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ENGINEERS LIMITED

CONSULTING STRUCTURAL ENGINEERS

STRUCTURAL REPORT

Initial Seismic Assessment

Job Title:	Bethlehem Blocks A to J & the BP.
Building Type:	Existing Building
Client:	PMG Generation Fund.
Location:	Bethlehem Shopping Centre, Tauranga.
Job No.:	2470
Date:	April 2021
Rev:	B

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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 retail buildings, at the Bethlehem Shopping Centre, Tauranga, based on an investigation of the Property File documentation, which was supplied by the client. This assessment and report covers the following Blocks:

- Block A
- Block B
- Block C
- Block D
- Block E
- Block G
- Block H
- Block J
- BP Service Station

Please note that the Countdown Block is the subject of a separate assessment and report and also there are no Blocks designated Block F or Block I in the Bethlehem Shopping Centre.

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 each of the individual buildings. The quality of this property file documentation is sufficiently high to allow us to carry out a robust seismic assessment of each of the building structures and to determine a reliable seismic performance and seismic grade for this level of assessment.

Discovered in the documentation for the K-Mart development (which is now known as Block E), which is on the north side of the shopping centre, there is a full 2013 geotechnical report by BCD Group, which includes bore-log data. 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 Countdown building, on the south side of the shopping centre. This report includes useful hand auger bore-log data and geotechnical ultimate bearing pressures so for the scope of this assessment, we consider this to represent sufficient geotechnical coverage. There was also a site investigation report by Geocon Geotechnical Ltd, with an interpretative report by Mark T Mitchell Ltd for the BP Service Centre, we have taken note of this report but not specifically referenced it other than in our assessment of the BP Service Centre retail building and canopy.

WHAT THE SEISMIC RATING MEANS:

Our investigation has determined that the various buildings within the Bethlehem Shopping Centre will achieve a seismic rating of at least 100% NBS with most of the buildings 100+% NBS, as an Importance Level 2 structures, 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 these buildings are considered as Seismic Grade A and A+ structures (having an expected seismic performance equal to, or greater than, 100% NBS), the NZSEE grading scheme presented in Table 1 below, indicates a risk exposure for them with their current occupancy, to be less than, or comparable to that of 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 Bethlehem Shopping Centre buildings, including the BP Service Station, are therefore categorised as neither Earthquake-Prone Buildings nor Earthquake Risk Buildings.

In addition to a 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 a building had a high probability of failure once the rated % NBS ULS shaking demand levels were exceeded.

Our qualitative and quantitative assessment of these buildings indicates that there are 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 these buildings is such that we are satisfied that they 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 for each of the buildings.

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

GENERAL PROPERTY DESCRIPTION:

The Bethlehem Shopping Centre consists of 11 discrete buildings constructed over a period of some 18 years commencing with the Countdown bulk retail store in 2003 and with the most recent stage being the BP Service Centre (shop and canopy) built in 2020. The Countdown store is the subject of an independent assessment and report and will receive no further consideration within this document.

Each of the buildings is a standalone structure, and it appears that the development was initiated by AMP Capital Investors Ltd, who engaged Ignite Architects Ltd to undertake both the master planning and the individual building design (except for the Countdown store and the BP Service Centre which are bespoke developments designed by different consultants). The structural engineers for all of the buildings, other than the Countdown, K-Mart, and BP Service Centre, were Connell Wagner, a large, well respected and competent consulting engineering practice.

All of the buildings are single storey, low to moderate stud height, retail/warehouse type construction but there are some two storey zones that are primarily mezzanine type or local office sections within the body of the main building. Some of the Blocks have undergone fit-out alterations and where these are recorded in the property file documents that are in our possession, they will be individually commented on.

SEISMIC ASSESSMENT – REPORT FORMAT:

Because of the number of individual buildings on the property, all with slightly different construction eras, materials and nuances in structural form, each individual building will be reviewed as stand-alone entity through an Initial Evaluation Procedure applied to each. The seismic performance assessment will consist of an individual review of the physical features of each building and the likely dominant and secondary seismic load resisting systems resulting in the quantification of the likely seismic performance. Each building will be covered by a discrete sub-section of this report although a summary of the assessed rating and seismic grade for each is provided at the end of this report cover section.

Throughout the individual assessments we have described the building and the background to the construction. We have provided a summary of the assessment parameters for each building, and the reasons for our choice of both the assessment parameters and modification factors.

The particular sequence that the building assessments are presented in has no special relevance other than it represents the alphabetic sequence that is used by the original designers to designate each Block on the overall site plans. The building assessments are generally arrayed by the use of the discrete building identifier. A copy of the building identifier plan is shown in Appendix A.

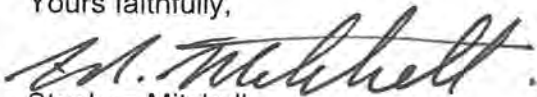
SUMMARY OF RESULTS

This is tabulated in Appendix B.

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

Address Map and Building Identifier Plan for Each Building



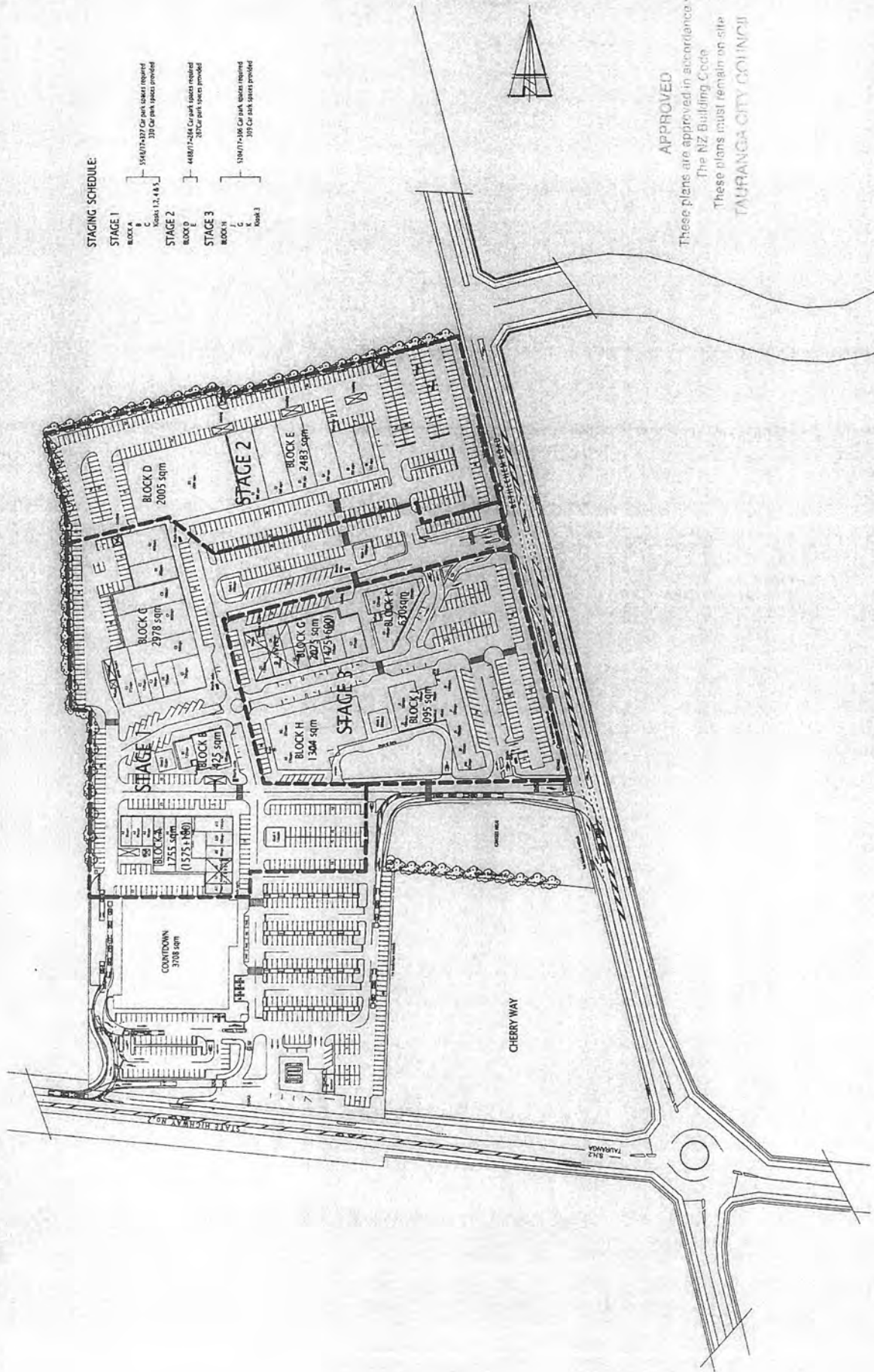
TCC172319

GENERAL NOTES

1. DO NOT SCALE OR DIMENSION
2. DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED
3. ALL DIMENSIONS IN METERS
4. DIMENSIONS TO BE TO FACE UNLESS OTHERWISE SPECIFIED
5. DIMENSIONS TO BE TO FACE UNLESS OTHERWISE SPECIFIED
6. DIMENSIONS TO BE TO FACE UNLESS OTHERWISE SPECIFIED
7. DIMENSIONS TO BE TO FACE UNLESS OTHERWISE SPECIFIED
8. DIMENSIONS TO BE TO FACE UNLESS OTHERWISE SPECIFIED
9. DIMENSIONS TO BE TO FACE UNLESS OTHERWISE SPECIFIED
10. DIMENSIONS TO BE TO FACE UNLESS OTHERWISE SPECIFIED

STAGING SCHEDULE

STAGE 1	
BLOCK A	554/171x327 Car park spaces required
BLOCK B	339 Car park spaces provided
BLOCK C	339 Car park spaces provided
STAGE 2	
BLOCK D	448/171x248 Car park spaces required
BLOCK E	339 Car park spaces provided
STAGE 3	
BLOCK F	524/171x248 Car park spaces required
BLOCK G	339 Car park spaces provided
BLOCK H	339 Car park spaces provided
BLOCK I	339 Car park spaces provided
BLOCK J	339 Car park spaces provided



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CLIENT



PROJECT
BLOCK J
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
STAGING PLAN

APPROVED

These plans are approved in accordance with:
The NZ Building Code
These plans must remain on site
TAURANGA CITY COUNCIL

DATE	SCALE
11 SEPTEMBER 2014	
DRAWN	CHECK
MG	457-05-19
DRAWING NAME	BC1001
	A

Appendix B
Summary Results (% NBS and Seismic Grade)
for Each Building



BUILDING	YEAR	SEISMIC RATING %NBS	SEISMIC GRADE
A	2006	>100%	A+
B Building B Kiosk Extension	2006 2007	>100%	A+
C Building C Alteration	2006 2016	>100%	A+
D	2006	>100%	A+
E	2015	100%	A
G Building G End Extension	2006 2016	>100%	A+
H Building H Canopy	2006 2007	>100%	A+
J	2006	>100%	A+
BP Shop & Canopy	2020	100%	A

Appendix C

Commentary and Initial Evaluation Procedure (IEP) and Existing Structural and Architectural Drawings for Each Building



Description:

Building A was designed in 2006 and is a rectangular single storey block that has its long axis orientated east-west. It has two footprint cut outs, effectively being steps in the footprint, on the southern side. It has a small two storey, almost square shaped office section in the south east corner. It is 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 relatively small foot-print single storey, pitched roof warehouse type structure, with 7 bays in the east-west longitudinal direction and between one and three bays in the north-south transverse direction. There are extensive canopies on the north and east sides. The roof over the south-east corner office section is raised above the roof of the single storey section.

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. Each of the primary frame portal rafters is supported by structural steel portal columns at the span ends, and there are internal columns where the footprint expands toward the south-east corner. The structural steel columns land above the concrete foundations, below the on-grade slab level. The foundations are conventional strip footings and pad foundations that have been recorded as being reinforced concrete, although there are no specific details of the reinforcement in the structural drawings. We have however, located sheets of 'Typical Foundation and Wall Details' for what was called 'Stage 1' of the shopping centre development, and we are confident that these details are appropriate to Block A.

The canopies have reasonable sized structural steel T cantilever rafter beams supporting structural steel rectangular hollow section (RHS) purlins. The cantilever beams are bolted directly into the main portal frame columns with robust connections and this combination provides adequate lateral stability.

There are 150mm thick precast reinforced concrete wall panels along the south and west elevations, and these panels are virtually continuous along each elevation. There is shop front glazing on the north and east elevations.

There are 3 full bays of full width diagonal structural steel rod and double purlin roof bracing in the transverse direction and there are two bays of full width diagonal structural steel rod and double purlin roof bracing in the longitudinal direction. There are substantial parallel flange channel (PFC) eaves ties on the north elevation, 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.

There is a mezzanine area in the south-east corner of the main building. The roof construction replicates that in the single storey area of the building and is supported on structural steel portal frames with in-plane diagonal steel rod roof bracing. The suspended floor is constructed from a 125mm thick conventional mesh reinforced insitu concrete topping over proprietary Hi-Bond metal tray flooring. The floor system is supported on a combination of the exterior precast concrete wall panels, and structural steel beams and posts, where there are no panels. The beams are called up as having welded-on shear studs at appropriate centres. 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 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 longitudinal directions. The transverse lateral loads (in the north-south direction) are also sustained by the structural steel moment resisting portal frames, and this may well be considered as a redundancy in the transverse lateral load resisting system. There are no details in the drawings specifically for this Block, of the reinforcement in the precast concrete wall panels and likewise there are no specific details of the foundations (other than the sizes in the key notes) or their connections to the wall panels, however, as described above, 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 face 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.

The lateral load resisting system for the suspended mezzanine floor consists of direct support by in-plane loaded reinforced concrete wall panels coupled with structural steel moment resisting portal frames in both directions. 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.

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 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.

There are no alterations or modifications to the building recorded in the documentation that we hold.

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. There are structural steel moment resisting portal frames in the transverse direction which suggests that the natural period could be somewhat longer for these secondary elements, and this is addressed in the Performance Achievement Ratio (PAR) section).
- Building Importance Level 2.
- Structural Ductility factor 1.25 (this is based on the in-plane loaded diagonal roof 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 load 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 this building if the moment resisting structural steel portal frames were considered as anything other than a redundant secondary lateral load resisting element. 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 1.1).

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+.

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 A	Date:	26/03/2021
City:	Tauranga	Revision No.:	A

Step 1 - General Information

NOTE: THERE ARE MORE PHOTOS ON PAGE 1a ATTACHED

NOTE: THERE ARE MORE SKETCHES ON PAGE 1a ATTACHED

Refer to report details.

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 A	Date:	26/03/2021
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, Cl 3.1.3 :

D Soft Soil

From NZS4203:1992, Cl 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 A	Date:	26/03/2021
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:

Refer to report

 $\mu = 1.25$

1.25

b) Factor H

For pre 1976 (maximum of 2)

 $= k_u$
1.14

For 1976 onwards

 $= 1$

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 A	Date:	26/03/2021
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 1.1

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 A	Date:	26/03/2021
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
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 1.10

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 A	Date:	26/03/2021
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
AKA:		By:	SME
Name of building:	Block A	Date:	26/03/2021
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

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 diaphragms
6. Ledge and/or beam

IEP Assessment Confirmed by

Signature

S R Mitchell

Name

70562

CPEng. No

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K	BUILDING CONSENT	23.08.07
J	REVISED CONSENT	31.07.07
H	REVISED CONSENT	28.02.07
G	REVISED CONSENT	22.02.07
F	REVISED CONSENT	19.02.07
E	REVISED CONSENT	21.11.06
D	CONSTRUCTION	21.11.06
C	TENDER RESOLVE	18.08.06
B	TENDER	19.06.06
A	TENDER	19.07.06



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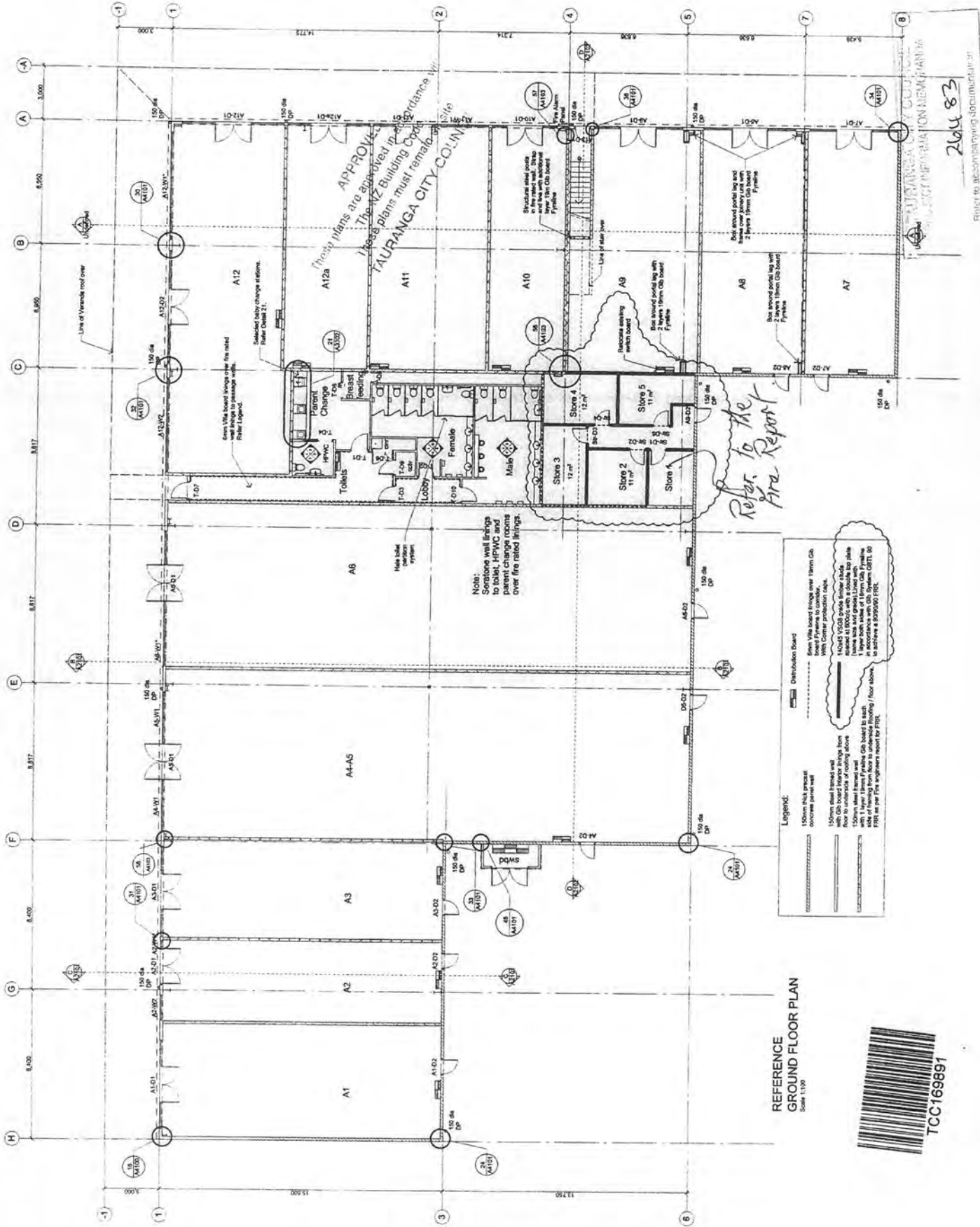
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PROJECT
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 BETHLEHEM
 SHOPPING CENTRE
 DRAWING TITLE
 LEVEL ONE REFERENCE

DATE	SCALE
23 AUGUST 1997	1:100 (A1-A3) 1:200 (A4-A5)
DRAWN	CHECK
MG	JK
PROJECT NO.	457-05-19
DRAWING NO.	A1300
	(K)



REFERENCE
 GROUND FLOOR PLAN
 Scale 1:100



Refer to accompanying documents at

264 83

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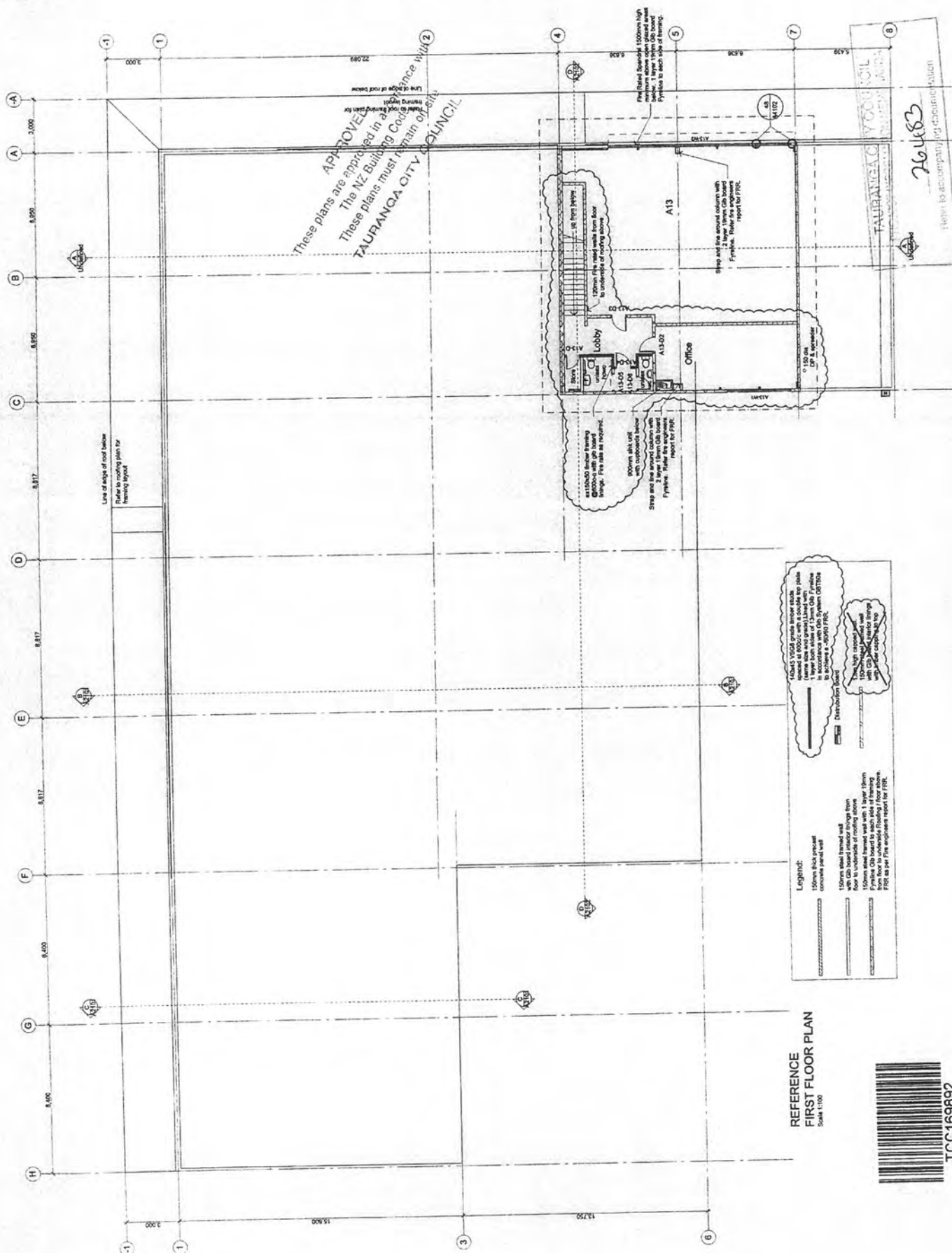


**PROJECT
BLOCK A
BETHLEHEM
SHOPPING CENTRE**

ISSUING TITLE

LEVEL TWO REFERENCE

DATE 13 AUGUST 2007	SCALE 1:100 0A1 1:200 0A3	PROJECT NO. 457-05-19
DRAWN MG	CHECK LK	
DRAWING NUMBER A1301		



REFERENCE
FIRST FLOOR PLAN
Scale 1:100



TCC169892

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A	BUILDING CONSENT	MD	11.07.06
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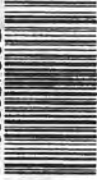
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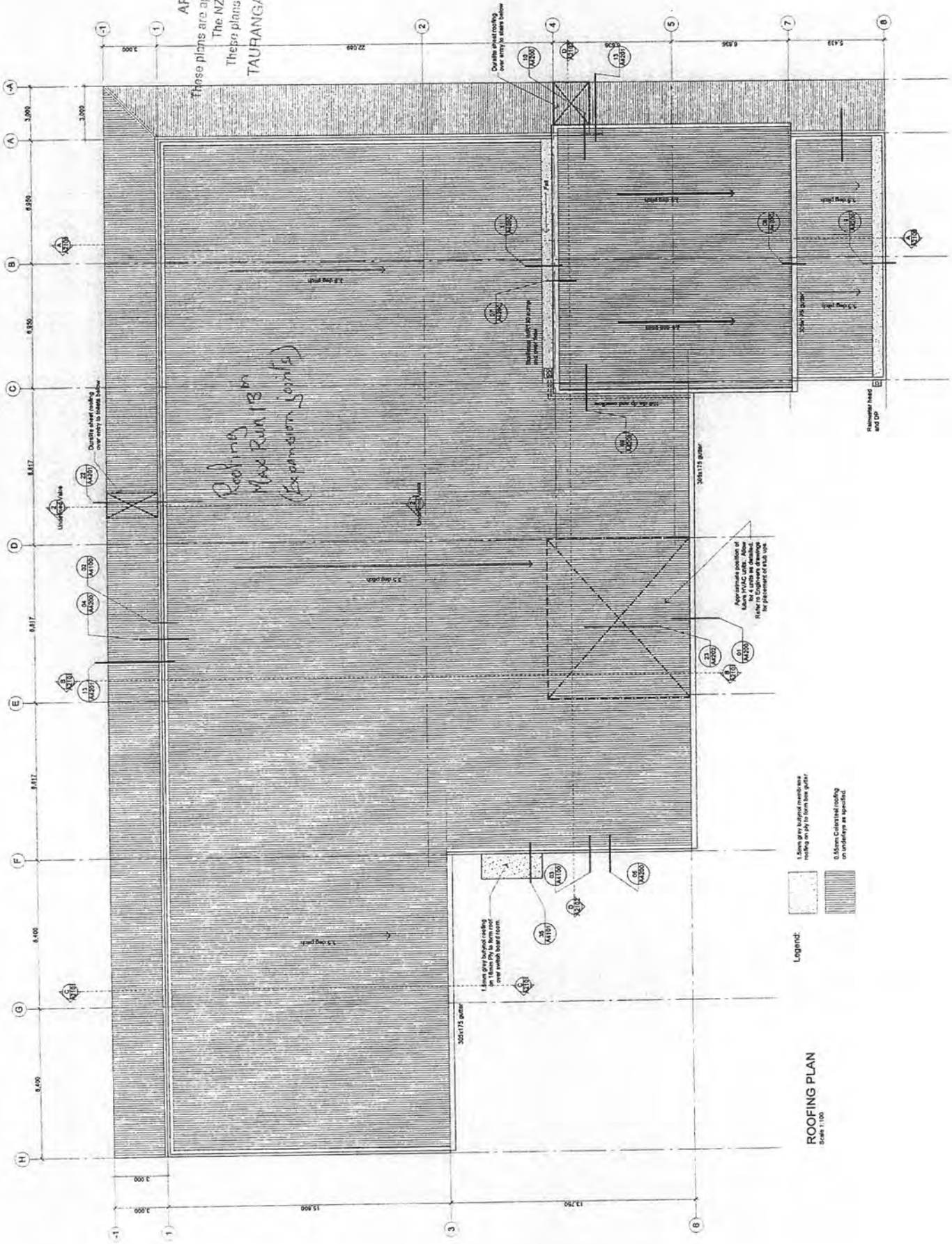
PROJECT
BLOCK A
BETHLEHEM
SHOPPING CENTRE

CC172926
ROOF PLAN

TCC172926



DATE	SCALE	PROJECT NO.	(A)
11 JULY 2004		457-05-19	
DRAWING	CHECK	DRAWING NUMBER	
MG		A1700	



1.5mm grey butylised membrane roofing on ply to form base gutters

ROOFING PLAN

AMENDED
PLAN

22760

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F	REV. CONST.	SP	21.02.07
B	REV. CONST.	MG	19.02.07
D	CONSTRUCTION	MG	01.11.06
C	TENDER RE-ISSUE	MG	14.06.06
B	TENDER	MG	14.09.06
A	TENDER	MG	19.07.06
CODE	RT2008	IT	REV.

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see Fire Report.

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CONT

1990.001
BLOCK A
BETHLEHEM
SHOPPING CENTRE
DRAWING FILE
ELEVATIONS

1. The first step is to identify the problem. This involves understanding the current situation and what needs to be changed.

2. The second step is to set goals. These should be specific, measurable, achievable, relevant, and time-bound.

3. The third step is to develop a plan. This involves determining the steps that need to be taken to achieve the goals.

4. The fourth step is to implement the plan. This involves putting the plan into action and monitoring progress.

5. The fifth step is to evaluate the results. This involves assessing whether the goals have been achieved and what lessons can be learned.

Amendment Received

31 JUL 2007

TCC

DATE	SCALE
13 FEBRUARY 1947	1:100 ϕ A1 1:200 ϕ A3
DRAWN	CHECK
MG	CMC:M
PROJECT NO.	
457-05-19	
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ELEVATIONS

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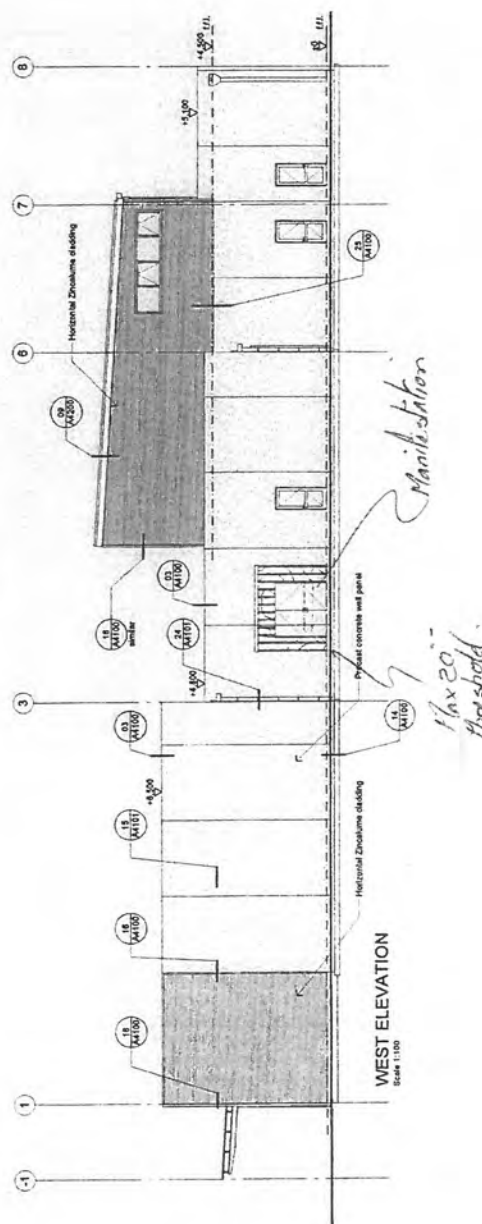
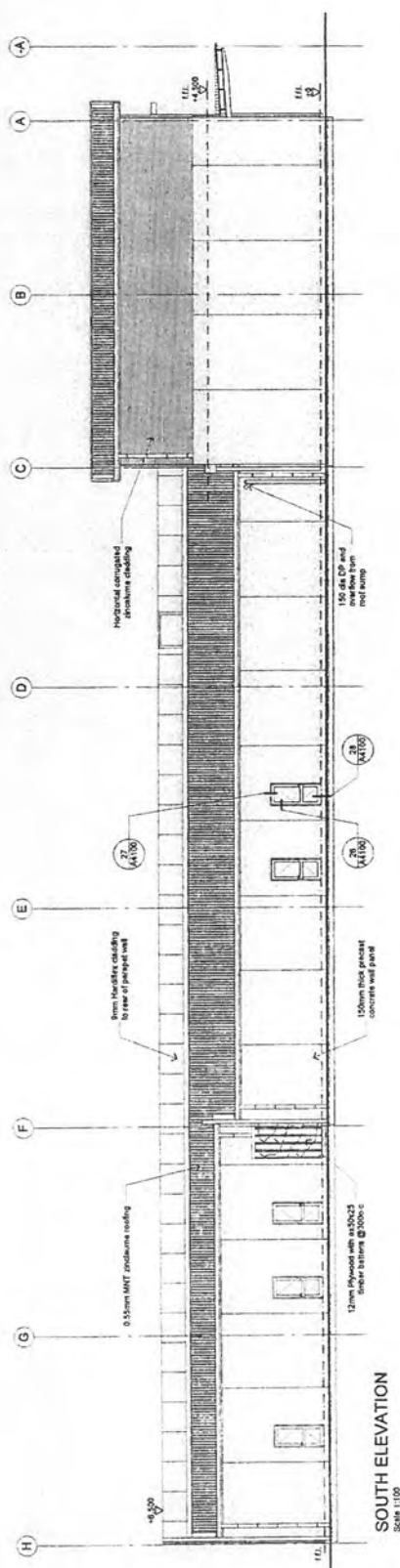
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PROJECT INFORMATION MEMORANDA

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09LT5

Refer to accompanying documentation



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TENDER			
TENDER			
TENDER			
TENDER RE-ISSUE			
CONSTRUCTION			
BUILDING			



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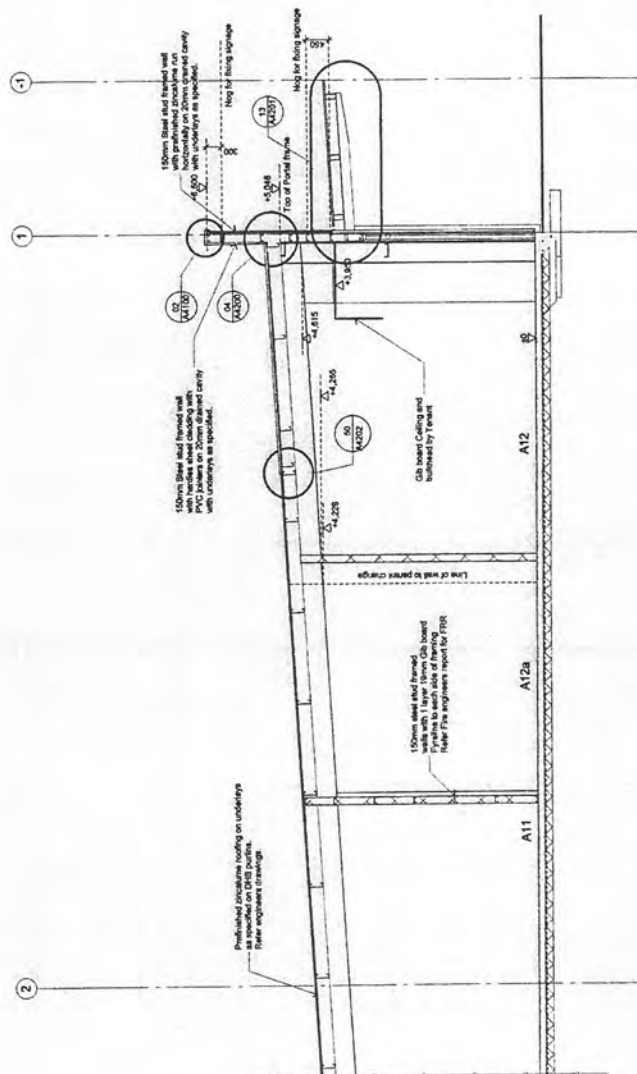


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DRAWN MG	CHECK LK	

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A2100

(E)



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ISSUE	RE-DO-UP	BY	DATE



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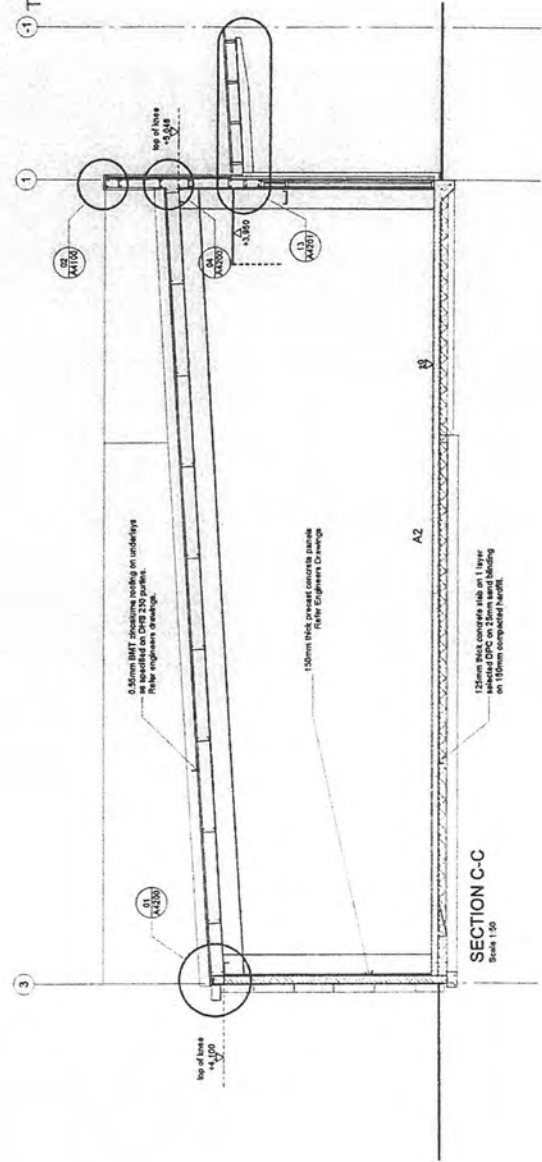
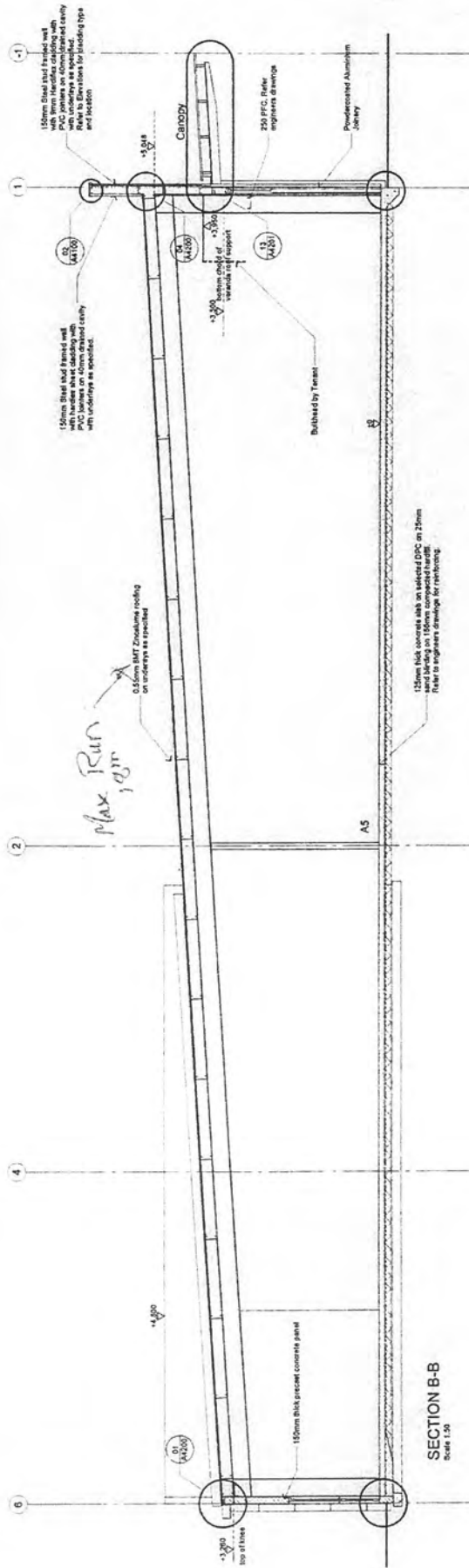


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PROJECT
**BLOCK A
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SECTIONS

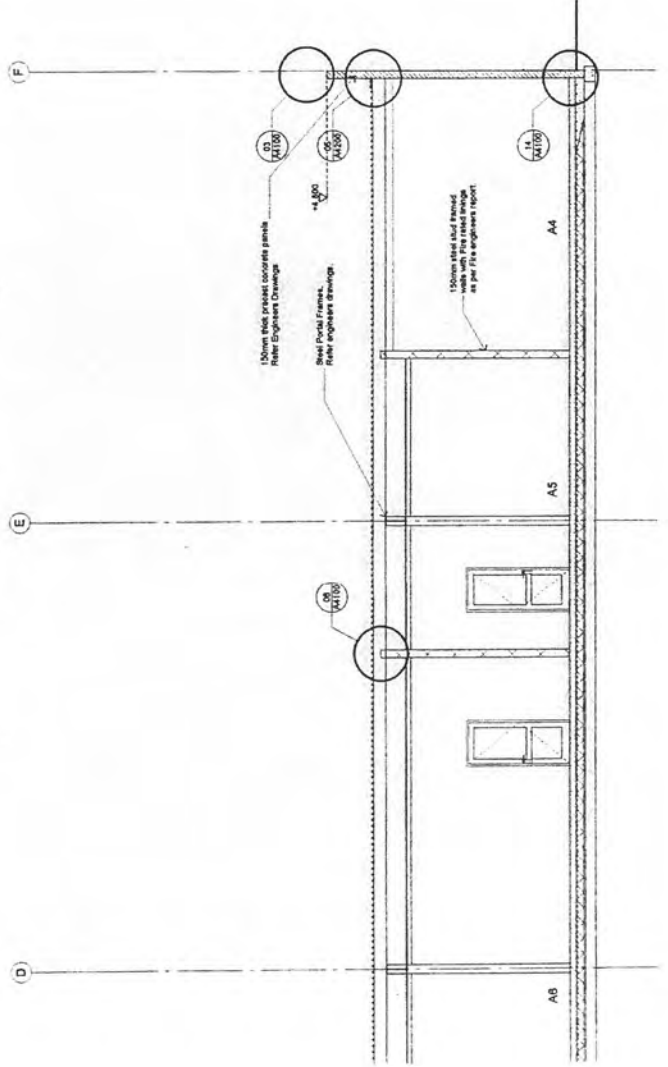
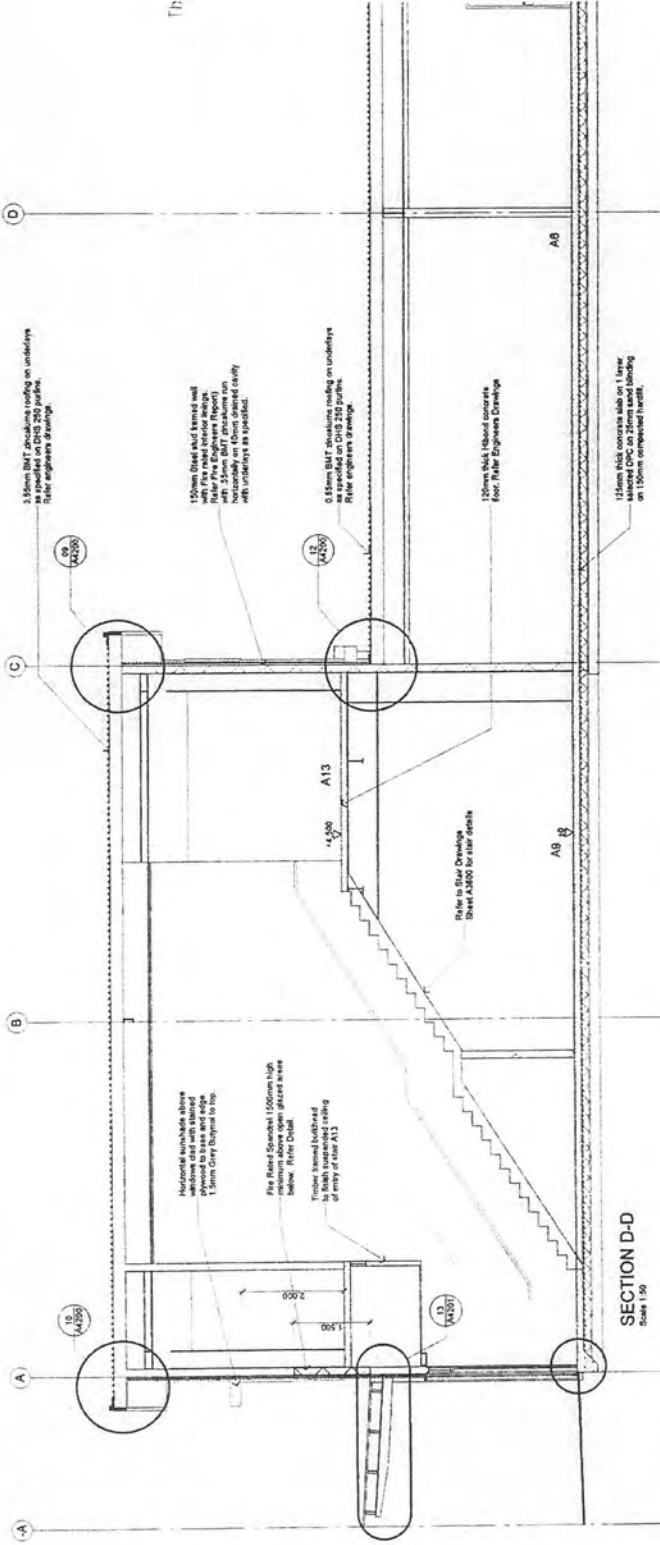
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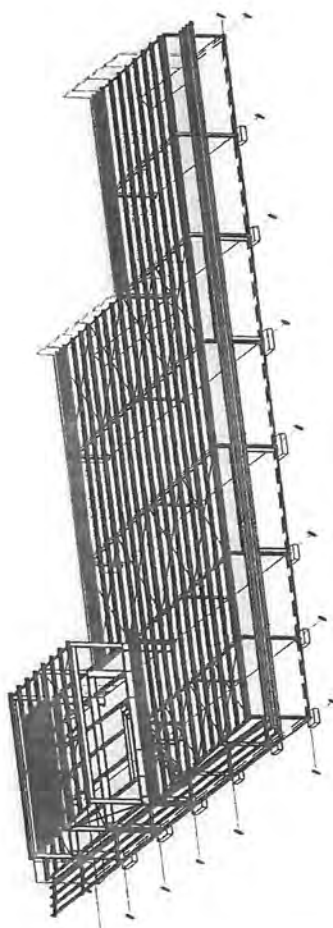
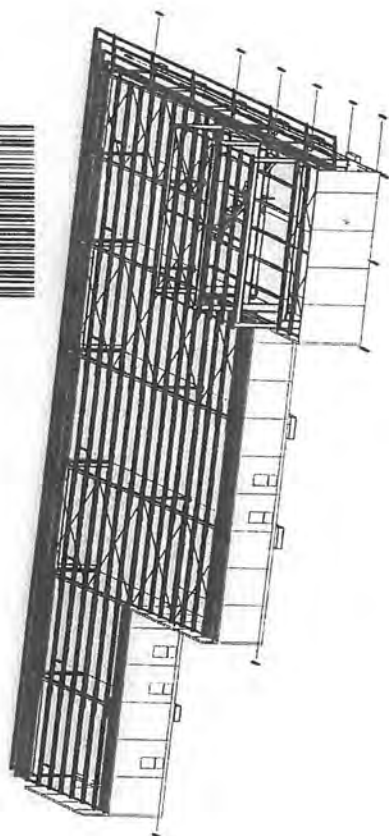


