



# Environmental Planning Committee

Monday 5 August 2024  
6.30pm

## Late Correspondence

### Privacy Statement:

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**Subject:** **LATE CORRESPONDENCE - ENVIRONMENTAL PLANNING COMMITTEE - 5 AUGUST**  
**Author:** Sue O'Connor, Governance Officer  
**File No:** 24/137905  
**Purpose of the Report:** To table late correspondence as submitted for consideration by the Mayor and Councillors relevant to the Environmental Planning Committee held on 5 August 2024.  
**Alignment to Delivery Program:** Strategy 11.3: Ensure effective and efficient governance and risk management.

**Recommendation:**

THAT the Environmental Planning Committee receives and notes the late correspondence and reads late correspondence in conjunction with the relevant Agenda items.

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Please find attached late correspondence relating to matters appearing on the Agenda for the Environmental Planning Committee held on 5 August 2024. Correspondence received is listed below:

<b>Item No.</b>	<b>Matter</b>	<b>Author</b>	<b>Page</b>
R2	Post Exhibition Report – Draft Development Control Plan (Amendment No. 31) – Amending Controls to Reduce Excavation	Double Bay Residents Association  	3

**Sue O'Connor**

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**From:** Double Bay Residents' Association <dbrassoc@gmail.com>  
**Sent:** Monday, 5 August 2024 7:55 AM  
**To:** Records  
**Cc:** dbrassoc@gmail.com  
**Subject:** Late Correspondence re EPC -Draft Woollahra DCP (Amendment 31) -Reduce Excavation  
**Attachments:** C15611 - Proposed Amendment to Woollahra Development Control Plan 2015 - geotech summary.pdf

## Double Bay Residents' Association

### Protecting Sydney's Stylish Bayside Village

General Manager  
Woollahra Council  
PO Box 61  
Double Bay 1360

Monday 5<sup>th</sup> August 2024

Dear Sir,

Late Correspondence for EPC -Draft Woollahra Development Control Plan (Amendment 31) – Reduce Excavation

Double Bay Residents' Association considers **over excavation of building sites** one of the major problems facing all residents in our municipality.

In order to be part of this long term and important discussion we have engaged the services of Fortify Geotech to guide us through the issues.

Please find attached the Geotech Summary written by Jeremy Murray to this effect.

Kind regards,

Katherine Grinberg  
President

**Double Bay Residents' Association**  
**PO Box 1684**  
**Double Bay 1360**  
**0414 932 818**  
[dbrassoc@gmail.com](mailto:dbrassoc@gmail.com)



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5 August 2024  
Our ref: JM/C15611

Double Bay Residents' Association

Via email: president@dbra.org.au

Attention: Kathie Grinberg

## **Proposed Amendment to Woollahra Development Control Plan 2015**

### ***Geotechnical Assessment of Impacts of Large Volumes of Excavation***

#### **1 INTRODUCTION**

We are pleased to present our geotechnical assessment addressing the proposed amendments to the Woollahra Development Control Plan 2015. This assessment specifically addresses the potential impacts of large volumes of excavation during residential and commercial developments in the Woollahra LGA.

This report summarises the general geotechnical, geological, and groundwater conditions in the Woollahra LGA area, and outlines the risks and issues of developments that have large volumes of excavation and provides advice and measures to mitigate these issues.

#### **2 POTENTIAL GEOTECHNICAL IMPACTS OF DEEP EXCAVATION**

Topographically, the lower-lying areas of the Woollahra LGA, particularly the wards of Bellevue Hill and Double Bay, are covered by Holocene age coastal deposits (dune facies) and estuarine interbarrier creek deposits. Excavations for developments in these areas are generally through fill and into coastal and estuarine deposits of loose sand and soft clay. The depth to sandstone bedrock can be variable, and in the lower-lying areas can be up to 20m/30m deep.

Groundwater is typically present at shallow depth (sometimes only 1m or 2m below the ground surface) in the lower-lying areas of the Woollahra LGA. Excavations that extend below the groundwater table would require dewatering during construction, and groundwater inflow rates are generally very high.

The NSW eSPADE map indicates that the lower-lying areas of the Woollahra LGA are covered by areas of potential acid sulphate soils.

Given the above typical geotechnical, groundwater, and geological conditions, the adverse impacts for deep excavations for developments in these areas are listed below:

- The soil conditions are not favourable for supporting structures (existing and future) and typically have low bearing capacities and potential for large settlements.



