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Twyford

Design Guidelines and Codes

Final Report

July 2022

Delivering a better world

Quality information

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Delivering a better world

Contents

Introduction

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1. Introduction

Through the Department for Levelling Up, Housing and Communities (DLUHC) Programme led by Locality, AECOM was commissioned to provide design support to Twyford Parish Council.

1.1 The importance of good design

As the National Planning Policy Framework (NPPF) (paragraph 126) notes, 'good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities'.

Research, such as for the Government's Commission for Architecture and the Built Environment (now part of the Design Council; see, for example, The Value of Good Design[1]) has shown that good design of buildings and places can improve health and well-being, increase civic pride and cultural activity, reduce crime and anti-social behaviour and reduce pollution.

This document seeks to harness an understanding of how good design can make future development as endearingly popular as the best of what has been done before.

Following a detailed analysis of Twyford, a set of architectural and design qualities will be created. This set of qualities combined with good design practice will form the design principles that any development within Twyford Parish should follow in order to comply with this Design Guidelines and Codes document.

1.2 What is a design code

The Governments Planning Policy Guidance defines design codes as:

'… a set of illustrated design requirements that provide specific, detailed parameters for the physical development of a site or area. The graphic and written components of the code should be proportionate and build upon a design vision, such as a masterplan or other design and development framework for a site or area. Their content should also be informed by the 10 characteristics of good places set out in the National Design Guide. They can be …appended to a Neighbourhood Plan…'.[2]

1. https://www.designcouncil.org.uk/sites/default/files/asset/document/the-value-of-good-design.pdf

2. Paragraph: 008 Reference ID: 26-008-20191001 - Revision date: 01 10 2019.

1.3 The purpose of this document

The NPPF 2021, paragraphs 127-128 states that:

'*Plans should… set out a clear design vision and expectations, so that applicants have as much certainty as possible about what is likely to be acceptable. Design policies should be developed with local communities so they reflect local aspirations, and are grounded in an understanding and evaluation of each area's defining characteristics. Neighbourhood plans can play an important role in identifying the special qualities of each area and explaining how this should be reflected in development…*'

'To provide maximum clarity about design expectations at an early stage, plans … should use visual tools such as design guides and codes. These provide a framework for creating distinctive places, with a consistent and high quality standard of design. However their level of detail and degree of prescription should be tailored to the circumstances in each place, and should allow a suitable degree of variety where this would be justified.'

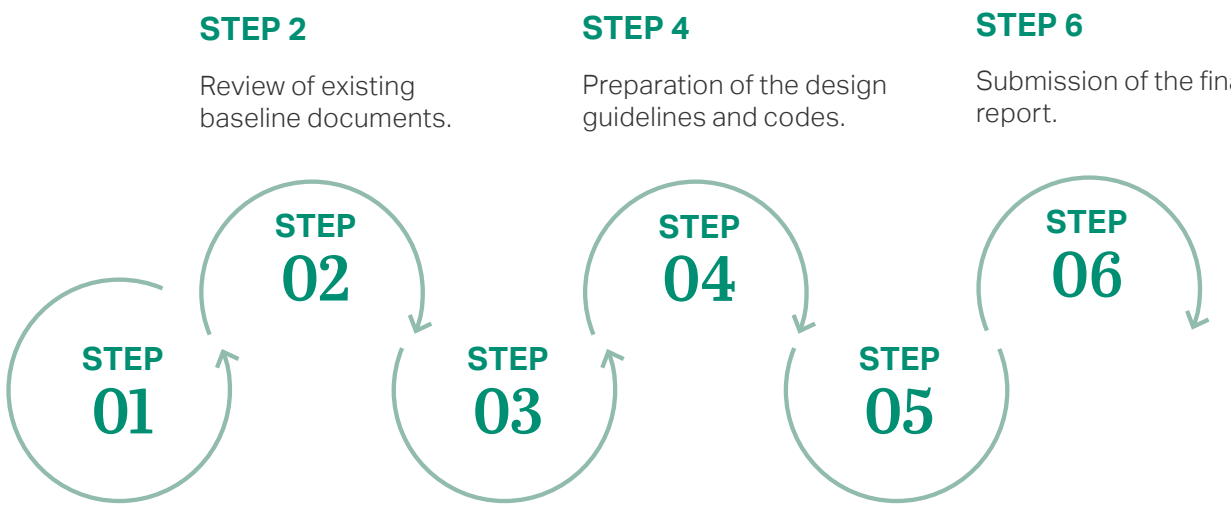
The Government is placing significant importance on the development of design codes in order to set standards for design upfront and provide firm guidance on how sites should be developed.

Wokingham Core Strategy Development Plan was adopted in 2010 and the new Local Plan is expected to be adopted by winter 2022. There are no allocated sites at the moment of writing this report, however, it is a consensus that a set of design guidelines and codes is needed to ensure that any future development in the village respects the existing local character and implements good design practices that better the environment and enhance the civic pride.

It is intended that the Design Guidelines and Codes report becomes an integral part of the Neighbourhood Plan and be given weight in the planning process. The Government intends to make it clear that decisions on design should be made in line with design codes.

1.4 Preparing the design code

Following an inception meeting and an online site visit with 2 members of the Steering group and a real time site visit by the AECOM team, the following steps were agreed with the Group to produce this report:



STEP 1

Initial meeting between AECOM and the Twyford Neighbourhood Planning Group followed by a site visit.

STEP 2

Review of existing baseline documents.

STEP 3

Urban design and local character analysis.

STEP 4

Preparation of the design guidelines and codes.

STEP 5

Draft report with the design guidelines and codes.

STEP 6

Submission of the final report.

1.5 Area of study

Twyford Parish covers an area of around 281 hectares located to the north-east of Reading and north of Wokingham in the county of Berkshire.

It is located in close proximity to the River Loddon, which runs along the western edge of the parish, and landscape areas like the Loddon Nature Reserve on the west of the parish and Thames Valley Park Nature Reserve further to the west.

Twyford Parish has an industrial and trade heritage which can be dated back to 1186 when the Twyford Mills was established. The village was an important transit location for tradesmen traveling to London to cross the River Loddon with locally produced wool and agricultural produces. Up until 1829, water driven mills at Twyford Mills also manufactured silk supplied to other major cities across the country. The site of the Old Silk Mill can be found today on Silk Lane to the west of the Parish, along the River Loddon.

The A321 is the principal north-south route connecting the village with the M4 to the south and nearby villages like Wargrave and Lower Shiplake to the north. The A032 provides east-west access across the village towards Reading and Charvil to the west, as well as Maidenhead and Hare Hatch to the east. Local roads and B roads provide further connections to surrounding villages and towns close to Twyford.

The closest railway station is Twyford station on Station Road within the Parish, providing train services to Reading, Henley-on-Thames and London Paddington.

With regard to public transport in the Parish, buses run on an hourly basis to Reading, Wokingham and High Wycombe. There are no buses on Sunday or on Bank Holidays and there are no late evening services. There are bus stops on Amberley Drive, Church Street, at Twyford Station and others across the village. In terms of cycling, Route 4 of the National Cycleway runs along the western border of Twyford Parish on Wargrave Road and Twyford Road, connecting the Parish with Reading, Wargrave and Maidenhead.

There are a number of local facilities and services in the parish including Twyford Parish Church, a local focal point located in the Twyford Station Conservation Area, a GP surgery, post office, a range of shops, pubs, restaurants as well as Loddon Hall which serves as the Parish Hall. Some light industrial warehouses can also be found on the east and north-west of the Parish. The Piggot Church of England Primary School is located to the north-west of the Parish.

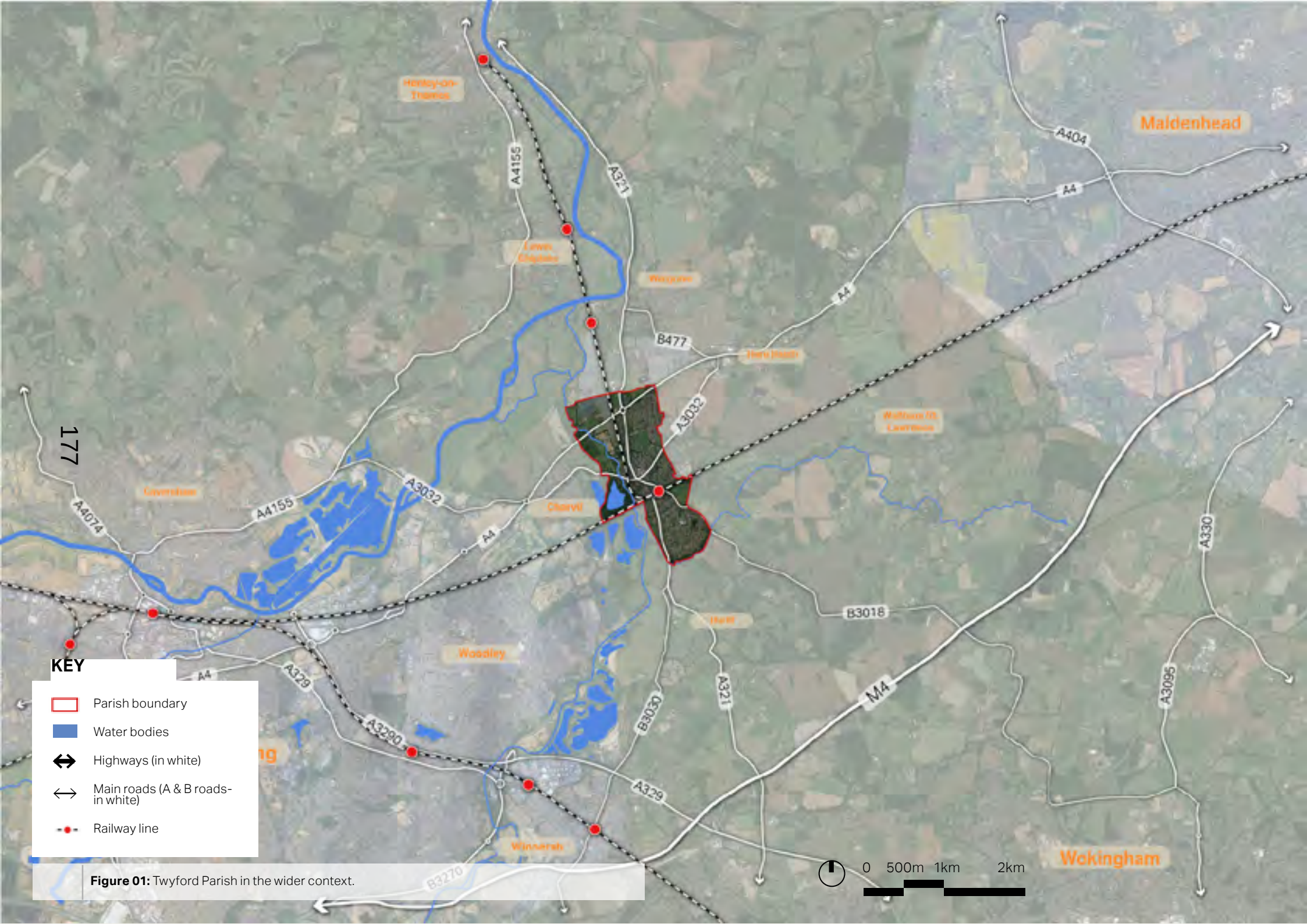


Figure 01: Twyford Parish in the wider context.

Policy context

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2. Policy context

This section outlines some key policy and design guidance that should be considered in future development in Twyford Parish. The following guidelines have been produced at national, district or parish level.

NATIONAL LEVEL

2021 - National Planning Policy Framework

Department for Levelling Up, Housing and Communities

The National Planning Policy Framework sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced.

In terms of heritage conservation, Part 16 (Conserving and enhancing the historic environment) of the NPPFspecifies that plans set out a positive strategy for the conservation and enhancement of the historic environment, identifying sustainable uses which sustain and enhances the significance of heritage assets. The historic environment is recognised as having potential to contribute positively to local character and distinctiveness.

2021 National Model Design Code

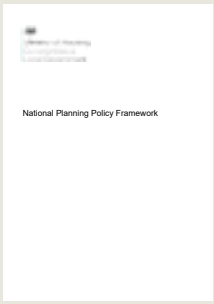
Department for Levelling Up, Housing and Communities

This report provides detailed guidance on the production of design codes, guides and policies to promote successful design. It expands on 10 characteristics of good design set out in the National Design Guide.

2019 - National Design Guide

Department for Levelling Up, Housing and Communities

The National Design Guide illustrates how well-designed places that are beautiful, enduring and successful can be achieved in practice.



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NATIONAL LEVEL

2007 - Manual for Streets
Department for Transport

Development is expected to respond positively to the Manual for Streets, the Government's guidance on how to design, construct, adopt and maintain new and existing residential streets. It promotes streets and wider development that avoid car dominated layouts but that do place the needs of pedestrians and cyclists first.

2020 - Building for a Healthy Life Homes England

Building for a Healthy Life (BHL) is the new (2020) name for Building for Life, the government-endorsed industry standard for well-designed homes and neighbourhoods. The BHL toolkit sets out principles to help guide discussions on planning applications and to help local planning authorities to assess the quality of proposed (and completed) developments, but can also provide useful prompts and questions for planning applicants to consider during the different stages of the design process.

DISTRICT LEVEL

2010 - Wokingham Borough Local Development Framework

Wokingham Borough Council

This document provides a broad policy framework to guide where development will take place between 2006 and 2026. It includes policies for all forms of development including homes, shops, offices, factories, libraries, schools and health and leisure facilities. It also provides a broad spatial vision for the borough to 2026 and the policies designed to achieve this.

1996 - Twyford & Twyford Station conservation area studies

Wokingham Borough Council

This document provides an appraisal for both conservation areas within Twyford analysing the historical and morphological development, the existing fabric and the character for each of the main streets. Lastly, it provides some opportunities for the enhancement of the conservation areas.

PARISH LEVEL

2020 - Twyford Parish Land Management Plan

Twyford Parish Council

This document outlines some strategies to manage and protect open spaces owned by Twyford Parish Council across a 10-year period. It provides an overview on the type of recreational activities that take place on these open spaces, as well as their potential for biodiversity enhancement through adequate management.

2020 - Twyford Parish Climate Change Plan

Twyford Parish Council

This document provides a series of aspirations related to climate change under various key themes - such as transport, air quality, renewable energy sources and carbon off-setting. It also outlines corresponding actions to take across a short, mid and long term period that involve different actors across the parish as a coordinated, parish-wide effort to mitigate against climate change.

Local character analysis

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3. Local character analysis

This chapter describes the local context and key characteristics of Twyford related to heritage, built environment, streetscape, views, landscape and topography.

3.1 Historic evolution and settlement pattern

The placename Twyford is Anglo-Saxon in origin, meaning 'double ford' in reference to the two fords over the River Loddon. One of these fords is located on the Old Bath Road to the west of the village centre, the other next to the Lands End Public House. According to the writings of an early medieval chronicler, King Æthelred I of Wessex and his brother the future King Alfred the Great fled from the Vikings after defeat at Reading over a ford at Twyford in 871.

Until the arrival of the Great Western Railway in 1838, Twyford's economy was primarily agriculturally based. The prominence of agriculture is evidenced by the survival of historic farmhouses such as Old Farm House (NHLE 1118148) Grade II, Chiswick House (NHLE 1319092) Grade II and Loddon Park Farm. A mill is first recorded at Twyford during the 12th century. The milling industry was an important agricultural offshoot, and in addition to flour, paper and silk were also milled at Twyford. The last mill was damaged by fire in the 1970s and subsequently demolished. An apartment block designed to reflect the earlier mill now occupies this site.

Historically, Twyford was bisected by the Old Bath Road, the main coaching route between London and Bath. Travellers would be served by Twyford's coaching houses and inns, one example being the Waggon and Horses Public House (NHLE 1118154) Grade II, which dates to the 17th century. The flow of traffic through the centre was redirected by the creation of a bypass in 1929.

The arrival of the railway in Twyford catalysed development south of the historic High Street. A number of Victorian brick terraces with high quality decorative features were built on Station Road, Brook Street and Waltham Road.

Figure 02: Twyford village c.1883.(Source: National Library of Scotland)

Figure 03: Twyford village c.1933. (Source: National Library of Scotland)

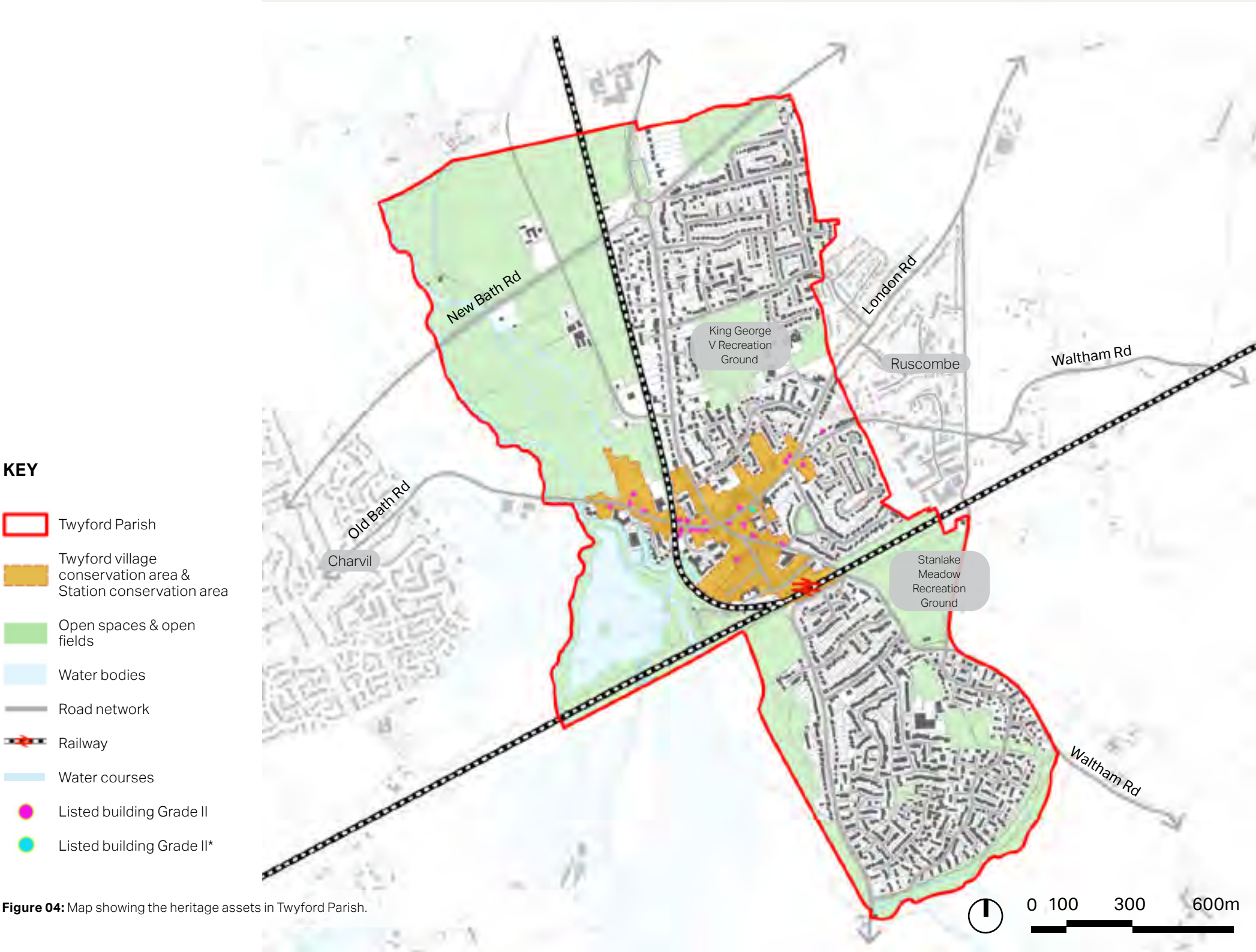

Figure 04: Map showing the heritage assets in Twyford Parish.

