

5 May 2019

Waitomo District Council PO Box 404 Te Kuiti 3941 Our ref:1250/7667//MDC Admin Building ISA Letter

Attention: Quin Powell

Dear Quin,

## Initial Seismic Assessment of Waitomo District Council Administration Building

We have now completed a review and update of the Initial Seismic Assessment (ISA) of the Waitomo District Council Administration building using the Initial Evaluation Procedure (IEP). The assessment was carried out after reviewing all the provided documents noted below in the basis of assessment.

## **Executive Summary**

The two portions of the building attained the following percentage new building standard in the two principal directions:

*Timber Structure – Single Storey* 

Transverse: 100%NBS.

Longitudinal: 100%NBS

Hence the building is unlikely to be an earthquake risk or earthquake prone.

#### Blockwall Structure – Tow Storey

Transverse: 45%NBS.

Longitudinal: 92%NBS

Hence the building is classed as potentially Earthquake Risk.

The ISA is considered to provide a relatively quick, high-level and qualitative measure of the building's performance.

## Introduction

This Initial Seismic Assessment has been based on the IEP as defined by the NZSEE Guidelines



## Background to the IEP and Its Limitations

The IEP procedure was developed in 2006 by the New Zealand Society for Earthquake Engineering (NZSEE) and updated in 2013 to reflect experience with its application and as a result of experience in the Canterbury earthquakes. It is a tool to assign a percentage of New Building Standard (%*NBS*) score an associated grade to a building as part of an initial seismic assessment of existing buildings.

The IEP enables territorial authorities, building owners and managers to review their building stock as part of an overall risk management process.

Characteristics and limitations of the IEP include:

- It tends to be somewhat conservative, identifying some buildings as earthquake prone, or having a lower %*NBS* score, which subsequent detailed investigation may indicate is less than actual performance. However, there will be exceptions, particularly when critical structural weaknesses (CSWs) are present that have not been recognised from the level of investigation employed.
- It can be undertaken with variable levels of available information, eg exterior only inspection, structural drawings available or not, interior inspection, etc. The more information available the more representative the IEP result is likely to be. The IEP records the information that has formed the basis of the assessment and consideration of this is important when determining the likely reliability of the result.
- It is an initial, first-stage review. Buildings or specific issues which the IEP process flags as being
  problematic or as potentially critical structural weaknesses, need further detailed investigation and
  evaluation. A Detailed Seismic Assessment is recommended if the seismic status of a building is
  critical to any decision making.
- The IEP assumes that the buildings have been designed and built in accordance with the building standard and good practice current at the time. In some instances, a building may include design features ahead of its time - leading to better than predicted performance. Conversely, some unidentified design or construction issues not picked up by the IEP process may result in the building performing not as well as predicted.
- It is a largely qualitative process, and should be undertaken or overseen by an experienced engineer. It involves considerable knowledge of the earthquake behaviour of buildings, and judgement as to key attributes and their effect on building performance. Consequently, it is possible that the %NBS derived for a building by independent experienced engineers may differ.
- An IEP may over-penalise some apparently critical features which could have been satisfactorily taken into account in the design.
- An IEP does not take into account the seismic performance of non-structural items such as ceiling, plant, services or glazing.

Experience to date is that the IEP is a useful tool to identify potential issues and expected overall performance of a building in an earthquake. However, the process and the associated *%NBS* and grade should be considered as only indicative of the building's compliance with current code requirements. A detailed investigation and analysis of the building will typically be required to provide a definitive assessment.



## **Basis for the Assessment**

The information we have used for our IEP assessment includes:

- Previous IEP report done by DMC Ltd;
- Partial building structural drawings as made available, and;
- Geotechnical Assessment provided by Mark Mitchell, which considers the site soil to be soil class C.
- No site inspection nor destructive testing.

## Waitomo District Council Administration Building

#### **Building Description**

This building is located at Queen Street, Te Kuiti. It is a mix of single storey timber structure with slab on grade and two storey reinforced retaining block wall and timber floor with slab on grade. The building was designed in 1985. The primary lateral load resisting mechanism for the single storey portion for both directions is by timber framed walls. The primary lateral load resisting mechanism for the two storey portion for both directions is by timber framed walls, upper level, and a combination of block walls and timber framed walls at lower level.

#### IEP Assessment Results

Our IEP assessment of the single storey part of building indicates the building can achieve 100%NBS in the longitudinal direction and 100%NBS in the transverse direction with soil class C. This is in comparison with 80%NBS longitudinal and 80%NBS transverse with soil class D, as previously assumed in DCM Ltd assessment. The initial seismic assessment of this part of building therefore indicates a seismic performance rating of 100%NBS, corresponding to a 'Grade A' building as defined by the New Zealand Society for Earthquake Engineering (NZSEE) building grading scheme. This is above the threshold for earthquake prone buildings (34%NBS) and the threshold for earthquake risk buildings (67%NBS) as recommended by the NZSEE.

Our IEP assessment of the two storey part of building indicates the building can achieve 92%*NBS* in the longitudinal direction and 45%*NBS* in the transverse direction with soil class C. This is in comparison with 85%*NBS longitudinal* and 35%*NBS* transverse with soil class D, as previously assumed in DCM Ltd assessment. The initial seismic assessment of this part of building therefore indicates a seismic performance rating of 45%*NBS*, corresponding to a 'Grade C' building as defined by the New Zealand Society for Earthquake Engineering (NZSEE) building grading scheme. This is above the threshold for earthquake prone buildings (34%*NBS*) but is below the threshold for earthquake risk buildings (67%*NBS*) as recommended by the NZSEE.

## Discussion

Our initial seismic assessment concluded that the Administration Building is 45%NBS. A DSA is recommended to investigate and accurately quantify the effects of the plan irregularities observed in the building. This seismic performance rating is considered conservative as there is evidence that the plan



irregularities were taken into account during design. A further assessment will provide a more accurate representation of the buildings performance with respect to the current standards. Prior to further assessment (DSA) intrusive investigations to determine the configuration of reinforcement at typical beam column joints should be carried out.

## IEP Grades and Relative Risk

Table 1 taken from the NZSEE Guidelines provides the basis of a proposed grading system for existing buildings, as one way of interpreting the *%NBS* building score. It can be seen that occupants in Earthquake Prone buildings (less than 34*%NBS*) are exposed to more than 10 times the risk that they would be in a similar new building. For buildings that are potentially Earthquake Risk (less than 67*%NBS*), but not Earthquake Prone, the risk is at least 5 times greater than that of an equivalent new building. Broad descriptions of the life-safety risk can be assigned to the building grades as shown in Table 1.

