



Geology and Soils

Environment Effects Statement

An [Environment Effects Statement \(EES\)](#) is Victoria's most rigorous and transparent environmental impact assessment. It describes the project, its rationale, and potential environmental and social effects.

Scoping requirements

In February 2025, the Victorian Minister for Planning issued the final scoping requirements for the VNI West EES, setting out the proposed specific matters to be investigated and documented in the EES. While the scoping requirements are intended to cover all relevant matters, the EES can also address other significant matters that emerge during the EES investigations or through consultation.

Geology and contaminated land (catchment values and hydrology) scoping requirements

Geology and contaminated land is categorised under the catchment values and hydrology scoping requirements.

The requirements state that geology and contaminated land is a low priority for technical investigation due to the predominant historical agricultural land use across most of the project area. Although there is some potential for historical contaminating activities, these are generally well documented and can be effectively avoided. Similarly, the likelihood of encountering acid sulfate soils is limited, and any areas where these soils might be present can also be avoided.

Matters for investigation

Potential for disturbance of contaminated, saline, dispersive or acid sulfate soils.

Potential for erosion resulting from construction and operation due to vegetation loss or other factors.

Assessment overview

The contamination and acid sulfate soils assessment purpose is to investigate the potential environmental effects of the project works and operation on the existing environment with respect to exposure and disposal of contaminated or hazardous soils.

The assessment is based on a desktop assessment to understand the existing environment with respect to the current conditions and soils, the proposed construction, operation and maintenance of the project and therefore the potential pathways and sources of contamination and acid sulfate soils. Consideration includes pollution, contamination and risk to human health and the environment associated with the project's construction, operation and decommissioning.

Study methodology

Desktop research has incorporated:

- An assessment of the likelihood of contaminated land and groundwater, including a review of current aerial photographs to identify potential contaminating activities and land uses, and a review of publicly available Environment Protection Authority (EPA) Victoria information related to the study area (priority sites register, environmental audits, licensed sites, and landfill register).

Scan this QR code to view the complete list of [scoping requirements](#) for the VNI West project





- A preliminary hazard assessment in line with Stage A of the Victorian Best Practice Guidelines for Assessing and Managing Coastal acid sulfate soils 2010 (CASS BPMG). This stage helps determine the likelihood of acid sulfate soils in the study area and whether they are likely to be disturbed by construction. The assessment also involves reviewing proposed construction methods, acid sulfate soils maps, and geomorphic indicators such as regional geology, topography, surface water, and depth to groundwater.

In 2023, soil and groundwater samples were collected as part of a geotechnical assessment at the proposed Tragowel terminal station. The work involved taking soil samples at various depths (0.1 to 2.0 metres) using a hand auger and testing 34 samples from six boreholes. These were analysed for waste soil classification under EPA Victoria guidelines, potential contaminants including metals, herbicides, and pesticides, and pH indicators to assess the need for further acid sulfate soil testing.

Existing conditions

The study area for this technical report includes the project footprint where subsurface works may occur, typically within a 70–120-metre-wide easement.

The desktop contamination assessment found that past and current land uses in the study area present a low risk of environmental contamination. The land is mainly used for farming and as bushland or nature reserves. Some minor contamination could be found on farms, particularly around old sheep dips, sheds or quarries. Pesticides and herbicides may have also been used in farming zones.

Kerang Airfield, about 400 metres north of Laydown Area 3, was flagged as a potential (but unlikely) contamination source. Although there is no known history of Aqueous Film Forming Foam (AFFF) storage or use at the airfield, its proximity raises the possibility that PFAS could be present in shallow soils in that area.

The preliminary assessment for acid sulfate soils found that acid sulfate soils may be present in the Murray River and related features such as billabongs, lakes, swamps, and alluvial areas near rivers, creeks, and drainage channels. The extent of acid sulfate soils in the study area is unclear, so further assessment is needed to determine its presence and any required management measures (e.g. liming), particularly in areas mapped as having a high probability of acid sulfate soils.

Next steps

The assessment is ongoing and moving into the impact assessment phase. Based on the predominantly agricultural land use throughout the project easement, it is likely that mitigation measures will focus on managing any minor contamination which may be encountered during construction using well-established industry practices. It is considered possible that there may be very limited exposure to acid sulfate soils during construction which would be managed at the individual site using standard procedures.

Glossary

Liming

The process of adding calcium and magnesium-rich materials to the soil to reduce its acidity (increase its pH).

PFAS

PFAS are per- and polyfluoroalkyl substances, a group of over 4000 chemicals. Some PFAS are very effective at resisting heat, stains, grease and water, making them useful chemicals for a range of applications including:

- Stain and water protection for carpets, fabric, furniture, and apparel
- Paper coating (including for some food packaging)
- Metal plating
- Photographic materials
- Aviation hydraulic fluid
- Cosmetics and sunscreen
- Medical devices.

Because they are heat resistant and film-forming in water, some PFAS have also been used as very effective ingredients in fire-fighting foams.

Source: www.pfas.gov.au