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Design Statement and Code
Slade Lane Haverfordwest
Consultation Draft

Prepared by
Nathaniel Lichfield & Partners

on behalf of
Pembrokeshire County Council



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1.0 INTRODUCTION

Background

1.1 This development brief has been prepared by Nathaniel Lichfield & Partners and Cooke and Arkwright on behalf of Pembrokeshire County Council. It is intended that this document will be used to co-ordinate, guide and inform the development of the 32ha site at Slade Lane north and south.

1.2 This development brief should be used as a means of guiding good development practice within the site, with a view to enhancing the quality of development in the area. Achieving sustainable development and good quality design solutions are set at the heart of this development brief. Accordingly, this development brief is grounded in the principles of good design set out in TAN12 and encouraged by documents such as the WDA Design Guide and By Design.

1.3 Slade Lane north and south are housing allocations of the Joint Unitary Development Plan for Pembrokeshire (JUDP). This development brief recognises and supplements the policies of the recently adopted JUDP. The following objectives have therefore been identified for the development of the site:

- To promote a form of development that is sensitive to the existing natural and built environment, which contributes towards the enlargement of the local economy and social capital;
- Encourage an approach based upon sustainable design principles to create an attractive and safe environment, more inclusive societies and more vibrant economies;
- Reflect approved JUDP policies; and
- Identify a realistic approach to phasing, implementation and on-going maintenance.

Project Description

1.4 The site is located on the north western fringe of Haverfordwest and incorporates an area of 32 hectares (see Figure 1). The site is allocated in the JUDP under Policy 44 as a major residential development area for circa. 1000 homes. The JUDP states that development will be phased, being restricted to land within the development boundary over the plan period; accordingly this development brief relates only to that area.

1.5 As part of the process, however, account has been taken of the potential for future development.

Format of Guidance

1.6 The planning context for the site is set out in section 2 and includes relevant planning policy and recent design guidance. Whilst Section 3 sets out the sites context, Section 4 provides an appraisal.

1.7 Key design parameters and development brief objectives are identified in section 5, together with design principles. These are then translated into a specific design response in section 6. Key principles of sustainable, energy efficient design are considered within section 7, whilst section 8 provides specific guidance in relation to highway design within the Slade Lane development site. Section 9 concludes with the planning application requirements.

Figure 1: Site Location Plan



2.0 DESIGN & PLANNING POLICY

Introduction

2.1 This section summarises and interprets planning policy relevant to the proposed development. It includes the strategic and local planning context in Planning Policy (Wales) and the Joint Unitary Development Plan for Pembrokeshire respectively. The key principles contained in best practice advice are also set out.

Planning Policy Wales

2.2 Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Assembly Government. Its central objective is to promote and provide a framework for sustainable development within Wales.

2.3 PPW outlines the importance of design as a means by which the environment can be protected, social inclusion promoted, the quality of life enhanced and states that this should be the aim of all those involved in the development process. It recognises that conservation and development can often be integrated; for example, through careful planning and design.

2.4 Careful planning can help to reduce the need to travel, especially by private car and enhance the access to new development locations by public transport, bicycle and on foot. PPW also encourages the creation of sustainable residential environments, in preference to large-scale, monotonous housing areas. It encourages local planning authorities to promote:

- Easily accessible developments;
- Mixed use developments;
- Attractive landscapes around dwellings;
- An emphasis upon quality and designing places for people;
- An efficient use of land; and

- The creation of well designed residential environments at an appropriate density.

Slade Lane, Haverfordwest

2.5 With regard to the location of new housing developments PPW states that they should be well integrated and connected to existing pattern of settlements. Expansion proposals should avoid the coalescence of settlements, or a fragmented development pattern.

Technical Advice Note (Wales) 12: Design

2.6 Planning Policy Wales is supplemented by a series of Technical Advice Notes (TAN). TAN12 (2002) considers design issues and sets out the Assembly's objectives for new development.

2.7 TAN12 notes that the appearance of development and its relationship to its surroundings are material considerations which should be taken into account when determining planning applications. For this reason, developers should pay particular attention to a wider range of design considerations, including:

- The relationship between different buildings;
- The relationship between buildings and the streets and other spaces that make up the public domain;
- The nature and quality of the public realm;
- The relationship between buildings and their landscape setting;

The patterns of movement that are established.

2.8 TAN12 highlights the importance of ensuring that new developments are sensitive to the local context and shows how it is not appropriate to apply general standards or design solutions. Rather, it requires the design and layout of new developments to reinforce the distinctiveness of the local area. In assessing the appropriateness of a new development, factors such as scale, density, height, massing, layout, landscape and access should all be taken into consideration.

Regional Planning Guidance for South West Wales

2.9 The RPG (April 2000) outlines the importance of ensuring that sustainable development is central to all area of policy making. It recognises that this is likely to result in the enhancement of economic development, standards of living and the environment.

2.10 The RPG states that the majority of new development should be located in existing centres so that a reduction in the need to travel, especially by the private car is realised. This is particularly relevant for those developments which tend to generate a high level of demand for travel.

Joint Unitary Development Plan for Pembrokeshire

2.11 In the JUDP, Slade Lane north and south is allocated for major residential development under Policy 44. According to Policy 44, Slade Lane north is allocated 446 dwelling units, whilst Slade Lane south is allocated 516 dwelling units. Development will be phased, with development at Slade Lane south scheduled to commence first.

Best Practice Guidance

2.12 A number of best practice guides have been produced in recent years. This development brief seeks to take into account relevant guidance including:

- Planning for sustainable development – Towards Better Practice (1998)
- Places, Streets and Movement: A Companion Guide to DB32 (1998)
- Urban Design Compendium (2000)
- By Design (2000)
- The Value of Urban Design (2001)
- Better Places to Live – Companion to PPG3 (2001)
- Home Zone Design Guidelines (2002)
- Urban Design Guidance (2002)

2.13 Whilst it is not proposed to provide a summary of this guidance here, it is useful to reiterate the key urban design objectives that are identified:

- **Character:**
New development should reinforce locally distinctive patterns of development.
- **Continuity and Enclosure:**
New development should promote continuous, active street frontages to help to define the public and private realm.
- **Quality of public realm:**
New development should promote safe and attractive routes for all members of society.
- **Ease of movement:**
New development should promote accessibility and permeability.

• Legibility:

New development should provide easily recognisable routes, intersections and landmarks.

• Adaptability:

New development should provide a place that can change easily.

• Diversity:

New development should promote choice through a mix of compatible uses.



3.0 UNDERSTANDING THE CONTEXT

Introduction

3.1 TAN12 underlines the importance of understanding the context of a site to deliver good design. This section sets out the contextual appraisal work that has been undertaken to assist in the production of this development brief. The contextual analysis of the site and surrounding area has included:

- A survey of land-uses, nearby facilities and local services immediately adjoining the site in order to understand the context for the development.
- A survey of the existing physical features of the site, the boundary conditions and opportunities for forming connections to the existing residential area and to the wider town beyond.
- An appraisal of the potential constraints on development and opportunities presented by the site and surrounding area.
- A character appraisal to examine the existing residential areas in Haverfordwest to determine whether there are any locally distinctive patterns and consider what has been successful in urban design terms.

A Brief History of Development

3.2 The town was initially established under Haverfordwest Castle around 1110, in proximity to the Western Cleddau River. Haverfordwest subsequently became a thriving port with vessels sailing right into the centre of the town. During the reign of Elizabeth I, it was considered to be the second largest port in Wales.

3.3 After the English Civil War, the castle began to crumble and became a source of limestone and sandstone for much of the subsequent development of the town. During the 19th century, however, the town was radically remodelled by William Owen, introducing fine terraces, a number of public buildings, streets and the new bridge.

3.4 The majority of development in and around Haverfordwest appears to have taken place prior to 1853, after which the port and associated river-trade severely declined due to the advent of the railway. The historic maps (see Figures 2 & 3) illustrate

Slade Lane, Haverfordwest

Site Context

the modest expansion of Haverfordwest from 1908 to 1953. The majority of development between these periods appears to be concentrated along key routes into the town centre and in proximity to the railway station.

3.5 The town's original function as a river crossing point is clearly apparent in plan, with the key routes radiating out from a central 'hub' based around the river bridges. The influence of the Western Cleddau and its tributaries, together with the local topography is very much in evidence



Figure 2:
Town Plan 1908



Figure 3:
Town Plan 1953

3.6 Situated at the north western edge of Haverfordwest's existing urban area, the site is located immediately adjacent the A487 which provides the main route into the area from the west (see Figure 4). Consequently development at Slade Lane will have a considerable influence on the town's western gateway.

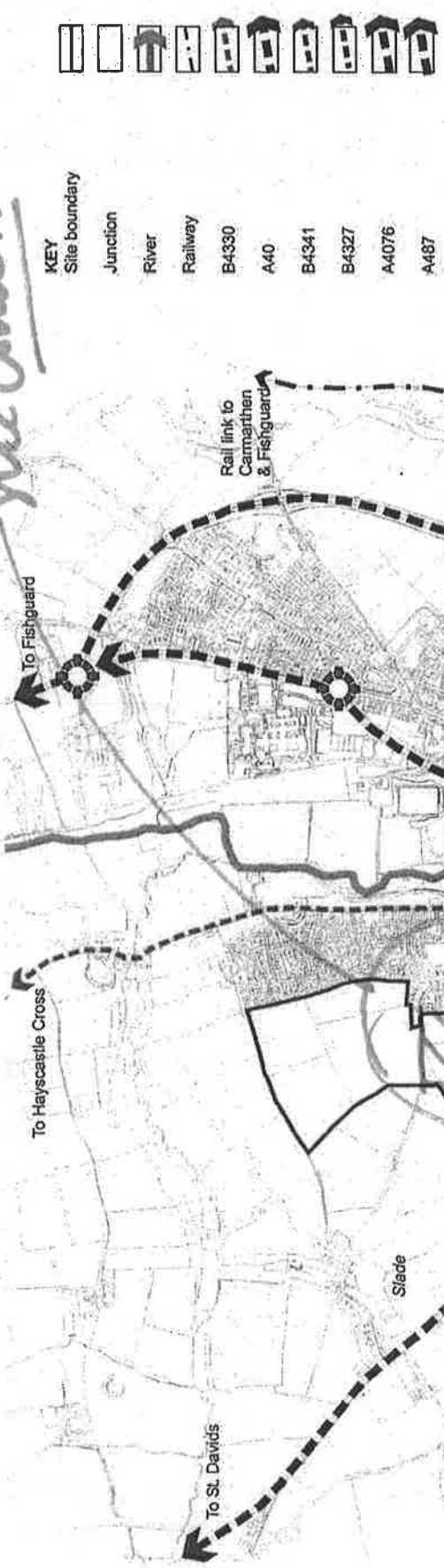
3.7 The site covers some 32 hectares/ 79 acres which comprises twelve fields of varying sizes. The majority of the site is currently in agricultural use.

3.8 Whilst both 'halves' of the site are broadly rectangular, the southern section is aligned east to west and the northern, north to south. The division is marked by the lane from which the site gets its name.

3.9 Slade Lane's proximity to the town centre provides for potentially easy access to local facilities including shops, healthcare and educational establishments (see Figure 5) highlighting the sustainable position of the site in relation to the rest of the town.

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Site Context



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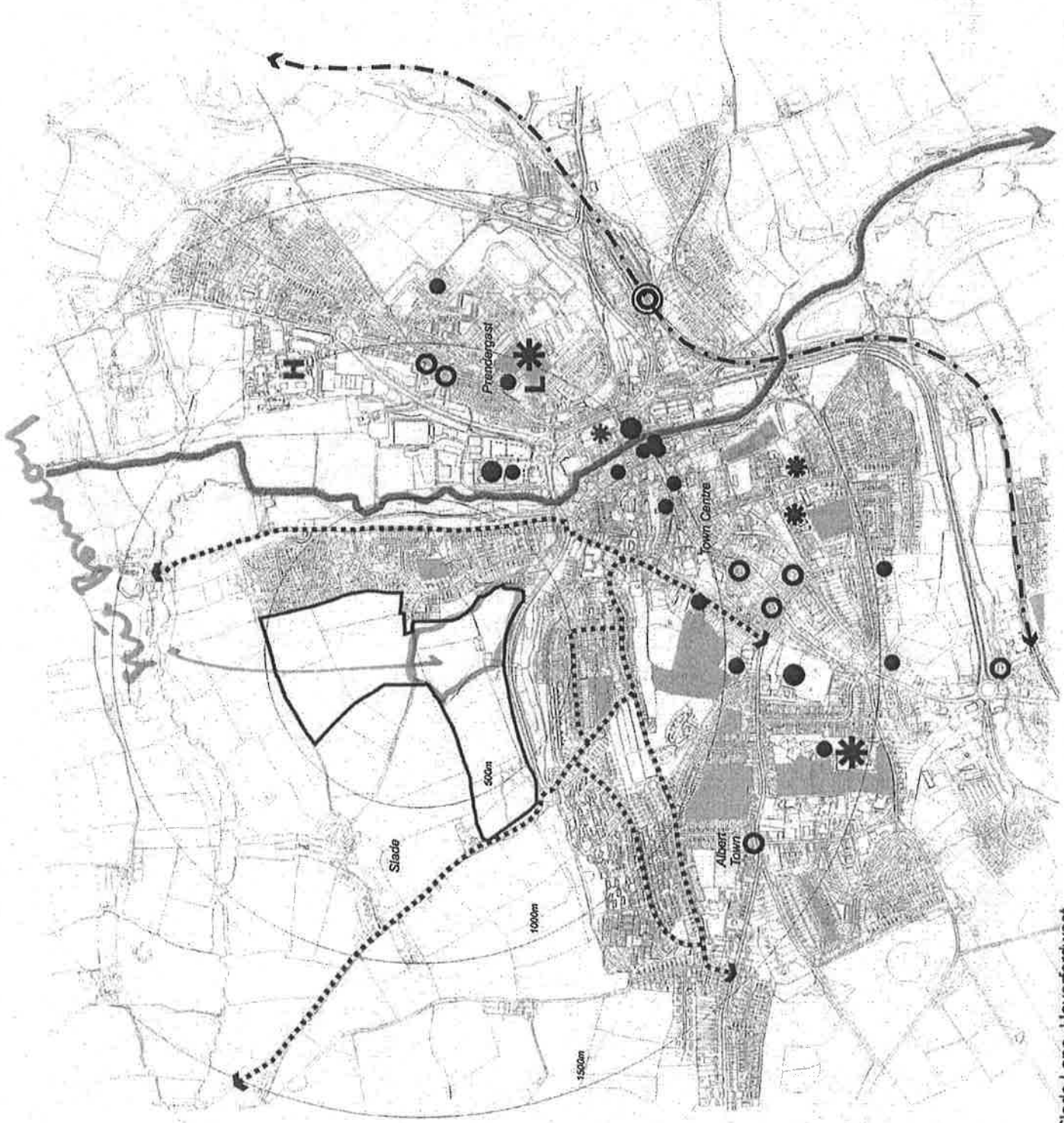
Project	Slade Lane, Haverfordwest
Title	Wider Context Linkages

Figure 4

Client	Pembrokeshire County Council
Date	April 2005
Scale	As drawn
Drawn by	SG
Dwg. No.	WE30121-001

Basic Context Diagram showing mapping with the permission of the Council. The map is a stylized representation of the area and does not show actual terrain. It is intended to provide a general overview of the site context and is not to be used for detailed planning or design purposes. The map is the property of Nathaniel Lichfield and Partners and is not to be reproduced without their written permission.

