City Care Milton Street Depot – Works Operation Administration
Detailed Engineering Evaluation
BU 1141-003 EQ2
Quantitative Report

Prepared for Christchurch City Council (Client)

By Beca Carter Hollings & Ferner Ltd (Beca)

3 July 2013

Revision History

Revision Nº	Prepared By	Description	Date
A	Hollie Friesen	Draft for CCC review	28 February 2013
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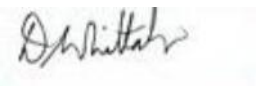
Document Acceptance

Action	Name	Signed	Date
Prepared by	Hollie Friesen		3 July 2013
Reviewed by	Jonathan Barnett		3 July 2013
Approved by	David Whittaker		3 July 2013
on behalf of	Beca Carter Hollings & Ferner Ltd		

City Care Milton Street – Works Operation Administration BU 1141-003 EQ2

Detailed Engineering Evaluation
Quantitative Report – SUMMARY
Version 1

Address
245 Milton Street
Sydenham
Christchurch

Background

This is a summary of the Quantitative Assessment report for the building structure, and is based on the document 'Guidance on Detailed Engineering Evaluation of Earthquake Affected Non-residential Buildings in Canterbury – Part 2 Evaluation Procedure' (draft) issued by the Engineering Advisory Group (EAG) on 19 July 2011.

A Qualitative Report for the Works Operation Administration building was issued to CCC on 13 July 2012.

The Works Operation Administration building is located at City Care Milton Street Depot, 245 Milton Street, Sydenham, Christchurch. It was originally built in 1981, having an approximate internal plan area of 1180m^2. A full set of structural and architectural drawings were made available. Calculations have been undertaken as part of the Quantitative Assessment.

The building consists of steel roof trusses, reinforced concrete masonry walls, concrete columns and reinforced concrete slab on grade. There are some minor alterations from the architectural plan drawing.

The format and content of this report follows a template provided by CCC, which is based on the EAG document.

Key Damage Observed

Visual inspections on 8, 9, and 24 February and 9 October 2012 indicate the building has suffered moderate earthquake damage. The key damage observed includes:

- Widespread cracking to concrete columns, slabs and foundations with varying crack widths.
- Separation between reinforced concrete masonry, column and slab has formed in a number of locations.
- Ground movement and settlement along the south face of the building.
- Widespread cracking to reinforced concrete masonry walls.
- Differential foundation settlement around southern part of the building
- Possible lateral spreading of foundations and associated damage to the building
- Ceiling tiles dislodged from their supports.
- Cracking to GIB linings.

Critical Structural Weaknesses (CSW)

The following Critical Structural Weaknesses have been identified:

- Site characteristics, due to liquefaction observed in the surrounding area resulting in settlement and possible lateral spread.
- Non-ductile columns, due to insufficient transverse reinforcing, non-compliant with NZS 3101:2004.
- Short columns, due to half height brick infill between the concrete columns around the perimeter of the building.

Indicative Building Strength (from Detailed Assessment)

The building in its damaged state has been assessed to have a seismic capacity in the order of 35%NBS using the New Zealand Society for Earthquake Engineering (NZSEE) Detailed Assessment guideline 'Assessment and Improvement of the Structural Performance of Buildings in Earthquakes' (AISPBE), 2006, and is therefore Earthquake Risk and classified as Seismic Grade C.

The structural damage observed is moderate and it is considered to have reduced the seismic capacity as indicated below.

Our Assessment has identified the structural components that have governed/limited the building's seismic performance, and their potential failure mechanisms, are as follows:

Original Building State:

- Full height Block wall footings, 42%NBS, governed by in-plane overturning and bearing.
- Full height Block wall (primary), 63%NBS, governed by in-plane flexure.
- Full height Block wall (primary), 67%NBS, governed by in-plane shear.

Damaged Building State:

- Column footings, 35%, governed by minor axis rotation (bearing/overturning).
- Precast perimeter columns, 56%NBS, governed by minor-axis flexure (EW).
- Precast perimeter columns, 59%NBS, governed by major-axis flexure (NS).

Recommendations

In order that the owner can make an informed decision about the on-going use and occupancy of their building the following information is presented in line with the Department of Building and Housing document 'Guidance for engineers assessing the seismic performance of non-residential and multi-unit residential buildings in greater Christchurch', June 2012.

The building is considered to be earthquake risk, having an assessed capacity of between 34% and 67%NBS, and classified as Seismic Grade C. The risk of collapse of an earthquake risk building is considered to be 5 to 10 times greater than that of an equivalent new building.

The building has suffered damage to the seismic or gravity load resisting system that is sufficient to impair or significantly reduce its ability to resist further loads, it is in a condition under which further deterioration may be expected in future aftershocks. The building should be repaired as soon as possible.

With consideration to the earthquake damage, the existing hazards observed and also taking into account and utilising in the Assessment the redundancy provided by the secondary load paths, in its damaged state the building would be considered capable of resisting a moderate earthquake without collapse (its assessed capacity is between 34% and 67%NBS).

The Department of Building and Housing document 'Guidance for engineers assessing the seismic performance of non-residential and multi-unit residential buildings in greater Christchurch, June 2012, provides the following advice.

"Where a building has suffered damage to the seismic or gravity load resisting system that is sufficient to impair or significantly reduce the ability to resist further loads, then it is in a condition under which further deterioration may be expected in future aftershocks. Such a building should be repaired as soon as possible.

If the building in its damaged state is capable of resisting a moderate earthquake without collapse (i.e., it is not earthquake-prone) it may be used while repairs are taking place provided user safety is not compromised (for example, by blocking fire egress paths)."

Based on this advice, and provided the necessary repairs are undertaken as soon as possible, we do not consider it necessary to vacate the building.

It is recommended that:

- A verticality and level survey could be carried out to determine the extent of settlement of the building for insurance purposes.
- A full damage assessment is carried out for insurance purposes, including condition assessment of the connection of the steel roof trusses to the precast concrete columns and the connection between the internal walls and precast columns. The building capacity may be further reduced if significant damage or deterioration of the structural elements is discovered.
- According to the recent CCC Instructions to Engineers document (16 Oct 2012) Council's insurance provides for repairing damaged elements to a condition substantially as new. We suggest you consult further with your insurance advisor.
- Geotechnical investigation to confirm the risk from further lateral spread and allowable bearing pressures.

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Appendices

1 Background

Beca Carter Hollings & Ferner Ltd (Beca) has been engaged by Christchurch City Council (CCC) to undertake a Quantitative Detailed Engineering Evaluation (DEE) of the Works Operation Administration building located at City Care Milton Street Depot, 245 Milton Street in Sydenham, Christchurch.

This report is a Quantitative Assessment of the building structure, and is based on the document 'Guidance on Detailed Engineering Evaluation of Earthquake Affected Non-residential Buildings in Canterbury – Part 2 Evaluation Procedure' (draft) issued by the Engineering Advisory Group (EAG) on 19 July 2011.

A Quantitative Assessment involves analytical calculations of the building's strength and may involve material testing, geotechnical testing and intrusive investigation. The Qualitative Assessment previously carried out involved inspections of the building, a desktop review of existing structural and geotechnical information, including existing drawings and calculations, if available and an assessment of the level of seismic capacity against current code using the Initial Evaluation Procedure (IEP).

The purpose of these assessments is to determine the likely building performance and damage patterns, to identify any potential Critical Structural Weaknesses (CSW) or collapse hazards, and to make an assessment of the likely building strength in terms of percentage of New Building Standard (%NBS).

Architectural and structural drawings were made available and have been used in our assessment of the building. The building description below is based on a review of the drawings and our visual inspections.

The format and content of this report follows a template provided by CCC, which is based on the EAG document.

2 Compliance

This section contains a brief summary of the requirements of the various statutes and authorities that control activities in relation to buildings in Christchurch at present.

2.1 Canterbury Earthquake Recovery Authority (CERA)

CERA was established on 28 March 2011 to take control of the recovery of Christchurch using powers established by the Canterbury Earthquake Recovery Act enacted on 18 April 2011. This act gives the Chief Executive Officer of CERA wide powers in relation to building safety, demolition and repair. Two relevant sections are:

Section 38 – Works

This section outlines a process in which the chief executive can give notice that a building is to be demolished and if the owner does not carry out the demolition, the chief executive can commission the demolition and recover the costs from the owner or by placing a charge on the owners' land.

Section 51 – Requiring Structural Survey

This section enables the chief executive to require a building owner, insurer or mortgagee to carry out a full structural survey before the building is re-occupied.

We understand that CERA will require a detailed engineering evaluation to be carried out for all buildings (other than those exempt from the Earthquake Prone Building definition in the Building Act). It is understood that CERA is adopting the Detailed Engineering Evaluation Procedure document (draft) issued by the Engineering Advisory Group on 19 July 2011, which sets out a methodology for both Qualitative and Quantitative Assessments. We understand this report will be used in response to CERA Section 51.

The Qualitative Assessment includes a thorough visual inspection of the building coupled with a desktop review of available documentation such as drawings, specifications and undertaking of IEP Assessment's. The Quantitative Assessment involves analytical calculation of the building's strength and may require non-destructive or destructive material testing, geotechnical testing and intrusive investigation.

It is anticipated that factors determining the extent of evaluation and strengthening level required will include:

- The importance level and occupancy of the building
- The placard status that was assigned during the state of emergency following the 22 February 2011 earthquake
- The age and structural type of the building
- Consideration of any Critical Structural Weaknesses
- The extent of any earthquake damage

2.2 Building Act

Several sections of the Building Act are relevant when considering structural requirements:

Section 112 – Alterations

This section requires that an existing building complies with the relevant sections of the Building Code to at least the extent that it did prior to any alteration. This effectively means that a building cannot be weakened as a result of an alteration (including partial demolition).

Section 115 – Change of Use

This section requires that the territorial authority (in this case Christchurch City Council (CCC)) be satisfied that the building with a new use complies with the relevant sections of the Building Code 'as near as is reasonably practicable'. Regarding seismic capacity 'as near as reasonably practicable' has previously been interpreted by CCC as achieving a minimum of 67%NBS however where practical achieving 100%NBS is desirable. The New Zealand Society for Earthquake Engineering (NZSEE) recommend a minimum of 67%NBS.

Section 121 – Dangerous Buildings

The definition of dangerous building in the Act was extended by the Canterbury Earthquake (Building Act) Order 2010, and it now defines a building as dangerous if:

- In the ordinary course of events (excluding the occurrence of an earthquake), the building is likely to cause injury or death or damage to other property; or
- In the event of fire, injury or death to any persons in the building or on other property is likely because of fire hazard or the occupancy of the building; or

- There is a risk that the building could collapse or otherwise cause injury or death as a result of earthquake shaking that is less than a 'moderate earthquake' (refer to Section 122 below); or
- There is a risk that that other property could collapse or otherwise cause injury or death; or
- A territorial authority has not been able to undertake an inspection to determine whether the building is dangerous.

Section 122 – Earthquake Prone Buildings

This section defines a building as earthquake prone if its ultimate capacity would be exceeded in a 'moderate earthquake' and it would be likely to collapse causing injury or death, or damage to other property. A moderate earthquake is defined by the building regulations as one that would generate ground shaking 33% of the shaking used to design an equivalent new building.

Section 124 – Powers of Territorial Authorities

This section gives the territorial authority the power to require strengthening work within specified timeframes or to close and prevent occupancy to any building defined as dangerous or earthquake prone.

Section 131 – Earthquake Prone Building Policy

This section requires the territorial authority to adopt a specific policy for earthquake prone, dangerous and insanitary buildings.

2.3 Christchurch City Council Policy

Christchurch City Council adopted their Earthquake Prone, Dangerous and Insanitary Building Policy in 2006. This policy was amended immediately following the Darfield Earthquake of the 4th September 2010.

The 2010 amendment includes the following:

- A process for identifying, categorising and prioritising Earthquake Prone Buildings, commencing on 1 July 2012;
- A strengthening target level of 67% of a new building for buildings that are Earthquake Prone;
- A timeframe of 15-30 years for Earthquake Prone Buildings to be strengthened; and,
- Repair works for buildings damaged by earthquakes will be required to comply with the above.

The council has stated their willingness to consider retrofit proposals on a case by case basis, considering the economic impact of such a retrofit.

It is understood that any building with a capacity of less than 33%NBS (including consideration of Critical Structural Weaknesses) will need to be strengthened to a target of 67%NBS of new building standard as recommended by the Policy.

If strengthening works are undertaken, a building consent will be required. A requirement of the consent will require upgrade of the building to comply 'as near as is reasonably practicable' with:

- The accessibility requirements of the Building Code.
- The fire requirements of the Building Code. This is likely to require a fire report to be submitted with the building consent application.

2.4 Building Code

The building code outlines performance standards for buildings and the Building Act requires that all new buildings comply with this code. Compliance Documents published by The Department of Building and Housing can be used to demonstrate compliance with the Building Code.

On 19 May 2011, Compliance Document B1: Structure was amended to include increased seismic design requirements for Canterbury as follows:

a. Hazard Factor increased from 0.22 to 0.3 (36% increase in the basic seismic design load)

b. Serviceability Return Period Factor increased from 0.25 to 0.33 (80% increase in the serviceability design loads when combined with the Hazard Factor increase)

The increase in the above factors has resulted in a reduction in the level of compliance of an existing building relative to a new building despite the capacity of the existing building not changing.

3 Earthquake Resistance Standards

For this assessment, the building's Ultimate Limit State earthquake resistance is compared with the current New Zealand Building Code requirements for a new building constructed on the site. This is expressed as a percentage of new building standard (%NBS). The new building standard load requirements have been determined in accordance with the current earthquake loading standard (NZS 1170.5:2004 Structural design actions - Earthquake actions - New Zealand).

No consideration has been given at this stage to checking the level of compliance against the increased Serviceability Limit State requirements.

The likely ultimate capacity of this building has been derived in accordance with the New Zealand Society for Earthquake Engineering (NZSEE) guidelines 'Assessment and Improvement of the Structural Performance of Buildings in Earthquakes' (AISPBE), 2006. These guidelines provide an Initial Evaluation Procedure that assesses a building's capacity based on a comparison of loading codes from when the building was designed and currently. It is a quick high-level procedure that can be used when undertaking a Qualitative analysis of a building. The guidelines also provide guidance on calculating a modified Ultimate Limit State capacity of the building which is much more accurate and can be used when undertaking a Quantitative analysis.

The New Zealand Society for Earthquake Engineering has proposed a way for classifying earthquake risk for existing buildings in terms of %NBS and this is shown in Figure 3.1 below.

Description	Grade	Risk	%NBS	Existing Building Structural Performance	Improvement of Structural Performance	
					Legal Requirement	NZSEE Recommendation
Low Risk Building	A or B	Low	Above 67	Acceptable (improvement may be desirable)	The Building Act sets no required level of structural improvement (unless change in use) This is for each TA to decide. Improvement is not limited to 34%NBS.	100%NBS desirable. Improvement should achieve at least 67%NBS
Moderate Risk Building	B or C	Moderate	34 to 66	Acceptable legally. Improvement recommended		Not recommended. Acceptable only in exceptional circumstances
High Risk Building	D or E	High	33 or lower	Unacceptable (Improvement	Unacceptable	Unacceptable

Figure 3.1: NZSEE Risk Classifications Extracted from Table 2.2 of the NZSEE 2006 AISPBE Guidelines

Table 3.1 below compares the percentage NBS to the relative risk of the building failing in a seismic event with a 10% risk of exceedance in 50 years (i.e. on average 0.2% in any year). It is noted that the current seismic risk in Christchurch results in a 6% risk of exceedance in the next year.

Table 3.1: %NBS Compared to Relative Risk of Failure

Building Grade	Percentage of New Building Standard (*%NBS*)	Approx. Risk Relative to a New Building
A+	>100	<1
A	80-100	1-2 times
B	67-80	2-5 times
C	33-67	5-10 times
D	20-33	10-25 times
E	<20	>25 times

4 Building Description

4.1 General

Summary information about the building is given in the following table.

Table 4.1: Building Summary Information

Item	Details	Comment
Building name	City Care Milton Street Depot- Works Operation Administration	
Street Address	245 Milton Street Sydenham Christchurch	
Age	Approximately 30 years (1981 design date).	Architectural and structural drawings both dated 1981-1982.
Description	Single storey office. Importance Level 2 is assumed	
Building Footprint / Floor Area	Approx. 1180m^2	
No. of storeys / basements	1 storey with no basement	

Item	Details	Comment
Occupancy / use	Office	Importance Level 2
Construction	Steel roof truss, timber purlins and timber panel roof diaphragm, reinforced concrete masonry walls, concrete columns and concrete slab with shallow pad and strip footings.	
Gravity load resisting system	Steel truss spanning between internal and external concrete columns.	
Seismic load resisting system	Combination of internal reinforced concrete masonry walls and concrete cantilever columns.	
Foundation system	Concrete slab with shallow pad footings under columns and strip footings under walls.	
Stair system	n/a	
Other notable features		
External works	Asphalt pavement, car parking	
Construction information	Structural drawings (full set) Architectural drawings (full set)	Christchurch City Council – City Engineers Department Christchurch City Council – City Architects Division
Likely design standard	NZS 4203:1976	Inferred from age of building
Heritage status	No heritage status	
Other		

4.2 Structural 'Hot-spots'

Areas in which damage may be expected to occur from earthquake shaking are outlined below:

- Spreading and fracturing of structural elements due to lateral spread and liquefaction.
- Cracking to the primary reinforced masonry walls.
- Cracking to the perimeter concrete columns due to short column effect and non-ductile column detailing.

5 Site Investigations

5.1 Previous Assessments

The building had a Level 2 rapid assessment undertaken following the February 2011 and December 2011 earthquake events (refer to Appendix D).

Visual inspections as part of the Level 4 damage assessment were undertaken on 8, 9 and 24 February 2012. A Qualitative Report was issued to CCC dated 13 July 2012.

5.2 Level 5 Intrusive Investigations

The following intrusive investigations were carried out as part of the Level 5 Quantitative Assessment:

- Limited scanning of some of the block walls to confirm reinforcement; results show reinforcing to the walls is generally consistent with that noted on the drawings.
- Exposure of one precast concrete column connection to its foundation. The drawings are unclear on some of the detail of this connection, exposing this one location showed that the concrete around the splice was of good condition and the reinforcing does not appear to have been damaged and therefore the capacity doesn't not appear to have been affected.

6 Damage Assessment

6.1 Damage Summary

The table below provides a summary of damage observed during our inspection. Refer to Appendix A for photographs.

Table 6.1: Damage Summary

Damage type	Unknown	Minor	Moderate	Major	Comment
settlement of foundations			✓		Visible cracking in slab below column at Lunch Room, Kitchen and HR Files Room. Separation between Lunch Room and Client Service Office.
tilt of building	✓				None seen during visual inspections. Level and tilt survey is recommended to confirm.
liquefaction		✓			None observed during visual inspection. Contacts on site stated it had occurred in areas throughout the site. The aerial reconnaissance on 24th Feb 2011 indicates the extent was minor.
settlement of external ground			✓		Ground settlement along the south face of the building observed.
lateral spread / ground cracks			✓		Observed during visual inspections around the building. Significant separation between walls and concrete columns observed indicates possible spread of foundation and damage to upper bond beam reinforcement. Separation of slab between Lunch Room and Client Service Office also indicates possible spread of foundation.
frame		✓			Widespread minor cracking to concrete columns observed.
masonry walls		✓			Widespread minor cracking to reinforced concrete masonry walls observed.
cracking to concrete floors			✓		Lateral separation of slab between Lunch Room and Client Service Office.
bracing	✓				No roof bracings were observed during visual inspection. However the drawings indicate a roof diaphragm. No damage was observed to the connections of the roof trusses to the precast

Damage type	Unknown	Minor	Moderate	Major	Comment
					columns; however these should be fully inspected as part of the damage survey.
precast flooring seating					Not Applicable
stairs					Not Applicable
cladding /envelope		✓			Widespread vertical cracks in half height external walls.
internal fit out		✓			Cracking to GIB and damaged to suspended ceiling observed.
building services	✓				No inspection of services
other		✓			Widespread minor cracking of concrete footpath observed around the perimeter of the building.

6.2 Surrounding Buildings

There are no adjacent structures that are close enough that may affect this building during an earthquake.

6.3 Residual Displacements and General Observations

Some residual displacement and general ground and building movement were observed during visual inspections. In particular there is significant separation between some block walls and adjacent concrete columns. Further investigation including survey may be required to determine the extent of settlement and building movements.

6.4 Implication of Damage

Based on our visual inspection, the structure appears to have suffered moderate damage which may have diminished the structural capacity. We have assumed that the capacity is reduced by around 10% due to the damage.

7 Generic Issues

The following generic issues referred to in Appendix A of the EAG guideline document have been identified as applicable to the Works Operation Administration building:

Fully Filled Reinforced Concrete Masonry

- Inadequate flexural strength.
- Inadequate shear strength.
- Inadequate foundations.
- Structural irregularity.

Concrete Moment Resisting Columns (Adapted from Concrete or Steel Frame with Infill)

- Torsional behaviour through infill boundary walls varying in height.

- Column sidesway mechanism results in excessive ductility and shear demand in columns.

Shallow Foundations

- Lateral spread.

Moderate earthquake damage has been observed.

8 Geotechnical Consideration

No Geotechnical information is currently available for this site.

During the inspection, any damage to the surrounding ground was noted and any effect to the structure was considered.

9 Survey

No level or verticality surveys were carried out however effects of the movements observed onsite have been incorporated into the damaged %NBS i.e. significant movements around the blockwalls have disrupted the primary load paths, alternative load paths utilising the perimeter columns have been used.

CCC may wish to undertake a level survey as part of insurance entitlement considerations as part of the damage assessment.

10 Detailed Seismic Capacity Assessment

10.1 Assessment Methodology

The building has had its seismic capacity assessed using the Detailed Assessment Procedures in the NZSEE 2006 AISPBE guidelines, based on the drawings, site measurements and intrusive investigations undertaken.

The structure has suffered moderate damage. The post-damage capacity is considered to be less than the original capacity.

10.2 Assumptions

The following assumptions were used in our Quantitative Assessment:

- Structural steel yield strength, fy =250MPa (assumed from age of building)
- Reinforcing steel yield strength, fy = 275/380MPa (as stated on the drawings)
- Concrete compressive strength, f'c = 20/35MPa (foundations/precast columns)(as stated on the drawings)
- Soil ultimate bearing pressure, fb = 150kPa (includes ϕ=0.5) (based on NZS3604 "Good ground")

10.3 Critical Structural Weaknesses

The following Critical Structural Weaknesses were identified in the Qualitative report:

- Short columns, due to half height masonry infill between the concrete columns around the perimeter of the building.

- Plan irregularity; due to high concentration of shear walls in the south-east corner of the building.
- Site characteristics, due to minor liquefaction observed in the surrounding area resulting in settlement and possible lateral spread.

The short column effect has been assessed and the perimeter columns have been identified to resist only a small portion of the overall load when in combination with the internal block walls, however, they form part of a secondary load path. Once the primary walls and/or their foundations become overloaded and their stiffness is reduced, the load they had been resisting is redistributed to the perimeter columns. Also, the earthquake damage separations between the walls and columns means that the load cannot transfer into the walls. For the E-W direction of loading there is a combination of columns orientated to resist forces in major axis and minor axis. Therefore, short columns are still considered a Critical Structural Weakness.

Drawings were received following the completion of the Qualitative report. Review of these drawings and further inspections on site has shown that the walls not “on-grid” are typically independent from the rest of the structure and do not form part of the lateral load resisting system. Therefore the plan irregularity is considered not as severe. Plan irregularity effects have been assessed for this Quantitative Report and it is no longer considered a Critical Structural Weakness.

The site characteristics have been identified as a potential CSW in our earlier Qualitative Report. We note that liquefaction is still considered a potential CSW however has not been considered in this Quantitative Assessment as we believe it will not have a direct impact on the structure’s ability to resist further loads or cause global failure of the structure.

The following Critical Structural Weaknesses were identified during the Quantitative Assessment:

- Non-ductile columns, due to insufficient transverse reinforcement, non-code compliant.

From review of the original drawings supplied following the completion of the Qualitative report, the transverse reinforcement shown on these drawings of the precast concrete cantilever columns is insufficient and does not comply with the minimum detailing requirements of NZS 3101:2004. This can result in undesirable behaviour including brittle shear failures. A ductility of μ =1.0 has therefore been adopted for this building. The resulting calculations indicate that the columns should fail in flexure prior to shear, however non-ductile columns are still considered a Critical Structural Weakness because of their unpredictable nature.

- Perimeter precast column splice connection to the footing.

The detail of this on the drawings is unusual, and the encasing concrete around the splice is not specified. These connections could be susceptible to damage, however one location was exposed on site and the condition appeared adequate.

10.4 Seismic Parameters

The seismic design parameters based on current design requirements from NZS 1170.5:2004 and the NZBC clause B1 for this building are:

- Site soil class: D – NZS 1170.5:2004, Clause 3.1.3, Soft Soil
- Site hazard factor, Z = 0.3 – NZBC, Clause B1 Structure, Amendment 11 effective from 19 May 2011
- Return period factor Ru = 1 – NZS 1170.5:2004, Table 3.5, Importance Level 2 structure with a 50 year design life.
- Near fault factor N(T,D) = 1 – NZS 1170.5:2004, Clause 3.1.6, Distance more than 20 km from fault line.

10.5 Results of Seismic Assessment

The results of our Quantitative Assessment indicate the building in its damaged state has a seismic capacity in the order of 35%NBS. This is consistent to the IEP assessment of 35%NBS (damaged state) in the previous Qualitative Report. Table 10.1 presents the evaluated seismic capacity in terms of %NBS of the individual structural systems in each building direction.

Table 10.1: Summary of Seismic Assessment of Structural Systems

Item	Loading Direction	Ductility, μ	Seismic Capacity	Notes
Overall %NBS adopted from DEE (undamaged)	**E-W**	**1.0**	**42%NBS**	**Governed by Primary Block Wall foundations**
Overall %NBS adopted from DEE (damaged)	**Both**	**1.0**	**35%NBS**	**Governed by column foundations**
Full Height Block Walls, (primary walls - lateral load resisting system)	E-W N-S	1.0 1.0	63 64	In-plane flexure In-plane shear
Full Height Block Walls • Out-of-plane cantilever (primary and secondary) • S-E corner (free standing)	Both Both	1.0 1.0	85 100	Out-of-plane flexure (NZS1170.5 parts loading) To NZS4229:1999
Cantilever Precast Concrete Columns	E-W N-S	1.0 due to shear reinforcing not complying with ductile detailing requirements of NZS3101:2005	56 59	Minor Axis Bending Major Axis Bending Columns only take load once the walls and/or their foundations become overloaded.
Roof Truss connection to Columns	Both	1.25	85	Welded truss members to cast in plate in precast columns.
External cladding partial height block walls	Both	1.0	100	Includes short column forces once primary walls are overloaded.
Foundations • Full Height Block wall strip footings (in-plane) • Cantilever Precast Concrete Columns • Full Height Block wall strip footings (out-of plane)	E-W N-S Both Both	1.0 1.0 1.0 1.0	42 100 35	Bearing limited to assumed 150kPa allowable. Short Column Minor Axis, columns only loaded once walls are overloaded Cantilever out-of plane under self-weight only.

Note: The columns form the secondary load path once the primary walls and/or their foundations can no longer provide lateral load resistance, i.e. the damaged state.

Ductility factors are in accordance with the values recommended in the NZSEE 2006 AISPBE guidelines.

10.6 Discussion of results

The separation of the walls from columns in some areas indicates that they are no longer fully connected. Therefore we have conservatively assumed that in the damaged state the columns initially act alone in resisting horizontal earthquake loads.

The key findings of the Assessment are as follows:

Original Building State:

- Full height block wall footings, 42%NBS, governed by in-plane overturning and bearing.
- Full height block wall (primary), 63%NBS, governed by in-plane flexure.
- Full height block wall (primary), 67%NBS, governed by in-plane shear.

Damaged Building State:

- Column footings, 35%, governed by minor axis rotation (bearing/overturning).
- Precast perimeter columns, 56%NBS, governed by minor-axis flexure (EW).
- Precast perimeter columns, 59%NBS, governed by major-axis flexure (NS).

Note: the columns do not have sufficient transverse reinforcement to comply with NZS3101:2004 and are therefore considered non-ductile.

Based on the results of our Quantitative Assessment, the Works Operation Administration building is considered Earthquake Risk as the seismic capacity was assessed to be between 34%NBS and 67%NBS, and is classified as Seismic Grade C.

11 Recommendations

11.1 Occupancy

In order that the owner can make an informed decision about the on-going use and occupancy of their building the following information is presented in line with the Department of Building and Housing document ‘Guidance for engineers assessing the seismic performance of non-residential and multi-unit residential buildings in greater Christchurch’, June 2012.

The building is considered to be earthquake risk, having an assessed capacity of between 34% and 67%NBS, and classified as Seismic Grade C. The risk of collapse of an earthquake risk building is considered to be 5 to 10 times greater than that of an equivalent new building.

The building has suffered damage to the seismic or gravity load resisting system that is sufficient to impair or significantly reduce its ability to resist further loads, it is in a condition under which further deterioration may be expected in future aftershocks. The building should be repaired as soon as possible.

With consideration to the earthquake damage, the existing hazards observed and also taking into account and utilising in the assessment the redundancy provided by the secondary load paths, in its damaged state the building would be considered capable of resisting a moderate earthquake without collapse (its assessed capacity is between 34% and 67%NBS).

The Department of Building and Housing document 'Guidance for engineers assessing the seismic performance of non-residential and multi-unit residential buildings in greater Christchurch, June 2012, provides the following advice.

"Where a building has suffered damage to the seismic or gravity load resisting system that is sufficient to impair or significantly reduce the ability to resist further loads, then it is in a condition under which further deterioration may be expected in future aftershocks. Such a building should be repaired as soon as possible.

If the building in its damaged state is capable of resisting a moderate earthquake without collapse (ie, it is not earthquake-prone) it may be used while repairs are taking place provided user safety is not compromised (for example, by blocking fire egress paths)."

Based on this advice, and provided the necessary repairs are undertaken as soon as possible, we do not consider it necessary to vacate the building.

11.2 Further Investigations, Survey or Geotechnical Work

It is recommended that:

- A verticality and level survey could be carried out to determine the extent of settlement of the building for insurance purposes.
- A full damage assessment is carried out for insurance purposes, including intrusive investigation of the condition of the roof truss connections to the precast columns, and the connection between the internal walls and precast columns. The building capacity may be reduced further if significant damage or deterioration is found to the structural elements.
- Geotechnical investigation to determine the allowable soil bearing pressures and further ground spreading risk.

11.3 Damage Reinstatement

According to the recent CCC Instructions to Engineers document (16 Oct 2012) Council's insurance provides for repairing damaged elements to a condition substantially as new. We suggest you consult further with your insurance advisor.

12 Design Features Report

Repairs will be required to reinstate the existing structural system. A repair methodology has not been prepared at this stage. No new load paths are expected as a result of the repairs required.

13 Limitations

The following limitations apply to this engagement:

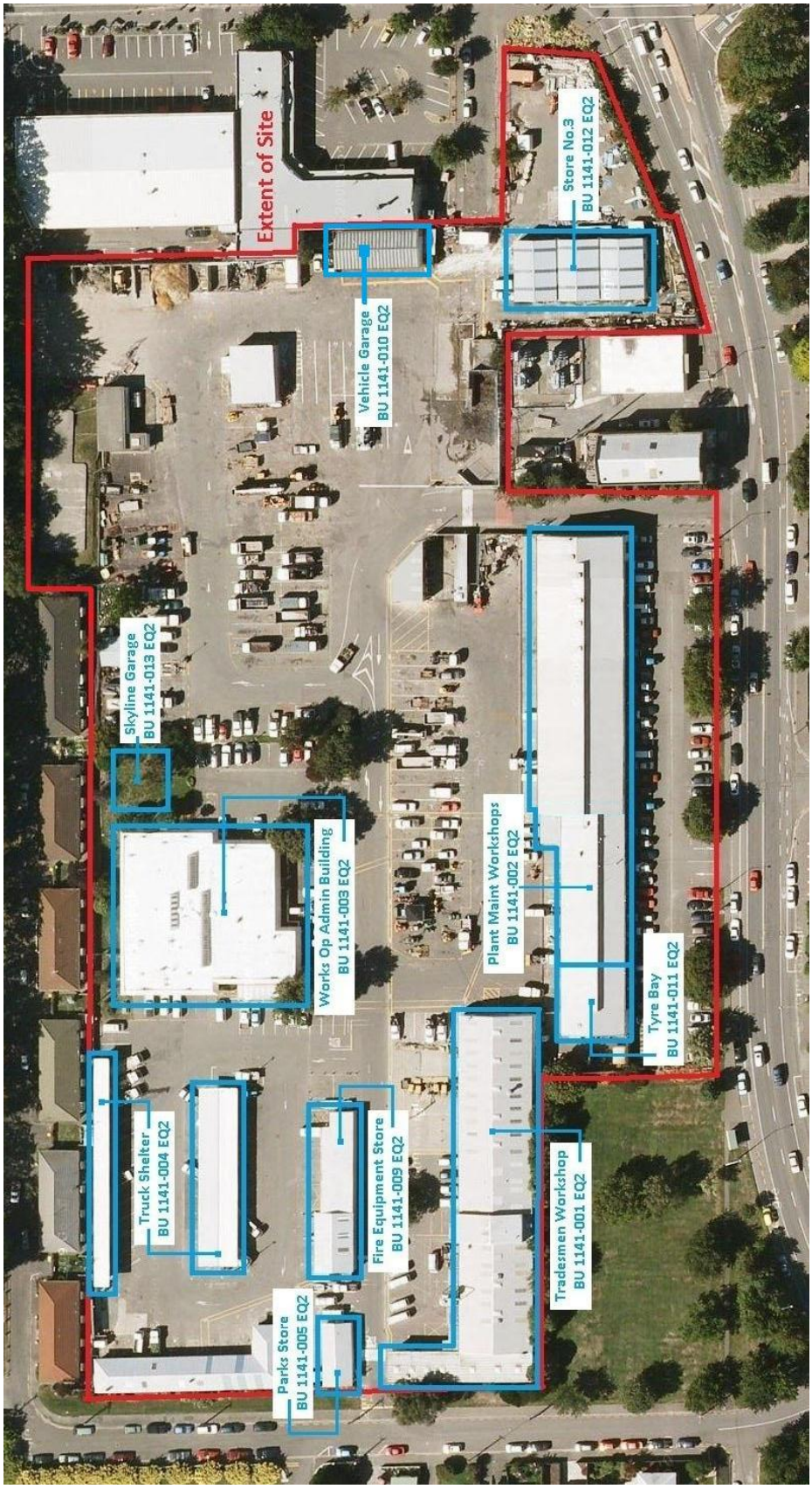
- Beca and its employees and agents are not able to give any warranty or guarantee that all defects, damage, conditions or qualities have been identified.
- Inspections are primarily limited to visible structural components. Appropriate locations for invasive inspection, if required, will be based on damage patterns observed in visible elements, and review of the construction drawings and structural system. As such, there will be concealed structural elements that will not be directly inspected.
- The inspections are limited to building structural components only.
- Inspection of building services, pipework, pavement, and fire safety systems is excluded from the scope of this report.

- Inspection of the glazing system, linings, carpets, claddings, finishes, suspended ceilings, partitions, tenant fit-out, or the general water tightness envelope is excluded from the scope of this report.
- The assessment of the lateral load capacity of the building is limited by the completeness and accuracy of the drawings provided. Assumptions have been made in respect of the geotechnical conditions at the site and any aspects or material properties not clear on the drawings. Where these assumptions are considered material to the outcome further investigations may be recommended. It is noted the assessment has not been exhaustive, our analysis and calculations have focused on representative areas only to determine the level of provision made. At this stage we have not undertaken any checks of the gravity system, wind load capacity, or foundations.
- The information in this report provides a snapshot of building damage at the time the detailed inspection was carried out. Additional inspections required as a result of significant aftershocks are outside the scope of this work.

This report is of defined scope and is for reliance by CCC only, and only for this commission. Beca should be consulted where any question regarding the interpretation or completeness of our inspection or reporting arises.

Appendix A

Photographs



Aerial Photograph of Site showing various Buildings (Source: Google Earth)

Exterior view of Works Operation Administration (north side)

Interior view of Work Operation Administration

Photo 1: Typical crack to perimeter concrete column

Damage description: Cracking to concrete column with various crack width.

Photo 2: Typical cracking and spalling to concrete foundation walls

Damage description: Cracks in concrete foundation walls that exceed a crack width of 1mm and approximately 80mm or more in length.

Photo 3: Typical cracking to concrete footpath at outside of the building

Damage description: Cracks in concrete structures that exceed a crack width of 0.2mm, but less than 2.0mm.

Photo 4: Significant separation at south face of the building

General damage description: Significant separation at south face of the building.

Photo 5: Separation between ceiling and masonry wall at the southern face of the building

Damage description: Separation between ceiling and masonry wall potentially due to settlement at the southern face of the building.

Photo 6: Evidence of ground movement at the southern face of the building

Damage description: Evidence of ground movement at the southern face of the building.

Photo 7: Settlement and separation at east entrance with exposed rebar

Damage description: Evidence of settlement at the east face of the building.

Photo 8: Typical cracking to masonry blocks

Damage description: Cracking to masonry blocks that exceed a crack width of 0.4mm.

Photo 9: Cracking to concrete slab with exposed reinforcement at Client Service office

Damage description: Cracking to concrete slab at Client Service Office potentially caused by settlement and lateral spread due to earthquake shaking.

Photo 10: Plywood propping at lunch room

Damage description: Damage at lunch room has been propped by plywood. This damage is potentially due to settlement.

Photo 11: Cracking to concrete slab at the east wall of Lunch Room

Damage description: Cracking to concrete slab potentially due to settlement at the east wall of lunch room.

Photo 12: Evidence of foundation settlement below the concrete column

Damage description: Evidence of foundation movement and cracking below the concrete column at HR files area.

Photo 13: Separation between masonry and column at Client Service office

Damage description: Separation between masonry and column at Client service area potentially due to settlement.

Photo 14: Cracking to concrete slab along the Locker Room Hallway

Damage description: Cracking to concrete slab along the Locker Room Hallway with cracking width more than 2mm approximately. There is possible rupture of slab reinforcement.

Photo 15: Typical damage to suspended ceiling tile and framing

Damage description: The ceiling grid has been bent and damaged.

Photo 16: Typical cracking to gypsum plasterboard in the ceiling

Damage description: Cracking to plasterboard ceiling.

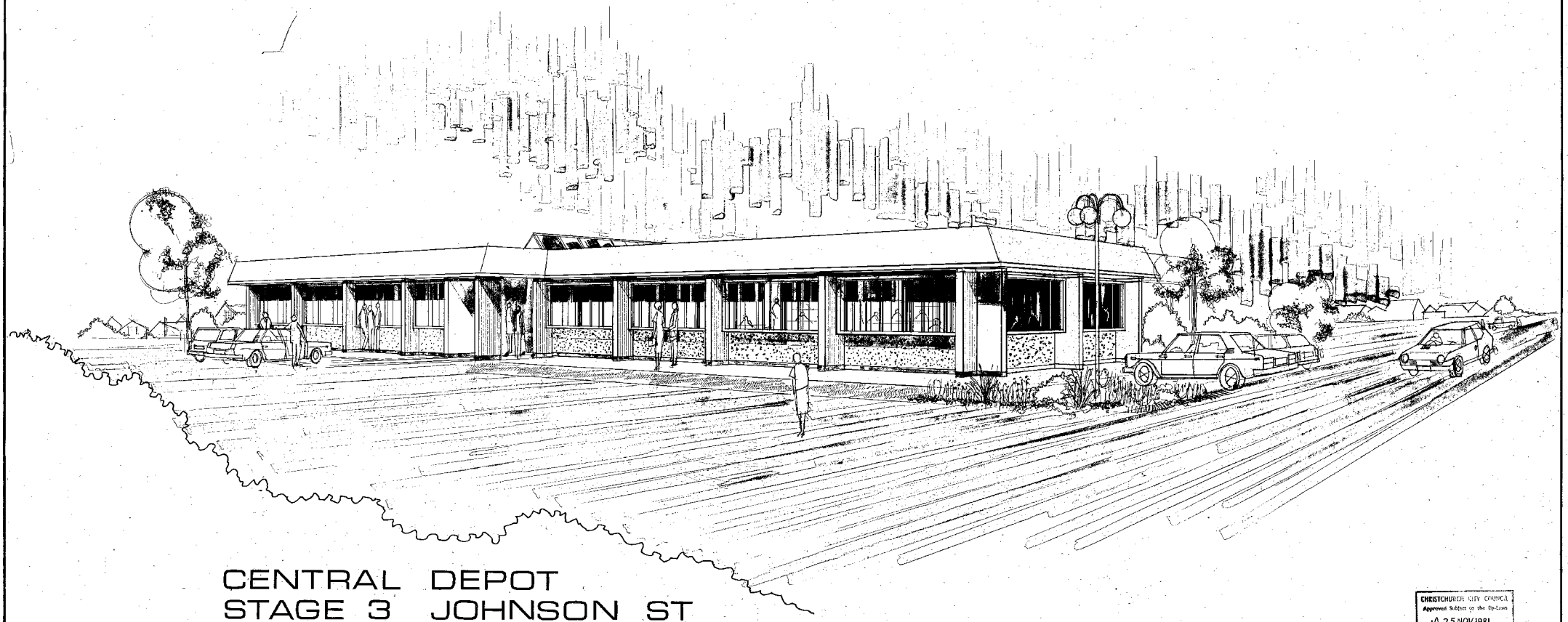
Photo 17: Typical separation between masonry blocks and concrete column

Damage description: Separation between masonry blocks and concrete column with varying crack width from 0.7mm to 15mm.

