LOVELL-SMITH & CUSIEL LTD

Consulting Structural & Civil Engineers

DESIGN FEATURES REPORT :

New Parking and Retail Building for Ballentyne & Co
Lichfield Street , Christchurch

The complex comprises a seven level building, including the basement floor.

The building is a ductile frame building, with pre-cast, pre-stressed double tee floors supported on cast in place transverse frames, with pre-cast longitudinal seismic beams spanning between the frames.

The building is linked to the existing City Council Parking building with ramps at each level.
Level 2 will be a retail floor, and level 3 is designed for Retail floor live loading, for possible conversion from Parking to Retail.

Exterior walls will be open, except at the South, where the wall will be constructed of pre-cast panels, supported at ground floor level and laterally at level two.

The building is supported on foundation pads under internal columns and strip footings under external load bearing walls, except at the South-Western side of the building, adjacent to the existing ramp into the City Council parking building basement, where screwed steel piles will be used..

Design Loading.

Live Load Basement and levels 1 and 2	: 4.0 kPa for Retail
Levels 3 through 7	: 2.5 kPa for Parking Floors

Structural Ductility Factor and Seismic Loading

Soil type : Flexible or Deep Soils.

From Table 4.2.1 NZS 4203:1992 :
for reinforced concrete frame,
for T_1 =0.71, μ=6,
then $C_h(T_1 , \mu)$=0.155
for R=1.0, Sp=0.67, Z=0.8, C=0.083

From provisions for Parts and Portions, the seismic coefficient for the pre-cast concrete panels on South Elevation

μ_p=3.0 for T_1 <0.6,
$C_{ph\,/RZLu}$ =0.38, and for R=1.3 and Z=0.8, C_{ph}=0.40

47 Hereford Street • Christchurch • P.O.Box 1074 • Phone 366 7955 • Fax 366 7954 • E-mail lsc@clear.net.nz

43 Lichfield
10010061 -

Lichfield Street Carpark

Geotechnical Report

REFERENCE NUMBER: 2058

DATE: April 2000

PREPARED FOR: LOVELL SMITH & CUSIEL TD

PREPARED BY: GEOTECH CONSULTING LIMITED

ENQUIRIES TO: Ian McGahon

Lichfield Street – New Carparking Building

Geotechnical Report

Contents

Appendix

Lovell Smith and Cusiel Ltd
Lichfield Street Carpark Geotechnical Report

1 Introduction

It is proposed to construct a new car parking building at 43 Lichfield Street, Christchurch. The building will have 6 levels, including one basement level, and will cover most of the site with a footprint area of about 24m by 48m. This report outlines the site investigation and geotechnical issues to be addressed for this development.

2 Site

The site is essentially level with street frontages to Lichfield Street at the south. There is a slight fall on the site with the street frontage perhaps 0.2m lower than the current ground level at the rear of the site.

The east side of the site is covered with a two storey brick building facing Lichfield Street continuous with a single storey building to the rear (both previously tenanted by Payless Plastics. The west side of the site, about 13.2m wide, is currently in use as a ground level carpark with an asphalt surfacing. A concrete ramp slopes down from the south west corner at Lichfield Street to give access to the basement of the existing adjacent carparking building. The ramp floor reaches a maximum depth of 2.8m about 25m back from Lichfield Street.

The property to the east of the site is occupied by a one and two storey brick building owned by Ballantynes Ltd. This building has a full depth basement with a ramp from Lichfield Street on the boundary. The site to the west is occupied by the existing City Council carparking building with a full depth basement. To the north is a two storey concrete masonry wall to the rear of the Guthreys Arcade.

3 Site Investigation

The investigation has consisted of two cable tool boreholes drilled on the site to 10m depth. Additional hand auger boreholes were not carried out as intended given the partial coverage of the site by the existing building. Standard penetration tests (SPT) were carried out in both the boreholes and disturbed samples taken. Standpipes were installed in both boreholes to allow the groundwater level to be monitored.

The locations of the investigation bores are shown on the site plan, Figure 1, attached. Borelogs for the holes are appended.

4 Subsurface Conditions

4.1 Soil Profile

The soil profile consists of silty sand and sand to a depth of between about 3.7m (BH2) and 4m (BH1). Brick fragments and organic silt indicate disturbance of the soil to a depth of up to 1.5 (BH1) to 2m (BH2). The sand overlies gravelly sand,

which grades into sandy gravel at 5m. Sandy gravel extends to at least 10m depth, the maximum depth of the boreholes.

This profile is consistent with borelogs from the adjacent City Council Carparking site. Three boreholes on that site were logged as sandy silt and sand to between 3.7 and 4.3m depth overlying "shingle with sand", with sands below 9 to 12m depth. Gravel is also known to be present at 3 to 4m depth further along Lichfield Street to the east of Colombo Street.

4.2 Soil Properties

The soils are essentially cohesionless sands and gravels. The standard penetration tests (SPT) indicate medium dense to dense conditions in the sandy gravel whereas the sands above are loose. Soil properties suitable for design are:

	Density (kN/m3)	Angle of internal friction	Cohesion (kPa)
Silty sand above 3m	18	28	0
Sand below 3m	18	32	0
Gravel	20	35	0

4.3 Groundwater

The water table was recorded consistently in both boreholes at 3.4 to 3.5m depth. With the slight fall in ground level towards the south and a slightly greater depth to the water table in the southern borehole (BH1), it appears that there is a gradient in the water table towards the south. There is potential for the groundwater level to rise during particularly wet periods and a contingency of about 0.5m rise in the water table, or a design water level depth of 3.0m is recommended.

5 Foundations

5.1 Foundation Options

The basement under the proposed building means that the foundations will be close to 3m depth. This avoids the looser silty sands near the surface and the building can be founded directly on the denser sands above the gravel. While greater bearing capacity could be obtained by bearing directly onto the gravels, this would require up to 1m additional excavation to below the water table. It is recommended that footings be founded on the sand below 3m depth.

It is understood that uplift restraint and tension anchors are not required for this building.

5.2 Shallow Footings

Ultimate bearing stresses for pad and strip footings as determined from the bearing capacity of the soil are shown on Figure 2. The figures show stresses for footings founded at 0.3 and 0.6 m depths below the adjacent basement floor level. These ultimate stresses should be reduced by a capacity reduction factor to give values of "allowable ultimate" bearing stresses to be used with fully factored loads in accordance with NZS 4203:1992.

A capacity reduction factor of 0.5 should be used for all load combinations except those including earthquake overstrength when a value of 0.8 is applicable.

Bearing stresses to limit settlement to about 25mm are shown on Figure 3. These stresses are for unfactored load combinations. Stresses to limit settlement to values other than 25mm can be estimated by multiplying the values from the figures by the ratio of the settlement to 25mm.

It should be noted that if the full basement is built with the building load distributed over the floor as in a raft, then settlement of the building will be very small. This is because the basement excavation will compensate for about 75% of the building weight.

5.3 Basement Construction

The excavation for the basement will require retention along the north and south boundaries of the property and possibly part of the east boundary where the Ballantyne basement ramp slopes down from Lichfield Street. Most of the east and west sides abut existing full depth basements. Depending on the foundation levels of these structures, relative to the new building footings, it may be necessary to do some underpinning, but full depth retention should not be needed. Particular care will be needed close to the wall on the north boundary, to keep deformation of the soil mass within tolerable limits for the Guthrey Arcade building. Cantilevered sheetpiling will be too flexible in this area and the temporary retention wall will need to be well braced to limit deflections.

