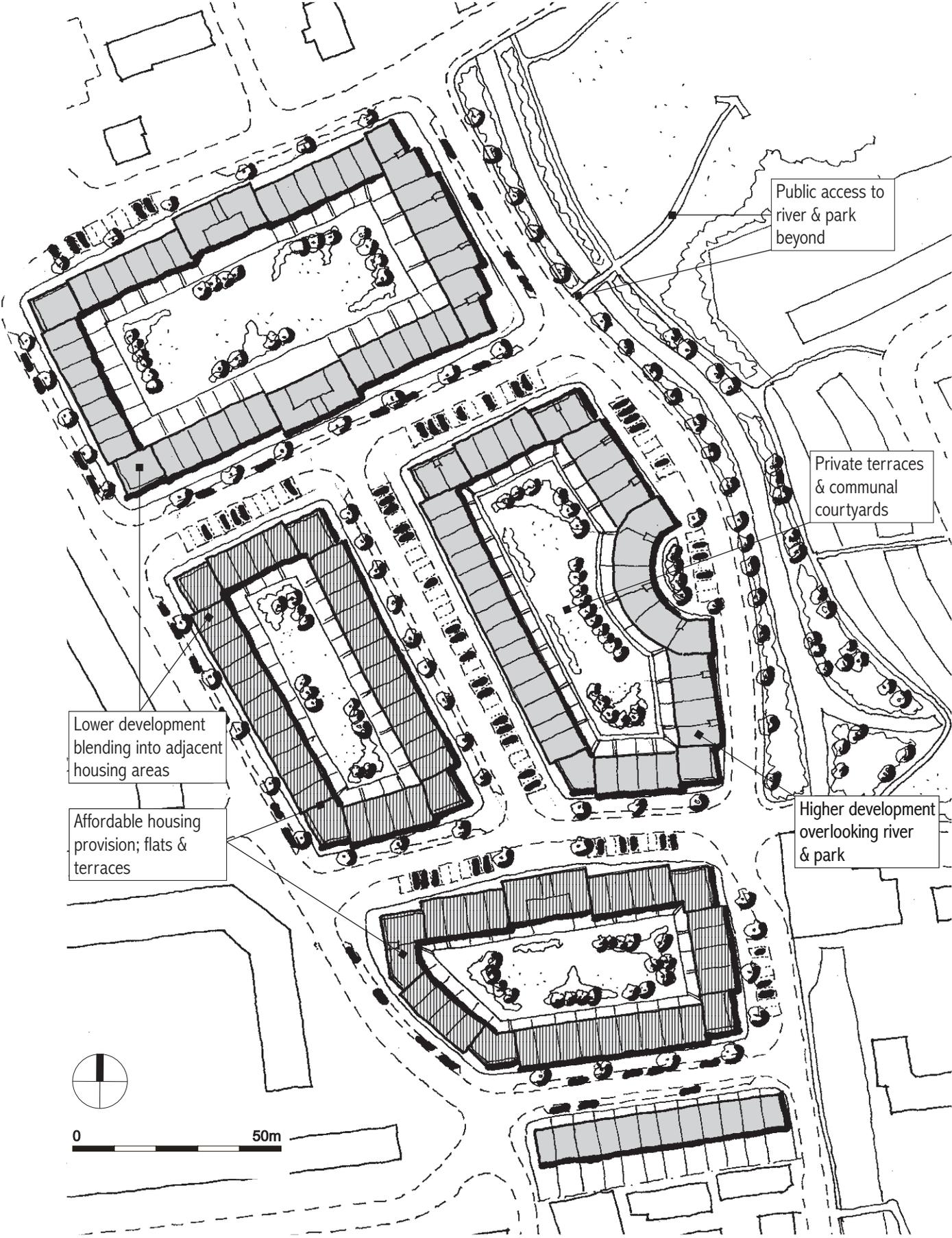
DEVELOPMENT MIX

UNIT TYPE	DESCRIPTION	UNIT SQ. M.	HRS PER UNIT	UNIT NOS. MARKET HOUSING	UNIT NOS. AFFORDABLE HOUSING	TOTAL UNIT NOS.	HRS NOS.	AREA SQ.M.	PARKING NOS
1 Bed	Flat	55	2	40	12	52	104	2860	52
2 Bed	Flat	65	3	18	20	38	114	2470	38
2 Bed	Terrace	70	4	9	10	19	76	1330	19
2 Bed	Terrace with garage	72	3	55	-	55	165	3960	55
3 Bed	Terrace	88	5	6	18	24	120	2112	24
3 Bed	Town House	100	5	32	10	42	210	4200	42
<b>TOTAL</b>				<b>160</b>	<b>70</b>	<b>230</b>	<b>789</b>	<b>16932</b>	<b>230</b>

DENSITY

SITE AREA	NET	GROSS
HA	3.12	3.12
Units/Ha	74	74
Hab Rm/Ha	253	253
Area/Ha	5,427	5,427

# Illustrative Plan - Option 3



Public access to river & park beyond

Private terraces & communal courtyards

Lower development blending into adjacent housing areas

Affordable housing provision; flats & terraces

Higher development overlooking river & park



0 50m

# Illustrative Image - Option 3



## Design Intent - Option 3

The design for this option aims at creating a more urban living environment that uses its riverside setting and seeks to take full advantage of the views over the adjacent open space. The height of the development increases from two storey terraces adjacent to the existing residential area to four and five storeys duplexes and flats overlooking the river and open space. Closed building blocks are created keeping the courtyard private but communal while each unit retains a private terrace or balcony overlooking the courtyard.

In this option parking is only available on-street resulting in an overall parking ratio of 0.6 spaces per unit. The site is in easy reach of good and frequent public transport routes leading to central London as well as other town centres. Local shopping and service are also very accessible making this option workable and desirable.

DEVELOPMENT MIX

UNIT TYPE	DESCRIPTION	UNIT SQ. M.	HRS PER UNIT	MARKET HOUSING	AFFORDABLE HOUSING	TOTAL UNIT NOS.	HRS NOS.	AREA SQ.M.	PARKING NOS
1 Bed	Flat	55	2	83	4	87	174	4785	35
2 Bed	Flat	65	3	97	53	150	450	9750	90
3 Bed	Duplex	80	5	46	32	78	390	6240	55
3 Bed	House	90	5	19	24	43	215	3870	35
<b>TOTAL</b>				<b>245</b>	<b>113</b>	<b>358</b>	<b>1229</b>	<b>24645</b>	<b>215</b>

DENSITY

SITE AREA	NET	GROSS
HA	3.12	3.12
Units/Ha	115	115
Hub Rm/Ha	394	394
Area/Ha	7,899	7,899



# Detailed Case Study 3

Detailed Case Study 3 is a large landlocked site on the edge of two ped-sheds in Outer East London. The site is mainly flat and rectangular and has formerly been used as playing fields and for some industrial uses. There is only one direct access route into the site on its far western side creating a challenge for any development solution. Public transport routes and some local facilities are located little more than 10 minutes walking distance away, making the site less accessible than some of the other case study sites.

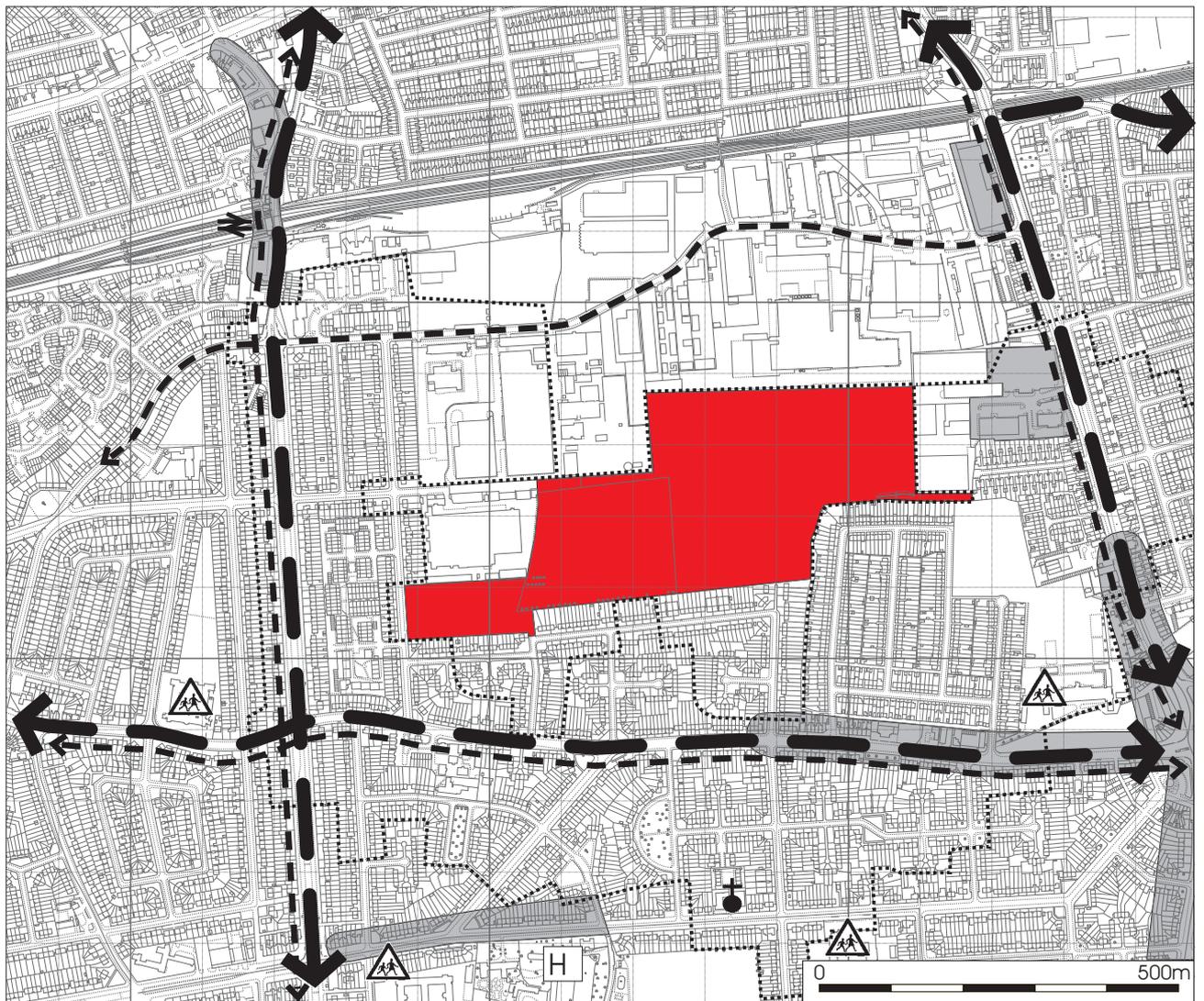
In terms of the Density Location and Parking Matrix, the site is placed in the “Transport Corridors & Close to Town Centres” category with a distinct suburban character. On the following pages the site potential is analysed and two development options are presented.

	Option 1	Option 2	Option 3
<b>Car Parking Provision</b>	High 2 – 1.5 spaces per unit	Moderate 1.5 – 1 space per unit	Low Less than 1 space per unit
<b>Predominant Housing Type</b>	Detached & linked houses	Terraced houses & flats	Mostly flats

Location	Accessibility Index	Setting	Density
Sites within Town Centre “Ped-Shed”	6	<b>Central</b>	650 – 1100
		Case Study Examples	2, 3, 10
		<b>Urban</b>	200 – 450, 450 – 700
Case Study Examples	8, 9, 11, 18, 21, 22	8, 9, 11, 16, 21, 22	
Suburban	4	<b>Suburban</b>	150 – 250, 250 – 350
		Case Study Examples	19, 19
		<b>Urban</b>	200 – 300, 300 – 450
Case Study Examples	1, 5, 6, 14, 15, 18	1, 5*, 6*, 14, 15, 18	
Sites along Transport Corridors & Sites close to a Town Centre “Ped-Shed”	3	<b>Suburban</b>	150 – 200, 200 – 250
		Case Study Examples	7, 13, 20, 23, 24, 7, 13, 20, 23, 24
		<b>Suburban</b>	150 – 200
Case Study Examples	4, 12, 17		
Currently Remote Sites	2	<b>Suburban</b>	150 – 200
		Case Study Examples	
	1		



# Area Analysis



**Legend:**

- Site
- Commercial
- Public Open Space
- A School
- H Health Facility
- Place of Worship
- Bus routes
- Cycle Network
- Underground Station
- Mainline Station

## Transport Analysis

### General situation

This large site is located in a car-orientated suburban area, between existing 1930s terraced residential estates and an industrial estate. The surrounding housing appears to be a mixture of council and private housing including a significant proportion of right-to-buy stock. The quality of the stock is variable and some is fairly run down. There is endemic pavement parking (both official and unofficial) and frequent use of front gardens for parking. Traffic on the surrounding main roads is fairly intense, but the residential roads are quiet. Vehicular access to the site will be from West only, with maybe a through link to the East. Pedestrian and cycle access points are obvious along

the southern edge to the East, but access at the eastern end is less clear. No access seems possible across the industrial estate to the North.

### Local access and facilities

This site is relatively remote from significant centres. The nearest high street is about fifteen minutes' walk away from the centre of the site, twenty from the far end. This route goes over the railway line, and alongside mainly dead frontage. Together with the industrial estate, the railway forms a major barrier to North-South movement.

## Transport Analysis con't

There is a small parade of shops, including a grocer and post office five minutes to the South of the site, and a secondary high street is found ten to fifteen minutes' walk away (depending on the precise foot access arrangements), to the South-East and East. A little further on is an out-of-town food superstore and swimming pool. There are only two pubs within a ten-minute walk, but there are three schools, a doctor's surgery and a park. Two churches are to be found between ten and fifteen minutes' walk away to the East.

Whilst traffic on the main roads (which form a box around the site, the existing residential area and the industrial estate) is fairly intense, crossing does not seem to be too problematic, although the traffic is not respectful. The pavements are very variable, ranging from wide and fairly unobstructed to completely blocked by parked cars. There is, however, a fair smattering of dropped kerbs. The access road to the industrial estate would need great improvement for pedestrians were it to be used as a second general access route onto the site.

### Access to longer-distance non-car transport networks

The only rail station in the area is about ten minutes' walk away. This station is served every ten minutes daytime, providing a link to other town centres and Central London. It appears to be largely unstaffed.

Buses run on all the main roads around the site, although none penetrate the narrow residential roads. Bus stops are variable, but generally adequate, although timetable information is incomplete. The main services are as follows:

Destination	travel time	average number of buses per hour	
		peak	off-peak
A	5	8	6
B	7	4	2
C	13	8	6
D	15	5	3
E	25	10	7

Completed sections of the London Cycle Network are present on the main roads to the South and East of the site. In both cases they consist principally of narrow advisory cycle lanes, which are in any case widely parked in. Further routes are planned along residential roads running North South to the East of the site.

### Overall assessment

The site would seem to warrant a score of 1 for local facilities and access, and a score of between 1 and 2 for access to strategic networks, suggesting an overall score of between 2 and 3. Car

ownership is likely to be high, but non-car access needs to be improved. Aside from improvements to cycle and pedestrian routes and to bus stop facilities the main opportunity is to consider the potential to introduce a bus service through the site.

### Evaluating the Potential for New Bus Services

Preliminary discussions with London Transport Buses indicate the potential to introduce a bus service running through the site for the Option 2 layout. The long cul-de-sac layout of Option 1 offers no such potential as the travel time penalties to existing passengers imposed by such a circular route would be disproportionate to the benefits to new residents of the development.

In Option 2 the potential for new and improved bus services need to be evaluated in terms of the degree to which the new development can be served by existing services and the potential to divert an existing service through the site. In this particular case there are two good bus routes running along the main roads to the South and East of the site offering direct and frequent services.

A significant proportion of the new households on the site would live within a 400m walk of an existing stop on one of these two routes, leaving only a comparatively small pocket of households in the north western part of the site without adequate access to these services. The diversion of buses from either of these two main routes through the site is unlikely to be practicable given the impact this would have on existing passengers (longer journey times and loss of service along part of the existing route) compared to the limited additional patronage which would be generated from within the site.

There are however other bus services operating in the vicinity of the site and consideration could be given to extending or re-routing one of these services to take it through the site. One promising option would be to extend a route serving a strategic centre to the East. This service which currently turns around to the North East of the site could be extended so as to run through the site then northwards past the local rail station and to the local centre (to the North West of the site). While this would only provide up to three services per hour it would provide a direct link from within the site to the local railway station and shopping centre.

The most obvious locations for bus stops on any such route would be in the centre of the site close to the school and the sheltered housing scheme and close to the small open space in the south. These locations and especially that close to the school and sheltered housing, are convenient for visitors and are separated, at least to some extent, from surrounding houses

so as to minimise any nuisance and disturbance to residents. Clearly much more detailed analysis would be needed to ensure satisfactory design of the stops in both urban design and transport planning terms, as indicated in chapter 5 on pages 61 and 62.

It should be appreciated that although it does not seem practical to divert the main bus routes running to the south and east of the site, these services can be expected to benefit from additional patronage generated by the development. This additional demand could contribute to making the provision of additional buses on this route viable and thus support a more frequent service. This would benefit both new residents and existing bus passengers. Again this highlights the importance of ensuring a high degree of pedestrian permeability through the site as well as through the existing residential area between the site and the main east west bus route.

## Market Analysis

A site of 12.88 hectares with difficult access and evidence of underground contamination. An established residential area with a narrow band of housing types and little opportunity for mixed use development offers a challenge to developers to produce high quality scheme which can add to the range of housing choice and support wider area renewal objectives.

## Development Appraisal

Financial analysis was carried out on each option to determine land value after making assessments on rate of sale, construction cost and value. Rate of sale was increased and revenues were adjusted to complete the development within five years. We know the land is contaminated and have included a realistic remediation cost. However without detailed ground investigation these costs cannot be guaranteed. Both options vary but the changes are not as prominent in market terms.

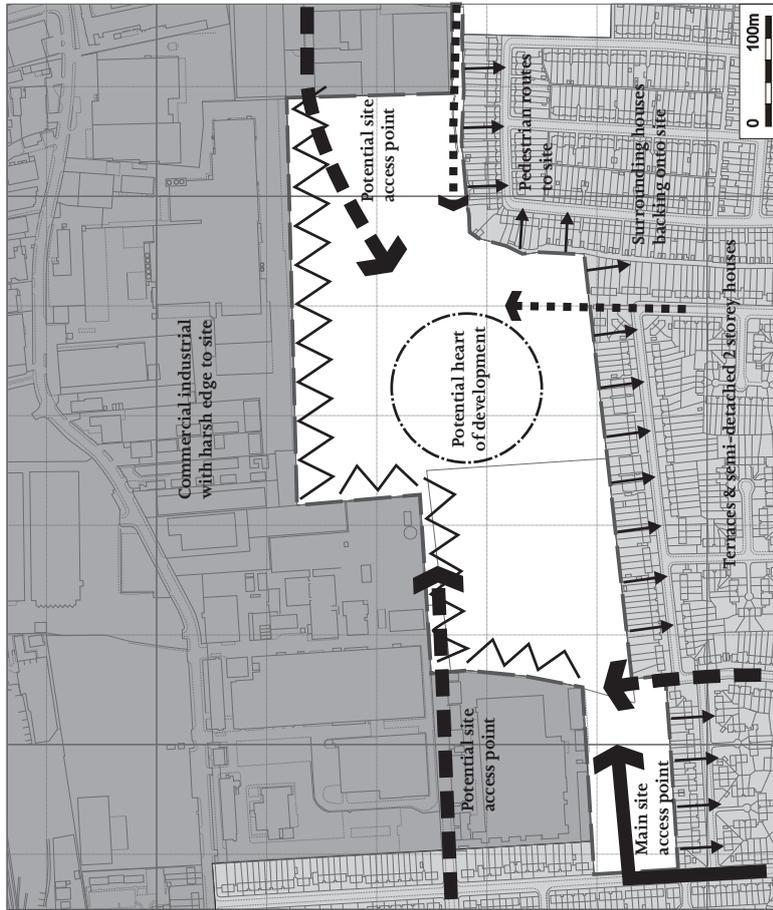
Option 2 produces 463 units of between 72 and 110 sqm representing a good cross section of housing requirements in the area. Affordable housing consists of terrace and larger end of terrace properties with gardens.

Option 3 is a more dense layout with a mixture of private flats, semi detached, terraces and town houses producing a total of 644 units. Affordable housing on the layout tends to be towards the smaller end of the housing types. Since carrying out the exercise we know that a need exists for larger affordable family housing in this location and if accommodated would reduce the overall revenue and land value slightly. Both options provide significant public open space.

The appraisals were conclusive in that Option 3 produced almost 82% more value for land on a residual calculation. However the actual values were depressed due to the comparatively low values of property in the area. Affordable housing was included in both appraisals at the same rate of 33%.



Site Analysis



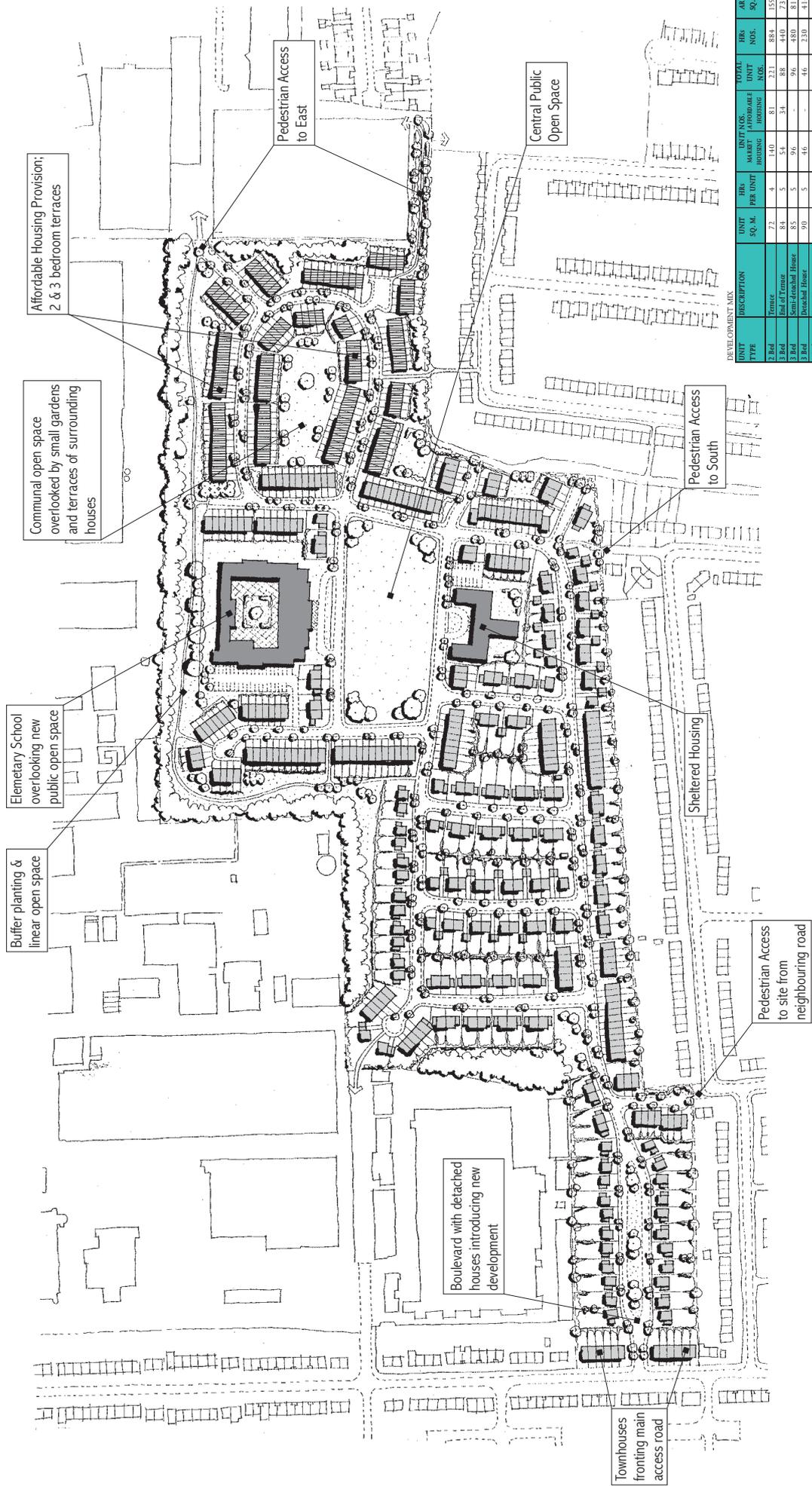
Notable Site Characteristics

The development site is a virtually landlocked flat site with only one immediate access point to the west and several potential access options (vehicular or pedestrian only) from other directions. The site lies between two smaller town centres which are an equal distance away and falls just outside their peed-sheds. The surrounding uses are residential to the south and west and commercial/industrial to the north and east.

Policy Matters

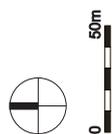
The site is zoned for mixed-use and residential development in the UDP. The Council is seeking an affordable housing provision of 33% as well as provision of open space, a new school and sheltered housing.

# Illustrative Plan - Option 1

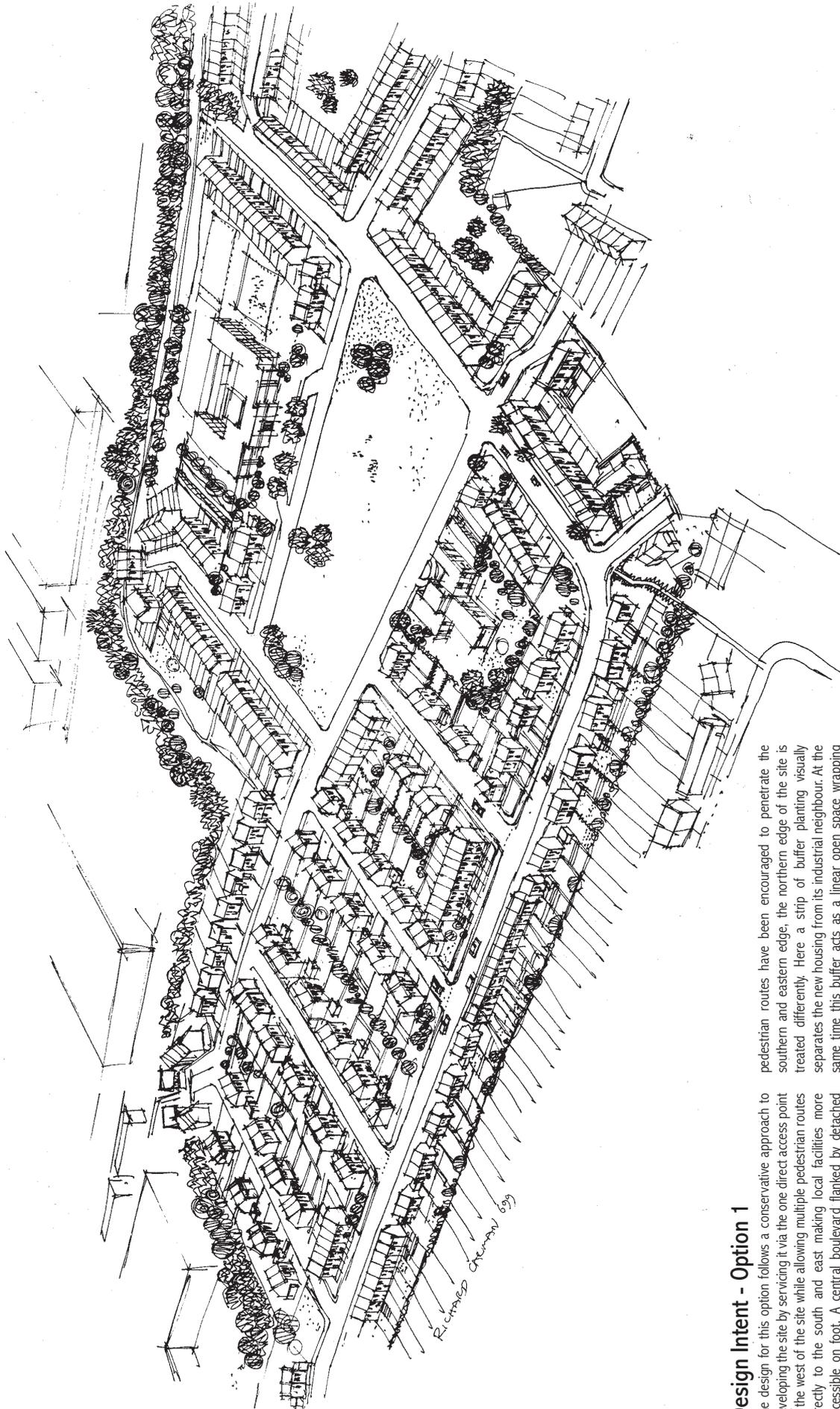


UNIT TYPE	DESCRIPTION	UNIT NO.	GROSS AREA (SQ.M)	MARKET HOUSING		AFFORDABLE HOUSING		TOTAL UNIT NOS.	TOTAL AREA (SQ.M)	TOTAL PARKING NOS.	
				NO.	PER UNIT	NO.	PER UNIT				
2 Bed	Terrace	72	4	4.00	81	2.21	884	440	1591.2	442	
3 Bed	End of Terrace	84	5	5.4	34	88	440	239.2	17.6	192	
3 Bed	Semi-detached House	96	5	96	-	46	230	4140	92	24	
2 Bed	Detached House	90	6	12	-	12	72	1320	24	-	
2 Bed	Town House	110	6	12	-	12	72	1320	24	-	
<b>TOTAL</b>						<b>348</b>	<b>115</b>	<b>463</b>	<b>2106</b>	<b>3692</b>	<b>926</b>

DENSITY	
NET	GREEN
HA	12.88
HA	3.6
HA	1.64
HA	2.867



## Illustrative Image - Option 1



### Design Intent - Option 1

The design for this option follows a conservative approach to developing the site by servicing it via the one direct access point to the west of the site while allowing multiple pedestrian routes directly to the south and east making local facilities more accessible on foot. A central boulevard flanked by detached houses leads into the main part of the development. At the heart of the development lies a new large open space overlooked by an primary school and sheltered housing complex as well as townhouses and terraces. The area around the open space and towards the east of the development site is dominated by two and three bed terraces while the area between the site access and open space accommodates mainly three bed houses. While

pedestrian routes have been encouraged to penetrate the southern and eastern edge, the northern edge of the site is treated differently. Here a strip of buffer planting visually separates the new housing from its industrial neighbour. At the same time this buffer acts as a linear open space wrapping around the development.

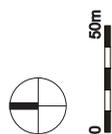
Parking standards for this option were 1-2 spaces per unit on plot as well as some on-street parking, making an overall parking ratio of 2 spaces per unit. Due to single access road to the site, the layout precludes an effective bus service into the site.

# Illustrative Plan - Option 2

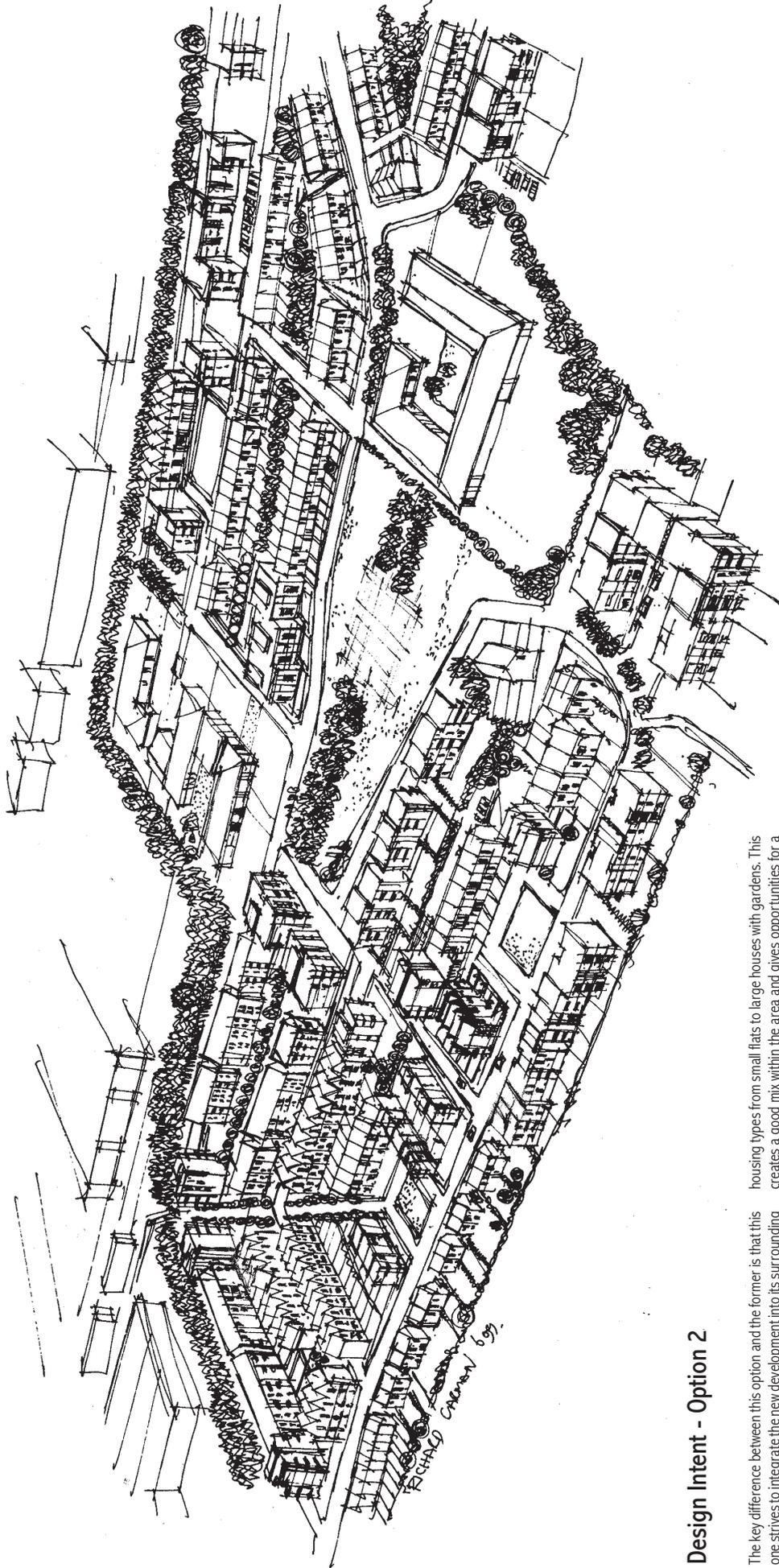


UNIT TYPE	DESCRIPTION	UNIT NO. PER UNIT	TOTAL UNIT NOS.	TOTAL MARKET HOUSING	TOTAL AFFORDABLE HOUSING	TOTAL UNIT NOS.	TOTAL AREA SQ.M.	TOTAL PARKING NOS.	
1 Bed	Flat	55	2	110	30	100	200	5500	100
2 Bed	Flat	65	3	195	84	242	726	15730	242
2 Bed	Terrace	72	4	288	37	99	396	7128	99
2 Bed	Bed of Terrace	84	5	420	14	44	220	3696	44
2 Bed	Semi-detached House	85	5	425	12	12	60	1020	12
2 Bed	Detached House	90	5	450	26	26	130	2540	26
2 Bed	Town House	110	6	660	8	151	906	16610	151
<b>TOTAL</b>			<b>601</b>	<b>1723</b>	<b>674</b>	<b>2638</b>	<b>52924</b>	<b>674</b>	

DENSITY	
SITE AREA	N/A
HA	10.07
Units/HA	67
LD Res/HA	262
LDW/HA	5,166
GROSS	12,888
	52
	205
	4,039



## Illustrative Image - Option 2



## Design Intent - Option 2

The key difference between this option and the former is that this one strives to integrate the new development into its surrounding by allowing a new through route from the east to the west of the site. Considering the additional population this site will house, opportunities are given of rerouting an existing bus route through the site and thus increasing its public transport accessibility.

As in the former option a school and sheltered housing scheme have been clustered around a central open space. Groups of flats are placed around the square taking advantage of the views across the open space. This option includes a wider range of

housing types from small flats to large houses with gardens. This creates a good mix within the area and gives opportunities for a sustainable neighbourhood with 'lifetime homes'.

Parking standards for this option are greatly reduced from the former by providing a ratio of one space per unit, including on-plot and on-street parking.



# Detailed Case Study 4

Detailed Case Study 4 lies south of a strategic ring road in Outer North-West London. The L-shaped site can only be serviced from its eastern edge but allows pedestrian access to the open space on its north and west. Any future development would sit between residential areas and a hospital. The site takes advantage of extensive views over the neighbouring open space and sports grounds.

