AECOM

TOPPESFIELD

Design Guidelines and Codes

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FINAL REPORT

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Quality information

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Revision History

Revision	Revision date	Details	Name	Position
4	27-08-2021	Review	John Wilkinson	Locality
3	02-08-2021	Review	Jimmy Lu	Senior Urban Designer
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1	16-03-2021	Group review	Nigel Meek	Toppesfield Parish Council
0	09-09-2020	Research, site visit	Jimmy Lu	Senior Urban Designer

Contents

Introduction

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1. Introduction

1.1. Introduction

Through the Ministry of Housing, Communities and Local Government (MHCLG) Neighbourhood Planning Programme led by Locality, AECOM has been commissioned to provide design support to Toppesfield Parish Council.

The Neighbourhood Planning Group is making good progress in the production of its Neighbourhood Plan and has requested to access professional advice on design guidelines and codes for any potential development within the Parish. This document should support Neighbourhood Plan policies that guide the assessment of potential development proposals and encourage high-quality design for new builds and refurbishments. It advises on physical development helping to create distinctive places that are integrated with the existing built environment and landscape. The recommendations made in this report are based on observations on the Neighbourhood Plan Area as a whole, but they may be more relevant in some areas of the neighbourhood area than others. The elements that are more general are referred to as design guidelines. Other elements that are more prescriptive or set out parameters are the design codes.

1.2. Objective

The main objective of this report is to develop design guidelines and codes that any potential development and renovations in Toppesfield should follow in order to retain and protect the rural character of the area whilst meeting local housing needs. New development should respect Toppesfield's historic character, architectural diversity, and close relationship with the surrounding countryside.

1.3. Process

Following an inception meeting and virtual site visit with Toppesfield Neighbourhood Plan steering group members, AECOM carried out a high-level assessment of the Parish.

The following steps were agreed with the group to produce this report:

- Initial meeting and site visit;[1]
- Urban design analysis;
- Preparation of design principles and codes to be used to assess potential developments and household modifications;
- Draft report with design guidelines; and
- Final report.

1.4. Area of study

The parish of Toppesfield is located in the Braintree district of Essex. It lies about 14 km (9 miles) north of the town of Braintree, 14 km (9 miles) west of Sudbury, 28km (17 miles) north-west of Colchester, and 35 km (22 miles) south-east of Cambridge. In addition to the village of Toppesfield, the Parish includes the smaller outlying settlements of Gainsford End to the south and Toppesfield Grass Green to the north. The southernmost end of the Parish also encompasses parts of Wethersfield Airfield (MDP Wethersfield). Toppesfield shares borders with the parishes of Stambourne and Great Yeldham to the north and Finchinfield, Wethersfield, and Sible Hedingham to the south.

The nearest train stations are Sudbury and Braintree, both located within a 30-minute driving distance. Toppesfield is not served by public transport; the nearest bus stops are located in the neighbouring village of Great Yeldham. The Parish is not served directly by any major road, however the A1017 runs close to the eastern boundary of the Parish.

At the 2011 census the population of the Parish was 507.

[1]At the time of writing this report, COVID-19 safety measures and travel restrictions prevented in-person meetings and site visits. Instead, a virtual site visit was conducted on 27.05.2020 with members of the steering group using the Street View feature of Google Maps.

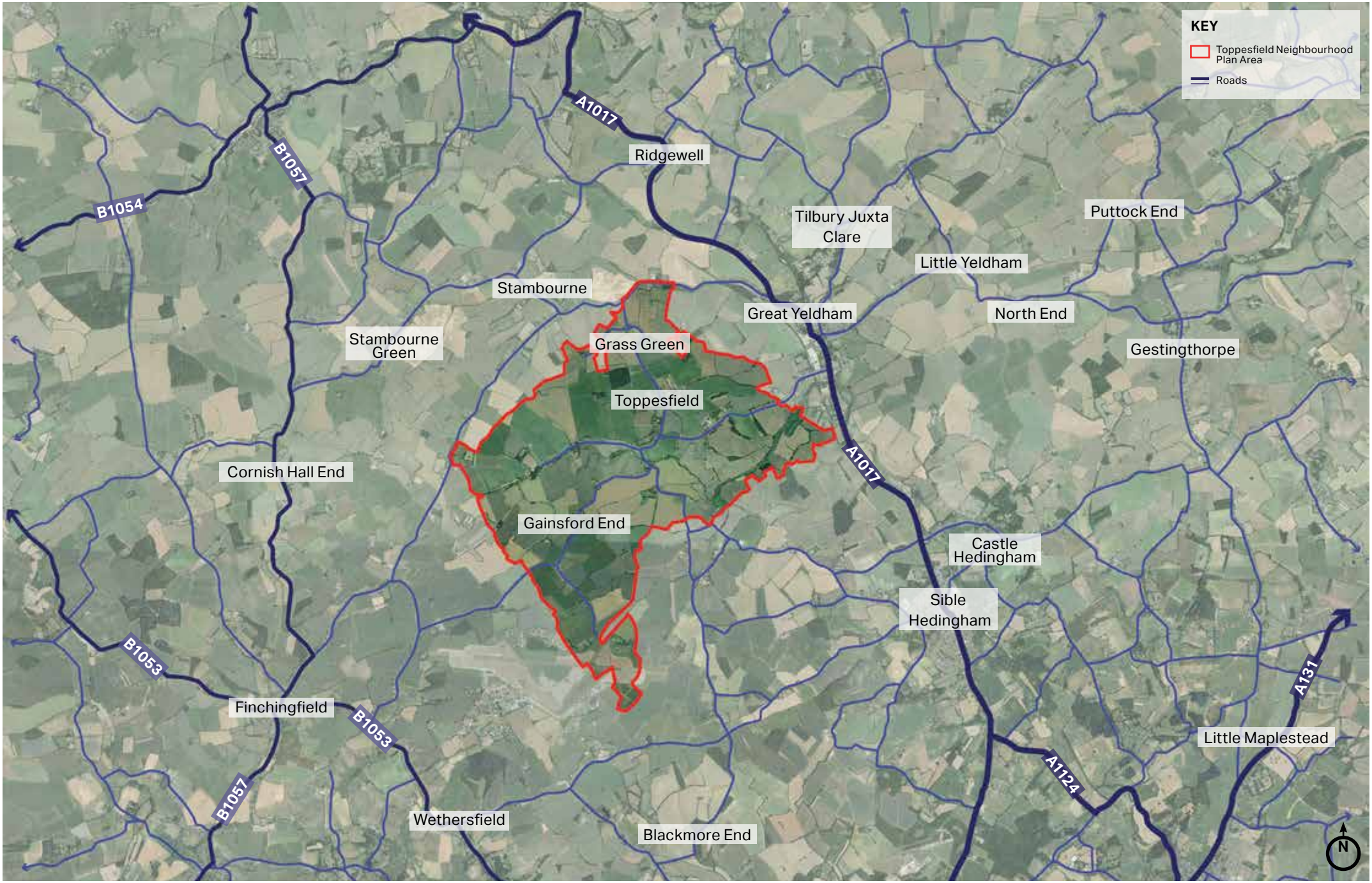
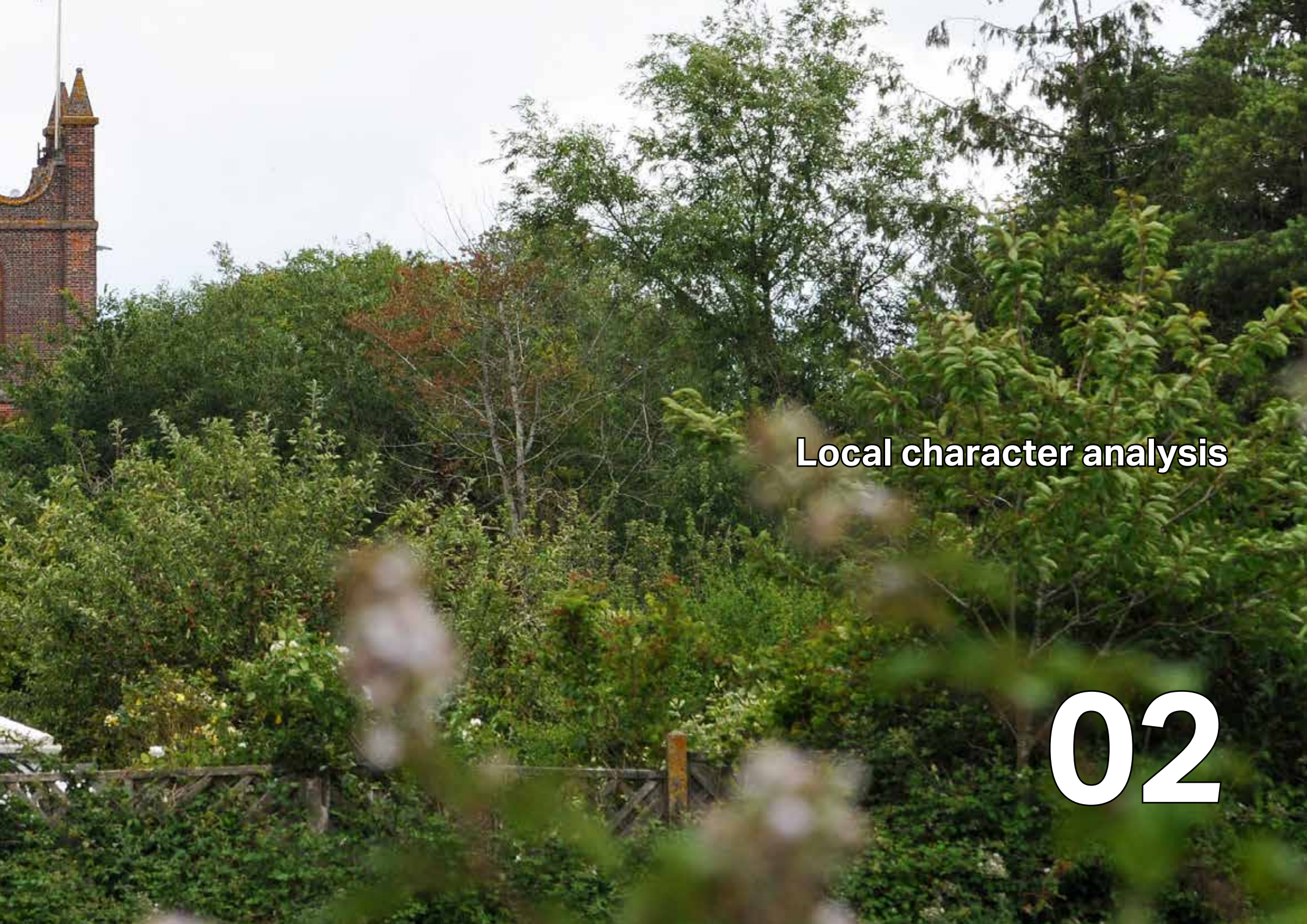


Figure 1: Neighbourhood Plan/Parish area.



Local character analysis

02

2. Local character analysis

This section outlines the broad physical, historical, and contextual characteristics of Toppesfield. It analyses the streets and public realm, the pattern and layout of buildings, building heights and rooflines, and parking in the area. The images in this section have been used to portray the built form of Toppesfield.

2.1. Introduction

The Parish of Toppesfield is located in the Essex district of Braintree and contains the village of Toppesfield as well as the smaller settlements of Grass Green and Gainsford End. The village centre is protected by a Conservation Area designated in 1989, however the entire Parish offers an array of building styles and periods that constitute good examples of the architectural diversity of Essex. Toppesfield has 41 listed buildings and structures that are dispersed around the Parish, including the Grade I-listed Church of St Margaret of Antioch. The Parish contains one school, St Margaret's C of E Primary School, as well as a pub, the Green Man. The post office and a store are co-located with the Village Hall.

