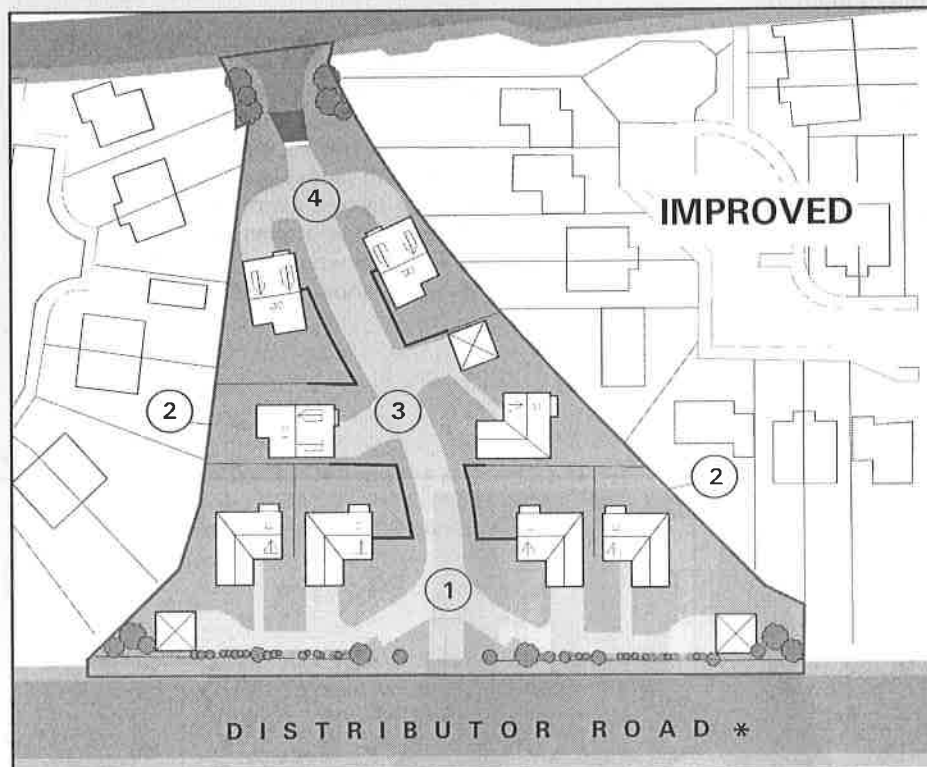


- ① Unstructured fenced road frontage/ wasteful, convoluted driveway link
- ② Exposed fenced boundary: poor outlook from houses / ambiguous maintenance responsibilities
- ③ Hidden, unsafe footpath link
- ④ Backland development: poor outlook/ security

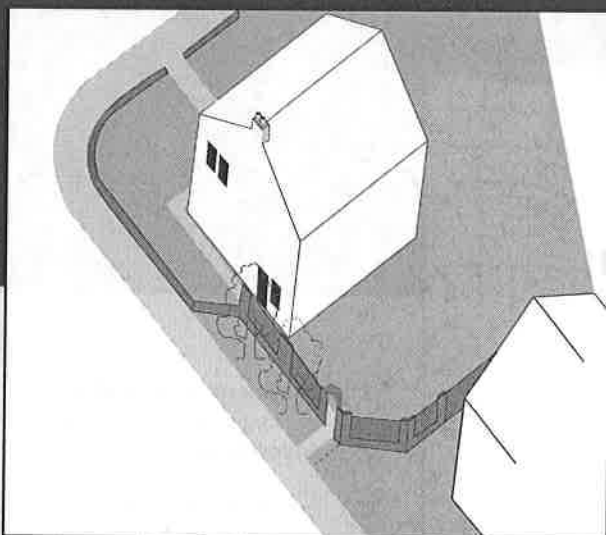


- ① Formal structured building frontage to distributor road
- ② Edges closed off from public view/ private maintenance responsibility
- ③ Centralized shared vehicle/ footpath route (right of way): better surveillance
- ④ Defined gateway into development

**Figure 6 : IMPROVING SITE LAYOUT**

Building Frontage, entrances, linked/permeable routes, surveillance, outlook, aesthetic quality, boundary edge and maintenance

\* direct vehicle access to individual properties prohibited

**Built Edges****Figure 7 : CORNER GABLE TREATMENT**

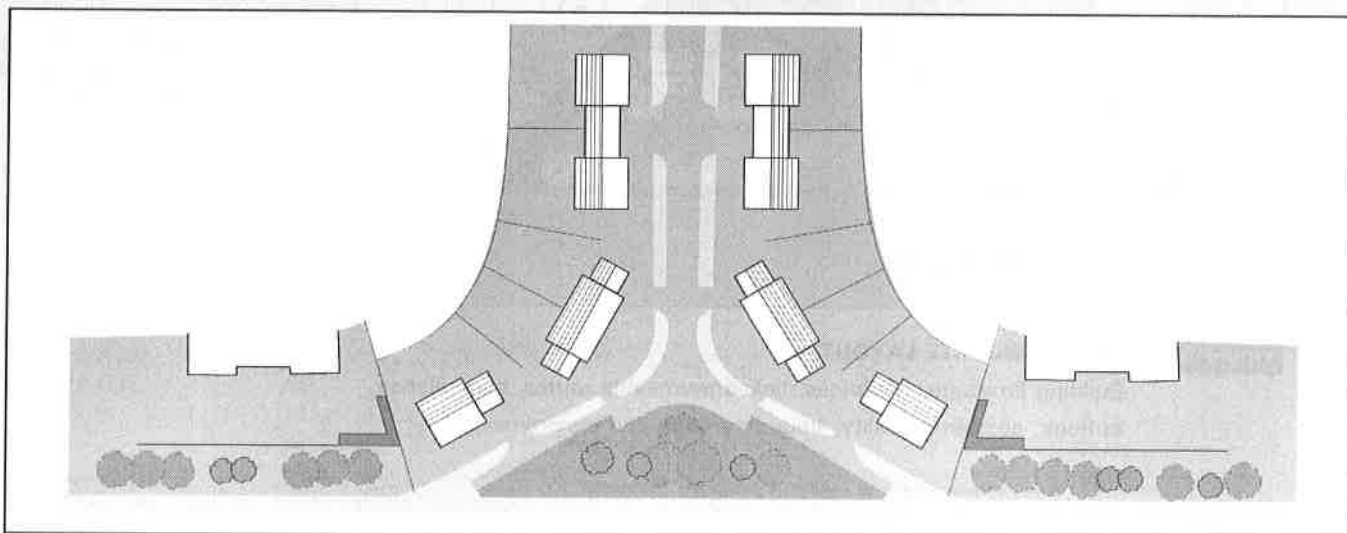
Image, window openings, garden enclosure, surveillance, access, security.

**Exposed Fenced Edges:** Where it becomes absolutely essential that a private rear garden enclosure is exposed to a roadway or open space, consideration should be given to the following combination of measures to improve the appearance of such an edge:

- formal window arrangements on both street elevations of corner houses or end gable with windows onto lesser road
- a high profile architectural treatment to the garden enclosure ( e.g. walls or fenced panels framed by low plinths and piers) with additional landscaped softening, if necessary
- the same quality of treatment to the rear house elevations as for the main frontages
- formal private entrances to the rear gardens from the public street.

**Countryside Edges:** New housing developments adjoining the countryside generally have high fencing defining the boundary. These have a stark external appearance and the countryside edge, hidden and inaccessible from the housing, can be vulnerable to fly-tipping and other nuisance activities. The following options are offered to address the situation:

- Housing fronting the countryside and accessing a perimeter road or driveway arrangement (as per a Distributor Road frontage). This would improve access, surveillance and outlook from the houses and provide a more attractive town edge.
- Where the costs of a single fronted roadway are prohibitive, a fenced edge may be conceded where it is broken at regular intervals by well designed building and landscape "gateways" accessed from a perimeter footpath. An additional edge of planting between fence and footway would help to soften any appearance of starkness.

**Figure 8 : COUNTRYSIDE EDGE/ENTRANCE**

Access/linkage, surveillance, buffer, visual appearance, vitality and use.



## 2.4 Models for House Grouping

### The Issue

A well integrated framework of spaces and associated built edges to those spaces has the potential to give to a housing estate the desirable sense of place and connection. However this can be compromised by an unsatisfactory spacing or scale configuration to the housing units which form the edges to the public spaces.

This is unfortunately the case with many volume builder housing estates today where the layout is determined by 2 related aspirations for an idealised private home i.e.

- detachment from its neighbour
- distinctive from it in appearance

In the main, contemporary housing estates seek to implement this ideal while at the same time maximising the number of houses on the site. The result is that a minimum separation of standard detached houses dictates the density i.e. 1.0m. from the side boundary between houses and 18m. front and rear (determined by the minimum distance required between the windows to habitable rooms). Similarly visual distinction is sought by placing different house types next to each other on the street, sometimes only differentiated by nominal changes in features and finishes.

The problem with this grouping pattern is that houses appear too close together and can have a claustrophobic effect on the street. The elevational differences tend to create visual conflict rather than the attractive variety intended. The true character of the house, as illustrated on the marketing brochure is significantly diminished. Conversely the houses remain too far apart and poorly related to achieve an appropriate "town" streetscape or to mark a focal point.

### Tried and tested grouping models:

To address the above concerns developers are encouraged to adopt one or both of the following models for house grouping i.e.

#### "URBAN" MODEL - Terrace/ Joined Form - enclosing space:

The elevation generally follows a continuous building line and the elevation is made up of repeating house designs or a differentiated but harmonious overall design.

#### "RURAL" MODEL - Arcadian/Detached Form - enclosed by space:

Houses are sufficiently well spaced to be potentially dominated by landscaping, allowing significant differences in the character and appearance of each plot.