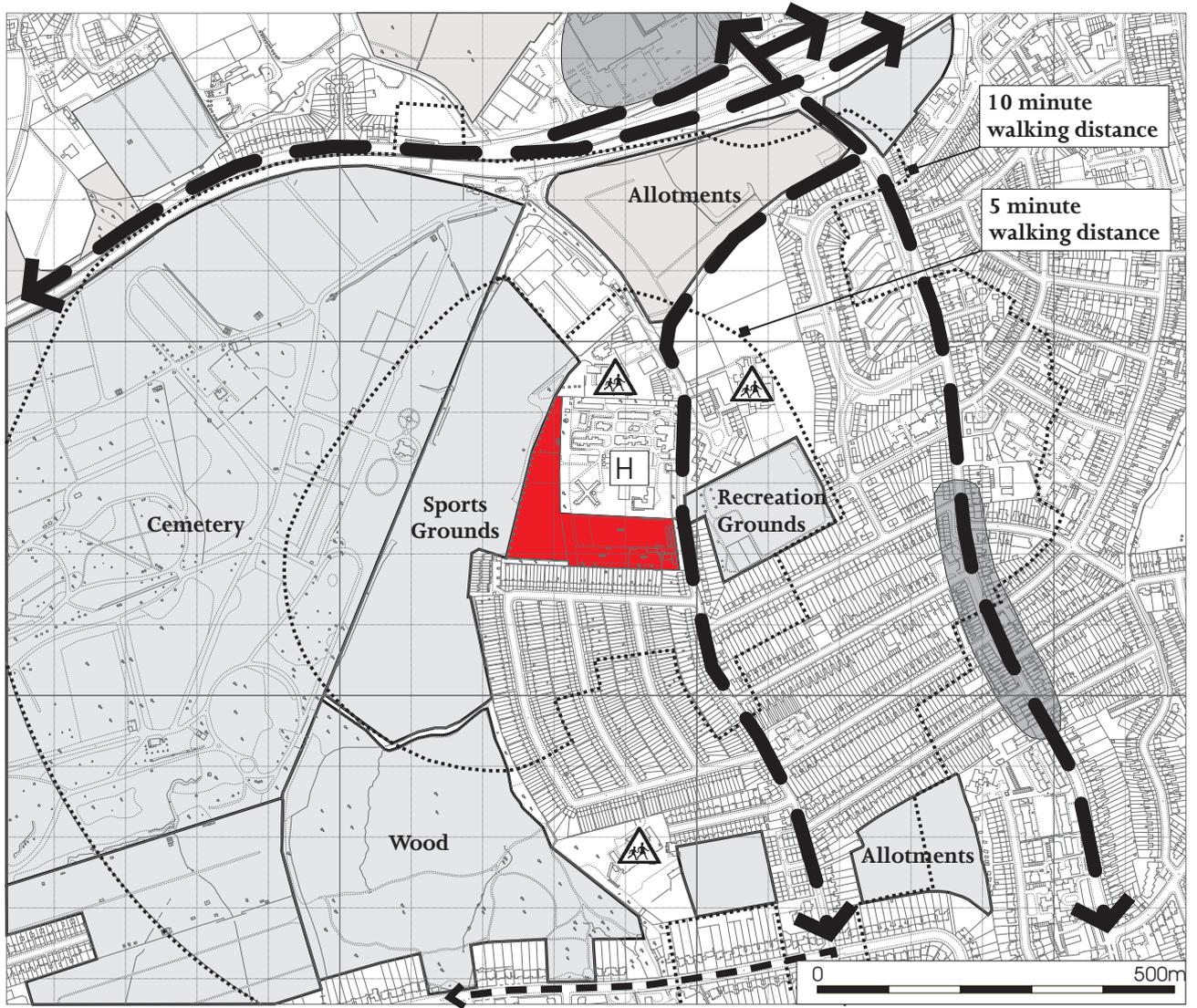
In terms of the Density, Location and Parking Matrix, the site has been placed in the “Transport Corridor & Close to Town Centre” category with an suburban character. On the following pages two development options are presented.

	Option 1	Option 2	Option 3
<b>Car Parking Provision</b>	High 2 – 1.5 spaces per unit	Moderate 1.5 – 1 space per unit	Low Less than 1 space per unit
<b>Predominant Housing Type</b>	Detached & linked houses	Terraced houses & flats	Mostly flats

Location	Accessibility Index	Setting	Density
Sites within Town Centre “Ped-Shed”	6 ↑ 4	<b>Central</b>	650 – 1100
		Case Study Examples	2, 3, 10
		<b>Urban</b>	200 – 450      450 – 700
Case Study Examples	8, 9, 11, 18, 21, 22	8, 9, 11, 16, 21, 22	
<b>Suburban</b>	150 – 250      250 – 350		
Case Study Examples	19, 19		
Sites along Transport Corridors & Sites close to a Town Centre “Ped-Shed”	3 ↑ 2	<b>Urban</b>	200 – 300      300 – 450
		Case Study Examples	1, 5, 6, 14, 15, 18, 5*, 6*, 14, 15, 18
		<b>Suburban</b>	150 – 200      200 – 250
Case Study Examples	7, 13, 20, 23, 24	7, 13, 20, 23, 24	
Currently Remote Sites	2 ↑ 1	<b>Suburban</b>	150 – 200
		Case Study Examples	4, 12, 17



# Area Analysis



- Legend:**
- Site
  - Commercial
  - Public Open Space
  - ▲▲ School
  - H Health Facility
  - ⛪ Place of Worship
  - ← Bus routes
  - ↔ Cycle Network

## Transport Analysis

### General situation

This site is located in a quiet, pleasant, medium-density suburban area, between a 1930s terraced estate, a hospital and a sports ground, which provides shelter from the nearby main road. Motor vehicle access to the development will be from the east, with a foot and cycle access to the north. Traffic in the area immediately surrounding the site seems to be fairly light, although speed is clearly a problem, as some roads have a degree of traffic-calming.

### Local access and facilities

There is a variety of shops and services approximately ten minutes' walk away to the east. This centre includes a post office, dentist, health centre, library, chemist and a couple of pubs. An out-of-town superstore is about ten minutes' walk, or a short bus ride north, over the main road. The problem with this route is that the first part only has a pavement on one side and has no frontage (as it runs between allotments and a school field). The main road is crossed by means of a narrow foot bridge, which has poor lighting. The superstore car park then has to be negotiated. Access via the bus appears to be better. The same bus also goes to the nearest full town centre, which is about twenty minutes' walk away.

## Transport Analysis con't

There are a number of schools within ten minutes' walk of the site and a couple of churches. Open space is plentiful, with a recreation ground directly opposite, sports ground behind and woods to the south of the sports ground. An entrance to the cemetery is about five minutes' walk to the North. There is also a large area of allotments to the north of the site.

The local walking environment is of mixed quality. Traffic does not seem to be a great problem, but the pavements are poorly maintained and there is quite a lot of pavement parking although not so much as to prevent use of pavements altogether. Much of this is actually officially sanctioned parking. Overall the roads are quite pleasant to walk around, with a fair number of trees. There are several walking routes across to the local shops, where the pavements are better, with only a little parking on them.

Traffic is heavier than on the north-south route immediately adjacent to the east of the site, but there is more space for walking. The existing terraced estate to the south of the site, whilst not having a high degree of permeability between its streets, is characterised by several cut-throughs to the sports ground and wood, although these are narrow, high-fenced and generally unlit.

There is one lit path from this estate to main roads in the south, but it is still dark and visibility is poor. In addition to the general need for site permeability, it would be wise to replace these cut-throughs with better quality ones from the new development onto the sports ground.

### Access to longer-distance non-car transport networks

There is no rail station within easy walking distance of the site. The nearest is about thirty minutes' walk (for those prepared to go through the wood) offering services to central London and the north. However, a good quality bus route links the site almost door-to-door with the station, the district shopping centres and the superstore. In addition, a ten-minute walk to the east yields a very frequent bus link to a second underground station, albeit on the same line. The service patterns are as shown in the table opposite.

Bus stops in the area are adequate, but there are none (and therefore no shelters or information) along the road to the immediate East of the site. This section is 'Hail and Ride', although not shown as such on the bus map. However, for most of the 'Hail and Ride' section, people seem to wait in clusters (including right outside the development site), which may reflect former bus stopping points.

There is no part of the London Cycle Network, complete or planned, which comes close to this site. However, there is a cycle

link along the north side of the main eastwards towards a retail park.

### Overall assessment

The site would seem to warrant a score of between 2 and 3 for local facilities, especially given the high quality bus link to shopping centres, and a score of 2 for access to strategic networks, suggesting an overall score of between 4 and 5. Medium-density development (terraces) with on-street parking only (maintained by designing frontages to make it unattractive for owner-occupiers to exercise their permitted development right to turn their front gardens into car parks) would seem to be an appropriate development form.

Destination	travel time	average number of buses per hour	
		peak	off-peak
A	4	20	13
B	5	20	13
C	12	3	2
D	14	14	10
E	16	6	3
F	18	3	2
G	24	14	10

## Market Analysis

A site of 2.59 hectares in Outer North-West London with road frontage access and views over established open space. Within a short distance of a strategic ring road this site is ideally suited for suburban housing including starter homes and apartments. The market in the area is very good with developments taking place in close proximity which provide a complete range of new homes and apartments.

# Development Appraisal

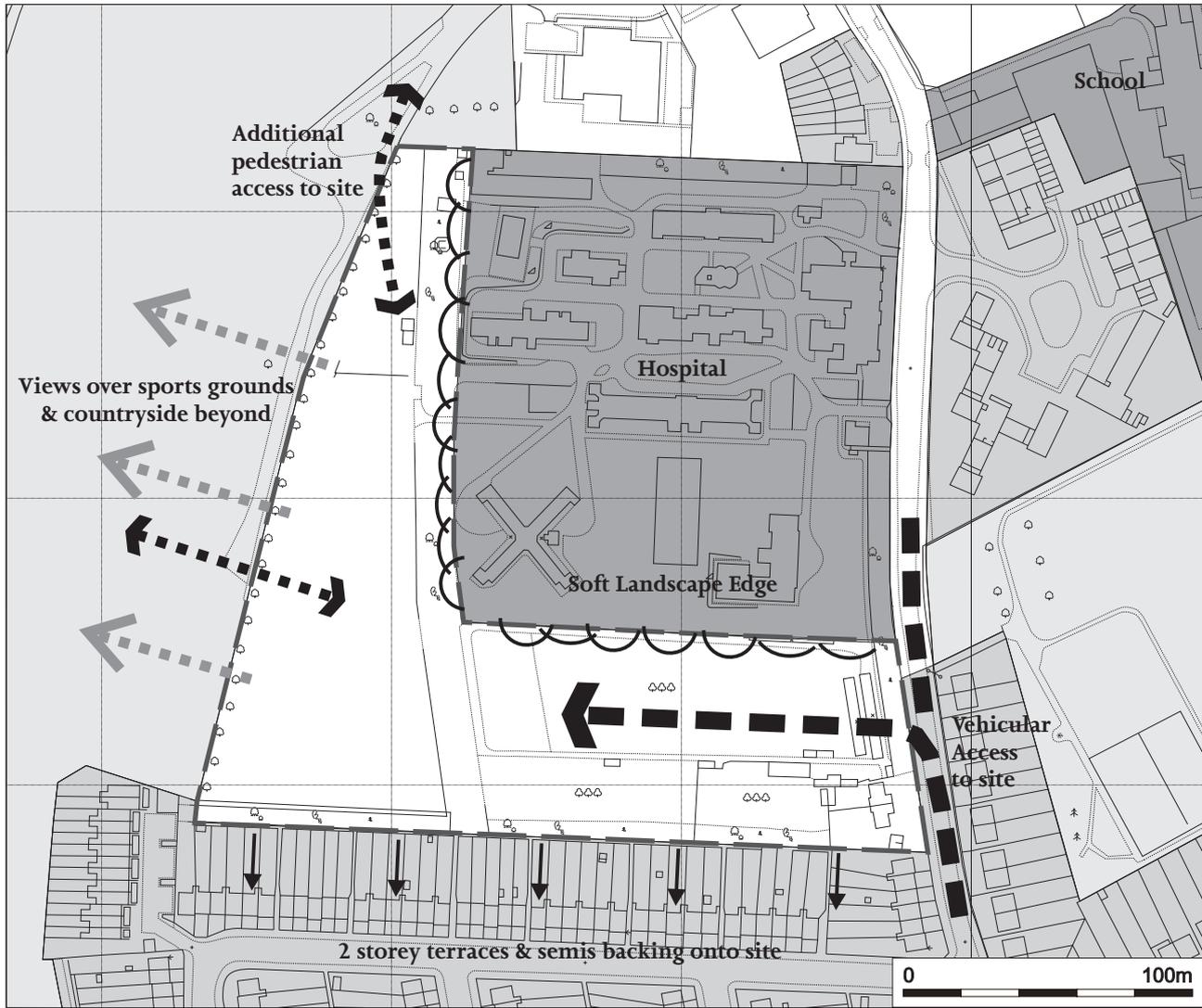
Financial analysis was carried out on each option to determine land value after making assessments on rate of sale, construction cost and value. Both options vary but the changes are not as prominent in market terms.

Option 1 produces 91 units of between 70 and 100sqm, predominately private-for-sale semi-detached and detached properties. Affordable housing consists of terraces and larger semi-detached houses. Option 2 is more dense in layout with a mixture of private flats, semi-detached houses and terraces producing 157 units.

The appraisals were conclusive in that Option 2 produced almost 66% more value for land on a residual calculation. Affordable housing was included in both appraisals at the same rate of 40% of the total number of dwellings.



# Site Analysis



- Hospital/School
- Residential
- Public Open Space

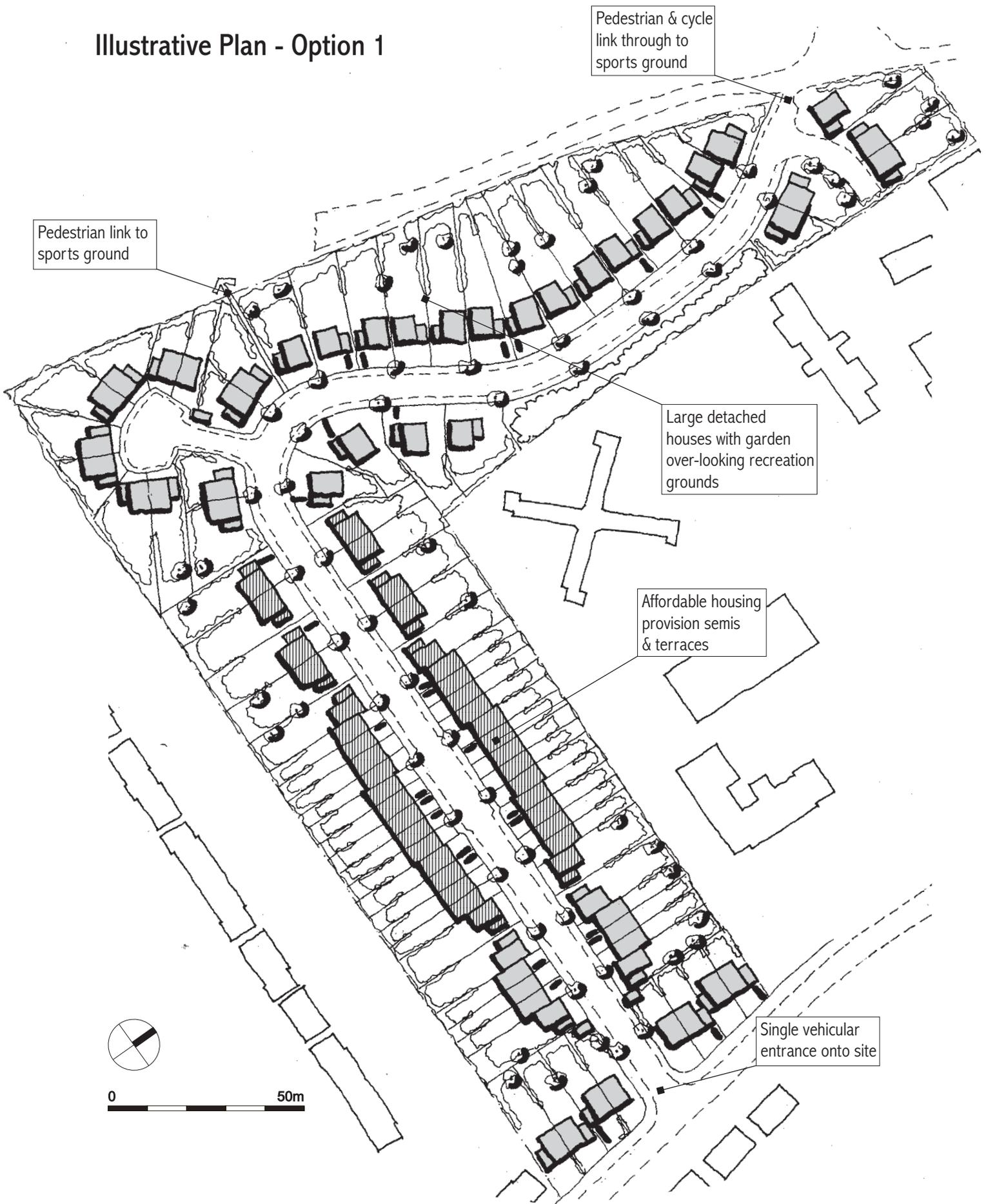
## Notable Site Characteristics

The site is mainly flat and sloping towards the sports grounds to the west of the site maximising the views across the countryside beyond. The site benefits from strong mature planting to its neighbours. Only one access road can service the site making a cul-de-sac development the only option.

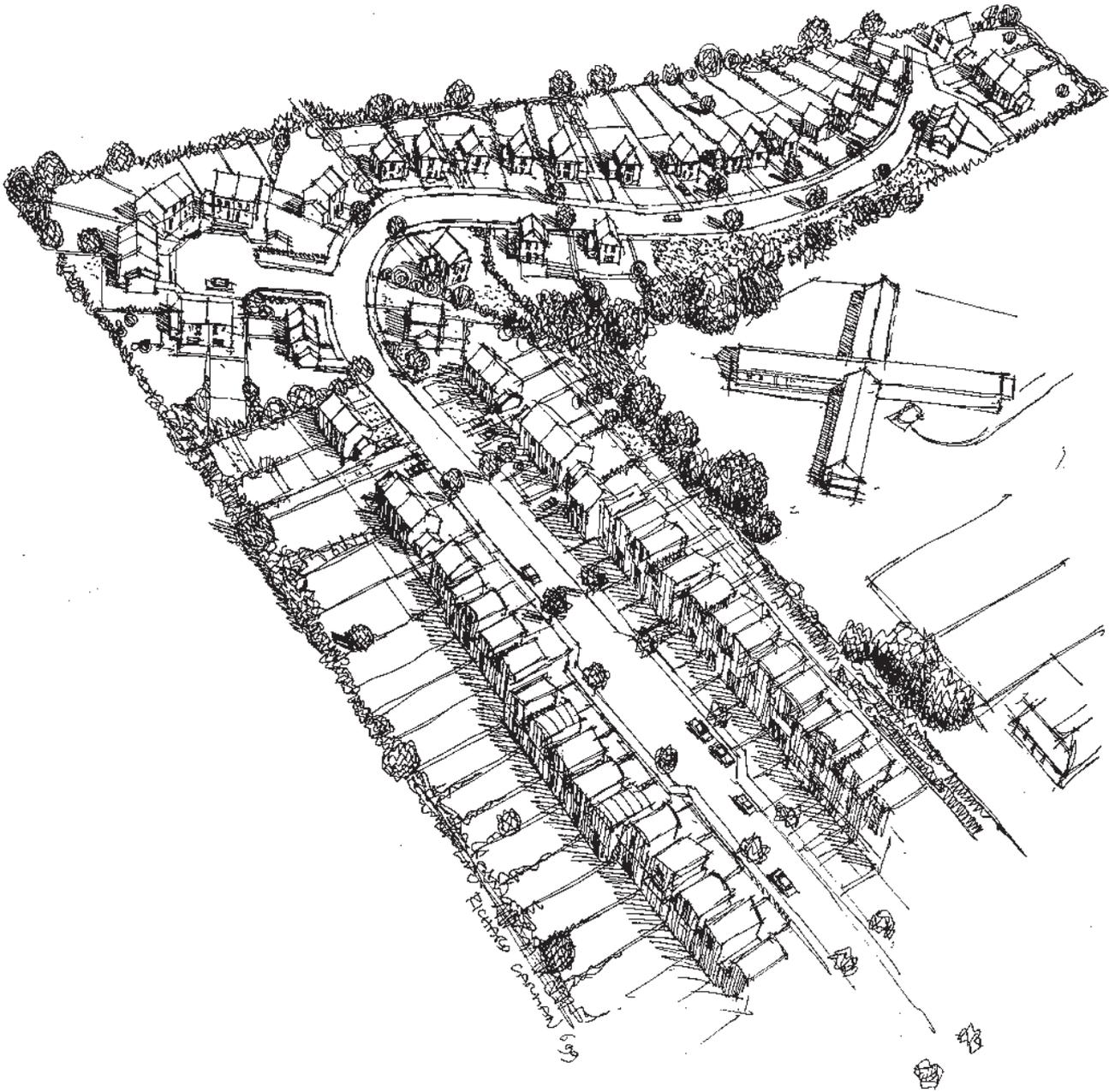
## Policy Matters

The UDP designates this site for residential use, offices and open space. For residential dwellings the Council has set a maximum density of 350 Habitable rooms per hectare. The Borough has decided that any development proposed for the site needs to accommodate 33% of dwellings as affordable housing. In addition, the Council is seeking to secure the provision of a medical centre.

# Illustrative Plan - Option 1



# Illustrative Image - Option 1



## Design Intent - Option 1

This design option follows the housing mix prevailing in the area. Along the access road terraces and semi-detached houses with front gardens line the street leading to a cluster of semi-detached houses and detached houses. A crescent of large detached houses back onto the adjacent sports grounds enjoying views across the countryside beyond. At the end of the road a path connects the development to the path system servicing the sports grounds.

A parking ratio of more than 1:1 on-plot has been achieved. When the potential for on-street parking is taken into account, the potential capacity approaches two spaces per dwelling.

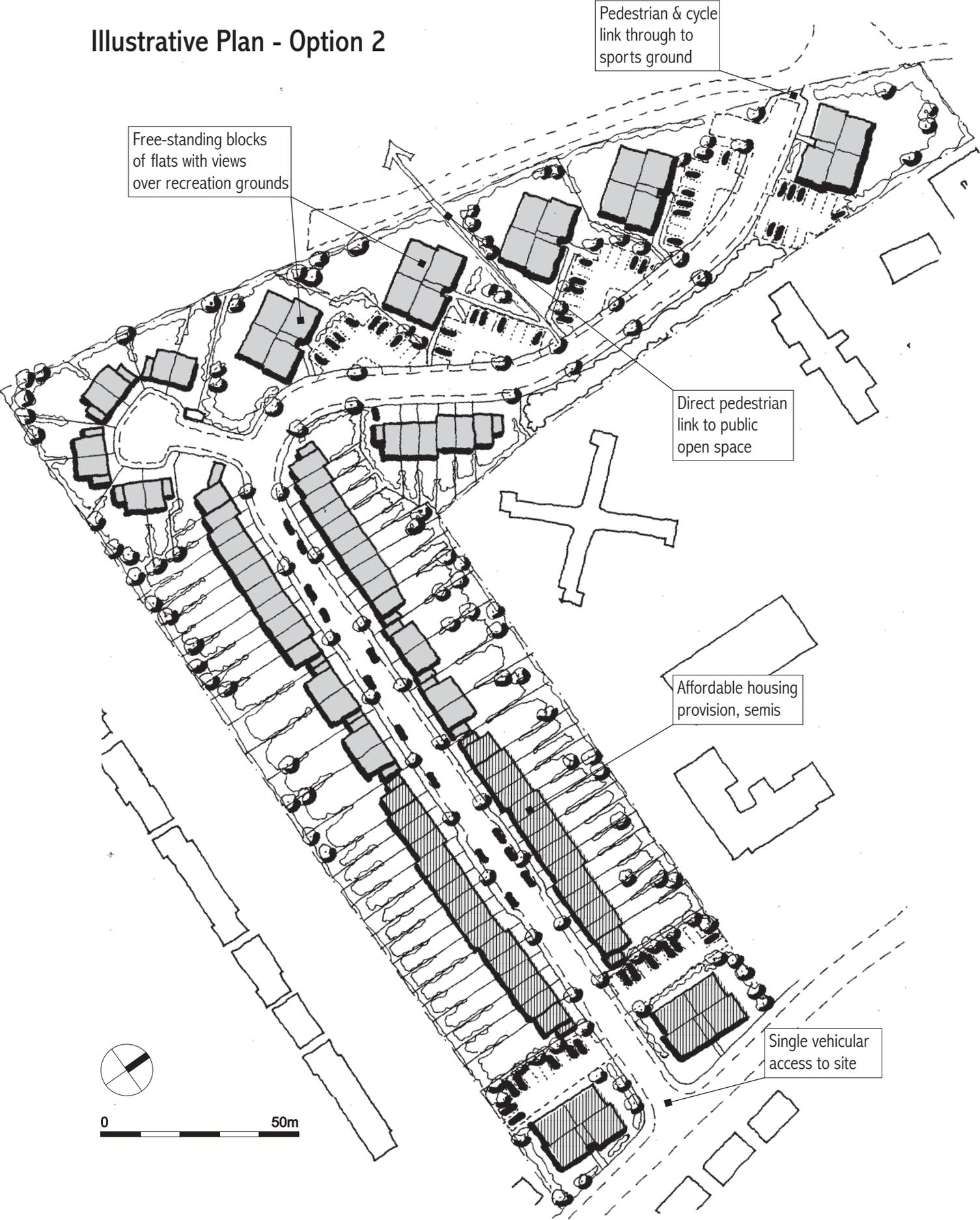
DEVELOPMENT MIX

UNIT TYPE	DESCRIPTION	UNIT SQ. M.	HRS PER UNIT	UNIT NOS. MARKET HOUSING	UNIT NOS. AFFORDABLE HOUSING	TOTAL UNIT NOS.	HRS NOS.	AREA SQ.M.	PARKING NOS
2 Bed	Terrace	70	4	6	26	32	128	2240	48
3 Bed	Semi-detached House	80	5	28	4	32	160	2560	64
4 Bed	Semi-detached House	90	6	-	8	8	48	720	16
4 Bed	Detached House	100	6	19	-	19	114	1900	38
<b>TOTAL</b>				<b>53</b>	<b>38</b>	<b>91</b>	<b>450</b>	<b>7420</b>	<b>166</b>

DENSITY

SITE AREA	NET	GROSS
HA	2.59	2.59
Units/Ha	35	35
Hab Rm/Ha	174	174
Area/Ha	2,865	2,865

# Illustrative Plan - Option 2



0 50m

# Illustrative Plan - Option 2



## Design Intent - Option 2

The road layout of this option is almost identical to the former, but the development mix has changed dramatically. Rather than mainly houses the predominant unit type in this option are flats.

Blocks of flats are clustered along the sports ground edge taking advantage of the attractive views across the fields. Parking standards in this option have been brought down to a ratio of 1:1.

DEVELOPMENT MIX

UNIT TYPE	DESCRIPTION	UNIT SQ. M.	HRS PER UNIT	UNIT NOS. MARKET HOUSING	UNIT NOS. AFFORDABLE HOUSING	TOTAL UNIT NOS.	HRS NOS.	AREA SQ.M.	PARKING NOS
2 Bed	Flat	65	3	60	24	84	252	5460	84
2 Bed	Terrace	70	4	21	26	47	188	3290	47
3 Bed	Semi-detached House	80	5	14	4	18	90	1440	18
4 Bed	Semi-detached House	90	6	-	8	8	48	720	8
<b>TOTAL</b>				<b>95</b>	<b>62</b>	<b>157</b>	<b>578</b>	<b>10910</b>	<b>157</b>

DENSITY

SITE AREA	NET	GROSS
HA	2.59	2.59
Units/Ha	61	61
Hab Rm/Ha	223	223
Area/Ha	4,212	4,212



## Case study conclusions

The four detailed case studies are clearly very much the product of their particular characteristics in terms of their sizes, locations, shapes and market settings. While they can never reflect the full variety of different types of large sites across London they do illustrate well the wide range of residential densities, housing forms and levels of car parking provision which can be accommodated within the Density, Location and Parking Matrix set out in Chapter 6. The sites also exemplify the potential of previously developed urban land to contribute not only to meeting housing needs, but also to local area renewal and image enhancement.

### Density and the need for a design-led approach

The key point as the case studies exemplify is that the optimum form of development including the density of development and the appropriate form of parking, should emerge from a design-led approach focused on the particular characteristics of the site and its surroundings rather than by reference to a set of pre-determined planning standards.

It is important to recognise that five of the seven options illustrated exceed LPAC's current density maxima of 250 HRH. Indeed two of the illustrated options (case study 1 and option 3 of case study 2) are of a density more than double the current maxima. Furthermore even where the housing forms are predominately semi-detached and terraced two storey houses with gardens (as in Option 2 of case study 3) the achieved densities are towards the upper end of the current range of 125-250 HRH.

The explanation for these higher densities lies not only in the need to respond to the established townscape context of sites (Case study 1), and the opportunities to make the most of an open space aspect (Case study 2 and option 2 of Case study 4), but also in the use of more traditional layouts. In particular the return to traditional street blocks (Case studies 3 and 4) with provision for both on and off street car parking as opposed to arrangements of circuitous distributor and cul-de-sacs enables a more efficient use of land with less space devoted to roads and car parking. To this extent the case studies illustrate how the capacity of sites can be increased without departing from traditional suburban semi-detached and terraced houses with gardens.

### Housing capacity and accessibility to facilities and public transport

The case studies highlight the important role that accessibility analysis has to play in appraising the development potential of sites. The emphasis given in the case studies to pedestrian accessibility to local facilities and to public transport represents a step change from conventional transport assessment focused on road and junction capacities. It is integral to the SRQ approach.

It is also clear from the analysis presented as part of the case studies, that levels of accessibility cannot always be taken for granted. For example, as Case study 1 illustrates it cannot be assumed that edge of central London sites will always enjoy better accessibility to local facilities and public transport than more remote sites.

In the case of Case study 2, for example, the range of facilities within walking distance and the quality of the walking routes (as, for example, compared to Case study 1) only emerged from site based analysis. In this example the analysis helped to justify a more intensive form of development than that which may have been assumed to be appropriate.

The development of large sites also present the opportunities to improve the quality of public transport accessibility and thus to increase the development potential of sites. Such potential is well illustrated in Case Study 3 where Option 3 includes a route through the site as compared to the conventional cul-de-sac approach shown in Option 2. By opening this up through route the design creates the opportunity to extend an existing bus through the site and linking it to the local station and shopping centre.

Clearly the potential for such approaches needs to be identified and confirmed early in discussion with London Transport so that the form and layout of development can be planned appropriately.

### Affordable housing provision

The most apparent tension between the SRQ design-led approach and affordable housing requirements arises from the application of RSL standards. All affordable housing being produced for an RSL will need to be developed to meet the requirements of the Housing Corporation's 'Scheme Development Standards', have regard to the National Housing Federation's 'Standards

and Quality in Development' and other standards and guidance on quality such as Housing Quality Indicators. At the same time, both organisations recognise the Government's guidance to make best use of urban sites, to enhance residential quality and promote mixed and balanced communities and therefore allow the particular circumstances of a scheme to be taken into account when applying their standards. The principles of Sustainable Residential Quality are equally relevant to market housing providers and RSL's as part of the promotion for better housing quality, as long as housing management issues, such as avoiding high child populations on high density schemes, are addressed. In fact, proper concern for such issues is essential in ensuring a range of housing types and tenures is provided.

It is also important to record that the more intensive forms of development illustrated in the case studies produce a proportionately greater number of affordable housing units than would come forward under current density ranges.

The case studies show that there can be greater or lesser integration of affordable housing within the overall layout; this is dependent more on management and marketing decisions than design criteria. It is also assumed that affordable housing requirements are flexible enough to allow the full range of housing types from houses to flatted developments and that the form of development will follow to a great extent the existing content of the site and the surrounding urban grain.

The financial viability of providing an element of affordable housing in private schemes is a litmus test of planning policies and Circular 6/98. Policies on affordable housing provision through the planning system vary considerably in what costs the developer may be expected to absorb and reflect the variations found within the housing market in London. The proportion of affordable housing provided as part of the development options varied between 25% and 40% depending on the policy of the Borough concerned. The case studies show that these variations do not pose a problem as it is assumed that any developer purchasing the site has taken into account local policy and this is reflected in the land value. In some instances the local authority will be more flexible about the level of Social Housing Grant being invested, especially where a higher proportion of affordable housing has been negotiated. This shows the need for close and early involvement of RSL's and housing departments in the development of large housing sites.

### **Urban renaissance and development risk**

The case studies highlight the very different ways in which sites can be developed and the different contribution they can make to area renewal and urban renaissance objectives. In a number of cases and particularly Case studies 2 and 3 it seems to us that the easier and more conventional development option produces not only fewer dwellings but also contributes less to widening housing choice and promoting local area renewal.

The implication is that to maximise the public interest benefits of development may involve a developer taking a greater risk, for example, promoting town house development in an area with little proven demand (Case study 3 Option 3) or pursuing (locally) untested layouts (Case study 2 Option 3).

For these more imaginative forms of development, with their public interest benefits, to be brought forward there needs to be not only the correct market conditions but also the support and encouragement of the public sector partners. Realising the full potential of urban sites demands a joint commitment to high quality development on the part of both developers and local authorities. In addition there may be the need to look at the grant and funding regimes to ensure that they are capable of supporting innovative urban developments.

### **The need for integrated design and development teams**

The case study analysis highlights the benefits of an integrated team of planners, urban designers, architects, transport planners and development companies working together to understand and realise the potential of urban brownfield sites.

While such approaches are commonplace for major high profile projects they are often not in place for smaller scale more routine urban developments. We believe that integrated design and development teams including the active involvement of local authorities, housing associations and public transport providers is essential if we are to realise the full potential of urban sites for housing.

### **Relationship to the density matrix**

The case study analysis following an 'indicative master plan' approach confirms the density ranges which emerged from the desk based tiling exercise reported in

Chapter 4. Figure 6.1 overleaf shows the comparison between the densities achieved. It can be seen that in most cases the design-led approach produced densities towards the middle of the range indicated on the Matrix.

The exception is the highest density category (Ped-shed with Central Setting) where the detailed case study analysis resulted in a density close to the top end of the range indicated in the Matrix. In this category the achieved densities will inevitably vary greatly depending on the proportion of site coverage and the number of stories. For these reasons it is quite possible to envisage densities beyond 1,100 HRH on particular sites.

An important point arising from the case study design analysis is the need to balance the different factors built into the Matrix. For example, the level of accessibility to public transport and facilities needs to be balanced against the townscape setting of the site and vice versa. This is well illustrated by Case study 1 where the level of accessibility is not as good as might be expected for a site in an edge of central London location, but where the built form of surrounding buildings and wider locational considerations require a high density solution.

In balancing these different considerations different choices can be made. These are well illustrated in the case studies (especially Case study 2) and are accommodated in different design options of the Matrix. Overall therefore the detailed design-led analysis of four sites supports the logic of the Density, Location and Parking Matrix and its indicative density ranges.

**Figure 6.1: Comparison of Densities**

	<b>Option 1</b>	<b>Option 2</b>	<b>Option 3</b>
<b>Car Parking Provision</b>	High 2 – 1.5 spaces per unit	Moderate 1.5 – 1 space per unit	Low Less than 1 space per unit
<b>Predominant Housing Type</b>	Detached & linked houses	Terraced houses & flats	Mostly flats

<b>Location</b>	Accessibility Index	<b>Setting</b>			
Sites within Town Centre "Ped-Shed"	6 ↑ ↓ 4	<b>Central</b>			<b>650 – 1100</b>  Desktop: 1012 Design-led: 1048
		Case Study Examples			
		<b>Urban</b>		<b>200 – 450</b>	<b>450 – 700</b>
		Case Study Examples		No design-led Case Study	No design-led Case Study
		<b>Suburban</b>		<b>150 – 250</b>	<b>250 – 350</b>
		Case Study Examples		No design-led Case Study	No design-led Case Study
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3 ↑ ↓ 2	<b>Urban</b>		<b>200 – 300</b>	<b>300 – 450</b>
		Case Study Examples		Desk-top: 206 Design-led: 253	Desk-top: 422 Design-led: 394
		<b>Suburban</b>	<b>150 – 200</b>	<b>200 – 250</b>	
		Case Study Examples	Desk-top: 184 & 187 Design-led: 223 & 174	Desk-top: 320 & 223 Design-led: 262 & 223	
Currently Remote Sites	2 ↑ ↓ 1	<b>Suburban</b>	<b>150 – 200</b>		
		Case Study Examples	No design-led Case Study		

**PART III**  
**Conclusions & Implications for**  
**Policy & Practice**

**PART III**



# 7 Conclusions and Implications for Policy and Practice

## 7.1 Introduction

This study has sought to build on the outcomes of SRQ 1, to increase residential capacity while maintaining and enhancing residential quality and encouraging more sustainable patterns of urban living. While that study was concerned with small sites of up to 1ha in size, this study has explored the applicability of SRQ principles to large sites of varying character and location. This final chapter of the report now sets out our assessment of the implications of the research for policy and practice at the strategic and borough levels.

## 7.2 Planning and design principles for large sites

### Recognising the potential of large sites

In looking at the potential of large sites we start with two fundamental propositions: first, the recognition that the potential of large sites goes far beyond their contribution to London's housing capacity; and second that large sites must be planned not as free standing residential enclaves, but as fully integrated neighbourhoods catering for people of different ages and different income groups and supported by appropriate facilities and where possible by local shops and employment.

Large sites must be seen as a strategic resource which can:

- act as a catalyst and contribute to area and neighbourhood renewal;
- provide community facilities which are currently lacking in the surrounding area;
- extend the range and choice of housing (both in

terms of form and tenure) which is available to local people;

- help re-integrate communities and places by providing more convenient and direct walking and cycle routes; and
- support the provision of new and enhanced public transport routes and services.

The significance of large sites to the achievement of sustainable development and urban renaissance objectives should be recognised explicitly in Borough UDPs and reflected in the approach taken to their development. This should be based on a proper understanding of the site and its context at both the strategic and local levels and seek to apply the urban design and sustainable movement principles set out in Chapter 5 of this report and in other good practice guidance.

### Establishing a more positive culture of planning and development

In particular we emphasise the need for a much more positive and creative approach to the development of large sites which brings together the key stakeholders to explore and define the optimum form of development for a site.

As we stressed in Chapter 5 this process must begin early enough in the development of ideas for the site to influence the form of development. This could be at the point where the Strategic, Local and Site based analysis has been completed and thoughts on the appropriate structure and development form are beginning to emerge. At this stage the local authority (Planning, Housing, Transport and Regeneration Departments), public transport operators, the relevant RSL(s) and

other stakeholders can contribute to the structural design thinking as it takes place and add to the understanding of the local and strategic contexts from their in-depth knowledge of the area.

Where the local authority are preparing a development brief for a site this is also the point where private developers and RSLs can make a crucial contribution in ensuring that the form of development envisaged by the brief is achievable in financial and development terms.

One way of formalising the process would be for Boroughs to establish 'Development Enabling Teams' with special responsibility for contributing to the design of development projects, co-ordinating the contributions of other stakeholders and helping proposals through the statutory procedures.

