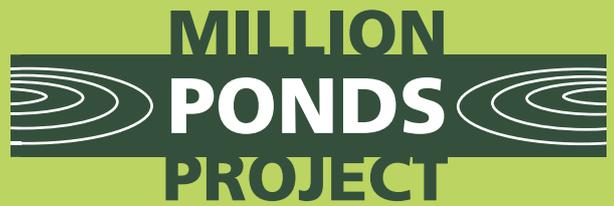


Planning pond creation



A 50-YEAR PROJECT TO CREATE A NETWORK OF CLEAN WATER PONDS FOR FRESHWATER WILDLIFE

1. Pond creation objectives

Why do you want to create ponds? It is important to decide on the project objectives at a very early stage – this will help you select suitable sites, prioritise expenditure and avoid unnecessary work.

Examples of wildlife objectives:

- To create stepping-stone habitats to link water vole populations.
- To create high quality freshwater habitats in the landscape.
- To strengthen a local population of the mud snail.
- To increase the diversity of pond habitats in the area.

Some objectives may be incompatible. For example, the same pond site cannot help to increase the population size of both natterjack toads and common toads because competition from common toads is a known factor in limiting natterjack toad populations. Likewise, some agricultural practices and public amenity aims for sites can be incompatible with some species or habitats.

2. Pre-site checks

Pre-site checks should be undertaken as early as possible in the planning process because this can affect the design, operation and even viability of projects.

The safest approach to pond construction is to talk to all relevant public bodies and other interested parties to ensure that they are happy with what you are doing (see Table 1 for contact details).

Damage to existing habitats and species

If the site is already known to be of particular ecological value, don't dig it up, dump spoil on it, or disturb vulnerable areas during excavation works. If in doubt, err on the side of caution and dig ponds in vegetation types that are extensive and uniform. In particular, put new ponds near to existing wetlands (damp hollows, seepages, temporary ponds, springs) but don't destroy the original wet bits (see *Factsheet 5*).

In semi-natural landscapes, an ecological survey is advisable before deciding on the suitability of a site. Pond creation on, or adjacent to, land designated as a SSSI or other protected area may require consent from Natural England or the Countryside Council for Wales.

The value of trees as landscape features, habitats or as important organisms in their own right (e.g. black poplars) should be considered. Any tree work could require a felling licence from the Forestry Commission unless it qualifies for an exemption, e.g. felling of less than 5 cubic metres of timber in a calendar quarter. More information on felling licences and exemptions is available from the Forestry Commission at www.forestry.gov.uk.

What's in this factsheet?

- Pond creation objectives
- Pre-site checks (e.g. existing value, archaeology, utilities/services, etc.)
- Phased approach to pond creation
- Planning the construction phase
- Designs and drawings
- Project costs
- Funding sources
- Health and safety
- Project risk assessments
- Finding contractors
- Working with volunteers

Some trees may also be protected by Tree Preservation Orders or Conservation Area designations – the Local Planning Authority should be consulted.

On rare occasions digging new ponds may put existing pond species at risk. This is most likely in areas with existing very stable, long lived pond types (e.g. bog pools, ancient temporary ponds like the Norfolk pingos). It is possible that populations of some of the very rare animal species in these ponds might be damaged by an influx of 'new pond species' to nearby sites. If there are concerns, seek advice from a relevant species expert or contact Pond Conservation on info@pondconservation.org.uk for guidance on finding the right support.

The presence of protected species (e.g. great crested newts, bats, water voles, badgers) is of particular importance, because of the legal implications. The relevant legislation is the Wildlife and Countryside Act and the Conservation (Habitats, &c.) Regulations. Depending on the species and the legislation, protected species are protected against killing, injury, disturbance, and damage to their habitat. Penalties include a criminal record, fines and custodial sentences. Pond creation projects can therefore pose a significant threat e.g. by moving large volumes of soil, felling trees, or driving machinery over areas of habitat.

Table 1. Pre-site checks – people to talk to

Topic	Who	Contact details
Impact on protected species or designated sites	Natural England or Countryside Council for Wales	www.naturalengland.org.uk www.ccw.gov.uk
Tree felling, coppicing etc	Forestry Commission	www.forestry.gov.uk
Impact on historic sites or archaeological remains	County Archaeologist	At local planning authority
Work on a floodplain, impacts on watercourses, concerns over contaminated land, complying with environmental law	Environment Agency	www.environment-agency.gov.uk www.netregs.gov.uk
Impact on other properties e.g. by altering drainage	Neighbouring landowners	
Locating and working near buried services and overhead powerlines	Service providers	Contact service providers direct or use a search facility such as www.linsearch.org or www.linewatch.co.uk
Health and safety, risk assessments, CDM Regulations	Health and Safety Executive	www.hse.gov.uk
Planning permission requirements or other land use concerns	Local Planning Authority e.g. district council or National Park Authority	Contact the authority direct or find contact details of the relevant authority on www.planningportal.gov.uk



Depending on the nature of the work, (e.g. whether or not it will cause significant disturbance to a population of a protected species), a licence from Natural England or the Countryside Council for Wales may be required. Licensed activities should aim to improve the habitat for protected species, so specialist advice may be required to ensure this happens. Unless you have experience of working with the target species, it is advisable to seek professional advice during the planning stage of your project to ensure that the relevant regulations and best practice are complied with.

