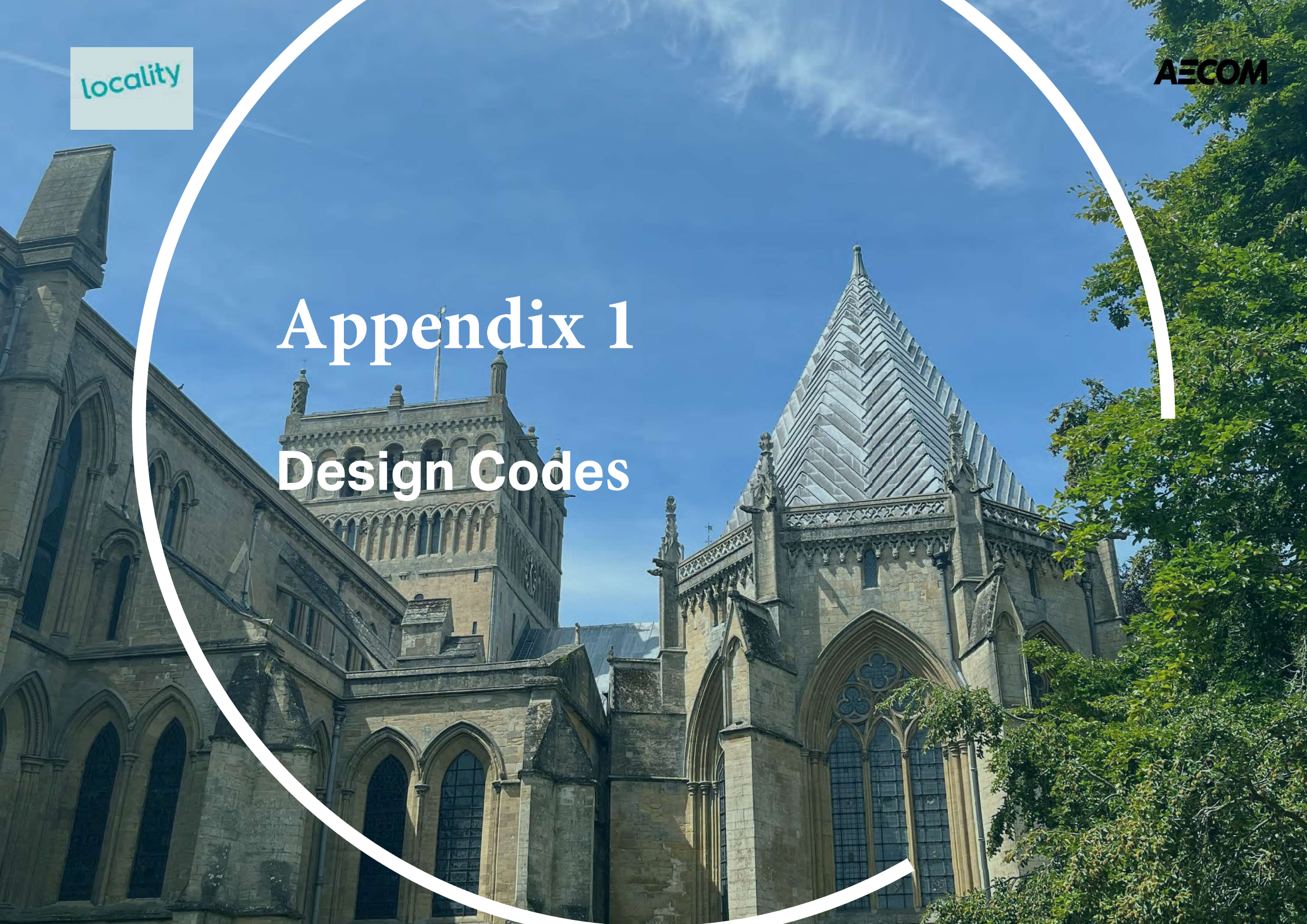


locality

AECOM

Appendix 1

Design Codes





Design Code

04

4. Design Codes

A series of Design Codes have been produced to provide guidance for any future developments in Southwell. This will ensure that local character is considered and local distinctiveness is enhanced and protected.

4.1 Introduction

Design Codes set out within this document have been significantly influenced by local precedents and also national best practice materials. Based on the understanding gained in the previous sections, feedback captured during the engagement workshop and relevant planning policy, the Design Codes matrix is broken down into seven categories:

- Heritage
- Built Forms Materials and Detailing
- Nature Environment Features
- Flood Resilience
- Sustainable Design
- Utilities and External Storage Spaces

All proposed developments need to consider the character areas in order to ensure any negative impact is avoided. The Design Codes will help to understand what type of development is appropriate in Southwell.

The Southwell Design Codes provide additional information as to the background of the existing characteristics and vernacular of the Southwell Parish Area. The purpose of the guide is twofold; firstly it acts as an additional point of reference on matters of design within the Southwell Neighbourhood Plan and secondly, it seeks to, as much as is possible, ensure that proposed development within the Neighbourhood Plan area is sustainable in its design - i.e. it is contextually responsive, attractive and functional, serving the needs of the local community.

