

# Water

## Water (for (add date) or in (Local Authority name))

*Subsection of the Water Chapter. Introduction of the context national, regional and local generally including paragraphs containing the following information;*

**Show present data;** i.e. (Local Authority name) (Insert as applicable) Climate Change Strategy, Vision, Emergency Plan emphasises that the (Local Authority name) should expect and prepare for drier hotter summers and warmer, wetter winters as a result of global warming.

The UK Climate Impacts Programme (UKCIP) anticipates that global warming will lead to significant changes in rainfall distribution and intensity, with UK properties likely to suffer in the future from water shortages or flood damage. The design, capacity and maintenance of our urban drainage systems may require upgrading in order to accommodate greater storm activity. The impact of on this region has already been felt and our community must work to prepare for an increased propensity to flooding - such as that of 2000 - and the flash flood events of June 2005.

Demand for water (nationally/locally/) has (more than doubled since 1970, /local stats if available) leading to stresses on water supply, treatment and disposal. Rising consumption levels are placing increasing pressure on river, groundwater, flood meadow and other wetland ecosystems. It is therefore important that all new developments are designed to work in harmony with and minimise their impact upon the water environment.

Explaining sources of data etc

Introduce **Key objectives** i.e.;

Strategy (climate change where applicable) /Vision/Local planning framework ensures that;

- All new developments are built to high levels of water use minimisation and incorporate and develop flood risk minimisation techniques such as the adoption of soft or permeable landscaping and the incorporation of soak away systems.
- Pre-existing developments are modernised to improve water monitoring, decrease demands on supply and reduce the proportion of hard landscaping.

Highlighting positive relationship between **prudent water management and planning and the developer's and business communities** perspective i.e:

Reducing energy consumption and other resources during construction can result in lower direct costs for the developer, thus helping profitability.

- Increasing a developments sellability is related to the efficiency of the utilities used, building in lower water consumption presents a marketable advantage on competitors when buildings are sold or let.
- Domestic perspective: - costs of mortgage in an inflated market can be balanced against lower outgoings on potable (drinking) water and treatment costs. Research surveys carried out by CABE, the WWF and the Halifax (July 2004) found that 84% of people would be willing to pay an average of 2% extra on the purchase price their home if they are environmentally sound and 87% of buyers want to know if their homes are environmentally friendly (see [cabe.org.uk](http://cabe.org.uk)).

- ❑ Lower running costs in business premises reduce overheads, thus supporting maintenance or improvement of net profitability.
- ❑ Landlords as potential purchasers of new developments or improvers of existing stock will be increasingly competing with the market advantage in letting low water consuming buildings. Already the case in the student rented sector nationally.

Highlight importance of adapting to meeting and competing in a **rapidly changing and increasingly regulated market:**

- ❑ The once small or specialist 'green' consumer market, has rapidly mainstreamed due to popularisation of the issue – programmes such as BBC2 'No Waste Like Home'. This sector of the market will soon predominate and is prepared to pay a premium for buildings that have been designed to 'green' specifications and leave anything less empty.
- ❑ As the domestic market has changed businesses are developing a parallel awareness of the marketing advantages of their own business premises, practices and products having a transparent and measurable 'green image'.

Introduce importance re **Public Sector Buildings:** Increasingly Local Authorities are aware of the consequences of high water consumption and poor water management, the legislative framework is changing to incorporate the metering and monitoring of water use and consumption. The public sector is inevitably choosing buildings designed to achieve lower levels of water consumption. Developers are wise to plan ahead of the legislation ensuring when legal requirements come into force they can be achieved with minimal confusion and cost.

## **Water, the Local Economy and Community Well Being**

*Subsection of Water Chapter introducing subject relations containing the following information;*

The main areas developers must consider in relation to the water are increasing sustainable water use and the management of flood risk. The development or refurbishment of buildings provides an ideal low cost opportunity to incorporate these measures.

### **Flood Risk**

Properties with lower risks associated to flooding are inevitably easier to sell or let than those with higher risks. Insurance companies routinely use flood risk information - provided by the Environment Agency - to assess appropriate premiums for building insurance, this has significantly increased premiums for properties within flood risk areas. The Association of British Insurers has warned that buildings knowingly constructed in areas at risk of flooding may not be insurable.