3.2 Local heritage assets

Twyford is home to a wealth of heritage assets that can be found across 2 conservation areas - Twyford Conservation area and Station Conservation Area, covering an area along the High Street, London Road, Church Street, Station Road and Waltham Road.

- **Twyford Conservation Area.** This is centred upon the most historic areas of settlement which comprised the Old Bath Road. The conservation area includes the historic western gateway into the settlement, effectively establishing character. There is a high concentration of historic structures along the High Street including the Duke of Wellington Public House (NHLE 1135819) Grade II, the Harrison Almshouses (NHLE 118152) Grade II*, and the Church of St Mary (NHLE 1319130) Grade II*. With the exception of the Church of St Mary, structures are typically modest in scale, and limited to two or three storeys in height, in either brick or render.
- **Station Conservation Area.** This area provides the setting for a high number of Victorian structures associated with the arrival of the railway. Among these structures is the Old Station House dated 1901, occupied by successive station masters until 1969. Brick terraces were built to house railway workers, which remain largely unaltered retaining features such as sash windows, zig-zag window arches and coloured brick banding. These terraces are of notable architectural merit and effectively establish the character of the conservation area
- **Listed buildings.** There are over 20 listed buildings across Twyford and most of these are concentrated within the parish's conservation areas.
- **Non-designated heritage assets.** There are a number of non-designated historic buildings and structures of special interest within the study area. A List of Buildings of Traditional Local Character has been established by Wokingham Borough Council which outlines more details regarding these structures.[1]

1 The list can be found following this link: https://www.wokingham.gov.uk/planning/how-to-apply-for-planning-permission/listed-buildings-heritage-and-conservation-areas/

Figure 05: The Duke of Wellington Public House and 23, 23A & 25 High Street (Twyford Conservation Area).

Figure 06: Victorian-style terrace houses along Brook Street, Station Conservation Area.

Figure 07: Old Farm House, 24 High Street (Twyford Conservation Area).

Figure 08: The Church of St Mary, a key landmark for Twyford on Station Road (Station Conservation Area).

Figure 09: The Waggon and Horses Public House, Old Bath Road (Twyford Conservation Area).

3.3 Historic Built Form

Much of the built environment of Twyford is influenced by the architectural styles of the parish's historic built form and character. Some of the key charcterisics are highlighted as follows:

- Buildings are typically brick with some examples of rendered and partially rendered frontages. There are few masonry buildings, the Church of St Mary (NHLE 1319130) Grade II* being the most prominent example;
- Roofs are pitched slate or tile with gabled dormers. Brick chimneys are common features, one particularly significant example being those of the Harrison Almshouses (NHLE 118152) Grade II*. Within the Twyford Station Conservation Area roofscape is highly uniform, there is greater variation in building height within the Twyford Conservation Area;
- Windows are largely timber sash. There has been some replacement with casement, not entirely in keeping with historic character;
- Within both conservation areas, buildings typically front onto the pavement or are set back behind small paved front gardens with a range of boundary treatments. Front gardens become more generous in size as London Road progresses eastwards; and
- Gable ends receive a range of decorative treatments including coping, banded brickwork, timber studding, render and hung tile.

Figure 11: The Old School building with red brick and stone facade along with large casement windows, Polehampton Close (Tywford Conservation Area).

Figure 10: A row of Victorian style red brick terrace houses fronting onto Twyford Station, Station Road (Station Conservation Area)

Figure 12: Site of the Old Silk Mill on Silk Lane by River Loddon, reflecting Twyford's silk manufacturing legacy (Twyford Conservation Area).

3.4 Access and movement

There is a hierarchy of roads running through the Parish. Each one, due to its different typology and therefore character, contributes to the overall character of the streetscene.

- **Main roads.** The area is serviced by the A4 road which provides connectivity to both Reading in the west and London which is approximately 20 miles due east of Twyford. Other primary routes in the parish include London Road, Waltham Road, Hurst Road and the A321. All main roads, for the most part, accommodate two-lane traffic with pavements on both sides;
- **Secondary, tertiary roads and cul-de-sac streets.** Secondary and tertiary roads are connected to the main road network stretching within the residential neighbourhoods. The neighbourhoods, from which those roads are passing through, are laid out in a permeable pattern. However, the rest of the properties, mainly those to the south of the village, are arranged in a cul-de-sac layout;
- **Public Rights of Way.** There is a network of footpaths around and within the Parish offering connections to Charvil to the west, as well as Ruscombe to the east; and
- **Twyford Railway Station.** The station provides links towards Didcot, Reading and London Paddington through TFL Rail and the Great Western Railway.

Figure 13: High Street which becomes London Road to the east and Old Bath Road to the west is one of the main roads running through the village.

Figure 14: Waltham Road changes in character from a green street with houses on both sides to a less vegetated street with shop fronts as it reaches the village centre.

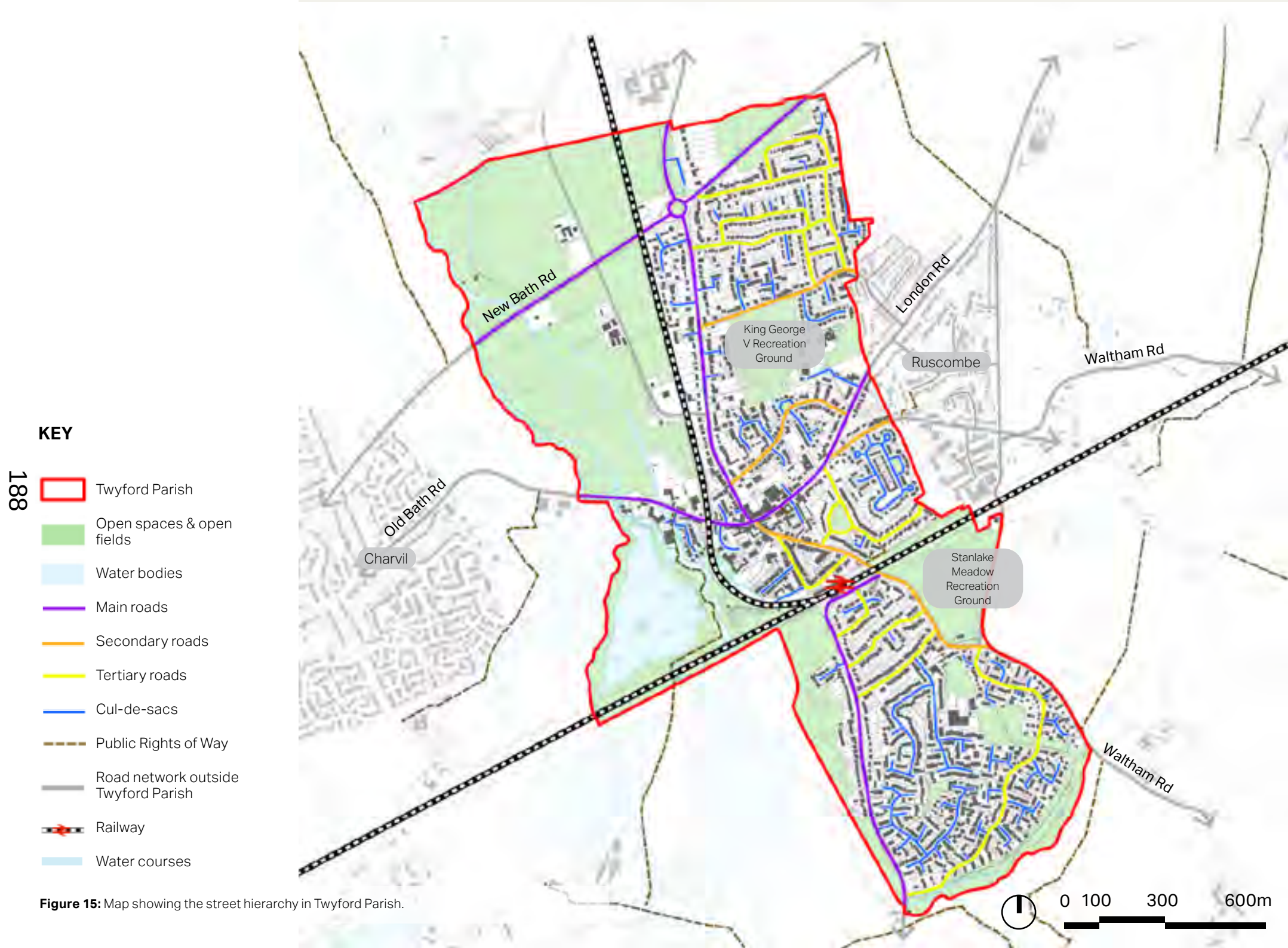

Figure 15: Map showing the street hierarchy in Twyford Parish.

3.5 Green and blue infrastructure

Twyford Parish is surrounded by a good amount of green and blue assets, mainly to the west, which boost biodiversity and the feeling of being close to nature.

- **Woodlands and other habitats.** Twyford is located in an area of natural significance. This is supported by the various designated areas of deciduous woodland and traditional orchards;
- **Designated local green spaces.** Within the village there are designated green spaces which provide spaces for leisure activities, as well as opportunities for the community to get outside;
- **Loddon Nature Reserve.** In the west of the Parish there is the Loddon Nature Reserve and Local Wildlife site which are surrounded by deciduous woodland;
- **Flood risk zones.** The River Loddon and the Old River are both tributaries of the Thames and flow from the north to the south of the Parish. As can be seen in Figure 18, this creates a large area which is highly susceptible to flooding, especially the parts that fall under flood zone 3;
- **Green route.** Waltham Road, from the railway station, along the A321 and New Bath Road to the north is designated as a proposed green route, which will enhance the movement of species and provide a pleasant walking route. Additionally, there are proposed areas, by the NP Group, of green route enhancement along New Bath Road and A321 to the north and Hurst Road to the south; and
- **Open countryside.** In general, the open fields and countryside to the west, south and east enhance the feeling of openness and closeness to nature.

Figure 16: St Mary's churchyard offers a pleasant green break within the enclosed built environment, Church Street.

Figure 17: The residential neighbourhoods to the north and south of the village are well-vegetated with large green verges, street trees and open spaces enhancing the natural environment.

Figure 18: Map showing the green and blue infrastructure in Twyford Parish.

Figure 19: Weir Pool Court and Old Silk Mill.

Figure 20: Footbridge providing crossing over River Loddon at Silk Lane.

Figure 21: Loddon Nature Reserve, accessible via the back of the Waggon and Horse pub on Old Bath Road.

3.6 Character areas

Following on from the analysis set out above, this section focuses on the different character areas within Twyford.

Twyford's character and identity is not defined by only one style. There is a mixture of architectural styles, details, settlement patterns and building layouts that all together contribute to the unique character of Twyford.

The design guidelines and codes, presented in the next chapter, will reference this variety of characteristics to build a strong case for Twyford, and therefore become a useful guide for any future development around the Parish.

The character areas identified within Twyford Parish, and shown on the next page, are:

- Twyford Conservation Area;
- Twyford Station Conservation Area;
- North of the village;
- South of the village; and
- Springfield Park & Orchard Estate;

These areas are characterised by variations in land use, patterns of growth, layout of buildings, street patterns, car arrangements, building heights, density, public realm and landscape setting.

The next pages will present an analysis for each character area accompanied by photos.

An important note is that, while some of the character areas are clearly defined and have very fixed boundaries, there is often an overlap and an element of mixing.

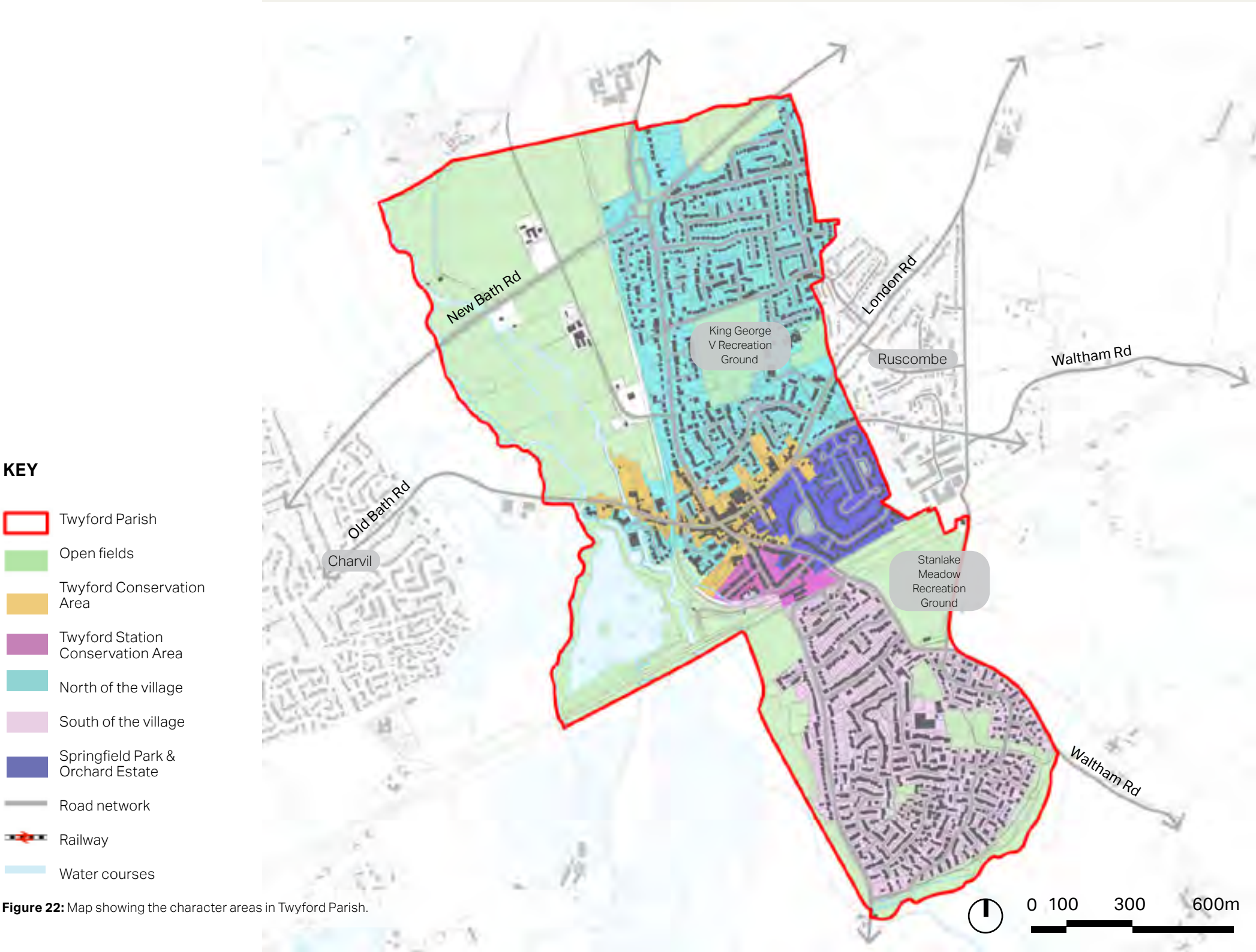

Figure 22: Map showing the character areas in Twyford Parish.

Twyford Conservation Area

Twyford Conservation Area was first designated in 1977 by Wokingham District Council. This designation was altered in the revisions adopted in 1996.

Land use	This character area includes a mixture of retail and residential uses. The retail core of Twyford village is considered to be around the crossroads. Those four corners possess remarkably different attributes to one another. Wargrave Road is mainly residential, however some retail uses are found towards the south where the road meets the High Street. High Street and London Road concentrate the majority of retail uses which expand further to the west and east of the crossroads. Church Street tends to house commercial outlets on the ground floor and either storage or residencies on the upper floors. This character area also includes two large green areas; to the north along River Loddon; and to the south around St Mary's Church.
Access and movement	High Street forms the western approach to the village, whilst London Road its continuation to the east, is considered to be the eastern entrance. Church Street, although a small narrow road, provides the southern entrance to the village, whilst due to its width it also acts as a gateway to the village core. The levels of traffic congestion along the village core are quite high creating air quality issues and a sense of unsafety for pedestrians. In addition, bus services are available along London Road, Wargrave Road and Waltham Road.
Patterns of growth & layout of buildings	The development pattern within this character area is relatively linear with buildings set along the carriageway. Exception is the modern developments, Bell Court, west of Wargrave Road, and Bridge Park which is formed in a cul-de-sac layout. High Street, London Road and Church Street have slightly meandering characters offering evolving views along the streetscape. There are no gaps between buildings which creates a continuous front. Building lines are fairly consistent with subtle variations enhancing the rural feel in the area. Building setbacks show some variations adding different attributes along each street. In particular, the majority of the buildings along the High Street and London Road front directly onto the pavements, since they house retail uses on the ground floor, however, there are also examples towards the west of High Street and east of London Road where buildings have front gardens. Along London Road in particular, the scale of the houses increases as well as the sizes of the front gardens. Wargrave Road shares similar characteristics towards its northern end with more vegetation and mature trees bordering the properties compared to the High Street and London Road.