Section 4.2 is replaced by Addendum 1

4.3 Heritage Assets

Heritage assets play a central role in defining local character in Southwell. Local heritage is an important tool for successful and diverse place-making and presents opportunities for future development to enhance local identity.

Listed Buildings and Scheduled Monuments

There are a high number of listed buildings in Southwell, the majority of which are Grade II and can be found along Westgate, King Street, and Church Street. These designations reflect the high status and local and national significance of the assets. There are two Grade I listed buildings: Minster Church of St Mary the Virgin with attached chapter house; and Bishop's Manor and remains of Bishop's Palace.

The Roman villa complex and Anglo-Saxon cemetery, and Archbishop's Palace are two Scheduled Monuments located east of Southwell Minster.

Future development should aim to respect and enhance the settings of listed buildings and monuments in order to retain their positive contribution to the streetscape.

Southwell Conservation Area (Figure 30)

The Conservation Area covers a large area (1,078km²) of the town including Southwell District Centre. The overlap of these designations reflects the historic retail character of Southwell Town Centre, as well as the significance of the town's historic development and origins.



Figure 51:
Historical buildings in commercial uses



Figure 52:
King Street with historical buildings

Heritage Assets (HA)

- All new development must be respectful of the scale and massing of the historic built form.
- Low-quality designs that do not successfully assimilate with the historic built form will not be permitted.
- Development must not impede key long-distance views of the countryside at town fringe areas. Removal of green spaces and verges within the study area and mature foliage and trees within conservation areas should be avoided.
- New development must seek to incorporate elements of the local vernacular.
- Better management of exterior advertisement and signage is required to increase visual harmony within the historic and redeveloped high street and town centre.

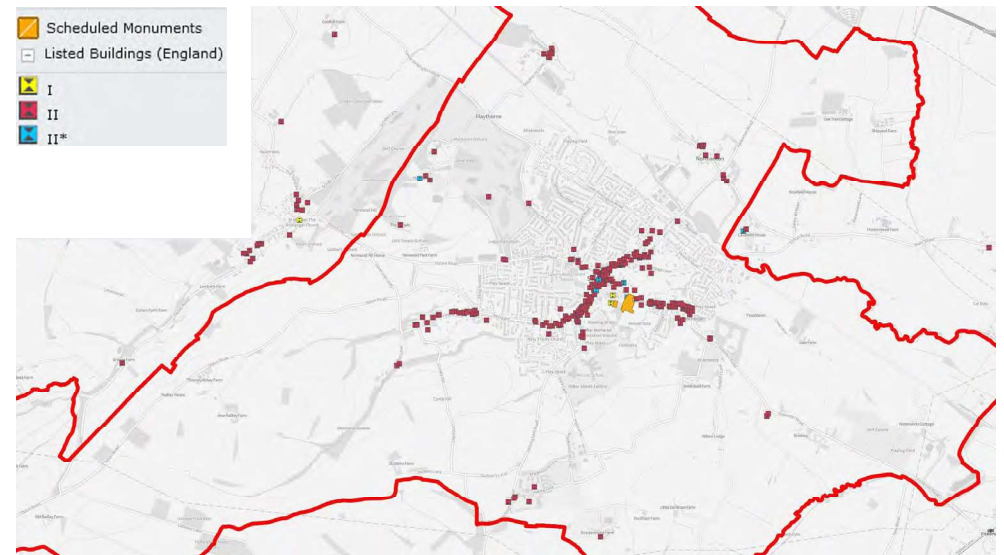


Figure 53:
Historic assets plan (source: <https://magic.defra.gov.uk>)

4.4 Built Forms

Building lines play a key role in defining the layout and the character of an area. There is a good mix of housing typologies in Southwell. Varied housing typologies contribute to the variety of building lines in Southwell.

Layout General (LG)

- All new buildings must be designed to avoid long blank walls fronting onto the street, creating a strong building line, sense of place with an animated street scene as well as ensuring a secure environment with a measure of passive, natural surveillance. Streets must be designed as a whole to avoid 'gappy' silhouettes and ensuring that a strong building line is created and, where appropriate, reinforced.
- New development must be designed so as to offer a sense of enclosure and create a clear differentiation between spaces and their purposes; for example parking and amenity spaces.
- Houses must be grouped or staggered and not built in regimented rows in order

to offer variation in the street scene and reinforce strong enclosure of the street and a frontage which interacts well with the wider context.

- Corner buildings as well as structures located in other prominent gateway locations should be designed so as to emphasise the corner and appropriately turn the corner (possibly through a chamfered edge).
- Blank and exposed gables ends are to be avoided due to their lack of interaction with the surrounding street scene.
- The spacing of development must reflect the rural character and allow for long distance views of the countryside from the public realm. Trees and landscaping must be incorporated in the design.