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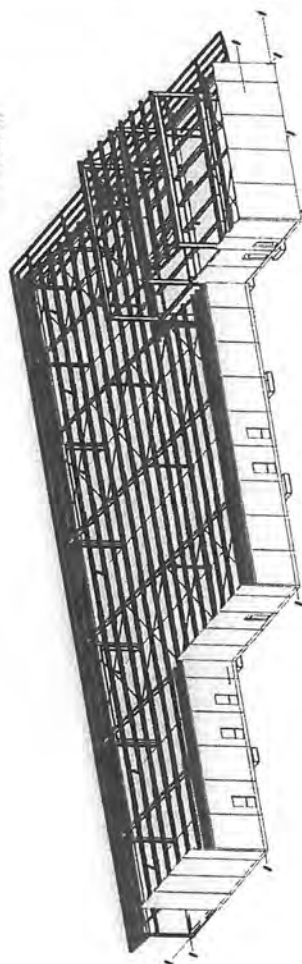
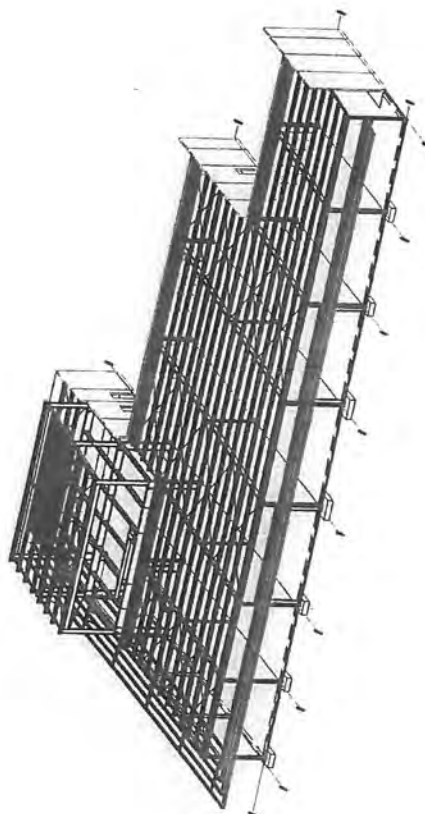
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1	Rev	Date	Revision Des/Iss	Desn	Ver.	App.	Cornell Wagner Company General Building and Steel Office 100 New York Avenue, New York, New York 10001 (212) 691-1000 (212) 691-1001 (212) 691-1002 (212) 691-1003 (212) 691-1004 (212) 691-1005 (212) 691-1006 (212) 691-1007 (212) 691-1008 (212) 691-1009 (212) 691-1010 (212) 691-1011 (212) 691-1012 (212) 691-1013 (212) 691-1014 (212) 691-1015 (212) 691-1016 (212) 691-1017 (212) 691-1018 (212) 691-1019 (212) 691-1020 (212) 691-1021 (212) 691-1022 (212) 691-1023 (212) 691-1024 (212) 691-1025 (212) 691-1026 (212) 691-1027 (212) 691-1028 (212) 691-1029 (212) 691-1030 (212) 691-1031 (212) 691-1032 (212) 691-1033 (212) 691-1034 (212) 691-1035 (212) 691-1036 (212) 691-1037 (212) 691-1038 (212) 691-1039 (212) 691-1040 (212) 691-1041 (212) 691-1042 (212) 691-1043 (212) 691-1044 (212) 691-1045 (212) 691-1046 (212) 691-1047 (212) 691-1048 (212) 691-1049 (212) 691-1050 (212) 691-1051 (212) 691-1052 (212) 691-1053 (212) 691-1054 (212) 691-1055 (212) 691-1056 (212) 691-1057 (212) 691-1058 (212) 691-1059 (212) 691-1060 (212) 691-1061 (212) 691-1062 (212) 691-1063 (212) 691-1064 (212) 691-1065 (212) 691-1066 (212) 691-1067 (212) 691-1068 (212) 691-1069 (212) 691-1070 (212) 691-1071 (212) 691-1072 (212) 691-1073 (212) 691-1074 (212) 691-1075 (212) 691-1076 (212) 691-1077 (212) 691-1078 (212) 691-1079 (212) 691-1080 (212) 691-1081 (212) 691-1082 (212) 691-1083 (212) 691-1084 (212) 691-1085 (212) 691-1086 (212) 691-1087 (212) 691-1088 (212) 691-1089 (212) 691-1090 (212) 691-1091 (212) 691-1092 (212) 691-1093 (212) 691-1094 (212) 691-1095 (212) 691-1096 (212) 691-1097 (212) 691-1098 (212) 691-1099 (212) 691-1100 (212) 691-1101 (212) 691-1102 (212) 691-1103 (212) 691-1104 (212) 691-1105 (212) 691-1106 (212) 691-1107 (212) 691-1108 (212) 691-1109 (212) 691-1110 (212) 691-1111 (212) 691-1112 (212) 691-1113 (212) 691-1114 (212) 691-1115 (212) 691-1116 (212) 691-1117 (212) 691-1118 (212) 691-1119 (212) 691-1120 (212) 691-1121 (212) 691-1122 (212) 691-1123 (212) 691-1124 (212) 691-1125 (212) 691-1126 (212) 691-1127 (212) 691-1128 (212) 691-1129 (212) 691-1130 (212) 691-1131 (212) 691-1132 (212) 691-1133 (212) 691-1134 (212) 691-1135 (212) 691-1136 (212) 691-1137 (212) 691-1138 (212) 691-1139 (212) 691-1140 (212) 691-1141 (212) 691-1142 (212) 691-1143 (212) 691-1144 (212) 691-1145 (212) 691-1146 (212) 691-1147 (212) 691-1148 (212) 691-1149 (212) 691-1150 (212) 691-1151 (212) 691-1152 (212) 691-1153 (212) 691-1154 (212) 691-1155 (212) 691-1156 (212) 691-1157 (212) 691-1158 (212) 691-1159 (212) 691-1160 (212) 691-1161 (212) 691-1162 (212) 691-1163 (212) 691-1164 (212) 691-1165 (212) 691-1166 (212) 691-1167 (212) 691-1168 (212) 691-1169 (212) 691-1170 (212) 691-1171 (212) 691-1172 (212) 691-1173 (212) 691-1174 (212) 691-1175 (212) 691-1176 (212) 691-1177 (212) 691-1178 (212) 691-1179 (212) 691-1180 (212) 691-1181 (212) 691-1182 (212) 691-1183 (212) 691-1184 (212) 691-1185 (212) 691-1186 (212) 691-1187 (212) 691-1188 (212) 691-1189 (212) 691-1190 (212) 691-1191 (212) 691-1192 (212) 691-1193 (212) 691-1194 (212) 691-1195 (212) 691-1196 (212) 691-1197 (212) 691-1198 (212) 691-1199 (212) 691-1200 (212) 691-1201 (212) 691-1202 (212) 691-1203 (212) 691-1204 (212) 691-1205 (212) 691-1206 (212) 691-1207 (212) 691-1208 (212) 691-1209 (212) 691-1210 (212) 691-1211 (212) 691-1212 (212) 691-1213 (212) 691-1214 (212) 691-1215 (212) 691-1216 (212) 691-1217 (212) 691-1218 (212) 691-1219 (212) 691-1220 (2
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REFER TO ARCHITECTS FOR FLOOR LEVELS AND WALL BUILDING PLATFORM FOR ITS SLAB ON GRADE TO COMPLY WITH THE 2006 IBC AND BUILDING ON STEEP SLOPED MATERIAL

PROVIDE 405 PHSU TO SLAB ON GRADE AND PROVIDE SLOPES AT 1:800 EACH WAY AND CONSTRUCTION POINTS AT 2000 EACH WAY AND

REFER TO GEOTECHNICAL REPORT FOR FOUNDATION BEARING CAPACITIES. ALL FOUNDATIONS TO BE INSPECTED BY AN ENGINEER PRIOR TO POURING OF THE FOUNDATION

REFER TO HYDRAULICS DRAWINGS FOR W/GRADING SERVICES UNDER THE 275 SLAB ON GRADE

REFER TO STRUCTURAL SPECIFICATION FOR CONCRETE IMPROVED STRENGTHS



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

CONSENT
NOT FOR CONSTRUCTION

236

Scale	1:100 A1
Sheet Size	

1200 A3	A1
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B236-S1.100	03
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**STRUCTURAL
BLOCK A
FOUNDATIONS**

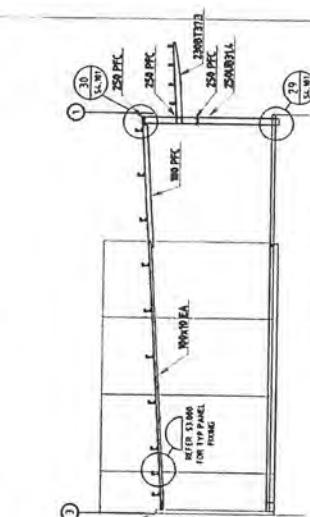
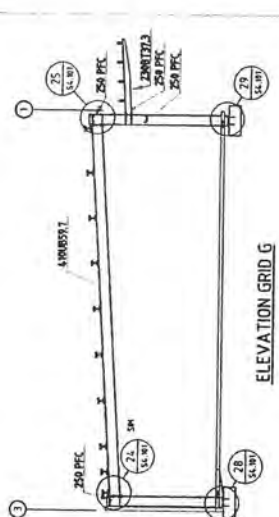
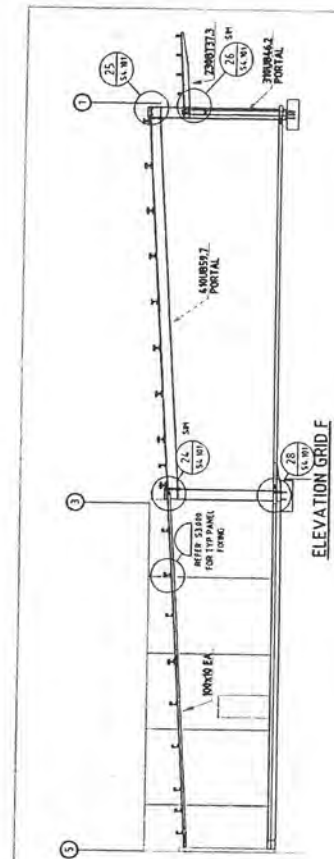
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Designed DPL	Signed DPL	Date 10.07.06
Verified ECS	Signed ECS	Date 10.07.06
Approved SMB	Signed SMB	Date 10.07.06

BETHLEHEM SHOPPING CENTRE

AMP capital
INVESTORS

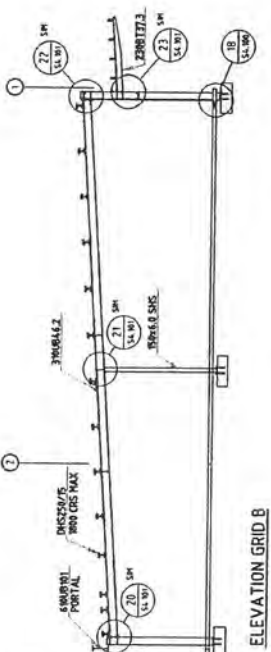
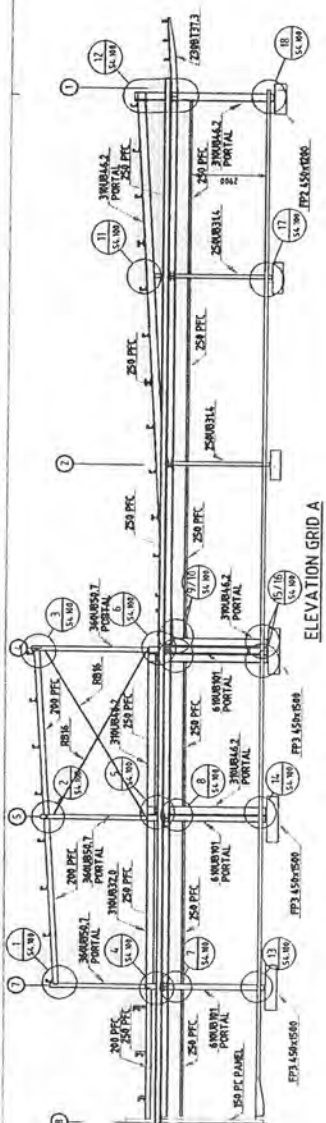
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02	10-06-06	COORDINATION			
01	09-06-06	PRELIMINARY	AD		

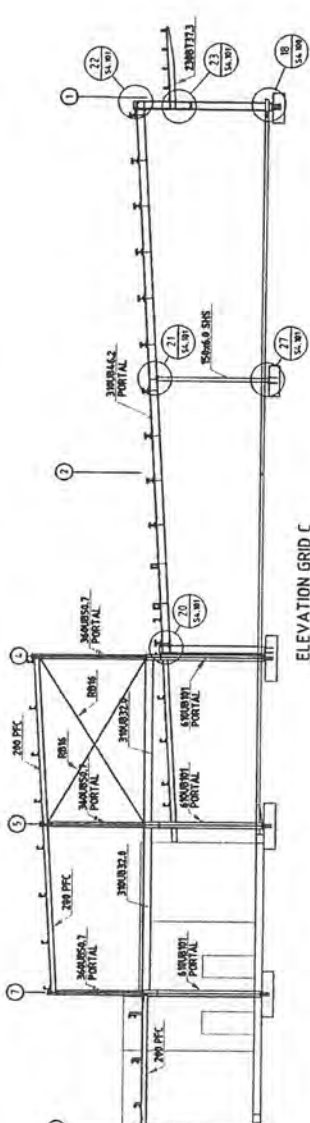


ELEVATION GRID H

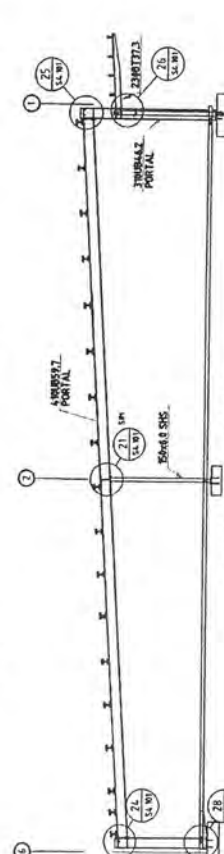
APPROVED
These plans are approved in accordance with
The NZ Building Code
These plans must remain on site
TAUANGA CITY COUNCIL



ELEVATION GRID B

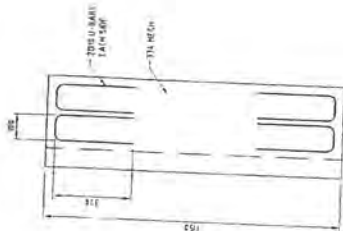


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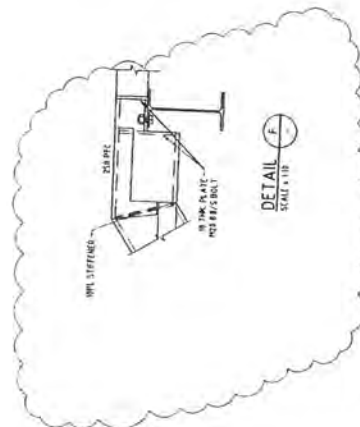


ELEVATION GRID D AND E

CONSENT NOT FOR CONSTRUCTION		Project No. B236 Scale 1:100 A1 Drawing No. B236-S2.100 03	
STRUCTURAL BLOCK A ELEVATIONS		BETHLEHEM SHOPPING CENTRE	
Drawn AD	Checked AD	Date 10/07/06	Drawn Title STRUCTURAL BLOCK A ELEVATIONS
Designed DPL	Verified ECS	Date 10/07/06	Project BETHLEHEM SHOPPING CENTRE
Approved SHB	Approved SHB	Date 10/07/06	Client AMP capital INVESTORS
Revision Details		Notes	
Rev.	Date	Ver.	App.
01	10/07/06	01	AD
02	10/07/06	02	AD
03	10/07/06	03	AD
04	10/07/06	04	AD
05	10/07/06	05	AD
06	10/07/06	06	AD
07	10/07/06	07	AD
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97	10/07/06	97	AD
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100	10/07/06	100	AD



SECTION 1
SCALE = 1/4" = 1'-0"



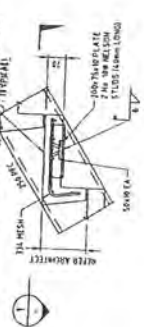
DETAIL
SCALE = 1/10

APPROVED

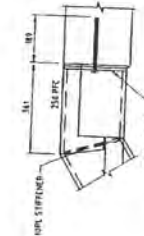
The NZ Rules

These plans must remain in effect.

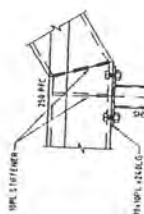
LAUFANGA CITY CHAMBER OF COMMERCE



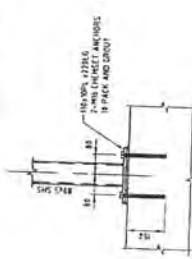
DETAIL
SCALE 1/4" = 1'-0"



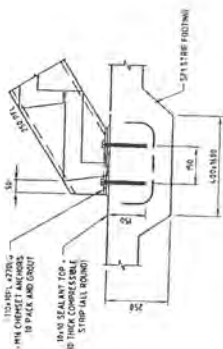
DETAIL 
SCALE 1" = 1'-0"



DETAIL 
SCALE 1/16"



DETAIL
SCALE = 1/8"



DETAIL
SCALE = 1/10

SECTION SECTION-- (STAIR PLAN 2)
S.M.F. - 144

THE LEE AND SYLVIA DRAWES ENDOWMENT
FOR ADMINISTRATIVE DRAWS AND ENDOWMENT

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Connell Wagner

Foreign Worker Limited Liability Office
P.O. Box 4732, Myanmar's Aungmye
175 (Canton City) South Myanmar City. New Zealand
Telephone: +64 3 374-4110
Fax: +64 3 374-4111
E-mail: info@workermail.com

AMP capital
INVESTORS

**BETHLEHEM SHOPPING CENTRE
STAGES 1, 2 AND 3**

STRUCTURAL
STEEL DETAILS
STAIRS (BLOCK G AND A)
SHEET 2

CONSENT
NOT FOR CONSTRUCTION

Project No. B236

120 A1

160 A3
Drawing Map

B236-S4.0

Description:

Building B was designed in 2006 and is a small, almost square single storey, pitched roof block, with a low stud mono- pitched annex on the west side that was extended further to the west in 2007 with an addition known at that time as 'the Kiosk'. In 2014 it appears that a small re-entrant area of floor was infilled, but this did not affect the lateral load resistance of the building. The building has its long axis orientated nominally east-west. It is a stand-alone building that essentially has car park or courtyard frontages on all four sides. It is seismically isolated from all other buildings.

This building is a small foot-print single storey, pitched roof minor boutique retail type building, with a total of 5 bays in the east-west longitudinal direction and between one and two bays in the north-south transverse direction. There is a canopy on the east side. The roof over the annex and 'Kiosk' are both mono-pitch.

Construction of the building envelope consists of long-run metal roof sheeting over cold rolled steel purlins, supported on 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 internal columns where the footprint expands toward the east. The portals in the eastern section are steeply pitched to a central ridge, but the remainder of the roof has minimal pitch. The structural steel columns land above the concrete foundations below the on-grade slab and these foundations are conventional strip footing and pad type foundations in reinforced concrete that have been detailed in size only in the property file documentation.

The canopy is small and has a reasonable sized structural steel T section cantilever beams supporting structural steel rectangular hollow section (RHS) purlins. The cantilever beams appear to be bolted directly into the main wind columns and this combination provides adequate lateral stability.

There is shop front glazing on the north and east elevations, but the solid wall panels are recorded as substantial timber framing, and steel stud framing, with timber battens, all with a plywood over-lay which is used for longitudinal bracing.

The on-grade floor slab consists of a conventional mesh reinforced 125mm thick on-grade slab and this is recorded as being laid over DPC and 150mm of compacted metal hardfill. Interestingly the details for this are on the architectural sections and not the structural engineering drawings.

Seismic Load Resisting Structure:

The lateral load resisting system for the building envelope consists primarily of the structural steel diagonal rod roof-plane bracing distributing the longitudinal lateral loads to the plywood sarked wall bracing panels, with the moment resisting portal frames in the transverse direction. The alterations and modifications to the building have been recorded in the documentation that we hold and have been commented on above.

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 for this specific Block, however, we have found sheets of 'Typical Foundation Details' designated 'Stage 1' and this information 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.

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 plywood lined wall bracing panels acting as in-plane loaded shear walls. There are structural steel moment resisting portal frames in the transverse direction but the low height to the portal knee suggests that the natural period will not be longer than the default minimum of 0.4 seconds).
- Building Importance Level 2.
- Structural Ductility factor 1.5 (this is conservatively based on the in-plane loaded plywood wall panels which have not been well specified in the drawings but in reality, will be capable of a much higher ductility factor. This is commented on in the PAR section. It is also based on the likely performance of the structural steel moment resisting portal frames).
- Plan irregularity 1.0 (this value has been selected due to the near symmetrical arrangement of the lateral load resisting walls in both directions, but 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 ductility factor is too low for the well-conditioned moment resisting structural steel portal frames this building and the nail fastened plywood bracing panels. 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 B 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 B	Date:	29/03/2021
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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Name of building:	Block B	Date:	29/03/2021
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, Cl 3.1.3 :

D Soft Soil

From NZS4203:1992, Cl 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 = 4A_c = 1.00

4 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 B	Date:	29/03/2021
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

 $= IR_o/R$

Factor G: 1.00

1.00

2.5 Ductility Scaling Factor, Factor H

a) Available Displacement Ductility Within Existing Structure

Comment:

 $\mu = 1.50$

1.50

b) Factor H

For pre 1976 (maximum of 2)

 $= \frac{k_u}{1.29}$

For 1976 onwards

 $= 1$

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

☐
 $S_p = 0.85$ ☐
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 B	Date:	29/03/2021
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 1.1

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

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Name of building:	Block B	Date:	29/03/2021
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	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 1.10

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 B	Date:	29/03/2021
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

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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 B	Date:	29/03/2021
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 parapets

IEP Assessment Confirmed by

Signature

S R Mitchell

Name

70562

CPEng. No

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THOMAS AND PETER JOHN O'D

	A	BUILDING CONSENT	JMD	11.07.08
		REVISION	R#	S#



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2007



1000

BLOCK D
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE

REFERENCE FLOOR PLAN

DATE	SCALE
11 JULY 2004	
DRAWN	PROJECT NO.
MG	457-05-19

DRAWING NUMBER
A1300

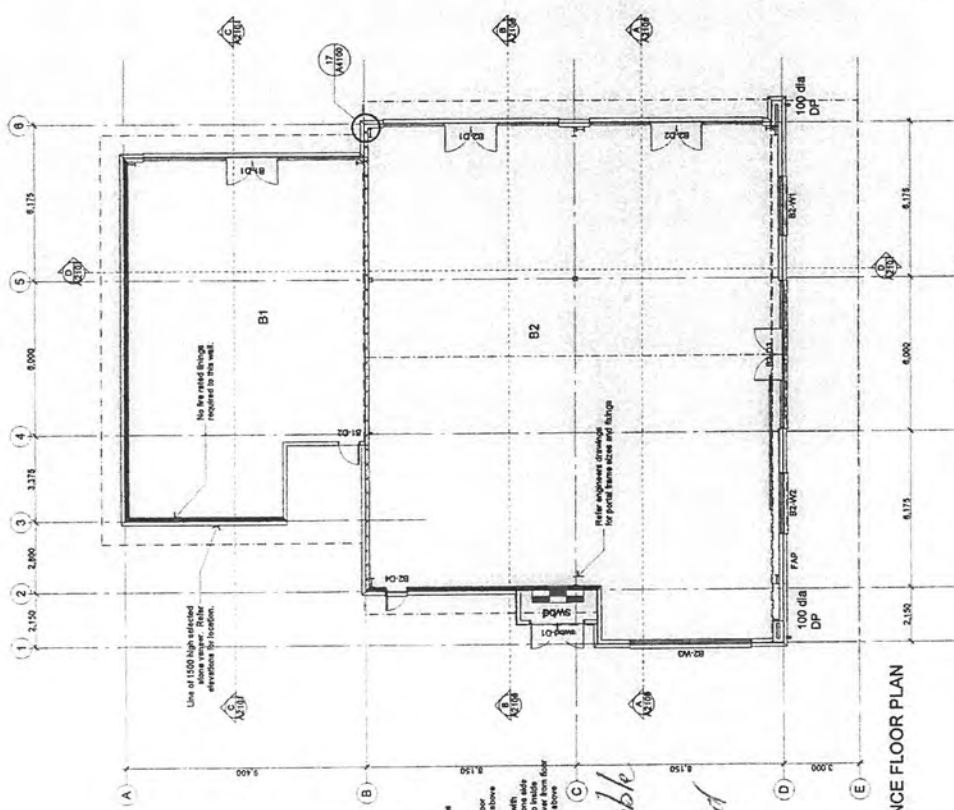
(A)

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

Producer Statement Required For:

1. Alarm installation + testing + certification on completion by F.P.I.S.
2. Any Auto-doors (Fail-safe).
3. H.A.V.A.C. system, commissioning results
4. All interproof membranes.
5. Steel fabrication, & welding

TCC172948



All work to be done with reference to the Fire Report.

REFERENCE FLOOR PLAN
Scale 1:100

Ensure Accessible
Route, & No
thresholds to exceed
20mm.

DO NOT SCALE OFF DRAWINGS

A	BUILDING CONSENT	MQ	1107.06
		LIC	
		AS	



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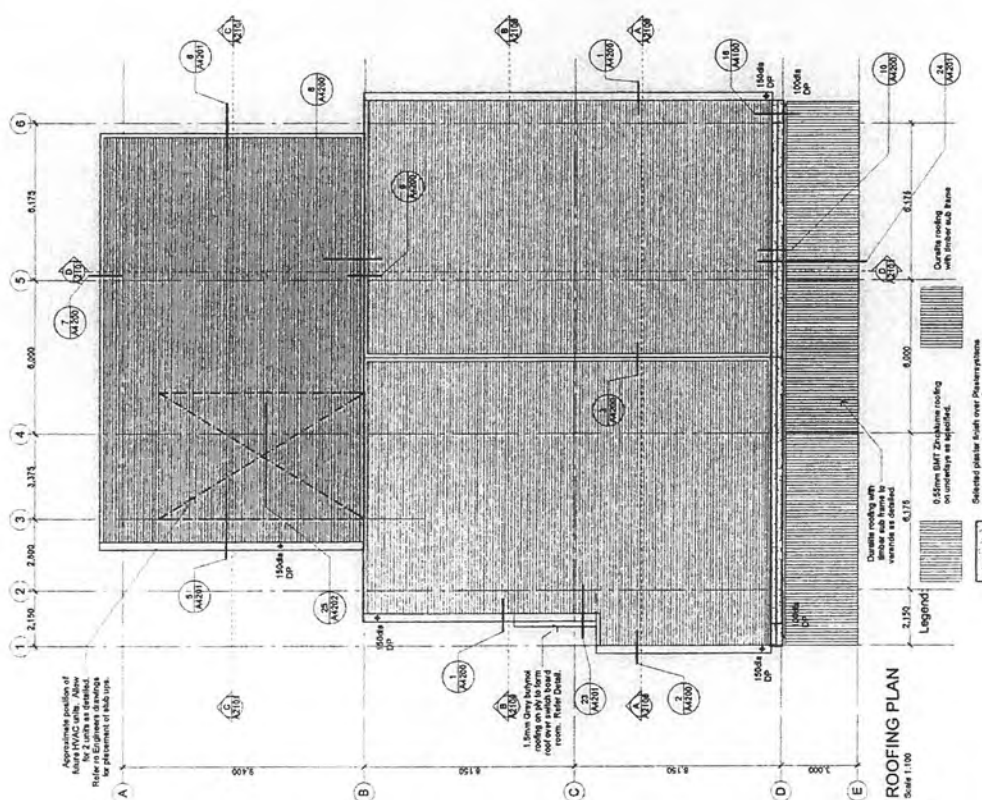


PROJECT
BLOCK B
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
ROOFING PLAN

DATE	SCALE
11 JUL 19 2006	
DESIGN	CHECK
MG	
PROJECT NO.	
457-05-19	
DRAWING NUMBER	
A1700	

APPROVED
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The NZ Building Code.
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TAURANGA CITY COUNCIL



GENERAL NOTES

1. DO NOT SCALE OFF DRAWING
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS ON SITE.
3. DIMENSIONS TO BE SHOWN ON ALL DRAWINGS
4. DIMENSIONS TO BE SHOWN ON ALL DRAWINGS
5. DIMENSIONS TO BE SHOWN ON ALL DRAWINGS
6. DIMENSIONS TO BE SHOWN ON ALL DRAWINGS
7. DIMENSIONS TO BE SHOWN ON ALL DRAWINGS
8. DIMENSIONS TO BE SHOWN ON ALL DRAWINGS
9. DIMENSIONS TO BE SHOWN ON ALL DRAWINGS
10. DIMENSIONS TO BE SHOWN ON ALL DRAWINGS

DATE	BY	DATE
11.07.08		
A. BUILDING COMMENT	MO	11.07.08



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CLIENT



PROJECT

BLOCK B
BETHLEHEM
SHOPPING CENTRE

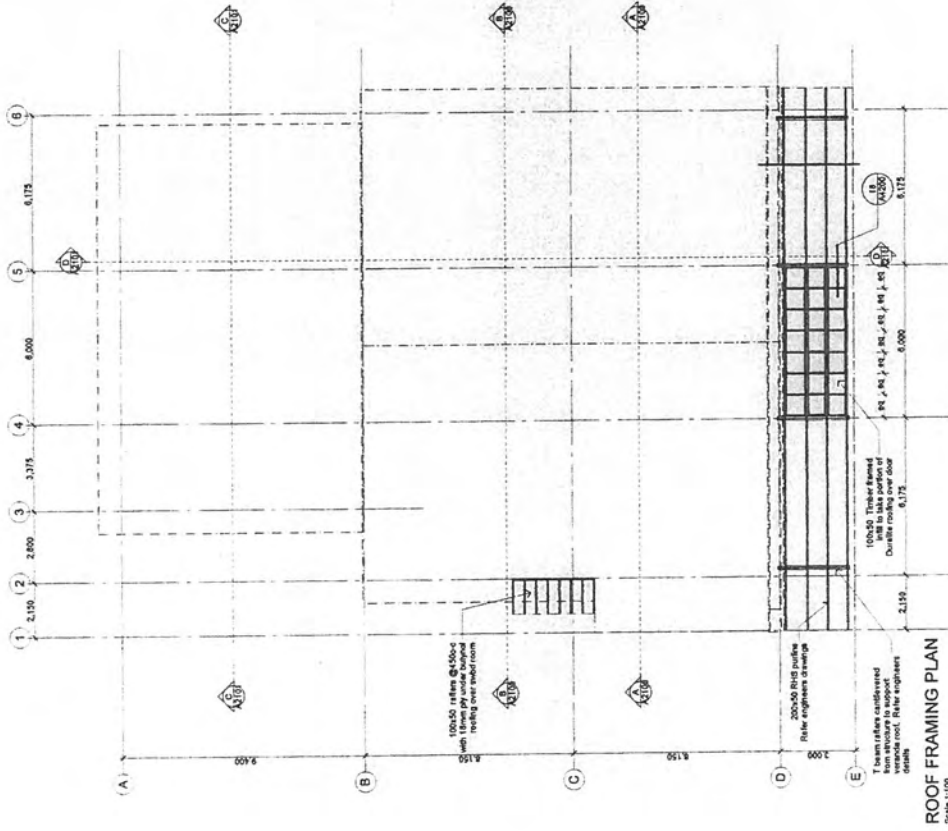
DRAWING TITLE

ROOF FRAMING PLAN

DATE	SCALE	PROJECT NO.
11.07.08		457-05-19
DATE	BY	PROJECT NO.
MG		457-05-19
DRAWING NUMBER		A1701

APPROVED
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The NZ Building Code.
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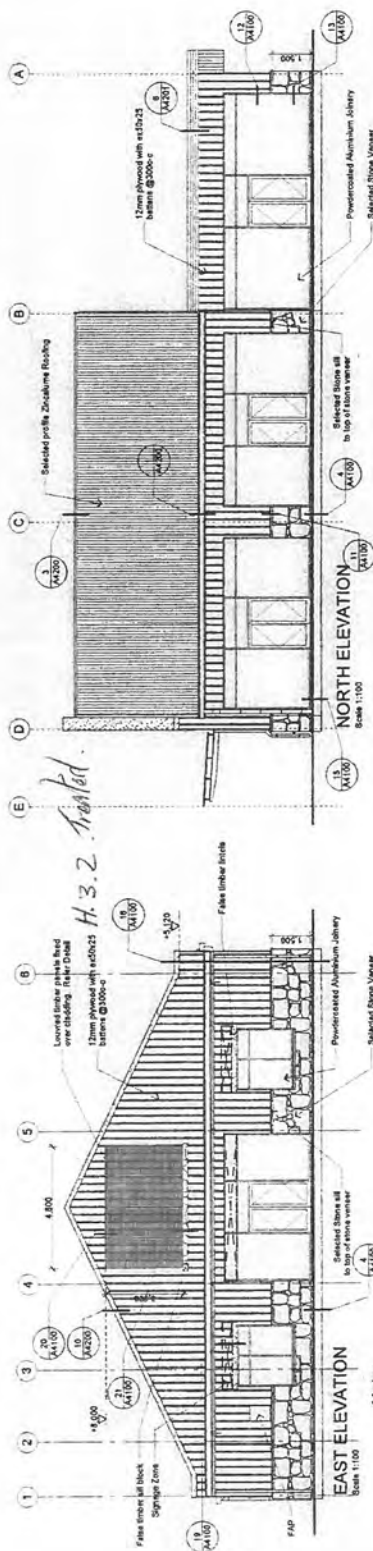
TCC172951



ROOF FRAMING PLAN
Scale 1:150

GENERAL NOTES

1. NO PART OF THIS DRAWING IS TO BE USED FOR ANY OTHER PURPOSE THAN THAT FOR WHICH IT WAS PREPARED.
2. THE DRAWING IS THE PROPERTY OF THE ARCHITECT AND IS NOT TO BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF THE ARCHITECT.
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4. THE DRAWING IS THE PROPERTY OF THE ARCHITECT AND IS NOT TO BE REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF THE ARCHITECT.
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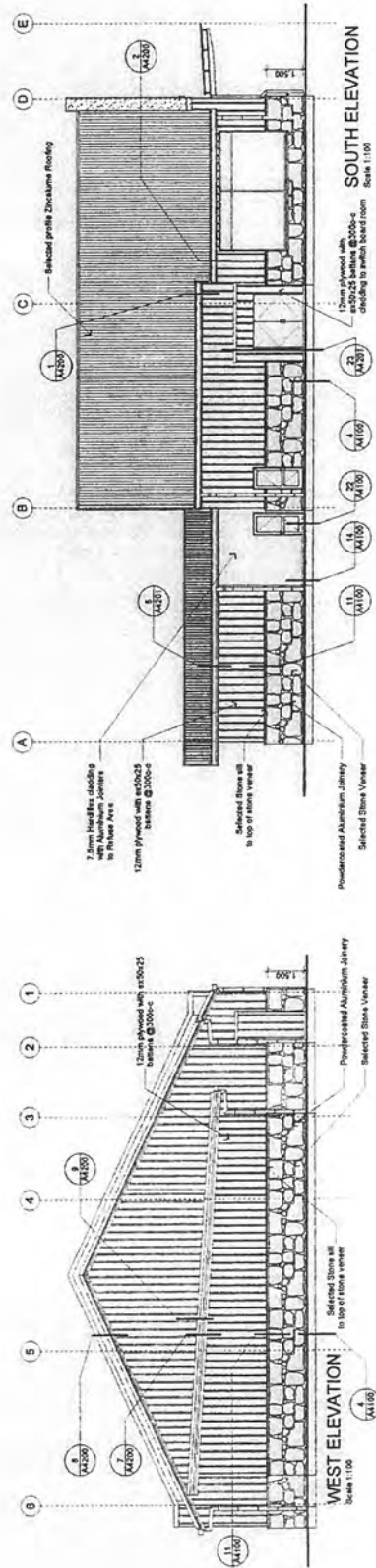
TAURANGA CITY COUNCIL

TAURANGA CITY COUNCIL
PROJECT INFORMATION MEMORANDA

20160

Refer to accompanying documentation

Note:
40mm Drained cavity behind plywood cladding to walls on Grid line B and D only.



ANP capital
INVESTMENTS

PROJECT
BLOCK B
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
ELEVATIONS

DATE	SCALE
11 JULY 2016	
DRAWN	CHECK
MG	
PROJECT NO.	457-05-19
DRAWING NO.	A2000

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GENERAL NOTES

1. ALL WORK IS TO BE COMPLETED IN ACCORDANCE WITH THE NZ BUILDING CODE.
2. ALL WORK IS TO BE COMPLETED IN ACCORDANCE WITH THE NZ BUILDING CODE.
3. ALL WORK IS TO BE COMPLETED IN ACCORDANCE WITH THE NZ BUILDING CODE.
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10. ALL WORK IS TO BE COMPLETED IN ACCORDANCE WITH THE NZ BUILDING CODE.

NO.	REVISION	DATE	BY	CHKD
1		11.07.08		



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CLIENT



PROJECT
BLOCK B
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE

SECTIONS

TCC172955



DATE
11 JULY 2004

SCALE

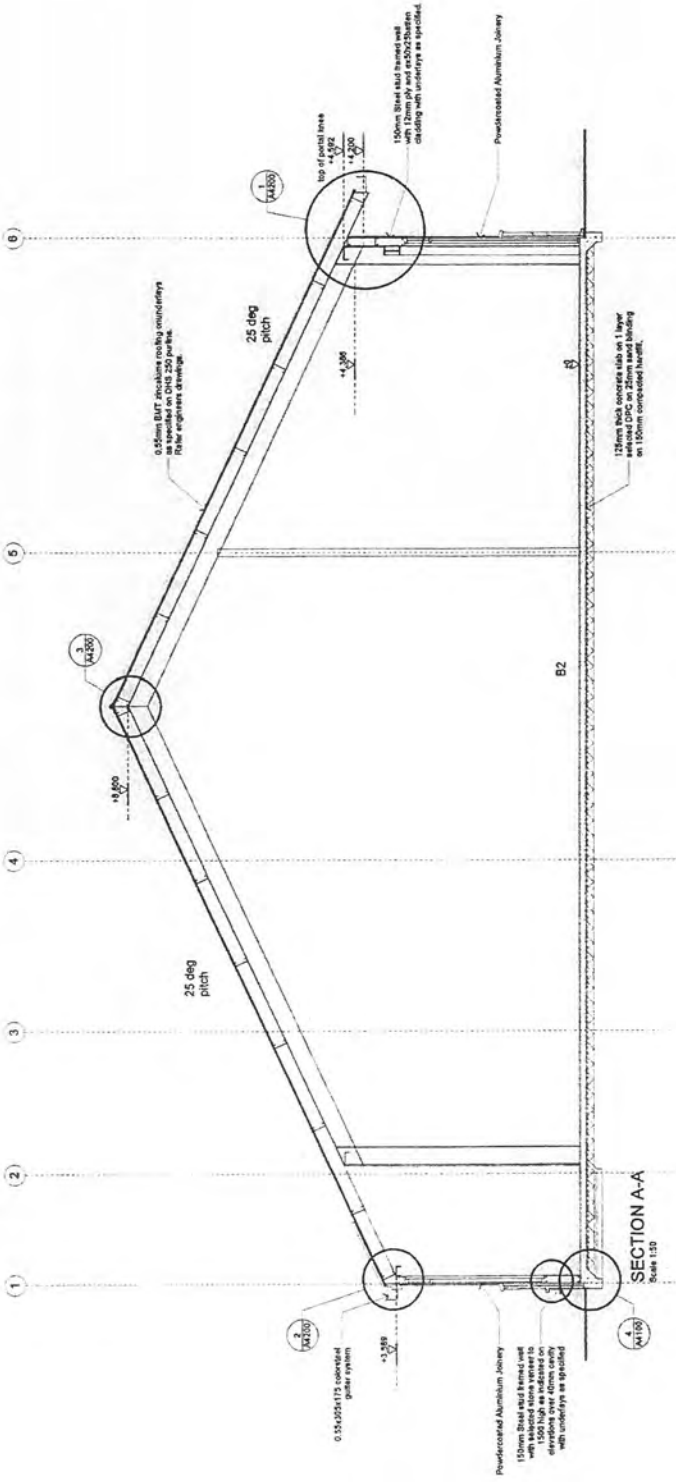
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MG

CHECK
MG

PROJECT NO.
457-05-19

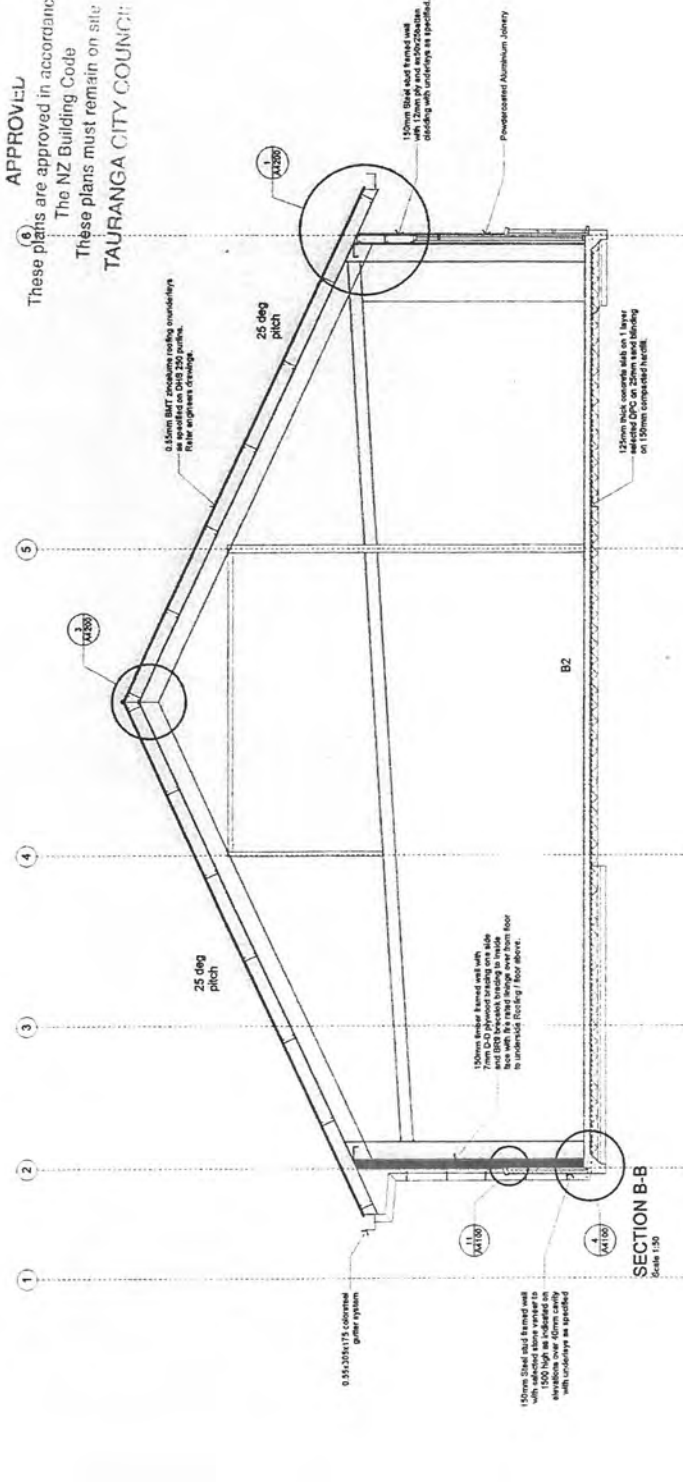
DRAWING NUMBER
A2100

REVISION
A



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These plans must remain on site
TAURANGA CITY COUNCIL



[illegible]

North



Building Component	MD	27.03.07
Roof		
Walls		
Floors		
Windows		
Doors		
Stairs		
Basement		
Other		

⑤

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www.konstantinmiller.com

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100

BLOCK B
BETHLEHEM
SHOPPING CENTRE

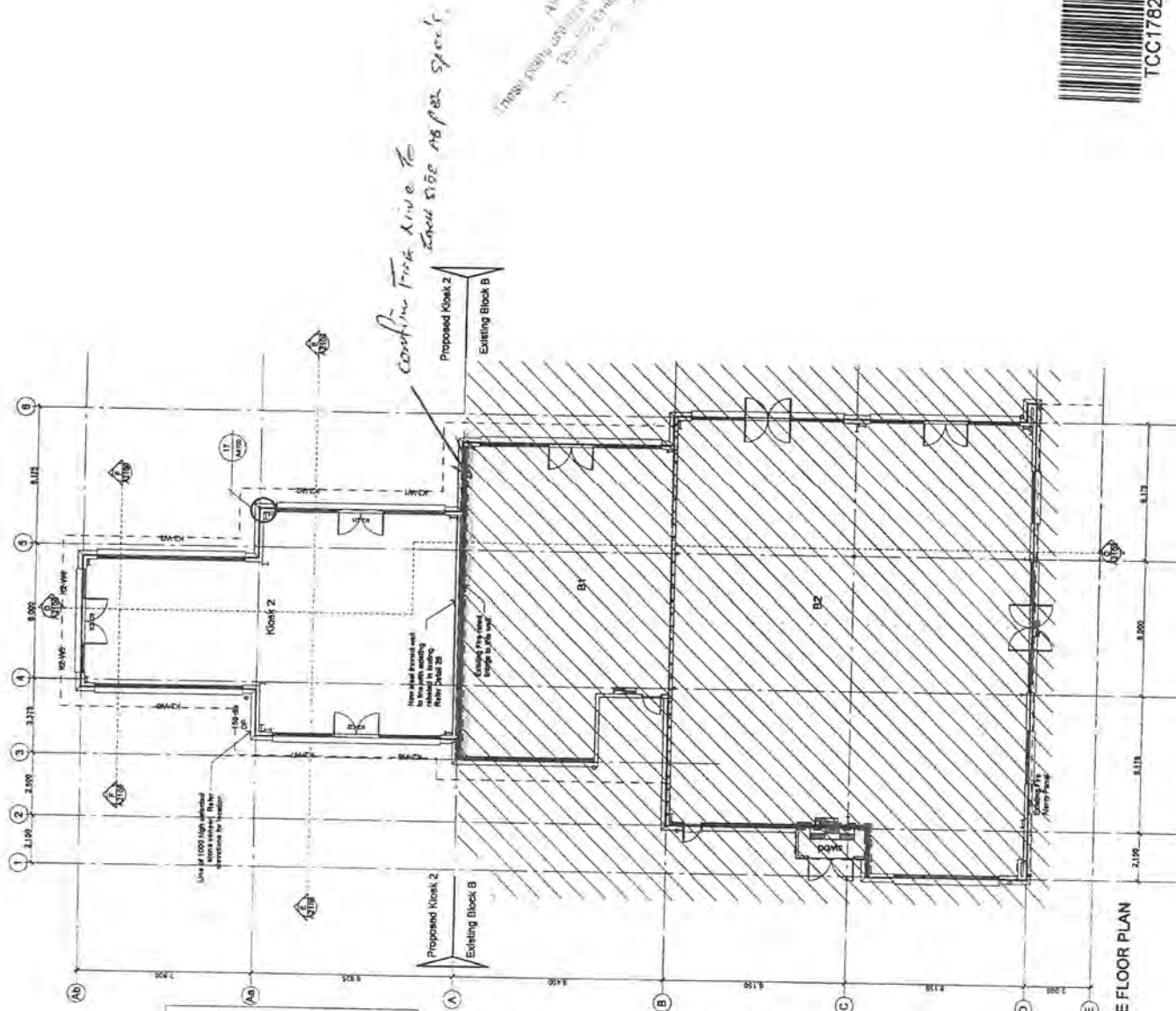
REFERENCE FLOOR PLAN

DATE 21 MARCH 1987	SCALE 1:100 @A1 1:200 @A2
DRAWN MG	CHECK CMM
PROJECT NO. 457-05-19	

DRAWING NUMBER
A1300



TCC178240



REFERENCE FLOOR PLAN
Scale 1:100

REFERENCES

puerto

	15mm steel barrel with 1mm thick O.D. barrel
	15mm steel barrel with 1mm thick O.D. barrel
	15mm steel barrel with 1mm thick O.D. barrel
	15mm steel barrel with 1mm thick O.D. barrel
	15mm steel barrel with 1mm thick O.D. barrel
	15mm steel barrel with 1mm thick O.D. barrel
	15mm steel barrel with 1mm thick O.D. barrel
	15mm steel barrel with 1mm thick O.D. barrel

