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CONSULTANT ADVICE

STRUCTURAL AND CIVIL ENGINEERS

Project Name: Christchurch Cathedral Reconstruction

CA HCG: 015

Project No: 106324

Action:

From: Withheld under section 9(2)(a)

Information

Date: 7 November 2011

Pages: 1 of 3

Subject: Interim Make Safe Works - CERA

Outline Plan of Works (Draft)

Christchurch

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RCP
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 CPT
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 Warren & Mahoney
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Withheld under section 9(2)(a)

Confirmation / Response to PC No.: N/A

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INTRODUCTION

The purpose of this Consultants Advice is to detail an outline plan of the make safe works required to satisfy the requirements of the Section 38 notice issued by CERA on the 28th of October for the Christchurch Cathedral. Details related to project funding and insurance are to be advised by others.

OBJECTIVES

The objectives of the interim make safe works are as follows:

1. Make the building safe such that should the building experience a moderate earthquake the building will be contained within the site without the need for protective hoardings outside the property boundary.
2. Make the building safe such that property retrieval can be undertaken to remove valuable building contents.
3. The works shall not restrict future reconstruction options for the site.

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4. Make safe works shall be phased in such a way that health and safety risks to construction personnel undertaking the make safe works, and heritage specialists retrieving heritage items, are managed to acceptable levels.

SCOPE OF MAKE SAFE WORKS

Proposed make safe works are to be undertaken in two phases:

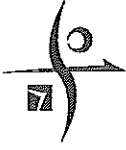
1. Phase 1 -- Securing the building within the site boundary
2. Phase 2 -- Securing the Building to enable contents retrieval

Details of this work are outlined below and illustrated on SSK# 033 – 038 (refer Appendix A). A preliminary hazards analysis for the make safe works has been undertaken and details of this have been included in Appendix B.

Phase 1 – Securing the building within the site boundary

Scope of proposed works for Phase 1 includes:

- (i) Tower to be made safe by providing a new steel braced frame at the north elevation to replace the lost section of wall. A new concrete 'roof' slab will also be provided at the top of the remaining section of tower to maintain structural integrity and provide additional protection against future weathering.
- (ii) Damaged isle roof bracing elements will be reinstated. This will reinstate much of the original north-south lateral load resisting capacity of the Nave.
- (iii) Central portion of the western wall and west porch is to be demolished/deconstructed to enable future construction access to the interior of the building. Other damaged wall elements (i.e. north and south isle walls) will be retained.
- (iv) Installation of stacked shipping containers at the west end of the Nave to provide temporary east-west lateral stability of the Nave. This will enable construction workers to access the Nave in the next phase.
- (v) Installation of props to support the west end of the Nave roof.
- (vi) Vertical steel mullions to provide out-of-plane stability to the north and south transept gables. These gables will be supported at the base by large concrete blocks and tied into the roof at existing roof tie locations.
- (vii) Removal of external high level falling hazards via man cage.



- (viii) Temporary weatherproofing to replace the area of the north isle roof that was damaged by tower debris and the void left by the removal of the west wall.

Phase 2 – Securing the Building to enable contents retrieval

Scope of proposed works for Phase 2 includes:

- (i) Internal braced structural steel shoring towers at the west end of the nave and central transept areas to provide additional global stability to the structure against structural collapse.
- (ii) Removal of internal high level falling hazards via man cage.
- (iii) Deconstruction of stacked shipping containers.

We hope that this Consultants Advice is sufficient for your needs. Do not hesitate to contact us if you have any questions or require any further information

Regards,

106324CA0329.015

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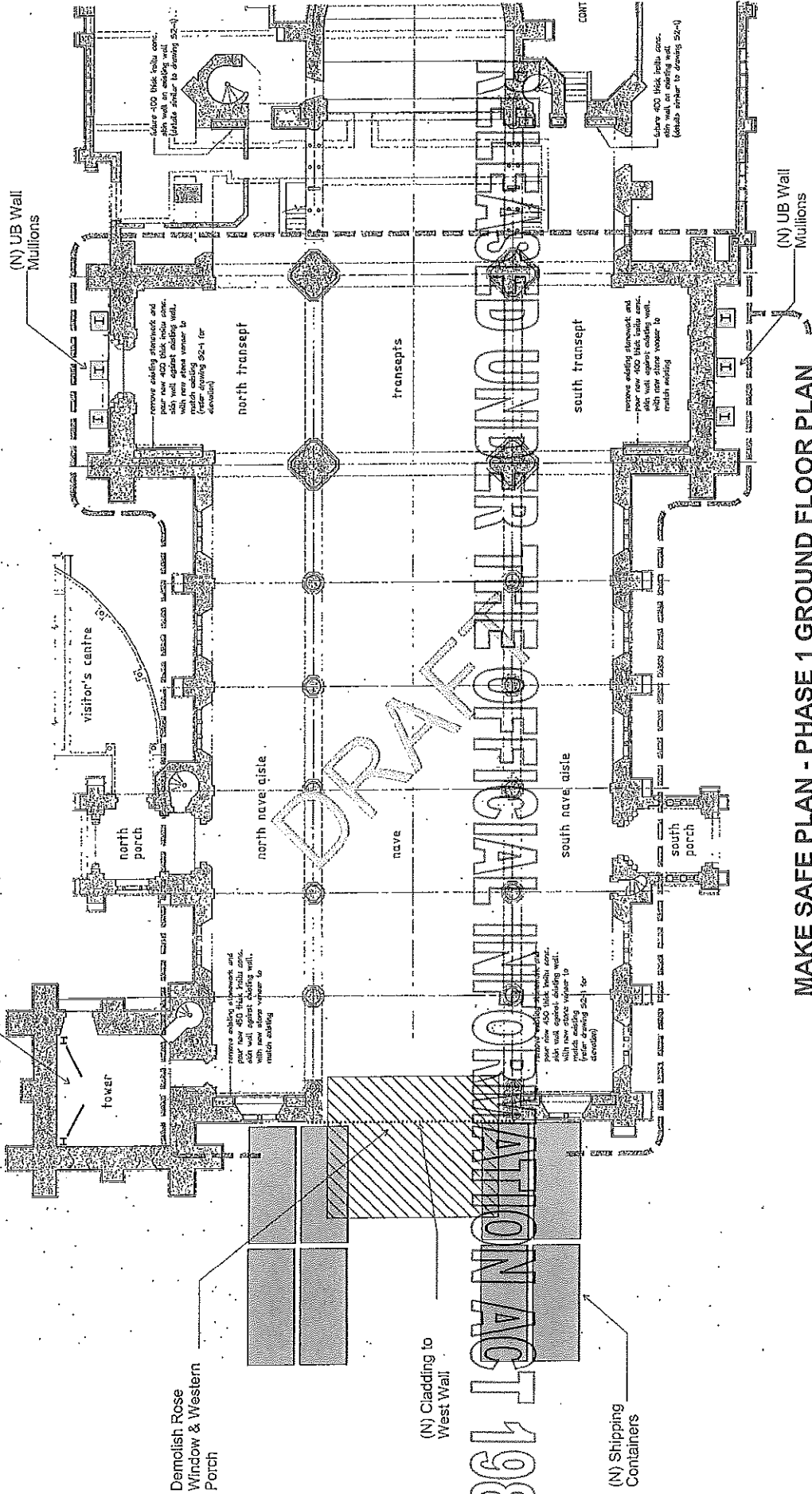
APPENDIX A
STRUCTURAL DETAILS

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LEGEND:
 (N) - New
 (E) - Existing



MAKE SAFE PLAN - PHASE 1 GROUND FLOOR PLAN



Holmes Consulting Group
 Project Name: Christchurch Cathedral
 Project Number: 103224
 Scaled By: SKD
 Date: 04/12/2011
 Sheet Number: 023

Holmes Consulting Group
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 41 Lambton Quay
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 Fax: 3 376 2111

NO.	REVISION	DATE	BY	CHKD
1	ISSUED FOR TENDER	11/01/11	SKD	SKD
2	REVISED TO REFLECT COMMENTS	27/11/11	SKD	SKD
3	REVISED TO REFLECT COMMENTS	11/12/11	SKD	SKD

CHRISTCHURCH CATHEDRAL
STRENGTHENING

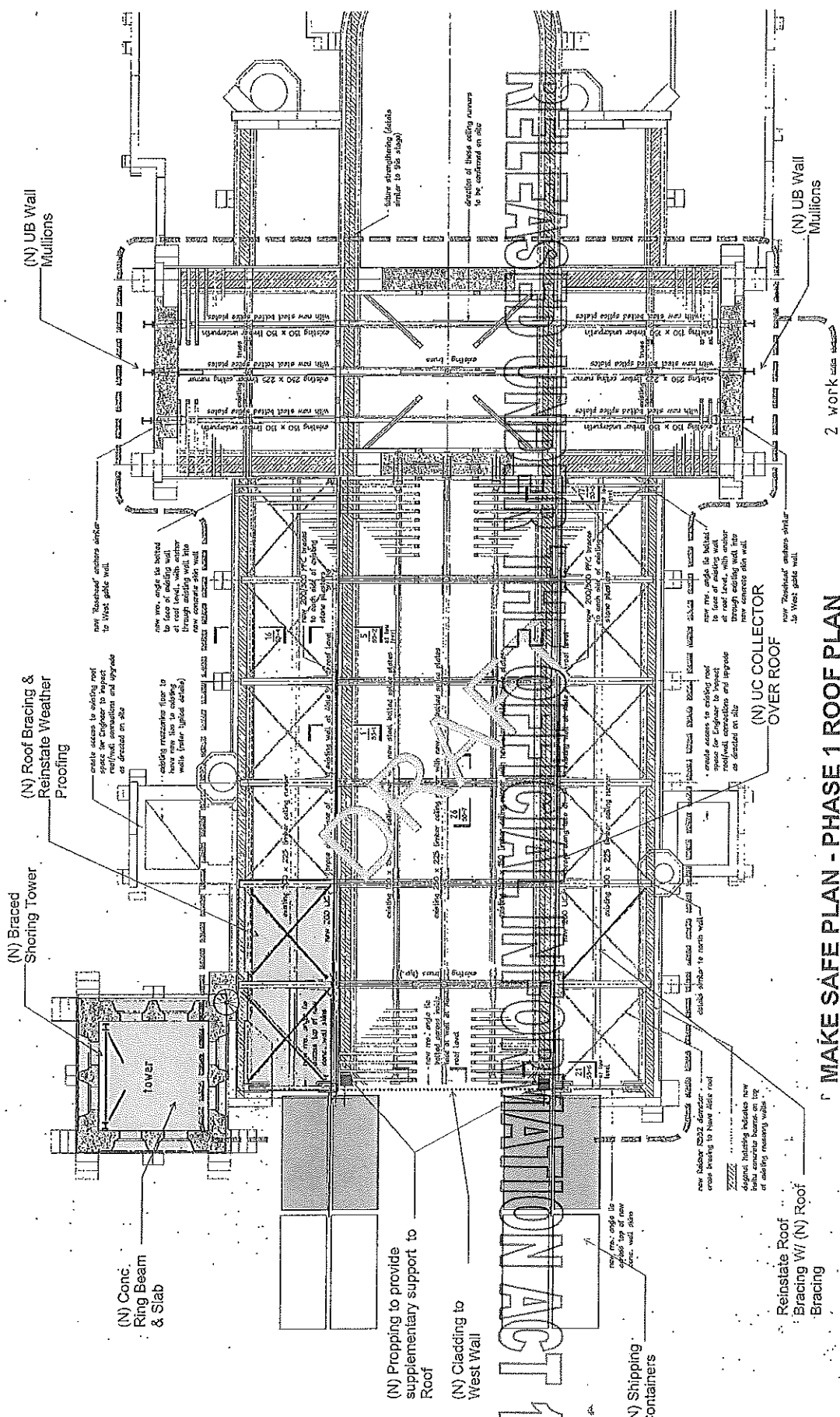
Sheet 97C
 28

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COMMERCIAL IN CONFIDENCE

LEGEND:

- (N) - New
- (E) - Existing



MAKE SAFE PLAN - PHASE 1 ROOF PLAN

2 WORK

Sheet No. 1
roof plan
2948

CHRISTCHURCH CATHEDRAL
STRENGTHENING

Drawn	ES	Scale	1:100
Checked	ES	Project	Christchurch Cathedral
Author	ES	Client	Christchurch Cathedral
Project No.	100338	Revision	1
Date	20/11/2018	Drawn By	ES
Scale	1:100	Checked By	ES
Project Name	Christchurch Cathedral	Author	ES
Client	Christchurch Cathedral	Project No.	100338
Revision	1	Date	20/11/2018
Drawn By	ES	Checked By	ES
Author	ES	Project Name	Christchurch Cathedral

Helmès Consulting Group
STRUCTURAL AND CIVIL ENGINEERS
11 Cambridge Terrace
Christchurch

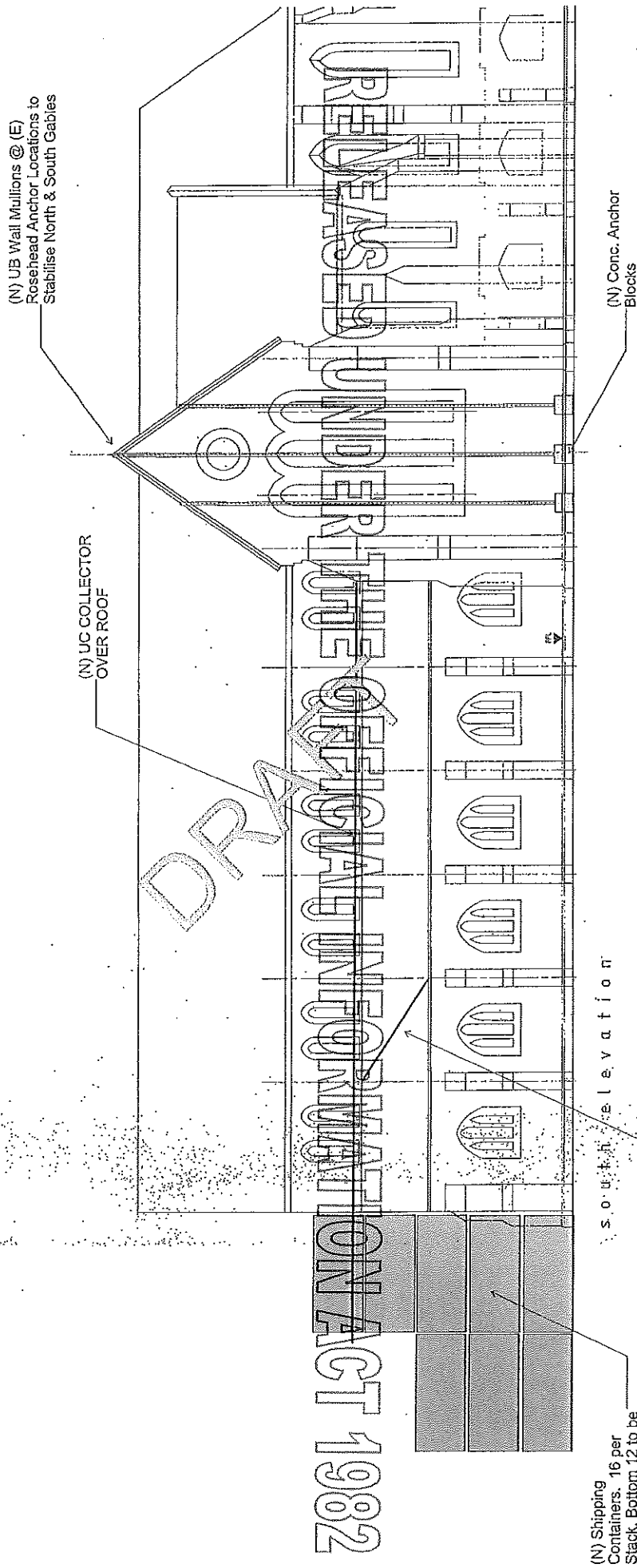


Project Name:	Christchurch Cathedral
Project Number:	100338
Structural No.:	SXO
Date:	04/11/2011
Sheet Number:	024

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LEGEND:

- (N) - New
- (E) - Existing



(N) Shipping Containers, 16 per Stack, Bottom 12 to be filled with Pea Gravel

Reinstate Roof Bracing W/ (N) Roof Bracing

S o u t h E l e v a t i o n



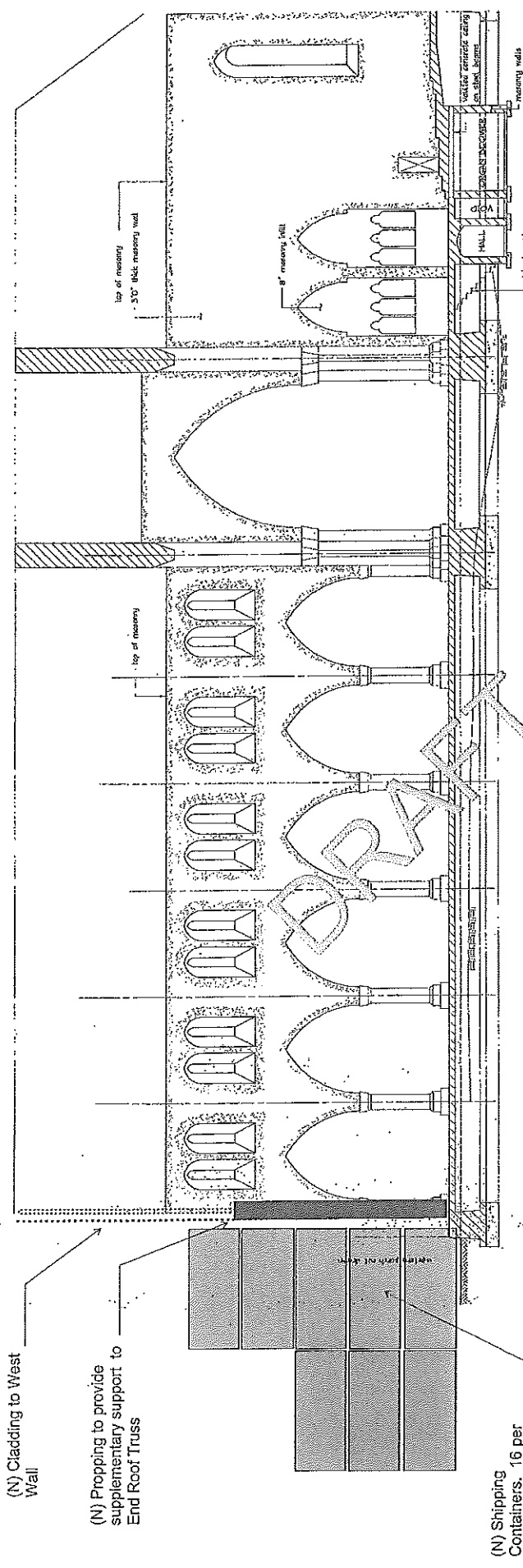
Hillier Consulting Group
1000 ...

Project Name: Chateaufort Cathedral
 Project Number: 106524
 Sketches By: SVO
 Date: 07/12/2011
 Sketch Number: 005

MAKE SAFE PLAN - PHASE 1 SOUTH ELEVATION

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LEGEND:
(N) - New
(E) - Existing




(N) Cladding to West Wall

(N) Propping to provide supplementary support to End Roof Truss

(N) Shipping Containers, 16 per Stack - Bottom 12 to be filled with pea gravel

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MAKE SAFE PLAN - PHASE I LONGITUDINAL SECTION

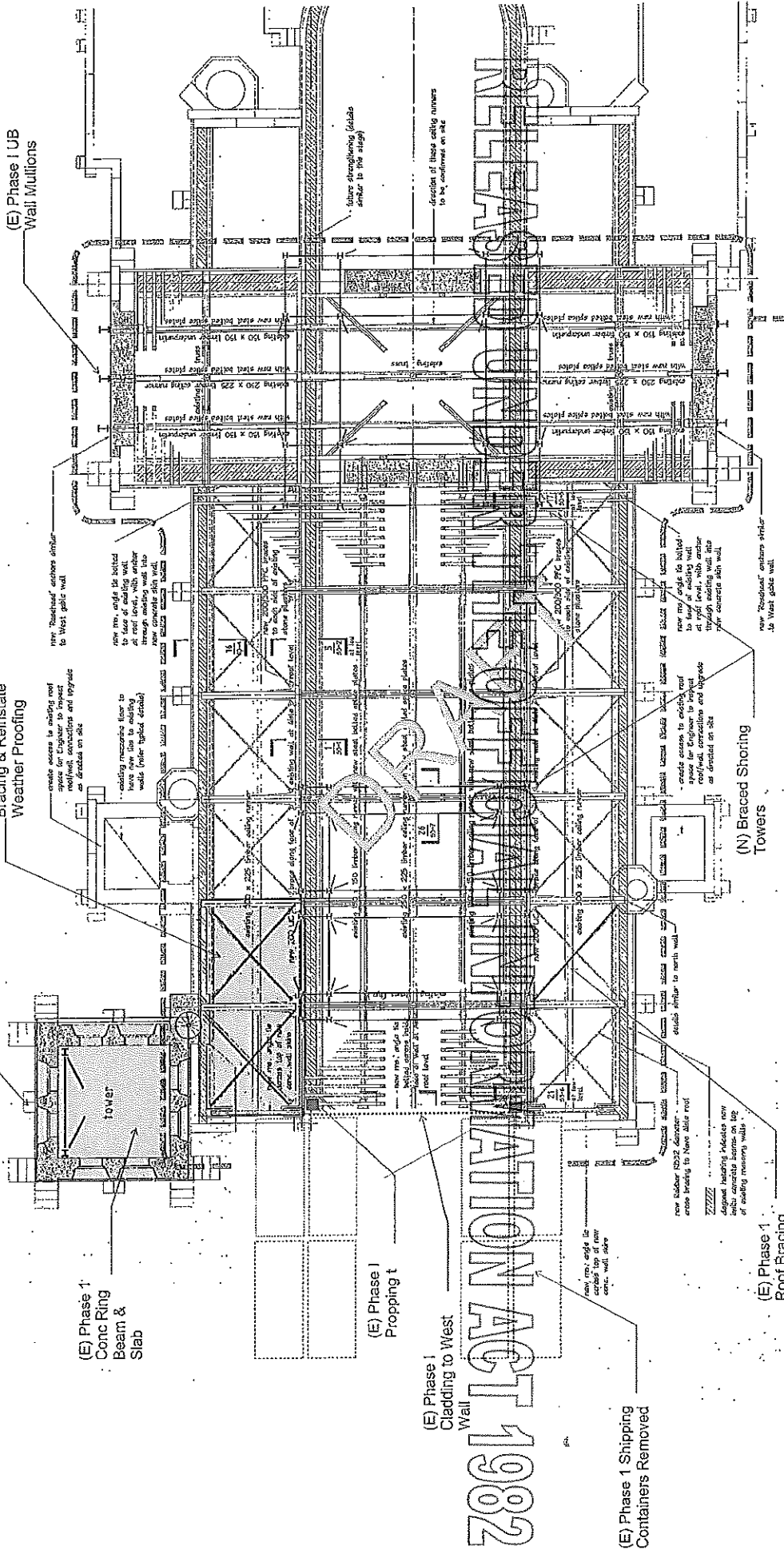

 HLM CONSULTING GROUP
 Project Name: Chittichuratt Colliery
 Project Number: 10624
 Sketches By: SXO
 Date: 07/1/2011
 Sheet Number: 026

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LEGEND:

- (N) - New
- (E) - Existing



MAKE SAFE PLAN - PHASE 2 ROOF PLAN

& 2 WORK

Helmes Consulting Group

Project Name: Christchurch Cathedral
 Project Number: 106524
 Sketches By: SXO
 Date: 04/12/2011
 Sketch Number: 039



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2. All dimensions to be verified on site before making any area drawings or commencing any work.

3. Contractors

Architect

Structural

Client

Contract

Drawings

Revisions

1. The engineer's liability is limited to the work shown on this drawing.

Sheet No: roof plan
 of 2948

CHRISTCHURCH CATHEDRAL
STRENGTHENING

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APPENDIX B
PRELIMINARY HAZARD ANALYSIS





CHRISTCHURCH CATHEDRAL - INTERIM MAKE SAFE WORKS HAZARD ANALYSIS

106324
Christchurch Cathedral
Rev 0.2
SXC

NOTES: Preliminary hazard analysis to be submitted with outline plan of works. Detailed hazard analysis to be provided by the Contractor in next phase.

Task Name	Hazards	Hazard Mitigation Strategy	Notes
6.1 Expose roof bracing connections and install roof level fasteners	High level falling hazards	Removed in Task No. 1.0 above. Operate externally from man cage	
6.2 Install concrete anchor blocks	High level falling hazards	Removed in Task No. 1.0 above	
6.3 Install UB Mullions	High level falling hazards	Removed in Task No. 1.0 above. Operate externally from man cage	
6.4 Fasten to existing wall	High level falling hazards	Removed in Task No. 1.0 above. Operate externally from man cage. Use 'toggle' type connections into the existing wall.	
7.0 Reinstate waterproofing over north west corner	High level falling hazards	Mitigated by work detailed above.	
8.0 Reinstate west wall cladding	High level falling hazards	Mitigated by work detailed above.	Provide opening for future construction access.
PHASE 2 - CONTENTS RETRIEVAL WORKS			
9.0 Install Braced Shoring Towers in West End			
9.1 Install safe havens in north and south isles	High level falling hazards	Largely mitigated by Phase 1 works. Installed using a May also consider trialing Roam3 early warning system which provides uses with a short warning (2 - 5 seconds) for large far field earthquakes (i.e. > 10 km.).	
9.2 Install first row of shoring towers	High level falling hazards	Largely mitigated by Phase 1 works. Prefabricate shoring towers to minimise exposure to falling hazards. Utilise safe havens	
9.3 Install E-W bracing between shoring towers	High level falling hazards	Refer 9.2	
9.4 Install next row of shoring towers	High level falling hazards	Refer 9.2	
9.5 Install E-S & E-W bracing between shoring towers	High level falling hazards	Refer 9.2	
9.6 Install final row of shoring towers	High level falling hazards	Refer 9.2	
9.7 Install E-N-S & E-W bracing between shoring towers	High level falling hazards	Refer 9.2	
9.8 Remove containers	High level falling hazards	Minimised by Phase 1 works and Task 9.0	
10.0 Removal Internal High Level Falling Hazards from West End	High level falling hazards	Minimised by Phase 1 works and Task 9.0	Scope of works to extend from west wall to west transept wall. Will include visual inspection of all internal roof & wall surfaces.
11.0 Install Braced Shoring Towers in Transept			
11.1 Install safe havens in north and south transepts	High level falling hazards	Largely mitigated by Phase 1 works. Installed using a Bobcat.	
11.2 Install first row of shoring towers	High level falling hazards	Largely mitigated by Phase 1 works. Prefabricate shoring towers to minimise exposure to falling hazards. Utilise safe havens.	
11.3 Install E-W bracing between shoring towers	High level falling hazards	Refer 11.2	
11.4 Install final row of shoring towers	High level falling hazards	Refer 11.2	
11.5 Install E-N-S & E-W bracing between shoring towers	High level falling hazards	Refer 11.2	
12.0 Removal Internal High Level Falling Hazards from East End	High level falling hazards	Minimised by Task No. 5.0 and utilise Roam3 early warning system and provide safe havens.	Scope of works to extend from west wall to west transept wall. Will include visual inspection of all internal roof & wall surfaces.

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CHRISTCHURCH CATHEDRAL PROJECT: PRIORITY RETRIEVAL ITEMS, 08-11-11						
Removal Category Definitions:						
1	2	3	4	5		
Items that are easily removed and not in areas considered to be of extreme danger.	Items that do not fall under category 1 that may require some level of construction type work to retrieve and not considered to be in an area of extreme danger	Items covered under Cat 1 & 2 requiring some form of access such as scaffold or scissor lifts and not considered to be in an area of extreme danger	Items considered to be extremely difficult to remove and in areas considered to be of extreme danger	Visitors centre - item's easily removed.		
Item	Location	Zone	Priority	Irreplaceable?	Notes	Removal Category
Carved Oak Altar Table (Dean Harrington)	South Transept	42	1	Irreplaceable	May be Damaged	1
Brass Cross	South Transept	42	1	Irreplaceable	May be Damaged	1
Pacific Chapel Altar	Pacific Chapel (south porch)	44	1	Irreplaceable		1
Carved wooden bowl on altar	Pacific Chapel (south porch)	44	1			1
Votive Candlestand	Nave	36	1	Irreplaceable		1
Carved Reredos	South Transept	42	1	Irreplaceable	May be Damaged	2
Oak Memorial Panels	South Transept	42	1	Irreplaceable	May be Damaged	2
Aumbry	Sanctuary	35	1	Irreplaceable	DOOR RETRIEVED	2
Stone and Wrought Iron Pulpit	Chancel	22	1	Irreplaceable	DURING DECONSTRUCTION?	2
Carved Oak Altar Rail	South Transept	42	1	Irreplaceable	May be Damaged	2
4 Carved Oak Angels	South Transept	42	1	Irreplaceable	May be Damaged	2
Carved Credence Table	South Transept	42	1	Irreplaceable	May be Damaged	2
Carved Face of Christ (From Asia) and Brass Plaque	South Transept	42	1	Irreplaceable	May be Damaged	2
Brass Plaque (listing regimental colours)	South Transept	42	1	Irreplaceable	May be Damaged	2
Brass Plaque (Kuppenburger Memorial)	South Transept	42	1	Irreplaceable	May be Damaged	2
Wooden carved panel	Pacific Chapel (south porch)	44	1	Irreplaceable		2
Columbarium Register & Plaque	Pacific Chapel (south porch)	44	1		Register is not there	2
Oak Eagle Lectern and Podium (Emily Harper)	Nave	32	1	Irreplaceable	Lectern retrieved but not podium	2
Scout Corner Shelf and Cross	Nave	36	1	Irreplaceable		2
6 Oak Archdeacons Stalls	Sanctuary	35	1	Irreplaceable	PART OF REREDOS	2
New Zealand Flag	North Transept	11	1	Irreplaceable	SIR ED HILLARY FLAG	3
Carved Oak Reredos and Panelling	Sanctuary	25/35	1	Irreplaceable	MAY BE DAMAGED	3
Pipe Organ	Chancel	24/14/11	1	Irreplaceable		4
Main Console, Pipe Organ	Chancel	34 upper	1	Irreplaceable		4
Sub Console, Pipe Organ	Nave	41/42	1	Irreplaceable		4
Mosaic Panels on west wall	Nave	17/27 upper	1	Irreplaceable	DURING DECONSTRUCTION?	4
Surveyors marker	West Porch	26 in floor	1	Irreplaceable		4
Font and Font Cover (Stone and Rimu) (Bowl)	Nave	6 bowl in nave somewhere	1	Irreplaceable	Damaged	4
Bishop Harper effigy	North Transept	11	1	Irreplaceable	DURING DECONSTRUCTION?	4
Lew Summers sculpture	Francis Room	1 downstairs	1			5
Pounamu stone from water feature	Nave	37	1	Irreplaceable		4?
6 Large Oak Candlestands	Sanctuary	25/35	2			1
Oak Portable Lectern (in recognition of services of K Elliott)	Sanctuary	25/35	2			1
70 Rimu Chairs	Chancel	23/33/24/34	2			1
34 Candleholders (Choir Stalls) - Brass and Glass Shields	Chancel	23/33	2			1
Nave Altar Table (Nurse Maude) - Tawa and Brass Fittings	Nave	23/33	2			1
Nave Altar Candlestands - Tawa and Brass Fittings	Nave	23/33	2			1
22 Rimu Chairs (upholstered seats)	South Transept	42	2		May be Damaged	1
Wooden stools	Pacific Chapel (south porch)	44	2			1
4 Rimu Frontal Kneelers	Nave	33/23	2			1
4 Rimu and Metal Framed Frontal Kneelers	Nave	?	2			1
306 Rimu Chairs (upholstered seats)	Nave	17-22/27-33	2	Irreplaceable	Were made especially for Cathedral, many with plaques on them from donors	1
Carved Oak Altar Rail (by Tuku Tuku panel)	Nave	9	2	Irreplaceable		1

Item	Location	Zone	Priority	Irreplaceable?	Notes	Removal Category
Pascal Oak Candlestand (E Purchas)	Nave	6	2		destroyed?	1
Oak Long Pew (Emily Mabel West-Watson)	Nave	17	2			1
Rimu Long Pew	Nave	1	2			1
Small Table by Votive Candlestand	Nave	37	2			1
Votive candle donation box		37	2			1
2 Tall Candlesticks	North Porch	7	2			1
Black folding Chairs	North vestry passage	14	2			1
Approx. 300 Files containing Organ Music	Director of Music's Office (Organ Loft)	43 upstairs	2	Irreplaceable	SOME RETRIEVED	1
Oak Free Standing Altar Table	Sanctuary	25/35	2	Irreplaceable		2
Grand Piano & stool	Sanctuary	24	2			2
Altar Rail (Kauri and Wrought Iron)	Sanctuary	25/35	2			2
16 Oak Canons' Stalls	Chancel	24/34	2			2
Kauri and Rimu Choir Stalls	Chancel	23/33	2			2
Oak Commemorative Plaque (Campbell West-Watson)	Chancel	24	2	Irreplaceable		2
Oak Commemorative Plaque (Churchill Julius)	Chancel	34	2	Irreplaceable		2
Organists and Choir Masters Plaque	South Transept	42	2	Irreplaceable		2
A J Scott Memorial Plaque	North Transept	11	2	Irreplaceable		2
Anarctic Explorers Plaque	North Transept	11	2	Irreplaceable		2
C Foster Browne Plaque	North Transept	11	2	Irreplaceable		2
E & J Bradshaw Plaque	North Transept	11	2	Irreplaceable		2
United Nations Plaque	North Transept	11	2	Irreplaceable		2
Salvation Army Plaque	North Transept	11	2	Irreplaceable		2
Canon Almoners Plaque	North Transept	11	2	Irreplaceable		2
Freemasons of Canterbury Plaque	North Transept	11	2	Irreplaceable	Base at Pillar	2
Mosaic Floor Tiles 4 ships	Chancel/Sanctuary	23/33/24/34/25/35	2	Irreplaceable	DURING DECONSTRUCTION?	4
Canterbury Assn plaques	West Porch	16/26	2	Irreplaceable		4
Wooden "Mothers Union" doors	West Porch	16/26	2	Irreplaceable		4
Mosaic panels on walls	North and South Walls	6/7 & 17/27	2		DURING DECONSTRUCTION?	4
Headmaster of Cathedral Grammar Brass Plaque	North and South Walls		2			4
Henry Jacobs Stone Panel	North and South Walls	on walls in nave exact location unknown	2	Irreplaceable	DURING DECONSTRUCTION?	4
Henry William Harper Stone Panel	North and South Walls	on walls in nave exact location unknown	2	Irreplaceable	DURING DECONSTRUCTION?	4
Sister Edith, CSN Stone Panel	North and South Walls	on walls in nave exact location unknown	2	Irreplaceable	DURING DECONSTRUCTION?	4
Charles Walter Carrington Stone Panel	North and South Walls	on walls in nave exact location unknown	2	Irreplaceable	DURING DECONSTRUCTION?	4
Alwyn Keith Warren Stone Panel	North and South Walls	on walls in nave exact location unknown	2	Irreplaceable	DURING DECONSTRUCTION?	4
Alfred Walter Averill Stone Panel	North and South Walls	on walls in nave exact location unknown	2	Irreplaceable	DURING DECONSTRUCTION?	4
List of Deans of Christchurch Stone Panel	North and South Walls	10	2	Irreplaceable	DURING DECONSTRUCTION?	4
Organ Blower	Organ Blower Room	under 24/34	2			4
External doors	doorways		2		DURING DECONSTR	4
Old wooden altar	VC Shop	4	2			5
Wooden pew (2)	VC Shop	4	2			5
Tuku Tuku Panel & Carved Board (Alan Pyatt Memorial)	Nave	9 wall	2	Irreplaceable	Panels retrieved but not carved board	??
Stone High Altar Table	Sanctuary	25/35	2	Irreplaceable	BROKEN - INSURANCE?	3?
2 Oak Prayer Desks	Sanctuary	25/35	3	Irreplaceable		1
Prayer Desk (Oak)	Sanctuary	25/35	3	Irreplaceable		1
Small Oak Side Table (Lee Family)	Sanctuary	25/35	3			1
4 Rimu Choir Stall Benches	Chancel	23/33	3			1
3 Kauri Stools	Chancel	23/33	3			1
Oak Credence Table (Lee Family)	Chancel	23/33	3			1
Oak Vergers Stall	Chancel	23/33	3	Irreplaceable		1
4 Rimu Barrier Stands with Rope	Chancel	23/33	3			1
2 Flower Vases	South Transept		3		May be Damaged	1
2 Small Stools (Oak and Rimu)	South Transept		3		May be Damaged	1
8 Low Rimu Benches (upholstered seats)	Nave	Were at back of nave - goodness knows where now	3			1
3 Rimu Donation Boxes	Nave	Were at back of nave - goodness knows where now	3		DAMAGED?	1

Item	Location	Zone	Priority	Irreplaceable?	Notes	Removal Category
Large Oak Table (Visitors Book etc)	Nave	Were at back of nave - goodness knows where now	3		Damaged	1
2 Small Oak Tables (Leo family)	Nave	Were at back of nave - goodness knows where now	3		Damaged	1
Sign Board (Service in Progress)	Nave	Were at back of nave - goodness knows where now	3			1
10 Pictures	Tunnel	under 24/34	3			1
2 Flag Stands	Organ Blower Room	under 24/34	3			1
Flags of the Commonwealth	Organ Blower Room	under 24/34	3			1
Approx. 500 s/h Roofing Slates	Organ Blower Room	under 24/34	3			1
Sundry Timber, including Easter Cross	Organ Blower Room	under 24/34	3			1
1 Framed Picture of Canterbury Cathedral	Director of Music's Office (Organ Loft)	43 upstairs	3			1
Richard May Morten Memorial Plaque	South Transept	42	3	Irreplaceable		2
Scout Promise Plaque	South Transept	42	3	Irreplaceable		2
James Strachan Memorial Plaque	South Transept	42	3	Irreplaceable		2
Boys Brigade Plaque	South Transept	42	3	Irreplaceable		2
Commemoration of Erection of Choir Vestries Plaque	South Transept	42	3	Irreplaceable		2
Guides Promise Plaque	South Transept	42	3	Irreplaceable		2
Service Sign Board	South Transept	42	3		May be Damaged	2
John Cracroft Wilson Brass Plaque	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
Scouts, Guides & Boys Brigade Brass Plaque	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
AAW Banner Brass Plaque	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
Ex Waaf Assn Brass Plaque (with accompanying tapestry)	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
Underhill Room Brass Plaque	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
Crosdale Bowen Brass Plaque	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
James Collins Brass Plaque	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
Charles Edmund Beaven-Brown Brass Plaque	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
Walter Dunkley Brass Plaque	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
Henry Slater Brass Plaque	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
George James Dennistoun Brass Plaque	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
Charles Pitt Cholmondeley Brass Plaque	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
1st NZ Rough Riders Brass Plaque	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
Thomas William Maude Brass Plaque	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
Frederick Woollaston Hutton Brass Plaque	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
Henry James Ainger Brass Plaque	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
George James Cholmondeley Brass Plaque	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		2
Prayer Board	Nave	10/11	3			2
7 Large Wooden Music Cupboards	Director of Music's Office (Organ Loft)	43 upstairs	3			2
Signboard for Scott Memorial Window	North Transept	11	3	Irreplaceable		3
Churchill Julius Vestries Plaque	North Transept	11	3	Irreplaceable		4
Oak Sliding Screen (ex Rood Screen)	South Transept	42	3		May be Damaged	4
Charles Alabaster Stone Panel	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		4
James Irving Stone Panel	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		4
Joseph Martin Heywood Stone Panel	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		4
Frances Knowles Stone Panel	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		4
Charles Henry Herbert Cook Stone Panel	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		4
Henry Thomas Purchas Stone Panel	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable		4
Herbert Maurice Cocks Stone Panel	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable	DURING DECONSTRUCTION?	4
William Charles Bean Stone Panel	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable	DURING DECONSTRUCTION?	4

Item	Location	Zone	Priority	Irreplaceable?	Notes	Removal Category
George Hampton Rhodes Stone Panel	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable	DURING DECONSTRUCTION?	4
Sophia Circuit and Robert Heaton Rhodes Stone Panel	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable	DURING DECONSTRUCTION?	4
Frederick George Butler Stone Panel	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable	DURING DECONSTRUCTION?	4
John de Burgh Galway Stone Panel	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable	DURING DECONSTRUCTION?	4
Henry Douglas Andrews Stone Panel	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable	DURING DECONSTRUCTION?	4
William and Elizabeth Mary Rolleston Stone Panel	North and South Walls	on walls in nave exact location unknown	3	Irreplaceable	DURING DECONSTRUCTION?	4
Main Speaker Panel (Sam and Sybil Woods Marshall)	Nave		3			4
Illuminated stands (3)	VC Shop	4/1	3			5
Display stands (approx 8)	VC Shop	4/1	3			5
Shop cupboard units (tall, 6 approx)	VC Shop	4/1	3			5
Shop counter	VC Shop	4/1	3			5
Storage units behind counter (4 approx)	VC Shop	4/1	3			5
Computer printer	VC Shop	4/1	3			5
Computers & Till on counter	VC Shop	4/1	3		RETRIEVED	5
Computer	VC Downstairs	1 downstairs	3			5
Refractable barrier	VC Shop	1	3			5
Tables (25 approx)	VC, VC Downstairs, Café	1 downstairs	3			5
Chairs (100 approx)	VC, VC Downstairs, Café	1 downstairs	3			5
TV, DVD player, Stereo	VC Shop	4	3			5
Café furnishings	Café	1	3		See separate list	5
Catering Cupboards	VC Downstairs	1 downstairs	3			5
23 doz glasses	VC Downstairs	1 downstairs	3			5
coffee mugs	VC Downstairs	1 downstairs	3			5
Plates, saucers	VC Downstairs	1 downstairs	3			5
Bottles of wine	VC Downstairs	1 downstairs	3			5
Board tables (6)	Francis Room	1 downstairs	3			5
Board Chairs (12)	Francis Room	1 downstairs	3			5
Plastic Chairs (20)	Francis Room	1 downstairs	3			5
Computer and manuals for stock system and label printer	Stock room	1 downstairs	3		Probably water damaged	5
Shelving	Stock room	1 downstairs	3		Probably water damaged	5
Trolley	Stock room	1 downstairs	3		Probably water damaged	5
Tables	Stock room	1 downstairs	3		Probably water damaged	5
Display materials / stands	Stock room	1 downstairs	3		Probably water damaged	5
Sofa	Volunteers Room	1 downstairs	3		Probably water damaged	5
3 Rimu Sign Stands	Nave	Were at back of nave - goodness knows where now	3			
Sound and Light system desk and mixers	Nave	27	4	Non Urgent	May have been destroyed by falling rose window	1
Boxes of Floor Tiles	Organ Blower Room	under 24/34	4	Irreplaceable	non urgent	1
Wrought Iron Gates (ex Chancel)	Organ Blower Room	under 24/34	4	Irreplaceable	non urgent	1
6 Sign Boards (metal frames with plastic inserts)	Nave	Were at back of nave - goodness knows where now	4			1
Metal and Rimu Pamphlet Stand	Nave	Were at back of nave - goodness knows where now	4		Damaged	1
2 Electric Heaters (wall mounted)	South Transept	42	4		May be Damaged	2
Visitor Counter system	West Porch & VC	17/1	4		May have been destroyed by falling rose window	2
Cupboard for Altar Frontals	North Transept	11	4			2
Air Curtain (above main doors)	Nave	17/27	4		May have been destroyed by falling rose window	3
Lights	Nave beams		4			3
Lighting dimmers	North vestry passage	14	4		Some retrieved	3
Sound system amplifiers	North vestry passage	14	4			3
Cultural Precinct stand	West Porch	16/26	4			4
Visitor Info signs	West Porch	16/26	4			4
Wizard's ladder	West Porch	16/26	4			4
Audio visual screen	Francis Room	1 downstairs	4		non urgent	5
Slide projectors (6) & Slides	Store room adjacent Francis Room	1 downstairs	4		non urgent	5
4 Altar Frontal Covers - Chapel Altar	North Transept	43 in cupboard	4	Irreplaceable	Already retrieved - non urgent	??
Organ closed circuit TV system - two cameras one monitor	Director of Music's Office (Organ Loft)	43 upstairs	4		Insurance	
N Z Prayer Books (approx. 20)	South Transept		8		May be Damaged	

Item	Location	Zone	Priority	Irreplaceable?	Notes	Removal Category
Dossal (Embroiderers Guild)	North Transept (Frontal Cabinet)				RETRIEVED	
Choral Groups Organ (Diana Lady Isaac)	Chancel				RETRIEVED	
Sea Scouts Flag	South Transept				RETRIEVED	
Air Cadets Flag	South Transept				RETRIEVED	
Girl Guides Flag	South Transept				RETRIEVED	
Boy Scouts Flag	South Transept				RETRIEVED	
St John Flag	South Transept				RETRIEVED	
Girls Brigade Flag	South Transept				RETRIEVED	
Boys Brigade Flag	South Transept				RETRIEVED	
Rhodes Family Flag	South Transept				RETRIEVED	
South African Veterans Flag	South Transept				RETRIEVED	
Old Contemplibles Flag	South Transept				RETRIEVED	
Boys Brigade, Canterbury Battalion Flag	South Transept				RETRIEVED	
Cenotaph Flag & Baden Powell Plaque	South Transept				RETRIEVED	
American Air Force, 18th Division Flag	North Transept				RETRIEVED	
Stars and Stripes	North Transept				RETRIEVED	
Anglican Church Flag	North Transept				RETRIEVED	
Blue Ensign ex Charlotte Jane	North Transept				RETRIEVED	
Australian Flag	North Transept				RETRIEVED	
Canadian Flag	North Transept				RETRIEVED	
United Nations Flag	North Transept				RETRIEVED	
Salvation Army Flag	North Transept				RETRIEVED	
White Ensign	North Transept				RETRIEVED	
9 Regimental Colours	South Transept				RETRIEVED	
War Grave Cross from Flanders	South Transept				RETRIEVED	
Carved stone head	Pacific Chapel (south porch)				RETRIEVED	
Oak Display Cabinet and Contents	Nave				Destroyed	
Water Feature pot	Nave				Destroyed	
AAW Banner	Nave				RETRIEVED	
Contents of Cupboard for Altar Frontals	North Transept				RETRIEVED	
10 Altar Frontal Covers and Banners - High and Nave Altars	North Transept				RETRIEVED	
Closed Circuit TV system - 3 cameras one monitor	Tower				Destroyed	
TV monitor and DVD system	Tower				Destroyed	
Music	Old Choir Practice Room				See separate List - destroyed	
Tower Historic Display	Tower				See separate List - destroyed	
Shop stock	Stock room & VC Shop	1 downstairs	nil		Insurer may want this - separate claim lodged	
Girls Nautical Training Corps Flag	South Transept	42	PLAQUE 3		FLAG RETRIEVED	
Stained Glass windows					DURING DECONSTRUCTION	
Roof slates and timbers					DURING DECONSTRUCTION	
Carved stone					DURING DECONSTRUCTION	

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ID	Task Name	Start	End	Phase	Notes
1	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
2	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
3	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
4	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
5	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
6	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
7	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
8	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
9	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
10	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
11	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
12	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
13	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
14	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
15	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
16	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
17	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
18	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
19	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
20	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
21	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
22	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
23	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
24	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
25	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
26	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
27	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
28	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
29	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
30	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
31	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
32	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
33	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
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37	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
38	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
39	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
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41	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
42	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
43	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
44	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
45	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
46	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
47	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
48	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
49	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	
50	CONDUCT PRELIMINARY INVESTIGATION	15/01/2010	15/01/2010	PRELIMINARY	

