Chapter 8
Service Infrastructure-Water, Waste & Energy

8.1. Water

Water is a critical issue in Arklow town and its environs, both in terms of the quality of water in rivers, at the estuary and the along the coast but also in terms of quality and quantity of drinking water. Arklow has experienced a number of drinking water restrictions in the last 5 years. Water is such an important issue in this area as it could be a limiting factor to the growth of population and economic activity.

8.2 Wastewater

The existing piped system was installed in the 1930s and was designed as a combined sewer (foul and surface water), which discharged untreated directly into the River Avoca. Permission has been granted to Arklow Town Council for a new sewage system, comprising:

- a wastewater treatment plant (WWTP) located at Seabank on the north side of the town, which would discharge treated effluent to the Irish Sea;
- interceptors sewers on the north and south banks of the Avoca River to collect sewage flows from the existing sewers thereby removing the direct outfalls to the Avoca River;
- a pumping station at North Quay between the interceptor sewers and the sewage treatment plant.

The proposed treatment plant will have a capacity for 18,000 p.e. (population equivalent). Due to legal reasons construction has not yet commenced on this new system this could result in the restriction of the growth of the plan area.

The current wastewater treatment demand for the plan area is estimated at 17,000p.e. with domestic demand being 14,500p.e. and non-domestic demand being 2,500p.e. Therefore this WWTP will when constructed have limited spare capacity for additional sewage inflows.

8.3 Surface water

In the main, surface water in the town is collected in the combined sewer system and discharged directly to the Avoca River. In accordance with current practice, newer developments have separate surface water collection and attenuation systems. Clearly the addition of surface water to foul water significantly impacts on the efficiency of a foul water collection and treatment system, and there is an ongoing program to replace the combined system with separate networks, as funding allows.

8.4 Water supply

Water for Arklow is currently sourced from the Goldmine River and treated at the Ballyduff Drinking Water Treatment Plant (which is due to be completed an upgrade by 2010) but a planned replacement scheme will see most of the water being sourced from 16 new wells. When these new wells are fully commissioned, the Goldmine River surface source may be discontinued.

Notwithstanding the planned augmentation of the water supply system, it is imperative that measures are taken to control the demand for water and focus now needs to be placed on water conservation as well as supply increase. The term ‘water conservation’ refers to the wide range of measures that can be employed to more efficiently utilise the waterresource, such as. reducing the demand for water in homes, farms and places of work, reducing leakage in the water distribution network and the reuse of rain/ storm water and grey water.

8.4.1 Water objectives

W1 To ensure that all waste water generated is collected and discharged after treatment in a safe and sustainable manner, strictly in accordance with the standards and requirements set out in EU and national legislation and guidance documents including the provisions of the Eastern River Basin Management Plan and the Habitats Directive.

W2 To provide for a town sewerage system that meets the needs of the existing and future population of the town, comprising

- new trunk and interceptor sewers
- pumping stations as required
- a wastewater treatment plant at Seabank, with sea outfall
- upsizing of existing network where identified in the Sewer Model Study (2009).

W3 Proposed developments within the plan area will only be permitted where it can be adequately demonstrated that sufficient waste water treatment infrastructure with adequate capacity is available or

proposed to be available, capable of servicing the proposed development without causing any adverse environmental impacts.

W4 To ensure the separation of foul and surface water effluent through the provision of separate sewerage networks.

W5 To ensure the implementation of Sustainable Urban Drainage Systems (SUDS) and in particular, to ensure that all surface water generated in a new development is disposed of on-site or is attenuated prior to discharge to an approved surface water system.

W6 To provide a town water supply and distribution scheme that meets the needs of the existing and future population of the town.

W7 To protect existing and potential water resources of the Town and its environs area, in accordance with the EU Water Framework Directive, the River Basin Management Plans, the Groundwater Protection Scheme and source protection plans for public water supplies.

W8 To require new developments to connect to public water supplies where services are adequate or where they will be provided in the near future.

W9 To seek to minimise wastage and demand for water, through

- ongoing monitoring and improvement of the Local Authority controlled water distribution system;
- requiring new developments to incorporate water efficiency measures.

8.5 Flooding

Low-lying parts of Arklow suffer from extensive flooding during prolonged wet periods as was seen in January 2010. Flooding is a natural phenomenon of the hydrological cycle. Different types of flooding include overland flows, river flooding, coastal flooding, groundwater flooding, estuarial flooding and flooding resulting from the failure of infrastructure. Like any other natural process, flooding cannot be completely eliminated, but its impacts can be avoided or minimised with proactive and environmentally sustainable management and planning.

The Office of Public Works (OPW) is the lead agency for flood risk management in Ireland. This gives the OPW a role in policy advice and coordination in addition to its operational roles, but not responsibility for addressing all issues related to flooding. Local Authorities are required to implement the provisions of '*The Planning System and Flood Risk Management'* Guidelines(DoEHLG 2009) in the carrying out of their development management functions.

These guidelines require the planning system at national, regional and local levels to:

(1) Avoid development in areas at risk of flooding by not permitting development in flood risk areas, particularly floodplains, unless where it is fully justified that there are wider sustainability grounds for appropriate development and unless the flood risk can be managed to an acceptable level without increasing flood risk elsewhere and where possible, reducing flood risk overall;
(2) Adopt a sequential approach to flood risk management based on avoidance, reduction and then mitigation of flood risk as the overall framework for assessing the location of new development in the development planning processes; and
(3) Incorporate flood risk assessment into the process of making decisions on planning applications and planning appeals.