Archaeology

Pond creation can be both a threat and opportunity for archaeology. Digging holes in areas that are scheduled ancient monuments would obviously raise concerns and trigger a requirement for planning permission (see below). However, beyond the scheduled list, there are very many areas that are of interest and importance for archaeology. The critical step is to check if there is likely to be any interest by contacting the county archaeologist.

Archaeological importance will not necessarily prevent pond creation. But there might be a need to investigate the site (e.g. field walking or digging test pits) before any pond excavation is undertaken. The extent of checking will be dependent on the perceived risk. In some cases an archaeologist may want to visit the site during pond excavation.

If it is a condition imposed that an archaeologist is present during excavation, you may have to pay a consultant archaeologist to attend, which will have a significant impact on the project budget (see box).

Pond creation on floodplains

Where ponds are created on floodplains the Environment Agency will be concerned to ensure that excavated spoil (a) does not reduce the area's capacity to store floodwater and (b) is not piled up causing an obstruction to floodwater movement. You can reduce these risks by removing pond spoil from the floodplain completely, or in some cases with smaller/shallower ponds, by spreading the spoil thinly on the surrounds. If the location of a pond could breach the bank of the watercourse this would also cause concern – though for clean water ponds created for the Million Ponds Project, riverbanks are not a likely pond location (see *Factsheet 5*).

To identify if your site is on the floodplain check the 'extreme flooding' zone on Environment Agency flood maps (www.environment-agency.gov.uk). If it is on the floodplain, contact the Environment Agency directly for further advice.

Neighbouring land

If ponds lie close to a neighbouring property, and particularly if the land on which the pond lies could influence a neighbour's drainage system or site hydrology, then the neighbour should be contacted to ensure there is no conflict. If the pond is near a neighbour's boundary, it is obviously polite to tell them about your plans to allay any fears about the presence of excavation machinery and changes of landuse.

If the site lies close to a SSSI or other protected area, pond creation could require consultation of Natural England or the Countryside Council for Wales, or the Local Planning Authority. There are likely to be particular concerns if the pond could permanently influence the surface water catchment or groundwater supply to the protected area. If the pond is groundwater fed, and a deep excavation is planned, there may be concerns about impacts if pumping is necessary to temporarily de-water the excavation. If the project requires planning permission, these issues will be picked up by all interested parties. If planning permission is not required, the regional office of Natural England or the Countryside Council for Wales should be consulted directly.

Checks for underground pipes and services

The UK is criss-crossed by a buried network of cables and pipes, carrying private or public services like electricity, gas, oil, water, telephone lines and sewage. It is obviously vital that you identify if and where these occur at an early stage of project planning because (i) they can pose a significant threat to health and safety, (ii) damage to service infrastructure can be costly and cause considerable inconvenience, and (iii) early information means that pond designs can be adapted to any constraints they impose.

The service operators should be able to provide you with details of services on the land you are working on. There may be a charge for providing this information. There are some on-line tools for checking your site: contact Linesearch at www.linesearch.org or 0870 403 6484, and Linewatch at www.linewatch.co.uk or 02380 883150. For high risk services (e.g. gas pipes operating at a pressure of 2 bar or above), there may be constraints on the working practices adopted when digging ponds and you may need to contact the pipeline operator before beginning work.

The exact line of service cables and pipes may not be marked accurately on site maps. Always leave a margin of error if service lines are known. If there are particular risks, it is advisable to identify the exact line using a locating device.

Above ground services

If the site, or its access route, has overhead power lines this can constrain the maximum height of machinery that can be used on site. Direct contact with the lines is not the only danger, as electricity can flashover when equipment gets close. The risks of contact or flashover can be greatly reduced by using machinery that will not reach more than 4m from the ground.

Precautions you can take:

- Consult the local electricity company and/or the National Grid Company for lines on steel towers operating at 275 and 400 kV (operating voltage will be displayed on the tower). They will provide free advice and information about precautions and safe working procedures.
- Find out the maximum height and maximum vertical reach of all machines that will be on site.
- Mark the location of all power lines on the site plan, together with information on the maximum working heights permitted under each span of overhead line.

An information sheet on working safely near overhead power lines is available from the Health and Safety Executive (HSE) website at www.hse.gov.uk/electricity/information/overhead.htm.

Land drains

If field drains run through or immediately next to the pond excavation they may (a) pollute the water and bring in sediment, or (b) drain water out of the pond. To avoid this you may often need to either break and block drains or, if it is important to maintain drainage function, divert them around the pond.