Building Grade	Percentage of New Building Strength (% <i>NBS</i> )	Approx. Risk Relative to a New Building	Life-safety Risk Description
A+	>100	<1	low risk
A	80 to 100	1 to 2 times	low risk
В	67 to 79	2 to 5 times	low or medium risk
С	34 to 66	5 to 10 times	medium risk
D	20 to 33	10 to 25 times	high risk
E	<20	more than 25 times	very high risk

#### Table 1: Relative Earthquake Risk

The single storey part of building has been classified by the ISA as a Grade A building which is considered low risk, while the two storey part of building has been classified as Grade C which is considered medium risk. The New Zealand Society for Earthquake Engineering (which provides authoritative advice to the legislation makers, and should be considered to represent the consensus view of New Zealand structural engineers) classifies buildings achieving greater than 67%NBS as "Low or Medium Risk", and recommends strengthening to at least 67%NBS.

## Seismic Restraint of Non-Structural Items

During an earthquake, the safety of people can be put at risk due to non-structural items falling on them. These items should be adequately seismically restrained, where possible, to the NZS 4219:2009 "The Seismic Performance of Engineering Systems in Buildings".

An assessment has not been made of the services and plant. We have also not checked whether tall or heavy furniture has been seismically restrained or not. These issues are outside the scope of this initial assessment however, for this predominantly empty building this is seen as low risk.



# Conclusion

Our ISA assessment for this building, carried out using the IEP indicates overall scores of the buildings are as follows;

- Two Storey and overall Building 45%NBS (corresponds to a Grade C building, as defined by the NZSEE building grading scheme.)
- Single Storey 100%NBS (corresponds to a Grade A building, as defined by the NZSEE building grading scheme.)

The ISA is considered to provide a relatively quick, high-level and qualitative measure of the building's performance.

We trust this letter and initial seismic assessment meets your current requirements. We would be pleased to discuss further with you any issues raised in this report.

Please do not hesitate to contact me if you would like clarification of any aspect of this letter.

Yours sincerely

Hand Bly

Hannah Blythe Service Group Manager – Structures, Auckland 09 370 8129

Inc.

IEP Assessment – Two Storey Building Portion IEP Assessment – Single Storey Building Portion