- KEY**
- Site boundary
 - Bus Route
 - River
 - Railway
 - Hospital
 - Leisure Centre
 - Post Office
 - Bank
 - Convenience Store
 - Supermarket
 - Doctor
 - Primary/ Junior School
 - Secondary School
 - Railway station
 - Public Open Space
 - Bus station



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Project	Slade Lane, Haverfordwest
Title	Wider Context: Local Facilities

Figure 5

Client	Pembrokeshire County Council
Date	April 2005
Scale	As Drawn
Drawn by	SG
Proj. No.	WE30121-002

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Boundaries

3.10 The northern extent of the site is defined by a hedgerow bordering a farm track. A more established hedgebank delineates much of the 'internal' western boundary, crossing Slade Lane and running through to the south of the residential property at Loo Choo. The most extreme western boundary is provided by St David's Road (A487).



Figure 6: View along Thomas Parry Way



Figure 7: Boundary to rear of Guillemot Avenue

3.11 The site climbs steeply from its southern boundary, Thomas Parry Way (A487), and is bordered by a mix of grassed verges, well established scrub and hedgerows/ banks (see Figure 6). A line of trees provide a strong visual boundary within the site, running for much of the length of the skyline.

Landscape

3.12 The majority of the eastern edge consists of a poor quality hedgerow bounded by residential development, the majority of which either backs onto or presents side elevations to the site (see Figure 7). The only exception to this urban edge is an undeveloped area of land to the rear of property numbers 80-96 Slade Lane.



Figure 8: Pembrokeshire Hedgebank



Figure 9: Existing wooded valley

3.14 Within the development site the quality of the hedgebank boundaries vary, with the best quality examples running the length of Slade Lane, along the ridgeline to the south of the main development plateau and around the, now dilapidated, dwelling of 'Harries Slade'.

3.15 The 'green lane' from which the site takes its name bisects the site, running east/west to Slade Farm. Immediately to the north of Slade Lane is an area of virtually flat grassland, with field boundaries defined by established hedgerows. A triangular enclosure provides a 'hinge' to the internal corner of the site, below which the grassed plateau continues before falling away to the A487 to the south.

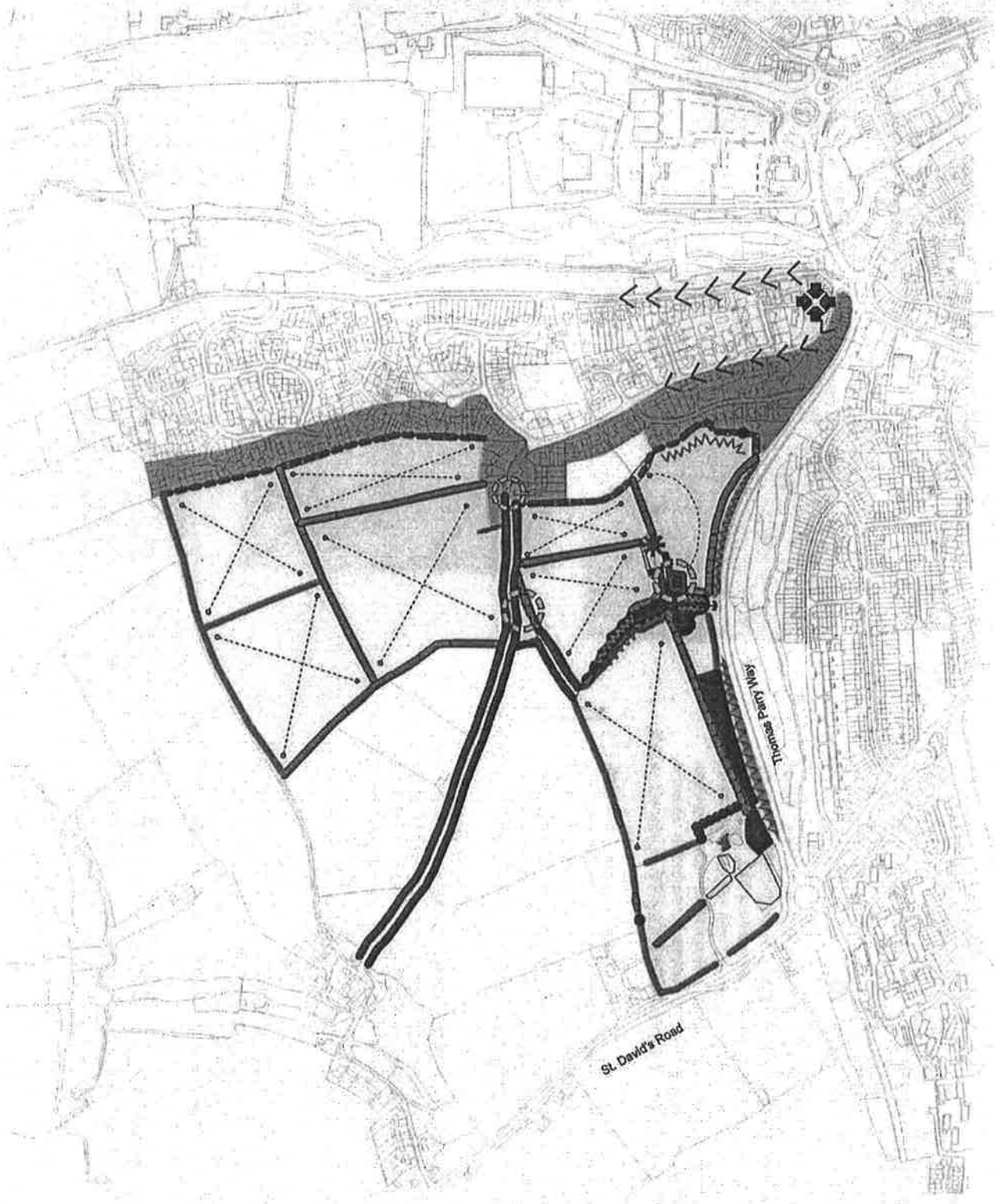
3.16 The southern part of the site is dissected by an attractive, deeply incised wooded valley, at the base of which runs a small stream (see Figure 9). To the west of the valley lies a steeply sloping area of indigenous scrub. To the east a roughly grassed field falls towards both the A487 and the properties which border the south-east corner of the site.

3.17 In conclusion, the site is well defined by its landscape context, currently displaying a wealth of hedgerow/tree species and habitats which undoubtedly provide an invaluable resource as wildlife corridors (see Figure 10). The extent of protection afforded by Tree Preservation Orders is illustrated on Figure 10: Landscape Features. The analysis undertaken within this section has informed the evolution of the masterplan.

- KEY**
- Subject to tree preservation order
 - Crowhill Road B4330
 - Existing dev. Edge
 - Hedge enclosing route
 - Strong, quality hedge
 - Good quality hedge
 - Average quality hedge
 - Hedge to dev. Edge
 - Steep slope
 - Steep gradient (road)
 - Existing area of scrub
 - Strong woodland
 - Landscape feature
 - Built landmark
 - Area of flat land
 - Conifer screen
 - Stream
 - Tight corner/ junction

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Project	Slade Lane, Haverfordwest
Task	Immediate Context: Landscape Features Figure 10
Client	Pembrokeshire County Council
Date	April 2005
Scale	As drawn
Drawn by	SG
Doc. No.	WES0121-004
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Linkages (access & movement)

3.18 Existing vehicular access to the site from the east is limited to either a steep, narrow climb along North Crescent (see Figure 11), or through St. Martin's Park via Crowhill Road. From the west it is restricted to the private drive for 'The Garth' off St. David's Road (A487).

3.19 The narrow track which bisects the site and links through to Slade Farm, provides an existing bridleway, and minimal vehicular access to many of the fields which comprise the proposed development site. A pathway linking from 'Harries Slade' through to Slade Lane at a point to the north of property number 84 forms the only other formal/major pedestrian access into the site (see Figure 12).

3.20 Due to the form of the existing residential layout along the eastern boundary, the potential for linkages from the existing development into the site is limited. Although there is some evidence of pedestrian access through the hedgebank boundary, this is confined to areas where private drives abut the boundary and seems to be on an ad hoc arrangement.

3.21 Existing field gates provide the only other means of access within the development site (as illustrated within Figure 14).

Key Views

3.22 Key viewpoints, both into and out of the site, exist as a result of the local topography. The influence that these will have upon the development of Slade Lane is considered later.

3.23 Long range views into the site from the east are limited by the residential development which has taken place along the ridgeline to the west of Crowhill Road. More immediate views are afforded to those properties directly adjacent to the site, with those in the southern most corner having the potential to be overlooked by adjacent development due to the site's elevated position.

3.24 Raised ground to the west of the site provides the opportunity to view the site from (Slade Hall) and similarly views of varying magnitude are apparent from higher areas of Haverfordwest, and particularly from Trafalgar Road and St. David's Road. There are clear views of the southern part of the site from the grounds of the Castle (see Figure 13).

3.25 The southern-most area of the site is visible to those travelling along Thomas Parry Way due to the rise in level from the roadside to the higher plateau area to the north. The plateau is less visible from the A487 as a strongly vegetated hedgebank provides a visual filter/barrier to the remainder of the site beyond.

3.26 Whilst long range views into the site are possible from higher ground to the north-west the visual impact when nearer to the site will be limited.

3.27 Views out of the site focus on dominant landmarks within Haverfordwest, most particularly the Castle, and the churches of St. Thomas, St. Mary's and St. Martin's. These elements provide an opportunity to be the focus of vistas across the site and, therefore such views have been safeguarded within the masterplan.

3.28 Included within the longer range southern views from the site are the newer estates to the north west of the town, and the distant Preseli Hills when looking northwards.

1806
Field enclosure
AV
(wales)



Figure 11: View along North Crescent

City Road
Highlander
Avenue.



Figure 12: View into site along existing pedestrian route

Benny
Gould
Way

Slade Hall
to view view

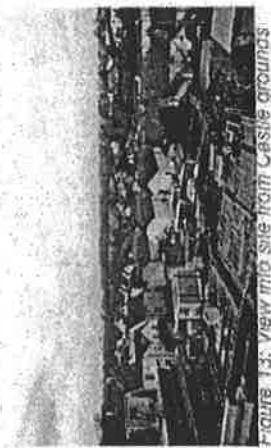
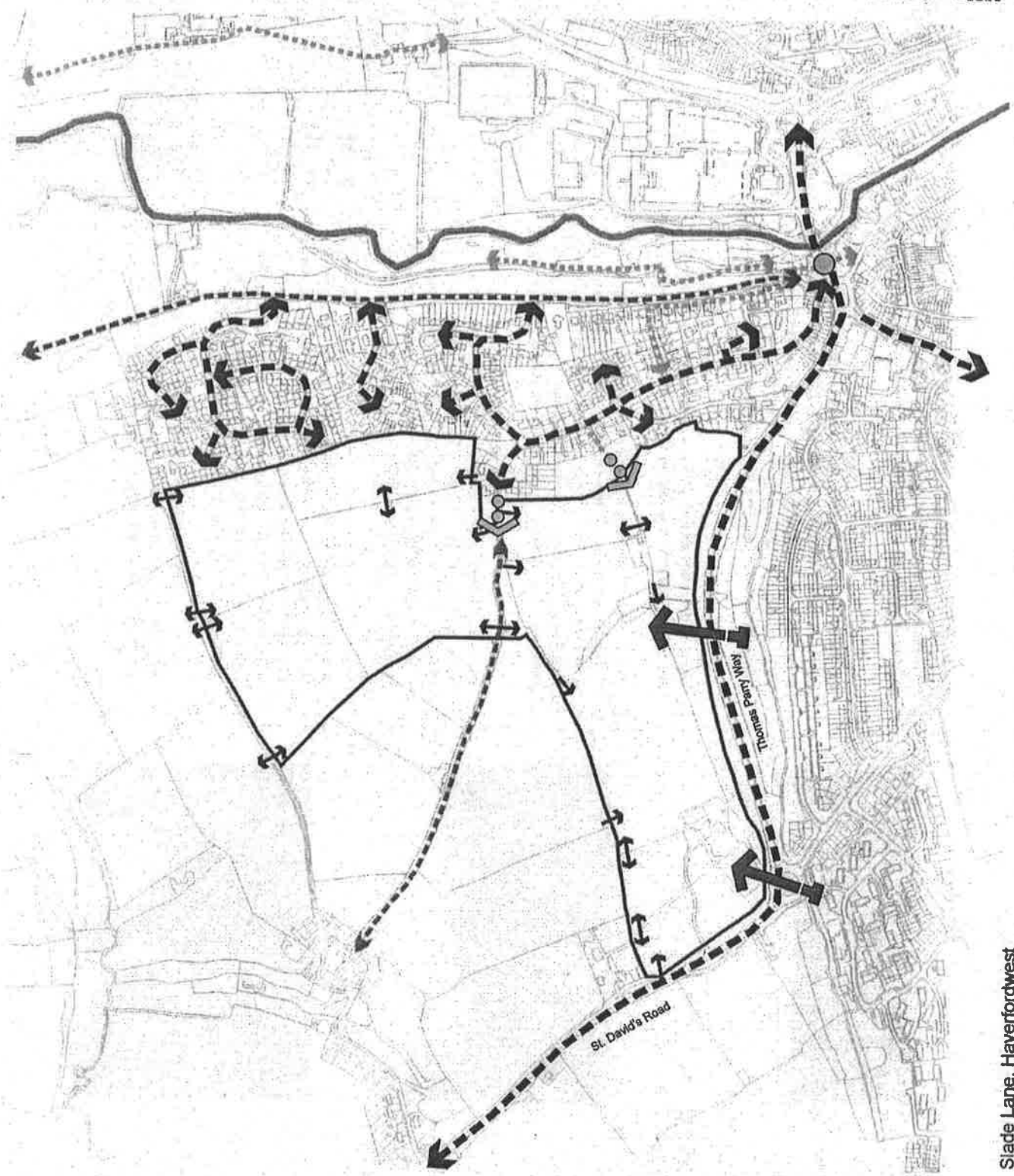


