T2 C11a

RadioStation Rugby

KEY PHASE 2

Tier 2: Application to Discharge Outline Condition 11a

Design Guide

This Design Guide has been prepared in response to Condition 11 of the Radio Station Rugby Outline Planning Permission (application reference R11/0699).

The Design Guide is to be read with reference to the Rugby Radio Station (Outline Planning Application) Design and Access Statement.

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November 2016

RadioStation Rugby

KEY PHASE 2

Contents

Design Guide

Fig 0.1: Aerial Photograph of Radio Station Rugby site, facing North (photo circa. June 2016)

A5 road (north and east of RSR site)

Raised rail embankment

DIRFT II

New railway bridge

Site of Primary School

Main access point from Crick Road

Preface

Outline planning permission for a sustainable urban extension (SUE) at Rugby Radio Station was granted by Rugby Borough Council in May 2014 (ref: R11/0699). The SUE comprises 6,200 dwellings together with up to 12,000 m² retail (A1), up to 3,500 m² financial services (A2) and restaurants (A3-A5), up to 3,500 m² for a hotel (C1), up to 2,900 m² of community uses (D1), up to 3,100 m² assembly and leisure uses (D2), 31 hectares (up to 106,000sqm of commercial and employment space (B1, B2 and B8).

Due to the strategic nature of the SUE and the scale and complexity of the development, the site will be developed in a series of 'Key Phases'. This will ensure that implementation can respond to market demand and the practicalities of development. The conditions attached to the outline planning permission require a three tiered approvals process to control the design and delivery of the development from outline, to Key Phase, to detailed site level. This approach is set out below.

Tier 1: Outline Planning Permission

The outline planning permission approved the broad quantum and disposition of land uses as defined by the Development Specification, Parameter Plans and the general design principles within the Design and Access Statement. Submission and approval of a set of site wide strategies in relation to specific topics is required by outline condition 6, prior to the commencement of development or approval of any Reserved Matters applications. The site wide strategies will supplement the parameters set by the outline permission.

Tier 2: Key Phase

Outline conditions 9, 11 and 12 require approval of detailed documentation to agree the definition of and provide a framework for each Key Phase. At this tier a greater level of detail is provided specific to that Key Phase with the required technical information to inform and provide a base against which Reserved Matters applications within the Key Phase area can be assessed:

- **Condition 9:** Key Phase Definition Statement - to define and justify the extent of that Key Phase.
- **Condition 11:** Key Phase Framework – following the definition of each Key Phase, a Framework including a Design Guide / Code, Delivery Plan and other Key Phase specific documents including any relevant supplements to the Tier 1 site wide strategies, that establish the design and delivery framework for that Key Phase, will be submitted for approval. These documents ensure that the Council can exert control over subsequent Reserved Matters applications and the implementation of development in that Key Phase.
- **Condition 12:** Key Phase Technical Requirements – detailed assessments for that Key Phase relating to specific technical issues such as heritage, ground conditions and ecology.

Tier 3: Reserved Matters

Once a Key Phase has been fully approved, including the relevant Framework documents relating to Tier 2, Reserved Matters applications can be approved for individual parcels or infrastructure within that Key Phase. These Reserved Matters applications will provide a further level of detailed design in accordance with the Framework for that Key Phase, including the Design Guide and the requirements of outline condition 15 (Reserved Matters applications).

Key Phase 2

SUE GP LLP are now seeking to facilitate a start on site on Key Phase 2 (KP2) through the submission of the necessary material to allow the Key Phase to progress and the first elements of infrastructure to be implemented. This requires the approval of a series of documentation in accordance with the tiered approach outlined above. Details are being prepared to be submitted to RBC for approval to facilitate the commencement of KP2, as follows:

Tier 1 - Outline

Condition 6 Site Wide Strategies have been submitted and approved by RBC in June 2014.

Tier 2 - Key Phase

1. Condition 9 KP2 Definition
- KP2 Definition Statement

(The extent of KP2 in relation to the SUE is illustrated in Figure 0.3.)

2. Conditions 11 and 12- KP2 Framework and Technical Requirements
- **11a) KP2 Design Guide**
- 11b) KP2 Delivery Plan
- 11e) KP2 Code of Construction Practice Part B
- 12a) KP2 Heritage Statement and Mitigation Strategy
- 12b) KP2 Ecological Mitigation and Enhancement Strategy
- 12c) KP2 Foul and Surface Water Drainage Strategy
- 12d) KP2 Site Investigation of Ground Conditions

Tier 3 – Reserved Matters

Two Reserved Matters applications, together with full supporting technical information relevant to the Reserved Matters areas, in accordance with outline condition 15, will deliver the strategic infrastructure for KP2:

- KP2 Strategic Grey Infrastructure
- KP2 Strategic Green Infrastructure (approved Feb 2016)

This KP2 Design Guide forms part of the Tier 2 application to discharge in part outline condition 11 – KP2 Framework.

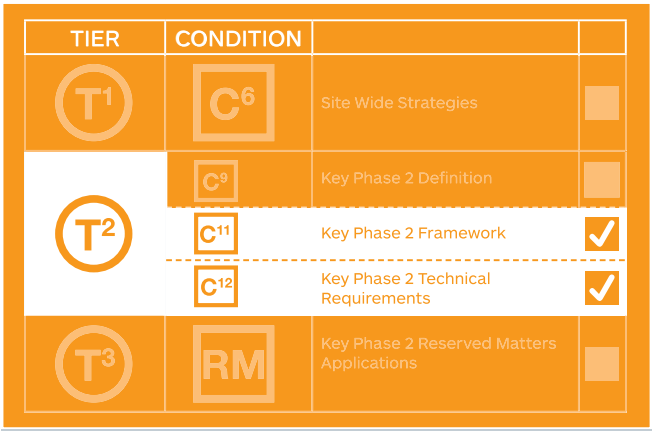

Fig 0.2: Diagram illustrating where the Design Guide sits within the tiers of the Key Phase approach.

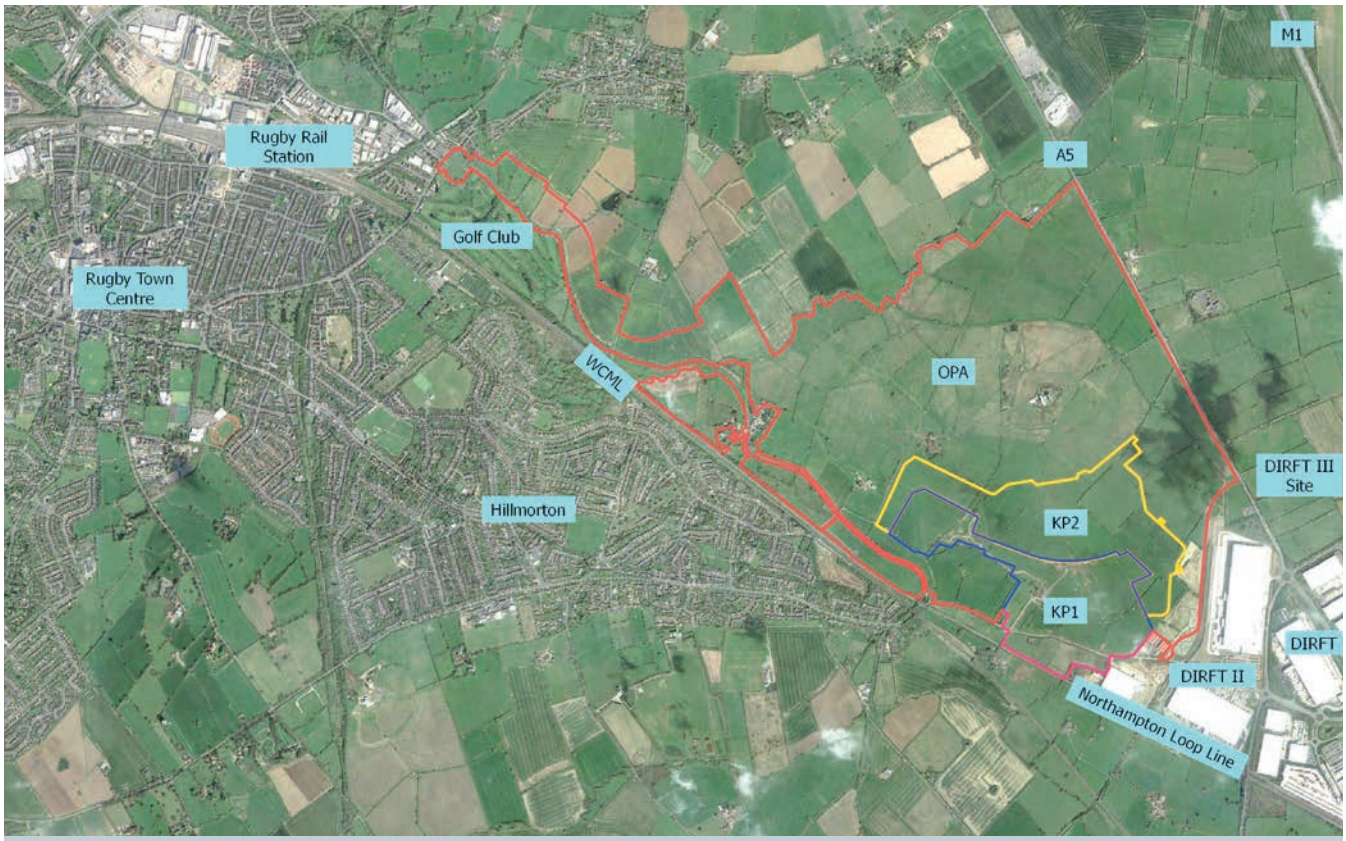

Fig 0.3: Aerial Photograph with Rugby Radio Station Outline Planning Application site (red line), Key Phase 2 (yellow line)

Overview of the Design Guide Contents

The Design Guide has been structured as follows:

Part A: Background, introduces the Design Guide and provides an overview of the context for the KP2 Design Guide in geographic, planning and design terms.

Part B: Spatial, presents design guidance information that establishes the development framework for KP2 including:

- Landscape Design;
- Movement & Access; and
- Built Form.

Appendices: Associated important KP2 information is set out in a set of appendices including indicative sequencing and compliance checklist. Appendices also include a sustainability statement that sets out sustainability targets for KP2 in terms of energy, waste and water.

	Part A: Background	
	Explains and appraises the context of the Key Phase 2 development area and the proposed development.	
	Chapter 1	Introduction
	Chapter 2	Context
	Part B: Spatial	
	Establishes a comprehensive framework for development for the Key Phase 2 area under chapter headings as follows:	
	Chapter 3	Landscape Design
	Chapter 4	Movement & Access
	Chapter 5	Built Form
	APPENDICES	
	Appendix A1 KP2 Compliance Checklist	
	Appendix A2 KP2 Sustainability Statement	
	Appendix A3 KP2 Indicative Sequencing	
	Appendix A4 List of Figures	

Fig 0.4: Overview of Key Phase 2 Design Guide Structure:

PART A:

Background

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Chapter 1

Introduction

1.1 Objectives and Design Responses for Key Phase 2

The following table lists the overarching objectives that the design of Key Phase 2 (KP2) should achieve when implemented. Objectives are set out in the left hand column and the way in which they are to be achieved is set out in the right hand column.

KP2 Objective	Design Response
A successful transition between Key Phase 1 and the future District Centre	• KP2 is an important transition zone between Key Phase 1 (KP1) to the south and the District Centre to the north. • KP1 is a predominantly residential area currently under construction whilst the District Centre will be defined by the highest density of residential development and the greatest concentration of mixed uses arranged around the historic C-Station building. • Residential density in KP2 will increase from the levels in KP1.
High quality development	• Proposals will follow the guidance set in the Design Guide and Regulatory Plan to help ensure a high quality development of landscape, movement and built form within KP2.
Development in residential parcels to include high quality landscape design	• The design of residential development parcels will demonstrate commitment to continue high quality design of landscape and public realm, led by the master developer's provision of a high quality Green and Grey Infrastructure Framework for KP2.
Distinctive identity	• The Design Guide sets material palettes for public realm landscape design and built form to help ensure a consistency in approach and specification. • Guidance for character areas within KP2 is provided in the Built Form chapter to guide appropriate design responses related to location and neighbouring land uses.
Walkable and cycling neighbourhoods and permeable network of streets	• The proposals for KP2 will be designed to encourage walking and cycling between areas within and beyond KP2 with provision of walking routes both on street in the movement network and leisure routes through green infrastructure.
Active frontages	• Homes will be designed to predominantly address public realm (streets and spaces) to ensure streets and spaces will be overlooked providing natural surveillance.
Opportunity for contemporary design	• A contemporary design approach to the appearance of built form proposals, that interpret the Design Guide principles in a contemporary style will be looked upon favourably by Rugby Borough Council.
An extensive and diverse green infrastructure setting	• The proposals will facilitate a network of green infrastructure including wildlife corridors to encourage biodiversity and quality landscape creation, along with a range of play areas, high quality civic space and utilisation of Ridge and Furrow on Normandy Hill.
Vibrant and desirable mixed communities	• A range of residential homes will be provided to offer housing opportunities for a wide range of people and households.
Key Grouping(s) of Distinctive Urban Form	• The proposals will provide the setting for innovative architecture to highlight the significance of Key Groupings within KP2.

Fig 1.1: Table of KP2 Objectives and Design Responses

Fig 1.2: Precedent Photographs: illustrating examples of potential design responses for Key Phase 2 including:

1. Formal parks and squares surrounded by residential active frontages.
2. Network of green spaces with leisure routes for active travel.
3. Play areas integrated with landscape design, overlooked by homes.
4. Ecological richness of wildlife corridors, fronted by development.
5. Opportunity for medium-higher density development, in transition towards the District Centre.
6. Opportunity for architectural variety with a range of housing typologies.
7. Opportunity for contemporary architectural design.
8. Importance of frontages to open spaces and landscape

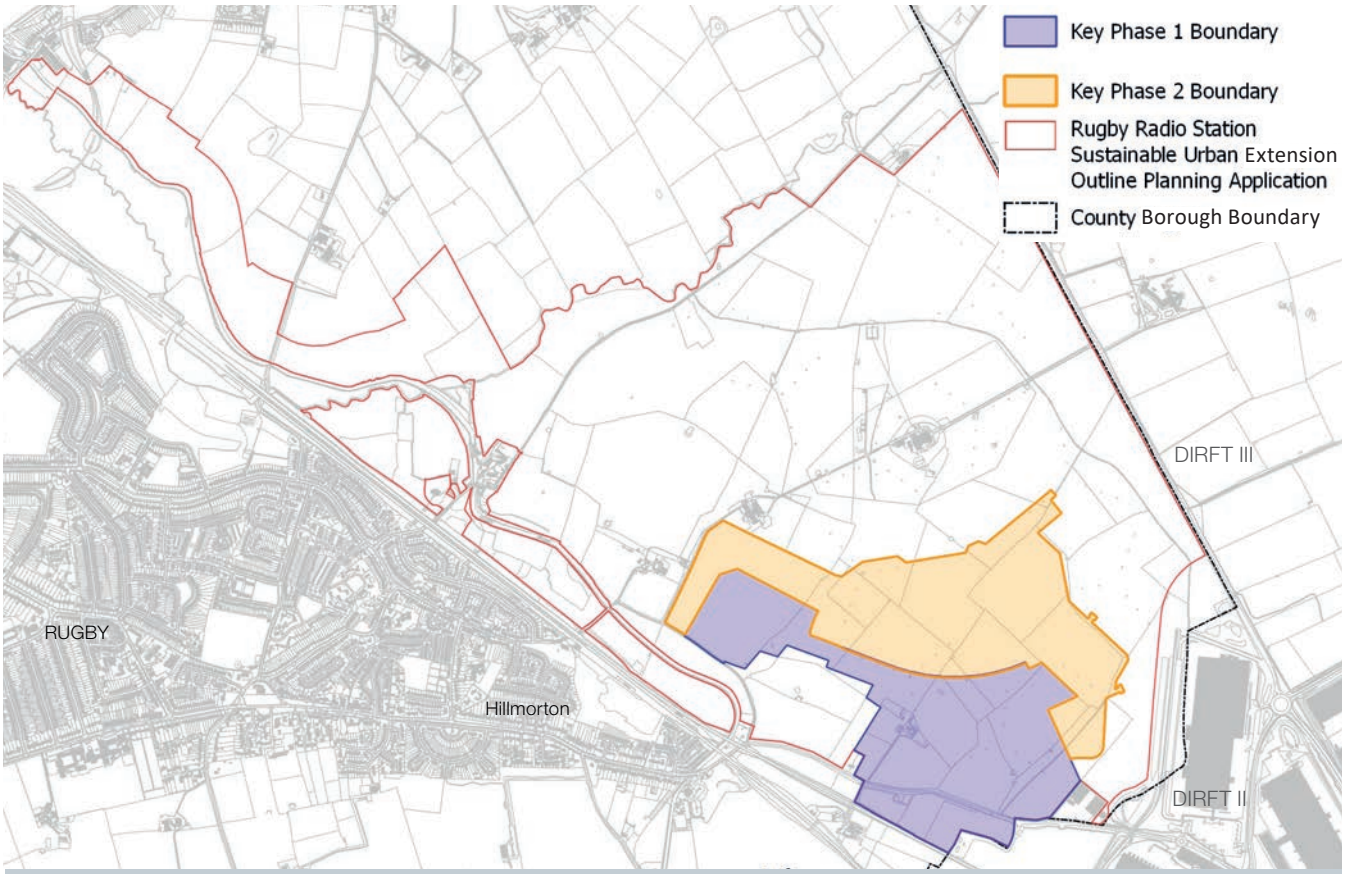


Fig 1.3: Rugby Radio Station Outline Planning Application Area and Key Phase 2 Boundary

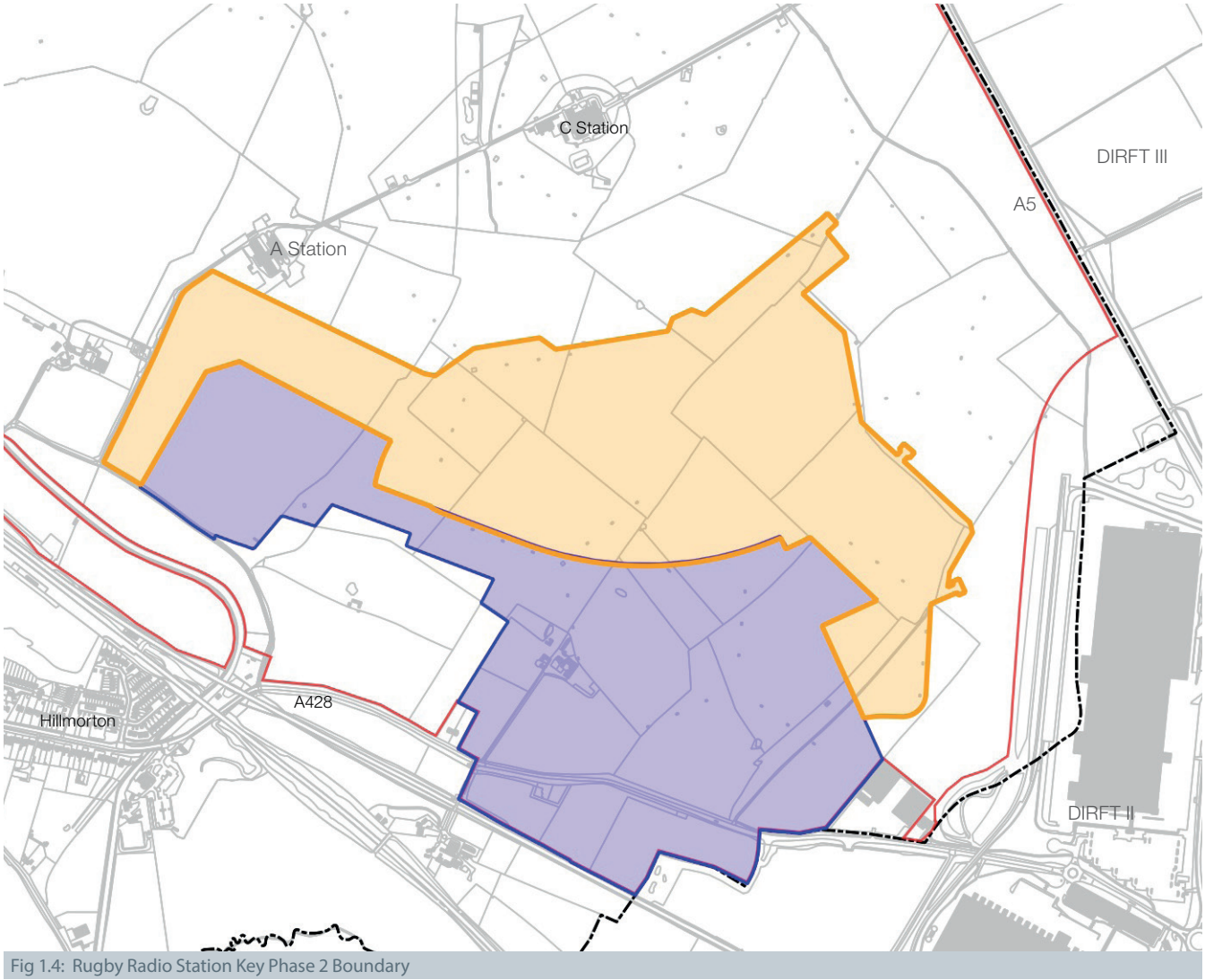


Fig 1.4: Rugby Radio Station Key Phase 2 Boundary

1.2 Purpose of the Design Guide

This Radio Station Rugby KP2 Design Guide has been submitted as part of a package of documents known as the KP2 Framework Documents.

These documents are required by Rugby Borough Council to discharge Condition 11 of the Outline Planning Permission (OPP) (ref: R11/0699) in respect of KP2.

The purpose of this Design Guide is to provide design guidance for the development of KP2 of Radio Station Rugby against which subsequent Reserved Matters Applications within that phase will be considered.

It has been prepared to ensure that the highest standard of design is delivered when preparing and considering Reserved Matters applications that are submitted pursuant to the KP2 of the OPP for the site.

In so doing, the Design Guide carries forward the design ethos as set out in the Outline Planning Design and Access Statement, translating this into the second Key Phase of the development.

Terminology:

- Hereafter the RSR KP2 Design Guide will be referred to as the Design Guide;
- Rugby Borough Council will be referred to as RBC;
- The Outline Planning Application will be referred to as OPA; and
- Radio Station Rugby will be referred to as RSR.
- Sustainable Urban Extension will be referred to as SUE.
- Key Phase 2 will be referred to as KP2.

1.3 Status of the Design Guide

The Design Guide has been prepared to part discharge condition 11 on the OPA Consent for RSR as relating to KP2. As such, the Design Guide is consistent with, and provides an enhanced level of detail to the approved Tier 1 documents for the wider site, namely the Parameter Plans, Development Specification, the Design & Access Statement and Environmental Impact Assessment and should therefore be read in conjunction with these documents.

The Design Guide is specific to KP2. However it draws upon national and local best practice urban design guidance including By Design: Urban Design in the Planning System (2000); The Urban Design Compendium 1 & 2 (2000, 2007); Manual For Streets 1 & 2 (2007, 2010); Building for Life 12 (BfL12) (2012). The Design Guide also considers and responds to local design guidance including the Sustainable Design & Construction SPD (RBC, LDF, 2012).

The Design Guide has been approved by Rugby Borough Council and is a material consideration in the determination of applications in KP2.

1.4 Design Principles

The Design Guide includes:

a. **Design Principles** - elements within the Design Guide that should be adhered to.

b. Supporting illustrative content that shows how development may be configured to comply with the Guiding Design Principles.

Figure 1.5, provides an example of the relationship between design principles and supporting illustrative content to illustrate how they are identified.

How Design Principles are presented in the Design Guide:

- Guiding Design Principles are identified in summary lists at the start of chapters.
- Further supporting Design Principles are provided within the chapter, and are supplemented with indicative material to articulate the principles.
- Design Principles from all chapters are listed together in the Compliance Checklist provided in Appendix 1. Refer to 1.7 for further detail on the purpose of the checklist.

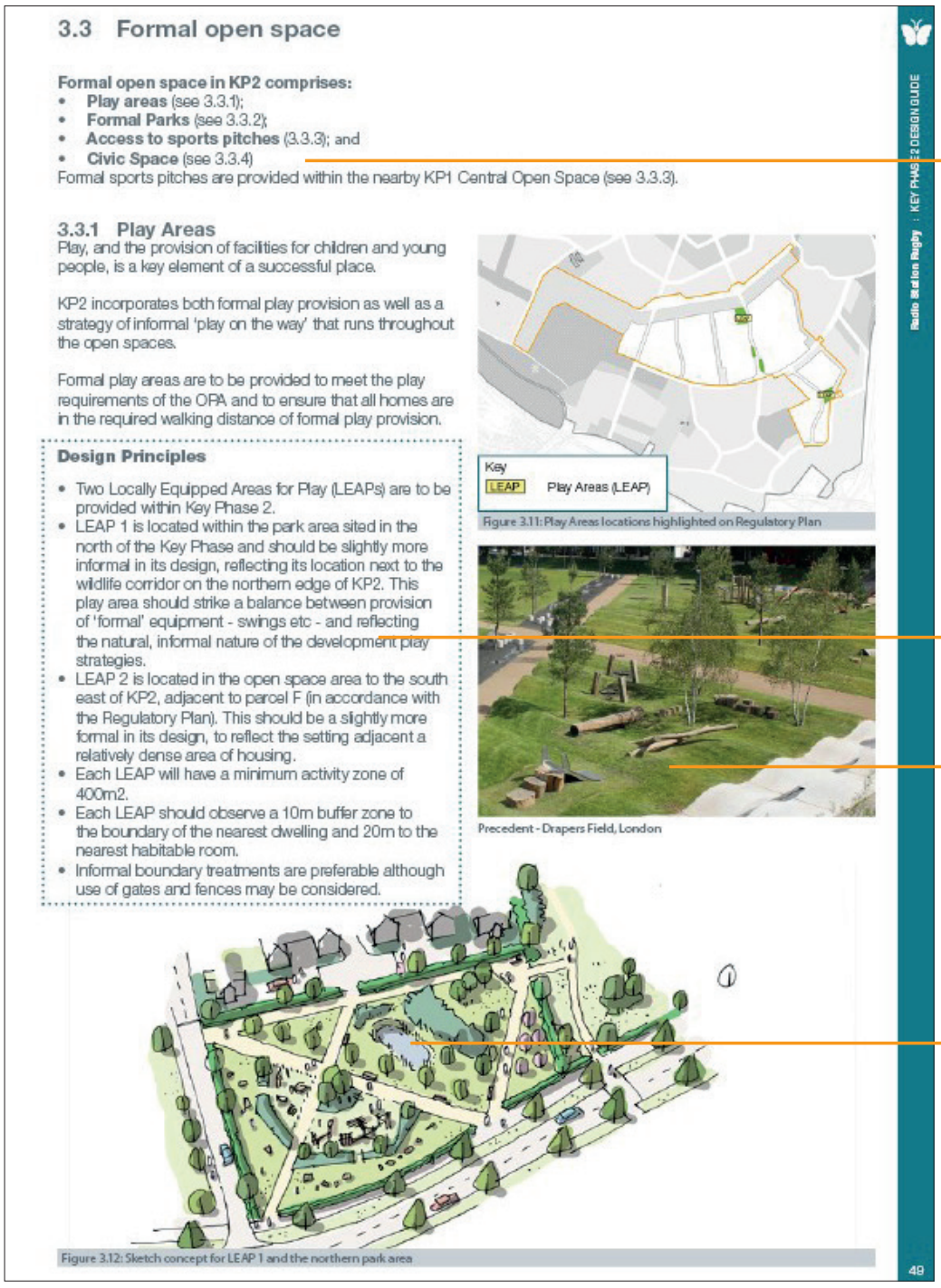


Fig 1.5: Example page layout showing how design fixes and design guidance are presented in the Design Guide

1.5 Using the Design Guide

The Regulatory Plan forms the overriding design control tool and informs the structure of the Design Guide.

The Design Guide document must be read alongside the accompanying Regulatory Plan. A full size version of the Regulatory Plan (1:2,000 scale at A0) is provided in the inside sleeve of paper copies of this Design Guide.

The following pages explain how the reader should use the Design Guide and Regulatory Plan.

Figure 1.6, below, gives an overview of the relationship between the Regulatory Plan and Design Guide document: the Regulatory Plan is the most important Design Guide plan and its content is explained in more detail in chapters within the document that relate to the plan's key. Chapters within Part B of the document expand upon the spatial framework for development, covered under the five topic areas listed.

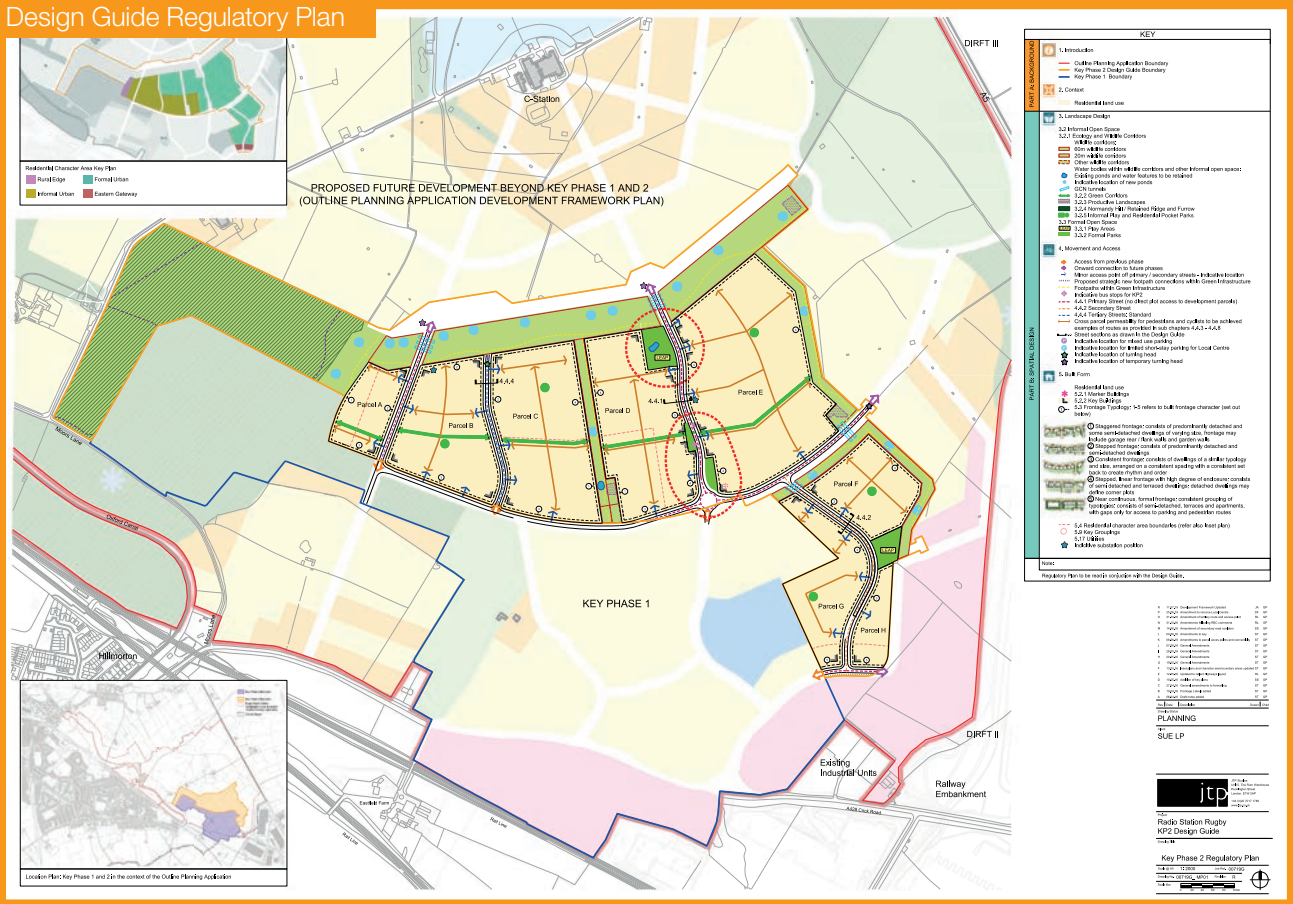
Figure 1.7, shown over the page presents a flow chart diagram of 'How to Use the Design Guide', showing how the chapters build up, explaining layers of Regulatory Plan and associated material.

PART A: Background

Chapter 1 Introduction

Chapter 2 Context

Design Guide Regulatory Plan



PART B: Spatial

Chapter 3 Landscape Design

Chapter 4 Movement and Access

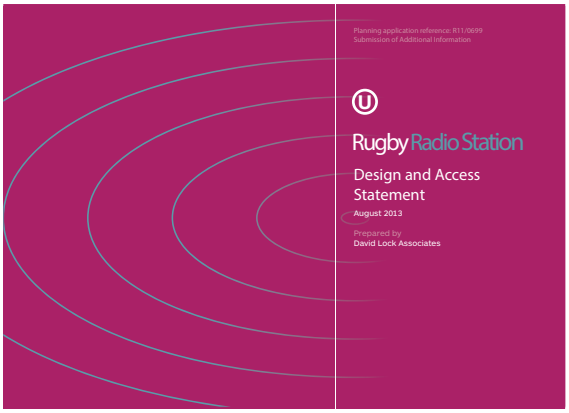
Chapter 5 Built Form

Fig 1.6: Design Guide Structure

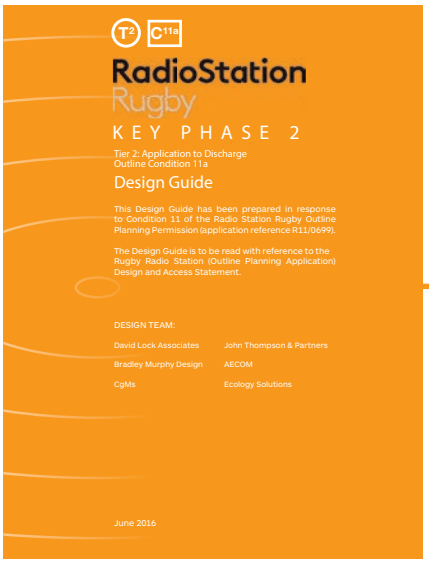
The Design & Access Statement (DAS) for the Outline Planning Application set the overall design context for the wider scheme. **The Design Guide for KP2 should be read alongside the DAS.**

The main principles contained within the DAS, together with the OPA Parameter Plans, provide the framework for the **Design Guide** and Regulatory Plan.

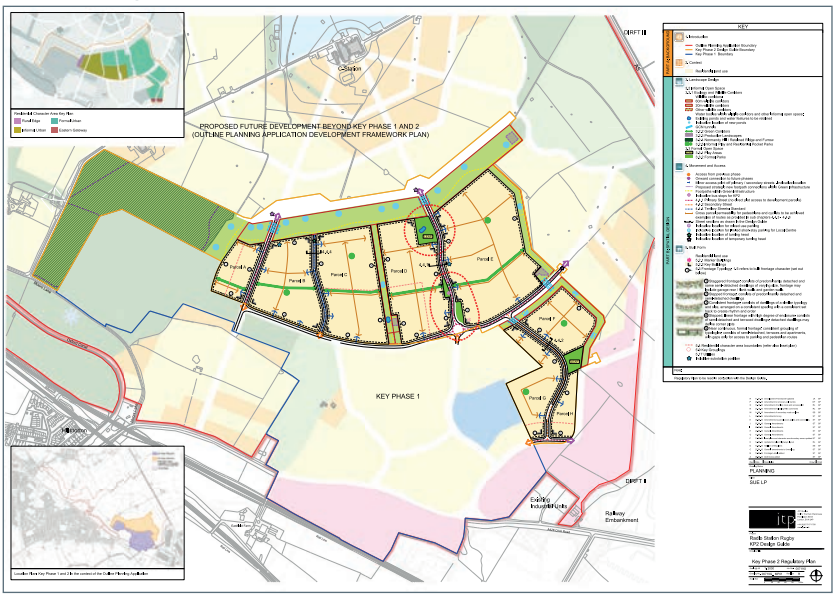
RSR OPA DAS:



RSR KP2 Design Guide:



RSR KP2 Regulatory Plan:



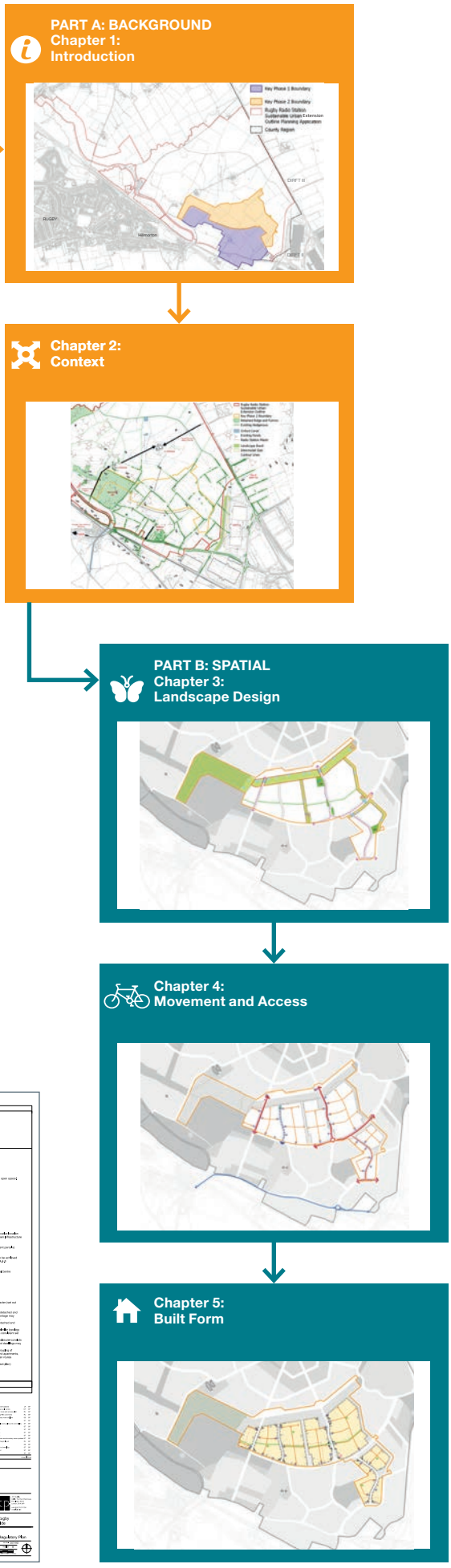


Fig 1.7: How to use the Design Guide

1.6 The Regulatory Plan

The Regulatory Plan provides the main design control tool. It sets the framework for development within KP2.

The Regulatory Plan is informed by the Development Framework Plan from the Outline Planning Application, demonstrating broad compliance with its parameters.

The Regulatory Plan defines key design structuring elements which are expanded upon in chapters of the Design Guide.

The key to the Regulatory Plan precisely cross references Part B chapters of the Design Guide, comprising:

1 Introduction;
2 Context;
3 Landscape Design;
4 Movement & Access; and
5 Built Form.

The Regulatory Plan also illustrates points of more technical detail that are expanded upon further within the Landscape Design chapter of the Guide. These items include ecology issues such as ponds, locations for play areas, utilities including locations for the water pumping station, and indicative parking areas for community facilities including the school and central sports pitches.

Parcel references:
The Regulatory Plan includes parcel references for development parcels. These letters are not cross referenced in the Design Guide, but are provided for ease of reference for future Reserved Matters applications. These parcel references do not represent a phasing sequence.

Further Regulatory Plan reference:
- An extract of the Regulatory Plan is presented in Figure 1.8, below.
- For a full scale print version of the Regulatory Plan please refer to the A0 copy located in the inside sleeve of the Design Guide.

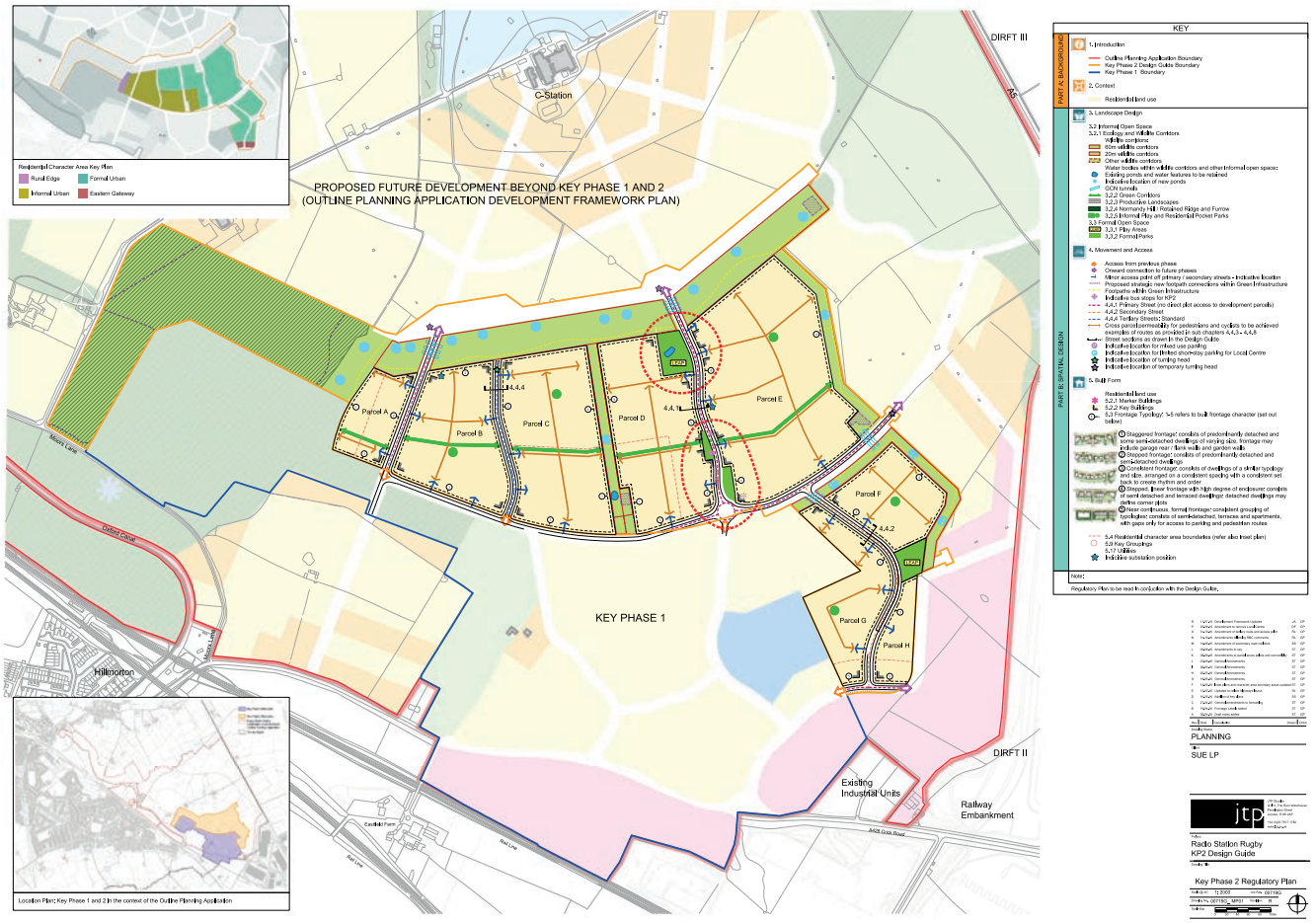
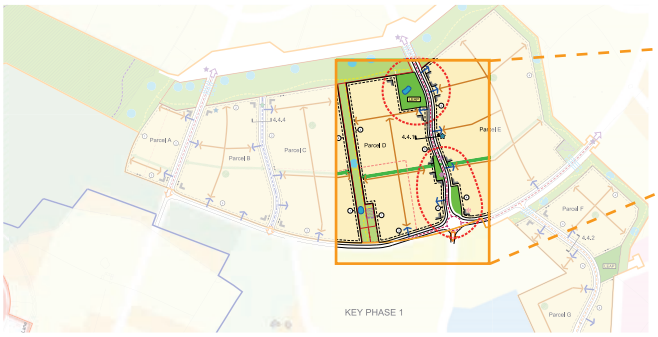


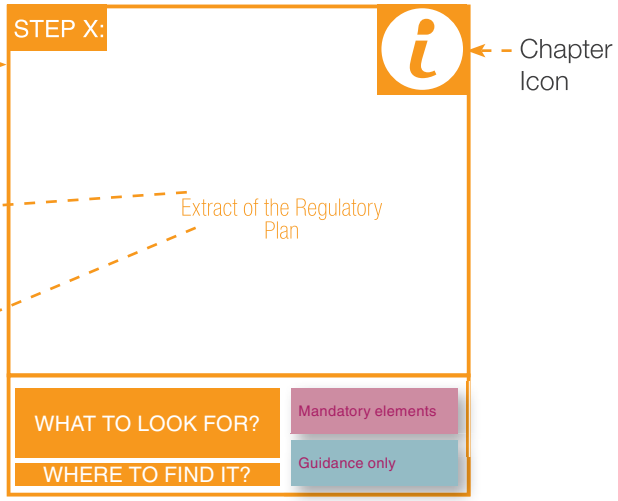
Fig 1.8: Extract of Key Phase 2 Design Guide Regulatory Plan (Please refer to full size A0 plan in inside sleeve of report)

Fig 1.9: How to use the Regulatory Plan

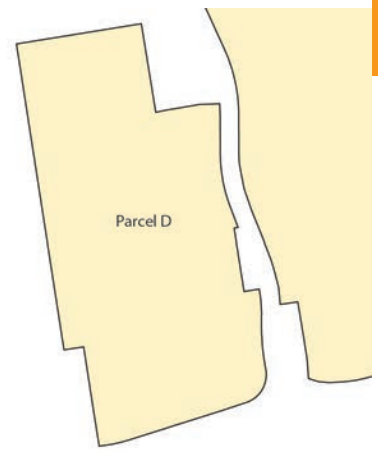
The Regulatory Plan sets out the overall development concept and establishes the key parameters and mandatory elements of the design of KP2 for specific parcels within that phase. The structure of the Guide follows the structure of the Regulatory Plan key, therefore the Regulatory Plan must be read in conjunction with the Design Guide.

This Figure provides a series of steps which explain the process through which individual development parcels are to be designed using the Regulatory Plan and the Design Guide. Each step is set out as follows:





STEP 1: LAND USES



1. Land use type
2. Parcel reference

Refer to the Regulatory Plan

Land use and parcel size / location

STEP 2: LANDSCAPE DESIGN

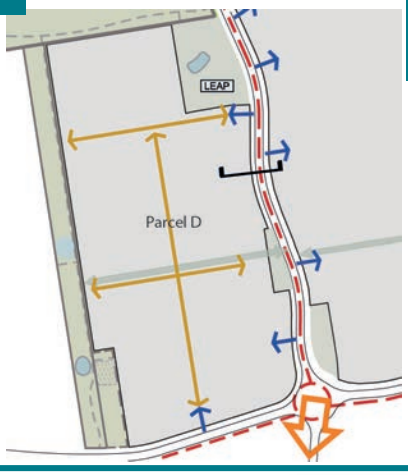
1. Types of Landscape Design

Chapter 3

Size, scale, facilities and character

Detailed design

STEP 3: ACCESS AND MOVEMENT



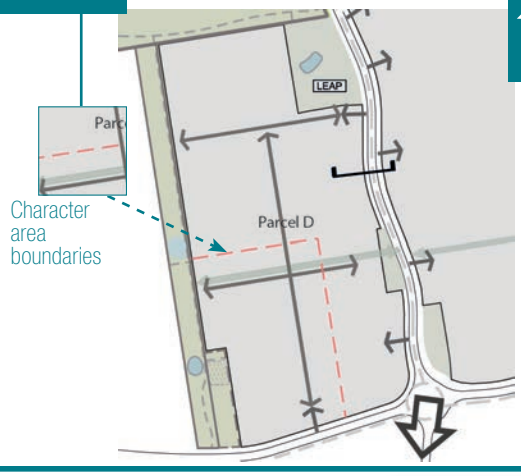
1. Access points
2. Street types and sections
3. Footpath / cycleways and bus stops

Chapter 4

Street types, access, footpaths/cycleways

Indicative tertiary streets, bus stop location

STEP 4: CHARACTER AREAS



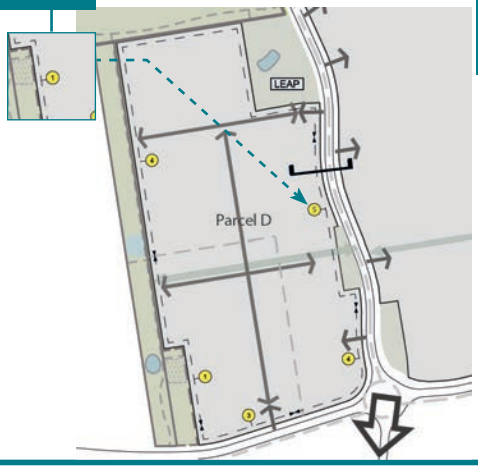
1. Character area boundaries, descriptions of character areas set out in detail in the Design Guide

Chapter 5

Location / description of character area

Detailed design

STEP 5: FRONTAGE CHARACTER



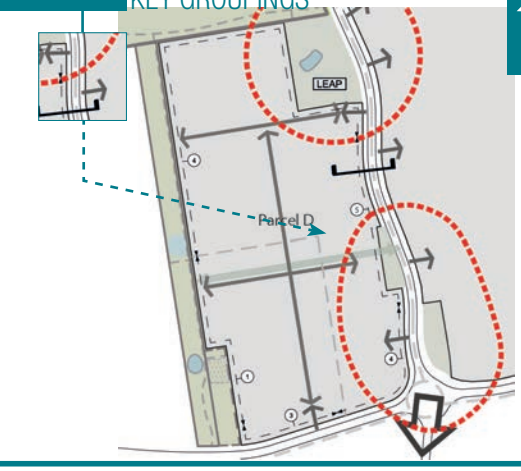
1. Location of mixed use and commercial groupings
2. Residential groupings for residential character

Chapter 5

Design principles

Detailed design

STEP 6: MIXED USE AND KEY GROUPINGS



1. Character area boundaries, these relate to residential material palettes

Chapter 5

Material palettes for each character area

Detailed design

1.7 Design Guide Compliance Checklist

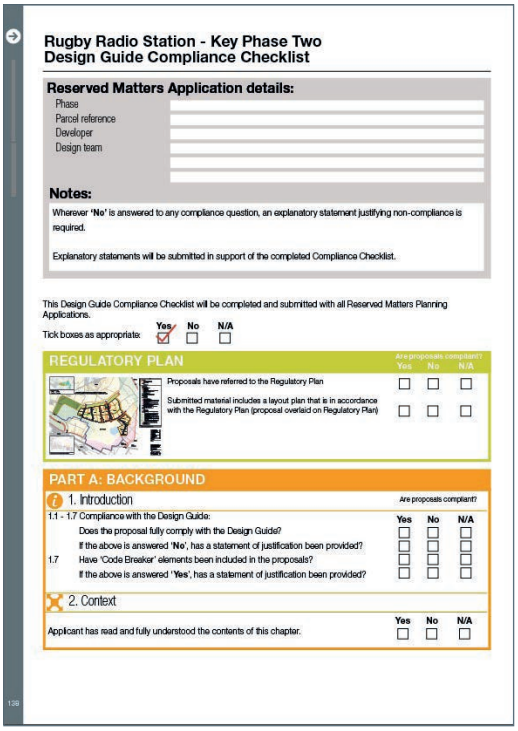
Reserved Matters planning applications must be accompanied by a completed Compliance Checklist showing how proposals accord with the Design Guide.

Any substantive differences from the principles within the Design Guide should be identified and justified.

The Compliance Checklist lists the mandatory elements from the Design Guide.