Initial Evaluation Proced	ure (IEP) Assessment	- Completed for Waitomo	District Counci	I Page 1
WARNING!! This initial evaluation has Existing Buildings" Technical Guidelines fi report, and should not be relied on by an been undertaken, and these may lead to	been carried out solely as an initial so or Engineering Assessments, July 2017 oparty for any other purpose. Detaile a different result or seismic grade.	eismic assessment of the building following . This spreadsheet must be read in conjunci d inspections and engineering calculations,	the procedure set out in the tion with the limitations set or engineering judgements	"The Seismic Assessment of out in the accompanying based on them, have not
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$ \begin{array}{llllllllllllllllllllllllllllllllllll$	(from NZS1170.5:2004, CI 3.1.6) b) Factor E 2.3 Hazard Scaling Factor, Factor F a) Hazard Factor, Z, for site Location: Te KL Z = $Z_{1992} =$ $Z_{2004} =$ b) Factor F For pre 1992 For 1992-2011 For post 2011 2.4 Return Period Scaling Factor, Factor, Factor a) Design Importance Level, 1 (Set to 1 if not known. For buildings designed prior building set to 1.25. For buildings designed prior building set to 1.23. For buildings designed yabri- building set to 1.25. Tor buildings designed yabri- building set to 1.25. Tor buildings designed prior building set to 1.25. Tor buildings designed yabri- building set to 1.25. Tor buildings designed yabri- building set to 1.25. Tor buildings designed prior building set to 1.25. Tor building designed prior building set to 1.25. Tor buildings designed prior building set to 1.25. Tor buildings designed prior building set to 1.25. Tor buildings designed yabri- building set to 1.25. Tor buildings designed prior building set to 1.25. Tor building designed prior building set to 1.25. Tor buildings designed prior for the prior set tor buildings designed	0.18 0.725 0.18 = = = = ctor G to 1965 and known 1976 and known to or 1976-1984 set I	= $1/N(T,D)$ (from NZS1170.4 (NZS4203:1992 (from NZS1170.4 1/Z $Z_{1992}/Z$ $Z_{2004}/Z$ which to be designed as a point of the designed as a poin	Fa Refer right fo 5:2004, Table 3.3) Zone Factor from a 5:2004, Table 3.3) Fa a public ublic	actor E: 1.00 or user-defined loc accompanying Figure 3.5 actor F: 5.56	cations (5))	1.00
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$ \sum_{2acc} = 0.16  \text{from NZS1170 5.2004, Table 3.3)} $ b) Factor F For pre 1992 For post 2011 For post 2011 Factor F: 556 5.56 C4 Return Period Scaling Factor, Factor G Design Importance Level, I Set 15 For bottle disgregation for to 1958 and known to be designed as a public halding set 0.23, Torchas of 12 Out 0.8, For 1907-01405 and known to be designed as a public halding set 0.23, Torchas of 12 Out 0.8, For 1007-01405 and known to be designed as a public halding set 0.23, Torchas of 12 Out 0.8, For 1007-01405 and known to be designed as a public halding set 0.23, Torchas of 12 Out 0.8, For 1007-01405 and known to be designed as a public halding set 0.23, Torchas of 12 Out 0.8, For 1007-01405 and known to be designed as a public factor, R (set 0.1.0 other than 1597-2004, or not known) Choose Importance Level C4 = 1 C4 = 10 C	Z <sub>2004</sub> = Z <sub>2004</sub>	0.18 = = = Ctor G • to 1965 and known 976 and known to or 1976-1984 set I	(from NZS1170.) 1/Z $Z_{1992}/Z$ $Z_{2004}/Z$ where the designed as a per- l value.)	5:2004, Table 3.3) Fa a public ublic	actor F: <u>5.56</u>		5.56
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For 1982-2011 = $Z_{200}/Z$ For post 2011 = $Z_{200}/Z$ Factor F: 5.56 5.56 5.56 5.56 5.56 5.56 5.56 5.5	For 1992-2011 For post 2011 2.4 Return Period Scaling Factor, Fac a) Design Importance Level, I (Set to 1 if not known. For buildings designed prior building set to 1.25. For buildings designed 1965-1 building set to 1.33 for Zone A or 1.2 for Zone B. Fi b) Design Risk Factor, R <sub>o</sub> (set to 1.0 if other than 1976-2004, or not known) c) Return Period Factor, R (from NZS1170.0:2004 Building Importance Level d) Factor G	= = ctor G to 1965 and known 976 and known to or 1976-1984 set I	Z <sub>1992</sub> /Z Z <sub>2004</sub> /Z	Fa a public ublic	actor F: 5.56		5.56
For post 2011 = $Z_{200}/Z$ Factor F: 5.56 5.56 5.56 5.56 5.56 5.56 5.56 5.5	<ul> <li>For post 2011</li> <li>2.4 Return Period Scaling Factor, Fac a) Design Importance Level, I (Set to 1 if not known, For buildings designed prior building set to 1.25. For buildings designed 1965-1 building set to 1.33 for Zone A or 1.2 for Zone B. Fi</li> <li>b) Design Risk Factor, R<sub>o</sub> (set to 1.0 if other than 1976-2004, or not known)</li> <li>c) Return Period Factor, R (from NZS1170.0:2004 Building Importance Level</li> <li>d) Factor G</li> </ul>	= ctor G to 1965 and known 976 and known to or 1976-1984 set I	$Z_{2004}/Z$ on to be designed as be designed as a poil value.)	Fa a public ublic	actor F: 5.56		5.56
Factor F:       5.56         4. Return Period Scaling Factor, Factor G         9. Design importance Lavel, I         (Sate is 1 and known. For buildings designed prior to 1965 and known to be designed as a public building set 0.33 for 20 and n 12 for 20 as its and to be designed as a public building set 0.33 for 20 and n 12 for 20 as its and to be designed as a public building set 0.33 for 20 and n 12 for 20 as its and to be designed as a public building set 0.33 for 20 as its 13 for 20 as its 20 as its 20 for	<ul> <li>A Return Period Scaling Factor, Fac a) Design Importance Level, I (Set to 1 in ot known. For buildings designed prior building set to 1.25. For buildings designed 1965-1 building set to 1.33 for Zone A or 1.2 for Zone B. Fo</li> <li>b) Design Risk Factor, R<sub>o</sub> (set to 1.0 if other than 1976-2004, or not known)</li> <li>c) Return Period Factor, R (from NZS1170.0:2004 Building Importance Level</li> <li>d) Factor G</li> </ul>	ctor G to 1965 and known 976 and known to or 1976-1984 set I	vn to be designed as be designed as a pr I value.)	Fa a public ublic	actor F: 5.56		5.56
A Return Period Scaling Factor, Factor G         9 Design Importance Level, I         Best 9 Instrumer, For buildings designed prior to be designed as a public building set 51.33 for Zone B. For 1370-1394 set 1 value.)         1       1         9 Design Importance Level, I         (ext to 10 other than 1376-2004, or not known) $R_0 = 1$ 9 Design Risk Factor, R, (ron NZ31700.2004 Building importance Level)         (o) Factor G       =         9 Factor G       =         6 Ductility Scaling Factor, Factor H         9 Pactor G       =         9 Pactor G       =         9 Factor R         9 Factor R         9 Factor H         9 Pactor H         9 Pactor H         9 Factor H         9 Pactor H         9 Contramet         9 Same State State Spectrum Scaling Factor, Factor H         10 Output brack Spectrum Scaling Factor, Factor H         10 Output brack Spectrum Spector, Factor H         10 Output brack Spectrum Spec	<ul> <li>A Return Period Scaling Factor, Fac a) Design Importance Level, I (Set to 1 if not known. For buildings designed prior building set to 1.25. For buildings designed 1965-1 building set to 1.33 for Zone A or 1.2 for Zone B. Fi</li> <li>b) Design Risk Factor, R<sub>o</sub> (set to 1.0 if other than 1976-2004, or not known)</li> <li>c) Return Period Factor, R (from NZS1170.0:2004 Building Importance Level</li> <li>d) Factor G</li> </ul>	ctor G to 1965 and known 976 and known to or 1976-1984 set I	vn to be designed as v be designed as a pr l value.)	s a public ublic	l = <u>1</u>		1
$ \begin{bmatrix} strict 0 I mark hown. For building designed protor 1985 and known to be designed as a public building set 0.53 for Zuone B. For 1976-1984 set 1 value.)  b) Design Risk Factor, R, (ext 0.1 of other than 1976-2004, or not known)  (ext 0.1 of other than 1976-2004, or not known)  Choose Importance Level 1 = 1(ext 0.1 of other than 1976-2004, or not known)Choose Importance Level 1 = 2R_{o} = 10$ , Return Period Factor, R (from NZS1170.02004 Building Importance Level) Choose Importance Level $01 = 2R = 1.8d$ , Factor G = 1 R <sub>o</sub> /R = 1.8 d, Factor G = 1 R <sub>o</sub> /R = 1.8 d, Factor G = 1 R <sub>o</sub> /R = 1.8 d, Factor G = 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.56 0.57 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70 0.70	<ul> <li>(Set to 1 if not known. For buildings designed prior building set to 1.25. For buildings designed 1965-1 building set to 1.33 for Zone A or 1.2 for Zone B. F</li> <li>b) Design Risk Factor, R<sub>o</sub> (set to 1.0 if other than 1976-2004, or not known)</li> <li>c) Return Period Factor, R (from NZS1170.0:2004 Building Importance Level</li> <li>d) Factor G</li> </ul>	to 1965 and known 1976 and known to for 1976-1984 set I	n to be designed as be designed as a po I value.)	a public ublic	l = 1		1
b) Design Risk Factor, R, (let to 1.0 if other than 1976-2004, or not known) Category 4 R <sub>o</sub> = 1 category 4 category 4 category 4 R <sub>o</sub> = 1 category 4 category 4 cate	<ul> <li>b) Design Risk Factor, R<sub>o</sub> (set to 1.0 if other than 1976-2004, or not known)</li> <li>c) Return Period Factor, R (from NZS1170.0:2004 Building Importance Level</li> <li>d) Factor G</li> </ul>						
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$R_{0} = 1$ $R_{0$	c) Return Period Factor, R (from NZS1170.0:2004 Building Importance Level d) Factor G				category		lagory i
c) Return Period Factor, R (rrom NZS1170.0:2004 Building Importance Level)       Choose Importance Level       1       2       3       6.4         d) Factor G       =       IR $_{\sigma}R$ Factor G:       0.56         2.5 Ductility Scaling Factor, Factor H       =       0.56       0.56         3.0 Available Displacement Ductility Within Existing Structure Comment: $\mu = 2.00$ 0.56         9.4 Available Displacement Ductility Within Existing Structure Comment: $\mu = 2.00$ 0.56         9.5 For Dre 1976 (maximum of 2)       = $h_{\sigma}$ 1.57         1.00       For pre 1976 (maximum of 2)       =       1.57         1.00       For 1976 onwards       =       1.00         1.00       (where kµ is NZS1170.5:2004 Inelastic Spectrum Scaling Factor, from accompanying Table 3.3)       1.00         2.6 Structural Performance Scaling Factor, Factor I       -       -       -         9 Structural Performance Scaling Factor       =       1.5%       -       0.70         0.5 Structural Performance Scaling Factor       =       1.43       1.43       1.43         Note Factor B values for 1992 to 2004 have been multiplied by 0.67 to account for Sp in this period       92%       92%       92%	c) Return Period Factor, R (from NZS1170.0:2004 Building Importance Level d) Factor G				R <sub>o</sub> = 1		1
c) Return Period Factor, R         (from NZS1170.02004 Building Importance Lavel)       Choose Importance Level       1       2       3       6.4         (from NZS1170.02004 Building Importance Lavel)       Choose Importance Level       1       2       3       6.4         (from NZS1170.02004 Building Importance Lavel)       Choose Importance Level       1       2       3       6.4         (from NZS1170.02004 Building Importance Lavel)       Choose Importance Level       1       2       3       6.4         (from NZS1170.02004 Building Importance Lavel)       Factor G       0.56       0.56       0.56         5.5 Ductility Scaling Factor, Factor H       Factor G       0.56       0.56       0.56         2.00       Reinforced block walls combined with ply bracing panels. The ductility of the weaker ply bracing has been used into the assessment. $\mu = 2.00$ 2.00       2.00         b) Factor H       For pre 1976 (maximum of 2)       =       1.57       1       1.00         (where kµ is NZ51170.5:2004 Inelastic Spectrum Scaling Factor, from accompanying Table 3.3)       Image: Structural Performance Scaling Factor for account for Sp in this period       0       0       0       0       0.70       0.70       0.70       0.70       0.70       0.70       0.70       0.70       0.70       0.70 <td><ul> <li>c) Return Period Factor, R (from NZS1170.0:2004 Building Importance Leve</li> <li>d) Factor G</li> </ul></td> <td></td> <td></td> <td></td> <td></td> <td>_</td> <td></td>	<ul> <li>c) Return Period Factor, R (from NZS1170.0:2004 Building Importance Leve</li> <li>d) Factor G</li> </ul>					_	
$R = \boxed{1.8}$ $R =$	d) Factor G	l)	Choose Impo	ortance Level	$O_1 O_2 O_1$	3 04	
d) Factor G = $I_{\alpha}/R$ Factor G: 0.56 1.5 Ductility Scaling Factor, Factor H a) Available Displacement Ductility Within Existing Structure Comment: Pacific Comment: Reinforced block walls combined with ply bracing pannels. The ductility of the weaker ply bracing has been used into the assessment. b) Factor H For pre 1976 (maximum of 2) = 1.57 For 1976 onwards = 1 Factor H: 1.00 (where kµ is NZS1170.5.2004 Inelastic Spectrum Scaling Factor, Factor I a) Structural Performance Scaling Factor, Factor I a) Structural Performance Scaling Factor, Factor I a) Structural Performance Scaling Factor = $1/S_p$ Factor I: 1.43 Note Factor B values for 1992 to 2004 have been multiplied by 0.67 to account for Sp in this period <b>1.00</b> WARNING!! This intild evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of Zastor I WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out on "The Seismic Assessment of Zastor I WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out on "The Seismic Assessment of Zastor I WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of Zastor I WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out on "The Seismic Assessment of Zastor I WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of Zastor I WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of Zastor I <b>1.00</b>	d) Factor G				R = 1.8		1.8
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The plan is irregular in high r	ance Severe ratio aspect	0.	Signilicant			Factor A 0.4
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Note: Values given assume the may be reduced by taking Table for Selection on Align Floors are aligned each othe b) Factor D2: - Height D Table for Selection of No adjacent building and no Site Characteristics - Stat Effect on Structural Performa No significant threat	building has a frame stru g the coefficient to the rig f Factor D1 Alignment of Floors within 2 nment of Floors not within 2 nment of Floors within 2 nment of Floor	Inclure. For stiff build that of the value appl Fa Separation 0% of Storey Height 0% of Storey Height 0% of Storey Height Fa erence > 4 Storeys ference < 2 Storeys ference < 2 Storeys	dings (eg shea icable to frame Severe 0 <sep<.005h 1 0.4 Ctor D2 For 1 Severe 0<sep<.005h 0.4 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5</sep<.005h </sep<.005h 	Transverse Dire Significant .005 <sep<.01h 0.7 Cransverse Dire Significant .005<sep<.01h 0.7 Cransverse Dire Significant .005<sep<.01h 0.7 0.9 1 reformance from</sep<.01h </sep<.01h </sep<.01h 	ct of pounding	Factor D 1.
Note: Values given assume the may be reduced by taking Table for Selection of Align Floors are aligned each othe b) Factor D2: - Height D Table for Selection of No adjacent building and no Site Characteristics - Stat Effect on Structural Performa No significant threat Other Factors - for allowand Record rationale for c	building has a frame stru g the coefficient to the rig f Factor D1 Alignment of Floors within 2 ment of Floors not within 2 ment of Floors within 2 ment o	Incture. For stiff build ht of the value appl Fa Separation 0% of Storey Height 0% of Storey Height Fa erence > 4 Storeys ference < 2 Storeys ference < 2 Storeys action etc as it affects action etc as it affects	dings (eg shea icable to frame Severe 0 <sep<.005h 1 0.4 Ctor D2 For 1 Severe 0<sep<.005h 0.4 0.7 1 severe 0<sep<.005h 0.4 0.7 1 severe 0<sep<.005h 0.4 0.7 1 5 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Se</sep<.005h </sep<.005h </sep<.005h </sep<.005h 	Transverse Dire Significant .005 <sep<.01h 0.7 0.7 Transverse Dire Significant .005<sep<.01h 0.7 0.7 0.9 1 performance from</sep<.01h </sep<.01h 	ct of pounding	Factor D 1.0 Factor E 1.0 Factor F 1.2
Note: Values given assume the may be reduced by taking Table for Selection or Align Floors are aligned each othe b) Factor D2: - Height D Table for Selection of Table for Selection of Site Characteristics - Stat Effect on Structural Performa No significant threat Other Factors - for allowand Record rationale for c Building well documented wi	building has a frame stru g the coefficient to the rig f Factor D1 Alignment of Floors within 2 ment of Floors not	Incture. For stiff builk ht of the value appl Fa Separation 0% of Storey Height 0% of Storey Height Fa erence > 4 Storeys fference < 2 Storeys fference < 2 Storeys action etc as it affects acterstics of the build Disparity of centre of	dings (eg shea icable to frame Severe 0 <sep<.005h 1 0.4 ctor D2 For 1 Severe 0<sep<.005h 0.4 0.7 1 severe 0<sep<.005h 0.4 0.7 1 severe 0<sep<.005h 0.4 0.7 1 for 1 Severe 0<sep<.005h 0.5 Severe 0<sep<.005h 0.5 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe 0 Severe Severe 0 Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe Severe</sep<.005h </sep<.005h </sep<.005h </sep<.005h </sep<.005h </sep<.005h 	r walls), the effe e buildings.	ct of pounding	Factor D 1.0 Factor E 1.0 Factor F 1.2
Note: Values given assume the may be reduced by taking Table for Selection or Align Floors are aligned each othe b) Factor D2: - Height D Table for Selection or No adjacent building and no Site Characteristics - Stat Effect on Structural Performa No significant threat Other Factors - for allowand Record rationale for c Building well documented wi shear forces in diaphragman	building has a frame stru g the coefficient to the rig f Factor D1 Alignment of Floors within 2 mment of Floors not within 2 Height Differ Height Diffe	Inclure. For stiff build ht of the value appl Fa Separation 0% of Storey Height 0% of Storey Height Fa erence > 4 Storeys ference < 2 Storeys ference < 2 Storeys action etc as it affects acterstics of the build Disparity of centre of accounted for in plan	dings (eg shea icable to frame Severe 0 <sep<.005h 1 0.4 ctor D2 For 1 Severe 0<sep<.005h 0.4 0.7 1 s the structural, Significant ing For f mass and cent irregularity fact</sep<.005h </sep<.005h 	Transverse Dire Significant .005 <sep<.01h 0.7 0.7 0.7 0.9 0.1 0.7 0.9 0.1 0.7 0.9 0.1 0.7 0.9 0.1 0.7 0.9 0.1</sep<.01h 	ct of pounding	Factor D 1.0 Factor E 1.0 Factor F 1.2
Note: Values given assume the may be reduced by taking Table for Selection of Align Floors are aligned each othe b) Factor D2: - Height D Table for Selection of Table for Selection of No adjacent building and no Site Characteristics - Stat Effect on Structural Performa No significant threat Other Factors - for allowand Record rationale for c Building well documented wi shear forces in diaphragm an	building has a frame stru g the coefficient to the rig f Factor D1 Alignment of Floors within 2 ment of Floors not within 2 ment of Floors within	Inclure. For stiff build ht of the value appl Fa Separation 0% of Storey Height 0% of Storey Height Fa erence > 4 Storeys ference < 2 Storeys ference < 2 Storeys action etc as it affects action etc as it affects Comparison of the build Disparity of centre of accounted for in plan	dings (eg sheat         icable to frame         ctor D1 For 1         Severe         0 <sep<.005h< td="">         1         0.4         Ctor D2 For 1         Severe         0<sep<.005h< td="">         0.4         0.1         0.4         Severe         0<sep<.005h< td="">         0.4         0.7         1         Severe         0<sep<.005h< td="">         0.4         0.7         1         Significant         Significant         Significant         Significant         img         For         mass and cent         irregularity fact</sep<.005h<></sep<.005h<></sep<.005h<></sep<.005h<>	Transverse Dire Significant .005 <sep<.01h 1 0.7 Transverse Dire Significant .005<sep<.01h 0.7 Transverse Dire Significant .005<sep<.01h 0.7 0.9 1 performance from r &lt; 3 storeys - Max otherwise - Max No r tre of rigidity along tor A above.</sep<.01h </sep<.01h </sep<.01h 	ct of pounding	Factor D 1.1 pective Factor E 1.1 Factor F 1.2
Note: Values given assume the may be reduced by taking Table for Selection or Align Floors are aligned each othe b) Factor D2: - Height D Table for Selection of Table for Selection of No adjacent building and no Site Characteristics - Stat Effect on Structural Performa No significant threat Other Factors - for allowand Record rationale for c Building well documented wi shear forces in diaphragm ar Performance Achievemen (equals A x B x C x D x E	building has a frame stru g the coefficient to the rig f Factor D1 Alignment of Floors within 2 ment of Floors not within 2 ment of Floors within 2 ment of Fl	Incture. For stiff build that of the value apple Separation 0% of Storey Height 0% of Storey Height 0% of Storey Height Fa erence > 4 Storeys fference < 2 Storeys action etc as it affects action etc as it affects action etc as it affects action etc of the build Disparity of centre of accounted for in plan	dings (eg shea icable to frame Severe 0 <sep<.005h 1 0.4 ctor D2 For 1 Severe 0<sep<.005h 0.4 0.7 1 severe 0<sep<.005h 0.4 0.7 1 severe 0<sep<.005h 0.4 0.7 1 for 1 Severe 0<sep<.005h 0.4 0.7 1 for 1 for 1</sep<.005h </sep<.005h </sep<.005h </sep<.005h </sep<.005h 	r walls), the effe e buildings.	ct of pounding	Factor D 1.0 pective Factor E 1.0 Factor F 1.2