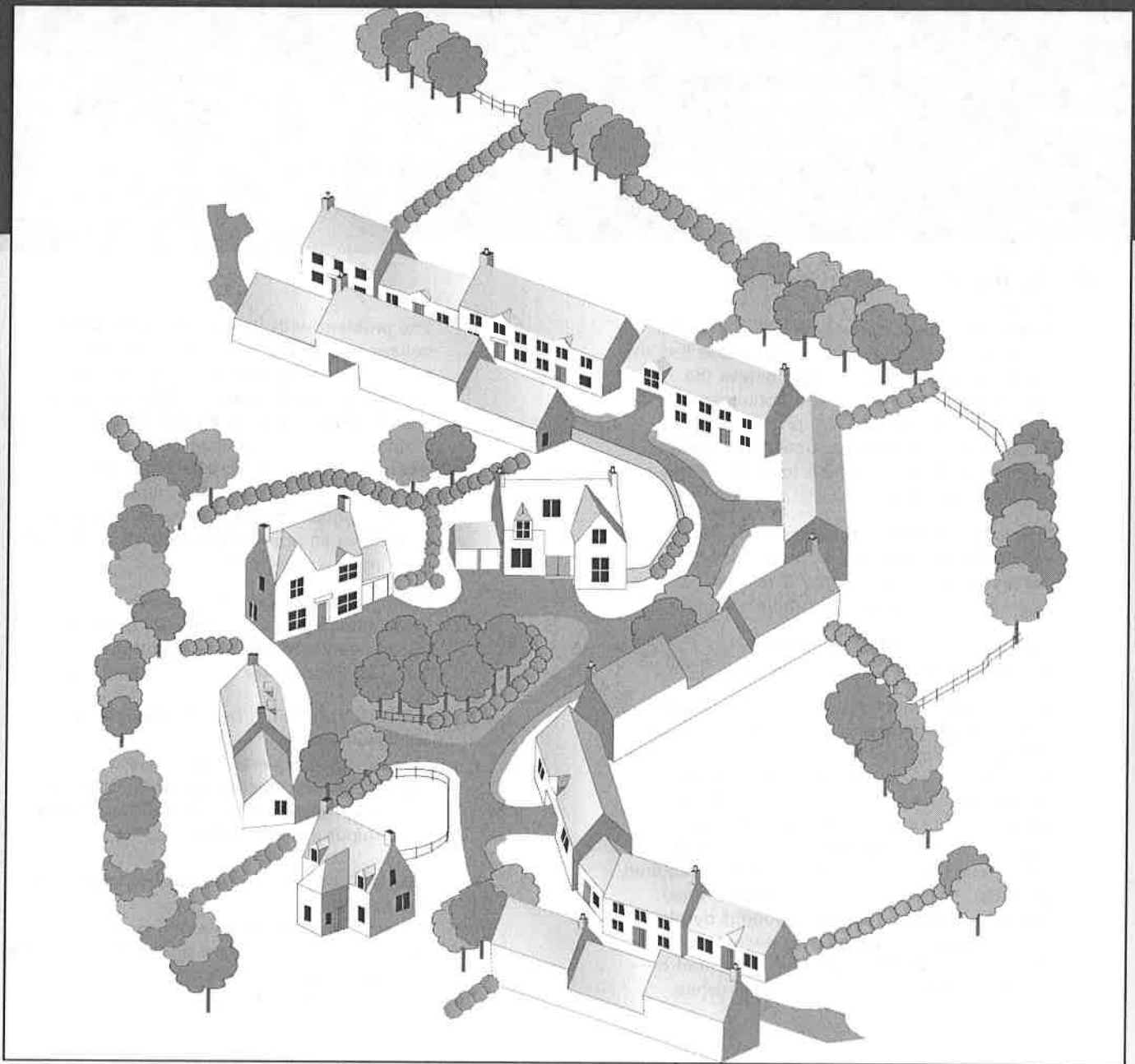
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**Figure 9 : UNSATISFACTORY SUBURBAN HOUSE LAYOUT**

Detachment and distinctiveness from one another but no "place"

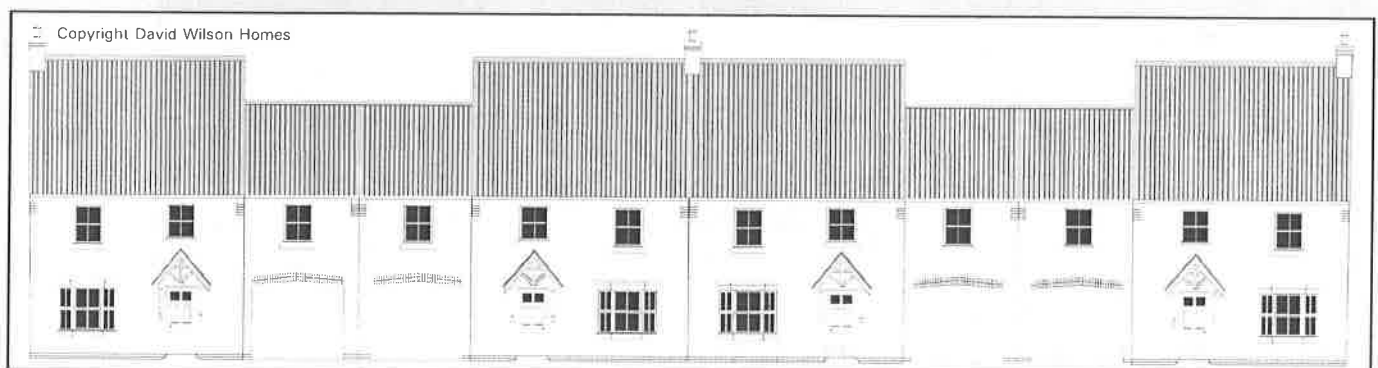
## Estate Layout

### Models for House Grouping



**Figure 10 : "URBAN" & "RURAL" HOUSE MODELS**

Shown in appropriate relationship to each other and to location of open space.



**Figure 11 : "URBAN" MODEL : TERRACE HOUSING**

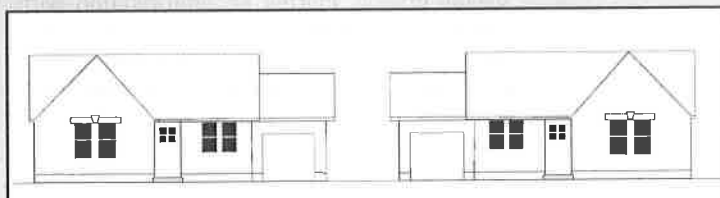
Pend access - potential for street narrowing concealing private cars and assisting individual identity.



**Figure 12 : "URBAN" MODEL : TERRACE HOUSING**  
Illustration of built development

The **urban model** would ideally be in a joined or terraced form, other benefits of which being higher density and energy efficiency. Pend accesses within a terrace will conceal car parking as well as providing a greater sense of detachment and allowing the development to be closer to the street.

However, the standard layout of minimally detached houses may also be made more acceptable where a more formal configuration is proposed to ensure the visual continuity of the street frontage. Grouping matching house types together in a symmetrical arrangement will assist this, especially where a single finished floor level is used throughout.



**Figure 13 : "URBAN" MODEL : DETACHED HOUSING**

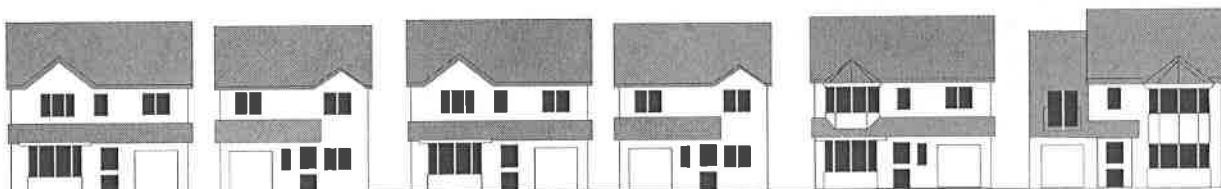
Twinning and visual linkage can give appearance of terrace.

Consideration should be given to limiting the number of main gables on a street frontage to avoid a cluttered appearance.

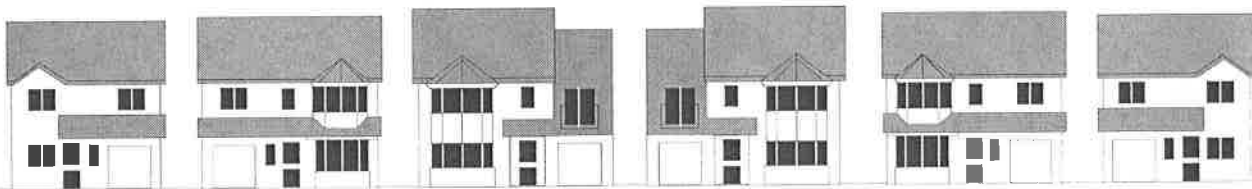
Straight gabled buildings will always be necessary to achieve visual continuity and should not be mixed with hipped roofs on a street frontage except where houses are sufficiently widely spaced, following the **rural model**. Similarly the composition of roof and wall finishes should reinforce rather than disintegrate the formal street configuration.

For the widely spaced **rural model** plot sizes should be no less than 1/6th acre and the ratio of ground floor (minus garage) to overall plot should be between 1:5 and 1:6. Critically the dimension between the house and the side boundary should be no less than 3.5 m. which will allow a vehicle to pass alongside. A random scattering of detached houses would be appropriate at this density.

### POOR



### IMPROVED



**Figure 14 : "URBAN" MODEL : MODIFYING SUBURBAN MODEL**

reduce house types from 4 to 3, hand twin and group, structure material palette ; variety remains but focus and visual continuity is enhanced.



## Distribution of House Grouping Models

### 2.5 Distribution of House Grouping Models

All new housing developments should adopt combinations of the "urban" and "rural" housing grouping models identified above. Estates consisting entirely of minimally detached houses will not normally be acceptable.

It is important nevertheless that the models are not located arbitrarily or separately zoned but are related appropriately to the centre or edge of a town and to the framework of public routes, spaces, entrances and edges at the local site level.

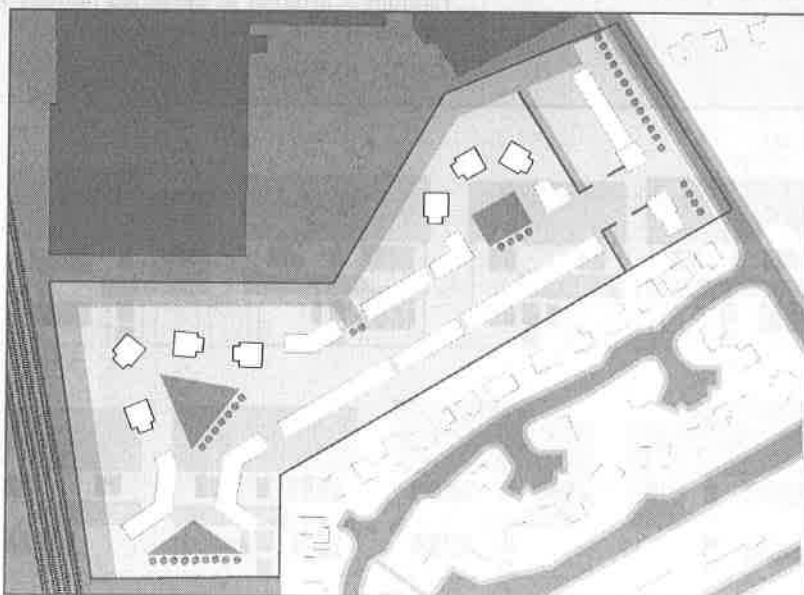
#### Town

Denser "urban" forms are generally most appropriate in more traditional town centre areas and on former industrial sites within the town, at least where immediately adjacent to denser built up areas. However this model will also be appropriate in any new development where there is a need for an urban focus, perhaps adjoining a local centre which includes shopping and community facilities. Conversely, the more widely spaced "rural" model should not be precluded from the more historic urban areas e.g. within a site bounded by Victorian villas.