Figure 55: Enclosed space on cul-de-sac off Dudley Doy Road



Figure 56: Buildings within context

Context (C)

- All new development must respond to the unique characteristics of the site and its context. Proposals must take the lead from the local vernacular of existing buildings when considering orientation, form (density, mass, height, layout, building line) and function (use) of existing development at the boundaries of the development site. Moreover, the site should consider how it reinforces the building line and streetscape.
- Proposals for development must demonstrate their compliance with the existing characteristics of the area, such as building shapes, form, layout, styles, colours and materials from which the proposed development can take inspiration. It is recommended that applications for new development are supported by a vernacular study detailing how proposals integrate with existing character.
- Development inappropriate or uncharacteristic within the context of Southwell in its design must be avoided. Standardised development solutions will be deemed unacceptable.
- All new development must seek to create a place with a locally inspired or distinctive identity. Variations in density, height and style can help create areas with different character.

- Too many identical or similar house types (where there is no benefit to the overall architectural integrity of the scheme from repetition) must be avoided.
- Planning applications within the view cones of the NSDC Protected Views policy (SoPV) and the Southwell Conservation Area, where the development will affect the local intimate views, setting or sense of place surrounding historic artefacts, must include an objective assessment of the effects it will have on these matters. This can be in the form of an artist's scaled drawings or photography from critical viewpoints or techniques such as axonometric modelling. In the case of trees this should comply with the recommendations of BS 5837, the National House Building Council Standards Chapter 4.2 Building near Trees and the ultimate crown size of species based on Arboriculture Research note 84/90/ARB.

Block Structure and Building Line

Any development should ensure buildings are aligned along the street with their main facade and entrance facing it, where this is in keeping with local character. Building ancillary to domestic properties such as garages may be placed gable end to the road in keeping with historic outbuildings seen throughout the area. In Southwell there are three types of building lines that can be found throughout the area:



Figure 57: Informal building lines examples within Southwell



Figure 58: Formal building lines examples within Southwell



Figure 59: Linked building lines examples within Southwell

Informal building lines (IBL)

- Informal building lines can be applied within lower density developments;
- Developments with informal building lines are usually characterised by larger plots, generously-sized gardens, or with greater provision of open space;
- The alignment of new building lines must respond to the context of surrounding landscape;
- Properties should provide gardens in the front and rear, or a small buffer as a minimum;
- The layout of developments shall be permeable in order to provide legible connections through the area and beyond; and
- This type of building line can be suitably applied where the development faces the open countryside, or open space or the edge of development.

Formal building lines (FBL)

- Formal building lines can be applied within the medium- higher density development in Southwell or the area where the housing typology is generally uniform;
- This type of building line can be applied where the development sits adjacent to/ within the residential area with urban settings;
- The layout of developments shall be permeable in order to provide legible connections through the area and beyond;
- Linked buildings can be found in Southwell town central area; and
- Lines of linked building generally have a higher density and the length can reach up to 60m.

Linked Buildings (LB)

- Linked buildings can be found in several central Southwell character areas;
- This type of building line can be applied where the development sits adjacent to/ within the residential area with urban settings;
- Lines of linked building generally have a higher density and the length can reach up to 60m; and
- The layout of developments shall be permeable in order to provide legible connections through the area.

Building Heights and Roofline

A comfortable variation in the size and scale of buildings - from single storeys bungalows to three-storey townhouses - can enhance local character. It provides variety and difference, as opposed to homogeneity. Houses within Southwell are mainly 2-2.5 storeys high, with a minority of 2.5-3 storeys townhouses and apartments. New development should be sympathetic in height and scale to its surrounding context in each focus area. There are two types of building rooflines throughout Southwell that can be identified:

Type 1 (Uniform roofline)

Buildings with uniform skyline can be found throughout Southwell's residential areas due to general street types, building heights and minimal building articulation.

Type 2 (Varied roofline)

Buildings with various heights can be found in the Town's commercial street and other areas of pre-war development within the town's central areas. Such variety positively contributes to the character of Southwell.

Varied Roofline (VR)

- Buildings with various heights can be found in Southwell's Historic Core and other areas that are heavily influenced by the slope and view to the open countryside. Such variety positively contributes to the character of Southwell.
- This roofline must be applied in the area where the development meets the countryside's edge to retain its rural character.
- Roofing materials, eaves, pitch, verge details, chimney stacks, or other features visible above the ridge line must be carefully considered. These features may be diverse to create a varied roofline, while still respecting local character. The change in storeys height between adjacent buildings should be no more than 0.5 a storeys to maintain a consistent building character.



Figure 60: Varied rooflines example within Southwell

Uniform Roofline (UR)

- Uniform roofline can be applied in the areas where urban settings/ higher density can be encouraged.
- Uniform roofline can be applied in area when the development rhythmically uses several uniform housing typologies.
- 3 or 4 buildings with the same roof height can form the uniform roofline.
- Roofing materials, eaves, pitch, verge details, chimney stacks, or other features visible above the ridge line must be carefully considered to create uniform roofline that reflects the surrounding context of the site.



Figure 61: Uniform rooflines example within Southwell

Built Forms (continued)

Building Typology

A variety of approaches to housing typologies and layout of buildings should be explored to make the best use of land and create high quality, comfortable and attractive homes.

New development should enhance Southwell's character by achieving more interesting, varied and high quality design and built form.

Depending on the housing needs, terraced, semi-detached, detached and higher density properties are acceptable. Design principles and precedents for each type are provided in this section.