This may appear a novel approach, but it merely gives direct effect to an over-arching objective of planning: to enable development which is consistent with the principles of sustainable development. It is also not uncommon in partnership initiatives and many authorities already adopt practices which approach what is suggested here.

An area of potential concern could be the close involvement of the local authority in the development of proposals which it will ultimately have to consider as part of the statutory development control process. Developers will need confidence that the advice given as part of the pre-application process will be acceptable to Members. Equally, local authorities have a duty to consider all material considerations in determining planning applications including representations from local people affected by development proposals. This tension already exists in terms of pre-application discussions and we are confident that both developers, local authorities and local people will benefit from a closer working relationship during the design of developments.

### **The need for skills training**

This model of procuring development on large sites will undoubtedly require not only investment in time but also in new and enhanced skills. In particular from a local authority's perspective the role is shifting from one of reactive control to that of enabling development with an emphasis on positive facilitation of joint working, a high degree of expertise in urban design and good understanding of development and market issues.

The fact that these skills are not as fully developed within local authorities as they need to be, points to the very high priority that now needs to be given to training and career development. The initiative already taken by the London Borough of Southwark shows how the understanding of urban design issues can be strengthened over a relatively short period through tailored in-house training programmes. This is one model which other authorities could follow (on both design and development skills), but consideration could also be given to partnerships and secondments.

In particular we would point to the contribution which the development industry can make to fostering new and enhanced skills within local authorities by offering training courses and expertise. This could also help to build better mutual understanding and thus more efficient and successful relationships.

### **Strategic urban design and sustainable movement principles**

There is now a widespread recognition of need for much greater importance to be attached to urban design and to meeting the needs of pedestrians in planning new development. While these objectives are well established in planning guidance and in the general policy intent of development plans their achievement is often frustrated by a series of historic planning and design standards which have become established with little regard to their cumulative impact on the quality of new development.

We conclude that the principles of good place making must be given a much higher profile in development plans. The confusion between general statements of good intent and detailed standards which deny quality, must be replaced by a coherent set of design principles and policies which provide a framework for creative approaches to individual sites. We see three specific requirements:

- A set of policies established in the development plan reflecting the strategic urban design and sustainable movement principles set out in Chapter 5 (and in other studies and good practice guides such as Places Streets and Movement: Companion Guide to Design Bulletin 32);
- The testing of any general planning or design standard to be retained to ensure its compatibility with the strategic policy approach; and
- A clear statement of policy that in cases of doubt the strategic design principles should have primacy.

Consideration should also be given in LPAC's Strategic Advice, GOL's Strategic Guidance and the proposed Spatial Development Strategy to the need to establish a London-wide set of urban design principles.

## 7.3 A framework for assessing the potential of large sites

### Background

The appropriate form of development including the achieved density will emerge from the pro-active design-led process described above. However, this process needs to be informed by a strategic context and Boroughs and other stakeholders need to know in advance what the likely capacity of emerging sites will be.

To assist this we have refined and extended the Density, Location and Parking Matrix developed in SRQ I and included in LPAC's Draft Interim Advice on Sustainable Residential Quality. That Matrix was concerned with the potential of small sites of up to 1 ha in size and was based primarily on analysis of sites located within town centre "ped-sheds".

This study has explored the potential of a representative selection of large sites of varying sizes, with different locational and built form characteristics and with different market potential. The analysis, first of 24 large sites and then looking in greater detail at the potential of 4 sites, confirms the principles underlying the matrix approach, but also provided the basis for refining the original matrix.

### Revisions to the original matrix

The new matrix, set out in Figure 7.1, maintains the same spatial framework in terms of accessibility to public transport and facilities, but now also takes account of the setting of sites in terms of the surrounding built context. This is necessary because the established building form in the area immediately surrounding a site will have important influence over the form of new development. For example, the form of development on a site immediately fronting a major bus corridor may well not be suitable in a quieter side street comprising two storey terraced housing.

It does not follow from this that new development can never exceed the established building context in an area, but does need to respect it. Again careful design is essential in making the most of urban sites and ensuring a good relationship with the surrounding townscape. It

should also be remembered that currently applied design policies often preclude this, by limiting densities to below the existing level and by forcing dwellings to be set back from the established building line to provide for off street parking.

The new matrix also takes a less rigid approach to the level of car parking preferring a range within each option to the absolute level set by the earlier matrix. This reflects the fact that across a large site there will be a range of different levels of parking appropriate to different types of housing with varying levels of accessibility to public transport and facilities.

### Using the matrix

With these refinements we believe that the new matrix provides a useful conceptual framework for estimating the potential of sites for housing. Providing that the ranges shown are applied to net site areas (i.e. excluding areas to be used for non-residential purposes) we believe that the matrix can be applied to both large and small sites.

In using the matrix two points should be remembered:

- The matrix is intended to provide a conceptual framework; it is not intended to be followed slavishly;
- The appropriate form and density of development can only be determined properly through the design-led process described in Section 7.2 above. The matrix is only intended to provide a means of anticipating this analysis. It cannot substitute for it.

With these caveats in mind the matrix can assist Boroughs in estimating the potential capacity of sites. The matrix can be used with varying degrees of sophistication depending on the resources available. The more analysis which is given to an individual site in terms of its character, the requirements for non-residential uses and the appropriate form of development, the more accurate the estimate is likely to be.

There are three main steps which need to be followed in using the matrix to estimate housing capacity:

- Categorisation of sites to fit the cells of the matrix;
- Determining the appropriate density range; and
- Translating the estimate based on habitable rooms into a number of dwellings.

**Figure 7.1: Density Matrix for Large and Small Sites**

	<b>Option 1</b>	<b>Option 2</b>	<b>Option 3</b>
<b>Car Parking Provision</b>	High 2 – 1.5 spaces per unit	Moderate 1.5 – 1 space per unit	Low Less than 1 space per unit
<b>Predominant Housing Type</b>	Detached & linked houses	Terraced houses & flats	Mostly flats

<b>Location</b>	<b>Accessibility Index</b>	<b>Setting</b>			
Sites within Town Centre "Ped-Shed"	6 ↑ ↓ 4	<b>Central</b>			<b>650 – 1100</b>
		Case Study Examples			2 3 10
		<b>Urban</b>		<b>200 – 450</b>	<b>450 – 700</b>
Case Study Examples		8		8	
			9 11 16 21 22	9 11 16 21 22	
<b>Suburban</b>		<b>150 – 250</b>		<b>250 – 350</b>	
Case Study Examples		19		19	
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3 ↑ ↓ 2	<b>Urban</b>		<b>200 – 300</b>	<b>300 – 450</b>
		Case Study Examples		1	1
				5 6 14 15 18	5* 6* 14 15 18
<b>Suburban</b>		<b>150 – 200</b>	<b>200 – 250</b>		
Case Study Examples		7 13 20 23 24	7 13 20 23 24		
Currently Remote Sites	2 ↑ ↓ 1	<b>Suburban</b>		<b>150 – 200</b>	
		Case Study Examples		4 12 17	

**Definition of Site Setting:**

- **Central** (very dense development, large building foot prints and buildings of 4-6 stories and above e.g. larger town centres and much of Central London)
- **Urban** (dense development, with a mix of different uses and buildings of 3-4 stories e.g. town centres, along main arterial routes and substantial parts of Inner London); and
- **Suburban** (lower density development, predominantly residential of 2-3 stories e.g. some parts of Inner London, much of Outer London).

Shaded Case Study reference numbers refer to the Case Studies selected for the detailed design-led approach as discussed in Chapter 6

A desk based map analysis supported by local knowledge would be the crudest means of categorising sites in terms of the matrix. Certainly, this can determine whether a site is located within a town centre ped-shed or on a public transport corridor. However, it is difficult to establish real character of a site without a site visit and we would recommend that wherever possible a visit is made to each site.

There are two main ways in which a density assumption can be derived. A broad estimate taking the range indicated in the appropriate cell of the matrix (or the mid-point) or alternatively matching the site to the most appropriate combination of generic house types considered in Chapter 3. This can be done either by cross referring to the different design examples highlighted in the matrix cell or by creating a tailor made combination of tiles using the data set out in Chapter 3.

Finally it will be necessary to translate the capacity estimate from habitable rooms to dwellings per hectare. This can be done using the conversion table set out in Appendix IV.

### **Providing for a range of housing densities**

This study highlights the potential to create high quality residential environments across a very wide range of densities, from low densities of 150hrh (comparable to much inter-war suburban housing) through to 1,100hrh (comparable to the mansion blocks of Kensington). While this range may appear wide in comparison to LPAC's current range of 125-250HRH, it is necessary for a variety of reasons:

- To enable the most appropriate form of development on individual sites;
- To create a wide range of choice of new housing;
- To make effective use of urban land; and
- To reinforce a more sustainable urban structure based on pedestrian accessibility to local facilities and the public transport network.

Of particular importance is the contribution that the SRQ approach can make to increasing London's housing capacity. Not only does it provide a framework to significantly increase density in areas well served by public transport and facilities, but even at lower densities it enables significant increases in site capacities without departing from established suburban housing types with private gardens. As the case studies in Chapter 6 illustrate, the return to traditional street blocks with a mixture of on street, on plot and communal parking can

make more effective use of sites while also improving the directness of walking routes and retaining the essential features of suburban housing areas.

It is also worth remembering that new housing has always been developed to a range of densities. The range advocated here merely reflects the range which has been achieved historically. In fact, as the analysis in the introductory chapter shows, the policy of restricting residential density to a fairly narrow range is only a fairly recent phenomenon.

7.4

## **Implications for affordable housing provision**

The SRQ approach has a number of important implications for the provision of affordable housing. In particular it demonstrates how on-site affordable housing is possible and practicable for a range of sites with different market and locational characteristics. In each of our four detailed case studies, it was possible to achieve between 25% and 40% of the development as affordable housing on site depending on the requirements of the Borough concerned. This is an important finding in terms of the objective of creating inclusive communities with a mix of tenures.

It is crucial that the affordable and market housing elements of a scheme are planned together in an integrated manner. It can often make sense for affordable housing to be grouped into blocks or areas to enable effective management, but this must not mean the segregation of sites into social and market enclaves each with their separate accesses. Quite apart from the polarisation of tenures such approaches can mitigate against direct and convenient pedestrian access across sites.

The study also highlights the need for a sensitive approach to the matching of affordable housing needs to appropriate sites. This is needed to ensure that the affordable housing content is maximised, that the overall development remains viable and that the best use is made of urban sites for housing. This is particularly important on smaller infill sites. On larger sites there will be the opportunity to create a much greater range of housing types.

The implication is that on sites where higher density flatted development is appropriate in terms of the market and the Density, Location and Parking Matrix the

social housing provision should take a similar form. While care is needed to ensure that this does not prejudice the objective of creating balanced communities, it needs to be recognised that unrealistic expectations in terms of the form of affordable housing can prevent privately led housing development coming forward altogether and hence also the affordable provision. Equally, higher density affordable housing in the right locations can also make an important contribution to meeting London's longer term needs for smaller affordable housing units.

# APPENDIX I

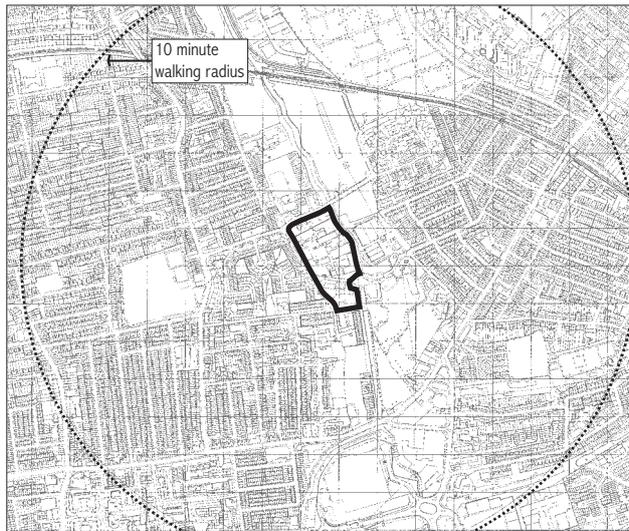
## Tile Sheets for 24 Case Study Sites

### **A disclaimer**

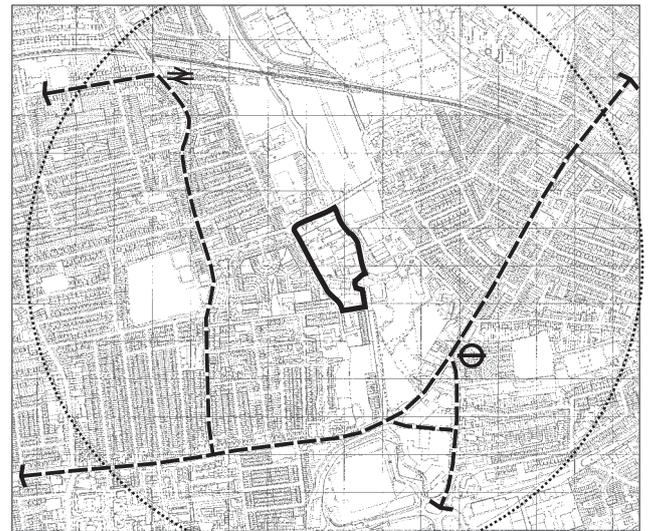
It is important to point out that the selection of case study sites and the design options explored is the consultants' work alone. It does not imply any endorsement of the local authority, land owners, LPAC, GOL, DETR, the Housing Corporation or London Transport.

In particular we would stress that the application of the nine generic housing tiles described in Chapter 4 and illustrated in this Appendix was conducted as a desk exercise and did not include detailed site analysis. The appropriate form of development for these sites must emerge from a site specific design-led approach and the generic housing tiles attributed to the sites in this Appendix should be taken as indicative of the density which may be achievable but not necessarily of the built form implied.

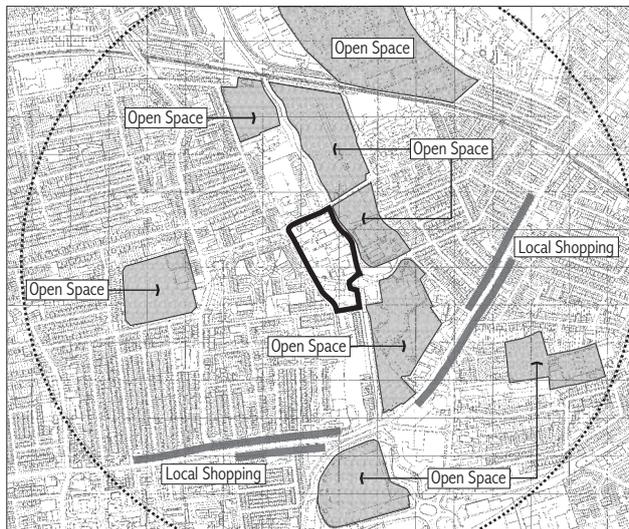
## Urban Structure



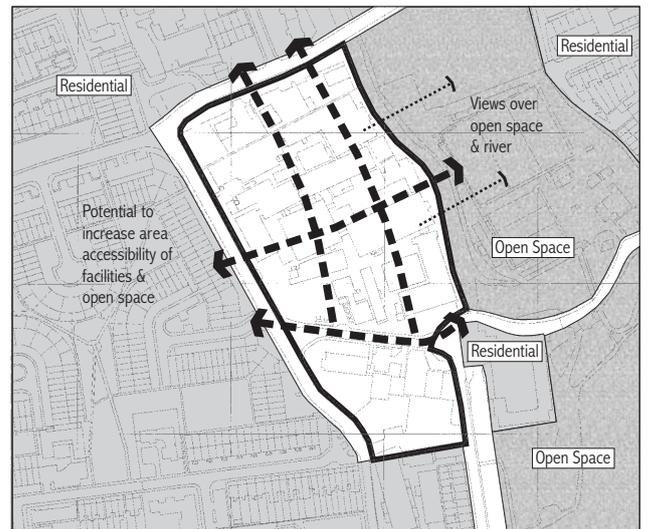
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	3.12 ha
Location Category:	Outer West
Topography:	Flat
Current Use:	Industry
Surrounding Uses:	Residential and open space
Development	
Setting:	Urban
Public Transport	
Accessibility:	Good
Facilities	
Accessibility:	Good

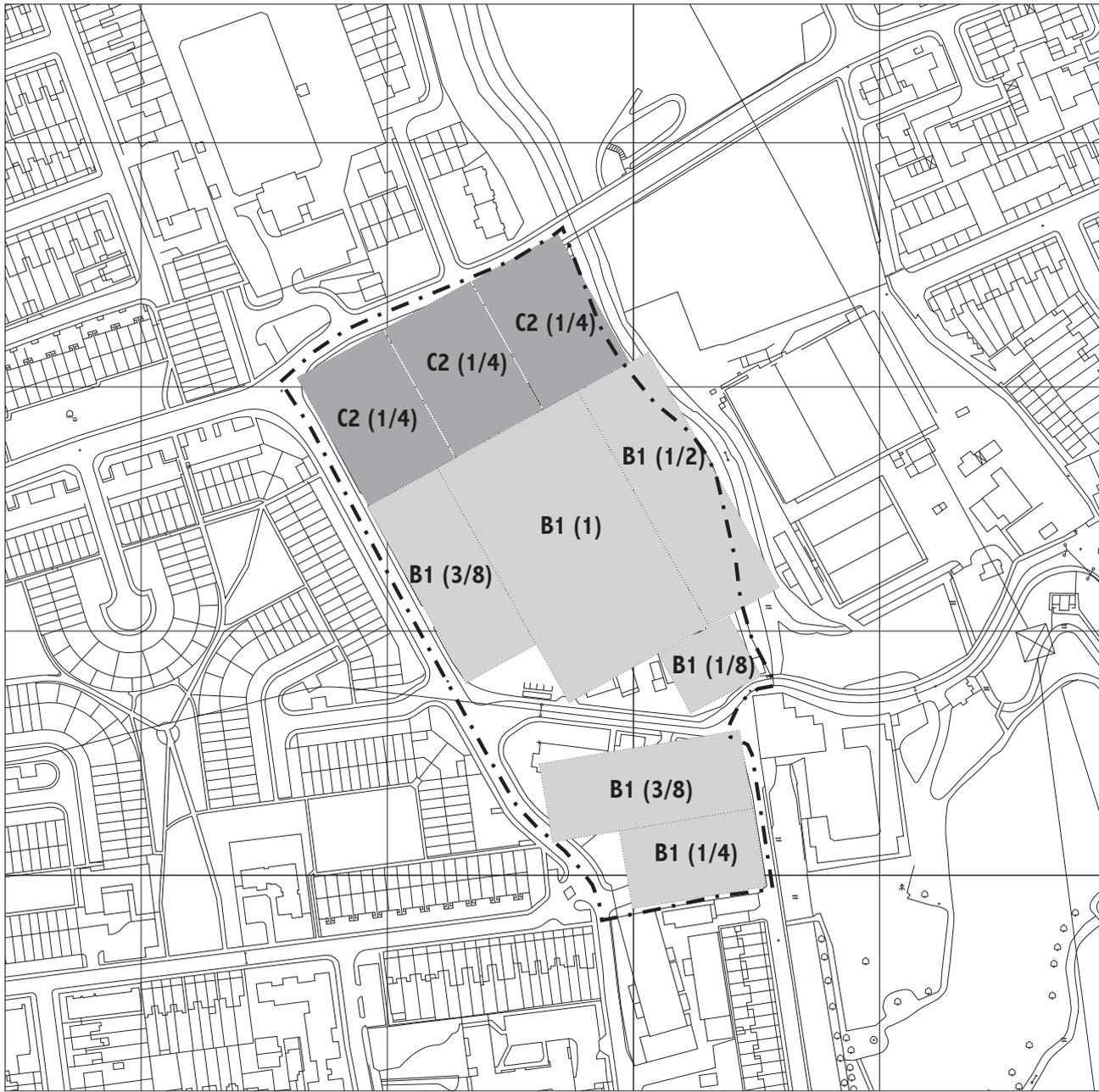
## Policy Issues

Affordable Housing:	The Council is seeking 30% of all new dwellings.
UDP Status:	Mixed-use (Residential and affordable housing)
Community Facilities:	The Council is seeking provision of a new doctor's surgery and nursery.

## Site Category

Location	Accessibility Index	Setting	
Sites within Town Centre "Ped-Shed"	6	Central	
		Urban	
		Suburban	
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban	X
		Suburban	
Currently Remote Sites	1	Suburban	

# Tile Application



Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

OPTION 2- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1	2.625	99.8	terraces	264	499	100
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2	0.75	48	flats	200	144	48
C3		0	flats	1056	0	
D1		0	mix	419	0	
<b>Total</b>		<b>148</b>			<b>643</b>	<b>148</b>

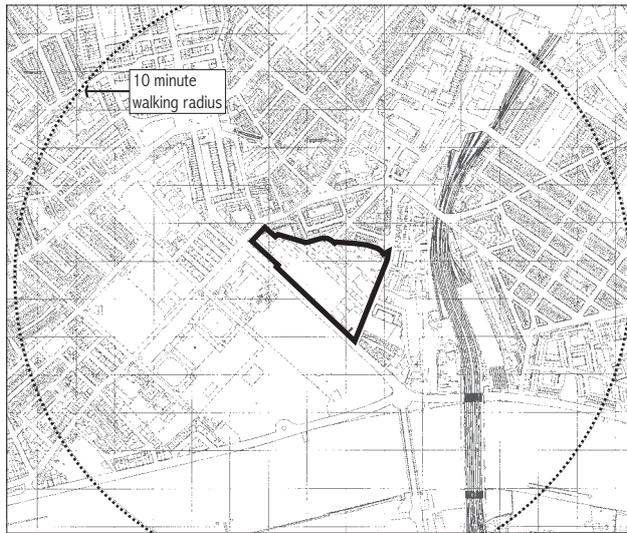
Density	Net	Gross
Area (Ha)	3.12	3.12
Habitable Rooms/Ha	206.01	206.01
Units/Ha	47.356	47.4

OPTION 3- Development Mix

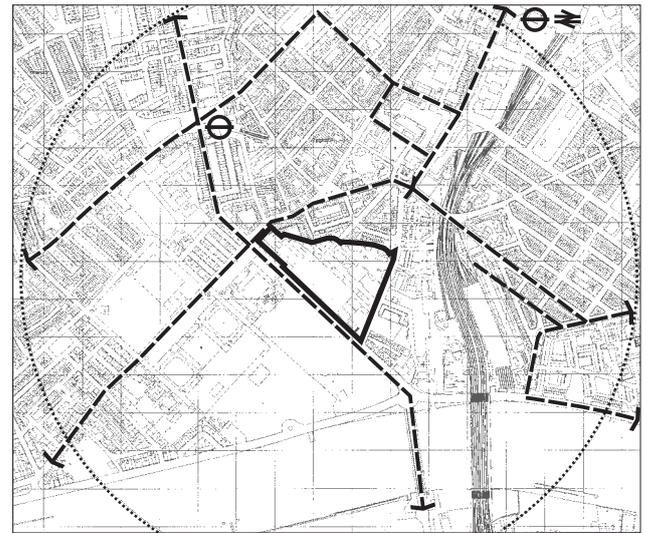
Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2		0	terraces	218	0	
C1	3	336	flats	467	1008	202
C2		0	flats	200	0	
C3		0	flats	1056	0	
D1	1.17	103	mix	419	309	82
<b>Total</b>		<b>439</b>			<b>1317</b>	<b>284</b>

Density	Net	Gross
Area (Ha)	3.12	3.12
Habitable Rooms/Ha	422.1	422.1
Units/Ha	140.7	140.7

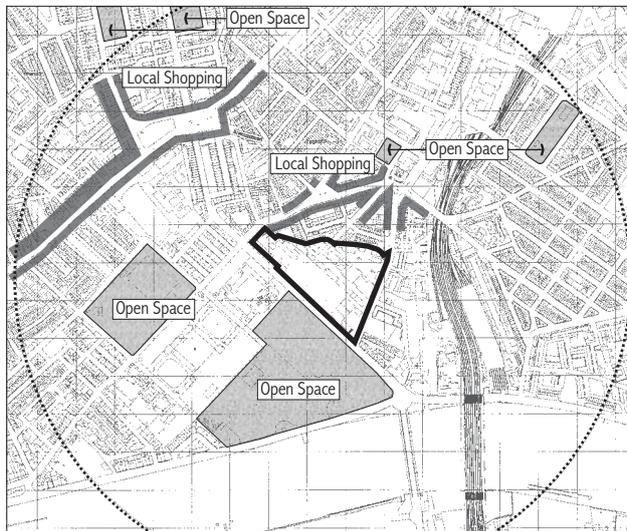
## Urban Structure



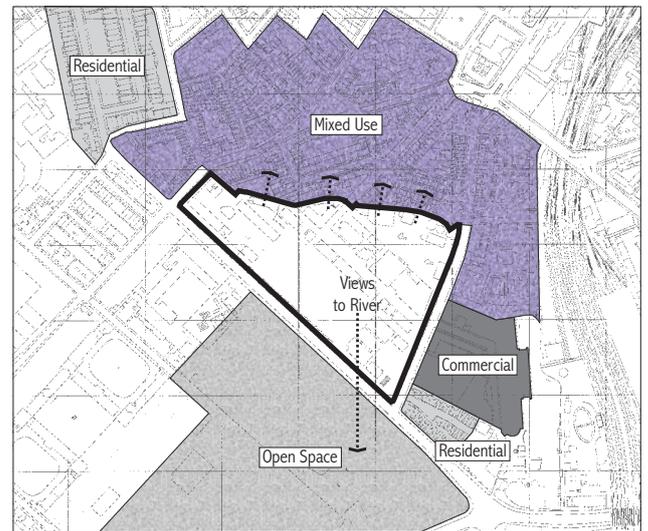
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	5.16 ha
Location Category:	Inner West
Topography:	Flat
Current Use:	Army Barracks - offices and residential
Surrounding Uses:	Mixed-use (predominantly five storey residential) and open space
Development	
Setting:	Central
Public Transport	
Accessibility:	Good
Facilities	
Accessibility:	Good

## Policy Issues

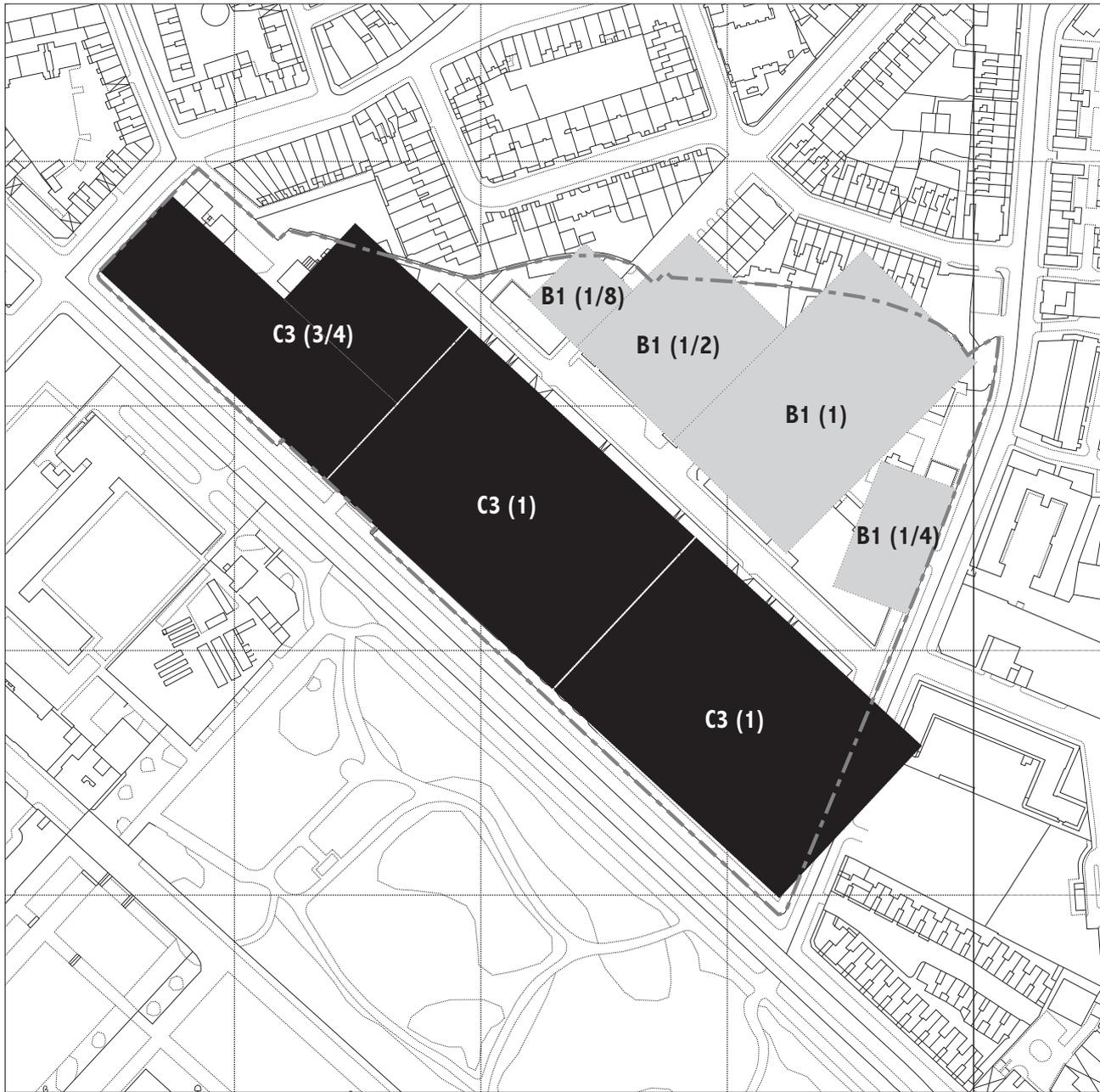
Affordable Housing:	The Council is seeking 25% a minimum of all new dwellings on site.
UDP Status:	Residential.
Community Facilities:	No new facilities to be provided.

## Site Category

Location	Accessibility Index	Setting	
Sites within Town Centre "Ped-Shed"	6	Central	<input checked="" type="checkbox"/>
		Urban	<input type="checkbox"/>
		Suburban	<input type="checkbox"/>
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban	<input type="checkbox"/>
		Suburban	<input type="checkbox"/>
Currently Remote Sites	1	Suburban	<input type="checkbox"/>

# Tile Application

## APPENDIX I



Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

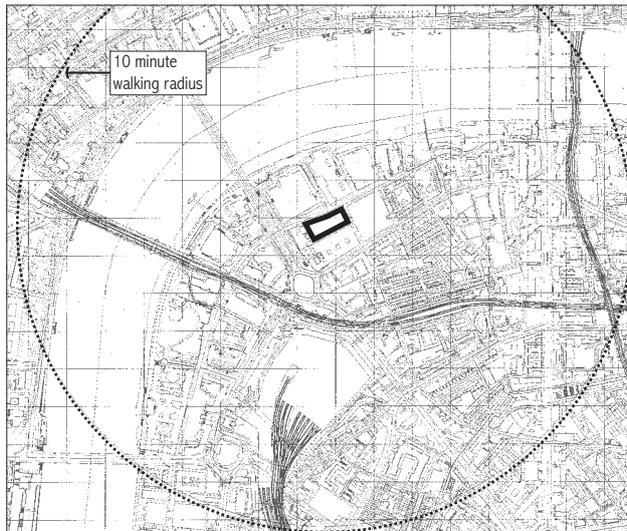
OPTION 3- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1	1.875	71.3	terraces	264	356.25	71
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2		0	flats	200	0	
C3	2.75	1232	flats	1056	3080	616
D1		0	mix	419	0	
<b>Total</b>		<b>1303</b>			<b>3436.3</b>	<b>687</b>

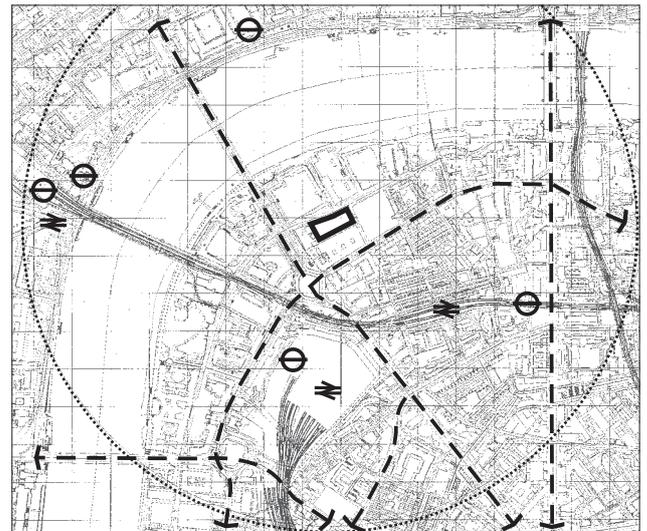
Density	Net	Gross
Area (Ha)	4.68	5.16
Habitable Rooms/Ha	734.2	665.9
Units/Ha	278.5	252.6

## CASE STUDY 2

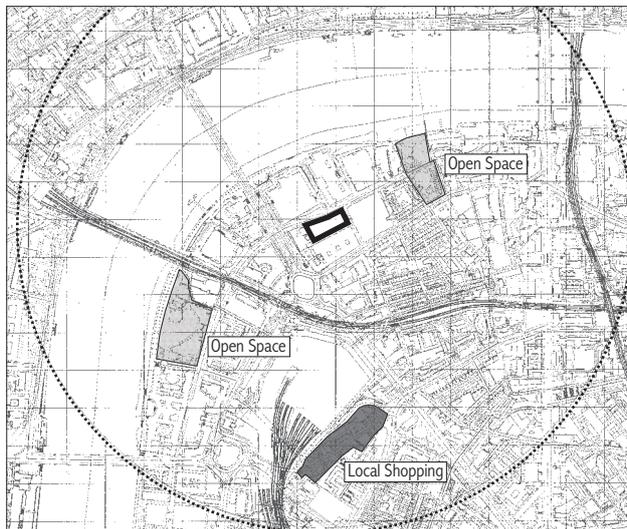
## Urban Structure



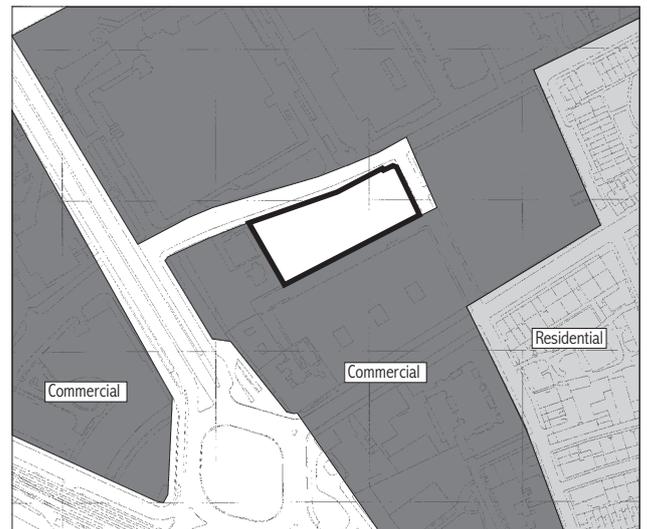
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	0.41 ha
Location Category:	Inner East
Topography:	Flat
Current Use:	Car Park
Surrounding Uses:	Commercial and arts facilities
Development Setting:	Central
Public Transport Accessibility:	Good
Facilities Accessibility:	Fair

## Policy Issues

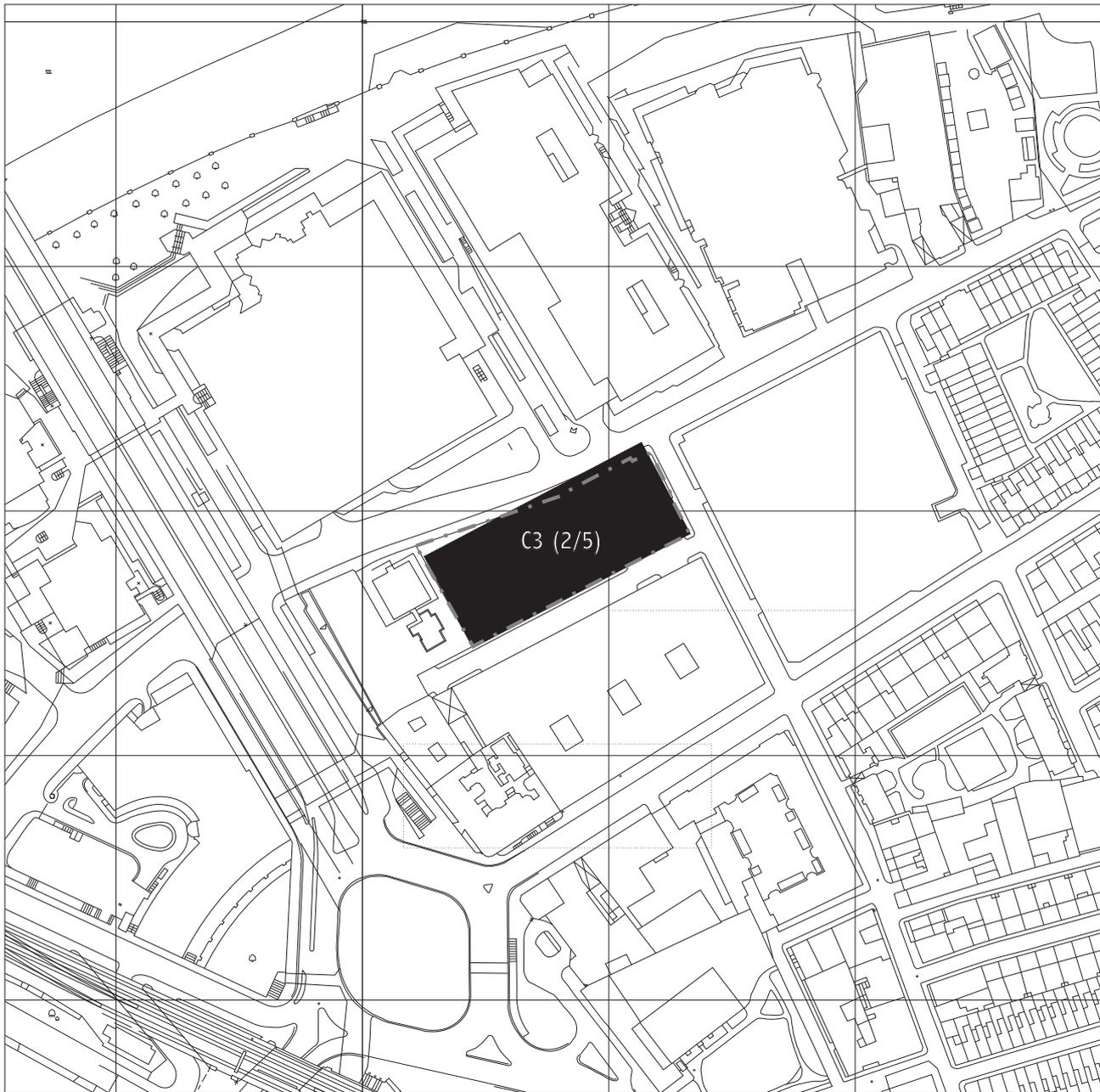
<b>Affordable Housing:</b> The Council is seeking a minimum of 25% of all new dwellings.
<b>UDP Status:</b> Mixed-use (mainly residential, but also leisure, retail, etc)
<b>Community Facilities:</b> The Council is seeking improvements to, or provision of new facilities via developer contribution towards or a planning obligation.