reet Number &	Name:	Queen Streeet				Job No.:		12507667
<b>∢</b> Α:		Two-Storey Bu	uilding Portio	n		By:		PL
me of building	:	Waitomo Distr	ict Council A	dministratio	n Building	Date:		1/05/2019
y:		Te Kuiti				Revision	n No.:	0
able IEP-4 ep 4 - Percent	Initial Eval	uation Proced	dure Steps 4 d <i>(%NBS)</i>	4, 5, 6 and <sup>-</sup>	7			-
Assessed F	aseline %NRS	(%NBS).			Longi	udinal		92%
(from Table	e IEP - 1)	(//////////////////////////////////////					I	02,0
(from Table	e IEP - 2)	Ratio (PAR)			1.	20		0.48
PAR x Base	line (%NBS) <sub>b</sub>				>10	0%	l	45%
Percentage (Use lowe	New Building of two values fro	Standard (%NBS) m Step 4.3)	) - Seismic Rat	ing			I	45%
ep 5 - Is <i>%NB</i>	S < 34?						I	NO
ep 6 - Potentia	ally Earthquak	e Risk (is <i>%NBS</i>	S < 67)?					YES
ep 7 - Provisio Additional Co The building i torsional effect	onal Grading 1 omments (items is Grade C due to cts to the building	or Seismic Risk of note affecting IEI the irregular plan wh	based on IEF	c rating)	s away of the co	Seismic	Grade	C eate the
ep 7 - Provision	omal Grading f omments (items is Grade C due to cts to the building	or Seismic Risk of note affecting IEF the irregular plan wh	based on IEF P based seismic hich shows the ce	e rating) enter of rigidity is	s away of the c	Seismic	Grade at would cr	C eate the
Additional Control Con	onal Grading f omments (items is Grade C due to cts to the building ship betwee	or Seismic Risk of note affecting IEF the irregular plan wh the irregular and share on Grade and share	based on IEF P based seismic hich shows the co NBS :	e rating) enter of rigidity is	s away of the c	Seismic enter of mass. The	Grade at would cr	C eate the
ep 7 - Provision Additional Co The building torsional effect resional effect Relations	onal Grading f omments (items is Grade C due to cts to the building ship betwee <u>Grade:</u> %NBS:	or Seismic Risk of note affecting IEI the irregular plan wh n Grade and %	based on IEF P based seismic hich shows the ce NBS : A 100 to 80	e rating) enter of rigidity is more set of the set of t	s away of the co C 66 to 34	Seismic enter of mass. The enter of a set of the enter of mass. The enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter of the enter	Grade at would cr E < 20	C eate the
ep 7 - Provision	ship betweet	or Seismic Risk of note affecting IEF the irregular plan wh n Grade and %	based on IEF P based seismic nich shows the co %NBS : A 100 to 80	B 79 to 67	s away of the contract of the	Seismic enter of mass. The output of mass of the second second se	Grade at would cr E < 20	c eate the

