

Guidance for Pollution Prevention

Works and maintenance in or near water: GPP 5

January 2017

This guidance has been produced by Natural Resources Wales (NRW), the Northern Ireland Environment Agency (NIEA) and the Scottish Environment Protection Agency (SEPA).

For Northern Ireland, Scotland and Wales, this document provides guidance on environmental legislation. These guidelines are not endorsed by the Environment Agency as regulatory guidance in England. For guidance on environmental regulations in England go to www.gov.uk

To find the relevant regulations visit www.legislation.gov.uk

Guidance for Pollution Prevention (GPP) documents are based on relevant legislation and reflect current good practice. Following this guidance will help you manage the environmental responsibilities to prevent pollution and comply with the law.

If you cause pollution or allow it to occur, you will be committing a criminal offence. Following these guidelines will help you reduce the likelihood of a pollution incident. If one does occur contact the environmental regulator immediately on the relevant incident hotline number: In Northern Ireland, Scotland and England call **0800 80 70 60**, in Wales call **0300 065 3000**.

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Section 1: Introduction

1.1 Who is this guidance for?

This guidance is for anyone carrying out works or activities in or near the water environment. Such activities have the potential to cause pollution, transfer non-native species and can impact on the bed and banks of a watercourse.

Potential environmental risks when working in or near water include:

- Silt – **section 2**
- Cement and concrete – **section 3**
- Chemicals and solvents – **section 4**
- Bridge cleaning debris – **section 5**
- Herbicides – **section 6**
- Invasive Non-Native Species – **section 7**
- Waste materials (including hazardous waste or special waste in Scotland) – **section 8**

1.2 Legal requirements

Formal approval may be required when carrying out such works or activities. It can take up to four months to process an application for formal approval, it is therefore important you contact the environmental regulator early on in the project.

There are laws that protect land, water, air, wildlife and people from pollution. If you cause pollution you will be committing an offence. Penalties include fines, imprisonment, Fixed Penalty Notices, stop-work notices or equivalent and having to pay clean-up costs, along with damage to your reputation.

Only clean uncontaminated water can be discharged without formal approval.

The Legal requirements are different throughout the United Kingdom (UK) (England, Northern Ireland, Scotland and Wales). If you are located in **Scotland** or **Northern Ireland** you can find information on your legal environmental obligations by visiting the NetRegs website (see website list). In **Scotland**, also read references 2 and 3. In **Wales** guidance on regulations can be found on the Natural Resources Wales (NRW) and Welsh Government website (see website list).

1.3 Which type(s) of formal approval may I need?

In this document we refer to ‘formal approval’, which covers the authorisation(s) you may need from the environmental regulator. They may be called a consent, licence or permit. You may be committing an offence if you carry out your works or activities without all the relevant formal approvals in place. See Appendix A for the main ones applicable in your area.

You are responsible for ensuring that you understand and comply with all applicable legislation wherever your site is located. If you have any concerns, or require clarification, contact the environmental regulator before taking action. Ignorance is no defence under law, so you need to understand which laws apply to you and your activities.

1.4 Scoping your project

Allowing time to plan and prepare before work starts on site can significantly reduce the risk of a pollution incident. Once you have identified potential sources of pollution, you can put in place measures to avoid or reduce the risk of causing pollution.

Planning ahead will:

- help make the job run smoothly
- improve risk management, reducing risk of pollution incidents and enforcement action
- help identify efficiencies and potential cost savings
- improve relationships with clients, local regulators and neighbours and reduce likelihood of complaints
- reduce damage and clean-up costs if an incident does happen
- help you win and maintain contracts
- protect and enhance your reputation

Plan to protect the Environment



Figure 1: Plan to protect the Environment (courtesy NetRegs 2016)

You can get information on local surface and groundwater water sensitivity from the environmental regulator before you start any work. In addition to preventing pollution of surface waters and groundwater you should take precautions to prevent blocking of channels and culverts, and erosion of the riverbank or bed. This information should form part of the environmental aspects and impact assessment and Site Environmental Management Plan (SEMP).

1.5 Pollution Prevention

It is important to understand how activities could affect the environment and cause pollution. Think about what pollution linkages there are (see Figure 2.).



Figure 2: Example of a pollution linkage using the source > pathway > receptor model.

NOTE: Groundwater is both a pathway and a receptor.

The site and activities will only cause a risk to the environment or people if you have all three parts of the pollutant linkage present i.e. a source, a pathway and a receptor. You should put in place measures to prevent or minimise or mitigate the effects of any risks and thereby break the pollutant linkages between these three. By doing this, you can identify how to prevent or reduce the likelihood of pollution and reduce the impact of any risks that may occur. It is important that you fully understand the local drainage network as pollution is often caused by mistaking a surface water drain for a foul/combined sewer. Contact your local water company for advice on this.

Surface water drains go directly to a watercourse and therefore should only carry clean uncontaminated rainwater

If you cause pollution you will be responsible for the clean-up cost. This can be expensive and time consuming particularly if groundwater has become contaminated. There may be additional costs associated with recovering the cost for the environmental regulator's response (in line with the Polluter Pays Principle), you may receive fines through the criminal courts or civil claims and you may experience a reputational cost i.e loss of future work.

Following this Guidance for Pollution Prevention will help you reduce the likelihood of an incident. However, if one does occur contact the environmental regulator immediately on the relevant Incident Hotline number - see section 9. A rapid response to incidents will help to minimise the environmental impact and could reduce the overall costs – For more information refer to section 9.

1.6 Emergency works

Even if the works you are carrying out are required as a result of an emergency, this Guidance for Pollution Prevention should be followed as closely as possible. An emergency can be defined as an occurrence, which presents a risk of serious flooding, serious detrimental impact on drainage, or serious harm to the environment or people.

Contact should be made with the environmental regulator as soon as practicable to discuss whether further approval is required. If works are carried out without the knowledge of the environmental regulator, enforcement action may be considered whether it is an emergency or not.

Section 2: Silt

Good soil use and management is crucial to preventing silt pollution which is a major cause of environmental incidents. It can harm water quality, damage and kill aquatic life by smothering and suffocation and can cause flooding by blocking culverts and channels. See websites listed under Reference 19 for relevant soil guidance and good practice.

