



Environment and Heritage Expertise

Technical Guideline

# TG 0875.32 – Groundwater

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**Confidentiality:** OFFICIAL



**Government of  
South Australia**

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## Significant/major changes incorporated in this edition

Not applicable - this is the first edition of the Technical Guideline.


## Document controls

### Version history

Version	Date	Author	Comments
1.0	28 August 2025	Various	Issued for Use

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### Approvers

Approver Name	Approver Role	Signature
Tim Kildea	Manager Environment and Heritage Expertise	<div>17/09/2025</div> <div>X </div> <div>Tim Kildea Manager Environment and Heritage Expertise Signed by: KI000359</div>
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### Reviewers

Name	Role	Version	Review Date
Environment and Heritage Expertise Team	Team review of guidelines.	1.0	28-08-2025

# 1 Introduction

This guideline relates to the assessment and management of groundwater which may be encountered during a project's planning, construction, operations or maintenance activities.

It forms part of the TG 0875 - Environment and Heritage Technical Guidelines and is designed to provide insight into regulatory obligations associated with vegetation, as well as suggested approaches to manage risk.

Note the guideline is not exhaustive, and additional requirements may be necessary based on project- or site-specific activities, geographical location, or approval conditions.

## 1.1 Environment and Heritage Technical Guidelines Suite

The SAWG-ENV-0875 Environment and Heritage Technical Guidelines suite includes:

- TG 0875.00: General requirements
- TG 0875.11: Aboriginal heritage and Native Title
- TG 0875.12: Non-Aboriginal heritage
- TG 0875.21: Vegetation
- TG 0875.22: Fauna
- TG 0875.23: Weed hygiene
- TG 0875.24: Phytophthora
- TG 0875.31: Surface water
- **TG 0875.32: Groundwater (this guideline)**
- TG 0875.33: Recycled water
- TG 0875.34: Sediment, erosion and stormwater
- TG 0875.35: Dewatering, dredging and earthworks drainage
- TG 0875.41: Site contamination
- TG 0875.42: Acid sulfate soils
- TG 0875.43: Hazardous substances
- TG 0875.51: Dust
- TG 0875.52: Odour
- TG 0875.53: Noise and vibration
- TG 0875.61: Spoil management
- TG 0875.62: Recycling
- TG 0875.63: Waste management

This guideline must be read in conjunction with TG 0875.00: General requirements

## 1.2 General requirements

TG 0875.00: General requirements apply to all aspects of the work:

1. Purpose
2. Application
3. Scope
4. Statutory obligations
5. Strategic alignment
6. Terms and abbreviations

## 2 Groundwater

### 2.1 Overview

MANAGEMENT	
<b>Commitment</b>	Sustainable use and protection of groundwater resources will conserve and maintain groundwater quality and quantity for present and future needs. State, Cross-State and Federal legislation regulates the management of groundwater resources.
<b>Strategic objective</b>	<ul style="list-style-type: none"> <li>Environment Corporate Strategy:               <ul style="list-style-type: none"> <li>Our culture creates empowerment, increased accountability for environmental decisions and demonstrates proactive leadership.</li> </ul> </li> <li>Asset Management Corporate Strategy:               <ul style="list-style-type: none"> <li>An integrated approach enables the sustainability outcomes our customers, community and owner expect.</li> </ul> </li> </ul>
<b>Key Performance Indicator</b>	<ul style="list-style-type: none"> <li><b>KPI 1:</b> No adverse impacts to groundwater during investigation, construction, operations or maintenance activities.</li> <li><b>KPI 2:</b> Existing groundwater quality and quantity is maintained.</li> </ul>
<b>Legislation</b>	<ul style="list-style-type: none"> <li><a href="#">Biosecurity Act 2015 (Cth)</a></li> <li><a href="#">Biodiversity Act 2025 (SA)</a></li> <li><a href="#">Environment Protection (Water Quality) Policy 2015 (SA)</a></li> <li><a href="#">Environment Protection Act 1993 (SA)</a> – EP Act</li> <li><a href="#">Environment Protection and Biodiversity Conservation Act 1991 (Cth)</a></li> <li><a href="#">Landscape South Australia Act 2019 (SA)</a></li> <li><a href="#">Water Act 2007 (Cth)</a></li> <li><a href="#">Groundwater (Border Agreement) Act 1985 (SA)</a></li> </ul>
<b>Regulatory approvals</b>	<ul style="list-style-type: none"> <li>Well permit</li> <li>Water extraction licence</li> <li>Earthworks and Drainage licence</li> <li>Water Affecting Activity permit</li> <li>Approval to drain or discharge into a well</li> </ul>
<b>Statutory obligations</b>	<ul style="list-style-type: none"> <li><i>Environment Protection Act 1993 (SA)</i>, Section 25: A person must not undertake an activity that pollutes, or might pollute, the environment unless the person takes all reasonable and practicable measures to prevent or minimise any resulting environmental harm.</li> <li><i>Landscape South Australia Act 2019 (SA)</i>, Section 8: A person must act reasonably in relation to the management of natural resources within the State.</li> <li><i>Biodiversity Act 2025 (SA)</i>, Section 11: An entity must not undertake an activity that harms or has the potential to harm biodiversity unless the entity takes all reasonable and practicable measures to prevent or minimise any resulting harm.</li> </ul>



