

In the matter of the Commissions of Inquiry Act 1908

And

In the matter of the Canterbury Earthquakes Royal Commission

**Brief of evidence of Jeffrey Gavin Matthews relating to 242 - 246 High
Street for hearing week commencing 13 February 2011**

Date: 8 February 2012



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- 1 My full name is Jeffrey Gavin Matthews.
- 2 I am a Senior Project Engineer employed by Holmes Consulting Group Limited (**HCG**).
- 3 I hold a bachelor's and doctorate degree in civil engineering, BE (Hons) (Civil) and PhD (Civil) conferred by the University of Canterbury. I also have a CPEng (Structural), MIPENZ and NZ USAR Engineer (Level 2).
- 4 I have eight years postgraduate experience in engineering.

Scope of Evidence

- 5 I, on behalf of HCG, provide this Brief of evidence in response to the Canterbury Earthquakes Royal Commission's letter dated 9 November 2011 in relation to the building at 242 - 246 High Street (hereinafter referred to as the **Building**).

Extent of Instructions received

- 6 I am asked how HCG became involved in the Building and the nature of the instructions HCG received in relation to the Building.
- 7 NAI Harcourts, as the building owner representatives and building managers, instructed HCG to carry out a post-earthquake RAPID Structural Assessment of their portfolio of properties. A copy of the short form agreement dated 5 September 2010 is **attached** [A]. The scope and nature of the services HCG was instructed to provide was to carry out an 'initial earthquake inspection' and 'securing measures as considered necessary'.
- 8 HCG was first requested to inspect the Building on or around the 7th of September 2010. I was allocated the job when I came down from Auckland to assist.

Details of inspection/assessment

9 I am asked to provide details of the nature of the inspection made of the Building on 10 September 2010 and what my conclusion was in relation to the structural integrity of the Building.

Inspection 10 September 2010

10 I carried out an inspection at approximately 9am on 10 September 2010. The purpose of this inspection was to undertake a rapid visual inspection of the Building in order to identify any obvious signs of damage that might have resulted in significant diminished structural capacity.

11 At this time the building had a Green Level 1 placard status (presumably as a result of a previous Level 1 RAPID Assessment inspection carried out by the Christchurch City Council).

12 I walked around the Building. I noted that the Building consisted of a basement and three storeys of unreinforced masonry.

13 During my inspection of the building, I gained limited access to internal spaces and access to the roof area. Access was only available to rooms that the property manager had a key for.

14 My inspection took approximately 1 hour.

15 The damage I observed was generally limited to lathe and plaster ceiling. On the top of the building there was damage to the parapet/chimneys on the southern side. One chimney on the southern side had fallen through a sky light and landed on the floor inside the building. I observed that other chimneys on the southern side were cracked and therefore presented a fall hazard.

16 I completed a site report and a RAPID Assessment Form - Level 2 changing the placard status of the building from Green to Yellow, due to the damage observed to the right hand side (southern) parapet.

- 17 This site report was subsequently typed up and a copy of site report is **attached** [B]. I submitted the RAPID Assessment Form - Level 2 directly to Civil Defence. I informed the CCC that the Building placard had changed from Green to Yellow, and that the neighbouring property, 238 High Street (which contained Jay Jays) should be changed to Yellow until the Building's southern parapet was repaired. The Jay Jays building was Green at the time.
- 18 A copy of the RAPID Assessment Form - Level 2 is **attached** [C].
- 19 Photographs taken during my site visit are **attached** [D].
- 20 This was the last involvement I had in the project as I returned to Auckland. All further works were handled by Alistair Boys and Bruce Galloway
- 21 I had a telephone discussion about the Building with Alistair Boys after I returned to Auckland. This was to further explain my observations to him so that he could progress his work on the Building.
- 22 My site report was emailed to NAI Harcourts.

Northern parapet wall

- 23 I am asked whether the parapet wall on the north side of the building was inspected and if it was, to provide details of observations and conclusions relating to it. If it was not, I am asked whether there was any reason why this was not inspected.

Response

- 24 I do not have any specific recollection of the northern parapet wall. My site report of 10 September 2010 records the damage I observed but makes no specific mention of the parapet wall on the north side of the building.

- 25 The fact that no damage was recorded indicates that I did not observe any damage. This is confirmed by Mr Alistair Boys' subsequent observation on 15 September 2010.

No observations beyond those included in site report

- 26 I did not observe any damage or anything else of note beyond what is included in my site report.

Impact of earthquake and subsequent aftershocks

- 27 I am asked if, at the time of the inspection, I took into account the impact of the 4 September 2010 earthquake and any subsequent aftershocks on the structural integrity of the Building and, in particular, whether the Building's capacity to withstand future aftershocks was diminished as a result.

