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Job No: 19-021

20 February 2019

Silverfin
Level 12, AIG Building
41 Shortland St
Auckland 1010

Attention: Miles Brown

Dear Miles,

Re: Initial Seismic Assessment Report – Inghams Enterprises (NZ) Pty Ltd: Matamata Hatchery.

We have now completed an Initial Seismic Assessment (ISA) of the building at Inghams Hatchery at Matamata using the Initial Evaluation Procedure (IEP) as described in the New Zealand Society for Earthquake Engineering guideline document Assessment and Improvement of the Structural Performance of Buildings in Earthquakes, dated July 2017. The assessment was carried out after completing a site visit, a visual inspection of the building and a review of the original structural drawings.

Note that the buildings have largely been constructed during three major site developments. The evaluation has looked at the stages of construction of the main building. There has been a linked setter room added at the rear of the site in the last 5 years. This is relatively small and has been designed to 100% NBS so has not been considered further in this evaluation.

1 Executive Summary

Our ISA assessment for the buildings, carried out using the IEP for Importance Level 2 (IL2), indicates an overall potential seismic rating of 85%NBS or 100%NBS (IL2) (percentage of new building standard) and is therefore a Grade A building, as defined by the NZSEE building grading scheme. None of the buildings are considered as earthquake prone.

The ISA is considered to provide a relatively quick, high-level and qualitative measure of the building's performance. Where continued use of the building is required, a more reliable result will be obtained from a Detailed Seismic Assessment (DSA). A DSA could find critical structural weaknesses (CSWs) not identified from the IEP, or that identified CSWs have been addressed in the design of the building.

Directors
IW Brown
ME (Civil), CENG (UK), MIStructE, MIPENZ
RJ Baker
BE (Civil) Hons, MIPENZ
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ANZIA, Reg Arch, BArch
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Associates
IM Gilby
NZCD (Arch)

2 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 as a result of experience in the Canterbury earthquakes. It is a tool to assign a percentage of New Building Standard (%NBS) score and associated grade to a building as part of an initial seismic assessment of existing buildings.

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

Characteristics and limitations of the IEP include:

- 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 grading, which subsequent detailed investigation may indicate is less than actual performance. However, there will be exceptions, particularly when critical structural weaknesses (CSWs) are present that have not been recognised from the level of investigation employed.
- It can be undertaken with variable levels of available information, 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 the buildings have been designed and built in accordance with the building standard and good practice current at the time. In some instances, a building may include design features ahead of its time - leading to better than predicted performance. Conversely, some unidentified design or construction issues not picked up by the IEP process may result in the building performing not as well as predicted.
- It is a largely qualitative process, and should be undertaken or overseen by an experienced engineer. It involves considerable knowledge of the earthquake behaviour of buildings, and judgement as to key attributes and their effect on building performance. Consequently, it is possible that the grade derived for a building by independent experienced engineers may differ.
- An IEP may over-penalise some apparently critical features which could have been satisfactorily taken into account in the design.
- An IEP does not take into account the seismic performance of non-structural items such as ceiling, plant, services or glazing.

Experience to date is that the IEP is a useful tool to identify potential issues and expected overall performance of a building in an earthquake. However, the process and the associated grade should be considered as only indicative of the building’s compliance with current code requirements.

A detailed investigation and analysis of the building will typically be required to provide a definitive assessment.

The IEP has been based on a review of drawings and an inspection of both the interior and exterior of the building and can be considered to be a comprehensive assessment at the DSA level.

The rating determined is greater than 35%NBS and therefore, if ratified by the TA, the building should not be considered as earthquake prone.

3 Basis for the Assessment

The information we have used for our IEP assessment includes:

Previous site visit, including an interior and exterior inspection, was carried out by a Stiles & Hooker Ltd Structural Engineer on 7 May 2014.

No geotechnical investigations have been carried out.

Limited architectural drawings and building consent documents were obtained from Matamata Piako District Council.

4 Building Description

The Inghams Hatchery buildings are located at Banks Road, Matamata are single storey structure designed in 1984 (Original Building) and 1997/2001 (Alternation and Extensions). They are currently used as chicken hatchery space.

4.1 Building Construction

There are two main adjoined buildings on site.

4.1.1 Original Building 1984

- The original building is a rectangular, single storey, structural steel portal frame structure with pitched roof to a central ridge line.
- Metal roof and wall cladding but with a brick cavity wall at low level to the perimeter.
- The building site is level and the foundations are inferred to consist of reinforced concrete strip and pad foundations. The ground floor is a concrete slab on grade.
- The walls and ceiling are made mostly of Insulated panel.

4.1.2 Alterations and Extensions 1997/2001

- Description similar to the above.
- Reinforced blockwork to a small plant room at the rear of the building, freestanding structure.

4.2 Building Lateral Load Resisting Systems

The building seismic loads are resisted by the following systems.

4.2.1 Original Building 1984

- Portalised structural steel frames, in the transverse direction and cross bracing in the longitudinal direction.

4.2.2 Alterations and Extensions 1997/2001

- Portalised structural steel frames, in the transverse direction and cross bracing in the longitudinal direction.

4.3 Relationship to Neighbouring Buildings

The buildings are remote from neighbouring buildings.

5 IEP Assessment Results

Each of the buildings were assessed using the IEP as described in Part B of the guideline document, The Seismic Assessment of Existing Buildings, dated July 2017.

For each building the IEP assessment determines the seismic strength (%NBS) in the longitudinal and transverse directions. The minimum %NBS of each direction determines the overall earthquake rating for each building, corresponding to the building grading scheme as defined by the NZSEE.

Buildings with a final %NBS of 33% or less are classified as earthquake prone and the threshold for earthquake risk buildings is less than 67%NBS as recommended by the NZSEE. The results of each building assessment are summarised as follows.

Table 1: IEP Assessment Results

Building	Assessed %NBS		Final %NBS	Earthquake Prone?	Building Grade
	Longitudinal	Transverse		Y/N	
1984 Original Building	87	87	85	N	A
1997-2001 Alterations and Extensions	102	102	100	N	A

The key assumptions made during our assessment are shown in the Table below. Refer also to the attached IEP assessment.

