

There are structural steel diagonal rod braces in the longitudinal walls, perpendicular to the direction of the steel portals.

The suspended floor is constructed from conventional mesh reinforced insitu concrete topping over proprietary hollowcore flooring. The floor system is supported on large (700mm deep x 600mm wide) cast insitu reinforced concrete beams, supported on substantial (600mm x 600mm) reinforced concrete columns, all supported by large foundation pads tied around the perimeter of the building by substantial ground beams, and throughout the body of the building, by the on-grade floor slab. The reinforced concrete beams form a perimeter frame around the entire footprint and there are two grids of transverse beams within the body of the floor plate.

The stair is light weight construction and is drawn as having two steel PFC stringers and precast concrete treads.

Seismic Load Resisting Structure:

The lateral load resisting system in the longitudinal direction for the single storey building envelope consists primarily of the diagonal structural steel roof bracing in conjunction with the direct connection to the two way reinforced concrete moment resisting framed suspended office floor, and the transverse lateral loads (in the north-south direction) are sustained by the structural steel moment resisting portal frames.

The lateral load resisting system for the roof above the suspended floor consists of the roof and wall plane diagonal steel bracing and the steel moment resisting portal frames. The lateral load resisting system for the suspended floor consists of the reinforced concrete two way moment resisting frames in both principal directions.

We have examined two specific aspects of this building to determine if they represent a severe structural weakness, and they are the stairs and the hollowcore flooring. The stairs are of relatively light weight construction and wrap around the lift, therefore they are not of the precast flight/landing/flight type that have proven problematic when assessed using the stair assessment guidelines, Practice Advisory Note #13. The second item is the hollowcore flooring. Drawing B236-S2.601 shows that there are 600mm wide timber infills between the side of the hollowcore and the beams, this limits the transfer of seismic deformations from the beam to the hollowcore in an earthquake. The hollowcore seating is not specifically called up in the details, but scales 75mm, which was the norm in this design era and is satisfactory. Finally, the framing under the suspended floor appears to be large and this equates to a stiff building that is likely to remain elastic in an earthquake, which inhibits inelastic span growth and therefore loss of floor seating. As a result of this review, no severe structural weaknesses or critical structural weaknesses have been detected in this building structure.

There is paucity in the detail obtained from information contained in the property file, specifically for the foundations and upper roof of this Block, however, there is sufficiently comprehensive information in the detail drawings to allow us to make a robust assessment of the likely seismic performance of the building at a high level of certainty for an ISA.

There were fit out alterations carried out in 2016 recorded in the documentation that we hold, but these did not affect the lateral load resisting system.

Seismic Assessment:

We have used the following parameters in the ISA assessment.

- Building era 2004 – 2011.
- Seismic Zone B, Tauranga.
- Class D soft soil.

- Natural period 0.4 seconds, (this is based on the structural steel diagonal roof (and wall in the second storey) bracing distributing the lateral loads to the reinforced concrete moment resisting framed suspended floor. This natural period is also appropriate for the structural steel moment resisting portal frames in the transverse direction in both the upper storey and the single storey section).
- Building Importance Level 2.
- Structural Ductility factor 1.25 (this is based on the in-plane loaded diagonal steel bracing panels and the reinforced concrete moment resisting frames, and the structural steel moment resisting frames, although both of these frame types can arguably achieve a higher structural ductility factor. This is subject to commentary in the PAR evaluation).
- Plan irregularity 1.0 (this value has been selected despite the asymmetric arrangement of the lateral load resisting systems in the two sections of the building. The reason is that because of the type of construction, the design philosophy for the building was no doubt that it would act as a series of discrete tributary loaded resisting structural elements in the single storey transverse direction, but as a single structural entity in the longitudinal direction, because of the direct connection of the roof brace panels to the concrete frame. This is addressed in the PAR section).
- Vertical irregularity 1.0.
- Pounding Potential 1.0 (because the building has no neighbours).
- Site Characteristics 1.0 (because there is no recorded risk of liquefaction or site instability).
- Performance Achievement Ratio 1.1. (This is based on the regularity, pounding and site factors as detailed above but includes an enhancement 'other' factor of 1.1 which is less than the maximum of 2.5 available for buildings less than or equal to 3 storeys. This 'other factor' was selected because the natural period is arguably too short, and the ductility factor too low, for this building and this may well be demonstrated if the moment resisting structural steel portal frames and the reinforced concrete frames are analysed in detail, which is beyond the scope of this ISA. Also, there is a high density of reinforced concrete moment resisting frames, with very large members supporting only a single suspended floor level. By all appearances there is a lot of lateral load supporting structure for a small building, and this represents another redundancy in the system. All of these factors have been nominally recognised by an 'other factor' of 1.1).

Seismic Rating and Grade:

The Baseline rating of 100% NBS is modified by the Performance Achievement Ratio of 1.1 resulting in a Seismic Rating of >100% NBS which makes this Block A building neither an Earthquake Risk nor Earthquake Prone.

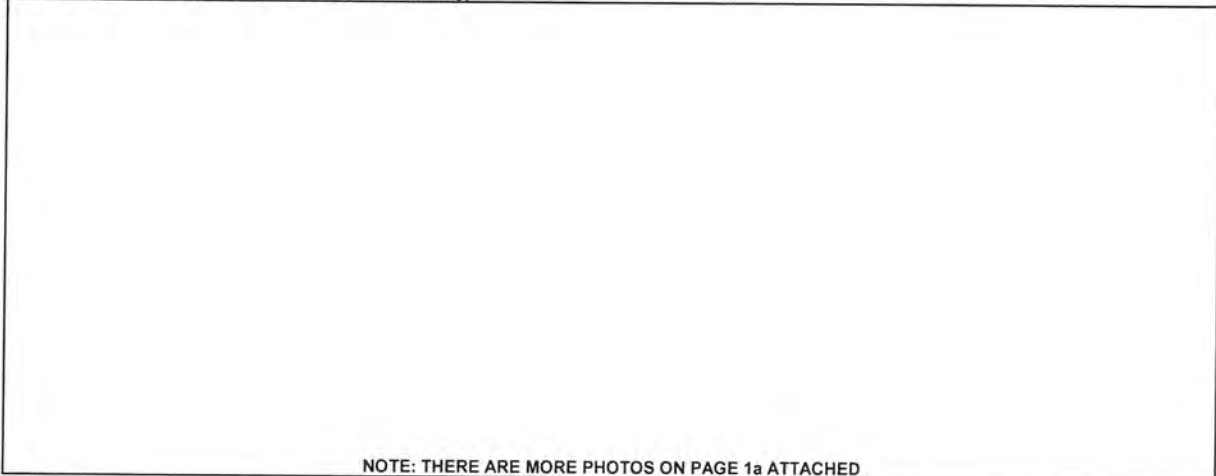
Rating >100% NBS.

Grade A+.

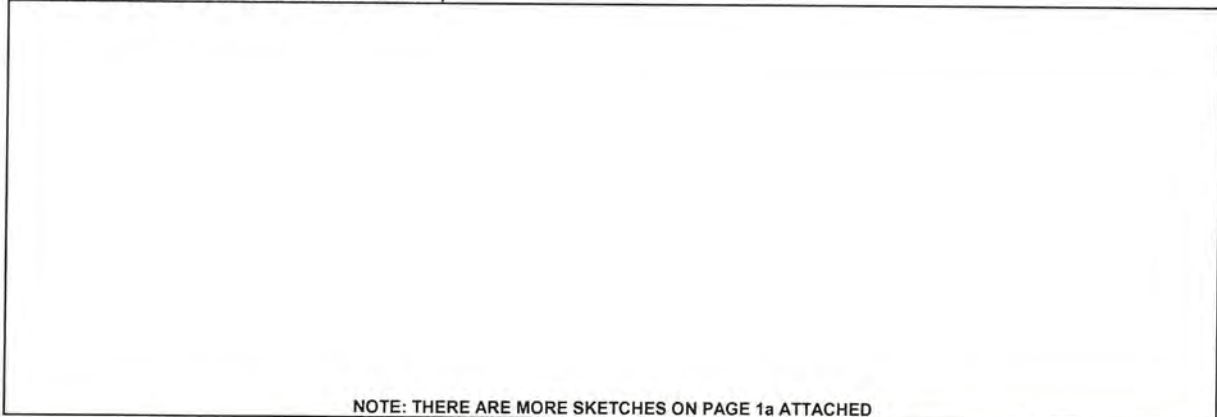
Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}**Page 1**

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:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block G	Date:	14/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-1 Initial Evaluation Procedure Step 1**Step 1 - General Information****1.1 Photos (attach sufficient to describe building)**


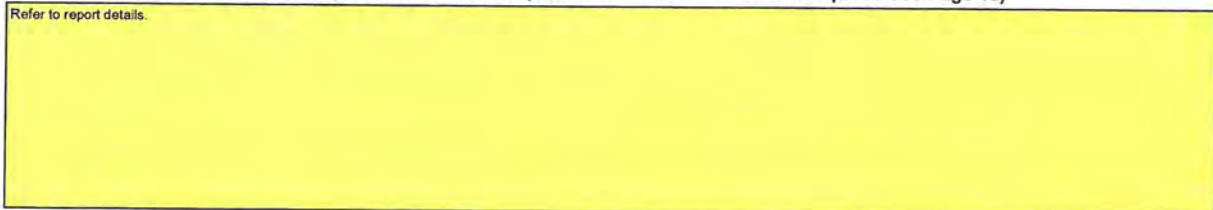
NOTE: THERE ARE MORE PHOTOS ON PAGE 1a ATTACHED

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)

Refer to report details.


1.4 Note information sources

Tick as appropriate

Visual Inspection of Exterior
Visual Inspection of Interior
Drawings (note type)

☒
☐
☒

Specifications
Geotechnical Reports
Other (list)

☐
☒
☐

Property File.



Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 2

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City:	Tauranga	Revision No.:	A

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 ☐	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, CI 3.1.3 :	D Soft Soil	D Soft Soil
From NZS4203:1992, CI 4.6.2.2 : (for 1992 to 2004 and only if known)	Not applicable	Not applicable
d) Estimate Period, T		
Comment:		
	h _n = 5 A _c = 1.00	5 m 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 ≤ 0.4sec ☐	☐
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: 1.00	1.00
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} 100%	100%

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 3

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Table IEP-2 Initial Evaluation Procedure Step 2 continued

2.2 Near Fault Scaling Factor, Factor E

If $T \leq 1.5\text{sec}$, Factor E = 1a) Near Fault Factor, $N(T,D)$

(from NZS1170.5:2004, Cl 3.1.6)

Longitudinal
 $N(T,D)$: 1Transverse
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: Tauranga

Refer right for user-defined locations

 $Z = 0.2$ (from NZS1170.5:2004, Table 3.3) $Z_{1992} = 0.85$ (NZS4203:1992 Zone Factor from accompanying Figure 3.5(b)) $Z_{2004} = 0.2$ (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: 1.00

1.00

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.)

I = 1

1

b) Design Risk Factor, R_o

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

 $R_o = 1$

1

c) Return Period Factor, R

(from NZS1170.0:2004 Building Importance Level)

Choose Importance Level

☐ 1 ☒ 2 ☐ 3 ☐ 4

R = 1.0

1.0

d) Factor G

$$= IR_o/R$$

Factor G: 1.00

1.00

2.5 Ductility Scaling Factor, Factor H

a) Available Displacement Ductility Within Existing Structure

Comment:

 $\mu = 1.25$

1.25

b) Factor H

For pre 1976 (maximum of 2)

 k_μ
 $= 1.14$

For 1976 onwards

 $= 1$

Factor H: 1.00

1.00

(where k_μ 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

☐
 $S_p = 0.93$ ☐
0.93

b) Structural Performance Scaling Factor

$$= 1/S_p$$

Factor I: 1.00

1.00

Note Factor B values for 1992 to 2004 have been multiplied by 0.67 to account for S_p in this period2.7 Baseline %NBS for Building, (%NBS)_b(equals (%NBS)_{nom} x E x F x G x H x I)

100%

100%

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Page 4

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
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City:	Tauranga	Revision No.:	A

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 Comment	Factor A	1.0
3.2 Vertical Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment	Factor B	1.0
3.3 Short Columns Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment	Factor C	1.0
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 0 < Sep < .005H	Significant .005 < Sep < .01H	Insignificant 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
Comment			

b) Factor D2: - Height Difference Effect

Factor D2 For Longitudinal Direction: 1.0

Table for Selection of Factor D2	Severe 0 < Sep < .005H	Significant .005 < Sep < .01H	Insignificant 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
Comment			

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

Comment

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

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

Factor F 1.1

Record rationale for choice of Factor F:

Refer to report

3.7 Performance Achievement Ratio (PAR)

(equals A x B x C x D x E x F)

PAR
 Longitudinal 1.10

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 5

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block G	Date:	14/04/2021
City:	Tauranga	Revision No.:	A

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

potential CSWs	Effect on Structural Performance (Choose a value - Do not interpolate)	Factors
3.1 Plan Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment:		Factor A 1.0
3.2 Vertical Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment:		Factor B 1.0
3.3 Short Columns Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment:		Factor C 1.0
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				
	Separation	Severe 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant 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
Comment				

b) Factor D2: - Height Difference Effect

Factor D2 For Transverse Direction:				1.0
Table for Selection of Factor D2				
	Severe 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant 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	
Comment				

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
 Comment:

Factor E 1.0

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

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

Factor F 1.10

Record rationale for choice of Factor F:

Refer to report

3.7 Performance Achievement Ratio (PAR)

(equals A x B x C x D x E x F)

PAR
 Transverse 1.10

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

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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)	100%	100%
4.2 Performance Achievement Ratio (PAR) (from Table IEP - 2)	1.10	1.10
4.3 PAR x Baseline (%NBS) _b	>100%	>100%
4.4 Percentage New Building Standard (%NBS) - Seismic Rating (Use lower of two values from Step 4.3)		>100%

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)

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 {Client/TA}

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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

2

8.2 Presence of heavy concrete floors and/or concrete roof? (Y/N)

Y

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 diaphragm
6. Edge and gap stairs

IEP Assessment Confirmed by

Signature

S R Mitchell

Name

70562

CPEng. No

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GENERAL NOTES

NO BID SHALL BE MAINTAINED

CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS ON SITE.

INCHES TO BE RETAINED BY ANY VARIATION BETWEEN SITE DIMENSIONS AND THOSE ON PLAN.

THESE DIMENSIONS VARY THE PROPERTY OF CLIENT ARCHITECTS LTD AND SHOULD NOT BE COPIED IN ANY CASE OR PASSED ON TO A THIRD PARTY WITHOUT THE WRITING CONSENT.



A	Building Consent	140	01.09.06
SS2	Section	140	14/07



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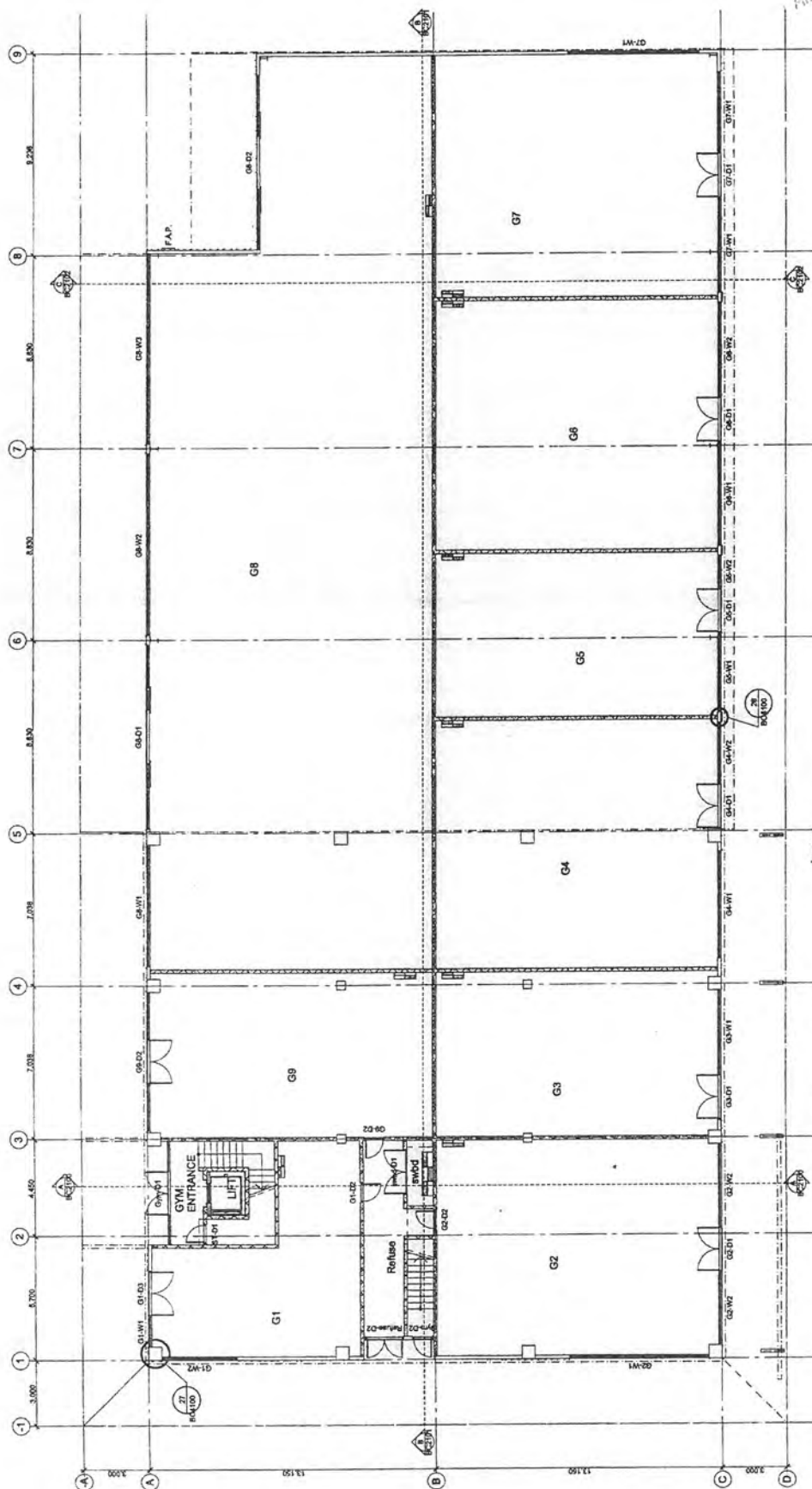


PROJECT
BLOCK G
BETHLEHEM
SHOPPING CENTRE

ISSUING TITLE
REFERENCE PLAN
GROUND FLOOR

DATE 15 SEPTEMBER 1944	SCALE
DRAWN MG	CHECK CMAM
PROJECT NO. 457-05-19	
DRAWING NUMBER BC1300	
(A)	

FOR INFORMATION ONLY
- EXISTING CONSENTED
DRAWING



REFERENCE PLAN GROUND FLOOR

Legend:

150mm steel framed wall
with 1 layer 19mm Gls board flyline
from floor to underside floor / floor above.

from floor to underside flooring / floor above.

Refer to Fire engineers drawings for FUR.

850mm steel framed wall

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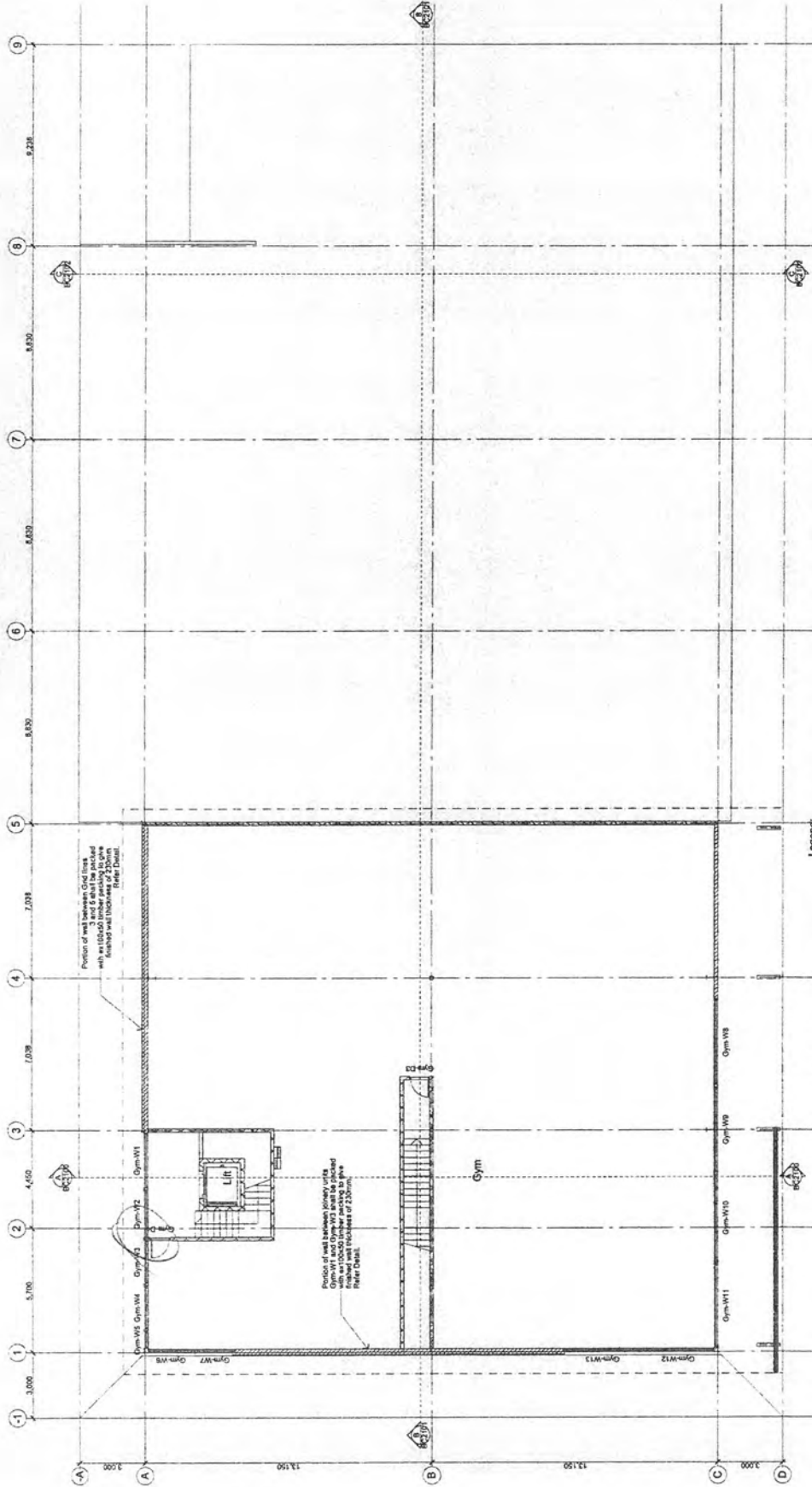


TCC172279

GENERAL NOTES

1. SEE SCALE OF DRAWING
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS FOR ALL DIMENSIONS ON SITE
3. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED
4. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED
5. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED
6. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED
7. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED
8. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED
9. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED
10. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED

EXIT DOORS ARE TO
OPEN IN THE DIRECTION
OF ESCAPE



REFERENCE PLAN FIRST FLOOR
Scale 1:100

Legend:

- 150mm steel framed wall with 1 layer 15mm GIB board finish above and below. Refer to fire engineer's drawings for FRB.
- Distribution Board
- 150x50 timber framed wall with 1 layer 15mm GIB board finish above and below. Refer to fire engineer's drawings for FRB.
- 150x50 timber framed wall with 1 layer 15mm GIB board finish above and below. Refer to fire engineer's drawings for FRB.

Note:
ex 150x50 timber framing to exterior walls of first floor only.

APPROVED
These plans are approved in accordance with the Building Code
These plans must remain on site
TOWN & COUNTRY ARCHITECTS

DATE	SCALE	PROJECT NO.
11 SEPTEMBER 2014	1:100	457-05-19
DRAWN	CHECK	DATE
MG	CM	457-05-19
DRAWING NUMBER	PROJECT NUMBER	PROJECT NAME
BC1301	457-05-19	BETHLEHEM SHOPPING CENTRE

DATE	SCALE	PROJECT NO.
11 SEPTEMBER 2014	1:100	457-05-19
DRAWN	CHECK	DATE
MG	CM	457-05-19
DRAWING NUMBER	PROJECT NUMBER	PROJECT NAME
BC1301	457-05-19	BETHLEHEM SHOPPING CENTRE



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CLIENT



PROJECT
BLOCK G
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE

REFERENCE PLAN
FIRST FLOOR

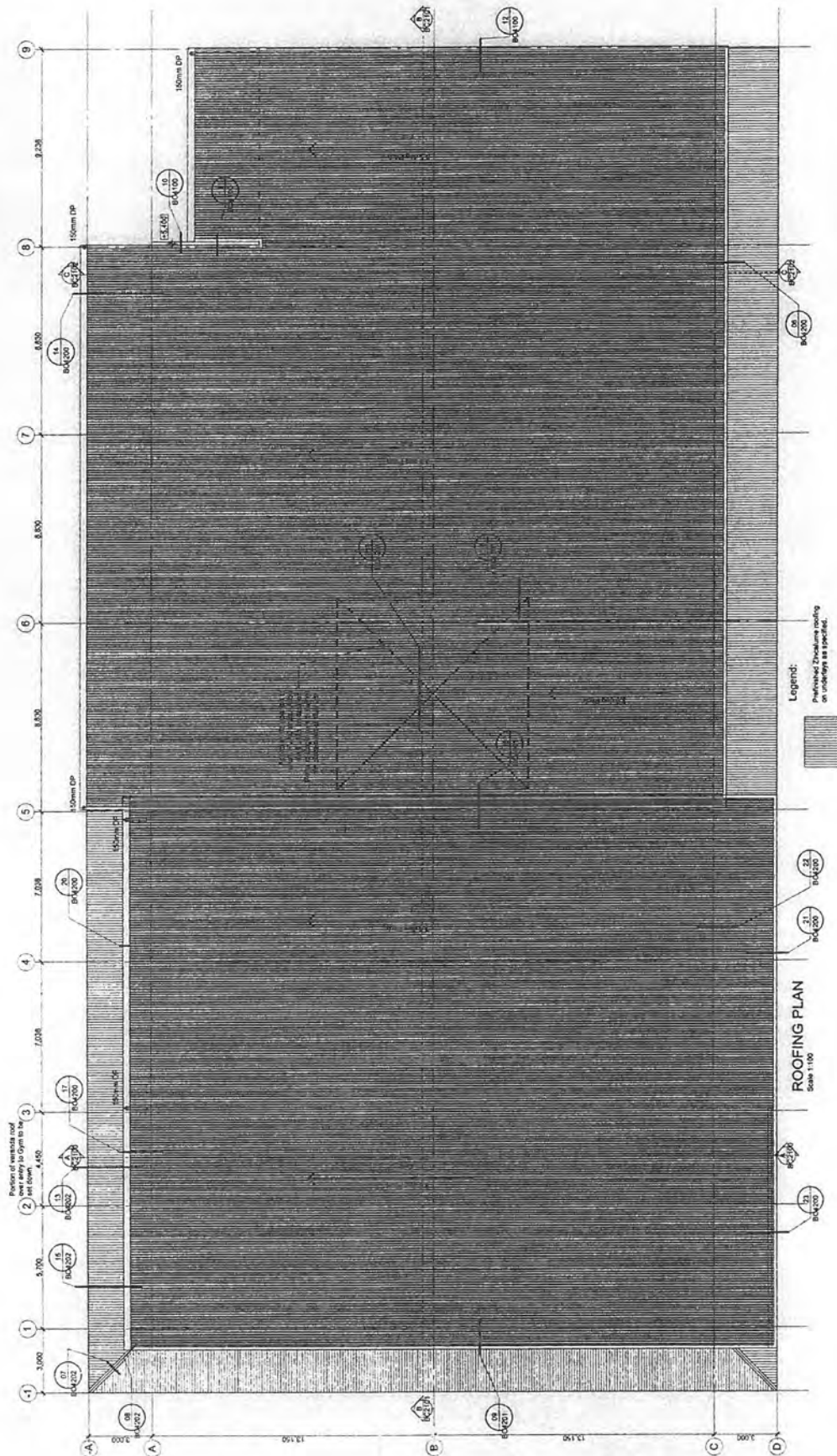


TCC172284

Regular Maintenance
checks of the exterior
should be undertaken
by the owner

GENERAL NOTES

1. CONTACTS SHALL BE MADE TO THE SUPPLIER.
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APPROVED

These plans are prepared in accordance with the provisions of the Resource Management Act 1991.

These plans must remain on site.

TAURANGA CITY COUNCIL

DATE	BY	FOR	BY
14/01/19	14/01/19	14/01/19	14/01/19

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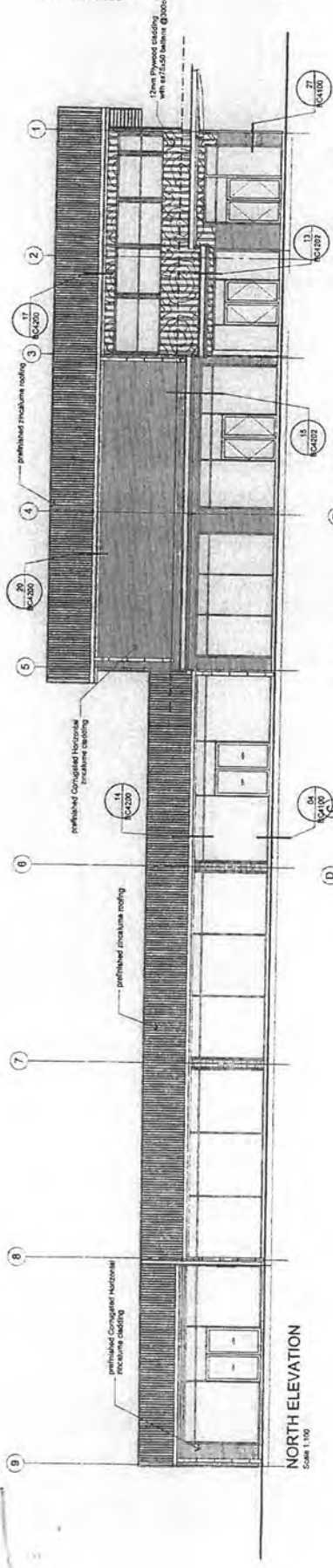
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INVESTMENT

PROJECT
BLOCK G
BETHLEHEM
SHOPPING CENTRE

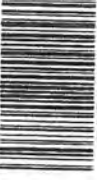
DATE
14 SEPTEMBER 2018
SCALE
1:100
PROJECT NO.
457-05-19
DRAWN
MG
CHECKED
BC1700
DRAWN BY
BC1700
DATE
14 SEPTEMBER 2018

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE BUILDING ACT 2004 AND THE BUILDING REGULATIONS 2004.
2. THE DESIGNER HAS NOT CONDUCTED A VISUAL IMPACT ASSESSMENT OR A SITE ASSESSMENT. THE PROPERTY IS SITUATED IN A RURAL ZONE AND THE PROPOSED DEVELOPMENT IS NOT EXPECTED TO HAVE A VISUAL IMPACT ON THE SURROUNDING ENVIRONMENT.
3. THE DESIGNER HAS NOT CONDUCTED A VISUAL IMPACT ASSESSMENT OR A SITE ASSESSMENT. THE PROPERTY IS SITUATED IN A RURAL ZONE AND THE PROPOSED DEVELOPMENT IS NOT EXPECTED TO HAVE A VISUAL IMPACT ON THE SURROUNDING ENVIRONMENT.
4. THE DESIGNER HAS NOT CONDUCTED A VISUAL IMPACT ASSESSMENT OR A SITE ASSESSMENT. THE PROPERTY IS SITUATED IN A RURAL ZONE AND THE PROPOSED DEVELOPMENT IS NOT EXPECTED TO HAVE A VISUAL IMPACT ON THE SURROUNDING ENVIRONMENT.

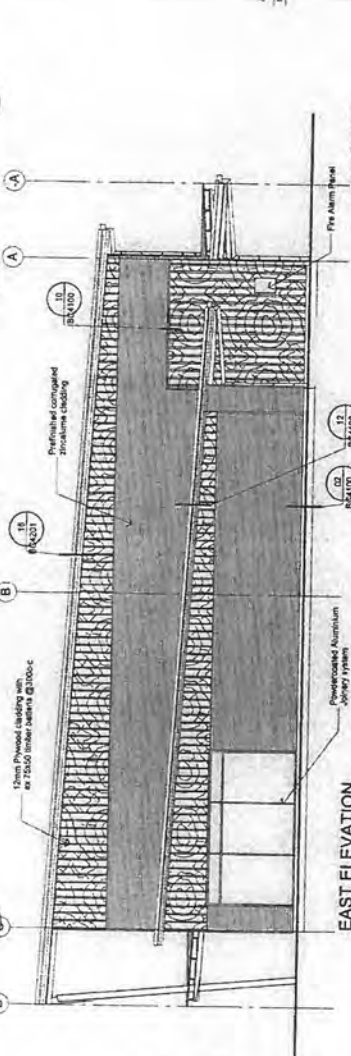


NORTH ELEVATION
Scale 1:100

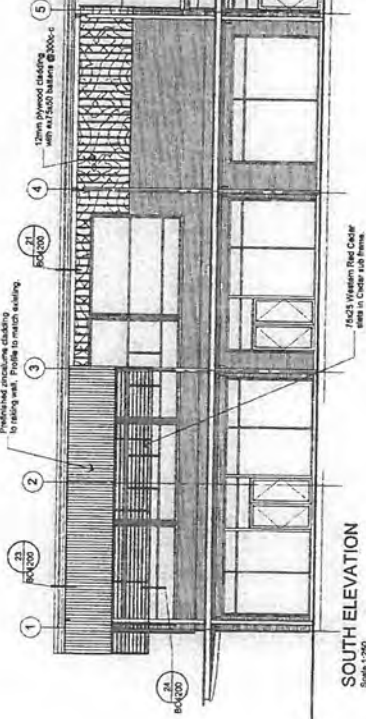


TCC172285

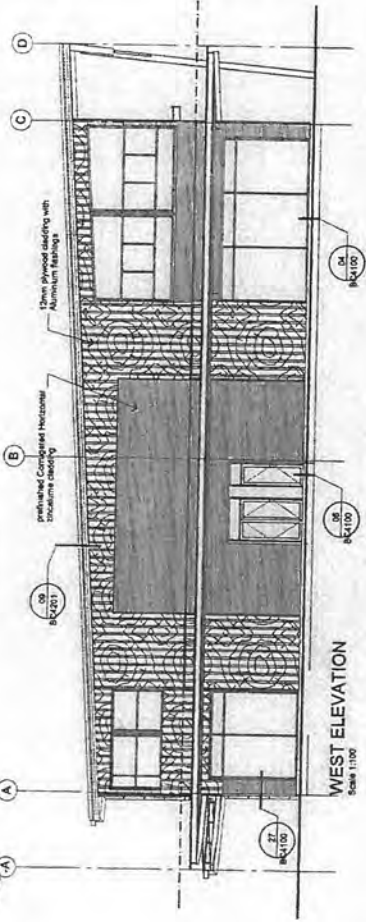
Regular Maintenance
checks of the exterior
should be undertaken
by the owner



EAST ELEVATION
Scale 1:100



SOUTH ELEVATION
Scale 1:200



WEST ELEVATION
Scale 1:100

DATE	REVISION	BY	DATE
14/01/2019	1	MG	01/05/2019



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LIMITED

**BLOCK G
BETHLEHEM
SHOPPING CENTRE**

ELEVATIONS

DATE	SCALE	PROJECT NO.	PROJECT NAME
14/01/2019	1:100	457-05-19	BC2000

TAURANGA CITY COUNCIL
PROJECT INFORMATION MEMORANDUM
23169
Refer to accompanying documentation

TCG172288

JOHN WILSON CONSULTING

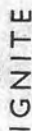


COMMUNITY COLLEGE

DATE	SCALE	PROJECT NO.	457-05-19
81 SEPTEMBER 1946			
DRAWN	CHECK	DRAWING NUMBER	
MG	CALM		
		BC2100	
		(A)	

THESE DEVICES REMAIN THE PROPERTY OF KENT
CONTRACTORS LTD AND SHOULD NOT BE LOANED IN ANY
FORM OR MANNER TO A THIRD PARTY WITHOUT
THE WRITTEN CONSENT

MS	MSRB	SP	LT
A	Building Contract	MD	01/09/06



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**BLOCK G
BETHLEHEM
SHOPPING CENTRE**

SECTIONS

DATE	61 SEPTEMBER 2004	SCALE
DRYING	MG	PROJECT NO.
		457-05-19
DRYING NUMBER		
BC2101		
(A)		

Selected cladding, refer elevation
over 250mm drained cavity with
underlays as specified.

35
4100

Precast concrete stairs
Refer engineers drawings

SECTION B-B
Scale 1:50

APPROVED

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— **Prefinished zinc-oxide roofing on underlays as specified on DHS purlins. Refer engineer's drawings.**

12

60179

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11/11/11

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[illegible]

CC172289



GENERAL NOTES

- [illegible]

A	Building Contact	MO	01/09/06
State	WYOMING	ST	State



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CONTRACT



BLOCK G
BETHLEHEM
SHOPPING CENTRE

2000

SECTIONS

DATE 61 SEPTEMBER 2004	SCALE
DESIGN MG	CHECK CM/M
PROJECT NO. 457-05-19	
DRAWING NUMBER BC2102	

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TCC172291

Peer Review Construction
on completion

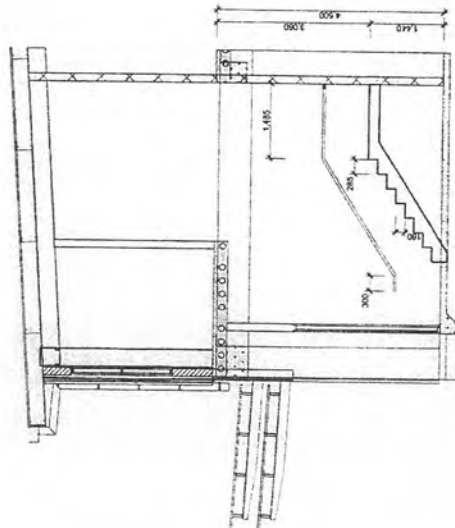
Max threshold 20mm

Accessible
Stairs

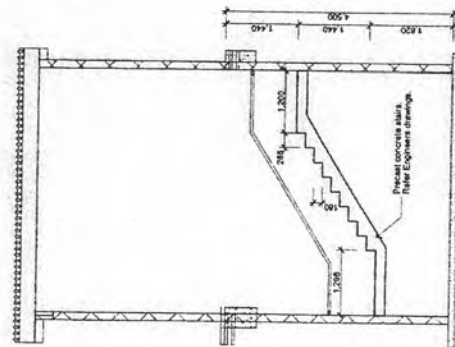
Handrail Both Sides

Note:
Schindler 5300 series lift to
provide disabled persons
access to first floor tenancy.