Twyford Conservation Area

Patterns of growth & layout of buildings	Lastly, the buildings along Church Street also front directly onto the pavements, however, the narrow width of the street and the narrow pavements create a different feel compared to the rest of the streets, since the level of enclosure is higher. Plot sizes vary within this character area contributing to the rural context, whilst only fully residential buildings offer rear gardens. In general the sizes of both front and rear gardens is smaller compared to other residential neighbourhoods within the village, which is justified by the high density that the village core has.
Boundary treatments and public realm	This character area, due to the layout of the buildings and the lack of front gardens and green spaces is mainly hardscaped with some soft elements along the public realm like street trees and flower and plant pots. This is also justified by the nature of this area, being the retail core of the village. However, due to the low-height buildings set along the High Street, London Road and Church Street, there are unobstructed views of the rich vegetation in the background. This gives a sense of softness along the public realm. In addition, the northern end of Wargrave Road is well landscaped with mature trees bordering some properties. In terms of public realm, the widths of the pavements vary with wide footways at places and a spill-out area in the corner of High Street and Wargrave Road, whilst there are also narrow pedestrian areas or poor paving conditions at places.
Heights & roofline	In general, the high density within the village core, the generally consistent building lines and the continuous building frontage contribute to a relatively continuous roofline. However, variations are found along all four roads within this character area. The roofline along London Road, looking eastwards, is fairly consistent, since the building heights are 2-2.5 storeys creating little variations. However, towards its eastern end, density gets lower, whilst vegetation and gaps between buildings start appearing. Thus, the roofline starts to get interrupted by those features. The roofline along the High Street is inconsistent, due to the variations in building heights ranging between 1-3 storeys. The roofline is interrupted by gabled dormers, pitches and chimneys that decorate the roofs. However, similar to the eastern end of London Road, the western end of the High Street is characterised by a less continuous roofline, since the gaps between buildings and the rich vegetation start to appear affecting the previous continuity. The roofline along Wargrave Road is significantly affected by the Bell Court development to the west which has varying storey heights and incorporates gables. The rest of the street shares the same attributes as London Road and High Street, with a continuous roofline to the south-eastern end of the road and a more interrupted roofline moving towards the north where density gets higher and vegetation and gaps between buildings start to appear. The roof types range between flat roofs, gabled and hipped. There are also examples of hipped and gabled dormers that add visual interest along the roofline.
Car parking	There are designated areas for on-street parking along London Road, whilst there is public parking east of Wargrave Road. In addition, examples of on-plot parking are also found towards the eastern end of London Road and the northern end of Wargrave Road where properties are bigger. Lastly, examples of parking courtyards are found towards the western end of the High Street.

Twyford Conservation Area

Figure 23: The pavements along the High Street are narrow at places impeding pedestrian flow and creating a sense of unsafety for people.

Figure 24: Open space along the High Street offers a break along the highly enclosed street and facilitates pedestrian flow.

Figure 25: Bell Court, a recent development, is located at the corner of the High Street and Waltham Road standing out due to its variations in heights incorporating gables.

Figure 26: Buildings front directly onto the pavements to service the shops on the ground floor, whilst the upper floors are used for storage or residencies.

Twyford Conservation Area

Figure 27: Church Street is a relatively narrow road which combined with the narrow pavements and continuity of the façades creates high levels of enclosure.

Figure 28: Recent development along the western end of the conservation area respects the materiality and massing of the opposite buildings along the High Street.

Figure 29: There is a good number of listed buildings within the conservation area, the architectural qualities of which need to be references in future development.

Figure 30: Positive example of modern residences reflecting the historic site of the old mill.

Twyford Station Conservation Area

Twyford Station Conservation Area was designated in 1996. It includes Waltham Road, Station Road and Brook Street.

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Land use	This character area is mainly residential with some other uses spread around. In particular, St Mary's Church dominates the area to the east, whilst there are some shops and services along Waltham Road. The railway station and the car parking area are also found to the south.
Access and movement	Waltham Road provides a sense of entry to the village from the south connecting it with the railway station. It becomes Church Street towards the north where it meets the High Street. Other tertiary streets, like Station Road, Brook Street and Gas Lane are connected with Waltham Road to the south offering access to the residential neighbourhood. The levels of traffic congestion within Waltham Road are high, whilst the traffic island is small and inadequate. In addition, bus services are available along Waltham Road.
Patterns of growth & layout of buildings	The development pattern within this character area is characterised by a permeable block created by Waltham Road and Station Road, as well as cul-de-sac streets, such as Brook Street. The buildings set along Waltham Road provide evidence of the Victorian era within the village. To its northern side the housing is of detached style with well-sized front gardens, whilst on the southern side, the housing follows a traditional Victorian terrace pattern with small-sized front gardens. Station Road houses the main area of Victorian development within the village. The area is made up of two roads at right angles to one another, one facing the Station and the other one providing a link with the old core. Building lines are generally consistent, whilst most of the buildings are setback from the road allowing for small-sized front gardens. A large number of houses are of terraced layout which creates a sense of continuity on the facades. However, the highly enclosed environment sometimes opens up to less enclosed spaces, for instance at St Mary's churchyard, or close to the car park area and railway station.

Twyford Station Conservation Area

Patterns of growth & layout of buildings	Brook Street has a linear character and it shares similar characteristics as to Station Road in terms of building lines, setbacks, continuity of frontages and front gardens. The levels of enclosure are high as well, especially towards the eastern end of the road where housing is of terraced layout. Plot sizes and widths vary within this character area contributing to the rural context of the village.
Boundary treatments and public realm	This character area is more vegetated compared to Twyford Conservation area, since physical boundary treatments border the majority of the houses. Waltham Road is well vegetated with hedges, bushes and trees decorating the front gardens on both sides of the street. Station Road on both angles shares similar qualities creating a feeling of softness along the streetscene. On the contrary, Brook Street presents less soft surfaces, whilst the parking courtyard to the western end of the street increases the hard surfaces. However, due to its close proximity to the natural environment, the views of the rich vegetation towards the end of the street compensates for the lack of green elements along the streetscape. In terms of public realm, the width of the pavements is narrow impeding pedestrian flow and creating a car dominated environment. In addition, the quality of some areas in front of the shops is poor.
Heights & roofline	The layout of the buildings, the continuity of the facades and the consistent building heights to around 2-2.5 storeys, result in a continuous roofline along the eastern side of Waltham Road, Station Road adjacent to the railway and Brook Street, whilst it gets interrupted by the chimneys that decorate the roofs. However, the roofline to the western side of Waltham Road, eastern side of Brook Street and Station Road along St Mary's church is characterised by a less continuous form, since the vegetation, open spaces or gaps between buildings start to appear and affect its continuity. The roof types vary between hipped and gabled roofs, whilst chimneys, rooflights and dormers decorate the roofs.
Car parking	There are designated areas for on-street parking along Station Road. However, on-street parking is also found along Brook Street, a narrow road, which clutters the public realm, impedes pedestrian flow and creates a car dominated environment. In addition, on-plot parking and parking courtyards can also be found in this area.

Twyford Station Conservation Area

Figure 31: Terraced housing is the prevailing typology and one of the characteristics that define this area.

Figure 32: There is a mixture of soft and hard landscaping with either buildings fronting directly onto the pavements with no front gardens, or front gardens bordered with vegetation and low height brick walls.

Figure 33: Due to the terraced typology, parking is an issue in the area and the solution of on-street parking over the pavements clutters the public realm, impedes pedestrian flow and creates a car dominated environment.

Figure 34: St Mary's Church occupies a good amount of land within this character area and it is responsible for creating a feeling of openness in the area.

Twyford Station Conservation Area

Figure 35: There is a good number of buildings within the conservation area, the architectural qualities of which need to be referenced in future development.

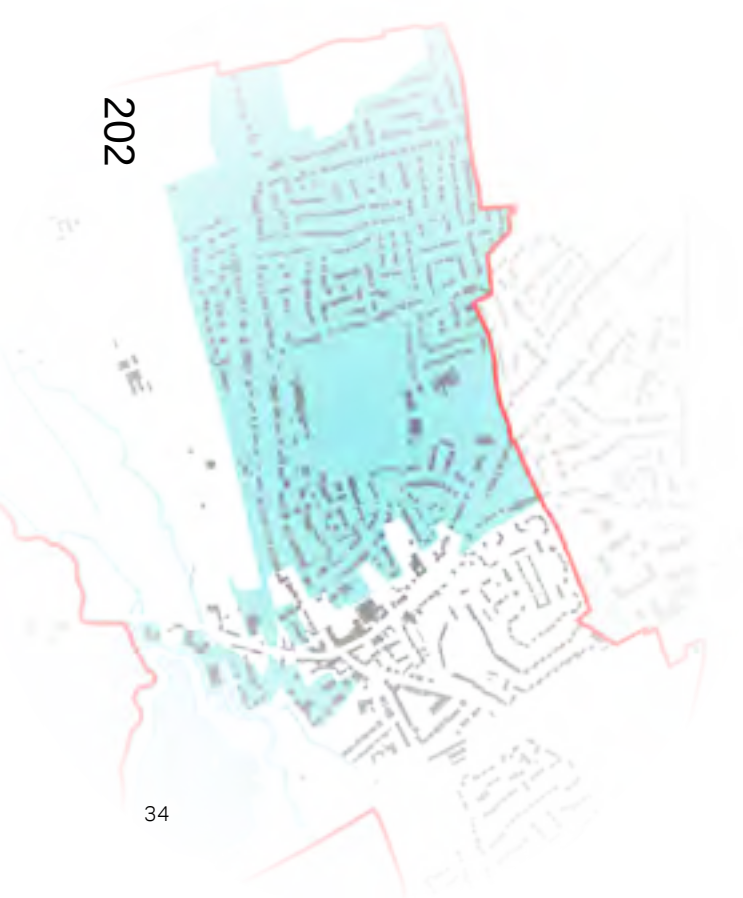
Figure 36: The railway station is included within the conservation area and it is located adjacent to Station Road creating a feeling of openness in the neighbouring streets.

Figure 37: Buildings front directly onto the pavements to service the shops on the ground floor, whilst the upper floors are used for storage or residencies.

Figure 38: Local examples of front gardens bordered with hedges and low-height brick walls.

North of the village

The North of the village character area comprises 50's/70's housing developed between New Bath Road and London Road.



Land use	This character area is mainly residential, however, some other uses can also be found scattered around, for instance the recreation ground along Longfield Road, Polehampton C of E Junior School, a surgery, a convenience store, a Day Nursery, as well as a nursery and some farms to the north of New Bath Road.
Access and movement	This character area is bordered with New Bath Road to the north and London Road to the south. Wargrave Road is considered the northern entrance to the area, whilst London Road creates access to the area from the east. Bus services run along Waltham Road, Amberley Drive, Hilltop Road, Pennfields and London Road creating a loop within this character area.
Patterns of growth & layout of buildings	The buildings are laid out in either perimeter blocks or cul-de-sac streets. In general, building lines are less regular compared to the previous character areas showing variations on setbacks and rotations, however some streets are characterised by consistent building lines, like Troutbeck Close. Most of the street network is defined by slightly meandering streets, evolving views and irregular buildings lines, rotations and setbacks. This irregularity creates a variety of depths for front gardens, whilst creating a visual interest along the streetscene. Plot sizes are generally regular with subtle variations. The level of enclosure is lower compared to the previous two character areas, due to lower density, larger building setbacks and occasional green verges along the streets.
Boundary treatments and public realm	The North of village is characterised by a mixture of soft and hard surfaces. In particular, front and rear gardens are well vegetated with hedges and bushes bordering the building lines, whilst others combine physical boundary treatments with low-height brick walls. There are examples of properties where boundary treatments help clearly separate public from private space, like along Hilltop Road or Wargrave Road, whilst in others front gardens are defined by grass areas with limited vegetation bordering the site, and thus creating a feel of a more shared surface. Pavements, of generally good widths, can be found on both sides of the road network, whilst some cul-de-sac developments offer a shared surface for their users with no pavements.
Heights & roofline	Building heights vary between 1-2.5 storeys. There is a variety of roof shapes and orientations, due to the layout of the buildings, whilst the roof types vary between gabled and hipped roofs. This creates a dynamic and evolving roofline, non continuous, rather than a uniform one.
Car parking	The car parking typologies found in this character area are on-street and on-plot parking.

North of the village

Figure 39: Buildings setback from the road with generous front gardens and physical boundary treatments bordering the boundary lines.

Figure 40: Roads are equipped with large green verges, street trees and wide pavements creating a 'countryside' feel improving the surroundings.

Figure 41: Public footpaths located in close proximity to residential developments which are bordered with rich vegetation enhancing biodiversity.

Figure 42: Wide cycle lane to accommodate for cyclists, with clear signage and rich vegetation to enhance biodiversity.

South of the village

The South of the village character area comprises 60's/70's and 80's housing developed between the railway line, Waltham Road to the east, Hurst Road to the west and open countryside to the south.

Land use	This character area is mainly residential, however, some other uses can also be found scattered around, for instance the Stanlake Meadow recreation ground, the Colleton Primary School and play areas.
Access and movement	This character area is bordered with the railway to the north, Waltham Road to the east, Twyford Brook to the south and Hurst Road to the west. The area is connected with the north part of the village through Waltham Road. Bus services run along Hurst Road, Winchcombe Road, Broad Hilton creating a loop within this character area.
Patterns of growth & layout of buildings	Buildings laid out in perimeter blocks are mainly found to the north, whilst the south area includes cul-de-sac developments. Perimeter blocks are characterised by generally regular building lines and rotations, whilst plots sizes show slight variations. Building setbacks vary at places creating interesting visuals and variety on the widths of front gardens. Cul-de-sac developments are laid out along meandering streets which results in irregular buildings lines and rotations. Plot sizes are smaller compared to the ones organised in perimeter blocks. Building setbacks vary due to the street layout creating evolving views and interesting visuals. There is a recent infill development found along Wellington Close which shares the same qualities as the rest of cul-de-sac developments in the area in terms of buildings lines, rotations and setbacks and it is generally sensitively located within its surroundings. The level of enclosure is generally low, similar to the North of village character area, since the building density is lower than that of the conservation areas, buildings have generous gaps between them and road width is wide.
Boundary treatments and public realm	The South of village is characterised by a mixture of soft and hard surfaces. In particular, front and rear gardens are well vegetated with hedges and bushes bordering the building lines, whilst others combine physical boundary treatments with low-height brick walls. There are examples of properties where boundary treatments help clearly separate public from private space, like along Hurst Road and Waltham Road, whilst in others front gardens are defined by grass areas with limited vegetation bordering the site, and thus creating a feel of a more shared surface. Pavements, of generally good widths, can be found on both sides of the road network, whilst some cul-de-sac developments offer a shared surface for their users with no pavements.
Heights & roofline	Building heights vary between 1-2.5 storeys. There is a variety of roof shapes and orientations, due to the layout of the buildings, whilst the roof types vary between gabled and hipped roofs. This creates a dynamic and evolving roofline, non continuous, rather than a uniform one. In addition, gable dormers and chimneys serve as decorative features.
Car parking	The car parking typologies found in this character area are on-street and on-plot parking.

South of the village

Figure 43: Buildings bordered with hedges, bushes and flower beds improve the environment whilst helping separate public from private space.

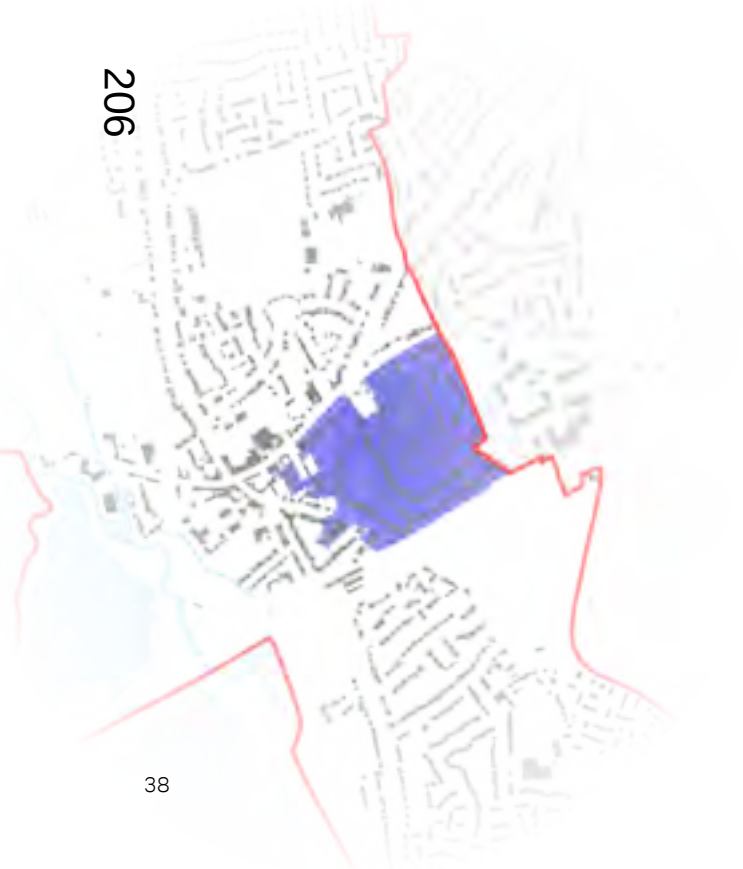
Figure 44: Buildings with limited or no boundary treatments create a feel of shared surface where private and public spaces are not clearly defined.