e A m	et Number & Name: : e of building: :	Queen Streeet Two-Storey Building Waitomo District Cou Te Kuiti	Portion Incil Administration B	Job No.: By: uilding Date: Revision No	12507667 PL 1/05/2019 : 0
ak	ole IEP-5 Initial Ev	aluation Procedure St	tep 8		
tep	o 8 - Identification of po significant risk to a	tential Severe Structural significant number of or	Weaknesses (SSWs) t ccupants	hat could result in	
.1	Number of storeys abov	ve ground level			2
.2	Presence of heavy conc	rete floors and/or concrete	roof? (Y/N)		N
	Potential Severe	Structural Weakne	esses (SSWs):		
	Note: Options that are greye	d out are not applicable and nee	ed not be considered.		
	Occupancy not consid	dered to be significant - n	o further consideratio	n required	
	Risk not considered to	o be significant - no furth	er consideration requi	ired	
	The following potentia in the building that co	al Severe Structural Weak uld result in significant r	knesses (SSWs) have I isk to a significant nur	been identified nber of occupants:	
	1. None identified				
	2. Weak or soft storey	(except top storey)			
	3. Brittle columns and not constrained by	/or beam-column joints t other structural elements	he deformations of wh	ich are	
	4. Flat slab buildings connections	with lateral capacity relia	nt on low ductility slab	-to-column	
	5. No identifiable con	nection between primary	structure and diaphra	gms	
	6. Ledge and gap stai	ſS			
	IEP Assessm	ent Confirmed by	Ellon	Signature	
			Edison Luo	Name	
			1017182	CPEng. No	
				-	