GENERAL NOTES

1. DO NOT ROLL OR BEND
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS ON SITE
3. ADJUSTMENTS TO BE APPROVED BY THE INSPECTOR BETWEEN SETTING AND TIE-IN TO EXISTING
4. THESE DIMENSIONS REFLECT THE PROPERTY OF THE CONTRACTOR AND SHOULD NOT BE COPIED IN ANY FORM OR MANNER TO A THIRD PARTY WITHOUT THE WRITTEN CONSENT

North



Building Contract	1403	27 03 07
Invoice	1403	14 07 07



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current

100

**BLOCK B
BETHLEHEM
SHOPPING CENTRE**

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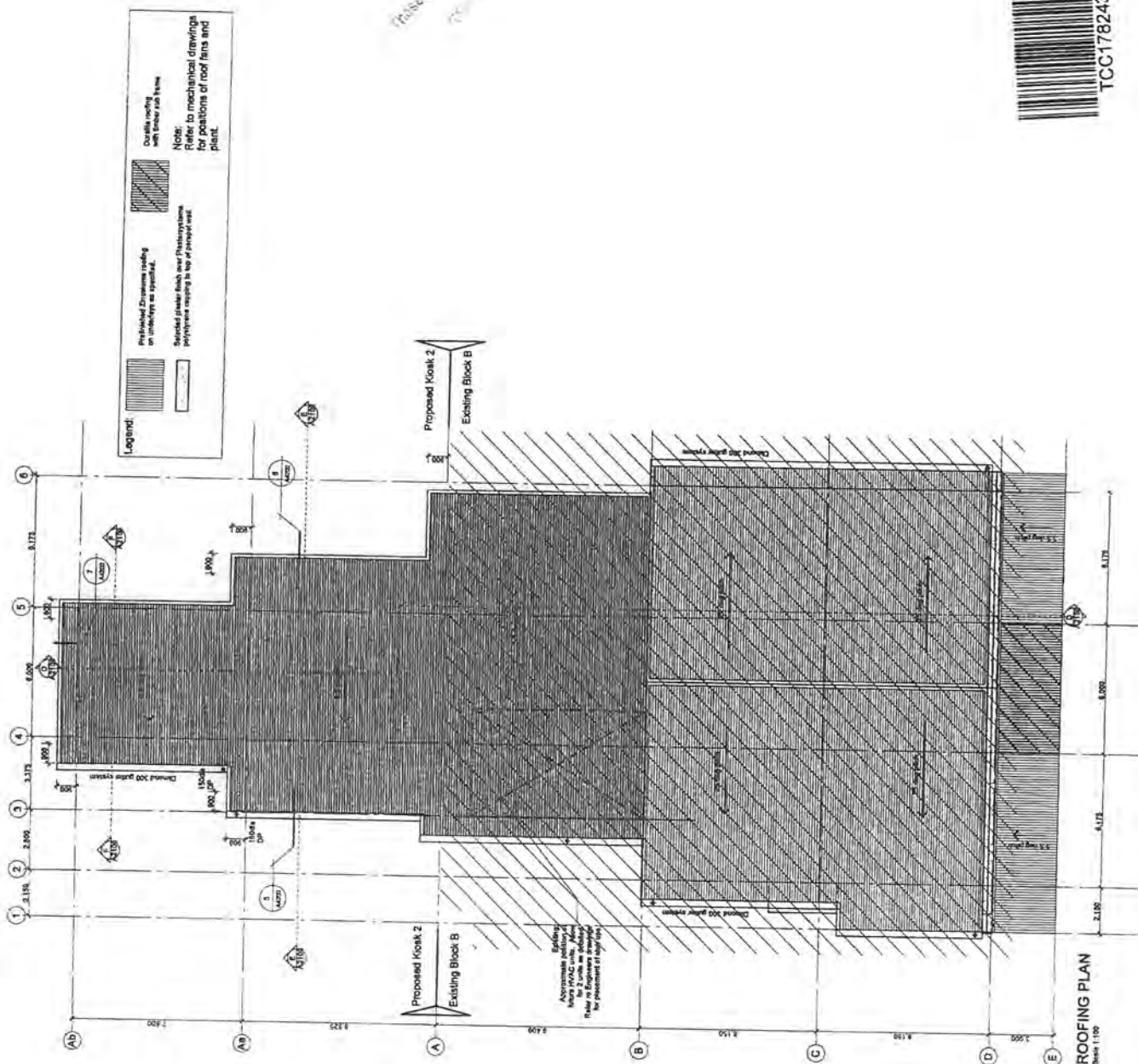
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DRAWN MG	CHECK CMM
PROJECT NO. 457-05-19	

DRAWING NUMBER
A1700

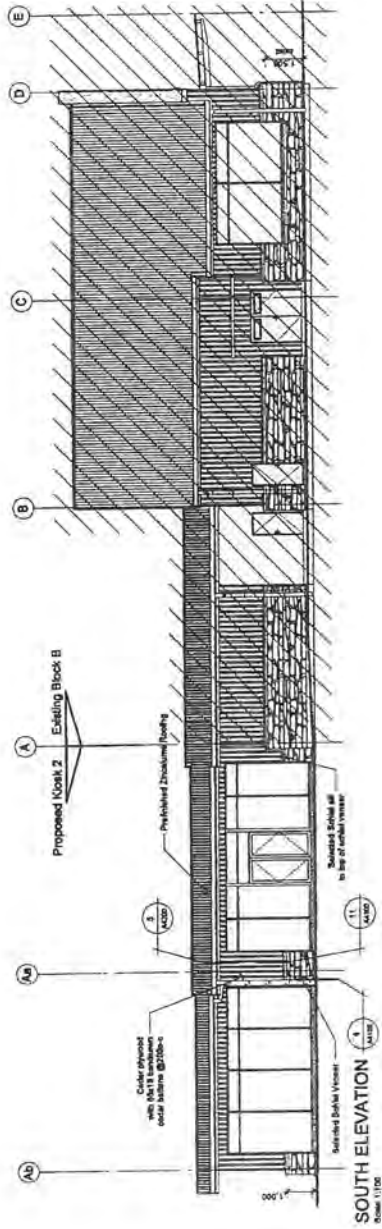
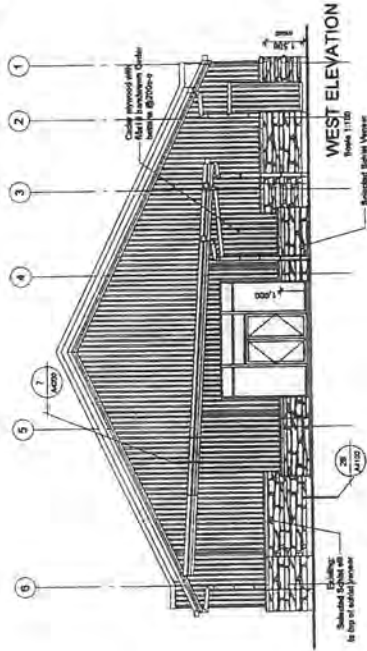
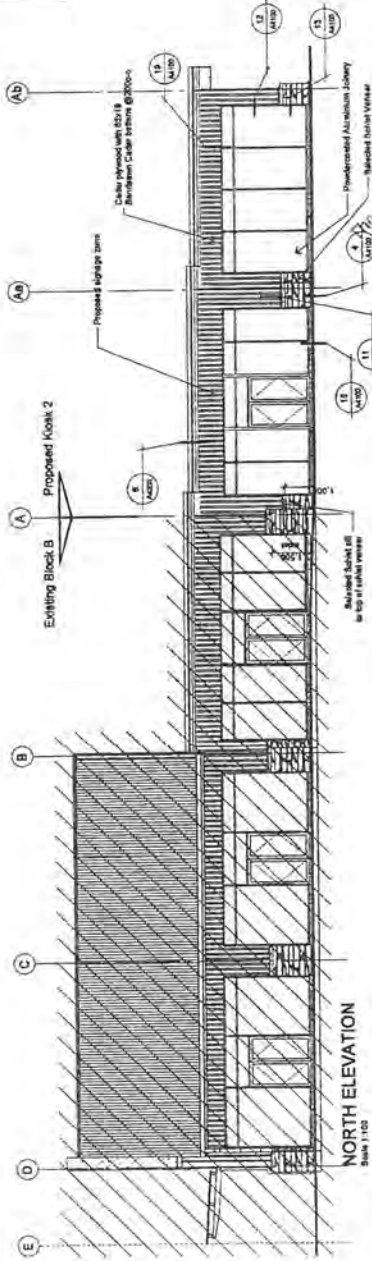


TCC178243



ROOFING PLAN
Scale 1:100

GENERAL NOTES
 1. TO BE USED FOR REFERENCE
 2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS IN SITS
 3. ALL DIMENSIONS TO BE GIVEN TO THE CENTER OF GRADE UNLESS OTHERWISE NOTED
 4. ALL DIMENSIONS TO BE GIVEN TO THE CENTER OF GRADE UNLESS OTHERWISE NOTED
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 10. ALL DIMENSIONS TO BE GIVEN TO THE CENTER OF GRADE UNLESS OTHERWISE NOTED



APPROVED
 TAURANGA CITY COUNCIL
 PROJECT INFORMATION MEMORANDUM
 251144
 Refer to accompanying documentation

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PROJECT
 BLOCK B
 BETHLEHEM
 SHOPPING CENTRE
 DRAWING TITLE
 ELEVATIONS

DATE	SCALE	PROJECT NO.	DATE
21 MARCH 2017	1:200 B&V	457-05-19	21 MARCH 2017
2017	1:200 B&V	457-05-19	2017
MG	CHAM	CHAM	CHAM
DRAWING NUMBER A2000			

GENERAL NOTES

DO NOT SCALE OFF DRAWING.

CONTRACTOR SHALL REVIEW AND BE RESPONSIBLE FOR THE EXISTING RECORDS OF THIS PROJECT.

ADDITIONS TO BE NOTED ON ANY SUBMITTED DRAWINGS AND THOSE ON FILE.

THIS DRAWING SHOWS THE PROPERTY OF BENT COUNTY, NORTH CAROLINA. ANY CHANGES TO THIS DRAWING SHALL BE MADE BY THE BENT COUNTY ENGINEER. ANY CHANGES TO THIS DRAWING SHALL BE MADE BY THE BENT COUNTY ENGINEER.



Item	Building Component	MO	27.03.07
		RT	DATE
A			



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100

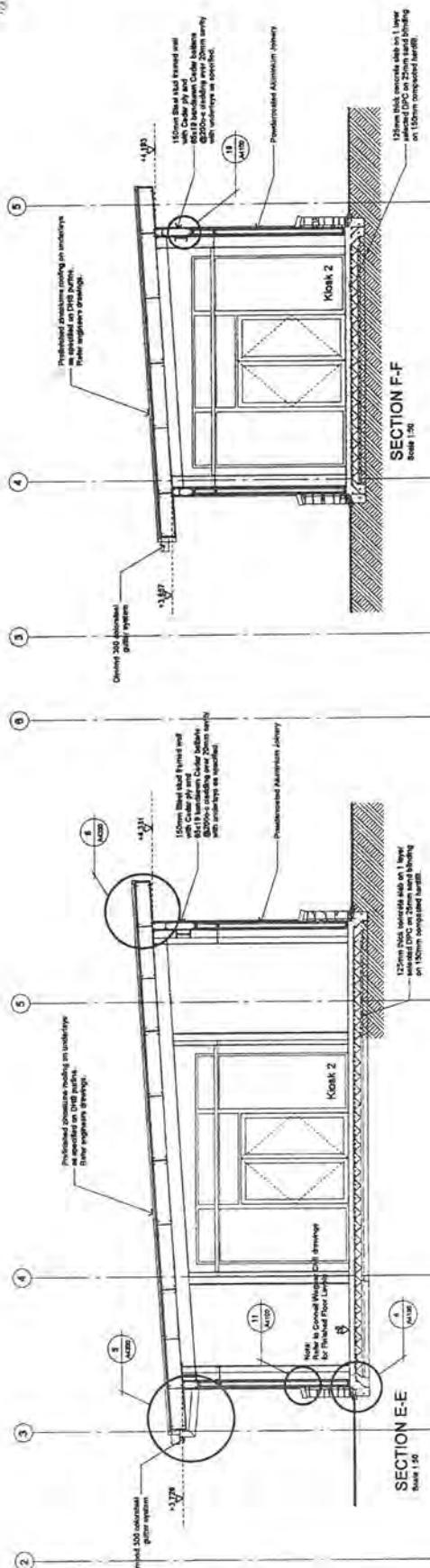
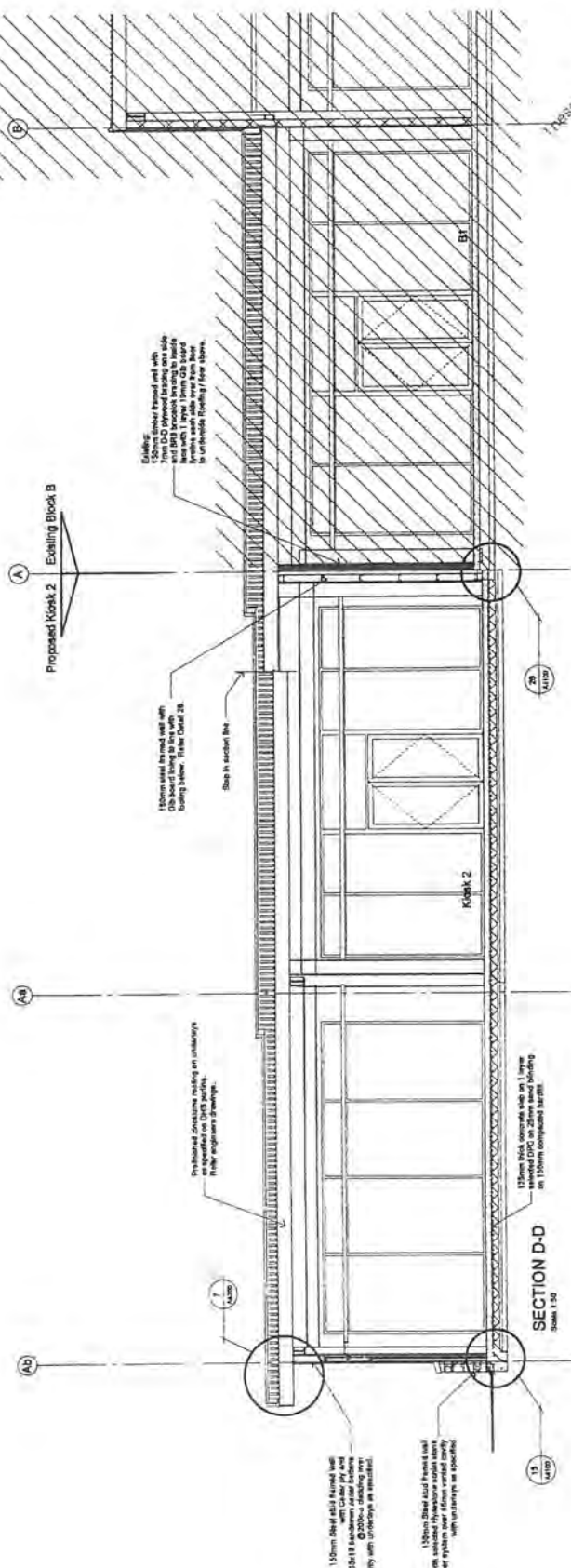
PROJECT
BLOCK B
BETHLEHEM
SHOPPING CENTRE

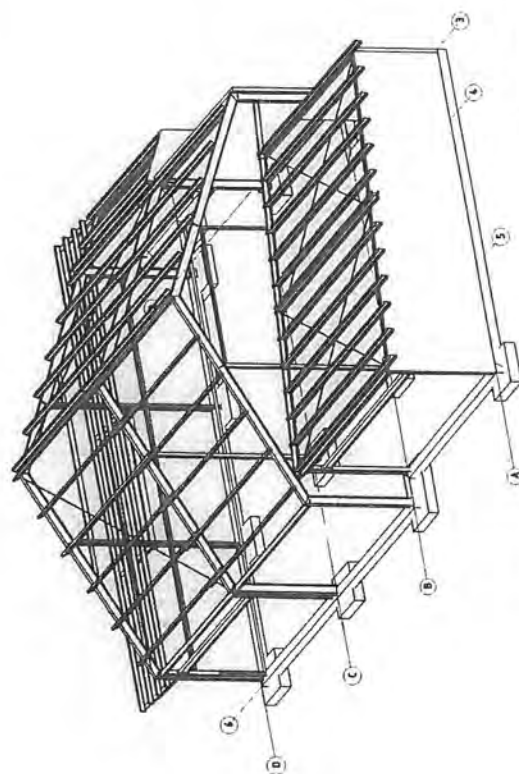
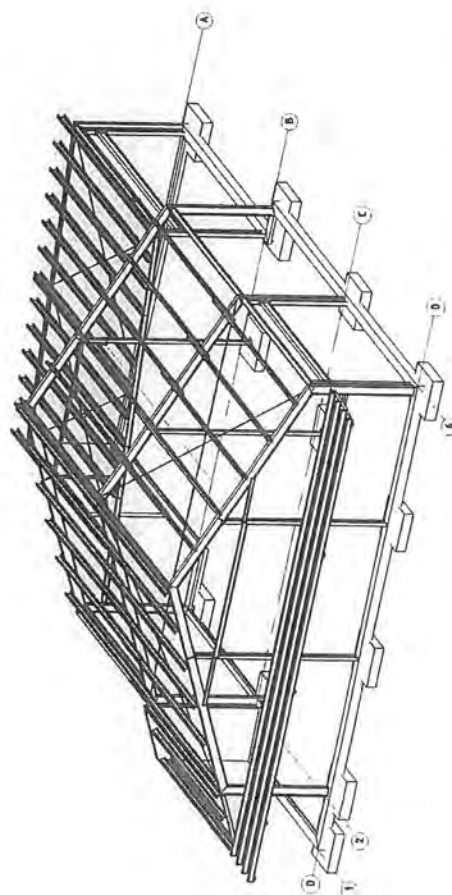
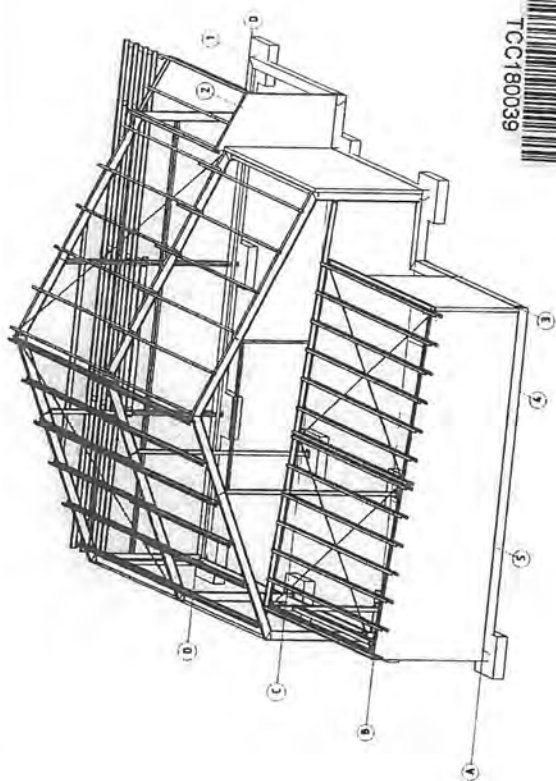
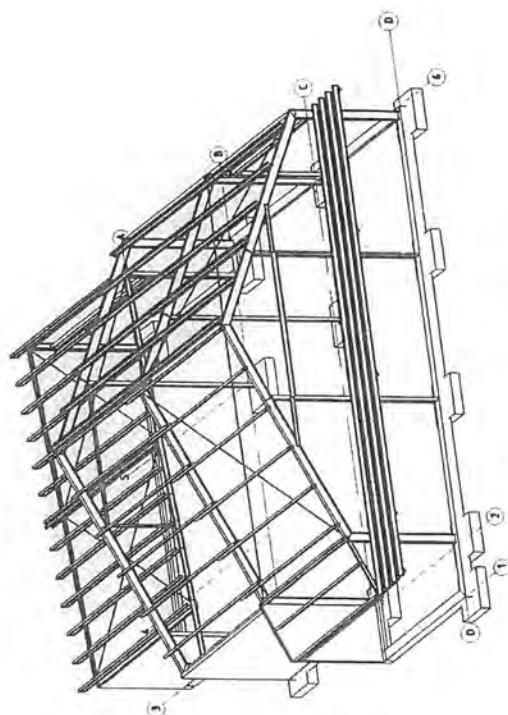
THE UNIVERSITY OF CHICAGO

SECTIONS

DATE	SCALE	PROJECT NO.	457-05-19
27 MAR 1967	1:50 DAY 1:00 BAS		
DRAWN	CHECK	DRAWING NUMBER	
MG	CHAM	A2100	

(A)





TCC180039

[illegible]



TCC180065



APPROVAL
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These plans must remain on site
TAURANGA CITY COUNCIL

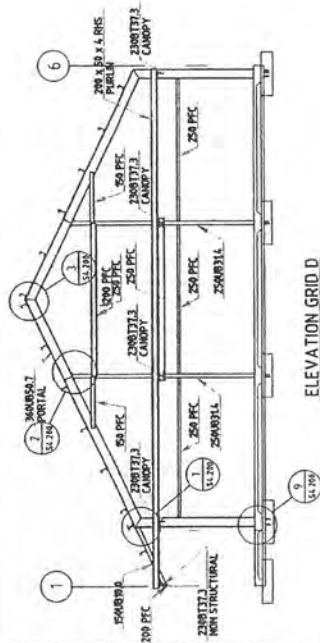
ROOF PLAN

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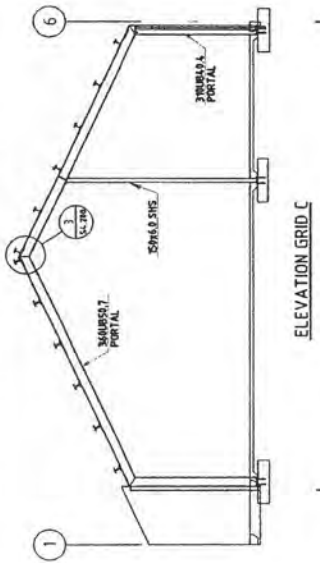
BETHLEHEM SHOPPING CENTRE

**STRUCTURAL
BLOCK B
FOUNDATIONS
AND ROOF PL**

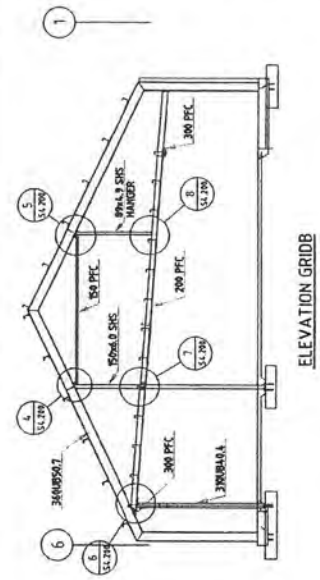
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Project No.	B236
Sheets	1100 A1 1200 A3
Sheet Set	A1
Drawings No.	B236-S1,200
	03



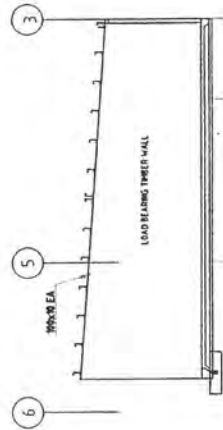
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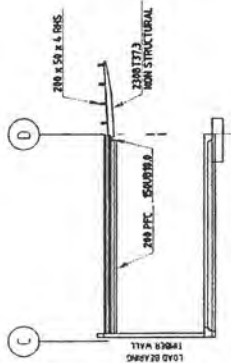
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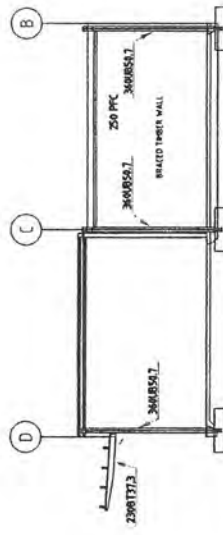
ELEVATION GRID B



ELEVATION GRID A



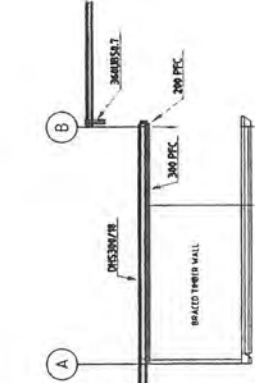
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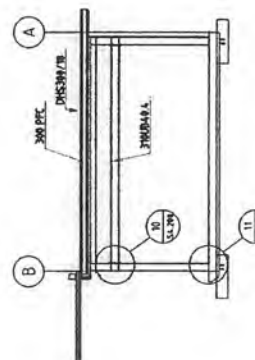
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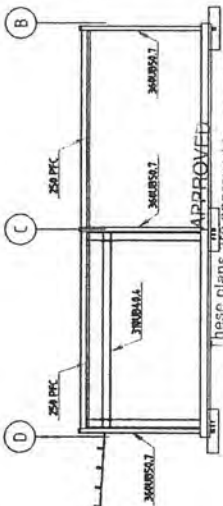
TCC180049



ELEVATION GRID 3



ELEVATION GRID 6



ELEVATION GRID 5

These plans are approved in accordance with
The NZ Building Code
ELEVATION GRID 5 remain on site
TAURANGA CITY COUNCIL

- NOTES
1. TRUSS FRAMING FOR LOAD BEARING / BRACED TRUSS WALLS TO BE CONSTRUCTED IN ACCORDANCE WITH THE NZ BUILDING CODE.
 2. ELEVATION GRID 5 REMAIN ON SITE IN ACCORDANCE WITH THE NZ BUILDING CODE.
 3. ALL TRUSS FRAMING DETAILS TO BE TO NZS 3404.

CONSENT
NOT FOR CONSTRUCTION

Rev.	Date	Revisions Details	Drawn	Checked	Designed	Approved	Project	Client	Project Title	Drawn Date	Checked Date	Designed Date	Approved Date	Project No	Sheet No	Sheet Count
01	10/07/24	CONSENT	AD	AD	AD	AD	BETHLEHEM SHOPPING CENTRE	AMP capital INVESTORS	STRUCTURAL BLOCK B ELEVATIONS	10/07/24	10/07/24	10/07/24	10/07/24	B236	A1	03
02	30/06/24	COORDINATION	AD	AD	AD	AD										
03	08/06/24	PRELIMINARY	AD	AD	AD	AD										

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AMP capital
INVESTORS

BETHLEHEM SHOPPING CENTRE

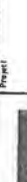
CONSENT
NOT FOR CONSTRUCTION

APPROVED
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CONSENT		Sheet No.	02
NOT FOR CONSTRUCTION		A1	
Project No.	B236	Scale	1:10 A1 1:20 A3
		Drawing No.	B236-S4.200

Key	Date	Personnel Details	Drawn	App	Checked	Reviewed	Approved	Signature	Stamp	Project	Drawing Title
1	10.07.96	CONSENT	---	---	---	---	---	---	---	BETHLEHEM SHOPPING CENTRE	STRUCTURAL BLOCK B STEEL DETAILS SHEET 1
2	10.07.96	COORDINATION	---	---	---	---	---	---	---		
3	10.07.96	COORDINATION	---	---	---	---	---	---	---		
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Client



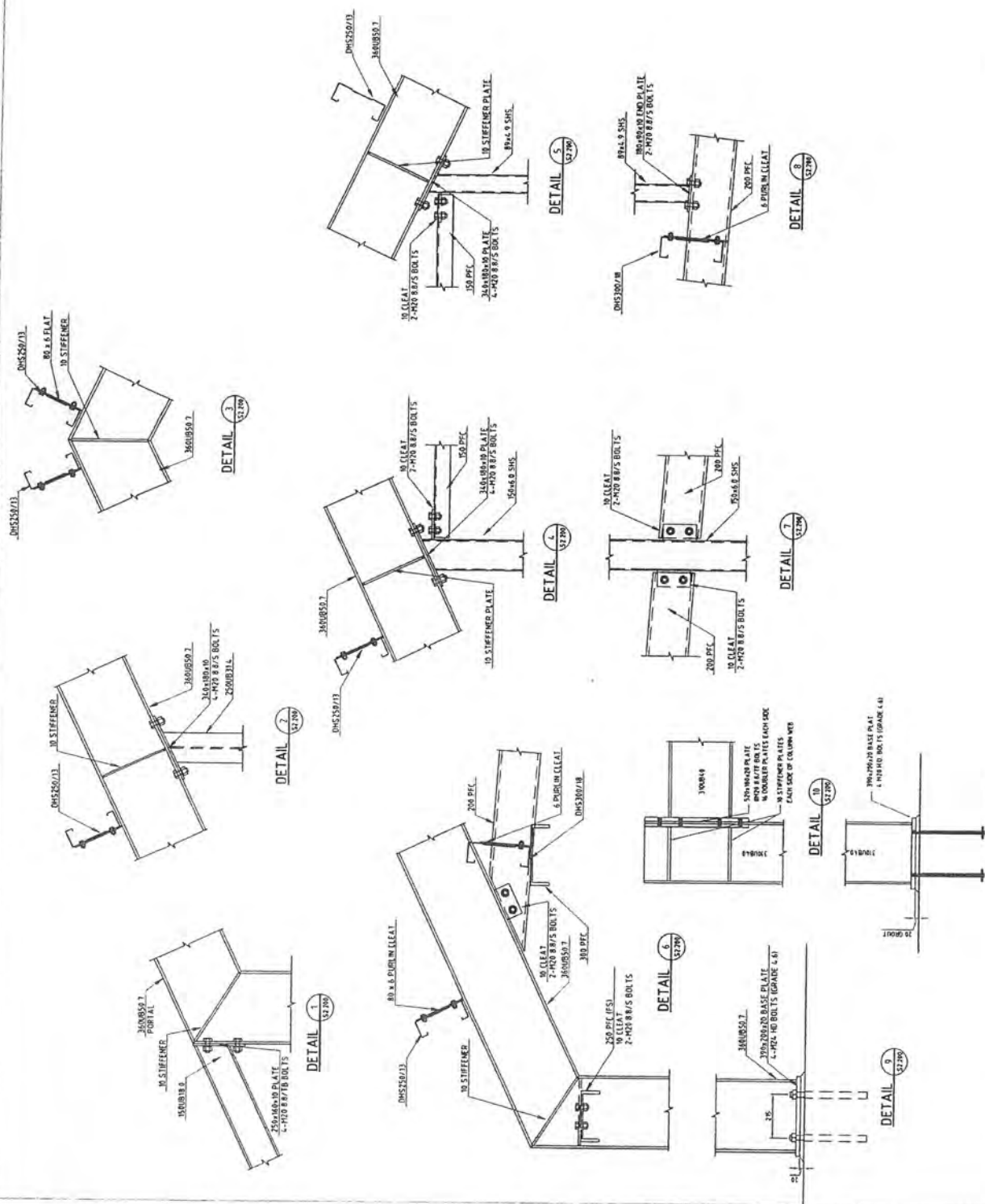


Connell Wagner
1000 Lakeside, Central Business District
PO Box 972, New Zealand
111 Carrington Road, Northcote, New Zealand
Email: info@connellwagner.co.nz

1. I, the undersigned, hereby certify that the drawings and specifications are the work of the undersigned or of a duly qualified person acting under the supervision of the undersigned.

2. I, the undersigned, hereby certify that the drawings and specifications are the work of the undersigned or of a duly qualified person acting under the supervision of the undersigned.

3. I, the undersigned, hereby certify that the drawings and specifications are the work of the undersigned or of a duly qualified person acting under the supervision of the undersigned.



Description:

Building C was designed in 2006 and there was an alteration carried out in 2016, which from the details in the property file drawings, appears to have been only fit-out work that did not affect the primary lateral load resisting system.

The building consists of three rectangular, single storey sections, that have their longitudinal axis orientated nominally north south. It has three distinct footprint shapes, effectively there being two steps in the footprint, on the western side. The roof has two orthogonal mono-pitch forms, the southern rectangular footprint pitches north-south, and the middle and north footprints pitch east-west. It is a stand-alone building that has a car park frontage on the south, east, and west sides, and a significant seismic gap to the Block D on the northern side. It is seismically isolated from all other buildings.

This building has a relatively large foot-print and is a single storey, mono-pitched roof warehouse type building, with 8 bays in the north-south longitudinal direction and between two and five bays in the east-west, transverse, direction. There are canopies on the south and east sides.

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 middle and northern sections but are orientated on the longitudinal grids in the south section of the building. Each of the primary frame portal rafters is supported by structural steel portal columns at the span ends, and there are internal columns at approximately mid-span of each portal rafter. These columns are 150 x 6mm SHS posts and as such 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 level of the concrete on-grade slab. There are specific details of the pad and strip footing reinforcement in the structural drawings.

The canopies have reasonable sized structural steel T shaped cantilever beams supporting structural steel rectangular hollow section (RHS) purlins. The cantilever beams appear to be bolted directly into the main portal frame columns and wind columns, with robust connections, and this combination provides adequate lateral stability.

There are 150mm thick reinforced precast concrete wall panels along the north and west elevations, and these panels are virtually continuous along each elevation. There is shop front glazing on the south and east elevations.

There are 2 full bays of full width diagonal structural steel rod and double purlin roof bracing in the longitudinal direction, in the south section of the building, and there is one full bay, and one part bay, of transverse diagonal structural steel rod and double purlin roof bracing in the middle section of the building. There is one full bay of full width of transverse diagonal structural steel rod and double purlin roof bracing in the northern section of the building. There are substantial parallel flange channel (PFC) eaves ties on all elevations that do not have a main portal frame at eaves level, and these PFCs 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 and this is recorded as being laid over DPC and 150mm of compacted metal hardfill. These details are on the structural engineering drawings.

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 longitudinal directions. The transverse lateral loads in the east west direction in the middle and northern sections of the building, and the longitudinal lateral loads in the north south direction in the southern section of the building, are also sustained by the structural steel moment resisting portal frames, which as described above are orthogonal in the two distinct areas of the building. This nuance is considered to be a redundancy in the lateral load resisting system, in both principal directions. There are details in the drawings of the reinforcement in the precast concrete wall panels and likewise there are specific details of the foundations and their connections to the wall panels, so we have been able to determine that the panels have been designed to sustain the post-fire lateral loads by cantilever action above the on-grade floor slab. This is another lateral load resisting system redundancy.

There is sufficient robust detail obtained from information contained in the property file to allow us to make a reliable 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 we hold.

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. There are structural steel moment resisting portal frames in both principal directions which suggests that the natural period could be somewhat longer for these secondary elements, and this is addressed in the Performance Achievement Ratio (PAR) section).
- Building Importance Level 2.
- Structural Ductility factor 1.25 (this is based on the diagonal structural steel roof plane braces 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 1.1. (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 if the moment resisting structural steel

portal frames were considered as anything other than a redundant secondary lateral load resisting element. The density of the steel moment resisting frames in both principal directions suggests that they would probably be able to sustain the full seismic shears on their own and the roof bracing would be able to distribute the shears between the sections of orthogonal portals. This represents a significant redundancy in both principal directions.

Also, the precast concrete wall panels have 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 C 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 C	Date:	1/04/2021
City:	Tauranga	Revision No.:	A

Step 1 - General Information

NOTE: THERE ARE MORE PHOTOS ON PAGE 1a ATTACHED

NOTE: THERE ARE MORE SKETCHES ON PAGE 1a ATTACHED

Refer to report details.

Tick as appropriate

☐	
☒	
☐	

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 C	Date:	1/04/2021
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, Cl 3.1.3 :

D Soft Soil

From NZS4203:1992, Cl 4.6.2.2 :

(for 1992 to 2004 and only if known)

Not applicable

D Soft Soil

Not applicable

d) Estimate Period, T

Comment:

$h_n =$ 6

$A_c =$ 1.00

6 m

1.00 m

- 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 C	Date:	1/04/2021
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

 $= IR_o/R$

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)

 $= k_{\mu}$

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 period.2.7 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 C	Date:	1/04/2021
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	Separation		
	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 1.2

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 C	Date:	1/04/2021
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
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 1.20

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 C	Date:	1/04/2021
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 C	Date:	1/04/2021
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)

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 diaphragms
6. Lodge and gap stairs

IEP Assessment Confirmed by

Signature

S R Mitchell

Name

70562

CPEng. No

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GENERAL NOTES

DO NOT SCALE OFF DRAWING.

CONTRACTOR SHALL RETURN AND BE RESPONSIBLE FOR ALL DRAWINGS ON SITE.

ARCHITECTS TO BE NOTIFIED OF ANY VARIATION BETWEEN SITE CONDITIONS AND THOSE ON PLANS.

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



TAURANGA CITY COUNCIL
PROJECT INFORMATION MEMORANDA

Refer to accompanying documentation

A	BUILDING CONSENT	MO	11.07.08
DATE	REVISION	BY	DATE

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INVESTORS

PROJECT

**BLOCK C
BETHLEHEM
SHOPPING CENTRE**

BEAMING TIME

SITE SET OUT PLAN

TCC172963



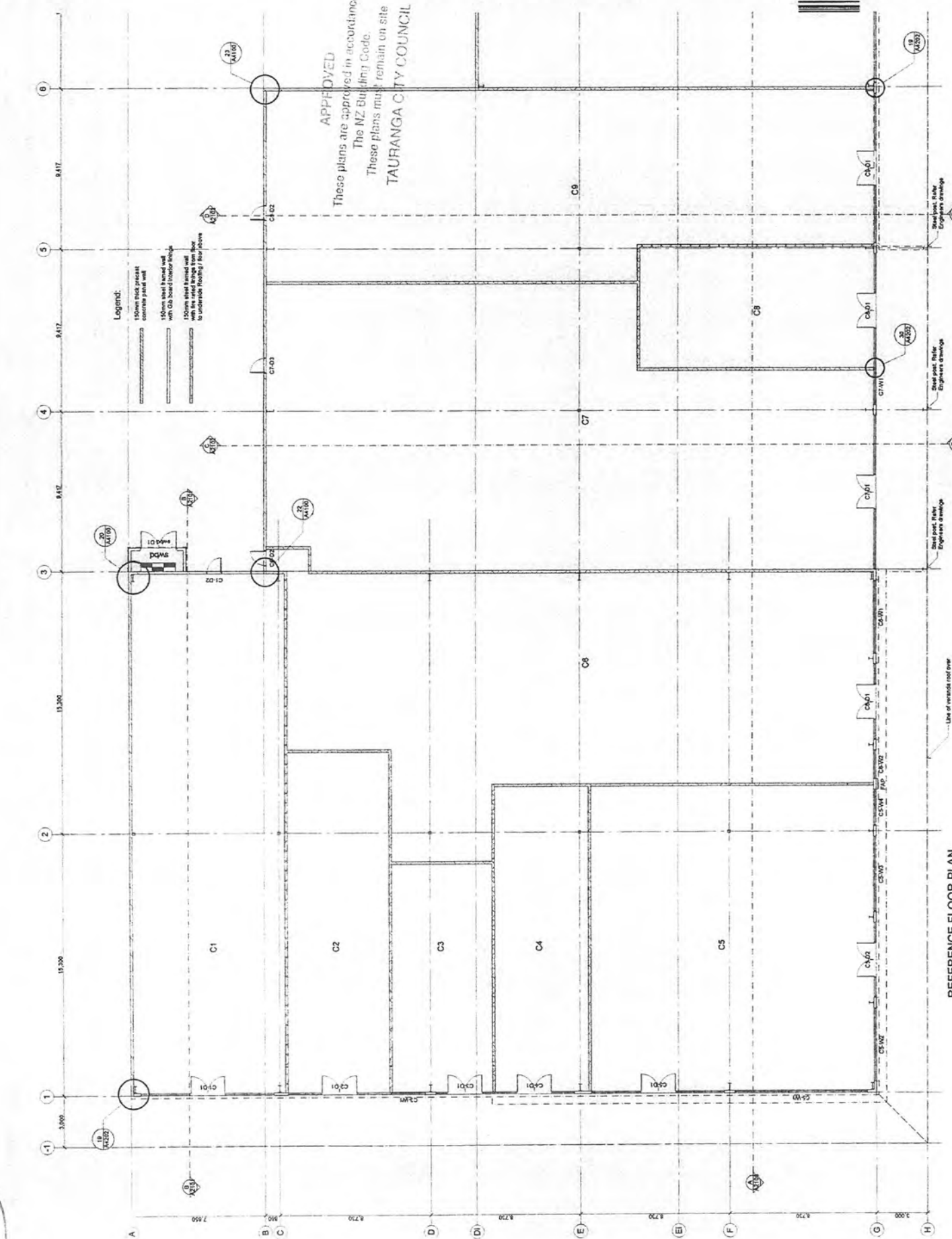
DATE 11 JULY 2006	SCALE
DRAWN MG	CHECK PROJECT NO. 457-05-19

DRAWING NUMBER
A1001

(A)

GENERAL NOTES

1. SEE SET OUT FOR DIMENSIONS.
2. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
3. ARCHITECTS TO BE ADVISED OF ANY VARIATION FROM THE ORIGINAL DESIGN.
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.



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NO.	REVISION	DATE
1	ISSUED FOR CONSTRUCTION	11/07/06

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INVESTMENTS

PROJECT
BLOCK C
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
REFERENCE FLOOR PLAN



DATE	11 JULY 2006	SCALE	
DRAWN	MG	CHECK	MG
PROJECT NO.	457-05-19		
DRAWING NUMBER	A1300		

REFERENCE FLOOR PLAN
Scale 1:100

GENERAL NOTES

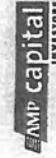
1. 0.001 SCALE OF DRAWING.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR THE EXISTING CONDITIONS ON SITE.
3. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE SPECIFICATIONS AND CODES OF PRACTICE.
4. THESE DRAWINGS SHOW THE PROPERTY OF THE CLIENT. THEY ARE NOT TO BE USED FOR ANY OTHER PURPOSE WITHOUT THE WRITTEN CONSENT OF THE ARCHITECT.

