

The Royal Society for the Prevention of Accidents



Water and Leisure Report

A report for Leeds City Council

Generic Water Safety Assessment (safety case) for two specific areas of open water:

Roundhay Park (Lakes in an urban environment)

Wharfmeadows Park Otley (Fast flowing river in an urban environment)

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1.0 Introduction and Terms of Reference

This report was commissioned by Leeds City Council (LCC) to provide generic guidance on a water safety strategy for two distinctly different areas of open water within City Councils areas of responsibility.

Firstly the review has considered the water safety arrangements for Wharfemeadows Park Otley as an example of a park comprising of a pedestrian and cycle park along side the River Wharfe used as a pedestrian thoroughfare particularly by school children. The river has historically been particularly prone to flooding, the effects of which severely compromise the safety of the public using this walkway.

Secondly the review considers Roundhay Park as an example of easily accessible lakes within a popular City Centre Park. Roundhay Park (among other sites of open water) was reviewed by the RoSPA consultant in 2005. The opportunity was taken on this visit to review these recommendations again and to assess the implementation of the recommendations by LCC.

The RoSPA consultant notes with concern that none of the recommendations for Roundhay Park have been put into effect. The councils is strongly urged to carry out these recommendations and your attention is again drawn to the implications of the Tomlinson case where in effect a Council was strongly criticised and found at fault in law for failing to implement the requirements of a safety review. (See Section 5 of this report).

This report follows a comprehensive review of the water safety arrangements around these areas of open water and the potential impact on public safety and the moral and legal responsibilities of the Council in the light of recent court judgements and accident investigations.

The report presents two water safety strategies as well as specific prioritised recommendations to risks identified on these sites.

In carrying out this safety review RoSPA would point out that audits and reviews are by nature a sampling exercise, therefore the reviewer cannot guarantee to identify all safety hazards around the development. Opinion is formed by a review of the site therefore absence of comment on any issue should not be taken to imply that the areas of open water are completely safe. It is therefore implicit in these recommendations that LCC keep the safe operating procedures and risk control arrangements

2. Summary of Hazard and Risk

Areas of open water can create a danger to any person walking alongside them and the three main risks associated with the hazard are

- Drowning through immersion.
- Physical injury.
- Health problems associated with untreated or polluted water.

Drowning

This can occur from either accidentally falling into or deliberately accessing the water and usually arises from one or more of the following factors:

- Uninformed or unrestricted access to the water hazard.
- Ignorance, disregard or misjudgement of the danger.
- Lack of supervision.
- Inability of the victim to cope (or be rescued) once in danger.

Although each of these above may be a contributory factor, the major cause of potential danger on any site will be *ignorance or misjudgement of the danger*.

Physical injury

This is likely to be caused by wet and slippery conditions whereby injuries are caused by falls, slips, trips and entrapment.

Potential poor water quality associated health issues

Water can both contain contaminants such as pollutants and toxins that cause ill health, and be the medium to promote the spreading of bacteria that causes disease and infections. Blue green algae toxins, leptospirosis, cryptosporidium and e-coli are some examples.

The hazards of the river have the potential to promote a risk to persons using the adjacent pathways. In addition, water, water-based activity machinery and weirs fascinate young children in particular whose natural curiosity can lead them into danger. Furthermore, employees can also be at risk carrying out maintenance work on waterside machinery, as can adults accessing the docks and during the hours of darkness.

3. Existing Management of the Risk

Water hazards when risk assessed are usually controlled by:

- Physical features to deny or control access, such as barriers or gates.
- Education to raise awareness of the dangers by providing information through signage, leaflets, etc.
- Supervision having a physical presence on site.

- By having in place agreed operational procedures such as formal written Normal Operational Procedures (NOP's) and having an Emergency Action Plan (EAP) and, when appropriate, rescue equipment deemed necessary.

A risk assessment review can be used to determine what should be done, but in itself it can be only part of a total assessment strategy. The conducting of such by LCC only ensures that they have a full understanding of the hazards and risks, which are the basic premis of why a risk assessment should be carried out. The risk assessment strategy should highlight the need for documentation such as NOP or EAP, formal supervision or information dissemination arrangements.

