

## Chapter 17

# Acid Sulfate Soils



## 17 Acid Sulfate Soils

This Chapter applies to land identified as Classes 1, 2, 3, 4 and 5 in the sheets of the *Acid Sulfate Soils Map* marked - "Lismore City Council Acid Sulfate Soil Planning Map"

**NOTE:** Land-use tables contained within Lismore Local Environmental Plan 2000 still apply. Although development consent may not be required within the land-use tables, consent may be required for other purposes as provided by Clause 28A of the Lismore Local Environmental Plan 2000. Applicants should contact Council's Planning and Development Group prior to commencing proposed works.

### 17.1 Objectives of this Chapter

1. To ensure effective management of areas affected by *acid sulfate soils*;
2. To provide guidance to landowners, consultants and the general community on the procedures involved in the management of areas affected by *acid sulfate soils*;
3. To ensure that activities located within an area of *acid sulfate soils* risk are identified;
4. To require a preliminary acid sulfate soil assessment be undertaken to clarify the extent of risk;
  - provide exceptions to the provisions for Council and County Councils for emergency works, routine maintenance and minor works;
  - to require, where necessary, an *acid sulfate soil management plan* to be prepared where the nature of development poses an acid sulfate soil risk.

### 17.2 Definitions

In this Chapter the following definitions apply:

*"acid sulfate soils"* means actual acid sulfate soils or potential acid sulfate soils.

*"Acid Sulfate Soils Planning Map"* means the series of sheets of the map prepared by the Department of Land and Water Conservation marked "Lismore Local Environmental Plan 2000 (Amendment No. 5) - Acid Sulfate Soil Planning Map" kept in the office of the Council;

*"actual acid sulfate soils"* are soils containing highly acidic soil horizons or layers resulting from the aeration of soil materials that are rich in iron sulfides, primarily sulfide. This oxidation produces hydrogen ions in excess of the sediment's capacity to neutralise the acidity resulting in soils of pH of 4 or less when measured in dry season conditions.

*"agricultural-related works"* means any farming or land management activities which will materially alter the shape or natural form of the land or which may alter groundwater levels and includes any of the following:

- drainage works;
- construction and maintenance of open drains;
- excavation works;
- extractive industries and mines;
- construction of dams, stock water holes, aquaculture ponds and the like;
- site levelling;
- flood mitigation works, including construction of levees (artificial waterbodies);

- topsoil removal and turf farming;
- laying of pipes, cables, conduits, etc;
- dewatering of wetlands, dams, and the like

**NOTE:** Definition does not include ploughing, scarifying, tiling or deep ripping (less than 30cm) below natural ground level.

“*council works*” means such works as are owned or controlled by Council.

“*county council*” has the meaning as in the Local Government Act 1993.

“*drain*” means man-made depression, ditch or channel deeper than 30cm, used to convey water from one area to another.

“*drainage management plan*” means a document that contains a full description of the management procedures to be applied to a site regarding existing drains and proposed drains. The Drainage Management Plan must comply with the requirements of the Acid Sulfate Soils Manual.

“*engineering works*” means works carried out under the supervision of a suitably qualified engineer and using equipment or plant. Such works may include any of the following:

- construction of roads, bridges, buildings, levees, dams, railways, drains
  - laying of pipes, cables or conduits
  - levelling of the ground
  - extractive industries and mines
  - dewatering of the ground
  - flood mitigation works
- or the like, and may include an agricultural-related work.

“*emergency work*” means the repair or replacement of any part of Council works or the works of a county council:

- a) because it has been (or is being) damaged by a natural disaster, an accident, an act of vandalism or a like occurrence, or
- b) because it has ceased to function or suddenly ceased to function adequately.

“*Environment Protection Authority’s Guidelines*” mean ‘*Environmental Guidelines: Assessing and Managing Acid Sulfate Soils*’, published by the New South Wales Environmental Protection Authority, as amended from time to time.

“*existing drains*” means a drain lawfully constructed prior to 26 August 1999 (being the date of exhibition of the Lismore Local Environmental Plan 2000 (Amendment No. 5)).

“*flood mitigation works*” means structural measures intended to reduce flood damage by either reducing flood levels or the lateral extent of flooding and includes any of the following:

- levees
- flood mitigation drains
- retarding or detention basins
- bypass floodways
- flood gates on drains
- channel improvement.

“*maintenance of existing drains*” refers to any works that will disturb or remove soil within existing drains.

“minor work” means new work effected by Council or a county council, but not drainage work, which has a value not greater than twenty thousand dollars (\$20,000)

“pH” refers to the scale of measurement for acidity or alkalinity. A pH of 7.0 denotes neutrality, higher values indicate increasing alkalinity, and lower values indicate increasing acidity.