Flats and Apartments (FA)

- When delivering new flats and apartments, or in converting existing buildings to flats and apartments, care must be taken to ensure that wherever practicable, the creation of single aspect dwellings is avoided. Where this is not possible, such as with the conversion of existing historic buildings, then applications must clearly demonstrate this through their submissions.

- When developing larger schemes of this type, they must be disaggregated into smaller elements, to ensure that the development does not appear as a single mass or block.
- Access points must be arranged and spaced to ensure that there is a regular active frontage that addresses the public highway and reinforces the rhythm of the street. Design which introduces large blank façades to the street, or those with only kitchen and bathroom windows to publically accessible areas, should be resisted.
- It is important that the mass and scale of apartments proposed sits comfortably within the sites existing context.
- Parking areas (for cycles and vehicles) should be well lit, benefit from natural surveillance and divided and distributed around the layout. The incorporation of tree and shrub planting should be used to soften the appearance and apparent size of parking courts, as will the use of more attractive surface materials.



Figure 62: Example of apartment buildings in Southwell



Figure 63: Example of terrace buildings in Southwell

Terraced Properties (TP)

- Mainly 2 Storeys, with 3 storeys for prominent or identified key buildings. Street scale needs to be considered. Wider primary routes should have larger-scale buildings.
- Typically simple pitched roof volumes. Projecting elements must be considered on key buildings to help demarcate corners.
- Consistent setbacks to be provided to achieve well-defined street compositions.
- Parking for terraced buildings will need to be an important design consideration to avoid vehicle dominance on the street. A combination of parking solutions should be used to provide variance to the street scene including: on plot parking (front and side), on street parking and courtyard parking.

Built Forms (continued)

Building Typology

Semi-detached Properties (SDP)

- Mainly 2 Storeys, with 3 storeys for key building locations.
- Typically simple traditional forms with the occasional projecting elements. Projecting elements must be considered on key buildings to help provide corner articulation.
- Setbacks are consistent, with only a small variation between buildings to provide a more formal street composition.
- Buildings must strongly relate to the street, although a varied frontage is acceptable.
- Adjoining semi-detached properties should match unless on a corner.
- Parking provided on plot and generally to the side of properties / or within garages behind the main building line to prevent vehicle dominance.



Figure 65: Example of semi-detached buildings in Southwell



Figure 66: Example of detached buildings in Southwell



Detached Properties (DP)

- Mainly 2 Storeys, with 3 storeys for junction locations and 1 storeys for bungalows.
- Variable frontages should be provided through more informal building placements between plots.
- Building massing should be varied with greater use of mixed roof styles and projecting gables to create varied streetscapes.
- Building orientation is not required to conform to any joint relationship with adjacent properties, however frontages should positively address the street.
- Variation permitted to the ridge and roof lines. Individual buildings must accommodate any topographical changes between units.
- Parking should be provided on plot and where possible located either behind the building line, in a garage or to the front of the property. Where parking is provided to the front of a property, landscaping and front boundaries should be designed to reduce the visual impact of vehicles from the streets.

4.5 Materials and Detailing

Without being too prescriptive about the adopted material palette, developments should complement the existing residential character of the local area, and reflect the character of Southwell. Southwell's existing local character and material palette is generally predominated by stone and brick, with slate and tile roofs. These materials should be used as a design cue for any new development. Proposed development should adopt high quality, natural materials which sit well within the attractive natural landscape and which help to reinforce the historical character of the town where possible.

Materials: Colours (MC)

- All new development must consider the variety and textures of local materials that can be used to inspire the design and form of the proposals. It is recommended that a vernacular study be undertaken detailing how local materials have been considered in the design approach, as well as the rationale for the choice of materials that are to feature in the development.
- All new development must ensure that there is consistency with existing material colours. Colour should be considered as part of the recommended vernacular study.
- The dominant construction material in the Southwell Parish area are stone and brick, therefore shades of buff/orange/red/terracotta are the dominate colour. Stone constructed properties do exist (built from the local natural stone) but these are uncommon.
- Visual intrusion from agricultural, industrial and other non-residential building must be minimised by avoiding bright colours. Subtle colours that reflect the context of the site and the Parish are preferable.



Figure 67:
Examples of materials colours

Types of Materials (TM)

- Local bricks or bricks of an appropriate colour for the area (usually shades of orange/red/terracotta) must be the predominant construction material. The texture of bricks must also match those typical of the area. Bricks ideally should be handmade or appropriately machine textured. Concrete, artificially rusticated and smooth faced engineering bricks must be avoided.
- Artificial or reconstituted stone must only be used if it is sufficiently similar in colour, texture and unit size to that of the local natural stone. Stonework must be laid and pointed in the traditional manner. Sawn stone facing must be avoided.
- Finishes other than brick and stone do exist within the Parish area and can be used when appropriate. Render is characteristic of the town, typically coloured with natural pigments (ranging from off-white to ochre) using lime render. Modern materials can be used to achieve the aims of thermally efficient and sustainable building, but should be used with care so as to protect the local character and identity of the area. Applied or mock timber framing should be avoided as it is uncharacteristic of the Parish.
- New development must clearly demonstrate consistency with wall and roof materials. A wide range of materials per dwelling must be avoided. A simple and neat approach to detailing is recommended.
- Boundary treatment must reflect that found within the local vernacular. Brick and stone walling is most appropriate in the town centre, whereas at the peripheral parts of the settlement enclosure of the street within the development must be achieved through use of hedges no more than 1m in height where adjacent to the highway.