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eet Number & Name:	Queen Streeet	Job No.:	12507667
A:	Two-Storey Building Portion	By:	PL
me of building:	Waitomo District Council Administration Building	Date:	1/05/2019
y:	Te Kuiti	Revision No.:	0
bla IED 1a Additia	anal Dhataa and Skatahaa		
	shar Photos and Sketches		
dd any additional photo	ographs, notes or sketches required below:		
Note: print this page separately			

Initial Evaluation Proced	lure (IEP) Assessment - Completed for Waitomo	District Cound	cil Page 1
WARNING!! This initial evaluation ha Existing Buildings'' Technical Guidelines report, and should not be relied on by an been undertaken, and these may lead to	as been carried out solely as an initial seismic assessment of the building following for Engineering Assessments, July 2017. This spreadsheet must be read in conjunct ny party for any other purpose. Detailed inspections and engineering calculations, a different result or seismic grade.	the procedure set out in i ion with the limitations s or engineering judgemen	the "The Seismic Assessment of et out in the accompanying ts based on them, have not
Street Number & Name:	Queen Streeet	Job No.:	<b>12507667</b>
AKA:	Single-Storey Building Portion	By:	PL
Name of building: City:	Waitomo District Council Administration Building Te Kuiti	Date: Revision No.:	1/05/2019 <mark>0</mark>
Table IEP-1 Initial Eva	aluation Procedure Step 1		
Step 1 - General Informatior			
1.1 Photos (attach sufficient t	o describe building)		
1.2 Sketches (plans etc, show	NOTE: THERE ARE MORE PHOTOS ON PAGE 1a ATTACH	IED	
	NOTE: THERE ARE MORE SKETCHES ON PAGE 1a ATTAC	HED	
1.3 List relevant features (Note	e: only 10 lines of text will print in this box. If further text req	uired use Page 1a	)
The building was designed by Ministry o area is single storey at the rear (in white The single level building is generally the the iron roof over plywood sheeting. The lateral stability is provided by plywo As a result of the Soil Investigation Repo	f Works and Development in 1985. It consists of 2 levels of approximate 40% of ). timber framed walls, weather board exterior, gib-board interior and timber floori od bracing panels. nt prepared by Mark T Mitchell Ltd on 5 October 2017, the building is found to b	total floor area at the from any control of the from the from the second ceilings were sitting on subsoil class	ont (in blue). The remaining ith timber trusses supporting s C, shallow soil.
1.4 Note information sources	Tick as appropriate		
Visual Inspection of Exterior Visual Inspection of Interior Drawings (note type)	Specifications       Geotechnical Reports       Other (list)		
Reference: Seismic Assessment Re	port prepared by Design Management Consultants Ltd. issued on 20 Jul	y 2017	