Figure 13: View into site from Castle grounds

- KEY**
- Site boundary
 - Crowhill Road B4330
 - River
 - A487
 - Bridleway
 - Footpath
 - Adjacent road network
 - Pedestrian access
 - Vehicular access
 - Field gates
 - Pedestrian crossing point



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Project	Slade Lane, Haverfordwest
Title	Immediate Context Linkages
Client	Pembrokeshire County Council
Date	April 2005
Scale	As drawn
Drawn by	SG

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Residential Character of Haverfordwest

3.29 An assessment of the residential character has explored the historic pattern of development. Figures 15 and 16 illustrate the expansion of Haverfordwest over time.

3.30 The assessment of character has focussed on residential development within the town which can be subdivided into two main areas. The central area having evolved since the town was settled; whilst the peripheral areas continue to develop to the present day.

3.31 The central area displays the following characteristics:

- Dense urban grain, with a grid pattern heavily influenced by the local topography
- High degree of connectivity
- Strong sense of enclosure provided by building heights and frontages to back of pavement
- A distinct hierarchy of streets of differing scales
- Subsequent terraced linear development along radial routes



Figure 15: Historic Street Pattern

3.32 The peripheral areas are distinguished by the following characteristics:

- Reduced degrees of connectivity - long streets and numerous cul-de-sacs
- Generally lower building heights
- Predominance of detached and semi-detached building forms, resulting in:

Less of a sense of enclosure

Lower density of development

Lack of coherence of development - 'add-on' approach

Highways and parking dominate the streetscene



Figure 16: 20th Century street pattern

3.34 In summary, housing within the older areas of the town is more distinctive, and contributes to a greater sense of place than the more 'suburban' housing in the peripheral areas of the town. The consistency of materials and detailing, together with the repetition of common themes assist in unifying the street scene. Landmark buildings also help to improve the legibility of the town, whilst permeable street layouts facilitate easy movement throughout the central area.



Figure 17: Queen's Square

3.35 Much of the post war and more 'modern' developments within the town generally lack an identity, due in part to standardised design and ill-considered use of materials. Few quality landmark buildings exist, and there is no clear pattern or hierarchy to the streets which form these residential areas. The predominance of cul-de-sacs reduces both connectivity and permeability. Areas of recent residential development adjacent to the Slade Lane site provide a barrier to future linkages, by presenting back gardens to the site boundary.



Figure 18: Guillemot Avenue



KEY

- Site boundary
- Stream
- Specific view in
- Immediate view
- Wide range view in
- Highly visible from south
- Visible from raised position to south-west
- Some views of site through landscaping
- Little impact except immediate vicinity
- Existing development edge
- Potential visual impact to edge
- Sensitive edge - low rise existing dev.

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Project	Slade Lane, Haverfordwest
Title	Immediate Context Visual Sensitivity Analysis Figure 19
Client	Pembrokeshire County Council
Date	April 2005
Scale	As drawn
Drawn by	SG
Drawn for	WES0121-005

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4.0 SWOT ANALYSIS

design
axis to

Strengths and Opportunities

4.1 • Proximity to town centre – sustainable location

- Potential to link through to existing pedestrian network and encourage modes of transport other than cars

unique feature
• Strong existing landscape character which can be utilised to retain a local identity for the site

- Potential to create high quality neighbourhood at north western corner of Haverfordwest, to act as a gateway to town
- Good transport links to south and west of site (Thomas Parry Way and St David's Road)
- Good visual linkages into town centre enhance legibility of area

Weaknesses and Threats

4.2 • Thomas Parry Way (A487) – pedestrian crossing issues as road severs site from town

- Relative impermeability of eastern boundary to both vehicular and pedestrian traffic
- Highway capacity problems at Churnworks roundabout
- High visibility of some areas of the site
- Low quality existing access into site from surrounding development

4.3 When considering the visual impact of development within this site on its surroundings, four key zones become apparent (see Figure 19):

Area 1 – The area immediately adjacent Thomas Parry Way (A487) has maximum visibility from both the main through route and areas of the town to the south because of local topography.

Area 2 – This 'plateau' is visible from raised positions to the north west of the town, particularly from the housing estate to the southwest of the site estate. It also impacts upon traffic travelling along St David's Road.

Area 3 – Whilst less sensitive to extensive longer range views into the site, filtered views of the 'central' area of the Slade Lane will be possible from key viewpoints within the town.

Area 4 – Development of this area will have limited wider visual impact except upon the immediate vicinity.

Character Areas

4.4 The site has a well established landscape framework, the components of which combine to define three distinct character areas (see Figure 20 below):

Character Area A:

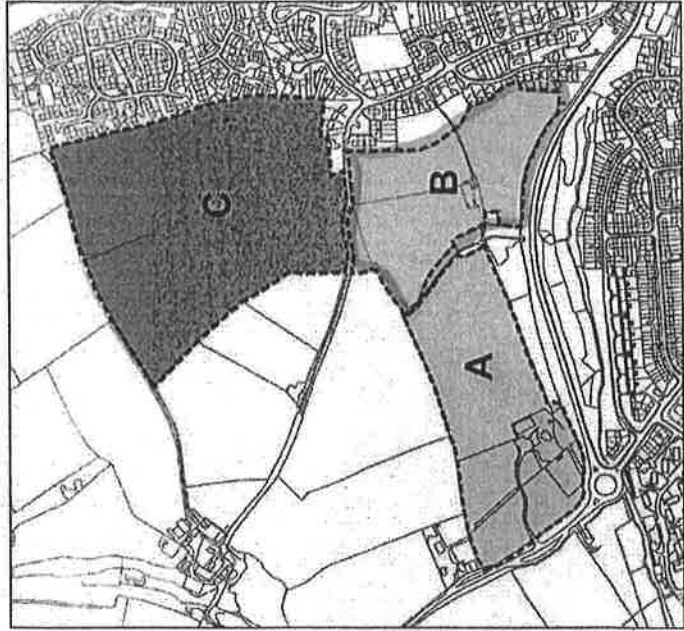
Open, level and visible development area with some good quality landscape and strong boundaries.

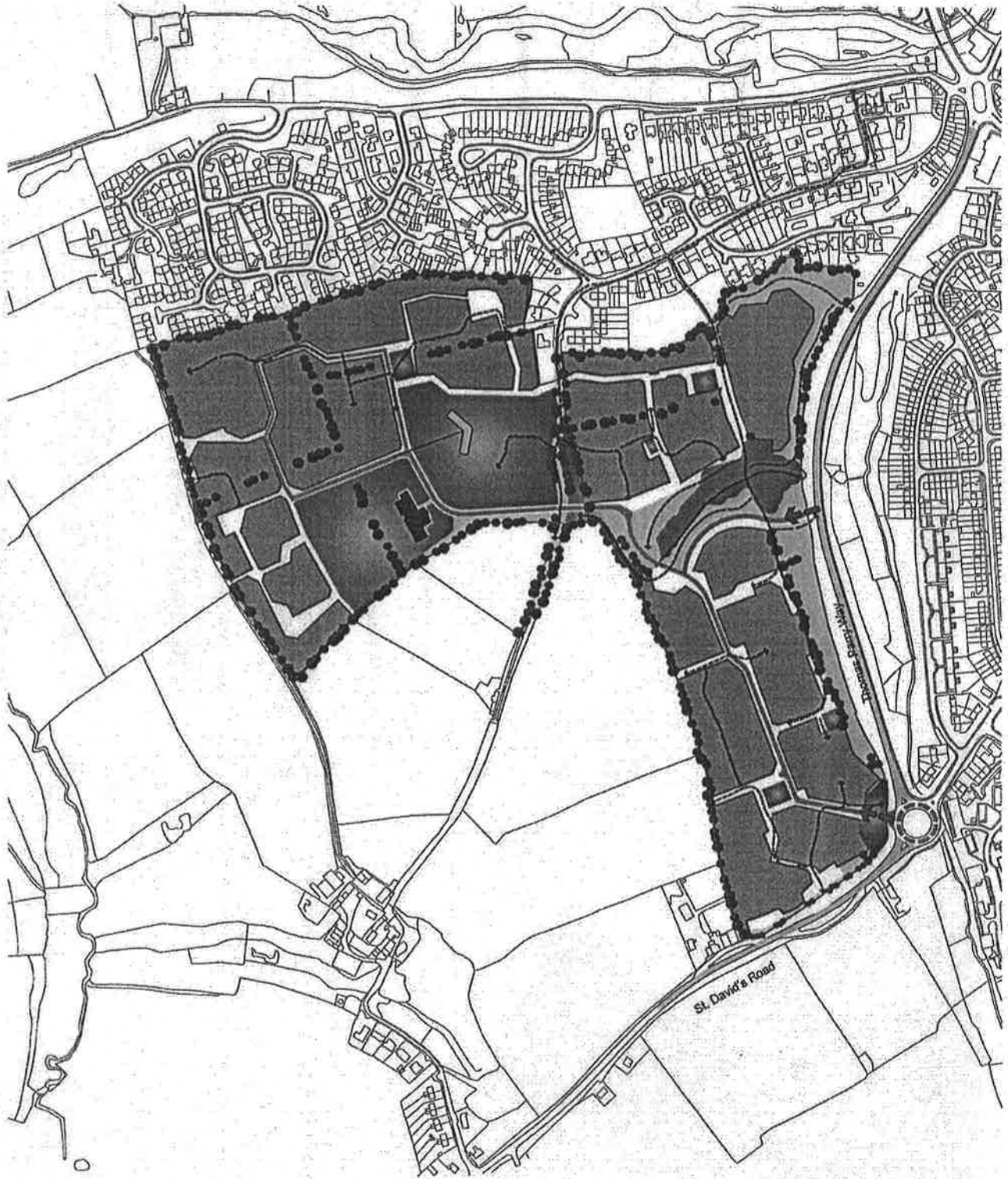
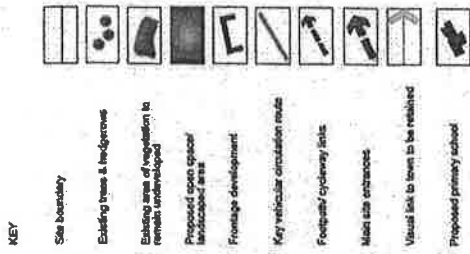
Character Area B:

Attractive landscape features with visually contained development areas, and the most sustainable position.

Character Area C:

Long length of existing developed boundary with the least amount of existing landscape structure.





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Project: Slade Lane, Haverfordwest

Site: Haverfordwest, Pembrokeshire

Figure 21

Client: Pembrokeshire County Council

Date: January 2008 (Rev A Feb 2007)

Scale: NTS

Drawn by: SC

Doc No: L20121-027

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5.0 DEVELOPMENT PARAMETERS & MASTERPLAN OBJECTIVES

Development Parameters

5.1 A variety of factors have shaped the development of the masterplan. The following section sets out the various considerations which will need to be taken into account to achieve a good quality development. The new development should respond sympathetically to the existing site conditions, deliver the desired land use requirements and address constraints affecting the layout and distribution of development.

5.2 The development of the site will need to take into account the constraints as highlighted by the previous SWOT analysis, and in particular:

Natural Features and Topography

5.3 TAN 12 encourages developments to make use of natural features that contribute to the character of the site. In this instance there are opportunities to:

- Utilise the existing stream as a landscape feature within the development.
- Maintain the visual connection between the site, the town centre and the surrounding landscape.
- Retain as many of the existing hedgerows/banks as practicable.

Masterplan Objectives

5.5 The intention of the masterplan is to set a framework for the design of the development building on local context and current best practice in urban design.

5.6 The overall approach has evolved from a thorough assessment of the site and surrounding area, an appreciation of the planning policy context and local market conditions.