Figure 68:
Examples of materials used in Southwell

Note: Brick is the predominant material used in the local character and material palette, while stone and artificial stone are less commonly used.

Detailing (continued)

Historic/Heritage Detailing (HHD)

- Emphasis must be placed on contemporary interpretation of traditional built form; nevertheless, details taken from traditional buildings must maintain and/or be in keeping with the scale and appearance of the original feature. The use of mock heritage design features such as sash or Gothic headed casements, small paned Georgian style bow windows or self-adhesive lead lattice must be avoided. It is important that new developments do not simply copy the existing built form but instead seek to provide their own subtle detailing to help reinforce the character of the area as well as of the development itself.
- Inappropriate mixing of historic details and architectural styles must be avoided.



Figure 69: Example of historic details

Façades (F)

- Façade arrangements (window and door positions) must be in keeping with the surrounding townscape. Doors should front onto the street; crowded and unaligned façade arrangements should be avoided. Façades within the Parish are typically aligned both vertically and horizontally (including dormers and rooflights). A careful acknowledgment of this design feature will ensure continuity in local character. Non-domestic buildings should use similar means to avoid overly simple, monotonous and visually intrusive forms.
- Housing design must avoid the use of unnecessary elements and projections from the façade which do not complement the local vernacular, apart from sensitively designed porches. Porches must be designed to make an appropriate and positive contribution to the appearance and design of buildings, matching the architectural properties of the main building in terms of materials and style.
- The position of downpipes must be integrated with the design of the roof and façade to minimise visual impact of the pipes.
- Meter boxes must be sited conveniently for external access, but be located so as not to have a

detrimental visual impact on principal building façades and be coloured to blend with surrounding materials. Satellite dishes or other infrastructure-related protrusions are to be located away from principal building frontages.



Figure 70: Example of building façades

Detailing (continued)

Windows and Doors (WD)

- New development must incorporate window sizes which are in keeping with the proportions and scale of existing windows in the area. Nonetheless, larger areas of glazing can be acceptable so long as these are divided into sub-units which are in proportion with windows typical of the area. Large areas of undivided glazing must be avoided, particularly on domestic buildings, unless part of a contemporary, high quality design and appropriate for its location and context.
- Door furniture must be simple and in keeping with the style of building and the surrounding area. Mock historic styles must be avoided. Hardwood and softwood doors with a paint finish are characteristic of doors and windows in the area.
- Aluminium, UPVC and tropical hardwood windows and doors must be avoided.
- Doors with large glass panels on residential units must be avoided. Nevertheless, such doors may be appropriate for other types of uses such as Flats or Sheltered Housing schemes. All windows and doors should be recessed by at least 50mm so as to provide relief to the stone lintels.



Figure 71: Example of windows and doors

Roofscares (R)

- The predominant roof form in the Parish is a simple double pitch with gable ends. Hipped or halfhipped roofs are found to a lesser extent, roofs of this type must be used sparingly.
- Local and natural roofing materials, which include red clay pantiles and natural slate roofs (often with clay ridge tiles) must be used whenever possible to maintain local character and identity.
- Roof pitch must match the chosen material – clay tile roofs are typically more steeply pitched than slate roofs. Verge and eaves details must suit the form and style of the building as well as its location and avoid overly elaborate decorative rooflines.
- A variation in roofscape is encouraged. Roofscape can be varied through the sensitive grouping of buildings of different heights and/or eaves and ridge levels. A limited range of designs must be used which directly relate to examples found in the traditional vernacular. Monotonous continuation of the roofscape should be avoided. However, very steep or very shallow pitches should also be avoided. The above should apply to all development, both residential and non-residential.
- The integration of chimney stacks into Southwell's roofscape is strongly encouraged for new constructions.

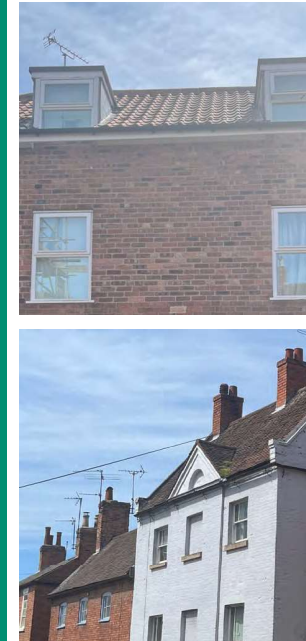


Figure 72: Example of roofscape and dormers

Dormers and Rooflights (DR)

- Pitched roofed gabled dormers and cat slide dormers do feature within the Parish area, however, dormers must be used sparingly as they are not a typical feature in the area.
- When used, dormers must be incorporated so as to provide light into the roof space of the dwelling and not act as a means of extending floor space. Dormers must not be larger than the windows in the property and large flat-roofed, boxy dormers must be avoided. Sufficient space must be left around dormers so they do not crowd verges, hips or ridges.
- Rooflights can be an acceptable alternative to dormers but must be used sparingly.
- Rooflights must be set flush so that they are integrated within the roof structure. Rooflights with a vertical emphasis tend to be most appropriate and, like dormers, should be aligned with windows in the main façade.
- Sun-pipes may be installed in roofs to channel daylight through roof spaces and supplement areas with limited or no natural light provision. Designs must be selected that are appropriate to the location, scale and mass of the structure. Solar heating systems that are incorporated within the construction of a roof, either flashed and flush mounted, or mounted directly on to its surface, with minimal visual impact will be supported.