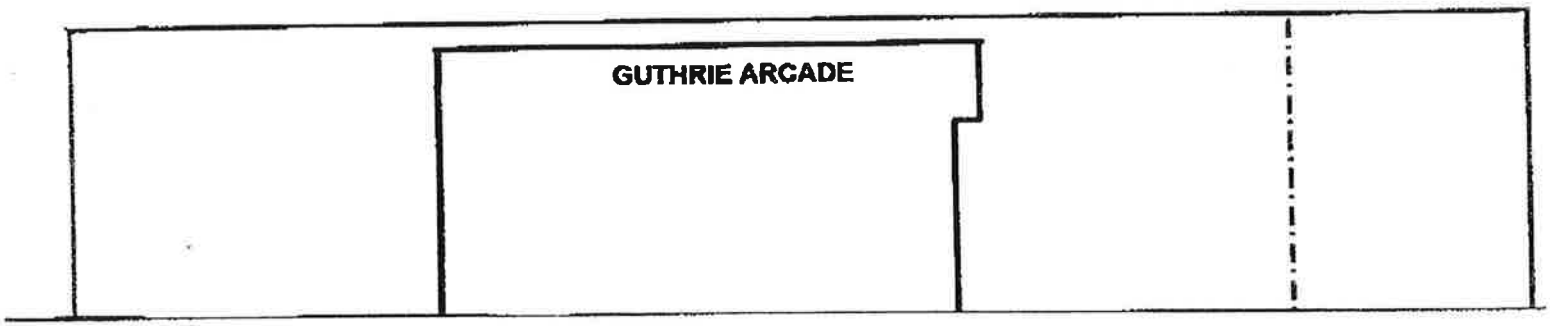
Retaining structures and the basement walls should be designed for lateral earth pressures plus any surcharges from adjacent building and traffic loads. If wall rotation can occur, active pressures with Ka = 0.36 can be designed for. Where wall rotation will not, or might not, occur, at rest pressures with Ko = 0.53 should be used.

The water table has been recorded at 3.4 to 3.5m depth, which is below the floor level of the basement. Typical fluctuations of shallow groundwater in this part of Christchurch suggest that it could rise to about 3m depth, which is still likely to be below the floor level, for periods of perhaps one or two weeks. It was noticed on site that the sand was wet well above the water table level because of capillary action. It may not be necessary to install a complete tanking on the basement provided that the floor slab is of a reasonable thickness and all construction joints are well waterstopped. A layer of tailings under the floor is recommended to act as a capillary break.

6 Conclusions

The site is covered with disturbed silty soil and fill overlying silty sand and sands extending to the underlying gravel layer. The gravels are at about 5m depth with gravely sand above to about 4m depth. The water table is at 3.4 to 3.5m depth.

Shallow footings below the basement are practicable on the site, but should be founded in the denser sands below 3m depth.



7 Limitations

The subsurface conditions and the interpretations reported are those identified at the locations of the investigations at the time of the investigation and are subject to the limitations of the investigation methods.

The borelogs are an engineering/geological interpretation of the subsurface conditions dependent on the method and frequency of sampling and testing. The boreholes represent only a very small sample of the total subsurface soils. The interpretation of the information and its application must take into account the spacing of the boreholes, the frequency of sampling and testing and the possibility of undetected variations in soils between the boreholes.

While care has been taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical aspects and recommendations or suggestions for design and construction, Geotech Consulting Ltd cannot anticipate or assume responsibility for unexpected variations in ground conditions or the actions of contractors. If conditions encountered on site during construction appear to vary from those, which can be expected from the information, contained in this report, Geotech Consulting Ltd requests that it be notified immediately.

This report has been prepared for the proposal as outlined in the introduction and the information and interpretation may not be relevant if the proposed development is changed. If the form and details of the proposed development are changed, Geotech Consulting Ltd will be pleased to review the report and the sufficiency of the investigation and appropriateness of the recommendations.

This report has been prepared solely for the benefit of Lovell, Smith and Cusiel Ltd and the Christchurch City Council. No liability is accepted by this Company or any employee or sub-consultant of this company with respect to its use by any other person.

This disclaimer shall apply notwithstanding that the report may be made available to other persons for an application for permission or approval or to fulfil a legal requirement.

Appendix

GEOTECH

DRILL HOLE LOG
GEOTECH CONSULTING LTD

BH No:	BH1
Sheet:	1 of: 1
R.L./Angle:	
Job No:	2058
Logged by:	RBW
Checked By:	IMC
Started:	30/03/00
Finished:	30/03/00

DRILL RIG:	WILLIAMS/CT	PROJECT:	43 LICHFIELD ST - SOILS INVESTIGATION
OPERATOR:	MIKE, TEXCO	LOCATION:	SOUTH END OF ASPHALT CARPARK AREA.

STRATA DESCRIPTION	Weathering	Strength (SPT 'N')	R.L. / Tests	Depth	Graphic Log	Fracture Log (cm)	DEFECT DESCRIPTION	Water level	Water loss (%)	Core recovery (%)
SOIL DESCRIPTION Major colour, second colour, Subordinate fraction, minor fractions, - plasticity, bedding, moisture, structures. **ROCK DESCRIPTION** Colour, fabric, rock name							Joints, bedding, crush zones, and schistocity. Attitude, width, roughness, infill, RQD		25 50 75	25 50 75
Dark brown to black organic SANDY SILT FILL with some fine to coarse gravel and occasional brick fragments. - moist, soft to firm				1.0						
Greyish yellow brown SILTY fine SAND. -Moist, firm		N = 3 @1.5m	SPT	2.0						
- 2.5m, orange mottled, trace of fine organics with depth										
Greyish yellow brown SAND. - moist		N = 10 @3.0m	SPT	3.0						
-3.5m, siltier with depth (minor)							W/L 3.55m 10:00 am 04/04/00	▽		
Greyish yellow brown SILTY fine to coarse GRAVELLY fine to medium SAND. wet to saturated. -4.5m, more gravel (less sand) with depth		N = 36 @4.5m	SPT							
Blue grey fine to coarse SANDY fine to very coarse GRAVEL -saturated -5.5m, less sand with depth.		N = 47 @6.0m	SPT	6.0						
		N = 22 @7.5m	SPT	7.0						
				8.0						
				9.0						
				10.0						

ROCK STRENGTH: Very strong, moderately strong, weak, very weak
SOIL STRENGTH: Hard, stiff, firm, soft, very soft

GEOTECH

DRILL HOLE LOG
GEOTECH CONSULTING LTD

BH No:	BH2
Sheet:	1 of: 1
R.L./Angle:	
Job No:	2058
Logged by:	RBW
Checked By:	IMC
Started:	30/03/00
Finished:	30/03/00

DRILL RIG:	WILLIAMS/CT	PROJECT:	43 LICHFIELD ST - SOILS INVESTIGATION
OPERATOR:	MIKE, TEXCO	LOCATION:	NORTH END OF ASPHALT CARPARK AREA