5.7 The aims for the masterplan proposals are to provide:

- Sufficient land to accommodate approximately 1000 new homes to meet identified housing requirements in Haverfordwest through a mix of new homes.
- Facilities for formal and informal recreational provision to serve new residents.
- An access and movement strategy that will maximise the potential for forming connections to the existing residential area, creating a permeable urban structure.
- A primary school - to serve the needs of this new community.
- The provision of new pedestrian and cycle links across the site, linking to the wider area.
- A scheme that promotes a high quality, contextual design and layout of development that meets the design objectives of TAN 12, building upon positive locally distinctive landscape and townscape characteristics to create a development with sense of place and a coherent urban structure.
- A layout that will minimise opportunities for crime by ensuring clear definition of public and private space, with dwellings and windows orientated to enable natural surveillance of public spaces and routes.
- A layout which minimises the impact of parked cars and garages along key frontages, whilst ensuring appropriate levels of secure parking.
- A layout that will not prejudice the potential for adjoining land for future development.

Fit into masterplan objectives.

Secure by design

Development Principles

5.8 This section explains how the development parameters and masterplan objectives are translated into the masterplan. Assumptions made in relation to housing mix, density and open space provision are explained. The movement and landscape strategies are set out, and the key aspects of the urban design strategy are described.

5.10 In terms of the housing mix it has been assumed that a combination of one and two bedroom flats and maisonettes, and one, two, three and four bedroom houses will be provided within the layout.

5.11 It is anticipated that a housing development of this size will require the provision of a single entry primary school and associated playing fields. A primary school will be expected to be provided within the scheme.

Amenity Space and Recreational Provision

5.12 In calculating the amount of open space required in the masterplan area, the following has been assumed:

5.13 It has been calculated that 962 dwellings generate an open space requirement of 5.1ha (assuming an average household size of 2.21 persons) 3.4ha of this requirement is for outdoor sport provision. 2.6ha of which will be sports pitches to be provided adjacent to the proposed primary school site, acting as a focal point for the new neighbourhood

5.14 An area of 1.7ha of informal recreation and children's play space will also be provided within the development.

5.15 The existing stream/valley feature is one of the site's key natural resources, providing an opportunity for informal recreational usage.

5.16 It is suggested that, in accordance with NPFA standards, the following facilities are to be included as part of the open space provision:

- 3 no. Local Equipped Area for Play (LEAP) for children aged 4-8, comprising a 400sqm activity zone with five types of play equipment surrounded by a grassed area with seating and a litter bin. The area should be fenced and gated.
- A Neighbourhood Equipped Area for Play (NEAP) for children aged 8 and over, comprising an activity zone of at least 1000sqm divided into two parts; a 465sqm hard-surfaced area and play area containing at least eight pieces of play equipment. The activity area should be within a grassed space with seating and a litter bin, and should be fenced and gated.

5.17 A buffer zone of at least 30m should be provided between the activity zone of a NEAP and the closest residential property. A buffer of least 20m should be provided between the activity area in the LEAPs and habitable rooms within the nearest residential property.

Principle 1 – Access and Movement

Establishing a permeable, legible and safe movement network.

5.18 The design approach seeks to provide a permeable, legible and safe movement network. Emphasis will be placed upon providing an accessible pedestrian friendly environment, with opportunities for enhancing walking and cycling and facilitating 'access for all' both within and through the site.

5.19 To achieve this the key movement objectives will be:

- The provision of good, convenient connections with the surrounding area and the creation of a distinctive hierarchy of streets.
- A walkable neighbourhood based upon a clear hierarchy of safe, interconnected well used and overlooked streets and spaces.

• Convenient, strategic linkages to the town centre, with provision made to facilitate a public bus service through the site.

• The provision, wherever possible of convenient footpath connections between the development and existing bus stops outside of the site's boundaries.

• Design treatment to convey to drivers that they are entering a low speed residential environment, and to restrict vehicle speed within the development area. Frequent junctions, variations in alignment, the use of boundary walls, narrowing of the carriageway and gateway features to act as traffic calming measures.

• It is proposed that the main access point into the site will be from a remodelled roundabout at the junction of St. David's Road and Thomas Parry Way.

• A secondary access is indicated from Thomas Parry Way, at a point to the west of the valley (see Figure 21: Masterplan Elements). This access would be limited to public transport, cycles, pedestrians and emergency vehicles only, and will be subject to a 'right-in' (travelling from the east), 'left-out' regime.

• The final detail of the access arrangements will be subject to confirmation following the Transport Assessment

• There is the potential for additional access for emergency vehicles, cycles and pedestrians from the existing development to the east if required. There is no intention to provide opportunities for private cars to access the site from the east

• The provision of a footpath/ cycle route along the stream corridor as part of the informal recreational provision for the site.

• A number of potential access points along the site's boundary should be safeguarded to allow for linkages to future development opportunities (see Figure 21: Masterplan Elements).



Principle 2 – Landscaping

Developing a landscape strategy which respects and enhances the site's natural environment

5.20 The landscape strategy seeks to integrate natural features and new planting to assist the creation of a distinctive sense of place, provide both an attractive focus within the new housing area and a suitable interface with adjoining areas, and to reinforce local and regional landscape character.

5.21 The landscape and open space framework will be well defined and integrated within the new development from the outset to create a functional and visually attractive setting for the new housing. It will safeguard areas of ecological and visual interest, capitalise on important views and create/enhance a network of well used open space. It will seek to reduce the visual impact of the proposed development by the effective use of landscape design.

5.22 To achieve this the key landscape objectives will be to:

- Create a network of open spaces centred around important views.
- Retain existing trees, hedgerows and ditches wherever practical in order to provide focal points and provide an 'organic' quality and maturity to the development.
- Provide sympathetic boundary treatment to integrate the edges of the proposed development with the existing adjoining areas
- Frame and highlight important visual/ physical linkages to the site
- Create attractive landscaped gateways into the site
- Encourage the use of appropriate native species wherever possible

Principle 3 – Urban Design

Creating a high quality, attractive and legible built environment that contributes towards the local distinctiveness and sense of place.

5.23 The proposed development at Slade Lane should be designed to reflect best practice guidance in relation to urban design and sustainable development, as well as respecting and reflecting the distinctive local character of Haverfordwest.

5.24 Careful consideration will need to be paid to ensure that the development creates a coherent and distinctive place which recognises, interprets and positively enhances both the local natural and built environment.

5.25 Attention will need to be paid to creating a development that is easy for visitors and residents to find their way around, that is visually interesting and is a safe and pleasant place to be.

5.26 The key objectives underpinning the design approach to layout and urban form should be:

- To contribute towards a sense of place by responding to the site's characteristics and local context, and to provide a consistent and unified design approach.
- To ensure natural surveillance of publicly accessible routes and spaces through the orientation of habitable rooms.
- To create a continuous frontage of development, where possible, clearly defining public and private space.
- To incorporate areas of differing density, with a mix of house types to provide visual interest and promote diversity and flexibility.
- To provide landmark buildings and features at gateways, junctions and to terminate key views to create a memorable and interesting place that is easy to understand.

- To accommodate and integrate appropriate levels of parking within the development in a way that will ensure that parking does not dominate the public realm. Parking areas accommodated to the rear of dwellings within perimeter blocks should be designed to be overlooked by housing.
- To provide a public realm with consistent street furniture of high quality, designed and placed to meet the functional standards of a residential area.

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6.0 DESIGN RESPONSE

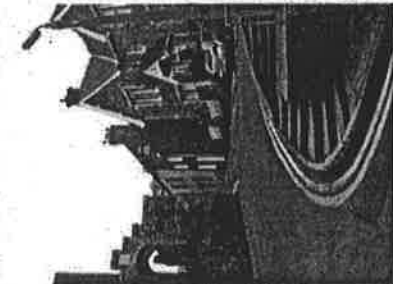
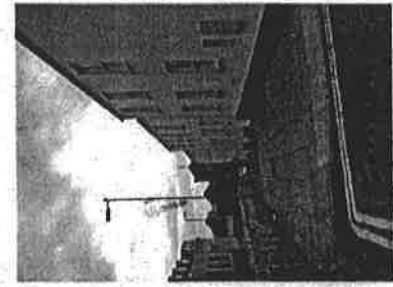
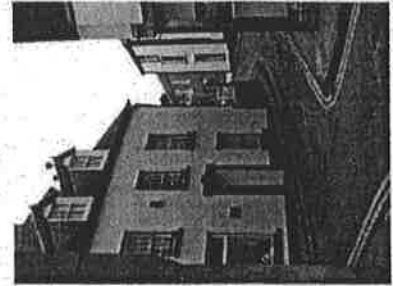
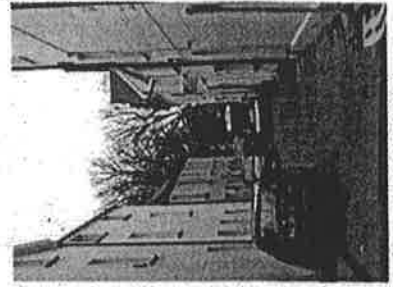
Introduction

6.1 This section identifies the key design principles that should be applied in the detailed design and layout of the development in order to meet the objectives of the urban design strategy.

Characteristics of Key Streets and Spaces

6.2 As has been highlighted previously, Haverfordwest has an abundance of highly developed townscape elements, the principles of which have been incorporated into the design concept for the site. Examples of the settlement's key spaces and routes are illustrated to the right.

6.3 The result of earlier analysis has been the introduction of the hierarchy of streets and spaces as proposed in the masterplan (See Figure 22: Hierarchy of Routes). These would have differing characteristics to assist in the creation of a legible development with a clear structure. The following pages provide broad criteria for the design of these streets and spaces.



The Relationship of Houses to Streets

6.4 The following principles should be applied with regard to how dwellings relate to the street:

- To enable a clear definition of public and private space the layout of dwellings and their boundaries should be designed to create a continuous frontage of development, enclosing secure rear gardens.
- Views along streets should generally be terminated by development to help to create a legible environment.
- At corners or junctions specific house types should be used which turn the corner and provide a form of development which overlooks the street. Blank gable walls would not be an acceptable solution.
- Garages to be set back from the main building frontage to reduce the prominence of parking in the streetscape.

The Relationship of Development to Site Boundaries

6.5 The eastern edge of the site backs onto the rear/side gardens of existing residential properties. In order to safeguard residential amenity the following general principles should be applied:

- New housing to be no taller than two storeys where it adjoins residential property.
- Habitable room windows of new residential property to be a minimum of 21m from the main habitable rooms at the rear of existing properties.
- Due to the change in level between properties in Oakwood Grove and the site, an area of POS will provide a buffer between existing and proposed development.
- Development along the northern boundary should not present rear elevations to the existing hedgerow boundary to safeguard future views into the site should a northern link road be implemented.
- Development should present frontages along the length of the southern boundary due to visibility from town and Thomas Parry Way.

The Relationship of Houses to Open Space

6.6 The following principles should be followed where development adjoins public open space:

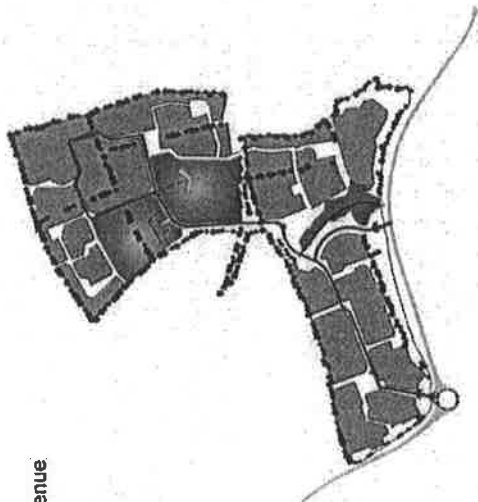
- Development should be orientated with habitable rooms overlooking routes and spaces to provide natural surveillance.
- Sufficient separation should be provided between dwellings and nearby play areas
- Development of up to three storeys in height would be acceptable adjacent to open space.

Footpaths/ cycle routes

6.7 The following should apply to the footpath and cycle links through open spaces within the development:

- Footpaths and cycle routes should be direct and reflect desire lines.
- They should be overlooked and avoid the rear of houses.
- They should be located in relatively wide, open areas and be designed to ensure good, forward visibility with no hiding places.
- They should be well lit with good quality signage where necessary.

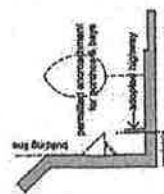
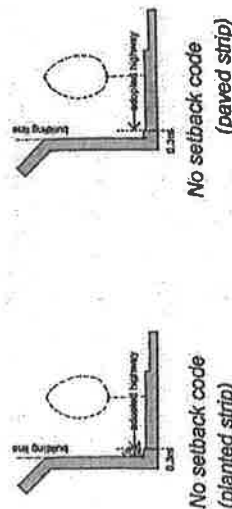
Principal Avenue



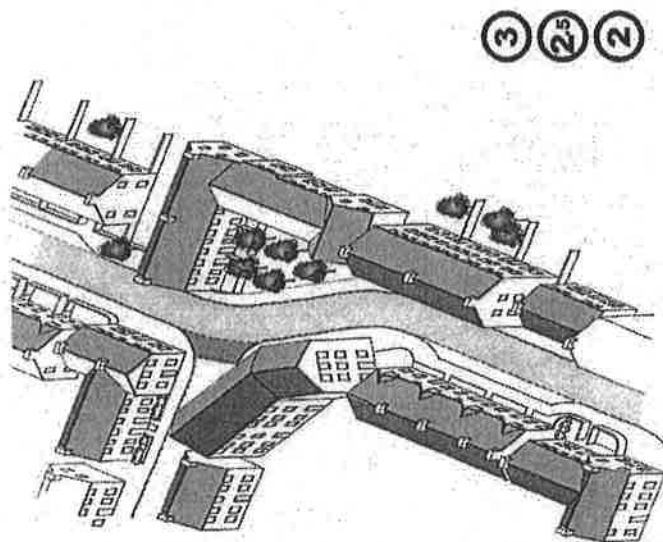
- The primary level within the street hierarchy will form the main route into and through the site and will need to facilitate bus access. (Whilst entrance points are fixed the position of this route is indicative).