NO.	REVISION	DATE
A	BUILDING COMMENT	11/07/06



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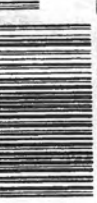
CLIENT



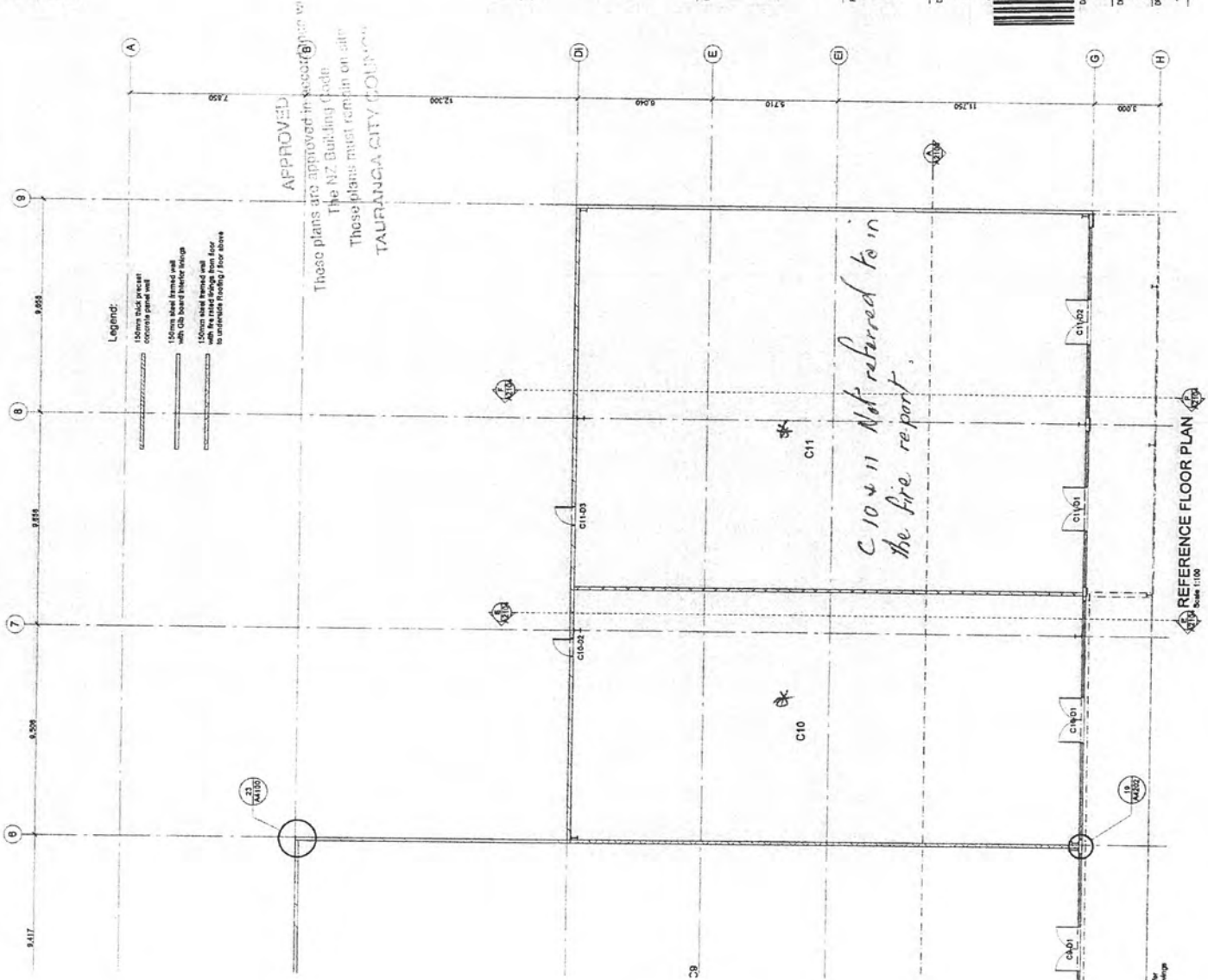
PROJECT
BLOCK C
BETHELHEM
SHOPPING CENTRE

DRAWING TITLE
REFERENCE FLOOR PLAN

796ZJ1001



DATE	11/07/06	SCALE
DRAWN	MG	CHECK
PROJECT NO.	457-05-19	
DRAWING NUMBER	A1301	

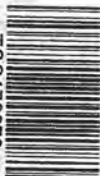


[illegible]

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Page	Episode	BT	Date



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**BLOCK C
BETHLEHEM
SHOPPING CENTRE**

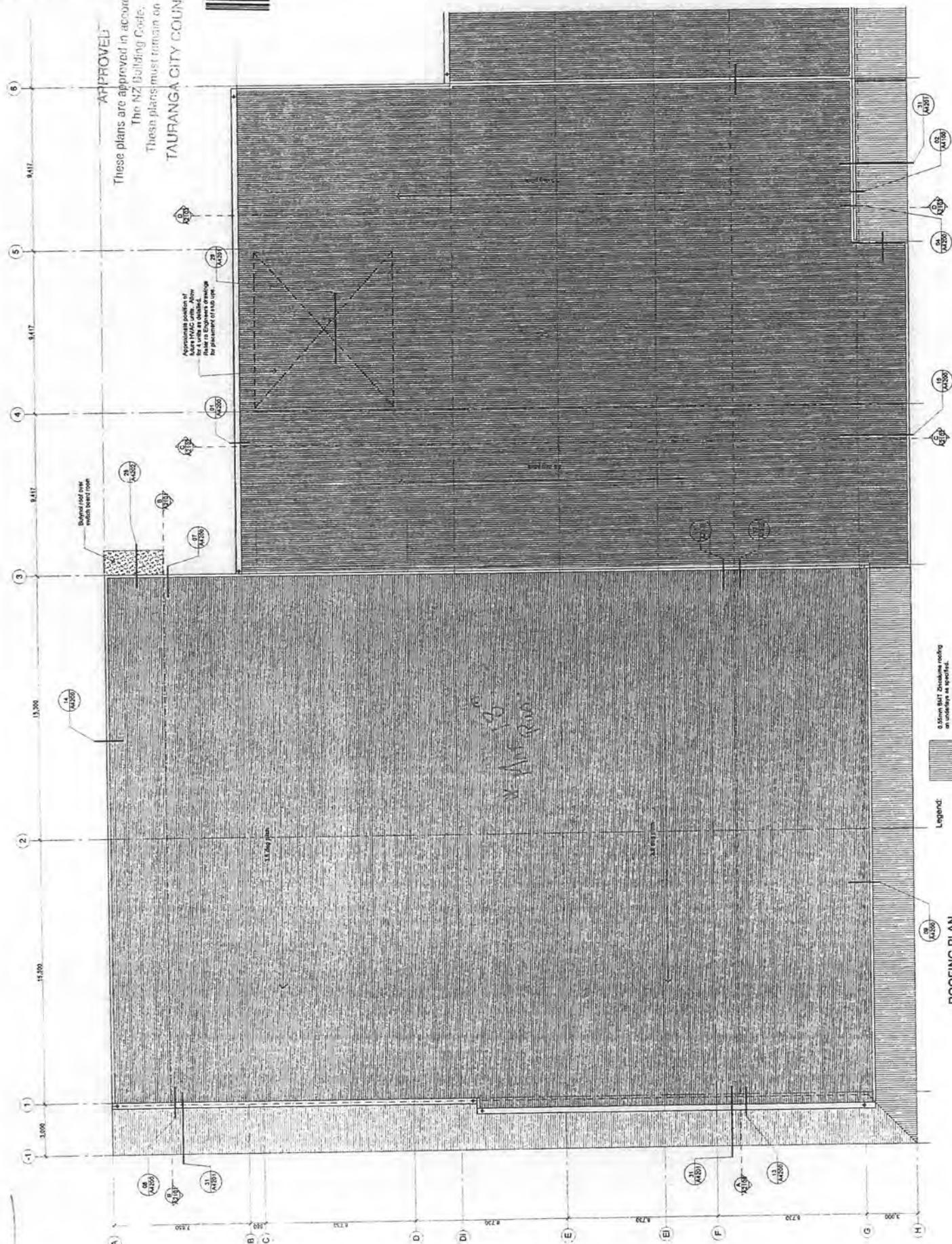
PLATE 1

ROOF PLAY

DATE 11 JULY 2006	SCALE
DRAWN MG	CHECK PROJECT NO. 457-05-19

DRAWING NUMBER
A1700

(A)



Legend:

0.55mm BMT Zincalume roofing
as underlaid as specified.

1. Simon Gray buried on 18 June

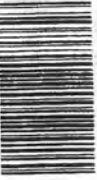
ROOFING PLAN

ROOF

GENERAL NOTES

1. TO BE USED FOR CHANGING
2. DIMENSIONS SHALL BEYOND ARE RESPONSIBLE FOR ALL DIMENSIONS IN THIS
3. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED
4. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED
5. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED
6. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED
7. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED
8. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED
9. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED
10. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED

TCC172973



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A	BUILDING CONSENT	MG	11.07.08



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BETHLEHEM

SHOPPING CENTRE

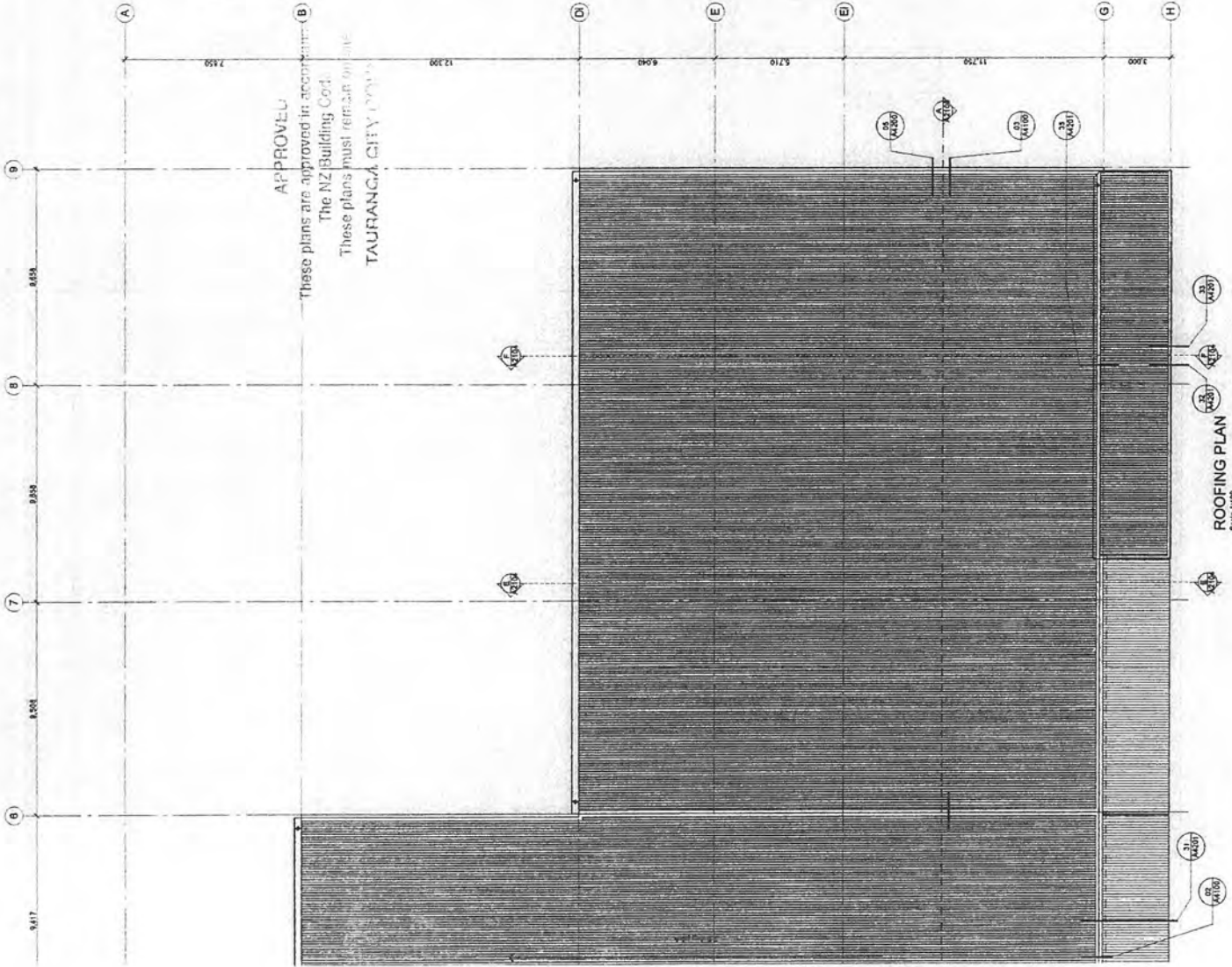
DRAWING TITLE

ROOF PLAN

DATE	SCALE	PROJECT NO.
11.07.08		457-05-19
DRAWN	CHECK	PROJECT NO.
MG		457-05-19
DRAWING NUMBER		
A1701		

ROOFING PLAN

Scale 1:100

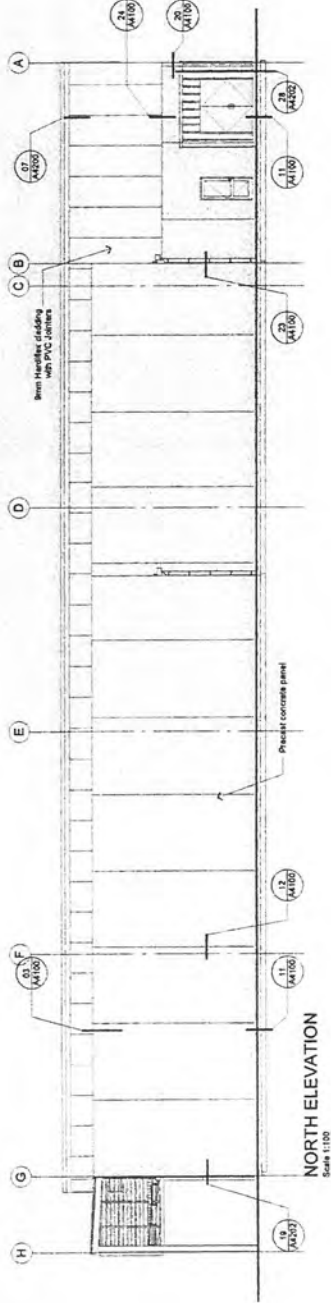


GENERAL NOTES

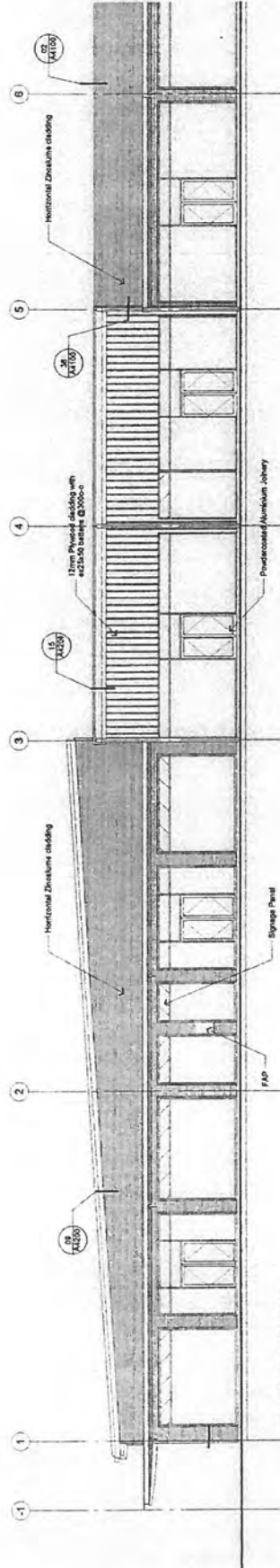
1. ON SITE SCALE OFF DRAWING
2. CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS FOR ALL WORKS ON SITE
3. ALL WORKS TO BE IN ACCORDANCE WITH THE NZ BUILDING CODE
4. THESE DRAWINGS SHOW THE PROPOSED WORK AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FOR THE PROTECTION OF ALL EXISTING SERVICES AND STRUCTURES
5. THESE DRAWINGS SHOW THE PROPOSED WORK AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND FOR THE PROTECTION OF ALL EXISTING SERVICES AND STRUCTURES

APPROVED

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



NORTH ELEVATION
Scale 1:100



EAST ELEVATION
Scale 1:100



TAURANGA CITY COUNCIL
PROJECT INFORMATION MEMORANDUM

Refer to accompanying documentation

22/10

DATE	BY	FOR
11.07.08	IGNITE	BUILDING



IGNITE

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www.ignite.co.nz

CLIENT

WIP capital
INVESTORS

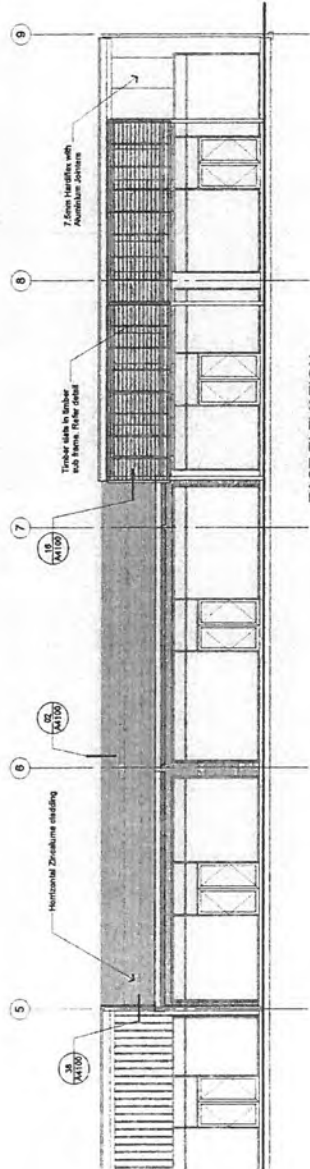
PROJECT
BLOCK C
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
ELEVATIONS

DATE	SCALE	FILE NO.	PROJECT NO.
11.07.08	1:100	MC	457-05-19
DATE	SCALE	FILE NO.	PROJECT NO.
11.07.08	1:100	MC	457-05-19
DATE	SCALE	FILE NO.	PROJECT NO.
11.07.08	1:100	MC	457-05-19

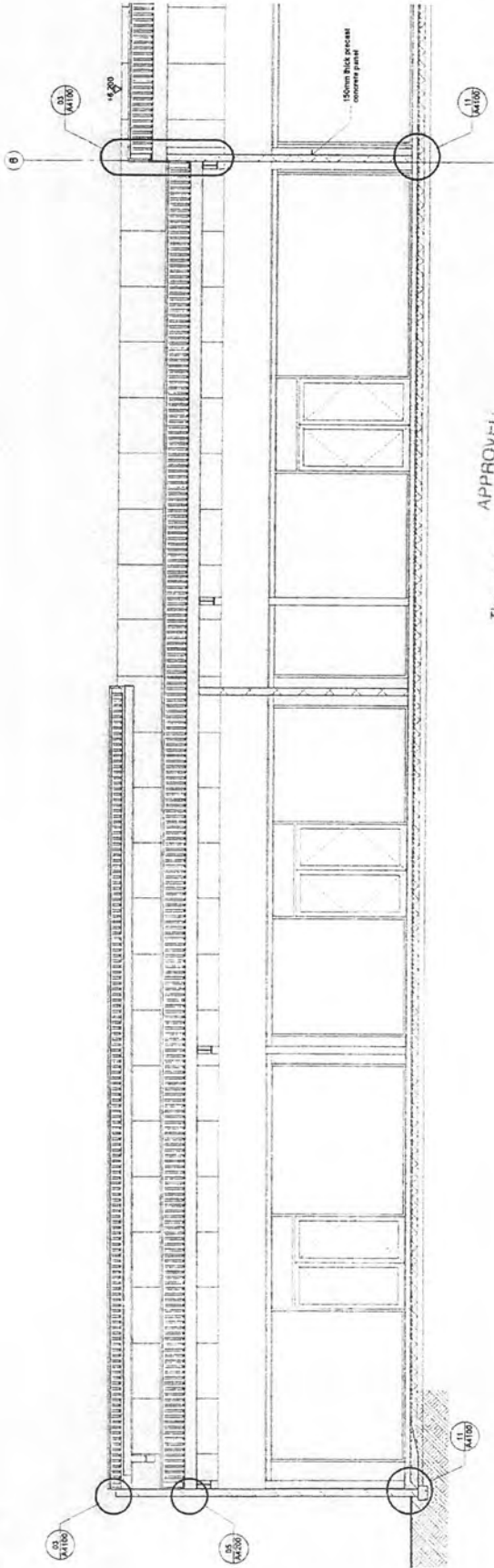
DRAWING NUMBER
A2000

EAST ELEVATION
Scale 1:100



GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
2. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.
3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
4. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
5. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
6. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
7. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
8. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
9. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
10. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.



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

DATE	REVISION	BY	CHK
11.07.08			



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1 Wind Street, Auckland, New Zealand
PO BOX 771, Auckland
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E: info@ignitearchitects.com
www.ignitearchitects.com

CLIENT



PROJECT

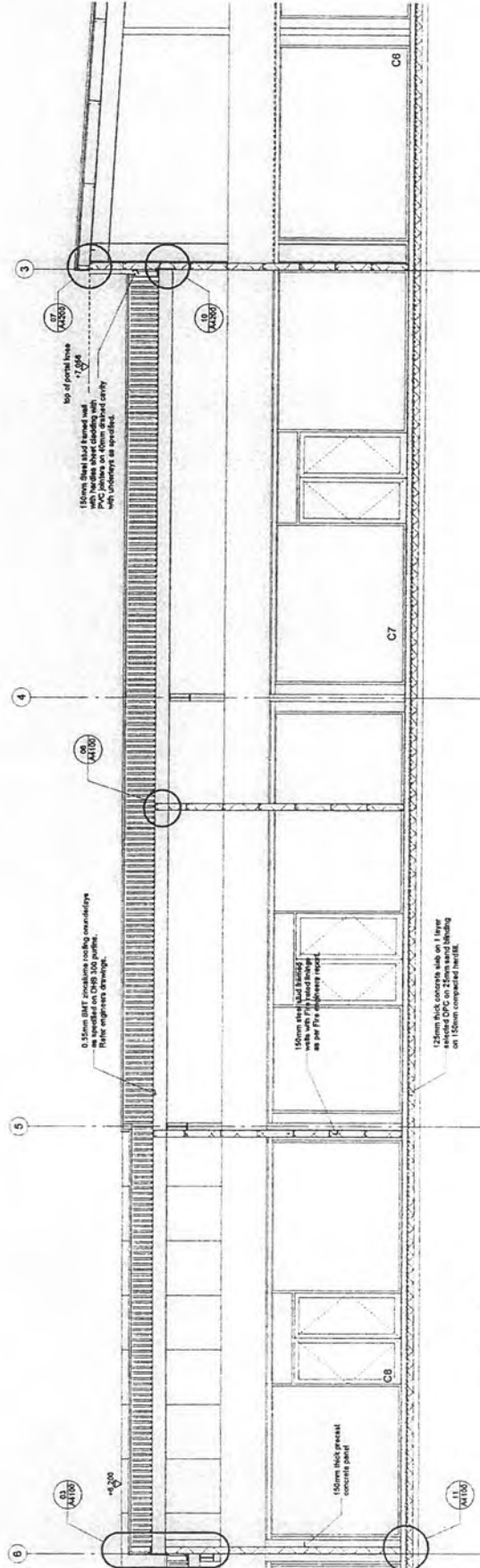
BLOCK C
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE

SECTIONS

DATE	SCALE	DATE	SCALE
11 JULY 2008			
DRAWN	CHECK	PROJECT NO.	
MG		457-05-19	
DRAWING NUMBER			
A2100			

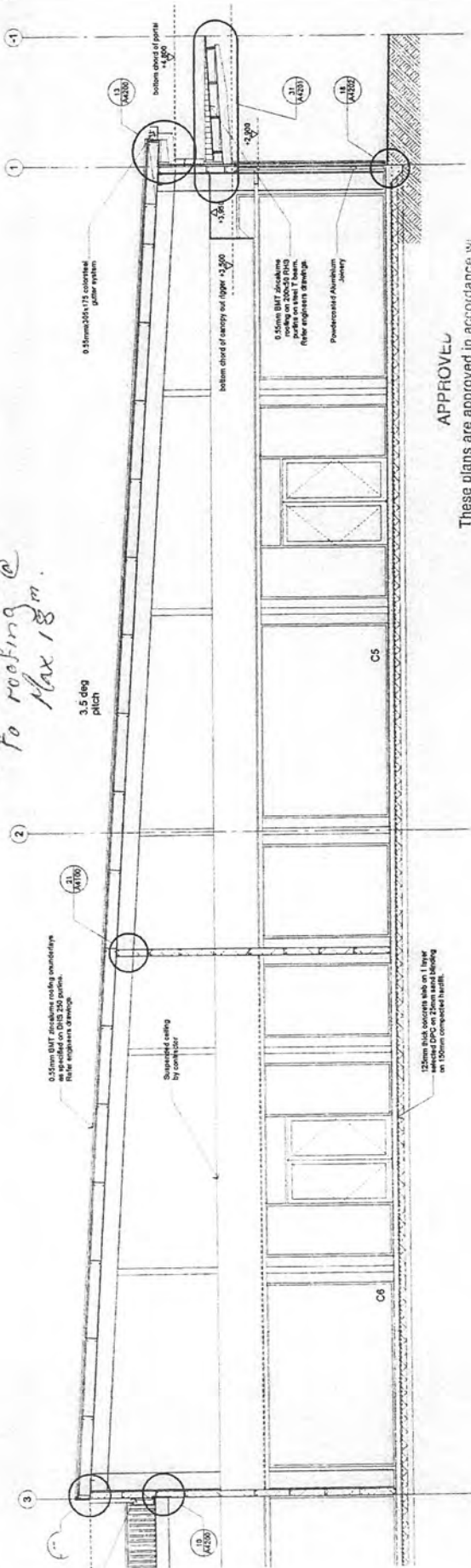
TCC172978



SECTION A-A
Scale 1:50

- GENERAL NOTES**
1. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
 2. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
 3. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
 4. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
 5. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
 6. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
 7. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
 8. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
 9. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.
 10. ALL WORK SHALL BE IN ACCORDANCE WITH THE NZ BUILDING CODE.

Expansion joint
to roofing @
Max 18m



APPROVED
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The NZ Building Code
These plans must remain on site
TAURANGA CITY COUNCIL

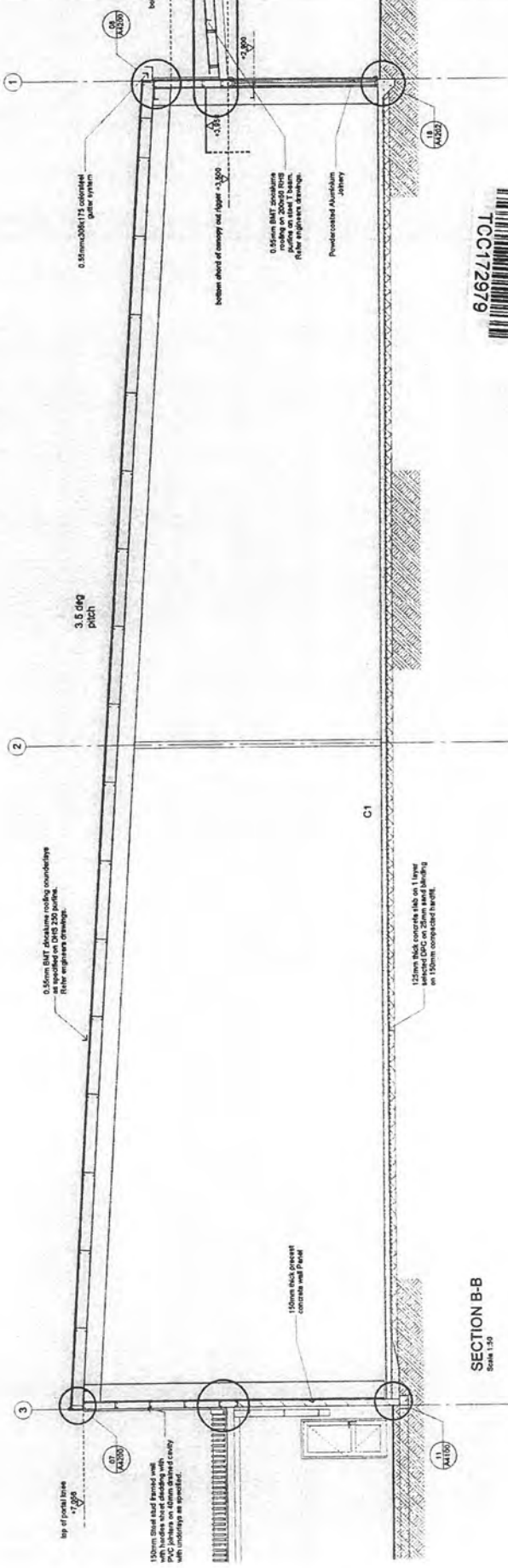
IGNITE
IGNITE Architects Limited
1 West Street, Porirua, Auckland New Zealand
P.O. Box 171, Porirua, Auckland New Zealand
Tel: 04 499 1234, 04 499 1235, 04 499 1236
Fax: 04 499 1237
E: info@ignitearchitects.com
www.ignitearchitects.com

AMP capital
INVESTMENTS

BETHLEHEM
SHOPPING CENTRE

SECTION

DATE	11 JULY 2019	SCALE	
DRAWN	MG	CHECK	457-05-19
PROJECT NO.			
TRADING NAME	A2101		

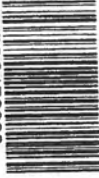


SECTION B-B
Scale 1:50

GENERAL NOTES

1. OTHER ROAD OR RAILWAY
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS IN SITE
3. DIMENSIONS TO FACE UNLESS OTHERWISE SPECIFIED
4. THESE DRAWINGS SHOW THE PROPERTY OF THE CLIENT AND ARE NOT TO BE REPRODUCED OR USED FOR ANY OTHER PROJECT WITHOUT THE WRITTEN CONSENT OF THE CLIENT

TCC172980



DATE	BY	CHK
11 JUL 19	MG	11.07.08
A	BUILDING COMMENT	MG



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CLIENT

AMP capital
INVESTORS

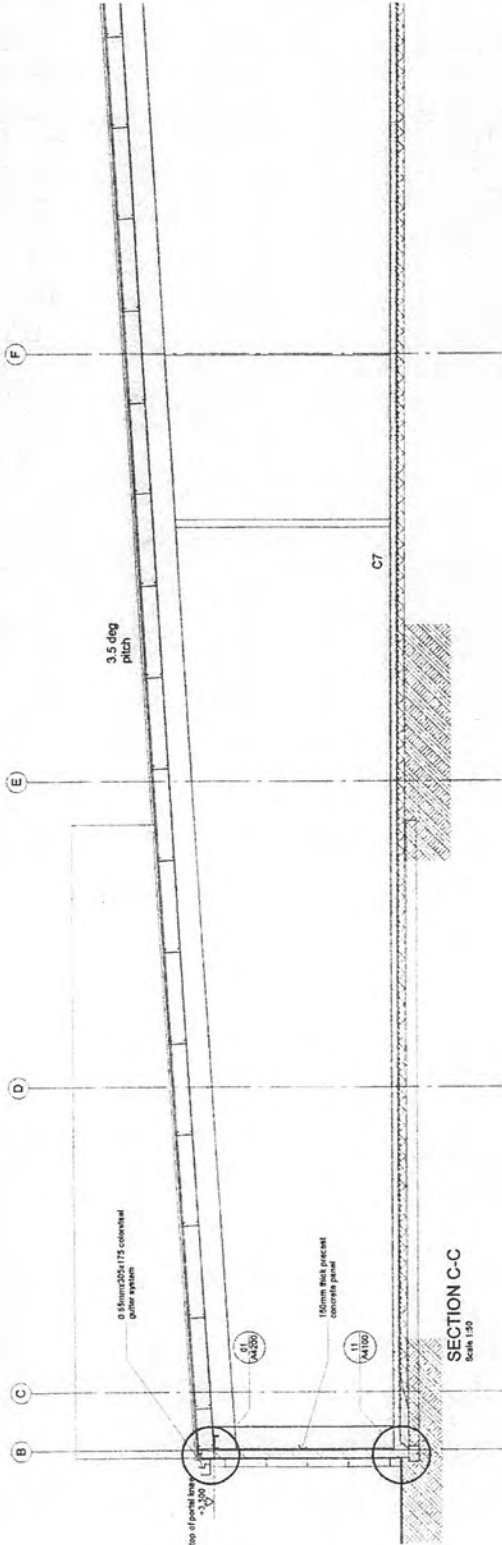
PROJECT
**BLOCK C
BETHLEHEM
SHOPPING CENTRE**

DRAWING TITLE

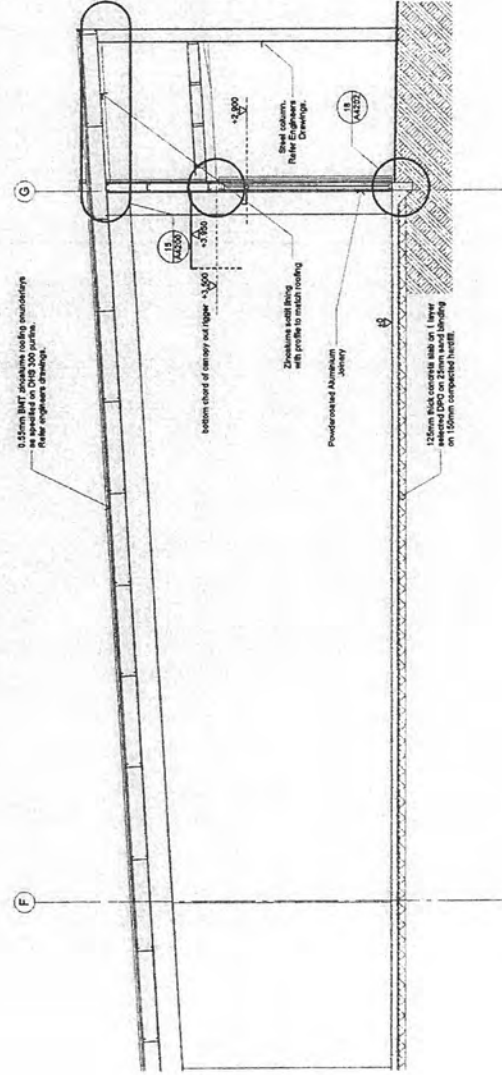
SECTIONS

DATE	SCALE	PROJECT NO.
11 JUL 19		457-05-19
DRAWN	CHECK	DRAWING NUMBER
MG		A2102

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



SECTION C-C
Scale 1:50

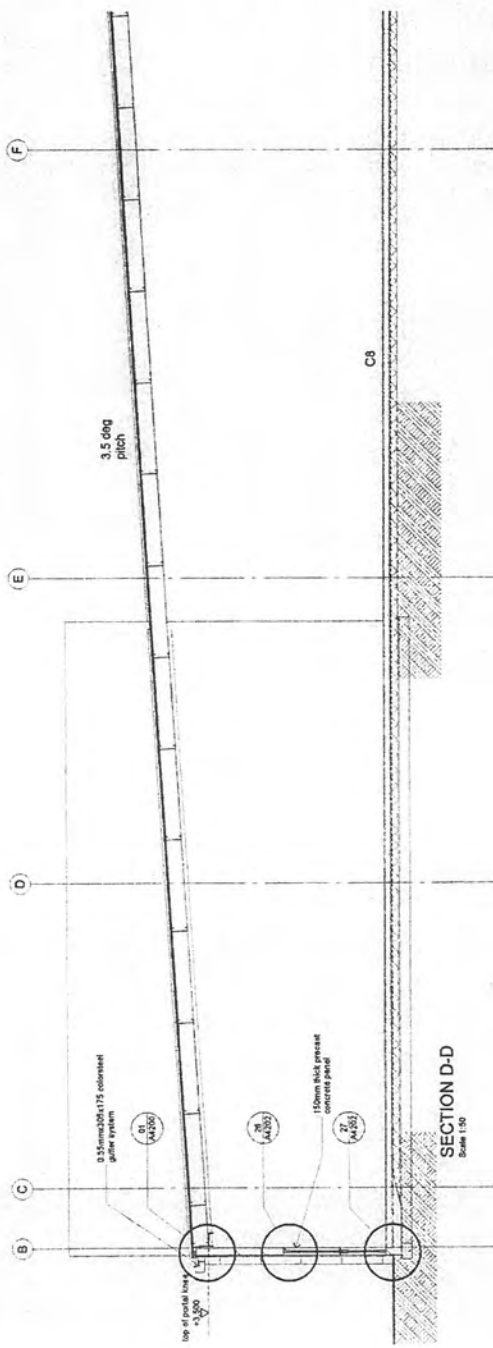


GENERAL NOTES

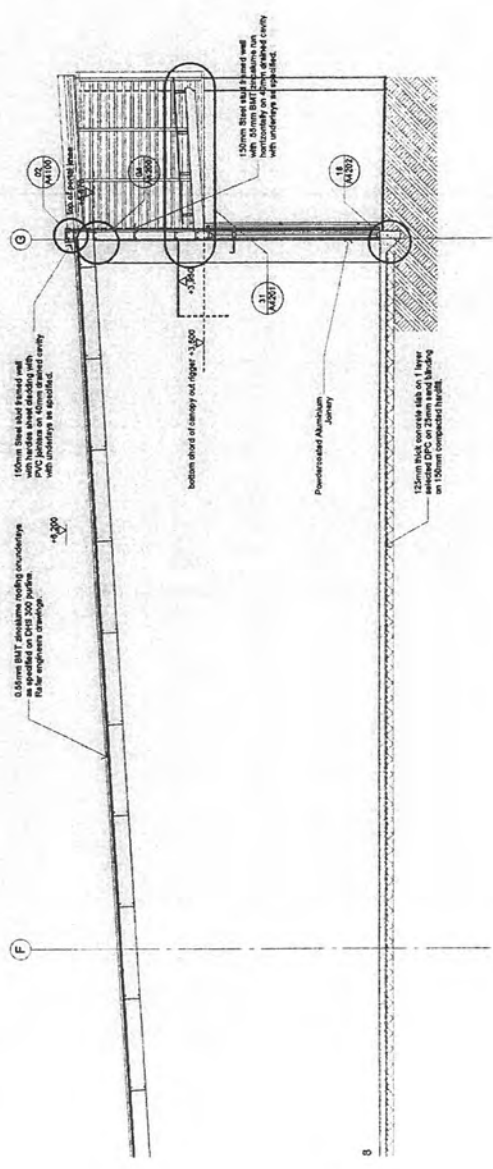
1. DO NOT SCALE OFF DRAWING
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS ON SITE.
3. DIMENSIONS TO FACE UNLESS OTHERWISE SPECIFIED.
4. THIS DRAWING SHOWS THE PROJECTS OF ARCHITECTS ONLY. IT IS NOT TO BE USED FOR ANY OTHER PURPOSES WITHOUT THE WRITTEN CONSENT OF THE ARCHITECTS.

APPROVAL
These plans are approved in accordance with
The NZ Building Code
Those plans must remain on site
TAURANGA CITY COUNCIL

TCC172981



SECTION D-D
Scale 1:50



SECTION E-E
Scale 1:50

DATE	BY	CHK
11 JUL 2019	MG	11.07.09



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CLIENT



PROJECT
BLOCK C
BETHLEHEM
SHOPPING CENTRE

DRAWING TITLE
SECTIONS

DATE	SCALE
11 JUL 2019	
DRAWN	CHECK
MG	457-05-19
DRAWING NUMBER	
A2103	

DO NOT SCALE OFF DRAWING.

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

ARCHITECTS TO BE NOTIFIED OF ANY VARIATION BETWEEN SITE DIMENSIONS AND THOSE ON PLANS.

THESE DIMENSIONS FORM THE PROPERTY OF THE ARCHITECTS LTD AND SHOULD NOT BE COPIED IN ANY FORM OR REPRODUCED OR USED IN ANY MANNER WITHOUT THE WRITTEN CONSENT OF THE ARCHITECTS LTD.

A	BUILDING CONSENT	MAJ	11.07.08
	SOLE	BY	0.137



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1997



1000

**BLOCK C
BETHLEHEM
SHOPPING CENTRE**

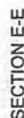
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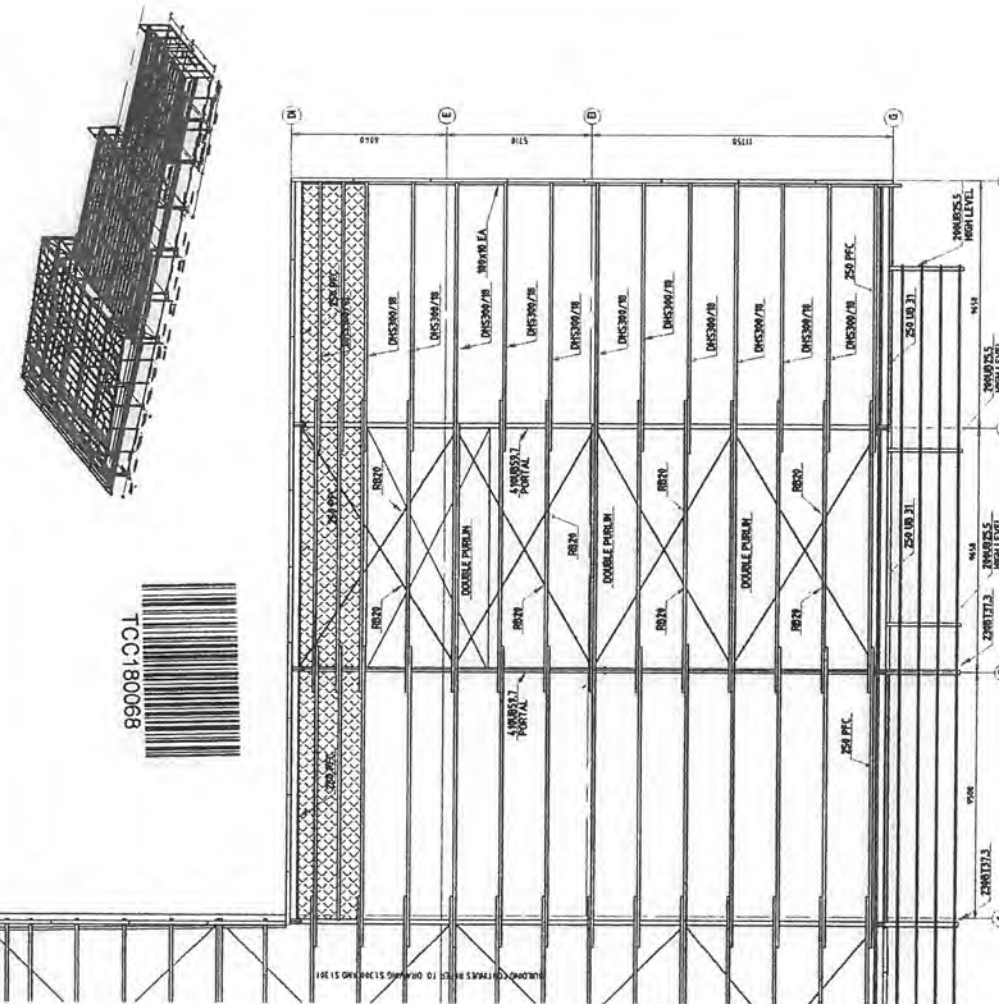
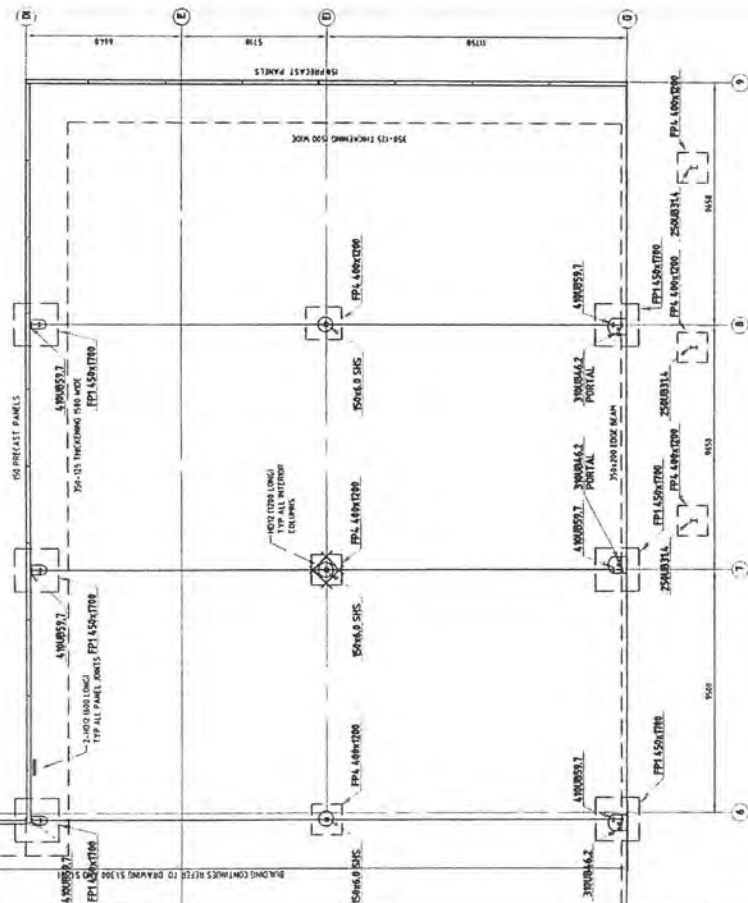
SECTIONS

DATE 11 JULY 2004	SCALE
DESIGN MG	CHECK PROJECT NO. 457-05-19
DRAWING NUMBER A2104	

(A)

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ROOR PLAN

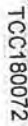
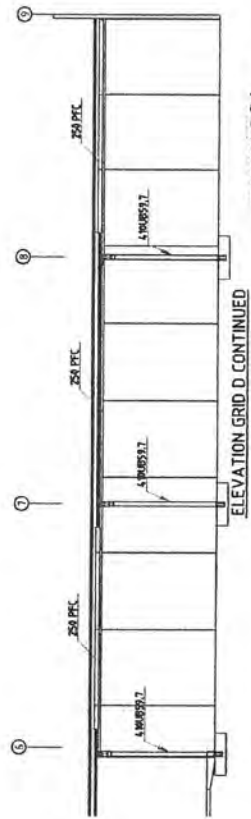
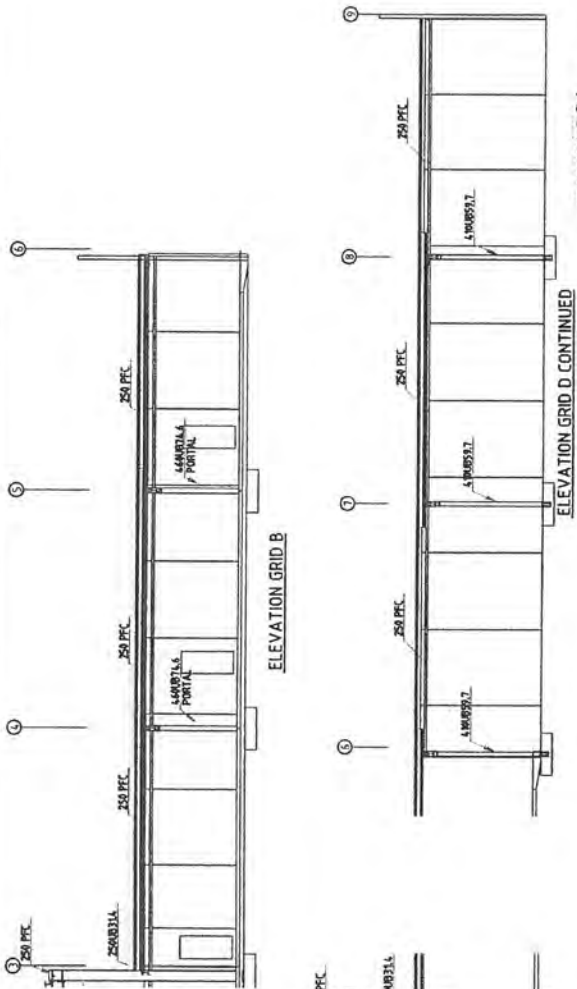
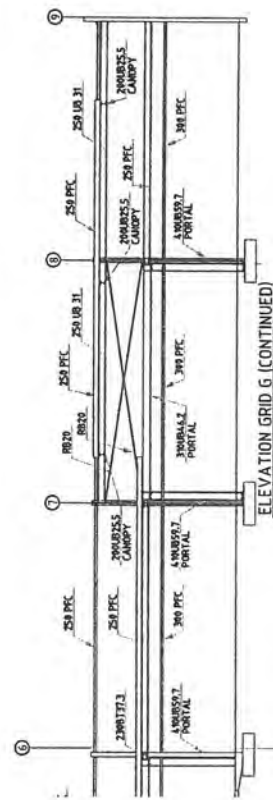
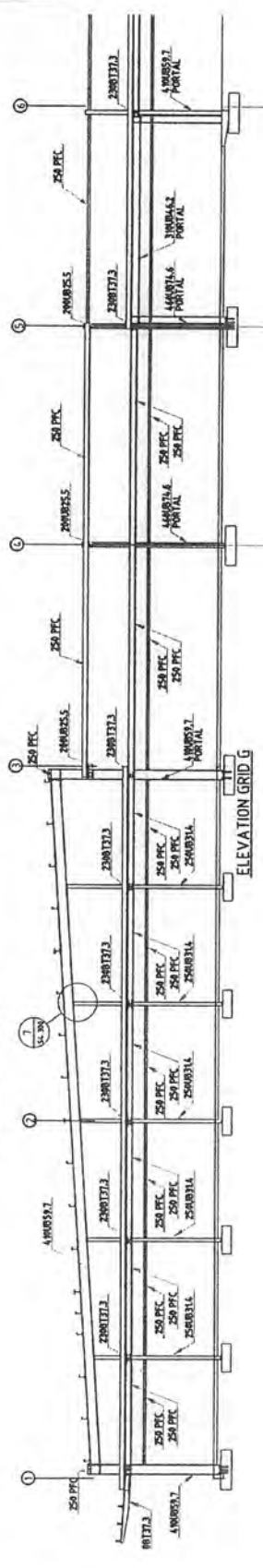
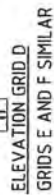
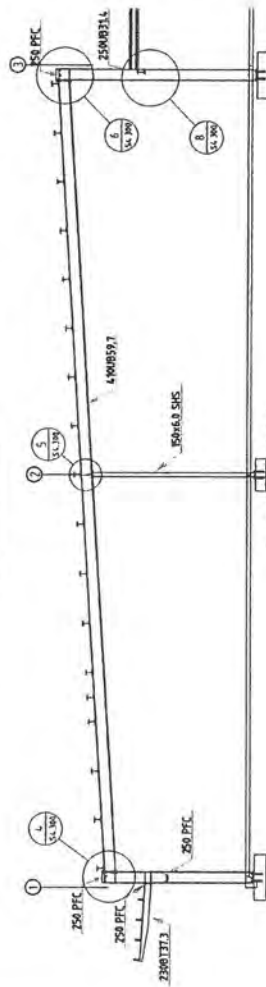
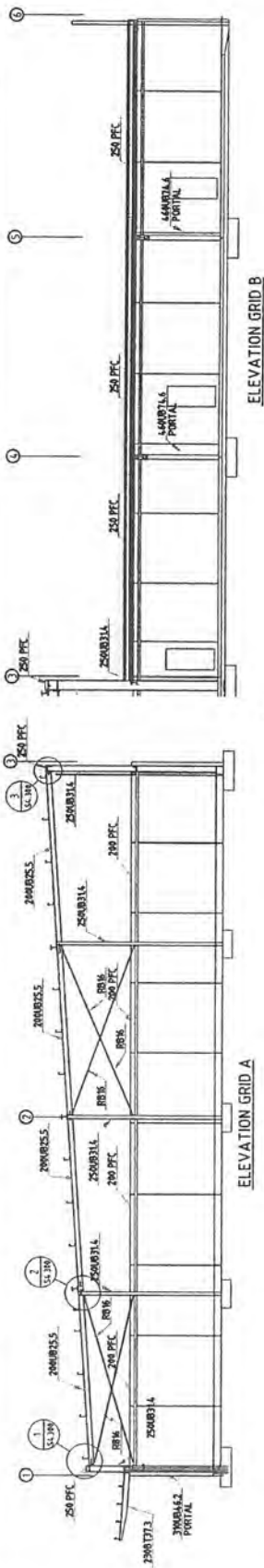
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AMP capital
INVESTORS

