

## F7 Scoping the environmental impacts of angling and sport fishing, including fish stocking

### Explanatory note

For projects which require Environmental Impact Assessment (EIA), a scoping exercise should be undertaken early in the planning stages of the project. This enables the project to be designed to avoid or minimise negative environmental impacts and provides an opportunity to incorporate positive environmental enhancements into the project. Early consultation with all interested parties, including the Environment Agency, is an essential part of scoping. Even if a project does not require EIA under EIA legislation, it may be advisable (and in some cases necessary) to undertake a scoping exercise in any case (e.g. to support applications for other relevant consents and authorisations needed to carry out the project).

This guidance note aims to promote a good practice approach to scoping as part of the EIA process which in some respects goes beyond the statutory EIA requirements. When scoping a project, developers, or their consultants, should satisfy themselves that they have addressed all the potential impacts and the concerns of all organisations and individuals with an interest in the project.

This guidance note provides information on the most likely potential environmental impacts of angling and sport fishing, including fish stocking. However, each project must be considered on a case-by-case basis as the detailed characteristics of the proposal and the site will determine the potential impacts.

This guidance is based on the main legal requirements on EIA stemming from the EC Directive and the UK Regulations. However, developers should seek independent legal advice to ensure that the proposed development is carried out in compliance with the requirements of this and any other relevant legislation relating to planning as well as to pollution control.

This guidance note must be read in conjunction with the *Scoping Handbook*, which provides general guidance on the EIA process and the scoping of projects.



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In addition, the following scoping guidance notes are relevant to *all* projects concerned with angling and sport fishing, including fish stocking:

- A1** Construction work
- A4** Vegetation management and conservation enhancements

The following scoping guidance notes *may* be relevant in certain circumstances:

- B4** Deliberate introduction of non-native and genetically modified species
- B5** Freshwater and marine fish farms
- F6** Water-based recreation
- J1** River channel works and bank protection
- J7** Reservoirs

## Contents

Introduction	3
Development control and EIA	4
Potentially significant environmental effects	5
Mitigation measures	15
References and further reading	18

# 1 Introduction

- 1.1 This guidance note, in conjunction with the *Scoping Handbook* and the notes listed on the previous page, seeks to help developers and other interested parties identify the potential impacts of angling and sport fishing, including fish stocking, on the environment as a whole. It should be emphasised that the list of impacts is by no means exhaustive and that a full investigation into positive and negative impacts should be undertaken. Early consultation with the Environment Agency and other relevant organisations will enable the identification of environmental issues and constraints and the avoidance of sensitive areas, thus reducing the need for redesigning and mitigating avoidable impacts at a later stage.
- 1.2 This guidance note examines the potential environmental impacts arising from angling and sport fishing, including fish stocking. Following this brief introduction, an overview of the legal requirements for EIA in relation to angling and sport fishing, including fish stocking, is provided. The potential environmental impacts of such activities are identified in Section 3. The text and summary table in this section will enable the reader to begin to identify the likely impacts arising from the particular proposal under consideration. The subsequent sections present the mitigation measures that may be relevant to angling and sport fishing, including fish stocking, followed by key references and further reading.

## Background to development type

- 1.3 Angling for coarse or game fish, whether on rivers, still waters, or the open sea, may require additional facilities depending on the level of intensity. Anglers will usually require access to level fishing stances at the water's edge, but some larger water bodies may also require punts or boats, with a launch site and jetty. More popular sites may require car parking and toilet facilities and the more intensively used, large permit fisheries may even boast a fishing lodge, with restaurant and bars. Angling may involve group activities, such as training courses, fishing clubs and match competitions.
- 1.4 The demand for angling means that in some still waters, such as lakes, reservoirs and purpose-built ponds, native and exotic species of fish are artificially introduced. Indeed, to maintain some fisheries such as trout fisheries, regular restocking is essential. The size of stock fish, the varieties and species, the numbers introduced, and the frequency of introduction will depend on a number of considerations including the size of the water body, its quality, the climate, the type and density of angling demanded and the financial return required.

