

12 October 2018

181458

Health Infrastructure  
C/- Colliers International Project Management  
Level 30, 225 George Street  
Sydney NSW 2000

Attention: Bonnie Custance

**Wyong Hospital Expansion**  
**State Significant Development No. 9536**  
**Structural and Geotechnical Report**

---

Dear Bonnie,

**1. Proposed Development**

The site (Wyong Hospital campus) is located at 664 Pacific Highway, Hamlyn Terrace, NSW, 2259, within the Central Coast Local Government Area (LGA). The site is comprised of a single lot, legally described as Lot 1 DP 1147734 and is under the ownership of the Health Administration Corporation.

**2. Purpose**

In response to the SEARs requirements for the Wyong Hospital Redevelopment, Taylor Thomson Whitting (NSW) Pty Ltd (TTW) have prepared a summary report dealing with structural and geotechnical issues of the site.

TTW were the structural and civil engineers for the previous major works carried out in 2004 and are familiar with the requirements of the site.

The scope of proposed works for the site includes:

- Construction of a new Clinical Services Building (CSB):  
A CSB of a gross floor area of approximately 16,980sqm, providing new and expanded clinical services. These services will be provided in a new building comprising a part 5 / part 6 storey CSB, to be connected to the existing hospital via a bridge link, including a new emergency department (ED), intensive care unit (ICU), medical imaging, acute medical unit (AMU) and pediatrics assessment unit (PAU);
- Provision for undercroft car parking;
- Provision for at grade ambulance parking;
- Formalisation of east-west road connection to Louisiana Road; and
- Associated works including landscaping, earthworks and servicing upgrades
- The proposed development is to the west of the current hospital site and comprises 5 levels of a concrete structure with steel roof areas over plant rooms.

The construction of a new Clinical Services Building, minor alterations and additions to the existing hospital building, and associated works.

### 3. Design Requirements

Key design requirements for the site include—

#### 3.1 Mine Subsidence

The site was previously classified to be in a mine subsidence area. This requirement has now been removed, and the design for subsidence is not required. Refer to Appendix A for a copy of the relevant confirmation.

#### 3.2 Design Loadings

The structure will be designed in accordance with the requirements of AS1170 SAA Loading Code and specific design requirements from Health Infrastructure (HI).

Typical Loadings include –

Structural Importance Level	:	To BCA Level 4
Live Load	:	Minimum 3 kPa
Superimposed Dead Load	:	Minimum 1.8 kPa
Wind Loads	:	To AS1170.2, $V_{2000} = 48$ m/s
Earthquake Loads	:	To AS1170.4, $Z = 0.10$ , Subsoil Class Be, Earthquake Design Category III

#### 3.3 Durability

Durability will be in accordance with the requirements of AS3600, with classifications to be –

A2	-	Internal
B1	-	In ground and External

#### 3.4 Fire Resistance Level

Structural elements will be designed for a Type A structure in accordance with the BCA. Typical elements will have an FRL of 120/120/120.

### 4. Geotechnical Conditions

A geotechnical report for the site has been carried out by Coffey Geotechnics (report 754-NTLGE207825AB dated 5 September 2017).

The report indicates the building site typically comprises residual soil over weathered rock, grading to medium to high strength sandstone with depth.

The carpark works have resulted in some minor reshaping of the site since the report was carried out, but not modified the subsoil conditions.

Depths to weathered rock vary from 1m - 5m across the site. In this case, a mixture of pad footings and bored pile footings founded on the rock is anticipated. Alternately all footings may be piled to the medium / high strength rock.

The report notes that slope stability, groundwater, acid sulphate soils and soil aggressivity to buried structures are not an issue for this site.

## 5. Structural Systems

Based on previous hospital designs on the Wyong site and other NSW hospitals, the structure will be a reinforced concrete framed building with post-tensioned concrete slabs.

This system is typically the most economic system to suit the standard 8.4m x 8.4m grid adopted by HI.

Lateral loads will be carried by the reinforced concrete structural walls around stair and lift cores.

Plant room roofs and some areas of building roof structures may be structural steel framed.

## 6. Summary

The proposed Wyong Hospital Redevelopment has been reviewed by TTW and is considered structurally feasible. Typical structures will be reinforced concrete framed with post-tensioned floor slabs, designed to meet the requirements of the BCA and relevant Australian Standards.

Ground conditions have been assessed by Coffey Geotechnics, and foundations are expected to be pads or bored piers founded on underlying bedrock.

Mine subsidence requirements have been modified and now do not apply for this site.