## Site Category

Location	Accessibility Index	Setting	
Sites within Town Centre "Ped-Shed"	6	Central	<input checked="" type="checkbox"/>
		Urban	<input type="checkbox"/>
		Suburban	<input type="checkbox"/>
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban	<input type="checkbox"/>
		Suburban	<input type="checkbox"/>
Currently Remote Sites	1	Suburban	<input type="checkbox"/>

# Tile Application

## APPENDIX I



Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

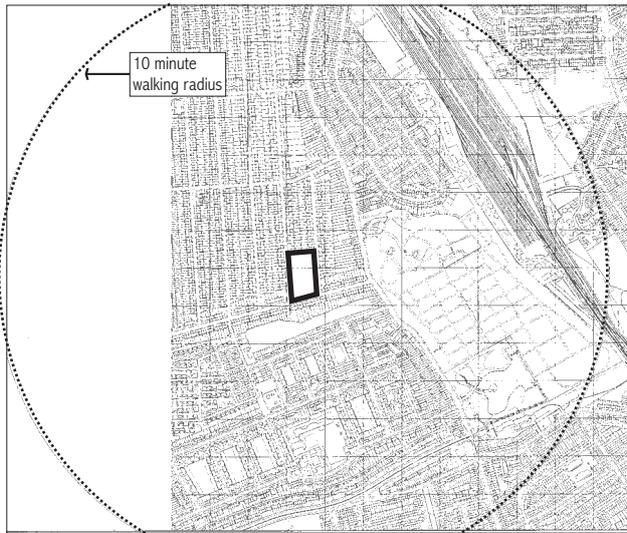
OPTION 3- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2		0	flats	200	0	
C3	0.4	179	flats	1056	448	90
D1		0	mix	419	0	
Total		179			448	90

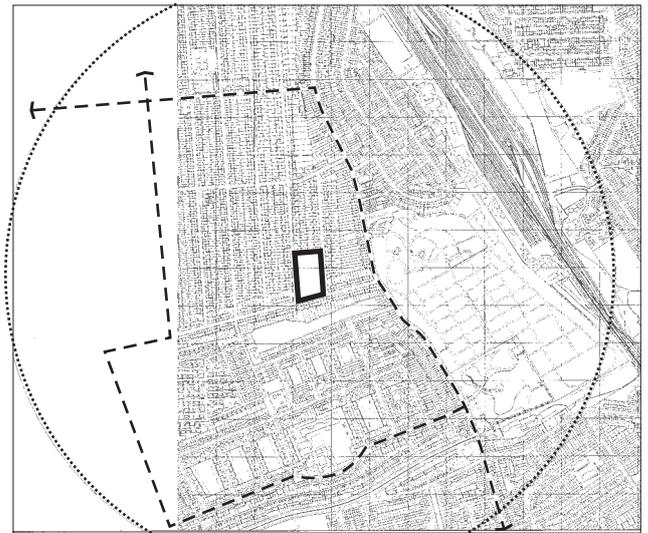
Density	Net	Gross
Area (Ha)	0.41	0.41
Habitable Rooms/Ha	1093	1093
Units/Ha	437.1	437.1

## CASE STUDY 3

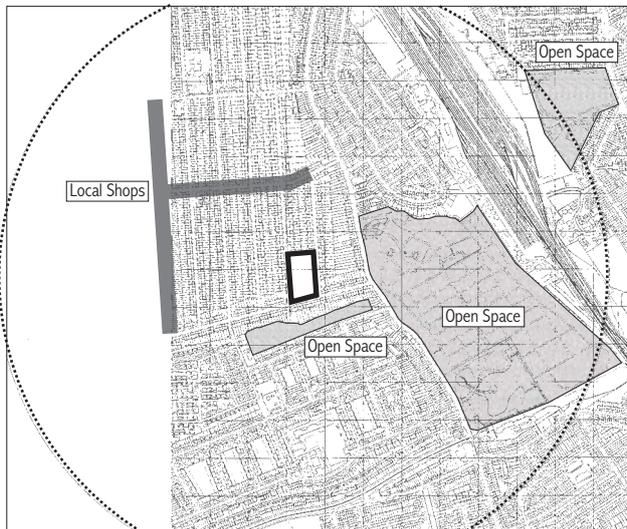
## Urban Structure



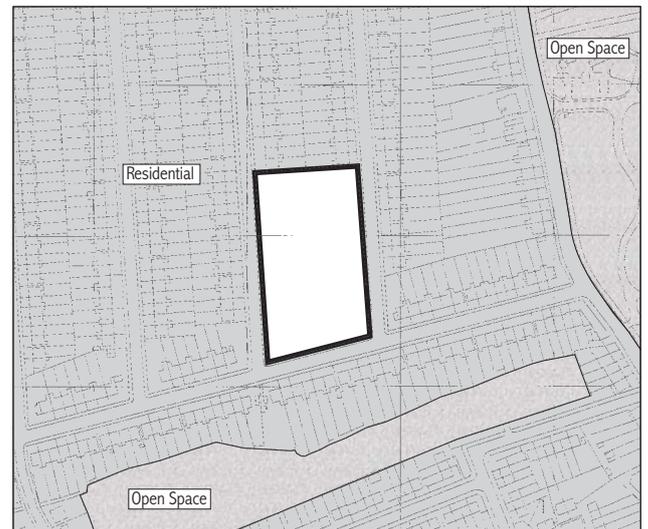
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	0.81 ha
Location Category:	Inner East
Topography:	Flat
Current Use:	Allotments
Surrounding Uses:	Residential and open space (including cemetery)
Development	
Setting:	Suburban
Public Transport	
Accessibility:	Poor
Facilities	
Accessibility:	Fair

## Policy Issues

Affordable Housing:	The Council is seeking a minimum of 25% of all new developments over 15 units.
UDP Status:	Residential and open space
Community Facilities:	Provide 50% of site as open space.

## Site Category

Location	Accessibility Index	Setting	
Sites within Town Centre "Ped-Shed"	6	Central	
		Urban	
		Suburban	
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban	
		Suburban	
Currently Remote Sites	1	Suburban	X

# Tile Application



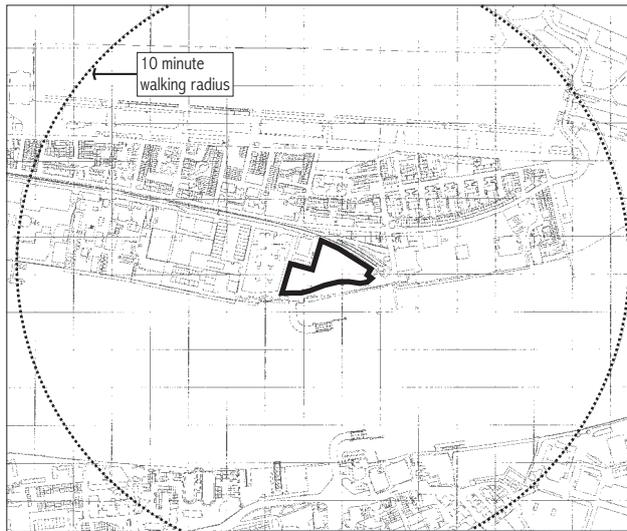
OPTION 1- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1	0.5	19	terraces	264	95	29
B2	0.5	12	terraces	218	60	18
C1		0	flats	467	0	
C2		0	flats	200	0	
C3		0	flats	1056	0	
D1		0	mix	419	0	
Total		31			155	47

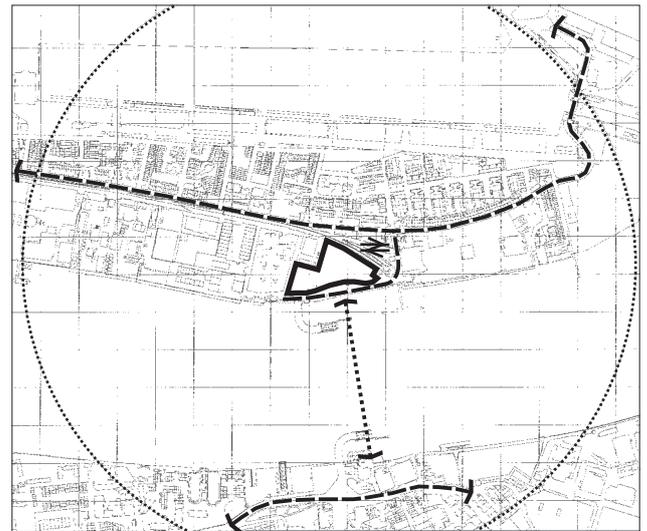
Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

Density	Net	Gross
Area (Ha)	0.81	0.81
Habitable Rooms/Ha	191.36	191.36
Units/Ha	38.272	38.272

## Urban Structure



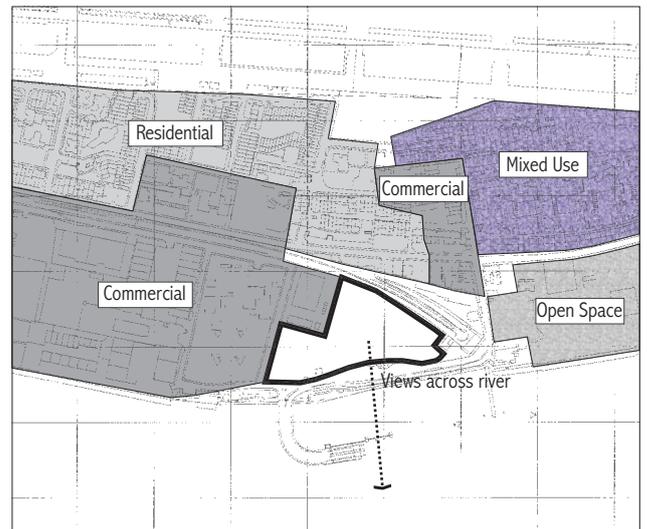
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	1.68 ha
Location Category:	Inner East
Topography:	Flat
Current Use:	Vacant
Surrounding Uses:	Commercial, railway sidings, open space and River.
Development Setting:	Urban
Public Transport Accessibility:	Fair
Facilities Accessibility:	Good

## Policy Issues

Affordable Housing:	No provision expected.
UDP Status:	No land-use designation.
Community Facilities:	Council expectations unknown.

## Site Category

Location	Accessibility Index	Setting	
Sites within Town Centre "Ped-Shed"	6	Central	
		Urban	
		Suburban	
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban	X
		Suburban	
Currently Remote Sites	1	Suburban	

# Tile Application



Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

OPTION 2- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1	0	0	houses	80	0	
A2	0	0	houses	96	0	
A3	0	0	houses	154	0	
B1	0	0	terraces	264	0	
B2	0	0	terraces	218	0	
C1	0.5	56	flats	467	168	56
C2	0	0	flats	200	0	
C3	0	0	flats	1056	0	
D1	1.25	110	mix	419	330	132
<b>Total</b>		<b>166</b>			<b>498</b>	<b>188</b>

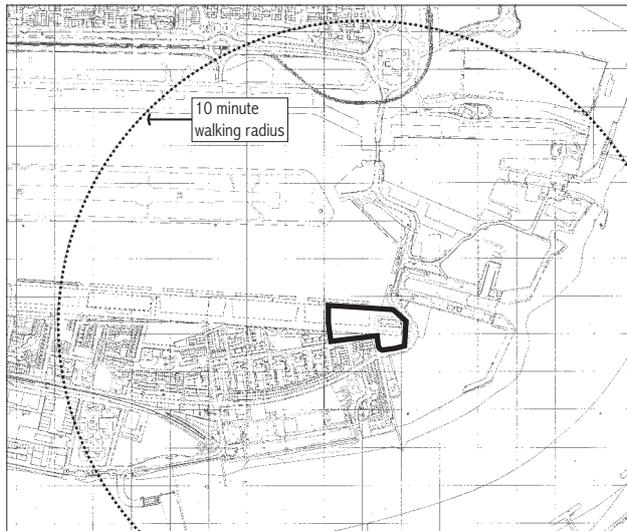
Density	Net	Gross
Area (Ha)	1.55	1.68
Habitable Rooms/Ha	321.29	296.43
Units/Ha	107.1	98.81

OPTION 3- Development Mix

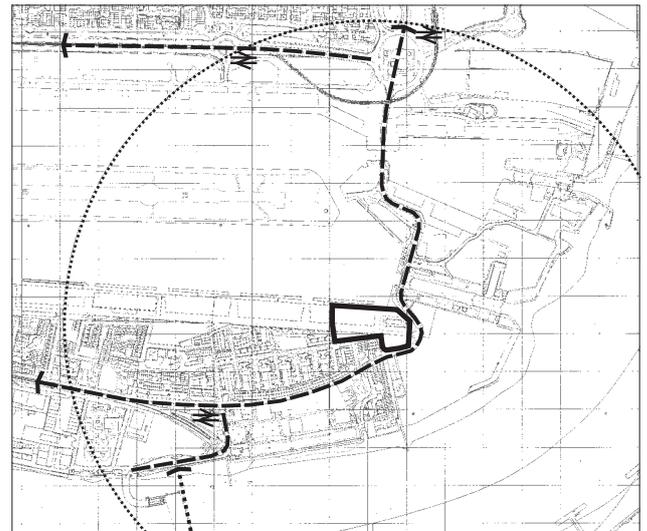
Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1	0	0	houses	80	0	
A2	0	0	houses	96	0	
A3	0	0	houses	154	0	
B1	0	0	terraces	264	0	
B2	0	0	terraces	218	0	
C1	1.5	168	flats	467	504	101
C2	0.5	32	flats	200	96	16
C3	0	0	flats	1056	0	
D1	0	0	mix	419	0	
<b>Total</b>		<b>200</b>			<b>600</b>	<b>117</b>

Density	Net	Gross
Area (Ha)	1.55	1.68
Habitable Rooms/Ha	387.1	357.1
Units/Ha	129.0	119.0

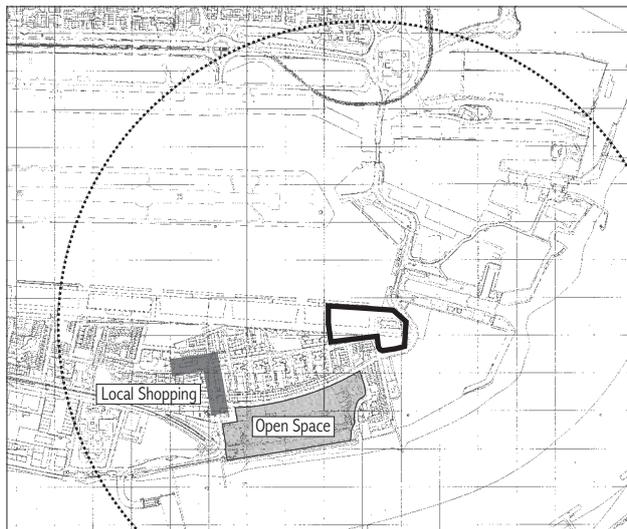
## Urban Structure



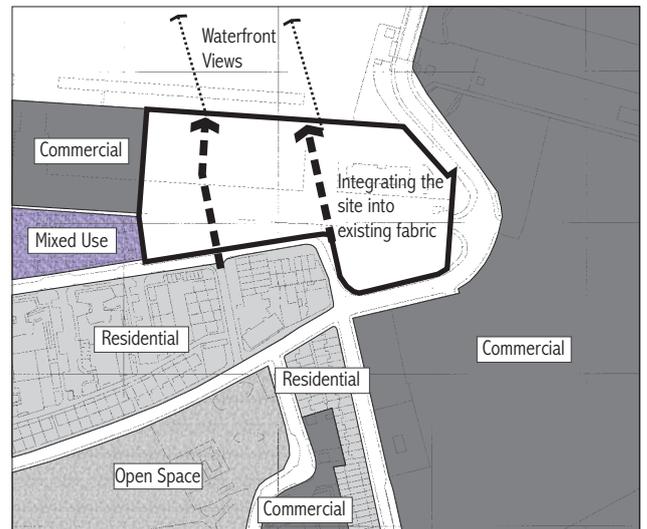
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	1.70 ha
Location Category:	Inner East
Topography:	Flat
Current Use:	Vacant
Surrounding Uses:	Residential, commercial and mixed-use
Development Setting:	Urban
Public Transport Accessibility:	Fair
Facilities Accessibility:	Good

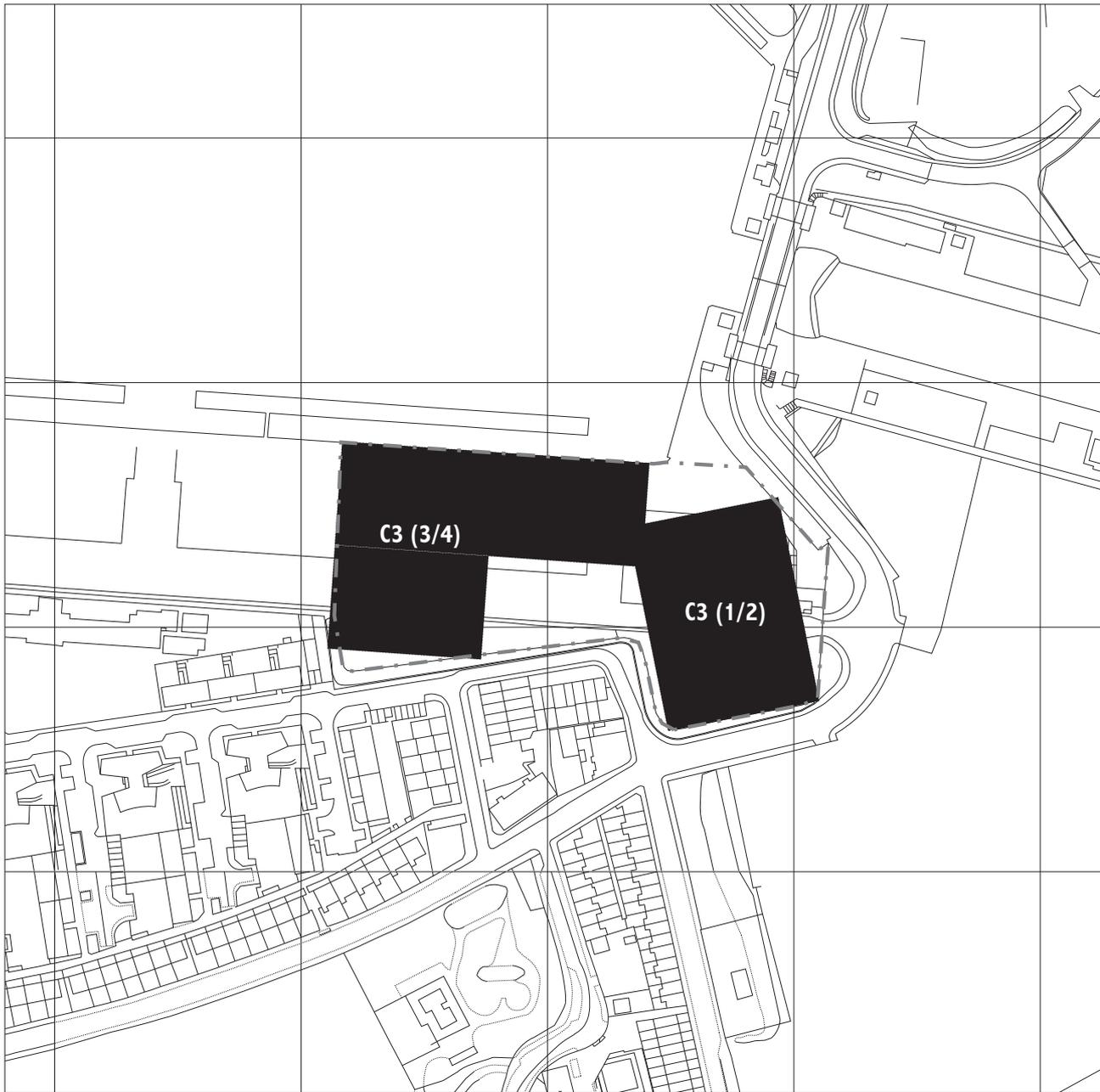
## Policy Issues

Affordable Housing:	No provision expected.
UDP Status:	"Major Opportunity Zone" - Mixed-use
Community Facilities:	Council expectations unknown.

## Site Category

Location	Accessibility Index	Setting	
Sites within Town Centre "Ped-Shed"	6	Central	
		Urban	
		Suburban	
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban	X
		Suburban	
Currently Remote Sites	1	Suburban	

# Tile Application



Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

OPTION 2- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1	1.5	57	terraces	264	285	86
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2		0	flats	200	0	
C3		0	flats	1056	0	
D1	0.75	66	mix	419	198	79
<b>Total</b>		<b>123</b>			<b>483</b>	<b>165</b>

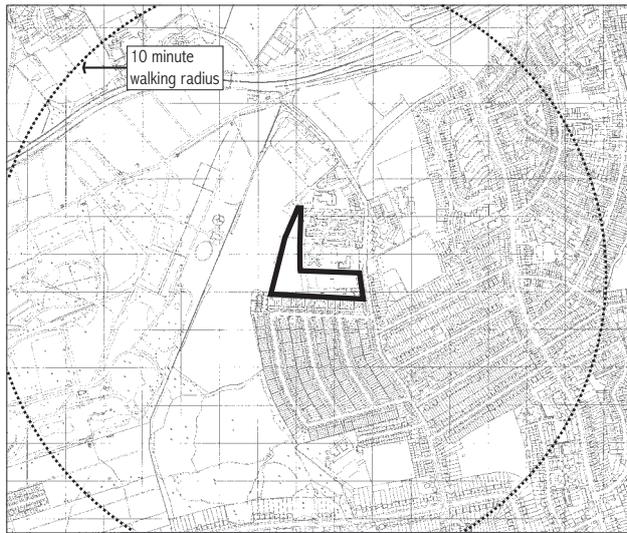
Density	Net	Gross
Area (Ha)	1.7	1.7
Habitable Rooms/Ha	284.12	284.12
Units/Ha	72.353	72.353

OPTION 3- Development Mix

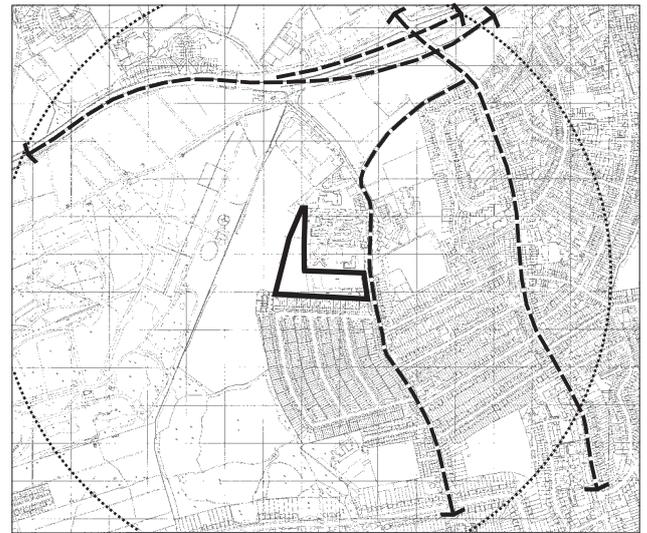
Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2		0	flats	200	0	
C3	1.25	560	flats	1056	1400	560
D1		0	mix	419	0	
<b>Total</b>		<b>560</b>			<b>1400</b>	<b>560</b>

Density	Net	Gross
Area (Ha)	1.7	1.7
Habitable Rooms/Ha	823.5	823.5
Units/Ha	329.4	329.4

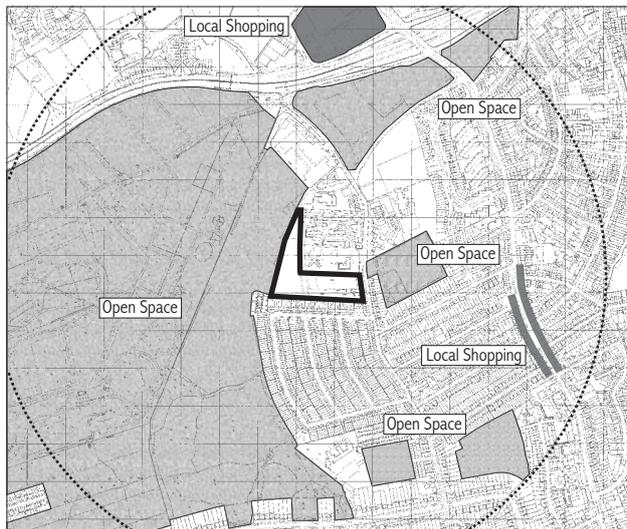
## Urban Structure



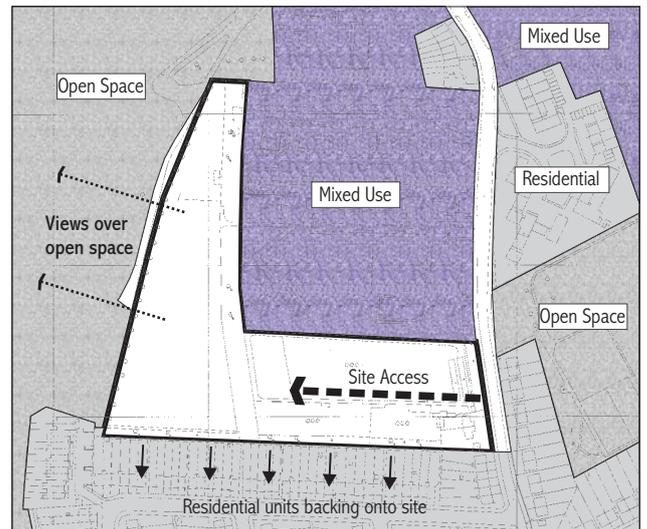
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	2.59 ha
Location Category:	Inner East
Topography:	Flat
Current Use:	Open space
Surrounding Uses:	Hospital, residential and open space
Development Setting:	Suburban
Public Transport Accessibility:	Fair
Facilities Accessibility:	Fair

## Policy Issues

Affordable Housing:	The Council is seeking 40% of dwellings in new development.
UDP Status:	Residential (maximum density: 210 dwellings/ha)
Community Facilities:	No provision expected.

## Site Category

Location	Accessibility Index	Setting
Sites within Town Centre "Ped-Shed"	6	Central
		Urban
		Suburban
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban
		Suburban
Currently Remote Sites	1	Suburban

# Tile Application



OPTION 1- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2	0.67	21.4	houses	96	128.64	43
A3		0	houses	154	0	
B1	1.875	71.3	terraces	264	356.25	107
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2		0	flats	200	0	
C3		0	flats	1056	0	
D1		0	mix	419	0	
<b>Total</b>		<b>92.7</b>			<b>484.89</b>	<b>150</b>

Density	Net	Gross
Area (Ha)	2.59	2.59
Habitable Rooms/Ha	187.22	187.22
Units/Ha	35.788	35.788

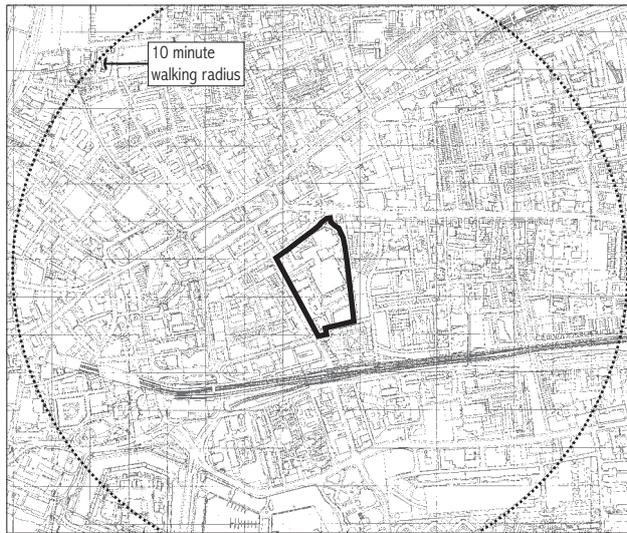
OPTION 2- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1	1.75	66.5	terraces	264	332.5	100
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2	1	64	flats	200	192	64
C3		0	flats	1056	0	
D1		0	mix	419	0	
<b>Total</b>		<b>131</b>			<b>524.5</b>	<b>164</b>

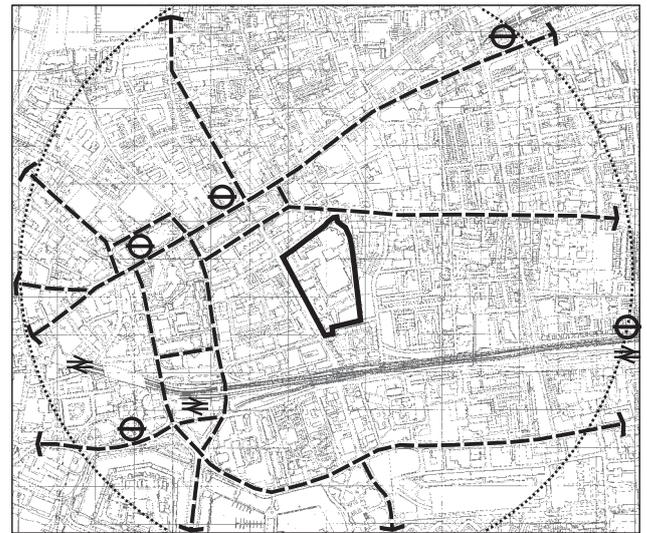
Density	Net	Gross
Area (Ha)	2.35	2.59
Habitable Rooms/Ha	223.19	202.5
Units/Ha	55.5	50.4

Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

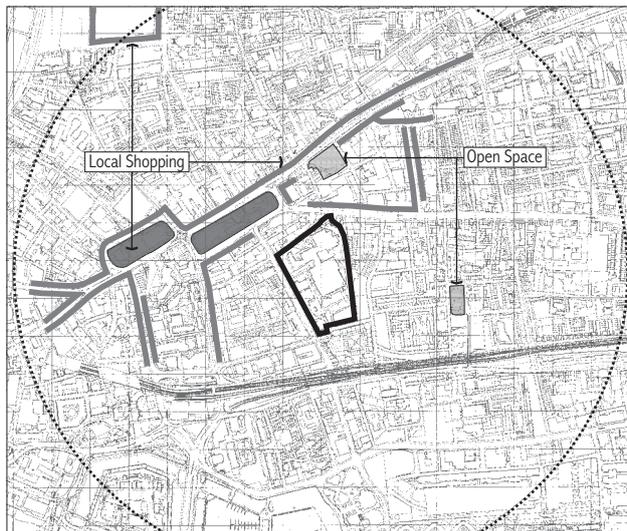
## Urban Structure



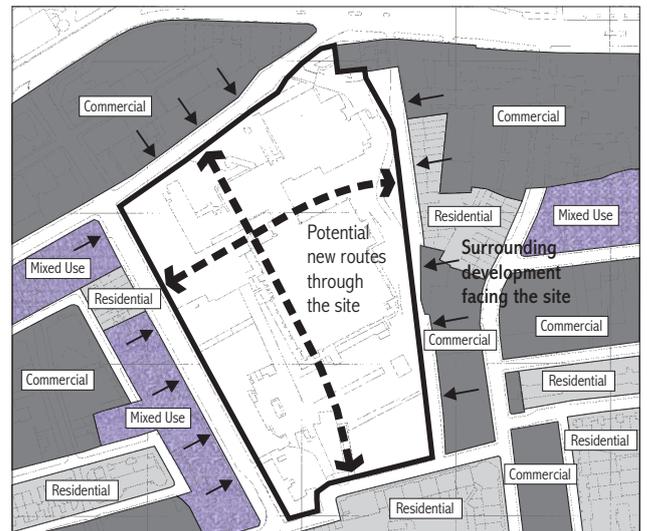
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	3.77 ha
Location Category:	Inner East
Topography:	Flat
Current Use:	Offices
Surrounding Uses:	Commercial, mixed-use and residential
Development Setting:	Urban
Public Transport Accessibility:	Good
Facilities Accessibility:	Good

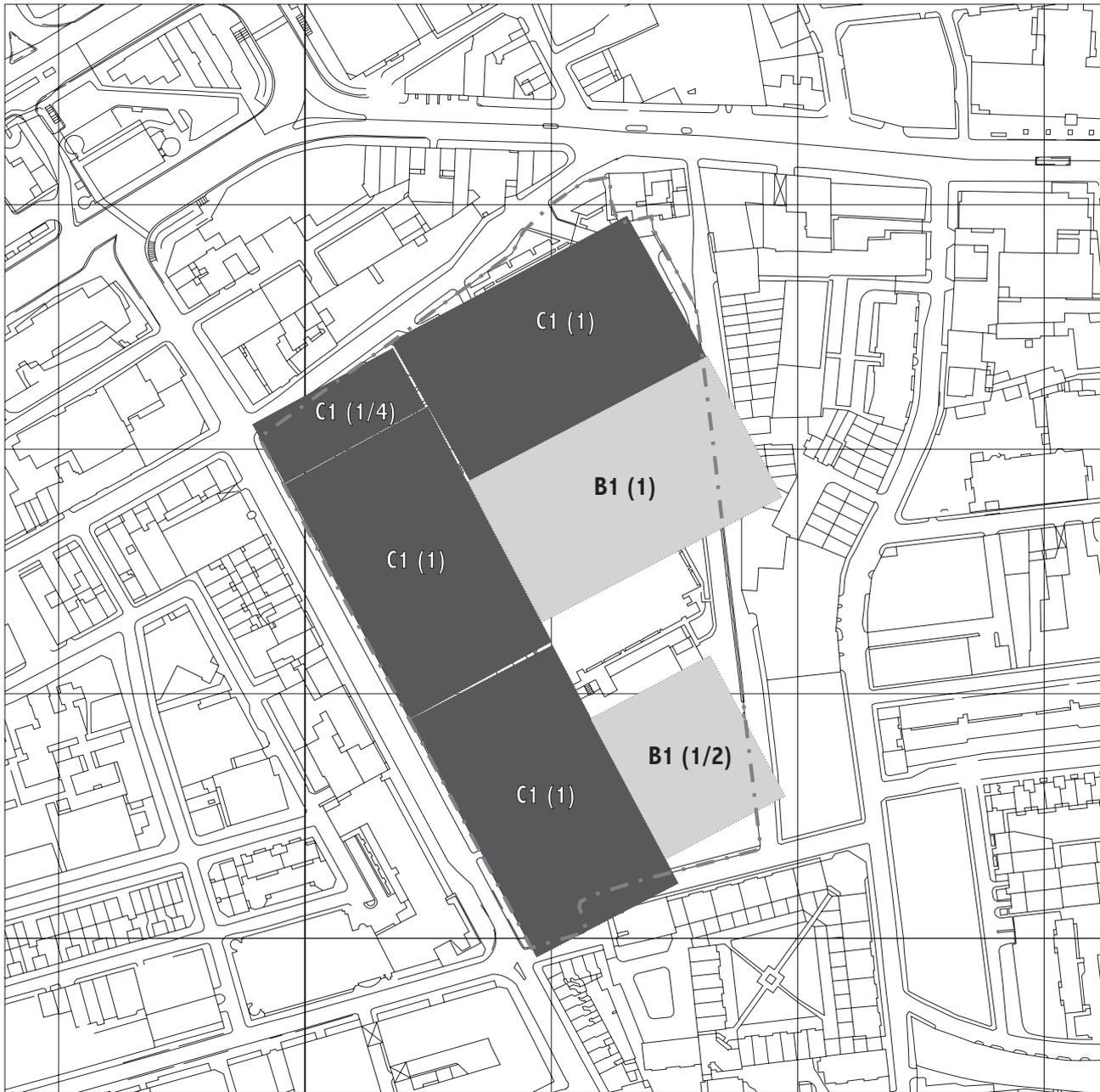
## Policy Issues

Affordable Housing:	The Council is seeking 25% of dwellings in new development.
UDP Status:	Zoned for employment.
Community Facilities:	No provision expected.