The starting point to establish a safe site is to develop a **safety management system**. This is based upon acknowledged good practice and design principals as contained in, for example, HSE publication (HSG 65) '*Successful Health and Safety Management*', BSI (BS 8800,1966) '*Guide to Occupational Health and Safety Management Systems*'.

Both these documents stress that the key to adopting a planned approach to safety management lies in developing an effective approach to risk assessment. At present, there is a requirement under legislation to carry out risk assessments but there is no statutory requirement to put in place specific controls such as fences and rescue equipment although this is implicit in the management regulations.

4. Legal Responsibilities

Various pieces of legislation place statutory duties on the site owners of inland water sites, or the person responsible for the site, to provide for the safety and the well being of visitors, which **includes employees and members of the public. The consultant has highlighted those issues, which directly relate to the site-specific recommendations, which follow later in the report.** Both statute and common law have a relevance to the operation of inland waters.

Statutory Health and Safety Requirements

Health and Safety at Work Act 1974: This is an enabling act with the aim ofsecuring health and safety in the work place. Regulations made under the Act place more specific duties on employers than employees. **Section Three of the 1974 Act** specifically requires every employer to ensure, so far as is reasonably practicable, that he/she takes the necessary steps to ensure the **safety of non-employees affected by his/her activities.**

The Management of Health and Safety at Work Regulations 1999 (previously 1992): These were made under the 1974 Act. They require that health and safety is suitably managed so as to control risks effectively and present no harm to people. **The regulations require that an adequate and suitable assessments of work related hazards should be carried out to determine the preventative and protective steps that must be taken.**

They also require employers to have access to competent advice, to monitor and review their systems, to have emergency procedures and to provide information and training. **They have major implications for the many inland open water sites operators whose activities have a bearing on the public as well as employee safety.**

The Health and Safety (First Aid) Regulations 1981: These were also made under the 1974 Act, and are mainly concerned with the provision of first aid for employees. The regulations set out the range of numbers and training of firstaiders, and the type of equipment that should be provided.

Public Health Act 1936: This is an enabling law offering local authorities the power to regulate water users (for example, to prohibit swimming).

Occupiers Liability Act 1957: This states that the occupier must **take reasonable steps** to ensure the **safety of visitors** to his/her land or premises. **This duty is particularly onerous where children are concerned. The occupier owes the duty of care not only to visitors but also to trespassers as well.**

The Health and Safety (Safety Signs and Signals) Regulations 1996: This implements European Directive 92/58/EEC that came into force in April 1996. This standardises safety signs throughout member states of the European Union. The regulations require employers to use safety signs where there is a significant risk to health and safety of their employees that has not been avoided or controlled by the methods required under other relevant law, provided use of a sign can help reduce the risk.

In implementing the signage requirements identified required by this report, you should also be aware that a new BSI standard has been developed specific to water safety signs. The standard BS 5499-11:2002 was published on 29/07/2002.

RoSPA recommends that any new signs should conform to this standard in the future and that a review of existing signage is carried out. Those that are in need of repair or have poor legibility/clarity of image should be replaced straight away and all others should be subject to programme of replacement. The period of time for such replacement should be 'reasonable' in terms of overall cost against the safety gain or imperative. Overall it would not be unreasonable to expect that all signs should also comply with this new standard within a twoyear period (this estimation could be modified by future court actions arising from signage issues).

Other Occupational Health and Safety Duties

Operators to whom the 1974 Act applies also have various duties, including the recording, notification and investigation of accidents to the enforcing authority (e.g. HSE or local authority environmental health departments.) Where

a member of the public has drowned or has been taken to hospital for medical treatment, i.e. following a near drowning incident, the appropriate enforcing authority must be notified.