Flood Management Strategy

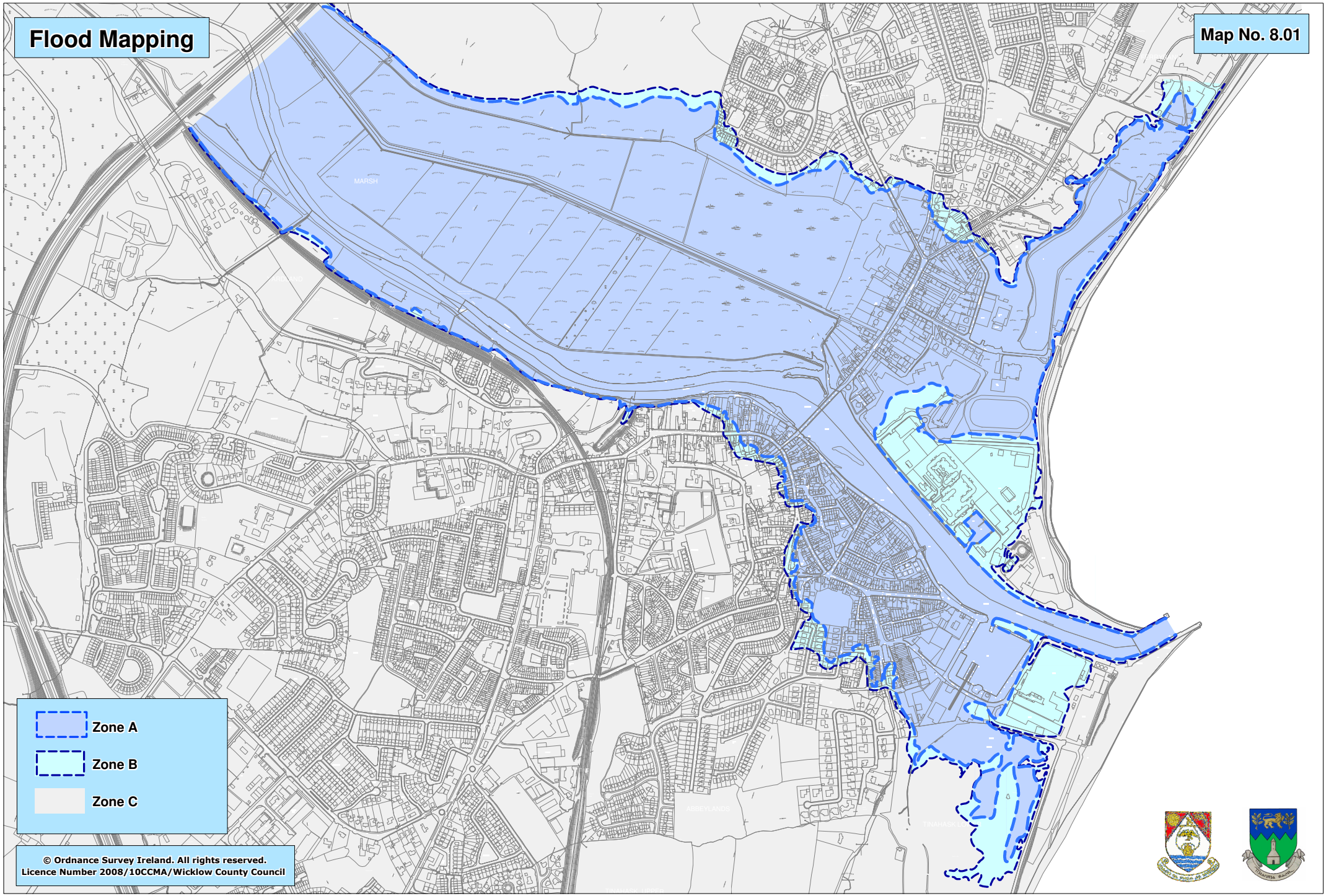
The Council shall adopt a comprehensive risk-based planning approach to flood management to prevent or minimize future flood risk. In accordance with the Ministerial *Guidelines on the Planning System and Flood Risk Management,* the avoidance of development in areas where flood risk has been identified shall be the primary response. Proposals for mitigation and management of flood risk will only be considered where avoidance is not possible and where development can be clearly justified with the guidelines' *Justification Test.* The justification test has been designed to rigorously assess the appropriateness, or otherwise, of particular developments that, for the reasons of town centre location, are being considered in areas of moderate or high flood risk. Flood management should have regard to surface water, groundwater, drinking water supply, flood plains and water and wastewater infrastructure.

Avoidance of development in flood risk areas

Flood zones are geographical areas within which the likelihood of flooding is in a particular range and they are a key tool in flood risk management within the planning process as well as in flood warning and emergency planning. There are three types or levels of flood zones defined for the purposes of the guidelines:

- Flood zone A – where the probability of flooding is highest (greater than 1% or 1 in 100 for river flooding or 0.5% or 1 in 200 for coastal flooding) and where a wide range of receptors would be vulnerable;
- Flood zone B – where the probability of flooding is moderate (between 0.1% or 1 in 1000 and 1% or 1 in 100 for river flooding and between 0.1% or 1 in 1000 year and 0.5% or 1 in 200 for coastal flooding); and
- Flood zone C – where the probability of flooding is low (less than 0.1% or 1 in 1000 for both river and coastal flooding).

The map 8.01 to follow illustrates the flood zones for the town of Arklow. The map was prepared for Arklow Town Council by specialist flooding consultants. Care must be taken in interpreting this map, as there are further examinations ongoing regarding the flooding and the proposed relief schemes in Arklow and in the life time of the plan this ongoing work may lead to modifications to the flood risk areas identified on this flood risk map.


Flood Mapping
Map No. 8.01
Zone A
Zone B
Zone C
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Arklow Town Flood Zones:
As part of the preparation of the Town and Environs Development Plan, the Planning Authority in considering the future development of the urban settlement has satisfied the justification test in permitting in principle a range of developments in areas that are at moderate or high risk of flooding within the plan area. The following criteria have satisfied the justification test that is required in the preparation of the development plan:

1. Arklow is identified as a large Growth Town II and as such is identified as a growth centre under the Regional Planning Guidelines;
2. The zoning or designation of the lands for the particular use or development type is required to achieve proper planning and sustainable development of the urban settlement and in particular:
   (i) Is essential to facilitate regeneration and/or expansion of the centre of the urban settlement
   (ii) Comprises significantly of under-utilised lands
   (iii) Is within the core or adjoining the core of an established or designated urban settlement
   (iv) Will be essential in achieving compact and sustainable urban growth
   (v) There are no alternative lands for the particular use or development type in areas at risk of flooding within or adjoining the core of the urban settlement.

Planning Implications for each of the Flood Zones:
The initial justification test has been met in the zoning of lands which are subject to moderate or high risk of flooding as outlined above. The second process is the Development Management Justification Test which will be applied at the planning application stage where it is intended to develop land at moderate or high risk of flooding for uses or development vulnerable to flooding that would generally be inappropriate for that land. The following table illustrates criteria as outlined in the *Guidelines on the Planning System and Flood Risk Management* that must be adhered to when considering a proposed development in the different flood zones.
The table below (8.1) illustrates the type of development that would be appropriate to each flood zone and those that would be required to meet the justification test.