Table 2: IEP Assumptions

IEP Item	Assumption		Justification
	Original Building	Alterations & Extensions	
Date of Building Design	1984	1997 &2001	Provided by owner.
Soil Type	D	D	Site Subsoil Category based on previous local knowledge.
Building Importance Level	IL2	IL2	Normal structure.
Ductility of Structure	1.0 Longitudinal 1.0 Transvers	1.25 Longitudinal 1.25 Transvers	For ductility 1.0, Conservative assessment due to age and lack of documentations. For ductility 1.25, original design ductility confirmed.
Plan Irregularity Factor, A	1.0 Longitudinal 1.0 Transvers	1.0 Longitudinal 1.0 Transvers	The building has a regular layout.
Vertical Irregularity Factor, B	1.0 Longitudinal 1.0 Transvers	1.0 Longitudinal 1.0 Transvers	Single storey level building.
Short Columns Factor, C	N/A	N/A	Not applicable for a single story portal frame type structure.
Pounding Factor, D	1.0 Longitudinal 1.0 Transvers	1.0 Longitudinal 1.0 Transvers	No adjacent building.
Site Characteristics Factor, E	1.0 Longitudinal 1.0 Transvers	1.0 Longitudinal 1.0 Transvers	The building site is flat and level and stability is not an issue.
Critical structural Weaknesses Identified	N/A	N/A	N/A
Other Factor, F	1.0 Longitudinal 1.0 Transvers	1.0 Longitudinal 1.0 Transvers	As the building heights and structural forms are similar, pounding is not anticipated to result in decreased seismic capacity of the building.

6 IEP Grades and Relative Risk

Table 3 taken from the NZSEE Guidelines provides the basis of a proposed grading system for existing buildings, as one way of interpreting the %NBS score. It can be seen that occupants in Earthquake Prone buildings (less than 34%NBS) are exposed to more than 10 times the risk that they would be in a similar new building. For buildings that are potentially Earthquake Risk (less than 67%NBS), but not Earthquake Prone, the risk is at least 5 times greater than that of an equivalent new building. Broad descriptions of the life-safety risk can be assigned to the building grades as shown in Table 3.

Table 3: Relative Earthquake Risk

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
B	67 to 79	2 to 5 times	Low to medium risk
C	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

These buildings have been classified by the IEP as a grade A building and are therefore considered to be a low risk.

The New Zealand Society for Earthquake Engineering (which provides authoritative advice to the legislation makers, and should be considered to represent the consensus view of New Zealand structural engineers) classifies a buildings achieving greater than 67%NBS as “Low Risk”, and having “Acceptable (improvement may be desirable)” building structural performance.

7 Seismic Restraint of Non-Structural Items

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

An assessment has not been made of the bracing of the ceilings, in-ceiling ducting, services and plant or contents. We have also not checked whether tall or heavy furniture or equipment has been seismically restrained or not. These issues are outside the scope of this initial assessment but could be the subject of another investigation.

8 Limitations

This Report has been prepared for the sole use of Silverfin. This Report is not intended for use by other parties and no other party should rely on this Report without the prior written consent of Stiles and Hooker Ltd. The opinions expressed by Stiles and Hooker Ltd in this Report are based on the sources of information noted above.

The following limitations apply to this report:

- Stiles and Hooker and its employees and agents are not able to give any warranty or guarantee that all defects, damage, conditions or qualities have been identified.
- Inspections are primarily limited to visible structural components. As such, there will be concealed structural elements that will not be directly inspected.
- The inspections are limited to building structural components only.
- Inspection of building services, pipework, pavement, and fire safety systems is excluded from the scope of this report.

- Inspection of the glazing system, linings, carpets, claddings, finishes, suspended ceilings, partitions, tenant fit-out, or the general water tightness envelope is excluded from the scope of this report.
- Assessment of the lateral load capacity of the building/s is limited to a visual inspection only.
- Assumptions have been made in respect of the geotechnical conditions at the site, including the possibility of liquefaction.
- We have not undertaken any detailed checks of the gravity system, wind load capacity, or foundations.
- Our professional services are performed using a degree of care and skill normally exercised, under similar circumstances, by reputable consultants practising in this field at this time. No other warranty, expressed or implied, is made as to the professional advice presented in this report.

9 Conclusion

Our ISA assessment for these buildings, carried out using the IEP indicates an overall score of 85%NBS or 100%NBS (IL2) which corresponds to a Grade A 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.

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 DSA.

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

Yours sincerely
Stiles and Hooker Ltd

Ian Kearney
CPEng Reg No. 1151481 CMEngNZ
Principal Structural Engineer

Appendix A

IEP Assessment

Original Building 1984

Initial Evaluation Procedure (IEP) Assessment - Completed for Silverfin **Page 1**

WARNING!! *This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in the "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 judgements based on them, have not been undertaken, and these may lead to a different result or seismic grade.*

Street Number & Name:	**Banks Road**	**Job No.:**	**19-021**
AKA:	**Inghams Enterprises (NZ) Pty Ltd**	**By:**	**SM**
Name of building:	**Hatchery, Orginal Section, 1984**	**Date:**	**20/02/2019**
City:	**Matamata**	**Revision No.:**	**B**

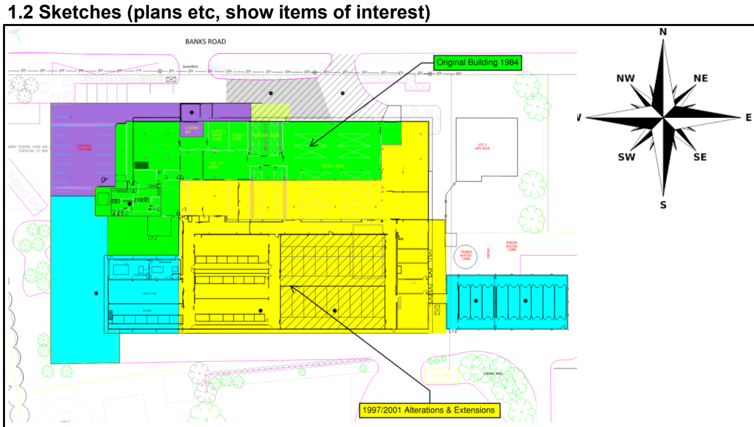
Table IEP-1 Initial Evaluation Procedure Step 1

Step 1 - General Information

1.1 Photos (attach sufficient to describe building)

NOTE: THERE ARE MORE PHOTOS ON PAGE 1a ATTACHED

1.2 Sketches (plans etc, show items of interest)



NOTE: THERE ARE MORE SKETCHES ON PAGE 1a ATTACHED

1.3 List relevant features (Note: only 10 lines of text will print in this box. If further text required use Page 1a)

Rectangular, single storey structural steel portal frame structure.
Frame action laterally, diagonal tension bracing longitudinally.Interior insulated panel walls and ceiling.
Metal roof and wall cladding with cavity brick exterior cladding at low level.
Concrete floor slab on grade, likely to be shallow strip and pad footings.
Inghams Farming Manager advised construction was in 1984. 1984 is a threshold in the IEP, allow the design to be pre-1984.