Common Law Duty of Care

Although there is a lack of legislation in this area, responsible bodies do have powers to effect preventative measures and the site owner must ensure that all facilities and equipment are suitable and safe to use. Under common law, liability to negligence may arise from the breach of fundamental duty, known as a 'duty of care'. The duty is described as follows, and applies to members of the public as well as operators: 'To take reasonable care to avoid acts or omissions which you can reasonably foresee would be likely to cause injury to your neighbour'. The duty specified to take reasonable care. This can be defined as 'what the reasonable man/woman would have foreseen as being necessary'. A certain level of risk is acceptable and it is expected that safety measures will be applied 'as far as is reasonably practicable'. In other words, practicable measures have to be technically feasible, and costs in time, money and effort are reasonable. In the case of safe management of inland water sites, **the duty of care means that the burden of taking adequate precautions falls on the site operator. A risk assessment of the facility and equipment should be undertaken and appropriate safety measure adopted.** A normal operating procedures (NOP) document, together with an emergency action plan, should be completed and then monitored and reviewed at regular intervals. Before devising a water safety strategy hazards must be identified, risk determined, and findings recorded. This is a legal requirement under the Management of Health and Safety Regulations 1999. **The duty of care is extended to protect people even from their own ill-judgement or wilful abuse of facility or equipment.**

5. Implications of the 'Tomlinson' Case

The 'Tomlinson' case was taken under the occupier's duty of care to visitors to the site including trespassers and the relevant sections of the Occupiers Liability Act applied.

The circumstances related to a trespasser who broke into Local Authority owned land and dived into a lake occasioning a serious neck injury. Signage and fencing were in place, however a recent safety audit had identified that this was inadequate and the Council had been recommended to make improvements, which they had not done due to fiscal restraints.

The judgement in the litigant's favour rested upon the following factors:

- Where the risk is open to the public and you take active measures to encourage visitors, your safety measures must be particularly effective.
- Where the risk is in a remote area and numbers of visitors are few, your safety arrangements can reflect this reduced pressure from the public.

- The Judgement expected that a Local Authority should have adequate financial resources to implement safety recommendations and not to do so was no defence.

This was a very unusual case and legal opinion is that these particular sets of circumstances are unlikely to occur again. It was also interesting that the award to the litigant was reduced by two thirds due to his wilful neglect for his own safety.

The basis of **your** defence against any litigation will be effective risk assessment and implementation of control measures, e.g. band four fencing, life saving equipment (*not applicable in this case*), signage and regular site monitoring. In the RoSPA consultant's the adoption of the following arrangements and prioritised proposals for improvement, based upon a risk assessment, take account of increased public access to the basins both from residents and visitors. This should provide you with an adequate defence as well as meeting your moral obligation to the residents and persons that visit your site.

6. Risk Assessments

Under the management arrangements for the Health and Safety at Work Act, you should develop risk assessments for the site that cover:

- *The work of the employees who may visit the site.*
- *The inherent risks posed to employees, contractors, visitors, adjacent residents and others that may visit the site from time to time.*
- *It is recommended that specific risk assessments be made to cover the use of the River and public access to the cycle way. These risk assessments should cover access to the water's edge by large numbers of people who are likely to be in the vicinity and, **additionally, any temporary waterside events**. Control measures should include access to the edge and prohibition, signage, lifesaving equipment (*not applicable in this case*) and emergency response plans.*
- *It is recommended that you have in place a strategy to deal with ice and flooding.*

Risk assessments and any control measures should be documented and reviewed at least once a year or after any safety critical event.

6.1 Management of the risk and site monitoring

You should give particular attention to the following:

- *It is recommended that you have well documented procedures for hazard spotting and actively monitor the site to ensure that the safety features are working.*
- *All accidents and near misses should be recorded and analysed to monitor*

that the control mechanisms for identified risks are working.

- *Develop contingency plans with particular relevance to site access for the emergency services in the advent of an injury or water accident.*

6.2 Edge Protection and Exclusion: Generic issues

Whilst the profile and the nature of the water's edge is a fundamental factor in addressing the risk, improving the edge by exclusion or other measures will not address all of the safety issues. Protective measures should be supplemented by the correct management procedures, the circulation of information, supervision and surveillance (where appropriate) and signage.

Unsupervised open water can present a high level of risk due to the nature and use of the adjacent walk and cycle ways. In reviewing the existing level of protection to the waters edge for both these locations, the RoSPA consultant comments as follows, using for ease of identification RoSPA's banding system.

- When considering the level of waterside edge protection it is recommended that a holistic approach is taken, considering the nature of the edge and the type of use and potential use the walkways path will be put to.