Table 8.1-Classification of vulnerability versus flood zone

	Land Uses and Types of development	Flood Zone A	Flood Zone B	Flood Zone C
Highly vulnerable development (including essential infrastructure)	Garda, ambulance, forestations. Hospitals, Dwelling houses, residential care homes, children's homes and social services homes, Caravans and mobile homes	Justification Test	Justification Test	Appropriate
Less vulnerable development	Buildings for retail, leisure, warehousing, commercial, industrial and non-residential institutions, Waste treatment, local transport infrastructure, land and buildings used for holiday or short-let caravans and camping. Waste treatment, local transport infrastructure	Justification Test	Appropriate	Appropriate
Water-compatible development	Docks, marinas, amenity open space, outdoor sports and recreations and changing rooms, water based recreations and tourism (excluding sleeping facilities), essential ancillary sleeping or residential accommodation for staff.	Appropriate	Appropriate	Appropriate

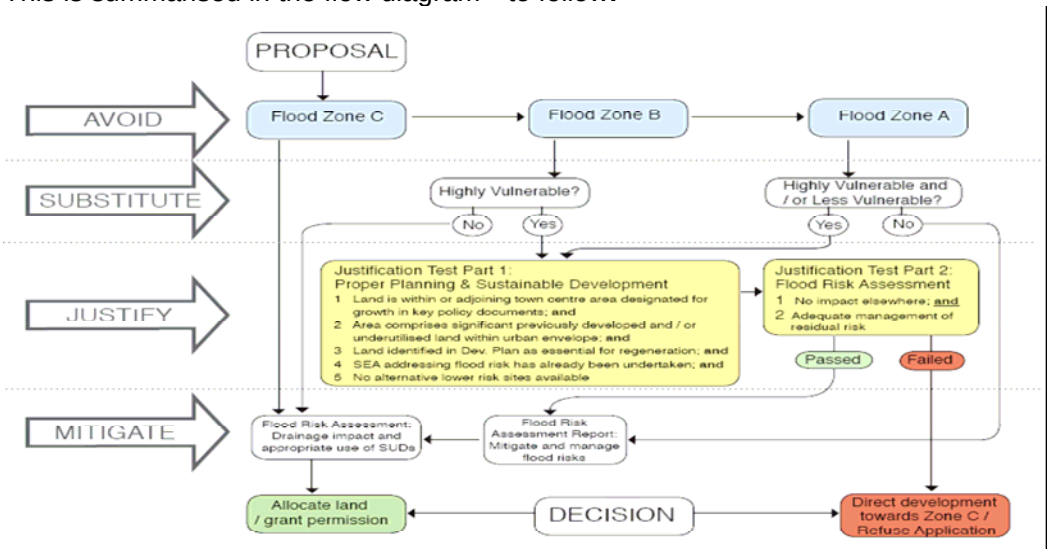
Reduction and mitigation of flood risk

The risks associated with flooding at any particular location can be reduced and mitigated in a number of ways depending on the scale and type of flooding that may be likely, for example

- through structural measures that block or restrict the pathways of floodwaters, such as river or coastal defences;
- the provision of attenuation measures (either natural or man made) that hold excess water until it can be released back into the natural water systems;
- through the proper design of surface water systems, that allow the system to convey away from the site (to an appropriate outfall) the water that may be generated in an extreme event[14];
- through the minimisation of 'hard surfacing' in new developments, which prevents waters from seeping into the ground;
- Through 'flood routing' i.e. the integration into the design of a development of escape routes for water;
- Flood resistant and resilient construction;
- Effective emergency planning.

Flood risk management

Applications for permission will be evaluated following the sequential approach as set out in the guidelines. This is summarised in the flow diagram[15] to follow**:**



Flood Risk Assessment

Where flood risk may be an issue for any proposed development, a flood risk assessment should be carried out that is appropriate to the scale and nature of the development and the risks arising. This shall be undertaken in accordance with the DoEHLG Flood Risk Assessment Guidelines. This shall include proposals for the storage or attenuation of runoff/discharges (including foul drains) to ensure the development does not increase the flood risk in the relevant catchments. Those planning new developments are advised to refer to the OPW National Flood Hazard Mapping Website, the Flood zone map (08.1), Coastal flood maps and GSI data etc prior to submitting proposals.

8.5.1 Flood Management Objectives

FL1 To require in accordance with table 8.1 that developments of a type that maybe considered sensitive to flooding are subject to a "justification test". Where a justification test is required it shall demonstrate to the satisfaction of the Council that;

a). Such proposals includes a sequential assessment demonstrating that there are no alternative sites available at a more suitable location within the town that would meet the requirements of the development;

b). The area comprises significant previously developed and/or underutilised lands within the town plan area;

[14] What constitutes an extreme event will depend on the location of the site and the uses thereon. For urban/built up areas or where developments (existing, proposed or anticipated) are involved, design for a 1 in 100 year event will be required; along estuaries, design for the 200-year tide level will be required.

[15] Reproduced with permission from jba Consulting

c). The development of the area is essential to facilitate the regeneration and rejuvenation or town centre expansion;
d). Environmental/hydrological assessment has been undertaken to identify the impact of flood risk as a result of development and that the development would not result in increased or new flood risk elsewhere and if possible will reduce the overall flood risk;
e). The proposal includes measures to minimise flood risk to people, property, the economy and the environment as far as is reasonable possible;
f). Residual risk to the area and/or the development can be managed to an acceptable level by design, incorporated flood risk measures.

FL2 Applications for significant new developments or developments in high or moderate flood risk areas shall follow the sequential approach as set out above.

FL3 To limit or break up large areas of hard surfacing in new developments and to require all surface car parks to integrate permeability measures such as permeable paving.

FL4 Excessive hard surfacing shall not be permitted for new, or extensions to, residential or commercial developments and all applications will be required to show that sustainable drainage techniques have been employed in the design of the development.

FL5 To require all new developments to include proposals to deal with rain and surface water collected on site and where deemed necessary, to integrate attenuation and SUDS measures.