1.4 Note information sources Tick as appropriate

Visual Inspection of Exterior	☑	**Specifications**	☐
Visual Inspection of Interior	☑	**Geotechnical Reports**	☐
Drawings (note type)	☐	**Other (list)**	☐

Initial Evaluation Procedure (IEP) Assessment - Completed for Silverfin

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Table IEP-2 Initial Evaluation Procedure Step 2

Step 2 - Determination of *(%NBS)* $_b$

(Baseline *(%NBS)* for particular building - refer Section B5)

2.1 Determine nominal *(%NBS)* = *(%NBS)* $_{nom}$

	Longitudinal	Transverse
a) Building Strengthening Data		
Tick if building is known to have been strengthened in this direction	☐	☐
If strengthened, enter percentage of code the building has been strengthened to	N/A	N/A
b) Year of Design/Strengthening, Building Type and Seismic Zone		
Pre 1935	○	○
1935-1965	○	○
1965-1976	○	○
1976-1984	◉	◉
1984-1992	○	○
1992-2004	○	○
2004-2011	○	○
Post Aug 2011	○	○
Building Type:	Others	Others
Seismic Zone:	Zone B	Zone B
c) Soil Type		
From NZS1170.5:2004, Cl 3.1.3 :	D Soft Soil	D Soft Soil
From NZS4203:1992, Cl 4.6.2.2 : (for 1992 to 2004 and only if known)	**Not applicable**	**Not applicable**
d) Estimate Period, *T*		
Comment: h_n =	5	5 m
A_c =	1.00	1.00 m²
Moment Resisting Concrete Frames: $T = \max\{0.09h_n^{0.75}, 0.4\}$	○	○
Moment Resisting Steel Frames: $T = \max\{0.14h_n^{0.75}, 0.4\}$	○	○
Eccentrically Braced Steel Frames: $T = \max\{0.08h_n^{0.75}, 0.4\}$	○	○
All Other Frame Structures: $T = \max\{0.06h_n^{0.75}, 0.4\}$	◉	◉
Concrete Shear Walls: $T = \max\{0.09h_n^{0.75}/A_c^{0.5}, 0.4\}$	○	○
Masonry Shear Walls: $T \le 0.4$sec	○	○
User Defined (input Period):	○	○
T:	0.40	0.40

Where h_n = height in metres from the base of the structure to the uppermost seismic weight or mass.

		Longitudinal	Transverse
e) Factor A:	Strengthening factor determined using result from (a) above (set to 1.0 if not strengthened)	**Factor A:** 1.00	1.00
f) Factor B:	Determined from NZSEE Guidelines Figure 3A.1 using results (a) to (e) above	**Factor B:** 0.17	0.17
g) Factor C:	For reinforced concrete buildings designed between 1976-84 Factor C = 1.2, otherwise take as 1.0.	**Factor C:** 1.00	1.00
h) Factor D:	For buildings designed prior to 1935 Factor D = 0.8 except for Wellington and Napier (1931-1935) where Factor D may be taken as 1.0, otherwise take as 1.0.	**Factor D:** 1.00	1.00
***(%NBS)* $_{nom}$ = AxBxCxD**		***(%NBS)* $_{nom}$** 17%	17%

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Table IEP-2 Initial Evaluation Procedure Step 2 continued

2.2 Near Fault Scaling Factor, Factor E

If $T \leq$ 1.5sec, Factor E = 1

			Longitudinal	Transverse
a) Near Fault Factor, *N(T,D)* (from NZS1170.5:2004, Cl 3.1.6)		N(T,D):	1	1
b) Factor E	= 1/N(T,D)	Factor E:	1.00	1.00

2.3 Hazard Scaling Factor, Factor F

a) Hazard Factor, *Z*, for site

Location: Matamata — Refer right for user-defined locations

Z =	0.19	(from NZS1170.5:2004, Table 3.3)
Z_{1992} =	0.8	(NZS4203:1992 Zone Factor from accompanying Figure 3.5(b))
Z_{2004} =	0.19	(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

	Longitudinal	Transverse
Factor F:	5.26	5.26

2.4 Return Period Scaling Factor, Factor G

a) Design Importance Level, I

(Set to 1 if not known. For buildings designed prior to 1965 and known to be designed as a public building set to 1.25. For buildings designed 1965-1976 and known to be designed as a public building set to 1.33 for Zone A or 1.2 for Zone B. For 1976-1984 set I value.)

b) Design Risk Factor, R_o

(set to 1.0 if other than 1976-2004, or not known)

c) Return Period Factor, R

(from NZS1170.0:2004 Building Importance Level)

Choose Importance Level — Longitudinal: ○ 1 ◉ 2 ○ 3 ○ 4; Transverse: ○ 1 ◉ 2 ○ 3 ○ 4

d) Factor G = IR_o/R

	Longitudinal	Transverse
I =	1	1
R_o =	1	1
R =	1.0	1.0
Factor G:	1.00	1.00

2.5 Ductility Scaling Factor, Factor H

a) Available Displacement Ductility Within Existing Structure

Comment:
Conservative assessment due to age and lack of documentation.

