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Addendum to Acid Sulfate Soils Assessment

MP06_0034

Preferred Project Report

Department of Planning issue no.11

Proposed Tourist and Commercial Development
Goodnight Island and Greenwell Point

ENVIRONMENTAL

WATER

WASTEWATER

GEOTECHNICAL

CIVIL

PROJECT MANAGEMENT

P0601331JC07_v2
June 2009

INTRODUCTION

Martens & Associates Pty Ltd (Martens) were briefed to respond to key issue number 11, in the Department of Planning (DoP) report dated 17 December 2008 for the proposed Tourist and Commercial Development at Goodnight Island and Greenwell Point.

This report will form part of the Preferred Project Report (PPR) as an addendum to the Acid Sulfate Soils Assessment (P0601331JR01_v1, March 2007) carried out by Martens.

Under Point 11, DoP have requested that '*additional acid sulfate soils (ASS) information is required for areas of Goodnight Island not covered in the original report produced by Martens and Associates (MA) (report P0601331JR01_v1, March 2007). These areas are specifically listed as: under bore, bird hide, marina, relocation of the vehicle punt, other jetties on the southern side of the island and other structures that may impact ASS not included in the original report*'.

Subsequently, our response to the information request letter is provided in the following sections.

SUMMARY OF PREVIOUS REPORT

A preliminary ASS assessment was conducted by MA on Goodnight Island, which involved a geomorphic assessment as well as sub-surface investigations and lab testing. Whilst sub-surface investigations were conducted across the entire island, 8 samples from 2 boreholes were sent to a lab for SPOCUS testing. The boreholes used in the sampling were located on the eastern and western low lying areas of the island. Analysis revealed that samples below 0 mAHD on the eastern side of the island were potential ASS (PASS). None of the samples tested were actual ASS (AASS).

DISCUSSION AND RECOMMENDATIONS

From review of previous test results, PASS may be encountered during site works were excavation exceeds 0 mAHD across parts of the island. The following table describes each of the area's listed in the DoP letter, proposed works, likelihood of PASS and management recommendations.

Table 1: Summary of proposed works impacting on ASS risk areas, and management requirements.

Element	Description of Works	PASS on-site?	Management Methods
Under bore / Services Provision	Underboring/trenching for provision of services required from Orient point, under river, to Goodnight Island. Sub station to be located on the Island.	Likely	o Soil excavated for trenches/under bore from river/estuary bed and from sub-station to the tidal zone. o High risk, so assume all soils excavated from within this area will require treatment by way of liming. o Soils to be excavated, treated with lime immediately, and backfilled or alternatively stockpiled on impermeable liner and covered. o Final liming rates determined at CC stage via SPOCUS testing. o ASS management plan provided following laboratory testing.
Vehicle Punt	Vehicle punt to be constructed on the northern side of the Island. This may involve the construction of an engineered jetty for vehicle movement to/from the punt. Driven piles to be utilised in this area to reduce the spoil and site disturbance.	Y	o Driven piles utilised in this area, therefore no disturbance to acid sulfate soils.
Bird Hide	Bird hide to be constructed on the western side of the Island, overlooking the SEPP 14 wetlands, at elevation 1.5 mAHD. To be constructed of light weight materials. Excavation proposed for foundations only, no excavation below 0 mAHD.	Y	o High risk, so assume all soils excavated from within this area will require treatment by way of liming. o Worst case scenario 100-150 Kg/tonne soil. o Final liming rates determined at CC stage via SPOCUS testing. o ASS management plan provided following laboratory testing. Soils to be excavated and treated with lime immediately, or alternatively stockpiled on impermeable liner and covered, then treated prior to backfill / disposal.
Marina	Marina to be constructed in the same location as the existing Jetty on the north western side of the Island. Driven piers proposed for construction to reduce spoil and site disturbance.	Y	o As above.
Jetty	Jetty on the southern side of the Island has been removed from the proposal.	-	N/A

Other Structures (Tennis Court)	A tennis court is proposed for the western side of the Island, at elevations of 1-1.5 mAHD. Excavation for foundations only, with excavation not expected below 0.5 mAHD.	Possible	o Medium – low risk. o Worst case scenario 50-100 Kg/tonne soil. o Final liming rates determined at CC stage via SPOCUS testing. o ASS management plan provided following laboratory testing. Soils to be excavated and treated with lime immediately, or alternatively stockpiled on impermeable liner and covered, then treated prior to backfill / disposal.

We recommend further laboratory testing of soils for SPOCUS in all proposed development areas <2.5mAHD as outlined above at the CC stage of the development. Following such testing, final liming rates and detailed management plan can be produced for each site requiring excavation.