1.8 Design Guide review

Refer to Appendix 1 for a full version of the compliance checklist, an illustrative extract is presented in Fig 1.10. In the future a review of the Design Guide may be required to reflect changing and unforeseen circumstances, including updates to national and local policies and the results of site and ground investigations. Any review would be undertaken by mutual agreement between the master developer and RBC.


Rugby Radio Station - Key Phase Two
Design Guide Compliance Checklist

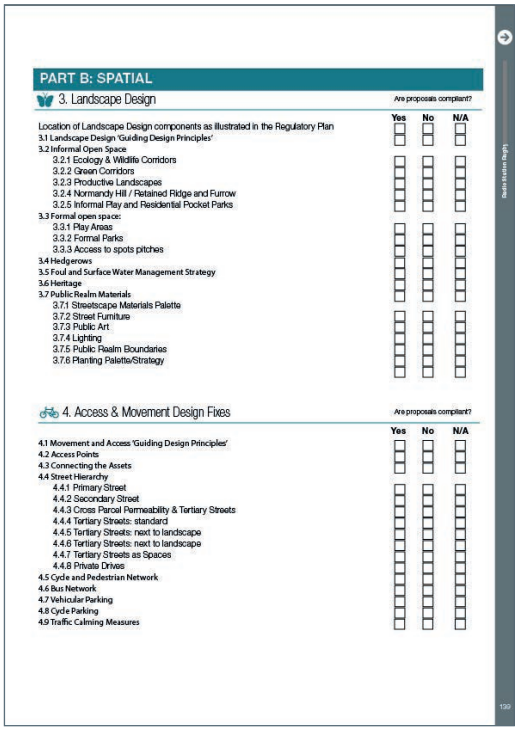
Reserved Matters Application details:
Phase
Parcel reference
Developer
Design team

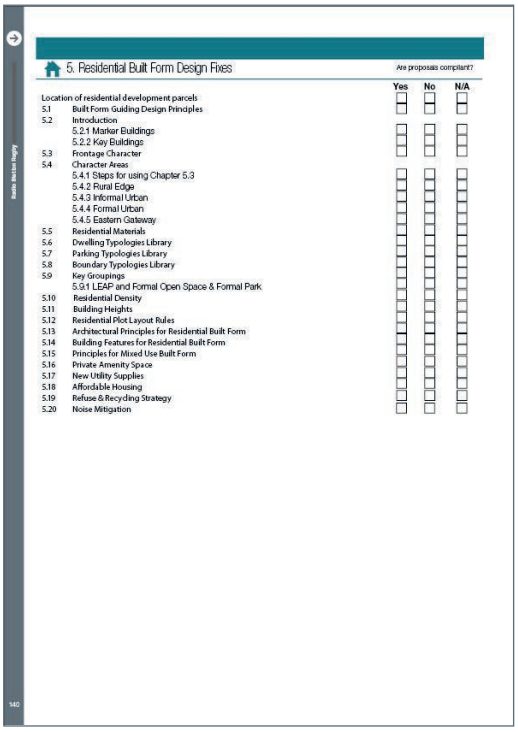
Notes:
Wherever 'No' is answered to any compliance question, an explanatory statement justifying non-compliance is required.
Explanatory statements will be submitted in support of the completed Compliance Checklist.

This Design Guide Compliance Checklist will be completed and submitted with all Reserved Matters Planning Applications.
Tick boxes as appropriate. Yes / No / N/A

REGULATORY PLAN
Are proposals compliant? Yes No N/A
Proposals have referred to the Regulatory Plan
Submitted material includes a layout plan that is in accordance with the Regulatory Plan (proposal overlaid on Regulatory Plan)

PART A: BACKGROUND
1. Introduction
Are proposals compliant? Yes No N/A
1.1 - 1.7 Compliance with the Design Guide:
Does the proposal fully comply with the Design Guide?
If the above is answered 'No', has a statement of justification been provided?
1.7 Have 'Code Breaker' elements been included in the proposals?
If the above is answered 'Yes', has a statement of justification been provided?
2. Context
Yes No N/A
Applicant has read and fully understood the contents of this chapter.


PART B: SPATIAL
3. Landscape Design
Are proposals compliant? Yes No N/A
Location of Landscape Design components as illustrated in the Regulatory Plan
3.1 Landscape Design 'Guiding Design Principles'
3.2 Informal Open Space
3.2.1 Ecology & Wildlife Corridors
3.2.2 Green Corridors
3.2.3 Productive Landscapes
3.2.4 Normandy Hill / Retained Ridge and Furrow
3.2.5 Informal Play and Residential Pocket Parks
3.3 Formal open space:
3.3.1 Play Areas
3.3.2 Formal Parks
3.3.3 Access to spots pitches
3.4 Hedgerows
3.5 Foul and Surface Water Management Strategy
3.6 Heritage
3.7 Public Realm Materials
3.7.1 Streetscape Materials Palette
3.7.2 Street Furniture
3.7.3 Public Art
3.7.4 Lighting
3.7.5 Public Realm Boundaries
3.7.6 Planting Palette/Strategy
4. Access & Movement Design Fixes
Are proposals compliant? Yes No N/A
4.1 Movement and Access 'Guiding Design Principles'
4.2 Access Points
4.3 Connecting the Assets
4.4 Street Hierarchy
4.4.1 Primary Street
4.4.2 Secondary Street
4.4.3 Cross Parcel Permeability & Tertiary Streets
4.4.4 Tertiary Streets: standard
4.4.5 Tertiary Streets: next to landscape
4.4.6 Tertiary Streets: next to landscape
4.4.7 Tertiary Streets as Spaces
4.4.8 Private Drives
4.5 Cycle and Pedestrian Network
4.6 Bus Network
4.7 Vehicular Parking
4.8 Cycle Parking
4.9 Traffic Calming Measures


5. Residential Built Form Design Fixes
Are proposals compliant? Yes No N/A
Location of residential development parcels
5.1 Built Form Guiding Design Principles
5.2 Introduction
5.2.1 Marker Buildings
5.2.2 Key Buildings
5.3 Frontage Character
5.4 Character Areas
5.4.1 Steps for using Chapter 5.3
5.4.2 Rural Edge
5.4.3 Informal Urban
5.4.4 Formal Urban
5.4.5 Eastern Gateway
5.5 Residential Materials
5.6 Dwelling Typologies Library
5.7 Parking Typologies Library
5.8 Boundary Typologies Library
5.9 Key Groupings
5.9.1 LEAP and Formal Open Space & Formal Park
5.10 Residential Density
5.11 Building Heights
5.12 Residential Plot Layout Rules
5.13 Architectural Principles for Residential Built Form
5.14 Building Features for Residential Built Form
5.15 Principles for Mixed Use Built Form
5.16 Private Amenity Space
5.17 New Utility Supplies
5.18 Affordable Housing
5.19 Refuse & Recycling Strategy
5.20 Noise Mitigation

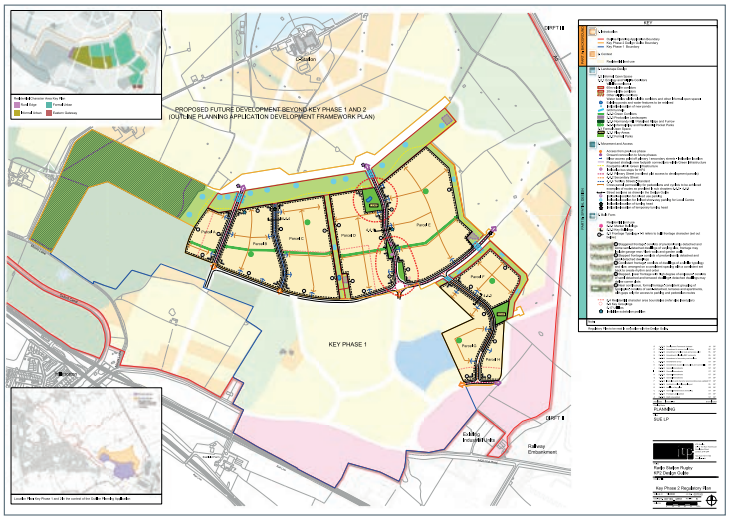
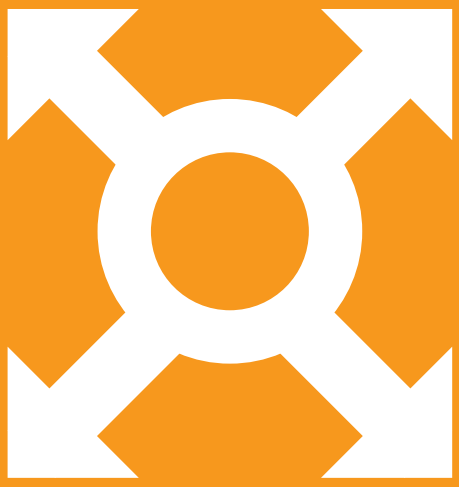


Fig 1.10: Design Guide Compliance Checklist, extract. See Appendix 1 for full version.

Chapter 2

Context



2.1 Introduction, Location & Scope of KP2

To create a sense of identity and place, it is vital to understand and appreciate the context for the Design Guide and the KP2 area that it covers. Critically, this needs to reflect not just the existing surroundings of the area but also how the KP2 Design Guide fits within the wider vision and aspirations that have been established for the RSR site as a whole. This chapter of the Design Guide therefore considers the existing wider, local and site specific KP2 context.

2.2 Wider Context

Rugby as shown on Fig 2.1, is uniquely positioned at the centre of England. The influence of the natural geographical characteristics of the area on Rugby's historic origins and subsequent development cannot be understated. Six lines of national communication, including the Roman Watling Street (A5), the Oxford Canal, the West Coast Main Line and the M1 run through or adjacent to Rugby, see figures 2.1 and 2.2. The confluence of these routes at a central location within England, with the addition of the M6 to the north of the town and M45 to the south, constitutes one of the most significant reasons for Rugby's steady growth and prosperity. From its early role as a staging post through to the success of Daventry International Rail Freight Terminal (DIRFT), the town's economic story continues to be intrinsically anchored to its central location.

This context is significant to the design of RSR and the composition of the development. In particular the relationship of the development with DIRFT, the adjacent railway lines and the A5, demand a master plan response which mediates between economic advantage and the creation of a high quality living environment.

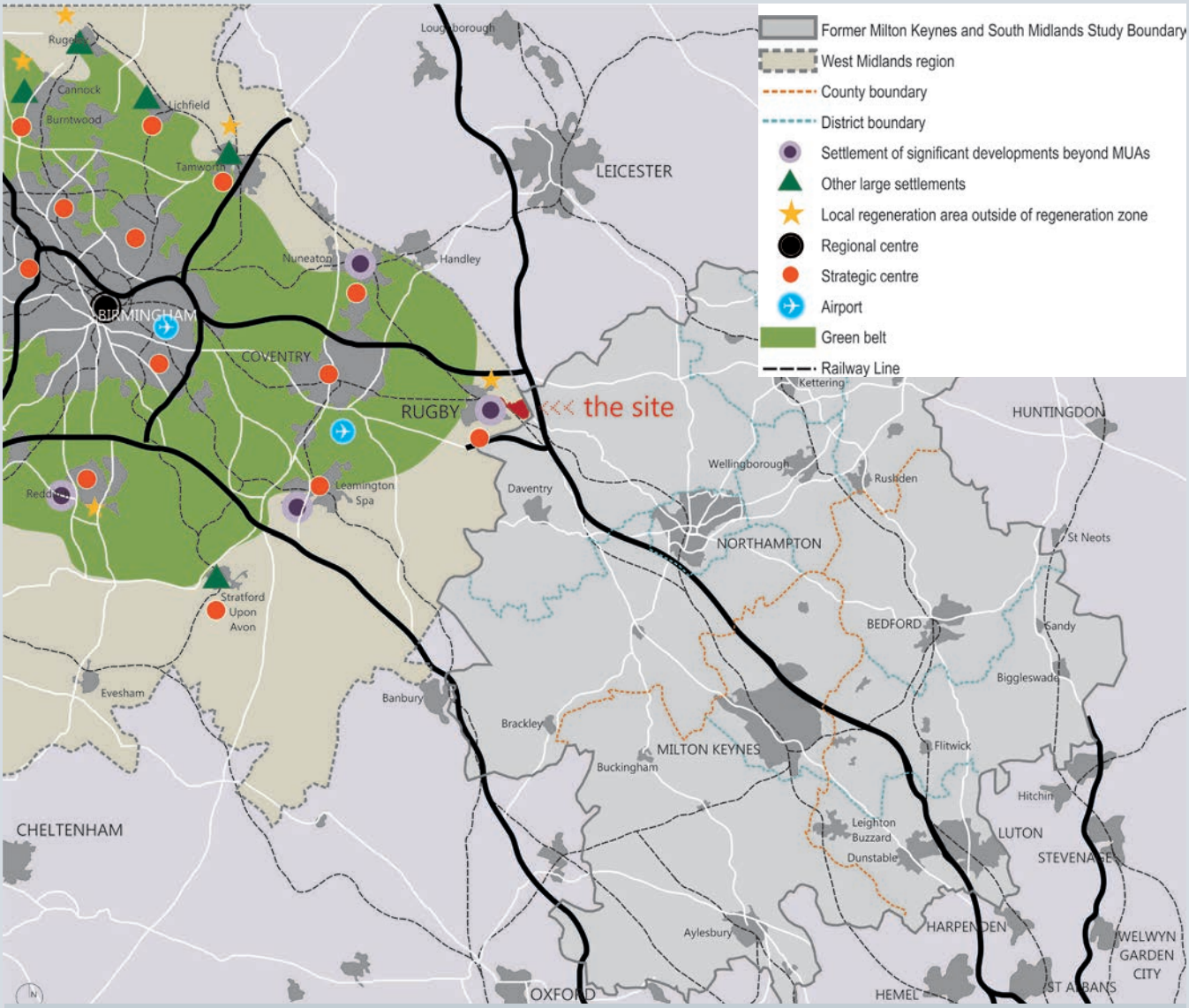


Fig 2.1: RRS Wider Location Plan

2.3 Local Context

Figure 2.2 illustrates the position of RSR set in the local context of the town of Rugby to the west, and the strategic road connections of the M1 and A5 to the east.

Town context of Rugby

Rugby is host to significant achievements in education, engineering and technology. Early industrialisation, enhanced by the construction of the Coventry and Oxford Canals, began with the extraction of natural materials and led to sizeable employment at the cement works. Advancements in railway construction and manufacturing brought further influxes of skilled workers and a wave of house building. Diversification followed; the success of Rugby School led to growth in the professional and service sectors. Substantial success in electrical engineering and telecommunications, including Rugby Radio Station, made Rugby a noteworthy town. In the latter part of the Twentieth Century, Rugby's advantageous connection to the country's strategic highway network led to the successful growth in light industrial, office and commercial businesses and more recently logistics and distribution.

Radio Station Rugby

As the most enigmatic and powerful symbol of Rugby's technological status, the Radio Station was developed in the first half of the 20th Century in response to the Government's desire to establish a chain of wireless radio stations for communication across the British Commonwealth. The 12 main masts became important landmarks for the town and the radio station, subsequently being clearly recognisable from the M1 and surrounding landscape.

Less visible from the outside, but of significance is the key building associated with transmission; C Station. The C Station lies within the site and is a listed building of substantial scale and height. Whilst all of the 12 masts have been removed, C Station remains and can be embedded in the new development, to continue the connection with the history of the site and its role in British history. A-Station is also of historic importance and will also be incorporated into the development.

Outline Planning Application Site

The RSR Outline Planning Application covers a site of 473.2 hectares (1,169 acres). KP2 has an area of approximately 54 hectares (133 acres), both are illustrated in Figure 2.2, below.

Fig 2.2: Aerial Photograph with OPA Illustrative Master Plan

2.4 Existing KP2 Context

KP2 is located within the southern and central part of the SUE as illustrated in the aerial photography in Figures 2.3 and 2.4. KP2 is located towards the south eastern part of the wider SUE. It acts as a direct extension of the development of KP1, being situated immediately to its northern and eastern boundary. To the south of KP2 and beyond KP1 is the main A428. To the north of KP2 is the listed C Station building, identified to be used as part of the District Centre to serve the SUE, land identified in the outline permission for the provision of a secondary school, and further phases of residential development.

Fig 2.3: View of RSR facing north (photo circa. June 2016)

The site is currently vacant and utilised as managed pasture with existing areas of Ridge and Furrow at Normandy Hill which is to be retained. Existing field boundaries within the site are predominantly delineated by hedgerows, some of which are identified as important and worthy of retention. The site also contains some small ponds which are known to provide habitat for great Crested Newts.

Fig 2.4: View of RSR facing west (photo circa. June 2016)

2.5 Existing KP2 Site Features Overview

Existing KP2 site features are listed below and illustrated on Figure 2.5, these include:

Topography:

- Local topography is illustrated in Figure 2.5, notable for the lowest ground to the north of KP2, with the land falling toward Clifton Brook to the north of the OPA site.
- Normandy Hill is a prominent local geographical feature, that rises up steeply northward from Oxford Canal. This area of Ridge and Furrow is a high point that affords wide views eastward across KP2 and north towards C-Station.
- To the east of Normandy Hill the rest of the KP2 site has more gently rolling topography, marked on the ground by the presence of further areas of Ridge and Furrow, hedgerows and occasional ponds.

Landscape:

- Existing landscape features within the KP2 site include features listed below and illustrated on Figure 3.5:
- The predominant ground cover is rough grass cover that has been used for grazing.
- Ridge and Furrow earthworks are a notable feature of the site. The figure opposite illustrates the area of Ridge and Furrow that is to be retained as a central landscape feature. The area of retained Ridge and Furrow is located on Normandy Hill.
- Hedgerows of varying degrees of quality exist within KP2. This includes identification of existing hedgerows, hedgerows to be retained and hedgerows to be removed. Also see section 3.5.
- A number of trees are present within the KP2 site, mainly adjacent to hedgerows. Where possible these trees will be retained.
- Ponds are a feature of KP2 and are illustrated on the figure opposite. Existing ponds to be retained are identified on the Regulatory Plan and these features have been key considerations in the creation of the green infrastructure framework for the development proposals.

Heritage:

- Area of ridge & furrow to be retained on Normandy Hill.
- Potential to retain some mast concrete anchors.
- See section 3.6 Heritage for further details on heritage including the approach for ridge and furrow earthworks and references to masts bases and anchors in the Site Wide Heritage Management Plan (HMP).

Access:

Access and movement considerations for KP2 and the local context include features listed below and illustrated on Figure 2.5:

- The points of access to the KP2 site will connect to the north of the approved KP1 primary and secondary streets. West of KP2 is a point of access to the wider Radio Station Site. This route leads north to the A Station building, and onward in a north east direction to the listed C Station building.

Built Form:

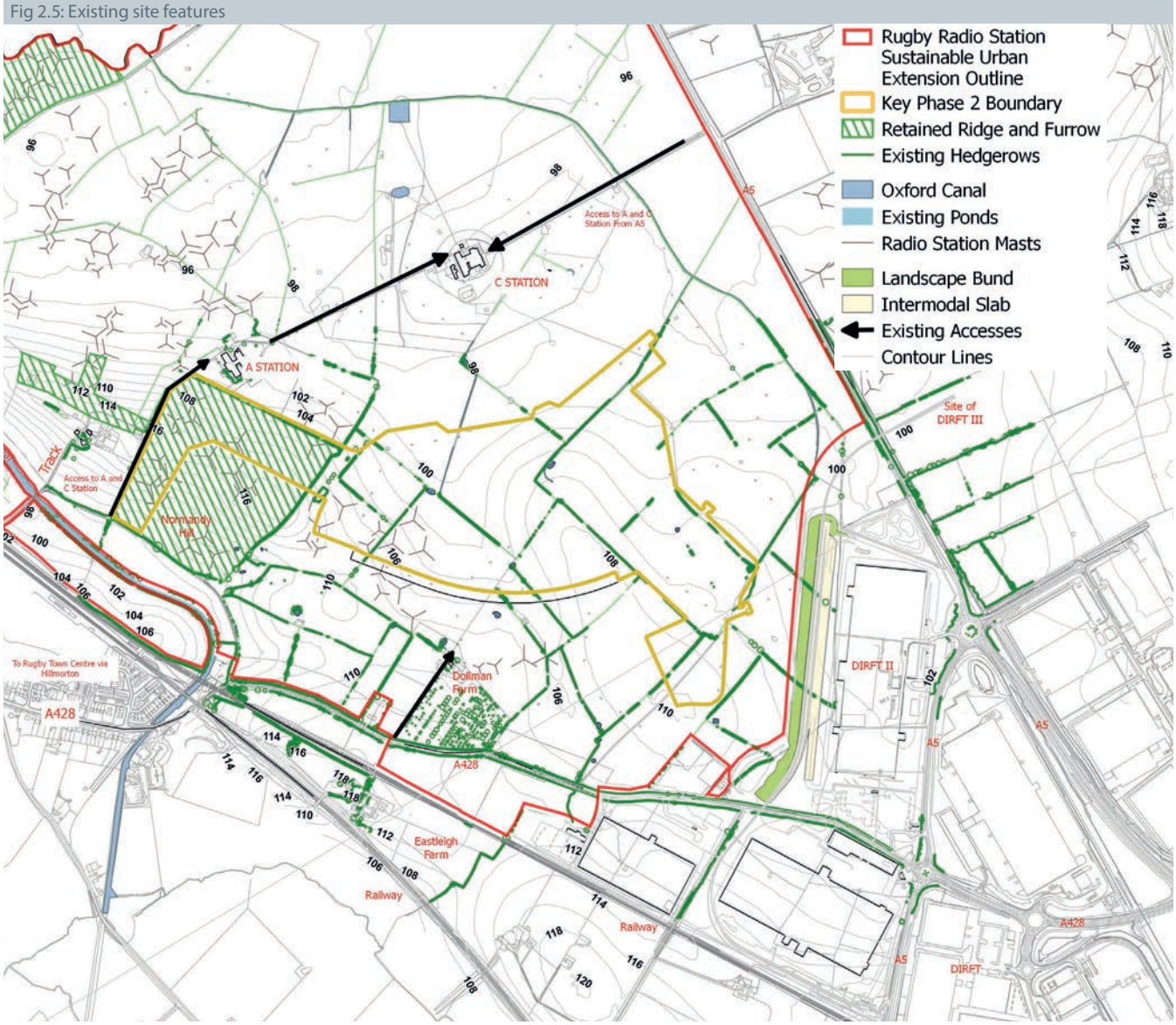
Existing built form considerations for KP2 include features listed below and illustrated on Figure 2.5 opposite:

- Mast concrete anchors currently remain within KP2. These structures were associated with the Radio Station, but are now redundant and in varying states of repair.
- Former Radio Station buildings include the listed C Station building, a prominent landmark visible from KP2, located to the north, and A Station, is located north of KP2.
- Daventry International Rail Freight Terminal (DIRFT) and DIRFT II to the east of KP2, including new rail bridge and rail embankment.

Views and vistas:

- Important views from and through KP2 include:
  - Views north to the Listed C Station Building;
  - Views north west along the corridor of the Oxford Canal;
  - Views in all directions from the high ground of Normandy Hill.

Fig 2.5: Existing site features



Existing trees, hedgerow and masts in RSR site

Railway over A428, south east of KP1

Fig 2.6: Photos of KP2 site features and context

Example of concrete anchor mast base on the RSR site

2.5.1 Planning Context: Outline Planning Application

OPP was issued for the RSR Sustainable Urban Extension (SUE) (see Fig 2.7) in May 2014 by RBC. The OPP approved the broad quantum and disposition of land uses for the site. Condition 5 of the outline permission identifies all of the formally approved plans and documents including the Parameter Plans, the Development Specification and the design principles contained within the Design and Access Statement. Together these provide the development framework for the site. Under Condition 5, the development must be substantially in accordance with this framework.

This Development Framework, which has been subject to Environmental Assessment, establishes the key design principles and mitigation measures with which KP2 must be consistent and seek to incorporate as part of its detailed design.

Development Framework Plan (DFP), Parameter Plan

The DFP sets a framework for future development land uses within the RSR site. An inset plan of the OPA DFP is presented in Figure 2.7. Within KP2 (see Fig 2.8) these land uses include:

Residential
Up to 1,145 dwellings can be accommodated within KP2, distributed within residential and mixed use areas.

2.5.2 Outline Planning Application Parameter Plans

Fig 2.7: OPA DFP Parameter Plan with OPA and KP2 Boundaries

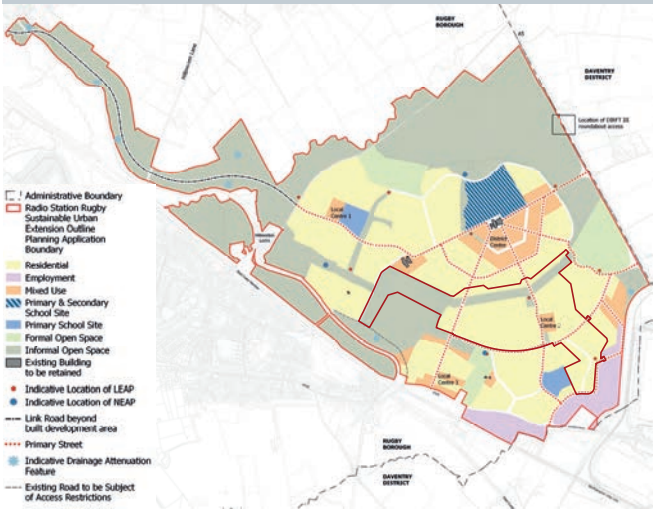


Fig 2.8: KP2 area context: OPA DFP Parameter Plan with OPA and KP2 Boundaries

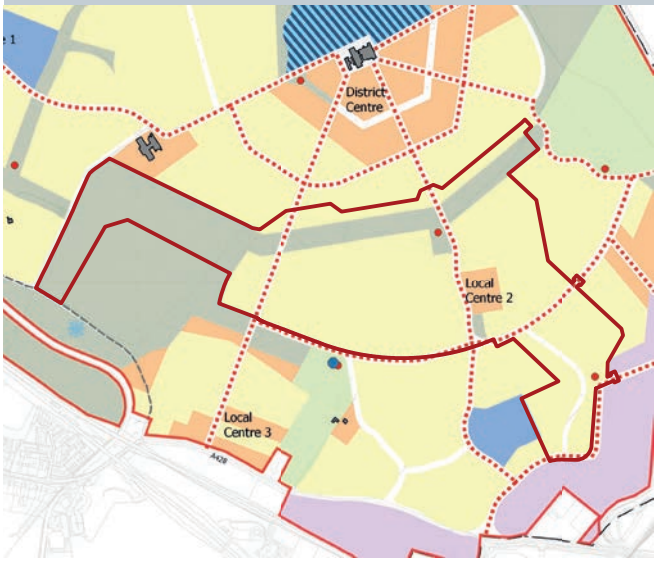


Fig 2.9: Access & Movement Parameter Plan with OPA & KP2 Boundaries

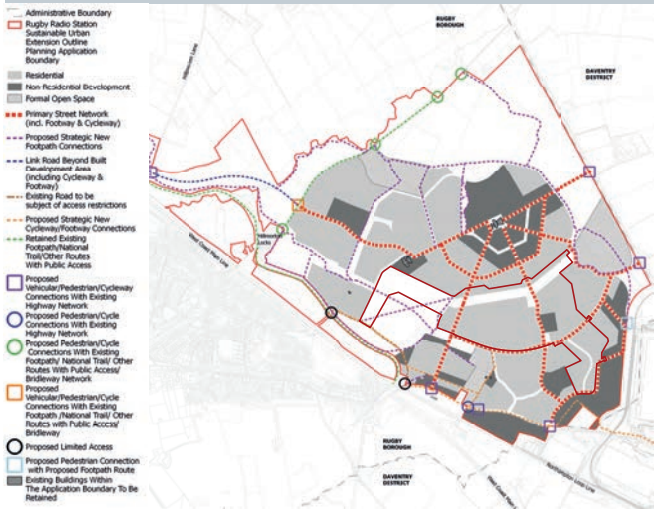
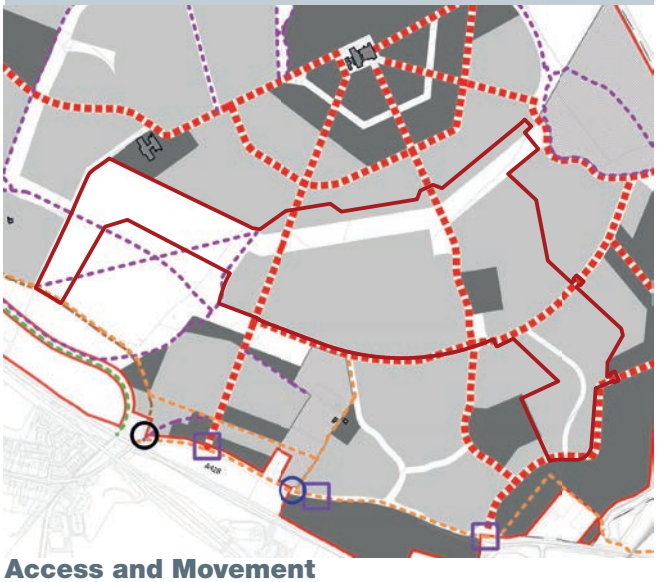


Fig 2.10: KP2 area context: Access and Movement Parameter Plan with OPA and KP2 Boundaries



Access and Movement Parameter Plan

The extent of KP2 is illustrated in the context of the Access and Movement Parameter Plan in Figures 2.9 and 2.10.

KP2 will continue the internal road structure established in KP1 and its reserved matters applications for 'grey infrastructure'. The movement structure is provided via a network of primary streets providing connections from the A428 which will continue in the future towards the district centre. Secondary and tertiary streets will flow from the primary street network serving the development parcels and providing for a hierarchical street network. The KP2 road structure will eventually connect, via a primary street, to the C Station and District Centre.

Fig 2.11: OPA Green infrastructure Parameter Plan with OPA and KP2 Boundaries

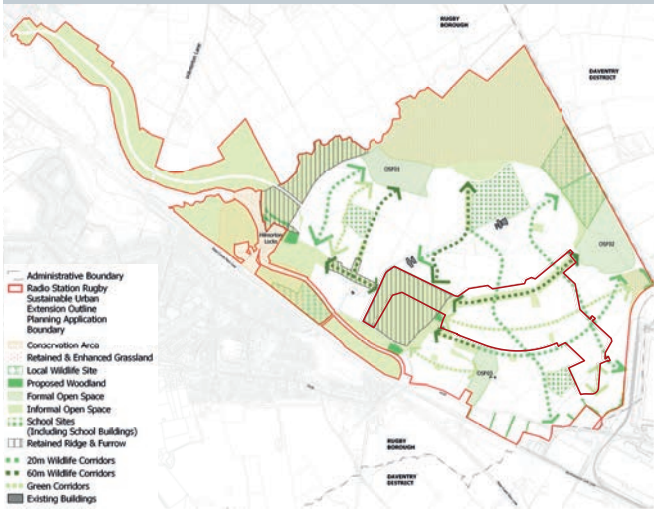
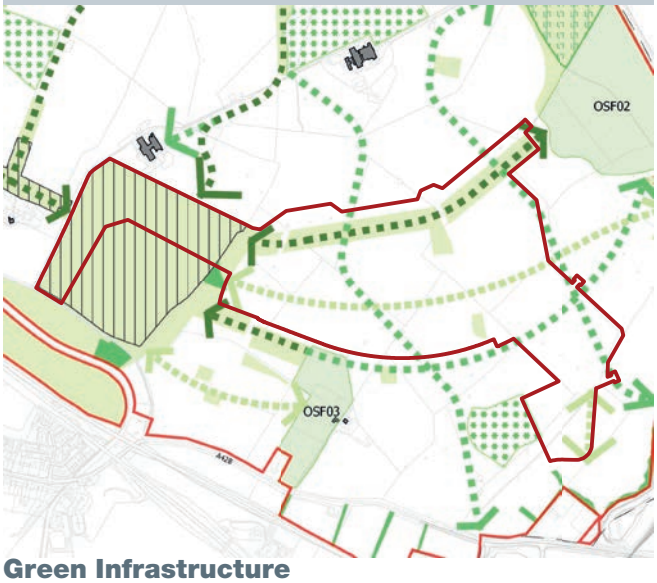


Fig 2.12: KP2 area context: Green infrastructure Plan Parameter Plan with OPA and KP2 Boundaries



Green Infrastructure Parameter Plan

The Green Infrastructure parameter plan (with OPA and KP1 boundaries for context) is illustrated in Fig 2.11 and 2.12.

KP2 accommodates a range of green infrastructure components identified on the Parameter Plan, including:

- Wildlife corridors: noted by the large dotted line arrows on the Parameter Plan these corridors sweep across the site creating an interconnected network of wildlife corridors. There are two scales of wildlife corridor: 60m and 20m wide.
- Smaller blocks of informal open space to be distributed throughout KP2.
- A significant area of retained ridge & furrow on Normandy Hill.

Fig 2.13: OPA Housing Density Parameter Plan with OPA and KP2 Boundaries

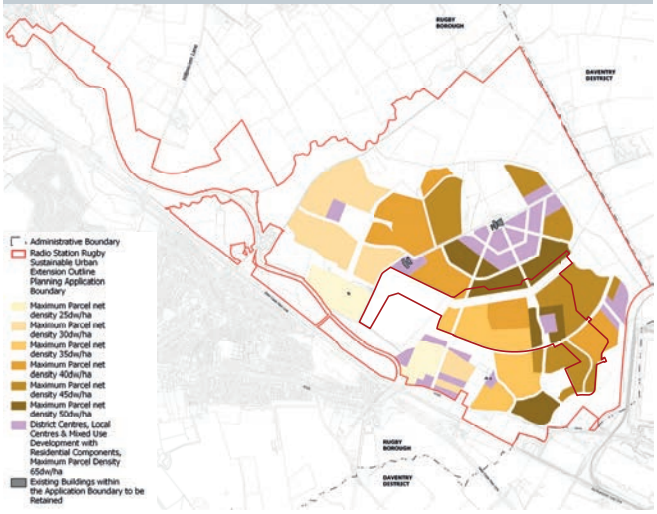


Fig 2.14: KP2 area context: Housing Density Parameter Plan with OPA and KP2 Boundaries

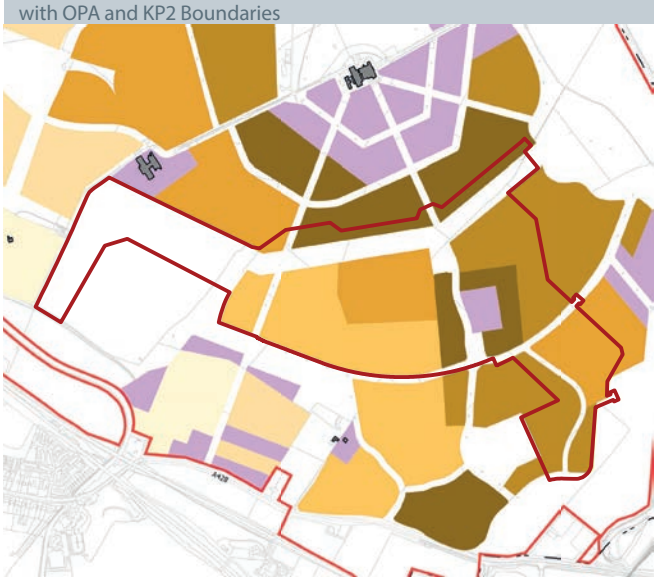


Fig 2.15: OPA Building Heights Parameter Plan with OPA and KP2 Boundaries

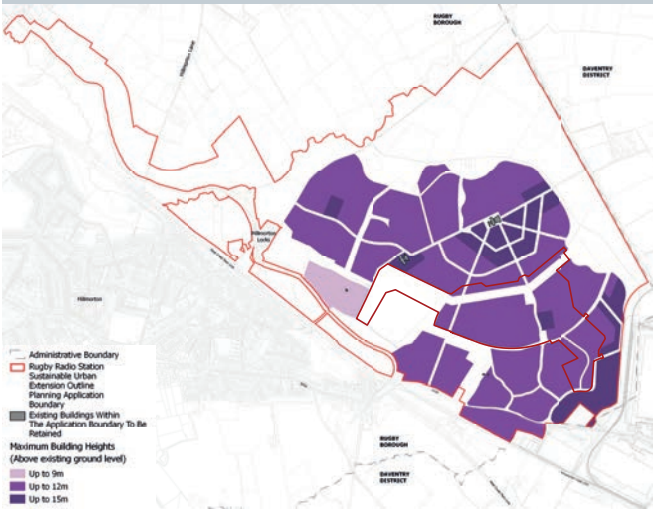
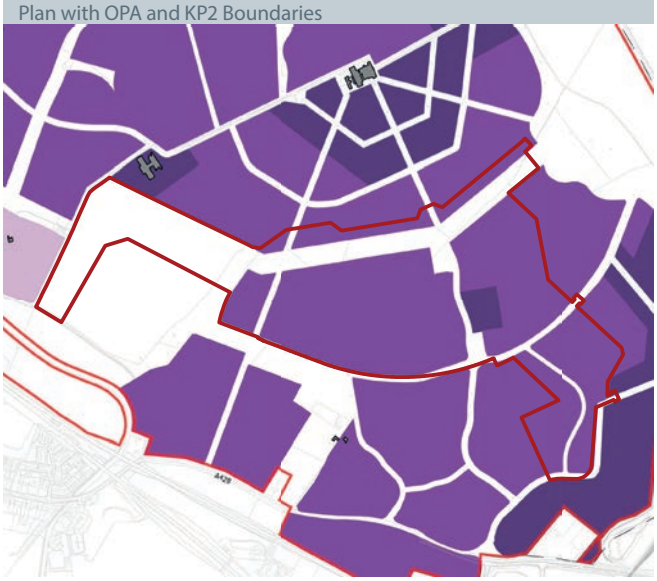


Fig 2.16: KP2 area context: OPA Building Heights Parameter Plan with OPA and KP2 Boundaries



Housing Density Parameter Plan

The outline planning application parameter plans include housing density, as illustrated in Figures 2.13 and 2.14. These considerations are illustrated on the above plans - extracts and key considerations include:

- Opportunity to integrate a range of residential densities across the site.

Building Heights Parameter Plan

Extracts of the building heights parameter plan are presented in Figures 2.15 and 2.16, considerations include:

- Buildings heights within KP2 are predominately to be up to a maximum of 12m;
- Some opportunities for building heights of up to 15m;
- The limits for building heights are based upon:
  - measurements above existing ground;
  - all heights are specified to ridge level;
  - but exclude any point features, e.g. spires.

2.5.3 Design & Access Statement Principles Compliance

Parameter Plans

The OPA established the framework for the planning and design of the RSR, including KP2. The Parameter Plans establish the design approach for the site. Further design principles and guidance have been set in the OPA Design and Access Statement.

Design & Access Statement

The Design and Access Statement conveys the design intentions for the full RSR site including principles, concepts, strategic design and intended character of the proposals. Whilst Design Guides will accompany each Key Phase of development it is important that these are understood in the context of, and be read alongside, the Design and Access Statement for the whole RSR site.

This Design Guide for KP2 seeks to build upon the established design principles and guidance, taking forward the site-wide design guidance set out in the Design and Access Statement and elaborating upon this with further Guiding Design Principles for KP2.

Design Principles

The Design and Access Statement includes a set of key design principles that underpin the development framework and OPA. These principles for design and development are separated into two groups:

- **Higher Order Principles**, which reflect the traditional principles of good design; and
- **Context Sensitive Principles**, which are specific to the place that Rugby Radio Station will become.
- These principles have been carried forward into the KP2 Design Guide, as listed over the page:

High Order Principles

"Walkable neighbourhood and permeable network of streets"
The Regulatory Plan establishes a network of permeable streets, which is further explained in the Design Guide:

Chapter 4 Movement & Access with reference to how the network of streets, footpaths and cycle routes provide the opportunity for sustainable healthy modes of travel. Indicative locations for bus stops are also noted on the Regulatory Plan to facilitate access to public transport.

Chapter 3 Landscape Design, complements the theme with illustration of how leisure routes of footpaths and cycleways permeate through the network of landscape spaces.

"Active frontage streets"
Land uses and streets as set out on the Regulatory Plan are arranged to ensure that streets and spaces are actively fronted by development with activity and interest addressing and interacting with the public realm. Further guidance in support of the Regulatory Plan layout is provided in:

Chapter 3 Landscape Design, with reference to the distribution of important landscape spaces and public realm;

Chapter 4 Movement & Access, with illustration of street sections (including buildings framing streets) and edge sections (how the edge of development parcels interact with adjacent public realm streets and spaces);

Chapter 5 Built Form, with details regarding plot layout rules including active frontages.

"A green infrastructure setting"
The Regulatory Plan creates a framework for development set within the network of streets and spaces: the green infrastructure is central to this with a network of interconnected landscape components.

Chapter 3 Landscape Design, sets out the design approach to establishing a rich green infrastructure setting for KP2, with details on both the network and individual components including formal open space, informal open space, wildlife corridors, residential pocket parks etc.

"Vibrant mixed communities"
Locations for mixed uses and play are set on the Regulatory Plan, expanded upon in:

Chapter 5 Built Form, with further details for each mixed use location, illustrating potential mix of uses and the form in which development should be established.

Chapter 3 Landscape Design, includes play provision with locations and walking distance thresholds.

"Sustainable Design"
Sustainability is incorporated into the proposals for KP2 at both the macro scale (for instance establishing a permeable network of streets and routes to allow for sustainable transport choices) and micro scale of technical efficiencies in:

Appendix 2, KP2 Sustainability Statement, which sets out guidelines for energy, waste and water.

"Distinctive urban form"
The Regulatory Plan provides a clear pattern of streets, spaces and places, creating a setting for quality architecture. This is expanded upon in:

Chapter 4 Movement & Access, further detail on the street hierarchy.

Chapter 5 Built Form, comprehensive Design Principles to control architectural quality set in typologies and matrices.

Chapter 6 Mixed Use Built Form, sets important design rules for locations of mixed use development which will be particularly distinctive urban form.

Context Sensitive Principles

Context sensitive principles from the DAS are listed in bold italics as follows. Under each principle an explanation is given to state how the Design Guide takes account of principles.

"Consider key influences"
The structure of the Regulatory Plan responds to key influences, notable opportunities for access and connections, and respects existing landscape and ecology features.

Chapter 2 Context, gives further detail of the existing site context for KP2 with reference to topography, landscape features, access, heritage, existing built form etc.

Chapter 3 Landscape Design, illustrates how the network of landscape spaces should utilise and respond to existing features including Normandy Hill, ponds, hedgerows etc.

Chapter 4 Movement & Access, identifies points of access and connection with the existing road network and how new features can integrate with the existing road network established in KP2.

"Ensure positive connections to DIRFT"
This context sensitive principle is particularly important with regard to the proposed DIRFT III development and the relationship across the A5 between the RSR site and DIRFT III:

The relationship to the existing DIRFT development is considered in:

Chapter 2 Context The Regulatory Plan includes a network of connected streets and routes that provide access to employment areas including commercial development parcels south and east of KP2 in neighbouring KP1 and also onwards to DIRFT II to the east of the RSR site. Future connections will also be provided through further phases of RSR to link to DIRFT III on the opposite side the A5.

Connections to DIRFT are also considered in the Regulatory Plan (and Chapter 4 Access & Movement) which links to the KP1 and KP2 access and movement arrangements.

"Utilise key assets"
The Regulatory Plan creates a scheme layout that is partly structured around key assets of the site that are to be retained as part of the proposals; such key assets include:

Normandy Hill, ecology & area of ridge & furrow – as detailed in **Chapter 3 Landscape Design;**

Heritage features – as detailed in **Chapter 2 Context;**

Existing landscape features – as detailed in **Chapter 2 Context;**

"Facilitate community cohesion"
The Regulatory Plan creates a structure and layout that supports community cohesion with connections to the primary school in KP1, parcels for mixed uses, formal and informal open spaces in well connected locations, linked by a permeable network of street and footpaths. Community facilities are further considered in:

Chapter 5 Built Form, gives definition of areas of mixed use development that will be focuses for community activity.

"Cultural programming"
The Regulatory Plan incorporates connections to the heritage of the site, with some street alignments informed by the memory of the network of masts.

Chapter 2 Context;

Chapter 4 Movement & Access;

"A logical extension to Rugby in relation to morphology and connections"
The Regulatory Plan is structured by a comprehensive network of streets, footways and cycle paths creating a variety of connections to, and through, KP1 and KP2, linking beyond the site to DIRFT and Hillmorton.

Chapter 4 Access & Movement, presents further detail on the Regulatory Plan Design Principles for access points, street hierarchy, cycleways and bus stops.

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PART B:

Spatial

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PART B Spatial

Part B of the KP2 Design Guide presents design principles and guidance in support of the content of the Regulatory Plan.

Layers of the Regulatory Plan are explained in more detail with identification of design principles under each spatial topic area, supported by indicative illustrations where appropriate.

The spatial development framework for KP2, as illustrated on the Regulatory Plan is set out in the following spatial design chapters:

3. Landscape Design;

4. Movement & Access; and

5. Built Form.

The guiding design principles for each spatial element are summarised at the start of each chapter.
The design principles are summarised in the Compliance Checklist in Appendix 1.

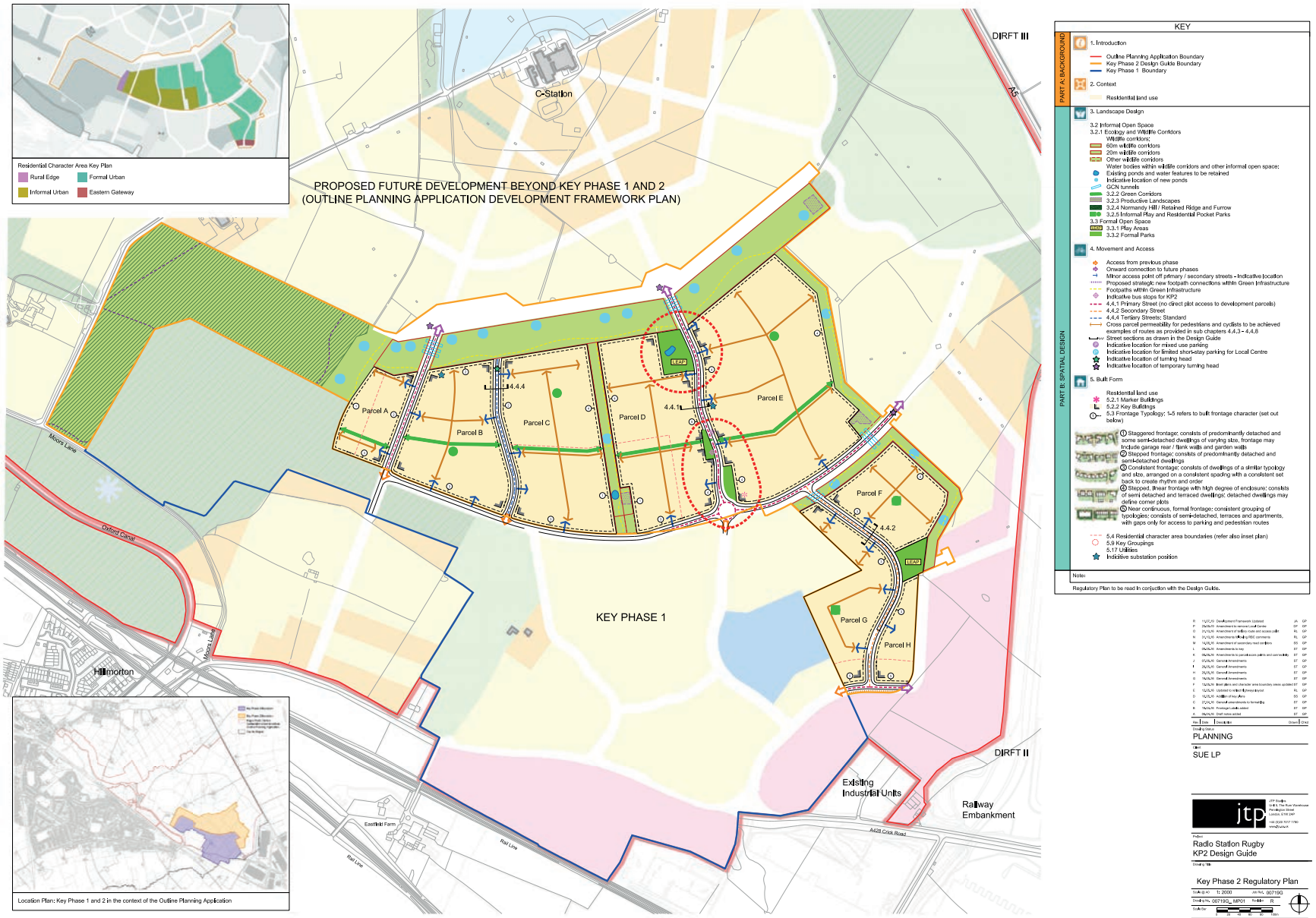

Figure B1: Extract of KP2 Design Guide Regulatory Plan

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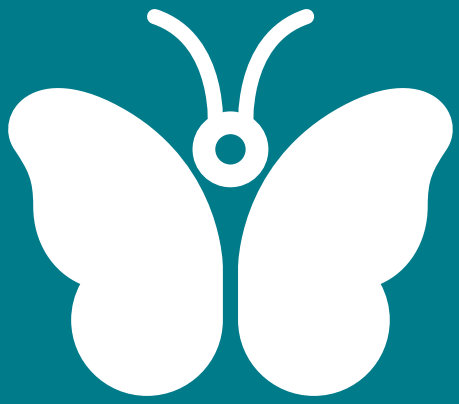
Chapter 3

Landscape Design



3.1 Landscape Design 'Guiding Design Principles' Overview

A connected Green Infrastructure network will be provided within Key Phase 2 in accordance with the Regulatory Plan (Figure 3.1), and is composed of a range of complementary open space typologies, including:

- A multifunctional **wildlife corridor network that** has been developed primarily to preserve and protect the existing population of Great Crested Newts (GCN) within the site, but also provides wider biodiversity and informal recreation opportunities.
- **High-quality civic spaces** that will become a focus for community activities and facilities throughout KP2.
- Productive landscape elements that may include **community orchards, allotments** and informal 'on-street' strategies where possible.
- Formal **play areas** that are provided in accordance with the Outline Permission that are easily accessible and well connected to the residential development.
- Opportunities for **informal play** within residential pocket parks and incidental open spaces that are distributed throughout the development parcels.
- Retained areas of historic **Ridge and Furrow landscape on Normandy Hill**.
- Larger **parks and gardens** that tie into the wider play, biodiversity and movement strategies.
- **Private amenity spaces** that supplement the public open space network and contribute to the character of the street scene.
- **'Green Streets'** where the highway network of Primary, Secondary and residential streets include the planting of street trees as both formal avenues and informal groupings depending on the scale and context of the street.

KP2 provides a range of formal and informal open spaces, as illustrated in the overview at Figure 3.1.