FL6 For developments adjacent to all watercourses of a significant conveyance capacity or where it is necessary to maintain the ecological or environmental quality of the watercourse, any structures (including hard landscaping) must be set back from the edge of the watercourse to allow access for channel clearing/ maintenance/ vegetation. A minimum setback of up to 10-15m will be required either side depending on the width of the watercourse.

8.6 Waste & Emission Control

The issue of waste management is recognised as one of the most problematic areas of environmental management. Waste generation is directly linked to trends in consumption and output, reflecting population growth and household formation, the level of manufacturing, industrial and agricultural activity, and overall economic performance. The waste produced from the above activities can be quite diverse requiring consideration of a wide range of environmental, technical, economic and market related issues in order for it to be efficiently managed.
The County's strategies and policies on waste management as whole are already set out in the Wicklow Waste Management Plan. This section will therefore only set out the strategies and objectives of plan with regard to solid waste and 'waste' emissions to the environment, as they impact on land use decisions and applications for planning permission.

8.7 Solid Waste Management

It is the policy of the Council, as set out in the Wicklow Waste Management Plan, to:
- prevent or minimise the production of waste in the first instance
- reduce, re-use and recycle to the maximum extent possible
- endeavour to recover energy from waste where possible
- ensure the efficient and safe disposal of any residual waste

The role of a land-use plan in the achievement of these objectives is somewhat limited, but it will play a role in guiding the location of new facilities and services that are necessary to implement the Wicklow Waste Management Plan.

Hazardous wastes pose a greater risk to the environment and human health than non hazardous wastes and thus require a stricter control regime. Hazardous waste is generated by all sectors of Irish society, from large industry, to small businesses, households, schools and farms. It is for the most part managed by the professional hazardous waste industry and is treated appropriately and in accordance with legal requirements. A significant amount of hazardous waste is generated in County Wicklow, in the main due to the presence of the chemical and pharmaceutical industries. While the Wicklow Local Authorities do not

directly manage waste generated by these private companies it does provide for civic amenity sites for the proper collection of small quantities of household hazardous waste.

8.7.1 Solid Waste Management Objectives

WM1 To facilitate the development of sites, services and facilities necessary to achieve implementation of the objectives of the Wicklow Waste Management Plan.

WM2 To have regard to the Council's duty under Section 38 (1) of the 1996 Waste Management Act, to provide and operate, or arrange for the provision and operation of, such facilities as may be necessary for the recovery and disposal of household waste arising within its functional area.

WM3 To require all developments likely to give rise to significant quantities of waste, either by virtue of the scale of the development or the nature of the development (e.g. one that involves demolition) to submit a construction management plan, which will outline, amongst other things, the plan for the safe and efficient disposal of waste from the site.

WM4 To require all new developments, whether residential, community, agricultural or commercial to make provision for storage and recycling facilities.

WM5 To facilitate the development of existing and new waste recovery facilities and in particular, to facilitate the development of 'green waste' recovery sites.

WM6 To have regard to the "Major Accidents Directive" (European Council Directive 96/82/EC). This Directive relates to the control of major accidents involving dangerous substances with an objective to prevent major accidents and limit the consequences of such accidents. This policy will be implemented through Development Management, through specific control on the siting of new establishments and whether such a siting is likely to increase the risk or consequence of a major accident.

8.8 Litter & illegal dumping

The occurrence of illegal dumping and the amount of litter and street cleaning waste generated in the County has been falling. This can be attributed to the National Litter Campaign and increased public awareness. All such wastes are disposed of to landfill and therefore all efforts are required to continue to reduce this form of waste.

8.8.1 Litter & illegal dumping objectives

LT1 To facilitate the implementation of the County and the local Litter Management Plan.

LT2 To proactively pursue enforcement and legal action against perpetrators of illegal dumping and 'fly tipping'.

LT3 To require all new potential litter generating developments (such as shops, takeaways, pubs etc) to provide litter / cigarette bins on or directly adjoining the premises and to provide for the cleaning of the adjoining streetscape in accordance with the provisions of Part II Section 6 of the Litter Pollutions Act 1997 and 2003.

8.9 Air Emissions

The Environmental Protection Agency holds overall responsibility for the co-ordination and monitoring of air quality in accordance with EU air quality directives. Damaging emissions in the air can take the form of pollutant gases (for example from car exhausts) and air borne particulates (such as dust).

8.9.1 Air emissions objectives

AE1 To regulate and control activities likely to give rise to emissions to air (other than those activities which are regulated by the EPA).

AE2 To require proposals for new developments with the potential for the accidental release of chemicals or dust generation, to submit and have approved by the Local Authority construction and/or operation management plans to control such emissions.

AE3 To require activities likely to give rise to air emissions to implement measures to control such emissions, to install air quality monitors and to provide an annual air quality audit.

8.10 Noise pollution

Noise pollution can be described as unwanted sound that disrupts the activity or balance of our daily lives. There are many sources of noise pollution, most of which are associated with urban development; road, rail and air transport; industrial, neighbourhood and recreational noise.

In Ireland, the principal laws relating to noise are set out in Sections 106, 107, and 108 of Part VI of the Environmental Protection Agency (EPA) Act 1992. Under this legislation local authorities or the EPA are empowered to serve a notice requiring measures to be taken to limit or prevent noise. The local authority has a role in the issuing of noise conditions as appropriate in planning permissions and in the enforcement of any planning permissions granted**.**

8.10.1 Noise pollution objectives

NP1 To enforce, where applicable, the provisions of the Environmental Protection Agency (EPA) Acts 1992 and 2003, and EPA Noise Regulations 1994.

NP2 To regulate and control activities likely to give rise to excessive noise (other than those activities which are regulated by the EPA).

NP3 To require proposals for new developments with the potential to create excessive noise to prepare a construction and/or operation management plans to control such emissions.

NP4 To require activities likely to give rise to excessive noise to install noise mitigation measures and monitors. The provision of a noise audit may also be required as appropriate.

8.11 Light pollution

While the use of artificial light has done much to safeguard and enhance our night-time environment, if it is not properly controlled, obtrusive light (commonly referred to as light pollution) can present physiological, ecological and safety problems. Outdoor lighting, when misdirected towards public roads (light glare), can be a hazard to drivers*.* Light pollution, whether it keeps you awake through a bedroom window (light trespass) or impedes your view of the night sky (sky glow), is a form of pollution and could be substantially reduced without detriment to the lighting task.

