13 June 2018

Hutt City Council
Private Bag 31912
Lower Hutt

Attention:

Dear

Initial Seismic Assessment Report Wainuiomata Summer Pool - 99 Main Road, Wainuiomata

We have now completed an Initial Seismic Assessment (ISA) of the buildings at 99 Main Road, Wainuiomata using the Initial Evaluation Procedure (IEP) as described in Part B of the guideline document, *The Seismic Assessment of Existing Buildings-Technical Guidelines for Engineering Assessments*, dated August 2017. The assessment was carried out after reviewing original structural drawings and completing a site visit on 3 May 2019. Drawings were reviewed for building 2 and building 3.

Separate assessments have been undertaken for each of the four buildings

Executive Summary

This building has been rated as Importance Level 2 (IL2) in accordance with NZS1170.5:2004.

The assessed potential earthquake ratings are

Building 1	45%NBS (IL2);'Grade C':	not potentially earthquake prone, but earthquake risk
Building 2	70%NBS (IL2); 'Grade B':	neither potentially earthquake prone nor earthquake risk
Building 3	30%NBS (IL2); 'Grade D':	potentially earthquake prone
Building 4	35%NBS (IL2);'Grade C':	not potentially earthquake prone, but earthquake risk.

A "Severe Structural Weakness" (SSW) is a structural weakness for which rupture would lead to a catastrophic collapse.

- Building 1 No potential SSWs were identified in this building
- Building 2 No potential SSWs were identified in this building
- Building 3 Potential overturning instability of some block walls and some block partitions were identified as SSWs in this building
- Building 4 No potential SSWs were identified in this building

The Initial Seismic Assessment (ISA) is considered to provide a relatively quick, high-level and qualitative measure of the building's performance. A more reliable result will be obtained from a Detailed Seismic Assessment (DSA). A DSA could find structural aspects of concern that have not been identified from the IEP. Alternatively, a detailed structural assessment may show that structural aspects of potential concern identified in the IEP may have in fact been addressed in the design of the building.

Introduction

Hutt City Council has engaged and a second s

Earthquake Prone Building (EPB) methodology is used to identify earthquake-prone buildings, and has been produced by the Ministry of Business, Innovation and Employment in accordance with the Building Act 2004. This ISA meets the requirements of an engineering assessment as prescribed in the EPB methodology.

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 2017 to reflect experience with its application and also as a result of experience from the Canterbury earthquakes of 2010/11. It is a tool to assign a percentage of New Building Standard (%NBS) rating and associated grade to a building as part of an Initial Seismic Assessment of existing buildings.

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

Characteristics and limitations of the IEP include:

- An IEP assessment is primarily concerned with life safety. It does not consider the susceptibility of the building to damage, and therefore to economic losses.
- 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 potential critical structural weaknesses (CSWs) are present that have not been recognised from the level of investigation employed.
- An IEP can be undertaken with variable levels of available information: e.g. 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 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 ceilings, plant, services or general glazing that are not considered to present a significant life safety hazard.

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 rating and grade should be considered as only providing an indicative indication 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.

Each IEP has been based on 1) a review of drawings, 2) an inspection of the exterior and interior, and 3) preliminary calculations of SSW's. Therefore, each IEP can be considered to be a moderately comprehensive assessment at the ISA level. The ratings tabulated in the executive summary, if ratified by the Territorial Authority, would lead to Building 3 being designated "earthquake prone" and the other three buildings not being designated "earthquake prone".

Basis for the Assessment

The information we have used for our IEP assessment includes:

- The buildings were built between 1966 and 1970.
- Buildings 1 and 3 are narrow single storey blockwork structures. Building 1 has a concrete roof and regular transverse walls while Building 3 has a light roof and irregularly spaced internal walls. Building 2 has robust structural steel frames, supporting two storeys of timber framing. It is square and regular and is in contact with to buildings 1 and 3.
- Building 4 is a small light steel frame building.
- Site subsoil class D "Soft soil sites" has been used based on Greater Wellington Regional Council Map There is a moderate potential for liquefaction to affect the foundations.
- The period has been estimated as being less than 0.4 seconds.
- The buildings have an Importance Level 2.
- A ductility capacity of μ = 2 has been adopted for all buildings.
- There is insignificant plan irregularity in each direction except for building 3.
- There is insignificant vertical irregularity in any of the buildings.
- Differing adjustment factors (F) have been adopted for the four buildings:
 - Building 1 F = 1.4. Concrete roof diaphragm, transverse walls, tied foundations.
 - Building 2 F = 1.5 Ductile structural steel frames. Light, regular structure. Tied together.
 - Building 3 F = 1.4 No roof diaphragm observed. Longer block walls may be unstable.
 - Building 4 F = 1.1 Transverse frames appear nominal. Ad-hoc plant suspension from structure.

Building Description

The four buildings are located at 99 Main Road, Wainuiomata. Three of the buildings are connected but are considered separate structures in this assessment. The fourth building is a stand-alone structure.



Building 1 – Single Storey Block Work with Concrete Roof/Floor

- Built between 1966 and 1970 font has changed
- The building is approximately 5.2m wide and 2.7m tall to the top of roof slab.
- The building is used as the men's and boy's changing rooms and toilets with two storerooms. It has 4 roller garage door openings and 6 windows at 0.65x2.4m along one side.
- Construction and size appears to be similar to Building 3 except for the heavy pre-cast concrete roof and additional return walls.
- The roof is used as a viewing platform which is accessible from the adjacent two storey balcony and has a steel balustrade around the perimeter.
- The cladding is fixed to the adjacent two storey building but there does not appear to be any structural fixing.

Building 2 - Two Storey Steel Frame

- Built in 1970
- The upstairs is an open plan meeting room with a balcony along two sides.
- The downstairs is a foyer, ticketing booth and toilet.
- 9.7m square floor plan upstairs with a 1 m wide cantilever balcony along two sides, and 8.4m square floor plan downstairs.
- The balcony provides access to the balcony on building 1.
- Two steel portal frames crossing in the centre.
- Upstairs floor level is 3m, eaves height is 5.3m and the apex is at 8.8m.
- Shallow reinforced concrete perimeter foundation wall with strip footings for the ground floor slab, and 1.4m by 1.4m by 0.3m square pads for the portal legs.
- Foundations are shown to be 1.4m deep but noted as 'excavate to solid'.
- Portal legs are 10"x10"x1/2" RHS and the Rafters are10"x5 ¾"x 25lb UB

- The Eaves tie is 5" x 3" x 1/4" RHS
- The upstairs flooring is particle board with hard wood fillets on 250x50 joists at 450 crs.
- Joists are supported on 16"x7"x36lb UB bearers at 3.3m crs each way.
- Bearers are supported on 18"x6"x45lb beams around the perimeter forming a steel frame.
- Balusters are 3 ½" by 3 ½" RHS.

Building 3 - Single Storey Block Work with Light Iron Roof

- Built in 1966
- Most of the building is used for the women's changing and toilets, with one end as the spa plant and accessible changing rooms and toilets.
- It is 5m wide by 28.2m long and 2.7m overall height. 141 m2 floor area.
- There are two entries and four toilets positioned midway along the building.
- The longest stretch of wall without return walls is 12.6m.
- The wall with the entries has 5 windows at 0.65x2.4m and 2 windows at 0.65mx1.2m.
- 200mm thick Block walls reinforced with 13mm bars at 1m crs
- 250x200mm perimeter bond beam
- 7"x4"x4 1/2lb RSJ rafters
- 150x50 timber purlins
- There is a partial height cantilever block wall between the toilet cubicles.
- The cladding is fixed to the adjacent two storey building but there does not appear to be any structural fixing.

Building 4 - Single Storey Steel Framing

- Built in 1967. Being used as plant housing and a workshop.
- The floor is at two levels and there is a low height retaining wall between the two levels.
- There are 6 steps between the two levels, and they appear to be higher than typical rises (1.1m).
- Sheet metal roofing on timber LVL purlins on steel trusses. There is no blocking between purlins.
- The steel trusses have SHS top and bottom chords with steel rods for diagonals. They are fully welded and including to RHS end posts. Internal trusses do not have fly bracing.
- Plant suspended from the steel trusses.
- The walls are steel framed almost no internal linings and corrugated metal cladding.
- There is a timber framed internal room with ply lined walls.
- There is a double pedestrian access door on one end. A single pedestrian access door midway along one side.
- At the other end the whole there are four steel frames which appear to provide access for large plant replacement. The four steel frames are fixed to the truss above and floor below. The truss above has fly bracing.
- There are diagonal steel braces in the longitudinal direction, welded to a cleat which is welded to the RHS posts, significantly below the bottom chord of the truss.
- There is a transparent cladding and timber jack framing between the top of the longitudinal steel framed wall and the roofing.

Building 1 IEP Assessment Result

Our IEP assessment of this building indicates the building can achieve 45%NBS (IL2) in each orthogonal direction. The IEP assessment of this building therefore indicates an overall earthquake rating of 45%NBS (IL2), corresponding to a 'Grade C' building as defined by the New Zealand Society for Earthquake Engineering (NZSEE) building grading scheme. This is above 34%NBS, but below the threshold for earthquake risk buildings (67%NBS) as recommended by the NZSEE.

The key assumptions made during our assessment are shown in Table 1 that follows. Refer also to the attached IEP assessment and engineering assessment technical summary.

Building 1 IEP Item	Assumption	Justification
Date of Building Design	1966-70	Original drawings
Soil Type	D	Ref: Greater Wellington Regional Council Map – Flex Map Viewer.
Building Importance Level	2	AS/NZS1170.0
Ductility of Structure	2	The Guideline section C6.5 and C6.6.
Plan Irregularity Factor, A	Not Significant	The Seismic Assessment of Existing Buildings -Technical Guidelines for Engineering Assessments, August 2017, Part B, Appendix BA, Figure BA.5
Vertical Irregularity Factor, B	Not Significant	<i>The Seismic Assessment of Existing Buildings-Technical Guidelines for Engineering Assessments</i> , August 2017, Part B, Appendix BA, Figure BA.5
Short Columns Factor, C	No	Short columns were not observed.
Pounding Factor, D	1	Building 1 (1 storey) is in contact with building 2 (2 storeys) at building 1 roof level. Low building heights indicate no pounding issue.
Site Characteristics	Significant	The Seismic Assessment of Existing Buildings-Technical Guidelines for Engineering Assessments, August 2017, Part B, section B4.2. Settlement not observed. Slip hazard does not exist. Liquefaction hazard is significant.
Factor F	1.4	Single storey, tied foundations, heavy construction with plenty of return walls and a good roof diaphragm.

Table 1: IEP Assessment Results

Building 2 IEP Assessment Result

Our IEP assessment of this building indicates the building can achieve 70%NBS (IL2) in each orthogonal direction. The IEP assessment of this building therefore indicates an overall earthquake rating of 70%NBS (IL2), corresponding to a 'Grade B' building as defined by the New Zealand Society for Earthquake Engineering (NZSEE) building grading scheme. This is above 34%NBS, and above the threshold for earthquake risk buildings (67%NBS) as recommended by the NZSEE.

The key assumptions made during our assessment are shown in Table 2 that follows. Refer also to the attached IEP assessment and engineering assessment technical summary.

Building 2; IEP Item	Assumption	Justification
Date of Building Design	1970	Original drawings
Soil Type	D	Ref: Greater Wellington Regional Council Map – Flex Map Viewer.
Building Importance Level	2	AS/NZS1170.0
Ductility of Structure	2	The Guideline section C6.5 and C6.6.
Plan Irregularity Factor, A	Not Significant	The Seismic Assessment of Existing Buildings -Technical Guidelines for Engineering Assessments, August 2017, Part B, Appendix BA, Figure BA.5
Vertical Irregularity Factor, B	Not Significant	The Seismic Assessment of Existing Buildings-Technical Guidelines for Engineering Assessments, August 2017, Part B, Appendix BA, Figure BA.5
Short Columns Factor, C	No	Short columns were not observed.
Pounding Factor, D	1	Buildings 1&3 (1 storey) are in contact with building 2 (1 storeys) at buildings 1&3 roof level. Low building heights indicate no pounding issue.
Site Characteristics	Significant	The Seismic Assessment of Existing Buildings-Technical Guidelines for Engineering Assessments, August 2017, Part B, section B4.2. Settlement not observed. Slip hazard does not exist. Liquefaction hazard is significant.
Factor F	1.5	Single storey, tied foundations, heavy construction with plenty of return walls and a good roof diaphragm.

Table 2: IEP Assessment Results

Building 3 IEP Assessment Result

Our IEP assessment of this building indicates the building can achieve 45%NBS (IL2) in the longitudinal direction and 30%NBS (IL2) in the transverse direction. The IEP assessment of this building therefore indicates an overall earthquake rating of 30%NBS (IL2), corresponding to a 'Grade D' building as defined by the New Zealand Society for Earthquake Engineering (NZSEE) building grading scheme. This is below 34%NBS, the threshold for a building to be considered earthquake prone.

The key assumptions made during our assessment are shown in Table 3 that follows. Refer also to the attached IEP assessment and engineering assessment technical summary.

Building 3 IEP Item	Assumption	Justification
Date of Building Design	1966	Original drawings
Soil Type	D	Ref: Greater Wellington Regional Council Map – Flex Map Viewer.
Building Importance Level	2	AS/NZS1170.0
Ductility of Structure	2	The Guideline section C6.5 and C6.6.
Plan Irregularity Factor, A	Significant	Internal transverse walls are not regularly spaced. The Seismic Assessment of Existing Buildings -Technical Guidelines for Engineering Assessments, August 2017, Part B, Appendix BA, Figure BA.5
Vertical Irregularity Factor, B	Not Significant	The Seismic Assessment of Existing Buildings-Technical Guidelines for Engineering Assessments, August 2017, Part B, Appendix BA, Figure BA.5
Short Columns Factor, C	No	Short columns were not observed.
Pounding Factor, D	1	Building 3 (1 storey) is in contact with building 2 (2 storeys) at building 3 roof level. Low building heights indicate no pounding issue.
Site Characteristics	Significant	The Seismic Assessment of Existing Buildings-Technical Guidelines for Engineering Assessments, August 2017, Part B, section B4.2. Settlement not observed. Slip hazard does not exist. Liquefaction hazard is significant.
Factor F	1.4	Single storey, tied foundations, heavy wall construction with some orthogonal walls. Poor roof diaphragm.

Table 3: IEP Assessment Results

Building 4 IEP Assessment Result

Our IEP assessment of this building indicates the building can achieve 45%NBS (IL2) in the longitudinal direction and 35%(IL2) in the transverse direction. The IEP assessment of this building therefore indicates an overall earthquake rating of 35%NBS (IL2), corresponding to a 'Grade C' building as defined by the New Zealand Society for Earthquake Engineering (NZSEE) building grading scheme. This is above 34%NBS, but below the threshold for earthquake risk buildings (67%NBS) as recommended by the NZSEE.

The key assumptions made during our assessment are shown in Table 4 that follows. Refer also to the attached IEP assessment and engineering assessment technical summary.

Building 1 IEP Item	Assumption	Justification
Date of Building Design	1967	Original drawings
Soil Type	D	Ref: Greater Wellington Regional Council Map – Flex Map Viewer.
Building Importance Level	2	AS/NZS1170.0
Ductility of Structure	2	The Guideline section C6.5 and C6.6.
Plan Irregularity Factor, A	Not Significant	The Seismic Assessment of Existing Buildings -Technical Guidelines for Engineering Assessments, August 2017, Part B, Appendix BA, Figure BA.5
Vertical Irregularity Factor, B	Not Significant	The Seismic Assessment of Existing Buildings-Technical Guidelines for Engineering Assessments, August 2017, Part B, Appendix BA, Figure BA.5
Short Columns Factor, C	No	Short columns were not observed.
Pounding Factor, D	1	Building 1 (1 storey) is in contact with building 2 (2 storeys) at building 1 roof level. Low building heights indicate no pounding issue.
Site Characteristics	Significant	The Seismic Assessment of Existing Buildings-Technical Guidelines for Engineering Assessments, August 2017, Part B, section B4.2. Settlement not observed. Slip hazard does not exist. Liquefaction hazard is significant.
Factor F	1.1	Single storey, tied foundations, heavy construction with plenty of return walls and a good roof diaphragm.

Table 4: IEP Assessment Results

IEP Grades and Relative Risk

Table 5 taken from the Technical Guidelines referred to earlier provides the basis for a proposed grading system for existing buildings, as one way of interpreting the %NBS earthquake rating.

Building Grade	Percentage of New Building Strength (%NBS)	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 5: Relative Earthquake Risk

Building 1 has been classified by the IEP as a 'Grade C' building and is therefore considered to be a medium life-safety risk.

Building 2 has been classified by the IEP as a 'Grade *B*' building and is therefore considered to be a low or medium life-safety risk.

Building 3 has been classified by the IEP as a 'Grade *D*' building and is therefore considered to be a high life-safety risk.

Building 4 has been classified by the IEP as a 'Grade C' building and is therefore considered to be a medium life-safety risk.

NZSEE (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 having "Acceptable (improvement may be desirable)" building structural performance.

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".

We have not checked whether tall or heavy furniture has been seismically restrained or not. These issues are outside the scope of this initial assessment but could be the subject of another investigation.

Significant non-structural items were observed in building 4.

Other Issues

Other issues pertaining to the gravity support of the structures have not been identified.