It is sometimes possible to find land drains from two or three historical periods crossing a site. Old field drains may be French drains (stone filled trenches), constructed in a box form using stone, or moulded clay pipes; modern field drains are often plastic pipes. In modern drainage schemes, the drains are usually laid at regular intervals, and once you have found two parallel drains, you can predict where the remaining drains are.

Site plans may show the location of field drains, or these may only be located when work begins on site. In either case it is wise to be prepared and have a plan ready for how to deal with them (see Figure 1).

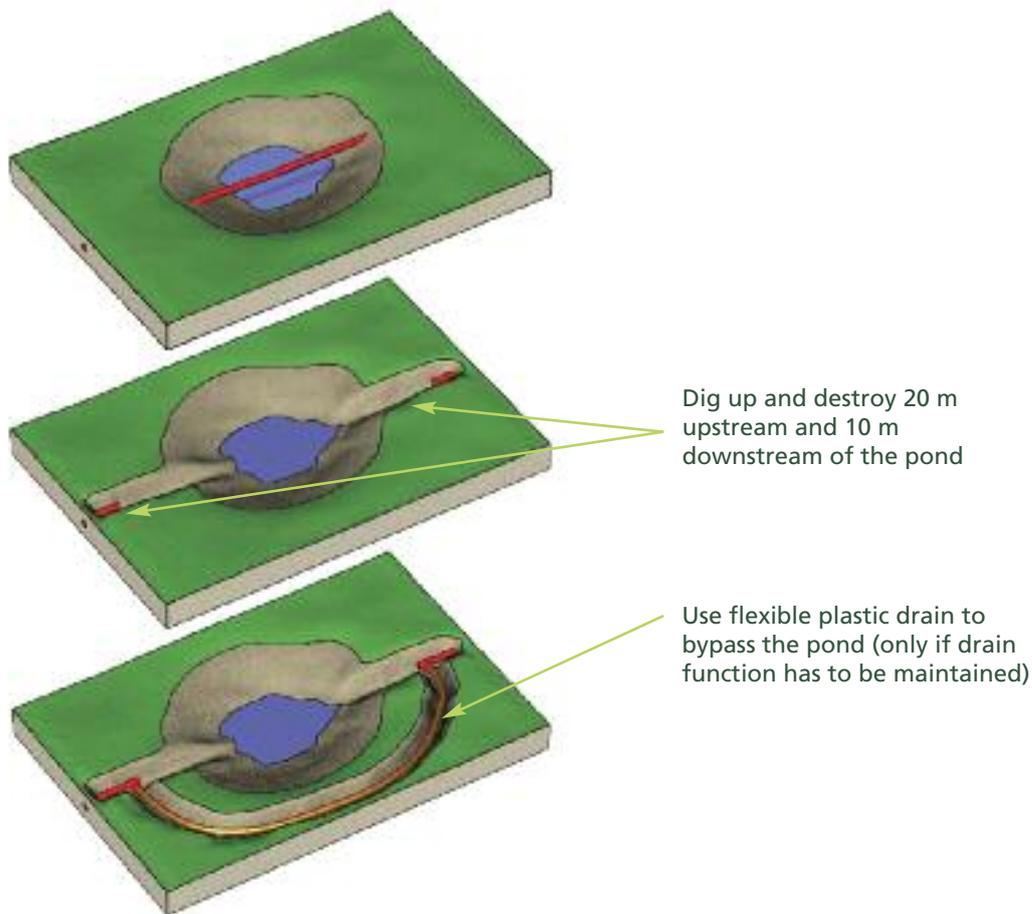


Figure 1. Dealing with land drains. Typically, dig out and destroy 20 m of drain upstream and 10 m downstream of the pond (middle). If the drain function has to be maintained, use impermeable flexible plastic drain pipe to bypass the pond (bottom).

Planning permission

The planning process is an important system for ensuring that changes in land use and developments are appropriate for that location. Consult the local planning authority at an early stage to determine if the pond needs planning permission, or if there are likely to be other concerns. A planning officer will advise you on the need for planning permission. Provide simple information on location, approximate size, purpose, any materials etc, and ask for a written response.

Note that there is considerable regional variation in planning officers' approach as to which pond creation projects need to go through the planning process. However, in general, planning permission may be needed for pond creation if it:

- involves engineering operations e.g. requires large excavation machinery
- is a change of use of the land e.g. from agriculture to nature conservation or recreation
- may affect highways or properties
- may affect important wildlife/archaeological sites
- may affect floodplains or other sites, or
- is in the flight path of an airport and could increase the risk of aircraft bird strike

If you need planning permission, a fee will be charged (the amount varies depending on type and scale of the project) and there might be additional costs where there is a need for surveys/assessments or plans to be drawn up by a landscape architect or similar professional. For more information on the planning process go to www.planningportal.gov.uk and your local planning authority website.