8.11.1 Light pollution objectives

LP1 To require proposals for new developments with the potential to create light pollution or light impacts on adjacent residence / public roads to mitigate impacts.

8.12 Energy & telecommunications-

The word *energy* is used as a synonym of energy resources, and most often refers to substances like fuels, petroleum products and electricity in general. These are sources of *usable energy*, in that they can be easily transformed to other kinds of energy sources that can serve a particular useful purpose.

Today, we burn fossil fuel, such as coal, oil, and natural gas to make energy. Fossil fuels are non-renewable, that is, they are not replaced as soon as we use them. We therefore face the potential depletion of these resources in the future and the associated risk to security of fuel supply. Furthermore, the combustion of such fuels results in emissions to the atmosphere. It is imperative that our use of and dependence on fossil fuels be reduced. Therefore the development of renewable energy shall be to the forefront in the Councils policy formulation.

The Council recognises the importance of a high quality telecommunication infrastructure in the context of national, regional and local development. The development of this service is an essential element in industrial, commercial, tourist and social development. The next generation of telecommunication networks is likely to be coming on stream during the course of this plan, such as higher capacity and speed broadband and facilitation of these systems is key goal of this plan.

8.12.1 Energy

The most recent comprehensive data available for energy use in Ireland is from 2007. In that year, the total requirement for all uses of energy including energy used to transform one energy form to another (e.g. burning fossil fuels to generate electricity) and energy used by the final consumer, which is measured in terms of its oil equivalent, was 16.1 MTOE (million tonnes oil equivalent). This energy use is split evenly between the three principle energy users – transport (33%), electricity generation (33%) and heating (34%). Growth in energy demand is forecast to be 2-3% annually to 2020.

The problem is with the source of this energy. In 2007, Ireland was 96% dependent on fossil fuels, 90% of which were imported. This gives rise to two serious problems

- ensuring the continued security of energy supply;
- continued release of CO_2 and pollutants into the atmosphere, with their associated impacts of environmental health and climate change.

These issues in themselves give Ireland the impetus to move away from fossil fuel dependency and to exploit and develop renewable sources of energy. Ireland's commitment to a move to renewables however also stems from its international commitments such as the Kyoto Protocol, European Directive 2001/77/EC[1] and the new directive on the Promotion of Renewable Energy Sources, which is due to come into effect in 2009, which will establish a target of 20% of overall EU energy consumption coming from renewable sources by 2020. The Government have recently revised the target for energy consumption from renewable sources (RES-e) and has increased the target to 40 % by 2020.
Therefore it is imperative to consider both the issues of supply and demand for energy.

8.12.2 Energy Objectives

E1 To encourage the development of alternative and renewal energy sources, including wind, solar, hydro, bio energy sources.

E2 To encourage the development of wind energy at suitable locations in the plan area, in accordance with the County Wicklow Wind Strategy and in particular to allow wind energy exploitation subject to:

- the maintenance of a suitable buffers between any wind turbine and any existing residential areas and detailed evaluation and mitigation of potential impacts on any residence within 600m of any wind turbine;
- consideration of any designated nature conservation areas (SACs, NHAs, SPAs etc) and any associated buffers;
- impacts on visual, residential and recreational amenity;
- impacts on 'material assets' such as towns, infrastructure and heritage sites;
- consideration of grid connection issues;
- best practice in the design and siting of wind turbines, and all ancilliary works including access roads and overhead cables.

E3 To facilitate the development of off-shore wind energy projects insofar as onshore facilities may be required.

E4 To facilitate the development of solar generated electricity and to positively consider all applications for the installation of PV cells at all locations, having due regard to architectural amenity and heritage.

E5 To facilitate the development of expanded or new river / lake based hydroelectricity plants, subject to due consideration of ecological impacts, in particular, the free flow of fish and maintenance of biodiversity corridors and the development of off shore hydroelectricity projects insofar as onshore facilities may be required.

E6 To facilitate the development of small-scale electricity generation installations such as solar panels, single stand-alone or wall mounted wind turbines and biomass converters.

E7 To require all new buildings during the design process to incorporate sustainable technologies capable of achieving a Building Energy Rating in accordance with the provisions S.I. No. 666 of 2006 European Communities (Energy Performance of Buildings) Regulations 2006.

[1] EU target of 21 % of electricity from RES by 2010, Irish target of 13.2% by 2010.

E8 To support the development and expansion of the electricity transmission and distribution grid, including the development of new lines, pylons and substations as required; to suitably manage development within 35m of existing 110KV/220kV transmission lines and to support and facilitate the development of landing locations for any cross channel power interconnector.

E9 To facilitate the development of alternative transport fuels and the development of services and utilities for alternative vehicles types.

8.12.3 Telecommunications

The availability of high quality, high-speed information, telecommunication and broadcasting network is essential to the economic development of the Country. This principally comprises traditional telephone networks, mobile networks and broadband (all of which can carry voice and digital information, including the internet). Such networks not only provide for better communications between individuals and businesses but also provide opportunities to change the way we live and work, including working from home.

8.12.4 Telecommunications Objectives

ICT1 To facilitate the development and expansion of communication, information and broadcasting networks, including mobile phone networks, broadband and other digital services.

8.13 Development Management Standards

8.13.1 Water supply

- Proposed developments connecting to the public water supply shall provide the following information at application stage:
  - point of connection to existing mains system
  - information on the capacity and supply available at the point of connection
  - analysis of pressure available
  - proposals for pressure boosting or on-site water storage as may be required
  - the design of the water supply network on site, which shall be compliant with the specifications of Sections 3 and 4 of *"Recommendations for Site Development Works for Housing areas*" (DoEHLG 1998), as may be revised or amended

- Proposed developments dependent on a existing or new private well source shall provide the following details at application stage:
  - location of water source and aquifer type and vulnerability;
  - hydrogeological analysis of the water regime in the area, direction of flows, location of possible sources of contamination etc;
  - measures to ensure the protection of the source;
  - yield and quality analysis (in accordance with current Drinking Water Regulations);
  - proposals for a duty and standby well, each with its own submersible pump to ensure security and continuity of supply to the proposed development;
  - management measures including treatment (where necessary) and ongoing maintenance;
  - such assessment shall be provided by a recognised hydrogeological professional with professional indemnity insurance.