STRATA DESCRIPTION	Weathering	Strength (SPT 'N')	R.L. / Tests	Depth	Graphic Log	Fracture Log (mm)	DEFECT DESCRIPTION	Water level	Water loss (%)	Core recovery (%)
SOIL DESCRIPTION Major colour, second colour, Subordinate fraction, minor fractions, - plasticity, bedding, moisture, structures **ROCK DESCRIPTION** Colour, fabric, rock name							Joints, bedding, crush zones, and schistocity. Attitude, width, roughness, infill, RQD	(Undrilling datum)	25 50 75	25 50 75
Dark brown to black organic SANDY SILT FILL with some fine to coarse gravel and occasionalbrick fragments. - moist, soft to firm		N = 4 @1.5m	SPT	1.0						
Greyish yellow brown SILTY fine SAND. -Moist, firm				2.0						
Greyish yellow brown SAND. - moist -3.5m, siltier with depth (minor)		N = 12 @3.0m	SPT	3.0			W/L 3.43.m 10:00 am 04/04/00	▽		
Greyish yellow brown fine to coarse GRAVELLY fine to medium SAND. wet to saturated. -4.5m, more gravel (less sand) with depth		N = 38 @4.5m	SPT	4.0						
Blue grey fine to coarse SANDY fine to very coarse GRAVEL **-saturated**		N = 28 @6.0m	SPT	6.0						
		N = 22 @7.5m	SPT	7.0						
		N = 28 @9.0m		8.0						
				9.0						
				10.0						

ROCK STRENGTH:	Very strong, moderately strong, weak, very weak
SOIL STRENGTH:	Hard, stiff, firm, soft, very soft

LOVELL-SMITH & CUSIEL

structural and civil engineers

Attention:	**John Taylor**	Date:	**18 January 2001**
Of:	**CCC Consent Unit**	Fax:	**auto**
From:	**Dick Cusiel**	Page:	**1** of **3**
Project:	**Ballantyne Carpark**	Our ref:	**4654**
		Your ref.	

John,
Attached find a report from Geotech on the liquefaction of the parking building site.

Regards,

Dick Cusiel

level 6 • 47 hereford street • christchurch • P.O.Box 1074
phone 366 7955 • fax 366 7954 • e-mail lsc@clear.net.nz

GEOTECH
consulting ltd

2058
16 January 2001

Lovell Smith Cusiel Ltd,
PO Box 1074,
Christchurch

Attention: Dick Cusiel

Dear Sir,

Lichfield Street Carparking Building – Liquefaction

Summary

With the site excavated for the basement, there is a risk of liquefaction of a 0.3 to 0.5m thick layer of sand immediately above the gravel layer in a major earthquake such as an Alpine Fault earthquake. However, the bearing pressures that are likely to eventuate under the building footings increases the effective stress in the sands sufficiently to eliminate the liquefaction hazard under the footings themselves. There remains the potential for liquefaction between the load bearing footings to cause some damage to the basement floor slab, but this should not affect the stability of the structure as a whole.

It is recommended that the base of the excavation be well compacted prior to pouring any concrete to reduce the liquefaction potential.

Analysis

The cyclic stress method of Seed predicts liquefaction in a major seismic event for all the soils below the water table and above the denser gravel layer. For the conditions as recorded at the time of the site investigation at the end of March 2000, and assuming that the Standard Penetration Tests at 3.0m depth are representative of the whole of this sand layer, this would be a layer of sand between 3.5m and 4.0m depth at BH1 at the south end and between 3.4m and 3.7m depth at BH2 at the north end. Seeds method predicts liquefaction would occur both with the existing ground level and with the basement excavation. However, the effects at ground level under the existing ground level conditions would be minimal to not apparent.

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E-mail ntraylen@geotech.co.nz
18 Dyers Pass Rd, Cashmere
Christchurch, New Zealand

GEOLOGICAL &
ENGINEERING SERVICES

Seeds method is conservative as it predicts liquefaction where other methods do not. A second method, based on seismic energy as developed by Davis and Berrill, predicts no liquefaction under existing ground levels, but liquefaction of a 0.5m thick layer at BH1 and 0.3m layer at BH2, as for Seeds method, with the basement excavation. Again, this is for a major earthquake such as the Alpine Fault event, and ignores the effect of foundation loading.

Where footings apply a surcharge onto the soil, the effective stress in the sand increases and the liquefaction risk is reduced. Davis and Berrill method predicts that a 40 kPa bearing pressure under the footings would eliminate the liquefaction risk. Seeds method would need a bearing stress in excess of 150 kPa to minimise the risk during a major earthquake. Given the conservatism of Seeds method, and the probability that bearing stresses under the building foundations will be in excess of 100 kPa, I conclude that there is little likelihood of liquefaction occurring under the loaded footings themselves. Therefore the main structure will not be significantly affected or damaged by liquefaction.

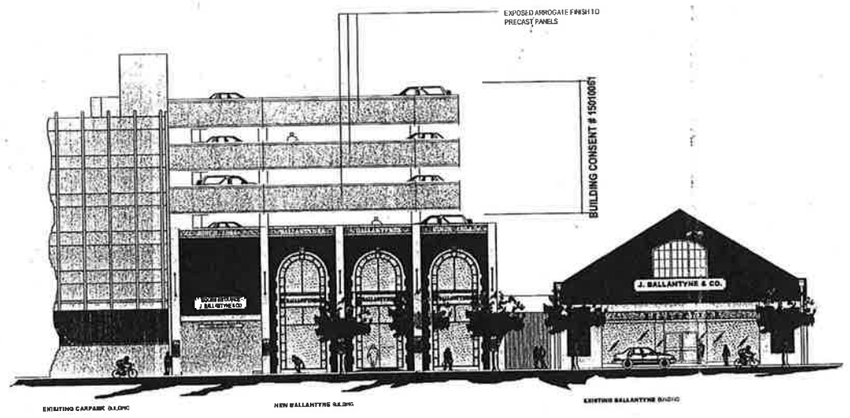
Between the footings, the lightly loaded basement floor areas will not provide the confinement needed to prevent liquefaction and the floor slab could be damaged as a result of sand ejection, liquefaction induced settlement and other distortion.

To reduce the potential for liquefaction, and to enhance the foundation performance, it is recommended that the base of the excavation be well compacted before any concrete is poured.

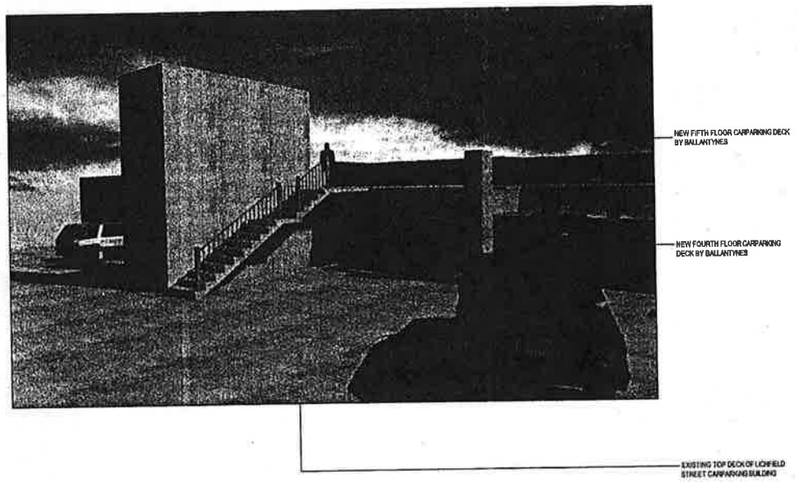
Please contact me if you have any questions regarding this matter.