2.1 Activities that can cause silt pollution

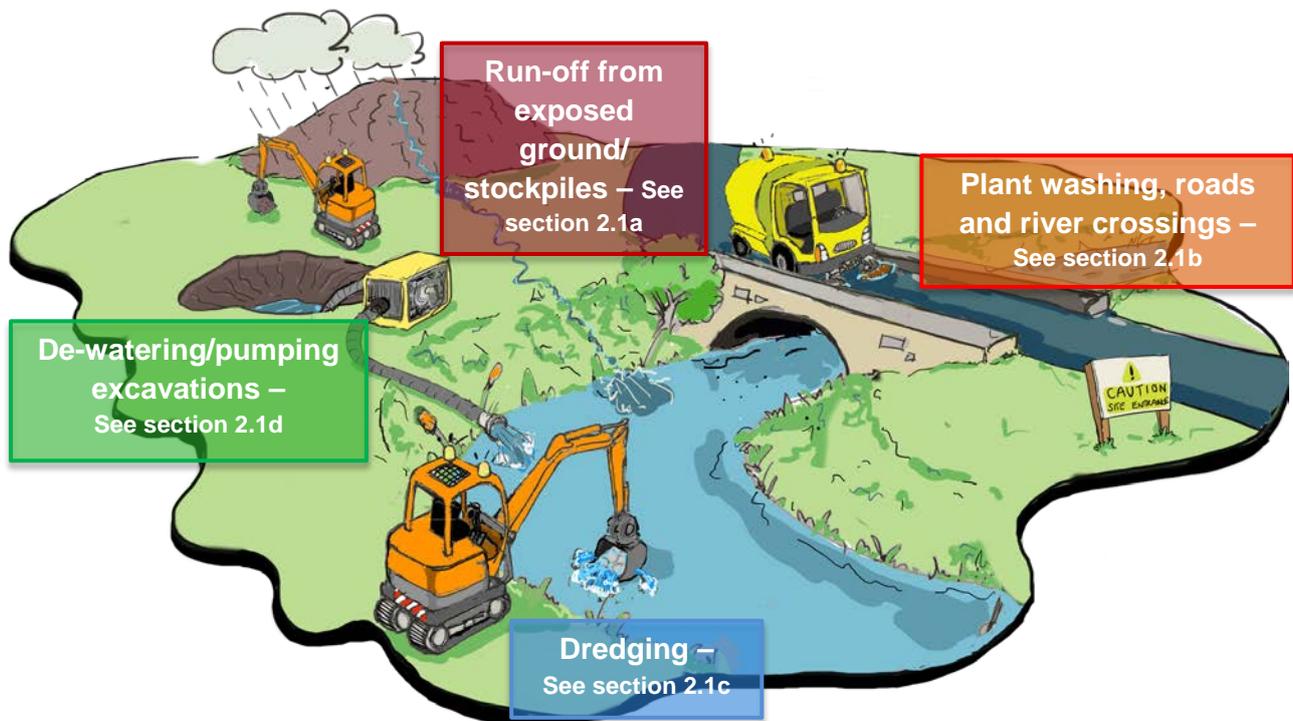


Figure 3: Activities that can cause silt pollution (courtesy NetRegs 2016)

2.1a Exposed ground and stockpiles

Soil stripping and vegetation removal at the start of a project can increase the volume of contaminated surface water run-off. It can also reduce the area of vegetated land available for disposal of silty water.

You should plan ahead for intense and also prolonged wet weather and consider all relevant pollution mitigation measures including:

- minimising the amount of time stripped ground and soil stockpiles are exposed
- only removing vegetation from the area that needs to be exposed in the near future
- seeding or covering stockpiles
- using geotextile silt fencing at the toe of the slope, to reduce the movement of silt; this should be installed before soil stripping has begun and vehicles start tracking over the site
- collect run-off in lagoons and allow suspended solids to settle before disposal – see section 2.2b
- divert clean water away from the area of construction work in order to minimise the volume of contaminated water

2.1b On-site working

The movement and maintenance of plant on site can generate silt and oil contaminated water, or introduce non-native species from other sites. Sources of silt (e.g. plant and wheel washing, site roads, river crossings) carry a high risk of causing pollution.

Plant and wheel washing

To reduce the pollution risk, make sure that you consider all relevant measures, including:

- plant and wheel washing is carried out in a designated area of hard standing at least 10 metres from any watercourse or surface water drain, rock outcrop (hard rock at surface) or karstic sinkhole
- run-off is collected in an impermeable sump - recycle and reuse water where possible
- settled solids are removed regularly and appropriately disposed of
- if permission can be granted from your local water and sewerage provider, it may be possible to discharge contaminated water to the public foul/combined sewer – see section 2.2e
- discharge of treated water to the environment with formal approval from the environmental regulator – see section 2.2
- contaminated water tankered off site for authorised disposal – see section 2.2f
- biodegradable oils should be used for vehicles and plant where possible, please be aware that they should still be prevented from entering the water environment

Site roads and river crossings

Run off from site roads and river crossings can contain high levels of silt. Road drains typically drain to the local water environment so are a pathway for pollution. To reduce the pollution risk make sure that you consider all relevant measures, including:

- brushing or scraping roads to reduce dust and mud deposits, appropriately disposing of material collected
- putting small dams or silt fencing in artificial roadside ditches to retain silt
- using existing permanent bridges or pipe crossings for crossing the river
- if necessary building temporary bridges (constructed in the dry) - do not ford rivers
- working from the bank where possible (taking steps to stabilise the bank during and after works), avoiding working in the river
- divert run-off to settlement lagoons - see section 2.2b

In **Scotland** please refer to the SEPA river crossings guidance, reference 4.

2.1c Disturbance of the river bed / working in the river channel

Always try to avoid working in the channel. When you have considered all other options and it is still necessary (e.g. dredging operations, river diversion works) contact your environmental regulator as early as possible during the scoping stages to discuss appropriate pollution control measures. Permission for this type of work may take up to four months to obtain - see section 1.

The risk of silt pollution causing an incident will depend on many factors including:

- the time of year e.g. fish spawning season
- likelihood of silt being disturbed and the method/effectiveness of silt containment
- what the river bed is made of, e.g. silt or gravel
- the conditions in which the work is carried out, e.g. working in the dry, weather

Silt pollution caused by working in the water environment can be minimised or prevented by keeping water out of the working area using appropriate isolation techniques, such as coffer dams and by-pass channels. There may be a need for fish rescue prior to in-channel works, stream diversion or coffer dam work. Fish passage **MUST** be maintained during in-channel works.

In **Northern Ireland** all river works should be conducted 'in the dry' (*i.e. isolated from waterway*) in a manner to prevent the release or escape of suspended solids or pollutants to the environment following regulator engagement to agree a method of works.

In **Wales** in-channel works during the spawning season (17 October to 15 May) are generally **NOT** permitted. You will need to contact the local NRW Fisheries Team to find out what the specific embargo periods are when working in the channel is not allowed in your area.

In **Scotland** please refer to the SEPA Silt Control Guidance: Preventing Pollution While Dredging – Reference 5

2.1d Disposal of water from excavations, dewatering and pumping

Problems with disposal of water from these activities may be minimised or avoided by:

- preventing water from entering excavations, by using cut-off ditches
- considering the impact on groundwater if you use well point dewatering or cut off walls (in Scotland, please refer to the CAR Practical Guide: GBR 15, Reference 1)
- using pump sumps in excavations
- raising inlet hoses above the bed to ensure that they do not disturb silt on the bed
- discharging clean water onto a hard surface e.g. concrete slabs/gravel, to avoid causing impact from ground/bank erosion
- using appropriate pump rates; to avoid disturbance of bed or bank the maximum rate should be set after consideration of the flow of the river, the location of the discharge and the risk of erosion
- protecting the pump inlet to avoid drawing in aquatic life and other debris
- minimising disturbance of standing water

In **Wales** please refer to the dewatering guidance – Reference 6.