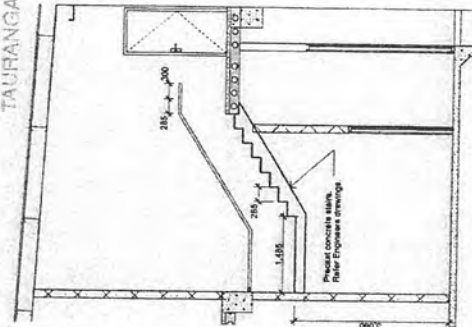
STAIR PLAN 1
Scale 1:50



SECTION S1
Scale 1:50



SECTION S2
Scale 1:50



SECTION S3
Scale 1:50

GENERAL NOTES

1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NZ BUILDING CODE.
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5. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NZ BUILDING CODE.

NO.	REVISION	DATE
1	ISSUED FOR PERMIT	01/09/19



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CLIENT



PROJECT
BLOCK G
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
STAIR PLAN 1

DATE	BY	REVISION	SCALE
01/09/19	MG	1	1:50

NO.	REVISION	DATE
1	ISSUED FOR PERMIT	01/09/19

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These plans are approved in accordance with
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TAURANGA CITY COUNCIL

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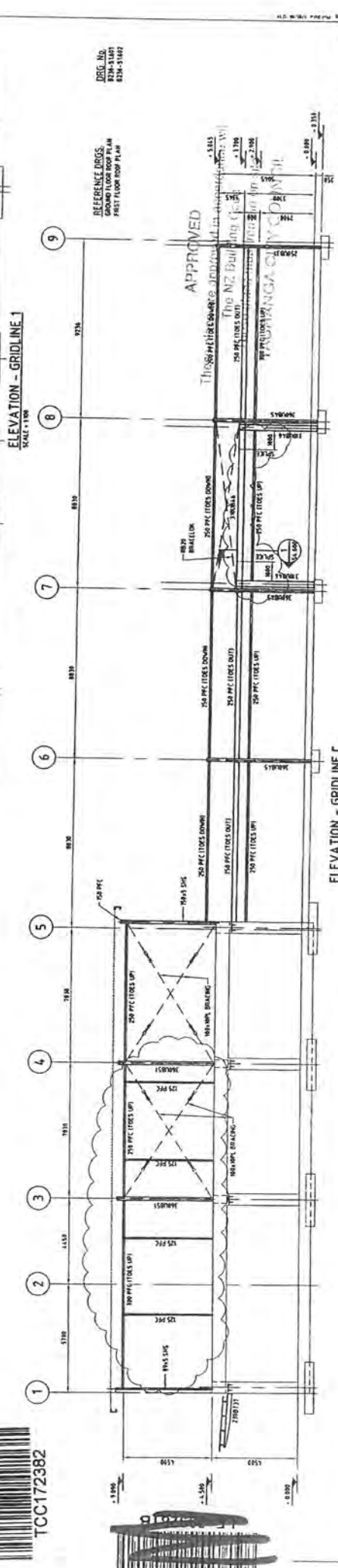
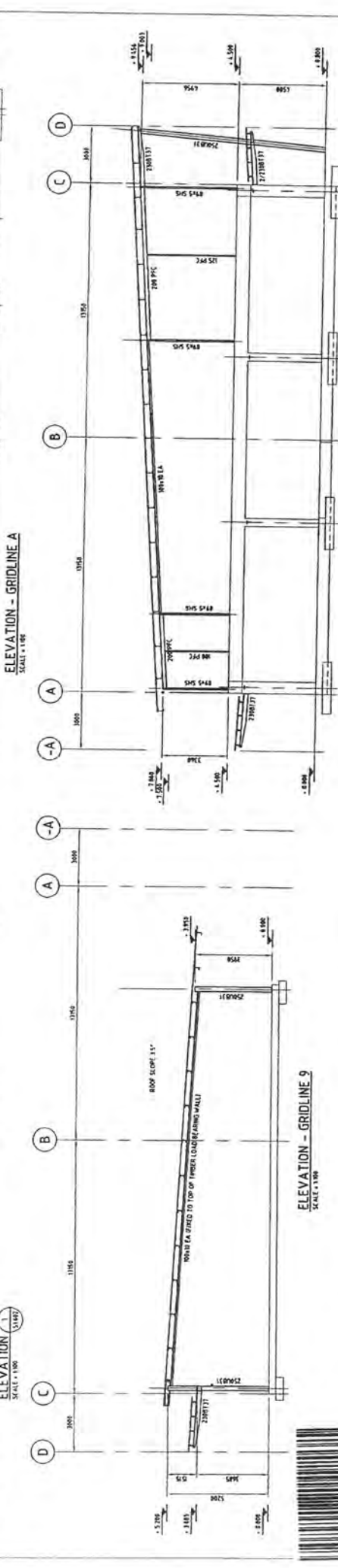
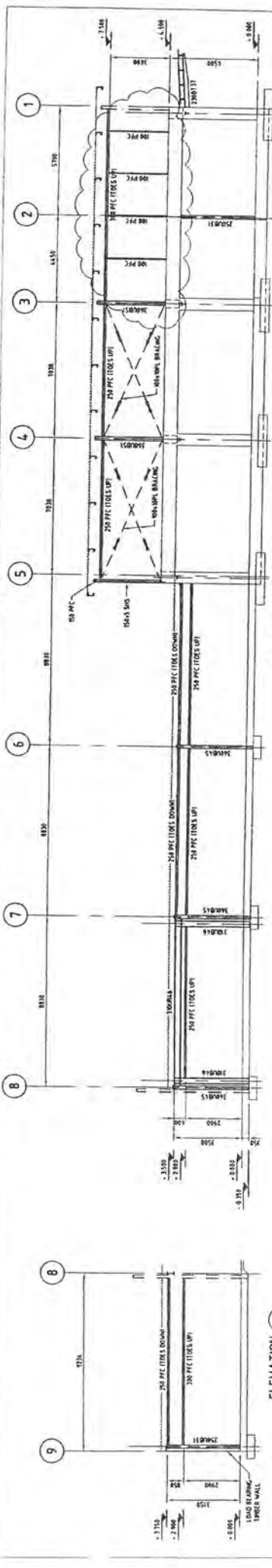
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CLIENT

DRAWING TITLE
SECTIONS

DATE	SCALE	PROJECT NO.	(F)
IN SEPTEMBER 1947	1:10 (BAL) 1:100 (BAL)	457-05-19	
DRAWN	CHECK	CHECK	
MG			
DRAWING NUMBER			
A2101			



CONSENT
NOT FOR CONSTRUCTION

Project No. B236

Scale 1:100 A1
1:200 A3

Drawing No. B236-S2.600

04

STRUCTURAL BLOCK G EXTERNAL ELEVATIONS

BETHLEHEM SHOPPING CENTRE STAGE 3

AMP capital INVESTORS

Connell Wagner

Connell Wagner Limited Incorporated
PO Box 1702, Newmarket, Auckland
1111, Newmarket, Auckland, New Zealand

Telephone: +64 9 172 4000
Facsimile: +64 9 172 4001
Email: info@connellwagner.co.nz

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01	01.09.06	CONSENT	
02	01.09.06	TENDER	
03	19.07.06	PRELIMINARY	
04	17.07.06	PRELIMINARY	

Drawn	Checked	Designed	Approved
G.D.	G.D.	D.P.L.	S.H.B.

DATE: 01.09.06

DATE: 01.09.06

DATE: 01.09.06

DATE: 01.09.06



DRG. No.
B236-S2.600
B236-S2.600

REFERENCE DRG.
GROUND FLOOR ROOF PLAN
FIRST FLOOR ROOF PLAN

APPROVED

The NZ Building Code

250 PFC (TIDES DOWN)

250 PFC (TIDES UP)

150x150x6 BRACING

150x150x6 BRACING

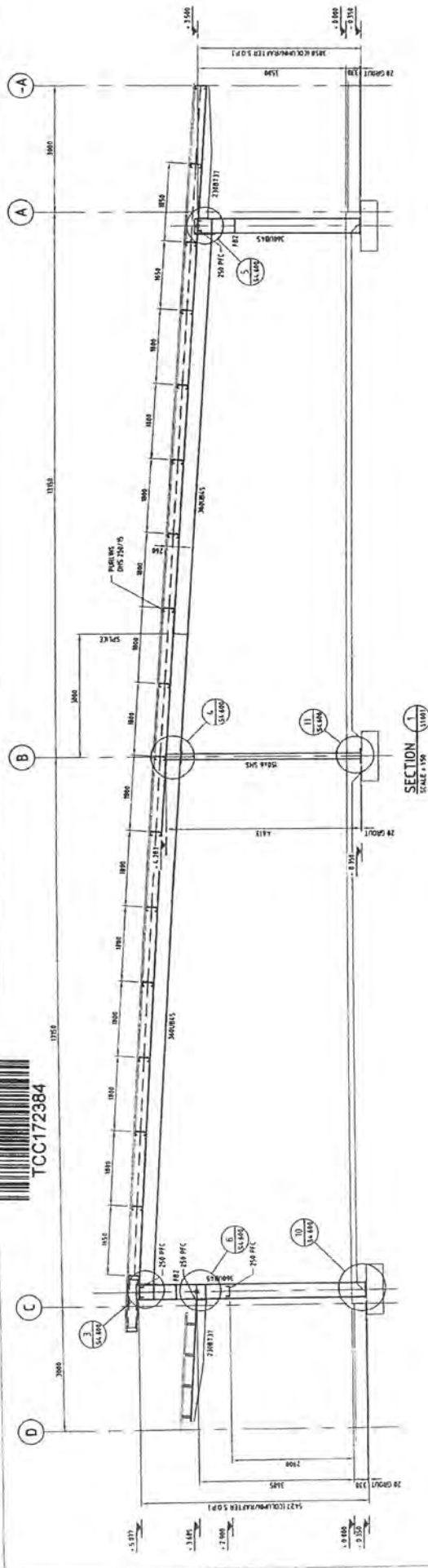
150x150x6 BRACING

150x150x6 BRACING

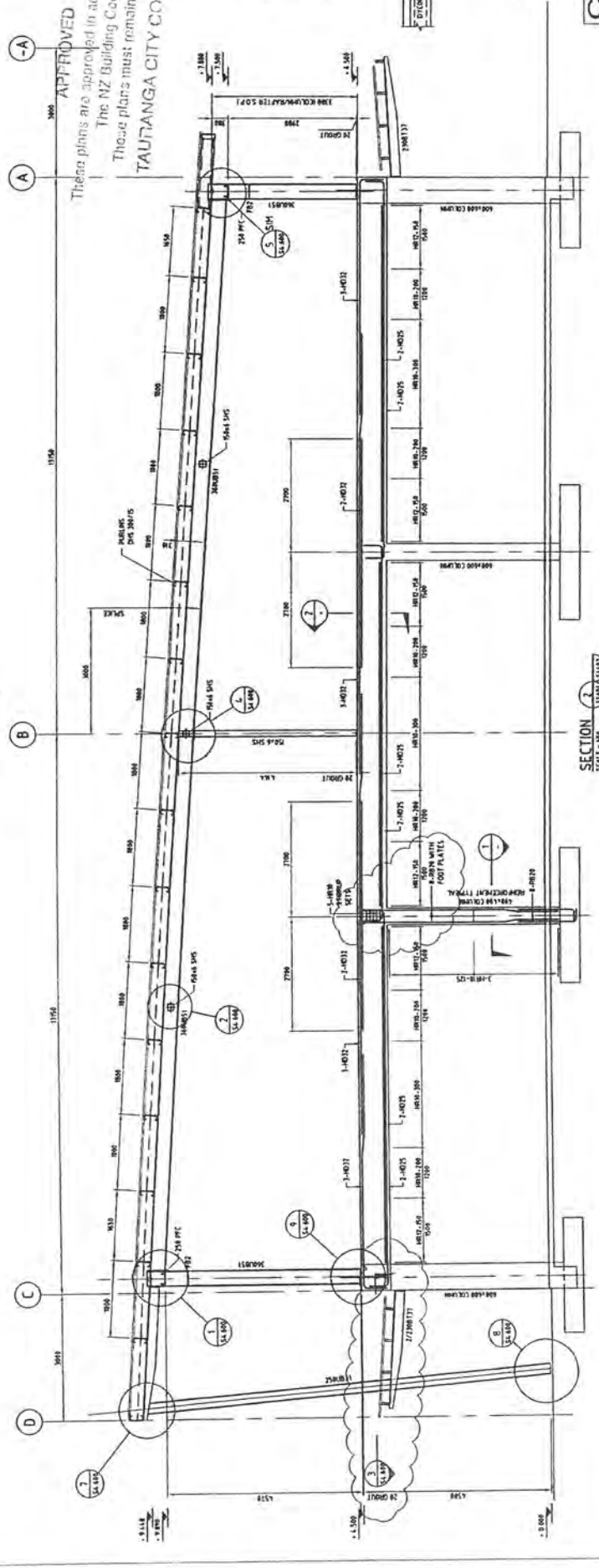
150x150x6 BRACING



TCC172384

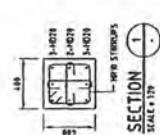


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SCALE = 1/50

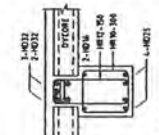


SECTION 2
SCALE = 1/50

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SECTION 1
SCALE = 1/20



SECTION 2
SCALE = 1/20

CONSENT
FOR CONSTRUCTION

Project No.	B236
Scale	1:50 A1
Drawn by	1209 AJ
Check by	1209 AJ
Drawn by	B236-S2.602
Check by	04

Client	BETHLEHEM SHOPPING CENTRE STAGE 3
Project	STRUCTURAL BLOCK G SECTIONS
Drawn	G.D.
Checked	G.D.
Designed	D.P.L.
Verified	P.B.
Approved	S.H.G.
Date	09.08.04
Date	09.08.04
Date	09.08.04
Date	09.08.04



Client
Cornell Wagner
Cornell Wagner Limited
100 New Zealand Road, Auckland
100 New Zealand Road, Auckland
100 New Zealand Road, Auckland
100 New Zealand Road, Auckland

Rev.	Date	Description	By	Ver.	App.
1	09.08.04	CONSENT			
2	09.08.04	ISSUED			
3	09.08.04	REVISIONARY			
4	09.08.04	PRELIMINARY			



APPROVED
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Rev.	Date	Description	Drwn.	Var.	App.
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
33	8/08/06	CONSENT	-	-	-
32	29/08/06	TENDER	-	-	-
31	26/08/06	PRELIMINARY	-	-	-
Rev.	Date	Description	Drwn.	Var.	App.

Connell Wagner

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 70 Rue des Capucins, Auckland
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Project:

**BETHLEHEM SHOPPING CENTRE
STAGE 3**

Drawing Title

**STRUCTURAL
BLOCK G
SECTIONS**

Project No.	Scale	Sheet No.	Sheet Total
B236	1:50 A1 1:100 A3	150	A1
	Drawing No.		Rev.
B236-S2.603			03

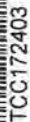
Project:

**BETHLEHEM SHOPPING CENTRE
STAGE 3**

Drawing Title

**STRUCTURAL
BLOCK G
SECTIONS**

Project No.	Scale	Sheet No.	Sheet Total
B236	1:50 A1 1:100 A3	150	A1
	Drawing No.		Rev.
B236-S2.603			03

[illegible]

Description:

Building H was designed in mid to late 2006 but it appears that a canopy addition was conducted in mid-2007 and modifications to the building canopy were carried out in 2008. We presume that these alterations occurred on completion of the main building envelope and the original drawings show that there were no alterations to the lateral load resisting system of the building.

This is a near rectangular single storey mono-pitch roof Block, with a triangular footprint extension on the western end of the south elevation. The building is located in almost the centre of the shopping complex and has its long axis orientated in a nominal east-west direction. It is a stand-alone building that is surrounded by car parking and landscaped areas. Block H is seismically isolated from all other buildings.

This building is a medium sized foot-print single storey, mono-pitched roof, retail type building, with 6 bays in the east-west longitudinal direction and 2 bays in the north-south transverse direction. There are now canopies on the north, west and part of the south elevation, however these are minor additions.

Construction of the warehouse type envelope consists of long-run metal mono-pitch roof sheeting over cold rolled steel purlins, supported on structural steel portal frame rafters, which are located on each primary transverse frame grid. Strangely there is a step that runs east west, in the roof plane, but this only occurs in the western section of the building and does not affect the seismic performance of that section. Each of the primary frame portal rafters is supported by structural steel portal columns at the span ends, and there are internal 150 x 6mm SHS columns at approximately mid-span of the portal rafters and as such these columns do not significantly contribute to the lateral load resisting stiffness and strength. The structural steel columns land on the conventional reinforced concrete pad foundations that are below the concrete on-grade slab. The strip footings and pad foundations that have been recorded as being reinforced concrete, although there are no sizes or reinforcement details given in the Block H set of structural drawings, there is a detail of the column connection to the foundations pad, and from the sizes drawn on the foundation plan, we assess the foundation arrangement and proportions as robust.

The canopies either have cold rolled steel purlins over structural steel rafters, supported on steel columns, and independent foundation pads or they are the cantilever type canopy that is more prevalent on the other Blocks. The high level canopy rafters are connected as an extension of the main structural rafters in the building envelope, and this provides adequate lateral stability. The low level ones are robustly fixed to the main portal columns with bolted connections, which again provides significant lateral stability.

The original architectural drawings call up that there is a combination of shop front glazing, and prefinished Zinalume, and plywood cladding, which represents a lightweight cladding system, on all elevations, except for part of the south elevation. A large section of the south elevation has 150mm thick full height precast reinforced concrete panels, which serve as both cladding and bracing panels.

There are 2 full bays of full width, diagonal structural steel rod and double purlin roof bracing, in the transverse direction. There are substantial parallel flange channel (PFC) eaves ties on the north and south elevations, and these appear to act as collector beams to distribute lateral loads from the roof plane bracing to the precast concrete panels loaded as in-plane shear walls.

The on-grade floor slab consists of a conventional mesh reinforced 125mm thick on-grade slab.

Seismic Load Resisting Structure:

The lateral load resisting system for the building envelope consists primarily of the diagonal structural steel roof bracing in conjunction with the precast reinforced concrete wall panels acting as in-plane loaded shear walls in the longitudinal direction. The transverse lateral loads in the north-south direction, are sustained by the structural steel moment resisting portal frames. It is most likely that the original design engineer apportioned the seismic loads in the building to the different structural elements in proportion to the tributary area. This is a common design technique and means that the various structural elements are designed to safely sustain the seismic loading attributed to them based on the vertical and horizontal area that they directly support. On this basis the southern precast concrete wall would be considered as capable of sustaining the seismic design actions generated by the self-weight of the wall, and the attached roof structure, by in-plane bending as a shear wall, as well as sustaining the seismic shears transferred from the roof bracing.

In the drawings specifically for this Block, there are no details of the reinforcement in the precast concrete wall panels and likewise there are no specific details of the foundations (there are not even sizes in the key notes), or their connections to the wall panels, however, we have discovered sheets of 'Typical Details' which describe the structural elements missing off the Block specific drawings. Anyway, it is typical for the precast concrete wall panels to have been designed to sustain the post-fire lateral loads by cantilever action above the on-grade floor slab, and we see no reason why this would not be the case for this building. This feature represents a redundancy in the lateral load resisting system.

Whilst there is paucity in the detail obtained from information contained in the property file, specifically for this Block, however, when read with the 'Typical Details' for 'Stage 1' it is sufficiently comprehensive that it allows us to make a robust assessment of the likely seismic performance of the building at a level of certainty well above that generally associated with an ISA.

No severe structural weaknesses or critical structural weaknesses have been detected in this building structure.

There are no alterations or modifications to the building recorded in the documentation that would have any effect on the lateral load resisting system.

Seismic Assessment:

We have used the following parameters in the ISA assessment.

- Building era 2004 – 2011.
- Seismic Zone B, Tauranga.
- Class D soft soil.
- Natural period 0.4 seconds, (this is based on the structural steel diagonal roof bracing distributing the lateral loads to the full height precast reinforced concrete wall panels in the south elevation, acting as in-plane loaded shear walls in the longitudinal direction. In the transverse direction there are structural steel moment resisting portal frames which suggests that the natural period could be somewhat longer for these elements. This is addressed in the Performance Achievement Ratio (PAR) section).
- Building Importance Level 2.
- Structural Ductility factor 1.25 (this is based on the roof plane diagonal bracing and the in-plane loaded reinforced concrete wall panels and is conservative for the structural steel portal frames).

- Plan irregularity 1.0 (this value has been selected despite the asymmetric arrangement of the lateral load resisting walls in both directions. The reason is that because of the type of construction, the design philosophy for the building was no doubt that it would act as a series of discrete tributary loaded resisting structural elements. This is addressed in the PAR section).
- Vertical irregularity 1.0.
- Pounding Potential 1.0 (because the building has no neighbours).
- Site Characteristics 1.0 (because there is no recorded risk of liquefaction or site instability).
- Performance Achievement Ratio 1.1. (This is based on the regularity, pounding and site factors as detailed above but includes an enhancement 'other' factor of 1.1 which is less than the maximum of 2.5 available for buildings less than or equal to 3 storeys. This 'other factor' was selected because the natural period is arguably too short, and the ductility factor too low, for the moment resisting structural steel portal frames. Also, the precast concrete wall panels have no doubt been designed and detailed to sustain the post fire lateral load whilst acting as face loaded cantilevers above the foundation and on-grade slab, and this represents another redundancy in the system. The structural framing drawings show two panels of steel diagonal bracing above steel framing built into the north elevation, above the shop front framing. We interpret this as representing another longitudinal line of lateral load resistance and therefore another redundancy. All of these factors have been nominally recognised by an 'other factor' of 1.1).

Seismic Rating and Grade:

The Baseline rating of 100% NBS is modified by the Performance Achievement Ratio of 1.1 resulting in a Seismic Rating of >100% NBS which makes this Block H building neither an Earthquake Risk nor Earthquake Prone.

Rating >100% NBS.
Grade A+.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

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:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block H	Date:	16/04/2021
City:	Tauranga	Revision No.:	A

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)

Refer to report details

1.4 Note information sources

Tick as appropriate

Visual Inspection of Exterior
Visual Inspection of Interior
Drawings (note type)

☒ ☐ ☒

Specifications
Geotechnical Reports
Other (list)

☐ ☒ ☐

Property File.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 2

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block H	Date:	16/04/2021
City:	Tauranga	Revision No.:	A

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}

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

Longitudinal

☐

N/A

Transverse

☐

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 ☐

- 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, CI 3.1.3 :

D Soft Soil

From NZS4203:1992, CI 4.6.2.2 :
(for 1992 to 2004 and only if known)

Not applicable

D Soft Soil

Not applicable

d) Estimate Period, T

Comment:

$h_n = 5$

$A_c = 1.00$

5 m

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: $T \leq 0.4\text{sec}$
- 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: 1.00

1.00

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} 100%

100%

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 3

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
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Table IEP-2 Initial Evaluation Procedure Step 2 continued

2.2 Near Fault Scaling Factor, Factor E

If $T \leq 1.5\text{sec}$, Factor E = 1a) Near Fault Factor, $N(T,D)$

(from NZS1170.5:2004, Cl 3.1.6)

Longitudinal

N(T,D): 1

Transverse

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: Tauranga

Refer right for user-defined locations

Z = 0.2

(from NZS1170.5:2004, Table 3.3)

Z₁₉₉₂ = 0.85

(NZS4203:1992 Zone Factor from accompanying Figure 3.5(b))

Z₂₀₀₄ = 0.2

(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: 1.00

1.00

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.)

I = 1

1

b) Design Risk Factor, R_d

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

 $R_d = 1$

1

c) Return Period Factor, R

(from NZS1170.0:2004 Building Importance Level)

Choose Importance Level

☐ 1 ☒ 2 ☐ 3 ☐ 4☐ 1 ☒ 2 ☐ 3 ☐ 4

R = 1.0

1.0

d) Factor G

 $= IR_d/R$

Factor G: 1.00

1.00

2.5 Ductility Scaling Factor, Factor H

a) Available Displacement Ductility Within Existing Structure

Comment:

 $\mu = 1.25$

1.25

b) Factor H

For pre 1976 (maximum of 2)
For 1976 onwards $= k_u$
 $= 1.14$
 $= 1$ k_u
1.14
1

Factor H: 1.00

1.00

(where k_u 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

☐
 $S_p = 0.93$ ☐
0.93

b) Structural Performance Scaling Factor

 $= 1/S_p$

Factor I: 1.00

1.00

Note Factor B values for 1992 to 2004 have been multiplied by 0.67 to account for S_p in this period2.7 Baseline %NBS for Building, (%NBS)_b(equals (%NBS)_{nom} x E x F x G x H x I)

100%

100%

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 5

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
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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

potential CSWs	Effect on Structural Performance (Choose a value - Do not interpolate)	Factors
3.1 Plan Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment		Factor A 1.0
3.2 Vertical Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment		Factor B 1.0
3.3 Short Columns Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment		Factor C 1.0

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 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant Sep>.01H
Separation				
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
Comment				

b) Factor D2: - Height Difference Effect

Factor D2 For Transverse Direction:				1.0
Table for Selection of Factor D2				
	Severe 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant 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	
Comment				

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
 Comment

Factor E 1.0

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

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

Factor F 1.10

Record rationale for choice of Factor F:

Refer to report

3.7 Performance Achievement Ratio (PAR)

(equals A x B x C x D x E x F)

PAR
 Transverse 1.10

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 6

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block H	Date:	16/04/2021
City:	Tauranga	Revision No.:	A

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)	100%	100%
4.2 Performance Achievement Ratio (PAR) (from Table IEP - 2)	1.10	1.10
4.3 PAR x Baseline (%NBS) _b	>100%	>100%
4.4 Percentage New Building Standard (%NBS) - Seismic Rating (Use lower of two values from Step 4.3)		>100%

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)

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

WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of 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.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 7

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
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Name of building:	Block H	Date:	16/04/2021
City:	Tauranga	Revision No.:	A

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. Light and top storey

IEP Assessment Confirmed by  Signature

S R Mitchell

Name

70562

CPEng. No

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GENERAL NOTES

1. DO NOT SCALE OFF DRAWING.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS ON SITE.
3. ARCHITECTS TO BE ADVISED OF ANY VARIATIONS BETWEEN SITE CONDITIONS AND THOSE ON PLANS.
4. THESE DRAWINGS REMAIN THE PROPERTY OF CLIENT AND ARE NOT TO BE REPRODUCED OR COPIED IN ANY FORM WITHOUT THE WRITTEN PERMISSION OF THE ARCHITECT.



NO.	REVISION	DATE
1	ISSUE	10.08.06
2	REVISION	10.08.06
3	REVISION	10.08.06
4	REVISION	10.08.06
5	REVISION	10.08.06
6	REVISION	10.08.06
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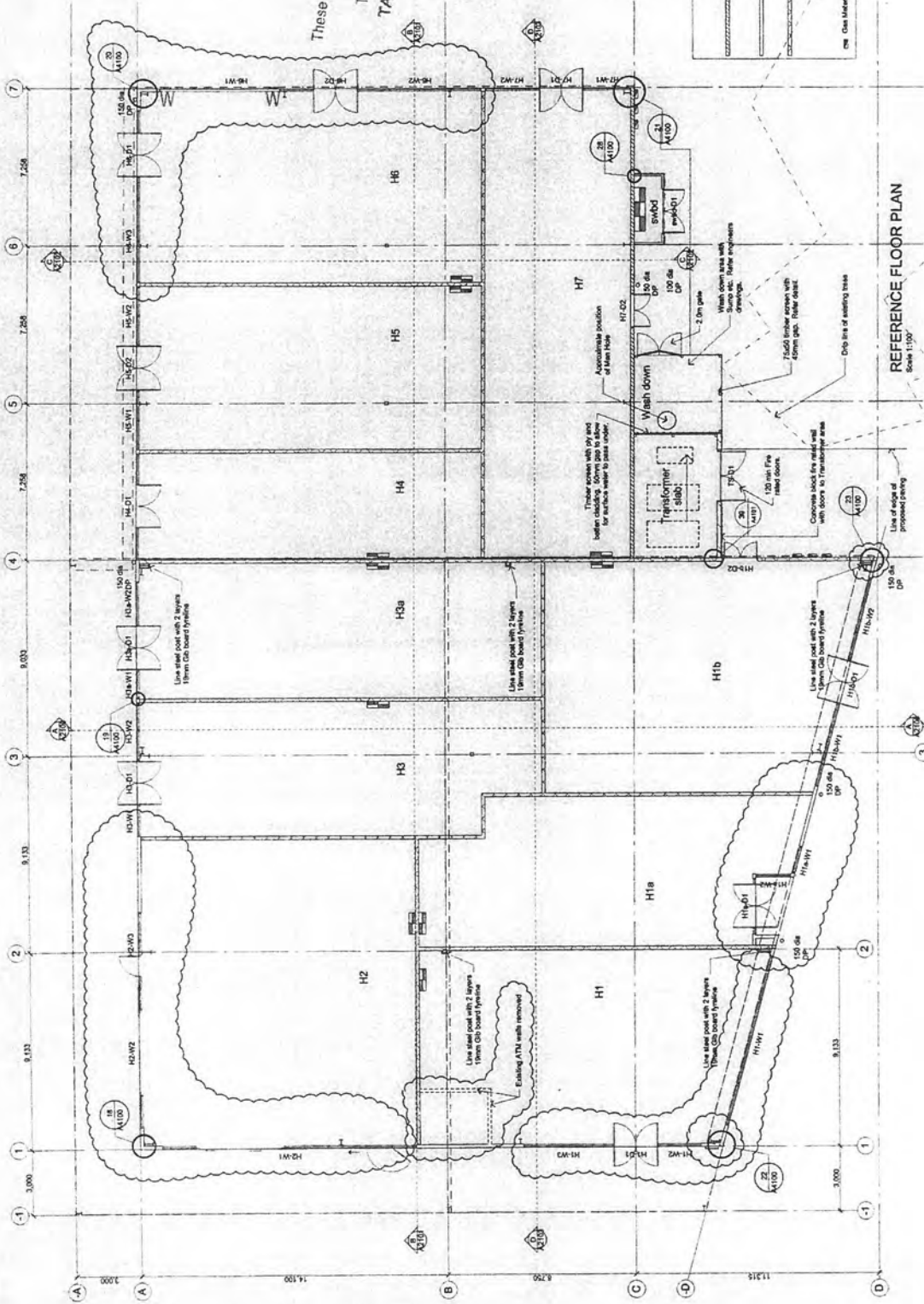


PROJECT
BLOCK H
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
REFERENCE FLOOR PLAN

DATE	SCALE
12 AUGUST 2007	1:200 @ A1
DRAWN	CHECK
MG	CS
PROJECT NO.	457-05-19
DRAWING NO.	A1300

APPROVED
These plans are approved in accordance with the NZ Building Code.
These plans must remain on file.
TAURANGA CITY COUNCIL

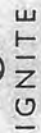


REFERENCE FLOOR PLAN
Scale 1:100

GENERAL NOTES
 DIMENSIONS AND TOLERANCES UNLESS OTHERWISE SPECIFIED

CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS ON SITE.

APPROVED
These plans are approved in accordance with the provisions of the Resource Management Act 1991.
The NZ Building Code requires that these plans must remain on file for 10 years.
TAURANGA CITY COUNCIL

[illegible]

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CONT

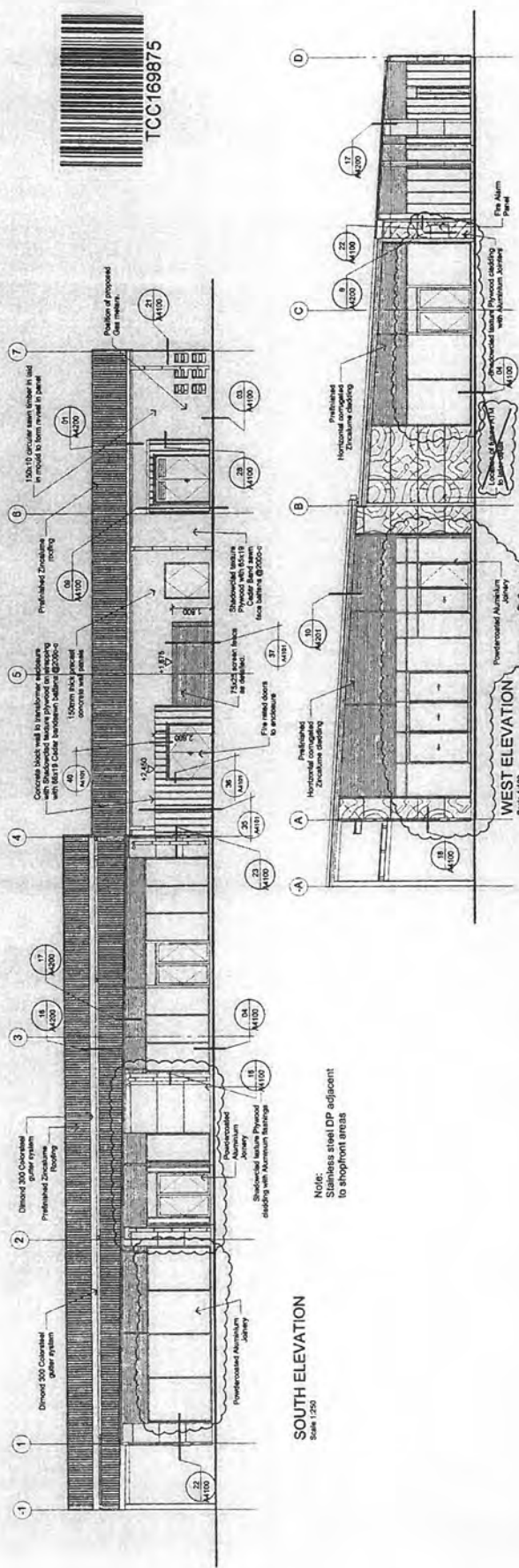
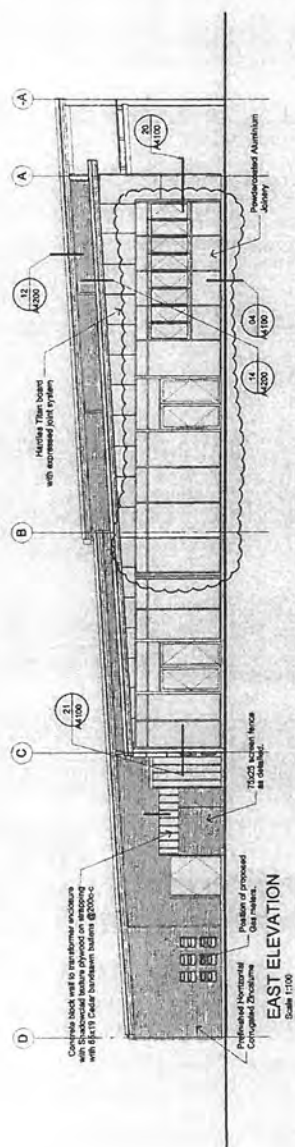
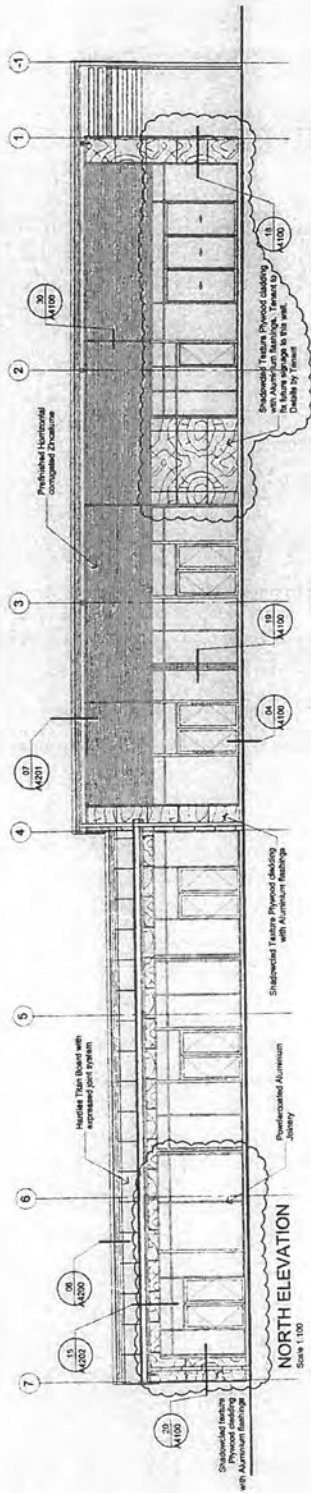


PROJECT
BLOCK H
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE

ELEVATIONS

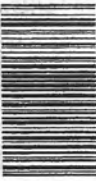
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GENERAL NOTES

1. ON NOT FALL OFF DRAWING
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS ON SITE
3. MATERIALS TO BE SPECIFIED BY THE ARCHITECT
4. FINISHES TO BE SPECIFIED BY THE ARCHITECT
5. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED
6. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED
7. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED
8. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED
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10. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED

TCC172956



DATE	REVISION	BY	CHK
11.07.20	1	MG	MG



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CLIENT



**BLOCK B
BETHLEHEM
SHOPPING CENTRE**

DATE

SCALE

11 JULY 2014

PROJECT NO.