Yours faithfully,
Geotech Consulting Ltd

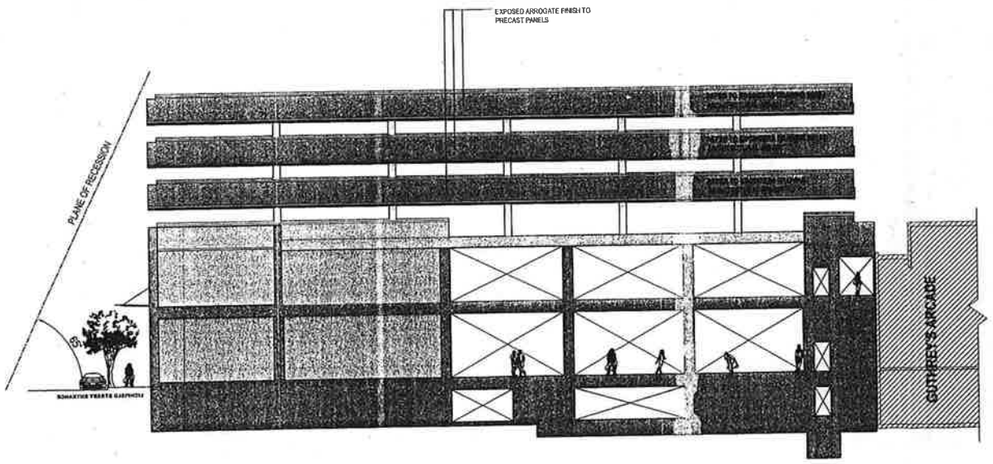
Ian McCahon



LICHFIELD STREET FACADE



EGRESS ROUTE FOR PUBLIC



EAST WALL

FILE COPY

K. THOMPSON
Consent Officer

CHRISTCHURCH CITY COUNCIL
CONSENT DOCUMENT
08 MAY 2002
All building work shall comply with the New Zealand Building Code notwithstanding any inconsistencies which may occur in the drawings and specifications.

AMENDED
CHRISTCHURCH

The building owner shall ensure that adequate provisions are taken to safeguard people from injury and other property from damage, caused by construction or demolition site hazards.

The Health and Safety in Employment (Construction) Regulations 1992 administered by the Department of Labour are relevant and a Code of Practice on demolition (if applicable) is available from Occupational Safety and Health.

CHRISTCHURCH

Provide the International Access Symbol "...*outside the building or so as to be visible from outside it*", as required by the Building Act, section 47A cl (5) and NZ Building Code FR/AS1.

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CHAS.S.LUNEY LTD
BUILDING & CIVIL ENGINEERING CONTRACTORS
200 MACES ROAD, BROMLEY P.O.BOX 205
CHRISTCHURCH 8006
Phone : (03) 3899018
Fax : (03) 381 0347