## 2 Development control and EIA

### Development control

- 2.1 Angling and fish stocking activities themselves do not constitute “development” and, therefore, do not fall under the town and country planning system. However, the construction of structures associated with such activities, such as jetties or car parking facilities, may be considered a change of use by the local planning authority. Under these circumstances, these structures are likely to require planning permission under the town and country planning regime, and as a result developers should contact their local planning authority to confirm whether or not their proposals require planning permission (or are subject to any other form of development control). They should also seek advice on the impact on their proposals of other planning-related legislation, for example the Conservation (Natural Habitats & c.) Regulations 1994 (as amended), SI No. 94/2716.

### Environmental Impact Assessment

- 2.2 Angling and fish stocking activities are not included as a separate development type within the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulations 1999 (SI 1999 No. 293). However, such activities may be associated with other developments, for example marinas, dams or canalisation works.
- 2.3 The former DETR published guidance (referred to in the *Scoping Handbook*) which helps to explain the UK Regulations and also helps in the decision on whether, in respect of Schedule 2 projects, impacts are significant and whether EIA should be required. The guidance thus

contains “indicative criteria”, although area sensitivity and project-specific issues must be taken into account and the decision remains discretionary. Readers should also consult other relevant guidance notes included in this series.

- 2.4 Although a formal EIA may not be required for angling and fish stocking activities, the Environment Agency and other statutory consultees and regulators may request environmental information concerning the proposal. An EIA may provide the most appropriate method for a developer to collate the necessary information.

### Other licences, consents and authorisations

- 2.5 Certain aspects of angling and fish stocking activities may require prior permissions from the Environment Agency. These may include, for example, land drainage consents, abstraction licences, impounding licences and discharge consents. It is recommended that the developer seek independent legal advice and liaise with the Environment Agency during project design and subsequent stages to identify the consents, licences and authorisations that will be required.

## 3 Potentially significant environmental effects

- 3.1 The EIA Directive requires the EIA to “identify, describe and assess...the direct and indirect effects of a project on the following factors: human beings, fauna and flora; soil, water, air, climate and the landscape; material assets and the cultural heritage; [and] the interaction between the factors.” Socio-economic issues, health and safety in the workplace, material assets and cultural heritage are all considered in EU *Guidance on Scoping* (ERM, 2001a) but are not impact categories for which the Environment Agency is the principal competent authority. Advice on these issues is presented in this guidance note without prejudice to the advice of the relevant competent authority, but the relevant competent authority should be consulted for each of these categories in all cases (further advice on the appropriate competent authority to contact is given in the *Scoping Handbook*).
- 3.2 An EIA of proposed angling and sport fishing, including fish stocking, should determine the potential impacts on the environment of each aspect of the project, including location and management. Careful scoping facilitates this process. This section provides a non-exhaustive description of the environmental issues that might arise during the scoping of such a project. The *Scoping Handbook* provides guidance on how to conduct a scoping exercise.
- 3.3 It is recommended that expert advice on detailed technical issues be obtained as the issues arising for all environmental receptors will change over time as the project matures. Developers and site operators should therefore consider the impacts arising from construction, maintenance and the end state.
- 3.4 Potential impacts are discussed here in broad terms only as their nature and intensity will depend on the physical characteristics of the project and current state of the development site. An EIA of proposed angling and sport fishing, including fish stocking, should take these factors into account in assessing potential impacts on the environment.
- 3.5 The following paragraphs should be read in conjunction with Table F7. This outlines the main activities involved in angling and sport fishing, including fish stocking, and the impacts arising from them.
- Water environment**
- 3.6 Construction of facilities associated with angling in proximity to a watercourse may cause bank destruction and instability and the water body itself may suffer from increased sediment load and oil and fuel contamination from vehicles and access roads. The use of heavy machinery and vehicles during construction may result in the compaction of topsoil and, therefore, a change in surface water drainage patterns. Water quality may also be affected by the operation of the fishery itself. The presence of a large cyprinid fish population in still waters, sustained by heavy angling activity, can significantly alter water quality over a period of time.
- 3.7 The creation of car parking areas, roads and buildings may result in compaction of soils and may increase the area of impermeable or slowly permeable surfaces. The subsequent increase in surface runoff may, in turn, increase the risk of flooding. Structures on land may obstruct flood storage capacity and impede the lateral and downward flow of water in a floodplain, further compounding the risk of flooding.