Figure 2: Church yard porch and tower of the Grade I-listed Church of St Margaret of Antioch

Figure 3: Pump House Brewery on Church Lane.

Figure 4: Houses showing the juxtaposition of different architectural styles in Toppesfield.

Figure 5: Former chapel house with lancet windows and decorated eaves.

Figure 7: St Margaret's Church of England Primary School on Church Lane.

Figure 6: Northward view along The Street featuring the Grade II-listed pump in the centre of the Toppesfield Conservation Area.

Figure 8: Long distance view showing the integration of the settlements into a rural landscape.

Figure 9: Gabled wooden porch of the Church of St Margaret of Antioch.

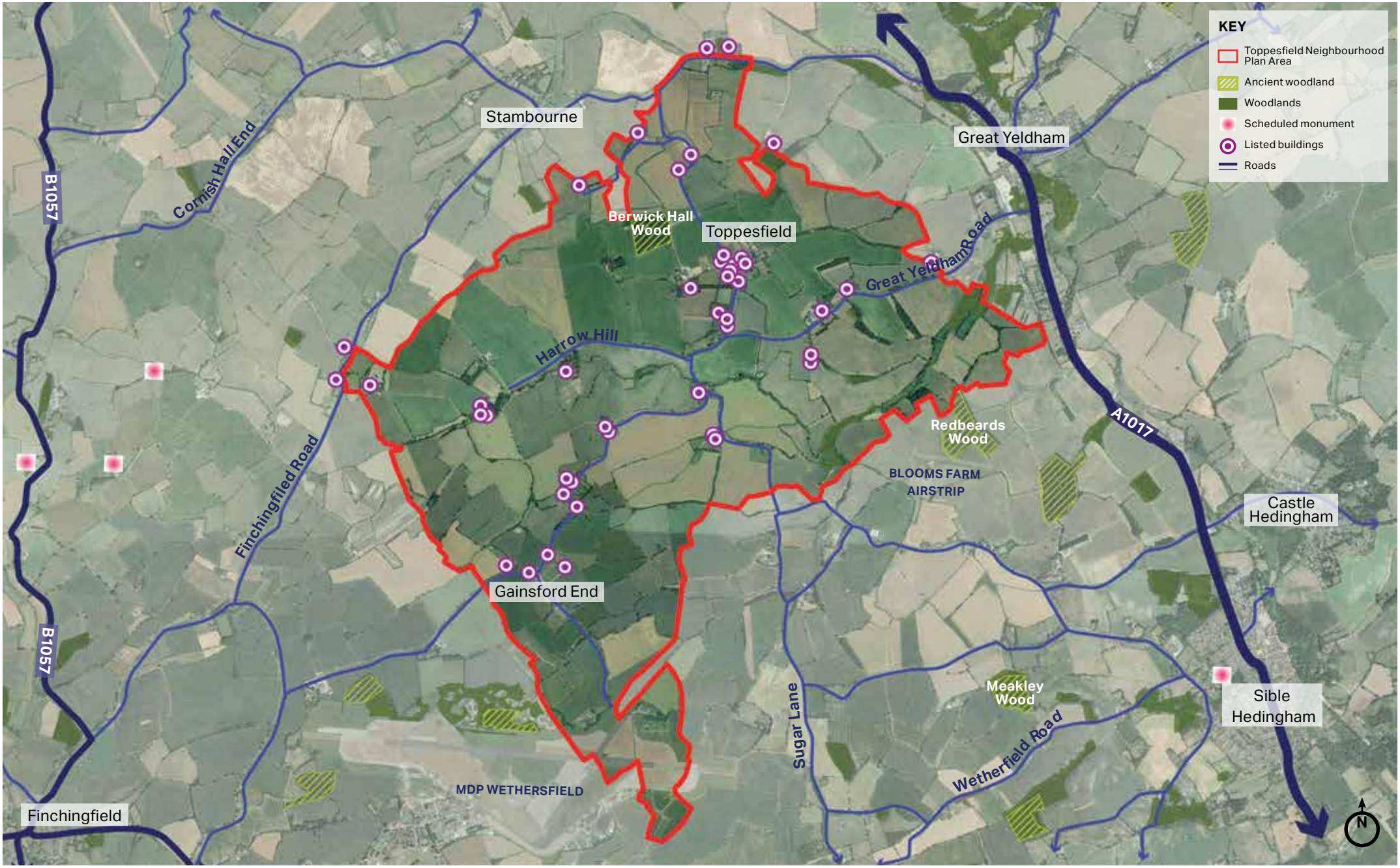


Figure 10: Context map of Toppesfield Parish.

2.2. Landscape and open space

The Parish is surrounded by open countryside in a largely rural landscape. It is located within National Character Area (NCA) 86: South Suffolk and North Essex Clayland (NE515). The Braintree, Brentwood, Chelmsford, Maldon and Uttlesford Landscape Character Assessment divides the Parish between two areas: the Stambourne Farmland Plateau and the Colne River Valley. Most of the Parish, including the main settlement, is located in the Stambourne Farmland Plateau character area, leaving only a section between Toppesfield and Gainsford End in the Colne River Valley area.

The settlements are embedded in a gently undulating landscape and do not occupy topographically prominent positions. Buildings are partially screened from inward views by hedges, trees, and plantings in back gardens, but overall remain visible from the open countryside. The tower of the Church of St Margaret of Antioch is visible above the tree line from a distance. Due to the small size of the settlements the Parish does not have many formal open and green spaces, although the main village has a church yard, recreational grounds, and playing fields in Toppesfield and Gainsford End. The grounds of Berwick Hall also form a distinct landscaping feature, with an enclosed rectilinear tree-lined path between the main building and the Causeway. Outside the settlements, open fields maintain a separation between Toppesfield, Gainsford End, and Grass Green. Beyond the settled areas, open spaces and the countryside are easily accessible from the village centre. Woodland areas are small and are scattered across the Parish.

Figure 11: Gently undulating landscape dominated by fields and punctuated by woodland and mature trees.

Figure 12: Church yard of St Margaret of Antioch.

Figure 13: In many places, the tree canopy enables the village to remain largely concealed from inward views.

Figure 14: The tower of St Margaret of Antioch is a local landmark and is visible from a distance

2.3. Street and public realm

The Parish has a very sparse road network composed entirely of local roads. The main village is located at the meeting point between Stambourne Road, The Street, Church Lane, and Park Lane. This embryonic network forms the basic armature for the cross-shaped structure of the main village where most properties front the roads in a one-plot deep arrangement. There are no primary or secondary roads within the Parish, although the A1017 runs close to its eastern boundary.

The roads in the Parish are usually narrow and have an organic meandering layout characteristic of rural lanes. Most roads do not have pavements. As a result, these form a sparse and disjointed network that adds to the rural character of the Parish. Only Camoise Close, a 20th-century cul-de-sac, provides pavements on both sides along its entire length. In the built-up areas, street trees and planted verges are relatively uncommon in the public realm; instead, roads are usually fronted by properties with planted hedges and front gardens. Outside of the settlements, roads are typically bordered by ditches or hedges, some of which incorporate mature trees. The road network is supplemented by a number of footpaths and public rights of way that provide better pedestrian connections with the countryside and neighbouring settlements.

Figure 15: Park Lane, a narrow residential road with no footways.

Figure 16: Section of the Causeway with a grass verge in front of houses.

Figure 17: The junction of Stambourne Road, the Street, and Church Lane creates a small triangular square. Improvements such as an increase in the space given to pedestrians could help reinforce its role as the focal point of the village.

2.4. Pattern and layout of buildings

The Parish has three distinct settlements: the main village of Toppesfield in the centre and the smaller settlements of Grass Green to the north and Gainsford End to the south. The building stock is predominantly formed of detached and semi-detached houses. Most properties have front and back gardens, with the latter typically backing onto the open countryside as a result of the linear one-plot deep configuration of the settlements. This pattern is particularly pronounced on the Causeway, which is mostly built on its eastern side so that houses overlook open fields on both sides. In the main village, this configuration has followed the layout of the roads to form a cross-shaped development pattern. Only the 20th century cluster of bungalows on Camoise Close breaks from this development pattern. The junction between Stambourne Road, the Street, and Church Lane defines a triangular open area that forms the focal point of the village. The smaller settlements of Grass Green and Gainsford End also have a linear one-plot deep configuration but with a higher number of unbuilt gaps between building clusters, usually on alternating sides of the roads.

Most buildings are set back from the pavement edge to form front gardens deep enough to include vehicle parking. A minority of older buildings directly adjoin the rear of pavements with no setbacks, or only have a small front garden or planting strip. The settlements have a mix of houses from various historic periods and styles, many of which are variations of the local north Essex rural vernacular. There is a range of plot sizes as well as building massing and setbacks that results in informal and dynamic building lines. Overall, no single building style clearly dominates, resulting in a pleasant architectural variety that reinforces the informal and rural character of the settlements.

Figure 18: Detached houses on Church Lane directly adjoining the carriageway with no front gardens.

Figure 19: A farm building in Gainsford End with a large open area at the front.

Figure 20: View of Stambourne Road showing a layout with shallow (left) and deep (right) front gardens.

Figure 21: Detached (left) and semi-detached residential buildings in Gainsford End.

2.5. Building height and roofline

Buildings in the parish are usually one- and two-storey high. There is a wide array of roof shapes, orientations, fenestration, and materials, including clay tiles, slate, and thatch. The informal layout of mostly detached and semi-detached buildings does not form a single unified roofline; instead, it is dynamic and frequently punctuated by chimney stacks and dormers. Parts of the settlements that were developed in the 20th century or later have more uniform rooflines as a result of more standardised development. The low-lying nature of the settlements enables partial screening from vegetation and mature trees. Only St Margaret of Antioch's church tower stand out clearly from the roofline of the main village.

Figure 22: One- and two-storey buildings on the Causeway displaying different heights, roof orientations, and cladding materials.

Figure 23: One- and two-storey buildings on Stambourne Road.

Figure 24: A regular alignment of semi-detached houses on Park Lane forming a more uniform roofline.

2.6. Car parking

Most properties provide off-street vehicle parking in the form of front or side parking with a driveway. Some houses have garage structures, mostly at the side of the main building. Parking areas in residential properties are usually screened by hedges, low walls, or fences. The vegetation and landscaping in many front gardens also mitigate the impact of cars on the public realm. Some parking areas on a minority of properties, however, are either entirely paved and/or do not benefit from any screening, creating a car-dominated streetscape in those locations that distracts from the rural quality of the Parish.

In most places, roads are too narrow to accommodate on-street parking, although the village centre offers some opportunities for informal kerbside parking. Camoise Close appears to be the only place with echelon on-street parking.

Figure 25: Houses with front garden parking in Gainsford End.

Figure 26: Driveway with small garage structure.

Figure 27: On-street parking on The Street.

Figure 28: Cars parked on the verge near the entrance to Park Lane.

Design guidelines and codes

03

3. Design guidelines and codes

This section sets out the design principles that will influence the design of potential new development and inform the retrofit of existing properties in Toppesfield. Some of these are more general and could be used as design guidance within the neighbourhood plan. Other elements that are more prescriptive or set out parameters could form design codes. Where possible, images from the Parish are used to exemplify the design guidelines. Where these images not available, best practice examples from elsewhere are used.

3.1. General design principles

General questions to ask and issues to consider when presented with a development proposal

A brief reference to general design principles and questions will be mentioned before the main part of the design guidance with reference to Toppesfield.