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CHRIST CHURCH CATHEDRAL
PHASE 1 SECURING WORKS

Information Issue 12 12 11

HclmesConsultingGroup



STRUCTURAL AND CIVIL ENGINEERS



Sketch Title: Tower Capping Slab

Project Name: Christchurch Cathedral

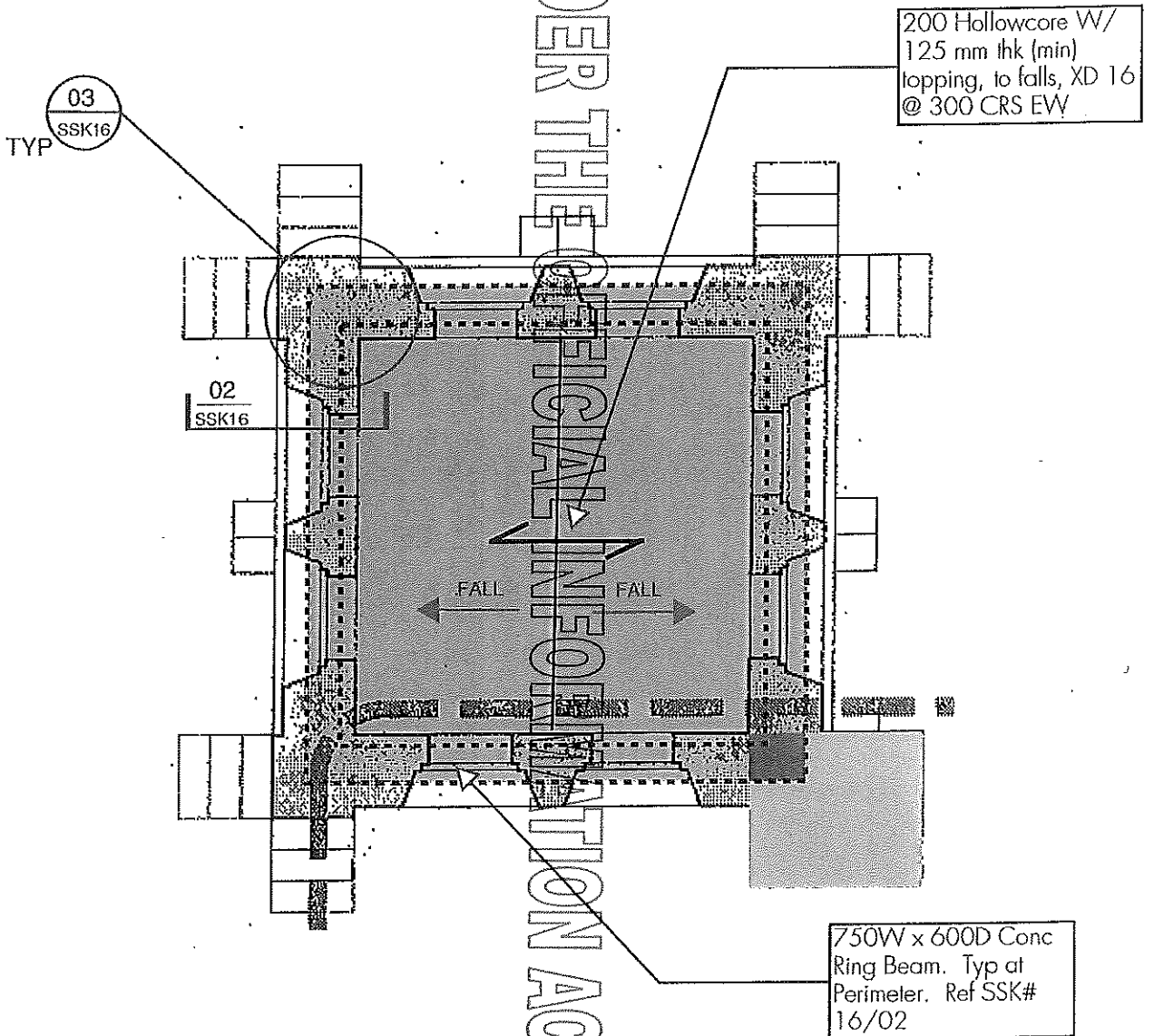
Project No: 106324

Sketch No: 16/01

Date: 01/12/2011

Rev: 01

SKETCH



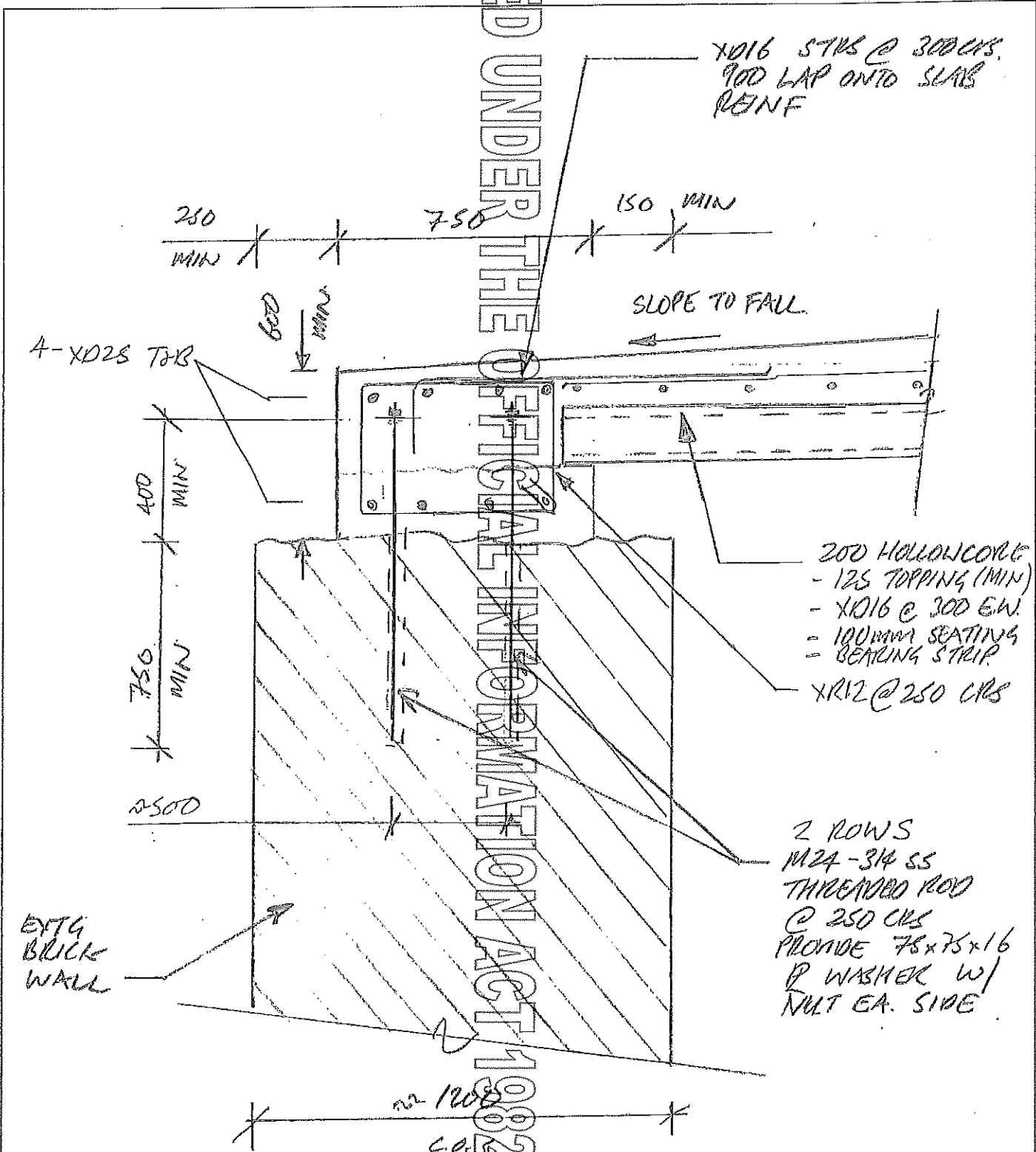
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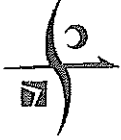
Project Name: *Waste Transfer Station*
 Project No: *10638*
 Calcs By: *SAD*
 Date: *30/11/11*
 Sketch No: *16/02*

Page No:

Revision: *1*



- NOTES:
1. MIN CONCR STRENGTH = 25 MPa
 2. PROVIDE MIN 35MM COVER



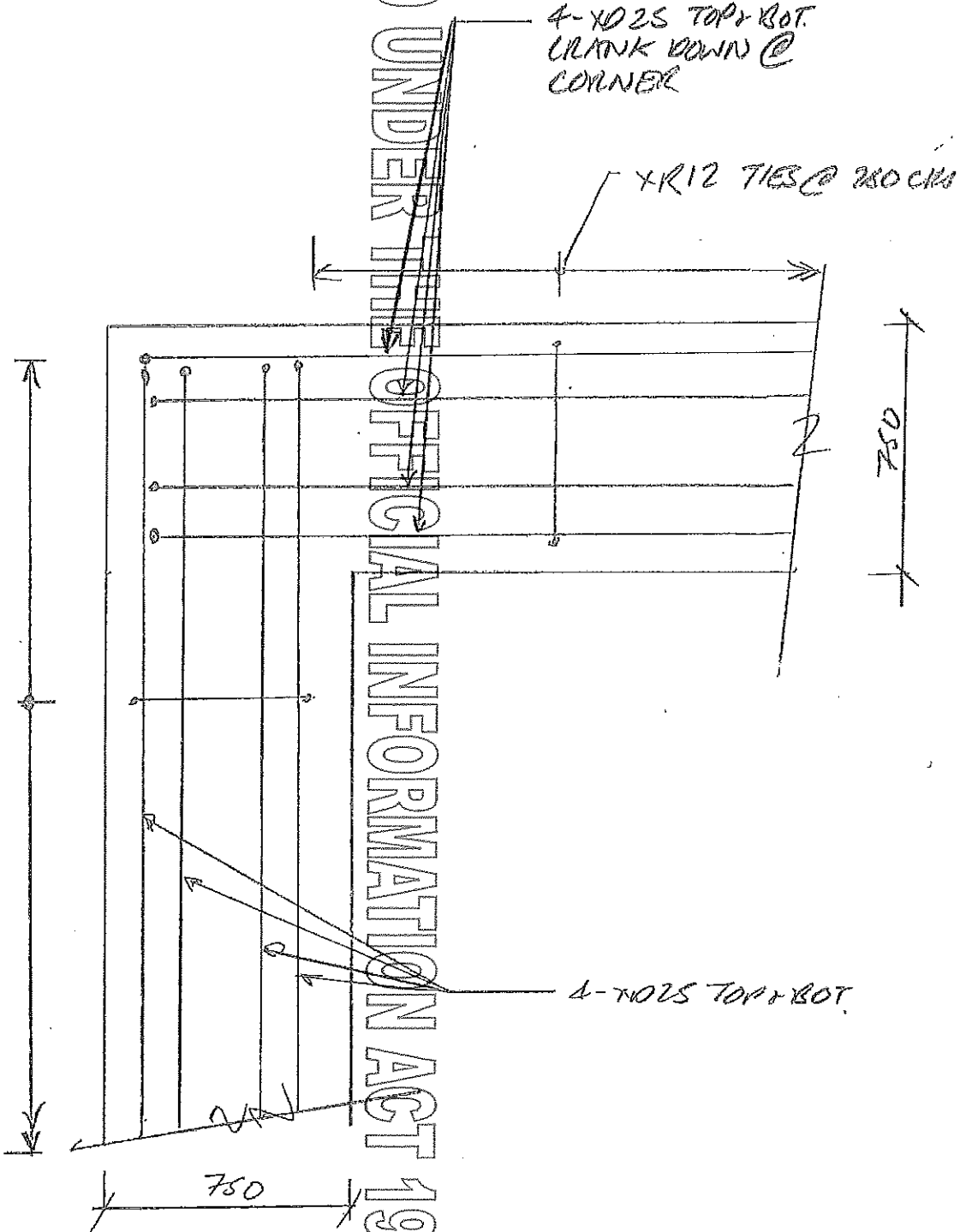
Project Name: *Christchurch CalMedial*
Project No: *108324*
Calcs By: *SFO*
Date: *1/12/11*
Sketch No: *16/03*

CALCS/SKETCHES

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Sketch Title: Tower Deconstruction - Top

Project Name: Christchurch Cathedral

Project No: 106324

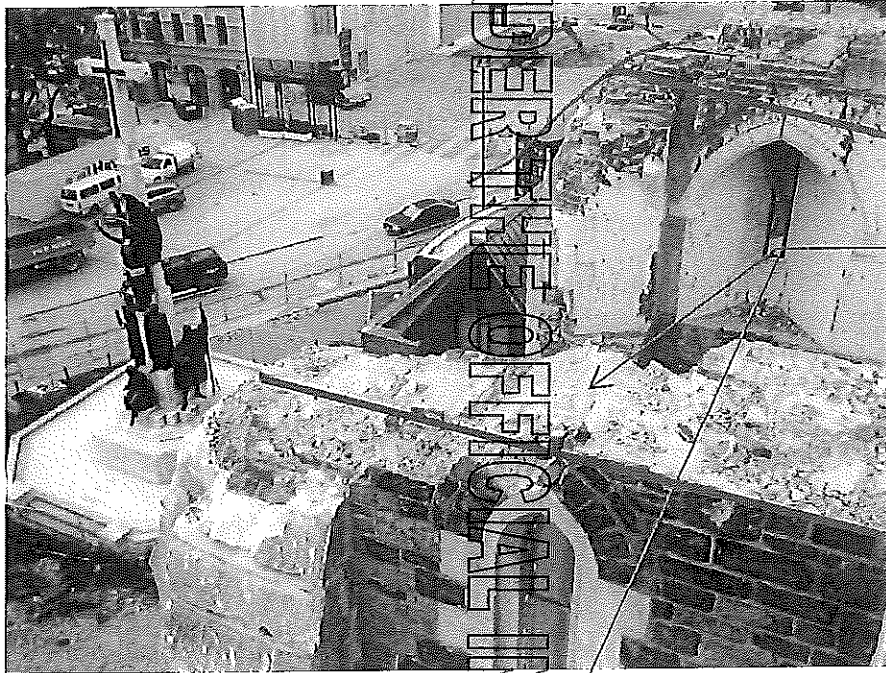
Sketch No: 16/04

Date: 01/12/2011

Rev: 01

SKETCH

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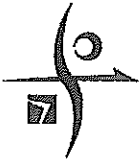


Demolish down to top of brick arches over windows



Notes:

1. Deconstruction walls down to level shown and remove all loose debris.



Sketch Title: Tower Deconstruction

Project Name: Christchurch Cathedral

Project No: 106324

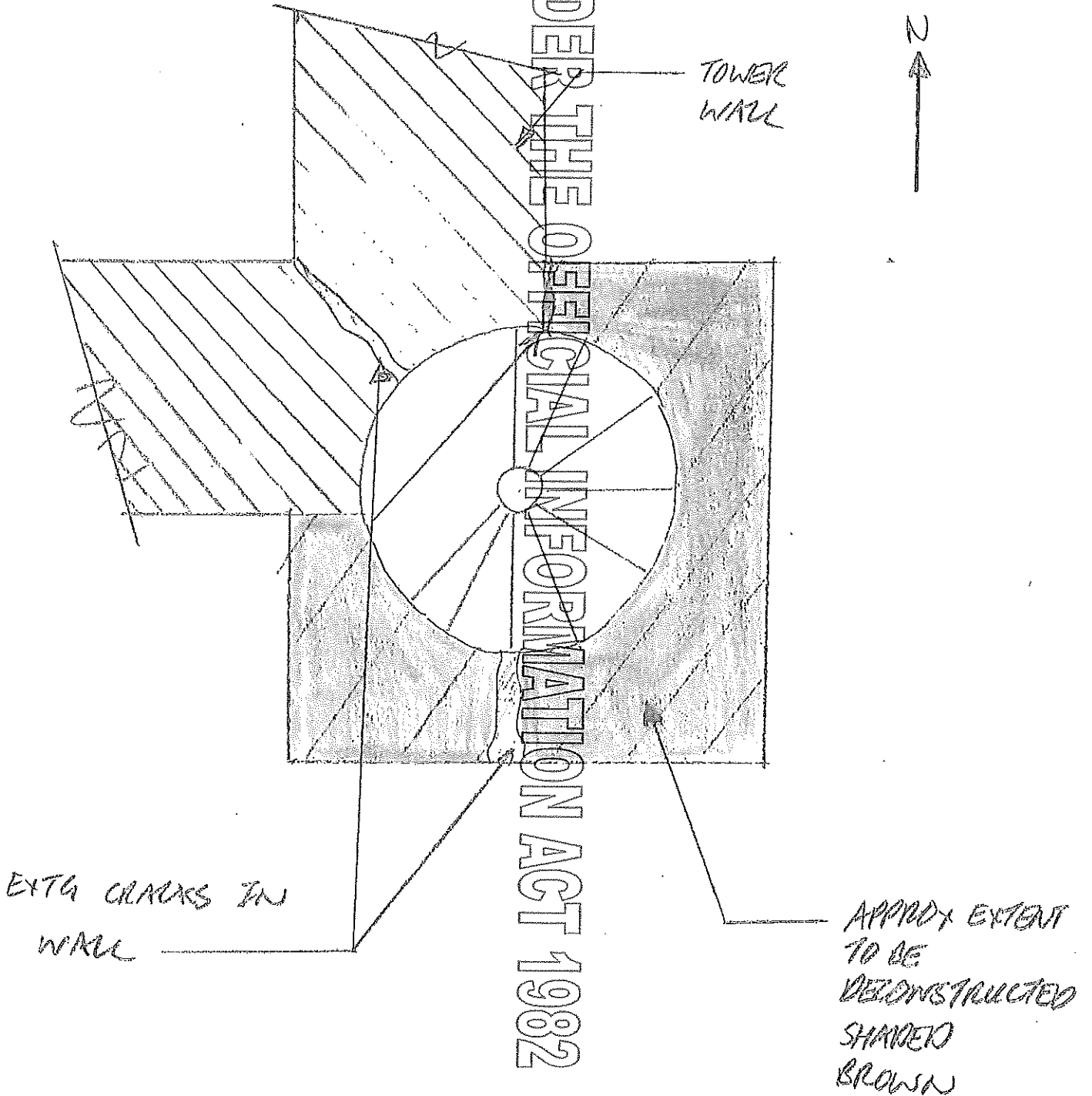
Sketch No: 16/05

Date: 01/12/2011

Rev: 01

SKETCH

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Sketch Title: Tower Deconstruction

Project Name: Chriscchurch Cathedral

Project No: 106324

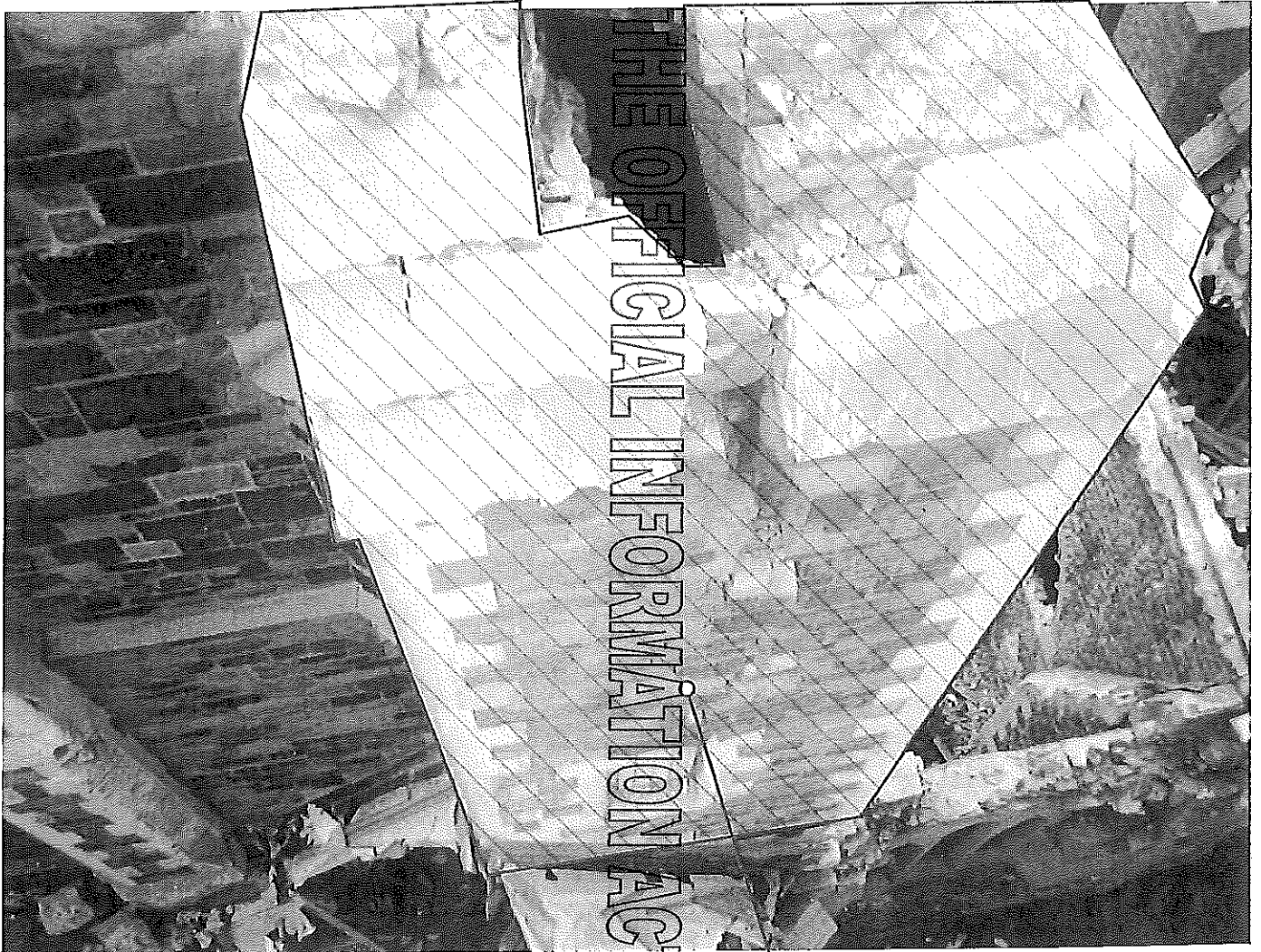
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Date: 01/12/2011

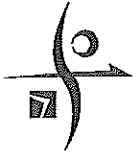
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Approx. Extent of
Deconstruction.
C.O.S. W/ HCG



Sketch Title: Container Capping Frame

Project Name: Christchurch Cathedral

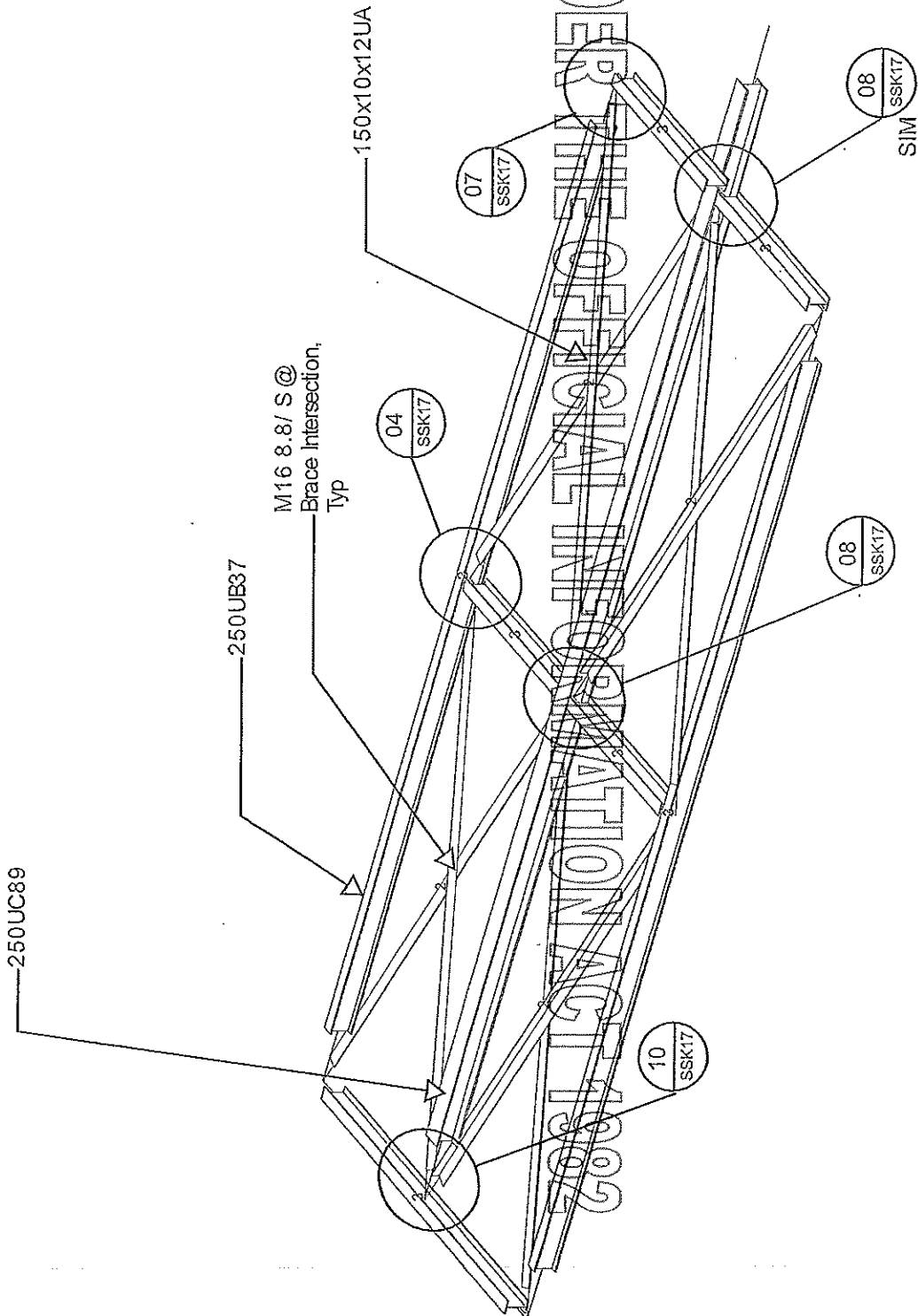
Project No: 106324

Sketch No: 17/ 01

Date: 01/ 12/ 2011

Rev: 01

SKETCH

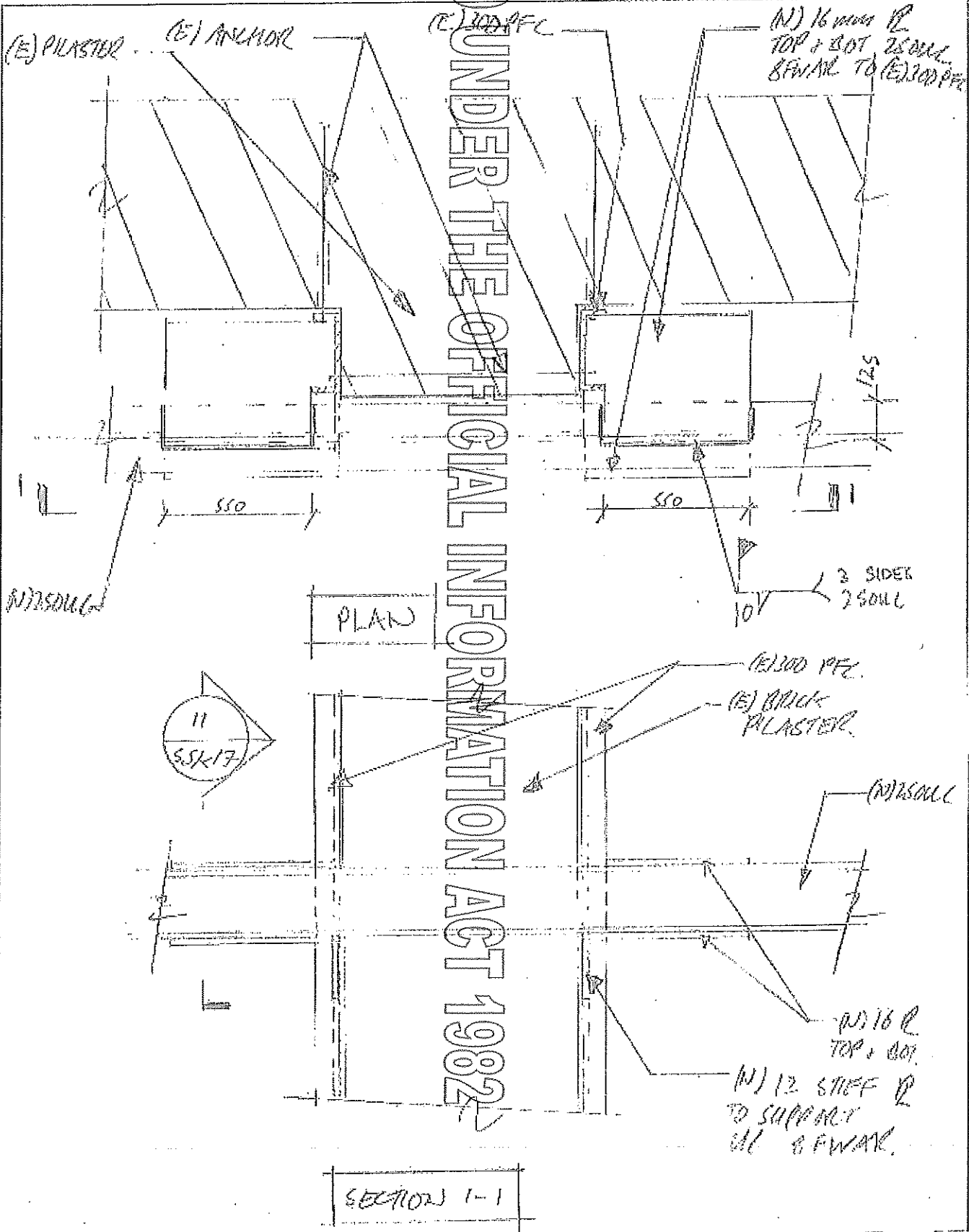




Project Name: *CHRISTOPHER CATHEDRAL*
 Project No.: *10082*
 Color 2:
 Date: *8/12/11*
 Sketch No.: *17/02*

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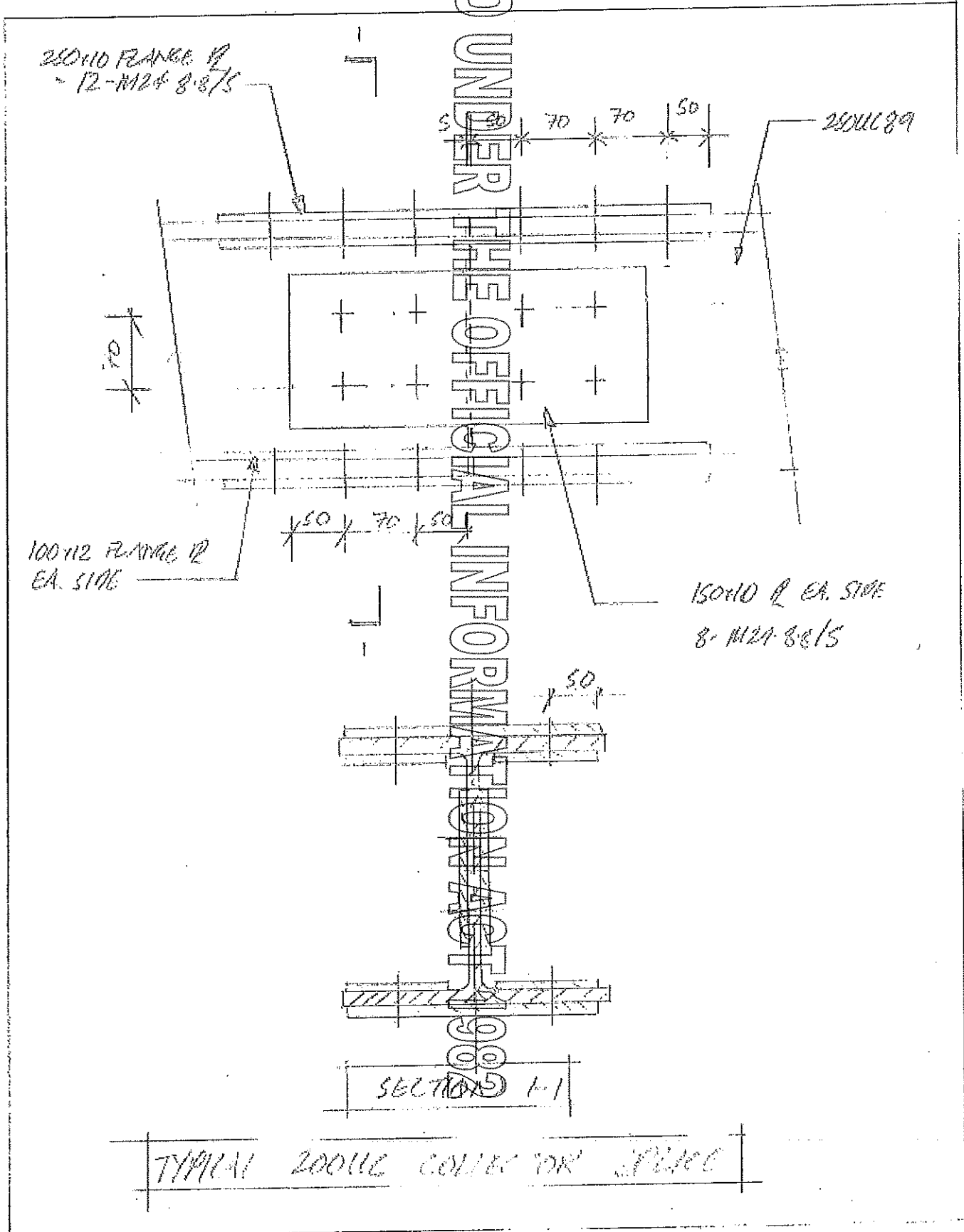
Project Name: *Christ Church Cathedral*
Project No.: *106324*
Client By:
Date: *2/12/11*
Sketch No.: *17/03*

Christ Church Cathedral

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Project Name: *Chastok... Caldera*
Project No: *10632*
Case By:
Date: *2/17/11*
Sheet No: *17/04*

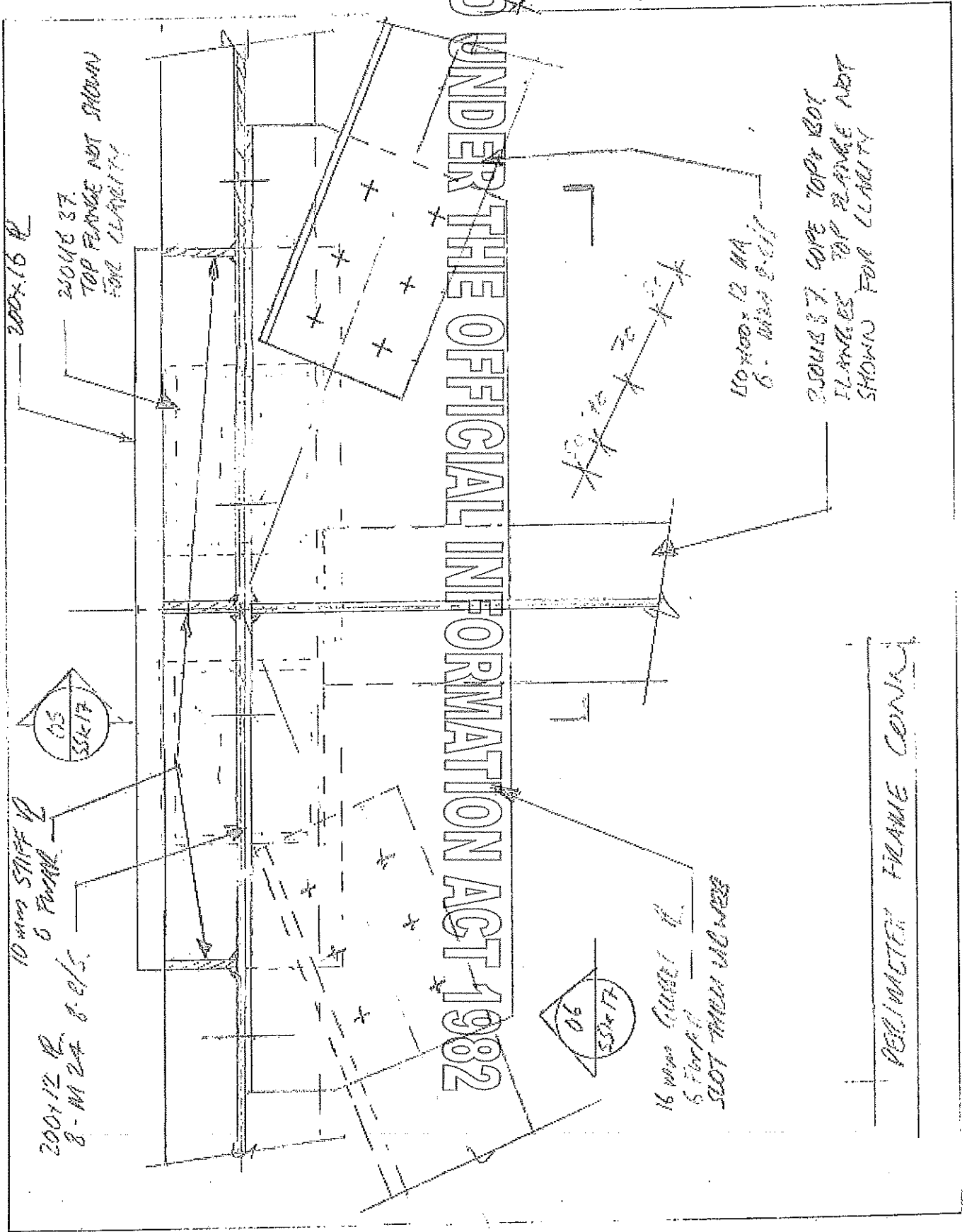
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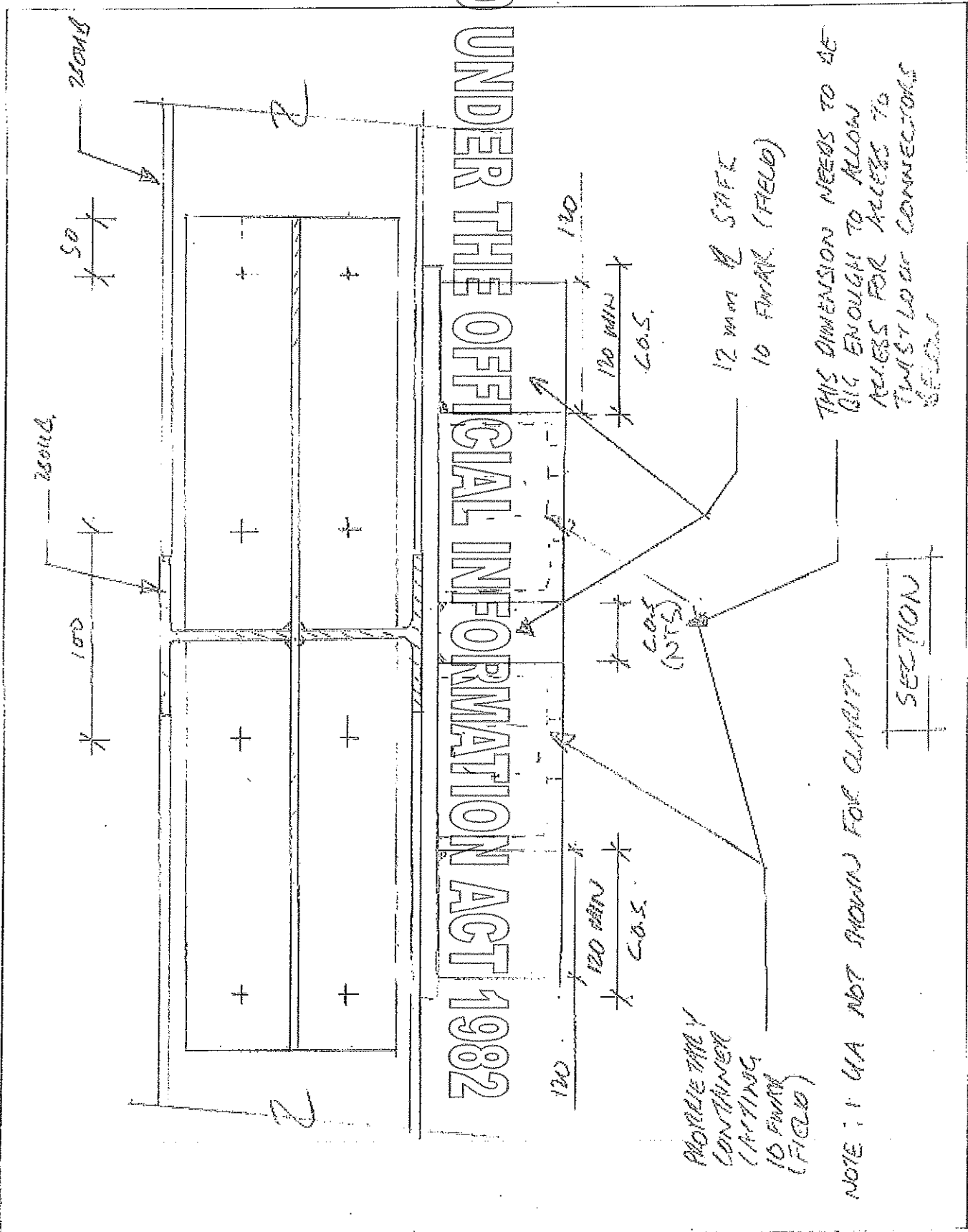
Project Name: *Christchurch Cathedral*
Project No: *105324*
Drawn By:
Date: *2/12/11*
Scale No: *17/08*

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NOTE: Y GA NOT SHOWN FOR CLARITY



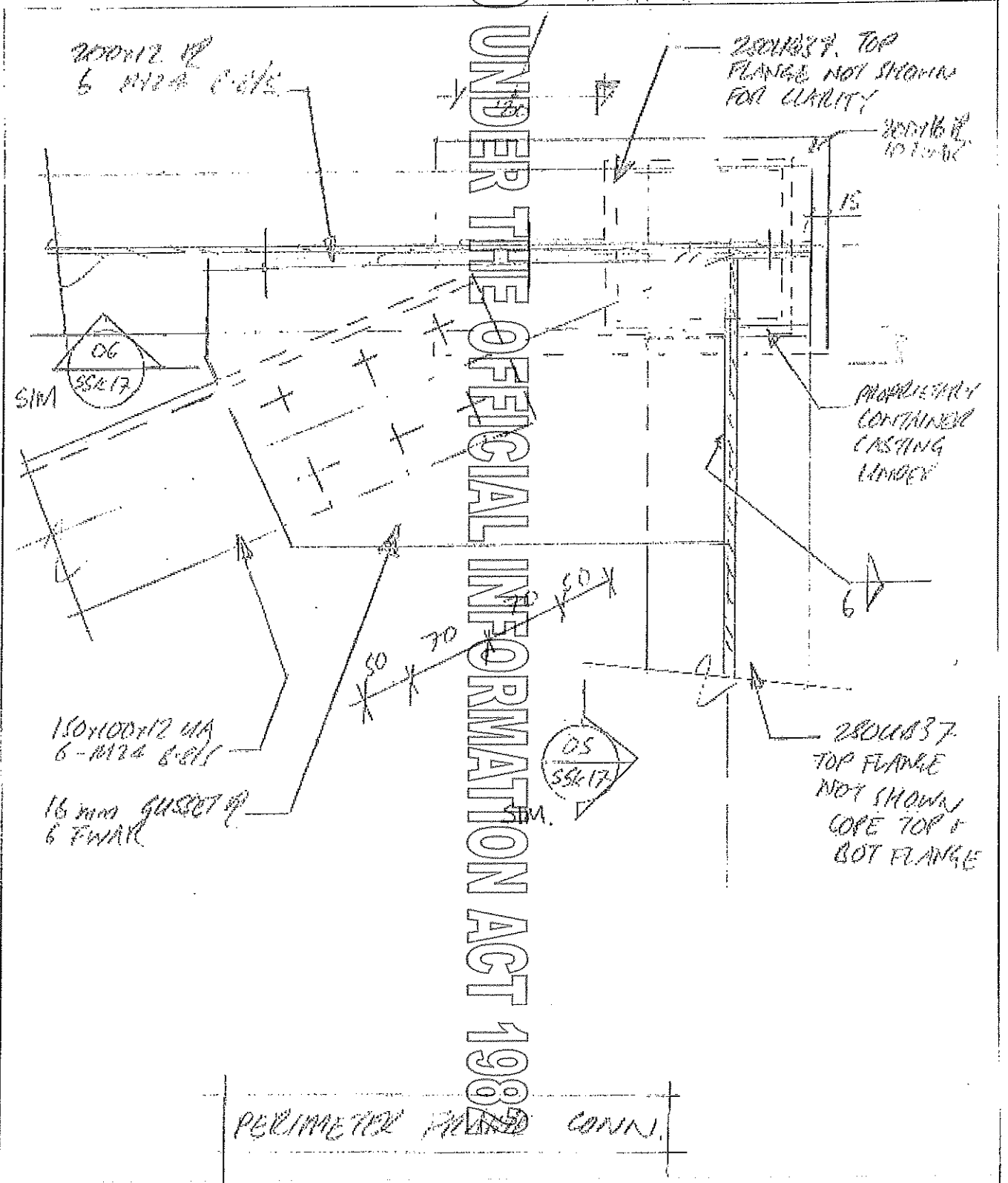
Project Name: *Christie Property 'Columbia'*
Project No: *106324*
Codes Bk:
Date: *2/12/11*
Sketch for: *17/07*

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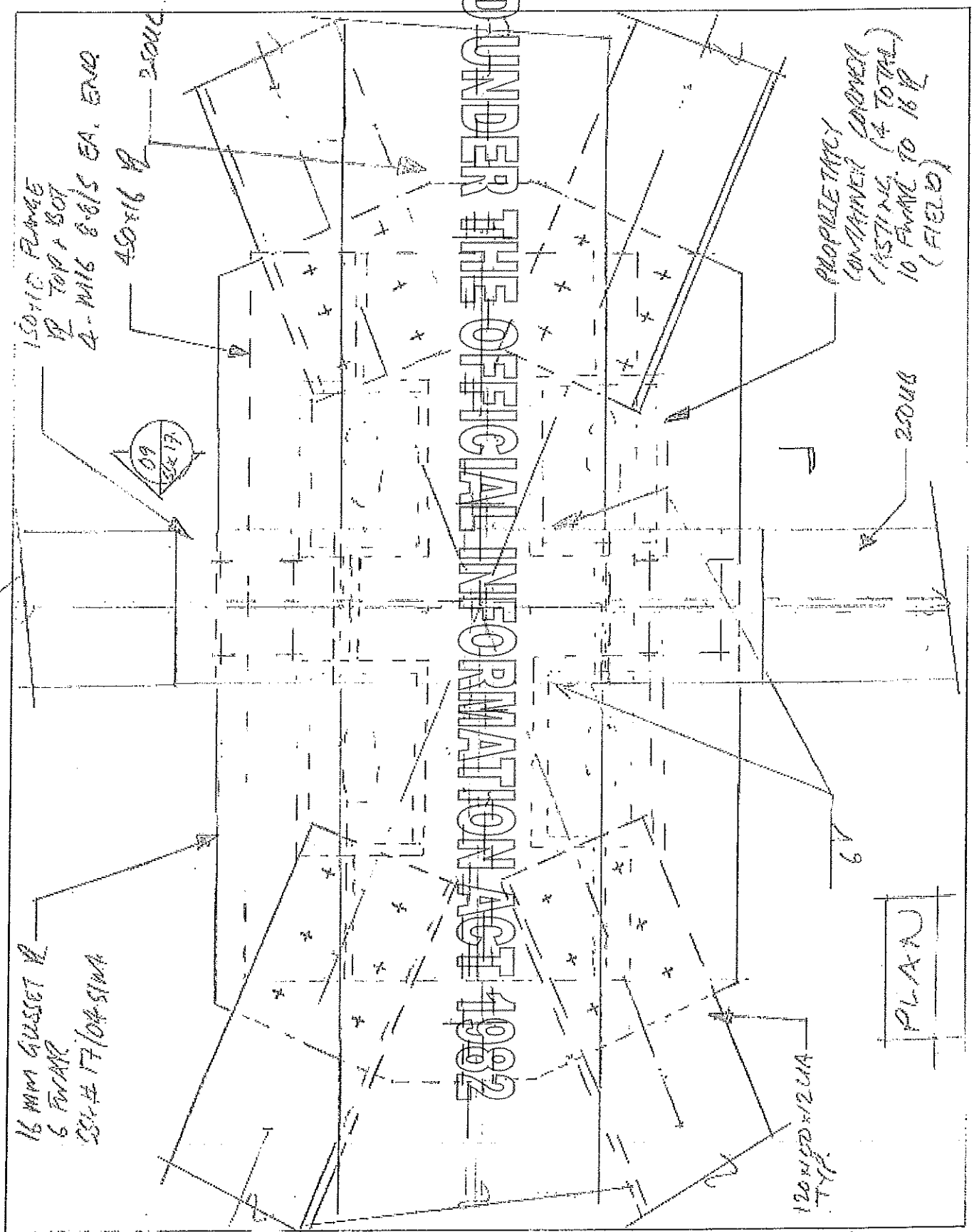
Project Name: *Unsubstantiated Cathartes*
Project No: *10832.0*
Cales E_r
Date: *2/12/11*
Sketch No: *17/08*

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PLAN

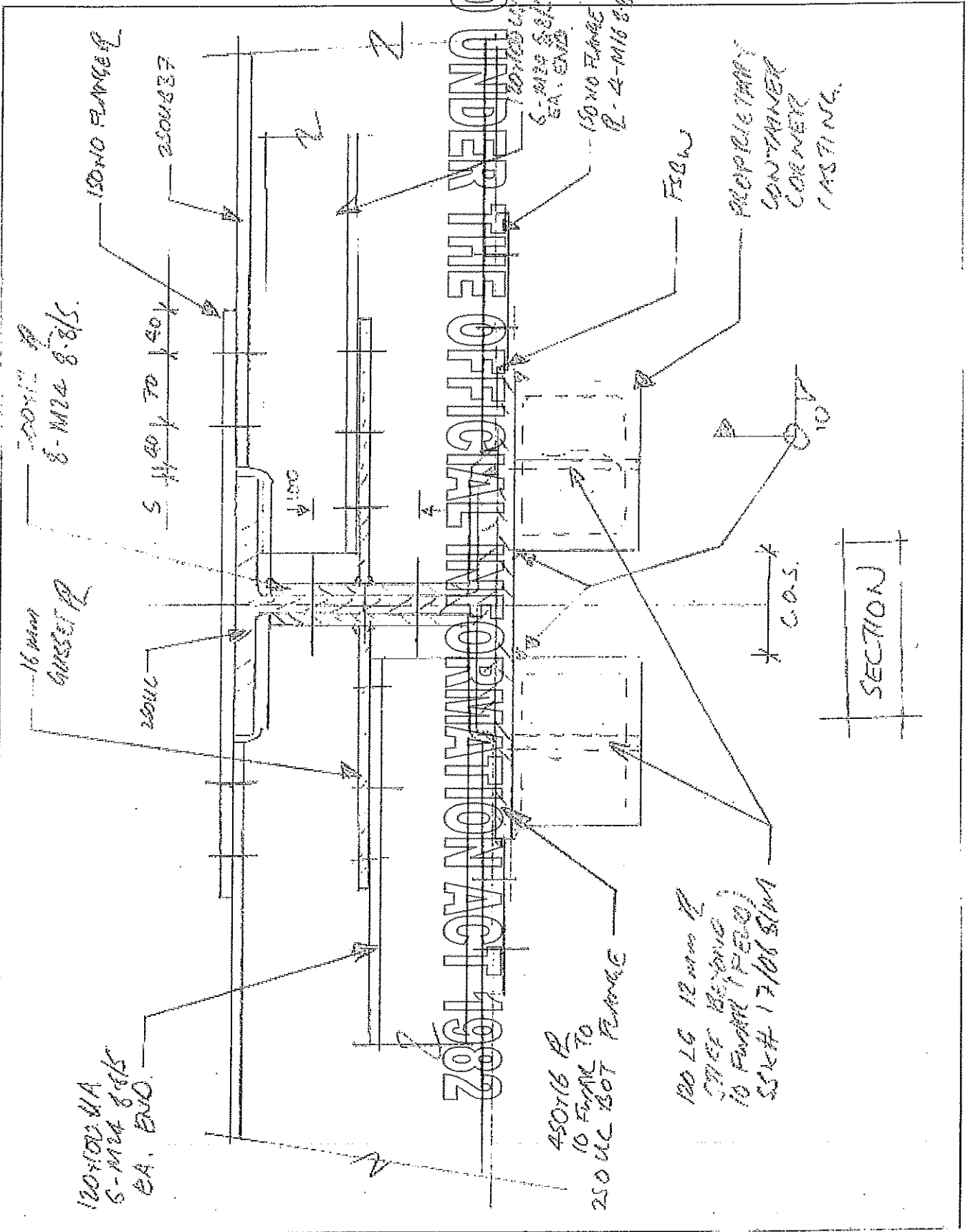


Project Name: *Christchurch Colliery*
 Project No.: *106324*
 Drawn By:
 Date: *2/12/11*
 Sketch No.: *17/104*

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Project Name: *Christ Church Cathedral*
 Project No. *101522*
 Calc By: *[Signature]*
 Date: *2/12/11*
 Sheet No: *17/10*