- 3.8 The presence of fishing stances provided for anglers may alter channel morphology and water flow rates, as may launching sites and jetties. The bankside of the watercourse may also become eroded at stances leading to bank instability and increased sedimentation.

### Land

- 3.9 The construction of facilities associated with angling will require some land-take. This may include agricultural land, natural habitat or sites of environmental or archaeological interest. The use of machinery and vehicles during the construction may cause short- and medium-term visual impacts. The magnitude of such impacts will depend on the siting, purpose and design of the project. Works undertaken in a manner sympathetic to the surrounding area are likely to reduce impact on the landscape character.
- 3.10 However, the presence of a well designed and managed water body may result in a significant increase in landscape quality, especially over time as associated terrestrial and aquatic planting schemes mature.
- 3.11 The use of construction vehicles and machinery may cause compaction of soils and a change in soil structure. Soils may become exposed during construction, leading to increased erosion. Construction may also involve the removal or mixing of soils on site which may have an impact on soil characteristics. During construction and maintenance, soils may become contaminated from spills or leaks of fuel and oil.
- 3.12 Once in operation, the facilities associated with angling may have visual or landscape impacts. This could take the form of loss of natural features or features of visual interest, or loss or change in vegetative cover. The construction of facilities such as a fishing lodge or car park, for example, will introduce an artificial structure into what, in some cases, may be a

natural landscape. The severity of the impact, however, will depend on the nature of the surrounding landscape, whether it is urban or rural, for example. Siting and design of the project are, therefore, important in determining the magnitude of the impact. Increased soil erosion may occur around the fishing stances and along access footpaths.

### Air and climatic factors

- 3.13 During construction works and maintenance, local air quality may decline as a result of on- and off-site dust created by construction works.
- 3.14 Local air quality may be affected by the gaseous and particulate emissions from increased traffic generated by anglers, visitors, staff and deliveries. The number of vehicles will depend on how intensively used the site is. A popular site with a lodge, boats and car park may generate a considerable amount of traffic and, therefore, have some impact on local air quality.
- 3.15 At a regional and global level, it is unlikely that this type of development will have an effect on air quality.

### Ecology

- 3.16 Construction of infrastructure associated with angling may involve direct land-take resulting in disturbance or destruction of terrestrial or aquatic environments with associated habitat loss. Sensitive species may be displaced leading to a change in the composition of the community.
- 3.17 Inappropriate stocking or management techniques associated with angling and sport fishing including fish stocking may result in ecological damage to existing, native fish stock, water and riparian habitats. Potential impacts to ecology may include the destruction of existing plant communities either by fish feeding activities (direct or through

uprooting, or increased water turbidity) or management practices in the water or on the riverbanks. Typical potentially damaging riverbank or lakeside management activities will include weedcutting, mowing and herbicide spraying. However, there is scope for greater biodiversity in riparian habitats where tall plants are controlled.

- 3.18 Inappropriate stocking and management activities may result in the reduction of invertebrate diversity by predation or habitat change. Such activities may result in the loss of mammal habitats; for example, bat roosts or otter holts may be lost by the removal or lopping of mature trees, or water voles may be exposed to increased predation by excessive bank mowing activities. Habitats and ecological communities may alter as a direct result of a change in water quality. Some of the species or habitats which may be adversely affected may have priority status under the UK Biodiversity Action Plan.
- 3.19 Unattended fishing rods are illegal under byelaws but can still pose a problem in the absence of good enforcement. In the case of fisheries that are actively managed, the balance of the aquatic community may be affected by the introduction of non-native or exotic species.
- 3.20 Both aquatic and terrestrial habitats may suffer from noise and disturbance resulting in the displacement of more sensitive species and interruption of feeding, roosting and nesting. This change in species composition may reduce ecological diversity, causing a loss of conservation value. However, the development of an angling facility may offer opportunities for the creation of new habitats, such as wetlands, and local nature conservation areas. Where a new water body is created there may be considerable net gains in terms of the biodiversity of the local area, especially if such habitats are locally uncommon. Enhancement of the site through appropriate design, reinstatement and landscaping may create diverse ecological resources of value to the local area.

