Water Management

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1 Scope

This Standard sets out the process for managing water impacts, to ensure that the Water Environment associated with a project is identified, activities are designed, appropriate mitigation and control measures are implemented; and where there is the potential for the water environment to be impacted, activities are undertaken in a planned manner with appropriate assessment, monitoring and record keeping. The standard is to be implemented on all Morgan Sindall sites, depots and offices. This standard should be read in conjunction with the Environmental Management Plan (EMP).

For ease of use, the standard is laid out detailing requirements at each stage of a project. Although most relevant to that stage in the project, these requirements are applicable throughout a project's lifecycle.

2 Definitions

Controlled Waters: Rivers, streams, estuaries, canals, lakes, ponds, ditches and groundwater as far as the UK territorial limit.

Groundwater Source Protection Zones (SPZs)*:* An area of land surrounding a groundwater abstraction source, designated by the Environment Agency as requiring protection. Works within a SPZ may require special controls particularly around groundworks, dewatering and fuel/chemical storage.

Main Rivers/Ordinary Watercourses: A designation of watercourse which dictates which regulatory authority oversees relevant consents and permits.

Abstraction: To take water from Controlled Waters. This activity generally needs a Permit/Consent (Abstraction Licence) if the volume of water to be taken is over 20m3/day.

Discharge: The release of water into the environment which generally requires a Permit/Consent (Environmental Permit: Discharge Consent).

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Impoundment: Creating a structure within inland waters that can permanently or temporarily change the water level or flow. Impoundments require an Impoundment License and may include dams, weirs, fish passes, hydropower turbines, sluices, penstocks, culverts, lock gates, retaining walls, flumes, reservoir embankments or temporary diversions during construction work.

Dewatering: Controlling surface and groundwater ingress into excavations by pumping, either to locally to lower groundwater levels in the vicinity of the excavation or sump pumping to remove local accumulations of water. Dewatering is a combination of Abstraction and Discharge activities.

Flood Risk Activity: Any temporary or permanent works in, adjacent or near a Main River or Ordinary Watercourse, on or near a flood defence structure, in a flood plain or on /near a sea defence. Flood Risk activities generally require a Consent/Permit.

3 Compliance Obligations

The Water Environment in the UK is protected by numerous pieces of legislation in order to protect water resources, water quality and pollution, and flood defences.

There are many different pieces of legislation in place for this, including but not limited to;

- The Environmental Permitting Regulations 2010
- Water Resources Act 1991

Activities which may have an impact on the Water Environment if incorrectly managed include; site runoff, site drainage, site set up, working in or near watercourses, dewatering, directional drilling and use of bentonite, refuelling, oil and chemical storage, vehicle washing and maintenance (including wheel washes), works to sewerage pipes, wastewater disposal from site offices and other facilities, demolition, landscaping/maintenance, vegetation (herbicide use) management, storage of contaminated material, storage of spoil, concreting, de-chlorination of pipework and the storage and disposal of waste materials including road sweepings.

4 Our Responsibility

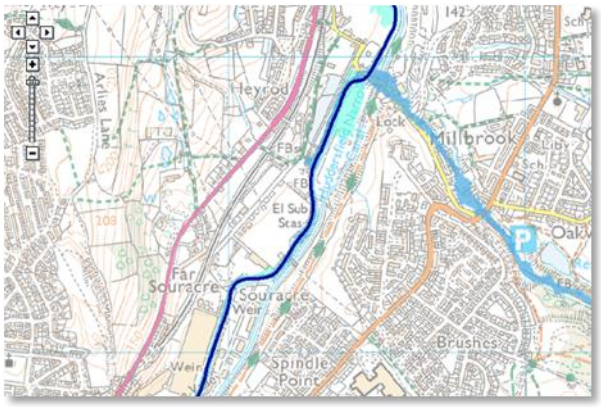
We have a legal responsibility to prevent impact to Controlled Waters through our temporary and permanent works. It is an offence to cause or knowingly permit an entry or discharge to groundwater or surface water, except under and to the extent authorised by an Environmental Permit.

Penalties for knowingly permitting pollution or causing adverse impacts are significant, involving prosecution, prison sentences and substantial fines. This could cause reputational damage and affect our ability to win work. In 2017, Thames Water were charged with a record fine of £20.3m after leaks of untreated sewage entered the Thames and its tributaries.