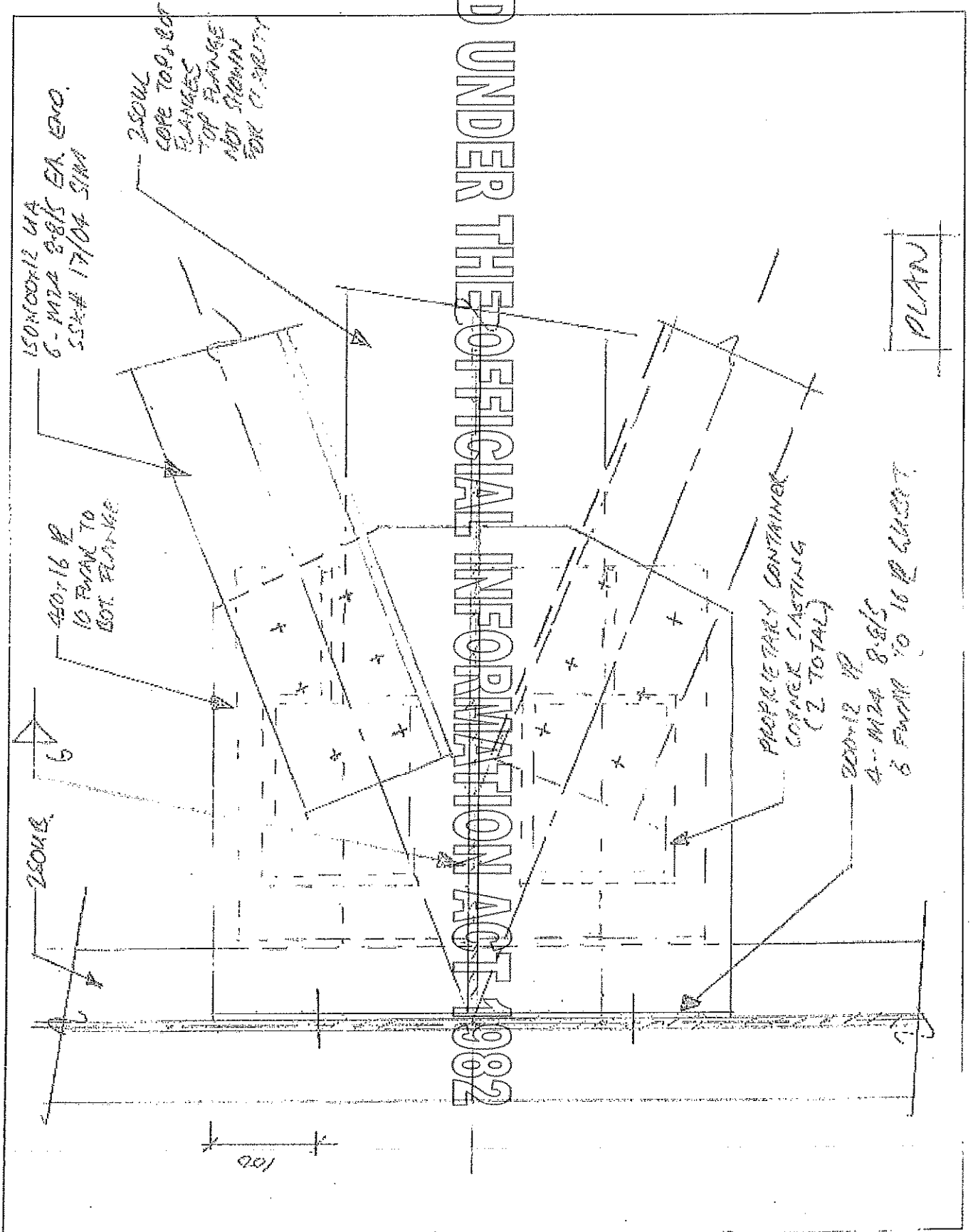
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Project Name: *Christy St. Collected*
 Project No: *108384*
 Drawn By:
 Date: *6/12/11*
 Sketch No: *17/11*

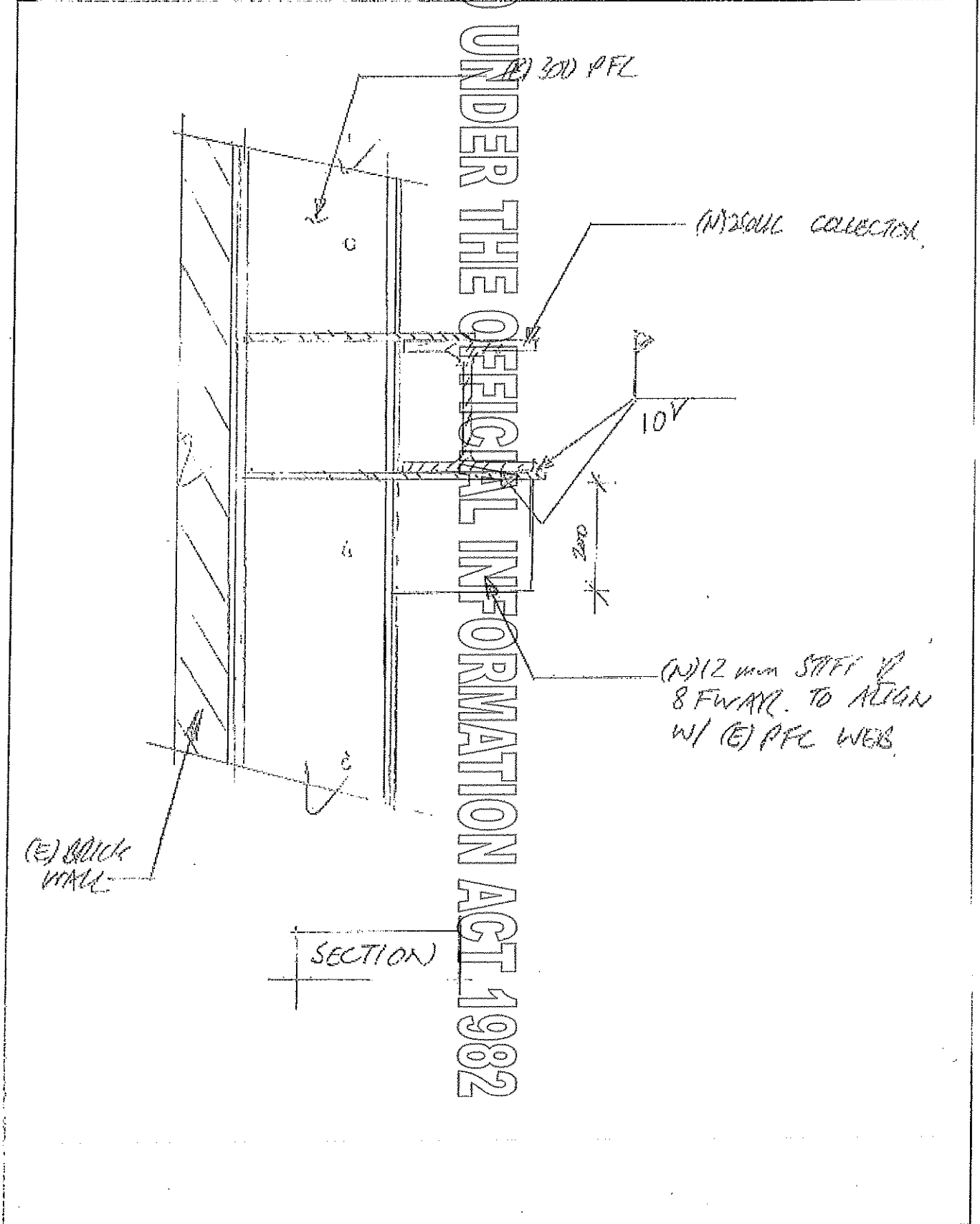
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(E) BRICK WALL

SECTION

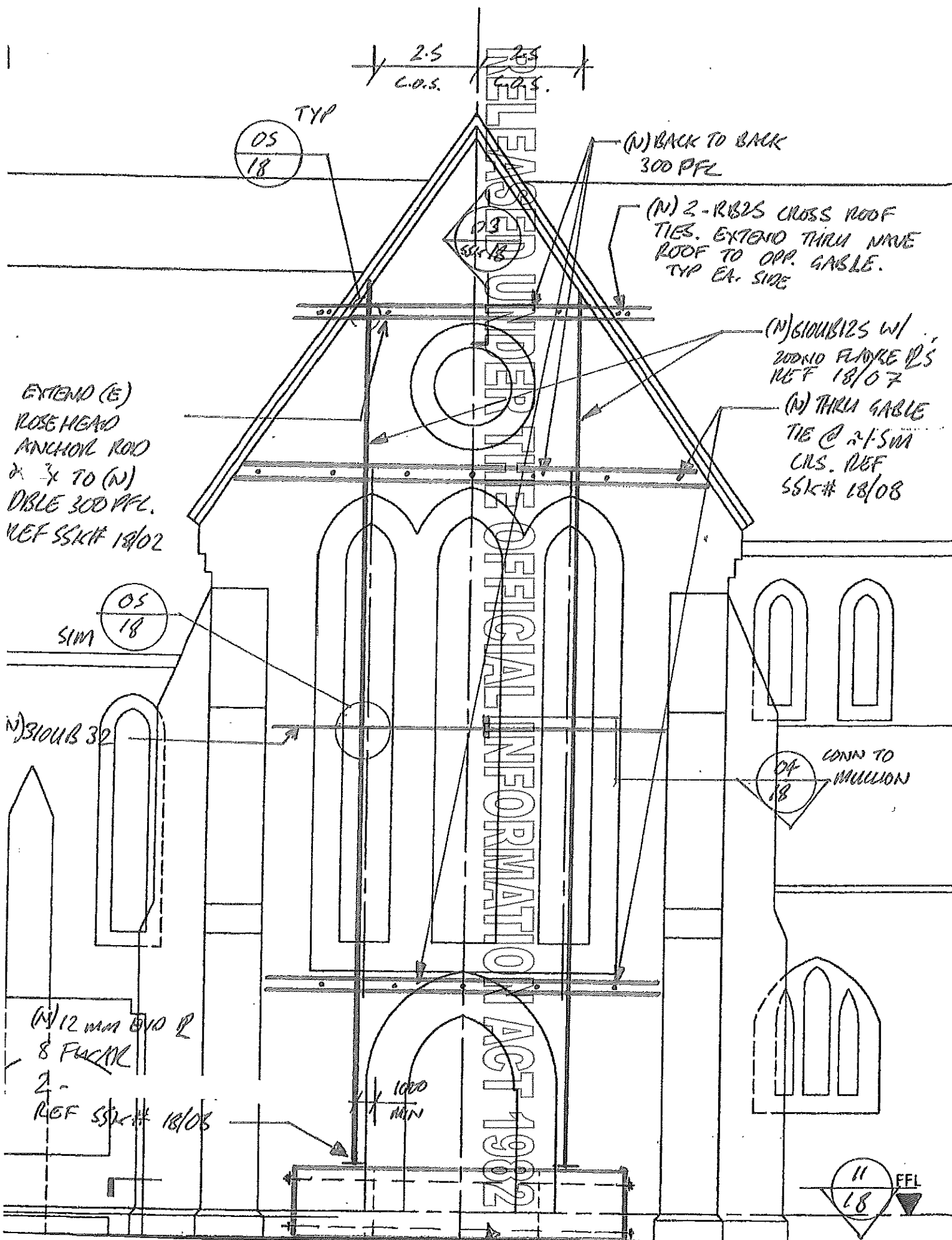
(N) 12 mm STIFF V 8 FWARL. TO ALIGN W/ (E) PFL WEB

(N) 250mm COLLECTION

(E) 300 PFL

200

100



Title: TRANSSEPT GABLE SECURING

Job Name: CHRISTCHURCH CATHEDRAL

Job #: 106324 SSK#: 18/01

(N) 1'S x 1.5 x 7.0m PRECAST CONC BLOCK ANCHOR. CAST IN SECTIONS & FIX TOGETHER W/ 4-RB32



Project Name: CHRISTMURALL CATHEDRAL.

Project No: 108324

Calcs By:

Date: 8/12/11

Sketch No: 18/02

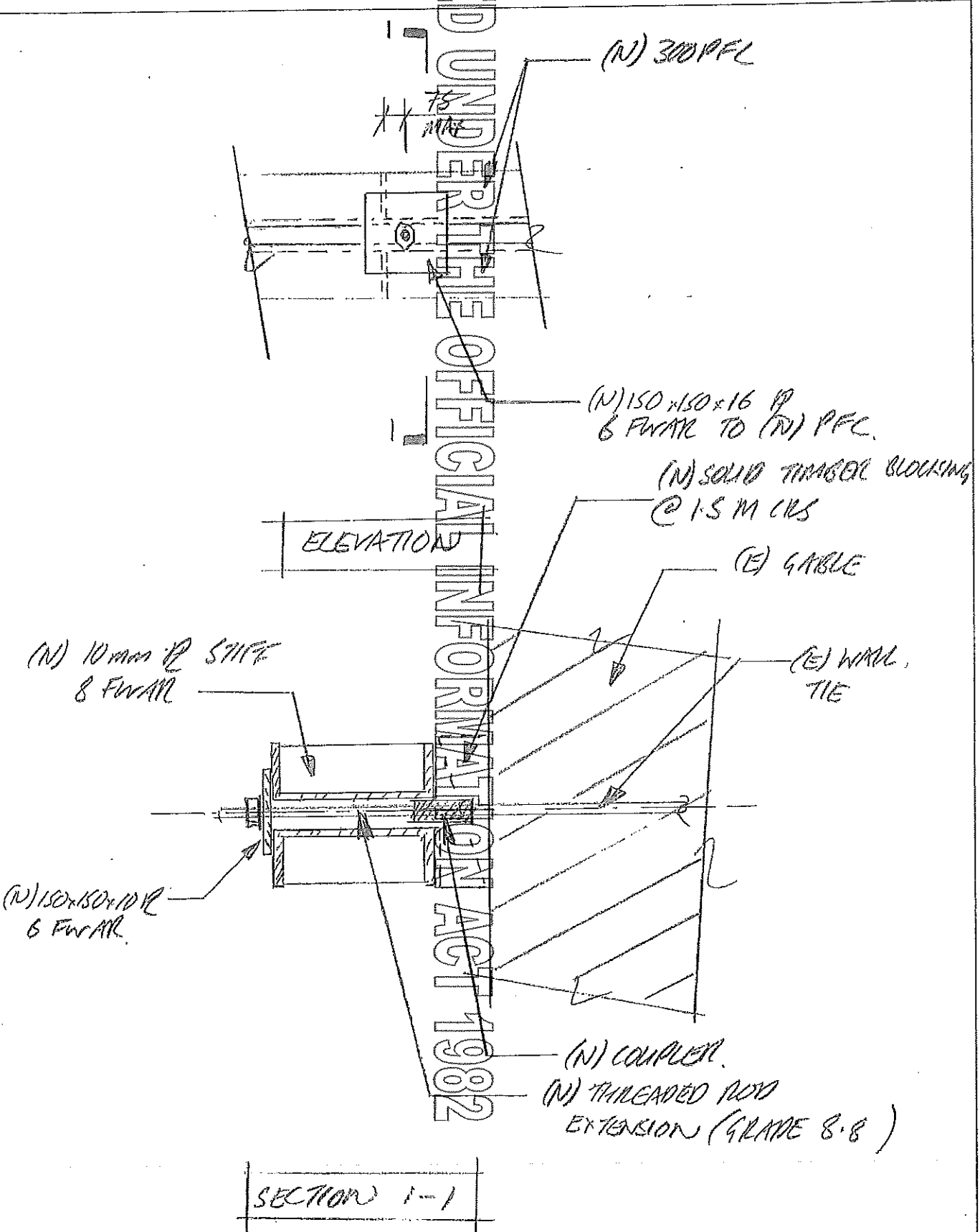
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CALCS/SKETCHES

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Project Name: *CACH CATHEDRAL*
Project No: *108324*
Calcs By:
Date: *8/12/11*
Sketch No: *18/03*

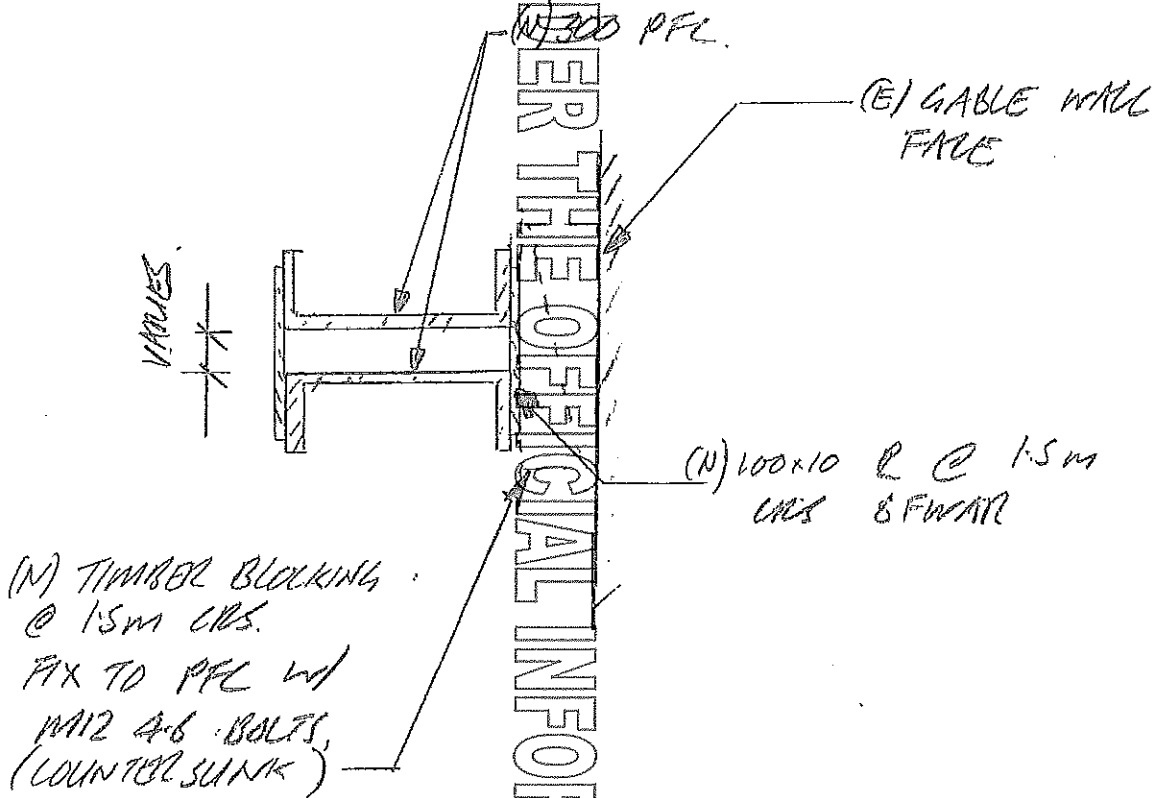
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Project Name: *CHCH CATHEDRAL*
 Project No: *100314*
 Calcs By:
 Date: *8/12/11*
 Sketch No: *18/04*

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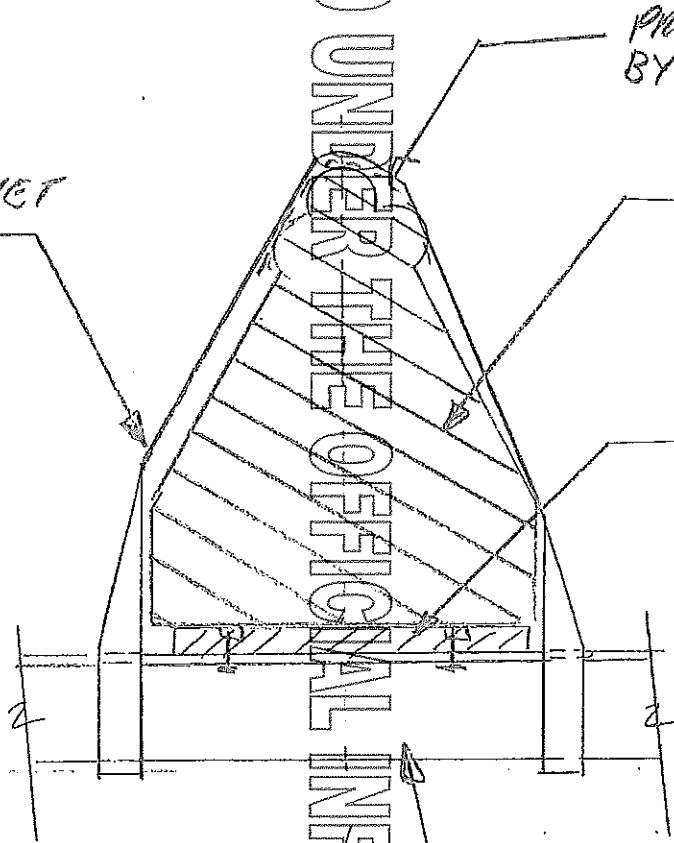
5000 kg SWL RATCHET TIEDOWN

PROTECTION AS REQ'D BY HERITAGE

(E) BRICK WINDOW RAILLION

(N) SOLID TIMBER BLOCKING, BOLTED TO MS W/ COUNTER SINK BOLTS

(N) 310UB32





Project Name: CHCH CATHEDRAL

Project No: 106324

Calcs By:

Date: 8/12/11

Sketch No: 18/05

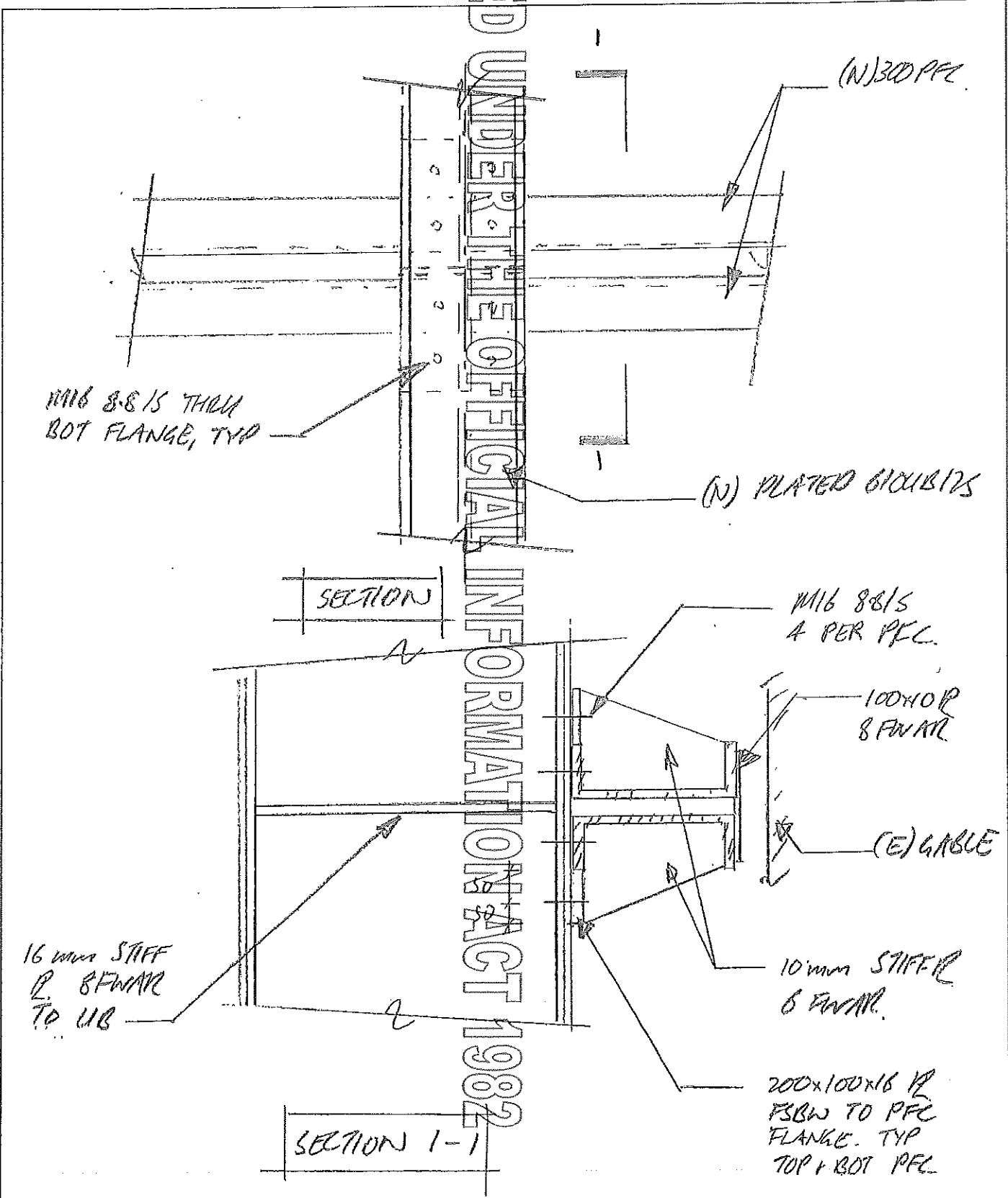
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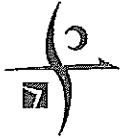
CALCS/SKETCHES

Page No:

Revision:

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Project Name: CHCH CATHEDRAL
Project No: 108324
Calcs By: -
Date: 8/12/11
Sketch No: 18/08

Withheld under section 9(2)(a)

CALCS/SKETCHES

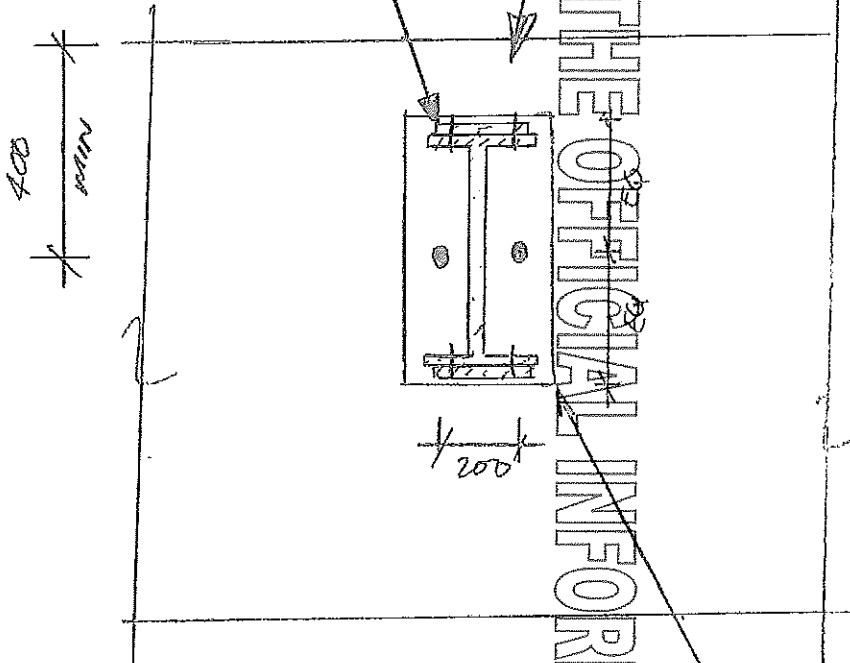
Page No:

Revision:

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(W) PLATED 610UB
MULLION

PRECAST CONE
ANCHOR BLOCKS



(N) 12mm END R
8 FWMR TO UB.

2- RAMASET EPLOX LG W/ M24
Gr 5.8 STUB, MIN 150 EMBED

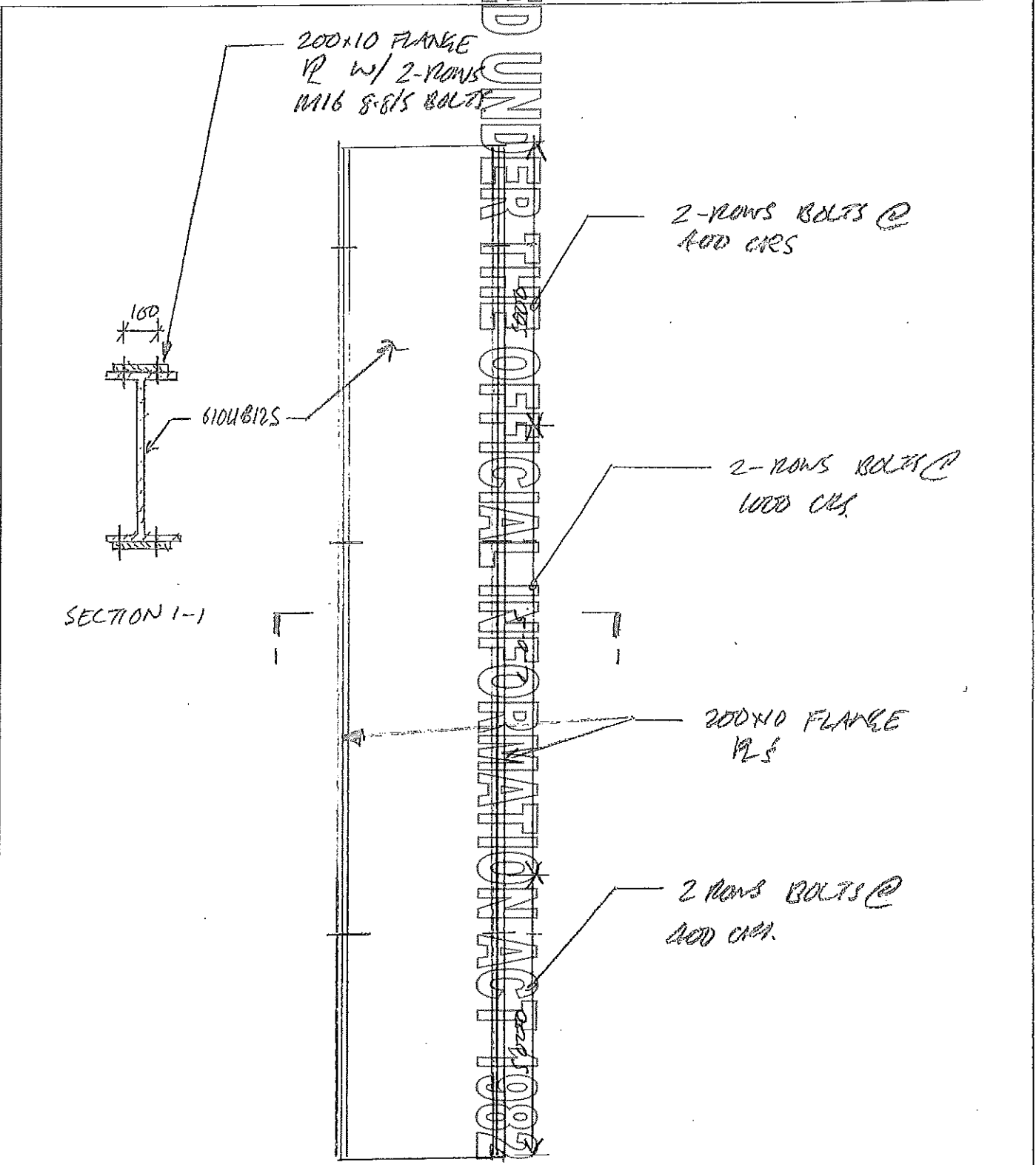


Project Name: *UHCM CATHEDRAL*
 Project No: *106324*
 Calcs By:
 Date: *8/12/11*
 Sketch No: *18/07*

Withheld under section 9(2)(a)

CALCS/SKETCHES

Page No:
 Revision:



PLATED GIUBS. ELEVATION

N.T.S.

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Project Name: *CHCH CATHEDRAL*
Project No: *10632*
Calcs By: *[Signature]*
Date: *8/11/12*
Sketch No: *18/08*

Withheld under section 9(2)(a)

CALCS/SKETCHES

Page No:

Revision: *1*

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

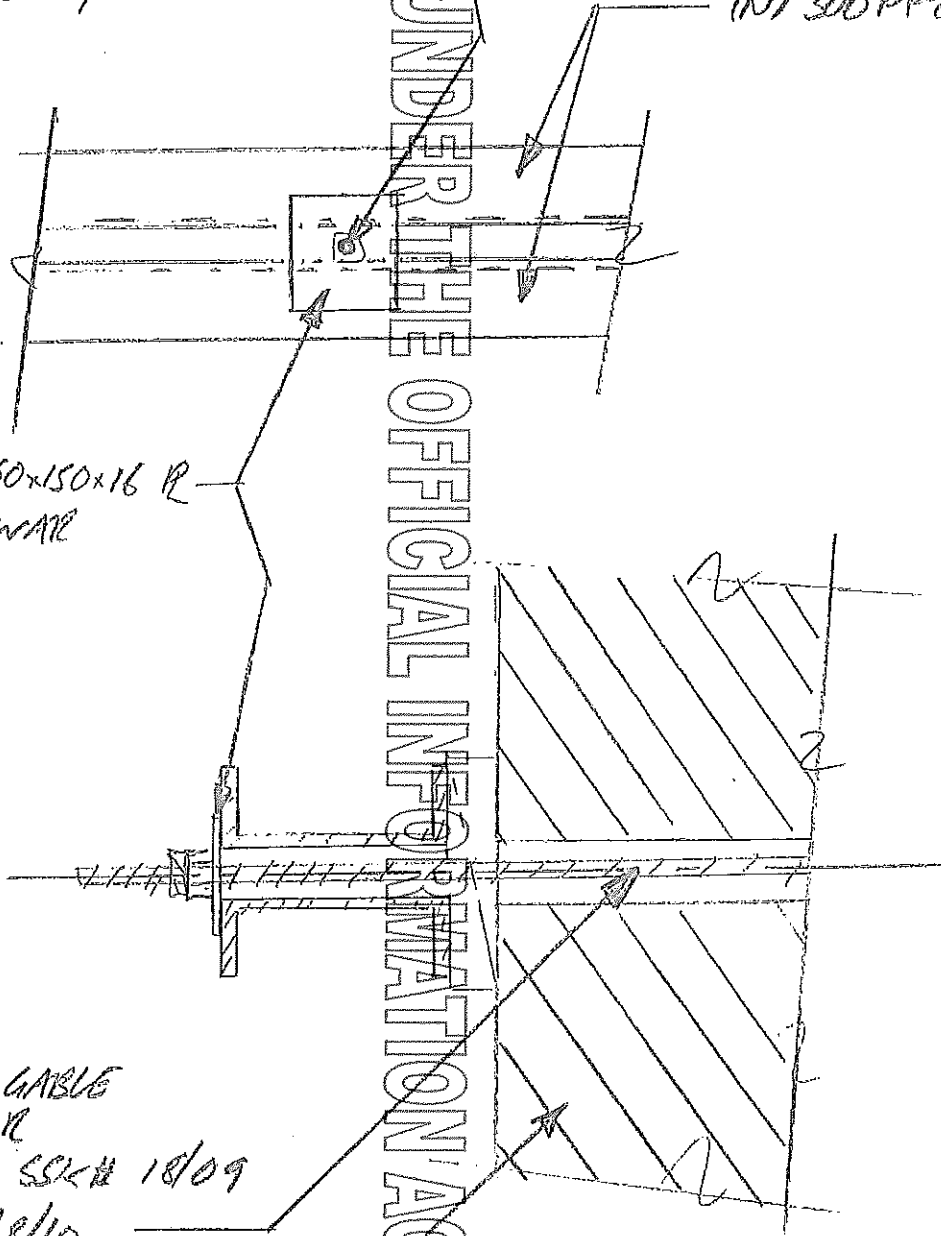
(N) RB16 w/ FULL & HALF MAT

(N) 300 PFE

*(N) 150x150x16 R
6FWARE*

*RB16 GABLE
ANCHOR
REFER SSK# 18/09
& 18/10*

*(E) GABLE WALL
w/ 80 Ø HOLE
FOR GABLE TIE
INSTALL*





Project Name: Great Hall Crable Tie

Project No: 106350.03

Calcs By: _____

Date: 22-6-11

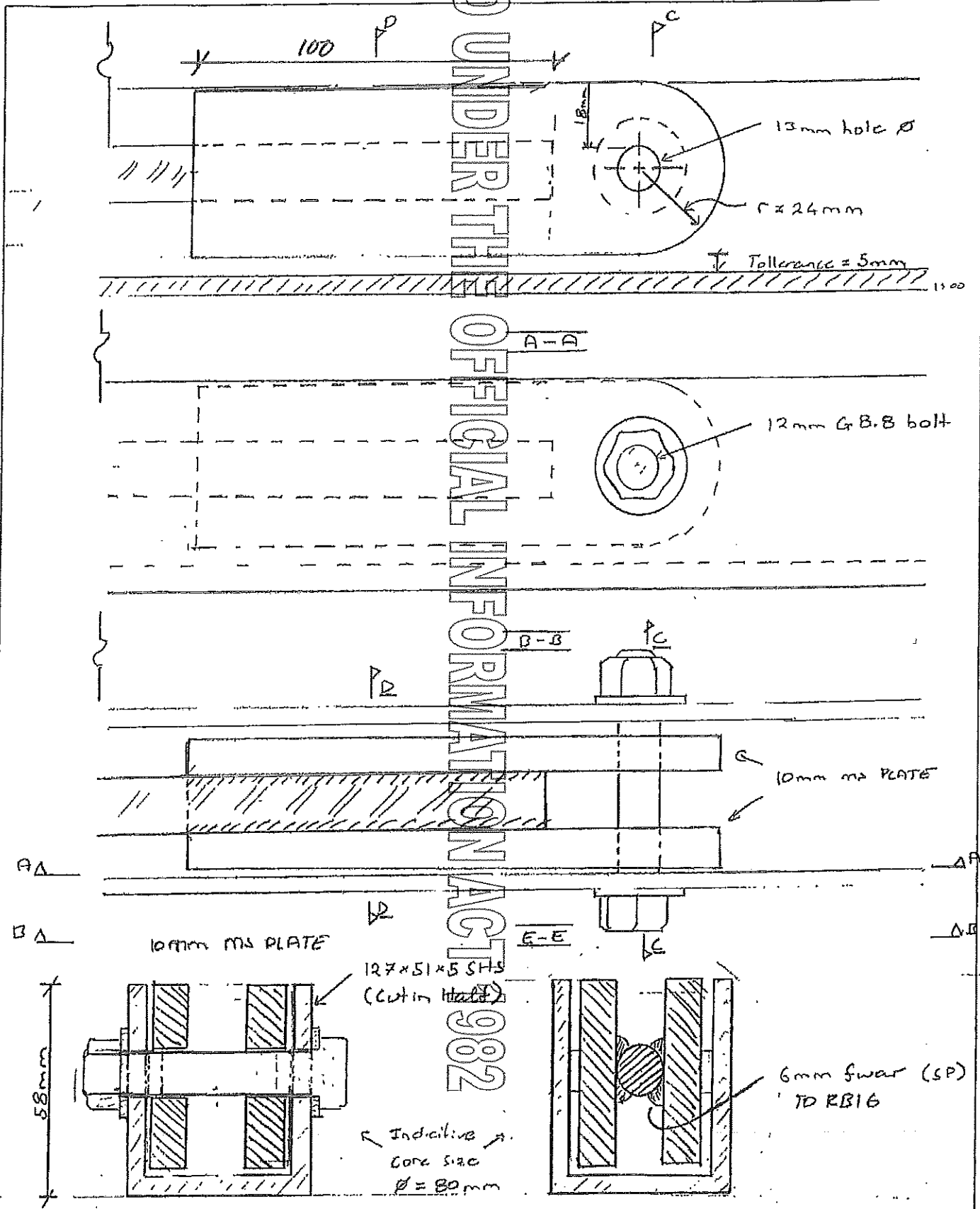
Sketch No: 18/09

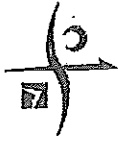
Withheld under section 9(2)(a)

CALCS/SKETCHES

Page No

Revision: 1



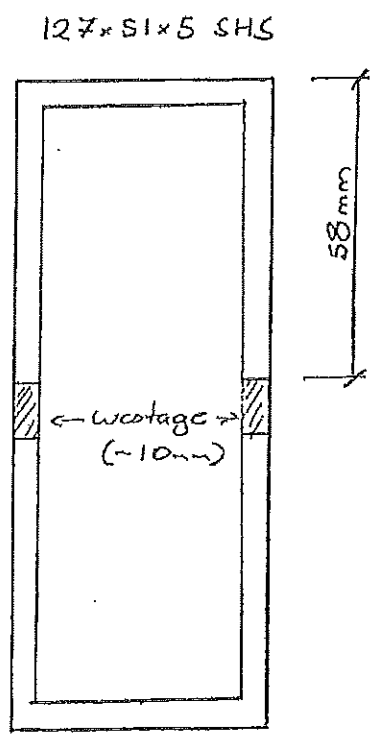
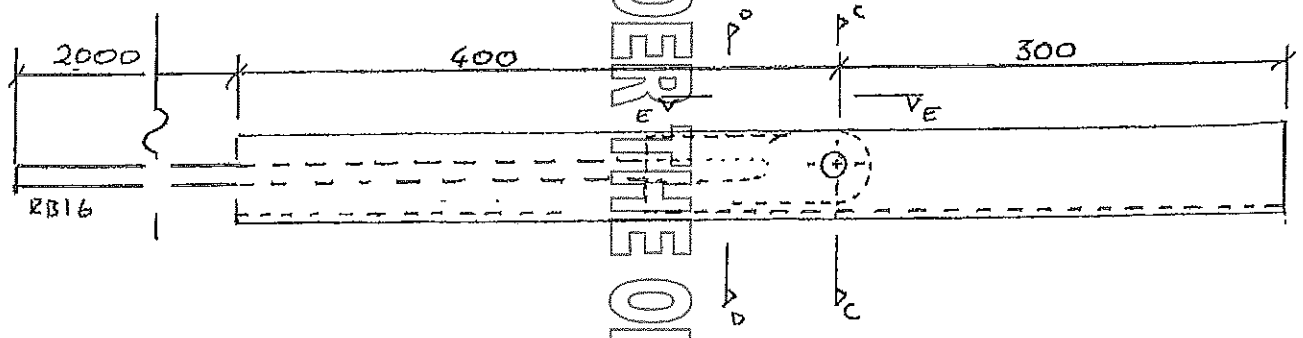


Project Name: Great Hall Gable Tie
 Project No: 106340.03
 Colcs By: [Redacted]
 Date: 22-6-11
 Sketch No: 18/10

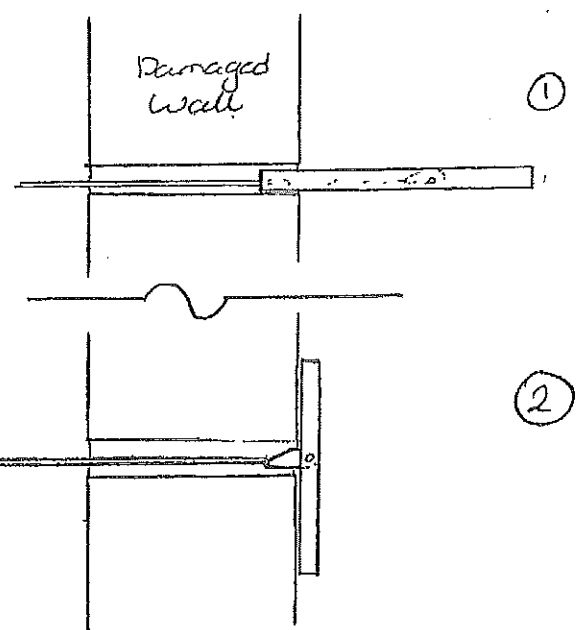
Withheld under section 9(2)(a)

CALCS/SKETCHES

Page No:
 Revision: 1



Cutting Section



Schematic

- All welds SP
- All bolts G8.8
- Do not Scale

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Project Name: *CHCH LA MENDOTA*

Project No: *108324*

Calcs By: *8/12/11*

Date: *18/11*

Sketch No: *18/11*

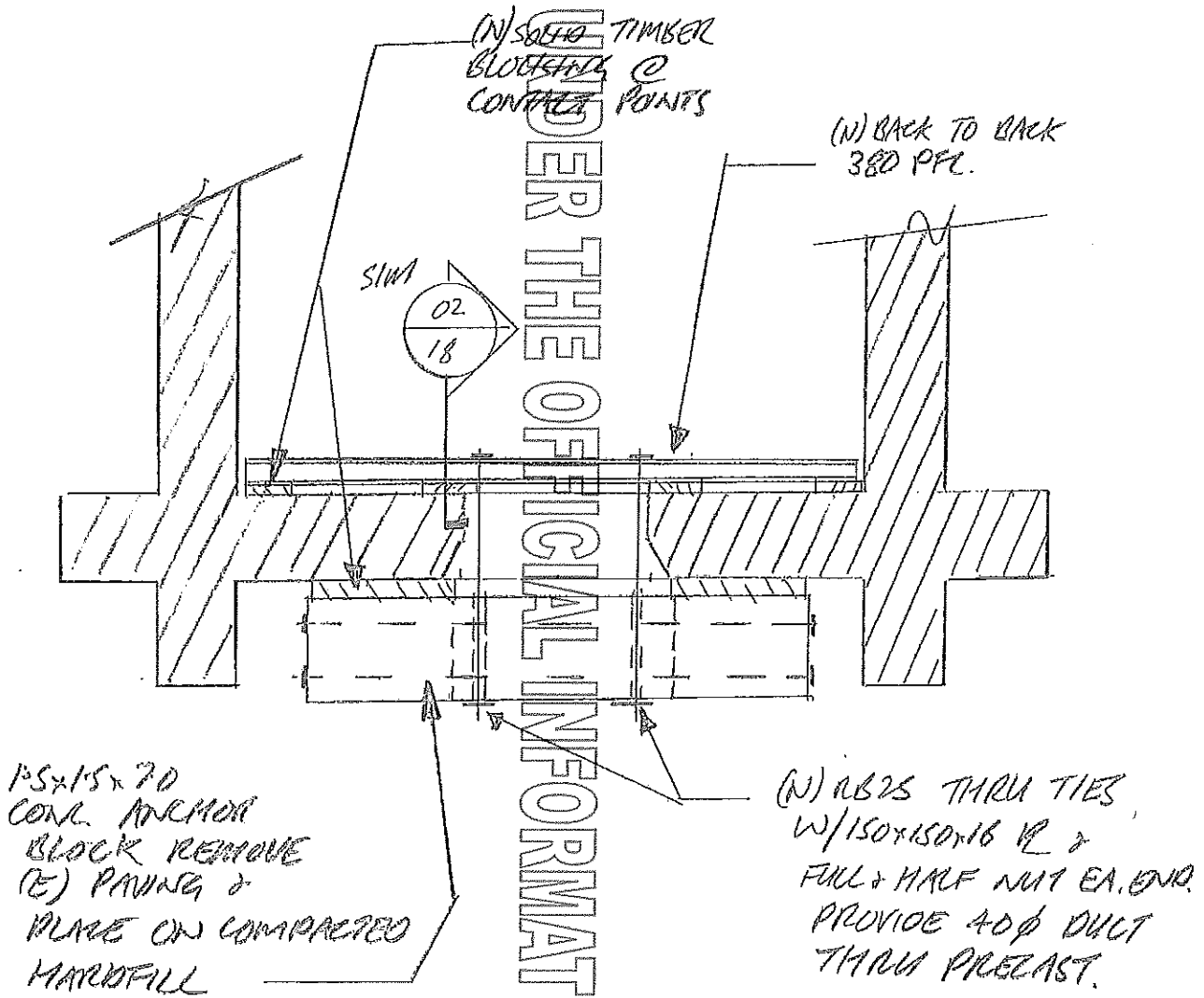
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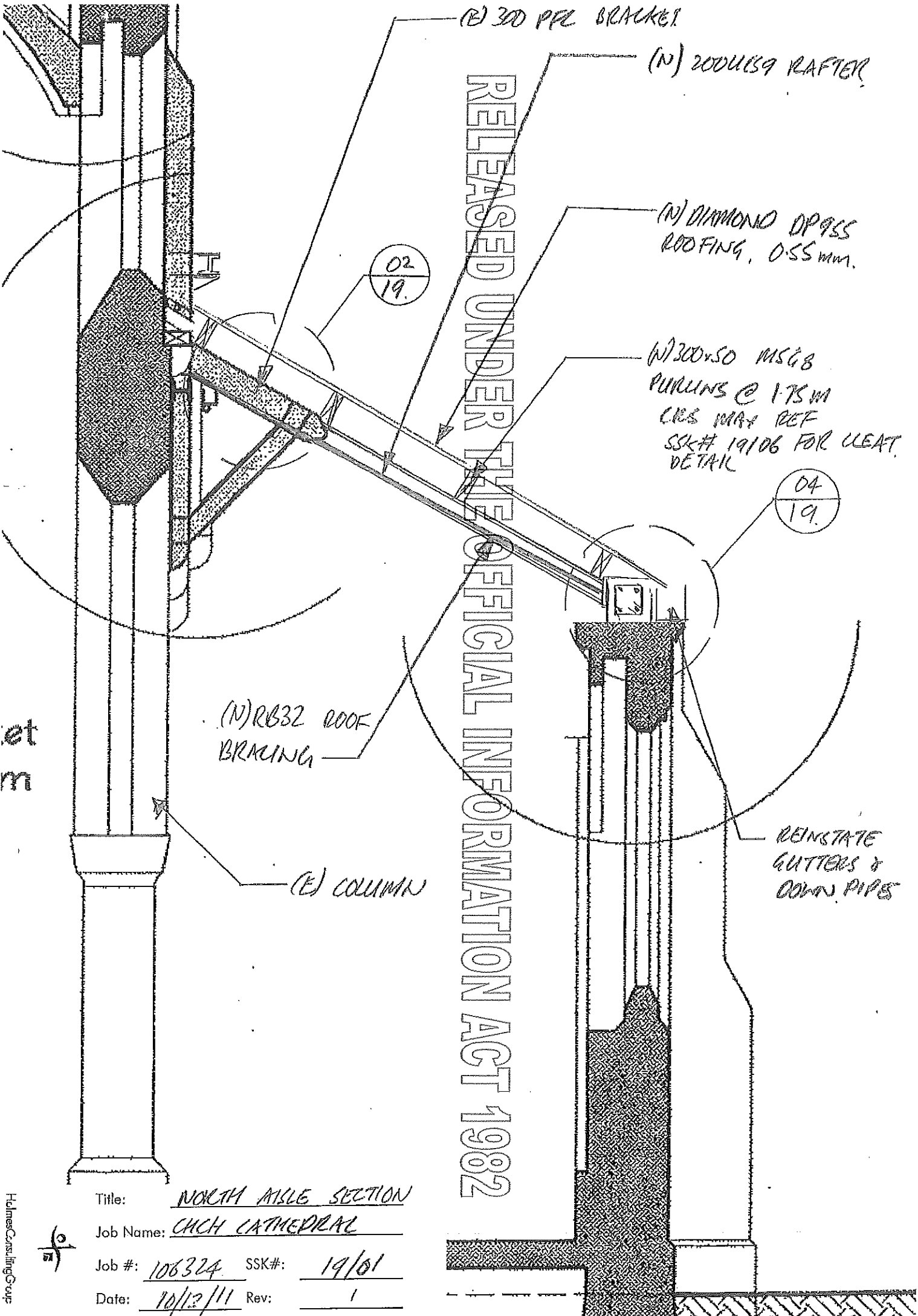
CALCS/SKETCHES

Page No:

Revision: *1*

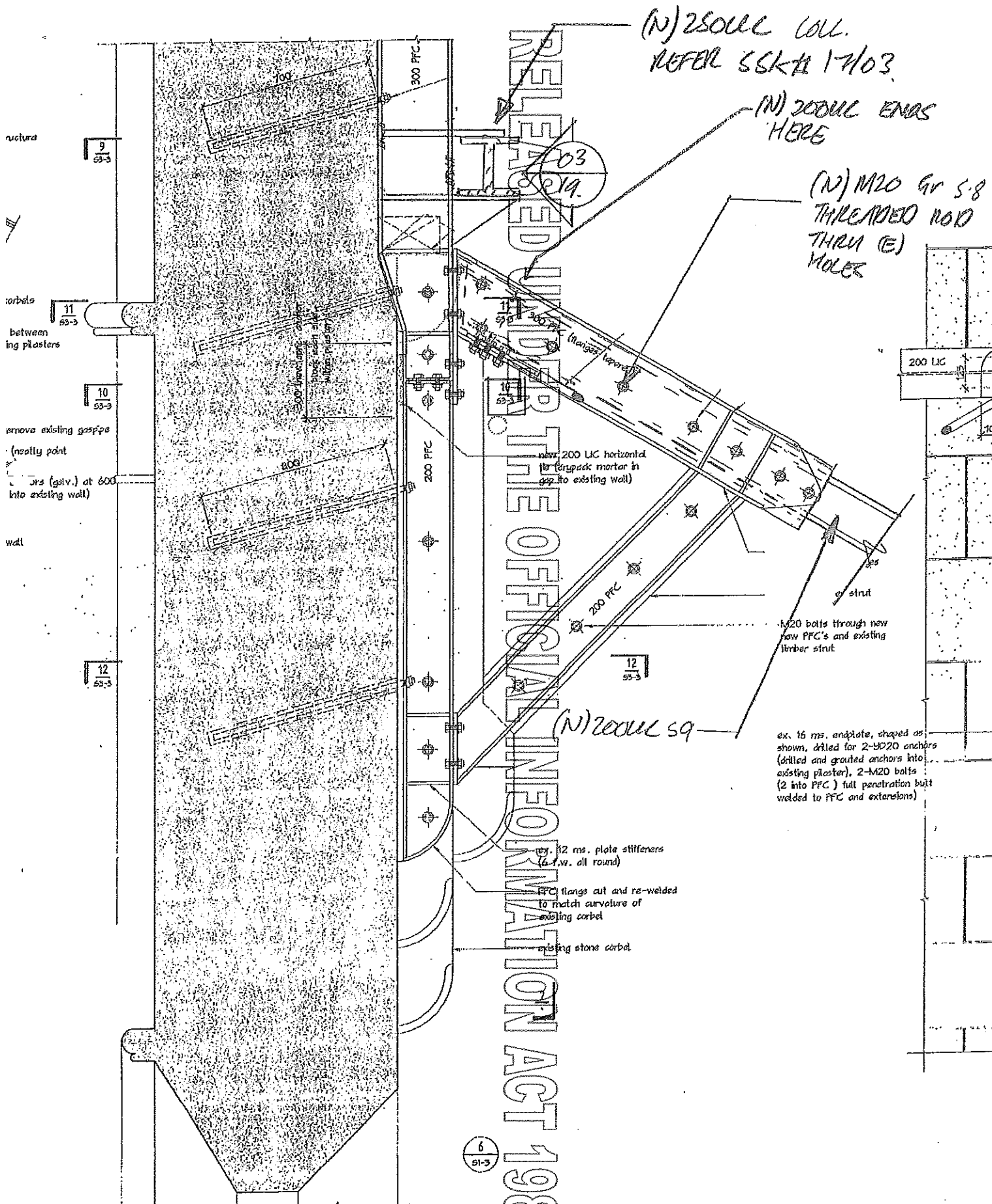
RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982





RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

Title: NORTH AISLE SECTION
 Job Name: CHCH CATHEDRAL
 Job #: 106324 SSK#: 19/01
 Date: 10/12/11 Rev: 1



Title: RAFTER CONN
 Job Name: URCH CATHEDRAL
 Job #: 106324 SSK#: 19/02
 Date: 10/12/11 Rev: 1

CHRISTCHURCH CAT
STRENGTHENIN

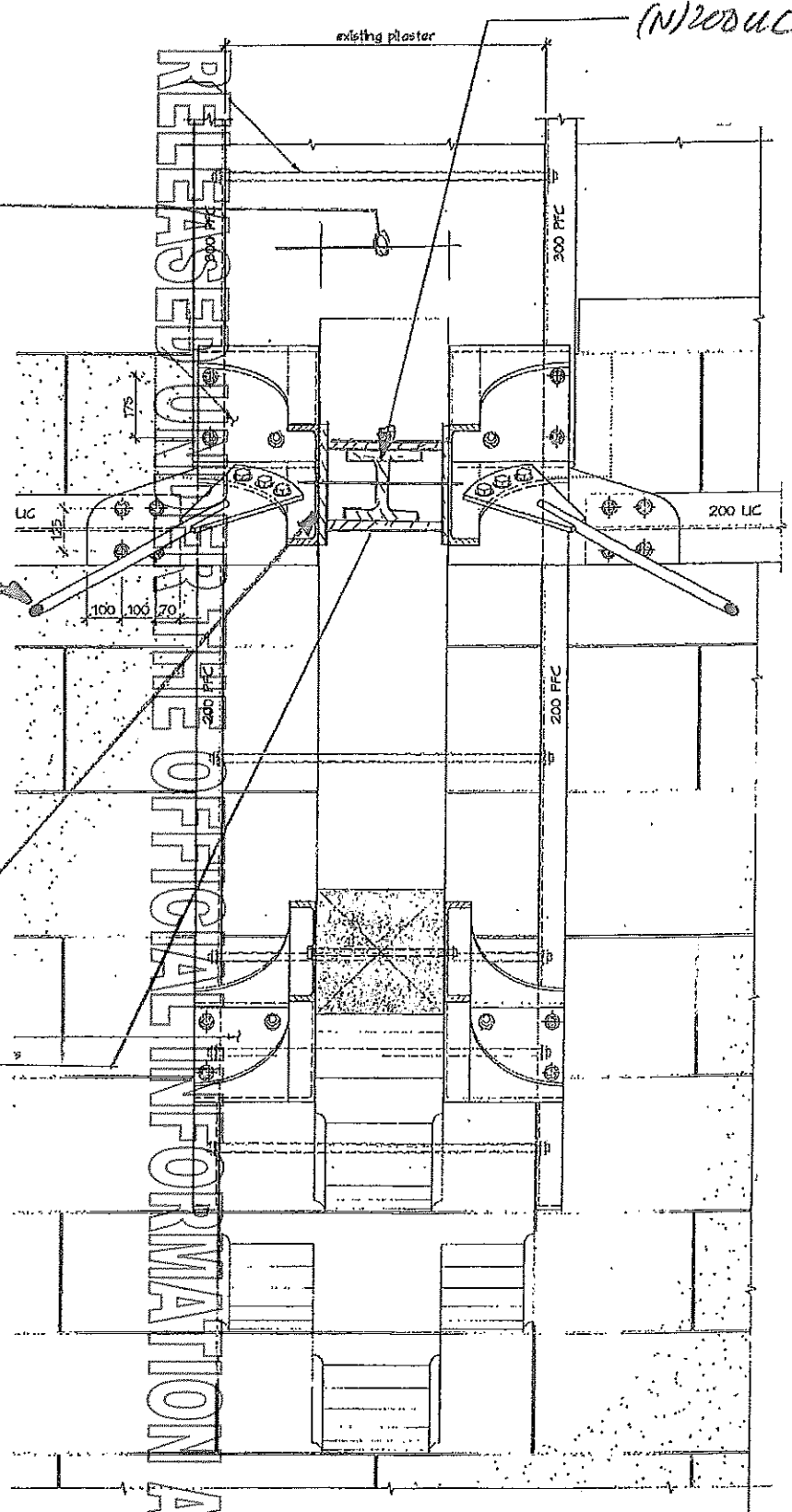
HolmesConsultingGroup

L.O.S. PROVIDE
SHIM R'S AS
REQ'D FOR TOLERANCE

(N) CROSS BRACING
TO MATCH (E.)