Conclusion

Our ISA assessment for these buildings, carried out using the IEP indicates overall scores of:

- Building 1 45%NBS (IL2 50yr), which corresponds to a 'Grade C' building, as defined by the NZSEE building grading scheme. This is *above* the threshold for Earthquake Prone Buildings (34%NBS) and *below* the threshold for Earthquake Risk Buildings (67%NBS) as defined by the NZSEE and the New Zealand Building Code.
- Building 2 70%NBS (IL2 50yr), which corresponds to a 'Grade B' building, as defined by the NZSEE building grading scheme. This is *above* the threshold for Earthquake Prone Buildings (34%NBS) and *above* the threshold for Earthquake Risk Buildings (67%NBS) as defined by the NZSEE and the New Zealand Building Code.
- Building 3 30%NBS (IL2 50yr), which corresponds to a 'Grade D' building, as defined by the NZSEE building grading scheme. This is *below* the threshold for Earthquake Prone Buildings (34%NBS) and *below* the threshold for Earthquake Risk Buildings (67%NBS) as defined by the NZSEE and the New Zealand Building Code.
- Building 4 35%NBS (IL2 50yr), which corresponds to a 'Grade C' building, as defined by the NZSEE building grading scheme. This is *above* the threshold for Earthquake Prone Buildings (34%NBS) and *below* the threshold for Earthquake Risk Buildings (67%NBS) as defined by the NZSEE and the New Zealand Building Code.

The ISA is considered to provide a relatively quick, high-level and qualitative measure of the building's performance. In order to confirm the seismic performance of this building with more reliability you may wish to request a Detailed Seismic Assessment (DSA). A DSA would likely focus on issues such as roof diaphragms, the stability of longitudinal block walls and the seismic bracing of non-structural elements.

A DSA would also investigate other potential weaknesses that may not have been considered in the initial seismic assessment.

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 us if you would like clarification of any aspect of this letter.

Yours faithfully



Appendix 1: IEP Forms

nitial Evaluation Proced	lure (IEP) Assessment	- Completed for Hutt City	Council	Page
WARNING!! This initial evaluation ha Existing Buildings" Technical Guidelines i	s been carried out solely as an initial se for Engineering Assessments, July 2017.	ismic assessment of the building following the building following the transmission of the spreadsheet must be read in coniuncti	ne procedure set out in th on with the limitations se	ne "The Seismic Assessment It out in the accompanyina
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Street Number & Name:	99 Main Road		Job No.:	9684
KA:	Wainuimata Summer Po	ol	By:	ULM
lame of building:	Building 1		Date:	3/05/2019
City:	Lower Hutt		Revision No.:	40026 v 1
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f) Factor B:	Determined from NZ results (a) to (e) abo	ZSEE Guidelines Figure 3	A.1 using	Factor E	0.06]	0.06]
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Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judge ments based on them, have not been undertaken, and these may lead to a different result or seismic grade.

	99 Main Road			Job No.:	9684
ΚΑ:	Wainuimata S	ummer Pool		By:	ULM
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2 Near Fault Scaling Facto	r, Factor E - 1				
II 7 <u><</u> 1.53ec, 1 actor E =	• 1		Longitudinal	.	Transverse
a) Near Fault Factor, N(T,D)			N(T,D): 1		1
(ITOM NZST170.5:2004, CI 3.1.6)			Easter E. 1.00		1.00
D) Factor E		= 1/N(1,D)	Factor E: 1.00		1.00
3 Hazard Scaling Factor, F a) Hazard Factor, Z, for site	actor F				
Local	tion: Hutt Valley-south of Taita Gorge	•	Refer right for user-defined location	ons	
	7 0.4	(from NZS1170 /	5:2004 Table 3 3)		
7	L = 0.4	(NZS4203-1002	Zone Factor from accompanying Figure 2 5/b)		
7.		(from NZS1170	5:2004. Table 3.3)		
b) Factor F	2004 - 0.4	(1011 1/2011 / 0.3	5.200 I, Tuble 0.07		
For pre 1992	-	1/7			
For 1992-2011	=	Z_{1002}/Z			
For post 2011	-	Z ₂₀₀₄ /Z			
1 01 0031 2011	-	- 2004	Factor Et 2 50		2 50
				I	2.30
(set to 1.0 if other than 1976-2004	4, or not known)		$R_o = 1$		1
c) Return Period Factor, R (from NZS1170.0:2004 Building I	mportance Level)	<u>Choose Impo</u>	o <u>rtance Level</u> ○ 1	04 01	• 2 0 3 0 4 1.0
c) Return Period Factor, R (from NZS1170.0:2004 Building I	mportance Level)	<u>Choose Impo</u> IR₀/R	o <u>ntance Level</u> 0 1 ⊛ 2 0 3 R = <u>1.0</u>	04 01	
 c) Return Period Factor, R (from NZS1170.0:2004 Building In d) Factor G 5 Ductility Scaling Factor, 	mportance Level) = Factor H	<u>Choose Impo</u> IR _o /R	ortance Level ○ 1 ● 2 ○ 3 R = 1.0 Factor G: 1.33	04 01	• 2 0 3 0 4 1.0 1.33
 c) Return Period Factor, R (from NZS1170.0:2004 Building In d) Factor G 5 Ductility Scaling Factor, a) Available Displacement Di Comment: 	mportance Level) = Factor H uctility Within Existing	<u>Choose Impo</u> IR _o /R Structure	<u>ortance Level</u> 0 1 ⊛ 2 0 3 R = <u>1.0</u> Factor G: <u>1.33</u>	04 01	 ● 2 ○ 3 ○ 4 1.0 1.33 2.00
 c) Return Period Factor, R (from NZS1170.0:2004 Building In d) Factor G 5 Ductility Scaling Factor, a) Available Displacement Dr <i>Comment:</i> Reinforced concrete block 	mportance Level) = Factor H uctility Within Existing masonry shear walls	<u>Choose Impo</u> IR _o /R Structure	$\frac{\text{prtance Level}}{\text{R}} = \underbrace{1.0}{\text{Factor G:}}$	04 01	© 2 0 3 0 4 1.0 1.33 2.00
 c) Return Period Factor, R (from NZS1170.0:2004 Building In d) Factor G 5 Ductility Scaling Factor, a) Available Displacement Du Comment: Reinforced concrete block 	mportance Level) = Factor H uctility Within Existing masonry shear walls	<u>Choose Impo</u> IR _o /R Structure	$\frac{\text{ortance Level}}{\text{R} = 1.0} \circ 1 \textcircled{2} \circ 3 \circ 3$ $\text{R} = 1.0$ $\text{Factor G:} 1.33$ $\mu = 2.00$	04 01	 2 03 04 1.0 1.33 2.00
c) Return Period Factor, R (from NZS1170.0:2004 Building In d) Factor G 5 Ductility Scaling Factor, a) Available Displacement Dr <i>Comment:</i> Reinforced concrete block b) Factor H	mportance Level) = Factor H uctility Within Existing masonry shear walls	<u>Choose Impo</u> IR _o /R Structure	$\frac{\text{prtance Level}}{\text{R}} \circ 1 \textcircled{2} \circ 3$ $\text{R} = \boxed{1.0}$ $\text{Factor G:} \boxed{1.33}$ $\mu = \boxed{2.00}$ k_{μ}	04 01	 2 3 4 1.0 1.33 2.00 k_µ
c) Return Period Factor, R (from NZS1170.0:2004 Building In d) Factor G 5 Ductility Scaling Factor, a) Available Displacement Dr <i>Comment:</i> Reinforced concrete block b) Factor H	For pre 1976 (max	<u>Choose Impo</u> IR _o /R Structure	$\frac{\text{prtance Level}}{\text{R}} \circ 1 \textcircled{2} \circ 3$ $\text{R} = \boxed{1.0}$ $\text{Factor G:} \qquad 1.33$ $\mu = \boxed{2.00}$ $= \qquad k_{\mu}$ $= \qquad 1.57$ $= \qquad 4$	04 01	 2 3 4 1.33 2.00 k_μ 1.57 4
c) Return Period Factor, R (from NZS1170.0:2004 Building In d) Factor G 5 Ductility Scaling Factor, a) Available Displacement Dr <i>Comment:</i> Reinforced concrete block b) Factor H	mportance Level) = Factor H uctility Within Existing masonry shear walls For pre 1976 (may For 1976 onwards	Choose Impo IR _o /R Structure	$\mu = \frac{k_{\mu}}{157}$	04 01	• 2 $\bigcirc 3 \bigcirc 4$ 1.0 1.33 2.00 k_{μ} 1.57 1 1.57
 c) Return Period Factor, R (from NZS1170.0:2004 Building In d) Factor G 5 Ductility Scaling Factor, a) Available Displacement Du <i>Comment:</i> Reinforced concrete block b) Factor H (where kµ is NZS1170.5:2004 Inte 	mportance Level) = Factor H uctility Within Existing masonry shear walls For pre 1976 (may For 1976 onwards	<u>Choose Impo</u> IR _o /R Structure	prtance Level 0 1 • 2 0 3 R = 1.0 Factor G: 1.33 $\mu = 2.00$ $= 1.57$ $= 1$ Factor H: 1.57 g Table 3.3)	04 01	• 2 0 3 0 4 1.0 1.33 2.00 k_{μ} 1.57 1 1.57
 c) Return Period Factor, R (from NZS1170.0:2004 Building In d) Factor G 5 Ductility Scaling Factor, a) Available Displacement Du <i>Comment:</i> Reinforced concrete block b) Factor H (where kµ is NZS1170.5:2004 Ine 6 Structural Performance Sa a) Structural Performance Factor 	mportance Level) = Factor H uctility Within Existing masonry shear walls For pre 1976 (max For 1976 onwards elastic Spectrum Scaling Factor Scaling Factor, Factor actor, S _p	<u>Choose Impo</u> IR _o /R Structure simum of 2)	$\mu = \frac{1.0}{1 + 1.57}$ $R = \frac{1.0}{1.33}$ $\mu = \frac{1.33}{1.57}$ $\mu = \frac{1.57}{1.57}$	04 01	 2 3 4 1.33 2.00 k_μ 1.57 1 1.57
 c) Return Period Factor, R (from NZS1170.0:2004 Building In d) Factor G 5 Ductility Scaling Factor, a) Available Displacement Du <i>Comment:</i> Reinforced concrete block b) Factor H (where kµ is NZS1170.5:2004 Ine 6 Structural Performance S a) Structural Performance Factor 	mportance Level) = Factor H uctility Within Existing masonry shear walls For pre 1976 (max For 1976 onwards leastic Spectrum Scaling Factor Scaling Factor, Factor	<u>Choose Impo</u> IR _o /R Structure	prtance Level $\bigcirc 1 \textcircled{0} 2 \bigcirc 3$ $R = \boxed{1.0}$ Factor G: $\boxed{1.33}$ $\mu = \boxed{2.00}$ $= \frac{k_{\mu}}{1.57}$ = 1 Factor H: $\boxed{1.57}$ \Im Table 3.3)	04 01	 2 3 4 1.33 2.00 <i>k</i>_μ 1.57 1 1.57 1
 c) Return Period Factor, R (from NZS1170.0:2004 Building In d) Factor G 5 Ductility Scaling Factor, a) Available Displacement Du <i>Comment:</i> Reinforced concrete block b) Factor H (where kμ is NZS1170.5:2004 Inte 6 Structural Performance Sa (from accompanying Figure 3.4) Tick if light timber-framed co 	mportance Level) = Factor H uctility Within Existing masonry shear walls For pre 1976 (may For 1976 onwards elastic Spectrum Scaling Factor Scaling Factor, Factor actor, S _p onstruction in this direction	Choose Impo IR _o /R Structure timum of 2) , from accompanying or I	prtance Level 0 1 • 2 0 3 R = 1.0 Factor G: 1.33 $\mu = 2.00$ $= 1.57$ $= 1$ Factor H: 1.57 g Table 3.3)	04 01	 2 3 4 1.33 2.00 k_μ 1.57 1 1.57 1 1.57
 c) Return Period Factor, R (from NZS1170.0:2004 Building In d) Factor G 5 Ductility Scaling Factor, a) Available Displacement Du <i>Comment:</i> Reinforced concrete block b) Factor H (where kμ is NZS1170.5:2004 Ine 6 Structural Performance Sa (from accompanying Figure 3.4) Tick if light timber-framed comparison 	mportance Level) = Factor H uctility Within Existing masonry shear walls For pre 1976 (may For 1976 onwards elastic Spectrum Scaling Factor Scaling Factor, Factor actor, S _p onstruction in this direction	Choose Impo IR _o /R Structure	prtance Level 0 1 • 2 0 3 R = 1.0 Factor G: 1.33 $\mu = 2.00$ $= 1.57$ $= 1$ Factor H: 1.57 g Table 3.3)	04 01	(*) 2 (*) 3 (*) 4 (*) 1.0 (*) 1.33 (*) 2.00 k_{μ} 1.57 1 1.57 1 1.57 (*) 2 (*) 4 (*)
 c) Return Period Factor, R (from NZS1170.0:2004 Building In d) Factor G 5 Ductility Scaling Factor, a) Available Displacement Du <i>Comment:</i> Reinforced concrete block b) Factor H (where kμ is NZS1170.5:2004 Ine 6 Structural Performance Sa (from accompanying Figure 3.4) Tick if light timber-framed co 	mportance Level) = Factor H uctility Within Existing masonry shear walls For pre 1976 (may For 1976 onwards vastic Spectrum Scaling Factor Scaling Factor, Factor actor, S _p onstruction in this direction	Choose Impo IR _o /R Structure	prtance Level 0 1 • 2 0 3 R = 1.0 Factor G: 1.33 $\mu = 2.00$ $= 1.57$ $= 1$ Factor H: 1.57 g Table 3.3)	04 01	(*) 2 (*) 3 (*) 4 (*) 1.0 (*) 1.33 (*) 2.00 k_{μ} 1.57 1 1.57 1 1.57 (*) 1 0.70 (*) 1.57 (*) 1.57 (
 c) Return Period Factor, R (from NZS1170.0:2004 Building In d) Factor G 5 Ductility Scaling Factor, a) Available Displacement Du <i>Comment:</i> Reinforced concrete block b) Factor H (where kμ is NZS1170.5:2004 Inte 6 Structural Performance State (from accompanying Figure 3.4) Tick if light timber-framed co b) Structural Performance State (from accompanying Figure 3.4) 	mportance Level) = Factor H uctility Within Existing masonry shear walls For pre 1976 (may For 1976 onwards leastic Spectrum Scaling Factor Scaling Factor, Factor actor, S _p onstruction in this direction	<u>Choose Impo</u> IR _o /R Structure timum of 2) , from accompanying or I m = 1/S _p	prtance Level $\bigcirc 1$ $\textcircled{e} 2$ $\bigcirc 3$ R = 1.0 Factor G: 1.33 $\mu = 2.00$ = 1.57 = 1 Factor H: 1.57 g Table 3.3) \Box $S_p = 0.70$ Factor I: 1.43	04 01	(*) 2 (*) 3 (*) 4 1.0 1.33 2.00 k_{μ} 1.57 1 1.43
 c) Return Period Factor, R (from NZS1170.0:2004 Building In d) Factor G 5 Ductility Scaling Factor, a) Available Displacement Du <i>Comment:</i> Reinforced concrete block b) Factor H (where kµ is NZS1170.5:2004 Inte 6 Structural Performance Factor (from accompanying Figure 3.4) Tick if light timber-framed co b) Structural Performance Sactor b) Structural Performance Sactor b) Structural Performance Sactor 	mportance Level) = Factor H uctility Within Existing masonry shear walls For pre 1976 (may For 1976 onwards lastic Spectrum Scaling Factor Scaling Factor, Factor actor, S _p onstruction in this direction caling Factor 2004 have been multiplied by	$\frac{Choose Impo}{IR_o/R}$ IR_o/R Structure dimum of 2) f, from accompanying or I $= 1/S_p$ 0.67 to account for S	prtance Level 0 1 \circledast 2 0 3 R = 1.0 Factor G: 1.33 $\mu = 2.00$ = 1.57 = 1.43 = 1.57 =	04 01	(*) 2 (*) 3 (*) 4 1.0 1.33 2.00 k_{μ} 1.57 1 1.57 1 1.57 1 1.57 1 1.57 1 1.57
 c) Return Period Factor, R (from NZS1170.0:2004 Building In d) Factor G 5 Ductility Scaling Factor, a) Available Displacement Du <i>Comment:</i> Reinforced concrete block b) Factor H (where kµ is NZS1170.5:2004 Ine 6 Structural Performance Sa (from accompanying Figure 3.4) Tick if light timber-framed cc b) Structural Performance Sa (from accompanying Figure 3.4) Tick if light timber-framed cc b) Structural Performance Sa Note Factor B values for 1992 to 7 Baseline %NBS for Build (equals (%NBS)_{nom} x E x I 	F x G x H x I)	$\frac{Choose Impo}{IR_o/R}$ IR_o/R Structure itimum of 2) f, from accompanying or I $= 1/S_p$ 0.67 to account for S	$\frac{\text{prtance Level}}{\text{R}} \circ 1 \textcircled{2} \bigcirc 3$ $\text{R} = \boxed{1.0}$ $\text{Factor G:} \boxed{1.33}$ $\mu = \boxed{2.00}$ $= \frac{k_{\mu}}{1.57}$ $= 1$ $\text{Factor H:} \boxed{1.57}$ g Table 3.3 $\text{Sp} = \boxed{0.70}$ $\text{Factor I:} \boxed{1.43}$ sp in this period	04 01	