BALLANTYNES CARP

Amendments

1. CONSENT ISSUE
2. INFO ADDED TO DRAWING
3.
4.
5.
6.

Information

- DRAWN BY : MATTHEW CHARLES
- CHECKED BY :
- DATE : 28-03-2002

Job Title

BALLANTYNE AND CO . LTD
PROPOSED DEVELOPMENT
ON LICHFIELD STREET

Drawing of

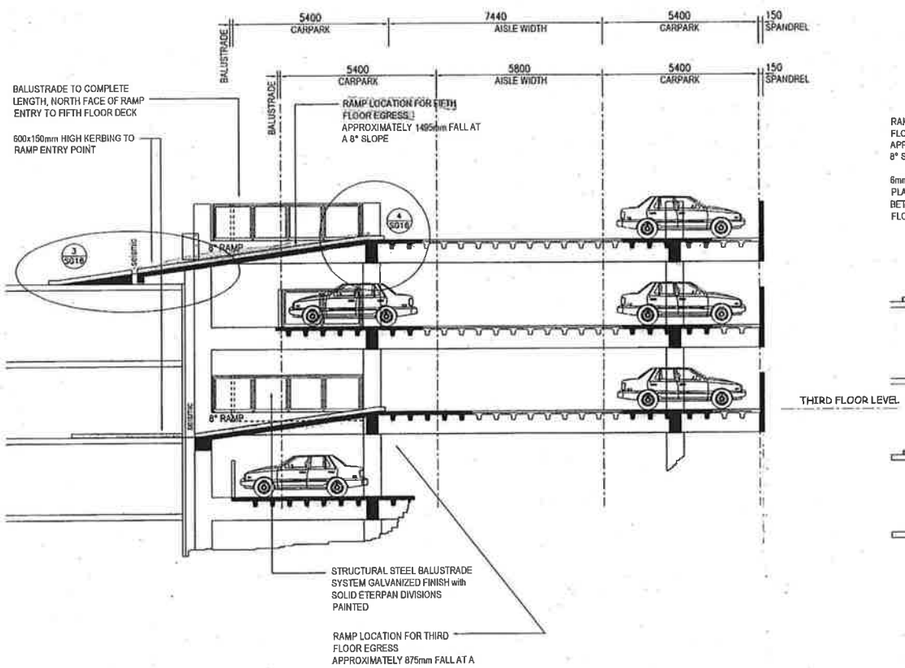
CARPARKING LEVELS
REVISED LICHFIELD STREET FACADE
EAST ELEVATION TYPICAL

Cost Sheet Number

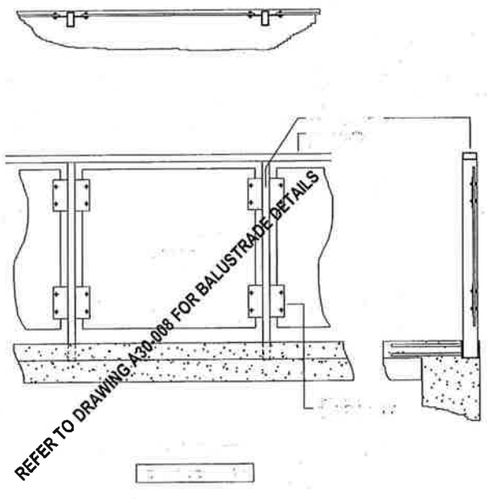
FILE COPY

Drawing Number **amend**

A 70 - 000 ②

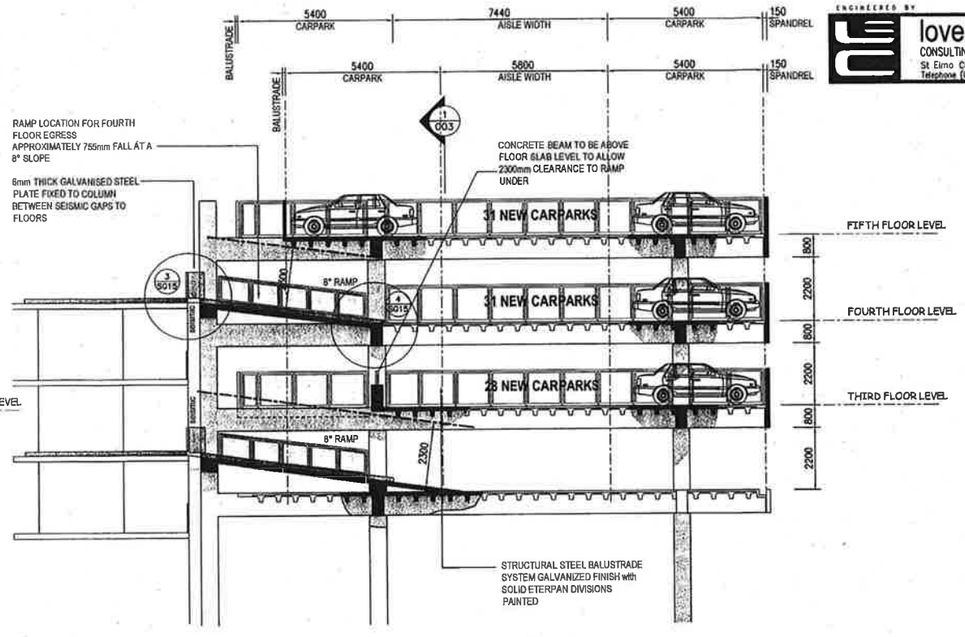


CROSS SECTION 1 - 1



STANDARD STRUCTURAL BALUSTRADE SYSTEM FOR CARPARK LEVELS

CARPARK BARRIERS DESIGNED TO COMPLY WITH AS 2890.1 1993 cl 2.4.4.3



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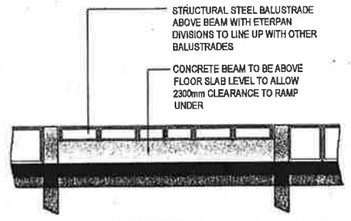

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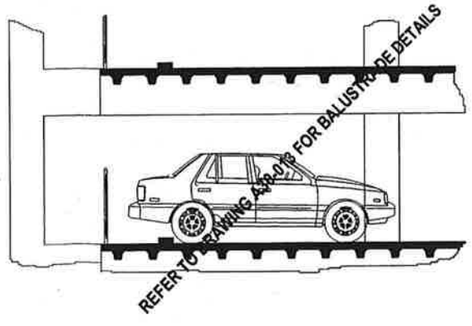


CARPARKING BAY WHEEL STOPS

CHRISTCHURCH CITY COUNCIL
CONSENT DOCUMENT
08 MAY 2002
All building work shall comply with the New Zealand Building Code notwithstanding any inconsistencies which may occur in the drawings and specifications.

FILE COPY

WHEEL STOPS SHALL BE 100mm IN HEIGHT AND NOT LESS THAN 2000mm IN WIDTH. THE CODE STATES THAT THE FRONT EGDE OF THE WHEEL STOP SHALL BE 1100mm FROM THE WALL BARRIER. THIS IS TO ALLOW 200mm CLEARANCE TO THE WALL FOR THE 885 VEHICLE. THE CLEARANCE WILL BE ALMOST ZERO FOR THE 899 VEHICLE.

ENGINEERED BY
lovell-smith & cusiel ltd
CONSULTING CIVIL & STRUCTURAL ENGINEERS
St Elmo Courts 47 Hereford Street Christchurch
Telephone (03) 366-7955 P.O.Box 1074 Fax (03) 366-7954

ALL DIMENSIONS SHALL BE CHECKED ON SITE BY THE CONTRACTOR BEFORE CONSTRUCTION BEGINS

CHAS.S.LUNEY LTD
BUILDING & CIVIL ENGINEERING CONTRACTORS
200 MACES ROAD, BROMLEY P.O.BOX 205
CHRISTCHURCH 8006
Phone : (03) 3899018
Fax : (03) 381 0347

BALLANTYNES CARPARK

Amendments

1. CONSENT ISSUE
2. REVISED CONSENT 3 FLOORS
3. REVISED CONSENT ISSUE / ENGINEERS
4.
5.
6.

Information

- DRAWN BY : MATTHEW CHARLES
- CHECKED BY :
- DATE : 02-03-2002

Job Title

BALLANTYNE AND CO LTD
PROPOSED DEVELOPMENT
ON LICHFIELD STREET

Drawing of

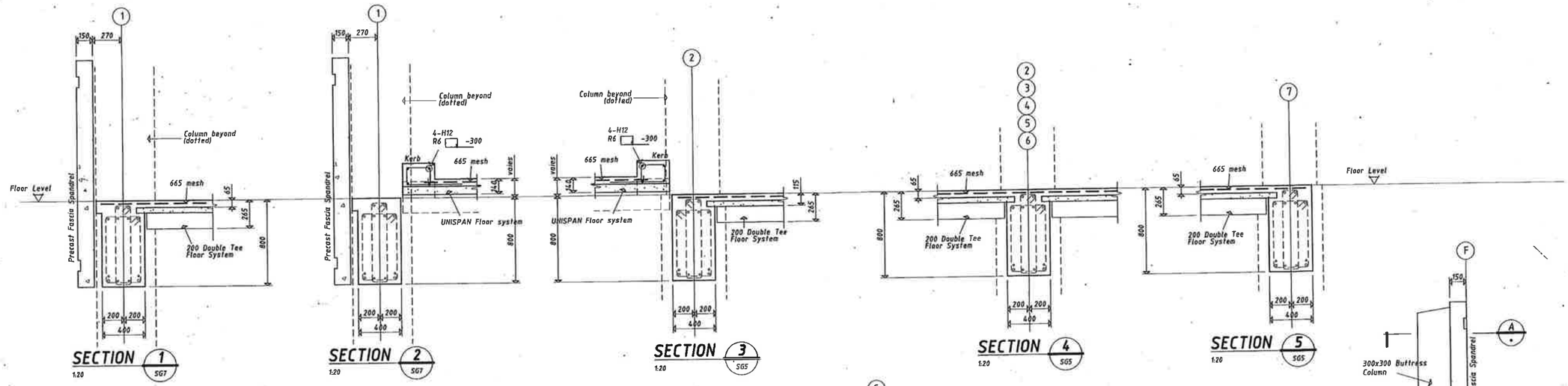
THIRD FLOOR CARPARKING DECK
DETAILS / CROSS SECTIONS
ELEVATIONS

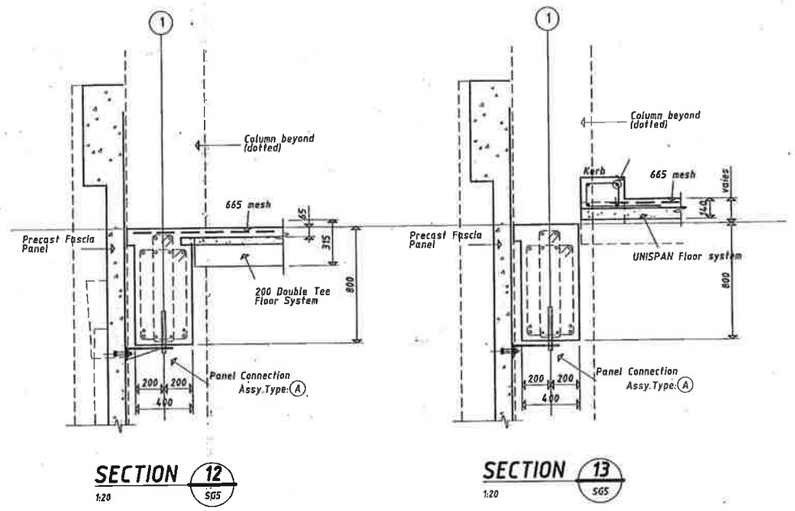
1

Cost Sheet Number

Drawing Number **amend**

A 70 - 003 ③





CHRISTCHURCH CITY COUNCIL
CONSENT DOCUMENT
06 JUN 2001
All building work shall comply with the New Zealand Building Code notwithstanding any inconsistencies which may occur in the drawings and specifications.