#### Site

The established lines and orientation of the built frontages to the Public Space Framework should provide a template for the distribution of the 2 housing grouping models identified.

The **urban model** can create the more formal visual impact appropriate to the more important, busier routes where it is also able to provide a noise barrier to more informal areas to the rear. Main gateway entrances to a site or to a minor cul-de-sac/ courtyard space as well as corners and other focal points are also appropriate locations for this model. Formal continuous built enclosure can sometimes be the preferred character for the frontage to an important public space or "village green". Flatted accommodation with limited private amenity space may benefit from such a location. Denser linked forms are also appropriate in discreet mews courtyard locations.

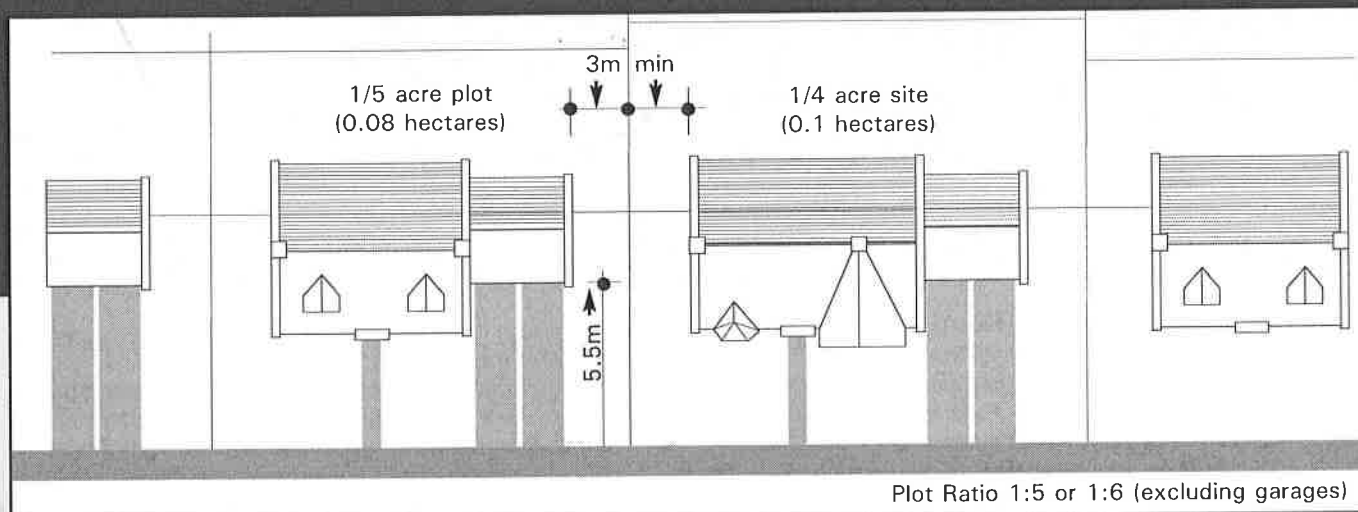


**Figure 15 : DISTRIBUTION OF HOUSE GROUPING MODELS**

Flatted option along main road, internally site shape determines location of open space and, in turn differentiation of urban and rural house models.

## Estate Layout

### Distribution of House Grouping Models



**Figure 16 : "RURAL" MODEL ARCADIAN / INDIVIDUAL PLOTS**

Minimum dimensions - enhance visual differences

The **rural model** is most appropriately located within a discrete courtyard or cul-de sac and, indeed, it is in this context that large self-build type plots are best located, preferably the lesser component of any development site. On a general access road, fewer, more widely spaced, houses will result in a quieter, less trafficked street. This model would be equally acceptable to define the edge to a village green where it might continue the parkland character of the open space. In this circumstance the fewer but more prestigious houses may afford better control and foster a higher standard of maintenance for the enclosed green. This model can also provide an attractive main road frontage where a landscape character is sought.

#### Building Height

Options for greater height should naturally accompany the **urban housing** model. Where two storey housing predominates, primary edges, entrance points, and corner junctions offer the opportunity for combinations of 2½ or 3 storey buildings or, at inner town locations, even greater height. Increased storey height at focal points will assist in establishing a general sense and understanding of the place.

In the case of flatted development, storey height may be restricted according to the quality of the greenery in the enclosed court or associated car parking area.

#### Density

The Council's Local Plan provides indicative house numbers for certain identified sites. Otherwise housing densities will be subject to the general guidance provided in paras 2.4 and 2.5 in terms of :  
public open space and roads, private garden ground, daylighting and privacy and house grouping models and the location of each type.

## 2.6 Street Design and Road Standards

### Road Hierarchy and Parking Standards

All roads, footpaths and car parking areas intended for adoption by Falkirk Council must conform to "Design Guidelines and Construction Standards for Roads in the Falkirk Area". This sets out standards for the road hierarchy of distributor road (individual direct vehicle access prohibited), general access road, minor access road and cul-de-sac (a shared surface permitted for max 20 units). Parking is required at the rate of one space for a house less than 3 bedrooms and 2 spaces for larger houses. Visitor parking is at the rate of 1 per 4 houses.

### Street Widths

In addition to achieving more intimate spaces (see para. 2.3. **Built Edge**), narrowing the street width will encourage slower vehicle movements. This is more feasible where

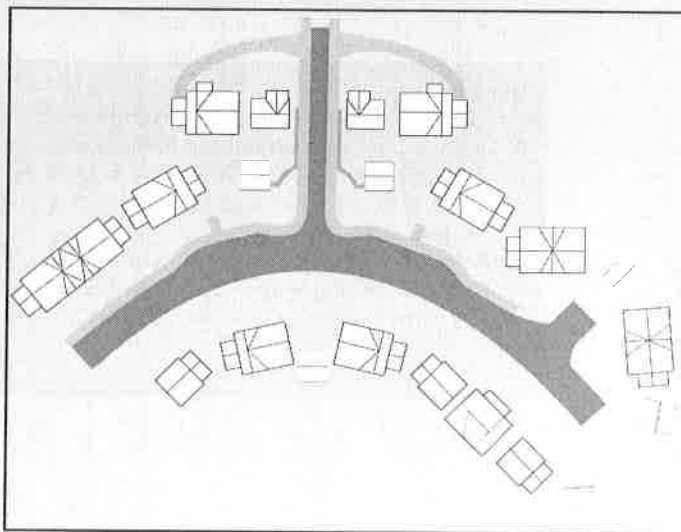
- (i) car parking is to the rear, accessed to the side of the house or through a pend allowing the house frontage to move forward,
- (ii) there remains an acceptable distance between windows on either side of the street or
- (iii) habitable rooms are not directly opposite one another.

**PEND ACCESS:** Where this serves an approved parking provision to the rear, missives must ensure that the entrance remains open and is not enclosed as a garage.

**WINDOW TO WINDOW DISTANCES:** The general standard applied is that "habitable" rooms (living rooms, bedrooms) must be 18m. apart if directly opposite. Thus, in order to achieve the appropriately narrowed street, such openings must not be directly opposite but may be angled from each other.

### Turning Heads/Visitor Spaces

Road geometry should fit tidily with the housing layout and avoid a turning head leg or end-on visitor parking bay intruding into a front garden. The "Y" turning head and lay-by parking are preferred.



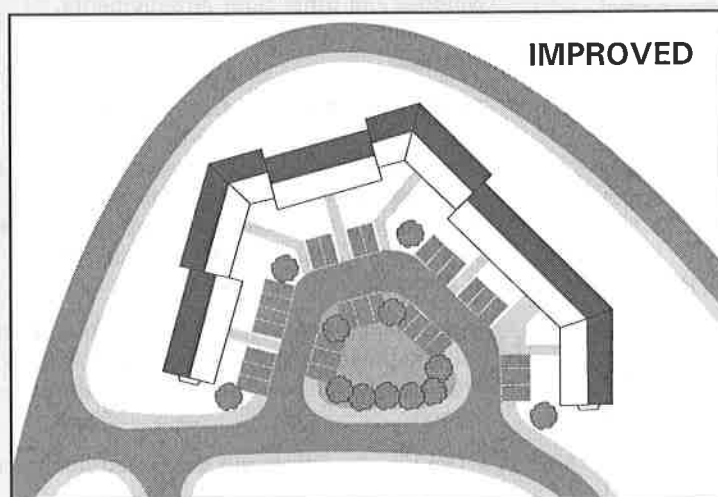
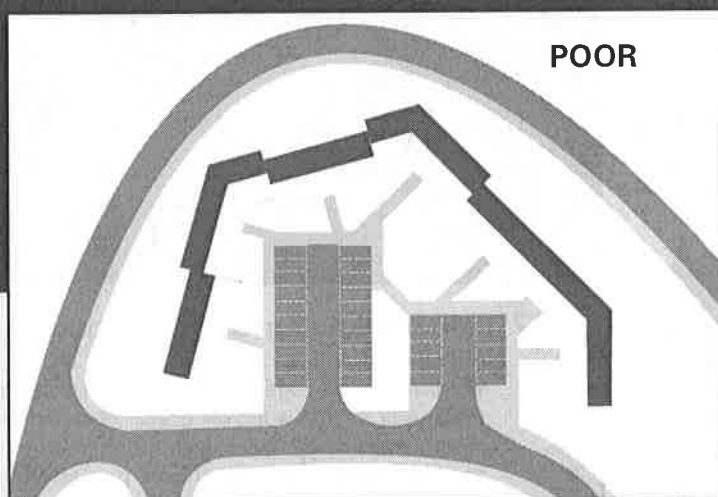
**Figure 17 : HOUSING LAYOUT & ROAD COMPOSITION**

Geometrical harmony and symmetry are the important design tools.



## Estate Layout

### Street Design and Roads Standards



**Figure 18 : GROUPED PARKING SPACES (e.g. for flats)**

Civic place not parking lot.

**POOR**

**IMPROVED**

#### Grouped Parking Spaces

These should take the form of a traditional courtyard or square, not a parking lot, and should look attractive when empty and be easily supervised from the adjacent housing, street or courtyard.

#### Refuse Collection

Housing developers should be aware of the current 3-bin collection system and allow flexibility of design for future adaptations of the system.

#### SUDS Ponds

Sustainable Urban Drainage Systems (SUDS) require ponds whose purpose is to retain rainwater from a developed and hard surfaced area so that it can be dispersed into the drainage system at a rate no greater than would be required if the land had remained a greenfield. Para 2.1 **Site Characteristics and Constraints** notes that these and any other water courses and features should be designed integrally with the open space framework within any housing development. This should determine the location of any SUDS pond to achieve its potential as public amenity and focal point, i.e. at the front of houses for best surveillance, safety and maintenance. In general they should be positioned adjacent to, but not be part of, any water course on the site.