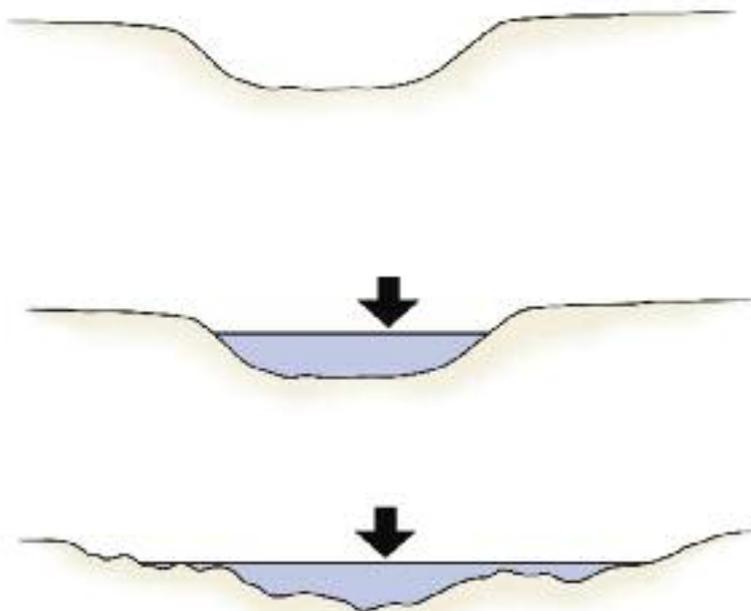
If you don't need planning permission, you should still carry out other checks. If you change your plans significantly, check that the new plans don't then require planning permission.

3. Phased approach to pond creation

Pond creation can be perfectly satisfactory as a one-off affair. You dig the ponds and it's finished. This works particularly well where soils and water levels are understood and predictable.

However, if funding allows, don't discount a more phased approach, particularly if you don't know exactly where the water will settle and how it will fluctuate (Figure 2). For larger sites, one option is to dig out deeper parts of ponds in the first year, disposing of the bulk of the spoil. Then bring back the digger for a day or so to finish off the shallow marginal areas in years 2 or 3. This approach is not suitable for lined ponds.

Another option is to plan pond digging over a much longer time frame, bringing in a digger every few years to create new pools and improve the shape of existing ones. The advantages are that the site can benefit from lessons learnt, incorporate new ideas, and crucially, the ponds will be of different ages and at different stages of succession, leading to a more varied site.



Phase 1 (Year 1)

Dig out the deepest area of the pond and roughly shape some areas of shallow pools, mud flats, islands etc.

Phase 2 (Year 1 to 2)

Observation phase – monitor seasonal water levels over a calendar year and make plans for modifications to the pond.

Phase 3 (Year 2 to 3)

Make changes to the shape of the pond according to observed water levels; undertake delicate shaping of margins and shallows.

Figure 2. Phased excavation and pond profiles. This is one option for pond creation where the water levels are not known in advance.



4. Planning the construction phase

Timing works

There is no best time for pond creation. Winter can sometimes be problematic, but is usually fine for smaller projects, especially where the ground is not waterlogged. Wet weather or waterlogged ground can be more difficult for larger schemes because heavy vehicles often get bogged down, particularly in areas where they are regularly travelling to and from the site (e.g. dumpers removing spoil). At other times of the year, breeding birds, or sensitive periods for protected or vulnerable species and habitats may impose restrictions.

Access for machinery

Excavators and dump trucks are broad, tall machines, so ensure that route ways, bridges, and gates onto the site are big enough to accommodate them. If spoil needs to be moved around or off site this can be very time consuming, so it is particularly worthwhile identifying the most efficient routes for dumper trucks. It may be appropriate to temporarily remove fencing, or create temporary bridges or bunds across streams and ditches to make journey times as short as possible (see box).

It may be necessary to create safe access for heavy machinery, e.g. creating hardcore track, especially in gateways, so vehicles and machinery don't get bogged down. Decide if you want to create permanent or temporary access – this may be important for post-creation monitoring and management and visitor access.

Choose the materials carefully as there is a potential for causing pollution or altering water chemistry, e.g. avoid bringing crushed limestone onto an acidic site. If you use recycled material (demolition rubble etc) check that it complies with waste regulations and has been certified as clean. For more information visit the NetRegs website www.netregs.gov.uk and Environment Agency website www.environment-agency.gov.uk.

If there are areas of sensitive vegetation near to the pond site these should be marked on plans and perhaps taped-off on the ground. All excavations will need some 'working area' beyond the pond itself. This is the area from which the digger will excavate, where spoil may be temporarily piled or spread, or a dump truck has room to load up and turn. It is possible to minimise the working area through careful planning and skilled digging, but the pond may take longer to make.