reet Number & Name:	99 Main Road		Jo	b No.:	9684
KA:	Wainuimata Summer Pool		By	y:	ULM
ame of building:	Building 1		Da	ate:	3/05/2019
ty:	Lower Hutt		R	evision No.:	40026 v 1
able IEP-3 Initial E	valuation Procedure Step 3				
ep 3 - Assessment of Pe	rformance Achievement Ratio (PAR)				
efer Appendix B - Section B3.2)				
Longitudinal Direction potential CSWs	Effect on Stru	ctural Perform	ance		Facto
Plan Irregularity	(Choose a value	e - Do not Interpo	olate)		
Effect on Structural Perform Symmetry.	ance O Severe O	Significant		Insignificant	Factor A 1.0
Vertical Irregularity					
Effect on Structural Perform	ance O Severe O	Significant		Insignificant	Factor B 1.0
Short Columns					
Effect on Structural Perform	ance O Severe O nns along the wall closest to the pool fit the defi	Significant	column' (The Guid	Insignificant elines, Part B).	Factor C 1.0
	0.0 t				
Note: Values given assume th may be reduced by taki	e building has a frame structure. For stiff building has a frame structure for stiff building the coefficient to the right of the value ap	uildings (eg shea plicable to fram	ar walls), the effe ne buildings.	ect of pounding]
Note: Values given assume th may be reduced by taki	ne building has a frame structure. For stiff build ing has a frame structure for stiff build ing the coefficient to the right of the value ap	uildings (eg shea plicable to fram ctor D1 For Lo	ar walls), the effe the buildings.	ect of pounding]
Note: Values given assume th may be reduced by taki	e building has a frame structure. For stiff building has a frame structure. For stiff building the coefficient to the right of the value approved to the	uildings (eg shea plicable to fram ctor D1 For Lo Severe	ar walls), the effe the buildings.	ect of pounding]
Note: Values given assume th may be reduced by taki	he building has a frame structure. For stiff building has a frame structure. For stiff building the coefficient to the right of the value approximate the fractor D1 Factor D1 Separation Alignment of Floors within 20% of Storey Heigh	uildings (eg shea pplicable to fram ctor D1 For Lo Severe n 0 <sep<.005h nt • 1</sep<.005h 	ar walls), the effe ne buildings. ongitudinal Dire Significant .005 <sep<.01h 0 1</sep<.01h 	ect of pounding ction: 1.0 Insignificant Seps.01H O 1	
Note: Values given assume th may be reduced by taki	ne building has a frame structure. For stiff building has a frame structure. For stiff building the coefficient to the right of the value approximate approximation of Floors D1 Separation Alignment of Floors within 20% of Storey Heigh approximate approximation of Floors not within 20% of Storey Heigh approximate appr	uildings (eg shea plicable to fram ctor D1 For Lo Severe n 0 <sep<.005h nt • 1 nt • 0.4</sep<.005h 	ar walls), the effe the buildings.	ect of pounding ction: <u>1.0</u> Insignificant Sep>.01H 0 1 0 0.8	
b) Factor D2: - Founding En	th Difference Effect	uildings (eg shea oplicable to fram ctor D1 For Lo Severe n 0 <sep<.005h nt ● 1 nt ● 0.4</sep<.005h 	ar walls), the effe ne buildings.	ect of pounding	
b) Factor D1: - Founding En	the building has a frame structure. For stiff building has a frame structure. For stiff building the coefficient to the right of the value approximate of Floors and the right of the value approximation of Floors within 20% of Storey Height for the floors not within 20% of Storey Height Difference Effect	tildings (eg shea oplicable to fram ctor D1 For Lo Severe n 0 <sep<.005h nt ● 1 nt ● 0.4 ctor D2 For Lo</sep<.005h 	ar walls), the effe ne buildings.	ect of pounding	
b) Factor D2: - Heig	re building has a frame structure. For stiff building the coefficient to the right of the value appropriate to the value appropriate to the right of the value appropriate to the value approprise to the right of the value a	uildings (eg shea pplicable to fram ctor D1 For Lo Severe n 0 <sep<.005h nt ● 1 nt ● 0.4 ctor D2 For Lo Severe 0<sep<.005h< td=""><td>ar walls), the effe ee buildings. ongitudinal Direc Significant .005<sep<.01h 0 1 0.7 0.7</sep<.01h </td><td>ect of pounding ection: 1.0 Insignificant Sep>.01H 0 1 0 0.8 ection: 1.0 Insignificant Sep>.01H</td><td></td></sep<.005h<></sep<.005h 	ar walls), the effe ee buildings. ongitudinal Direc Significant .005 <sep<.01h 0 1 0.7 0.7</sep<.01h 	ect of pounding ection: 1.0 Insignificant Sep>.01H 0 1 0 0.8 ection: 1.0 Insignificant Sep>.01H	
b) Factor D2: - Founding En	re building has a frame structure. For stiff builting the coefficient to the right of the value appropriate to the value appropriate to the right of the value appropriate to the value appropriate to the right of the value appropriate to the value appropriate to the right of the value appropriate to the value appropriate to the right of the value appropriate to the value approprime to the value appropr	uildings (eg shea pplicable to fram ctor D1 For Lo Severe n 0 <sep<.005h nt ● 1 nt ● 0.4 ctor D2 For Lo Severe 0<sep<.005h s ○ 0.4</sep<.005h </sep<.005h 	ar walls), the effe ne buildings.	ect of pounding	
b) Factor D1: - Founding En Note: Values given assume th may be reduced by taki	The building has a frame structure. For stiff builting the coefficient to the right of the value appropriate to the value appropriate to the right of the value appropriate to the value approprise to the right of the value	uildings (eg sheat oplicable to fram ctor D1 For Lo Severe n o nt o nt o	ar walls), the effe ne buildings.	ect of pounding	
b) Factor D2: - Founding En	re building has a frame structure. For stiff building the coefficient to the right of the value approved by the coefficient to the right of the value approved by the state of the value approved by the value appr	uildings (eg sheat uplicable to fram ctor D1 For Lo Severe n 0 <sep<.005h< td=""> nt 0.4 ctor D2 For Lo Severe 0<sep<.005h< td=""> Severe 0<sep<.005h< td=""> Severe 0<sep<.005h< td=""> S 0.4</sep<.005h<></sep<.005h<></sep<.005h<></sep<.005h<>	ar walls), the effe be buildings.	ect of pounding	
b) Factor D2: - Heig	re building has a frame structure. For stiff building the coefficient to the right of the value approximate the right of the value approximate the right of the value approximate the separation of Factor D1 Separation Alignment of Floors within 20% of Storey Height Difference Height Difference > 4 Storey Height Difference 2 to 4 Storey Height Difference < 2 Storey	uildings (eg sheat pplicable to fram ctor D1 For Lo Severe n 0 <sep<.005h< td=""> nt 0.4 ctor D2 For Lo Severe 0<sep<.005h< td=""> S 0.4 S 0.4 S 0.4</sep<.005h<></sep<.005h<>	ar walls), the effe ee buildings.	ect of pounding	Factor D 1.0
A Factor DT: - Founding En Note: Values given assume th may be reduced by taki Table for Selection b) Factor D2: - Heig Table for Selection Table for Selection	eeu ne building has a frame structure. For stiff building the coefficient to the right of the value approximation Fa on of Factor D1 Separation Alignment of Floors within 20% of Storey Heigh gnment of Floors not within 20% of Storey Heigh ht Difference Effect Fa on of Factor D2 Height Difference 2 to 4 Storey Height Difference 2 to 4 Storey	uildings (eg sheaplicable to frame ctor D1 For Lo Severe n 0 <sep<.005h< td=""> nt 0.4 ctor D2 For Lo Severe 0<sep<.005h< td=""> Severe 0<sep<.005h< td=""> Severe 0<sep<.005h< td=""> S 0.4 S 0.4 S 0.4 S 0.7 S 1 ects the structural</sep<.005h<></sep<.005h<></sep<.005h<></sep<.005h<>	ar walls), the effe be buildings.	ect of pounding	Factor D 1.0
 Factor DT: - Founding En Note: Values given assume the may be reduced by taking Table for Selection b) Factor D2: - Heig Table for Selection Table for Selection Site Characteristics - State Effect on Structural Perforn Greater Wellington Region 	eeu ne building has a frame structure. For stiff building the coefficient to the right of the value approximation Factor D1 Separation Alignment of Floors within 20% of Storey Heigh gnment of Floors not within 20% of Storey Heigh the Difference Effect Factor D2 Height Difference 2 to 4 Storey Height Difference 2 to 4 Sto	uildings (eg sheat oplicable to frame oplicable to frame oplicable to frame of the severe of the	ar walls), the effe be buildings.	ect of pounding	Factor D 1.0 spective Factor E 0.7
a) Factor D1: - Founding En Note: Values given assume th may be reduced by taking Table for Selection b) Factor D2: - Heig Table for Selection Table for Selection Site Characteristics - State Effect on Structural Perform Greater Wellington Region S Other Factors - for allowad	ee building has a frame structure. For stiff building the coefficient to the right of the value apprendix to the relevant characterstics of the building the right of the value apprendix to the relevant characterstics of the building the right of the value apprendix to the relevant characterstics of the building the right of the value apprendix to the relevant characterstics of the building the relevant characterstics of the building the relevant character the relevant cha	uildings (eg sheaplicable to frame ctor D1 For Lo Severe 0 <sep<.005h< td=""> nt 0.4 ctor D2 For Lo Severe 0<sep<.005h< td=""> 0.4 ctor D2 For Lo Severe 0<sep<.005h< td=""> 0<td>ar walls), the effe buildings.</td><td>ect of pounding</td><td>Factor D 1.0 spective Factor E 0.7 Factor F 1.4</td></sep<.005h<></sep<.005h<></sep<.005h<>	ar walls), the effe buildings.	ect of pounding	Factor D 1.0 spective Factor E 0.7 Factor F 1.4
a) Factor D1: - Founding En Note: Values given assume th may be reduced by taking Table for Selection b) Factor D2: - Heig Table for Selection Table for Selection Site Characteristics - State Effect on Structural Perform Greater Wellington Region S Other Factors - for allowan Record rationale for cl	ee building has a frame structure. For stiff builting the coefficient to the right of the value appropriate to the right Difference of the value appropriate to the right of the value appropriate to the right difference of the value appropriate to the value appropriate to the relevant characterstics of the built of the value appropriate to the value appropriate to the relevant characterstics of the built of the value appropriate to the value approprise to the value appropriate to the value appropriate	uildings (eg sheaplicable to frame ctor D1 For Lo Severe 0 <sep<.005h< td=""> nt 0.4 term 0.4 ctor D2 For Lo Severe 0<sep<.005h< td=""> 0 0.4 ctor D2 For Lo Severe 0<sep<.005h< td=""> 0 0.7 s 1 cts the structural Significant ion potential, low vilding For</sep<.005h<></sep<.005h<></sep<.005h<>	ar walls), the effe be buildings. argitudinal Direct Significant .005 <sep<.01h 0.1 0.07 argitudinal Direct Significant .005<sep<.01h 0.7 0.9 0.1 argitudinal Direct Significant .005<sep<.01h 0.7 0.9 0.1 argitudinal Direct Significant .005<sep<.01h 0.7 0.9 0.1 argitudinal Direct Significant .005<sep<.01h 0.7 0.9 0.1 argitudinal Direct Significant .005<sep<.01h 0.7 0.9 0.1 argitudinal Direct Significant .005<sep<.01h 0.7 0.9 0.1 argitudinal Direct Significant .005<sep<.01h 0.7 0.9 0.1 argitudinal Direct Significant .005<sep<.01h 0.7 0.9 0.1 argitudinal Direct Significant .005 .0</sep<.01h </sep<.01h </sep<.01h </sep<.01h </sep<.01h </sep<.01h </sep<.01h </sep<.01h </sep<.01h 	ect of pounding	Factor D 1.0 spective Factor E 0.7 Factor F 1.4
a) Factor D1: - Founding En Note: Values given assume th may be reduced by taking Table for Selection b) Factor D2: - Heig Table for Selection Table for Selection Site Characteristics - State Effect on Structural Perform Greater Wellington Region S Other Factors - for allowed Record rationale for cl The building is single store and tied together. There is	et time building has a frame structure. For stiff builting the coefficient to the right of the value approximation of the coefficient to the right of the value approximation of Factor D1 Separation Alignment of Floors within 20% of Storey Heigh gramment of Floors not within 20% of Storey Height Difference Effect The Difference Effect Height Difference 2 to 4 Storey Height Difference 2 Storey Height Difference < 3 Factor D2 ability, landslide threat, liquefaction etc as it affer mance Severe al Council Flex Map Viewer, moderate liquefact on the built of all other relevant characterstics of the built of all other relevant characterstics of the built of a perimeter ring beam which ties into the intermediate a store of a perimeter ring beam which ties into the intermediate a store of the	uildings (eg sheapplicable to frame ctor D1 For Lo Severe n 0 <sep<.005h< td=""> nt 0<0.4</sep<.005h<>	ar walls), the effer be buildings. ongitudinal Direc Significant 005 <sep<.01h 0.7 0.5 Significant .005<sep<.01h 0.7 0.9 0.1 performance from r slope failure pote r < 3 storeys - Max otherwise - Max Nor lations are probat ckwalls. Liquefact</sep<.01h </sep<.01h 	ect of pounding ection: 1.0 Insignificant Sep>.01H 0 1 0 0.8 ection: 1.0 Insignificant Sep>.01H 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	Factor D 1.0 spective Factor E 0.7 Factor F 1.4
a) Factor D1: - Founding En Note: Values given assume th may be reduced by taki Table for Selection b) Factor D2: - Heig Table for Selection Table for Selection Site Characteristics - State Effect on Structural Perform Greater Wellington Region 6 Other Factors - for allowa Record rationale for ct The building is single store and tied together. There is have a significant impact or the store and tied together. There is have a significant impact or the store and th	eet te building has a frame structure. For stiff bu ng the coefficient to the right of the value ap Fa on of Factor D1 Separatio Alignment of Floors within 20% of Storey Heigl gnment of Floors not within 20% of Storey Heigl tht Difference Effect Fa on of Factor D2 Height Difference 2 to 4 Storey Height Difference 2 to 4 Storey Height Difference 2 to 4 Storey Height Difference 2 Storey ability, landslide threat, liquefaction etc as it affe nance o Severe al Council Flex Map Viewer, moderate liquefact nce of all other relevant characterstics of the bu noice of Factor F: y but does have a heavy roof which doubles as a perimeter ring beam which ties into the intern n structural performance.	uildings (eg sheaplicable to fram ctor D1 For Lo Severe 0 <sep<.005h< td=""> nt 0.4 t 0.4 ctor D2 For Lo Severe 0<sep<.005h< td=""> nt 0.4 ctor D2 For Lo Severe 0<sep<.005h< td=""> 0<0.7</sep<.005h<></sep<.005h<></sep<.005h<>	ar walls), the effe buildings.	ect of pounding	Factor D 1.0 spective Factor E 0.7 Factor F 1.4