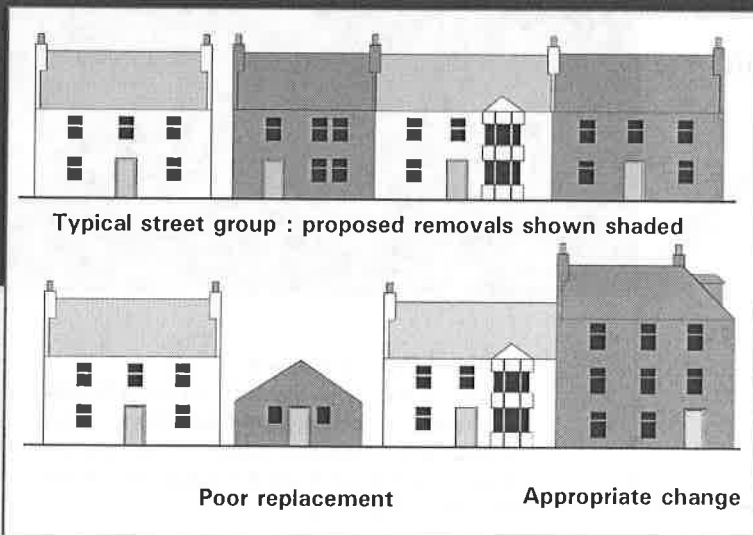


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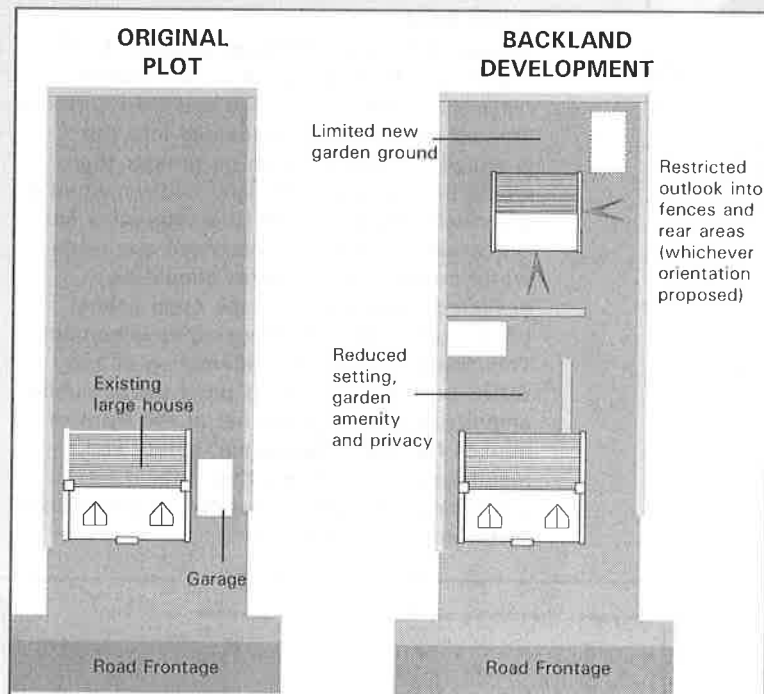
**Figure 19 : HOUSING AS PART OF LOCAL CENTRE**

Contemporary, traditional patterns, 24 hour life.

## Other Planning Considerations



**Figure 20 : INFILL DEVELOPMENT**  
Replacing buildings in street



**Figure 21 : BACKLAND DEVELOPMENT LIMITATIONS**  
NB. Development may be given consideration where designed in mews or minor outbuilding form with

## 2.7 Other Planning Considerations

### Infill Development

Where there is a gap site, whether in an urban terrace or within a looser group of buildings, it is important to achieve a harmonious "fit" of new with existing. This should pay attention to the adjacent building line, height, scale, window and other door arrangements, proportions and detailed decoration and materials.

### Tandem and Backland Development

Tandem development is a form of infill development where one or more houses are proposed within a large garden to the side of a house fronting a road. Backland development is, similarly, located within a large garden but to the rear, with no road frontage.

There will be a general presumption against both of these types of development within large gardens where the concerns are as follows:

- The visual setting and continued dominance of the original house.
- The amenity and size of the resulting private gardens (min. 9 m. length must remain)
- The front outlook from the resulting houses (a particular problem for backland development where the plot may be entirely enclosed with fencing)

The following development forms may be given some consideration:

- Tandem: where the existing garden creates an inappropriate gap which the new development will sympathetically fill
- Backland: a small scale mews type development to the rear with a shared vehicle entrance from the street (preferred to one or more houses plots with separate accesses)

NB Separate plot development in a front garden to an existing house will generally be presumed against.



### Sloping Ground

Buildings should integrate with the slope and major underbuilding which creates extensive areas of blank walls will not be acceptable. Housing may be placed parallel with the contours but care should be taken to avoid too regimented an effect from a distance. Consideration should also be given to split-level houses. If the sloped arrangement reveals gable ends, window openings should be added where no conflict of privacy exists.

Rear gardens designed to be as level as is possible on a sloping site may result in steeper slopes linking one level area to the next. In pure landscaping terms it may seem more attractive to create a continuous planted strip across the sloping area, fenced off from the private gardens. However such an arrangement will require to resolve potential problems relating to public maintenance, fly-tipping (adjoining properties included) and social nuisance. It may therefore be preferable to include these steeper slopes as extensions to the private gardens rather than as public or community land. A developer may consider stabilising and planting these slopes even if they are intended to be in private ownership.

Roofscape is an important consideration on a steeply sloping site.

### Overshadowing

In order to minimise the possibility of a shadow being cast across the window of an adjacent house or garden, any extension should not project from the rear building line beyond either:

- a line drawn at a 45° angle from the midpoint of the nearest ground floor window of the adjoining house, on the rear building line or
- a maximum of 3.5 metres from the rear building line of the house.

### Open Space Standards

The consultation draft **Scottish Planning Policy 11: Physical Activity and Open Space** sets out minimum standards for new residential developments. Essentially, for developments with over 10 units, public open space should be provided as follows (in addition to any private garden ground):

60m<sup>2</sup> total open space per household to include:

40m<sup>2</sup> divided between parks, sports areas, allotments, green corridors, semi-natural space and civic space, as set out in the development plan.

20m<sup>2</sup> of informal play/ recreation space and equipped play areas.

The purpose designed open space activity areas or facilities referred to in para 2.2 **Public Space Framework** will generally be required in larger new housing areas. However some such facilities, e.g. sports pitches, athletics tracks or even a fully equipped play facility, have certain critical dimensions which may not be appropriate for certain smaller housing developments of over 10 units. In this case a developer may be required to contribute to their provision off-site by way of a planning agreement.

*Security for Properties and Public Places***2.8 Security for Properties and Public Places**

The Guidance Note seeks to apply the principles of "Safe by Design". Whilst acknowledging the need for individual houses to be adequately secured, the greater concern is to ensure that public streets and spaces are as safe as can be. This is to be achieved as follows:

- clearly defining and differentiating public, semi-public and private space by the design of appropriate boundaries and entrances.
- maximising opportunities for surveillance from the houses.
- arranging the framework of public routes and spaces to encourage greater use by the general public thus reducing opportunities for nuisance activities.

The following is a compilation of the specific measures identified in the Guidance Note which should foster the desired "defensible" environment:

- public areas fronted by buildings (with doors and windows) rather than by high screen fences
- the prohibition of footpath linkages to the rear of houses which can be threatening to legitimate users, conceal criminal activity and provide unsupervised escape routes
- the creation of "permeable" through routes for pedestrian and vehicular traffic to encourage greater usage and thereby better protect the housing environment
- the provision, off the main routes, of smaller culs-de-sac/courtyards, with "gateway" entrances which will maximise potential communal surveillance opportunities and discourage trespass.
- a structure of focal point buildings which makes the area more "legible" (or easily comprehended), enhances civic status, signals a robust, defensible environment and securely absorbs non-housing neighbourhood uses, e.g. shops.



## 2.9 Sustainable Design

Sustainability is a broad concept which has to do with the good stewardship of the earth's physical and natural resources to ensure the continued health of its plant and animal life.

PAN 44 advises, that ".... early attention should be paid to the orientation, siting, spacing and shape of individual buildings and group of buildings to exploit the available sun, arrange the greater protection from wind and to create an energy efficient envelope". SPP 3 expects developers to bring forward proposals which ".... create a sheltered micro climate capable of making outdoor environments more habitable".

This Guidance Note can be seen to support the principles of sustainability in the following respects:

- **Conservation:** Retention of natural and man-made features on any site avoids further depletion of earth resources and reduces energy consumption in the production or erection of new structures and features.
- **Public space framework:** a well organised pattern of spaces and streets should ensure the right balance of green areas as well as creating meaningful, direct, linkages and encouraging a people and cycle friendly environment. An appropriately stimulating built environment will also assist with aspects of human psychology e.g. the restful qualities of the intimate enclosed space or, conversely, the long panoramic vista. This may assist in reducing some health costs.
- **Grouping Patterns:** denser and more carefully assembled house groupings are more energy efficient (although the negative effects of overshadowing from taller and conjoined buildings should be avoided).

In addition, the sustainable benefits of natural daylight and thermal insulation can be improved by appropriate orientation of the housing in association with the accompanying protective landscaping i.e.:

- Main living areas within a house, conservatories and rear gardens should be orientated to face south or south-west for daylight and solar energy benefits. Private, non habitable rooms (kitchens, bathrooms, stairs and utility rooms) and garages should therefore face north. However since rear gardens are generally considered less acceptable on road edges, innovative solutions may be required to compensate e.g. through and through living areas.
- Main entry points should, where possible, be located away from cold north winds and to a lesser extent, from prevailing southerly winds. However preference for main doors on the street frontage will be the critical factor in determining location for reasons of natural surveillance and legibility.
- Supplementary protection of the building envelopes from adverse climatic conditions and a more comfortable environment outside can be achieved by including planting and shelter belts, earth mounding and walls. Deciduous trees are better located to the south of the housing units to give summer shading and winter sunlight with evergreens to the north to give shelter from any occasional north winds.

The specific design and construction of houses also requires to be sustainable, e.g. achieving a balance between window openings and insulation, solar panels etc. to maximise energy efficiency. This is largely beyond the scope of this Guidance Note. (refer paras 1.1 and 1.5)



### 3.1 Basic Approach

Advice has already been provided on appropriate house grouping and street patterns to enclose and enhance a framework of public space. This is now complimented by guidance on housing shape and elevational treatment.

Most contemporary house designers, whether serving the volume builder or kit-manufacturer, still aspire to a classical or vernacular tradition of which the pitched roof, rectilinear planned house forms the basic element in any layout. However designs are often poor copies of the traditional house without proper understanding of the principles informing its design. The guidance aims to address this concern, especially to assist the less well qualified designer. More "modern" flat roofed or abstractly designed buildings will be assessed on their own merits.