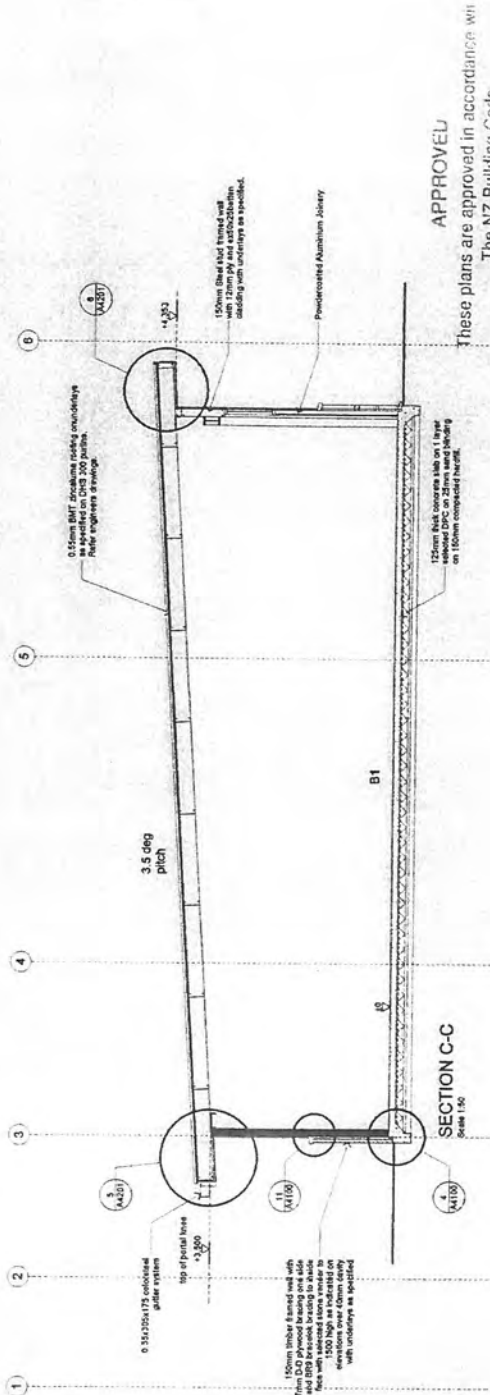
457-05-19

DRAWING NAME

A2101

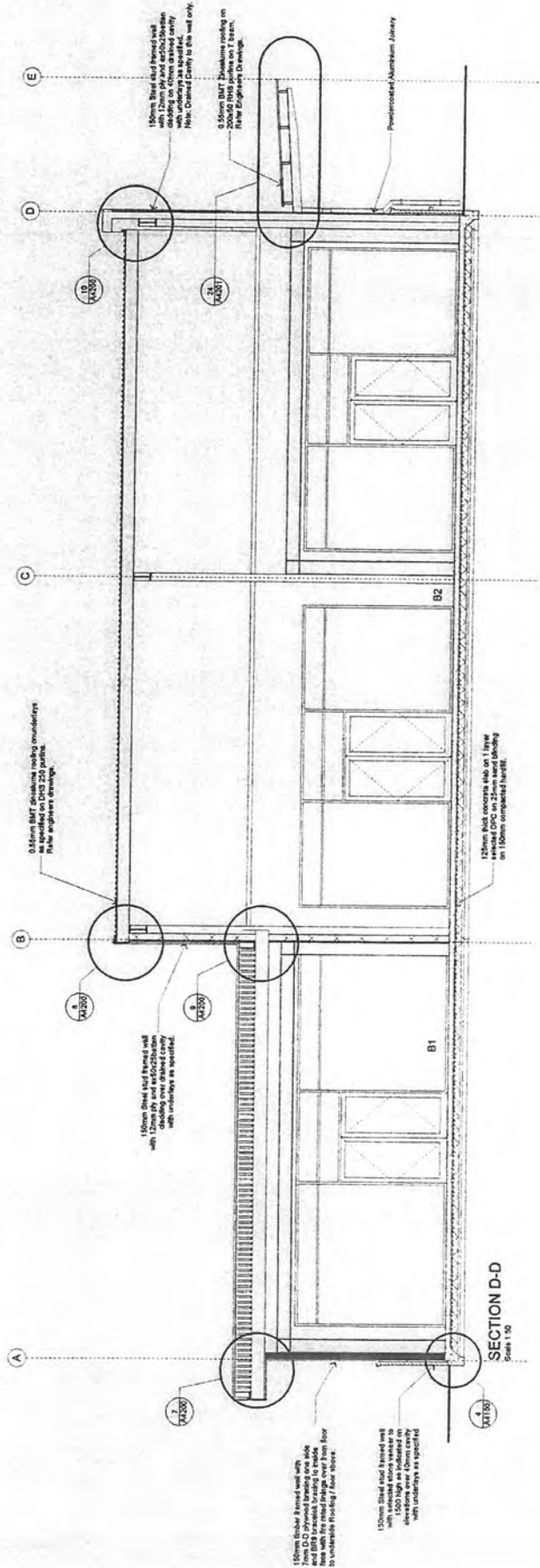
(A)

SECTIONS



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GENERAL NOTES

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—



1010

**BLOCK H
BETHLEHEM
SHOPPING CENTRE**

SAVING 1171.6

SECTIONS

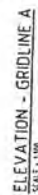
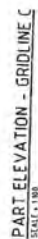
DATE	SCALE	PROJECT NO.
01 SEPTEMBER 2006		457-05-19
DRAWN	CHECK	
MG	CHAM	

DRAWING NUMBER
 BC2102

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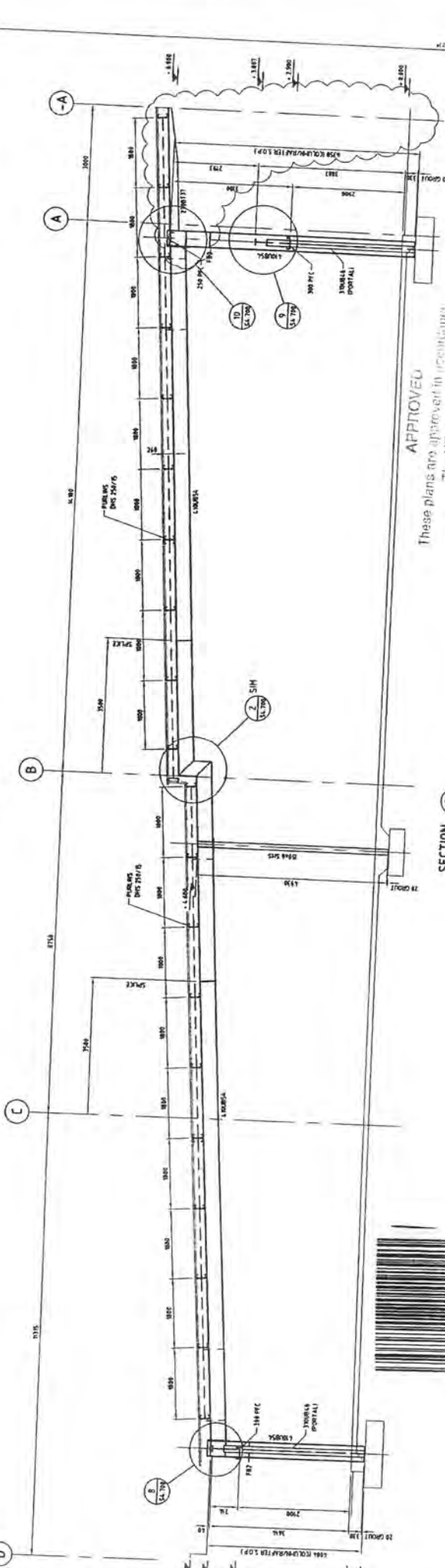
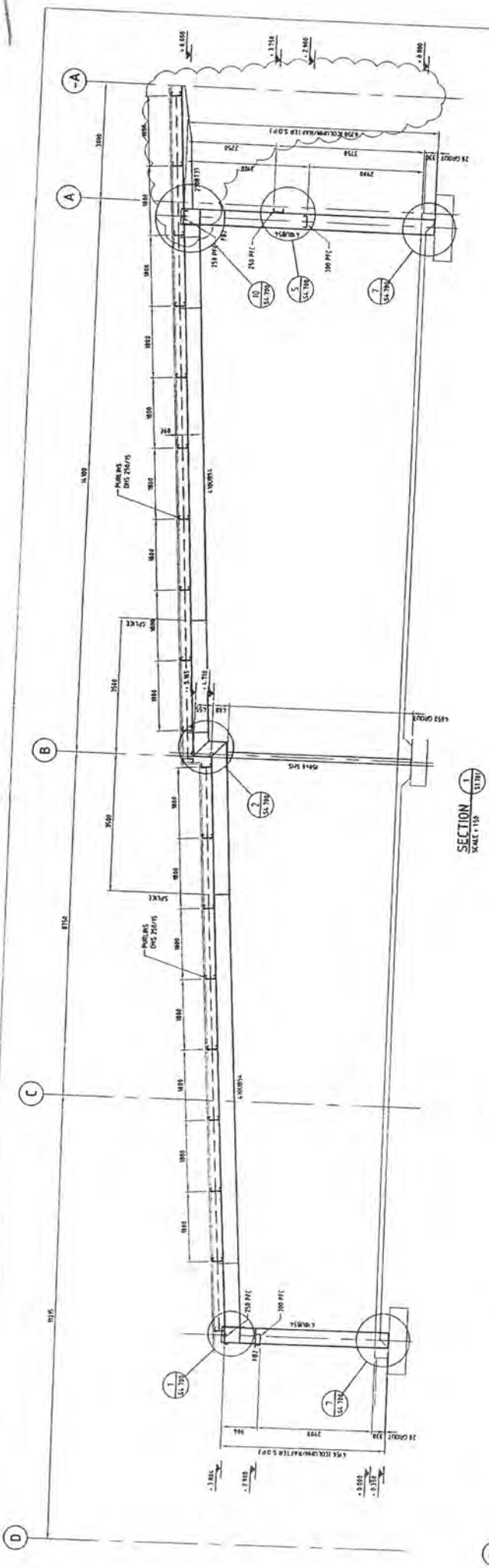
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CONSENT	
NOT FOR CONSTRUCTION	
Project No.	B236
Scale	1:50 A1
Sheet No.	1:100 A3
Drawing No.	B236-S2.701
Date	04

BETHLEHEM SHOPPING CENTRE STAGE 3	
STRUCTURAL BLOCK H SECTIONS	
Drawn	Checked
Designed	Reviewed
Verified	Approved
Date	Date
By	By
For	For

Client	
AMP capital INVESTORS	
Project	
BETHLEHEM SHOPPING CENTRE STAGE 3	

Consulting Engineer	
Cornell Wagner	
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Revisions	
Rev	Date
01	01/08/06
02	09/08/06
03	17/07/06
04	17/07/06
05	17/07/06
06	17/07/06
07	17/07/06
08	17/07/06
09	17/07/06
10	17/07/06

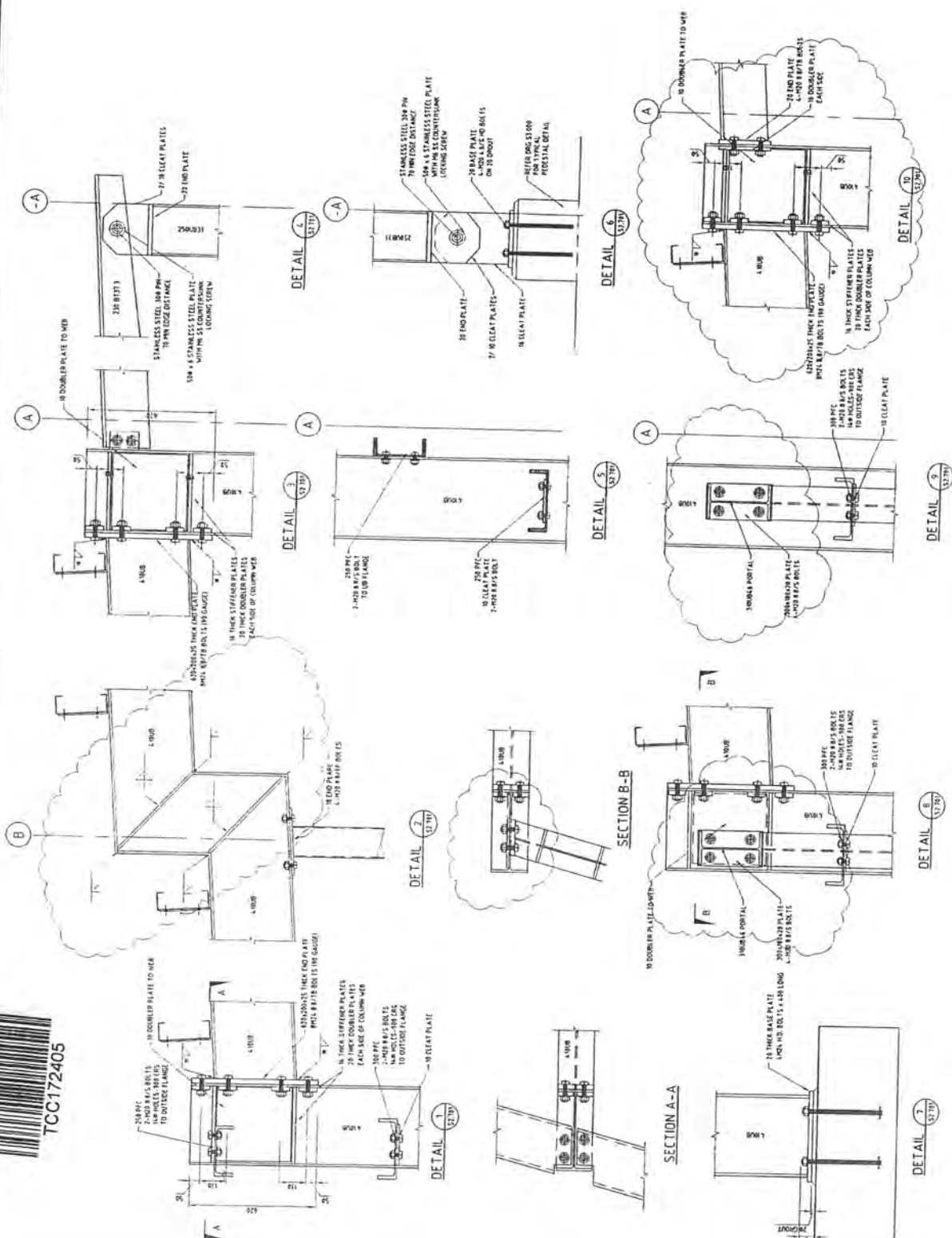
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Date	
By	
For	



TCC172364



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Rev	Date	Revision Details	Drn	Ver	App
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02	01/09/06	CONSIST	-	-	-
01	01/03/06	TENDER	-	-	-

Connell Wagner

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 18 Berrymore Road, Auckland
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Project

**BETHLEHEM SHOPPING CENTRE
STAGE 3**

Project No

B236

Client

AMP capital INVESTORS

Drawn By

Structural

Drawn Date

01/03/06

Check By

Structural

Check Date

01/03/06

Check Date

01/03/06

Scale

1:20 A3

Sheet Size

A1

Sheet No

02

Drawn By

Structural

Drawn Date

01/03/06

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Scale

1:20 A3

Sheet Size

A1

Sheet No

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Drawn By

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Scale

1:20 A3

Sheet Size

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Sheet No

02

Drawn By

Structural

Drawn Date

01/03/06

Drawn Date

01/03/06



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These plans were reviewed in accordance with
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1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Cornell Wagner Cornell Wagner Limited Liability Company 400 West 10th Street, Suite 100 Minneapolis, MN 55401 Tel: 612.338.1000 Fax: 612.338.1001 Email: info@cornellwagner.com AMP capital INVESTORS																																																																																																			
Project: BETHLEHEM SHOPPING CENTRE STAGE 3 Drawn: J.D. Checked: J.D. Verified: J.D. Approved: J.D. Scale: 1:10 A1 1:20 A3 1:40 A4																																																																																																			
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Contract No.: B236 Sheet No.: B236-S4.701 Sheet Size: A1																																																																																																			

Description:

Building J was designed in mid to late 2006. This Block has an L shaped floor plate consisting of a long eastern rectangle that is parallel to Bethlehem Road, and another near rectangular section that projects from the western side of the long rectangle, toward the west. It is a single storey mono-pitch roof Block, with 2 different roof levels over the east section, both with the same pitch direction, and an orthogonal pitch direction over the west section. In this respect the building has complexity, but in all other respects it is very simple.

The building is located in almost the centre of the shopping complex but toward the eastern boundary and has its long axis orientated in a nominal north-south direction. It is a stand-alone building that is surrounded by car parking, road access, and landscaped areas. Block J is seismically isolated from all other buildings.

This building is a medium sized foot-print single storey, mono-pitched roof retail type building, with 6 bays in the north-south longitudinal direction in the east section, and either 1 or 2 bays in the west section. It has a single bay in the east-west transverse direction, in the east section, and 4 bays in the transverse direction in the west section. There are canopies on the north and east elevations, however these are relatively small and minor in construction.

Construction of the warehouse type envelope consists of long-run metal mono-pitch roof sheeting over cold rolled steel purlins, supported on structural steel portal frame rafters, which are located on each primary transverse frame grid in the east section, and every primary longitudinal grid in the west section. There is a step in the roof plane between the east and west sections because of the different pitch directions, and there is a step in the roof plane between the south half of the east section and the north half. Each of the primary frame portal rafters is supported by structural steel portal columns at the span ends, and there are internal 150 x 6mm SHS columns at approximately mid-span of the portal rafters in the west section and as such these columns do not significantly contribute to the lateral load resisting stiffness and strength. The structural steel columns land on the conventional reinforced concrete pad foundations that are below the concrete on-grade slab. The strip footings and pad foundations that have been recorded as being reinforced concrete, although there are no sizes or reinforcement details given in the Block J set of structural drawings, there is a detail of the column connection to the foundations pad, and from the sizes drawn on the foundation plan, we assess the foundation arrangement and proportions as robust.

The canopies are the cantilever type canopy that is more prevalent on the other Blocks and consist of T section steel rafters robustly fixed to the main portal columns with bolted connections, and RHS purlins. The canopies are small, and these connections provide adequate lateral stability.

The original architectural drawings call up that there is a combination of shop front glazing, and prefinished Zincalume, and plywood cladding, which represents a lightweight cladding system, on all elevations, except for part of the south elevation. There are large sections of 150mm thick full height precast concrete panels on the south elevation of both the east and west sections, and also on the west elevation of the east section. These panels serve as both cladding and bracing panels.

There are 2 full bays of full width diagonal structural steel rod and double purlin roof bracing in the transverse direction in the east section and a full bay of full width roof bracing in the longitudinal direction, in the west section. There are substantial parallel flange channel (PFC) eaves ties on virtually all of the elevations, and these appear to act as collector

beams to distribute lateral loads from the roof plane bracing to the precast concrete panels loaded as in-plane shear walls.

The on-grade floor slab consists of a conventional mesh reinforced 125mm thick on-grade slab.

Seismic Load Resisting Structure:

The lateral load resisting system for the building envelope consists primarily of the diagonal structural steel roof bracing in conjunction with the precast reinforced concrete wall panels acting as in-plane loaded shear walls, in both the transverse and the longitudinal direction. The transverse lateral loads (in the east-west direction) in the east section are also sustained by the structural steel moment resisting portal frames, and the longitudinal loads (in the north-south direction) in the west section are sustained by the structural steel moment resisting portal frames.

It is most likely that the original design engineer apportioned the seismic loads in the building to the different structural elements in proportion to the tributary area. This is a common design technique and means that the various structural elements are designed to safely sustain the seismic loading attributed to them based on the vertical and horizontal area that they directly support. On this basis the precast concrete walls would be considered as capable of sustaining the seismic design actions generated by the self-weight of the wall and the attached roof structure, by in-plane bending as a shear wall as well as sustaining the seismic shears transferred from the roof bracing. Where there are steel portals not directly connected to the concrete wall panels by bolted connections, through eaves ties, or through the connection of roof plane bracing, then those portal frames would be designed to sustain the load apportioned to them. In all, this results in a series of primary and secondary lateral load resisting systems and the seismic actions would be shared between them, effectively generating significant redundancy in the lateral load resisting system.

In the drawings specifically for this Block, there are no details of the reinforcement in the precast concrete wall panels and likewise there are no specific details of the foundations (there are not even sizes in the key notes), or their connections to the wall panels, however, we have discovered sheets of 'Typical Details' which describe the structural elements missing off the Block specific drawings. Anyway, it is typical for the precast concrete wall panels to have been designed to sustain the post-fire lateral loads by cantilever action above the on-grade floor slab, and we see no reason why this would not be the case for this building. This feature represents another redundancy in the lateral load resisting system.

Whilst there is paucity in the detail obtained from information contained in the property file, specifically for this Block, however, when read with the 'Typical Details' for 'Stage 1' it is sufficiently comprehensive that it allows us to make a robust assessment of the likely seismic performance of the building at a level of certainty well above that generally associated with an ISA.

No severe structural weaknesses or critical structural weaknesses have been detected in this building structure.

There are no alterations or modifications to the building recorded in the documentation that would have any effect on the lateral load resisting system.

Seismic Assessment:

We have used the following parameters in the ISA assessment.

- Building era 2004 – 2011.
- Seismic Zone B, Tauranga.
- Class D soft soil.

- Natural period 0.4 seconds, (this is based on the structural steel diagonal roof bracing distributing the lateral loads to the full height precast reinforced concrete wall panels acting as in-plane loaded shear walls in both of the principal directions. There are structural steel moment resisting portal frames in both principal directions which suggests that the natural period could be somewhat longer for these elements. This is addressed in the Performance Achievement Ratio (PAR) section).
- Building Importance Level 2.
- Structural Ductility factor 1.25 (this is based on the roof plane diagonal bracing and the in-plane loaded reinforced concrete wall panels, and is conservative for the structural steel portal frames).
- Plan irregularity 1.0 (this value has been selected despite the asymmetric arrangement of the lateral load resisting walls in both directions. The reason is that because of the type of construction, the design philosophy for the building was no doubt that it would act as a series of discrete tributary loaded resisting structural elements. This is addressed in the PAR section).
- Vertical irregularity 1.0.
- Pounding Potential 1.0 (because the building has no neighbours).
- Site Characteristics 1.0 (because there is no recorded risk of liquefaction or site instability).
- Performance Achievement Ratio 1.2. (This is based on the regularity, pounding and site factors as detailed above but includes an enhancement 'other' factor of 1.2 which is less than the maximum of 2.5 available for buildings less than or equal to 3 storeys. This 'other factor' was selected because the natural period is arguably too short, and the ductility factor too low, for the moment resisting structural steel portal frames, which are in both principal directions. Also, the precast concrete wall panels have no doubt been designed and detailed to sustain the post fire lateral load whilst acting as face loaded cantilevers above the foundation and on-grade slab, and this represents another redundancy in the system. All of these factors have been nominally recognised by an 'other factor' of 1.2).

Seismic Rating and Grade:

The Baseline rating of 100% NBS is modified by the Performance Achievement Ratio of 1.2 resulting in a Seismic Rating of >100% NBS which makes this Block H building neither an Earthquake Risk nor Earthquake Prone.

Rating >100% NBS.

Grade A+.

Page 1

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block J	Date:	19/04/2021
City:	Tauranga	Revision No.:	A

NOTE: THERE ARE MORE PHOTOS ON PAGE 1a ATTACHED

NOTE: THERE ARE MORE SKETCHES ON PAGE 1a ATTACHED

Refer to report details.

☐	
☒	
☐	

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 2

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block J	Date:	19/04/2021
City:	Tauranga	Revision No.:	A

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}

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 ☐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)

Not applicable

Not applicable

d) Estimate Period, T

Comment:

h_m = 5A_c = 1.00

5 m

1.00 m²

Moment Resisting Concrete Frames:

T = max(0.09h_m^{0.75}, 0.4)☐

Moment Resisting Steel Frames:

T = max(0.14h_m^{0.75}, 0.4)☐

Eccentrically Braced Steel Frames:

T = max(0.08h_m^{0.75}, 0.4)☐

All Other Frame Structures:

T = max(0.06h_m^{0.75}, 0.4)☐

Concrete Shear Walls:

T = max(0.09h_m^{0.75}/A_c^{0.5}, 0.4)☐

Masonry Shear Walls:

T ≤ 0.4sec

☐

User Defined (input Period):

☒Where h_m = 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: 1.00

1.00

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} 100%

100%

WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of 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.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 3

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block J	Date:	19/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-2 Initial Evaluation Procedure Step 2 continued

2.2 Near Fault Scaling Factor, Factor E

If $T \leq 1.5\text{sec}$, Factor E = 1a) Near Fault Factor, $N(T,D)$

(from NZS1170.5:2004, Cl 3.1.6)

Longitudinal

 $N(T,D)$: 1

Transverse

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: Tauranga

Refer right for user-defined locations

 $Z = 0.2$ (from NZS1170.5:2004, Table 3.3) $Z_{1992} = 0.85$ (NZS4203:1992 Zone Factor from accompanying Figure 3.5(b)) $Z_{2004} = 0.2$ (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: 1.00

1.00

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.)

 $I = 1$

1

b) Design Risk Factor, R_o

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

 $R_o = 1$

1

c) Return Period Factor, R

(from NZS1170.0:2004 Building Importance Level)

Choose Importance Level

☐ 1 ☒ 2 ☐ 3 ☐ 4☐ 1 ☒ 2 ☐ 3 ☐ 4 $R = 1.0$

1.0

d) Factor G

 $= I R_o / R$

Factor G: 1.00

1.00

2.5 Ductility Scaling Factor, Factor H

a) Available Displacement Ductility Within Existing Structure

Comment:

 $\mu = 1.25$

1.25

b) Factor H

For pre 1976 (maximum of 2)
For 1976 onwards $= k_u$
 $= 1.14$
 $= 1$

Factor H: 1.00

 k_u
1.14
1
1.00(where k_u 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

☐
 $S_p = 0.93$ ☐
0.93

b) Structural Performance Scaling Factor

 $= 1/S_p$

Factor I: 1.00

1.00

Note Factor B values for 1992 to 2004 have been multiplied by 0.67 to account for S_p in this period2.7 Baseline %NBS for Building, (%NBS)_b(equals (%NBS)_{nom} x E x F x G x H x I)

100%

100%

WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of 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.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 4

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block J	Date:	19/04/2021
City:	Tauranga	Revision No.:	A

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 Comment	Factor A	1.0
3.2 Vertical Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment	Factor B	1.0
3.3 Short Columns Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment	Factor C	1.0

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	Separation		
	Severe 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant 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
Comment			

b) Factor D2: - Height Difference Effect

Factor D2 For Longitudinal Direction: 1.0

Table for Selection of Factor D2	Height Difference		
	Severe 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant 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
Comment			

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
Comment		

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

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

Factor F 1.2

Record rationale for choice of Factor F:

Refer to report

3.7 Performance Achievement Ratio (PAR)

(equals A x B x C x D x E x F)

PAR
 Longitudinal 1.20

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 5

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block J	Date:	19/04/2021
City:	Tauranga	Revision No.:	A

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

potential CSWs	Effect on Structural Performance (Choose a value - Do not interpolate)	Factors
3.1 Plan Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment		Factor A 1.0
3.2 Vertical Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment		Factor B 1.0
3.3 Short Columns Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment		Factor C 1.0
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.

Table for Selection of Factor D1		Factor D1 For Transverse Direction: 1.0		
Separation		Severe 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant 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
Comment				

b) Factor D2: - Height Difference Effect

Table for Selection of Factor D2		Factor D2 For Transverse Direction: 1.0		
		Severe 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant 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
Comment				

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
 Comment

Factor E 1.0

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

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

Factor F 1.20

Record rationale for choice of Factor F:

Refer to report

3.7 Performance Achievement Ratio (PAR)

(equals A x B x C x D x E x F)

PAR
 Transverse 1.20

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 6

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block J	Date:	19/04/2021
City:	Tauranga	Revision No.:	A

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)	100%	100%
4.2 Performance Achievement Ratio (PAR) (from Table IEP - 2)	1.20	1.20
4.3 PAR x Baseline (%NBS) _b	>100%	>100%
4.4 Percentage New Building Standard (%NBS) - Seismic Rating (Use lower of two values from Step 4.3)		>100%

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)

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 {Client/TA}

Page 7

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block J	Date:	19/04/2021
City:	Tauranga	Revision No.:	A

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

S R Mitchell

Name

70562

CPEng. No

WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of 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.

GENERAL NOTES

1. ALL SET OUTS OF BUILDING.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS ON SITE.
3. ALL DIMENSIONS TO FACE UNLESS OTHERWISE STATED.
4. THESE DIMENSIONS SHOWN THE PROPERTY OF PROJECT.
5. THESE DIMENSIONS SHOWN THE PROPERTY OF PROJECT.
6. THESE DIMENSIONS SHOWN THE PROPERTY OF PROJECT.
7. THESE DIMENSIONS SHOWN THE PROPERTY OF PROJECT.
8. THESE DIMENSIONS SHOWN THE PROPERTY OF PROJECT.
9. THESE DIMENSIONS SHOWN THE PROPERTY OF PROJECT.
10. THESE DIMENSIONS SHOWN THE PROPERTY OF PROJECT.



DATE	REVISION	BY	DATE
A	Building Contract	1405	11-09-19

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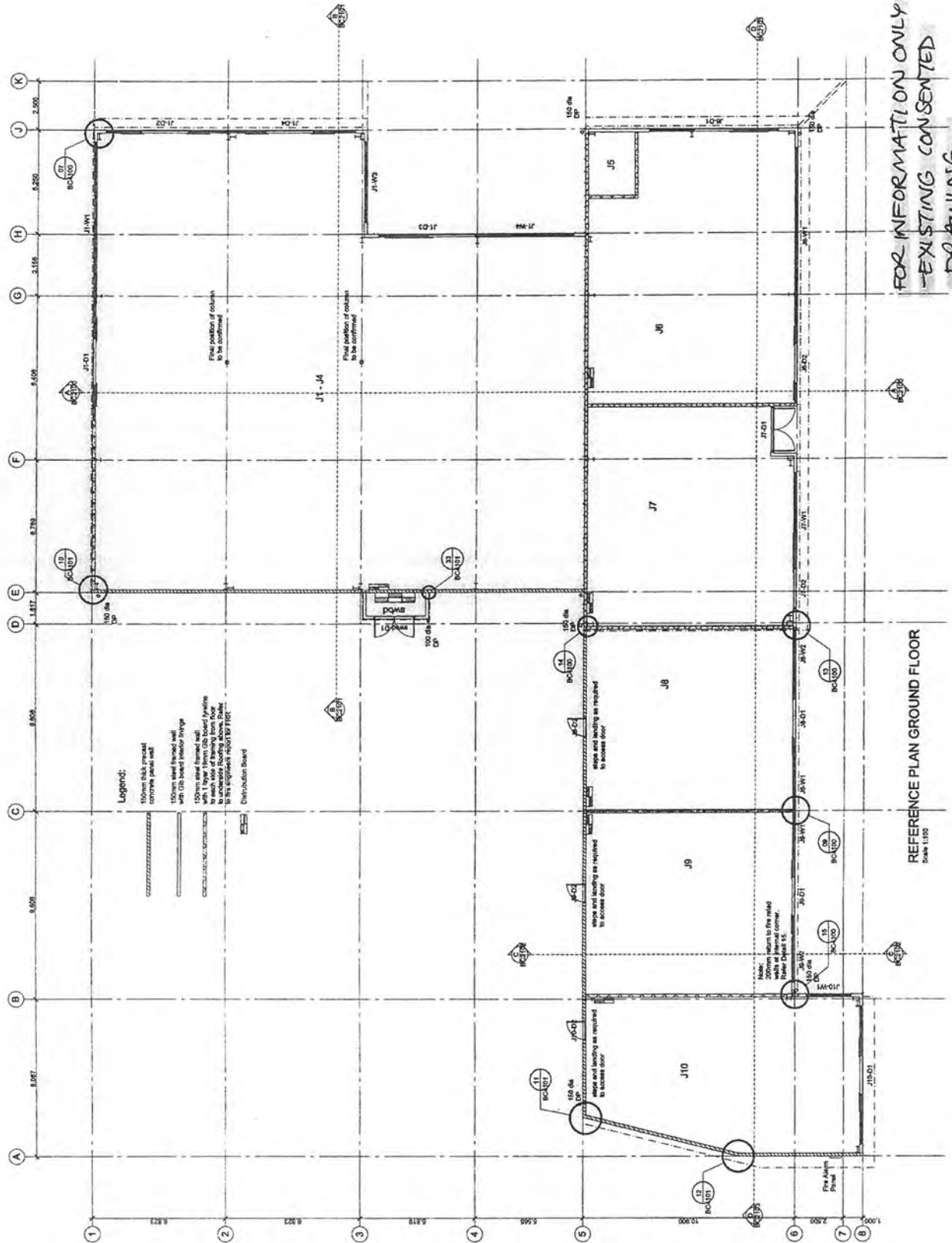
CLIENT



PROJECT
**BLOCK J
BETHLEHEM
SHOPPING CENTRE**

DRAWING TITLE
REFERENCE FLOOR PLAN

DATE	SCALE	1:1	11 SEPTEMBER 2019
DRAWN	CHECKED	PROJECT NO.	457-05-19
MG	CHAM		
DESIGN NAME	BC1300		
			(A)



FOR INFORMATION ONLY
-EXISTING CONSENTED
DRAWING

REFERENCE PLAN GROUND FLOOR
Scale 1:100



1. DO NOT SELL OR DRINK.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL CONDITIONS ON SITE.
3. MATERIALS TO BE MOVED BY ANY PARTY FOR REMEDIATION SHALL BE REMOVED FROM THE SITE.
4. THE REMEDIATION OF THE PROPERTY OF ANY PARTY SHALL BE THE RESPONSIBILITY OF THAT PARTY.