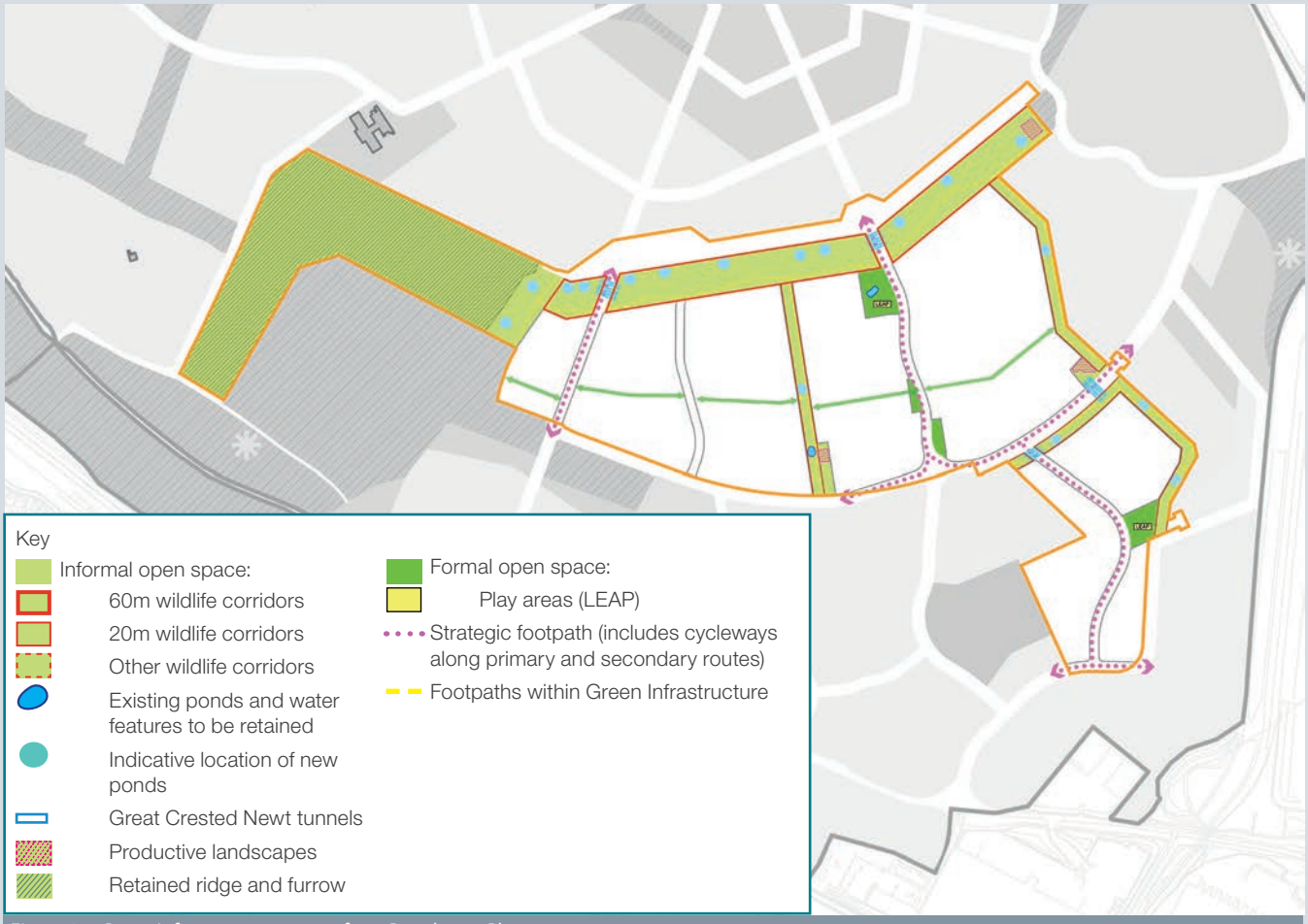


Figure 3.1: Green Infrastructure extract from Regulatory Plan

3.2 Informal Open Space

Informal open spaces help to create the landscape setting for Key Phase 2 and will tie into the wider Radio Station Rugby open space strategy, including the areas established as part of the Key Phase 1 development works.

Whilst the wildlife corridors form the key structural 'backbone' of the informal open space network, a range of complementary landscapes will be developed to create a strong green network across the Phase. These will include informal play opportunities, civic spaces, productive landscapes and an area of retained Ridge and Furrow on Normandy Hill.

These informal open spaces will be delivered and developed in accordance with the Regulatory Plan (see Figure 3.2).

Precedents (above) - Wildlife corridors implemented in Key Phase 1

Informal open space will comprise:

- **Wildlife corridors and ecology** (see 3.2.1);
- **Green corridors** (see 3.2.2);
- **Productive landscape** (see 3.2.3);
- **Retained Ridge and Furrow** (see 3.2.4); and
- **Pocket parks** (see 3.2.5).

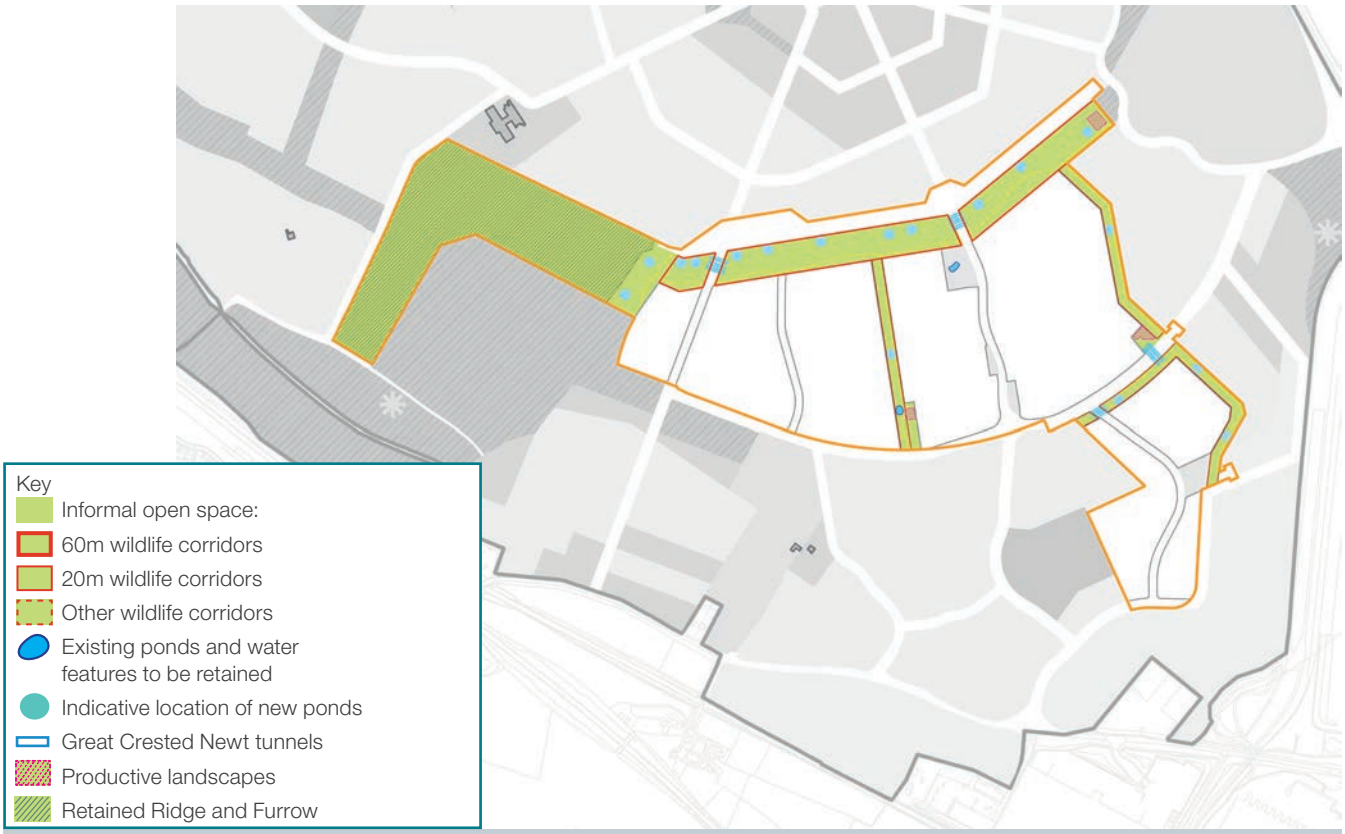


Figure 3.2: Key Informal Open Space design elements of the KP2 Regulatory Plan

3.2.1 Wildlife Corridors & Ecology

Great Crested Newt (GCN) Mitigation Strategy

The dedicated Green Infrastructure network for KP2 has been designed with a site-wide focus, ensuring that the extent and design of wildlife corridors will retain and enhance opportunities for biodiversity overall, not least GCN. Indeed the locations of existing GCN habitat have been of primary importance in forming the Green Infrastructure strategy for Key Phase 2.

A reserved matters scheme has been submitted to and approved by Rugby Borough Council (ref: R16/0303) and comprises a series of primary (60m wide) and secondary (20m wide) wildlife corridors. These are designed principally as habitats for the Great Crested Newts but also to provide new and enhanced opportunities for the range of other protected and notable species present on site. Importantly the wildlife corridors will also accommodate a range of complementary features and activities - including sustainable drainage elements, publicly accessible walking routes and interpretation boards (see Figure 3.3).

A scheme for the mitigation of impacts on GCNs within Key Phase 2 has been developed in accordance with the site wide mitigation strategy and ties into the completed Key Phase 1 Green Infrastructure scheme.

The KP2 wildlife corridors include for a wide range of species-rich habitats in addition to retained and enhanced habitats of biodiversity value. Such habitats include for new and retained ponds, dedicated GCN hibernacula and large areas of wildflower rich wet and dry meadow grassland habitat. Additional areas of species-rich hedgerow, native shrub and woodland planting areas are created throughout the corridors to create a rich mosaic of habitats.

The form and arrangement of the wildlife corridors is consistent between the Key Phase 2 Regulatory Plan and the Green Infrastructure reserved matters scheme (see Figure 3.3 below for reserved matters drawing). Moreover, this scheme accords with the site-wide strategy for Green Infrastructure creation and will ensure site wide ecological connections are delivered post-development.

It is intended that, once the necessary Natural England license has been obtained, Newts trapped within Key Phase 2 will be translocated to the existing Key Phase 1 holding areas whilst the remainder of the KP2 Green Infrastructure is implemented. Together KP1 and KP2 provide for an interconnected green infrastructure framework.

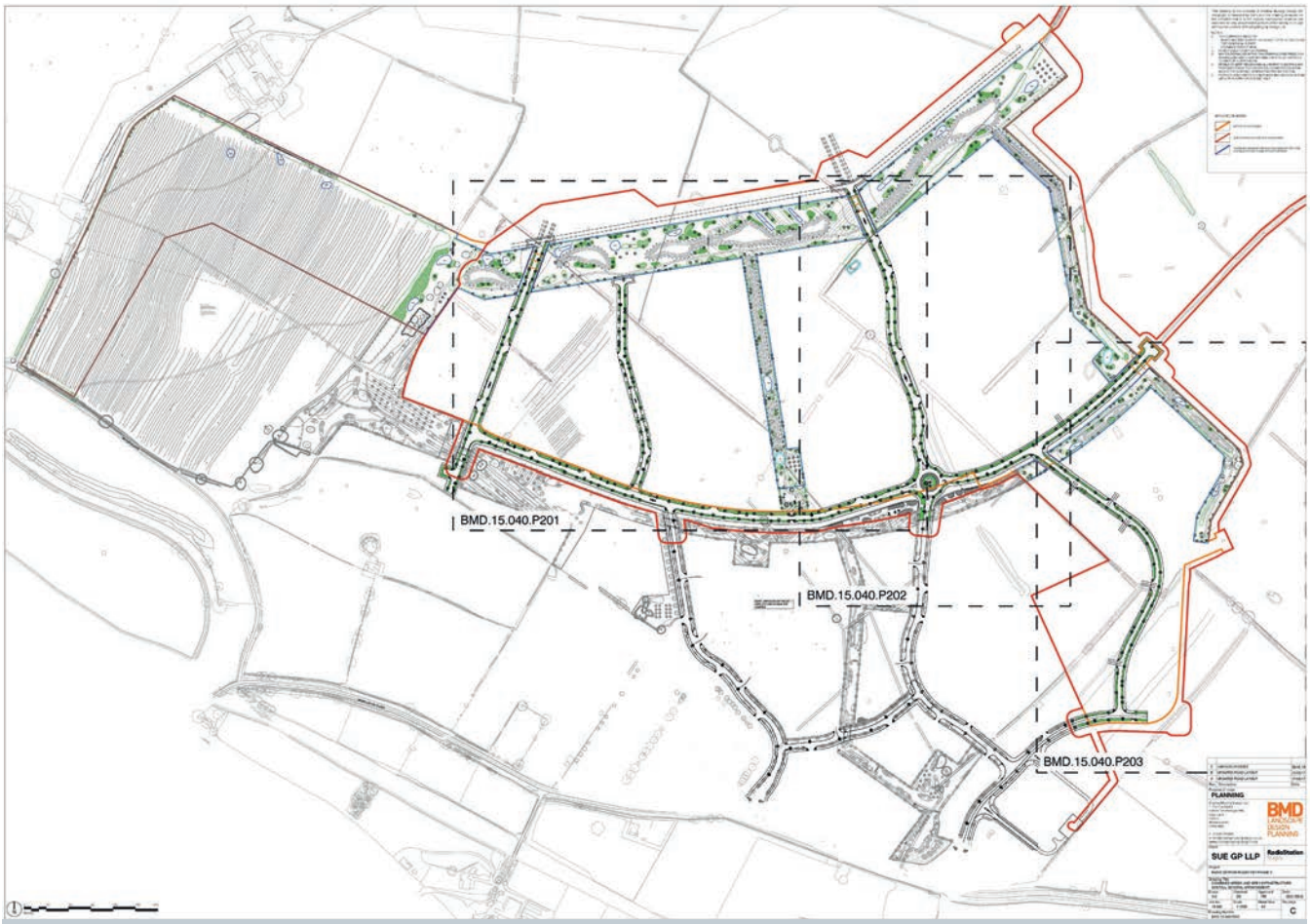


Figure 3.3: KP2 - Overview of the current approved Green Infrastructure general arrangement

3.2.2 Green Corridors

Green corridors are similar to wildlife corridors but smaller in scale. The green corridors provide an additional form of green landscape route through development parcels that supplement the network of landscape connections in the wildlife corridors and public spaces.

Design Principles

- The Green Corridor is to be between 5 and 10m in width, although this may vary further in some areas to allow for the incorporation of pocket parks etc.
- The Corridor should include footpath and cyclepath routes that are separate from the roads to form a safe green link running east-west through the Key Phase.
- The Green Corridor is defined by overlooking residential dwellings and deep front gardens that complement the wide, green public open space.
- Front gardens will generally be defined by informal shrub and tree planting. This should be designed to give the impression that frontages spill out onto the Green Corridor. To introduce variation, and where dwellings require more direct screening, hedges could also be used.
- Hard surfacing materials are selected to reinforce a shared-surface approach through 'informal' tones and arrangements.
- The Green Corridor includes a range of informal landscape elements including informal play opportunities, seating areas, community orchards, outdoor gyms/trim trails etc. to create a well-used, safe and welcoming public realm resource.

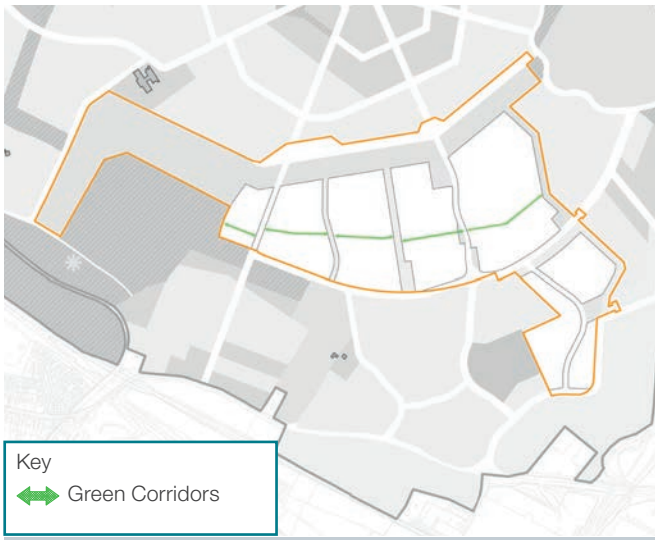


Figure 3.4: Indicative Green Corridor locations highlighted on Regulatory Plan

Precedent of a green corridor landscape space

Figure 3.5 Sketch concept for the Green Corridor

3.2.3 Productive Landscapes

Productive landscapes will be woven into the Key Phase 2 Green Infrastructure scheme and include a range of initiatives such as orchard planting within the informal open spaces.

Design Principles

- 'Orchard planting' should be provided in a flexible and creative way that reflects the most sensitive and appropriate approach to the character of the areas being developed.
- Designated allotment areas are not provided within Key Phase 2. Later phases of Radio Station Rugby will create focused areas for allotment provision in an appropriate context but Key Phase 2 should still provide appropriate productive landscapes that could include:
  - Orchard planting: limited areas of orchard planting within the wildlife corridors and can also form parts of the parks and informal open spaces.
  - Community Gardens: design of pocket parks and other residential area open spaces could incorporate communal kitchen gardens and vegetable plots.
  - Foraging Hedgerows: open spaces can be developed with hedges that include safe foraging species such as blackberries, sloes etc.
  - Productive Streetscapes: design of the roads and streets within Key Phase 2 could include easily accessible fruiting trees and other species.

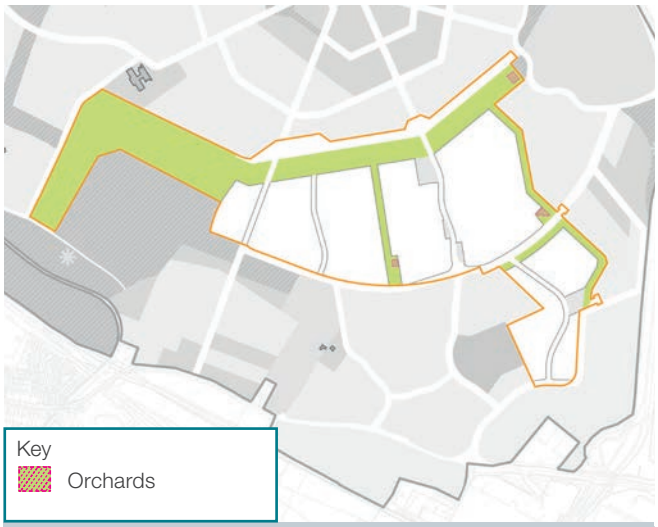


Figure 3.6: Orchard locations highlighted on Regulatory Plan

Precedent - Foraging hedgerows

Precedent - Orchard planting implemented in Key Phase 1

Precedent: Key Phase 1 includes mature apple trees that will provide accessible orchard planting within 'Dollman Common'

3.2.4 Normandy Hill / Retained Ridge and Furrow

Areas of existing Ridge and Furrow on Normandy Hill are to be retained as part of the Key Phase 2 approved Green Infrastructure scheme to ensure preservation of this historic landscape feature in accordance with site-wide strategies.

Within Normandy Hill, the following principles will be observed across Key Phase 1 and Key Phase 2:

Design Principles

- Limit interventions to retain the existing character and protect the Ridge and Furrow features.
- Mown grass routes to facilitate public access whilst limiting widespread trafficking of the features. The routes should be slightly altered seasonally to avoid excessive wear and tear across one defined route.
- Existing vegetation around the periphery will be retained and reinforced with appropriate hedgerows, native shrub and woodland planting.
- Provision of interpretation boards will help to provide information on the history behind the landscape.
- Implement a long term land management strategy to ensure retention of Ridge and Furrow in a new field pattern that is sustainably managed and grazed.
- Incorporate habitat enhancement and provision of new GCN ponds and hibernacula.

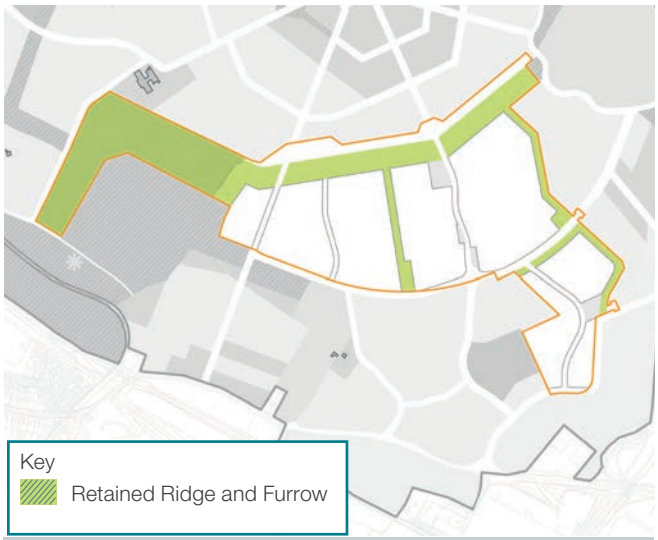


Figure 3.7: Normandy Hill location highlighted on Regulatory Plan

Existing Ridge and Furrow on Normandy Hill

Figure 3.8: Sketch overview of Normandy Hill (Key Phase 1 and 2 extents)

3.2.5 Informal Play and Residential Pocket Parks

Additional play and recreation elements are to be located throughout the development in the form of natural play elements and pocket parks, as shown on the Regulatory Plan and in accordance with the following design principles:

Design Principles

- Smaller, naturalistic areas located within residential parcels. These are more intimate spaces for local residents and benefit from the natural surveillance of surrounding dwellings.
- Provide a visual break in the built development with a design that is compatible with and proportionate to the surrounding dwellings.
- Characterised by native tree and shrub planting, areas of open space and natural play features that may include trim trails, outdoor gyms and exercise features.
- Incorporate seating and other distinctive features to provide identity and assist in wayfinding.

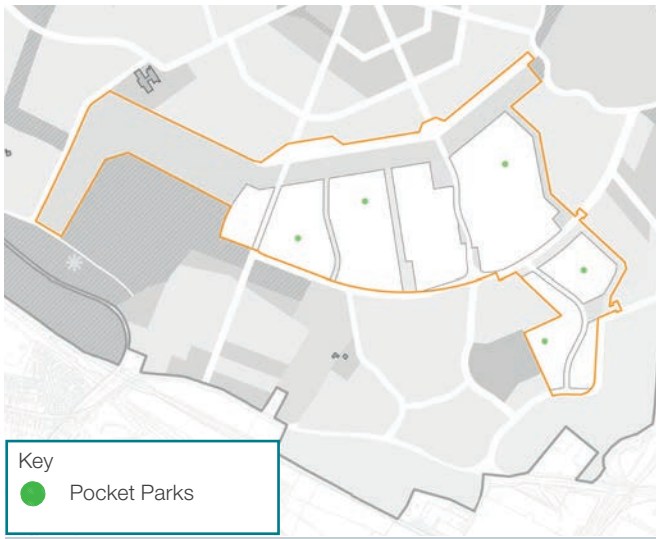


Figure 3.9: Pocket Park locations highlighted on Regulatory Plan

Precedent - Informal play opportunities- 'den building'

Figure 3.10 Pocket Park Concept illustration

3.3 Formal open space

Formal open space in KP2 comprises:

- **Play areas** (see 3.3.1);
- **Formal Parks** (see 3.3.2);
- **Access to sports pitches** (3.3.3); and
- **Civic Space** (see 3.3.4)

Formal sports pitches are provided within the nearby KP1 Central Open Space (see 3.3.3).

3.3.1 Play Areas

Play, and the provision of facilities for children and young people, is a key element of a successful place.

KP2 incorporates both formal play provision as well as a strategy of informal 'play on the way' that runs throughout the open spaces.

Formal play areas are to be provided to meet the play requirements of the OPA and to ensure that all homes are in the required walking distance of formal play provision.

Design Principles

- Two Locally Equipped Areas for Play (LEAPs) are to be provided within Key Phase 2.
- LEAP 1 is located within the park area sited in the north of the Key Phase and should be slightly more informal in its design, reflecting its location next to the wildlife corridor on the northern edge of KP2. This play area should strike a balance between provision of 'formal' equipment - swings etc - and reflecting the natural, informal nature of the development play strategies.
- LEAP 2 is located in the open space area to the south east of KP2, adjacent to parcel F (in accordance with the Regulatory Plan). This should be a slightly more formal in its design, to reflect the setting adjacent a relatively dense area of housing.
- Each LEAP will have a minimum activity zone of 400m2.
- Each LEAP should observe a 10m buffer zone to the boundary of the nearest dwelling and 20m to the nearest habitable room.
- Informal boundary treatments are preferable although use of gates and fences may be considered.

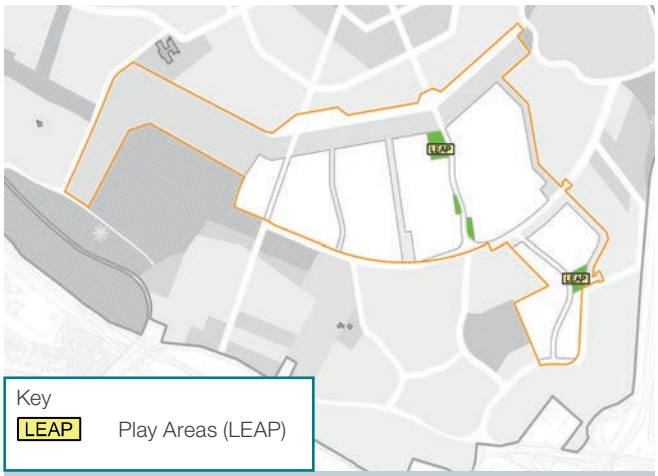


Figure 3.11: Play Areas locations highlighted on Regulatory Plan

Precedent - Drapers Field, London

Figure 3.12: Sketch concept for LEAP 1 and the northern park area

3.3.2 Formal Parks

KP2 will provide park areas alongside the informal open space network.

Park 1 sits towards the northern boundary of KP2 and Park 2 sits in the south eastern part of KP2. Both parks include formal play provision as well as providing links into the wildlife corridors.

Park 3 is the largest and most formal of the spaces. It is closely linked to the Key Phase 2 entrance gateway.

The Formal Parks are areas where a range of recreational activities can take place in accordance with the following principles:

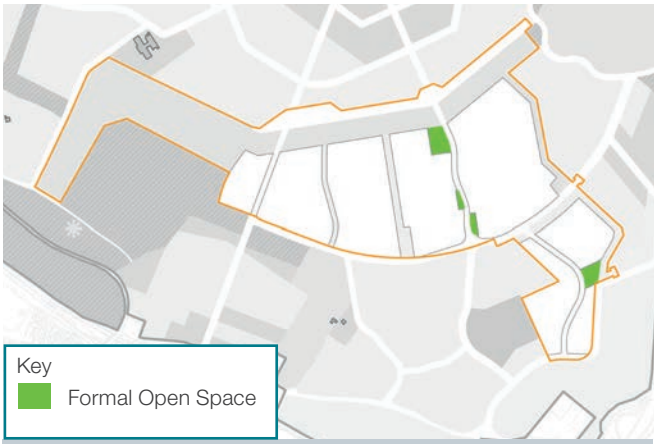


Figure 3.13: Formal Park locations highlighted on Regulatory Plan

Design Principles

- Footpaths and cyclepaths to provide clear, safe routes through the spaces.
- Incorporate a range of surfaces and spaces to allow for a variety of activities.
- Consider more formal layouts and materials in keeping with the Civic Space to communicate the distinct approach to open space found within the formal parks.
- Retain existing vegetation where possible and form visual and structural connections to other areas.
- Use formal hedge and tree planting to structure the space and direct key views.
- Incorporate informal play and exercise opportunities, including areas where no formal play provision is required by the OPA.

Precedent - Formal layout with distinct open space

Figure 3.14: Sketch concept for the KP2 Gateway Park.

The gateway to KP2 is highlighted on the Regulatory Plan as an area which requires special attention to design. Situated on a prominent junction between the two phases the integration of movement routes, landscaping and residential built form is crucial to creating a high quality first impression.

The following design principles describe the layout, massing and composition of this key area. All design principles will be adhered to; the illustrations describe how this can be achieved.

Figure 3.15: Location of the Formal Park area as enlarged in Figure 3.16, below

Design Principles

- An attractive and diverse landscape will create a natural setting to the junction between KP1 and KP2 acting as a gateway between the phases.
- Residential dwellings will positively address the landscape setting, with entrances fronting the routes.
- Focal buildings will be designed to mark the entrance to KP2, positively addressing the street and green spaces onto which they front.
- Pedestrian crossing points will connect footpaths and routes between KP1 and KP2.
- Long views will be possible across the KP1 wildlife corridors and the formal park of KP2.

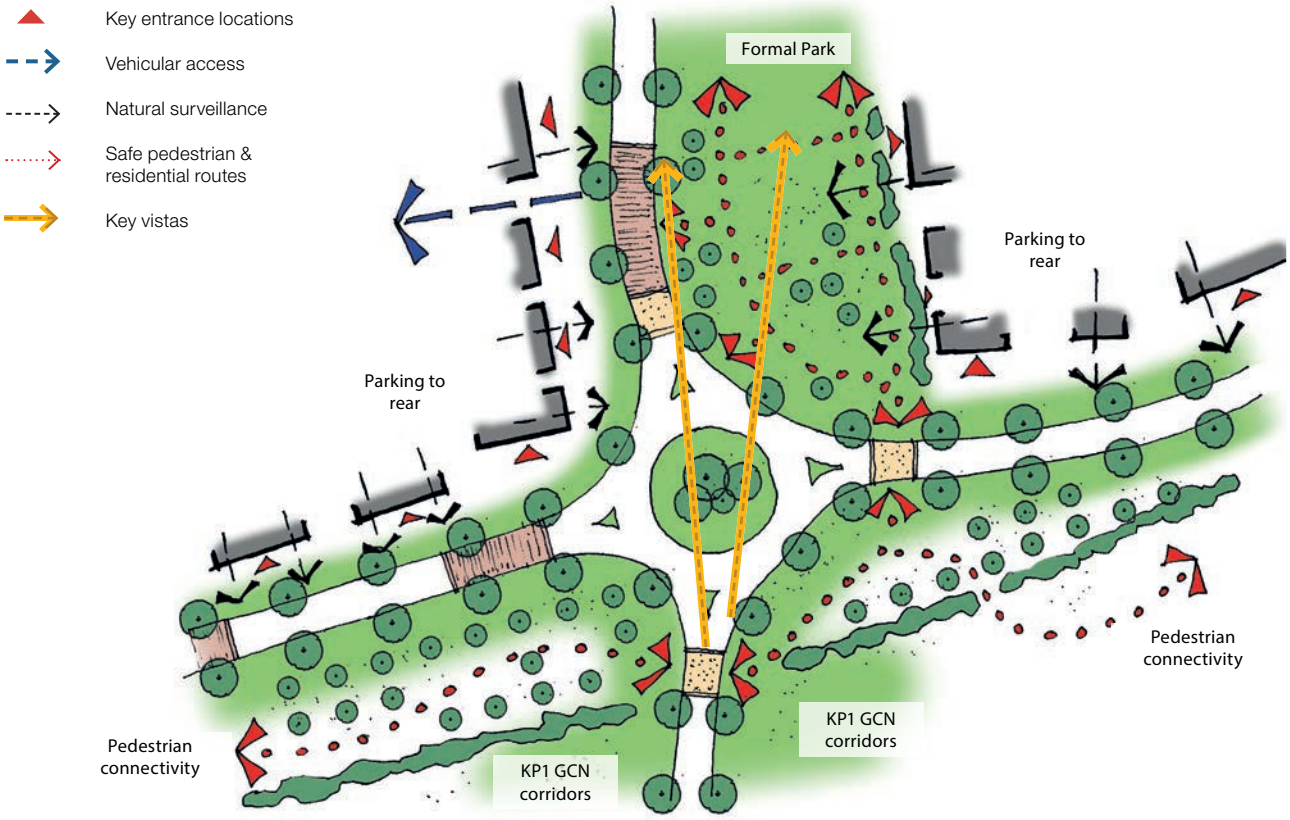


Figure 3.16: Key Phase 2 Gateway - Design Principles Plan including landscape and the roundabout junction between KP1 & KP2.

3.3.3 Access to sports pitches

Formal sports pitch provision is not incorporated within Key Phase 2. However, the adjacent Key Phase 1 area includes the Central Open Space that provides publicly accessible sports pitches nearby.

Safe pedestrian links are provided from KP2 to the Central Open Space, and will be achieved through use of the following principles:

Design Principles

- Provision of footpath connections, both through the Wildlife Corridors and within the street network that enable direct, safe routes between Key Phase 2 and the Key Phase 1 Central Open Space.
- Minimise the amount of road crossings required to gain access to the sports facilities and provide controlled crossing points where required.
- Consider appropriate use of signage to identify routes to the pitch area.

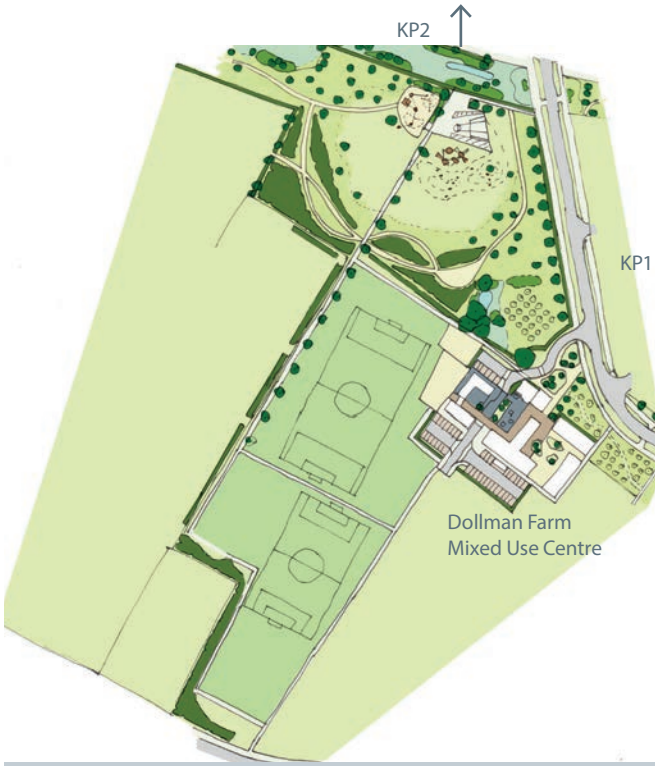


Figure 3.17: Sports pitches are provided within the Key Phase 1 'Central Open Space'

Figure 3.18: Indicative routes between Key Phase 2 and the Key Phase 1 Central Open Space

3.4 Heritage

Former Rugby Radio Station

The former Rugby Radio Station occupies the majority of the outline application site. The principal buildings include 'C' Station and 'A' Station together with contemporary ancillary buildings and structures including a copper earthing mat and aerial systems. Within KP2 there are a number of 1920s and late 20th century mast bases and anchors associated with the various aerial systems. The copper mat that once earthed the 1920s aerial system has disintegrated.

The conservation of mast bases and anchors within the KP2 and wider outline site is detailed in the Heritage Management Plan (HMP) submitted and approved under Condition 6. In accordance with the HMP, KP2 accommodates the retention of a number of late 20th century mast bases and anchors on Normandy Hill. All mast bases and anchors have been recorded within KP2 and the wider site. Following the construction of all Key Phases the heritage interest of these assets will be detailed in an appropriate archaeological journal or monograph.

A Mitigation Strategy detailing the proposed mitigation measures associated with the former Rugby Radio Station structures within KP2 will be submitted pursuant to Tier 2 condition 12.

Ridge and Furrow Earthworks

The site wide Heritage Management Plan accommodates the preservation and management of 34 hectares of earthwork Ridge and Furrow. KP2 accommodates the preservation of approx. 9 hectares of earthwork Ridge and Furrow on Normandy Hill.

The site wide Heritage Management Plan and Code of Construction Practice for KP2 will provide guidance on the protection of this heritage asset. In addition, in accordance with the HMP, the Ridge and Furrow earthworks have been recorded and researched in the Ridge and Furrow Stage 1 Assessment. In advance of construction on KP2, field investigations will be carried out on the earthworks. Following the construction of all Key Phases the heritage interest of these assets will be detailed in an appropriate archaeological journal or monograph.

A Mitigation Strategy detailing the proposed mitigation measures associated with the Ridge and Furrow earthworks within KP2 will be submitted pursuant to Tier 2 condition 12.

Interpretation panels are to be provided on Normandy Hill in accordance with the KP1 Heritage Mitigation Strategy.

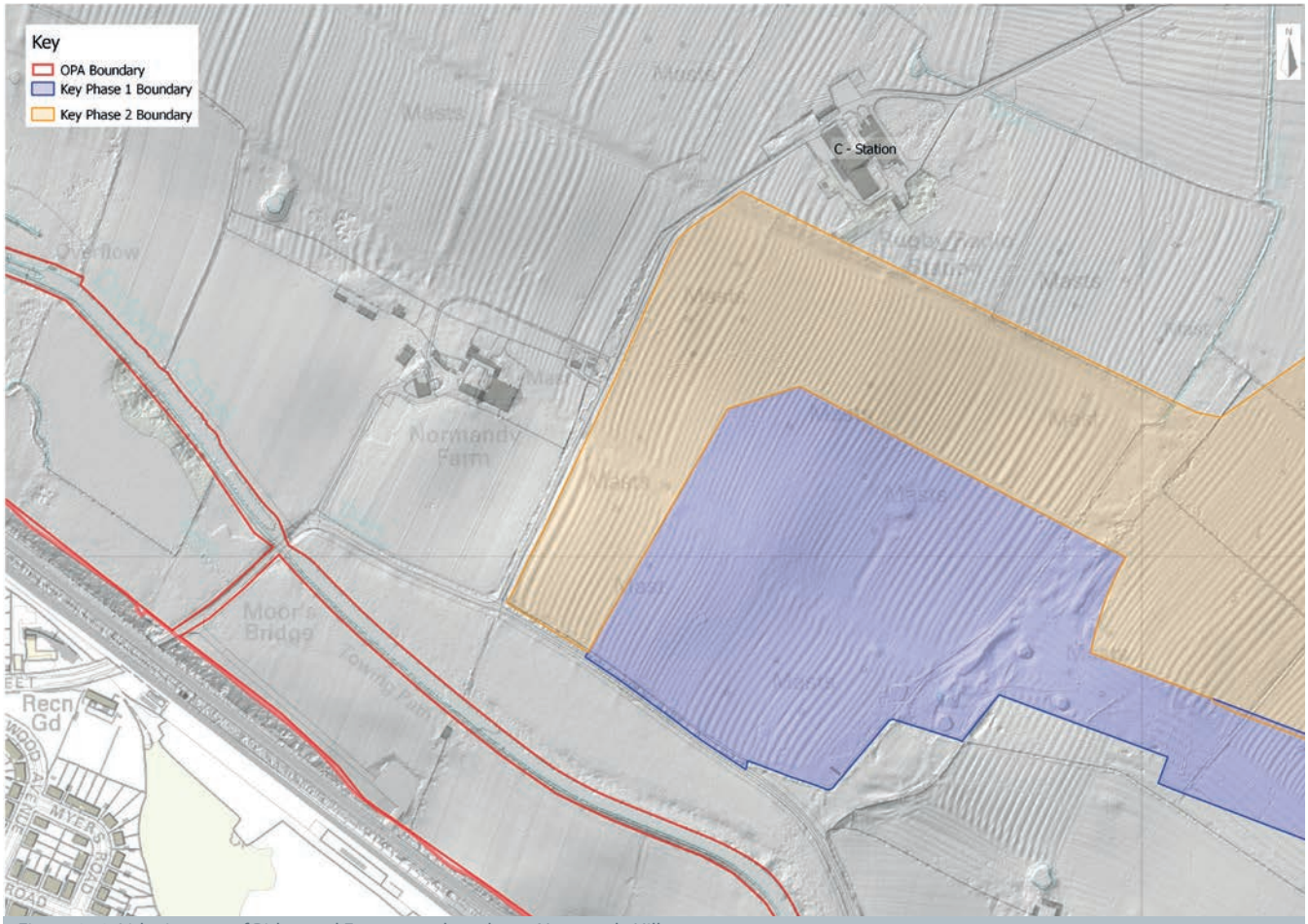


Figure 3.19: Lidar images of Ridge and Furrow earthworks on Normandy Hill

3.5 Foul and Surface Water Management Strategy

The Foul and Surface Water Management Strategy for KP2 is based on the creation of a network of SuDS and will adopt the following principles:

Design Principles

- SuDS features in Key Phase 2 will respect the site drainage patterns and seek to protect, restore and enhance natural wet areas.
- Residential design will include initiatives to reduce surface water run-off and improve water quality, with the priority being to collect, treat and store storm water through measures that utilise the Green Infrastructure whilst protecting residential amenity.
- Capture rainwater as close to source as possible in Water Sensitive Urban Design (WSUDS) features.
- SuDS features are to be designed to enhance the character of the local areas whilst integrating planting and hardscapes in accordance with the wider Key Phase 2 strategies.
- Provide SuDS features in communal spaces and courtyards to capture and treat excess runoff.
- Provide connections to convey water to SuDS features in open spaces or to storage for use in landscape irrigation.
- Potential permeable paving on shared and unadopted surfaces with filtering substrates to treat and store water for reuse.

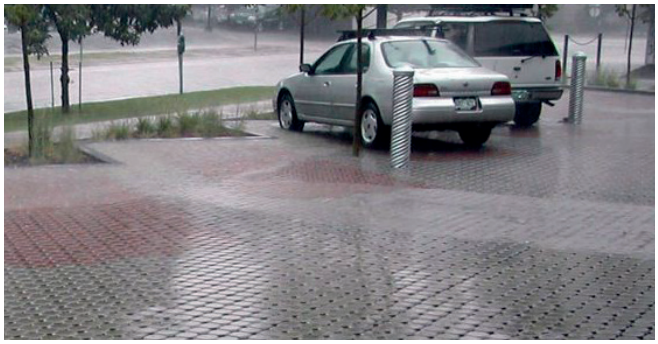
SuDS features

SuDS features will be chosen as appropriate from a palette of SuDS options including:

- Swales: broad, shallow channels covered by grass and vegetation. Designed for both dry or wet conditions they contribute to the wider Green Infrastructure network.
- Filter Drains: trenches filled with permeable material into which runoff is collected, stored and conveyed.
- Permeable paving: designed to allow rainwater to infiltrate through the hard surface into an underlying storage layer.
- Detention Basins and Landscaped Channels: depressions designed to detain runoff for a period of time to meet both volume objectives and water quality criteria. They differ from wet ponds in that there is no large permanent pool of water in the basin.
- Rain Gardens: small garden areas that capture rainwater from roofs, assisting with controlled infiltration or re-use for garden irrigation, vehicle washing and other non-portable applications.

Water Design and Management of Risk

- The following will be taken into account in the design of water bodies:
  - **SuDS features will be predominantly dry:** it is reasonable to expect - in times of high water - that people will stay out of / away from the water.
  - Safe play within these dry or shallow SuDS features is to be expected in supervised conditions.
  - **Proximity:** where possible ponds are to be set away from footpaths and widely used areas.
  - When set close to paths or busy places then informal barriers - including dense and thorny plant species should be used to keep people away from the edges.
  - **Visibility:** the public must be made aware of the ponds either because they are visible from distance or - where screened by planting - signage is provided.
  - **Construction:** New ponds will have shallow, sloping sides and no vertical edges to help with exit from the water.
  - **Signage:** lifesaving equipment and fencing is to be provided where it is deemed necessary and appropriate.



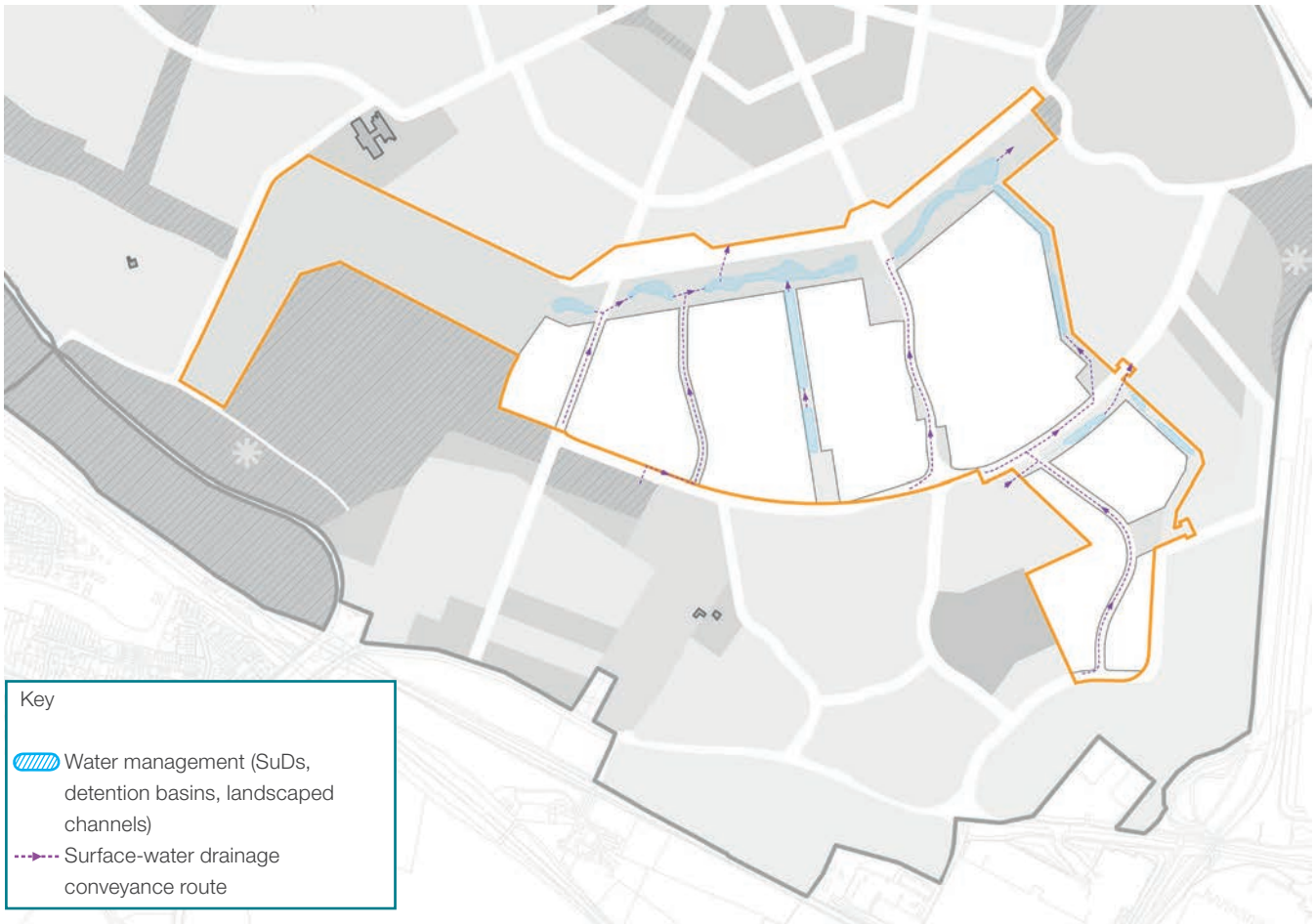


Figure 3.20: Indicative Water Management Strategy

3.6 Hedgerows

Throughout Key Phase 2, wherever possible, existing hedgerows are to be retained and significant vegetation where it does not clash with areas required for crucial infrastructure or residential parcel works.

Where possible existing hedgerows are to be incorporated into the Key Phase 2 open space proposals and retained/replenished and reinforced.

To offset the loss of hedgerows that cannot be retained, considerable new hedgerow planting is proposed as mitigation.

Figures 3.22 and 3.23 opposite set out the existing and proposed hedgerows in the context of Key Phase 2.

Hedgerow Design Principles:

- Target a 10% increase in the amount of hedgerow in Key Phase 2 as part of the overall Green Infrastructure design.
- Provide new species rich native hedgerow planting to define the edges of the wildlife corridors and provide a connective habitat element.
- 'Gap up' and reinstate existing and former hedgerows around the edge of Normandy Hill and implement new hedges to define the western boundary.
- Retain existing hedgerows where possible.

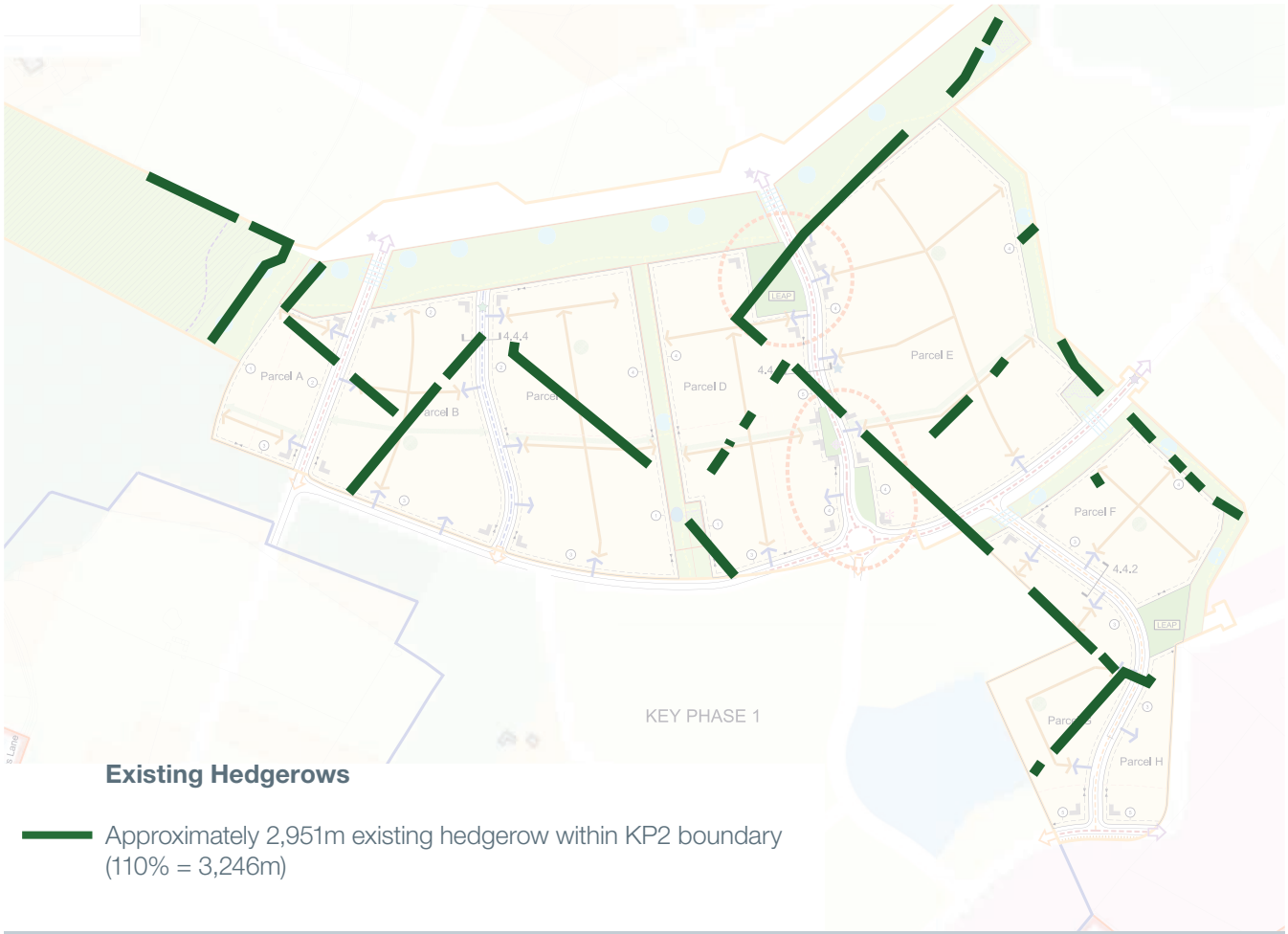
Indicative figures are provided on the plan opposite to give an overview of the length of existing, retained and proposed hedgerows within Key Phase 2.

It should be noted that these figures preceded detailed design of many of the key areas and will inevitably be subject to change but provision within the approved wildlife corridor scheme alone is well in excess of the target figure for Key Phase 2.