Project: **BETHLEHEM SHOPPING CENTRE**

Drawn A/D	Signed A/D	Date 10.07.06
Deposited DPL	Signed DPL	Date 10.07.06
Verified ECS	Signed ECS	Date 10.07.06
Approved Cash	Signed Cash	Date 10.07.06

CONSENT	
NOT FOR CONSTRUCTION	
Project No. B236	
Scale	Sheet Size
1:100 A1	A1
1:200 A3	
Drawing No.	Rev.
B236-S1.302	01



Rev	Date	Revisions Details	Rev	Ver.	App.
01	08/06/06	PRELIMINARY	AD		
02	10/07/06	CONSENT			
07	30/06/06	COORDINATION			
08	08/06/06	COORDINATION			
09	08/06/06	COORDINATION			
10	08/06/06	COORDINATION			
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81	08/06/06	COORDINATION			
82	08/06/06	COORDINATION			

Connell Wagner

Consultant Vascular Specialist and Office
 100 Bay Street, 15th Floor, Suite 1500
 100 Bay Street, 15th Floor, Suite 1500
 Toronto, Ontario M5H 2S4, Canada
 Tel: (416) 593-8888
 Fax: (416) 593-8889
 Email: info@vascular.com

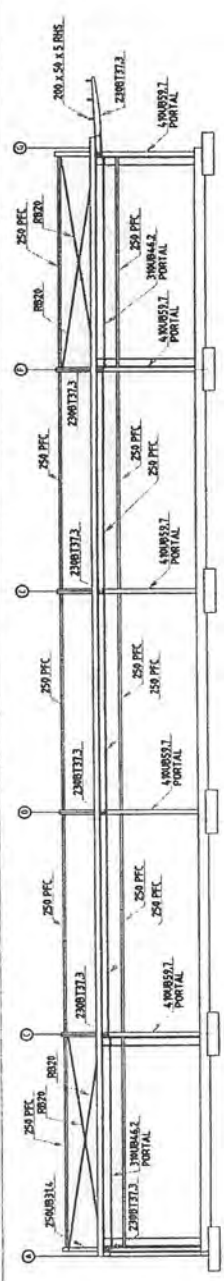
AMP capital
INVESTORS

BETHLEHEM SHOPPING CENTRE

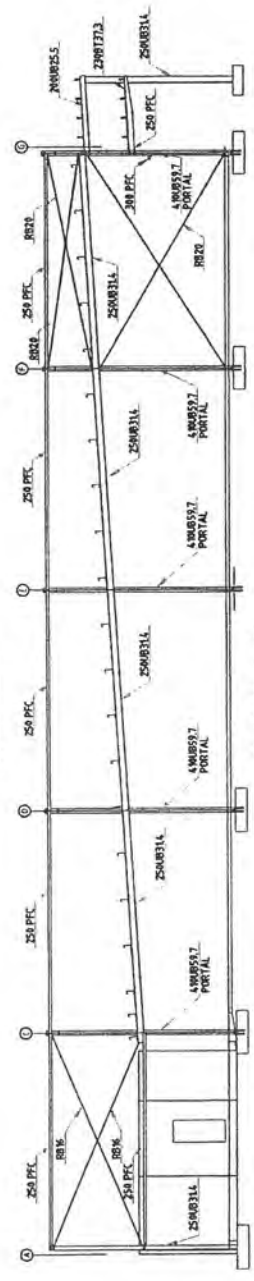
STRUCTURAL
BLOCK C
ELEVATIONS
SHEET 1

CONSENT	
NOT FOR CONSTRUCTION	
Project No.	B236
Scale	1"=10' A1 1"=20' A3
Drawing No.	B236-S2.300
Sheet No.	03

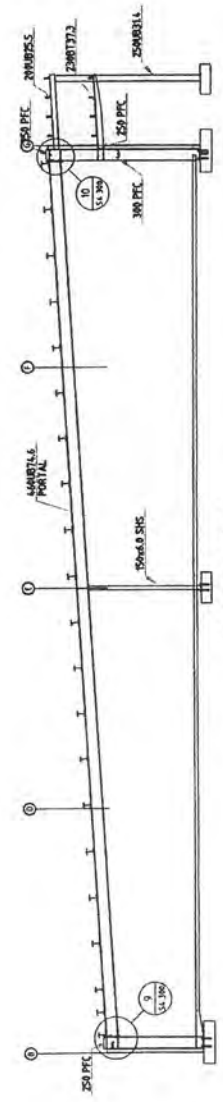
TCC180073



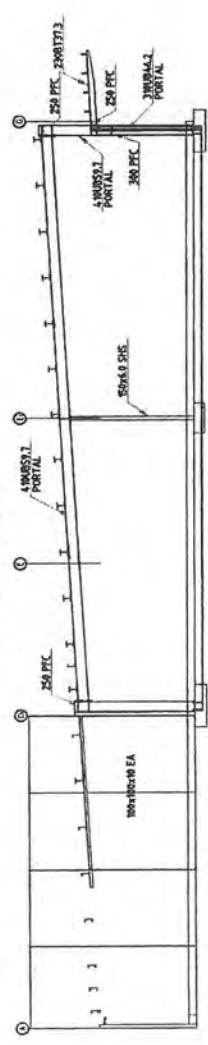
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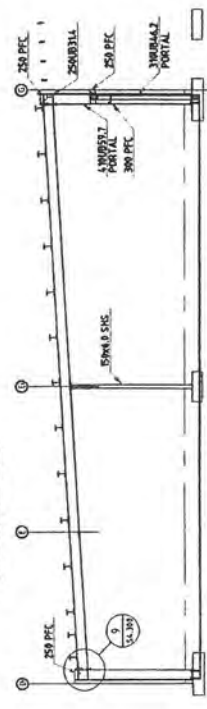
ELEVATION GRID 3



ELEVATION GRID 5



ELEVATION GRID 6



ELEVATION GRID 7. GRID8. SIMILAR

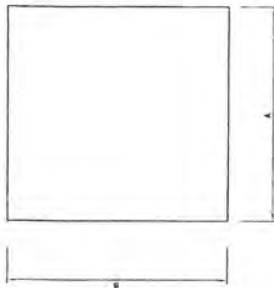
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Scale 1:100 A1 1:200 A3	Sheet No. A1	Date 10.07.06	
Drawing No. B236-S2.301	Date 10.07.06	Date 10.07.06	

Project Title STRUCTURAL BLOCK C ELEVATIONS SHEET 2		Date 10.07.06	Signed AD
Project BETHLEHEM SHOPPING CENTRE		Date 10.07.06	Signed DPL
Client AMP capital INVESTORS		Date 10.07.06	Signed ECS
Designer Connell Wagner		Date 10.07.06	Signed SFB

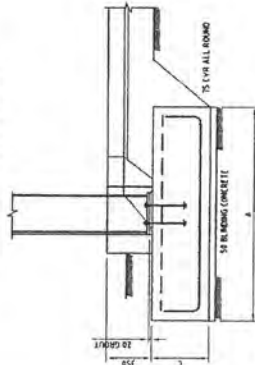
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02	10.06.06	COORDINATION	AD	
03	08.06.06	PRELIMINARY	AD	
04		REVISION 04.01.06	AD	

1. All dimensions are in millimetres unless otherwise stated.
 2. All dimensions are to the centre line of the member unless otherwise stated.
 3. All dimensions are to the face of the member unless otherwise stated.
 4. All dimensions are to the face of the member unless otherwise stated.
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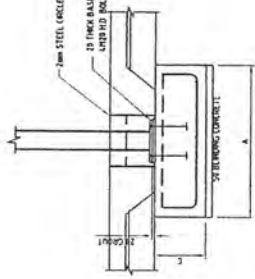
FOUNDATION PAD FOOTING SCHEDULE				
PAD TYPE	FP1	FP2	FP3	FP4
SIZE (AxB)	1750x1750	1650x1750	1650x1650	1000x1000
DEPTH (C)	450	450	450	450
BTH REINFORCEMENT (E/F)	H10@300	H10@300	H10@300	H10@300
TOP REINFORCEMENT	643 MESH	643 MESH	643 MESH	643 MESH



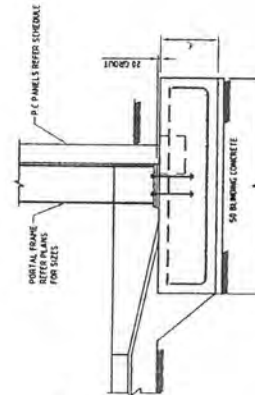
FOUNDATION PLAN VIEW



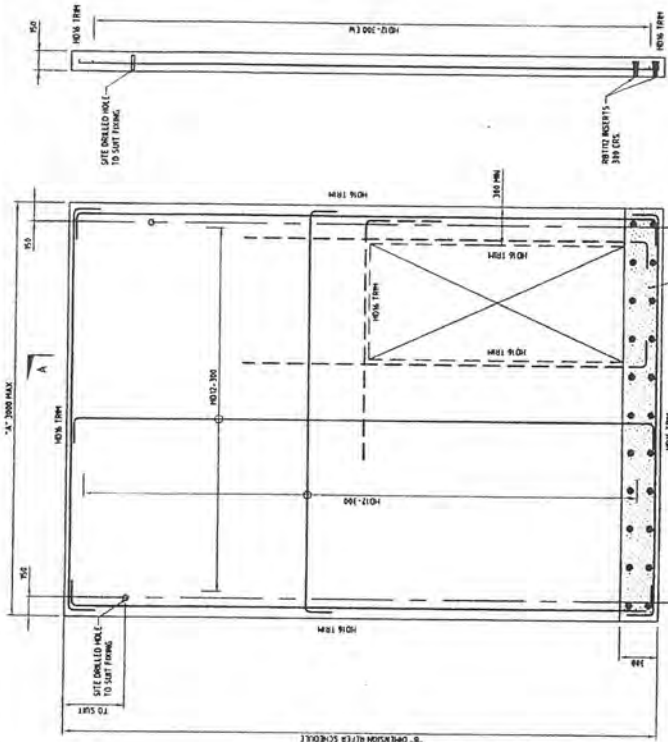
TYPICAL PORTAL FRAME FOUNDATION AT SHOP FRONT



TYPICAL INTERIOR COLUMN FOUNDATION

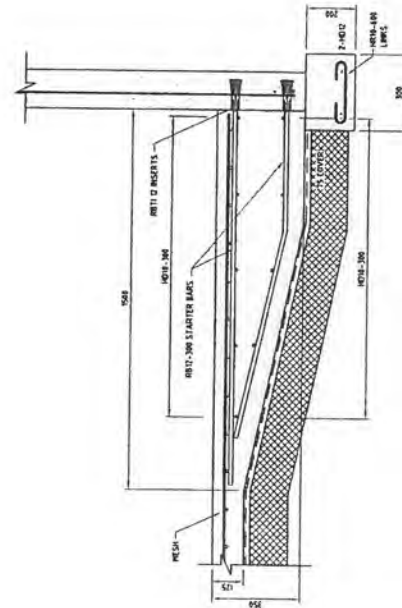


TYPICAL PORTAL FRAME FOUNDATION WITH PRECAST PANEL

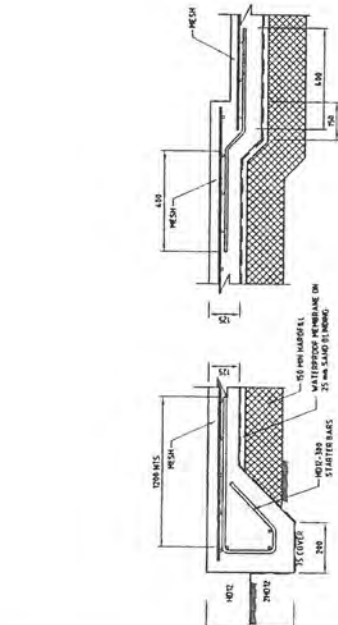


TYPICAL P.C PANEL ELEVATION

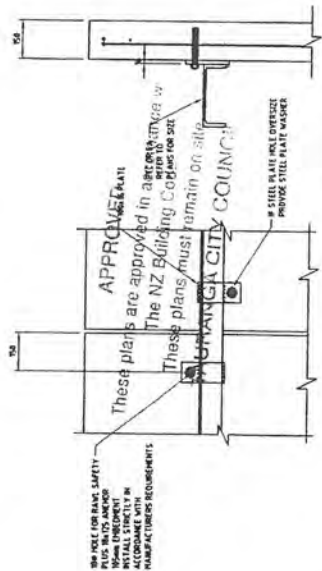
SECTION A-A



TYPICAL SLAB DETAIL AT PRECAST PANEL LOCATION



TYPICAL SLAB SET DOWN DETAIL



TYPICAL PRECAST PANEL FIXING

TCC180052

TYPICAL SLAB DETAIL AT SHOP FRONTS

Rev.	Date	Revision Details	App.	Ver.	App.
01	10.07.05	CONSIST			
02	30.06.06	COORDINATION			
03	08.06.06	PRELIMINARY			

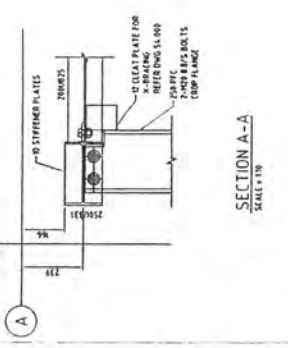
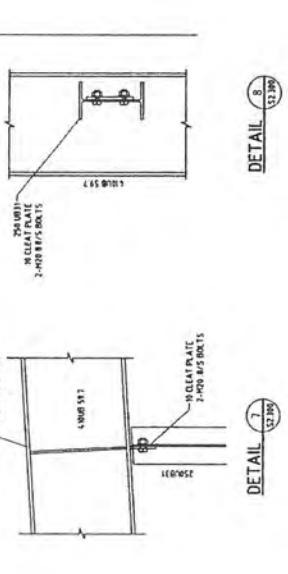
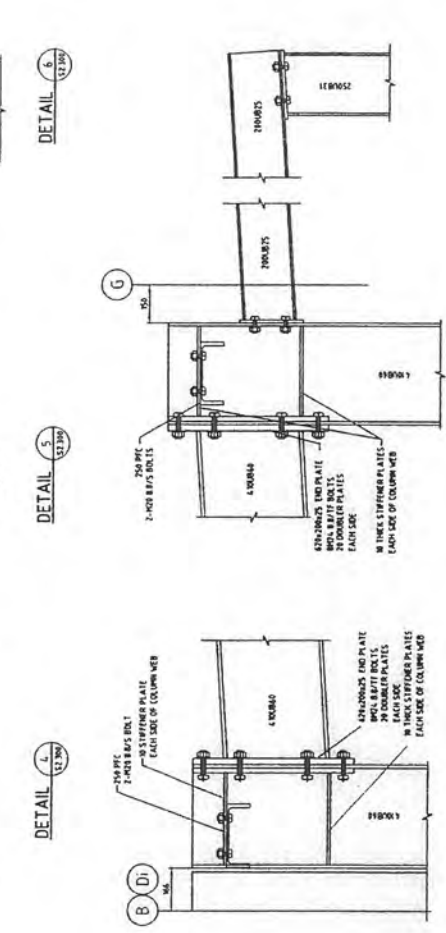
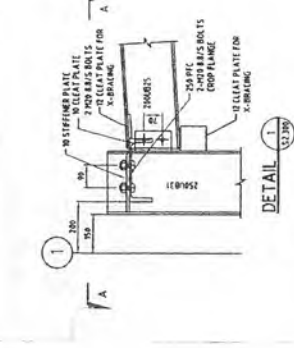
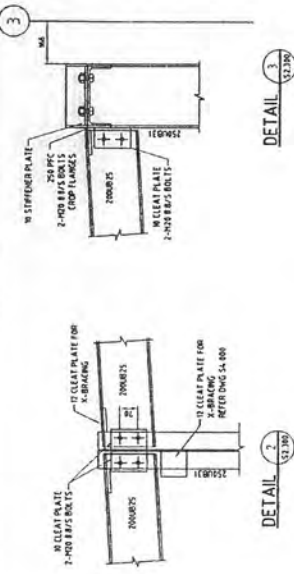
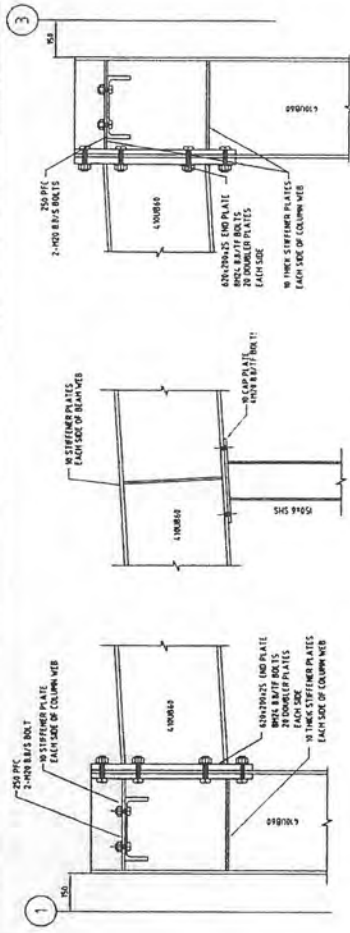


BETHLEHEM SHOPPING CENTRE

STRUCTURAL
TYPICAL CONCRETE DETAILS
FOUNDATIONS AND PRECAST PANELS

CONSIST	
Project No.	B236
Scale	1:20 A110 1:40 A3
Drawing No.	B236-S3.000
Sheet No.	A1
Rev.	03

Drawn	Checked	Date
AD	AD	10.07.06
Designed	Verified	Date
DPL	DPL	10.07.06
Approved	Checked	Date
SHB	SHB	10.07.06



SECTION A-A
SCALE 1:10



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

CONSENT NOT FOR CONSTRUCTION				Project No. B236				Scale 1:10 A1				Drawing No. B236-S4.300				Sheet No. A1																			
Project: BETHLEHEM SHOPPING CENTRE																Drawing Title: STRUCTURAL BLOCK C STEEL DETAILS SHEET 1																			
Client: 																Drawn: AD				Signed: AD				Date: 10.07.06											
																Design: DPL				Signed: DPL				Date: 10.07.06											
																Verified: EC				Signed: EC				Date: 10.07.06											
																Approved: SHB				Signed: SHB				Date: 10.07.06											
Cornell Wagner Cornell Wagner Limited Auckland Office 100-110 Great South Road, Auckland, New Zealand Telephone: +64 9 525 5811 Facsimile: +64 9 525 5812 Email: info@cornellwagner.co.nz																1. These drawings are prepared for the purpose of obtaining a resource consent for the proposed development. They are not to be used for any other purpose without the written consent of Cornell Wagner. 2. The client is responsible for ensuring that the drawings are in accordance with the relevant legislation and standards. 3. The client is responsible for ensuring that the drawings are in accordance with the relevant legislation and standards.				Rev.				Date				Ver.				App.			
02																10.07.06				CONSULT				01				01							
01																10.06.06				COORDINATION				01				01							

Description:

Building D was the first building of the second stage of the development of the site following stage 1, which encompassed Blocks A, B and C. Block D was designed in 2006 but it appears that a major interior fit out was conducted in mid-2008 for Smith City Bethlehem. We presume that this fit out occurred on completion of the building envelope and the original drawings show that there were no alterations to the lateral load resisting system.

This is a rectangular single storey mono-pitch roof Block that is located in the north west corner of the shopping complex. The building has its long axis orientated in a nominal east-west direction. It is a stand-alone building that has a car park frontage on the north and west sides. The south side partially fronts a car park area and also the northern end of Block C to which there is a significant seismic gap. On the east side, Block E (the K-Mart building) has been constructed, and this has an adequate seismic gap to Block D. Block D is seismically isolated from all other buildings.

This building is a medium sized foot-print single storey, pitched roof warehouse type building, with 6 bays in the east-west longitudinal direction and 2 bays in the north-south transverse direction. There is a canopy that continues partially along the northern elevation.

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. 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 sizes given in the Block D set of structural drawings, and there is a detail of the column connection to the foundations pad, there are no specific details of the foundation reinforcement. We have however, located sheets of 'Typical Foundation and Wall Details' for what was called 'Stage 1' of the shopping centre development, and we are confident that these details are also appropriate to Block D, which of course is in Stage 2.

The canopy has cold rolled steel purlins, structural steel rafters, supported on steel columns and independent foundation pads. It is architecturally configured as a bulkhead rather than the cantilever type canopy that is more prevalent on the other Blocks. The canopy rafters are connected as an extension of the main structural rafters in the building envelope, and this provides adequate lateral stability.

There are 150mm thick reinforced precast concrete wall panels along the north and west elevations, and these panels are continuous along each of these elevations. There is a combination of precast concrete wall panels and shop front glazing on the south elevation. The east elevation is recorded in the architectural drawings as "adjoining Building E". Wall section 09/A2101 in the Block E set of drawings, shows a 120 minute fire rated wall, presumably of light weight construction, in the Block D building, and this is seismically separated from a similar wall in the end of Block E. These walls will not affect the lateral load resistance of either Block.

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 wall 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 western 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.

There are no details of the reinforcement in the precast concrete wall panels in the drawings specifically for this Block, and likewise there are no specific details of the foundations (other than the sizes in the key notes), or their connections to the wall panels, however, as described above, 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 face 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 we hold.

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 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, but the western precast concrete wall will act as an in-plane loaded shear wall and this will have a minimum natural period. This is addressed in the Performance Achievement Ratio (PAR) section).
- Building Importance Level 2.

- Structural Ductility factor 1.25 (this is based on the diagonal roof 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. 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+.

Page 1

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Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block D	Date:	8/04/2021
City:	Tauranga	Revision No.:	A

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 D	Date:	8/04/2021
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 = 6A_c = 1.00

6 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 D	Date:	8/04/2021
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

 $= IR_o/R$

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

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 D	Date:	8/04/2021
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 1.1

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
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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	Significant	Insignificant
Separation		0<Sep<.005H	.005<Sep<.01H	Sep>.01H
Alignment of Floors within 20% of Storey Height		☐ 1	☐ 1	☒ 1
Alignment of Floors not within 20% of Storey Height		☐ 0.4	☐ 0.7	☐ 0.8
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 1.10

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
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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}

Page 7

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
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Table IEP-5 Initial Evaluation Procedure Step 8

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

8.1 Number of storeys above ground level

1

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

N

Potential Severe Structural Weaknesses (SSWs):

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

Occupancy not considered to be significant - no further consideration required

Risk not considered to be significant - no further consideration required

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

1. None identified
2. Weak or soft storey (except top storey)
3. Brittle columns and/or beam-column joints the deformations of which are not constrained by other structural elements
4. Flat slab buildings with lateral capacity reliant on low ductility slab-to-column connections
5. No identifiable connection between primary structure and diaphragms
6. Bridge and gap stairs

IEP Assessment Confirmed by  Signature

S R Mitchell

Name

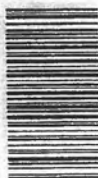
70562

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. DO NOT SCALE DRAWING.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS ON SITE.
3. DIMENSIONS TO BE MEASURED FOR ANY VARIATION BETWEEN THE DIMENSIONS AND THOSE ON PLANS.
4. THESE DRAWINGS SHOW THE PROPERTY OF JOINT CONTRACTORS LTD AND SHOULD NOT BE COPIED OR ANY OTHER BE MADE ON TO A THIRD PARTY WITHOUT JOINT CONTRACTORS CONSENT.



TCC189010

A	Building Consent	MO	28.08.06
total	signature	BY	(s2)



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AMP capital

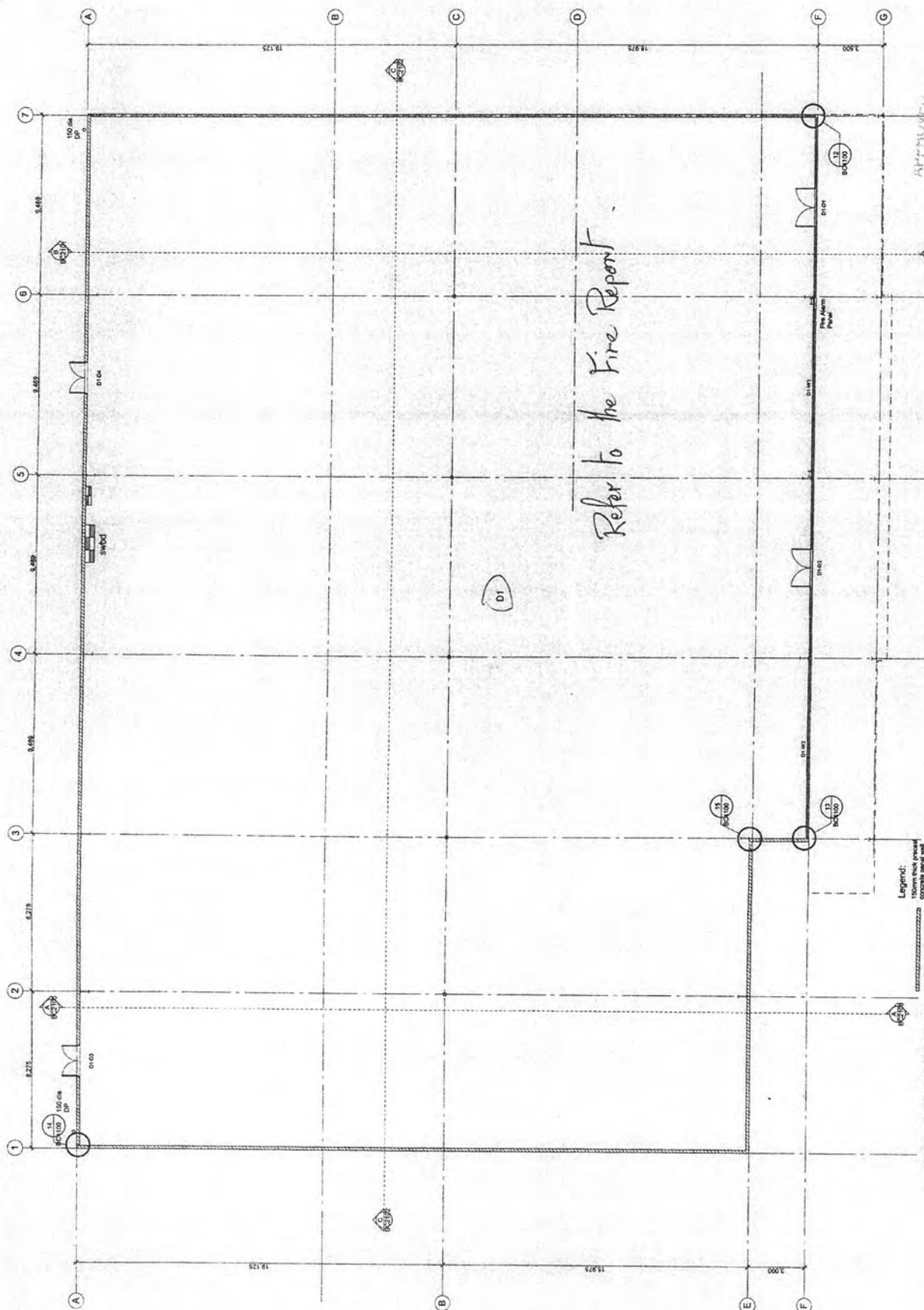
CDP064
BLOCK D
BETHLEHEM SHOPPING CENTRE

DRAWING TITLE
REFERENCE FLOOR PLAN

DATE 28 AUGUST 2006	SCALE
DRAWN MG	CHECK
PROJECT NO. 457-05-19	

DRAWING NUMBER
BC1300

(A)



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

REFERENCE FLOOR PLAN

811

Legend:

- 150mm thick precast concrete panel wall
- 150mm steel stud wall framing with 1 layer 12mm GIB board lining to each side of framing. Refer to site engineers report.
- Distribution Board

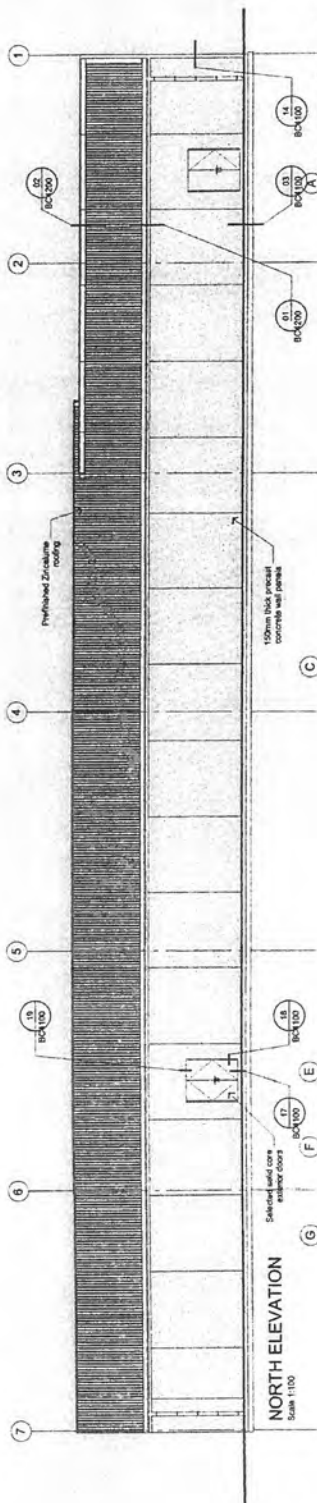
GENERAL NOTES

1. IN SET SIZE 7/11 DRAWING
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS FOR ALL DIMENSIONS ON SET
3. ARCHITECT TO BE NOTIFIED BY E-MAIL OF ANY VARIATION TO THE DRAWINGS AND TO BE NOTIFIED BY E-MAIL OF ANY VARIATION TO THE DRAWINGS AND TO BE NOTIFIED BY E-MAIL OF ANY VARIATION TO THE DRAWINGS
4. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE STATED
5. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE STATED
6. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE STATED
7. ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE STATED



TCC189014

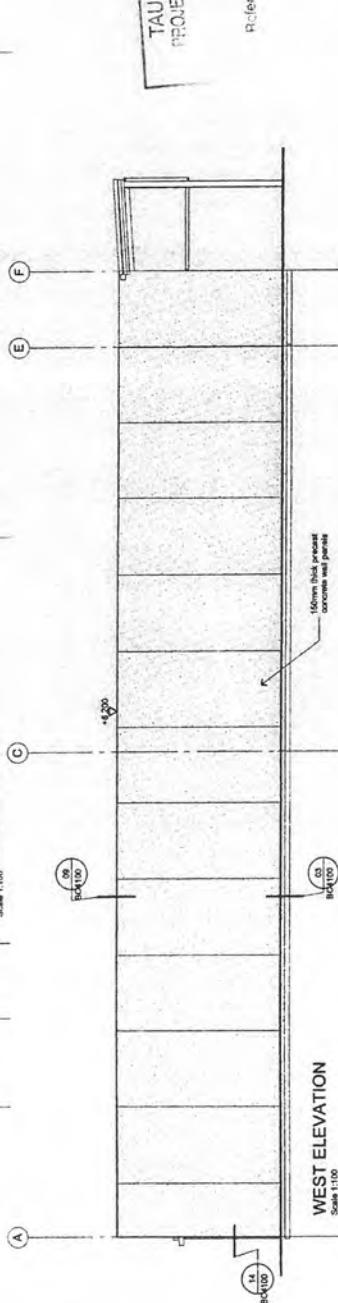
**Regular Maintenance
checks of the exterior
should be undertaken
by the owner**



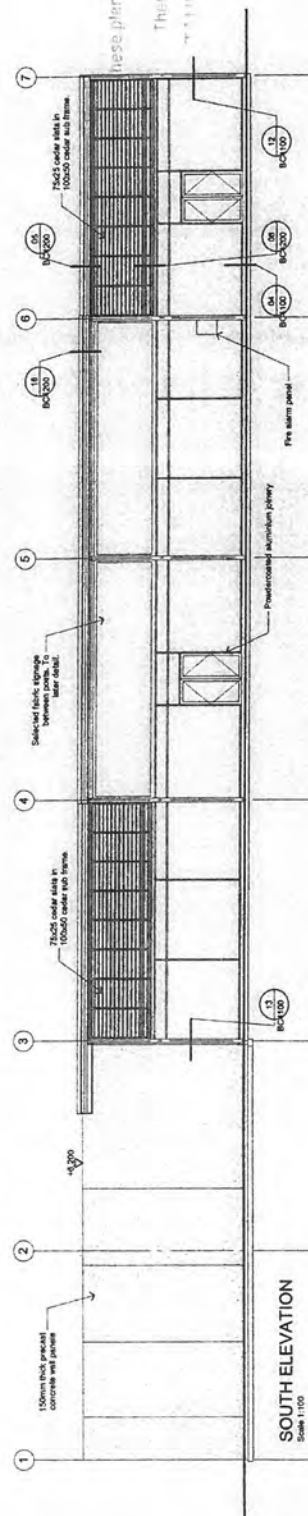
NORTH ELEVATION
Scale 1:100

Note:
Building E is on the back. Refer drawings Block E.

EAST ELEVATION
Scale 1:100



WEST ELEVATION
Scale 1:100



SOUTH ELEVATION
Scale 1:100



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CLIENT



PROJECT
BLOCK D
BETHLEHEM SHOPPING CENTRE

DRAWING TITLE
ELEVATIONS

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

DATE	28 AUGUST 2006	SCALE	
DRAWN	MG	CHECK	MG
PROJECT NO.	457-05-19		
DRAWING NUMBER	BC2000		(A)

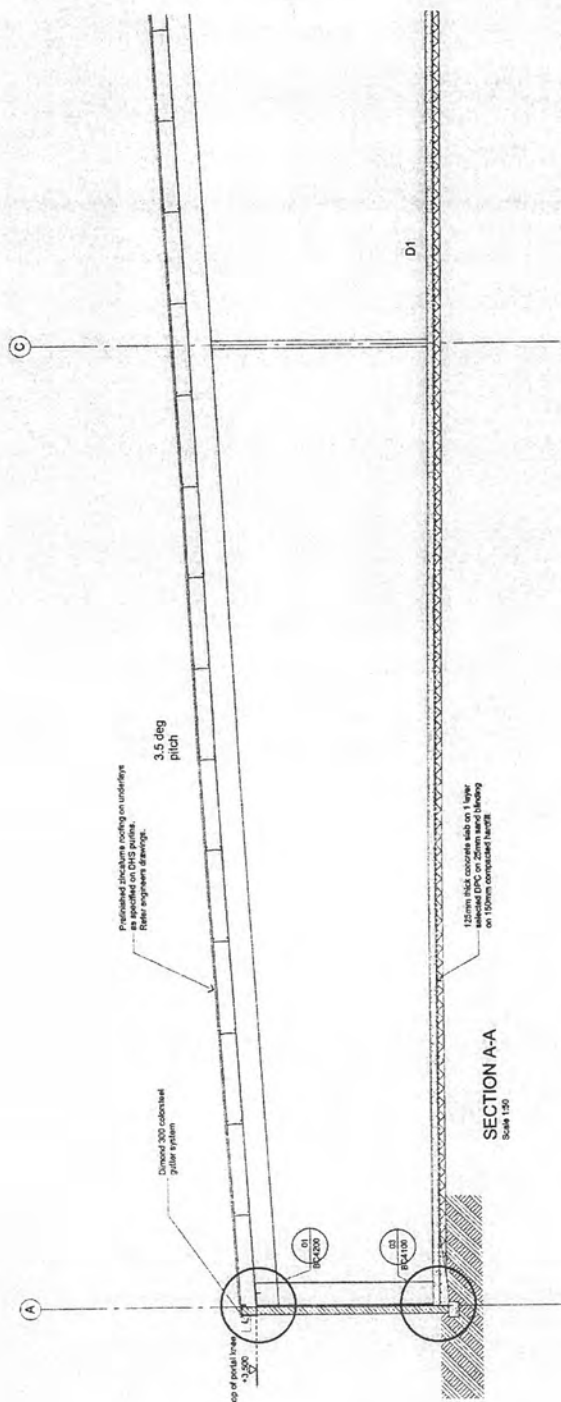
GENERAL NOTES

1. SEE SET OUT OF BUILDING.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR THE EXISTING CONDITIONS.
3. ALL WORKS TO BE COMPLETED BY 15 NOVEMBER 2006.
4. ALL WORKS TO BE COMPLETED BY 15 NOVEMBER 2006.
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9. ALL WORKS TO BE COMPLETED BY 15 NOVEMBER 2006.
10. ALL WORKS TO BE COMPLETED BY 15 NOVEMBER 2006.

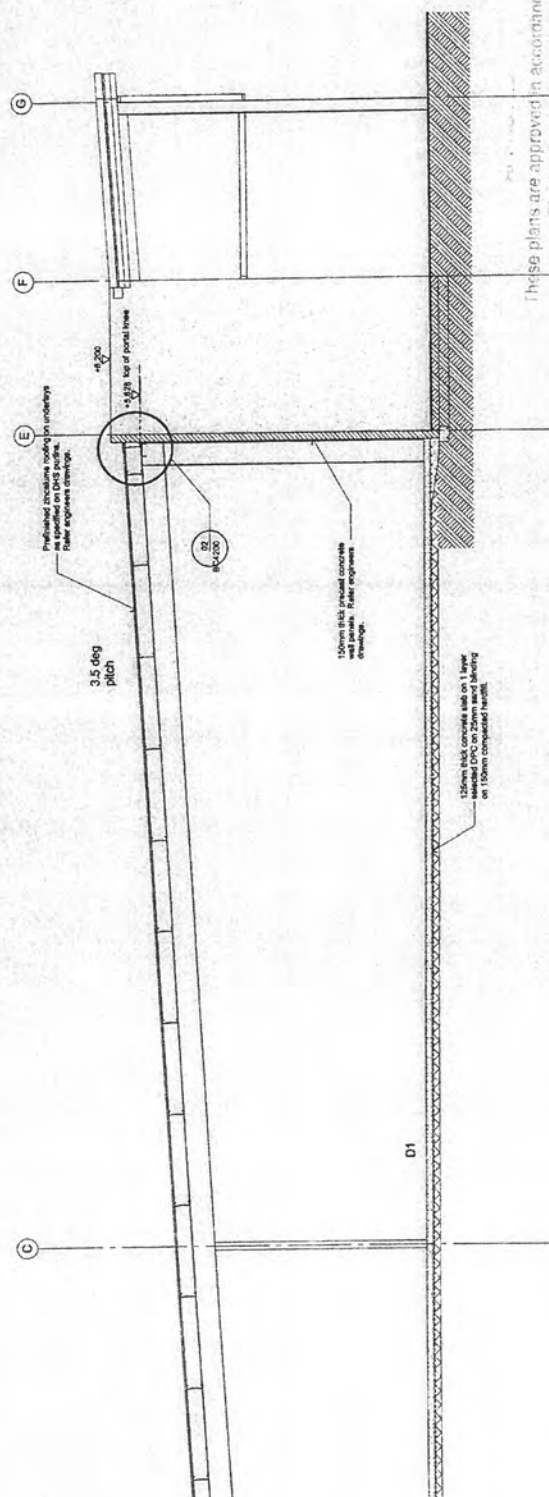
All work to satisfy the requirements of N.Z.B.C. including Clause E2 (External Moisture)



TCC189017



SECTION A-A
Scale 1:50



These plans are approved in accordance with The NZ Building Code. These plans must remain on site. TAURANGA CITY COUNCIL

DATE	REVISION	BY	DATE
21 AUGUST 2006	1	MG	21 AUGUST 2006



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CLIENT



PROJECT
BLOCK D
BUTTERFIELD SHOPPING CENTRE

DRAWING TITLE
SECTIONS

DATE	SCALE	PROJECT NO.	DRAWING NO.
21 AUGUST 2006	1:50	457-05-19	BC2100

DO NOT SCALE OFF DRAWINGS.

A	Building Contract	MQ	20.08.06
		BY	SITE

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CONT

AMP capital

PROJECT
BLOCK D
BETHLEHEM SHOPPING CENTRE

DRAWING TITLE

APPROVE:

These plans are approved in accordance with The NZ Building Code.

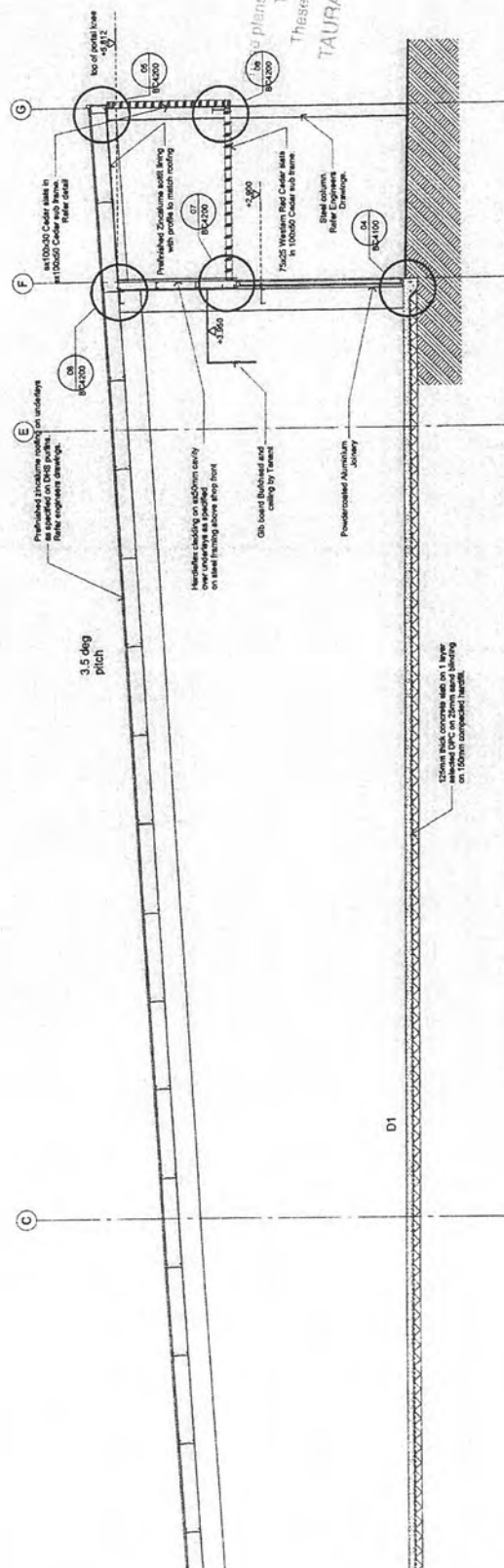
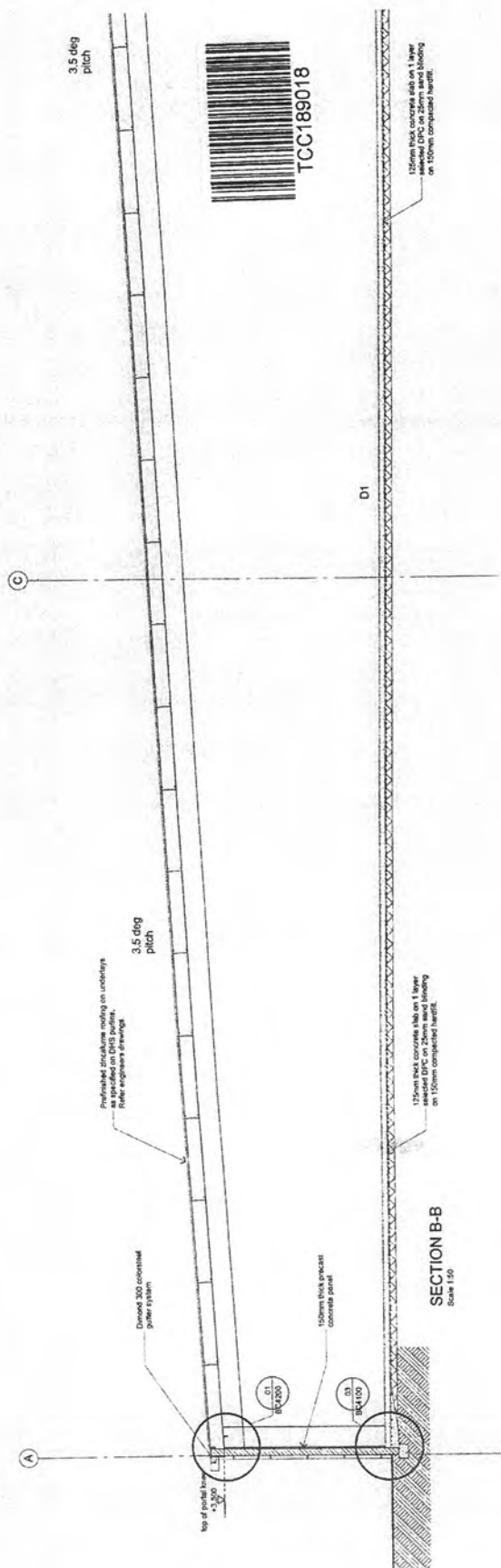
TAURANGA

DATE 28 AUGUST 2006 SCALE 1:5000

PROJECT NO.	00340	DATE
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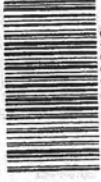
MG	457-05-19
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BC2101
A

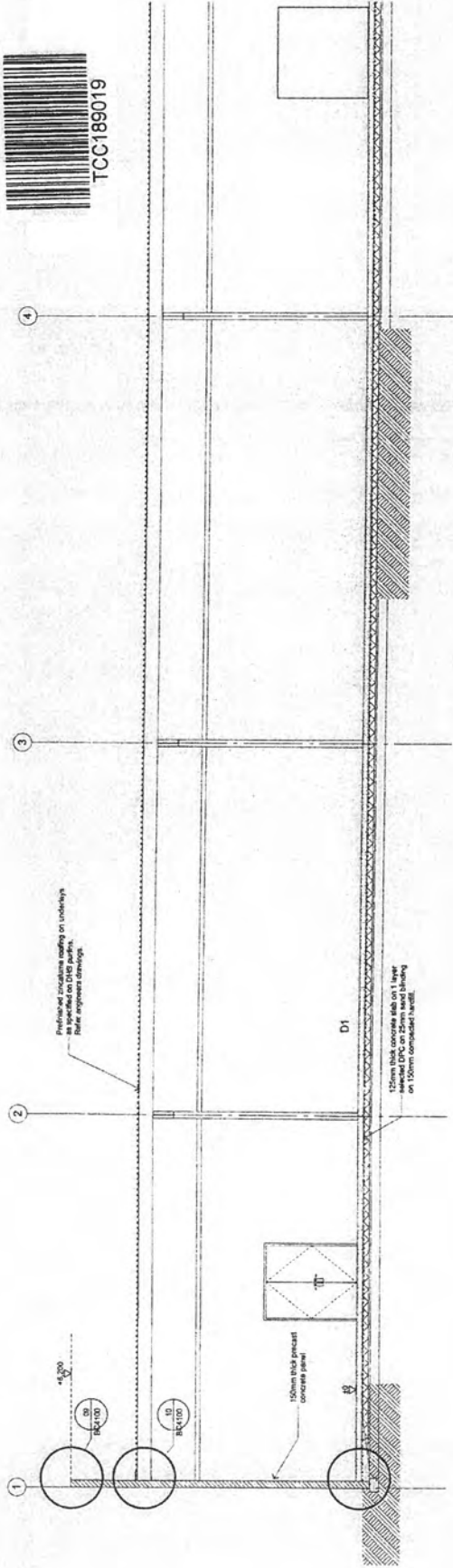


GENERAL NOTES

1. SEE SET OUT FOR PLACING.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS ON SITE.
3. UNLESS OTHERWISE SPECIFIED, ALL DIMENSIONS ARE TO FACE UNLESS OTHERWISE SPECIFIED.
4. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED.
5. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED.
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9. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED.
10. ALL DIMENSIONS SHALL BE TO FACE UNLESS OTHERWISE SPECIFIED.