et Number & Name:	99 Main Road		Ja	b No.:	9684
A:	Wainuimata Summer Pool		By	/:	ULM
ne of building:	Building 1		Da	ate:	3/05/2019
:	Lower Hutt		Re	evision No.:	40026 v 1
ble IEP-3 Initial E	valuation Procedure Step 3				
p 3 - Assessment of Pe er Appendix B - Section B3 2)	rformance Achievement Ratio (PAR))			
ransverse Direction					
potential CSWs	Effect on S	tructural Perfor	rmance		Fac
Plan Irregularity	(Choose a va	ilue - Do not inter	rpolate)		
Effect on Structural Perform	nance 🔿 Severe 🗠	Significant		Insignifican	t Factor A 1.
Exterrior inspection would in	ndicate return walls at at less than two times th	e building width.			
Vertical Irregularity					
Effect on Structural Perform	nance O Severe C	Significant		Insignifican	t Factor B 1.
Single storey.					
Short Columns	19000 o Severe -	Significant		o Insignifican	Eactor C
None observed from exterri	or inspection.	Signinicant		msigninican	
Note: Values given assume the may be reduced by takin	e building has a frame structure. For stiff b ng the coefficient to the right of the value aj	uildings (eg shea oplicable to fram	ar walls), the effe e buildings.	ect of pounding	
Note: Values given assume th may be reduced by takin	e building has a frame structure. For stiff b g the coefficient to the right of the value a	uildings (eg shea oplicable to fram Factor D1 For T	ar walls), the effe e buildings. Fransverse Dire	ect of pounding]
Note: Values given assume the may be reduced by takin Table for Selection	e building has a frame structure. For stiff b ng the coefficient to the right of the value a n of Factor D1	uildings (eg shea oplicable to fram Factor D1 For T Severe	ar walls), the effe e buildings. Fransverse Dire Significant	ect of pounding	
Note: Values given assume th may be reduced by takin Table for Selectio	e building has a frame structure. For stiff b ng the coefficient to the right of the value a n of Factor D1 Separatic Alignment of Floors within 20% of Storey Heig	uildings (eg shea oplicable to fram Factor D1 For T Severe on 0 <sep<.005h ht 0 1</sep<.005h 	ar walls), the effe e buildings. Transverse Dire Significant .005 <sep<.01h O 1</sep<.01h 	ect of pounding ction: 1.0 Insignificant Sep>.01H @ 1	
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CA: Wainuimata Summer Pool By: ime of building: Building 1 Date: Building 1 Cower Hutt Revision No.: able IEP-4 Initial Evaluation Procedure Steps 4, 5, 6 and 7 ep 4 - Percentage of New Building Standard (%NBS) Longitudinal 1 Assessed Baseline %NBS (%NBS), (from Table IEP - 1) 45% 2 Performance Achievement Ratio (PAR) (from Table IEP - 2) 0.98 3 PAR x Baseline (%NBS), 45% 4 Percentage New Building Standard (%NBS) - Seismic Rating (Use lower of two values from Step 4.3) 45% ep 5 - Is %NBS < 34? ep 6 - Potentially Earthquake Risk (is %NBS < 67)? Seismic Grade Additional Comments (items of note affecting IEP based seismic rating) No further comments.	ULM 3/05/2019 40026 v 1 Transverse 45% 0.98 45% NO YES C
ame of building: Building 1 Date: ty: Lower Hutt Revision No.: able IEP-4 Initial Evaluation Procedure Steps 4, 5, 6 and 7 tep 4 - Percentage of New Building Standard (%NBS) Longitudinal 1 Assessed Baseline %NBS (%NBS), (from Table IEP - 1) 45% 2 Performance Achievement Ratio (PAR) (from Table IEP - 2) 0.98 3 PAR x Baseline (%NBS), 45% 4 Percentage New Building Standard (%NBS) - Seismic Rating (Use lower of two values from Step 4.3) 45% 4 Percentage New Building for Step 4.3) 45% tep 5 - Is %NBS < 34? Seismic Risk based on IEP tep 7 - Provisional Grading for Seismic Risk based on IEP Seismic Grade Additional Comments (items of note affecting IEP based seismic rating) No further comments.	3/05/2019 40026 v 1 Transverse 45% 0.98 45% 45% NO YES C
inprime Lower rule Revision No.: Table IEP-4 Initial Evaluation Procedure Steps 4, 5, 6 and 7 tep 4 - Percentage of New Building Standard (%NBS) Longitudinal 1 Assessed Baseline %NBS (%NBS), (from Table IEP - 1) 45% 2 Performance Achievement Ratio (PAR) (from Table IEP - 2) 0.98 3 PAR x Baseline (%NBS), 45% 4 Percentage New Building Standard (%NBS) - Seismic Rating (Use lower of two values from Step 4.3) 45% tep 5 - Is %NBS < 34? tep 6 - Potentially Earthquake Risk (is %NBS < 67)? Seismic Grade Additional Comments (items of note affecting IEP based seismic rating) Seismic Grade	Transverse 45% 0.98 45% 45% YES
Table IEP-4 Initial Evaluation Procedure Steps 4, 5, 6 and 7 tep 4 - Percentage of New Building Standard (%NBS) Longitudinal 1 Assessed Baseline %NBS (%NBS) 45% (from Table IEP - 1) 0.98 2 Performance Achievement Ratio (PAR) 0.98 (from Table IEP - 2) 3 3 PAR x Baseline (%NBS) 4 Percentage New Building Standard (%NBS) - Seismic Rating (Use lower of two values from Step 4.3) tep 5 - Is %NBS < 34? tep 6 - Potentially Earthquake Risk (is %NBS < 67)? tep 7 - Provisional Grading for Seismic Risk based on IEP Seismic Grade Additional Comments (items of note affecting IEP based seismic rating)	Transverse 45% 0.98 45% 45% NO YES C
tep 4 - Percentage of New Building Standard (%NBS) Longitudinal 1 Assessed Baseline %NBS (%NBS) (from Table IEP - 1) 2 Performance Achievement Ratio (PAR) (from Table IEP - 2) 3 PAR x Baseline (%NBS) 4 Percentage New Building Standard (%NBS) - Seismic Rating (Use lower of two values from Step 4.3) tep 5 - Is %NBS < 34?	Transverse 45% 0.98 45% 45% YES C
1 Assessed Baseline %NBS (%NBS) _b 45% 1 45% 45% 2 Performance Achievement Ratio (PAR) 0.98 (from Table IEP - 2) 0.98 3 PAR x Baseline (%NBS) _b 45% 4 Percentage New Building Standard (%NBS) - Seismic Rating (Use lower of two values from Step 4.3) 45% tep 5 - Is %NBS < 34?	45% 0.98 45% 45% NO YES
Assessed Baseline %NBS (%NBS), 45% (from Table IEP - 1) 0.98 .2 Performance Achievement Ratio (PAR) 0.98 (from Table IEP - 2) 0.98 .3 PAR x Baseline (%NBS), 45% .4 Percentage New Building Standard (%NBS) - Seismic Rating (Use lower of two values from Step 4.3) Step 5 - Is %NBS < 34?	45% 0.98 45% 45% NO YES C
2 Performance Achievement Ratio (PAR) (from Table IEP - 2) 0.98 3 PAR x Baseline (%NBS) _b 45% 4.4 Percentage New Building Standard (%NBS) - Seismic Rating (Use lower of two values from Step 4.3) 45% 6:tep 5 - Is %NBS < 34?	0.98 45% 45% NO YES
4.3 PAR x Baseline (%NBS), 45% 4.4 Percentage New Building Standard (%NBS) - Seismic Rating (Use lower of two values from Step 4.3) Step 5 - Is %NBS < 34?	45% 45% NO YES
 Percentage New Building Standard (%NBS) - Seismic Rating (Use lower of two values from Step 4.3) Step 5 - Is %NBS < 34? Step 6 - Potentially Earthquake Risk (is %NBS < 67)? Step 7 - Provisional Grading for Seismic Risk based on IEP Seismic Grade Additional Comments (items of note affecting IEP based seismic rating) No further comments. 	45% NO YES
Step 5 - Is %NBS < 34?	NO YES C
Step 6 - Potentially Earthquake Risk (is <i>%NBS</i> < 67)? Step 7 - Provisional Grading for Seismic Risk based on IEP Seismic Grade Additional Comments (items of note affecting IEP based seismic rating) No further comments.	YES C
Step 7 - Provisional Grading for Seismic Risk based on IEP Seismic Grade Additional Comments (items of note affecting IEP based seismic rating) No further comments.	С
Additional Comments (items of note affecting IEP based seismic rating) No further comments.	
No further comments.	
Relationship between Grade and <i>%NBS</i> :	

k/ an ity	et Number & Name: A: he of building: :	99 Main Road Wainuimata Summer Pool Building 1 Lower Hutt	Job No.: By: Date: Revision No.:	9684 ULM 3/05/2019 40026 v 1
ar e	DIE IEP-5 INITIAL EX p 8 - Identification of po significant risk to	valuation Procedure Step 8 otential Severe Structural Weaknesses (SSW a significant number of occupants	/s) that could result in	
1	Number of storeys abo	ve ground level		1
2	Presence of heavy con	crete floors and/or concrete roof? (Y/N)		Y
	Potential Sever	e Structural Weaknesses (SSWs):		
	Note: Options that are grey	red out are not applicable and need not be considered.		
	Occupancy not consi	idered to be significant - no further consider	ation required	
	Risk not considered	to be significant - no further consideration re	equired	
	The following potent in the building that co	ial Severe Structural Weaknesses (SSWs) ha ould result in significant risk to a significant	ve been identified number 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 the deformations of other structural elements	f which are	
	4. Flat slab buildings connections	with lateral capacity reliant on low ductility	slab-to-column	
	5. No identifiable con	nection between primary structure and diap	hragms	
	6. Ledge and gap sta	irs		
	IEP Assessm	ent Confirmed by		

nitial Evaluation Proce	dure (IEP) Assessment - Com	pleted for Hutt City (Council	Page
WARNING!! This initial evaluation h ixisting Buildings" Technical Guidelines	as been carried out solely as an initial seismic asse for Engineering Assessments, July 2017. This spre	ssment of the building following the adsheet must be read in conjunctio	e procedure set out in ti n with the limitations se	he "The Seismic Assessment et out in the accompanying
eport, and should not be relied on by a been undertaken, and these may lead to	ny party for any other purpose. Detailed inspectior o a different result or seismic grade.	ns and engineering calculations, o r	engineering judgement	ts based on them, have not
treet Number & Name:	99 Main Road		Job No.:	<mark>9684</mark>
KA:	Wainuimata Summer Pool		By:	ULM
ame of building:	Building 2		Date:	3/05/2019
ity:	Lower Hutt		Revision No.:	40026 v 1
able IEP-1 Initial Ev	valuation Procedure Step 1			
	addition riocedure Step i			
tep 1 - General Informatio	n			
1 Photos (attach sufficient	to describe building)	and the state of the second	MA COLOR	
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	NOTE: THERE ARE MORE PHO	TOS ON PAGE 1a ATTACHE	D	
2 Sketches (plans etc, show	r items of interest)		OTELAY AS SHOLFEDY	
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	NOTE: THERE ARE MORE SKET	CHES ON PAGE 1a ATTACH	ED	
3 List relevant features (Not	e: only 10 lines of text will print in thi	s box. If further text requi	red use Page 1a)	
ilt in 1970. The upstairs is an ope	en plan meeting room with a balcony along t	wo sides. The downstairs is a	foyer, ticketing boot	h and toilet.
'm square floor plan upstairs with	a 1 m wide cantilever balcony along two side	des, and 8.4m square floor pla	n downstairs.	
e balcony provides access to the	ight is 5.3m and the apex is at 8.8m.	ies crossing in the centre.		
allow reinforced concrete perime	ter foundation wall with strip footings for the	ground floor slab, and 1.4m by	y 1.4m by 0.3m squa	are pads for the portal le
oundations are snown to be 1.4m ortal legs are 10"x10"x1/2" RHS a	nd the Rafters are10"x5 3/4"x 25lb UB. The E	aves tie is 5" x 3" x ¼" RHS		
e upstairs flooring is particle boa	rd with hard wood fillets on 250x50 joists at	450 crs. Joists are supported of	on 16"x7"x36b UB be	earers at 3.3m crs each
y. arers are supported on 18"x6"x4	5lb beams around the perimeter forming a s	teel frame. Balusters are 3 1/3"	by 3 1⁄2" RHS	
a. 5.5 are supported off 10 x0 x4	Tick as appropriate		~, 0 /2 1110.	
4 Note information sources				
4 Note information sources Visual Inspection of Exterior		Specifications		
4 Note information sources Visual Inspection of Exterior Visual Inspection of Interior	۷ ۷	Specifications Geotechnical Reports		
Note information sources Visual Inspection of Exterior Visual Inspection of Interior Drawings (note type)		Specifications Geotechnical Reports Other (list)		



reet Number KA: ame of buildi	& Name: ng:	99 Main Road Wainuimata Sun Building 2	nmer Pool			Job No.: By: Date:	9684 ULM 3/05/2019	
ty:	–	Lower Hutt				Revision No.:	<mark>40026 v 1</mark>	
able IEP-2		aluation Procedu	ire Step 2					
ep 2 - Deter aseline (%NBS 1 Determine	for particular bu nominal (%NB	/% NBS) _b iilding - refer Section B5) S) = (%NBS) _{nom}			<u>Longitudinal</u>	1	Transverse	
a) Building S Tick if buil	trengthening Da	ta have been strengthened i	n this direction					
If strength	iened, enter perce	entage of code the buildin	g has been strengthened	to	N/A		N/A	
b) Year of Des	sign/Strengtheni	ng, Building Type and S	eismic Zone					
				1 1 1 1 2 Post	Pre 1935 () 935-1965 () 965-1976 (*) 976-1984 () 984-1992 () 992-2004 () 004-2011 () Aug 2011 ()		Pre 1935 1935-1965 1965-1976 1976-1984 1984-1992 1992-2004 2004-2011 Post Aug 2011	0 0 0 0 0 0 0 0 0 0 0 0
			Building Type:	Public Buildings		•	Public Buildings	•
			Seismic Zone:	Zone A		▼ 2	Zone A	•
c) Soil Type	From NZS1170.	5:2004, Cl 3.1.3 :		D Soft Soil		•	D Soft Soil	-
	From NZS4203: (for 1992 to 200	1992, Cl 4.6.2.2 : 4 and only if known)			Not applicat	ble	Not applica	ble
d) Estimate P	Period, T			h -	5.2		5.2	m
Two storey	steel moment fra	me and steel portal frame).	$A_c =$	1.00		1.00	m²
Moment Re Moment Re Eccentrical All Other F Concrete S Masonry S User Defin	ssisting Concrete asisting Steel Fra Iy Braced Steel F rame Structures: hhear Walls hear Walls ed (input Period): <i>Where h_n</i> <i>uppermos</i>	Frames: mes: rames: = height in metres from the base t seismic weight or mass.	$T = \max\{0.09h_n^{0.75}, 0.4\}$ $T = \max\{0.14h_n^{0.75}, 0.4\}$ $T = \max\{0.08h_n^{0.75}, 0.4\}$ $T = \max\{0.08h_n^{0.75}, 0.4\}$ $T = \max\{0.09h_n^{0.75}/A_c^{0.5}, 0.4\}$ T = 0.4sec is of the structure to the	т	0 0 0 0 0 0 0	1	0 * 0 0 0 0 0 0 0 0 0 0 0 0 0]
e) Factor A:	Strengthening factor	or determined using result from ((a) above (set to 1.0	Factor A	: 1.00	I	1.00	I
f) Factor B:	Determined from N results (a) to (e) ab	ZSEE Guidelines Figure 3A.1 us ove	sing	Factor B	0.06		0.06]
g) Factor C:	For reinforced cond C = 1.2, otherwise	rete buildings designed betweer take as 1.0.	1976-84 Factor	Factor C	1.00		1.00] _
h) Factor D:	For buildings desig and Napier (1931-1 take as 1.0.	ned prior to 1935 Factor D = 0.8 1935) where Factor D may be ta	except for Wellington ken as 1.0, otherwise	Factor D	1.00		1.00	I
<i>(%NBS)</i> _{nom} =	= AxBxCxD			(%NBS) _{nor}	n 6%		6%]

Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judge ments based on them, have not been undertaken, and these may lead to a different result or seismic grade.