Building Placement (setback from street)

Appropriate setbacks are indicated below:

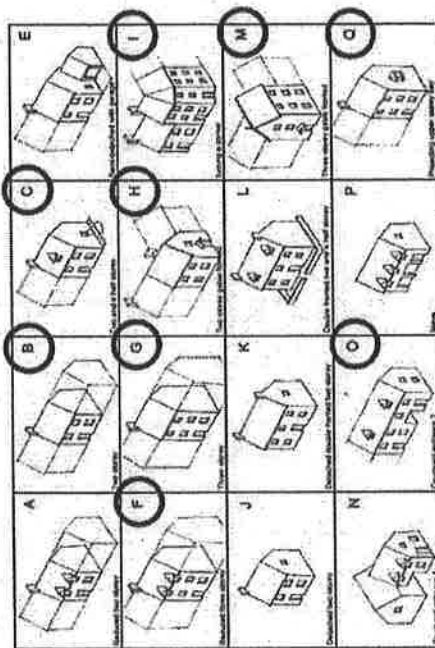


2m setback code (allowing for small gardens to the front)



Isometric showing degree of enclosure and appropriate building heights for principal streets

Building Forms



- Building types appropriate for development within the Principal Streets are indicated above.
- Also see Figure 24: Appropriate Building Forms (page 29)

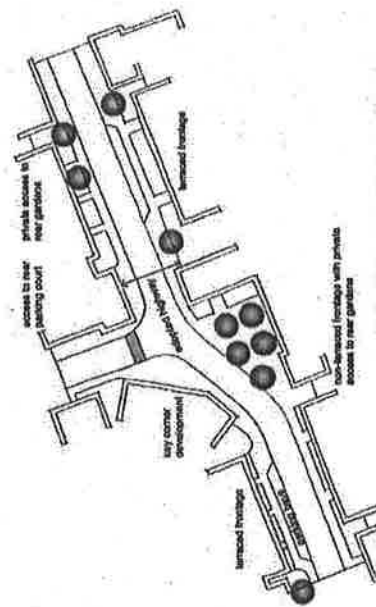
Key Characteristics

The following criteria should be applied to the design of the principal avenue:

- The main routes into the development provide an opportunity to create quality entrance statements and include some lengths of formal avenues.
- A strong building line with limited gaps between properties to strengthen the visual impact of these routes.
- Junctions and corners should be defined by key buildings to enhance the legibility of the new neighbourhood, and provide landmarks within the new development.
- Taller building forms (including 2 1/2 - 3 storey) are considered appropriate as a means of highlighting the importance of the street. High building height to space width ratios also encourage a sense of enclosure.
- Buildings which turn corners should suitably address both aspects, and provide focal points to key junctions.
- Carriageway width of 5.5m with footpaths (ranging from 1.8-4m in width) to both sides, where there is development.

Also refer to Figure 24: Highway Design Guidelines

Illustrative plan of principal street frontage



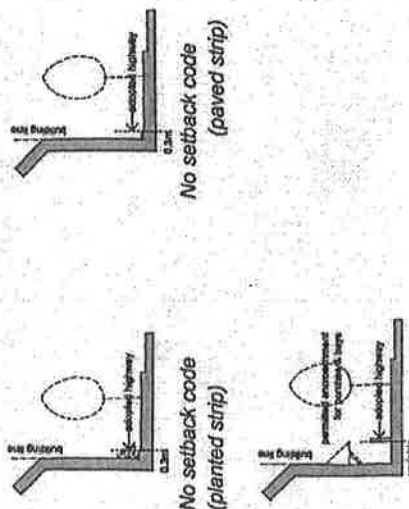
Main Residential Streets



- The second tier of streets within the development should have a more enclosed, and intimate character than the previous as a result of a narrower street.

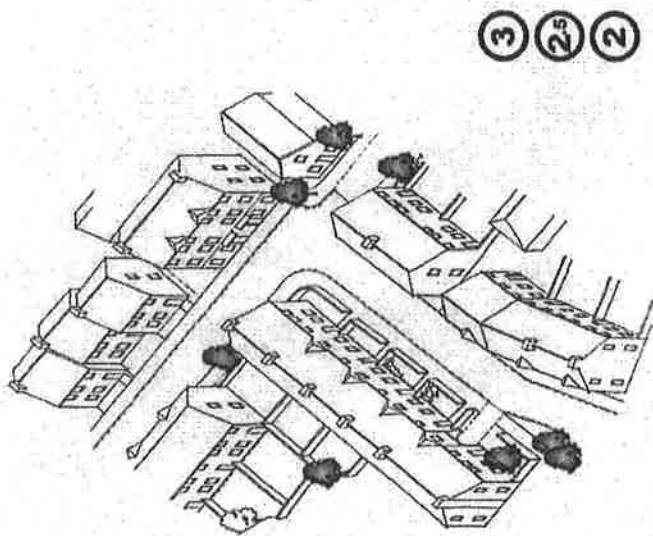
Building Placement (setback from street)

Appropriate setbacks are indicated below:



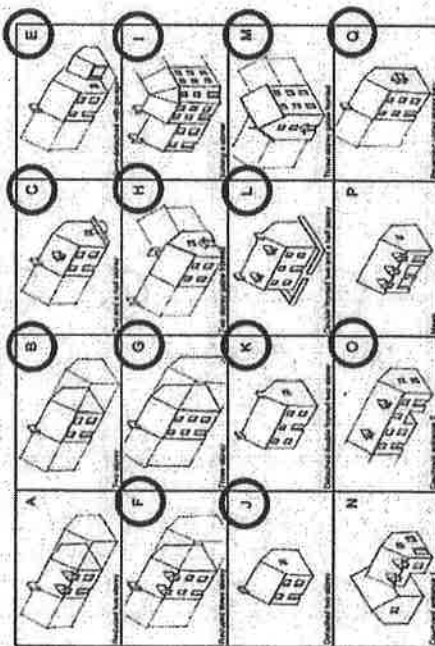
Variable setback code (2-4m for gardens)

Slade Lane, Haverfordwest



Axonometric showing degree of enclosure and appropriate building heights for main residential streets

Building Forms

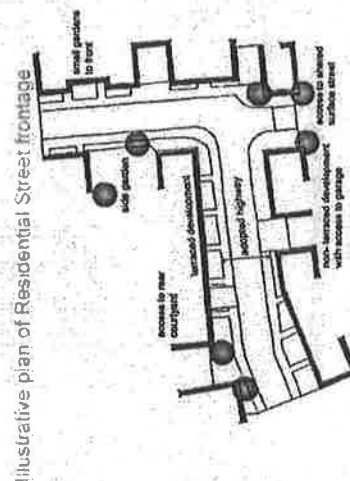


- Building types appropriate for development within the Main Residential Streets are indicated above.
- Also see Figure 24: Appropriate Building Forms (page 29)

Key Characteristics

The following criteria should be applied to the design of main residential streets:

- Carriageway width – maximum of 5.5m wide with narrowing in places, with footways to be provided on both sides of the street (min 1.8m wide)
- Designed with integrated traffic calming features to ensure low traffic speeds of 20mph – frequent changes in alignment and direction
- Development fronting street, with some buildings at back of pavement and others with small gardens to front
- Cycle routes to be included within the carriageway width
- No blank elevations to face the road. Properties should either be orientated to face the road or to have at least one habitable room overlooking the street to maintain natural surveillance.
- Lengths of parallel frontage should be kept to a minimum to encourage a varied building line.
- Limited use of driveways, with garages to the rear of the building line.
- Also refer to Figure 24: Highway Design Guidelines



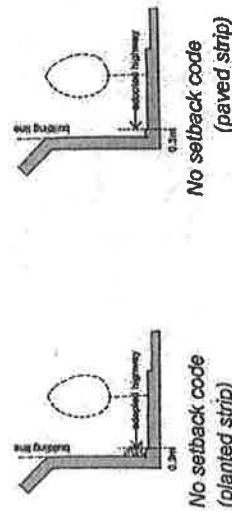
Shared Surface Pedestrian Priority Streets



- The third tier in the hierarchy is the shared surface street, where the needs of pedestrians would take precedence over car users. These streets should have a greater emphasis on the definition of the frontages.

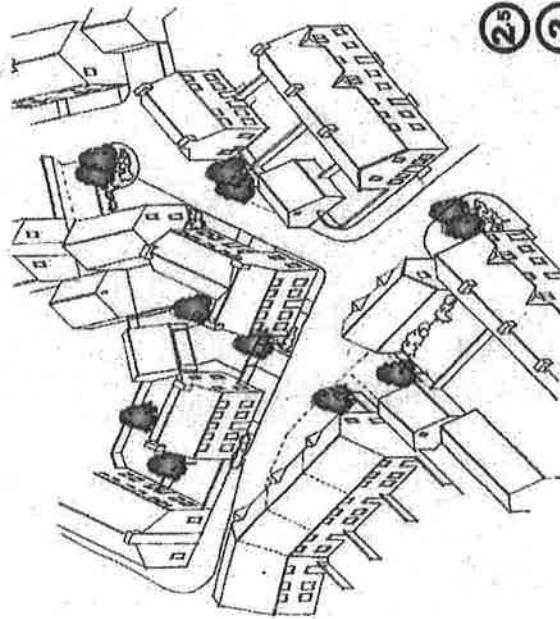
Building Placement (setback from street)

Appropriate setbacks are indicated below:



Note: there is no level change within pedestrian priority streets

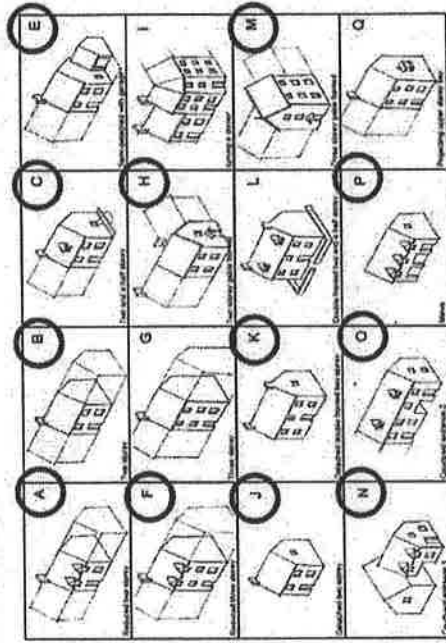
2m setback code (allowing for small gardens to the front)



25 2

Architectural showing degree of enclosure and appropriate building heights for shared surface pedestrian priority streets

Building Forms



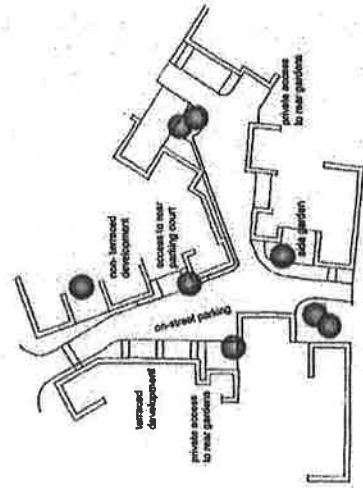
- Building types appropriate for development within the Principal Streets are indicated above.
- Also see Figure 24: Appropriate Building Forms (page 29)

Key Characteristics

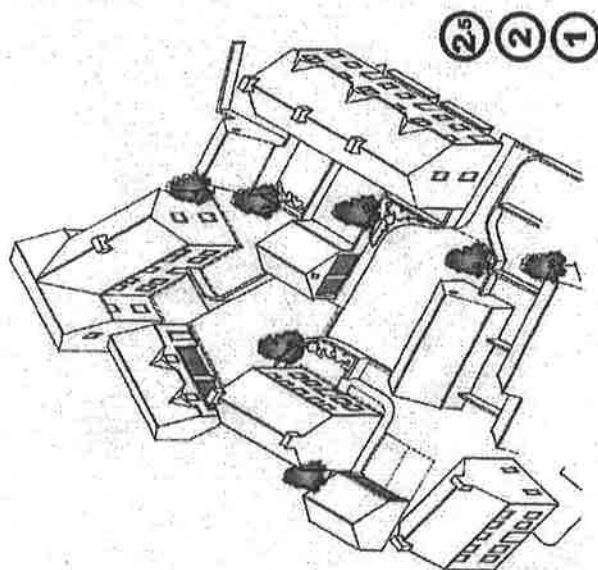
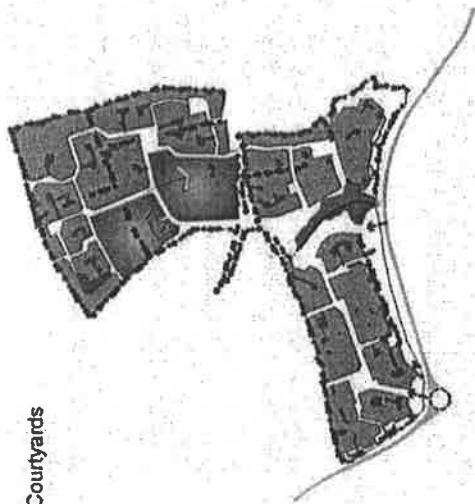
The following criteria should be applied to the design of shared surface pedestrian priority streets:

- The carriageway would be used by both vehicles and pedestrians and should vary in width between 4.5 and 6m dependant upon location.
- There should be a clear differentiation in the surface treatments at the entrance to the shared surface streets.
- Where appropriate, front gardens should be defined by low walls and/or railings.
- Courtyard and mews development would be an appropriate response to this level of street (see following page).
- Frequent changes in the road's alignment and/or pinch points will provide natural traffic calming to enable informal play within some streets.
- Also refer to Figure 24: Highway Design Guidelines

Illustrative plan of shared surface street frontage



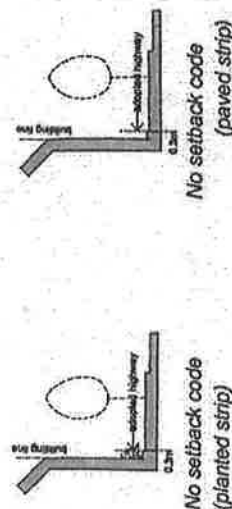
Mews and Courtyards



- Small scale spaces of an informal nature which will provide access to parking to the rear of properties. Dwellings may be situated within these areas.