TCC189019



Building Component	NO.	DATE
1. WALL	1	28.08.04



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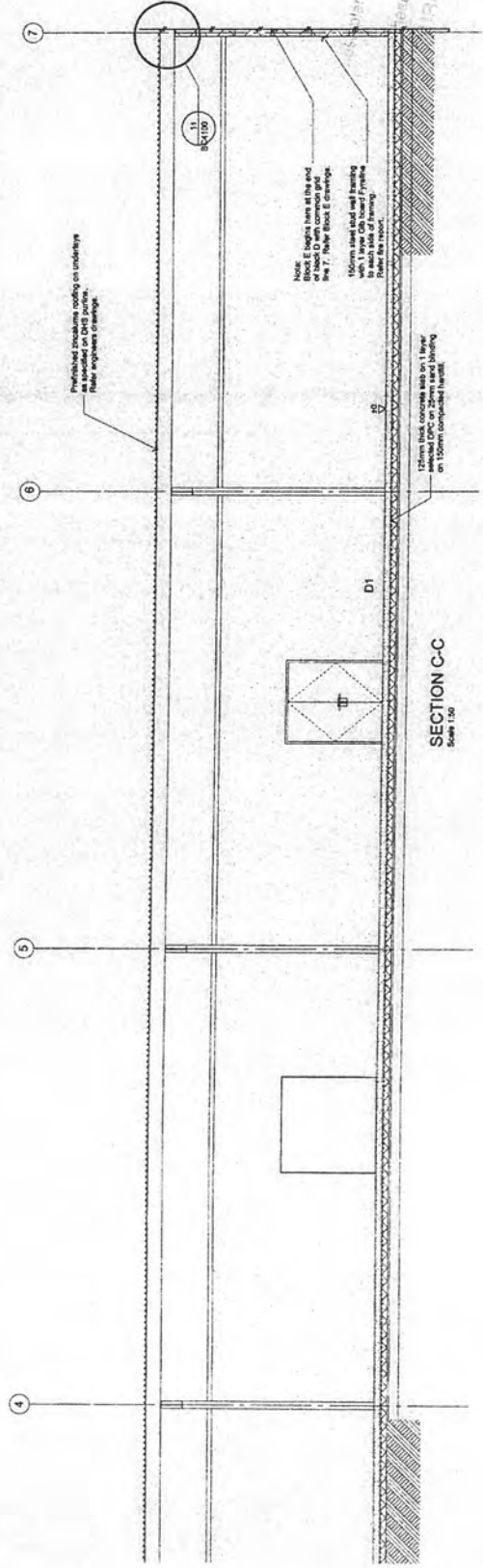


PROJECT
BLOCK D
BETHLEHEM SHOPPING CENTRE

DRAWING TITLE
SECTIONS

These plans are approved in accordance with the NZ Building Code. These plans must remain on site.

DATE	BY	NO.	DATE	BY	NO.
28.08.04	MG	457-05-19	MG	457-05-19	457-05-19
DRAWING NUMBER			BC2102		



SECTION C-C
Scale 1:50

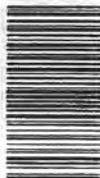
GENERAL NOTES

DO NOT SCALE OFF DRAWING

CONSTRUCTION SHALL VERIFY AND BE RESPONSIBLE FOR ALL
EXISTING RECORDS ON SITE.

ARCHITECTS TO BE ADVISED OF ANY COLLISION BETWEEN
EXISTING FOUNDATIONS AND FOUNDATION PLANS.

THIRD DRAWINGS REVEAL THE PRESENCE OF UNDEVELOPED
FOUNDATIONS AND SHALL BE LOANED BY ALL PERSONS
INTERESTED TO A THIRD PARTY WITHOUT PRIOR WRITTEN
CONSENT.



TCC178365

Building Consent		Map	14/02/2008
Building Consent		Drawn	Check
A	Building Consent Description		
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www.grimsham.co.uk

SMITH CITY

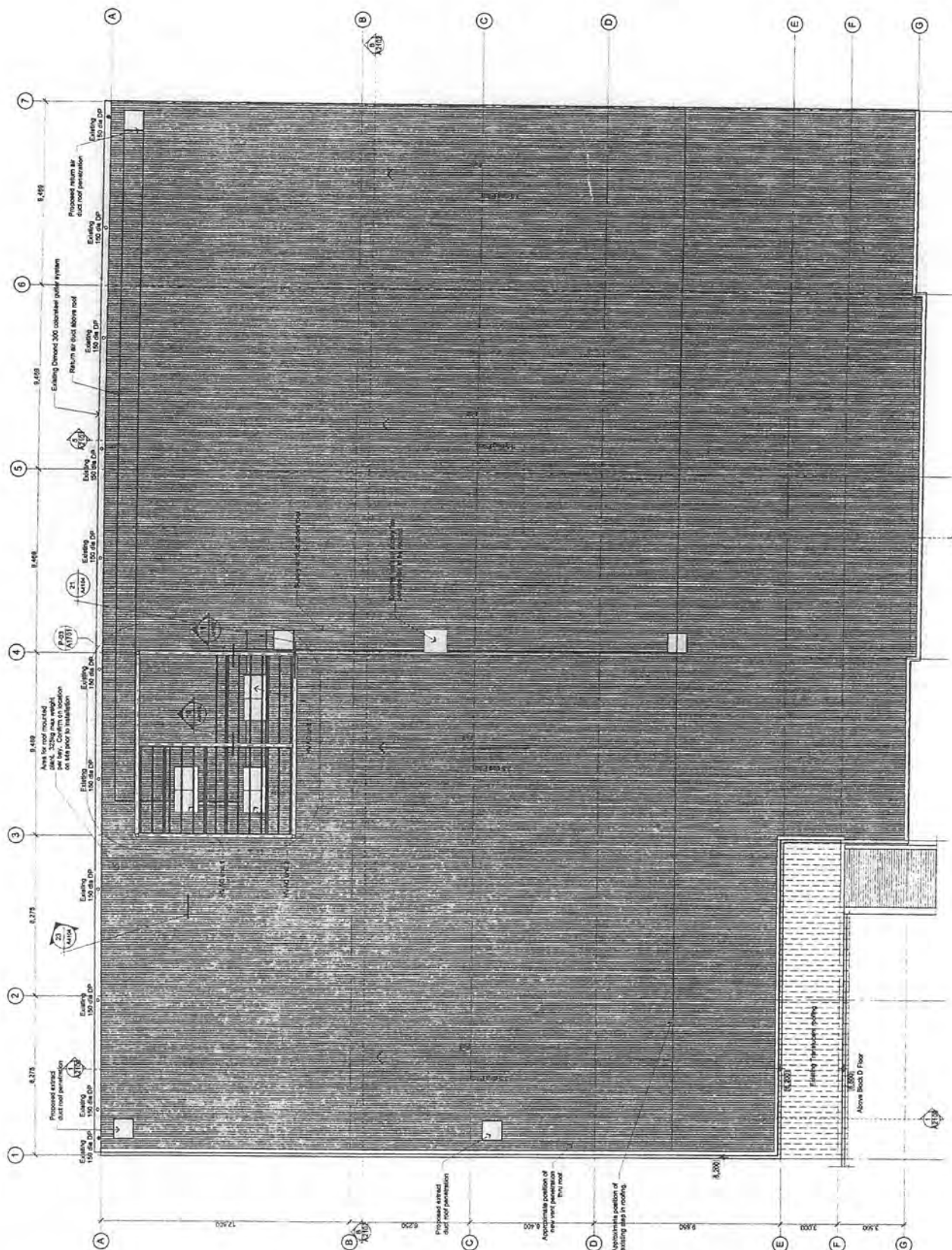
SMITH CITY BETHLEHEM
BETHLEHEM SHOPPING CENTRE
BETHLEHEM ROAD TALLANGA

PLANNO TITLE
ROOF PLAN

DATE	10/05/2008	SCALE	A.S.
CHECK	MG	PROJECT NO.	0457-019-22
NAME	MG	DATE FOR WORK	
ADDRESS		DATE FOR WORK	
PHONE NUMBER			
11700			
LOT DATA AND PATH			
A			

These plans are approved in accordance with the 632 Building Code.
These plans must remain on site.

TAURANGA CITY COUNCIL

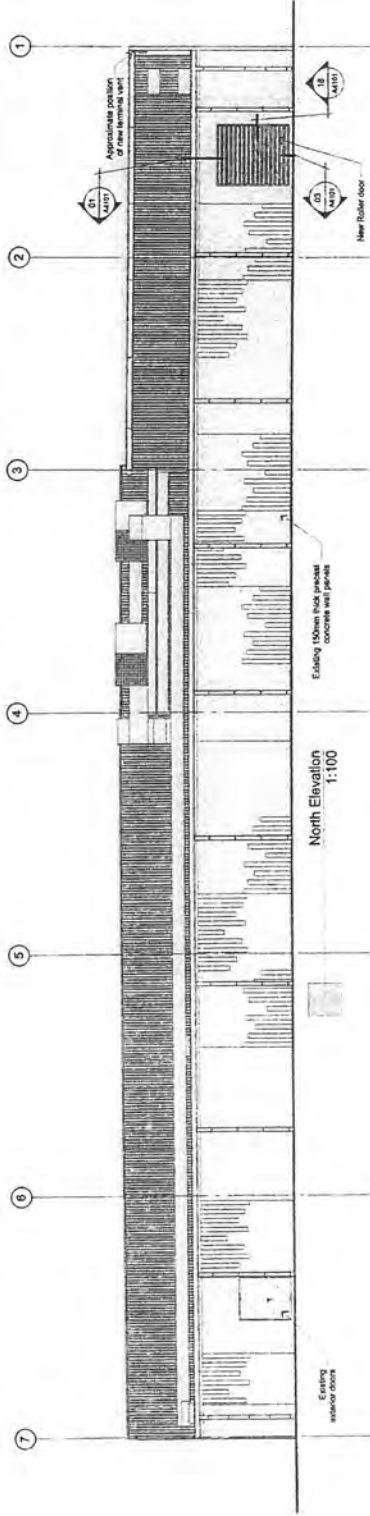


Legend:
Existing Prefinished Zincalume roofing

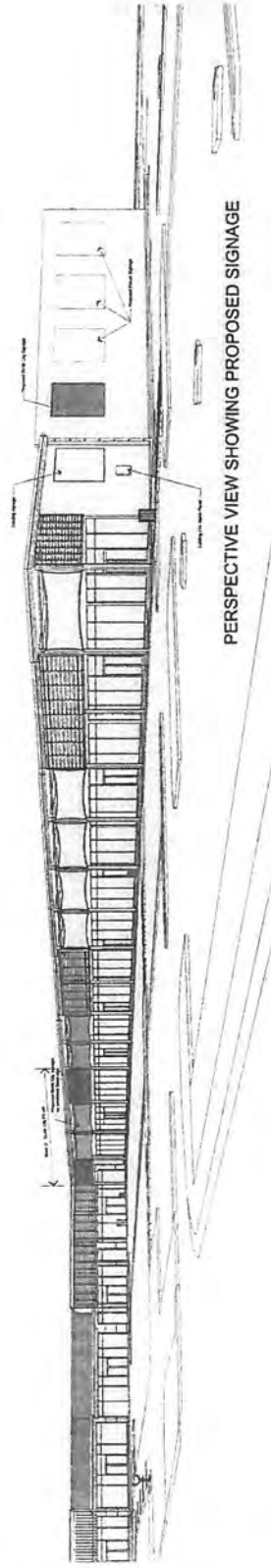
ROOF PLAN
1:100

GENERAL NOTES

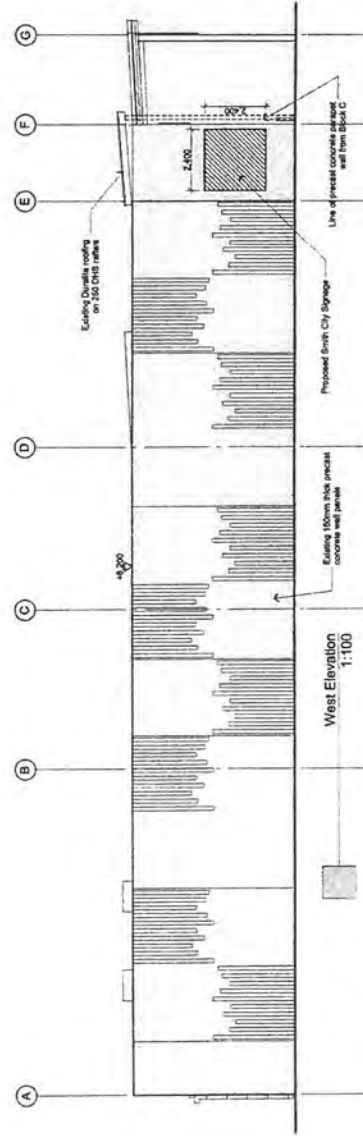
1. DO NOT SCALE OFF DRAWING.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR ALL DIMENSIONS ON SITE.
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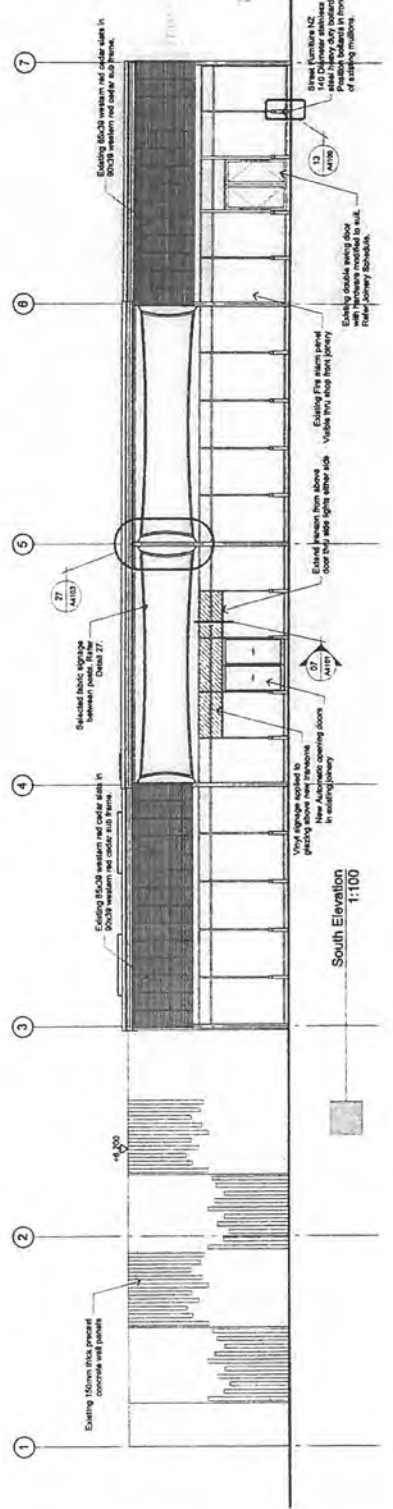
North Elevation
1:100



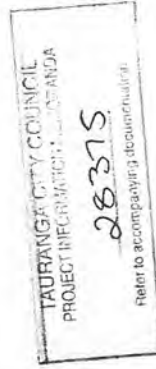
PERSPECTIVE VIEW SHOWING PROPOSED SIGNAGE



West Elevation
1:100



South Elevation
1:100



TCC178367

TAURANGA CITY COUNCIL
Project Information
Refer to accompanying documentation
Signage plans must remain on site

BUILDING CONSENT			
A	Application	Ref	Notes
1	Application	1	Application
2	Application	2	Application
3	Application	3	Application
4	Application	4	Application
5	Application	5	Application
6	Application	6	Application
7	Application	7	Application



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13/07/2019

SMITH CITY

SMITH CITY BETHLEHEM
BETHLEHEM SHOPPING CENTRE
BETHLEHEM ROAD TAUANGA
ELEVATIONS

DATE	SCALE	PROJECT NO.
05/05/2019	A3	0457-019-22
DRAWN	CHECK	PROJECT NO.
MG	MG	0457-019-22
STAGE	COORDINATOR	DATE
01	01	01/05/2019
DATE	SCALE	PROJECT NO.
05/05/2019	A3	0457-019-22
DRAWN	CHECK	PROJECT NO.
MG	MG	0457-019-22
STAGE	COORDINATOR	DATE
01	01	01/05/2019
DATE	SCALE	PROJECT NO.
05/05/2019	A3	0457-019-22
DRAWN	CHECK	PROJECT NO.
MG	MG	0457-019-22
STAGE	COORDINATOR	DATE
01	01	01/05/2019

NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
2. BUILDING PLANTING FOR SLAB ON GRADE TO COMPLY WITH THE NZ BUILDING CODE.
3. PROVIDE 600 MM TO SLAB ON GRADE USED FOR ALL PORTALS.
4. REFER TO GEOTECHNICAL REPORT FOR FOUNDATION DESIGN.
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KEY

- FPA - 1750x1750x150 FOUNDATION PAD
- FPI - 2000x2000x150 FOUNDATION PAD
- FPI - 3000x3000x150 FOUNDATION PAD
- FPI - 4000x4000x150 FOUNDATION PAD
- FPI - 5000x5000x150 FOUNDATION PAD
- FPI - 6000x6000x150 FOUNDATION PAD
- FPI - 7000x7000x150 FOUNDATION PAD
- FPI - 8000x8000x150 FOUNDATION PAD
- FPI - 9000x9000x150 FOUNDATION PAD
- FPI - 10000x10000x150 FOUNDATION PAD
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- FPI - 60000x60000x150 FOUNDATION PAD
- FPI - 61000x61000x150 FOUNDATION PAD
- FPI - 62000x62000x150 FOUNDATION PAD
- FPI - 63000x63000x150 FOUNDATION PAD
- FPI - 64000x64000x150 FOUNDATION PAD
- FPI - 65000x65000x150 FOUNDATION PAD
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- FPI - 67000x67000x150 FOUNDATION PAD
- FPI - 68000x68000x150 FOUNDATION PAD
- FPI - 69000x69000x150 FOUNDATION PAD
- FPI - 70000x70000x150 FOUNDATION PAD
- FPI - 71000x71000x150 FOUNDATION PAD
- FPI - 72000x72000x150 FOUNDATION PAD
- FPI - 73000x73000x150 FOUNDATION PAD
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- FPI - 76000x76000x150 FOUNDATION PAD
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- FPI - 82000x82000x150 FOUNDATION PAD
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- FPI - 98000x98000x150 FOUNDATION PAD
- FPI - 99000x99000x150 FOUNDATION PAD
- FPI - 100000x100000x150 FOUNDATION PAD

REFER TO ELECTRICAL SPECIFICATION FOR LIGHTING REQUIREMENTS

Note
Any adverse soil conditions are to be reported to the geotech engineer



TCC169948

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NOT FOR CONSTRUCTION

Project No.	B236
Scale	1:100 A1
Sheet No.	A1
Drawing No.	1200-33
Date	B236-S1.400
03	

STRUCTURAL BLOCK D FLOOR PLAN

BETHLEHEM SHOPPING CENTRE STAGE 2



Connell Wagner

Connell Wagner Limited
100-110 The Esplanade, Tauranga
Tauranga, New Zealand
Tel: 07 577 1111
Fax: 07 577 1112
Email: connellwagner@connellwagner.co.nz

Rev	Date	By	App	Drn	Ver	App
01	21.08.04	CONSULT				
02	09.08.04	TECHNICAL				
03	14.07.04	COORDINATION				

Rev	Date	By	App	Drn	Ver	App
01	21.08.04	CONSULT				
02	09.08.04	TECHNICAL				
03	14.07.04	COORDINATION				



NOTES

- NOTES:
1. PROVIDE 1 ROW OF FAST BRACE BRACING TO EACH PURLIN BAY UNDO
2. 2 LAP PURLINS (WHERE SHOWN) @ 1/2 LENGTH OF ADJACENT SPAN REFER TO MANUFACTURERS SPECIFICATION FOR DETAILS

LEGEND



ZONE FOR ROOF TOP PLANT
TO BE PLACED MAXIMUM
WEIGHT OF PLANT IN ANY
BAY = 3750



MECHANICAL PLANT PLATTEN

PROVIDE 114x18 CHS COLUMN STUB TO EACH CORNER OF PLANT PLATFORM

NOTE: ALL PLANT PLATFORM DETAILS TO BE CONFIRMED PRIOR TO FABRICATION

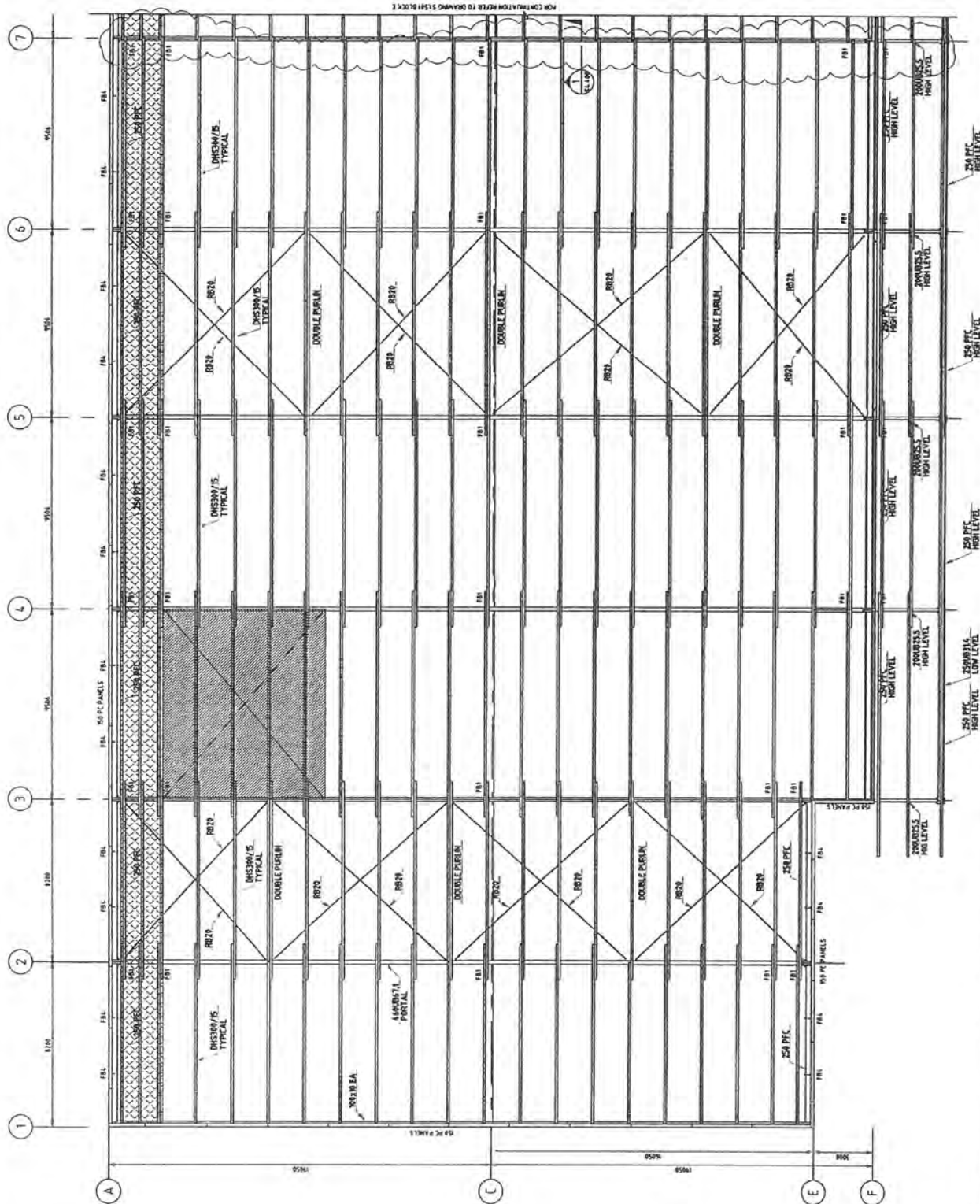
PROVIDE HANGERS BETWEEN GWS PURLOIN & 159 PFC
AT TOP OF INTERTENANT WALLS AT 36 IN CRS LONG



TC:C169949

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CONSENT
FOR CONSTRUCTION

Project No.	B236	
Code	1100 A1 1200 A3	Sheet Size A1
or drawing No.	B236-S1 401	
		Rev.
		03

STRUCTURAL
BLOCK D
ROOF PLAN

Investor Value:

Drawn	Supplied	Date
GJD	GJM	09.08.06
Disputed	Supplied	Date
Disputed	Supplied	Date
Verified	Supplied	Date
Approved	Supplied	Date

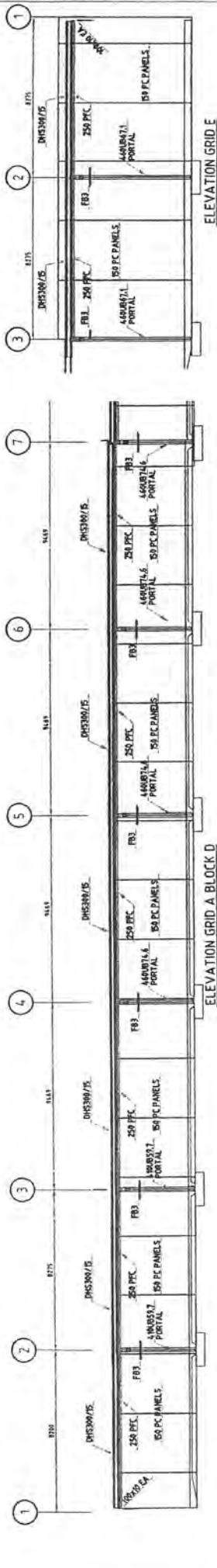
Project: BETHLEHEM SHOPPING CENTRE
STAGE 2

AMP capital
INVESTORS

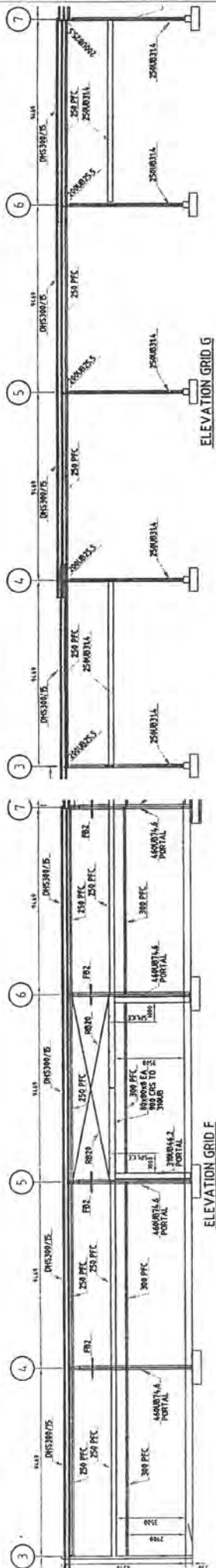
Cornell Wagner

Cornell Wagner Limited Acquisition Office
PO Box 97452, Newmarket, South and
Tel: 01938 541199 Fax: 01938 541199
E-mail: info@cornellwagner.com

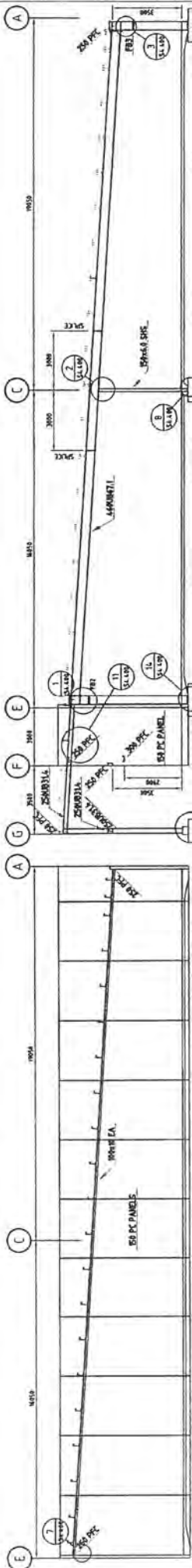
Req.	Date	Rev.	Perkins Details	Drn	Ver	App
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ELEVATION GRID A BLOCK D



ELEVATION GRID E



ELEVATION GRID F

ELEVATION GRID J

ELEVATION GRID 2 SIMILAR
ELEVATION GRID 3

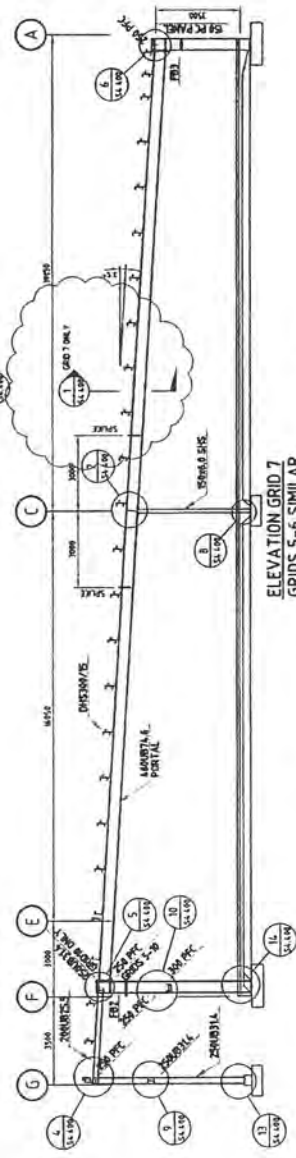
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TAURANGA CITY COUNCIL

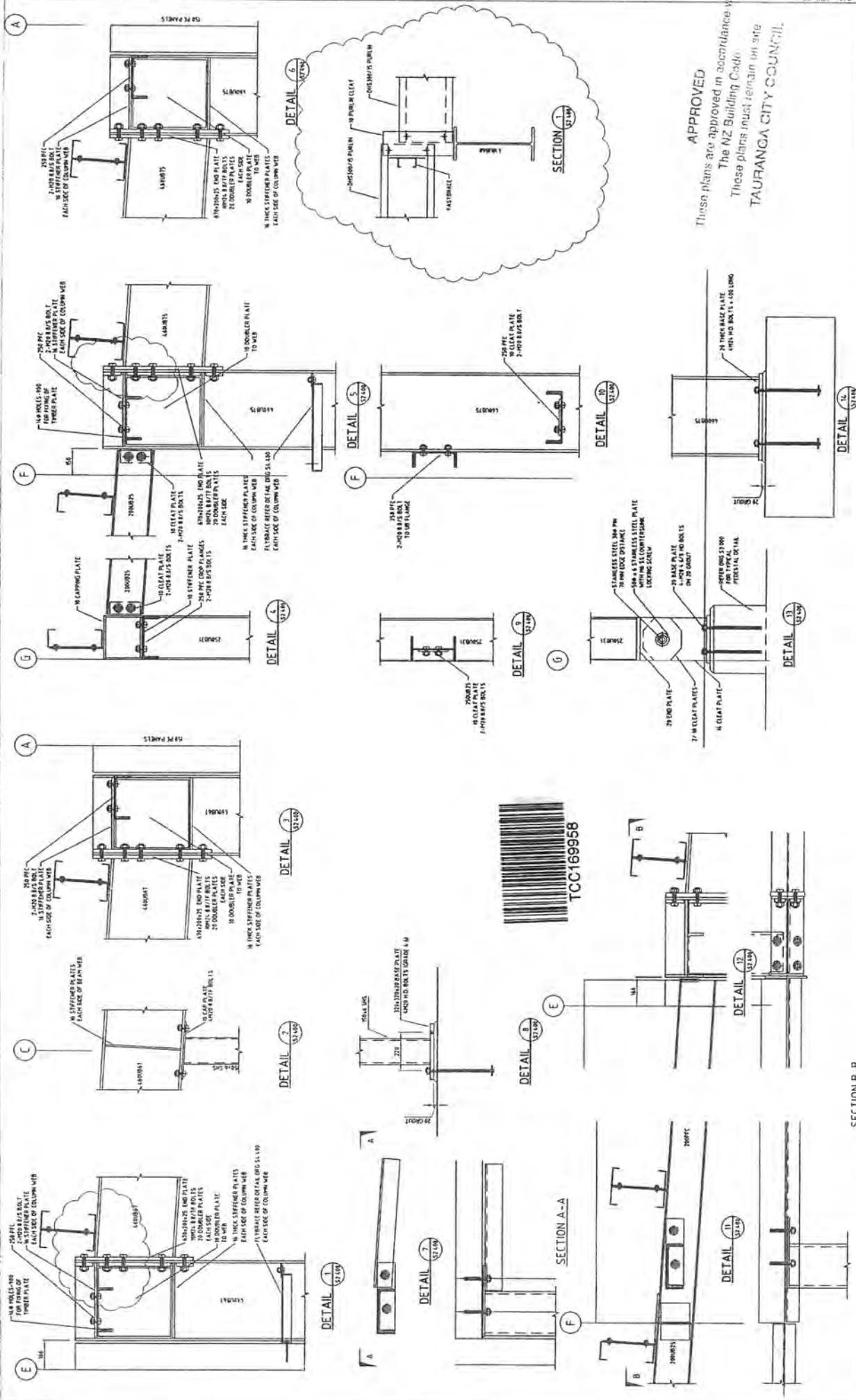


TCC169952

ELEVATION GRID 7
GRIDS 5-6 SIMILAR



CONSENT FOR CONSTRUCTION		Project No. B236		Sheet No. A1		Date 03	
Structural Block D Elevations		Drawing No. B236-S2.400		Scale 1:100 A1 1:200 A3		Date	
Bethlehem Shopping Centre Stage 2		Drawing Title		Date 09/08/06		Date 09/08/06	
AMP capital INVESTORS		Drawn GJD Checked DPL Verified PS Approved SJB		Signed GJD Signed DPL Signed PS Signed SJB		Date 09/08/06	
Rev Date Description		01 24.06.07 CONCRETE 02 09.08.06 TENDER 03 14.07.06 COORDINATION		01 24.06.07 CONCRETE 02 09.08.06 TENDER 03 14.07.06 COORDINATION		01 24.06.07 CONCRETE 02 09.08.06 TENDER 03 14.07.06 COORDINATION	



APPROVED
These plans are approved in accordance with
The NZ Building Code.
These plans must remain in force
TAURANGA CITY COUNCIL

Rev	Date	Revision Details	Des	Ver	App
02	21.08.96	CONSENT			
01	09.08.96	TRIGGER			

 Cornell Wagner Cornell Wagner Limited (Incorporated in the United Kingdom) 111 Littleton Road, Newport, New Zealand Telephone: +64 4 524 4119 Facsimile: +64 4 525 1176 Email: info@cornellwagner.co.nz		1. This document is issued for the purpose of providing information only. It is not intended to be used as a basis for any decision. The user of this document is responsible for ensuring that it is used in accordance with its intended purpose. 2. The user of this document is responsible for ensuring that it is used in accordance with its intended purpose.	
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Client:  AMP capital INVESTORS		Project: BETHLEHEM SHOPPING CENTRE STAGE 2	
Drawing Title: STRUCTURAL BLOCK D STEEL DETAILS SHEET 1		Drawn: G.D. Checked: D.P.L. Verified: P.B. Approved: S.H.B.	
Date: 09.08.96		Date: 09.08.96	

Project No: B236		Sheet No: A1	
Consent No: B236-S4.400		Rev: 02	

CONSENT

NOT FOR CONSTRUCTION

Description:

Block E was the second building in the second stage of the development of the site, following on from stage 1 which encompassed Blocks A, B and C. Block E was built after Block D, but some 9 years later, and appears to be a bespoke development for K-Mart. It was initially designed in 2006 by Ignite Architects and Connell Wagner did some initial structural engineering plans, sections, and details. It appears that the on-grade floor slab, and possibly the foundations for this original design were constructed, and although we cannot tell if any superstructure was built, we do know that the original slab was incorporated onto the current building, which has a significantly larger footprint than the original.

In 2014/2015 Ignite redesigned the building to the current K-Mart format and in a break from the traditional structural engineers used on this complex, (Connell Wagner), the structural engineering design was done by BCD Group. The geotechnical report that was done for Block E was also carried out by the same consultants. There are several iterations of the architectural drawings in the property file, and only the January 2015 drawings appear to accurately reflect the entire building as it now is. However, the BCD Group structural engineering drawings do replicate the current building, and we rely more heavily on these to carry out a robust assessment.

This is a rectangular single storey, pitched roof Block that is located along the northern boundary of the shopping complex with the eastern end of the building adjacent to Bethlehem Road. The building has its long axis orientated in a nominal east-west direction. It is a stand-alone building that has a car park frontage on the north, south and east sides. The south side was extended southward in the final design to form what was designated on the original architectural drawings as "Sleeve Retail". The west end of Block E has been constructed with an adequate seismic gap to Block D. Block E is seismically isolated from all other buildings.

This Block is a large sized foot-print single storey, pitched roof warehouse type building, with 12 bays in the east-west longitudinal direction and 4 bays in the north-south transverse direction. There is a canopy that continues fully along the southern elevation.

Construction of the warehouse type envelope consists of long-run metal roof sheeting over cold rolled steel purlins, supported on structural steel portal frame rafters, which are located on each primary transverse frame grid. In an unusual arrangement, that is perhaps a hangover from the original 2006 design, the primary transverse structural steel moment resisting portal frames occupy the internal second and third bays, with rafter extensions over the outer bays to the north and south. Therefore, the primary portal columns are on the internal grids and they are separated by a 125 x 6mm SHS column at approximately mid-span of the primary portal rafters. The outer sections of the rafter, north and south of the primary frame, are supported on either steel Universal Beam (UB) wind columns or SHS posts, and as such these columns do not significantly contribute to the lateral load resisting stiffness and strength.

All of the structural steel columns land on the conventional reinforced concrete pad foundations that are below the concrete on-grade slab, but unusually the primary moment resisting portal frame columns are shown in the frame elevations to have significant horizontal returns, running in the plane of the portal frames and encapsulated in reinforced concrete ground beam, under the floor slab, and referred to on the original foundation plan as "Stabiliser Beams". The strip footings and pad foundations that have been recorded as being reinforced concrete, there are comprehensive details in the set of structural drawings.

The canopy has cold rolled steel purlins, structural steel rafters, supported on steel columns and independent foundation pads. The canopy rafters are connected as an extension of the main structural rafters in the building envelope, and there 4 bays of significant longitudinal bracing and this provides adequate lateral stability.

Virtually all elevations have low height (generally varying between 2.4m and 4.0m above the finished floor level), 150mm thick precast reinforced concrete wall panels with light weight framed and lined walls above the panels. There is a combination of light weight wall panels and shop front glazing on the south elevation. The west elevation is recorded in the architectural drawings as "adjoining Building D". Wall section 09/A2101 in the Block E set of drawings, shows a 120 minute fire rated wall on the Block D side of the junction, which is presumably of light weight construction, in the Block E building there is a similar framed and lined wall, and there is seismic separation between the two. These walls will not affect the lateral load resistance of either Block.

There are 4 full bays of full width diagonal structural steel rod and double purlin roof bracing in the transverse direction with complimentary wall panels containing steel rod diagonal bracing. There are several sections of roof containing multiple bays of bracing in the longitudinal direction. There are substantial SHS 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 braced wall panels.

The on-grade floor slab consists of a conventional ductile mesh reinforced 125mm thick on-grade slab and details show how this has been stitched to the remaining section of slab from the earlier construction. All of these details are robust.

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 diagonal structural steel wall bracing 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 noted that these have a sub-floor return beam as mentioned earlier, and this would have been used to increase the stiffness and lateral load resisting capacity of the primary steel 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. The structural system appears to be well refined and does not appear to include any lateral load resisting redundancies.

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

The structural engineering drawings are comprehensive and that 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.

There are no alterations or modifications to the building recorded in the documentation that we hold.

Seismic Assessment:

We have used the following parameters in the ISA assessment.

- 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 structural steel diagonally braced wall panels acting in the longitudinal direction. In the transverse direction there are structural steel moment resisting portal frames, but the base detailing suggests that the natural period would be unlikely to be above the default minimum for these elements).
- Building Importance Level 2.
- Structural Ductility factor 1.25 (this is based on the in-plane loaded diagonal steel braced roof and wall panels in the longitudinal direction and this may be conservative for the structural steel portal frames in the transverse direction).
- Plan irregularity 1.0 (this value has been selected because of the symmetrical arrangement of the lateral load resisting systems in both directions).
- 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/diminishment 'other' factor of 1.0 which is because the longitudinal direction will be critical and there are no significant lateral load resisting redundancies in this building structure).

Seismic Rating and Grade:

The Baseline rating of 100% NBS is not modified by the Performance Achievement Ratio of 1.0 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.

Page 1

Street Number & Name:	Bethlehem Shopping Centre	Job No.:	2470
AKA:		By:	SME
Name of building:	Block E	Date:	12/04/2021
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.

☐	
☒	
☐	

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 E	Date:	12/04/2021
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, Cl 3.1.3 :

D Soft Soil

From NZS4203:1992, Cl 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 = 6A_c = 1.00

6 m

1.00 m

- 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: $T = \max(0.09h_n^{0.75}/A_c^{0.6}, 0.4)$ ☐
- 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 E	Date:	12/04/2021
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

 $= IR_o/R$

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)

 $= k_u$

For 1976 onwards

 $= 1$

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%

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 E	Date:	12/04/2021
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

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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 E	Date:	12/04/2021
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

Factors

potential CSWs

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

3.1 Plan Irregularity

Effect on Structural Performance ☐ Severe☐ Significant☒ Insignificant

Factor A 1.0

Comment

3.2 Vertical Irregularity

Effect on Structural Performance ☐ Severe☐ Significant☒ Insignificant

Factor B 1.0

Comment

3.3 Short Columns

Effect on Structural Performance ☐ Severe☐ Significant☒ Insignificant

Factor C 1.0

Comment

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	Separation		
	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

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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 E	Date:	12/04/2021
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

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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 E	Date:	12/04/2021
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. Loose column bases

IEP Assessment Confirmed by  Signature

S R Mitchell

Name

70562

CPEng. No

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1. DO NOT SCALE OFF DRAWINGS.
2. CONTRACTOR SHALL VERIFY AND BE RESPONSIBLE FOR THE ACCURACY OF ALL DIMENSIONS AND LOCATIONS OF EXISTING AND PROPOSED STRUCTURES AND UTILITIES.
3. ARCHITECTS TO THE EFFECT OF ANY VARIATION BETWEEN SITE DIMENSIONS AND THOSE ON PLANS.

BUILDING CONSENT

No.	Description	Date
1	RECEIVED	10/01/2015
2	RECEIVED	10/01/2015
3	RECEIVED	10/01/2015
4	RECEIVED	10/01/2015
5	RECEIVED	10/01/2015
6	RECEIVED	10/01/2015
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100	RECEIVED	10/01/2015

APPROVED
This drawing is approved in accordance with the provisions of the Building Act 2004 and the Building Regulations 2006.



