

## Water Resource Management



In today's environment, successful management of water resources is a priority for land managers. Good land management depends on adequate, reliable water supplies and the ability to control and manage water runoff. Soil Services can assist landholders and planning managers to develop and implement a long-term water management plan.

### Hydrological engineering

Soil Services is highly skilled in hydrology and water resource management. Our analysis incorporates all aspects of open channel hydraulics and hydrology – including types of flow, continuity, energy and momentum conservation, water surface profiles, hydraulic structures, water balances, groundwater, meteorology and climatology. We assess opportunities for the development of water resources, and then design and document a tailored water management strategy to suit your needs.

### Catchment management and control of runoff

We provide advice and assistance in the management of water catchments, water quality, and control of surface water flow. This includes the design and

implementation of water conservation works for waterways and flood routing to gully head stabilisation works. Soil Services also undertakes integrated catchment modelling to determine the most cost-effective measures to control sediment movement and provide stability.

### Detention ponds and artificial wetlands

Our expertise includes the survey, design, supervision and construction of sediment control ponds and artificial wetlands. These systems improve water quality, enhance erosion control, and provide habitats for wildlife.

### Channels, rivers and waterways

Soil Services has the experience and skills required to effectively assess and resolve issues with natural and artificial waterways. We provide advice and practical services to help you with:

- riverbank stabilisation;
- riverbed stabilisation;
- sediment transport in alluvial river systems;
- channel design;

- remediation of urban stream banks;
- loose rock channels and fishways;
- soft engineering solutions.

## Farm and water supply dams

Soil Services has particular expertise in farm water management, including surface water flow management, designing farm water reticulation schemes, and all aspects of farm dam construction. When located and constructed properly, farm dams greatly enhance the value and aesthetic appeal of any property, and are particularly useful in controlling erosion by:

- reducing flows by storing runoff;
- trapping sediment on site;
- blocking active gullies and diverting flows to a stable area; and
- drowning out active gully heads with stored water.

We ensure dams are located to maximise water storage by performing field and laboratory testing to determine whether the soil is suitable. We are skilled in dam and spillway design, ensuring that the right construction technique is used for each situation.

## Gully reclamation

Water flowing in a concentrated area – that is not sufficiently protected by permanent grass cover – can result in the formation of gullies. Soil Services can develop systems to safely divert flow, fill the gully and return it to productive pasture. Gully shaping and other aesthetic practices can be employed where filling is impractical or uneconomic. We can also design and implement a solution to shape the sides of a gully where it is too deep for filling to be practical, or if the gully still needs to carry water.

## Water sensitive urban design

Water supply and management is not just an issue for country areas. Soil Services provides advice for urban water management, including stormwater design, urban hydrology, and controlling water runoff in populated areas.

## Salinity planning and management

The issue of dryland salinity and rising water tables can lead to the loss of native vegetation, soil structure problems, soil erosion, and land degradation. In urban

situations building foundations and infrastructure can be severely impacted. Soil Services can provide an accurate land assessment and then develop an effective plan of management to address recharge and discharge areas and regenerate unproductive land.

## Want to find out more?

For more information on how we can help in the field of Water Resource Management, please contact your nearest Soil Services division area manager (below) or visit our website on [www.lands.nsw.gov.au](http://www.lands.nsw.gov.au)

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