4.6 Natural Environment Features

Southwell has a number of environmental designations, open spaces and playing fields (see Figure 27). Informal open spaces within defined settlement boundaries often play an essential role in the character of that particular settlement, with regard to setting and local amenity. It is important that these areas are identified, and development is resisted, in order to conserve settlement character.

Any development should consider these open spaces as an integral aspect of the development's layout. Where possible, any existing open spaces should be retained and enhanced, and developments should contribute to the enhancement of Southwell's open spaces. Local residents must have access to natural spaces that are of suitable size and quality for any new development.

4.6.1 General Code

Biodiversity and Natural Features (BNF)

- Development must not result in any net loss of biodiversity, and should seek to provide net gains. Where there is unavoidable loss or damage to habitats, sites or features because of exceptional overriding circumstances, mitigation and compensation within the Southwell Civil Parish will be required. The Baseline for comparison shall be when the site is first allocated for development.
- Development shall contribute towards the provision of green infrastructure and support biodiversity through integration of new wildlife habitats.
- In addition to giving a net gain in biodiversity development must ensure that existing landscape and historic vegetation features are retained and new provisions made wherever possible.
- Requirement for dark skies - street lighting no upward lights, maximum light levels 150 lux including reflection at 3m above datum.
- Also noise pollution - all development proposals to minimise the potential adverse noise impact on and between dwellings through housing layout, design and materials.

Recording (R)

- The recording of existing Trees, Woody Species and hedges as part of planning applications must accord with BS 5837 with particular attention to:
 - a) Trees and groups of trees which are of 75mm diameter at 1.5m height.
 - b) Trees and woody species which are part of a valuable habitat or of landscape importance.
 - c) Hedges which are of historic, ecological or landscape importance.
 - d) The species present, their relative level of contribution to the composition in any hedge row or landscape feature.
- The aim should be to provide a description of the feature which can be used, where necessary, to ensure it remains in at least a similar condition as at the time of the survey, for the life of the development. This should include photographic evidence with indication of the size(s) or the features surveyed.

- An assessment of the quality of the trees and woody species must be made, based on BS 5837 to determine which are suitable for protection and retention.
- Trees of high quality and value as defined by BS 5837 must be retained. Trees of moderate quality and value as defined by BS 5837 should usually be retained or appropriately mitigated if removal necessary.
- Trees of low quality value as defined by BS 5837 will be considered on the basis of their contribution to local amenity and biodiversity. Where approval is given for removal of trees identified as being of a high or moderate quality, there will normally be a requirement for replacement planting on the site or elsewhere in the Southwell parish.

Protection (P)

- A Protection Plan for Trees, Other Woody Species and Hedges must be made to ensure that these are not damaged during construction.
- A follow-up Protection and Maintenance Plan must be made and agreed with the LPA to ensure that the features are conserved in a defined state, allowing trees to reach maturity without major surgery, for the life of the development.



Figure 73: Example of green spaces

4.6.3 Buffer Strips

Buffer Strips (BS)

- Wherever possible, buffer strips, landscape screening, amenity, ecologically and historically valuable vegetation (including hedges and trees) must be retained on development.
- Any planted strip must be carefully designed so as to ensure that it serves a dual role of preserving amenity and enhancing biodiversity. Priority should be given to the use of native species. This will be particularly important where large sites abut existing residential properties and where the planted strip links with existing Blue and Green infrastructure features. The landscape boundary should seek to retain existing hedgerows, trees and other established landscape features including Blue infrastructure as part of this design.
- Unless it can be shown to be unreasonable, the width of a buffer/

standoff must a minimum of 8 metres and sufficient to allow for machine maintenance, be effective as a wildlife corridor and permit trees along it to reach full maturity without becoming a problem to adjacent properties, in accordance with the Specifications for the Treatment of Trees, Woody Species and Hedges on development sites.

- Where a new boundary is required on a development site fronting the public highway, a Public Right of Way or interacting with the existing movement network, landscape schemes must demonstrate how the buffer will be integrated into the existing surroundings and maintain passive surveillance from new and existing properties.

4.6.2 Treatment of trees, other woody species and hedges on and adjoining development sites

Woodland, Trees and Hedgerow (WTH)

- Developments must be designed to retain trees, particularly those of landscape and biodiversity importance, with a view to increasing tree cover.
- According to the Hedgerow Regulation 1997, any good quality hedgerows classified as important must be protected and enhanced where necessary. This is known as 'Important Hedgerow'.
- Species choice must be predominantly native but not completely; a 2:1 ratio would be appropriate to help build a tree population that supports UK wildlife but is also capable of responding to new disease and climate threats.