(N) 300 x 12 R
6 FWAR TO FLANGE
PLATES.

(N) 12mm THK FLANGE
R 6 FWAR TO 200UL.



7

Title: RAFTER CONN
Job Name: UNION CATHEDRAL
Job #: 108324 SSK#: 19/03
Date: 10/12/11 Rev: 1

HEDRAL
IG

Sheet Title : typical construction details (Aisle roof details)		
Job No	Sheet No	Rev
2948	S3-2	3



Project Name: CHCH CATHEDRAL

Project No: 108324

Calcs By: 10/12/11

Date: 11/11/10

Sketch No: 19/86

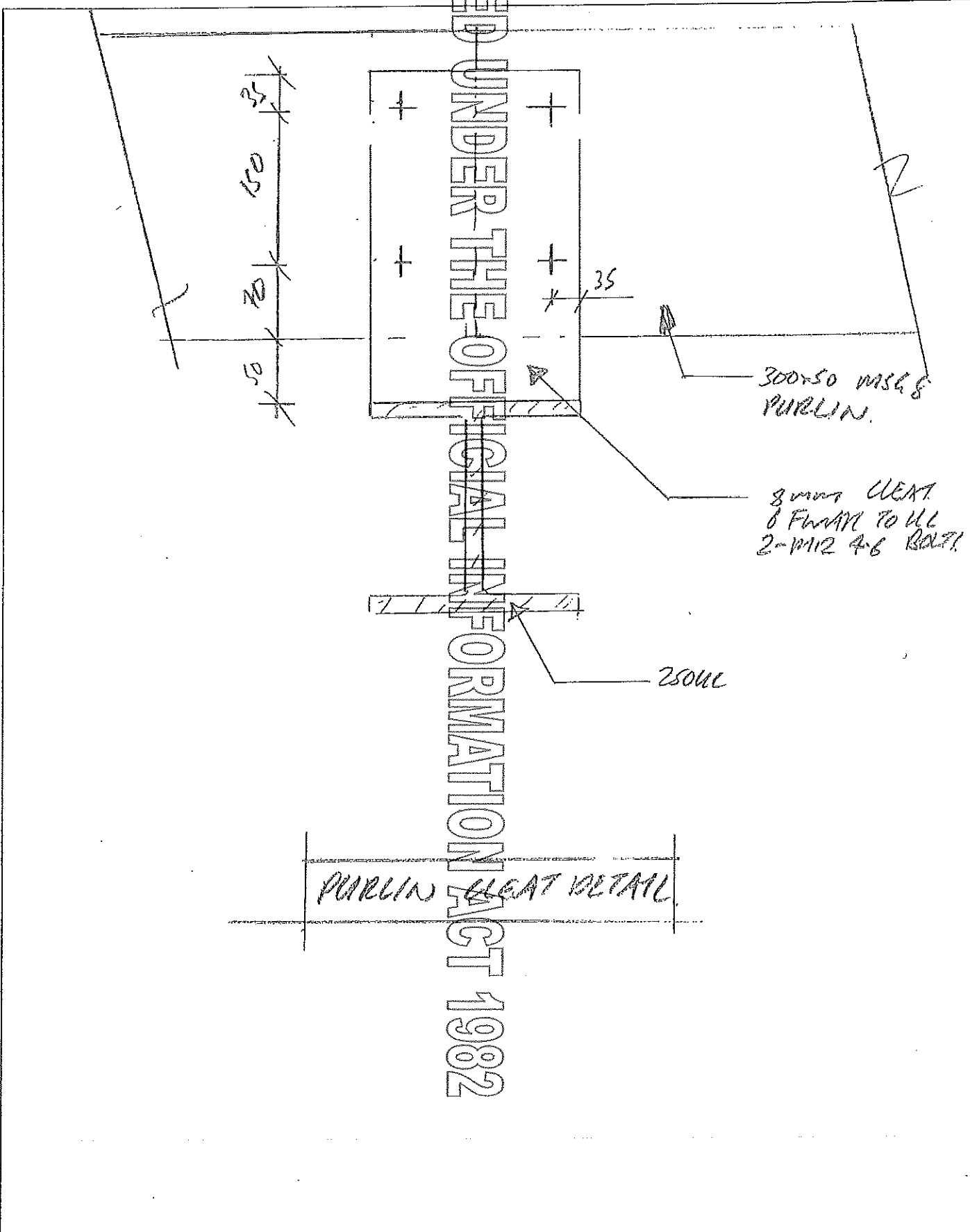
RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

Page No:

Revision:

CALCS/SKETCHES

Withheld under section 9(2)(a)





Project Name: CHCH CATHEDRAL
Project No: 108304
Calcs By:
Date: 10/12/11
Sketch No: 19/04

Withheld under section 9(2)(a)

CALCS/SKETCHES

Page No:

Revision:

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NOTES

- 1. MIN CONC. STRENGTH = 25 MPa
- 2. PROVIDE MIN 35 MM COVER.
- 3. CAPPING BEAM DETAIL @ TOWER LOCATION TO BE CONFIRMED ONCE PURCHASE HAS BEEN CLEARED.

X10 TIES @ 125 C/M

X02S (4 TOTAL)
LAP ONTO EXTG.

TO MATCH EXTG.
@ 440 C.O.S.

(N)200UCL

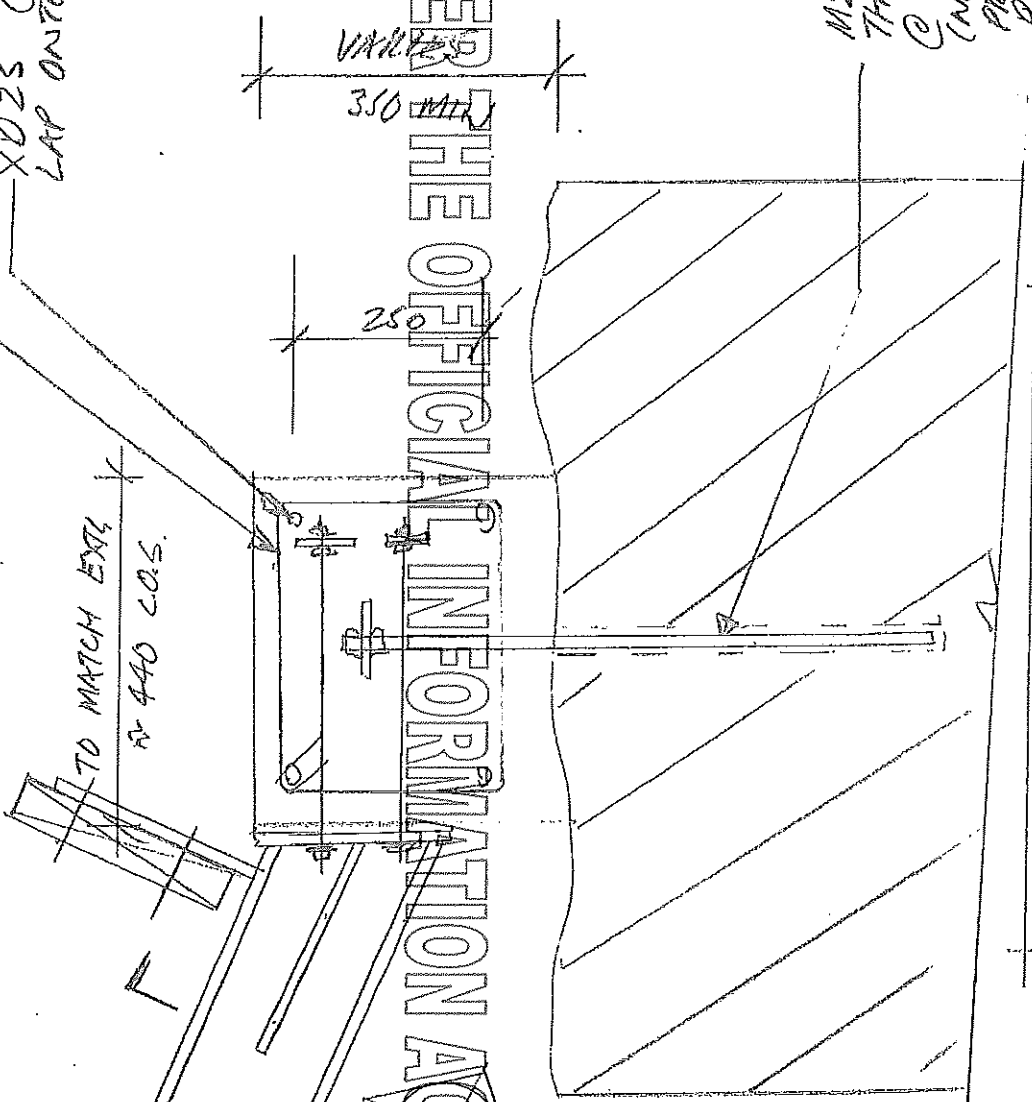
350 MIN

250

500 MIN

M20-314 SS
THREADED ROD
@ 375 C/M
(NOT OVER WINDOWS)
PROVIDE 50x50x12
P WASHER W/ NUT
EA. SIDE.

CAPPING BEAM SECTION





Project Name: *CHCH CATHEDRAL*
 Project No: *106324*
 Calcs By: *S*
 Date: *10/12/11*
 Sketch No: *19/05*

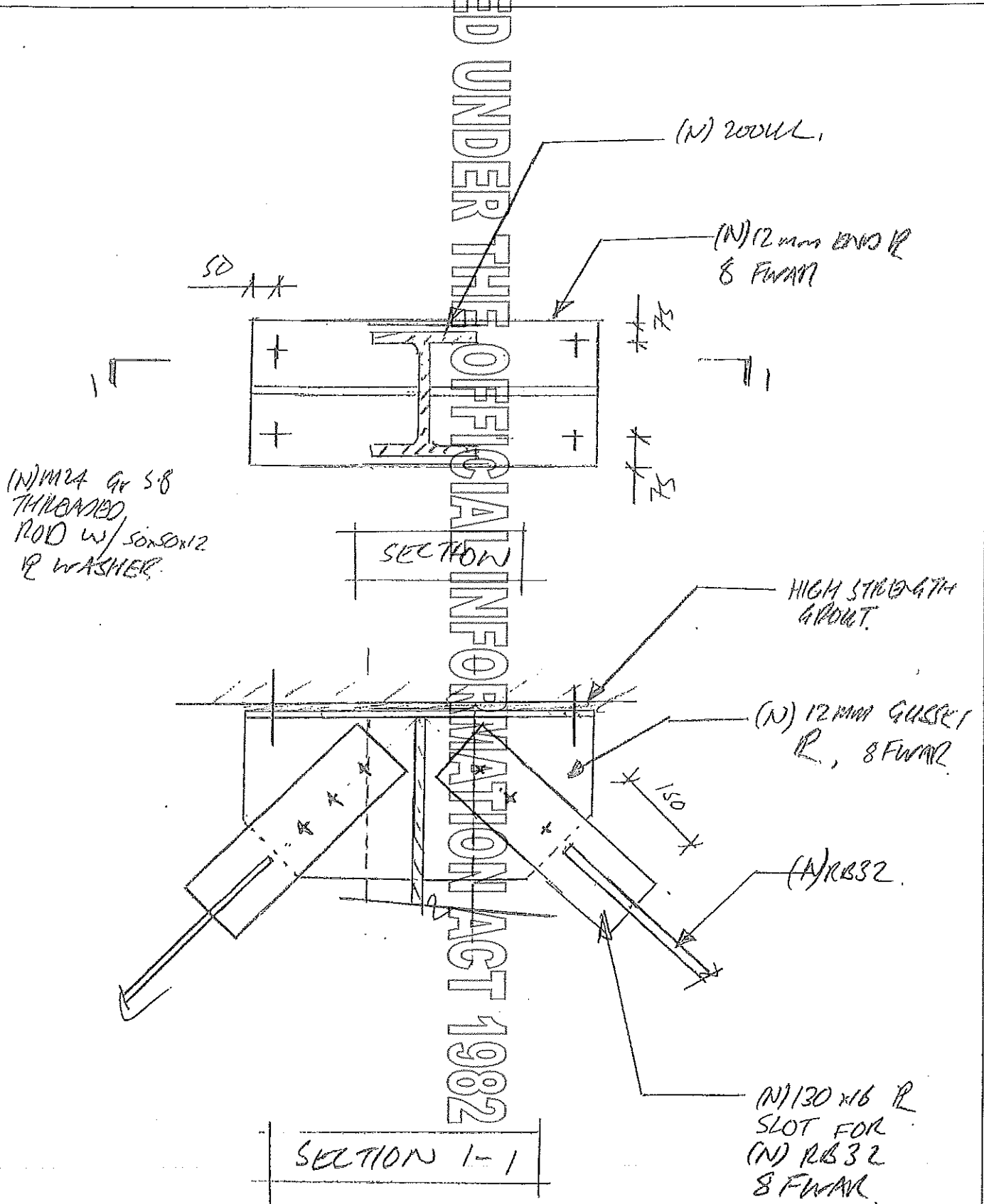
Withheld under section 9(2)(a)

CALCS/SKETCHES

Page No:

Revision:

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Project Name: Christchurch Cathedral
Reconstruction
Project No: 106324
Calcs By:
Date: 10/12/11
Sketch No: 2010

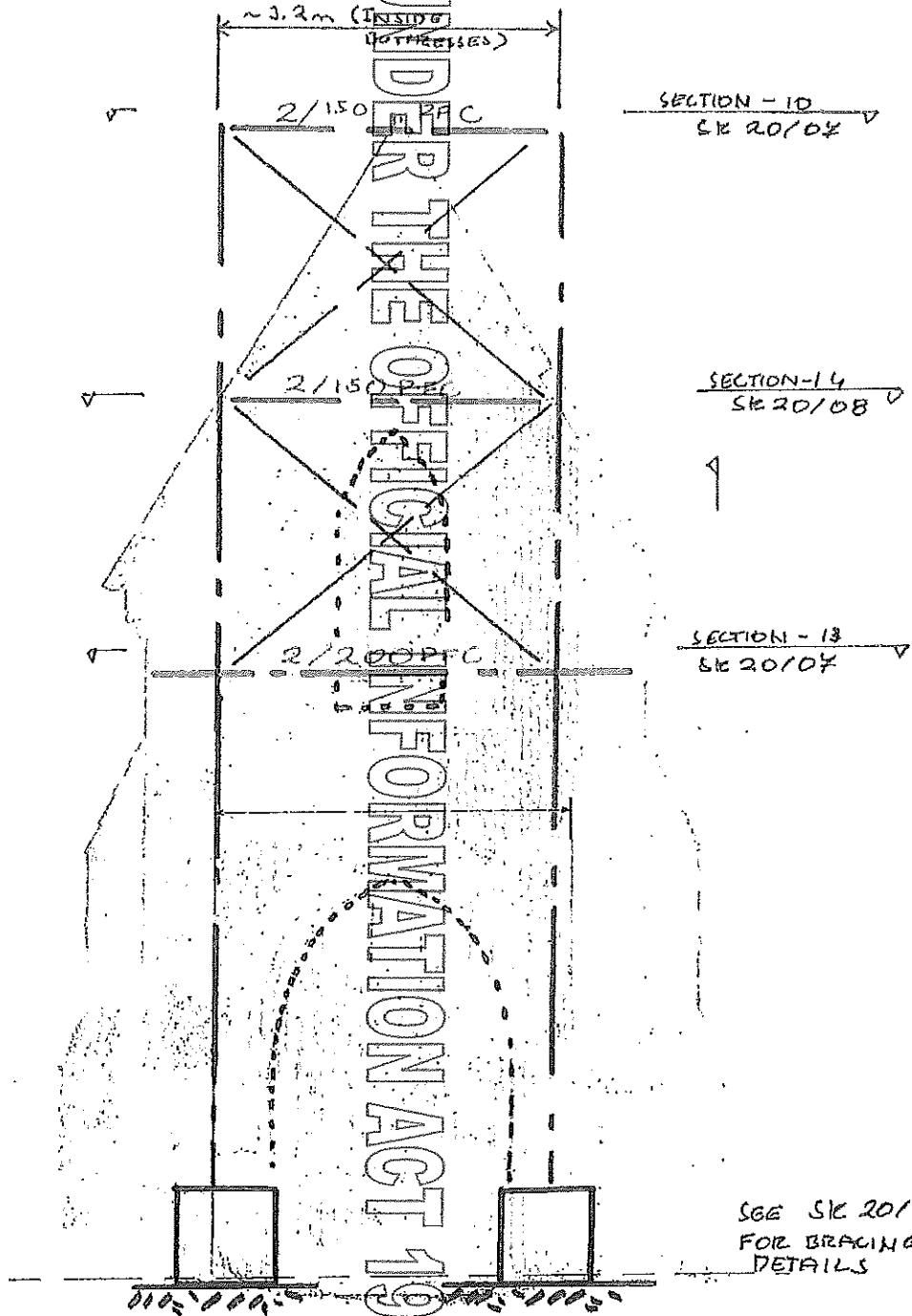
Withheld under section 9(2)(a)

CALCS/SKETCHES

Page No:

Revision:

NORTH PORCH SHORING DETAILS



SEE SK 20/02
FOR BRACING + FDN
DETAILS

SK 20/02



Project Name: CHRISTCHURCH CATHEDRAL

Project No: 106320

Calcs By:

Date: 12-12-11

Sketch No: 20/02

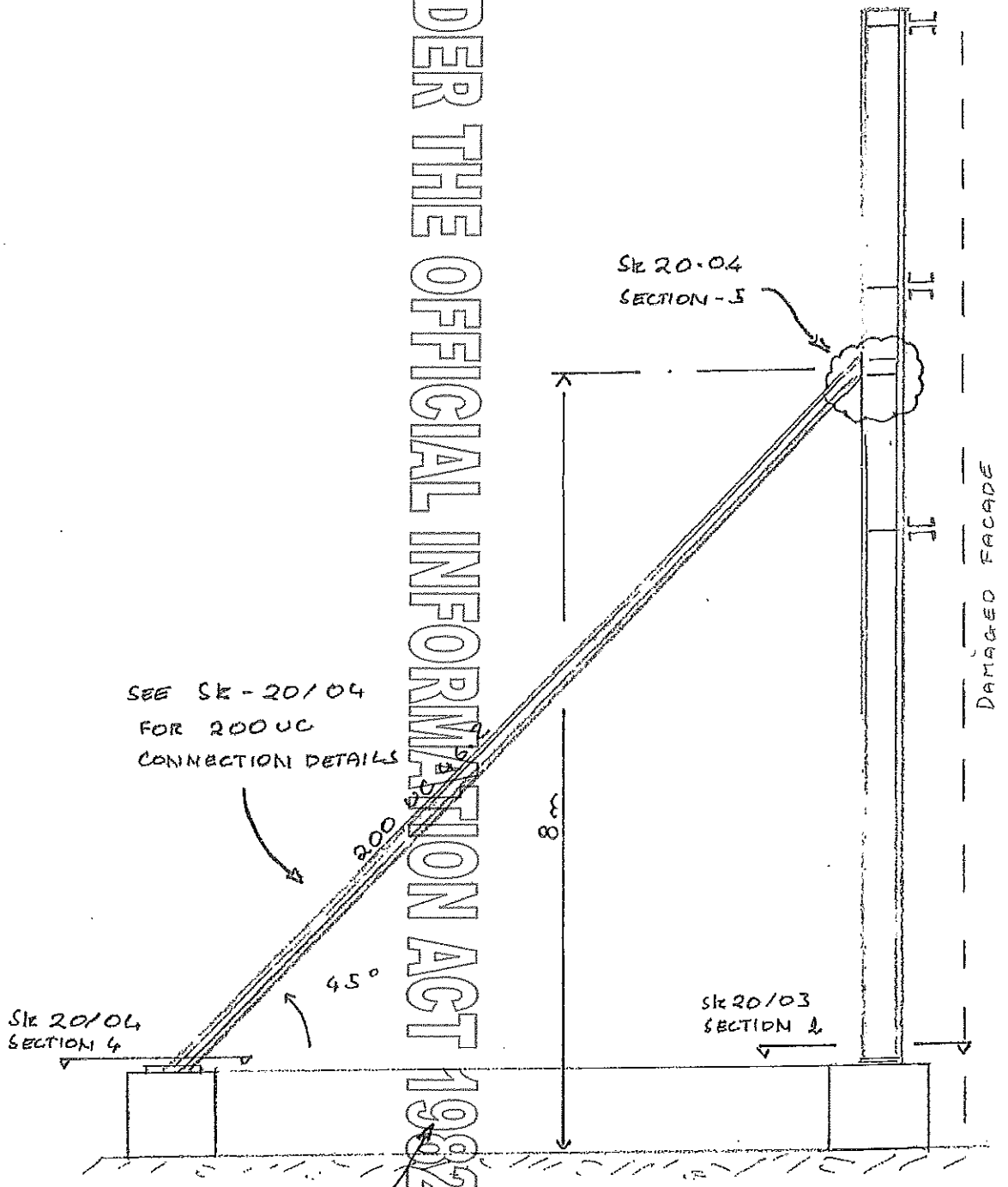
Withheld under section 9(2)(a)

CALCS/SKETCHES

Page No:

Revision:

BRACED FRAME EAST ELEVATION



SEE SK-20/04 FOR 200 UC CONNECTION DETAILS

SEE SK-20/03 FOR FOUNDATION DETAILS

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Project Name: CHRISTCHURCH CATHEDRAL

Project No: 106324

Calcs By:

Date: 12-12-11

Sketch No: 20/03

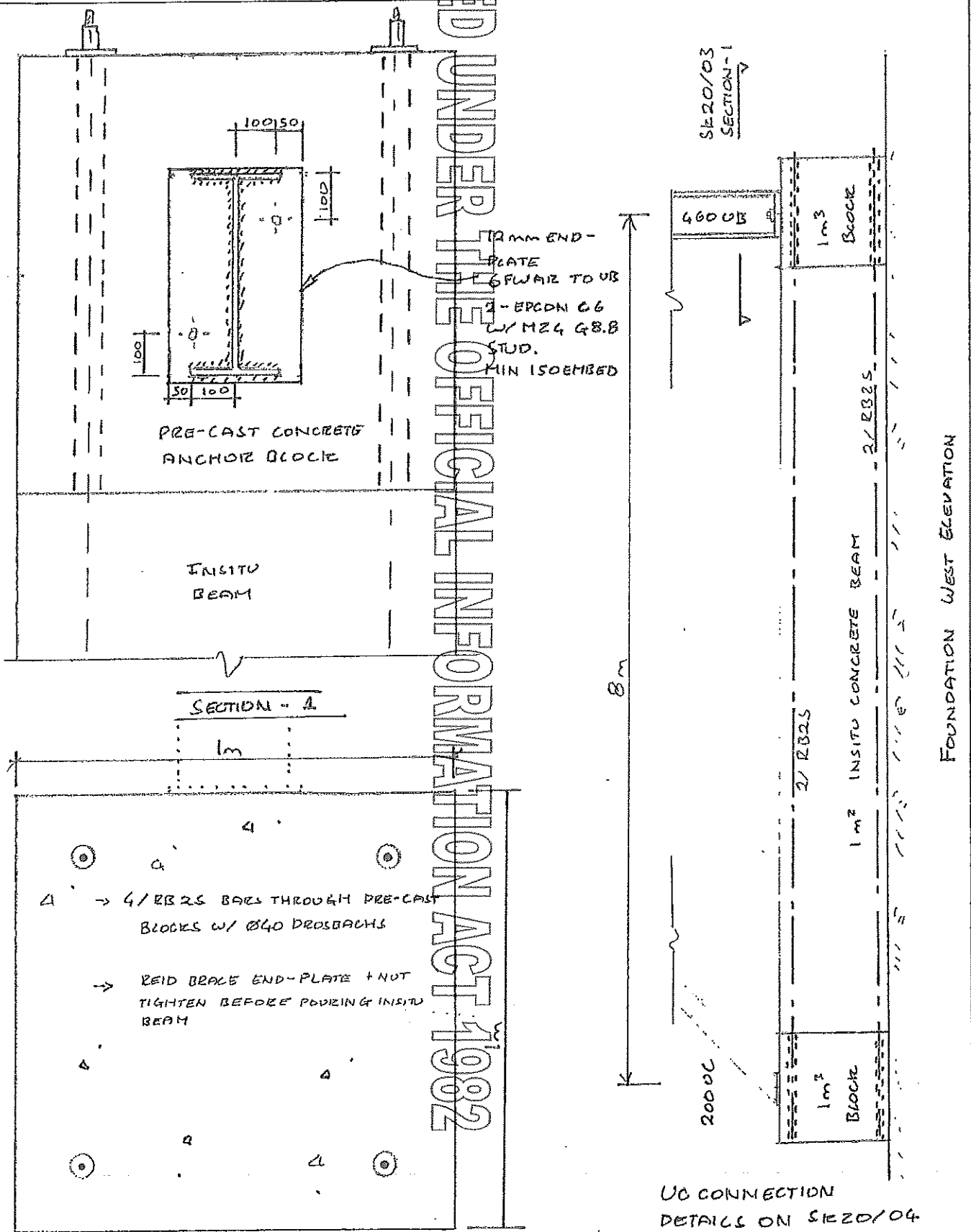
Withheld under section 9(2)(a)

CALCS/SKETCHES

Page No:

Revision:

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UC CONNECTION DETAILS ON SK20/04



Project Name: CHRISTCHURCH CATHEDRAL

Project No: 106 324

Calcs By:

Date: 12-12-11

Sketch No: 20104

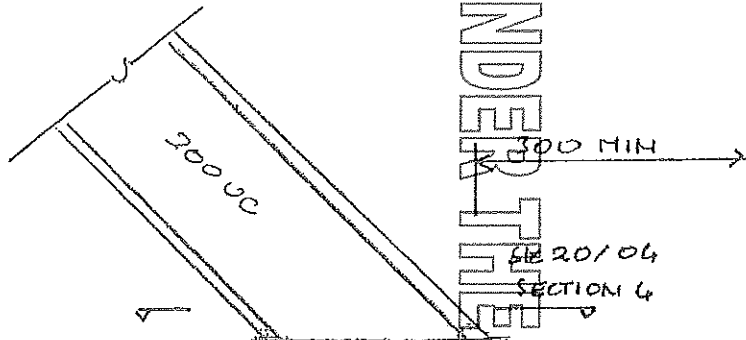
Withheld under section 9(2)(a)

CALCS/SKETCHES

Page No:

Revision:

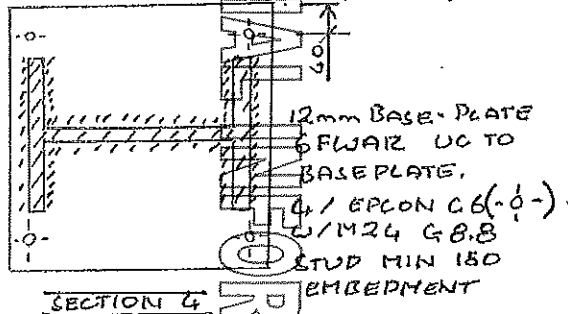
UC BRACE CONNECTION DETAILS



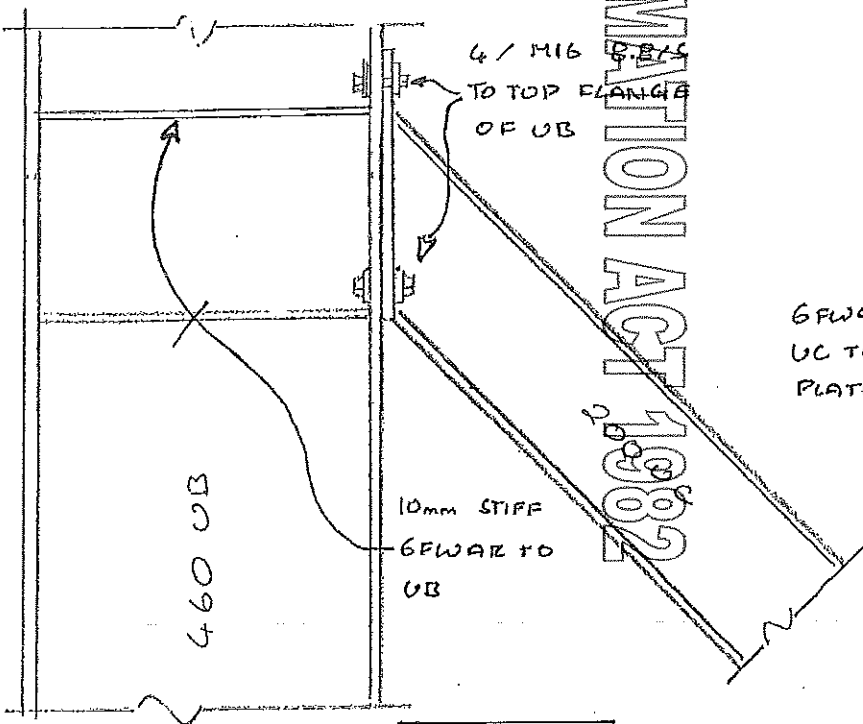
INSITU SLAB

SECTION 3

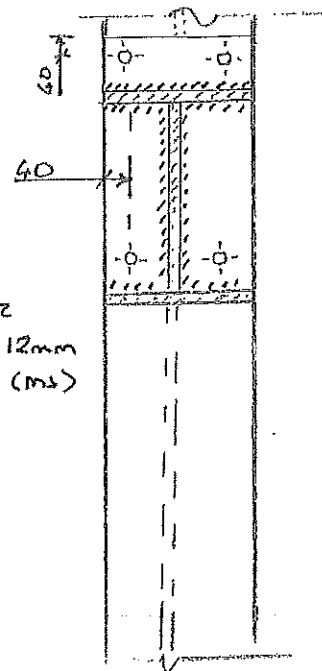
BASE-PLATE
DETAIL :



SECTION 4



SECTION 5



SECTION 6

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Project Name: CHRISTCHURCH CATHEDRAL

Project No: 106324

Colts By:

Date: 12-12-11

Sketch No: 20-05

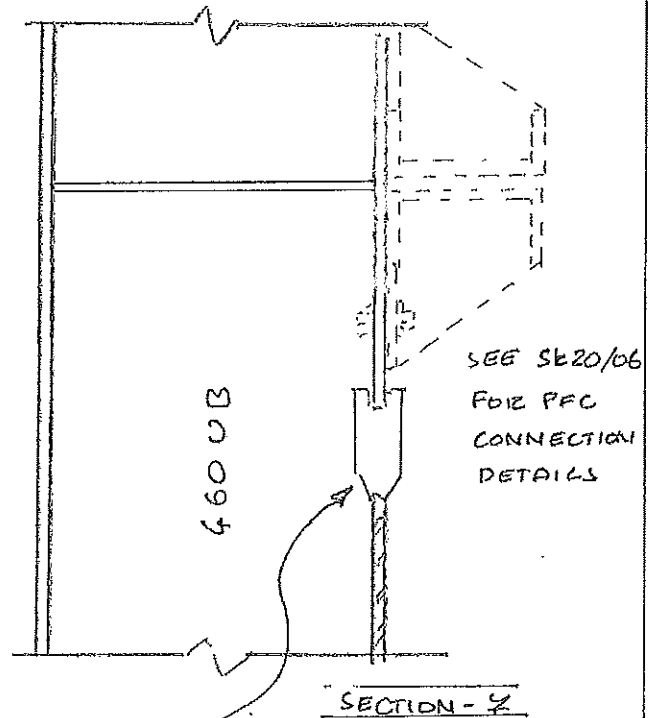
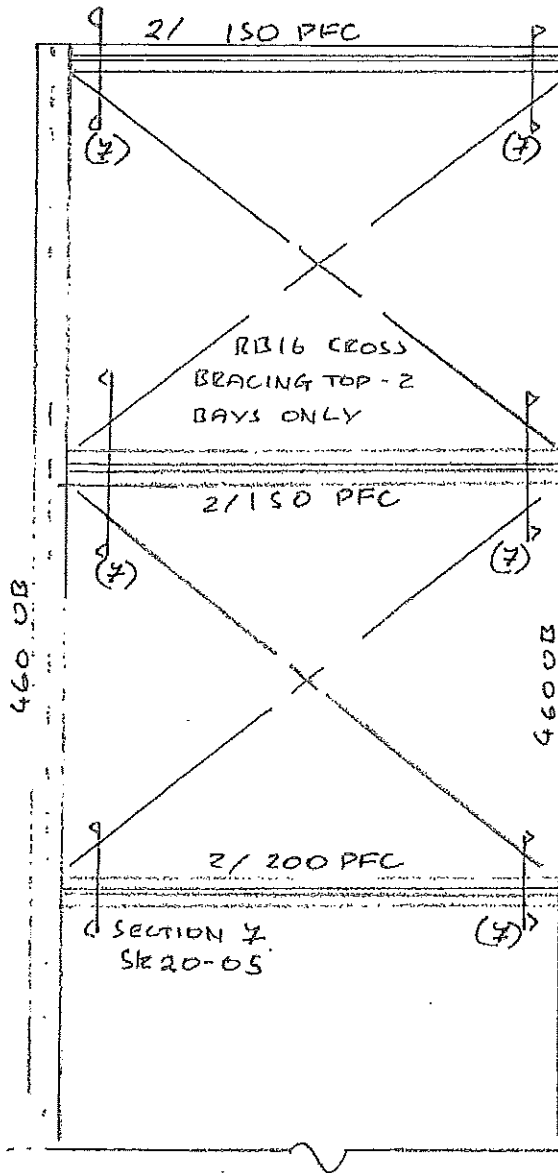
Withheld under section 9(2)(a)

CALCS/SKETCHES

Page No:

Revision:

BRACING SCHEME



USE PROPRIETARY
 REID - BRACE END -
 CONNECTIONS TO
 BOTTOM FLANGE OF
 UB

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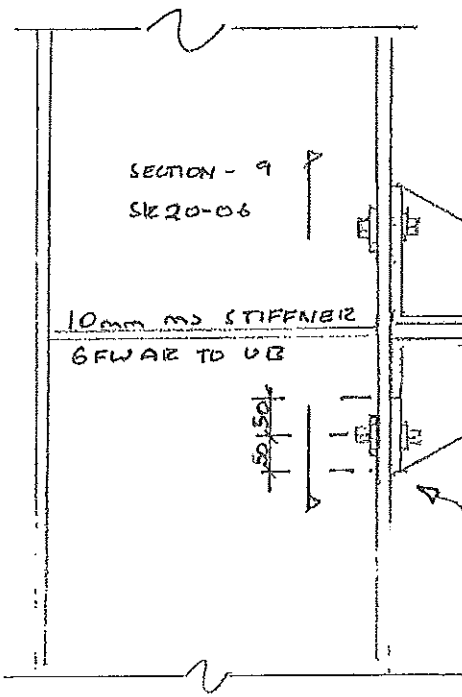
Project Name: CHRISTCHURCH CATHEDRAL
 Project No: 106324
 Colcs By:
 Date: 12-12-11
 Sketch No: 20-06

Withheld under section 9(2)(a)

CALCS/SKETCHES

Page No:
 Revision:

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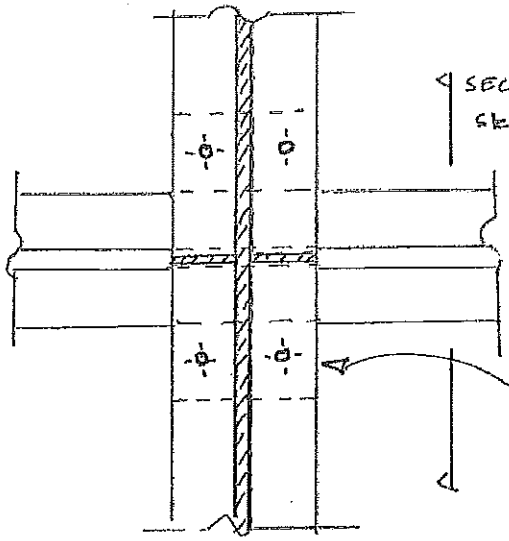
10mm STIFFENER
 6FWAR TO PFC

100x10 PLATE
 6FWAR TO PFC

DAMAGED
 FACADE

200x100x10 PLATE
 FPBW TO PFC FLANGE
 6FWAR TO STIFFENER
 TYPICAL TOP + BOTTOM PFC

SECTION - 8



SECTION - 8
 SK 20/06

M16 GB.B / S
 2 PER PFC TO
 BOTTOM FLANGE
 OF UB.

SECTION - 9



Project Name: CHEISTCHURCH CATHEDRAL

Project No: 106324

Calcs By:

Date: 12-12-11

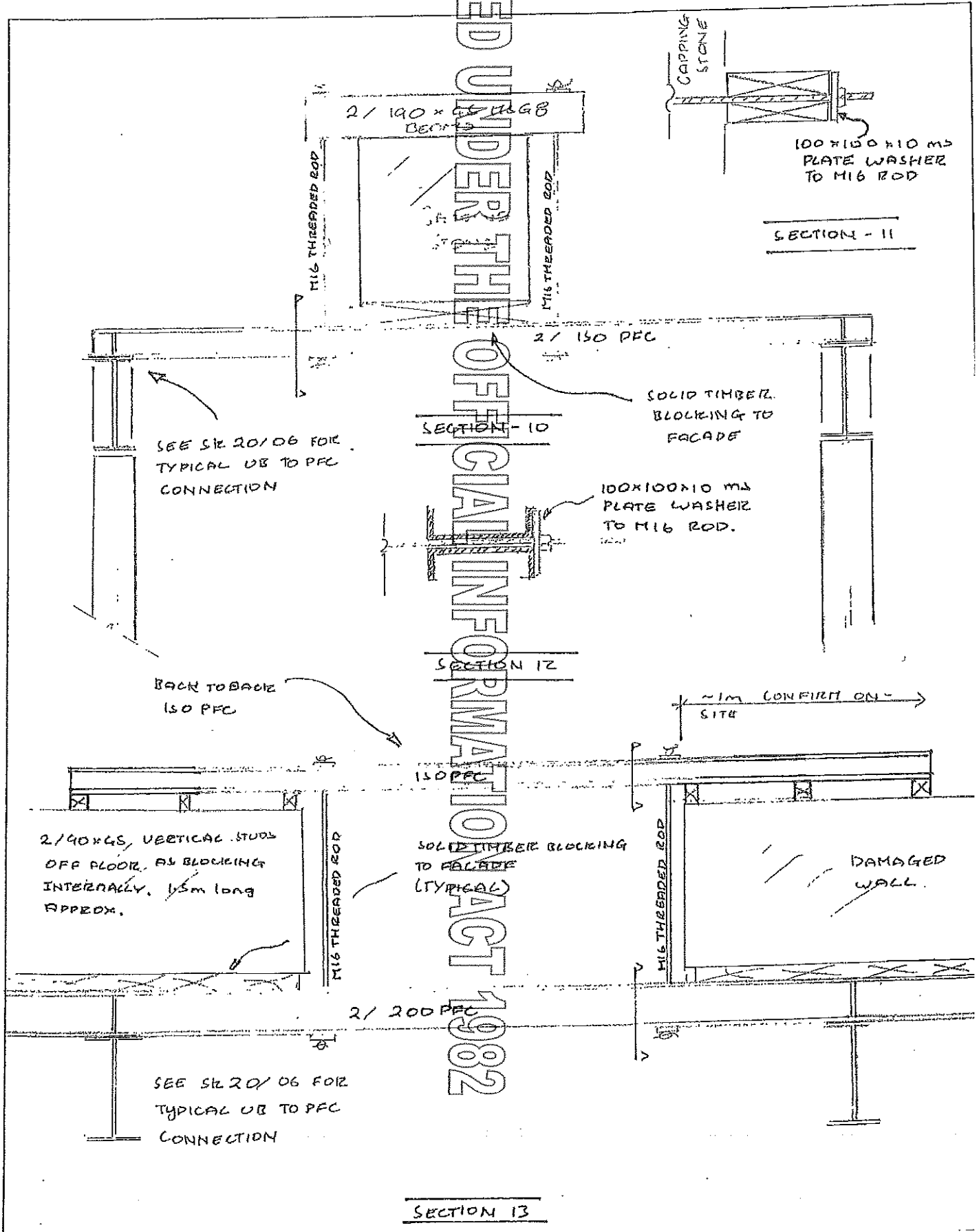
Sketch No: 20-07

Page No:

Revision:

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Withheld under section 9(2)(a) CALCS/SKETCHES





Project Name: CHRISTCHURCH CATHEDRAL

Project No: 106324

Calcs By:

Date: 12-12-11

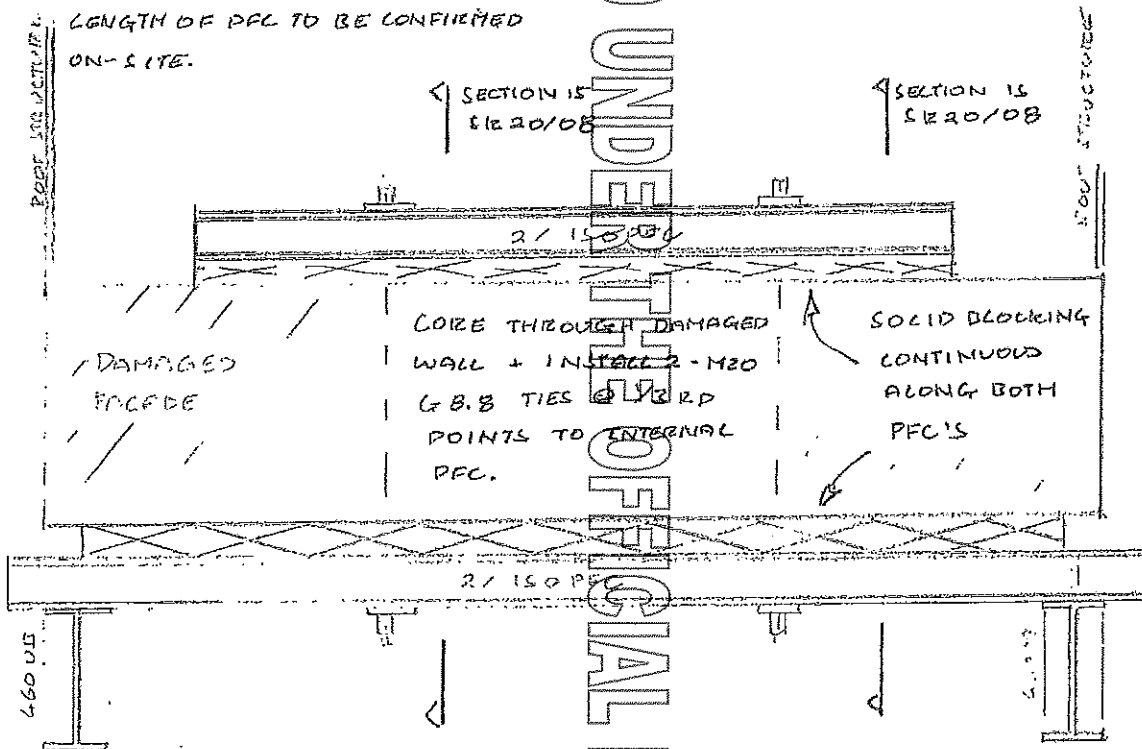
Sketch No: 20/08

Withheld under section 9(2)(a)

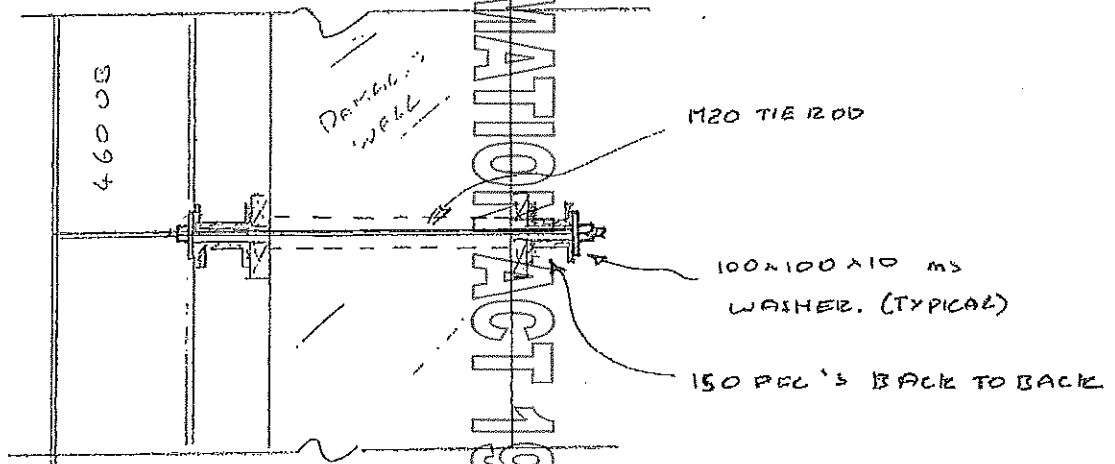
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Page No:

Revision:



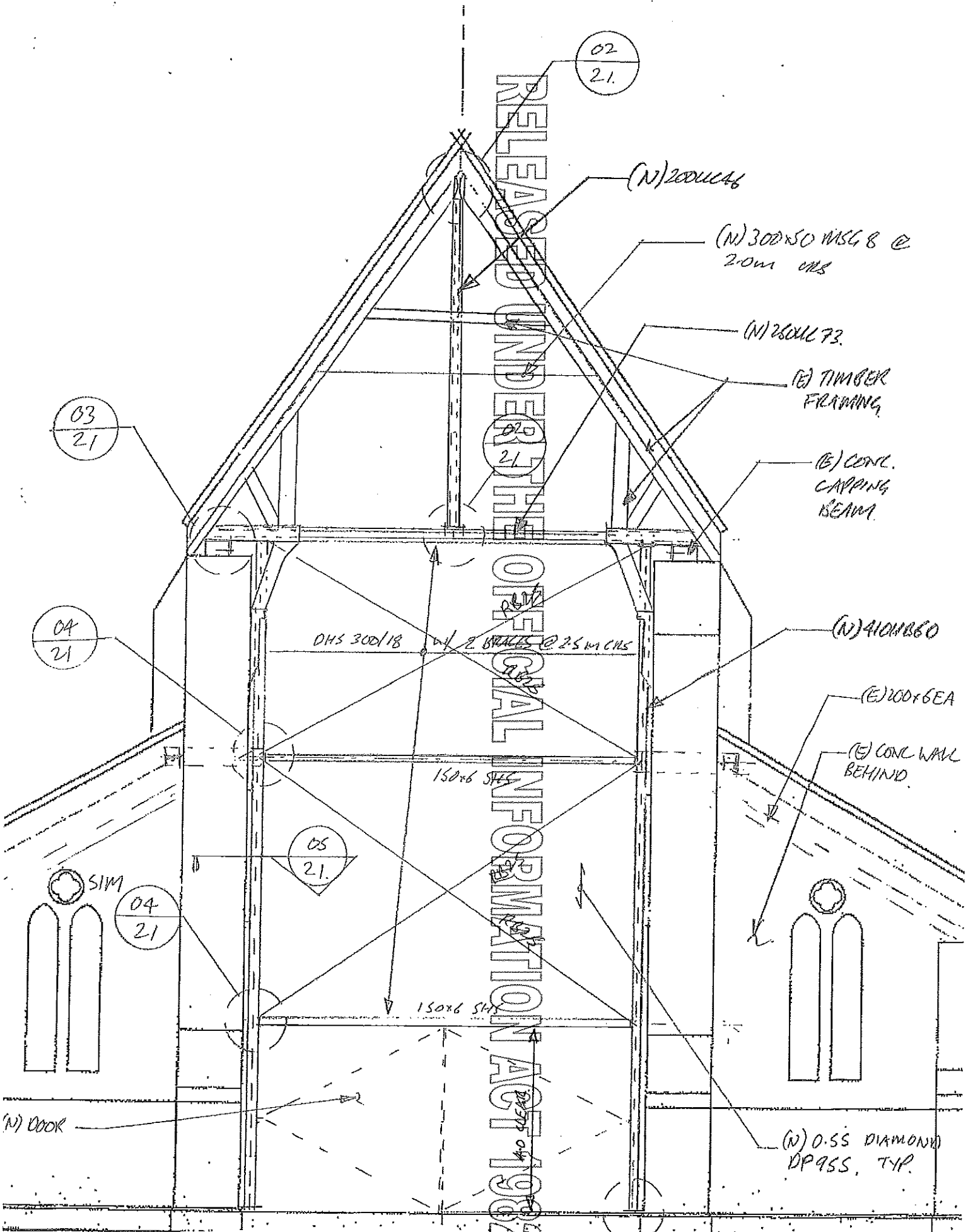
SECTION 14



SECTION 13

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RELEASED UNDER THE OFFICIAL INFORMATION ACT 1987



02
21

(N) 200UC46

(N) 300x50 WISG 8 @
2.0m C/S

(N) 250UC73

(E) TIMBER
FRAMING

(E) CONCL.
CAPPING
BEAM

03
21

02
21

04
21

DHS 300/18 w/ 2 BRACES @ 2.5m C/S

(N) 410UB60

(E) 100x6EA

(E) CONCL WALL
BEHIND

05
21

150x6 SPS

150x6 SPS

SIM

04
21

(N) 0.55 DIAMOND
DP955, TYP.