κΔ·	33 Main Noau			Job No.:	9684
····	Wainuimata Se	ummer Pool		By:	ULM
ame of building:	Building 2			Date:	3/05/2019
ty:	Lower Hutt			Revision No.:	40026 v 1
able IEP-2 Initial Ev	valuation Procee	dure Step 2	continued		
2 Near Fault Scaling Factor If $T < 15$ sec. Factor F =	, Factor E 1				
11 7 <u><</u> 1.0300, 1 dotor E =			Longitudinal	_	Transverse
a) Near Fault Factor, N(T,D)			N(T,D): 1		1
b) Factor E		= 1/N(T D)	Factor E: 1.00	1	1.00
<i>b</i>) : acio: <u>-</u>					
3 Hazard Scaling Factor, Fa a) Hazard Factor, <i>Z</i> , for site	ictor F				
Locatio	ON: Hutt Valley-south of Taita Gorge	•	Refer right for user-defined locati	ions	
	Z = 0.4	(from NZS1170.	5:2004, Table 3.3)		
Z_{19}	992 = 1.2	(NZS4203:1992	Zone Factor from accompanying Figure 3.5(b))		
Z ₂₀	0.4	(from NZS1170.	5:2004, Table 3.3)		
b) Factor F					
For pre 1992	=	1/Z			
For 1992-2011	=	Z ₁₉₉₂ /Z			
For post 2011	=	Z_{2004}/Z		_	
			Factor F: 2.50		2.50
 (set to 1.0 if other than 1976-2004, c) Return Period Factor, R 	or not known) portance Level)	Choose Impo	$R_0 = 1$	04 01	<u>1</u> ● 2 ○ 3 ○ 4
(from NZS1170.0:2004 Building Im			R = 1.0]	1.0
(from NZS1170.0:2004 Building Im	=	IR _o /R	$R = \boxed{1.0}$	1	1.0
(from NZS1170.0:2004 Building Im d) Factor G 5 Ductility Scaling Factor, F a) Available Displacement Dur <i>Comment:</i> Steel moment frame and po	= Factor H ctility Within Existing : rtal frame with 200SHS	IR _o /R Structure posts/portal legs	Factor G: 1.33 $\mu = 2.00$]]	1.0 1.33 2.00
(from NZS1170.0:2004 Building Im d) Factor G 5 Ductility Scaling Factor, F a) Available Displacement Duc <i>Comment:</i> Steel moment frame and po b) Factor H	= Factor H ctility Within Existing ; rtal frame with 200SHS	IR _o /R Structure	Factor G: 1.33 $\mu = 2.00$]]	1.0 1.33 2.00
(from NZS1170.0:2004 Building Im d) Factor G 5 Ductility Scaling Factor, F a) Available Displacement Duc <i>Comment:</i> Steel moment frame and po b) Factor H	= Factor H ctility Within Existing to rtal frame with 200SHS For pre 1976 (max	IR _o /R Structure posts/portal legs imum of 2)	Factor G: 1.33 $\mu = 2.00$ $\mu = 1.70$		1.0 1.33 2.00 κ _μ 1.70
(from NZS1170.0:2004 Building Im d) Factor G 5 Ductility Scaling Factor, F a) Available Displacement Duc <i>Comment:</i> Steel moment frame and po b) Factor H	= Factor H ctility Within Existing : rtal frame with 200SHS For pre 1976 (max For 1976 onwards	IR _o /R Structure posts/portal legs imum of 2)	Factor G: 1.33 $\mu = 2.00$ $\mu = 2.00$ $\mu = 1.70$ $\mu = 1.70$ Factor H: 1.70		1.0 1.33 2.00 k _μ 1.70 1 1.70
(from NZS1170.0:2004 Building Im d) Factor G 5 Ductility Scaling Factor, F a) Available Displacement Dur <i>Comment:</i> Steel moment frame and po b) Factor H (where kµ is NZS1170.5:2004 Inela	= Factor H ctility Within Existing : rtal frame with 200SHS For pre 1976 (max For 1976 onwards astic Spectrum Scaling Factor	IR _o /R Structure posts/portal legs imum of 2) , from accompanying	Factor G: 1.33 $\mu = 2.00$ $\mu = 2.00$ $\mu = 1.70$ $\mu = 1.70$]]]	$ \begin{array}{c} 1.0 \\ 1.33 \\ 2.00 \\ k_{\mu} \\ 1.70 \\ 1 \\ 1.70 \\ 1 \\ 1.70 \\$
(from NZS1170.0:2004 Building Im d) Factor G 5 Ductility Scaling Factor, F a) Available Displacement Du <i>Comment:</i> Steel moment frame and po b) Factor H (where kµ is NZS1170.5:2004 Inela 6 Structural Performance S a) Structural Performance Fac	= Factor H ctility Within Existing : rtal frame with 200SHS For pre 1976 (max For 1976 onwards astic Spectrum Scaling Factor caling Factor, Facto ctor, S _p	IR _o /R Structure posts/portal legs imum of 2) , from accompanying r I	Factor G: 1.33 $\mu = 2.00$ $\mu = 2.00$ $\mu = 2.00$ $\mu = 1.70$ $\mu = 1.70$]	1.0 1.33 2.00 k _μ 1.70 1 1.70 1
(from NZS1170.0:2004 Building Im d) Factor G 5 Ductility Scaling Factor, F a) Available Displacement Du <i>Comment:</i> Steel moment frame and po b) Factor H (where kµ is NZS1170.5:2004 Inela 6 Structural Performance S a) Structural Performance Fac (from accompanying Figure 3.4) Tick if light timber-framed cor	= Factor H ctility Within Existing : rtal frame with 200SHS For pre 1976 (max For 1976 onwards astic Spectrum Scaling Factor caling Factor, Facto ctor, S _p	IR _o /R Structure posts/portal legs imum of 2) , from accompanying r l n	Factor G: 1.33 $\mu = 2.00$ $\mu = 2.00$ $\mu = 2.00$ $\mu = 1.70$ $\mu = 1.70$]	1.0 1.33 2.00 <i>k</i> _μ 1.70 1 1.70
(from NZS1170.0:2004 Building Im d) Factor G 5 Ductility Scaling Factor, F a) Available Displacement Duc <i>Comment:</i> Steel moment frame and po b) Factor H (where kμ is NZS1170.5:2004 Inela 6 Structural Performance S a) Structural Performance Fac (from accompanying Figure 3.4) Tick if light timber-framed cor	= Factor H ctility Within Existing : rtal frame with 200SHS For pre 1976 (max For 1976 onwards astic Spectrum Scaling Factor caling Factor, Facto ctor, S _p nstruction in this directio	IR _o /R Structure posts/portal legs imum of 2) , from accompanying r I n	Factor G: 1.33 $\mu = 2.00$ $\mu = 2.00$ $\mu = 2.00$ $\mu = 2.00$ $\mu = 1.70$ = 1 Factor H: 1.70 Γ Table 3.3)		1.0 1.33 2.00 k_{μ} 1.70 1 1.70 1.70
(from NZS1170.0:2004 Building Im d) Factor G 5 Ductility Scaling Factor, F a) Available Displacement Duc <i>Comment:</i> Steel moment frame and po b) Factor H (where kµ is NZS1170.5:2004 Inela 6 Structural Performance S a) Structural Performance Fac (from accompanying Figure 3.4) Tick if light timber-framed cor	= Factor H ctility Within Existing : rtal frame with 200SHS For pre 1976 (max For 1976 onwards astic Spectrum Scaling Factor caling Factor, Facto ctor, S _p nstruction in this directio	IR _o /R Structure posts/portal legs imum of 2) , from accompanying r I n	Factor G: 1.33 $\mu = 2.00$ $\mu = 2.00$ $\mu = 2.00$ $\mu = 2.00$ $\mu = 2.00$ $\mu = 1.70$ = 1 Factor H: 1.70 Γ Γ Γ Γ Γ Γ Γ Γ		1.0 1.33 2.00 k_{μ} 1.70 1 1.70 1 0.50
 (from NZS1170.0:2004 Building Im d) Factor G 5 Ductility Scaling Factor, F a) Available Displacement Duc Comment: Steel moment frame and po b) Factor H (where kµ is NZS1170.5:2004 Inela 6 Structural Performance S a) Structural Performance Fac (from accompanying Figure 3.4) Tick if light timber-framed cor b) Structural Performance Sca 	= Factor H ctility Within Existing : rtal frame with 200SHS For pre 1976 (max For 1976 onwards astic Spectrum Scaling Factor caling Factor, Facto ctor, S _p nstruction in this direction aling Factor	IR _o /R Structure posts/portal legs imum of 2) , from accompanying r I n = 1/S _p	Factor G: 1.33 $\mu = 2.00$ $\mu = 2.00$ $\mu = 2.00$ $\mu = 2.00$ $\mu = 2.00$ $\mu = 1.70$ = 1 Factor H: 1.70 $\Gamma = 1$ Factor H: 1.70 $\Gamma = 0.50$ Factor I: 2.00		1.0 1.33 2.00 k_{μ} 1.70 1 1.70 1.70 2.00 2.00
 (from NZS1170.0:2004 Building Im d) Factor G 5 Ductility Scaling Factor, F a) Available Displacement Duc Comment: Steel moment frame and po b) Factor H (where kμ is NZS1170.5:2004 Inela 6 Structural Performance S a) Structural Performance Fac (from accompanying Figure 3.4) Tick if light timber-framed cor b) Structural Performance Sca Note Factor B values for 1992 to 2 	= Factor H ctility Within Existing : rtal frame with 200SHS For pre 1976 (max For 1976 onwards astic Spectrum Scaling Factor caling Factor, Facto ctor, S _p astruction in this directio aling Factor 2004 have been multiplied by	IR _o /R Structure posts/portal legs imum of 2) , from accompanying r I n = 1/S _p 0.67 to account for S	Factor G: 1.33 $\mu = 2.00$ $\mu = 2.00$]]]]	1.0 1.33 2.00 k_{μ} 1.70 1 1.70 1.70 2.00 2.00
 (from NZS1170.0:2004 Building Im d) Factor G 5 Ductility Scaling Factor, F a) Available Displacement Dur Comment: Steel moment frame and po b) Factor H (where kμ is NZS1170.5:2004 Inela 6 Structural Performance Factor (from accompanying Figure 3.4) Tick if light timber-framed cor b) Structural Performance Scatter Note Factor B values for 1992 to 2 7 Baseline %NBS for Buildia (equals (%NBS)_{nom} x E x F 	= Factor H ctility Within Existing : rtal frame with 200SHS For pre 1976 (max For 1976 onwards astic Spectrum Scaling Factor caling Factor, Factor ctor, S_p instruction in this direction aling Factor 2004 have been multiplied by ing, (%NBS) _b x G x H x I)	IR _o /R Structure posts/portal legs imum of 2) , from accompanying r I n = 1/S _p 0.67 to account for S	Factor G: 1.33 R = 1.0 Factor G: 1.33 $\mu = 2.00$ $\mu = 2$		1.0 1.33 2.00 k_{μ} 1.70 1 1.70 1 1.70 2.00 68%

reet Number & Name:	99 Main Road		Jo	b No.:	9684
(A:	Wainuimata Summer Pool		B	V:	ULM
me of building:	Building 2		Da	ate:	3/05/2019
ty:	Lower Hutt		R	evision No.:	40026 v 1
able IEP-3 Initial E	valuation Procedure Step 3				
efer Appendix B - Section B3.2)	(,				
Longitudinal Direction					
potential CSWs	Effect on Stru (Choose a value	ctural Performa e - Do not interpo	ance late)		Facto
Fian Irregularity	C	Circuific and		la e investi e e e t	
Symetrical		Signincant		Insignificant	
oymethodi.					
2 Vertical Irregularity					
Effect on Structural Performa	ance O Severe O	Significant		Insignificant	Factor B 1.0
Short Columns					
Effect on Structural Performa	ance _O Severe O	Significant		Insignificant	Factor C 1.0
None.					
) Factor D1: - Pounding Effe	ect				1
A) Factor D1: - Pounding Effe Note: Values given assume th may be reduced by takin	ect e building has a frame structure. For stiff bu ng the coefficient to the right of the value ap	uildings (eg shea oplicable to frame	r walls), the effe buildings.	ect of pounding]
A) Factor D1: - Pounding Effe Note: Values given assume th may be reduced by takin	ect e building has a frame structure. For stiff bu ng the coefficient to the right of the value ap Fa	uildings (eg shea plicable to frame ctor D1 For Lor	r walls), the effe buildings. ngitudinal Dire	ect of pounding]
a) Factor D1: - Pounding Effe Note: Values given assume th may be reduced by takin Table for Selectio	e building has a frame structure. For stiff building has a frame structure. For stiff building the coefficient to the right of the value approximate the structure of the value of Factor D1	uildings (eg shea pplicable to frame ctor D1 For Lor Severe n 0-Sepc.005H	r walls), the effe buildings. agitudinal Dire Significant .005 <sep<.01h< td=""><td>ect of pounding ection: 1.0 Insignificant Sep01H</td><td></td></sep<.01h<>	ect of pounding ection: 1.0 Insignificant Sep01H	
a) Factor D1: - Pounding Effe Note: Values given assume th may be reduced by takin Table for Selection	e building has a frame structure. For stiff b ng the coefficient to the right of the value ap Fa n of Factor D1 Separatio Alignment of Floors within 20% of Storey Heigi	uildings (eg shea oplicable to frame ctor D1 For Lor Severe n 0 <sep<.005h at e 1</sep<.005h 	r walls), the effe buildings. Agitudinal Dire Significant .005 <sep<.01h< td=""><td>ect of pounding ection: 1.0 Insignificant Sep>.01H O 1</td><td></td></sep<.01h<>	ect of pounding ection: 1.0 Insignificant Sep>.01H O 1	
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a) Factor D1: - Pounding Effe Note: Values given assume th may be reduced by takin Table for Selection Alig b) Factor D2: - Heigh	e building has a frame structure. For stiff building has a frame structure. For stiff building the coefficient to the right of the value ages of the second structure of the second structure of Floors within 20% of Storey Height and the second structure of Floors not within 20% of Storey Height and the second structure of the second structur	Lildings (eg shea oplicable to frame ctor D1 For Lor Severe n 0 <sep<.005h nt 0 0.4</sep<.005h 	n walls), the effe e buildings. agitudinal Dire Significant .005 <sep<.01h 0 1 0 0.7</sep<.01h 	ect of pounding ection: 1.0 Insignificant Sep01H 0 1 0 0.8	
a) Factor D1: - Pounding Effe Note: Values given assume th may be reduced by takin Table for Selection Alig b) Factor D2: - Heigh	e building has a frame structure. For stiff building has a frame structure. For stiff building the coefficient to the right of the value ages of the second structure of the second structure of Factor D1 Separation Alignment of Floors within 20% of Storey Height for the second structure of the	Lildings (eg shea oplicable to frame ctor D1 For Lor Severe n 0 <sep<.005h nt 0 0.4 to 0.4 ctor D2 For Lor</sep<.005h 	r walls), the effe e buildings. agitudinal Dire Significant .005 <sep<.01h 0 1 0 0.7 agitudinal Dire</sep<.01h 	ect of pounding ection: 1.0 Insignificant Sep01H 0 1 0.8 ection: 1.0	
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a) Factor D1: - Pounding Effe Note: Values given assume th may be reduced by takin Table for Selectio Alig b) Factor D2: - Heigh	e building has a frame structure. For stiff building has a frame structure. For stiff building the coefficient to the right of the value approximation of Factor D1 Separation Alignment of Floors within 20% of Storey Height Difference Effect Famo of Factor D2 Height Difference > 4 Storey Height Difference 2 to 4 Storey Height Difference 3 to 4 Storey 4 Sto	uildings (eg shea oplicable to frame ctor D1 For Lor Severe n 0<5ep<.005H	r walls), the effe e buildings. agitudinal Direc Significant .005 <sep<.01h 0 1 0 0.7 agitudinal Direc Significant .005<sep<.01h 0 0.7 0.05 0.7 0.9</sep<.01h </sep<.01h 	ection: 1.0 Insignificant Sep>.01H 0 1 0 0.8 ection: 1.0 Insignificant Sep>.01H 0 1 0 1	
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a) Factor D1: - Pounding Effe Note: Values given assume th may be reduced by takin Table for Selection Alig b) Factor D2: - Heigh Table for Selection	e building has a frame structure. For stiff bi ng the coefficient to the right of the value ap Fa on of Factor D1 Separation Alignment of Floors within 20% of Storey Heigh Inment of Floors not within 20% of Storey Heigh Int Difference Effect Fa on of Factor D2 Height Difference 2 to 4 Storey Height Difference 2 to 4 Storey Height Difference 2 Storey	uildings (eg shea oplicable to frame ctor D1 For Lor Severe 0 <sep<.005h< td=""> nt 0.1 nt 0.4</sep<.005h<>	r walls), the effe buildings.	ect of pounding	Factor D 1.0
a) Factor D1: - Pounding Effe Note: Values given assume th may be reduced by takin Table for Selection Alig b) Factor D2: - Heigh Table for Selection Site Characteristics - Sta	e building has a frame structure. For stiff bi ng the coefficient to the right of the value ap Fa on of Factor D1 Separation Alignment of Floors within 20% of Storey Heigh Imment of Floors not within 20% of Storey Heigh Int Difference Effect Fa on of Factor D2 Height Difference 2 to 4 Storey Height Difference 2 to 4 Storey Height Difference 2 Storey Height Difference 2 Storey	uildings (eg shea oplicable to frame ctor D1 For Lor Severe 0 <sep<.005h< td=""> nt ○ 0.4 Ctor D2 For Lor Severe 0<sep<.005h< td=""> 1 0</sep<.005h<></sep<.005h<>	r walls), the effe e buildings.	ect of pounding ection: 1.0 Insignificant Sep>.01H 0 1 0 0.8 ection: 1.0 Insignificant Sep>.01H 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	Factor D 1.0
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a) Factor D1: - Pounding Effe Note: Values given assume th may be reduced by takin Table for Selectio b) Factor D2: - Heigh Table for Selectio Site Characteristics - Sta Effect on Structural Perform Greater Wellington Regiona	e building has a frame structure. For stiff building has a frame structure. For stiff building the coefficient to the right of the value approximate to the right of the value approximate to floors within 20% of Storey Height unment of Floors not within 20% of Storey Height unment of Floors not within 20% of Storey Height Difference Effect The store of t	uildings (eg shea oplicable to frame ctor D1 For Lor Severe 0 <sep<.005h< td=""> nt 0.4 ctor D2 For Lor Severe 0<sep<.005h< td=""> Sovere 0<sep<.005h< td=""> Sovere 0<sep<.005h< td=""> Sovere 0<0.4</sep<.005h<></sep<.005h<></sep<.005h<></sep<.005h<>	r walls), the effe buildings.	ect of pounding ection: 1.0 Insignificant Sep>.01H 0 1 0 0.8 ection: 1.0 Insignificant Sep>.01H 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	Factor D 1.0 spective Factor E 0.7
a) Factor D1: - Pounding Effe Note: Values given assume th may be reduced by takin Table for Selection b) Factor D2: - Heigh Table for Selection Site Characteristics - State Effect on Structural Perform Greater Wellington Regional 5 Other Factors - for alloward	e building has a frame structure. For stiff building has a frame structure. For stiff building the coefficient to the right of the value are an of Factor D1 Separation Alignment of Floors within 20% of Storey Height and the floors not within 20% of Storey Height and floor floors not within 20% of Storey Height and floor fl	uildings (eg shea oplicable to frame ctor D1 For Lor Severe 0 <sep<.005h< td=""> nt 0.4 ctor D2 For Lor Severe 0<sep<.005h< td=""> Severe 0<sep<.005h< td=""> 0 severe 0<sep<.005h< td=""> 0 0.7 © 1 severe 0 0 0.7 © 1 severe significant ion potential, lows sidding</sep<.005h<></sep<.005h<></sep<.005h<></sep<.005h<>	r walls), the effe e buildings.	ect of pounding ection: 1.0 Insignificant Sep>.01H 0 1 0 0.8 ection: 1.0 Insignificant Sep>.01H 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	Factor D 1.0 spective Factor E 0.7 Factor F 1.5
a) Factor D1: - Pounding Effe Note: Values given assume th may be reduced by takin Table for Selection b) Factor D2: - Heigh Table for Selection Table for Selection Site Characteristics - State Effect on Structural Perform Greater Wellington Regional 5 Other Factors - for allowal Record rationale for ch	e building has a frame structure. For stiff building has a frame structure. For stiff building the coefficient to the right of the value approximate of the coefficient to the right of the value approximate of Factor D1 Separation Alignment of Floors within 20% of Storey Height Difference Effect Table and Factor D2 The store of a structure of the store of all other relevant characterstics of the building to the store of	uildings (eg shea oplicable to frame ctor D1 For Lor Severe 0 <sep<.005h< td=""> nt 0.4 ctor D2 For Lor Severe 0<sep<.005h< td=""> 0 severe 0<sep<.005h< td=""> 0 severe 0<sep<.005h< td=""> 0 severe 0 0 0 is is significant ion potential, low se silding</sep<.005h<></sep<.005h<></sep<.005h<></sep<.005h<>	r walls), the effe e buildings.	ect of pounding ection: 1.0 Insignificant Sep>.01H 0 1 0 0.8 ection: 1.0 Insignificant Sep>.01H 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1	Factor D 1.0 spective Factor E 0.7 Factor F 1.5
 a) Factor D1: - Pounding Effet Note: Values given assume the may be reduced by taking Table for Selection b) Factor D2: - Heigh b) Factor D2: - Heigh Table for Selection 5 Site Characteristics - State Effect on Structural Perform Greater Wellington Regional 6 Other Factors - for alloware Record rationale for che Foundation for ground floor may have a significant impart 	et e building has a frame structure. For stiff building has a frame structure. For stiff building the coefficient to the right of the value age Fam of Factor D1 Separation Alignment of Floors within 20% of Storey Heigh and Difference Effect Fam of Factor D2 Height Difference 2 to 4 Storey Height Difference 2 to 4 Storey Height Difference 2 Storey Height Difference 3 Storey Height Difference 4 Storey Height Difference 2 Storey Height Difference 2 Storey Height Difference 5 Height Storey Height Difference 5 Height Storey Height Difference 5 Height Height Height Difference 5 Height Heig	uildings (eg shea oplicable to frame ctor D1 For Lor Severe n 0 nt 0.4 ctor D2 For Lor Severe 0 0.7 © 0.4 0.7 © 1 0.1 cts the structural p Significant ion potential, low s sidding For o the foundation fo ented, well maintain	r walls), the effe e buildings.	ect of pounding	Factor D 1.0 spective Factor E 0.7 Factor F 1.5
 a) Factor D1: - Pounding Effect on Structural Performance Achieveme b) Factor D2: - Heigh Table for Selection b) Factor D2: - Heigh c) Table for Selection c) Factor D2: - Heigh c) Table for Selection c) Factor D2: - Heigh c) Fact	et e building has a frame structure. For stiff bu ng the coefficient to the right of the value ap Fa on of Factor D1 Separatic Alignment of Floors within 20% of Storey Heigh mment of Floors not within 20% of Storey Heigh to Difference Effect Height Difference 2 to 4 Storey Height Difference 2 to 4 Storey Height Difference 2 Storey Height Difference < 2 Storey Height Difference < 2 Storey Height Difference < 3 the full the	uildings (eg shea pplicable to frame ctor D1 For Lor Severe 0-Sep<.005H	er walls), the effe buildings.	ect of pounding	Factor D 1.0 spective Factor E 0.7 Factor F 1.5