Constraints (CON)

- A Constraints Plan for Trees, Other Woody Species and Hedges must be made to illustrate the impact the constraints retained, or new plantings of these elements, will have on the design process. The Constraints Plan must identify Root Protection Areas (RPAs) for the trees, woody species and hedges identified as suitable for retention, in accordance with BS 5837 to ensure trees are allowed to reach maturity.
- Areas where trees, woody species and hedges may constrain use of the land on the site must be identified. This must be established with regard, for example, to the characteristics of this vegetation in terms of ultimate size, density of foliage in accordance with BS 5837, the National House Building Standards, Chapter 4.2 of Building near Trees and the Arboriculture Research Note 84/90/ARB.
- Account must also be taken of any special features such as aspect, topography, exceptional size of tree etc.
- Identification of these zones will allow trees, woody species and hedges to grow to maturity naturally without causing nuisance to buildings or gardens on or adjoining the site through, for example, root growth, shading, etc.

New Planting (NP)

- Trees, other woody species and hedge planting schemes must be planned and implemented in accordance with BS 8545.
- The species mix of new plantings must be appropriate to their intended function, of native local origin and as the National Vegetation Classification (NVC).
- New plantings will be subject to the same treatment as above for existing trees, woody species and hedges.
- Specifications for the Treatment of Trees, Woody Species and Hedges on development sites will normally be subject to planning conditions or other legal arrangement by the LPA.

Treatment of Non Woody Herbaceous Plant Species (TNWHPS)

- Non woody herbaceous species to be retained or established as part of the design for a development must be appropriate to the geological soil on the site and in the National Vegetation Classification (NVC).
- The management of non woody herbaceous species must be agreed with the LPA to ensure they are retained for the life of the development.



Figure 74: Example of green spaces

4.7 Flood Resilience

This section should be read in conjunction with policies (E1 Flood risk assessments and mitigation and E2 Flood resilient design) in Southwell Neighbourhood Plan.

Southwell has a significant number of properties within Flood Zone 3 which have a high risk of flooding. The community is therefore very aware of the impact development can have on flood risk to both the wider area and their own properties. New development should seek to avoid Flood Zone 3 where possible, in particular avoiding areas of functional floodplain. The Sequential and Exception Tests should be utilised to locate the development as required by NPPF. Proposals should not increase flood risk to either the Development site or elsewhere. Consideration should be given, in developing designs, to manage surface water run-off in such a way that slows run-off down and serves to contribute to reducing flood risk to properties downstream as well as at the development site.

Due to the settlement areas' susceptibility to flooding, it would be preferable for Developments to limit surface water discharge rates below the Greenfield run-off rates. This may not be practical in all situations, and the Greenfield rate should be considered a maximum. Where possible, Developments should look to implement Sustainable Urban Drainage Systems

(SuDS) to manage drainage requirements. These would preferentially use natural processes to provide green areas, allowing residents to connect more with nature.

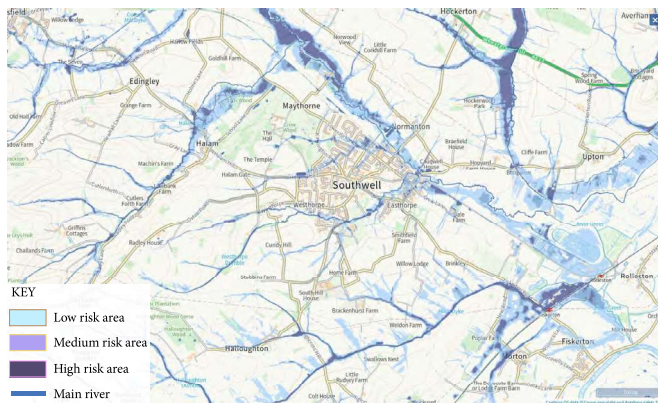


Figure 75: EA extent of flooding from surface water map (source: <https://flood-map-for-planning.service.gov.uk>)

Water and Drainage (WDR)

- SuDS must be integrated into developments to help address surface water run-off. These must be designed in accordance with The SuDS Manual, CIRIA.
- Drainage must be considered early in the development planning and design process, along with other key considerations.
- Existing watercourses, existing surface water flow routes across the site, and existing drainage systems, must be taken into consideration and the drainage strategy must mimic natural drainage patterns as closely as possible.
- Adoption of permeable paving solutions instead of tarmac is required. Gardens and soft landscaping must be maximised to reduce the overall area of impermeable hard surfacing that might increase surface water volumes and increase local flood risk. Further, green space can be used for natural flood protection e.g. permeable landscaping, swales etc. Notwithstanding the NPPF, block paving becomes impermeable after a very few years unless it incorporates special design features to ensure it remains as such.
- Boundary treatments within the flood zone are required to be designed with high water resistance materials and/or effective seals to minimise water penetration, provided these treatments are in keeping with the local character.
- Proposals must take a proactive approach to incorporating flood resilience into

building design through internal layout. Where appropriate the Flood Resilient Construction of New Buildings Guidance must be adopted.