Building Placement (setback from street)

Appropriate setbacks are indicated below:



Variable setback code (2-4m for gardens)

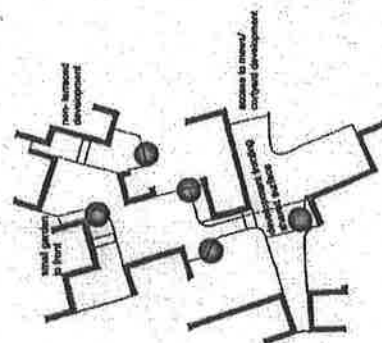
Key Characteristics

The following criteria should be applied to the design of squares within the development:

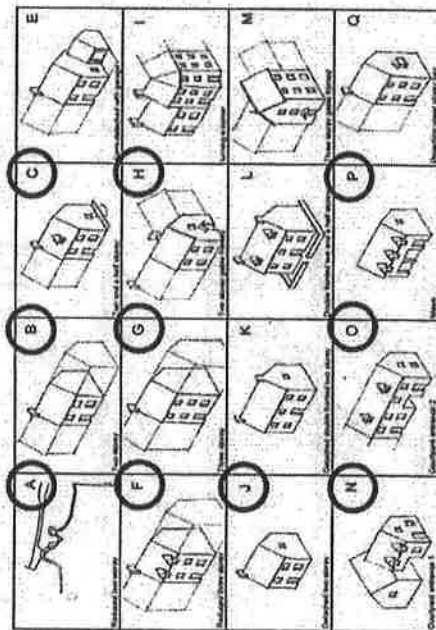
- Mews to be overlooked by housing to maintain natural surveillance
- Dwellings included within these areas can serve to overlook entire area
- Buildings which turn a corner should suitably address both aspects
- Intimate scale of enclosure within mews and courtyard areas created by narrow, varying street widths and limited building heights
- Varied width between properties acceptable
- Corners of development block to be defined by building form where possible

- Also refer to Figure 24: Highway Design Guidelines

Illustrative plan of mews/courtyard frontage

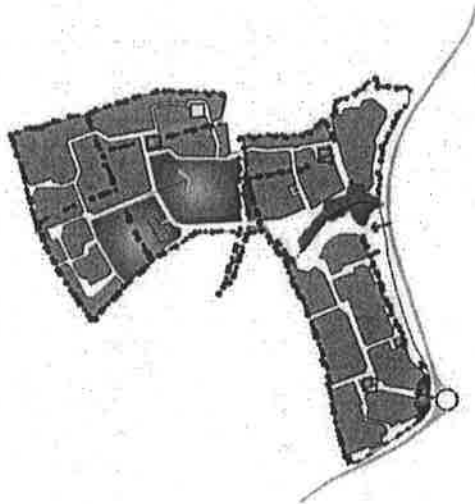


Building Forms



- Building types appropriate for development within the Principal Streets are indicated above.
- Also see Figure 24: Appropriate Building Forms (page 29)

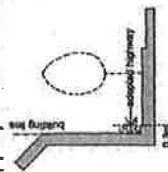
Squares



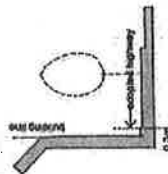
- The development of squares will provide a quality formal open space which can also serve as a changeover point between the residential streets and the pedestrian priority areas.

Building Placement (setback from street)

Appropriate setbacks are indicated below:

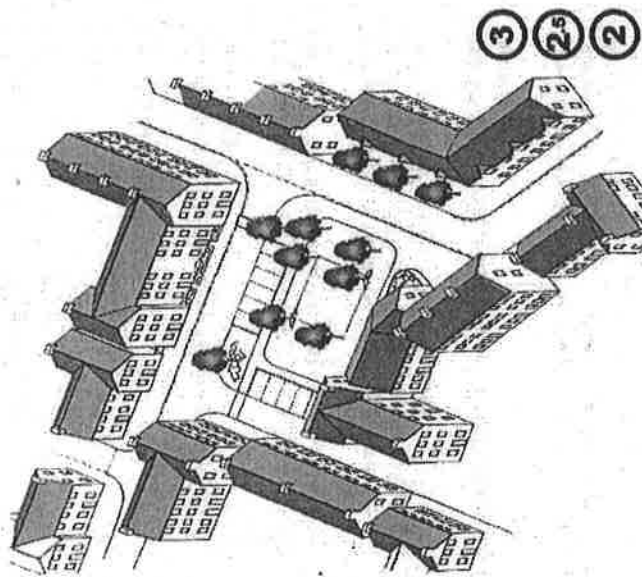


No setback code
(planted strip)



No setback code
(paved strip)

Minimal setbacks to define
edge of the square



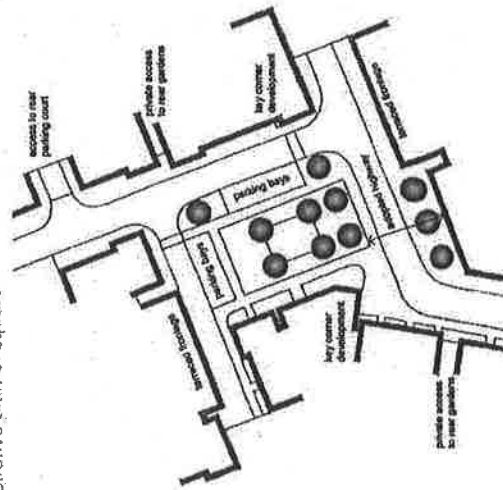
Axonomic showing degree of enclosure and appropriate building heights for squares

Key Characteristics

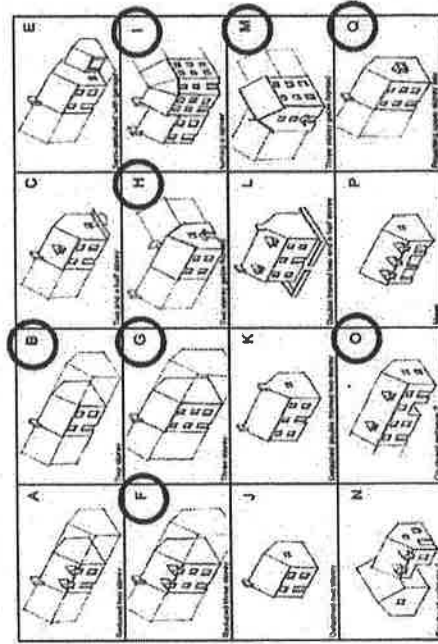
The following criteria should be applied to the design of squares within the development:

- Strong sense of enclosure created by maximum building height to space width ratios of 1:4
- Strong building line with limited gaps between properties
- There should be no driveways off squares
- Corners of development block to be defined by built form
- Predominantly terraced or flat development
- High density development
- Habitable rooms to be situated on the ground floor street frontage to encourage natural surveillance
- Buildings which turn a corner should suitably address both aspects
- On-street parking provision in centre of square
- Off-street parking accessed via rear of properties
- Also refer to Figure 24: Highway Design Guidelines

Illustrative plan of square



Building Forms



- Building types appropriate for development within the Principal Streets are indicated above.
- Also see Figure 24: Appropriate Building Forms (page 29)

Architectural Form	Surveillance/ Plan Layout	Building Types
6.8 • Generally the longitudinal axis of the building should run parallel to the street. • The presentation of gable ends to the street should be confined to key/landmark buildings, as a means of emphasising height. Limited use, as a means of turning a corner will also be considered appropriate. • Predominant roof pitches are to be 35-40 degrees, determined by both aesthetic and practical considerations. • Ridgelines should follow the longitudinal axis of the building and, as such, will generally be aligned to the street. • Where buildings require more than one roof, secondary roofs should be of the same pitch as the principal roof, but subservient to it. • For the majority of buildings simple pitched roofs will be appropriate. • More elaborate roof forms; hipped and half hipped are to be utilised in key locations, for specific functions such as turning a corner.	6.9 • All dwellings should be positioned to maximise natural surveillance. • Buildings should be designed in such a way that a degree of habitable rooms front onto the street at groundfloor level. • Provision should be made for at least one window on elevations which overlook publicly accessible areas, this can be at either ground or first floor level. • Windowless elevations next to areas of public space should be avoided. • This can be achieved with the provision of a 1m buffer zone, delineated either by a 1.2 - 1.4m railing or mature hedge of the same height. • Where there is no room for a 1.0m buffer zone, anti-pedestrian paving should be incorporated to provide a degree of separation, whether there is a window or not.	6.10 • The following table illustrates the range of building types which would be appropriate for use within the development. These have been based upon a study of Haverfordwest's vernacular style. • Particular building forms will be relevant to certain development areas - these are highlighted within the individual character area codes. • Whilst this table is not exhaustive, certain building forms will never be appropriate. These include: - Assorted subtractive roof forms - Mansard roofs

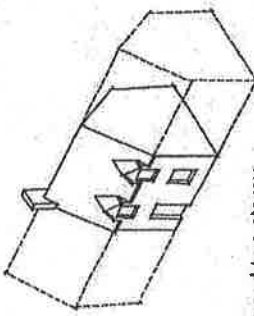
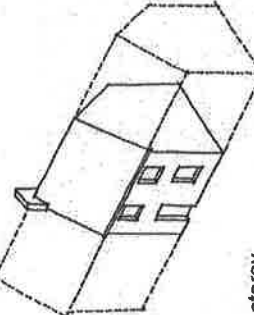
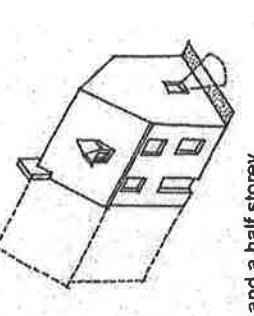
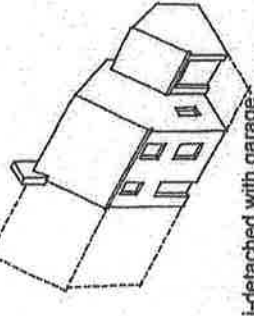
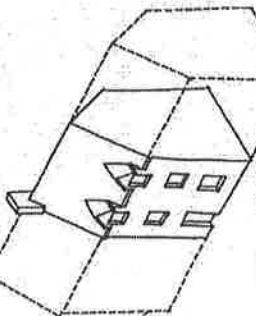
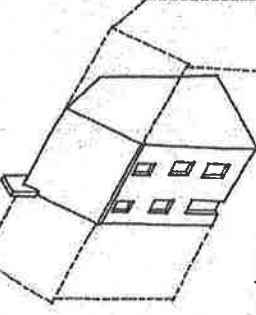
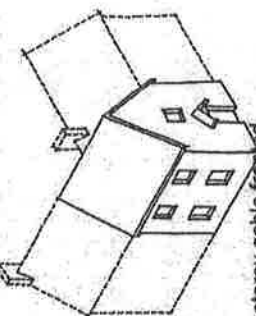
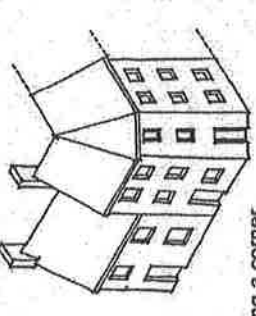
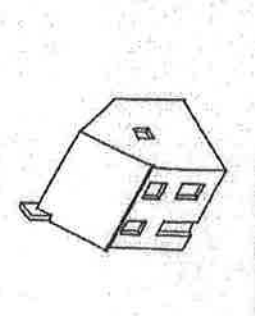
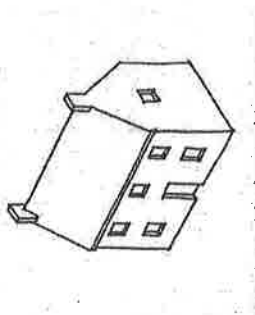
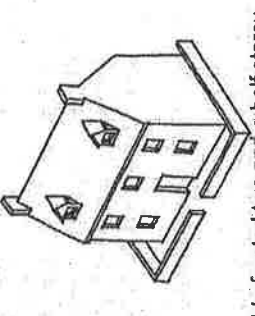
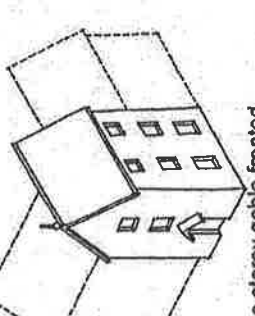
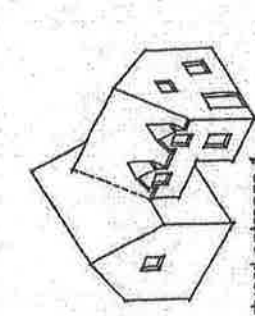
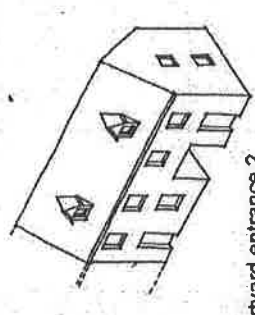
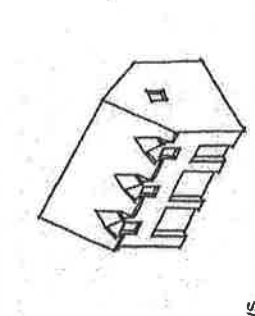
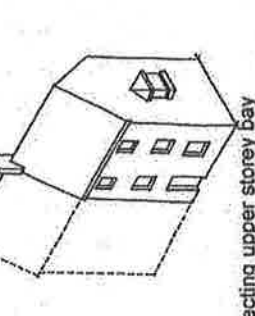
A  Reduced two storey	B  Two storey	C  Two and a half storey	E  Semi-detached with garage
F  Reduced three storey	G  Three storey	H  Two storey gable fronted	I  turning a corner Two storey gable fronted
J  Detached two storey	K  Detached double fronted two storey	L  Double fronted two and a half storey	M  Three storey gable fronted
N  Courtyard entrance 1	O  Courtyard entrance 2	P  Mews	Q  Projecting upper storey bay

Figure 24. Appropriate Building Forms

SUSTAINABLE DESIGN & ENERGY EFFICIENCY

7.0 It is most important to develop more sustainable homes in order to minimise the effects of using natural resources, whilst enhancing sustainable living. Nationally, the government is placing a strong emphasis on increasing energy efficiency and reducing pollution. The Energy White Paper 'Our Energy Future - Creating a Low Carbon Economy' (February 2003) sets out a strategy and targets to achieve these objectives. This document aims to cut the UK's CO₂ emissions by 60% by 2050, with real progress by 2020 and to ensure that every home is adequately and affordably heated. It also has an established target of producing 10% of electricity from renewable energy resources by 2010.