- Fast flowing rivers can, in spate or higher conditions can be deep (for example) and may also be abounded by high walls. Falling into the river could potentially be fatal and self-rescue would be difficult. Experience demonstrates that in urban areas the only practical solution to address this risk is to position '*band four fencing*' which will provide exclusion from the water's edge.

- On the other hand lakes particularly where they are easily assed by the public, can attract swimmers during hot weather who may be completely unaware of the risks of deep water and the potential for thermal inversion (differences in temperature of the water at various depths).

- '*Band four fencing*' should meet all the normal standards as laid down in the building regulations, regarding height, spacing of railings and nonclimb design (see *Appendix Two, edge protection for urban water sitesband four fencing*).

- *Vertical railings have been traditionally chosen to fulfil this role, but in recent years alternatives have been designed (to RoSPA's approval) which still meet these criteria. Horizontal railings can be effective, (as used on the Thames Embankment, Millennium Bridge, Chatham Maritime and Gunwharf Quays, Portsmouth Harbour) if the fence as a whole is cantilevered inward toward the top.*

- Band four fencing should also be positioned where there are specific hazards (weirs, pinch points culverts etc), along otherwise unprotected water's edge.

6.3 Signage: Generic issues

As part of the overall safety strategy, the following measures should be undertaken to improve and ensure greater awareness of the potential dangers of the water.

- **Multi signs (Emergency Points)** should be provided at key entrances to the sites and strategic positions i.e. car parks.
- These signs should utilise pictograms to indicate safety messages relating to the danger of the water i.e.
 - Your location
 - Do not enter the water
 - No Swimming
 - Keep children under supervision
 - Action to be taken in an emergency
 - Examples of safety signage to be found at the location
 - Location of the nearest telephone and security office
- You should consider targeting the adjacent residential areas with specific water safety information such as a leaflet campaign advising of the water risk and the need to keep young children under supervision.
- Space should also be provided for the positioning of temporary notices:

'Dangerous - Ice take care!'

'Footpath and surrounds flooded - take care!'

Please note that the integrity of the signage should be checked on a regular basis and documentary evidence retained.

6.4 Public Rescue Equipment: Generic issues

The consultant has in certain areas recommended a high level of edge protection, where additionally life saving equipment is recommended; it should meet with the following criteria:

- It is recommended that you incorporate safety signage and lifesaving equipment into a combined position known as a **safety point**.
- **Life rings** should be considered where there is a substantial drop into deep water whereas **throw lines** should be considered for all other locations.
- **The safety point** should repeat the messages found on the **multi point**

(Emergency Point) at the entrance (see above).

- The positioning of the **safety point** (where recommended) should meet the criteria that a visitor can see one from whatever location they are at the risk.

- All **safety points** should be identified by a number and checked on a **weekly** basis and documentary evidence retained of this check.

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- Safety points should be positioned in dedicated containers, which can be accessed by the disabled as well as children and be visible at night.

- The 'Perry lines' within the ring should be regularly checked for damage by ultra violet light.

- The length of the rescue line should be relevant to the length of drop into the water. (I.e. not too short!)

6.5 Water Quality: **Generic issues**

Although there is no legal requirement to carry out water quality testing it would be advisable to do this initially to determine the current position of the water and then periodically in the future. It is equally important to monitor other factors that could affect water quality.

Letospirosis (Weil's Disease is a form of this) is found around water and is spread by rats. Although it is not possible to test water for its presence meaningfully, rats should be discouraged from the site and pest control measures introduced as required. Litter, debris and other material likely to provide shelter and food for rats should be removed regularly and action taken if it is found to be the case.

7. Site Specific Recommendations

The following recommendations follow a comprehensive site inspection of both sample sites by the RoSPA consultant. As discussed earlier in the report the recommendations are made to facilitate LCC in meeting their legal obligations and in particular those items that have been highlighted in Section 4 '*Legal Responsibilities*'.

Your attention is also drawn to one of the implications of the 'Tomlinson' case that concluded that having identified issues following a series of risk assessments; you will need to have a documented prioritised schedule as to how you propose to implement the control measures raised.