The guidelines developed in the document focus on residential environments. However, new housing development should not be viewed in isolation. Considerations of design and layout must be informed by the wider context, considering not only the immediate neighbouring buildings but also the townscape and landscape of the wider locality.

The local pattern of streets and connectivity, building traditions, materials and natural environment should all help to determine the character and identity of a development, recognising that new building technologies are capable of delivering acceptable built forms and may sometimes be more efficient. It is important with any proposal 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.

As a first step, there are a number of design principles that should be present in any proposals. As general design guidelines, new development should:

- Respect the existing settlement pattern in order to preserve the character. Coalescence - development should be avoided;
- Integrate with existing paths, streets, circulation networks;
- Reinforce or enhance the established character of streets, greens, and other spaces;
- Harmonise and enhance the existing settlement in terms of physical form, architecture and land use;
- Retain and incorporate important existing features into the development;
- Respect surrounding buildings in terms of scale, roofline, height, form, and density;
- Enhance and reinforce the property boundary treatments;
- 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; and
- Aim for innovative design and eco-friendly buildings while respecting the architectural heritage and tradition of the area whilst also integrating them with future development.

Street grid and layout

- Does it favour accessibility and connectivity over cul-de-sac models? 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?

Local green spaces, views and 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 any identified views or views in general?
- How does the proposal affect the trees on or adjacent to the site?
- 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 tranquillity of the area been fully considered?
- How does the proposal affect the character of a rural location?
- How does the proposal impact on existing views which are important to the area and how are these views incorporated in the design?
- Can any new views be created?
- Is there adequate amenity space for the development?
- Does the new development respect and enhance existing amenity space?
- 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?

Gateway and access features

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

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 townscape?
- 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?

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?

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?

Household extensions

- Does the proposed design respect the character of the area and the immediate neighbourhood, and does it have an 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?

Building materials and surface treatment

- What is the distinctive material in the area, if any?
- 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?

Car parking solutions

- 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?

Architectural details and contemporary design

- If the proposal is within a conservation area, how are the characteristics reflected in the design?
- Does the proposal harmonise with the adjacent properties? This means that it follows the height massing and general proportions of adjacent buildings and how it takes cues from materials and other physical characteristics.
- Does the proposal maintain or enhance the existing landscape features?
- Has the local architectural character and precedent been demonstrated in the proposals?
- If the proposal is a contemporary design, are the details and materials of a sufficiently high enough quality and does it relate specifically to the architectural characteristics and scale of the site?

3.2. Toppesfield design principles

There are a set of design principles that are specific to the Parish of Toppesfield. These are based on the analysis of the settlement character presented in Chapter 2 and discussions with members of the Neighbourhood Plan Steering Group on the Parish walkabout and meeting.

Of particular importance to the Parish were the topics of: retaining open views; off-road parking; front garden treatment; and retaining the architectural individuality of buildings. They are organised around the following themes, which are intended to guide the design of new developments and renovations:

- Site layout;
- Street layout and connectivity;
- Open spaces and wildlife;
- Character;
- Building modifications, extensions, and plot fills;
- SuDs; and
- Eco-design.

3.3. Site layout

Pattern and layout of buildings

Toppesfield is a parish with low-lying settlements that contain a variety of housing types that offer a rich array of examples of the local Essex vernacular. The existing character must be appreciated when considering potential new development, whatever its size or purpose.

- Where an intrinsic part of local character, properties should be clustered in small pockets showing a variety of housing types. In new developments, the use of a repeating type of dwelling within the same cluster or along the same street frontage should be avoided; instead, variations in building heights, widths, and/or depths should be sought to create variety and interest in the streetscape. Renovations or infill housing along a row of terraced or semi-detached houses, however, should respect the greater uniformity of the existing street frontage.
- Boundaries such as walls or hedges, whichever is most appropriate to the street, should enclose and define each street along the back edge of the pavement.
- The placement and orientation of buildings should form an identifiable building line for each development group. The extent and depth of building setbacks must be sympathetic to the immediate context, however subtle variations are encouraged to respect the Parish's informal character and to add visual interest.
- The one-plot deep development pattern of the settlements in the Parish must be retained and continued wherever possible to preserve its proximity to the open countryside. Where this is not possible, back gardens must be deep enough and adequately screened to avoid direct overlooking into the backs of houses.
- Properties should aim to provide rear and front gardens, where appropriate, or at least a small buffer to the public sphere, for example, in the form of planting strips for cases where the provision of a front garden is not possible.
- The layout of new development should optimise the benefit of daylight and passive solar gains as this can significantly reduce energy consumption.
- Interfaces between the existing settlement edges and any new development must be carefully designed to integrate new and existing communities. This is particularly important where new residential buildings will be built behind existing residential properties that until now back onto open fields.

Figure 29: Photo of the side of a residential property showing the one-plot deep development pattern typical of the village.

Figure 30: The irregularity of the layout of the village centre should be used to inform the design of new developments.

The diagram opposite applies relevant site and building layout principles to small hypothetical infill developments that adjoin existing properties. This layout applies Toppesfield's typical one-plot deep configuration of properties set along existing roads and backing onto the open countryside. Because new construction could be visible from long distances, green buffer consisting of hedges and trees should be used to soften the impact of new developments and ease the transition with the open countryside. The back gardens of houses adjacent to existing residences should incorporate green buffers to avoid overlooking issues. New houses that border existing roads should face outward to increase natural surveillance.

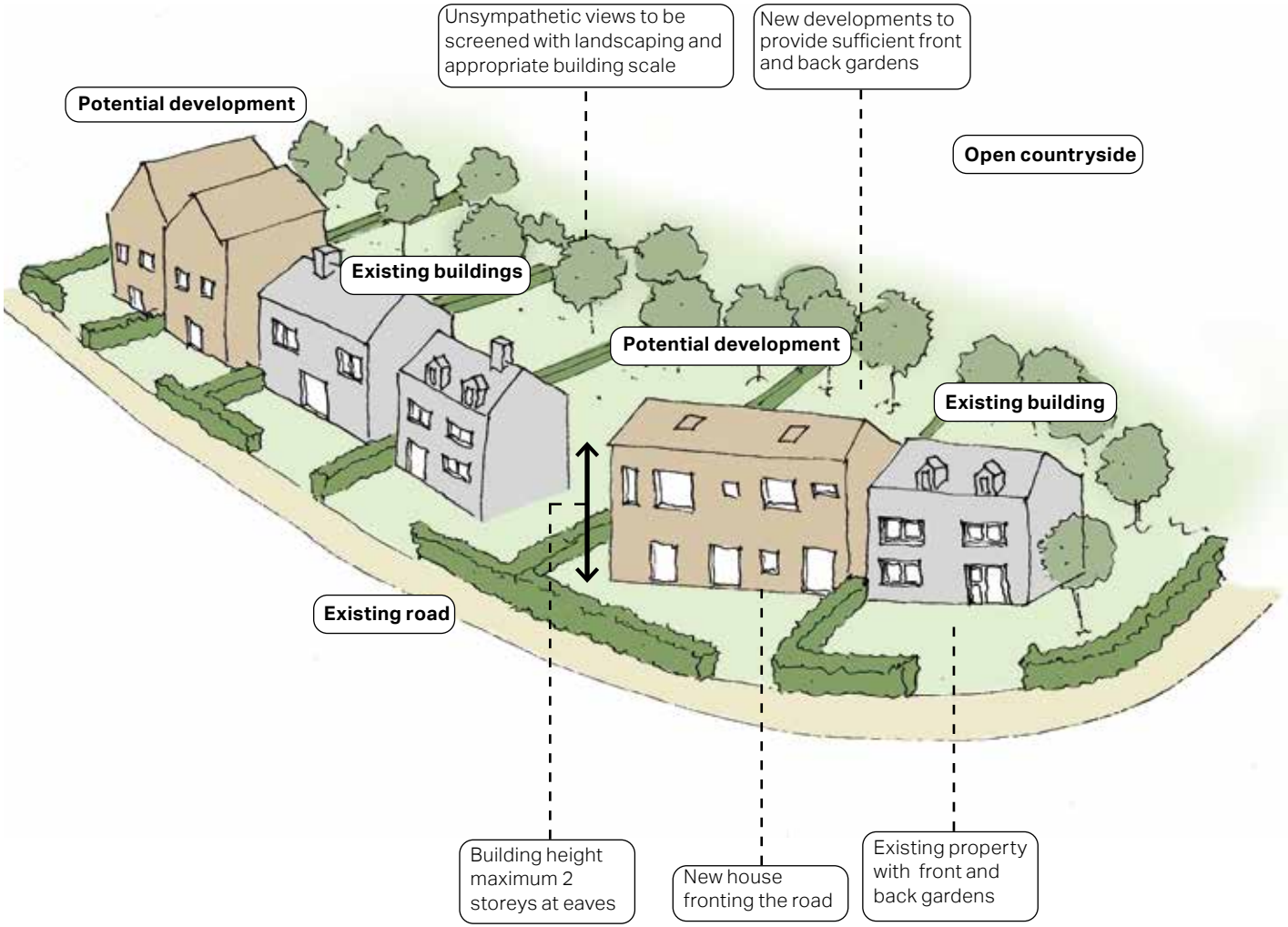


Figure 31: Illustrative plan for small one-plot deep infill developments highlighting many of the elements of the Toppesfield code where they relate to the pattern and layout of buildings.

The diagram opposite applies relevant site and building layout principles to a small hypothetical site in the neighbourhood plan area. Although the one-plot deep configuration should be retained wherever possible (see previous page), the diagram also offers solutions for sites where this configuration cannot be achieved.

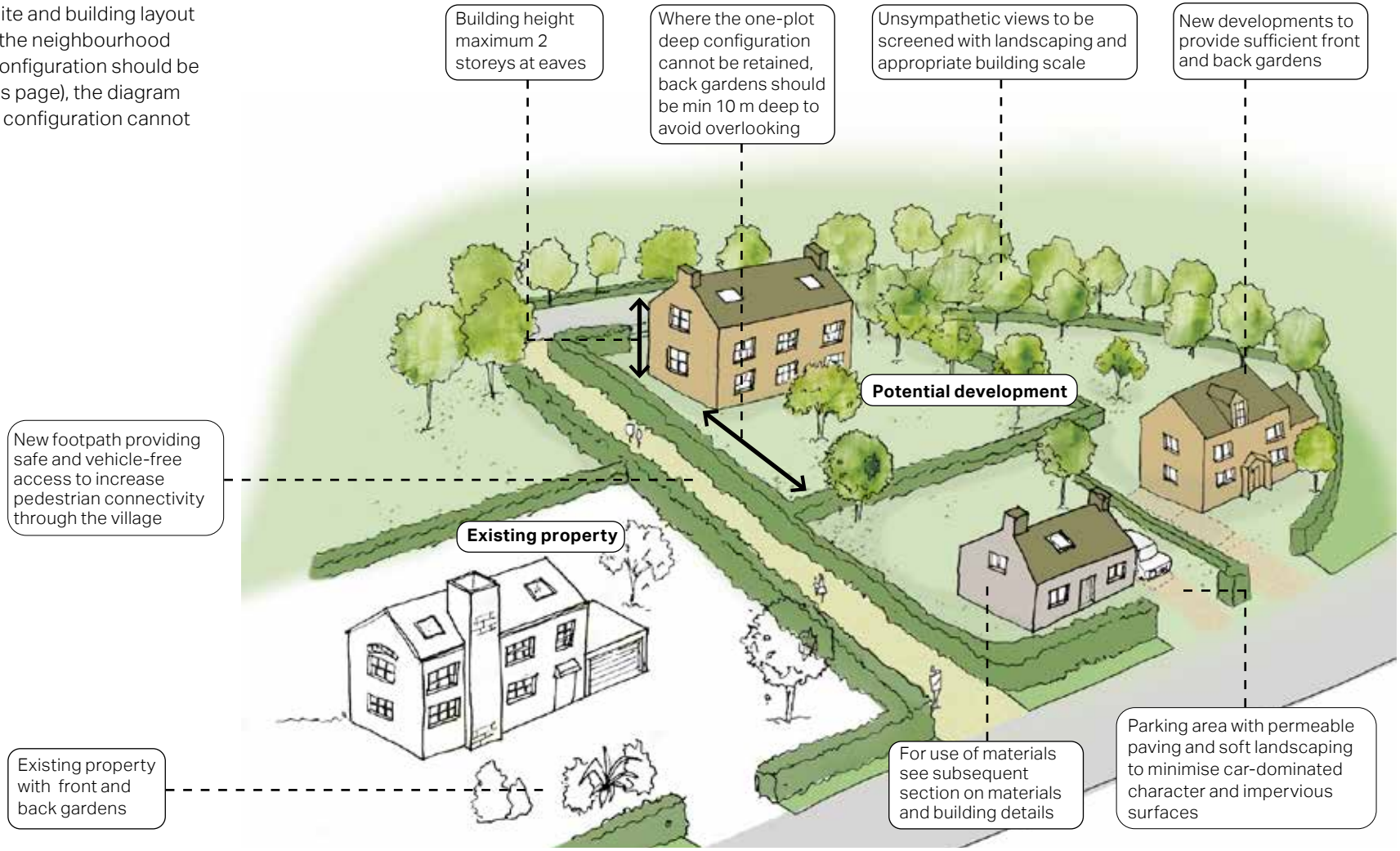


Figure 32: Illustrative plan for a small development highlighting many of the elements of the Toppesfield code where they relate to the pattern and layout of buildings.