	Longitudinal	Transverse
μ =	1.00	1.00

b) Factor H

		Longitudinal k_μ	Transverse k_μ
For pre 1976 (maximum of 2)	=	1.00	1.00
For 1976 onwards	=	1	1
Factor H:		1.00	1.00

(where kμ is NZS1170.5:2004 Inelastic Spectrum Scaling Factor, from accompanying Table 3.3)

2.6 Structural Performance Scaling Factor, Factor I

a) Structural Performance Factor, S_p

(from accompanying Figure 3.4)

Tick if light timber-framed construction in this direction ☐ ☐

b) Structural Performance Scaling Factor = $1/S_p$

	Longitudinal	Transverse
S_p =	1.00	1.00
Factor I:	1.00	1.00

Note Factor B values for 1992 to 2004 have been multiplied by 0.67 to account for Sp in this period

	Longitudinal	Transverse
2.7 Baseline *%NBS* for Building, *(%NBS)*$_b$ (equals $(\%NBS)_{nom}$ x E x F x G x H x I)	87%	87%

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Table IEP-3 Initial Evaluation Procedure Step 3

Step 3 - Assessment of Performance Achievement Ratio (PAR)

(Refer Appendix B - Section B3.2)

a) Longitudinal Direction

potential CSWs | **Effect on Structural Performance** **(Choose a value - Do not interpolate)** | **Factors**

3.1 Plan Irregularity

Effect on Structural Performance ○ *Severe* ○ *Significant* ◉ *Insignificant* — **Factor A** 1.0

Regular structure

3.2 Vertical Irregularity

Effect on Structural Performance ○ *Severe* ○ *Significant* ◉ *Insignificant* — **Factor B** 1.0

Single level

3.3 Short Columns

Effect on Structural Performance ○ *Severe* ○ *Significant* ◉ *Insignificant* — **Factor C** 1.0

N/A

3.4 Pounding Potential

(Estimate D1 and D2 and set D = the lower of the two, or 1.0 if no potential for pounding, or consequences are considered to be minimal)

a) Factor D1: - Pounding Effect

Note:
Values given assume the building has a frame structure. For stiff buildings (eg shear walls), the effect of pounding may be reduced by taking the coefficient to the right of the value applicable to frame buildings.

Factor D1 For Longitudinal Direction: 1.0

Table for Selection of Factor D1	Severe	Significant	Insignificant
Separation	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height	○ 1	○ 1	◉ 1
Alignment of Floors not within 20% of Storey Height	○ 0.4	○ 0.7	○ 0.8

No adjacent structures.

b) Factor D2: - Height Difference Effect

Factor D2 For Longitudinal Direction: 1.0

Table for Selection of Factor D2	Severe	Significant	Insignificant
	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Height Difference > 4 Storeys	○ 0.4	○ 0.7	◉ 1
Height Difference 2 to 4 Storeys	○ 0.7	○ 0.9	○ 1
Height Difference < 2 Storeys	○ 1	○ 1	○ 1

No adjacent structures.

Factor D 1.0

3.5 Site Characteristics - *Stability, landslide threat, liquefaction etc as it affects the structural performance from a life-safety perspective*

Effect on Structural Performance ○ *Severe* ○ *Significant* ◉ *Insignificant* — **Factor E** 1.0

Site is flat and level

3.6 Other Factors - *for allowance of all other relevant characterstics of the building*

For ≤ 3 storeys - Maximum value 2.5
otherwise - Maximum value 1.5.
No minimum.

Factor F 1.0

Record rationale for choice of Factor F:

Nil.

PAR

3.7 Performance Achievement Ratio (PAR)
(equals **A x B x C x D x E x F**)

Longitudinal **1.00**

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Table IEP-3 Initial Evaluation Procedure Step 3

Step 3 - Assessment of Performance Achievement Ratio (PAR)

(Refer Appendix B - Section B3.2)

b) Transverse Direction

Factors

potential CSWs — **Effect on Structural Performance** **(Choose a value - Do not interpolate)**

3.1 Plan Irregularity

Effect on Structural Performance ○ *Severe* ○ *Significant* ◉ *Insignificant* — **Factor A** 1.0

Structural steel portal frame structure

3.2 Vertical Irregularity

Effect on Structural Performance ○ *Severe* ○ *Significant* ◉ *Insignificant* — **Factor B** 1.0

Structural steel portal frame structure

3.3 Short Columns

Effect on Structural Performance ○ *Severe* ○ *Significant* ◉ *Insignificant* — **Factor C** 1.0

N/A

3.4 Pounding Potential

(Estimate D1 and D2 and set D = the lower of the two, or 1.0 if no potential for pounding, or consequences are considered to be minimal)

a) Factor D1: - Pounding Effect

Note:
Values given assume the building has a frame structure. For stiff buildings (eg shear walls), the effect of pounding may be reduced by taking the coefficient to the right of the value applicable to frame buildings.

Factor D1 For Transverse Direction: 1.0

Table for Selection of Factor D1	Severe	Significant	Insignificant
Separation	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height	○ 1	○ 1	◉ 1
Alignment of Floors not within 20% of Storey Height	○ 0.4	○ 0.7	○ 0.8

No adjacent structures.

b) Factor D2: - Height Difference Effect

Factor D2 For Transverse Direction: 1.0

Table for Selection of Factor D2	Severe	Significant	Insignificant
	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Height Difference > 4 Storeys	○ 0.4	○ 0.7	◉ 1
Height Difference 2 to 4 Storeys	○ 0.7	○ 0.9	○ 1
Height Difference < 2 Storeys	○ 1	○ 1	○ 1

No adjacent structures.

Factor D 1.0

3.5 Site Characteristics - *Stability, landslide threat, liquefaction etc as it affects the structural performance from a life-safety perspective*

Effect on Structural Performance ○ *Severe* ○ *Significant* ◉ *Insignificant* — **Factor E** 1.0

Site is flat and level.

3.6 Other Factors - *for allowance of all other relevant characterstics of the building*

For ≤ 3 storeys - Maximum value 2.5
otherwise - Maximum value 1.5.
No minimum.

Factor F 1.00

Record rationale for choice of Factor F:

Nil.