Recommendations

Wharf Meadows Park and river frontage

7.1 Edge Protection

- *The RoSPA consultant recommends that band four fencing (see section 6.2 above) be installed from the bridge the whole way along the water meadows up to and including the cafe in view of the substantial risk to visitors posed by the river*

- *This fencing will also act as an indicator of the waters edge during flood conditions.*

- *Drop gates should be positioned across the 'Holbeck' together with band four fencing either side of this inlet. Signage (pictograms) should be placed on these gates - Danger Keep Out.*

(1) The bottom third of the fence to be in filled by a mesh to prevent children falling through if this usage of this areas identifies this as a hazard.

(2) Safety signage (pictograms) should be attached to the railings indicating – No climbing the fence - No Swimming.

(3) There must be suitable maintenance arrangements in place to ensure that the tension wires are kept taught (rigging screws should be treated with 'lock tight' or similar product.)

- *The rest of the walkway up too the tennis courts should be protected by urban bow top fencing again with suitable signage (this bow top fencing will link with the existing fencing). This level of fencing should be enhanced by a 2-metre area of unstrimmed vegetation to discourage access to the waters edge.*

- *In view of the potential for flooding it is recommended that ‘Snow posts’ indicate the safe limits of the path edge where it abuts the waters edge.*
- *You will need to consider controlled access through this fencing for the fishermen and this should comprise of gated locked access with suitable arrangements under the control of the fishing club for the management of the keys*
- *It is recommended that you verify the condition of the fencing on the bridge, where it crosses the River Wharfe adjacent to the tennis court and take any necessary remedial measures*

7.2 Rescue Equipment

In view of the recommended level of edge protection - band four and urban bow top and the identified likelihood of vandalism to rescue equipment – the consultant does not in this case recommend the provision of rescue equipment.

- *All evidence of previous lifesaving (now defunct) equipment including housings and posts should be removed.*

Consideration should be given to enhancing staff training to cover land based rescue techniques, especially if they are subsequently equipped with throw lines/ reach poles.

7.3 Signage

- *It is recommended that ‘**Multi points**’ (see generic recommendations in Section 6.3 above) be positioned at either end of the walkway so the public can see them as they access the walkway*
- *Repeat **nag signs** should be positioned at regular intervals along the band four and Urban Bow top fencing. (See recommendations for signage for **safety points** in Section 6.3 above, although as previously recommended life saving equipment will not be provided).*
- *In view of the importance of this signage in the implementation of your ‘safety case’ you will need to make specific arrangements to ensure the signs are as vandal proof as possible.*
- *You should make weekly inspections of both the signage and the fencing and carry sufficient spares to address any issuers identified.*
- *It is important that these inspections visits are documented and any remedial measures with close out actions are recorded.*

7.4 Additional Health and Safety considerations

The following Health and Safety measures are considered necessary for the overall safety management of the park:

- *Where your risk assessments identify that BMX cycling is occurring adjacent to the river embankment, it is recommended that you consider raising the height of the proposed fencing to 1.6 metres.*
- *Where the play area is adjacent to the river it is recommended that warning signage be positioned warning parents/guardians of the closeness of the water.*
- *Where the Band 4 fencing is positioned and flooding is considered a real possibility it is recommended that the top of the fencing be identified by fluorescent type material.*
- *It is recommended that you develop a 'Special Events' risk assessment for the Boxing Day swim.*
- *As part of your flood contingency planning you should develop a procedure to close the park.*
- *It is recommended that you enter into discussions with the Rivers Authority regarding the positioning of weir warning signs and possible chain barriers across the river.*
- *It is recommended that you provide water safety advice to the fishermen on the annual and day tickets.*
- *Where staff operate under 'lone working' conditions it is recommended that they carry throw lines and radios, and are appropriately trained to use these, and importantly recognise their limitations.*

7.5 Titty Bottle Park

It is recommended that you take action to cut the trees over hanging the river, which act as a magnet to children to climb over the water.

7.6 Manor Garth Park

- *It is recommended that you allow for a two metre area of untrimmed vegetation at the waters edge.*
- *It is recommended that a 'Safety Point' (without a lifering) be positioned at a central location at the waters edge.*

8. Roundhay Park - Lakes in an Urban Park

8.1 Upper Lake - Roundhay Park

Reference should be made to the detailed specifications for safety measures in Section 6 of this report.