Response

- 28 I took the impact of the 4 September 2010 earthquake into account in the context of a rapid visual inspection. My objective was to identify any obvious signs of damage that might have resulted in significant diminished structural capacity. I came to the view that, as regards the damage to the southern parapet/chimney the structural integrity had been diminished and so I decided to change the building from a Green to a Yellow placard. I also recommended the status of the neighbouring building be changed from Green to Yellow.

Other information taken into account

- 29 I am asked if, at the time of the inspection, I took into account any information about the likelihood, location and extent of further aftershocks.

Response

- 30 I was aware based on my experience and on briefings and discussions within Holmes Consulting Group that there would likely be aftershocks diminishing in intensity.

Information from Christchurch City Council

- 31 I am asked if, at the time of the inspection, I took into account any information from the Christchurch City Council (or any other party) relating to building standards or the inspection of buildings following an earthquake.

Response

- 32 The observations made in the site report that I produced took into account my knowledge and experience gained through training and post-earthquake building evaluation experience through my USAR training. The RAPID Assessment Form - Level 2 also provided guidance about the type of damage that would lead to access to a building being closed.

Building plans

- 33 I am asked if, at the time of the inspection, I took into account the Building plans.

Response

- 34 I undertook a rapid visual inspection and the building plans were not available to me. HCG had not had any previous involvement with the building.

Christchurch City Council's earthquake prone policy

- 35 I am asked if, at the time of the inspection, I took into account the Christchurch City Council's earthquake prone building policy and whether the Building complied with that.

Response

- 36 I undertook a rapid visual inspection and was primarily concerned about diminished capacity as a result of the earthquake, so I was not in a position to consider the application of the earthquake prone building policy.

Previous structural strengthening

37 I am asked if, at the time of the inspection, I took into account whether any previous structural strengthening had been carried out.

Response

38 I was not made aware of any previous strengthening work nor was I in a position to consult Council records, so I was not able to take this into account.

Extent of Involvement post 10 September 2010

39 I am asked if I had any further involvement with the building after the site inspection on 10 September 2010.

Response

40 Other than my telephone discussion with Alistair Boys, I had no further involvement with the building following the site inspection on 10 September 2010.

Conclusion

41 I am asked to provide any observations or comments that might be relevant to the issue the Commission will have to address in relation to the Building i.e. the collapse of the northern wall.

Response

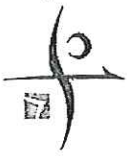
42 I do not believe that I have any other information that may assist with this issue, beyond that which I have already given to the Commission.

Date: 8 February 2012



.....
Jeffrey Gavin Matthews

"A"



SHORT FORM AGREEMENT FOR CONSULTANT ENGAGEMENT (COMMERCIAL)

BETWEEN: *NAI Harcourt*
(Client)

AND: **HOLMES CONSULTING GROUP LTD**
(Consultant)

PROJECT: *Various buildings in Portfolio*
(Description of Building Work)

LOCATION: *As list*
(Address)

SCOPE AND NATURE OF SERVICES:

- Initial earthquake inspection ✓
- Securing measures as considered necessary ✓
-
-

PROGRAMME FOR THE SERVICES:

FEES & TIMING OF PAYMENTS

All work will be conducted on a time basis.

All fees and rates are exclusive of GST.


INFORMATION OR SERVICES TO BE PROVIDED BY THE CLIENT


The Client engages the Consultant to provide the services described above and the Consultant agrees to perform the services for the remuneration provided above. Both Parties agree to be bound by the provision of the Short Form Model Conditions of Engagement (overleaf), including clauses 1, 8 and 9, and any variations noted below. Once signed, this agreement, together with the conditions overleaf and any attachments, will replace all or any oral agreement previously reached between the Parties.

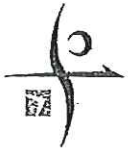
VARIATIONS TO THE SHORT FORM MODEL CONDITIONS OF ENGAGEMENT (OVERLEAF)

CLIENT AUTHORISED SIGNATORY (IES):

CONSULTANTS AUTHORISED SIGNATORY (IES):


(Print Name) *Howard Buchanan*
(Date) *5/9/10*


(Print Name) *Richard Seville*
(Date) *5/9/10*



SHORT FORM CONDITIONS OF ENGAGEMENT (COMMERCIAL)