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- Excavations adjacent to existing structures have the potential to undermine and destabilise existing structures, causing settlement/subsidence of adjacent ground and damage to existing structures.
- Excavations adjacent to existing infrastructure (particularly road and sewer network) have the potential to undermine and destabilise existing infrastructure, causing settlement/subsidence of adjacent ground and damage to existing road and sewer network.
- Construction activities that cause ground vibrations (such as large excavation equipment, vibratory rollers, sheet piling installation equipment) can result in settlement/subsidence of adjacent ground and damage to existing structures, road and sewer network.
- Dewatering during a development project results in draw-down of the adjacent groundwater table, which then results in settlement/subsidence of adjacent ground and damage to existing structures, road and sewer network.
- Given the high groundwater inflow rates, when dewatering, pump-out rates are also high. This can sometimes exceed the capacity of the stormwater network resulting in local flooding, with subsequent settlement/subsidence of adjacent ground and damage to existing structures, road and sewer network. This is not necessarily due to a single development but from the cumulative impact of multiple developments, which is also made worse by the higher frequency of rainfall and flooding events.

Acid sulphate soils (ASS) are expected to be present within the soils in these area. If sulphide-bearing or pyritic soils are disturbed by excavation, thereby allowing ready access of the sulphides to oxygen in the air, a spontaneous or irreversible natural oxidation reaction takes place. This results in the generation of sulphuric acid or acid sulfates. Pyritic soils, which have begun to generate acid, are referred to as Actual Acid Sulfate Soils (AASS). The acid is transported by water, and if allowed to build up in sufficient concentration, poses a direct environmental threat to organisms that come in contact with such waters. While these issues can be managed to some extent, the risk posed by acid sulphate soils, particularly from unexpected flooding events, should be considered.

### 3 RECENT EXAMPLES OF ADVERSE IMPACTS

The adverse impacts for deep excavations for developments in these areas that are listed in Section 5.1 are not just hypothetical, and recent examples of adverse impacts are provided below:

- Numerous instances in Double Bay and Rose Bay of cracking and damage to existing houses and apartments which are located adjacent to building sites where deep excavations with dewatering are being undertaken.
- The primary suspected cause of the major structural issues at Mascot Towers was due to dewatering activities on the site next door. Although not in the Woollahra LGA, the geotechnical conditions are similar (deep aeolian sands and shallow groundwater).

Many studies have been conducted which prove that lowering the groundwater table (dewatering) will result in ground surface settlement. When the water table is lowered, the effective load on the subsoil is increased by an amount equal to the difference between the drained and submerged weights of the entire soil mass between the original and lowered water. This increased overburden pressure causes additional compression and produces a

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settlement of the groundsurface. Generally, settlement occurs at a faster rate in sandy soils. Such settlements can cause structural damage to surrounding structures.

- We have conducted a general calculation based on typical soil and groundwater conditions using Geo 5 software, which has calculated a typical groundsurface settlement of about 10mm on properties adjacent to excavations that are being dewatered. This is based on a groundwater table drawdown of 2m, and the subsurface profile described in Section 4.1. If a settlement of 10mm were to occur under the foundation of most typical masonry houses/units, then structural damage to these structures would be expected. The likely structural damage to such structures includes cracks in walls, ceilings, and floors, walls leaning or bulging, distortion of window and door openings, and service pipes disrupted. Cracking and leaking of sewer pipes. Stormwater pipes, swimming pools, etc. is also expected.

Recent flooding has been reported in many area of Double Bay, apparently associated with the over-loaded stormwater network. This has occurred along Bay Street (which has occurred about 4 or 5 times in less than a year), including large volumes of flood water and formation of sink holes and subsidence.

#### 4 RECOMMENDED MITIGATION MEASURES

To reduce the risk of future adverse impacts, it is recommended that the following mitigation measures be implemented as conditions on new developments.

- Not allowing excavations to extend below the groundwater table.
- Not allowing dewatering that draws down the groundwater table.
- Not allowing deep excavations that undermine neighbouring structures without having adequate structural shoring support. This should consider the use of secant piles rather than sheet piles for basement shoring.
- Limiting construction activities that cause ground vibrations (such as large excavation equipment, vibratory rollers, sheet piling installation equipment), particularly the vibrations from sheet piling.
- Limit excavation volumes of soils in high risk acid sulphate soils areas.

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Should you require any further information regarding this report, please do not hesitate to contact our office.

Yours faithfully,

**Fortify Geotech Pty Ltd**

Written by:

[Redacted Signature]

**Jeremy Murray**

Senior Geotechnical Engineer | Director

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