Existing Key Phase 2 Hedgerow

Example of retained Hedgerow within Key Phase 1 proposals

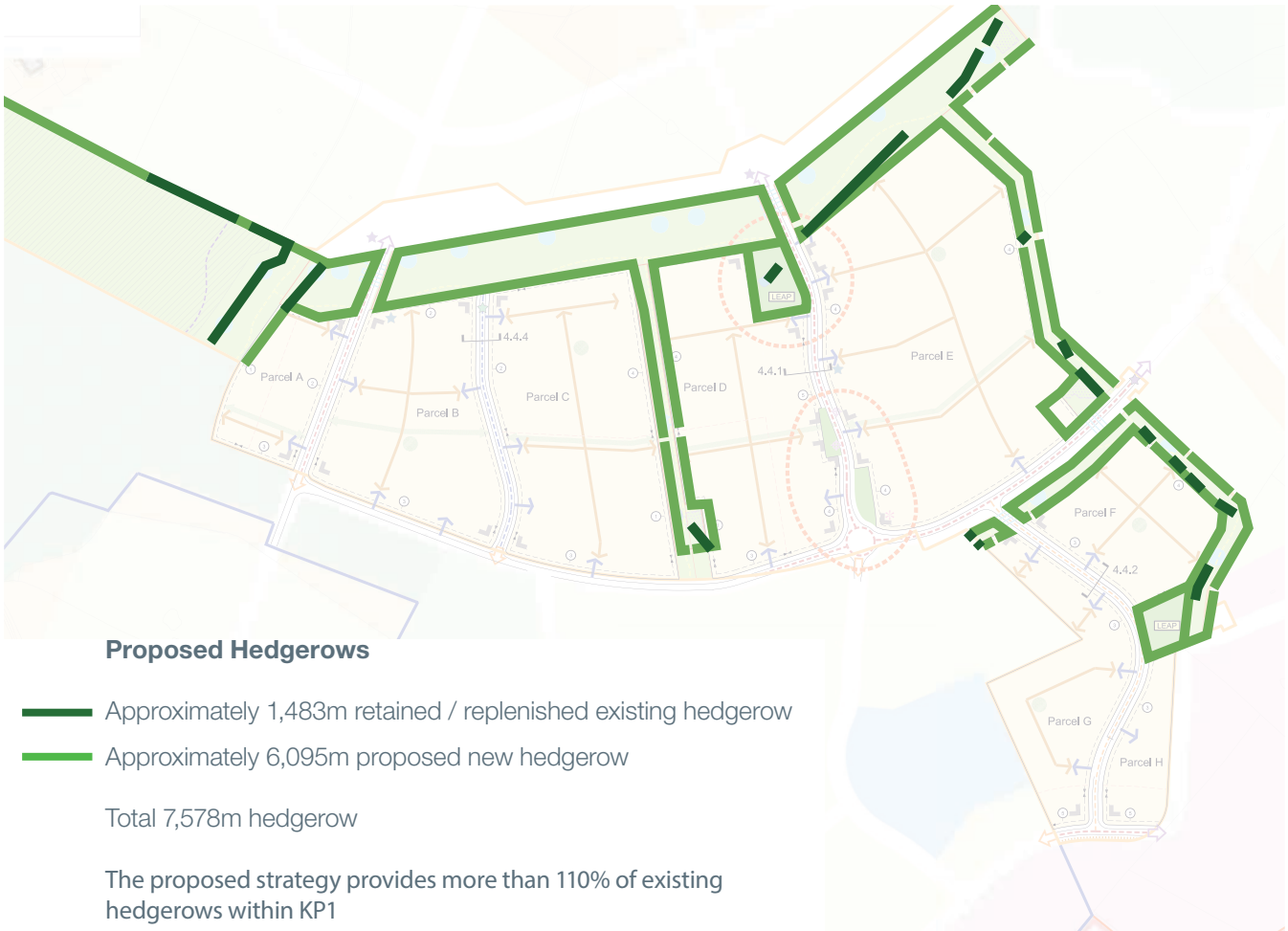
Newly implemented Key Phase 1 Hedgerows within Wildlife Corridors



Existing Hedgerows

Approximately 2,951m existing hedgerow within KP2 boundary (110% = 3,246m)

Figure 3.21 Key Phase 2 Existing Hedgerows (pre KP2 Design Works)



Proposed Hedgerows

Approximately 1,483m retained / replenished existing hedgerow

Approximately 6,095m proposed new hedgerow

Total 7,578m hedgerow

The proposed strategy provides more than 110% of existing hedgerows within KP1

Figure 3.22 Key Phase 2 Retained Existing and Proposed New Hedgerows

3.7 Public Realm Materials

3.7.1 Streetscape Materials Palette

The specification of hard materials and furniture must ensure that the new development has a recognisable character and is constructed to adoptable standards where required.

Detailed applications for Key Phase 1 have begun to set out the principles for material and furniture selection and these will continue to be applied to later phases. However, it is also recognised that standards and guidance are likely to change over the duration of the project.

Therefore, the materials and the furniture palette will be reviewed and agreed with the relevant planning authorities at the detailed design stage of each particular phase.

Ultimately a consistent 'family' of materials will create consistency and legibility across Key Phase 2 and the wider development.

To guide future detailed applications, the following overarching principles were set out in the Key Phase 1 Design Guide and Key Phase 2, and future applications, must demonstrate how these principles have been observed:

- Emphasise the east-west links along the connecting residential streets through consistent use of materials.
- Use materials that suggest a pedestrian friendly environment but have a 'traditional' refuge from the road.
- Use a simple palette with a coordinated range of colours, textures and tones to reinforce the street hierarchy and legibility.

The following materials represent a preferred outline palette for the public realm areas:

- Primary Roads:
  Preference for higher quality surfaces to footways and vehicular cross overs to signify importance in the street hierarchy (e.g. potential use of stone flag and block work, with macadam / black top asphalt option for footways). Macadam / asphalt surface to carriageway. Block paving to shared surface sections of carriageway.

- Residential streets:
  Block paving or asphalt to footways with 'black top' asphalt to carriageway surface.

- Shared surfaces:
  Concrete block/stone sett paving / block paving.

- Parking:
  Dark/contrasting sett paving.

- Footpaths in Public Open Spaces:
  Preference for bound gravel/spray and chip finish macadam but this is subject to further discussion and agreement with County Highways (Note: County Highways preference for block paving / black top asphalt).

- Civic Spaces:
  A range of bound and unbound footpath materials, stone flags, block paving and small unit pavers.

* Surface finishes that are to be adopted should be in accordance with a material agreed by WCC.

Figure 3.23 'Mood Board' - Typical Streetscape Materials

3.7.2 Street Furniture

- Street furniture will have an emphasis on simple, contemporary design with consistent product types to be used across the development.
- Furniture is to be sited to ensure an uncluttered streetscape and footways that are as free from obstruction as possible.
- Proposed elements are to be durable and sourced from recognised suppliers to ensure a reliable procurement and replacement process.
- Furniture along roads and streets should always be located within an approximately 1500mm wide zone that is set 450mm from the road kerb to lessen the scope for obstruction of routes.
- Where this is not possible, careful consideration must be given to the siting of elements to ensure an uncluttered streetscape. Elements will generally be grouped together or treated as combined elements to avoid 'standalone' items and clutter.
- It is anticipated that the development will generate a great deal of cycle traffic and therefore bike parking facilities will be incorporated into the streetscape, generally set in spaces between trees or in more open areas of paving near junctions or commercial frontages.
- Bollards are generally to be avoided, as appropriate to a low-speed, pedestrian friendly scheme.
- Electric vehicle charging points may be accommodated where appropriate. Possible locations may include parking for mixed use or commercial areas.
- A detailed signage and wayfinding strategy will be developed with elements combined where appropriate (mounted on lighting columns etc.) to reduce street clutter. Additionally, public art strategies should also consider integrated bespoke features as part of the street furniture palette.
- Street lighting that is to be adopted should be agreed by WCC and in accordance with WCC specification.

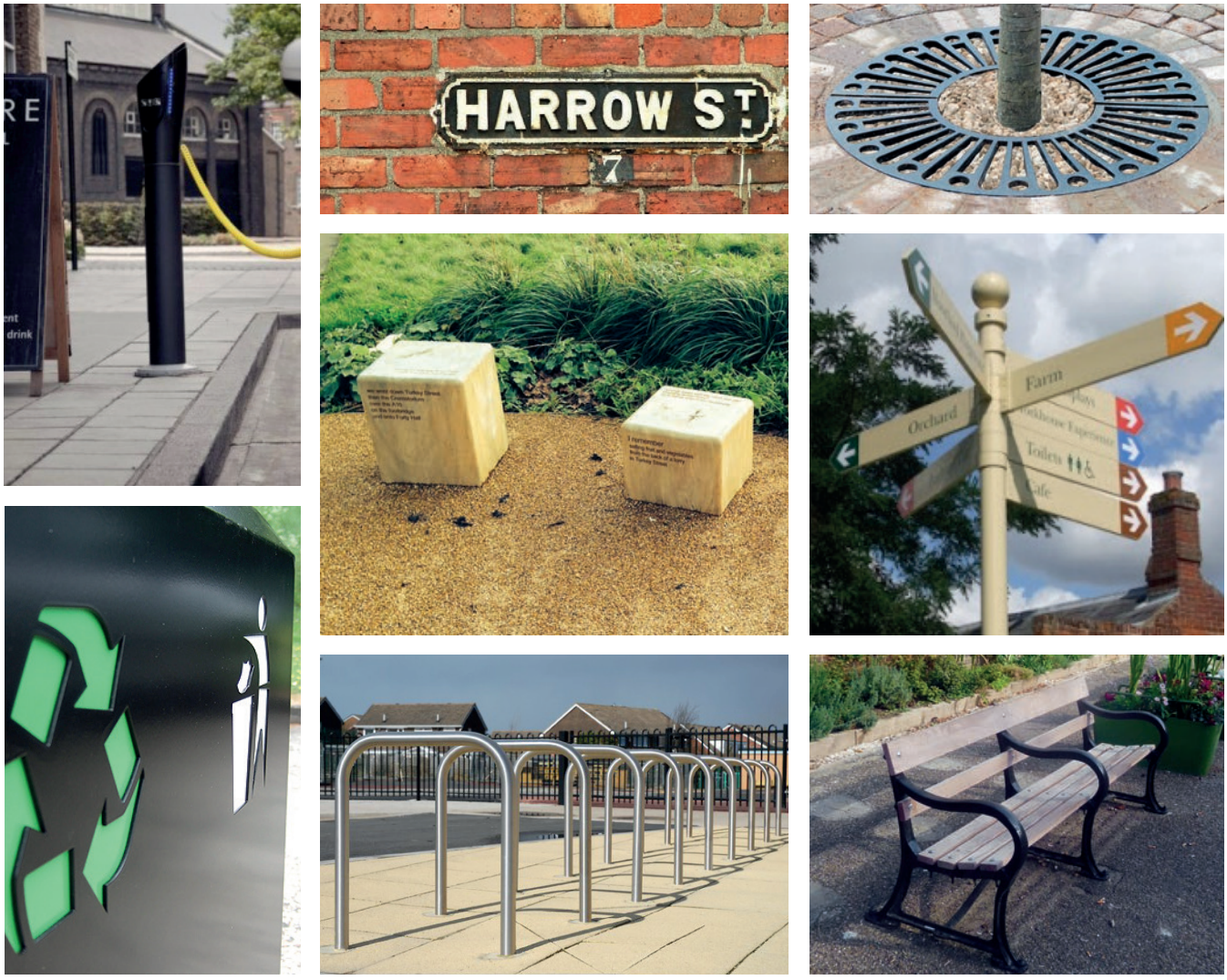


Figure 3.24 'Mood Board' - Typical Street Furniture Elements

3.7.3 Public Art

Public art provision within Key Phase 2 will relate to the interpretation of existing heritage features and animation of the public realm. It will comprise:

- **Heritage:** As required by the Heritage Mitigation Strategy two interpretation panels will be provided within the retained Ridge and Furrow as part of the combined Key Phase 1 and 2 works to Normandy Hill. Other heritage features may be identified with signage or interpretation panels.

Public art will be considered within the design of the landscape and public spaces and opportunities may include:

- **Landscape:** creating features within the Green Infrastructure through planting, landforms, signage (including locating past heritage features) and street furniture.
- **Play:** play space design to create added visual and tactile interest.
- **Civic Spaces:** these spaces will be focal points for public activity or meeting places and will contain a greater proportion of hard surface landscape.
- **Key Buildings:** It may be possible to integrate features into the detailed building design – for instance providing heritage references on new buildings that are located on, or close to, the location of the site and specific heritage features that are to be removed (e.g. radio masts).

3.7.4 Lighting

Lighting design will be subject to the adoption principles of Warwickshire County Council.

The lighting proposals are to be prepared with due reference to the 'Rugby Radio Station Lighting Strategy' (August 2013) prepared by Roger Griffiths Associates.

Roads and streets will be lit using column mounted luminaires.

Private and semi-private courtyards, shared surface links and mews areas will be lit using the same family of column lighting as for streets and wall/building mounted luminaires where possible to minimise clutter in restricted spaces.

Positioning of lighting units will require careful consideration alongside the landscape proposals to avoid being obscured by tree planting and other features.

Commercial facades, notably along main streets, may benefit from feature lighting to highlight frontages.

Formal and Civic public open spaces will utilise a mix of column lighting (to provide safe illumination along key routes) and feature lighting elements (uplighters, in ground spots etc) to highlight key features and add day-round interest and animation.

Informal open spaces - with special reference to habitat corridors - will utilise low level bollard lighting with carefully directed light outputs onto paths only to ensure habitats are not affected and create dark corridors for foraging bats. Other areas of informal open space (e.g. Normandy Hill) where there are no pedestrian pathways will not be lit.

Note: alternative designs may be appropriate if agreed with the highways authority.

The five overall principles for the lighting strategy are:

- Principle 1: promote safe and efficient movement around the site during night time conditions.
- Principle 2: ensure all lighting specified is essential, appropriate and has mitigation in place where necessary.
- Principle 3: take precautionary and sensitive measures where wildlife is present and utilise low heat output lights, minimum spread lamps and downward pointing lights.
- Principle 4: optimise energy use through energy efficient luminaries, dimmed and timed systems, recyclable products, re-use of components at the end of their life and renewable energy as a power source where possible.
- Principle 5: create an uncluttered landscape with a sensitive approach to the landscape character of the site whilst utilising best practice for lighting design.

Descriptions of light fittings:

Column Lighting
- Columns to be finished in a dark colour to reduce their visibility in the night time environment.
- Column heights should be at minimum heights and maximum spacing to fulfil their function.
- The luminaire fitting should be a design which reduces light spill and glare, with the minimum wattage required for safety purposes.

Bollard Lighting
- Bollards to be finished in a dark colour and complementary in design to the columns chosen. They should be of the minimum wattage required, at maximum spacings and with a shielded light source.

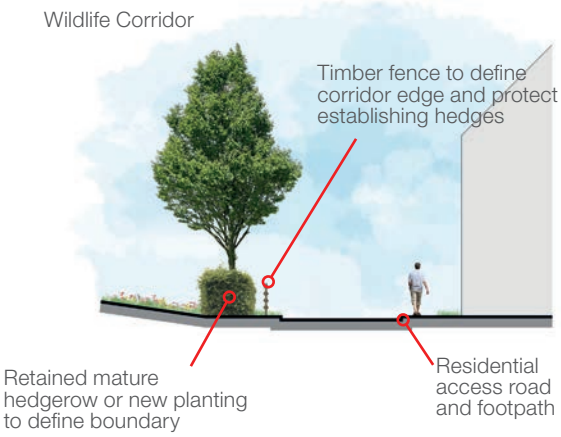
In-ground Lighting
- Should also be finished in a dark colour and be complementary in design to the other products used. The in-ground light should be shielded in order to avoid upward light spill.

3.7.5 Public Realm Boundaries

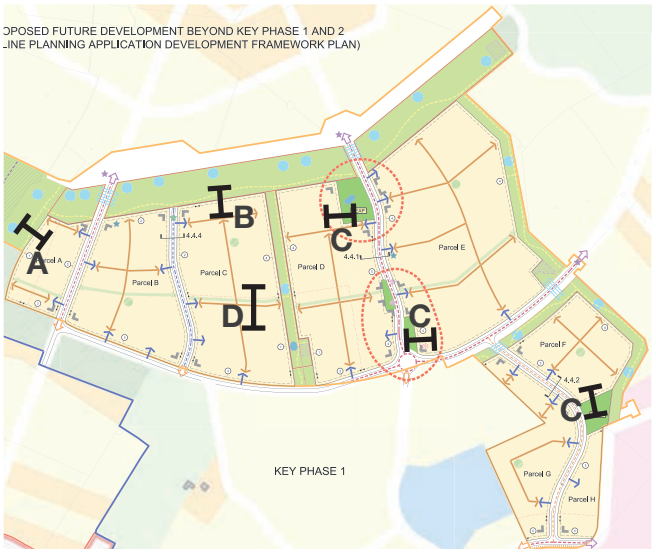
Figure 3.25 Illustrative Sketch Sections (not to scale):

A series of indicative illustrations showing the principles that should be applied to the interface between public realm and development parcels:

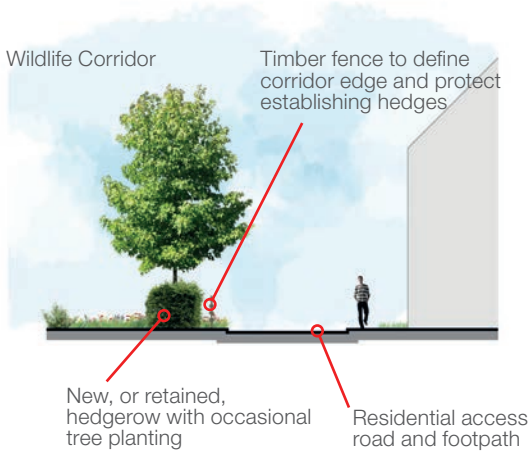
Section A: Normandy Hill green corridor edge - Use of informal green boundaries to define edges of open landscape at Normandy Hill.



Location of illustrative sections

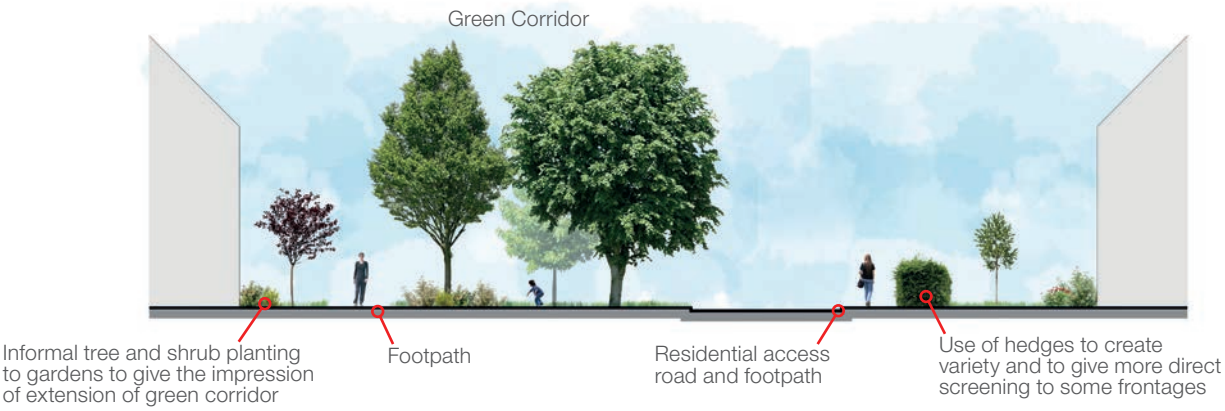


Section B: Typical condition - Residential adjacent to Wildlife corridor - Use of fences and hedging to clearly define the extent of GCN habitat.



Section C: Residential adjacent to parks - Use of hedgerow and tree planting to enclose park and create a well defined boundary.

Section D: Typical condition - Residential either side of Green corridor - Informal tree and shrub planting to loosely define frontage boundaries.



3.7.6 Planting Palette/Strategy

The layout of the streets and residential parcels provides the opportunity to create a strong network of street tree planting. The following pages set out the principles to be applied:

Street Trees

- Tree stock is to be of predominantly native species although some non-native stock will be used to provide aesthetic/seasonal interest or respond to specific design requirements.
- Sizes at implementation will range from mature stock to smaller 'Standard' size trees in private gardens. Tree stock must be specified as appropriate to their setting - balancing considerations of implementation, establishment and resistance to damage or vandalism.
- Trees are to be planted in appropriately sized pits with structural soils specified where required. Root barriers will be required to safeguard services and foundations in some areas.
- Planting within streets will employ, as required, an engineered tree pit solution to expand rooting space and ensure optimum growth conditions whilst supporting traffic loads, accommodating adjacent utilities and managing storm water on site.
- Care needs to be taken that the position of the proposed trees does not interfere with the location of street lighting columns and does not impact on visibility from junctions and/or private drives. This will be a matter for consideration as part of reserved matters applications and technical approval with WCC.

Formal Open Spaces

- The key parks and public spaces will incorporate a mix of retained and proposed trees as well as shrub, annual and grassland habitats.
- The strategy is to improve the biodiversity of the area through wildlife friendly planting as part of the public realm improvements.
- Planting will also include more ornamental, non-native stock as appropriate to the context.
- Where appropriate, orchard and fruiting trees may be planted within public open spaces to reinforce the overall development strategy for productive landscapes.

Informal Open Space & Wildlife Corridors

The informal spaces are generally focused on habitat creation measures - specifically through new planting that will create a mosaic of wooded areas, hedgerow, scrub and wildflower grassland. Planting in these areas will include:

Grassland:
Species-rich grassland will be provided throughout the informal spaces as overseeding or as newly sown for areas that require reprofiling or reinstatement.

Mixes, including Emorsgate Seeds EM2, will be suitable and must include herbaceous species such as Yellow Rattle, Common Bird's-foot Trefoil, Common Knapweed, Oxeye Daisy and Red Clover. Wet meadow grassland in areas surrounding the new ponds will also be established using Emorsgate Seeds EM8 or similar.

Trees:
Tree planting will be of primarily native stock, appropriate to the site and context. Species may include some of the streetscape palette as well as the following core species:

- Acer campestre
- Alnus glutinosa
- Betula pubescens
- Prunus avium
- Quercus robur
- Salix alba
- Salix fragilis
- Sorbus aucuparia
- Tilia x europea 'Pallida'

Scrub and shrub planting:
Composition will include native species that are of known value to wildlife such as:

- Blackthorn
- Holly
- Hawthorn
- Field Maple
- Guelder-rose
- Dogwood

Thorny species such as Blackthorn and Holly in areas adjacent to the newt ponds will help prevent disturbance and restrict access.

Hedgerow planting:

- Existing hedgerows are to be retained where possible with gapping up and reinforcement as required.
- Significant new hedgerow planting is to be undertaken to enclose and link the habitats and provide structure to the open spaces.
- Hedgerows should be located at a suitable distance behind visibility splay lines to ensure that growth of the hedge does not require significant maintenance to prevent it obstruction the splays required.

Fig 3.26 Tree Planting - Outline Palette of Typical Species - photos (colour coding relates to table opposite)

Structural Planting
Some focused areas of woodland style mixes will be planted to reinforce hedgerows, provide screening and shelter and dense habitat within informal landscape areas.

Private and Semi-Private Spaces

The way in which private gardens and semi-private parking courts etc. are treated is central to the biodiversity and planting strategy:

- Significant areas of varied habitat will be established throughout the development by clustering gardens and courtyard planting.
- Shrub and other planting stock will be partly (at least 30%) drawn from a palette of native species and specifically include plants that have interest for local fauna.
- Planting may also include more ornamental, non-native stock as appropriate to the context.
- Back gardens should include at least one tree of native stock, selected primarily from the list of 'wildlife attracting trees' included in the Code for Sustainable Homes.

Tree removal/replacement

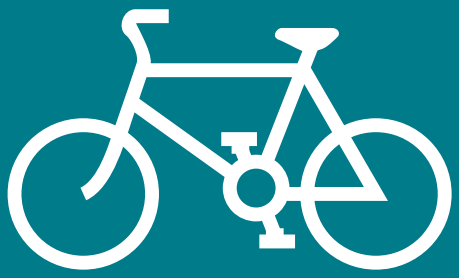
Existing stock is to be retained as much as is practical and possible and all retained vegetation must be protected in accordance with BS5837 Trees in Relation to Construction (2012) throughout the course of construction works.

SPECIES AND CULTIVAR	COMMON NAME	GIRTH (CM)	HEIGHT (CM)	NOTES
Primary Streets - Avenue Tree Planting				
Corylus colurna	Turkish Hazel	30-35	600-650	
Platanux X hispanica	London Plane	30-35	600-650	
Tila cordata 'Greenspire'	Small-leaved Lime	30-35	600-650	
Secondary and Tertiary Streets - Informal Tree Spacing				
Alnus incana 'Aurea'	Golden Alder	20-25	Min 500	
Prunus avium 'Plena'	White Flowering Cherry	20-25	500-550	
Prunus sargentii 'Rancho'	Cherry	20-25	500-550	
Pyrus calleryana 'Chanticleer'	Ornamental Pear	20-25	500-550	
Ulmus 'New Horizon'	Elm	20-25	500-550	
Parkland and Formal Open Space				
Alnus incana 'Aurea'	Golden Alder	20-25	Min 500	
Betula pendula 'Tristris'	Weeping Birch	20-25	Min 450	
Corylus colurna	Turkish Hazel	20-25	500-550	
Fagus sylvatica	Common Beech	25-30	500-550	
Quercus Petraea	Sessile Oak	20-25	500-550	
Quercus robur	Common Oak	20-25	500-550	
Tilia cordata	Small-leaved Lime	30-35	600-650	
Informal Open Space and Pocket Parks				
Acer campestre	Common Maple	16-18	400-450	
Alnus glutionosa	Common Alder	12-14	350-425	
Betula pubescens	Downy Birch	10-12	300-350	
Carpinus betulus	Common Hornbeam	16-18	400-450	
Prunus avium	Wild Cherry	16-18	400-450	
Quercus robur	Common Oak	16-18	400-450	
Salix alba	White Willow	10-12	300-350	
Salix fragilis	Crack Willow	10-12	400-450	
Sorbus aucuparia	Rowan	12-14	350-425	
Sorbus tominalis	Service Tree	12-14	350-425	
Ulmus 'New Horizon'	Elm	16-18	400-450	
Fruit Trees to Orchard Areas				
Malus	Apple		Min 200	2 year old straight lead
Prunus insititia	Damson		Min 200	2 year old straight lead
Pyrus	Pear		Min 200	2 year old straight lead
Back Gardens				
Acer campestre	Common Maple	10-12	300-350	Small garden trees to be supplied at standard size with a 1.75m min clear stem
Carpinus betulus	Hornbeam	10-12	300-350	
Prunus avium	Wild Cherry	10-12	300-350	

Fig 3.27 Tree Planting - Outline Palette of Typical Species

Chapter 4

Movement & Access



4.1 Movement and Access Guiding Design Principles

The Guiding Design Principles for Movement and Access collectively seek to create a network of safe and secure streets forming walkable neighbourhoods. The Guiding Design Principles for KP2 Movement and Access are set out below:

- To establish a safe and legible network of streets and pedestrian/cycle ways.
- To provide a coherent hierarchy of streets consisting of primary, secondary and tertiary streets.
- To ensure appropriate provision is made to connect KP2 to the existing and planned pedestrian and cycling networks and bus services, which link to Rugby town centre and DIRFT I, II and III.
- To prioritise the movement and safety of pedestrians and cyclists through the provision of safe and direct routes.
- To deliver the appropriate level of vehicular and cycle parking but to ensure it does not dominate the built environment.
- To design carriageways to the appropriate standards and incorporate traffic calming and clear signage measures where necessary.

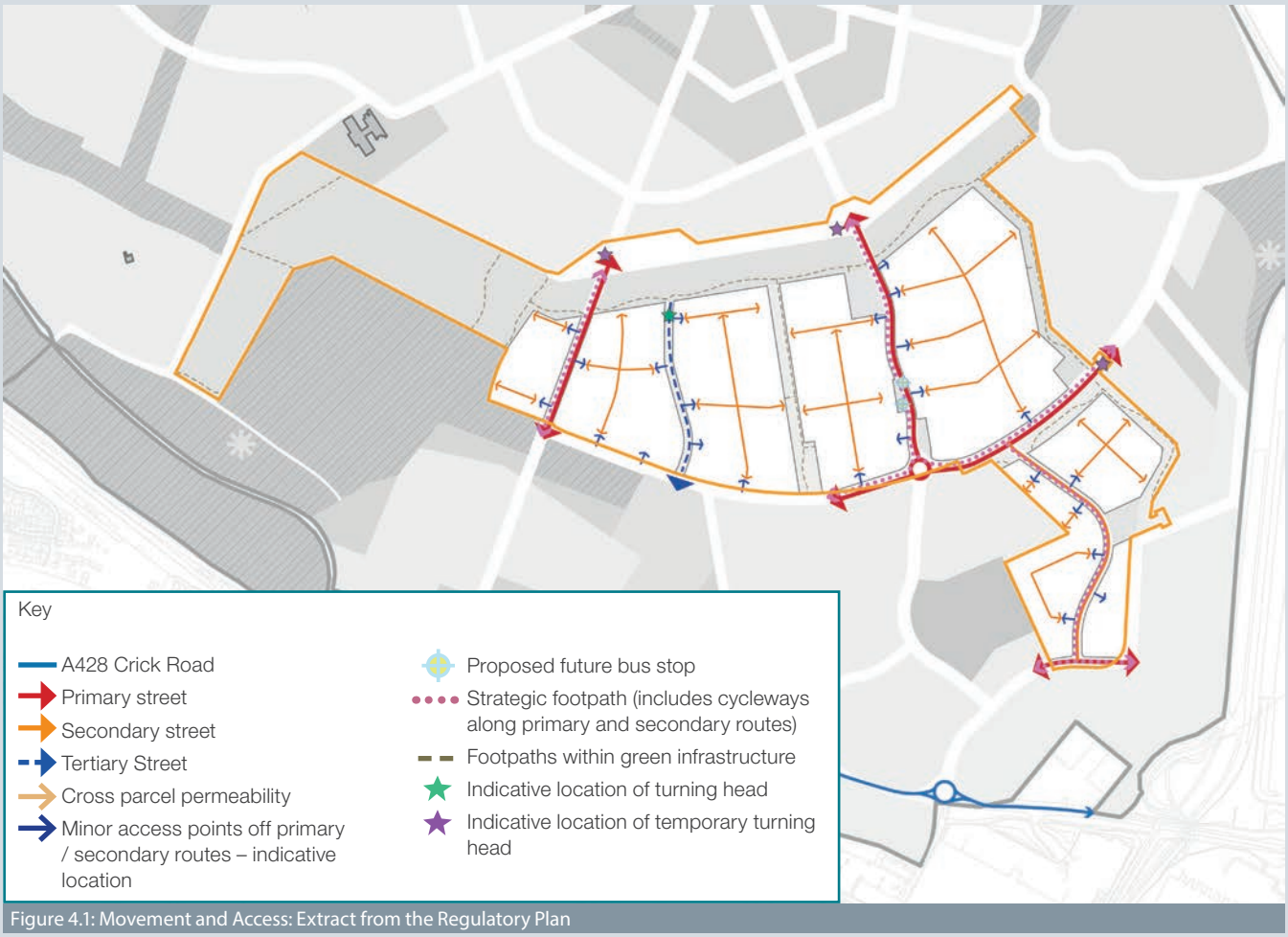


Figure 4.1: Movement and Access: Extract from the Regulatory Plan

4.2 Access Points

Points of vehicular access to KP2 are illustrated on the Regulatory Plan and Fig. 4.2, and the following principles should be followed:

- three junctions connecting KP2 onto the east-west primary street on the northern edge of KP1 will be provided, allowing vehicular access to primary streets connecting south to the A428;
- a further connection to the KP1 primary street at parcel G, connecting to the eastern roundabout junction on the A428;
- future connections out from KP2 into neighbouring future development areas of RSR; and
- Junction design to reinforce the legibility of the street hierarchy and provide for clear wayfinding.

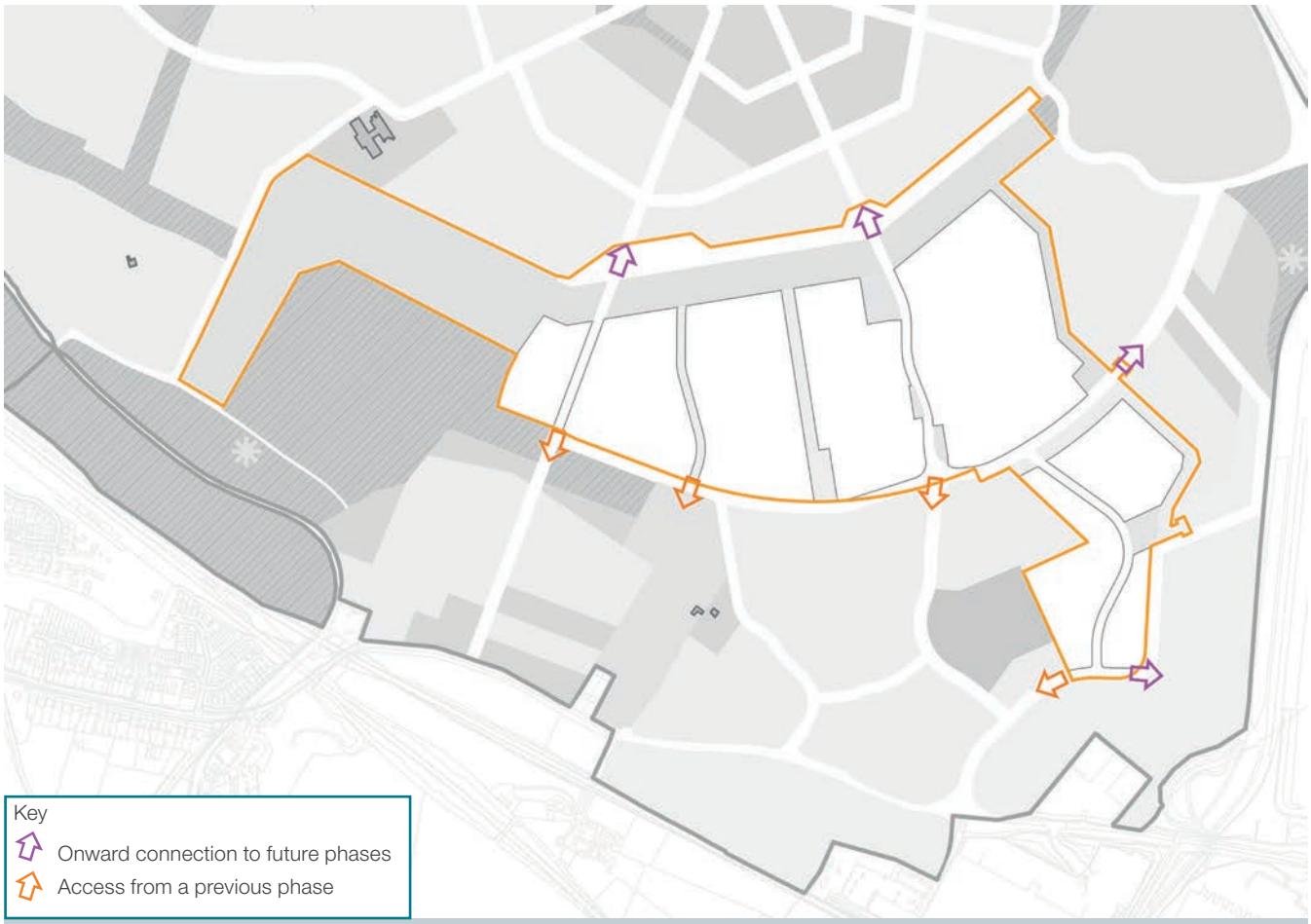


Figure 4.2: Site Access Plan

4.3 Connecting the Assets

A number of community assets will be spread across the KP2 site. These will include new areas of open space providing play facilities and other amenities. The assets will be connected by a safe network of streets and pedestrian / cycleways as described in this chapter.

The network of routes through KP2 will provide onward connections to community assets beyond KP2, including:

- Links into KP1 to connect with the community assets within KP1 including the Primary School, Sports Pitches, Play Areas, Dollman Farm community facilities, Dollman Common and site access points from Crick Road.
- Future connections north to provide onward access to the District Centre, future links to the Secondary School, and main mixed use area.

See Figure 4.3, below.

4.4 Street Hierarchy

KP2 is designed to provide a well-connected network of streets of different character within the site. Variety in character and degree of enclosure of streets will be key to ensuring legibility and identity. Streets, in combination with green infrastructure, provide the framework for development parcels within KP2. The streets are arranged to facilitate ease of movement and access into development plots and parcels and these streets are ordered in a hierarchy, as illustrated in Figure 4.4.

The role and function of individual streets will differ depending upon their position within the development and the areas which they transect. The street type is integral to the character of the surrounding built form which will reflect the level that the particular street holds in the hierarchy and its significance within the SUE. This has a direct impact on the level and type of traffic that the street will accommodate and has influenced the design criteria of the different types of route.

There are four main street types within the street hierarchy. To ensure that the character of the street responds appropriately to the adjacent land uses, tertiary streets have been sub-divided into three categories to enable a tailored response to either built development or landscape. The different street types include:

Figure 4.3: Connecting the Assets

1. Primary Streets

- highest order street providing the main connections through KP2 to adjacent phases;
- to include dedicated cycle and footpaths alongside them and accommodate bus routes;
- lined with street trees, and wide grass verges.

2. Secondary Streets

- function as distributor routes also providing direct access to homes to include dedicated cycle and footpaths alongside them;
- to accommodate tree planting, grass verges, and footpaths where appropriate;
- potential to accommodate public transport on the secondary street between parcels A and B.

3. Tertiary Streets

- streets providing cross-parcel permeability through development parcels and access to dwellings;
- tertiary streets are accessed from primary and secondary streets;
- typically only used by those living or visiting that parcel;
- narrower and less formal in character than the higher order streets; could contain street trees and areas of on-street parking;
- must include traffic calming measures to increase safety for pedestrians and cyclists;
- can include dropped kerbs and no road markings to reduce speeds and promote pedestrian priority
- three options for tertiary street types:
  - o Tertiary streets with standard highway design;
  - o Tertiary streets next to landscape and open space;&
  - o Tertiary streets with shared surface design.

Tertiary Streets as Spaces

- Further guidance provided for areas of public realm where tertiary streets have the opportunity to wrap around small public spaces (for instance pocket parks or formal parks);
- In these instances the design of the streets around spaces can widen the area of usable public space and help manage speed through the use of design features such as shared surface design.

4. Private Drives

- the lowest order streets providing access for a small number of dwellings (to be determined at Detailed Design Stage);
- not through routes;
- opportunity to use different surfacing treatments including bonded gravel; and
- need to consider appropriate bin collection.

Design guidance for each street type is provided in the tables presented on the following pages. These street type tables provide design details, technical requirements, and accompanying street section drawings that illustrate the form of the street.

Note regarding refuse and emergency vehicles

Turning areas will be provided as appropriate for refuse and emergency vehicles, some turning heads wil be temporary interim measures, particularly to the north of KP2, awaiting future connections.

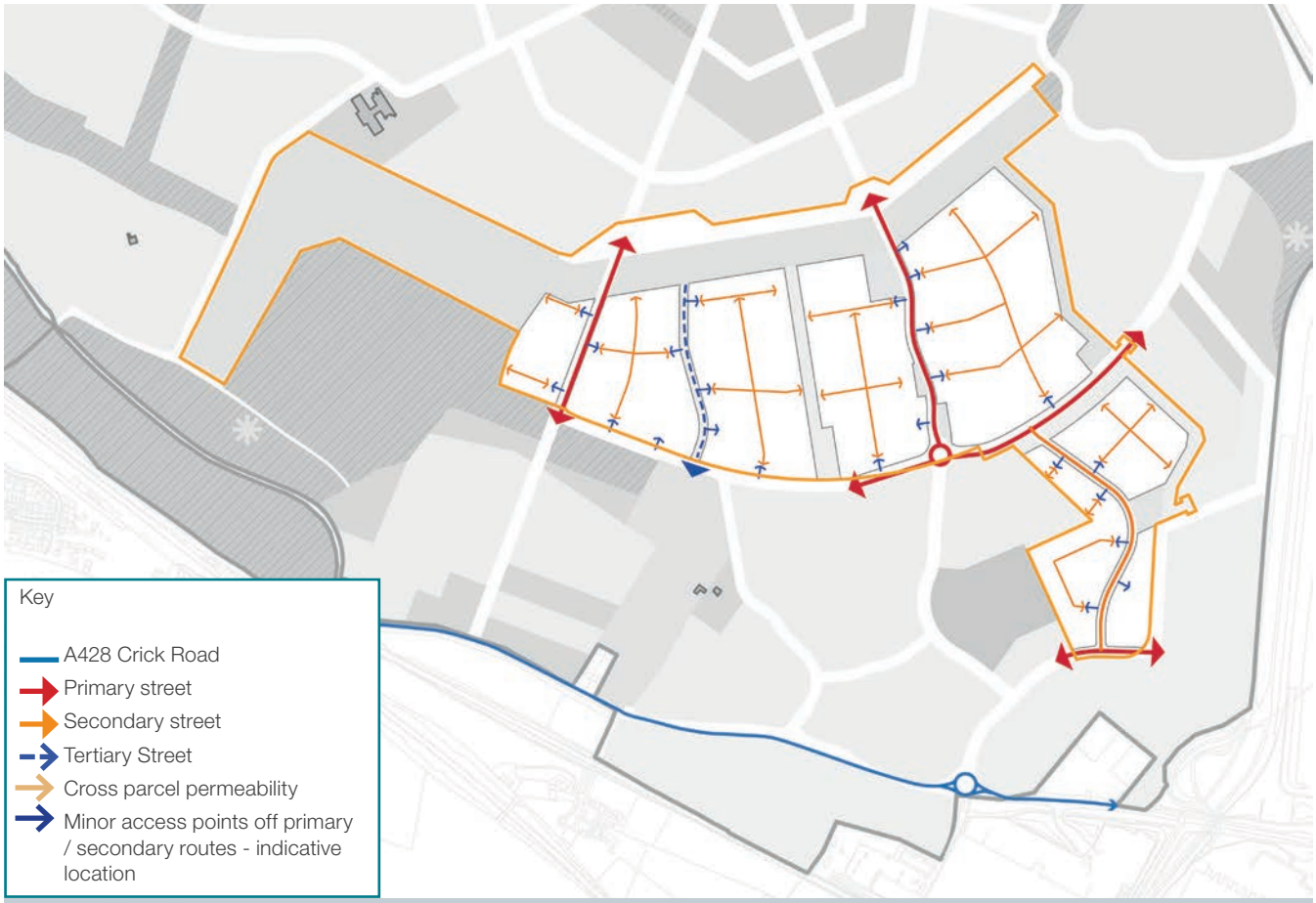


Figure 4.4: Street Hierarchy Plan

4.4.1 Primary Street

General Information	
Street Type	**Primary**
Location	Main route through KP2 running north-south connecting to the KP1 Primary Street and along Station Avenue in the Western part of KP2.
Character	Formal in character, the widest street corridor
Direct Access to Homes?	No
Street Design	
Total Corridor Width	15.9 – 20.7m
Footpaths	3m one side (shared), 2m other side
Cycleways	3m wide shared one side widening to 4m shared footway / cycleway in slelect locations.
Carriageways	6.7m
Public Transport Route	Yes
Traffic Calming	Approx. 90m intervals to be reviewed on a site specific basis.
Utilities Corridor	Yes, as per section 5.17: • Sewers under carriageway; • Other utilities under footway.
Surface Finishes	• Blacktop asphalt as standard. Block paving to shared surfaces and crossing points. • Other bound aggregate and stone/ concrete paving finishes at points of interface with key Public Open Spaces.
Street Furniture	• Bench seating and litter bins provided at strategic 'resting points' and coordinated with adjacent public open spaces where possible. • Provision of dog waste bins subject to LPA requirements.
Street Lighting	• Street lighting to WCC specification. • Lantern Type Urbis Axa as per KP1.
On-Street Parking	No

Technical Details	
Design Speed	30mph
Road Markings	Centreline, giveway and raised table markings
Junction Spacing (centreline – centreline)	30m
Junction Radii	8 – 15m
Forward Visibility	43m
Visibility Splays	43m
Centreline Radii	12.7 – 21.7m
Street Landscaping	
Verge Width	2.1 – 4.5m
Street Trees	Planted within landscape verge
Planting Palette	General varieties that do not restrict visibility
SuDS	Not applicable

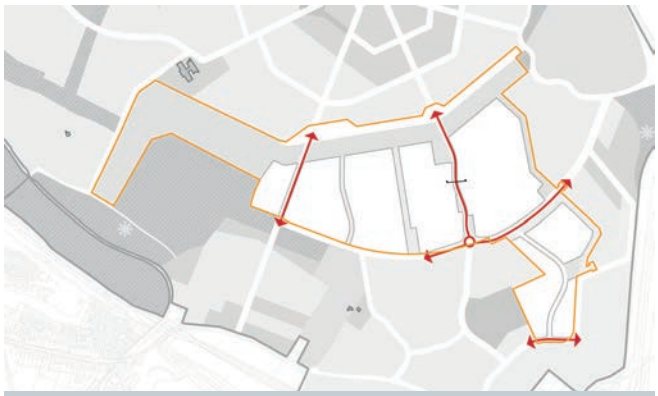


Figure 4.5: Primary Street locations

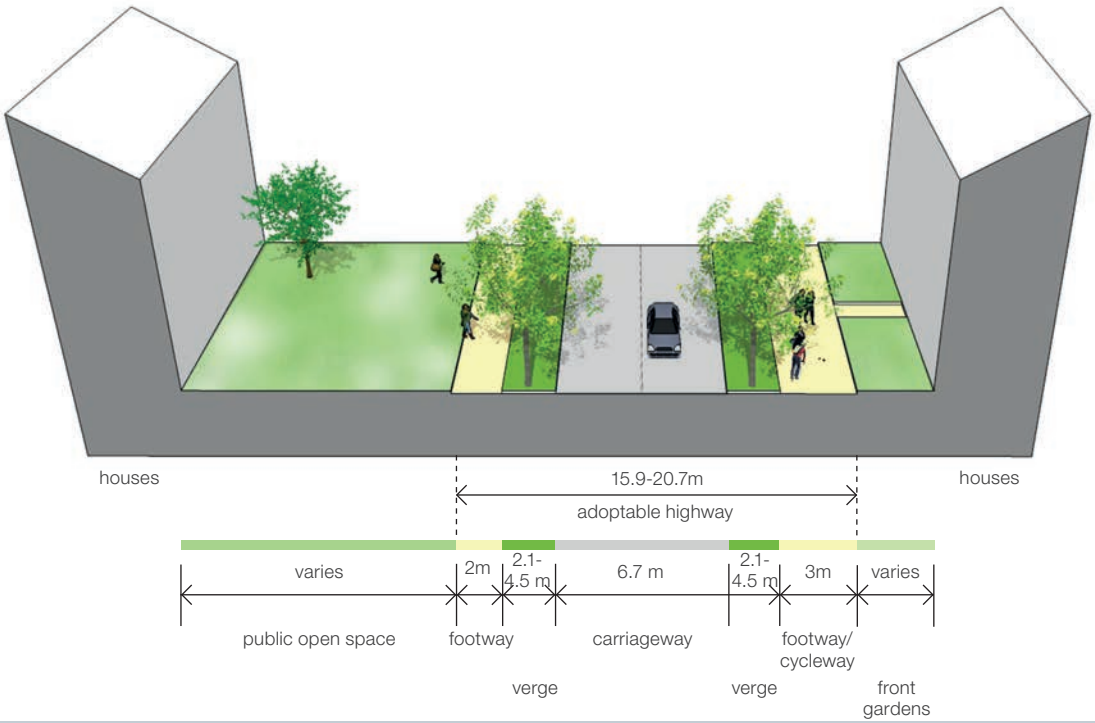


Figure 4.6: Primary Street Indicative Section

4.4.2 Secondary Street

General Information	
Street Type	**Secondary**
Location	One route running north-south between: • Parcels G and F / H.
Character	• Neighbourhood distributor routes providing direct access to homes and tertiary streets.
Direct Access to Homes?	Yes
Street Design	
Total Corridor Width	13 – 15m (13.4-15.4m where PT route)
Footpaths	3m shared one side, 2m other side
Cycleways	3m shared one side
Carriageways	5.5 - 6.1m (PT Route)
Public Transport Route	Selected routes of 6.1m wide but no on-street parking
Traffic Calming	Yes, spaced at approx. 70m intervals
Utilities Corridor	Yes, as per section 5.17: • Sewers under carriageway; • Other utilities under footway.
Surface Finishes	• Blacktop asphalt. Block paving to shared surface and crossing points. • Blacktop asphalt as standard. Block paving to shared surfaces and crossing points. • Other bound aggregate and stone/ concrete paving finishes at points of interface with key Public Open Spaces.
Street Furniture	• Bench seating and litter bins provided at strategic 'resting points' and coordinated with adjacent public open spaces where possible. • Provision of dog waste bins subject to LPA requirements.
Street Lighting	• Street lighting to WCC specification. • Lantern Type Urbis Axa as per KP1
On-Street Parking	No

Technical Details	
Design Speed	20mph
Road Markings	Centreline, giveway and raised table markings
Junction Spacing (centreline – centreline)	30m
Junction Radii	8m
Forward Visibility	25m
Visibility Splays	25m
Centreline Radii	12 - 14m
Street Landscaping	
Verge Width	2.1m - 2.5m
Street Trees	Planted within landscape verge
Planting Palette	General varieties that do not restrict visibility
SuDS	Not applicable

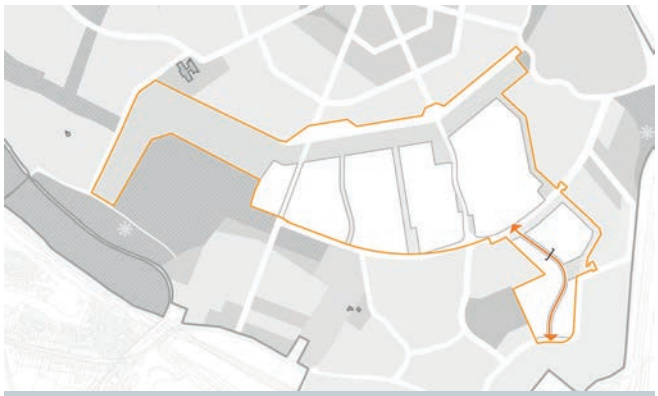


Figure 4.7: Secondary Street locations

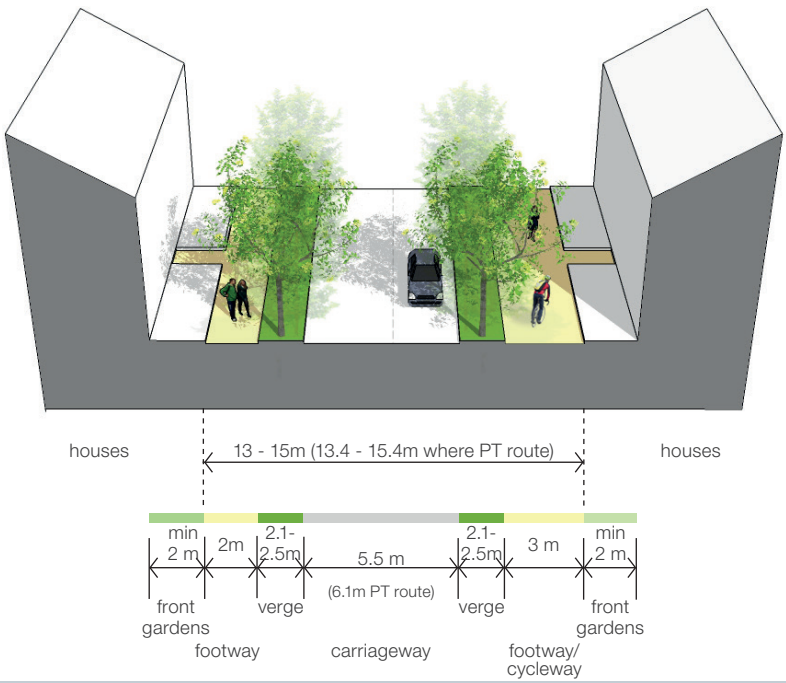


Figure 4.8: Secondary Street Indicative Section

4.4.3 Cross Parcel Permeability and Tertiary Streets

Design Principles:

- Individual development parcels will provide cross-parcel permeability mainly through a network of tertiary streets and pedestrian/cycle routes to create a legible block structure.
- Key cross parcel connections are identified on the Regulatory Plan and will be delivered as part of this network.
- Additional tertiary streets will be provided to serve dwellings and other uses within KP2.
- The alignment and design of the tertiary streets will be fixed by future Reserved Matters applications.
- Indicative access points to parcels, which will likely connect to tertiary streets, are illustrated on the by the Regulatory Plan.
- Tertiary streets provide cross-parcel permeability through development parcels and access to dwellings.
- Typically, tertiary streets will only be used by people living or visiting that area, and will therefore be narrower and less formal in character than secondary streets.
- Longer tertiary streets should be provided with trees on at least one side and could contain areas of on-street parking.
- They must contain a variety of traffic calming measures to increase safety for pedestrians and cyclists. Pedestrians and cyclists should have priority of movement in tertiary streets with shared surfaces and they should only serve a small number of homes.
- Short tertiary streets may have a dropped kerb line and no road markings to reduce speeds and allow for pedestrian priority.
- Detailed proposals will be expected to utilise more than one of the three Tertiary Street types within layouts.