(N) DOOR

06
21

Title: WEST WALL SECURING

Job Name: CHRISTCHURCH CATHEDRAL

Job #: 10837 F SSK#: 21/01

Date: 11/12/11 Rev: 1

6



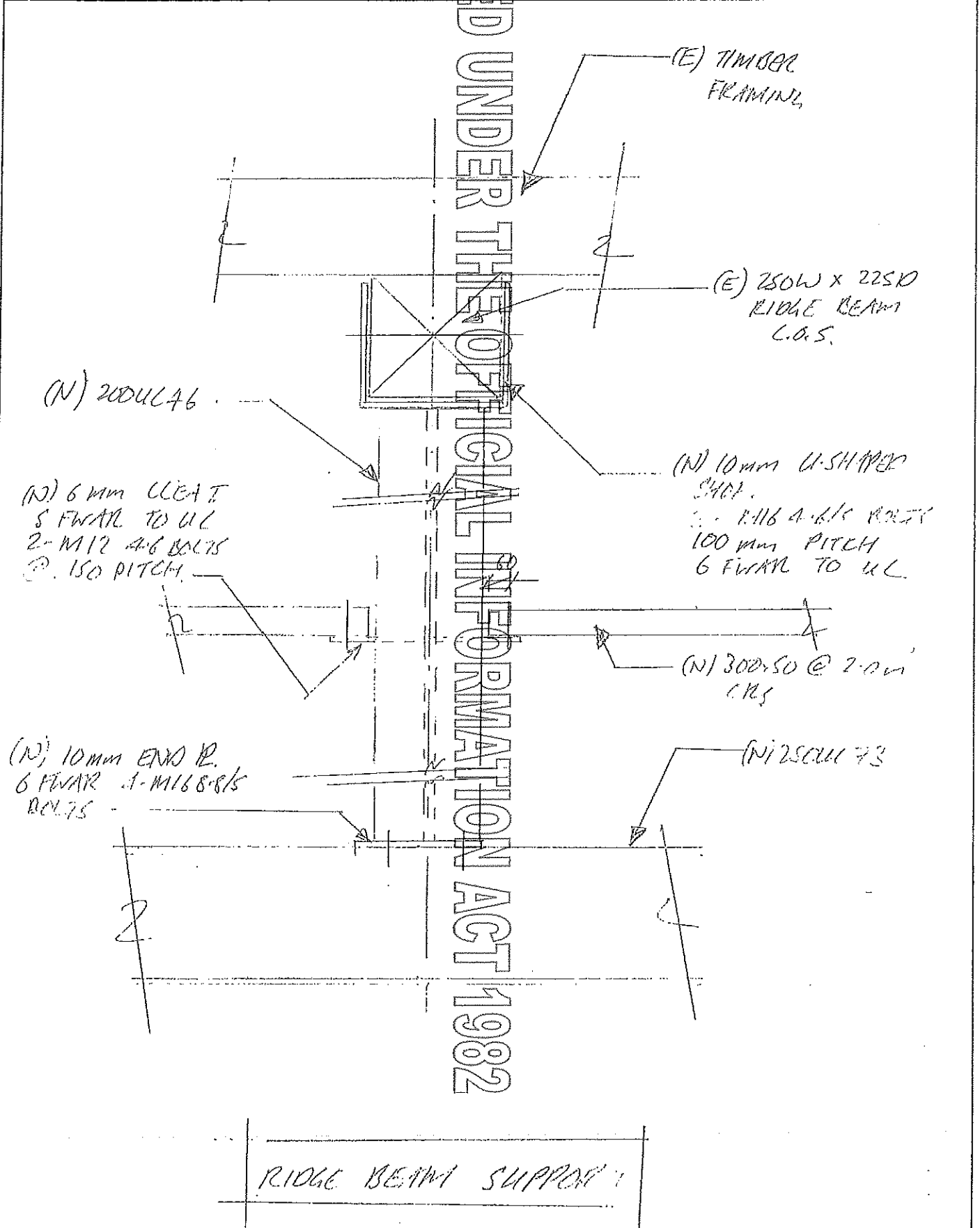
Project Name: *CHUM CATHEDRAL*
Project No: *106344*
Calcs By:
Date: *11/12/12*
Sketch No: *21/02*

Withheld under section 9(2)(a)

CALCS/SKETCHES

Page No:
Revision: *1*

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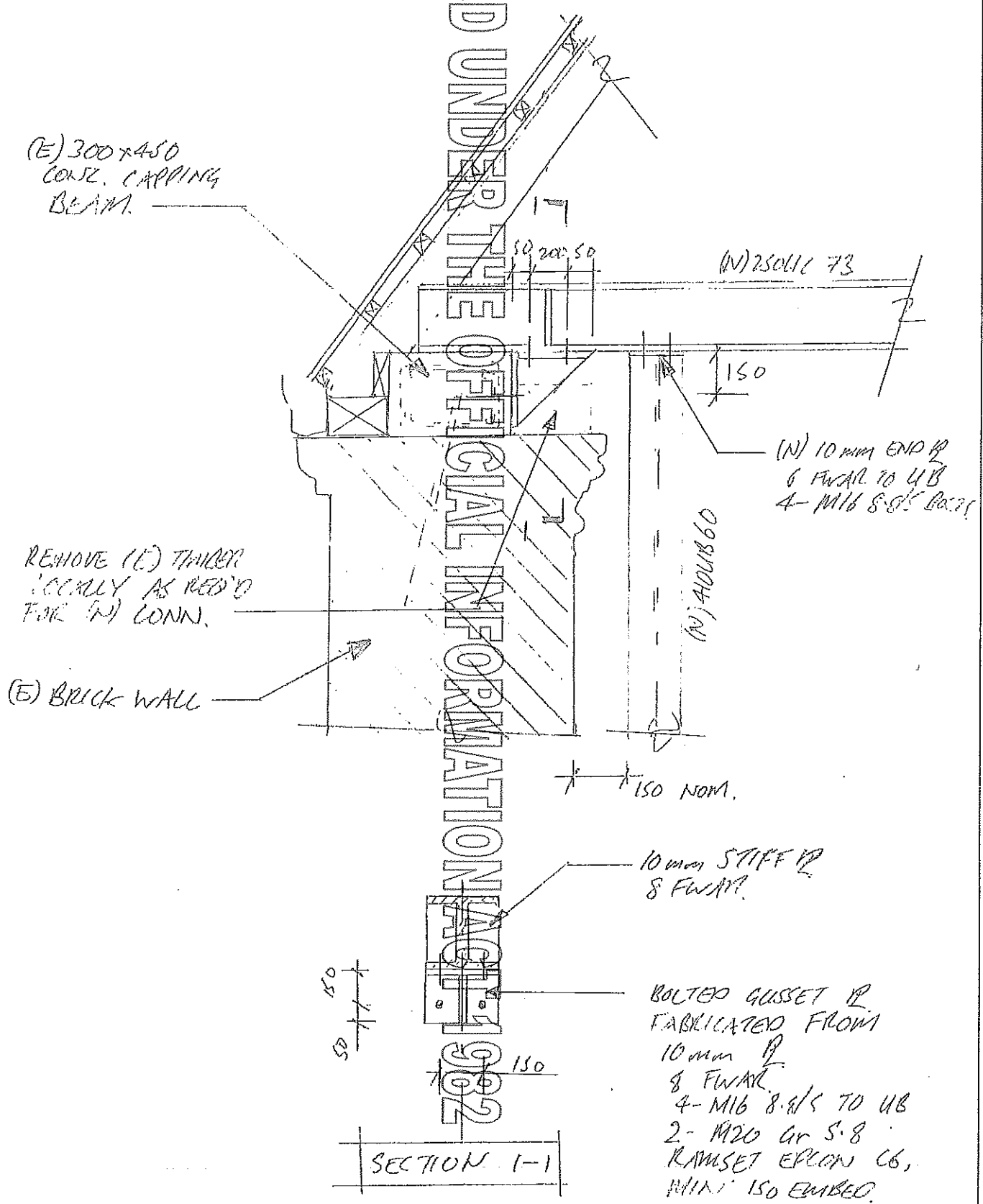




Project Name: CHCH CATHEDRAL
 Project No: 1083
 Colcs By:
 Date: 10/12/11
 Sketch No: 21/63

Withheld under section 9(2)(a)
 Page No:
 Revision: 1

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Project Name: CHCH CATHEDRAL

Project No: 108324

Calcs By:

Date: 11/12/12

Sketch No: 21/0

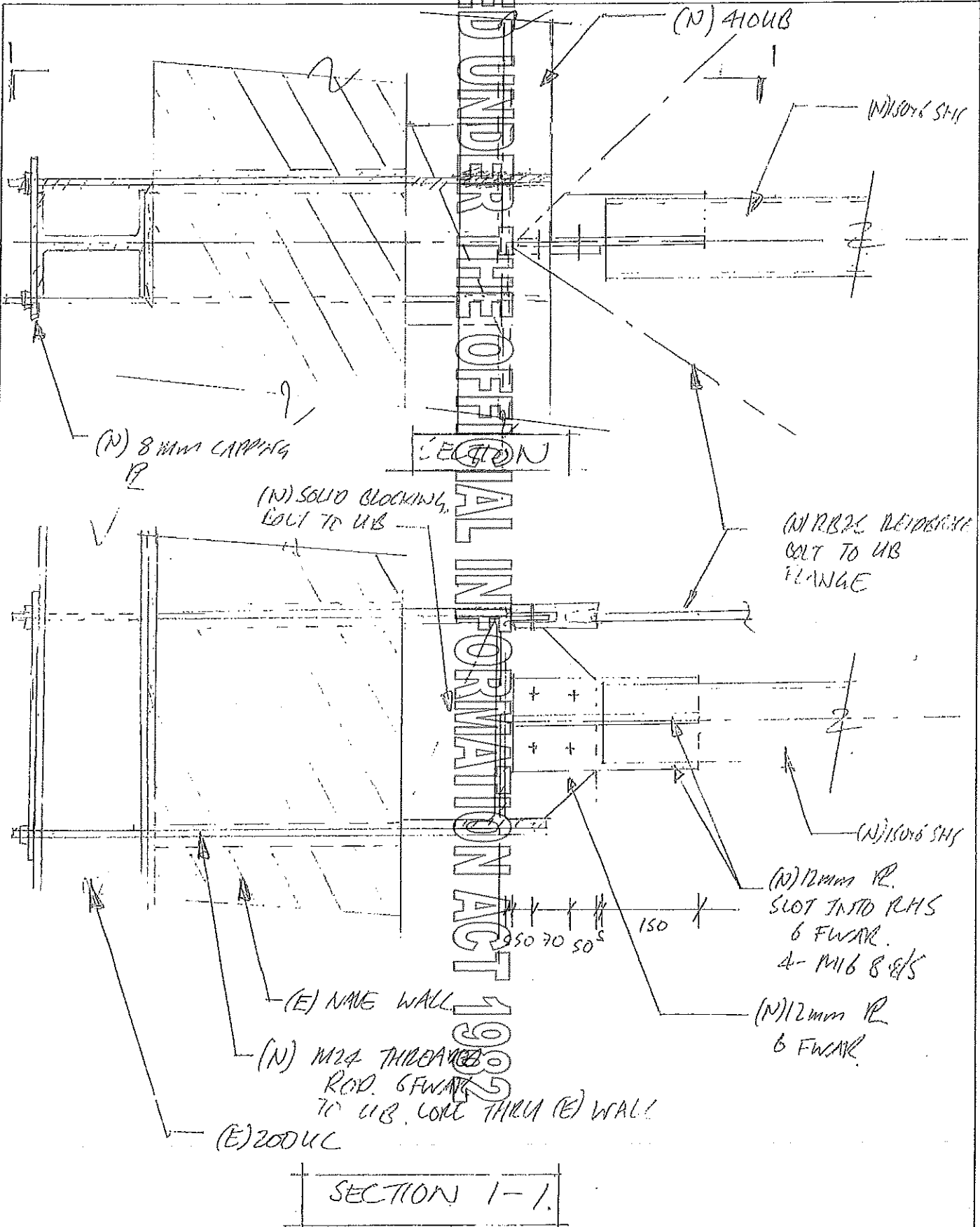
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CALCS/SKETCHES

Page No:

Revision: 1

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Project Name: CHCH CATHEDRAL

Project No: 106324

Calcs By:

Date: 12/12/11

Sketch No: 21/05

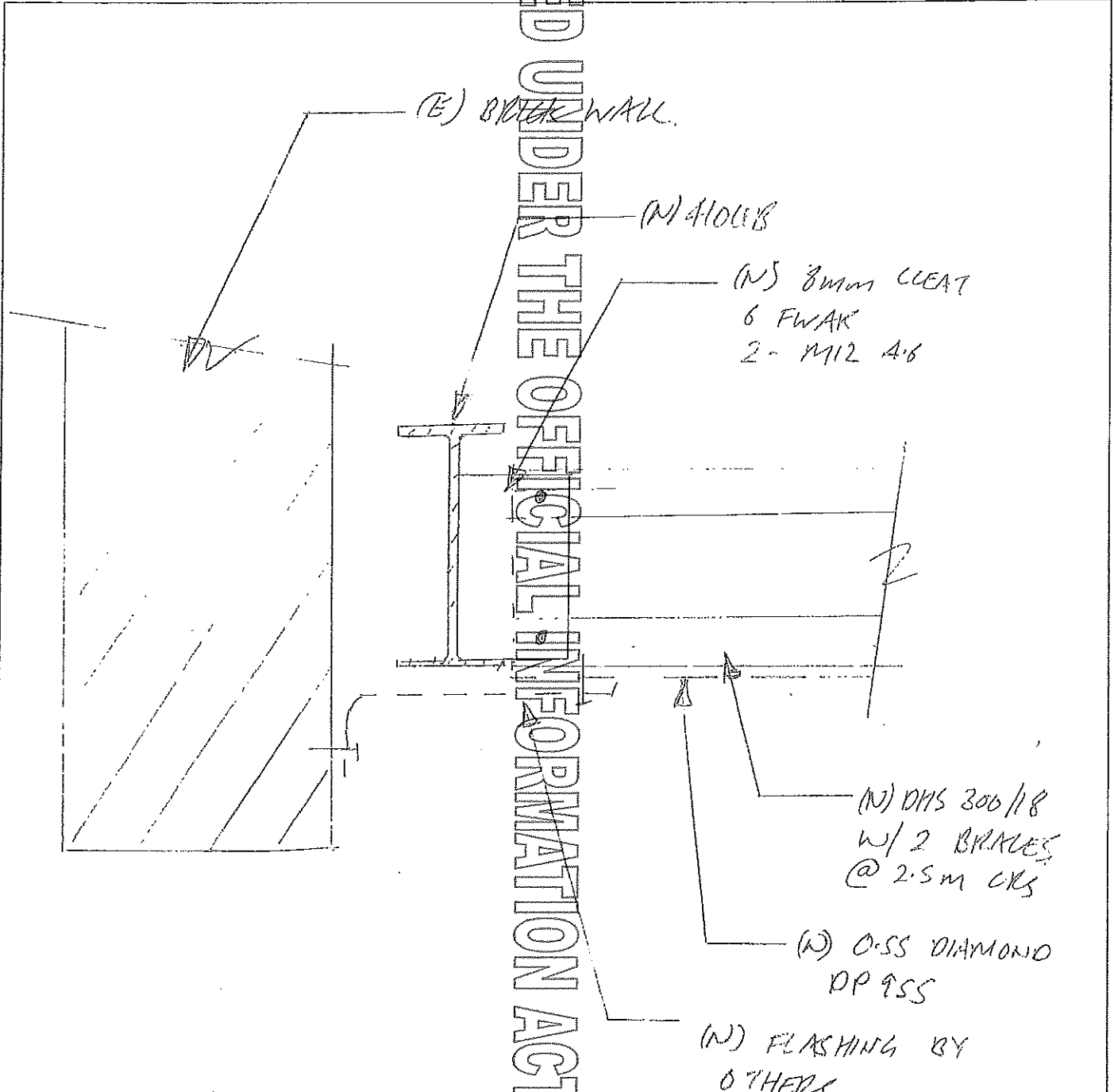
Withheld under section 9(2)(a)

CALCS/SKETCHES

Page No:

Revision: 1.

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NOTES:

1. DHS GIRTS TO BE ~~RE~~ SUPPORTED OFF 250UC 73 w/ M16 SAG RODS.
2. PROVIDE SAG RODS @ INTERMEDIATE 180545 LOCATIONS



Project Name: CHCH CATHEDRAL
Project No: 10838
Calcs By:
Date: 12/12/11
Sketch No: 21/06

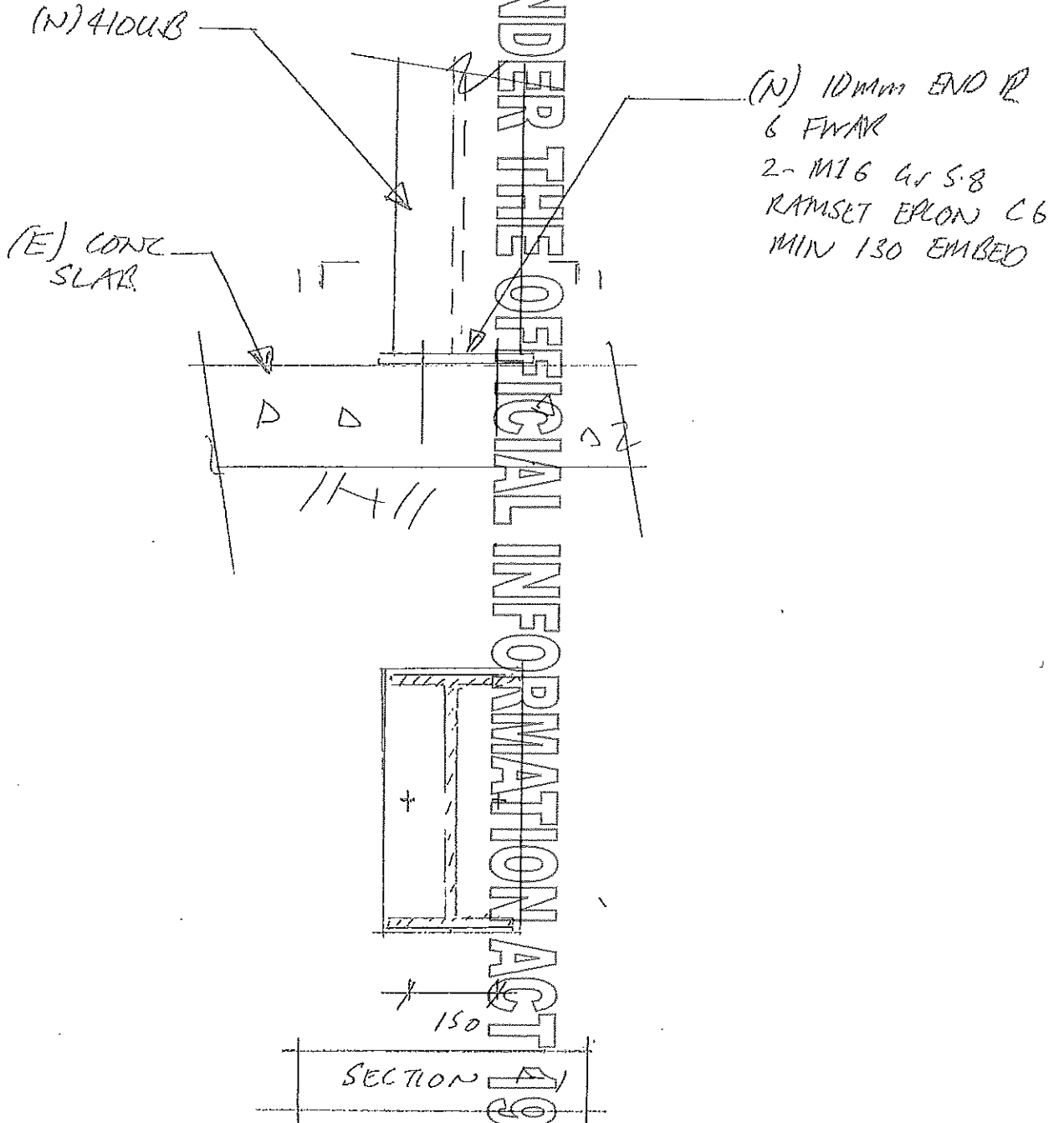
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CALCS/SKETCHES

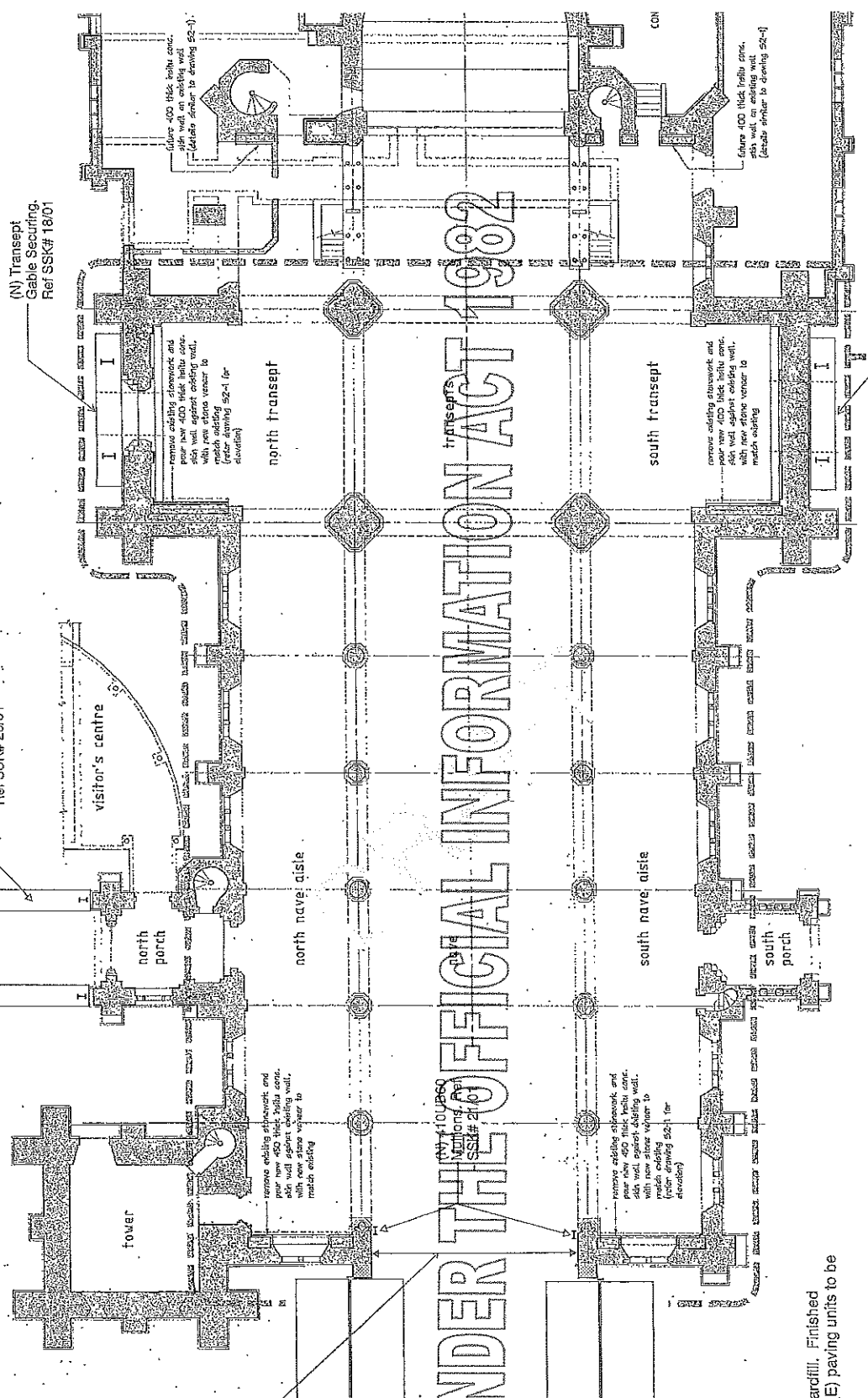
Page No:

Revision:

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LEGEND:
 (N) - New
 (E) - Existing



Demolish Rose Window & Western Porch

Provide (N) BF-2 Bridge Fittings Between Top Of Each Container in NS Direction Provide Access Space Between Container Stacks for Twistlock Installation

(N) Shipping Containers

NOTES:

- (N) Shipping containers to be founded on compacted hardfill. Finished hardfill level to suit required roof level collector height. (E) paving units to be removed.
- Make good (E) flashings where modified by new strengthening elements.
- Rubble in North Porch attic to be removed.

MAKE SAFE PLAN - PHASE 1 GROUND FLOOR PLAN



Holmes Consulting Group
 Christchurch Cathedral
 Project Name: Christchurch Cathedral
 Project Number: 108224
 Site: Withheld under section 9(2)(a)
 Date: 12/12/2011

All dimensions to be worked on site before erecting any jump drawings or commencing any work.

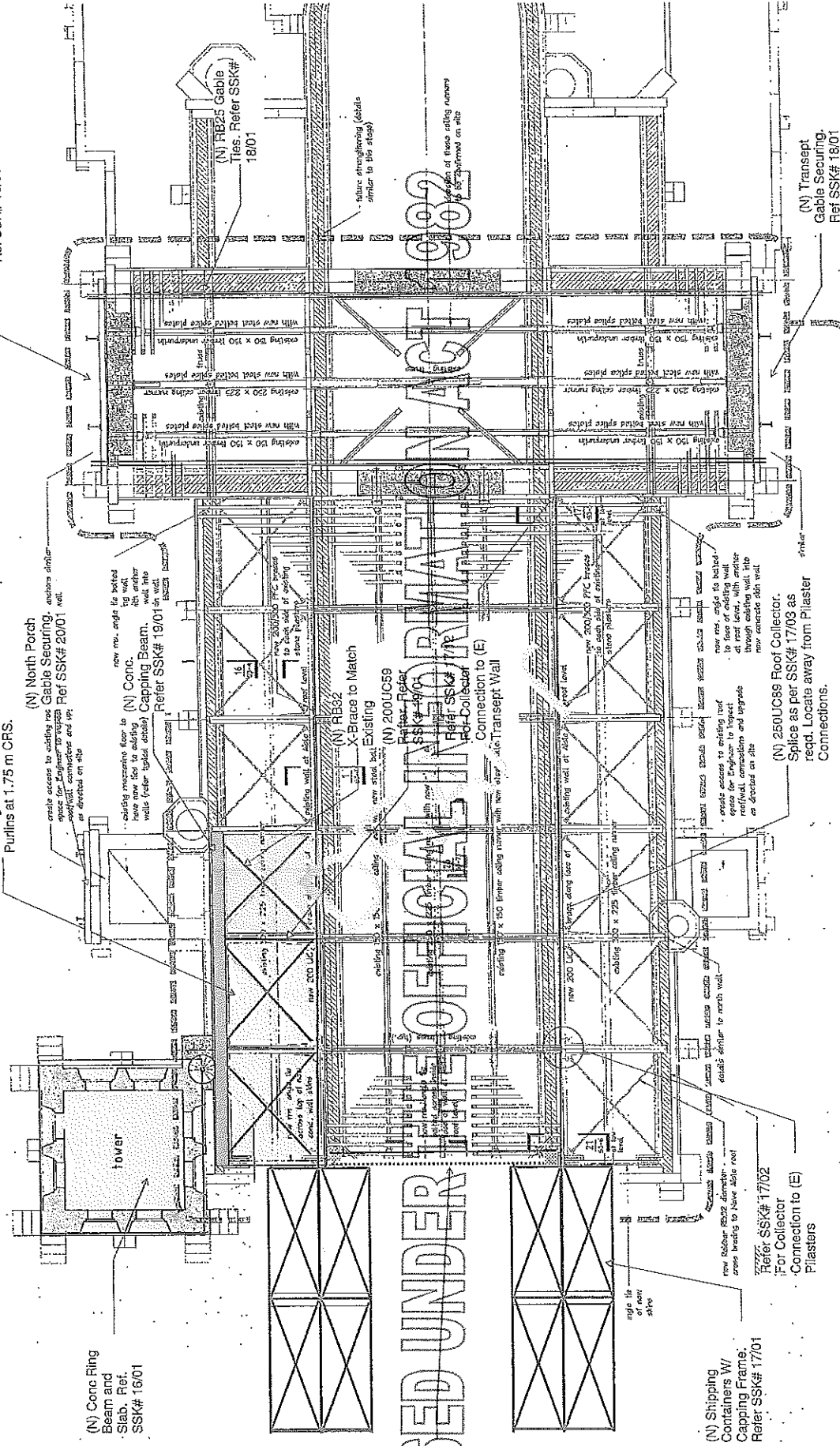
Holmes Consulting Group
 STRUCTURAL AND CIVIL ENGINEERS
 61 Cambridge Terrace
 Christchurch



CHRISTCHURCH CATHEDRAL
 STRENGTHENING

COMMERCIAL IN CONFIDENCE

LEGEND:
 (N) - New
 (E) - Existing



MAKE SAFE PLAN - PHASE 1 ROOF PLAN



Project Name: Christchurch Cathedral
 Project Number: 10000000
 Sketches By: Withheld under section 9(2)(a)
 Date: 12/12/2011
 Sketch Number: 34 Rev 4

Holmes Consulting Group
 STRUCTURAL AND CIVIL ENGINEERS
 40 Cambridge Terrace
 Christchurch

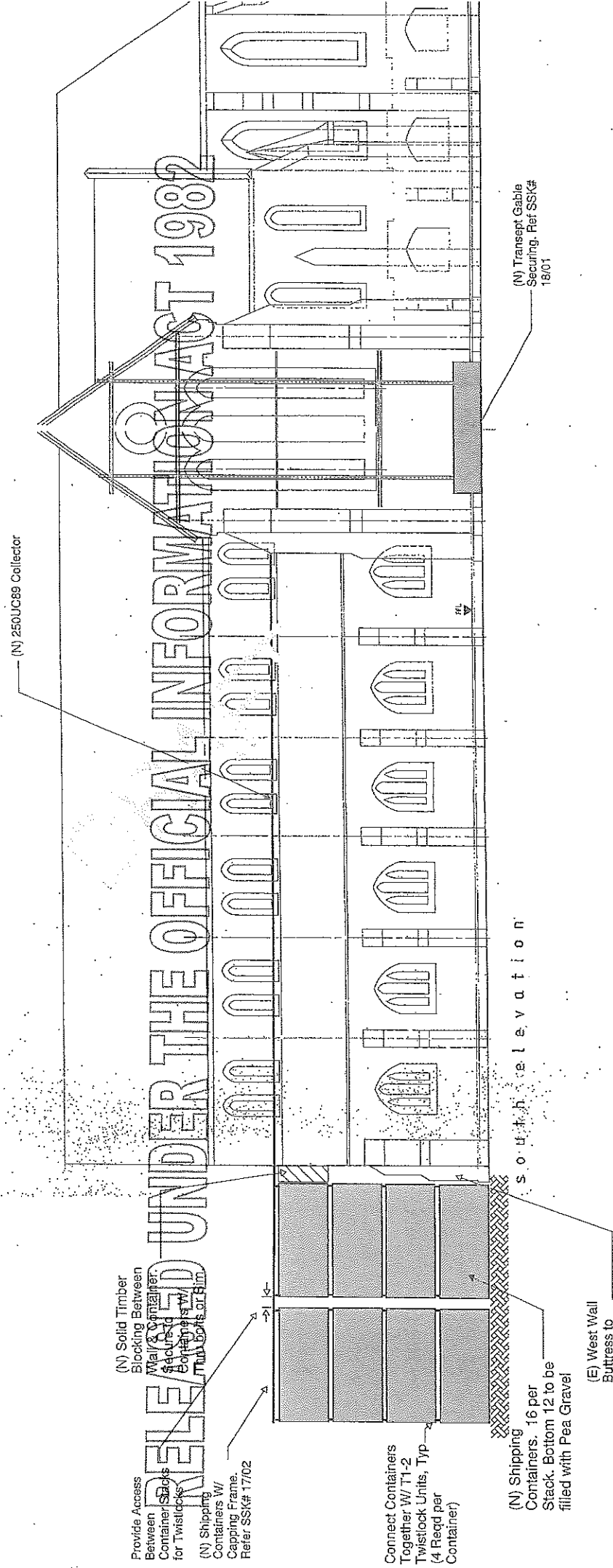
Sheet No: 1
 roof pl
 2948

CHRISTCHURCH CATHEDRAL
 STRENGTHENING

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LEGEND:

- (N) - New
- (E) - Existing



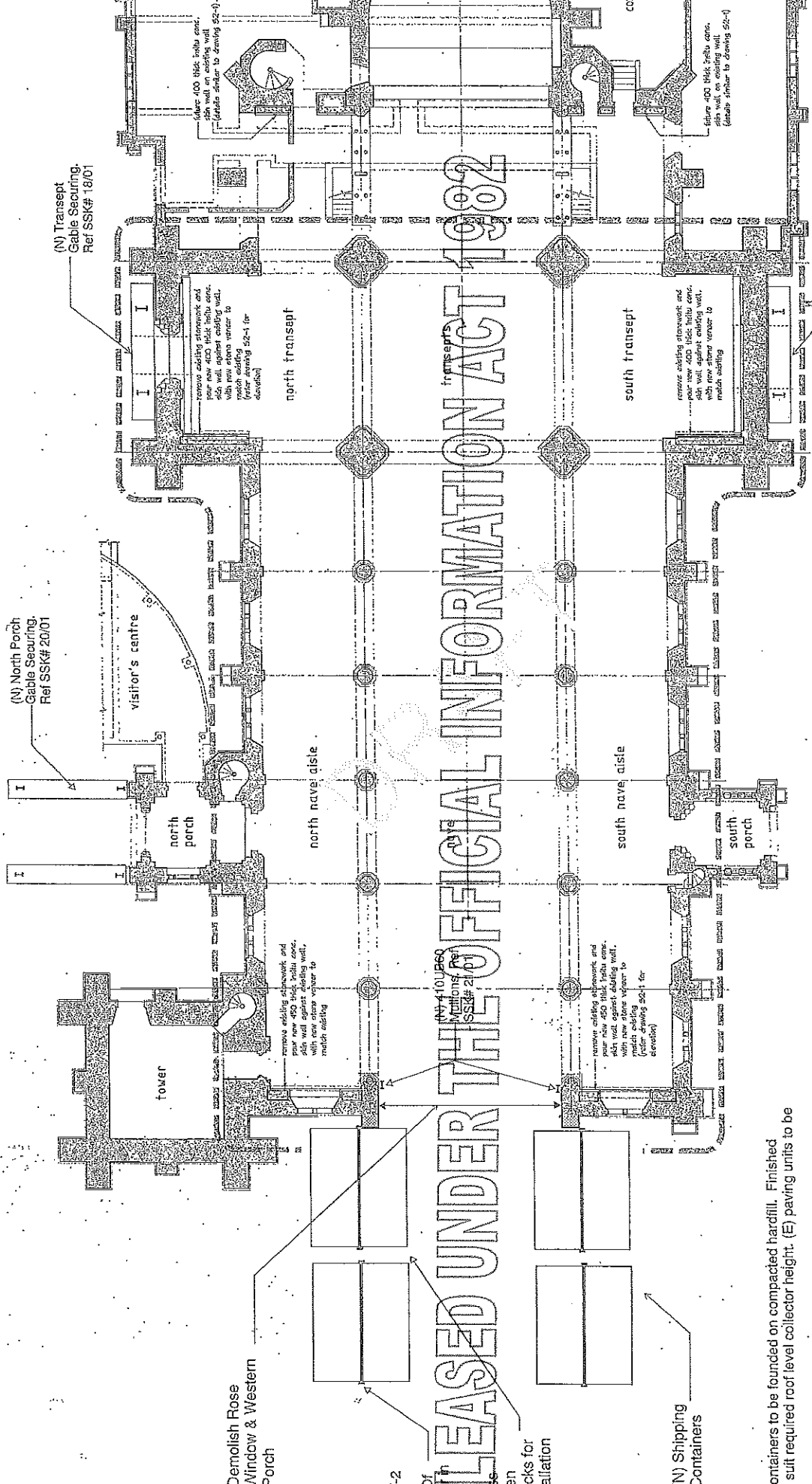
MAKE SAFE PLAN - PHASE 1 SOUTH ELEVATION

1/2

Holmes & Narver
 Project Name: Christchurch Cathedral
 Project Number: 106324
 Sketches By: [Name]
 Date: 12/12/2011

Withheld under section 9(2)(a)

LEGEND:
 (N) - New
 (E) - Existing



MAKE SAFE PLAN - PHASE 1 GROUND FLOOR PLAN

Provide (N) BF-2 Bridge Fittings Between Top Of Each Container in NS Direction. Provide Access Space Between Container Stacks for Twistlock Installation

NOTES:

1. (N) Shipping containers to be founded on compacted hardfill. Finished hardfill level to suit required roof level collector height. (E) paving units to be removed.
2. Make good (E) flashings where modified by new strengthening elements.
3. Rubble in North Porch attic to be removed.



HolmesConsultingGroup
 Christchurch Cathedral
 Project Name: Christchurch Cathedral
 Project Number: 108324
 Sketches By: [Signature]
 Date: 12/12/2017

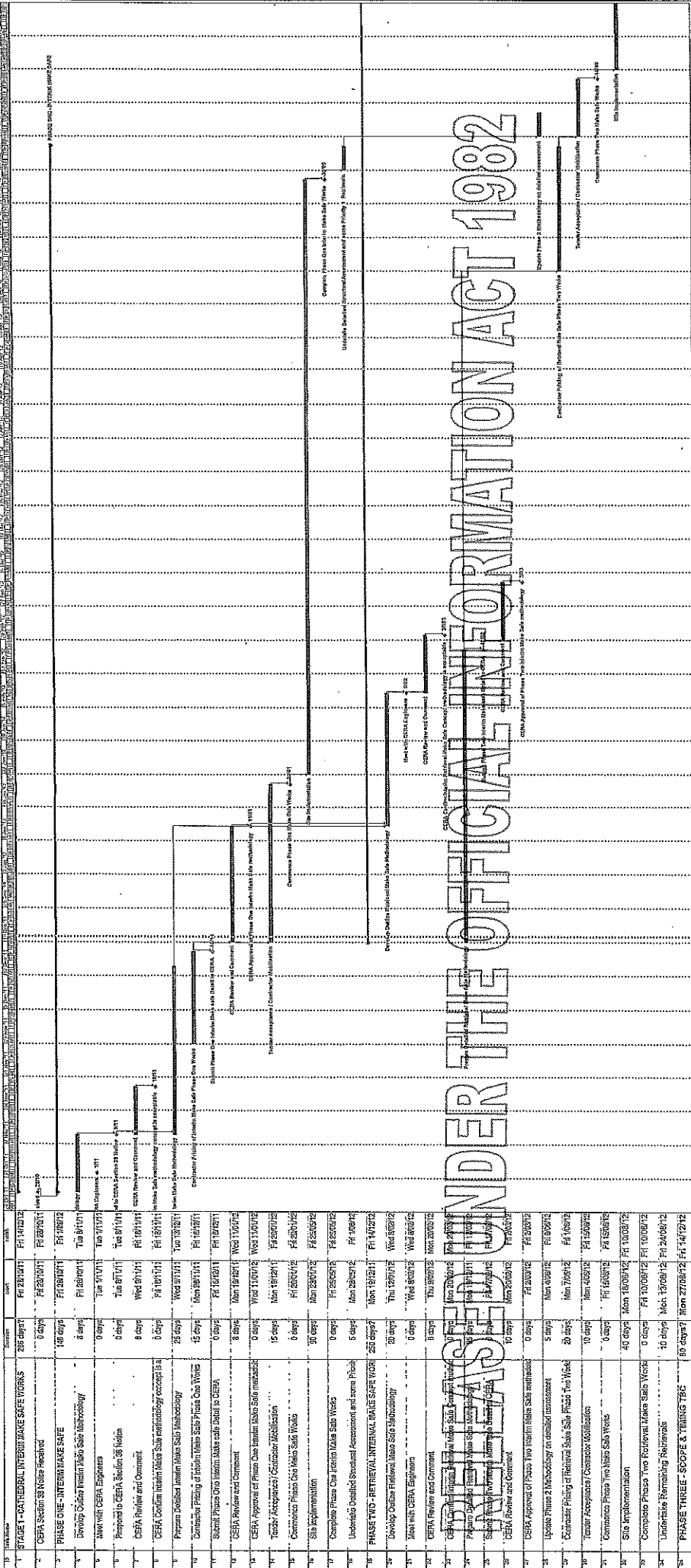
All Construction to be verified on site before making for duty strength or commencing any work.

HolmesConsultingGroup
 STRUCTURAL AND CIVIL ENGINEERS
 Telephone: 488-2288
 Fax: 488-2289
 Christchurch

Drawn	Rev	Scale	Date
[Signature]	1	1:100	12/12/2017
[Signature]	2	1:100	12/12/2017

CHRISTCHURCH CATHEDRAL
 STRENGTHENING

Withheld under section 9(2)(a)
 12/12/2017



UNDER THE OFFICIAL INFORMATION ACT 1982

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SPECIFICATION

STRUCTURAL AND CIVIL ENGINEERS

CHRISTCHURCH CATHEDRAL - PHASE 1

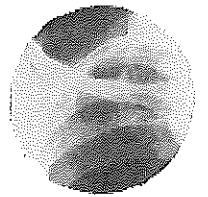
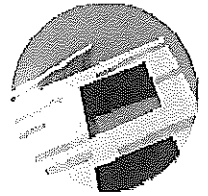
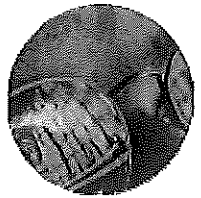
SECURING WORKS

PREPARED FOR

CHURCH PROPERTY TRUSTEES

106324

DECEMBER 2011





Specification

Christchurch Cathedral

Prepared For:
Church Property Trustees Trust

Date: 12 December 2011
Project No: 106324
Revision No: 1

Prepared By:

Withheld under section 9(2)(a)

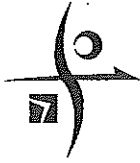
Holmes Consulting Group Limited
Christchurch Office

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- 1.0 CONCRETE - GENERAL
- 2.0 REINFORCING STEEL
- 3.0 STRUCTURAL STEELWORK





2. REINFORCING STEEL

2.1 PRELIMINARY

Refer to the Preliminary and General Clauses of this Specification and to the General Conditions of Contract which are equally binding on all Trades. This section of the Specification shall be read in conjunction with all other sections.

2.2 SCOPE

This section of the Contract refers to the supply, bending and placing of all reinforcing for concrete and reinforced blockwork including distance pieces and spacers.

Supply, bending and placing of reinforcing for all precast concrete may be by CONCRETE PRECAST sub-contractor. However, the reinforcing steel provided shall comply with this section of the specification.

2.3 RELATED DOCUMENTS

In this section of the Specification, reference is made to the latest revisions of the following documents:

The New Zealand Building Code		(BIA)
AS/NZS 1554	Structural Steel Welding	(SANZ)
AS/NZS 4671:2001	Steel Reinforcing Materials	(SANZ)
NZS 3101:2006	Concrete Structures Standard	(SANZ)
NZS 3109:1997	Specification for Concrete Construction	(SANZ)
BS 5896:1980	Specification for High tensile steel wire and strand for the prestressing of concrete	(BSI)

Reference shall also be made to the sections of this specification which apply to STRUCTURAL STEELWORK

2.4 QUALITY ASSURANCE

2.4.1 General

It is the Contractor's responsibility to ensure that the reinforcement placed complies in all respects with the drawings and the specification. The Contractor will be required to nominate a Foreman reinforcing steelplacer, or equivalent, for approval by the Engineer before commencement on site. The nominated representative shall inspect all completed sections of reinforcing steelwork and advise the Contractor when the work has been carried out in accordance with the drawings and specification.

2.4.2 Producer Statement – Construction (PS3)

When the works are sufficiently complete that they are ready for application to the Territorial Authority for a Code Compliance Certificate, or otherwise at key handover dates for particular sections of the works, the nominated representative responsible for the quality assurance procedures for the concrete trade will be required to certify to the main Contractor that all concrete work has been carried out in full accordance with all Contract Documents and Contract Instructions in the form of a Producer Statement - Construction. This statement will be required to be completed prior to the issue of the Producer Statement – Construction Review by the Engineer for the whole or sections of the works as appropriate.

No Practical Completion Certificate shall be issued until such time as all the Producer Statements for the relevant section of the works have been received. Refer to the Appendix for additional explanation and a sample of the form of these Statements.

2.4.3 Inspection

The Engineer shall be informed when reinforcement is being fixed and given a reasonable opportunity to inspect the fixed reinforcement before pouring commences.

2.4.4 Supervision

The Contractor shall be represented on site by a competent leading hand (reinforcing), while steel is being placed.

During pouring, the Contractor shall have appropriately skilled personnel on call to identify and correct any damaged or displaced reinforcing.

2.4.5 Testing

The Contractor shall demonstrate to the Engineer that all reinforcement complies with the Specification and produce manufacturer's certificates and certificates of origin to the Engineer. Should such certificates indicate that the requirements of this Specification may not be met, the Contractor shall pay for such tests as the Engineer may decide are necessary to establish that this steel does meet this specification.

2.5 MATERIALS AND WORKMANSHIP

All materials and workmanship shall conform to the requirements of NZS 3109.

2.5.1 Reinforcing Steel

2.5.1.1 General

Grade 300E and Grade 500E reinforcement shall comply with AS/NZS 4671. Grade 500E bars shall be manufactured using the microalloy process.

All reinforcement shall be manufactured by Pacific Steel Ltd. Steel of alternative origin may be approved by the Engineer, but only for specific non-structural situations, or if the contractor can furnish certification by an appropriately qualified person that the steel complies in full with AS/NZS 4671 and related documents – refer below.

2.5.1.2 Certification of Alternative Reinforcement

The certification shall be a detailed and reasoned technical opinion, issued on behalf of the supplier, by an appropriately qualified organisation having no proprietary interest in the reinforcing steel. As part of the technical opinion, the independent assessor shall demonstrate that all of the appropriate documentation (related to requirements of AS/NZS 4671 and the Contract documents) has been reviewed and is comprehensive and correct. Further the assessor shall certify that the requirements for traceability of reinforcement have been adhered to by any and all parties (including manufacturer, importer, merchant, main contractor and sub-contractor's) involved in the supply of the reinforcement to the final position, in place on site.

Certification of the audit/traceability procedures and of any alternative reinforcement must be provided to Holmes Consulting Group before the placement of any alternative reinforcement in its final position or incorporation in any precast concrete element, on or off site.

No alternative reinforcement shall be permitted unless it can be demonstrated by supply of cast numbers etc that it is the precise material referred to in the technical opinion supplied.

2.5.2 Bending of Bars

Bars shall be cut and bent according to NZS 3109 Section 3 and to the dimensions and shapes shown or indicated in the drawings. Bend diameters for longitudinal

reinforcing shall be in accordance with clause Bend Diameters. Stirrups shall be bent to standard shapes as shown in NZS 3109. Note that larger bend diameters are required around ducts, and at mechanical splices using swaged couplers.

Cranks or sets at laps shall have their inclined portions 12 diameters or a minimum of 300mm long unless specifically shown otherwise.