## Site Category

Location	Accessibility Index	Setting
Sites within Town Centre "Ped-Shed"	6	Central
		Urban
		Suburban
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban
		Suburban
Currently Remote Sites	1	Suburban

# Tile Application



Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

OPTION 2- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1	1.5	57	terraces	264	285	68
B2		0	terraces	218	0	
C1	3.25	364	flats	467	1092	364
C2		0	flats	200	0	
C3		0	flats	1056	0	
D1		0	mix	419	0	
<b>Total</b>		<b>421</b>			<b>1377</b>	<b>432</b>

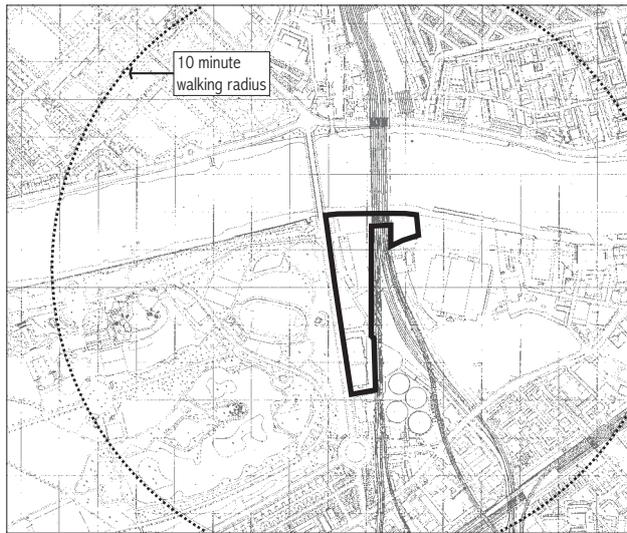
Density	Net	Gross
Area (Ha)	3.45	3.77
Habitable Rooms/Ha	399.13	365.25
Units/Ha	122.03	111.67

OPTION 3- Development Mix

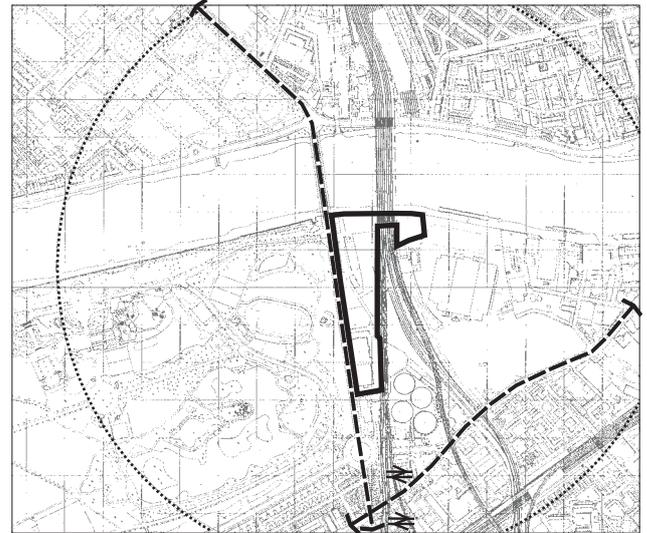
Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2		0	terraces	218	0	
C1	3.5	392	flats	467	1176	235
C2		0	flats	200	0	
C3	0.75	336	flats	1056	840	168
D1		0	mix	419	0	
<b>Total</b>		<b>728</b>			<b>2016</b>	<b>403</b>

Density	Net	Gross
Area (Ha)	3.59	3.77
Habitable Rooms/Ha	561.6	534.7
Units/Ha	202.8	193.1

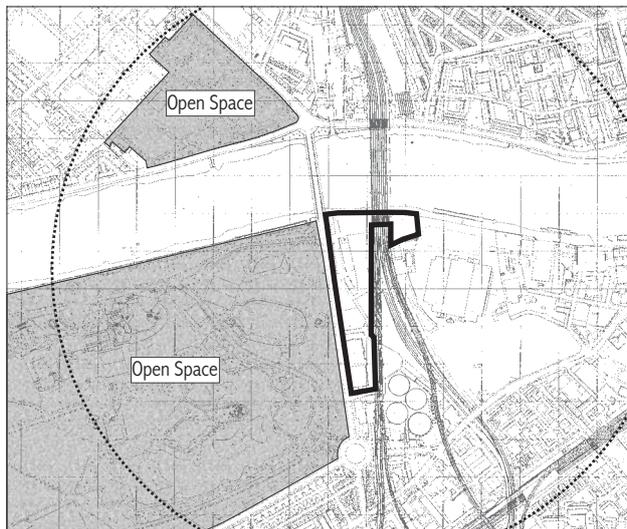
## Urban Structure



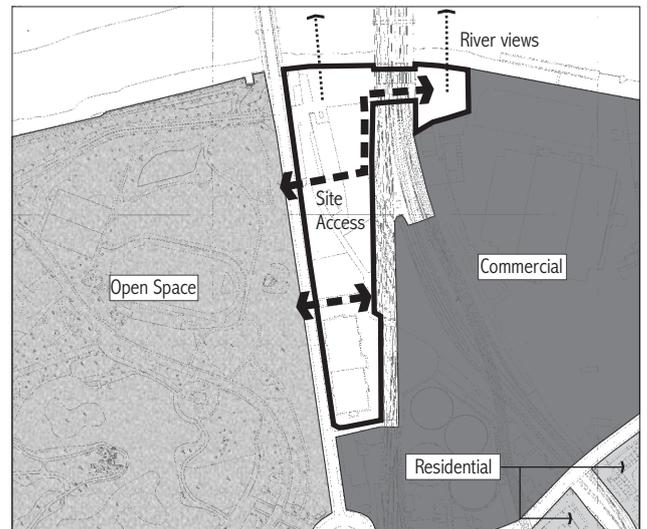
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	5.05 ha
Location Category:	Inner West
Topography:	Flat
Current Use:	Vacant and storage
Surrounding Uses:	Open Space, commercial, river and derelict industrial buildings.
Development Setting:	Urban
Public Transport Accessibility:	Fair
Facilities Accessibility:	Fair

## Policy Issues

Affordable Housing:	No provision expected.
UDP Status:	Residential, but also part of Riverside Employment Area.
Community Facilities:	No provision expected.

## Site Category

Location	Accessibility Index	Setting	
Sites within Town Centre "Ped-Shed"	6	Central	
		Urban	X
		Suburban	
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban	
		Suburban	
Currently Remote Sites	1	Suburban	

# Tile Application



**APPENDIX I**

Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

**OPTION 2- Development Mix**

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2		0	flats	200	0	
C3	1.5	672	flats	1056	1680	672
D1	1.917	169	mix	419	506.09	202
<b>Total</b>		<b>841</b>			<b>2186.1</b>	<b>874</b>

Density	Net	Gross
Area (Ha)	4.72	5.05
Habitable Rooms/Ha	463.15	432.89
Units/Ha	178.11	166.47

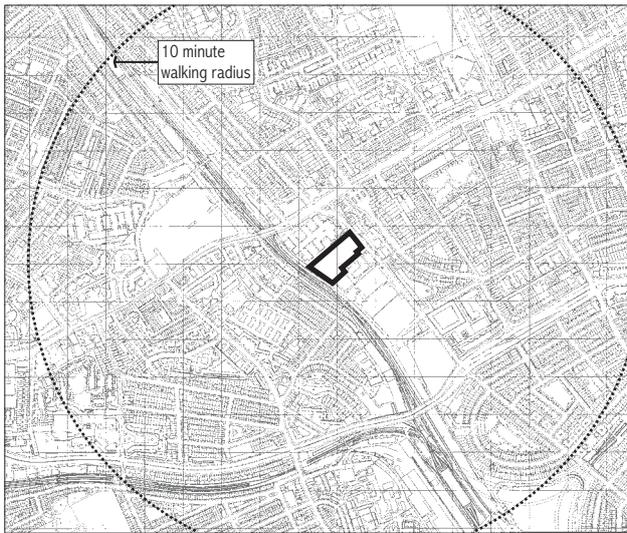
**OPTION 3- Development Mix**

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2		0	flats	200	0	
C3	2.75	1232	flats	1056	3080	1232
D1		0	mix	419	0	
<b>Total</b>		<b>1232</b>			<b>3080</b>	<b>1232</b>

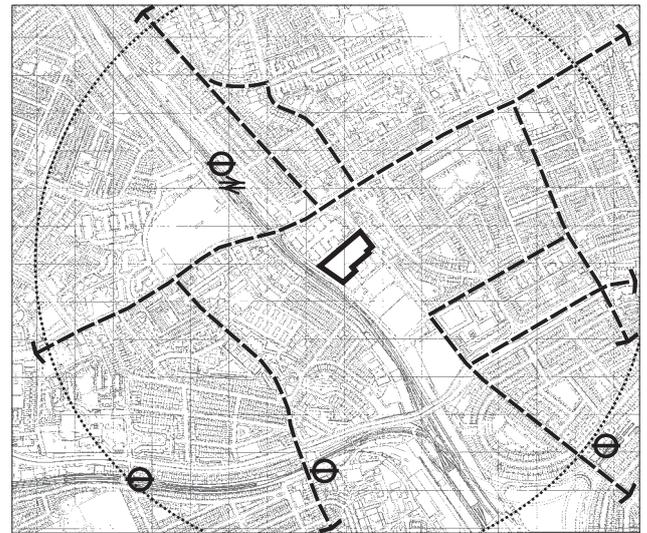
Density	Net	Gross
Area (Ha)	4.72	5.05
Habitable Rooms/Ha	652.5	609.9
Units/Ha	261.0	244.0

**CASE STUDY 9**

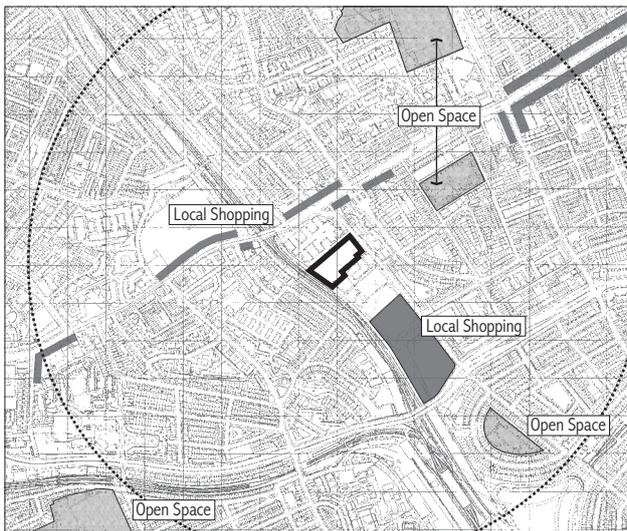
## Urban Structure



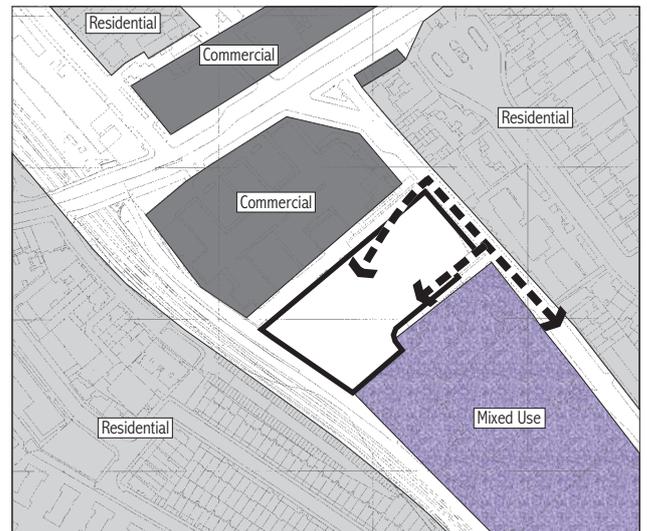
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	0.83 ha
Location Category:	Inner West
Topography:	Flat
Current Use:	Car park
Surrounding Uses:	Railway line, residential and commercial
Development Setting:	Central
Public Transport Accessibility:	Good
Facilities Accessibility:	Good

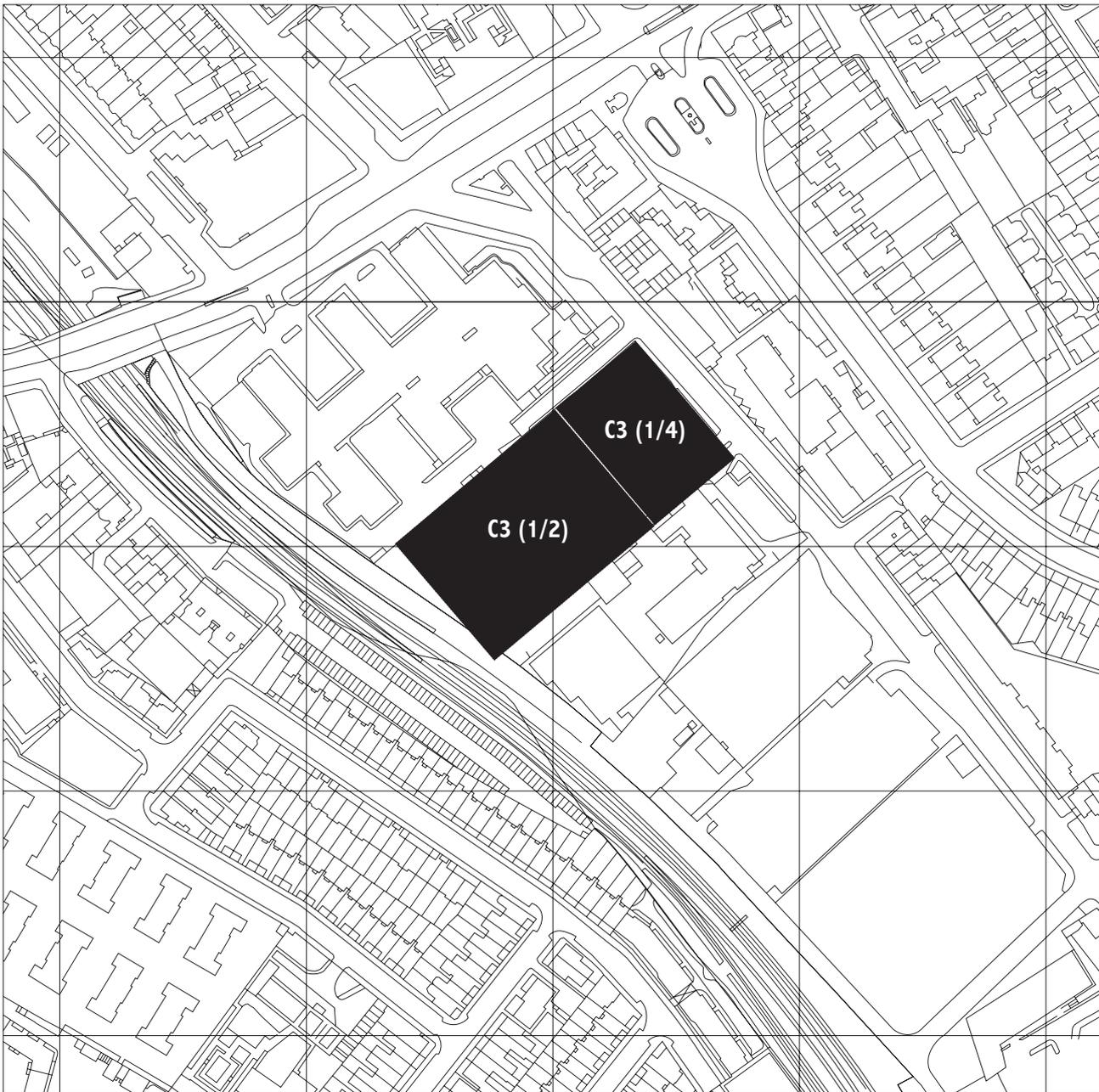
## Policy Issues

Affordable Housing:	The Council is seeking 33% of dwellings in new development.
UDP Status:	Residential (minimum site coverage 51% and maximum density: 350 HRH), business and open space.
Community Facilities:	The Council is seeking to secure provision of a medical centre.

## Site Category

Location	Accessibility Index	Setting	
Sites within Town Centre "Ped-Shed"	6	Central	<input checked="" type="checkbox"/>
		Urban	<input type="checkbox"/>
		Suburban	<input type="checkbox"/>
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban	<input type="checkbox"/>
		Suburban	<input type="checkbox"/>
Currently Remote Sites	1	Suburban	<input type="checkbox"/>

# Tile Application



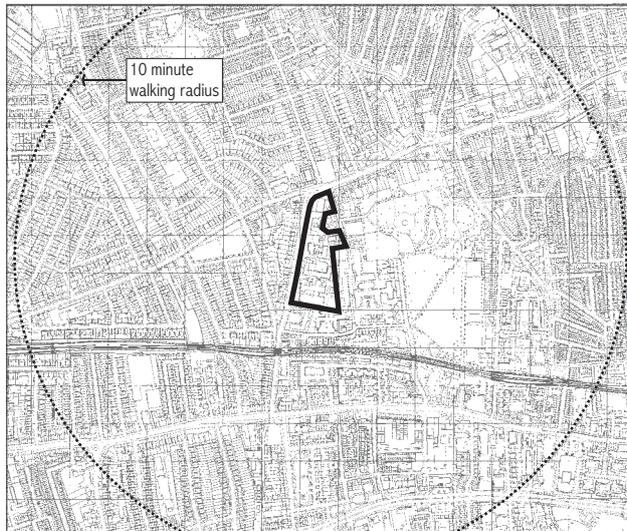
Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

**OPTION 3- Development Mix**

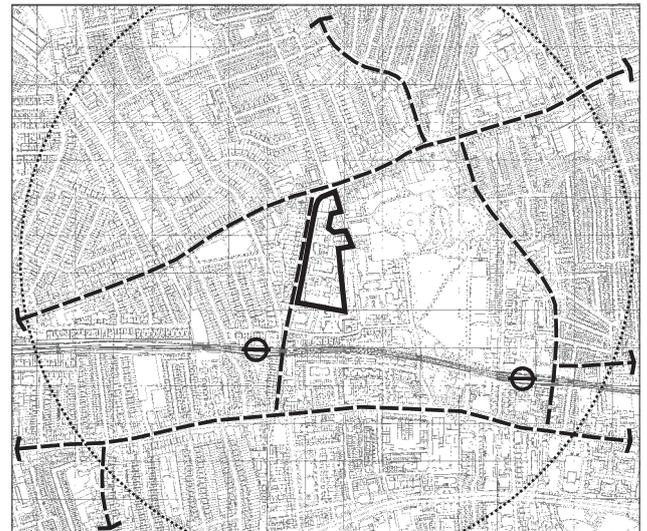
Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2		0	flats	200	0	
C3	0.75	336	flats	1056	840	336
D1		0	mix	419	0	
<b>Total</b>		<b>336</b>			<b>840</b>	<b>336</b>

Density	Net	Gross
Area (Ha)	0.83	0.83
Habitable Rooms/Ha	1012	1012
Units/Ha	404.8	404.8

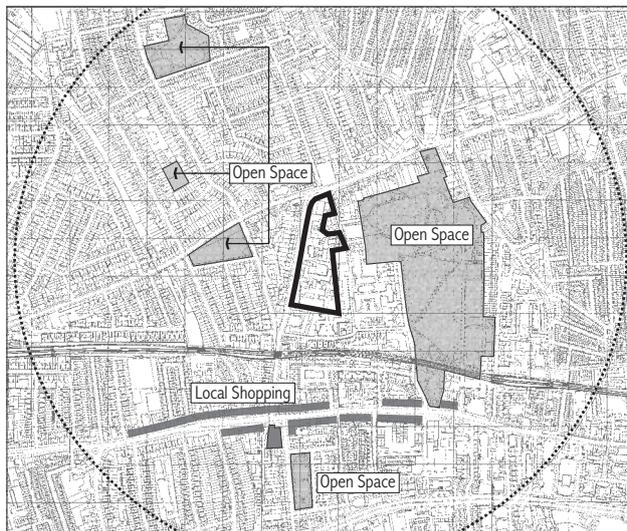
## Urban Structure



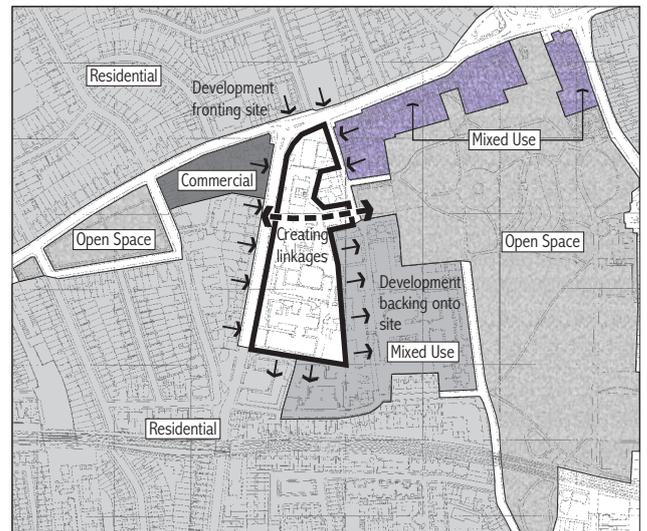
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	2.59 ha
Location Category:	Inner West
Topography:	Flat
Current Use:	Vacant
Surrounding Uses:	Mixed-use, residential and commercial.
Development Setting:	Urban
Public Transport Accessibility:	Good
Facilities Accessibility:	Good

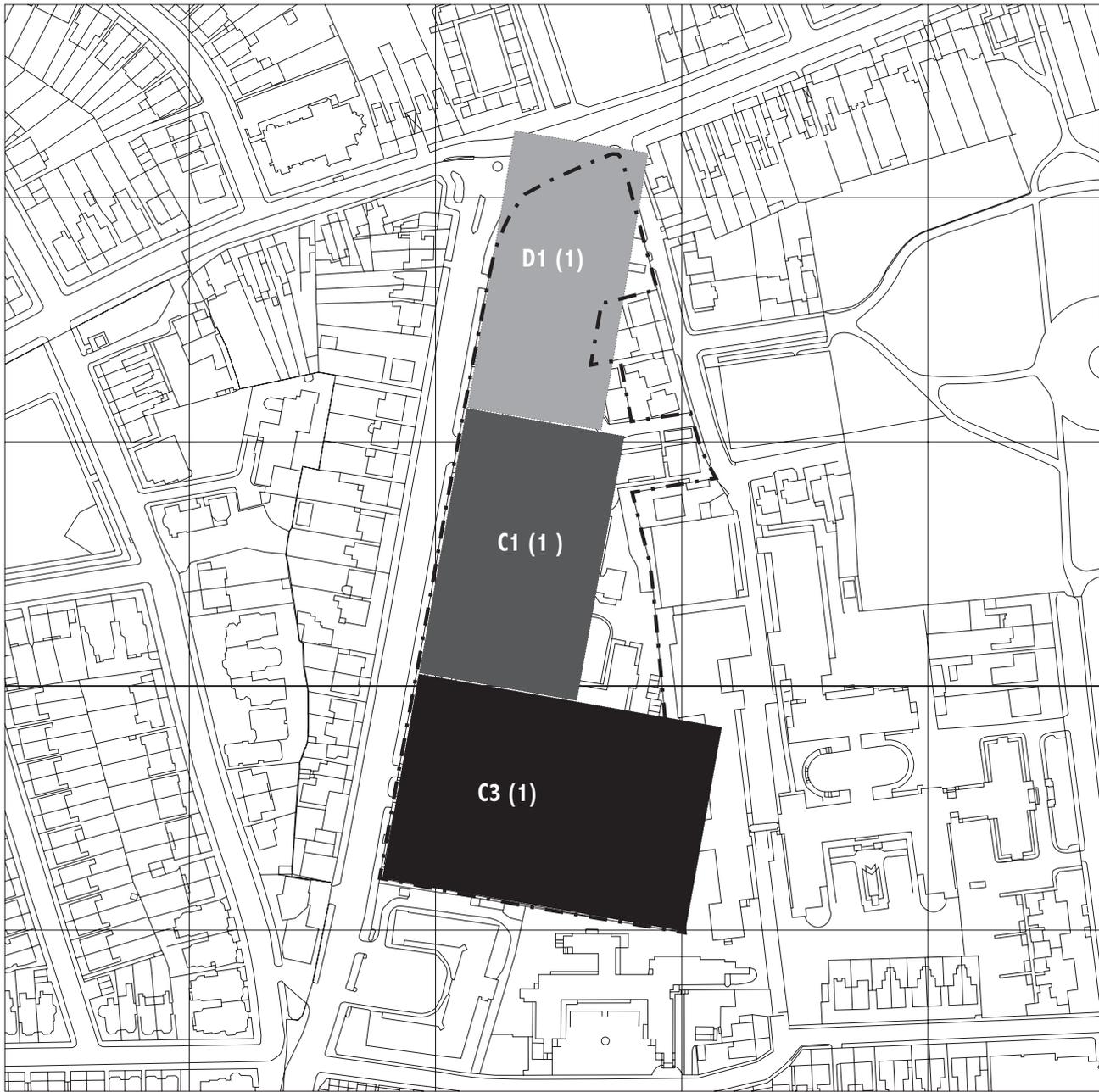
## Policy Issues

Affordable Housing:	The Council is seeking 84% of dwellings in new development
UDP Status:	Conservation Area.
Community Facilities:	No provision expected.

## Site Category

Location	Accessibility Index	Setting
Sites within Town Centre "Ped-Shed"	6	Central
		Urban
		Suburban
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban
		Suburban
Currently Remote Sites	1	Suburban

# Tile Application



Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

OPTION 2- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2	0.75	48	flats	200	144	48
C3		0	flats	1056	0	
D1	3	264	mix	419	792	317
<b>Total</b>		<b>312</b>			<b>936</b>	<b>365</b>

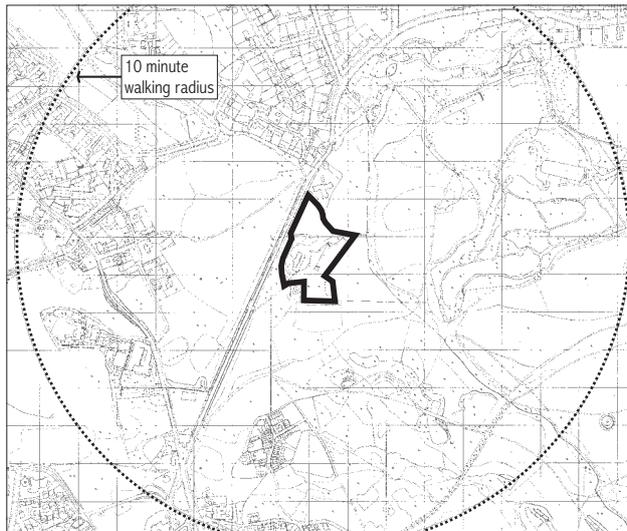
Density	Net	Gross
Area (Ha)	2.59	2.59
Habitable Rooms/Ha	361.39	361.39
Units/Ha	120.46	120.5

OPTION 3- Development Mix

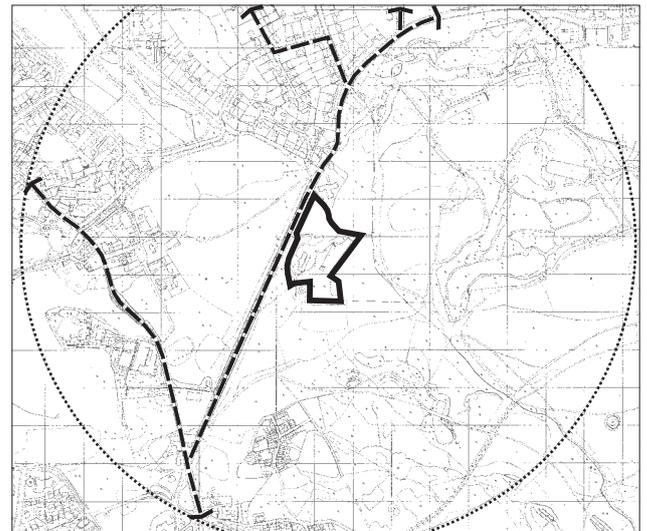
Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2		0	terraces	218	0	
C1	1	112	flats	467	336	67
C2		0	flats	200	0	
C3	1	448	flats	1056	1120	224
D1	1	88	mix	419	264	44
<b>Total</b>		<b>648</b>			<b>1720</b>	<b>335</b>

Density	Net	Gross
Area (Ha)	2.59	2.59
Habitable Rooms/Ha	664.1	664.1
Units/Ha	250.2	250.2

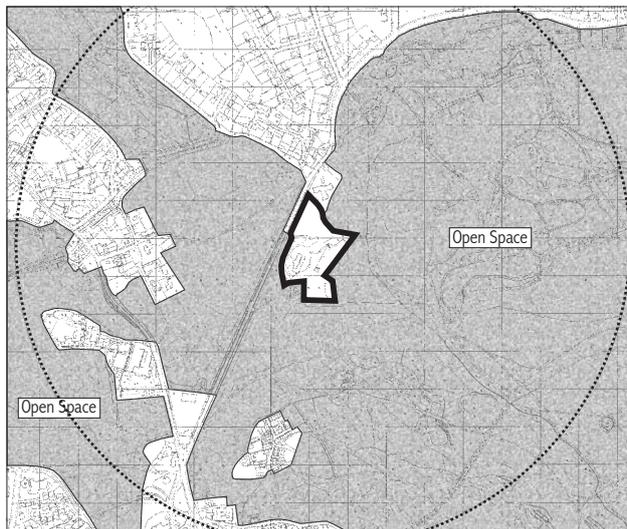
## Urban Structure



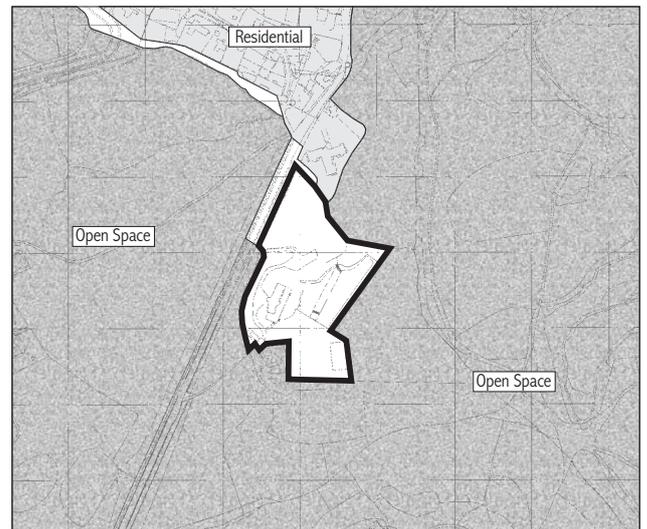
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	2.96 ha
Location Category:	Inner West
Topography:	Flat
Current Use:	-
Surrounding Use:	Open space
Development	
Setting:	Suburban
Public Transport	
Accessibility:	Poor
Facilities	
Accessibility:	Poor

## Policy Issues

Affordable Housing:	The Council is seeking 25% of all dwellings
UDP Status:	Part of Hampstead Conservation Area Grade II Listed Building on site
Community Facilities:	No new facilities to be provided.

## Site Category

Location	Accessibility Index	Setting	
Sites within Town Centre "Ped-Shed"	6	Central	
		Urban	
		Suburban	
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban	
		Suburban	X
Currently Remote Sites	1	Suburban	

# Tile Application



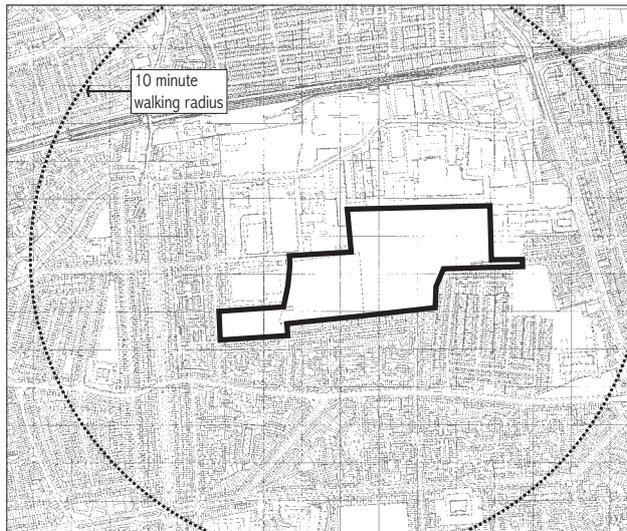
OPTION 1- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2	0.25	16	flats	200	48	32
C3		0	flats	1056	0	
D1		0	mix	419	0	
<b>Total</b>		<b>16</b>			<b>48</b>	<b>32</b>

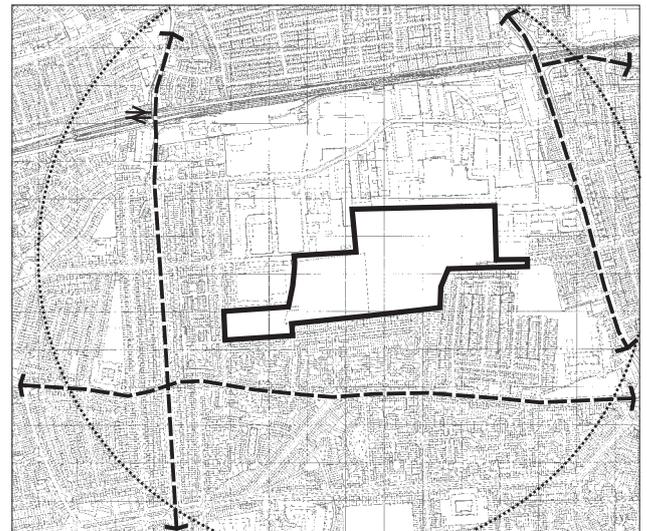
Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

Density	Net	Gross
Area (Ha)	0.25	2.96
Habitable Rooms/Ha	192	16,216
Units/Ha	64	5,41

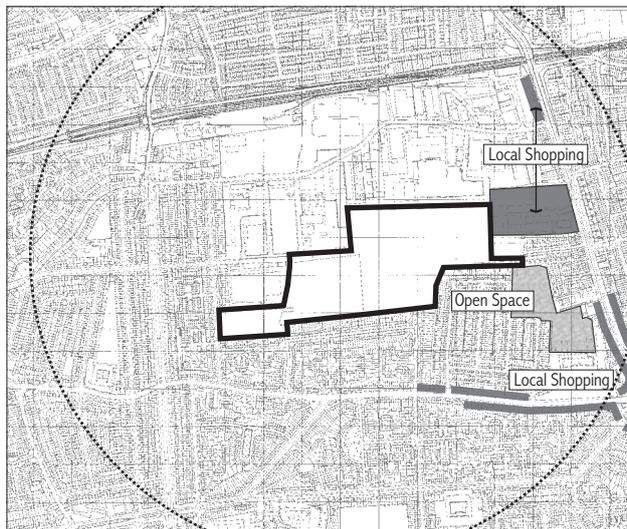
## Urban Structure



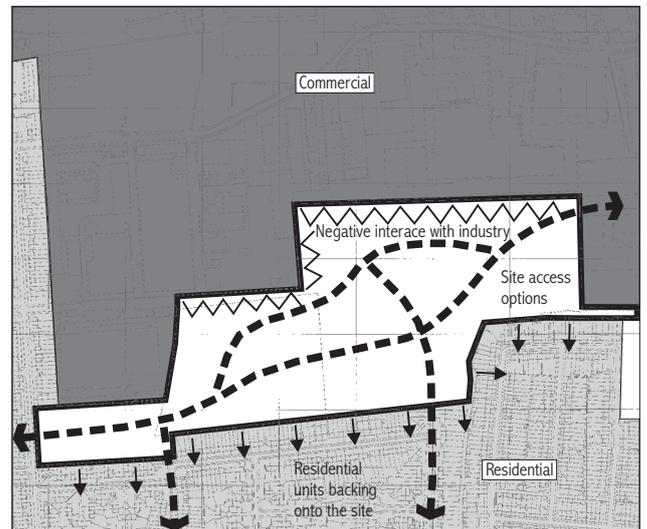
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	12.88 ha
Location Category:	Outer East
Topography:	Flat
Current Use:	Vacant
Surrounding Uses:	Residential and commercial
Development Setting:	Suburban
Public Transport Accessibility:	Poor
Facilities Accessibility:	Fair

## Policy Issues

Affordable Housing:	No provision expected.
UDP Status:	Mixed-use and residential.
Community Facilities:	The Council is seeking provision of open space, a new school and sheltered housing.

## Site Category

Location	Accessibility Index	Setting	
Sites within Town Centre "Ped-Shed"	6	Central	
		Urban	
		Suburban	
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban	
		Suburban	X
Currently Remote Sites	1	Suburban	

Tile Application



OPTION 2 - Development Mix

Tile Type	No. of Tiles	Dwelling Type	HR/ha	Total HR	Parking Spaces
A1	0	houses	80	0	0
A2	0	houses	36	0	0
A3	3	72 houses	154	360	101
B1	2,875	1,08 terraces	264	546.35	162
B2	1,57	401 terraces	218	200.4	60
C1	0	flats	467	0	0
C2	6	384 flats	200	1,192	384
C3	0	flats	1056	0	0
D1	0	mix	419	0	0
<b>Total</b>	<b>6,05</b>			<b>2,258.7</b>	<b>709</b>

Density	Net	Gross
Area (Ha)	12.25	12.88
Habitable Rooms/ha	184.38	175.36
Units/ha	49.4	47.0

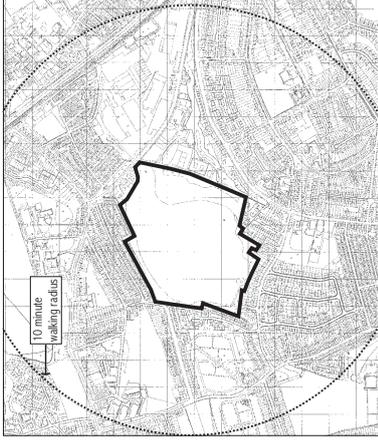
OPTION 3 - Development Mix

Tile Type	No. of Tiles	Dwelling Type	HR/ha	Total HR	Parking Spaces
A1	0	houses	80	0	0
A2	0	houses	96	0	0
A3	0	houses	154	0	0
B1	11,75	442 terraces	264	2,232.5	447
B2	0.67	16 terraces	218	80.4	24
C1	0	flats	467	0	0
C2	0	flats	200	0	0
C3	0	flats	1056	0	0
D1	4.5	396 mix	419	1,188	396
<b>Total</b>	<b>859</b>			<b>3,500.9</b>	<b>867</b>

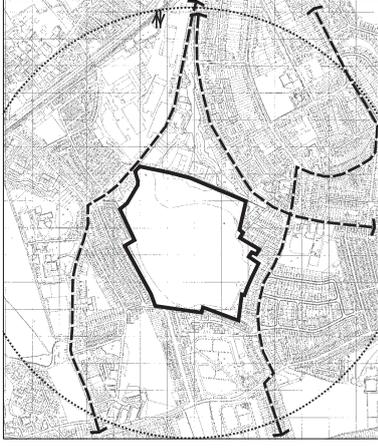
Density	Net	Gross
Area (Ha)	10.955	12.88
Habitable Rooms/ha	319.6	271.8
Units/ha	78.4	66.7

Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office. Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or other proceedings.