### Human environment

- 3.21 Construction of facilities associated with angling may cause temporary disturbance and disruption to local residents, farmers, tourists, businesses and users of the area. This may be due to noise or dust emanating from a development site, or by closure of roads or footpaths while construction work is undertaken. Sites of archaeological and/or historical interest may be disturbed by construction.
- 3.22 The development of a new angling site may provide new leisure and tourist facilities, in the process increasing tourism, creating employment and bringing economic benefits to the local area. Locals and visitors will be able to benefit from new amenities and facilities, although the closure of footpaths may occur and access may be reduced. Angling may cause aggravation to adjoining owners caused by trespass to gain access.
- 3.23 The increase in traffic generated by a centre or complex through vehicle journeys made by visitors, staff and delivery companies may result in congestion, noise and an increased number of accidents.
- 3.24 Consideration should also be given to the potential impacts of angling upon other recreational users (where public access is permitted) including the obstruction of footpaths, risk of injury to third parties and interference with permitted navigation. Other issues and potential conflicts of interest to arise may include issues such as nuisance, damage and road safety issues from anglers' cars parked where there is inadequate provision of car parking.
- 3.25 Other potential human impacts include disturbance caused by anglers arriving and leaving fisheries at unsociable hours and noise disturbance and vandalism from a small proportion of rowdy anglers at urban fisheries.

**Table F7**

3.26 The impact identification table highlights:

- sources of impact (development activities);
- potential impacts;
- receptors for these impacts.

3.27 It is recommended that the table is annotated and used during consultations with other interested parties. Reference should also be made to the prompt lists detailing impacts and sources of impacts in the *Scoping Handbook*.

Table F7 Summary of key potential impacts of angling and sport fishing, including fish stocking

Potential receptors of impact		Activities and potential impacts		
		Construction phase	Operation phase/ongoing site maintenance	Decommissioning/post-operation
WATER	Surface water hydrology and channel morphology	<p><b>Construction works</b></p> <ul style="list-style-type: none"> <li>• Compaction of topsoil due to use of heavy machinery may lead to a change in surface water drainage</li> <li>• Proximity of construction works to watercourse may lead to bank destruction or instability</li> <li>• Excavation and disposal of soil may lead to an increase in sediment deposition and turbidity</li> </ul>	<p><b>Angling and sport fishing</b></p> <ul style="list-style-type: none"> <li>• Presence of fishing stances may alter channel morphology and water flow rates</li> <li>• Banks may become eroded at stances leading to bank instability and increased sedimentation</li> </ul> <p><b>Facilities</b></p> <ul style="list-style-type: none"> <li>• New hard surfaces (roads, car parks) may affect surface water drainage and increase runoff rates</li> <li>• Structures on land may obstruct flood storage capacity and impede the lateral and downward flow of water in a floodplain</li> </ul>	<ul style="list-style-type: none"> <li>• Compaction of soils due to use of machinery during deconstruction</li> <li>• Gradual return to undisturbed surface water drainage patterns</li> </ul>
	Surface water quality	<p><b>Construction works</b></p> <ul style="list-style-type: none"> <li>• Oil and suspended solids in runoff from vehicles and access roads may pollute watercourse</li> </ul>	<p><b>Angling and sport fishing</b></p> <ul style="list-style-type: none"> <li>• Ground bait may alter BOD of water, increase eutrophication and artificially expand fish populations</li> </ul> <p><b>Facilities</b></p> <ul style="list-style-type: none"> <li>• Runoff from roads, car parks and hard standing may contain oils which could contaminate local watercourses</li> </ul>	<ul style="list-style-type: none"> <li>• Change in BOD of water</li> </ul>