2.5.3 Bending Schedules

Bending schedules are not included in the documentation for this contract. It is the REINFORCING STEELWORKER'S responsibility to supply a Bending Schedule to be checked by the Contractor before bending and cutting. The Contractor shall be responsible for bringing to the notice of the Engineer discrepancies in the drawings, before cutting and bending.

2.5.4 Bend Diameters

Bend diameters for stirrups and ties shall be to suit the diameter of the enclosed bar but not less than the following.

Steel Grade	Bar Size	Minimum diameter of bend di (mm)	
		Plain Bars	Deformed Bars
300E and 500E	6-20	2 bar diameters	4 bar diameters
	21	3 bar diameters	6 bar diameters

Where deformed bars are galvanized, the minimum bend diameter shall be 5 bar diameters for bar diameters of 10 mm or less, and 8 bar diameters 20 mm or greater.

2.5.5 Bar Numbering

All bundles of steel supplied to the job shall be clearly marked with numbers relating to the Bending Schedule and related drawing.

2.5.6 Abbreviations

Bar diameters are prefixed with the following:

D	deformed grade 300E bar
R	plain grade 300E bar
XD	deformed grade 500E bar
XR	plain grade 500E bar

Abbreviations on the drawings are as follows:

e.f.	each face
n.f.	near face
f.f.	far face
reinf.	reinforcement

c.j.
crs
stgd
e.w.
stps
t.
b.
Tt
Tb
Bt
Bb
alt.
stts.
cis
U.N.O.

construction joint
centres
staggered
each way
stirrups
top
bottom
top (top)
top (bottom)
bottom (top)
bottom (bottom)
alternate
starters
cast-in sockets
unless noted otherwise

2.5.7 Cover

Minimum cover shall be as noted on the drawings. Note that generally covers are greater than specified in NZS 3101. In any case the tolerances specified in NZS 3109 apply. In particular, there shall be zero tolerance on reduction of cover.

The ends of wire ties shall be turned away from the concrete face to maintain cover. Wire ties shall not be tied to formwork.

2.5.8 Tolerances

Tolerances for bending and fixing of reinforcing steel and fixing of prestressing tendons, ducts and strands shall comply with NZS 3109.

2.5.9 Laps in concrete

Position of laps are generally shown on the drawings. The positions of laps other than those detailed shall be discussed and agreed with the Engineer before fabrication.

All lapping bars shall be tied to each other.

Lap lengths shall generally be as detailed on the drawings, but in any case not less than 300mm. Where laps have not been specifically detailed, laps shall comply with the table below.

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Bar diameter	Grade 300E deformed	Grade 500E deformed
10	450	750
12	550	900
16	700	1200
20	900	1500
25	1100	1800
32	1400	2350

Lap lengths for plain round bar shall be two times the length given in the table above for the corresponding grade of deformed bar.

All spiral reinforcing must be lapped using welded splices and terminated at each end with a double turn welded back on itself, or with a standard hook return into the centre of the cage.

2.5.10 Welded Splices

In all cases, approval for welded splices shall be obtained from the Engineer before use. Procedure testing will be required for butt welds, with subsequent field testing, all to be carried out at the cost of the subcontractor.

2.6 FIXING

2.6.1 General

Steel fixing shall conform to NZS 3109. Bars shall be positioned accurately according to the drawings and securely tied with wire ties to form a rigid cage. Particular attention shall be paid to the correct lapping of all steel and laps shall be checked after fixing.

Reinforcing steel shall not be cut or bent on site without the Engineer's specific approval.

Supply and fix all necessary distance pieces and spacers to maintain cover. Distance pieces shall be wired-on concrete spacer blocks, ABIT plastic pieces or similar. Concrete spacer blocks must be accurately made to the appropriate dimensions with a minimum strength of 40 MPa.

Where the formed surface may be visible in the completed work, care shall be taken to select a form of spacer which shall have a minimum of impact on the exposed surface.

Column and beam steel shall be securely tied to ties or links and shall have distance pieces to the formwork.

The system of distance pieces and spacers to be used shall be such as to firmly hold the steel against all reasonable Contractors' traffic. It shall be discussed in advance with the Engineer, and be to his approval. In general distance pieces and spacers shall be at a maximum of 1200mm centres each way and less where mesh is used.

All starters and other reinforcing protruding from a concrete pour shall be securely braced to prevent movement in the wet concrete. Starters are NOT to be placed into concrete after it has been poured.

2.6.2 Concrete

Supply and place all reinforcing for concrete as detailed on the drawings. Co-operate with the CONCRETOR and fit in with the programme for construction sequence. All starters shall project the minimum distance prescribed for lap lengths unless detailed otherwise, and shall be securely braced to prevent movement in the wet concrete.

Straighten and clean all starters bent during concreting before placing steel for subsequent pouring.

All existing concrete surfaces shall be thoroughly roughened to an amplitude of at least 5 mm prior to the subsequent placement of concrete, grout, or mortar.

2.6.3 Concrete Topping Reinforcement

Supply and place topping reinforcement to the toppings over precast concrete floor units as detailed.

Reinforcing bars shall lap as detailed or otherwise in accordance with the lap requirements of this specification.

Mesh shall be continuous over beams unless additional compensating lap bars are placed across the top of beams to lap with the mesh reinforcement each side.

Unless noted otherwise, all saddle bars and other steel shown over the beams on the drawings are additional to the topping reinforcement and cannot be included in the required area of compensating steel.

Place topping tie bars as detailed on the drawings. Tie bars shall not be placed in the joints between precast floor units, and shall fully engage the topping reinforcement.

2.6.4 Cleaning Steel

Reinforcement as fixed shall be cleaned to remove any material which adversely affects the bond to concrete. Any mould oil on the steel shall be thoroughly cleaned off before concrete is placed.

Clean all starter bars before placing steel for subsequent pouring.

2.6.5 Welding of Bars

2.6.5.1 General

Welding of all reinforcing bars shall comply with the requirements of the AS/NZS 1554.3 and the Structural Steelwork section of this specification.

Unless detailed on the drawings, welding of grade 300E and grade 500E bar may **ONLY** be carried out with the prior permission of the Engineer, and then only according to the procedures issued at the time. Generally, approval will not be given for welding of any reinforcement which does not comply with AS/NZS 4671.

The acceptance level for welds shall be in accordance with the requirements of AS/NZS 1554.3.

2.6.5.2 Welding Inspection

Refer to the Structural Steelwork section of this Specification for clauses relating to welding inspection and defects.

2.6.6 Heating of Reinforcement

Heating of grade 300E and grade 500E bar may **ONLY** be carried out with the prior permission of the Engineer, and then only according to procedures issued at the time.

2.6.7 Rebending of Reinforcement

Rebending of grade 300E and grade 500E may **ONLY** be carried out with the prior permission of the Engineer, and then only according to procedures issued at the time.

PRODUCER STATEMENT - CONSTRUCTION PS3 (SUBCONTRACTOR)

ISSUED BY:
 (Subcontractor)

TO:
 (Contractor)

TO BE SUPPLIED TO:
 (Territorial Authority)

IN RESPECT OF:
 (Description of Subcontract Work)

AT:
 (Address)

UNDER:
 (Building Consent Number)

..... has been contracted by
 (Subcontractor) (Contractor)

to carry out and complete certain Contract works in accordance with the Contract, titled

.....
 (Project)

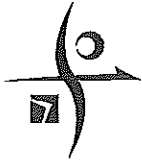
I
 (Name of Duly Authorised Agent)

a duly authorised representative of the Subcontractor believe on reasonable grounds that the Subcontractor has carried out and completed ALL PART ONLY as specified in the Attached Particulars of the Subcontractors Work in accordance with the plans, specifications, and authorised directions of the Principal in accordance with the Contract.

.....
 (Signature of Authorised Agent on behalf of) (Date)

.....
 (Subcontractor)

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3. STRUCTURAL STEELWORK

3.1 PRELIMINARY

Refer to the Preliminary and General Clauses of this Specification and to the General Conditions of Contract, which are equally binding on all Trades. This section of the Specification shall be read in conjunction with all other sections.

3.2 INTERPRETATION

3.2.1 Design Engineer

For the purposes of this section of the Specification, the Design Engineer will be an employee of Holmes Consulting Group or a nominated representative.

3.2.2 Construction Reviewer

For the purpose of this section of the specification, the role of Construction Reviewer will be undertaken by the Design Engineer and the independent Compliance Inspector as further described in clause Independent Compliance Inspection below.

3.3 SCOPE

This section consists of:-

1. The supply, fabrication, surface treatment, delivery and erection of the structural steel and related items necessary to complete the work indicated on the drawings and as further specified.
2. The supply, fabrication and finishing of all weldplates, bolts and cleats etc. for building into insitu and precast concrete, and blockwork. Attendance on site as necessary to complete fixing and painting of connections. Provision of all scaffolding, ladders and planks etc required to carry out the work.

The following items are included in this section:-

1. Beams.
2. Columns.
3. X-Braced frames.
4. All roof steelwork including trusses, purlins, bracing, edge channels, and ceiling members.

5. All other structural steelwork shown on the drawings and required for completion of the building including cleats, weldplates, bolts and other fixings.

3.4 RELATED DOCUMENTS

In this section of the specification, reference is made to the latest revisions of the following documents:-

The New Zealand Building Code (NZBC)

AS/NZS 1170 Structural Design Actions

AS/NZS 1252 High-strength steel bolts with associated nuts and washers for structural engineering

AS/NZS 1554 Structural Steel Welding

AS/NZS 2312 Guide to the Protection of Structural Steel against Atmospheric corrosion by the use of protective coatings and related documents (Refer Section 1.4 of the Standard)

NZS 3404:1997 Steel Structures Standard and related documents (Refer to Appendix A of the Standard for specific referenced documents)

AS/NZS 4600 Cold-formed steel structures

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3.5 QUALITY ASSURANCE

3.5.1 General

The Structural Steelworker's quality assurance procedures should encompass all aspects of the structural steel construction including, but not necessarily limited to:

1. Compliance for materials with relevant standards.
2. Weld preparation and welding procedures.
3. Weld testing and inspection.
4. Fabrication.
5. Steel preparation prior to coating.
6. Quality of painting/coating.
7. Transportation, handling, and storage.
8. Erection procedures and equipment.

The Structural Steelworker shall advise the Construction Reviewer in writing the name of a suitably experienced and qualified representative from their organisation, to be responsible for the quality control of all structural steelwork.

The Structural Steelworker shall provide details of the fabrication and erection quality control procedures to the Contractor for forwarding to, and approval of, the Construction Reviewer. These procedures should encompass all aspects of fabrication.

The Construction Reviewer may arrange to have an independent inspection service which may encompass aspects of the above. This is entirely independent of the Structural Steelworkers own procedures, and alleviates none of the Structural Steelworkers responsibilities to maintain their own quality assurance programme.

3.5.2 Producer Statement - Construction (PS3)

When the works are sufficiently complete that they are ready for application to the Territorial Authority for a Code Compliance Certificate, or otherwise at key handover dates for particular sections of the works, the nominated representative responsible for the quality assurance procedures for the structural steelwork trade will be required to certify to the main Contractor that all structural steelwork has been carried out in full accordance with all Contract Documents and Contract Instructions in the form of a Producer Statement - Construction. This statement will be required to be completed prior to the issue of the Producer Statement - Construction Review by the Design Engineer for the whole or sections of the works as appropriate.

No Practical Completion Certificate shall be issued until such time as all the Producer Statements for the relevant section of the works have been received.

Refer to the Appendix for additional explanation and a sample of the form of these Statements.

3.5.3 Inspection

The Construction Reviewer will inspect construction in accordance with NZS 3404, Clause 1.6.3.

The Construction Reviewer shall carry out construction monitoring to CM2 (as detailed in ACENZ "Guideline on the Briefing and Engagement of Consulting Engineering Services", January 2004 1st Edition)

The Construction Reviewer shall be notified and given reasonable opportunity to review all phases of the work as it proceeds.

Where necessary, the Construction Reviewer's instructions shall be carried out before steelwork is erected.

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3.6 INDEPENDENT COMPLIANCE INSPECTION

3.6.1 General

These clauses outline the requirements and scope of independent inspection to check, test, and certify that structural steelwork on the project complies with this section of the specification, plus all related standard specifications.

The Compliance Inspector will act as the Construction Reviewer for the aspects of the structural steelwork as outlined in Extent of Work below.

3.6.2 Relationship to Structural Steelworker

The Compliance Inspector will have full authority and responsibility to issue instructions to the Structural Steelworker relating to quality assurance procedures and compliance matters. The Compliance Inspector will reject all work that does not comply with this specification. All work redone is required to be retested so that compliance can be ascertained.

The Compliance Inspector must be independent of the Structural Steelworker.

3.6.3 Extent of Work

Testing and certification of steelwork shall cover the following aspects of the structural steelwork:-

1. Review and approve the Structural Steelwork shop drawings for descriptions of weld preparations, preparing requirements, and fully detailed welding descriptions.
2. Review and approve the Structural Steelwork quality assurance plan and procedures.
3. Check for compliance with relevant materials codes.
4. Inspection, testing, and any retesting of welds required to ensure compliance with this specification, AS/NZS 1554, and the contract drawings.
5. Steel preparation prior to painting.
6. Quality and thickness of the prime coat.
7. Review and approve the Structural Steelworkers shop and site welding procedures. Inspect, test, and retest shop and site welds as necessary to ensure compliance.
8. Check all bolting procedures for compliance.
9. The Compliance Inspector is required to provide regular reports.
10. The Compliance Inspector is required to issue a Structural Steelwork Compliance Certificate.

The Compliance Inspector is not required to check dimensional accuracy of the steelwork, nor certify the dimensional accuracy. However, if the Structural Steelworker's work is rejected due to dimensional inaccuracy, use of incorrect sections, or lack of fit, then the Compliance Inspector shall inspect and test the remedial works as part of this contract.

3.6.4 Familiarisation

By tendering for this work it shall be deemed that the Compliance Inspector has familiarised himself with all details pertaining to the contract including the drawings and the Structural Steelwork section of this Specification.

Furthermore, the Compliance Inspector is required to be familiar with the quality performance that can be expected of the various Structural Steelworkers bidding for the work. The tendered sum for compliance inspection shall be taken to include all necessary re-inspection and retesting that the Compliance Inspector deems may be required during this contract.

3.6.5 Personal and Operator Requirements

The Compliance Inspector responsible for the implementation, interpretation, evaluation, and reporting of non-destructive testing shall, for visual, magnetic particle, and dye-penetrant inspection, have the qualifications and experience appropriate to the testing concerned and for radiographic and ultrasonic examination, shall hold signatory approval for such tests from the Testing Laboratory Registration Council of New Zealand. Compliance Inspectors should hold welding inspector certification from the Certification Board for Inspection Personnel or an equivalent qualification acceptable to CBIP. The Design Engineer may require evidence of these qualifications, experience, and signatory approvals. The Design Engineer may require evidence that the Compliance Inspector has sufficient equipment and personnel to discharge his duties under this contract as part of the tender submission.

3.6.6 Inspection and Non-Destructive Examination

Inspection of shop work by the Compliance Inspector shall be performed in the Structural Steelworker's shop to the fullest extent possible, unless agreed otherwise with the Structural Steelworker. Such inspections shall be in sequence, timely and performed in such a manner as to minimise disruptions in operations and to permit the repair of all non-conforming work while the work is in the process of fabrication.

Inspection of site work shall be carried out promptly, so that corrections of non-complying work can be made without unnecessary delays to the progress of the project.

For all non-destructive examination (NDE) the process, extent, technique, and standards of acceptance shall comply with AS/NZS 1554 and Appendix D of NZS 3404, except as modified herein.

Test percentages shall be based on the number of similar joints as opposed to a portion of each joint.

The amount of NDE required shall be generally as suggested in Table D1 of NZS 3404, except that the minimum amount of radiography or ultrasonic testing for grade SP butt welds shall be 100% and grade SP fillet welds shall be 10%, generally in accordance with the flowchart at the end of this section.

All inspection done by the Compliance Inspector is additional to, and independent of, such inspection as is conducted by the Structural Steelworker. However, the Structural Steelworker's inspection procedures shall be taken into account by the Compliance Inspector when setting the overall levels of inspection and NDE required.

When during one inspection, more than 2.5% of the total amount of weld examined exceeds the levels of weld imperfection in AS/NZS 1554 Tables 6.1 and 6.2 and is classed as unacceptable; the Compliance Inspector shall carry out a programme of additional testing. When additional testing is required, it shall conform to the NDT inspection programme described in the flowchart at the end of this section, adapted from Figure 7.2.3.2 of HERA Design Guides Volume 2, Section 17. The cost of all additional testing or retesting shall be borne by the Contractor.

3.6.7 Instructions and Reporting

All instructions to the Structural Steelworker must be given in writing by the Compliance Inspector during the relevant site visit. A copy of those instructions must be sent by facsimile or email to the Contractor and the Design Engineer within 2 hours of the site visit when the instructions were given. Instructions can be neatly handwritten.

Reports are required to be provided regularly to the Contractor and the Design Engineer. The first report is due within two weeks from the date of receipt of the first of the shop drawings and subsequent reports at two weekly intervals until all the steelwork is in place including steel purlins, brace channels, etc.

These reports shall summarise the extent of the structural steelwork carried out over the reporting period, the extent of inspection and NDT work carried out over the preceding period, and a summary of the extent of any non-conforming work and remedial actions taken or required.

3.6.8 Producer Statement – Construction (PS3)

When the works are sufficiently complete that they are ready for application to the Territorial Authority for a Code Compliance Certificate, or otherwise at key handover dates for this section of the works, the Compliance Inspector will be required to certify to the main Contractor that all compliance items covered by this section of the specification have been carried out in full accordance with all Contract Documents and Contract Instructions in the form of a Producer Statement - Construction. This statement will be required to be completed prior to the issue of the Producer Statement – Construction Review by the Design Engineer for the whole or sections of the works as appropriate.

No Practical Completion Certificate shall be issued until such time as all the Producer Statements for the relevant sections of the works have been received.

Refer to the Appendix for additional explanation and a sample of the form of these Statements.

3.6.9

Other Issues

Issues such as notice for inspection, order of work, etc. shall be by mutual agreement between the Structural Steelworker and the Compliance Inspector.

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3.7 SHOP DRAWINGS

3.7.1 General

The Design Engineer's drawings provide overall dimensioning member sizes and typical connections only.

Shop drawings shall be prepared by the Structural Steelworker at their expense from the information presented in the structural and architectural drawings and any other relevant documents to show full construction details.

The fabrication programme shall incorporate adequate time for preparation, review, and revision of shop drawings prior to commencing fabrication. The programme shall allow at least 10 working days for shop drawings review by the Construction Reviewer.

Where discrepancies are noted in the drawings, it shall be the duty of the Contractor to notify the Design Engineer of these discrepancies as soon as they become evident. Failure to do so will not constitute an excuse for failure to perform to programme.

The drawings shall be reviewed by the Construction Reviewer for design concept and general arrangement only. The accuracy and adequacy of the shop drawings are the Contractors responsibility.

Shop drawings shall be prepared insofar as is practicable in accordance with "Detailing for Steel Construction", American Institute of Steel Construction.

Aspects to be covered by the shop drawings shall include, but are not limited to the following:-

1. Dimensions of overall assemblies and individual components.
2. Full component drawings, showing all end preparations required for following work
3. Weld preparation, painting requirements, and fully detailed welding descriptions. These drawings shall clearly distinguish between shop and site welds.
4. Component assembly details, both for shop assembly and site assembly. All associated bolting, accessories, and/or joining details shall be shown on these drawings.
5. Finishes, including surface preparation and recoating time.
6. Precamber requirements.

The Contractor shall check all tolerances and clearances between steelwork components and other building elements to ensure a satisfactory fit between all elements. Notify the Design Engineer of any locations where tolerances or clearances need to be increased to ensure satisfactory construction procedures.

3.7.2 Requirements for Electronic Format Drawings

If shop drawings are to be provided in an electronic format, an appropriate viewer shall also be provided at the Structural Steelworkers expense, including licences as appropriate.

The viewer must be suitable for Windows based workstations and be compatible with both 32 and 64 bit versions of Windows XP and Windows 7.

3.8 WORKMANSHIP AND MATERIALS

3.8.1 General

The Contractor shall adhere to all relevant requirements of NZS 3404: 1997 "Steel Structures Standard", and to AS/NZS 1554 "Structural Steel Welding" for supply of all materials and in workmanship both on and off the site.

3.8.2 Steel

Steel shall be Grade 300 of approved origin and conforming to NZS 3404. Any variation of steel supply or source from the specification shall be notified at time of tender.

Hollow Sections shall be grade C350, unless noted otherwise.

Steel plate and flats shall be Grade 300.

Where steel is supplied that is not strictly the same grade as that specified, it shall be the contractors responsibility to demonstrate that the steel supplied complies in full with the additional requirements of the Contract Documents, this specification and its nominated references. In particular, where mill certificates are supplied, adequate margin over the nominated yield strength is required in accordance with NZS 3404, Section 17.5.

3.8.3 Welding Consumables

Welding electrodes shall be selected for the grade of steel being welded as set out in AS/NZS 1554.1, unless noted otherwise.

All site welding shall be done using Hydrogen controlled electrodes, unless authorised otherwise by the Design Engineer.

3.8.4 Bolts

Unless noted otherwise on the drawings, bolts and nuts shall be Grade 8.8 high strength, to AS/NZS 1252.

Grade 4.6 bolts and screws shall be mild steel to AS 1111, and nuts shall be to AS 1112.

At least one washer shall be provided under the rotating component of each bolt assembly, and shall be not less than twice the nominal bolt size in diameter. Where necessary to ensure even bearing, tapered washers to BS 4320 shall be used.

The bolts shall be selected so that the projection beyond the nut is not less than two threads and not more than 10mm. There shall be at least one clear run of thread beneath the nut after tightening.

The durability treatment and surface finish of bolts, nuts, and washers shall match that of the components being connected.

3.8.5 Girts, Purlins, Sag Rods and Bracing Channels

Girts and purlins shall be Diamond Hi-span grade 450 galvanised steel sections, pre-punched for all bolt fixings and sag rods. Alternate systems may be considered by the Design Engineer.

All bolts, sag rods, and bracing channels shall be galvanised and fixed in accordance with the manufacturer's specifications.

3.9 FABRICATION

3.9.1 General

The Contractor and Structural Steelworker shall confirm, by site measurement where possible, all dimensions that affect fabrication or set out of all structures and their individual components.

Fabrication shall comply with Section 14 of NZS 3404.

3.9.2 Cutting

All cutting shall be to NZS 3404 Section 14.3.3

Unless specified otherwise, steel may be cut by sawing, shearing, cropping, machining, or thermal cutting. Hand thermal cutting shall be confined to cutting of section shapes, copes, repairs and other work where machine cutting is not possible.

Surfaces produced by cutting shall be finished square (unless noted otherwise), true to the required dimensions, and free from such defects as excessive roughness which would impair its function or interfere with subsequent fabrication.

Re-entrant corners shall be shaped notch free to a minimum radius of 10mm.

3.9.3 Welding

3.9.3.1 General

All welded connections shall be metal arc welded as shown on the drawings. Unless noted otherwise, all welding shall comply with AS/NZS 1554.1 and the additional clauses of NZS 3404.

Unless noted otherwise, all welds shall be category SP.

Acceptance limits for weld defects shall be as given in AS/NZS 1554.

3.9.3.2 Site Welding

All site welding shall be done using Hydrogen controlled electrodes, unless authorised by the Construction Reviewer.

Where site welding is required, facilities shall be provided to obtain the same standard of workmanship there as in the shop. Welding in the air shall be reduced to a minimum by assembly and erection procedures. All welding in the air shall be from properly positioned platforms and wherever possible shall be designed to avoid overhead welding. Parts to be welded shall be firmly held by erection bolts. Tacking bolts or cleats, other than those detailed, shall be provided as needed but only after discussion with the Construction Reviewer. If required, tacking cleats will be removed after erection and erection bolt holes filled by welding.

3.9.3.3 Welding to Existing Steelwork

Prior to welding, the existing steel is to be thoroughly cleaned to a minimum of 50mm on either side of the weld. All dust, dirt, and any protective coatings shall be removed to reveal bare steel.

The Contractor shall be responsible for establishing the weldability of the existing steel, and the appropriate welding procedures to be used.

3.9.3.4 Welding Inspection

The Construction Reviewer shall be given reasonable notice when each section of the work is prepared and ready for welding, and shall be given every opportunity to arrange for inspection and to satisfy himself as to the quality of the work and competence of the operators.

Welding inspection may include non-destructive examination. The Contractor shall supply all necessary facilities, ladders, and light scaffolding required for adequate inspection and non-destructive testing. The sequence of work shall be arranged where requested, to facilitate random inspection and non-destructive testing. The

steelworker shall prepare welds to the required standards that will permit inspection and/or testing as instructed by the Construction Reviewer.

3.9.3.5 Welding Defects

Welding defects disclosed by inspection or other investigation shall be assessed by the Construction Reviewer and if he so instructs, be cut out and remade.

Any joints so cut out shall be examined and passed by the Construction Reviewer before re-welding.

When welding defects are disclosed, testing of further welds may be ordered at the Structural Steelworker's expense. If stiffeners or other concealing details have been added, these may be required to be removed to permit this additional testing. Re-testing shall comply with the flowchart included at the rear of this section.

3.9.4 Holing

Drill all holes required for all fixings shown or implied on the drawings, including those to be used by other trades.

Holes for bolts shall be drilled, punched, or machine flame cut to NZS 3404 Section 4.3.5.

Edge distances shall be as indicated on the drawings, but in any case not less than $2D$, where D is the nominal bolt diameter, from the centre of the bolt to the edge of the steel.

The minimum distance between adjacent bolts shall be as indicated on the drawings, but in any case not less than $2.5D$.

Standard holes shall be $D + 2$ mm for bolts not exceeding 24mm in diameter, or $D + 3$ mm for larger bolts, unless otherwise noted.

Standard holes for baseplates may be $D + 3$ mm maximum, unless accompanied by a special flat washer, or otherwise indicated on the drawings. If accompanied by a special flat washer, the hole may be $D + 6$ mm. The washer shall be square or round with a minimum plan dimension of $2.25D$, except that it must fully cover the hole when installed. The washer shall be at least 6mm thick mild steel, have a standard hole, and be welded all round to the baseplate. The washer thickness shall be confirmed by the Design Engineer to suit the loading configuration of the connection.

3.9.5 Bolting

3.9.5.1 General

Supply and fix all bolts, nuts and washers necessary for completion of the steelwork, including those to be cast into concrete or blockwork.

Bolted connections marked on the drawings with the suffix '/S' need be snug tightened only.

3.9.6 Finishes

3.9.6.1 General

The Contractor shall be responsible for the design, specification, and application of protective finishes for steelwork in accordance with the performance specification contained herein. The required performance standards in accordance with AS/NZS 2312 are nominated below in Schedule of Surface Finishes.

Unless noted otherwise in Schedule of Surface Finishes herein, all protective finishes shall comply fully with AS/NZS 2312 in selection, application, and repair. The Contractor is responsible for ensuring that the protective system in its finished state complies in full with the provisions of this specification, as well as the standard. Where there is any conflict between the two documents, clarification must be sought from the Design Engineer.

3.9.6.2 Preparation

All welds shall have slag removed, and welds exposed in the finished building shall have spatter removed and be ground to a neat clean finish.

Surface preparation such as abrasive blasting or wire brushing shall be carried out after fabrication of major elements has taken place, and the appropriate coating applied as soon as possible after preparation, in accordance with the manufacturer's specification, but in any case within 4 hours.

In all cases the total coating shall be applied in the shop in accordance with manufacturer's recommendations. On site painting shall be kept to a minimum adjacent to necessary site joints. These areas shall be made good and painted in accordance with the manufacturer's recommendations. Adjacent areas shall be protected during welding.

3.9.6.3 Submittals

The Contractor shall submit details of each of the proposed protective finish systems to the Construction Reviewer for review, with the shop drawings ensuring that the Construction Reviewer has 10 working days to complete the review, with additional time to incorporate any alterations, if required, before commencing fabrication.

The following details must be included in the submittal:

- Full details of each system including preparation requirements, method of application, recoating intervals, and site touch-up and repair methods.

- Full manufacturer's specifications of all coatings.
- A method statement for the temporary protection or otherwise for steelwork during construction.
- A maintenance schedule for the completed system.

The Design Engineer's approval of the protective treatment systems must be received prior to commencing any surface treatment.

3.9.6.4 Schedule of Surface Finishes

All steelwork Zinc Rich Primer 75 µm

3.9.7 Storage, Handling and Delivery

Steelwork shall be handled and stored by methods or appliances that will not deform or overstress the steel or damage the finish. In particular, during delivery, care shall be taken to stiffen free ends and otherwise protect steelwork from distortion.

Fabricated steelwork shall be delivered to site in such sequence as shall minimise time for erection, and exposure to potential damage. Where exposure times exceed the protective treatment manufacturer's recommendations, the Contractor shall make arrangements for temporary protection, alter the treatment specification accordingly, or allow for the appropriate maintenance treatment before closing in.

Make all arrangements necessary with relevant authorities for transportation of steelwork.

3.10 ERECTION

3.10.1 General

Erection procedures shall be agreed in advance with the Design Engineer.

Erection shall comply with Section 15 of NZS 3404.

The Contractor shall provide adequate temporary bracing and anchorage as necessary to stabilise the structure until all permanent bracing and associated elements, of the structural system, such as purlins, sarking, blockwork walls, foundations, etc are completed.

Every effort shall be made to keep steelwork true to dimension, plumb and level. Final welding of erection connections shall be delayed until each section of the structure is proved true. Final welding up of all steelwork shall be completed before any further loads are added to the structure.

The Steelworker is to co-operate with other trades in erection of steelwork.

3.10.2 Tolerances

Unless noted otherwise herein, tolerances for erection of steelwork shall comply with Clause 15.3 of NZS 3404.

3.10.3 Safety

The requirements of Statutory Authorities, Labour Department, and relevant Acts and Laws shall be adhered to at all times.

The Contractor shall comply fully both on and off site with the provisions of the New Zealand Building Code in all matters relating to construction safety, in particular with Approved documents F1 (Hazardous Agents on Site), F2 (Hazardous Building Materials), F4 (Safety from Falling), and F5 (Construction and Demolition Hazards).

During erection, the structure shall be maintained in a stable condition by use of temporary bracing and/or guy ropes. Design of temporary support structure shall be the responsibility of the contractor.

On completion of erection of the steelwork, the structure shall be left in a stable condition, pending completion of the whole structure.

3.10.4 Lifting Equipment

Cranes and lifting equipment shall be of adequate capacity to safely lift and maintain work in a stable condition until it is securely braced. Construction loads imparted to the structure during erection or temporary storage of steelwork shall be checked by the contractor. Any damage caused shall be repaired at no cost to the Principal.

3.10.5 Baseplates

Packing under steel bases shall be steel.

After erection of steelwork is complete, high strength non-shrink grout under baseplates and elsewhere as indicated on the drawings.

3.11 BUILDING ELEMENTS

3.11.1 Shipping Containers

Shipping containers shall be in good condition and free from visible corrosion and defects.

3.11.2 Additional Steelwork required

Where the existing steelwork does not match that detailed or otherwise assumed, or is in any way deficient, the Design Engineer may instruct additional steelwork. Any such additional steel shall be priced separately by the Contractor on issue of a Variation Order, and the agreed adjustment made to the Contract price.

3.11.3 Roof Bracing

All steel roof bracing shall be installed straight between end connections. Where braces cross, there shall be no deviation in line of either brace, or unless so detailed, or with the written approval of the Design Engineer.

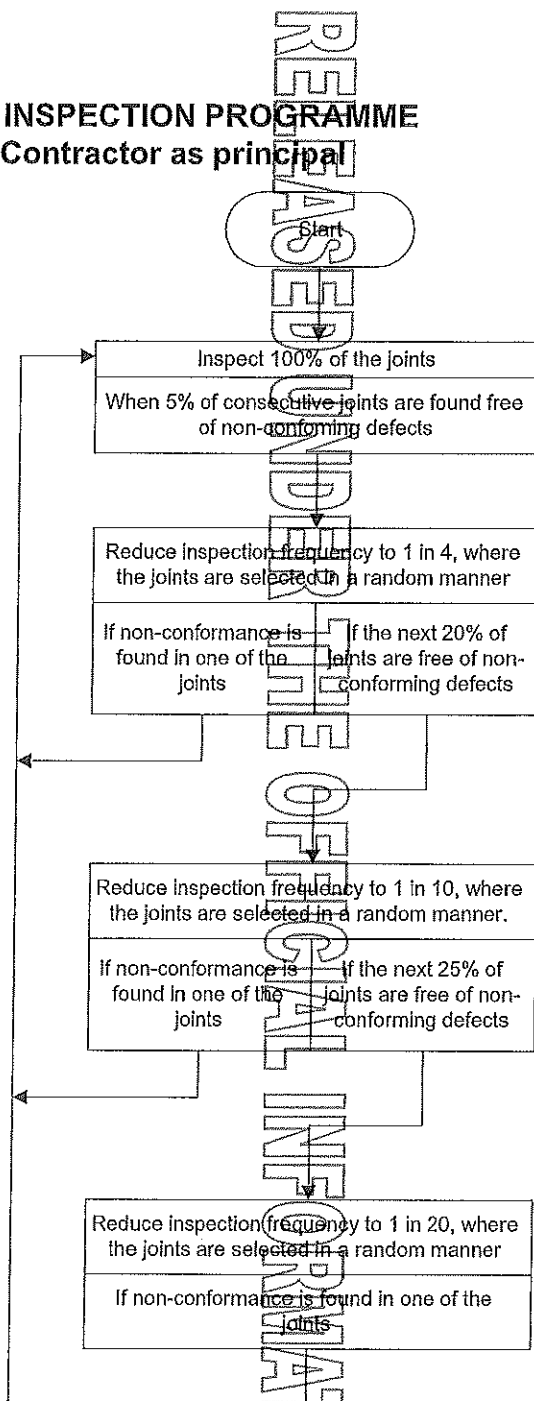
All bracing is to be supported in the horizontal plane to avoid slack. Lightly tension all roof and wall cross bracing such that any sag is less than $L/100$, where L is the length of the bracing member.

3.11.4 Welding Inspection

Refer to clause Welding Inspection above for this sum.

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NDT INSPECTION PROGRAMME
Contractor as principal



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SPECIFICATION

STRUCTURAL AND CIVIL ENGINEERS

CHRISTCHURCH CATHEDRAL - PHASE 1

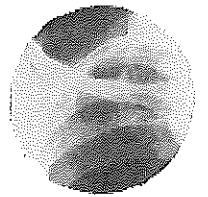
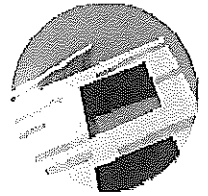
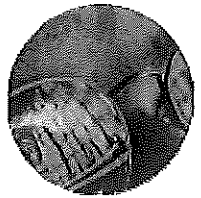
SECURING WORKS

PREPARED FOR

CHURCH PROPERTY TRUSTEES

106324

DECEMBER 2011





Specification

Christchurch Cathedral

Prepared For:
Church Property Trustees Trust

Date: 12 December 2011
Project No: 106324
Revision No: 1

Prepared By:

Withheld under section 9(2)(a)

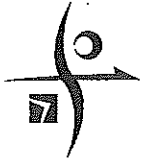
Holmes Consulting Group Limited
Christchurch Office

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- 1.0 CONCRETE - GENERAL
- 2.0 REINFORCING STEEL
- 3.0 STRUCTURAL STEELWORK





2. REINFORCING STEEL

2.1 PRELIMINARY

Refer to the Preliminary and General Clauses of this Specification and to the General Conditions of Contract which are equally binding on all Trades. This section of the Specification shall be read in conjunction with all other sections.

2.2 SCOPE

This section of the Contract refers to the supply, bending and placing of all reinforcing for concrete and reinforced blockwork including distance pieces and spacers.

Supply, bending and placing of reinforcing for all precast concrete may be by CONCRETE PRECAST sub-contractor. However, the reinforcing steel provided shall comply with this section of the specification.

2.3 RELATED DOCUMENTS

In this section of the Specification, reference is made to the latest revisions of the following documents:

The New Zealand Building Code		(BIA)
AS/NZS 1554	Structural Steel Welding	(SANZ)
AS/NZS 4671:2001	Steel Reinforcing Materials	(SANZ)
NZS 3101:2006	Concrete Structures Standard	(SANZ)
NZS 3109:1997	Specification for Concrete Construction	(SANZ)
BS 5896:1980	Specification for High tensile steel wire and strand for the prestressing of concrete	(BSI)

Reference shall also be made to the sections of this specification which apply to STRUCTURAL STEELWORK

2.4 QUALITY ASSURANCE

2.4.1 General

It is the Contractor's responsibility to ensure that the reinforcement placed complies in all respects with the drawings and the specification. The Contractor will be required to nominate a Foreman reinforcing steelplacer, or equivalent, for approval by the Engineer before commencement on site. The nominated representative shall inspect all completed sections of reinforcing steelwork and advise the Contractor when the work has been carried out in accordance with the drawings and specification.

2.4.2 Producer Statement – Construction (PS3)

When the works are sufficiently complete that they are ready for application to the Territorial Authority for a Code Compliance Certificate, or otherwise at key handover dates for particular sections of the works, the nominated representative responsible for the quality assurance procedures for the concrete trade will be required to certify to the main Contractor that all concrete work has been carried out in full accordance with all Contract Documents and Contract Instructions in the form of a Producer Statement - Construction. This statement will be required to be completed prior to the issue of the Producer Statement – Construction Review by the Engineer for the whole or sections of the works as appropriate.

No Practical Completion Certificate shall be issued until such time as all the Producer Statements for the relevant section of the works have been received. Refer to the Appendix for additional explanation and a sample of the form of these Statements.

2.4.3 Inspection

The Engineer shall be informed when reinforcement is being fixed and given a reasonable opportunity to inspect the fixed reinforcement before pouring commences.

2.4.4 Supervision

The Contractor shall be represented on site by a competent leading hand (reinforcing), while steel is being placed.

During pouring, the Contractor shall have appropriately skilled personnel on call to identify and correct any damaged or displaced reinforcing.

2.4.5 Testing

The Contractor shall demonstrate to the Engineer that all reinforcement complies with the Specification and produce manufacturer's certificates and certificates of origin to the Engineer. Should such certificates indicate that the requirements of this Specification may not be met, the Contractor shall pay for such tests as the Engineer may decide are necessary to establish that this steel does meet this specification.

2.5 MATERIALS AND WORKMANSHIP

All materials and workmanship shall conform to the requirements of NZS 3109.

2.5.1 Reinforcing Steel

2.5.1.1 General

Grade 300E and Grade 500E reinforcement shall comply with AS/NZS 4671. Grade 500E bars shall be manufactured using the microalloy process.

All reinforcement shall be manufactured by Pacific Steel Ltd. Steel of alternative origin may be approved by the Engineer, but only for specific non-structural situations, or if the contractor can furnish certification by an appropriately qualified person that the steel complies in full with AS/NZS 4671 and related documents – refer below.

2.5.1.2 Certification of Alternative Reinforcement

The certification shall be a detailed and reasoned technical opinion, issued on behalf of the supplier, by an appropriately qualified organisation having no proprietary interest in the reinforcing steel. As part of the technical opinion, the independent assessor shall demonstrate that all of the appropriate documentation (related to requirements of AS/NZS 4671 and the Contract documents) has been reviewed and is comprehensive and correct. Further the assessor shall certify that the requirements for traceability of reinforcement have been adhered to by any and all parties (including manufacturer, importer, merchant, main contractor and sub-contractor's) involved in the supply of the reinforcement to the final position, in place on site.

Certification of the audit/traceability procedures and of any alternative reinforcement must be provided to Holmes Consulting Group before the placement of any alternative reinforcement in its final position or incorporation in any precast concrete element, on or off site.

No alternative reinforcement shall be permitted unless it can be demonstrated by supply of cast numbers etc that it is the precise material referred to in the technical opinion supplied.

2.5.2 Bending of Bars

Bars shall be cut and bent according to NZS 3109 Section 3 and to the dimensions and shapes shown or indicated in the drawings. Bend diameters for longitudinal

reinforcing shall be in accordance with clause Bend Diameters. Stirrups shall be bent to standard shapes as shown in NZS 3109. Note that larger bend diameters are required around ducts, and at mechanical splices using swaged couplers.

Cranks or sets at laps shall have their inclined portions 12 diameters or a minimum of 300mm long unless specifically shown otherwise.

2.5.3 Bending Schedules

Bending schedules are not included in the documentation for this contract. It is the REINFORCING STEELWORKER'S responsibility to supply a Bending Schedule to be checked by the Contractor before bending and cutting. The Contractor shall be responsible for bringing to the notice of the Engineer discrepancies in the drawings, before cutting and bending.

2.5.4 Bend Diameters

Bend diameters for stirrups and ties shall be to suit the diameter of the enclosed bar but not less than the following.

Steel Grade	Bar Size	Minimum diameter of bend di (mm)	
		Plain Bars	Deformed Bars
300E and 500E	6-20	2 bar diameters	4 bar diameters
	21	3 bar diameters	6 bar diameters

Where deformed bars are galvanized, the minimum bend diameter shall be 5 bar diameters for bar diameters of 10 mm or less, and 8 bar diameters 20 mm or greater.

2.5.5 Bar Numbering

All bundles of steel supplied to the job shall be clearly marked with numbers relating to the Bending Schedule and related drawing.

2.5.6 Abbreviations

Bar diameters are prefixed with the following:

D	deformed grade 300E bar
R	plain grade 300E bar
XD	deformed grade 500E bar
XR	plain grade 500E bar

Abbreviations on the drawings are as follows:

e.f.	each face
n.f.	near face
f.f.	far face
reinf.	reinforcement

c.j.
crs
stgd
e.w.
stps
t.
b.
Tt
Tb
Bt
Bb
alt.
strs.
cis
U.N.O.

construction joint
centres
staggered
each way
stirrups
top
bottom
top (top)
top (bottom)
bottom (top)
bottom (bottom)
alternate
starters
cast-in sockets
unless noted otherwise

2.5.7 Cover

Minimum cover shall be as noted on the drawings. Note that generally covers are greater than specified in NZS 3101. In any case the tolerances specified in NZS 3109 apply. In particular, there shall be zero tolerance on reduction of cover.

The ends of wire ties shall be turned away from the concrete face to maintain cover. Wire ties shall not be tied to formwork.

2.5.8 Tolerances

Tolerances for bending and fixing of reinforcing steel and fixing of prestressing tendons, ducts and strands shall comply with NZS 3109.

2.5.9 Laps in concrete

Position of laps are generally shown on the drawings. The positions of laps other than those detailed shall be discussed and agreed with the Engineer before fabrication.

All lapping bars shall be tied to each other.

Lap lengths shall generally be as detailed on the drawings, but in any case not less than 300mm. Where laps have not been specifically detailed, laps shall comply with the table below.

Bar diameter	Grade 300E deformed	Grade 500E deformed
10	450	750
12	550	900
16	700	1200
20	900	1500
25	1100	1800
32	1400	2350

Lap lengths for plain round bar shall be two times the length given in the table above for the corresponding grade of deformed bar.

All spiral reinforcing must be lapped using welded splices and terminated at each end with a double turn welded back on itself, or with a standard hook return into the centre of the cage.

2.5.10 Welded Splices

In all cases, approval for welded splices shall be obtained from the Engineer before use. Procedure testing will be required for butt welds, with subsequent field testing, all to be carried out at the cost of the subcontractor.

2.6 FIXING

2.6.1 General

Steel fixing shall conform to NZS 3109. Bars shall be positioned accurately according to the drawings and securely tied with wire ties to form a rigid cage. Particular attention shall be paid to the correct lapping of all steel and laps shall be checked after fixing.

Reinforcing steel shall not be cut or bent on site without the Engineer's specific approval.

Supply and fix all necessary distance pieces and spacers to maintain cover. Distance pieces shall be wired-on concrete spacer blocks, ABIT plastic pieces or similar. Concrete spacer blocks must be accurately made to the appropriate dimensions with a minimum strength of 40 MPa.

Where the formed surface may be visible in the completed work, care shall be taken to select a form of spacer which shall have a minimum of impact on the exposed surface.

Column and beam steel shall be securely tied to ties or links and shall have distance pieces to the formwork.

The system of distance pieces and spacers to be used shall be such as to firmly hold the steel against all reasonable Contractors' traffic. It shall be discussed in advance with the Engineer, and be to his approval. In general distance pieces and spacers shall be at a maximum of 1200mm centres each way and less where mesh is used.

All starters and other reinforcing protruding from a concrete pour shall be securely braced to prevent movement in the wet concrete. Starters are NOT to be placed into concrete after it has been poured.

2.6.2 Concrete

Supply and place all reinforcing for concrete as detailed on the drawings. Co-operate with the CONCRETOR and fit in with the programme for construction sequence. All starters shall project the minimum distance prescribed for lap lengths unless detailed otherwise, and shall be securely braced to prevent movement in the wet concrete.

Straighten and clean all starters bent during concreting before placing steel for subsequent pouring.

All existing concrete surfaces shall be thoroughly roughened to an amplitude of at least 5 mm prior to the subsequent placement of concrete, grout, or mortar.

2.6.3 Concrete Topping Reinforcement

Supply and place topping reinforcement to the toppings over precast concrete floor units as detailed.

Reinforcing bars shall lap as detailed or otherwise in accordance with the lap requirements of this specification.

Mesh shall be continuous over beams unless additional compensating lap bars are placed across the top of beams to lap with the mesh reinforcement each side.

Unless noted otherwise, all saddle bars and other steel shown over the beams on the drawings are additional to the topping reinforcement and cannot be included in the required area of compensating steel.

Place topping tie bars as detailed on the drawings. Tie bars shall not be placed in the joints between precast floor units, and shall fully engage the topping reinforcement.

2.6.4 Cleaning Steel

Reinforcement as fixed shall be cleaned to remove any material which adversely affects the bond to concrete. Any mould oil on the steel shall be thoroughly cleaned off before concrete is placed.

Clean all starter bars before placing steel for subsequent pouring.

2.6.5 Welding of Bars

2.6.5.1 General

Welding of all reinforcing bars shall comply with the requirements of the AS/NZS 1554.3 and the Structural Steelwork section of this specification.

Unless detailed on the drawings, welding of grade 300E and grade 500E bar may **ONLY** be carried out with the prior permission of the Engineer, and then only according to the procedures issued at the time. Generally, approval will not be given for welding of any reinforcement which does not comply with AS/NZS 4671.

The acceptance level for welds shall be in accordance with the requirements of AS/NZS 1554.3.

2.6.5.2 Welding Inspection

Refer to the Structural Steelwork section of this Specification for clauses relating to welding inspection and defects.

2.6.6 Heating of Reinforcement

Heating of grade 300E and grade 500E bar may **ONLY** be carried out with the prior permission of the Engineer, and then only according to procedures issued at the time.

2.6.7 Rebending of Reinforcement

Rebending of grade 300E and grade 500E may **ONLY** be carried out with the prior permission of the Engineer, and then only according to procedures issued at the time.

PRODUCER STATEMENT - CONSTRUCTION PS3 (SUBCONTRACTOR)

ISSUED BY:
 (Subcontractor)

TO:
 (Contractor)

TO BE SUPPLIED TO:
 (Territorial Authority)

IN RESPECT OF:
 (Description of Subcontract Work)

AT:
 (Address)

UNDER:
 (Building Consent Number)

..... has been contracted by
 (Subcontractor) (Contractor)

to carry out and complete certain Contract works in accordance with the Contract, titled

.....
 (Project)

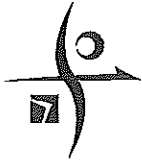
I
 (Name of Duly Authorised Agent)

a duly authorised representative of the Subcontractor believe on reasonable grounds that the Subcontractor has carried out and completed ALL PART ONLY as specified in the Attached Particulars of the Subcontractors Work in accordance with the plans, specifications, and authorised directions of the Principal in accordance with the Contract.

.....
 (Signature of Authorised Agent on behalf of) (Date)

.....
 (Subcontractor)

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3. STRUCTURAL STEELWORK

3.1 PRELIMINARY

Refer to the Preliminary and General Clauses of this Specification and to the General Conditions of Contract, which are equally binding on all Trades. This section of the Specification shall be read in conjunction with all other sections.

3.2 INTERPRETATION

3.2.1 Design Engineer

For the purposes of this section of the Specification, the Design Engineer will be an employee of Holmes Consulting Group or a nominated representative.

3.2.2 Construction Reviewer

For the purpose of this section of the specification, the role of Construction Reviewer will be undertaken by the Design Engineer and the independent Compliance Inspector as further described in clause Independent Compliance Inspection below.

3.3 SCOPE

This section consists of:-

1. The supply, fabrication, surface treatment, delivery and erection of the structural steel and related items necessary to complete the work indicated on the drawings and as further specified.
2. The supply, fabrication and finishing of all weldplates, bolts and cleats etc. for building into insitu and precast concrete, and blockwork. Attendance on site as necessary to complete fixing and painting of connections. Provision of all scaffolding, ladders and planks etc required to carry out the work.

The following items are included in this section:-

1. Beams.
2. Columns.
3. X-Braced frames.
4. All roof steelwork including trusses, purlins, bracing, edge channels, and ceiling members.

5. All other structural steelwork shown on the drawings and required for completion of the building including cleats, weldplates, bolts and other fixings.

3.4 RELATED DOCUMENTS

In this section of the specification, reference is made to the latest revisions of the following documents:-

The New Zealand Building Code (NZBC)

AS/NZS 1170 Structural Design Actions

AS/NZS 1252 High-strength steel bolts with associated nuts and washers for structural engineering

AS/NZS 1554 Structural Steel Welding

AS/NZS 2312 Guide to the Protection of Structural Steel against Atmospheric corrosion by the use of protective coatings and related documents (Refer Section 1.4 of the Standard)

NZS 3404:1997 Steel Structures Standard and related documents (Refer to Appendix A of the Standard for specific referenced documents)

AS/NZS 4600 Cold-formed steel structures

3.5 QUALITY ASSURANCE

3.5.1 General

The Structural Steelworker's quality assurance procedures should encompass all aspects of the structural steel construction including, but not necessarily limited to:

1. Compliance for materials with relevant standards.
2. Weld preparation and welding procedures.
3. Weld testing and inspection.
4. Fabrication.
5. Steel preparation prior to coating.
6. Quality of painting/coating.
7. Transportation, handling, and storage.
8. Erection procedures and equipment.

The Structural Steelworker shall advise the Construction Reviewer in writing the name of a suitably experienced and qualified representative from their organisation, to be responsible for the quality control of all structural steelwork.

The Structural Steelworker shall provide details of the fabrication and erection quality control procedures to the Contractor for forwarding to, and approval of, the Construction Reviewer. These procedures should encompass all aspects of fabrication.

The Construction Reviewer may arrange to have an independent inspection service which may encompass aspects of the above. This is entirely independent of the Structural Steelworkers own procedures, and alleviates none of the Structural Steelworkers responsibilities to maintain their own quality assurance programme.

3.5.2 Producer Statement - Construction (PS3)

When the works are sufficiently complete that they are ready for application to the Territorial Authority for a Code Compliance Certificate, or otherwise at key handover dates for particular sections of the works, the nominated representative responsible for the quality assurance procedures for the structural steelwork trade will be required to certify to the main Contractor that all structural steelwork has been carried out in full accordance with all Contract Documents and Contract Instructions in the form of a Producer Statement - Construction. This statement will be required to be completed prior to the issue of the Producer Statement - Construction Review by the Design Engineer for the whole or sections of the works as appropriate.