2.2 Disposal of contaminated water

Where run off water is contaminated with silt or other pollutants such as oil this water must not be pumped or allowed to flow (directly or indirectly) into the water environment without treatment.

Discharges to the water environment may require formal approval from the environmental regulator – see section 1. If you require formal approval, it may limit the volume, amount of silt and the presence of any oil in the discharge, and may have conditions for additional substances.

In **Scotland** all surface water discharges from new developments require authorisation and to be treated by a Sustainable Drainage System or equivalent - see section 2.2a.

It is essential to minimise the volume of clean water that becomes contaminated, by diverting clean water away from working areas

Discharges to public foul/combined sewers will require consent from the water and sewerage provider. In **Wales** see Reference 7 for details on the water and sewerage providers in your area. If the water and sewerage provider is unable to approve, it will be necessary to tanker the contaminated water off site for authorised disposal (section 2.2f).

The choice of method for the treatment and disposal of contaminated water will depend on:

- the volume of water
- the area of land available for storage, treatment or discharge
- the amount and type of silt
- the presence of other substances in the water
- the conditions of any consent or authorisation.

Contaminated water treatment and disposal options

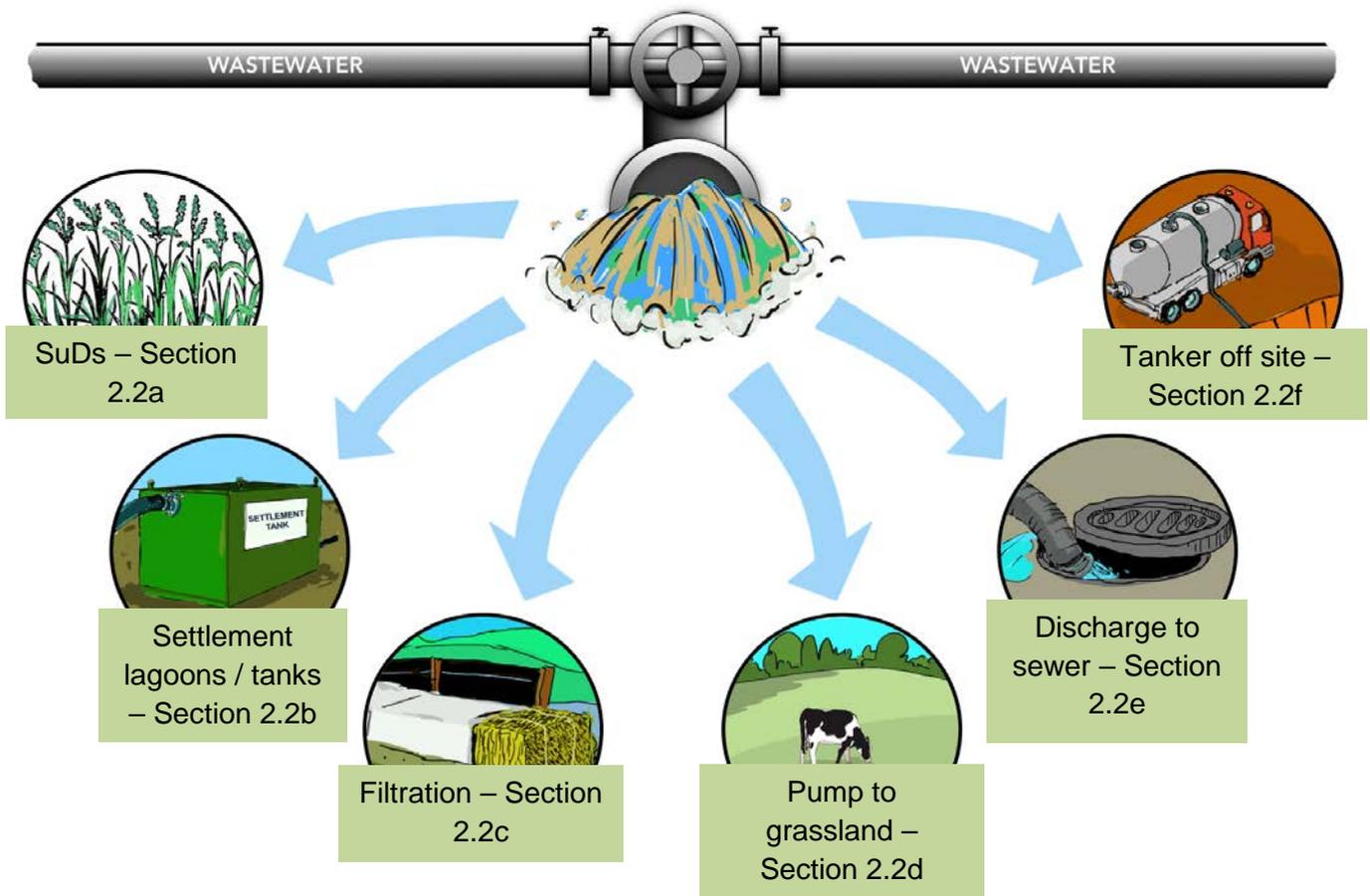


Figure 4. Contaminated water treatment and disposal options (courtesy NetRegs, 2016)

2.2a Sustainable Drainage Systems (SuDS)

Sustainable drainage is the practice of controlling and managing surface water runoff as close to its origin as practicable by slowing and reducing flows, allowing adequate settlement and biological action to take place before water is discharged to the water environment. The most effective SuDS use a series of drainage components to imitate natural drainage rather than traditional end-of-pipe drainage solutions. Well designed, easy to maintain SuDS will deliver a range of important benefits. They can:

- reduce flood risk from development within a catchment by slowing down runoff reaching the water environment
- minimise diffuse pollution arising from surface water runoff
- minimise the risk of pollution to groundwater
- minimise environmental damage, such as bank erosion and damage to habitats
- maintain or restore the natural flow regime of the receiving watercourse
- maintain recharge to groundwater
- achieve environmental enhancements, improvement to wildlife habitats, amenity and landscape quality
- help meet conditions set in license or consents.