8.13.2 Water demand

- The provision of "dual flush" toilets shall be required in all new developments, in accordance with Part G of the Building Regulations (as amended 2008).
- Rainwater butts[16] shall be installed by the developer for all new residential developments.

8.13.3 Wastewater systems

- Proposed developments connecting to the public wastewater collection system shall provide the following information at application stage:
  - point of connection to existing mains system;
  - information on the capacity available at the point of connection;
  - the design of the wastewater collection system on site, which shall be compliant with the specifications of Sections 3 and 4 of *"Recommendations for Site Development Works for Housing areas*" (DoEHLG 1998), as may be revised or amended;
  - details of any proposed pumping stations, to include full details of design and operating processes, which accord with the requirements of the Water Services Authority.

- Proposed developments dependent on private wastewater collection and treatment systems shall comply with the appropriate EPA Wastewater Treatment Manual:
  - Persons carrying out a site assessment must submit appropriate background information confirming their competency to carry out the assessment and details of their professional indemnity insurance;
  - Developers of private temporary treatment plants will be required to submit a maintenance contract for the operational lifetime of the plant.

8.13.4 Surface and storm water systems

All new developments shall be designed to ensure:

- The on-site collection of surface water separate from foul water;
- Surface water is appropriately collected on site to prevent flow onto the public roadway, adjoining properties or into the public foul sewer / sewage treatment plant;
- The appropriate on-site disposal of surface water (where the scale and amount of water generated makes this feasible) e.g. through soakpits. For larger scale developments, it may be necessary to

[16] A water *butt* is a container for collecting rainwater from the roof and downpipes of a dwelling, which can later be used for gardening etc.

demonstrate through soil and subsoil tests that the site is capable of absorbing the surface water generated;

- Where on-site disposal is not feasible and discharge to surface waters is necessary, that the system has been designed in accordance with Sustainable Urban Drainage measures (SUDS) and in particular, that run-off has been attenuated to greenfield conditions;
- Discharges to water courses shall be channelled through adequately sized filters /interceptors for suspended solids and petrol/ oils prior to discharge.

8.13.5 Construction management

All construction sites shall be appropriately managed to ensure that environmental emissions are strictly controlled. This will be enforced by requiring (by planning condition) the agreement and implementation a 'construction and demolition management plan', which will set out detailed measures to manage waste arising from the construction activity. In drawing up such plans, developers should have regard to DoEHLG guidance publication 'Best Practice Guidelines on the preparation of Waste Management Plans for Construction and Demolition Projects' (2006) as may be amended and revised. In particular, such plans will set out:-

- construction programme for the works
- hours of operation
- a traffic management plan
- noise and dust mitigation measures (including details of a truck wheel wash at the site entrance
- details of construction lighting

A Construction Manager will be required to be appointed to liaise directly with the various sections of the Council.

8.13.6 Residential Developments

- The design and layout of all individual and multi house developments shall provide for on site waste storage (including recyclables) and composting facilities;
- For traditional housing layouts, this will normally require the inclusion of sufficient space to the side or rear of a dwelling for the storage of waste, including up to 4 wheelie bins (recyclables, glass, organic and residual waste);
- For terraced houses or courtyard type developments (i.e. those developments that include houses with either no / limited private gardens) and apartment developments, bin storage and composting areas shall be provided;
- Waste storage areas shall be designed and screened so as not to cause any adverse visual impact on the proposed complex.

8.13.7 Employment & commercial developments

- All commercial developers shall appraise themselves of their obligations under the Waste Management Acts and the Wicklow Waste Management Plan 2006-2011 (and any subsequent reviews) and show at application stage details of waste storage and other waste facilities necessary to meet these obligations. In particular, as appropriate to the type of development:
  - Details of waste storage areas, including areas for the storage of recyclables shall be detailed. Such areas shall be suitably located and screened on site so as to minimise impacts on visual or residential amenity;
  - Developments likely to result in litter generation shall provide and manage litter bins on or immediately adjacent to the site;
  - Records of wastes arising / accidental emissions occurring shall be maintained and made available at any time as required by the Local Authority.

- Where permission does not specify the exact processes to be carried out on a site (e.g. permission for a light industrial development with no specified users), written approval shall be obtained from the Planning Authority for the exact use before such use is commenced. Details shall be provided of effluents, waste products, materials to be used in the industrial process, toxic or hazardous by-products of the industrial process, together with details of the intended means of disposing of effluents and waste materials and controlling toxic or hazardous by-products.

8.13.8 Agriculture

- Agricultural wastes shall be managed in an environmentally sustainable manner in accordance with the principles set by the Rural Environment Protection Scheme, the Farm Waste Management Scheme and relevant EU and national legislation (in particular, the EC (Good Agricultural Practice for the Protection of Waters) Regulations).

8.13.9 Construction & Demolition Waste Facilities

Applications for the development of commercial waste disposal or recycling facilities catering for the disposal or reuse of inert clean soils, clays, sands, gravels and stones shall only be permitted at appropriate locations and shall be subject to the following:

- It shall be for the disposal of inert clean material only;
- There shall be a proven need for the proposed development;
- The proposed development shall be in accordance with the policies set out in the Wicklow Waste Management Plan 2006-2011;
- The proposed development shall not be located on lands that have a negative impact on the surrounding landscape or near a designated Natura 2000 site, or which interferes with a protected view or prospect, a public right of way, an existing or planned piece of strategic infrastructure, or an important tourist site;
- A development shall not be permitted if it has a detrimental impact on the amenity of adjoining residents, by reason of unacceptable levels of traffic, noise, dust, lighting or other impact resulting from the operation of the facility;
- A development shall not be permitted if it has a detrimental impact on the flora and fauna, ecology, ground and surface water, air quality, and geological/ archaeological heritage of the area;
- The development shall not result in the creation of a significant traffic hazard and the road network is suitable and has the capacity for anticipated traffic levels.

It should be noted that this policy pertains to an inert clean waste disposal facility only, and does not relate to any ancillary activities pertaining to the operation of sorting, manipulation and recycling of waste.