There are three options for tertiary street types with guidance for each provided as follows:

- **Tertiary streets with standard highway design**
  – see Design Principles for this street type in section 4.4.4;
- **Tertiary streets next to landscape and open space; and**
  – see Design Principles for this street type in section 4.4.5;
- **Tertiary streets with shared surface design.**
  – see Design Principles for this street type in section 4.4.6;

Tertiary Streets as Spaces

In addition to the three tertiary street type options there is further guidance for tertiary streets as spaces - where tertiary streets have the opportunity to wrap around small public spaces (for instance pocket parks or formal parks).

– see Design Principles for this street type in section 4.4.7;

Private Drives

The lowest order level of street are private drives, used to access a small number of dwellings (to be determined at Detailed Design Stage).

– see Design Principles for this street type in section 4.4.8;

4.4.4 Tertiary Streets: standard

General Information	
Street Type	**Tertiary Street: Standard**
Location	Access to residential development parcels
Character	Smaller scale residential streets providing access to homes.
Direct Access to Homes?	Yes
Street Design	
Total Corridor Width	8m
Footpaths	2m
Cycleways	No
Carriageways	5 – 5.5m
Public Transport Route	No
Traffic Calming	Yes, spaced at approx. 70m intervals
Utilities Corridor	Yes, as per section 5.17: • Sewers under carriageway; • Other utilities under footway.
Surface Finishes	Bitumous surface and concrete edging / concrete block / stone sett paving / block paving
Street Furniture	None (will be provided in Pubic Open Space if relevant)
Street Lighting	• Street lighting to WCC specification. • Lantern Type Urbis Axa as per KP1
On-Street Parking	Potential provision for on-street parking, to be confirmed in detailed design.

Technical Details	
Design Speed	20mph
Road Markings	No
Junction Spacing (centreline – centreline)	30m
Junction Radii	8m
Forward Visibility	25m
Visibility Splays	25m
Centreline Radii	13 – 13.5m
Street Landscaping	
Verge Width	0 – 1.5m
Street Trees	No
Planting Palette	N/A
SuDS	To be determined within detailed design

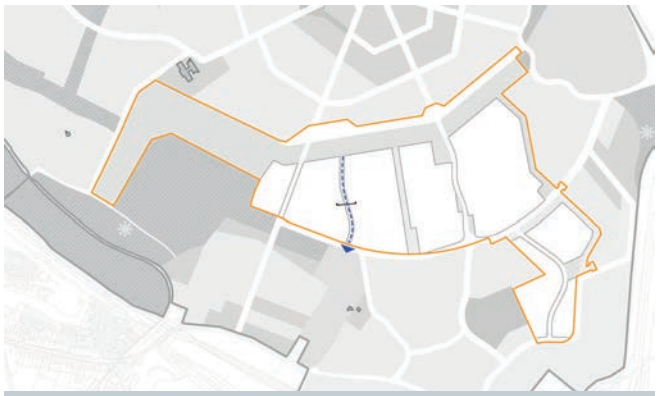


Figure 4.9: Tertiary Street locations

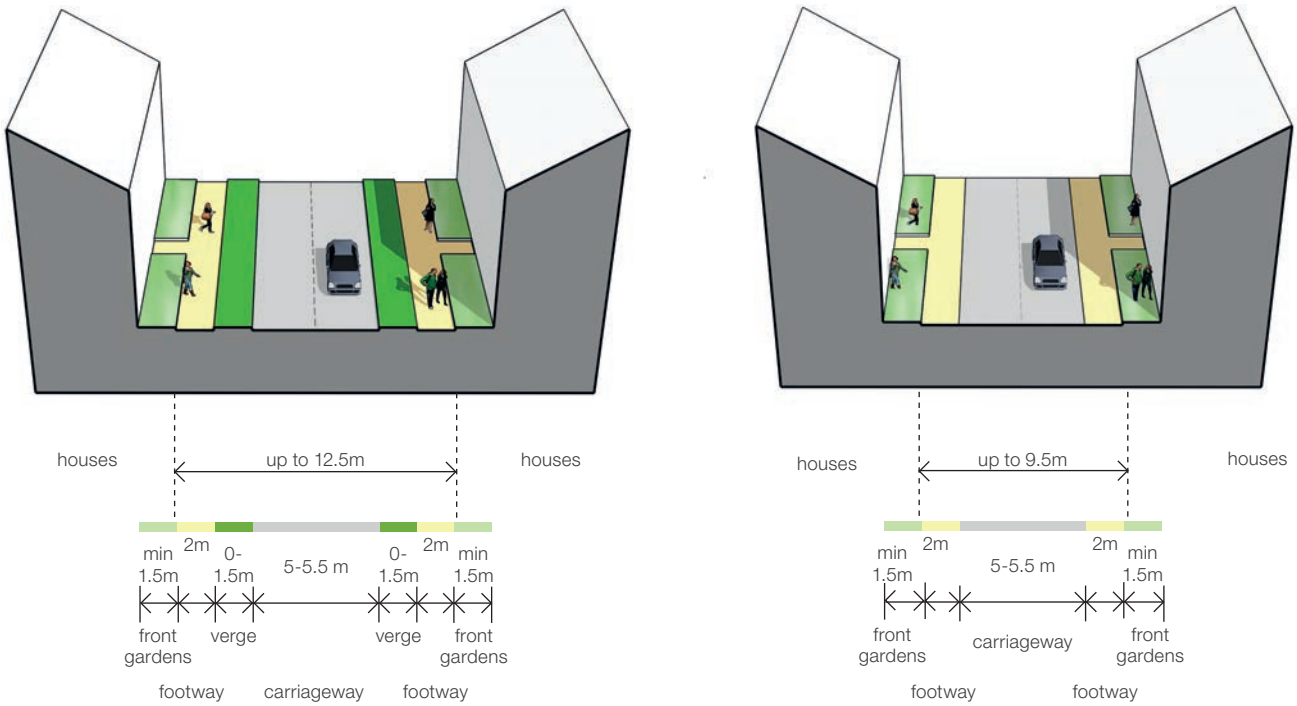


Figure 4.10: Tertiary Street Standard, Indicative Sections: example with full verges (left) and example with no verges (right)

4.4.5 Tertiary Streets: next to landscape

General Information	
Street Type	**Tertiary Street: next to landscape**
Location	Within residential development parcels next to landscape features including wildlife corridors and green corridors.
Character	Smaller scale residential streets, landscape features and low vehicular speeds.
Direct Access to Homes?	Yes
Street Design	
Total Corridor Width	8m (if adopted)
Footpaths	No, shared surface
Cycleways	No, shared surface
Carriageways	5m
Public Transport Route	No
Traffic Calming	Yes, spaced at approx. 70m intervals
Utilities Corridor	Yes, as per section 5.17: • Sewers under carriageway; • Other utilities under footway.
Surface Finishes	• Surface dressed tarmac to standard carriageway treatment. Block paving to shared surfaces and crossing points. • Other bound aggregate and stone/ concrete paving finishes at points of interface with key Public Open Spaces.
Street Furniture	• Seating, bins etc. provided within adjacent landscape spaces.
Street Lighting	• Street lighting to WCC specification. • Lantern Type Urbis Axa as per KP1.
On-Street Parking	Potential provision for on-street parking, to be confirmed in detailed design.

Technical Details	
Design Speed	20mph
Road Markings	No
Junction Spacing (centreline – centreline)	30m
Junction Radii	8m
Forward Visibility	25m
Visibility Splays	25m
Centreline Radii	13m
Street Landscaping	
Verge Width	0m
Street Trees	No
Planting Palette	N/A
SuDS	To be determined within detailed design

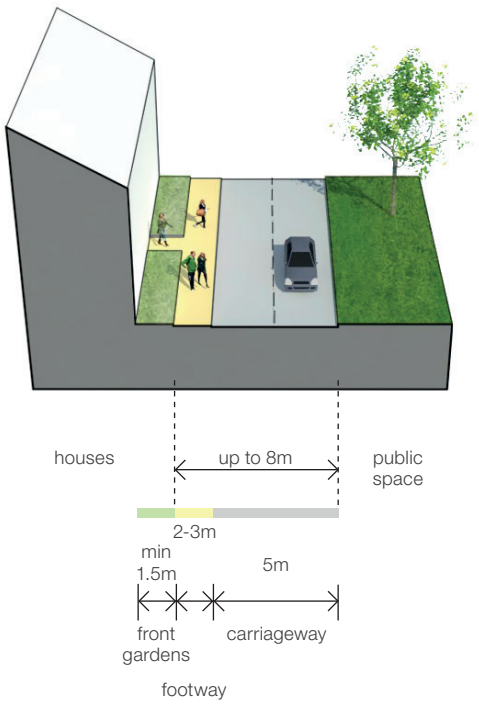


Figure 4.11: Tertiary Street (next to landscape) Indicative Section

4.4.6 Tertiary Streets: shared surface

General Information	
Street Type	**Tertiary Street: shared surface**
Location	Within residential development parcels
Character	Less formal than other tertiary street options with shared surface design approach
Direct Access to Homes?	Yes
Street Design	
Total Corridor Width	8m (if adopted)
Footpaths	No, shared surface
Cycleways	No, shared surface
Carriageways	5m
Public Transport Route	No
Traffic Calming	Yes, spaced at approx. 70m intervals
Utilities Corridor	Yes, utilities under shared surface.
Surface Finishes	• Surface dressed tarmac to standard carriageway treatment. • Block paving to define pedestrian refuges and crossing points.
Street Furniture	None (will be provided in POS if relevant)
Street Lighting	• Street lighting to WCC specification. • Lantern Type Urbis Axa as per KP1.
On-Street Parking	Potential provision for on-street parking, to be confirmed in detailed design.

Technical Details	
Design Speed	20mph
Road Markings	No
Junction Spacing (centreline – centreline)	30m
Junction Radii	8m
Forward Visibility	25m
Visibility Splays	25m
Centreline Radii	13m
Street Landscaping	
Verge Width	0m
Street Trees	No
Planting Palette	N/A
SuDS	To be determined within detailed design

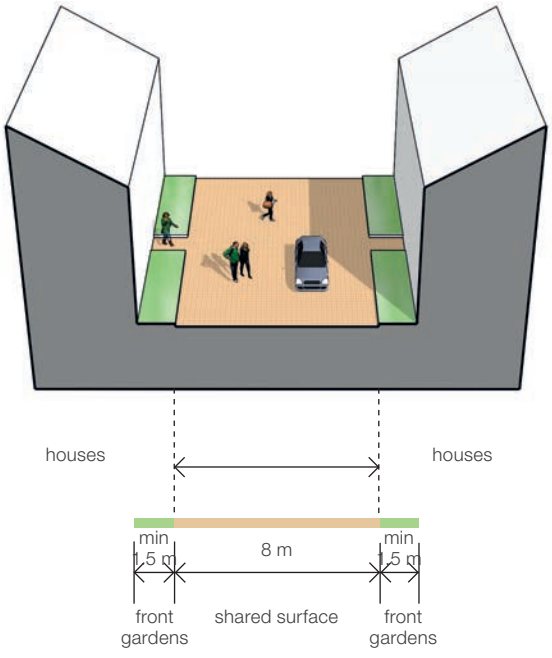


Figure 4.12: Tertiary Street (shared surface) Indicative Section

4.4.7 Tertiary Streets as Spaces

Tertiary streets will be designed as spaces within which vehicles, pedestrians and cyclists share equal priority. This form of tertiary street is appropriate for streets that provide access to dwellings within the centre of development parcels, i.e. away from the primary movement network of KP2.

Where tertiary streets are also intended to function as spaces, the following design principles will be followed:

Design Principles

a	parking areas will be demarcated in a low key manner, through the use of materials
b	where street parking is provided, the number of spaces will not exceed four in a row
c	parking areas will be defined by landscaping
d	buildings surrounding the space will create enclosure through the appropriate use of boundary walls and dwelling frontages
e	high quality surface materials will be used to create an attractive environment for pedestrians, cyclists and vehicles
f	The carriageway does not require definition through materials and should merge with the surrounding spaces. If a tertiary street as a space is to be adopted by the Highway Authority, the minimum width of the whole corridor will be 8m with a carriageway allowance of 5m is required
g	a minimum of 6m clear width will be provided to allow cars to access parking spaces
h	street furniture, such as benches and cycle parking, will be provided as necessary to encourage informal use by residents to encourage activity within spaces

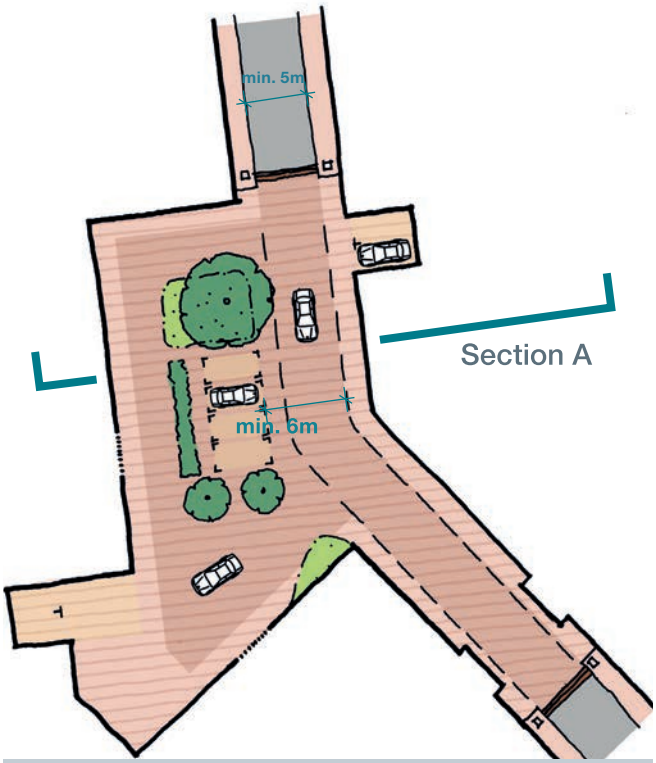


Figure 4.13: Example plan A of adopted tertiary street as space

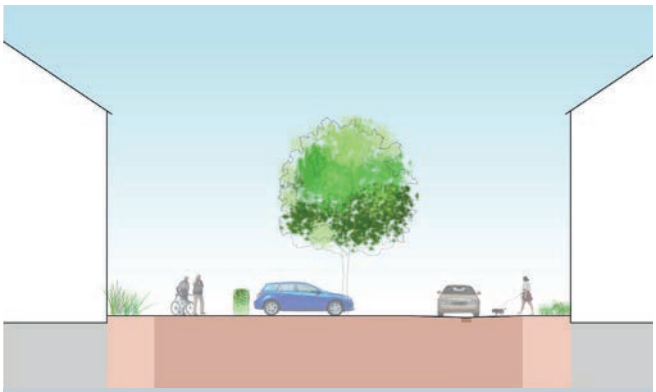


Figure 4.14: Street section A through plan A (above)

Figure 4.15: Example plan B of adopted tertiary street as space

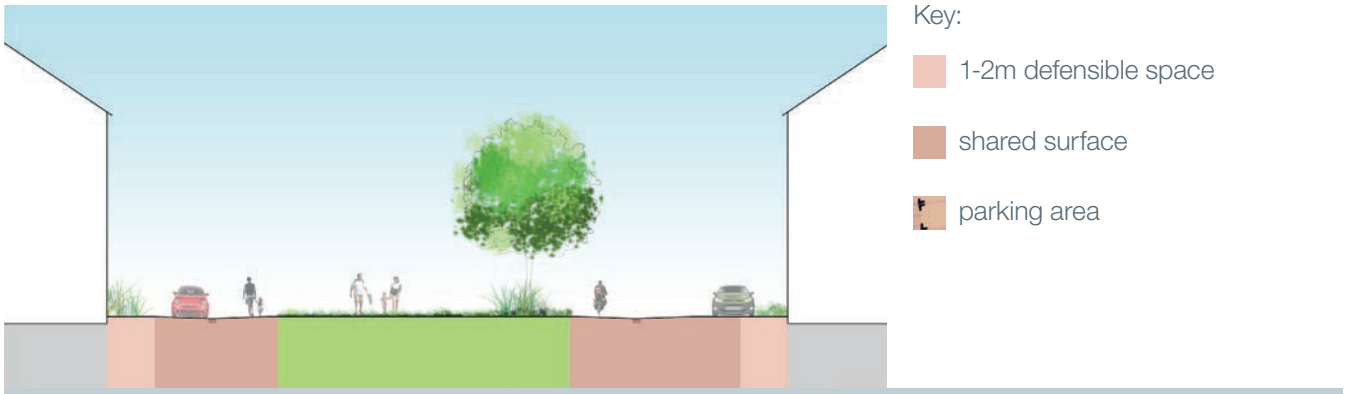


Figure 4.16: Street section B through plan B (above)

4.4.8 Private Drives

General Information	
Street Type	**Private Drives**
Location	Within residential development parcels
Character	Less formal than other tertiary street options with shared surface design approach
Direct Access to Homes?	Yes
Street Design	
Total Corridor Width	To be agreed at detailed design stage
Footpaths	To be determined at detailed design stage
Cycleways	No
Carriageways	• Single dwelling – 3m for a minimum length of 5m from back of public highway • More than one unit – 5m for a minimum length of 5m from back of public highway
Public Transport Route	No
Traffic Calming	No
Utilities Corridor	Yes, under private drive.
Surface Finishes	Surface dressed tarmac / concrete block / stone sett paving / block paving
Street Furniture	No
Street Lighting	No
On-Street Parking	No

Technical Details	
Design Speed	10mph
Road Markings	No
Junction Spacing (centreline – centreline)	17 - 25m
Junction Radii	6m
Forward Visibility	11m
Visibility Splays	minimum 11m but to also accord with appropriate design speed where connects to higher speed road
Centreline Radii	9 – 11.5m
Street Landscaping	
Verge Width	0m
Street Trees	No
Planting Palette	No
SuDS	To be determined within detailed design

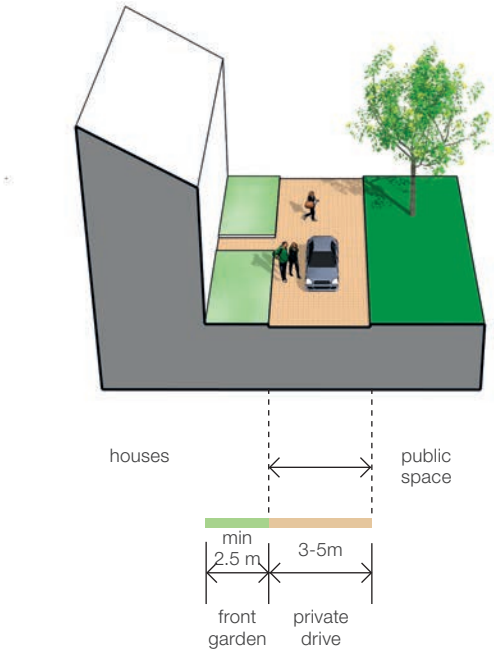


Figure 4.17: Private Drives Indicative Section

4.5 Cycle and Pedestrian Network

A comprehensive network of routes for pedestrians and cyclists must be provided to facilitate ease of movement by walking and cycling, both as part of the street design and as separate leisure routes through green infrastructure.

Streets will have footways and either dedicated footway/cycle tracks to accommodate cycling or street carriageways that have sufficient width to accommodate vehicles and cycles. The following principles apply to cyclist / pedestrian provision as part of streets:

Design Principles

- Pedestrian footways will be provided adjacent to all of the roads (except shared surface access roads) at a minimum width of 2m, with wider footways in areas of high pedestrian volumes.
- pedestrian footpaths will be constructed between individual development plots to encourage walking as a meaningful mode of transport.
- Footpaths and cycleways will be constructed along key desire routes between land uses to ensure that walking and cycling are considered as a real choice.
- Pedestrians and cyclists will be given priority wherever possible over all other forms of traffic with crossing facilities taking the form of signalised crossings, Zebra crossings or shared surfaces depending on the location and volumes.
- Cycleways will be provided either as shared facilities (with pedestrians or in bus lanes) or as dedicated facilities. Cycle parking will be provided in key locations in accordance with minimum standards as set out in relevant Rugby Borough policy guidance. Cycle parking will also be provided within public areas for general use and within individual plots as these are developed out.
- Developers of individual plots will submit details with Reserved Matters planning applications identifying the numbers and locations of cycle parking along with links to walking and cycling facilities.
- Careful location of crossing points and cycleways to achieve effective connectivity.

The Regulatory Plan illustrates suggested routes for leisure paths for walking and cycling through the network of green infrastructure. These off-road leisure routes connect with the comprehensive network of connected streets which make provision for walking and cycling. This network of leisure routes (footpaths, cycle tracks) provide access for pedestrians and cyclists through green infrastructure and should be designed in accordance with the following principles:

- Surface: bitumous surface, bonded gravel or self binding gravel.
- Edging: Concrete or timber edging.
- Width: subject to detail design but minimum of 3m if shared cycletrack/footway.

The combination of off-road leisure routes and streets are illustrated in Figure 4.17: Indicative Walking and Cycling Network.

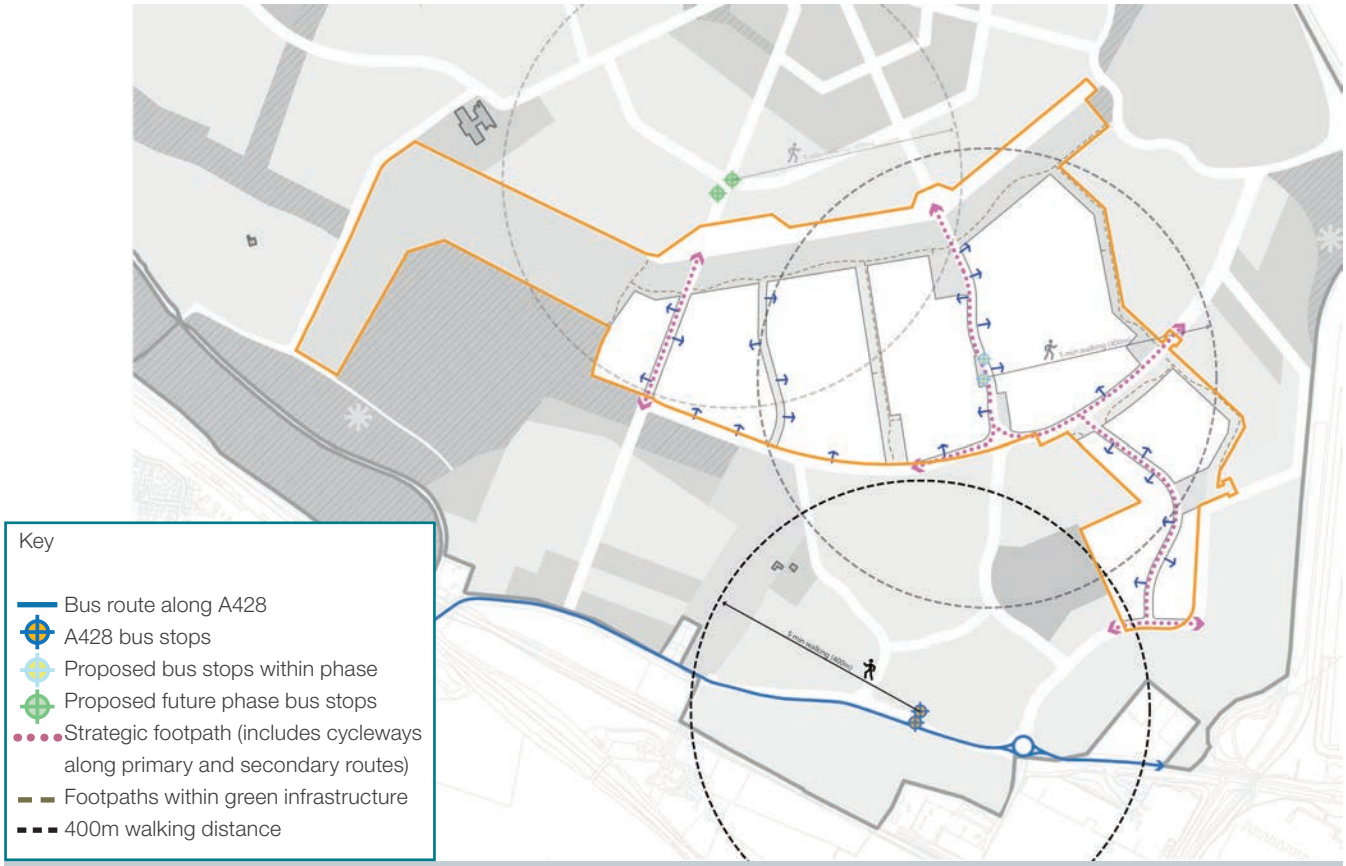


Figure 4.18: Indicative Walking and Cycling Network

4.6 Bus Network

Public Transport Services

The overall strategy envisages the introduction of new routes through the site connecting it with KP1 and beyond to DIRFT and Hillmorton along with Rugby town centre and railway station.

New buses will be introduced on new routes, primarily to link the site with Hillmorton and beyond to Rugby town centre via the new link road once available. The exact details of these routes will be agreed by the Transport Review Group (TRG) and will react to site specific demands whilst taking account of opportunities to serve nearby areas and maximise patronage levels.

The routing and frequency of services along with size of buses will be reviewed on an ongoing basis throughout the build programme with the aim of ensuring that the bus service provision meets the needs of the development.

Public Transport Infrastructure

The public transport measures will be reviewed on an ongoing basis throughout the build programme with changes made as and when necessary.

Bus stops will be located at key locations throughout the wider Development Site with the objective that no individual plot should be more than around 400m from a bus stop.

The stops will be constructed to be accessible and will include shelters to the appropriate standard. See Fig. 4.18, below illustrating new stops at the site entrance and possible future stops (lighter shade) with 400m / 5 minute walking distance radii.

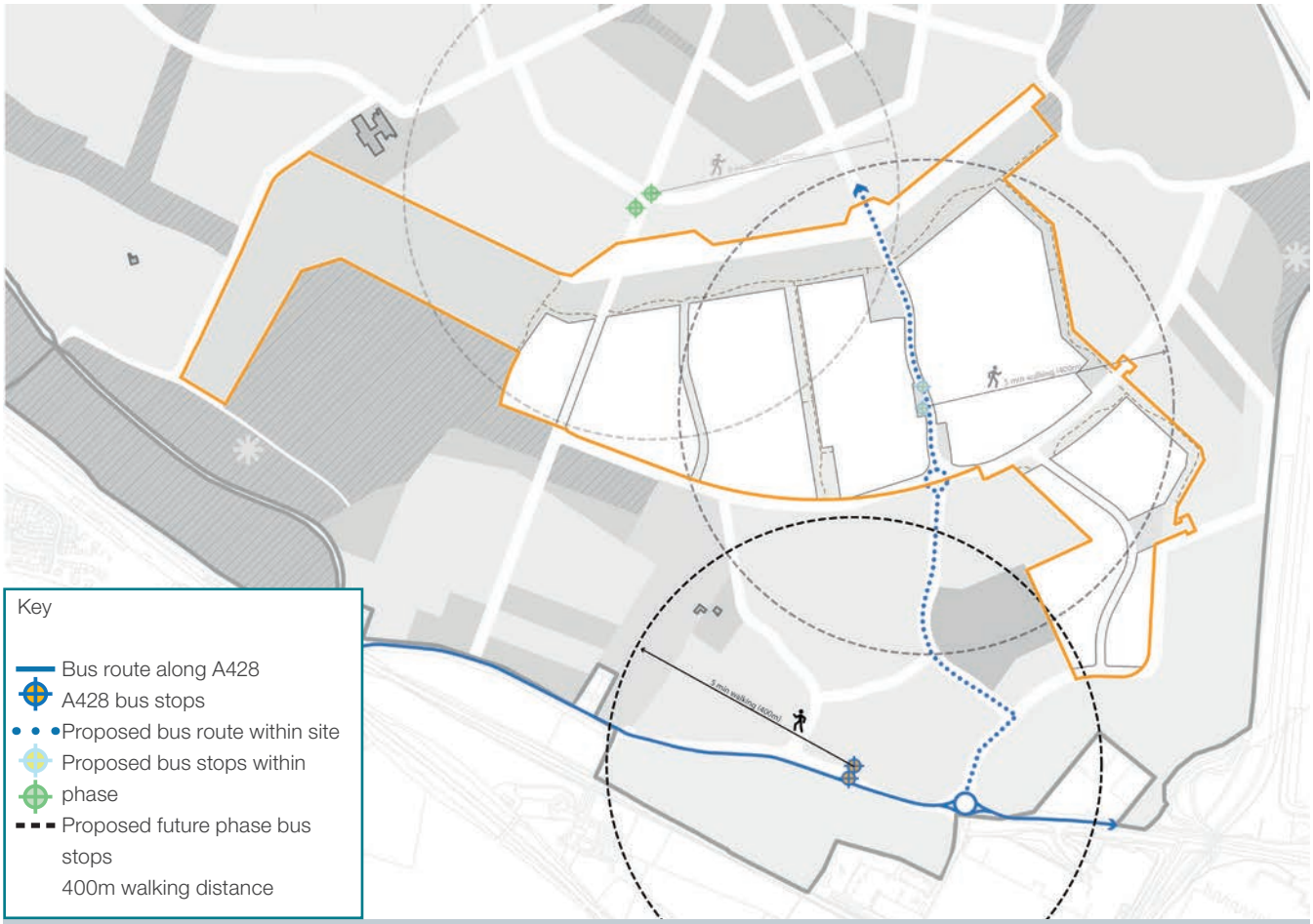


Figure 4.19: Indicative future bus route

4.7 Vehicular Parking

Standards for both residential and non-residential use vehicle parking should follow the Transport Assessment that accompanied the Outline Planning Application.

The maximum levels of parking are set out in Appendix 2 of Rugby Borough Council's Local Development Framework, Planning Obligations, Supplementary Planning Document, March 2012.

Residential

Residential parking will be designed in accordance with the following design principles:

- Overall residential parking ratio in the order of 1.5 spaces per dwelling across the site, unless otherwise agreed by RBC, with a range from no parking for some apartments up to a maximum of 3 spaces for some larger units;
- Not all units will necessarily be allocated dedicated parking bays;
- Houses will be provided with garages and/or allocated parking bays in accordance with RBC standards;
- Details of the parking layout will be submitted with the relevant Reserved Matters planning applications; and
- Visitor parking will typically be provided on-street or within communal parking areas. Details will be submitted with the Reserved Matters planning applications.

Driveway parking softened by front garden planting

Garage & driveway parking with consistent materials

Front of plot parking with landscaping

On street visitor parking set in landscaping

Figure 4.20: Car parking precedent photographs

4.8 Cycle Parking

Cycle parking will be provided in accordance with RBC standards as follows:

- Houses – a minimum of 1 space per unit in a secure and undercover location;
- Apartments with less than 3 bedrooms - a minimum of 1 space per unit in a secure and undercover plus 1 loop/hoop per apartment for visitors;
- Apartments with 3 or more bedrooms - a minimum of 2 spaces per unit in a secure and undercover plus 1 loop/hoop per apartment for visitors;
- All residential units will be provided with secure parking for bicycles. Parking for the apartments will be provided internally for residents with spaces within the curtilage for visitors;
- Parking for houses is proposed within the garages (where provided) or alternative locations within the curtilage as approved;
- Cycle parking will be provided within public areas for visitors.

Potential cycle parking garages on plot

Potential cycle parking garages or sheds on plot

Visitor cycle parking next to entrance of mixed use facilities

Street scene with cycle parking & bin storage provided to front of plot

Close up view of cycle parking & bin storage provided to front of plot

Figure 4.21: Cycle parking precedent photographs

4.9 Traffic Calming Measures

Traffic-calming measures will be provided throughout KP2. Generally, these will be horizontal measures with some vertical features used in specific areas. All traffic-calming measures will be generally in accordance with LTN 1/07 speed control measures, and will be provided at approximately 90m intervals on streets with a 30mph design speed (primary streets) and at 70m intervals on streets with a 20mph design speed (secondary and tertiary streets).

All measures set out below would be subject to traffic regulation orders, safety audits and, in the case of roundabouts, junction modelling.

Figure 4.22: Traffic Calming Measures

Traffic Calming Measure	Image	Description
Gateways / Entry Treatment		• Gateways could typically include a change in road surface and / or carriageway narrowing to alert drivers that they are entering a lower traffic speed area, and should be situated where they are visible to approaching drivers to give them sufficient time to adjust their speed.. • Strategically positioned priority road junctions could be used to effectively control speeds by requiring vehicles to give way to priority traffic. • Gateways could also be provided on tertiary streets to make drivers aware they have left a primary or secondary street.
Build outs (narrowing and chicanes)		• Build outs would be designed and located so as not to affect access to properties and can also assist with pedestrians crossing the road. • On primary and secondary streets, build outs could reduce the carriageway width to a minimum of 4.8m to retain two-way flow. • On tertiary streets, build outs could reduce the carriageway width to 3m. In this case, signage would be required to indicate who has priority.
Central Islands		• Where possible, central traffic islands would be used in locations where they can also act as a pedestrian refuge to enable crossing the carriageway in two stages (subject to carriageway widths). • Central islands could also include planting to soften the urban scene and create visual interest.

Traffic Calming Measures continued over page.

Traffic Calming Measure	Image	Description
Raised Junctions		• Raised junctions could be constructed in selected locations with high demand for pedestrian movement, and can allow for easier pedestrian crossing by raising the carriageway level with the footway (subject to a minimal kerb upstand). • Raised junctions can help enhance the appearance of a road and cause drivers to reduce their speed by the use of vertical deflection. • Raised junctions would be most appropriate for street types with a design speed of 20mph where there are no bus routes.
On-street parking		• On-street parking could be used as a positive speed restraint measure in selected locations by reducing capacity and encouraging lower vehicle speeds. • On-street parking would only be implemented on streets with sufficient width to ensure vehicles would not park on footways or verges. • On-street parking will be discouraged within areas likely to be popular for children's play or where there is likely to be a high demand for pedestrian / cycle movement across the carriageway.
Surface Treatments		• A change in carriageway colour and / or texture (such as block paving) could be used to emphasise a change in environment such as at zone entrances. • Surface treatments may be used to complement other measures such as gateways and raised tables in selected locations such as areas with high pedestrian activity.

Chapter 5

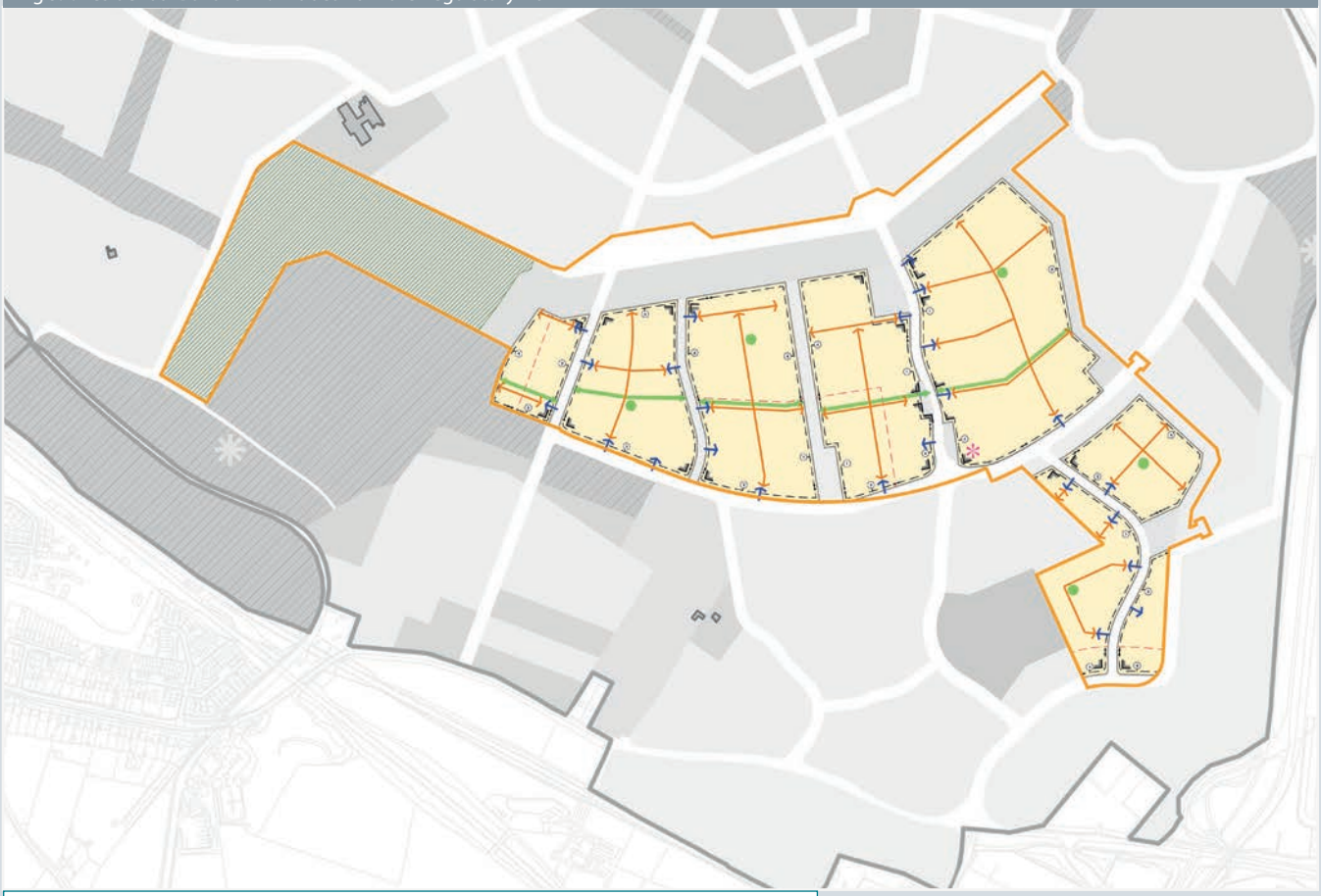
Built Form

5.1 Built Form Guiding Design Principles

KP2 has the potential to deliver **up to 1,145 homes and up to 5,350 m² in mixed use floorspace.** The following Guiding Design Principles have been established:

- To continue the **layout structure of the former Radio Station site** so residential parcels maintain views to and from the existing built form within RSR.
- To ensure the design of KP2 **responds to its local setting** to reinforce the characteristics of residential areas of Rugby as well as the site's former uses as the Radio Station site.
- To provide a block structure that is a continuation of that set within KP1 and a transition to a more **urban character** to reflect the proximity to the C Station.
- To ensure the block structure provides **active frontages** facing onto streets and green infrastructure.
- To establish a **residential density** level that complies with the OPP and creates a more urban feel due to the proximity to the C Station.
- To locate **affordable dwellings** to ensure they integrate with market dwellings.

Fig 5.1: Residential Built Form: Extract from the Regulatory Plan



5.2 Introduction

This chapter of the design guide builds on the residential design principles set out in the Rugby Radio Station SUE Outline Planning Application and Parameter Plans.

KP2 has the potential to deliver up to 1,145 homes. The key objective for the Rugby Radio Station SUE is to create a network of safe and secure streets forming walkable neighbourhoods, and the layout of residential streets plays a major part in this.

This chapter of the design guide refers closely to the Regulatory Plan and will set out the following;

Frontage Character	This table explains how residential parcels will address key streets and open spaces, as set out in the Regulatory Plan.
Character Areas	The KP2 site divides into five distinct character areas. These determine factors such as housing typologies and materials allowed for the development within them. They set out illustrative frontage examples, and a series of samples which illustrate how the rules within this chapter could be applied to design a grouping of buildings to create an appropriate streetscene within the character area. Precedent images for each character area are shown to guide the future development. Proposals should demonstrate a gradual transition between character areas. Proposals should demonstrate consistency and gradual transition of materiality and typology selection for buildings on both side of streets either where a street passes through a parcel and across character areas, or where the parcel faces another character area or completed parcel across a street.
Key Groupings	Two key groupings have been identified and are essential components in creating distinctiveness within Key Phase 2. Design Principles for each of the groupings summarises and provides a more detailed design brief in addition to the requirements of the Regulatory Plan.
Residential Density	Guidance on appropriate density ranges across the extent of KP2.
Building Heights	Guidance on the building heights permitted across the extent of KP2.
Built Form Principles	Residential plot layout rules and architectural principles for residential and mixed use built form guide developments to achieve a coherent framework of well-designed streets and spaces and a coherent, yet distinctive chatacter for architectural design.
Private Amenity Space	Guidance on the appropriate amenity space required for dwellings.
New Utility Supplies	Guidance on the utility supplies, provision and location across KP2.
Refuse & Recycling	Guidance on the provision, location and design principles for bin storage and refuse collection.
Noise Mitigation	Preliminary noise mitigation design guidance for KP2.

5.2.1 Marker Buildings

Marker Buildings of high importance are identified at the most important locations on the Regulatory Plan. Marker Buildings will be distinctive, providing legibility and identity. The design of Marker Buildings will respond to key views and vistas and to the open space and public realm it addresses. Marker Buildings will be constructed in the highest quality materials and finishes. Marker Buildings may not be compliant with the guide.

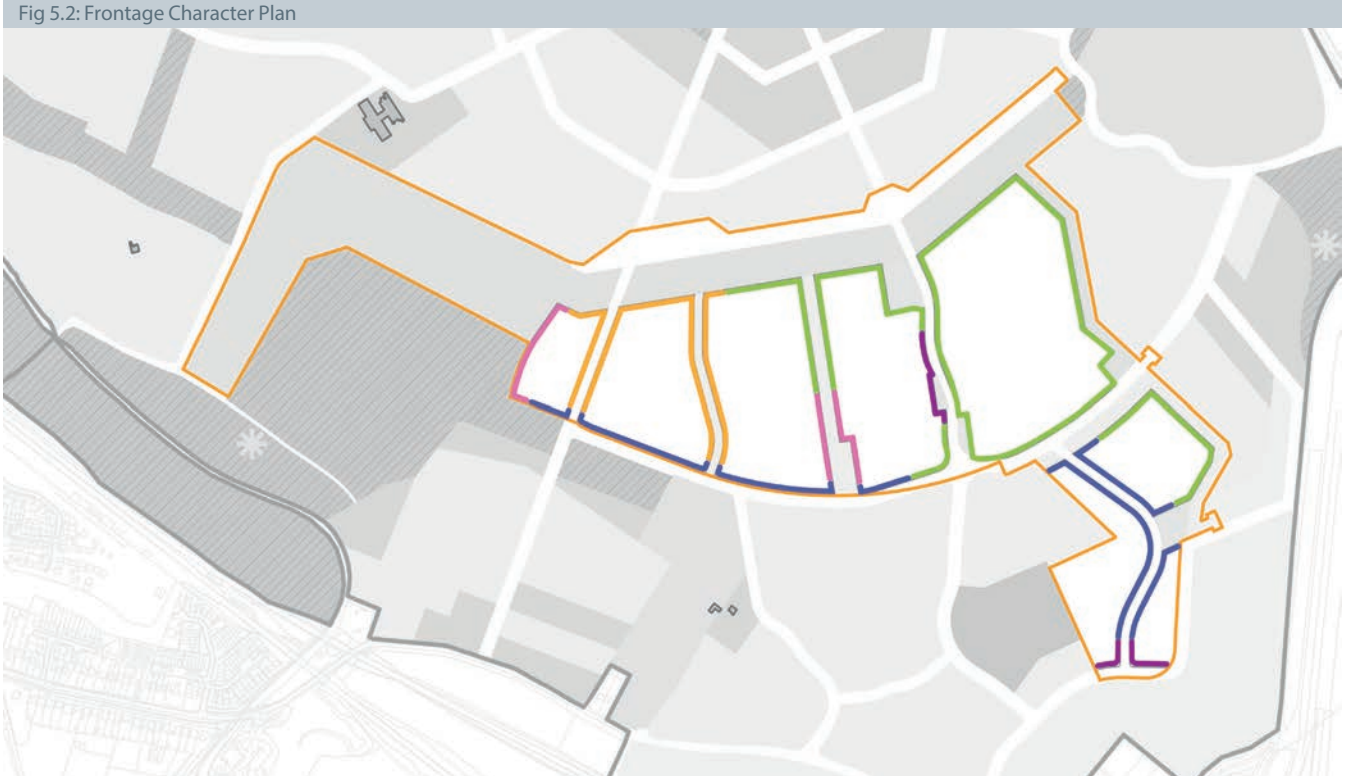
5.2.2 Key Buildings

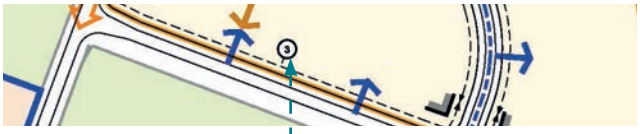
Key Buildings are identified at a number of locations on the Regulatory Plan. They frame key views, address open space and public realm. The frontage of Key Buildings will address the important locations as identified on The Regulatory Plan.

5.3 Frontage Character

Frontage character will respond to key streets and spaces and is detailed in the plan below.

Fig 5.2: Frontage Character Plan

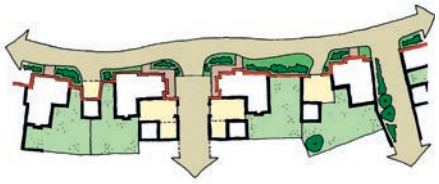
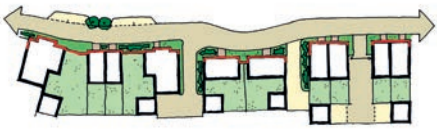
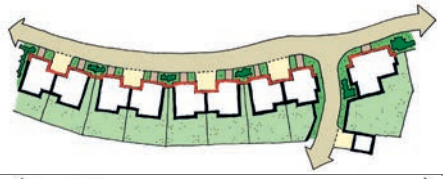
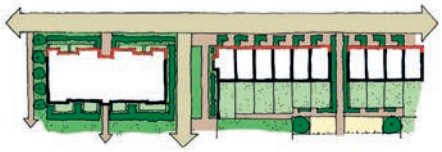




Extract of the Regulatory Plan highlighting the frontage character

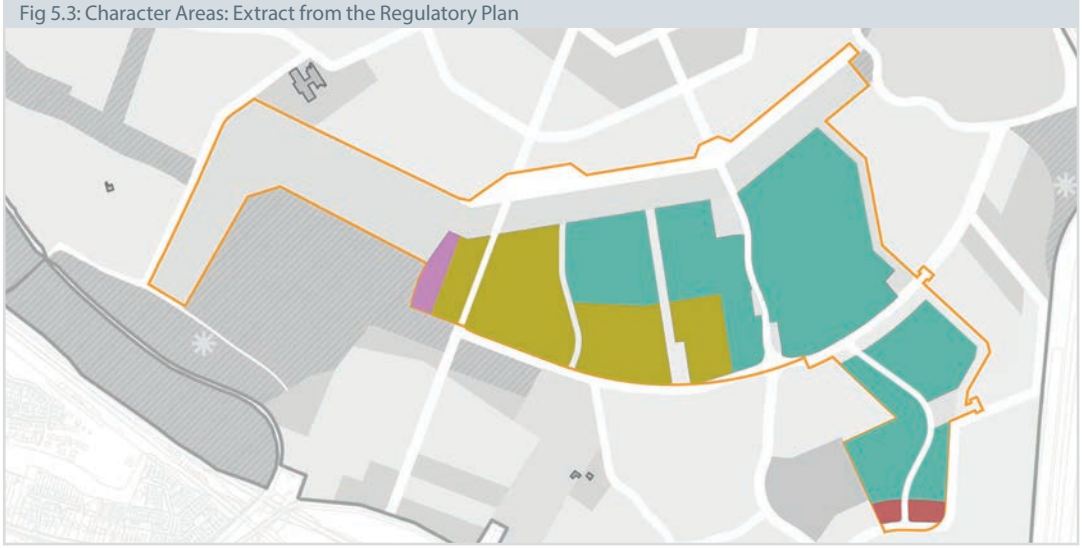
3

The following types of frontage character will be demonstrated along key routes and spaces throughout the KP1 site. The residential frontage label on the Regulatory Plan, as shown below, prescribes which frontage character will be used along a given edge.

Plan Example	Frontage Character Types
1 	• Staggered frontage • Consists of predominantly detached dwellings of varying size • Frontage may include garage rear/flank walls and garden walls
2 	• Stepped frontage • Consists of predominantly detached and semi-detached dwellings • Subtle variation in set-back from public realm
3 	• Consistent frontage • Consists of dwellings of a similar typology and size, arranged on a consistent spacing with a consistent set back to create rhythm and strong building line
4 	• Stepped, linear frontage with a high degree of enclosure • Consists of semi-detached and terraced dwellings • Detached dwellings may define corner plots
5 	• Near continuous, formal, linear frontage • Consistent grouping of typologies • Consists of semi-detached, terraced dwellings and apartments, with gaps only for access to parking and pedestrian routes

5.4 Character Areas

Fig 5.3: Character Areas: Extract from the Regulatory Plan



The residential and mixed-use components of Key Phase 2 have been categorised into five Character Areas. These areas will be defined by their housing typologies, layout of parcel frontages, and materials used in their design, and are important as part of the method by which the Design Guide seeks to ensure coherent development across neighbourhoods. The edges of areas of built form, or parcel frontages, play a key role in defining character and coherence, and the design principles focus on these edges. Significantly greater flexibility is provided within the inner areas of parcels that do not face main public routes or spaces. The five areas are described briefly below (note the colours below relate to the plan in Figure 5.3, above):

Rural Edge
At an interface between the new neighbourhood and expansive open space to the west, this is an area characterised by low-density, detached housing in a informal arrangement where spacing between dwellings varies in width, and variety in the positioning of buildings relevant to the route they face occurs. Further variety will be expected between houses, expressed through building form and material selection. The objective is a rural character of development, avoiding formality in the arrangement of dwellings and landscape areas. Plots will vary in size but should feature generous rear gardens and occasional planted front gardens or courts.

Informal Urban
This area serves as a transition between the low-density, informality of the Rural Edge area towards the higher-density, Formal Urban Character Area to its east. It will comprise predominantly detached and semi-detached houses of 2 or 2.5 storeys but should also feature mews spaces or shared courts defined by terraced and semi-detached homes. Whilst the objective is overall to achieve a formal pattern of streets and spaces, occasional areas of looser housing layout should feature in response to green links or incidental landscape.

Formal Urban
The largest identified Character Area within Key Phase 2, Formal Urban serves as a transition from the lower density Informal Urban area. It will feature a balanced mixed of housing types arranged in a predominantly orthogonal layout of 2 and 3 storey buildings. Terraced homes should be used to provide enclosure and definition to primary routes and spaces, with detached, semi-detached homes arranged in coherent, regularly-spaced alignments with limited stepping in the building line. The objective is to achieve a coherent environment of formally laid out streets and spaces accommodating a range of housing types - with emphasis provided to prominent corners and parcel frontages.