In addition, owners may find that they can become liable for flooding elsewhere if it is found that the root cause is a problem with drainage on their site. Sustainable building solutions can help to significantly reduce flood risk and the associated litigation and insurance costs associated with the development..

Developing a proven track record on the implementation of the change to Part H of the Building Regulations in the developers best interest. Delivering standards above those of the regulations now makes good business sense for developers, so that

once higher standards become a legal requirement they can be achieved with minimal confusion and cost.

Dwellings constructed to the highest standards will ensure current developers are viewed positively when flooding events expose others to accusations of increasing the risks. Our society is increasingly litigious and whilst currently there are few precedents for such action, it is not unimaginable that future individuals and organisations will hold developers and planners to account to account for the property damage and injury related to such incidents.

## **Local Economy**

Lowering the running costs of our local housing will lead to a net increase in local disposable income of householders, a large percentage of which will be spent in the local economy.

Reducing the running costs of our business premises, will increase profitability and the money available for expansion and job creation. Increasingly new businesses will want to locate to areas guaranteeing the best water use minimisation and management plans and achieving high standards of flood damage prevention, local development must ensure a high competitive edge if we are to improve inward investment.

The newly mainstreamed domestic 'green' consumer is being drenched in awareness of the benefits of eco-design, not only in terms of lower impact on the environment but financial benefits and quality of life. Their expectations are now beginning to exceed minimum future standards set and our local economy must rapidly adapt to meet these demands.

Domestic water consumption accounts for around 65% of the UK total yet relatively straightforward water-efficiency measures could reduce this requirement by up to 50%. The price of water has risen steeply over the last decade and is now a significant expense for many households and businesses.

Being able to market buildings as low water utility users - integrating low use fittings, rainfall capture, recycling systems and community sewerage networks – is essential to future economic health.

Forward thinking developments will also raise the profile of the (*local authority area*) increasing its attractiveness to investors and new residents alike.

## **Water: Flood Risk**

Q. Does the Local Authority have a Strategic Flood Risk Assessment for the (City/LA area) to gauge which areas are most at risk (*if so say so then point out that*). Any developments within an identified area of risk will have to consider how the risk can be reduced through mitigation or other measures.

New developments outside these areas are also required to reduce flood risk elsewhere by incorporating a range of other measures such as sustainable drainage systems (SUDS). SUDS can have other benefits such as contributing towards the aesthetic and recreational quality of landscaping schemes through the introduction of water features and areas of high wildlife value.

Developers must ensure the development is not at risk from flooding by finding out at an early stage if the development is in a flood risk area. This can be achieved by contacting the Environment Agency.

Measures must always be incorporated into the design of developments to address any flood risk (to satisfy the EA and ensure that it is insurable). In large areas of development plans should incorporate as a minimum measure the provision of new flood plain to compensate for the area lost and ensure that other buildings are not put at greater risk.

*Consider Including a Local Case Study Hyper Link or Exemplar Project reference:*

## **Water & Building**

*Subsection of Water Chapter introducing design and build considerations incorporating the following guidance;*

### **Minimising demand maximising efficiency and flood prevention.**

Future building must aim to minimise the water consumption of business and domestic property whilst maximising the efficiency of its usage. The relationship between buildings and the local environment can reduce the amount of mains water required for all purposes, improve living and working conditions and protect our natural and built environment from harm.

In order to achieve these objectives architects, designers, planners and builders must demonstrate an understanding of local weather and topographic conditions, the availability of new cost-effective systems for recycling water, curbing its use and treating waste-water, and methods for minimising and replacing hard-surfacing of large areas with soft landscaping alternatives.

### **Site Layout:**

**Working with the Landscape:** All developments and existing built environments offer opportunities for better water management and developers need to assess sites to maximise the potential of their approach.

To build in good water management principals, developments should be;

- Working in more natural methods of treating sewage. In larger, self-contained schemes these include the use of reed bed or wetland sewage treatment which can also double up as an attractive wildlife habitat and enhance the appearance of the built environment. Such approaches have already been adopted in many new developments in the UK and proven to be effective. The use of such a system at the Millennium Dome in Greenwich has helped to raise the public profile.
- Avoid hard-surfacing of large areas in favour of soft landscaping (e.g. grass or porous paving) which slows the rate of run-off to watercourses. Consider planting on flat roofed areas ('green roofs') if rainwater is not collected for re-use.
- Adopting planned systems of sustainable drainage (SUDs) for surface water drainage. SUDs, slow the rate of flow is (through filter strips, swales, and soakaways). This prevents flooding and erosion and spreads peak flows over a longer period. SUDs also filter out some pollutants (e.g. intercepting oil) and

may provide a local water amenity (e.g. balancing ponds) increasing biodiversity on the site.