“potential acid sulfate soils” are soils which contain iron sulfides or sulfidic material which have not been exposed to air and oxidised. The field pH of these soils in their undisturbed state is pH 4 or more and may be neutral or slightly alkaline.

“preliminary soils assessment” means a soil survey involving soil sampling and laboratory methods outlined in the *Acid Sulfate Soils Manual*.

“routine maintenance” means the periodic inspection, cleaning, repair and replacement of Council works or the works a county council, but does not include work that would result in an increase in the design capacity of any part of those works or necessitate the deepening of any existing works capacity, except where one (1) tonne, or less, of soil is disturbed.

“soil management plan” means a full description of the management procedures to be applied to a site. The Management Plan must comply with the requirements of the *Acid Sulfate Soils Manual*.

“the Plan” means the Lismore Local Environmental Plan 2000.

“works that may alter groundwater levels” means drainage works, ground water bores, wells, ground dewatering or the like on or adjacent to land containing acid sulfate soils which may lower the groundwater level in the general area.

## 17.3 Assessment

### 17.3.1 Local Environmental Plan - Acid Sulfate Soils Map

The Department of Natural resources has prepared, on behalf of Council, a series of sheets of the map marked “Lismore Acid Sulfate Soil Planning Map”. Clause 28A of Lismore Local Environmental Plan 2000 (clause inserted by Amendment No. 5), requires proponents to seek development consent for specific works in five principal land classes. The table below indicates where development consent will be required for each of the classes of land.

**Table 1 - Development Control Requirements**

Class	Development Control Requirements
1	Any Works.
2	Works below the natural ground surface Works by which the watertable is likely to be lowered.
3	Works beyond 1 metre below natural ground surface Works by which the watertable is likely to be lowered beyond 1 metre below natural ground surface.
4	Works beyond 2 metres below natural ground surface Works by which the watertable is likely to be lowered beyond 2 metres below natural ground surface.
5	Works within 500 metres of adjacent Class 1, 2, 3 or 4 land which are likely to lower the watertable below 1 metre AHD on adjacent Class 1, 2, 3 or 4 land.

In Table 1, “works” is defined in the Lismore Local Environmental Plan 2000 as:

- a) any disturbance of more than one (1) tonne of soil, such as occurs in carrying out agriculture, agricultural-related works, the construction or maintenance of drains, engineering works,

extractive industries, flood mitigation works, dredging, the construction of artificial water bodies (including canals, dams and detention basins) or foundations, or flood mitigation works, or

- b) any other works which may alter ground levels.

The onus is on the landowner, contractor and proponent proposing to undertake any works to check which class their land falls within and whether a Development Application is required under these or any other planning provisions. Land not classified on the *Acid Sulfate Soils Planning Map* may still require development consent in accordance with the land-use tables of the particular zone. Applicants are advised to check with Council's planning staff prior to commencing works to determine whether a development application is required.

### **17.3.2 What types of Development Require Council's Consent?**

The following activities, works, development and the like are subject to the need to obtain development consent if the land falls within Classes 1 - 5 inclusive and the relevant criteria are met:

- agriculture
- agricultural-related works
- flood mitigation works
- foundations
- works that may alter groundwater levels
- construction or maintenance of existing drains
- building and structures
- construction of roads
- aquaculture ponds
- sand and gravel extraction
- dewatering of dams, wetlands, or quarries
- land forming works
- engineering works
- construction of artificial waterbodies (including canals, dams and detention basins)

### **17.3.3 Public Authorities**

Generally, public authorities are exempt from requiring development consent for certain works under the provisions of Clause 35 of the *Environmental Planning and Assessment Model Provisions* 1980. Due to the environmental significance of Acid Sulfate Soils some of these provisions have been revoked, in Clause 28A(7) of the Lismore Local Environmental Plan 2000. Therefore, public authorities previously relying on items 2 and 11 of Schedule 1 to the 1980 Model Provisions will now require consent for earth works where that consent is required by Clause 28A of the Plan.

Notwithstanding Clause 28A(7), Clause 28A(8) of the Lismore Local Environmental Plan 2000 provides that the development may be carried out without the consent by Council or a County Council for the following works:

- a) development consisting of emergency works;
- b) development consisting of routine maintenance; and
- c) development consisting of minor works,

and development ancillary to that development, such as the carrying out of excavation work, the construction of accessways and the provision of power supplies.