- New housing must demonstrate how rainwater and greywater will be stored and reused to reduce demand on mains supplies. Rainwater harvesting helps to capture and store rainwater for irrigation and cleaning. Efforts must be made to conceal the units, or install them with attractive materials, cladding and finishings. Greywater recycling reduces pressure on local utilities by enabling the occupier to re-use water from showers and washing machines in WCs.
- The installation of water butts within new residential developments is required to collect rainwater from roofs and reduce the overall rainwater runoff impact of any development.
- Buildings must incorporate domestic water saving measures such as aerated taps, thermostatic mixer valves, low-flow showers, dual flush WCs and water-efficient white goods
- Wastewater heat recovery solutions must be considered in the domestic units as well as any commercial buildings e.g. hotels, leisure centres, school changing areas etc.



Figure 76: Example of a rainwater harvesting tank

4.8 Sustainable Design

This section should be read in conjunction with the POLICY SD1 – Delivering sustainable development in Southwell Neighbourhood Plan. The Local Plan encourages creating buildings and spaces with reduced environmental impact, offering people opportunities to live lower carbon lifestyles. Buildings should be suitable for future adaptation, conversion or expansion. The sustainable design and construction of new buildings and extensions to existing buildings have an essential role in reducing running costs, improving energy efficiency, and reducing greenhouse gas emissions.

Buildings must be designed to facilitate future adaption and integration of sustainability from the concept stage, with consideration of passive solar heating, cooling and energy efficient strategies. The energy hierarchy should be adopted through implementation of passive environmental design principles (considering how the site layout can optimise beneficial solar gain and reduce energy demands e.g. insulation, while reducing the risk of overheating), then the specification of energy efficient building services before the incorporation of renewable energy sources. All new buildings must have integrated roof mounted PV panels or tiles.

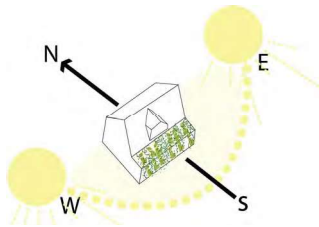


Figure 77: Precedent images - Examples of energy efficiency design

Energy Saving (ES)

- The design of buildings for energy efficiency must be consistent with the Government's current zero carbon buildings policy as outlined in the NPPF and the Code for "Sustainable Homes and Energy Performance of Buildings" (DCLG publication) or any replacement, with the aim to achieve the highest viable level of energy conservation.
- Account must be taken of the EU Ecodesign and energy labelling directive in the selection of energy efficient and low light pollution products, including those for lighting in houses, offices and street lighting.
- The measures taken towards a zero carbon development must be identified in a Design Statement.
- Where an energy performance certificate is required for a building the target SAP rating aimed for in the design must be shown in a Design Statement.
- Where buildings are designed to the standards in the "Code for Sustainable Homes and Energy Performance of Buildings", the anticipated star rating to be achieved under the initiative must be included in a Design Statement.

4.9 Utilities and External Storage Spaces

Cycle Storage (CS)

- All proposals for development must provide storage solutions for cycling in the case of housing developments, in accordance with NSDC Residential Cycle and Car parking Standards SPD.
- All forms of cycle storage must be designed so that they are easily accessible, convenient and secure.
- External cycle storage units or sheds must be designed so that they benefit from passive surveillance; solutions which fail to adequately demonstrate appropriate natural surveillance must be avoided. Convenient cycle storage should be provided in workplaces, outside community facilities, shops, schools and colleges.

Utilities (U)

Where relevant, applicants must consider within their Design and Access Statements how they have considered the design implications of the following:

- Bin stores and recycling facilities (location, design and collection)
Cycle stores (location, type and number);
- Meter boxes (location, typology, colour / materials).
- Street furniture and lighting (typologies and integration into the street scene).
- Flues, ventilation ducts, gutters and pipes (location, type and materials);
Access to service routes and long-term maintenance.
- Introducing dedicated service ducting within the street is required.
- All new buildings must have fibre optic cables installed to feed them and taken back to a suitable point for future connection to the national system.
- Services to include installation of fibre optic connections to each building into street.
- All street furniture to be painted in the dark green on installation.

Refuse Storage (RS)

- Proposed developments must include information within their application detailing where bins and crates can be stored.
- All developments must provide convenient, dedicated bin and recycling storage which is out of sight so as to minimise the adverse effects on the streetscape.
- All bin storage must be easily accessible, minimising the distance between storage areas and collection points and avoiding access through the property.



Figure 78: Precedent images - Example of refuse storages design

About AECOM

AECOM is the world's trusted infrastructure consulting firm, delivering professional services throughout the project lifecycle — from planning, design and engineering to programme and construction management. On projects spanning transportation, buildings, water, new energy and the environment, our public- and private-sector clients trust us to solve their most complex challenges. Our teams are driven by a common purpose to deliver a better world through our unrivaled technical expertise and innovation, a culture of equity, diversity and inclusion, and a commitment to environmental, social and governance priorities. AECOM is a *Fortune 500* firm and its Professional Services business had revenue of \$13.2 billion in fiscal year 2020. See how we are delivering sustainable legacies for generations to come at aecom.com and [@AECOM](https://www.instagram.com/aecom).