### 3.2 Design Advice

Guidance based on the traditional house form, elevation and finishes is as follows:

- The main roof ridge should be parallel to the adjacent roadway.
- Roof pitches should create symmetrical gables and be no less than 45° on a street frontage
- The arrangement of openings should ensure that the gable geometry is reinforced rather than deformed i.e.
  - Main frontage gable absorbing necessarily larger windows in symmetrical arrangement around central axis.
  - Lesser side gable with fewer, smaller windows allowing a more informal, asymmetric arrangement. Wholly blank gables fronting a public street will generally not be permitted e.g. on a corner.
- Adjacent twinned gables will allow for a more asymmetrical pattern of openings.
- Hipped roofs are generally less favoured and never acceptable when mixed randomly with straight gables at close quarters. They may be given more sympathetic consideration in a more formal layout, on the same building line, or widely enough spaced so that the visual relationship with the neighbouring property is immaterial. They are also acceptable as a single storey extension to a straight gabled house and to the rear.



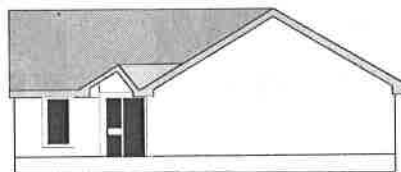
Figure 22 : VOLUME BUILDER HOUSE TYPE

Well considered

- All openings should have vertical proportions.
- Main entrance doors should create a focal point on the front elevation. Doors on a gable end generally appear less satisfactory but may be acceptable where formally located and in balance with the window arrangement.
- Forward projections i.e. porches, garages etc. will only be permitted where they are integrated into a continuous streetscape, avoiding an abrupt visual effect. Garages are best set to the side of the house, and behind the building line, rather than dominating the front façade of a detached house.
- High screen fences between houses and extending towards the road should terminate behind the building line.
- Dormer windows may project from the wallhead or roof but must be of traditional small scale proportions and mainly glazed.
- Over elaborate combinations of external wall finishes are to be avoided and any prominent gable ends should preferably be in a single material. A horizontal subdivision at first floor level should therefore be avoided. Render, stone (or a modern understated ashlar type block) should dominate, with brick restricted to base courses and for additional decoration. An all-masonry finish is more appropriate in tightly grouped urban housing.
- Window and door styles must demonstrate local authenticity, painted or stained timber being preferred. Fussy or UPVC "period" designs are to be avoided.
- Roofs should be finished in slate or a modern "look alike" equivalent with a shallow leading edge. Eaves and verge detailing should be as close to a simple line as possible. A skew or clipped convention is preferred to deep barge boarding.
- Chimneys or similar vertical roof features will be encouraged (e.g. for ventilation).

*Examples of poor design improved through planning advice*

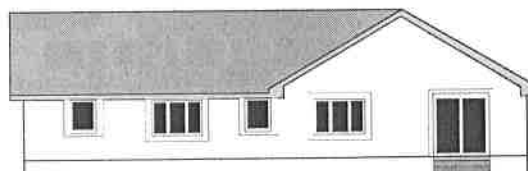
front



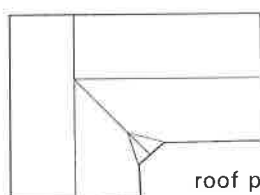
side 1



side 2



back



roof plan

**POOR**

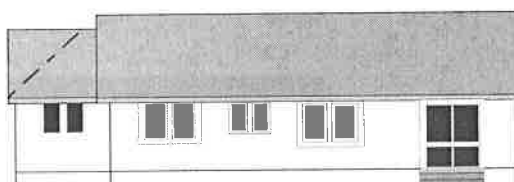
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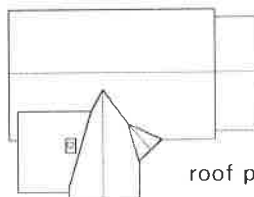
side 1



side 2



back



roof plan

**IMPROVED****Figure 23 : HOUSE DESIGN MODIFICATION A : BLAND ORIGINAL**

Main ridge parallel with frontage and continuous, steeper roof pitch, formal gable contains primary front room, vertical proportion, tripartite elevation and set back garage "extension".

# Building Form & Elevational Composition

*Examples of poor design improved through planning advice*



**Figure 24 : HOUSE DESIGN MODIFICATION B : OVER FEATURED ORIGINAL**

"Features" simplified, integrated and understated, consistent emphasis applied.

## Useful Contacts and Checklist

### 4.1 Useful Contacts

Information on Planning Permission, Building Warrants, Permitted Development, Listed Buildings and Conservation Area control, Tree Preservation Orders, Road Design/Warrants and Neighbour Notification can be obtained from:

**Falkirk Council Development Services**  
**Development Management Unit**  
**Abbotsford House**  
**David's Loan**  
**Falkirk FK2 7YZ**  
**Tel: 01324 504950**

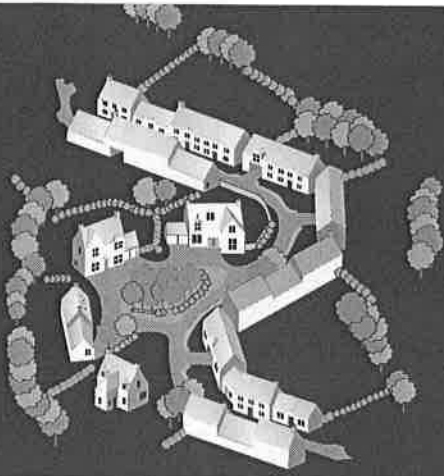
A list of architects can be obtained from:

**RIAS**  
**(Royal Incorporation of Architects in Scotland)**  
**15 Rutland Square**  
**Edinburgh EH1 2BE**  
**Tel: 0131 229 7205**  
**[www.rias.org.uk](http://www.rias.org.uk)**

The RIAS offers a Client Advisory Service and maintains a list of Conservation Accredited Architects.

### 4.2 Checklist

- Does the proposal retain, locate and enhance the best elements of built and landscape heritage within the site?
- Does the new development reflect the unique character of the buildings, public spaces and landscaping found in the adjoining areas?
- Will the proposed pattern of routes and open spaces be adequately supervised and accessed from the housing edges within the site and be well connected to adjacent areas and to public transport and community facilities?
- Has special attention been paid to the design of the main edges, entrances, and focal points which form the development?
- Have the benefits of mixing community uses with the housing in a larger development been considered?
- Does the configuration of the housing density allow for a well composed streetscape pattern of terrace and semi terrace houses and, if required, widely spaced detached houses?
- Does the development contain appropriate public open space in meaningful civic locations?
- Are screen fences and side gables either designed out of public areas or, where occurring occasionally, are they given special design treatment?
- Are the enclosed public spaces designed to integrate the housing and roads layout in tidy formation?
- Is priority given to high quality and unique building architecture which respects traditional models but is sustainable and contemporary, avoiding fussy affectation?



هذه الوثيقة متاحة عند الطلب  
في اللغات الأخرى في المجتمع.

ਇਹ ਪਰਚਾ ਸਮਾਜ ਦੀਆਂ ਹੋਰ  
ਭਾਸ਼ਾਵਾਂ ਵਿਚ ਪ੍ਰੋਛਣ ਤੇ ਮਿਲਦਾ ਹੈ।

此文件設有其他  
語文，請向有關  
方面索取。

یہ دستاویز دوسری کمیونٹی زبانوں میں مطالبے پر دستیاب ہے۔

If you would like a copy in community languages, braille, large print or audio tape call Development Services, Falkirk Council on 01324 504715.



**Falkirk Council**  
Development Services



# Trees and Development

Supplementary Planning Guidance Note



**Falkirk Council**  
*Development Services*

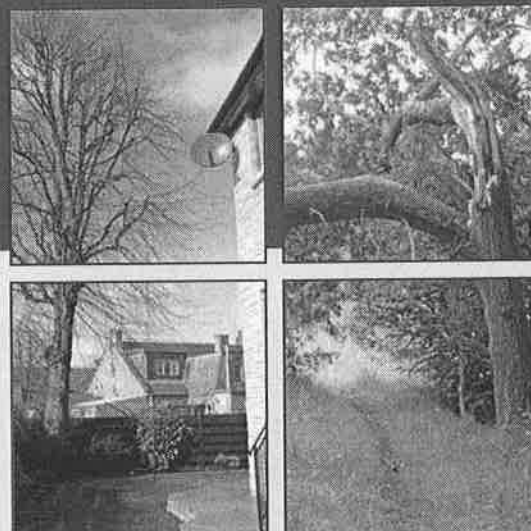


Welcome to this supplementary planning guidance note on 'Trees and Development'. It is one of a suite of such guides promoting development quality in the built environment and takes forward the Council's commitment to sustainable development as set out in the Development Plan.

Healthy, open grown trees are objects of great beauty and their contribution to the landscape, economy, and wellbeing of our communities is widely accepted. The purpose of this guidance is to ensure that during the development process developers and householders effectively manage existing trees and woodlands, and wherever possible provide the right conditions for new ones.

The Council commends this guidance note and trusts it will play a significant role in fostering greater understanding and care of trees on development sites.

October 2007



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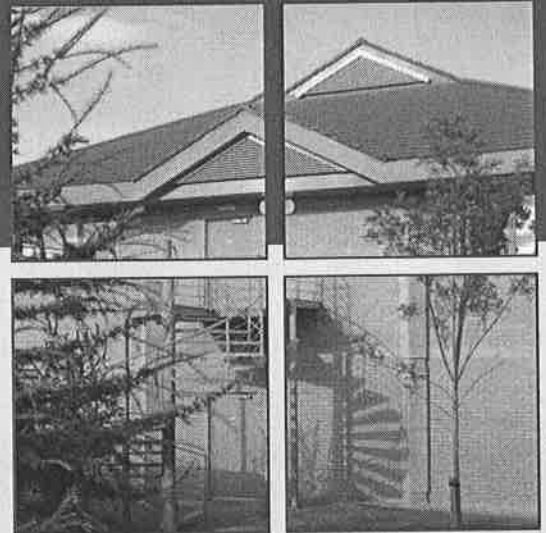
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### 1.1 The Value of Trees

Healthy, open grown trees are objects of great beauty and their value to the landscape is almost universally accepted. The character of many of the finest towns and cities is defined by mature trees in avenues, parks, street trees and urban woodlands and their presence not only adds value to property but creates a sense of place and significantly improves quality of life. More than that, they are an essential component of the environment; they provide protection, remove pollutants from the air, fix carbon, reduce noise, produce oxygen and provide shelter for wildlife. There is great public concern about trees and, quite rightly so, many people take pleasure in seeing trees being planted and will strongly object to their unnecessary removal.

Despite this many developers and householders regard trees as a nuisance; they get in the way of development, 'waste space' that could be built upon, block sunlight and drop leaves that clog gutters and make paths slippery. In addition many people do not understand or appreciate what conditions are required for healthy growth and can unwittingly cause so much damage to trees that are supposed to be retained they have to be removed on safety grounds.

### 1.2 Purpose of Guidance Note

The purpose of this Guidance Note is to ensure developers and householders, through the Development Control process, effectively manage existing trees and woodlands and to provide the right conditions for new trees on construction sites. By so doing these trees should thrive and grow to maturity, be safe, and cause minimal and acceptable 'disruption' to everyday life. Such trees will not only benefit those who use the site but the wider population as a whole, local wildlife and the environment for many years after the development has been completed.