Potential receptors of impact		Activities and potential impacts		
		Construction phase	Operation phase/ongoing site maintenance	Decommissioning/post-operation
LAND	Landscape	<b>Construction works</b> <ul style="list-style-type: none"> <li>• Visual impact</li> <li>• Change in landscape character</li> </ul>	<b>Facilities</b> <ul style="list-style-type: none"> <li>• Land may be withdrawn from agricultural and/or forestry use</li> <li>• Change in landscape character with the introduction of buildings and landscaping</li> <li>• Visual impact of artificial structures in natural environment</li> </ul>	<ul style="list-style-type: none"> <li>• Visual impact during decommissioning works</li> <li>• If left unused, possible misuse and vandalism of infrastructure may result</li> <li>• Change in character of landscape</li> </ul>
	Soils	<b>Construction works</b> <ul style="list-style-type: none"> <li>• Erosion of exposed soil</li> <li>• Compaction of soil</li> <li>• Removal or alteration of soils on site</li> </ul>	<b>Angling and sport fishing</b> <ul style="list-style-type: none"> <li>• Erosion of soil at water's edge</li> <li>• Erosion of soil along access footpaths</li> </ul>	<ul style="list-style-type: none"> <li>• Erosion of exposed soil during decommissioning</li> <li>• Gradual return of soil to undisturbed state</li> </ul>
AIR AND CLIMATIC FACTORS	Local air quality	<b>Construction works</b> <ul style="list-style-type: none"> <li>• Dust from construction works</li> <li>• Pollution from gaseous exhaust emissions of construction vehicles</li> </ul>	<b>Facilities</b> <ul style="list-style-type: none"> <li>• Gaseous and particulate exhaust emissions from anglers and visitors cars, staff transport and delivery vehicles</li> </ul>	<ul style="list-style-type: none"> <li>• Dust and pollution during decommissioning works</li> <li>• Reduction in pollution from exhaust emissions once decommissioned</li> </ul>

		Activities and potential impacts		
		Construction phase	Operation phase/ongoing site maintenance	Decommissioning/post-operation
FLORA AND FAUNA	Aquatic ecology	<p><b>Construction works</b></p> <ul style="list-style-type: none"> <li>• Bank instability and compaction which may disturb or destroy aquatic communities</li> <li>• Direct land-take resulting in disturbance or destruction of riparian and aquatic habitat</li> <li>• Habitat loss</li> <li>• Change in species composition and displacement of sensitive species</li> <li>• Loss of conservation value</li> <li>• Reduction in ecological diversity</li> <li>• Risk of damage from spills or leaks of fuel, oil, and chemicals</li> </ul>	<p><b>Angling and sport fishing</b></p> <ul style="list-style-type: none"> <li>• Damage to wildlife from discarded fishing lines</li> <li>• Damage to fish returned after capture</li> <li>• Change in balance of community due to possible over-fishing</li> <li>• Death of retained fish landings</li> </ul> <p><b>Fish stocking</b></p> <ul style="list-style-type: none"> <li>• Introduction of inappropriate numbers and species of fish</li> </ul> <p><b>Facilities</b></p> <ul style="list-style-type: none"> <li>• Opportunities for the creation of new habitats and nature reserves</li> <li>• Opportunities to raise awareness about local environment and wildlife</li> <li>• Disturbance may result in displacement of more sensitive species</li> </ul>	<ul style="list-style-type: none"> <li>• Gradual return of aquatic community to more stable conditions after decommissioning</li> </ul>
	Terrestrial ecology	<p><b>Construction works</b></p> <ul style="list-style-type: none"> <li>• Felling of trees</li> <li>• Trimming or lopping of tree branches</li> <li>• Direct land-take resulting in disturbance or destruction of terrestrial habitat</li> <li>• Change in species composition and displacement of sensitive species</li> <li>• Loss of conservation value</li> <li>• Change in terrestrial community</li> </ul>	<p><b>Facilities, angling and sport fishing</b></p> <ul style="list-style-type: none"> <li>• Disturbance may result in displacement of more sensitive species</li> <li>• Change in terrestrial community</li> <li>• Loss of conservation value</li> <li>• Disturbance to feeding, roosting and nesting</li> <li>• Opportunities for the creation of new habitats and nature reserves</li> <li>• Opportunities to raise awareness about local environment and wildlife</li> </ul>	<ul style="list-style-type: none"> <li>• Gradual return to non-disturbed state after decommissioning works</li> </ul>