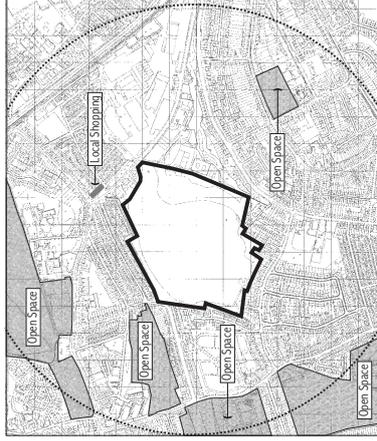
Urban Structure



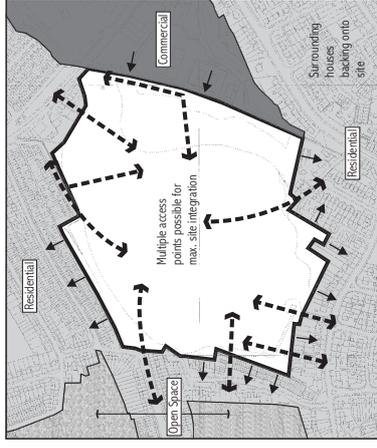
Connectivity & Public Transport



Local Centres & Open Spaces



Linking the Site



Characteristics

Size:	20.02 ha
Location Category:	Outer East
Topography:	Sloping
Current Use:	Vacant
Surrounding Uses:	Residential and commercial
Development Setting:	Urban
Public Transport Accessibility:	Fair
Facilities Accessibility:	Poor

Policy Issues

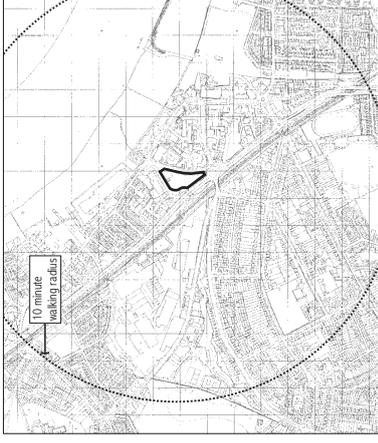
Affordable Housing:	The Council is seeking 20% of dwellings in new development.
UDP Status:	Mixed-use.
Community Facilities:	Appropriate open space, community recreational and educational facilities should be included.

Site Category

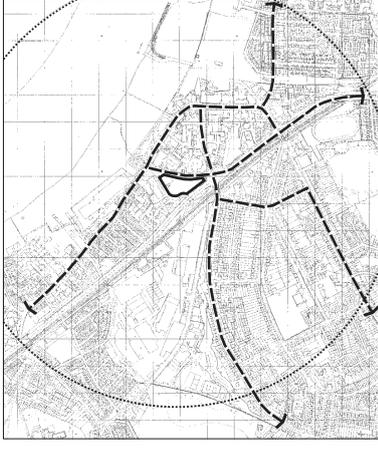
Location	Accessibility Index	Setting
Sites within Town Centre "Ped-Stral"	6	Central
		Urban
		Suburban
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Stral"	3	Urban
		Suburban
Currently Remote Sites	1	Suburban



### Urban Structure



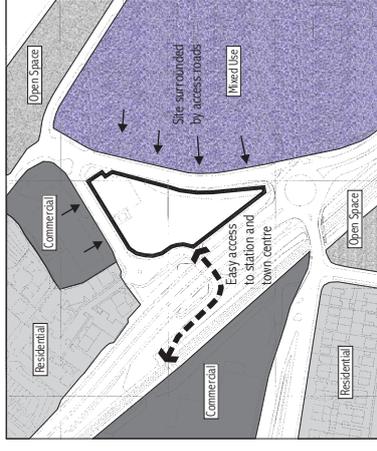
### Connectivity & Public Transport



### Local Centres & Open Spaces



### Linking the Site



### Characteristics

Size:	0.68 ha
Location Category:	Outer East
Topography:	Sloping
Current Use:	-
Surrounding Uses:	Mixed-use town centre, residential and commercial.
Development Setting:	Urban
Public Transport Accessibility:	Good
Facilities:	Fair
Accessibility:	Fair

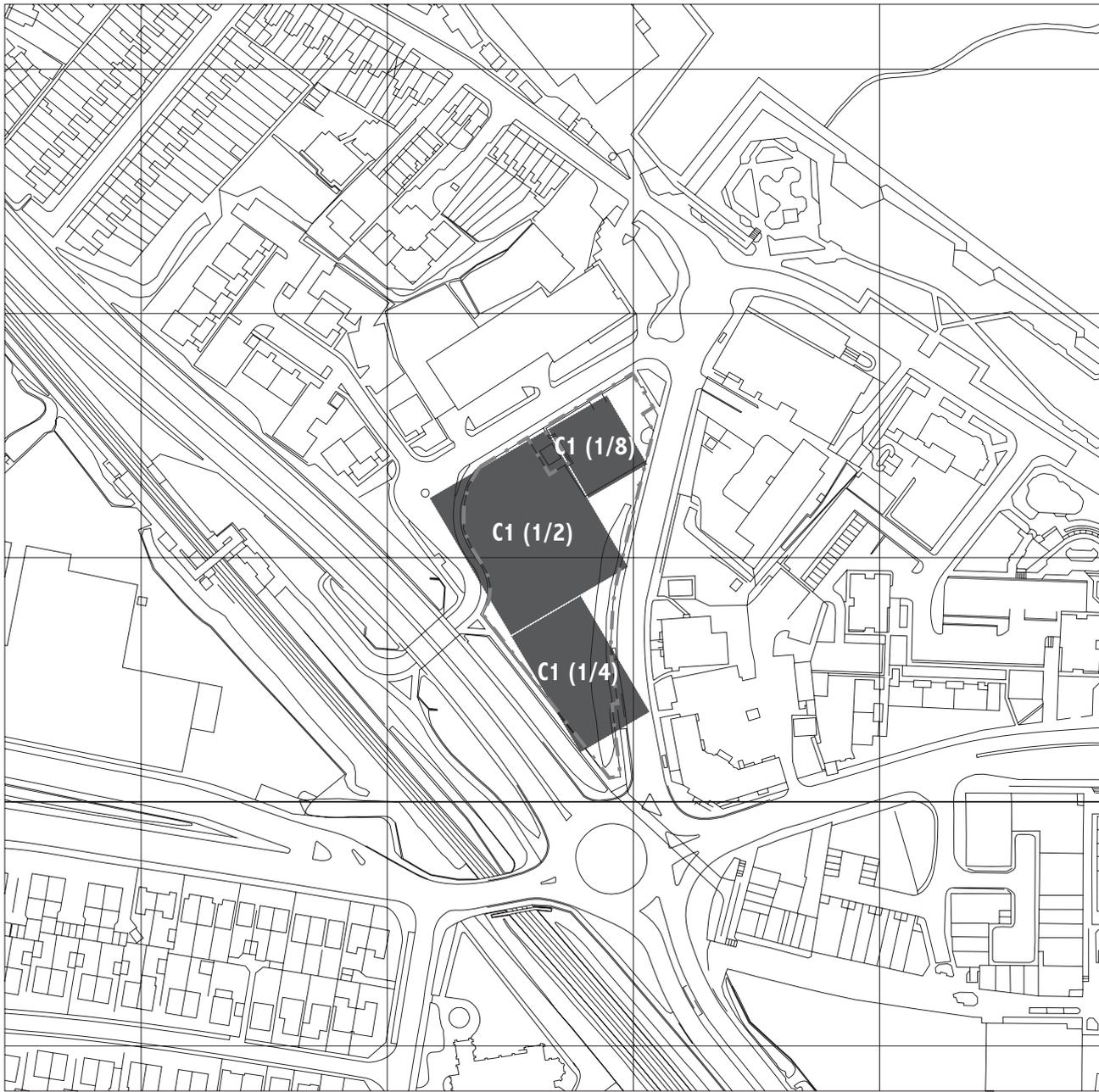
### Policy Issues

Affordable Housing:	The Council is seeking a minimum of 20% of dwellings in new development.
UDP Status:	Mixed-use
Community Facilities:	No provision expected.

### Site Category

Location	Accessibility Index	Setting
Sites within Town Centre "Ped-Stral"	6	Central
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Stral"	4	Urban
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Stral"	3	Suburban
Currently Remote Sites	2	Urban
	1	Suburban

# Tile Application



Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

OPTION 2- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2	0.5	12	terraces	218	60	12
C1		0	flats	467	0	
C2		0	flats	200	0	
C3		0	flats	1056	0	
D1	0.5	44	mix	419	132	44
<b>Total</b>		<b>56</b>			<b>192</b>	<b>56</b>

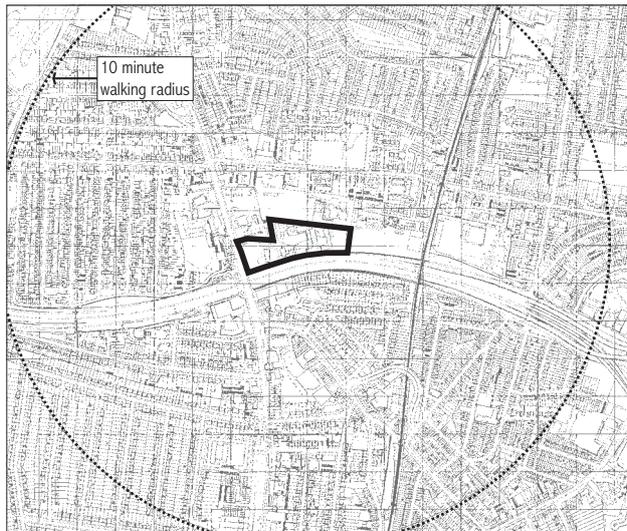
Density	Net	Gross
Area (Ha)	0.68	0.68
Habitable Rooms/Ha	282.35	282.35
Units/Ha	82.353	82.353

OPTION 3- Development Mix

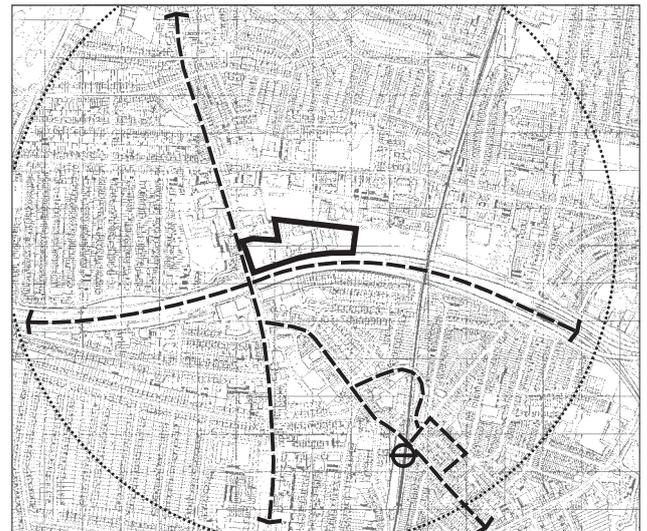
Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2		0	terraces	218	0	
C1	0.875	98	flats	467	294	59
C2		0	flats	200	0	
C3		0	flats	1056	0	
D1		0	mix	419	0	
<b>Total</b>		<b>98</b>			<b>294</b>	<b>59</b>

Density	Net	Gross
Area (Ha)	0.68	0.68
Habitable Rooms/Ha	432.4	432.4
Units/Ha	144.1	144.1

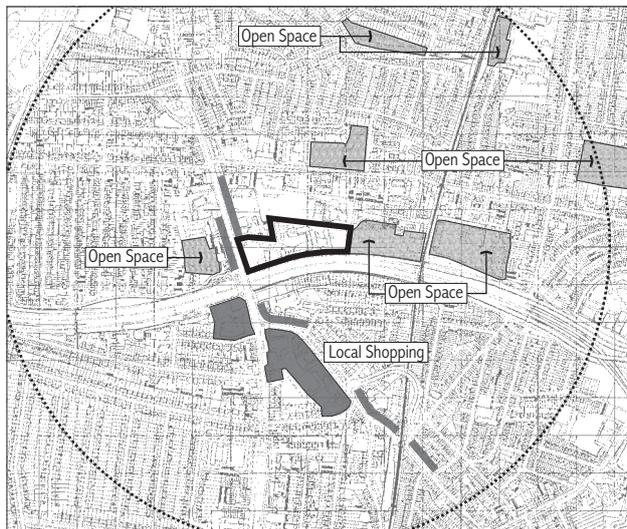
## Urban Structure



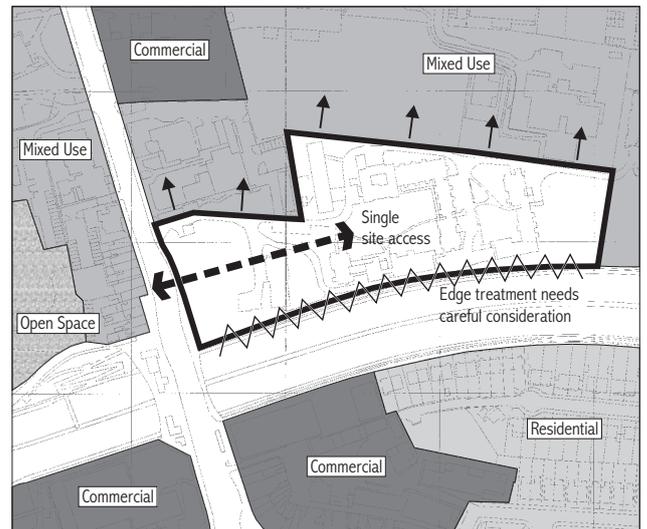
## Connectivity & Public Transport



## Local Centres & Open Space



## Linking the Site



## Characteristics

Size:	2.35 ha
Location Category:	Inner East
Topography:	Flat
Current Use:	College Halls of Residence
Surrounding Uses:	Mixed-use, commercial and residential.
Development Setting:	Urban
Public Transport Accessibility:	Fair
Facilities Accessibility:	Good

## Policy Issues

<b>Affordable Housing:</b> The Council is seeking 25% of dwellings in new development.
<b>UDP Status:</b> Listed building - re-use for business. Remainder of site zoned for residential.
<b>Community Facilities:</b> The Council may seek improvements to, or provision of new educational and community facilities via a developer contribution or planning obligation.

## Site Category

Location	Accessibility Index	Setting	
Sites within Town Centre "Ped-Shed"	6	Central	
		Urban	X
		Suburban	
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban	
		Suburban	
Currently Remote Sites	1	Suburban	

# Tile Application



Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

OPTION 2- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1	0	0	houses	80	0	
A2	0	0	houses	96	0	
A3	0	0	houses	154	0	
B1	0	0	terraces	264	0	
B2	0	0	terraces	218	0	
C1	1	112	flats	467	336	112
C2	0	0	flats	200	0	
C3	0	0	flats	1056	0	
D1	2	176	mix	419	528	176
<b>Total</b>		<b>288</b>			<b>864</b>	<b>288</b>

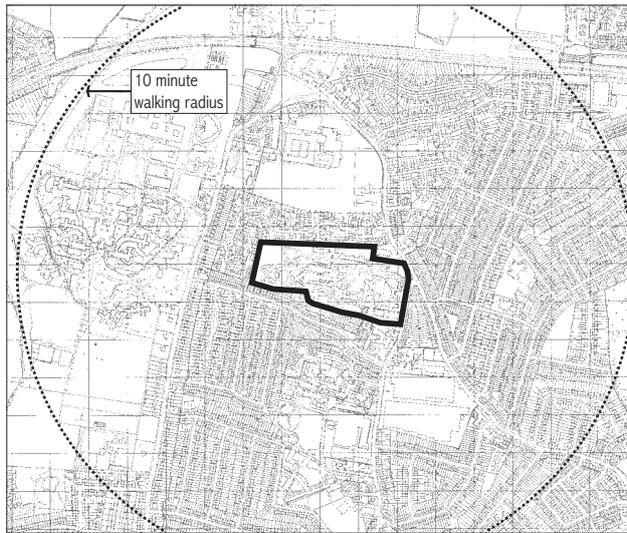
Density	Net	Gross
Area (Ha)	2.35	2.35
Habitable Rooms/Ha	367.66	367.66
Units/Ha	122.55	122.55

OPTION 3- Development Mix

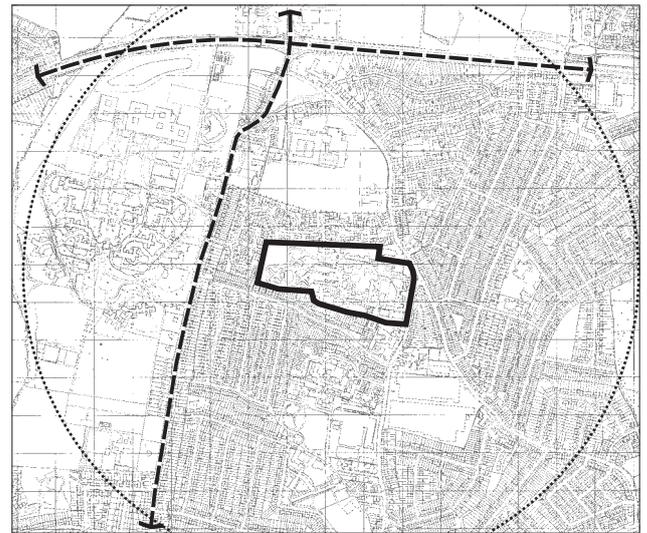
Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1	0	0	houses	80	0	
A2	0	0	houses	96	0	
A3	0	0	houses	154	0	
B1	0	0	terraces	264	0	
B2	0	0	terraces	218	0	
C1	1	112	flats	467	336	112
C2	0	0	flats	200	0	
C3	1.083	485	flats	1056	1213	364
D1	0	0	mix	419	0	
<b>Total</b>		<b>597</b>			<b>1549</b>	<b>476</b>

Density	Net	Gross
Area (Ha)	2.15	2.35
Habitable Rooms/Ha	720.4	659.1
Units/Ha	277.8	254.1

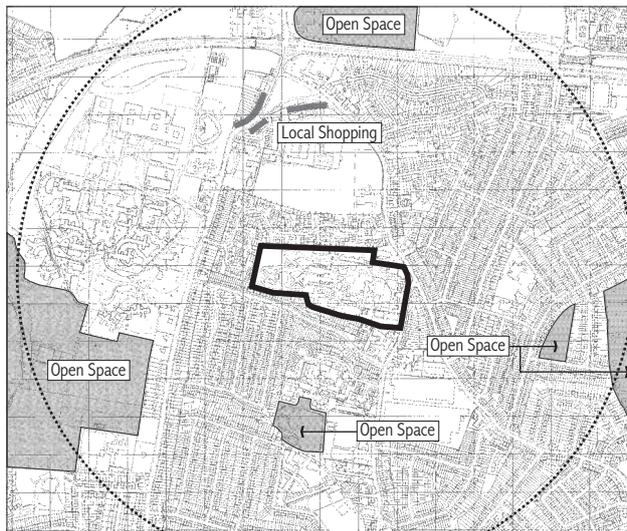
## Urban Structure



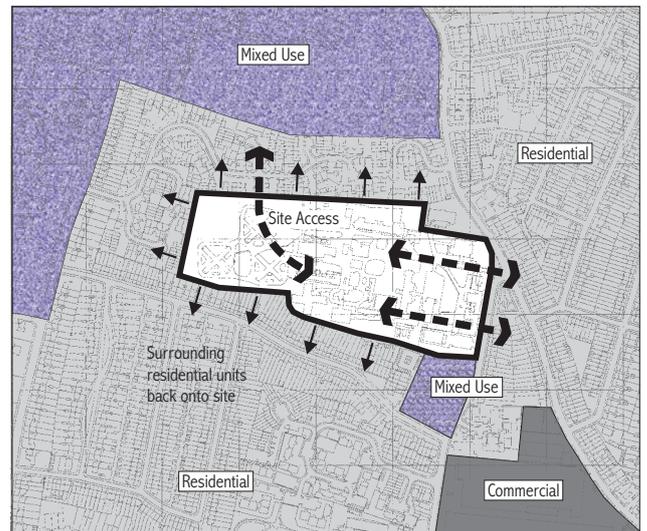
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	4.16 ha
Location Category:	Outer East
Topography:	Flat
Current Use:	Vacant land and derelict buildings.
Surrounding Uses:	Residential
Development	
Setting:	Suburban
Public Transport	
Accessibility:	Poor
Facilities	
Accessibility:	Poor

## Policy Issues

Affordable Housing:	The Council is seeking 25% of dwellings in new development.
UDP Status:	Residential and healthcare services.
Community Facilities:	The Council may seek improvements to, or provision of new primary school, a health facility and replacement community facilities via a developer contribution or planning obligation.

## Site Category

Location	Accessibility Index	Setting	
Sites within Town Centre "Ped-Shed"	6	Central	
		Urban	
		Suburban	
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban	
		Suburban	
Currently Remote Sites	1	Suburban	X

# Tile Application



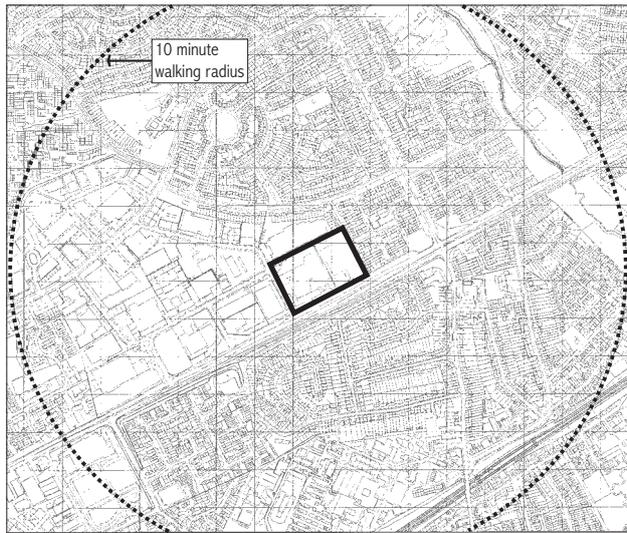
OPTION 1- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2	1	32	houses	96	192	48
A3	1.42	34	houses	154	170.4	51
B1		0	terraces	264	0	
B2	2.5	60	terraces	218	300	90
C1		0	flats	467	0	
C2		0	flats	200	0	
C3		0	flats	1056	0	
D1		0	mix	419	0	
<b>Total</b>		<b>126</b>			<b>662.4</b>	<b>189</b>

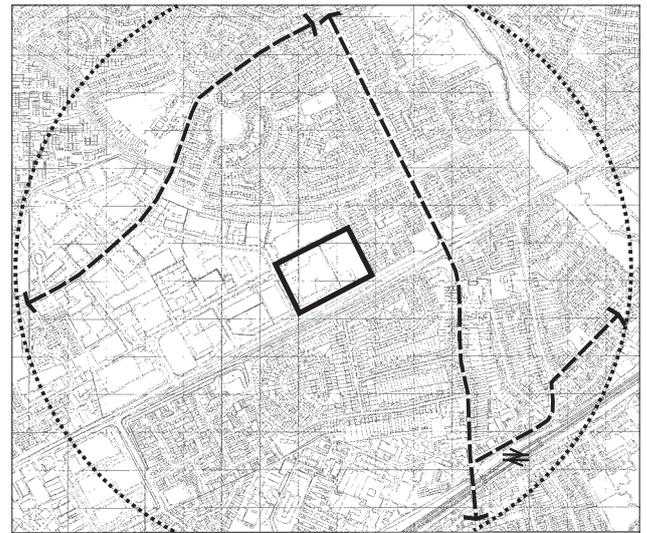
Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

Density	Net	Gross
Area (Ha)	3.38	4.16
Habitable Rooms/Ha	195.98	159.23
Units/Ha	37.3	30.3

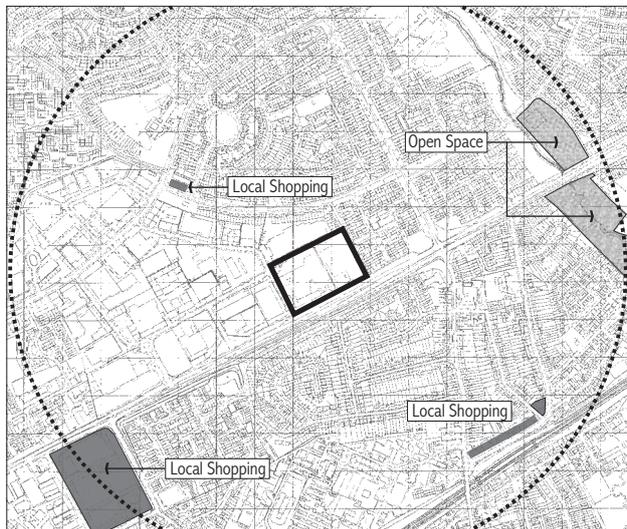
## Urban Structure



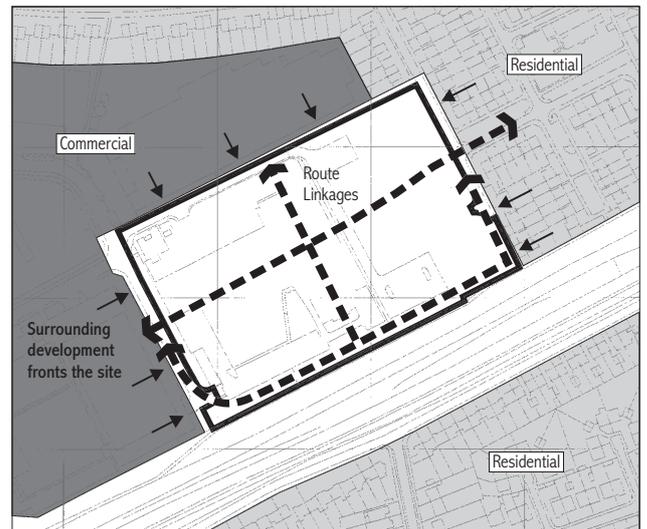
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	3.15 ha
Location Category:	Outer East
Topography:	Sloping
Current Use:	-
Surrounding Uses:	Residential and commercial
Development Setting:	Urban
Public Transport Accessibility:	Poor
Facilities Accessibility:	Fair

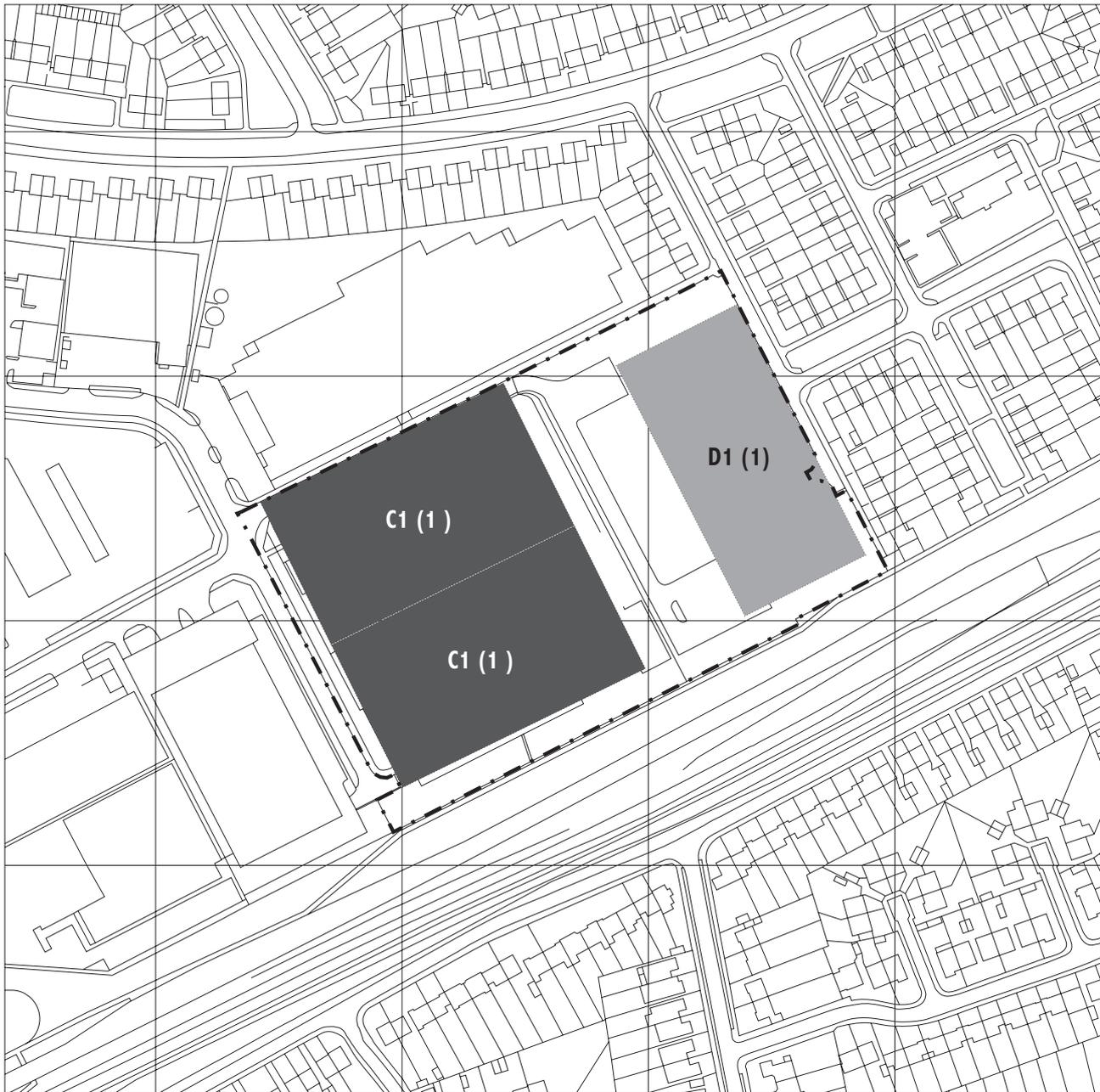
## Policy Issues

Affordable Housing:	The Council is seeking 25% of dwellings in new development.
UDP Status:	Residential or industry.
Community Facilities:	No provision expected.

## Site Category

Location	Accessibility Index	Setting	
Sites within Town Centre "Ped-Shed"	6	Central	
		Urban	
		Suburban	
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban	X
		Suburban	
Currently Remote Sites	1	Suburban	

# Tile Application



Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

OPTION 2- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1	2	76	terraces	264	380	114
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2		0	flats	200	0	
C3		0	flats	1056	0	
D1	1	88	mix	419	264	88
<b>Total</b>		<b>164</b>			<b>644</b>	<b>202</b>

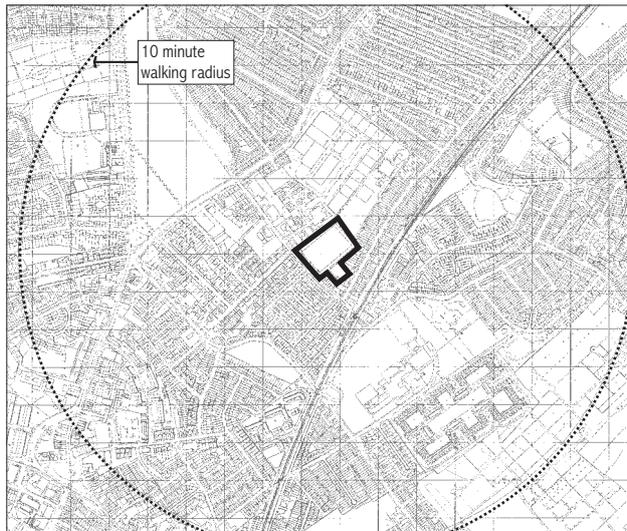
Density	Net	Gross
Area (Ha)	2.52	3.15
Habitable Rooms/Ha	255.56	204.44
Units/Ha	65.079	52.1

OPTION 3- Development Mix

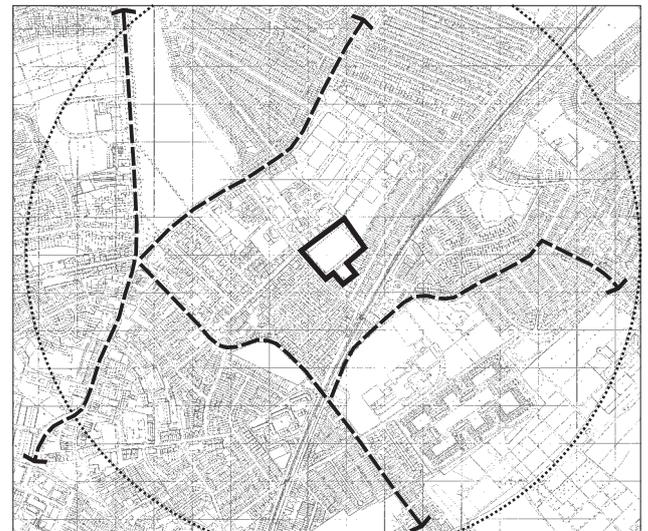
Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2		0	terraces	218	0	
C1	2	224	flats	467	672	224
C2		0	flats	200	0	
C3		0	flats	1056	0	
D1	1	88	mix	419	264	66
<b>Total</b>		<b>312</b>			<b>936</b>	<b>290</b>

Density	Net	Gross
Area (Ha)	2.52	3.15
Habitable Rooms/Ha	371.4	297.1
Units/Ha	123.8	99.0

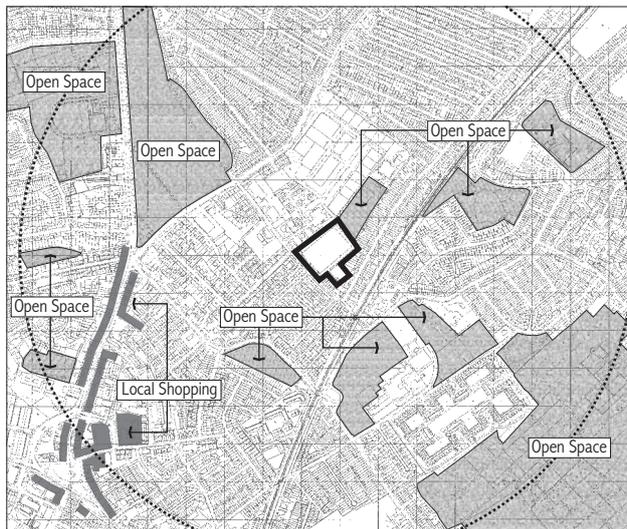
## Urban Structure



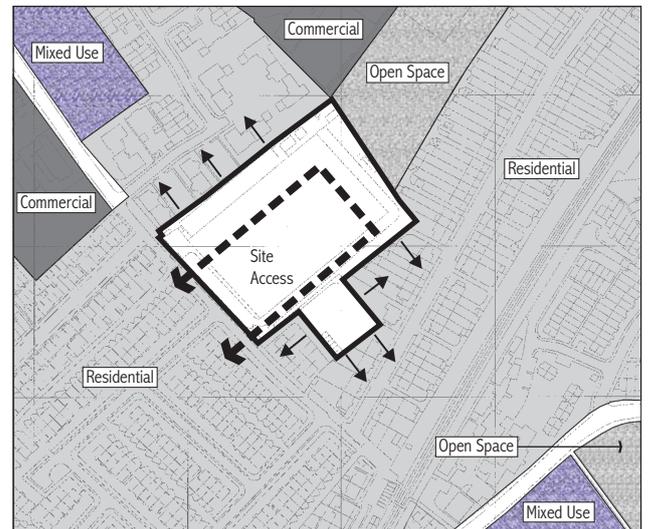
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	1.50 ha
Location Category:	Outer West
Topography:	Flat
Current Use:	Sports ground
Surrounding Uses:	Residential and open space.
Development Setting:	Suburban
Public Transport Accessibility:	Poor
Facilities Accessibility:	Fair

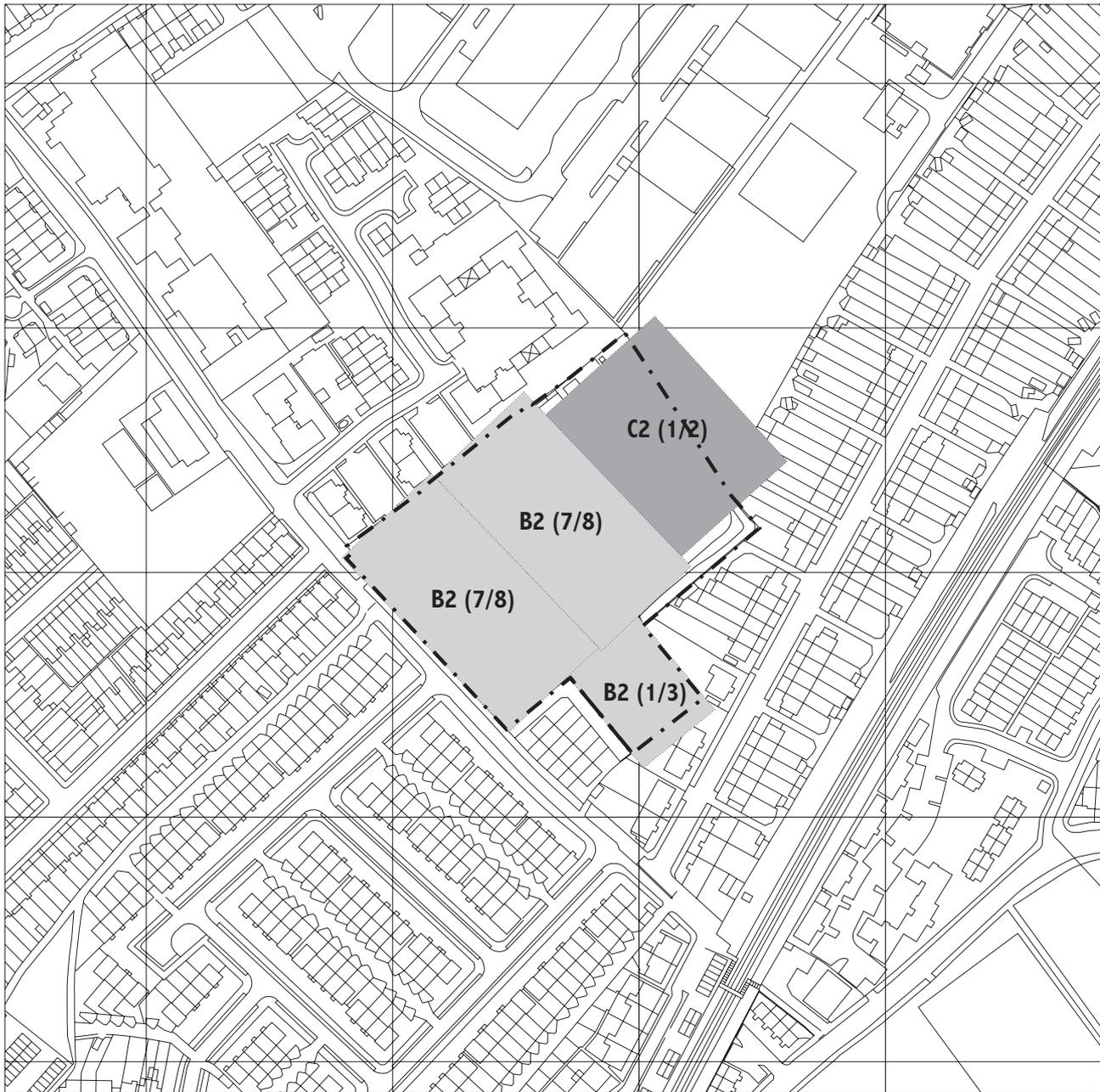
## Policy Issues

<b>Affordable Housing:</b> The Council is seeking 25% of dwellings in new development.
<b>UDP Status:</b> Residential.
<b>Community Facilities:</b> The Council may seek contributions to provision of new children's play area and landscape improvements.