What you consider to be an acceptable level of damage to the ground (compaction, damaged turf, ruts, damaged sward, bare ground etc) may also influence your choice of machine size, and what kinds of ground protection you use, at additional cost. Soft ground can get very churned up by pond excavation. In general, larger tracked excavators are better on soft ground than smaller vehicles, because their weight is spread over a larger area of track. Note that dumpers are particularly likely to churn up soil because they are usually wheeled (not tracked) and are likely to make repeat journeys transporting spoil.

Creating access for machinery

At a pond complex creation scheme in Cutteslowe (Oxon), the contractors made a temporary crossing over a ditch using excavated spoil and a pipe to maintain the flow of water. This cut about 5 minutes off each round trip for the two dumpers, a lot of time when you consider they did >100 trips (=1.5 days in a 10 day scheme). At the end of the project, the ditch was restored to its original condition.

Where will the spoil go?

Before beginning a project consider carefully how spoil will be disposed of (see box: 'A few tips about spoil disposal'). The volume of spoil that comes out of a pond always looks enormous and it is easy to underestimate the volume and time it takes to handle it. Disposing of spoil is usually the most time consuming and expensive part of a pond construction project. Factor this into the brief for the contractors.

Estimate the volume of spoil expected and consider where to put it, how to transport it, how the heap of spoil will be shaped, and the cost. When calculating the amount of spoil generated by the excavations, remember that in many ponds the water surface will not be at ground level, so digging a 1 m deep hole will not usually create a 1 m deep pond. Particularly in groundwater-fed ponds, you may need to remove a considerable amount of overburden just to reach water (see *Factsheet 10* for more information on geology and hydrology).

Be aware that there may be legal or regulatory restrictions and limitations on how spoil can be used or disposed of:

- On floodplains, spoil must either be a) spread flat and made stable so that it doesn't erode and lead to pollution or silting up of water courses, or b) removed from the site (see also earlier section on pond creation on floodplains).
- Where sensitive habitats or species are present, spoil disposal could result in damage to or loss of habitats, or injury to or obstruction of species (see pre-site checks above).
- If spoil is to be taken off site, the pond creation project may require planning permission (see section on planning permission). There may also be other regulations you need to comply with, such as obtaining a waste transfer note – discuss the project with the Environment Agency.
- Spoil contaminated with pollutants or invasive plants such as Japanese knotweed must be carefully handled – contact the Environment Agency for advice (www.environment-agency.gov.uk). If your land is contaminated, it may not be a suitable place for pond creation.

More information on dealing with spoil and obtaining consents is available from NetRegs www.netregs.gov.uk.

Dealing with topsoil

Topsoil is usually an unwanted and polluting material in pond creation projects. It has very high nutrient levels, and if these nutrients drain or leach into the water they will reduce water quality. Topsoil should not be used either in the pond, on its edges, or on the upper banks i.e. anywhere where surface water could wash nutrients into the pond.

When planning the construction phase of pond creation ensure that:

- (i) if spoil is to be spread around the pond, the topsoil is spread furthest way and down hill of the pond
- (ii) topsoil temporarily stored on site is kept away from the pond so that soil and nutrients are not washed in by rainfall.

Topsoil is often highly valued in landscaping, so in larger pond creation projects, if there are no other uses on site, consider if you can sell the topsoil to local landscaping firms, developers or soil merchants. Talk to the potential users, the local planning authority, and the Environment Agency about ensuring all relevant regulations are met when removing material from the site.



5. Designs and drawings

The main reasons for producing site drawings are (i) to get your ideas straight and (ii) to present them to others: potentially including planning officers, contractors, digger drivers or funders.

Site drawings often begin as a back-of-the-envelope sketch, and sometimes you may not need much more. However, if you are communicating your ideas to others, then include what they will need to know.

Typical steps in the design process are:

1. Create a large-scale map outline of the site (e.g. by photocopying). Ensure you have a scale bar.
2. Make sketches that outline the waterbodies you want to create until you are happy they meet your requirements and constraints.
3. Draw depth contours within the waterbodies at suitable intervals (i.e. 20 – 50 cm) to indicate excavated depth. The eventual pond water level won't usually be at the ground surface, so don't forget that the first (outermost) contour will define the slope of the upper banks, and below this will be the drawdown zone. Indicate the maximum depth.
4. Check that the contours you have drawn will create your desired bank angles. Consider this particularly carefully if the current ground surface is sloping.
5. Add other important features to the sketch, for example: service pipes, access paths, no-go areas, areas where spoil can be dumped and how it should be spread or piled, location of fencing.
6. If you are aiming to create complex areas e.g. hummocky drawdown zones or areas of tiny pools, these can be hard to illustrate. Since the exact shape, size and location will not usually be critical, shade over or box the area as a whole and draw an example area or label with your specification e.g. 'create approximately 10 small irregular pools, 1 – 3 m diameter, 15 – 35 cm maximum depth'.
7. Consider including one or two cross-sectional drawings.
8. Using colour can help define areas more clearly – e.g. shallow and deep water.