A detailed phasing programme for the importation of material, to include details of the volume of material to be included in each phase, cross sections of each phase of operation, the construction of slopes or banks in each phase, details for the seeding and capping of each phase, details pertaining to the impact on the landscape at each phase and landscaping details for the final phase of site restoration must be submitted.

8.13. 10 Air emissions

Dust

- Any activities likely to give rise to dust emissions (e.g. construction activities, extractive industry) shall make suitable arrangements, and take precautionary measures, to suppress and control dust arising from the activity or the handling and transportation of materials. The deposition of dust on surrounding lands, or spillage onto public roads shall be prevented at all times;
- Dust levels emanating from any site shall not exceed 350 milligrams/square metre per day averaged over a continuous period of 30 days, measured as deposition of insoluble particulate matter, at any position along the site boundary.

Particulates

- The concentration in ambient air of PM_{10} at any sensitive / residential receptor shall not exceed the quantity specified in a schedule to the Air Quality Standards Regulations 2002, and which is not to be exceeded for the period and under the conditions specified in the schedule in relation to that pollutant.

Noise

- The noise level arising from any development shall not exceed 55 dB(A) Leq (1 hour) with a maximum peak of 65 dB(A) between 0800 to 1800 hours, Monday to Saturday inclusive, but excluding public holidays, when measured at the closest residence. At all other times the noise level shall not exceed 45 dB(A) Leq (1 hour) measured at the same locations. No pure tones should be audible at any time;

- As and when required by the Planning Authority, a survey of noise levels at monitoring stations on adjacent properties (to be agreed with the Planning Authority) shall be undertaken by an agreed professional (at the expense of the developer) and the results submitted to the Planning Authority within one month of such a request;
  The results of such surveys shall include, inter alia:-
  (i)Type of monitoring, equipment used, sensitivity or calibration evidence, and the methodology of the survey.
  (ii)Prevailing climatic conditions at the time of the survey.
  (iii)The time interval over which the survey was conducted.
  (iv)What machinery was operating at the time of the survey.

Light

- Applications for permission which include the provision of new street lighting or significant on site / on building lighting shall be accompanied by a certificate from a suitably qualified professional in the field confirming that all lighting has been so positioned and designed to eliminate or mitigate impacts on adjoining properties, particularly residences (light trespass) or on the night sky (sky glow). Regard shall be taken of ***Guidance Notes for the Reduction of Light Pollution*** (Institute of Lighting Engineers, 2000);
- All external lighting attached to buildings shall be cowled and directed away from the public roads and adjacent dwellings;
- To preserve the character of the night time landscape, roads in rural areas should use the minimum amount of lighting necessary, restricted to critical intersections. Passive measures, such as cat's eyes and reflectorised markings, should be preferred as night time safety guides.

Contaminated land

Applications for the development of sites where soil or groundwater contamination is evident or is known to have occurred, or sites where a previous or current activity is at high risk of causing contamination, shall be accompanied by such documentation and investigations as appropriate to identify the nature and extent of the contamination and necessary measures required to contain and redress previous contamination and to prevent new contamination.

8.13.11 Design standards for improved energy efficiency

'Energy efficiency' in building design relates to (a) reducing the amount of energy used in the building and (b) increasing the use of renewable sources of energy. There are a number of ways in which both can be achieved:

- High quality insulation, which will minimise heat loss and therefore reduce demand for heat generation;
- The use of energy efficient lighting, which include not only the use of energy efficient long life bulbs but also the installation of devices to control use of lights such as light movement sensors;
- The use of energy efficient appliances;
- In use of renewable energy technologies such as
  - solar panels (for either or both water heating and for the generation of electricity)
  - biomass burners, such as wood pellet boilers (again which can generate both heat and electricity)
  - small scale wind turbines.

Even without these technologies, measures can be taken through siting and design to reduce energy use. The following are the main principles of Passive Solar Design (PSD) which should be integrated into the design process:

- Building location – where there is a choice in location, consideration should be given to the ability of any site to make use of sunlight for passive space heating;
- Orientation - the capture of solar gain can be maximised by orientating the main glazed elevation of a building within 30 degrees of due south;
- Room layout - placing rooms used for living and working in the south facing part of the building, to reduce reliance on artificial lighting and heating methods;
- Avoidance of overshadowing - careful spacing of buildings will minimize overshadowing of southern elevations, particularly during the winter when the sun is low;
- Window sizing and position – sizing and positioning windows to maximise gain from the sun, while minimising windows on other elevations. The precise amount of glazing utilised should be based on considerations of latitude, altitude, climatic conditions and heating / cooling requirements. Care is needed to avoid 'over-glazing' resulting in overheating / glare / fading of furnishing and heat loss when ambient temperatures fall;

- Ventilation and shade – to use natural ventilation or heat exchange system in order to avoid the need to install air conditioning;
- Thermal buffering - unheated spaces such as conservatories, green houses and garages attached to the house can act as a barrier to unwanted heat loss or gain in the main living area;
- Excessively large open spaces within the building should be avoided as this may lead to unequal distribution of warm air between upper and lower floors as air rises;
- Exterior finishes – materials and colours can be chosen to reflect or absorb solar thermal energy;
- Landscaping – energy efficient landscaping materials, including the use of trees, plants, hedges or trellis can be used to selectively create summer shading and also create winter wind chill shelter.

8.13.12 Mast & Telecommunications Development Standards

These standards deal with those telecommunications installations which form part of the requirements for licensed, public mobile telephony and which are considered to be development in accordance with the Planning & Developments Acts. Operators of broadcast VHF and fixed radio link installations, which support the mobile radio requirements of the emergency services, should, where applicable, take cognisance of these standards.

Need for the new installation

All applications for new antennae shall be accompanied by adequate information to show that there is a requirement for the new installation. In particular, the following information shall be provided;

- Map of the area concerned (minimum 10km radius) showing all antennae operated by the applicant and the applicant's existing coverage in that area;
- Details of antennae operated by other providers in the area and their associated coverage maps;
- Details of the area to be covered by the proposed antennae and technical explanation of the reasons why coverage cannot be provided by existing antennae.

Location

Where it has been proven that there is a need for new / expanded coverage in a particular area, the applicant shall show that all existing masts and support structures in the area have been firstly examined to determine if the attachment of new antennae to existing support structures can provide the coverage required. This will require the submission of:

- A map of all existing support structures in the vicinity of the coverage 'gap';
- A technical evaluation of the capabilities of these masts to take additional antennae and provide the coverage required.

