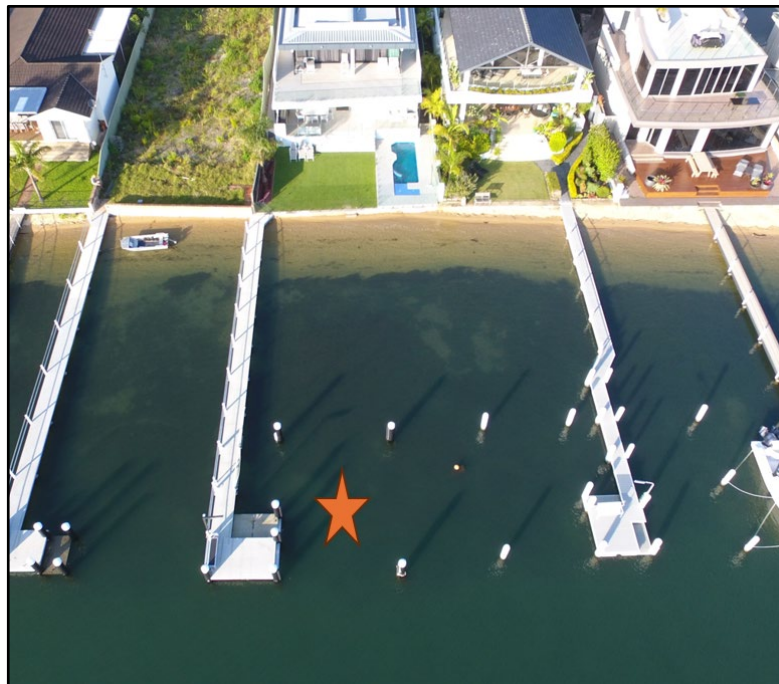




Preliminary Acid Sulfate Soil Assessment

154 Booker Bay Road, Booker Bay
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1. Preliminary Acid Sulfate Soil Assessment

1.1. Introduction

The owners of 154 Booker Bay Road, Booker Bay (the Site) are proposing to remove three existing unauthorised mooring piles. The piles are located below the Mean High-Water Mark (MHW) at the site. A concurrent application for a Building Information Certificate (BIC) will be made to retain an unauthorised jetty landing and the splayed end of the jetty near the foreshore.

Regarding the potential presence of Acid Sulphate Soils (ASS), the part of the site relevant to this application is below MHW and it is shown as containing Class 1 soil. This indicates a high probability that acid sulfate soil (ASS) could be present at the site.

This preliminary ASS assessment has been conducted by Copley Marine Group (CMG) in compliance with standard development application requirements for residential waterfront structures.

Clause 7.1 of the Central Coast Local Environmental Plan 2022 (CCLEP) ensures that development consent may only be granted if an Acid Sulfate Soils Management Plan accompanies the application. However, two variations to this are provided within the clause; firstly, that the requirement may be waived if a preliminary assessment has been carried out which concludes that a management plan would not be required, and secondly if the development would involve the removal of less than 1 tonne of soil and would not lower the water table.

This ASS preliminary assessment:

- considers the CCLEP, relevant mapping and guidelines relating to ASS;
- considers the proposed works and the potential of the disturbance that may require further management;
- outlines the mitigation measures that will be implemented to manage potential ASS;
- determines if an ASS Management Plan is required for the site, in accordance with the Acid Sulfate Soil Manual 1998, (*Acid Sulfate Soil Management Advisory Committee NSW ASSMAC 1998*).

1.2. Project Proposal

The proposed works are identified in **Figure 1** and include:

- Removal of three existing mooring piles

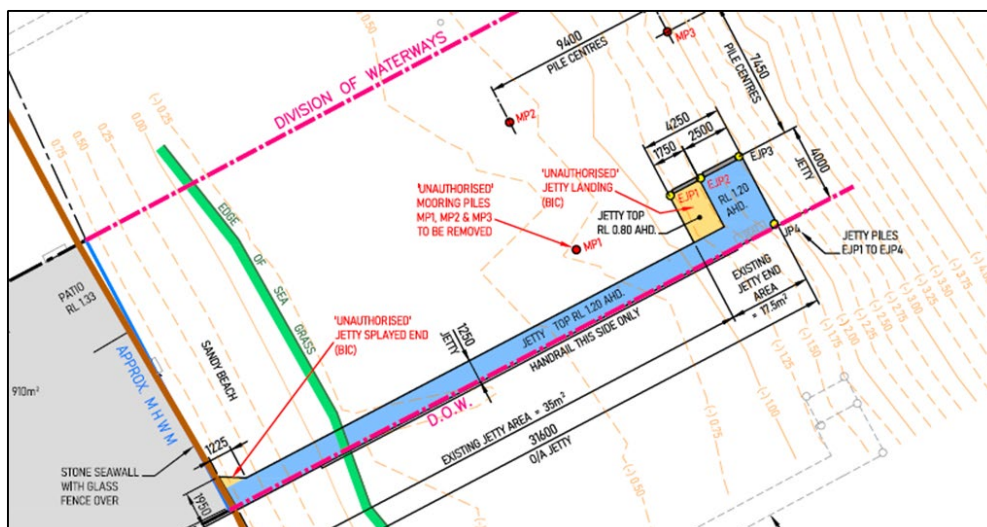


Figure 1 -existing and proposed structures

1.3. Planning controls and guidelines

The relevant planning controls and guidelines include:

- CCLEP;
- Acid Sulfate Soil Manual 1998 (Acid Sulfate Soil Management Advisory Committee NSW ASSMAC 1998); and
- Model Acid Sulfate Soils Local Environmental Plan 1999 (Model ASS LEP).

Under the CCLEP, demolition requires development consent.

The planning portal online mapping tool identifies potential ASS on the site (Class 1) which require further consideration in relation to the proposed works.

The Acid Sulfate Soil Manual (1998) notes that a preliminary assessment of the site should:

1. review the relevant planning instruments (section 1.3);
2. establish the nature of the proposed works – (refer to **sections 1.2 & 1.6**);
3. review information from contractors experienced in such works and take advice from acid sulfate expert consultants (throughout document);
4. establish whether ASS are present on the site and if they are in concentrations that warrant the preparation of an ASS Management Plan (refer to **sections 1.4 & 1.6**);
5. provide information to assist in designing a soil and water assessment program – if needed;
6. provide information to assist in decision making.

1.4. ASS Maps

Preliminary site investigations using the ‘Spatial Viewer’ online mapping tool identify the site below the MHWM as having soils with a high probability of ASS (coloured blue for Class 1 on **Figure 3**) below the MHWM. The works will occur within the Class 1 area.