No Practical Completion Certificate shall be issued until such time as all the Producer Statements for the relevant section of the works have been received.

Refer to the Appendix for additional explanation and a sample of the form of these Statements.

3.5.3 Inspection

The Construction Reviewer will inspect construction in accordance with NZS 3404, Clause 1.6.3.

The Construction Reviewer shall carry out construction monitoring to CM2 (as detailed in ACENZ "Guideline on the Briefing and Engagement of Consulting Engineering Services", January 2004 1st Edition)

The Construction Reviewer shall be notified and given reasonable opportunity to review all phases of the work as it proceeds.

Where necessary, the Construction Reviewer's instructions shall be carried out before steelwork is erected.

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3.6 INDEPENDENT COMPLIANCE INSPECTION

3.6.1 General

These clauses outline the requirements and scope of independent inspection to check, test, and certify that structural steelwork on the project complies with this section of the specification, plus all related standard specifications.

The Compliance Inspector will act as the Construction Reviewer for the aspects of the structural steelwork as outlined in Extent of Work below.

3.6.2 Relationship to Structural Steelworker

The Compliance Inspector will have full authority and responsibility to issue instructions to the Structural Steelworker relating to quality assurance procedures and compliance matters. The Compliance Inspector will reject all work that does not comply with this specification. All work redone is required to be retested so that compliance can be ascertained.

The Compliance Inspector must be independent of the Structural Steelworker.

3.6.3 Extent of Work

Testing and certification of steelwork shall cover the following aspects of the structural steelwork:-

1. Review and approve the Structural Steelwork shop drawings for descriptions of weld preparations, preparing requirements, and fully detailed welding descriptions.
2. Review and approve the Structural Steelwork quality assurance plan and procedures.
3. Check for compliance with relevant materials codes.
4. Inspection, testing, and any retesting of welds required to ensure compliance with this specification, AS/NZS 1554, and the contract drawings.
5. Steel preparation prior to painting.
6. Quality and thickness of the prime coat.
7. Review and approve the Structural Steelworkers shop and site welding procedures. Inspect, test, and retest shop and site welds as necessary to ensure compliance.
8. Check all bolting procedures for compliance.
9. The Compliance Inspector is required to provide regular reports.
10. The Compliance Inspector is required to issue a Structural Steelwork Compliance Certificate.

The Compliance Inspector is not required to check dimensional accuracy of the steelwork, nor certify the dimensional accuracy. However, if the Structural Steelworker's work is rejected due to dimensional inaccuracy, use of incorrect sections, or lack of fit, then the Compliance Inspector shall inspect and test the remedial works as part of this contract.

3.6.4 Familiarisation

By tendering for this work it shall be deemed that the Compliance Inspector has familiarised himself with all details pertaining to the contract including the drawings and the Structural Steelwork section of this Specification.

Furthermore, the Compliance Inspector is required to be familiar with the quality performance that can be expected of the various Structural Steelworkers bidding for the work. The tendered sum for compliance inspection shall be taken to include all necessary re-inspection and retesting that the Compliance Inspector deems may be required during this contract.

3.6.5 Personal and Operator Requirements

The Compliance Inspector responsible for the implementation, interpretation, evaluation, and reporting of non-destructive testing shall, for visual, magnetic particle, and dye-penetrant inspection, have the qualifications and experience appropriate to the testing concerned and for radiographic and ultrasonic examination, shall hold signatory approval for such tests from the Testing Laboratory Registration Council of New Zealand. Compliance Inspectors should hold welding inspector certification from the Certification Board for Inspection Personnel or an equivalent qualification acceptable to CBIP. The Design Engineer may require evidence of these qualifications, experience, and signatory approvals. The Design Engineer may require evidence that the Compliance Inspector has sufficient equipment and personnel to discharge his duties under this contract as part of the tender submission.

3.6.6 Inspection and Non-Destructive Examination

Inspection of shop work by the Compliance Inspector shall be performed in the Structural Steelworker's shop to the fullest extent possible, unless agreed otherwise with the Structural Steelworker. Such inspections shall be in sequence, timely and performed in such a manner as to minimise disruptions in operations and to permit the repair of all non-conforming work while the work is in the process of fabrication.

Inspection of site work shall be carried out promptly, so that corrections of non-complying work can be made without unnecessary delays to the progress of the project.

For all non-destructive examination (NDE) the process, extent, technique, and standards of acceptance shall comply with AS/NZS 1554 and Appendix D of NZS 3404, except as modified herein.

Test percentages shall be based on the number of similar joints as opposed to a portion of each joint.

The amount of NDE required shall be generally as suggested in Table D1 of NZS 3404, except that the minimum amount of radiography or ultrasonic testing for grade SP butt welds shall be 100% and grade SP fillet welds shall be 10%, generally in accordance with the flowchart at the end of this section.

All inspection done by the Compliance Inspector is additional to, and independent of, such inspection as is conducted by the Structural Steelworker. However, the Structural Steelworker's inspection procedures shall be taken into account by the Compliance Inspector when setting the overall levels of inspection and NDE required.

When during one inspection, more than 2.5% of the total amount of weld examined exceeds the levels of weld imperfection in AS/NZS 1554 Tables 6.1 and 6.2 and is classed as unacceptable; the Compliance Inspector shall carry out a programme of additional testing. When additional testing is required, it shall conform to the NDT inspection programme described in the flowchart at the end of this section, adapted from Figure 7.2.3.2 of HERA Design Guides Volume 2, Section 17. The cost of all additional testing or retesting shall be borne by the Contractor.

3.6.7 Instructions and Reporting

All instructions to the Structural Steelworker must be given in writing by the Compliance Inspector during the relevant site visit. A copy of those instructions must be sent by facsimile or email to the Contractor and the Design Engineer within 2 hours of the site visit when the instructions were given. Instructions can be neatly handwritten.

Reports are required to be provided regularly to the Contractor and the Design Engineer. The first report is due within two weeks from the date of receipt of the first of the shop drawings and subsequent reports at two weekly intervals until all the steelwork is in place including steel purlins, brace channels, etc.

These reports shall summarise the extent of the structural steelwork carried out over the reporting period, the extent of inspection and NDT work carried out over the preceding period, and a summary of the extent of any non-conforming work and remedial actions taken or required.

3.6.8 Producer Statement – Construction (PS3)

When the works are sufficiently complete that they are ready for application to the Territorial Authority for a Code Compliance Certificate, or otherwise at key handover dates for this section of the works, the Compliance Inspector will be required to certify to the main Contractor that all compliance items covered by this section of the specification have been carried out in full accordance with all Contract Documents and Contract Instructions in the form of a Producer Statement - Construction. This statement will be required to be completed prior to the issue of the Producer Statement – Construction Review by the Design Engineer for the whole or sections of the works as appropriate.

No Practical Completion Certificate shall be issued until such time as all the Producer Statements for the relevant sections of the works have been received.

Refer to the Appendix for additional explanation and a sample of the form of these Statements.

3.6.9

Other Issues

Issues such as notice for inspection, order of work, etc. shall be by mutual agreement between the Structural Steelworker and the Compliance Inspector.

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3.7 SHOP DRAWINGS

3.7.1 General

The Design Engineer's drawings provide overall dimensioning member sizes and typical connections only.

Shop drawings shall be prepared by the Structural Steelworker at their expense from the information presented in the structural and architectural drawings and any other relevant documents to show full construction details.

The fabrication programme shall incorporate adequate time for preparation, review, and revision of shop drawings prior to commencing fabrication. The programme shall allow at least 10 working days for shop drawings review by the Construction Reviewer.

Where discrepancies are noted in the drawings, it shall be the duty of the Contractor to notify the Design Engineer of these discrepancies as soon as they become evident. Failure to do so will not constitute an excuse for failure to perform to programme.

The drawings shall be reviewed by the Construction Reviewer for design concept and general arrangement only. The accuracy and adequacy of the shop drawings are the Contractors responsibility.

Shop drawings shall be prepared insofar as is practicable in accordance with "Detailing for Steel Construction", American Institute of Steel Construction.

Aspects to be covered by the shop drawings shall include, but are not limited to the following:-

1. Dimensions of overall assemblies and individual components.
2. Full component drawings, showing all end preparations required for following work
3. Weld preparation, painting requirements, and fully detailed welding descriptions. These drawings shall clearly distinguish between shop and site welds.
4. Component assembly details, both for shop assembly and site assembly. All associated bolting, accessories, and/or joining details shall be shown on these drawings.
5. Finishes, including surface preparation and recoating time.
6. Precamber requirements.

The Contractor shall check all tolerances and clearances between steelwork components and other building elements to ensure a satisfactory fit between all elements. Notify the Design Engineer of any locations where tolerances or clearances need to be increased to ensure satisfactory construction procedures.

3.7.2 Requirements for Electronic Format Drawings

If shop drawings are to be provided in an electronic format, an appropriate viewer shall also be provided at the Structural Steelworkers expense, including licences as appropriate.

The viewer must be suitable for Windows based workstations and be compatible with both 32 and 64 bit versions of Windows XP and Windows 7.

3.8 WORKMANSHIP AND MATERIALS

3.8.1 General

The Contractor shall adhere to all relevant requirements of NZS 3404: 1997 "Steel Structures Standard", and to AS/NZS 1554 "Structural Steel Welding" for supply of all materials and in workmanship both on and off the site.

3.8.2 Steel

Steel shall be Grade 300 of approved origin and conforming to NZS 3404. Any variation of steel supply or source from the specification shall be notified at time of tender.

Hollow Sections shall be grade C350, unless noted otherwise.

Steel plate and flats shall be Grade 300.

Where steel is supplied that is not strictly the same grade as that specified, it shall be the contractors responsibility to demonstrate that the steel supplied complies in full with the additional requirements of the Contract Documents, this specification and its nominated references. In particular, where mill certificates are supplied, adequate margin over the nominated yield strength is required in accordance with NZS 3404, Section 17.5.

3.8.3 Welding Consumables

Welding electrodes shall be selected for the grade of steel being welded as set out in AS/NZS 1554.1, unless noted otherwise.

All site welding shall be done using Hydrogen controlled electrodes, unless authorised otherwise by the Design Engineer.

3.8.4 Bolts

Unless noted otherwise on the drawings, bolts and nuts shall be Grade 8.8 high strength, to AS/NZS 1252.

Grade 4.6 bolts and screws shall be mild steel to AS 1111, and nuts shall be to AS 1112.

At least one washer shall be provided under the rotating component of each bolt assembly, and shall be not less than twice the nominal bolt size in diameter. Where necessary to ensure even bearing, tapered washers to BS 4320 shall be used.

The bolts shall be selected so that the projection beyond the nut is not less than two threads and not more than 10mm. There shall be at least one clear run of thread beneath the nut after tightening.

The durability treatment and surface finish of bolts, nuts, and washers shall match that of the components being connected.

3.8.5 Girts, Purlins, Sag Rods and Bracing Channels

Girts and purlins shall be Diamond Hi-span grade 450 galvanised steel sections, pre-punched for all bolt fixings and sag rods. Alternate systems may be considered by the Design Engineer.

All bolts, sag rods, and bracing channels shall be galvanised and fixed in accordance with the manufacturer's specifications.

3.9 FABRICATION

3.9.1 General

The Contractor and Structural Steelworker shall confirm, by site measurement where possible, all dimensions that affect fabrication or set out of all structures and their individual components.

Fabrication shall comply with Section 14 of NZS 3404.

3.9.2 Cutting

All cutting shall be to NZS 3404 Section 14.3.3

Unless specified otherwise, steel may be cut by sawing, shearing, cropping, machining, or thermal cutting. Hand thermal cutting shall be confined to cutting of section shapes, copes, repairs and other work where machine cutting is not possible.

Surfaces produced by cutting shall be finished square (unless noted otherwise), true to the required dimensions, and free from such defects as excessive roughness which would impair its function or interfere with subsequent fabrication.

Re-entrant corners shall be shaped notch free to a minimum radius of 10mm.

3.9.3 Welding

3.9.3.1 General

All welded connections shall be metal arc welded as shown on the drawings. Unless noted otherwise, all welding shall comply with AS/NZS 1554.1 and the additional clauses of NZS 3404.

Unless noted otherwise, all welds shall be category SP.

Acceptance limits for weld defects shall be as given in AS/NZS 1554.

3.9.3.2 Site Welding

All site welding shall be done using Hydrogen controlled electrodes, unless authorised by the Construction Reviewer.

Where site welding is required, facilities shall be provided to obtain the same standard of workmanship there as in the shop. Welding in the air shall be reduced to a minimum by assembly and erection procedures. All welding in the air shall be from properly positioned platforms and wherever possible shall be designed to avoid overhead welding. Parts to be welded shall be firmly held by erection bolts. Tacking bolts or cleats, other than those detailed, shall be provided as needed but only after discussion with the Construction Reviewer. If required, tacking cleats will be removed after erection and erection bolt holes filled by welding.

3.9.3.3 Welding to Existing Steelwork

Prior to welding, the existing steel is to be thoroughly cleaned to a minimum of 50mm on either side of the weld. All dust, dirt, and any protective coatings shall be removed to reveal bare steel.

The Contractor shall be responsible for establishing the weldability of the existing steel, and the appropriate welding procedures to be used.

3.9.3.4 Welding Inspection

The Construction Reviewer shall be given reasonable notice when each section of the work is prepared and ready for welding, and shall be given every opportunity to arrange for inspection and to satisfy himself as to the quality of the work and competence of the operators.

Welding inspection may include non-destructive examination. The Contractor shall supply all necessary facilities, ladders, and light scaffolding required for adequate inspection and non-destructive testing. The sequence of work shall be arranged where requested, to facilitate random inspection and non-destructive testing. The

steelworker shall prepare welds to the required standards that will permit inspection and/or testing as instructed by the Construction Reviewer.

3.9.3.5 Welding Defects

Welding defects disclosed by inspection or other investigation shall be assessed by the Construction Reviewer and if he so instructs, be cut out and remade.

Any joints so cut out shall be examined and passed by the Construction Reviewer before re-welding.

When welding defects are disclosed, testing of further welds may be ordered at the Structural Steelworker's expense. If stiffeners or other concealing details have been added, these may be required to be removed to permit this additional testing. Re-testing shall comply with the flowchart included at the rear of this section.

3.9.4 Holing

Drill all holes required for all fixings shown or implied on the drawings, including those to be used by other trades.

Holes for bolts shall be drilled, punched, or machine flame cut to NZS 3404 Section 4.3.5.

Edge distances shall be as indicated on the drawings, but in any case not less than $2D$, where D is the nominal bolt diameter, from the centre of the bolt to the edge of the steel.

The minimum distance between adjacent bolts shall be as indicated on the drawings, but in any case not less than $2.5D$.

Standard holes shall be $D + 2$ mm for bolts not exceeding 24mm in diameter, or $D + 3$ mm for larger bolts, unless otherwise noted.

Standard holes for baseplates may be $D + 3$ mm maximum, unless accompanied by a special flat washer, or otherwise indicated on the drawings. If accompanied by a special flat washer, the hole may be $D + 6$ mm. The washer shall be square or round with a minimum plan dimension of $2.25D$, except that it must fully cover the hole when installed. The washer shall be at least 6mm thick mild steel, have a standard hole, and be welded all round to the baseplate. The washer thickness shall be confirmed by the Design Engineer to suit the loading configuration of the connection.

3.9.5 Bolting

3.9.5.1 General

Supply and fix all bolts, nuts and washers necessary for completion of the steelwork, including those to be cast into concrete or blockwork.

Bolted connections marked on the drawings with the suffix '/S' need be snug tightened only.

3.9.6 Finishes

3.9.6.1 General

The Contractor shall be responsible for the design, specification, and application of protective finishes for steelwork in accordance with the performance specification contained herein. The required performance standards in accordance with AS/NZS 2312 are nominated below in Schedule of Surface Finishes.

Unless noted otherwise in Schedule of Surface Finishes herein, all protective finishes shall comply fully with AS/NZS 2312 in selection, application, and repair. The Contractor is responsible for ensuring that the protective system in its finished state complies in full with the provisions of this specification, as well as the standard. Where there is any conflict between the two documents, clarification must be sought from the Design Engineer.

3.9.6.2 Preparation

All welds shall have slag removed, and welds exposed in the finished building shall have spatter removed and be ground to a neat clean finish.

Surface preparation such as abrasive blasting or wire brushing shall be carried out after fabrication of major elements has taken place, and the appropriate coating applied as soon as possible after preparation, in accordance with the manufacturer's specification, but in any case within 4 hours.

In all cases the total coating shall be applied in the shop in accordance with manufacturer's recommendations. On site painting shall be kept to a minimum adjacent to necessary site joints. These areas shall be made good and painted in accordance with the manufacturer's recommendations. Adjacent areas shall be protected during welding.

3.9.6.3 Submittals

The Contractor shall submit details of each of the proposed protective finish systems to the Construction Reviewer for review, with the shop drawings ensuring that the Construction Reviewer has 10 working days to complete the review, with additional time to incorporate any alterations, if required, before commencing fabrication.

The following details must be included in the submittal:

- Full details of each system including preparation requirements, method of application, recoating intervals, and site touch-up and repair methods.

- Full manufacturer's specifications of all coatings.
- A method statement for the temporary protection or otherwise for steelwork during construction.
- A maintenance schedule for the completed system.

The Design Engineer's approval of the protective treatment systems must be received prior to commencing any surface treatment.

3.9.6.4 Schedule of Surface Finishes

All steelwork Zinc Rich Primer 75 µm

3.9.7 Storage, Handling and Delivery

Steelwork shall be handled and stored by methods or appliances that will not deform or overstress the steel or damage the finish. In particular, during delivery, care shall be taken to stiffen free ends and otherwise protect steelwork from distortion.

Fabricated steelwork shall be delivered to site in such sequence as shall minimise time for erection, and exposure to potential damage. Where exposure times exceed the protective treatment manufacturer's recommendations, the Contractor shall make arrangements for temporary protection, alter the treatment specification accordingly, or allow for the appropriate maintenance treatment before closing in.

Make all arrangements necessary with relevant authorities for transportation of steelwork.

3.10 ERECTION

3.10.1 General

Erection procedures shall be agreed in advance with the Design Engineer.

Erection shall comply with Section 15 of NZS 3404.

The Contractor shall provide adequate temporary bracing and anchorage as necessary to stabilise the structure until all permanent bracing and associated elements, of the structural system, such as purlins, sarking, blockwork walls, foundations, etc are completed.

Every effort shall be made to keep steelwork true to dimension, plumb and level. Final welding of erection connections shall be delayed until each section of the structure is proved true. Final welding up of all steelwork shall be completed before any further loads are added to the structure.

The Steelworker is to co-operate with other trades in erection of steelwork.

3.10.2 Tolerances

Unless noted otherwise herein, tolerances for erection of steelwork shall comply with Clause 15.3 of NZS 3404.

3.10.3 Safety

The requirements of Statutory Authorities, Labour Department, and relevant Acts and Laws shall be adhered to at all times.

The Contractor shall comply fully both on and off site with the provisions of the New Zealand Building Code in all matters relating to construction safety, in particular with Approved documents F1 (Hazardous Agents on Site), F2 (Hazardous Building Materials), F4 (Safety from Falling), and F5 (Construction and Demolition Hazards).

During erection, the structure shall be maintained in a stable condition by use of temporary bracing and/or guy ropes. Design of temporary support structure shall be the responsibility of the contractor.

On completion of erection of the steelwork, the structure shall be left in a stable condition, pending completion of the whole structure.

3.10.4 Lifting Equipment

Cranes and lifting equipment shall be of adequate capacity to safely lift and maintain work in a stable condition until it is securely braced. Construction loads imparted to the structure during erection or temporary storage of steelwork shall be checked by the contractor. Any damage caused shall be repaired at no cost to the Principal.

3.10.5 Baseplates

Packing under steel bases shall be steel.

After erection of steelwork is complete, high strength non-shrink grout under baseplates and elsewhere as indicated on the drawings.

3.11 BUILDING ELEMENTS

3.11.1 Shipping Containers

Shipping containers shall be in good condition and free from visible corrosion and defects.

3.11.2 Additional Steelwork required

Where the existing steelwork does not match that detailed or otherwise assumed, or is in any way deficient, the Design Engineer may instruct additional steelwork. Any such additional steel shall be priced separately by the Contractor on issue of a Variation Order, and the agreed adjustment made to the Contract price.

3.11.3 Roof Bracing

All steel roof bracing shall be installed straight between end connections. Where braces cross, there shall be no deviation in line of either brace, or unless so detailed, or with the written approval of the Design Engineer.

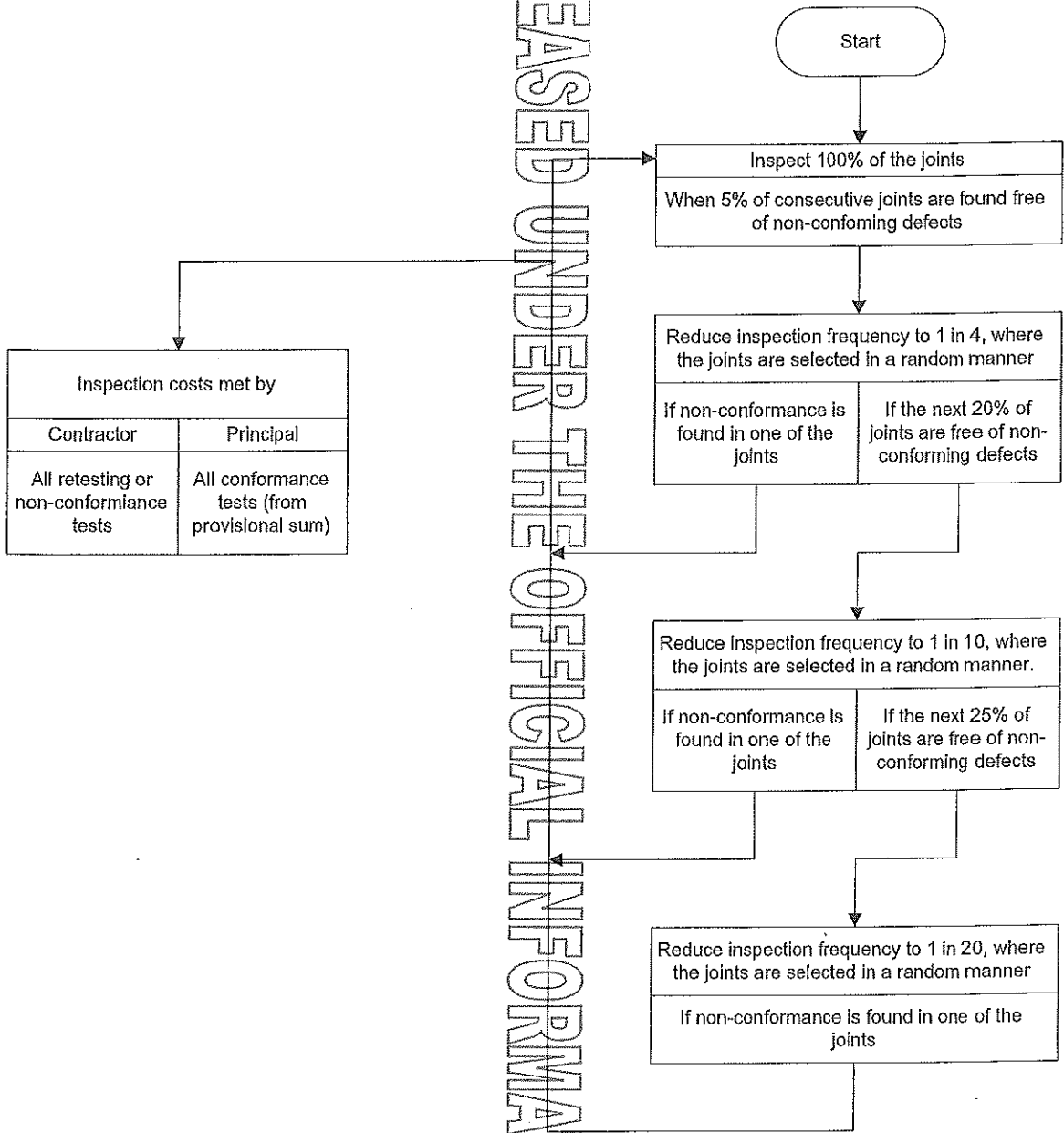
All bracing is to be supported in the horizontal plane to avoid slack. Lightly tension all roof and wall cross bracing such that any sag is less than $L/100$, where L is the length of the bracing member.

3.11.4 Welding Inspection

Refer to clause Welding Inspection above for this sum.

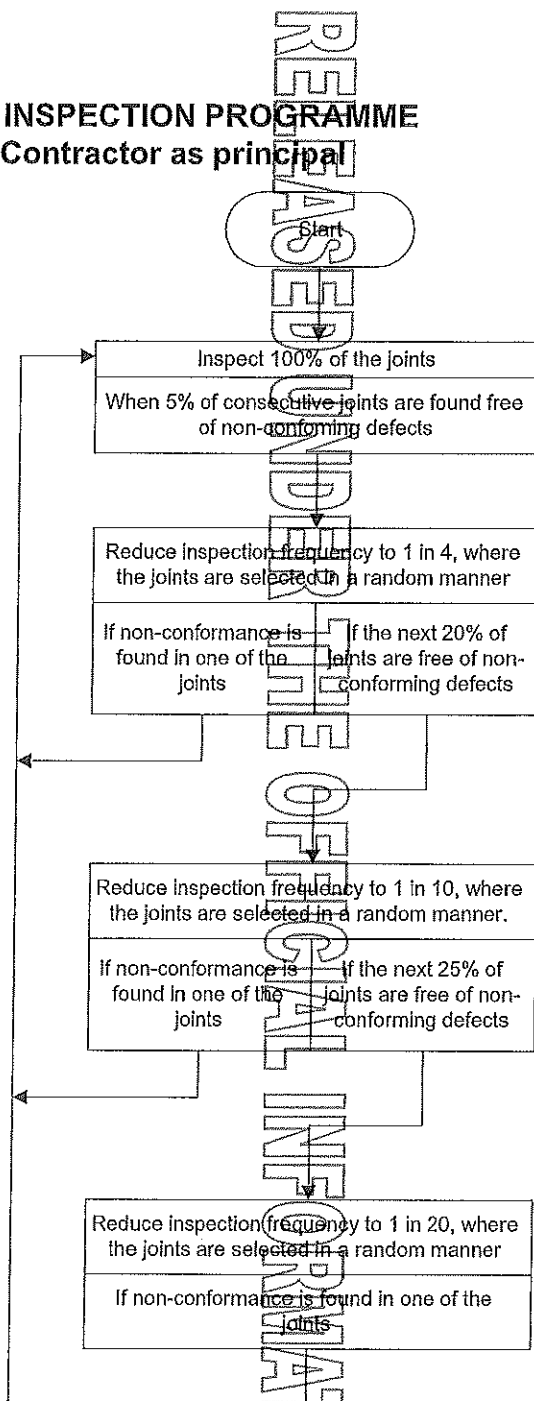
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NDT INSPECTION PROGRAMME



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NDT INSPECTION PROGRAMME
Contractor as principal



CPT ERP - CHRISTCHURCH CATHEDRAL - MASTER PROGRAMME - DRAFT - Rev 2 - 14/12/11

RCP

ID	Task Name	Start	Finish	Duration	Days
1	STAGE 1 - CATHEDRAL INTERIM MAKE SAFE WORKS	Fri 28/10/11	Fri 8/06/12	151 days	151 days
2	CERA Section 38 Notice Received	Fri 28/10/11	Fri 28/10/11	0 days	0 days
3	PHASE ONE - INTERIM MAKE SAFE	Fri 28/10/11	Fri 28/03/12	96 days	96 days
4	Develop Outline Interim Make Safe Methodology	Fri 28/10/11	Tue 9/11/11	8 days	8 days
5	Meet with CERA Engineers	Tue 1/11/11	Tue 1/11/11	0 days	0 days
6	Respond to CERA Section 38 Notice	Tue 8/11/11	Tue 8/11/11	0 days	0 days
7	CERA Review and Comment	Wed 9/11/11	Fri 18/11/11	8 days	8 days
8	CERA Confirm Interim Make Safe methodology concept is acceptable	Fri 18/11/11	Fri 18/11/11	0 days	0 days
9	Prepare Detailed Interim Make Safe Methodology	Wed 9/11/11	Tue 13/12/11	25 days	25 days
10	Contractor Pricing of Interim Make Safe Phase One Works	Mon 28/11/11	Fri 16/12/11	15 days	15 days
11	Submit Phase One Interim Make safe Detail to CERA	Fri 16/12/11	Fri 16/12/11	0 days	0 days
12	CERA Review and Comment	Mon 19/12/11	Wed 11/01/12	8 days	8 days
13	CERA Approval of Phase One Interim Make Safe methodology	Wed 11/01/12	Wed 11/01/12	0 days	0 days
14	Tender Acceptance / Contractor Mobilisation	Mon 19/12/11	Fri 20/01/12	15 days	15 days
15	Commence Phase One Make Safe Works	Fri 20/01/12	Fri 20/01/12	0 days	0 days
16	Site Implementation	Mon 23/01/12	Fri 16/03/12	40 days	40 days
17	Complete Phase One Interim Make Safe Works	Fri 16/03/12	Fri 16/03/12	0 days	0 days
18	Undertake Detailed Structural Assessment and some Priority 1 Retrievals	Mon 19/03/12	Fri 23/03/12	5 days	5 days
19	PHASE TWO - RETRIEVAL INTERNAL MAKE SAFE WORKS	Mon 19/12/11	Fri 8/06/12	115 days	115 days
20	Develop Outline Retrieval Make Safe Methodology	Thu 12/01/12	Wed 8/02/12	20 days	20 days
21	Meet with CERA Engineers	Wed 8/02/12	Wed 8/02/12	0 days	0 days
22	CERA Review and Comment	Thu 9/02/12	Mon 20/02/12	8 days	8 days
23	CERA Confirm Interim Retrieval Make Safe Concept methar	Mon 20/02/12	Mon 20/02/12	0 days	0 days
24	Prepare Detailed Retrieval Make Safe Methodology	Mon 19/12/11	Fri 17/02/12	35 days	35 days
25	Submit Phase Two Interim Make safe Detail to CERA	Fri 17/02/12	Fri 17/02/12	0 days	0 days
26	CERA Review and Comment	Mon 20/02/12	Fri 2/03/12	10 days	10 days
27	CERA Approval of Phase Two Interim Make Safe methodology	Fri 2/03/12	Fri 2/03/12	0 days	0 days
28	Update Phase 2 Methodology on detailed assessment	Mon 26/03/12	Fri 30/03/12	5 days	5 days
29	Contractor Pricing of Retrieval Make Safe Phase Two Work	Mon 20/02/12	Fri 16/03/12	20 days	20 days
30	Tender Acceptance / Contractor Mobilisation	Mon 19/03/12	Fri 30/03/12	10 days	10 days
31	Commence Phase Two Make Safe Works	Fri 30/03/12	Fri 30/03/12	0 days	0 days
32	Site Implementation	Mon 2/04/12	Fri 25/05/12	40 days	40 days
33	Complete Phase Two Retrieval Make Safe Works	Fri 25/05/12	Fri 25/05/12	0 days	0 days
34	Undertake Remaining Retrievals	Mon 28/05/12	Fri 8/06/12	10 days	10 days
35	STAGE 2 - DESIGN STUDIES AND FUNCTIONAL BRIEFING	Thu 27/10/11	Fri 16/08/12	92 days	92 days
36	STAGE 3 - PHASE 3 METHODOLOGY & IMPLEMENTATION	Mon 19/03/12	Fri 14/12/12	195 days	195 days
37	Initial Concept Design Stage (to confirm New/Existing mix and images)	Mon 19/03/12	Fri 4/05/12	35 days	35 days
38	Phase 3 Methodology Developed	Mon 2/04/12	Fri 17/05/12	30 days	30 days
39	Submit Phase Three Methodology Detail to CERA	Fri 11/05/12	Fri 11/05/12	0 days	0 days
40	CERA Review and Comment	Mon 14/05/12	Fri 25/05/12	10 days	10 days
41	CERA Approval of Phase Three Interim Make Safe methodology	Fri 25/05/12	Fri 25/05/12	0 days	0 days
42	Phase 3 Methodology Tender Period	Mon 28/05/12	Fri 22/06/12	20 days	20 days
43	Tender Evaluation/ Acceptance / Contractor Mobilisation	Mon 25/06/12	Fri 20/07/12	20 days	20 days
44	Commence Phase Three Works	Fri 20/07/12	Fri 20/07/12	0 days	0 days
45	Site Implementation	Mon 23/07/12	Fri 14/12/12	105 days	105 days
46	Complete Phase Three Works	Fri 14/12/12	Fri 14/12/12	0 days	0 days

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REPORT

Christchurch Cathedral

Updated Preliminary Post Earthquake Structural Damage Survey

PREPARED FOR

Christchurch Cathedral Property Trust & Church Chapter

11 January 2012

Introduction

The Christchurch Cathedral has suffered structural damage as a result of the series of earthquakes that have been occurring in Christchurch since 26th of December 2010. Holmes Consulting Group completed a preliminary ground based damage survey on the 22nd of March 2011 and issued a reporting detailing the results of the structural survey on the 24th of March 2011. The building sustained additional damage during the June 13th 2011 aftershocks. Details of this damage was summarised in the Holmes Consulting Group report of the 29 June 2011.

The building sustained further damage during the December 23rd 2011 aftershocks. This report summarises the findings of an updated ground based damage survey undertaken by Holmes Consulting Group on the 10th and 11th of January 2012.

As was the case for the original preliminary surveys, building damage and access limitations meant that the survey was generally limited to the building exterior and without the assistance of a crane. It is anticipated that more detailed interior and exterior damage surveys will be undertaken as part of planned future investigative works once necessary securing works have been completed.

Scope of Work

The scope of work for this project included the following:-

1. To complete an interim ground based structural survey of the building to identify the general form and location of additional earthquake damage resulting from the December 23rd aftershocks.
2. To provide a report that details the results of the updated structural survey.

Christchurch

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Limitations

Findings presented as a part of this report are for the sole use of *Christchurch Cathedral Property Trust* and *Church Chapter* in its evaluation of the subject property. The findings are not intended for use by other parties, and may not contain sufficient information for the purposes of other parties or other uses.

Our observations have been visual only and limited to representative samples, as described in our record of observations. Our observations have been restricted to structural aspects only. Waterproofing elements, electrical and mechanical equipment, fire protection and safety systems, service connections, water supplies and sanitary fittings have not been inspected or reviewed, and secondary elements such as windows and fittings have not generally been reviewed.

Our professional services are performed using a degree of care and skill normally exercised, under similar circumstances, by reputable consultants practicing in this field at this time. No other warranty, expressed or implied, is made as to the professional advice presented in this report.

Damage Survey

The following section summarises the additional damage observed to the Cathedral. Detailed survey information and a photo log have been included in the appendices. The reader is directed to our original 24th March report for supplementary background information.

West Wall

The west wall has sustained significant additional damage. With reference to Figure 1, the west wall, including the Rose Window has collapsed down to the level of the adjacent aisle roof. Additional spalling and glass damage has also occurred to the Hawdon Window presumably from falling west wall debris (refer Figure 2).

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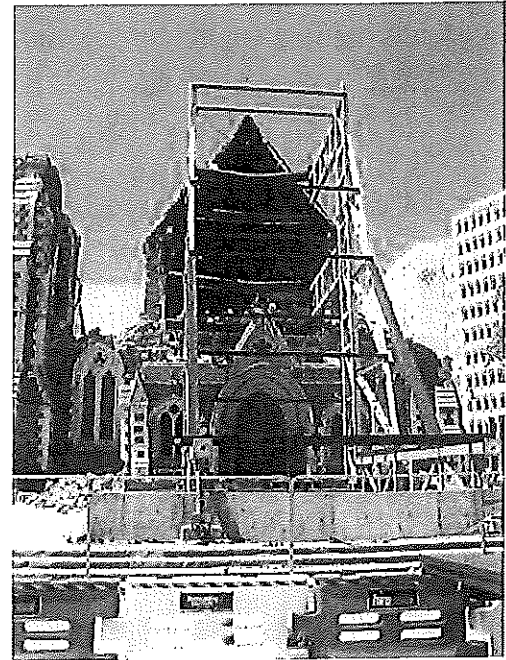
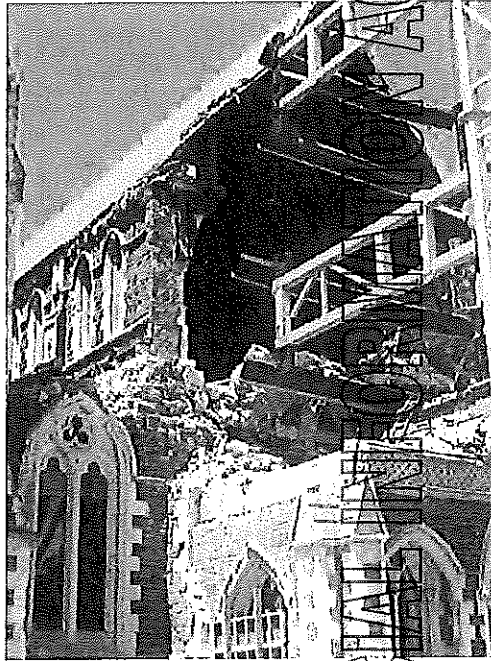


Figure 1 Damage Observed to the West Wall

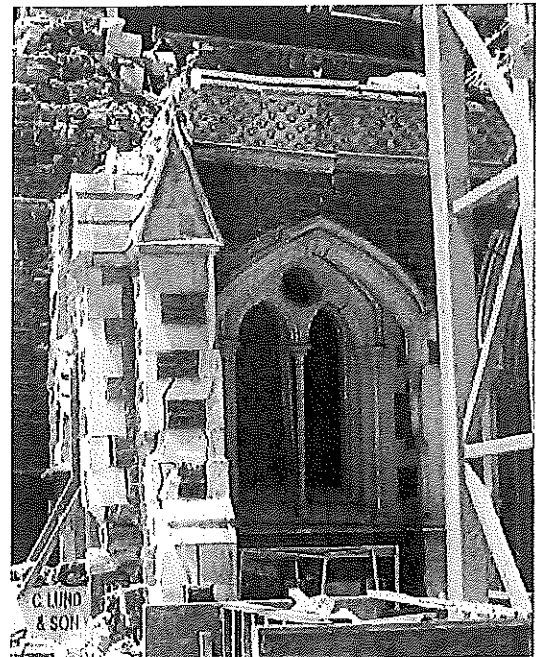
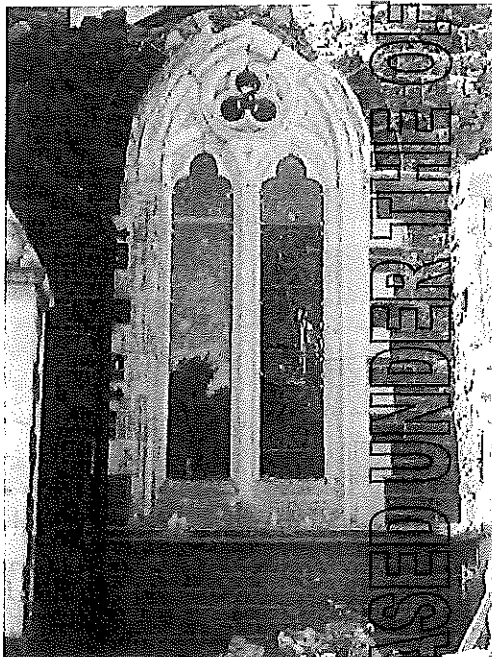


Figure 2 Damage Observed to the Hawdon (left) and West Porch Window (right)

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West Porch

The west porch is severely damaged. Debris from the collapsed west wall has caused additional damage to the slate roof of the west porch and displaced the west porch further to the west.

The additional deformations imposed on the west porch have caused the widths of the existing cracks to increase and glass breakage in the window above the north door. The north west corner has been displaced approx 75 mm by the west wall and is severely cracked. Portions of the decorative parapets have been damaged by falling debris.

The main entrance door still appears to remain largely undamaged.

Tower

As illustrated in Figure 3 damage to the Tower has increased significantly with new moderate to severe diagonal cracking observed in the north, east and west Walls. As a result of the additional damage, the stability of the Tower has degraded such that its ability to sustain another large aftershock without further partial collapse is in doubt. Additional securing works for the Tower are recommended to address the additional damage.

North & South Aisles

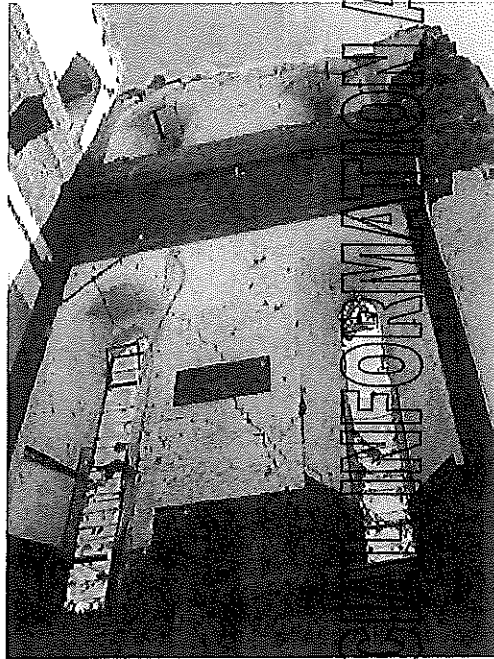
A limited internal inspection indicated that the pattern of damage to north and south aisles is similar to that observed previously expect that the Willock column may have sustained additional spalling damage and maybe on a residual lean.

A closer internal inspection will be required to confirm this assessment.

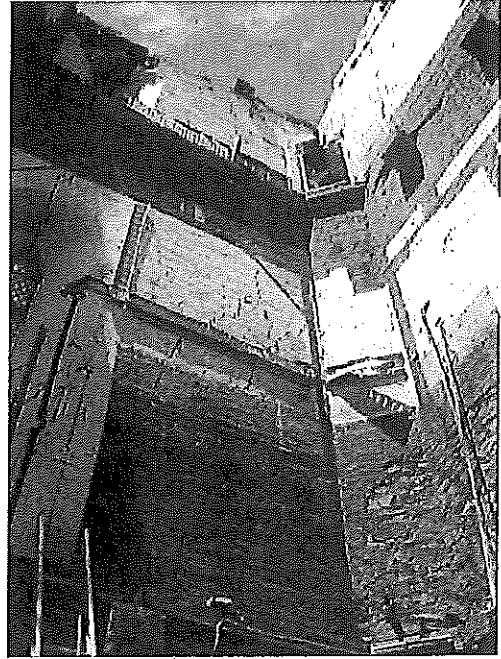
North and South Walls

The severely damaged north and south aisles walls were observed to have sustained additional distress. Existing crack widths have significantly increased and new cracks were observed in both walls. Severe cracking previously observed in the south wall adjacent the south porch has got substantially worse (refer Figure 4).

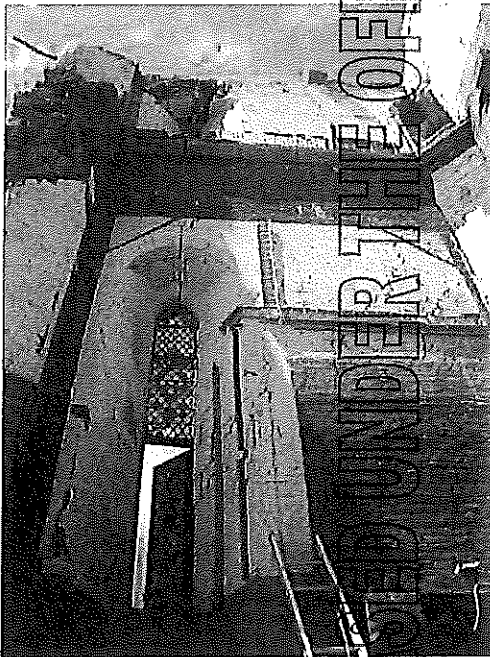
Additional securing works for the south aisle wall are recommended.



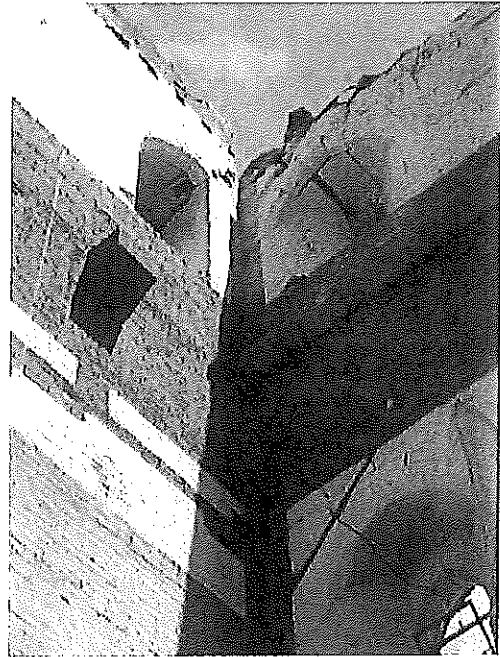
(a) West Wall



(b) South East Corner



(c) East Wall



(d) South West Corner

Figure 3 Damage Observed to the Cathedral Tower

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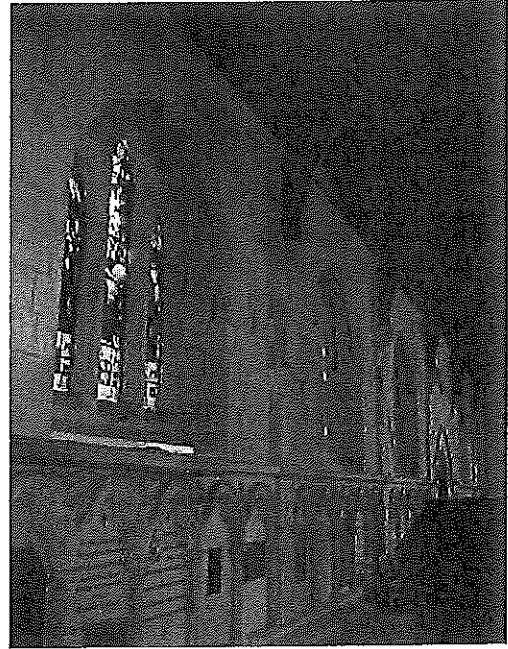


Figure 4 Damage Observed to the South Wall

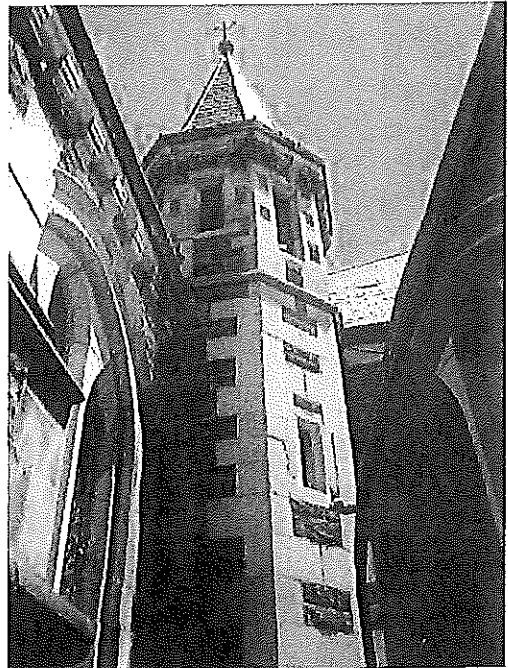
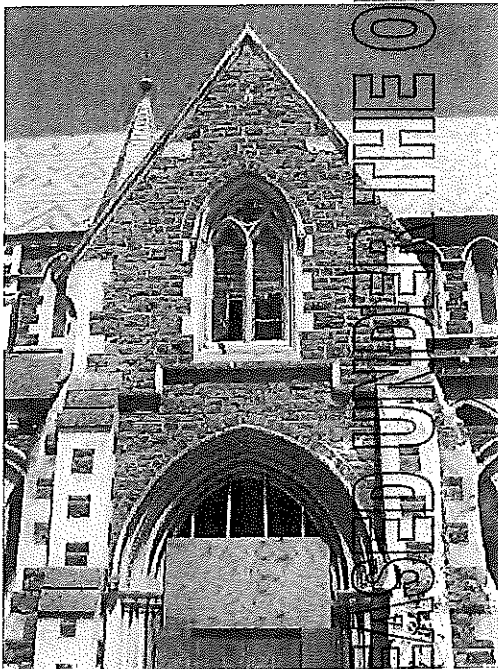


Figure 5 Damage Observed to the North Porch & North Turret

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Nave

The Nave still appears to be in relatively good condition. Some new cracking was observed to the clerestory piers. From the ground the additional cracking observed appears to be relatively minor.

A closer inspection using a man cage will be required to confirm this assessment.

North Porch & North Turret

No significant additional damage was observed to the north porch structure.

The north turret did experience further damage with the widths of the stepped cracking previously observed in the supporting stairwell walls notably increased (refer Figure 5).

South Porch

No significant new damage was observed to have occurred to the south porch.

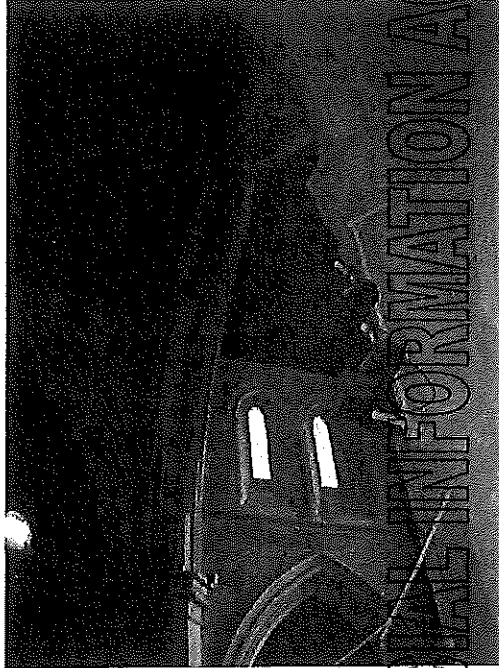
Transept

The Transept has sustained additional damage. The western arch has lost a significant amount of ashlar (refer Figure 6(a)). Cracking previously observed in of north and south gables has worsened with significant cracking now also evident at the top of the windows (refer Figure 6(c) & (d)). The north transept stained-glass windows still appear to be in good condition.

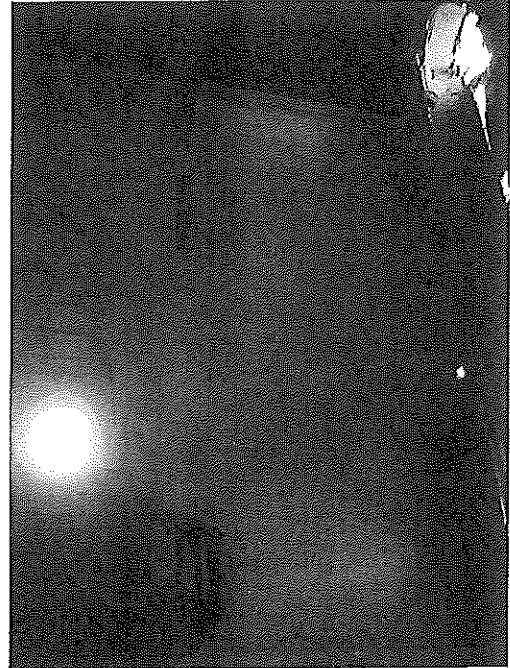
Stepped cracking previously observed in the east and west transept walls has increased (refer Figure 6(b)). The extent and severity of the observed cracking is difficult to quantify due to the presence of wall linings in some locations.