Appendix B

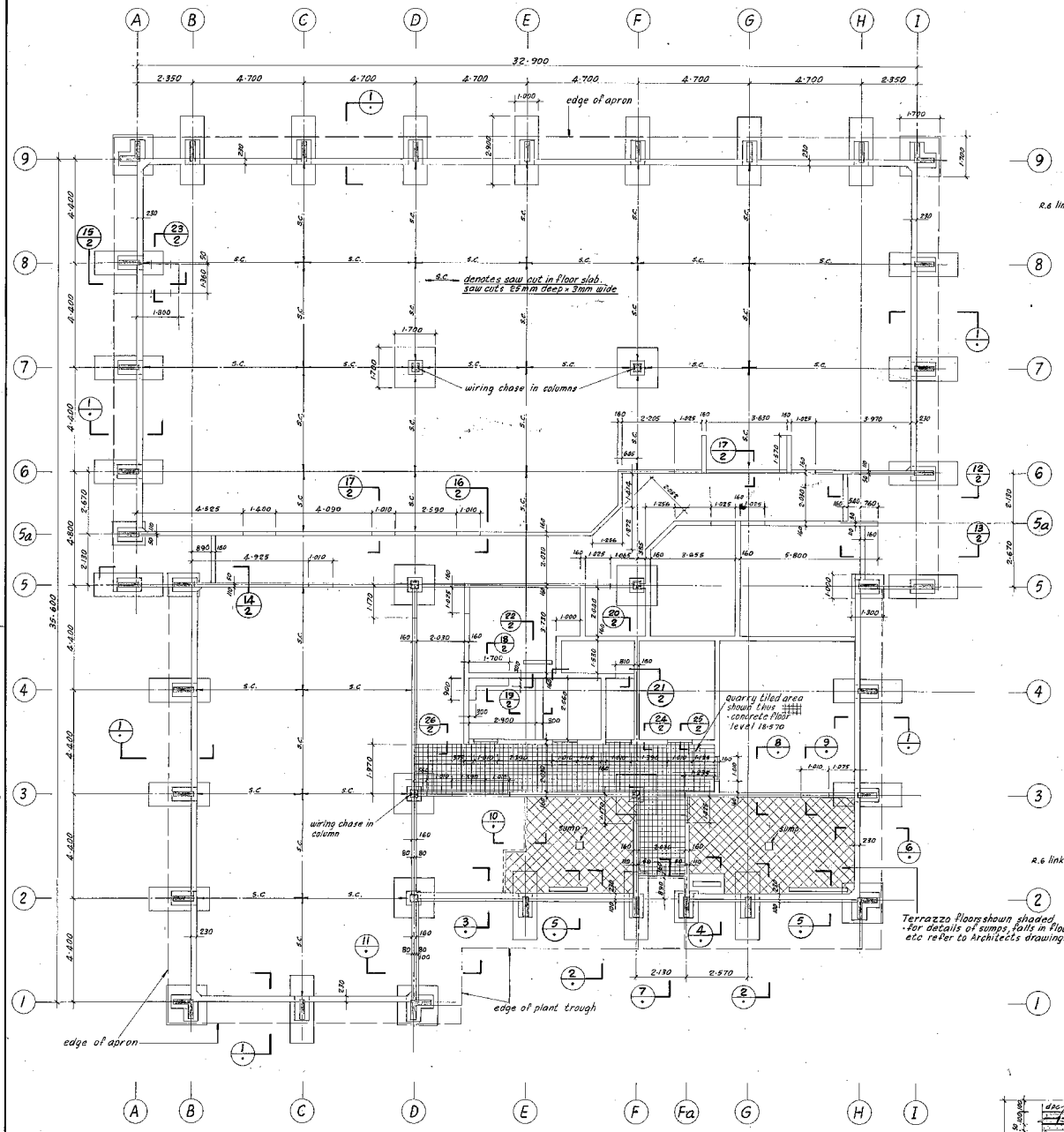
Existing Drawings

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



CENTRAL DEPOT
STAGE 3 JOHNSON ST

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
25 NOV 1981
For City Engineer



FOUNDATION PLAN

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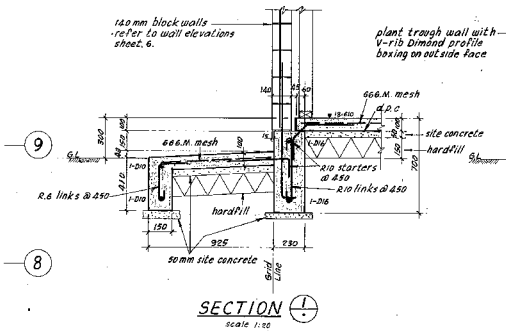

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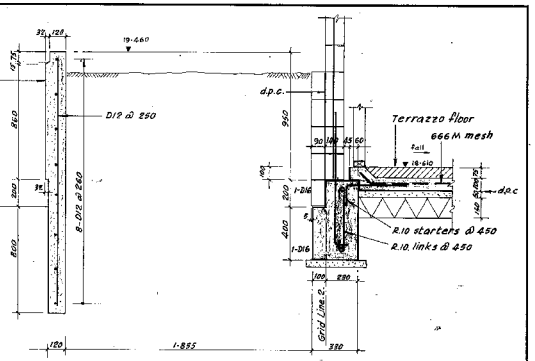

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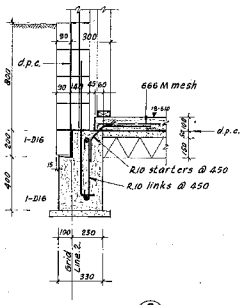

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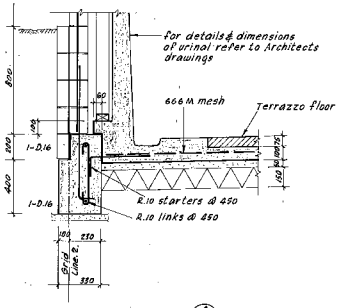

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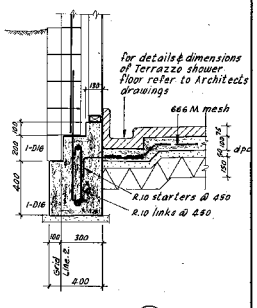

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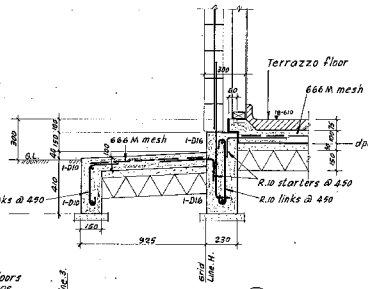

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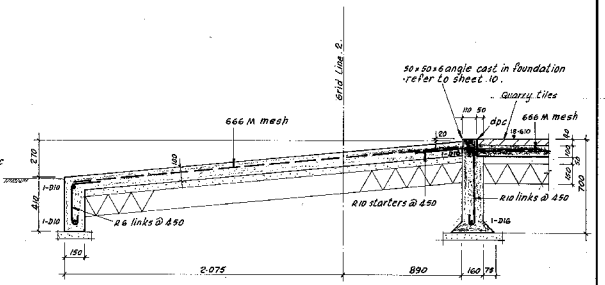

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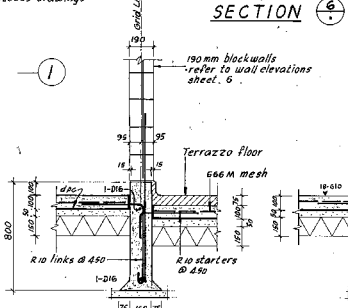

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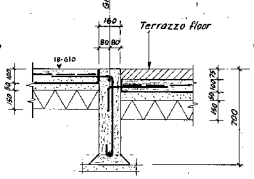

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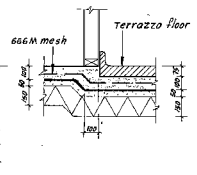

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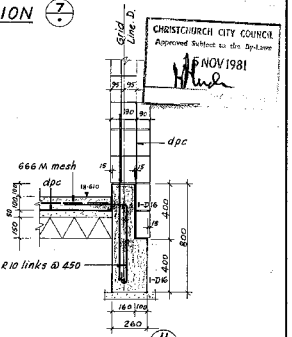


SECTION (11)

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
9 NOV 1981

Notes

Refer to notes on sheet. 2.

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.) (P.O.)			

Amendments	Initials	Date

	Check	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				

		Date
Designed	M.J. Stockwell	11/81
Drawn	A.E. Bainbridge	4/81
Traced		
Dwg. Chk.	M.J. Stockwell	6/81
Des. Chk.		
Indexed		

Approved

Design Engineer — Date 30/10/81

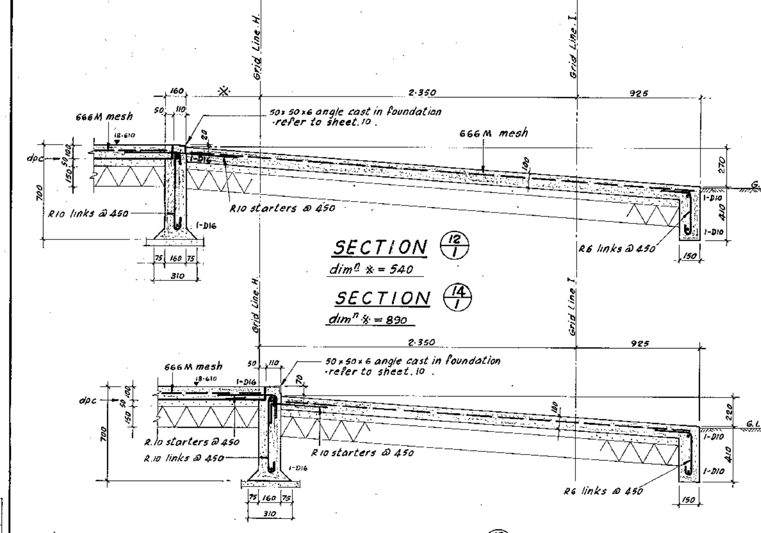
City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

CENTRAL DEPOT — STAGE 3A — JOHNSON STREET
FOUNDATION PLAN & SECTIONS

Scales: 1:100, 1:20

File No. BU/9/10
Issue
D.2705
Sheet 1 of 14



SECTION (12/1)
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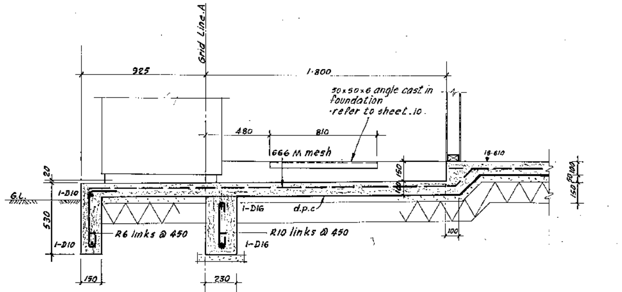
SECTION (14/1)
dim^n ※ = 890

SECTION (13/1)



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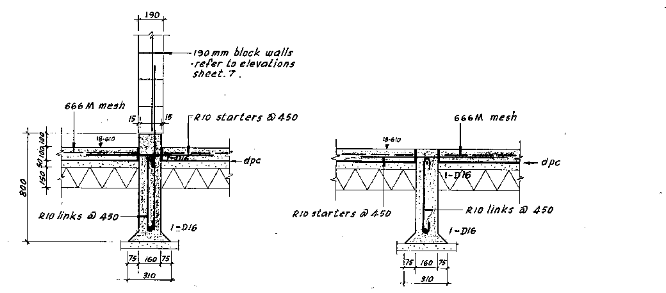

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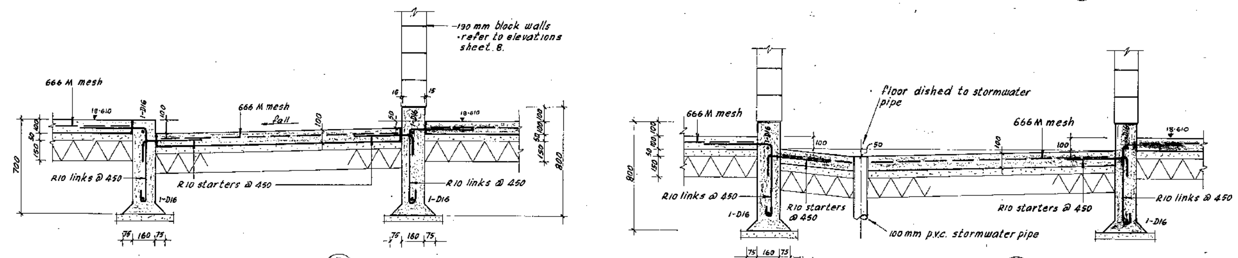

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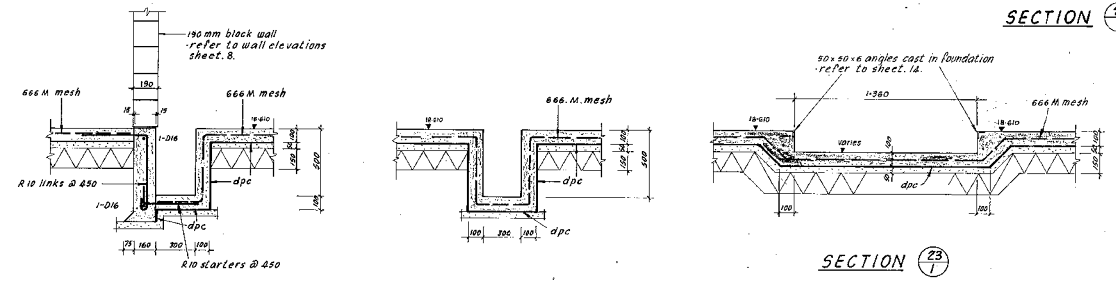
SECTION (21/1)



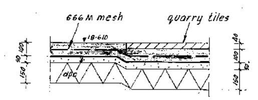
SEC (18/1)

SEC (19/1)

SECTION (23/1)

CONSTRUCTION SEQUENCE FOR FOUNDATIONS & PRECAST COLUMN ERECTION ETC

1. All foundations to be set out from Grid Lines A to I & 1-9 as shown on the drawings
2. Construct column bases & foundation beams leaving blockouts shown in beams etc for column placement
3. Erect precast columns to correct position & level on steel wedges & prop in position
4. Weld splice angles at base of main & corner columns & pack underneath with drypack mortar 2:1 sand: cement. (Note) interior columns do not have splice angles)
5. Complete concrete around splices at base of main & corner columns to underside of apron. Fill beam blockouts & pockets around interior columns with concrete.
6. Construct floor slabs & aprons etc
7. Erect steel roof trusses & blockwalls.



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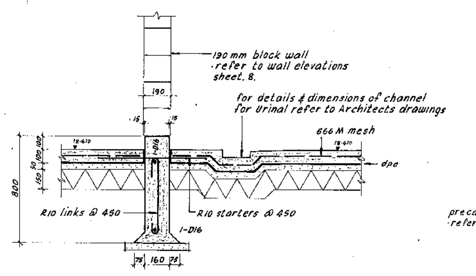
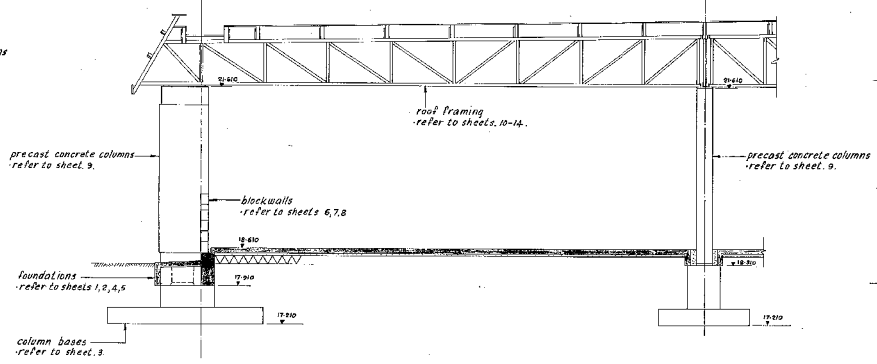


SEC (22/.)



TYPICAL BUILDING CROSS SECTION

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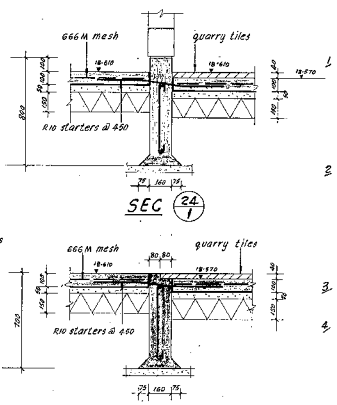

SEC (24/1)

SEC (25/1)

NOTES FOR FOUNDATIONS

1. Concrete
   (a) Concrete strength shall be –:
   f'c = 10 MPa — site concrete
   f'c = 20 MPa — Foundation beams
   f'c = 20 MPa — Floor & apron slabs
   (b) Cover to foundation beam stirrups 50mm
   Mesh centrally placed.
2. Reinforcing
   (a) All bars except stirrups & links to be deformed Grade 275
   (b) Stirrups & links to be plain round Grade 275
   (c) Reinforcing to be continuous throughout
   Unless otherwise shown laps shall be –:
   10mm = 350mm
   12mm = 400mm
   16mm = 550mm
   mesh = 300mm
3. Refer to Architects & Mechanical Services drawings for details of all bolts, chases, pipes, conduits etc to be cast into or formed in concrete.
4. Refer to wall elevations for block starters cast into foundation

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
(P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
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		Date
Designed	M.J. Stockwell	1/81
Drawn	A.J. Bainbridge	4/81
Traced		
Dwg. Chk.	M.J. Stockwell	6/81
Des. Chk.		
Indexed		

Approved: Design Engineer 20/4/81; City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

CENTRAL DEPOT — STAGE 3A — JOHNSON STREET
FOUNDATION SECTIONS

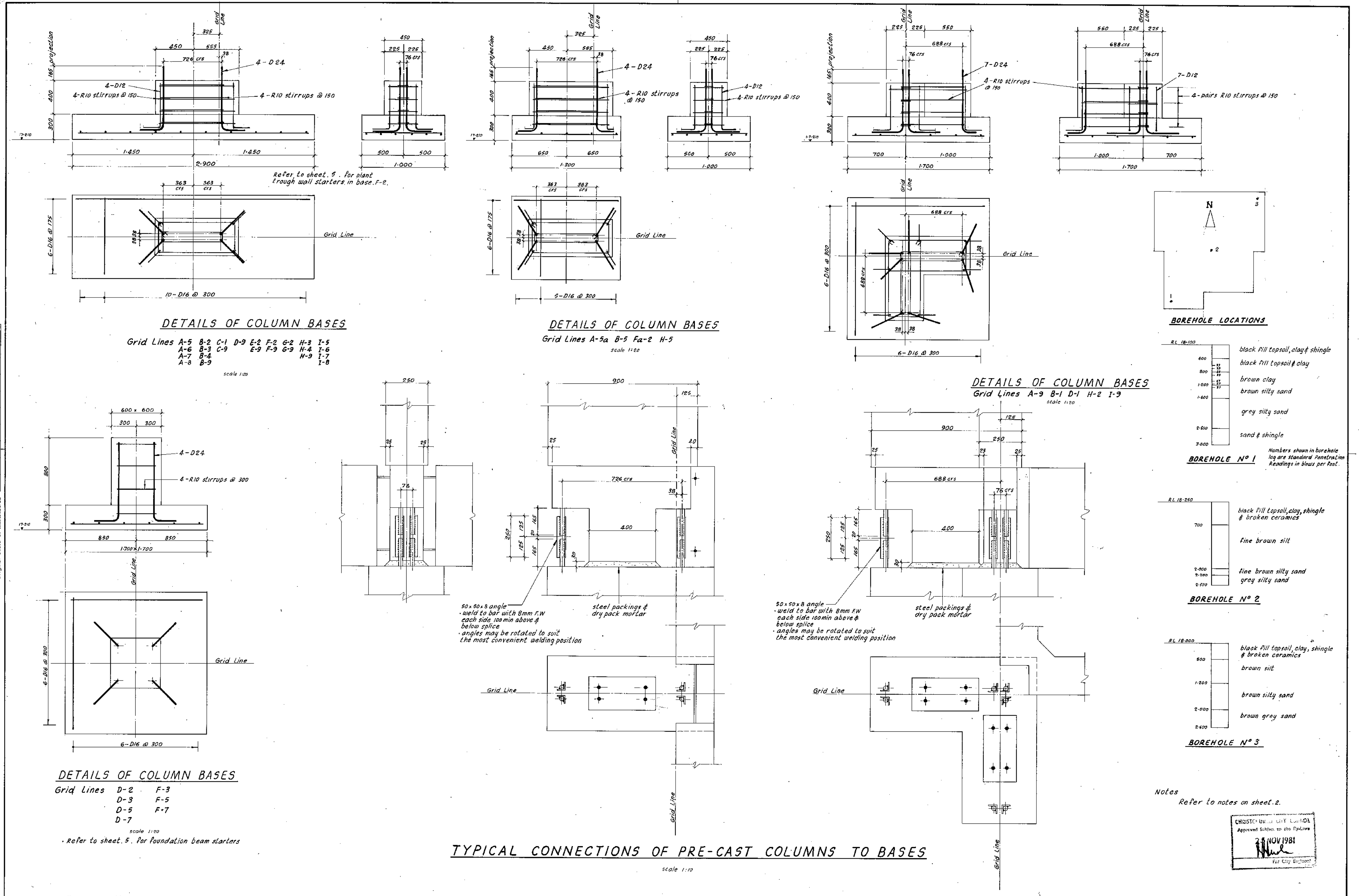
Scales: 1:20

File No. BU/9/10

D.2705

Sheet 2 of 14

Original scale of millimetres 0 20 40 60 80 100


DETAILS OF COLUMN BASES
Grid Lines A-5 B-2 C-1 D-9 E-2 F-2 G-2 H-3 I-5
A-6 B-3 C-9 E-9 F-9 G-9 H-4 I-6
A-7 B-4 H-9 I-7
A-8 B-9 I-8
scale 1:20
Refer to sheet. 5 . for plant trough wall starters in base. F-2.
4-D24
4-D12
4-R10 stirrups @ 150
10-D16 @ 300
DETAILS OF COLUMN BASES
Grid Lines A-5a B-5 Fa-2 H-5
scale 1:20
5-D16 @ 300
DETAILS OF COLUMN BASES
Grid Lines A-9 B-1 D-1 H-2 I-9
scale 1:20
7-D24
7-D12
4-pairs R10 stirrups @ 150
6-D16 @ 300
DETAILS OF COLUMN BASES
Grid Lines D-2 F-3
D-3 F-5
D-5 F-7
D-7
scale 1:20
· Refer to sheet. 5. for foundation beam starters
4-R10 stirrups @ 300
TYPICAL CONNECTIONS OF PRE-CAST COLUMNS TO BASES
scale 1:10
50 x 50 x 8 angle
· weld to bar with 8mm F.W each side 100min above & below splice
· angles may be rotated to suit the most convenient welding position
steel packings & dry pack mortar
Grid Line
BOREHOLE LOCATIONS
black fill topsoil, clay & shingle
black fill topsoil & clay
brown clay
brown silty sand
grey silty sand
sand & shingle
BOREHOLE Nº 1
Numbers shown in borehole log are standard Penetration Readings in blows per foot.
black fill topsoil, clay, shingle & broken ceramics
fine brown silt
fine brown silty sand
grey silty sand
BOREHOLE Nº 2
black fill topsoil, clay, shingle & broken ceramics
brown silt
brown silty sand
brown grey sand
BOREHOLE Nº 3
Notes
Refer to notes on sheet. 2.
CHRISTCHURCH CITY COUNCIL Approved Subject to the By-Laws 23 NOV 1981 For City Engineer
Original scale of millimetres

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

CENTRAL DEPOT — STAGE 3A — JOHNSON STREET
DETAILS OF COLUMN BASES

Designed	M.J. Stockwell	1/81
Drawn	A.E. Bainbridge	4/81
Dwg. Chk.	M.J. Stockwell	6/81

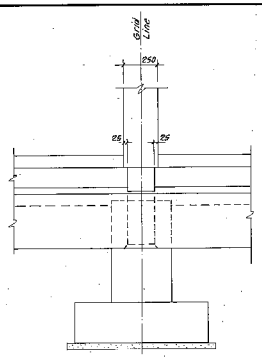
Approved: Design Engineer 20/4/81; City Engineer

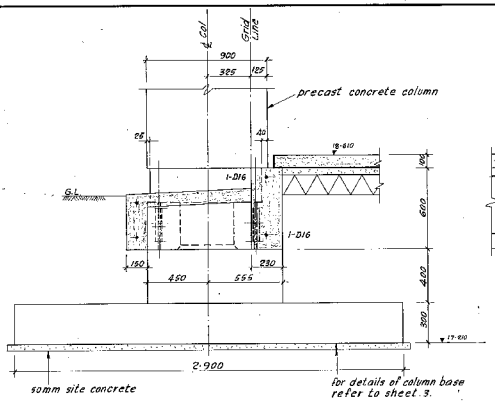
Scales: 1:10, 1:20

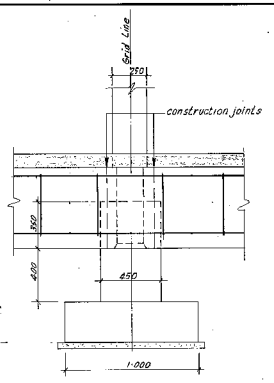
File No. 8U/9/10

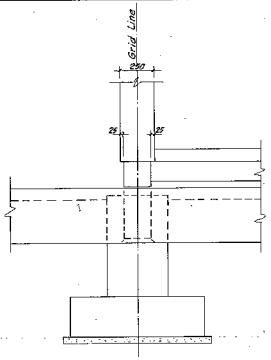
D.2705

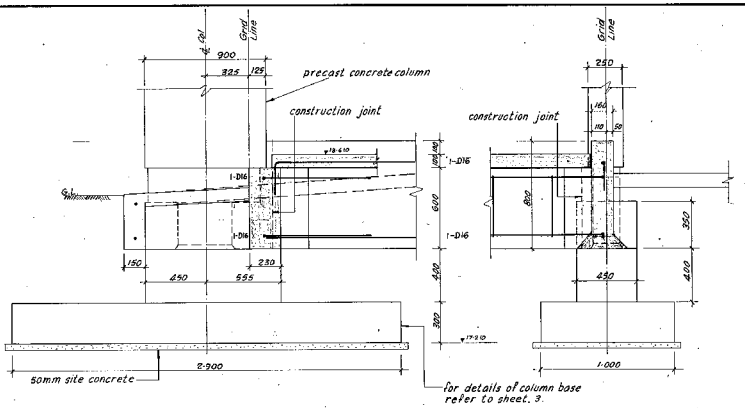
Sheet 3 of 14

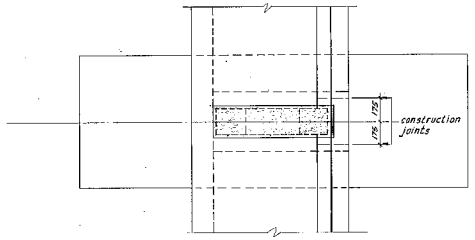


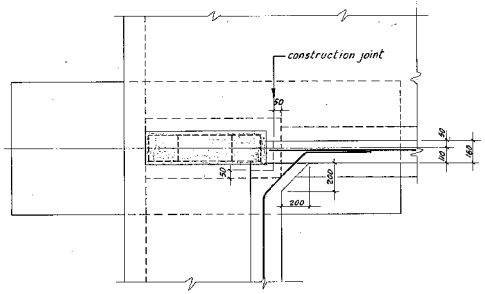




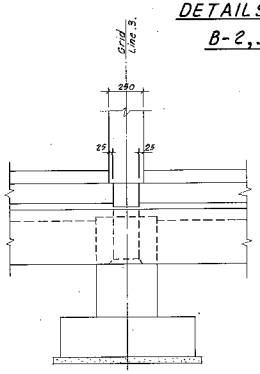


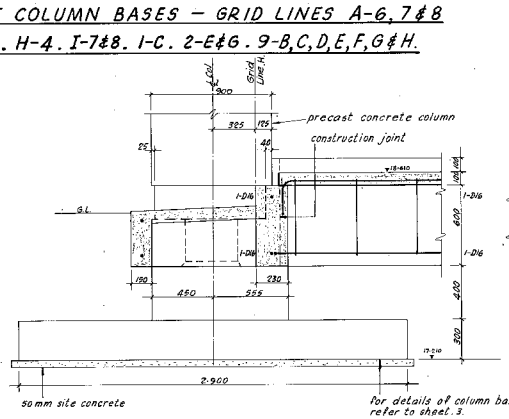


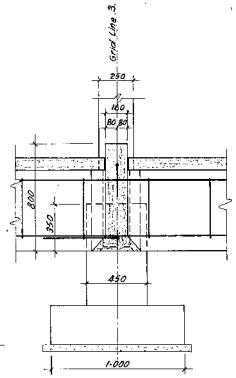


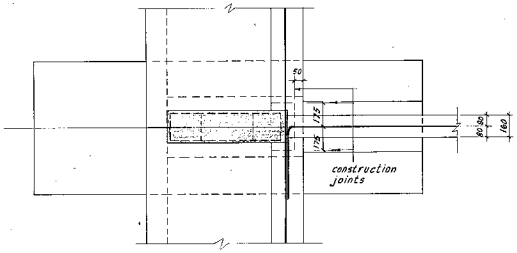


DETAILS AT COLUMN BASES – GRID LINES A-6, 7 & 8 B-2, 3 & 4. H-4. I-7 & 8. I-C. 2-E & G. 9-B, C, D, E, F, G & H.



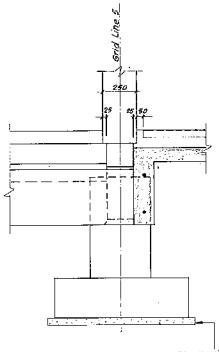


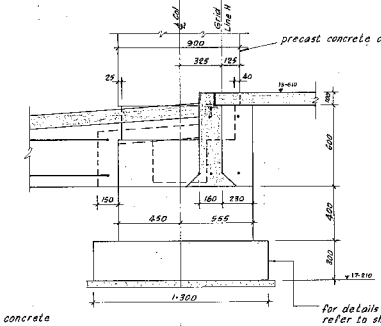


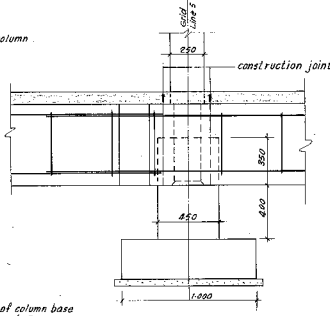


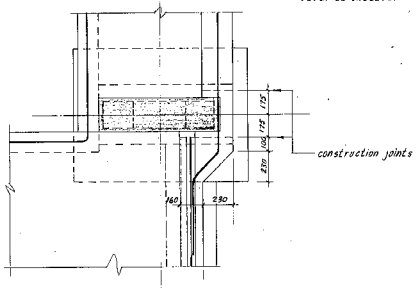
DETAIL AT COLUMN BASE – GRID LINE. H-3.

TYPICAL DETAILS AT COLUMN BASES – GRID LINES I-6, A-5a & B-5









CHRISTCHURCH CITY COUNCIL
Approved Subject to the Provisions
25 NOV 1981

Notes Refer to notes on sheet. 2.

DETAIL AT COLUMN BASE – GRID LINE. H-5.

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.) (P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				

		Date
Designed	M. J. Stockwell	1/81
Drawn	A. E. Bainbridge	4/81
Traced		
Dwg. Chk.	M. J. Stockwell	6/81
Des. Chk.		
Indexed		

Approved
Design Engineer Date
for City Engineer

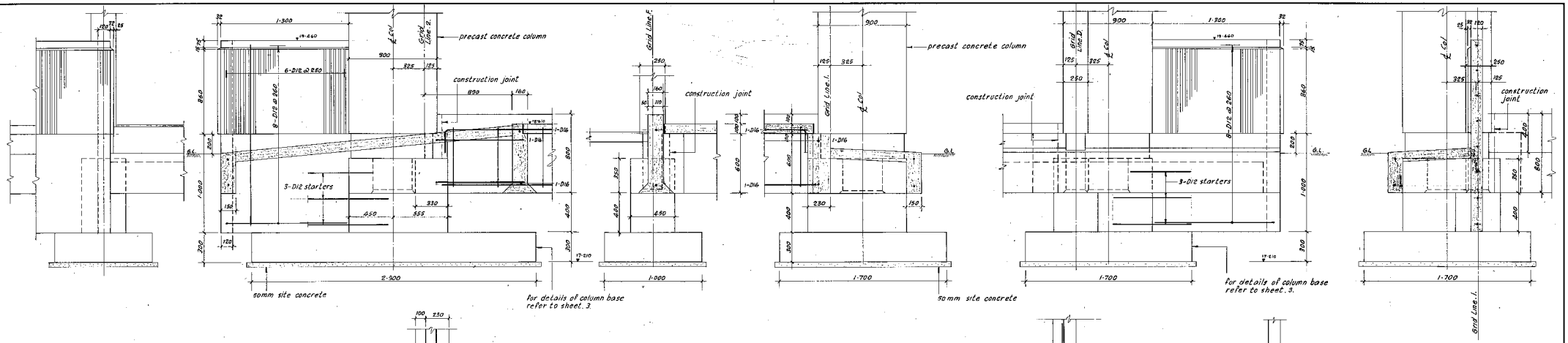
CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

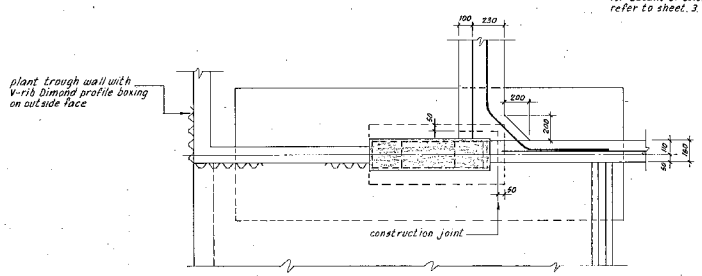
CENTRAL DEPOT – STAGE 3A – JOHNSON STREET FOUNDATION DETAILS AT COLUMN BASES

Scales 1:20

File No. 80/9/10
Issue
D.2705
Sheet 4 of 14

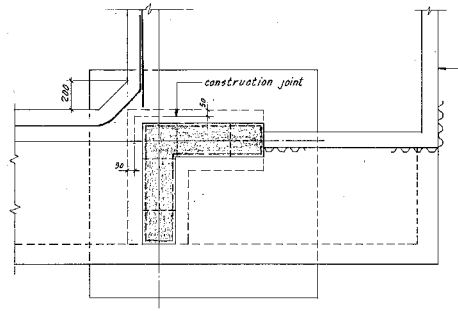
Original scale of millimetres 0 20 40 60 80 100



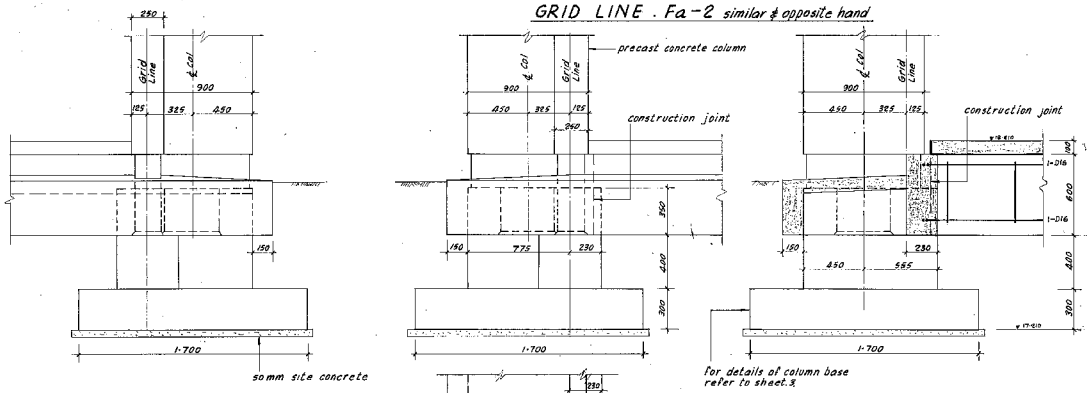


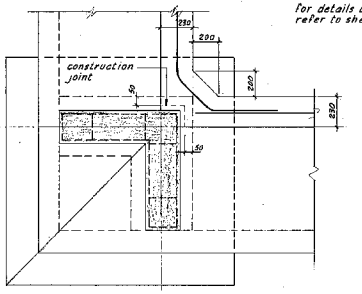
DETAIL AT COLUMN BASE – GRID LINE . F-2.

GRID LINE . Fa-2 similar & opposite hand

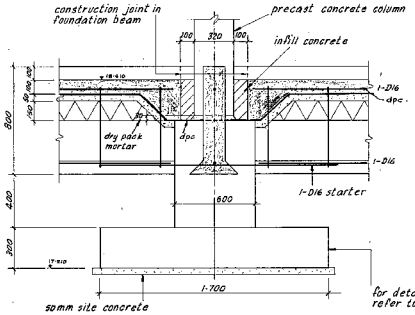


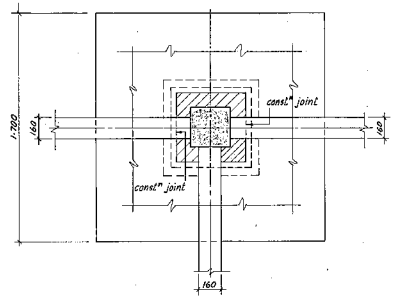
DETAIL AT COLUMN BASE – GRID LINE . D-1. H-2 similar





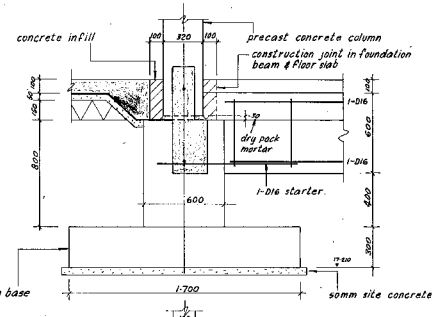
DETAIL AT COLUMN BASE – GRID LINE . A-9. B-1. I-9.

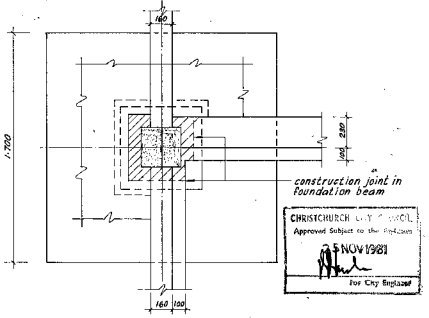




TYPICAL DETAILS AT COLUMN BASES

GRID LINES D-3,5,7. F-3,5,7.





DETAIL AT COLUMN BASE – GRID LINE. D-2.

Notes. Refer to notes on sheet. 2.

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

CENTRAL DEPOT – STAGE 3A – JOHNSON STREET
FOUNDATION DETAILS AT COLUMN BASES

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
" (P.O.)			

Amendments | Initials | Date

Book | Page | Initials | Date

Surveyed | Levelled | R.L.s | Compiled from | Indexed

		Date
Designed	M.J. Stockwell	1/81
Drawn	A.E. Bainbridge	4/81
Traced		
Dwg. Chk.	M.J. Stockwell	6/81
Des. Chk.		