A	Building Census	10/1/2009	10/1/2009
200.0			10/1/2009
			10/1/2009
			10/1/2009



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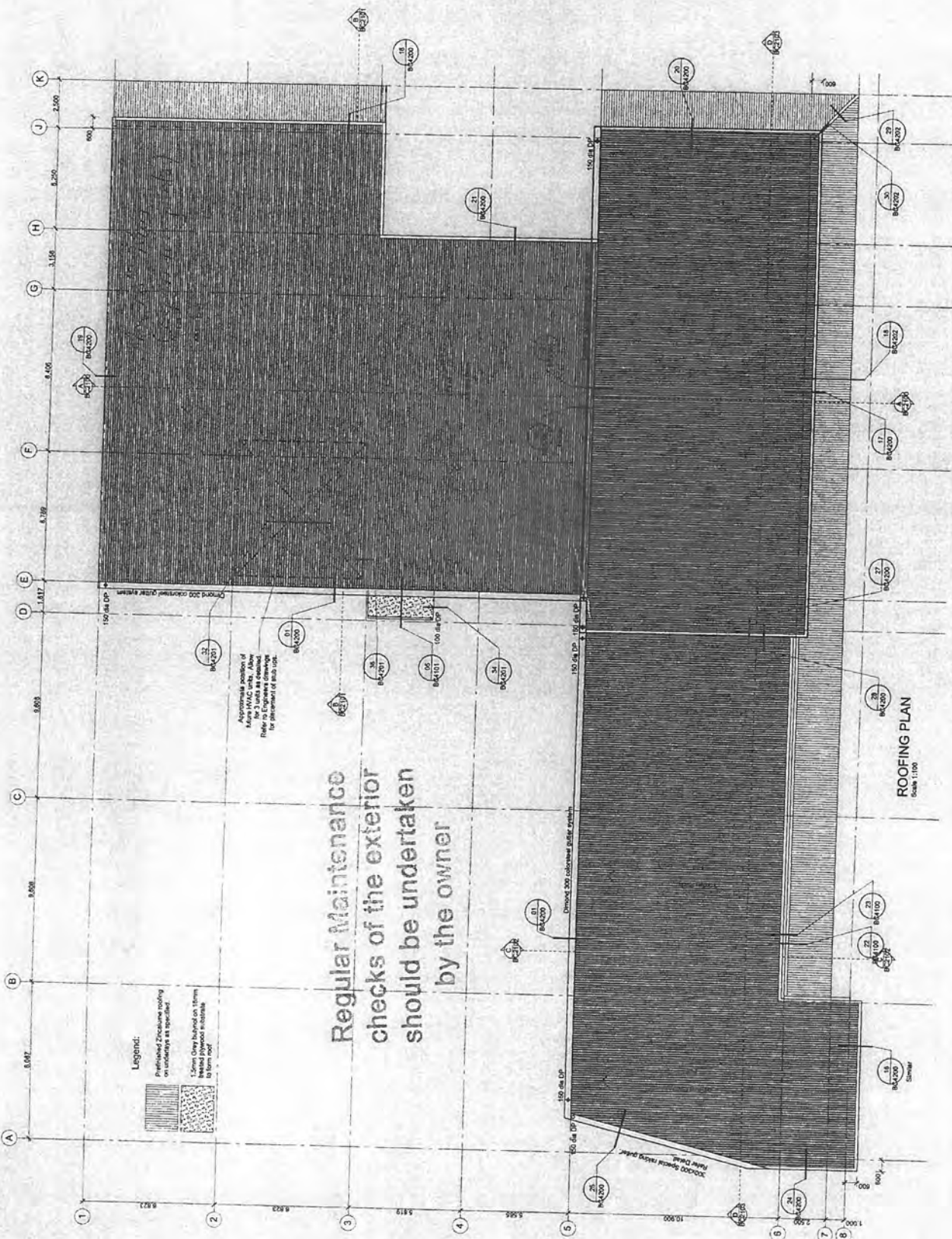
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**BLOCK J
BETHLEHEM
SHOPPING CENTRE**

FIELD CULTURES

ROOF PLAN

DATE	SCALE	
11 SEPTEMBER 1944		
COPIES	CHECK	PROJECT NO.
MG	CHAM	457-05-19
DRAWING NUMBER		
BC1700		



APPROVED

These plans are approved in accordance with

The A7 Building Code

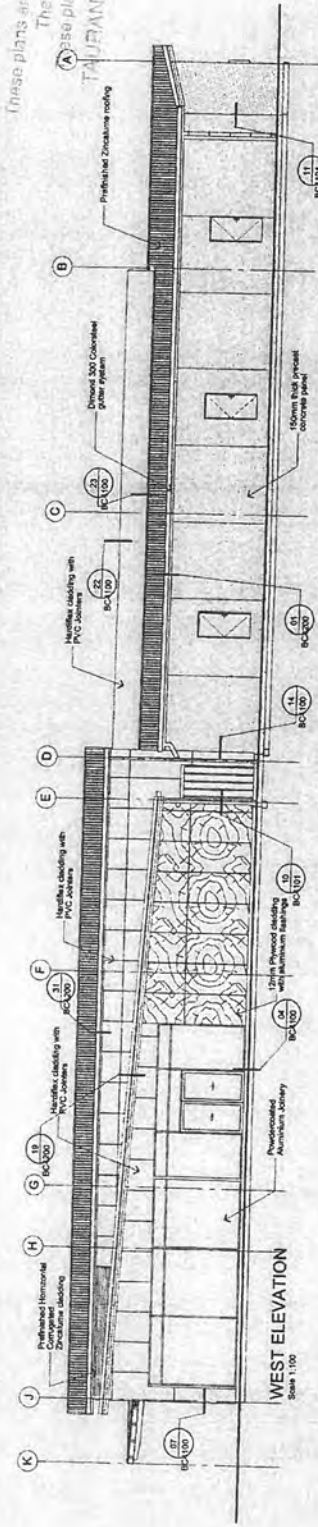
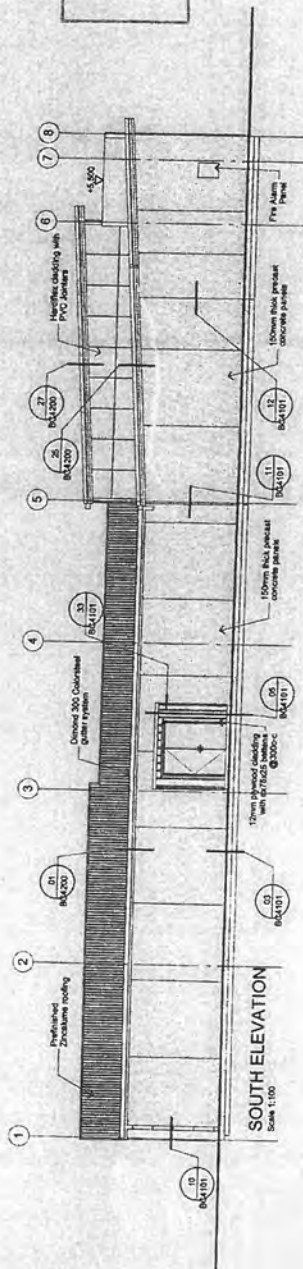
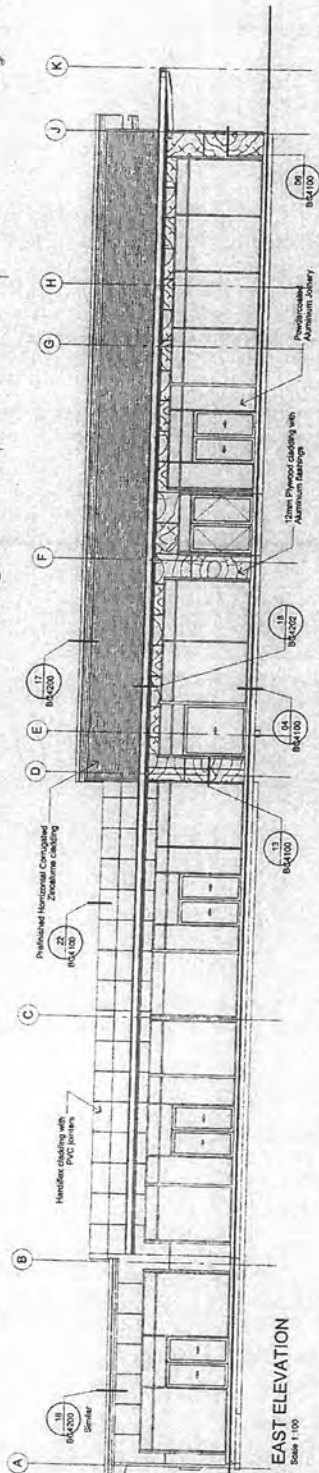
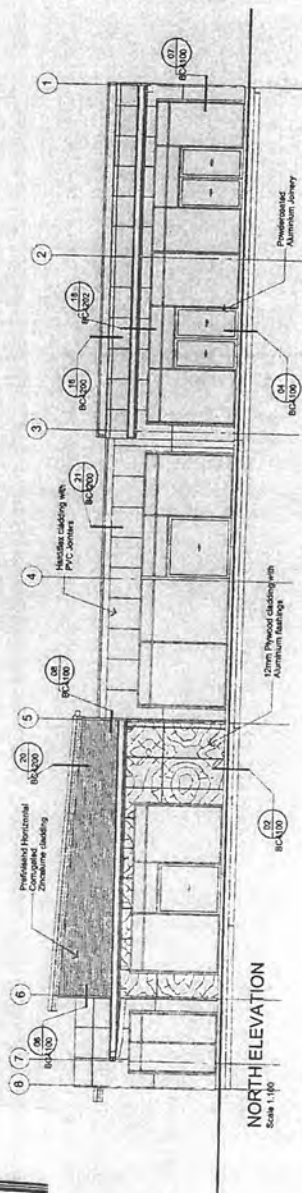
These plans must remain on site.

TAMPANGA CITY COUNCIL



GENERAL NOTES
1. SHOWN FOR INFORMATION
2. DIMENSIONS TO FACE UNLESS OTHERWISE SPECIFIED
3. MATERIALS TO BE SUPPLIED BY THE CONTRACTOR
4. ALL WORK TO BE COMPLETED BY THE CONTRACTOR
5. ALL WORK TO BE COMPLETED BY THE CONTRACTOR
6. ALL WORK TO BE COMPLETED BY THE CONTRACTOR
7. ALL WORK TO BE COMPLETED BY THE CONTRACTOR
8. ALL WORK TO BE COMPLETED BY THE CONTRACTOR
9. ALL WORK TO BE COMPLETED BY THE CONTRACTOR
10. ALL WORK TO BE COMPLETED BY THE CONTRACTOR

Regular Maintenance
checks of the exterior
should be undertaken
by the owner



TAURANGA CITY COUNCIL
PROJECT INFORMATION MEMORANDUM
23/6/19
Refer to accompanying documentation

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INVESTMENT

PROJECT
BLOCK J
BETHLEHEM
SHOPPING CENTRE

DATE
11 SEPTEMBER 2019

PROJECT NO.
MG 457-05-19

DATE
11 SEPTEMBER 2019

PROJECT NO.
MG 457-05-19

DATE
11 SEPTEMBER 2019

APPROVED
These plans are approved in accordance with the N2 Building Code. The plans must remain on site.

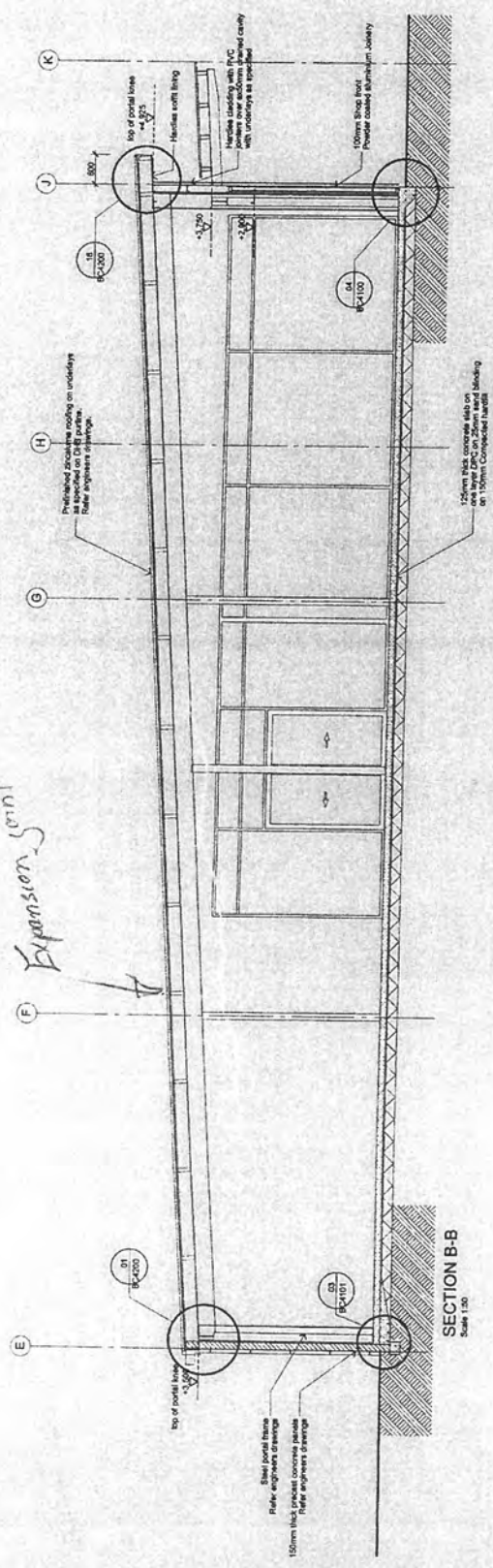
TAURANGA CITY COUNCIL



TCC172330

All work to satisfy the requirements of N.Z.B.C. including Clause E2 (External Moisture)

Expansion joint



SECTION B-B
Scale 1:50

GENERAL NOTES
1. IN THE SCALE OF DRAWING
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS OF THE
3. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED
4. THESE DRAWINGS SHALL BE THE PROPERTY OF THE CLIENT AND SHALL NOT BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF THE ARCHITECT

DATE	REVISION	BY	CHKD
14/01/2019	1	AM	AM

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CLIENT

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INVESTORS

PROJECT
**BLOCK J
BETHLEHEM
SHOPPING CENTRE**

DRAWING TITLE
SECTIONS

APPROVED
These plans are approved in accordance with
The NZ Building Code
These plans must remain on site!
TAUPANGA CITY COUNCIL

DATE	SCALE		PROJECT NO. 457-05-19	A
01 SEPTEMBER 2009				
DRAWN	CHECK			
MG	CMH			
DRAWING NUMBER			BC2101	

GENERAL NOTES

1. DO NOT SCALE OFF DRAWING.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS ON SITE.
3. ARCHITECTS TO BE NOTIFIED OF ANY VARIATION BETWEEN SITE DIMENSIONS AND THOSE ON PLANS.
4. THESE DRAWINGS REMAIN THE PROPERTY OF KURTZ ARCHITECTS LTD. AND SHOULD NOT BE COPIED IN ANY FORM OR REPRODUCED OR TRANSMITTED IN ANY MANNER WITHOUT THE WRITTEN CONSENT.

A	Building Component	MOG	01/29/06
13.00	Revisions	BT	5677



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UNIT



**BLOCK J
BETHLEHEM
SHOPPING CENTRE**

READING TITLE

SECTIONS

DATE	SCALE	PROJECT NO.
11 SEPTEMBER 1964		457-05-19
DRAWN	CHECK	
MG	CMM	

DRAWING NUMBER

BC2102

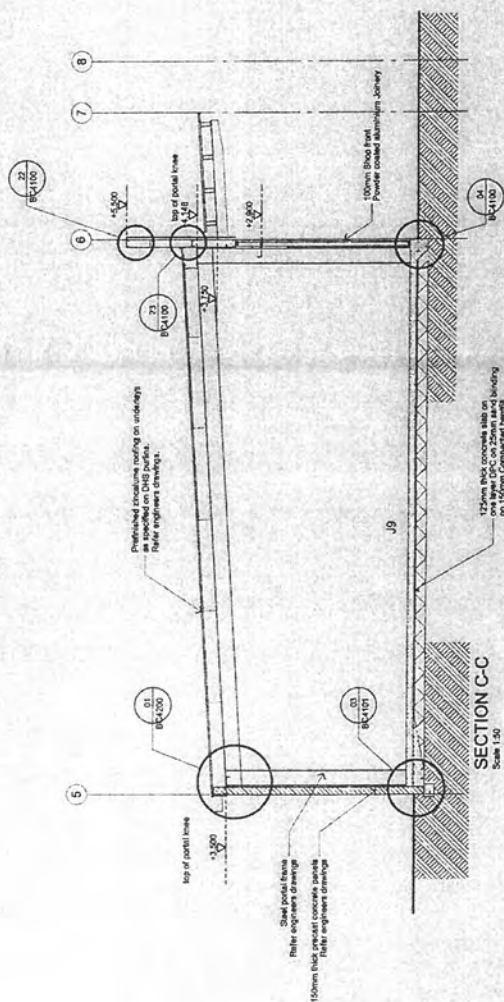
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These plans must remain on site

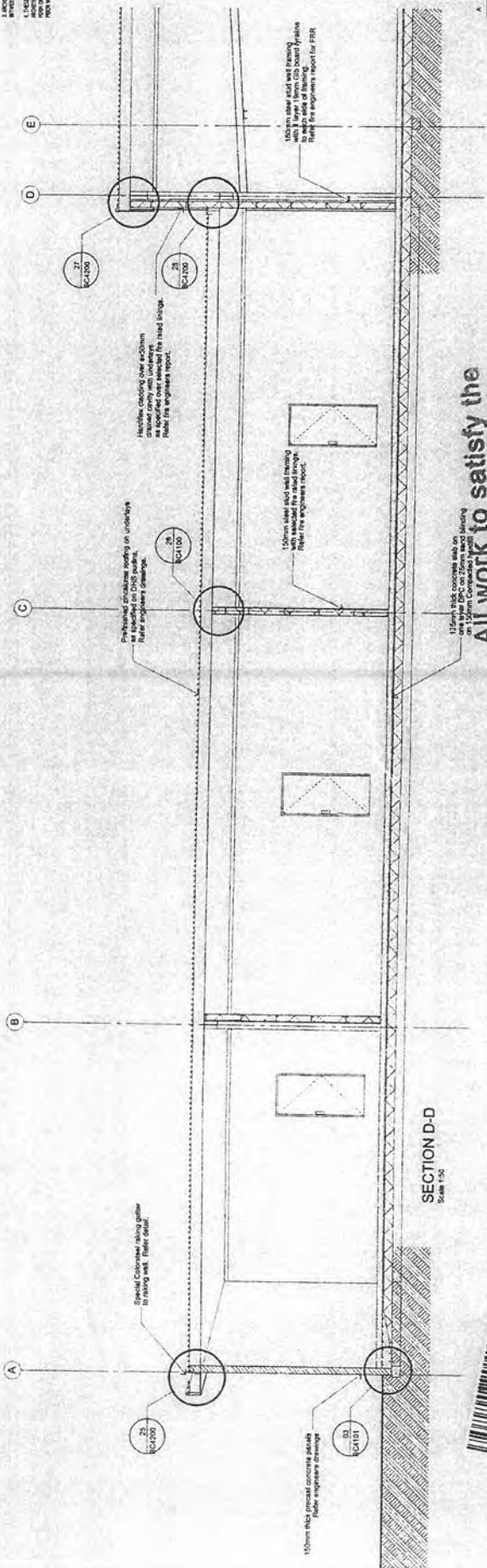
TAURANGA CITY COUNCIL



TCC172331

GENERAL NOTES

1. ON SITE SCALE DRAWING.
2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
3. ALL DIMENSIONS TO BE GIVEN IN METRES.
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All work to satisfy the requirements of N.Z.B.C. including Clause E2 (External Moisture)

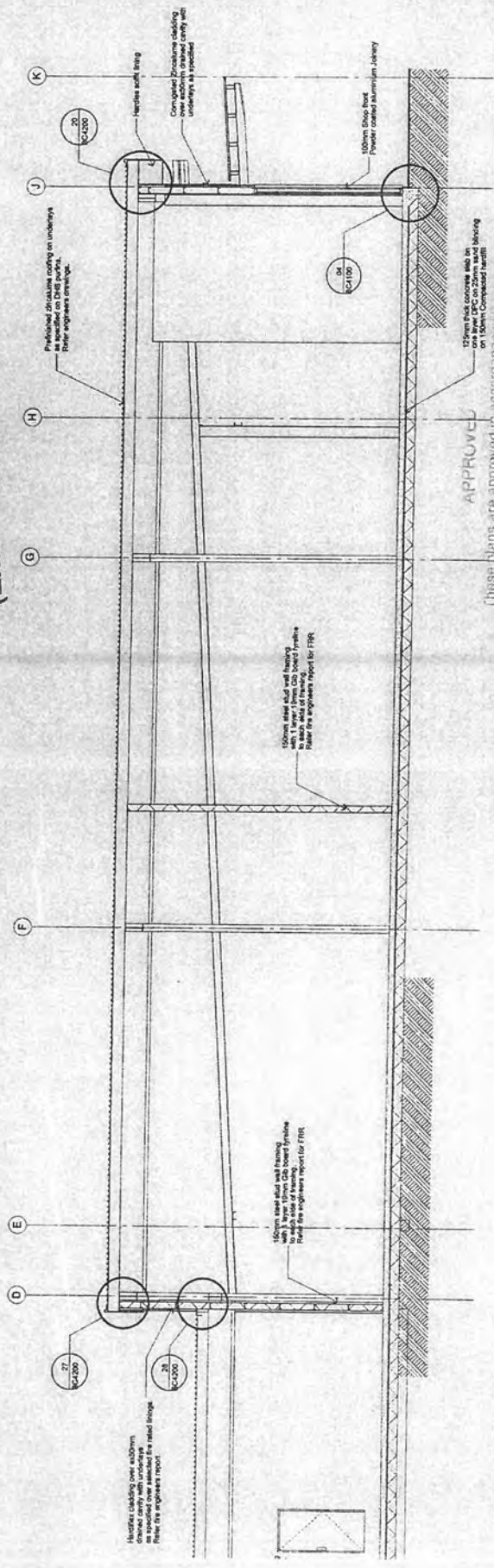


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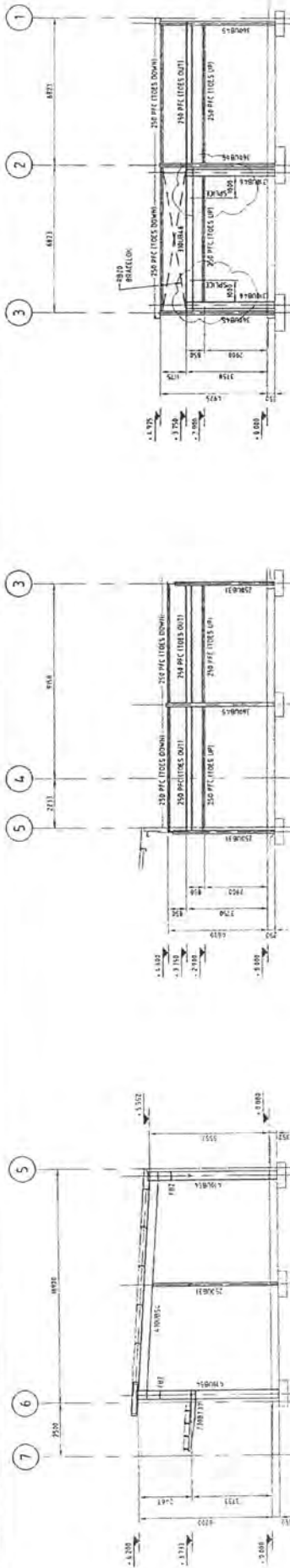
PROJECT
BLOCK J
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
SECTIONS

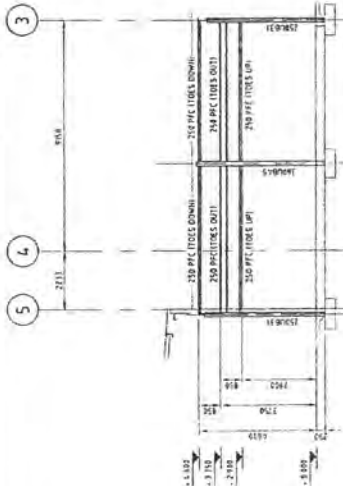


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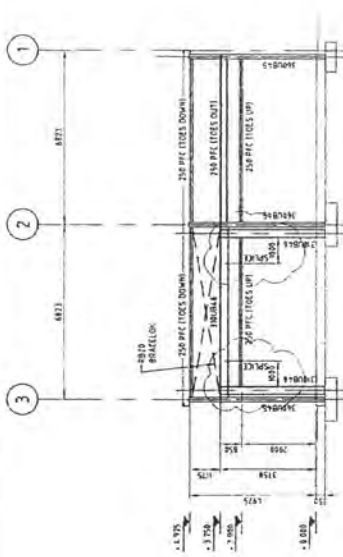
DATE	SCALE
11 SEPTEMBER 2019	
DRAWN	CHECKED
MG	CHAM
PROJECT NO.	PROJECT NO.
457-05-19	
REVISIONS	REVISIONS
BC2103	
	A



PART ELEVATION - GRIDLINE J
SCALE 1:100



PART ELEVATION - GRIDLINE H
SCALE 1:100



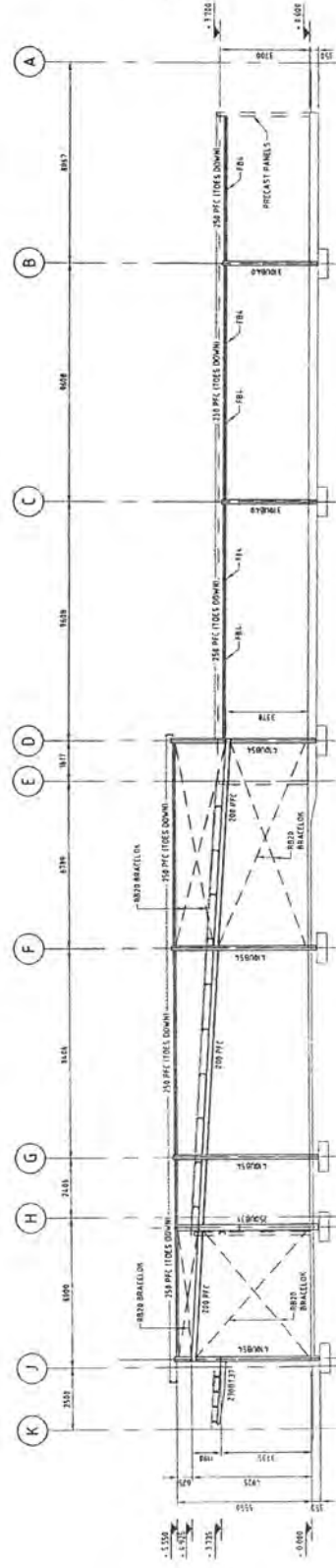
PART ELEVATION - GRIDLINE J
SCALE 1:100



ELEVATION - GRIDLINE 1
SCALE 1:100



ELEVATION - GRIDLINE E
SCALE 1:100



ELEVATION - GRIDLINE 5
SCALE 1:100

APPROVED
These plans are approved in accordance
with the NZ Building Code.
These plans are subject to the conditions of the
TAURANGA CITY COUNCIL

Rev	Date	By	Var.	App	Notes
01	01/08/05	CONSIST			
02	09/08/05	CONSIST			
03	11/08/05	CONSIST			
04	13/08/05	CONSIST			
05	15/08/05	CONSIST			
06	17/08/05	CONSIST			
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100	21/02/06	CONSIST			

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100-102, 104, 106, 108, 110, 112, 114, 116, 118, 120, 122, 124, 126, 128, 130, 132, 134, 136, 138, 140, 142, 144, 146, 148, 150, 152, 154, 156, 158, 160, 162, 164, 166, 168, 170, 172, 174, 176, 178, 180, 182, 184, 186, 188, 190, 192, 194, 196, 198, 200, 202, 204, 206, 208, 210, 212, 214, 216, 218, 220, 222, 224, 226, 228, 230, 232, 234, 236, 238, 240, 242, 244, 246, 248, 250, 252, 254, 256, 258, 260, 262, 264, 266, 268, 270, 272, 274, 276, 278, 280, 282, 284, 286, 288, 290, 292, 294, 296, 298, 300, 302, 304, 306, 308, 310, 312, 314, 316, 318, 320, 322, 324, 326, 328, 330, 332, 334, 336, 338, 340, 342, 344, 346, 348, 350, 352, 354, 356, 358, 360, 362, 364, 366, 368, 370, 372, 374, 376, 378, 380, 382, 384, 386, 388, 390, 392, 394, 396, 398, 400, 402, 404, 406, 408, 410, 412, 414, 416, 418, 420, 422, 424, 426, 428, 430, 432, 434, 436, 438, 440, 442, 444, 446, 448, 450, 452, 454, 456, 458, 460, 462, 464, 466, 468, 470, 472, 474, 476, 478, 480, 482, 484, 486, 488, 490, 492, 494, 496, 498, 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APPROVED
These plans are approved in accordance
The NZ Building Code
These plans must remain on site
TAURANGA CITY COUNCIL

CONSENT	
Project No	B236
Scale	1:100 A1
Sheet No	A1
Drawing No	B236-S2.801
Rev	04

REFERENCE DESIGNS
ROOF PLAN

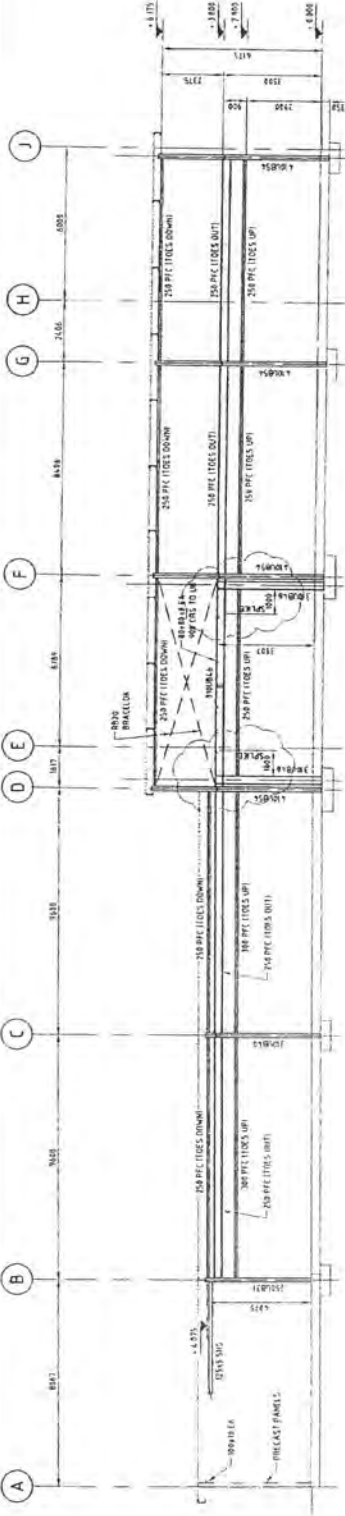
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010	010	010	010	010	01/08/06
010	010	010	010	010	01/08/06
010	010	010	010	010	01/08/06
010	010	010	010	010	01/08/06

BETHLEHEM SHOPPING CENTRE STAGE 3	
Project	STRUCTURAL BLOCK J EXTERNAL ELEVATIONS

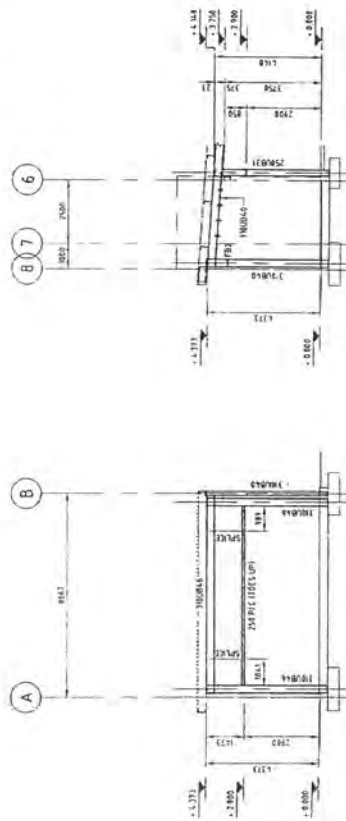


Cornell Wagner	
Project	155-1321-001
Client	155-1321-001
Project	155-1321-001
Project	155-1321-001
Project	155-1321-001
Project	155-1321-001

Rev	Date	Description	By	App
01	01/08/06	CONSENT		
02	09/08/06	TENDER		
03	17/08/06	PRELIMINARY		
04	17/08/06	PRELIMINARY		

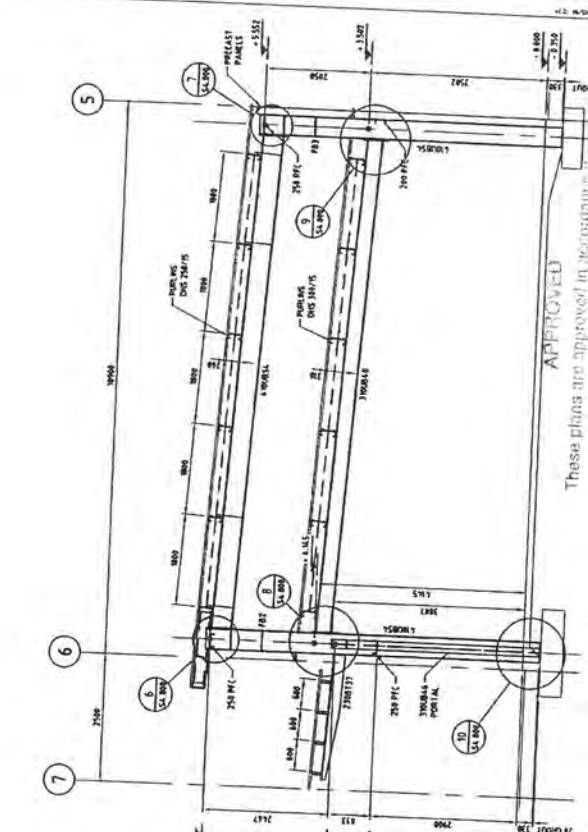
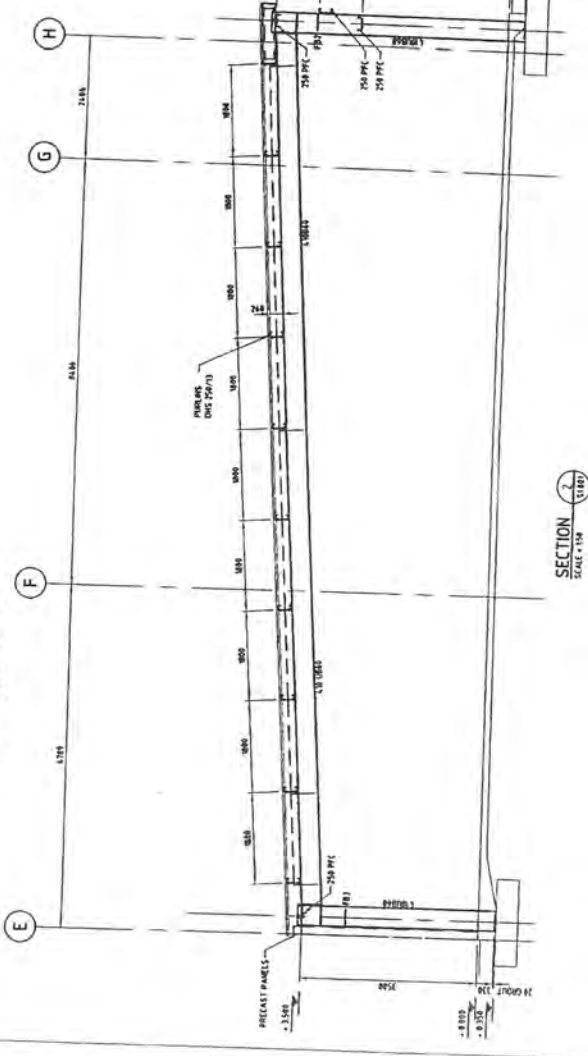
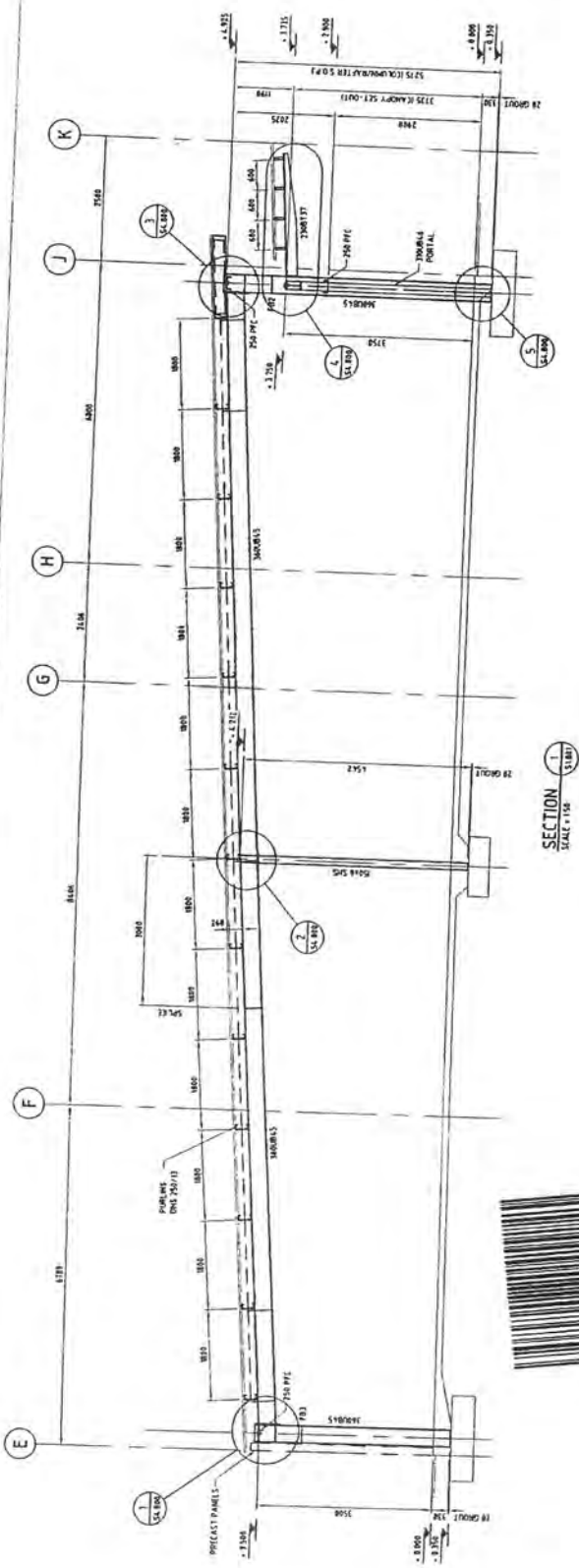


ELEVATION - GRIDLINE 6
SCALE: 1:100



PART ELEVATION - GRIDLINE B
SCALE: 1:100





APPROVED
These plans are approved in accordance with the N2 Building Code
SECTION 3
SCALE 1:100
TALIANGA CITY COUNCIL

CONSENT NOT FOR CONSTRUCTION

Project No. B236

Scale 1:100 A1

Drawing No. B236-S2.802

04

Drawn	Checked	Date	Drawn	Checked	Date
GJP	GJP	01/08/06	GJP	GJP	01/08/06
Design	Design	01/08/06	Design	Design	01/08/06
Verified	Verified	01/08/06	Verified	Verified	01/08/06
Approved	Approved	01/08/06	Approved	Approved	01/08/06

AMP capital INVESTORS

BETHLEHEM SHOPPING CENTRE
STAGE 3

Connell Wagner

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No.	Date	Description	Rev.	App.
01	01/08/06	CONSENT		
02	01/08/06	TENDER		
03	01/08/06	PRELIMINARY		
04	01/08/06	PRELIMINARY		





APPROVED
These plans are approved in accordance with
The NZ Building Code
These plans must comply with the
TAURANGA CITY COUNCIL

[illegible]

Description:

The BP Service Centre was designed in 2018 but was built in 2020. There are architectural drawings done by Techitrades Architecture, and these are generally dated October 2019, but there are no structural drawings available. It appears that the entire design is probably a standard product that has been used on multiple sites, but despite this, we have located a series of photos that were taken during the construction. These clearly show everything from the foundations to the roof bracing and so are valuable in assisting us to assess the seismic rating for both the building and the canopy structure. We have also located the Geocon Geotechnical Ltd site geotechnical investigation and the interpretative report by Mark T Mitchell Ltd, Consulting Geotechnical Engineers.

This Block is a small rectangular shaped single storey retail building and an independent free standing canopy structure. This Service Centre is located at the southern end of the shopping centre site and fronts onto State Highway 2. Both the canopy and the shop are seismically isolated from all other buildings.

The retail building is a small foot-print single storey, mono-pitched roof retail type building, with 4 bays in the north-south longitudinal direction and 1 bay in the east-west transverse direction. Construction of the envelope consists of long-run metal mono-pitch roof sheeting over cold rolled steel purlins, supported on structural steel rafters, which are located on each primary transverse frame grid and are supported by the precast wall panels, and a structural steel truss that spans across the shop front glazing, on the entry elevation. There are precast concrete wall panels on all 4 elevations, and substantial roof plane diagonal steel bracing in both principal directions. There are conventional reinforced concrete strip footing foundations and an on-grade floor slab.

The canopy is of the free-standing cantilever type that is prevalent in fuel stations. The photos show substantial pad type foundations, structural steel columns with primary structural steel beams in both principal directions. The rafter beams have significant cantilevers beyond the columns and the purlins appear to be cold rolled steel sections. The roof and soffit cladding are light weight.

Seismic Load Resisting Structure:

The lateral load resisting system for the retail building consists primarily of the diagonal structural steel roof bracing in conjunction with the precast reinforced concrete wall panels acting as in-plane loaded shear walls in both the transverse and the longitudinal direction.

The lateral load resisting system for the canopy consists of cantilever columns with some lateral load sharing to the transverse and longitudinal steel rafters and beams.

No severe structural weaknesses or critical structural weaknesses have been detected in this building structure.

Seismic Assessment:

We have used the following parameters in the ISA assessment.

Retail Building:

- Building era Post 2011.
- Seismic Zone B, Tauranga.
- Class D soft soil.

