



Our Ref: PSM4580-007L Rev 1

9 May 2022

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Attention: Michael Skala

Dear Michael

**RE: 12 HASSALL STREET, PARRAMATTA  
SALINITY MANAGEMENT PLAN**

## 1. Introduction

This letter presents salinity management advice for the proposed development at 12 Hassall Street, Parramatta (the Site). This work has been undertaken in accordance with our fee proposal PSM4580-005L Rev 1, dated 31 January 2022.

We understand the following regarding the site and the proposed development:

- The proposed site comprises Lot 156 (DP1240854)
- The total site plan area is approximately 2,050 m<sup>2</sup>
- The development proposes the construction of a 61 storey mixed use building, comprising:
  - 5 levels of basement parking (not including the B1 mezzanine and a pit maintenance level) containing 175 car parking spaces
  - A 4 storey podium providing commercial floor space and residents' amenities
  - Level 4 will provide residential amenities including a podium terrace with a swimming pool
  - A residential tower (levels 5 to 59) providing 391 build-to-rent apartments
  - Level 60 will provide residential amenities including a rooftop terrace, pool and lounge.
- The finished ground floor level will be RL 10.55 m AHD
- The lift overrun level (above to top storey) will be RL 202.95 m AHD.

Inset 1 presents the site locality plan.



**Inset 1: Nearmap aerial photograph of the Site (dated 7 August 2021)**

## **2. Background**

This plan has been prepared to address the requirement of salinity analysis in “Section 13. Ground and Water Conditions” of the SEARs deliverables list for DA lodgement. The requirement is reproduced below.

*“Provide an assessment of salinity and acid sulfate soil impacts.”*

Please note this letter does not address the impacts of acid sulfate soils. This is addressed by the environmental consultant engaged for the project.

## **3. Objective**

The objective of this salinity management plan (SMP) is to effectively manage site salinity, to minimise the effect of the proposed development on the salinity processes and to protect the proposed development from salinity damage.

## **4. Salinity and Sodicty Assessment**

PSM have previously undertaken a salinity and sodicity investigation at the Site as part of our geotechnical site investigation in 2021 (ref: PSM4580-003L, dated 12 October 2021).

The investigation included a total of 4 boreholes, of which 3 contained salinity and sodicity testing. Figure 1 presents the locality plan showing the 3 boreholes in which testing was undertaken.

It is assessed that the soil units tested (as follows) are classified as “non-saline”:

- One (1) sample from RESIDUAL SOIL
- One (1) sample from EXISTING FILL.

Further, it is assessed that the rock units (as follows) are classified as “slightly saline”:

- One (1) sample from BEDROCK A.

Furthermore, it is assessed that the EXISTING FILL on the site is classified as “Sodic”, while the RESIDUAL SOIL and BEDROCK units are classified as “Highly sodic”.

The report also presented laboratory test results for soil aggressivity assessment as follows:

- pH of the soil samples analysed ranged from 5.5 to 6.8, with an average of 6.3

- The concentration of soluble sulphate in samples analysed ranged from 30 mg/kg to 70 mg/kg
- The concentration of chlorides in samples analysed ranged from <10 mg/kg to 160 mg/kg
- The moisture content ranged from 9.0 to 18.0 %
- The resistivity of the soil samples ranged from 4,260 ohm.cm to 26,300 ohm.cm.

## 5. Discussion

### 5.1 Development Components

This Salinity Management Plan (SMP) addresses the components of the proposed development at construction stage for the permanent works. Recommendations regarding the following development components are provided in the following sections:

- Gardens and landscaped areas
- Surface water, stormwater and drainage
- Durability of concrete structures in contact with the ground
- Durability of steel structures in contact with the ground.

### 5.2 Gardens and Landscaped Areas

The proposed development will result in the majority of the site comprising a high rise building. Garden and landscaped areas are likely to be of limited extent. The design and construction of the gardens and landscaped areas should consider the following recommendations:

- Selection of plant species should consider the soil conditions, including moderate salinity, relatively poor fertility and clayey low permeability soil profiles. Promotion of successful revegetation is likely to require use of nutrient rich topsoil. Saline topsoils should not be imported to site.
- Potential for water logging should be minimised by:
  - Adopting plant species with minimal watering requirements
  - Adopting 'waterwise' gardening principles
  - Minimising use of potable water in landscaped areas
  - Properly designed and implemented irrigation systems
  - Establishment of perennial species and deep-rooted trees.

### 5.3 Surface Water, Stormwater and Drainage

Surface water, stormwater and drainage design should aim at restricting infiltration into the ground resulting in groundwater recharge. The design and construction of surface water, stormwater and drainage measures should thus consider the following recommendations:

- Disturbance of natural drainage patterns should be reduced. Where these are disturbed or altered appropriate artificial drainage should be installed
- Stormwater and surface water should be managed to restrict infiltration
- Temporary water retaining structures used during construction should be managed to restrict infiltration
- Stormwater and surface water infrastructure should be designed and constructed to minimise the likelihood of leakage
- Guttering and down pipes should be connected and maintained
- Surface water runoff should be directed around all exposed surfaces, temporary stockpiles and landscaped areas.

Refer to our groundwater report PSM4580-006L for advice regarding groundwater.

#### 5.4 Durability of Concrete Structures in Contact with The Ground

In designing structural concrete elements in contact with the ground the design should consider the results of the salinity assessment and the durability requirements in AS2159:2009 Piling “Design and Installation” and AS3600:2018 “Concrete Structures”.

Both these standards provide guidance on minimum concrete grade/strength and minimum cover requirements.

Based on the salinity and aggressivity test results (ref. PSM4580-003L, dated 12 October 2021), it is recommended that:

1. The design of structural concrete members in contact with the ground (excluding piles) adopt an A1 exposure classification as defined in AS3600:2018.
2. The design of concrete cast in situ piles adopt a mild classification as defined in AS2159:2009.

#### 5.5 Durability of Steel Structures in Contact with The Ground

Table 6.5.2(C) of Australian Standard AS2159:2009, Piling – Design and Installation provides criteria for exposure classification for steel piles based on resistivity, soil and groundwater pH, and chlorides in soil and groundwater. On the basis of soil chlorides, resistivity and pH testing completed we assess the exposure classification for steel piles in the soil to be “mild”.

### 6. Sign Off

We recommend the following:

- The designer(s) and contractor(s) responsible for construction of the various development components be required to sign-off their design and the as built, certifying that:  
*“The works have been designed/constructed having given appropriate consideration to the recommendations in the SMP (Ref. PSM4580-007L)”.*

The designer and contractors should contact PSM during the works if they have any queries with regards to the requirements in the SMP or if conditions significantly differ from those described in this SMP.

**Yours Sincerely**



**GREG FAZZONE**  
**GEOTECHNICAL ENGINEER**



**AGUSTRIA SALIM**  
**PRINCIPAL**

**Encl.** Figure 1      Locality Plan



**Legend**

-  PSM Borehole Locations in which salinity and sodicity sampling was undertaken
-  Approximate Site Boundary

**Notes:**

1. Image taken from Nearmap, dated 7 August 2021.
2. Borehole BH02 is not shown on this plan. For BH02, refer to PSM4580-003L for details.



2 0 2 4 6 8m  
1 : 400 FULL SIZE A3



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Parramatta

SALINITY AND SODICITY BOREHOLE  
LOCALITY PLAN

PSM4580-006L

Figure 1