Approved: Design Engineer 14/8/81 Date; City Engineer

Scales: 1:20

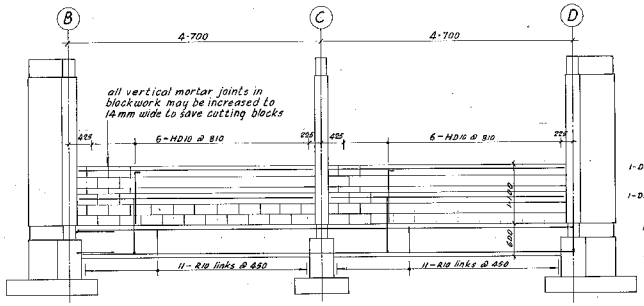
File No. BU/9/10

Issue

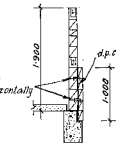
D.2705

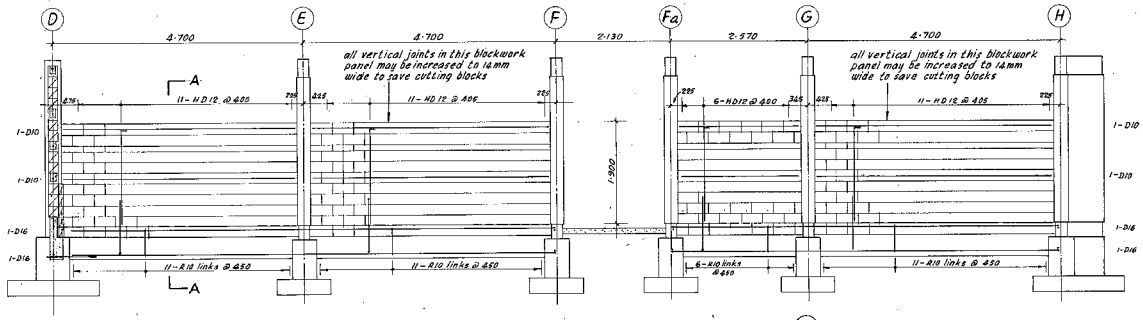
Sheet 5 of 14

CHRISTCHURCH CITY COUNCIL Approved Subject to the Conditions 25 NOV 1981 For City Engineer

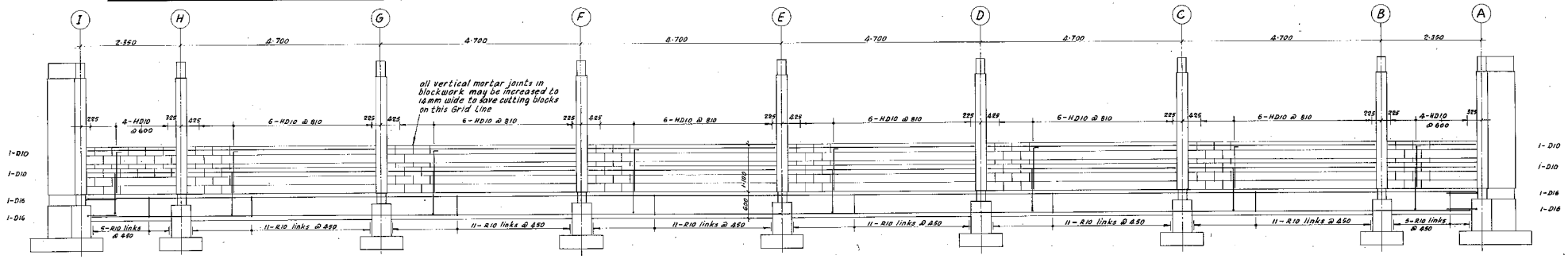


WALL ELEVATION - GRID LINE (1) 140 mm blockwork

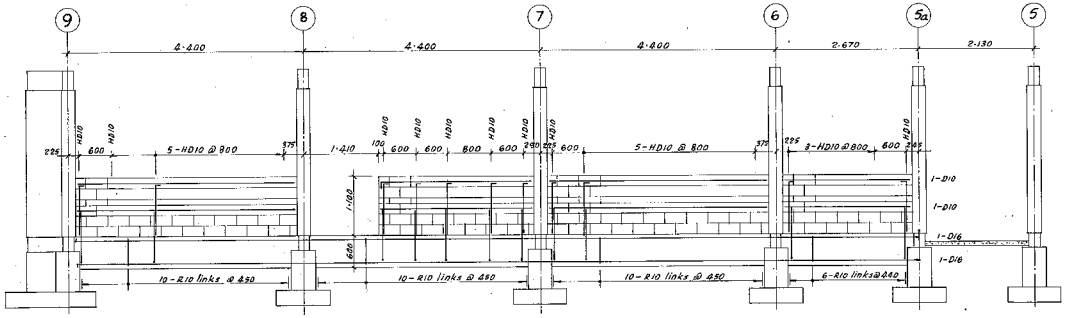




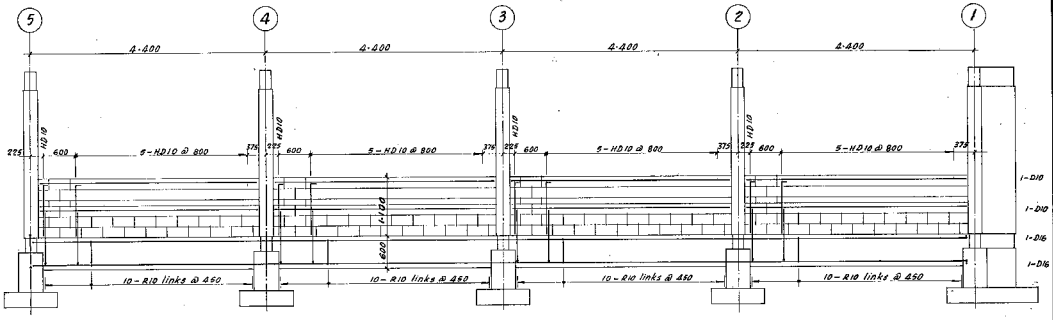
WALL ELEVATION - GRID LINE (2) 140 mm blockwork



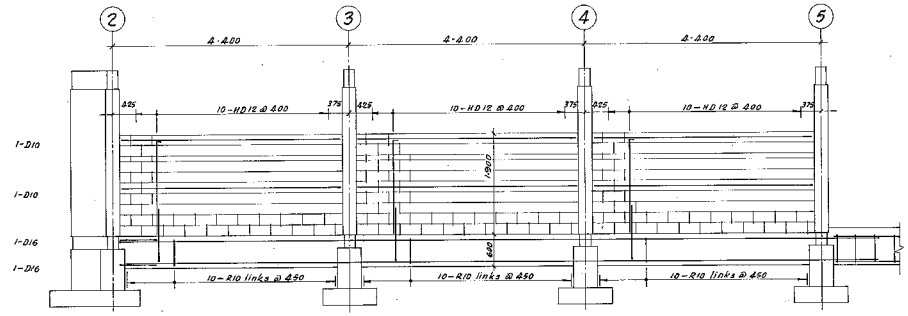
WALL ELEVATION - GRID LINE (9) 140 mm blockwork



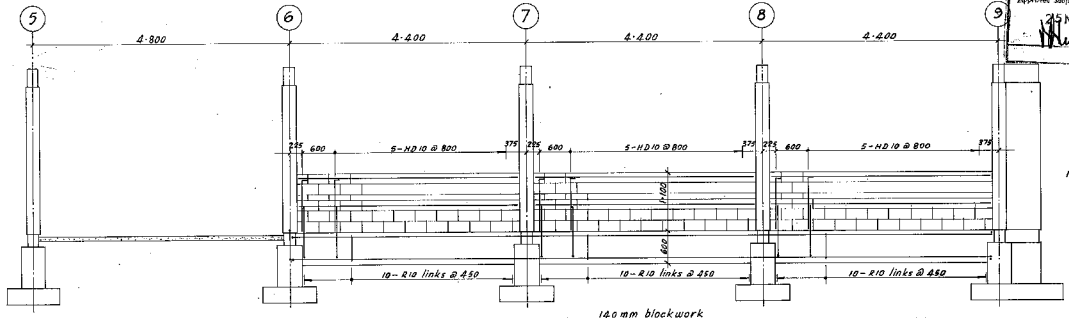
WALL ELEVATION - GRID LINE (A) 140 mm blockwork



WALL ELEVATION - GRID LINE (B) 140 mm blockwork



WALL ELEVATION - GRID LINE (H) 140 mm blockwork



140 mm blockwork

WALL ELEVATION - GRID LINE (I)

Notes
Refer to notes on sheet 8.

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-laws
25 NOV 1981
Per City Engineer

Original scale of millimetres 0 20 40 60 80 100

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Power		Planting	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
" (P.D.)			

Amendments	Initials	Date

	Bank	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				

		Date
Designed	M.J. Stockwell	1/81
Drawn	A.E. Bainbridge	5/81
Traced		
Dwg. Chk.	M.J. Stockwell	6/81
Des. Chk.		
Indexed		

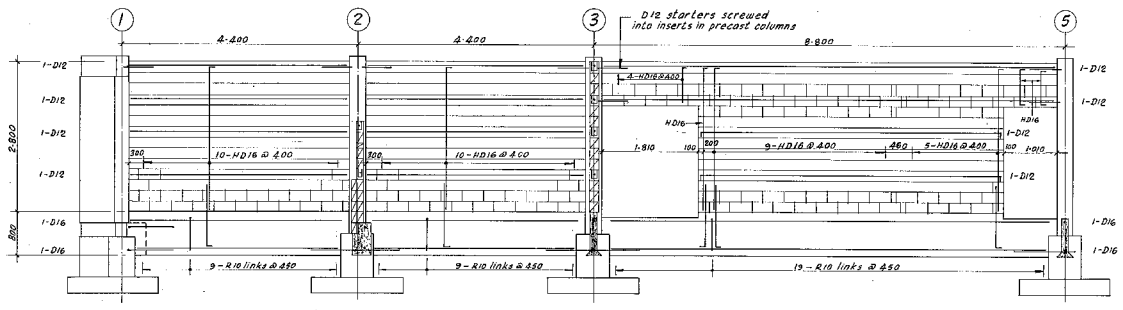
Approved
M J Stockwell 24/9/81
Design Engineer Date
for City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

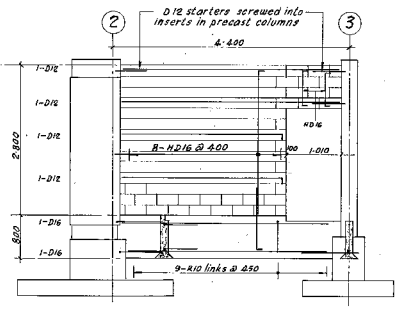
CENTRAL DEPOT — STAGE 3A — JOHNSON STREET
ELEVATIONS OF BLOCKWALLS

Scales 1:50

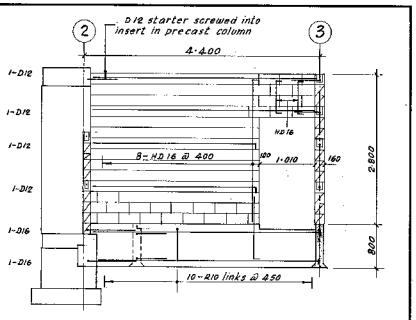
File No. BU/9/10
Issue
D.2705
Sheet 6 of 14



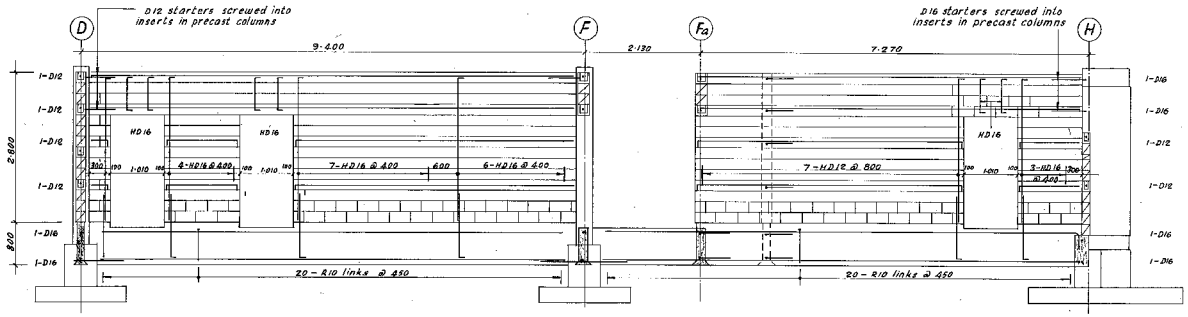
WALL ELEVATION — GRID LINE (D) 190 mm blockwork



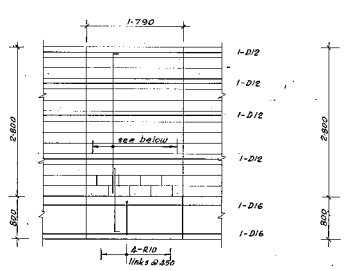
WALL ELEVATION — GRID LINE (F)
190 mm blockwork



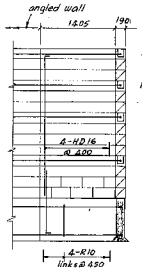
WALL ELEVATION — GRID LINE (Fa)
190mm blockwork



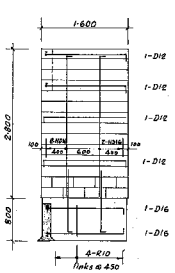
WALL ELEVATION — GRID LINE (3)
190mm blockwork



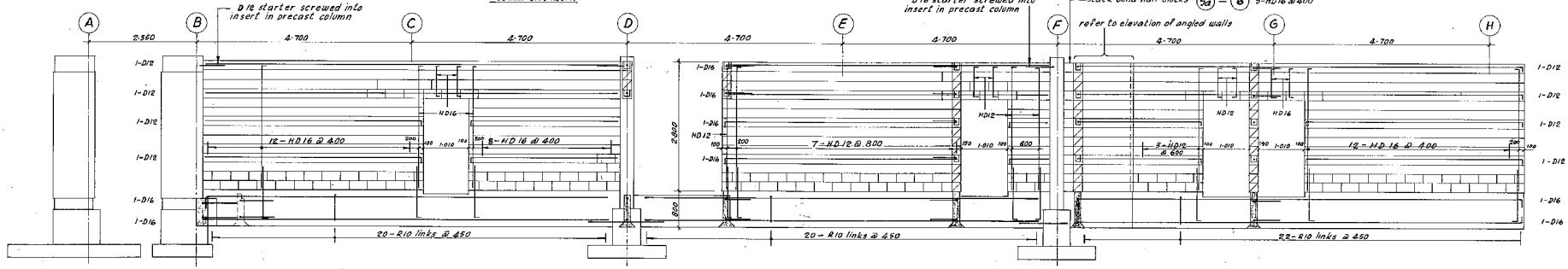
ELEVATION OF 45° ANGLED WALLS
GRID LINES (5) - (5a) 3-HD12 @ 800
(5a) - (6) 5-HD16 @ 400



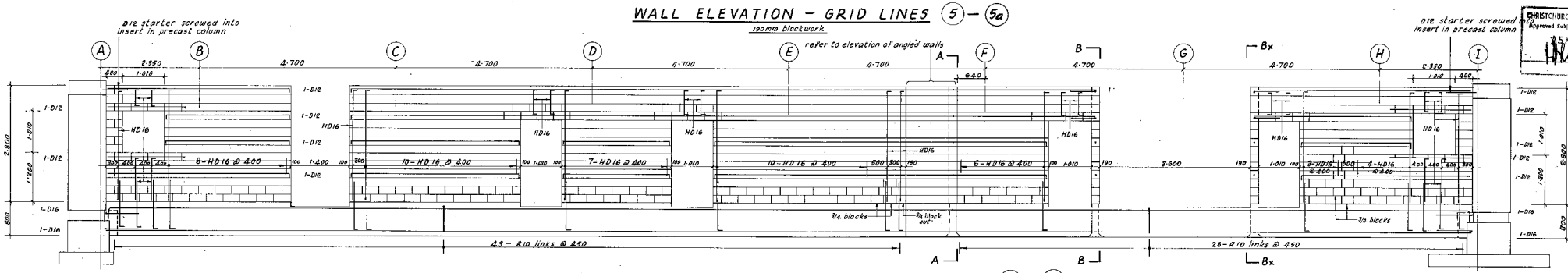
SECTION A-A
GRID LINE (5a) - (6)
190mm blockwork



SEC B-B Bx-Bx opp hand
GRID LINE (5a) - (6)
190mm blockwork



WALL ELEVATION — GRID LINES (5) — (5a)
190mm blockwork



CHRISTCHURCH CITY COUNCIL
Approved subject to the following
25 NOV 1981
For City Engineer

WALL ELEVATION — GRID LINES (5a) - (6)
190 mm blockwork

Notes
Refer to notes on sheet 8.

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
(P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				
Indexed				

		Date
Designed	M.J. Stockwell	1/81
Drawn	A.C. Bainbridge	5/81
Traced		
Dwg. Chk.	M.J. Stockwell	6/81
Des. Chk.		

Approved
Design Engineer 24/9/81 Date
for City Engineer

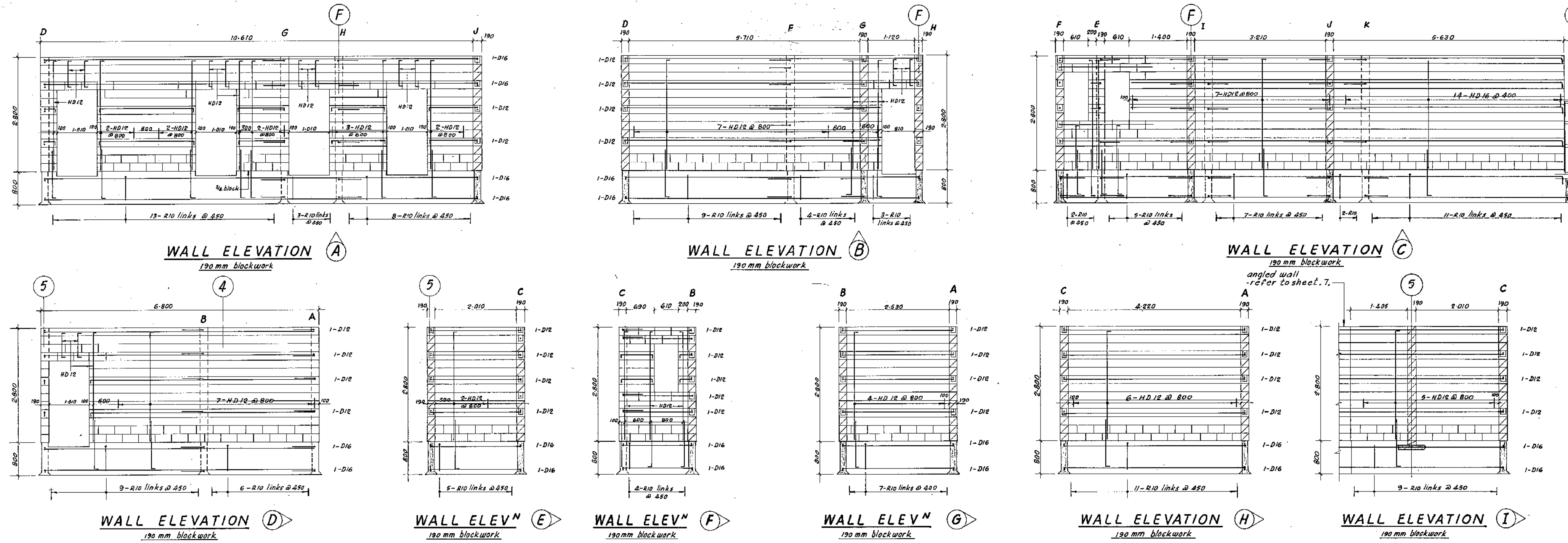
CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

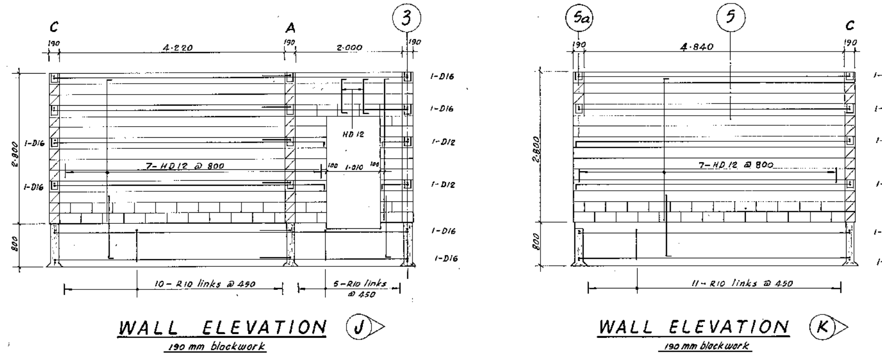
CENTRAL DEPOT — STAGE 3A — JOHNSON STREET
ELEVATIONS OF BLOCKWALLS

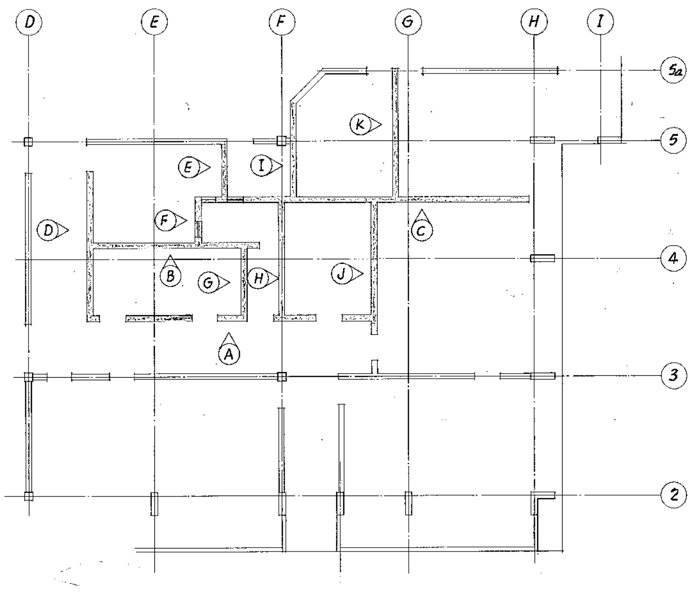
Scales 1:50

File No. BU/9/10
Issue
D.2705
Sheet 7 of 14

Original scale of millimetres 0 20 40 60 80 100







LOCATION OF INTERNAL BLOCKWALL ELEVATIONS

NOTES FOR BLOCKWORK

1. Blockwork
   - (a) External walls - blocks to be series 15, plus series 10 at plant trough. Internal walls - blocks to be series 20.
   - (b) All blocks forming the bottom course of a grout lift to be provided with inspection openings at each reinforcing rod.
   - (c) All block cores to be filled with grout. grout strength f'c = 20 MPa max aggregate size 5mm
2. Reinforcing
   - (a) All lapped splices in blockwork to be :- 10mm = 400, 12mm = 500, 16mm = 650
   - (b) Bar diameters to be as stated on each wall elevation.
   - (c) Reinforcing details
     - (i) 90° bends in vertical bars. bends to be located mid height of block course.
     - (ii) 90° downward bends in horizontal bars. 30mm internal radius
     - (iii) 90° horizontal bends in horizontal bars. bend horizontal bars around vertical bars. 30mm internal radius for 12mm bars, 40mm for 16mm bars
   - (d) All horizontal bars to be deformed Grade 275. All vertical bars to be deformed Grade 380.

CHRISTCHURCH CITY COUNCIL Approved subject to the By-laws 25 NOV 1981

Designed	M.J. Stockwell	1/81
Drawn	A.E. Bainbridge	5/81
Traced		
Dwg. Chk.	M.J. Stockwell	6/81
Des. Chk.		
Indexed		

Approved: Design Engineer 30/6/81; City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

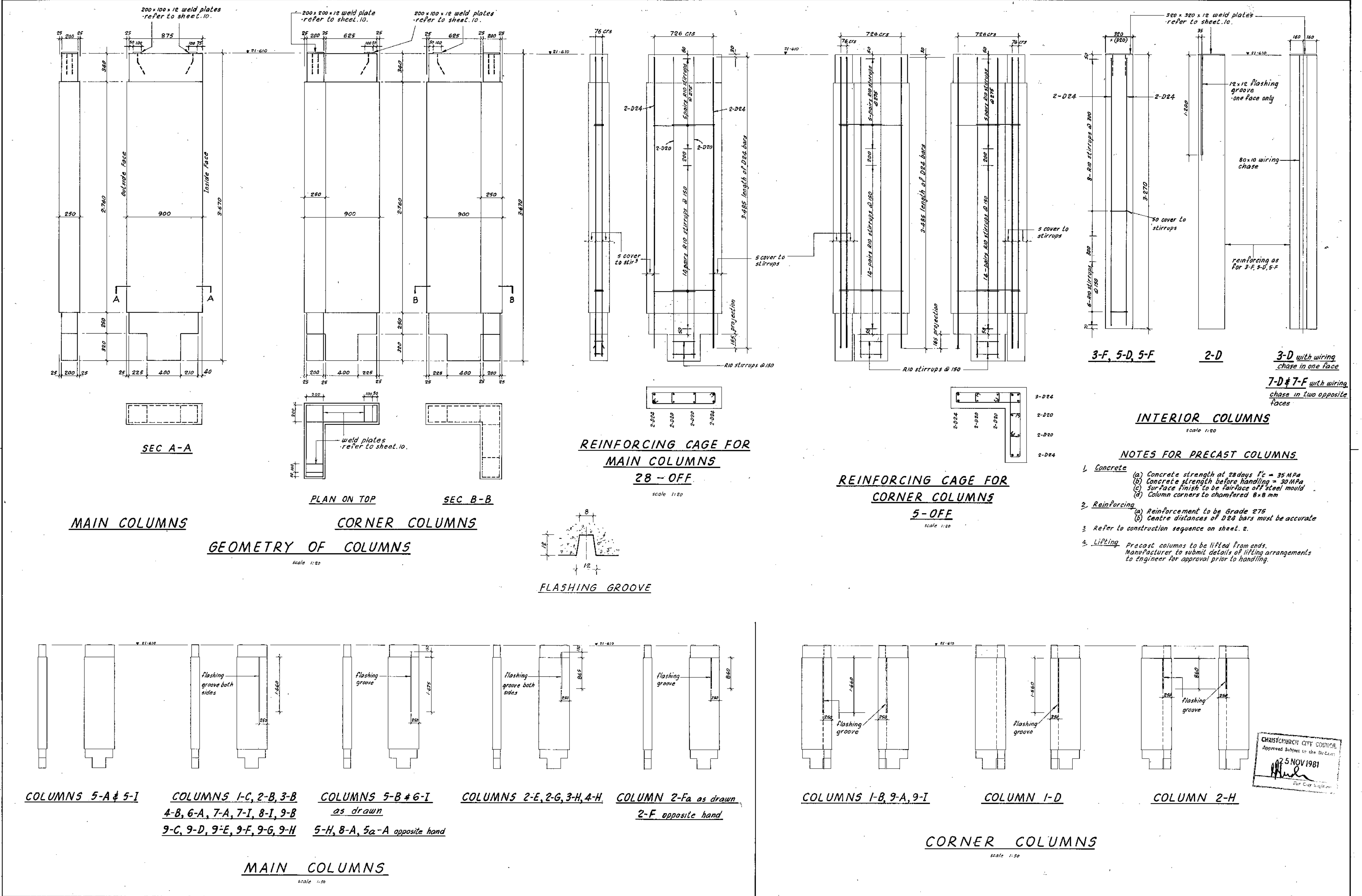
CENTRAL DEPOT — STAGE 3A — JOHNSON STREET
ELEVATIONS OF BLOCKWALLS

Scales: 1:50

File No. 8U/9/10

D.2705

Sheet 8 of 14



NOTES FOR PRECAST COLUMNS

1. Concrete
   (a) Concrete strength at 28 days f'c = 35 MPa
   (b) Concrete strength before handling = 30 MPa
   (c) Surface finish to be fairface off steel mould
   (d) Column corners to chamfered 8 x 8 mm
2. Reinforcing
   (a) Reinforcement to be Grade 275
   (b) Centre distances of D24 bars must be accurate
3. Refer to construction sequence on sheet. 2.
4. Lifting
   Precast columns to be lifted from ends. Manufacturer to submit details of lifting arrangements to Engineer for approval prior to handling.

CHRISTCHURCH CITY COUNCIL Approved Subject to the By-Laws 25 NOV 1981 For City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

CENTRAL DEPOT — STAGE 3A — JOHNSON STREET
PRECAST COLUMN DETAILS

Designed	M.J. Stockwell	1/81
Drawn	A.F. Bainbridge	5/81
Dwg. Chk.	M.J. Stockwell	6/81

Approved: Design Engineer 20/5/81; City Engineer

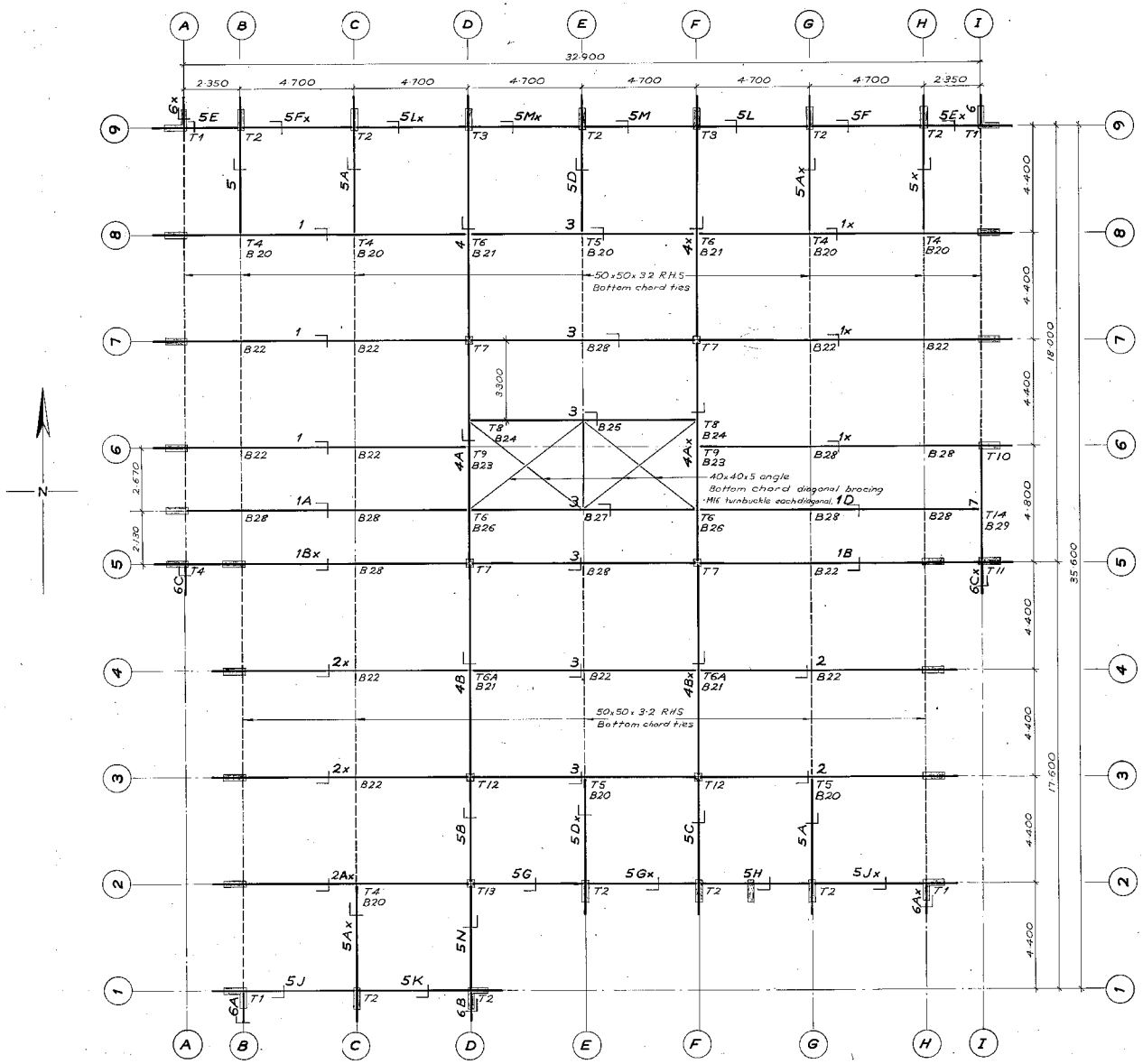
Scales 1:20, 1:50

File No. 8U/9/10

D.2705

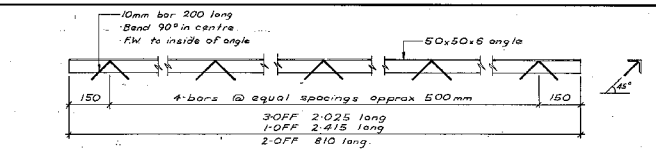
Sheet 9 of 14

Original scale of millimetres 0 20 40 60 80 100



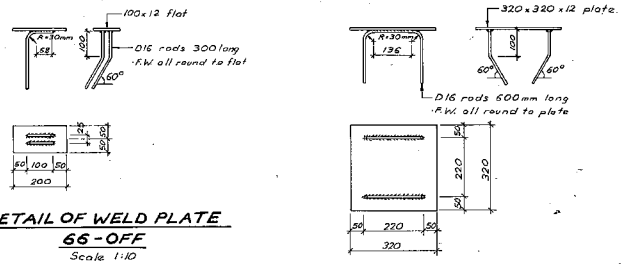
STEEL FRAMING PLAN

Note: Tx denotes top connection type x
By denotes bottom connection type y
·Refer to sheet 14 for connection details
└ denote bottom chord angle direction
Scale 1:100



DETAIL OF DOOR ANGLES

Scale 1:10

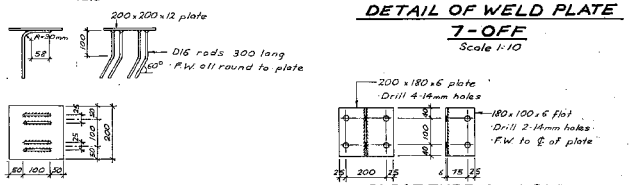


DETAIL OF WELD PLATE 66-OFF

Scale 1:10

DETAIL OF WELD PLATE 7-OFF

Scale 1:10

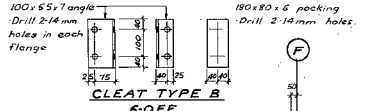


DETAIL OF WELD PLATE 5-OFF

Scale 1:10

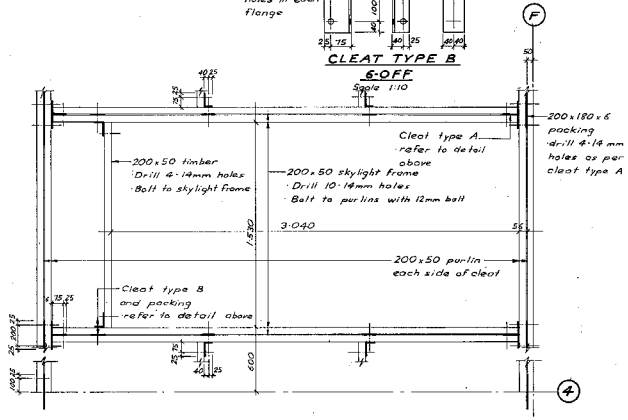
CLEAT TYPE A - 4 OFF

Scale 1:10



CLEAT TYPE B 6-OFF

Scale 1:10



TIMBER SKYLIGHT FRAME DETAIL

Scale 1:20

NOTES:

1) All welds to be 6mm fillet welds unless otherwise specified.
2) F.W. indicates fillet weld.
3) Butt welds to be full penetration welds
4) Refer to Architects drawing for all other skylights.

CHRISTCHURCH CITY COUNCIL
Approved Subject to the Conditions
25 NOV 1981
for City Engineer

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.O.) (P.O.)			

Amendments | Initials | Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
D.M.				
Compiled from				

		Date
Designed	M.Stockwell	5/81
Drawn	P.Macefield	5/81
Traced	"	
Dwg. Chk.	M.Stockwell	8/81
Des. Chk.		
Indexed		

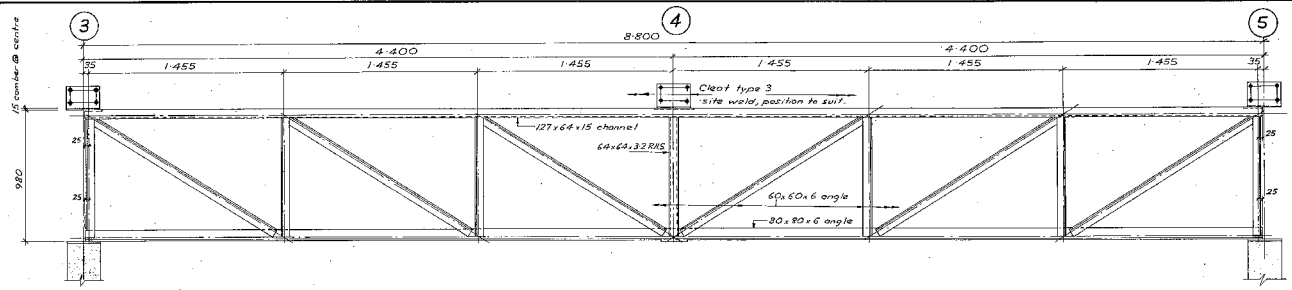
Approved
Design Engineer — Date
City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

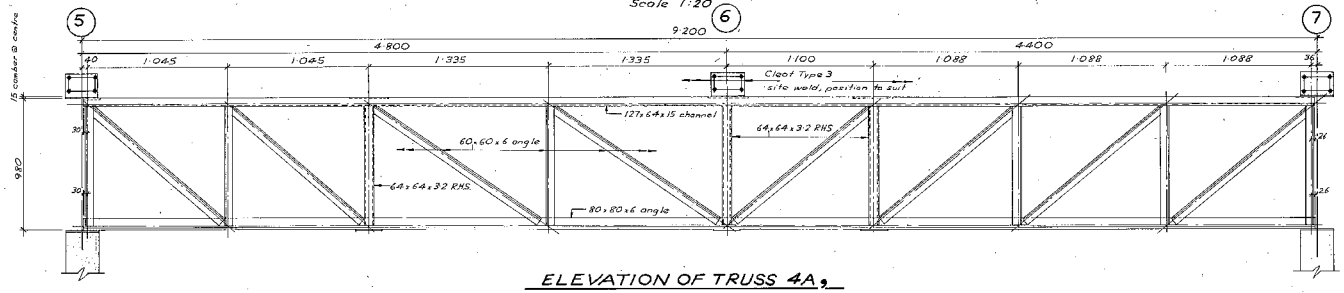
CENTRAL DEPOT - STAGE 3A - JOHNSON STREET
STEEL FRAMING PLAN, WELD PLATE & SKYLIGHT DETAILS

Scales: 1:10, 1:20, 1:100

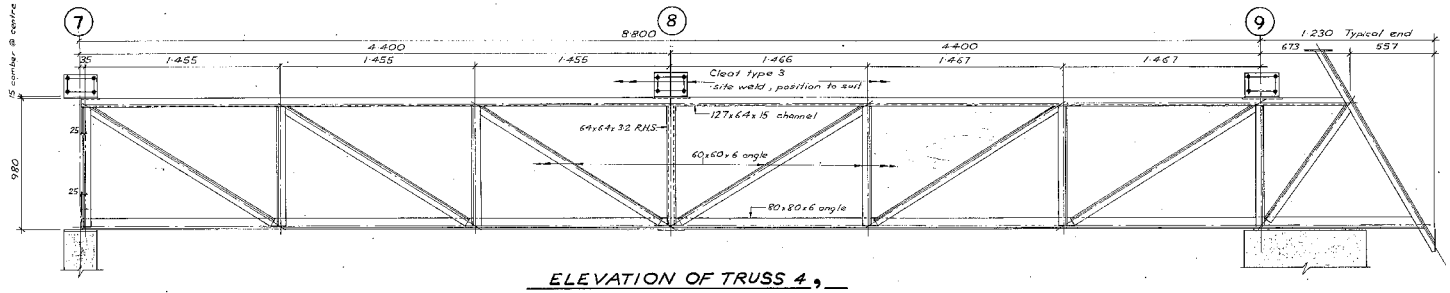
File No. BU/9/10
Issue
D.2705
Sheet 10 of 14



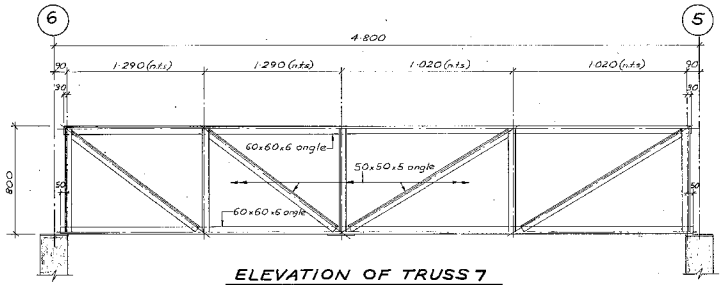
ELEVATION OF TRUSS 4B,
4Bx Similar except opposite hand.
Scale 1:20



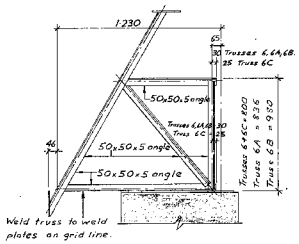
ELEVATION OF TRUSS 4A,
4Ax Similar except opposite hand.
Scale 1:20



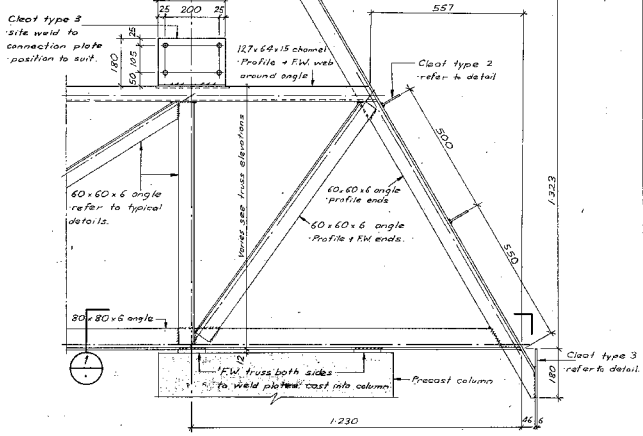
ELEVATION OF TRUSS 4,
4x Similar except opposite hand.
Scale 1:20



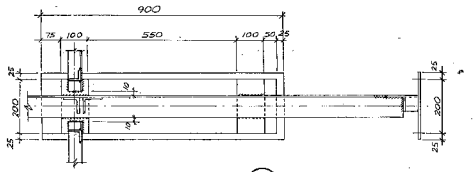
ELEVATION OF TRUSS 7
Scale 1:20



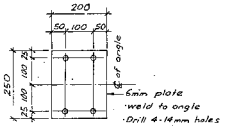
ELEVATION OF TRUSSES 6,6A,6B+6C
6x,6Ax+6Cx similar except opposite hand
refer to typical end detail above
Scale 1:20



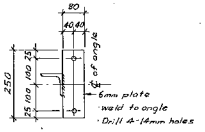
TYPICAL END DETAIL
Scale 1:10



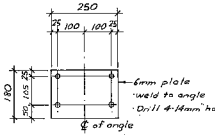
SECTION 1/1
Scale 1:10



CLEAT TYPE 1
Scale 1:10



CLEAT TYPE 2
Scale 1:10



CLEAT TYPE 3
Scale 1:10

CHRISTCHURCH CITY COUNCIL
Approved Tables to the Bylaw
25 NOV 1981
For City Engineer

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
(P.O.)			