## Site Category

Location	Accessibility Index	Setting
Sites within Town Centre "Ped-Shed"	6	Central
		Urban
		Suburban
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban
		Suburban
Currently Remote Sites	1	Suburban

# Tile Application



Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

OPTION 2- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2	2.083	50	terraces	218	249.96	75
C1		0	flats	467	0	32
C2	0.5	32	flats	200	96	
C3		0	flats	1056	0	
D1		0	mix	419	0	
<b>Total</b>		<b>82</b>			<b>345.96</b>	<b>107</b>

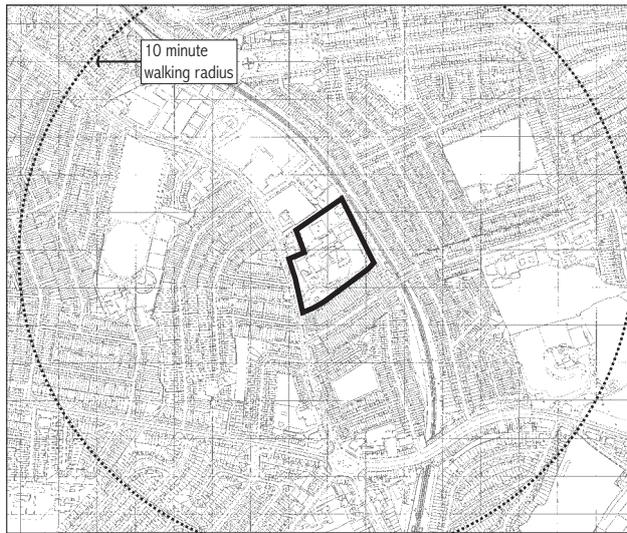
Density	Net	Gross
Area (Ha)	1.5	1.5
Habitable Rooms/Ha	230.64	230.64
Units/Ha	54.7	54.7

OPTION 3- Development Mix

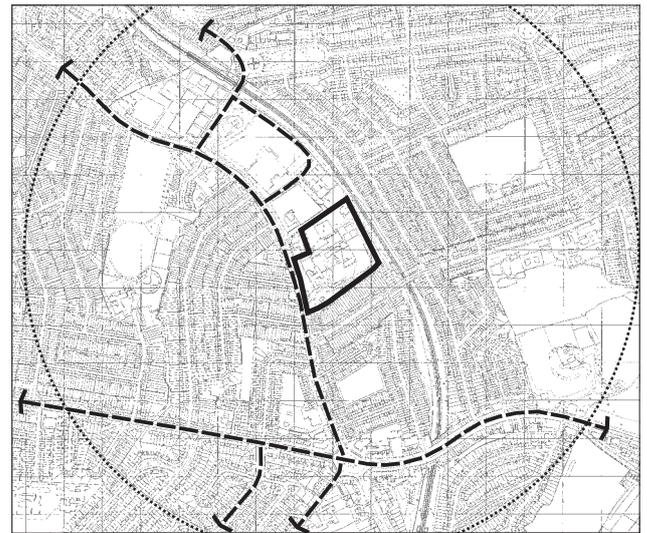
Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2		0	flats	200	0	
C3		0	flats	1056	0	
D1	1.83	161	mix	419	483.12	161
<b>Total</b>		<b>161</b>			<b>483.12</b>	<b>161</b>

Density	Net	Gross
Area (Ha)	1.5	1.5
Habitable Rooms/Ha	322.1	322.1
Units/Ha	107.4	107.4

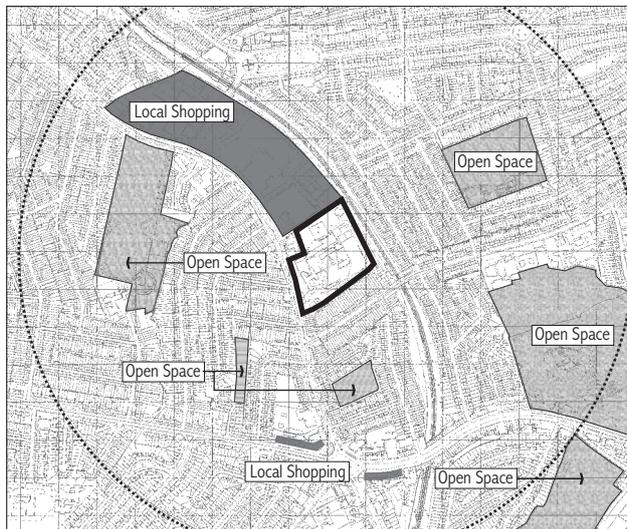
## Urban Structure



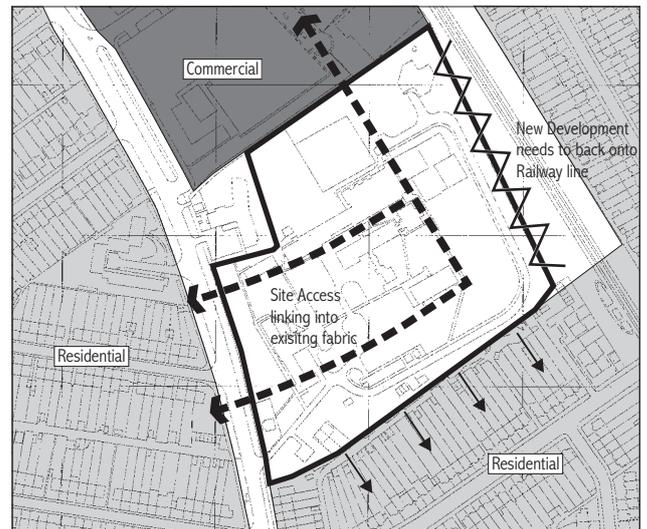
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	3.75 ha
Location Category:	Outer West
Topography:	Flat
Current Use:	Hospital
Surrounding Uses:	Commercial and residential.
Development Setting:	Suburban
Public Transport Accessibility:	Fair
Facilities Accessibility:	Good

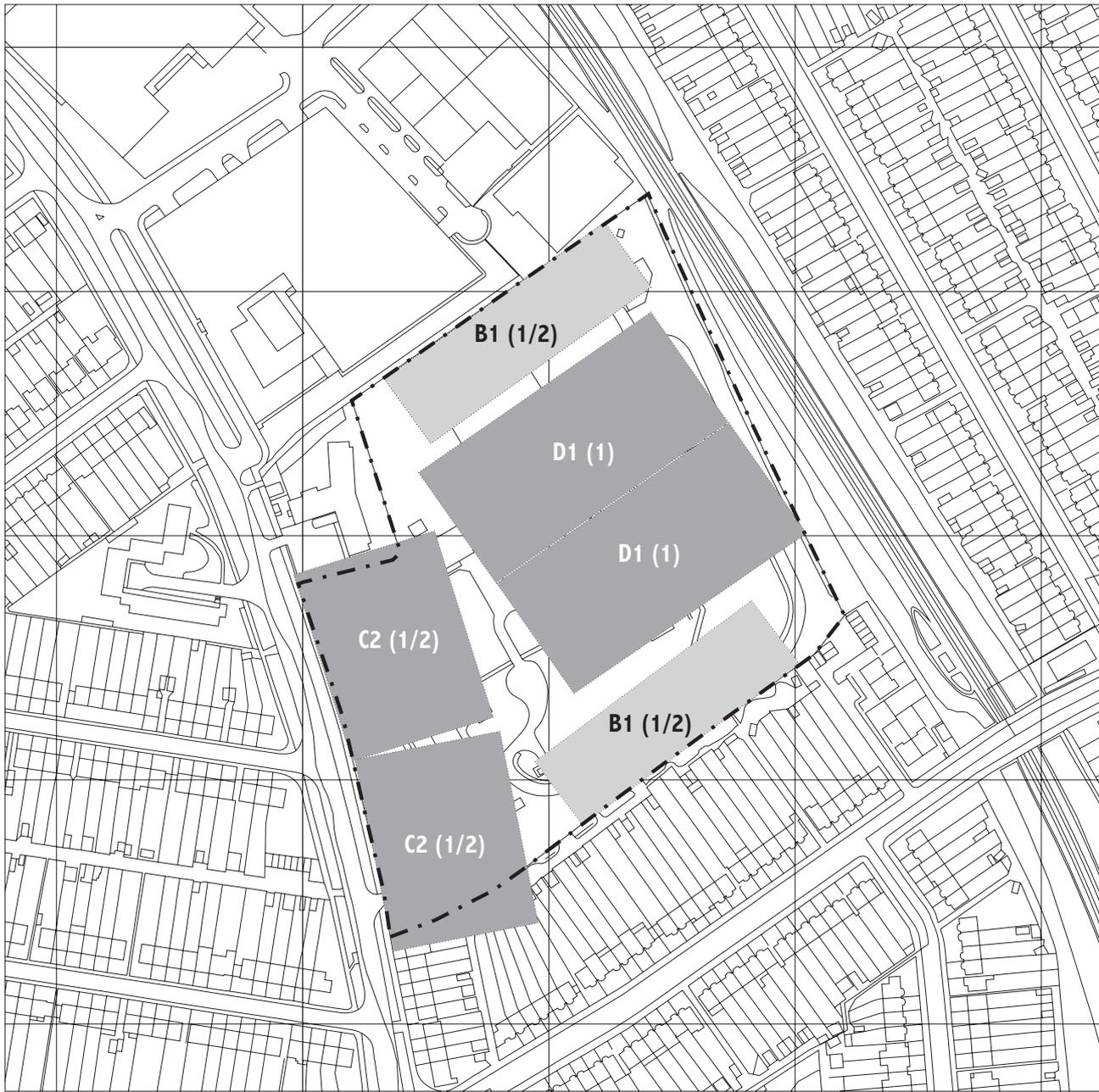
## Policy Issues

<b>Affordable Housing:</b> The Council is seeking 30% of dwellings in new development.
<b>UDP Status:</b> Residential (Maximum density: 190HRH).
<b>Community Facilities:</b> The Council may seek provision of new health care facility and open space via a developer contribution or planning obligation.

## Site Category

Location	Accessibility Index	Setting
Sites within Town Centre "Ped-Shed"	6	Central
		Urban
		Suburban
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban
		Suburban
Currently Remote Sites	1	Suburban

# Tile Application



OPTION 1- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2	0.417	13	houses	96	80.064	26
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2	4.5	108	terraces	218	540	162
C1		0	flats	467	0	
C2		0	flats	200	0	
C3		0	flats	1056	0	
D1		0	mix	419	0	
Total		121			620.06	188

OPTION 2- Development Mix

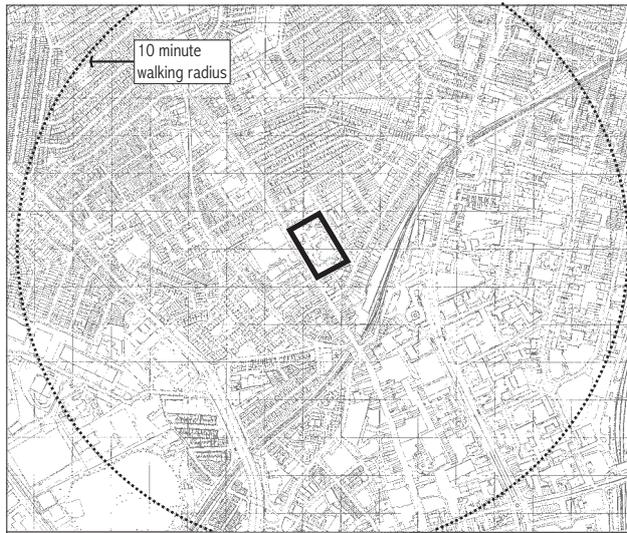
Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1	1	38	terraces	264	190	57
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2	1	64	flats	200	192	64
C3		0	flats	1056	0	
D1	2	176	mix	419	528	211
Total		278			910	332

Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

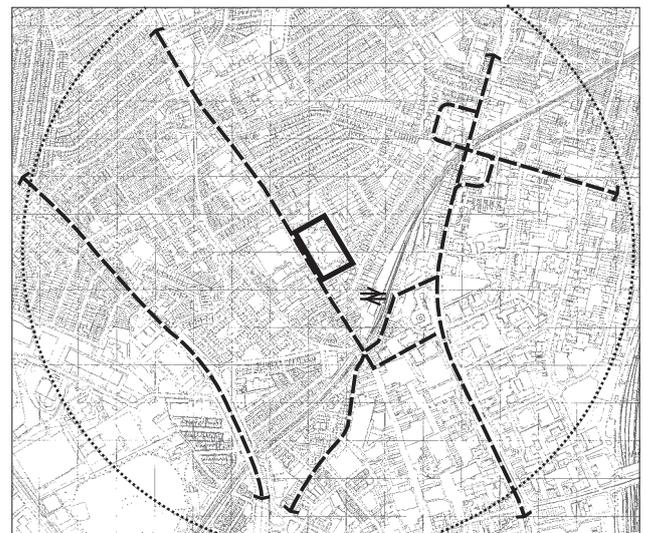
Density	Net	Gross
Area (Ha)	3.75	3.75
Habitable Rooms/Ha	165.35	165.35
Units/Ha	32.358	32.4

Density	Net	Gross
Area (Ha)	3.75	3.75
Habitable Rooms/Ha	242.67	242.67
Units/Ha	74.133	74.1

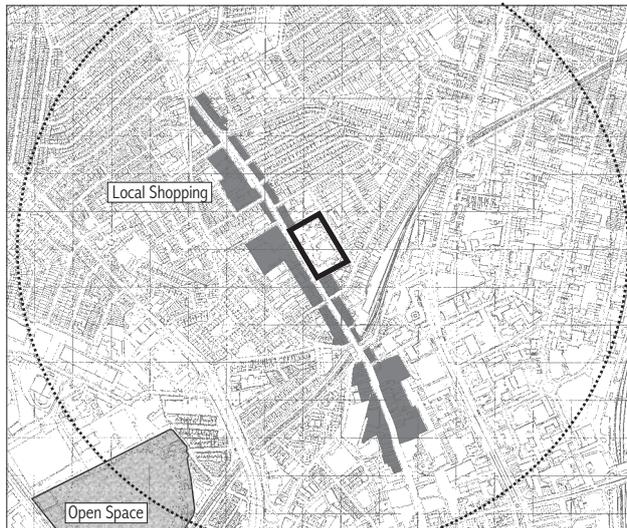
## Urban Structure



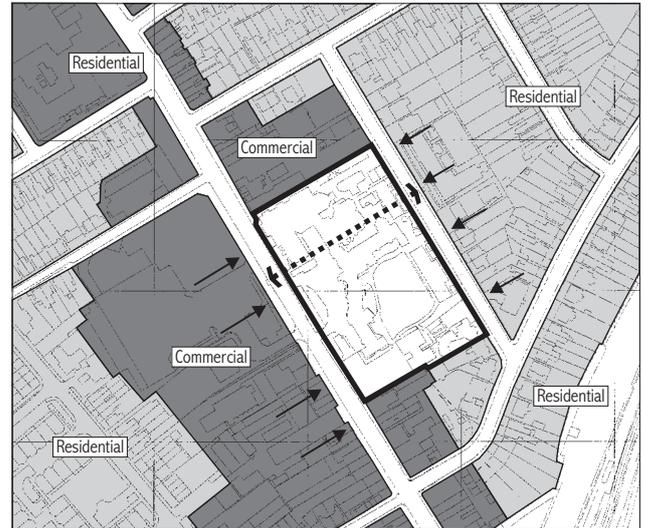
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	1.33 ha
Location Category:	Outer West
Topography:	Flat
Current Use:	Vacant
Surrounding Uses:	Commercial and residential
Development Setting:	Urban
Public Transport Accessibility:	Fair
Facilities Accessibility:	Fair

## Policy Issues

<b>Affordable Housing:</b> The Council is seeking 40% of dwellings in new development.
<b>UDP Status:</b> Residential
<b>Community Facilities:</b> The Council may seek contributions to the provision of healthy living centre via a developer contribution or planning obligation.

## Site Category

Location	Accessibility Index	Setting	
Sites within Town Centre "Ped-Shed"	6	Central	
		Urban	X
		Suburban	
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban	
		Suburban	
Currently Remote Sites	1	Suburban	

# Tile Application



Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

OPTION 2- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1	0.67	25	terraces	264	127.3	25
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2	0.75	48	flats	200	144	48
C3		0	flats	1056	0	
D1		0	mix	419	0	
<b>Total</b>		<b>73</b>			<b>271.3</b>	<b>73</b>

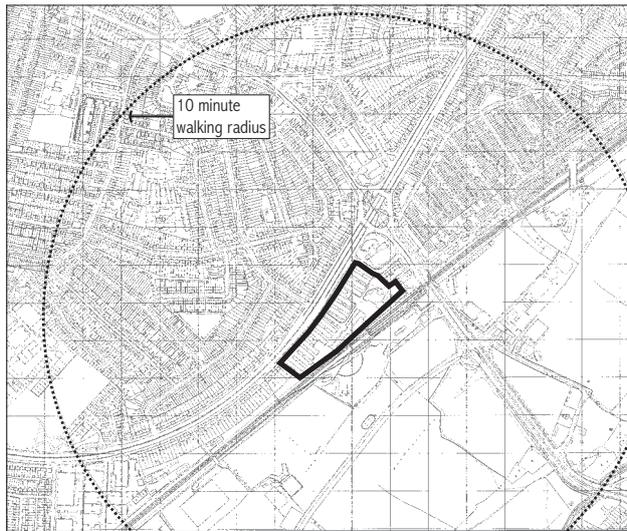
Density	Net	Gross
Area (Ha)	1.33	1.33
Habitable Rooms/Ha	203.98	203.98
Units/Ha	55.233	55.2

OPTION 3- Development Mix

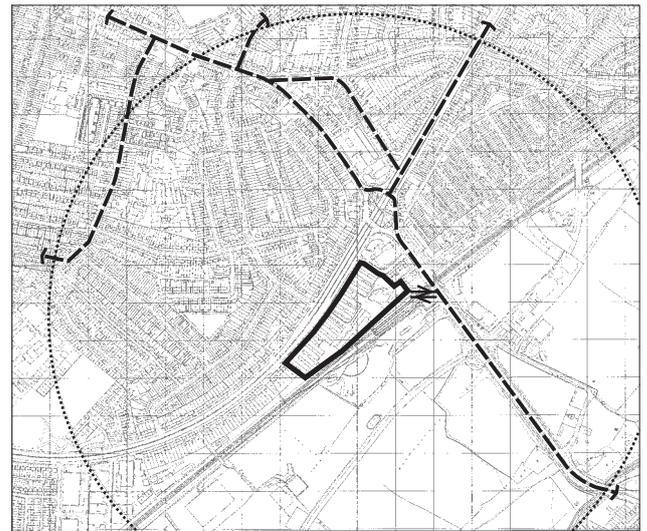
Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2		0	terraces	218	0	
C1	1.33	149	flats	467	446.88	89
C2		0	flats	200	0	
C3	0.25	112	flats	1056	280	56
D1		0	mix	419	0	
<b>Total</b>		<b>261</b>			<b>726.88</b>	<b>145</b>

Density	Net	Gross
Area (Ha)	1.33	1.33
Habitable Rooms/Ha	546.5	546.5
Units/Ha	196.2	196.2

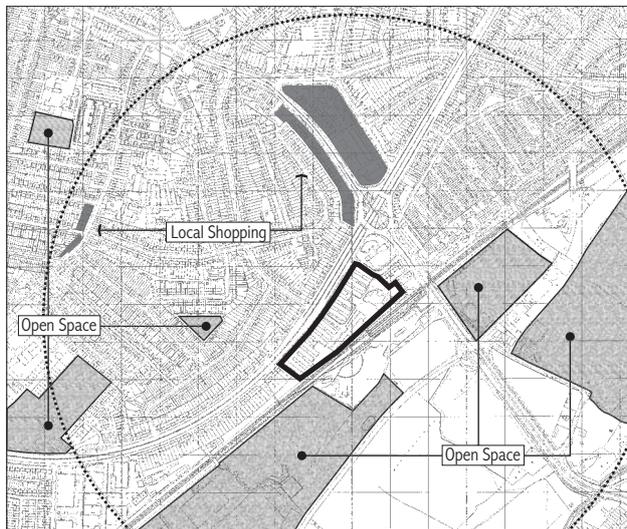
## Urban Structure



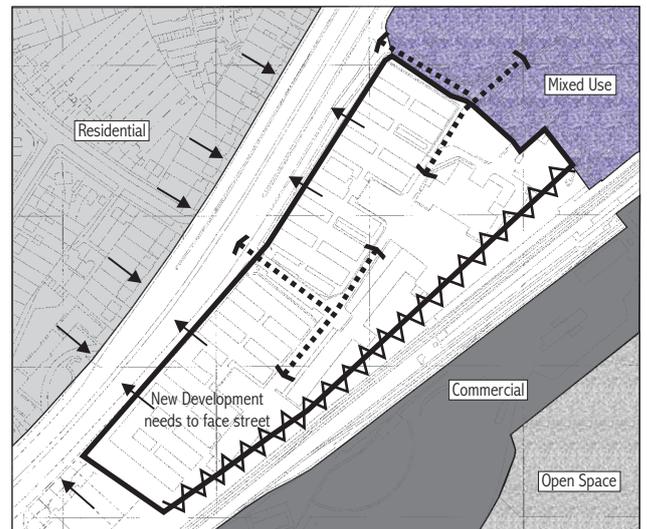
## Connectivity & Public Transport



## Local Centres & Open Spaces



## Linking the Site



## Characteristics

Size:	3.36 ha
Location Category:	Outer West
Topography:	Flat
Current Use:	Vacant
Surrounding Uses:	Railway, residential and mixed-use
Development Setting:	Urban
Public Transport Accessibility:	Good
Facilities Accessibility:	Good

## Policy Issues

<b>Affordable Housing:</b> The Council is seeking 25% of dwellings in new development.
<b>UDP Status:</b> Residential
<b>Community Facilities:</b> The Council may seek contributions to the provision of educational facilities and improvements to the town centre via a developer contribution or planning obligation.

## Site Category

Location	Accessibility Index	Setting	
Sites within Town Centre "Ped-Shed"	6	Central	
		Urban	X
		Suburban	
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban	
		Suburban	
Currently Remote Sites	1	Suburban	

# Tile Application

## APPENDIX I



Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

**OPTION 2- Development Mix**

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2		0	terraces	218	0	
C1	2	224	flats	467	672	224
C2		0	flats	200	0	
C3		0	flats	1056	0	
D1	1.917	169	mix	419	506.09	202
<b>Total</b>		<b>393</b>			<b>1178.1</b>	<b>426</b>

Density	Net	Gross
Area (Ha)	3.06	3.36
Habitable Rooms/Ha	385	350.62
Units/Ha	128.33	116.87

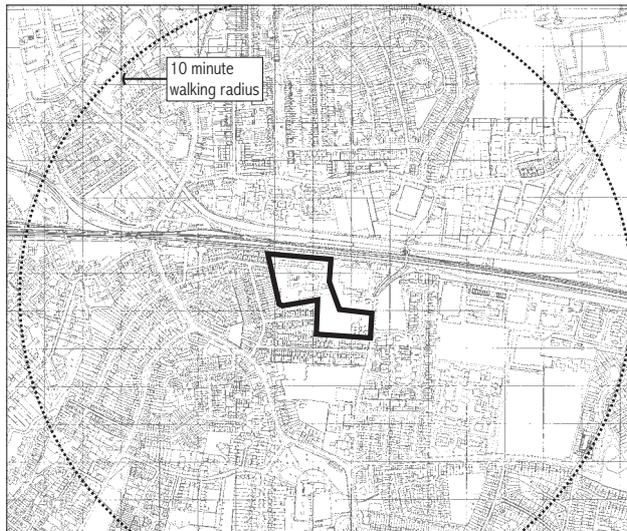
**OPTION 3- Development Mix**

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2		0	terraces	218	0	
C1	1.167	131	flats	467	392.11	78
C2		0	flats	200	0	
C3	1.5	672	flats	1056	1680	672
D1		0	mix	419	0	
<b>Total</b>		<b>803</b>			<b>2072.1</b>	<b>750</b>

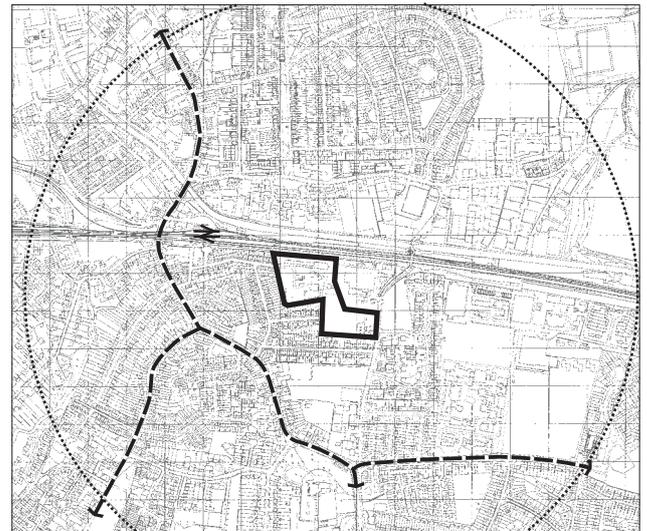
Density	Net	Gross
Area (Ha)	3.36	3.36
Habitable Rooms/Ha	616.7	616.7
Units/Ha	238.9	238.9

## CASE STUDY 22

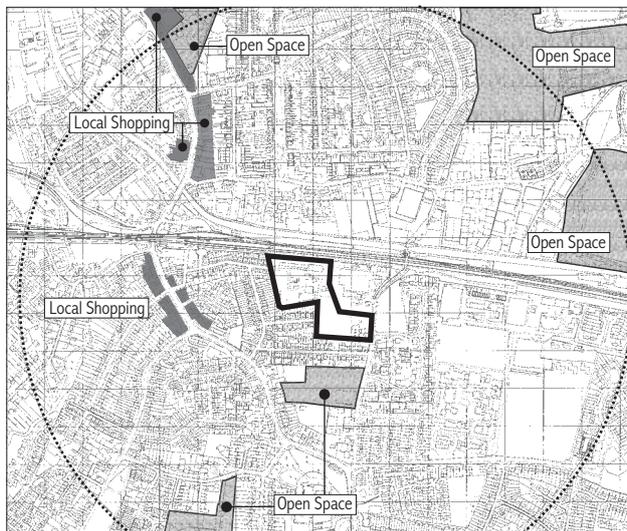
## Urban Structure



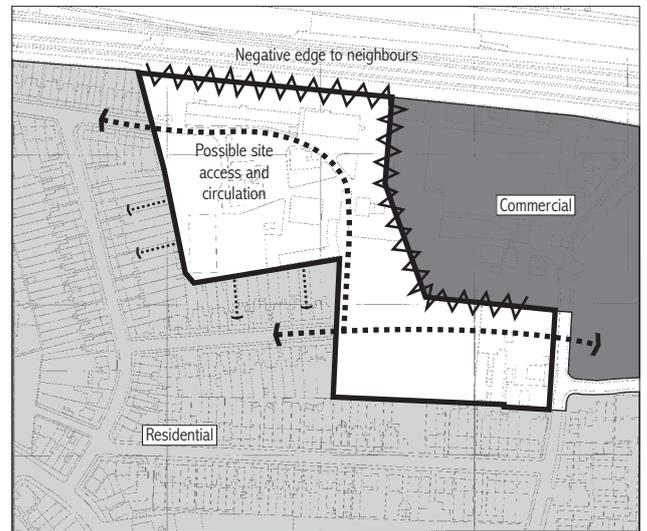
## Connectivity & Public Transport



## Local Centres & Open Space



## Linking the Site



## Characteristics

Size:	3.30 ha
Location Category:	Outer West
Topography:	Flat
Current Use:	MOD Research Facility
Surrounding Uses:	Railway, residential and commercial
Development Setting:	Suburban
Public Transport Accessibility:	Fair
Facilities Accessibility:	Fair

## Policy Issues

<b>Affordable Housing:</b> The Council is seeking a minimum 25% of dwellings in new development.
<b>UDP Status:</b> Residential or mixed-use
<b>Community Facilities:</b> The Council is seeking provision of open space on site and contributions towards school places.

## Site Category

Location	Accessibility Index	Setting
Sites within Town Centre "Ped-Shed"	6	Central
		Urban
		Suburban
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban
		Suburban
Currently Remote Sites	1	Suburban

# Tile Application



OPTION 1- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2	4.545	109	terraces	218	545.4	218
C1		0	flats	467	0	
C2		0	flats	200	0	
C3		0	flats	1056	0	
D1		0	mix	419	0	
Total		109			545.4	218

OPTION 2- Development Mix

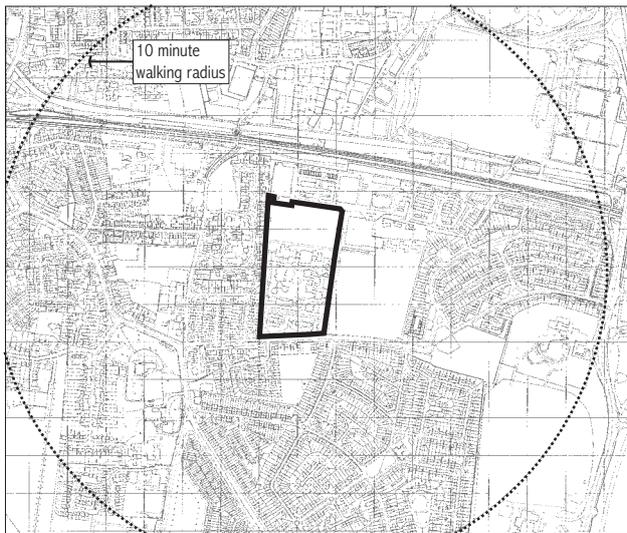
Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1	1.5	57	terraces	264	285	86
B2		0	terraces	218	0	
C1		0	flats	467	0	
C2	0.5	32	flats	200	96	48
C3		0	flats	1056	0	
D1	1.25	110	mix	419	330	165
Total		199			711	299

Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

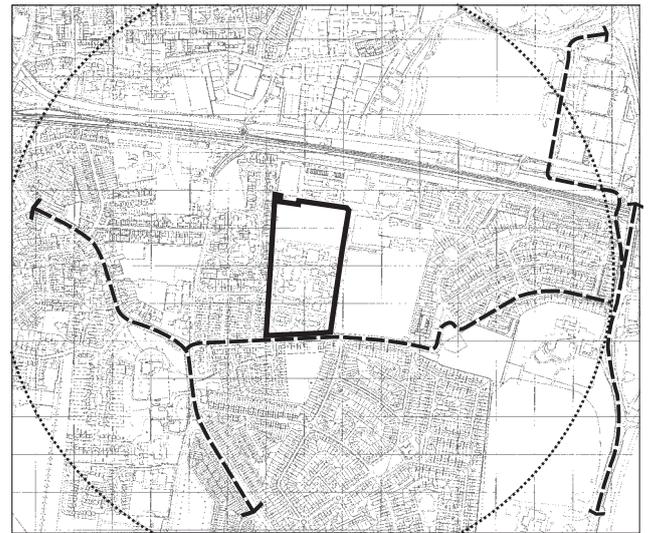
Density	Net	Gross
Area (Ha)	2.85	3.3
Habitable Rooms/Ha	191.37	165.27
Units/Ha	38.3	33.055

Density	Net	Gross
Area (Ha)	2.85	3.3
Habitable Rooms/Ha	249.47	215.45
Units/Ha	69.825	60.303

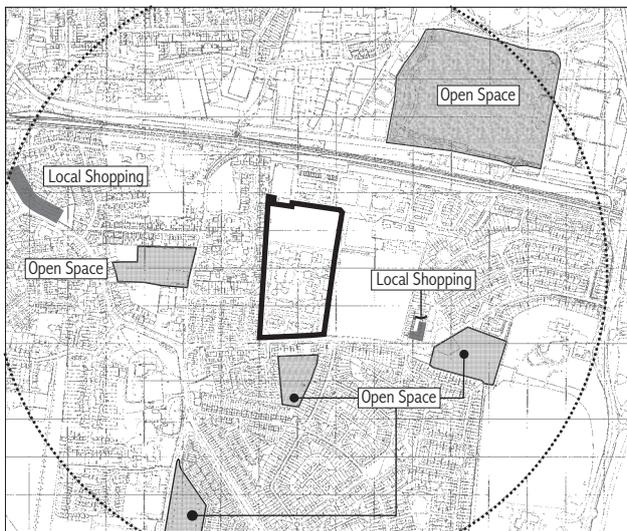
## Urban Structure



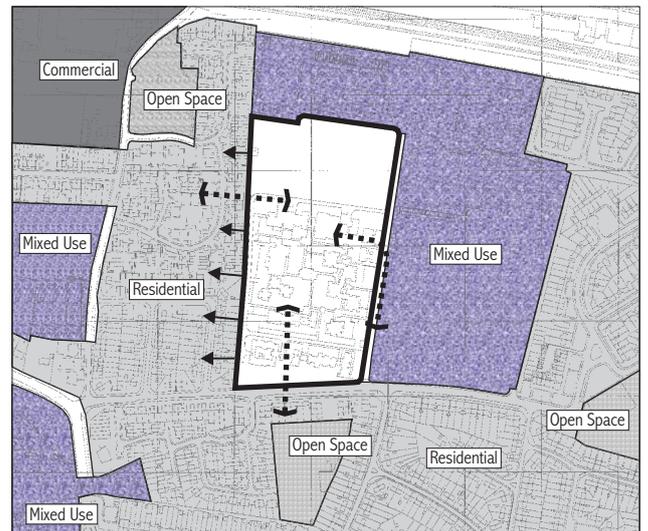
## Connectivity & Public Transport



## Local Centres & Open Space



## Linking the Site



## Characteristics

Size:	6.12 ha
Location Category:	Outer West
Topography:	Flat
Current Use:	Employment (RAF)
Surrounding Uses:	Residential and open space
Development Setting:	Suburban
Public Transport Accessibility:	Poor
Facilities Accessibility:	Fair

## Policy Issues

Affordable Housing:	The Council is seeking 25% of dwellings in new development.
UDP Status:	Residential.
Community Facilities:	The Council is seeking provision of a new doctor's surgery, community centre, children's play area and open space on site and contributions towards school places.

## Site Category

Location	Accessibility Index	Setting
Sites within Town Centre "Ped-Shed"	6	Central
		Urban
		Suburban
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3	Urban
		Suburban
Currently Remote Sites	1	Suburban

# Tile Application



OPTION 1- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3	2.67	64.1	houses	154	320.4	128
B1		0	terraces	264	0	
B2	2	48	terraces	218	240	96
C1		0	flats	467	0	
C2	1.5	96	flats	200	288	144
C3		0	flats	1056	0	
D1		0	mix	419	0	
<b>Total</b>		<b>208</b>			<b>848.4</b>	<b>368</b>

OPTION 2- Development Mix

Tile Type	No. of Tiles	Units	Dwelling Type	HR/Ha	Total HR	Parking Spaces
A1		0	houses	80	0	
A2		0	houses	96	0	
A3		0	houses	154	0	
B1		0	terraces	264	0	
B2	7.33	176	terraces	218	879.6	264
C1		0	flats	467	0	
C2		0	flats	200	0	
C3		0	flats	1056	0	
D1	2.25	198	mix	419	594	198
<b>Total</b>		<b>374</b>			<b>1473.6</b>	<b>462</b>

Maps reproduced from and based upon the Ordnance Survey mapping with the permission of the Controller of Her Majesty's Stationery Office © Crown copyright. Unauthorised reproduction infringes Crown Copyright and may lead to prosecution or civil proceedings.