Examples of source control SuDS:

- **Permeable/porous surface pavements** – water permeates in to the soil or sub-surface reservoir which can then be allowed to discharge slowly rather than immediately running off. This will minimise the volume of water that you might need to treat and can also recharge groundwater. Permeable/porous pavements need to be protected during installation from blocking by excessive silt-contaminated water.
- **Infiltration trenches** – a shallow excavated trench backfilled with stone to make an underground reservoir. Run off is diverted into the trench and then filters in to the subsoil. The closer to the source the more effective this method will be.
- **Infiltration basins** – a shallow surface impoundment where water is stored until it gradually infiltrates into the soil of the basin floor. The performance of the basin depends largely on the permeability of the soil and the depth of the water table
- **Filter drains or French drains** - these are similar to infiltration trenches but also allow movement of run off slowly towards a watercourse allowing time for filtration, storage and some loss of water due to evaporation / infiltration.
- **Swales** – grassed wide shallow depressions which lead water overland from a drained surface into a storage or discharge system. They provide temporary storage for run off reducing high flows. Solids are retained and oily residues and organic matter broken down in the top layer of the soil and vegetation.
- **Filter strips** – vegetated sections of land designed to accept run off as an overland sheet flow. To be effective they should be 5 – 15 metres wide and are best employed on the upstream end of a drainage system. They are most effective at removing excess solids and pollutants before discharging to downstream system.

Other SuDS can be considered including ponds, retention basins (dry ponds) and wetlands.

At the planning stage of your project consider how your drainage can be managed by using SuDS. This will ensure that SuDS infrastructure is properly maintained and functions effectively for its design life. It is advisable to begin discussions at an early stage to help ensure that sufficient land is made available to implement SuDS. Pre-application discussions between the developer, local planning authority, water and sewerage provider and other relevant bodies will help to identify the most cost effective way to integrate SuDS within the emerging scheme design.

For phased developments, the design should indicate how SuDS features will be managed, protected and commissioned, especially where their use may change through the construction programme.

Pollution removal by these methods is achieved by sedimentation, adsorption, absorption, filtration and microbial action. CIRIA have more detailed information on SuDS which can be found on the CIRIA website (see website list) or in References 8 and 9

In **Scotland**, discharges of water run-off from construction sites are required to be treated by either a Sustainable Drainage System (SuDS) or an equivalent which is equipped to avoid pollution. However, equivalent systems are not acceptable for treatment of runoff water from completed developments - see CAR Practical Guide: GBR 10 in Reference 1.

Businesses in **Scotland** and **Northern Ireland** can find more information on SuDS on the guidance pages on the NetRegs website (see website list). Businesses in **Wales** can find more information at the SuDS Wales website (see website list).

2.2b Settlement lagoons or tanks

To be effective a settlement lagoon or tank should retain contaminated water long enough for silt to settle out. The length of time will depend on the type of silt, with finer clay solids taking longer to settle. If you use flocculants to aid settlement you **MUST** discuss this option with your environmental regulator before use. Flocculants can themselves be polluting and/or toxic and need careful use and monitoring to be effective. The checklist below gives guidance on lagoon/tank operation.

Table 2.1 gives guidance on the volume of lagoon or tank needed for a three-hour settlement at a defined rate of inlet discharge. NOTE: This may not be suitable for the settlement of fine clay solids.

| Typical dimension of a settlement lagoon / tank for a three hour settling time | | | |
|--|---------------------------------|--------|-------|
| Pump Diameter | Discharge rate in to the lagoon | Length | Width |
| 6 inch pump | 3000 l/ min | 60m | 20m |
| | 6000 l/ min | 80m | 27m |
| 4 inch pump | 1000 l/ min | 30m | 10m |
| | 2500 l/ min | 50m | 17m |
| Assuming a tank / lagoon depth of 1 m , where length = three times the width | | | |

Table 2.1: Settlement pond dimensions - the size of the tank/lagoon is determined by the rate of introduction of water.

Settlement lagoon/tank – good practice checklist

- maintain a constant pumped inlet rate
- minimise the inlet flow as much as possible by using energy dissipaters or rip rap
- position inlet pipe work vertically to dissipate energy
- provide lined inlet chamber to reduce velocity of flow
- line the inlet chamber and outlet weir with materials like geotextiles, brickwork, polythene or timber
- have a long outlet weir to minimise disturbance
- provide two or three lagoons in series or parallel to increase silt retention, preferably with a bypass facility to allow maintenance, when necessary
- de-silt inlet chamber regularly
- monitor discharge quality frequently.

See Reference 10 for more detail.

2.2c Filtration

If you do not have the space for lagoons and the water is contaminated with coarse silt only (not fine clay silts), you may be able to use tanks filled with filter material. Single sized aggregates 5–10 mm, geotextiles or straw bales wrapped in geotextiles can be used as a filter. You must monitor the inlet pump rate and discharge quality carefully, to ensure only clean, uncontaminated water is discharged. Discharge should then be to foul sewer (with the water and sewerage company's permission), land (with the environmental regulator's and landowner's permission), or to surface water drains (with the environmental regulator's permission).

2.2d Pump to grassland

This method of disposal is only suitable for water contaminated with silt only and you must have permission from your environmental regulator and landowner. The discharge rate must match the rate of infiltration into the soil, which will vary with the soil type (see Table 2.2), weather, amount of vegetation cover and the gradient. Discharges should be well away from excavations to avoid re-circulation through the ground and must be monitored to prevent scouring, waterlogging, overland flow and sediment mobilisation issues.

| Soil type | Infiltration co-efficient (m/h) |
|--|---------------------------------|
| Gravel | 10-1000 |
| Sand | 0.1-100 |
| Loamy sand | 0.01-1 |
| Sandy loam | 0.05-0.5 |
| Loam | 0.001-0.1 |
| Silt loam | 0.0005-0.05 |
| Chalk | 0.001-100 |
| Cut off point for most infiltration drainage systems | 0.001 |
| Sandy clay loam | 0.001-0.01 |
| Silty clay loam | 0.00005-0.0005 |
| Clay | <0.0001 |
| Till | 0.00001-0.01 |
| Rock | 0.00001-0.1 |

Table 2.2: Typical infiltration rates for different soil types (Bettess, 1996)

2.2e Discharge to sewer

Discharges to foul sewer will require the permission of the local water and sewerage provider. You must approach your local water and sewerage provider (In **Wales**, see reference 7) as early as possible in your project. You may require formal approval, which may limit the volume and content of the discharge. If the water and sewerage provider is unable to approve, it will be necessary to tanker the contaminated water off site for authorised disposal (see section 2.2f).

2.2f Tanker off site

If no other disposal routes are available then contaminated water can be collected by tanker for authorised disposal off-site. This may be a costly option and must be discussed with your environmental regulator at the scoping stage of your project. You must comply with your Duty of Care obligations and obtain Waste Transfer Notes for any waste leaving site.

Section 3: Concrete, cement and grout

Concrete, cement and grouts are very alkaline and corrosive and can cause serious pollution to water. Concrete, cement and grout mixing and washing areas should:

- be sited on an impermeable designated area
- be sited at least 10 metres from any watercourse or surface water drain, rock outcrop (hard rock at surface) or karstic sinkhole to minimise the risk of run off entering the water environment
- have settlement and re-circulation systems for water reuse, to minimise the risk of pollution and reduce water usage
- have a contained area for washing out and cleaning of concrete batching plant or ready mix lorries; see section 2.1b above
- collect wash waters that cannot be reused and, where necessary, discharge to the foul sewer (you must have permission from the local water and sewerage provider for this), or contain wash water for authorised disposal off site (see section 8. Waste Management).