- Ensuring that communal green space avoids plants requiring large amounts of water, incorporates dense ground cover to avoid evaporation and includes plans for the mulching of plants at the start of summer to help retain moisture.

**Maximising rainfall gains:** rain is a free, constantly renewed source of water, so its benefits should be built in. Design incorporating elements to capture rainwater significantly reduce the amount of water from metered sources required for domestic and business activities. Converting available rainwater into usable water reduces the reliance on our fragile water supply and increases the long-term economic viability of the building.

To build in rainfall gains, buildings should be;

- Ensuring rainwater collection can be undertaken at different levels of cost, complexity and saving, as per the hierarchy below:
  - Minimum standard: Incorporation of a rainwater collection system with water butts into all homes and other developments with outside water requirements such as watering landscaped areas.
  - Medium standard: Incorporation of a rainwater collection system for flushing the toilet or for use in the washing machine; requires storage in tanks and filtering.
  - High standard: Incorporation of a rainwater collection system for drinking and cooking requires filtering and purification (systems should aim to avoid reliance on chemicals).

**Structure:** Water-efficient buildings minimise reliance on mains supply and treatment, whilst maximising gains from rainfall and recycling, and incorporating elements to alleviate flooding.

To build water efficient structures, buildings should be;

- Incorporating substantial rainfall collection systems (see above)
- Incorporating neighbourhood treatment through new technologies such as solar aquatic treatment or 'Living Machines'
- Buildings should be designed to allow recycling of 'grey' water (usually from bath, shower and washbasins) for flushing toilets or for assisting plant growth and other low quality uses.
- Considering construction techniques such as green roofs, which slow the discharge of water into the drainage system. Green roofs may also improve the thermal efficiency of a building and support the natural environment.
- Incorporating garages and storage for garden equipment into the buildings footprint or structure eliminating the building of additional hard structures.
- Avoiding the incorporation of features encouraging the use mains supplies, for hoses or sprinklers

*Consider Including a Local Case Study Hyper Link or Exemplar Project reference:*

**Interior Building Layout and details:** The layout of a building can significantly impact on the way in which water is used.

To build water efficient layouts;

- Buildings should be designed to allow recycling of 'grey' water (usually from bath, shower and washbasins); generally for flushing toilets or for assisting plant growth and other low quality uses.
- Buildings should be designed to allow for the use of composting toilets and waterless urinals.

- Water meters for both potable water and sewerage should be installed wherever possible as real water savings can be achieved when occupiers pay for what they use. Ensure these are installed correctly and regularly serviced.
- Water management systems detecting exceptional usage caused by leaking pipe-work or other faults and enabling the effective monitoring of general usage should be installed.
- To eliminate the running of taps for a long time before they receive hot water low-water use fittings should be installed as near to the hot-water source as possible.
- Buildings should be designed to encourage the use of showers (not power showers) in preference to baths.

*Consider Including a Local Case Study Hyper Link or Exemplar Project reference:*

**Appliances:** The efficiency of appliances used in buildings can dramatically alter the buildings water consumption, particularly in the case of new or refurbish for sale developments, consideration should be given to integrating the most efficient appliances as part of the development package. This should include things like;

- As a target measure install composting toilets and waterless urinals - these use no water and should not smell.
- or as a medium measure install measure dual-flush or low-flush toilets that can reduce water use by up to 20%.
- as a minimum measure install water displacement devices in older cisterns to reduce capacity.
- Always install showers (except for 'power showers') which are more efficient than baths; using a third of the water.
- Spray taps for washbasins - they can save 80% of water use.
- Install Low-water use fittings which should be as near to the hot-water source as possible to reduce 'dead legs' and the consequent waste from running the hot tap until it gives hot water.
- Install water-efficient washing machines (both domestic and industrial) and dishwashers.

*Consider Including a Local Case Study – St Nicholas Field Environmental Community Centre, York? - Hyper Link or Exemplar Project reference:*

**Site Size:** The systems used by buildings to provide water for all purposes and treat sewerage can significantly alter the occupiers main source water requirements.