Green spaces and views

The Parish has few formal green spaces and its settlements are not set in geographically commanding positions. They however blend harmoniously with the local landscape of open fields and hedges, with mature trees and soft landscaping anchoring them in the rural landscape. Due to the one-plot deep development pattern, most properties back onto the open countryside. Many road sections only have development on one side of the road, which offers many properties front views into the countryside. The following measures should be applied to preserve the pleasant unbuilt features of the Parish:

- Development adjoining public open spaces and important gaps should enhance the character of these spaces by either providing a positive interface (i.e. properties facing onto them to improve natural surveillance) or a soft landscaped edge.
- New developments should incorporate existing native trees and shrubs and avoid unnecessary loss of flora. Any trees or woodland lost to new development must be replaced. Native trees and shrubs should be used to reinforce the more rural character of the area.
- Toppesfield owes its discrete setting partly to mature trees that help integrate it into the surrounding landscape. The layout and spacing of new buildings should reflect the rural character and allow as much as possible for long-distance views of the countryside while creating opportunities for new trees and greenery where appropriate.
- The Parish is served with a wide variety of public footpaths. Opportunities to create or enhance these pedestrian links with green and open spaces must be sought.

Figure 33: The Pond in Gainsford End.

Figure 34: Pedestrian footpath through green areas near Park Lane.

Figure 35: Long-distance northward view from Park Lane.

Figure 36: Long-distance northward view from Church Lane.

Figure 37: Church yard of St Margaret of Antioch.

Figure 38: View towards Berwick Hall from the Causeway.

Enclosure

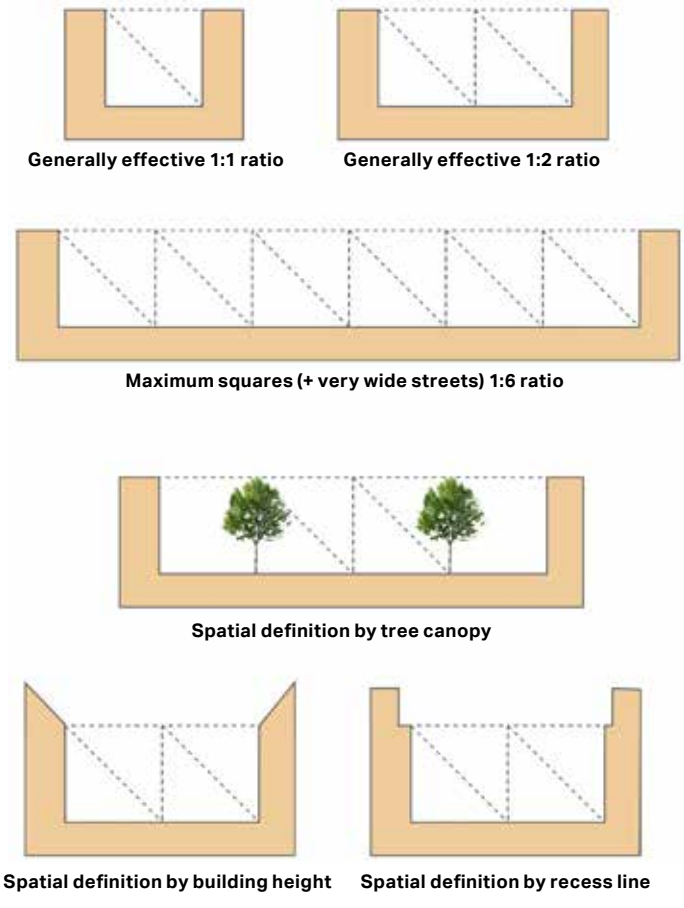
The level of enclosure of a road or square is determined by its relationship with the vertical elements on its edges such as buildings, walls, and trees. Developments can achieve a good sense of enclosure by creating clearly defined spaces that produce a cohesive and attractive built form, for example by determining focal points, appropriate building heights, and continuous edges. These considerations must however be balanced with the retention of open views into the countryside.

The following principles serve as general guidelines that should be considered when seeking to achieve a satisfactory sense of enclosure:

- In case of building set-backs, façades should achieve an appropriate ratio between the width of the road and the building height (see diagram opposite);
- Buildings should be designed to turn corners and terminate views;
- Generally, building façades should face the street, and variation to the building line can be introduced to create an informal character;
- In most new developments, a variety of plot widths and façade depths should be considered during the design process to create an attractive rural character, and;
- Trees, hedges, and other landscaping features can help create a desirable level of enclosure while avoiding an over-built environment and preserving countryside views and access. They also play an important role in providing shading and protection from heat, wind, and rain.

Figure 39: A section of Stambourne Road with a higher level of enclosure created by placing buildings closer to the road.

Figure 40: Mature trees and hedges (right) can create a positive level of enclosure while striking a balance between built and unbuilt areas.



Images from Urban Design Compendium (Homes England)

Gateways and access features

- Future design proposals should consider placing gateway elements to clearly mark the access or arrival to any potential developed sites. This is particularly important for developments at the edge of the settlements due to their location at the interface between the built-up area and the countryside.
- The sense of departure and arrival can often be achieved by a noticeable change in scale, enclosure, or road configuration. The gateway buildings or features should however reflect local character. For example, they must reflect the informal characters of the settlements in the Parish and reflect their architectural diversity.
- Besides building elements acting as gateways, high-quality landscaping features could be considered appropriate to fulfill the same role.

Figure 41: An informal gateway treatment is achieved through the simple change in orientation of the southernmost house (right) at the southern approach to Toppesfield via the Causeway.

Figure 42: The formal character of the gateway to Berwick Hall is achieved by the symmetrical arrangement of evenly spaced mature trees along the rectilinear path and a view that terminates with the main façade of Berwick Hall.

3.4. Street layout and connectivity

The Parish has a sparse network formed exclusively of local rural roads. The following principles should therefore be taken into account:

- New streets, if required, must meet the technical highways requirements as well as be considered a 'space' to be used by all, not just motor vehicles. It is essential for new developments to have streets designed for the needs of pedestrians and cyclists. Existing roads should be retrofitted for the same purpose and to discourage speeding.
- New streets should be linear with gentle meandering to provide interest and evolving views. Subtle variations in width may also be introduced to discourage speeding and reflect the layout of existing country roads in the Parish. New streets and paths should be laid out in a permeable pattern, allowing for multiple connections and a choice of routes, particularly on foot. Any cul-de-sacs should be relatively short and include provision for onward pedestrian links.
- Access to properties should be from the street where possible.
- The distribution of land uses should respect the general character of the area and road network, and take into account the degree of isolation, lack of light pollution, and levels of tranquillity.

Figure 43: Aerial photos showing the roads and pedestrian connection in Toppesfield.

Figure 44: The organic layout of most roads contributes to the rural character of the Parish.

Figure 45: Pedestrian-accessible privately-owned section of Park Lane.

Junctions and pedestrian crossings

- Crossing points that are safe, convenient, and accessible for pedestrians of all abilities must be placed at frequent intervals on pedestrian desire lines and at key nodes.
- Junctions must enable good visibility between vehicles and pedestrians. For this purpose, street furniture, planting, and parked cars must be kept away from visibility splays to avoid obstructing sight lines - see table and diagram opposite. Junctions and crossing points may also be surfaced with distinct materials, colours, or textures as additional cues for drivers to be cautious.
- As most collisions happen at junctions, they must be designed to prioritise safety over speed or capacity. Junctions should be designed with tighter corners to prevent vehicles from turning at high speed.
- Existing roads that border new developments must be retrofitted with additional crossings and safer junctions where required in order to increase accessibility and safety.
- Along low-traffic lanes and residential streets, crossing points can be more informal. For example, pedestrians may cross at any section of a street where the surface is shared between different users.
- To assist visually impaired pedestrians and guide dogs, tactile paving must be appropriately placed at crossing points.

Figure 46: Example of a raised mid-block pedestrian crossing on a 20-mph street on Goldsmith Street, Norwich (note: many councils require blister tactile pavers at crossings to guide visually disabled pedestrians).

Figure 47: Example of a raised crossing across a main road in Cambridge, with contrasting paving materials and space for low-level planting and street furniture.

The stopping sight distance (SSD) is the distance within which drivers need to be able to see ahead and stop from a given speed. The SSDs for various speeds between 16-60kph (10-37mph) as held within Manual for Streets (MfS) are as shown in the table opposite.

The distance back along the minor arm from which visibility is measured is known as the X distance; MfS states that an X distance of 2.4m should normally be used in most built-up situations, as this represents a reasonable maximum distance between the front of the car and the driver's eye.

The Y distance represents the distance that a driver who is about to exit from the minor arm can see to his left and right along the main alignment. In accordance with MfS, the required visibility splay for a junction within an area where 85th percentile vehicle speeds are 30mph is 2.4m x 43m.

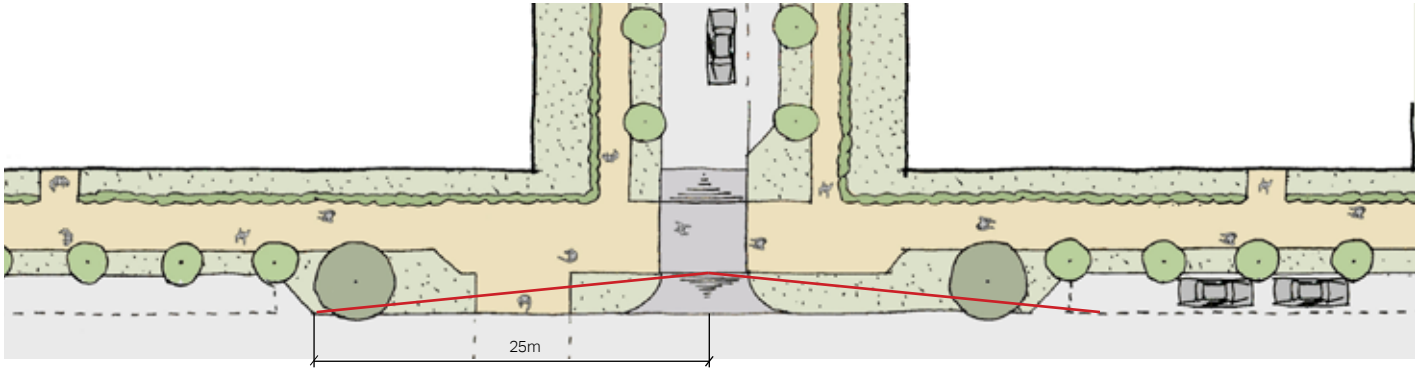


Figure 48: Indicative plan of a junction showing a visibility splay at a junction along a 20-mph primary road - see table below for details. Across the major arm, kerbs are built out to shorten pedestrian crossing distances. Across the minor arm, the carriageway is raised along the pedestrian crossing and can be built with contrasting materials for higher awareness.