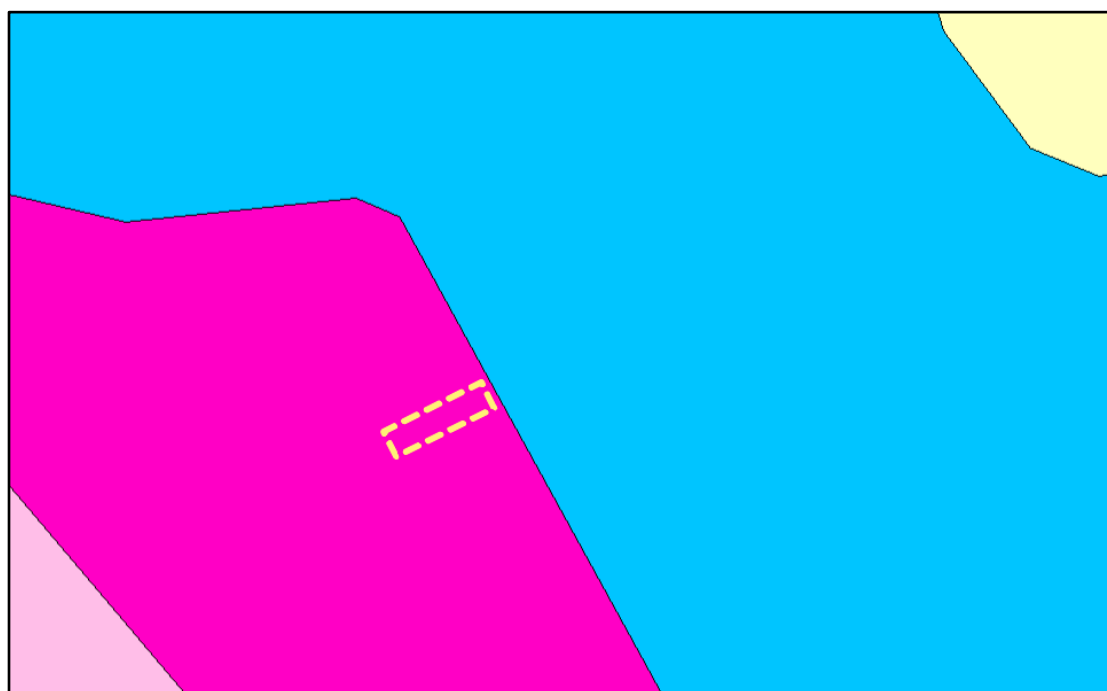


Figure 2- CCLEP Mapping

1.5. Understanding ASS

Acid sulfate soils (ASS) are naturally occurring soils rich in 'iron sulfides'. When disturbed and exposed to air, an oxidation process begins, leading to the production of sulfuric acid. This acid can leach into natural waterways, causing considerable environmental harm.

The activation of sulfuric acid formation requires the soil to be out of water and exposed to air. Studies suggest that the top layer (up to approximately 0.5 meters) of seabed sediments are saturated by oxygenated waters over time, due to natural ecological processes. This oxygenated upper layer minimises the potential risk of acid sulfate soil impacts.

Nevertheless, it remains crucial to adopt effective management strategies to safeguard the environment and ensure the sustainability of the proposal.

1.6. Works and Risk Analysis

The works are in a Class 1 area, identifying that there is a "high possibility" of ASS. The key risk associated with the proposal is the removal of the piles directly from Class 1 soils (in the seabed).

REMOVAL OF PILE

The piles will be pulled out by an excavator on a barge. During the pile removing, the very minimal sediment that is realised remains under water, resettling on the seabed quite quickly due to the natural compounds in the water of the area. Spoil will not be removed from the water and therefore not exposed to the air but may create temporary turbidity of the water. This turbidity will dissipate quickly but will be managed via the use of silt curtains.

As there will be no removal of soil from the water and any disturbance will further be controlled in water, there will be **minimal risk of any exposure** of the soil to the air to trigger any oxidation process and any formation of sulfuric acid.

The overall analysis returns a "**low**" **risk level** for any pollutants associated with ASS. The information provided in this report meet the provisions of CCLEP.

FURTHER CONCERNS

Responding to CCLEP section 7.1(6), the development would not involve the removal of more than 1 tonne of soil and would not lower the water table.

Construction works will have no material impact on the local water-table (intertidal or sub-tidal), either from the perspective of the level of the water-table or from the perspective of the balance of freshwater vs groundwater vs saline waters.

No other disturbance to the seabed area will be undertaken as part of this proposed development.

1.7. ASS - Mitigation Measures

As the project managing entity, CMG requires contractors under its project management banner to adhere to accepted best practise during all constructions works, as will be noted as part of the Construction Environmental Management Plan (CEMP) prepared for the issue of a Construction Certificate.

This best practise as outlined below, is the generally accepted best workable mitigation plan for pile removing:

- The use of specific barge mounted equipment;
- Undertaking works during mid-high tide if necessary, so that soil is not exposed to oxygen.

With these measures in place, the works are classified low risk in terms of the potential for ASS to be disturbed, exposed to the air and oxidised.

The environmental mitigations identified above will be implemented within the CEMP for the site to assist in limiting the disturbance of soil. As the proposal is low risk, a detailed ASS Management Plan is not required for the works.

1.8. Conclusion

This preliminary assessment has been conducted in compliance with clause 7.1 of the CCLEP and the Acid Sulfate Soils Manual 1998. The proposed works are situated in an area classified as Class 1 ASS on Councils ASS hazard map, necessitating an evaluation of potential risks and environmental impacts.

Due to the nature of the works, no soil will be removed from the water or exposed to air, which could initiate oxidation. While temporary turbidity in the water may occur, the works will be carried out individually, minimising disturbance volumes and ensuring careful management.

Measures outlined in the site CEMP will aim to further mitigate soil disturbance. The assessment concludes that potential ASS will not undergo oxidation; therefore, an ASS Management Plan is not required, as specified in the Acid Sulfate Soils Manual 1998. Furthermore, the works are considered to align with the objectives of clause 7.1 of the CCLEP, as the development will avoid disturbing, exposing, or draining ASS, thus preventing environmental harm.