PAR

3.7 Performance Achievement Ratio (PAR)
(equals **A x B x C x D x E x F**)

Transverse **1.00**

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Initial Evaluation Procedure (IEP) Assessment - Completed for Silverfin

Street Number & Name:	Banks Road	Job No.:	19-021
AKA:	Inghams Enterprises (NZ) Pty Ltd	By:	SM
Name of building:	Hatchery, Orginal Section, 1984	Date:	20/02/2019
City:	Matamata	Revision No.:	B

Table IEP-4 Initial Evaluation Procedure Steps 4, 5, 6 and 7

Step 4 - Percentage of New Building Standard *(%NBS)*

		Longitudinal	Transverse
4.1	**Assessed Baseline *%NBS (%NBS)*$_b$** (from Table IEP - 1)	87%	87%
4.2	**Performance Achievement Ratio (PAR)** (from Table IEP - 2)	1.00	1.00
4.3	**PAR x Baseline *(%NBS)*$_b$**	85%	85%
4.4	**Percentage New Building Standard *(%NBS)* - Seismic Rating** (Use lower of two values from Step 4.3)		85%

Step 5 - Is *%NBS* < 34? NO

Step 6 - Potentially Earthquake Risk (is *%NBS* < 67)? NO

Step 7 - Provisional Grading for Seismic Risk based on IEP

Seismic Grade A

Additional Comments (items of note affecting IEP based seismic rating)

Conservative ductility allowance has resulted in a Seismic Grade A, possibility that a higher percentage could be justified on detailed analysis if ductility 1.25 confirmed. The outcome would still be grade A. Note that maximum ductility which could be assigned is 2.

Relationship between Grade and *%NBS*:

Grade:	A+	A	B	C	D	E
%NBS:	> 100	100 to 80	79 to 67	66 to 34	< 34 to 20	< 20

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Initial Evaluation Procedure (IEP) Assessment - Completed for Silverfin

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Name of building:	Hatchery, Orginal Section, 1984	Date:	20/02/2019
City:	Matamata	Revision No.:	B

Table IEP-5 Initial Evaluation Procedure Step 8

Step 8 - Identification of potential Severe Structural Weaknesses (SSWs) that could result in significant risk to a significant number of occupants

8.1	Number of storeys above ground level	1
8.2	Presence of heavy concrete floors and/or concrete roof? (Y/N)	N

Potential Severe Structural Weaknesses (SSWs):

Note: Options that are greyed out are not applicable and need not be considered.

Occupancy not considered to be significant - no further consideration required

Risk not considered to be significant - no further consideration required

The following potential Severe Structural Weaknesses (SSWs) have been identified in the building that could result in significant risk to a significant number of occupants:

1. None identified

2. Weak or soft storey (except top storey)

3. Brittle columns and/or beam-column joints the deformations of which are not constrained by other structural elements

4. Flat slab buildings with lateral capacity reliant on low ductility slab-to-column connections

5. No identifiable connection between primary structure and diaphragms

6. Ledge and gap stairs

IEP Assessment Confirmed by		**Signature**
	Ian Kearny	**Name**
	1151481	**CPEng. No**

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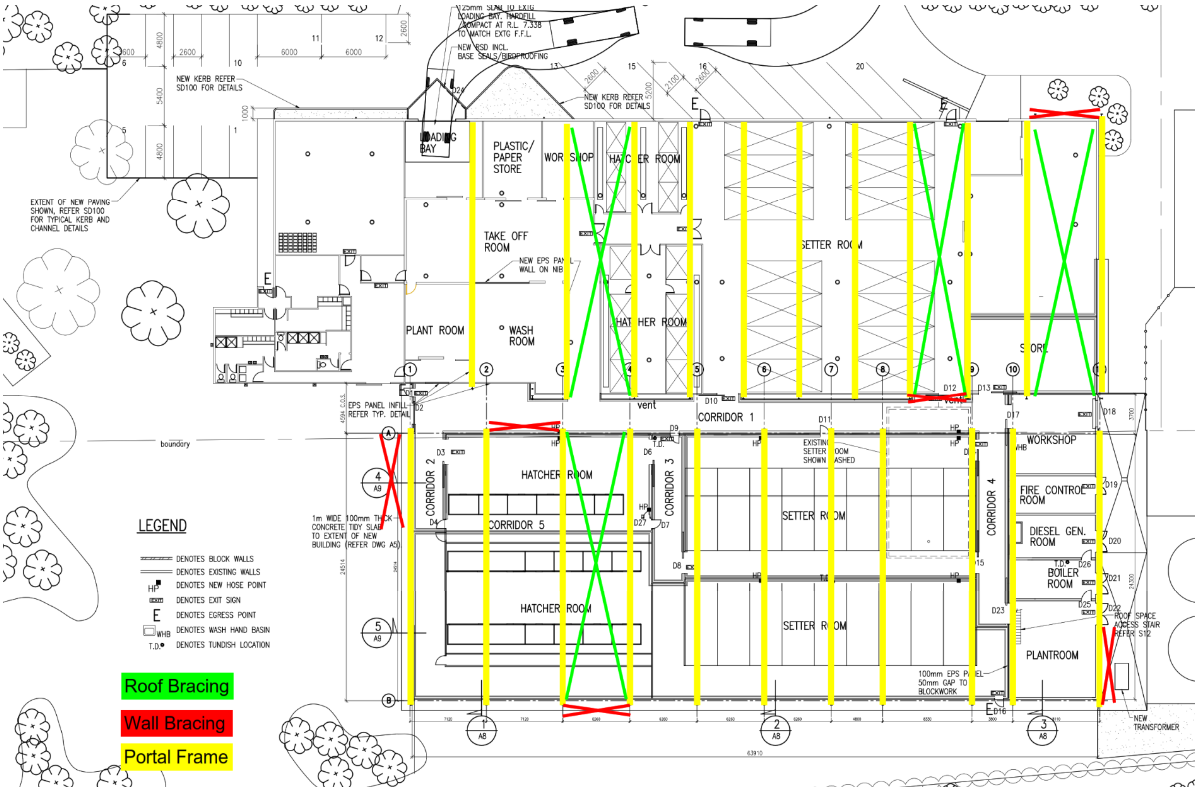
City:	Matamata	Revision No.:	B

Table IEP-1a Additional Photos and Sketches

Add any additional photographs, notes or sketches required below:

Note: print this page separately



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Appendix B

IEP Assessment

Alterations & Extensions

1997/2001

Initial Evaluation Procedure (IEP) Assessment - Completed for Silverfin

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Street Number & Name:	**Banks Road**	**Job No.:**	**19-021**
AKA:	**Ingham Enterprises (NZ) Pty Ltd**	**By:**	**SM**
Name of building:	**Hatchery, 1997 & 2001 Additions**	**Date:**	**20/02/2019**
City:	**Matamata**	**Revision No.:**	**B**

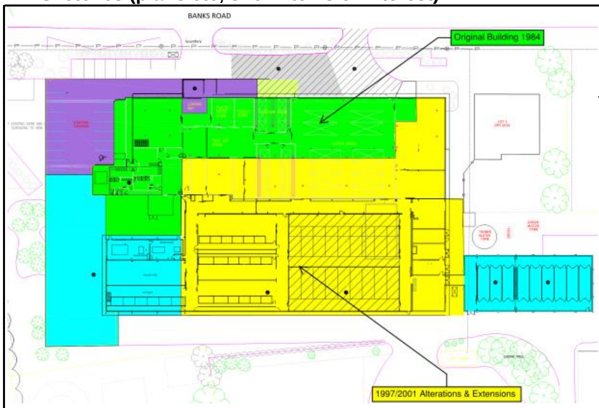
Table IEP-1 Initial Evaluation Procedure Step 1

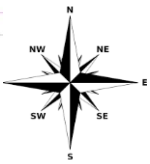
Step 1 - General Information

1.1 Photos (attach sufficient to describe building)

NOTE: THERE ARE MORE PHOTOS ON PAGE 1a ATTACHED

1.2 Sketches (plans etc, show items of interest)





NOTE: THERE ARE MORE SKETCHES ON PAGE 1a ATTACHED

1.3 List relevant features (Note: only 10 lines of text will print in this box. If further text required use Page 1a)

1.4 Note information sources Tick as appropriate

Visual Inspection of Exterior	☑	**Specifications**	☐
Visual Inspection of Interior	☑	**Geotechnical Reports**	☐
Drawings (note type)	☑	**Other (list)**	☐

Initial Evaluation Procedure (IEP) Assessment - Completed for Silverfin

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Table IEP-2 Initial Evaluation Procedure Step 2

Step 2 - Determination of *(%NBS)* $_b$

(Baseline *(%NBS)* for particular building - refer Section B5)

2.1 Determine nominal *(%NBS)* = *(%NBS)* $_{nom}$

	Longitudinal	Transverse
a) Building Strengthening Data		
Tick if building is known to have been strengthened in this direction	☐	☐
If strengthened, enter percentage of code the building has been strengthened to	N/A	N/A
b) Year of Design/Strengthening, Building Type and Seismic Zone		
Pre 1935	○	○
1935-1965	○	○
1965-1976	○	○
1976-1984	○	○
1984-1992	○	○
1992-2004	◉	◉
2004-2011	○	○
Post Aug 2011	○	○
Building Type:	**Not applicable**	**Not applicable**
Seismic Zone:	**Not applicable**	**Not applicable**
c) Soil Type		
From NZS1170.5:2004, Cl 3.1.3 :	D Soft Soil	D Soft Soil
From NZS4203:1992, Cl 4.6.2.2 : (for 1992 to 2004 and only if known)	**Flexible**	**Flexible**
d) Estimate Period, *T*		
Comment: h_n =	7	7 m
A_c =	1.00	1.00 m^2
Moment Resisting Concrete Frames: $T = \max\{0.09h_n^{0.75}, 0.4\}$	○	○
Moment Resisting Steel Frames: $T = \max\{0.14h_n^{0.75}, 0.4\}$	○	○
Eccentrically Braced Steel Frames: $T = \max\{0.08h_n^{0.75}, 0.4\}$	○	○
All Other Frame Structures: $T = \max\{0.06h_n^{0.75}, 0.4\}$	◉	◉
Concrete Shear Walls: $T = \max\{0.09h_n^{0.75}/A_c^{0.5}, 0.4\}$	○	○
Masonry Shear Walls: $T \leq 0.4$sec	○	○
User Defined (input Period):	○	○
Where h_n = height in metres from the base of the structure to the uppermost seismic weight or mass. T:	0.40	0.40
e) Factor A: Strengthening factor determined using result from (a) above (set to 1.0 if not strengthened) — **Factor A:**	1.00	1.00
f) Factor B: Determined from NZSEE Guidelines Figure 3A.1 using results (a) to (e) above — **Factor B:**	0.22	0.22
g) Factor C: For reinforced concrete buildings designed between 1976-84 Factor C = 1.2, otherwise take as 1.0. — **Factor C:**	1.00	1.00
h) Factor D: For buildings designed prior to 1935 Factor D = 0.8 except for Wellington and Napier (1931-1935) where Factor D may be taken as 1.0, otherwise take as 1.0. — **Factor D:**	1.00	1.00
***(%NBS)* $_{nom}$ = AxBxCxD** — *(%NBS)* $_{nom}$	22%	22%

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Table IEP-2 Initial Evaluation Procedure Step 2 continued

2.2 Near Fault Scaling Factor, Factor E
If $T \leq 1.5$sec, Factor E = 1

		Longitudinal	Transverse
a) Near Fault Factor, *N(T,D)* (from NZS1170.5:2004, Cl 3.1.6)	N(T,D):	1	1
b) Factor E = 1/N(T,D)	Factor E:	1.00	1.00

2.3 Hazard Scaling Factor, Factor F
a) Hazard Factor, *Z*, for site

Location: Matamata — Refer right for user-defined locations

Z = 0.19 (from NZS1170.5:2004, Table 3.3)
Z_{1992} = 0.8 (NZS4203:1992 Zone Factor from accompanying Figure 3.5(b))
Z_{2004} = 0.19 (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

	Longitudinal	Transverse
Factor F:	4.21	4.21

2.4 Return Period Scaling Factor, Factor G

a) Design Importance Level, I
(Set to 1 if not known. For buildings designed prior to 1965 and known to be designed as a public building set to 1.25. For buildings designed 1965-1976 and known to be designed as a public building set to 1.33 for Zone A or 1.2 for Zone B. For 1976-1984 set I value.)