Speed	**Kilometre per hour**	16	20	24	25	30	32	40	45	48	50	60
	Miles per hour	10	12	15	16	19	20	25	28	30	31	37
Stopping sight distance (SSD) in metres		9	12	15	16	20	22	31	36	40	43	56
Stopping sight distance adjusted for bonnet length		11	14	17	18	23	25	33	39	43	45	59

Figure 49: Stopping sight distances (SSD) for visibility splays (source: Department for Transport).

Pedestrian and cycle connectivity

- All newly developed areas must retain or provide safe, direct, and attractive pedestrian links between neighbouring roads and local facilities. Establishing a robust pedestrian network a) across any new development and b) among new and existing development, is key in achieving good levels of permeability among any part of the Parish.
- A permeable network provides people with a choice of different routes and allows traffic to be distributed more evenly across the network rather than concentrated on to heavily trafficked roads.
- Features such as pedestrian barriers or gated developments must be kept at a minimum. Footpaths framed by high fences must be avoided because they are unattractive and are perceived as unsafe.
- Strategically placed signposts can assist pedestrians and cyclists with orientation and increase awareness of publicly accessible paths beyond the village. However, new signposts must respect the rural character of the parish and avoid creating visual clutter.

Figure 50: Unadopted section of Park Lane running across an open field.

Figure 51: Unadopted section of Park Lane connecting to the surrounding countryside and supplement a sparse network of country roads.

3.5. Character

Building scale and massing

- The majority of buildings in Toppesfield do not exceed two storeys in height. Therefore, new buildings in Toppesfield should be sympathetic in mass, height, and scale to the existing context.
- Subtle variation in height is encouraged to add visual interest, such as altering eaves and ridge heights. The bulk and pitch of roofs, however, must remain sympathetic to the tree canopy, the local vernacular, and the low-lying character of the settlements. Another way to achieve visual interest could be by varying frontage widths and plan forms. The application of a uniform building type throughout a development must be avoided.
- The massing of new buildings should ensure a sufficient level of privacy and access to natural light for their occupants and avoid overshadowing existing buildings. This is particularly important in areas of historic character, even in those not designated as Conservation Areas.

Figure 52: Examples of buildings in Toppesfield demonstrating a variety in scale and massing.

Roofline

Creating a good variety in the roof line is a significant element of designing attractive places. There are certain elements that serve as guidelines in achieving a good variety of roofs:

- The scale of the roof should always be in proportion with the dimensions of the building itself;
- Monotonous repetitions of the same building elevations should be avoided, therefore subtle changes in roofline should be ensured during the design process;
- Locally traditional roof materials and detailing should be considered and implemented where possible in cases of new development; and
- Dormers can be used as a design element to add variety and interest to roofs.

The design of the roofline must also respond to the topography of the site and its surroundings in relation to inward long-distance views.

New developments should therefore avoid locating taller buildings on crests and aim to keep rooflines below the tree canopy. They must also avoid obstructing key views and landmarks such as church spires and clock towers.

Figure 53: Gable thatched roof with chimney stack and dormers.

Figure 54: Chimney stacks contribute to the visual interest of the roofline.

Figure 55: In most of the Parish variations in roof shapes, heights, orientations, and materials reinforce the informal character of the settlements.

Fenestration

- Fenestration on public/private spaces increase the natural surveillance and enhance the attractiveness of the place. Long stretches of blank (windowless) walls should be avoided. Overall, considerations for natural surveillance, interaction, and privacy must be carefully balanced.
- Windows must be of sufficient size and number for abundant natural light.
- Site layout and building massing should ensure access to sunshine and avoid overshadowing neighbouring buildings. New developments should also maximise opportunities for long-distance views.
- Consistent window styles and shapes must be used across a given façade to avoid visual clutter and dissonance. Varieties in window types, shapes, and details must however be encouraged across the same development.
- In proximity to historic areas, fenestration must reflect an understanding of locally distinctive features such as scale, proportions, rhythm, materials, ornamentation, and articulation. This should, however, not result in pastiche replicas.

Figure 56: Casement windows in the Conservation Area.

Figure 57: Casement windows with restored panes on the Causeway.

Figure 58: Façades with lancet windows on Stambourne Road.

Building line and boundary treatment

- Buildings should front onto streets. The building line should have subtle variations in the form of recesses and protrusions but should generally form a unified whole.
- Buildings should be designed to ensure that streets and/or public spaces have good levels of natural surveillance from buildings. This can be ensured by placing ground floor habitable rooms and upper floor windows facing the street.
- Natural boundary treatments should reinforce the sense of continuity of the building line and help define the street, appropriate to the character of the area. They should be mainly continuous hedges and low walls, as appropriate, made of traditional materials found elsewhere in the village such as local bricks and clunch. The use of either panel fencing or metal or concrete walls in these publicly visible boundaries should be avoided. Natural boundary treatments should not impair natural surveillance.
- Front gardens should be provided in all but exceptional circumstances.
- If placed on the property boundary, waste storage should be integrated as part of the overall design of the property. Landscaping could also be used to minimise the visual impact of bins and recycling containers.

Figure 62: Use of landscaped hedges as a front and side boundary treatment.

Figure 60: Landscaped hedges can be used to soften the visual impact of the front garden parking area.

Figure 59: Planting can be used to soften building edges even where front gardens cannot be created.

Figure 61: A short front garden boundary marked by red brick walls and planting.

Vehicle parking

In general, the over-provision of parking spaces is detrimental to the character of a place and encourages an over-reliance on cars. Measures to ensure that the design of vehicle parking, where its need has been demonstrated, is sympathetic to the public realm are therefore needed:

- Residential car parking should be a mix of on-plot side, front, garage, and courtyard parking, depending on the most appropriate solution for each location.
- For family homes, cars should be placed at the side (preferably) or front of the property.
- Parking areas and driveways should be designed to minimise impervious surfaces, for example, through the use of permeable paving.
- When placing parking at the front, the area should be designed to minimise the visual impact of vehicles and to blend with the existing streetscape and materials. The aim is to keep a sense of enclosure and to break the potential of a continuous area of car parking in front of the dwellings. This can be achieved by means of low walls, hedges, planting, and use of differentiated quality paving materials.
- Where provided, garages should reflect or complement the architectural style of the main building rather than forming a distractive mismatched unit.
- It should be noted that many garages are not used for storing vehicles, and therefore may not be the best use of space. Considerations should be given to the integration of bicycle parking and/or waste storage into garages.

Figure 63: Example of front garden parking with soft landscaping.

Figure 65: Examples of informal on-street parking.

Figure 66: Example of on-plot front garden parking.

Figure 64: Example of parking with garages at the side of buildings.

Architectural details

This section showcases some local building details which should be considered as positive examples to inform the design guidelines.

Detached house with gabled dormers facing the street, Gainsford End.

A group of buildings forming a dynamic, informal roofline that contributes to the architectural diversity of the Parish.

Side elevation showing a recently restored thatched roof and red brick buttresses supporting the front elevation

Semi-detached house with shed dormers facing the street.

A rare example of terrace housing with a red brick ground floor and jettying half-timbered upper storey.

Side elevation with windows for improved natural lighting and natural surveillance.

Decorated wrought iron weather vane (photo: Toppesfield Parish Council)

Landscaped front hedge and gate in Gainsford End

Grade-II listed house with clay tile gambrel roof, gable weatherboarding, leaded windows, and timber-framed gabled porch.

Carved inscriptions on half-timbered upper floor jettying.

Materials and building details

The materials and architectural detailing used throughout Toppesfield contribute to the historic character of the area and reflect the local vernacular. It is therefore important that the materials used in proposed development are of a high quality and reinforce local distinctiveness. Any future development proposals should demonstrate that the palette of materials has been selected based on an understanding of the surrounding built environment.

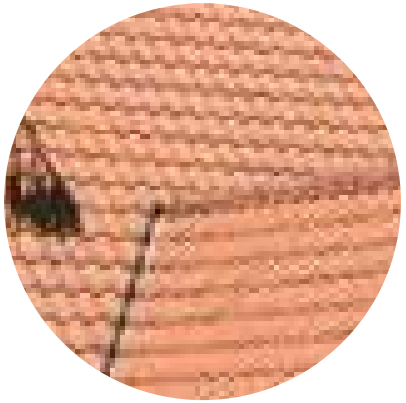
In new developments and renovations, locally sourced bricks or bricks that match the buildings in the surrounding area would be the most appropriate. Particular attention should be given to the bonding pattern, size, colour, and texture of bricks. While red bricks are extensively used in the Parish, stocks bricks are not characteristic of the area and should be avoided. Engineering bricks do not contribute to the historic character of the Parish, however, due to their durability they can be appropriate in some occasions.

This section includes examples of building materials that contribute to the local vernacular of Toppesfield and which could be used to inform future development. Although not shown in the images opposite, pargetting is an element of local design and should be preserved when renovating existing buildings.

Red brick

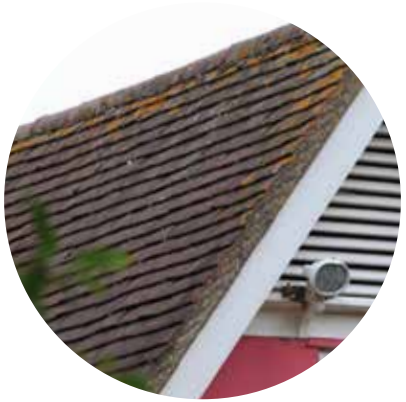
Half timbering

Thatched roof



Clay pantile roof

Off-white render



Clay plaintile roof

Shed dormer

Multi-pane casement window

Timber fencing

Slate roof

Gabled dormer

Gabled enclosed porch

Gabled timber porch

Landscaped hedge

Chimney stacks

Coloured render

Timber gate

Low brick wall

3.6. Building modifications, extensions, and plot infills

Extensions to dwellings can have a significant impact not only on the character and appearance of the building, but also on the street scene within which it sits. A well-designed extension can enhance the appearance of its street, whereas an unsympathetic extension can have a harmful impact, create problems for neighbouring residents, and affect the overall character of the area.

The Planning Portal[1] contains more detailed information on building modifications and extensions, setting out what is usually permitted without planning permission (permitted development) as well as what requires planning permission. Toppesfield, for example, contains designated land in the form of a Conservation Area, where planning permission is required.

- Extensions should be appropriate to the scale, massing, and design of the main building, and complement the streetscape. In general, they should be designed to look subservient to the original building.
- Alterations and extensions of historic buildings should respect the host building. Replacement of historic and traditional features, such as timber windows and doors with uPVC and other non-traditional materials should be avoided.
- Extensions are more likely to be successful if they do not exceed the height of the original or adjacent buildings. Two-storey extensions should be constructed with the same angle of pitch as the existing roof.
- The design, materials and architectural detailing of extensions should be of high quality and respond to the host building and the local character of the neighbourhood plan area.
- The impact on the space around the building should consider overlooking, overshadowing and overbearing.