Despite these works not requiring consent under Part 4 of the *Environmental Planning and Assessment Act* 1979, such activities may require assessment under Part 5 of the Act. In addition, Clause 28A(10) of the Lismore Local Environmental Plan 2000 requires that where a Council or

County Council encounters acid sulfate soils the Council or the County Council shall properly deal with those soils in accordance with the *Acid Sulfate Soils Management Guidelines* so as to minimise the actual or potential impact to the environment arising from disturbance to the soils.

#### **17.3.4 Development Application Procedures**

Table 2 provides a flow-diagram outlining the general procedure landowners, applicants and proponents will need to follow when proposing to undertake certain works within lands classed 1 - 5 inclusive on the acid sulfate soils map.

During the preparation of a soil assessment or management plan, applicants are advised to liaise with the local offices of the relevant State Government Agency:

Applications accompanied by copies of correspondence from the above agencies, which provide comments on the Soil Assessment or Management Plan, will be determined by Council more expeditiously than those applications not providing this information. Applications not accompanied by relevant advice will be referred to the relevant Departments for comment prior to consideration by Council.

#### **17.3.5 Soils Assessment and/or Soil Management Plan**

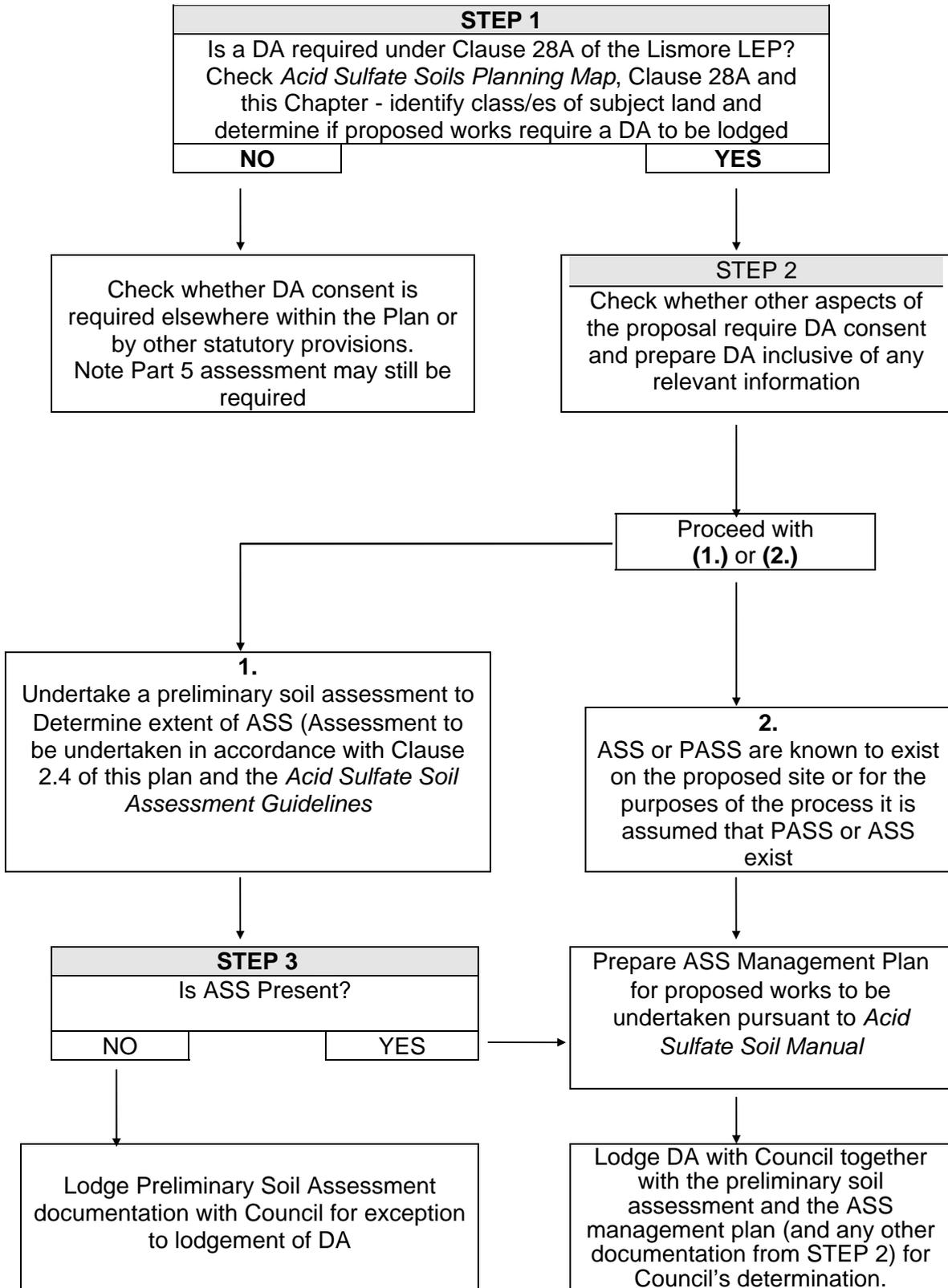
Where it is proposed to carry out any works requiring development consent under Clause 28A of the Plan, the application must be lodged with a preliminary soils assessment and/or soil management plan.