et number & name:	99 Main Road		Job No.:	9684
\:	Wainuimata Summer Pool		By:	ULM
ne of building:	Building 2		Date:	3/05/2019
:	Lower Hutt		Revision No.:	40026 v 1
ole IEP-3 Initial E	valuation Procedure Step 3			
o 3 - Assessment of Pe er Appendix B - Section B3.2)	rformance Achievement Ratio (PAR)			
ransverse Direction				
potential CSWs	Effect on Str (Choose a valu	uctural Performance e - Do not interpolate)		Fac
Plan Irregularity		0		
Effect on Structural Perform	nance O Severe O	Significant	Insignifican	t Factor A 1.
Symetrical.				
Vertical Irregularity				
Effect on Structural Perform Single storey.	nance o Severe o	Significant	Insignifican	t Factor B 1.
Short Columns		Cimetine et	to a tora 10	
Entect on Structural Perform		Significant	Insignificant	π ractor C 1.
Values given assume the may be reduced by takin	e building has a frame structure. For stiff bui ng the coefficient to the right of the value app	dings (eg shear walls), a licable to frame building	the effect of pounding Is.	
Table for Selectio	n of Factor D1	ctor D1 For Transvers	e Direction: 1.0	0
Table for Selectio	Fa n of Factor D1 Separation	ctor D1 For TransversSevereSignific0 <sep<.005h< td="">.005<sep< td=""></sep<></sep<.005h<>	cant Insignificant <.01H Sep>.01H	<u>D</u>
Table for Selectio	Fa n of Factor D1 Alignment of Floors within 20% of Storey Height	Severe Signification 0 <sep<.005h< td=""> .005<sep< td=""> © 1 0</sep<></sep<.005h<>	Direction: 1.0 cant Insignificant <.01H	
Table for Selectio	Fa n of Factor D1 Separation Alignment of Floors within 20% of Storey Height nment of Floors not within 20% of Storey Height	Severe Signifition 0<3ep<.005H	e Direction: 1.0 cant Insignificant <.01H	
Table for Selection Alig b) Factor D2: - Height	Fa n of Factor D1 Separation Alignment of Floors within 20% of Storey Height Inment of Floors not within 20% of Storey Height	Ctor D1 For Transvers Severe Signifi 0 <sep<.005h< td=""> .005<sep< td=""> © 1 0 0 0.4 0</sep<></sep<.005h<>	Direction: 1.0 cant Insignificant <.01H Sep>.01H I 0 1 0.7 0.8	
Table for Selection Alig b) Factor D2: - Height	Fa n of Factor D1 Separation Alignment of Floors within 20% of Storey Height mment of Floors not within 20% of Storey Height nt Difference Effect Fa	ctor D1 For Transvers Severe Signifi 0 <sep<.005h< td=""> .005<sep< td=""> 1 0 0 0.4 0 0.4 0 0.4 0 0.4</sep<></sep<.005h<>	e Direction: 1.0 cant Insignificant <.01H	
Table for Selectio Alig b) Factor D2: - Heigh Table for Selectio	Fa n of Factor D1 Separation Alignment of Floors within 20% of Storey Height mment of Floors not within 20% of Storey Height to Difference Effect Fa n of Factor D2	Ctor D1 For Transvers Severe Signifi 0 <sep<.005h< td=""> .005<sep< td=""> 1 1 1 O 0.4 0 Ctor D2 For Transvers Severe Signifi 0<sep<.005h< td=""> .005<sep< td=""></sep<></sep<.005h<></sep<></sep<.005h<>	ee Direction: 1.0 cant Insignificant <.01H	2
Table for Selection Alig b) Factor D2: - Heigh Table for Selection	Fa n of Factor D1 Separation Alignment of Floors within 20% of Storey Height ment of Floors not within 20% of Storey Height nt Difference Effect Fa n of Factor D2 Height Difference > 4 Storeys	Ctor D1 For Transvers Severe Signifi 0 <sep<.005h< td=""> .005<sep< td=""> 0.4 0 Ctor D2 For Transvers Severe Signifi 0 0.4 Ctor D2 For Transvers Severe Signifi 0 0.05<sep< td=""> 0 0.04</sep<></sep<></sep<.005h<>	ie Direction: 1.0 cant Insignificant <.01H	2
Table for Selectio Alig b) Factor D2: - Heigh Table for Selectio	Fa n of Factor D1 Separation Alignment of Floors within 20% of Storey Height Inment of Floors not within 20% of Storey Height Int Difference Effect Fa n of Factor D2 Height Difference > 4 Storeys Height Difference 2 to 4 Storeys	ctor D1 For Transvers Severe Signifi 0 <sep<.005h< td=""> .005<sep< td=""> 0.4 0 0 Ctor D2 For Transvers Severe Signifi 0 0.4 0 0 0.4 0 0 0.4 0 0 0.5 Severe Severe Signifi 0 0.05 0 0.4 0 0.1 0.05 0.05</sep<></sep<.005h<>	Be Direction: 1.0 cant Insignificant <.01H	2
Table for Selection Align b) Factor D2: - Heigh Table for Selection	Fa n of Factor D1 Separation Alignment of Floors within 20% of Storey Height Inment of Floors not within 20% of Storey Height Int Difference Effect Fa n of Factor D2 Height Difference 2 to 4 Storeys Height Difference 2 to 4 Storeys Height Difference 2 to 4 Storeys	ctor D1 For Transvers Severe Signifi 0 <sep<.005h< td=""> .005<sep< td=""> 1 0 0 0<0.4</sep<></sep<.005h<>	Be Direction: 1.0 cant Insignificant <.01H	
Table for Selection Alig b) Factor D2: - Height Table for Selection	Fa n of Factor D1 Separation Alignment of Floors within 20% of Storey Height mment of Floors not within 20% of Storey Height nt Difference Effect Fa n of Factor D2 Height Difference > 4 Storeys Height Difference 2 to 4 Storeys Height Difference < 2 Storeys	Ctor D1 For Transvers Severe Signifi 0 <sep<.005h< td=""> .005<sep< td=""> 1 0 0<04</sep<></sep<.005h<>	Direction: 1.0 cant Insignificant <.01H	Eactor D 4
Table for Selectio Alig b) Factor D2: - Heigh Table for Selectio Site Characteristics - Site	Fa n of Factor D1 Separation Alignment of Floors within 20% of Storey Height mment of Floors not within 20% of Storey Height nt Difference Effect Fa n of Factor D2 Height Difference > 4 Storeys Height Difference < 2 Storeys Height Difference < 2 Storeys	Ctor D1 For Transvers Severe Signifi 0 <sep<.005h< td=""> .005<sep< td=""> 1 0 Ctor D2 For Transvers Severe Signifi 0<sep<.005h< td=""> .005<sep< td=""> 0<0.4</sep<></sep<.005h<></sep<></sep<.005h<>	Direction: 1.0 cant Insignificant <.01H	Factor D 1.
Table for Selection Alig b) Factor D2: - Heigh Table for Selection Site Characteristics - State	Fa n of Factor D1 Separation Alignment of Floors within 20% of Storey Height mment of Floors not within 20% of Storey Height nt Difference Effect Fa n of Factor D2 Height Difference > 4 Storeys Height Difference < 2 Storeys Height Difference < 2 Storeys Height Difference < 2 Storeys	ctor D1 For Transvers Severe Signifi 0 Severe 1 0 0 0.4 0 0.4 0 0.4 0 0.5 Severe Signifi 0 0.4 0 0.5 Severe Signifi 0 0.5 0 0.4 0 0.7 0 1 1 1	See Direction: 1.0 cant Insignificant <.01H	Factor D 1.
Table for Selection Alig b) Factor D2: - Heigh Table for Selection Site Characteristics - State Effect on Structural Perform Grader Wollington Designment	Fa n of Factor D1 Separation Alignment of Floors within 20% of Storey Height Inment of Floors not within 20% of Storey Height Int Difference Effect Fa n of Factor D2 Height Difference 2 to 4 Storeys Height Difference 2 to 4 Storeys Height Difference < 2 Storeys Height Difference < 3 Storeys Particular Storeys Al Council Elex Max Viscor and data for the storeys I Council Elex Max Viscor and data for the storeys Height Difference < 1 Storeys Height Difference < 2 Storeys Height Difference < 3 Storeys Heig	ctor D1 For Transvers Severe Signifi 0 Severe Signifi 0 0.05 Severe Signifi 0 0.4 0 O Ctor D2 For Transvers Severe Signifi 0 Severe Signifi 0 0.4 O 0 0.4 O 0 0.4 O 0 0.4 O 0 0.7 O © 1 0 st the structural performant Significant p potenticl Iou place foil	Be Direction: 1.0 cant Insignificant <.01H	Factor D 1. spective t Factor E 0.
Table for Selection Alig b) Factor D2: - Heigh Table for Selection Site Characteristics - State Effect on Structural Perform Greater Wellington Regional	Fa n of Factor D1 Separation Alignment of Floors within 20% of Storey Height mment of Floors not within 20% of Storey Height nt Difference Effect Fa n of Factor D2 Height Difference > 4 Storeys Height Difference < 2 Storeys Height Difference < 2 Storeys Height Difference < 2 Storeys Height Difference < 3 Storeys ability, landslide threat, liquefaction etc as it affect mance _ Severe al Council Flex Map Viewer, moderate liquefaction	ctor D1 For Transvers Severe Signifi 0 0.05 • 1 0 • 0 0.4 0 ctor D2 For Transvers Severe Signifi 0 0.4 0 0 0.4 0 0 0.4 0 0 0.4 0 0 0.4 0 0 0.4 0 0 0.4 0 0 0.4 0 0 0.7 0 0 1 1 the structural performant Significant n potential, low slope failt	See Direction: 1.0 Cant Insignificant <<01H	Factor D 1. spective Factor E 0.
Table for Selection Alig b) Factor D2: - Heigh Table for Selection Site Characteristics - State Effect on Structural Perform Greater Wellington Regiona Other Factors - for allowar Record rationale for comparison	Fa n of Factor D1 Separation Alignment of Floors within 20% of Storey Height mment of Floors not within 20% of Storey Height nt Difference Effect Height Difference > 4 Storeys Height Difference > 4 Storeys Height Difference < 2 Storeys Height Difference < 2 Storeys Height Difference < 2 Storeys Height Difference < 2 Storeys Height Difference < 3 Storeys Height Difference < 4 Storeys Height Difference < 2 Storeys Height Difference < 3 Storeys Height Difference < 4 Storeys Height Difference < 3 Storeys Height Difference < 4 Storeys Height Difference < 4 Storeys Height Difference < 4 Storeys Height Difference < 5 Storeys Height Difference < 6 Storeys Height Difference < 6 Storeys Height Difference < 6 Storeys Height Difference < 7 Storeys Height Difference < 8 Storeys Hei	ctor D1 For Transvers Severe Signifi 0 <sep<.005h< td=""> .005<sep< td=""> ● 1 0 ○ 0.4 0 ctor D2 For Transvers Severe Signifi 0<sep<.005h< td=""> .005<sep< td=""> ○ 0.4 00 ○ 0.4 00 ○ 0.4 00 ○ 1 0 st the structural performant Significant n potential, low slope failu fing For < 3 storey otherwise</sep<></sep<.005h<></sep<></sep<.005h<>	Be Direction: 1.0 cant Insignificant <<01H	Factor D 1. spective t Factor E 0. Factor F 1.5
Table for Selection Alig b) Factor D2: - Heigh Table for Selection Site Characteristics - State Effect on Structural Perform Greater Wellington Regional Other Factors - for allowar Record rationale for C Foundation for ground floor may have a significant impart	Fa n of Factor D1 Separation Alignment of Floors within 20% of Storey Height mment of Floors not within 20% of Storey Height in Difference Effect Tagen of Factor D2 Height Difference > 4 Storeys Height Difference < 2 Storeys Height Difference < 2 Storeys Height Difference < 2 Storeys Alight Difference < 3 Storeys in ance Severe alignment of Severe alignment conce of all other relevant characterstics of the build choice of Factor F: does not appear to be structurally connected to to act, however the building has been well document	ctor D1 For Transvers Severe Signifi 0 0.05 0 1 0 0 0.4 0 ctor D2 For Transvers Severe Signifi 0 0.4 0 0 0.4 0 0 0.4 0 0 0.4 0 0 0.4 0 0 0.4 0 0 0.4 0 0 0.7 0 0 1 1 st the structural performant Significant n potential, low slope failt ding For < 3 storey otherwise	ae Direction: 1.0 cant Insignificant <.01H	Factor D 1. spective t Factor E 0. Factor F 1.5
Table for Selection Alig b) Factor D2: - Heigh Table for Selection Site Characteristics - State Effect on Structural Perform Greater Wellington Regionar Other Factors - for allowar Record rationale for C Foundation for ground floor may have a significant impart	Fa n of Factor D1 Separation Alignment of Floors within 20% of Storey Height mment of Floors not within 20% of Storey Height nt Difference Effect Fa n of Factor D2 Height Difference > 4 Storeys Height Difference > 4 Storeys Height Difference < 2 Storeys Height Difference < 2 Storeys ability, landslide threat, liquefaction etc as it affect mance Severe al Council Flex Map Viewer, moderate liquefaction the of all other relevant characterstics of the build choice of Factor F: does not appear to be structurally connected to the ctc, however the building has been well documer	ctor D1 For Transvers Severe Signifi $0 < Sep < .005H$.005	ae Direction: 1.0 cant Insignificant <.01H	Factor D 1. spective t Factor E 0. Factor F 1.5
Table for Selection Alig b) Factor D2: - Heigh Table for Selection Site Characteristics - State Effect on Structural Perform Greater Wellington Regionar Other Factors - for allowar Record rationale for C Foundation for ground floor may have a significant imperiment Performance Achieveme (equals A x B x C x D x E	Factor D1 Separation Alignment of Floors within 20% of Storey Height Inment of Floors not within 20% of Storey Height Int Difference Effect Fa Int of Factor D2 Height Difference > 4 Storeys Height Difference 2 to 4 Storeys Height Difference < 2 Storeys	ctor D1 For Transvers Severe Signifi $0 < Sep < .005H$.005 <sep< td=""></sep<>	See Direction: 1.0 Cant Insignificant <<01H	Factor D 1. spective t Factor E 0. Factor F 1.5 Factor F 1.5