Wash waters from concrete and cement works should never be discharged into the water environment as this could have serious impact on the water quality and ecology.



Cement silo inspection (courtesy of SEPA)

Section 4: Oil and chemicals

Oil storage regulations differ between countries, however in general the regulations apply to businesses in:

- **Wales**, who store more than 200 litres of any kind of oil (except uncut bitumen) in oil storage containers. The regulations also apply to oil storage at domestic properties installed since 15 March 2016;
- **Scotland**, who store any volume of any kind of oil (excluding uncut bitumen). More prescriptive requirements apply to industrial, commercial and institutional sites storing over 200 litres of oil. The regulations also apply to domestic premises storing more than 2,500 litres of oil;
- **Northern Ireland**, who store more than 200 litres of any kind of oil (excluding uncut bitumen) in oil storage containers including drums and IBCs. The regulations also apply to domestic premises storing more than 3,500 litres of oil;
- **England**, who store more than 200 litres of oil in oil storage containers.

Detailed guidelines concerning above ground oil storage can be found in our guidance GPP2, see Reference 11.

4.1 Biodegradable oils

If possible use biodegradable lubricant and biodegradable hydraulic oil in plant when working in or near watercourses. Biodegradable oils are less toxic than most of the synthetic oil but should still be stored and used to the same standards as other oils and prevented from entering the water environment.

4.2 Trade materials

Sealants, coatings, adhesives and glazings can be toxic to plants and animals if released into the environment. Select, store and use these materials carefully to save resources and protect the environment. You must not use sealant and glazing compounds containing asbestos. You should:

- use water based or low solvent products
- avoid products containing lead as a drying agent and those containing hazardous solvents (toluene or chlorinated hydrocarbons)
- provide safe and secure storage.

For guidance on general storage in **Northern Ireland** and **Scotland** visit NetRegs (see website list).

You must make sure you are familiar with the labelling on the products you use and fully understand any hazardous properties they hold.

Section 5: Bridge maintenance and structures over water

Work to maintain bridges or other structures over or next to watercourses has a high risk of causing pollution. The maintenance work itself may require formal approval from the environmental regulator and you should contact them at an early stage in your project to agree the most appropriate method of working and to agree an Environmental Management Plan.

5.1 Pollutant containment

Dust, debris and contaminated water are the most common pollutants produced by structure maintenance. You should choose a containment system designed to reduce the risk of pollution from your work. The system should take account of the sensitivity of the environment which will influence the type of containment you will need.

Methods of containment include:

- air or water impermeable walls
- rigid or flexible framing lined as necessary
- fully sealed joints
- airlocks or re-sealable entryways
- negative air pressure (achieved by forced or natural air flow)
- exhaust air filtration.

In sealed containment areas you should provide filtered ventilation to prevent the build-up of dust and minimise the possibility of contaminated air escaping. Use physical cleaning instead of liquid chemicals such as caustic and acid solutions. Contain contaminated water from surface washings and agree the disposal method with the environmental regulator as part of the Environmental Management Plan before you start work. In some circumstances you may be able to use a barge with a wastewater containment facility for working over water, or dispose to foul sewer with prior permission of the local water and sewerage provider.

The containment facility must be designed so that the structure does not obstruct the river flow beneath it to such an extent that it increases the risk of flooding.

5.2 Paint removal

Paint removal methods include:

- abrasive blast cleaning
- blasting in a closed circuit
- preparation by various types of wet abrasive blasting or water jetting
- chemical stripping
- hand or power tool cleaning.

Abrasive blasting produces the greatest level of dust and debris. The use of vacuum attachments on power tools can reduce dust generation. Water cleaning methods produce less debris, but generate run-off, which needs to be contained and treated.

Sample existing coatings for hazardous materials (e.g. lead) before starting to remove them. This can help determine the level of containment you will need. The level of containment needed depends on:

- the amount of paint to be removed
- the type and concentration of the hazardous materials
- the sensitivity of the surrounding environment.

5.3 Surface cleaning

You should avoid using grit blasting with slag-derived grit as they can contain significant levels of heavy metals such as copper. These can be toxic if they get into the water environment. Reduce the potential for contamination by using garnet, low silica abrasive or recycled glass media with vacuum attachments.

5.4 Painting

The advice for painting is similar for paint removal although the volume of waste and size of operations will be less. Remove dust and debris by sweeping or vacuum cleaning before painting. Paints can be applied on-site using brush, conventional spray or airless spray. Consider using electrostatic spray units to reduce the loss of product by over-spraying.

Carefully consider the type of paint you use. Although water based solvent-free paints have lower environmental impact they may require more frequent application. Solvent-based paints could have a higher environmental impact but will last longer and require less maintenance. The decision to use water or solvent-based paints should be based on the environmental sensitivity of the surrounding environment and ease of access to the structure. All waste paints should be disposed of at an appropriately authorised waste facility. Washings from paint brushes and containers must not enter surface water drains (e.g. roof gullies, road drains) as these may drain to the local water environment.



Bridge maintenance (courtesy of SEPA)

Section 6: Pesticide use

Pesticides are used for controlling pests (these include: insecticides; molluscicides; and acaricides), weeds (herbicides) and diseases (fungicides). They are all required to have information on the product labels to explain how and where they can be used.

You should always consider alternative ways of controlling pests and weeds in or near water. If you decide to use a pesticide in or near water, you will need approval from the environmental regulator before use. Safe and correct application of pesticide is required to protect the environment and water supplies. Only pesticides approved for use in or near water may be used, and only by competent persons holding a Health and Safety Executive (HSE) recognised specified certificate for pesticide use (or under the direct supervision of a certificate holder). The sprayer/operator must comply with the herbicide product label and meet all of its conditions.

You should contact the environmental regulator if you are considering aerial spraying.

You must also carry out a Control of Substances Hazardous to Health (COSHH) assessment for any activities that involve pesticides.

You must make sure that your pesticide application equipment is tested at least once by 26 November 2016 unless it is less than 5 years old on that date and at regular intervals thereafter. Knapsacks and handheld sprayers are exempt from the requirement to pass inspection. All equipment must be calibrated on a regular basis.

Equipment which is less than 5 years old on 26 November 2016 must be tested before it becomes 5 years old.

After the 26 November 2016, ongoing testing intervals vary depending on the type of applicator. The following types of equipment must be inspected at intervals of no more than 5 years between 2016 and 2020 and at intervals of no more than 3 years after 2020:

- boom sprayers greater than 3m
- sprayers attached to trains or aircraft
- air assisted broadcast sprayers.

Equipment that represents a very low scale of use, including those not used for spraying pesticides, will be subject to a maximum inspection interval of 6 years. This equipment type must be inspected once by 26 November 2016 (unless it is less than 5 years old on that date) and at intervals of no more than 6 years thereafter. A complete list of these equipment types is maintained within the National Action Plan for the Sustainable Use of Pesticides, see Reference 12.