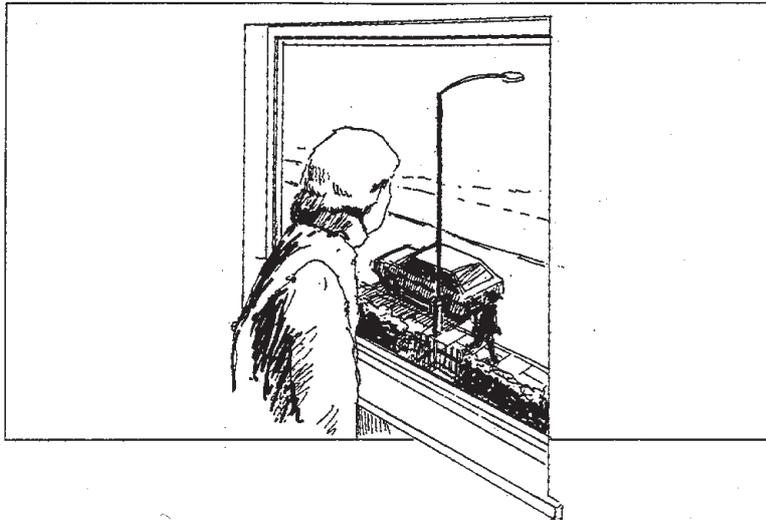
Density	Net	Gross
Area (Ha)	5.48	6.21
Habitable Rooms/Ha	154.82	136.62
Units/Ha	38.0	33.507

Density	Net	Gross
Area (Ha)	5.6	6.12
Habitable Rooms/Ha	263.14	240.78
Units/Ha	66.771	61.098

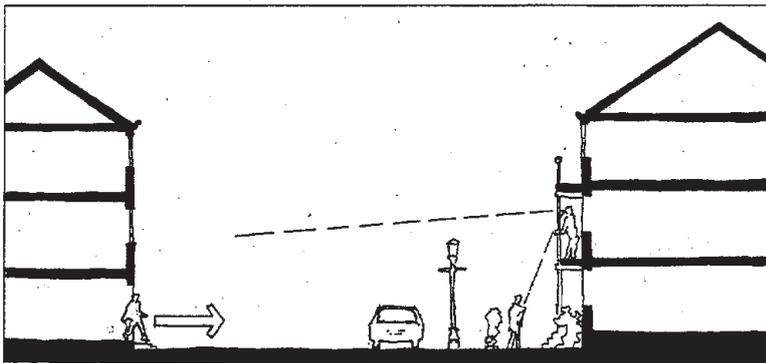


**APPENDIX II**  
**Key Design Principles**  
**Sustainable Residential Quality:**  
**new approaches to urban living**

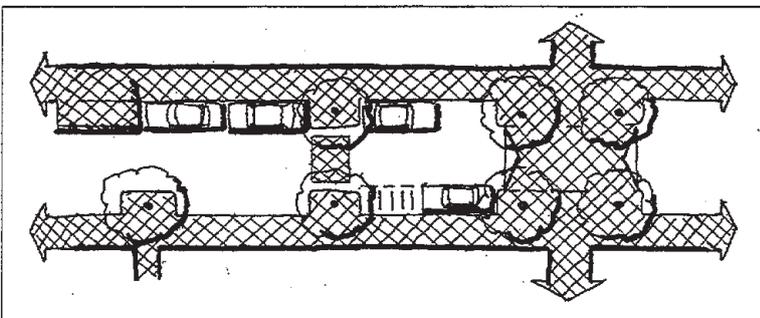
## 1. Providing Feeling of Safety



Residents feel safer when they are able to see the street and the activities in it. Passive or natural surveillance can strengthen the residents' governance of the street and provide quick response to incidents.

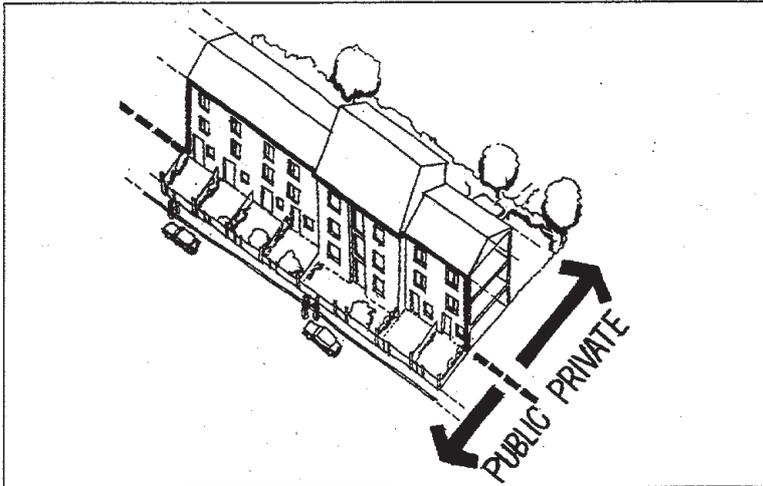


The 'see and be seen' concept can effect the conduct of non-residents that use the street. Easy access improves the residents' relationship to the street and the feeling of social connection.

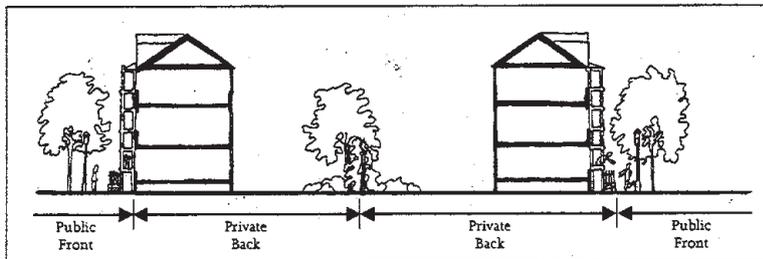


Streets should be designed for the safe circulation of people and not just cars and service vehicles. Other interested parties that value the street are pedestrians, the mobility impaired, children and cyclists. Streetscape detailing should prioritise these users over the car.

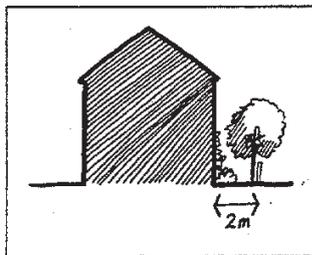
## 2. Clear definition of Private and Public Realm



Housing with an aspect or outlook provide a clear definition between private and public space.



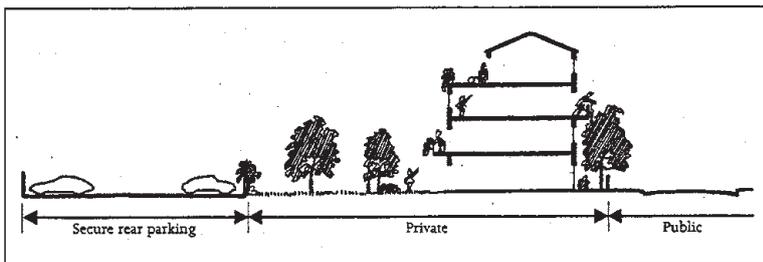
Layouts should form continuous fronts and backs, with consistent levels of privacy.



Front gardens serve as a buffer zone of semi private space.

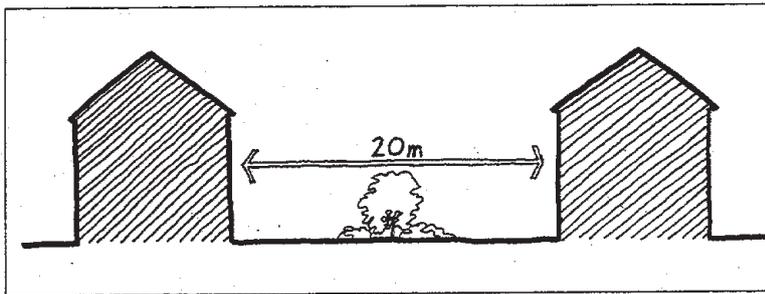


Many traditional layouts provide a clear definition between public fronts and private backs.

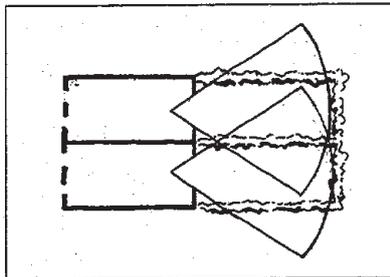


Rear parking should be a continuation of private space and be secure.

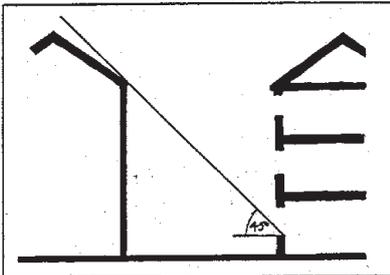
### 3. Safeguarding Privacy, Light and Street Frontage



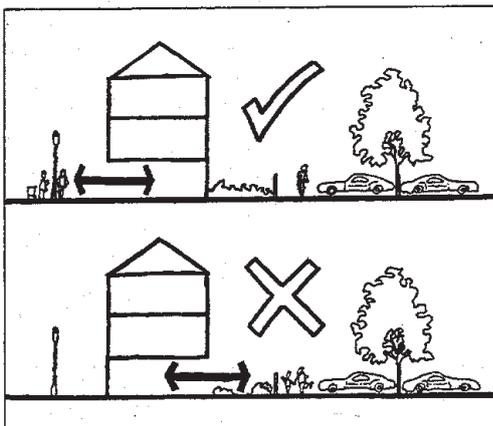
20m is an appropriate privacy distance between windows, less can be considered only when appropriate to local context.



Overlooking of gardens is acceptable if loss of privacy is consistent between neighbouring dwellings.

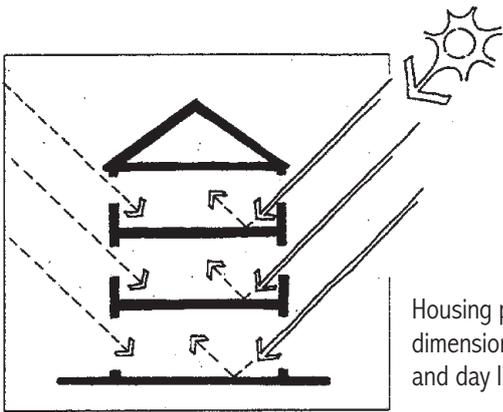


Single aspect can reduce distances further between dwellings but not to the detriment of neighbours' right to light.

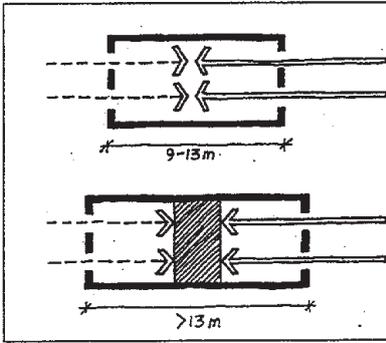


Rear parking should not automatically dictate rear front doors as this weakens the connection between dwelling and street for non car users. With rear access the character of the street changes to that of a road.

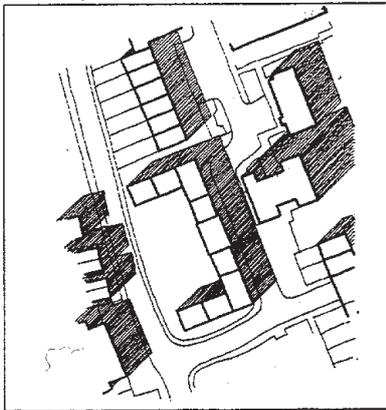
## 4. Creating a Healthy Environment



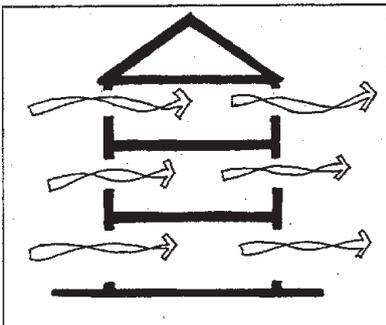
Housing plans with front to back dimensions of 9-13m provide good sun and day light penetration.



Plan depths over 13m have poor light penetration to the core, increasing the need to artificial lighting.

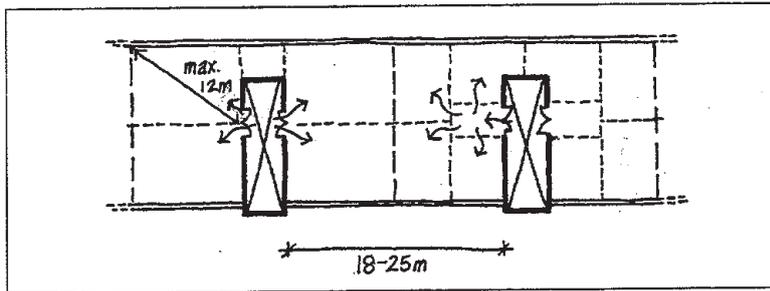


Layout design should demonstrate minimum overshadowing from one block to another.

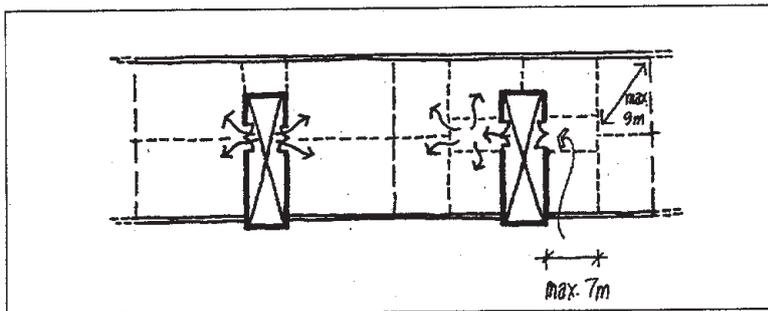


This kind of shallow plan building provides the opportunity for natural through ventilation and reduces the need for mechanical assistance.

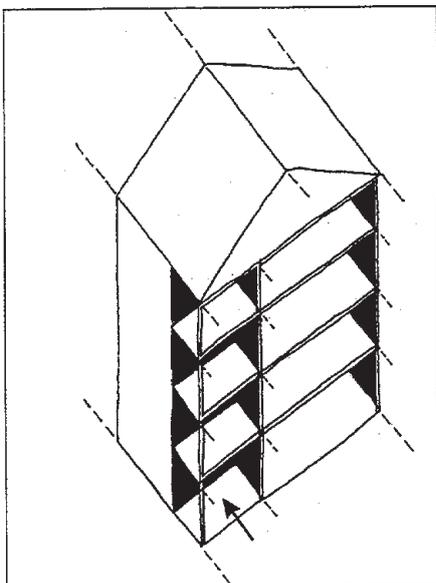
## 5. Designing Robust and Adaptable Dwellings



Building design and layout should be flexible enough to cater for the needs of present and future generations of users. Changing demographics, live/work arrangements and changing uses of ground floors require robust layouts which are easily convertible from employment to residential. Common circulation cores provide fire protected areas. In adaptable buildings these should be not more than 25m apart so that prompt exit can be achieved.



Layouts allow easier conversion into flats or apartments if corridors leading to protected areas are not more than 7m long.

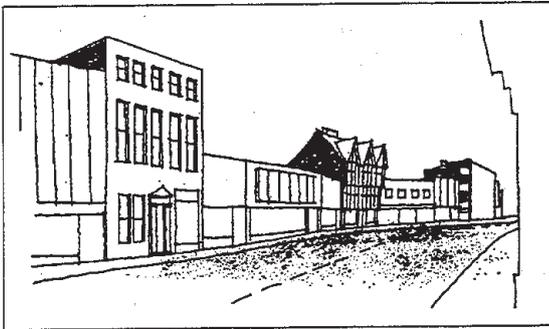


The rooms needing most maintenance and refurbishment are bathrooms and kitchens. Layouts of flats and apartments should be rationalised so that these areas are able to be isolated and change made easier.

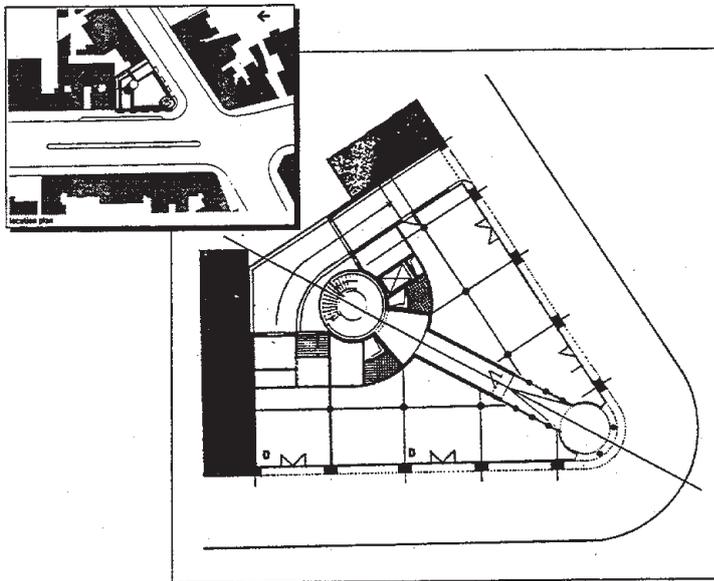
## 6. Respecting Local Character



New development should contribute positively to the character of its context. This requires building line continuity, expression of vertical and horizontal rhythms, regard to adjacent building heights and use of quality detailing and materials.



Unsympathetic development undermines the character of the whole street.



Many of the potential sites identified in the report require attention paid to corners. Standard off-the-shelf layouts are insufficient. Corner sites are visually prominent, have two frontages, occur at the confluence of two access-ways, allow for more parking, have potentially more entrances to different parts of the building and often therefore provide a special opportunity for mixed uses. Their landmark status should be recognised and prominent entrances incorporated.



**APPENDIX III**  
**Key Elements of Development Appraisal**



### III.1 Introduction

This Appendix supports the consideration given to the need for closer working relationships between local authorities, private developers and social housing providers set out in Chapter 6. This argued that as the majority of large sites will be brought forward by the private sector, it is crucial that the other partners have a good understanding of the market realities within which developers operate and the processes of appraisal followed in considering the potential of large sites.

We therefore begin with an overview of how developers appraise the viability of housing sites before considering the particular issues raised by affordable housing provision. This then provides a context for considering how current practice could be improved.

### III.2 How developers approach large sites

We know that in general particularly on large sites private developers will more than likely wish to build and sell new housing stock whereas housing associations may hold the asset for many years. Private developers may occasionally get involved in letting but in such cases will often deliver a whole section of the development to a third party investor rather than hold on to the asset.

Both private developers and housing associations spend huge sums of money investigating sites and carrying out market and risk analyses before going ahead on major schemes, similar to the steps presented in Chapter 7. In some cases the developer may spend two or three years negotiating development details with the land owner and during which the market may change depending on local housing and commercial activity as may key areas of legislation and planning guidance. As a result it is not uncommon for developers to abandon projects even after lengthy and expensive analysis.

Viability assessment is a continuous process throughout the development. It begins at the land report stage and is subject to constant adjustment until planning permission is granted. Unless the developer is absolutely sure of his ground in all aspects of the appraisal at an early stage, which is rare, only at the planning approval stage is the land paid for in full.

Developers when assessing scheme viability look at various aspects of the site before forging ahead with a detailed layout. In general viability is a financial exercise

with sophistication in specific areas. Prior to any work being undertaken to ascertain cost and value the developer will complete a preliminary exercise which is sometimes described as a land report. This is usually carried out in the case of a large private developer by four managers associated with their own field of development; these are:

- Sales (submitted by the sales manager)
- Development (by the development manager)
- Design (by the consultant or in-house architect)
- Construction (by the construction manager)

He or she will visit the site with a view to collecting information which will be used in production of the viability report.

In further detail the information collected could take the following form:

#### Sales

- Education - proximity and description of local schools, colleges and their facilities;
- Public transport - buses, railway stations, airports;
- Facilities - shopping, pubs, filling stations, leisure facilities and recreation;
- Competitors report on nearby sales and rent; and
- Brief description of local market, existing housing stock and value.

#### Development

- Site address, O/S reference;
- Names, addresses, telephone numbers of all people involved in the development;
- Land purchase particulars, status (leasehold/freehold), price required and legal constraints and factors which may affect the sale of land to third parties;
- Brief description and site area;
- General overview report; and
- Consultants charges budget and initial scheme viability assessment.

#### Design

- Report on discussions with local authority planning and housing departments; and
- Current conditions/restrictions (density, car parking, affordable housing, open space provision and TPO).

#### Construction

- Nature of site, previous uses, boundaries and other key factors affecting design;
- Ground report;

- Level and tree survey;
- Water courses, streams, ditches and surface drains survey;
- Services survey, overhead and underground cables, pipes;
- Existing buildings survey including those previously demolished;
- Report on enquires to all new service authorities for information on new supplies;
- Foul and surface water drain survey; and
- Programme report.

The above list is not intended to be in any way comprehensive, in fact some developers will go to great lengths to collect as much data as possible.

### **Viability assessment - next stage**

When all the information has been collected the development manager will contribute the team's findings in the form of a report submitted and updated on a regular basis to the management group meeting. Such meetings are led by a senior member of staff, usually a regional director and all sites are discussed in depth until a short list of priority sites is approved. At that stage a site may be investigated in further detail to ascertain its potential and to calculate a realistic land value.

In our experience when housing associations carry out their land report there may sometimes be a distinction in the sales and construction areas of the report. Housing "need" is a key factor affecting a housing association and its ability to develop whereas housing "demand" will drive the private developer's decision to build. This is not to say that housing associations ignore housing demand, quite the contrary, as many joint ventures and shared ownership schemes are developed often in partnership with private developers. This distinction may seem fairly obvious but requires consideration if we are to attempt to bring both parties together more closely.

The other major difference in approach is the fact that many private developers now prefer to carry out their own building whereas in general housing associations assign building contracts to building contractors. This often affects the way a development is designed as many private developers carry a portfolio of standard housing types which are co-ordinated with the company's financial analysis structure. This can be very effective in efficiency terms and helps private developers to maximise return on capital employed in the scheme.

Attempts by contractors to develop portfolios of affordable house types have not proved very successful

due to lack of understanding of this market. Most large housing associations will have their own design brief which have been developed over a number of years to encompass the Housing Corporation's Scheme Development Standards and the requirements of their own tenant's needs.

Housing developed for the private sales market is developed to meet the various price ranges and will include features that will attract purchasers with limited available cash. Housing associations will generally be looking at first lets that fully occupy a property on day one, with limited ability to rehouse tenants to larger units as the household grows. This highlights the importance of bedroom space while seeking to minimise responsibility and expenditure for landlords fixture and fittings. Housing associations will require a product that is far more robust, will withstand heavy use and that may not benefit from the care shown by owner occupiers.

In addition, affordable housing in the past has been far more concerned with the needs of disabled tenants and therefore the requirement for accessible homes (level threshold etc.) Not previously a point many developers would have considered when developing their designs. New Part M of the Building Regulations now extends to all new housing and therefore this maybe less of an issue.

It is therefore understandable that very simple adjustments to contractors' standards house types to meet the requirements of affordable housing is not always successful nor well received by housing associations.

With more thought and consultation problems can be overcome and mixed tenure housing can be successfully developed side by side without any obvious external differences in standards.

The private developer will build what he knows will sell whereas a housing association may be driven by a whole range of different important issues which are not always commercially orientated.

### **Detailed viability assessment - the next stage**

Let us assume the private developer has carried out the initial land report, has placed the site on a priority list and assigned a budget for completion of the land bidding process. The next stage is the detailed viability assessment which will follow the initial viability carried out with the land report. The detailed viability assessment will become a "master" report along with the

development programme and the master-plan. These master reports form the contents of the director's main board report and from time to time will be adjusted and updated at the request of the main board.

In assessing the detailed viability report certain information and advice offered by team members will be used. The main aspects addressed are set out in Figure III.1 below.

### **A Note on land evaluation**

We have explained in some detail the method used by developers to determine land value. It should be said that

current understanding of land evaluation processes can vary depending on where the view is taken i.e. buyer or seller. Market value of land from a developer's view is site specific, not only in terms of the physical nature of the site but in the scale and quality of the planned development. It is therefore impossible to judge residual value on a regional basis using data sources because development quality and design can change from area to area, street to street and in urban areas, block to block.

We know from experience that high density planned development attracts far greater land values than would otherwise be created by lower densities. We also

**Figure III.1: Key Aspects of Development Appraisal**

#### **Rate of sale of housing units**

Defined as units per month or units per annum, this factor determines the speed at which the development is built based on the speed at which it is sold. The rate of sale determines the cost of many preliminary items e.g. construction manager's wages or hire of site accommodation. Also sales and marketing expenses which are "time-driven" e.g. wages of sales personnel or costs relating to show houses can be affected by rate of sale.

#### **Interest rate**

This is the percent rate at which the developer expects to pay interest on the borrowings throughout the development process. In the case of a developer using their own financial resources it may be represented as the rate which the developer would expect to receive if the money is used for alternative investment purposes. The rate may fluctuate over several years or may be assessed in the case of larger developments on the same basis as a long term loan offered to the developer by a banking institution.

#### **Lead-in period**

The time planned to complete the detailed viability assessment and begin the construction process.

#### **Preliminaries**

All direct expenses associated with the construction process e.g. supervision, accommodation, material management and distribution, site security and removal of accumulated rubbish, etc.

#### **External Development Works**

All external works and infrastructure which at some stage will be transferred to a third party i.e. to a local authority in the case of adopted works or to a management company or housing association in the case of private areas.

#### **Abnormal Development Works**

All external works within adopted or transfer areas which would not be found on a level "green field" site, e.g. demolition, decontamination, mains service diversions and abnormal retaining structures.

#### **Plot Development Works**

All external works carried out within the curtilage of a plot or individual conveyance e.g. paths, drives, local drains and services.

#### **Abnormal Plot Development Works**

All works within the areas defined above which would not be found on a level "green field" site.

#### **Substructures**

All foundations and piling works

#### **Superstructures**

All construction above damp proof course.

#### **Development Expenses**

Costs associated with the design, management, planning process, legal acquisition, legal disposal and specific agreements e.g. Section 106 and Commuted sums.

#### **Overheads**

Developers overhead costs sometimes imposed on the divisional office by group H.Q. as a percentage of turnover.

#### **Profit**

The developers net return after payment of all expenses, usually the target is set as a percentage on sale value.

#### **Marketing**

All costs associated with the selling process including advertising, brochures, site sales personnel and show houses.

#### **Finance**

A calculation from the cash-flow forecast representing the cost of borrowing over the period of development and sale.

know that affordable housing can be accommodated within urban development without affecting quality. Resultant land values irrespective of "market value perception" will be driven by planned development.

Each developer in competition for land will speculate on the risk involved in each development. Some consider internal rate of return, others concentrate on return on capital employed. Sensitivity testing in the final analysis will be varied and sometimes sophisticated depending on the scale of development but the final land bid will often involve "one final tweak" by the directors making the bid. This final act may win or lose a site for the developer but has little effect on market value, it is the long and difficult appraisal technique which drives that.

Most developers have come to terms with the requirement for affordable housing on large sites. They will agree that land values can be determined on a residual basis by a well structured planning brief.

Planning policy will affect land value. While some land bidders may not be well informed of current policies, it is to their own peril. But implementation and realisation of housing on large sites requires close attention to planning policy and sustainable movement concerns.

**APPENDIX IV**  
**Habitable Rooms to Dwellings**  
**Conversion Factors**

## **Appendix IV Habitable Rooms to Dwellings Conversion Factors**

### **INTRODUCTION**

The Density Location and Parking Matrix set out in Chapter 4 is expressed in Habitable Rooms Per Hectare, reflecting the established approach to expressing density in LPAC's Strategic Advice and Borough UDP's. While habitable rooms per hectare is also the measurement used in development control, the calculation of site capacities for the purposes of estimating urban housing potential requires a density measure expressed in dwellings per hectare.

It must be recognised at the outset that densities calculated as habitable rooms and dwellings cannot be translated with certainty. For example, 50 habitable rooms could equate to 7 large (7 habitable room) houses or almost 17 smaller (3 habitable room) flats. Moreover, a very small change in the conversion factor applied could result in a significant change in the estimated capacity of a site or borough.

With these caveats in mind the following sections explain how we have calculated the conversion factors set out in the Matrix.

### **APPROACH**

This Appendix sets out a range of conversion factors which enable each cell in the Density, Location and Parking Matrix to be expressed as dwellings as well as habitable rooms. These conversions have been generated on the basis of all Case Studies used in this study, taking account of the densities achieved through the tiling method applied to 24 large sites as well as through the more detailed design-led approach undertaken for four case study sites.

From all case studies in each of the Locations and Settings Categories of the Matrix an average number of habitable rooms (hr) per dwelling could be calculated (see Figure IV.1). These average numbers of habitable rooms per dwelling reflect the change of dwelling type and increase in sizes the further away one moves from central and urban locations. While in the most central locations with mainly flats the average unit size is 2.7 hr, it increases to an average of 4.5 hr in the most suburban locations explored in this study.

It is important to appreciate that these averages do not exclude

any specific size of unit in any location, but only express the mean size of the dwelling mix on each case study site. Some very large units can be accommodated in central areas as long as these are complemented with more small ones. Even within the Case Studies used in this study, a broad range of number of habitable rooms per dwelling was achieved in each category. The range of average numbers of hr shown for the case studies in Figure IV.1 illustrates the difficulty of setting one particular average size.

The resulting density figures are expressed in dwellings per hectare for each of the matrix cells and set out in Figure IV.2.

**Figure IV.1: Habitable Rooms per Dwellings for Different Locations and Settings**

	<b>Option 1</b>	<b>Option 2</b>	<b>Option 3</b>
<b>Car Parking Provision</b>	High 2 – 1.5 spaces per unit	Moderate 1.5 – 1 space per unit	Low Less than 1 space per unit
<b>Predominant Housing Type</b>	Detached & linked houses ave. 4.5hr/u	Terraced houses & flats ave. 3.6hr/u	Mostly flats Ave. 2.8hr/u

Location	Accessibility Index	Setting			
Sites within Town Centre "Ped-Shed"	6 ↑ ↓ 4	<b>Central</b>			Range of average hr/u 2.5 – 3.1  Ave. 2.7hr/u
		<b>Urban</b>		Range of average hr/u 2.6 – 3.7  Ave. 3.1hr/u	Range of average hr/u 2.5 – 2.8  Ave. 2.7hr/u
		<b>Suburban</b>		Range of average hr/u 3.5 – 5.0  Ave. 4.2hr/u	Range of average hr/u 2.7 – 3.5  Ave. 3.0hr/u
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3 ↑ ↓ 2	<b>Urban</b>		Range of average hr/u 3.4 – 4.3  Ave. 3.7hr/u	Range of average hr/u 2.5 – 3.4  Ave. 3.0hr/u
		<b>Suburban</b>	Range of average hr/u 3.7 – 5.0  Ave. 4.6hr/u	Range of average hr/u 3.3 – 4.1  Ave. 3.8hr/u	
Currently Remote Sites	2 ↑ ↓ 1	<b>Suburban</b>	Range of average hr/u 3.0 – 5.2  Ave. 4.4hr/u		



**Figure IV.2: Conversion of Density Matrix to Units per Hectare**

	<b>Option 1</b>	<b>Option 2</b>	<b>Option 3</b>
<b>Car Parking Provision</b>	High 2 – 1.5 spaces per unit	Moderate 1.5 – 1 space per unit	Low Less than 1 space per unit
<b>Predominant Housing Type</b>	Detached & linked houses	Terraced houses & flats	Mostly flats

<b>Location</b>	Accessibility Index	<b>Setting</b>			
Sites within Town Centre "Ped-Shed"	6 ↑ ↓ 4	<b>Central</b>			240 – 1100 hr/ha <b>240 – 435 u/ha</b>  Ave. 2.7hr/u
		<b>Urban</b>		200 – 450 hr/ha <b>55 – 175 u/ha</b>  Ave. 3.1hr/u	450 – 700 hr/ha <b>165 – 275 u/ha</b>  Ave. 2.7hr/u
		<b>Suburban</b>		150 – 250 hr/ha <b>35 – 60 u/ha</b>  Ave. 4.2hr/u	250 – 350 hr/ha <b>80 – 120 u/ha</b>  Ave. 3.0hr/u
Sites along Transport Corridors & Sites close to a Town Centre "Ped-Shed"	3 ↑ ↓ 2	<b>Urban</b>		200 – 300 hr/ha <b>50 – 110 u/ha</b>  Ave. 3.7hr/u	300 – 450 hr/ha <b>100 – 150 u/ha</b>  Ave. 3.0hr/u
		<b>Suburban</b>	150 – 200 hr/ha <b>30 – 50 u/ha</b>  Ave. 4.6hr/u	200 – 250 hr/ha <b>50 – 80 u/ha</b>  Ave. 3.8hr/u	
Currently Remote Sites	2 ↑ ↓ 1	<b>Suburban</b>	150 – 200 hr/ha <b>30 – 65 u/ha</b>  Ave. 4.4hr/u		



# **APPENDIX V**

## **Bibliography**

## **Urban Quality and Housing Capacity**

Friends of the Earth (1998) **Tomorrow: A peaceful path to urban reform**. URBED, Manchester.

Government Office for the South East (1998) **Sustainable Residential Quality in the South East**, Llewelyn-Davies. GOSE, Guildford.

Hampshire County Council (1998) **Urban Living: Perceptions, Realities and Opportunities**, Llewelyn-Davies. Hampshire County Council, Winchester.

Joseph Rowntree Foundation (1994) **Providing More Homes in Urban Areas**, Llewelyn-Davies and Environment Trust Associates. JRF, York.

LPAC (1994) **The Quality of London's Residential Environment**, Llewelyn-Davies in association with South Bank University and Environment Trust Associates. LPAC, London.

LPAC (1997) **Offices to Other Uses**, London Residential Research. LPAC, London.

LPAC (1998) **Possible Future Sources of Large Housing Sites in London**, Halcrow Fox. LPAC, London.

LPAC (1998) **Dwellings Over and in Shops**, Civic Trust & University of Westminster. LPAC, London

LPAC (1998) **Sustainable Residential Quality: New Approaches to Urban Living**, Llewelyn-Davies in association with Savills and Urban Investment. LPAC, London.

LPAC (1999) **Sustainable Residential Quality II: Approach & Method Statement**, Llewelyn-Davies. LPAC, London.

Round Table on Sustainable Development (1996) **Review of Urban Capacity Studies**, Llewelyn-Davies. DETR, London.

Town and Country Planning Association (1998) **Urban Housing Capacity: what can be done ?** TCPA, London.

## **Transport / Planning Policy**

DETR (1997) **Planning for the Communities of the Future**. Cm 3885, DETR, London.

DETR (1999) **Revision of Planning Policy Guidance Note (PPG3) Housing, Public Consultation Draft**. DETR, London.

DETR (1999) **Revision of Planning Policy Guidance Note (PPG13) Transport, Public consultation draft**. DETR, London.

DETR (1999) **A New Deal for Transport Better for Everyone, The Government's White Paper on the future of Transport**. DETR, London.

DETR (1998) **Places Streets and Movement, A companion guide to Design Bulletin 32**, Residential roads and footpaths. DETR, London

Urban Task Force (1999) **Towards an Urban Renaissance**, Urban Task Force. E&FN SPON, London.

House of Commons (1998) **Housing Volume 1 Report and proceedings of the committee**, Environment, Transport and Regional Affairs Committee session 1997-98. The Stationery Office 495-1, London

House of Commons (1998) **Housing Volume II Appendices to the minutes of Evidence taken before the Committee**, Environment, Transport and Regional Affairs Committee session 1997-8. The Stationery Office 495-II, London.

House of Commons (1998) **Housing Minutes of Evidence, Wednesday 22 April 1998** Environment Transport and Regional Affairs Committee. The Stationery Office HC495-vii, London.

House of Commons (1999) **Housing: PPG3 Report and proceedings of the committee together with Minutes of evidence and appendices**, Environment, Transport and Regional Affairs Committee session 1998 9. The Stationery Office, HC490-I, London.

House of Commons (1999) **Revision of PPG3 Housing , memorandum relating to the inquiry submitted to the committee**. The Stationery Office HC490-II, London.

## **Affordable Housing**

JRF (1994) **Inquiry into Planning for Housing**. Joseph Rowntree Foundation, York.

DoE (1994) **Planning for Affordable Housing**, Barlow, J Cocks, R and Parker, M. HMSO, London.

NHF and the Guinness Trust (1998) **Car parking and social housing**, National Planning and Housing Policy, Oldfield King Planning Ltd. National Housebuilders Federation, London.

Housing Corporation / DETR (1999) **Housing Quality Indicators**. DETR, London.

## **History of Density**

DETR (1997) **The Use of Density in Land Use Planning**, Llewelyn-Davies. DETR London.

MHLG (1963) **Design Bulletin No.7 Housing Cost yardstick: For schemes at Medium and High Densities**. HMSO, London.

MHLG (1952) **The Density of Residential Areas**. HMSO, London.

Olsen, D, J (1976) **The growth of Victorian London**. Peregrine Book for Penguin Books.

Ravetz, R and Turkington, R (year) **The Place of the Home English Domestic Environments 1914-200**. E & FN Spon. London.

Parker Morris Report (1961) **Homes for Today and Tomorrow**. HMSO, London.

Sherlock, H (1991) **Cities are good for us**. Paladin, Glasgow.

See also extended bibliography in "**Use of Density in Land Use Planning**".

## **Urban Design**

Bentley, Alcock, Murran, McGlynn, Smith (1985) **Responsive Environments, A manual for designers**. The Architectural Press Ltd, London.

Colthorpe, P (1993) **The Next American Metropolis**. Princeton Architectural Press, New York.

DETR, DTi (1999) **Planning for Passive Solar Design**, Terence O' Rourke plc. BRECSU, BRE Watford.

English Partnerships / Housing Corporation (1999) **Urban Design Compendium (unpublished draft)** by Llewelyn-Davies. English Partnerships, London.

Jenks, M, Burton, E & Williams, K (1996) **The Compact City, A sustainable Urban Form?** Oxford Brooks University, Oxford, E & FN Spon.

Rubin, F & Falk, N (1999) **Building the 21<sup>st</sup> Century Home, the sustainable urban neighbourhood**. URBED Architectural press, Oxford.

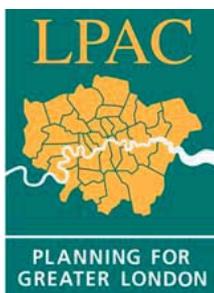
## **Housing and Construction**

Ball, M (1996) **Investing in new housing, lessons for the future**, Housing and the construction Industry Research Programme. The Policy Press, Bristol.

Ball, M (1996) **Housing and Construction, A troubled relationship?** Housing and Construction Industry Research Programme. The Policy Press, Bristol.

Council of Mortgage Lenders (1997) **Housing Finance**, the quarterly economics Journal of the Council of Mortgage Lenders, no.33 February 1997. CML, London.

HBF (1997) **New homes because Britain deserves better, an agenda for the new government**. HBF, London.



LONDON PLANNING ADVISORY COMMITTEE  
Artillery House  
Artillery Row  
London  
SW1P 1RT

Tel: 020 7222 2244  
Fax: 020 7222 2656  
Email: [lpac@lapc.gov.uk](mailto:lpac@lapc.gov.uk)  
Web: <http://www.lpac.gov.uk/>

This document is printed on paper comprising  
75% post consumer waste and 25% ECF pulp.

**CON68**

£46