Once it has been determined that new antennae / antennae support structures are required and co-location on an existing support structure is not feasible, permission will be considered for new support structures and associated base stations subject to the following control criteria.

Locations in settlements

The applicant shall be required to follow a 'sequential' approach to site location i.e. in accordance with the order of priority set out to follow, the applicant must show that the preferred locations have been examined in the first instance and rejected for specified reasons (commercial competition in this instance will not be acceptable as a reason) and only then, can locations further down in the hierarchy be considered:-

1. Clustering with existing support structures;
2. In industrial estates or on industrial zoned lands;
3. Rooftop locations in commercial / retail zones;
4. In parks / open space areas ('disguised' masts may be requested in such areas).

New support structures shall not be permitted within or in the immediate surrounds of a residential area or beside schools.

Impacts on protected structures, Architectural Conservation Areas, National Monuments or other building / sites of heritage value shall be considered.

Rural locations

- Masts and base stations should be sited in a manner which respects the landscape and which limits the intrusion on the landscape. Notwithstanding coverage obligation issues:
  - Hilltops shall generally be avoided, except in exceptional circumstances, where technical or coverage requirements make it essential;
  - Locations in the direct line of listed views or prospects shall be avoided;

- Along major tourist routes, care shall be taken to avoid terminating views;

- The location of structures, archaeological sites and sites designated for nature conservation reasons (e.g., NHAs, SACs, SPAs) shall be considered against the conservation objectives of these sites [17];
- Forested locations are likely to be preferable, subject to the nature of the forestry and its felling programme. In such cases, the applicant must be in a position to maintain a suitable cordon of trees around the site and bonded undertakings to that affect will be required to be submitted;
- Unless otherwise advised through pre-planning discussions, a visual impact assessment shall be submitted with any application, which shall address, inter- alia,
  - Landscape and topography, elevation and overall visibility;
  - Any listed views or prospects in the area;
  - Intermediate objects (e.g. buildings or trees) between the site and the principal viewing locations;
  - The scale of the object in the wider landscape;
  - The multiplicity of other objects in the wider panorama;
  - The position of the object with respect to the skyline;
  - Weather and lighting conditions.

Access Roads and power supply

- Access roads and power supply Access roads and new overground power lines shall be permitted only where they are absolutely necessary and great care should be taken that they would not appear as a scar on a hillside;
- It will normally be a condition that access roads are grubbed up at the end of the construction period. In exceptional cases, the Planning Authority can consider requiring the use of a helicopter for the construction and installation of base stations.

Mast / antennae design

- Subject to visual and landscape considerations, support structures will normally be required to be so designed as to facilitate the attachment of additional antennae. Where such a design is facilitated, it will be a condition of any permission that the mast be made available for co-location with other operators;
- Support structures shall be so coloured as to minimise visual impact – in forestry areas, dark green will normally be required whereas those structures that would be visible against the skyline will normally be required to be a neutral sky grey;
- Whilst the design of the antennae support structures and the antennae themselves will be dictated by radio and engineering parameters, all applicants will be asked to explore the possibilities of using other available designs where these might be an improvement on traditional design;
- While it is acknowledged that there is a trade off between height (taller height implying better coverage) and the number of masts required for network coverage, in all cases, height shall be restricted to that required to bridge the existing coverage gap identified. Alternatively, consideration may be given to higher masts if this would allow for an overall reduction in mast in any given area.

Site layout / design

- Support structures, associated antennae and base stations shall be designed to minimise visual intrusion. In particular, height and width of the mast shall be kept to a minimum, subject to coverage considerations;
- In built up areas, monopole structures may be preferable, subject to consideration of future co-location demands;
- Site boundaries shall be suitable to the location. In particular, palisade type metal fencing will generally not be considered appropriate in built up areas – render or stone clad solid walls will normally be required;
- Landscaping shall be integrated into the scheme in both urban and rural locations;

[17] In accordance with the Habitats Directive, any project not directly connected with or necessary to the management of a Natura 2000 site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.

- The number of ancillary buildings / containers shall be kept to a minimum, with all such structures proposed being clearly justified. Such structures shall be painted or clad in a material / colour suitable to the location.

Safety criteria

- As part of their planning application, applicants will be required to furnish a statement of compliance with the International Radiation Protection Association (IRPA) Guidelines (Health Physics, Vol. 54, No. 1(Jan) 1988) or the equivalent European Pretender 50166-2 which has been conditioned by the licensing arrangements with the Departments of Transport, Communications, Energy& Natural Resources and to furnish evidence that an installation of the type applied for complies with the above Guidelines;
- Where the applicant proposes to share an existing mast or to enter a clustering arrangement on an existing site, a statement from the owner/landlord of the mast or site that the shared mast or cluster will continue to operate under the guidelines applicable to it should be presented to the Planning Authority;
- The results of monitoring, shall, if required, be made available to the Council and through the Council to the members of the public;
- Safety aspects of the antennae and support structures will, unless perhaps in the case of ground mounted single poles, stayed or otherwise, involve anti climbing devices and proper ducting and insulation measures for cables;
- During construction of the site, special precautions may have to be taken in relation to traffic.

Obsolete structures

- Where the original operator is no longer using the antennae and their support structures and no new user has been identified they should be demolished, removed and the site reinstated at the operators expense (This will be a condition of any permission and a bonding arrangement to this effect will be put in place);
- Where the owner of a site disposes of the site to another suitably licensed operator, the original operator/owner will be required to inform the Planning Authority of such transfer so that the Authority may be in a position to readily enforce any continuing conditions on the new operator.

Duration of permission

- Permissions for antennae support structures and associated base stations shall only be granted for 5 years;
- Further permissions for the facility at the end of the 5 year period shall be conditional on the provision of evidence, as necessary, to justify the continued need for the facility, given changes in technology and development of other sites in the meantime;
- Where a subsequent permission does not include any alterations to the permitted facility, the applicant shall be required to show that no new changes in technology have come about that would allow the design (height, width, no of antennae etc.) or environmental impacts of the installation to be improved;
- The Planning Authority shall apply more stringent conditions on any subsequent permission for the same site, if considered necessary.