1. The Consultant shall perform the Services as described in the attached documents. The Client and the Consultant agree and the Services are acquired for the purposes of a business and that the provisions of the Consumer Guarantees Act 1993 are excluded in relation to the Services.
2. In providing the Services the Consultant shall exercise the degree of skill, care and diligence normally expected of a competent professional.
3. The Client shall provide to the Consultant, free of cost, as soon as practicable following any request for information, all information in his or her power to obtain which may relate to the services. The Consultant shall not, without the Client's prior consent, use information provided by the Client for purposes unrelated to the Services. In providing the information to the Consultant, the Client shall ensure compliance with the Copyright Act 1994 and its amendments and shall identify any proprietary rights that any other person may have in any information provided.
4. The Client may order variations to the Services in writing or may request the Consultant to submit proposals for variations to the Services.
5. The Client shall pay the Consultant for the Services the amount of fees and expenses at the times and in the manner set out in the attached documents. Where this Agreement has been entered by an Agent (or person purporting to act as Agent) on behalf of the Client, the Agent and Client shall be jointly and severally liable for payment of all fees and expenses due to the Consultant under this Agreement.
6. All amounts payable by the Client shall be paid within twenty (20) working days of the relevant invoice being mailed to the Client. Late payment shall constitute a default, and the client shall pay default interest on overdue amounts from the date payment falls due to the date of payment at the rate of the Consultant's overdraft rate plus 2% and in addition the costs of any actions taken by the Consultant to recover the debt.
7. Where services are carried out on a time charge basis, the consultant may purchase such incidental goods and/or Services as are reasonably required for the consultant to perform the Services. The cost of obtaining such incidental goods and/or Services shall be payable by the Client. The Consultant shall maintain records which clearly identify time and expenses incurred.
8. The liability of the Consultant to the Client in respect of his or her Services for the project, whether in contract, tort or otherwise, shall be limited to the lesser of five times the value of the fees (exclusive GST and disbursements), or the sum of NZ\$250,000. The consultant shall only be liable to the Client for direct loss or damage suffered by the Client as the result of a breach by the Consultants of his or her obligations under this Agreement and shall not be liable for any loss of profits.
9. The Consultant acknowledges that the Consultant currently holds a policy of Professional Indemnity insurance for the lesser of NZ\$250,000 or five times the value of the fees (exclusive GST and disbursements). The Consultant undertakes to use all reasonable endeavours to maintain a similar policy of insurance for six years after the completion of the Services.
10. Neither the Client nor the Consultant shall be considered liable for any loss or damage resulting from any occurrence unless a claim is formally made on him or her within six years from completion of the Services.
11. If either Party is found liable to the other (whether in contract, tort or otherwise), and the claiming Party and/or a Third Party has contributed to the loss or damage, the liable Party shall only be liable to the proportional extent of its own contribution.
12. The Consultant shall retain intellectual property/copyright in all drawings, specifications and other documents prepared by the Consultant. The Client shall be entitled to use them or copy them only for the works and the purpose for which they are intended. The ownership of data and factual information collected by the Consultant and paid for by the Client shall, after payment by the Client, lie with the Client. The Client may reproduce drawings, specifications and other documents in which the consultant has copyright, as reasonably required in connection with the project but not otherwise. The client shall have no right to use any of these documents where any or all of the fees and expenses remain payable to the Consultant.
13. The consultant has not and will not assume any obligation as the Client's Agent or otherwise which may be imposed upon the Client from time to time pursuant to the Health and Safety in Employment Act 1992 (the "Act") arising out of this engagement. The Consultant and the Client agree that, in terms of the Act, the Consultant will not be the person who controls the place of work.
14. The Client may suspend all or part of the Services by notice to the Consultant who shall immediately make arrangements to stop the Services and minimise further expenditure. The Client and the Consultant may (in the event the other Party is in material default) terminate the Agreement by notice to the other Party. Suspension or termination shall not prejudice or affect the accrued rights or claims and liabilities of the Parties.
15. The Parties shall attempt in good faith to settle any dispute by mediation.
16. This Agreement is governed by the New Zealand law, the New Zealand courts have jurisdiction in respect of the Agreement, and all amounts are payable in New Zealand dollars.

" B "

Holmes
Consulting
Group

Project Name 242-246 High St

Project No:

S.R. No: 1

SITE REPORT

Date: 10 September 2010

Reviewed By: JGM

STRUCTURAL AND CIVIL ENGINEERS

Work Reviewed:

Post Earthquake and L2 rapid assessment

Christchurch

Telephone

64 3 366 3366

Observations & Comments:

Undertook a review of 242-246 High St. Had a walk around of the building. The building consists of a basement and 3 storeys of unreinforced masonry.

Facsimile

64 3 379 2169

Damage observed was generally limited to lathe and plaster ceiling.