- Natural period 0.4 seconds, (this is based on the structural steel diagonal roof bracing distributing the lateral loads to the full height precast reinforced concrete wall panels acting as in-plane loaded shear walls in both of the principal directions).
- Building Importance Level 2.
- Structural Ductility factor 1.25 (this is based on the roof plane diagonal bracing and the in-plane loaded reinforced concrete wall panels).
- Plan irregularity 1.0 (this value has been selected despite the asymmetric arrangement of the lateral load resisting walls in both directions. The reason is that because of the type of construction, the design philosophy for the building was no doubt that it would act as a series of discrete tributary loaded resisting structural elements. This is addressed in the PAR section).
- Vertical irregularity 1.0.
- Pounding Potential 1.0 (because the building has no neighbours).
- Site Characteristics 1.0 (because there is no recorded risk of liquefaction or site instability).
- Performance Achievement Ratio 1.0. (This is based on the regularity, pounding and site factors as detailed above but includes an enhancement/reduction 'other' factor of 1.0. This 'other factor' was selected because whilst there are obvious redundancies in the lateral load resisting system, such as the ability of the precast panels to cantilever above the on-grade floor slab under face loads, there are no drawings to verify the panel connection to the foundations).

Seismic Rating and Grade for the Shop:

The Baseline rating of 100% NBS is modified by the Performance Achievement Ratio of 1.0 resulting in a Seismic Rating of 100% NBS which makes this BP Service Centre building neither an Earthquake Risk nor Earthquake Prone.

Rating 100% NBS.

Grade A.

Canopy:

- Building era Post 2011.
- Seismic Zone B, Tauranga.
- Class D soft soil.
- Natural period 0.4 seconds, (this is based on the structural steel roof framing and supporting cantilever columns that have a high level of base rigidity. A minimum period is probably conservative but without structural drawings it is difficult to estimate a higher period).
- Building Importance Level 2.
- Structural Ductility factor 1.5 (this is based on the roof plane steel framing and the cantilever steel columns).
- Plan irregularity 1.0 (this value has been selected because the system is fully symmetrical).
- Vertical irregularity 1.0.
- Pounding Potential 1.0 (because the building has no neighbours).
- Site Characteristics 1.0 (because there is no recorded risk of liquefaction or site instability).
- Performance Achievement Ratio 1.0. (This is based on the regularity, pounding and site factors as detailed above but includes an enhancement/reduction 'other' factor of 1.0. This 'other factor' was selected because whilst there are obvious redundancies in the lateral load resisting system, such as the potential to have a longer natural period, there are no drawings to verify that assumption).

Seismic Rating and Grade for the Canopy:

The Baseline rating of 100% NBS is modified by the Performance Achievement Ratio of 1.0 resulting in a Seismic Rating of 100% NBS which makes this BP Service Centre canopy neither an Earthquake Risk nor Earthquake Prone.

Rating 100% NBS
Grade A

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

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:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block BP Shop	Date:	21/04/2021
City:	Tauranga	Revision No.:	A

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)

Refer to report details.

Refer to report details.

1.4 Note information sources

Tick as appropriate

Visual Inspection of Exterior	☒
Visual Inspection of Interior	☐
Drawings (note type)	☒

Specifications	☐
Geotechnical Reports	☒
Other (list)	☐

Property File.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 2

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block BP Shop	Date:	21/04/2021
City:	Tauranga	Revision No.:	A

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}

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

Longitudinal

☐

N/A

Transverse

☐

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 ☒

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, CI 3.1.3 :

D Soft Soil

From NZS4203:1992, CI 4.6.2.2 :
(for 1992 to 2004 and only if known)

Not applicable

D Soft Soil

Not applicable

d) Estimate Period, T

Comment:

$h_n =$ 5

$A_c =$ 1.00

5 m

1.00 m^c

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: $T = \max(0.06h_n^{0.75}, 0.4)$

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: $T \leq 0.4\text{sec}$

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: 1.00

1.00

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} 100%

100%

WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of 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.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 3

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block BP Shop	Date:	21/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-2 Initial Evaluation Procedure Step 2 continued

2.2 Near Fault Scaling Factor, Factor E

If $T \leq 1.5\text{sec}$, Factor E = 1a) Near Fault Factor, $N(T,D)$

(from NZS1170.5:2004, Cl 3.1.6)

Longitudinal

N(T,D): 1

Transverse

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: Tauranga

Refer right for user-defined locations

Z = 0.2 (from NZS1170.5:2004, Table 3.3)

Z₁₉₉₂ = 0.85 (NZS4203:1992 Zone Factor from accompanying Figure 3.5(b))Z₂₀₀₄ = 0.2 (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: 1.00

1.00

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 1 value.)

I = 1

1

b) Design Risk Factor, R₀

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

R₀ = 1

1

c) Return Period Factor, R

(from NZS1170.0:2004 Building Importance Level)

Choose Importance Level

☐ 1 ☒ 2 ☐ 3 ☐ 4

R = 1.0

☐ 1 ☒ 2 ☐ 3 ☐ 4

1.0

d) Factor G

 $= IR_0/R$

Factor G: 1.00

1.00

2.5 Ductility Scaling Factor, Factor H

a) Available Displacement Ductility Within Existing Structure

Comment:

 $\mu = 1.25$

1.25

b) Factor H

For pre 1976 (maximum of 2)
For 1976 onwards $= \frac{k_u}{1.14}$
 $= 1$

Factor H: 1.00

 k_u
1.14
1

1.00

(where k_u 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

☐
S_p = 0.93☐
0.93

b) Structural Performance Scaling Factor

 $= 1/S_p$

Factor I: 1.00

1.00

Note Factor B values for 1992 to 2004 have been multiplied by 0.67 to account for S_p in this period2.7 Baseline %NBS for Building, (%NBS)_b(equals (%NBS)_{nom} x E x F x G x H x I)

100%

100%

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 4

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block BP Shop	Date:	21/04/2021
City:	Tauranga	Revision No.:	A

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 Comment	Factor A	1.0
3.2 Vertical Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment	Factor B	1.0
3.3 Short Columns Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment	Factor C	1.0

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 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant 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
Comment			

b) Factor D2: - Height Difference Effect

Factor D2 For Longitudinal Direction: 1.0			
Table for Selection of Factor D2	Severe 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant 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
Comment			

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
Comment		

3.6 Other Factors - for allowance of all other relevant characteristics 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:

Refer to report

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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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 5

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block BP Shop	Date:	21/04/2021
City:	Tauranga	Revision No.:	A

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

potential CSWs	Effect on Structural Performance (Choose a value - Do not interpolate)	Factors
3.1 Plan Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment		Factor A 1.0
3.2 Vertical Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment		Factor B 1.0
3.3 Short Columns Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment		Factor C 1.0

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 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant Sep>.01H
Separation				
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
Comment				

b) Factor D2: - Height Difference Effect

Factor D2 For Transverse Direction: 1.0			
Table for Selection of Factor D2			
	Severe 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant 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
Comment			

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
 Comment

Factor E 1.0

3.6 Other Factors - for allowance of all other relevant characteristics 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:

Refer to report

3.7 Performance Achievement Ratio (PAR)

(equals A x B x C x D x E x F)

PAR
 Transverse 1.00

WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of 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.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

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Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block BP Shop	Date:	21/04/2021
City:	Tauranga	Revision No.:	A

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)	100%	100%
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 (Use lower of two values from Step 4.3)		100%

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)

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

WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of 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.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

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Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block BP Shop	Date:	21/04/2021
City:	Tauranga	Revision No.:	A

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. Ledges and up-stands

IEP Assessment Confirmed by

Signature

S R Mitchell

Name

70562

CPEng. No

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 1

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Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block BP Canopy	Date:	21/04/2021
City:	Tauranga	Revision No.:	A

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)

Refer to report details.

Refer to report details.

1.4 Note information sources

Tick as appropriate

Visual Inspection of Exterior	☒
Visual Inspection of Interior	☐
Drawings (note type)	☒

Specifications	☐
Geotechnical Reports	☒
Other (list)	☐

Property File.

Property File.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 2

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block BP Canopy	Date:	21/04/2021
City:	Tauranga	Revision No.:	A

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}

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

Longitudinal

☐

N/A

Transverse

☐

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 ☒

- 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, CI 3.1.3 :

D Soft Soil

From NZS4203:1992, CI 4.6.2.2 :
(for 1992 to 2004 and only if known)

Not applicable

D Soft Soil

Not applicable

d) Estimate Period, T

Comment:

$h_n = 5$

$A_c = 1.00$

5 m

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: $T \leq 0.4\text{sec}$ ☐
- 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: 1.00

1.00

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} 100%

100%

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 3

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block BP Canopy	Date:	21/04/2021
City:	Tauranga	Revision No.:	A

Table IEP-2 Initial Evaluation Procedure Step 2 continued

2.2 Near Fault Scaling Factor, Factor E

If $T \leq 1.5\text{sec}$, Factor E = 1a) Near Fault Factor, $N(T,D)$

(from NZS1170.5:2004, Cl 3.1.6)

Longitudinal
 $N(T,D)$: 1Transverse
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: Tauranga

Refer right for user-defined locations

Z =	0.2	(from NZS1170.5:2004, Table 3.3)
Z ₁₉₉₂ =	0.85	(NZS4203:1992 Zone Factor from accompanying Figure 3.5(b))
Z ₂₀₀₄ =	0.2	(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: 1.00

1.00

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.)

I = 1

1

b) Design Risk Factor, R_o

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

 R_o = 1

1

c) Return Period Factor, R

(from NZS1170.0:2004 Building Importance Level)

Choose Importance Level

☐ 1 ☒ 2 ☐ 3 ☐ 4☐ 1 ☒ 2 ☐ 3 ☐ 4

R = 1.0

1.0

d) Factor G

$= I R_o / R$

Factor G: 1.00

1.00

2.5 Ductility Scaling Factor, Factor H

a) Available Displacement Ductility Within Existing Structure

Comment:

 μ = 1.50

1.50

b) Factor H

For pre 1976 (maximum of 2)
For 1976 onwards k_u
1.29
1
Factor H: 1.00 k_u
1.29
1
1.00(where k_u 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

☐
 S_p = 0.85☐
0.85

b) Structural Performance Scaling Factor

$= 1/S_p$

Factor I: 1.00

1.00

Note Factor B values for 1992 to 2004 have been multiplied by 0.67 to account for S_p in this period2.7 Baseline %NBS for Building, (%NBS)_b(equals (%NBS)_{nom} x E x F x G x H x I)

100%

100%

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 4

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block BP Canopy	Date:	21/04/2021
City:	Tauranga	Revision No.:	A

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 Comment	Factor A	1.0
3.2 Vertical Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment	Factor B	1.0
3.3 Short Columns Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment	Factor C	1.0
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 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant 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
Comment			

b) Factor D2: - Height Difference Effect

Factor D2 For Longitudinal Direction: 1.0

Table for Selection of Factor D2	Severe 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant 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
Comment			

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
 Comment

Factor E 1.0

3.6 Other Factors - for allowance of all other relevant characteristics 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:
 Refer to report

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

PAR
 Longitudinal 1.00

WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of 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.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 5

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block BP Canopy	Date:	21/04/2021
City:	Tauranga	Revision No.:	A

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

potential CSWs	Effect on Structural Performance (Choose a value - Do not interpolate)	Factors
3.1 Plan Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment		Factor A 1.0
3.2 Vertical Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment		Factor B 1.0
3.3 Short Columns Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment		Factor C 1.0
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.

Table for Selection of Factor D1		Factor D1 For Transverse Direction: 1.0		
Separation		Severe 0 < Sep < .005H	Significant .005 < Sep < .01H	Insignificant 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
Comment				

b) Factor D2: - Height Difference Effect

Table for Selection of Factor D2		Factor D2 For Transverse Direction: 1.0		
		Severe 0 < Sep < .005H	Significant .005 < Sep < .01H	Insignificant 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
Comment				

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
Comment	

3.6 Other Factors - for allowance of all other relevant characteristics 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:

Refer to report

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

PAR
Transverse 1.00

WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of 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.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 6

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block BP Canopy	Date:	21/04/2021
City:	Tauranga	Revision No.:	A

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)	100%	100%
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 (Use lower of two values from Step 4.3)		100%

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)

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

WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of 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.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 7

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block BP Canopy	Date:	21/04/2021
City:	Tauranga	Revision No.:	A

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. Edge and end slabs

IEP Assessment Confirmed by

Signature

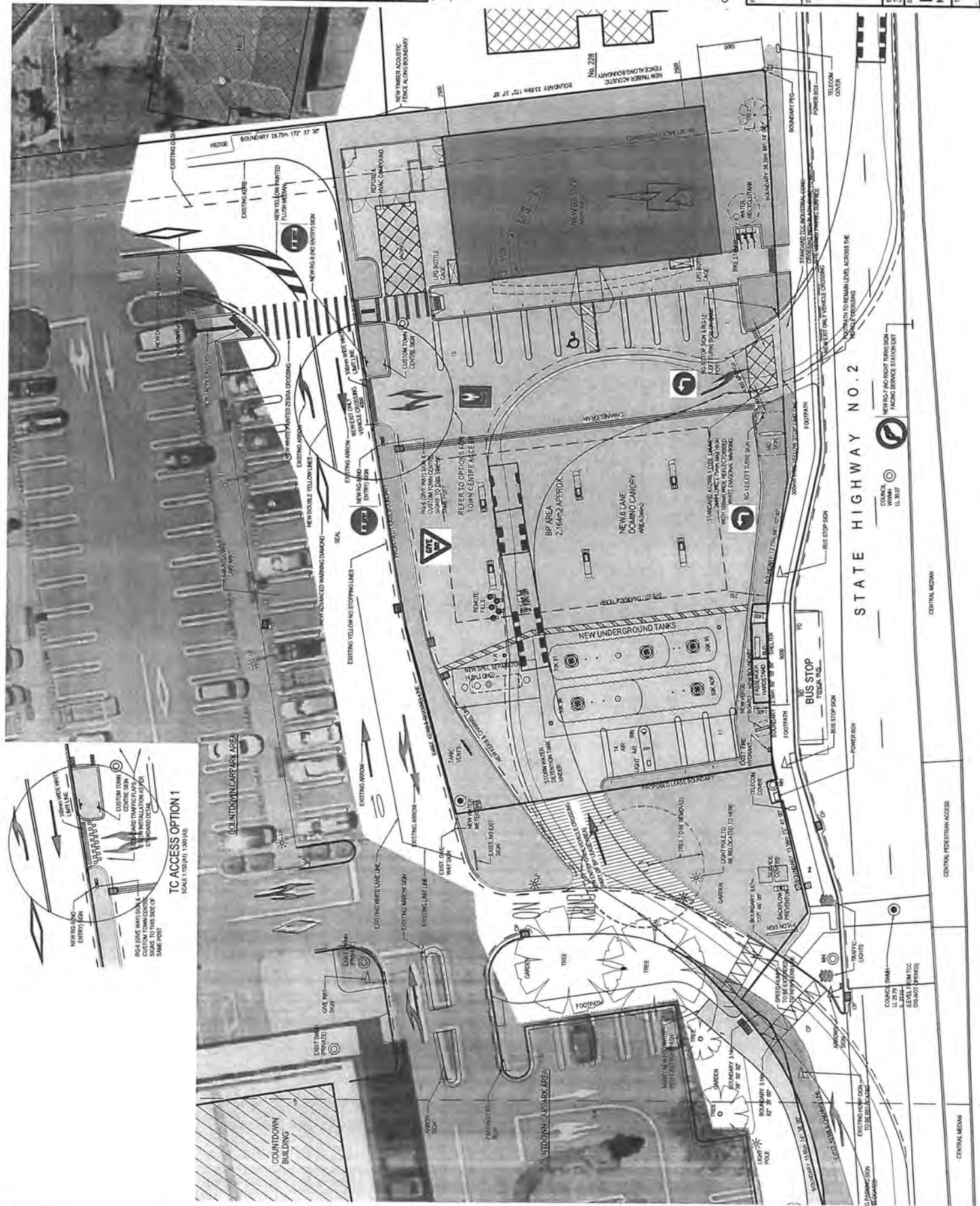
S R Mitchell

Name

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CPEng. No

WARNING!! This initial evaluation has been carried out solely as an initial seismic assessment of the building following the procedure set out in "The Seismic Assessment of 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.



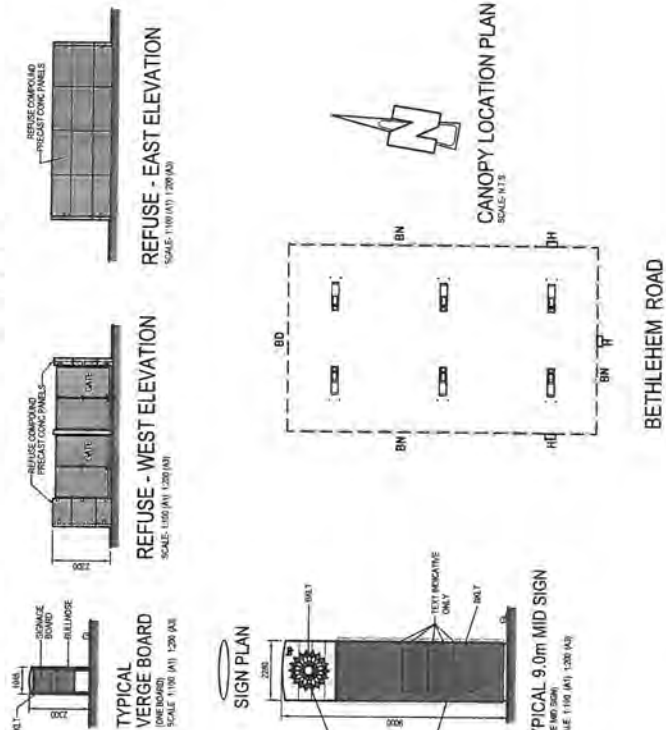
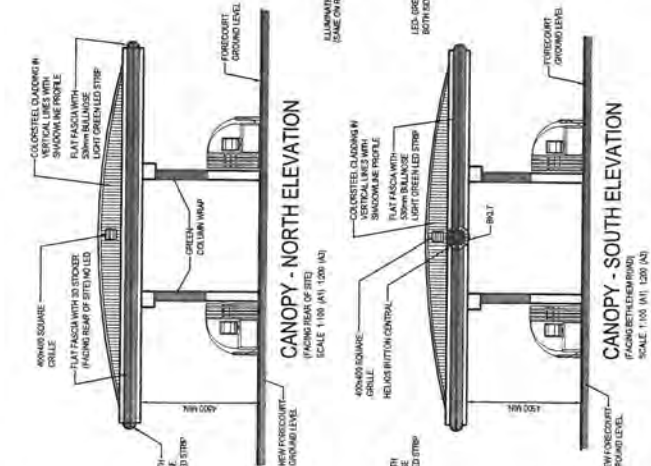
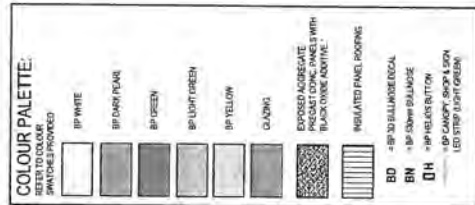
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COPYRIGHT © 2010 BY LARSEN/JOHN ALL RIGHTS RESERVED		A1 Plot Scale: 1/1"=1'-0"	A3 Plot Scale: 1/1"=1'-0"

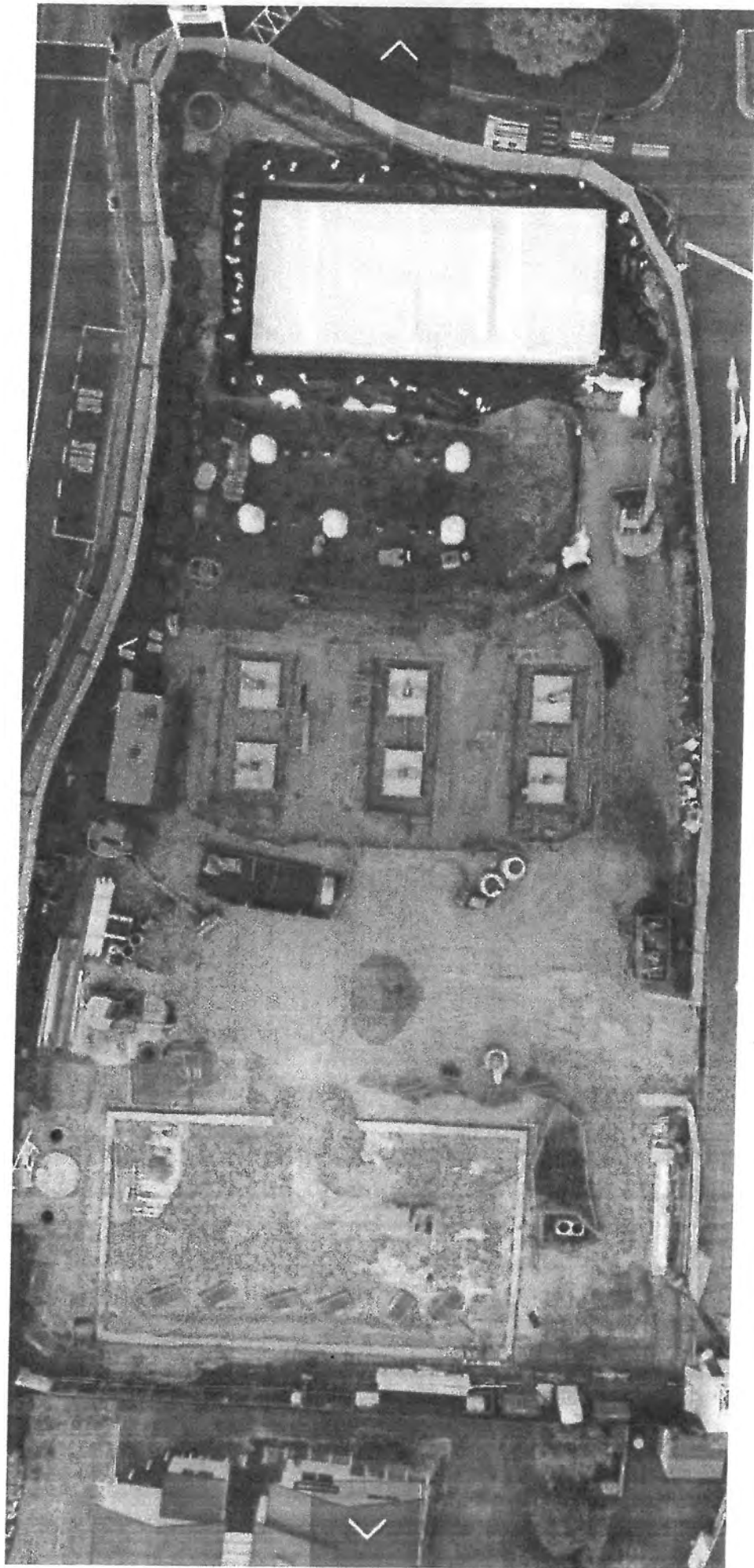
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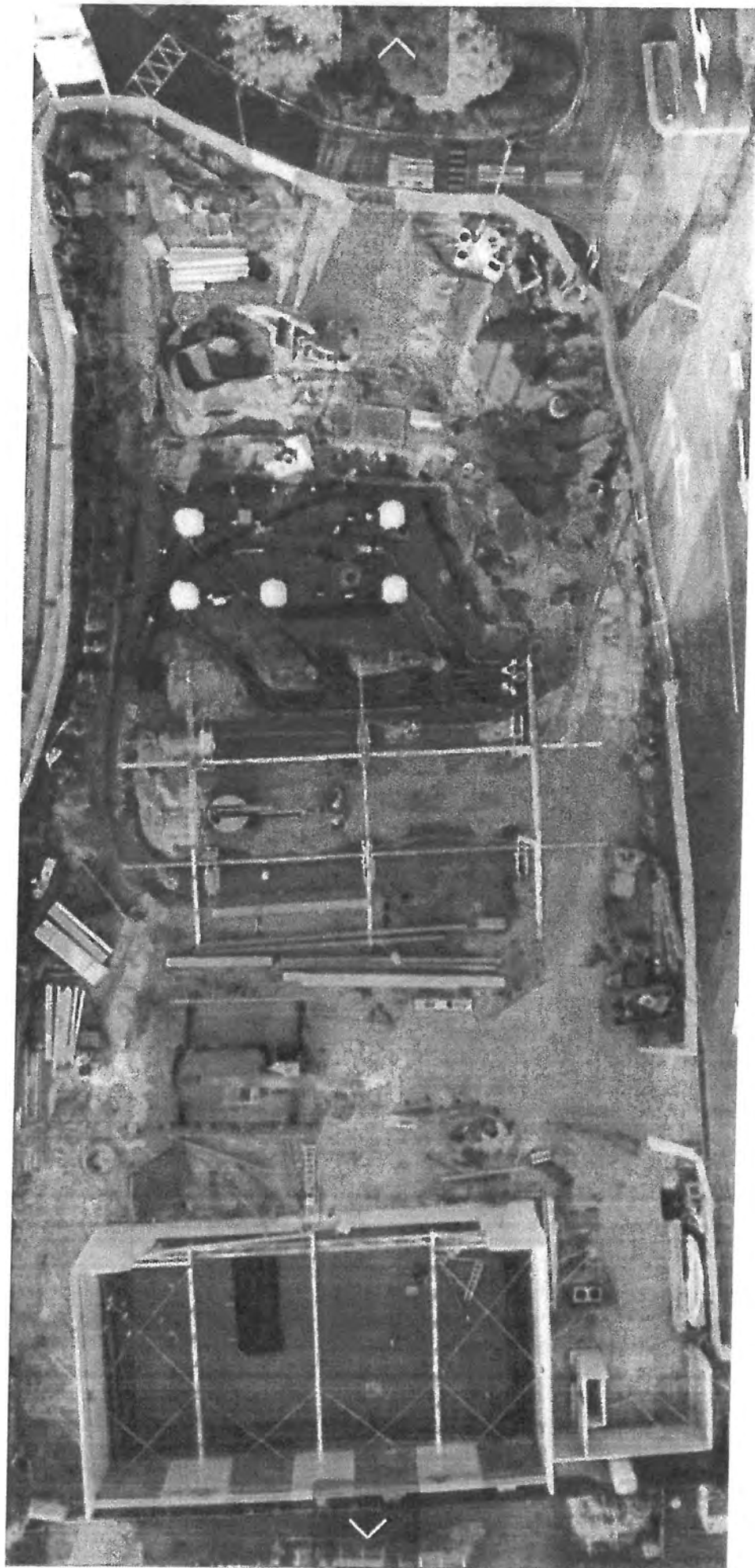
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E	OPTION FOR TRAILER ACCESS	MM	06-05-19
C	FENCING CHANGE TO REAR OF BP SHOP	MM	06-05-19
C	4" IN RETRACTION LINE ADDED	MM	10-03-19
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A	RESOURCE CONSENT APPLICATION	MM	10-02-19
REV	DESCRIPTION	BY	DATE

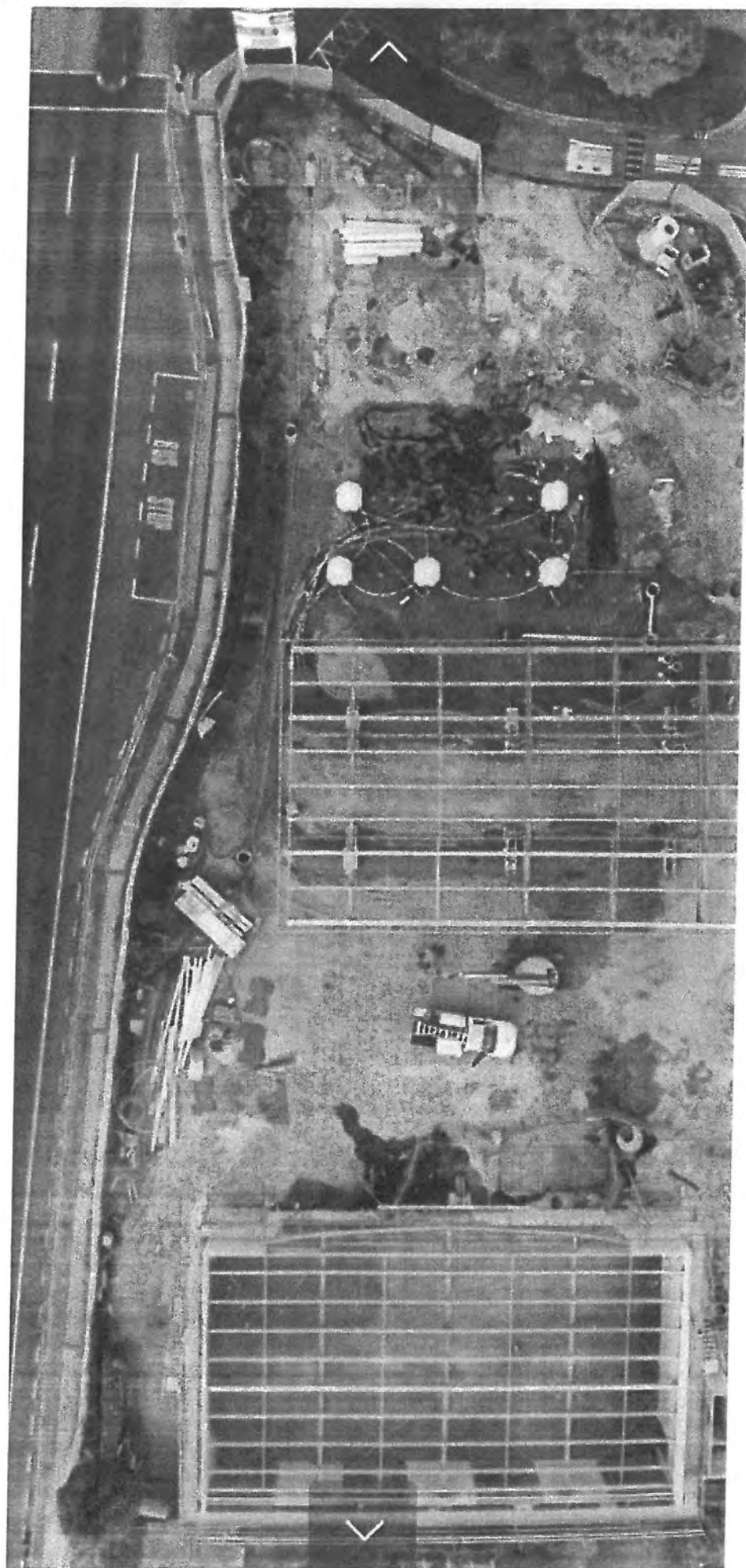
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	8' 6" HIGH BP MID SIGN (4' x 1')
	VERGE BOARD SIGNS (4' x 2')
	MANHOLE - STORMWATER (BY OWNER)
	NEW SLIP LANE - LANE WIDENING WORKS
	5% CATCHPIT
	550W x 25D CONCRETE SPEED BREAKAGE MARK
	CHANNEL DRAIN SYSTEM
	7' 6" WIDE PAINTED CAR PARK MARKINGS

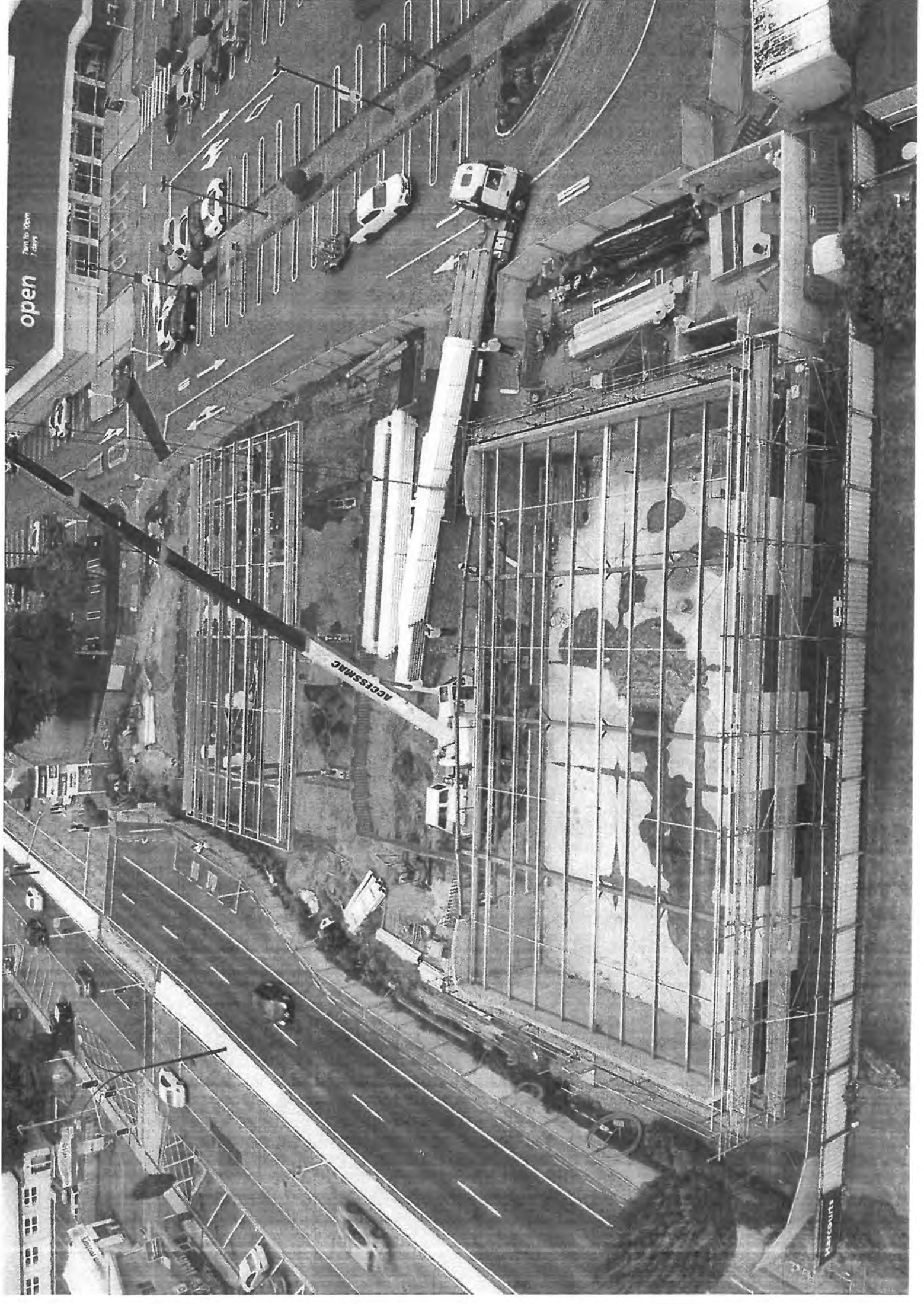
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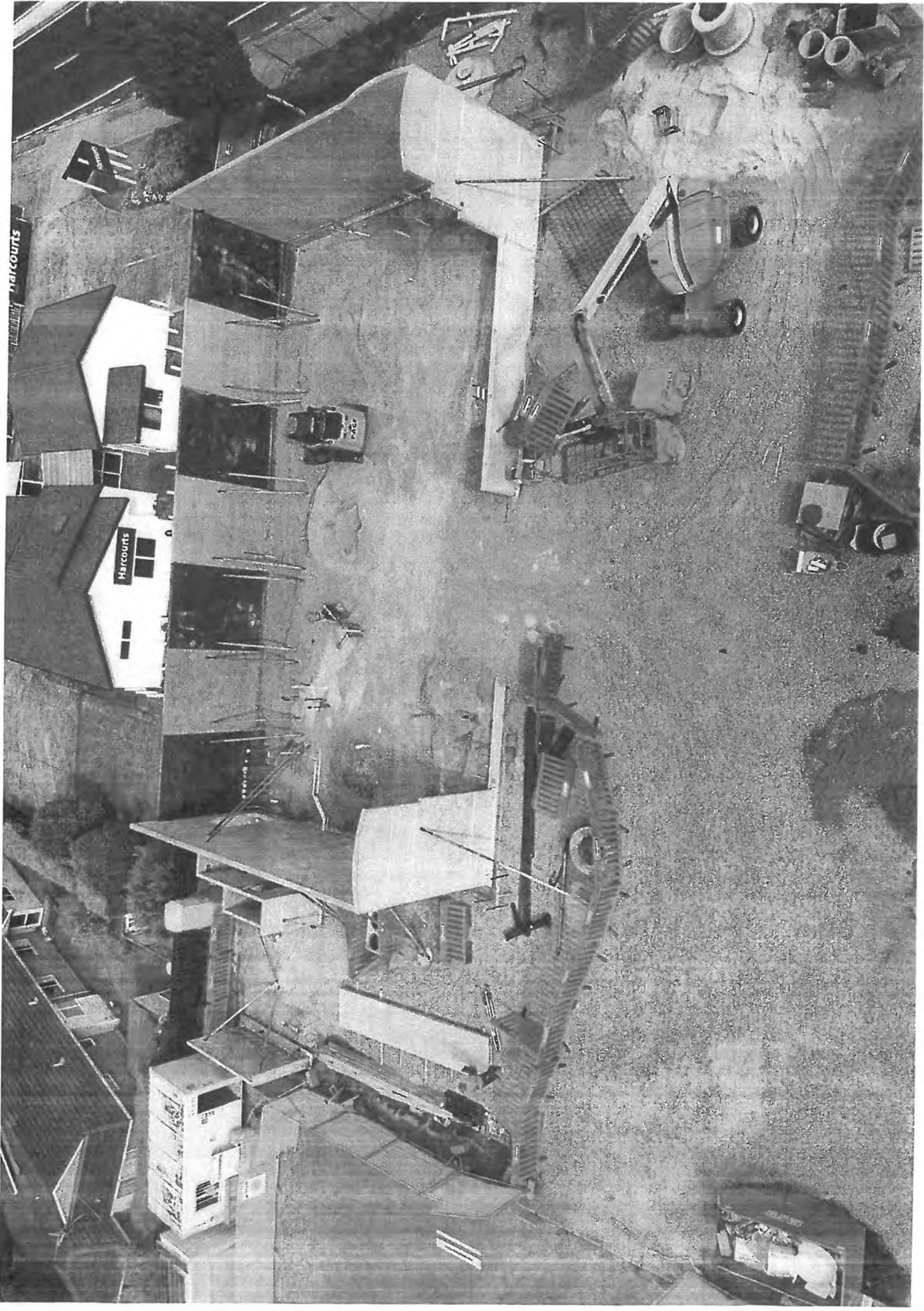




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STEPHEN MITCHELL

ENGINEERS LIMITED

CONSULTING STRUCTURAL ENGINEERS

STRUCTURAL REPORT

Initial Seismic Assessment

Job Title:	Countdown – Bethlehem.
Building Type:	Existing Building
Client:	PMG Generation Fund.
Location:	Bethlehem Shopping Centre, Tauranga.
Job No.:	2470A
Date:	April 2021
Rev:	C

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INTRODUCTION

PMG Generation Fund (PMG) engaged Stephen Mitchell Engineers Ltd (SME), to undertake an initial review of the expected seismic performance of the existing Countdown bulk retail building, at the Bethlehem Shopping Centre, Tauranga, based on an investigation of the Property File documentation, which was supplied by the client.