**Legislation****2.1 Legislation**

Falkirk Council actively encourages tree planting and management and this position is supported by legislation, and national and local planning policy.

**The Town and Country Planning (Scotland) Act 1997**

Under Section 159 of this Act the planning authority is specifically charged to:

*"ensure, whenever it is appropriate, that in granting planning permission for any development adequate provision is made, by the imposition of conditions, for the preservation or planting of trees".*

And under Section 160:

*"If it appears to a planning authority that it is expedient in the interests of amenity to make provision for the preservation of trees or woodlands in their district, they may for that purpose make an order with respect to such trees, groups of trees or woodlands as may be specified in the order".*

Before any work is carried out to trees you should check with Council staff whether or not they are protected by a Tree Preservation Order or Conservation Area status.

**Nature Conservation (Scotland) Act 2004**

Section 1(1) of the Act states:

*"It is the duty of every public body and office-holder, in exercising any functions, to further the conservation of biodiversity so far as is consistent with the proper exercise of those functions".*

**Wildlife and Countryside Act 1981**

**Nature Conservation (Scotland) Act 2004**

*"Trees can provide an important habitat for many species and larger mature trees may support bat roosts and be used by nesting birds. It is an offence under the Wildlife & Countryside Act 1981 and the Conservation (Natural Habitats &c.) Regulations 1994, to deliberately disturb a bat roost, or nesting birds. As bats are European Protected Species it is important that any tree work which may affect them or their roosts is adequately assessed by a recognised bat expert prior to works commencing."*

For further information contact Scottish Natural Heritage and Scottish Executive (see "Useful Contacts")

**The Conservation (Natural Habitats etc)**

**Regulations 1994** also provide protection for certain animal and plant species.

The Council will look at proposals and determine if these further the conservation of biodiversity. Further details are given in Falkirk Council SPG, 'Biodiversity and Development'.

**Other Statutory Protection**

Trees recorded in the Historic Garden Inventory, or growing on a Site of Special Scientific Interest (SSSI) are also protected by law from unauthorized felling or surgery work.



## 2.2 National Planning Policy

National Planning Policy Guidelines (NPPGs) provide statements of Government policy on nationally important land use and other planning matters.

NPPG14: 'Natural Heritage' states,

*"Trees and woodlands are of great importance, both as wildlife habitats and in terms of their contribution to landscape character and quality".*

*"Significant areas of Scotland have suffered environmental degradation as a result of progressive deforestation and past industrial activity and the expansion of woodland cover can make an important contribution to their rehabilitation".*

and

*"Planning authorities should seek to protect trees, groups of trees and areas of woodland where they have natural heritage value or contribute to the character or amenity of a particular locality".*

### 2.3 Local Plan Policy

In the current Local Plan\* the following principles are laid out :

- \* Felling detrimental to landscape, amenity, nature conservation or recreational interests will be discouraged.
- \* In an area covered by a Tree Preservation Order (TPO) or a Conservation Area, development will not be permitted unless it can be proven the proposal will not adversely affect the longevity, stability or appearance of the trees.
- \* Where development is permitted which will involve loss of trees or hedgerows of amenity value, the Council will normally require replacement planting appropriate in terms of number, size, species and position.
- \* The enhancement and management of existing woodland and hedgerows will be encouraged. Where the retention of a woodland area is integral to a development proposal, developers will normally be required to and make provision for its future management.

Policy EQ4 sets out key factors which developers should take into account. The landscape design scheme should :

- \* Retain and incorporate existing vegetation, natural and cultural features where they contribute to the amenity and biodiversity of the site, with provision for replacement planting where removal is authorised.
- \* Promote biodiversity, including the use of native tree and plant species.
- \* Incorporate robust structure planting in larger developments and screen the edge of developments where necessary.
- \* Incorporate street trees and planting in informal spaces to assist in structuring and unifying streets and spaces.

Developers will also have to demonstrate that satisfactory arrangements have been made for the future maintenance and management of all landscaped areas.

\* Falkirk Council Local Plan Finalised Draft (Deposit Version) April 2007.

## Statutory and Non - Statutory Protection

### Non-Statutory Protection



#### 2.4 Non-Statutory Protection

Proposed developments that affect the following will be subject to close scrutiny and developers and builders will be expected to prepare appropriate management plans to minimise any adverse impacts.

Ancient Woodlands  
 Area of Great Landscape Value  
 Wildlife Sites  
 Sites of Importance for Nature Conservation  
 On or adjacent to Scheduled Ancient Monuments  
 Around Listed Buildings  
 Greenbelt

## Pre - Planning Procedures

### *Requirements*

### *Removal of Existing Trees*

### *Preliminary Meetings with Council staff*

### 3.1 Requirements

In many places the Falkirk area is already well provided with a wide range of trees and woodlands of different size, age and species and these make a significant contribution to the landscape of its towns, villages and countryside. The Council's principal aim is to maintain and extend the tree cover throughout the Falkirk area and to encourage a diverse landscape in which trees and woodlands are a major element. It will do this by :

- \* Requiring retention of mature trees and woodland within a development site if they are capable of making a long term contribution to the amenity of the area.
- \* Requiring new planting within a development, either to replace trees that are felled or where there are no trees at present.
- \* Seeking a contribution to off site planting where there is insufficient space on a development site for new tree planting.
- \* Encouraging management which will result in the presence of a range of species of different ages from young saplings through to mature trees being present and thereby ensuring continual tree cover over the long term.

### 3.2 Removal of Existing Trees

Council staff try to take a pragmatic view when it comes to retention of existing trees, tree surgery and planting of new ones and will not insist on trees being retained if so doing would be inappropriate in design terms and on grounds of safety. Staff also accept that felling mature trees and replacing these with young stock is a valid and necessary part of long term management. Indeed this is essential if a state of continuous tree cover is to be achieved over the long term. However it cannot be presumed that permission for the removal of trees will always be given even if the developer or householder is willing to plant replacements. The Council will need to be satisfied that trees are being removed for the right reasons. It will require evidence in the form of tree surveys prepared by qualified and experienced arboriculturalists to substantiate claims that trees need to be removed.

### 3.3 Preliminary meetings with Council Staff

It is important that developers and householders discuss their proposals with Council staff early in the development process to determine if they comply with planning policy and if trees or woodlands affected are protected.

Provision of a sketch layout of the proposed development, including access roads and car parking, in relation to all trees on the site will help in preliminary discussions. Any trees on the boundary of the site, or close to it in adjacent properties which may be affected by the proposed development should also be shown.

Consideration of what trees are to be retained, what can be felled and what will need to be replanted early in the design and planning process can eliminate unnecessary work and expense at later stages. It can also avoid unnecessary damage to trees which are to be retained and which can be expensive to rectify once a development is underway or complete. Council staff will also decide whether a tree survey is necessary. (see section 4)



## Survey Information

### Tree Survey Data



#### 4.1 Tree Survey Data

An accurate tree survey is a useful tool when it comes to discussing site layout and determining the likely impact of the proposed development on existing trees. Where tall, mature trees are involved an arboriculturalist should climb the trees to check crown health and to identify any decay organisms that may be present in the crown and are not visible from ground level.

Tree surveys should :

- \* Clearly identify the whole site for which planning permission is being sought.
- \* Include all trees on the site irrespective of whether a master plan already exists for the site.
- \* Be based on a plan drawn at a minimum scale of 1:500 for sites over 2 hectares, 1:100 or 1:200 for smaller sites.
- \* Be overlain onto a full topographical survey which gives accurate spot heights, contours, (preferably at 0.5m intervals) and features such as walls, fences, services, and watercourses. This will form the basis of the tree survey plan.
- \* Accurately plot the location of all trees including those in groups or woodlands. The following should be recorded for each tree:
  - species**
  - height** in metres
  - stem diameter** (in millimetres) at 1.5m height above ground level
  - branch spread** in metres taken at the four cardinal points to derive an accurate representation of the crown spread
  - height** in metres of crown clearance above adjacent ground level
  - age**
- \* Location of any trees on adjacent land that may be affected by the proposed development.
- \* Each tree should be given a unique reference number and identified on site with a corresponding tag or label.
- \* A statement on the legal or conservation status of the trees, e.g. protected by Tree Preservation Order, in a Conservation Area, Ancient Woodland Site etc.
- \* Record ground level at the base of each tree.
- \* Ground levels around the edge of the group or woodland should be given.
- \* Where a large number of trees are growing close together it may be impracticable to survey each tree individually. In such cases the extent of the group and total canopy spread should be plotted along with notes on species, condition, age, health, girth and height. Information about required management such as thinning, scrub removal, pruning or selective felling should also be provided. The approximate

## Survey Information

### Tree Survey Data

1- Dominant Trees

2- Sub-dominant Trees

3- Suppressed Trees

4- Healthy Tree Understorey

5- Suppressed Tree Understorey

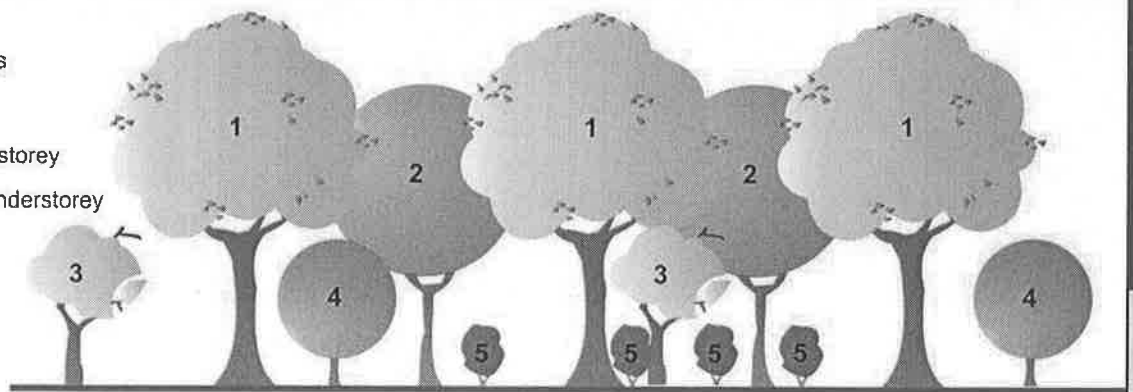


Figure 1 : Woodland Structure

- \* If the trees are in a group or woodland the position of each tree in the group or woodland should be categorised as being: dominant, sub-dominant, suppressed, healthy understorey/healthy young trees and suppressed understorey/suppressed young trees. Each tree should be given a unique reference number and identified on site with a corresponding tag or label. The approximate number of trees in the group or woodland should be recorded. (See Figure 1 - Woodland Structure above)
- \* The physical condition of each tree in terms of the presence of dead or decaying timber, broken branches, holes, cavities or stem damage should be assessed. The presence of fungi or other decay organisms, and any signs of insect attack should also be noted.
- \* Preliminary management recommendations, e.g. tree surgery to remove damaged branches or further investigation of suspected defects.