Prepared and Authorised by,  
**TAYLOR THOMSON WHITTING (NSW) PTY LTD**



**ROBERT MACKELLAR**  
Managing Director

### Appendix A – Mine Subsidence Email

---

\\192.168.1.186\Jobfiles\$\2018\1814\181458\Reports\TTW\181012 WH, Structural and Geotechnical Report RM lee (updated).docx

## Appendix A

# Mine Subsidence Email

## Robert Mackellar

---

**From:** Paul Gray <Paul.Gray@finance.nsw.gov.au>  
**Sent:** Friday, 9 June 2017 12:36 PM  
**To:** Robert Mackellar  
**Cc:** Gavin Thompson; Katherine McCreanor  
**Subject:** TENQ17-16036W1: Wyong Hospital Lot 1 DP 1147734

Hi Robert, Centennial Coal and the Division of Resources and Geoscience have both commented on the site and have no objection to your concept proposal. Subsidence Advisory NSW would not require design for Subsidence Parameters,

Regards

Paul Gray  
Senior Advisor Residential Subsidence Regulation

Subsidence Advisory NSW | An Agency of the Department of Finance, Services and Innovation  
p (02) 4908 4375 | m 0425 275 572  
e [paul.gray@finance.nsw.gov.au](mailto:paul.gray@finance.nsw.gov.au) | [www.subsidence.nsw.gov.au](http://www.subsidence.nsw.gov.au)  
Ground Floor, Government Offices, 117 Bull Street Newcastle West NSW 2302



**Subsidence  
Advisory NSW**

Please consider the environment before printing this email

\*\*\*\*\*

This email message and any attached files is confidential and intended solely for the use of the individual or entity to whom it is addressed and may contain information that is privileged, confidential and/or exempt from disclosure under applicable law. If you have received this email in error, delete all copies and notify the sender.

This email is subject to copyright. No part of it should be reproduced, published, communicated or adapted without the copyright owner's written consent. No employee or agent is authorised to conclude any binding agreement on behalf of the Department of Finance, Services and Innovation (DFSI) by email without express written confirmation.

---

**From:** Robert Mackellar [mailto:Robert.Mackellar@ttw.com.au]  
**Sent:** Monday, 29 May 2017 09:48  
**To:** Paul Gray  
**Cc:** Gavin Thompson  
**Subject:** Wyong Hospital Lot 1 DP 1147734

Hi Paul

Thanks for the discussion relating to Wyong Hospital site.

As discussed some subsidence parameters were provided by the Board in 2014 (refer to the attached email) for an extension to the Wyong Hospital Lot 1 DP 1147734.  
The building was proposed to be 5 levels above ground including the plant rooms.

The project is now being investigated further and we have been asked to comment on the possibility of future proofing the building to extend the height to a nominal 10 levels.

We have reviewed the structural impacts, and believe it is structurally feasible to design the building for the relatively modest parameters, with the taller building.

Our query relates to the possibility that the parameters may be reduced (or deleted in the event that mining is not proposed to occur beneath the site). Additionally is there any technical reason that you are aware of, why we would not be able to accommodate the higher building in the future.

If you are able to confirm these items as soon as practicable, that would be appreciated. Our client NSW Health Infrastructure has requested that matters in relation to the project remain confidential please.

If you need to discuss or have any other queries please contact me on the above email, or phone 84377231 (Direct) or mobile 0411 873 968

Regards

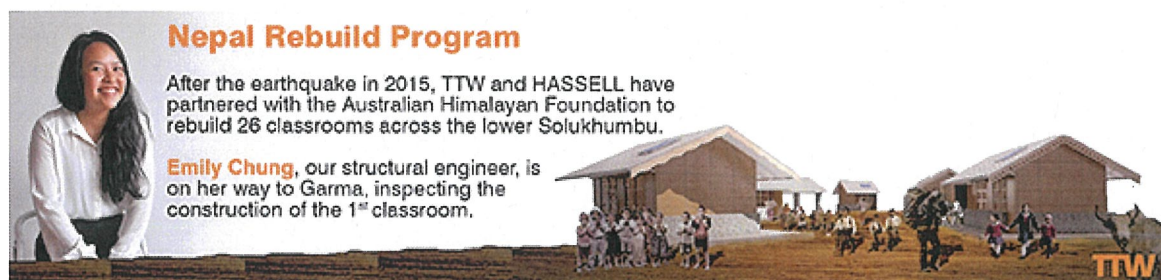
Rob

**Robert Mackellar**

**Director**

48 Chandos Street St Leonards NSW 2065

P +612 9439 7288 | M +61 411 873 968



This email has been scanned by the Symantec Email Security.cloud service.

For more information please visit <http://www.symanteccloud.com>

\*\*\*\*\*

This email message and any attached files is confidential and intended solely for the use of the individual or entity to whom it is addressed and may contain information that is privileged, confidential and/or exempt from disclosure under applicable law. If you have received this email in error, delete all copies and notify the sender.