[1] Planning Portal. https://www.planningportal.co.uk/info/200234/home_improvement_projects

Figure 67: House with front (left) and side (right) extensions.

Figure 68: House with side extension (left) and main building (centre) treated with a unified render.

3.7. SuDS

Definition

The term SuDS stands for Sustainable Drainage Systems. It covers a range of approaches to managing surface water in a more sustainable way to reduce flood risk and improve water quality whilst improving amenity benefits.

SuDS work by reducing the amount and rate at which surface water reaches the combined sewer system. Usually, the most sustainable option is collecting this water for reuse, for example in a water butt or rainwater harvesting system, as this has the added benefit of reducing pressure on important water sources.

Where reuse is not possible there are two alternative approaches using SuDS:

- Infiltration, which allows water to percolate into the ground and eventually restore groundwater; and
- Attenuation and controlled release, which holds back the water and slowly releases it into the sewer network. Although the overall volume entering the sewer system is the same, the peak flow is reduced. This reduces the risk of sewers overflowing. Attenuation and controlled release options are suitable when either infiltration is not possible (for example where the water table is high or soils are clay) or where infiltration could be polluting (such as on contaminated sites).

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. A number of overarching principles can however be applied:

- 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;
- Form a 'SuDS train' of two or three different surface water management approaches;
- Integrate into development and improve amenity through early consideration in the development process and good design practices;
- SuDS are often as 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 also help make the most efficient use of water resources by reusing surface water; and
- SuDS must be designed sensitively to augment the landscape and wherever possible provide biodiversity and amenity benefits.

Figure 69: Examples of SuDS designed as a public amenity and fully integrated into the design of the public realm in Stockholm, Sweden.

Attenuation ponds and detention basins

Attenuation ponds are permanent bodies of water with stormwater storage capacity above the permanent water level. Detention basins are similar to attenuation ponds, but without a permanent pool of water.

Detention basins provide more attenuation storage per unit surface area than attenuation ponds of the same depth, so may be used when space is more limited. However, attenuation ponds are preferred due to the greater amenity and biodiversity benefits offered.

Attenuation ponds must be of a natural appearance to complement the rural character of the site. They can also be of educational benefit to schools and the local community.

Detention basins will be vegetated to provide greater water quality benefits, such as through the removal of sediment. They should be designed to permit alternative uses when not in use, where appropriate.

Attention ponds and detention basins must actively contribute as new public amenities and green spaces. It must be expected that people will interact with the water and landscaping, therefore they must be designed for safe public access and not fenced off.

Figure 70: Attenuation ponds and detention basins must be integrated into the green space strategy and designed with safe public access in mind so that they do not necessitate fencing. Designs similar to the facility in this picture must be avoided because they are dangerous and have unattractive fencing.

Figure 71: Detention basin in Cambridge designed for public access.

Bioretention systems

Bioretention systems, including soak away and rain gardens, can be used within each development, along verges, and in semi-natural green spaces. They must be designed to sit cohesively with the surrounding landscape, reflecting the natural character of the Parish. Vegetation must reflect that of the surrounding environment.

They can be used at varying scales, from small-scale rain gardens serving individual properties, to long green-blue corridors incorporating bioretention swales, tree pits and mini-wetlands, serving roads or extensive built-up areas.

These planted spaces are designed to enable water to infiltrate into the ground. Cutting of downpipes and enabling roof water to flow into rain gardens can significantly reduce the runoff into the sewer system. The UK Rain Garden Design Guidelines provides more detailed guidance on their feasibility and suggests planting to help improve water quality as well as attract biodiversity.[1]

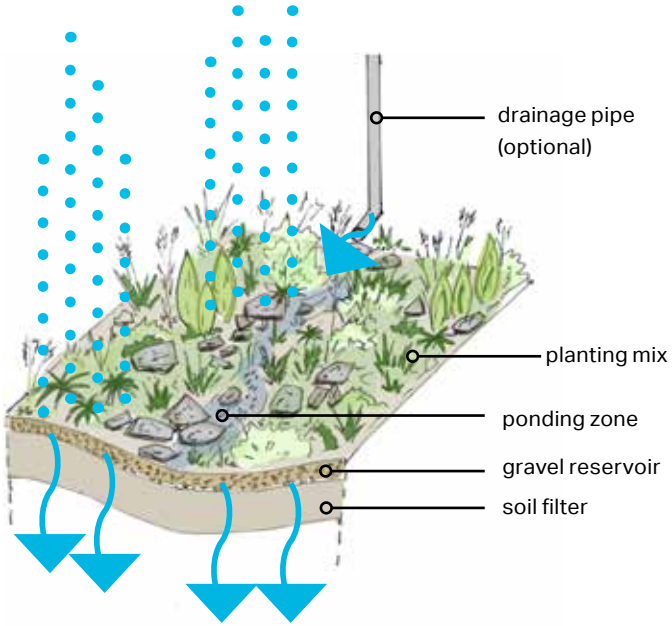


Figure 72: Diagram illustrating the functioning of a rain garden.

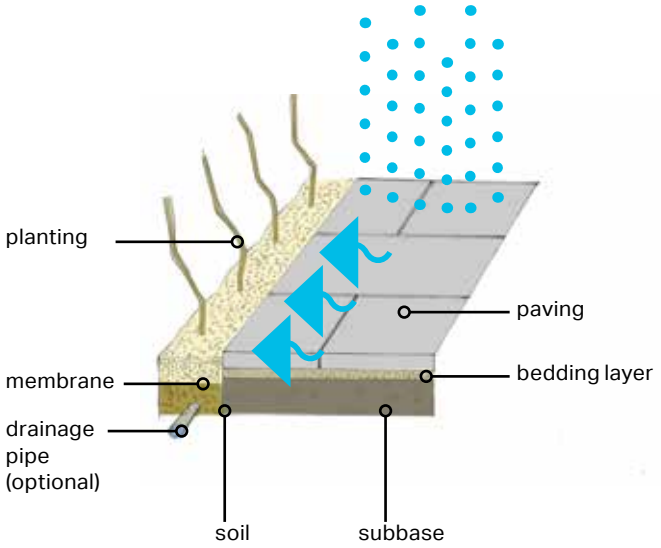


Figure 73: Diagram illustrating the functioning of a soak away garden.

[1] UK Rain Gardens Guide. Available at: https://raingardens.info/wp-content/uploads/2012/07/UKRainGarden-Guide.pdf

Storage and slow release

Rainwater harvesting refers to the systems allowing to capture and store rainwater as well as those enabling the reuse in-situ of grey water. Simple storage solutions, such as water butts, can help provide significant attenuation. To be able to continue to provide benefits, there has to be some headroom within the storage solution. If water is not reused, a slow release valve allows water from the storage to trickle out, recreating capacity for future rainfall events. New digital technologies that predict rainfall events can enable stored water to be released when the sewer has greatest capacity to accept it.

These systems involve pipes and storage devices that could be unsightly if added without an integral vision for design. Therefore, some design recommendations would be to:

- Conceal tanks by cladding them in complimentary materials;
- Use attractive materials or finishing for pipes;
- Combine landscape/planters with water capture systems;
- Underground tanks; and
- Utilise water bodies for storage.

Figure 74: Examples of water butts used for rainwater harvesting in Reach, Cambridgeshire.

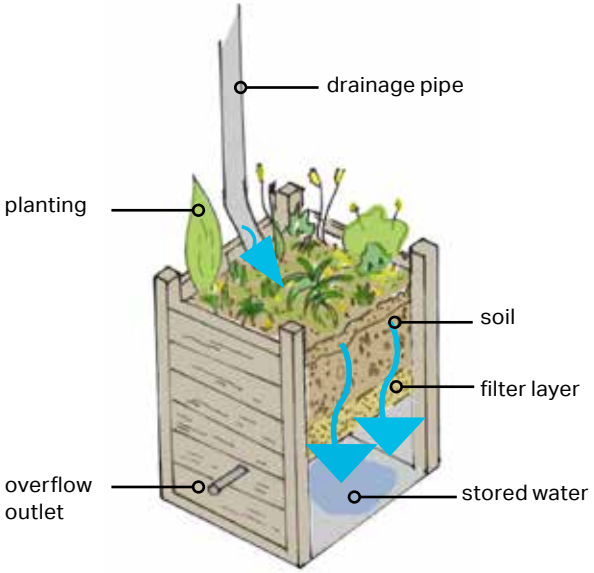


Figure 75: Diagram illustrating the functioning of a stormwater planter.

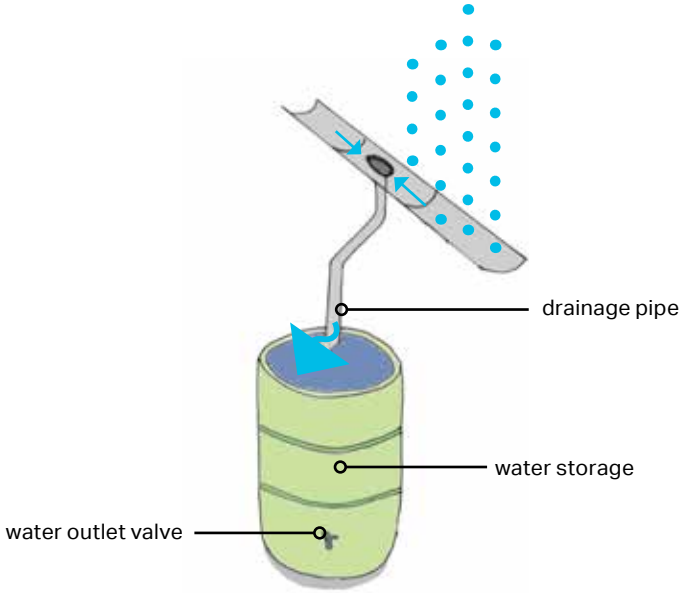


Figure 76: Diagram illustrating the functioning of a water butt.

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 pavements offer a solution to maintain soil permeability while performing the function of conventional paving. 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.

Permeable paving can be used where appropriate on footpaths, public squares, private access roads, driveways, and private areas within the individual development boundaries. In addition, permeable pavement must also:

- Respect the local material palette;
- Help to frame the buildings;
- Create an arrival statement;
- Be in harmony with the landscape treatment of the property; and
- Help define the property boundary.

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

- Flood and Water Management Act 2010, Schedule 3;[1]
- The Building Regulations Part H – Drainage and Waste Disposal;[2]
- Town and Country Planning (General Permitted Development) (England) Order 2015;[3]
- Sustainable Drainage Systems - non-statutory technical standards for sustainable drainage systems;[4]
- The SuDS Manual (C753);[5]
- BS 8582:2013 Code of practice for surface water management for development sites;[6]
- BS 7533-13:2009 Pavements constructed with clay, natural stone or concrete pavers;[7] and
- Guidance on the Permeable Surfacing of Front Gardens.[8]

[1] Great Britain (2010). *Flood and Water Management Act, Schedule 3*. Available at: http://www.legislation.gov.uk/ukpga/2010/29/schedule/3

[2] Great Britain (2010). *The Building Regulations Part H – Drainage and Waste Disposal*. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/442889/BR_PDF_AD_H_2015.pdf

[3] Great Britain (2015). *Town and Country Planning (General Permitted Development) (England) Order 2015*. Available at: http://www.legislation.gov.uk/uksi/2015/596/pdfs/uksi_20150596_en.pdf

[4] 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

[5] CIRIA (2015). *The SuDS Manual (C753)*.