lovell-smith & cusiel ltd
CONSULTING CIVIL & STRUCTURAL ENGINEERS
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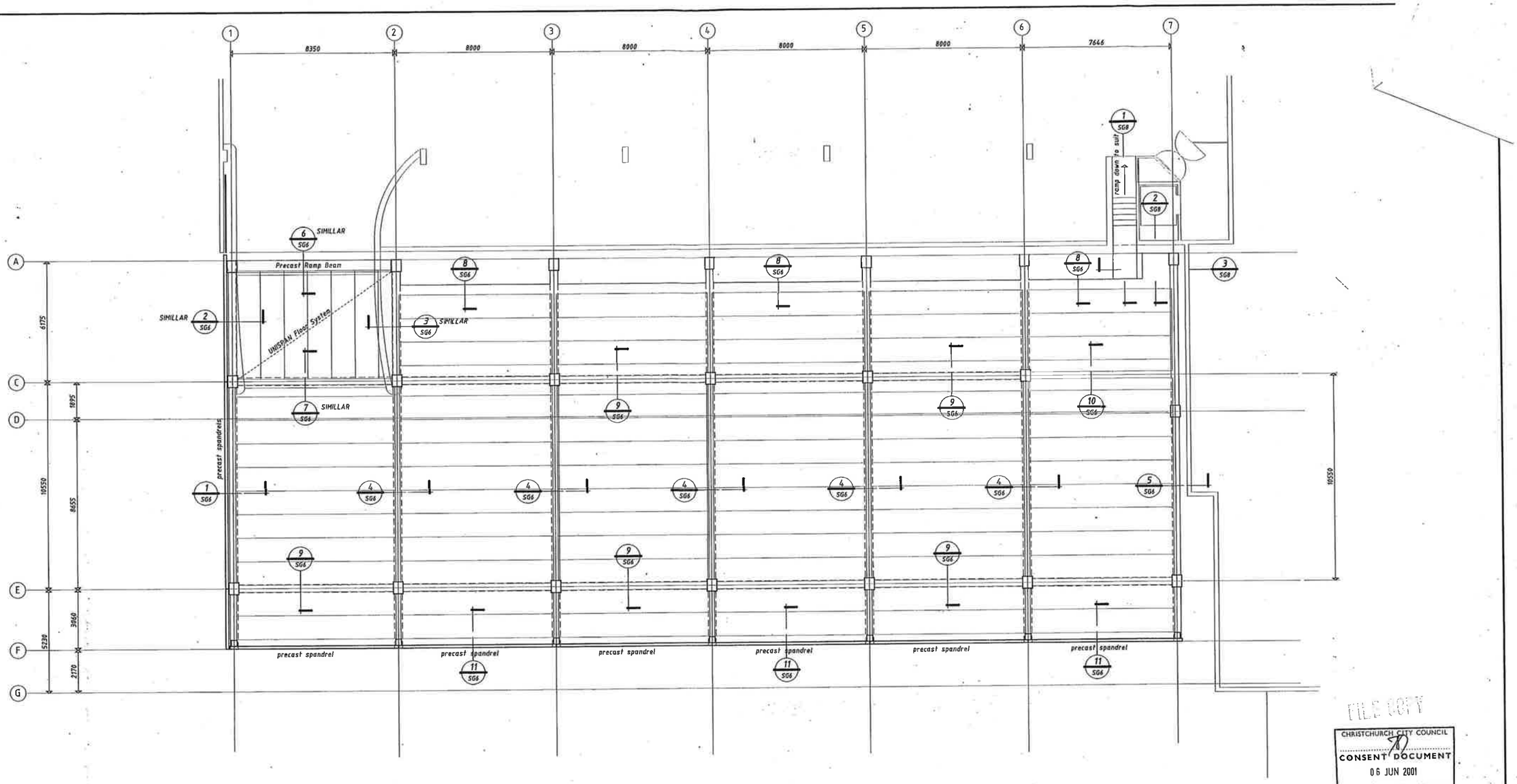
ACENZ
CHAS.S.LUNEY Ltd.
BUILDING & CIVIL ENGINEERING CONTRACTORS
200 MACES ROAD CHRISTCHURCH P.O.BOX 205

BALLANTYNE & Co. Ltd.
PROPOSED DEVELOPMENT
LICHFIELD STREET

Typical Floor Sections

REV	DATE	BY	AMENDMENT
	07.12.00		Consent Issue
	07.07.00		Pricing Issue

DESIGNED D.CUSIEL
DRAWN R.I.CRAW
CHECKED
DATE June 2000
JOB No. 4654
SHEET No. SG6 OF 41



TYPICAL FLOOR PLAN THIRD thru. FIFTH

1:100

FILE COPY

CHRISTCHURCH CITY COUNCIL
CONSENT DOCUMENT
06 JUN 2001
All building work shall comply with the New Zealand Building Code notwithstanding any inconsistencies which may occur in the drawings and specifications.

lovell-smith & cusiel ltd
CONSULTING CIVIL & STRUCTURAL ENGINEERS
St Elmo Courts 47 Hereford Street Christchurch
Telephone (03) 366-7955 P.O.Box 1074 Fax (03) 366-7954

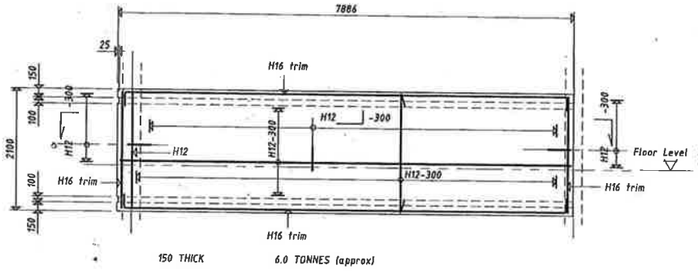
CHAS.S.LUNEY Ltd.
BUILDING & CIVIL ENGINEERING CONTRACTORS
200 MACES ROAD CHRISTCHURCH P.O.BOX 205

BALLANTYNE & Co. Ltd.
PROPOSED DEVELOPMENT
LICHFIELD STREET

Typical Floor Plan Third thru. Fifth

REV	DATE	BY	AMENDMENT
	07.12.00		Consent Issue
	07.07.00		Pricing Issue

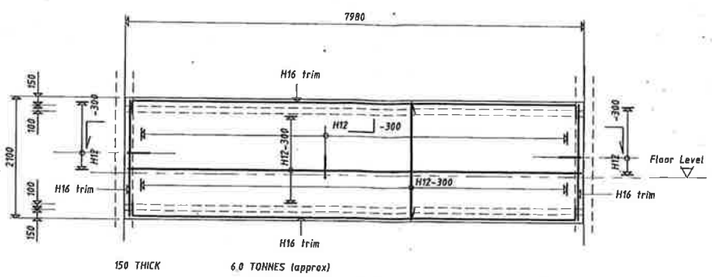
DESIGNED O.CUSIEL
DRAWN R.L.CRAW
CHECKED
DATE June 2000
JOB No. 4654
SHEET No. SG7 OF 41