This information will help you decide which trees should be removed or retained. Categorise the trees as follows:

- A Sound and healthy. Trees that will make a significant contribution to the landscape for at least 40 years.
- B Minor defects present which can be rectified. The tree should reach maturity and/or make a significant contribution to the landscape for at least 20 years.
- C Major defects present. Tree surgery necessary to remove any dangerous branches or stems so that the tree has a useful life for the foreseeable future. The tree should reach maturity and/or make a significant contribution to the landscape for at least 20 years.
- D Defective to the point of being dangerous and tree surgery would be of little value. These trees should be removed.
- E Dead

- \* Assess the wildlife value of individual trees, groups of trees or woodlands. For example, many mature trees are used as bat roosts in summer, and ivy on a tree provides valuable cover for birds and insects. It is an offence under the Wildlife and Countryside Act 1981 and the Conservation (Natural Habitats &c.) Regulations 1994 to deliberately disturb a bat roost, or nesting birds.

As bats are European Protected Species it is important that any tree work which may affect them or their roosts is adequately assessed by a recognised bat expert prior to works commencing.

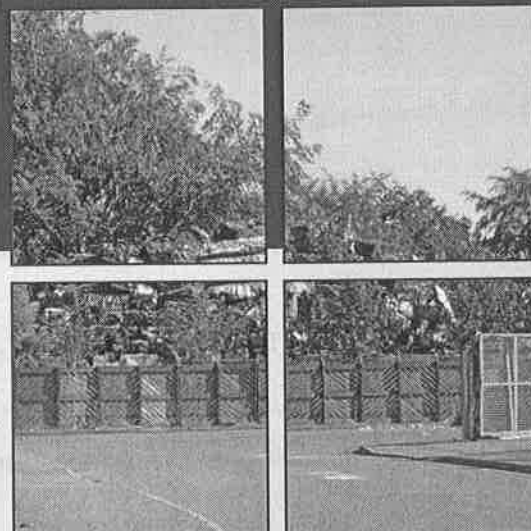
The Council strongly recommends appropriately qualified professionals are employed to carry out survey work. For example a qualified arboriculturalist will be able to carry out a comprehensive survey which accurately assesses tree health and an ecologist will be available to advise on the likely presence of bats or other protected species.

Further details on tree surveys are given :- B.S. 5837 : 2005 'Trees in relation to Construction.'

For further information contact Scottish Natural Heritage and Scottish Executive (see 9.3 Other Organisations).

## Survey Information

### Visual Impact



#### 4.2 Visual Impact

In addition to physical condition make an assessment of the visual impact of the trees. Consider how these may :

- screen** surrounding properties and block undesirable views
- shelter** the development from the wind
- filter** noise
- reduce** the visual impact of the development
- add** value to the development

Once this information has been gathered assess the value of the trees and decide which trees should be removed or retained. This assessment should be as objective as possible and will be checked and verified by Council staff.

## Trees and Development

### *Trees on Development Sites Design Considerations Levels*

#### 5.1 Trees on Development Sites

Trees on development sites suffer because:

- \* The development - buildings, roads, walls, service trenches etc. have been sited too close to existing trees

And

- \* There is inadequate protection during construction.

Damage is usually caused by:

- \* Changes in ground level resulting in a reduction of soil available for the tree to root into, or building soil up around the tree stem and causing the bark to rot.
- \* Changes in ground level can also result in changes to soil hydrology and trees becoming waterlogged or suffering from lack of water.
- \* Cutting or physical removal of roots and the tree becoming unstable.
- \* Soil contamination from spillage of fuel oil or other toxic materials.
- \* Soil compaction by heavy machinery and storage of materials under the tree canopy.

#### 5.2 Design Considerations

Once the tree survey has been completed it should be assessed along with the preliminary site layout. Decisions can then be made on how to site the proposed buildings, roads, car parks, service runs or wayleaves, paths etc. relative to the trees and woodland to be retained and a layout plan prepared.

For sites with trees of significance the information contained in the tree survey should play a major role in influencing preliminary site layouts.

#### 5.3 Levels

One area regularly overlooked by developers and householders is that of levels, and in particular change of levels during the construction phase. There is no point in designing a layout that takes account of mature trees on paper, only to find that once excavation works start on site the trees are perched way above a new building or their stems have to be buried to accommodate a new road. It must be remembered that trees, especially mature trees, cannot adapt to significant changes in ground level, or to changes in the level of the ground water table in their vicinity. The use of drawn sections through a site showing levels before and after construction are invaluable in showing how the ground will be altered with respect to trees to be retained. Where trees are to be retained there should be no change to ground level within the root protection zone. Changes around this zone should be gradual rather than abrupt.

Changes to landform and level must be clearly indicated on the application drawings.

#### 5.4 Soil - Don't Treat Soil Like Dirt!

The nature and quality of the soil that trees root into is the most important factor in determining long term tree growth and health. It is a complex living system and is the medium from which trees absorb water and minerals and into which roots grow and provide anchorage for the trees.

Soils on development sites are often subject to a variety of disturbances that greatly alter their nature. Building and landscape operations frequently require stripping of topsoil and reshaping terrain (unfortunately referred to as 'muck shifting') storage of the soil in large bings, and respreading either on site or at another location. Such soils inevitably become greatly mixed and their structure will have been substantially destroyed.

## Trees and Development

### Soil - Don't Treat Soil Like Dirt! Constraints Plan



#### 5.5 Constraints Plan

Wherever possible topsoil that is to be used for tree planting should be handled as little possible, should be moved when it is dry and must be protected from contamination with toxic compounds such as diesel and cement. Amelioration of the soil with compost and fertiliser will almost certainly be required. **BS3882: Topsoil** gives guidance on topsoil handling.

Woodland areas that are to be planted after construction work is complete must be protected as far as possible from the passage of construction machinery. Compaction of soils results in a loss of pore space between soil particles through which roots can penetrate. This can lead to lack of air and water in the soil. If excluding machinery is unavoidable once construction work is complete all compacted soil (subsoil and topsoil) must be removed, the solum ripped to open drainage and relieve compaction and new topsoil imported into the area for planting. Research has shown a common cause of tree death, both in new woodlands and for individual specimen trees is waterlogging.

The tree survey plan will be used as the basis for the constraints plan and will show the area under and around the trees that should be protected from development. In order to avoid damage to the roots or rooting environment of retained trees a root protection area should be plotted around each tree. This is a minimum area in m<sup>2</sup> which should be left undisturbed around each retained tree. The root protection area is an area equivalent to a circle with a radius 12 times the stem diameter for single stem trees, and 10 times basal diameter measured immediately above the root flare for trees with more than one stem arising below 1.5m above ground level. The calculated root protection area should be capped at 707m<sup>2</sup> which is equivalent to a circle with a radius of 15m.

(See Figure 2)

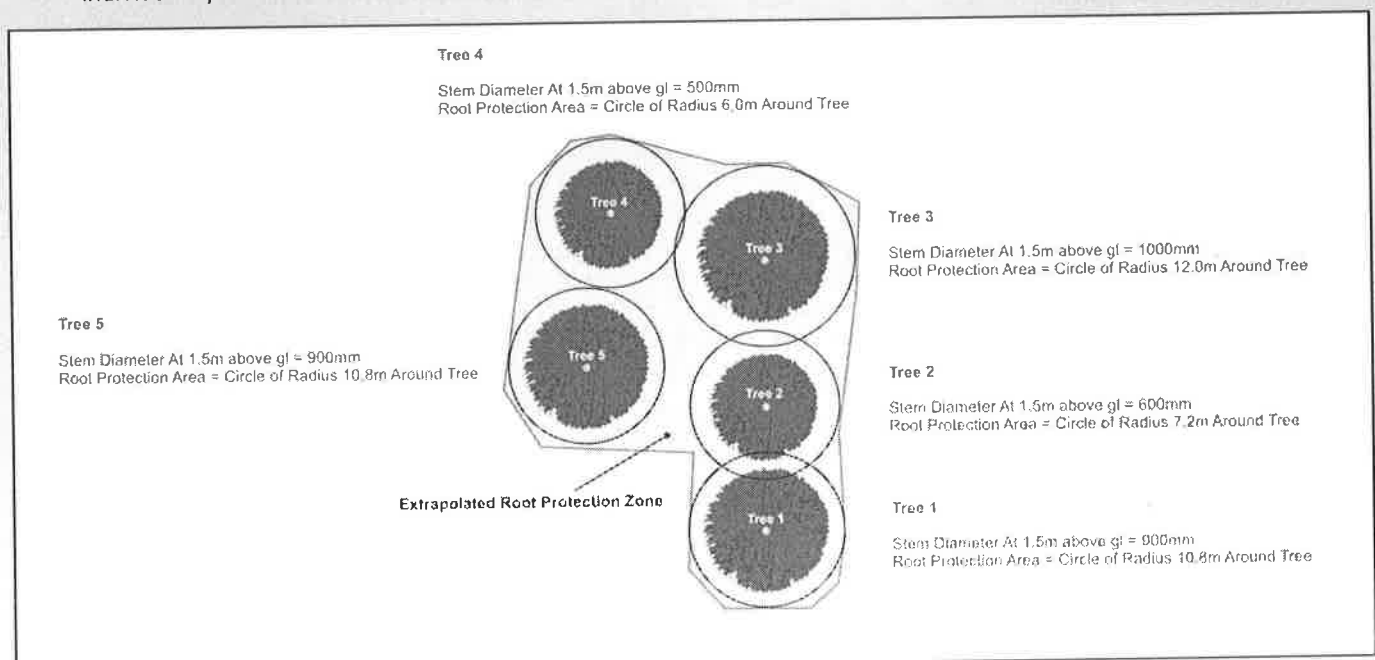


Figure 2 : Root Protection Zone



## 5.6 Tree Protection Plan

A tree may take a couple of centuries to reach maturity but can be extensively and irreversibly damaged in just a few minutes. Irreparable damage to trees is frequently done to trees during the first few days of site works. Early erection of a barrier around the edge of the root protection area before works commence on site is essential and is the only way to prevent damage being caused to retained trees by operations in their vicinity. It is essential for those involved with the development works to appreciate the need for maintaining this exclusion zone. Any incursion into this area can quickly destroy all of the time, effort and expense which has gone into the retention of the trees.

Trees are retained on construction sites to enhance the completed development and give it an air of maturity that cannot be achieved with young planting. However, all too frequently these are damaged during construction operations and are seriously disfigured or die. Such damage is often unnecessary and can be avoided if all concerned appreciate the importance of the trees from the outset.

Once the layout proposals for the development have been finalised a tree protection plan should be prepared containing the following information:

- \* Trees to be removed
- \* Trees requiring surgery. Care should be taken during tree removal or remedial work that damage to retained trees and to the ground within the root protection area is minimised. Work to the trees should be carried out in accordance with BS 3998: Recommendations for Tree Work, and Arboriculture and Forestry Advisory Group guidelines.

