



Environment and Heritage Expertise

Technical Guideline

TG 0875.42 – Acid sulfate soils

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**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
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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 management of acid sulfate soils (ASS) 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 dewatering, dredging and earthworks drainage, 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
- 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 (this guideline)**
- 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 Acid sulfate soils

2.1 Overview

MANAGEMENT	
Commitment	Avoiding and minimising the disturbance and exposure of acid sulfate soils to air through excavation or drainage activities reduces the risk of impacting freshwater and marine environments.
Strategic objective	<ul style="list-style-type: none"> Environment Corporate Strategy: <ul style="list-style-type: none"> Completion of preliminary assessments to determine the risk of encountering acid sulfate soils. Asset Management Corporate Strategy: <ul style="list-style-type: none"> An integrated approach enables the sustainability outcomes our customers, community and owner expect.
Key Performance Indicator	<ul style="list-style-type: none"> KPI 1: No site contamination incidents caused through project activities. KPI 2: Incident notification procedures embedded in management plans and construction plans. KPI 3: No adverse environmental impacts as a result of acid sulfate soil disturbance.
Legislation	<ul style="list-style-type: none"> Environment Protection (Water Quality) Policy 2015 (SA) Environment Protection Act 1993 (SA) Landscape South Australia Act 2019 (SA)
Regulatory approvals	<ul style="list-style-type: none"> None applicable
Statutory obligations	<ul style="list-style-type: none"> <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. <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.
Reference material	<ul style="list-style-type: none"> EPA (SA): Guideline 638/07 - Site contamination - acid sulfate soil materials University of Adelaide (Acid Sulfate Soils Centre): A Guide to Managing Acid Sulfate Soil Risks in South Australian River Murray Wetlands Water Quality Australia: Guidance for the dewatering of acid sulfate soils in shallow groundwater environments Water Quality Australia: Guidelines for the dredging of acid sulfate soil sediments and associated dredge spoil management Water Quality Australia: Overview and management of monosulfidic black ooze (MBO) accumulations in waterways and wetlands
Related guidelines	<ul style="list-style-type: none"> TG 0875.31: Surface water TG 0875.34: Sediment, erosion and stormwater TG 0875.35: Dewatering, dredging and earthworks drainage

2.2 Planning and design

MITIGATION MEASURES	STAKEHOLDERS
<p>Undertake a Preliminary Assessment to identify the potential for a site to contain actual Acid Sulfate Soils (ASS) or potential Acid Sulfate Soils (PASS) material, including shallow groundwater systems impacted by ASS/PASS if possible, using:</p> <ul style="list-style-type: none"> • South Australia Acid Sulfate Soil Map • Atlas of Australian Acid Sulfate Soils • NatureMaps <p>An ASS screening assessment must also be completed.</p>	<p>Environmental Officer Asset Planner</p>
Options to avoid and / or minimise impacting ASS must be identified through options selection and decision making.	<p>Environmental Officer Project Manager Design Manager</p>
Where there is a risk of disturbing ASS that requires further investigation, a Detailed Assessment may be required (which may include soil or water sampling). Assessments must be performed by a suitably qualified person.	<p>Environmental Officer Project Manager</p>
Where soil or water sampling for testing is required, the sampling must be undertaken by a suitably qualified person, with appropriate sample collection, sample storage and laboratory analysis methods for the determination of ASS.	<p>Environmental Officer Project Manager</p>
Where disturbance of ASS material is unavoidable, an Acid Sulfate Soil Management Plan must be developed in accordance with national and state-based requirements	<p>Environmental Officer Project Manager</p>
Preparation of any ASS Management Plan, including appropriate treatment, should be completed by a suitably qualified and experienced environmental consultant.	<p>Environmental Officer Project Manager Contractor</p>

2.3 Construction

MITIGATION MEASURES	STAKEHOLDERS
Any disturbed soil identified as exceeding the ASS soil trigger values is managed in accordance with the EPA Guidelines: Site Contamination – acid sulfate soil materials .	Contractor
Where disturbance of ASS material is anticipated, an Acid Sulfate Soil Management Plan must be developed in accordance with the EPA Guidelines: Site Contamination – acid sulfate soil materials . Preparation of any ASS Management Plan should be completed by a suitably qualified person.	Contractor
Implement Stop Work / Discovery Procedures / Unexpected Finds Protocols in the immediate vicinity of any suspected acid sulfate soils.	Contractor
The type and location of environmental management controls and devices to manage, mitigate and monitor ASS shall be detailed and maintained in an approved contractor environmental management plan.	Contractor

MITIGATION MEASURES	STAKEHOLDERS
<p>In the event unanticipated ASS materials are discovered or suspected, the following must be undertaken:</p> <ol style="list-style-type: none"> 1. Works must cease, and SA Water must be notified immediately 2. The environmental incident must be lodged in SA Water's SAAM system (Incident Management System) by SA Water <p>SA Water will then coordinate:</p> <ol style="list-style-type: none"> 3. Field screening tests in accordance with EPA Guidelines: Site Contamination – acid sulfate soil materials 4. Laboratory tests in the event ASS are identified from the screening tests 5. In the event ASS are identified from the laboratory testing, an ASS Management Plan must be developed 	Contractor

2.4 Monitoring requirements

DESCRIPTION	METRIC	FREQUENCY	ACCOUNTABILITY
Water quality monitoring results are below nominated trigger levels	pH	As required	Contractor
Movement and volume of any ASS must be tracked and reported	Volume	Per event	Contractor
Spill of ASS material outside storage or treatment areas must be reported	Volume	Per event	Contractor
Verification reporting for treated material, including records any neutralising agents/quantities, records or pre-disturbance sampling/leachate sampling etc.	Lab testing	As required	Contractor