

Acid Sulfate Soils and planning requirements

What are Acid Sulfate Soils?

Acid sulfate soils are a naturally occurring soil, containing iron sulfides, which formed many thousands of years when sea or brackish (salty) water mixed with sediments containing organic matter. The chemical reaction produced large quantities of iron sulfides, mostly iron pyrite (FeS₂), in the sediments. This process is part of the world's natural sulfur cycle.

Why can Acid Sulfate Soils be a problem?

When underwater these soils are stable and the sulfides do not cause a problem. However when the sulfides are exposed to air they form sulfuric acid. This acid can leach into the surrounding area and can cause severe environmental damage including loss of fish life.

Where are Acid Sulfate Soils found in Fairfield City?

In Fairfield the potential for acid sulfate soils has been identified mainly in the sediments in the lower reaches of Prospect and Cabramatta Creeks and in Lansvale in proximity of Chipping Norton Lakes.

These areas are highlighted on the Acid Sulfate Soils Map (see extract over page) associated with Fairfield LEP 2013.

Requirements under Fairfield Local Environmental Plan (LEP) 2013

Clause 6.1 - Acid sulfate soils of Fairfield LEP 2013 requires development consent for certain types of works on land containing acid sulfate soils detailed below.

Land affected in Fairfield City is shown on the LEP Map – Acid Sulphate soils and comprise Class 1, Class 3 and Class 5. Clause 6.1 specifies the types of works likely to present an environmental risk if undertaken as follows:

	Works
Class 1	Any Works
Class 3	Works beyond 1 metre below the natural ground surface. Works by which the water table is likely to be lowered beyond 1 metre below natural surface
Class 5	Works within 500 metres of adjacent Class 1 or 3 lands which are likely to lower the water table below 1 metre Australian Height Datum (AHD) in class 1 or 3.

If these types of works are proposed then further investigation is required to determine if acid sulfate soils are actually present or if the works are likely to lower the water table of the surrounding area.

Works on class 3 and 5 lands that have potential to lower the water table include drainage works, excavation for basement car parks, use of groundwater and the de-watering of dams, wetlands or quarries.

Mitigation Strategies

If acid sulfate soils are present on a site there are a number of ways of avoiding mitigating possible impacts:

- Avoid disturbing acid sulfate soils by not undertaking works where they are located
- Avoid works which are likely to lower the water table

- If the acid sulfate soils are to be disturbed manage the acid generation potential by neutralizing any acid produced (e.g. with lime) preventing acid water leaving the site; and use of acid resistant construction materials
- Avoid using acid sulfate soils for land formation – if the soils are present manage the acid generation potential before the material leaves the site from where it originates.
- Keep the acid sulfate soils below the permanent water table.

What if I want to develop land that has been identified as containing acid sulfate soils?

Acid sulfate soils are manageable. Development does however require that the constraints they pose are recognized and planned accordingly.

Fairfield LEP 2013 establishes a two-stage assessment of any proposed works:

Stage 1

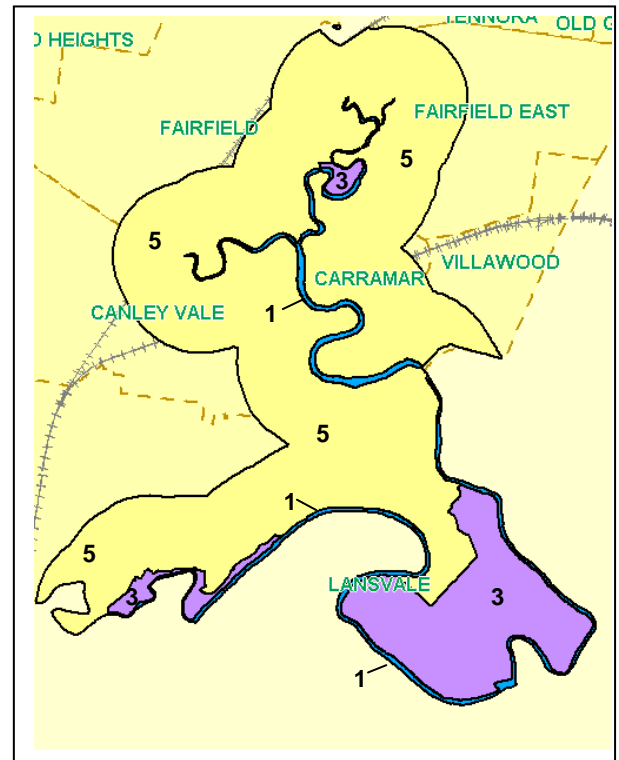
A person can either:

- Accept acid sulfate soils are present and prepare a development application and an acid sulfate soil management plan in accordance with the *Acid Sulfate Soils Assessment and Management Guidelines*, produced by the NSW Acid Sulfate Soils Management Advisory Committee (ASSMAC).
or
- Undertake a preliminary assessment to confirm whether an acid sulfate soils management plan is required.

Stage 2

- If acid sulfate soils are present then a development application needs to be submitted to Council it must include an acid sulfate soil management plan prepared in accordance with the *Acid Sulfate Soils Assessment and Management Guidelines*

Potential location of Acid Sulfate Soils in Fairfield City



- Class 1
- Class 3
- Class 5

IMPORTANT NOTE:

More detailed advice on whether or not a site contains acid sulfate soils can be obtained by requesting a section 149 Planning Certificate from Council.

A link is provided to the Fairfield LEP 2013 Acid Sulfate Soils Map on Council's website;
www.fairfieldcity.nsw.gov.au
under 'Planning & Building' 'Zoning Maps & LEPs'.

For further Information

If you require further information on this matter please contact Council's Customer Service Centre on 9725 0222.