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AMP CAPITAL PROPERTY PORTFOLIO LTD

BETHLEHEM TOWN CENTRE
STATE HIGHWAY 2

AMART STORE NUMBER: 8217
Drawing title: **GRID SET OUT PLAN**

REFER TO AMART STANDARD DRAWINGS AS BASE FOR THIS DRAWING
DRAWING NUMBER: **TCC045052**
BASE DRAWING DATE:

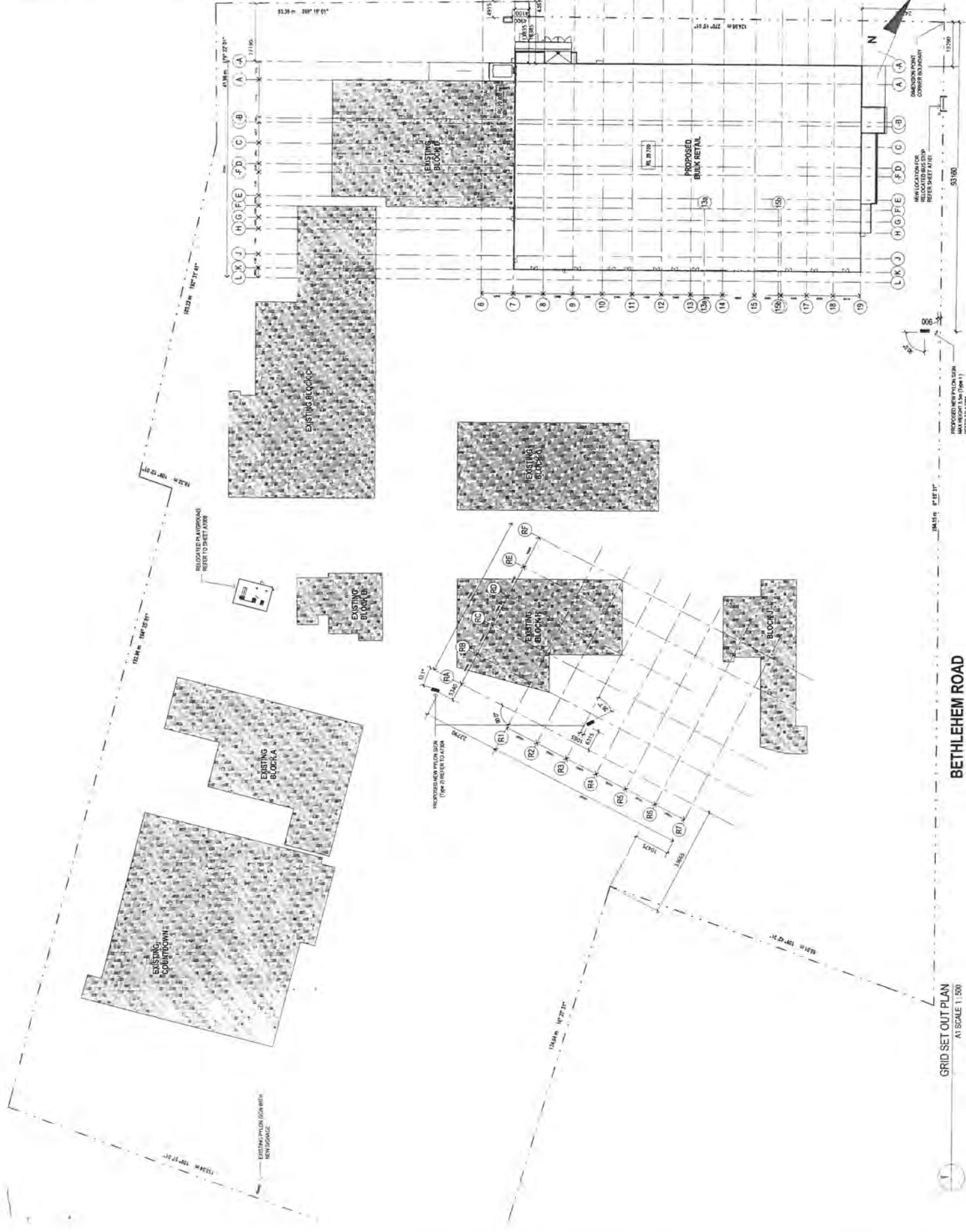
CA: **MS**
SP: **1:500**
DATE: **JAN 2015**
PROJECT NUMBER: **0457-046**
A1201

APPROVED
DATE: **10/01/2015**
BY: **MS**

DESIGNED BY: **MS**
CHECKED BY: **MS**
DATE: **10/01/2015**

PROJECT NUMBER: **0457-046**
A1201

PROJECT TITLE: **BETHLEHEM TOWN CENTRE**



GRID SET OUT PLAN
AT SCALE 1:500

BETHLEHEM ROAD

Item	Description	Unit	Qty	Date
A	DELIVERED DISBUR			1/18/2015
B	BUILDING CONSENT			2/18/2015

GENERAL NOTES

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Item	Description	Qty	Unit	Date
A	REVENUE/RENTAL	28		30/01/2015
B	BUILDING CONSENT	100		25/02/2015



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BETHLEHEM TOWN CENTRE
STATE HIGHWAY 2 6217

ELEVATIONS



REFER TO QUART
STANDARD DRAWINGS AS
BASE FOR THIS DRAWING
QUART STANDARD
DRAWING NUMBER
TCC845088

BASE DRAINING DATE:

Field No.	Diam	Checked
GA	DDK	MG
(Project Component)	Score	
JAN 2015	As indicated	A1

0457-046	A2001	B
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[illegible]

1004

[illegible]

Qty	Description	By	Date
1	BUILDING CONSENT	AM	2003/07/15

Kmart



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Project Name
BETHLEHEM TOWN CENTRE
STATE HIGHWAY 2

JOURNAL OF DOCUMENTATION
vol. 62, no. 1, pp. 82-117, 2007
doi:10.1017/S0022243X07003917
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ELEVATIONS

ELEVATIONS
REFER TO ADJACENT
STANDARD DRAWINGS AS
BASE FOR THIS DRAWING.

PROJECT STAMPED
DRAWING NUMBER
DATE DRAWING DATE

Site/Height	Drawn	Drawn
GA	SP	MC
Project/Component	Scale	Date
JAN 2015	1:100	A1
Project Number	Drawing Number	Revision
0457-046	A2005	A

15771100



SECTION 1 - PART 2
A1 SCALE 1:100

GENERAL NOTES:

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3. ARCHITECTS TO BE NOTIFIED OF ANY VARIATION BETWEEN SITE DIMENSIONS AND THOSE ON PLANS

BUILDING'S CONSENT		
No.	Description	Date
A	REVIEW AND APPROVAL	20/11/2011
B	BUILDING CONSENT	14/12/2011

APPROVED



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ETHLEHEM TOWN CENTRE
DATE LISTENED TO

DATE HIGHWAY 2	8217
MARKET STORE NUMBER	8217

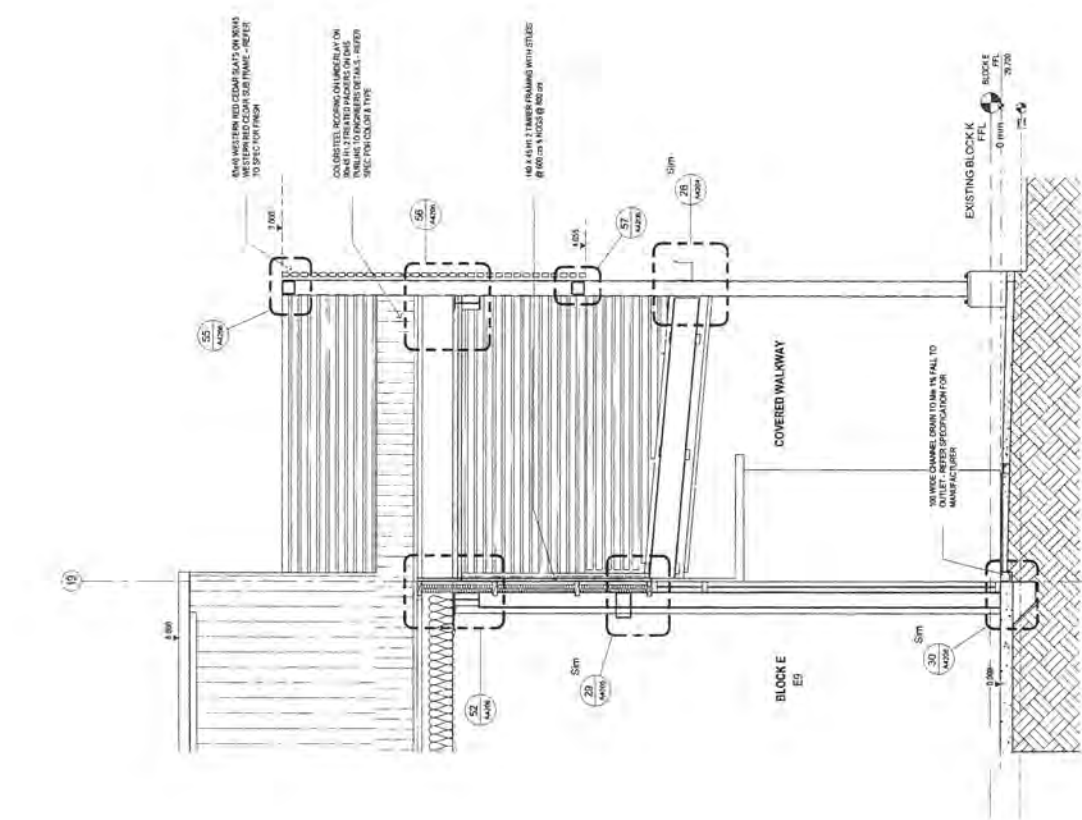
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FER TO QUART
AND DRAWINGS AS
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ART STANDARD
DRAWING NUMBER

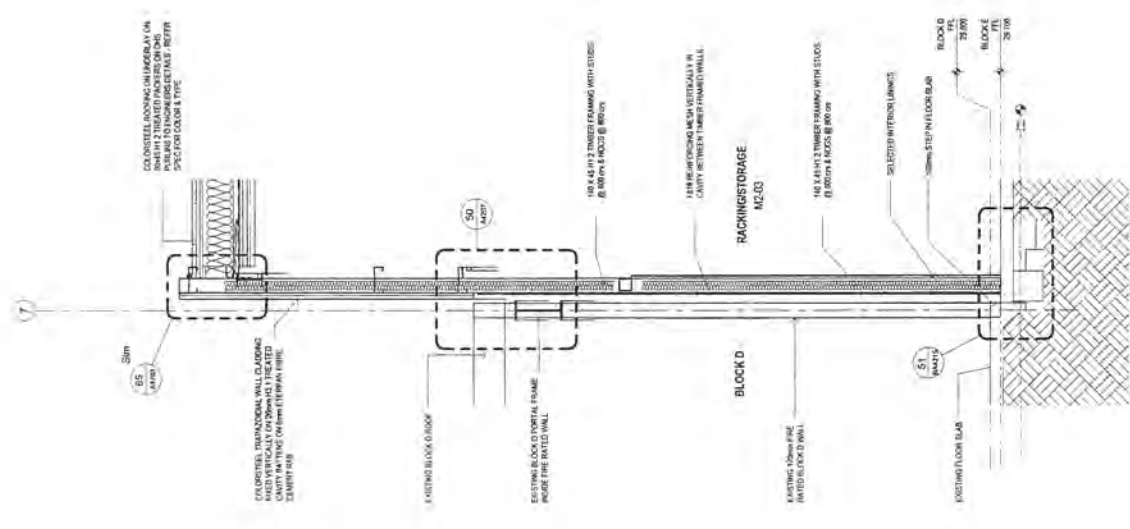
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Project Commercial		
WIN 2015	1-25	A1
Project Number	Drawing Number	Notes
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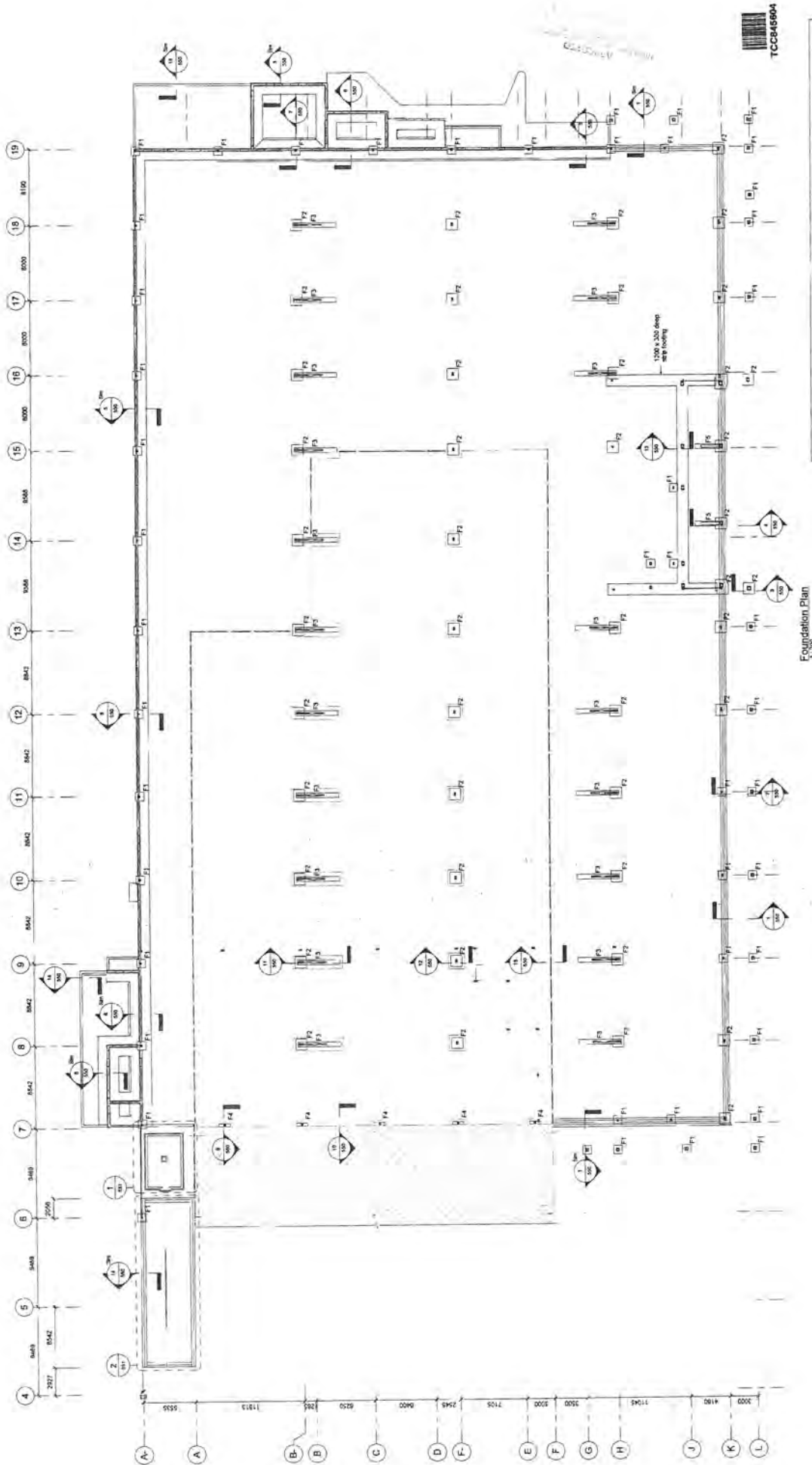
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12
A1302



09 WALL SECTION 09
A2101 A1 SCALE 1:25



TC0846804

FOR INFORMATION 20/03/15

DATE: 20/03/15

BY: [Signature]

FOR: [Signature]

SCALE: 1:200

AT: [Signature]

1

501

13-324

FOUNDATION PLAN

BULK RETAIL TENANCY

BETHLEHEM TOWN CENTRE

BCD GROUP

CONSTRUCTION

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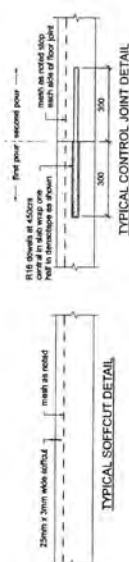
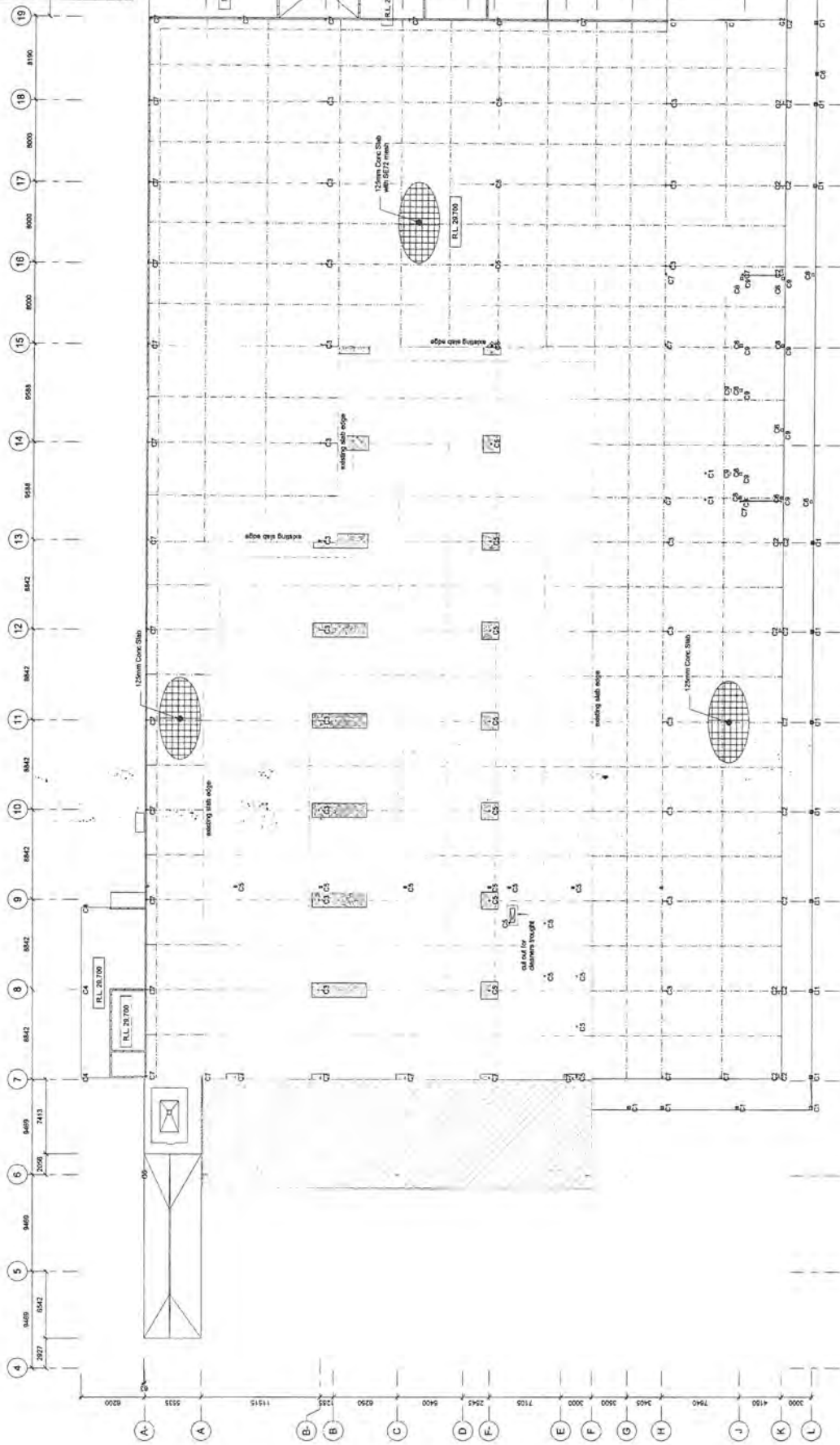
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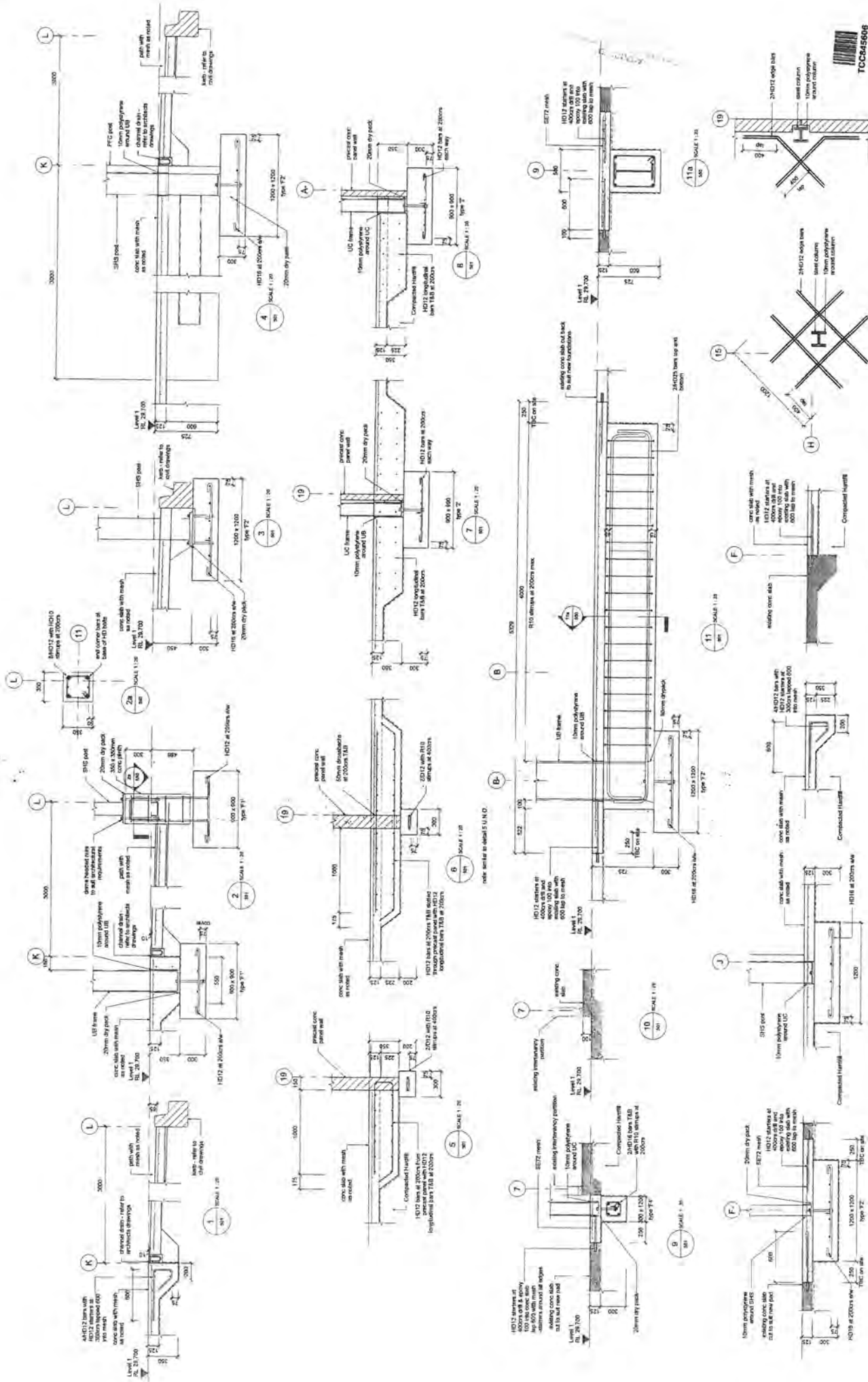
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1:200

Structural Column Schedule	
Type Mark	Type
C1	350 x 350mm
C2	nr. 150x6 SHS
C3	nr. 250x8 SHS
C4	nr. 450x8 SHS
C5	nr. 450x8 SHS
C6	nr. 450x8 SHS
C7	nr. 450x8 SHS
C8	nr. 450x8 SHS
C9	nr. 450x8 SHS
C10	nr. 450x8 SHS
C11	nr. 450x8 SHS



FOR INFORMATION 20/03/15 STRUCTURAL FLOOR PLAN BULK RETAIL TENANCY BETHLEHEM TOWN CENTRE BCD GROUP 1. BCD GROUP (Pty) Ltd 2. BCD GROUP (Pty) Ltd 3. BCD GROUP (Pty) Ltd		13-324 502 1
1. 20/03/15 2. 20/03/15 3. 20/03/15	1. 20/03/15 2. 20/03/15 3. 20/03/15	1. 20/03/15 2. 20/03/15 3. 20/03/15



Typical Steel Column Edge Bar Detail

FOR INFORMATION 20/03/15

FOUNDATION DETAILS

BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE



BCD GROUP
Structural Engineering and Building
100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135, 136, 137, 138, 139, 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205, 206, 207, 208, 209, 210, 211, 212, 213, 214, 215, 216, 217, 218, 219, 220, 221, 222, 223, 224, 225, 226, 227, 228, 229, 230, 231, 232, 233, 234, 235, 236, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 257, 258, 259, 260, 261, 262, 263, 264, 265, 266, 267, 268, 269, 270, 271, 272, 273, 274, 275, 276, 277, 278, 279, 280, 281, 282, 283, 284, 285, 286, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 297, 298, 299, 300, 301, 302, 303, 304, 305, 306, 307, 308, 309, 310, 311, 312, 313, 314, 315, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 336, 337, 338, 339, 340, 341, 342, 343, 344, 345, 346, 347, 348, 349, 350, 351, 352, 353, 354, 355, 356, 357, 358, 359, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 371, 372, 373, 374, 375, 376, 377, 378, 379, 380, 381, 382, 383, 384, 385, 386, 387, 388, 389, 390, 391, 392, 393, 394, 395, 396, 397, 398, 399, 400, 401, 402, 403, 404, 405, 406, 407, 408, 409, 410, 411, 412, 413, 414, 415, 416, 417, 418, 419, 420, 421, 422, 423, 424, 425, 426, 427, 428, 429, 430, 431, 432, 433, 434, 435, 436, 437, 438, 439, 440, 441, 442, 443, 444, 445, 446, 447, 448, 449, 450, 451, 452, 453, 454, 455, 456, 457, 458, 459, 460, 461, 462, 463, 464, 465, 466, 467, 468, 469, 470, 471, 472, 473, 474, 475, 476, 477, 478, 479, 480, 481, 482, 483, 484, 485, 486, 487, 488, 489, 490, 491, 492, 493, 494, 495, 496, 497, 498, 499, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509, 510, 511, 512, 513, 514, 515, 516, 517, 518, 519, 520, 521, 522, 523, 524, 525, 526, 527, 528, 529, 530, 531, 532, 533, 534, 535, 536, 537, 538, 539, 540, 541, 542, 543, 544, 545, 546, 547, 548, 549, 550, 551, 552, 553, 554, 555, 556, 557, 558, 559, 560, 561, 562, 563, 564, 565, 566, 567, 568, 569, 570, 571, 572, 573, 574, 575, 576, 577, 578, 579, 580, 581, 582, 583, 584, 585, 586, 587, 588, 589, 590, 591, 592, 593, 594, 595, 596, 597, 598, 599, 600, 601, 602, 603, 604, 605, 606, 607, 608, 609, 610, 611, 612, 613, 614, 615, 616, 617, 618, 619, 620, 621, 622, 623, 624, 625, 626, 627, 628, 629, 630, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 642, 643, 644, 645, 646, 647, 648, 649, 650, 651, 652, 653, 654, 655, 656, 657, 658, 659, 660, 661, 662, 663, 664, 665, 666, 667, 668, 669, 670, 671, 672, 673, 674, 675, 676, 677, 678, 679, 680, 681, 682, 683, 684, 685, 686, 687, 688, 689, 690, 691, 692, 693, 694, 695, 696, 697, 698, 699, 700, 701, 702, 703, 704, 705, 706, 707, 708, 709, 710, 711, 712, 713, 714, 715, 716, 717, 718, 719, 720, 721, 722, 723, 724, 725, 726, 727, 728, 729, 730, 731, 732, 733, 734, 735, 736, 737, 738, 739, 740, 741, 742, 743, 744, 745, 746, 747, 748, 749, 750, 751, 752, 753, 754, 755, 756, 757, 758, 759, 760, 761, 762, 763, 764, 765, 766, 767, 768, 769, 770, 771, 772, 773, 774, 775, 776, 777, 778, 779, 780, 781, 782, 783, 784, 785, 786, 787, 788, 789, 790, 791, 792, 793, 794, 795, 796, 797, 798, 799, 800, 801, 802, 803, 804, 805, 806, 807, 808, 809, 810, 811, 812, 813, 814, 815, 816, 817, 818, 819, 820, 821, 822, 823, 824, 825, 826, 827, 828, 829, 830, 831, 832, 833, 834, 835, 836, 837, 838, 839, 840, 841, 842, 843, 844, 845, 846, 847, 848, 849, 850, 851, 852, 853, 854, 855, 856, 857, 858, 859, 860, 861, 862, 863, 864, 865, 866, 867, 868, 869, 870, 871, 872, 873, 874, 875, 876, 877, 878, 879, 880, 881, 882, 883, 884, 885, 886, 887, 888, 889, 890, 891, 892, 893, 894, 895, 896, 897, 898, 899, 900, 901, 902, 903, 904, 905, 906, 907, 908, 909, 910, 911, 912, 913, 914, 915, 916, 917, 918, 919, 920, 921, 922, 923, 924, 925, 926, 927, 928, 929, 930, 931, 932, 933, 934, 935, 936, 937, 938, 939, 940, 941, 942, 943, 944, 945, 946, 947, 948, 949, 950, 951, 952, 953, 954, 955, 956, 957, 958, 959, 960, 961, 962, 963, 964, 965, 966, 967, 968, 969, 970, 971, 972, 973, 974, 975, 976, 977, 978, 979, 980, 981, 982, 983, 984, 985, 986, 987, 988, 989, 990, 991, 992, 993, 994, 995, 996, 997, 998, 999, 1000

NO.	REVISION	DATE	BY	CHKD
1	ISSUED FOR BUILDING CONTRACT			

1	550	13-324
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1	550	13-324
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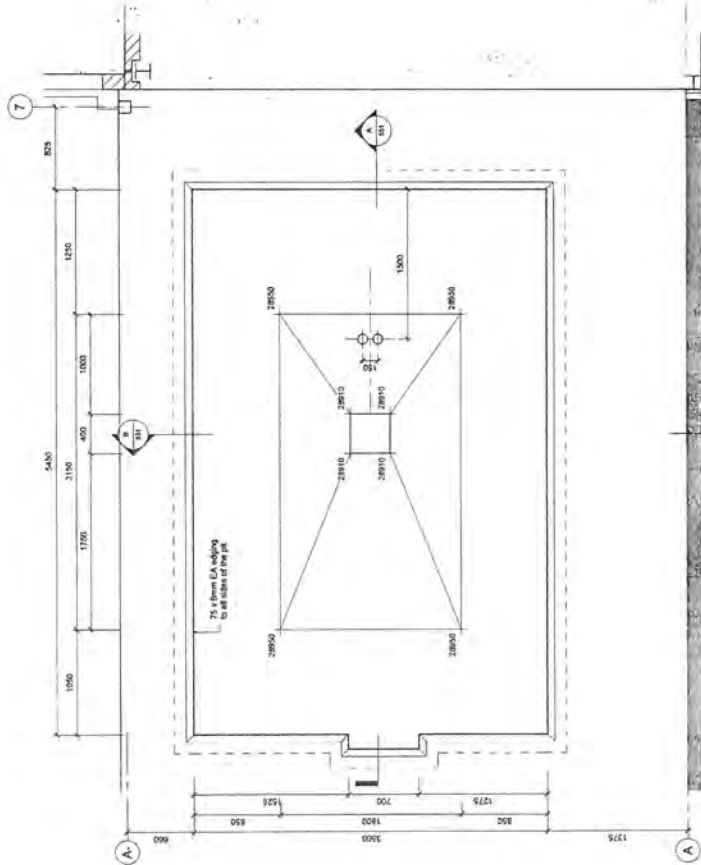
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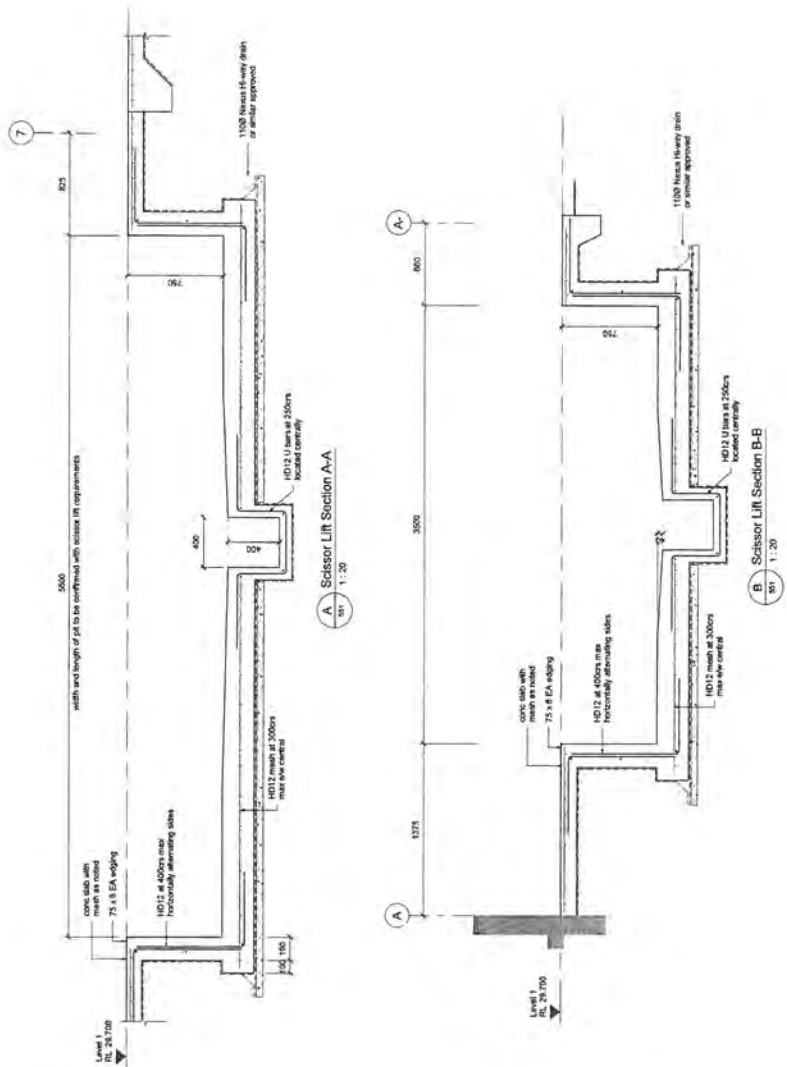
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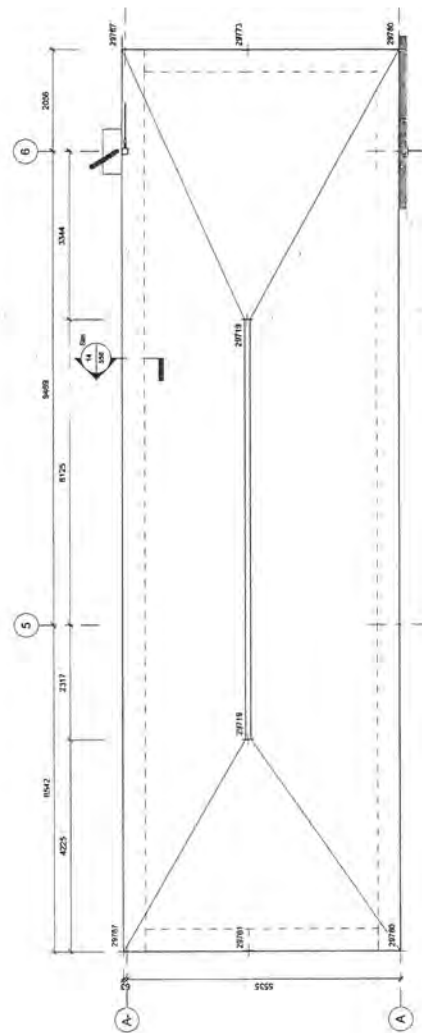
1	550	13-324
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1 Scissor Lift PIR
Scale: 1:25



A Scissor Lift Section A-A
Scale: 1:20



2 Truck Hard Stand
Scale: 1:50

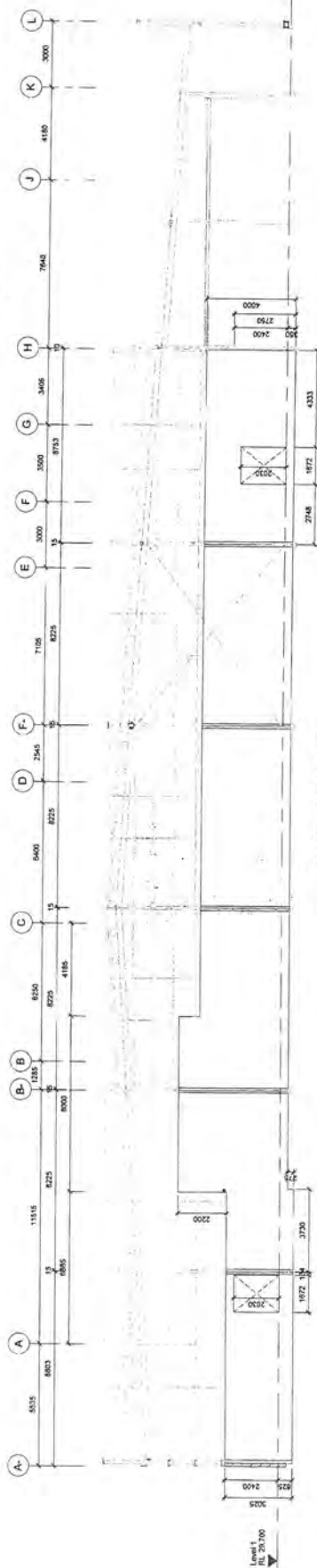
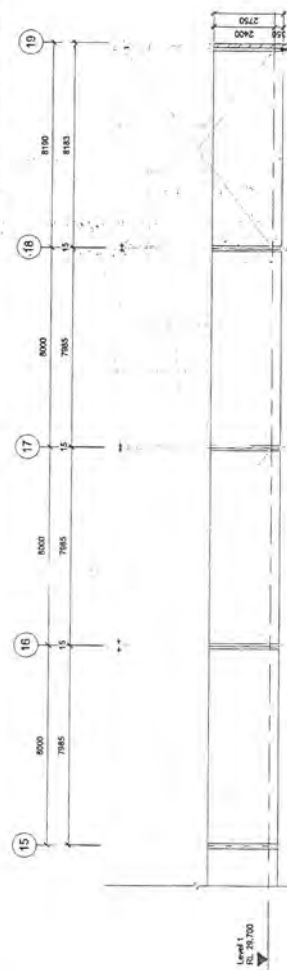
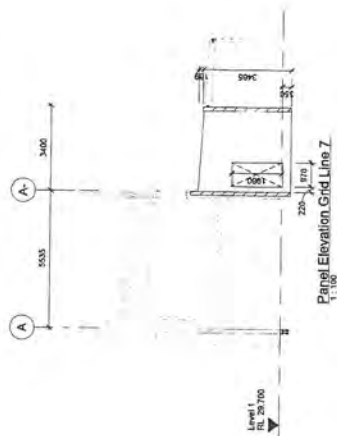


B Scissor Lift Section B-B
Scale: 1:20



TCC045607

FOR INFORMATION 20/03/15				FOR INFORMATION 20/03/15			
Project Details				Project Details			
BULK RETAIL TENANCY BETHLEHEM TOWN CENTRE				BULK RETAIL TENANCY BETHLEHEM TOWN CENTRE			
Foundation Details				Foundation Details			
1				1			
2				2			
3				3			
4				4			
5				5			
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7				7			
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100				100			



all dimensions to be verified on site before making any shop drawings or commencing any work.

FOR INFORMATION 20/03/15

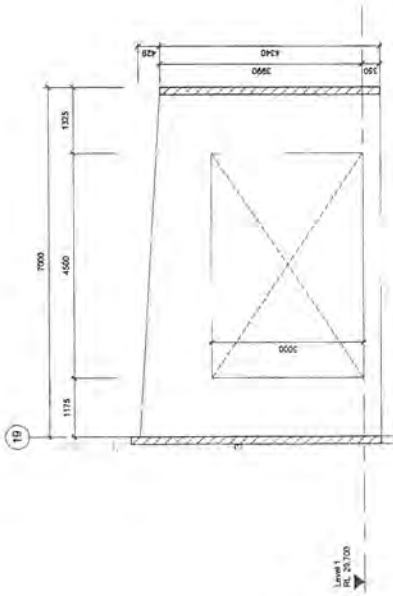
**BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE**

PRECAST CONCRETE PANEL ELEVATIONS

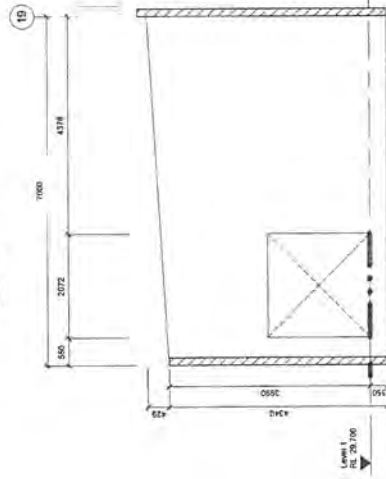
BCD GROUP
Building Empires and Processes
Independent since 1982

13-324	600	1
13-324	600	1

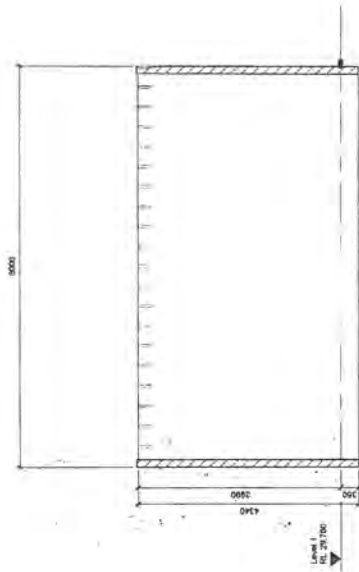
1	240015	L.B.	FOR BUILDING COMPONENT
REV	DATE	BY	REASON



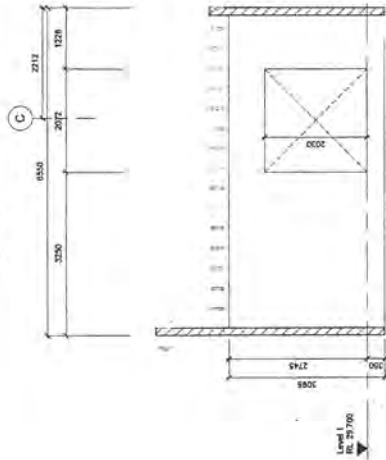
F Concrete Panel Elevation F
602 1:50



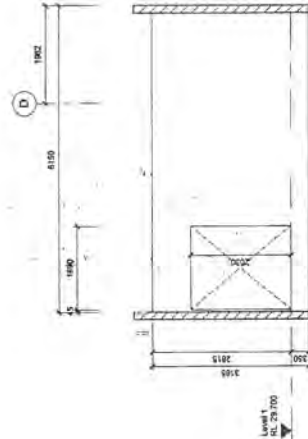
H Concrete Panel Elevation H
602 1:50



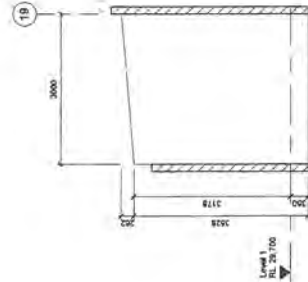
G Concrete Panel Elevation G
602 1:50



J Concrete Panel Elevation J
602 1:50

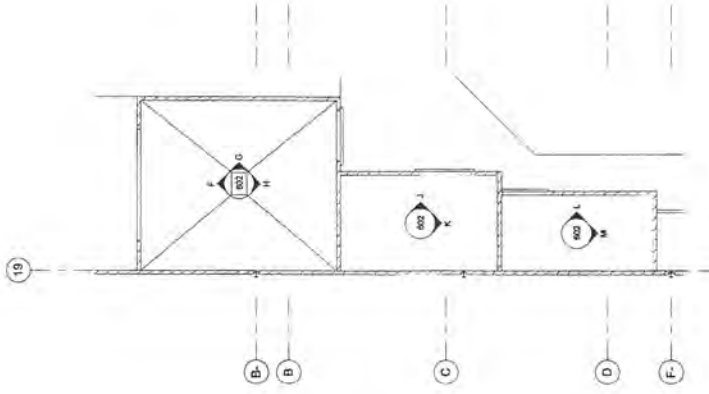


L Concrete Panel Elevation L
602 1:50



M Concrete Panel Elevation M
602 1:50

Key Plan 02



TCC845810

FOR INFORMATION 20/03/15

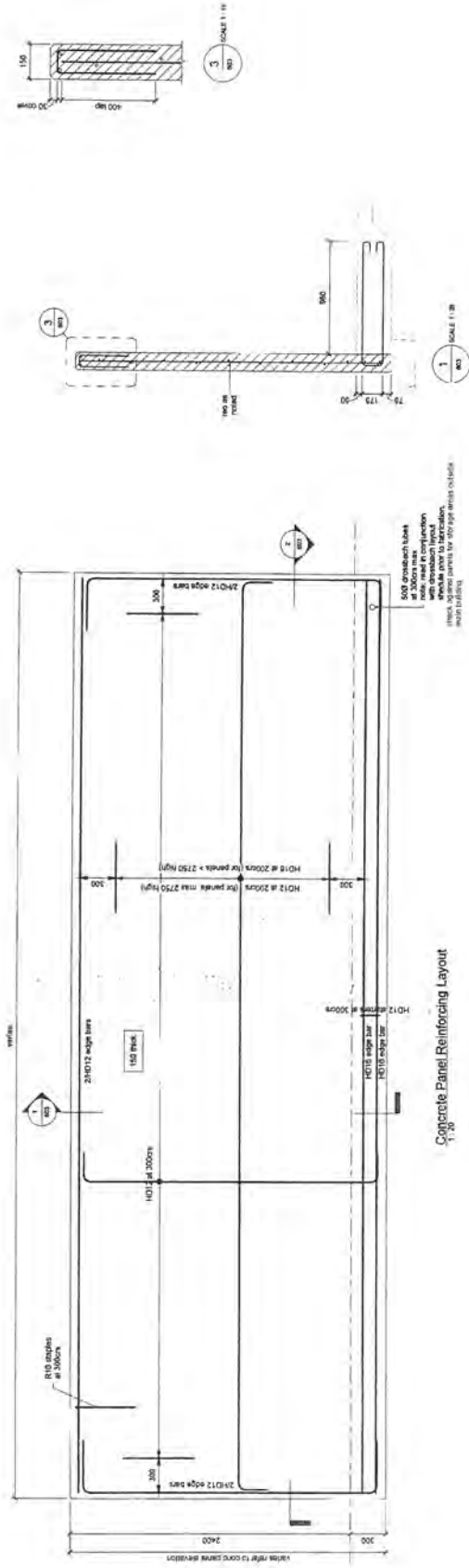
BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE



Project Name	Author	Scale	As Issued	Sheet No.	602	1
13-324						

all dimensions to be verified on site before building any other structure or commencing any work.