Amendments | Initials | Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				
Indexed				

		Date
Designed	M. Stockwell	5/81
Drawn	P. Macefield	5/81
Traced	"	
Dwg. Chk.	M. Stockwell	8/81
Des. Chk.		

Approved: Design Engineer — Date 16/11/81
City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

CENTRAL DEPOT - STAGE 3A - JOHNSON STREET
ELEVATIONS OF TRUSSES 4-4B, 7+6-6C + DETAILS

Scales: 1:10, 1:20

File No. BU/9/10
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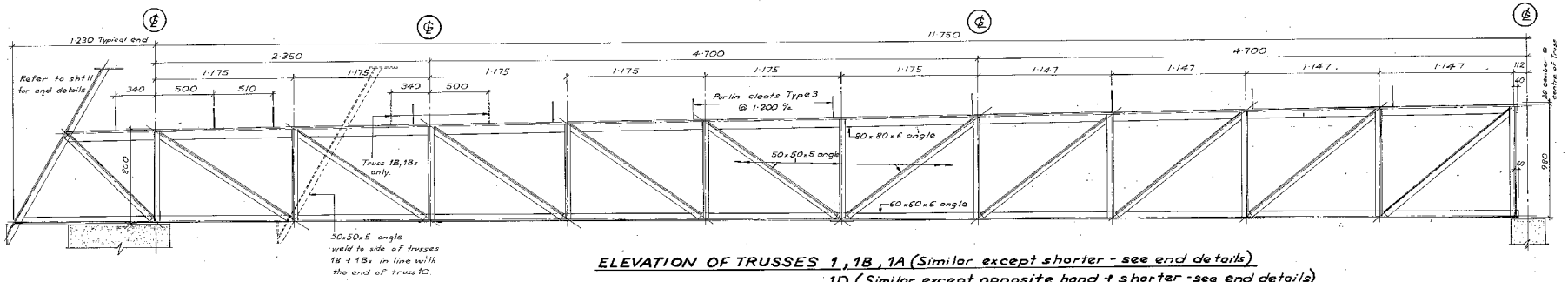
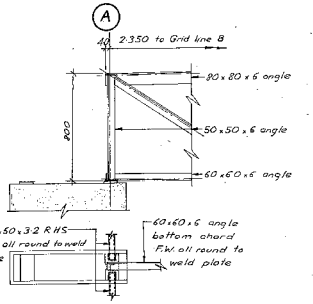
D.2705
Sheet 11 of 14

Original scale of millimetres 0 20 40 60 80 100



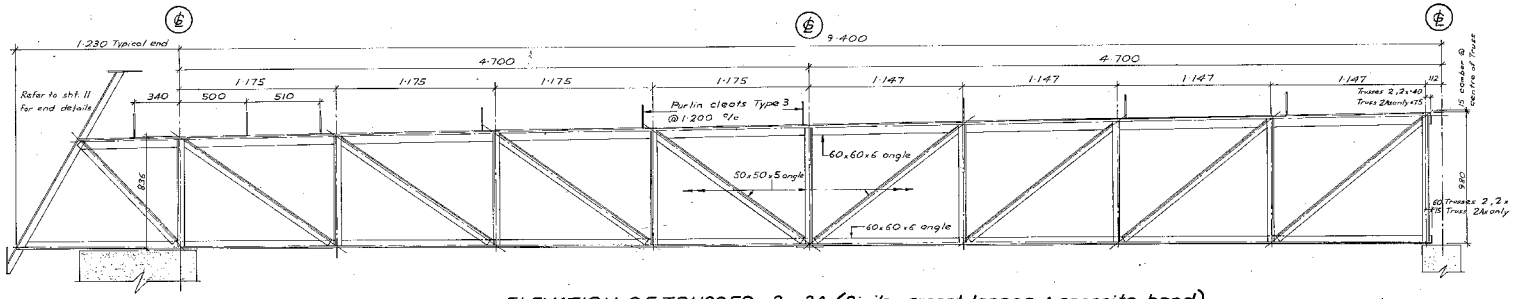
ELEVATION OF TRUSSES 1, 1B, 1A (Similar except shorter - see end details)
1D (Similar except opposite hand & shorter - see end details)
1x & 1Bx (Similar except opposite hand).

Scale 1:20



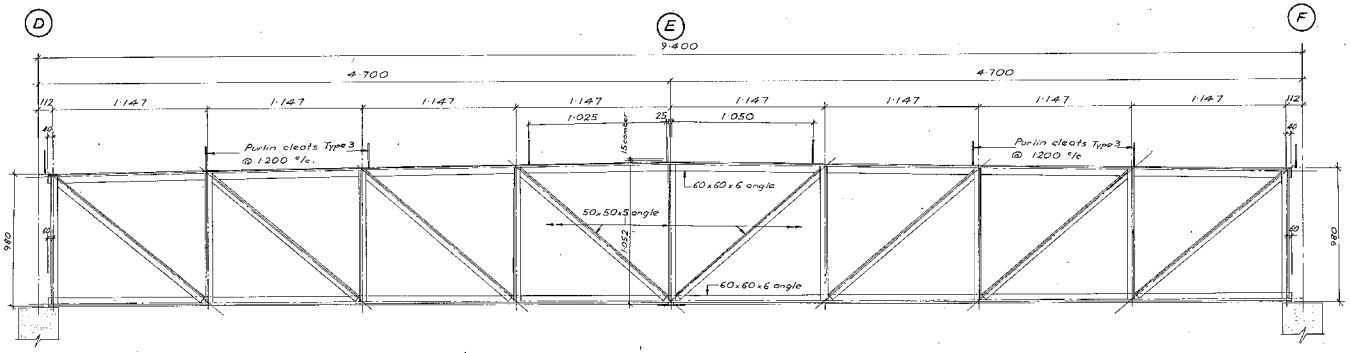
DETAIL OF END OF TRUSS 1A

Scale 1:20



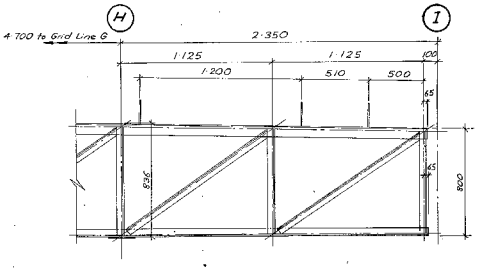
ELEVATION OF TRUSSES 2, 2Ax (Similar except longer & opposite hand)
2x (Similar except opposite hand)

Scale 1:20



ELEVATION OF TRUSSES 3

Scale 1:20



ELEVATION OF END OF TRUSS 1D

Scale 1:20

CHRISTCHURCH CITY COUNCIL
Approved subject to the conditions
25 NOV 1981
for City Engineer

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
" (P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				

		Date
Designed	M.Stockwell	3/81
Drawn	P.Macefield	4/81
Traced	"	"
Dwg. Chk.	M.Stockwell	8/81
Des. Chk.		
Indexed		

Approved: Design Engineer — Date

for City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

CENTRAL DEPOT-STAGE 3A -JOHNSON STREET
ELEVATIONS OF TRUSSES 1-1D, 2-2A & 3

Scales: 1:20

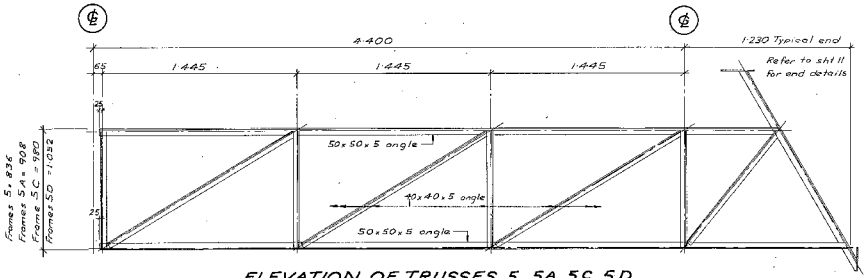
File No. BU/9/10

Issue

D.2705

Sheet 12 of 14

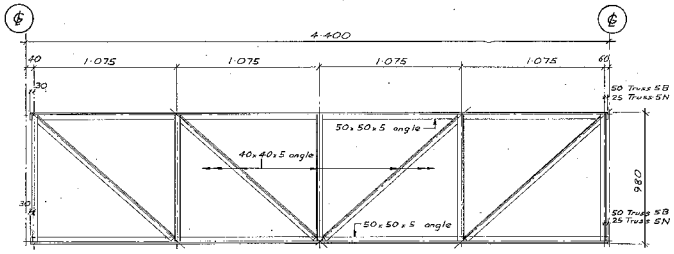
Original scale of millimetres 0 20 40 60 80 100



ELEVATION OF TRUSSES 5, 5A, 5C, 5D

5x, 5Ax, 5Dx (similar except opposite hand)

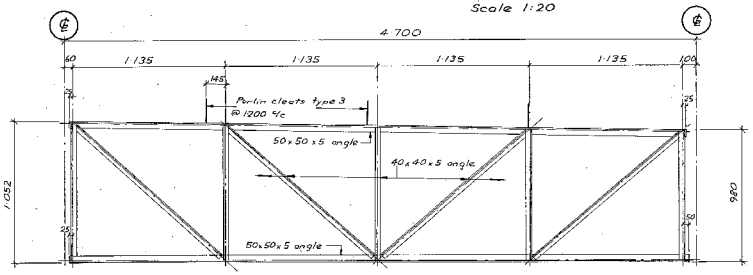
Scale 1:20



ELEVATION OF TRUSSES 5B

5N (similar except shorter)

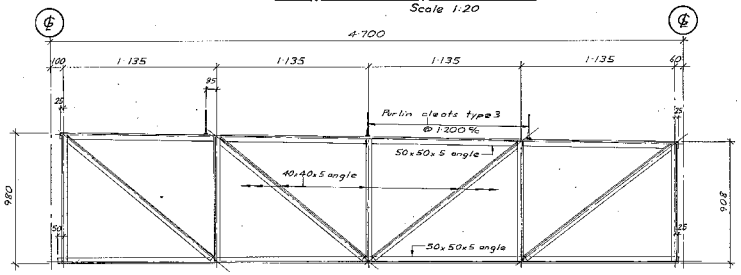
Scale 1:20



ELEVATION OF TRUSS 5M

5Mx (similar except opposite hand)

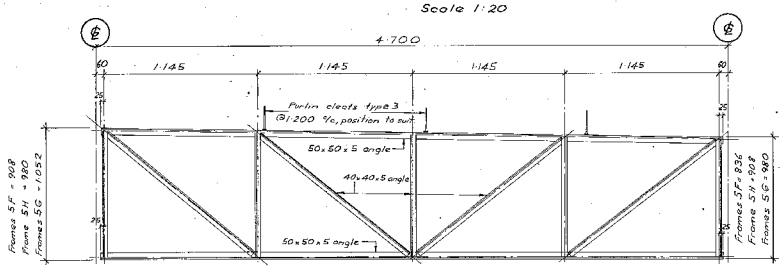
Scale 1:20



ELEVATION OF TRUSS 5L

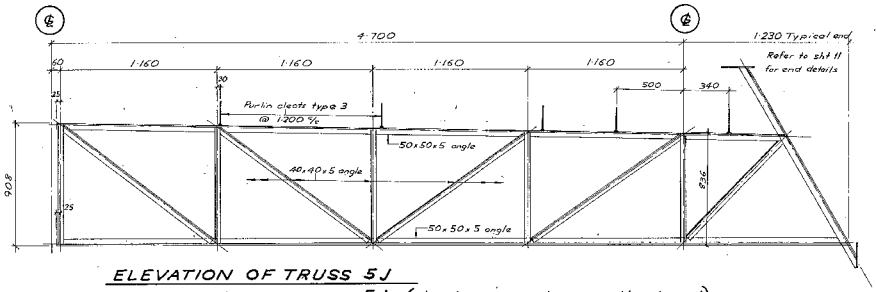
5Lx (similar except opposite hand)

Scale 1:20



ELEVATION OF TRUSSES 5F, 5G, 5H, 5Fx + 5Gx (similar except opposite hand)

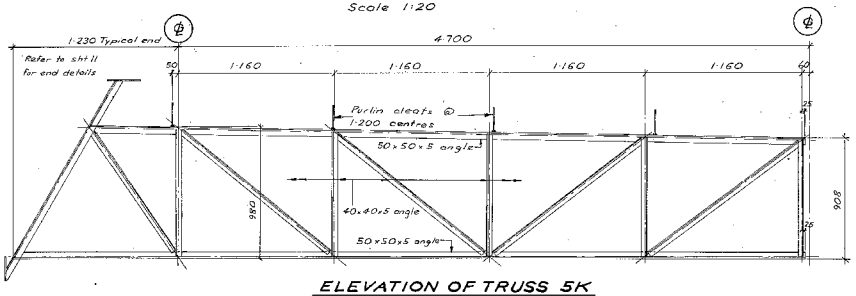
Scale 1:20



ELEVATION OF TRUSS 5J

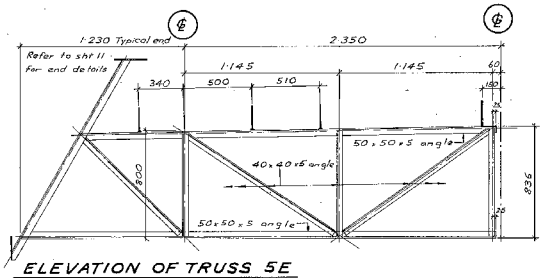
5Jx (similar except opposite hand)

Scale 1:20



ELEVATION OF TRUSS 5K

Scale 1:20



ELEVATION OF TRUSS 5E

5Ex (similar except opposite hand)

Scale 1:20

CHRISTCHURCH CITY COUNCIL
Approved subject to the Orders
25 NOV 1981
For City Engineer

Service	Initials	Service	Initials
H.P. Water		Lands & Survey	
Sewer		Planning	
S.W. Drainage			
Gas			
Cables (M.E.D.)			
(P.O.)			

Amendments	Initials	Date

	Book	Page	Initials	Date
Surveyed				
Levelled				
B.M.				
Compiled from				

		Date
Designed	M.Stockwell	5/81
Drawn	P.Macefield	5/81
Traced		
Dwg. Chk.	M.Stockwell	8/81
Des. Chk.		
Indexed		

Approved: Design Engineer ..... Date

for City Engineer

CHRISTCHURCH CITY COUNCIL — CITY ENGINEER'S DEPARTMENT

CENTRAL DEPOT-STAGE 3A-JOHNSON STREET
ELEVATIONS OF TRUSSES 5 – 5N

Scales: 1:20

File No. BU/9/10

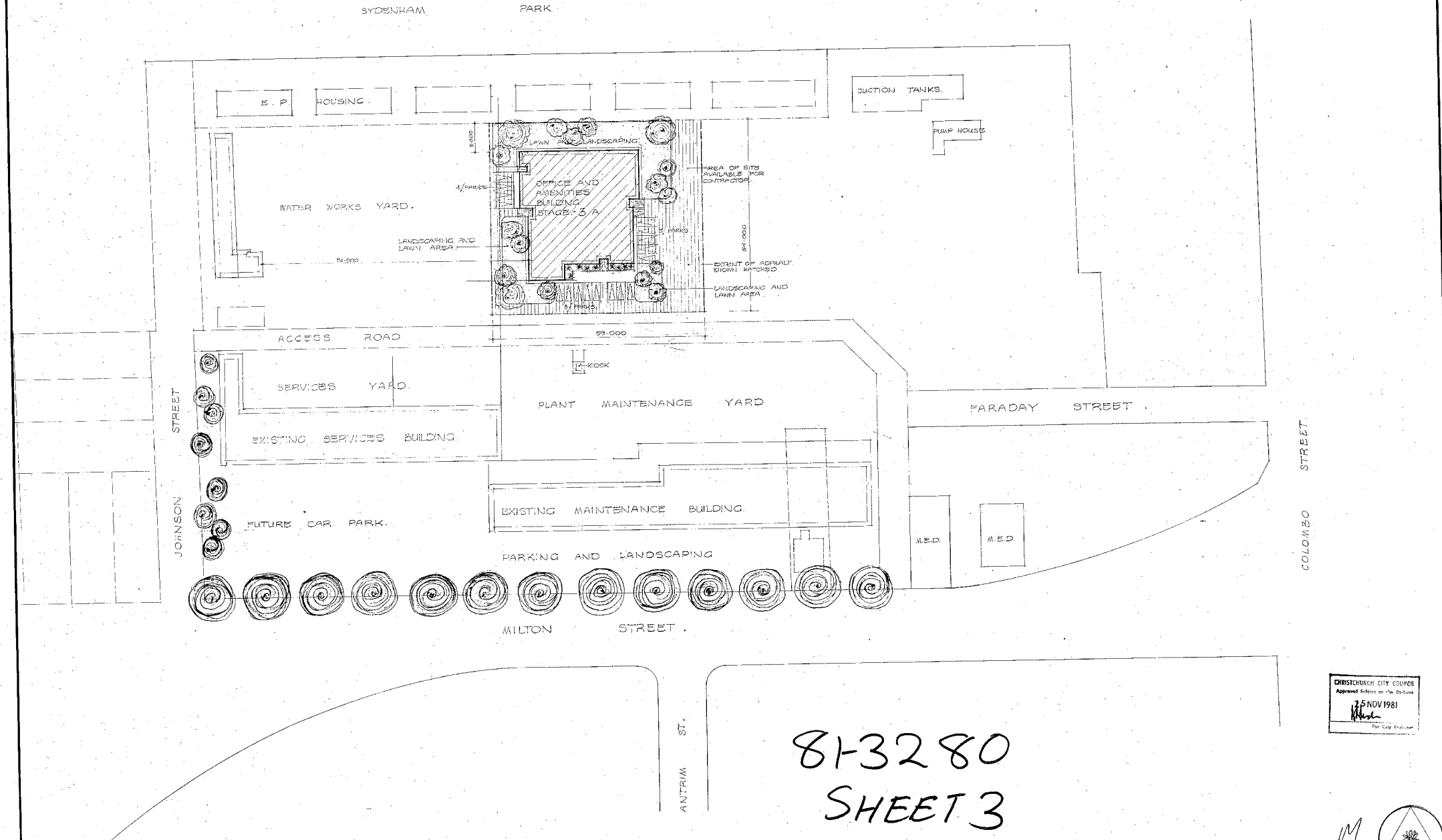
Issue

D.2705

Sheet 13 of 14

Original scale of millimetres 0 20 40 60 80 100

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
25 NOV 1981
For City Engineer

81-3280
SHEET 3

M

CHRISTCHURCH CITY COUNCIL
CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

CENTRAL DEPOT STAGE 3A. - JOHNSON STREET.

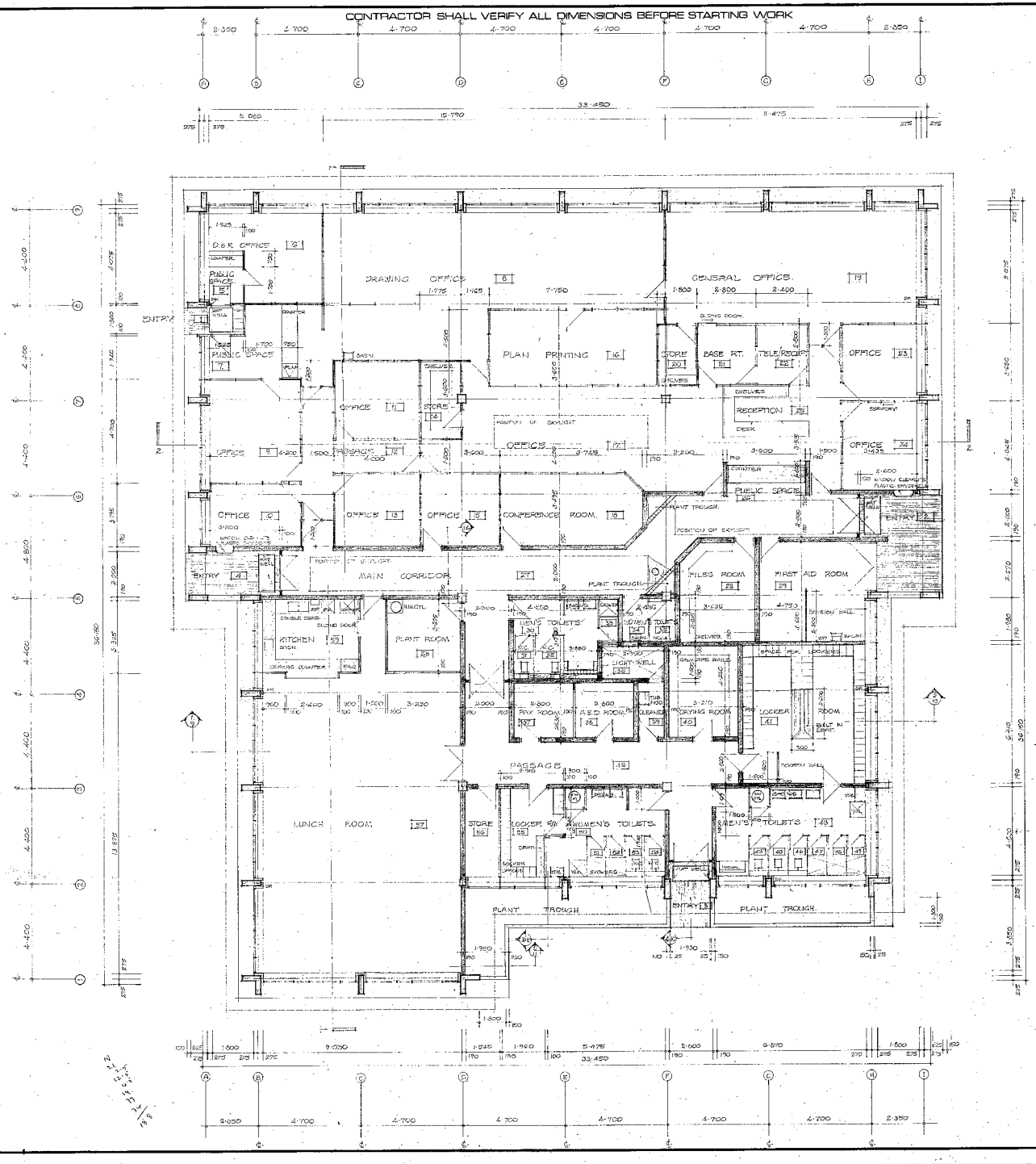
SITE PLAN

SCALE 1:500
DESIGN G.K.HARPER
DRAWN G.F. HARPER
TRACED G.F.HARPER
APRVD
DATE

JOB NO 232.3
FILE NO
CONT NO

SHEET NO 1

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



81-3280
SHEET 4

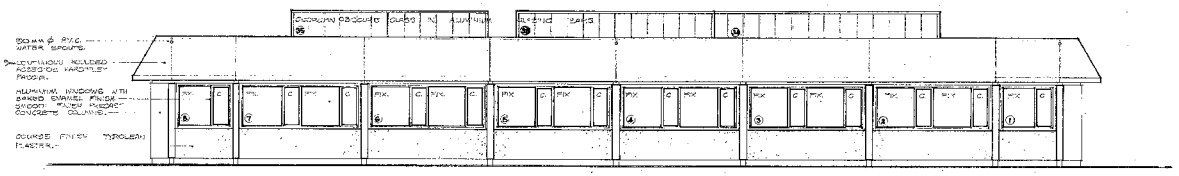
CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
25 NOV 1981
For City Engineer

CHRISTCHURCH CITY COUNCIL
CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

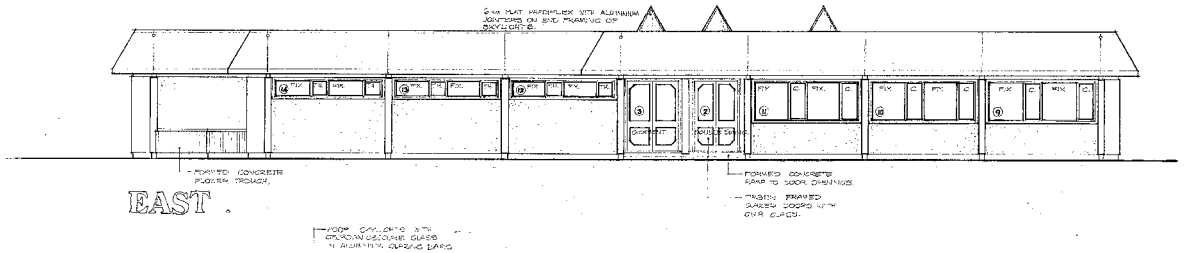
CENTRAL DEPOT STAGE 3A — JOHNSON STREET.

FLOOR PLAN. SCALE 1:100 DATE 14-4-81
DESIGN J.F.HARPER JOB NO 832-3 SHEET NO 2
DRAWN C.R.HARPER
TRACED C.P.HARPER FILE NO
APRVD CONT NO 6-81/88

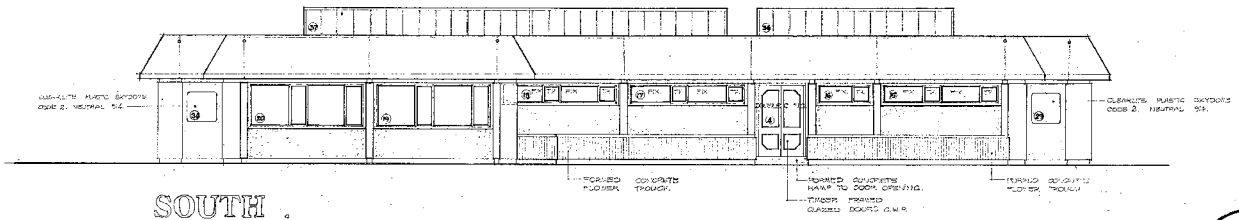
CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



NORTH .



EAST .



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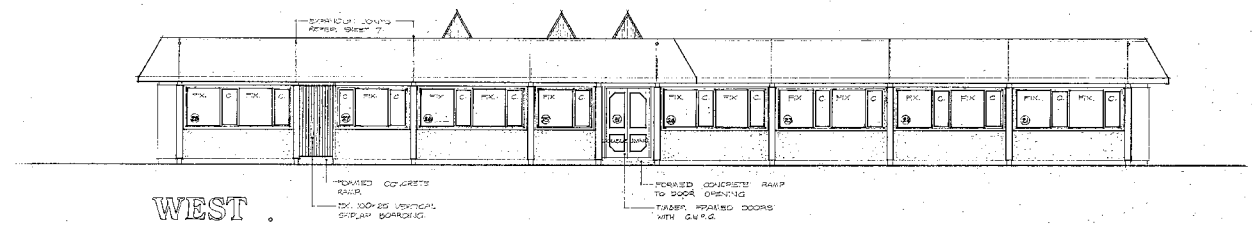
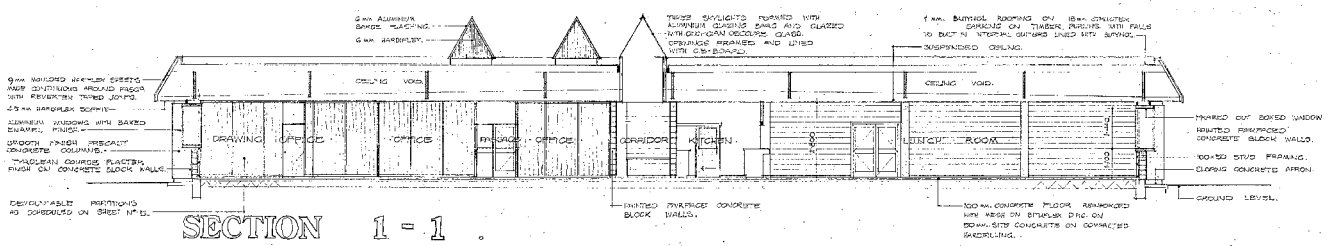


WEST .



SECTION 1 - 1 .

81-3280
SHEETS

CHRISTCHURCH CITY COUNCIL
Approved subject to the by-laws
25 NOV 1981
For City Engineer

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK

PLIMTON QUARRY TILES 52×52×22 mm BROWN WITH THIOPLEX EXPANSION JOINTS AND 6 MM WIDE GREY POINTED JOINTS.

TERRAZZO FLOOR 75 mm THICK WITH BRASS EXPANSION STRIPS AND TERRAZZO COVED SKIRTINGS.

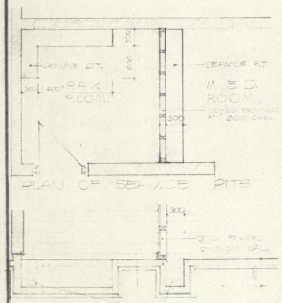
COMMERCIAL A GRADE VARN FLOORING.

POLY FLOR 2 MM THICK WITH HOT WELDED JOINTS.

FAIR FACED CONCRETE WITH STEEL TROWEL SMOOTH FINISH.

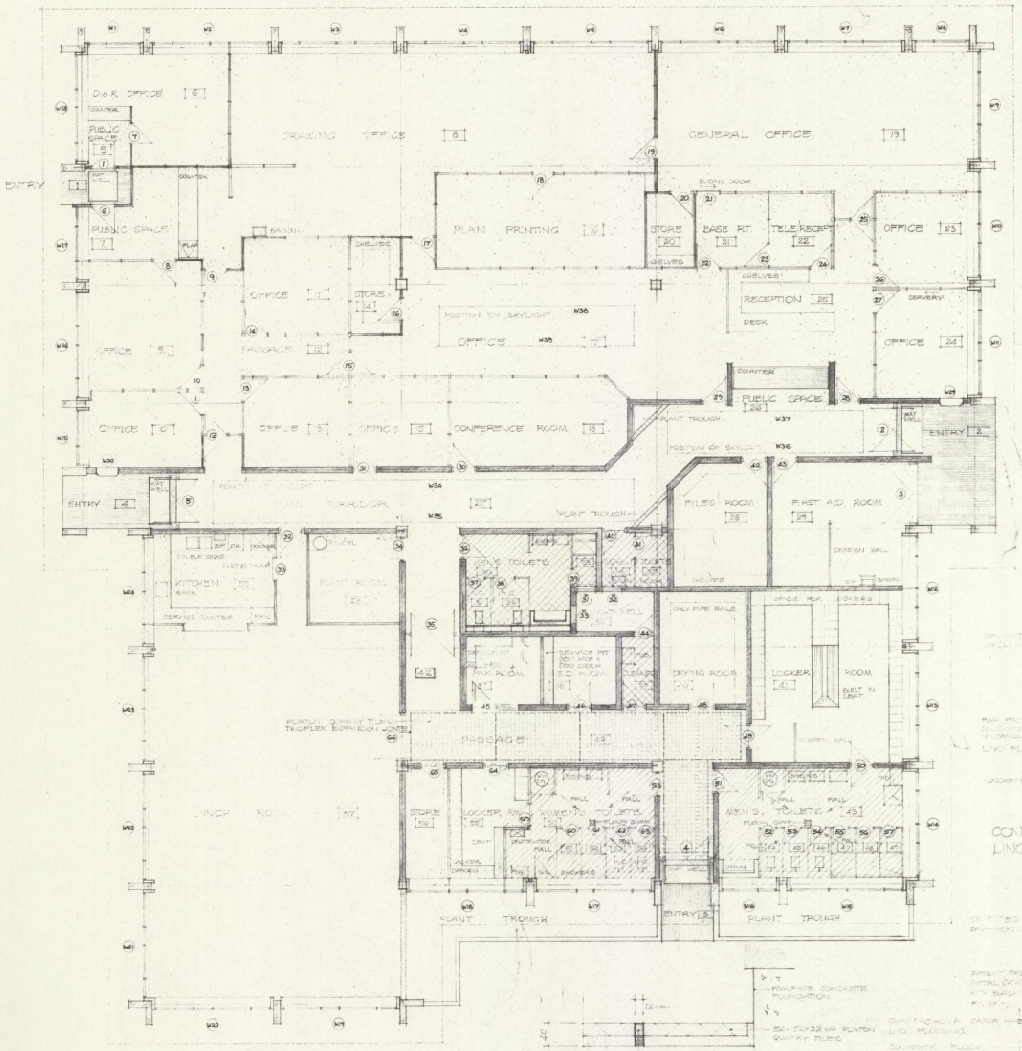
C.C.C. BLACK LITEX VINYL SKIRTING 100 MM HIGH.

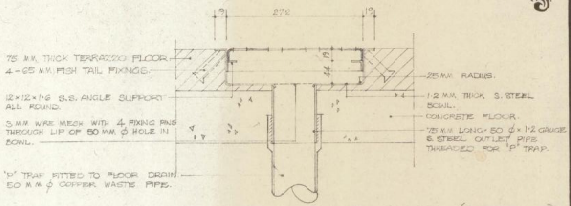
EX. 100×25 DRESSED SPLAYED WOODEN SKIRTING.



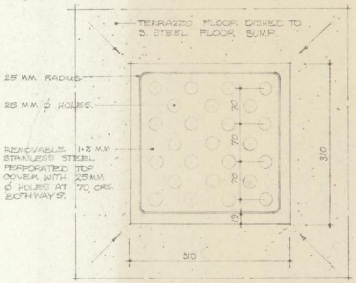
PLAN OF SERVICE PITS

SECTION THROUGH PITS

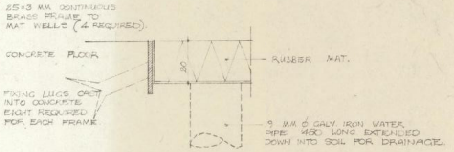




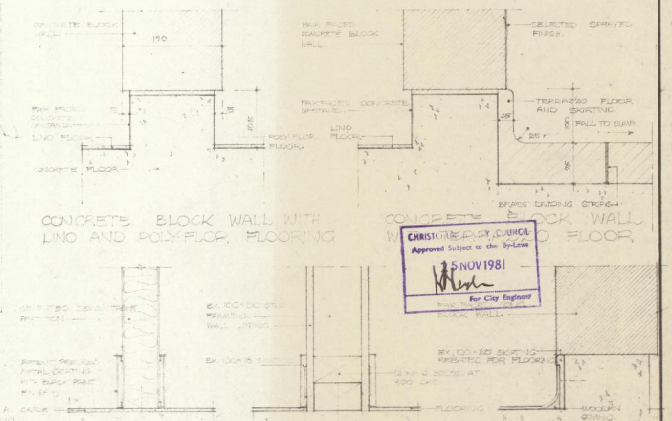
SECTION THROUGH FLOOR SUMPS. (2 REQUIRED)



PLAN OF FLOOR SUMPS.



MAT WELL DETAILS.



81-3280
SHEET 6

CHRISTCHURCH CITY COUNCIL
CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

CENTRAL DEPOT STAGE 3A. - JOHNSON STREET.

ROOM NUMBERS
DOOR NUMBERS
WINDOW NUMBERS
FLOOR COVERINGS

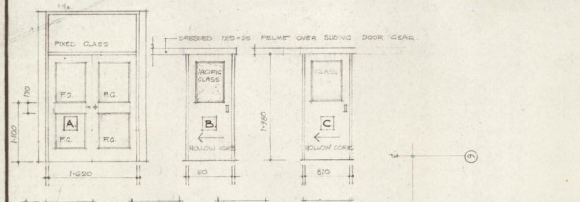
SCALE 1:100
DATE 14-4-81

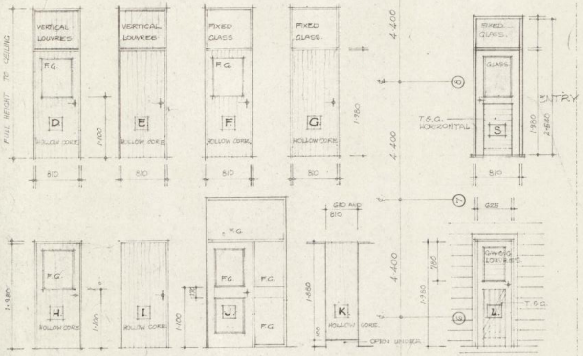
DESIGN
DRAWN
TRACED
APRVD

JOB NO 258-3
FILE NO
CONT NO 6-81/82

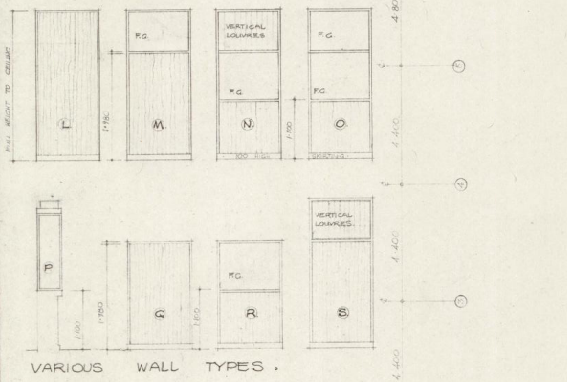
SHEET NO 4

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



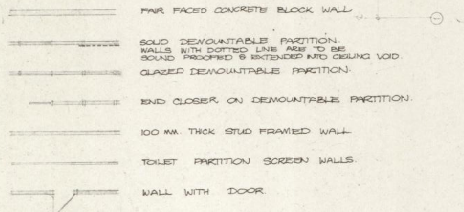


VARIOUS DOOR TYPES.

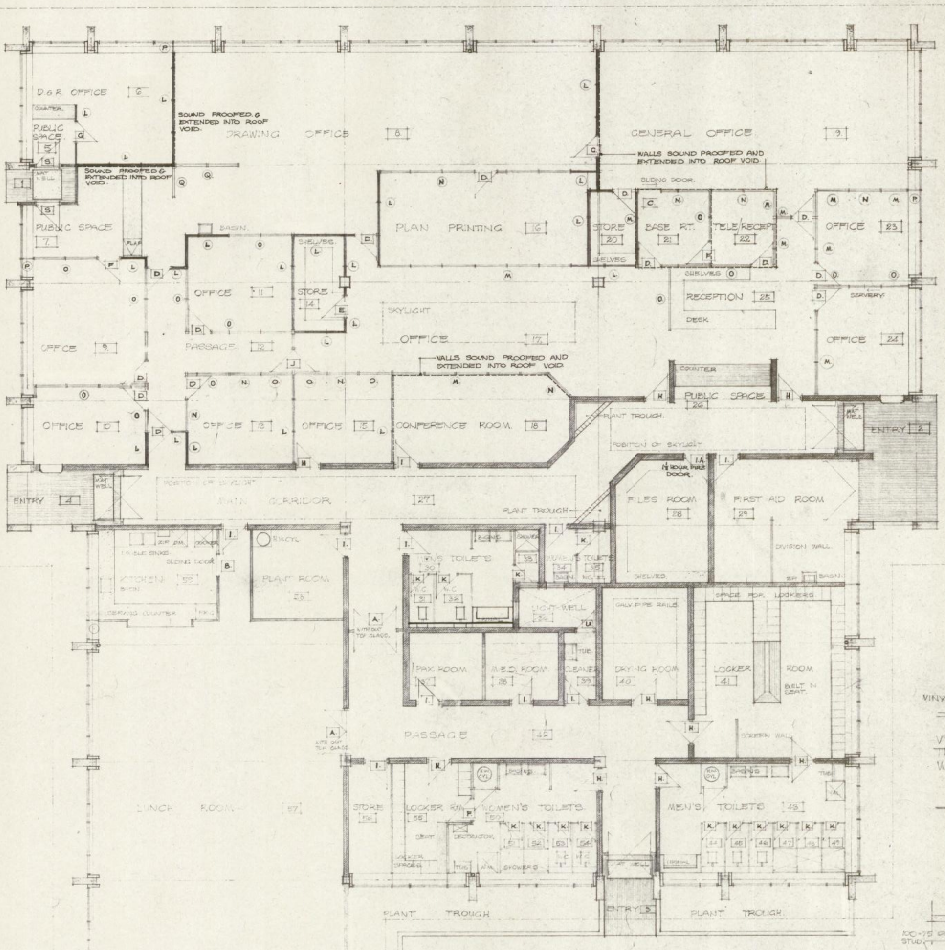


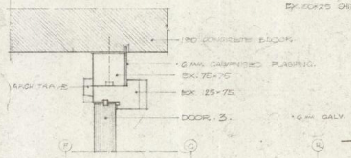
VARIOUS WALL TYPES.

