

Date 16/10/2020

Scentre Group Design  
85 Castlereagh Street  
SYDNEY NSW 2000

For the attention of: Wail Thomas

Dear Wail,

**Section 75W Modification (MOD1) to the Approved Commercial Tower Building Envelope  
Concept Approval Major Project MP10\_0068  
Westfield Shopping Centre Parramatta**

**Preliminary Structural Review of Tower**

## **INTRODUCTION**

At your request enstruct has undertaken a preliminary review of the structural engineering aspects relating to the proposed development as described in the attached list of Architectural Drawings.

This letter is related to the Commercial Tower Concept and is similarly general in nature. The existing retail centre was originally constructed in the 1970's and has had a number of alterations and additions over the subsequent years. The structural drawings of the existing building are available. The centre has been separated into zones or blocks which are independent building structures with permanent building joints. The proposed tower is located on the corner of Argyle and Marsden Street in the region of Block 1A and Block 2B also referred to as the David Jones Box.

Further investigations and detailed structural analysis will be required to determine the precise extent of the structural works required and the detailed sizing of the structural system for the Tower. The proposed development will also require a comprehensive geotechnical review of the existing data and additional geotechnical work. These investigations will be undertaken in the project delivery stage.

## **STRUCTURAL ASPECTS**

The existing building structure is a combination of reinforced and post tensioned concrete structures. To accommodate thermal movement and concrete shrinkage the building structure is separated by building joints. The existing centre was constructed over a period of time with Block 1B and Block 2B constructed after the adjacent blocks. The existing drawings show a clear separation along the building joint with Block 1B and Block 2B acting independently of the remainder of the structure. The adjacent Blocks (Block 1, 2, 3 and 4) were designed using loads and codes appropriate at the time of their construction.

The proposed commercial tower has been aligned within the existing building joints for Block 1B and 2B providing the opportunity to demolish Block 1B and Block 2B without the requirement

for significant strengthening of the adjacent building (as the structures are independent). This approach is commonly used in Sydney CBD.

The required demolition and strengthening zone will be contained within the existing footprint for Block 1B and 2B. Consequently, significant additional hoarding and protection zones for the public will not be required within the Centre.

The impact on the rest of the centre is minimised allowing the centre to continue operation with only minor impact.

The form of the new tower is currently under development but will likely comprise a side building core with internal columns. The building core will be constructed with reinforced concrete and will be supported by piles which will socket into the sandstone rock. The building core will provide the lateral stability to the structure and will need to continue uninterrupted to the supporting piles. A detailed lateral analysis is required to confirm the stability of the structure which will be undertaken in future stages. The structural framing of the tower will likely comprise a one way banded system with one way bands and slabs. The floor structure will be post tensioned concrete.

There will be at least 21 tower columns which will range in size from 1400 mm diameter at the lower tower levels to 600 mm diameter at the top. The final number and size of the columns will be determined after detailed analysis in future stages. High strength concrete will be used to minimise the size and number of the columns.

## **CONSTRUCTION METHODOLOGY**

The proposed construction methodology for the tower is;

- Demolish Blocks 1B and 2B.
- Install structural piles for the new building.
- Construct structural core, tower columns and retail columns and connecting floor plates.

## **DESIGN STANDARDS**

The following Australian Standards will apply to the structural design of the new tower;

- AS/NZS 1170.0 - 2002;
- AS/NZS 1170.1 - 2002;
- AS/NZS 1170.2 - 2011;
- AS/NZS 1170.4 - 2007;
- AS3600 – 2018;
- AS3700 – 2018;
- AS4100 - 1998.

## **CONCLUSION**

enstruct have undertaken a review of the structural engineering aspects relating to the proposed development in response to Department of Planning SEAR's letter 29/9/2017.

The structural review has been based upon the proposed modification to the approved concept plan MP10\_0068 for Tower envelope and location and is similarly general in nature. Further reviews and development of the design will be required in the project delivery phase to refine the design. The building shown is structurally feasible to build.

Should you have any further queries related to structural matters please don't hesitate to contact the undersigned.

Yours Sincerely,

A handwritten signature in black ink, appearing to read 'Martin O'Shea'.

for  
**enstruct** group pty ltd

Dr Martin O'Shea  
Senior Associate  
BE(Hons), PhD, EMBA, FIEAust

## ARCHITECTURAL DRAWINGS

DRAWING NUMBER	TITLE	REVISION
PCP015201B	POTENTIAL BASEMENT 3 FLOOR PLAN	A
PCP015201A	POTENTIAL BASEMENT 2 FLOOR PLAN	A
PCP015201	POTENTIAL LEVEL 1 FLOOR PLAN	A
PCP015202	POTENTIAL LEVEL 2 FLOOR PLAN	A
PCP015203	POTENTIAL LEVEL 3 FLOOR PLAN	A
PCP015204	POTENTIAL LEVEL 3M FLOOR PLAN	A
PCP015205	POTENTIAL LEVEL 4 FLOOR PLAN	A
PCP015206	POTENTIAL LEVEL 4M FLOOR PLAN	A
PCP015207	POTENTIAL LEVEL 5 FLOOR PLAN	A
PCP015208	POTENTIAL LEVEL 5M1 FLOOR PLAN	A
PCP015209	POTENTIAL LEVEL 5M2 FLOOR PLAN	A
PCP015210	POTENTIAL LEVEL 6 FLOOR PLAN	A
PCP015211	POTENTIAL LEVEL 7 FLOOR PLAN	A
PCP015220	POTENTIAL PHOTO ELEVATION 4 & 5 CORNER CHURCH/ARGYLE ST MARSDEN/ARGYLE ST	A
PCP015401	SECTION AA	A
PCP015402	SECTION BB	A