Potential receptors of impact		Activities and potential impacts		
		Construction phase	Operation phase/ongoing site maintenance	Decommissioning/post-operation
HUMAN ENVIRONMENT	Socio-economic <sup>1</sup>	<b>Construction works</b> <ul style="list-style-type: none"> <li>• Creation of employment opportunities</li> <li>• Temporary direct land-take</li> </ul>	<b>Facilities, angling and sport fishing</b> <ul style="list-style-type: none"> <li>• Creation of employment opportunities</li> <li>• Increased tourism</li> <li>• Land may be withdrawn from agricultural/forestry use</li> </ul>	<ul style="list-style-type: none"> <li>• Employment opportunities in decommissioning of centre</li> <li>• Possible further employment opportunities in re-use of centre</li> </ul>
	Health and safety <sup>1</sup>	<b>Construction works</b> <ul style="list-style-type: none"> <li>• Risk of injury</li> </ul>	<b>Angling and sport fishing</b> <ul style="list-style-type: none"> <li>• Risk of injury</li> <li>• Risk to health from contaminated waters</li> </ul> <b>Facilities</b> <ul style="list-style-type: none"> <li>• Increased traffic may increase accident potential</li> </ul>	<ul style="list-style-type: none"> <li>• Risk of accidents due to site being used for unauthorised purposes</li> </ul>
	Amenity	<b>Construction works</b> <ul style="list-style-type: none"> <li>• Adverse visual impact</li> <li>• Temporary/permanent loss of amenity value</li> <li>• Closure of roads or footpaths</li> </ul>	<b>Facilities</b> <ul style="list-style-type: none"> <li>• Visual impact</li> <li>• Creation of new recreation opportunities</li> <li>• Opportunities for organised and group recreation</li> <li>• Change in access with redirection/closure of footpaths</li> </ul>	<ul style="list-style-type: none"> <li>• Possible misuse and vandalism if infrastructure left empty in situ</li> <li>• Visual impact</li> <li>• Loss of recreation amenity</li> </ul>
	Nuisance	<b>Construction works</b> <ul style="list-style-type: none"> <li>• Adverse visual impact</li> <li>• Noise</li> <li>• Dust</li> <li>• Closure of roads or footpaths</li> </ul>	<b>Angling and sport fishing</b> <ul style="list-style-type: none"> <li>• Nuisance to adjoining owners from trespass</li> </ul> <b>Facilities</b> <ul style="list-style-type: none"> <li>• Increased traffic generation may increase congestion and accident potential</li> <li>• Change in access with redirection/closure of footpaths</li> </ul>	<ul style="list-style-type: none"> <li>• Possible misuse and vandalism if infrastructure left empty in situ</li> </ul>

<sup>1</sup> The Agency considers that key impacts to be identified and assessed are likely to include the following, but further advice and guidance should be sought from the relevant competent authority, as included in the *Scoping Handbook*.

Potential receptors of impact		Activities and potential impacts		
		Construction phase	Operation phase/ongoing site maintenance	Decommissioning/post-operation
<b>HUMAN ENVIRONMENT</b> <i>continued</i>	Architectural and archaeological heritage <sup>1</sup>	<b>Construction works</b> <ul style="list-style-type: none"> <li>• Damage</li> <li>• Direct land-take</li> </ul>	<b>Facilities, angling and sport fishing</b> <ul style="list-style-type: none"> <li>• Damage to features of archaeological and/or historical interest</li> </ul>	

<sup>1</sup> The Agency considers that key impacts to be identified and assessed are likely to include the following, but further advice and guidance should be sought from the relevant competent authority, as included in the *Scoping Handbook*.



## 4 Mitigation measures

- 4.1 Following the scoping exercise and the identification of potential environmental effects, mitigation measures should be proposed to avoid or reduce potential negative impacts to air, water, land, ecology and humans, or to introduce positive aspects to the development.
- 4.2 A primary consideration in impact mitigation must be the design and location of angling sites. The development should avoid damage to important ecological sites and high quality landscapes. Also, it is Environment Agency policy to seek the preferential location of potentially polluting developments in areas which are not vulnerable to groundwater pollution (Environment Agency, 1998a). It is strongly recommended, therefore, that developers undertake an assessment of alternative sites.

### Mitigating the impacts of construction activities

- 4.3 Construction activities have the potential to affect all environmental receptors. However, the following list summarises the mitigation measures most relevant to angling and sport fishing, including fish stocking:
- on-site supervision of working practices should follow appropriate guidelines (Environment Agency 2000a);
  - sensitive periods, such as the fish spawning and bird breeding seasons, should be avoided;
  - sensitive terrestrial habitats and trees should be avoided during construction work;

- storage of fuel, equipment and construction materials so as to minimise the risk of soil contamination or water pollution, (see Environment Agency, 2000a);
- setting the route and timing of construction traffic so as to avoid residential areas or other sensitive human receptors (e.g. schools, hospitals, nursing homes).