MANAGEMENT	
<b>Reference material</b>	<ul style="list-style-type: none"> <li>• TS 0222: Production Groundwater Bores and Submersible Pumps</li> <li>• <a href="#">EPA (SA): Water Quality Guideline 1093/21 - Environmental management of dewatering during construction activities guideline</a></li> <li>• <a href="#">EPA (SA): Guideline 3 – Establishing baseline groundwater quality</a></li> <li>• <a href="#">DH (WA): Materials, products and substances in contact with drinking water</a></li> </ul>
<b>Related guidelines</b>	<ul style="list-style-type: none"> <li>• TG 0875.35: Dewatering, dredging and earthworks drainage</li> <li>• TG 0875.41: Site contamination</li> </ul>

## 2.2 Planning and design

MITIGATION MEASURES	STAKEHOLDERS
<p>A preliminary assessment (desktop) must be undertaken to identify any potential groundwater interactions or groundwater quality or quantity risks and constraints such as:</p> <ul style="list-style-type: none"> <li>• Depth to groundwater.</li> <li>• Sensitive receptors, both anthropogenic (i.e. existing groundwater users) and environmental (i.e. Groundwater Dependent Ecosystems (GDEs)).</li> <li>• Groundwater prohibition areas or any EP Act section 83A notifications for contamination of underground water.</li> </ul>	<p>Environmental Officer Asset Planner Design Manager</p>
<p>Where an SA Water Town Water Supply (TWS) bore is proposed as part of the initiative, or may be potentially impacted by the initiative, SA Water's Water Futures and Security Team shall be engaged via the Manager Regional Water Security at the earliest possible stage, as this may guide the nature of investigations and testing required.</p>	<p>Environmental Officer Project Manager Manager, Regional Water Security (for TWS Bores)</p>
<p>Investigative (baseline) groundwater quality testing must be completed to determine the risk of contamination and inform disposal options. This testing should be included as part of geotechnical investigations.</p> <p>Sampling must be completed by a suitably qualified person and analysed by a NATA accredited laboratory.</p>	<p>Environmental Officer Project Manager Manager, Regional Water Security (for TWS Bores)</p>
<p>Where there is significant risk of intercepting a substantial volume of groundwater, a Detailed Hydrogeological Assessment (including groundwater modelling) may be required by a suitably qualified hydrogeologist.</p>	<p>Environmental Officer Project Manager Manager, Regional Water Security Design Manager</p>
<p>Recommendations of the Detailed Hydrogeological Assessment must be considered in the design, which may include modifications to the design or implementation of suitable control measures.</p>	<p>Design Manager Project Manager Environmental Officer</p>
<p>Potential groundwater impact minimisation options must be identified to influence options selection and decision making.</p>	<p>Design Manager Environmental Officer Project Manager</p>

MITIGATION MEASURES	STAKEHOLDERS
<p>Any and all groundwater-related approvals (see “Regulatory approvals” above) required for the investigation, planning or design of the initiative must be obtained.</p> <p>Responsibility for securing groundwater-related approvals is defined as:</p> <ol style="list-style-type: none"> <li>1. Capital project wells (including any associated with Managed Aquifer Recharge, salt interception schemes, brine injection bores, but excluding those associated with TWS well construction/monitoring) or geotechnical investigations – Environment and Heritage Expertise</li> <li>2. Town Water Supply (TWS) production bore drilling or monitoring bores to support TWS investigations - Water Futures &amp; Security (or Project Manager through written agreement supported by expert advice from Water Futures &amp; Security)</li> </ol>	<p>Environmental Officer Manager, Regional Water Security Project Manager</p>
Determine whether an EPA license may be required to manage any contamination risks, including appropriate disposal.	Environmental Officer Project Manager
For the drilling, plugging, backfilling or sealing of a groundwater well a well permit must be obtained from the Department for Environment and Water, under the Landscape SA Act.	Environmental Officer Project Manager

## 2.3 Construction

MITIGATION MEASURES	STAKEHOLDERS
If dewatering of groundwater is required, a Dewatering Management Plan or Earthworks Drainage Management Plan needs to be prepared. Refer to the Dewatering, Dredging and Earthworks Drainage Guideline.	Contractor
If use of groundwater is necessary for construction activities, relevant approvals must be obtained for the taking of groundwater.	Contractor
Implement spill prevention and controls measures i.e. access to spill kits, appropriately bunded refuelling areas to minimise potential impacts on groundwater.	Contractor
Use of routinely used proprietary products that have been approved for use in water production bores for example biodegradable drilling fluids, guar gum, bentonite etc should be used during groundwater well drilling works where required.	Contractor
<p>For the construction of groundwater wells, all drill cuttings must be contained onsite and where practical disposed of at an approved disposal location. All drilling muds must be contained in a mud tank.</p> <p>Where these wells are to be SA Water Production Bores, SA Water's Technical Standard TS0222 'Production Groundwater Bores and Submersible Pumps' shall be adhered to.</p>	Contractor
If onsite disposal is proposed the disposal site must be approved by SA Water and be located where it will not cause erosion, impact any watercourse, wetlands or native vegetation.	Contractor



MITIGATION MEASURES	STAKEHOLDERS
Ensure appropriate erosion controls should be in place to prevent erosion during bore drilling activities such as airlifting and pump testing.	Contractor

## 2.4 Monitoring requirements

DESCRIPTION	METRIC	FREQUENCY	ACCOUNTABILITY
Water quality monitoring	Water quality measurements	Continuous or as per agreed schedule	Contractor