[6] British Standards Institution (2013). *BS 8582:2013 Code of practice for surface water management for development sites*. Available at: https://shop.bsigroup.com/ProductDetail/?pid=000000000030253266

[7] British Standards Institution (2009). *BS 7533-13:2009 Pavements constructed with clay, natural stone or concrete pavers*. Available at: https://shop.bsigroup.com/ProductDetail/?pid=000000000030159352

[8] 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

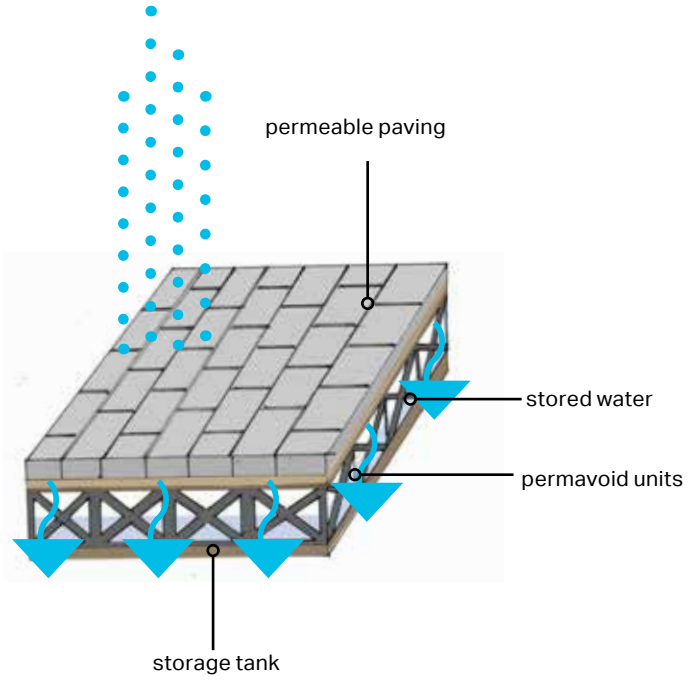


Figure 79: Diagram illustrating the functioning of a soak away

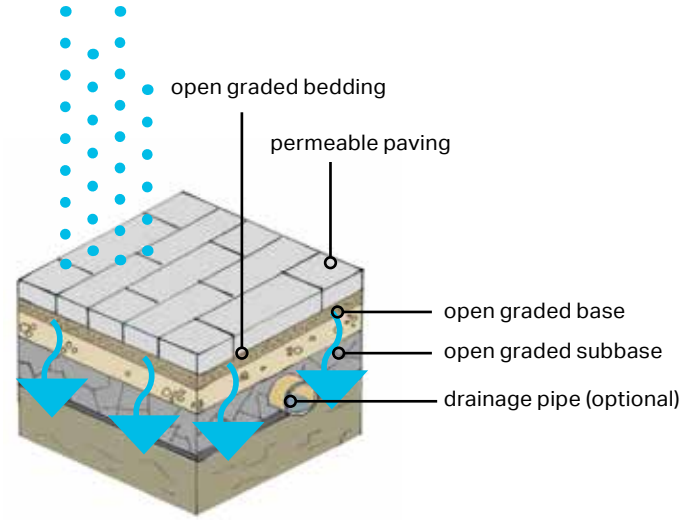


Figure 80: Diagram illustrating the functioning of a soak away

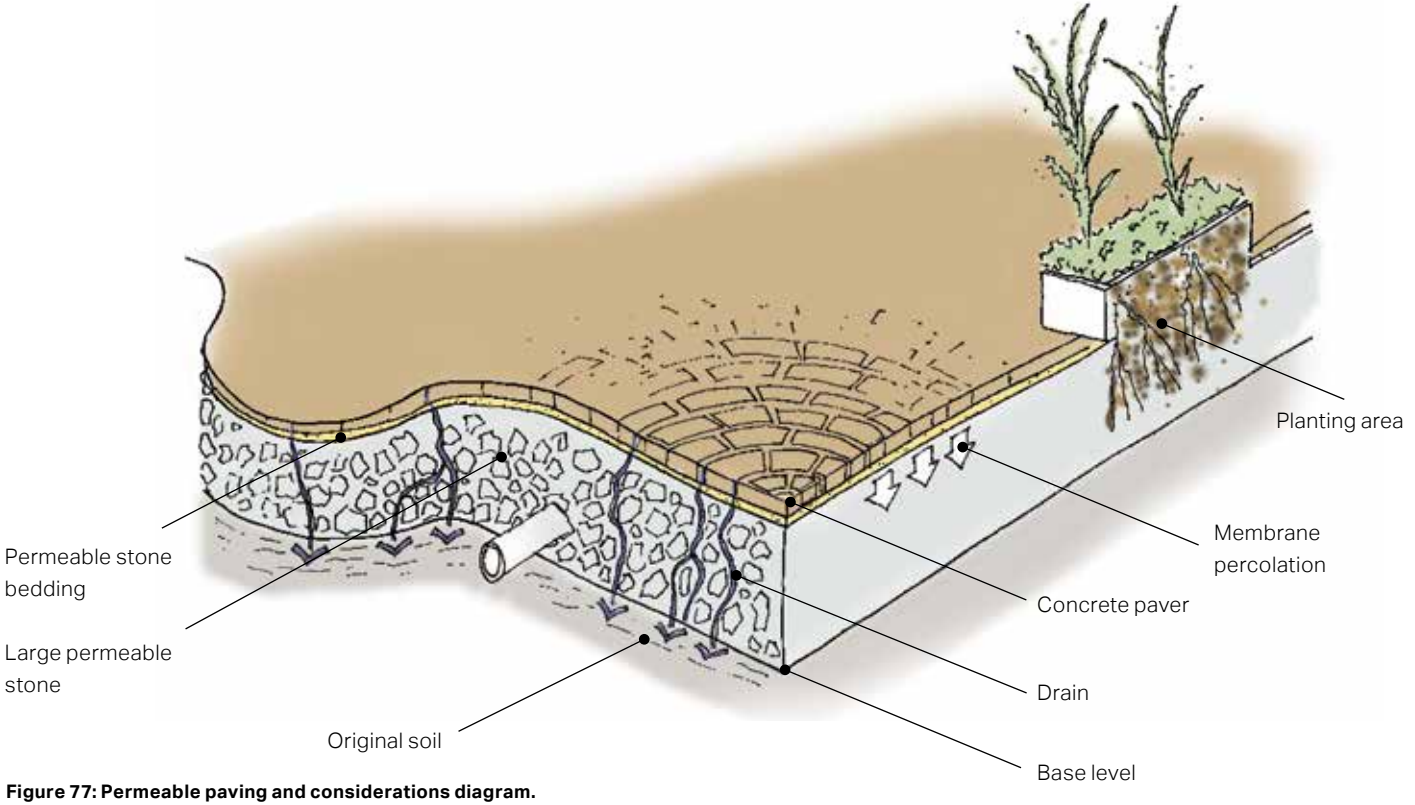


Figure 77: Permeable paving and considerations diagram.

Figure 78: Examples of permeable paving treatments: unbound clay pavers (left), precast concrete setts (centre), and gravel (right).

Swales

Swales are the preferred option for water conveyance due to their provision of biodiversity and amenity benefits.

Swales should only be used where they can be integrated with the landscape design and their character will suit the surroundings, with soft, natural features providing contribution to biodiversity.

They will be located within development packages to convey surface water to attenuation features.

Due to their open, linear features, crossing points are required where they intersect with access routes, which will require careful design for future maintenance. Therefore, swales are better suited to locations where fewer crossing points would be required, such as alongside buffer zones or perimeter roads encircling a development plot.

Figure 81: Attenuation swale with check dam (© Susdrain).

Figure 82: Roadside swale in Stockholm, Sweden.

3.8. Eco design

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

Starting from the design stage, there are strategies that can be incorporated towards passive solar heating, cooling and energy efficient landscaping which are determined by local climate and site conditions. The retrofit of existing buildings with eco design solutions should also be encouraged.

The aim of these interventions is to reduce overall home energy use as cost-effectively as the circumstances permit. The final step towards a high-performance building would consist of other on-site measures towards renewable energy systems.

It must be noted that eco design principles do not prescribe a particular architectural style and can be adapted to fit a wide variety of built characters. A wide range of solutions is also available to retrofit existing buildings, included listed properties, to improve their energy efficiency[1].

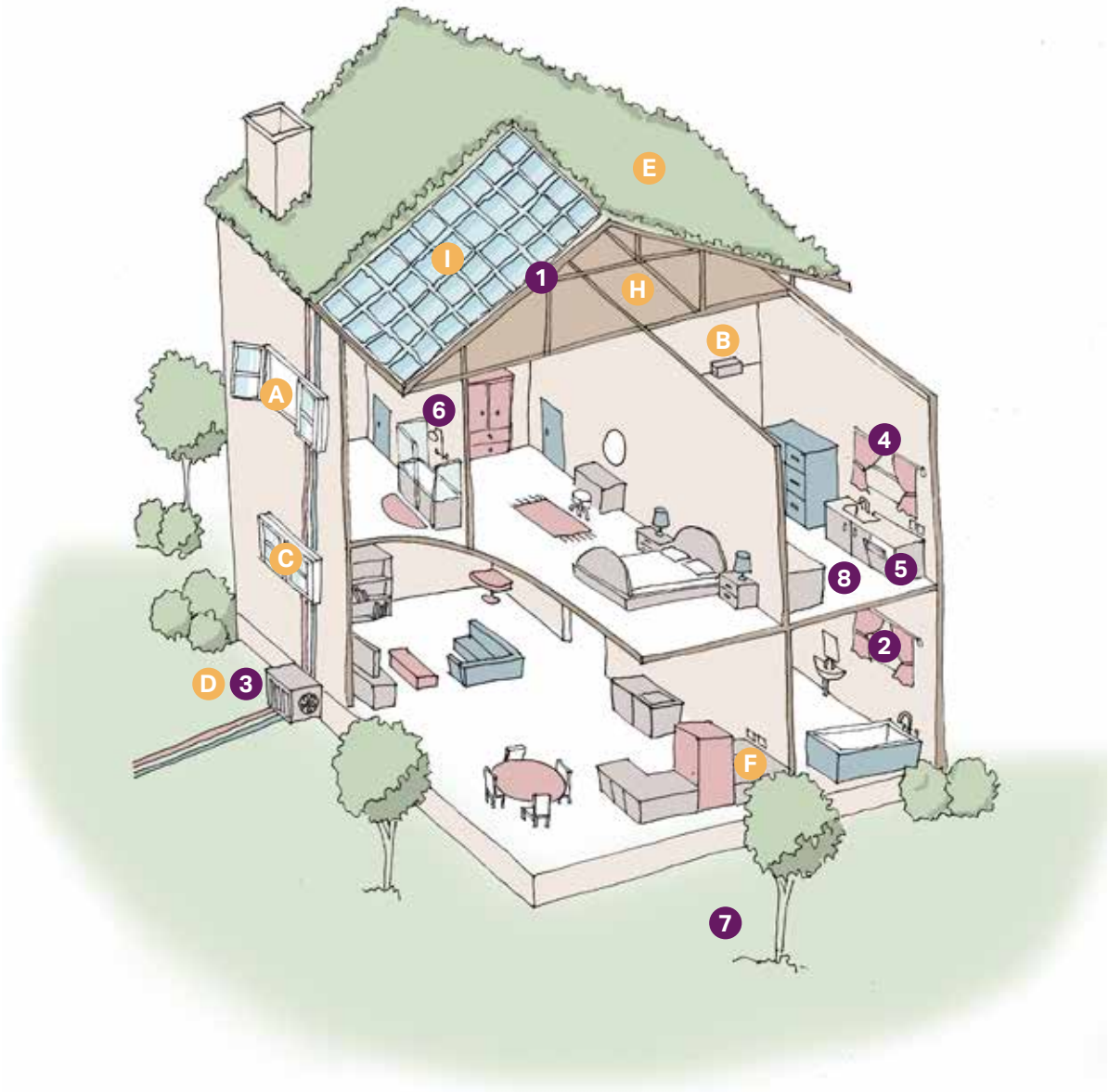


Figure 83: Diagram showing low-carbon homes in both existing and new build conditions (adapted from Commission on Climate Change)

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 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

New build homes

A. **High levels of airtightness**

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

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

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

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

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

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

I. **Solar panel**

Rainwater harvesting

Rainwater harvesting refers to the systems which allow the capture and storage of rainwater, as well as those enabling the reuse in-situ of grey water. These systems involve pipes and storage devices that could be unsightly if added without an integral vision for design. Therefore, it is recommended that design incorporates one or more of the following methods:

- Concealment of tanks by cladding them in complementary materials;
- Use of attractive materials or finishing for pipes;
- Combination of landscape/planters with water capture systems;
- Use of underground tanks; and
- Utilisation of water bodies for storage.