Figure 45: Open spaces within the built environment provide a nice break along the streetscape, improve the environment and enhance biodiversity.

Figure 46: Recent development along Wellington Close respects the layout, massing and scale of the surrounding cul-de-sac developments.

Springfield Park & Orchard Estate

Springfield Park and Orchard Estate character area comprises a modern development located south of London Road and Ruscombe Road, and north-east of Waltham Road.



Land use	This character area is purely residential, whilst it is located in close proximity to the village core.
Access and movement	Springfield Park is accessible via London Road and Waltham Road, whilst Orchard Estate can be accessed via Ruscombe Road (B3024). The entrances from Waltham Road and Ruscombe Road are well vegetated providing a good buffer with the existing properties located at the corner.
Patterns of growth & layout of buildings	Propertieis organised around Springfield Park overlook onto an open space with two cul-de-sac streets to the south. Similarly, properties in Orchard Estate are also arranged in cul-de-sacs, with some fronting onto a central playground. Building lines are generally consistent with subtle variations to add visual interest along the streetscape. Building setbacks show variations resulting in a variety of sizes in the front gardens. The buildings along the cul-de-sac street are flats laid out on different rotations compared to the rest of the development. Plot sizes are generally consistent showing little variations. The levels of enclosure are lower compared to the North and South of village character areas, since the proximity to the open space increase the sense of openness in the area.
Boundary treatments and public realm	This character area is characterised by soft surfaces. The presence of green assets like extensive grass areas, large trees, hedges and bushes enhance the natural environment. However, although the green coverage is extensive, those assets do not border the building lines and therefore, the boundary treatments are limited, creating a sense of shared surface between public and open space and a sense of neighbourhood feel. Pavements, of generally good widths, can be found along the roads, whilst some cul-de-sac developments offer a shared surface for their users with no pavements.
Heights & roofline	Building heights vary between 2-2.5 storeys. The roofline is not continuous as it gets interrupted by the gaps between buildings and the surrounding vegetation. Roof types range between gabled and hipped roofs whilst chimneys decorate the roofs. There is a variety of roof orientations which, combined with the rest of the roof characteristics, creates a dynamic and evolving roofline rather than a uniform one.
Car parking	The prevailing car parking typology for both is on-plot parking, however on-street parking can also be found and a parking courtyard is located in the centre of Orchard Estate.

Springfield Park & Orchard Estate

Figure 47: Open spaces overlooked by properties improve natural surveillance whilst enhancing the natural environment.

Figure 48: Buildings laid out in generally regular building lines, whilst setbacks allow for well-sized front gardens, Orchard Estate.

Figure 49: Entrance to Springfield Park from Waltham Road is bordered with rich vegetation, local stones, whilst its width filters traffic preserving the character of the surrounding buildings.

Figure 50: Buildings of historic character in close proximity to Springfield Park are bordered with rich vegetation providing a good buffer with the modern development.

Design guidelines and codes

04

4. Design guidelines and codes

This chapter provides guidance on the design of development, setting out the expectations that applicants for planning permission in Twyford Parish will be expected to follow.

4.1 Place making

What urban designers and planners call 'placemaking' is about creating the physical conditions that residents and users find attractive and safe, with good levels of social interaction and layouts that are easily understood.

The placemaking principles set out in the following pages should be used to assess the design quality of future development or regeneration proposals.

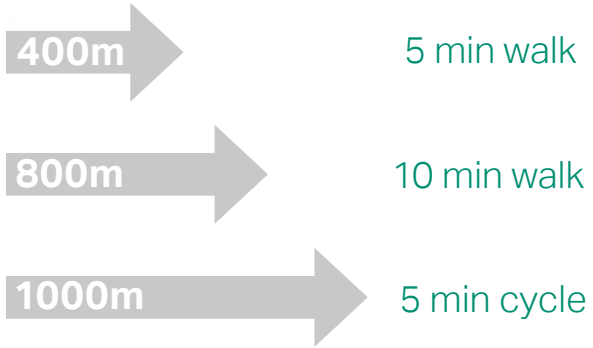
These key principles should be considered in all cases of future development as they reflect positive place-making and draw on the principles set out in many national urban design best practice documents.

Figure 51: The 10 characteristics of well-designed places. (Source: National Design Guide, page 8).

4.2 Walkable places

Creating new walking routes which are well connected to the existing network should be a prerequisite for any new development in Twyford Parish.

The success of a place is influenced by how walkable it is. It is good practice to plan new homes within a 400 metres walking distance (= 5 minutes) of bus stops and within 800 metres (= 10 minutes) of convenience stores or community buildings.



4.3 General principles and guidelines

The design guidelines and codes, with reference to the Twyford Neighbourhood Plan Area, will follow a brief introduction of the general design principles.

The guidelines and codes developed in the document focus on residential environments including new housing development in the Parish.

In any case, considerations of design and layout must be informed by the wider context, considering not only the immediate neighbouring buildings, but also the landscape and rural character of the wider locality. The local pattern of streets and spaces, building traditions, materials and natural environment should all help to determine the character and identity of a development.

It is important that full account is taken of the local context and that the new design embodies the 'sense of place' and also meets the aspirations of people already living in that area. Therefore, some design principles that should be present in any design proposal are:

- Respect the existing pattern of the village to preserve the local character;
- Respect the heritage, valued landscapes[1] identified in the Parish;
- Aim for high quality design that reflects and respects the local vernacular;
- Integrate with existing paths, streets, circulation networks and improve the established character of streets, greens and other spaces;
- Harmonise and enhance the existing village in terms of physical form, architecture and land use;
- Ensure all components e.g. buildings, landscapes, access routes, parking and open space are well related to each other;
- Incorporate necessary services and drainage infrastructure without causing unacceptable harm to retained features; and
- Aim for innovative design and eco-friendly buildings while respecting the architectural heritage and tradition of the area.

1 For more information, reference Wokingham Borough Council's Valued Landscapes Topic Paper via https://www.wokingham.gov.uk/planning-policy/planning-policy-information/draft-local-plan-consultation/?categoryesctl91f252ff-550d-4cfa-a838-92ef2cb5f83c=10723

4.4 Twyford design guidelines and codes

This section introduces a set of design principles that are specific to Twyford Parish. These are based on:

- Baseline analysis of the area in Chapter 2;
- Understanding national design documents such as National Design Guide, National Model Design Code and Building for a Healthy Life documents which informed the principles and design codes; and
- Discussion with members of the Neighbourhood Plan Steering Group.

The codes are divided into **5 sections**, shown on the next pages, each one with a different number of subsections. Each theme is numbered (e.g DC.01) to facilitate its reading and consultation.

Theme	Code	Title
DC.01 In keeping with local character	DC01.1	Consider the context
	DC01.2	Heritage, views and landmarks
	DC01.3	Patterns of growth and layout of buildings and gardens
	DC01.4	Development on the settlement edges
DC.02 Access and movement	DC02.1	Accessible and attractive footpath network / access to the countryside
	DC02.2	Prioritise walking and cycling
	DC02.3	People friendly streets
	DC02.4	Street lighting
	DC02.5	Parking and servicing
	DC02.6	Cycle parking
DC.03 Green and blue infrastructure	DC03.1	Create a green network
	DC03.2	Biodiversity
	DC03.3	Water management
	DC03.4	Trees
	DC03.5	Open spaces
DC.04 Built form	DC04.1	Boundary lines, boundary treatment & corner treatment
	DC04.2	Continuity and enclosure
	DC04.3	Legibility and wayfinding
	DC04.4	Building heights, density and housing mix
	DC04.5	Infill development
	DC04.6	Building conversions into residential
	DC04.7	Building modifications and extensions
	DC04.8	Public realm, materials and street furniture
	DC04.9	Materials and architectural details
DC.05 Sustainability	DC05.1	Minimising energy use
	DC05.2	Lifetime and adaptability
	DC05.3	Minimising construction waste
	DC05.4	Recycling materials and buildings

DC01.1 Consider the context

Twyford Parish boasts high quality natural areas in close proximity to the village settlement. More specifically, Loddon Nature Reserve, traditional orchard and floodplain grazing marsh, tree preservation areas and local wildlife sites. In addition, the parish has rich heritage including two conservation areas and a good number of listed buildings. These are some of the characteristics that need to be taken into consideration during the design process. Some design guidelines for future development are:

- New development should respect the existing rich heritage and make sure actions are taken to mitigate any impact. For example, where new development is taking place in close proximity to a heritage asset, careful consideration needs to be taken in terms of views, landmarks, massing, density, enclosure and architectural details;
- New development should have a good understanding of the existing character areas identified in the village and therefore, carefully consider road layout, scale, layout, density, boundary treatments, massing and materials for the new buildings. Sensitively sitting next to existing properties should be a priority for new development;
- New development should be well-integrated into the existing settlement pattern and avoid any kind of fragmentation. For that reason, the future development surrounding the existing settlement should prioritise connectivity, especially through pedestrian and cycle links. This will create accessible places and a more cohesive social tissue;
- New development should improve the connection with the surrounding countryside by enhancing existing links or creating new ones. In edge locations, it is important to connect all streets to the network of public pathways and rights of way;
- New development should prioritise creating a well-connected green system and promote alternative ways of transportation. The existing public rights of ways and the new footpaths will contribute significantly to this system;
- New development should respect and retain the existing green assets of any form; designated natural areas, tree preservation orders, hedges and hedgerows. Those elements will need to be integrated into the design process and shape the design outcome;
- New development should make use of the natural landscape in the surroundings and promote freedom of movement within the open countryside. Safe accessible paths and corridors within the open fields can become structuring elements that connect Twyford with surrounding villages and towns. An appropriate signage system can help navigate people around and make them aware of walking and cycling routes; and

DC.01 In keeping with the local character

- Flooding is an important issue in the Parish, mainly to the west and south, and therefore, a regional and cohesive approach is needed to create a more effective overall village drainage plan. In addition, new development should suggest large green areas along any flood risk zone to create a buffer with the new built environment.

01 New development should respect the existing rich heritage and make sure actions are taken to mitigate any impact.

02 New development should have an understanding of the different character areas, layouts, typologies, densities and boundary treatments to ensure new design sits sensitively next to it.

03 Existing green and blue assets like woodlands, trees, hedges, hedgerows, ponds and rivers need to be retained and integrated into the design.

04 A well-connected green system needs to be promoted and integrated into the new and existing development.

DC01.2 Heritage, views and landmarks

Twyford Parish has a rich heritage which is mainly concentrated around the village core, comprising two conservation areas. There is a great number of listed buildings, as well as other unlisted buildings that are important to the village because of their contribution to its history. Therefore, any new development adjacent to heritage assets or in close proximity to them needs to be aware of their existence and stimulate ways in which those assets could be further promoted and protected. Some design guidelines are:

- New development in close proximity to heritage assets must propose green screenings to mitigate any unpleasant visual impact;
- New development proposals in close proximity to heritage assets should not be visually intrusive. This should be achieved through the appropriate scale, massing and design including screening where appropriate;
- New development should retain the existing open spaces, vegetation and trees to preserve the historic form and pattern of development in the Parish;
- Important views and vistas towards historic landmarks, open spaces or historic streets should be identified and integrated into the new design to demonstrate the significance of those assets;
- Scenic and tranquil views to the countryside should be retained and enhanced in future development. For example, footpaths bordered with rich vegetation can help protect particular views while improving walkability in the village; and
- Creating short-distance views broken by buildings, trees or landmarks helps to create memorable routes. Creating views and vistas allows easily usable links between places.

Figure 52: Positive example of recent development within the conservation area that respects the historic buildings to the east by introducing an open space with vegetation to create a buffer between the existing and new development. This open space also stimulates the role of those historic assets as landmarks and focal points.

Figure 53: The recent development to the western border of the conservation area respects the opposite buildings across the street by retaining a similar scale, massing and materiality.

DC.01 In keeping with the local character

DC01.3 Patterns of growth and layout of buildings and gardens

The Parish owes much of its character to the historic pattern and layout of the roads and buildings as well as its close relationship with the surrounding countryside. Some design guidelines for new development within Twyford village are:

- New development must demonstrate a good understanding of the street network, density and building scale, massing, orientation and enclosure of the surrounding built environment to propose sympathetic design;
- New development outside the conservation areas, towards the north or south of the Parish should recommend perimeter blocks. Their sizes and shapes should respond to the uses, existing landscape features, topography and residential density. Courtyards should be used within large blocks to create interesting and efficient arrangements. Developments should avoid car-dependent layouts based on monotonous repetition of a uniform building typology arranged along cul-de-sacs;
- The layout of new development should optimise the benefits of daylighting, through the use of solar panels, and passive solar gains, through building orientation, as this can significantly reduce energy consumption;
- New properties should provide a variety of house types. The use of a repeating type of dwelling along the entirety of the street should be avoided to create variety of interest in the streetscape;
- Boundary treatments, both soft and hard, should border the property lines to match the style of the surrounding properties in the Parish. Examples like hedges, trees and low height brick walls are recommended;
- The size of plots and their pattern should be varied to contribute to the rural character of the village;
- Building setbacks should be slightly irregular to create an informality, but, in general, the building lines along the main roads should maintain a linear character; and
- Existing hedges, hedgerows and trees should be integrated into design, whilst more planting and vegetation is encouraged to form part of the green network strategy.

Figure 54: Example of a perimeter block (red dotted line) within the village, organised along meandering streets (blue dash line showing building line following street) affecting the building setbacks while creating evolving views and visual interest along the streetscape, Amberley Drive.

DC01.4 Development on the settlement edges

Twyford is surrounded by countryside and open fields to the west, east and south. Therefore, any development should be sensitive to the natural environment and some guidelines are:

- Any future interfaces between the existing settlement edges and the future extensions to the west, east or south of the village must be carefully designed to integrate new and existing communities. This is particularly important where new residential buildings will face existing residential properties;
- Edges must be designed to link rather than segregate existing and new neighbourhoods. Where physical boundaries are found, those must be retained and integrated into new green corridors between existing and new neighbourhoods; and
- Green corridors are highly recommended to also provide additional pedestrian and cycle links that will contribute to the successful integration of the new development with the rest of the village.

The illustration below presents design principles to connect the new and existing settlements with a green space and edge lane which provide space for walking and cycling.

1. Existing properties buffered with rich vegetation to mitigate any visual impact from the new development.
2. Retained green hedges at the back of existing properties.
3. New green verge with trees on both sides of the green link serving as an additional buffer (width varies).
4. New private drive or edge lane used by vehicles and cyclists.
5. New residential frontage with boundary hedges and front gardens.

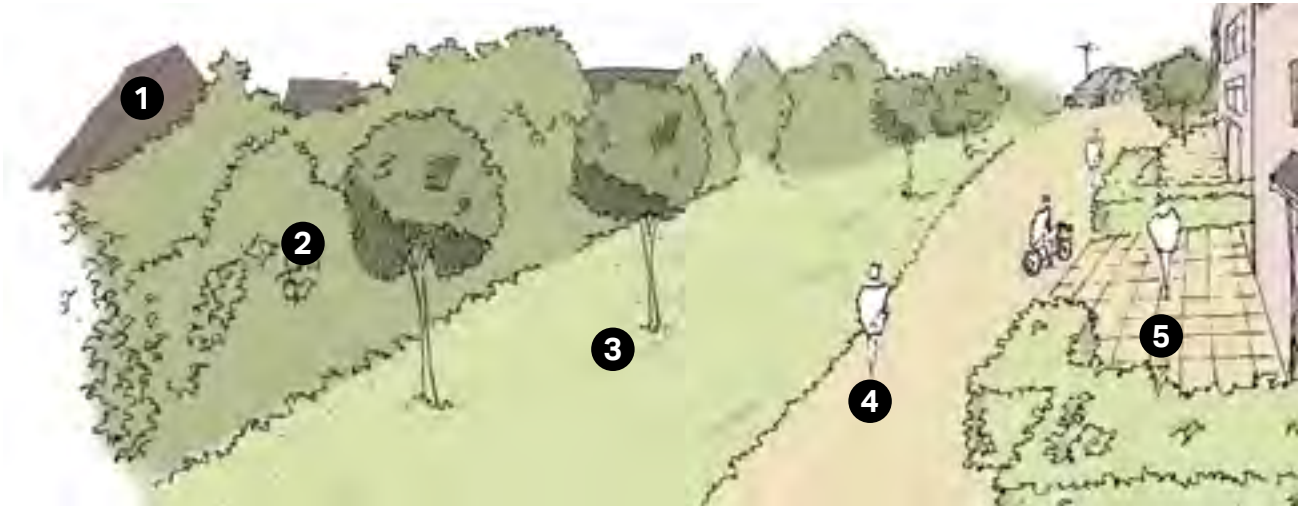


Figure 55: Plan sketches of potential edges with the new settlement.

DC.02 Access and movement

DC02.1 Accessible and attractive footpath network/ access to the countryside

It is a general consensus that active travel is a priority in Twyford Village. Therefore, the existing network of footpaths and cycle routes needs to be improved, whilst new development should support this lifestyle and stimulate ways to encourage walking and cycling through design. Some design guidelines are:

- Any new design should consider existing proposals or opportunities for walking and cycling networks around the village made by the Neighbourhood Plan Group and do its best to integrate them;
- New development should take into account designated Public Rights of Way and ensure to successfully integrate them into design. For example, there is a good number of public footpaths, green routes and riverside paths to the west, east and south of the village, within the open fields and countryside, that could be used as drivers to set the baseline for an upGraded pedestrian and cycling network;
- Where possible, newly developed areas must retain or provide direct and attractive footpaths between neighbouring streets and local facilities and amenities. Establishing a robust pedestrian network across new developments and among new and existing development is key in achieving good levels of connectivity and promoting walking and cycling;
- Where possible, new proposed footpaths should link up green and blue spaces and woodlands to create a network of green walking routes and promote biodiversity. For example, footpath connections and other green links could connect potential new development to the west with Loddon Nature Reserve or the south of the village;
- Strategically placed signposts can assist pedestrians and cyclists with orientation and increase awareness of publicly accessible paths around the village. However, new signposts must respect the character of the Parish and avoid creating visual clutter; and
- Design features such as gates or barriers to footpaths must be kept at a minimum and barriers should be avoided;

Figure 56: Cul-de-sac street which, however, allows for pedestrian and cycle connections to the surrounding neighbourhoods and countryside, elsewhere in UK.