A preliminary soils assessment **must** be prepared by a suitably qualified person. The assessment must include the matters outlined in the Acid Sulfate Soils Manual prepared by the NSW Acid Sulfate Soil Management Advisory Committee, August 1998. As illustrated in Table 2, all applicants have the opportunity to assume that a proposed development site contains Acid Sulfate Soil and bypass the need to undertake a preliminary soils assessment. However, this will still necessitate a soil management plan to be undertaken.

#### **17.3.6 Joint Applications**

Where a development involves, or may impact upon, a number of properties in the one locality, Council encourages the proponents to prepare and lodge a joint Development Application for the proposed works and ongoing management. Examples where joint Development Applications would prove advantageous would be where a development may involve maintenance of new and/or existing drains that traverses two or more properties or where proposed flood mitigation works may impact upon a specific area.

**Table 2 - Development Application Process for Proposed Works within ASS and PASS**



ASS = Acid Sulfate Soils  
PASS = Potential Acid Sulfate Soils

### **17.3.7 Drainage Management Plans**

Where a property contains a series of drains or works that would require development consent for each individual section, the owner is encouraged to submit a drainage management plan for the whole property. This plan would form part of the Development Application. Such a management plan would cover all the drains on that specific property, including their maintenance and rehabilitation details, as needed.

Council encourages this approach by landowners as it promotes better overall management and provides Council with a more complete overview of the location, ongoing maintenance and interaction of such drains.

A property owner who has prepared a drainage management plan may also enter into a joint application, however, the applicant should be aware that in the case of a joint development consent any amendment to the drainage management plan would require the written support of each landowner involved in the consent.

### **17.3.8 Determination by Council**

In the case of a joint application or a drainage management plan Council will determine the application in accordance with the provisions of the Plan and this DCP. Where development consent is given, no further development application will be required for those works provided any ongoing maintenance and management is carried out in accordance with the terms and conditions of the consent. For example, if an approved drain is to be deepened, widened, extended, etc and the original consent did not allow for that work, then further development consent would be required. Likewise, if the applicant continued maintaining the drain in accordance with the consent, then no further application would be required.

An applicant working under a joint development consent or drainage management plan is encouraged to contact Council's Development Directorate if there is any question as to the terms and conditions of consent. New owners of land should also contact Council's Development Directorate regarding the terms and conditions of any development consent issued by Council and which apply to the property. When a property is bought or sold the consent stays with the property. The new owner must comply with the consent or where an amendment is sought, have support, in writing, of all the joint applicants.

### **17.3.9 Consultation**

Proponents, applicants and developers are advised to consult with the following government agencies when preparing a soil assessments or soil management plan.

When considering a Development Application, Council shall consult with:

1. the relevant State Government Agency - where no management plan is submitted unless written advice from the relevant State Government Agency is submitted with the application; or
2. the relevant State Government Agencies - where a management plan is submitted.
3. the relevant State Government Agency- where the development specifically relates to agricultural purposes which involves enhancing and/or maintaining agricultural production.

The matters on which the Departments shall be consulted are the adequacy of the soil assessment and/or management plan, the conclusions of those assessments and in the case of the relevant agricultural department, its likely impact on the agricultural production.

Council shall give Government agencies 21 days to respond to the consultation. If no response is forthcoming within that period Council may proceed to finalise assessment of the application. It should be noted that major applications may take longer than 28 days for a response from

Government Agencies. Minor applications may, at Council's discretion, be dealt with without consultation.

In deciding whether to grant consent to the application, Council shall take into consideration the likelihood of the development resulting in the oxidation of acid sulfate soils and the adequacy of any management plan having regard to any government department's comments.

## Bibliography

- Environment Protection Authority (June 1995). *Environmental Guidelines Assessing and Managing Acid Sulfate Soils*. EPA, Chatswood.
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- Hastings Shire Council (June 1997). *Development Control Plan No. 34 - Acid Sulfate Soils*. Hastings Shire Council, Port Macquarie.
- Richmond River Shire Council (February 1999). *Draft Development Control Plan No. 5 - Acid Sulfate Soils*. Richmond River Shire Council.
- Acid Sulfate Soil Management Advisory Commission (August 1998). *Acid Sulfate Soil Manual*. NSW State Government.