b) Design Risk Factor, R_o
(set to 1.0 if other than 1976-2004, or not known)

c) Return Period Factor, R
(from NZS1170.0:2004 Building Importance Level) *Choose Importance Level*

d) Factor G = IR_o/R

	Longitudinal	Transverse
I =	1	1
Design Risk Factor category	Category IV	Category IV
R_o =	1	1
Importance Level (○1 ◉2 ○3 ○4)	2	2
R =	1.0	1.0
Factor G:	1.00	1.00

2.5 Ductility Scaling Factor, Factor H
a) Available Displacement Ductility Within Existing Structure

Comment:
Original design ductility confirmed

μ = 1.25 (Longitudinal), 1.25 (Transverse)

b) Factor H

		Longitudinal k_μ	Transverse k_μ
For pre 1976 (maximum of 2)	=	1.14	1.14
For 1976 onwards	=	1	1
Factor H:		1.00	1.00

(where kμ is NZS1170.5:2004 Inelastic Spectrum Scaling Factor, from accompanying Table 3.3)

2.6 Structural Performance Scaling Factor, Factor I
a) Structural Performance Factor, S_p
(from accompanying Figure 3.4)
Tick if light timber-framed construction in this direction ☐ ☐

b) Structural Performance Scaling Factor = $1/S_p$

	Longitudinal	Transverse
S_p =	0.93	0.93
Factor I:	1.08	1.08

Note Factor B values for 1992 to 2004 have been multiplied by 0.67 to account for Sp in this period

2.7 Baseline *%NBS* for Building, $(\%NBS)_b$
(equals $(\%NBS)_{nom}$ x E x F x G x H x I)

Longitudinal	Transverse
102%	102%

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Table IEP-3 Initial Evaluation Procedure Step 3

Step 3 - Assessment of Performance Achievement Ratio (PAR)

(Refer Appendix B - Section B3.2)

a) Longitudinal Direction

potential CSWs | **Effect on Structural Performance** (Choose a value - Do not interpolate) | **Factors**

3.1 Plan Irregularity

Effect on Structural Performance ○ *Severe* ○ *Significant* ● *Insignificant* — **Factor A** 1.0

Regular structure

3.2 Vertical Irregularity

Effect on Structural Performance ○ *Severe* ○ *Significant* ● *Insignificant* — **Factor B** 1.0

Single level

3.3 Short Columns

Effect on Structural Performance ○ *Severe* ○ *Significant* ● *Insignificant* — **Factor C** 1.0

Not Applicable

3.4 Pounding Potential

(Estimate D1 and D2 and set D = the lower of the two, or 1.0 if no potential for pounding, or consequences are considered to be minimal)

a) Factor D1: - Pounding Effect

Note:
Values given assume the building has a frame structure. For stiff buildings (eg shear walls), the effect of pounding may be reduced by taking the coefficient to the right of the value applicable to frame buildings.

Factor D1 For Longitudinal Direction: 1.0

Table for Selection of Factor D1	Severe	Significant	Insignificant
Separation	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height	○ 1	○ 1	● 1
Alignment of Floors not within 20% of Storey Height	○ 0.4	○ 0.7	○ 0.8

No adjacent structures.

b) Factor D2: - Height Difference Effect

Factor D2 For Longitudinal Direction: 1.0

Table for Selection of Factor D2	Severe	Significant	Insignificant
	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Height Difference > 4 Storeys	○ 0.4	○ 0.7	● 1
Height Difference 2 to 4 Storeys	○ 0.7	○ 0.9	○ 1
Height Difference < 2 Storeys	○ 1	○ 1	○ 1

No adjacent structures.

Factor D 1.0

3.5 Site Characteristics - *Stability, landslide threat, liquefaction etc as it affects the structural performance from a life-safety perspective*

Effect on Structural Performance ○ *Severe* ○ *Significant* ● *Insignificant* — **Factor E** 1.0

Site is flat and level.

3.6 Other Factors - *for allowance of all other relevant characterstics of the building*

For ≤ 3 storeys - Maximum value 2.5
otherwise - Maximum value 1.5.
No minimum.

Factor F 1.0

Record rationale for choice of Factor F:

Nil.

3.7 Performance Achievement Ratio (PAR)
(equals **A x B x C x D x E x F**)

PAR
Longitudinal **1.00**

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Table IEP-3 Initial Evaluation Procedure Step 3

Step 3 - Assessment of Performance Achievement Ratio (PAR)

(Refer Appendix B - Section B3.2)

b) Transverse Direction

Factors

potential CSWs **Effect on Structural Performance**
(Choose a value - Do not interpolate)

3.1 Plan Irregularity

Effect on Structural Performance ○ *Severe* ○ *Significant* ◉ *Insignificant* **Factor A** 1.0

Structural steel portal frame structure

3.2 Vertical Irregularity

Effect on Structural Performance ○ *Severe* ○ *Significant* ◉ *Insignificant* **Factor B** 1.0

Structural steel portal frame structure

3.3 Short Columns

Effect on Structural Performance ○ *Severe* ○ *Significant* ◉ *Insignificant* **Factor C** 1.0

N/A

3.4 Pounding Potential

(Estimate D1 and D2 and set D = the lower of the two, or 1.0 if no potential for pounding, or consequences are considered to be minimal)

a) Factor D1: - Pounding Effect

Note:
Values given assume the building has a frame structure. For stiff buildings (eg shear walls), the effect of pounding may be reduced by taking the coefficient to the right of the value applicable to frame buildings.

Factor D1 For Transverse Direction: 1.0

Table for Selection of Factor D1	Severe	Significant	Insignificant
Separation	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height	○ 1	○ 1	◉ 1
Alignment of Floors not within 20% of Storey Height	○ 0.4	○ 0.7	○ 0.8

No adjacent structures.

b) Factor D2: - Height Difference Effect

Factor D2 For Transverse Direction: 1.0

Table for Selection of Factor D2	Severe	Significant	Insignificant
	0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Height Difference > 4 Storeys	○ 0.4	○ 0.7	◉ 1
Height Difference 2 to 4 Storeys	○ 0.7	○ 0.9	○ 1
Height Difference < 2 Storeys	○ 1	○ 1	○ 1

No adjacent structures.

Factor D 1.0

3.5 Site Characteristics - *Stability, landslide threat, liquefaction etc as it affects the structural performance from a life-safety perspective*

Effect on Structural Performance ○ *Severe* ○ *Significant* ◉ *Insignificant* **Factor E** 1.0

Site is flat and level.