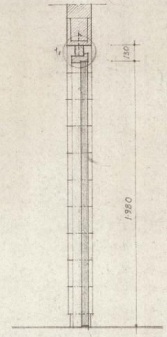
SCHEDULE OF DOOR TYPES AND PANELLED WALL TYPES.

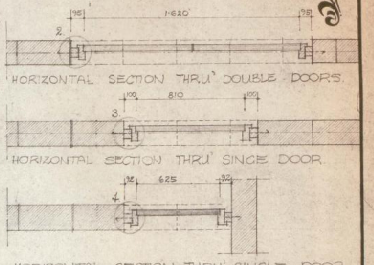


SCHEDULE OF WALL TYPES IN PLAN.

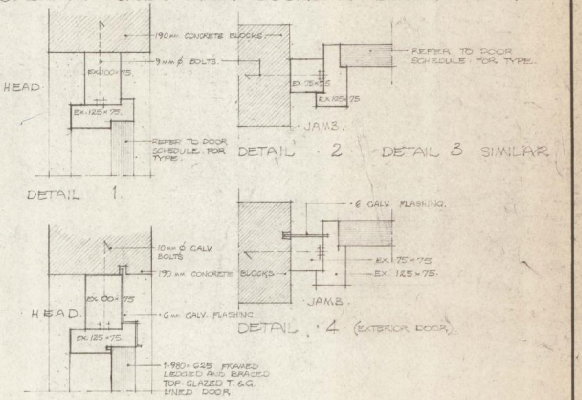


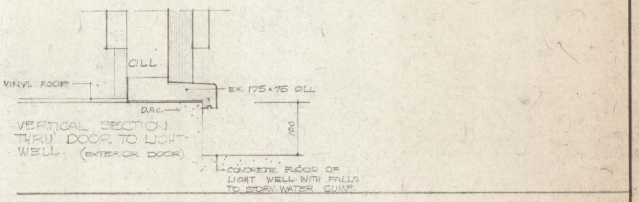


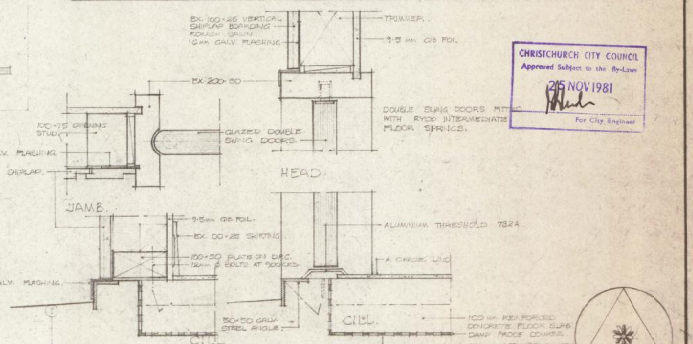




OPENING SIZES FOR DOORS IN BLOCK WORK.







DETAILS OF FRAMES FOR DOORS 2-4-5-DOOR 3 SIMILAR (REFER SHEET 11)

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
25 NOV 1981
For City Engineer

CHRISTCHURCH CITY COUNCIL
CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

CENTRAL DEPOT STAGE 3A. – JOHNSON STREET.

INTERIOR DOOR AND WALL TYPES.

SCALE 1:100 1:50
DATE 10-4-81

DESIGN J.SHARPER
DRAWN J.P.SHARPER
TRACED J.P.SHARPER
APRVD

JOB NO 252.3
FILE NO
CONT NO

SHEET NO 5/11

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK

16 mm THICK FIBROUS PLASTER TOP AND BOTTOM OF CEILING JOISTS TO GIVE A 1½ HOUR FIRE RATING.

ECHOSTOP BOLD RANDOM C.B.15 FIBROUS PLASTER ACOUSTIC INSULATED CEILING TILES WITH RECESSED ALUMINIUM CORNICE MARGIN. CEILING SUPPORTED ON CONCEALED SUSPENDED GRID SYSTEM.

ROOFTILE FISSURA LAY IN ACOUSTIC CEILING TILES IN LINE THROUGH PATTERN WITH RECESSED ALUMINIUM CORNICE MARGIN. CEILING SUSPENDED IN AN EXPOSED GRID SYSTEM FINISHED IN WHITE.

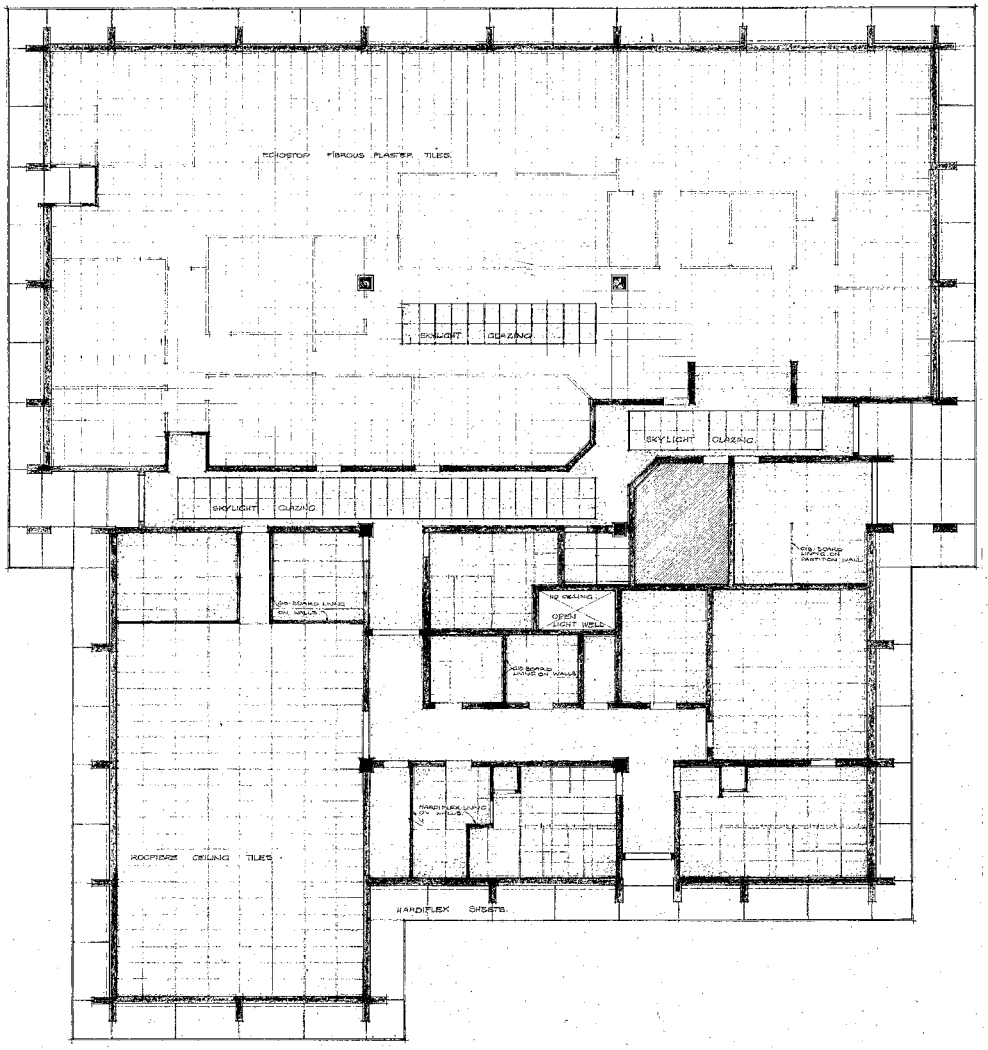
9·5 mm GIBRALTAR BOARD LINING. WITH WOODEN CORNICE.

FLAT HARDIFLEX SHEET 4·5 mm. THICK WITH WHITE PVC. JOINTER STRIPS.

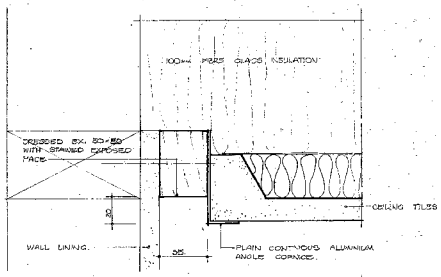
GLAZING IN ALUMINIUM GLAZING BARS.

SCHEDULE OF CEILING LININGS.

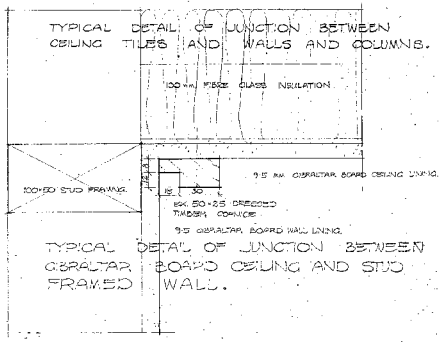
FOR LIGHTING LAYOUT AND FIRE DETECTION REFER TO MECHANICAL SERVICES DRAWINGS



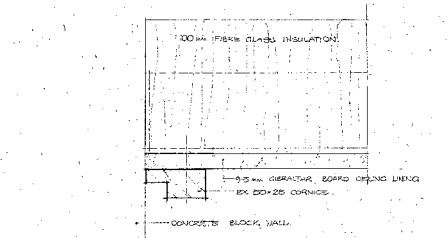
REFLECTED CEILING PLAN SCALE 1:100



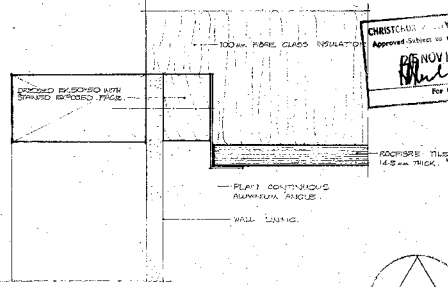
TYPICAL DETAIL OF JUNCTION BETWEEN CEILING TILES AND WALLS AND COLUMNS.



TYPICAL DETAIL OF JUNCTION BETWEEN GIBRALTAR BOARD CEILING AND STUD FRAMED WALL.



TYPICAL DETAIL OF JUNCTION BETWEEN GIBRALTAR BOARD CEILING AND CONC. BLOCK WALL.



CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
25 NOV 1981
For City Engineer

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CHRISTCHURCH CITY COUNCIL
CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

CENTRAL DEPOT STAGE 3A.- JOHNSON STREET.

REFLECTED CEILING PLAN.

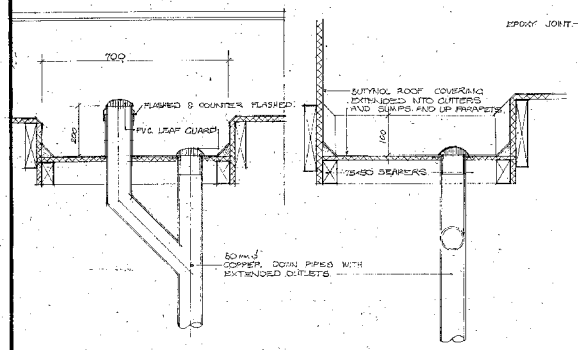
SCALE 1:100
DATE 10-4-81

DESIGN G.F. HARPER
DRAWN G.F. HARPER
TRACED
APRVD G.F. HARPER

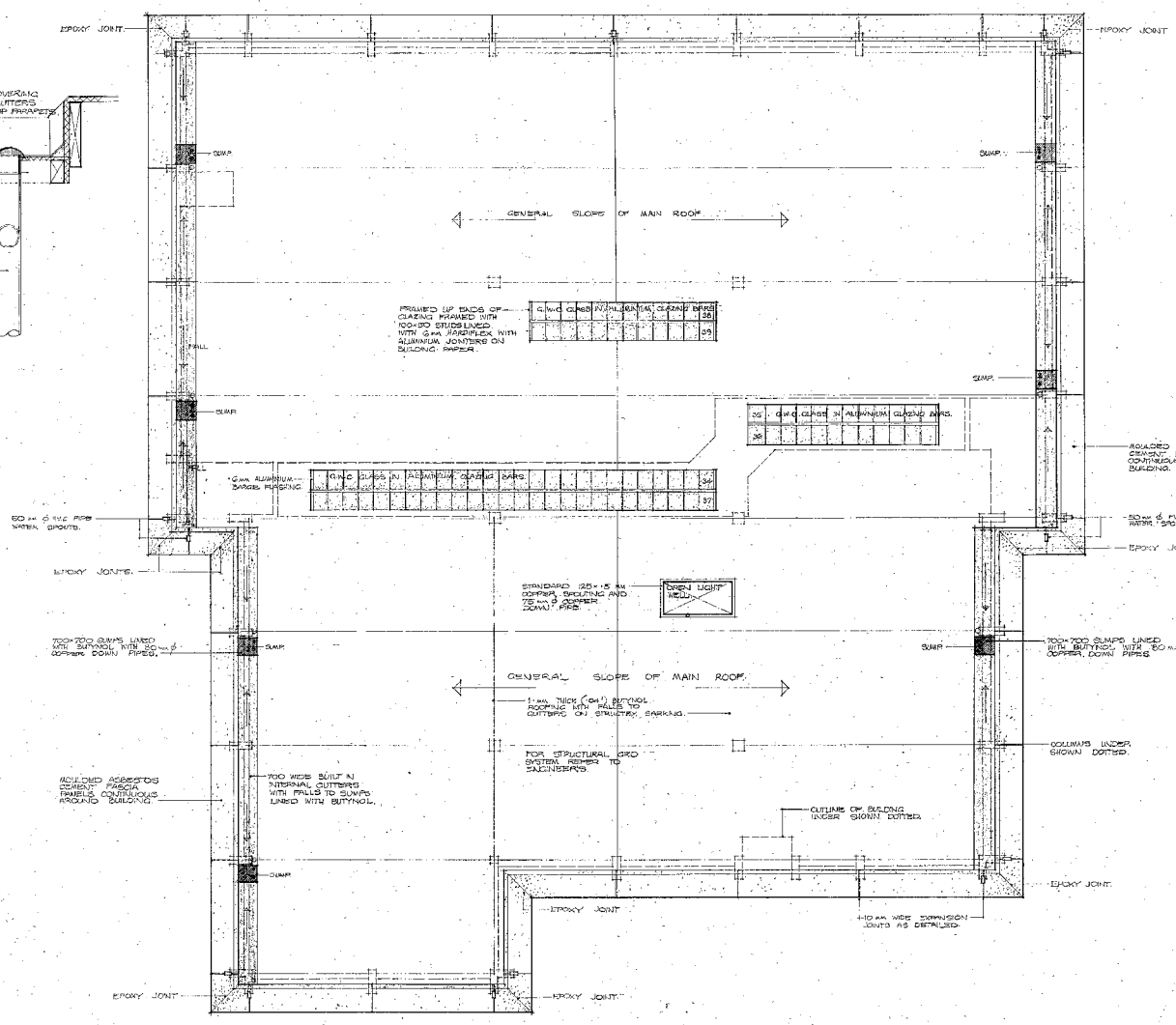
JOB NO 232-3
FILE NO
CONT NO G-81/62

SHEET NO 6

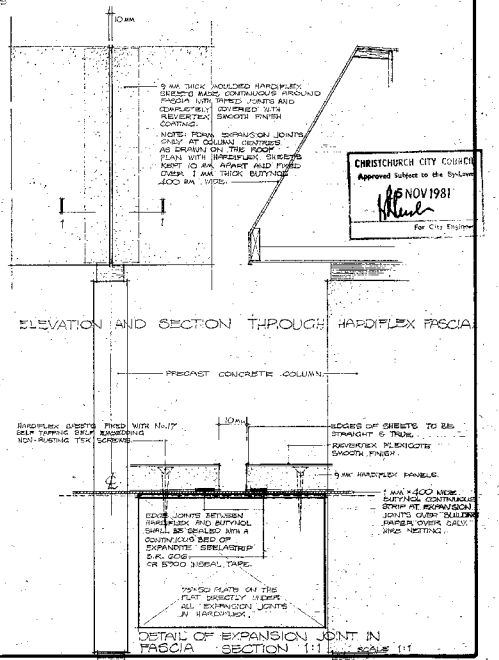
CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



SUMP DETAILS. 1:1



ROOF PLAN. SCALE 1:100



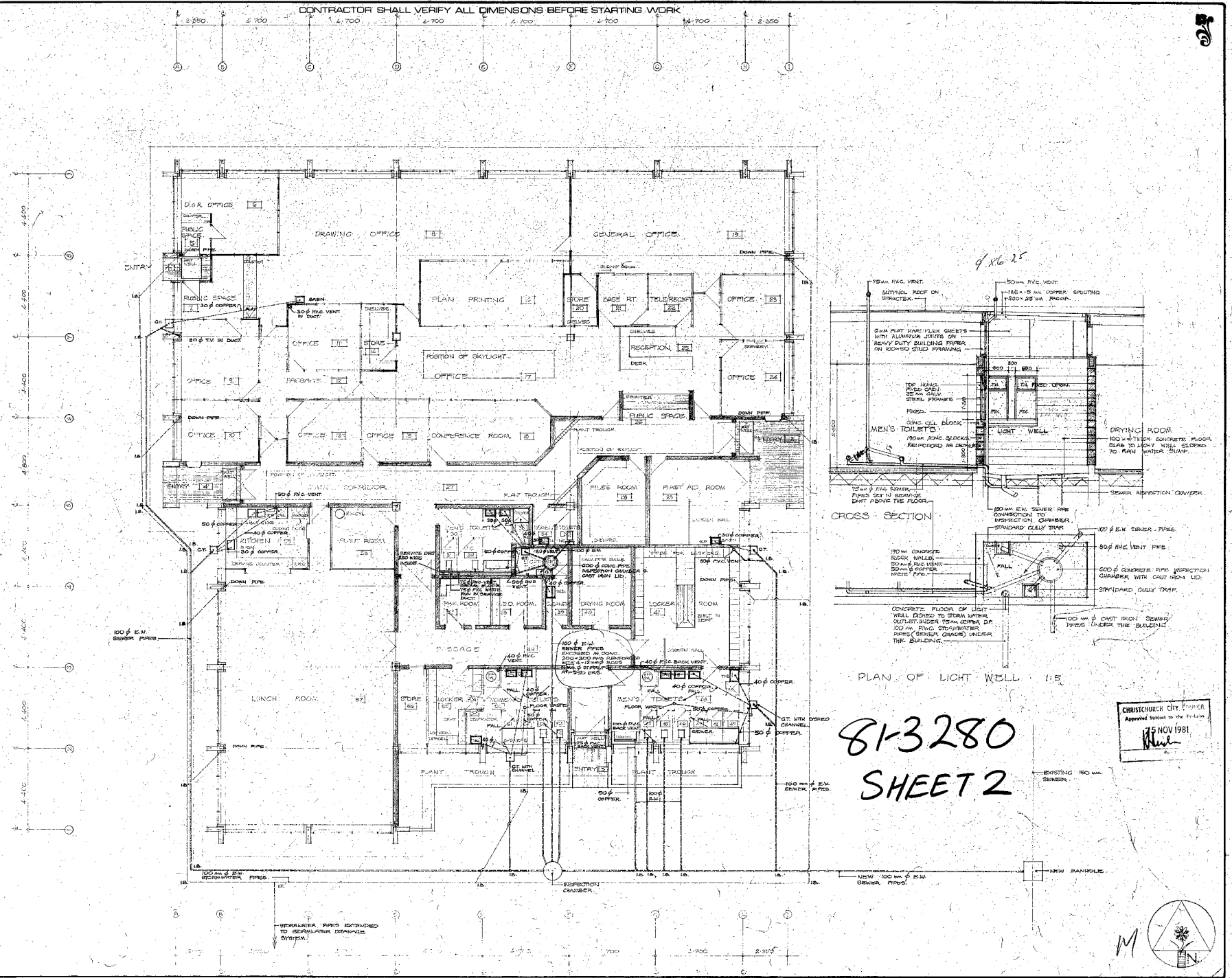
CHRISTCHURCH CITY COUNCIL

CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

CENTRAL DEPOT STAGE 3A. - JOHNSON STREET.

ROOF PLAN. SCALE 1:100 DESIGN G.P.HARPER JOB NO 232-3 SHEET NO 7
DRAWN G.P. HARPER.
DATE 10-8-81 TRACED G.P.HARPER FILE NO
APPVD CONT NO 6-81/32

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



CHRISTCHURCH CITY COUNCIL
Approved Subject to the Provisions
15 NOV 1981

81-3280
SHEET 2

CHRISTCHURCH CITY COUNCIL
CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

CENTRAL DEPOT STAGE 3A. — JOHNSON STREET.

DRAINAGE PLAN
DUCT PLAN

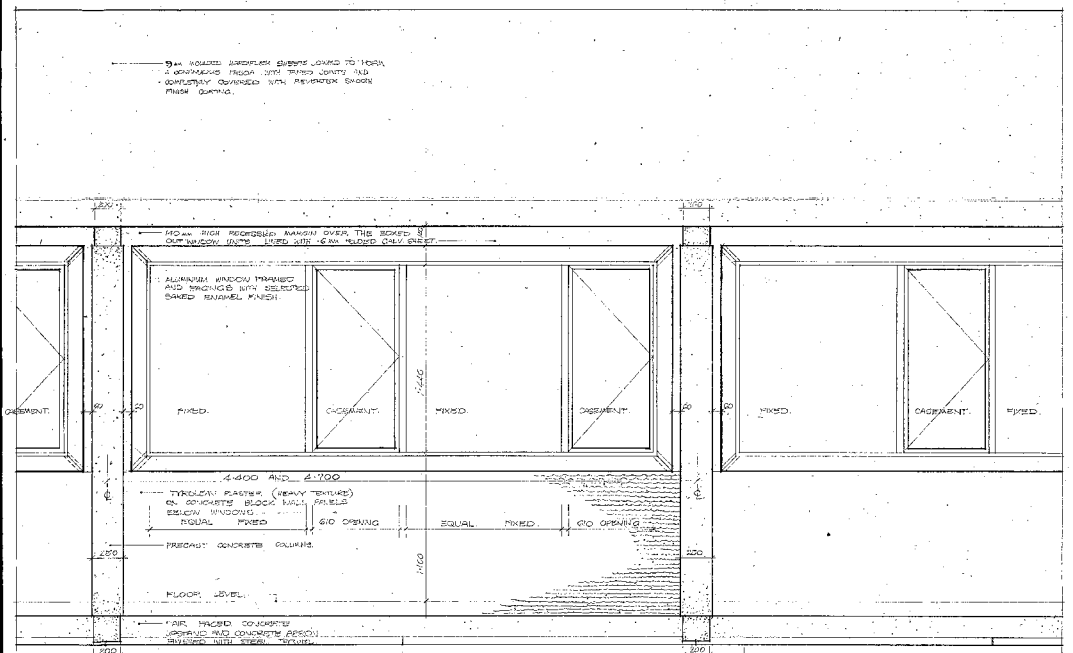
SCALE 1:100
DATE 10-4-81

DESIGN
DRAWN
TRACED
APRVD

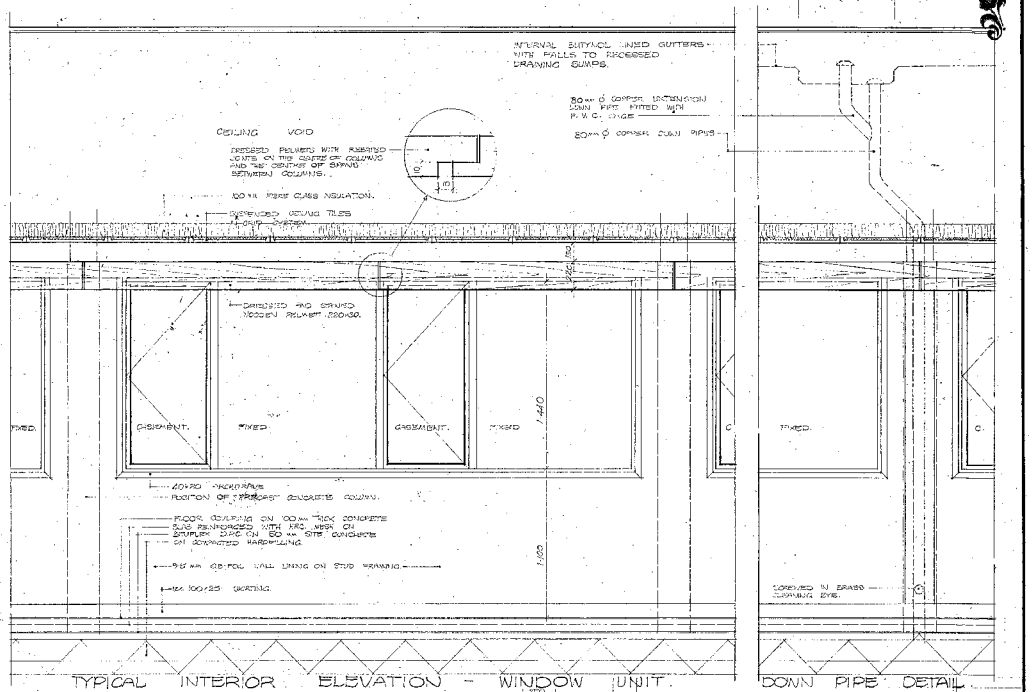
JOB NO 232-3
FILE NO
CONT NO

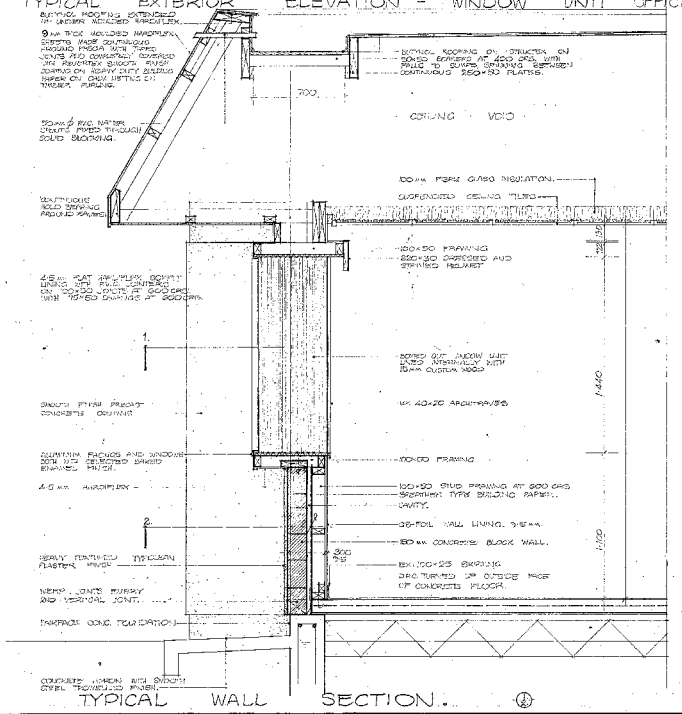
SHEET NO 6

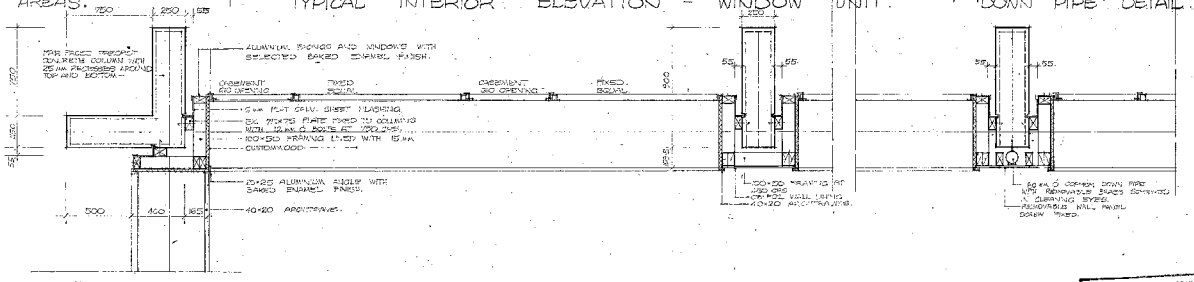
CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



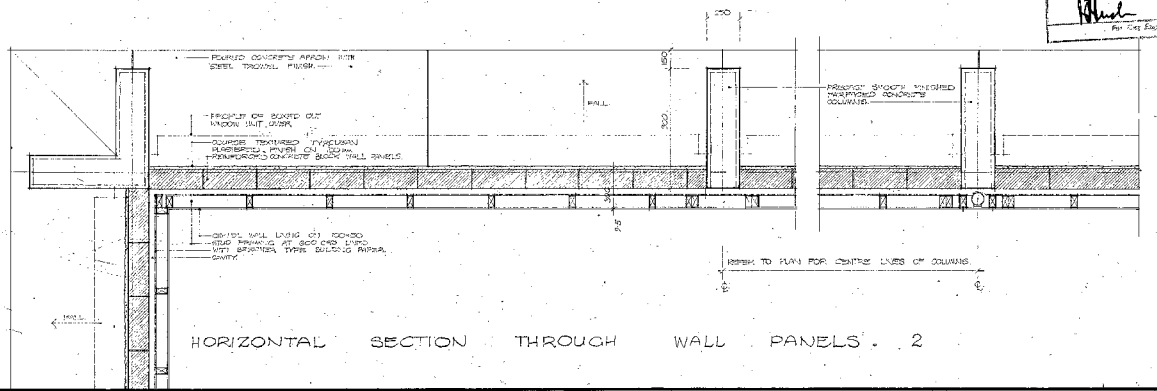
TYPICAL EXTERIOR ELEVATION - WINDOW UNIT OFFICE AND CAFE AREAS.







HORIZONTAL SECTION THROUGH WINDOW UNITS. 1



HORIZONTAL SECTION THROUGH WALL PANELS. 2

CHRISTCHURCH CITY COUNCIL
Approved Subject to the Bylaws
25 NOV 1981
Per City Engineer

CHRISTCHURCH CITY COUNCIL

CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

CENTRAL DEPOT STAGE 3A. JOHNSON STREET.

EXTERNAL AND INTERNAL DETAILS OF WINDOWS.

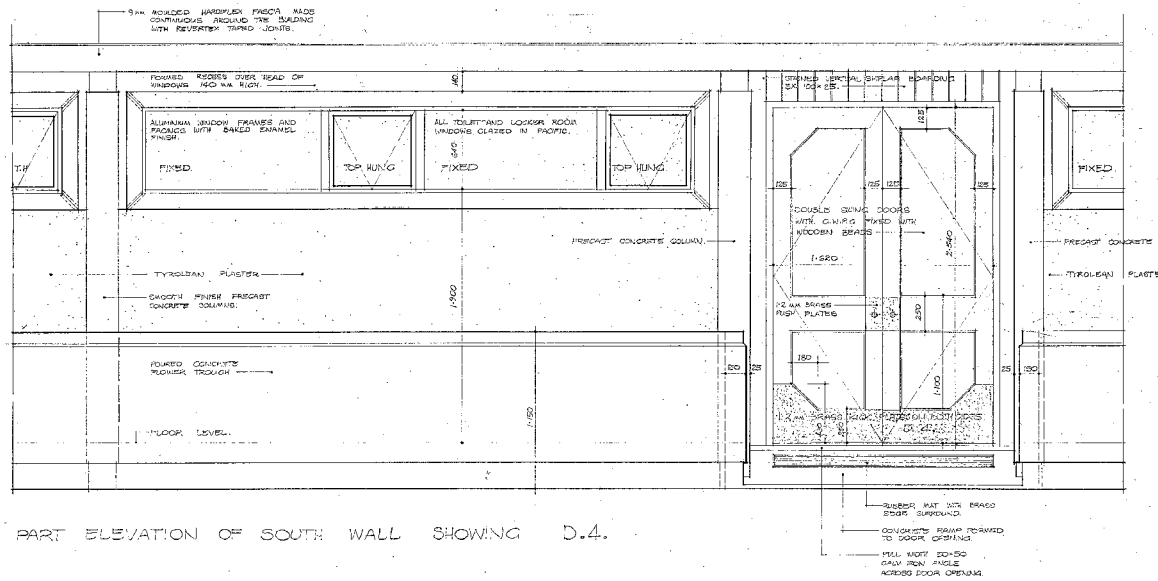
SCALE 1:20
DATE 22.4.81

DESIGN G.P.HARPER.
DRAWN G.P. HARPER.
TRACED
APPRVD G.R. HARPER.

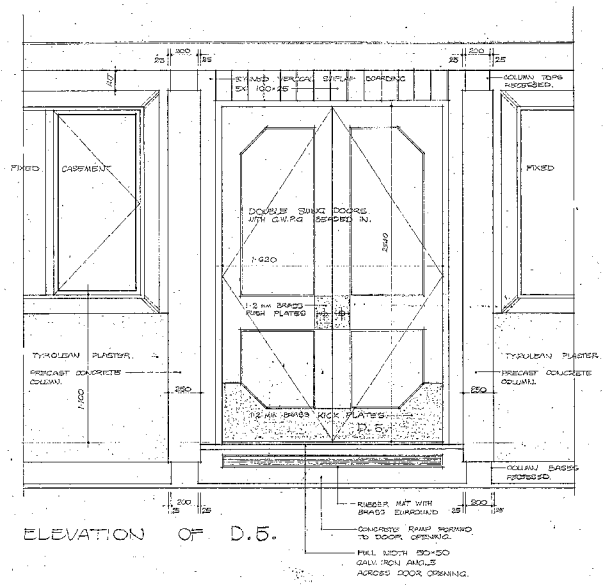
JOB NO 232-3
FILE NO
CONT NO 6-81/63

SHEET NO 9

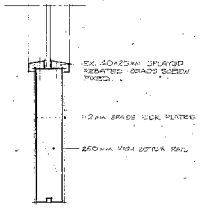
CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



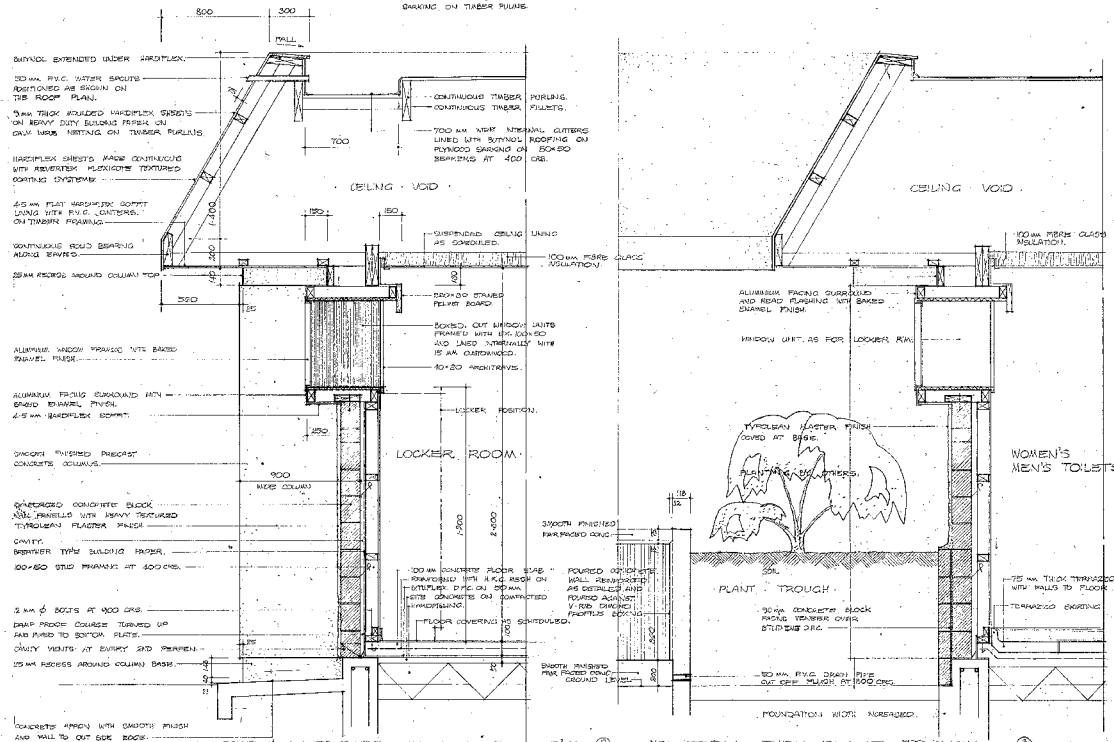
PART ELEVATION OF SOUTH WALL SHOWING D.4.



ELEVATION OF D.5.



BOTTOM RAIL OF DOOR D



SECTION THRU EXTERIOR WALL LOCKER R/M. ①

SECTION THRU PLANT TROUGH ②

SECTION THRU DOOR OPENING 4. ③

CHRISTCHURCH CITY COUNCIL
Approved Subject to the Ordinance
25 NOV 1981
For City Engineer

CHRISTCHURCH CITY COUNCIL

CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

CENTRAL DEPOT STAGE 3A. — JOHNSON STREET.

DETAILS AND SECTIONS THROUGH DOORS AND WINDOWS.

SCALE 1:20

DATE 22-4-81.

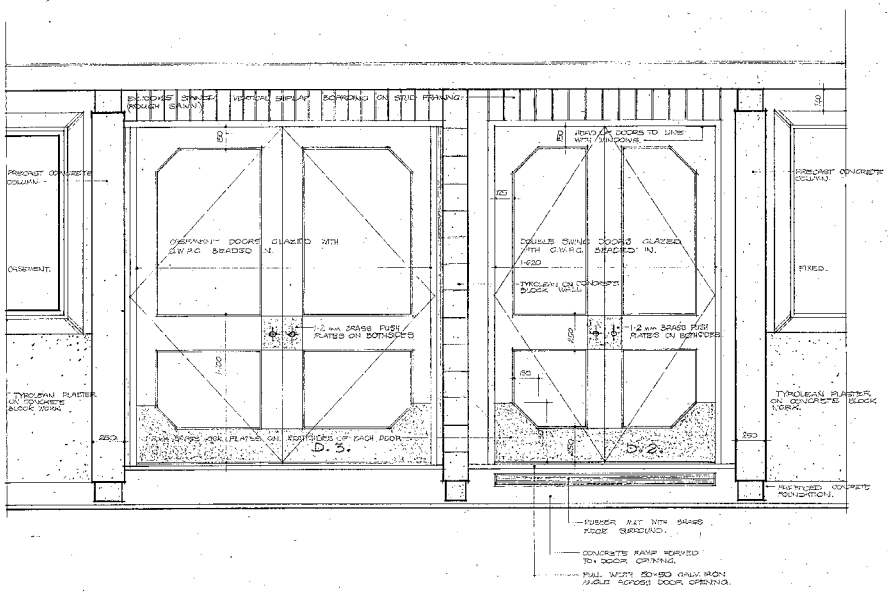
DESIGN G.P.HARPER. JOB NO 232.3 SHEET NO 10

DRAWN G.P.HARPER.

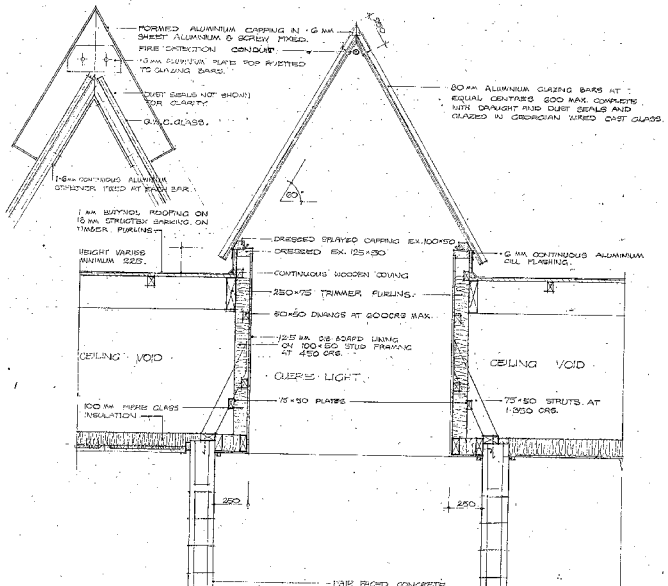
TRACED G.P.HARPER. FILE NO

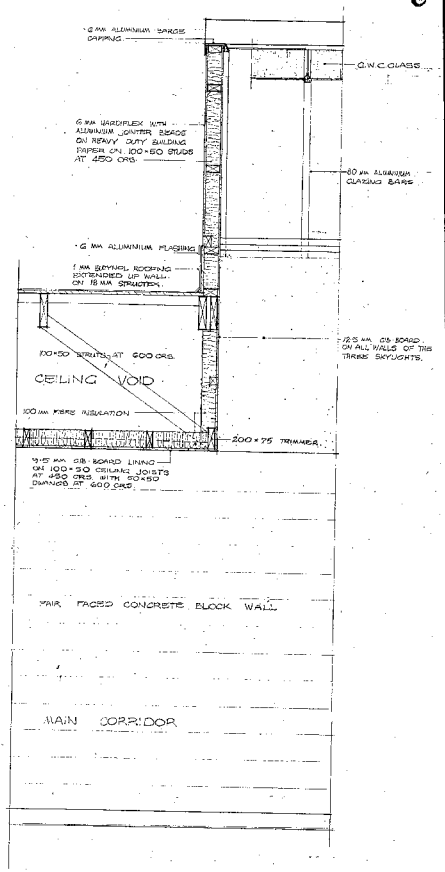
APPVD CONT NO 0-81/82

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK

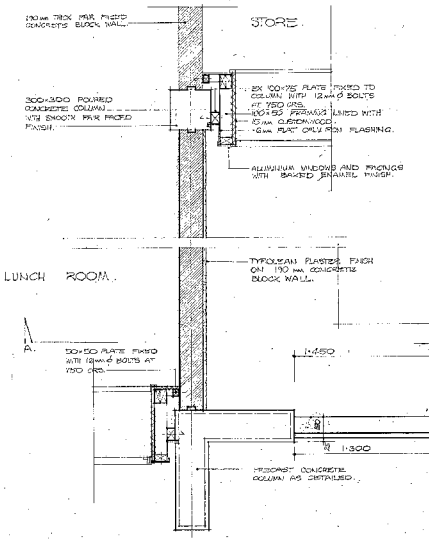


PART ELEVATION OF EAST WALL SHOWING D.2. & D.3.