Rev	Description	Date
1	30/03/15	1:50



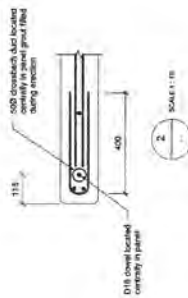
2 SCALE 1:20

TCC845811

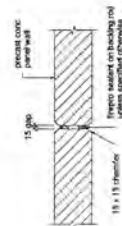
FOR INFORMATION 20/03/15				BULK RETAIL TENANCY BETHLEHEM TOWN CENTRE				FOR INFORMATION 20/03/15			
CONCRETE PANEL REINFORCING ELEVATIONS AND DETAILS				BULK RETAIL TENANCY BETHLEHEM TOWN CENTRE				CONCRETE PANEL REINFORCING ELEVATIONS AND DETAILS			
13-324				13-324				13-324			
603				603				603			
1				1				1			



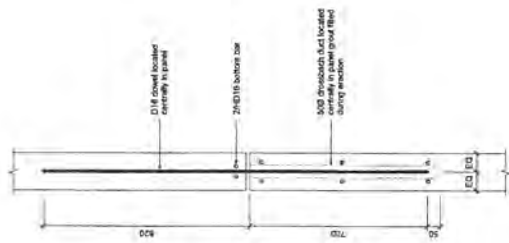
Typical Drossbach Detail
1:10



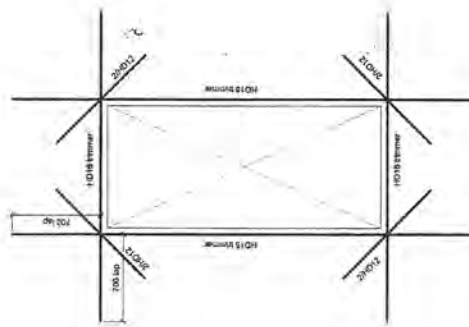
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SCALE 1:10



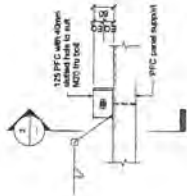
Typical Panel Joint
1:10



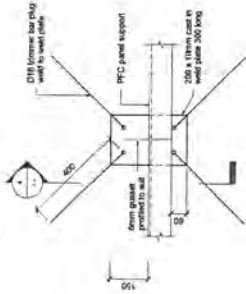
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SCALE 1:10



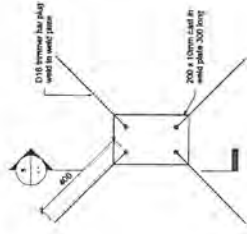
Typical Precast Panel Opening Reinforcement
1:20



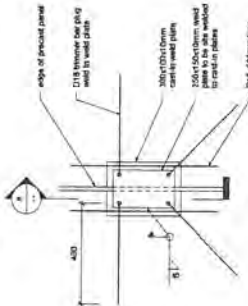
P1 - PEC Panel Support 125 PEC Connection
1:10



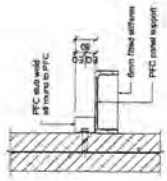
P2 - PEC Panel Support Cast-in Weld Plate
1:10



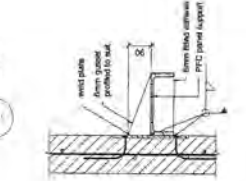
P3 - Cast-in Weld Plate For Steel Connection
1:10



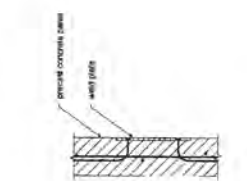
P4 - Cast-in Weld Plate Panel Connection
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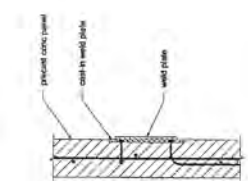
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SCALE 1:10



A
SCALE 1:10



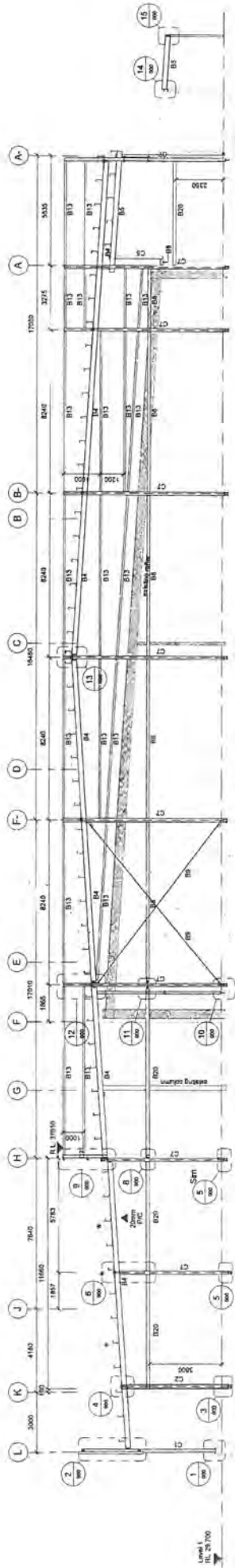
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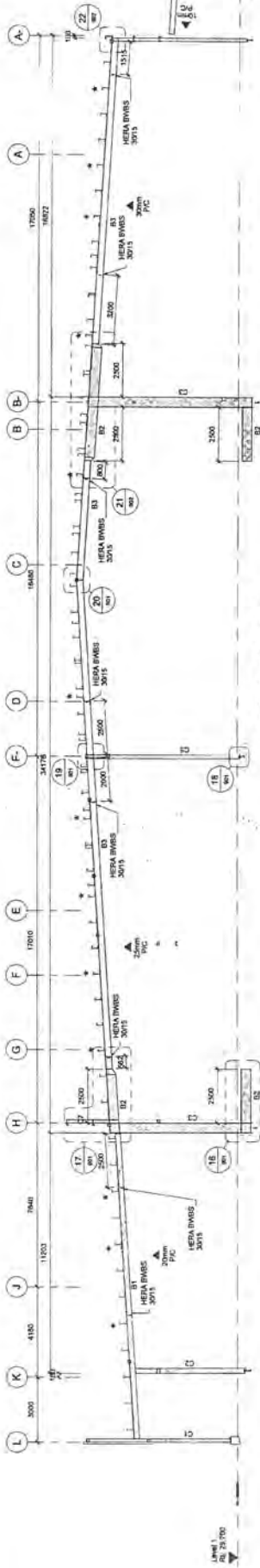
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SCALE 1:10



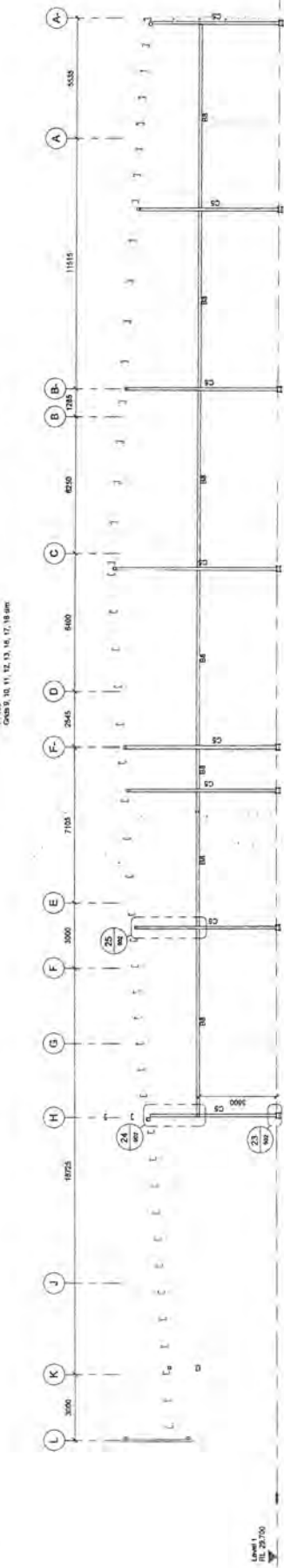
FOR INFORMATION 20/03/15			
STANDARD PRECAST CONCRETE PANEL CONNECTION DETAILS			
BULK RETAIL TENANCY BETHLEHEM TOWN CENTRE			
Project Name			
Project Address			
Scale 1:10			
Sheet No.			
Revision			
13-324			
604			
1			



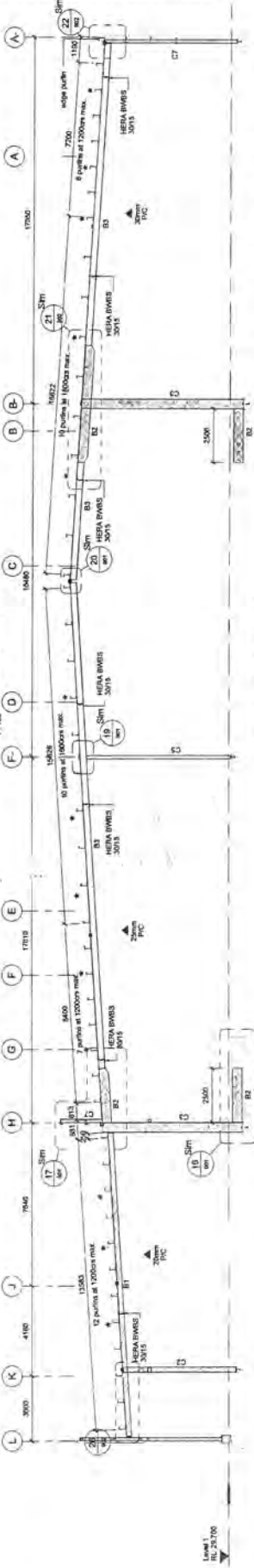
Steel Elevation Grid Line 7



Steel Elevation Grid Line 8



Steel Elevation Grid Line 9



Steel Elevation Grid Line 13

Structural Column Schedule

Type Mark	Type
C1	350 x 350mm
C2	ex. 150x6 SHS
C3	ex. 250x8 SHS
C4	ex. 400x8 SHS
C5	ex. 400x8 SHS
C6	ex. 400x8 SHS
C7	ex. 400x8 SHS
C8	ex. 400x8 SHS
C9	ex. 400x8 SHS
C10	ex. 400x8 SHS
C11	ex. 400x8 SHS

Structural Framing Schedule

Type Mark	Type
B1	ex. 250x8 SHS
B2	ex. 400x8 SHS
B3	ex. 400x8 SHS
B4	ex. 400x8 SHS
B5	ex. 400x8 SHS
B6	ex. 400x8 SHS
B7	ex. 400x8 SHS
B8	ex. 400x8 SHS
B9	ex. 400x8 SHS
B10	ex. 400x8 SHS
B11	ex. 400x8 SHS
B12	ex. 400x8 SHS
B13	ex. 400x8 SHS
B14	ex. 400x8 SHS
B15	ex. 400x8 SHS
B16	ex. 400x8 SHS
B17	ex. 400x8 SHS
B18	ex. 400x8 SHS
B19	ex. 400x8 SHS
B20	ex. 400x8 SHS
B21	ex. 400x8 SHS

FOR INFORMATION 20/03/15

13-324

800

1

STEEL ELEVATIONS

TCC845616

BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

BCD GROUP

Consulting Engineers and Architects

at all dimensions to the center of the column unless otherwise indicated.

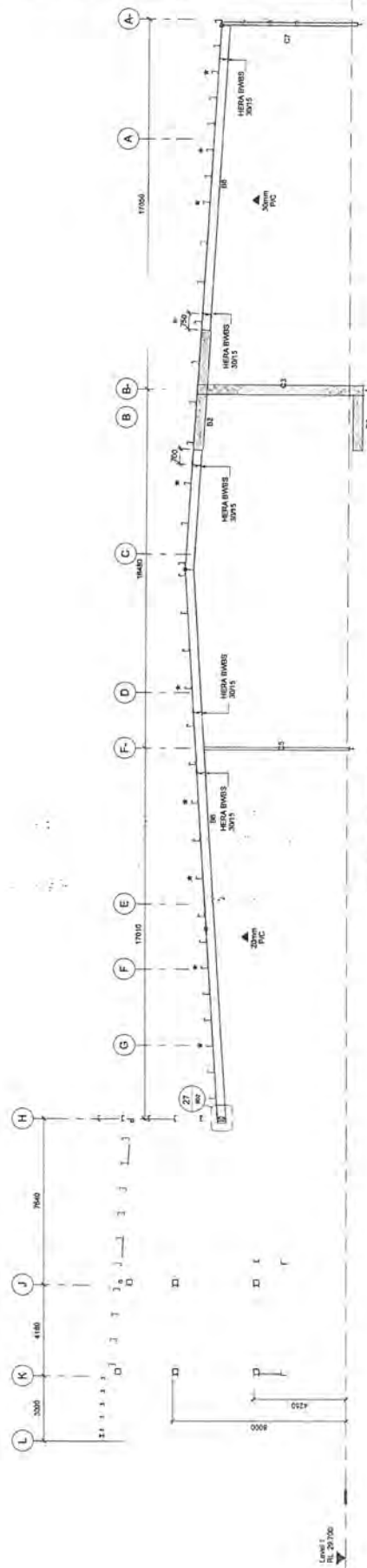
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Level 1 RL 24700

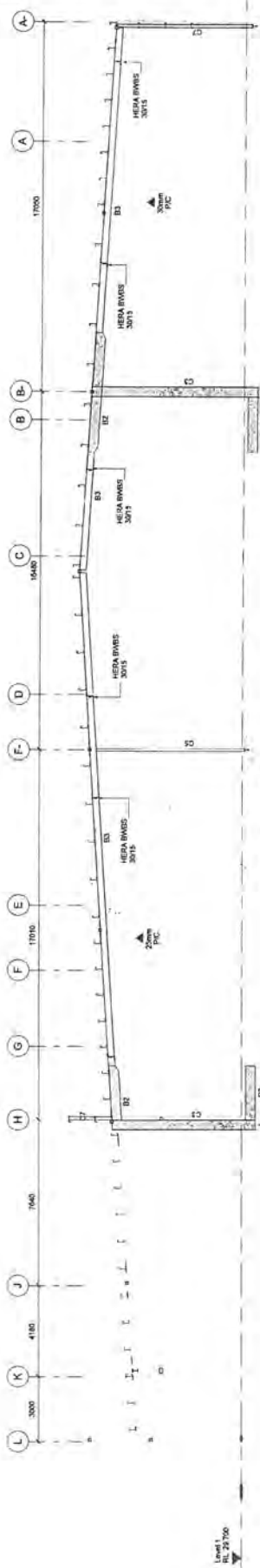
Structural Column Schedule	
Type Mark	Type
C1	350 x 350mm
C2	ex. 150x6 SHS
C3	ex. 250UB31
C4	ex. 400UB75
C5	ex. 450SHS
C6	ex. 450SHS
C7	ex. 450SHS
C8	ex. 450SHS
C9	ex. 450SHS
C10	ex. 450SHS
C11	ex. 450SHS

Structural Framing Schedule	
Type Mark	Type
B1	DHS300
B2	ex. 250UB31
B3	ex. 400UB75
B4	310UB40
B5	250UB23
B6	250UB23
B7	150 x 6 SHS
B8	125 x 6 SHS
B9	RB200
B10	RB16
B11	RB25
B12	250 PFC
B13	250 DHS 16
B14	250UC73
B15	150UC30
B16	250 x 9 SHS
B17	150 PFC
B18	RHS250x150x5
B19	300 DHS 15

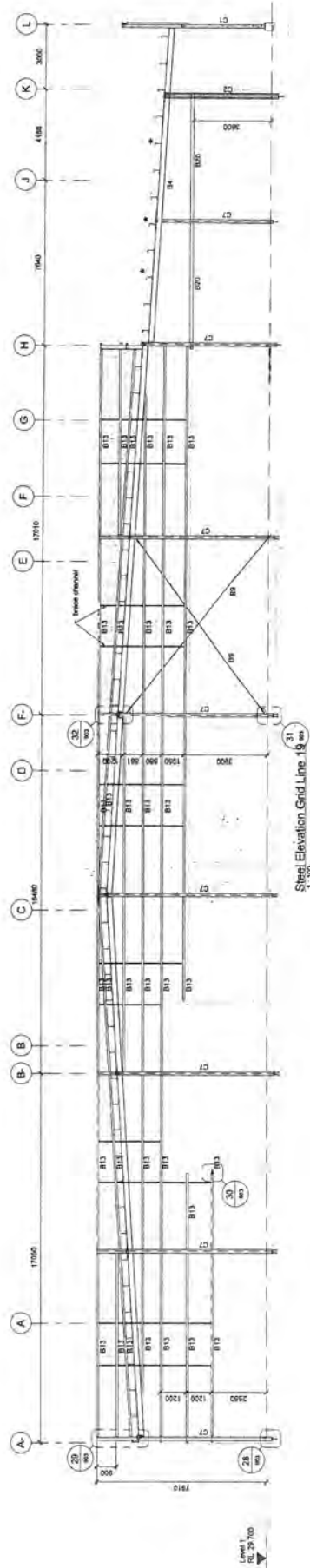
* = location of fly brace



Steel Elevation Grid Line 14
1:100



Steel Elevation Grid Line 16
1:100



Steel Elevation Grid Line 19
1:100

TCC845617

ALL dimensions to be verified on site before making any shop drawings or commencing any work.

PROJECT NO. 20/03/15

DATE 1: 100

NO.	REVISION	DATE	BY
1	ISSUED FOR CONSTRUCTION		



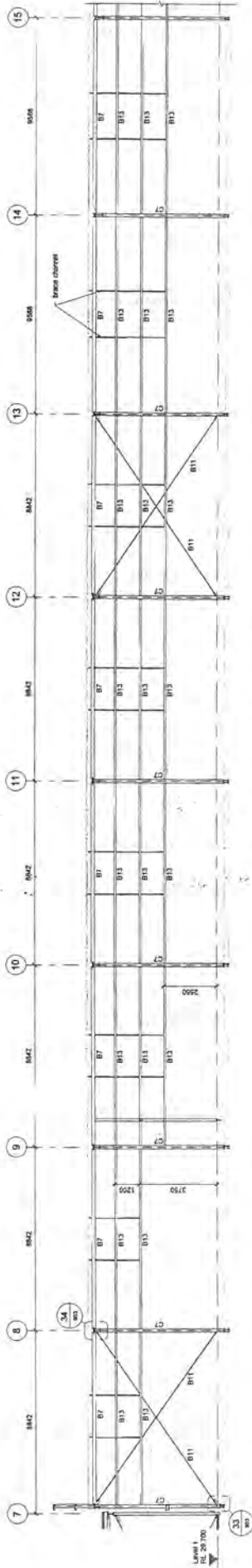
BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

FOR INFORMATION

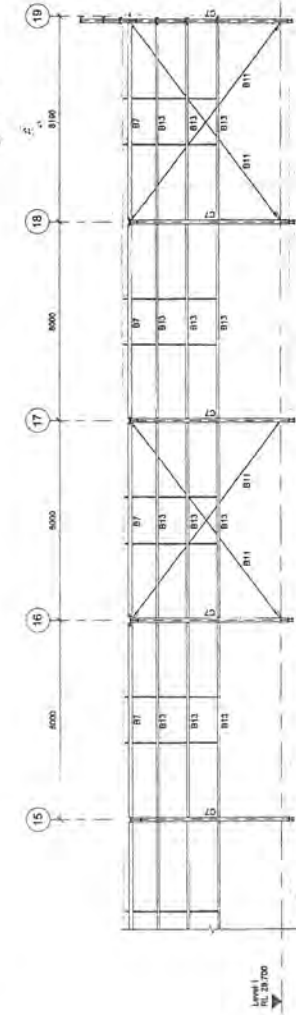
13-324

801

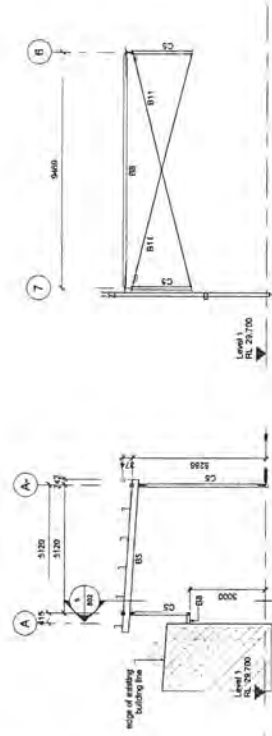
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Steel Elevation Grid Line A- Between Grids 7-15



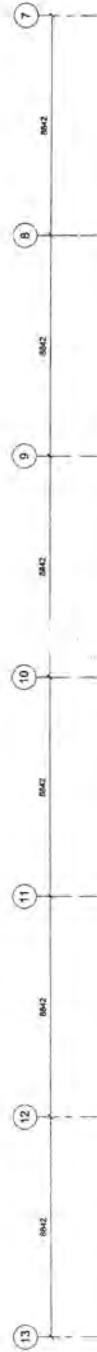
Steel Elevation Grid Line A- Between Grids 15-19



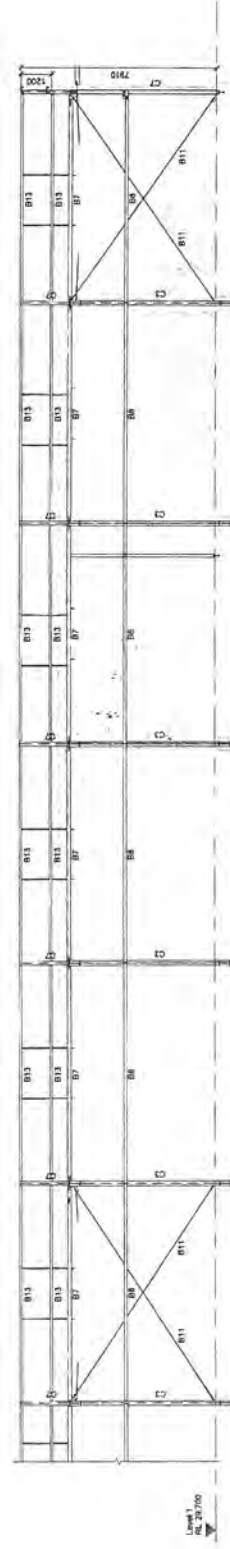
Steel Section G-G

Steel Elevation Grid Line G

note: steel elevation grid line T similar



Steel Elevation Grid Line H Between Grids 7-13



Type Mark	Type
C1	350 x 350mm ex. 250 SHS
C2	ex. 250 SHS
C3	ex. 400 SHS
C4	ex. 400 SHS
C5	125x8 SHS
C6	250x8 SHS
C7	150x30
C8	250x30
C9	250 PFC
C10	50 x 8 SHS
C11	80x3 SHS

Type Mark	Type
DHS000	
B1	ex. 250x331
B2	ex. 400x375
B3	150x30
B4	250x30
B5	250x331
B6	410x190
B7	150 x 8 SHS
B8	125 x 8 SHS
B9	RB200
B10	RB16
B11	RB25
B12	250 PFC
B13	250 DHS 19
B14	250x375
B15	150x30
B16	250 x 8 SHS
B17	150 PFC
B18	150x30
B19	150 PFC
B20	150x30
B21	300 DHS 15



TCC845818

FOR INFORMATION 20/03/15

STEEL ELEVATIONS

BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE



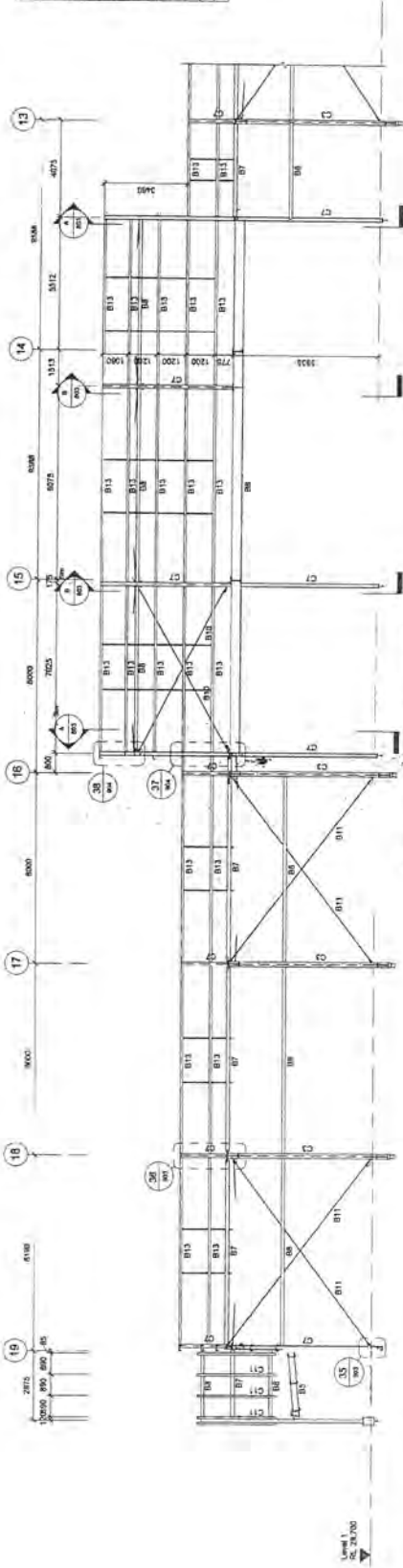
all dimensions to be verified on site before making any steelwork or construction work

NO	REVISION	DATE	BY	FOR BUILDING CONSULTANT
1				

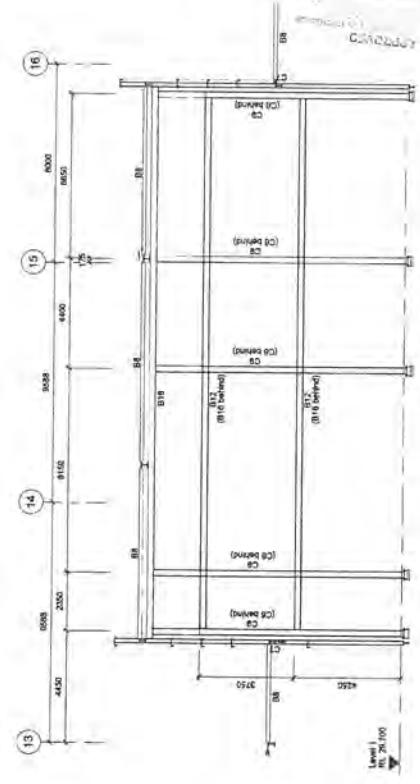
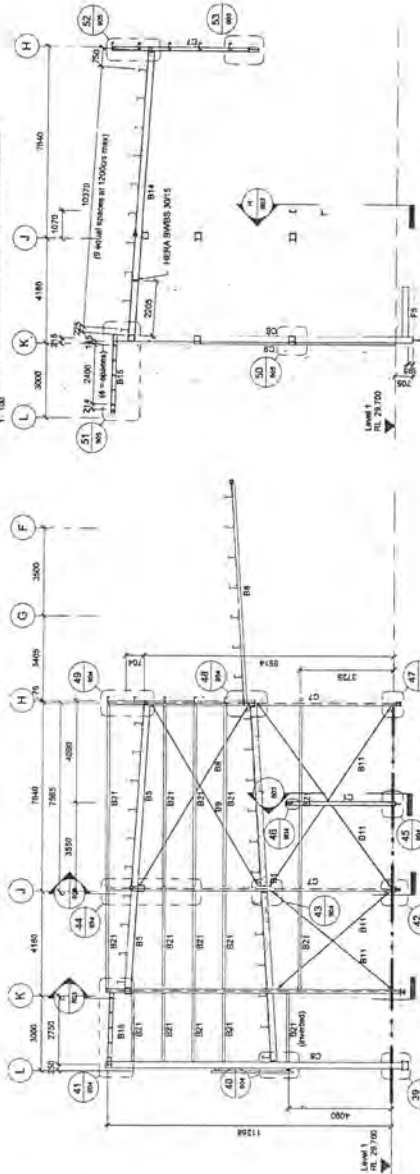
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Sheet No.	802
Scale	1:100
Drawn By	1

Structural Column Schedule	
Type Mark	Type
DHS300	
B1	ex. 250UB31
B2	ex. 250UB31
B3	ex. 460UB75
B4	310UB40
B5	250UB25
B6	250UB31
B7	410UB60
B8	250 x 6 SHS
B9	125 x 6 SHS
B10	R825
B11	R825
B12	250 PFC
B13	250 DHS 18
B14	250UC73
B15	150UC30
B16	250 x 9 SHS
B19	150 PFC
B20	RH525x150x5
B21	300 DHS 15

Structural Column Schedule	
Type Mark	Type
C1	350 x 350mm
C2	ex. 150x6 SHS
C3	ex. 250UB31
C4	ex. 460UB75
C5	89x6 SHS
C6	125x6 SHS
C7	150 x 6 SHS
C8	150UC30
C9	250UB31
C10	250 PFC
C11	50 x 6 SHS
C12	89x6 SHS



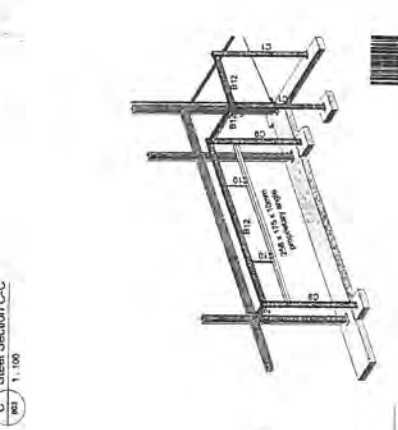
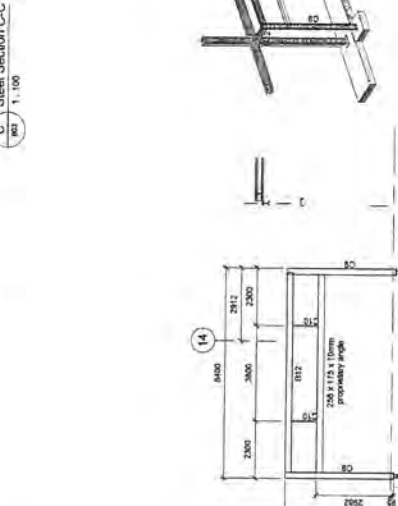
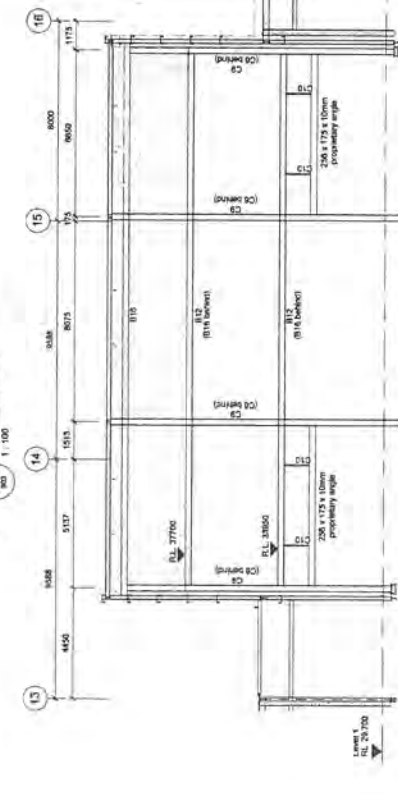
Steel Elevation Grid Line H Between Grids 13-19



B. Steel Section B-B

C. Steel Section C-C

A. Steel Section A-A



D. Steel Section D-D

J. Steel Section J-J

H. Steel Section H-H

3D Steel Section H-H

TCB95619

ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED

FOR INFORMATION 20/03/15

3D Steel Section H-H

NO	DATE	BY	REVISION
1	20/03/15	LB	FOR BUILDING CLERKSHIP

BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE

STEEL ELEVATIONS



BCD GROUP

13-324

803

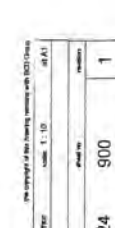
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Structural Framing Schedule	Type Mark	Type
		DHS-200
B1		ex. 250 B31
B2		ex. 460 B75
B3		ex. 110 B40
B4		250 B25
B5		250 B11
B6		410 B60
B7		150 x 6 SHS
B8		125 x 6 SHS
B9		R20
B10		R16
B11		R25
B12		250 PFC
B13		250 SHS 18
B14		250A/C73
B15		150A/C30
B16		150 x 9 SHS
B17		150 PFC
B20		RHS-20x150x5
B21		300 DHS-15

[Faint handwritten signature]



All bolts to be M20 grade 8.8S for steel connections (IMO).
 Purch connections to have M12 grade 4.6S for 250, 300,
 350 and 400 mm connections. M16 grade 4.6S for 450, 500,
 550 and 600 mm connections.
 All plates to be Form filed welded unless noted otherwise.
 Allow for 12mm (1/2") holes at 900 gr to web for bracing
 members as required.
 To be read in conjunction with BCD structural steelwork
 specification.
 All structural steel to be fabricated on the breast with
 minimum 10mm (3/8") fillet welds to ensure continuity of
 structural steel.

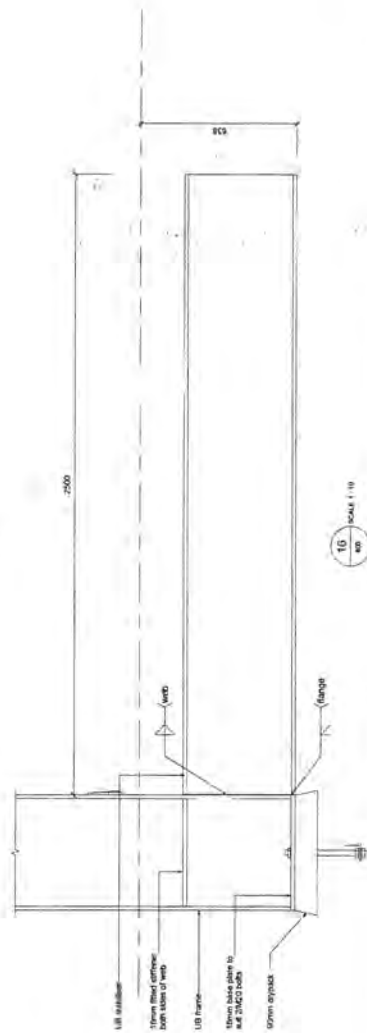
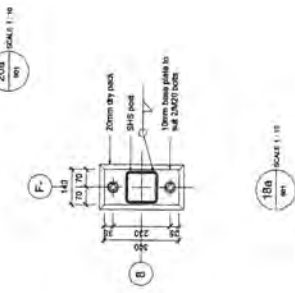


Journal of Management Education 36(8) 907-921

1		2013/14	L.B.	FOR BUILDING COMPONENT
row	col	date	by	remark

13-324 900

All jobs to be M20 grade 8.8/5 for steel connections UNO
 Purin connections to have M12 grade 8.8/5 for 150 & 200
 Purin connections to have M18 grade 8.8/5 for 250 & 300
 All welds to be 6mm full M18 unless noted otherwise
 All plates to be 6mm full G350 unless noted otherwise
 Allow for 12mm of holes at 900 are to web for timber
 framing as required
 To be tied in conjunction with BCD structural steelwork
 specification
 All Redbrack must be orientated on the bracketed with
 weather side of the bracket to ensure concrete landing
 timbers - lateral movement not to encase beam



13-324	901	1
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All bolts to be W23 grade 8.8/5 for steel connections UNQ.
 All steel connections to have M12 grade 4.6/3 for 150 x 200
 parts and M16 grade 4.6/3 for 250 x 200 and 300 x 200 parts.
 All welds to be from the same welder.
 All plates to be grade G150 unless noted otherwise.
 Allow for 12mm of holes at 900 mm to web for tension
 framing as required.
 To be used in conjunction with BCD structural steelwork
 specification.
 All fabricwork must be controlled on the bracket with
 washers either side of the bracket to ensure central loading
 (bracket - total movement not to exceed 6mm).



STRUCTURAL NOTES

All bars to be #20 grade A505 for steel connectors UNO.
 Purin connectors to have M12 grade 4.83 for 150 x 400.
 Purin connectors to have M16 grade 4.83 for 250 x 300.
 All welds to be done full weld unless noted otherwise.
 All plates to be grade G550 unless noted otherwise.
 Allow for 12mm of holes in 900 are to web for timber framing as required.
 Tie to be in conjunction with BCD structural steelwork specification.
 All rebar/nails must be centralized on the bracket with westerns active side of the bracket to ensure central loading.
 Forcés - total movements not to exceed 50mm.



There are two main reasons why the results of this study are important. First, the results show that the use of a single, standardized, and validated measure of self-esteem is sufficient to predict the use of a single, standardized, and validated measure of self-esteem. Second, the results show that the use of a single, standardized, and validated measure of self-esteem is sufficient to predict the use of a single, standardized, and validated measure of self-esteem.

**BULK RETAIL TENANCY
BETHLEHEM TOWN CENTRE**



	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF	BG	BH	BI	BJ	BK	BL	BM	BN	BO	BP	BQ	BR	BS	BT	BU	BV	BW	BX	BY	BZ	CA	CB	CC	CD	CE	CF	CG	CH	CI	CJ	CK	CL	CM	CN	CO	CP	CQ	CR	CS	CT	CU	CV	CW	CX	CY	CZ	DA	DB	DC	DD	DE	DF	DG	DH	DI	DJ	DK	DL	DM	DN	DO	DP	DQ	DR	DS	DT	DU	DV	DW	DX	DY	DZ	EA	EB	EC	ED	EE	EF	EG	EH	EI	EJ	EK	EL	EM	EN	EO	EP	EQ	ER	ES	ET	EU	EV	EW	EX	EY	EZ	FA	FB	FC	FD	FE	FF	FG	FH	FI	FJ	FK	FL	FM	FN	FO	FP	FQ	FR	FS	FT	FU	FV	FW	FX	FY	FZ	GA	GB	GC	GD	GE	GF	GG	GH	GI	GJ	GK	GL	GM	GN	GO	GP	GQ	GR	GS	GT	GU	GV	GW	GX	GY	GZ	HA	HB	HC	HD	HE	HF	HG	HH	HI	HJ	HK	HL	HM	HN	HO	HP	HQ	HR	HS	HT	HU	HV	HW	HX	HY	HZ	IA	IB	IC	ID	IE	IF	IG	IH	II	IJ	IK	IL	IM	IN	IO	IP	IQ	IR	IS	IT	IU	IV	IW	IX	IY	IZ	JA	JB	JC	JD	JE	JF	JG	JH	JI	IJ	JK	KL	JM	JN	JO	JP	JQ	JR	JS	JT	JU	JV	JW	JX	JY	JZ	KA	KB	KC	KD	KE	KF	KG	KH	KI	KJ	KK	KL	KM	KN	KO	KP	KQ	KR	KS	KT	KU	KV	KW	KX	KY	KZ	LA	LB	LC	LD	LE	LF	LG	LH	LI	LJ	LK	LL	LM	LN	LO	LP	LQ	LR	LS	LT	LU	LV	LW	LX	LY	LZ	MA	MB	MC	MD	ME	MF	MG	MH	MI	MJ	MK	ML	MM	MN	MO	MP	MQ	MR	MS	MT	MU	MV	MW	MX	MY	MZ	NA	NB	NC	ND	NE	NF	NG	NH	NI	NJ	NK	NL	NM	NN	NO	NP	NQ	NR	NS	NT	NU	NV	NW	NX	NY	NZ	OA	OB	OC	OD	OE	OF	OG	OH	OI	OJ	OK	OL	OM	ON	OO	OP	OQ	OR	OS	OT	OU	OV	OW	OX	OY	OZ	PA	PB	PC	PD	PE	PF	PG	PH	PI	PJ	PK	PL	PM	PN	PO	PP	PQ	PR	PS	PT	PU	PV	PW	PX	PY	PZ	QA	QB	QC	QD	QE	QF	QG	QH	QI	QJ	QK	QL	QM	QN	QO	QP	QQ	QR	QS	QT	QU	QV	QW	QX	QY	QZ	RA	RB	RC	RD	RE	RF	RG	RH	RI	RJ	RK	RL	RM	RN	RO	RP	RQ	RR	RS	RT	RU	RV	RW	RX	RY	RZ	SA	SB	SC	SD	SE	SF	SG	SH	SI	SJ	SK	SL	SM	SN	SO	SP	SQ	SR	SS	ST	SU	SV	SW	SX	SY	SZ	TA	TB	TC	TD	TE	TF	TG	TH	TI	TJ	TK	TL	TM	TN	TO	TP	TQ	TR	TS	TT	TU	<th>TW</th> <th>TX</th> <th>TY</th> <th>TZ</th> <th>UA</th> <th>UB</th> <th>UC</th> <th>UD</th> <th>UE</th> <th>UF</th> <th>UG</th> <th>UH</th> <th>UI</th> <th>UJ</th> <th>UK</th> <th>UL</th> <th>UM</th> <th>UN</th> <th>UO</th> <th>UP</th> <th>UQ</th> <th>UR</th> <th>US</th> <th>UT</th> <th>UU</th> <th>UV</th> <th>UW</th> <th>UX</th> <th>UY</th> <th>UZ</th> <th>VA</th> <th>VB</th> <th>VC</th> <th>VD</th> <th>VE</th> <th>VF</th> <th>VG</th> <th>VH</th> <th>VI</th> <th>VJ</th> <th>VK</th> <th>VL</th> <th>VM</th> <th>VN</th> <th>VO</th> <th>VP</th> <th>VQ</th> <th>VR</th> <th>VS</th> <th>VT</th> <th>VU</th> <th>VV</th> <th>VW</th> <th>VX</th> <th>VY</th> <th>VZ</th> <th>WA</th> <th>WB</th> <th>WC</th> <th>WD</th> <th>WE</th> <th>WF</th> <th>WG</th> <th>WH</th> <th>WI</th> <th>WJ</th> <th>WK</th> <th>WL</th> <th>WM</th> <th>WN</th> <th>WO</th> <th>WP</th> <th>WQ</th> <th>WR</th> <th>WS</th> <th>WT</th> <th>WU</th> <th>WV</th> <th>WW</th> <th>WX</th> <th>WY</th> <th>WZ</th> <th>XA</th> <th>XB</th> <th>XC</th> <th>XD</th> <th>XE</th> <th>XF</th> <th>XG</th> <th>XH</th> <th>XI</th> <th>XJ</th> <th>XK</th> <th>XL</th> <th>XM</th> <th>XN</th> <th>XO</th> <th>XP</th> <th>XQ</th> <th>XR</th> <th>XS</th> <th>XT</th> <th>XU</th> <th>XV</th> <th>XW</th> <th>XX</th> <th>XY</th> <th>XZ</th> <th>YA</th> <th>YB</th> <th>YC</th> <th>YD</th> <th>YE</th> <th>YF</th> <th>YG</th> <th>YH</th> <th>YI</th> <th>YJ</th> <th>YK</th> <th>YL</th> <th>YM</th> <th>YN</th> <th>YO</th> <th>YP</th> <th>YQ</th> <th>YR</th> <th>YS</th> <th>YT</th> <th>YU</th> <th>YV</th> <th>YW</th> <th>YX</th> <th>YY</th> <th>YZ</th> <th>ZA</th> <th>ZB</th> <th>ZC</</th>	TW	TX	TY	TZ	UA	UB	UC	UD	UE	UF	UG	UH	UI	UJ	UK	UL	UM	UN	UO	UP	UQ	UR	US	UT	UU	UV	UW	UX	UY	UZ	VA	VB	VC	VD	VE	VF	VG	VH	VI	VJ	VK	VL	VM	VN	VO	VP	VQ	VR	VS	VT	VU	VV	VW	VX	VY	VZ	WA	WB	WC	WD	WE	WF	WG	WH	WI	WJ	WK	WL	WM	WN	WO	WP	WQ	WR	WS	WT	WU	WV	WW	WX	WY	WZ	XA	XB	XC	XD	XE	XF	XG	XH	XI	XJ	XK	XL	XM	XN	XO	XP	XQ	XR	XS	XT	XU	XV	XW	XX	XY	XZ	YA	YB	YC	YD	YE	YF	YG	YH	YI	YJ	YK	YL	YM	YN	YO	YP	YQ	YR	YS	YT	YU	YV	YW	YX	YY	YZ	ZA	ZB	ZC</
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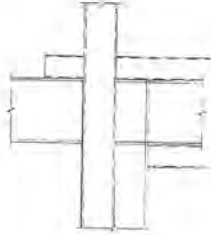
For selected compound	Ref.	Value	Ref.
1,4-Dioxane	1	1.00	1

904

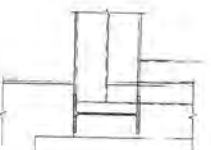
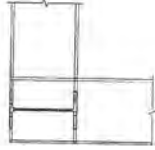
13-324

STRUCTURAL NOTES

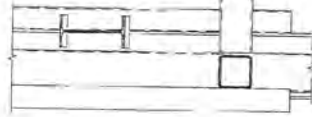
All steel to be A572 grade 50 for steel connections UNO
 Full connections to have AISC grade 40S for 150 & 200
 All connections to have AISC grade 40S for 250 & 300
 All plates to be grade 4300 unless noted otherwise
 All bolts to be A325 unless noted otherwise
 To be used in conjunction with BCD Structural Steelwork
 All dimensions must be confirmed on the bracket with
 workers other side of the bracket to ensure correct loading
 Figure 1: Detail of bracket 1:10 to include 20mm



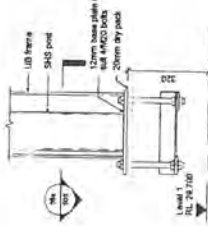
58
 1:10
 1:10



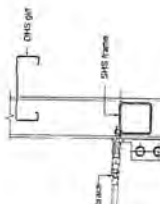
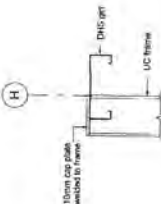
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 1:10
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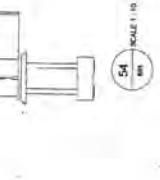
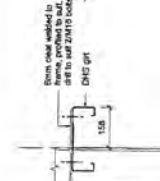
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 1:10



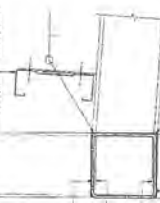
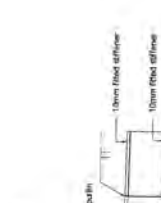
56
 1:10
 1:10



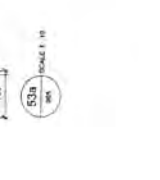
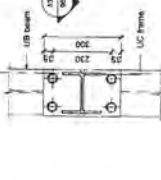
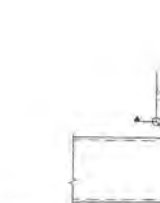
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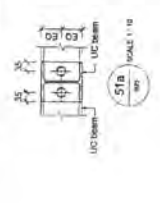
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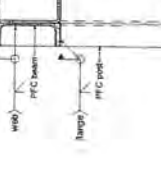
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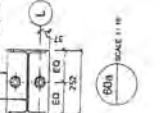
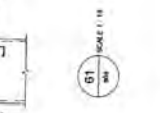
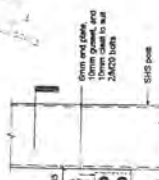


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FOR INFORMATION 20/03/15

STEEL DETAILS

BULK RETAIL TENANCY
 BETHLEHEM TOWN CENTRE

BCD GROUP
 BUILDING CONSULTANTS

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Description:

Building G was designed in 2006 as part of Stage 3 of the shopping centre. It is a rectangular single storey block that has its long axis orientated east west but it has a small two storey, almost square shaped office section in the western end of the building. It is a stand-alone building that has a car park frontage on all 4 sides. It is seismically isolated from all other buildings.

This building is a moderate sized foot-print, single storey, mono-pitched roof warehouse type building, with 7 bays in the east-west longitudinal direction and two or three bays in the north-south transverse direction. The two storey section of the building occupies the full north-south width of the western 3 bays and the roof over this section is raised above the roof of the single storey section and again has a mono-pitch configuration. There are canopies on all elevations except the east.

Construction of the warehouse type envelope, which occupies the eastern 4 bays, 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. 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 rafters. These structural steel columns land on conventional reinforced concrete foundation pads at a level below the concrete on-grade slab. This section of the building is surrounded by a reinforced concrete ground beam integrated into the conventional pad foundations that are under the structural steel columns. The foundations have been shown and recorded as being reinforced concrete on the foundation plan, but there are no specific dimensions, or details of the pads, or the reinforcement, in the structural drawings. By inspection of the building plans and sections, the foundations appear to be of a reasonable size and robust configuration.

The canopies are a combination of extended main roof rafters and structural steel T section cantilever beams supporting structural steel rectangular hollow section (RHS) purlins. The cantilever beams are bolted directly into the main portal frame columns with robust connections and this combination provides adequate lateral stability.

The original architectural drawings call up that there is a combination of shop front glazing and prefinished Zincalume and plywood cladding on all elevations, all of which represents a lightweight cladding system.

Over the single storey area there is a single bay of full width diagonal structural steel rod and double purlin roof bracing in both the longitudinal and transverse directions. 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 reinforced concrete floor support framing of the two storey section.

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

The two storey area in the western end of the main building occupies 3 bays in both directions. There are comprehensive details of the suspended floor construction, but the specific details of the roof framing have had to be derived from an examination of the general structural steel work cross sections and the structural steel details. The roof construction appears to replicate that in the single storey area of the building and is supported on structural steel portal frames with in-plane diagonal steel rod roof bracing.