3.6 Other Factors - *for allowance of all other relevant characterstics of the building* **For ≤ 3 storeys - Maximum value 2.5 otherwise - Maximum value 1.5. No minimum.** **Factor F** 1.00

Record rationale for choice of Factor F:

Nil.

PAR

3.7 Performance Achievement Ratio (PAR)
(equals **A x B x C x D x E x F**) **Transverse** **1.00**

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Table IEP-4 Initial Evaluation Procedure Steps 4, 5, 6 and 7

Step 4 - Percentage of New Building Standard *(%NBS)*

		Longitudinal	Transverse
4.1	**Assessed Baseline *%NBS (%NBS)* $_b$** (from Table IEP - 1)	102%	102%
4.2	**Performance Achievement Ratio (PAR)** (from Table IEP - 2)	1.00	1.00
4.3	**PAR x Baseline *(%NBS)* $_b$**	100%	100%

4.4 Percentage New Building Standard *(%NBS)* - Seismic Rating 100%

(Use lower of two values from Step 4.3)

Step 5 - Is *%NBS* < 34? NO

Step 6 - Potentially Earthquake Risk (is *%NBS* < 67)? NO

Step 7 - Provisional Grading for Seismic Risk based on IEP

Seismic Grade A

Additional Comments (items of note affecting IEP based seismic rating)

Conservative assessments throughout result on 100% rating.

Relationship between Grade and *%NBS* :

Grade:	A+	A	B	C	D	E
%NBS:	> 100	100 to 80	79 to 67	66 to 34	< 34 to 20	< 20

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Table IEP-5 Initial Evaluation Procedure Step 8

Step 8 - Identification of potential Severe Structural Weaknesses (SSWs) that could result in significant risk to a significant number of occupants

8.1	Number of storeys above ground level	1
8.2	Presence of heavy concrete floors and/or concrete roof? (Y/N)	N

Potential Severe Structural Weaknesses (SSWs):

Note: Options that are greyed out are not applicable and need not be considered.

Occupancy not considered to be significant - no further consideration required

Risk not considered to be significant - no further consideration required

The following potential Severe Structural Weaknesses (SSWs) have been identified in the building that could result in significant risk to a significant number of occupants:

1. None identified

2. Weak or soft storey (except top storey)

3. Brittle columns and/or beam-column joints the deformations of which are not constrained by other structural elements

4. Flat slab buildings with lateral capacity reliant on low ductility slab-to-column connections

5. No identifiable connection between primary structure and diaphragms

6. Ledge and gap stairs

IEP Assessment Confirmed by _______ **Signature**

Ian Kearney **Name**

1151481 **CPEng. No**

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City:	**Matamata**	**Revision No.:**	**B**

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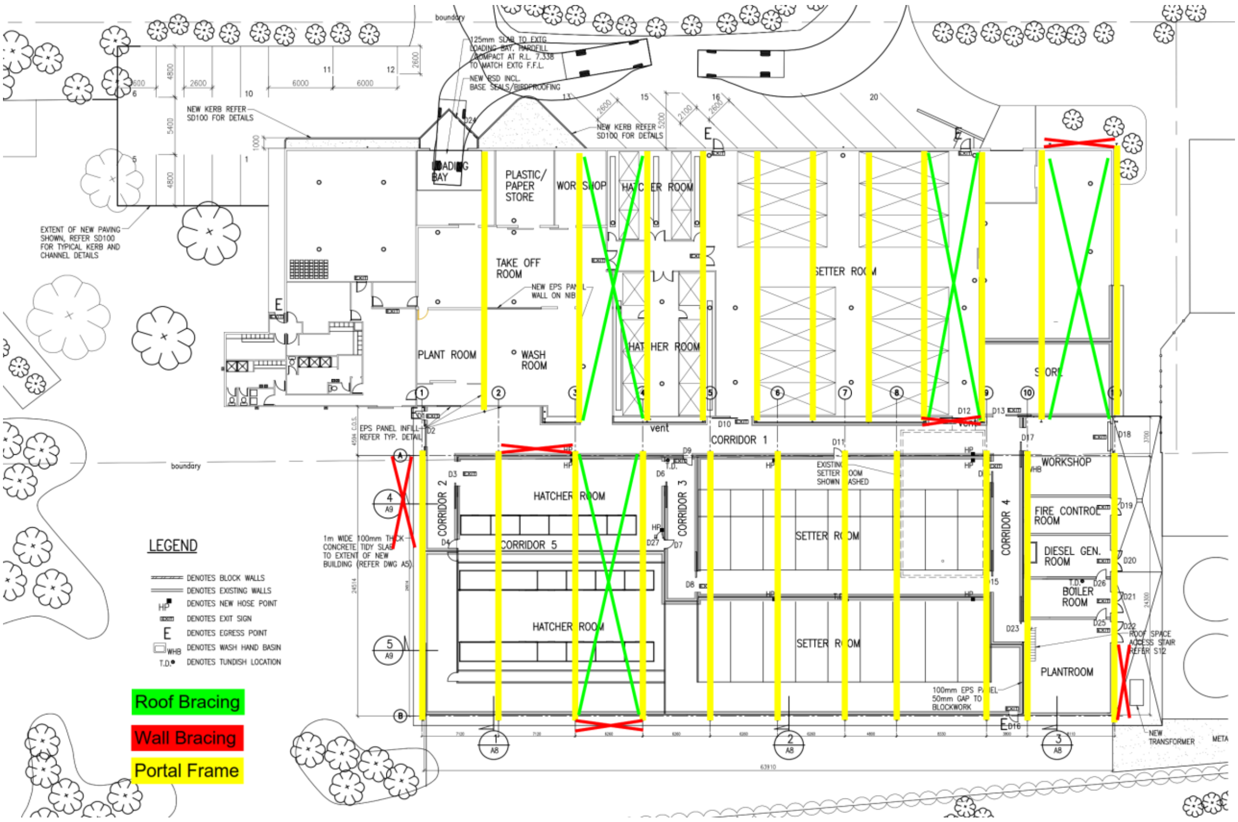
Note: print this page separately



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