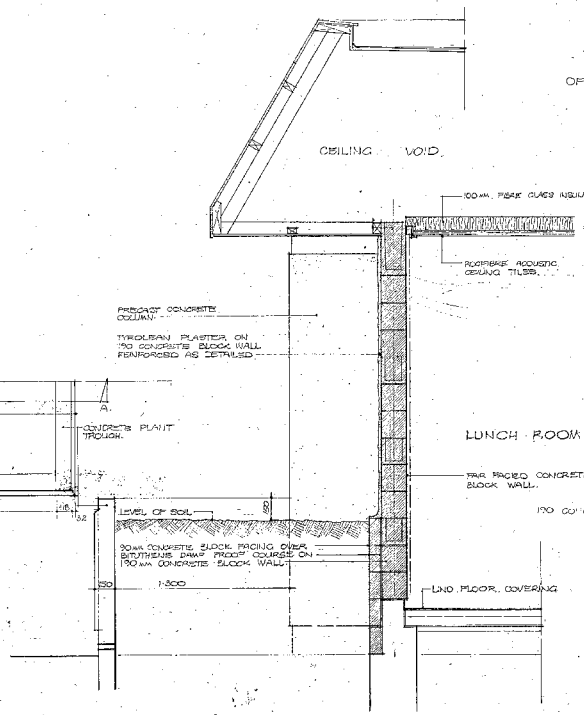




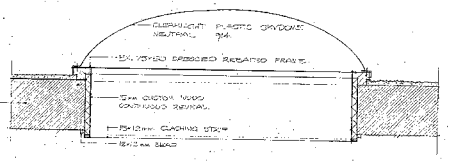
DETAILS OF ROOF LIGHTS 1:20 (3)



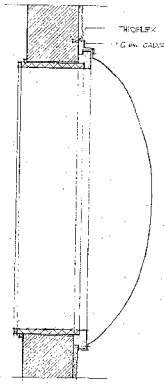
PART PLAN OF COLUMNS AT SOUTH EAST CORNER OF LUNCH ROOM.



SECTION A:A THROUGH PLANT TROUGH. (2)



CROSS SECTION THROUGH W 29 & 30



CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
26 NOV 1981
For City Engineer

CHRISTCHURCH CITY COUNCIL
CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

CENTRAL DEPOT STAGE 3A. — JOHNSON STREET.

SECTIONS THROUGH PLANT TROUGHS.
SECTIONS THROUGH ROOF LIGHTS.
ELEVATIONS OF DOORS.

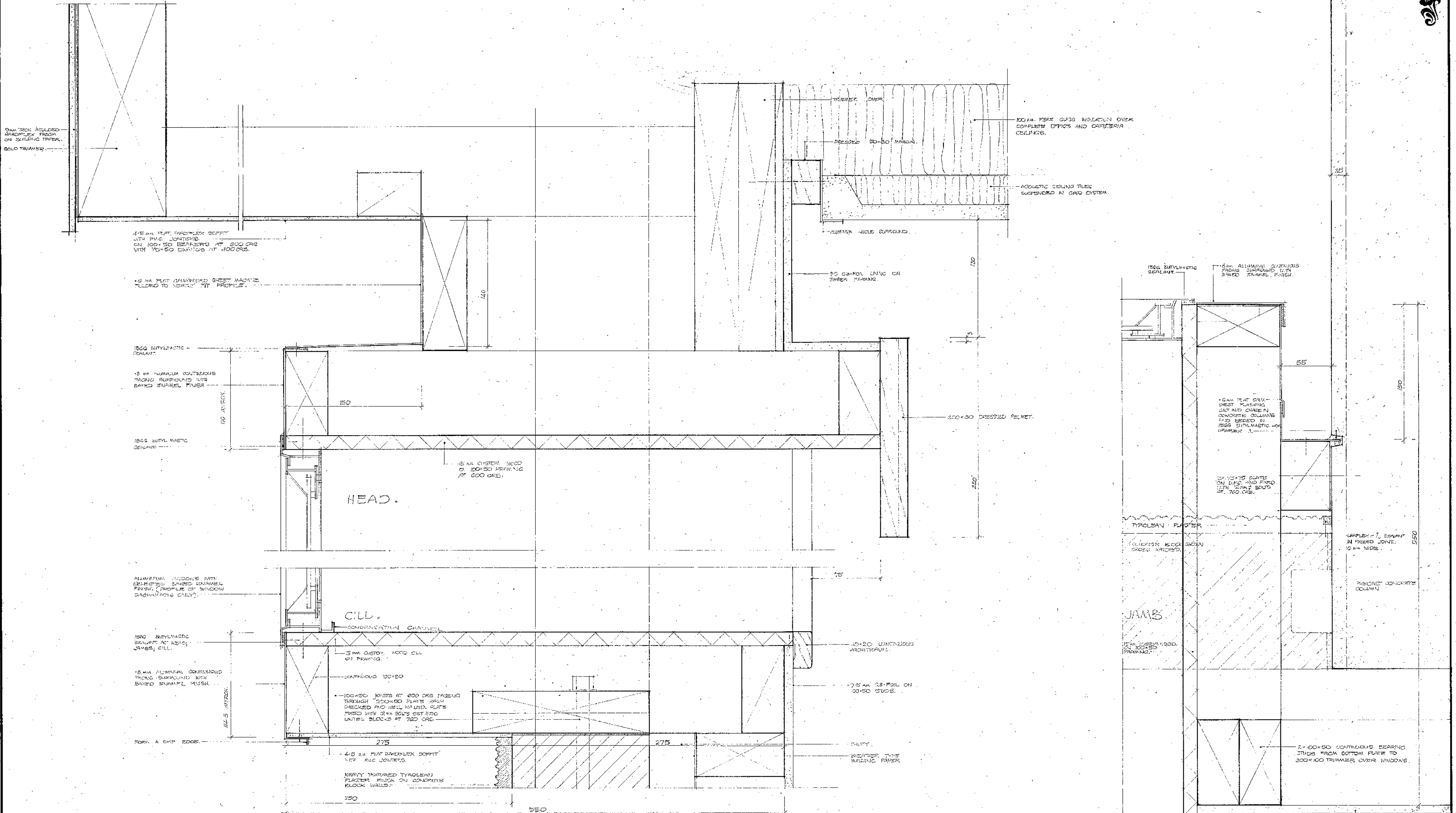
SCALE 1:20
1:50
DATE 27·4·81

DESIGN G.F.HARPER
DRAWN G.F.HARPER
TRACED G.F.HARPER
APRVD

JOB NO 232·3
FILE NO
CONT NO 8·81/82

SHEET NO 11

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



TRIMMER OVER
100 mm FIBRE GLASS INSULATION OVER COMPLETE OFFICE AND CAFETERIA CEILINGS.
DRESSED 50×50 MARGIN.
ACOUSTIC CEILING TILES SUSPENDED IN GRID SYSTEM.
ALUMINIUM ANGLE SURROUND.
ALUMINIUM WINDOWS WITH BAKED ENAMEL FINISH. (PROFILE OF WINDOW DIAGRAMMATIC ONLY).
CONDENSATION CHANNEL
10×20 CONTINUOUS ARCHITRAVE.
275
150
550
HEAD.
CILL.
JAMB.
TYROLEAN PLASTER
55
200×50 DRESSED PELMET.
2-100×50 CONTINUOUS BEARING STUDS FROM BOTTOM PLATE TO 300×100 TRIMMER OVER WINDOWS.
10×20 CONTINUOUS ARCHITRAVE.
25 NOV 1981
For City Engineer

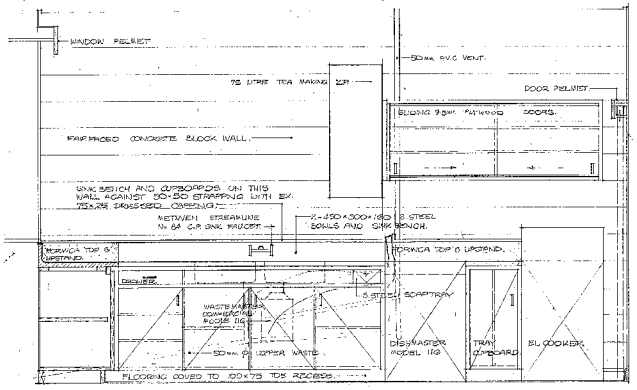
VERTICAL SECTION THROUGH TYPICAL BOXED OUT WINDOW UNIT.

CHRISTCHURCH CITY COUNCIL
CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

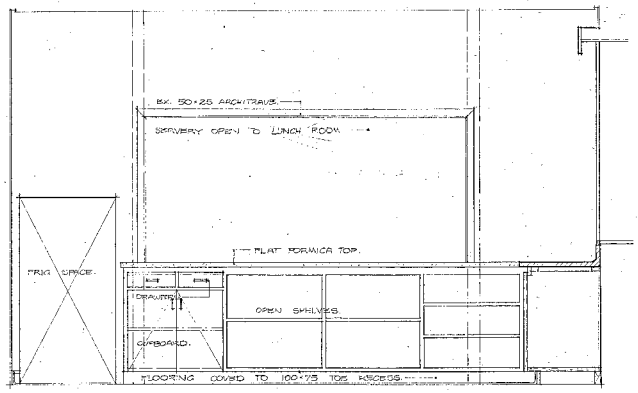
CENTRAL DEPOT STAGE 3A. – JOHNSON STREET.

LARGE WINDOW DETAILS.	SCALE 1:2	DESIGN G.F.HARPER	JOB NO 252.3	SHEET NO
		DRAWN G.F.HARPER		12
	DATE 27.4.81	TRACED G.F.HARPER	FILE NO	
		APRVD	CONT NO 6-81/82	

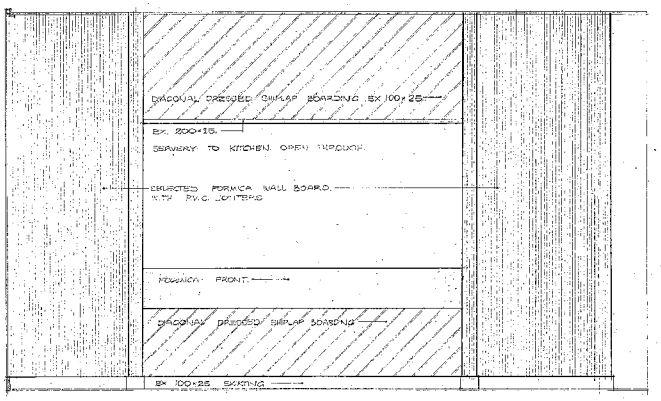
CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



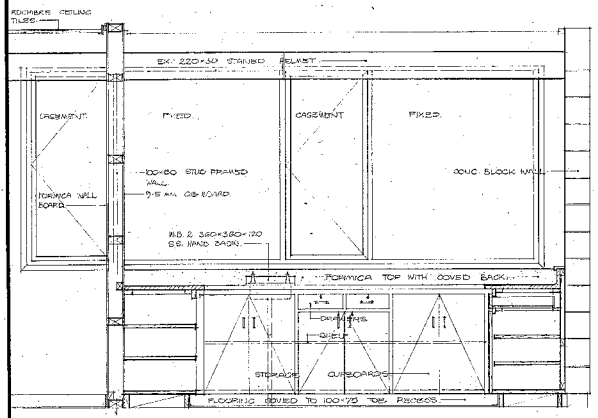
WALL . 1 .



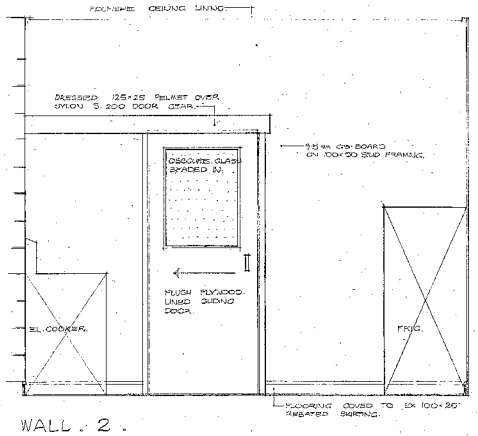
WALL . 3 .



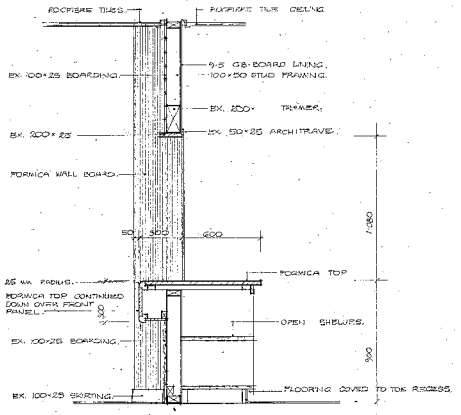
FRONT ELEVATION OF SERVERY



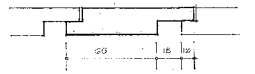
WALL . 4 .



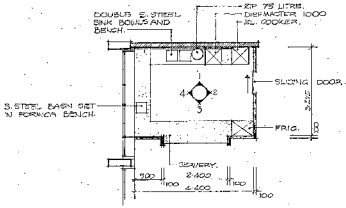
WALL . 2 .



SECTION THRU' SERVERY



DETAIL OF EX. 100×25 SHIPLAP BOARDING



PLAN OF KITCHEN AREA 59.
SCALE 1:100

CHRISTCHURCH CITY COUNCIL
Approved Subject to the Bylaws
25 NOV 1981
For City Engineer

CHRISTCHURCH CITY COUNCIL
CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

CENTRAL DEPOT STAGE 3A. — JOHNSON STREET

KITCHEN DETAILS AREA 59

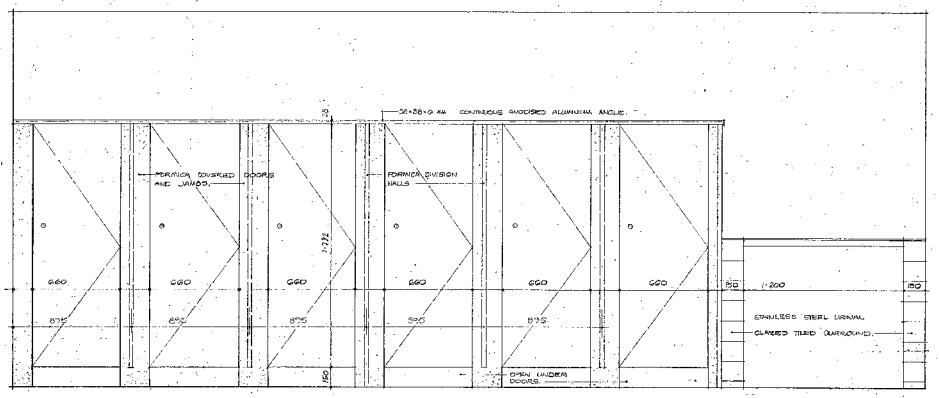
SCALE 1:100, 1:20
DATE 10·4·81

DESIGN G.K.HARPER
DRAWN G.P. HARPER
TRACED G.P. HARPER
APPRVD

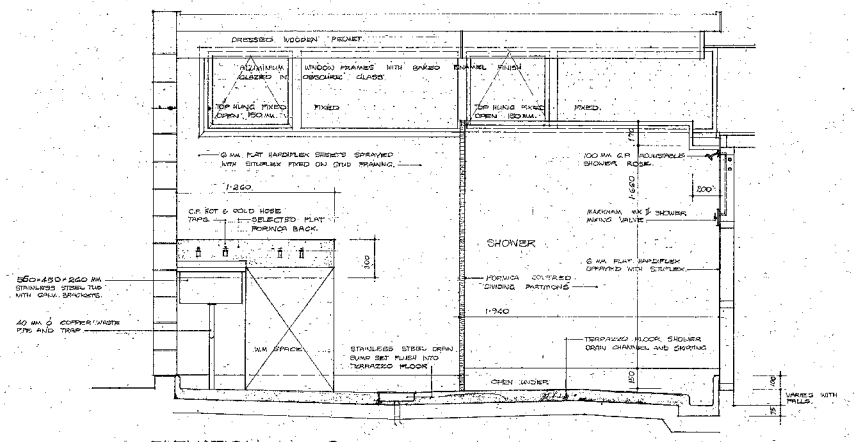
JOB NO 833·3
FILE NO
CONT NO 6-81/82

SHEET NO 13

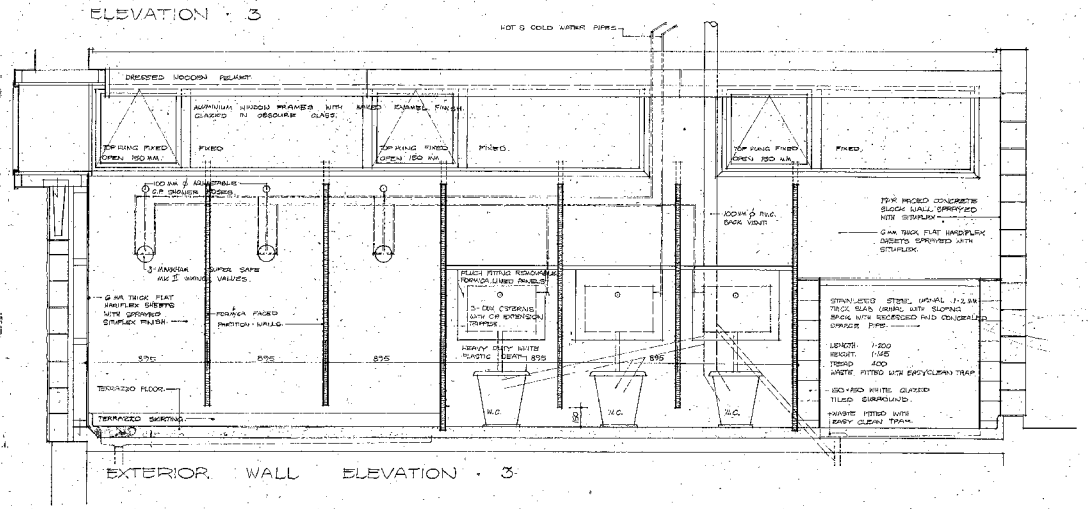
CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



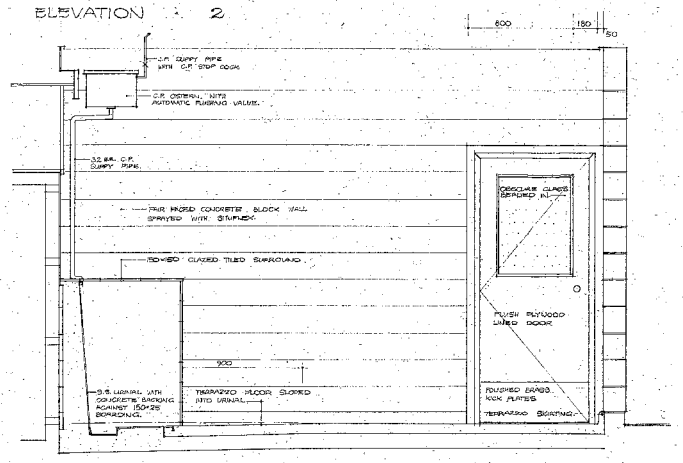
ELEVATION · 3



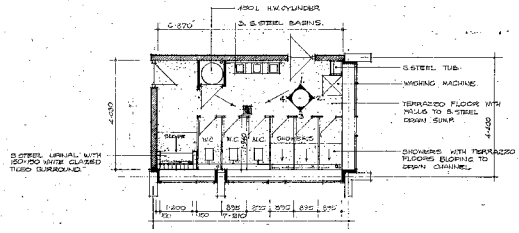
ELEVATION · 2



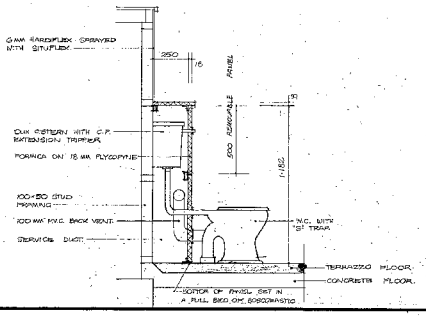
EXTERIOR WALL ELEVATION · 3

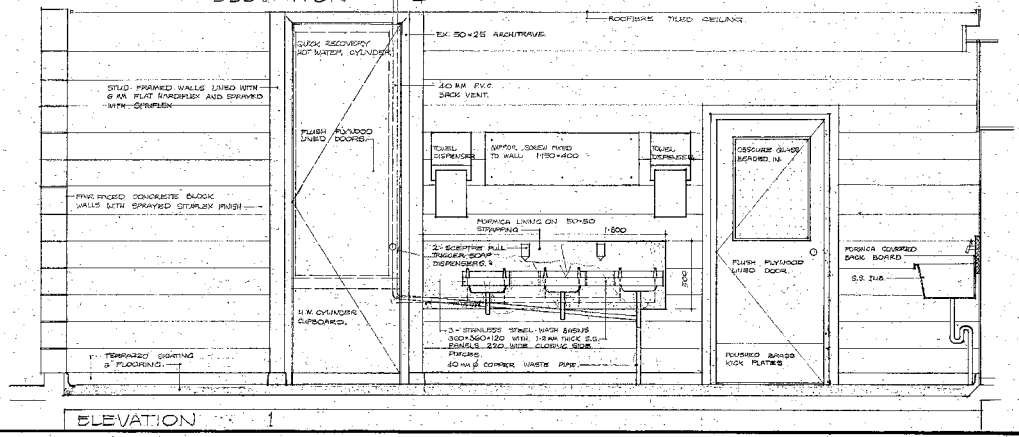


ELEVATION · 4



PLAN OF AREA 43 TOILETS.
SCALE. 1:100





ELEVATION · 1

CHRISTCHURCH CITY COUNCIL
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For City Engineer

CHRISTCHURCH CITY COUNCIL
CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

CENTRAL DEPOT STAGE 3A — JOHNSON STREET

TOILET DETAILS.
AREA 43.

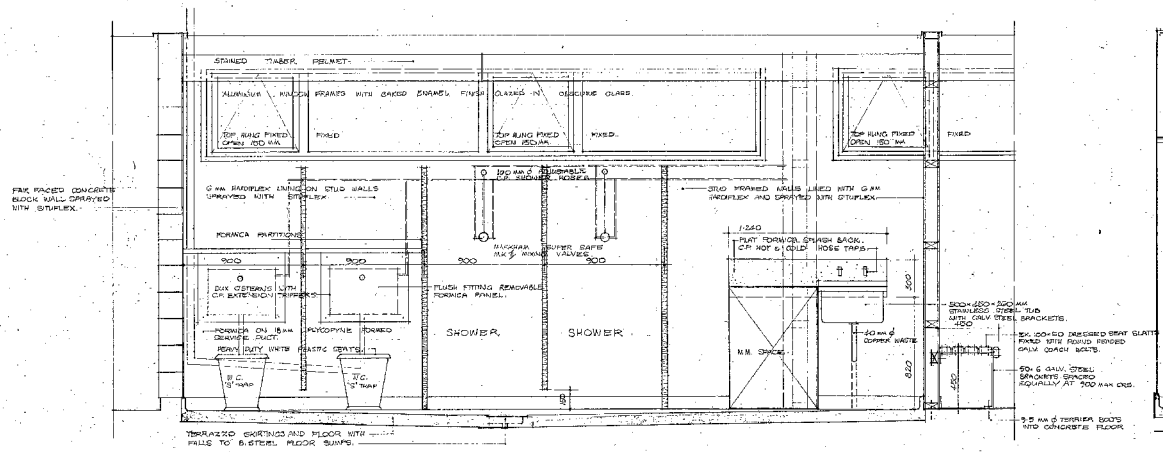
SCALE 1:100
1:20.
DATE 25·3·81.

DESIGN C.P.HARPER
DRAWN C.P. HARPER
TRACED C.P. HARPER
APPVD

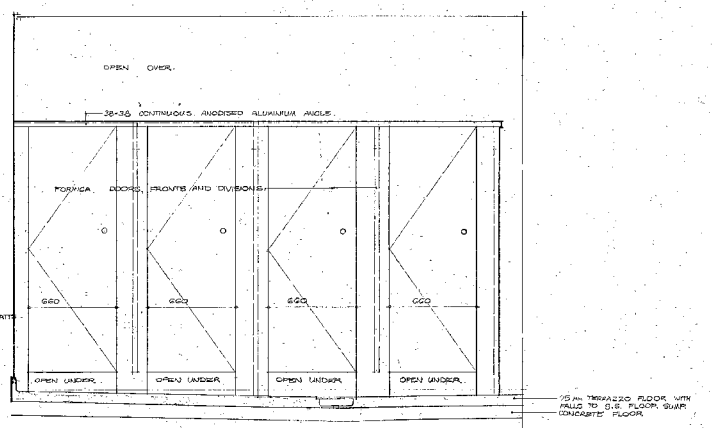
JOB NO 2333
FILE NO
CONT NO 6-61/82

SHEET NO 14

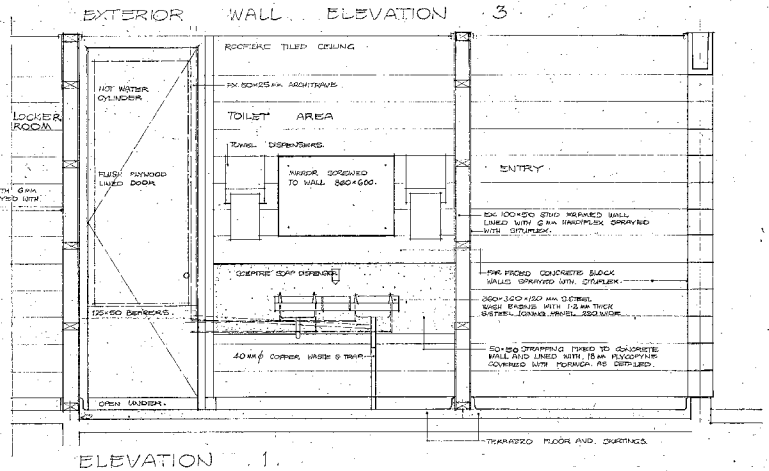
CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



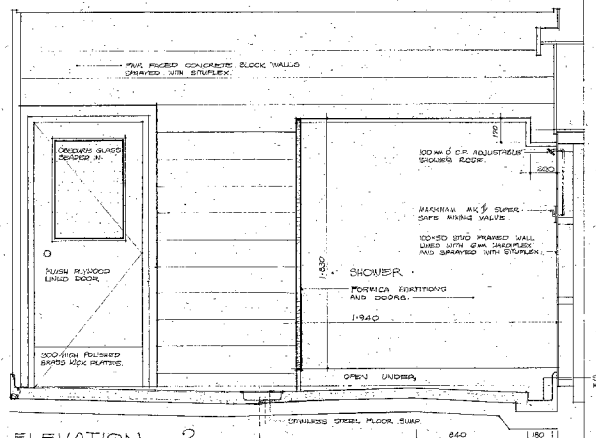
EXTERIOR WALL ELEVATION 3



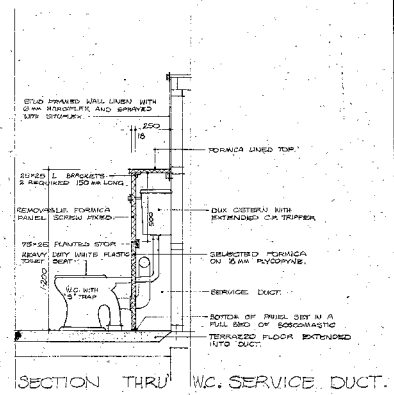
ELEVATION 3



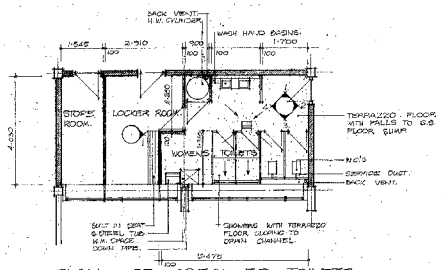
ELEVATION 1



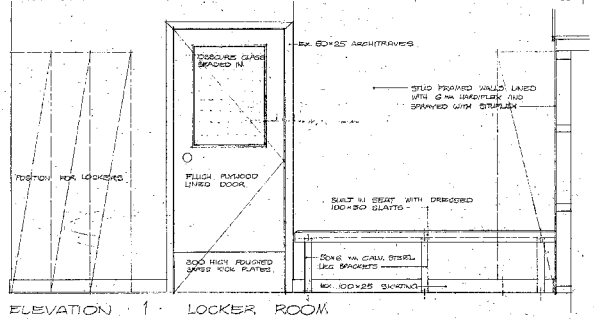
ELEVATION 2



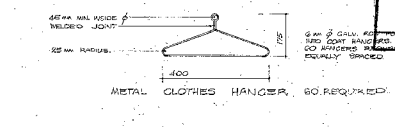
SECTION THRU W.C. SERVICE DUCT.



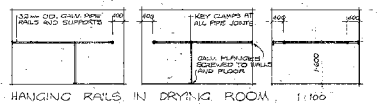
PLAN OF AREA 50 TOILETS
SCALE 1 : 100



ELEVATION 1 LOCKER ROOM



METAL CLOTHES HANGER, 60 REQUIRED



HANGING RAILS IN DRYING ROOM 1:100

CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
25 NOV 1981
By [illegible]

CHRISTCHURCH CITY COUNCIL
CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

CENTRAL DEPOT STAGE 3A. — JOHNSON STREET.

TOILET DETAILS
AREA 50

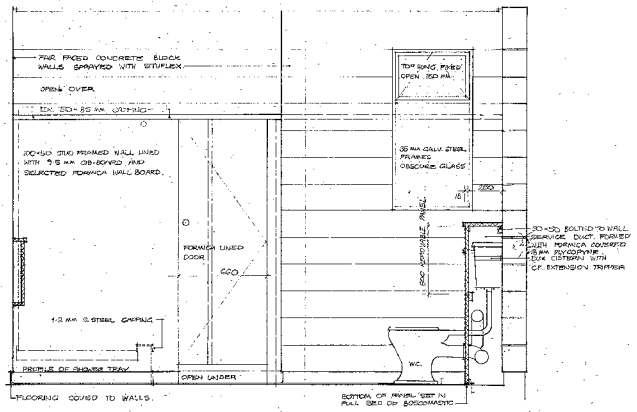
SCALE 1:100, 1:20
DATE 30·3·81

DESIGN G.F.HARPER
DRAWN G.F.HARPER
TRACED G.F.HARPER
APRVD

JOB NO 232 3
FILE NO
CONT NO 6-81/82

SHEET NO 15

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



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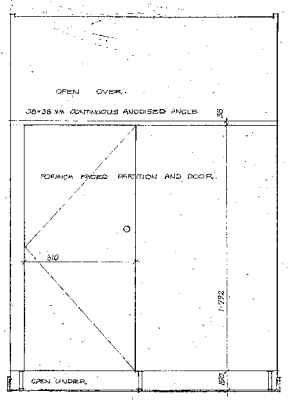
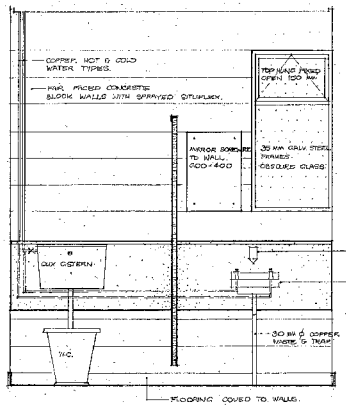
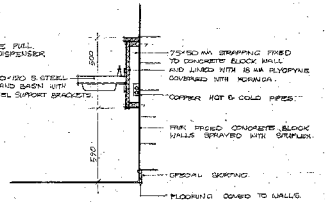


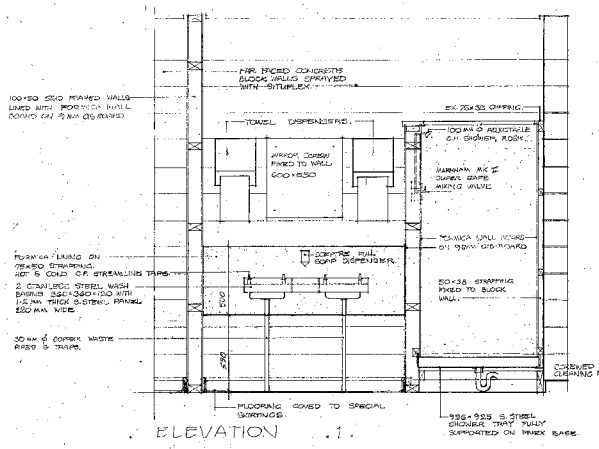
ELEVATION . 2 . area 35



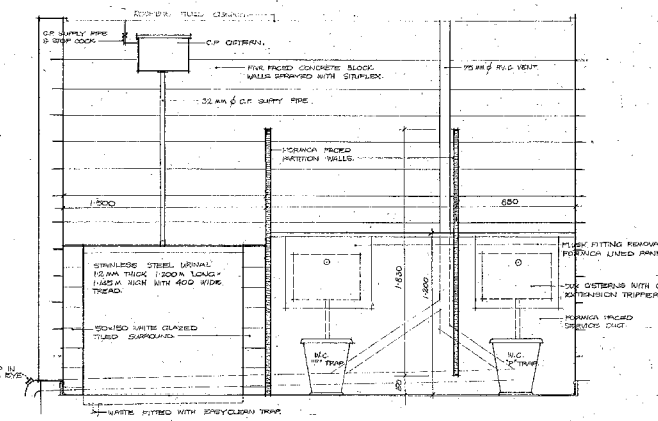
ELEVATION . 3 . area 35



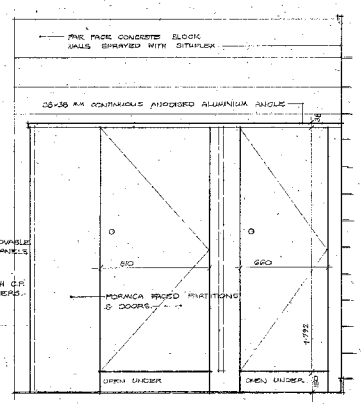
TYPICAL SECTION THROUGH FORMICA DUCT FOR WASH HAND BASINS.



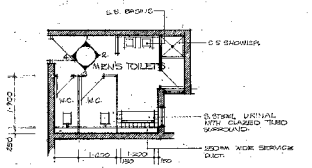
ELEVATION . 1 .



ELEVATION . 3 .

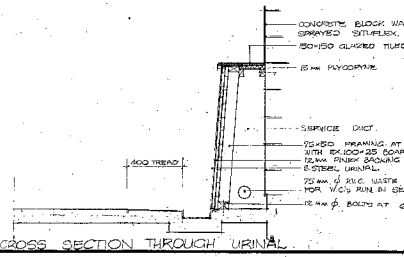


ELEVATION . 3 .

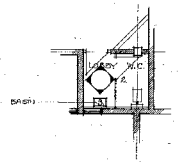


PLAN OF AREA 30 TOILETS

SCALE 1:100



CROSS SECTION THROUGH URINAL.



PLAN OF AREA 35 TOILETS.

SCALE 1:100.

CHRISTCHURCH CITY COUNCIL
CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

CENTRAL DEPOT STAGE 3A. — JOHNSON STREET.

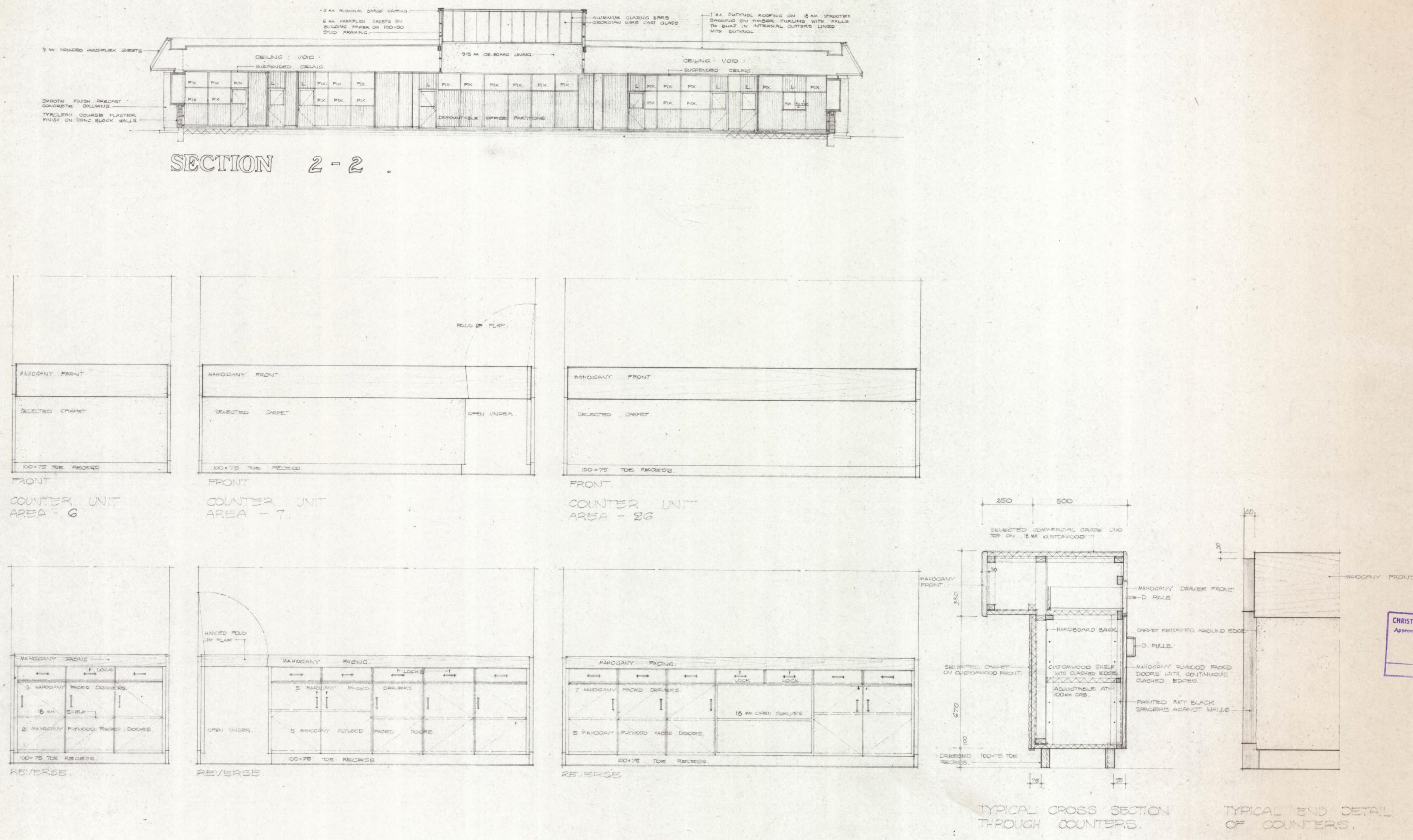
TOILET DETAILS AREAS 30 & 35

SCALE 1:100, 1:20

DATE 3-4-81

DESIGN C.R.HARPER. JOB NO 232-3 SHEET NO
DRAWN G.R.HARPER. 16
TRACED G.R.HARPER. FILE NO
APRVD CONT NO 6-81/82

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



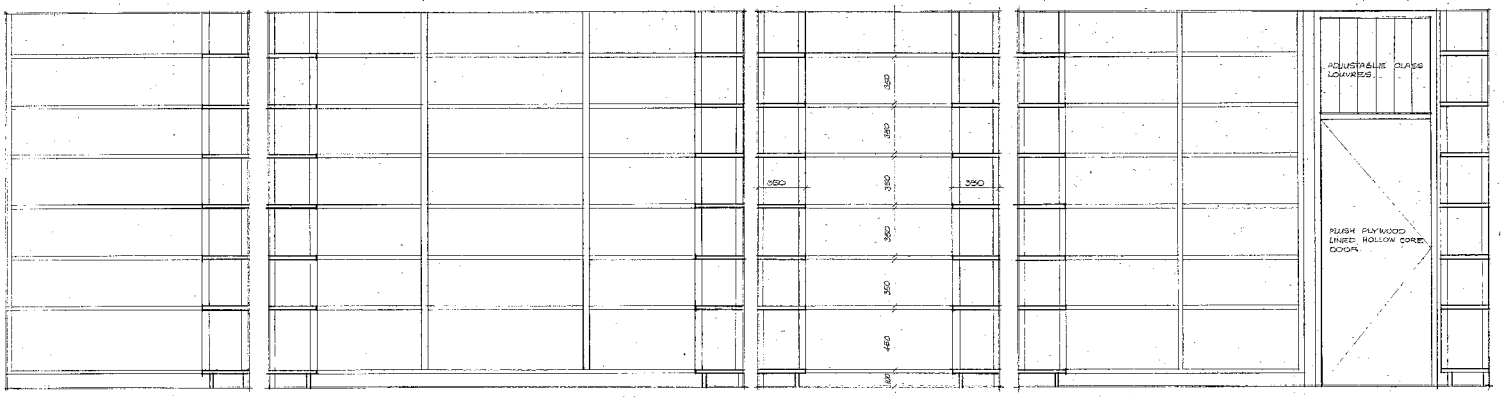
CHRISTCHURCH CITY COUNCIL
Approved Subject to the By-Laws
23 NOV 1981
For City Engineer

CHRISTCHURCH CITY COUNCIL
CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

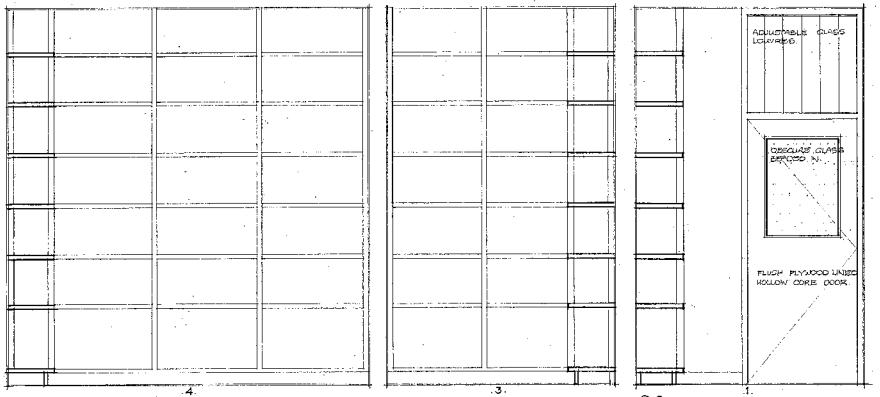
CENTRAL DEPOT STAGE 3A. - JOHNSON STREET.