Further information is also available from the 'Using Pesticides' guidance pages and the 'Code of Practice for using Plant Protection Products' on the HSE website (see website list).

Section 7: Invasive Non-Native Species (INNS)

An invasive non-native species is any non-native animal or plant that has the ability to spread causing damage to the environment, the economy, our health and the way we live.

Common examples include:



Japanese Knotweed



Himalayan Balsam



Giant Hogweed



Asian Clam



Floating Pennywort

Common INNS (images courtesy of GBNNSS)

The regulations differ between countries, however in general:

- In **England, Wales** and **Northern Ireland** it is an offence to plant or cause to grow in the wild certain listed invasive non-native species.
- In **Scotland**, it is an offence to plant or cause **any** non-native plant species to grow in the wild.

You should take the necessary steps to eliminate the risk of transferring water and soil potentially containing plant or animal diseases, or invasive non-native species, to or from the development site. If plant material is removed from site, it can only be transported by registered waste carriers and disposed of at appropriately authorised waste sites. The environmental regulator has a public register which holds this information. In **Scotland** and **Northern Ireland** you can visit the 'Find my nearest waste site' pages on the NetRegs website (see website list) in **Wales** see Reference 13.

Any pumps and associated pipework used should be:

- emptied, thoroughly cleaned using a disinfectant approved for aquatic use, rinse thoroughly without allowing the cleaning water to enter the main drainage system (and preferably dried) before it is taken to a site and again before being removed from it.
- positioned to avoid placing the inlet pipe amongst water plants
- positioned with the inlet just below the water's surface, rather than on the bed of the water body.

To help minimise the risk of spreading INNS, any equipment or plant needs to be cleaned and dried before it is taken to a site and again before being removed from it.

In **Wales** further INNS information, including leaflets on different species is available through the Welsh Government INNS website pages (see website list).

In **Northern Ireland**, wildlife crime is reported to the Police Service Northern Ireland (see Reference 14). All sightings of INNS should be submitted through the CEDaR online submissions portal (see website list).



Use the GB Non Native Species Secretariat website (See website list) which has the latest INNS good practice information including:

- ***a short e-learning training module to provide a basic understanding of INNS, the risks and what to do***
- ***more specific biosecurity advice***
- ***and further Be Plantwise and Check, Clean, Dry information.***

You should also make yourself familiar with the GB NNSS advice on:

- ***high priority alert species***
- ***how to report any suspected INNS sightings***

Section 8: Waste management

Legal waste storage and disposal are essential for effective pollution prevention.

Under the Duty of Care legislation (see Reference 15) you have a legal duty to make sure any waste you produce does not escape from your control. Waste must be transferred to an authorised, registered or exempt waste carrier or waste manager. It must be accompanied by a full description of the waste and a Waste Transfer Note and be disposed of lawfully. You should check on the proposed destination and ensure the site is authorised to receive the waste.

In **Scotland** and **Wales** you must separate dry recyclable materials such as paper, card, glass, metals and plastics. These must be collected separately from other wastes and managed in such a manner as to allow high quality recycling. In **Wales** see Reference 16

Some types of waste, called 'hazardous wastes' or in Scotland, 'special wastes', such as oily wastes, acids, solvents and solvent-based products are very harmful to human health or to the environment. When dealing with hazardous/special wastes:

- you must store, handle and dispose of these differently to non-hazardous wastes
- you must not mix different types of hazardous or special wastes together
- if you mix hazardous or special wastes with non-hazardous wastes then you must consider everything as hazardous or special waste
- the movement of hazardous/special wastes must be accompanied by a consignment note. Everyone involved in the transfer of the waste, including your environmental regulator, must keep copies of the consignment notes for proof of legal disposal.

In **Wales** any premises that produces less than 500kg of hazardous waste in a 12 month period is exempt from registering. However hazardous waste moved from an exempt premises must still be covered by a Hazardous Waste Consignment Note. The unique consignment note code will show that the waste has come from an exempt premises. NRW have published advice that lists certain types of premises that do not need to register (see Reference 13). These exceptions only apply in certain circumstances. You should read the advice to ensure that it applies to your premises and activity. See Reference 17 for information on how to register as a hazardous waste premises.

Consider the security of your premises too - any waste dumped on your property becomes your responsibility to remove which will cost you money.

If you are located in **Scotland** or **Northern Ireland** you can find out how these waste regulations affect your site. Check the guidance by Environmental Topic section of the NetRegs website (see website list) for information on waste legislation and how you can comply.

If you are located in **Wales** you can find out how waste regulations affect you by visiting the NRW website, (see website list).

To help maximise reuse and recycling and also minimise disposal of waste, it's useful to draw up a Project Waste Management Plan or a Resource Management Plan taking into account the waste hierarchy of prevention, preparing for re-use, recycling and other recovery and disposal.

Project Waste Management Plan checklist

- Carry out a waste minimisation audit to identify where you can reduce the volume of waste you produce
- Reuse materials or use products that can be reused many times
- Substitute materials for less hazardous ones – e.g. biodegradable lubricants and water based paints
- Recycle waste where possible
- Segregate different wastes for recycling, hazardous waste and general waste and label them. Do not mix or dilute hazardous wastes - In **Scotland**, you must separate dry recyclable materials such as paper, card, glass, metals and plastics. These must be collected separately from other wastes and managed in such a manner as to allow high quality recycling
- Store waste in suitable containers of sufficient capacity to avoid loss, overflow or spillage
- Store waste in designated areas, isolated completely from surface water drains, outside the floodplain and areas which discharge directly to the water environment
- Cover or enclose skips unless they are stored undercover or within a building
- Take waste off your site frequently; do not allow large quantities to accumulate.

Section 9: Incident response

Incident Hotline Numbers:

In **Scotland, Northern Ireland and England** call:

0800 80 70 60

(24 hour service)

In **Wales** call:

0300 065 3000

(Press 1 for 24 hour service)

You should immediately report any environmental incidents by calling the Incident Hotline for your country.

Incidents can include spillages (e.g. from oils and chemicals), contaminated surface water run-off, flooding, riverbed disturbance, damage to underground services, damage to habitats and poor waste disposal and storage. If in doubt, report it.

You should produce an Incident Response Plan as part of the environmental impact management of your work. Include the following:

- site risks
- list of key external and internal contacts (include your environmental regulator, Local Authority, Fire Service)
- reporting procedures
- site plan including drainage and location of storage/refuelling areas
- list of stored materials
- details of local environmental sensitivities e.g. abstractors, high amenity areas and fish farms
- location of spill equipment
- procedures for spill containment and remediation

Train your staff and contractors in the use of spill equipment and how to manage and dispose of waste materials legally.

If you are using oils and chemicals in close proximity to the water environment, store a suitable spill kit or absorbent materials nearby. Provide appropriate temporary storage for any oils and chemicals. Contain all spillages using absorbents such as sand, soil or commercially available booms or pads and notify the environmental regulator immediately, using the Incident Hotline numbers above.