This report has been prepared under advice from PMG that it is to be used for Due Diligence purposes and therefore may be assigned under the same contractual terms and conditions that SME were engaged to undertake this assessment and prepare this report.

The following Initial Seismic Assessment (ISA), which is essentially the re-named version of the Initial Evaluation Procedure (IEP), and seismic rating, are based on our results derived from the application of the procedure detailed in the New Zealand Society for Earthquake Engineering technical publication 'Assessment and Improvement of the Structural Performance of Buildings in Earthquakes'. Specifically, the Initial Seismic Assessment that we have conducted has been undertaken using the current NZ Society of Earthquake Engineers (NZSEE) guidelines "The Seismic Assessment of Existing Buildings – Technical Guidelines for Engineering Assessments – July 2017 – Initial Seismic Assessment – Part B".

The ISA method was developed to provide an initial coarse screening tool for the assessment of the potential seismic performance of a building structure, bench marked against the New Building Standard (NBS). The grading system represents the capacity of the building's seismic load resisting structural elements to sustain the New Building Standard seismic lateral load actions, expressed as the percentage of that demand. The assessment is derived from both quantitative parameters and the qualitative review of specific features of the buildings' form, design, construction, and location. For this ISA we have carried out a more comprehensive investigation of the original structural engineering design drawings, detail and available calculations than would normally be expected for this level of assessment, but because of this, we submit that it makes this particular ISA more complete, robust and reliable than a more typical ISA conducted under the ISA format.

The property file contained a comprehensive set of the original architectural and structural drawings for the original 2003 building and the 2014 refurbishment and some remedial work that was carried out in 2020. The quality of this property file documentation allows us to carry out a robust seismic assessment of the building structure and the determination of a reliable seismic performance and grade.

There was a 2013 geotechnical report by BCD Group, which includes bore-log data, discovered in the documentation for the K-Mart development (which is now known as Block E) on the other side of the shopping centre, and although not for the exact same location as the Countdown building, it is considered to be of sufficient accuracy to use for the Countdown Block, at this level of reporting. We have also discovered a geotechnical site investigation report by CMW Geosciences dated 27 July 2020 for a pad foundation under an additional column within the existing building, and this report includes useful hand auger log data and geotechnical ultimate bearing pressures.

WHAT THE SEISMIC RATING MEANS:

Our investigation has determined that the Bethlehem Countdown building will achieve a seismic rating of at least 100+% NBS, as an Importance Level 2 structure, with no identified Severe Structural Weaknesses or Critical Structural Weaknesses.

This means that the rating is based on seismic loads derived for an Importance Level 2 (IL2), which reflects the seismic loads appropriate for a building of this type, size, and occupancy. This Importance Level has been determined in accordance with the joint Australian/ New Zealand Standard – Structural Design Actions Part 0, AS/NZS 1170.0:2002.

Because this building is considered as a Grade A+ building (having an expected seismic performance greater than 100% NBS), the NZSEE grading scheme presented in Table 1 below, indicates a risk exposure for the building, with the current occupancy, to be less than, or comparable to, a new building structure.

A building with an earthquake rating less than 34% NBS, is one of the requirements for the Territorial Authority to consider it to be an Earthquake-Prone Building (EPB) in terms of the Building Act 2004. A building rating less than 67% NBS is considered as an Earthquake Risk Building (ERB) by the New Zealand Society for Earthquake Engineering. The Countdown building is therefore categorised as neither an ERB nor an EPB.

In addition to the building having sufficient strength to sustain the design seismic actions defined by the % NBS earthquake rating, the NZSEE guidelines also require that the rating must reflect the ability of the building to continue to perform in earthquake shaking beyond that % NBS ULS shaking demand level. This ability is defined in the guidelines as the available structural resilience. Structural resilience is necessary to allow a building to meet the overall performance objectives set out in the Building Code. These objectives would not be met if the building had a high probability of failure once the rated % NBS ULS shaking demand levels were exceeded.

Our qualitative and quantitative assessment of this building indicates no Severe Structural Weaknesses (SSW's), Critical Structural Weaknesses (CWS's) or geotechnical considerations that would negatively impact on any of the Block's structural resilience. Our review of the detailing in this building is such that we are satisfied that it will meet the requirements of the Building Code with respect to available resilience for earthquake intensities of a minimum of 100% ULS seismic demand. This level of seismic performance is the by-product of the design philosophy, procedures, parameters, and detailing employed by the original design engineers, which are described later in this report in more detail.

TABLE 1

(Copy of Table A3.1 from NZSEE 'The Seismic Assessment of Existing Buildings' – Part A).

Percentage of New Building Standard (%NBS)	Alpha rating	Approx. risk relative to a new building	Life-safety risk description
>100	A+	Less than or comparable to	Low risk
80-100	A	1-2 times greater	Low risk
67-79	B	2-5 times greater	Low to Medium risk
34-66	C	5-10 times greater	Medium risk
20 to <34	D	10-25 times greater	High risk
<20	E	25 times greater	Very high risk

BUILDING DESCRIPTION and DESIGN FEATURES:

The building was a bespoke Countdown bulk retail development for Progressive. It was designed in early to mid-2003 by architects Booth Sweetman Wolfe Ltd (BSWL) and structural engineers, Stiles and Hooker Ltd (S&H). It appears that the structural engineering design was reviewed by Bay Building Certifiers and Tauranga District Council issued a Building Consent in late August 2003. We have assessed the S&H structural engineering design and detailing as robust, competent, and professional. It is typical for a modern era low rise bulk retail building design.

In late 2013 minor modifications were undertaken to the mezzanine floor areas, and these were architecturally designed by BSW Group Ltd and structurally by Fairclough and King Consultants Ltd. The Building Consent for these works was issued by the Tauranga City Council in February 2014. Our review of the drawings for these works suggest that this

alteration was primarily a cosmetic refurbishment of western back-of-house area and the northern mezzanine area including the floor area below the suspended mezzanine floor. There appears to have been a new beam installed to support a section of the northern mezzanine floor and this entailed installing new steel posts and braces, and a new foundation beam. We consider these works to be minor and if anything, they enhanced the lateral load resistance of this section of the building.

In early 2020, it appears that a problem arose with excessive deflection of the main portal rafter on Grid F. This is a special long span rafter that is not replicated at any other location in the building. As a result, Beca devised a method of installing a new 250 x 9.0mm structural steel square hollow section (SHS) column, and new foundation pad, at near mid-span of the rafter, to reduce the sag to a level compatible with the adjacent rafters. This work was completed by November 2020, when Beca provided a Producer Statement – Construction Review. We quote from the Beca Design Features Report, dated 10 February 2020, for this work; “The proposed modifications do not impact the lateral load resisting systems”. As such, we will consider them no further in this report.

This Countdown Block is effectively a stand-alone building that has a car park frontage on the north, south and east sides and a service road on the western boundary side. It is seismically isolated from all other buildings.

This building is a large foot-print single storey, pitched roof warehouse type building, with 7 bays in the north-south longitudinal direction and a single bay in the east-west transverse direction. There are extensive canopies on the east, and south sides, and there is a significant canopy over the loading area on the western side.

Construction of the warehouse type envelope consists of long-run metal roof sheeting over cold rolled steel purlins, supported on custom built structural steel portal frame rafters, which are located on each primary transverse frame grid. Each of the primary frame portal rafters is supported by structural steel portal columns at the span ends, and there are no internal columns other than where the 2020 remediation to the Grid F rafter has been carried out. The structural steel columns land above the concrete on-grade slab and conventional strip footing and pad foundations that have been well detailed in reinforced concrete. On each primary transverse grid there is a reinforced concrete foundation tie beam that ties across the full width of the building between the portal column bases.

There are 150mm thick reinforced precast concrete wall panels along all four elevations, and these panels are virtually continuous along the north, south and west elevations. However, some of the panels are replaced with shop front glazing in the east elevation, and there are roller shutter door penetrations in the west elevation, as well as minor egress door penetrations at other locations. On the southern end of the east elevation, the precast concrete wall panels are deleted over a 3.6m height to allow for 6 large openings for shop front glazing. The upper panels are supported by structural steel trusses which are supported by the precast concrete return panels at each end and two internal structural steel columns. It appears from the steel work detailing that the truss and columns were designed to act as an in-plane loaded moment resisting frame, and this opinion is reinforced by the inclusion of a large diameter bored cast insitu reinforced concrete pile at each end of this frame, presumably to sustain the high tension and compression axial loads that the frame will generate during an earthquake. There are narrow precast concrete wall panels at each support line at mid-span of each truss bay, between the shop front window panels.

There is a single longitudinal bay of full width diagonal structural steel angle and SHS roof bracing in the transverse direction and this is continued into the east and west canopy bays. There are substantial SHS and parallel flange channel (PFC) eaves ties on the east and west elevations and these appear to act as collector beams to distribute lateral loads to the roof plane bracing.

The on-grade floor slab consists of a conventional mesh reinforced 100mm thick on-grade slab that is increased to 125mm thick in specific areas under the mezzanine floors.

There is a mezzanine area on the north side of the main building. The suspended floor is constructed from precast concrete flat slab units with a conventional mesh reinforced in situ concrete topping. The floor system is supported on a combination of the exterior precast concrete wall panels, significant lengths of precast concrete wall panel on the inside elevation of the mezzanine and structural steel beams and posts where there are no panels.

The lateral load resisting system for the building envelope appears to have several redundancies and consists primarily of the diagonal structural steel roof bracing in conjunction with the precast reinforced concrete wall panels acting as in-plane loaded shear walls in longitudinal direction, all supported on substantial spread foundations. The transverse lateral loads (in the east-west direction) are sustained by the structural steel moment resisting portal frames and it is clear from the reinforcement details for the concrete wall panels, and the foundation details, that the wall panels have been designed to sustain the post-fire lateral loads by cantilever action above the on-grade floor slab.

The lateral load resisting system for the suspended mezzanine floor consists of direct support by in-plane loaded reinforced concrete wall panels in both directions, coupled with a bay of structural steel bracing that was constructed in 2013. By inspection, there is a high density of bracing under the mezzanine floor, and we conclude that this section of the building will achieve a seismic rating of greater than 100% NBS without any severe structural weaknesses, and as such will not govern the seismic rating for the building as a whole.

The detail obtained from information contained in the property file confirms that we are able to make a robust assessment of the likely seismic performance of the building at a level of certainty well above that generally associated with an ISA.

SEISMIC ASSESSMENT – PRELIMINARY REVIEW:

As a starting point for the overall seismic assessment, we referred to the New Zealand Society for Earthquake Engineering technical guideline "Assessment and Improvement of the Structural Performance of Buildings in Earthquakes", June 2006, including Corrigendum No 1,2 & 3.

Prior to commencing and Initial Seismic Assessment (ISA), we utilised an assessment accuracy check on the basis of the "Typical % NBS" tables in Appendix 3A that can be used to determine the estimated seismic performance for a generic similar type building, with this type of seismic load resisting structure, designed in 2003 and built in this specific Tauranga location. This approach required the modification of the seismic ratings derived from the standard tables due to the Tauranga location, and this was estimated with the use of the current Hazard factors from the NBS loadings code NZS1170.5. This preliminary assessment is a useful guide because the building was designed to the former loadings code NZS 4203:1992.

By reference to the original drawings, we determined that the building should be considered to be classified as 'Normal' having an 'ordinary' retail occupancy, so we have adopted a category of Importance Level 2 (IL = 2), for this assessment. We have selected a natural period of approximately 0.4 seconds in both directions, this being a realistic default maximum for in-plane loaded shear wall buildings attaining their stiffness from in-plane loaded precast concrete panels. This natural period will be conservative for the pin based structural steel moment resisting portal frames. From the geotechnical description in the 2013 BCD Group geotechnical report, we have selected a Class D soils category.

The critical lateral load resisting system consists of the structural steel roof bracing and the in-plane loaded reinforced concrete wall panels, which we estimate to be capable of achieving a ductility factor of 1.25. We discuss the structural steel portal frames in more detail in the next section.

Using this data, we established by interpolation between the Auckland and pre-earthquake Christchurch values tabulated in Tables 3A.5 and 3A.7 that the very approximate likely seismic capacity relative to the demands of the New Building Standard, (NBS), would be in the order of 95% NBS in the critical longitudinal direction.

This estimate is on this basis that the member capacities were accurately calculated to exactly match the demand derived from the New Building Standard, (normally there is some over-provisioning of structural capacity from excess member size and reinforcement content) and that there are no detrimental or enhancement aspects discovered during the assessment. From this approach we were confident that the Countdown Block will achieve a minimum seismic rating in the order of at least 95% NBS.

COMMENTARY ON ISA PARAMETERS:

The Building Consent for this block was certified in May 2003. The structural design was carried out to the requirements of the cited Loadings Code of the day, NZS4203:1992 which was the immediate predecessor to the current loadings code, NZS 1170, which now forms part of a suite of Codes and Standards commonly referred to as the New Building Standard (NBS).

We have assessed the building as being of a 'Normal Importance Level' of 2, which is appropriate to a building of this type, size, and occupancy, therefore the seismic demand is derived for an Importance Level 2 (IL2). This Importance Level has been determined in accordance with the joint Australian/ New Zealand Standard – Structural Design Actions Part 0, AS/NZS 1170.0:2002.

Effectively being a single-storey structure, primarily dependant on structural steel diagonal roof bracing, in-plane loaded reinforced concrete wall panels, and structural steel moment resisting portal frames for lateral load stability and strength, we assess this building as being designed and detailed to achieve a ductility factor of at least 1.25 for both the transverse and the longitudinal directions. This structural ductility factor reflects that used by the original design engineers for the precast concrete panels loaded in-plane, and the structural steel portal frames. It does not reflect the ductility factor used for the trussed portal frame on grid 8, which replaced some of the local concrete panels in order to form the shop front windows, and this was designed and detailed for a ductility factor of 2.0 by the design engineer. This is a reasonable design approach and is not critical.

The natural period was determined to be the default minimum of 0.4 seconds in both principal directions, this is as expected for an in-plane reinforced concrete shear wall structure although it would be conservative for the well-conditioned structural steel portal frames and this aspect is commented on later.

Based on the local geotechnical conditions, described in the BCD Group geotechnical report, and the CMW Geosciences investigation, we have selected a site seismic soil classification of 'Intermediate'. We use this because we have carried out a high level review of the original Stiles and Hooker calculations and have determined that they used the 'Intermediate' soil classification in accordance with the site seismic soil classes tabulated in NZS 4203 and we accept that they must have selected this parameter based on geotechnical advice, which to date we have not been able to locate. The 'Intermediate' soil class is appropriate for the recognition of the use of NZS 4203 in the IEP protocol.

The assessment of the building's Performance Achievement Ratio (PAR) reflects the current and conventional design aspects of the lateral load resisting systems within this project, one that appears to have no significant detrimental features but does have a significant level of redundancy against seismic loads, as determined and discussed below.

There is horizontal symmetry of the primary lateral load resisting system, with in-plane loaded shear walls on all four elevations and a regular array of moment resisting portal frames in the transverse direction. This symmetry is reflected by the use of a horizontal regularity factor of 1.0 for both principal directions, and there is sufficient evidence in the drawings for us to believe that the original design engineer apportioned the seismic loads in the building to the different structural elements in proportion to the tributary area. This is a common design technique and means that the various structural elements are designed to safely sustain the seismic loading attributed to them based on the vertical and horizontal area that they directly support. We have applied a vertical regularity reduction factor of 1.0 in both directions.

The building effectively has no immediate neighbours on any side, thus eliminating the potential to induce pounding, the appropriate pounding factor is therefore 1.0.

There is no suggestion of potential liquefaction or ground instability therefore the appropriate site characteristic factor is 1.0. The building founds on spread foundations bearing directly onto competent soils with the CMW Geoscience report providing a geotechnical ultimate bearing capacity for pad foundations of 450 kPa.

Whilst the primary lateral load resisting system consists of the diagonal structural steel roof bracing in conjunction with the precast reinforced concrete wall panels acting as in-plane loaded shear walls in the longitudinal direction, and structural steel moment resisting portal frames in the transverse direction, we have applied an 'Other Factor' of 1.05, and this is conservative considering the combined effect of several redundancies, which are as follows:

The transverse lateral loads (in the east-west direction) are sustained by the structural steel moment resisting portal frames and the precast concrete wall panels. These portal frames are not as stiff as the in-plane loaded walls, which the original design engineer reasonably assumed to be self-supporting under in-plane loading conditions. It is likely that the walls will sustain a larger proportion of the transverse seismic roof load than the designer anticipated, and therefore there is in effect a redundancy due to load sharing in the transverse lateral load resisting system.

We have taken the natural period of the building in both principal directions to be the default minimum of 0.4 seconds, which is appropriate to in-plane loaded precast concrete shear walls. The structural steel portals have a 4 holding down bolt, partial moment connection at the base and if analysed, such as in a Detailed Seismic Assessment (DSA), which is beyond the scope of this ISA level investigation, we are sure that the natural period of the portal frames would be greater than 0.4 seconds, which would reduce the NBS seismic demand, effectively increasing the seismic rating in the transverse direction.

We consider that the structural steel moment resisting portal frames will be capable of achieving a higher ductility than the conservative nominal elastic factor of 1.25. The original design engineers used this Nominally Ductile value, but the steel work detailing suggests that the frames have a higher level of inherent ductility than the original designer assumed. If a higher level of ductility is achievable, which a DSA would possibly verify, this would reduce the seismic demand in the transverse direction and therefore increase the seismic rating.

From our high level review, there is evidence in the calculations that the critical lateral load design case was a wind based combination and this suggests the building may have reserve capacity to sustain seismic loads above 100% NBS.

In both principal directions, it is clear from the reinforcement details for the concrete wall panels and the foundation details that the precast concrete wall panels have been designed to sustain the post-fire lateral loads by cantilever action above the on-grade floor slab. Because of this they have lateral load resisting strength but because the panels are being bent about their minor axis, they have a low rigidity compared to the primary lateral load resisting system however this mechanism is still considered to be a redundancy.

The distribution of seismic shears to each mechanism could only be determined and verified by undertaking a Detailed Seismic Assessment which is not warranted for this building, so we have recognised the likely level of redundancy by using the resulting PAR factor of 1.05 which has been adopted for both directions.

There were no areas of critical structural weakness that affect the primary lateral load resisting system, detected during this review.

DISCUSSION OF THE ISA RESULTS:

Having a similar lateral load resisting system that has similar dynamic properties, in each principal direction, (structural steel roof bracing and reinforced concrete shear walls in both directions and structural steel moment resisting portal frames), with the systems presumed to be capable of achieving a nominal ductility of 1.25, produces a similar result for each principal axis.

In both principal directions the assessed Baseline Rating is 104% of the New Building Standard (NBS). This reflects the modern characteristics of the building and the fact that the seismic loads were derived in accordance with the New Building Standard loadings code and is not dissimilar to the interpolated typical value of 95% NBS derived from the 'typical' tables. There is an enhancement of the Baseline Rating due to the performance assessment factor (PAR) of 1.05, the derivation of which is discussed above. The Baseline 104% NBS has been achieved with the application of an assessed Ductility Factor of 1.25.

The final rating of 109% NBS is both realistic and robust but because of the ISA protocol, this rating can only be reported as >100% NBS. The building has no areas of critical structural weakness.

In summary, the seismic rating in both principal directions is calculated to be >100% NBS. Therefore, in accordance with the ISA protocol the seismic rating for this building is >100% NBS and the building achieves a Seismic Grade of A+, and as such is neither Earthquake Prone nor an Earthquake risk.

DISCUSSION OF POTENTIAL SEVERE STRUCTURAL WEAKNESSES:

No potential severe structural weaknesses were detected for this Block.

CONCLUSIONS:

- This Initial Seismic Assessment has been conducted using the current NZ Society of Earthquake Engineers (NZSEE) guidelines "The Seismic Assessment of Existing Buildings – Technical Guidelines for Engineering Assessments – July 2017 – Initial Seismic Assessment – Part B".
- This building consists of a single seismically separated Block. There is an isolated section of suspended floor slab in the northern mezzanine.
- There is a comprehensive set of architectural and structural engineering drawings and calculations in the Council property file for the original 2003 construction, the

2013 refurbishment and the 2020 portal frame remedial. This information has allowed us to complete a robust assessment, at a level well above that normally associated with an ISA.

- The Countdown Block is a single storey pitch roofed warehouse type building with significant structural steel roof bracing, moment resisting steel portal frames and precast concrete wall panels. The building founds on conventional spread foundations.
- The application of the ISA protocol determined that the 'Baseline' seismic rating in both principal directions is 104% NBS and this was increased by a PAR factor of 1.05, which, although minimal, has been used conservatively to reflect that there is a combination of enhancement factors that are the specific characteristics and redundancies in the lateral restraint systems of this Block and its original design. The resulting final **seismic rating is >100% NBS**.
- In accordance with the ISA protocol the seismic rating for this building is >100% NBS and the building achieves a **Seismic Grade of A+**, and as such is neither Earthquake Prone nor an Earthquake Risk, and no severe structural weaknesses have been detected.

LIMITATION:

This report and its conclusions are based on the Initial Evaluation Procedure as detailed in the New Zealand Society for Earthquake Engineering Guideline 'Assessment and Improvement of the Structural Performance of Buildings in Earthquakes', an external and internal visual inspection of the property and a review of only the documents available in the Council Property File. No testing, measurement or intrusive examinations of the structural elements were made. The findings and conclusions rely on the building having been constructed in full accordance with the documentation reviewed and that the structural elements have remained unaltered and in sound condition and repair. No opinion regarding any aspect of the condition, or maintenance, of the building is expressed or implied and likewise the consideration of any discipline, other than the structural engineering assessment of the likely seismic performance, determined by high level document review and visual inspection, is expressed or implied.

Yours faithfully,



Stephen Mitchell
(CPEng # 70562)

Appendix A

Initial Evaluation Procedure (IEP)

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}**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:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Countdown	Date:	26/03/2021
City:	Tauranga	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)

Refer to report

1.4 Note information sources

Tick as appropriate

Visual Inspection of Exterior ☒

Visual Inspection of Interior ☒

Drawings (note type) ☒

Specifications ☐

Geotechnical Reports ☒

Other (list) ☒

Drawings, calculations and geotechnical reports obtained from the property file.

Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 2

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Countdown	Date:	26/03/2021
City:	Tauranga	Revision No.:	B

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}

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

Longitudinal

☐

N/A

Transverse

☐

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 ☐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 :

C Shallow Soil C Shallow Soil

From NZS4203:1992, Cl 4.6.2.2 :

(for 1992 to 2004 and only if known)

Intermediate/Not Known Intermediate/Not Known

d) Estimate Period, T

Comment:

h_n = 8A_c = 1.00

8 m

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 ≤ 0.4sec

☐

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: 0.23

0.23

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} 23%

23%

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 3

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Countdown	Date:	26/03/2021
City:	Tauranga	Revision No.:	B

Table IEP-2 Initial Evaluation Procedure Step 2 continued

2.2 Near Fault Scaling Factor, Factor E

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

a) Near Fault Factor, $N(T,D)$
(from NZS1170.5:2004, CI 3.1.6)

Longitudinal

N(T,D): 1

Transverse

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: Tauranga

Refer right for user-defined locations

Z = 0.2 (from NZS1170.5:2004, Table 3.3)

 $Z_{1992} = 0.85$ (NZS4203:1992 Zone Factor from accompanying Figure 3.5(b)) $Z_{2004} = 0.2$ (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: 4.25

4.25

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.)

I = 1

1

b) Design Risk Factor, R_o

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

Category IV

 $R_o = 1$

Category IV

1

c) Return Period Factor, R

(from NZS1170.0:2004 Building Importance Level)

Choose Importance Level

☐ 1
☒ 2
☐ 3
☐ 4

R = 1.0

☐ 1
☒ 2
☐ 3
☐ 4

1.0

d) Factor G

 $= IR_o/R$

Factor G: 1.00

1.00

2.5 Ductility Scaling Factor, Factor H

a) Available Displacement Ductility Within Existing Structure

Comment:

 $\mu = 1.25$

1.25

b) Factor H

For pre 1976 (maximum of 2)

 $= \frac{k_u}{1.14}$

For 1976 onwards

 $= 1$

Factor H: 1.00

 $\frac{k_u}{1.14}$

1.00

(where k_u 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

 $S_p = 0.93$

0.93

b) Structural Performance Scaling Factor

 $= 1/S_p$

Factor I: 1.08

1.08

Note Factor B values for 1992 to 2004 have been multiplied by 0.67 to account for S_p in this period2.7 Baseline %NBS for Building, (%NBS)_b(equals (%NBS)_{nom} x E x F x G x H x I)

104%

104%

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 4

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Countdown	Date:	26/03/2021
City:	Tauranga	Revision No.:	B

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 Comment	Factor A	1.0
3.2 Vertical Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment	Factor B	1.0
3.3 Short Columns Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment	Factor C	1.0
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 0 < Sep < .005H	Significant .005 < Sep < .01H	Insignificant 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
Comment			

b) Factor D2: - Height Difference Effect

Factor D2 For Longitudinal Direction: 1.0

Table for Selection of Factor D2	Severe 0 < Sep < .005H	Significant .005 < Sep < .01H	Insignificant 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
Comment			

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
 Comment

Factor E 1.0

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

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

Factor F 1.1

Record rationale for choice of Factor F:

Comment

3.7 Performance Achievement Ratio (PAR)

(equals A x B x C x D x E x F)

PAR
 Longitudinal 1.05

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 5

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Countdown	Date:	26/03/2021
City:	Tauranga	Revision No.:	B

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

potential CSWs	Effect on Structural Performance (Choose a value - Do not interpolate)	Factors
3.1 Plan Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment	Factor A	1.0
3.2 Vertical Irregularity Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment	Factor B	1.0
3.3 Short Columns Effect on Structural Performance ☐ Severe ☐ Significant ☒ Insignificant Comment	Factor C	1.0
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 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant Sep>.01H
Separation 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
Comment			

b) Factor D2: - Height Difference Effect

Factor D2 For Transverse Direction: 1.0			
Table for Selection of Factor D2	Severe 0<Sep<.005H	Significant .005<Sep<.01H	Insignificant 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
Comment			

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
Comment		

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

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

Factor F 1.05

Record rationale for choice of Factor F:

Comment

3.7 Performance Achievement Ratio (PAR)

(equals A x B x C x D x E x F)

PAR
Transverse 1.05

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Initial Evaluation Procedure (IEP) Assessment - Completed for {Client/TA}

Page 6

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Countdown	Date:	26/03/2021
City:	Tauranga	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)	104%	104%
4.2 Performance Achievement Ratio (PAR) (from Table IEP - 2)	1.05	1.05
4.3 PAR x Baseline (%NBS) _b	>100%	>100%
4.4 Percentage New Building Standard (%NBS) - Seismic Rating (Use lower of two values from Step 4.3)		>100%

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)

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 {Client/TA}

Page 7

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Countdown	Date:	26/03/2021
City:	Tauranga	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. Unidentifiable connection between primary structure and diaphragms
6. Simple and open stairs

IEP Assessment Confirmed by

Signature

S R Mitchell

Name

70562

CPEng. No

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Appendix B

Existing Structural and Architectural Drawings



GENERAL NOTES

LEGEND



Issue	Date	Description
17/11/20	17/11/20	BUILDING COMMENT ISSUE
18/11/20	18/11/20	ISSUED FOR BC STAGING



RECORDED BY MEMPHIS OFFICE

BETHLEHEM COUNTDOWN

.....

APPROVED

2 MEZZANINE FLOOR PLAN
1:100

① GROUND FLOOR PLAN

БТН-1-201	Б
-----------	---

GENERAL NOTES

1. SEE PLAN FOR ALL DIMENSIONS.
2. ALL DIMENSIONS ARE IN FEET AND INCHES.
3. ALL DIMENSIONS ARE TO FACE UNLESS NOTED OTHERWISE.
4. ALL DIMENSIONS ARE TO CENTERLINE UNLESS NOTED OTHERWISE.

ROOFING LEGEND

1. ROOFING MATERIALS TO BE USED AS SHOWN ON THIS PLAN.
2. ROOFING MATERIALS TO BE USED AS SHOWN ON THIS PLAN.
3. ROOFING MATERIALS TO BE USED AS SHOWN ON THIS PLAN.
4. ROOFING MATERIALS TO BE USED AS SHOWN ON THIS PLAN.
5. ROOFING MATERIALS TO BE USED AS SHOWN ON THIS PLAN.



NO.	REVISION	DATE	BY	CHKD.
1	ISSUED FOR BIDDING	08/15/2018	J. B. BROWN	M. J. BROWN
2	FOR COMMENTS	08/15/2018	J. B. BROWN	M. J. BROWN

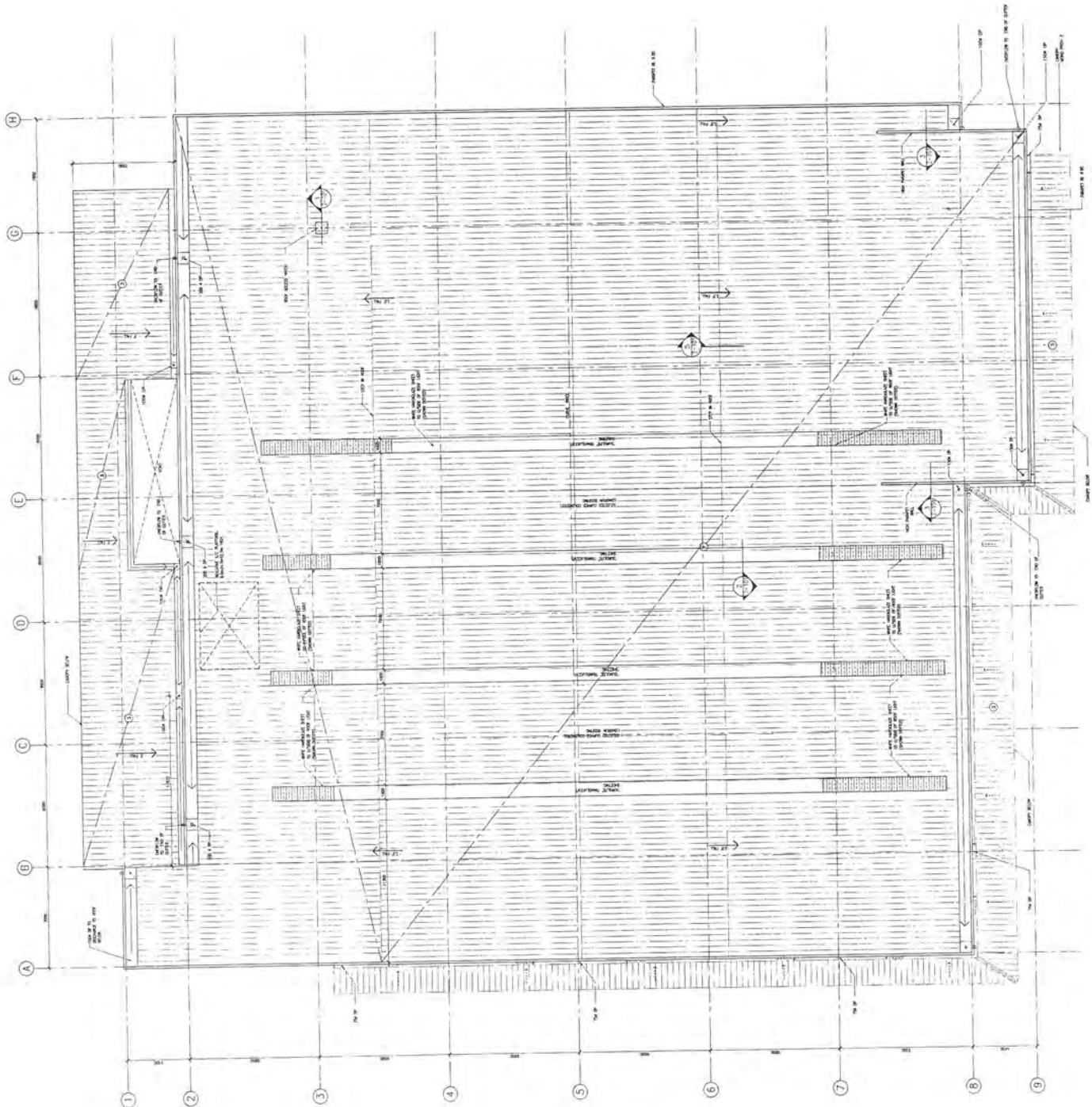


PROPOSED SUPERMARKET
BETHLEHEM COUNTDOWN

ROOF PLAN

Project Name	Bethlehem Countdown
Client	Countdown
Architect	Countdown
Engineer	Countdown
Contract No.	BTH-1-204
Sheet No.	a

APPROVED
For Construction of this project, the undersigned hereby certifies that he is a duly Licensed Professional Engineer in the State of Pennsylvania, and that he is the Engineer of Record for this project.



1. ROOF PLAN
1/100

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE SOUTH AFRICAN NATIONAL STANDARD (SANS) 10400-1:2012.
2. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE LOCAL AUTHORITY.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND STRUCTURES.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TREES AND LANDSCAPE.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING ROADS AND PATHS.
6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SERVICES AND INFRASTRUCTURE.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING PLANT AND EQUIPMENT.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING MATERIALS AND FINISHES.
9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING WORKMANSHIP.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SAFETY FEATURES.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING ACCESSIBILITY FEATURES.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SECURITY FEATURES.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING ENVIRONMENTAL FEATURES.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING CULTURAL FEATURES.
15. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING HISTORICAL FEATURES.
16. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING ARTISTICAL FEATURES.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SCIENTIFIC FEATURES.
18. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TECHNICAL FEATURES.
19. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING MEDICAL FEATURES.
20. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING EDUCATIONAL FEATURES.
21. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING RECREATIONAL FEATURES.
22. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING RELIGIOUS FEATURES.
23. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING COMMERCIAL FEATURES.
24. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING INDUSTRIAL FEATURES.
25. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING AGRICULTURAL FEATURES.
26. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING FORESTRY FEATURES.
27. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING FISHERY FEATURES.
28. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING MINING FEATURES.
29. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING ENERGY FEATURES.
30. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING TRANSPORT FEATURES.
31. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING COMMUNICATIONS FEATURES.
32. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING DEFENCE FEATURES.
33. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING SPACE AND AERONAUTICAL FEATURES.
34. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING NUCLEAR FEATURES.
35. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING OTHER FEATURES.

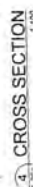
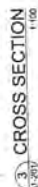
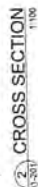
FINISH LEGEND

1. BRICKWORK
2. CONCRETE
3. PLASTER
4. PAINT
5. GLASS
6. METAL
7. WOOD
8. TERRAZZO
9. CARPET
10. TILE
11. STONE
12. OTHER

COLOR LEGEND

1. WHITE
2. GREY
3. RED
4. BLUE
5. GREEN
6. YELLOW
7. BROWN
8. BLACK
9. SILVER
10. GOLD
11. COPPER
12. ZINC
13. ALUMINUM
14. STEEL
15. IRON
16. BRASS
17. CUPRO-NICKEL
18. TITANIUM
19. INCONEL
20. MONEL
21. NICKEL
22. CHROMIUM
23. MANGANESE
24. ALUMINUM
25. ZINC
26. BRASS
27. CUPRO-NICKEL
28. TITANIUM
29. INCONEL
30. MONEL
31. NICKEL
32. CHROMIUM
33. MANGANESE
34. ALUMINUM
35. ZINC
36. BRASS
37. CUPRO-NICKEL
38. TITANIUM
39. INCONEL
40. MONEL
41. NICKEL
42. CHROMIUM
43. MANGANESE
44. ALUMINUM
45. ZINC
46. BRASS
47. CUPRO-NICKEL
48. TITANIUM
49. INCONEL
50. MONEL
51. NICKEL
52. CHROMIUM
53. MANGANESE
54. ALUMINUM
55. ZINC
56. BRASS
57. CUPRO-NICKEL
58. TITANIUM
59. INCONEL
60. MONEL
61. NICKEL
62. CHROMIUM
63. MANGANESE
64. ALUMINUM
65. ZINC
66. BRASS
67. CUPRO-NICKEL
68. TITANIUM
69. INCONEL
70. MONEL
71. NICKEL
72. CHROMIUM
73. MANGANESE
74. ALUMINUM
75. ZINC
76. BRASS
77. CUPRO-NICKEL
78. TITANIUM
79. INCONEL
80. MONEL
81. NICKEL
82. CHROMIUM
83. MANGANESE
84. ALUMINUM
85. ZINC
86. BRASS
87. CUPRO-NICKEL
88. TITANIUM
89. INCONEL
90. MONEL
91. NICKEL
92. CHROMIUM
93. MANGANESE
94. ALUMINUM
95. ZINC
96. BRASS
97. CUPRO-NICKEL
98. TITANIUM
99. INCONEL
100. MONEL
101. NICKEL
102. CHROMIUM
103. MANGANESE
104. ALUMINUM
105. ZINC
106. BRASS
107. CUPRO-NICKEL
108. TITANIUM
109. INCONEL
110. MONEL
111. NICKEL
112. CHROMIUM
113. MANGANESE
114. ALUMINUM
115. ZINC
116. BRASS
117. CUPRO-NICKEL
118. TITANIUM
119. INCONEL
120. MONEL
121. NICKEL
122. CHROMIUM
123. MANGANESE
124. ALUMINUM
125. ZINC
126. BRASS
127. CUPRO-NICKEL
128. TITANIUM
129. INCONEL
130. MONEL
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1. CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE CITY OF LOS ANGELES SPECIFICATIONS FOR THE CONSTRUCTION OF STREETS AND HIGHWAYS.