Figure 57: Footpath connecting the surrounding countryside within the village settlements, bordered with vegetation and large trees, somewhere in UK.

DC02.2 Prioritise walking and cycling

Walking and cycling is challenging around the Parish, especially in the village centre due to the lack of cycle paths and narrow pavements. The majority of the residents value all alternative ways of transport and therefore, any new development should aim to improve and enhance the existing condition and provide safe and easy access to local amenities. Some design guidelines are:

- Varied links should be enabled and created to favour pedestrian and cycle movement. These routes should be always overlooked by properties to create natural surveillance and offer good sightlines and unrestricted views to make people feel safer;
- Cul-de-sac development pattern should be avoided in new developments. However, if it is proposed then it should be connected to footpaths to avoid blocking pedestrian and cycle flow;
- Design features such as barriers to vehicle movement, gates to new developments, or footpaths between high fences must be kept to a minimum; and
- All newly developed areas must provide direct and attractive footpaths between neighbouring streets and local facilities. Streets must be designed to prioritise the needs of pedestrians and cyclists.

Figure 58: Green links within the natural environment should be equipped with cycle stands to encourage people to cycle, whilst getting in close contact with nature, somewhere in UK.

Figure 59: Footpath integrated within residential development offering alternative walking and cycling routes to people, Great Kneighton, Cambridge.

Figure 60: Example of a green link (source: https://www.sustrans.org.uk/our-blog/opinion/2020/august/how-does-the-uk-government-s-gear-change-relate-to-the-national-cycle-network).

DC.02 Access and movement

DC02.3 People-friendly streets and green links

It is essential that the design of new development includes streets that incorporates the needs of pedestrians, cyclists, and, if applicable, public transport users. Some guidelines for future development are:

- Streets must meet the technical highways requirements, as well as being considered a 'place' to be used by all. It is essential that the design of new development includes streets and junctions that incorporate the needs of pedestrians, cyclists, and if applicable, public transport users;
- It is important that on-street parking, where introduced, does not impede the access of pedestrians and other vehicles and it is well vegetated;
- Within the development boundaries, streets should not be built to maximise vehicle speed or capacity. A range of traffic calming measures could be introduced by design;
- New streets should be linear with gentle meandering, while also providing evolving views to the surrounding countryside;
- Routes should be laid out in a permeable pattern, allowing for multiple choices of routes, particularly on foot and cycle. Any cul-de-sacs should be relatively short and provide onward pedestrian links;
- Streets must respect the existing vegetation, while also incorporating new opportunities for landscaping, green infrastructure, and sustainable drainage; and
- Any new development should provide well-connected streets of varied character to filter traffic and speed. A legible street hierarchy should include primary, secondary, tertiary roads and edge lanes. The next pages present illustrations examples of those street typologies.

Primary streets

- Primary streets are the widest neighbourhood roads and also the main routes used for utility and emergency vehicles, as well as buses;
- Primary streets must be defined by strong building lines. Primary frontages alongside the road should include taller and more dense developments; and
- Street trees and/or green verges along the road should be provided to contribute to the village identity, local biodiversity, and provide cooling and shading.

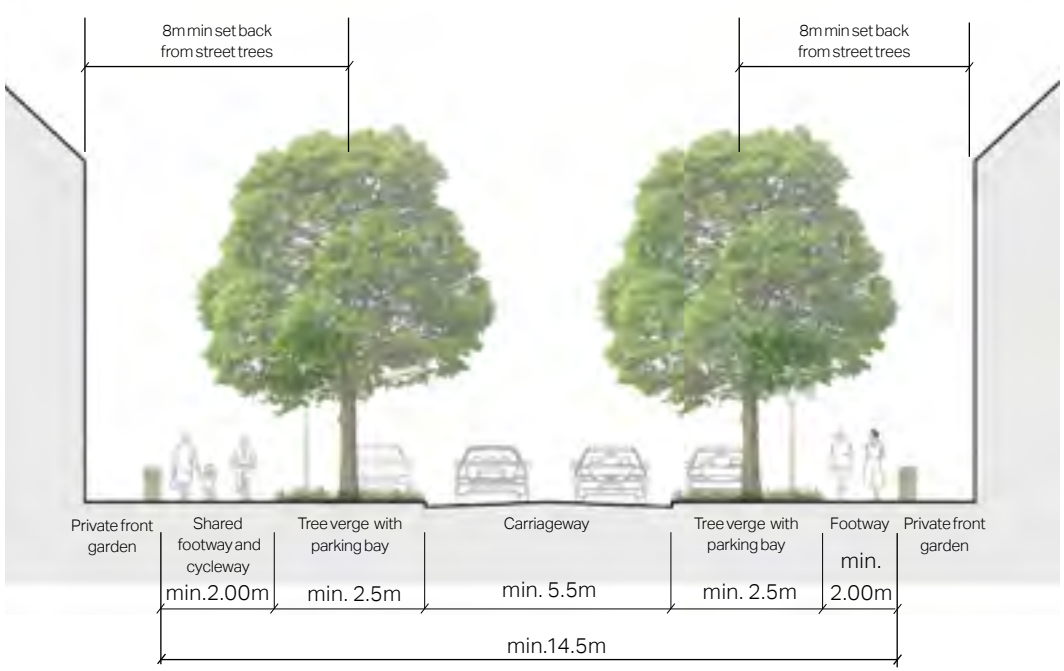


Figure 61: Cross-section to illustrate some dimensions for primary streets.

Secondary streets

- Secondary streets should accommodate carriageways wide enough for two-way traffic. On-street parking may be on or accommodated on the street or inset into green verges;
- Carriageways should be designed to be shared between motor vehicles and cyclists. Vertical traffic calming features such as raised tables may be introduced; and
- Where possible, secondary streets should be tree-lined on both sides.

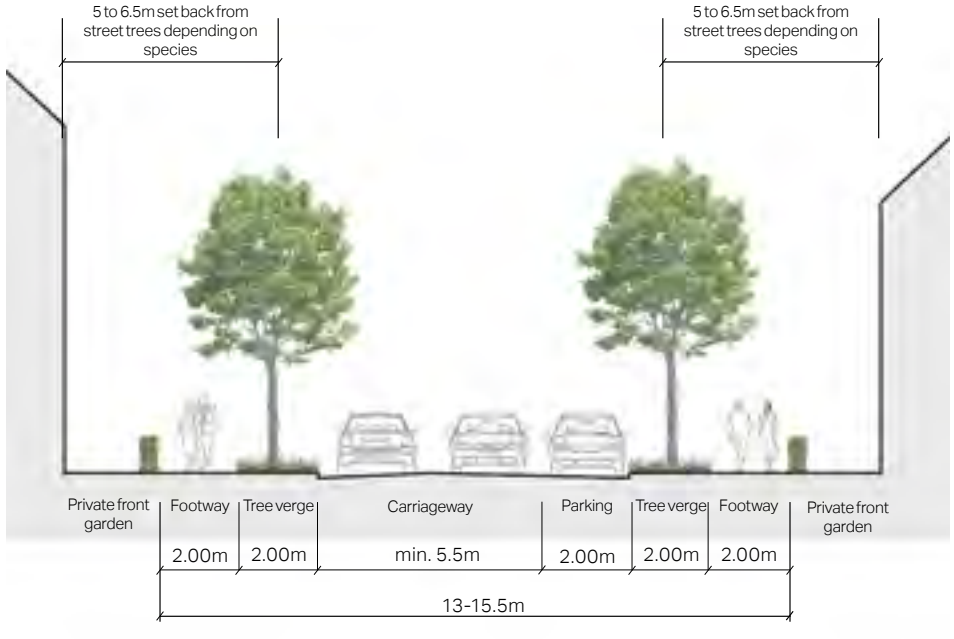


Figure 62: Cross-section to illustrate some dimensions for secondary streets.

DC.02 Access and movement

Tertiary streets

- Tertiary streets have a strong residential character and they should be designed for low traffic volumes and low speeds, ideally 20 mph;
- These streets must be designed for cyclists to mix with motor vehicles. Traffic calming features such as raised tables can be used to prevent speeding;
- Tertiary streets should be formed with a high degree of built form enclosure, with consistent building lines and setbacks; and
- Street trees should be provided with suitable gaps wherever possible.

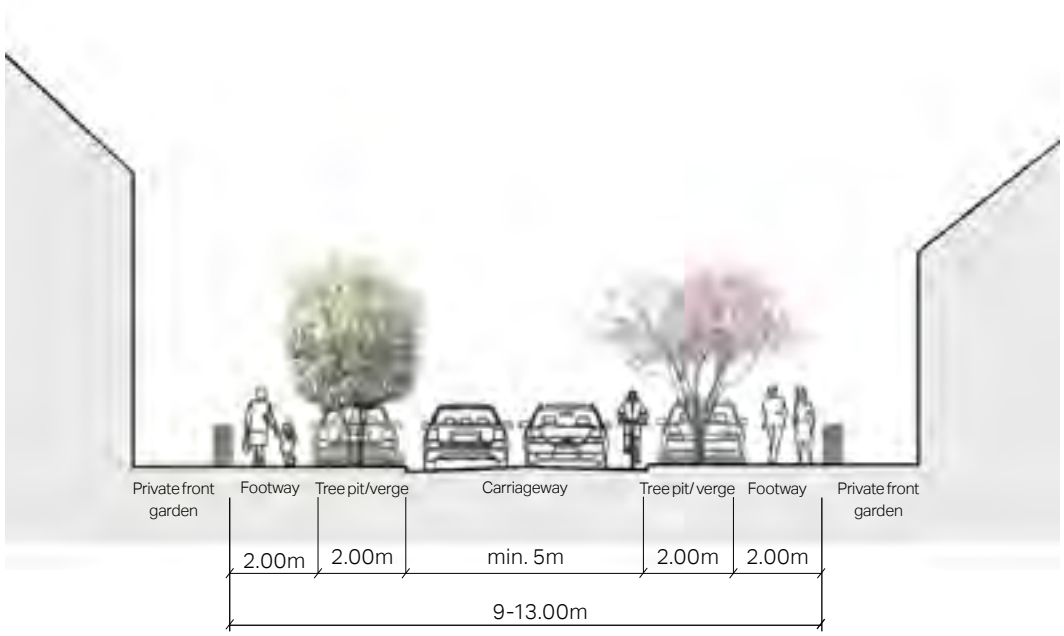


Figure 63: Cross-section to illustrate some dimensions for tertiary roads.

Edge lanes

- All the edges of new development areas should be served by continuous Edge Lanes to provide high levels of connectivity;
- Edge lanes are low-speed streets that front houses with gardens on one side and a green space on the other. Carriageways typically consist of a single lane of traffic in either direction, and are shared with cyclists; and
- Variations in paving materials and textures can be used instead of kerbs or road markings.

Figure 64: Cross-section to illustrate some dimensions for edge lanes.

Green links

- Green links should be located within minimum 7.5m wide corridor adjacent to retained green assets;
- Shared or segregated footpath and cycleway to be provided within corridor;
- Footpath and cycleway to be hard surfaced and constructed of bound material which may also combine with vehicle access;
- Combined width of unsegregated footpath and cycleway to be a minimum of 3.0m; and
- Where required, SUDs features to be incorporated into corridor beside the surface of shared footpath and cycleway.

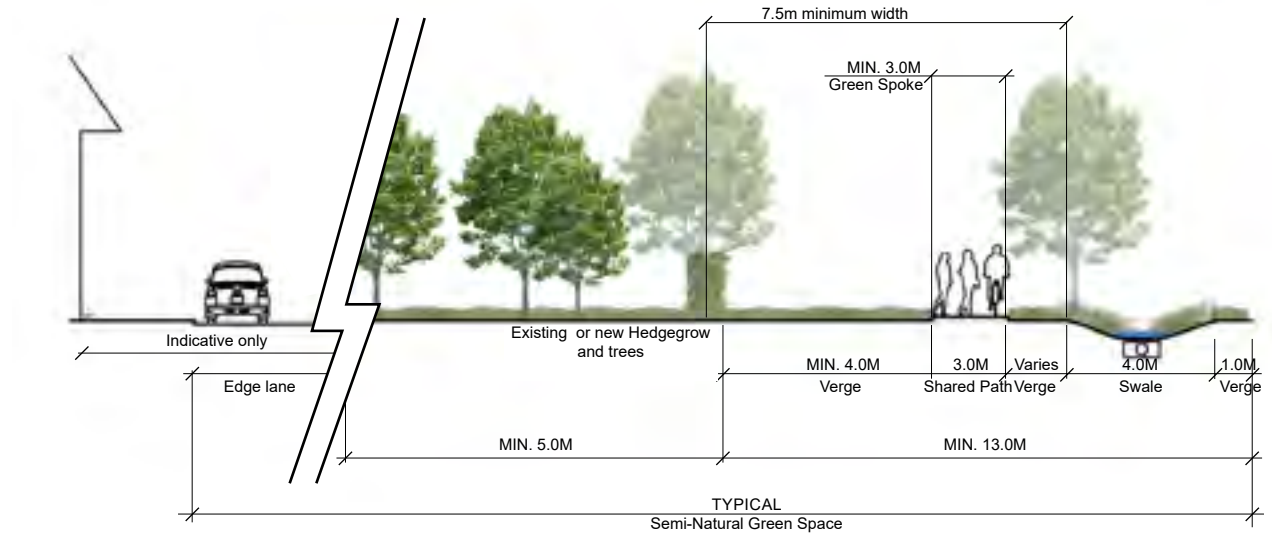


Figure 65: Section to illustrate some dimensions for green links.

DC.02 Access and movement

Figure 66: Example of a primary street with large street trees and green verges along the carriageway, elsewhere in UK.

Figure 67: Secondary street with inset parking bays alternating with street trees on both sides of the street in Derwenthorpe, York.

Figure 68: Tertiary street with inset parking bays alternating with trees on both sides in Dewenthorpe, York.

Figure 69: Positive example of a meandering edge lane where properties with well vegetated front gardens overlook the adjacent open space, Newquay.

Figure 70: Edge lane with spaces for informal parking (left) and pinch points (right) in Poundbury, Dorchester.

DC02.4 Street lighting

Artificial light provides valuable benefits and it makes areas feel more welcoming during night-time. However, any new development needs to minimise light pollution that disrupts the natural habitat and human health. The 'dark skies' character of the countryside should be protected since it benefits both people and wildlife. It is also beneficial to have warm white street lighting as standard and baffles fitted to reduce light spill.

The following guidelines aim to ensure there is enough consideration given at the design stage of new developments:

- Ensure that lighting schemes will not cause unacceptable levels of light pollution particularly in intrinsically dark areas. Dark at night is defined as more than 50m from an existing street light;
- Consider lighting schemes that could be turned off when not needed ('part-night lighting') to reduce any potential adverse effects;
- Foot/cycle path light should be in harmony with surrounding rural landscape. Lightings, such as solar cat's-eye lighting, reflective paint and ground-based lighting could be introduced;
- Choice of lighting should be energy-efficient and sustainable. The installation of motion sensors on the lights should be encouraged;
- Any new developments and house extensions designs should be encouraged to use natural light sources; and
- Proposals should have regard to current guidelines established for rural areas by the Institute of Lighting Professionals.

Figure 71: Example of a foot/cycle path which is lit by solar cat's-eye providing some light for pedestrian and cyclists without creating any disturbance to the nearby properties or unacceptable levels of light pollution.

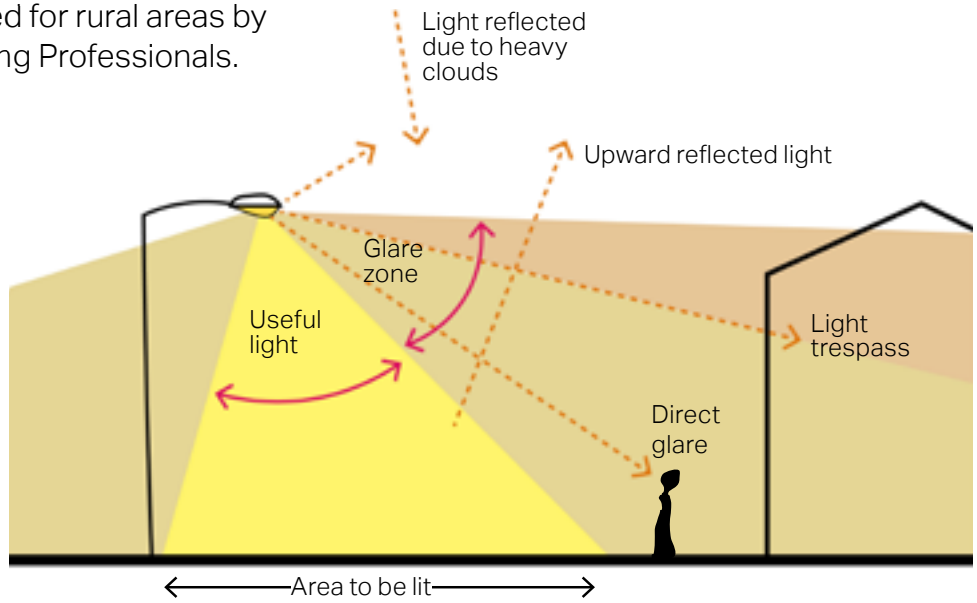


Figure 72: Diagram to illustrate the different components of light pollution and what 'good' lighting means.

DC.02 Access and movement

DC02.5 Parking and servicing

Although, the aim to create a good network of walking and cycling routes within Twyford Parish is a priority, the demand for private cars still remains high, at the time of writing, and therefore car parking has to be carefully integrated into the design. In addition, the energy efficiency aspect is also important and the need for more electric cars is rising. Please see page 59 for more details and guidelines on electric charging points.

The car parking typology mainly found in the Parish is on-plot parking; however, there are also cases of on-street parking and parking courts. Therefore, the design guidelines on the next pages will focus on the above mentioned typologies.