It can be helpful to provide additional notes of things that can't be summarised graphically e.g. project aims, construction stages, access arrangements and after-use. See *Factsheet 4* for principles and ideas for designing ponds for wildlife and for further information.

6. Funding sources

There are a wide range of funding sources for pond creation using public and private money, including agri-environment schemes, the National Lottery, national government biodiversity grant schemes, and charitable trusts. A list of possible funding sources will be regularly updated on www.pondconservation.org.uk.

A few tips about spoil disposal

- Moderate amounts of spoil can be disposed of around a site, leaving little long-term trace. Spread thinly, at least 3 m to 4 m away from the top of the pond bank. Don't:
 - pile up spoil more than 30 cm deep.
 - fill in hollows which may have an existing wildlife or archaeological interest.
- If spreading spoil then place it down hill of the pond (exception below) so that you don't form a rim preventing clean water draining into the pond (Figure 3). This is because run off from spoil placed up hill of the pond will bring in considerable amount of silt during heavy rain, at least until the area becomes vegetated.

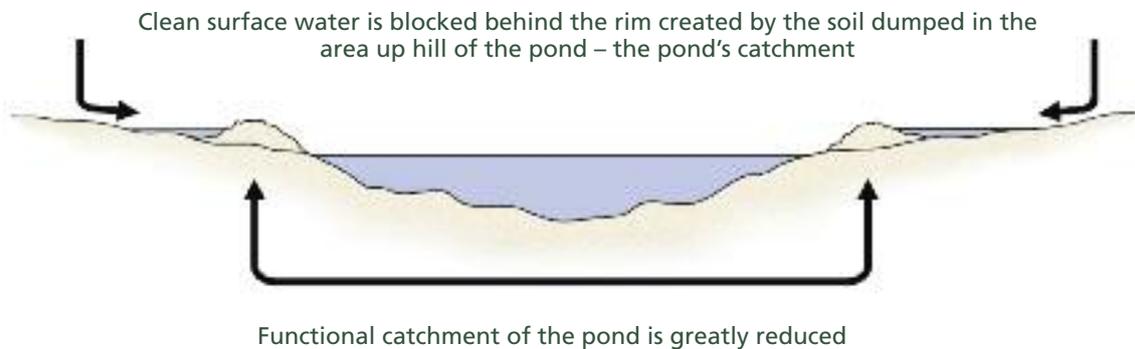


Figure 3. Example of routes used by heavy machinery (e.g. excavators and dumper trucks) on a pond creation site to minimise impacts.

- Where groundwater-fed ponds are created in agricultural landscapes, low banks made from excavated spoil can be used to create a barrier to redirect polluted surface water coming from arable fields away from the pond. (Figure 4).

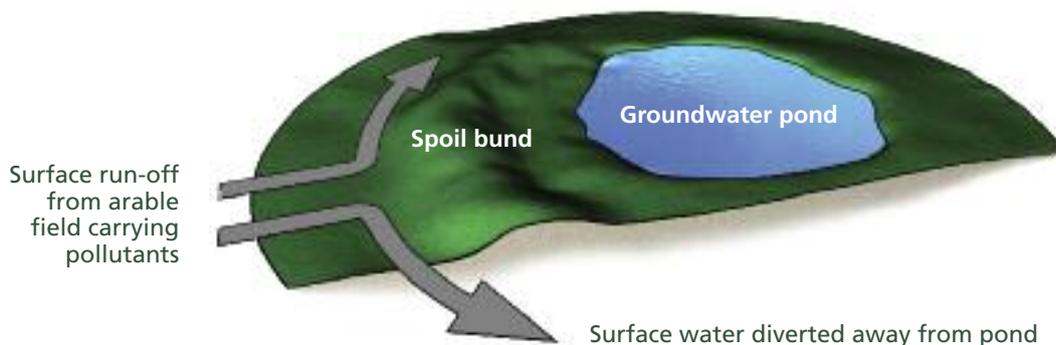


Figure 4. To prevent polluted surface water entering a groundwater-fed pond, create bunds to divert the water away from the pond.



- Spoil can be used to dam up ponds by forming the lower bank of a pond on a slope (Figure 5). This is best for small ponds because there may be issues regarding the strength and safety of dams retaining larger ponds. Such ponds are more likely to be considered engineering operations and require planning permission. For very large ponds, with over 25,000 cubic metres (i.e. 2 ha pond, 1.5 m deep) of water held above the natural ground level, the pond will fall under the Reservoir Act and require professional engineering input and regular monitoring.