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PROGRESSIVE

countdown

PROPOSED SUPERMARKET
BETHLEHEM COUNTDOWN

SECTIONS - SHEET 1



APPROVED

	Health, Education, Planning, and Environmental Protection
State Department of Health and Human Services Division of Health Planning and Development 110 West Street Albany, New York 12242-0500	Health, Education, Planning, and Environmental Protection Division of Health Planning and Development 110 West Street Albany, New York 12242-0500

BTH-1-401

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PROPOSED SUPERMARKET
BETHLEHEM COUNTDOWN

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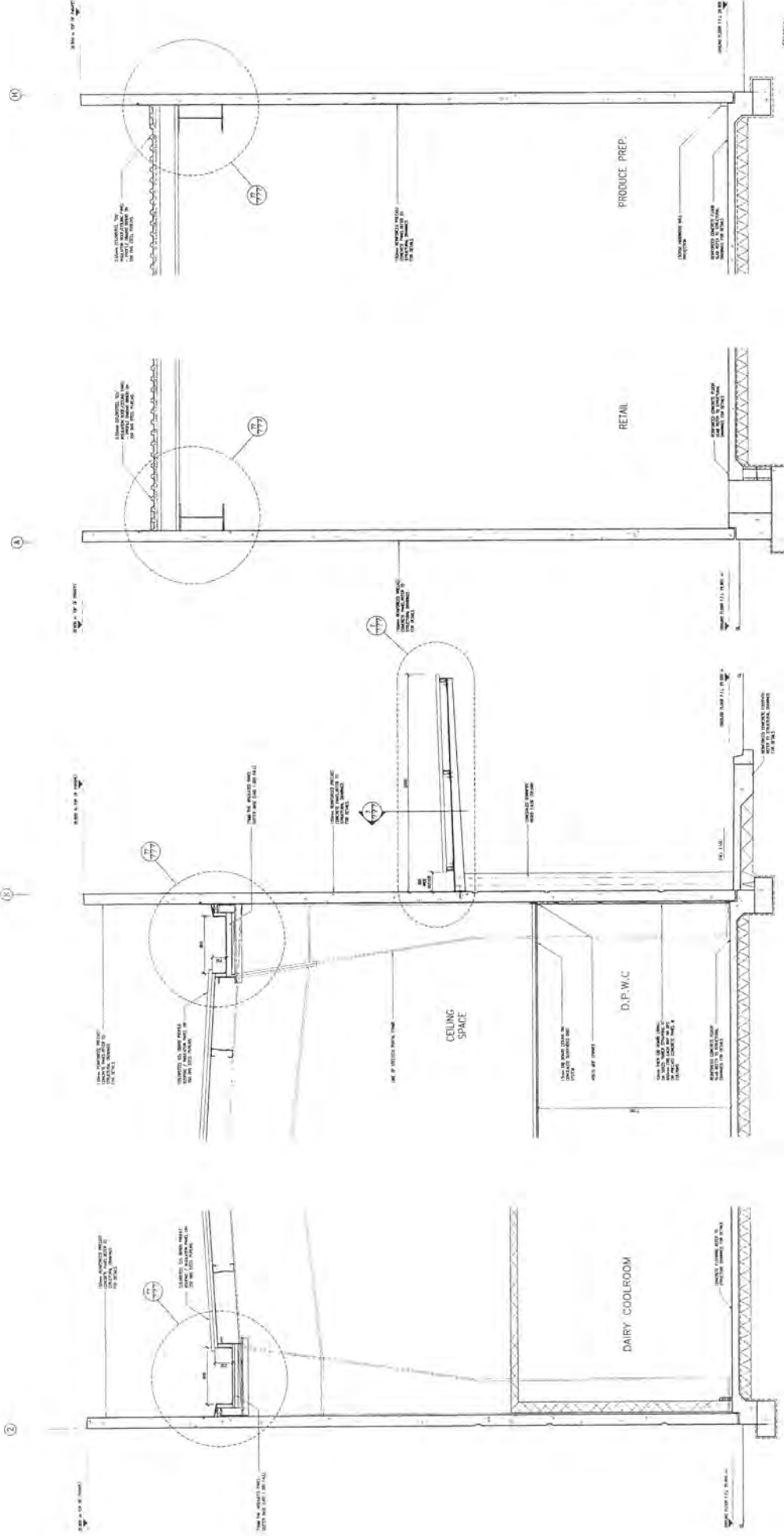


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1 WALL SECTIONS 1-20

GENERAL NOTES

1. SEE ALL NOTES ON SHEET 101.
2. SEE ALL NOTES ON SHEET 102.
3. SEE ALL NOTES ON SHEET 103.
4. SEE ALL NOTES ON SHEET 104.
5. SEE ALL NOTES ON SHEET 105.
6. SEE ALL NOTES ON SHEET 106.
7. SEE ALL NOTES ON SHEET 107.
8. SEE ALL NOTES ON SHEET 108.
9. SEE ALL NOTES ON SHEET 109.
10. SEE ALL NOTES ON SHEET 110.



7 WALL SECTIONS 1:20

8 WALL SECTION 1:20

9 WALL SECTION 1:20

10 WALL SECTION 1:20

11 WALL SECTION 1:20

DATE	BY	REVISION	DESCRIPTION
10/10/2019	101	101	101
10/10/2019	102	102	102
10/10/2019	103	103	103
10/10/2019	104	104	104
10/10/2019	105	105	105
10/10/2019	106	106	106
10/10/2019	107	107	107
10/10/2019	108	108	108
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10/10/2019	110	110	110

PROGRESSIVE
countdown

PROPOSED SUPERMARKET
RETAILER'S COUNTDOWN

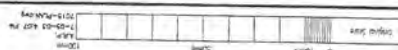
WALL SECTIONS - SHEET 3

APPROVED

10/10/2019

BTH-2-103

REFER TO PANEL ELEVATIONS DRAWINGS FOR FOOTING DEPTHS AND STEPS



CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE



Stiles and Hooker
Architects, Engineers

Hamilton Office 214 Cecil Road (opposite) PO Box 718 Hamilton, New Zealand	Auckland Office Rising H. Level 1 100 Albert Street PO Box 129170 Newmarket Auckland, New Zealand
Telephone 07 638 1254 Facsimile 07 638 1255	Telephone 08 506 1954 Facsimile 08 527 2065


countdown

BETHLEHEM
SUPERMARKET
PROJECT

Drinking Water

Designated	Date	Approved
(Signature)		

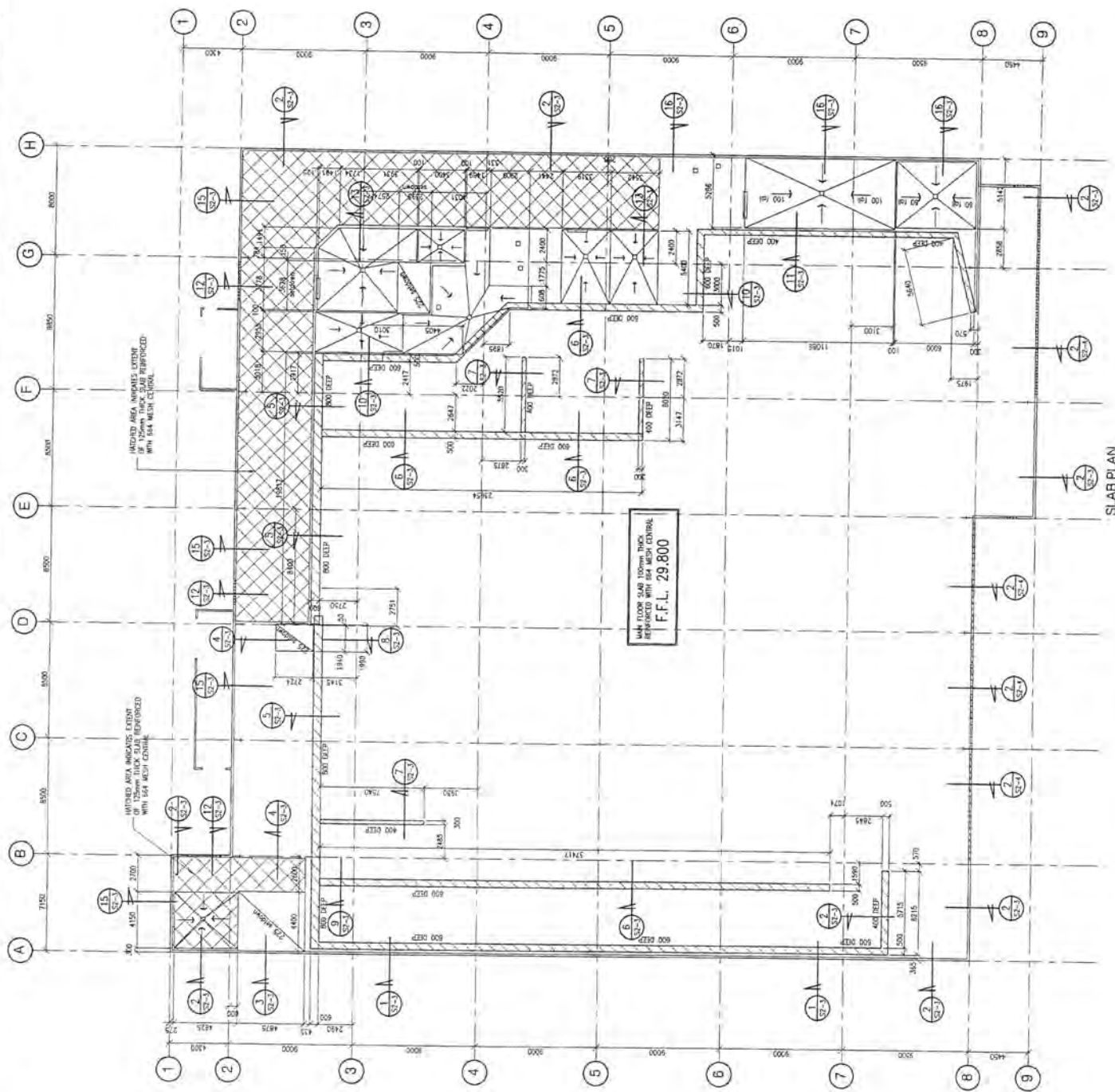
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THE NEW STATE

CONTRACTOR TO VERIFY ALL DIMENSIONS

NOTES

CONTRACTOR TO SUPPLY TO ENGINEER PROPOSED
SLAB JOINT LAYOUT TO SUIT CONTRACTORS POURING
SEQUENCE FOR APPROVAL PRIOR TO CONSTRUCTION



APPROVED
The Engineer's Approval is given for the construction of the project as shown on the drawings and specifications, subject to the approval of the relevant authorities.



CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE

Stiles and Hooker
Architects Engineers

Telephone: 01 850 1234
Facsimile: 01 850 1235
Mobile: 01 850 1236
Email: info@stilesandhooker.co.uk
Website: www.stilesandhooker.co.uk

PROGRESSIVE
countdown

BETHLEHEM
SUPERMARKET
PROJECT

SLAB PLAN AND TRENCH LAYOUTS

Scale: 1:150
Date: 15/05/2015
Drawing No: 7015

Client: Bethlehem Supermarket Ltd

Project: Bethlehem Supermarket Project

Location: 123 Main Street, Dublin 1

Drawn By: J. Smith

Checked By: M. Jones

Approved By: P. Brown

ORIGINAL



Stiles and Hooker
Architects
1000 N. 10th St., Suite 100
Phoenix, AZ 85004
Phone: (602) 254-1100
Fax: (602) 254-1101
www.stilesandhooker.com

PROGRESSIVE
countdown
CONSTRUCTION SOFTWARE

BETHLEHEM
SUPERMARKET
PROJECT

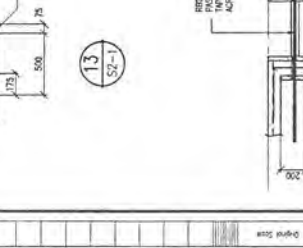
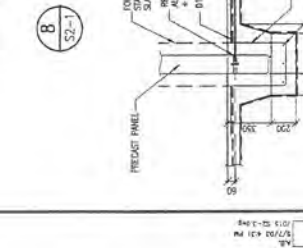
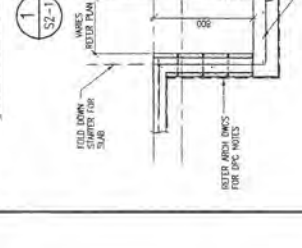
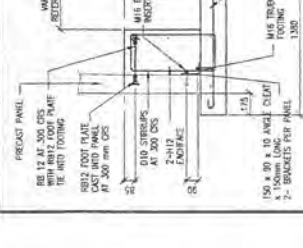
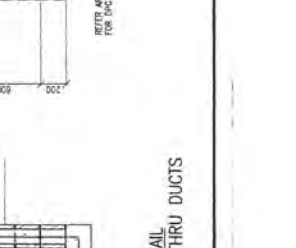
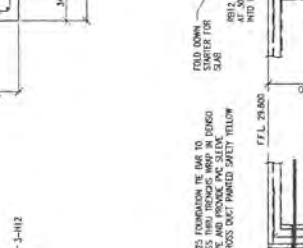
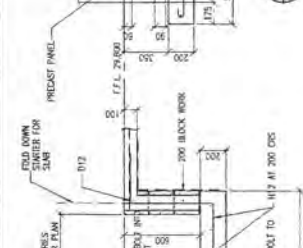
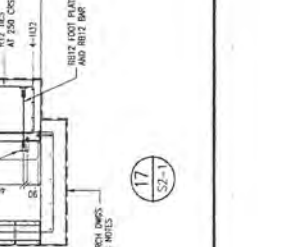
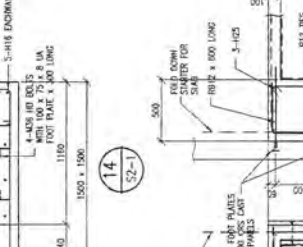
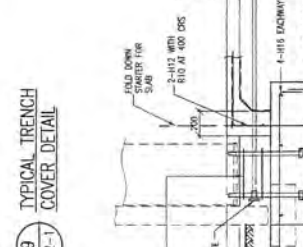
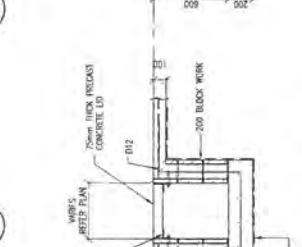
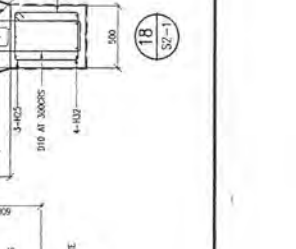
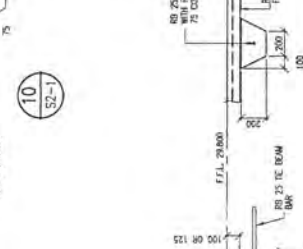
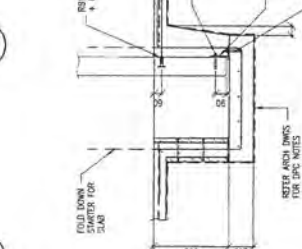
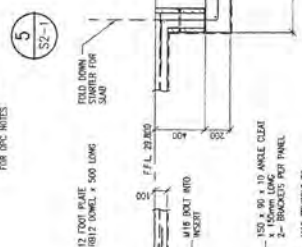
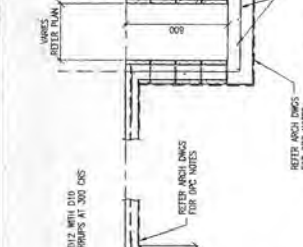
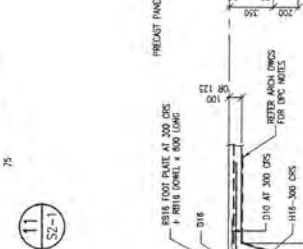
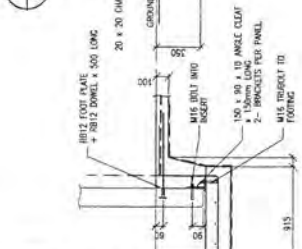
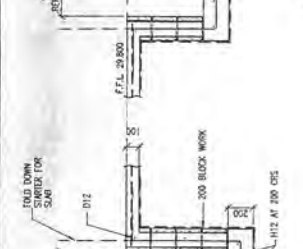
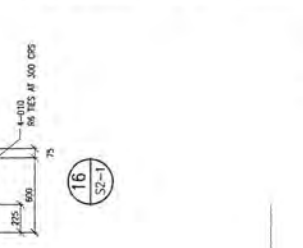
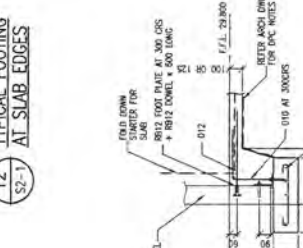
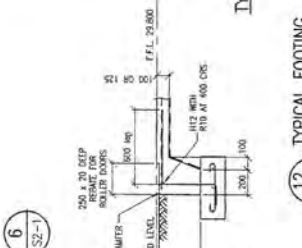
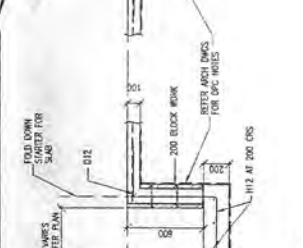
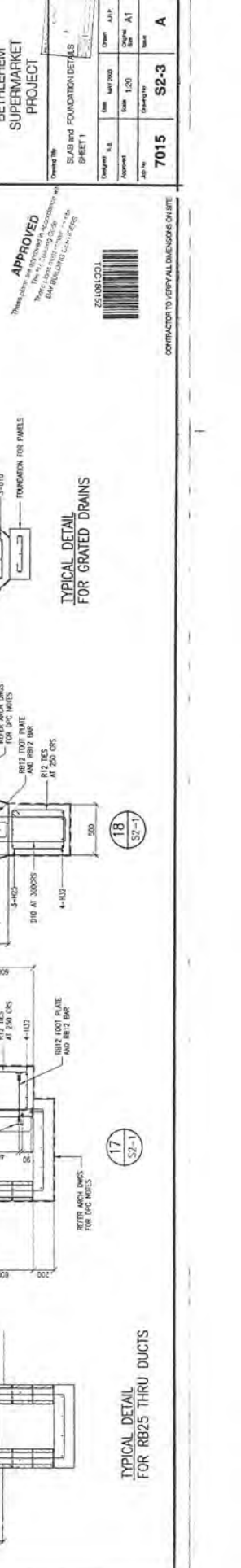
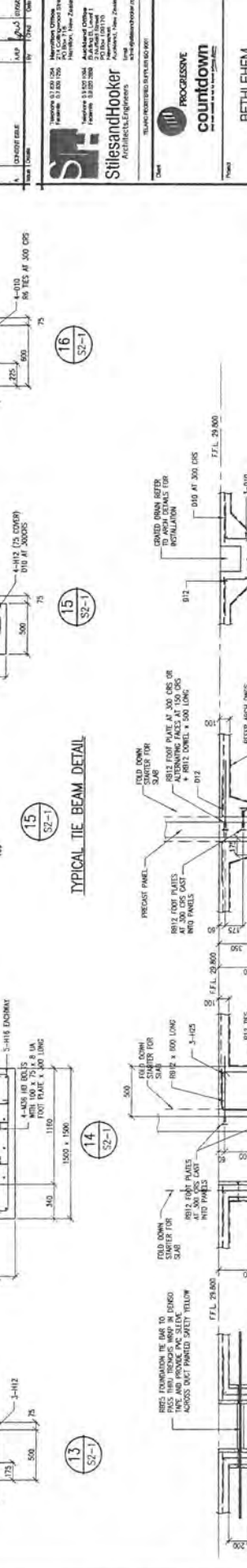
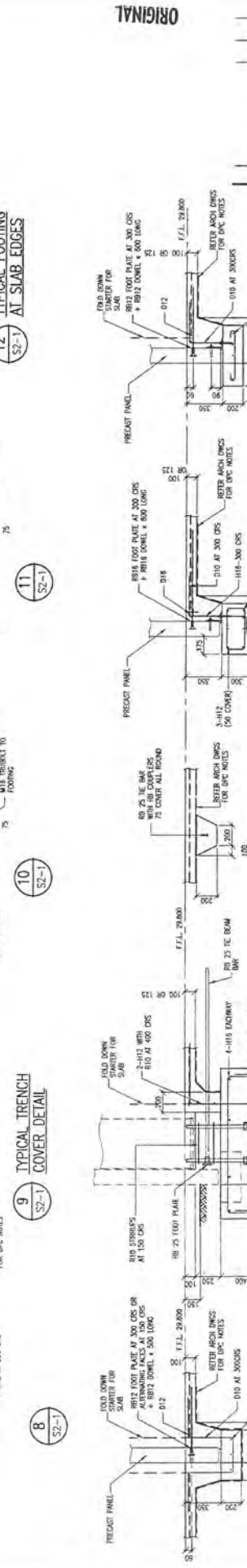
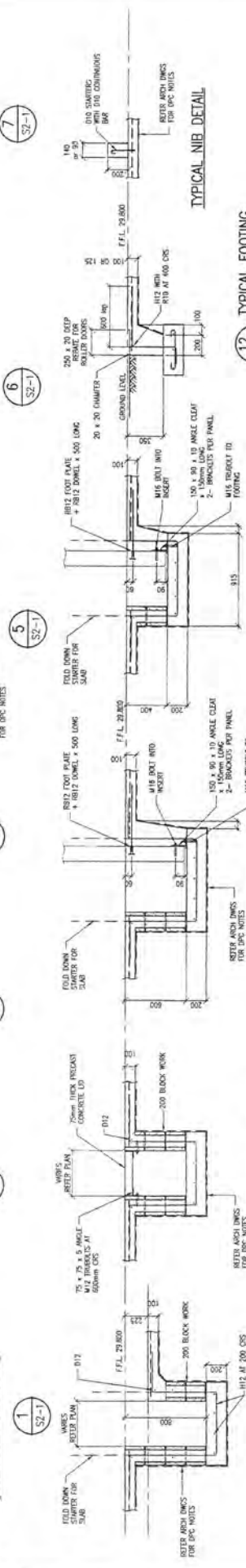
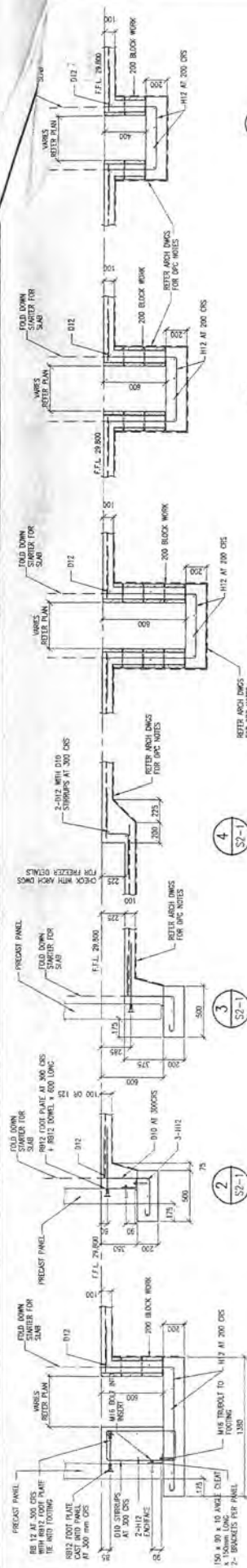
Slab and Foundation Details
Sheet 1

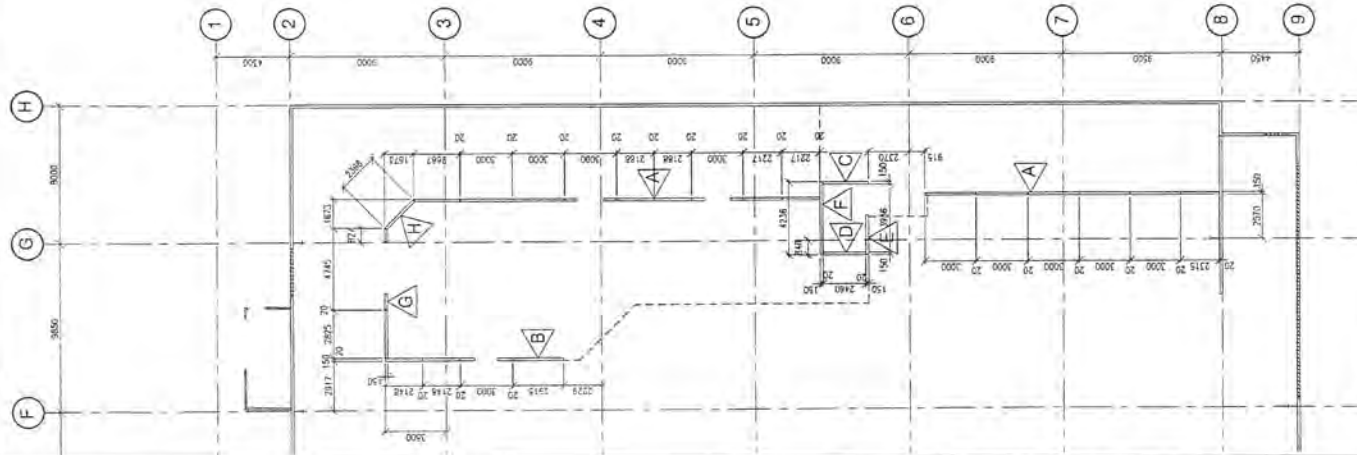
Drawn: AJP	Scale: 1/2" = 1'-0"	Sheet: A1	Notes: A
Approved: [Signature]	Check: [Signature]	7015	S2-3



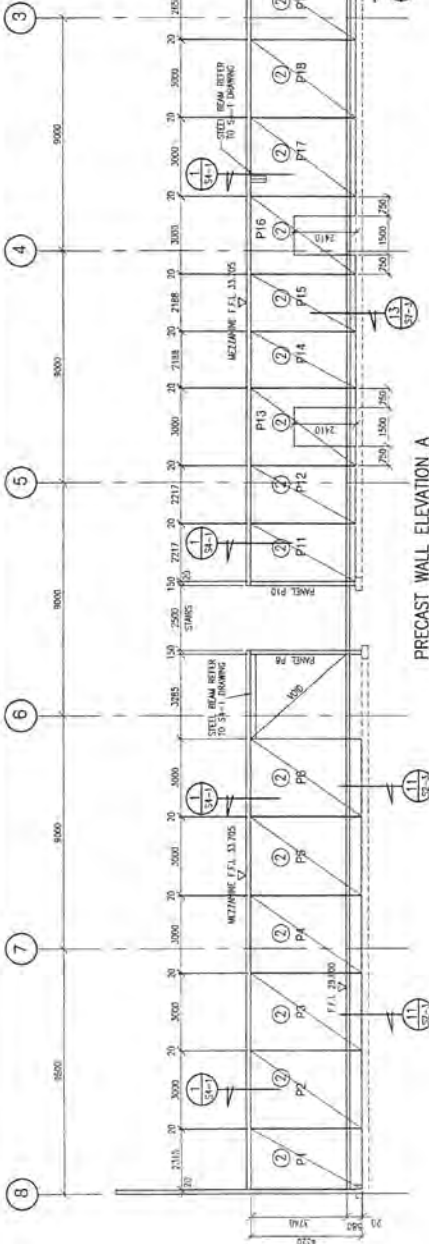
APPROVED
These drawings were prepared by me or under my direct supervision and I am a duly Licensed Professional Engineer in the State of Arizona.

CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE

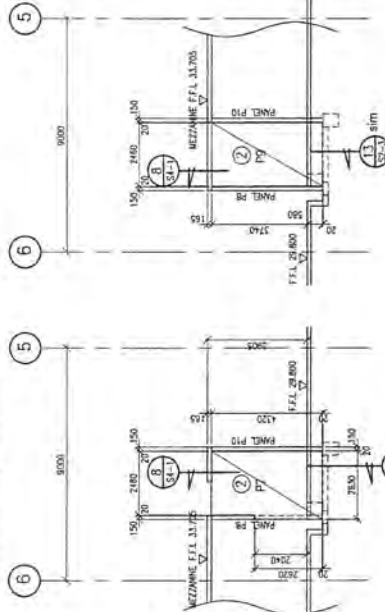




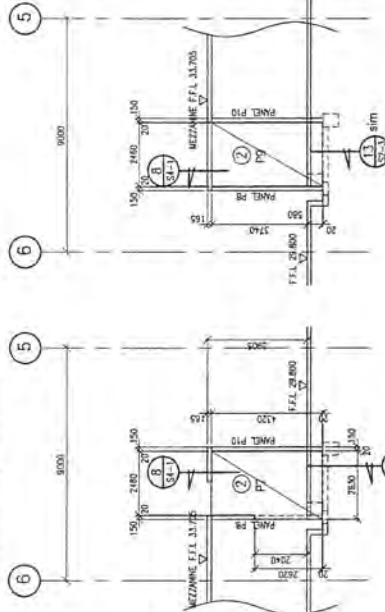
PLAN - MEZZANINE FLOOR SUPPORT WALL PANELS



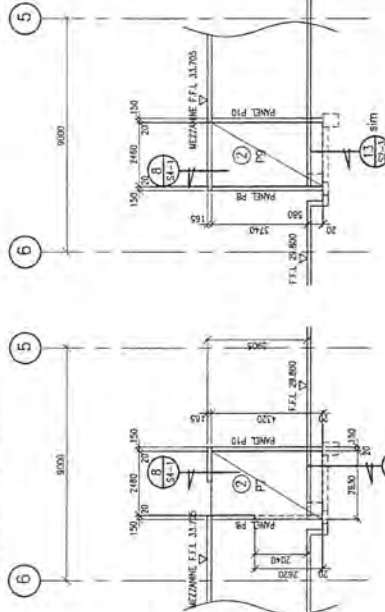
PRECAST WALL ELEVATION A



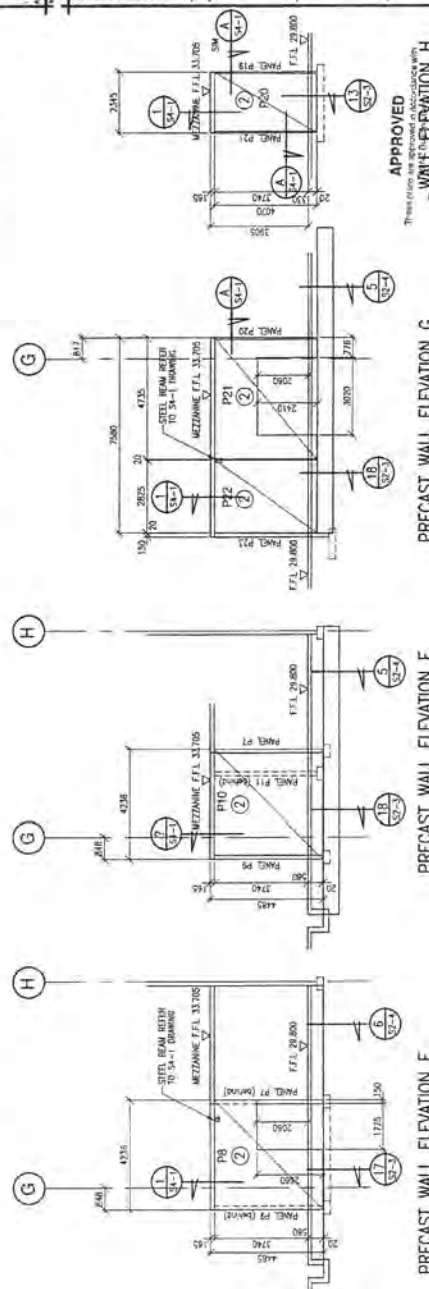
PRECAST WALL ELEVATION B



PRECAST WALL ELEVATION C



PRECAST WALL ELEVATION D



PRECAST WALL ELEVATION E

PRECAST WALL ELEVATION F

PRECAST WALL ELEVATION G

PRECAST WALL ELEVATION H

- PRECAST PANEL NOTES**
ALL PRECAST PANELS SHALL HAVE A MINIMUM CONCRETE STRENGTH OF 50MPa AT 28 DAYS
- TYPE 1 WALL PANEL 150mm THICK REINFORCED CONCRETE VERTICAL AND HORIZONTAL PERIMETER BARS TO ALL PRECAST PANEL EDGES
 - TYPE 2 WALL PANEL 150mm THICK REINFORCED CONCRETE VERTICAL AND HORIZONTAL PERIMETER BARS TO ALL PRECAST PANEL EDGES

ORIGINAL

Stiles and Hooker
ARCHITECTS

100-1000-1000
100-1000-1000
100-1000-1000

PROGRESSIVE
countdown

BETHLEHEM
SUPERMARKET
PROJECT

MEZZANINE FLOOR SUPPORT WALL PANEL PLAN & ELEVATIONS

7015

7015

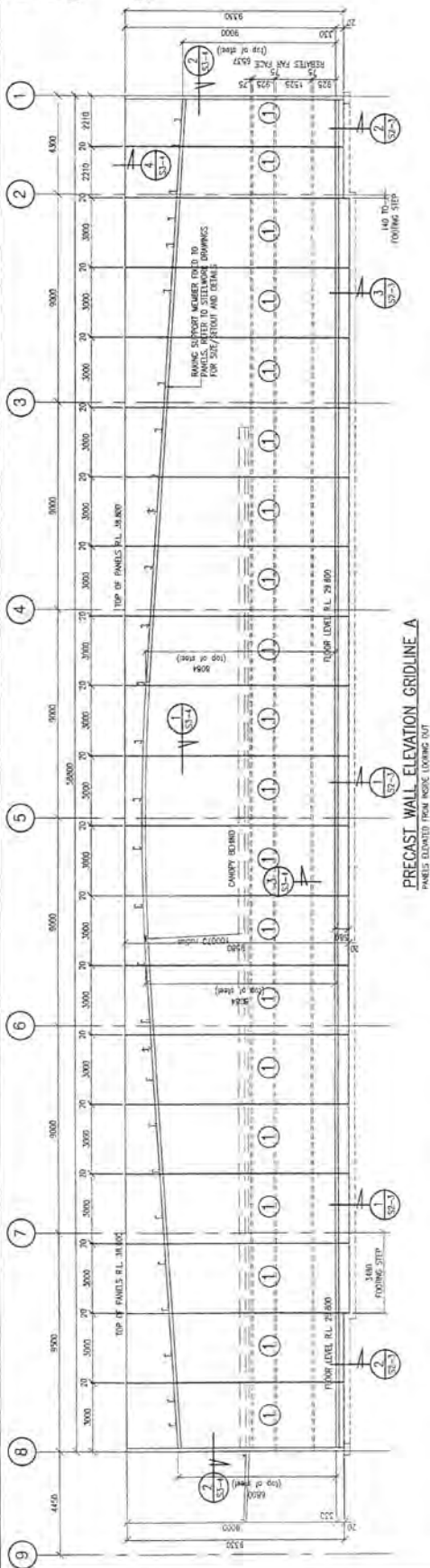
7015

PRECAST PANEL NOTES

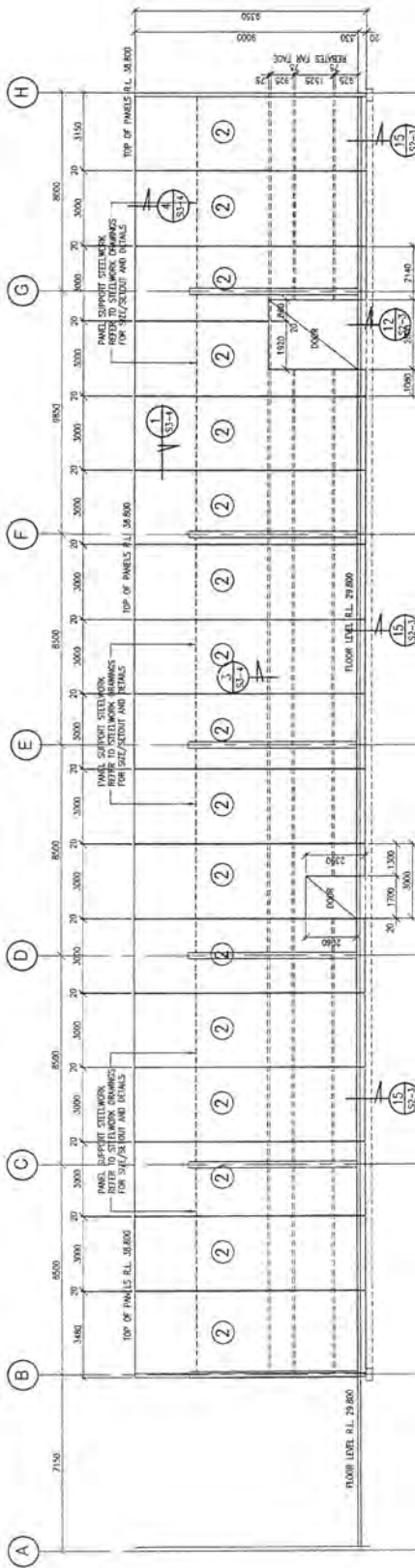
ALL PRECAST PANELS SHALL HAVE A MINIMUM CONCRETE STRENGTH OF 30MPa AT 28 DAYS

① = TYPE 1 WALL PANEL, 150mm THICK, REINFORCED WITH #16 AT 300 CRS VERTICAL AND #12 AT 300 CRS HORIZONTAL. PROVIDE #16 PERIMETER BARS TO ALL PRECAST PANEL EDGES

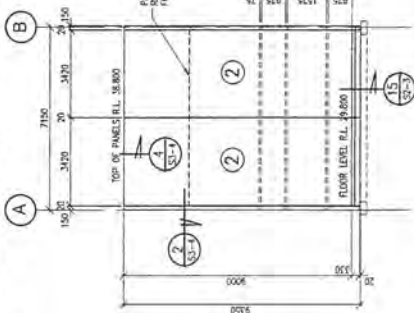
② = TYPE 2 WALL PANEL, 150mm THICK, REINFORCED WITH #12 AT 250 CRS VERTICAL AND #12 AT 300 CRS HORIZONTAL. PROVIDE #16 PERIMETER BARS TO ALL PRECAST PANEL EDGES