Guidelines for on-plot or on front car parking

- Parking should be well integrated into design so as not to dominate the public realm;
- High-quality and well-designed soft landscaping, hedges, hedgerows, and trees, should be used to increase the visual attractiveness of the parking and enhance the rural character of the Parish; and
- Hard standing and driveways must be constructed from porous materials, to minimise surface water run-off and therefore, help mitigate potential flooding.

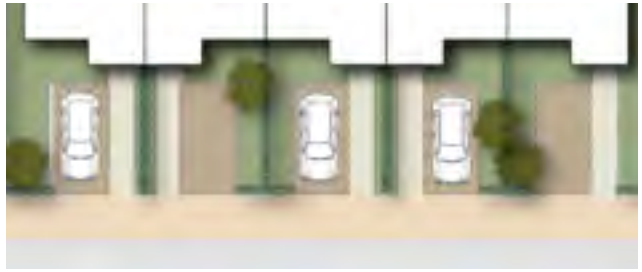


Figure 73: Illustrative diagram showing an indicative layout of on-plot front parking.

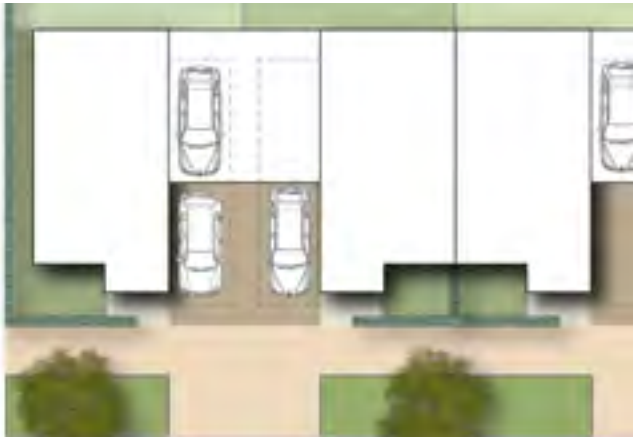


Figure 74: Illustrative diagram showing an indicative layout of on-plot side parking.

Guidelines for parking courts

- Parking courts should be acceptable for small building clusters and permeable paving should be used where possible;
- Parking courts must be overlooked by properties to increase natural surveillance; and
- Planting and vegetation should be integrated into design to soften the presence of cars and preserve the rural character of the area.

Figure 75: A courtyard with informal perpendicular and garage parking in Poundbury, Dorchester.

Guidelines for on-street car parking

- The streetscape should not be dominated by continuous on-street parking spaces. Where possible, tree planting and grass areas can be incorporated between parking bays to improve aesthetics;
- On-street parking must be designed to avoid impeding the flow of pedestrians, cyclists and other vehicles; and
- On-street parking should be widened to allow each bay to be able to charge electric vehicles.

Figure 76: Illustrative diagram showing an indicative layout of on-street inset parking.

Figure 77: Example of on-street parking with parking bays and street trees to mitigate the impact of the cars on the streetscape, Poundbury.

Figure 78: Example of on-plot garage parking, Cambridge.

Guidelines for garages

- The use of garages should be avoided, if possible;
- Garages must not dominate the appearance of dwellings and must not reduce the amount of active frontage to the street; and
- They should provide minimum 3m x 7m internal space to park a car and provide space for storage to avoid the garage to be used for storage purposes only.

Figure 79: Indicative layout of a garage with a cycle storage area.

DC.02 Access and movement

Electric vehicle charging points

Twyford Parish strongly supports proposals for using electrically and other non fossil fuel powered vehicles. Those can be integrated both on and off street. Some design guidelines on how new development should design for electric vehicle charging points are:

On-street car parking or parking courts

- Car charging points should always be provided adjacent to public open spaces. Street trees and vegetation is also supported to minimise any visual contact with the charging points;
- Where charging points are located on the footpath, a clear footway width of 1.5m is required next to the charging point to avoid obstructing pedestrian flow; and
- Car charging points within parking courts are highly supported, since they can serve more than one vehicle.

Off-street car parking

- Mounted charging points and associated services should be integrated into the design of new developments, if possible with each house that provides off-street parking; and
- Cluttering elevations, especially main façades and front elevations, should be avoided.

Figure 80: Example of on-street electric vehicle charging points.

Figure 81: Example of electric vehicle charging points in a parking court.

Figure 82: Example of off-street electric vehicle charging points.

Servicing

With modern requirements for waste separation and recycling, the number and size of household bins has increased posing a problem with the aesthetics of the property and the management of the bins. Therefore, some guidelines for new development are:

- When dealing with waste storage, servicing arrangements and site conditions should be taken into account; in some cases waste management should be from the front of the building and in others, from the rear. It is recommended that bins are located away from areas used as amenity space;
- A specific enclosure of sufficient size should be created for all the necessary bins;
- Bins should be placed as close to the dwelling's boundary and the public highway, such as against a wall, fence, hedge but not in a way as to obstruct the shared surface for pedestrian and vehicle movements;
- Bins should be placed within easy access from the street and, where possible, with the ability to open on the pavement side to ease retrieval;
- Wheelie bin storages are recommended to improve the aesthetics of the environment; and
- Bin storage could be combined with cycle storage.

Figure 83: Example of wheelie bin storage for front gardens that include a green element to improve the aesthetics.

Figure 84: Green roofs could be added to the wheelie bin storage to add an element of sustainability as well as improving the aesthetics.

DC.02 Access and movement

DC02.6 Cycle parking

Cycling, either for commuting or recreation, is a common activity in the Parish. Therefore, provision for cycle parking should be an integrated part in the design for new developments.

Houses without garages

- For residential units, where there is no on-plot garage, covered and secured cycle parking should be provided within the domestic curtilage;
- Cycle storage must be provided at a convenient location with an easy access;
- When provided within the footprint of the dwelling or as a free standing shed, cycle parking should be accessed by means of a door at least 900mm and the structure should be at least 2m deep; and
- The use of planting and smaller trees alongside cycle parking can be used.

Houses with garages

- The minimum garage size should be 7m x 3m to allow space for cycle storage;
- Where possible, cycle parking should be accessed from the front of the building either in a specially constructed enclosure or easily accessible garage;
- The design of any enclosure should integrate well with the surroundings; and
- The bicycle must be removed easily without having to move the vehicle.

Figure 85: Example of cycle parking for houses without garages, Cambridge.

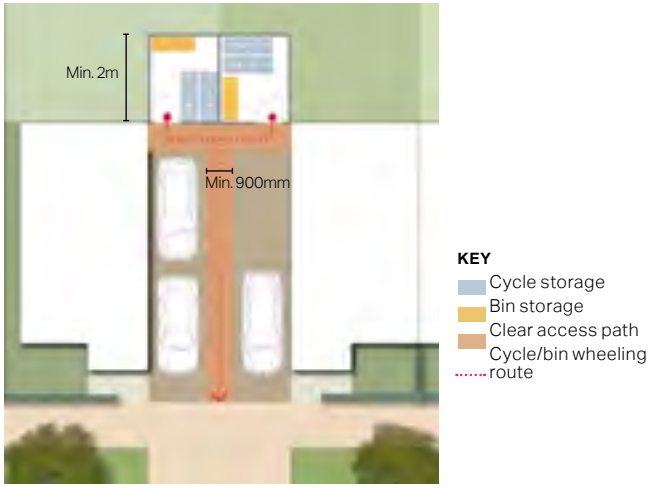


Figure 86: Indicative layout of a bicycle and bin storage area at the back of semi-detached properties.

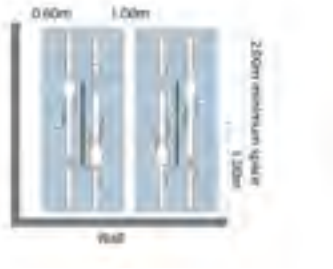


Figure 87: Sheffield cycle stands for visitors and cycle parking illustration.

DC.03 Green and blue infrastructure

DC03.1 Create a green network

Twyford Parish contains a variety of green and blue infrastructure that provides an environmental support system for the community and wildlife. New development should aim to enhance the existing natural assets and promote a well-connected green network throughout the new neighbourhoods to provide links to the countryside for people as well as habitats. Opportunities should be sought to introduce green assets into design and contribute to biodiversity. Some design guidelines on green networks are:

- New development should avoid harming existing ecological assets, e.g. Loddon Nature Reserve, flood zones, wildlife sites and habitats. Those green assets should be identified and integrated into the design process early on;
- New development should propose green links to enhance the pedestrian and cycle movement within the village connecting new and existing residential neighbourhoods between them as well as with the village centre and other open space and green routes within the village;
- Green networks should link existing and newly proposed street trees, green verges, front and rear gardens, open spaces, habitat sites and the countryside together;
- New development should front onto green assets and access should be granted for all groups of people;
- Sustainable Urban Draignage Systems (SuDs) should be introduced, where possible, and incorporated into the design of the green network to mitigate any flooding issues; and
- Green areas will encourage walking and cycling over driving. However, since car users still represent a major group in the area, car parking should be well incorporated, e.g. parking bays with green verges and street trees, into the public realm to minimise the presence of cars. For further information about car parking please see the principles that are listed in Building for a Healthy Life and Manual for Streets documents in pages 8 and 9.

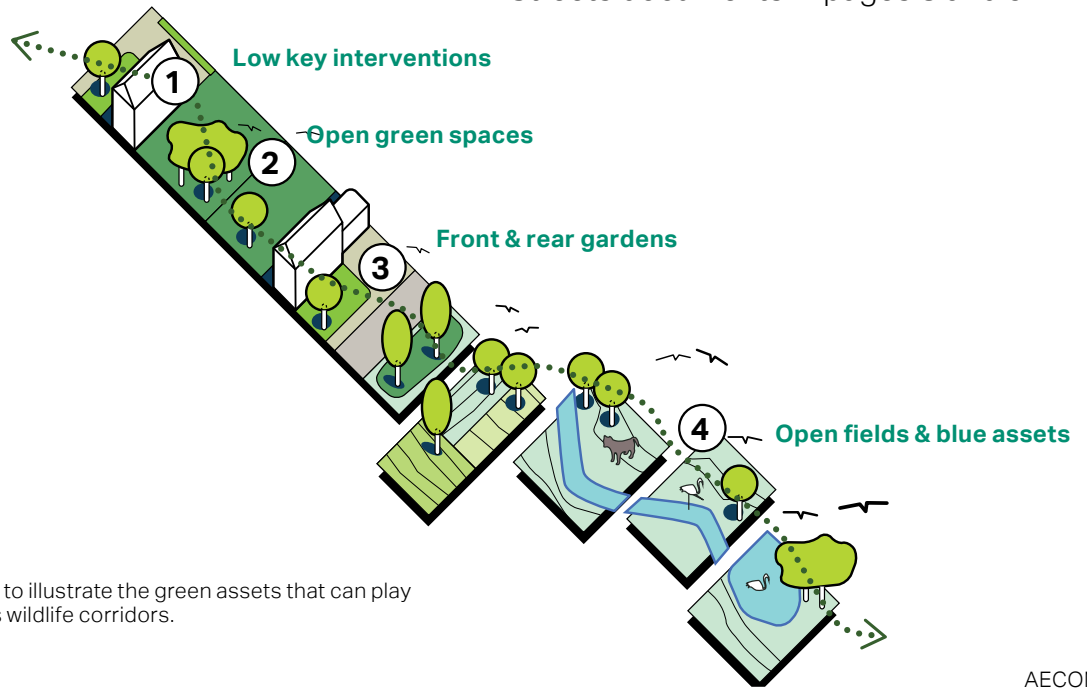


Figure 88: Diagram to illustrate the green assets that can play an important role as wildlife corridors.

Figure 89: An example of a SuDS corridor - Upton Urban Extension, Northampton.

Figure 90: Edge lane overlooking basin in open space (source: Susdrain)

Figure 91: Opportunities for green links (green arrows) around the Parish based on the existing assets and proposals suggested by the Twyford Neighbourhood Plan Group.

DC03.2 Biodiversity

The opportunity to avoid dangerous levels of global heating is closing and action is required swiftly at all levels from the international to the individual. Biodiversity could be highly affected and therefore new development should prioritise its enhancement through design. Some design guidelines are:

- New development should protect and enhance the existing habitats like Loddon Nature Reserve, local wildlife sites, protected trees, grazing marsh and other habitats. In particular, new development should help increase movement between isolated populations and provide escape cover from predators and shelter during bad weather;
- Biodiversity, woodlands, hedgerows, ditches should be protected and enhanced where possible and be an integrated part of the design process rather than an afterthought;
- New development proposals should aim for the creation of new habitats and wildlife corridors, e.g. by aligning back and front gardens or installing bird boxes or bricks in walls;
- Gardens and boundary treatments should be designed to allow the movement of wildlife and provide habitat for local species. For that reason, rich vegetation and plantation is suggested;
- Blue assets can also contribute to biodiversity connectivity. Therefore, the existing ditches and lakes should be considered in design proposals when planning for wildlife corridors; and
- All areas of biodiversity that require further planting/ enhancement should be planted before start of construction.

Figure 92: Example of a birdbox located on a grass area opposite to a public footpath, somewhere in UK.

Figure 93: Example of a structure used as a frog habitat corridor located in an outdoor green space.

DC.03 Green and blue infrastructure

DC03.3 Water management

Sustainable drainage solutions (SuDS)

It is a general consensus that the risk of flooding is a concern in the Parish and the majority of the residents would want to see some improvements to the surface water drainage. Therefore, the introduction of some sustainable drainage systems, known as SuDS, would be beneficial for the village.

The most effective type or design of SuDS would depend on site-specific conditions such as underlying ground conditions, infiltration rate, slope, or presence of ground contamination. However, a number of overarching principles that could be applied in new development are:

- Manage surface water as close to where it originates as possible;
- Reduce runoff rates by facilitating infiltration into the ground or by providing attenuation that stores water to help slow its flow down, so that it does not overwhelm water courses or the sewer network;
- Improve water quality by filtering pollutants to help avoid environmental contamination;
- Integrate into development and improve amenity through early consideration in the development process and good design practices;
- SuDS are often also important in areas that are not directly in an area of flood risk themselves, as they can help reduce downstream flood risk by storing water upstream;
- Some of the most effective SuDS are vegetated, using natural processes to slow and clean the water, whilst increasing the biodiversity value of the area;
- Best practice SuDS schemes link the water cycle to make the most efficient use of water resources by reusing surface water; and
- SuDS should be designed sensitively to augment the landscape and provide biodiversity and amenity benefits.

Figure 94: Example of swales integrated within the new development creating green links with the surrounding countryside, somewhere in UK.

Figure 95: Example of SuDS designed as a public amenity and fully integrated into the design of the public realm, Stockholm.

Storage and slow release

Rainwater harvesting refers to the systems allowing the capture and storage of rainwater as well as those enabling the reuse in-site of grey water. Simple storage solutions, such as water butts, can help provide significant attenuation.

However, another solution that could be integrated into new design is underground tanks which work with a pump and pipe system to transport water in the storage tank to application areas, like toilets or washing.

In addition, the solution of a gravity fed rainwater system allows ground floor toilet cisterns to fill and flush using rainwater. This system can also be used to irrigate garden spaces, assuming the garden level is below the base of the tank. This system provides a simple and inexpensive alternative to conventional underground rainwater harvesting systems with lower capital and installation costs, reduced maintenance and operational costs.

Figure 96: Examples of water butts used for rainwater harvesting in Reach, Cambridgeshire.

Figure 97: Example of an underground water tank in relationship with the building (Source: https://handymantips.org/about-underground-water-tanks/)

Figure 98: Example of a gravity fed rainwater system for flushing a downstairs toilet or for irrigation.

DC.03 Green and blue infrastructure

Some design guidelines to well integrate water storage systems are:

- Consider any solution prior to design to appropriately integrate them into the vision.
- Conceal tanks by cladding them in complementary materials.
- Use attractive materials or finishing for pipes.
- Combine landscape/planters with water capture systems.

Figure 99: Diagram illustrating rainwater harvesting systems integrated into open spaces and residential properties.

DC.03 Green and blue infrastructure

Permeable paving

Most built-up areas, including roads and driveways, increase impervious surfaces and reduce the capacity of the ground to absorb runoff water. This in turn increases the risks of surface water flooding.

Permeable paving offers a solution to maintain soil permeability while performing the function of conventional paving. Therefore, some design guidelines for new development are:

- The choice of permeable paving units must be made depending on the local context; the units may take the form of unbound gravel, clay pavers, or stone setts; and
- Permeable paving can be used where appropriate on footpaths, private access roads, driveways, car parking spaces (including on-street parking) and private areas within the individual development boundaries.

Regulations, standards, and guidelines relevant to permeable paving and sustainable drainage are listed below:

- Sustainable Drainage Systems - non-statutory technical standards for sustainable drainage systems[1].
- The SuDS Manual (C753)[2].
- Guidance on the Permeable Surfacing of Front Gardens[3].

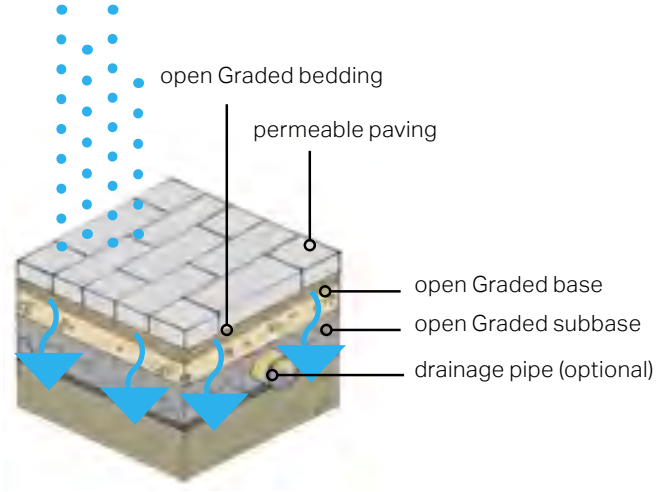


Figure 100: Diagram illustrating the function of a soak away.

Figure 101: Example of a permeable paving that could be used from driveways.

