
To	Frank Ianni	Date	11 February 2013
Copies		Reference number	
From	Arup	File reference	
Subject	AMP Precinct Acid Sulfate Soil planning update		

1 Introduction

This letter has been prepared in support of Section 3.2.6 of the *Multi-Disciplinary Engineering Services Planning Justification Report* for the proposed future redevelopment of the AMP Circular Quay Precinct (the Precinct) in relation to Acid Sulfate Soils (ASS).

The Precinct is located within Class 2 lands as described on City of Sydney Council's Acid Sulfate Soil Map Sydney LEP 2012. The Class 2 classification requires development consent for works below the natural ground surface to address potential contamination risks.

Acid Sulfate Soils pose a risk to the environment due to their potential to oxidise when excavated or disturbed, leading to potential pollution of land, surface waters or groundwater. Acid Sulfate Soils are naturally occurring in some estuarine and alluvial sediments including in many areas surrounding Sydney Harbour. Potential Acid Sulfate Soils (PASS) that are naturally occurring pose a risk only when disturbed or dewatered. There also exists a risk to uncover or dewater Actual Acid Sulfate Soils (AASS) which have been previously used as fill, and by doing so provide a new pathway for contamination.

2 Planning context

The current assessment guidelines for the management of ASS are provided in the NSW Acid Sulfate Soils Management Advisory Committee (ASSMAC) Guidelines (1998). These guidelines provide action criteria that would trigger the need to prepare an ASS management plan, based on percentage of oxidisable sulphur for broad categories of soil types and ASS risk maps. The guidelines also include detail of ASS treatments onsite, and ASS handling and disposal procedures. The ASSMAC Guidelines would be consulted during detailed design and post soil sampling to determine the need for an ASS management plan for the Precinct.

The proposal is made with reference to the Local Planning Directions for ASS, Section 117(2) of the *Environmental Planning and Assessment Act 1979*. While the site exists on land with high risk of ASS, the planning proposal does not require an intensification of land use on the site and any potential impact from ASS is likely to be manageable with the implementation of an ASS management

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plan if required. ASS is a potential construction related issue only and when managed appropriately would not impact upon the operation of the Precinct.

3 Soils and Geology

The topography of the site is sloping from south to north with elevation of approximately 15m AHD at Bridge Street. The 1:100,000 Geological Map of the Sydney Region indicates the Precinct is underlain by man-made fill, and variable extents of peaty quartz sands, silts, and clay. Soils are underlain by Hawkesbury Sandstone which is described as being a medium to coarse-grained quartz sandstone with very minor shale and laminate lenses. All existing structures on the site are expected to be based in intact sandstone, with the majority of any proposed future excavation to occur through this material.

A review of Acid Sulfate Soil risk maps on the Australian Soil Resource Information System (ASRIS) including a search of the National ASS Atlas includes no information for the immediate site. The Precinct is however located within Class 2 lands as described on City of Sydney Council's Acid Sulfate Soil Map *Sydney LEP 2012* and is classified as high risk for ASS.

In the event of any excavation of the existing ground surface (carpark entry points or landscaping for instance), thin layers of soil or fill are likely to be uncovered. The potential uncovering of ASS would be limited to these surface and near surface works.

4 Groundwater

Groundwater quality across the site could potentially be influenced by ASS where disturbed on site or other sites in the region.

A detailed groundwater assessment has not been undertaken onsite at this stage and future groundwater assessment will require a series of groundwater sampling wells to be installed.

If groundwater contamination is identified, or potential contaminating processes such as ASS removal or treatment is required, a Groundwater Management Plan should be prepared to manage groundwater during a dewatering process.

5 Conclusion

ASS is a potential construction related issue and would not impact upon the final use of the site where managed appropriately during construction. The risk of significant quantities of PASS being uncovered by proposed works at the Precinct is expected to be low due to the types of excavation required (predominantly through sandstone), the sloping topography and the extensive history of previous excavation and development on the site. However due to the harbour front location there is the possibility of AASS being present in any harbour sediments that may have been used as fill on the site. A process for identifying PASS and AASS would be undertaken prior to and as part of any redevelopment, and if identified should be managed in accordance with an ASS management plan to minimise the risk of acid generation. Identified ASS should also be treated prior to disposal off-site.