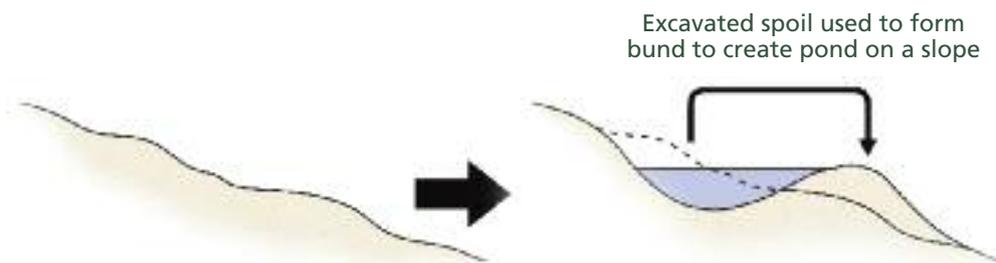


Figure 5. Spoil can be used to form lower bank of pond on slope.

- In many cases spoil can be put to good use for example by creating beneficial features such as new habitats, or access infrastructure such as a raised walkway or viewing area (Figure 6), or landscaped mound for planting with trees and shrubs. Note that effective landscaping requires that mounds are in keeping with the scale of the landscape. Mounds can also be used to screen unsightly buildings or busy roads, and will provide a buffer against spray pesticides drifting from adjacent fields.



Figure 6. Spoil used to create raised walkway and viewing platform at Lawson's Wetland, Blackpool.

7. Project costs

Some pond creation projects come virtually cost free: when, for example, a group of staff or volunteers create small ponds by hand, or where machinery and labour is freely available on site. Smaller unlined ponds (e.g. 5 m+ diameter) may be excavated for around £350 if they are finished in a day using a hired digger and driver, especially if the contractor is experienced and the spoil spread nearby. Larger and more complex projects may cost tens of thousands of pounds (see box).

List of potential costs for pond creation projects

Costs differ depending on the scale and type of project but may include the following. Please note this is not an exhaustive list.

- purchase or leasing of land (purchase price and legal expenses)
- modification of lease agreements (compensation and legal expenses)
- planning application fees
- professional design costs (may be required to satisfy planning application requirements, or useful to communicate ideas to stakeholders or attract funding)
- tests, surveys, and checks, e.g. soil or water sampling, or checks or surveys for utilities (gas, electric, water, drains), archaeology, species and habitats, hydrology, etc
- project management and administration costs
- machinery and equipment purchase or hire (excavator, dumper, fuel, pump etc)
- health and safety requirements
- spoil transfer and disposal costs
- hire-in insurance
- materials (liner, fencing, etc)

A contingency fund, usually around 10% of project costs, or 5% on large schemes, needs to be included in the project budget to cover unexpected costs and price rises.

8. Health and Safety

In carrying out practical work on ponds, the first concern should be that the work is carried out safely. Every company or organisation has a legal duty to consider the health and safety of their employees and others that could be affected by their work. This includes identifying hazards, assessing the level of risk posed to health and safety, and taking appropriate steps to avoid or minimise the risk, in other words carrying out risk assessments. You need to think through the whole process of pond creation and prepare a risk assessment adapted to each project.

Definition of a construction project

A simple definition of a construction project, when considering if the CDM Regulations apply to your pond project, is 'any project that involves moving quantities of soil'. This immediately includes all pond creation projects, but shouldn't be seen as an extra burden as it is considered good practice to follow the CDM Regulations anyway.



Of particular relevance to pond creation projects are the Construction (Design and Management) Regulations (CDM Regulations, see www.hse.gov.uk), which aim to help ensure that construction projects are safe to build, safe to use, and safe to maintain.

If a pond creation project falls into the category of 'construction project' (see box), there are a range of steps that should be taken by everyone involved, whether they are the client, contractor or worker. The CDM Regulations do not apply to a domestic client, such as a householder having a pond created on domestic premises, but the Regulations do apply to contractors who work for them on the project. It is good practice to follow the CDM Regulations for all projects.

If construction work lasts longer than 30 days or involves more than 500 person days of construction, there are additional legal requirements. A notification form should be completed and sent to the Health and Safety Executive (HSE), a CDM co-ordinator and a principal contractor must be appointed, a health and safety plan must be in place, and a health and safety file must be kept as a record of relevant health and safety information and a reference for future works or maintenance on the pond site. More information on the CDM Regulations is available online at www.hse.gov.uk/construction/cdm.htm.

There is simple guidance on having a sensible approach to risk management and carrying out risk assessments on the Health and Safety Executive (HSE) website at www.hse.gov.uk/risk/index.htm. Regardless of the legal obligations, it is obviously good practice to consider the health and safety of yourself, people working with or for you, and others. Following guidelines and assessing the risks is therefore a useful tool.

To compile a complete list of potential hazards, walk around the site, think through every stage of the project, and talk to contractors, suppliers and people who have done similar work before. The list below highlights some of the issues that may be relevant when writing a risk assessment for pond creation work. **But please note that health and safety issues and assessments are always site and project specific so this list is for illustrative purposes only; you must carry out your own risk assessment.**

Example of good health and safety practice – Lawson's Wetland in Blackpool, Lancashire



Alison Whalley/EA

Crew wearing appropriate Personal Protective Equipment.