Planning Policy Wales

7.1 Planning Policy Wales (PPW) sets out the planning and land use policies of the Welsh Assembly Government. Its central objective is to provide an appropriate framework for sustainable development within the Principality.

7.2 In seeking to facilitate the delivery of more sustainable forms and patterns of development, Planning Policy Wales specifies a number of requirements that should be taken into consideration by new development proposals. These include:

- Promote resource-efficient settlement patterns that minimise land take and urban sprawl;
- Locate development so as to minimise the demand for travel, especially by private car;
- Ensure that all communities have sufficient good quality housing for their needs; and
- Promote access to a wide range of public facilities and services.

7.3 Not only is sustainability influenced by the location of development, it is also affected by good quality design. In particular PPW outlines the importance of design as a means by which the environment can be protected, social inclusion promoted, and the quality of life enhanced, and states that this should be the aim of all those involved in the development process. It recognises that conservation and development can often be integrated – for example, through careful planning and design.

Technical Advice Note (Wales) 12: Design

7.4 Planning Policy Wales is supplemented in a series of Technical Advice Notes. TAN12 (2002) considers design issues and sets out the Assembly's objectives for new development.

7.5 TAN12: Design highlights the importance of resource efficiency of developments at all scales, and concentrates upon:

- Resource efficient layout and
- Resource efficient buildings

It illustrates the potential for building orientation, location of slopes and planting to influence energy requirements through: maximising solar gain; exploiting a site's topography; avoiding areas of poor microclimate and limiting overshadowing.

Technical Advice Note (Wales) 8: Planning for Renewable Energy

7.6 Paragraph 4.3 of TAN 8 states that;

'Design, infrastructure and site layout are key to achieving energy efficient development by optimising passive solar gain in domestic and non-domestic buildings.'

Highlighting key aspects for consideration as:

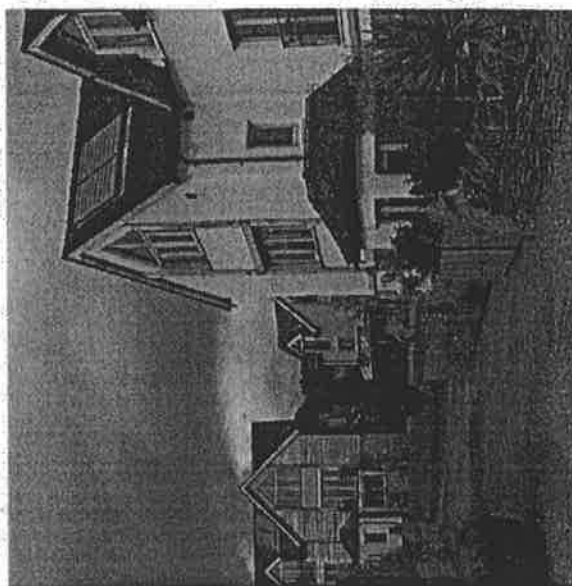
- The orientation of buildings and
- Site layout – avoiding overshadowing and optimising sunlight penetration

General Principles

7.7 The development at Slade Lane provides a most exciting opportunity to deliver a high quality and energy efficient development with sustainability central to its design and construction. It should strive to reduce pollution, conserve water, reduce waste, encourage recycling and promote biodiversity. In this regard, there are a number of key areas which should be considered in the design of the all dwellings throughout the site, comprising the following:

- Passive Solar Design;
- Lighting and Power;
- Insulation Requirements;
- Ventilation;
- Heating Systems;
- Water Conservation;
- Recycling; and
- Construction Process

7.8 Each of the above key areas is discussed below. However, firstly the EcoHomes rating is considered.



EcoHomes

7.9 EcoHomes is the environmental assessment for new homes. It aims to deliver better quality living environments with lower negative impacts on the environment and lower running costs for residents. This approach goes beyond requirements expected by current Building Regulations.

7.10 EcoHomes considers the broad environmental concerns of climate change, resource use and impacts on wildlife. It balances these against the need for a high quality of life and a safe and healthy environment. The assessment rates homes according to the environmental impact of building and occupying them. Seven categories are considered, comprising:

- Energy – reducing carbon dioxide emissions through the design of the building envelope and through the lights, heating systems and appliances used throughout the lifetime of the house;
- Transport – reducing the amount of pollution created due to trips made from the home to local amenities, work, community facilities etc;
- Pollution – reducing the amount of pollutants that are often associated with building materials and products (excluding carbon dioxide);
- Materials – use of materials with low environmental impacts during construction, use and when the life of the property is over, including recyclable materials;
- Water – reducing the amount of water consumed through improving water efficiency;
- Ecology and Land Use – reducing the negative environmental impacts on the amount and quality of land being used and avoiding using land of high ecological value; and
- Health and Well-Being – benefits that can be designed into a home to improve the quality of life, including adequate day lighting, improved sound-proofing and provision of open space.

Lighting and Power

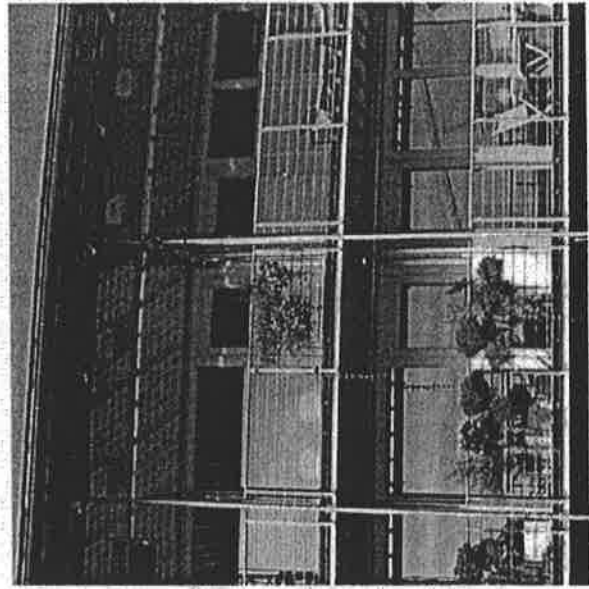
7.14 With respect to lighting, the following should be considered:

- Maximum exposure of dwellings to daylight through a southern orientation to reduce the needs for artificial light during the day;
- Use of energy efficient lighting; and
- Use of energy efficient appliances.

Insulation Requirements

7.15 To conserve energy, consideration should be given to the following:

- A high level of insulation on all exposed areas of dwellings, principally the roof, walls and floors.
- Consideration to the use of organic materials for insulation rather than polystyrene based insulation materials, given they are a more sustainable option
- Window type – use of high performance windows to minimise heat loss.



7.11 Many of these issues assessed by EcoHomes are optional, making it flexible and enabling developers to adopt the most appropriate aspects of sustainability for their particular development, together with site specific factors including the market. However, each element has a score attached to it which is weighted according to the overall environmental impact of any issue.

7.12 In order to achieve a sustainable urban extension to Haverfordwest, the development should aim to achieve a good EcoHomes rating across the site as a minimum.

Passive Solar Design

7.13 Passive Solar Design (PSD) is where buildings are sited and designed to capture the maximum light and heat from the sun whilst acting as a buffer against the worst of the elements. In modern housing up to 20-25% of heating and lighting energy can be saved by the application of PSD principles. Designs should take into consideration best practice guidelines, with the basic principles reducing energy consumption through:

- Dwelling orientation – Designing habitable rooms and gardens to face to within 30 degrees of due south, where possible;
- Room layout – Rooms used for living and working should be situated in the south facing part of the building, where practicable.
- Window sizing and position – Maximise the windows on the southern elevation of properties, where practicable. Smaller windows should generally be on the northern elevations; and
- Landscaping should provide a buffer to dwellings from prevailing cold wind, if possible.

Heating systems

7.16 A well-designed building envelope that uses passive solar design reduces the load on the building's heating and can contribute to a reduction in equipment size and fuel consumption. Accordingly, to save energy the following should be undertaken:

- Reduction of fuel consumption through the use of high-efficiency heating equipment
- Use of natural gas as a fuel source;
- Use of 'A' rated combi boilers, which are currently the most cost effective forms of heating; and
- All hot water cylinders and distribution pipework should be well insulated.

Ventilation

7.17 To minimise heat loss, the following approaches should be considered:

- Windows and doors should be draughtproofed;
- Jointing details should be sealed;
- Preference should be given to the use of blown fibre rather than rolls or batts, where appropriate; and
- Use of timber framed construction provides for better air tightness.

Water Conservation

7.18 When considering site layout natural watercourses should be maintained - providing not only natural site drainage, but also promoting biodiversity and providing amenity value.

7.19 Further investigation into the possibility of incorporating a sustainable urban drainage systems (SUDS) within the site should be carried out.

7.20 SUDS encourage water to drain into one of a number of types of permeable features, allowing for a more natural rate of groundwater recharging. As with natural watercourses SUDS features can provide an attractive amenity space within the development.

Macro-scale energy options

7.21 To conserve water within properties, developers should investigate the possibility of the following:

- Installation of low-flow toilets and showers,
- Use of larger gutters to deal with excess winter run off, where appropriate,
- Utilising rainwater collection and/or grey water recycling.

Recycling

7.22 Properties should be designed for recycling with space included to store materials for recycling. A local recycling centre should also be provided adjacent to the primary school, its central location allowing for easy access.

Construction Process

7.23 During the construction process, operational efficiencies should be maximised to ensure a more energy efficient production process and to reduce the impact on the environment.

Furthermore, to maximise the sustainability of this development, a careful selection of materials and use of resources should be undertaken through seeking to undertake the following:

- Selection of sub contractors partly on their environmental credentials;
- Use of Life Cycle Assessment techniques to select materials, where appropriate;
- To source heavy materials locally and more lightweight materials from further away, where justified;
- Where possible, use materials derived from sustainable sources;
- Where practical, use recovered or recycled materials where economically viable;
- Avoid the use of materials that give off Volatile Organic Compound (VOC) emissions or those which are known to be hazardous; and
- Hire labour locally wherever possible to reduce travel to and from the site.

District Heating

7.26 As with CHP, a district heating scheme would see the provision of a central plant, allowing for the distribution of heat to dwellings and the school. This option would be a lower investment than CHP but not as energy efficient, and so provide less of a carbon saving.

7.27 A biomass system could be commissioned to provide a low carbon solution for district heating.

Micro-scale energy options

7.28 Should neither CHP nor district heating be incorporated into the development then micro-scale systems could be considered as additions to the passive design approaches discussed previously.

Local biomass systems

7.29 If main centralised plants are discounted, then more local centralised plants could be considered. For example, biomass (either woodchip or wood pellets) boilers can be sized to serve a number of houses, distributing heat directly to homes.

Solar Thermal

7.30 Solar thermal systems provide domestic hot water and are becoming more commonly incorporated into new developments offering an economic low carbon solution. Such systems pre-warm water which is then topped up by a second energy source to reach the temperature required.

Solar – photovoltaic

7.31 Photovoltaic (PV) technology is developing quickly, but is yet to become as economically or commercially viable as other renewable technologies. It is possible to have building integrated photovoltaics (within glazed elements or PV roof tiles).

7.32 Small scale PV installations can provide sufficient power to contribute to a dwellings electricity demand.

Ground source heat pumps

7.33 Ground source heat pumps provide free pre-heating / cooling from the adjacent land to a building. For example a GSHP system could be laid within a dwelling's garden and assist with the homes heating in winter months. If GSHP's are installed with underfloor heating system then the overall system can be very energy efficient. It is more efficient to install GSHP with underfloor heating than radiators because underfloor heating requires lower temperatures.

Micro-wind

7.34 Small scale wind turbines could be installed on each dwelling and provide power directly into that property. Micro-wind however is not as economically viable as large scale wind, and so should be considered with care.

Micro-CHP

7.35 Micro-CHP installations running off mains gas can be installed as a direct replacement for a standard boiler. This high efficiency unit provides heat, hot water and electricity to the dwelling, providing lower energy bills for the resident, and emitting less carbon dioxide per household.

Micro-scale renewables – pick and mix

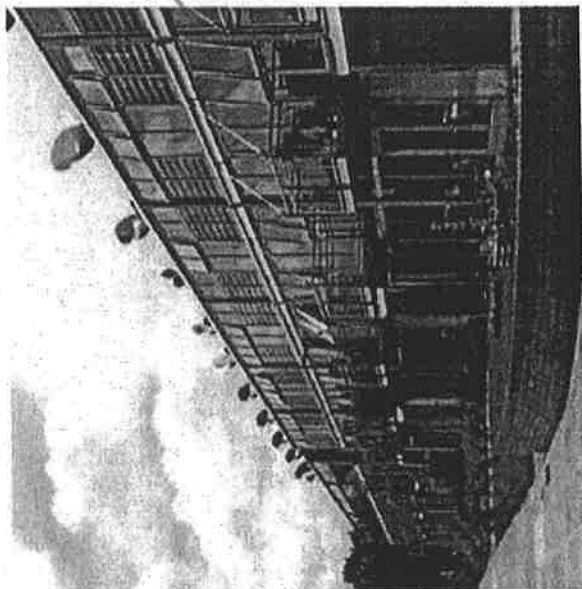
7.36 While some of the technologies discussed previously can be complementary to each other, some combinations will result in inefficiencies in each system and so reduce their overall performance. Deciding which renewable technologies to incorporate would require specialist advice.

