LAND USE CONSENT APPLICATION LUC18/47378 AND SUBDIVISION CONSENT APPLICATION SUB18/47165 – PROPOSED FONTERRA FARM SOURCE STORE AND 2 LOT SUBDIVISION AT 2475 SOUTH ROAD, OKATO

SUPPLEMENTARY EVIDENCE OF DAMIEN LEGRAND

ON BEHALF OF J DINNIS – SUBMITTER

3 April 2019

COUNSEL:
SARAH ONGLEY
Barrister
Phone: (06) 7699400
Fax: (06) 7699425
Email: sarah@ongley.co.nz
PO Box 8213
New Plymouth 4342

Introduction

1. My name is **DAMIEN LEGRAND**.

2. I submitted a statement of evidence on 21 March 2019. This included as attachments, a set of 3D renders numbered A1-004 – A1-006.

3. I have the qualifications and experience set out in my first statement of evidence, and as elaborated upon below.

4. I understand that, given my unavailability to connect by Skype to the hearing (28 March 2019) at short notice, I have been asked to address my expertise and the methodology for preparing the 3D renders in writing.

Code of Conduct for Expert Witnesses

5. I have read the 'Code of conduct' for Expert Witnesses (2014) and my evidence has been prepared in compliance with that Code. My evidence in this statement and in my statement of 21 March 2019, is within my area of expertise. I have not omitted to consider any material facts known to me that might alter or detract from the opinions which I express below.

6. I acknowledge that I have acquaintance with Mr James Dinnis, but I do not believe that affects my ability to produce this evidence in an unbiased manner.

Qualifications and experience

7. I hold a Masters degree in Engineering (majoring in material science) from the University of Centrale Nantes, 2004 and a BSC (Bachelor of Science) from the same University, 2003.

8. I set out in my evidence of 21 March my role with BIM Solutions Centre. I am a Managing Director and I founded the company. I also set out in my evidence of 21 March the services BIM Solutions provides.

9. After graduating from University I worked in bridge engineering in France and Ireland. During that time I created 3D models of the bridges in order to assist with the design and fabrication process. The main projects I have been involved with include the Millau Viaduct, The Palais Viaduct and the Saint Sever Viaduct.

10. Moving to New Zealand in 2005, I worked as a technical consultant assisting design and construction firms in their adoption of 3D modelling. Amongst these firms, I worked with Jasmax, Beca Carter and Opus. I provided training to their staff, and was involved in longer implementation assignments from time to time.

11. I then worked in Sydney, in a similar role, and continued delivering training and implementation services for major international design firms, including Aurecon, Meinhardt, WSP, ARUP (the last two in this list are Architectural and Engineering Consulting firms).

12. Upon returning to New Zealand in 2009, I founded BIM Solutions Centre, of which I am still the Managing Director. I have worked on a number of world class projects, in various locations and have continued developing my skills in the field of 3D modelling and how it applies to construction. In particular I generated a series of visuals for projects such as the Singapore Sports Hub, resorts on the northern coast of Cuba, a luxury residential development in Bangkok (to name just a few). I am currently working on the Lusail Stadium in Qatar, which will host the final of the 2022 FIFA World cup.

13. During this time, I have also continued my training in 3D modelling, and I have attended and spoken at conferences, including BILT (run by the Digital Built Environmental Institute), Autodesk University and EcoBuild.

Methodology

14. As explained in my evidence of 21 March 2019, I have prepared 3D renders of the proposed Farm Source development at 2475 South Road. I based these renders on the drawings supplied in the application documentation (BTW).

15. The full base information that I used to create the renders was:
    - Architectural drawings contained within the resource consent application;
    - Google maps information for site and survey data;
    - Google maps information for pictures of existing conditions; and
    - Photographs taken by Mr James Dinnis for several viewpoints to use as background.

Step 1: Creation of the 3D Model

16. To create the 3D Model I:

    16.1. Was provided with the site plan from the application documents;

    16.2. Acquired survey information from google maps (including boundary lines);

    16.3. Created a geometrically accurate 3D model from the 2D drawings and specification provided by the architect, using Autokesk Revit (3D Modelling Software commonly used in the construction industry to produce models, drawings, visuals and quantities all out of a single source of information); and

    16.4. Included the material and finishes contained in the application documents, into the 3D model.

Step 2: Generation of the 3D views

17. All 3D views are generated from the model directly which guarantees a total accuracy regarding the shape and position of the proposed building. Drawing A1-007 indicates the position of the cameras for the creation of the 3D view, and is attached to this evidence.

18. I rendered the created scene using Autodesk Revit (software explained above).

19. I edited the renders to include the background information. At this stage the editing process is only intended to merge the existing image with the proposed 3D view. No alteration to the geometry or position of any component is possible. This guarantees the integrity of the visuals created.

20. For Drawings A1-004 – A1-006 I have also shown photographs supplied by Mr Dinnis at the same perspective, alongside my visual simulations of the proposed Farm Source building.

Comment on the Applicant's renders

21. I have been provided with copies of 2 documents being:

    21.1. View 01 Render Final Overlay LAD produced; and

    21.2. View 02 Render Final Overlay LAD produced.

22. I have the following comments to make on these renders

    22.1.   On render view 02 it appears that there is a levelling issue regarding the insertion of the proposed building into the background picture.

    22.2.   On both renders it appears that the luminosity and contrast shown is fading the building in favour of the background.

    22.3.   The material and pattern used to render the proposed car park is not realistic.

    22.4.   The number of rata trees and mirror bush according to the site plan needs checking.

    22.5.   The fence height of 1.8m seems a little out of proportion.

23. The LAD software used for these renders relies on manual input which can create (user) error.   As stated above, Autodesk Revit guarantees a total accuracy regarding the shape and position of the proposed building and there is not the same opportunity for error as with LAD.

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