COUNTER DETAILS.	SCALE 1:20 / 1:5 / 1:10	DESIGN C.F. HARPER	JOB NO 232·3	SHEET NO 17
		DRAWN C.F. HARPER		
		TRACED C.F. HARPER	FILE NO	
	DATE 1·5·81	APRVD	CONT NO 6-81/82	

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK

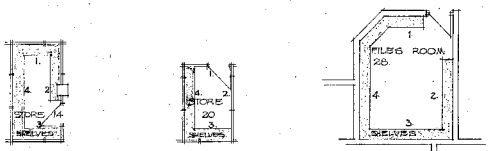


ADJUSTABLE OPEN SHELVING STORE ROOM · 14 · .4. .1. .2.

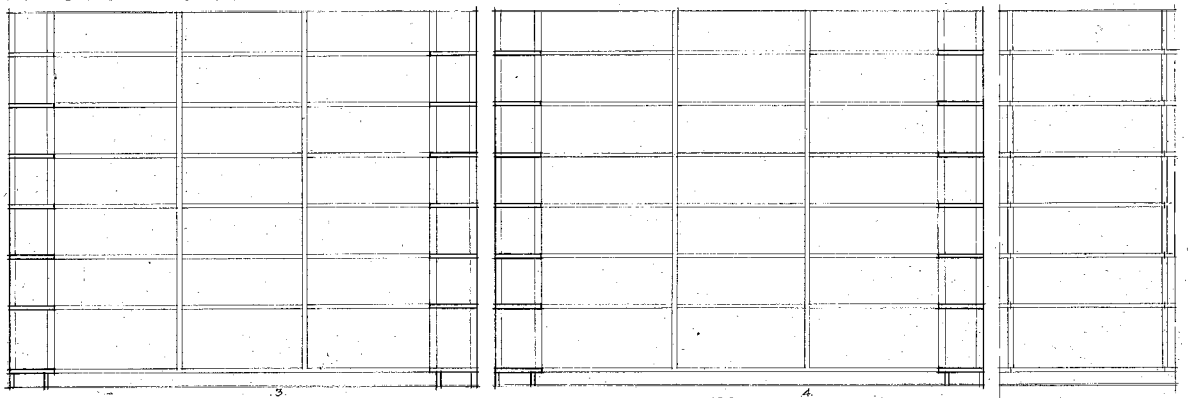


ADJUSTABLE OPEN SHELVING - STORE ROOM · 20 ·

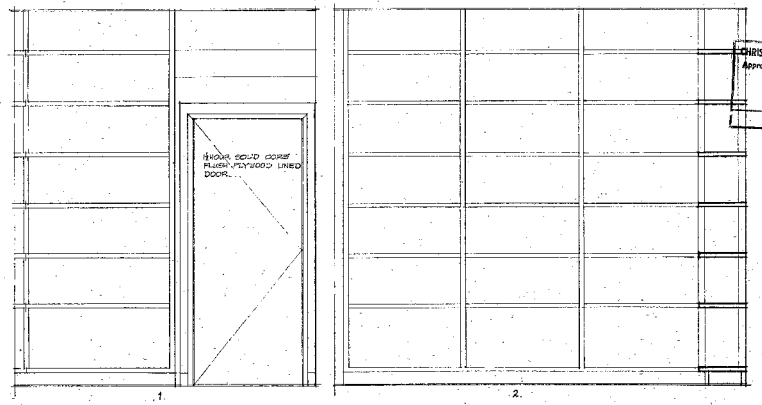
NOTES ON SHELVES.
PROVIDE AND FIX 25 m/m THICK × 350 m/m DEEP DRESSED WOODEN OPEN SHELVES WITH DRESSED 50×38 SUPPORTS SPACED TO FULLY SUPPORT THE SHELVES AND FITTED WITH PROVISIONS TO MAKE ALL SHELVES FULLY ADJUSTABLE AT 20 m/m INCREASES. ALL BOTTOM SHELVES SHALL FINISH OVER A 100×50 TOK RECESS. ALL SHELVES SHALL BE SITE MEASURED.



PLANS OF ADJUSTABLE SHELVES 1:100



ADJUSTABLE OPEN SHELVING - FILES ROOM · 28 ·



.1. .2.

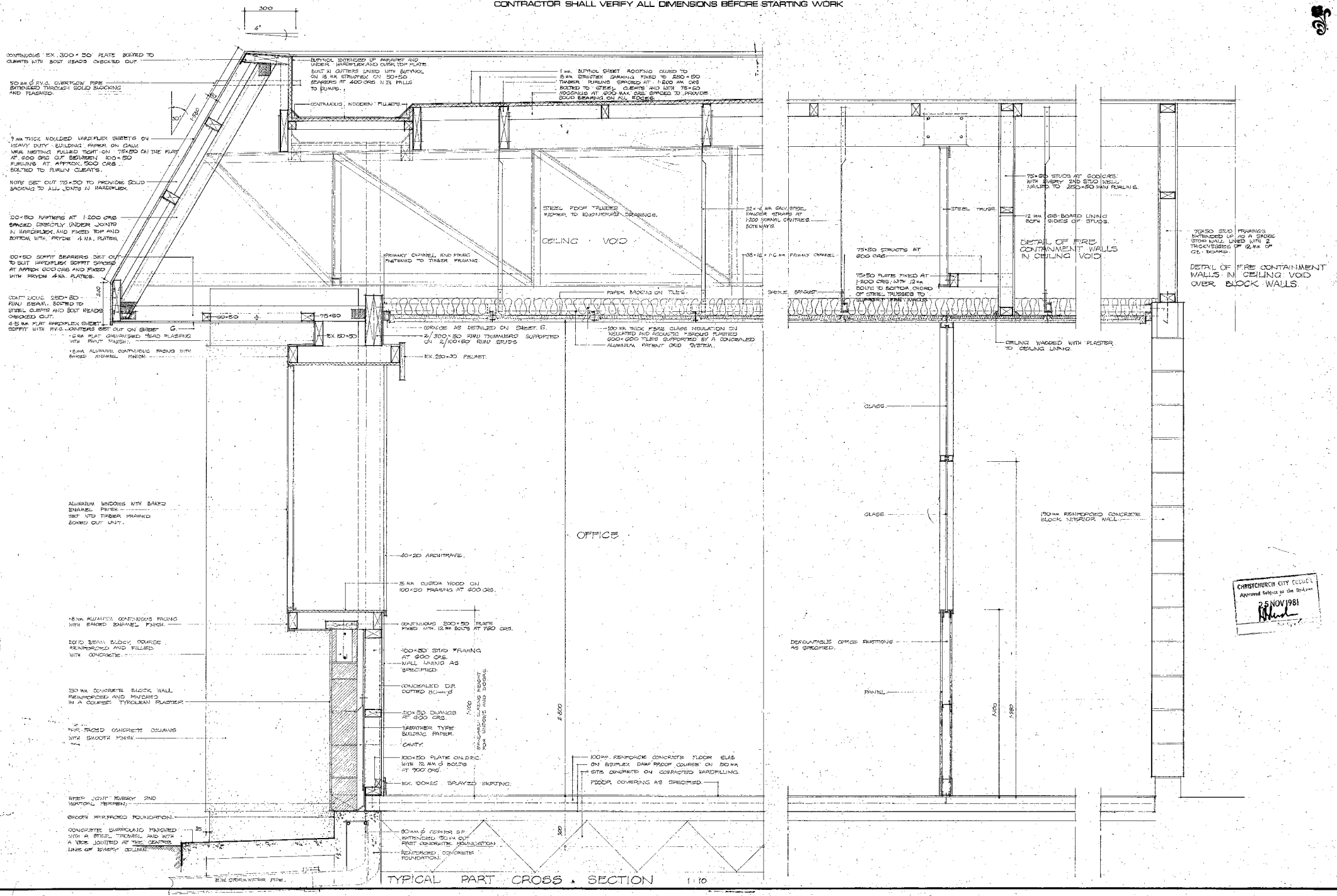
CHRISTCHURCH CITY COUNCIL Approved Subject to the Bylaws 25 NOV 1981

CHRISTCHURCH CITY COUNCIL
CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

CENTRAL DEPOT STAGE 3A - JOHNSON STREET.

PLANS AND LAYOUTS OF DRESSED WOODEN ADJUSTABLE SHELVING
SCALE 1:100, 1:20
DATE 5·5·81
DESIGN
DRAWN G.F.HARPER
TRACED G.F.HARPER
APRVD
JOB NO 232·3
FILE NO
CONT NO G-81/82
SHEET NO 18

CONTRACTOR SHALL VERIFY ALL DIMENSIONS BEFORE STARTING WORK



CHRISTCHURCH CITY COUNCIL
Approved Subject to the Dr-Laws
25 NOV 1981

CHRISTCHURCH CITY COUNCIL

CITY ARCHITECTS DIVISION : CITY ENGINEERS DEPARTMENT

CENTRAL DEPOT STAGE 3A. — JOHNSON STREET.

LARGE SECTIONS. SCALE 1:10 DATE 2.6.81

DESIGN GRW DRAWN GFH TRACED GFH APRVD

JOB NO 252.3 FILE NO CONT NO 6-81/82

SHEET NO 19

Appendix C

CERA DEE Summary Data

Detailed Engineering Evaluation Summary Data V1.11

Location

Building Name:	Milton Street Depot-Works Operation Admin			Reviewer:	David Whittaker
	Unit	No:	Street	CPEng No:	123089
Building Address:	245 Milton Street	245	Milton Street	Company:	Beca
Legal Description:	BU 1141-003 EQ2			Company project number:	5323355
				Company phone number:	03 366 3521
	Degrees	Min	Sec		
GPS south:				Date of submission:	
GPS east:				Inspection Date:	08/02/2012, 09/02/2012 & 24/02/2012
				Revision:	
Building Unique Identifier (CCC):				Is there a full report with this summary?	yes

Site

Site slope:	flat	Max retaining height (m):	
Soil type:		Soil Profile (if available):	unknown
Site Class (to NZS1170.5):	D		
Proximity to waterway (m, if <100m):		If Ground improvement on site, describe:	none
Proximity to clifftop (m, if < 100m):			
Proximity to cliff base (m,if <100m):		Approx site elevation (m):	10.00

Building

No. of storeys above ground:	1	single storey = 1	Ground floor elevation (Absolute) (m):	
Ground floor split?	no		Ground floor elevation above ground (m):	0.25
Storeys below ground	0			
Foundation type:	other (describe)		if Foundation type is other, describe:	shallow foundation, pads and strips
Building height (m):	4.00		height from ground to level of uppermost seismic mass (for IEP only) (m):	4
Floor footprint area (approx):	1180			
Age of Building (years):	31		Date of design:	1976-1992
Strengthening present?	no		If so, when (year)?	
			And what load level (%g)?	
Use (ground floor):	commercial		Brief strengthening description:	NA
Use (upper floors):				
Use notes (if required):	Office			
Importance level (to NZS1170.5):	IL2			

Gravity Structure

Gravity System:	frame system		
Roof:	steel truss	truss depth, purlin type and cladding	truss depth is 980 with timber purlin, sarking
Floors:	concrete flat slab	slab thickness (mm)	100
Beams:			
Columns:	precast concrete	typical dimensions (mm x mm)	concrete col 250x900;400x400
Walls:	fully filled concrete masonry	#N/A	

Lateral load resisting structure

Note: Define along and across in detailed report!

Lateral system along:	other (note)		describe system	Reinforced CMU and cantilever concrete perimeter columns
Ductility assumed, μ:	1.00			columns non-compliant transversereo
Period along:	0.40	0.00	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	
Lateral system across:	other (note)		describe system	Reinforced CMU and cantilever concrete perimeter columns
Ductility assumed, μ:	1.00			columns non-compliant transversereo
Period across:	0.40	0.00	estimate or calculation?	estimated
Total deflection (ULS) (mm):			estimate or calculation?	
maximum interstorey deflection (ULS) (mm):			estimate or calculation?	

Separations:

north (mm):	leave blank if not relevant
east (mm):	
south (mm):	
west (mm):	

Non-structural elements

Stairs:	other (specify)	describe	no stair
Wall cladding:	other heavy	describe	partial height concrete masonry wall with glazing
Roof Cladding:	Other (specify)	describe	butinol on structex sarking
Glazing:	aluminium frames		
Ceilings:	light tiles		
Services(list):			

Available documentation

Architectural	partial	original designer name/date	City Architect Division/1981
Structural	none	original designer name/date	
Mechanical	none	original designer name/date	
Electrical	none	original designer name/date	
Geotech report	none	original designer name/date	

Damage

Site: (refer DEE Table 4-2)

Site performance:	structural damage may have diminished the capacity	Describe damage:	differential settlement and ground movement observed
Settlement:	0-25mm	notes (if applicable):	Level survey is required to confirm
Differential settlement:	0-1:350	notes (if applicable):	Level survey is required to confirm
Liquefaction:	0-2 m³/100m³	notes (if applicable):	Some did occur but extent unknown
Lateral Spread:	0-50mm	notes (if applicable):	Significant spread at south face of the building
Differential lateral spread:	0-1:400	notes (if applicable):	Survey is required to confirm
Ground cracks:	0-20mm/20m	notes (if applicable):	
Damage to area:	moderate to substantial (1 in 5)	notes (if applicable):	Especially at the south face of the building

Building:

	Current Placard Status:			
Along	Damage ratio:	17%	Describe how damage ratio arrived at:	damage significant enough to reduce the capacity
	Describe (summary):			
Across	Damage ratio:	45%		
	Describe (summary):			
Diaphragms	Damage?:		Describe:	unknown, no roof bracing observed
CSWs:	Damage?:	yes	Describe:	minor cracking at short columns
Pounding:	Damage?:	no	Describe:	
Non-structural:	Damage?:	yes	Describe:	cracking at plasterboard and ceiling tiles

$$Damage\_Ratio = \frac{(\%NBS\,(before) - \%NBS\,(after))}{\%NBS\,(before)}$$

Recommendations

	Level of repair/strengthening required:	significant structural		Describe:	
	Building Consent required:	yes		Describe:	
	Interim occupancy recommendations:	full occupancy		Describe:	
Along	Assessed %NBS before:	42%	39% %NBS from IEP below	If IEP not used, please detail assessment methodology:	
	Assessed %NBS after:	35%			
Across	Assessed %NBS before:	64%	39% %NBS from IEP below		
	Assessed %NBS after:	35%			

IEP **Use of this method is not mandatory - more detailed analysis may give a different answer, which would take precedence. Do not fill in fields if not using IEP.**

Period of design of building (from above):	1976-1992	h_n from above:	4m
Seismic Zone, if designed between 1965 and 1992:	B	not required for this age of building	

	not required for this age of building		
		along	across
	Period (from above):	0.4	0.4
	(%NBS)nom from Fig 3.3:	16.0%	16.0%
Note:1 for specifically design public buildings, to the code of the day: pre-1965 = 1.25; 1965-1976, Zone A =1.33; 1965-1976, Zone B = 1.2; all else 1.0			1.00
Note 2: for RC buildings designed between 1976-1984, use 1.2			1.0
Note 3: for buildngs designed prior to 1935 use 0.8, except in Wellington (1.0)			1.0
		along	across
	Final (%NBS)$_{nom}$:	**16%**	**16%**
2.2 Near Fault Scaling Factor	Near Fault scaling factor, from NZS1170.5, cl 3.1.6:		1.00
		along	across
	Near Fault scaling factor (1/N(T,D), **Factor A**:	1	1
2.3 Hazard Scaling Factor	Hazard factor Z for site from AS1170.5, Table 3.3:		0.30
	Z_{1992}, from NZS4203:1992		1.0
	Hazard scaling factor, **Factor B:**		3.333333333
2.4 Return Period Scaling Factor	Building Importance level (from above):		2
	Return Period Scaling factor from Table 3.1, **Factor C**:		1.00
		along	across
2.5 Ductility Scaling Factor	Assessed ductility (less than max in Table 3.2)	2.00	2.00
	Ductility scaling factor: =1 from 1976 onwards; or =kμ, if pre-1976, fromTable 3.3:	1.00	1.00
	Ductiity Scaling Factor, **Factor D**:	1.00	1.00
2.6 Structural Performance Scaling Factor:	Sp:	0.700	0.700
	Structural Performance Scaling Factor **Factor E**:	1.428571429	1.428571429
2.7 Baseline %NBS, (NBS%)$_b$ = (%NBS)$_{nom}$ x A x B x C x D x E	**%NBS$_b$:**	**76%**	**76%**

Global Critical Structural Weaknesses: (refer to NZSEE IEP Table 3.4)

3.1. Plan Irregularity, factor A:	significant	0.7
3.2. Vertical irregularity, Factor B:	insignificant	1
3.3. Short columns, Factor C:	significant	0.7
3.4. Pounding potential — Pounding effect D1, from Table to right		1.0
Height Difference effect D2, from Table to right		1.0
Therefore, Factor D:		1
3.5. Site Characteristics	significant	0.7

Table for selection of D1	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Alignment of floors within 20% of H	**0.7**	**0.8**	**1**
Alignment of floors not within 20% of H	**0.4**	**0.7**	**0.8**

Table for Selection of D2	Severe	Significant	Insignificant/none
Separation	0<sep<.005H	.005<sep<.01H	Sep>.01H
Height difference > 4 storeys	0.4	0.7	1
Height difference 2 to 4 storeys	0.7	0.9	1
Height difference < 2 storeys	1	1	1

		Along	Across
3.6. Other factors, Factor F	For ≤ 3 storeys, max value =2.5, otherwise max valule =1.5, no minimum	1.5	1.5
	Rationale for choice of F factor, if not 1	single storey	single storey

Detail Critical Structural Weaknesses: (refer to DEE Procedure section 6)
List any: Refer also section 6.3.1 of DEE for discussion of F factor modification for other critical structural weaknesses

3.7. Overall Performance Achievement ratio (PAR)	**0.51**	**0.51**
4.3 PAR x (%NBS)b: — PAR x Baselline %NBS:	**39%**	**39%**
4.4 Percentage New Building Standard (%NBS), (before)		**39%**

Appendix D

Previous Reports and Assessments

city care

Project Administration Building

Description BU 1141-003 EQ 2

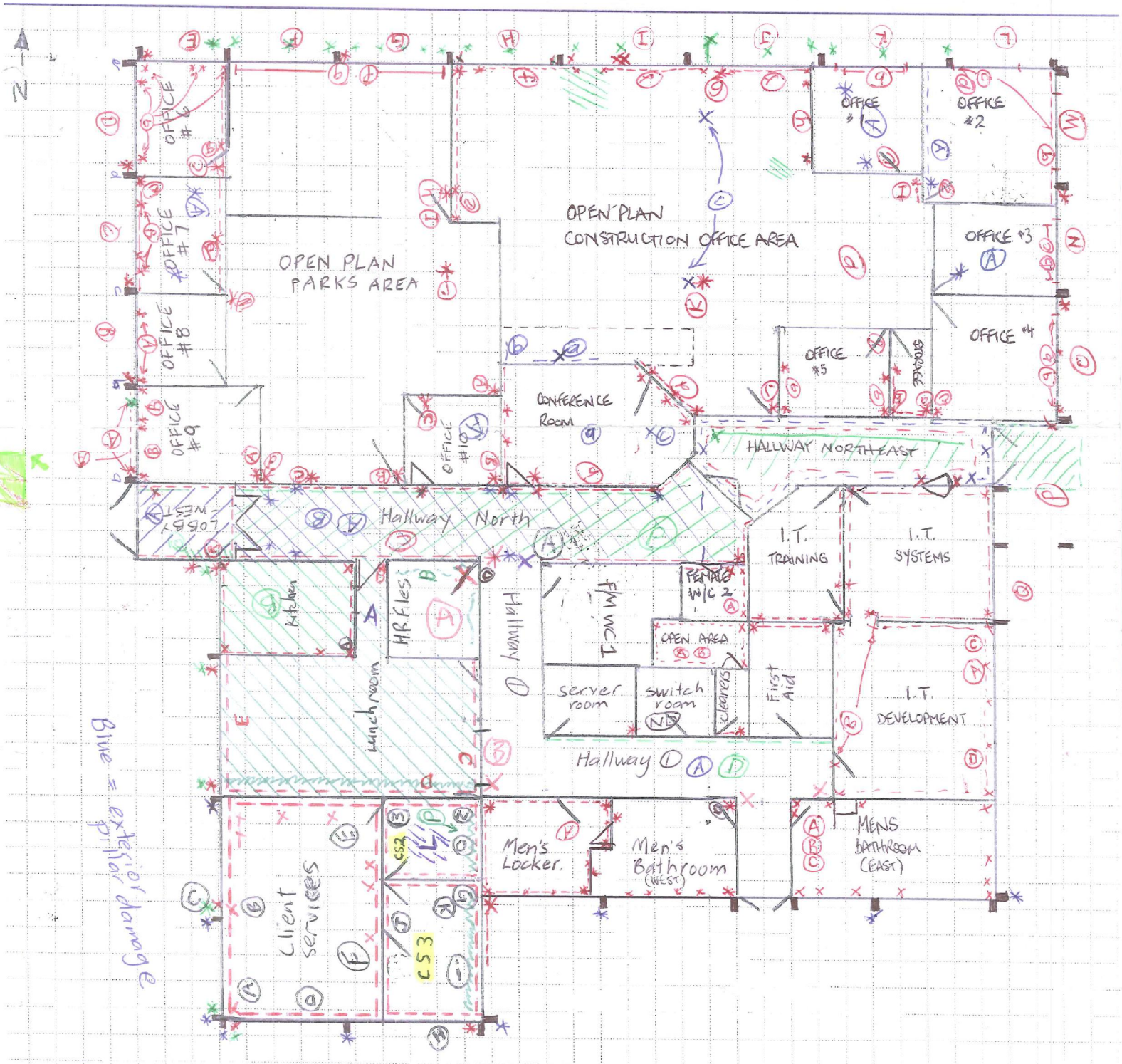
Job No/File Ref

Prepared by

Date / /

Sheet No of

Site Instruction: ☐ Memo: ☐ Meeting: ☐ File Note: ☐ Variation / Detail: ☐



Approved Client Contractor

Date / / Date / /

Distribution: Principal: ☐ Contractor ☐ Site Copy: ☐ Engineer: ☐ Sub-Contractor: ☐ Job File: ☐

City Care Ltd, 245 Milton Street, PO Box 7669, Christchurch, New Zealand Phone 03 941 7200 Fax 03 941 7202

ISO14001 Certified ISO9001 Certified

Scope of Works & Cost Estimate Form For EQ Damage

Building Name Milton St Depot-Works Op Admin Building
Building BU No. 1141-003 EQ2

Date 11/07/2011
CCL Fee 16.66%
Page 1 1
Date Visited 15/04/2011 onward
Site Contact
Ph

Inspection Team CCL Daniel Garratt
CL Mike McConway

OPUS engineer: Tony RAPER

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
Client services 1-West wall							
Client services 1-West wall	A	Window reveal trim cracks. Nail and punch loose trim and prepare for paint. Rake, RTV and touch up.	Lm	14.5	$ 10.00	$ 12	$ 169
Client services 1-West wall	A	Labour - Handyman (Incl. Vehicle)	h	0.5	$ 32.90	$ 38	$ 19
Client services 1-West wall	B	Walls - internal - Gib replacement 10mm - Replacement - Remove existing incl. trim, Fix new & stop 10mm gib.	m2	1.5	$ 52.50	$ 61	$ 92
Client services 1-West wall	B	Labour - Handyman (Incl. Vehicle)	h	0.5	$ 32.90	$ 38	$ 19
Client services 1-West wall	C	Aluminium windows out of square. Allow to remove frame and square opening. Either replace with new frames or take to factory and re-square/re-glaze as necessary. Re-install. $2,000 allowance per large frame. Prepare for paint and paint reveals/surround & trim. $400 per window. 2 frames west wall, 1 frame south wall. (Approx. 1.4x3.8m ea = 5.4m2). ea. AWAITING ESTIMATE.	ea	3	$ 2,400.00	$ 2,800	$ 8,400
Client services 1-West wall	D	Pailment repair. Brad and prepare for paint.					
Client services 1-West wall	D	Labour - Handyman (Incl. Vehicle)	h	0.25	$ 32.90	$ 38	$ 10
Client services 1-West wall	D	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	0.5	$ 4.00	$ 5	$ 2
Client Services 1-All other walls in room:	E	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	28	$ 10.00	$ 12	$ 327
Client Services 1-All other walls in room:	E	Walls - internal - Gib replacement 10mm - Replacement - Remove existing, Fix new & stop 10mm gib	m2	8	$ 52.50	$ 61	$ 490
Client Services 1-All other walls in room:	F	Walls - Paint - Repaint	m2	58.5	$ 12.00	$ 14	$ 819
Client Services 1-All other walls in room:	F	Labour to move office furniture.	hr	4	$ 15.00	$ 17	$ 70
Client Services 3	G	East wall. Block wall infill to column separation gap + partion wall to infill wall separation gap. Expandable insulation foam filler. Complete with no more gaps in preparation for paint. Material cost only.	PS	1	$ 50.00	$ 58	$ 58
Client Services 3	G	Labour - Handyman (Incl. Vehicle)	h	1	$ 32.90	$ 38	$ 38
Client Services 3	H	Aluminium windows out of square. Allow to remove frame and square opening. Either replace with new frames or take to factory and re-square/re-glaze as necessary. Re-install. $2,000 allowance per large frame. Prepare for paint and paint reveals/surround & trim. $400 per window. 2 frames west wall, 1 frame south wall. (Approx. 1.4x3.8m ea = 5.4m2). ea. AWAITING ESTIMATE.	ea	1	$ 2,400.00	$ 2,800	$ 2,800

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
Client Services 3	I	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	14	$ 10.00	$ 12	$ 163
Client Services 3	J	Walls - Paint - Repaint	m2	44	$ 12.00	$ 14	$ 616
Client Services 3	K	Floor. Significant floor slab building joint separation. Liquid epoxy filler by gravity injection. Increased Lm rate based on pouring epoxy into crack width until filled.	Lm	5	$ 175.00	$ 14	$ 616
Client Services 3	K	Remove & replace commercial carpet.	m2	14	$ 53.00	$ 62	$ 866
Client Services 3	K	Engineers Inspection & Report (Provisional Sum)	PS	1	$ 600.00	$ 700	$ 700
Client services 2	L	Rectify suspended ceiling so lighting diffuser panel can be re-installed.					
Client services 2		Labour - Handyman (Incl. Vehicle)	h	0.25	$ 32.90	$ 38	$ 10
Client services 2	M	Wall - Cracks - Plasterboard - Rake & no more gaps	Lm	0.5	$ 10.00	$ 12	$ 6
Client services 2		No more gaps as required all walls.					
Client services 2	N	Partition walls to east block wall separations. Cover gaps full height with 12x40mm square moulding. Material only.	PS	1	$ 50.00	$ 58	$ 58
Client services 2	N	Labour - Handyman (Incl. Vehicle)	h	1	$ 32.90	$ 38	$ 38
Client services 2	N	Paint all walls.					
Client services 2	N	Walls - Paint - Repaint	m2	32	$ 12.00	$ 14	$ 448
Client services 2	O	Floor. Significant floor slab building joint separation. Liquid epoxy filler by gravity injection. Increased Lm rate based on pouring epoxy into crack width until filled.	Lm	3	$ 175.00	$ 14	$ 448
Client services 2	P	Remove & replace commercial carpet.	m2	10	$ 53.00	$ 62	$ 618
Women's W/C 1	P	No damage observed					
Hallway 1	A	Ceiling - Cracks - Plasterboard - Rake & Stop	Lm	1	$ 14.50	$ 17	$ 17
Hallway 1	B	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	9.5	$ 10.00	$ 12	$ 111
Hallway 1	C	Door opposite women's W/C 1. Remove door & ease door. Coloured caulk to top r/h hallway side. Materials only.	PS	1	$ 10.00	$ 12	$ 12
Hallway 1	C	Labour - Carpenter (Incl. Vehicle)	h	1	$ 39.32	$ 46	$ 46
HR Filing Room	A	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	3	$ 10.00	$ 12	$ 35
HR Filing Room	B	Floor. Remove shelving. Grind crack. Clean for adhesion. Epoxy fill.	PS	1	$ 200.00	$ 233	$ 233
Lunchroom	A	Ceiling. Allow for Forman insulation to do review check building's suspended ceiling.	PS	1	$ 800.00	$ 933	$ 933
Lunchroom	A	Fluro lighting unit at exit to north hallway. Replace diffuser panel and check for correct operation.	PS	1	$ 60.00	$ 70	$ 70
Lunchroom	A	Labour - Electrician (Incl. Vehicle)	h	2	$ 41.07	$ 48	$ 96
Lunchroom	B	Walls. Chipped bottom of block wall at latch side of door to north hallway. Plaster and touch up paint.	PS	1	$ 100.00	$ 117	$ 117
Lunchroom	C	SouthEast corner. Separation of block wall to column. Currently boarded up. Allow for engineer inspection, design specification and remedy.	PS	1	$ 2,500.00	$ 2,917	$ 2,917
Lunchroom	D	South wall. Separation of partition wall to block wall at R/H of column in South East corner. Remove gib, Repair wall (appears to be steel stud) to butt up to block wall. Check for plumb. Re-line. Rake & stop cracked gib at corners of internal windows. Paint wall.					
Lunchroom		Realign and fix partition wall to block wall	PS	1	$ 200.00	$ 233	$ 233
Lunchroom		Walls - internal - Gib replacement 10mm - Replacement - Remove existing, Fix new & stop 10mm gib	m2	9.3	$ 52.50	$ 61	$ 570
Lunchroom		Wall - Paint - New Linings	m2	25.1	$ 14.00	$ 16	$ 410
Lunchroom	E	West wall. Remove &replace gib in southwest corner. Remove and replace section of skirting board. RTV gap where south partition wall butts into exterior wall at southwest corner. Rake & stop gib above pailment. Paint wall.					

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
Lunchroom	F	Aluminium windows out of square. Allow to remove frames and square openings. Either replace with new frames or take to factory and re-square/re-glaze as necessary. Re-install. $2,000 allowance per large frame. Prepare for paint and paint reveals/surround & trim. $400 per window. 2 frames west wall, 1 frame south wall. (Approx. 1.4x3.8m ea = 5.4m2). ea. AWAITING ESTIMATE.	ea	1.5	$ 2,400.00	$ 2,800	$ 4,200
Lunchroom	F	Skirting board. Replace and stain to match	PS	1	$ 250.00	$ 292	$ 292
Lunchroom	F	Walls - internal - Gib replacement 10mm - Replacement - Remove existing, Fix new & stop 10mm gib	m2	2.88	$ 52.50	$ 61	$ 176
Lunchroom	F	Wall - Cracks - Plasterboard - Rake & Stop	Lm	5.5	$ 12.00	$ 14	$ 77
Lunchroom	F	Walls - Paint - Repaint	m2	15.1	$ 12.00	$ 14	$ 211
Lunchroom	F1	Floor.					
Lunchroom	F1	Remove & replace commercial vinyl (53.5m2)	m2	53.9	$ 77.00	$ 90	$ 4,842
Lunchroom	F1	Significant floor slab building joint separation (20mm width) running west to east parallel to south wall. Allowed for this one crack only. More may be required after vinyl removed. Vacuum out, epoxy fill by gravity injection. Increased Lm rate based on pouring epoxy into crack width until filled. Leave flush in prep for vinyl.	Lm	9	$ 200.00	$ 233	$ 2,100
Kitchen	A	Southeast corner. Vertical crack. Remove shelf, stop 1.5m up from floor. Rake & stop top L/H corner of servery window. Stop crack top R/H of south wall above pailment. Paint all gib walls. RTV vertical trim junctions L/H and R/H at north block wall.					
Kitchen	A	Wall - Cracks - Plasterboard - Rake & Stop	Lm	2	$ 12.00	$ 14	$ 28
Kitchen	A	Walls - Paint - Repaint	m2	20	$ 12.00	$ 14	$ 280
Kitchen	A	Labour - Handyman (Incl. Vehicle)	h	1	$ 32.90	$ 38	$ 38
Kitchen	A	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	3	$ 4.00	$ 5	$ 14
Kitchen	B	Remove & replace commercial vinyl (53.5m2) as open plan area to lunchroom.	m2	9	$ 77.00	$ 90	$ 808
Lobby-west	A	Ceiling. RTV junction to walls. Paint ceiling.					
Lobby-west	A	Ceiling - Cracks - Junctions & Negative Details - RTV Fill	Lm	7	$ 5.50	$ 6	$ 45
Lobby-west	A	Ceilings - Paint - Repaint -2 coats	m2	7.5	$ 17.00	$ 20	$ 149
Lobby-west	B	Walls and Floor junctions. North& south painted walls. RTV junctions to columns, rake and replaster footing L/H of east column, base of same column and plaster crack along entry door threshold.					
Lobby-west	B	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	7.5	$ 10.00	$ 12	$ 87
Lobby-west	B	Rake & re-mortar wall and floor at base of southeast column.	PS	1	$ 200.00	$ 233	$ 233
Lobby-west	B	Walls - Paint - Repaint	m2	22	$ 12.00	$ 14	$ 308
Lobby-west	C	Floor. Rake & RTV minor cracks at junction to walls. Epoxy crack below south facing window. Grind slab join to smoothy transition					
Lobby-west	C	RTV floor cracks with concrete sealant	lm	5.5	$ 25.00	$ 29	$ 160
Lobby-west	C	Floor Cracks - Concrete. Blow out dust, fill with pour in epoxie resin and trowel off	lm	1.5	$ 87.00	$ 101	$ 152
Lobby-west	C	Grind floor slab transition	PS	1	$ 100.00	$ 117	$ 117
Hallway (north)	A	Ceiling. Glazing. Remove & replace georgian mesh (GWC) glass. Allow 50/50 earthquake v historical damage. Allow 4 panes @ $250/m2.	ea	4	$ 250.00	$ 292	$ 1,167
Hallway (north)	B	Bulkhead above walls to ceiling. Rake & stop and repaint all bulkhead/ceiling areas.					
Hallway (north)	B	Ceiling - Cracks - Plasterboard - Rake & Stop	Lm	9	$ 14.50	$ 17	$ 152
Hallway (north)	B	Ceilings - Paint - Repaint -2 coats	m2	80	$ 17.00	$ 20	$ 1,587
Hallway (north)	C	Walls. RTV cracks in blockwork. Paint walls.					
Hallway (north)	C	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	12	$ 10.00	$ 12	$ 140
Hallway (north)	C	Walls - Paint - Repaint	m2	100	$ 12.00	$ 14	$ 1,400

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
Hallway (north)	D	Floor at entry to lunchroom and crack adjoining north wall running full distance west to east. Clean-out and fill with epoxy. Allowed for cracks identified only. May be more under vinyl. Allow to remove & replace vinyl - MAY NOT BE NECESSARY IF ADEQUATE VINYL REPAIRS CAN BE DONE.	Lm	17	$ 87.00	$ 101	$ 1,725
Hallway (north)	D	Remove & replace vinyl	m2	40	$ 77.00	$ 90	$ 3,593
Hallway 1	D	NB. Previous events for hallway 1 above.					
Hallway 2	D	Floor. Epoxy injection. Grind straight line in broken tile and seal.	Lm	12	$ 187.00	$ 218	$ 2,618
Server room	A	RTV vertical crack in southeast corner.					
Server room	A	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	3	$ 10.00	$ 12	$ 35
Switchroom	A	Epoxy floor crack at entry door threshold.	PS	1	$ 150.00	$ 175	$ 175
Cleaning room	A	Wall cracks at southeast corner at top L/H of entry door. RTV in prep for painting of south wall only.					
Cleaning room	A	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	1	$ 10.00	$ 12	$ 12
Cleaning room	A	Walls - Paint - Repaint	m2	2	$ 12.00	$ 14	$ 28
First Aid room	A	Walls. Vertical cracks at north west and east corners. RTV and paint wall.					
First Aid room	A	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	5.5	$ 10.00	$ 12	$ 64
First Aid room	A	Walls - Paint - Repaint	m2	5	$ 12.00	$ 14	$ 70
Mens locker room	A	Walls. Vertical cracks. RTV hard board joints as required. Paint all walls. Allow for handyman to remove and replace lockers.					
Mens locker room	A	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	17	$ 10.00	$ 12	$ 198
Mens locker room	A	Grind, clean-out and expandite at vertical cracks	Lm	6	$ 50.00	$ 58	$ 350
Mens locker room	A	Walls - Paint - Repaint	m2	50	$ 12.00	$ 14	$ 700
Mens locker room	A	Labour - Handyman (Incl. Vehicle)	h	4	$ 32.90	$ 38	$ 154
Men's Bathroom (west of hallway)	A	Walls. Northeast corner at latch side of entry door. Vertical crack at building join blockwork to column. Grind out, clean and re-mortar column damage. RTV gaps. Touchup/patch paint.	PS	1	$ 350.00	$ 408	$ 408
Men's Bathroom (west of hallway)	B	Corner and junction cracks. RTV and touchup.	Lm	12	$ 20.00	$ 23	$ 280
Men's Bathroom (west of hallway)	N.B.	Floor. Cracks in terrazo flooring. Not deemed earthquake caused. If quake related, no appropriate fix identified for benefit of finish.					
Men's Bathroom (west of hallway)	N.B.	HWC door to be eased. Not earthquake related.					
Open area off cleaning room	A	Concrete board at top of block wall. Paint cracks at joints and nail fixings. Prepare and paint all surfaces.					
Open area off cleaning room	A	Walls - Paint - Repaint	m2	13	$ 15.00	$ 17	$ 227
Open area off cleaning room	B	Exterior block walls. Vertical crack at southeast corner, northwest corner, northeast corner. Rake, RTV and touchup.					
Open area off cleaning room	B	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	6	$ 10.00	$ 12	$ 70
Female W/C 2	A	Walls. Vertical cracks in blockwork at northeast and southeast corners, at junction to column at north wall. Rake, RTV cracks and paint north and east walls.					
Female W/C 3	A	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	12	$ 10.00	$ 12	$ 140
Female W/C 4	A	Walls - Paint - Repaint	m2	13	$ 12.00	$ 14	$ 182
Men's Bathroom (East of hallway)	A	Walls. Vertical cracks at corners and building joints and above entry door-200mm from corner. RTV and touch up.					
Men's Bathroom (East of hallway)	A	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	17	$ 20.00	$ 23	$ 397
Men's Bathroom (East of hallway)	B	Window frame reveals. Cracks at corners. RTV and touchup.					