Internet

On the top of the building there is damage to the parapet/chimneys. One had fallen through a sky light and landed on the floor inside the building. Others are cracked and couple topple given an aftershock.

www.holmesgroup.com

Carried out an L2 rapid assessment form.

Level 5

Building to have placard changed to yellow (from Green). No entry or very limited entry until the right hand side parapet is removed or secured.

123 Victoria Street

Time on site: 9.00 am

PO Box 25355

[POST REPORT NOTE:

Christchurch 8144

Informed CCC that the building placard had changed from Green to Yellow, dropped L2 Rapid Assessment form off at the Art Gallery. Informed CCC that the neighbouring property which contained Jay Jays should be yellow placarded until the parapet is required (this building is currently green)]

New Zealand

Report Prepared By:

Offices in

Auckland

Jeff Matthews
PROJECT ENGINEER

Hamilton

Wellington

111111SR0909.014.doc

Queenstown

San Francisco

Copies to:

" C "

Christchurch Eq RAPID Assessment Form - LEVEL 2

Inspector Initials: JGM Date: 10/9/10 Final Posting: RESTRICTED USE
 Territorial Authority: Christchurch City Time: 9:00 am (e.g. UNSAFE)

Building Name			Type of Construction	
Short Name			<input type="checkbox"/> Timber frame	<input type="checkbox"/> Concrete shear wall
Address	<u>242-246 High St.</u>		<input type="checkbox"/> Steel frame	<input checked="" type="checkbox"/> Unreinforced masonry
GPS Co-ordinates	S°	E°	<input type="checkbox"/> Tilt-up concrete	<input type="checkbox"/> Reinforced masonry
Contact Name	<u>Chris Chapman</u>		<input type="checkbox"/> Concrete frame	<input type="checkbox"/> Confined masonry
Contact Phone	<u>0274 715 619</u>		<input type="checkbox"/> RC frame with masonry infill	<input type="checkbox"/> Other:
Stores at and above ground level	<u>3</u>	Below ground level	Primary Occupancy	
Total gross floor area (m ²)		Year built	<input type="checkbox"/> Dwelling	<input checked="" type="checkbox"/> Commercial/ Offices
No of residential Units	<u>-</u>		<input type="checkbox"/> Other residential	<input type="checkbox"/> Industrial
Photo Taken	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Public assembly	<input type="checkbox"/> Government
			<input type="checkbox"/> School	<input type="checkbox"/> Heritage Listed
			<input type="checkbox"/> Religious	<input type="checkbox"/> Other

Investigate the building for the conditions listed on page 1 and 2, and check the appropriate column. A sketch may be added on page 3

Overall Hazards / Damage	Minor/None	Moderate	Severe	Comments
Collapse, partial collapse, off foundation	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Building or storey leaning	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Wall or other structural damage	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Overhead falling hazard	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>RHS from street frontage parapet damage</u>
Ground movement, settlement, slips	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Neighbouring building hazard	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Electrical, gas, sewerage, water, hazmat	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

Record any existing placard on this building:

Existing Placard Type (e.g. UNSAFE)

RESTRICTED USE

Choose a new posting based on the new evaluation and team judgement. Severe conditions affecting the whole building are grounds for an UNSAFE posting. Localised Severe and overall Moderate conditions may require a RESTRICTED USE. Place INSPECTED placard at main entrance. Post all other placards at every significant entrance. Transfer the chosen posting to the top of this page.

INSPECTED

GREEN G1 G2

RESTRICTED USE

YELLOW Y1 Y2

UNSAFE

RED R1 R2 R3

Record any restriction on use or entry:

Further Action Recommended:

Tick the boxes below only if further actions are recommended

- Barricades are needed (state location):
- Detailed engineering evaluation recommended
 - Structural
 - Geotechnical
 - Other:
- Other recommendations:

Estimated Overall Building Damage (Exclude Contents)

None	<input type="checkbox"/>		<input type="checkbox"/>
0-1 %	<input checked="" type="checkbox"/>	31-60 %	<input type="checkbox"/>
2-10 %	<input type="checkbox"/>	61-99 %	<input type="checkbox"/>
11-30 %	<input type="checkbox"/>	100 %	<input type="checkbox"/>

Cost 1 DP 3675

831957

Sign here on completion

Date & Time
ID

10/9/10 9:00 am

Inspection ID: JGM101 (Office Use Only)