5 Pre-Contract

The pre-contract stage of a project must:

- Review customer and publicly available sources of information (eg EA Website, MAGIC, Google Maps) to identify Controlled Waters likely to be impacted by the project;
- Identify if surface waters or runoff will need to be managed;
- Evaluate if excavations will need to be dewatered and any Consent/Permit requirements;
- Obtain and review the site drainage plan to ascertain any engineered pathways to Controlled Waters;
- Understand what consents and permits are required;
- Agree water discharge locations and requirements; and
- Identify any Flood Risk Activities associated with the project.
- For Scottish Projects a Pollution Prevention Plan may need to be started during the pre-contract phase due to the long-time scales for acceptance by SEPA.



At pre-contract stage, you must decide which level of the Water Improvement Social Value Bank (E GUID 15) metric will be targeted.

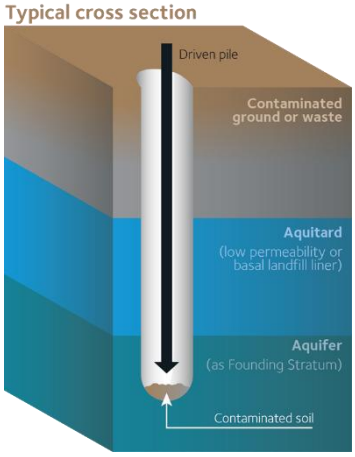
6 Design and Planning

Water Risks associated with the project shall be detailed within the Project Environmental Management Plan;

- Opportunities to design out risk should be identified, mitigated, or control measures implemented
- Environmental Permits/Consents for planned activities should be obtained. Please note that some of these can take several months to receive and applicability should be identified at an early stage in order to minimise programme delays; and
- A Water Management Plan will be produced where required.
- Designs are required for dewatering, in water working, crossings etc.
- There may be the requirement for a formal Flood Risk Assessment and / or Water Framework Directive Assessment.

Further items to consider:

- Land drains. Does the scheme require perimeter cut off drainage?
- Dewatering well points.
- Estuarine and saline intrusion issues.
- Nitrate sensitive areas.
- Ground water protection zones.
- Drinking water protection zones.
- New controlled water discharges.
- Pesticide use.
- Piling into aquifers.
- Mains water connections.



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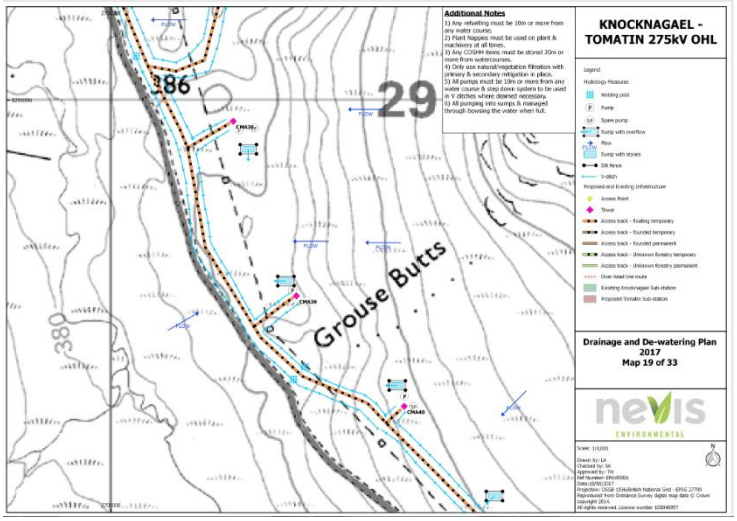
- Abstraction / dewatering design.

Some good examples of water management plans include:

Surface Water Management Plan.d

Surface water run-off plan 201704

These documents are available on Digest, on the Environment section.



7 Construction Phase

During site mobilisation, ensure the site is set up to protect Controlled Waters and any mitigation measures are implemented.

The Site Manager will communicate water management requirements, roles and responsibilities of the project via Induction, Toolbox Talks, Method Statement Briefings, as appropriate.

Where dewatering is planned:

- Deploy dewatering equipment in line with Consents, Permits or Exemptions held by the project;
- Issue site specific Permit to Pump before any dewatering activities are permitted;
- Undertake any testing, inspection and monitoring required and keep records in order to validate compliance with the permit/consent;

Where water exceeds permitted limits or contains silt, oil or pollution:

- Dewatering discharges will be stopped;
- Action will be taken to stop, rectify and notify in accordance with the site Emergency Plan.

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7.1 Silt Control

Good surface water management is essential to reduce the possible risk of silt run-off and for the protection of sensitive environmental receptors such as aquatic life in rivers, streams and lakes. Key areas on site that require protection may include:

- Haul roads and site compounds
- Entrances to drains
- River crossings
- Drainage channels
- Slopes

You must not pump silty water directly into rivers, ditches or surface water drains. You must ensure that it is only discharged into settlement systems. Regularly check that site drainage and settlement systems are working. If silty water is seen entering a watercourse or drain, you must stop work immediately and notify a line manager.