Appendix A: Types of formal approval

| | Water discharge | Working close to water | Designated sites and protected species | Other |
|-------------------------|---|--|--|---|
| Northern Ireland | If you want to discharge any of the following: trade or sewage effluent; or other poisonous, noxious or polluting substance into a waterway or water contained in any underground strata you must have approval from the Northern Ireland Environment Agency (NIEA), see website list | You must have consent from the Rivers Agency before you place structures in any waterway that could affect its drainage. Contact your local Rivers Agency office for further information, see website list | <p>Authorisation may be required for works within designated sites such as Sites of Special Scientific Interest – contact NIEA to check.</p> <p>European Protected Species of animals, their breeding sites and resting places, are protected against disturbance and harm. Check the NIEA website for more information and details on how to apply for a licence.</p> | <p>Planning permission – contact your Local Planning Authority.</p> <p>Trade Effluent Consent for discharging to public foul/combined sewer – contact your water and sewerage company to apply/discuss.</p> <p>If you plan to use herbicides to control weeds you may need authorisation from NIEA - see NIEA website.</p> <p>Other approvals may be needed depending on the site's specific environmental sensitivities – contact NIEA to check.</p> |
| Scotland | <p>Depending on the activity being carried out you may require authorisation from SEPA under the Controlled Activity Regulations (CAR).</p> <p>The level of authorisation required is dependent on the effect that the activity will have on the water environment. The levels of authorisation are as follows:</p> <ul style="list-style-type: none"> • General Binding Rules (GBRs) provide statutory controls over certain low risk activities • Registration is intended to cover low risk activities which cumulatively pose a risk to the water environment | | <p>Scottish Natural Heritage (SNH) is the conservation body for Scotland.</p> <p>Permission will be required for works on designated sites such as Sites of Scientific Interest (SSSI) or Special Area of Conservation (SAC). Contact SNH for further</p> | <p>Planning permission – contact your Local Planning Authority.</p> <p>Trade Effluent Consent for discharging to public foul/combined sewer – contact your water and sewerage company to apply/discuss.</p> |

| | | | | |
|---------------------|--|---|---|---|
| | <ul style="list-style-type: none"> • A licence is needed if site-specific controls are required, particularly if constraints upon the activity are to be imposed <p>Please contact SEPA to discuss, see website list.</p> <p>Also read reference 1 for more details.</p> | | <p>details, see website list.</p> <p>European Protected Species of animals, their breeding sites and resting places, are protected against disturbance and harm. Contact SNH for details on licencing.</p> | <p>If you plan to use herbicides to control weeds you may need authorisation from SEPA - see SEPA website.</p> <p>Other approvals may be needed depending on the site's specific environmental sensitivities – contact SEPA to check.</p> |
| <p>Wales</p> | <p>An Environmental Permit for Water Discharge may be required if you carry out a water discharge.</p> <p>Discharges of clean, uncontaminated water from e.g. excavations, do not need approval providing the discharge is temporary (less than 3 consecutive months) and the advice in this GPP is followed.</p> <p>Contact NRW to apply/discuss.</p> | <p>A Flood Risk Activity Permit may be required if works are being proposed in, over, under or adjacent to a Main River. Please check NRW's website for more information.</p> <p>If the watercourse is classed as an Ordinary Watercourse you will need to contact the relevant Local Authority to discuss whether a consent is required.</p> <p>See Reference 18 to find out whether your works are near a Main River or Ordinary Watercourse.</p> | <p>Assent or Consent may be required for works within designated sites, such as Sites of Special Scientific Interest – contact NRW to check.</p> <p>European Protected Species of animals, their breeding sites and resting places, are protected against disturbance and harm. Check the NRW website for more information and details on how to apply for a licence.</p> | <p>Planning permission – contact your Local Planning Authority.</p> <p>Trade Effluent Consent for discharging to public foul/combined sewer – contact your water and sewerage company to apply/discuss.</p> <p>If you plan to use herbicides to control weeds you may need to apply for an agreement – see NRW website.</p> <p>Other approvals may be needed depending on the site's specific environmental sensitivities – contact NRW to check.</p> |

Appendix B: Examples of site specific environmental hazards and sensitivities

| Environmental Sensitivities |
|--|
| Downstream water abstractors and users e.g. fish farms. |
| NOTE: In Northern Ireland, if the waterway or downstream of the works is of a fisheries interest it will have an impact on the level and frequency of engagement with the regulator. |
| High amenity areas |
| Designated bathing waters |
| Fish, especially in fish spawning season |
| Surface water drains |
| Designated sites e.g. Sites of Special Scientific Interest (SSSIs) |
| Protected species e.g. Otters |

| Environmental Hazards |
|----------------------------------|
| Silt laden water |
| Foul sewerage pipes |
| Oil or chemical pipelines |
| Mains water supply pipelines |
| High voltage fluid filled cables |

Glossary

| | |
|-----------------------------|---|
| Aerial spraying | Involves spraying crops or plants with plant protection products from an aircraft. |
| Aquatic life | Animal or plant that lives or grows in water. |
| Biosecurity | Measures that are taken to stop the spread or introduction of harmful organisms to human, animal or plant life. |
| By-pass channels | A channel created to divert water from the main channel. |
| Catchment | The area drained by a river or body of water. |
| Clean, uncontaminated water | Water which is free from any contamination, for example uncontaminated could include rainwater directly from roofs. Even if the water looks clear it may still be contaminated with e.g. chemicals, so it is essential the sources of runoff are considered carefully when checking whether water is contaminated or not. |
| Coffer dams | A watertight enclosure pumped dry to permit construction work below the water line. |
| Combined drains/sewers | Sewers or drains that collect both foul sewage and surface water run-off and carries it safely to a sewage treatment facility. Either owned privately or by the local water and sewerage provider. |
| Containment | The action of keeping something harmful under control or within limits |
| Culverts | A covered channel or pipe designed to prevent the obstruction of a watercourse or drainage path by an artificial construction e.g. a road crossing, highway embankment etc. |
| Cut-off walls | A wall of impervious material built to reduce seepage. |
| De-silt | Removal of silt. |
| Dewatering | Removing groundwater or surface water from a construction site. |
| Discharge | Release of water into the water environment or drainage/sewer systems. |
| Dredging | The removal or redistribution of any sand, silt, ballast, clay, gravel or other materials from or off the bed of a watercourse. Generally results in channel deepening and/or widening. |
| Duty of Care | A legal obligation to take reasonable care and avoid causing damage. |