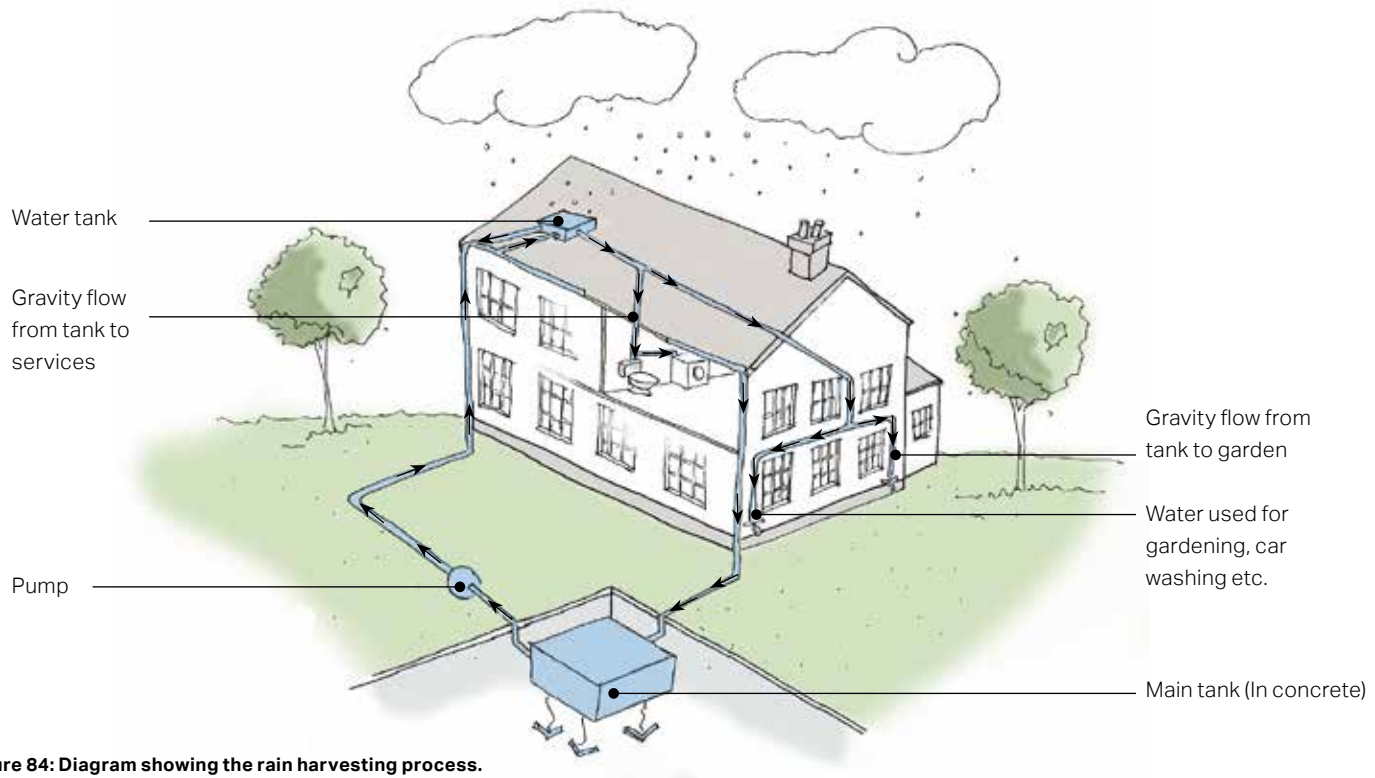


Figure 84: Diagram showing the rain harvesting process.

Figure 85: Local examples of tanks used for rainwater harvesting.

Servicing

With modern requirements for waste separation and recycling, the number and size of household bins have increased. The issue poses a problem in relation to the aesthetics of the property if bins are left without a design solution.

Waste and cycle storage, if placed on the property boundary, must be integrated with the overall design of the boundary. A range of hard and soft landscaping treatments such as hedges, trees, flower beds, low walls, and high-quality paving materials could be used to minimise the visual impact of bins and recycling containers.

The image and diagrams on this page illustrate design solutions for servicing units within the plot.

Figure 86: Example of bin storage using a palette similar to the building.

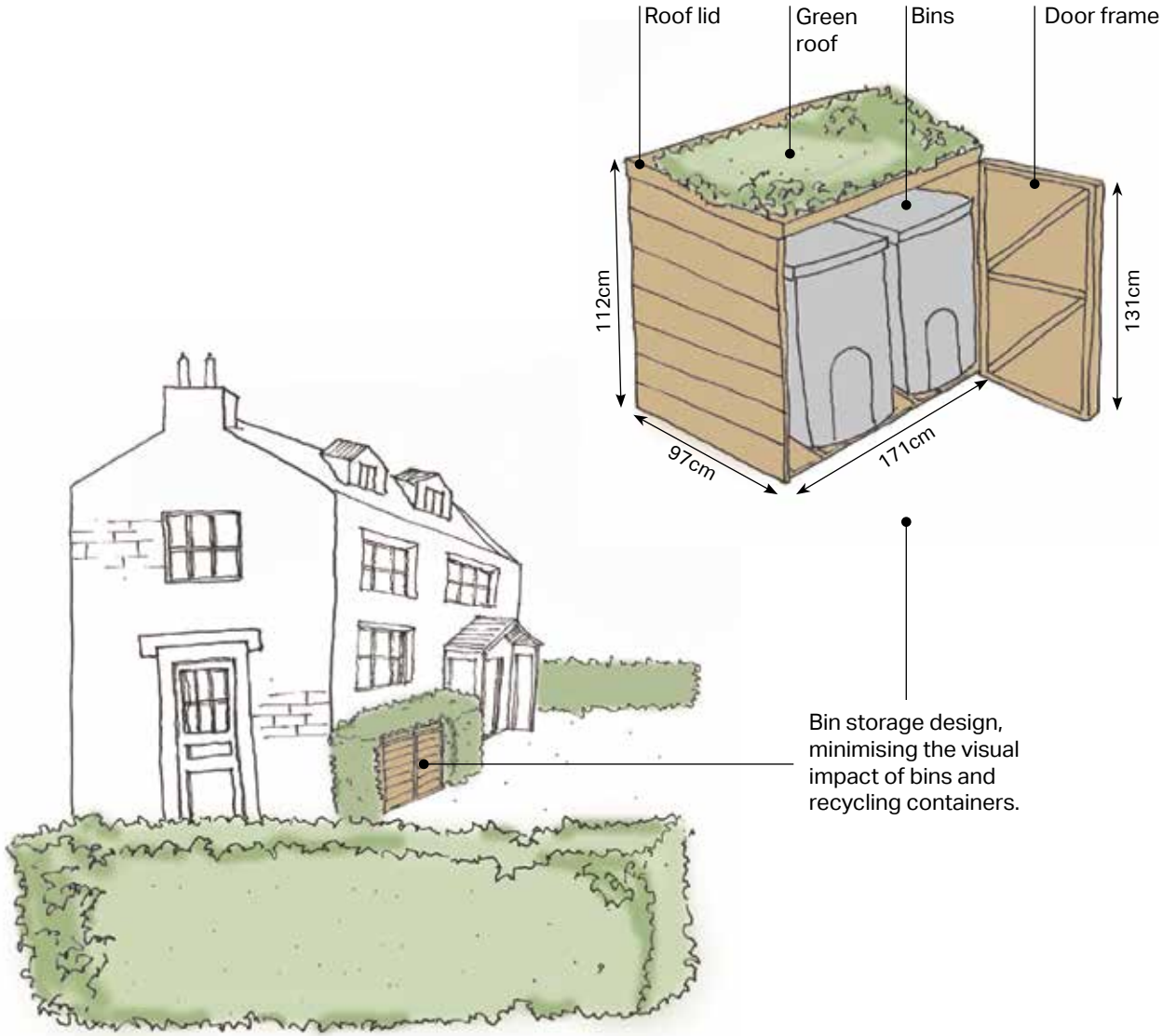


Figure 87: Bin storage design solution.

Solar roof panels

The aesthetics of solar panels over a rooftop can be a matter of concern for many homeowners. Some hesitate to incorporate them because they believe these diminish the home aesthetics in a context where looks are often a matter of pride amongst home owners. This is especially acute in the case of historic buildings and conservation areas, where there has been a lot of objection for setting up solar panels on visible roof areas. Consequently, some design solutions are suggested below:

On new builds:

- Design solar panel features from the start, forming part of the design concept. Some attractive options are solar shingles and photovoltaic slates; and
- Use the solar panels as a material in their own right.

On retrofits:

- Analyse the proportions of the building and roof surface in order to identify the best location and sizing of panels;
- Aim to conceal wiring and other necessary installations;
- Consider introducing other tile or slate colours to create a composition with the solar panel materials; and
- Conversely, aim to introduce contrast and boldness with proportion. For example, there has been increased interest in black panels due to their more attractive appearance. Black solar panels with black mounting systems and frames can be an appealing alternative to blue panels.

Figure 88: Integration of solar panels on the south-facing pane of the roof of a newly built house in Lingfield, Surrey.

Figure 89: Use of shingle-like solar panels on a slate roof, with the design and colour of the panels matching those of the slate tiles in Lingfield, Surrey.

Green roofs

Green roofs are increasingly accepted and are often seen integrated in new building design. Whether the roof is partially or completely covered with vegetation, their design should follow some design principles such as:

- Plan from the start;
- Easy to reach and maintain;
- To complement (where applicable) the surrounding landscape;
- To help integrate the building with the countryside; and
- Design comprehensively with other eco designs such as water harvesting and pavements.

Figure 90: Detail of a green roof integrated into the fabric of the historic town or Rheda-Wiedenbrück, Germany.

Delivery

04

4. Delivery

The Design Guidelines and Codes will be a valuable tool in securing context-driven, high-quality development in Toppesfield. They will be used in different ways by different actors in the planning and development process, as summarised in the table.

Actors	How They Will Use the Design Guidelines
Applicants, developers, and 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.

Figure 91: Details of a building with a half-timbered jettied upper storey, Stambourne Road.

About AECOM
AECOM is built to deliver a better world. We design, build, finance and operate infrastructure assets for governments, businesses and organizations in more than 150 countries. As a fully integrated firm, we connect knowledge and experience across our global network of experts to help clients solve their most complex challenges. From high-performance buildings and infrastructure, to resilient communities and environments, to stable and secure nations, our work is transformative, differentiated and vital. A Fortune 500 firm, AECOM had revenue of approximately $17.4 billion during fiscal year 2016. See how we deliver what others can only imagine at aecom.com and @AECOM.

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