Eastern Gateway
A small south-easterly element of Key Phase 2, connecting to the same Character Area as features beyond the phase boundary, in Key Phase 1. It features an interface with the Formal Urban Character Area immediately to its north, and will expect to reflect characteristics of this area. The objective is the creation of a series of residential pavilion blocks forming a strong building line along the primary route immediately to the south.

5.4.1 Steps for using Chapter 5.4

Each character area is described over 2-4 pages, containing guiding principles and explanatory images. The images on this page and the one opposite, explain the steps to interpreting the guidelines laid out in this chapter.

Character Area Wide

Step Ⓐ

Determine which Character Area(s) designation the respective parcel falls under.

1. Identification of Character Area in the context of Key Phase 2

2. Description of Character Area and the guiding principles which are applicable to its entirety.

Guiding Design Principles

3. List of permitted materials and the principles of their application. These pertain to the entire Character Area.

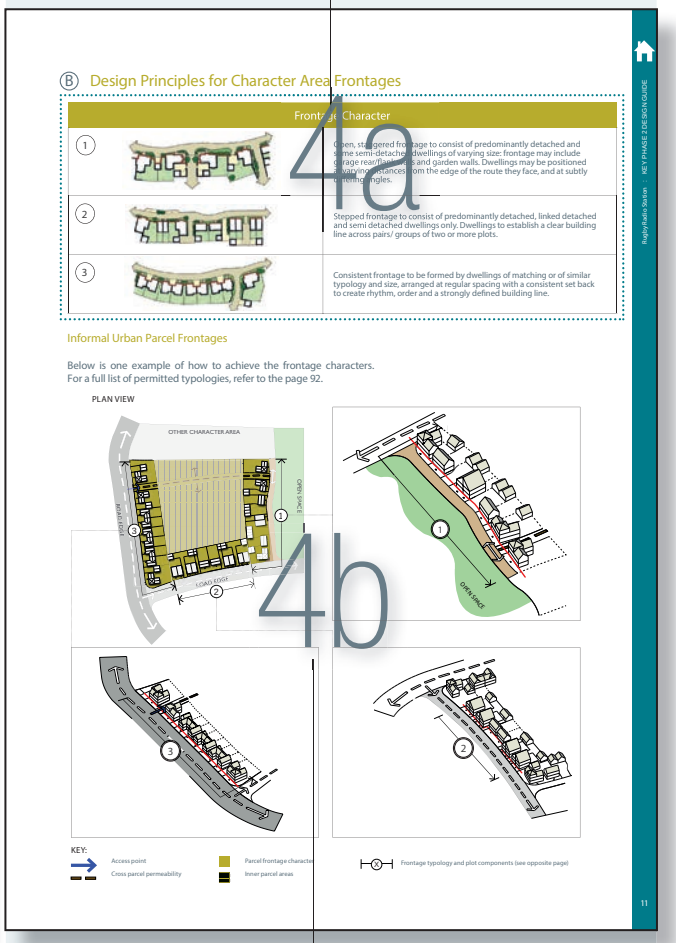
Parcel Frontage

Step Ⓑ

Determine which Frontage Characters are applicable to the respective parcel.

4a. Frontage characters set the street scene and define how dwellings are organised along the street and the degree of enclosure to be achieved. Multiple frontage characters may be applicable to any given character area.

The subsequent permitted dwelling typologies, parking typologies and boundary treatments are specific to each frontage character contained within the character area.



4b. Illustrative sketches show suitable configurations of permitted housing typologies particular to this Character Area. The full list of permitted dwellings, parking typologies and boundary treatments are contained in the following 3 tables on the next page of the Character Area.

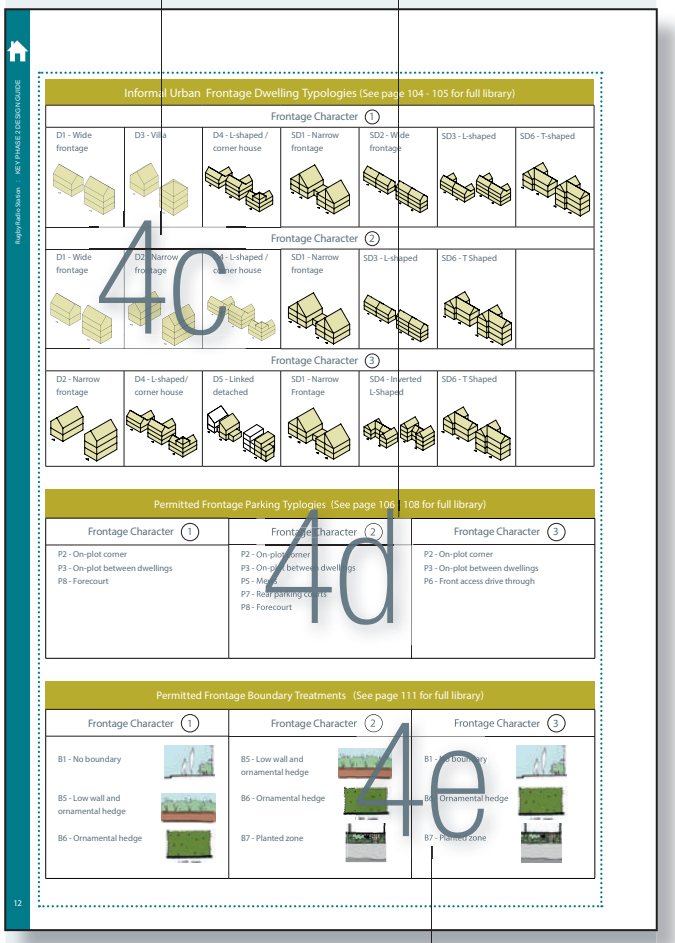
Character Area Wide

Step Ⓑ Continued

Determine which plot components are permitted in each frontage character.

4c. List of permitted dwelling typologies (specific to each frontage character)

4d. List of permitted parking typologies (specific to each frontage character)

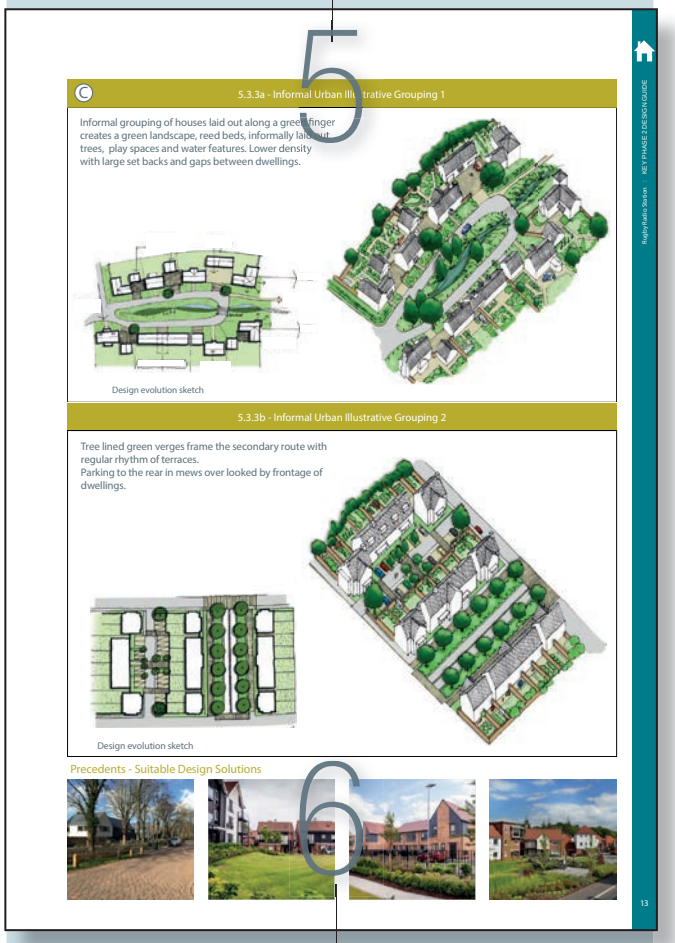


4e. List of permitted boundary treatments (specific to each frontage character)

Step Ⓒ

Refer to illustrative groupings appropriate for in the Character Area(s)

5. Illustrative Groupings enrich character within neighbourhoods and suggest how dwellings, boundary types and parking types can be arranged within a framework of streets and green spaces. Step 5 is to study the example illustrative groupings and consider how these could be incorporated into layouts in the relevant Character Area.



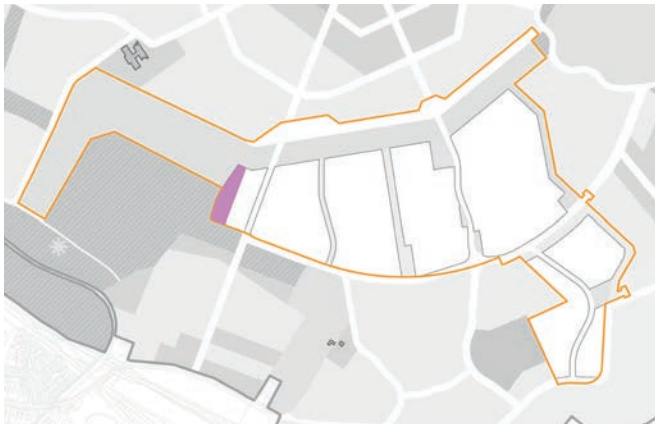
6. Precedent images demonstrate suitable features which are applicable in the character area.

5.4.2 Rural Edge

Ⓐ Guiding Character Area Design Principles

The Rural Edge Character Area occupies a relatively small zone to the western side of Key Phase 2, facing over public open space and Normandy Hill. As an important interface between the wider residential neighbourhood and the expansive open spaces it faces, this area should be characterised by low-density housing to create a soft development edge. Proposals should adhere to the following principles:

- Dwellings will be predominantly detached and 2 storey - with some 2.5 or 3 storey elements to emphasise key corners and frontages;
- Where frontage is to open space a varied, gently staggered building line to the parcel edge will be established;
- Gaps between buildings should vary in width;
- Where linkage between buildings occurs this should be achieved by walls, car barns and garages;
- Roads and shared private drives should achieve a shared surface rural / informal character wherever possible, utilising block paving / bound gravel / spray and chip finish macadam;



Key Plan

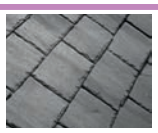
- Incidental pockets of green space and tree planting should be incorporated, accentuating the informal and low-density characteristics of the layout;
- Generous rear gardens should feature, alongside occasional, varying sized front gardens or forecourts;
- Materials will be selected from the Character Area palette below, but variety from one dwelling to the next will be appropriate.

Permitted Materials for Character Area (see page 107 for full library)

1. Roof

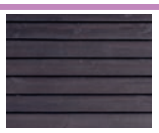

Orange/red tiles

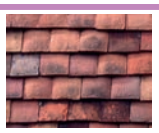

Dark red tiles


Grey slate

2. Walls


Red stock brick

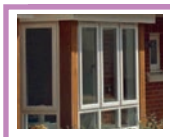

Black horizontal timber boarding


Clay tile hanging


Red brickwork with blue headers


Brown / orange stock brick

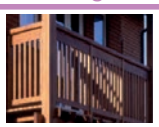
3. Windows


White


Timber

4. External Balustrading


White painted


Stained timber

Rural Edge - Materials

- At least 90% of buildings will use dark red clay tiles or pantiles for roofs; up to 10% may employ orange/red or slate tiles.
- Roofs of outbuildings (including garages) will either utilise pantiles or the same primary roof material as the dwelling with which they are associated.
- Walls to outbuildings (including garages) will either utilise the same primary wall material as the dwelling with which they are associated, or weatherboarding;

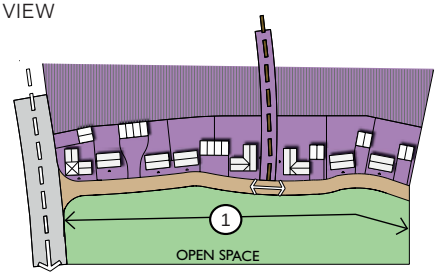
Ⓑ Design Principles for Character Area Frontages

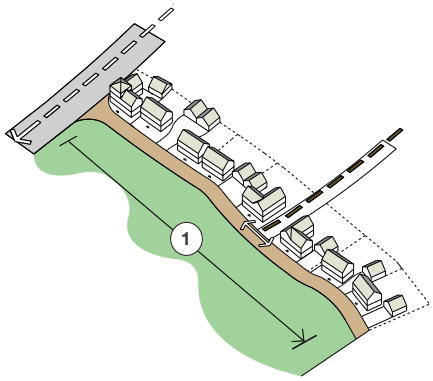
Frontage Character	
1	Open, staggered frontage to consist of predominantly detached and some semi-detached dwellings of varying size: frontage may include garage rear/flank walls and garden walls. Dwellings may be positioned at varying distances from the edge of the route they face, and at subtly differing angles.

Typical Rural Edge Parcel

Below is one example of how to achieve the stipulated frontage character. For a full list of permitted typologies, refer below.

PLAN VIEW





KEY:

Cross parcel permeability

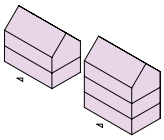
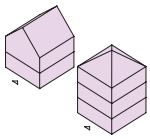
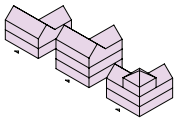
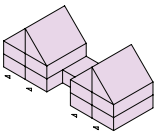
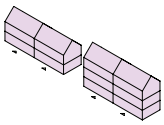
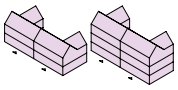
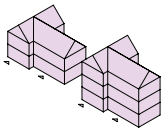
Parcel frontage character

Inner parcel areas

Frontage typology and plot components (see opposite page)

Informal Urban Frontage Dwelling Typologies (see page 108 – 109 for full library)

Frontage Character 1

D1 - Wide frontage	D3 - Villa	D4 - L-shaped / corner house	SD1 - Narrow frontage	SD2 - Wide frontage	SD3 - L-shaped	SD6 - T-shaped
						

Permitted Frontage Parking Typologies (see page 110 – 112 for full library)

Frontage Character 1

P2 - On-plot corner

P3 - On-plot between dwellings

P8 - Forecourt

Permitted Frontage Boundary Treatments (see page 115 for full library)

Frontage Character 1

B1 - No boundary 

B5 - Low wall and Hedge 

B6 - Ornamental hedge 

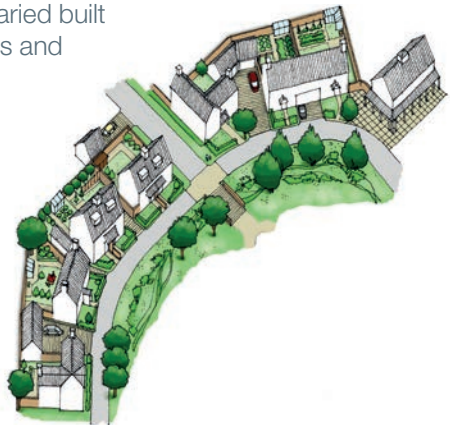
B7 - Planted zone 

B9 - Picket fence 

C 5.4.2a - Rural Edge Illustrative Grouping 1

Dwellings address meandering informal lanes and shared surface routes. Varied built form addressing linear or informal landscape. Variety in set back of dwellings and size of front gardens with low enclosures results in a village character.

Design evolution sketch



5.4.3 Informal Urban

Ⓐ Guiding Character Area Design Principles

The Informal Urban Character Area occupies a significant area of Key Phase 2. It includes interfaces with various conditions – primary Green Infrastructure, a primary road, and three other Character Areas. It serves as a transition between the low-density, informality of the Rural Edge area towards the higher-density, Formal Urban area. It accommodates important green routes linking through these different Character Areas. Proposals should adhere to the following principles:

- Dwellings will be predominantly 2 or 2.5 storey - with some 3 storey elements to emphasise key corners and frontages;
- Across the Character Area, detached and semi-detached houses should predominate, with occasional groups / clusters of terraced homes defining mews spaces or courts within parcels and achieving a variety in density;
- There should be greater formality in layout as compared to the Rural Edge character, but without resulting in a fully orthogonal street pattern: softening of building lines along green links or at incidental green spaces is encouraged;

Key Plan

- Where frontage is to open space, parcel edges will establish a clear building line, with some stepping of dwelling positioning relative to the edge of public realm;
- Where the Informal Urban areas face a primary route, a consistency and rhythm to the parcel edge will be established through building line, regular spacing of dwellings, and repeated typologies;
- A series of shared surface courts and mews spaces should be created within the inner parcel areas, with consistent approaches to material selection and housing typologies within these areas;
- A variety of tertiary street types should be created across the Character Area, but with a hierarchy of routes clearly expressed through street design and materials.

Permitted Materials for Character Area (see page 107 for full library)

1. Roof

Orange/red tiles

Dark red tiles

Grey slate

2. Walls

Red stock brick

Black horizontal timber boarding

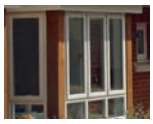
Render

Brown / orange stock brick

3. Windows

Dark Grey

Grey Green



White

4. External Balustrading

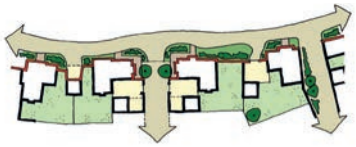
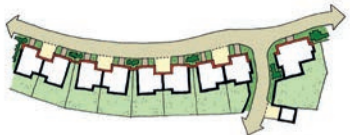
Dark metal with glass balustrade

Grey or black with metal balustrades

Informal Urban - Materials

- At least 90% of buildings will use red brick as the primary wall material: up to 10% may employ render, black weatherboarding, or brown/orange brick as a primary wall material;
- Walls to outbuildings (including garages) will either utilise the same primary wall material as the dwelling with which they are associated, or weatherboarding;
- At least 90% of buildings will use dark red clay tiles or pantiles for roofs; up to 10% may employ orange/red or slate tiles;
- Roofs of outbuildings (including garages) will either utilise pantiles or the same primary roof material as the dwelling with which they are associated.

Ⓑ Design Principles for Character Area Frontages

Frontage Character	
1 	Open, staggered frontage to consist of predominantly detached and some semi-detached dwellings of varying size: frontage may include garage rear/flank walls and garden walls. Dwellings may be positioned at varying distances from the edge of the route they face, and at subtly differing angles.
2 	Stepped frontage to consist of predominantly detached, linked detached and semi detached dwellings only. Dwellings to establish a clear building line across pairs/ groups of two or more plots.
3 	Consistent frontage to be formed by dwellings of matching or of similar typology and size, arranged at regular spacing with a consistent set back to create rhythm, order and a strongly defined building line.

Informal Urban Parcel Frontages

Below is one example of how to achieve the frontage characters.
For a full list of permitted typologies, refer to the page 98.

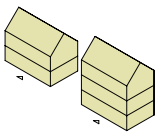
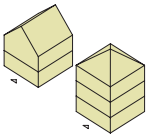
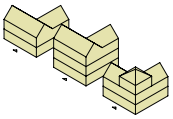
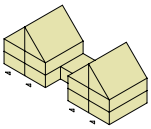
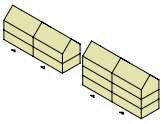
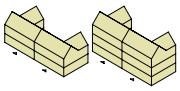
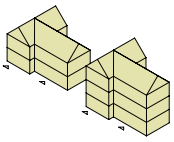
PLAN VIEW

KEY:

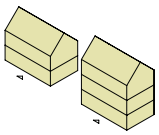
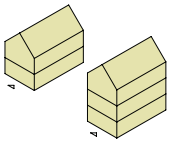
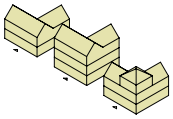
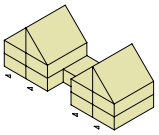
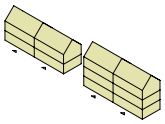
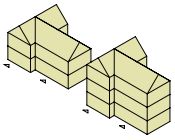
Access point
Cross parcel permeability
Parcel frontage character
Inner parcel areas
Frontage typology and plot components (see opposite page)

Informal Urban Frontage Dwelling Typologies (see page 108 – 109 for full library)

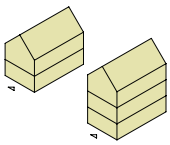
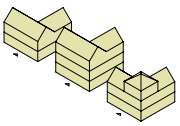
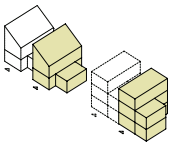
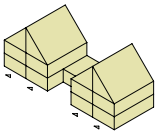
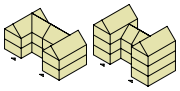
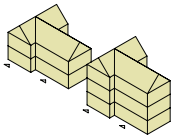
Frontage Character 1

D1 - Wide frontage	D3 - Villa	D4 - L-shaped / corner house	SD1 - Narrow frontage	SD2 - Wide frontage	SD3 - L-shaped	SD6 - T-shaped
						

Frontage Character 2

D1 - Wide frontage	D2 - Narrow frontage	D4 - L-shaped / corner house	SD1 - Narrow frontage	SD3 - L-shaped	SD6 - T Shaped
					

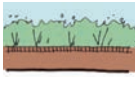
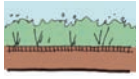
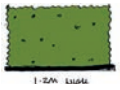
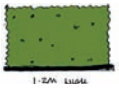
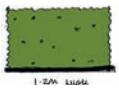
Frontage Character 3

D2 - Narrow frontage	D4 - L-shaped/ corner house	D5 - Linked detached	SD1 - Narrow Frontage	SD4 - Inverted L-Shaped	SD6 - T Shaped
					

Permitted Frontage Parking Typologies (see page 110 – 112 for full library)

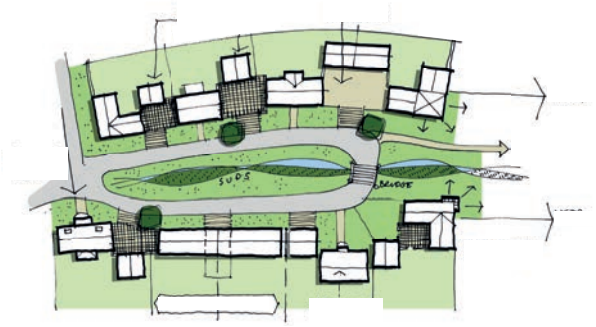
Frontage Character 1	Frontage Character 2	Frontage Character 3
P2 - On-plot corner P3 - On-plot between dwellings P8 - Forecourt	P2 - On-plot corner P3 - On-plot between dwellings P5 - Mews P7 - Rear parking courts P8 - Forecourt	P2 - On-plot corner P3 - On-plot between dwellings P6 - Front access drive through

Permitted Frontage Boundary Treatments (see page 115 for full library)

Frontage Character 1	Frontage Character 2	Frontage Character 3
B1 - No boundary 	B5 - Low wall and ornamental hedge 	B1 - No boundary 
B5 - Low wall and ornamental hedge 	B6 - Ornamental hedge 	B6 - Ornamental hedge 
B6 - Ornamental hedge 	B7 - Planted zone 	B7 - Planted zone 

5.4.3a — Informal Urban Illustrative Grouping 1

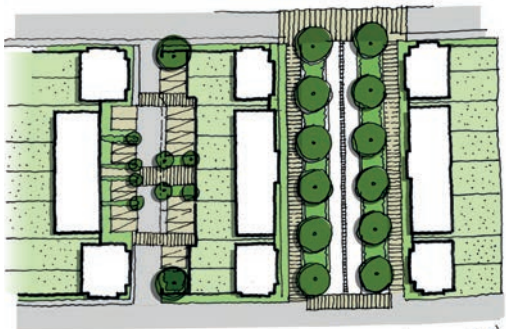
Informal grouping of houses laid out along a green finger creates a green landscape, reed beds, informally laid out trees, play spaces and water features. Lower density with large set backs and gaps between dwellings.



Design evolution sketch

5.4.3b — Informal Urban Illustrative Grouping 2

Tree lined green verges frame the secondary route with regular rhythm of terraces.
Parking to the rear in mews over looked by frontage of dwellings.



Design evolution sketch

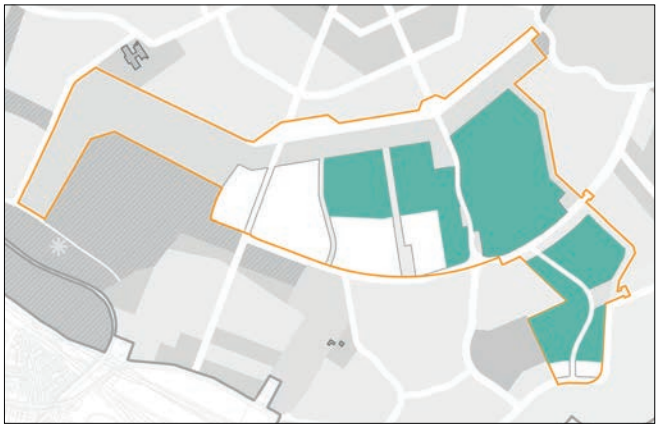
Precedents — Suitable Design Solutions

5.4.4 Formal Urban

Ⓐ Guiding Character Area Design Principles

The Formal Urban Character Area is the largest identified such area within Key Phase 2; it wraps around from the west to the north and to the east / south-east of KP2. It includes interfaces with various conditions – primary Green Infrastructure, primary roads, and three other Character Areas. It accommodates important green routes through the parcel. Proposals should adhere to the following principles:

- Dwellings will be predominantly 2, 2.5 and 3 storey, with key corners and frontages featuring 3 storeys wherever possible;
- Across the Character Area, a balance of detached, semi-detached and terraced houses should be achieved: terraced homes should be used to provide enclosure and definition to primary routes and spaces, with detached, semi-detached homes arranged in coherent regularly-spaced alignments with limited stepping in the building line;
- Overall a formal, orthogonal street pattern should be achieved, with occasional softening or instances of informal layout responding to nodes or particular elements of landscape;
- Where frontage is to open space, parcel edges will establish enclosure and a clear building line, with limited stepping of dwelling positioning relative to the edge of public realm;



Key Plan

- Where the Formal Urban areas face a primary route, a consistency and rhythm to the parcel edge will be established through building line, regular spacing of dwellings, and repeated typologies;
- A series of shared surface courts and mews spaces should be created within the inner parcel areas, with consistent approaches to material selection and housing typologies within these areas;
- A variety of tertiary street types should be created across the Character Area, but with a hierarchy of routes clearly expressed through street design and materials.

Permitted Materials for Character Area (see page 107 for full library)

1. Roof

Dark red tiles

Grey slate

Flat roof set behind parapet

2. Walls

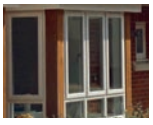
Red stock brick

Buff stock brick

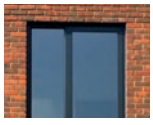
Render

Brown / orange stock brick

3. Windows



White



Dark Grey

Grey Green

4. Projecting, Inset, Juliet Balconies

Dark metal with glass balustrade

Grey or black with metal balustrades

Formal Urban - Materials

- At least 90% of buildings will use red brick as the primary wall material: up to 10% may employ render, black / natural weatherboarding, or 'buff stock' brick as a primary wall material;
- Walls to outbuildings (including garages) will either utilise the same primary wall material as the dwelling with which they are associated, or weatherboarding;
- At least 90% of buildings will use dark red clay tiles or pantiles for roofs; up to 10% may employ 'slate;
- Roofs of outbuildings (including garages) will either utilise pantiles or the same primary roof material as the dwelling with which they are associated.

Ⓑ Design Principles for Character Area Frontages

Frontage Character	
2 	Stepped frontage to consist of predominantly detached, linked detached and semi detached dwellings only. Dwellings to establish a clear building line across pairs/ groups of two or more plots.
3 	Consistent frontage to be formed by dwellings of matching or of similar typology and size, arranged at regular spacing with a consistent set back to create rhythm, order and a strongly defined building line.
4 	Stepped, linear frontage with a high degree of enclosure to consist of semi detached and terraced dwellings. Large Detached dwellings may define corner plots. All car parking to be positioned behind the established building line.

Formal Urban Parcel Frontages

Below is an example of how to achieve the frontage characters.
For a full list of permitted typologies, refer to the page 102.

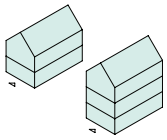
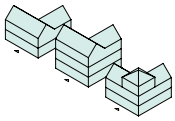
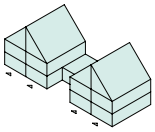
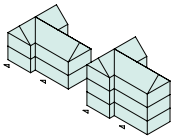
PLAN VIEW

KEY:

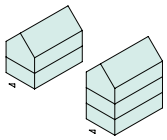
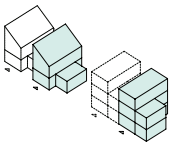
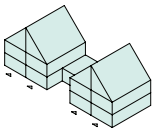
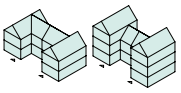
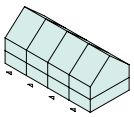
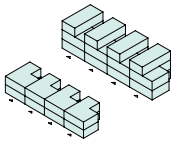
Access point
Inner access point
Cross parcel permeability
Parcel frontage character
Inner parcel areas
Frontage typology and plot components (see opposite page)

Informal Urban Frontage Dwelling Typologies (see page 108 – 109 for full library)

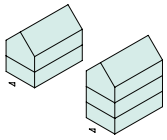
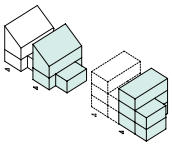
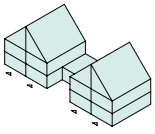
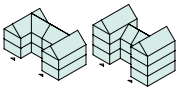
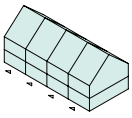
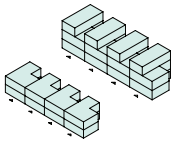
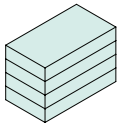
Frontage Character 2

D2 - Narrow frontage	D4 - L-shaped/ corner house	SD1 - Narrow Frontage	T1 - Narrow Frontage			
						

Frontage Character 3

D2 - Narrow frontage	D5 - Linked detached	SD1 - Narrow Frontage	SD4 - Inverted L-Shaped	T1 - Narrow Frontage	T3 - Stepped / L-shaped	
						

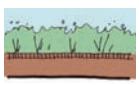
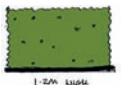
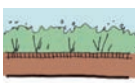
Frontage Character 4

D2 - Narrow frontage	D5 - Linked detached	SD1 - Narrow Frontage	SD4 - Inverted L-Shaped	T1 - Narrow Frontage	T3 - Stepped / L-shaped	F2 - Typical flat block
						

Permitted Parking Frontage Typologies (see page 110 – 112 for full library)

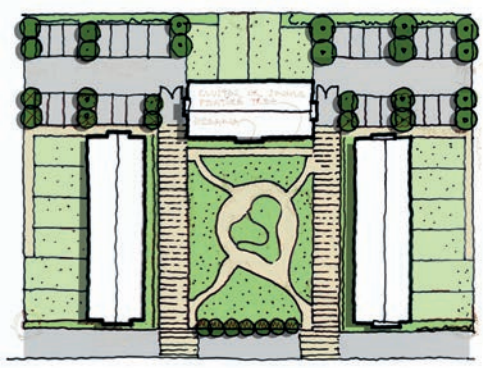
Frontage Character 2	Frontage Character 3	Frontage Character 4
P2 - On-plot corner P3 - On-plot between dwellings P8 - Forecourt	P2 - On-plot corner P3 - On-plot between dwellings P5 - Mews P6 - Front access drive through P7 - Rear parking court	P2 - On-plot corner P3 - On-plot between dwellings P5 - Mews P6 - Front access drive through P7 - Rear parking court

Permitted Frontage Boundary Treatments (see page 115 for full library)

Frontage Character 2	Frontage Character 3	Frontage Character 4
B1 - No boundary 	B1 - No boundary 	B1 - No boundary 
B5 - Low wall and ornamental hedge 	B3 - Railing on low wall 	B2 - Urban style railing 
B6 - Ornamental hedge 	B5 - Low wall and ornamental hedge 	B7 - Railing on low wall 

5.4.4a – Formal Urban Illustrative Grouping 1

Set piece grouping to enclose a formal landscape setting; terraced or semi-detached housing set frame and contain the space. Parking is provided as integral parking, or in small groupings to the side or rear of the dwelling.



5.4.4b – Formal Urban Illustrative Grouping 2

Dwellings addressing green space; consistent frontage with high degree of enclosure; Dwellings plotted the same distance apart to create rhythm and order.

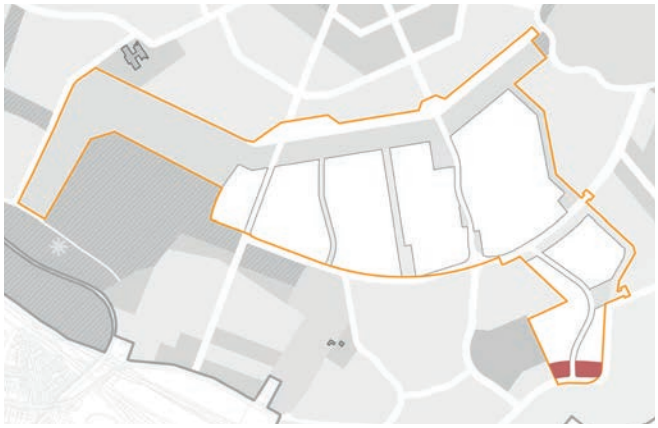
Precedents – Suitable Design Solutions

5.4.5 Eastern Gateway

Ⓐ Guiding Character Area Design Principles

The Eastern Gateway Character Area occupies a small south-easterly element of Key Phase 2, connecting to the same Character Area as featured beyond the phase boundary, in Key Phase 1. It features an interface with the Formal Urban Character Area immediately to its north, and faces a primary road. Proposals should adhere to the following principles:

- Dwellings in the Eastern Gateway area will be provided in 3-4 storey apartment blocks or clusters of 3/3.5 storey townhouses;
- Built form should achieve the character of pavilion blocks in landscape, orientated to directly reflect the curve of the primary road to the south;
- The blocks will define a common building line without stepping;
- Car parking will be provided in landscaped courts to the north of the blocks;



Key Plan

- Blocks located on the road junction will be required to positively 'turn the corner' with aspect onto both roads;
- As a 'gateway' to the Formal Urban Character Area to the north, building and landscape design will be expected to positively reflect, complement, and integrate with, development in that area.

Permitted Materials for Character Area (see page 107 for full library)

1. Roof

Flat roof set behind parapet

Grey slate

2. Walls

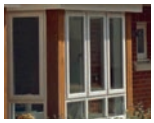
Red stock brick

Buff stock brick

Render

Brown / orange stock brick

3. Windows



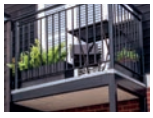
White

Dark Grey

Grey Green

4. Projecting, Inset, Juliet Balconies

Dark metal with glass balustrade

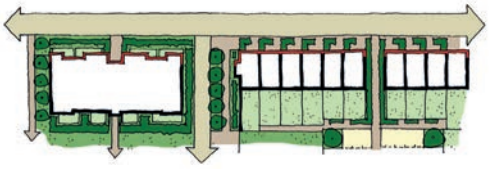


Grey or black with metal balustrades

Eastern Gateway Edge - Materials

- Roofs of outbuildings (including garages) will either utilise pantiles or the same primary roof material as the dwelling with which they are associated.
- Walls to outbuildings (including garages) will either utilise the same primary wall material as the dwelling with which they are associated, or weatherboarding.

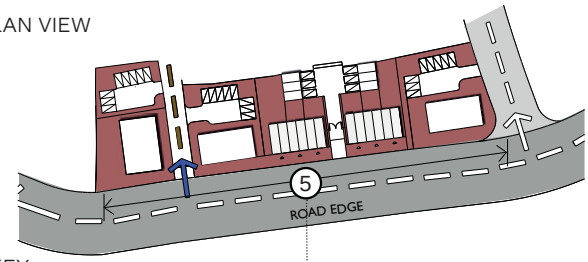
Ⓑ Design Principles for Character Area Frontages

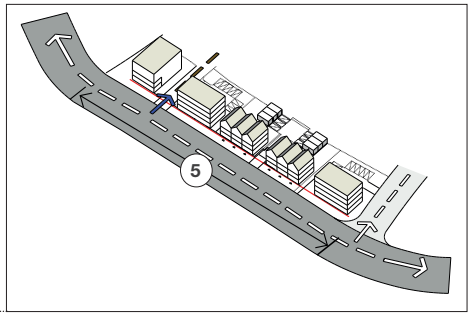
Frontage Character	
5 	Near continuous formal, linear frontage of predominantly terraced dwellings and apartment blocks, with gaps only for access to parking and pedestrian routes.

Eastern Gateway Parcel Frontages

Below is one example of how to achieve the frontage character. For a full list of permitted typologies, refer to the opposite page.

PLAN VIEW





KEY:

Access point

Cross parcel permeability

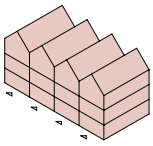
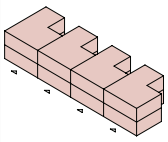
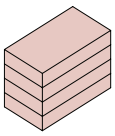
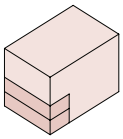
Parcel frontage character

Inner parcel areas

Frontage typology and plot components (see opposite page)

Eastern Gateway Frontage Dwelling Typologies (see page 108 – 109 for full library)

Frontage Character 5

T1 - Narrow frontage	T3 - Stepped / L-shaped	F2 - Typical flat block	F3 - Duplex			
						

Permitted Frontage Parking Typologies (see page 110 – 112 for full library)

Frontage Character 5

P3 - On-plot between dwellings

P5 - Mews

P6- Front access drive through

P7 - Rear parking courts

Permitted Frontage Boundary Treatments (see page 115 for full library)

Frontage Character 5

B2 - Urban style railing 

B3 - Railing on low wall 

B4 - Railing and hedge 

C 5.4.5a - Eastern Gateway Illustrative Grouping 1

5.5 Residential Materials

An index of permitted materials has been carefully selected for the residential built form within KP2, covering walls, roofs, windows and balconies. This is shown below. From this, a palette of a select few materials has been specified for each Character Area, to ensure that neighbourhoods within KP2 have their own identity whilst reading coherently within the wider development. All proposals will demonstrate adherence to the Material Application Principles set out on this page. Certain materials will be seen across all Character Areas. The materials permitted in each Character Area are set out in sub sections 5.4.2 to 5.4.6.

Reserved Matters Applications will only use materials specified in the relevant Character Area palettes. A proposed materials specification will be submitted with each Reserved Matters Application, along with samples, for approval by RBC.

Certain locations within the development could support the introduction of contrasting, 'code-breaking' architecture, where a design rationale is developed for a particular building or cluster of buildings. This may extend to the introduction of materials not permitted elsewhere in that character area. Reserved Matters Applications including 'code-breaking' elements must include design justification for those elements.

Materials Application Principles:

The following principles for the application of materials will be adhered to throughout Key Phase 2:

1. Proposals are to demonstrate consistency in material selection and usage, utilising only materials specified* in the relevant Character Area palette(s);

2. Parcels for Reserved Matters Applications which cover more than one Character Area will demonstrate a carefully considered transition between differing materials palettes;

3. Where materials for individual buildings that contrast with materials of neighbouring buildings are proposed an accompanying design justification will be submitted as part of the Reserved Matters Application;

4. Materials will be consistent along a row of terraced dwellings or linked dwellings, including dwellings linked by garages;

5. No more than two materials will be used across walls of any given dwelling or block, and where this includes coloured render only one colour will be used;

6. Generally only one brick colour/type is to be used on any building (except where a contrasting blue/grey brick is used as a plinth level, up to a maximum of eight brick courses); and

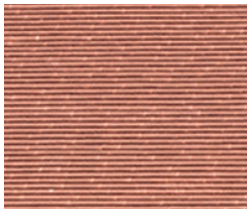
7. Proposals will be required to demonstrate consistency of material selection for buildings on both sides of streets, either where a street passes through the parcel itself, or where the parcel faces another completed / consented parcel across a street.

* Marker buildings (see sub chapter 5.2.1) may feature materials from outside the relevant palette, but will require the submission of specific design justification for approval by RBC and the master developer.

RESIDENTIAL MATERIALS INDEX

1. Roofs


1.1 Grey slate


1.2 Orange / red tiles


1.3 Dark red tiles


1.4 Flat roof set behind parapet

2. Walls


2.1 Red stock brick

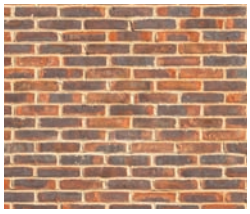

2.2 Buff stock brick


2.3 Black horizontal timber boarding


2.4 Clay tile hanging


2.5 Render


2.6 Red brickwork with blue headers


2.7 Brown / orange stock brick

3. Windows


3.1 White

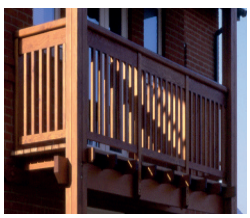

3.2 Dark grey


3.3 Grey green

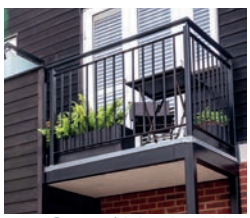

3.4 Timber (colour to be agreed)

4. Balconies / juliette balconies


4.1 White painted


4.2 Stained timber


4.3 Dark metal with glass balustrade


4.4 Grey / black with metal balustrades

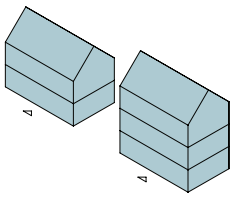
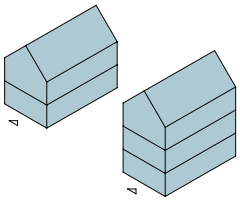
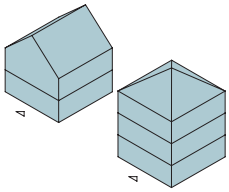
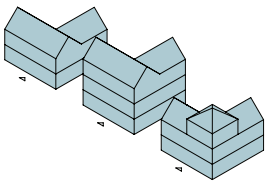
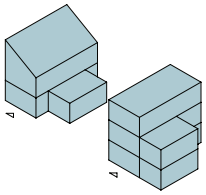
5.6 Dwelling Typologies Library

The appropriate dwelling typologies for residential development are described here.

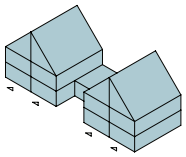
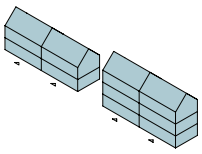
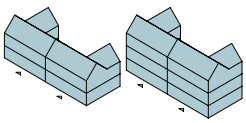
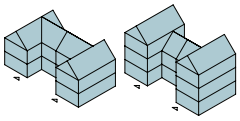
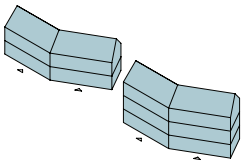
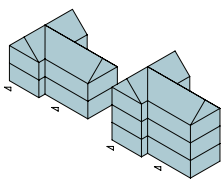
The Character Area pages in sub chapter 5.4 set out the appropriate dwelling types for the frontages within each Character Area.

In addition to the described dwelling typologies, innovative typologies can be submitted for approval.

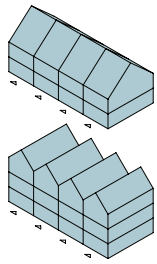
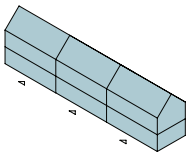
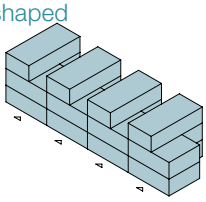
Detached Dwelling Typologies

Typology	Description
D1 - Wide frontage 	• The principal frontage width is greater than the depth of the primary building form. • The principal frontage is more than 8m wide. • The ridge line is parallel to the principal frontage.
D2 - Narrow frontage 	• The principal frontage width is less than the depth of the primary building form. • The principal frontage is less than 8m wide • The ridge line is perpendicular to the principal frontage.
D3 - Villa 	• The principal frontage width is between 90-110% of the depth of the dwelling. • The principal frontage is more than 8m.
D4 - L-shaped/corner house 	• The dwelling has two principal frontages at 90 degrees to one another. • Both principal frontages are more than 8m wide.
D5 - Linked detached 	• The mass of the secondary building form is less than 60% of the mass of the primary built form. • When the secondary building form includes a garage, the frontage of the dwelling is more than 7m wide.

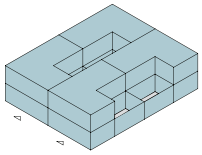
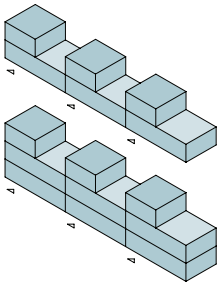
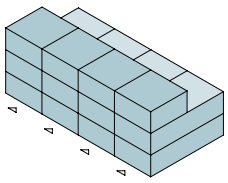
Semi-detached Dwelling Typologies

Typology	Description
SD1 - Narrow frontage 	• The principal frontage widths are less than the depth of the primary building forms. • The principal frontages are less than 8m wide. • The ridge line is perpendicular to the principle frontages and forms a combined pitched roof over both dwellings.
SD2 - Wide frontage 	• The principal frontage widths are greater than the depth of the primary building forms. • The principal frontages are more than 8m wide. • The ridge lines are parallel to the principal frontages and are adjoining.
SD3 - L-shaped 	• The dwellings have two principal frontages at 90 degrees to one another. • Both principal frontages are more than 8m wide. • Two dwellings are attached to form a U-shape.
SD4 - Inverted L-shape 	• The dwellings have two principal frontages at 90 degrees to one another. • Two dwellings are attached to form a U-shape.
SD5 - Cranked 	• The principal frontage widths are greater than the depth of the primary building forms. • The principal frontages are more than 8m wide. • The ridge lines are parallel to the principal frontages and are adjoining. • The dwellings are cranked at an angle of between 30-45 degrees.
SD6 - T-shaped 	• The T consists of a wide frontage (D1) and a narrow frontage (D2) adjoined. • The wide frontage unit's principal frontage is more than 8m wide. • The ridge lines are perpendicular to each other and are adjoining. • The dwellings are set perpendicular to each other.

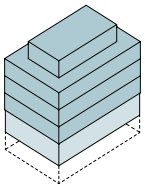
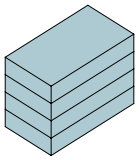
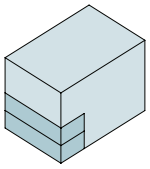
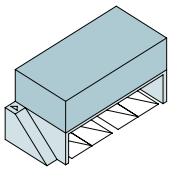
Terraced Dwelling Typologies

Typology	Description
T1 - Narrow frontage 	• The principal frontage widths are less than the depth of the primary building forms. • The principal frontages are less than 8m wide.
T2 - Wide frontage 	• The principal frontage widths are greater than the depth of the primary building forms. • The principal frontages are more than 8m wide. • The ridge lines are parallel to the principal frontages and are adjoining.
T3 - Stepped / L-shaped 	• The mass of the secondary building form is less than 60% of the mass of the primary built form. • When the secondary building form includes a garage, the frontage of the dwelling is more than 7m wide.

Urban Dwelling Typologies

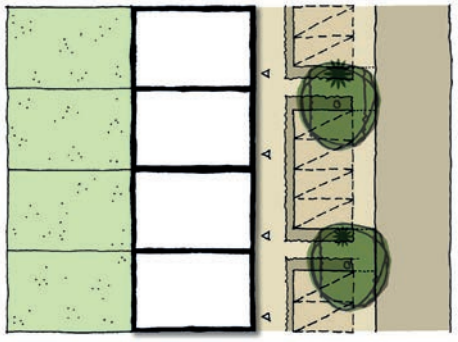
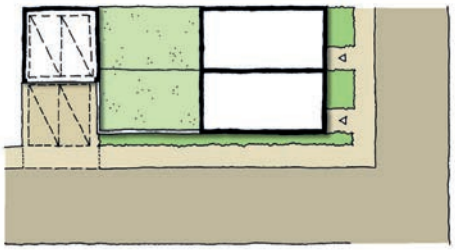
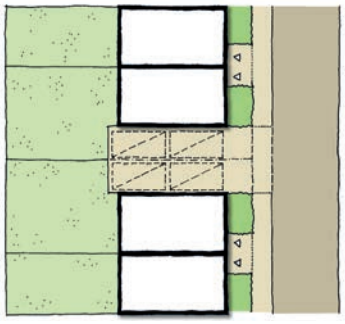
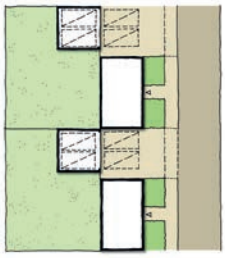
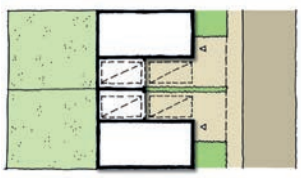
Typology	Description
U1 - Courtyard 	• The principal frontage is more than 7m wide. • Courtyard is created using L-shaped building footprints, connected in back to back terraces. • Courtyards are more than 4x3m in size.
U2 - Side terrace 	• The principal frontage widths are greater than the depth of the primary building forms. • The principal frontages are more than 8m wide. • The uppermost floor must consist of at least 40% amenity space in the form of a terrace.
U3 - Rear terrace 	• The principal frontage widths are less than the depth of the primary building forms. • The principal frontages are less than 8m wide. • The uppermost floor must consist of at least 40% amenity space in the form of a terrace.

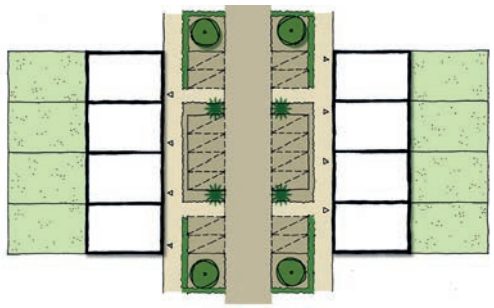
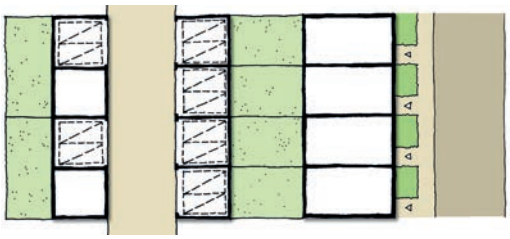
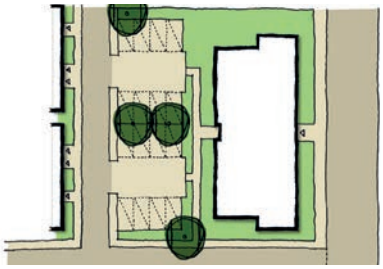
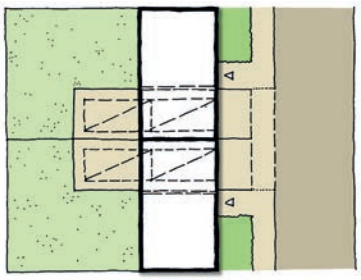
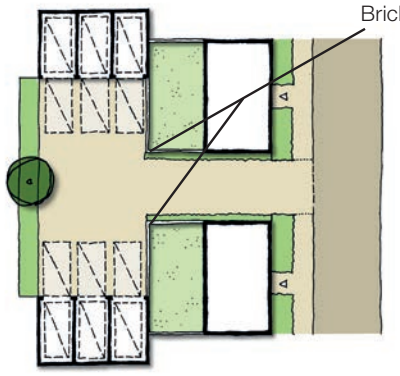
Flats Dwelling Typologies

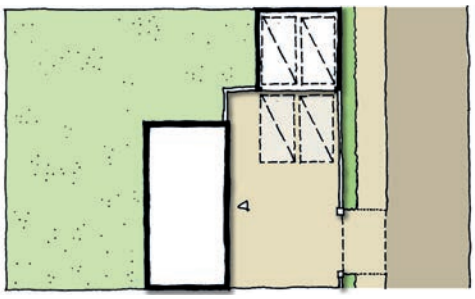
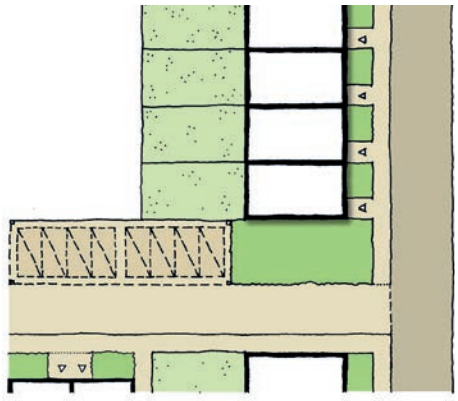
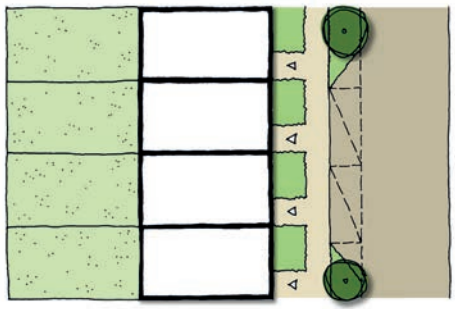
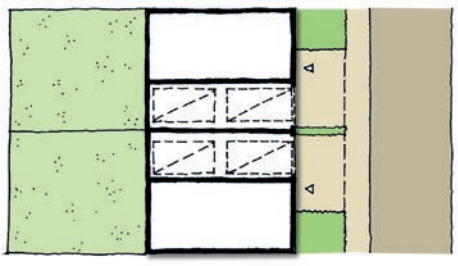
Typology	Description
F1 - Mixed use flat block 	• The block is at least three storeys in height with a depth of no more than 12m • The internal layout does not include single-aspect north facing flats • Mixed uses may be provided at ground level
F2 - Typical flat block 	• The block is at least three storeys in height with a depth of no more than 14m • The internal layout does not include single-aspect north facing flats
F3 - Duplex 	• A flat within the block which is distributed over two storeys • A private entrance may be provided directly from the street at ground level • The duplex flat is not single-aspect north facing
F4 - Coach house / mews 	• Accommodation is provided above garages within a mews or parking court arrangement • The flat provides natural surveillance to the mews or court • The flat is no more than one storey in height

5.7 Parking Typologies Library

Acceptable parking solutions are illustrated below. Subsequent planning applications must demonstrate which parking solutions are used within the design, as appropriate to the relevant descriptions as set out in the following tables. Details of parking standards are provided in sub-chapter 4.7: Vehicular Parking.