- \* Trees To Be Retained
- \* The precise location for protective barriers to form a construction exclusion zone at least as extensive as the root protection zone.
- \* Design details of the proposed physical means of protection. Barriers should be rigid and be well braced to resist impact. Fences must be well maintained throughout the course of site development and should not be breached at any time. Signs should be attached to the fence warning site personnel that the area is protected and to keep out.
- \* Any development facilitation pruning.
- \* Areas of future woodland planting to be protected from construction operations to prevent soil structure being damaged or contaminated.
- \* Ensure that boundary trees on adjoining land are also considered – their roots and branches may extend into the development site.

In order to avoid disturbance to the protective barriers forming the construction exclusion zone it is essential to consider all construction operations that will take place on the site. It is important to remember that the construction exclusion zone is just that – an exclusion zone – and it will not be acceptable to use the area for, e.g., car parking, storage of materials, locating site buildings, or as an access etc.

**BS 5837:2005 'Trees in relation to construction – Recommendations'** should be adhered to on all development sites.

## Problems Caused By Trees

### *Damage to Underground Services*

### *Overhead Services*

### *Damage to Pavements and Low Rise Structures*



#### 6.1 Damage To Underground Services

Contrary to popular belief tree roots do not 'search' out sewers or storm water pipes as a source of water. However they do follow water gradients in the soil and will move towards wetter soil once moisture has been encountered. Due to the granular nature of the backfill around pipes the service trench can act as a drainage route for ground water. This can lead to roots growing into the trench and around the pipe.

It is generally accepted that roots do not break or force their way into pipes but it is possible that in very confined spaces root growth may displace pipes or exert sufficient pressure to cause these to break.

Tree roots can also physically disrupt pipes and cause them to rupture by pulling them up, or by crushing them. As the crown and upper parts of the stem of a tree flex in the wind a considerable amount of the strain is transferred to the root system. This can then be transferred to pipes in contact with larger roots. Those growing under a pipe can lift the pipe, those growing above it could bear down on it and crush it. As the tree increases in size and the wind load increases root size and the likelihood of pipe damage also increases.

The basic principle for locating service trenches is that they should be located outside the root protection zone. If placing them under the tree canopy is unavoidable use trenchless installation or excavate trenches by hand so that disruption to roots is minimised. Trenches should be located as far away from the main stem as possible to avoid problems with roots crushing or lifting pipes. A root barrier should also be installed to prevent roots penetrating pipe joints and growing into drain tracks.

If feasible keep underground services together in one trench.

#### 6.2 Overhead Services

If overhead services are being installed these should not run through or be close to tree crowns. If these are being installed in an area of young trees the final tree height and crown spread should determine the location of the cables relative to the trees.

#### 6.3 Damage to Pavements and Low Rise Structures

Damage to pavements and kerbs by tree roots is a common occurrence, especially in urban settings. Damage can be caused by roots lifting lightly loaded structures, such as pavements, roads or low walls, or by pushing structures over when roots or stems come into direct contact with these.

Displacement occurs as roots growing beneath the pavement or structure thicken with age. As the roots grow outwards they exert pressure on surrounding materials and can exert sufficient force to crack tarmac and to lift paving slabs. However, even though root systems can be extensive the majority of damage occurs close to the base of the tree where the expansion of the trunk and adjacent roots is greatest. Designs must take into consideration future growth.

*Damage to Buildings**Tall Trees and Buildings***6.4 Damage to Buildings**

Tree roots can damage buildings and other structures both directly and indirectly. Direct action includes damage as a result of the pressures exerted by radial growth of roots. It occurs most often close to the tree and is caused by growth of the main trunk and larger roots, but diminishes rapidly with distance from the tree.

Indirect damage usually means the problems associated with the shrinkage and swelling of subsoils. Basically, as the subsoil becomes wetter it expands, and as it dries it shrinks. Such movement can result in a cyclical pattern of heave and settlement which can cause structures to lift and settle. Such subsidence related damage is generally restricted to expansive clay soils which are relatively uncommon in Scotland, though it can happen in any soil that has a high clay content. A structural engineer will be able to advise on soil suitability for building.

**6.5 Tall Trees and Buildings**

One common area for concern is the damage trees can cause if blown over, or if large branches come off. Council staff regularly receive requests for trees to be removed because they are deemed to be too tall and therefore must be dangerous. Obviously mature trees can dominate a building and in a strong wind its movement can worry occupants. Other common complaints are leaves blocking gutters and drains and light restriction when branches cast shade on windows or gardens.

Obviously by keeping trees further away from a structure than the fall height of the tree this problem can be avoided. However it is not always practicable, or desirable to do so. Even in a relatively low density development application of such a standard could result in no trees being planted, or existing ones being retained, which the Council would not find acceptable in urban design terms. There are many examples in and around Falkirk where tall trees grow very close to buildings without causing problems.

The key to having tall, mature trees within and around a development or building is regular assessment of their health by a qualified and experienced arboriculturalist. He/she will be able to advise on the presence of disease, insect attack or decay organisms, the extent of work needed and the remaining useful life of the tree.



## 6.6 Avoiding Damage Caused by Trees

Problems caused by root damage to pipes, pavements and structures largely can be avoided by careful design and by:

- \* Ensuring pipes are laid properly and joints are completely watertight.
- \* Locating service trenches outside the root protection area.
- \* Planting trees far enough away from pipes so that roots are unlikely to come in contact with them. Determination of the extent of the likely root protection area once a tree is mature will give a guide to planting distance.
- \* Installation of root barriers to stop further root growth or deflect it away from pipes, pavements and structures
- \* Planting trees at least 3m away from pavements, kerbs and other structures and in ground that is being used for other amenity purposes, e.g. in a shrub bed.
- \* Plant trees in a continuous trench filled with improved topsoil where they are to be planted close to a pavement or structure. This trench should be as long and as wide as practicable. Install a root barrier.
- \* Keeping individual planting holes as long and as wide as possible. Install a root barrier.

The rooting characteristics of different species should also be considered. Cherry, ash, poplar and willow have extensive, shallow root systems, whereas rowans, birch and beech appear to cause fewer problems to structures. However it must be remembered that root systems will adapt to ground conditions and the extent of tree root systems can vary greatly depending on ground conditions and the presence of obstacles in the soil.

## 7.1 Design Considerations

The purpose of new planting within a development should be determined at the start of the design process so that appropriate species, location and grouping of individual trees or woodland can be determined. Design advice should be provided by an experienced and competent landscape architect.

Trees, either as individuals or in a woodland block, can perform a variety of roles aesthetic and functional. They can:

- \* Provide shelter
- \* Filter noise and dust
- \* Reduce air pollution
- \* Form a visual barrier to screen an unwanted view or to provide privacy
- \* Provide character and create a sense of place
- \* Provide natural beauty within a built environment
- \* Divide a space, frame views, define routes
- \* Contribute to nature conservation, biodiversity and carbon sequestration
- \* Provide shade
- \* Control erosion

All new tree planting should be an integral part of the design from the outset, and not tacked on at the end to fill the spaces that are left over. As trees generally are the dominant elements of the long term landscape structure of a site their ultimate height and spread, root spread, form, habit, colour, density of foliage and maintenance requirements have to be considered. In particular the possible effect on the structural integrity of buildings, pavements, services and other services must be taken into account.

Try to plant indigenous species where possible, particularly in woodland blocks. However the Council will not insist on native species being planted in all situations and will welcome the use of other non-invasive species selected for their form and appearance, e.g. attractive bark, flower or leaf colour where appropriate.

Try and link new planting to existing nearby tree groups around the edge of the site. This could help form valuable wildlife corridors through and around the site.



## Incorporating New Trees in Development

### Useful Tree Life

### Distances Between Trees and Surfaces and Structures



## 7.2 Useful Tree Life

'Useful life' is also an important concept to consider. An oak tree can, under normal conditions, live for many hundreds of years and will dieback and decay very slowly. Under urban conditions it may not be acceptable to allow such a tree to deteriorate in such a way either aesthetically or because of the danger of falling branches or being blown over. In such a situation if sequential pruning is not appropriate it would be preferable to remove the tree entirely before dieback becomes significant and plant a new one. If a tree lined road is being substantially upgraded and improved it may be prudent in management terms to replace the trees at the same time thereby avoiding problems in the future. The Council will look favourably upon such a management regime if it considers it to be appropriate and there are good reasons for the trees to be removed.

## 7.3 Distances Between Trees and Surfaces and Structures

BS 5837:2005 'Trees in relation to construction – Recommendations' gives minimum distance figures that should be maintained between young trees and structures and surfaces to avoid direct damage by trees. For trees over 60cm diameter at 1.5m above ground level at maturity the figures are as follows :

Structure Type	Min. Distance (m)
Buildings & Heavy Loaded Structures	1.2m
Lightly Loaded Structures, e.g. garages	1.5m
Drains & Underground Services < 1m deep > 1m deep	3.0m
Masonry Boundary walls	2.0m
In situ concrete paths and drives	2.5m
Paths and drives with flexible surfaces or paving slabs	3.0m

However these figures do not take into account the benefits that root barriers can have and if installed properly trees can be planted successfully within paved areas without roots causing disruption to adjoining surfaces.

These figures also do not take into final height of a tree. From an aesthetic and practical point there is little point in planting trees that will be allowed to reach full height and maturity any closer than 6m to a house or large building.

Where trees are growing close to a house and it has outgrown its situation the Council will consider removal if there are proposals to replace these with young trees. The Council will also support proposals for tree management by pruning and reducing the size of the tree crown if it means the life of the tree can be extended usefully.

## 7.4 New Woodlands and Development

Woodland structure planting in and around new developments can make a significant contribution to the amenity of an area. It can provide a visual screen, filter noise and dust, provide valuable wildlife habitat or act as a link between otherwise disconnected habitats. There is also increasing evidence that access to woodlands improves health and wellbeing.

The Council works very closely with Central Scotland Forest Trust and together have developed the Falkirk Greenspace Initiative. Through this initiative the Council will work in partnership with organisations like the Trust to create new woodland in appropriate locations and will require developers to contribute to such improvements (Local Plan Policy EQ21 'Falkirk Greenspace' and Local Plan Policy SC11 'Developer Contributions To Community Infrastructure'). The Council will encourage any proposals to establish areas of woodland within new developments, particularly if these are accessible and there is good inter-connectivity with other public places.

The criteria outlined elsewhere in this guidance note regarding planting individual trees also apply to woodland. However two features of woodland must be given additional and careful consideration, security and shading. Woodlands are, or are perceived to be, locations where anti-social activity takes place. Where feasible route paths through open and preferably well lit areas, and if possible have at least a few houses overlooking the woodland. Development proposals should create a safe and secure environment, (Local Plan Policy EQ5 'Design and Community Safety').

Similarly problems with shading caused by blocks of trees can be avoided by careful siting and keeping an area of open ground between the woodland and properties.