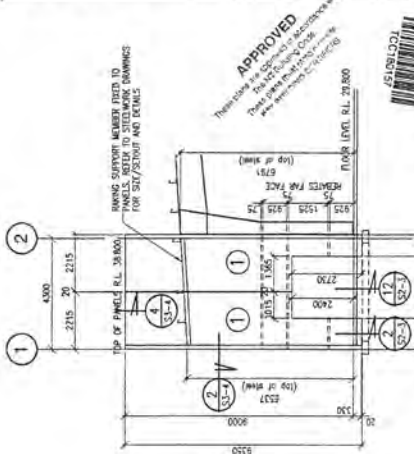
PRECAST WALL ELEVATION GRIDLINE A
PANELS ELEVATED FROM INSIDE LOOKING OUT



PRECAST WALL ELEVATION GRIDLINE 2
PANELS ELEVATED FROM INSIDE LOOKING OUT



PRECAST WALL ELEVATION GRIDLINE 1
PANELS ELEVATED FROM INSIDE LOOKING OUT



PRECAST WALL ELEVATION GRIDLINE B
PANELS ELEVATED FROM INSIDE LOOKING OUT

CONTRACTOR'S USE
DATE: 10/1/2018
BY: [Signature]
PROJECT: BETHLEHEM SUPERMARKET PROJECT

STILES AND HOOKER
ARCHITECTS, LLP
10000 WILLOW CREEK DRIVE
SUITE 100
DALLAS, TEXAS 75243
PHONE: 214.343.1000
FAX: 214.343.1001
WWW.STILESANDHOOKER.COM

PROGRESSIVE
COUNTDOWN
BETHLEHEM
SUPERMARKET
PROJECT

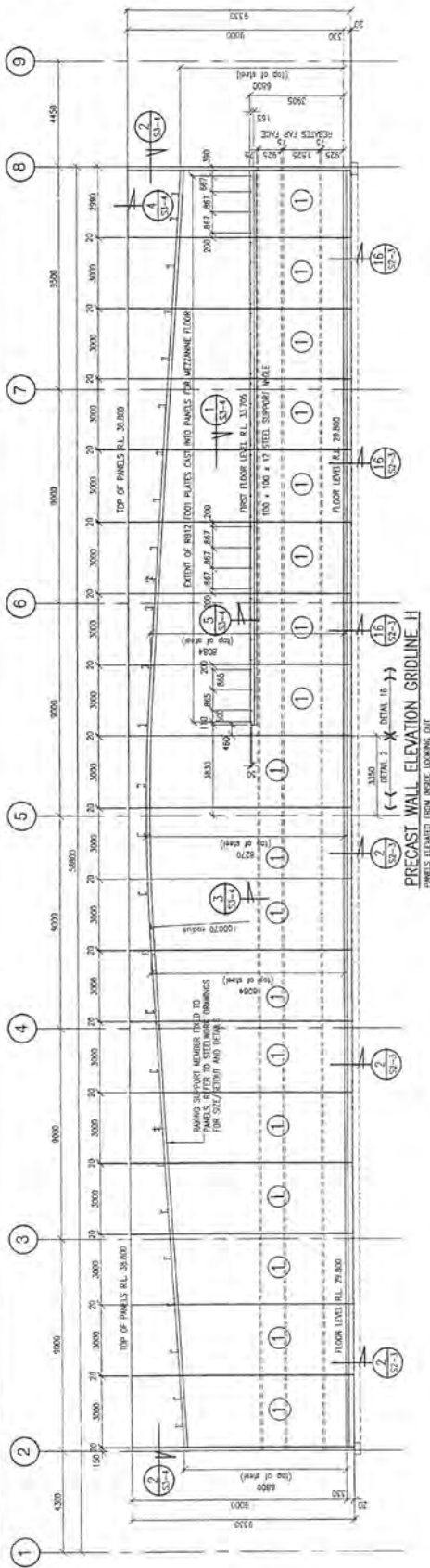
WALL PANEL ELEVATIONS
GRIDLINES A & 2

DATE: 10/1/2018
BY: [Signature]
PROJECT: BETHLEHEM SUPERMARKET PROJECT

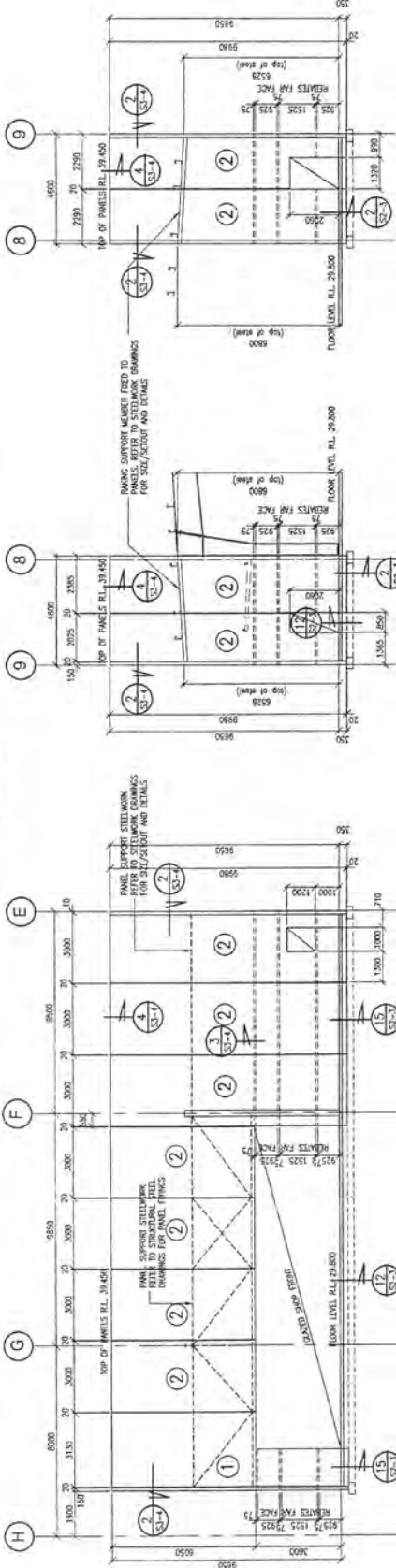
7015
S3-2
A

PRECAST PANEL NOTES

- ALL PRECAST PANELS SHALL HAVE A MINIMUM CONCRETE STRENGTH OF 30MPa AT 28 DAYS
- * TYPE 1 WALL PANEL 150mm THICK REINFORCED WITH H16 @ 300 CRS VERTICAL AND H12 @ 300 CRS HORIZONTAL PRECAST PANEL EDGES
- * TYPE 2 WALL PANEL 150mm THICK REINFORCED WITH H12 @ 300 CRS VERTICAL AND H12 @ 300 CRS HORIZONTAL PRECAST PANEL EDGES



PRECAST WALL ELEVATION GRIDLINE H
PANELS ELEVATED FROM INSIDE LOOKING OUT

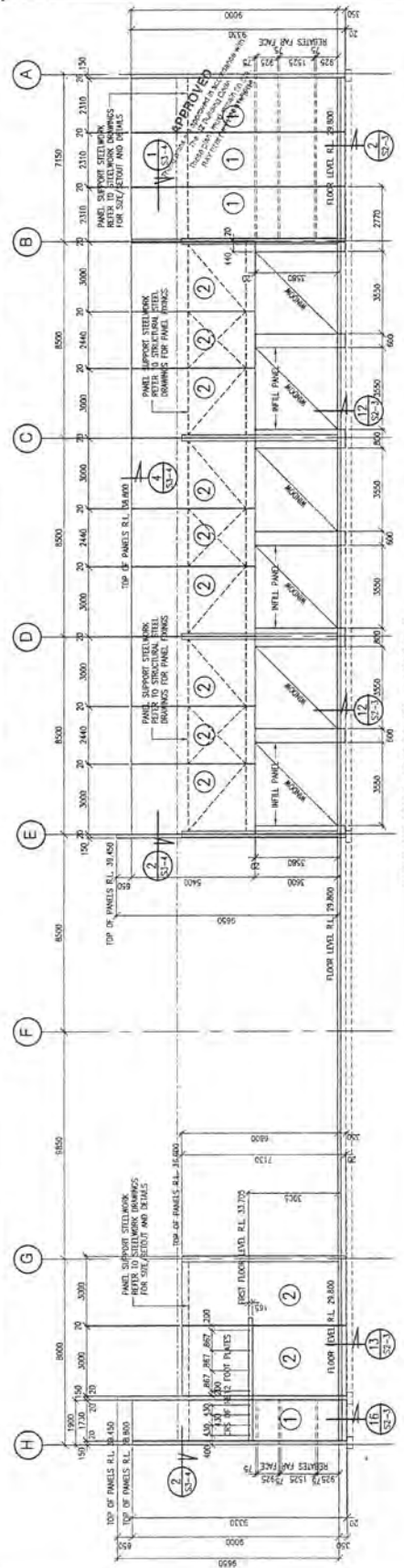


PRECAST WALL ELEVATION GRIDLINE E
PANELS ELEVATED FROM INSIDE LOOKING OUT

PRECAST WALL ELEVATION GRIDLINE F
PANELS ELEVATED FROM INSIDE LOOKING OUT

PRECAST WALL ELEVATION GRIDLINE G
PANELS ELEVATED FROM INSIDE LOOKING OUT

PRECAST WALL ELEVATION ADJACENT GRIDLINE H
PANELS ELEVATED FROM INSIDE LOOKING OUT



PRECAST WALL ELEVATION GRIDLINE 8
PANELS ELEVATED FROM INSIDE LOOKING OUT

Siles and Hooker
Architects & Engineers
10/100, 10/100, 10/100, 10/100
PO Box 100, 100, 100, 100
Auckland, New Zealand
Tel: 09 300 1000
Fax: 09 300 1000
Email: info@silesandhooker.co.nz

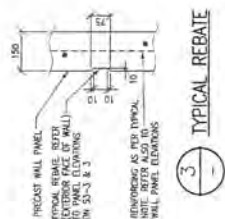
PROGRESSIVE
countdown
can help you manage your construction project

BETHLEHEM
SUPERMARKET
PROJECT

Project	Bethlehem Supermarket Project
Client	Bethlehem Supermarket
Design No	7015
Design Date	11/03/2022
Design By	A1
Check By	A1
Scale	1:100
Sheet No	S3-3
Sheet Total	3

ALL PRECAST PANELS SHALL HAVE A MINIMUM CONCRETE STRENGTH OF 30MPa AT 28 DAYS

- ① = TYPE 1 WALL PANEL 150mm THICK
REINFORCED WITH H16 AT 300 CRS VERTICAL
AND H12 AT 300 CRS HORIZONTAL
PROVIDE H16 PERIMETER BARS TO ALL
PRECAST PANEL EDGES
- ② = TYPE 2 WALL PANEL 150mm THICK
REINFORCED WITH H12 AT 250 CRS VERTICAL
AND H12 AT 300 CRS HORIZONTAL
PROVIDE H16 PERIMETER BARS TO ALL
PRECAST PANEL EDGES



TYPICAL REBATE



TYPICAL CORNER DETAIL



TYPICAL PANEL JOINT



A TYPICAL WALL SECTION



TYPICAL WALL PANEL PENETRATION



TYPICAL WALL PANEL

RETURN TO WALL ELEVATIONS.
OUR PANEL SIZES AND PANEL TYPE (17)

ATTN: TO WALL ELEVATIONS
OR PANEL SIZES AND PANEL TYPE (1, 2)

APPROVED
These plans are approved in accordance with
100 NC Building Code.
These plans must not be used with
any other building code.

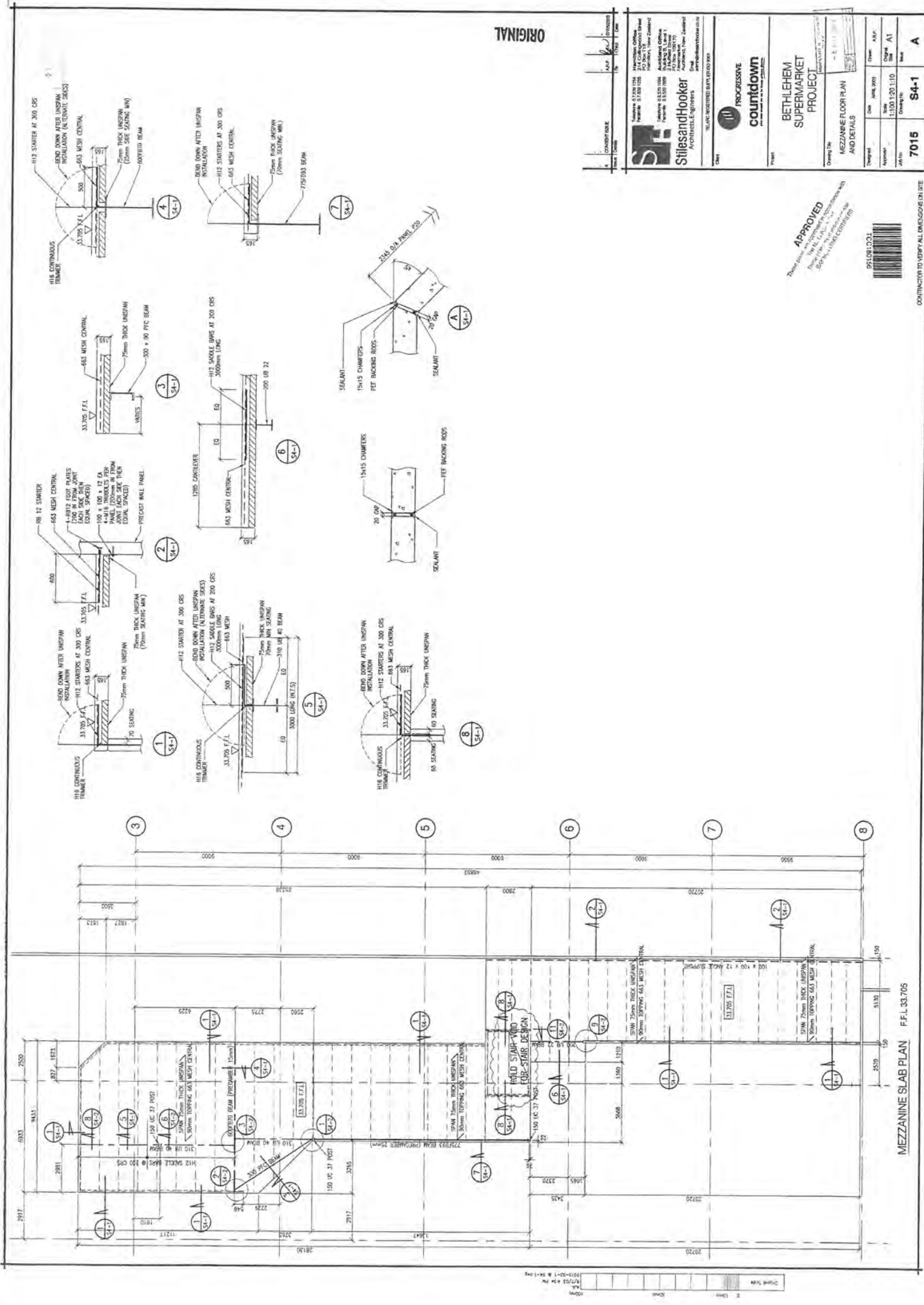
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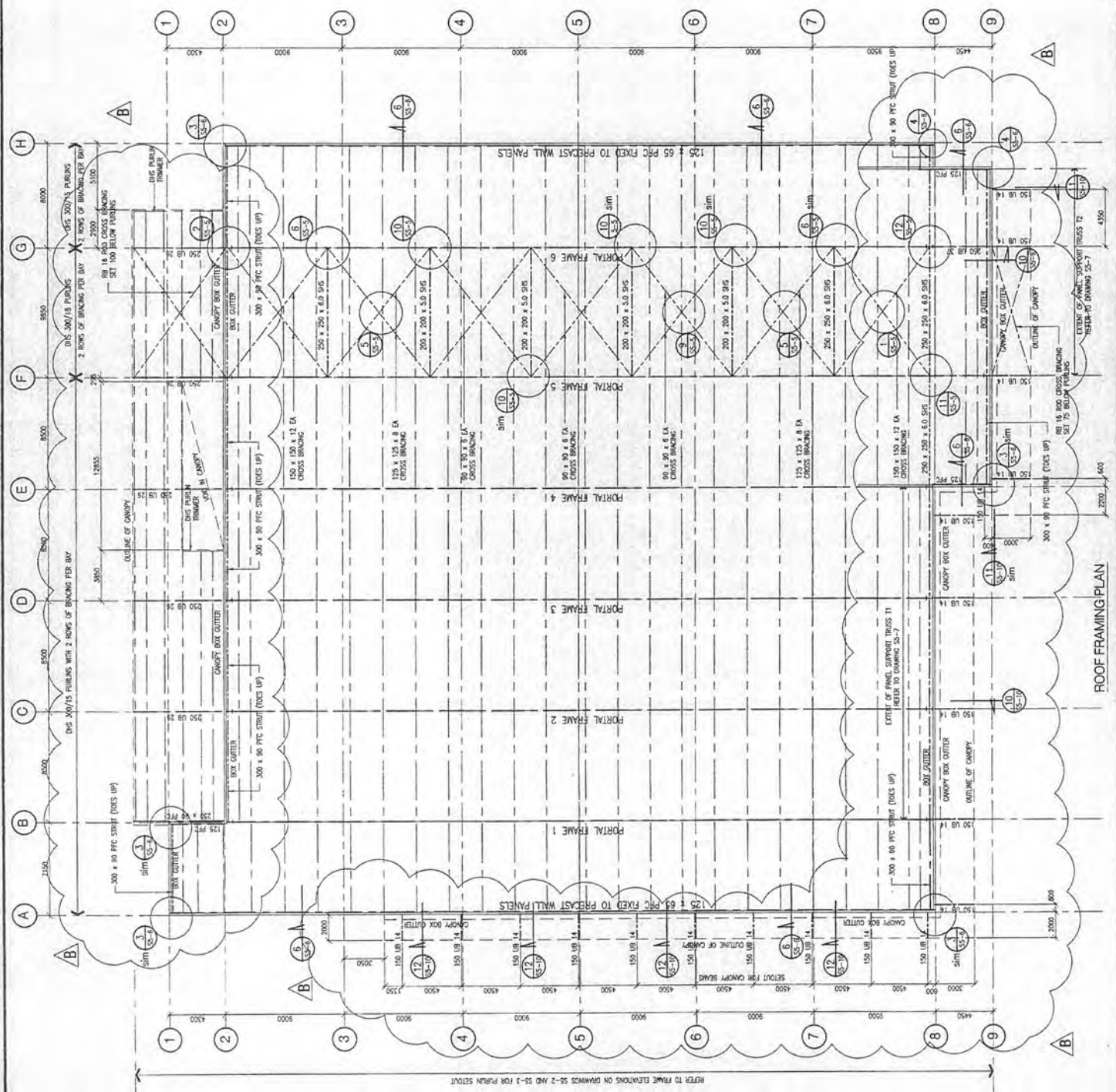


CONTRIBUTING TO VETTER ALL DIMENSIONS OF OUR CARE

ORIGINAL

[illegible]



[illegible]

ROOF FRAMING PLAN

CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE

TCC180129

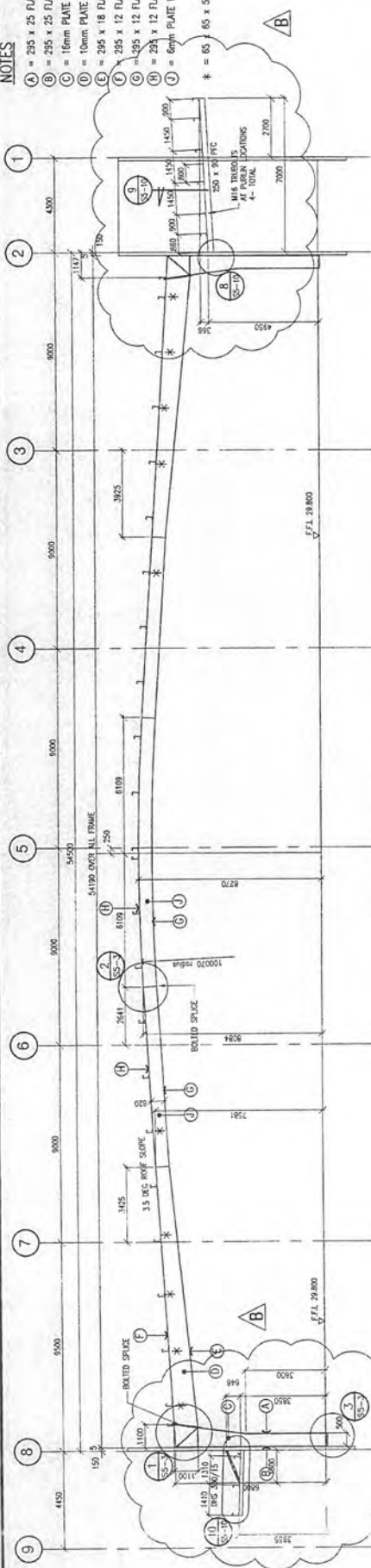
APPROVED
The NZ Building Code
These plans meet or exceed the
DAY BUILDING STANDARDS

NOTES

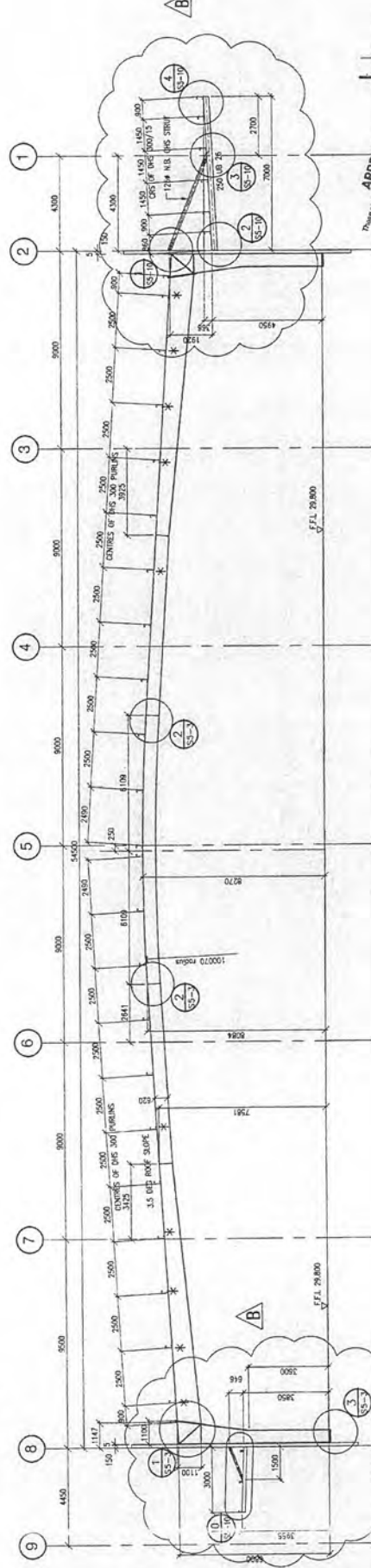
- (A) = 235 x 25 FLANGE
- (B) = 235 x 25 FLANGE
- (C) = 10mm PLATE WEB
- (D) = 10mm PLATE WEB
- (E) = 235 x 18 FLANGE
- (F) = 235 x 12 FLANGE
- (G) = 235 x 12 FLANGE
- (H) = 235 x 12 FLANGE
- (I) = 6mm PLATE WEB

* = 65 x 5 ANGLE FLANGE BRACING

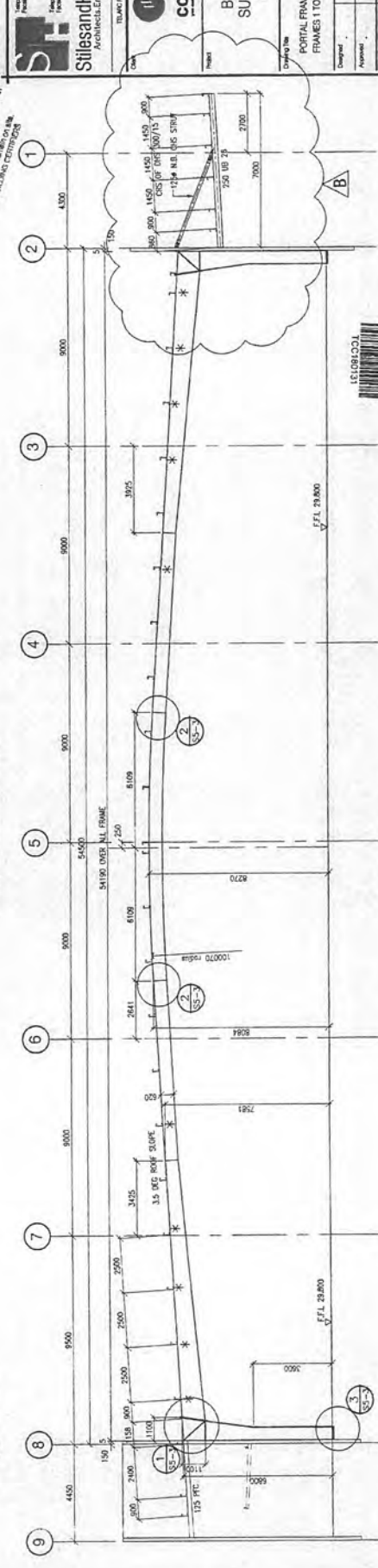
FRAME ELEVATION 1



FRAME ELEVATION 2 & 3



FRAME ELEVATION 4



APPROVED
The NZ Building Code
The NZ Building Code
The NZ Building Code

DESIGNED BY: JAMES KOTTE
CHECKED BY: JAMES KOTTE
DATE: 10/02/2020

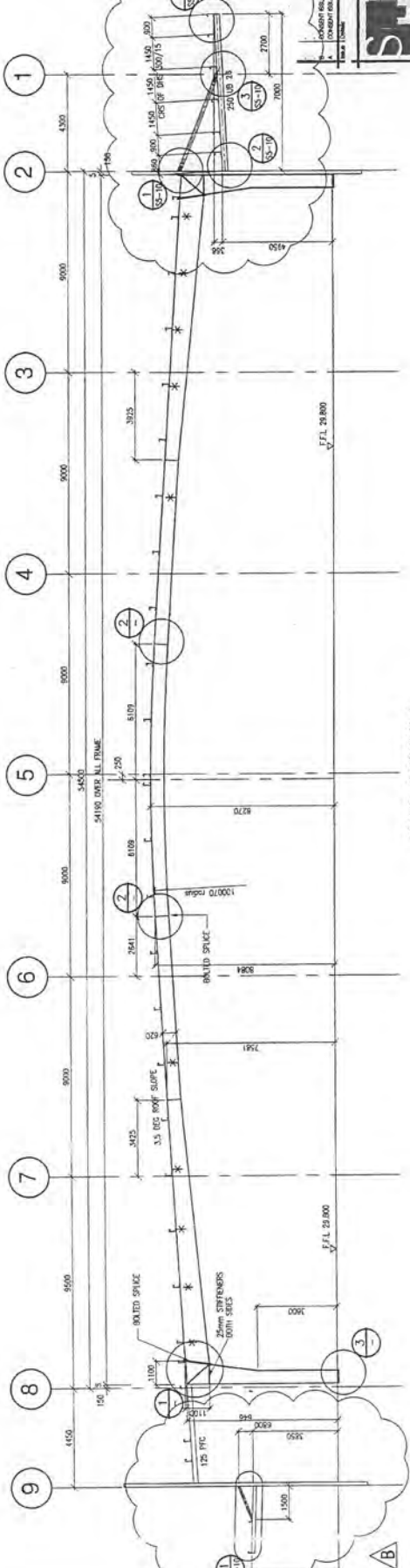
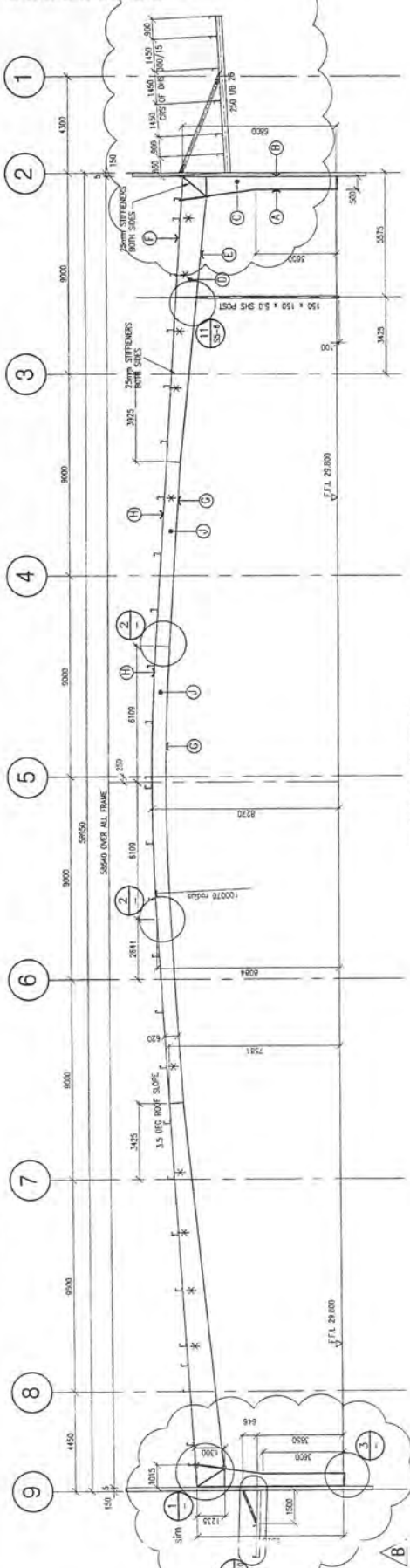
Stiles and Hooker
ARCHITECTS
10/10/2020
10/10/2020
10/10/2020

PROGRESSIVE
countdown
BETHLEHEM
SUPERMARKET
PROJECT

Contract No.	7015	Sheet No.	B
Client	Countdown	Scale	1:100
Project	Bethlehem Supermarket	Drawn By	A1
Check By		Checked By	
Approved By		Approved By	
Date	10/02/2020	Date	10/02/2020

CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE

(A) = 295 x 25 FLANGE
(B) = 295 x 25 FLANGE
(C) = 16mm PLATE WEB
(D) = 10mm PLATE WEB
(E) = 295 x 18 FLANGE
(F) = 295 x 12 FLANGE
(G) = 295 x 12 FLANGE
(H) = 295 x 12 FLANGE
(J) = 6mm PLATE WEB
* = 65 x 85 x 5 ANGLE
FLANGE BRACING

[illegible]

The technical drawing shows a rectangular plate with the following dimensions:

- Total width: 100
- Total height: 101.5
- Top flange thickness: 7.80
- Web thickness: 2.00
- Bottom flange thickness: 6.00
- Distance from top edge to first hole center: 12.5
- Distance between hole centers: 52.5
- Distance from bottom edge to last hole center: 52.5
- Horizontal distance from left edge to first hole center: 30 ± 0.5
- Horizontal distance between hole centers: 90
- Horizontal distance from last hole center to right edge: 30 ± 0.5

A cross-section view labeled "25 STRIPK" shows the profile of the plate, which has a wavy top surface and a flat bottom surface.

[illegible]

CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE

TCC160133

[illegible]

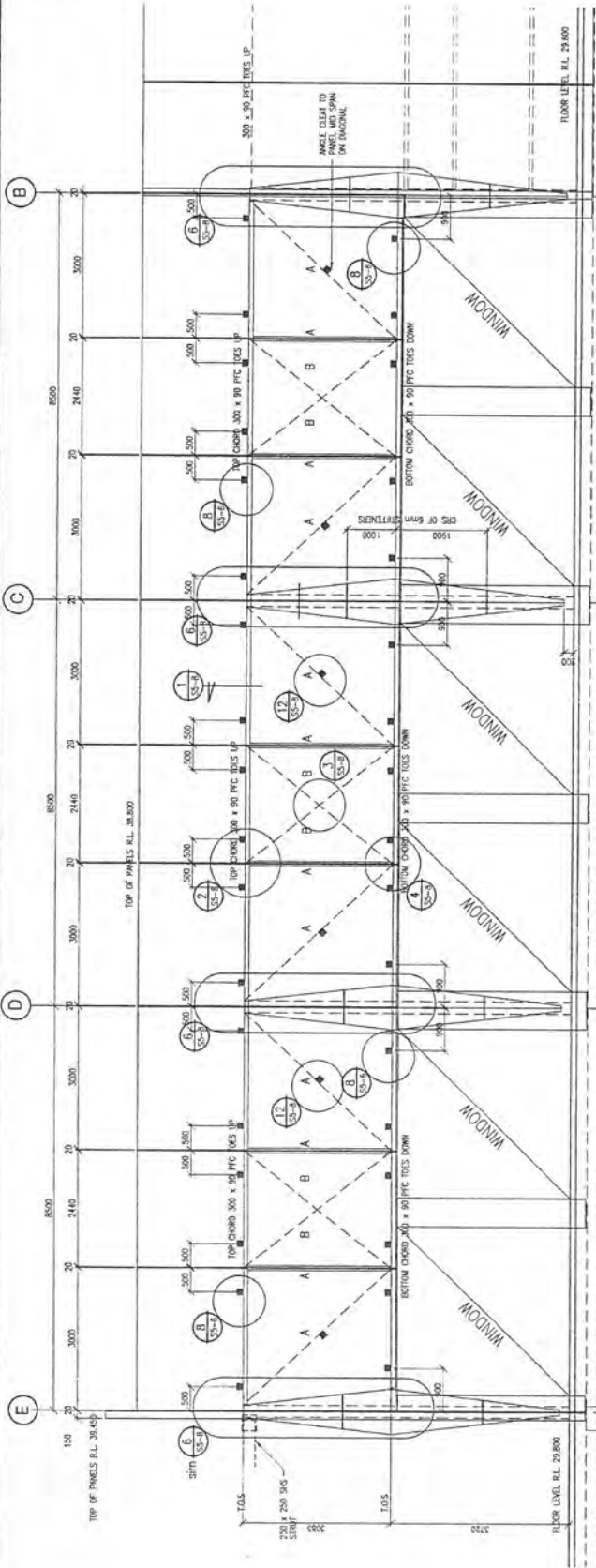


CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE

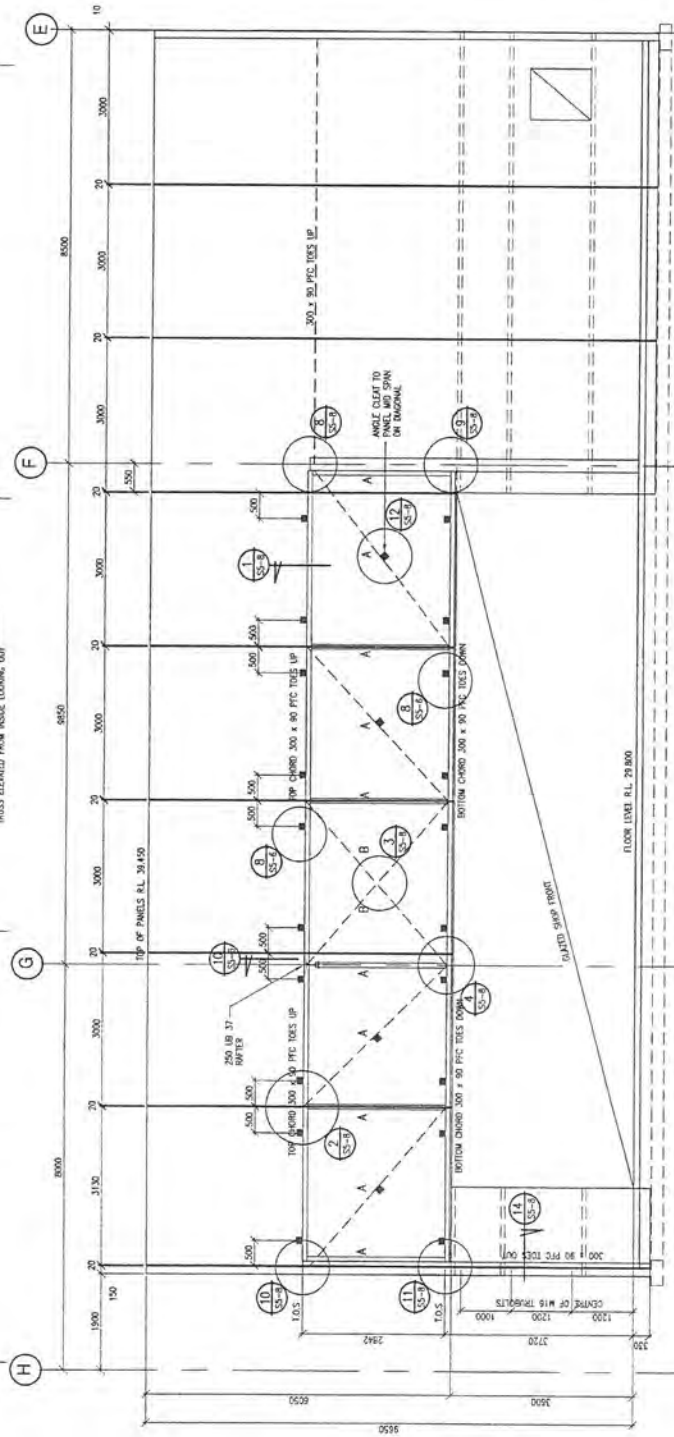
NOTES

A - INDICATES 300 X 90 PFC
B - INDICATES 100 X 100 X 12 EA

7-2 2011



WALL TRUSS T1 ELEVATION
TRUSS ELEVATED FROM INSIDE LOOKING OUT



WALL TRUSS T2 ELEVATION
TRUSS ELEVATED FROM INSIDE LOOKING OUT

ORIGINAL

Stiles and Hooker Architects, Engineers 1100 10th Street, Suite 100 Bethlehem, PA 18018 Tel: 610-726-1100 Fax: 610-726-1101 www.stilesandhooker.com		PROGRESSIVE countdown ARCHITECTURAL FIRM 1100 10th Street, Suite 100 Bethlehem, PA 18018 Tel: 610-726-1100 Fax: 610-726-1101 www.progressivecountdown.com		BETHLEHEM SUPERMARKET PROJECT Trusses T1 & T2 Elevations Drawing No. 7015 Scale: 1/8" = 1'-0" Date: 07/11/2011		7015 Sheet No. S5-7 Rev. A	
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APPROVED
This drawing was prepared by the Architect/Engineer in accordance with the requirements of the Pennsylvania Department of Transportation (PennDOT) and the American Institute of Steel Construction, Inc. (AISC).
Date: 07/11/2011



CONTRACTOR TO VERIFY ALL DIMENSIONS ON SITE