- *It is recommended that 'Emergency Points' be positioned at the main entrances to the site to alert visitors to the specific risks on site and the control measures in place to mitigate these risks.*
- *The consultant was concerned about the steep embankment leading down to the water side (as discussed at the time of the inspection) and recommends that chicane type railings be positioned to arrest an out of control cyclist or mother with a buggy.*
- *Where desire lines have created gaps in the natural edge protection it is recommended that the edge protection be reinstated (where deemed necessary by the risk assessment) by the planting of hostile vegetation.*
- *The position where the water flows in from the upper lake should be protected by band four fencing that should be curled around at the edges to children or youths getting in front of the fencing. Your attention is also drawn to the need to have the fencing as near the edge as possible. Additionally it is recommended that hazard signage conforming to the new BSI for water safety signage indicates 'Deep drop - Danger Keep out'.*
- *In view of the nature of the water hazard it is recommended that the life saving points be turned in to safety points. It is also considered that 'throw lines' are more appropriate to the risk and should replace the existing life rings. Although this is a Priority item it is considered that the existing life rings be provided with lines to enable a rescue to be affected. The signage on the safety points should include 'No swimming - No diving'.*
- *In reviewing the positioning of your safety points it is recommended that you adopt the criteria that one can be seen from whatever location a person is standing on the waters edge.*
- *It is recommended that a safety point with a throw line be located at the boating platform and that an additional second rail be installed in the fencing to prevent young children getting through the barrier. Signage should also indicate 'No Swimming - No Diving'.*
- *Where necessary it is recommended that action is taken to trim the branches overhanging the lake to facilitate better observation, clear lines to use life saving equipment and to prevent youth climbing out over the water.*
- *Where the pathway is very close to the water's edge it is recommend that hostile vegetation be planted to identify the water's edge.*
- *Where benches are provided it is recommended that these do not compromise the recommended width of the pathway of 1 metre. Good practice dictates that benches are set back from the pathway so as not to force pedestrians or, in particular, parents with buggies, too close to the water's edge.*
- *When reviewing edge protection it is good practice to protect both sides of*

a bridge with band four fencing, curled at the edge to prevent access along the sides. It is recommended that you review the bridges around this lake with this criterion in mind.

• Finally, wild fowl (in particular ducks and geese) are compromising the edge gradients at certain positions around the lake (see Section 5 edge gradients). It is recommended that action is taken to reprofile this edge where appropriate to 1:3.

8.2 Waterloo Lake

Reference should be made to the detailed specifications for safety measures in Section 6 of this report.

- It is recommended that you progressively introduce safety points with throw lines across this site.*
- It is recommended that an additional safety point be located at the disabled access ramp.*
- It is recommended that band four edge protection is installed around the fishing pegs and that hazard signage identifies the deep water.*
- It is recommended that the head wall (where the stream enters the lake) be protected by band four fencing and that suitable hazard warnings identify the risk.*
- It is recommended that band four fencing protect the sides of the bridge.*
- It is considered to be good practice to provide a third rail or mesh infill 150 mm from the ground height where fencing is provided to prevent young children from accessing the water through this exposed gap.*
- Wild life (in particular ducks and geese) is compromising the edge gradients at certain positions around the lake (see Section 6 edge gradients). It is recommended that action is taken to reprofile this edge where appropriate to 1:3.*
- Where necessary it is recommended that action is taken to trim the branches overhanging the lake to facilitate better observation, clear lines to use life saving equipment and to prevent youths climbing out over the water.*
- If in the future a boat club or franchised operation for boat hire is in operation, it is recommended that you review these operations, particularly in view of the City Councils' responsibility under Section Three of the HSWA.*
- In considering suitable locations for 'No swimming' signage it is recommended that these could be located on posts in the water to reduce the possibility of vandalism or removal to a minimum. However this action must take into account the balance of risks, e.g. that this may encourage members of the public to swim out to the sign and the identified risks to staff in installing the signage.*
- Where the City Council is deliberately pursuing a policy of access for disabled persons to the water, it is recommended that you consider tactile*

edging to the water to provide an additional safe guard to their security.

- It is recommended that suitable signage prohibits the launching of boats from the slipway adjacent to the sluice.*

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