treet Number KA:	& Name:	Queen Stree	et v Building Portion			Job No.: Bv:	12507667 PL	
ame of build	ing:	Waitomo Dis	strict Council Administ	ration Bu	iilding	Date:	1/05/2019	
ity:		Te Kulti					.: U	
able IEP-2	Initial Eva	luation Proc	edure Step 2					
tep 2 - Deter	rmination of (%	VBS) <sub>b</sub>						
aseline (%/VBS 1 Determine	nominal (%NBS)	= (%NBS) <sub>nom</sub>	В5)		Longitudin	al	Transverse	
a) Building St	rengthening Data							
Tick if bui	ilding is known to ha	ve been strengther	ned in this direction					
If strengt	hened, enter percent	age of code the bu	uilding has been strengthened	l to	N/A		N/A	
		D. 11 //	10.1					
o) Year of Des	ign/Strengtnening,	Building Type an	a Seismic Zone		Pre 1935 (	0	Pre 1935	
					1935-1965 (	) )	1935-1965	ŏ
					1976-1984 (		1965-1976	
					1984-1992 (		1984-1992 1992-2004	
					2004-2011	5	2004-2011	Ő
				Pos	t Aug 2011 (	C	Post Aug 2011	0
			Building Type:	:	Not applic	able	Not applica	ble
			Seismic Zone:	Zone B		•	Zone B	-
c) Soil Type	om NZS1170 5·2004	CI313.						
	NT NZC 4000-4000			C Shallov	/ Soil		C Shallow Soil	
(fo	r 1992 to 2004 and	only if known)			Not applic	able	Not applica	ble
d) Estimate P	eriod, <i>T</i>			h	0.05		0.05	
The ply br	acing panels act in a	duclitity manner a	nd increase the building	$A_c =$	1.00		1.00	m²
Moment R	esisting Concrete Fr	ames:	$T = \max\{0.09h_0^{0.75}, 0.4\}$		0		0	
Moment R	esisting Steel Frame	es:	$T = \max\{0.14h_n^{0.75}, 0.4\}$		Ŏ		Õ	
All Other F	Frame Structures:	illes.	$T = \max\{0.06h_n^{0.75}, 0.4\}$ $T = \max\{0.06h_n^{0.75}, 0.4\}$		0		0	
Concrete S Masonry S	Shear Walls Shear Walls:		$T = \max\{0.09h_n^{0.75}/A_c^{0.5}, 0.4$ T < 0.4sec	}	0		0	
User Defin	ned (input Period):		_		ĕ		ĕ	
	Where $h_n = l$ uppermost se	neight in metres from th eismic weight or mass.	e base of the structure to the		<b>T:</b> 0.40		0.40	]
a) Factor A:	Strongthoning footor o	latermined using result	from (a) above (act to 1.0	Factor	A: 4.00	_	4.00	1
() Eactor D.	if not strengthened)	EE Guidelings Figure 2		Factor	B. 0.04		1.00	
n) Factor C:	results (a) to (e) above		tween 1976-84 Factor	Factor	C. 4 00		0.21	
	C = 1.2, otherwise tak	e as 1.0.					1.00	
h) Factor D:	For buildings designed and Napier (1931-193 take as 1.0.	d prior to 1935 Factor D 5) where Factor D may	0 = 0.8 except for Wellington be taken as 1.0, otherwise	Factor	D: 1.00		1.00	
(%NBS) <sub>nom</sub> =	AxBxCxD			(%NBS) <sub>r</sub>	om 21%		21%	I

IKA: Jame of building: Sity:	Queen Streeet Single-Storey Building Portion Waitomo District Council Administration Building Te Kuiti		tion Idministration Building	Job No.: By: Date: Revision No.:	12507667 PL 1/05/2019 O
Table IEP-2 Initial E	valuation Proce	edure Step 2	continued		
2.2 Near Fault Scaling Facto	r, Factor E				
If $T \leq 1.5 \text{ sec}$ , Factor E =	1		Longitudina		Transverse
a) Near Fault Factor, N(T,D)			N(T,D): 1		1
(from NZS1170.5:2004, CI 3.1.6)			Easter E		
b) Factor E		= 1/N(1,D)	Factor E: 1.00		1.00
2.3 Hazard Scaling Factor, F a) Hazard Factor, Z, for site	actor F				
Locat	tion: Te Kuiti	•	Refer right for user-defined loca	tions	
	Z = 0.18	(from NZS1170.	5:2004, Table 3.3)		
Z	1992 = 0.725	(NZS4203:1992	Zone Factor from accompanying Figure 3.5(b	))	
<ul> <li>Z<sub>2</sub></li> <li>b) Easter E</li> </ul>	2004 = 0.18	(from NZS1170.	5:2004, Table 3.3)		
For pre 1992	=	1/ <i>Z</i>			
For 1992-2011	=	Z <sub>1992</sub> /Z			
For post 2011	=	Z <sub>2004</sub> /Z		<b>-</b>	
			Factor F: 5.56		5.56
(set to 1.0 if other than 1976-2004, c c) Return Period Factor, R (from NZS1170.0:2004 Building Imp	or not known) Hortance Level)	Choose Impo	$R_{0} = 1$ $Contance Level \bigcirc 1 \bigcirc 2 \bigcirc 3$ $R = 1.8$	• 4 C	1 01 () 2 () 3 () 4 1.8
d) Factor G	=	IR₀/R	Factor C:	-	0.50
2.5 Ductility Scaling Factor, a) Available Displacement Duc Comment:	Factor H ctility Within Existing	Structure	$\mu = \underline{2.00}$	<b></b>	2.00
b) Factor H			<b>k</b>		$k_{\mu}$
	For pre 1976 (ma	aximum of 2)	= 1.57		1.57
		15	Factor H: 1.00		1.00
(where kµ is NZS1170.5:2004 Inelas	stic Spectrum Scaling Factor,	from accompanying T	able 3.3)		
6 Structural Performance 9	Scaling Factor, Fact ctor, S <sub>p</sub>	t <b>or I</b>			
a) Structural Performance Fac (from accompanying Figure 3.4) Tick if light timber-framed cc					
a) Structural Performance Fac (from accompanying Figure 3.4) Tick if light timber-framed co			S <sub>p</sub> = 0.70		0.70
<ul> <li>a) Structural Performance Factorial accompanying Figure 3.4) Tick if light timber-framed cc</li> <li>b) Structural Performance Sc: Note Factor B values for 1992 to 20</li> </ul>	aling Factor	$= 1/S_p$ 0.67 to account for Sp	$S_p = 0.70$ Factor I: 1.43		0.70