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|-------------------------------|---|
| Environmental Management Plan | A document describing potential environmental impacts and activities of a project/site and ways to manage and mitigate these. |
| Flocculants | A substance which promotes the clumping of particles/sediments. |
| Ford rivers | Crossing a body of water at a shallow point on foot or in a vehicle |
| Formal approval | In this document refers to the authorisation(s) you may need from the environmental regulator. They may be called a consent, licence or permit. |
| Groundwater | All water which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil. |
| Habitat | Specific area or environment in which a particular type of plant or animal, or group of plants or animals, live |
| Hazardous material | Hazardous materials are those with toxic properties that damage the environment and / or affect human health |
| Hazardous waste | Waste that is harmful to human health or the environment. For specific legal definitions including special waste in Scotland. |
| Herbicide | Commonly known as weed killers. It is substance used to control/destroy unwanted plants. |
| Impermeable | A surface or material that liquid cannot pass through. |
| Impervious | A surface that cannot be penetrated. |
| Karstic sinkhole | A depression in the ground that has no natural external surface drainage |
| Lagoon | An artificial pool for the treatment or storage of water. |
| Organism | An individual living thing. |
| Overland flow | Also known as run-off. Water flow over the ground surface to the drainage system or direct to watercourse. This occurs if the ground is impermeable, is saturated or if rainfall is particularly intense. |
| Pesticide | A substance used to control/destroy insects or other harmful organisms to cultivated plants or to animals. |
| Polluter Pays Principle | Principle in law that ensures that the party responsible for pollution should pay for damage caused to the environment. |

| | |
|-----------------------|---|
| Remediation | The act of remedying, reversing or stopping environmental damage. |
| Rock outcrop | A rock formation that appears above the surface of the surrounding land. |
| Run-off | Also known as overland flow. Water flow over the ground surface to the drainage system or direct to watercourse. This occurs if the ground is impermeable, is saturated or if rainfall is particularly intense. |
| Scour | Erosion of the channel banks and bed due to excessive velocity of the flow. |
| Secondary containment | This is another container in which a primary container is located. It is impermeable to the product being stored and water, and designed to catch spills, leaks or overflows from the container (including its pipework and equipment) in everyday use, accidents and emergencies. Secondary containment is essential to prevent pollution. Bunds and drip trays are examples of secondary containment. |
| Sediment mobilisation | The transport or movement by water of insoluble particulate matter. |
| Soil stripping | Removal of the surface layer of the soil. |
| SuDS | Sustainable drainage systems are a sequence of management practices and control structures designed to drain surface water in a more sustainable way than conventional techniques. |
| Surface waters | Water bodies including rivers, lakes, lochs, loughs, reservoirs, ponds, streams, canals, ditches (including those that are temporarily dry), estuaries and coastal waters up to three miles offshore. Northern Ireland legislation defines these as 'waterways'. |
| Suspended solids | Small solid particles which remain in suspension in water. |
| Toe (slope/bank) | The lowest point on the bank/slope of any body of inland surface water where the bank meets the bed of the body of inland surface water. |
| Trade Effluent | Trade effluent is any liquid waste (effluent) discharged from premises being used for a business, trade or industry. |

References

1. SEPA (2016) The Water Environment (Controlled Activities) (Scotland) Regulations (as amended) A Practical Guide, Version 7.4. Available from the SEPA website
2. SEPA (2006) Prevention of Pollution from Civil Engineering Contracts: Special Requirements for Civil Engineering Contracts for the Prevention of Pollution, WAT-SG-31. Available from the SEPA website
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5. SEPA (2015) Silt Control Guidance: Preventing Pollution While Dredging. Available at <http://www.sepa.org.uk/media/153290/sepa-silt-control-guidance.pdf>
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13. NRW advice on types of premises that do not need to register as a hazardous waste premises. Available at <http://naturalresources.wales/media/1205/guidance-statement-premises-notification-for-the-hazardous-waste-regulations.pdf>
14. Watch out for wildlife crime. Available at www.wildlifecrimeni.org
15. Duty of Care Code of Practice guidance. Available at www.gov.uk/government/uploads/system/uploads/attachment_data/file/506917/waste-duty-care-code-practice-2016.pdf

16. Welsh Government Guidance on the Separate Collection of Waste Paper, Metal, Plastic and Glass Available at
http://gov.wales/topics/environmentcountryside/epq/waste_recycling/publication/guidance-on-the-separate-collection-of-waste-paper-metal-plastic-and-glass/?lang=en
17. Register a premises as a hazardous waste producer at:
<http://naturalresources.wales/apply-for-a-permit/waste/register-as-a-producer-of-hazardous-waste>
18. How to find out if a watercourse is a Main River or and Ordinary Watercourse.
Available at: <http://www.naturalresources.wales/our-evidence-and-reports/maps/flood-risk-map/?lang=en>
19. Section 2 (silt pollution) guidance:
 - a. Construction code of practice for the sustainable use of soils on construction sites. Available at www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites
 - b. Protecting our Water, Soil and Air A Code of Good Agricultural Practice for farmers, growers and land managers (CoGAP). Available at www.gov.uk/government/uploads/system/uploads/attachment_data/file/268691/pb13558-cogap-131223.pdf
 - c. UK Forestry Standard (UKFS) Guidelines on Forests and Soil. Available at <http://www.forestry.gov.uk/ukfs/soil>
 - d. UKFS Guidelines on Forests and Water. Available at www.forestry.gov.uk/ukfs/water

Website List

NetRegs - Guidance on environmental regulations for businesses in Scotland and Northern Ireland

www.netregs.org.uk

Scottish Environment Protection Agency (SEPA) website

www.sepa.org.uk

Natural Resource Wales

www.naturalresources.wales

Welsh Government

www.gov.wales

Department of Agriculture, Environment and Rural Affairs Northern Ireland

www.daera-ni.gov.uk

Sustainable Drainage System guidance for Wales

www.sudswales.com

Health and Safety Executive (HSE) - Using Storing and Disposing of Plant Protection Products

www.hse.gov.uk/pesticides/topics/using-pesticides.htm

GB Non-Native Species Secretariat

www.nonnativespecies.org

CEDaR Online Recording for INNS.

www2.habitats.org.uk/records/ISI

Scottish Natural Heritage (SNH)

www.snh.gov.uk

Chemicals Regulation Directorate (HSE)

www.hse.gov.uk/crd

Further information

For information about environmental compliance, or to report inconsistencies or inaccuracies in this guidance, visit www.netregs.org.uk.

You can view guidance on environmental regulations online at www.netregs.org.uk (for businesses in Scotland and Northern Ireland) and at <http://naturalresources.wales> (for businesses in Wales).

This guidance is issued by the Scottish Environment Protection Agency (SEPA), Northern Ireland Environment Agency (NIEA) and Natural Resources Wales (NRW).

This document is available at www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/.

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Useful contacts

Incident/Pollution hotline: Northern Ireland, Scotland and England

0800 80 70 60 (24-hour service)

Emergency hotline - Wales

0300 065 3000 (press 1 – 24-hour service)

Floodline – Wales, Scotland and England

0845 988 1188

Flooding incident line - Northern Ireland

0300 200 0100

Natural Resources Wales

Scottish Environment Protection Agency

Northern Ireland Environment Agency

www.naturalresourceswales.gov.uk

www.sepa.org.uk

www.daera-ni.gov.uk

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