150 THICK 6.0 TONNES (approx)

P/C SPANDREL PANEL S1 (4 No REQUIRED)

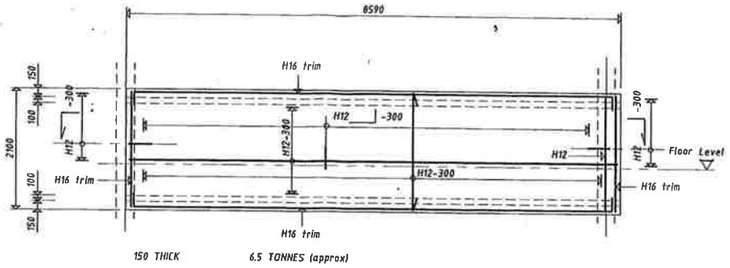
1:50



150 THICK 6.0 TONNES (approx)

P/C SPANDREL PANEL S2 (16 No REQUIRED)

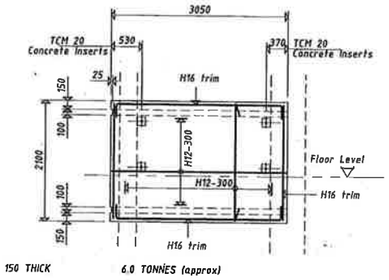
1:50



150 THICK 6.5 TONNES (approx)

P/C SPANDREL PANEL S3 (4 No REQUIRED)

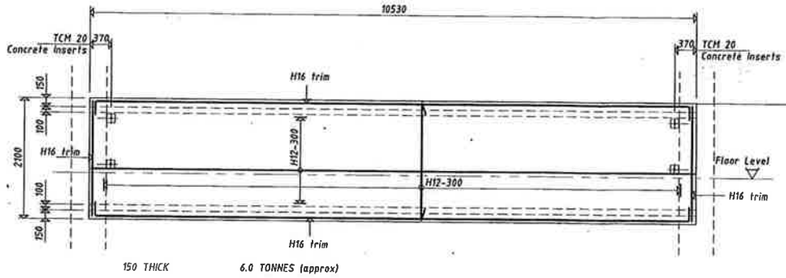
1:50



150 THICK 6.0 TONNES (approx)

P/C SPANDREL PANEL S4 (3 No REQUIRED)

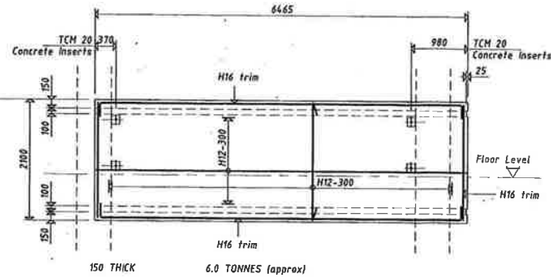
1:50



150 THICK 6.0 TONNES (approx)

P/C SPANDREL PANEL S5 (3 No REQUIRED)

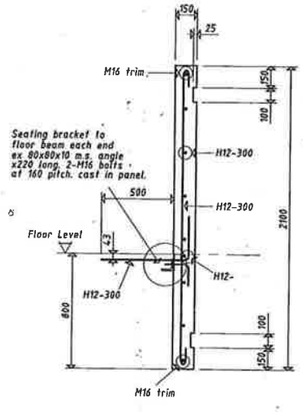
1:50



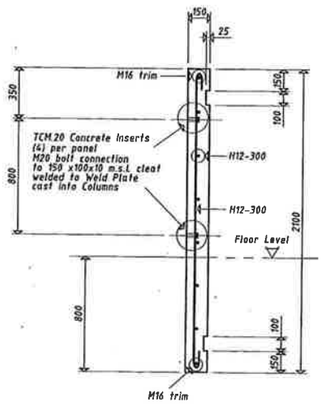
150 THICK 6.0 TONNES (approx)

P/C SPANDREL PANEL S6 (3 No REQUIRED)

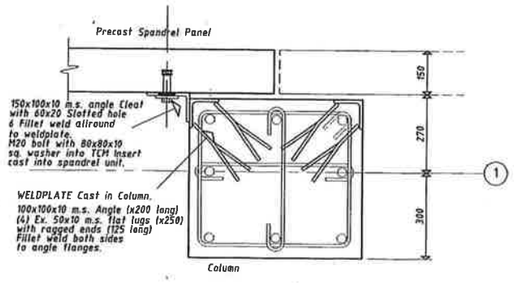
1:50



TYPICAL SECTION THRU.PRECAST SPANDREL PANELS S1 S2 S3



TYPICAL SECTION THRU.PRECAST SPANDREL PANELS S4 S5 S6



TYPICAL CONNECTION DETAIL SPANDREL PANELS GRID (1)

1:10

RECEIPT

CHRISTCHURCH CITY COUNCIL

CONSENT DOCUMENT

06 JUN 2001

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BALLANTYNE & Co. Ltd.

PROPOSED DEVELOPMENT

LICHFIELD STREET

Precast Spandrel Panels

REV	DATE	BY	AMENDMENT
	07.12.00		Consent Issue
	07.07.00		Pricing Issue

DESIGNED D.CUSIEL
DRAWN R.L.CRAW
CHECKED
DATE June 2000

JOB No. 4654
SHEET No. SP7 OF 41

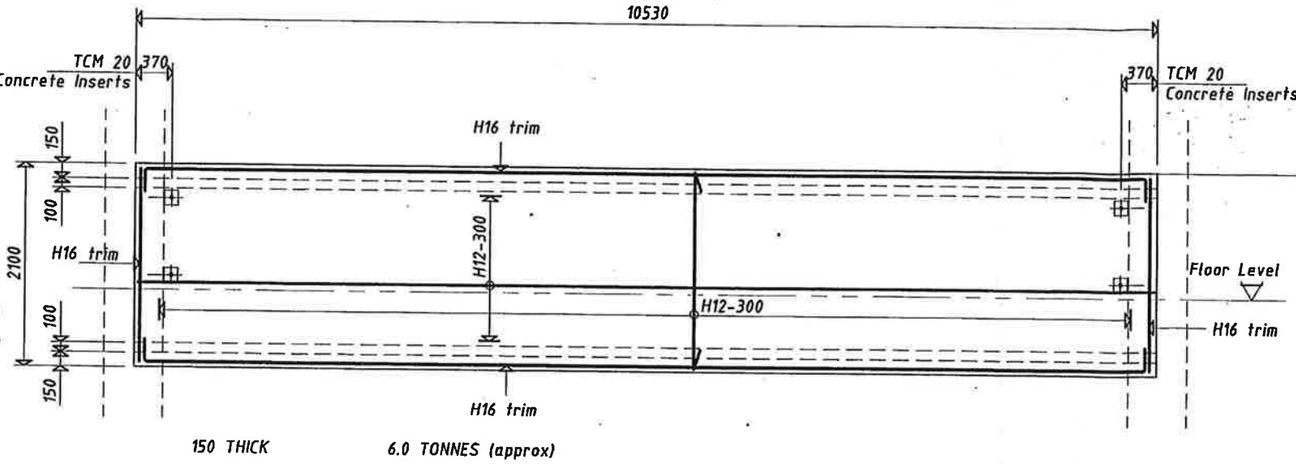
Thu Dec 07 12:01:38 2000

Inserts

Level

trim

REQUIRED)