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
Men's Bathroom (East of hallway)	B	Wall - Cracks - Junctions & Negative Details - RTV Fill & Paint	Lm	7	$ 7.50	$ 9	$ 61
Men's Bathroom (East of hallway)	N.B.	Floor. Cracks in terrazo flooring. Not deemed earthquake caused. If quake related, no appropriate fix identified for benefit of finish.					
Men's Bathroom (East of hallway)	C	Window frames not square to reveals. Quality coloured RTV as required. NB South wall window frames.	PS	1	$ 100.00	$ 117	$ 117
I.T. Development	A	Walls. Vertical cracks in all corners and east wall hardboard joints. RTV.					
I.T. Development	A	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	17	$ 10.00	$ 12	$ 198
I.T. Development	B	Blockwork lintel crack above doors to hallway at R/H (hinge) side and same at entry to IT Systems room. Injection Epoxy. Paint all walls.					
I.T. Development	B	Wall - Cracks -Blockwork filled. Structurally repaired using Epozy injection	Lm	1.6	$ 174.00	$ 203	$ 325
I.T. Development	B	Walls - Paint - Repaint	m2	60	$ 12.00	$ 14	$ 840
I.T. Development	C	Window. Small east window. RTV gaps. Note bottom R/H. RTV cracks at reveal corners. Paint reveals.	PS	1	$ 100.00	$ 117	$ 117
I.T. Development	D	Window. Large east window. RTV cracks in reveal. Paint reveals.	PS	1	$ 200.00	$ 233	$ 233
I.T. Systems	A	Door opening to IT Development. Remove temporary bracing. Fill and prepare for paint. Paint frame.	PS	1	$ 100.00	$ 117	$ 117
I.T. Systems	B	Vertical crack at top of southwest corner, northeast corner and southeast corner. RTV. Paint all walls.					
I.T. Systems	B	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	6	$ 10.00	$ 12	$ 70
I.T. Systems	B	Walls - Paint - Repaint	m2	50	$ 12.00	$ 14	$ 700
I.T. Systems	C	Block wall cracks above all doors. Epoxy.					
I.T. Systems	C	Wall - Cracks -Blockwork filled. Structurally repaired using Epozy injection	Lm	2.8	$ 174.00	$ 203	$ 568
I.T. Systems	D	Window frame. RTV gaps. Paint reveal.	PS	1	$ 100.00	$ 117	$ 117
I.T. Systems	E	Exit door to hallway. Remove temporary bracing, RTV and paint door frame.	PS	1	$ 100.00	$ 117	$ 117
IT Training Room	A	Walls. RTV crack at southeast corner above door.					
IT Training Room	A	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	0.8	$ 10.00	$ 12	$ 9
IT Training Room	B	Epoxy crack at top L/H of door to IT Systems room, Vertical crack at southwest corner. Paint south and east walls.					
IT Training Room	B	Wall - Cracks -Blockwork filled. Structurally repaired using Epozy injection	Lm	3.6	$ 174.00	$ 203	$ 731
IT Training Room	B	Walls - Paint - Repaint	m2	23	$ 12.00	$ 14	$ 322
Hallway northeast	A	Ceiling. Rake, stop plasterwork at top of apex at west and east ends, RTV edge of trim adjoining skylight glazing, RTV scotia trim at junction to walls. Rake & stop gib join above Alarm keypad at east exit. Paint all ceilings					
Hallway northeast	A	Ceiling - Cracks - Rake & Stop Apex. May require additional scaffold.	PS	1	$ 100.00	$ 117	$ 117
Hallway northeast	A	Ceiling - Cracks - Junctions & Negative Details - RTV Fill	Lm	54	$ 5.50	$ 6	$ 346
Hallway northeast	A	Ceiling - Cracks - Plasterboard - Rake & Stop	Lm	0.5	$ 14.50	$ 17	$ 8
Hallway northeast	A	Ceilings - Paint - Repaint -2 coats	m2	40	$ 17.00	$ 20	$ 793
Hallway northeast	B	Walls. Re-paint will address minor vertical cracks in mortar line at bottom L/H and R/H of internal window. RTV cracks at trim junctions either side of double doors at east exit and same at west internal double doors to hallway. Epoxy blockwork cracks at top L/H and R/H of single door to IT Systems. Re-paint all walls excluding west blue feature wall. RTV window/door frame junctions as required and paint all window/door frames.					

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
Hallway northeast	B	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	5	$ 4.00	$ 5	$ 23
Hallway northeast	B	Wall - Cracks - Pre cast panels Structurally repaired using Epozy injection	Lm	1	$ 197.98	$ 231	$ 231
Hallway northeast	B	Winow and door frames - Interior - Paint - - <= 150mm	Lm	34.5	$ 8.00	$ 9	$ 322
Hallway northeast	B	Walls - Paint - Repaint	m2	52	$ 12.00	$ 14	$ 728
Hallway northeast	C	Tilework at northwest corner. Replace broken and displaced tiles with best match. Re-grout where required.	PS	1	$ 250.00	$ 292	$ 292
Hallway northeast	D	Floor. Remove & replacve vinyl. Epoxy floor crack at junction to north wall.					
Hallway northeast	D	Floor Cracks - Concrete. Blow out dust, fill with pour in epoxie resin and trowel off	lm	7	$ 100.00	$ 117	$ 817
Hallway northeast	D	Remove & replace vinyl	m2	19	$ 77.00	$ 90	$ 1,707
Open Plan Construction Office Area	A	Ceiling. Glazing. Remove & replace georgian mesh (GWC) glass. Allow 50/50 earthquake v historical damage. Allow 1 pane @ $250/m2.	ea	1	$ 250.00	$ 292	$ 292
Open Plan Construction Office Area	B	Rake, RTV and touchup junction to trim at bottom of ceiling area.					
Open Plan Construction Office Area	B	Ceiling - Cracks - Junctions & Negative Details - RTV Fill & Paint	Lm	2	$ 10.00	$ 12	$ 23
Open Plan Construction Office Area	C	Flurescent lights. Refit diffusers.					
Open Plan Construction Office Area	C	Labour - Handyman (Incl. Vehicle)	h	0.5	$ 32.90	$ 38	$ 19
Open Plan Construction Office Area	D	Walls. RTV vertical join of L/H conference room gib wall to south block wall. Rake & stop above door to conference room. Repaint wall.					
Open Plan Construction Office Area	D	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	2.8	$ 4.00	$ 5	$ 13
Open Plan Construction Office Area	D	Wall - Cracks - Plasterboard - Rake & Stop	Lm	1.5	$ 12.00	$ 14	$ 21
Open Plan Construction Office Area	D	Walls - Paint - Repaint	m2	9	$ 12.00	$ 14	$ 126
Open Plan Construction Office Area	E	West wall. RTV at door frame junctions L/H and R/H. Rake & stop at top L/H of door to parks area. Rake & stop top R/H of west wall at bottom of pailment. Handyman to remove and reinstall cabinetry and whiteboards. Paint west wall.					
Open Plan Construction Office Area	E	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	4	$ 4.00	$ 5	$ 19
Open Plan Construction Office Area	E	Wall - Cracks - Plasterboard - Rake & Stop	Lm	0.5	$ 12.00	$ 14	$ 7
Open Plan Construction Office Area	E	Walls - Paint - Repaint	m2	15	$ 12.00	$ 14	$ 210
Open Plan Construction Office Area	F	North wall. Windows. Prepare frames as required. Paint window frames.					
Open Plan Construction Office Area	F	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	15	$ 4.00	$ 5	$ 70
Open Plan Construction Office Area	F	Walls - Paint - Repaint	m2	18	$ 12.00	$ 14	$ 252
Open Plan Construction Office Area	G	North wall. Rake & stop gib joins at R/H column. Paint wall. Allow handyman hours to remove office furniture and re-install after repairs.					

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
Open Plan Construction Office Area	G	Wall - Cracks - Plasterboard - Rake & Stop	Lm	1.5	$ 12.00	$ 14	$ 21
Open Plan Construction Office Area	G	Walls - Paint - Repaint	m2	25	$ 12.00	$ 14	$ 350
Open Plan Construction Office Area	G	Labour - Handyman (Incl. Vehicle)	h	20	$ 32.90	$ 38	$ 768
Open Plan Construction Office Area	H	East wall to office #1. Touchup plaster and paint at top L/H under pailment. RTV and touchup at R/H 0f window to office #1.					
Open Plan Construction Office Area	H	Wall - Cracks - Plasterboard - Rake, Stop & Touchup Paint	Lm	0.25	$ 22.00	$ 26	$ 6
Open Plan Construction Office Area	H	Wall - Cracks - Junctions & Negative Details - RTV Fill & Paint	Lm	1.5	$ 7.50	$ 9	$ 13
Open Plan Construction Office Area	I	East wall at top L/H of door to corner office #2. Rake, stop and affected wall only.					
Open Plan Construction Office Area	I	Wall - Cracks - Plasterboard - Rake & Stop	Lm	0.5	$ 12.00	$ 14	$ 7
Open Plan Construction Office Area	I	Walls - Paint - Repaint	m2	5	$ 12.00	$ 14	$ 70
Open Plan Construction Office Area	J	Corner at top L/H of exit door to hallway. Minor crack to blockwork. Touchup only.					
Open Plan Construction Office Area	J	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	0.5	$ 10.00	$ 12	$ 6
Open Plan Construction Office Area	K	Column near reception area. Epoxy horizontal cracks. Paint column.					
Open Plan Construction Office Area	K	Wall - Cracks - Pre cast panels Structurally repaired using Epozy injection	Lm	1.2	$ 197.98	$ 231	$ 277
Open Plan Construction Office Area	K	Labour - Electrician (Incl. Vehicle)	h	4	$ 41.07	$ 48	$ 192
Open Plan Construction Office Area	K	Walls - Paint - Repaint	m2	5	$ 12.00	$ 14	$ 70
Open Plan Construction Office Area	L	Floor in whole area including adjoining offices. Inspection required under carpet and allowance for remedies to slab and reinstatement of carpet. A number of high spots and dips that have occurred (NB north wall behind Terry's desk , hall area in front of Terry's pod, northeast corner of office # 1 and northwest corner of office # 2).	PS	1	$ 2,000.00	$ 2,333	$ 2,333
Conference Room	A	Ceiling. Touchup paint cracks to suspended ceiling junctions.	PS	1	$ 200.00	$ 233	$ 233
Conference Room	B	Walls. RTV vertical join at junction of blockwall to gib wall at L/H of TV screen. Rake & stop above entry door to open plan area. Epoxy above exit door to hallway, RTV vertical junction at west wall. Paint south, west and northeast walls.					
Conference Room	B	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	5.6	$ 4.00	$ 5	$ 26
Conference Room	B	Wall - Cracks - Plasterboard - Rake & Stop	Lm	1.5	$ 12.00	$ 14	$ 21
Conference Room	B	Wall - Cracks - Pre cast panels Structurally repaired using Epozy injection	Lm	0.7	$ 197.98	$ 231	$ 162
Conference Room	B	Walls - Paint - Repaint	m2	39	$ 12.00	$ 14	$ 546
Conference Room	C	Flurescent light. Purchase and fit diffuser. Material cost and sourcing	PS	1	$ 100.00	$ 117	$ 117
Conference Room	C	Labour - Handyman (Incl. Vehicle)	h	1.5	$ 32.90	$ 38	$ 58

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
Office #1	A	Ceiling. Touch up paint cracks at suspended ceiling junctions.	PS	1	$ 50.00	$ 58	$ 58
Office #1	B	North wall. Windows. Prepare frames as required. Paint window frames.					
Office #1	B	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	5	$ 4.00	$ 5	$ 23
Office #1	B	Walls - Paint - Repaint	m2	6	$ 12.00	$ 14	$ 84
Office #1	C	Door. Repair latch side of door. Re-stain.	PS	1	$ 250.00	$ 292	$ 292
Office #2	A	Refix scotia trim above entry door, RTV preparation along top of west wall,RTV touchup paint to ceiling panels at west margin.	PS	1	$ 100.00	$ 117	$ 117
Office #2	B	East wall. Remove wallpaper from whole wall, rake & stop joins, repaint wall.					
Office #2	B	Labour - Painter (Incl. Vehicle)	h	4	$ 38.11	$ 44	$ 178
Office #2	B	Wall - Cracks - Plasterboard - Rake & Stop	Lm	1.5	$ 12.00	$ 14	$ 21
Office #2	B	Walls - Paint - Repaint	m2	5.5	$ 12.00	$ 14	$ 77
Office #2	C	Windows. Prepare frames as required. Paint window frames.					
Office #2	C	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	15	$ 4.00	$ 5	$ 70
Office #2	C	Walls - Paint - Repaint	m2	14	$ 12.00	$ 14	$ 196
Office #2	D	East aluminium windows out of square. Allow to remove frames and square openings. Either replace with new frames or take to factory and re-square/re-glaze as necessary. Re-install. $2,000 allowance per large frame. Prepare for paint and paint reveals/surround & trim. $400 per window.	ea	1.25	$ 2,000.00	$ 2,333	$ 2,917
Office #2	E	Door. Touchup stain to door and frame following planing already done.					
Office #2	E	Door and Frame - Paint -Repaint	m2	2	$ 30.00	$ 35	$ 70
Office #3	A	Ceiling. Touch up paint cracks at suspended ceiling junctions.	PS	1	$ 50.00	$ 58	$ 58
Office #3	B	East aluminium window out of square. Allow to remove frame and square opening. Either replace with new or take to factory and re-square/re-glaze as necessary. Re-install. $2,000 allowance per large frame. Prepare for paint and paint reveals/surround & trim. $400 per window.	ea	1	$ 2,000.00	$ 2,333	$ 2,333
Office #3	C	Windows. Prepare frames as required. Paint window frames.					
Office #3	C	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	2	$ 4.00	$ 5	$ 9
Office #3	C	Walls - Paint - Repaint	m2	4.5	$ 12.00	$ 14	$ 63
Office #4	A	Windows. Prepare frames as required. Paint window frames.					
Office #4	A	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	4	$ 4.00	$ 5	$ 19
Office #4	A	Walls - Paint - Repaint	m2	5.5	$ 12.00	$ 14	$ 77
Office #4	B	East aluminium windows out of square. Allow to remove frames and square openings. Either replace with new frames or take to factory and re-square/re-glaze as necessary. Re-install. $2,000 allowance per large frame. Prepare for paint and paint reveals/surround & trim. $400 per window.	ea	1	$ 2,000.00	$ 2,333	$ 2,333
Office #4	C	West Partition wall to south exterior block wall. Separation. VIEW BOTH SIDES (see Storage room). Allow to remove glass, repair aluminium frame in-situ, Expanditie gap to exterior wall.	PS	1	$ 500.00	$ 583	$ 583
Storage Room	A	NB Partition wall gap to exterior block wall. Allowed for in Office #4.					
Storage Room	B	Crack in blockwork southwest corner. Non-structural mortarwork. RTV. Crack at vertical junction of west wall junction of block to gib wall. Rake & RTV. Allow for removal of cabinetry. Paint block walls.					
Storage Room	B	Wall Cracks - General any substrate - Rake, RTV.	Lm	5.6	$ 10.00	$ 12	$ 65

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
Storage Room	B	Walls - Paint - Repaint	m2	8.5	$ 12.00	$ 14	$ 119
Storage Room	B	Labour - Handyman (Incl. Vehicle)	h	4	$ 32.90	$ 38	$ 154
Office #5	A	Walls. East block to gib wall junction, southeast corner, southwest corner and east block to gib wall junction. RTV and touchup as required.					
Office #5	A	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	6	$ 10.00	$ 12	$ 70
Office #5	B	Ease door and re-stain touchup.					
Office #5	B	Labour - Carpenter (Incl. Vehicle)	h	2	$ 39.32	$ 46	$ 92
Office #5	B	Walls Interior - Paint - - <= 150mm	Lm	4	$ 12.00	$ 14	$ 56
Open Plan Parks area	A	Walls. East wall adjoining office #10. Separation. Allow for vertical trim to cover corner gap. Prepare & paint.	PS	1	$ 200.00	$ 233	$ 233
Open Plan Parks area	B	Southeast corner at exit door to hallway. Vertical crack. RTV & touchup.					
Open Plan Parks area	B	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	2.8	$ 10.00	$ 12	$ 33
Open Plan Parks area	C	South wall to hallway. Separation of internal window frame to blockwall. Use coloured caulking to match stained framework at L/H & R/H vertical junctions to block wall.					
Open Plan Parks area	C	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	5.6	$ 10.00	$ 12	$ 65
Open Plan Parks area	D	Southwest corner adjoining hallway. Partition wall separation. RTV and touchup.					
Open Plan Parks area	D	Wall - Cracks - Junctions & Negative Details - RTV Fill & Paint	Lm	2.8	$ 7.50	$ 9	$ 24
Open Plan Parks area	E	West wall at bottom R/H of internal window to office #8 and vertical junctions at L/H & R/H of door frame to office # 7. Minor crack and separations. RTV and touchup only.					
Open Plan Parks area	E	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	4	$ 10.00	$ 12	$ 47
Open Plan Parks area	F	North aluminium windows not opening well, although likely to be able to be adjusted in-situ.	ea	2	$ 250.00	$ 292	$ 583
Open Plan Parks area	G	North Windows. RTV and touchup as required.					
Open Plan Parks area	G	Wall - Cracks - Junctions & Negative Details - RTV Fill & Paint	Lm	6	$ 10.00	$ 12	$ 70
Open Plan Parks area	H	Top L/H of door to open plan construction area and L/H door frame junction to wall. RTV and touchup.					
Open Plan Parks area	H	Wall - Cracks - Junctions & Negative Details - RTV Fill & Paint	Lm	2	$ 7.50	$ 9	$ 17
Open Plan Parks area	I	Ease door and re-stain touchup.	PS	1	$ 150.00	$ 175	$ 175
Open Plan Parks area	J	Column. Minor cracking. Prepare & paint.					
Office #6	A	All window frames. RTV and touchup as required.					
Office #6	A	Wall - Cracks - Junctions & Negative Details - RTV Fill & Paint	Lm	6	$ 10.00	$ 12	$ 70
Office #6	B	Top L/H of door. Rake, stop, paint wall allowing for cutting around air cond. Unit.					
Office #6	B	Wall - Cracks - Plasterboard - Rake & Stop	Lm	0.5	$ 12.00	$ 14	$ 7
Office #6	B	Walls - Paint - Repaint	m2	12	$ 12.00	$ 14	$ 168
Office #6	C	Ease door and re-stain touchup.	PS	1	$ 150.00	$ 175	$ 175
Office #7	A	Ceiling. Rake & touchup paint cracks at suspended ceiling junctions.	PS	1	$ 50.00	$ 58	$ 58
Office #7	B	West window frame. RTV & touchup as required.					
Office #7	B	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	2	$ 10.00	$ 12	$ 23
Office #7	C	West wall. Rake, stop and paint wall. RTV northeast corner above bookshelf.					
Office #7	C	Wall - Cracks - Plasterboard - Rake & Stop	Lm	4	$ 12.00	$ 14	$ 56
Office #7	C	Walls - Paint - Repaint	m2	10	$ 12.00	$ 14	$ 140
Office #7	D	East wall. Rake, stop and paint wall.					
Office #7	D	Wall - Cracks - Plasterboard - Rake & Stop	Lm	1	$ 12.00	$ 14	$ 14
Office #7	D	Walls - Paint - Repaint	m2	7	$ 12.00	$ 14	$ 98

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
Office #8	A	West window frame. RTV & touchup as required.					
Office #9	A	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	2	$ 10.00	$ 12	$ 23
Office #9	A	Southeast corner. RTV and touchup.					
Office #9	A	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	2.8	$ 10.00	$ 12	$ 33
Office #9	B	Both window frames. RTV & touchup as required.					
Office #9	B	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	4	$ 10.00	$ 12	$ 47
Office #10	A	Ceiling. Touch-up of cracks at suspended ceiling junctions.	PS	1	$ 75.00	$ 87	$ 87
Office #10	B	Southeast corner.					
Office #10	B	Wall Cracks - General any substrate - Rake, RTV and touch up.	Lm	2.8	$ 10.00	$ 12	$ 33
Office #10	C	Ease door at top.					
Office #10	C	Labour - Carpenter (Incl. Vehicle)	h	1	$ 39.32	$ 46	$ 46
Outside-Bay A	A	Bay A. East wall left of double entry doors. Foundation crack at R/H corner. Epoxy and paint affected area. Site concrete crack at L/H of window. Epoxy.					
Outside-Bay A	A	Wall - Cracks - Pre cast panels Structurally repaired using Epozy injection	Lm	0.5	$ 197.98	$ 231	$ 115
Outside-Bay A	A	Floor Cracks - Concrete. Blow out dust, fill with pour in epoxie resin and trowel off	lm	1	$ 100.00	$ 117	$ 117
Outside-Bay A	A	Walls Interior - paint - <= 300mm	Lm	2.5	$ 9.00	$ 10	$ 26
Outside-Bay B	B	R/H Column to bay B. Minor cracking old/new. Allow 3m2 paint.					
Outside-Bay B	B	Walls - Paint - Repaint	m2	3	$ 12.00	$ 14	$ 42
Outside-Bay C	C	R/H Column to bay C. Minor cracking old/new. Allow 3m2 paint.					
Outside-Bay C	C	Walls - Paint - Repaint	m2	3	$ 12.00	$ 14	$ 42
Outside-Bay D	D	R/H Column to bay D. Minor cracking old/new. Allow 3m2 paint.					
Outside-Bay D	D	Walls - Paint - Repaint	m2	3	$ 12.00	$ 14	$ 42
Bay E-North face (working clockwise from east corner).	E	Bay E. R/H of foundation. Minor crack. Touchup paint $20 PS. Foundation crack at front L/H on vertical face. Epoxy.	PS	1	$ 20.00	$ 23	$ 23
Bay E-North face (working clockwise from east corner).	E	Wall - Cracks - Structurally repaired using Epozy injection	Lm	0.25	$ 250.00	$ 292	$ 73
Bay F	F	Bay F (east of trellis fence). 3 Foundation cracks. Front R/H on vertical face,at centre and at L/H. Epoxy.					
Bay F	F	Wall - Cracks - Structurally repaired using Epozy injection	Lm	0.75	$ 250.00	$ 292	$ 219
Bay G	G	Bay G (west of trellis fence). Minor paint crack at R/H of building foundation. Touchup paint. PS $20. 4-5 Foundation cracks along vertical face. Epoxy.					
Bay G	G	Wall - Cracks - Structurally repaired using Epozy injection	Lm	1.2	$ 250.00	$ 292	$ 350
Bay H	H	Bay H. Minor paint cracks at L/H & R/H of building foundation. Touchup paint. PS $20. 2 Foundation cracks along vertical face. Epoxy.					
Bay H	H	Wall - Cracks - Structurally repaired using Epozy injection	Lm	0.5	$ 250.00	$ 292	$ 146
Bay I	I	Bay I (Air cond. Unit). Minor cracks at R/H and centre of building foundation. Minor crack on textured wall at bottom centre. Touchup paint. Paint $30 PS. Concrete crack on site concrete R/H of air cond. Unit, 2 cracks on vertical face at R/H and centre. Epoxy.					
Bay I	I	Wall - Cracks - Structurally repaired using Epozy injection	Lm	0.5	$ 250.00	$ 292	$ 146
Bay J	J	Bay J (picnic table). Concrete crack on site concrete R/H of bay. 3 cracks on vertical face at R/H, centre and L/H. Epoxy.					

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
Bay J	J	Wall - Cracks - Structurally repaired using Epozy injection	Lm	1.2	$ 250.00	$ 292	$ 350
Bay K	K	Bay K. Concrete cracks on vertical face at R/H, centre and L/H. Epoxy.					
Bay K	K	Wall - Cracks - Structurally repaired using Epozy injection	Lm	0.75	$ 250.00	$ 292	$ 219
Bay L	L	Bay L (east end of north face). Minor Concrete cracks on vertical face. No remedy required.					
Bay M - East face	M	Bay M. No damage.					
Bay N	N	Bay N. Column to R/H of Bay N. Contribution to minor cracks. Paint. Minor paint crack at R/H of building foundation. Touchup paint.					
Bay N	N	Walls - Paint - Repaint	m2	3	$ 12.00	$ 14	$ 42
Bay O	O	Bay O. Repaint column to R/H of Bay O, touchup minor foundation cracks R/H corner, L/H corner. RTV L/H corner.					
Bay O	O	Walls - Paint - Repaint	m2	6	$ 12.00	$ 14	$ 84
Bay O	O	Wall - Cracks - Junctions & Negative Details - Re-expandite	Lm	1.5	$ 25.00	$ 29	$ 44
Bay P-Main East Entrance	P	Entrance lobby. Column to R/H-repaint. Remove & replace site concrete leading to double entry doors. Allow for brass edged footmat chase work. R/H wall: cracks to column and soffit junctions. L/H wall crack at soffit join. RTV and Paint entrance area walls.					
Bay P-Main East Entrance	P	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	10	$ 8.00	$ 9	$ 93
Bay P-Main East Entrance	P	Walls - Paint - Repaint	m2	22	$ 12.00	$ 14	$ 308
Bay P-Main East Entrance	P	Site concrete -unreinforced - Remove and replace	m2	8	$ 125.00	$ 146	$ 1,167
Bay Q (Bay left of main east entrance)	Q	Access bay to IT double doors. Ceiling to column crack at top R/H. RTV. Dble door jamb to column crack at R/H. RTV. Crack in column plaster at bottom R/H. Remove loose material and patch with new. All work to this column to be painted as already allowed for in P above. Dble doors-Replace broken glass in bottom L/H. Door sill/threshold cracked. Epoxy and fine-grind to finish. Concrete ramp-epoxy repair to L/H crack at base of column. L/H column damage referred to in R below (typically each bay reference incorporates R/H column)					
Bay Q (Bay left of main east entrance)	Q	Ceiling - Cracks - Junctions & Negative Details - RTV Fill	Lm	0.5	$ 5.50	$ 6	$ 3
Bay Q (Bay left of main east entrance)	Q	Wall - Cracks - Junctions & Negative Details - RTV Fill	Lm	3	$ 4.00	$ 5	$ 14
Bay Q (Bay left of main east entrance)	Q	Concrete plaster repair at base of R/H column	PS	1	$ 150.00	$ 175	$ 175
Bay Q (Bay left of main east entrance)	Q	Glazing - Repolace 870x650mm georgian mesh polished plate glass pane (GWPP) @ $440/m2	m2	0.56	$ 440.00	$ 513	$ 287
Bay Q (Bay left of main east entrance)	Q	Floor Cracks - Concrete. Blow out dust, gravity inject with epoxie resin and trowel off	Lm	2.5	$ 66.00	$ 77	$ 192
Bay R	R	Soffit to roof overhang. Joint separation. Roof internal valley has separated. allow for EQUUS fibregalss repair or similar at 1.5m approx. Soffit joint separation. Allow 1 (1.2x2.4) sheet of concrete board, jointers, 2 coats paintand 3 hours labour to replace affected panel in $PS $300. Wall to column junction crack at R/H corner. rake and re-expandite. Touchup paint. Foundation cracks at junction to column footings L/H and R/H, and 3 cracks at centre of bay (either side of gulley trap and one 400mm to the L/H of gulley trap). Epoxy. Paint foundation strip <150mm. R/H column solid plastering repair at base of column. Column crack st mid-height. Prepare and paint column. Site concrete separation at base of R/H column. Seal with concrete gap sealant.					

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
Bay R	R	Soffit-remove and replace affected panel	PS	1	$ 300.00	$ 350	$ 350
Bay R	R	Internal roof valley separation repair-EQUUS	PS	1	$ 250.00	$ 292	$ 292
Bay R	R	Rake & re-apply expandite	Lm	2	$ 50.00	$ 58	$ 117
Bay R	R	Walls Exterior - paint - <= 300mm	Lm	2	$ 9.00	$ 10	$ 21
Bay R	R	Wall - Cracks - Pre cast panels Structurally repaired using Epozy injection	Lm	1	$ 174.00	$ 203	$ 203
Bay R	R	Walls Exterior - paint - <= 300mm	Lm	5	$ 9.00	$ 10	$ 52
Bay R	R	Concrete plaster repair at base of R/H column	PS	1	$ 150.00	$ 175	$ 175
Bay R	R	Walls - Paint - Repaint	m2	4.75	$ 12.00	$ 14	$ 66
Bay R	R	Site concrete crack seal	Lm	2	$ 35.00	$ 41	$ 82
Bay S	S	Cracks to R/H column. Combination of EQ and historical. Allow 3m2 contribution. Paint column. Wall junction to L/H column-Rake & Re-expandite. Wall cracks at bottom centre and bottom centre right. Foundation cracks at junctions to column footing R/H and L/H. Epoxy. Paint wall and foundation. Site concrete crack at R/H and L/H-Seal.					
Bay S	S	Walls - Paint - Repaint	m2	3	$ 12.00	$ 14	$ 42
Bay S	S	Rake & re-apply expandite	Lm	1	$ 50.00	$ 58	$ 58
Bay S	S	Walls Exterior - paint - <= 300mm	Lm	1	$ 9.00	$ 10	$ 10
Bay S	S	Wall - Cracks - Pre cast panels Structurally repaired using Epozy injection	Lm	0.4	$ 174.00	$ 203	$ 81
Bay S	S	Walls - Paint - Repaint	m2	5.4	$ 12.00	$ 14	$ 76
Bay S	S	Site concrete crack seal	Lm	2	$ 35.00	$ 41	$ 82
Bay T - Far L/H bay on far east wall	T	Foundation crack at L/H corner junction to column-Re-point. Minor crack at R/H. Paint foundation. Site concrete minor crack at L/H-no repair recommended.					
Bay T - Far L/H bay on far east wall	T	Re-mortar L/H corner junction	PS	1	$ 50.00	$ 58	$ 58
Bay T - Far L/H bay on far east wall	T	Walls Exterior - paint - <= 300mm	Lm	7	$ 9.00	$ 10	$ 73
Bay U-Far R/H bay of south wall facing workshop buildings.	U	No damage identified.					
Bay V	V	No damage identified.					
Bay W-South staff entrance	W	Wall junction cracks at L/H column, L/H of double doors and at soffit junction. RTV and touchup paint. Separation at R/H column-Rake & mortar and paint affected wall and small return at column. Site concrete crack at front of mat chase. Rake & gravity inject expoxy					
Bay W-South staff entrance	W	Ceiling - Cracks - Junctions & Negative Details - RTV Fill & Paint	Lm	1.8	$ 9.00	$ 10	$ 19
Bay W-South staff entrance	W	Wall - Cracks - Junctions & Negative Details - RTV Fill & Paint	Lm	2.8	$ 7.50	$ 9	$ 24
Bay W-South staff entrance	W	Mortar vertical corner junction to R/H column	PS	1	$ 100.00	$ 117	$ 117
Bay W-South staff entrance	W	Walls - Paint - Repaint	m2	2.8	$ 12.00	$ 14	$ 39
Bay W-South staff entrance	W	Floor Cracks - Concrete. Blow out dust, gravity inject with epoxie resin and trowel off	Lm	2	$ 66.00	$ 77	$ 154
Bay X	X	Wall junction to R/H column movement. Allow to remove and replace all plants, watering system and all fill (18.5m3 being 10mlong, 1.85m wide and 1m deep) from concrete planter box to expose and assess waterproofing, especially at internal corner to building where significant separation has occurred. Rake and re-apply expandite. Touchup paint.					
Bay X	X	Labour -Gardener/landscaper	Hr	40	$ 35.00	$ 41	$ 1,633
Bay X	X	Transport & disposal of clean soil. Allowance for replacement clean soil when repairs are complete.	m3	18.5	$ 30.00	$ 35	$ 647
Bay X	X	Waterblast interior of planter	PS	1	$ 150.00	$ 175	$ 175
Bay X	X	Rake & re-apply expandite	Lm	2	$ 50.00	$ 58	$ 117
Bay X	X	Walls Exterior - paint - <= 300mm	Lm	2	$ 9.00	$ 10	$ 21
Bay Y	Y	Wall junction to soffit-rake RTV & touchup. Column R/H cracks-allow 3m2 paint.					

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
Bay Y	Y	Ceiling - Cracks - Junctions & Negative Details - RTV Fill & Paint	Lm	0.5	$ 9.00	$ 10	$ 5
Bay Y	Y	Walls - Paint - Repaint	m2	3	$ 12.00	$ 14	$ 42
Bay Z	Z	Wall to soffit junction crack-rake, RTV and touchup paint. Internal corner separations at corner column. Allow for structural inspection of foundation at base of planter box and waterproofing detail. Rake and re-apply expandite after new PF rod inserted, including RTV of gap under L/H of Bay Y window. Remove and replace blockwork. Repair stucco coving. Touch-up paint. Planter box crack at internal corner-epoxy. Planter box cracks at L/H & R/H junctions to building.Re-mortar both sides and touchup paint.					
Bay Z	Z	Ceiling - Cracks - Junctions & Negative Details - RTV Fill & Paint	Lm	4.2	$ 9.00	$ 10	$ 44
Bay Z	Z	Engineers Inspection & Report (Provisional Sum)	PS	1	$ 750.00	$ 875	$ 875
Bay Z	Z	Rake & re-apply expandite	Lm	6	$ 50.00	$ 58	$ 350
Bay Z	Z	Walls Exterior - paint - <= 300mm	Lm	6	$ 9.00	$ 10	$ 63
Bay Z	Z	Blockwork, re-mortaring as required to repair.	PS	1	$ 200.00	$ 233	$ 233
Bay Z	Z	Walls - Paint - Repaint	m2	1	$ 12.00	$ 14	$ 14
Bay Z	Z	Wall - Cracks - Pre cast panels Structurally repaired using Epozy injection	Lm	2	$ 174.00	$ 203	$ 406
Bay Z	Z	Concrete planter box junction to bldg re-mortaring both sides.	PS	1	$ 200.00	$ 233	$ 233
Bay AA	AA	Foundation crack at R/H corner junction to column-replaster. Minor cracks elsewhere. Paint foundation. Rake & re-expandite R/H wall to column junction. Site concrete cracks at L/H & R/H-epoxy.					
Bay AA	AA	Solid plastering	PS	1	$ 75.00	$ 87	$ 87
Bay AA	AA	Walls Exterior - paint - <= 300mm	Lm	7	$ 9.00	$ 10	$ 73
Bay AA	AA	Rake & re-apply expandite	Lm	1	$ 50.00	$ 58	$ 58
Bay AA	AA	Walls Exterior - paint - <= 300mm	Lm	1	$ 9.00	$ 10	$ 10
Bay AA	AA	Floor Cracks - Concrete. Blow out dust, gravity inject with epoxie resin and trowel off	Lm	1	$ 66.00	$ 77	$ 77
Bay AB	AB	Foundation crack at L/H corner junction to column-replaster. Minor cracks elsewhere. Paint foundation. Horizontal cracks in R/H column. Paint column. Minor crack at bottom \centre of stucco wall. Touchup paint. Rake & re-expandite L/H wall to column junction. Site concrete cracks at L/H -epoxy repair.					
Bay AB	AB	Solid plastering	PS	1	$ 50.00	$ 58	$ 58
Bay AB	AB	Walls Exterior - paint - <= 300mm	Lm	7	$ 9.00	$ 10	$ 73
Bay AB	AB	Walls - Paint - Repaint	m2	3	$ 12.00	$ 14	$ 42
Bay AB	AB	Rake & re-apply expandite	Lm	1	$ 50.00	$ 58	$ 58
Bay AB	AB	Walls Exterior - paint - <= 300mm	Lm	1	$ 9.00	$ 10	$ 10
Bay AB	AB	Floor Cracks - Concrete. Blow out dust, gravity inject with epoxie resin and trowel off	Lm	1	$ 66.00	$ 77	$ 77
Bay AC-South West corner bay	AC	Cracks at R/H column. Allow 3m2 contribution as combination of old/new.					
Bay AC-South West corner bay	AC	Walls - Paint - Repaint	m2	3	$ 12.00	$ 14	$ 42
Bay AD	AD	Foundation cracks at R/H corner junction to column-replaster including 0.7m gap in site concrete to R/H column. Minor cracks elsewhere. Paint foundation. Horizontal cracks in R/H column. Paint column. Minor crack at bottom\centre of stucco wall. Touchup paint. Rake & re-expandite R/H wall to column junction. Site concrete cracks at R/H & L/H-epoxy repair.					
Bay AD	AD	Solid plastering	PS	1	$ 50.00	$ 58	$ 58
Bay AD	AD	Walls Exterior - paint - <= 300mm	Lm	7	$ 9.00	$ 10	$ 73
Bay AD	AD	Walls - Paint - Repaint	m2	3	$ 12.00	$ 14	$ 42
Bay AD	AD	Rake & re-apply expandite	Lm	1	$ 50.00	$ 58	$ 58
Bay AD	AD	Walls Exterior - paint - <= 300mm	Lm	1	$ 9.00	$ 10	$ 10
Bay AD	AD	Floor Cracks - Concrete. Blow out dust, gravity inject with epoxie resin and trowel off	Lm	1.5	$ 66.00	$ 77	$ 115

DAMAGED AREA (ROOM)	Ref No	WORK REQUIRED (DETAILED SCOPE OF WORK)	Unit	Quantity	Rate ($)	Rate Including CCL fee	Cost included CCL Fee
Bay AE	AE	Foundation cracks at R/H & L/H corner junctions to columns-replaster. Paint foundation. Horizontal cracks in R/H column. Paint column. Rake & re-expandite L/H wall to column junction. Site concrete cracks at R/H & L/H-epoxy repair.					
Bay AE	AE	Solid plastering	PS	1	$ 50.00	$ 58	$ 58
Bay AE	AE	Walls Exterior - paint - <= 300mm	Lm	7	$ 9.00	$ 10	$ 73
Bay AE	AE	Walls - Paint - Repaint	m2	3	$ 12.00	$ 14	$ 42
Bay AE	AE	Rake & re-apply expandite	Lm	1	$ 50.00	$ 58	$ 58
Bay AE	AE	Walls Exterior - paint - <= 300mm	Lm	1	$ 9.00	$ 10	$ 10
Bay AE	AE	Floor Cracks - Concrete. Blow out dust, gravity inject with epoxie resin and trowel off	Lm	1.5	$ 66.00	$ 77	$ 115
Bay AF	AF	Foundation cracks at R/H & L/H corner junctions to columns-replaster. Paint foundation. Horizontal cracks in R/H column. Paint column. Rake & re-expandite L/H & R/H wall to column junctions. Site concrete cracks at R/H & L/H-epoxy repair.					
Bay AF	AF	Solid plastering	PS	1	$ 50.00	$ 58	$ 58
Bay AF	AF	Walls Exterior - paint - <= 300mm	Lm	7	$ 9.00	$ 10	$ 73
Bay AF	AF	Walls - Paint - Repaint	m2	3	$ 12.00	$ 14	$ 42
Bay AF	AF	Rake & re-apply expandite	Lm	2	$ 50.00	$ 58	$ 117
Bay AF	AF	Walls Exterior - paint - <= 300mm	Lm	2	$ 9.00	$ 10	$ 21
Bay AF	AF	Floor Cracks - Concrete. Blow out dust, gravity inject with epoxie resin and trowel off	Lm	1.5	$ 66.00	$ 77	$ 115
Bay AG	AG	Foundation cracks at L/H corner junction to column-replaster. Minor cracks elsewhere. Paint foundation. Horizontal cracks in R/H column. Paint column. Rake & re-expandite L/H wall to column junctions. Site concrete cracks at R/H & L/H-epoxy repair.					
Bay AG	AG	Solid plastering	PS	1	$ 50.00	$ 58	$ 58
Bay AG	AG	Walls Exterior - paint - <= 300mm	Lm	7	$ 9.00	$ 10	$ 73
Bay AG	AG	Walls - Paint - Repaint	m2	3	$ 12.00	$ 14	$ 42
Bay AG	AG	Rake & re-apply expandite	Lm	1	$ 50.00	$ 58	$ 58
Bay AG	AG	Walls Exterior - paint - <= 300mm	Lm	1	$ 9.00	$ 10	$ 10
Bay AG	AG	Floor Cracks - Concrete. Blow out dust, gravity inject with epoxie resin and trowel off	Lm	1.5	$ 66.00	$ 77	$ 115
Bay AH-South exterior wall to east staff entrance	AH	Cracks at building joints between in-fill block wall and columns. Rake and re-mortar. Paint wall including columns.					
Bay AH-South exterior wall to east staff entrance	AH	Wall - Blockwork - Rake & repoint with mortar - Lm	Lm	3	$ 30.00	$ 35	$ 105
Bay AH-South exterior wall to east staff entrance	AH	Walls - Paint - Repaint	m2	10	$ 12.00	$ 14	$ 140
Soffit		NB No value applied to minor paint movement at joiners at soffit unless specifically scoped. Balanced out in assessment overall.					
		Establishment				$ -	$ -
		Chimney Design				$ -	$ -
		Consent Fees				$ -	$ -
		Travel				$ -	$ -
					EX GST	**TOTAL**	$ 96,488

Clarifications / Notes

Ref.

General Rates assume works are carried out in normal works hours without penal labour rates.

General No Allowance for Resource or Buildings Consents as and if they prove to be necessary

General No allowance for removal of furniture and fixtures that may prove necessary

Work can commence 2 - 4 weeks from receipt of PO.

The project will take approximately 12 weeks to complete.