Typologies	Description / notes
P1 - On-plot frontage 	• A maximum of four spaces in a row separated by landscape • Not to serve more than 8 dwellings on any one side of the street • A minimum landscape break of 1.5m wide to accommodate tree or specimen shrub planting; (this may be omitted if a large tree is planted in its place, with a limit of 8 spaces in a row) • Shrub or tree to be set sufficiently close to the road to minimise car door damage to plant stems • Medium-sized tree species to be planted no closer than 7m to the dwelling • A hard landscape treatment provides a clear space to readily manoeuvre around the parked cars  = Specimen shrub set in gravel or medium sized trees
P2 - On-plot corner 	• A maximum of four spaces • Enclosure will be provided through the use of brick walls enclosing parking bays
P3 - On-plot between dwellings 	• Parking spaces must be set behind the building line • Spaces will be designed so as not to allow for tandem parking projecting forward of the building line • Width of parking between buildings will not exceed two spaces as shown in each example sketch Alternative layout options:  

Typologies	Description / notes
P4 - Courtyard 	• No more than four spaces landscaping • The courtyard will be designed as a whole, to create a coherent space • Hedging and landscape will be used to assist in defining the spaces • A minimum landscape break of 1.5m wide to accommodate a tree or specimen shrub planting; (this may be omitted if a large tree is planted in its place, with a limit of 8 spaces in a row) • The layout of the parking to be formed to create a rhythm to the landscape • A hard landscape treatment provides a clear space to readily manoeuvre around the parked cars  = Specimen shrub set in gravel or medium sized trees
P5 - Mews 	• Parking will be overlooked for security Alternative layout for apartments : 
P6 - Front access drive through 	• An openable screen or gate with visual permeability must be used to access parking spaces to ensure that gardens are not open to the street. Gates will be a minimum of 5.5m from the edge of the public highway carraigeway and will not open out towards the highway. • Solid garage doors must not be used for drive through parking spaces (except for a flat over garage where this will be permitted)
P7 - Rear parking courts 	• Courts to serve no more than 12 dwellings. For apartment blocks this may be increased, but courts must be sensitively designed • Enclosure will be provided to define the access of at least 4.1m, through the use of walls, where landscape strips are provided, these will be at least 600m in width • Courts will be designed as a whole to create a coherent space • To include an area of space where a medium or large tree can be located in view from the streetscene (and planted no closer than 7 or 10m to the nearest building respectively) Alternative layout for apartments : 

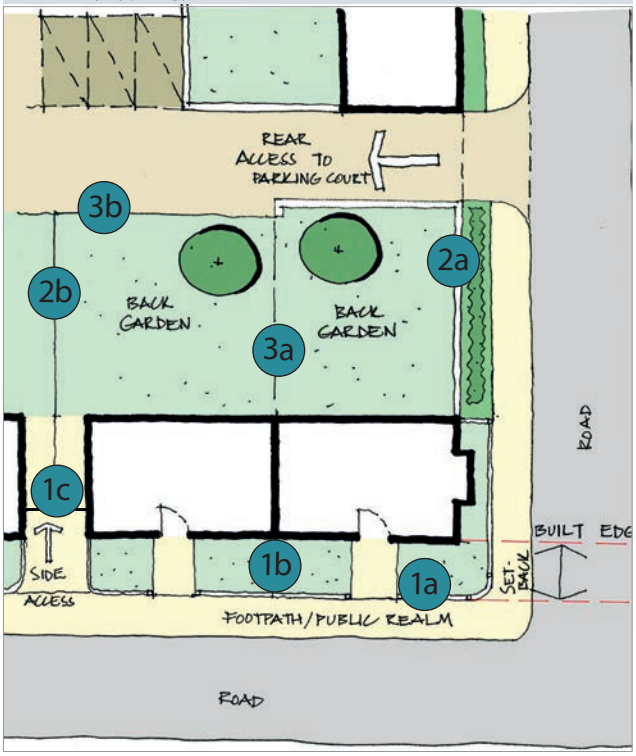
Typologies	Description / notes
P8 - Forecourt 	• Applies to large dwellings only • The front boundary will be walled (this must be complied with, regardless of the permitted boundary typologies set out in the typology matrices within sub chapter 5.6)
P9 - Detached car barns 	• No more than eight spaces in a single structure • Natural surveillance required from proximate dwellings
P10 - Visitors parking on street 	• A maximum of two spaces before landscaping occurs • Medium-sized tree species to be planted no closer than 5m to the dwelling • Parking and adjacent landscape treatments will be designed to prevent unauthorised parking
P11 - Integral garage  	• Spaces will be designed so as not to allow for tandem parking projecting forward of the building line • There should be clear delineation between driveways for adjacent properties.

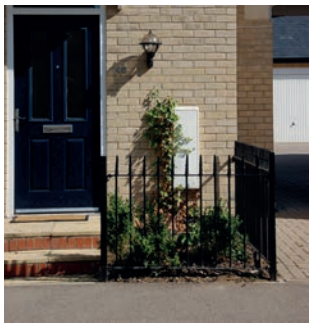
5.8 Boundary Typologies Library

Dwelling boundaries play an important role in establishing a coherent streetscape. The choice of boundary type will depend on its location within the site, and its relationship with the public realm. The coherence of boundaries that address primary streets and spaces is of key importance.

This section of the Design Guide relates to front, side and rear dwelling boundaries. The following diagram sets out the different boundaries referred to in this section:

Boundary Typology Definition





1a

1a, 1b

Front boundary

1a. Front boundary addressing public realm

1b. Front boundary to demarcate property line

1c. Front boundary as linking element between dwellings

Tables on the following pages set out the appropriate front boundary typologies (1a) for residential development addressing the public realm:

B1 - No boundary
B2 - Urban-style railing
B3 - Railing on low wall
B4 - Railing and hedge
B5 - Low wall and ornamental hedge
B6 - Ornamental hedge
B7 - Planted zone

The tables explain the appropriate property demarcation treatment (1b) within the notes column. This is mandatory and must be adhered to link the front boundary treatment (1a) and property demarcation treatment (1b).

The Character Area pages in sub-chapter 5.2 set out the appropriate front boundary typologies for each specified key edge within that character area.

The following design criteria will be adhered to:

- The use of treated timber fences and high solid walls (unless enclosing forecourt parking) and high hedge (more than 1.5m high) as front boundaries will not be permitted.
- Close-board fencing will not be used in front gardens/ set backs (1a) or to demarcate property boundaries (1b).
- Brick walls or close-board fencing could be used as a linking element between two dwellings (1c) but must be set back from the face wall of the dwelling by a minimum of 1m.
- Gates for pedestrian or vehicular access must be co-ordinated with the suitable adjoining front boundary treatment.
- All walls and railings are to be stepped to match slope / gradient.

Side boundary

2a. Side boundary facing public realm

2b. Side boundary between dwellings

- Side boundaries which address a street, public realm or mews, must be constructed of brick to provide continuity with the main built form (2a). The wall must not be more than 2.1m high and brick should match the dwelling, including its bonding and mortar details. Coping stones or a 'brick on edge' detail is considered appropriate. Walls will be of a consistent height. Brick boundary walls must be stepped if following a slope.
- A 500mm wide minimum planting zone is to be provided alongside the boundary wall to the back edge of the footpath. Where this is proposed alongside a public pedestrian path not associated with a highway, a minimum of 1.5m wide verge is to be incorporated to meet 'Secure by Design' requirements, and to limit opportunities for concealment.
- Timber fencing or brick walls will be used alongside boundaries between gardens or side access of dwellings (2b). This will not be more than 1.8m in height. Timber should be stained using a suitable and sustainable treatment.

Rear boundary

3a. Rear boundary between back gardens or courtyard

3b. Rear Boundary between back gardens and rear access parking courts

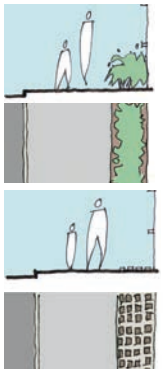
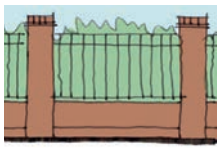
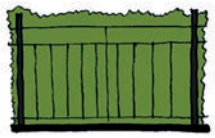
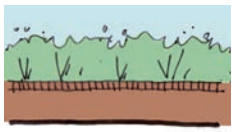
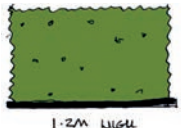
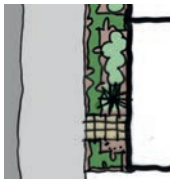
- 1.8m high timber close or featherboarded fencing may be used along rear boundaries between gardens (3a). Timber should be stained using a suitable and sustainable treatment.
- Brick walls must be used to define rear boundaries that back onto courtyard parking areas (3b). Such walls will be between 1.8 - 2.1m high and stepped to match the slope profile.

2a, 2b

2b

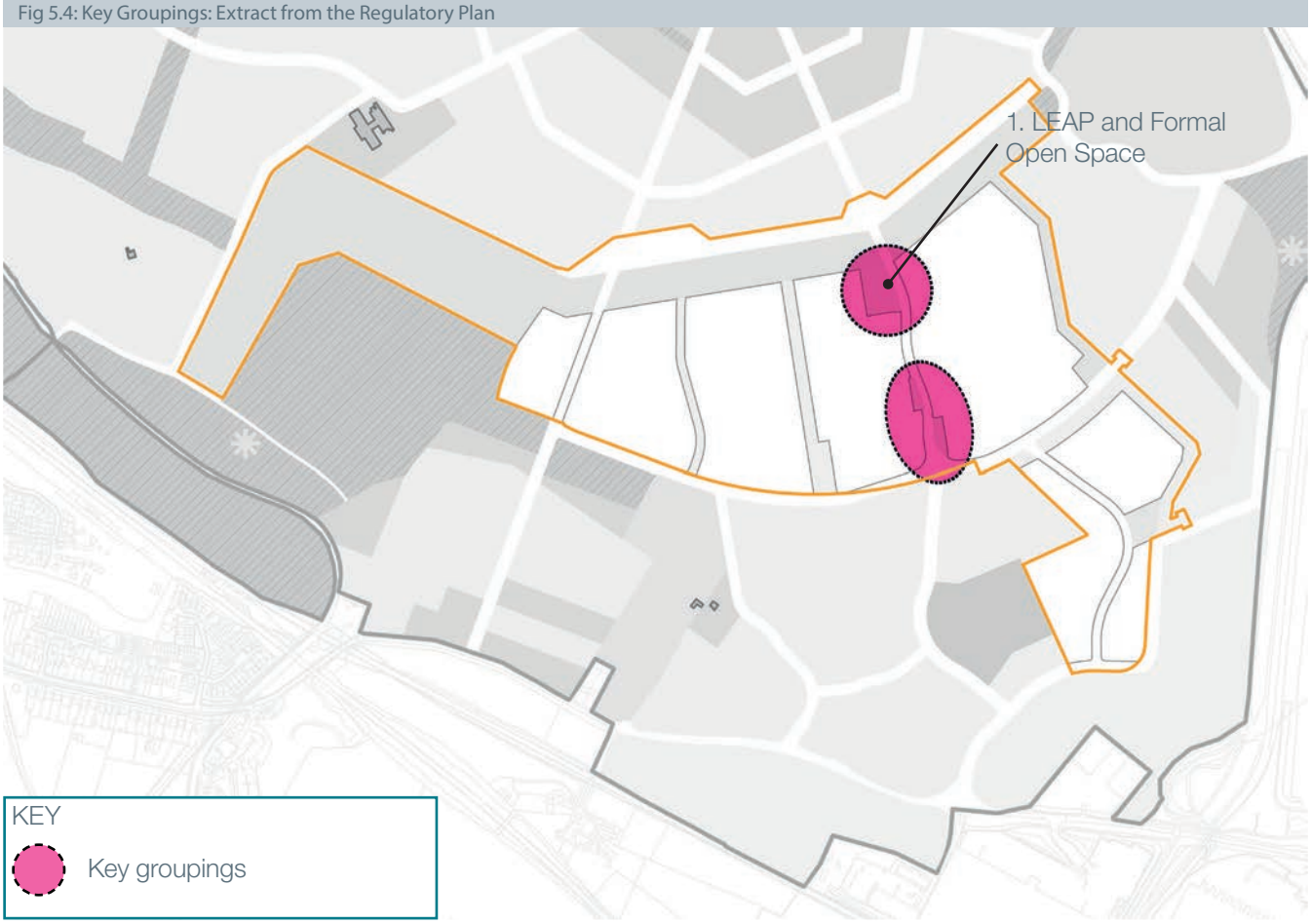
3a

3b

Typologies	Illustration	Description	Notes
B1. No boundary	Plan: 	• Set back is less than 1m (minimum 800mm to be maintained) • Hard-surface finish preferable for urban character areas • Material / surface finish should be contrasting to adjoining pavement material to differentiate ownership and demarcate defensible space • Where soft finish is provided, area should be finished with 450mm depth of topsoil to allow for low evergreen shrubs • Grass or gravel or loose materials as surface cover are not acceptable	
B2. Urban-style railing		• Height – 1.2m max • Set back minimum 1.5m • Black / grey metal, painted • Soft landscape to allow for shrubs planting • Contemporary and in character with the street scene • Stepped	Property demarcation (1b) to be created through the same design of urban-style railing or ornamental hedge
B3. Railing on low wall		• Height – 1.5m max • Set back minimum 1.5m • Up to 300mm high brick wall, Brick wall with brick piers & coping to match dwelling • Powder coated black or grey railings • Privacy zone – hard or soft landscape finish, to allow for shrub planting, maintained at a height of 1.5 m • Stepped • Gates to match railings	Property demarcation (1b) to be created through a same low height brick wall with the same railing OR ornamental hedge
B4. Railing & hedge		• Height – 1.2m max • Set back minimum 1.5m • Black metal painted (or grey) • Clipped hedge of continuous species • Gates to match railings	Property demarcation (1b) to be created through same railing OR ornamental hedge
B5. Low wall & ornamental hedge		• Set back minimum 1.5m • 600mm brick wall with brick coping, clay tiles creasing, bricks to match dwelling • Hedge to grow not more than 900mm high • Stepped	Property demarcation (1b) to be created through same height low-brick wall with hedge OR ornamental hedge only.
B6. Ornamental hedge		• Height – 0.9 / 1.2 m max • Set back minimum 2m • Post and wire fence integral to the hedge while it establishes	Property demarcation (1b) to be created through ornamental hedge of similar species and height
B7. Planted zone	Plan: 	• Height – maximum 600mm • Low-clipped hedge with shrub planting	Property demarcation (1b) to be created through ornamental hedge of at least 600m in height

5.9 Key Groupings

Fig 5.4: Key Groupings: Extract from the Regulatory Plan



Two key groupings have been identified and are essential components in creating distinctiveness within Key Phase 2. The plan above shows their locations. The following pages in this section explain the key principles of each of the groupings.

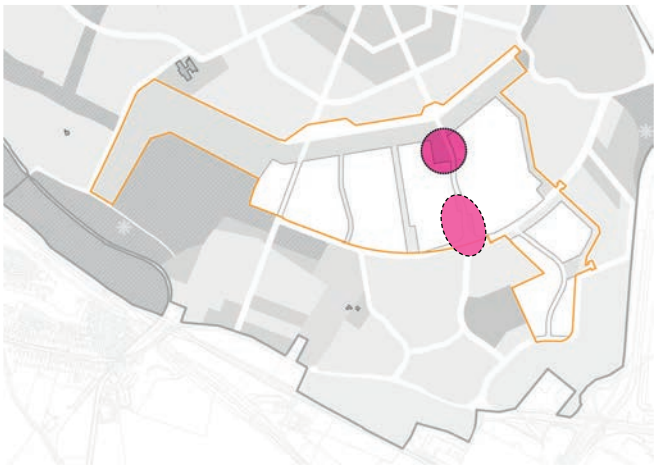
- The extract of the Regulatory Plan shows the key elements set out in this Design Guide. This is mandatory.

- Design Principles for each of the groupings summarises and provides a more detailed design brief in addition to the requirements of the Regulatory Plan. This includes relationship of the built form to the public realm, building alignment, vehicular and pedestrian access, entrance locations, location of parking and service areas, key views and vistas. The incorporation of these principles are mandatory.

5.9.1 LEAP and Formal Open Space & Formal Park

As a crucial interface between built form, ecological corridors and Formal Open Space the design of landscaping and residential built form of these Key Groupings, as highlighted on the Regulatory Plan, is crucial to creating a high quality landscape setting.

The following design principles describe the layout, massing and composition of this key area. All design principles will be adhered to; the illustrations describe how this can be achieved.



Key Plan

Design Principles

- Residential dwellings are to front onto and positively address landscape setting, with entrances fronting the route, to provide natural surveillance.
- Focal buildings will be designed on key corners, as highlighted on the Regulatory Plan, positively addressing the street and green spaces onto which they front and enhance long range views.
- Pedestrian crossing points will connect routes through the GCN corridors, residential parcels and the Formal Open Space.
- Residential buildings should form a strong edge and sense of enclosure to the Formal Open Space. Parking should be positioned to the rear where possible in order to achieve near continuous frontage.
- Long views will be possible across the KP1 wildlife corridor and the formal park of KPZ.

Fig 5.5: LEAP and Formal Open Space & Formal Park - Design Principles Plan

5.10 Residential Density

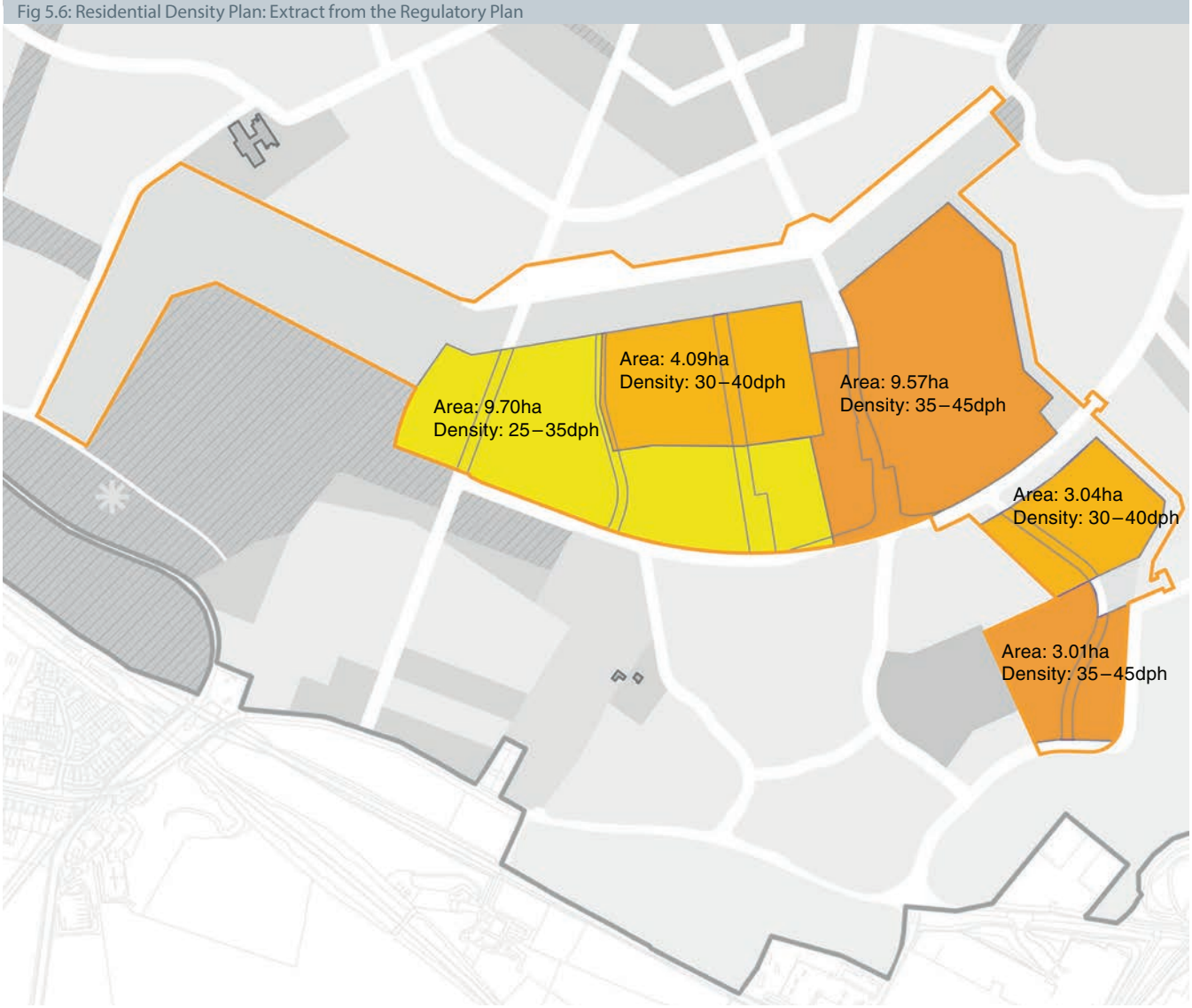
The density at which the residential parcels are designed will have an impact on how the KP2 development feels as a place. Lower density parcels will feel quite open, with space for larger front gardens, tree-lined streets and green open spaces. Higher-density parcels will feel more compact and urban, with less space for large gardens and green verges. It is important to remember that the parcels are relatively small and surrounded on many sides by open green spaces.

The below plan in Fig 5.8 sets out guidance on density ranges for development parcels.

To create a level of diversity and a range of street and house type, the density across KP2 ranges between 25 and 50 and dwellings per hectare (dph).

The density of KP2 increases as it moves across the phase in a north-east direction, with the highest density focused in the centre of KP2.

Fig 5.6: Residential Density Plan: Extract from the Regulatory Plan



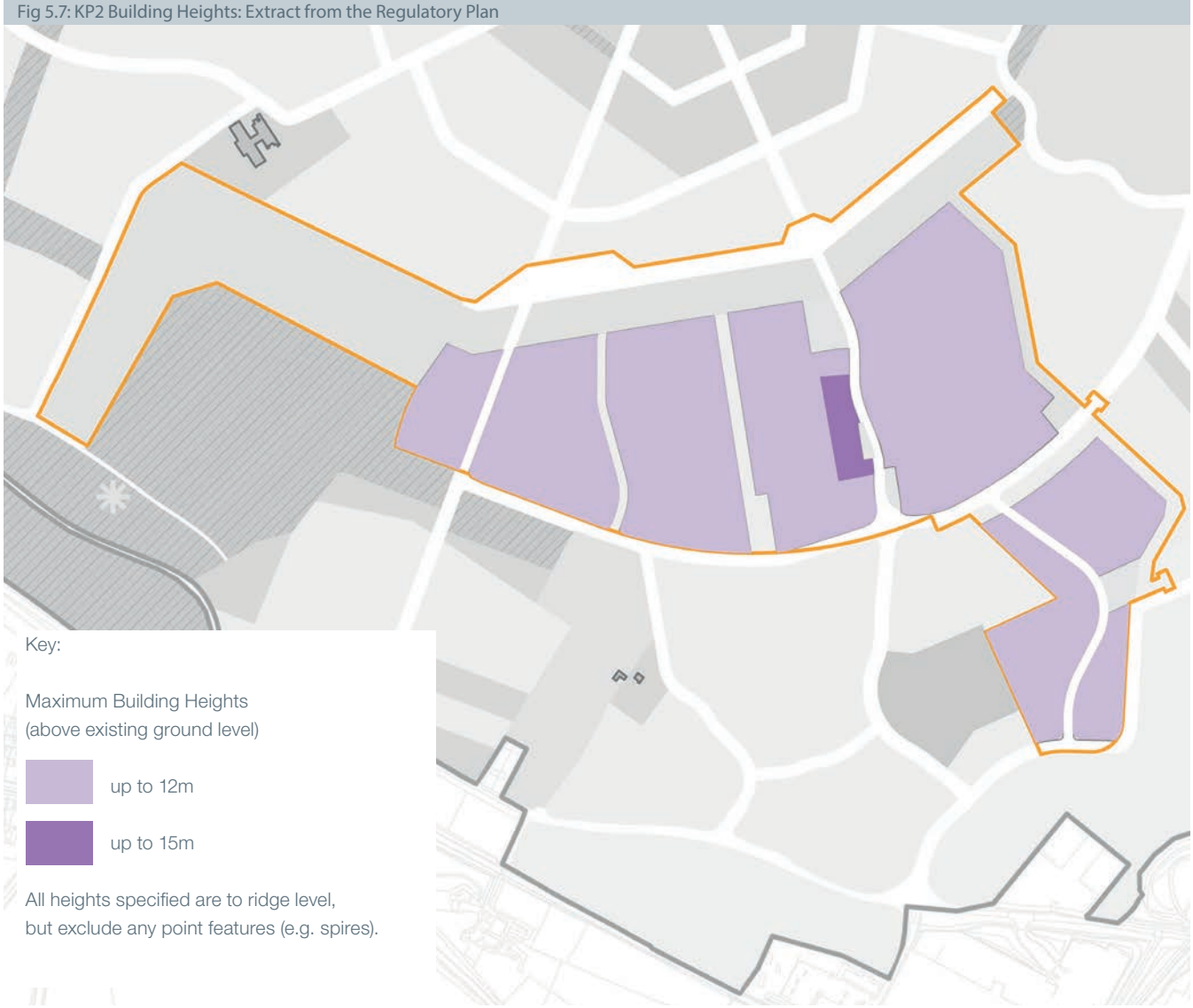
5.11 Building Heights

Maximum building heights within KP2 area shown in Figure 5.9 Building Heights Plan.

The maximum building height within KP2 is predominantly up to 12m. Areas of 15m are permitted in isolated residential areas.

All heights specified are to ridge level but exclude any point features (e.g. spires).

Fig 5.7: KP2 Building Heights: Extract from the Regulatory Plan



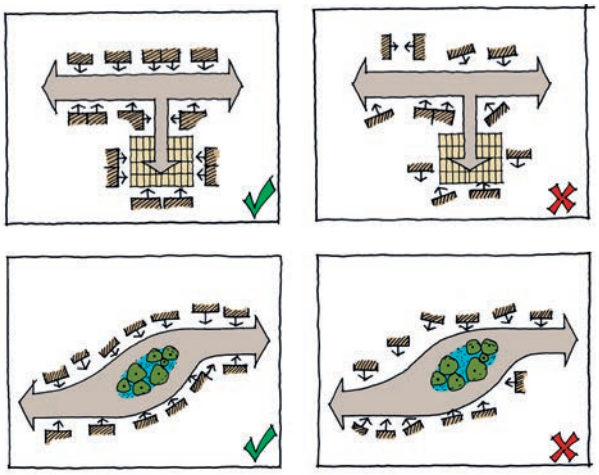
5.12 Residential Plot Layout Rules

The following plot layout rules are to be adhered to in reserved matter applications in order to achieve a coherent framework of well-designed streets and spaces.

Plot Layout Rules

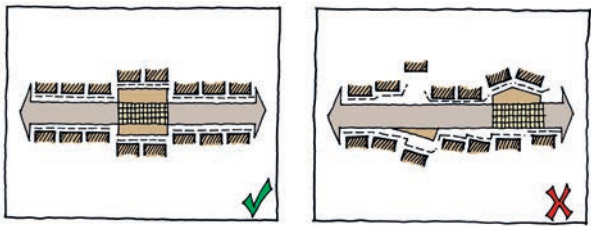
Building orientation will relate to routes and spaces

- Buildings must address routes and spaces such that their primary frontage is parallel to the edge of that route or space.
- For informal arrangements dwellings must still align to the immediate edge of the route or space it faces.
- Primary entrances to buildings must be visible from the public realm.



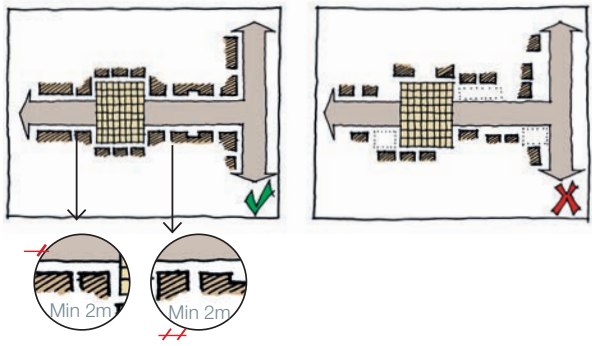
Building alignment will be coherent

- Building frontages must establish a common building line where they face routes or linear spaces (except in areas of lowest density where departure from this principle is permitted).
- Rear and flank walls of garages and outbuildings may be considered as components in establishing a common building line, although this must be limited.
- Along tighter streets where the distance between building frontage and back of footpath is reduced, a buffer privacy strip of at least 800mm must be maintained.
- Set-backs from an established building line will be in accordance with the permitted dimensions specified by the Character Area.



Continuity and enclosure will be achieved

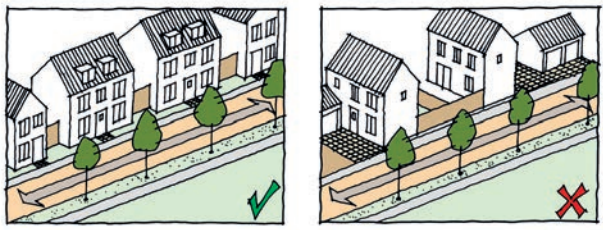
- All frontages along streets and spaces must be designed to create clear definition through legible continuity of building form, linkage and positioning.
- Public and private space must be clearly distinguished through continuity of frontage.
- 'Semi-public' space arising from lack of continuity or enclosure must be avoided.
- Dwellings must be clearly separated, with a minimum of 2.0 metres clear between flank walls. This minimum dimension applies to detached, semi-detached dwellings and terraces (as shown opposite).



Plot Layout Rules

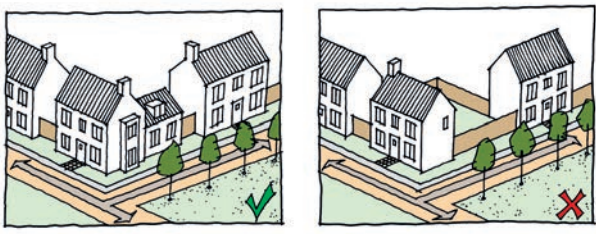
Routes and spaces will be addressed by active frontage

- Routes and spaces must be overlooked by windows to habitable rooms at ground and first floor levels, providing natural surveillance.
- Blank elevations largely devoid of windows must be avoided where they face or are clearly visible from the public realm.
- Active frontage must be enhanced through the use of balconies at first floor level, glazing within or alongside primary entrances, and full height projecting bays on flank elevations where appropriate.



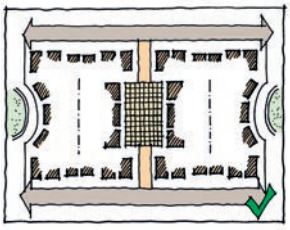
Corners and plot sides will be positively resolved

- All buildings located on identifiable corners must positively address both directions through positioning of entrances, generous windows to habitable rooms and upper level balconies where appropriate.
- Building form must respond to defined corner locations through the largest element of the building being located directly on that corner.
- Where a corner plot forms the end of a row of street-facing dwellings, the dwelling on that corner plot may have its primary entrance positioned on its flank elevation, but must ensure active frontage on both elevations. Interest can be created through projected windows and upper level balconies.
- Simply introducing one or two windows on a flank elevation will not represent an acceptable solution of a building addressing a corner.

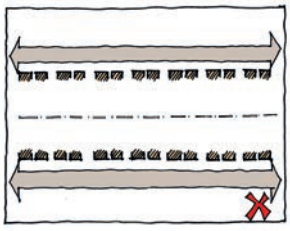


Groupings will form components of the layout

- Within development parcels, dwellings are to be configured in identifiable groupings that define spaces of a certain character and function.
- Groupings will be discernible either as ‘clusters’ of buildings around a shared space, or configurations that address and define a particular space.



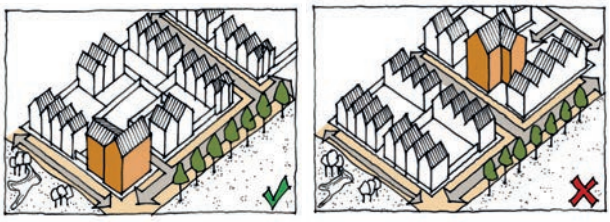
Identifiable groupings add character and function and creates a sense of place



No variation of dwelling typologies, massing or enclosure does not add character and creates no sense of place

Apartments will address key frontages

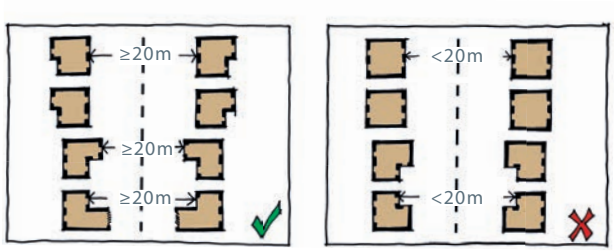
- Apartment buildings of three or more storeys must be positioned to address key streets and spaces on parcel edges.



Plot Layout Rules

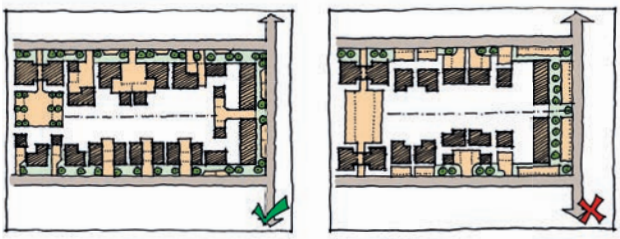
Privacy will be maintained

- Direct views from dwellings into dwellings through windows on their rear and flank elevations will be avoided, either by separation of >20 metres (properties back-to-back) or through appropriate design measures.
- For apartment blocks, a minimum distance of 10m must be provided between facing windows on side elevations of two apartment buildings.
- Appropriate design measures in higher-density areas include use of opaque glazing or louvres, the angling or positioning of windows to avoid direct sight lines, and the use of full-height screening to courtyards or terraces.
- No habitable room will be served only by windows comprising of opaque glass.



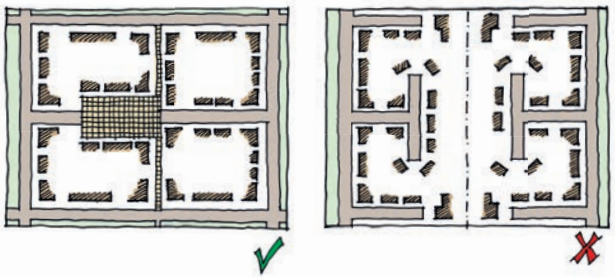
Car parking will have minimal visual impact

- All development parcels must utilise a variety of parking solutions and not rely on just one or two methods of accommodating cars.
- On-plot parking must be positioned such that parked cars do not sit forward of the common or the projected building line in areas of high enclosure where a layout has established street continuity or any lane within a parcel. This may be permitted along areas of lower density with larger set backs and in internal lanes / mews / courtyards.
- All private parking spaces must be located with easy access to the dwellings they serve.
- Further guidance on parking courts is set out in the Parking Typologies section.



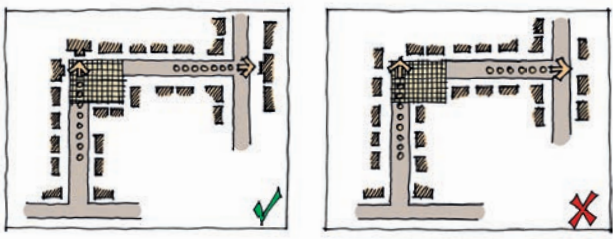
Connections and permeability will be integrated throughout the layout

- Pedestrian and cycle routes must be interconnected and not lead to dead-ends.
- Where vehicular routes reach a terminating space pedestrian routes must continue beyond that space and connect to the nearest public route or space.
- Rigid 'hammerhead' road arrangements must be avoided.



Visual stops will be established

- Where linear spaces or routes establish a vista, that vista must either end in a defined public open space or be terminated by a 'visual stop.'
- A 'visual stop' may be a carefully positioned marker or key building or a prominent landscape feature.
- Vistas must not terminate in a view of a private driveway or garage door, or the side boundary wall to a plot.



5.13 Architectural Principles for Residential Built Form

The following ten architectural principles will be adhered to, in order to achieve a coherent, yet distinctive character to the architectural design of dwellings.

1. Recognisable Form

- Proposals will follow the gradation between urban, suburban and rural as set out in the character area plan in sub-chapter 5.2. This will be achieved by using appropriate and recognisable forms that relate to the relevant character.

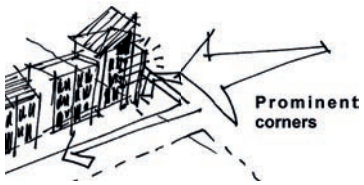
2. Silhouette

- Dwellings will create unified and interesting silhouettes through repetitive roof forms within terraces and groupings of dwellings. This can be achieved, for example, through the use of chimneys or gables.

3. Landmark

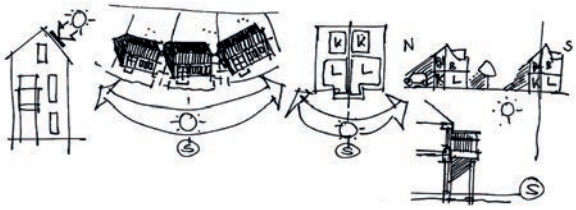
Landmark buildings will:

- Mark the end of vistas or long views.
- Address prominent corners.
- Frame key views.
- A landmark building can contain features such as projecting bays, large window openings, balconies and expressive roof forms



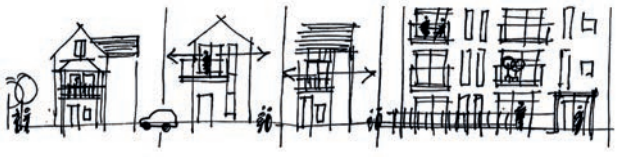
4. Aspect & Orientation

- Dwellings will maximise the potential for roof pitches to face south.
- Where possible, dwellings will maximise potential for south/south west facing habitable rooms.
- Dwellings will show consideration of solar shading principles to provide a comfortable living environment.



5. Frontage Addressing the Public Realm

- Dwellings which front the public realm will maximise the potential for active frontages and provision for balconies.
- This will provide natural surveillance and assist in creating activity within the street scene.



6. Express Individuality of Linked & Terraced Dwellings

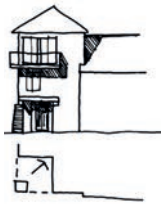
- Dwellings which form part of a terrace or grouping of buildings will express individuality through celebrating the entrance and openings.
- This can also be achieved, for example, through alternating features such as projecting elements or set-back elements within the composition of dwellings.

7. Create Order & Unity

- Variety will be achieved through handed, framed and repeated elements but groupings of dwellings and street scenes must achieve order and unity within their overall layout and composition.

8. Celebrate Entrances

- Entrances to dwellings will add definition and create interest to the front elevation.
- Entrances will be provided with some form of shelter.



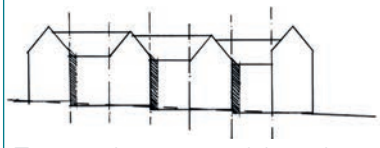
Porch 'cut-out' of plan to create interest & 'protection' and provide shelter at entrance

Double height porch & loggia with gable highlighting entrance

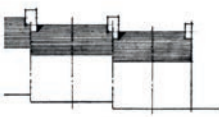
9. Respond to Topography

- Design to respond to changes in topography
- Forms reflect changes in level
- Consistent stepping
- Avoid significant retaining walls

Building form steps down slope



Topography expressed through stepped footprint and massing



Terraced form has distinctive stepped breaks

10. 'Honesty'

- Dwellings will match the description of their typology as set out in Chapter 5.
- Dwellings will utilise simple forms and masses both individually and within a grouping of buildings.
- Dwelling features will be simple and honest to the purpose they serve, e.g. usable balconies.
- The use of materials will demonstrate a rationale and may distinguish key elements of the dwelling such as projecting bays.

Simple wide fronted units with subsequent elements e.g. garage, bay etc.

Gable used to provide shelter to Loggia and bay

Simple Window Palette; Used to form other elements

5.14 Building Features for Residential Built Form

The following principles relating to the various building features on residential built form will be adhered to. Where appropriate, building features include a list of unacceptable design details which are not permitted for residential built form.

1. Doors and Entrances

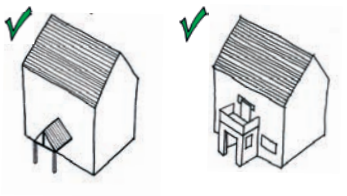
- All front doors will be recessed a minimum of 75mm from the brick / finished face.
- All garage doors will be recessed to a minimum of 90mm from the brick / finished face.
- High quality, robust doors will be used.
- If the door does not contain any glazed aperture, then this should be incorporated elsewhere within the main threshold to the house.

Unacceptable Design Details

- No uPVC doors will be permitted on elevations which are on a street frontage.

2. Porches

- Porches will be designed as integral to the entire elevation.
- Porches will either be flat roof or pitched roof.
- Porches will be not be made of GRP.
- Porches need to be sufficiently deep in order to provide shelter.
- Flat-roof porches will have a roof finish of lead, zinc or copper standing seam.
- Pitched-roof porches will match the materials used on the roof of the dwelling.
- Glazed porches are acceptable.
- Porches can be formed by a recessed entrance within the primary elevation.
- Small-scale enclosed porches are not permitted.



Entrances will be celebrated and designed as integral to the elevation and porches will provide sufficient shelter.

Unacceptable Design Details

- No GRP will be permitted for flat roof or pitched porches.
- Porches will be designed so as not to dominate the building.
- Small scale porches with insufficient depth so as to provide shelter will not be permitted.

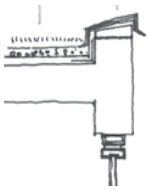
Decorative, built porches are not permitted.

3. Roofs

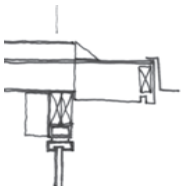
- Roofs need to be designed with due consideration of the character area in which they are located.
- Pantiles will predominantly be used for single storey dwellings.

Flat Roofs

- Flat roofs will be concealed behind a parapet, or the depth of fascia and profile of leading edge carefully detailed.
- Green roofs are encouraged.



Flat roof concealed behind parapet

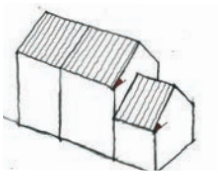


Overhanging flat roofs that are carefully detailed are acceptable

Pitched Roofs

- Roofs will be between minimum pitch of 37.5 degrees and maximum pitch of 52 degrees.
- The roof pitch should be of a consistent angle along a terrace or group of buildings.
- Roofs to garages will be pitched.
- Pitched roofs to apartment buildings may show a pitch lower than 37.5 degrees, when using standing seam metal finishes or a similar contemporary material.

All terraces should have a consistent roof pitch



Photovoltaics

- The installation of Photo-voltaics must be designed into the elevation and consistent along any terrace or group of buildings on street.
- Photo-voltaics panels will be designed / installed to read coherently with the building elevation and form.

4. Walls

- A maximum of two materials can be chosen for exterior walls of any given building. A single material is preferable.
- When using brick, only one brick colour will be used on a single dwelling.
- When using render, only one render colour will be used on a single dwelling.
- Brick detailing will be simple and match the main brick colour.

5. Eaves and Verges

- Eaves will be clipped / parged or use a shallow depth black fascia/barge board. If brick detailing is used as an alternative, the detailing will be simple and in the same brick colour as the dwelling.

Clipped / parged eaves

Shallow, black fascia / barge board on eaves

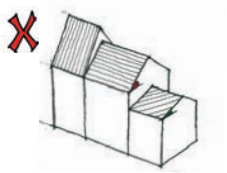
clipped / parged

parapet

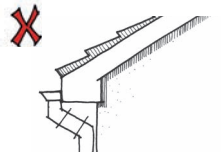
shallow, black fascia / barge board

Unacceptable Design Details

- There will be no mix of both hips and gables on any single building.
- Interruption of eaves by dormers.
- Boxed eaves. No white uPVC.
- Concrete tiles will not be permitted.



Inconsistent roof pitches along terraces should be avoided



Boxed eaves are not permitted

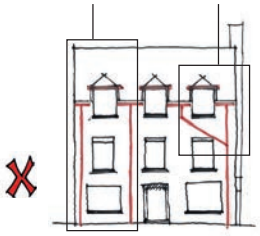
6. Rainwater Goods

- Rainwater goods will not detract from the overall composition of the building elevation or street elevation.
- Rainwater goods including guttering and rainwater pipes will preferably be black in colour or a brushed metal finish.

The visual impact of any rainwater goods must be minimised so as not to detract from the overall appearance of the elevations.

Unacceptable Design Details

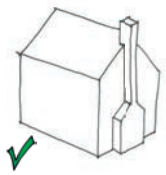
- Rainwater downpipes dominate the composition of the elevation due to ill positioning of dormer windows



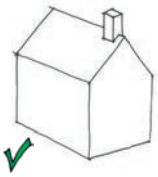
Rainwater downpipes diagonally crossing the building elevation

7. Chimneys and Vents

- Chimneys and vents will match the primary elevation material.
- Chimneys will be placed symmetrically to the ridgeline.
- Chimneys should rise above the roof to aid an interesting ridge line.
- Lead, zinc and metal can be used.
- Chimneys on end elevations should reach the ground.



Chimneys need to be appropriately proportioned and detailed.

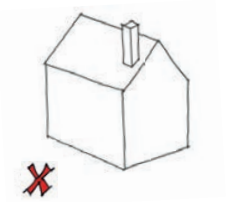


Chimneys symmetrically positioned on ridgeline.

Unacceptable Design Details

- Chimneys, the sole purpose of which is decorative, will not be permitted
- The use of GRP will not be permitted

Chimney inappropriately articulated on gable end

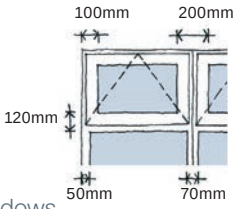


Chimney positioned asymmetrically to ridge.

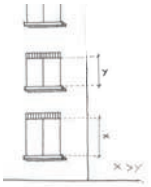
8. Windows

- Colour, thickness of frame, quality and design of windows must be consistent on all elevations of a dwelling/apartment building.
- All windows will be recessed a minimum of 90mm from the face of the building elevation.
- Ground level fenestration should be distinctly taller than fenestration on above levels.
- The size of glazed openings in the Formal Urban and Formal Suburban areas will be maximised and the number of mullions and transoms minimised.

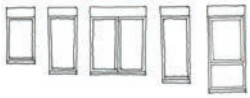
Consistent windows across elevations ✓



Maximum frame dimensions ✓

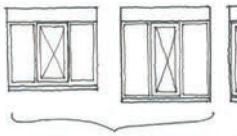


Ground-level openings will be taller than those on upper floors ✓

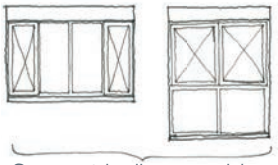


Simple, vertical fenestration ✓

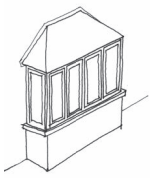
Symmetrical Window Configurations:



Centrally openable



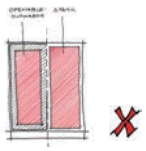
Symmetrically openable ✓



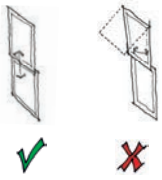
Repeated vertical windows make up composite elements. ✓

Unacceptable Design Details

Inconsistent window treatment on different elevations ✗



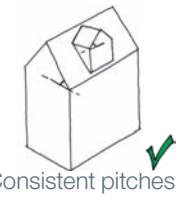
Asymmetrically openable window configurations ✗



Decorative sash windows are not permitted ✓ ✗

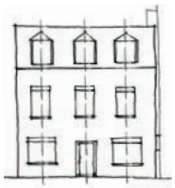
9. Dormer Windows

- Dormer windows will be integral to the composition of the main facade in terms of design and positioning.
- Dormer windows will maintain overall vertical proportions, i.e. be taller than they are wide.
- The number and proximity of dormers which break the eaves line will be limited to prohibit unnecessary rainwater goods within the building elevation.
- GRP roofing will not be permitted.
- Gabled / hipped dormers will use a consistent pitch and material to that of the main roof.
- Hipped dormers will be carefully detailed to avoid oversizing of ridge tiles and hip tiles.
- Flat roof dormers will use standing seam lead, zinc or copper roof materials.



Consistent pitches ✓

Dormers will be designed to avoid interruption of eaves. ✓



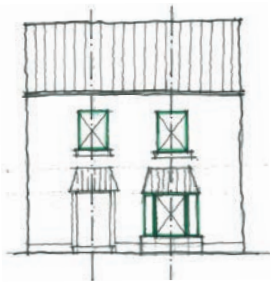
Dormer windows need to complement, and align with, the fenestration of the facade.

Unacceptable Design Details

Ridge and hip tiles that are disproportionately large are not acceptable ✗

10. Bay Windows

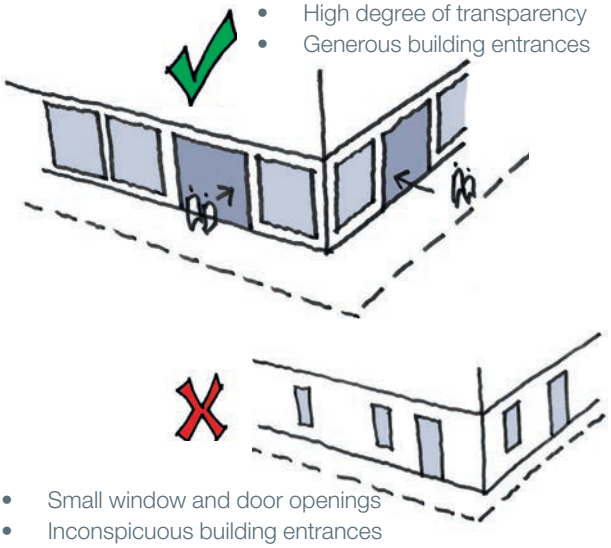
- Bay windows are appropriate if considered as part of the whole elevation.
- No GRP roofing to bay windows will be used.
- Frame members and corner posts should be carefully considered to ensure they are neither too bulky nor too flimsy.
- The roofing material of bay windows needs to match the selected material of the main roof.
- The roofing material of flat roof bay windows will be standing seam lead, zinc or copper.