### Mitigating the impacts of the operational phase

- 4.4 Although sensitive siting and design of angling facilities are the primary means for avoiding or reducing environmental impacts, further measures can be introduced to minimise impacts occurring from such a development. An overall consideration for the proposed scheme is that its design and operation are in accordance with planning conditions and other relevant legislation. Developers should seek independent legal advice to ensure that all legal requirements relating to the proposed development are identified and complied with.
- 4.5 The measures here are arranged according to their primary receptor; however, it should be noted that many of the following mitigation measures are interrelated.

### Protecting the water environment

- 4.6 In order to minimise potential impacts on the water environment in the design and running of angling sites:
- parking and other similar areas should be constructed of permeable materials wherever practicable;

- sustainable drainage systems should be employed for any parking that may be created as this will improve water quality and ensure recharge of groundwater base flows;
- hazardous or potentially polluting materials such as fuel, oil or wastes must be sited on an impervious base away from water, properly bunded, and kept locked when unattended;
- an emergency plan should be formulated and tested through exercises to ensure that procedures to prevent or mitigate impacts due to accidents or spillages are in place and operate effectively (some developments may require such plans to be formulated and the Environment Agency should be consulted to identify where this is the case);
- fishing intensity should be controlled to protect water quality by limiting stocking levels, use of baits and the level of activity.

### Protecting the land environment

- 4.7 Certain measures noted above for protecting the water environment, such as the correct storage of fuel and oil, will also reduce the likelihood of soil contamination. Also, impacts on soils and landscape may be mitigated by the following:
- sympathetic design of new facilities to blend into the surrounding environment, the use of natural materials and non-uniform shapes may help reduce intrusive visual impact, as can planting of trees or other vegetation;
  - tree planting and landscaping, lower-level buildings and woodland screens to minimise visual impact;
  - habitat creation or enhancement should be incorporated into developments wherever possible;

- footpaths and access routes to the water's edge should be clearly marked and fishing stances should be constructed so to as to minimise erosion.

### Protecting the air environment

- 4.8 Developers should consider the aspects of the development that are likely to lead to emissions to air. Such aspects can include vehicle emissions. Suitable mitigation measures may include the use of vegetation screens to act as a barrier to gaseous and particulate emissions.

### Protecting ecology

- 4.9 Measures designed to prevent or reduce impacts to water or land will also help to prevent adverse impacts on ecology. The following list identifies further measures to reduce or avoid impacts to terrestrial and aquatic species and their habitats:
- existing habitat features should be incorporated into site design and protected from change;
  - further habitats should be created to compensate for habitat losses and to improve the landscape and ecological potential for the site;
  - secure waste areas should be provided for discarding fishing tackle;
  - inexperienced anglers should be provided with opportunities to obtain adequate supervision and training;
  - where possible, non-native species should not be introduced.

### Protecting the human environment

4.10 Some of the measures noted above can also reduce possible impacts on humans, notably the risk assessment and emergency planning measures. Further mitigation measures more specific to the human environment are listed below:

- where access restrictions result from the development, arrangements for alternative access should be made;
- clear access paths should be marked to avoid trespass onto adjoining land;
- sites of archaeological or cultural interest should be preserved in situ where possible. As relocation is rarely possible, thorough archaeological investigations should be carried out where damage is unavoidable.

## 5 References and further reading

- 1 **Construction Industry Research and Information Association (2001)** *Sustainable Urban Drainage Systems – Best Practice Guide*. C523, CIRIA, London.
- 2 **Construction Industry Research and Information Association (2000)** *Sustainable Urban Drainage Systems – Design Manual for England and Wales*. C522, CIRIA, London.
- 3 **Construction Industry Research and Information Association (1994)** *Environmental Assessment. Special Publication 96*. CIRIA, London.
- 4 **Department of the Environment (1995)** *Preparation of Environmental Statements for Planning Projects that Require Environmental Assessment – A Good Practice Guide*. HMSO, London.
- 5 **Department of the Environment, Transport and the Regions (2000)** *Environmental Impact Assessment: A Guide to the Procedures*. Thomas Telford Publishing, London.
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