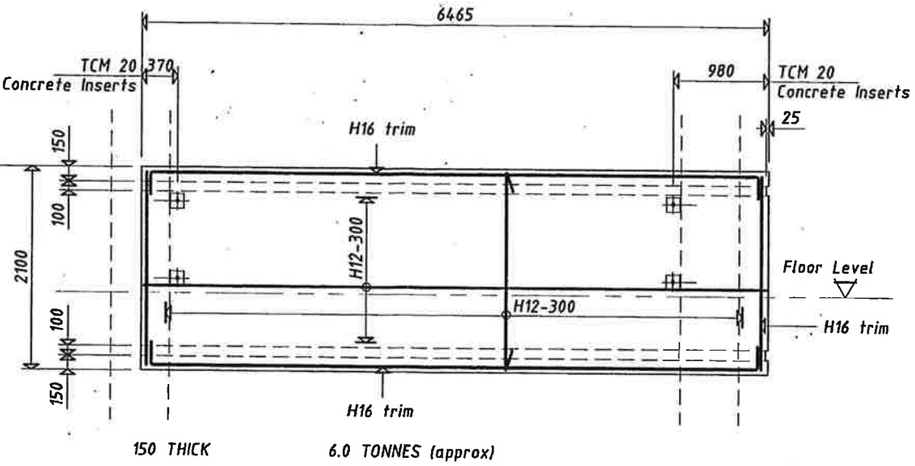


150 THICK 6.0 TONNES (approx)

P/C SPANDREL PANEL (S5)

(3 No REQUIRED)

1:50

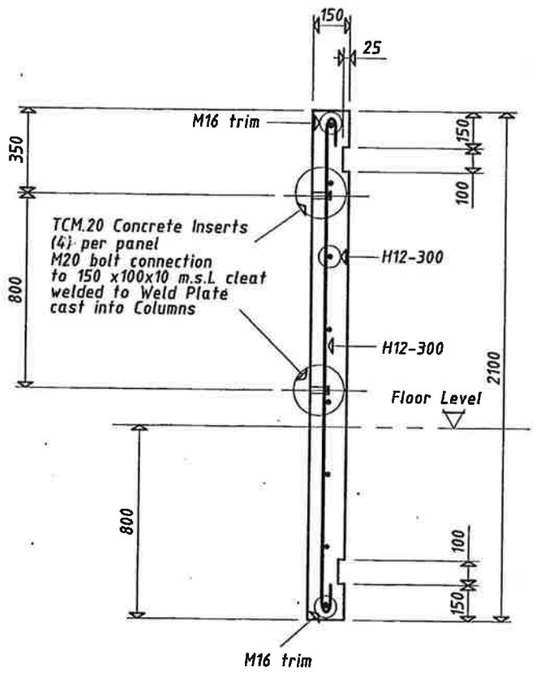


150 THICK 6.0 TONNES (approx)

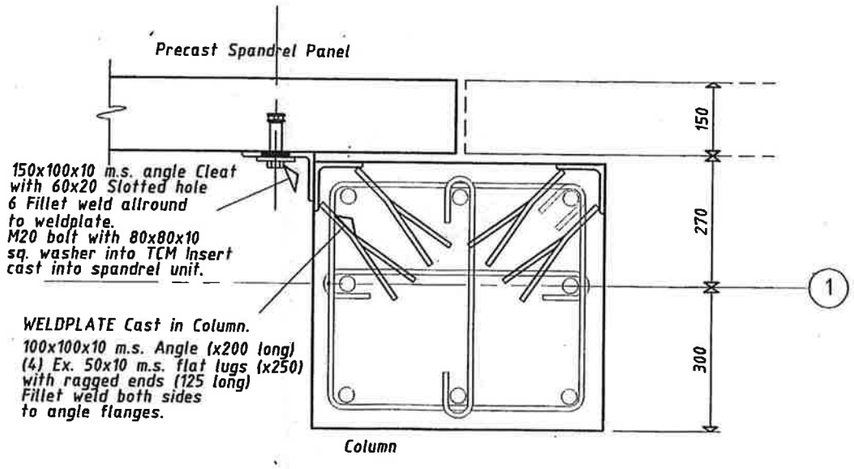
P/C SPANDREL PANEL (S6)

(3 No REQUIRED)

1:50



TYPICAL SECTION THRU.PRECAST SPANDREL PANELS (S4) (S5) (S6)



TYPICAL CONNECTION DETAIL SPANDREL PANELS GRID (1)

1:10

BUI.LIC43.0023.20

Christchurch Eq. RAPID Assessment Form - LEVEL 1

Inspector Initials	LJF	Date of Inspection	5-9-10	Exterior Only	☑
Territorial Authority	Christchurch City	Time	1-20 pm	Exterior and Interior	☐

Building Name Ballantynes Ownstable House

Short Name

Address 43 Lichfield St

GPS Co-ordinates S° E°

Contact Name

Contact Phone

Storeys at and above ground level 5 Below ground level

Total gross floor area (m²) 5000 Year built Late 90's

No of residential Units —

Photo Taken Yes No

Type of Construction

- ☐ Timber frame
- ☐ Steel frame
- ☑ Tilt-up concrete
- ☐ Concrete frame
- ☑ RC frame with masonry infill
- ☑ Concrete shear wall
- ☐ Unreinforced masonry
- ☐ Reinforced masonry
- ☐ Confined masonry
- ☐ Other:

Primary Occupancy

- ☐ Dwelling
- ☐ Other residential
- ☐ Public assembly
- ☐ School
- ☐ Religious
- ☐ Commercial/ Offices
- ☐ Industrial
- ☐ Government
- ☐ Heritage Listed
- ☐ Other

Investigate the building for the conditions listed below:

Overall Hazards / Damage	Minor/None	Moderate	Severe	Comments
Collapse, partial collapse, off foundation	☑	☐	☐	
Building or storey leaning	☑	☐	☐	
Wall or other structural damage	☑	☐	☐	
Overhead falling hazard	☑	☐	☐	
Ground movement, settlement, slips	☑	☐	☐	
Neighbouring building hazard	☑	☐	☐	
Other	☑	☐	☐	

Choose a posting based on the evaluation and team judgement. Severe conditions affecting the whole building are grounds for an UNSAFE posting. Localised Severe and overall Moderate conditions may require a RESTRICTED USE. Place INSPECTED placard at main entrance. Post all other placards at every significant entrance.

INSPECTED	RESTRICTED USE	UNSAFE
GREEN ☑	*YELLOW* ☐	*RED* ☐

Record any restriction on use or entry:

Further Action Recommended:

Tick the boxes below only if further actions are recommended

- ☐ Barricades are needed (state location):
- ☐ Level 2 or detailed engineering evaluation recommended
  - ☐ Structural ☐ Geotechnical ☐ Other:
- ☐ Other recommendations:

Estimated Overall Building Damage (Exclude Contents)

None	☐		
0-1 %	☑	31-60 %	☐
2-10 %	☐	61-99 %	☐
11-30 %	☐	100 %	☐

Pt Pwpi 873483 and 3 DP 54165

Sign here on completion

Date & Time 5.9.10 Pm

ID LJF

Inspection ID LJF57 *(Office Use Only)*