BUI.HIG246.0009.10
Comments

3

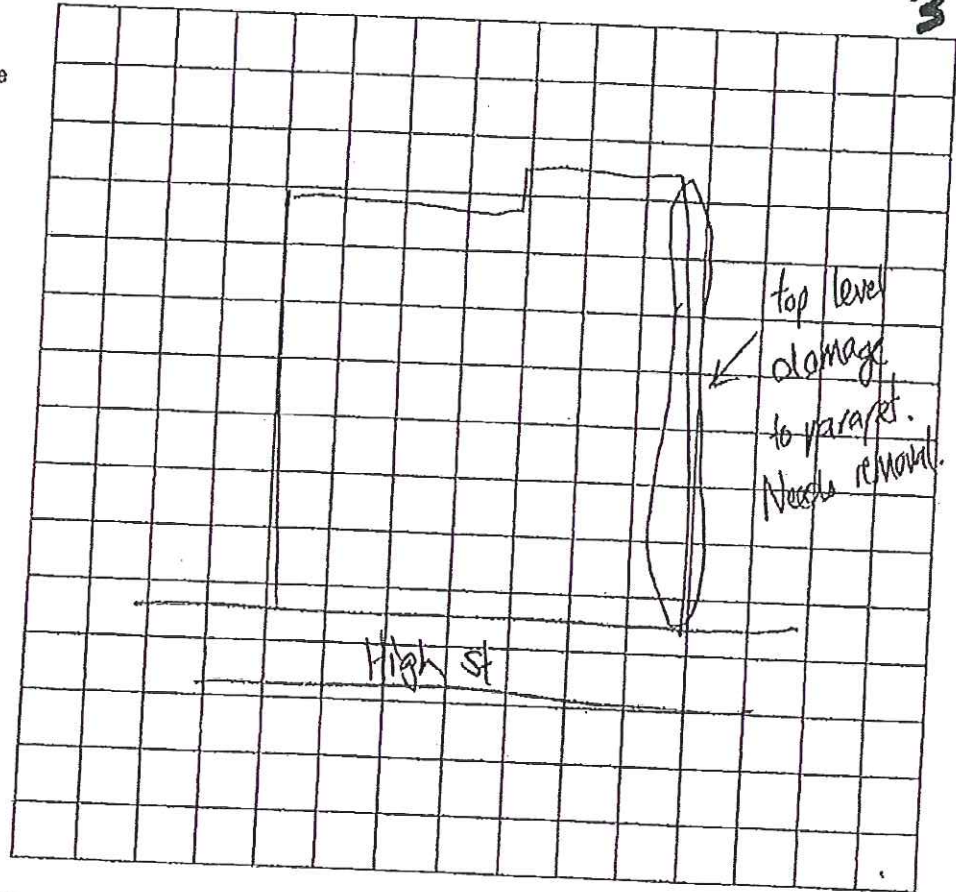
Structural Hazards/ Damage	Minor/None	Moderate	Severe	Comments
Foundations	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Roofs, floors (vertical load)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Columns, pilasters, corbels	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Diaphragms, horizontal bracing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Pre-cast connections	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Beam	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Non-structural Hazards / Damage				
Parapets, ornamentation	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	RHS parapet are damaged & unstable will require removal.
Cladding, glazing	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Minor glass breakage on back wall
Ceilings, light fixtures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Interior walls, partitions	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Elevators	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Stairs/ Exits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Utilities (eg. gas, electricity, water)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Other	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Geotechnical Hazards / Damage				
Slope failure, debris	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Ground movement, fissures	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Soil bulging, liquefaction	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
General Comment				

Usability Category

Damage Intensity	Posting	Usability Category	Remarks
Light damage	Inspected (Green)	G1. Occupiable, no immediate further investigation required	
Low risk		G2. Occupiable, repairs required	
Medium damage	Restricted Use (Yellow)	Y1. Short term entry	
Medium risk		Y2. No entry to parts until repaired or demolished	Parapets to be removed prior to entry
Heavy damage	Unsafe (Red)	R1. Significant damage; repairs, strengthening possible	
		R2. Severe damage; demolition likely	
		R3. At risk from adjacent premises or from ground failure	

2 Inspection ID: _____ (Office Use Only)

✓
 Sketch (optional)
 Provide a sketch of the entire
 building or damage points. Indicate
 damage points.



Recommendations for Repair and Reconstruction or Demolition (Optional)

- parapet on right hand side of the bldg needs to be secured or removed prior to bldg being occupied.

Neighbouring building to the right of 242 ~~is~~ is currently green placarded but ~~is~~ it is recommended that it's changed to ~~orange~~ yellow due to the danger from the damaged parapet.



P9105509

P9105511



P9105510

P9105512



100



P9105513



P9105514

P9105515



P9105516





P9105517

P9105519



P9105518

P9105520





P9105521



P9105522

P9105523