This pond site, consisting of six large ponds each measuring over 750 m², was created in 2007. Work was predicted to take six to eight weeks, during which time it would be necessary to store machinery and materials on site, for the workforce to be comfortable, and for the general public to be kept safe. Harras fencing was hired to form a secure compound, a portacabin and toilet were hired, the public footpath was temporarily closed and diverted, and information was displayed. All visitors to the site were required to wear high-visibility vests and hardhats whilst large machinery was in operation.

Potential hazards:

- Slips, trips and falls on uneven, sloping or slippery ground, or over equipment and materials.
- Limb or back injury from use of equipment or heavy lifting.
- Injury to staff and public from large machinery.
- Loss of or damage to large machinery on steep or soft ground.
- Exposure of staff to high or low temperatures, strong sunlight or wet weather.
- Diseases associated with the water environment.
- Drowning.

There may be particular concerns where work is being undertaken by community and voluntary groups who may not be familiar with the range of risks associated with the water environment, machinery and tools.

The risk posed to people can often be eliminated or minimised by taking a few simple steps, such as clearly marking and warning people about hazardous areas such as boggy/slippery ground or areas where large machinery is operating, keeping equipment and materials neatly stored, or ensuring everyone is trained and confident in the use of tools and has appropriate protective equipment, e.g. high visibility clothing, footwear, hardhats, gloves, sunblock etc.

Even if you are a private individual carrying out a small project on your own land, going through the risk assessment process is worthwhile and may help you identify issues where perhaps you need to get some help in, or can find an alternative, safer approach.

For more information on health and safety legislation and risk assessments, go to the HSE website at www.hse.gov.uk. Find out more about the CDM Regulations at www.hse.gov.uk/construction/cdm.htm.

Post-construction safety

Health and safety considerations are a concern not just during the construction phase, but for the ponds' after-use. Give thought to who may access the site when it is complete (e.g. owner, site management staff or volunteers, general public, invited visitors, or trespassers) and what activities may be carried out (e.g. mowing, tending grazing animals, educational visits, recreation), and locate and design the ponds accordingly. Risks may be reduced or avoided through design, providing information, choice of materials, controlling access, provision of equipment, or training and education. It is easier and cheaper to get these aspects right during the planning phase than to address them at a later date.

9. Project Risk Management

There are potential risks to the success of any project, and they will differ for each site and each project (e.g. funding falling through, damage to unknown pipes). Before embarking on pond creation it is advisable to draw up a list of the issues that could pose a risk to your project, and to take action to minimise the level of risk. Because risks are project specific, it is not possible to draw up a definitive list. However by reading through the toolkit you should be able to identify many of the risks involved. Think carefully how they relate to your own project.



10. Finding contractors

Finding the right contractor is critical to the success of a project. Getting recommendations from people and visiting sites that contractors have worked on will help you choose. Similar tactics can help you find other key suppliers.

Be aware that a contractor highly skilled in handling a digger, or experienced in one type of work, is not necessarily experienced in the type of work you want doing. Discussing the details of your project with several contractors, and giving them examples of sites similar to what you want to achieve will help both you and the contractors understand the constraints and key issues involved in your project. If appropriate, accompany contractors on a site visit to discuss your plans. This information could help you plan the project, and draw up a realistic budget.

A typical first stage towards finding a contractor is to prepare a brief for the work required and get tenders/quotes from three or four contractors. Let them know it's a competitive process as this could encourage better prices. Ask for a quote for the whole job rather than a day rate. Confirm that it is the contractor and not you that is responsible if a machine should get stuck or damaged on site, and what insurance requirements there are.

In the brief, include a site plan showing the required work, out-of-bounds areas, where spoil can and cannot go, access points, how the site should be left when the contractors have finished, and any other information or restrictions that could affect how a contractor will be able to work on site. This is so the contractors know exactly what is required, but also importantly so that you can ask for reimbursement if the work is not satisfactory e.g. an ecologically important flush has been buried. Ensure that contractors are notified of any potential hazards to staff or machinery e.g. steep slopes, soft or unstable areas, deep water, power lines.

Confirm responsibilities with the contractor before agreeing a contract, and if there are concerns include them in the contract.

11. Working with volunteers

Involving volunteers in a project has many benefits, but working with volunteers, as opposed to staff or consultants, requires understanding of the pace of work and expectation of what is achievable, what volunteers need to feel motivated and stay involved, selection of suitable tasks, making the most of the contribution volunteers can make (including accessing a wider range of funding sources), and the responsibilities that fall on anyone managing volunteers.

For further information about the Million Ponds Project please visit www.freshwaterhabitats.org.uk/projects/million-ponds or email enquiries to info@freshwaterhabitats.org.uk