You must not store soil, stone or similar materials within 10 metres of watercourses or drains.

Ensure that all hard standings are kept clean – notify a line manager if an area is silty or covered in mud

You may consider installing cut-off trenches or silt fences to prevent silty surface runoff. It is best practice to retain vegetation cover, minimise soil stripping and establish new vegetation on bare ground at the earliest opportunity. This will reduce the risk of silt runoff.

7.2 Concrete Washout

Cement, concrete and grouts are highly alkaline and corrosive and can cause serious pollution to the ground and watercourses. Water wildlife, such as invertebrates and fish, are very sensitive to changes in pH (acid/alkaline) levels. Whereas oil in water is easy to see, changes in pH are not, so pollution can occur for some time before the extent of damage to wildlife is noticed.

Whether storing, making, mixing or using, take care with all works involving cement, concrete and grout. You must make suitable arrangements to deal with the wash-out of concrete from mixing plant, ready mix concrete lorries and tool and equipment washing to prevent pollution.

The washout from a concrete mixing plant and/or from cleaning ready-mix concrete lorries, is contaminated with cement and so is highly alkaline. You must not allow treated or untreated washing or wastes to enter into any drain, surface water or onto the ground without a permit/authorisation from the relevant body and/or the water company to do so.

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7.3 Essential Pollution Prevention

- Concrete and cement mixing must be:
  - Sited on an impermeable designated area
  - At least 10 metres away from a watercourse or surface water drain, to reduce the risk of run-off entering a watercourse.
- Surplus dry concrete, cement and grout should be used elsewhere on site if possible, or as inert rubble. You must ensure reuse on site is undertaken in line with waste regulations. If not reused, it will need to be disposed of as waste and by a registered waste carrier.
- Equipment, such as chutes, portable mixers, barrows, pump lines, shovels, should be washed out in a designated area that has been specifically designed to contain wet concrete/wash water.
- Concrete mixing and delivery lorries should return to the batching plant for washout.
- Excess concrete should be sent back to the batching plant. With design concrete this may not be possible, so you should build a designated area to allow the concrete to cure without polluting the ground or watercourses.
- Hardened residual concrete should be disposed of using the waste hierarchy.
- Store wash water to let them settle out and have re-circulation systems to reuse the water (e.g. for mixing and washing) to minimise the risk of pollution and reduce water use. The size of your site and amount of materials you use affects your choice of facilities. These range from sumps, specifically manufactured equipment, to a simple metal container. A lined and covered skip may be suitable for smaller sites providing it's in good condition (i.e. water tight) and solids are frequently reused, recycled or removed and disposed of correctly.
- Concrete washout areas should be:
  - Easily accessible for concrete wagons and situated as close as possible to pours
  - Stored in a secured lined pit or container

Some specialised sites will require concrete to be used in watercourses. Designs for these projects must specify suitable concrete mixes that minimise pollution. If working on a site under these circumstances, you must ensure that the concrete used is as specified and that required controls are defined and applied to your method of work, i.e. Method Statements.

Specialist equipment can be hired to capture and treat wash water generated from activities using concrete. This equipment will separate and dewater the waste concrete solids and then neutralise the high pH wash water down to limits set by the regulator. Please speak to your environmental /SHEQ advisor for advice on the best options available. If you do not have a treatment or re-circulation system in place for wash water:

- Discharge to the foul sewer (you must have prior permission from the local sewage provider for this) or
- Refer to E STD 07 – Waste Management for more information on Duty of Care checks and for authorised disposal off site by a registered waste carrier.

8 Completion, Handover & Records

- Permit to pump
- Monitoring and testing
- Inspections
- Consents (surrender)
- Consents reporting

9 Reference Documents

Source	Document Title
http://www.netregs.org.uk/media/1471/gpp4-20171114-online-v2.pdf	GPP 4: Treatment and disposal of wastewater where there is no connection to the public foul sewer
http://www.netregs.org.uk/media/1418/gpp-5-works-and-maintenance-in-or-near-water.pdf?utm_source=website&utm_medium=social&utm_campaign=GPP5%2027112017	GPP 5: Works and maintenance in or near water
http://www.netregs.org.uk/media/1477/gpp-20-publisher-pdf-version.pdf	GPP 20: Dewatering underground ducts and chambers