Exemplar Dwellings

7.37 In addition to employing the above Best Practice techniques in the construction and servicing of the development, some exemplar, innovative and energy efficient dwellings could be provided. Such dwellings should be designed and constructed using the latest technology, with precise details being investigated during the detailed design process. These buildings would set a standard for subsequent development on the site.

Summary

7.38 Development at Slade Lane should seek to deliver a sustainable and energy efficient development through creating well designed and laid out buildings that minimise resource consumption, with full consideration being given to the use of renewable energy sources. Indeed, best practice techniques that exceed normal Building Control Standards should be encouraged across the site.



HIGHWAY DESIGN GUIDELINES

8.0 General

- The comparison guide to DB32 Places, Streets and Movements, offers guidance on how the design of roads, junctions and parking places can contribute to the quality, character and safety of an area. Elements of the guidance which are considered particularly relevant to Slade Lane include:

Design speeds to be a maximum of 20 mph

Tracking (the provision of the required carriageway width for vehicle movement within the overall street width)

Utilising tighter radii on junctions to promote traffic calming

Achieving sight lines appropriate to reduced vehicle speeds and vehicle movements

- In considering the above, it is appreciated that the radii proposed must enable service and emergency vehicles to negotiate the road network adequately.
- It will be essential to establish a clear definition between public and private routes and between vehicular and pedestrian routes. Areas maintained by the Highway Authority should therefore be distinguishable from those which are privately owned and maintained and surfacing material should complement the character of the buildings which define the space. Preference will be given to the use of natural materials or equivalent substitute materials and maintenance requirements will need to be considered.
- On shared surfaces, conflicts of movements should be avoided. Variations in materials or changes in detail can assist.

- Figure 24: Highway Design Guidelines (see following page) provides guidance on the design of vehicular routes within the Slade Lane development site.

	Principle Avenue	Main Street	Pedestrian Priority/Play Streets	Mews & Courtyards	Squares	Private drives
Design speed	20 mph	20 mph	15 mph	Below 12 mph	15 mph	Below 12 mph
Carriageway width (m)	5.5m	5.5m	Shared surface 4.5m min	Variable (3.5m)	4.5m min	N/A
Carriageway widening	Yes as (required) With widening up to 6.75m on bends	Yes (as required)	Yes (as required)	N/A	No	N/A
On street parking	Yes. Lay by parking where appropriate	Yes. Informal parking where appropriate	No	N/A	Yes	No
Footway (width)	Yes 1.8 – 4m dependent upon position in site	Yes (1.8m)	No	No	Yes (1.8m)	N/A
Grass verge/Service strip	Yes	Yes (where no development)	No	N/A Services within trafficked area	No	N/A
Direct pedestrian access	Yes	Yes	Yes	Yes	Yes	Yes
Direct Vehicular access	Yes (with adequate Vehicular and Pedestrian Visibility splays)	Yes	Yes	N/A	N/A	N/A
Bus access	Yes	No	No	No	No	No
Vehicle swept path	15m rigid vehicle	12m rigid vehicle	12m rigid vehicle	12m rigid vehicle to pass car	12m rigid vehicle to pass car	N/A
Forward visibility	33m	33m	Min 20m	N/A	N/A	N/A
Junction visibility sightlines	2.4 x 33m * see note	2.4 x 33m * see note	2.4 x 20m * see note	2.4 x 2.4m * see note	2.4 x 20m * see note	2 x 2m
Kerb radius Min.	6m	6m	4.5m	Variable, subject to design character (min 2m)	4.5m	N/A
Kerbing	125mm	Min 40mm	No	No	Min 40mm	N/A
Road surfacing	Macadam	Macadam	Variable (macadam/block paving)	Variable (macadam/block paving)	Variable (macadam/block paving)	Variable (macadam/block paving)
Lighting and Street furniture	Complimentary to character of development	Complimentary to character of development	Complimentary to character of development (wall mounted where appropriate)	Complimentary to character of development (wall mounted where appropriate)	Complimentary to character of development (wall mounted where appropriate)	Complimentary to character of development (wall mounted where appropriate)
Adoption	Yes	Yes	Yes	No (responsibility of Management Company)	Yes	No

* Note Visibility requirement to be subject to the category of road hierarchy that the junction is connecting onto

Figure 24: Highway Design Guidelines

PLANNING APPLICATION REQUIREMENTS

9.0 This development brief has been prepared in accordance with the requirements of the JUDP. The preparation of the development brief should be seen as an intermediate stage between the allocation of the Slade Lane sites in the JUDP and the grant of planning permission.

9.1 In the interests of comprehensive planning it is the preference of the local planning authority that an outline planning application should be submitted for the whole of the Slade Lane allocations.

9.2 The planning application will need to be accompanied by a transport assessment and will need to be subject of an Environmental Assessment screening opinion. The need for an Environmental Statement can only be properly considered once the required consultations have been undertaken. It should be noted that the EA regulations indicate that schedule 2 urban infrastructure projects of 1,000 dwellings or more will normally be subject of an EA.

9.3 Should an EA be required this should be considered against the masterplan proposals set out in this development brief.

9.4 In any event the JUDP appendix 2 states that surveys will be required in relation to Badgers and archaeology. It may be following consultation that additional target surveys / information will be required in relation to issues such as the water aquifer and protected species. This will be a matter for detailed discussion with the local planning authority.

9.5 It is anticipated that the submission of an outline application for the whole site will ensure that development can be properly phased, planning conditions and planning gain matters discussed and agreed at the earliest possible stage. This will ensure certainty for developers, local residents and the Council.

Planning Obligations

Planning and Compensation Act 1991, Section 106

9.6 A Planning Obligation is a legal agreement used to secure a planning gain. Under the 1991 Act a planning obligation should secure measures or contributions to address the likely impact of the proposed development on the physical and social infrastructure of the area.

9.7 Government advice relating to Section 106 agreements specifies that planning agreements:

- Are not based on a blanket formulation;
- Do not seek contributions to a general fund to be used to finance a number of facilities but to a specific facility related to the development proposal;
- Do not seek to request developers' aid in resolving existing problems (although where a planning consent would exacerbate existing problems contributions may be justified to remedy the situation);
- Do not allocate precise costs in advance; and
- Do not seek to secure a percentage of the profit of a planning consent.

Welsh Office Circular 13/97

9.8 Welsh Office Circular 13/97 entitled 'Planning Obligations' provides local planning authorities with the Government's guidance on this issue. The circular establishes the benefits that can be secured from such agreements and the role of development plan policy.

Planning Guidance (Wales): Planning Policy

9.9 Paragraph 4.7.1 refers to planning obligations and mirrors the comments made in Welsh Office Circular 13/97. This paragraph notes that "when granting planning permission local authorities may seek to enter into a planning obligation with a developer to:

- Restrict development or use of the land;
- Require operations or activities to be carried out, in, on, under or over the land;
- Require the land to be used in a specific way; or
- Require payments to be made to the authority either in a single sum or periodically."

Slade Lane Planning Obligations

9.10 After consideration of the issues arising from housing development at Slade Lane the planning gain elements sought by Pembrokeshire County Council will include:

- Affordable Housing;
- Education;
- Public Open Space; and
- Off-Site Infrastructure.

9.11 Depending upon circumstances at the time of the outline planning application; and evidence of need arising from the development, it may be that the planning gain elements will vary.

Affordable Housing

9.12 Policy 50 of the JUDP is concerned with Affordable Housing. It says that outside the National Park on sites that are allocated for housing development, where there is a demonstrable lack of affordable housing to meet proven local needs, the Authorities will seek to negotiate an element of affordable housing with developers.

9.13 The Council will seek to negotiate an element of affordable housing on the Slade Lane site. The basis for negotiation will reflect the JUDP policy and emerging supplementary planning guidance supporting the JUDP.

9.14 If the affordable housing element of the Slade Lane development is not provided through a registered social landlord (RSL) conditions or a planning obligation will be required to ensure that initial and subsequent occupiers are local persons.

9.15 The level of affordable housing to be provided on site will be established by negotiation between the local planning authority and the developer although it is expected that a reasonable proportion of the number of houses will be for affordable housing. The JUDP suggests that a County-wide figure of 20% affordable housing is required to meet local need.

9.16 Evidence from the combined Council housing waiting list indicates that there is a particularly high level of unmet affordable housing need in Haverfordwest. As of autumn 2005 there were 460 households on the waiting list seeking affordable rented properties in the town, excluding those seeking transfer of accommodation. This fact together with the low rate of affordable housing delivery in the early years of the JUDP indicate that the Council would be justified in seeking a level of provision of 30%. This target will be subject to review in the light of latest evidence of need at the time of the planning application.

9.17 Haverfordwest not only generates its own affordable housing needs but is one of the most sustainable locations for meeting affordable needs arising in the rural hinterland where provision can not be made locally.

Education

9.18 In addition to providing the necessary amount of affordable housing at Slade Lane, the following will also be secured through a planning obligation or condition:

- That the affordable housing requirement is wholly delivered on site.
- That affordable housing is integrated throughout the development and matches the market housing in terms of materials used, build quality and aesthetics.

9.19 Affordable housing can take a number of forms and it is important that the means of provision is agreed during the planning obligation negotiations. The Local Planning Authority preference is for social rented housing or shared ownership/equity housing constructed by the developer and transferred at the Acceptable Cost Guidance (ACG) level to a Housing Association.

9.20 The scale of the development indicates that as development progresses sufficient demand may be generated for a new primary school. An area has therefore been identified as a potential school site. Pembrokeshire County Council will seek through a Section 105 agreement to ensure that this land is reserved for educational use.

9.21 The Local Education Authority indicates that the number of pupils generated by residential development is as follows:

- 1 primary school pupil for every 4 houses; and
- 1 secondary school pupil for every 8 houses.

9.22 This would indicate an increase in pupil numbers of approximately 175 primary school pupils and 88 secondary school pupils.

9.23 Developers will be expected to help contribute towards the costs of school places produced by the development. The Local Education Authority estimates that the cost of education provision is between £2,000 and £4,000 per pupil, although the total financial contribution towards education will be subject to detailed negotiations between the applicant and the Council based upon up to date evidence of need.

Public Open Space

9.24 Pembrokeshire County Council is committed to facilitating the provision of accessible high quality open space for recreation uses. Open space may take many forms including parks and playing fields and is visually important, ecologically significant, important for social interaction and can enhance the quality of life of residents of, and visitors to, Pembrokeshire.

9.25 As part of the Slade Lane residential development the Council are therefore seeking a planning obligation from developers to provide adequate on-site and off-site public open space and recreational areas to serve the new residential area.

9.26 Paragraph 7.5.3 of the JUDP establishes that "As a benchmark for open space provision the County Council and the National Park Authority endorse the principle of seeking to meet NPFA (National Playing Fields Association) open space standards." The NPFA's 'Six Acre Standard' seeks to provide a minimum level of 2.4 hectares of open space per 1,000 people. This is split into two categories comprising a minimum of:

- 1.6 hectares (4 acres) for youth/adult sports purposes
- 0.8 hectares (2 acres) for children's play space.

9.27 Using these figures approximately 3.4 hectares of outdoor sport provision is required and a minimum of approximately 1.7 hectares of children's playing space must be provided for within the scheme. These figures have been calculated using the housing figure of 962 as established by the JUDP; however the final amount of public open space to be provided will vary according to the agreed number of dwellings accommodated at Slade Lane.

On-Site provision of playing fields

9.28 It is proposed to reserve a site for a new primary school within the northern area of the development site. Good practice allows for dual use of school and community playing pitches; for this reason it is proposed that the new pitches should be adjacent to the school (see Figure 21: Masterplan Elements).

9.29 As it is unclear whether and at what point a new primary school would be required, the playing fields will need to be planned to allow their provision in advance of the school. A phasing agreement for provision of the playing fields will be required either via the S106 or by means of a planning condition.

9.30 The pitches will need to be laid out in accordance with NPFA standard specifications.

9.31 The developer will be responsible for the laying out and maintenance cost of the pitches for the first two years. If after this period the developer wishes to transfer the facilities to the Council a negotiated maintenance sum will be sought based upon 15 years maintenance costs.

On-Site provision of childrens play spaces

9.32 The children's play spaces are sub-divided into three categories to cater for children of differing ages:

- Landscaped Areas of Play (LAP) are small areas of open space specifically designated and laid out for young children to play close to where they live;
- Local Equipped Areas of Play (LEAP) are an area of open space that is designated and equipped for children of early school age;
- Neighbourhood Equipped Areas of Play (NEAP) are sites that are equipped mainly for older children.

9.33 Policy 122 of the JUDP 'Outdoor Playing Space in Housing Developments' supports the Council's wish that 'Housing development' within the main settlements should provide adequately for the recreational needs of those living in the new development'.

9.34 Given the size of the residential development the Council wishes that children's play areas are provided within the site. Children's play areas will be located and designed in accordance with NPFA standards. The developer will be responsible for the capital cost of providing these facilities.

9.35 The developer will have responsibility for maintenance of the facility for the first 2 years following its provision. If after this period the developer wishes to transfer the facilities to the Council a negotiated maintenance sum will be sought based upon 15 years maintenance costs.

9.36 In Appendix 2 of the JUDP there is reference to the need to protect badgers living on site and also to the need for an archaeological assessment. These issues will need to be taken into account in planning for the delivery of public open space.