1. Great Britain. Department for Environment, Food and Rural Affairs (2015). Sustainable drainage systems – non-statutory technical standards for sustainable drainage systems. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/415773/sustainable-drainage-technical-standards.pdf
2. CIRIA (2015). The SuDS Manual (C753).
3. Great Britain. Ministry of Housing, Communities & Local Government (2008). Guidance on the Permeable Surfacing of Front Gardens. Available at:https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/7728/pavingfrontgardens.pdf

DC.03 Green and blue infrastructure

DC03.4 Trees

New street planting helps maintain visual consistency along the public realm. It is associated with better mental health and well-being by reducing stress, lessening heat islands, and providing protection from natural elements such as wind and rain. Some guidelines for new development are:

- New development should aim to preserve existing mature trees and hedges by incorporating them in the new landscape design;
- New development should ensure to introduce a variety of native tree species over a single one to improve resilience and increase visual interest along the streetscape;
- Flower beds, bushes and shrubs should be welcomed in new development, since they contribute to the livelihood of the streetscape and create visual interest and colour to their surroundings;
- Hedgerows can be planted in front of bare boundary walls to ease their visual presence or they can be used to conceal on-plot car parking and driveways within curtilages;
- Native trees can normally be used to mark reference points and legibility;
- Native trees should also be present in any public open space, green or play area to generate environmental and wildlife benefits; and
- The success of tree planting is more likely to be achieved when it has been carefully planned to work in conjunction with all parts of the new development, parking, buildings, street lights etc.

Figure 103: Positive example of open space with trees overlooked by properties, elsewhere in UK

Figure 102: Example of street planting along main road with green verges and large street trees encouraging walking, elsewhere in UK.

DC03.5 Open spaces

Open spaces play a vital role in creating a positive environment in Twyford. These places foster community and gathering and therefore, they create lively places in neighbourhoods. Currently there are some large designated open spaces to the north and south of the village that are appreciated by the residents. New development should prioritise the design of more open spaces and some design guidelines are:

- The location of new open spaces within new development should be decided based on the location of the existing ones considering the needs of the existing population too. Open space should be within walking distance (400m) from residential neighbourhoods;
- Landscape should not be used as a divisive measure between new and existing development however, green buffer zones between older and new development are acceptable. This can be achieved by procuring a landscape consultant early on in the design process;
- Substantial recreational space should be provided to include woodland walks, sport pitches and play areas;
- All recreational spaces should be designed to link up with each other and also link up with existing adjoining sites taking particular note of enhancing green fingers;
- Surrounding buildings should overlook play areas and public spaces to encourage movement and natural surveillance;
- Open spaces should be equipped with good quality street furniture to create pleasant seating areas, shaded spaces avoiding hidden spots; and
- The materials and style of any street furniture in the open spaces should be consistent throughout the Parish and aim to proudly represent the local character.

Figure 104: Example of a children's play area with many activities for the whole family, Tunbridge Wells.

Figure 105: Properties overlooking a public open space which is equipped with grass areas, large green trees and street furniture, Poundbury.

DC.04 Built form

DC04.1 Boundary lines, boundary treatments and corner treatment

Together with the creation of potential local landmarks, three more crucial aspects of a successful streetscape and urban form is the issue of corners, boundary lines and boundary treatments. Therefore, the following guidelines should be applied in new development.

- Buildings should front onto streets. The building lines should have subtle variations in the form of recesses and protrusions, to follow the existing context of Twyford. Gaps between buildings are generally encouraged to respect surrounding density;
- Buildings should be designed to ensure that streets and/or public spaces have good levels of natural surveillance. This can be ensured by placing ground floor habitable rooms and upper floor windows facing the street;
- Natural boundary treatments should reinforce the character of the village and help define the street. They should be mainly continuous hedges and occasionally low-height brick walls;
- In the case of edge lanes, natural boundary treatments can act as buffer zones between the site and the countryside and offer a level of protection to the natural environment and open unobstructed views;
- If placed at important intersections the building could be treated as a landmark and thus be slightly taller or display another built element, signalling its importance as a wayfinding cue;
- The form of corner buildings should respect the local architectural character. Doing so improves the street scene and generates local pride;
- All the façades overlooking the street or public space should be treated as primary façades; and
- Road layouts should be designed to slow traffic and advantage pedestrians over vehicles.

Figure 106: Local positive example of physical boundary treatments that help separate properties whilst enhancing the natural environment, Twyford.

Figure 107: Positive example of corner treatment where the building façades overlook the street on both sides, whilst hedges create a curved boundary around the plot offering good visibility for pedestrians, elsewhere in Twyford.

DC04.2 Continuity and enclosure

Focal points and public spaces in new development should be designed in good proportions and be delineated with clarity. Clearly defined spaces help create an appropriate sense of enclosure - the relationship between a given space (lane, street, square) and the vertical boundary elements at its edges (buildings, walls, trees). Some design guidelines that should be considered for achieving satisfactory sense of enclosure are:

- When designing building setbacks, there must be an appropriate ratio between the width of the street and the building height. Ratios between 1:2 and 1:3 (building height/street width) will generally create spaces with a strong sense of enclosure;
- Careful positioning of walls, railings, landscaping and paving can achieve visual continuity and well-defined open spaces to link buildings together and define public and private spaces;
- Buildings should be designed to turn corners and create attractive start and end points of a new street or frontage;
- Trees, hedges, and other landscaping features can help create a more enclosed streetscape in addition to providing shading and protection from heat, wind, and rain; and
- In the case of terraced and adjoining buildings, it is recommended that a variety of plot widths, land use, building heights, and façade depth should be considered during the design process to create an attractive streetscape and break the monotony.

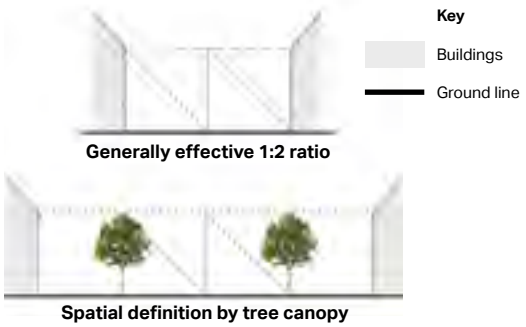


Figure 108: A ratio of 1:2 (top) or 1:3 is generally appropriate for residential streets. In addition, enclosure can be defined by trees instead of buildings (bottom).

Figure 109: The sense of enclosure along this footpath is created by the close distance of buildings in relationship to the width of the footpath, Poundbury.

Figure 110: Local example of tertiary street that creates high levels of enclosure due to the width of the road in combination with the rich vegetation and the height of the buildings and the trees, Twyford.

DC.04 Built form

DC04.3 Legibility and wayfinding

When places are legible and well signposted, they are easier for the public to understand, therefore likely to both function well and be pleasant to live in or visit. It is easier for people to orient themselves when the routes are direct and visual landmarks clearly emphasise the hierarchy of the place. Some design guidelines are:

- Signage could be strategically located along walking and cycling routes to signalise location of local and heritage assets. For instance, habitats to the west of the village, open spaces around the area or the local facilities in the village centre could be highlighted to aid navigation and encourage people to visit them;
- Obvious and unambiguous features should be designed in new development. Those will help create memorable routes;
- Buildings, as well as public arts, historic signage totems or even an old and sizeable tree could act as landmarks;
- Buildings which are located at corners, crossroads or along a main road could play a significant role in navigation. For that reason, the architectural style of those buildings could be slightly differentiated from the rest to help them stand out;
- New signage design should be easy to read. Elements likes languages, fonts, text sizes, colours and symbols should be clear and concise, and avoid confusion;
- Signage should relate well to the setting of the host building, whilst illuminated signage will not be recommended; and
- Applicants are encouraged to use wooden, hand painted and non illumined signage, avoiding the use of garish or day-glow colours.

Figure 111: Example of signage that could be integrated along footpaths to navigate people towards important destinations.

Figure 112: Positive example of signage to indicate the location of public footpaths. The material of the sign post could fit perfectly into the context of Twyford village.

DC04.4 Building heights, density and housing mix

Building heights, density and housing mix are three important parameters that should be designed and decided with careful consideration of Twyford's context.

Buildings heights

There is a relatively low housing density in the Parish which goes higher within the village centre due to the prevailing terraced typology. More specifically, properties tend to be 1- or 2-2.5-storey high with decent-sized rear gardens. The rooflines are irregular and they often get interrupted with nature. Chimneys decorating the roof also interrupt the roofline offering a visual interest. Some design guidelines are:

- New development should propose maximum height of 2.5 storeys to preserve the existing context;
- Monotonous building elevations should be avoided, therefore subtle changes in roofline should be ensured during the design process;
- Locally traditional roof detailing elements such as roofing materials, chimney stacks and edge treatments should be considered and implemented where possible in cases of new development. Thus, the two conservation areas, which include local architectural details and materials, should be the reference points for new development; and
- Roofline should be set lower than the vegetation backdrop, avoiding hard lines of the silhouette against the sky.

Figure 113: Local example, within the Twyford village conservation area, of clay tiles on a mansard roof with gable dormers.

Figure 114: Local example, within the Station conservation area, of grey slate tiles on a gable roof with chimney.

DC.04 Built form

Building density

The concept of density is important to planning and design as it affects the vitality and viability of the place. The density within the Parish is quite low, apart from the village centre. Therefore, some guidelines for new development are needed to ensure that the existing housing density numbers are respected.

- Density should be appropriate to the location of any new development and its surroundings and enhance the character of the existing village;
- Housing densities should be reduced towards development edges in order to create a gradual transition towards the countryside; and
- Small scale developments are encouraged, for instance the one in Bridge Park, because they follow the scale and pattern of existing grain and streets and therefore, retain the character of the area.

Housing mix

The aspiration for the Parish is to ensure that there is a mix of housing types and supply of social and affordable housing to cater for the needs of a wider group of people. Therefore, a mix of new housing could attract a wide group of people and boost the local economy. Some design guidelines for new development are:

- New development should propose a mix of housing to include a range of house types and sizes, both developer and self built, to allow for a variety of options and bring balance to the population profile. The existing mix of housing in the village, including terraced, detached, semi-detached, bungalows and flats, should be enhanced; and
- In the case of affordable housing, its quality and architectural design should be of high standards to complement the local vernacular.

Figure 115: Local example of terraced housing within the Twyford Station Conservation Area.

Figure 116: Local example of a detached house to the south of the village, Twyford.

DC04.5 Infill development

There is a fair amount of infill development within the Parish, for instance Bell Court along the High Street or the recent development along Wellington Close. Proposed designs should be appropriate and sensitive to Twyford's setting and therefore, some design guidelines are needed and presented below:

- Infill development should complement the street scene into which it will be inserted. Therefore, the surrounding building context needs to be studied so the same principles can be reflected into the new design;
- Infill development needs to reflect the materials, scale, massing and layout of the surrounding properties;
- Infill development needs to be considered in relation to topography, views, vistas and landmarks to ensure that none of those elements are blocked; and
- New building lines should be reasonably consistent along a street with existing buildings.

Figure 117: Local example of infill development to the south of the village that respects the surrounding scale and massing as well as the street layout of other cul-de-sac streets in the area, Wellington Close.

Figure 118: Local example of a recent small development within the conservation area that respects the massing and architectural styles of the neighbouring streets, High Street.

DC.04 Built form

DC04.6 Building conversions into residential

Twyford's village core is composed by a large number of shops set along the crossroads with residential units or storage of the upper floors. However, through the passing of time many shops are converted into housing and therefore, design guidance is needed to ensure that the outcome does not undermine the original use of the building. Some design guidelines are:

- Any domestic add-ons such as chimneys, porches, satellite dishes, domestic external lighting and hanging baskets should be avoided;
- Any features that are characteristic of the building, such as large openings and bay windows on the facade, should be retained and not filled in
- New openings should generally be avoided, and kept to a minimum when necessary;
- Features such as dormer windows should be avoided, unless if they were part of the original building. If rooflights are used, they should be sited discreetly so as to not become a feature in the landscape; and
- Existing brickwork should be reused or reclaimed. Consideration should be given to the material source and matching the colour, texture, size and bond of the existing brickwork.

Figure 119: Positive example of a shop conversion into residential where the existing openings have been retained and now form part of the design of the property, Twyford.

Figure 120: Positive example of a shop conversion into residential where the existing openings have been retained and now form part of the design of the property, Twyford.

DC04.7 Building extensions

There are a number of principles that residential extensions and conversions should follow to maintain character. It is worth noting that some extensions do not require planning consent as they already fall within permited development rights. However, principles presented in this section applies to extensions where permited development rights do not apply, such as those within the conservation areas. These principles include:

- The original building should remain the dominant element of the property regardless of the scale or number of extensions. The newly built extension should not overwhelm the building from any given viewpoint;
- Extensions should not result in a significant loss to the private amenity area of the dwelling;
- Designs that wrap around the existing building and involve overly complicated roof forms should be avoided;
- The pitch and form of the roof used on the building adds to its character and extensions should respond to this where appropriate;
- Extensions should consider the materials, architectural features, window sizes and proportions of the existing building and respect these elements to design an extension that matches and complements the existing building;
- In the case of side extensions, the new part should be set back from the front of the main building and retain the proportions of the original building. This is in order to reduce any visual impact of the transition between existing and new;
- In the case of rear extensions, the new part should not have a harmful effect on neighbouring properties in terms of overshadowing, overlooking or privacy issues; and
- Where possible, reuse as much of the original materials as possible, or alternatively, use like-for-like materials. Any new materials should be sustainable and be used on less prominent building parts.

DC.04 Built form

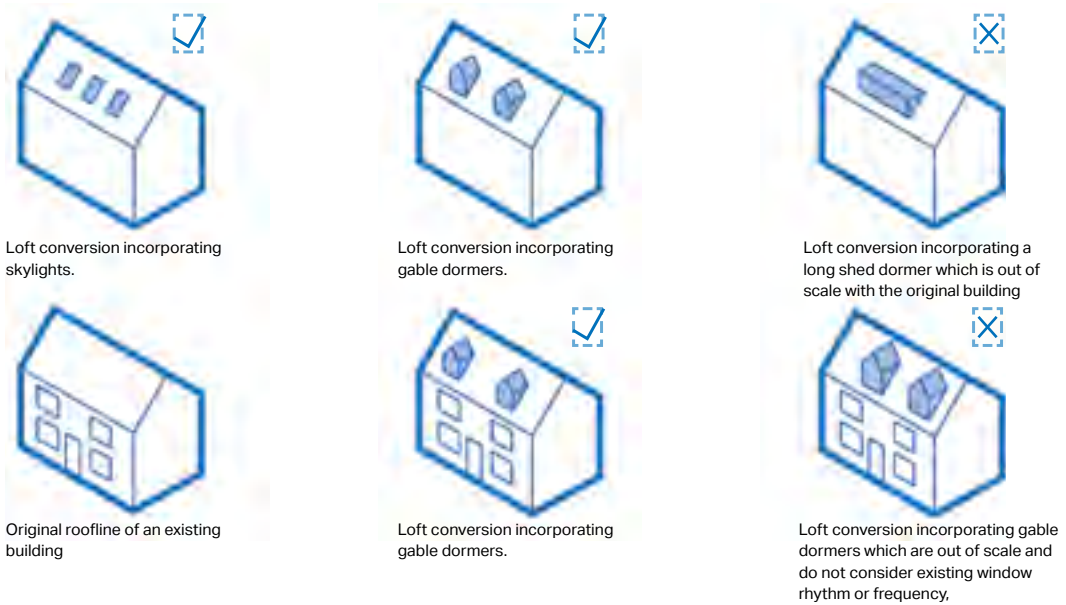


Figure 121: Some examples for different type of building extensions.

Figure 122: Good examples for side extensions, respecting existing building scale, massing and building line.

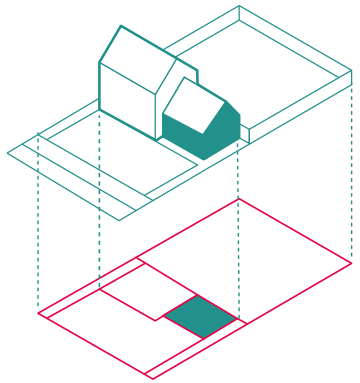


Figure 123: An example diagram of a side extension.

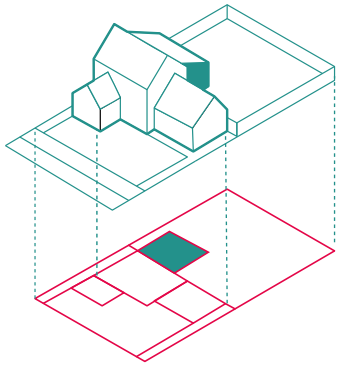


Figure 124: An example diagram of a rear extension.

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DC04.8 Public realm, materials and street furniture

Streets are the most important components of public space and these are referenced in the hierarchy of movement section.

Paved areas are a major element within most developments and their design has a significant impact on the overall appearance, quality and success of a scheme. Care must be taken when choosing appropriate materials and when detailing paved areas as part of the overall design.

High quality materials such as stone, gravel and brick can provide a durable and attractive hard surface, although there is an extensive range of modern materials that can contribute positively to the quality of outdoor spaces if chosen with care. The laying pattern and materials used should make a significant contribution to the overall appearance, quality and success of a scheme. If laying patterns, random bond, broken bond, gauged width, and the European fan should be preferred designs.

Some guidelines for new development are:

- The public realm should provide high quality paving that is of a cohesive design using a palette of sustainable and durable materials. Permeable paving should be preferred to contribute to rain water infiltration.
- Materials should be robust, aesthetically attractive and with excellent weathering characteristics defining a sustainable and attractive place for residents and visitors.
- The laying pattern and materials used should make a significant contribution to the overall appearance, quality and success of a scheme.
- Large unbroken areas of a particular surface material should be avoided, especially tarmac. Areas can be made distinctive by using materials of a similar colour but with different textures.
- Larger development projects with more than one developer should employ the same consistent palette of materials and designs.

Figure 125: Examples of quality materials and visually pleasing layout patterns that could be considered for public realm surfacing.