et Number & Name:	Queen Streeet Single-Storey B	uilding Portion		Jo Bi	ob No.: v:	12507667 PL
ne of building: /:	Waitomo Distric Te Kuiti	Waitomo District Council Administration Building Te Kuiti				1/05/2019 0
ble IEP-3 Initial E	valuation Procedu	ure Step 3				
<b>p 3 - Assessment of Pe</b> fer Appendix B - Section B3.2)	rformance Achieven	nent Ratio (PAR)				
ongitudinal Direction						
potential CSWs		Effect on Struct (Choose a value -	ural Perform	ance blate)		Fac
Plan Irregularity		,	,			
Effect on Structural Performa Uniform distributed walls ar	ance O Severe	OS	ignificant		Insignificant	Factor A 1.0
Vertical Irregularity						
Effect on Structural Performa No vertical irregularity	ance 🔵 Severe	Os	ignificant		Insignificant	Factor B 1.0
Short Columns						
Effect on Structural Performa	ance 🔾 Severe	OS	ignificant		Insignificant	Factor C 1.0
Note: Values given assume th may be reduced by takir	e building has a frame sing the coefficient to the r	tructure. For stiff buil right of the value appl	dings (eg shea licable to frame	ar walls), the effe e buildings.	ct of pounding	
Note: Values given assume th may be reduced by takin Table for Selection of	e building has a frame so ng the coefficient to the i of Factor D1	tructure. For stiff buil right of the value app Fac Separation	dings (eg shea licable to frame tor D1 For Lo Severe 0 <sep<.005h< td=""><td>ar walls), the effe e buildings. ongitudinal Dire Significant .005<sep<.01h< td=""><td>ct of pounding</td><td></td></sep<.01h<></td></sep<.005h<>	ar walls), the effe e buildings. ongitudinal Dire Significant .005 <sep<.01h< td=""><td>ct of pounding</td><td></td></sep<.01h<>	ct of pounding	
Note: Values given assume th may be reduced by takin Table for Selection o	e building has a frame song the coefficient to the instant of Factor D1 Alignment of Floors within	tructure. For stiff buil right of the value apport Fac Separation 20% of Storey Height	dings (eg shea icable to frame tor D1 For Lo Severe 0 <sep<.005h< td=""><td>ar walls), the effe e buildings. ongitudinal Dire Significant .005<sep<.01h< td=""><td>ection: 1.0 Insignificant Sep&gt;.01H</td><td></td></sep<.01h<></td></sep<.005h<>	ar walls), the effe e buildings. ongitudinal Dire Significant .005 <sep<.01h< td=""><td>ection: 1.0 Insignificant Sep&gt;.01H</td><td></td></sep<.01h<>	ection: 1.0 Insignificant Sep>.01H	
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ble IEP-3 Initial E	valuation Proced	lure Step 3				
<b>p 3 - Assessment of Pe</b> fer Appendix B - Section B3 2	rformance Achieve	ment Ratio (PAR)				
Fransverse Direction						
potential CSWs		Effect on Stru (Choose a value	uctural Perfor	rmance		Fact
Plan Irregularity			Significant	,		Eactor A
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		Single-Storey	Building Port	ion		By:		PL	
ame of building:	:	Waitomo Distr	ict Council A	dministratio	n Building	Date:		1/05/2019	
ity:		Te Kuiti				Revision	n No.:	0	
able IEP-4	Initial Eval	uation Proced	dure Steps	4, 5, 6 and	7				
ep 4 - Percenta	age of New Bu	uilding Standard	d <i>(%NBS)</i>		Longi	tudinal		Transverse	
					_•				
1 Assessed Ba (from Table	aseline %NBS e IEP - 1)	(%NBS) <sub>b</sub>			9)	2%		92%	
2 Performance (from Table	e Achievement e IEP - 2)	Ratio (PAR)			1.	.10	I	1.10	
B PAR x Base	line <i>(%NBS</i> ) <sub>b</sub>				10	0%	l	100%	
Percentage (Use lower	New Building S r of two values fro	Standard <i>(%NBS)</i> m Step 4.3)	- Seismic Rat	ing			ĺ	100%	
ep 5 - Is <i>%NB</i> S	S < 34?						I	NO	
ep 6 - Potentia	ally Earthquak	e Risk (is <i>%NB</i> S	5 < 67)?				l	NO	
ep 7 - Provisio	onal Grading f	or Seismic Risk	based on IEF	5		Seismic	Grade	A	
The building is	omments (items of states) adequate and st	of note affecting IEI atisfies the initial eva	P based seismic aluation assessm	e rating) hent.					
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treet Number & Name: KA: ame of building: ity:		Queen Streeet Single-Storey Buildir Waitomo District Cor Te Kuiti	ng Portion uncil Administration F	Job No.: By: Building Date: Revision No	12507667 PL 1/05/2019 D.: 0
al	ble IEP-5 Initial Ev	valuation Procedure S	tep 8		
te	p 8 - Identification of po significant risk to	otential Severe Structural a significant number of o	Weaknesses (SSWs) ccupants	that could result in	
.1	Number of storeys abo	ove ground level			1
.2	Presence of heavy con	crete floors and/or concrete	e roof? (Y/N)		N
	Potential Severe	e Structural Weakne	esses (SSWs):		
	Note: Options that are grey	red out are not applicable and nee	ed not be considered.		
	Occupancy not consi	idered to be significant - r	no further considerati	on required	
	Risk not considered	to be significant - no furth	er consideration requ	uired	
	The following potenti in the building that co	ial Severe Structural Weal ould result in significant r	หาesses (SSWs) have isk to a significant ทเ	been identified Imber of occupants:	
	1. None identified				
	2. Weak or soft store	y (except top storey)			
	3. Brittle columns and not constrained by	d/or beam-column joints t / other structural elements	he deformations of w	hich are	
	4. Flat slab buildings connections	with lateral capacity relia	nt on low ductility sla	b-to-column	
	5. No identifiable con	nnection between primary	structure and diaphra	agms	
	6. Ledge and gap sta	irs			
			Tillon		
	IEP Assessm	nent Confirmed by	Ealson	Signature	
			Edison Luo	Name	
			1017192	CPEng No	

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reet Number & N	ame:	Queen Stre	eet		Job No.:	12507667
<b>(A:</b>		Single-Stor	ey Building Portion		By:	PL
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