Sources of water for drinking and non-potable purposes and how they are used, controlled and maintained, will impact upon the layout of the building and should therefore be key design considerations at an early point in the projects development.

The approach taken to single developments or modernisations may be significantly different to that of larger sites which maximise opportunities to create and connect to Community Sewerage and Water Treatment Networks.

Developers of larger sites should automatically show consideration proposals to develop or expand Community Sewerage and Water Treatment Networks providing an efficient and safe source of water. The site layout may affect the feasibility of creating such systems. Considerations should include the length and capacity of any connecting infrastructure and any potential physical barriers.

Developers working areas of mixed-use or large scale development unsuited for, or unable to develop Community Sewerage and Water Treatment Networks should consider developing neighbourhood or local treatment through new technologies such as solar aquatic treatment or 'Living Machines'.

## **Water Standards, Policy and Legislation**

*Subsection of Water Chapter introducing policy framework containing the following information;*

*Question: How can you evidence that - The (Local Authority) is committed to ensuring present and future demands for water, are met more effectively. In doing so, the (Local Authority), will endeavour to;*

- reduce the threat of flooding, and minimise the effects of flooding
- decrease incidences of water pollution endangering wildlife and public supply
- Mitigate against water shortage. By endeavouring to increase the availability of new cost-effective systems for recycling water, curbing its use and treating waste-water
- Insure materials specification and of on-site construction practices respect the vulnerability of all watercourses, aquifers and environmentally sensitive areas.
- Encourage the widespread adoption of metering and not oppose the increased cost of water supply and treatment where these can be justified.
- Back stringent Regional, National and EU policies/legislation to reduce water use, pollution and flood risk.

### **The Local Context**

Does the (Local Authority Name) Local Plan reflect national and regional policies in seeking to ensure that new developments minimise their impact on the water environment and do not create a flood risk problem.

Has a Strategic Flood Risk Assessment has been carried out for the Local Authority Area that takes into account the impact of climate change on the flood risk area? This information should be used to guide planning decisions.

***To create a high standards framework to achieve genuinely sustainable objectives Members could adopt the step programme of inquiries and actions detailed at this point in the Energy Chapter***

### **The Regional Context**

*Check that* Environment Agency has produced a regional water resources strategy to guide the management of resource over the next (XX) years.

*Refer to the* Regional priorities for water resource management set out in the Environment Agency Regional Strategy (*cite the publication title and date* consider with web based versions providing a hyperlink or embedding an adobe document if permissions/format allow).

Provide a one-two paragraph synopsis of the content.

*Check that* The draft Regional Planning Guidance for Yorkshire and the Humber (ref) places a priority on water conservation and flooding issues in recognition of the

increasing pressures on water resources and the implications of climate change. Check which Policy Statements (ref) outline the approach to be taken with the water environment and sets out the regional approach to managing flood risk (Policy ref), *Include a sentence about the requirements imposed* i.e. sustainable drainage systems to be designed into all new developments where practicable.

### **The National Context**

Policy changes and legislation enacting the objectives of the EU Water Framework Directive in the UK represent the core legislation in this area(see European Context below).

In the '**UK Government Sustainable Development Strategy – Securing the Future**' a clear intention to move quickly to enforcing higher economic contributions from all those who use, and also those who may pollute water is signalled. It may be implied that the day of compulsory 'pay for impact' metering of mains water, waste and sewerage is not far off and developers would be wise to install metered systems in readiness.

Recent revision of the Building Regulations will control the use of water for the first time.

[Planning Policy Guidance note on Flood Risk and Planning \(PPG25\)](#) explains how flood risk should be considered at all stages of the planning and development process. The guidance makes clear that the susceptibility of land to flooding is a material planning consideration and that the Environment Agency has the lead role in providing advice on flood issues.

### **The European Context**

The European **Water Framework Directive** - Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 - is the most important piece of water legislation from the EC to date and sets a framework which should provide substantial benefits for the long term sustainable management of water. This legislation requires that;

- All inland and coastal waters to reach at least "good status" by 2015.
- River basins are managed holistically to deliver good ground and surface water outcomes; river basin management plans are published by 2009
- Ecological targets for surface waters are met.

### **Voluntary Standards**

*More work needed to establish the terms of voluntary standards (EcoHouse etc), encouraging adoption of measures beyond those required, introduce these here. .*