DC.04 Built form

DC04.9 Materials and architectural details

Twyford Parish has a wide variety of architectural styles and details, mainly concentrated within the two character areas, that can act as references for new development. Some design guidelines for new development are:

- Architectural design shall reflect high quality local design references in both the natural and built environment and make a valuable contribution to the character of the village;
- Appropriate materials may include timber, naturally finished timber boarding, tiles, slate, shingles, brick, flint and appropriately coloured render;
- The choice of colour and finish of materials is an important design factor in reducing the impact of the buildings on the surrounding landscape. Generally very light colours, like white, cream or light grey, and large areas of intense strong colours do not blend well with the natural landscape. Thus, muted, pastel and darker tones could be a better option; and
- The use of traditional, natural and preferably locally sourced materials is generally more appropriate than man-made synthetic, pre-coloured materials, as they lack the variation on colour and texture found in natural materials.

Roofing

Dark grey slate roof tiles

Clay tiles

Mansard roof with clay tiles and gable dormers

Gabled roof decorated with chimney stacks

Gable roof with chimney stacks and rooflights

Hipped roof with hipped dormers

Walls

Red brick

Rendered facades with different colours

Off-white render

Half timbering technique infilled with off-white render

Half timbering technique infilled with red brick

Grey brick combined with yellow brick around the openings

Red brick on the upper floor and coloured brick on the ground floor

Local stone

Windows

Sash windows

Casement windows

Large shopfront windows retained after its conversion to residential

Bay windows

DC.05 Sustainability

Wokingham Borough Council has committed to be carbon neutral by 2030. Data shows that the borough's carbon footprint is 580.9 ktCO2e (kilotons of carbon dioxide) made of three sectors: domestic, transport, and industrial and commercial. It also shows that the borough's carbon footprint has been dropping since 2012, due to behaviour change, increased proportion of renewable energy in electricity supplies and more efficient technologies, however despite the decreasing emissions more actions need to be made to achieve carbon neutrality.

Each village or town within the borough should do their part, and therefore the design guidelines below, codes 05.1- 05.4, show how buildings can contribute towards this goal.

DC05.1 Minimising energy use

Buildings contribute almost half (46%) of carbon dioxide (CO2) emissions in the UK. The government has set rigorous targets for the reduction of CO2 emissions and minimising fossil fuel energy use.

There is a good number of energy efficient technologies that could be incorporated in buildings. The use of such principles and design tools is strongly encouraged to futureproof buildings and avoid the necessity of retrofitting.

Energy efficient or eco design combines all around energy efficient appliances and lighting with commercially available renewable energy systems, such as solar electricity and/or solar/ water heating.

F.128 features an array of sustainable design features. Those on the top show the features that should be strongly encouraged in existing homes, while those on the bottom show additional features that new build homes should be encouraged to incorporate from the onset.

DC05.2 Lifetime and adaptability

The fastest route to building a functional, supportive, neighbourly community is to build homes that people can and want to live in for most of their lives instead of having to move every time domestic circumstances change.

'Lifetime' homes means designing in the flexibility and adaptability needed to allow for easy incorporation of wheelchair accessibility, addition/removal of internal walls, and ease of extension - both vertically and horizontally. This is particularly important for the aged, infirm or expanding/ contracting families who may be dependent on nearby friends and family for emotional and physical support.

Figure 126: Use of shingle-like solar panels on a slate roof, with the design and colour of the solar panels matching those of the adjacent slate tiles.

DC.05 Sustainability

Figure 127: Positive example of implementing solar panels since the design stage.

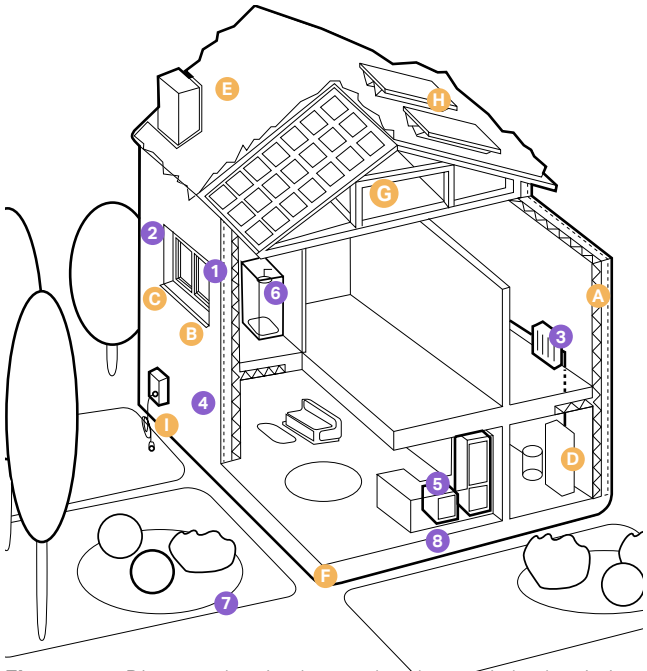

Figure 128: Diagram showing low-carbon homes in both existing and new build conditions.

Existing homes

1. **Insulation** in lofts and walls (cavity and solid)
2. **Double or triple glazing with shading** (e.g. tinted window film, blinds, curtains and trees outside)
3. **Low- carbon heating** with heat pumps or connections to district heat network
4. **Draught proofing** of floors, windows and doors
5. **Highly energy-efficient appliances** (e.g. A++ and A+++ rating)
6. **Highly waste-efficient devices** with low-flow showers and taps, insulated tanks and hot water thermostats
7. **Green space (e.g. gardens and trees)** to help reduce the risks and impacts of flooding and overheating
8. **Flood resilience and resistance** with removable air back covers, relocated appliances (e.g. installing washing machines upstairs), treated wooden floors

Additional features for new build homes

A. **High levels of airtightness**

B. **Triple glazed windows and external shading** especially on south and west faces

C. **Low-carbon heating** and no new homes on the gas grid by 2025 at the latest

D. **More fresh air** with mechanical ventilation and heat recovery, and passive cooling

E. **Water management and cooling** more ambitious water efficiency standards, green roofs, rainwater harvesting and reflective walls

F. **Flood resilience and resistance** e.g. raised electrical, concrete floors and greening your garden

G. **Construction and site planning** timber frames, sustainable transport options (such as cycling)

H. **Solar panel**

I. **Electric car charging point**

DC.05 Sustainability

DC05.3 Minimising construction waste

As part of the environmental management system it is important that the waste generated during construction is minimised, reused within the site or recycled.

Developers should plan to re-use materials by detailing their intentions for waste minimisation and re-use in Site Waste Management Plans. The actions that this plan will include are:

- Before work commences, the waste volumes to be generated and the recycling and disposal of the materials will be described;
- On completion of the construction works, volumes of recycled content purchased, recycled and landfilled materials must be collated;
- Identify materials used in high volumes; and
- The workforce should be properly trained and competent to make sure storage and installation practices of the materials is done under high standards.

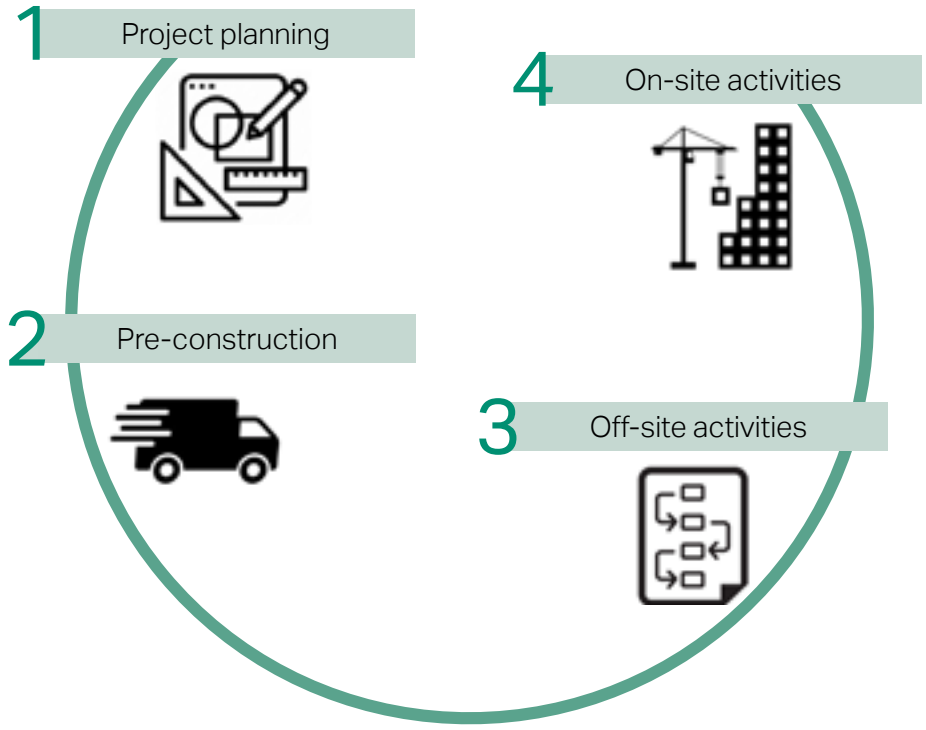

Figure 129: Diagram to illustrate the 4 main stages where waste management practices can be implemented.

DC05.4 Recycling materials and buildings

To meet the government's target of being carbon neutral by 2050, it is important to recycle and reuse materials and buildings. Some actions for new development are:

- Reusing buildings, parts of buildings or elements of buildings such as bricks, tiles, slates or large timbers all help achieve a more sustainable approach to design and construction;
- Recycling and reuse of materials can help to minimise the extraction of raw materials and the use of energy in the production and transportation of materials; and
- Development should also maximise the re-use of existing buildings (which often supports social, environmental and economic objectives as well).

Figure 130: Diagram to illustrate the life cycle thinking for recycling materials and buildings. (Source: https://www.researchgate.net/publication/319464500_Combining_seismic_retrofit_with_energy_refurbishment_for_the_sustainable_renovation_of_RC_buildings_a_proof_of_concept)

4.5 Checklist

Because the design guidance and codes in this document cannot cover all design eventualities, this chapter provides a number of questions based on established good practice against which the design proposal should be evaluated. The aim is to assess all proposals by objectively answering the questions below. Not all the questions will apply to every development. The relevant ones, however, should provide an assessment as to whether the design proposal has considered the context and provided an adequate design solution.

As a first step there are a number of ideas or principles that should be present in all proposals. These are listed under 'General design guidance for new development'. Following these ideas and principles, several questions are listed for more specific topics on the following pages.

1

General design guidelines for new development:

- Integrate with existing paths, streets, circulation networks and patterns of activity;
- Reinforce or enhance the character of streets, greens, and other spaces;
- Relate well to local topography and landscape features, including prominent ridge lines and long-distance views;
- Reflect, respect, and reinforce local architecture and historic distinctiveness;
- Retain and incorporate important existing features into the development;
- Respect surrounding buildings in terms of scale, height, form and massing;
- Adopt contextually appropriate materials and details;
- Provide adequate open space for the development in terms of both quantity and quality;
- Incorporate necessary services and drainage infrastructure without causing unacceptable harm to retained features;
- Ensure all components e.g. buildings, landscapes, access routes, parking and open space are well related to each other;
- Positively integrate energy efficient technologies;
- Make sufficient provision for sustainable waste management (including facilities for kerbside collection, waste separation, and minimisation where appropriate) without adverse impact on the street scene, the local landscape or the amenities of neighbours;
- Ensure that places are designed with management, maintenance and the upkeep of utilities in mind; and
- Seek to implement passive environmental design principles by, firstly, considering how the site layout can optimise beneficial solar gain and reduce energy demands (e.g. insulation), before specification of energy efficient building services and finally incorporate renewable energy sources.

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2

Street grid and layout:

- Does it favour accessibility and connectivity? If not, why?
- Do the new points of access and street layout have regard for all users of the development; in particular pedestrians, cyclists and those with disabilities?
- What are the essential characteristics of the existing street pattern; are these reflected in the proposal?
- How will the new design or extension integrate with the existing street arrangement?
- Are the new points of access appropriate in terms of patterns of movement?
- Do the points of access conform to the statutory technical requirements?

3 (continues)

Local green spaces, views & character:

- What are the particular characteristics of this area which have been taken into account in the design; i.e. what are the landscape qualities of the area?
- Does the proposal maintain or enhance the key characteristics of the landscape character as per WBC's LCA 2019[1] ?
- How does the proposal affect the trees on or adjacent to the site?
- Can trees be used to provide natural shading from unwanted solar gain? i.e. deciduous trees can limit solar gains in summer, while maximising them in winter.
- Has the proposal been considered within its wider physical context?
- Has the impact on the landscape quality of the area been taken into account?
- In rural locations, has the impact of the development on the tranquility of the area, and on reducing or as a minimum kept to current levels of light pollution, been fully considered?
- Can any new views be created?
- Is there adequate amenity space for the development?
- Does the new development respect and enhance existing amenity space?

1 Wokingham Borough Council's Landscape Character Assessment 2019: https://www.wokingham.gov.uk/planning-policy/planning-policy-information/draft-local-plan-consultation/?categoryesctl91f252ff-550d-4cfa-a838-92ef2cb5f83c=10725

3

Local green spaces, views & character:

- Have opportunities for enhancing existing amenity spaces been explored?
- Will any communal amenity space be created? If so, how this will be used by the new owners and how will it be managed?
- Is there opportunity to increase the local area biodiversity?
- Can green space be used for natural flood prevention e.g. permeable landscaping, swales etc.?
- Can water bodies be used to provide evaporative cooling?
- Is there space to consider a ground source heat pump array, either horizontal ground loop or borehole (if excavation is required)?

4

Gateway and access features:

- What is the arrival point, how is it designed?
- Does the proposal maintain or enhance the existing gaps between hamlets?
- Does the proposal affect or change the setting of a listed building or listed landscape?
- Is the landscaping to be hard or soft?

5 (continues)

Buildings layout and grouping:

- What are the typical groupings of buildings?
- How have the existing groupings been reflected in the proposal?
- Are proposed groups of buildings offering variety and texture to the village?
- What effect would the proposal have on the streetscape?
- Does the proposal maintain the character of dwelling clusters stemming from the main road?
- Does the proposal overlook any adjacent properties or gardens? How is this mitigated?

5

Buildings layout and grouping:

- Subject to topography and the clustering of existing buildings, are new buildings oriented to incorporate passive solar design principles, with, for example, one of the main glazed elevations within 30° due south, whilst also minimising overheating risk?
- Can buildings with complementary energy profiles be clustered together such that a communal low carbon energy source could be used to supply multiple buildings that might require energy at different times of day or night? This is to reduce peak loads. And/or can waste heat from one building be extracted to provide cooling to that building as well as heat to another building?

6

Building line and boundary treatment:

- What are the characteristics of the building line?
- How has the building line been respected in the proposals?
- Has the appropriateness of the boundary treatments been considered in the context of the site?

7

Building heights and roofline:

- What are the characteristics of the roofline?
- Have the proposals paid careful attention to height, form, massing and scale?
- If a higher than average building(s) is proposed, what would be the reason for making the development higher?
- Will the roof structure be capable of supporting a photovoltaic or solar thermal array either now, or in the future?
- Will the inclusion of roof mounted renewable technologies be an issue from a visual or planning perspective? If so, can they be screened from view, being careful not to cause over shading?

8

Household extensions:

- Does the proposed design respect the character of the area and the immediate neighbourhood, and will it pose any adverse impact on neighbouring properties in relation to privacy, overbearing or overshadowing impact?
- Is the roof form of the extension appropriate to the original dwelling (considering angle of pitch)?
- Do the proposed materials match those of the existing dwelling?
- In case of side extensions, does it retain important gaps within the street scene and avoid a 'terracing effect'?
- Are there any proposed dormer roof extensions set within the roof slope?
- Does the proposed extension respond to the existing pattern of window and door openings?
- Is the side extension set back from the front of the house?
- Does the extension offer the opportunity to retrofit energy efficiency measures to the existing building?
- Can any materials be re-used in situ to reduce waste and embodied carbon?

9

Building materials & surface treatment:

- What is the distinctive material in the area?
- Does the proposed material harmonise with the local materials?
- Does the proposal use high-quality materials?
- Have the details of the windows, doors, eaves and roof details been addressed in the context of the overall design?
- Does the new proposed materials respect or enhance the existing area or adversely change its character?
- Are recycled materials, or those with high recycled content proposed?
- Does the new proposed materials match existing materials or respond to the historical and landscape context?

10

Building materials & surface treatment:

- Has the embodied carbon of the materials been considered and are there options which can reduce the embodied carbon of the design? For example, wood structures and concrete alternatives.
- Can the proposed materials be locally and/or responsibly sourced? E.g. FSC timber, or certified under BES 6001, ISO 14001 Environmental Management Systems?

11

Car parking:

- What parking solutions have been considered?
- Are the car spaces located and arranged in a way that is not dominant or detrimental to the sense of place?
- Has planting been considered to soften the presence of cars?
- Does the proposed car parking compromise the amenity of adjoining properties?
- Have the needs of wheelchair users been considered?
- Can electric vehicle charging points be provided?
- Can secure cycle storage be provided at an individual building level or through a central/ communal facility where appropriate?
- If covered car ports or cycle storage is included, can it incorporate roof mounted photovoltaic panels or a biodiverse roof in its design?

Delivery

05

5. Delivery

The Design Guidelines & Codes will be a valuable tool in securing context-driven, high quality development in Twyford, especially on potential sites that might come forward in the future. They will give more certainty to both developers and the community in securing developments that are designed to the aspirations of the community and potentially speed up the planning process.

The opposite table summarises the various ways that this document can be used by each actor in the planning and development process.

Actors	How they will use the design guidelines
Applicants, developers, & landowners	As a guide to community and Local Planning Authority expectations on design, allowing a degree of certainty – they will be expected to follow the Guidelines as planning consent is sought.
Local Planning Authority	As a reference point, embedded in policy, against which to assess planning applications. The Design Guidelines should be discussed with applicants during any pre-application discussions.
Parish Council	As a guide when commenting on planning applications, ensuring that the Design Guidelines are complied with.
Community organisations	As a tool to promote community-backed development and to inform comments on planning applications.
Statutory consultees	As a reference point when commenting on planning applications.

Table 01: delivery

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