(A:	99 Main Road	Job No.:	9684
	Wainuimata Summer Pool	By:	ULM
ame of building:	Building 2	Date:	3/05/2019 40026 y 1
ity:		Revision No.:	40020 V 1
able IEP-4 Initial E	valuation Procedure Steps 4, 5, 6 and	17	
tep 4 - Percentage of Nev	v Building Standard (%NBS)	Longitudinal	Transverse
.1 Assessed Baseline %N	IBS (%NBS)	68%	68%
(from Table IEP - 1)			
.2 Performance Achievem (from Table IEP - 2)	ient Ratio (PAR)	1.05	1.05
.3 PAR x Baseline (%NBS) _b	70%	70%
.4 Percentage New Buildi (Use lower of two value	ng Standard (%NBS) - Seismic Rating s from Step 4.3)		70%
Step 5 - Is <i>%NBS <</i> 34?			NO
Step 6 - Potentially Earthq	uake Risk (is <i>%NBS <</i> 67)?		NO
Step 7 - Provisional Gradir	ng for Seismic Risk based on IEP	Seismic Grade	В
Additional Comments (ite	ms of note affecting IEP based seismic rating)		
Relationship betw	een Grade and <i>%NBS</i> :		

ee A m y:	et Number & Name: : e of building:	99 Main Road Wainuimata Summer Pool Building 2 Lower Hutt	Job No.: By: Date: Revision No.:	9684 ULM 3/05/2019 40026 v 1
þ	le IEP-5 Initial Ex 8 - Identification of po significant risk to	valuation Procedure Step 8 otential Severe Structural Weaknesses (SSW a significant number of occupants	/s) that could result in	
	Number of storeys abo	ve ground level		2
	Presence of heavy con	crete floors and/or concrete roof? (Y/N)		N
	Potential Severe	e Structural Weaknesses (SSWs):	:	
	Note: Options that are grey	ed out are not applicable and need not be considered.		
	Occupancy not consi	idered to be significant - no further consider	ration required	
	Risk not considered	to be significant - no further consideration re	equired	
	The following potenti in the building that co	ial Severe Structural Weaknesses (SSWs) ha ould result in significant risk to a significant	ive been identified number 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 the deformations of other structural elements	f which are	
	4. Flat slab buildings connections	with lateral capacity reliant on low ductility	slab-to-column	
	5. No identifiable con	nection between primary structure and diap	hragms	
	6. Ledge and gap sta	irs		
	IEP Assessm	ent Confirmed by		





reet Number (A: ame of buildi	& Name: ng:	99 Main Road Wainuimata S Building 3	ummer Pool			Job No.: By: Date:	9684 ULM 3/05/2019	
ty:		Lower Hutt	duna Otan O			Revision No.:	40013 v 1	
able IEP-2	Initial EV	(aluation Proce	dure Step 2					
aseline (%NBS 1 Determine	for particular bu nominal (%NBS	ilding - refer Section B S) = (%NBS) _{nom}	5)		<u>Longitudinal</u>		<u>Transverse</u>	
a) Building S Tick if buil	trengthening Da	ta have been strengthene	d in this direction					
If strength	ened, enter perce	entage of code the buil	ding has been strengthened	to	N/A		N/A	
b) Year of Des	sign/Strengtheni	ng, Building Type and	d Seismic Zone					
				1 1 1 1 2 Post	Pre 1935 0 935-1965 0 965-1976 9 976-1984 0 984-1992 0 992-2004 0 004-2011 0 Aug 2011 0		Pre 1935 1935-1965 1965-1976 1976-1984 1984-1992 1992-2004 2004-2011 Post Aug 2011	
			Building Type:	Public Buildings	•	Pi	Iblic Buildings	•
			Seismic Zone:	Zone A	•	Z	ne A	•
c) Soil Type	From NZS1170.	5:2004, Cl 3.1.3 :		D Soft Soil		P	Soft Soil	•
	From NZS4203: (for 1992 to 200	1992, CI 4.6.2.2 : 4 and only if known)			Not applicabl	e	Not applicat	ble
d) Estimate P	Period, T			h. =	27		27	m
Single stor	ey reinforced con	crete block masonry.		A _c =	1.00		1.00	m²
Moment Re Moment Re Eccentrical All Other F Concrete S Masonry S User Defin	ssisting Concrete ssisting Steel Frai ly Braced Steel F rame Structures: Shear Walls hear Walls: ed (input Period): <i>Where h_n</i> <i>uppermosi</i>	Frames: mes: rames: = height in metres from the seismic weight or mass.	$T = \max\{0.09h_n^{0.75}, 0.4\}$ $T = \max\{0.04h_n^{0.75}, 0.4\}$ $T = \max\{0.06h_n^{0.75}, 0.4\}$ $T = \max\{0.06h_n^{0.75}, 0.4\}$ $T = \max\{0.09h_n^{0.75}/A_c^{0.5}, 0.4\}$ $T \le 0.4\sec$ base of the structure to the	1	0 0 0 0 0 0 0		0 0 0 0 0 0 0 0.40	
e) Factor A:	Strengthening factor	or determined using result fr	om (a) above (set to 1.0	Factor A	L: 1.00		1.00	
f) Factor B:	Determined from Na results (a) to (e) abo	ZSEE Guidelines Figure 3A.	1 using	Factor E	0.06		0.06	
g) Factor C:	For reinforced conc C = 1.2, otherwise	rete buildings designed betv take as 1.0.	veen 1976-84 Factor	Factor C	1.00		1.00	
h) Factor D:	For buildings desig and Napier (1931-1 take as 1.0.	ned prior to 1935 Factor D = 935) where Factor D may b	0.8 except for Wellington e taken as 1.0, otherwise	Factor D	1.00		1.00	
<i>(%NBS)</i> _{nom} =	= AxBxCxD			(% NBS) _{no}	n 6%		6%	

Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judge ments based on them, have not been undertaken, and these may lead to a different result or seismic grade.

YA.	99 Main Road			lob No.:	9684
AA:	Wainuimata S	ummer Pool	E	By:	ULM
ame of building:	Building 3		I	Date:	3/05/2019
ty:	Lower Hutt		F	Revision No.:	40013 v 1
able IEP-2 Initial	Evaluation Proce	dure Step 2	continued		
2 Near Fault Scaling Fact	or, Factor E				
11 7 <u><</u> 1.5360, 1 actor E			Longitudinal		Transverse
a) Near Fault Factor, N(T,D	<i>"</i>		N(T,D): 1		1
(110111N251170.5:2004, CI 3.1.	0)	- 1/N/T D)	Factor E: 1.00		1.00
b) Factor E		= 1/N(1,D)			1.00
3 Hazard Scaling Factor, a) Hazard Factor, Z. for sit	Factor F				
Loc	ation: Hutt Valley-south of Taita Gorge	•	Refer right for user-defined locatio	ns	
	7 04	(from NZS1170 /	5-2004 Table 3.3)		
	Z = 0.4 $Z_{1002} = 1.2$	(NZS4203-1002	Zone Factor from accompanying Figure 3.5/b)		
	$Z_{2004} = 0.4$	(from N7S1170	5:2004. Table 3.3)		
b) Factor F	-2004 - 0.4	(101114201170.5			
For pre 1992	-	1/7			
For 1992-2011	=	Z_{1002}/Z			
For post 2011	-	Z ₂₀₀₄ /Z			
101 0001 2011	=		Factor E. 250		2.50
					2.30
c) Return Period Factor, R (from NZS1170.0:2004 Building	J Importance Level)	<u>Choose Impo</u>	$R_{o} = \boxed{1}$ Intance Level $0 1 \circledast 2 0 3$ $R = \boxed{1.0}$	04 01	● 2 ○ 3 ○ 4 1.0
d) Factor G	=	IR _o /R			
5 Ductility Scaling Factor	, Factor H		Factor G: 1.33		1.33
a) Available Displacement I	Ductility Within Existing	Structure			0.00
Reinforced concrete bloc	k masonry shear walls		$\boldsymbol{\mu} = 2.00$		2.00
b) Factor H			k_{μ}		k_{μ}
	For pre 1976 (max	timum of 2)	= 1.57		1.57
	For 1976 onwards		= 1 Factor H: 157		1 57
					1.37
(where kµ is NZS1170.5:2004 I	nelastic Spectrum Scaling Factor	, from accompanying	Table 3.3)		
(where kµ is NZS1170.5:2004 li 6 Structural Performance	nelastic Spectrum Scaling Factor Scaling Factor, Factor	, from accompanying r I	Table 3.3)		
(where kµ is NZS1170.5:2004 li 6 Structural Performance a) Structural Performance I (from accompanying Figure 3.4	nelastic Spectrum Scaling Factor Scaling Factor, Factor Factor, S _p	, from accompanying	Table 3.3)		
(where kµ is NZS1170.5:2004 l 6 Structural Performance a) Structural Performance l (from accompanying Figure 3. Tick if light timber-framed of	nelastic Spectrum Scaling Factor Scaling Factor, Factor Factor, S _p I) construction in this directic	, from accompanying r I n	Table 3.3)		
(where kµ is NZS1170.5:2004 I 6 Structural Performance a) Structural Performance I (from accompanying Figure 3.4 Tick if light timber-framed o	nelastic Spectrum Scaling Factor Scaling Factor, Factor Factor, S _p 1) construction in this directic	; from accompanying o r I on	Table 3.3)		0.70
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et Number & Name:	33 Wall Ruau		Jo	b No.:	9684
:	Wainuimata Summer Pool		Ву	<i>r</i> :	ULM
e of building:	Building 3		Da	ite:	3/05/2019
	Lower Hutt		Re	EVISION NO.:	40013 V 1
ble IEP-3 Initial E	valuation Procedure Step 3				
3 - Assessment of Pe er Appendix B - Section B3.2)	rformance Achievement Ratio (PAR)				
ransverse Direction					F
potential CSWs	Effect on Str (Choose a valu	uctural Perfor	mance polate)		Fac
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reet Number & Name:	99 Main Road	Job No.:	9684
KA:	Wainuimata Summer Pool	By:	ULM
lame of building:	Building 3	Date:	3/05/2019
ity:		Revision No.:	40013 V 1
able IEP-4 Initial E	valuation Procedure Steps 4, 5, 6 an	d 7	
tep 4 - Percentage of Nev	v Building Standard (%NBS)	Longitudinal	Transverse
.1 Assessed Baseline %N (from Table IEP - 1)	BS (%NBS)₅	45%	45%
.2 Performance Achievem (from Table IEP - 2)	ent Ratio (PAR)	0.98	0.69
.3 PAR x Baseline (%NBS) _b	45%	30%
.4 Percentage New Buildi (Use lower of two value	ng Standard (%NBS) - Seismic Rating s from Step 4.3)		30%
Step 5 - Is <i>%NBS <</i> 34?			YES
Step 6 - Potentially Earthq	uake Risk (is <i>%NBS <</i> 67)?		YES
Step 7 - Provisional Gradir	ng for Seismic Risk based on IEP	Seismic Grade	D
Additional Comments (ite	ms of note affecting IEP based seismic rating)		
Relationship betw	een Grade and <i>%NBS</i> :		

	et Number & Name: : e of building: No IED-5	99 Main Road Wainuimata Summer Pool Building 3 Lower Hutt	Job No.: By: Date: Revision No.:	9684 ULM 3/05/2019 40013 v 1
tej	8 - Identification of position significant risk to	otential Severe Structural Weaknesses (SSW a significant number of occupants	(s) that could result in	
1	Number of storeys abo	ove ground level		1
2	Presence of heavy con	ncrete floors and/or concrete roof? (Y/N)		N
	Potential Sever	e Structural Weaknesses (SSWs):		
	Note: Options that are grey	ved out are not applicable and need not be considered.		
	Occupancy not cons	idered to be significant - no further consider	ation required	
	Risk not considered	to be significant - no further consideration re	equired	
	The following potent in the building that c	ial Severe Structural Weaknesses (SSWs) ha ould result in significant risk to a significant	ve been identified number of occupants:	
	1. None identified			
	2. Weak or soft store	y (except top storey)		
	3. Brittle columns an not constrained by	d/or beam-column joints the deformations of other structural elements	f which are	
	4. Flat slab buildings connections	with lateral capacity reliant on low ductility	slab-to-column	
	5. No identifiable con	nnection between primary structure and diap	hragms	
	6. Ledge and gap sta	lirs		
	IEP Assessm	nent Confirmed by		

nitial Evaluation Proce	dure (IEP) Assessmer	nt - Completed for Hutt City	Council	Pag
WARNING!! This initial evaluation	has been carried out solely as an initia	al seismic assessment of the building following a	the procedure set out in th	ne "The Seismic Assessmen It out in the accompanying
eport, and should not be relied on by been undertaken, and these may lead	any party for any other purpose. Deta to a different result or seismic grade.	illed inspections and engineering calculations, o	r engineering judgements	s based on them, have not
treet Number & Name:	99 Main Road	Bool	Job No.:	9684
NA: ame of huilding:	Ruilding 4	FOOI	Date:	3/05/2019
ity:	Lower Hutt		Revision No.:	40048 v 1
able IEP 1 Initial Ev	valuation Procedure S	top 1		
	valuation Procedure S			
1 Photos (attach sufficient)n to doscribo building)			
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No. 1	Building 1			
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	NOTE: THERE ARE	MORE PHOTOS ON PAGE 1a ATTACH	ED	
2 Sketches (plans etc. show	w items of interest)			
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			and the second sec	
	5-1-	and the second s		
b-m				in star
2-12-	NOTE: THERE ARE N	MORE SKETCHES ON PAGE 1a ATTAC	HED	IN IN
	NOTE: THERE ARE N	MORE SKETCHES ON PAGE 1a ATTAC		
3 List relevant features (No	NOTE: THERE ARE N te: only 10 lines of text will housing and a workshop	MORE SKETCHES ON PAGE 1a ATTAC print in this box. If further text require floor is at two levels and there is a low	HED uired use Page 1a)	etween the two levels
3 List relevant features (No illt in 1967. Being used as plant here are 6 steps between the two	NOTE: THERE ARE N te: only 10 lines of text will housing and a workshop. Th levels, and they appear to be hi	MORE SKETCHES ON PAGE 1a ATTAC print in this box. If further text require floor is at two levels and there is a low gher than typical rises (1.1m). Sheet met	HED uired use Page 1a) height retaining wall b tal roofing on timber LN	etween the two levels. /L purlins on steel truss
3 List relevant features (No ilit in 1967. Being used as plant here are 6 steps between the two There is no blocking dingluding bulks and are	NOTE: THERE ARE N te: only 10 lines of text will housing and a workshop. Th levels, and they appear to be his to between purlins. The steel truss	MORE SKETCHES ON PAGE 1a ATTAC print in this box. If further text requires floor is at two levels and there is a low gher than typical rises (1.1m). Sheet mer ises have SHS top and bottom chords with part here is the project Participation of the project of the	HED uired use Page 1a) height retaining wall b hal roofing on timber LV h steel roos for diagon on the deal brow	etween the two levels. /L purlins on steel truss als. They are fully we
3 List relevant features (No tilt in 1967. Being used as plant bere are 6 steps between the two There is no blocki id including to RHS end posts. e steel framed almost no inferma	NOTE: THERE ARE M te: only 10 lines of text will housing and a workshop. The levels, and they appear to be his g between purlins. The steel trus Internal trusses do Linings and corrugated metal cla	MORE SKETCHES ON PAGE 1a ATTAC print in this box. If further text requires floor is at two levels and there is a low gher than typical rises (1.1m). Sheet mer ises have SHS top and bottom chords with on thave fly bracing. Plant suspended fin adding. There is a timber framed internal	HED height retaining wall b hal roofing on timber LV h steel roofs for diagon om the steel trusses. oom with plv lined wall	etween the two levels. /L purlins on steel truss als. They are fully welk The w. s. There
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A List relevant features (No ilt in 1967. Being used as plant ere are 6 steps between the two There is no blockin d including to RHS end posts. a steel framed almost no interna uble pedestrian access door on ich appear to provide access fo acing. The low the bottom chord of the trus seel framed wall and the roofing. 4 Note information sources Visual Inspection of Exterior	NOTE: THERE ARE M te: only 10 lines of text will housing and a workshop. The b levels, and they appear to be hi ing between purlins. The steel trus Internal trusses do linings and corrugated metal clas one end. A single pedestrian acc one end. A single pedestrian acc r large plant replacement. The for here are diagonal steel braces in s. The Tick as appropriate	MORE SKETCHES ON PAGE 1a ATTAC print in this box. If further text requines the floor is at two levels and there is a low gher than typical rises (1.1m). Sheet mer ises have SHS top and bottom chords with adding. There is a timber framed internal cases door midway along one side. At the ur steel frames are fixed to the truss abo the longitudinal direction, welded to a clean here is a transparent cladding and timber Specifications	HED height retaining wall b tal roofing on timber LV h steel rods for diagon om the steel trusses. oom with ply lined wall other end the whole fu- ve and floor below. The pat which is welded to b jack framing between	etween the two levels. /L purlins on steel truss als. They are fully weld The w s. There ere are four steel frame e truss above has fly the RHS posts, significe the top of the longitudir
A List relevant features (No It in 1967. Being used as plant are are 6 steps between the two There is no blockin d including to RHS end posts. steel framed almost no interna uble pedestrian access door on ich appear to provide access fo cing. The ow the bottom chord of the trus el framed wall and the roofing. Note information sources Visual Inspection of Exterior Visual Inspection of Interior	ANDE: THERE ARE M te: only 10 lines of text will housing and a workshop. The levels, and they appear to be hi ing between purlins. The steel trus Internal trusses do linings and corrugated metal class one end. A single pedestrian acc one end. A single pedestrian acc r large plant replacement. The for here are diagonal steel braces in s. The Tick as appropriate	MORE SKETCHES ON PAGE 1a ATTAC print in this box. If further text requires the floor is at two levels and there is a low gher than typical rises (1.1m). Sheet mer- ses have SHS top and bottom chords with the onot have fly bracing. Plant suspended fra- adding. There is a timber framed internal of the doing. There is a timber framed internal cases door midway along one side. At the ur steel frames are fixed to the truss aboo the longitudinal direction, welded to a clean here is a transparent cladding and timber Specifications Geotechnical Reports Charles (1.1m)	HED uired use Page 1a) height retaining wall b tal roofing on timber LV h steel rods for diagon rom the steel trusses. oom with ply lined wall other end the whole the ve and floor below. The pat which is welded to b jack framing between	etween the two levels. /L purlins on steel truss als. They are fully weld The w s. There ere are four steel frame e truss above has fly the RHS posts, signific the top of the longitudin
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List relevant features (No tin 1967. Being used as plant are are 6 steps between the two There is no blocking tincluding to RHS end posts. steel framed almost no interna- ble pedestrian access door on ch appear to provide access fo cing. The bow the bottom chord of the trus al framed wall and the roofing. Note information sources Visual Inspection of Exterior Visual Inspection of Exterior Drawings (note type)	ADDE: THERE ARE M te: only 10 lines of text will housing and a workshop. The levels, and they appear to be hi ing between purlins. The steel trus Internal trusses do linings and corrugated metal class one end. A single pedestrian acc one end. A single pedestrian acc r large plant replacement. The for here are diagonal steel braces in s. The Tick as appropriate May 2019.	MORE SKETCHES ON PAGE 1a ATTAC print in this box. If further text requines the floor is at two levels and there is a low gher than typical rises (1.1m). Sheet mer- ses have SHS top and bottom chords with adding. There is a timber framed internal adding. There is a timber framed internal the longitudinal direction, welded to a clean here is a transparent cladding and timber Specifications Geotechnical Reports Other (list)	HED uired use Page 1a) height retaining wall b tal roofing on timber LV h steel rods for diagon om the steel trusses. oom with ply lined wall other end the whole th ve and floor below. The at which is welded to b jack framing between	etween the two levels. /L purlins on steel truss als. They are fully weld The w s. There are are four steel frame a truss above has fly the RHS posts, signific the top of the longitudin



WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedureset out "The Seismic Assessment of Existing Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judge ments based on them, have not been undertaken, and these may lead to a different result or seismic grade.

reet Number KA: ame of buildi ty:	& Name: ng:	99 Main Ro Wainuimat Building 4 Lower Hutt	ad a Summer Pool			Job No.: By: Date: Revision No.:	9684 ULM 3/05/2019 40048 v 1	
able IEP-2	Initial Ev	valuation Pro	cedure Step 2					
tep 2 - Deter	mination of (%NBS) _b						
aseline <i>(%NB</i> S 1 Determine) for particular bu nominal (%NB	uilding - refer Sectio S) = (%NBS)_{nom}	n B5)		Longitudinal	1	Transverse	
a) Building S	trengthening Da	ta			<u> </u>			
Tick if bui	ding is known to	have been strength	ened in this direction					
If strength	iened, enter perc	entage of code the	building has been strengthened	to	N/A		N/A	
b) Year of Des	sign/Strengtheni	ng, Building Type	and Seismic Zone					
				1	Pre 1935 O		Pre 193	50
				1	965-1976		1965-197	6 💿
				1	976-1984 O		1976-198 1984-199	4 o 2 o
				1	992-2004		1992-2004	- 0 4 0
				2 Post	004-2011 O		2004-201 Post Aug 201	10
				1 001				
			Building Type:	Public Buildings			Public Buildings	
			Seismic Zone:	Zone A		•		
c) Soil Type	From NZS1170.	5:2004, CI 3.1.3 :		D Soft Soil		-	9 Soft Soil	•
	From NZS4203: (for 1992 to 200	1992, Cl 4.6.2.2 : 4 and only if know	/n)		Not applicat	ble	Not applica	able
d) Estimate F	Period, T			h -	27		27	m
Concrete E	Block Masonry Sh	ear Walls		$A_c =$	1.00		1.00	m ²
Moment R	esisting Concrete	Frames:	$T = max/0.09b^{0.75} 0.4$					-
Moment R	esisting Steel Fra	mes:	$T = \max\{0.14h_n^{0.75}, 0.4\}$		õ		õ	
Eccentrica All Other F	lly Braced Steel F rame Structures:	rames:	$T = \max\{0.08h_n^{0.75}, 0.4\}$ $T = \max\{0.06h_n^{0.75}, 0.4\}$		0		0	
Concrete S	Shear Walls		$T = \max\{0.09h_n^{0.75}/A_c^{0.5}, 0.4\}$		0		0	
User Defin	near vvalls: ed (input Period):		/ <u><</u> 0.4sec		() ()		() ()	
	Where h _n	= height in metres from	the base of the structure to the	-	0.40		0.40	
	uppermos	t seismic weight of mass	s.	ľ	. 0.40		0.40	1
e) Factor A:	Strengthening factor	or determined using rest	ult from (a) above (set to 1.0	Factor A	1.00		1 00	
f) Factor B:	if not strengthened Determined from N) ZSEE Guidelines Figure	3A.1 using	Factor E	0.06		0.06	1
g) Factor C:	For reinforced cond	ove	between 1976-84 Factor	Factor C	1.00		1.00]
h) Factor D:	For buildings desig and Napier (1931- take as 1.0.	ned prior to 1935 Factor 1935) where Factor D m	D = 0.8 except for Wellington ay be taken as 1.0, otherwise	Factor D	1.00		1.00	1
<i>(%NBS)</i> _{nom} =	= AxBxCxD			(%NBS) _{nor}	n 6%		6%	1

Buildings" Technical Guidelines for Engineering Assessments, July 2017. This spreadsheet must be read in conjunction with the limitations set out in the accompanying report, and should not be relied on by any party for any other purpose. Detailed inspections and engineering calculations, or engineering judgements based on them, have not been undertaken, and these may lead to a different result or seismic grade.

Street Number & Name	99 Main Road			Job No :	9684
	Wainuimata Su	Immer Pool		By:	JUL M
Name of building:	Building 4			Date:	3/05/2019
City:	Lower Hutt			Revision No.:	40048 v 1
Table IEP-2 Initial Ev	aluation Proced	lure Step 2 coi	ntinued		
2.2 Near Fault Scaling Factor, If $T \leq 1.5$ sec, Factor E = 1	Factor E		Longitudinal		Transverse
a) Near Fault Factor $N(T,D)$					Transverse
(from NZS1170.5:2004, Cl 3.1.6)			N(1,D): 1		1
b) Factor E		= 1/N(T,D)	Factor E: 1.00		1.00
2.3 Hazard Scaling Factor, Fac	ctor F				
a) Hazard Factor, Z, for site	n: Hutt Valley couth of Taita Gorge	🕳 Ref	er right for user-defined locat	tions	
Loodio		(from NZS1170 5:2004	Table 3.3)		
Z ₁₉₉₃	2 = 0.4 2 = 1.2	(NZS4203:1992 Zone F	actor from accompanying Figure 3.5(b))	
Z ₂₀₀₄	4 = 0.4	(from NZS1170.5:2004	Table 3.3)		
For pre 1992	=	1/ <i>Z</i>			
For 1992-2011	=	Z ₁₉₉₂ /Z			
For post 2011	=	∠ ₂₀₀₄ /∠	Factor F: 2.50]	2.50
 A Return Period Scaling Fact a) Design Importance Level, I (Set to 1 if not known. For buildings de public building set to 1.25. For building, public building set to 1.33 for Zone A b) Design Risk Factor, R_o (set to 1.0 if other than 1976-2004, o c) Return Period Factor, R 	tor, Factor G esigned prior to 1965 and kn gs designed 1965-1976 and or 1.2 for Zone B. For 1976-1 or not known)	own to be designed as a known to be designed as a 984 set I value.)	$I = \boxed{1.33}$ $R_{o} = \boxed{1}$		1.33
(from NZS1170.0:2004 Building Impo	ortance Level)	<u>Choose Importanc</u>	<u>e Level</u> 0 1	04 01	• 2 0 3 0 4
d) Factor G	=	IR _o /R	Factor G: 1 33		1 33
2.5 Ductility Scaling Factor, Fa a) Available Displacement Duct	actor H tility Within Existing \$	Structure	1.00	-	1.00
Comment: Steel framing			$\boldsymbol{\mu} = \frac{2.00}{2.00}$		2.00
b) Factor H	For pre 1976 (maxi For 1976 onwards	imum of 2)	$k_{\mu} = 1.57$ = 1 Factor H: 157	.	κ _μ 1.57 1
(where kµ is NZS1170.5:2004 Inelas	tic Spectrum Scaling Factor,	from accompanying Table	3.3)	-	1.01
2.6 Structural Performance Sc a) Structural Performance Fact	aling Factor, Factor	rl			
Tick if light timber-framed cons	struction in this direction	n	□ S _p = 0.70		0.70
b) Structural Performance Scal Note Factor B values for 1992 to 20	ling Factor 04 have been multiplied by 0	$= 1/S_p$ 0.67 to account for Sp in this	Factor I: 1.43		1.43
2.7 Baseline %NBS for Buildin (equals (%NBS) _{nom} x E x F x	ng, <i>(%NBS)</i> ♭ kGxHxI)		45%]	45%

reet Number & Name:	99 Main Road		Jo	b No.:	9684
KA :	Wainuimata Summer Pool		By	y:	ULM
ame of building:	Building 4		Da	ate:	3/05/2019
y:	Lower Hutt		Re	evision No.:	40048 v 1
ble IFP-3 Initial F	valuation Procedure Step 3				
ep 3 - Assessment of Pe	rformance Achievement Ratio (PA	र)			
efer Appendix B - Section B3.2)					
Longitudinal Direction	Effect on St	watural Darfarm			Footo
Plan Irregularity	(Choose a val	ue - Do not interpo	plate)		Facil
Effect on Structural Performa	ance o Severe	Significant		Insignificant	Factor A 1.0
Symmetry.		j eigimiean		() morginited in	
Vertical Imagendarity					
Effect on Structural Parforme	ance o Severe	Significant		 Insignificant 	Factor B 1.0
Single storey.		Jogninicarit		msigninicant	
Short Columns	-				
Effect on Structural Performa	ance _O Severe) Significant		Insignificant	Factor C 1.0
NUNC.					
Note: Values given assume the may be reduced by takin	e building has a frame structure. For stiff g the coefficient to the right of the value	buildings (eg shea applicable to fram	ar walls), the effe e buildings.	ect of pounding]
Note: Values given assume th may be reduced by takin	e building has a frame structure. For stiff g the coefficient to the right of the value	buildings (eg shea applicable to fram	ar walls), the effe e buildings. ngitudinal Diro	ect of pounding]
Note: Values given assume the may be reduced by takin Table for Selectio	e building has a frame structure. For stiff g the coefficient to the right of the value n of Factor D1	buildings (eg shea applicable to fram Factor D1 For Lo Severe	ar walls), the effe e buildings. ngitudinal Dire Significant	ect of pounding]
Note: Values given assume the may be reduced by takin Table for Selectio	e building has a frame structure. For stiff g the coefficient to the right of the value n of Factor D1 Separa Alignment of Floors within 20% of Storey He	buildings (eg shea applicable to fram Factor D1 For Lo Severe tion 0 <sep<.005h ight 0.1</sep<.005h 	ar walls), the effe e buildings. ngitudinal Dire Significant .005 <sep<.01h< td=""><td>ect of pounding</td><td></td></sep<.01h<>	ect of pounding	
Note: Values given assume the may be reduced by takin Table for Selectio	e building has a frame structure. For stiff ig the coefficient to the right of the value in of Factor D1 Alignment of Floors within 20% of Storey He	buildings (eg shea applicable to fram Factor D1 For Lo Severe tion 0 <sep<.005h ight 0 1</sep<.005h 	ar walls), the effe e buildings. ngitudinal Dire Significant .005 <sep<.01h 0 1</sep<.01h 	ect of pounding	
Note: Values given assume the may be reduced by takin Table for Selectio Alig	e building has a frame structure. For stiff g the coefficient to the right of the value n of Factor D1 Alignment of Floors within 20% of Storey He nment of Floors not within 20% of Storey He	buildings (eg shea applicable to fram Factor D1 For Lo Severe tion 0 <sep<.005h ight 0 1 ight 0 0.4</sep<.005h 	ar walls), the effe e buildings. ngitudinal Dire Significant .005 <sep<.01h 0 1 0 0.7</sep<.01h 	ect of pounding	
Note: Values given assume the may be reduced by takin Table for Selectio Alig b) Factor D2: - Heigh	e building has a frame structure. For stiff g the coefficient to the right of the value n of Factor D1 Separa Alignment of Floors within 20% of Storey He nment of Floors not within 20% of Storey He t Difference Effect	buildings (eg shea applicable to fram Factor D1 For Lo Severe tion 0 <sep<.005h ight 0.1 ight 0.4</sep<.005h 	ar walls), the effe e buildings. ngitudinal Dire Significant .005 <sep<.01h 0 1 0 0.7</sep<.01h 	ect of pounding	
Note: Values given assume the may be reduced by takin Table for Selectio Alig b) Factor D2: - Heigh Table for Selectio	e building has a frame structure. For stiff g the coefficient to the right of the value n of Factor D1 Separa Alignment of Floors within 20% of Storey He nment of Floors not within 20% of Storey He t Difference Effect	buildings (eg shea applicable to fram Factor D1 For Lo Severe tion 0 <sep<.005h 0 1 ight 0 1 ight 0 0.4</sep<.005h 	ar walls), the effe e buildings. ngitudinal Dire Significant .005 <sep<.01h 0 1 0 0.7 ngitudinal Dire Significant .005<sep<.01h< td=""><td>ect of pounding</td><td></td></sep<.01h<></sep<.01h 	ect of pounding	
Note: Values given assume the may be reduced by takin Table for Selectio Alig b) Factor D2: - Heigh Table for Selectio	e building has a frame structure. For stiff ig the coefficient to the right of the value n of Factor D1 Separa Alignment of Floors within 20% of Storey He nment of Floors not within 20% of Storey He t Difference Effect n of Factor D2 Height Difference > 4 Stor	buildings (eg shea applicable to fram Factor D1 For Lo Severe tion 0 <sep<.005h 0 1 ight 0 0.4 Factor D2 For Lo Severe 0<sep<.005h< td=""><td>ar walls), the effe e buildings. ngitudinal Dire Significant .005<sep<.01h 0 1 0 0.7 ngitudinal Dire Significant .005<sep<.01h 0 0.7</sep<.01h </sep<.01h </td><td>ect of pounding</td><td></td></sep<.005h<></sep<.005h 	ar walls), the effe e buildings. ngitudinal Dire Significant .005 <sep<.01h 0 1 0 0.7 ngitudinal Dire Significant .005<sep<.01h 0 0.7</sep<.01h </sep<.01h 	ect of pounding	
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\:	Wainuimata Summer Pool		By	/:	ULM
ne of buildina:	Building 4		Da	ite:	3/05/2019
:	Lower Hutt		Re	evision No.:	40048 v 1
ole IEP-3 Initial E	valuation Procedure Step 3				
p 3 - Assessment of Pe	rformance Achievement Ratio (PAR)				
er Appendix B - Section B3.2)					
ransverse Direction	Effect on St	ructural Perfor	mance		Fac
Plan Irregularity	(Choose a val	ue - Do not inter	polate)		
Effect on Structural Perform	nance o Severe o	Significant		Insignifican	t Factor A 1.
The wall nearest the drivew detached, presumably to gi	ay is made up of four removable metal frames ve access to large plant. This potential plan irre	with sheet metal of gularity is allowed	cladding. These a d for in the F facto	re able to be or below.	
Effect on Structural Perform		Significant		 Insignificant 	t Eactor B 1
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	99 Main Road	Job No.:	9684
(Α:	Wainuimata Summer Pool	By:	ULM
ame of building:	Building 4	Date:	3/05/2019
ty:	Lower Hutt	Revision No.:	40048 v 1
able IEP-4 Initial E	valuation Procedure Steps 4, 5, 6 and	d 7	
ep 4 - Percentage of Nev	v Building Standard (%NBS)		
		Longitudinal	Transverse
1 Assessed Baseline %N (from Table IEP - 1)	BS (%NBS)b	45%	45%
.2 Performance Achievem (from Table IEP - 2)	ent Ratio (PAR)	0.98	0.77
.3 PAR x Baseline (%NBS) _b	45%	34%
.4 Percentage New Buildi (Use lower of two value	ng Standard (%NBS) - Seismic Rating s from Step 4.3)		34%
tep 5 - Is <i>%NB</i> S < 34?			NO
tep 6 - Potentially Earthq	uake Risk (is <i>%NBS <</i> 67)?		YES
tep 7 - Provisional Gradir	ng for Seismic Risk based on IEP	Seismic Grade	C
Additional Comments (ite	ms of note affecting IEP based seismic rating)		
Potential Items for further a	ssessment:		
1. Plant hanging from the tr	usses.		
 Blaxial bending in the ster Absence of blocking and 	eel RHS posts. fly bracing.		
4. Capacity of rthe removal	ble steel frames.		
5. Liquefaction desktop stud	dy		
 Retaining structures. Jack framing off top of lo 	ngitudinal walls (in-plane).		
8. Portal frame action of the	e truss and RHS post.		
Relationship betw	een Grade and <i>%NBS</i> :		

Init	ial Evaluation Proce	dure (IEP) Assessment - Completed for	or Hutt City Council	Page 7
Stre AKA Nam City	et Number & Name: \: le of building: :	99 Main Road Wainuimata Summer Pool Building 4 Lower Hutt	Job No.: By: Date: Revision No.:	9684 ULM 3/05/2019 40048 v 1
Tab	ole IEP-5 Initial Eva	aluation Procedure Step 8		
Ste	p 8 - Identification of po	tential Severe Structural Weaknesses (SSW)	s) that could result in	
	algimeent nak to a	asymicant number of occupants		
8.1 8.2	Number of storeys abov	re ground level		1
0.2	Presence of neavy conc			T
	Potential Severe	Structural Weaknesses (SSWs):		
	Note: Options that are greye	d out are not applicable and need not be considered.		
	Occupancy not consid	lered to be significant - no further considera	ation required	
	Risk not considered to	be significant - no further consideration re	quired	
	The following potentia in the building that co	I Severe Structural Weaknesses (SSWs) hav uld result in significant risk to a significant	ve been identified number of occupants:	
	1. None identified			
	2. Weak or soft storey	(except top storey)		
	3. Brittle columns and not constrained by	/or beam-column joints the deformations of other structural elements	which are	
	4. Flat slab buildings v connections	with lateral capacity reliant on low ductility s	slab-to-column	
	5. No identifiable conr	ection between primary structure and diaph	nragms	
	6. Ledge and gap stair	S		
	IEP Assessme	ent Confirmed by		
WA Build	RNING!! This initial evaluation ho dings" Technical Guidelines for Engine	is been carried out solely as an initial seismic assessment of the build eering Assessments, July 2017. This spreadsheet must be read in con	ling following the procedureset out in "The Seis junction with the limitations set out in the accou	mic Assessment of Existing mpanying report, and should
not l may	be relied on by any party for any othe lead to a different result or seismic g	r purpose. Detailed inspections and engineering calculations, or eng rade.	ineering judge ments based on them, have not i	been undertaken, and these