Bay windows designed as part of overall composition of elevation. ✓

5.15 Principles for Mixed Use Built Form

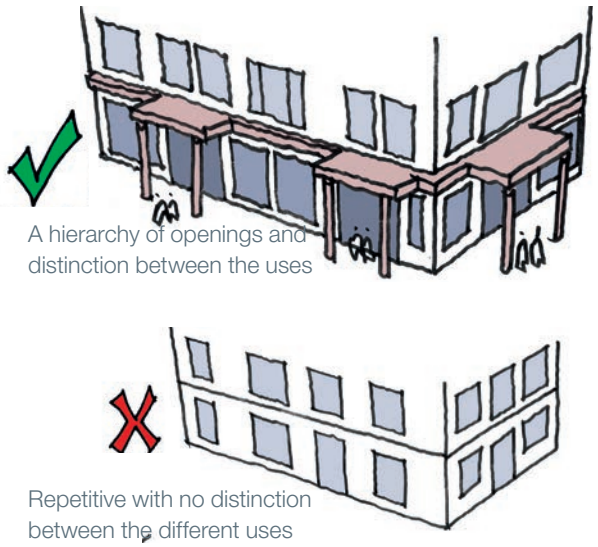
1. Non Residential Active Frontages



- High degree of transparency
- Generous building entrances

- Small window and door openings
- Inconspicuous building entrances

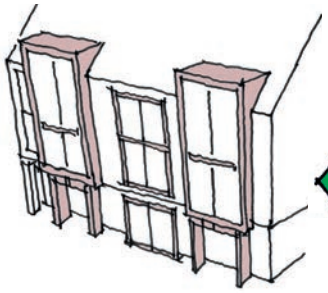
2. Distinction Between Uses



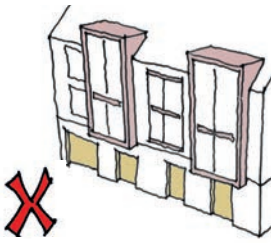
- A hierarchy of openings and distinction between the uses

- Repetitive with no distinction between the different uses

3. Design Coherance Between Uses

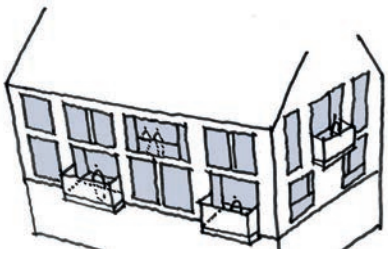


- Building facades designed in unison
- Building elements interrelate over floor levels

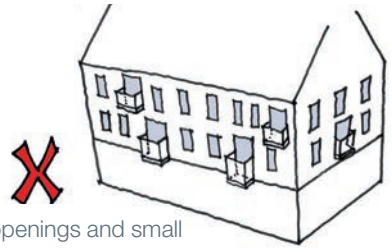


- Building facades designed in isolation
- Lack of interrelation over floor levels

4. Windows and Balconies

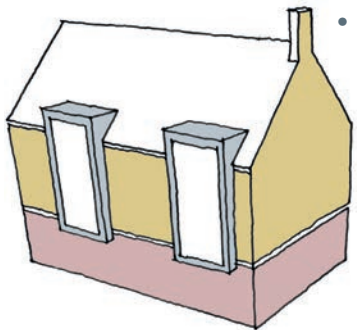


- Generous openings and balconies on primary facades

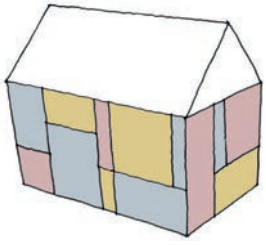


- small window openings and small balconies on primary facades

5. Form and Materials



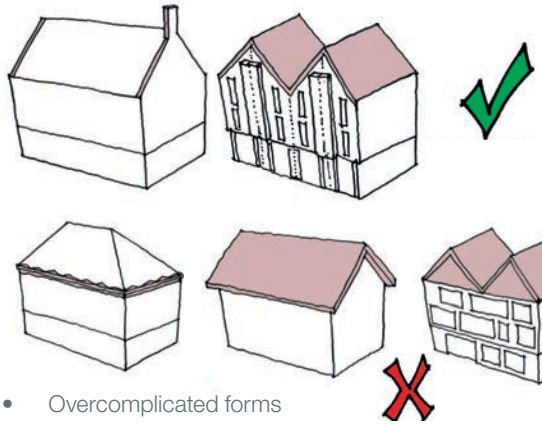
- Clear materiality logic with material changes for specific built elements



- Illogical and random material changes

6. Roof Form

- Simple and coherent roof forms which relate to the building form.



- Overcomplicated forms
- Overly decorative or excessively overhanging eaves

5.16 Private Amenity Space

Private amenity space will be provided appropriate to the dwelling it serves. As a minimum, dwellings will be expected to have direct access to private amenity space according to their size and likely number of occupants, as below:

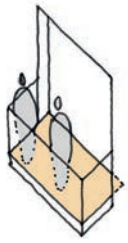
- Detached or semi-detached family homes with three or more bedrooms must have gardens capable of comfortably accommodating outdoor seating for the family, space for children's play, planting beds, space for drying clothes, and room to unobtrusively accommodate a shed or greenhouse.
- Where area for covered bin and bike storage is to be accommodated within private garden areas, it must be in addition to the minimum areas quoted below, and must be directly accessible from the street serving the property.
- Compact two and three-bedroom houses should have sufficient ground-level private amenity space to accommodate activities of a couple or young family.
- Courtyards and upper-level terraces will be considered to contribute towards the requirements of private amenity space.
- If apartments are provided without sufficient amenity space directly accessible from the dwelling, then communal gardens, private to the block, may be considered to make up the shortfall.
- Garden fences between properties should preferably be hedgehog friendly.
- Hedgehog friendly fencing for rear garden fences will include for 13cm squared gaps at the base of fencing. One such gap in each boundary of the garden would be sufficient.

Figure 5.10 presents guidelines for minimum standards for amenity space for different types and sizes of residential homes. A relaxation in any of these minimum standards will only be considered in those circumstances where it is clearly demonstrated that this aids the generation of a well-designed layout which respects the residential amenities of the occupiers of the proposed dwellings having regard to acceptable levels of privacy, daylight/sunlight and any potential overbearing impact.

Fig. 5.10: Minimum standards for amenity space provision guidance

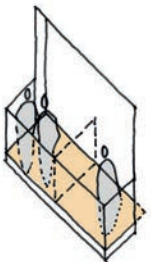
Apartments

1 BED/ 2 PERSON



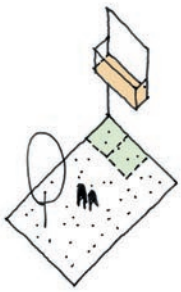
5sqm Private Balcony

2 BED/ 3 PERSON



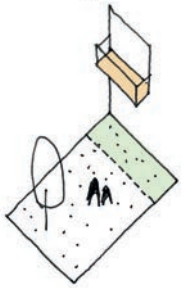
6sqm Combination of Private Balconies

2 BED/ 4 PERSON



8sqm 6sqm of private balconies & 2sqm communal space

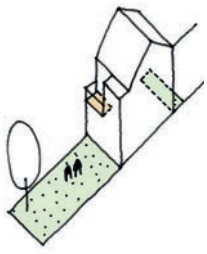
3 BED/ 5 PERSON



10sqm 6sqm of private balconies & 4sqm communal space

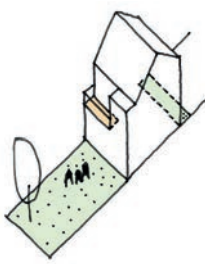
Houses

2 BED/ 3/4PERSON



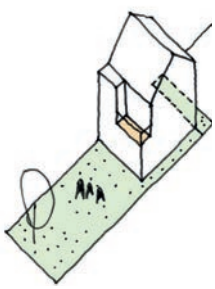
50sqm front/back/side gardens & terraces

3 BED/ 4/5 PERSON



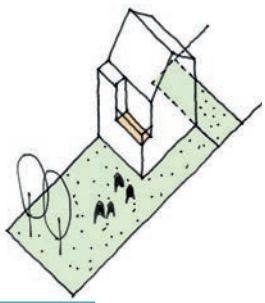
60sqm front/back/side gardens & terraces

4 BED/ 6/7 PERSON



85sqm front/back/side gardens & terraces

5 BED/ 7/8 PERSON



100sqm front/back/side gardens & terraces

5.17 New Utility Supplies

The proposed development (KP2) will be supplied with utility infrastructure (electricity, gas, potable water and telecommunications) connected to the incumbent utility provider's networks and distributed below ground across the proposed development phasing parcels.

Electricity Substations

- 2 Substations to serve KP2.
- Locations: one substation to be positioned in the centre of KP2 and one at western edge of KP2, see the Regulatory Plan for indicative locations.
- 4m x 4m Footprint.
- Designed in accordance with the ENA Engineering Recommendation G81 "Framework for Design and Planning, Materials Specification and Installation and Record for Low Voltage Housing Development Installations and Associated, New, HV/LV Districbution Substations" – Part 2 Materials Specification.
- Appearance: materials to match those of neighbouring built form, notably choice of bricks and roofing material to be same specification as adjacent buildings.
- See precedent photos below that illustrate examples of substations that sensitively integrate with surrounding built form.

Gas

- To be served from Gas Governor in KP1.

Telecommunications (BT)

- To be served from KP1.

Potable Water

- Severn Trent Water (STW) are installing the potable water from Rugby along route agreed with RSR project team.

Foul Water

- Will be designed in accordance with the site wide strategy as agreed with STW

Precedent photographs illustrating integration of substations with material palettes to match neighbouring built form.

Utilities within highways (adoptable) layouts

Predominantly the new infrastructure will be installed within the proposed highway (adoptable) layouts:

- Utilities under footways, drainage under roads and in accordance with National Joint Utilities Group (NJUG) guidelines.
- Figure 5.11 (see right) illustrates the NJUG recommended minimum depths of cover to the crown of the apparatus within a 2 metre wide footway.
- Where the utilities are installed outside of the adopted highways (e.g. green spaces) then wayleaves and easement to allow for future access will be agreed with the relevant utility provider.

Note: The same positioning should apply in the carriageway/service strip (if safe and practical to do so) where a development has no footway(s) available for services and/or the boundary of the property is on the carriageway.

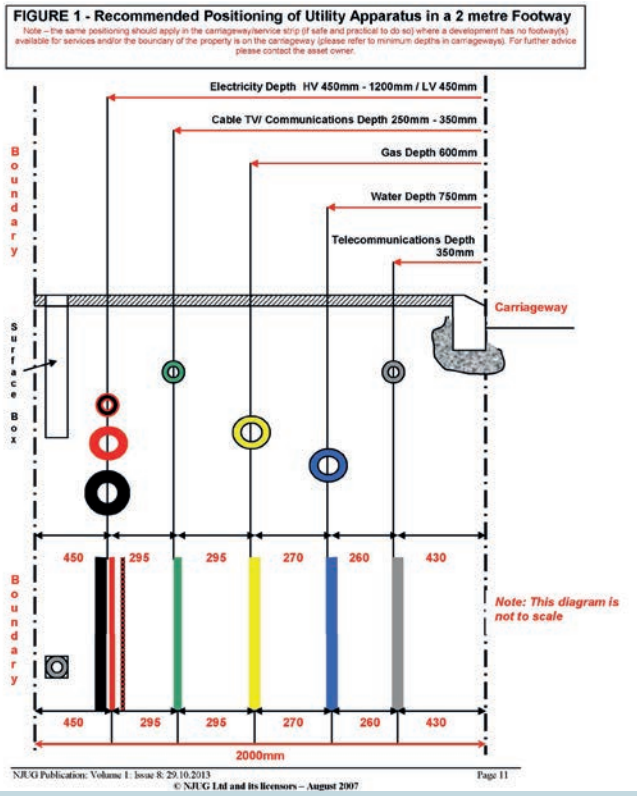


Figure 5.9 NJUG diagram

5.18 Affordable Housing

The principles for affordable housing are set out in the KP2 Delivery Plan.

The creation of a residential development that delivers a good housing mix with a range of dwelling types and tenures, including affordable housing, is integral to delivering the principles of sustainable development and to creating a sustainable community. Mixing tenures, particularly to include affordable housing, promotes social diversity and encourages social inclusion.

All affordable housing is to be tenure blind, i.e. it should not be possible to distinguish between the design and appearance of affordable housing and market sale housing.

Affordable housing should be distributed in appropriate sized clusters within KP2, in relation of the broad increase in residential density in north eastern direction.

5.19 Refuse & Recycling Strategy

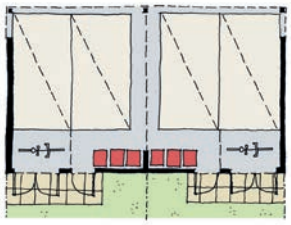
Residential

The proposed development will comply with the below residential bin storage principles:

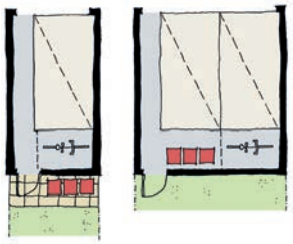
- In line with the Building Regulations municipal waste collection bins are to be located within 30 metres of a home's entrance and refuse bins should be within 25 metres of a waste collection point.
- Rugby Borough Council (RBC) operate their own waste collection fleet. Under this strategy each property is provided with 3 wheeled bins. Dwellings are to be provided with suitable bin storage.
- Apartment blocks are to be provided with communal bin stores, which are to be designed within the apartment block or grounds away from public realm and primary entrance.
- Appropriate bin storage must be provided to ensure bins are not dominant on the street scene.

The storage and collection strategy will vary between the different types of dwelling. This is illustrated in the following diagrams. Suggestions as to how bins can be incorporated into car barns are also illustrated opposite.

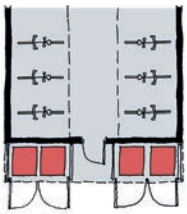
Car barns:



1. Car barns can provide bin storage areas at the rear of the shelter, to be wheeled to the collection point on specific days.



2. Garages for dwellings can also provide a storage area for bins, or bins can be stored against a wall on a paved area within the private amenity space, however this should be not be placed fronting onto the main entrance area /drive.



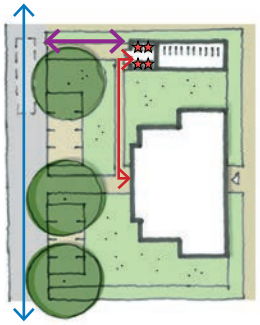
3. Apartment blocks are provided with communal bin stores. This can be designed as part of the bike store within the grounds of the apartment block or separate bin stores integrated with the building. This must not face the public realm or main pedestrian entrance to the block. Open bin storage areas should never be placed along the main approach to the parking court of the block.

Fig 5.10: Residential refuse collection options

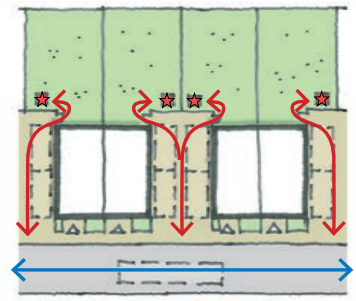
Key

- Waste bins location
- Waste bin communal collection point
- Occupier route to collection point
- Refuse collectors walking route
- Refuse collection vehicle route

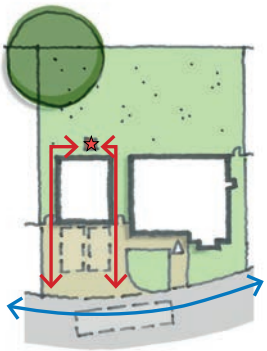
Apartments:



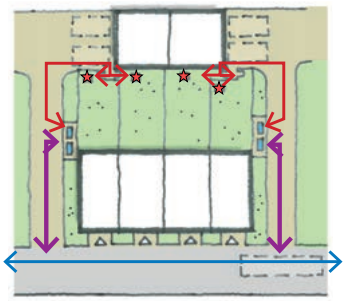
Semi-detached dwellings:



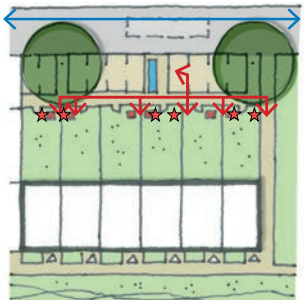
Detached dwellings:



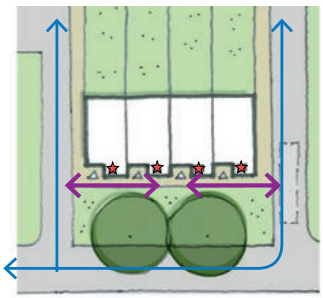
Terraced example 1:



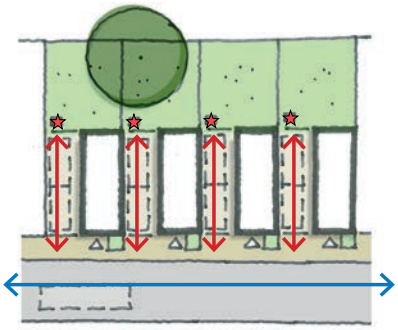
Terraced example 2:



Terraced example 3:



Terraced example 4:



5.20 Noise Mitigation

5.20.1 Introduction

A separate Technical Note has been prepared to provide preliminary noise mitigation design guidance for proposed residential properties on the site within the KP2 Design Guide boundary potentially affected by noise from road traffic, industrial sources at DIRFT sites and adjacent railway lines. A summary of the key points is provided as follows.

Recommendations for internal and external noise criteria for proposed residential dwellings have been provided, as per Noise Mitigation Table 1, 2 and Figure 5.13.

Example configurations for glazing and ventilation have been provided in order to mitigate against external ambient noise and to inform the detailed design stages. Final building facade configurations should be determined during detailed design stages.

Noise Mitigation Table 1:
BS8233:2014 indoor ambient noise levels in dwellings

Activity	Location	07:00 to 23:00	23:00 to 07:00
Resting	Living room	35dB $L_{Aeq,16h}$	-
Dining	Dining room/ area	40dB $L_{Aeq,16h}$	-
Sleeping (daytime resting)	Bedroom	35dB $L_{Aeq,16h}$	30dB $L_{Aeq,8h}$

5.20.2 Mitigation Options

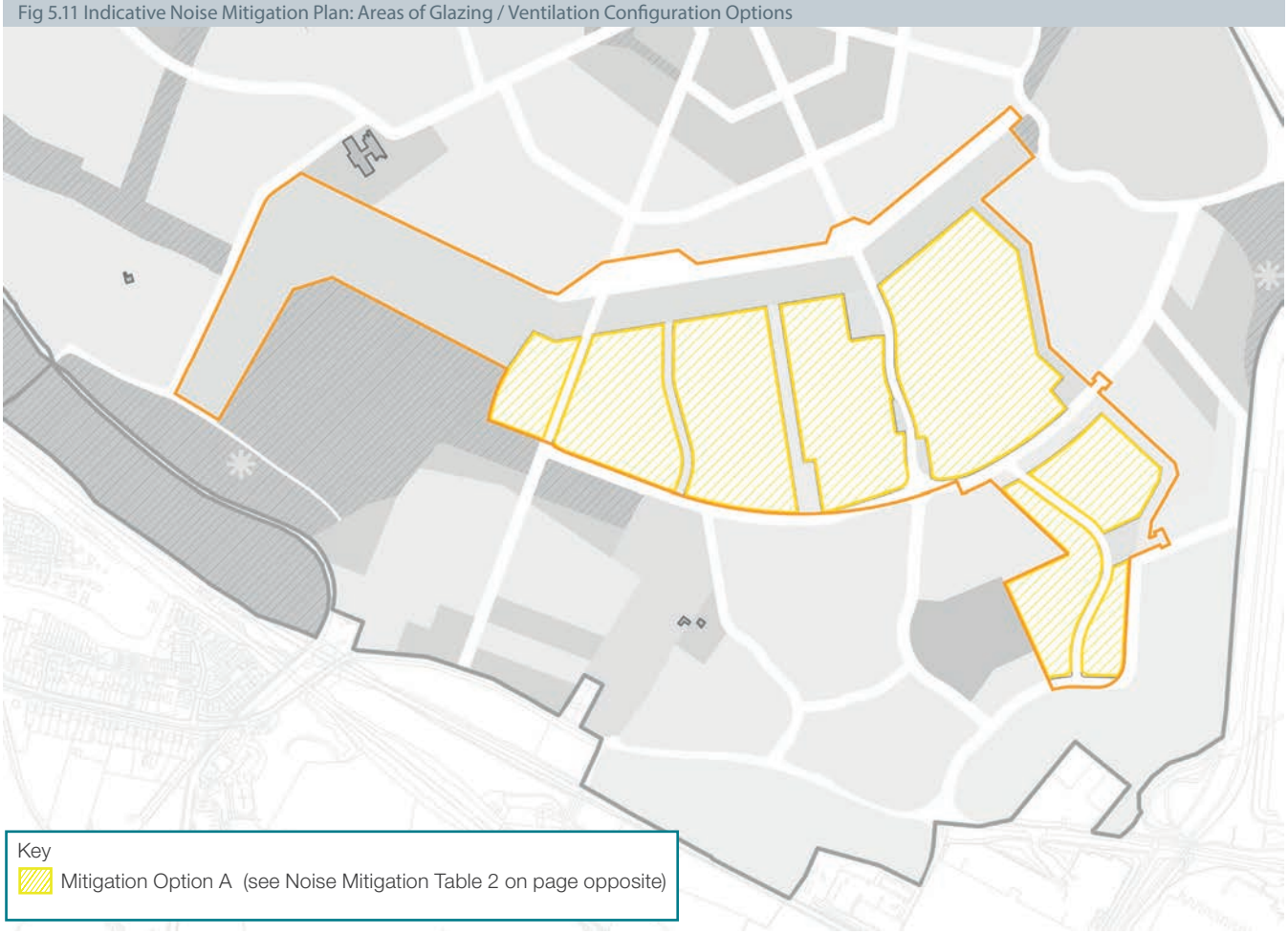
Figure 5.13 presents a KP2 site plan showing zoned areas where certain levels of facade glazing/ventilation configurations should be considered as a design basis. Example configurations are detailed in Noise Mitigation Table 2, below.

Noise Mitigation Table 2: External noise levels and outline design strategies for proposed developments

External Noise Levels Daytime (07:00 – 23:00)	External Noise Levels Night-time (23:00 – 07:00)	Mitigation Option	Example Mitigation Configuration
55 – 63 dB $L_{Aeq,T}$	45 – 57 dB $L_{Aeq,T}$	Option A Mitigation	Facades leading to habitable uses will be feasible with standard thermal double glazing units (e.g. 6 mm glass/6-16 mm air gap/4 mm glass, Rw 31 dB) and alternative ventilation provision. Windows would be required to be closed to achieve internal noise criteria; as such alternative forms of ventilation will be required.
Up to 55 dB $L_{Aeq,T}$	Up to 45 dB $L_{Aeq,T}$	Option B Mitigation*	Facades leading to habitable uses feasible with standard thermal double glazing units (e.g. 6 mm glass/6-16 mm air gap/4 mm glass, Rw 31 dB) and ventilation provided by partially open windows.

* Notes: no parts of the site are predicted to fall into this category during both day and night. See conclusion for further clarification regarding the need for Option A or B Mitigation.

Fig 5.11 Indicative Noise Mitigation Plan: Areas of Glazing / Ventilation Configuration Options



5.20.3 Conclusion

While predicted noise levels at this stage indicate that all residential buildings fall into the area requiring Mitigation Option A, it should be noted that predictions have not taken into account the layout of building massing to be constructed on site. Once erected, building massing will provide mitigation of noise levels through screening. The effects of screening should be assessed during detailed design stages as it is anticipated that some facades may resultantly only require Mitigation Option B design.

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APPENDICES

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APPENDIX A1

KP2 Compliance Checklist

Rugby Radio Station - Key Phase Two Design Guide Compliance Checklist

Reserved Matters Application details:

Phase	
Parcel reference	
Developer	
Design team	

Notes:

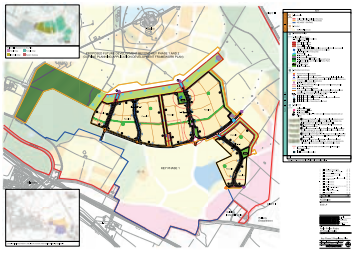
Wherever **'No'** is answered to any compliance question, an explanatory statement justifying non-compliance is required.

Explanatory statements will be submitted in support of the completed Compliance Checklist.

This Design Guide Compliance Checklist will be completed and submitted with all Reserved Matters Planning Applications.

Tick boxes as appropriate: **Yes** ☑ **No** ☐ **N/A** ☐

REGULATORY PLAN



	Are proposals compliant? Yes	No	N/A
Proposals have referred to the Regulatory Plan	☐	☐	☐
Submitted material includes a layout plan that is in accordance with the Regulatory Plan (proposal overlaid on Regulatory Plan)	☐	☐	☐

PART A: BACKGROUND

1. Introduction

		Are proposals compliant? Yes	No	N/A
1.1 - 1.7	Compliance with the Design Guide:			
	Does the proposal fully comply with the Design Guide?	☐	☐	☐
	If the above is answered '**No**', has a statement of justification been provided?	☐	☐	☐
1.7	Have 'Code Breaker' elements been included in the proposals?	☐	☐	☐
	If the above is answered '**Yes**', has a statement of justification been provided?	☐	☐	☐

2. Context

	Yes	No	N/A
Applicant has read and fully understood the contents of this chapter.	☐	☐	☐

PART B: SPATIAL

3. Landscape Design

Are proposals compliant?

	Yes	No	N/A
Location of Landscape Design components as illustrated in the Regulatory Plan	☐	☐	☐
3.1 Landscape Design 'Guiding Design Principles'	☐	☐	☐
3.2 Informal Open Space			
3.2.1 Ecology & Wildlife Corridors	☐	☐	☐
3.2.2 Green Corridors	☐	☐	☐
3.2.3 Productive Landscapes	☐	☐	☐
3.2.4 Normandy Hill / Retained Ridge and Furrow	☐	☐	☐
3.2.5 Informal Play and Residential Pocket Parks	☐	☐	☐
3.3 Formal open space:			
3.3.1 Play Areas	☐	☐	☐
3.3.2 Formal Parks	☐	☐	☐
3.3.3 Access to spots pitches	☐	☐	☐
3.4 Hedgerows	☐	☐	☐
3.5 Foul and Surface Water Management Strategy	☐	☐	☐
3.6 Heritage	☐	☐	☐
3.7 Public Realm Materials	☐	☐	☐
3.7.1 Streetscape Materials Palette			
3.7.2 Street Furniture	☐	☐	☐
3.7.3 Public Art	☐	☐	☐
3.7.4 Lighting	☐	☐	☐
3.7.5 Public Realm Boundaries	☐	☐	☐
3.7.6 Planting Palette/Strategy	☐	☐	☐
	☐	☐	☐

4. Access & Movement Design Fixes

Are proposals compliant?

	Yes	No	N/A
4.1 Movement and Access 'Guiding Design Principles'	☐	☐	☐
4.2 Access Points	☐	☐	☐
4.3 Connecting the Assets	☐	☐	☐
4.4 Street Hierarchy			
4.4.1 Primary Street	☐	☐	☐
4.4.2 Secondary Street	☐	☐	☐
4.4.3 Cross Parcel Permeability & Tertiary Streets	☐	☐	☐
4.4.4 Tertiary Streets: standard	☐	☐	☐
4.4.5 Tertiary Streets: next to landscape	☐	☐	☐
4.4.6 Tertiary Streets: next to landscape	☐	☐	☐
4.4.7 Tertiary Streets as Spaces	☐	☐	☐
4.4.8 Private Drives	☐	☐	☐
4.5 Cycle and Pedestrian Network	☐	☐	☐
4.6 Bus Network	☐	☐	☐
4.7 Vehicular Parking	☐	☐	☐
4.8 Cycle Parking	☐	☐	☐
4.9 Traffic Calming Measures	☐	☐	☐

5. Residential Built Form Design Fixes

Are proposals compliant?

		Yes	No	N/A
Location of residential development parcels		☐	☐	☐
5.1	Built Form Guiding Design Principles	☐	☐	☐
5.2	Introduction			
	5.2.1 Marker Buildings	☐	☐	☐
	5.2.2 Key Buildings	☐	☐	☐
5.3	Frontage Character	☐	☐	☐
5.4	Character Areas			
	5.4.1 Steps for using Chapter 5.3	☐	☐	☐
	5.4.2 Rural Edge	☐	☐	☐
	5.4.3 Informal Urban	☐	☐	☐
	5.4.4 Formal Urban	☐	☐	☐
	5.4.5 Eastern Gateway	☐	☐	☐
5.5	Residential Materials	☐	☐	☐
5.6	Dwelling Typologies Library	☐	☐	☐
5.7	Parking Typologies Library	☐	☐	☐
5.8	Boundary Typologies Library	☐	☐	☐
5.9	Key Groupings	☐	☐	☐
	5.9.1 LEAP and Formal Open Space & Formal Park	☐	☐	☐
5.10	Residential Density	☐	☐	☐
5.11	Building Heights	☐	☐	☐
5.12	Residential Plot Layout Rules	☐	☐	☐
5.13	Architectural Principles for Residential Built Form	☐	☐	☐
5.14	Building Features for Residential Built Form	☐	☐	☐
5.15	Principles for Mixed Use Built Form	☐	☐	☐
5.16	Private Amenity Space	☐	☐	☐
5.17	New Utility Supplies	☐	☐	☐
5.18	Affordable Housing	☐	☐	☐
5.19	Refuse & Recycling Strategy	☐	☐	☐
5.20	Noise Mitigation	☐	☐	☐

APPENDIX A2

KP2 Sustainability Statement

Appendix 2 KP2 Sustainability Statement

This Sustainability Statement sets out sustainability targets for the phase of development in terms of Energy, Waste and Water.

Development proposals will be encouraged and expected to incorporate energy and water efficient design considerations into the design for buildings. The specific proposals will be assessed on a plot by plot basis.

Energy Guidelines

The key principles of the approach to energy efficiency and generation for Key Phase 2 (KP2) follow the principles of design to reduce energy demand set out in the Energy Statement (Peter Brett Associates, August 2013) submitted with the outline application and seek to maximize renewable energy sources included in the suite of effective solutions set out in the Energy Statement . These principles are:

1. Optimise energy-efficiency of urban structure to maximise daylight and passive heat from the sun through

- Orientation to the sun.
- Optimisation of distances between buildings.

2. Minimise energy demand of buildings. The building envelope for the homes within KP2 will be constructed to be highly efficient so that the amount of energy which is typically required in homes is minimised.

Minimise heat losses through a very good building envelope (walls, roofs, windows) and a high compactness of the buildings (good ratio of surfaces to volume). Maximise passive solar gains with windows facing south.

3. Maximise efficiency of energy supply and share of renewable energy sources.

In accordance with Condition 16 of the Outline Application, all development shall aim to achieve an improvement of 10% above the Target Emission Rate (TER) set out in Part L of the Building Regulations. However, this needs to be considered at the Reserved Matters stage in light of the recent Housing Standards Review.

To achieve this, KP2 of the Rugby Sustainable Urban Extension will meet high levels of fabric energy efficiency as set out in the Energy Statement submitted with the outline application. Each residential dwelling will aim to meet the following fabric specification:

- Opening areas (windows and doors) will have the same as actual dwellings up to a maximum proportion of 25% of total floor area.
- External walls (including opaque elements of curtain walls) will have a U value of 0.18 W/m2K, and party walls will have a U value of 0.0 W/m2K
- Roofs and floors will have U values of 0.13 W/m2K
- Windows, roof windows, glazed rooflights and glazed doors will have U values of 1.4 W/m2K (whole window U-value) and g-values of 0.63
- Opaque doors will have a U value of 1.0 W/m2K and semi-glazed doors will have a U value of 1.2 W/m2K
- Dwellings will have an air tightness of 5.0m3/hr/m2
- For linear thermal transmittance, standardised PSI values (See SAP Appendix R) will be used, except use of y=0.05 W/m2K if the default value of y=0.15 W/ m2K is used in the actual dwelling
- Dwellings will use natural ventilation (with extractor fans)
- No air conditioning will be used
- Heating systems will consists of mains gas (with a combi boiler if a combi boiler is in the actual dwelling, otherwise a regular boiler) with radiators. The boiler will be room sealed, with a fan flue and a SEDBUK (2009) efficiency of 89.5%.
- Controls will include time and temperature zone control and weather compensation, as well as a modulating boiler with interlock.
- With regards to the hot water storage system, this will be heated by boiler (regular or combi). If the cylinder is specified in the actual dwelling, the volume of the cylinder will be used. If a combi boiler is used, no cylinder will be used. Otherwise the volume of the cylinder will be 150 litres. It will be located in heated space, thermostat controlled and will have a separate time control for space and water heating.
- Primary pipework will be fully insulated.
- The hot water cylinder loss factor will be equal or better than 0.85 x (0.2 +0.051 V2/3) kWh/day
- No secondary space heating will be used
- 100% low energy lighting will be used
- Thermal mass parameter will be medium (TMP=250)

These fabric standards set an extremely high level of efficiency for each dwelling and are equivalent to the target emission rate in the 2013 Building Regulations. If the regulated carbon emissions associated with the Building Regulations cannot be met through fabric energy efficiency measures alone it is likely that additional carbon emission reductions will be achieved on individual plots utilising solar photovoltaic (PV) technology. Additional renewable technologies, such as ground source heat pumps, air source heat pumps, micro-wind, solar thermal water heating and micro-gas CHP, may be supplemented by the developer or purchaser of properties as long as the target carbon emission rates are achieved with this change in building specification.

Energy specification for the non-residential element will meet the specific target emission rate set by the Building Regulations at the time of application. This will need to take into consideration whether the building is publically funded which may stipulate a high carbon emission target in line with previous definitions of zero carbon buildings. The carbon targets attributed to these buildings will be agreed base on plot design specifications.

In addition, the detailed application will seek to minimize the visual impact of renewable technology if this is considered an issue. Measures may include restricting roof mounted technology away from primary streets and locating noise generating technology such as air source heat pumps away from sensitive receptors, although this may affect the delivery of energy targets.

An element of flexibility will be needed by house builders in achieving these targets in order to meet housing standards. This is important in light of the recent Housing Standards review and approaches to delivering zero carbon homes.

Waste Guidelines

The waste guidelines for Key Phase follow the guidelines set out in Rugby Borough Council's Refuse And Recycling Policy & Design Guide For Developers. For each dwelling, 3No wheeled bins will be provided within each property's private garden space. Minimum external storage capacity large enough to accommodate standard 240 lt bins will be provided. Bin stores will be accessible and convenient for the occupier and for collectors. Bin stores will be hard floored, and if covered, will be of sufficient height to open bin lids. All bins will be able to be removed individually from the store for presentation at the back of the footway for collection. Storage locations will be at the kerb side, adjacent to the public highway and containers will not have to be moved through a building to the point of collection. The distance between the collection vehicle and the bin should not exceed 10m. If the distance is greater than 10m, reasonable justification will be provided to the planning officer. Refuse collectors will not service wheeled bins from private paths or lanes.

If a more centralised above ground storage area for bins is required (associated with communal facilities), these areas are likely to require that:

- Communal stores will allow direct access for the refuse collection vehicle, and will be in a central and convenient location for users and collectors where possible. If this is not possible then the store should be located at the main entrance of the development or by providing more than one bin store within the site;
- The distance for each resident to carry their refuse will be kept consistent across the development;
- Consideration will be made for "Keep Clear marking in front of bin stores and at designated vehicle access/loading points to prevent cars parking and inaccessibility for collections;
- The bin store must be large enough for residents to gain access to all bins and each bin must be able to be removed individually from the store;
- Covered bin stores must allow sufficient clearance to allow full opening of the lid (with a 2m minimum working height where compound is covered) and 150mm clearance space between containers to allow ease of movement; and

Collectors will not have to move wheeled bins down gradients exceeding 1:14. In addition, collectors should not have to move wheeled bins up or down steps. For both single dwellings and communal facilities, overhead service cables/pipes will be at least 6m from ground level to allow operation of the lifting gear on the collection vehicle.

With regards to highway layout, highways will have a minimum width of 4m and will be designed to accommodate a maximum reversing distance of max 12 metres. A minimum working area of 4m width and 4m in length should be available where containers are emptied, and a minimum of 4.5m vertical clearance will be provided. 2m minimum width of access threshold to the compound to allow for the removal and return of containers whilst servicing will be required.

Household waste collection will adhere to current Rugby Borough Council requirements.

With regards to commercial waste collection and infrastructure, until such point as the occupants are known of each commercial unit, the development of a generic waste collection infrastructure or strategy is not considered appropriate. Rugby Borough Council or a licensed waste contractor will define necessary infrastructure as part of waste collection contracts.

Water Guidelines

Water Management (minimising potable water use)

Internal water use

For new dwellings, the minimum requirement for water efficiency under the current Building Regulations is that the predicted potable water consumption should not exceed 125 litres per person per day. The site would aim for a better standard than this with a target of no more than 110 litres per person per day.

This would be achieved through specifying and installing highly water efficient fixtures and fittings, such as dual flush toilets, low flow taps and shower heads, and, where supplied, highly water efficient white goods. The new homes would also be provided with a Home User Guide that would include information and advice to residents on how to save water.

For new non-residential buildings, water efficiency would be promoted through the use of the following measures:

- water efficient sanitary fixtures and fittings, covering the potential use of:
  - waterless urinals;
  - dual flush WCs;
  - low flow/ aerated taps;
- installation of water meters, and leak detection systems to facilitate the improved monitoring and management of water use.

We would also explore the feasibility of using rainwater harvesting, particularly for the primary school, to displace the use of mains water for WC flushing.

External water use

For new dwellings, the use of potable water use for irrigation would be reduced by installing rainwater butts to serve private or communal garden areas. For both residential and non-residential buildings, the landscape design would also take account of water efficiency by looking, as far as possible, to specify the use of drought resistant planting that would require minimal irrigation, and could rely solely on natural precipitation during all seasons of the year. This would also improve the resistance of the landscaping to future climate change, where more extreme heat waves could become more frequent.

Water Standards

Residential and commercial development water conservation will be in accordance with the current core strategy policy (CS16) and will meet water conservation policy standards applicable at the time Reserved Matters applications are submitted.

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APPENDIX A3

KP2 Indicative Sequencing

Appendix 3 KP2 Indicative Sequencing

Indicative sequencing is illustrated in Figures A3.1, 2 & 3. The broad approach to sequencing is as follows, with further details listed below:

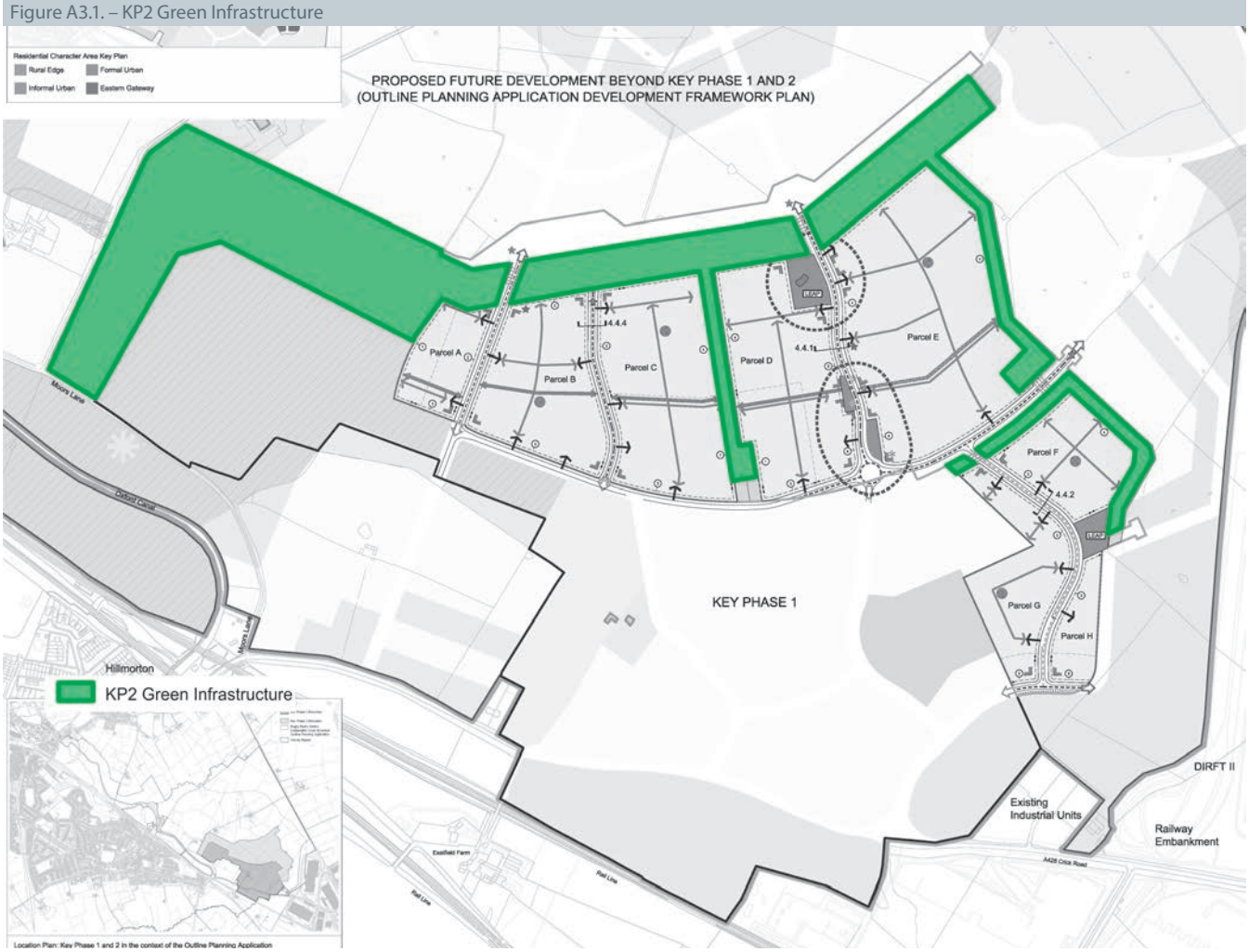
1. Green Infrastructure and construction access is the first element of KP2 to be progressed in line with the need to address ecological considerations including Great Creasted Newts.
2. Grey Infrastructure is the second element with the creation of streets to provide access into and through KP2.
3. Residential development parcels can then be progressed, with access from the grey infrastructure.

KP2 Green Infrastructure:

- See diagram in Figure A3.1.

- The green infrastructure will be the first component of KP2 to be implemented for ecological mitigation purposes to ensure early establishment of habitats for Great Crested Newts (GCN).
- The green infrastructure strategy will re-locate the GCNs temporarily into dedicated holding areas while the wider green infrastructure network is constructed.
- The green infrastructure permeates KP2 and will include wildlife corridors and public footpaths that will create a network of leisure routes through green spaces from KP2, connecting to similar networks within KP1 to the south and through to Normandy Hill in the north west corner of KP2.

Figure A3.1. – KP2 Green Infrastructure

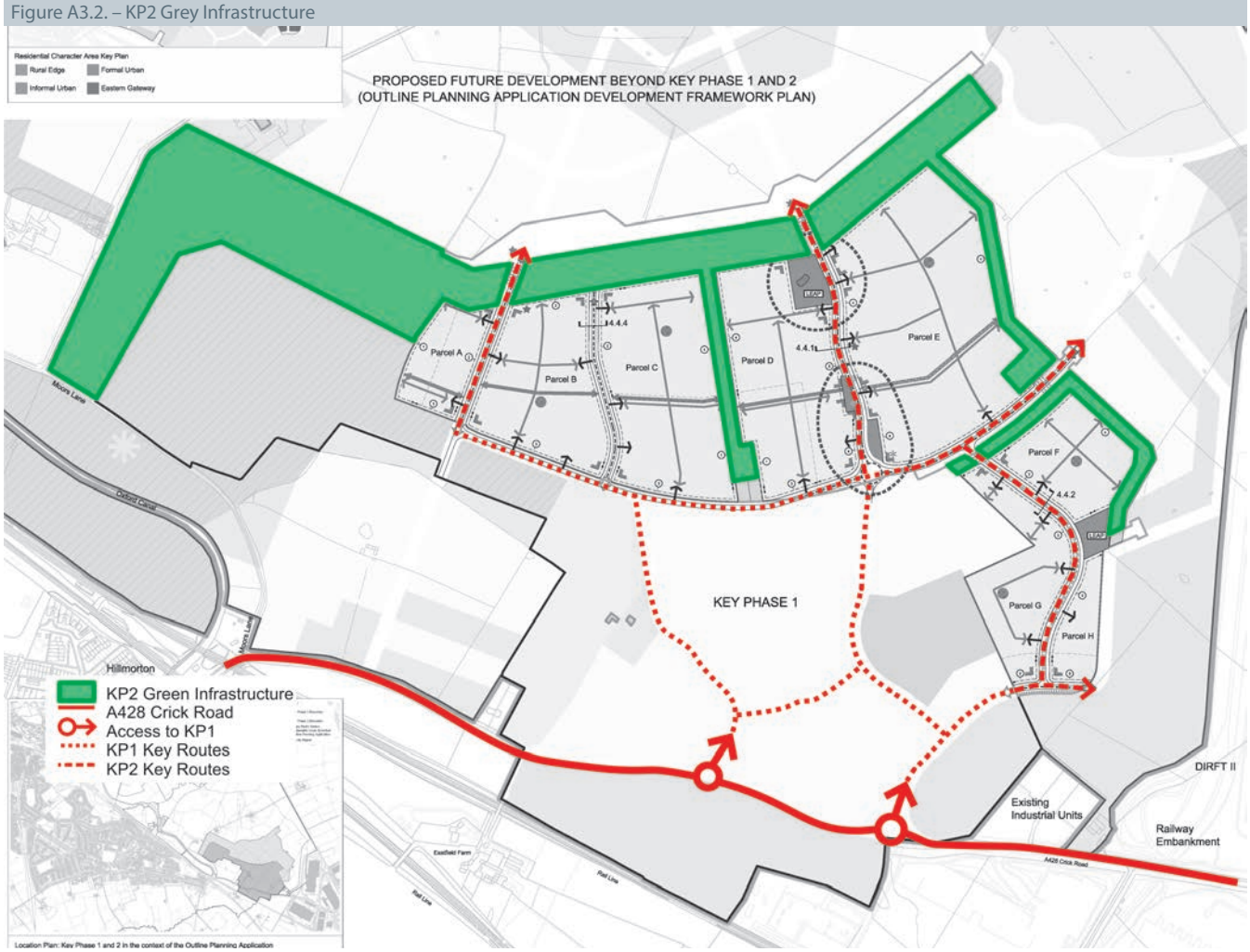


KP2 Grey Infrastructure:

- See diagram in Figure A3.2.

- Providing a movement network is the next essential component of KP1, together with the other early strategic supporting infrastructure.
- Early grey infrastructure Reserved Matters applications will seek approval for accessing KP2 from the street network of KP1 which in turn is accessed from new points of access from the A428 Crick Road.
- A network of routes will be constructed providing access through KP2 opening up development plots and providing access to the primary school in KP1.
- Alongside the network of primary routes other key infrastructure components will be established including strategic foul and surface water drainage and utilities connections.

Figure A3.2. – KP2 Grey Infrastructure

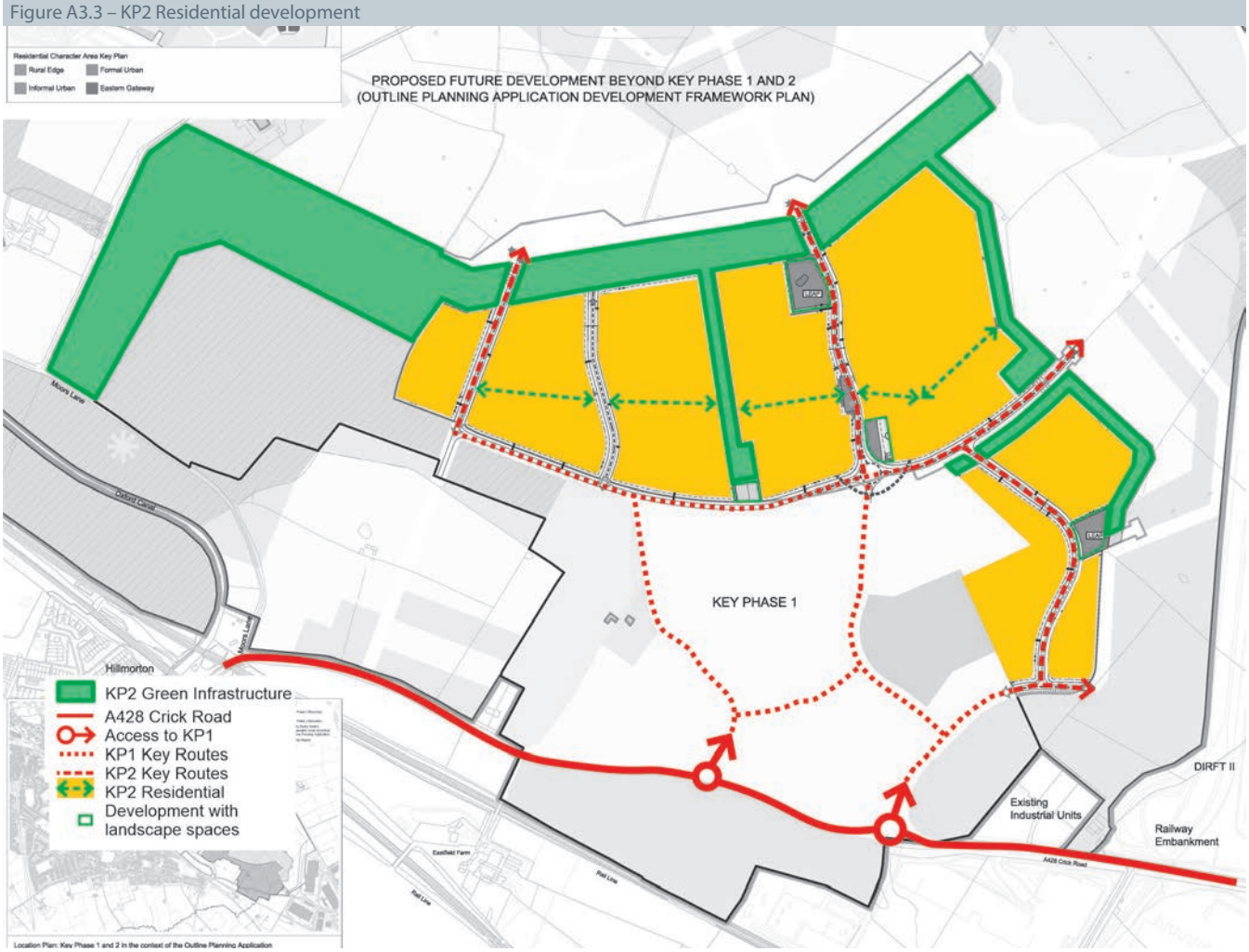


KP2 Residential Development:

- See diagram in Figure A3.3.

- The grey infrastructure movement network will provide access to development parcels enabling the submission of residential Reserved Matters applications.
- Reserved Matters applications for residential development will be brought forward by the developers of individual parcels.

Figure A3.3 – KP2 Residential development



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