The Bishop Harper effigy appears to have escaped any additional damage.

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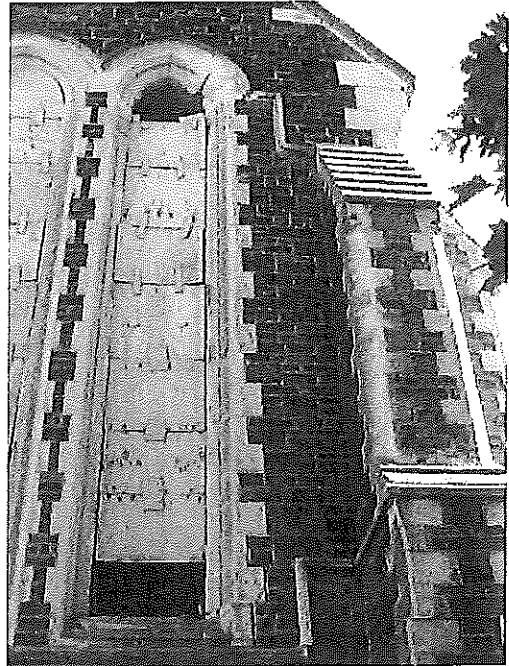
(a) West Arch



(b) South Transept East Wall



(c) South Gable



(d) North Gable

Figure 6 Damage Observed to the Transept

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Apse

Cracking observed in north and south Apsse walls has further deteriorated (refer Figure 7). A brief interior inspection suggests that the stepped cracks are now approximately 20 mm and 50 mm wide in the north and south walls respectively.

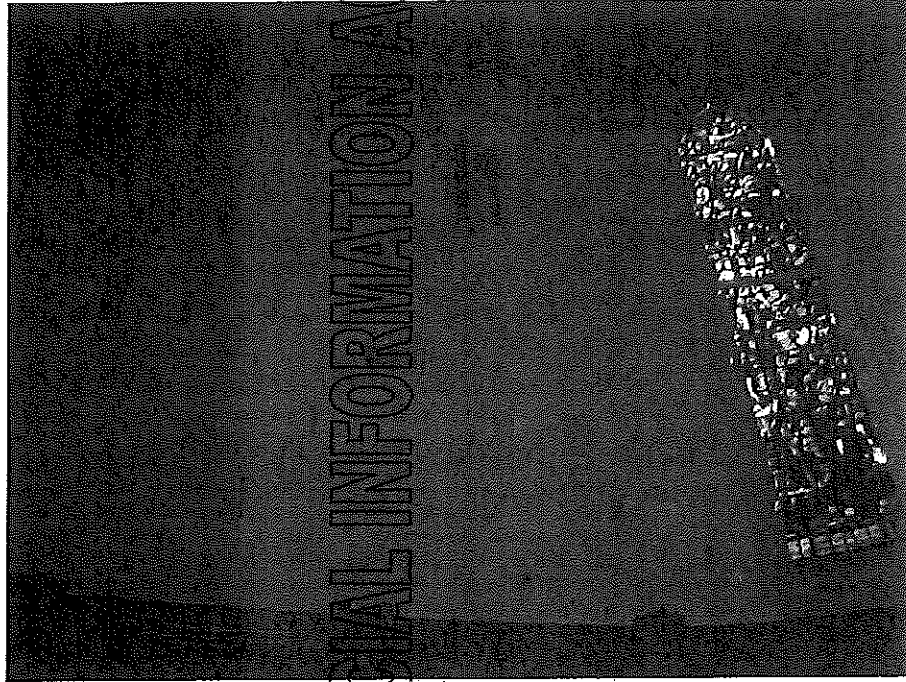
Clergy & Choir Vestries

No significant additional structural damage was observed to have occurred to the Clergy and Choir Vestries beyond that noted previously.

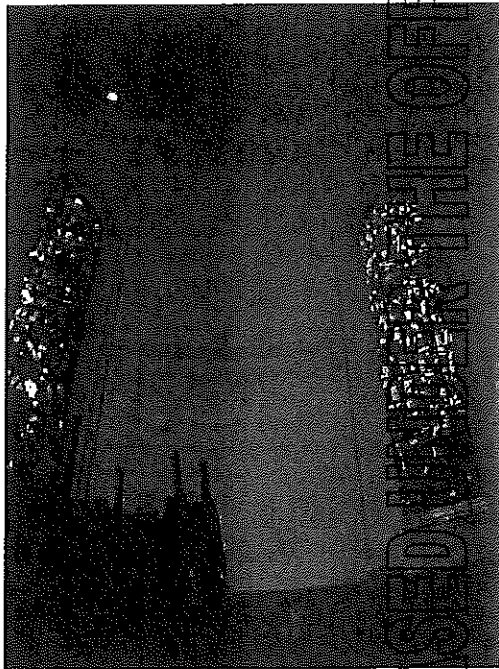
Visitor Centre

No significant additional structural damage was observed to have occurred to the Visitor Centre.

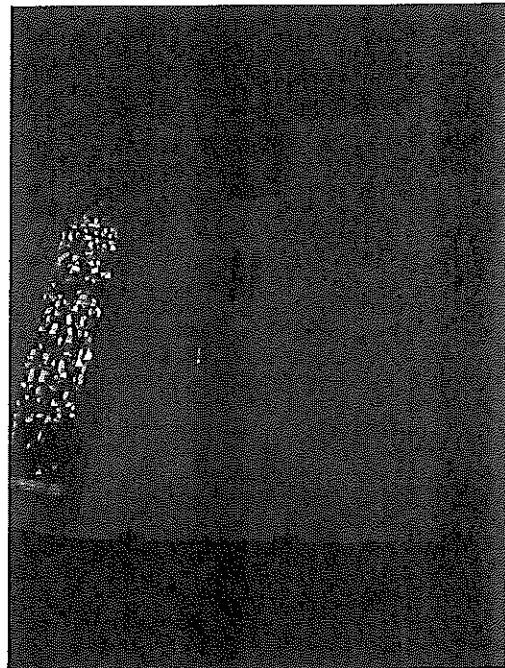
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(a) Apse North Wall



(b) Apse South West Wall



(c) Apse South Wall

Figure 7 Damage Observed to the Apse Walls

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Conclusion

The Christchurch Cathedral sustained significant additional structural damage as a result of the December 23rd aftershocks. Most of the west wall has collapsed with the falling debris causing further damage to the west porch which is now severely damaged.

Damage previously noted to the north and south aisle walls, and to the Apse, has increased. Of particular concern is the additional damaged sustained by the south aisle wall which is now in a state of severe distress. Damaged to the south aisle wall will need to be addressed as part of the revised securing works.

The Tower has sustained significant additional damage with moderate to severe diagonal cracking now present in the north, east and west walls. Additional securing works will be required to address this new damage.

The stability of the Tower in future significant aftershocks is now a significant concern and it is recommended that access to areas adjacent the Tower (including the Visitor Centre) for the purpose of property retrieval be deferred until the Tower is secured.

Other areas of the Cathedral have sustained lesser amounts of additional damage.

The Cathedral remains in a severely damaged state. Planned detailed internal and external damage assessments are required to confirm the extent and severity of damage.

It is recommended that the planned securing works be implemented as soon as possible.

Report Prepared by:-

Withheld under section 9(2)(a)

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APPENDIX A – SKETCH RECORD OF PRIMARY DAMAGE OBSERVED

Inspection Date: 10th & 11th January 2012

Note that all dimensions and crack widths detailed on the attached marked up drawings should be considered approximate and subject to future confirmation as part of a more detailed survey.

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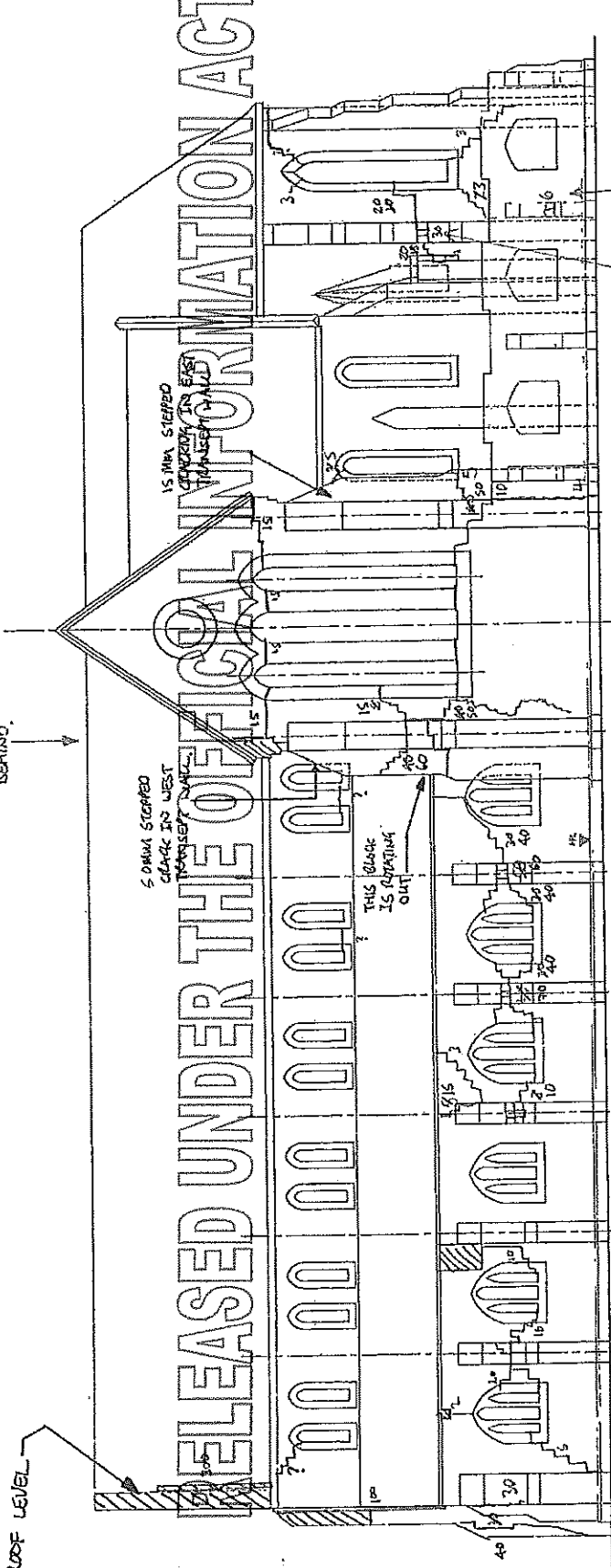
EXTERNAL DAMAGE SURVEY 22/3/11
 S40 LIMITED TO GROUND OBSERVATION
 EXTERNA DAMAGE SURVEY 24/6/11
 EXTERNAL DAMAGE SURVEY 10/1/12

WEST WALL/CLOSE WINDOW
 COLLAPSED DOWN TO MASUE
 ROOF LEVEL

SIGNIFICANT SPALLING &
 LOSS OF STONEMARK TO MAIN
 ARCH.
 CRACK IN
 MAIN ARCH
 SKELING.

S DRAMA STOPPED
 CRACK IN WEST
 TRANSFER WALL

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south elevation

ALL DIMENSIONS TO BE VERIFIED ON SITE. EXISTING CONDITIONS AND ANY VARIATIONS TO BE NOTED AND REPORTED TO THE CLIENT. THE CLIENT IS RESPONSIBLE FOR THE ACCURACY OF THE INFORMATION PROVIDED.

REV DATE BY REASON

HOLMES CONSULTING GROUP
 STRUCTURAL AND CIVIL ENGINEERS
 10000 Highway 10, Richmond, British Columbia, V6V 1K7

CHRISTCHURCH
 CATHEDRAL
 SEISMIC ENGINEERING
 PROPOSALS

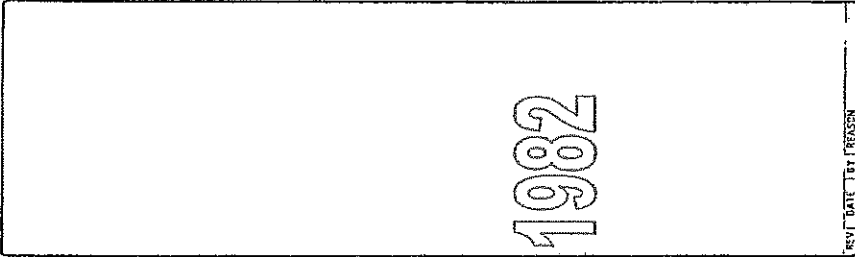
SCALE: 1/200
 DRAWING NUMBER: CIVIL-102

ELEVATIONS

NO. 2948
 SHEET NO. S1-2
 REV. 1

SSK-H 001

ALL PROVISIONS TO BE VERIFIED BY SITE VISIT BEFORE WORK
AND FOR REVISIONS OR CORRECTIONS MUST MAKE
THE LIAISON OF THE DRAWING BOARD WITH
PROJECT ENGINEER BOARD, LLC.



REV. DATE BY REVISION

HOLMES CONSULTING GROUP
ARCHITECTS AND ENGINEERS
10000th Avenue, Suite 1000, Denver, CO 80231

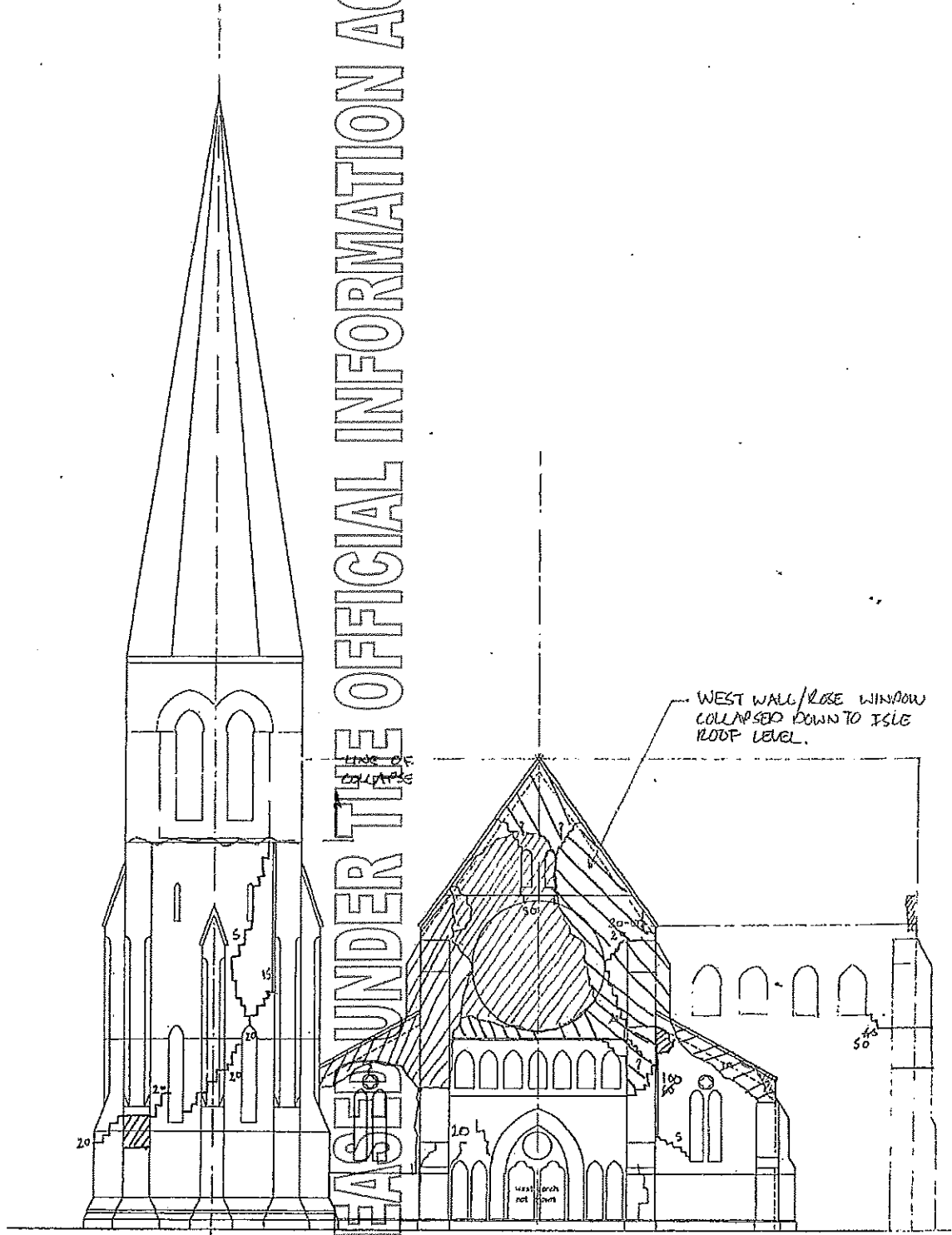
CHRISTCHURCH
CATHEDRAL
SEISMIC STRENGTHENING
PROPOSALS

SCALE: 1/8" = 1'-0"
AND FINISHING QUANTITY

ELEVATIONS

2948 S1-5
REV

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west elevati

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ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
FOR ANY CHANGES IN DIMENSIONS, SEE THE LISTING OF THE DRAWING NUMBER WITH THE PROJECT'S CONSTRUCTION RECORD.

(IN WALL SECTION)

REMOVED BY USAR

REV DATE BY REASON

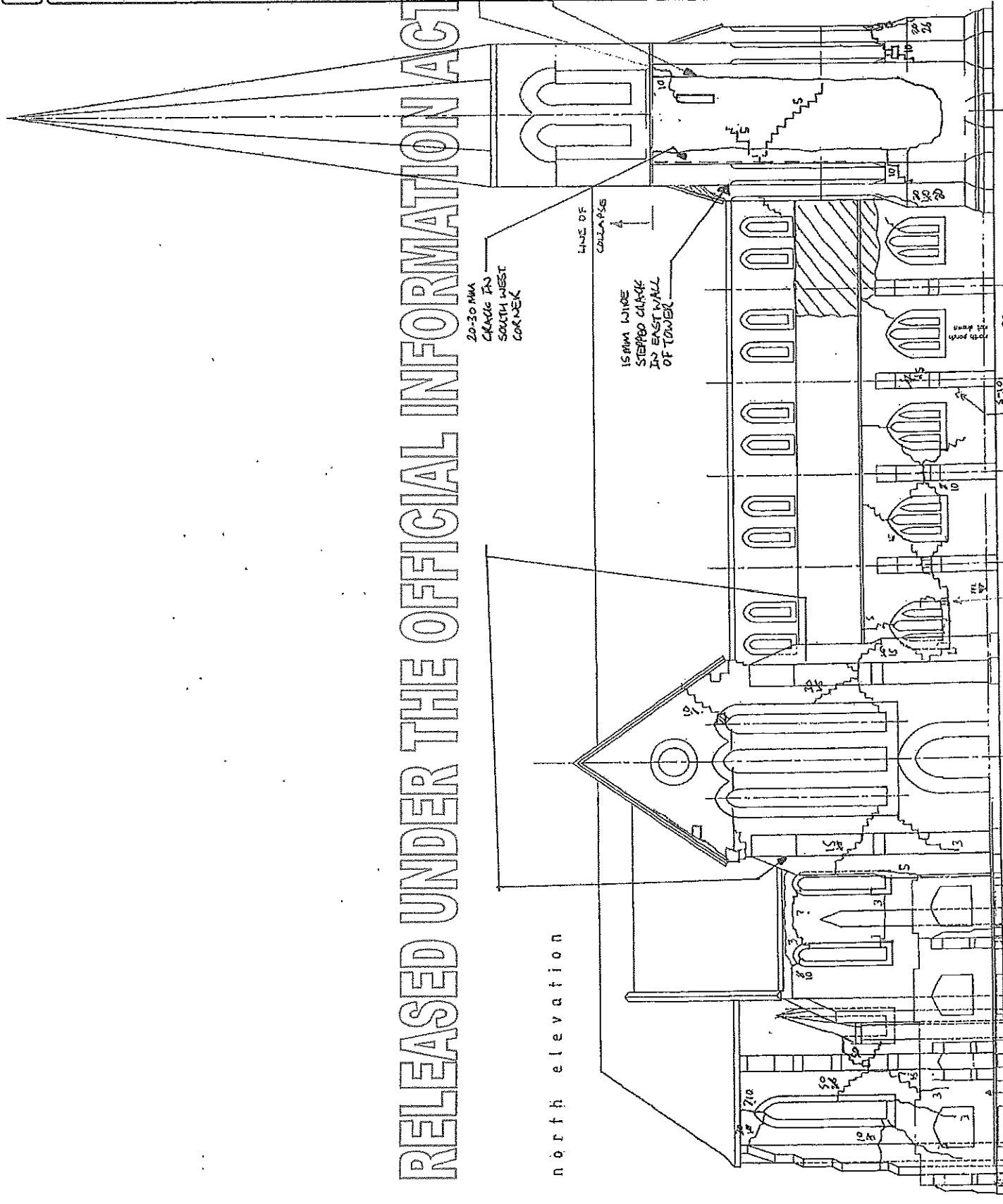
HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS
1000 BAYVIEW AVENUE, SUITE 100, SCARBOROUGH, ONTARIO, CANADA

CHRISTCHURCH CATHEDRAL
SEISMIC STRENGTHENING PROPOSALS

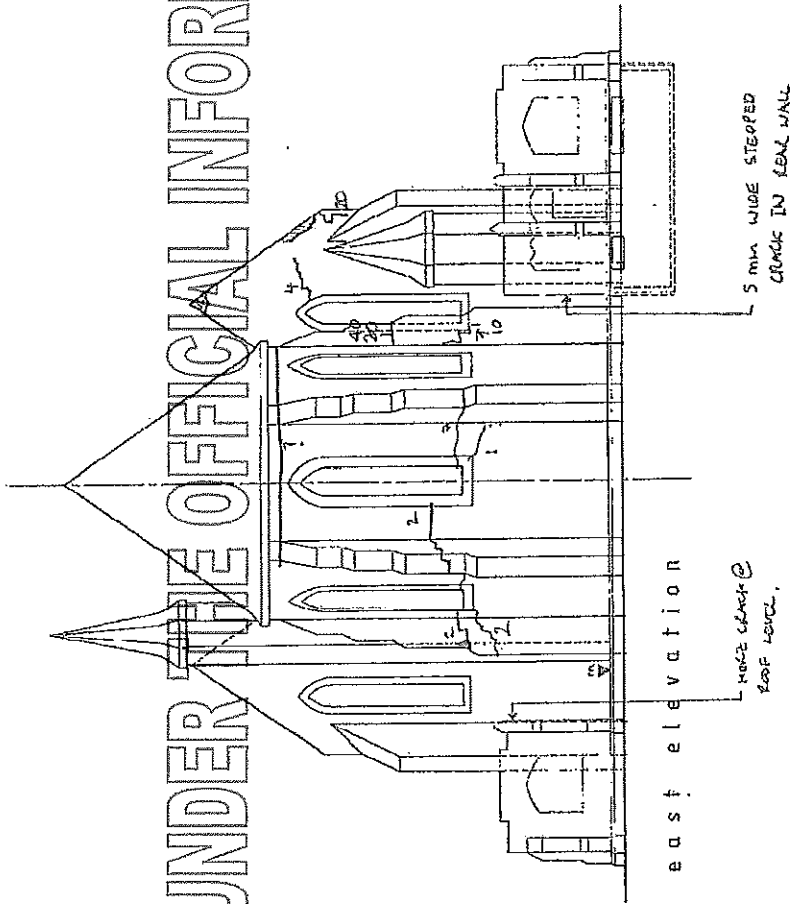
SCALE: 1/100
DATE: 1982-04-14
PROJECT: 82-01-0000-01

ELEVATIONS

NO. 2948
SHEET NO. S1-4
REV.



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ALL DIMENSIONS IN METERS UNLESS OTHERWISE SPECIFIED.
ANY DIMENSIONS IN CONFLICT WITH THE DIMENSIONS SHOWN ON THE DRAWING SHALL BE TAKEN FROM THE DIMENSIONS SHOWN ON THE DRAWING.

REVISED DATE: 1971

HOLMES CONSULTING GROUP
INCORPORATED IN CANADA
1000 BROADVIEW AVENUE
TORONTO, ONTARIO M6K 3H4

CHRISTCHURCH CATHEDRAL
SEISMIC STRENGTHENING PROPOSALS

DRAWN BY: [blank] SCALE: 1/10
APPROVED: [blank] PROJ. NO.: CHR-81-3

SHEET TITLE:
ELEVATIONS

REV	REV
2948	S1-3



APPENDIX B - PHOTO RECORD OF PRIMARY DAMAGE OBSERVED

Inspection Date: 10 & 11 March 2012

Refer to the photo contact sheet following for photo identification and Appendix C for a floor plan that details the location of primary architectural features.

Photo No.	Location of Damage	Description of Damage
101	South Wall, Hassali Window	
102	South Wall, Watts Russell Window	Note that south turret has been removed.
103	West wall of West Porch	Note spalling damage to window frame
104	South wall of West Porch	Permanent offset of west porch has significantly increased due to collapse of Rose Window above. Cracks between 40 -50 mm wide in places.
105	West Wall	
106	West Wall	
107	West Wall, Wilson Window	Note that concrete wall that surrounds the Wilson window has mitigated damage to this element.
108	South wall of West Porch	

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Photo No.	Location	Comments
109	West wall of West Porch	Note visible western lean of west wall
110	West Wall of West Porch	Southern section of wall obscured by temporary securing works.
111	West Wall, Wilson Window & West Porch	
112	West Wall	
113	West Wall & Rose Window	
114	West Wall & Rose Window	
115	West Wall, Hawdon Window & West Porch, North Wall	
116	West Wall of West Porch	Northern section of wall obscured by temporary securing works. Note loss of stain glass window and significant distortion of buttress.
117	West Porch, North Wall	
118	West Porch, West Wall	
119	West Porch, West Wall	Damage to north west corner of the Nave
120	West Porch, North	Close-up of the damage to the west pillar of the north wall of the West Porch.

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Photo No.	Location	Comments
	Wall	
121	West Wall, Hawdon Window	
122	West Wall, Cathedral Tower	Note new diagonal cracking approx 15 - 30 mm wide through north and central wall piers and buttress.
123	West Wall, North Buttress, Cathedral Tower	Note spalling of buttress and diagonal stepped cracking.
124	West Wall, Lower Section, Cathedral Tower	
125	West Wall, North Buttress, Cathedral Tower	Close up of North Buttress spalling
126	West Wall, Lower Central Pier, Cathedral Tower	
127	West Wall, Upper Right Pier, Cathedral Tower	
128	North Wall, Cathedral Tower	Note new cracking to buttress's at lower level.
129	North Wall, Cathedral Tower	Close-up of the damage to the west buttress.

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Photo No.	Location	Comments
130	North Wall, Cathedral Tower	Close-up of the damage to the east buttress
131	North Porch	
132	North Porch	
133	West Wall, Cathedral Tower	Interior view of Cathedral Tower west wall. Note additional diagonal cracking through wall piers and in the arches over the high level windows
134	South Wall, Cathedral Tower	Interior view of Cathedral Tower south wall. Note additional diagonal cracking
135	South East Corner of Cathedral Tower	Interior view of south-east corner of Cathedral Tower south wall. Note additional diagonal cracking
136	East Wall, Cathedral Tower	Interior view of Cathedral Tower east wall. Note additional diagonal cracking
137	East Wall - Upper, Cathedral Tower	
138	East Wall - Middle, Cathedral Tower	
139	East Wall - Lower, Cathedral Tower	
140	South East Corner - Upper, Cathedral Tower	
141	South East Corner - Central, Cathedral Tower	

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Photo No.	Location	Comments
142	South East Corner - Lower, Cathedral Tower	
143	South Wall - Upper, Cathedral Tower	
144	South Wall - Middle, Cathedral Tower	
145	West Wall - Upper, Cathedral Tower	
146	West Wall - Middle, Cathedral Tower	
147	West Wall - Lower, Cathedral Tower	
148	South West Corner - Upper, Cathedral Tower	
149	South West Corner - Central, Cathedral Tower	
150	South West Corner - Lower, Cathedral Tower	
151	North Porch, West Wall	

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Photo No.	Location	Comments
152	North Porch, West Wall	
153	North Porch, West Buttress	Close-up of buttress adjacent the Tancred Window.
154	North Wall, Tancred Window	
155	North Wall, Cathedral Tower	Close-up of the damage to the east buttress
157	South West Corner, Cathedral Tower	
158	South West Corner, Cathedral Tower - Upper	
159	South West Corner, Cathedral Tower - Central	
160	South West Corner, Cathedral Tower - Central	
161	South West Corner, Cathedral Tower - Lower	

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Photo No.	Location	Comments
162	North Porch, North Gable	
163	North Porch, North Entrance	
164	West Wall, Cathedral Tower - Upper	
165	North Turret	Upper section. Note additional cracking.
166	North Turret	Lower section. Note cracking at pent window.
167	Buttress, North Wall	Typical buttress damage in north wall.
168	West Transept Wall, North Section	Note damage/horizontal offset in buttress. Note cracking in the wall below the upper level windows
169	West Transept Wall, North Buttress	Lower section of buttress.
170	West Transept Wall, North Buttress	Close-up of permanent horizontal offset observed in buttress.
171	North Transept Wall	Upper section. Note damage at top of windows and buttresses.
172	North Transept Wall	Lower section
173	North Transept Wall	Upper section of western buttress. Note horizontal offset in buttress
174	North Transept Wall	Middle section of western buttress.
175	North Transept Wall	Lower section of western buttress.
176	North Transept Wall	Lower section of eastern buttress.

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Photo No.	Location	Comments
177	North Transept Wall	Upper section of eastern buttress.
178	North Transept Wall	Upper section of eastern buttress.
179	North Transept Wall	Upper section of eastern buttress.
180	North Transept Wall	Middle section of eastern buttress
181	North Transept Wall	Lower section of eastern buttress
182	North Transept Wall	North eastern view of buttress - middle section
183	North Transept Wall	
184	Clergy Vestry, North Wall	Note spalling around window frame and broken glass.
185	Clergy Vestry, North Wall	
186	North Transept Wall	
187	Clergy Vestry, North Wall	
188	Clergy Vestry, North Wall	
189	Clergy Vestry, North Wall	
190	Clergy Vestry, South Wall	Note cracking in south wall
191	Clergy Vestry, South Wall	

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Photo No.	Location	Comments
192	North East Turret	
193	Apse, North East Wall, Studholme Window	Apse, North East Wall, Studholme Window
194	Apse East Wall, Canterbury Colonists Window	
195	Choir Vestry, North Wall	
196	Choir Vestry, North Wall	
197	Apse, South East Wall, Studholme Window	
198	Apse, South East Wall, Studholme Window	Lower section
199	South East Turret	Upper section
200	South East Turret	Lower section.
201	South East Turret	
202	Apse, South Wall	Close up of damage
203	Apse, South Wall	Lower section
204	Choir Vestry, South	Close up of damage

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Photo No.	Location	Comments
	Wall	
205	Choir Vestry, South Wall	No significant additional cracking noted
206	Choir Vestry, South Wall	
207	Choir Vestry, South Wall	
208	Choir Vestry, South Wall	
209	Choir Vestry, Upper Level South Wall	
210	South Transept, East Wall	
211	Choir Vestry, Upper South Wall	
212	South Transept, South Wall	Note increased cracking top and bottom of windows and through buttresses
213	South Transept Wall, Western Buttress	Lower section.
214	South Transept Wall, Western Buttress	Upper section
215	South Transept Wall, Upper Section	Note spalling about windows

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Photo No.	Location	Comments
216	South Transept Wall, Eastern Buttress	Lower section
217	South Transept Wall, Western Buttress	Middle section
218	South Transept Wall, Western Buttress	Upper section
219	South Transept Wall, Western Buttress	South western view, upper section.
220	South Transept Wall, Western Buttress	South western view, lower section.
221	West Transept Wall	South section, upper level
222	West Transept Wall	South section, upper level
223	West Transept Wall	Close up of damage to south section, mid level
224	West Transept Wall	South western view - close up of damage to
225	West Transept Wall	South western view
226	West Transept Wall	South section, lower level
227	South Transept Wall, Western Buttress	South western view
228	Clerestory South Wall	
229	Clerestory South Wall	Close up - East End. Minor cracking at window sill level visible.
230	Clerestory South Wall	Close up.

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Photo No.	Location	Comments
231	Clerestory South Wall	Close up.
232	Clerestory South Wall	Close up - West End
233	South Wall	
234	South Wall, Fitzgerald & Harman Windows	
235	South Wall, Fitzgerald & Harman Windows	Close up of damage to buttress.
236	South Wall, Fitzgerald & Harman Windows	Close up of damage to buttress.
237	South Wall, Dudley & Fitzgerald Windows	
238	South Porch, East Wall	Note spalling damage in South Wall at
239	South Porch, East Wall	Close-up of spalling damage
240	South Porch, East Wall	Close-up of spalling damage
241	South Wall, Fitzgerald & Harman Windows	Close up of damage to buttress.
242	South Wall, Fitzgerald & Harman Windows	Close up of damage to buttress.
243	South Wall, Fitzgerald & Harman Windows	Close up of damage to buttress.

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Photo No.	Location	Comments
244	South Wall, Dudley & Fitzgerald Windows	Close up of damage to buttress
245	South Wall, Dudley & Fitzgerald Windows	Close up of damage to buttress
246	South Wall, Dudley & Fitzgerald Windows	Close up of damage to buttress
247	South Wall, Dudley & Fitzgerald Windows	Close up of damage to buttress
248	South Porch, South Wall	
249	South Porch, South Wall	
250	Interior of Clergy Vestry, Door into Apse	
251	Interior of Apse, South Wall	
252	Interior of Apse, North Wall	
253	Interior of Apse, North Wall - Upper Level	
254	Interior of Apse, East Wall - Upper Level	

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Photo No.	Location	Comments
255	Interior of Apse, South Wall - Upper level	
256	Interior of Apse, North East Wall	
257	Interior of Apse, South East Wall	
258	Interior of Transept, looking west	Notice significant spacing of west transept arch
259	Interior of Vestry	
260	Interior of North Transept, West Wall	
261	Central Transept looking South West	
262	Interior of Transept, South Wall	
263	Interior of Transept, North Wall - Upper	
264	Interior of Transept, North Wall - Central	
265	Interior of Transept, North Wall - Lower	
266	Central Transept looking South West	

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Photo No.	Location	Comments
267	Interior of Transept - Barker Column - Lower	
268	Interior of Transept - Barker Column - Upper	
269	Interior of North Aisle North Wall - Greenwood Window	Looking west
271	North Aisle North Wall	
272	Nave Column - Willock	
273	Nave Column - Dyke	
274	South Aisle South Wall - West End	
275	South Aisle South Wall - Central Section	
276	South Aisle South Wall - East End	
277	Pulpit	
278	South Aisle South	

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Photo No.	Location	Comments
	Wall - Central Section South Wall	
279	Interior of Choir Vestry, West wall	
280	Interior of South Transept, West Wall	
281	Interior of North Transept, West Wall	Note cracking at corner
282	Interior of South Transept, South Arch looking North West	
283	Interior of South Transept, South Arch	Note damage to apex.
284	Interior of South Transept, South Wall - Upper Section	
285	Interior of South Transept, South Wall - Middle Section	
286	Interior of South Transept, South Wall - Lower Section	
287	Interior of South Transept, South Wall - Lower Section	

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Photo No.	Location	Comments
288	Interior of South Transept, East Wall	Note cracking at upper level
289	Interior of South Transept, East Wall	
290	Pilgrims Column	
291	South Aisle South Wall - Harman Window	
292	South Aisle South Wall	Looking west
293	South Aisle South Wall	Looking west
294	Clerestory South Wall	Note caking adjacent west Transept Wall
295	South Aisle South Wall	
296	South Aisle South Wall	
297	Apse - North East View	
298	Interior of Choir Vestry, East Wall	
299	Interior of Apse, North Wall - Upper Section	

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Photo No.	Location	Comments
300	Interior of Apse, North Wall - Lower Section	Internal view

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window sill level are severely dislocated and cracked. Crack widths in the order of 20 mm – 75 mm are typical.

While it is technically feasible to repair the cracked walls in-situ, and retain the dislocations as they are (i.e. live with the cracks and vertical offsets in the walls), this is not considered to be acceptable for aesthetic reasons.

For this reason the original reconstruction methodology proposed for the Cathedral was to sequentially deconstruct and repair the Cathedral starting from the western end.

The original reconstruction sequence proposed included shoring sections of the roof locally and then deconstructing the supporting perimeter walls down to window sill level (refer Figure 1). The lower remaining portion of the wall would then be strengthened by removing the inner ashlar layer and replacing a portion of the rubble infill with reinforced concrete. A new reinforced concrete strip footing would also be provided to support the strengthened walls. The ashlar would then be reinstated.

Above window sill level the perimeter walls were to be reconstructed with an inner reinforced concrete core, the roof re-supported and temporary shoring removed.

In the original scheme the Transept arches and Nave were to be propped in place and repaired in-situ. The original repair methodology for the Nave is detailed in Figure 2 and consists of removing the ashlar layer and replacing a portion of the rubble infill with a reinforced concrete shear wall. The ashlar would then be reinstated.

Temporary propping was proposed to make the building acceptably safe to work in and to allow for the removal of stain glass windows and other high priority internal heritage items.

It follows then that in terms of the reconstruction methodology the primary advantages of the alternate proposal are:

- (i) Generally those parts of the building that could be repaired in-situ without deconstruction and reconstruction have been retained (i.e. all perimeter walls below window sill level).
- (ii) Temporary propping requirements are likely to be significantly reduced.

The primary disadvantages are:

- (i) The Nave and roof elements which are believed to be in a relatively undamaged state will need to be deconstructed, stored and potentially rebuilt.
- (ii) Significant additional costs associated with the deconstruction and storage of those building elements that are to be removed.

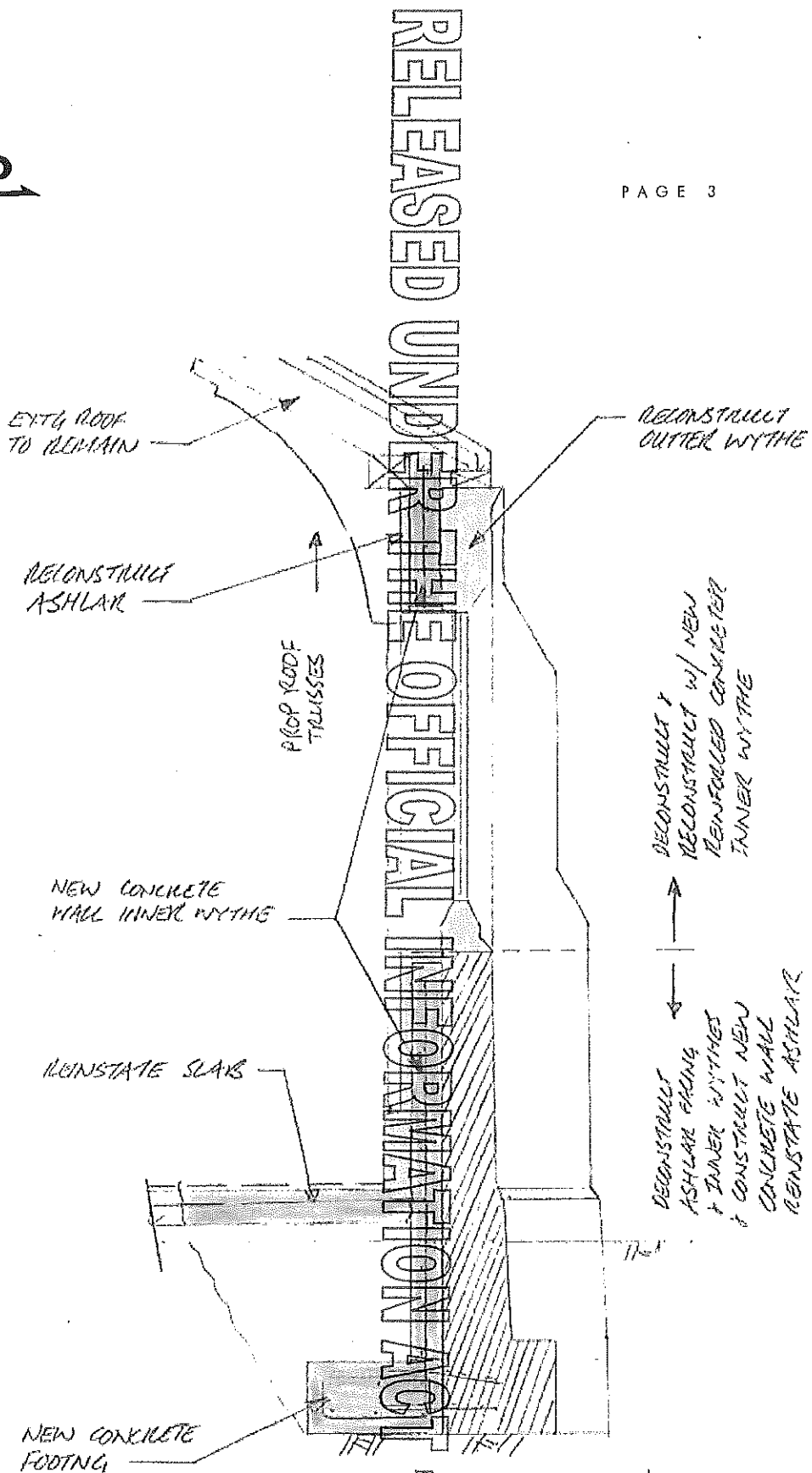


Figure 1 Proposed Perimeter Wall Reconstruction Methodology

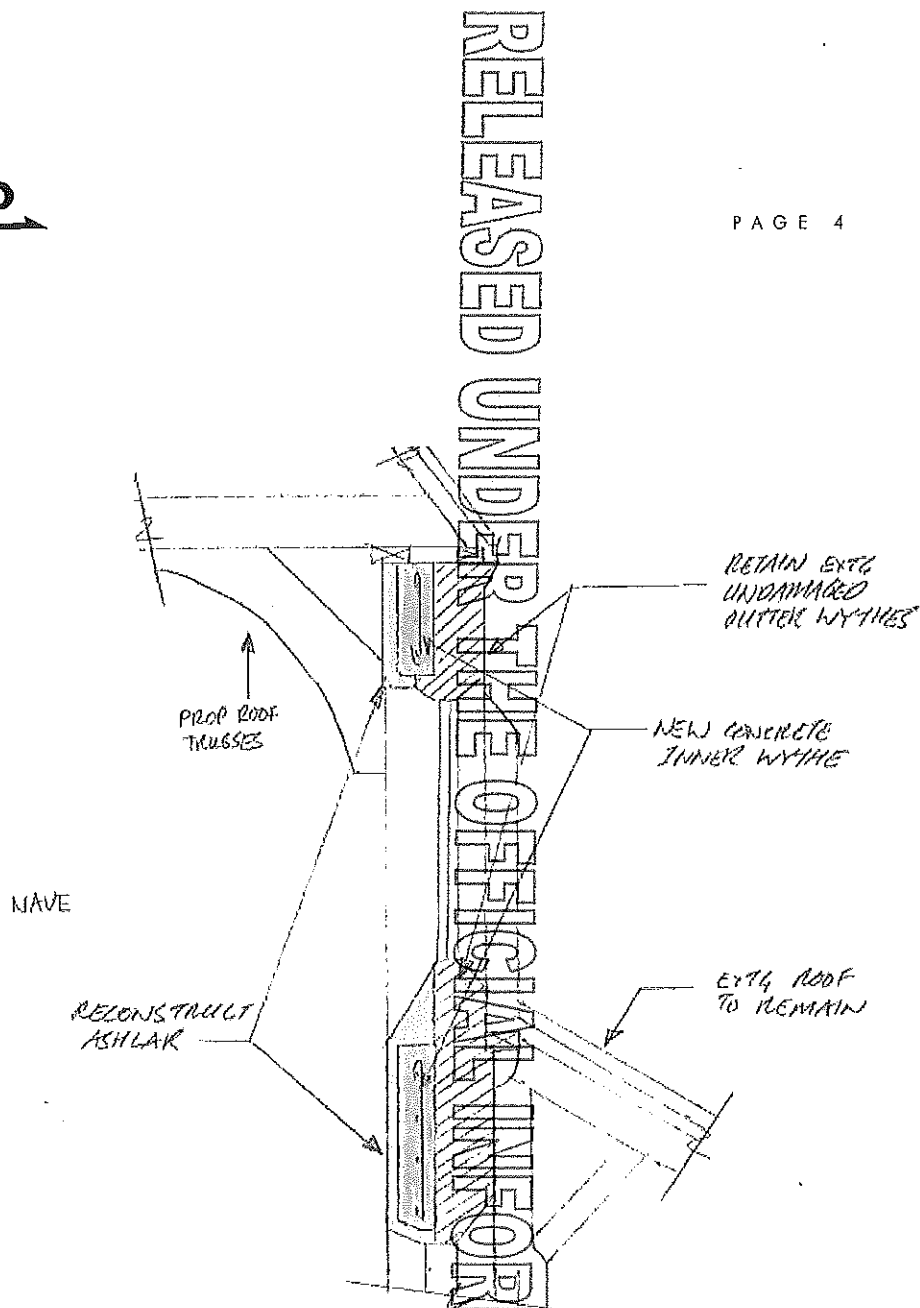


Figure 2 Proposed Nave Reconstruction Methodology

2. On-going Seismicity & Safety

On-going seismicity can be expected to occur in the Canterbury region for the medium term. Available GNS estimates are that there is 20% probability of a magnitude 6.0 or greater earthquake occurring in the entire Canterbury region over the next 12 months.

Of greater interest is the chance of a large aftershock occurring near the Christchurch CBD as this is more likely to cause damage to the Cathedral. We understand that there is approximately a 1% probability of a magnitude 6.5 or greater earthquake occurring within 5 km of the Christchurch CBD.

Securing works originally recommended to stabilise the building (i.e. Phase 1 & 2 Make Safe Works) are primarily intended to prevent collapse and make the Cathedral



acceptably safe to occupy such that heritage retrieval and reconstruction works can take place.

While the securing works will improve the structural performance of the building they will not prevent on-going degradation of the damaged structural elements. If the Cathedral was to experience another large aftershock (i.e. similar to June 13th or December 23rd) more damage can be expected and it is possible that additional securing works would be required to address this damage.

Such damage might be expected to take the form of increased spalling and cracking of stone work.

It follows then that in terms of on-going seismicity the primary advantages of the alternate proposal are:

- (i) On-going degradation of building fabric due to seismic will be minimised.
- (ii) Risk of additional damage to internal heritage items (i.e. organ & pulpit) will be mitigated.
- (iii) Safety of Consultants and Contractors accessing the building will be improved.

The primary disadvantages are:

- (i) Building will be vulnerable to collapse during the deconstruction period. The building will be most vulnerable for the period of time when the roof has been removed and walls remain unsupported. Of particular concern is the stability of the clerestory walls once the Nave roof is removed. Care will need to be taken when sequencing deconstruction works if the collapse of the Nave is to be avoided.

3. Reconstruction/Heritage Considerations

Given that the decision on the final outcome of the Cathedral has yet to be made, and is not expected to be made in the short term, one of the objectives of the original securing works proposal was to retain as much of the original building fabric in-situ as possible so as not to restrict future reconstruction options.

The alternative securing proposal represents a significant departure from this philosophy. The primary advantages of the alternate proposal are:

- (i) Deconstruction of the roof will enable a detailed condition inspection of the roof elements to be made in a safe working environment.



The primary disadvantages are:

- (i) Deconstruction and removal of building elements are not a preferred course of action from a heritage point of view i.e. the ICOMOS NZ Charter states a preference for minimum intervention and avoidance of heritage fabric removal.
- (ii) Further damage to the building fabric and internal heritage items during the deconstruction and removal process.
- (iii) Additional recording and logging of building fabric will be required due to the increased scope of deconstruction.
- (iv) Remaining building elements will need to be provided with weathering protection.
- (v) From a psychological point of view if the roof and nave were deconstructed there may be reduced incentive to reinstate these elements in the future.

4. Summary of Project Variables Study

Table 1 below summarises the results of a high level securing works – project outcomes study. The objective of the study was to investigate how different temporary works options and project outcomes interact and how they influence the following project variables:

- Total project costs i.e. including temporary works, deconstruction and construction costs.
- Worker safety i.e. retrieving valuable building contents, installing temporary securing works, building deconstruction and construction.
- Building Contents risk i.e. due to deconstruction or future aftershocks.
- Heritage amenity i.e. with respect to the ICOMOS NZ Charter
- Risks to new and existing building fabric associated with ongoing aftershock activity.

Three different temporary work options were considered:

- Deconstruct to window sill level i.e. the alternative currently under consideration.
- Stabilise with temporary shoring i.e. the original securing option proposed.



Table 1 Temporary Works Project Outcomes Summary

Variable	Project Outcome		Comments
	Reconstruction of Existing Building	Partial Retention/Partial New Structure	
Total Construction Cost	High	Medium - High	To be confirmed by Davis Langdon
Risk to Worker Safety	Low	Low	
Risk to Contents	Moderate - High	Moderate - High	
Loss of Heritage Amenity	Medium - High	High	
Risk of Aftershock Damage	Low	Low	
Total Construction Cost	Medium - High	Highest	To be confirmed by Davis Langdon
Risk to Worker Safety	Low - Moderate	Low - Moderate	
Risk to Contents	Low	Low	
Loss of Heritage Amenity	Lowest	Moderate	
Risk of Aftershock Damage	Moderate	Moderate	
Total Construction Cost	Low - Moderate	Lowest	To be confirmed by Davis Langdon
Risk to Worker Safety	Low	Low	Construction sequence tailored to project outcome
Risk to Contents	High	High	
Loss of Heritage Amenity	Lowest	Moderate	Assumes no significant loss due to aftershocks
Risk of Aftershock Damage	High	High	Risk would be minimised by early identification of project outcome

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- Do nothing on site pending decision of final project outcome.

Three different project outcomes were considered for this:

- Reconstruction of existing building with strengthening such that it meets 100% NBS for an Importance Level 3 building.
- A partial reconstruction and partial new contemporary structure.
- Reconstruction of a completely new contemporary structure.

It is acknowledged that advice received from the Client to date indicates that the partial reconstruction and partial new contemporary structure option is likely to be adopted for this project. However the three options were considered in the study to enable trends to be identified.

Referring to Table 1 the following trends can be observed:

- From a purely cost point of view, ignoring heritage amenity and risk of damage to building contents, the optimum methodology is not to undertake any temporary works and simply demolish the existing building and construct a new contemporary structure. This conclusion will need to be confirmed with Davis Landon.
- If the retrieval of building contents is the priority the preferred option is to stabilise the existing structure with temporary shoring. Building contents are at significant risk of damage should the deconstruction to window sill level option be adopted.
- Risks to worker safety can be minimised by either deconstructing the structure down to window sill level or deferring any work on site until the final project outcome has been identified. This would enable a tailored construction sequence to be undertaken whereby worker access to unstrengthened parts of the Cathedral would be minimised.
- The best out-come in terms of retaining heritage values is to either stabilise the existing structure with temporary shoring or to start the re-construction and strengthening of those portions of the building that are to be retained without delay.
- Construction costs and risks can be minimised by early identification of the final project outcome. This will enable the most effective use of temporary shoring and heritage fabric utilisation.



The outcomes study excluding consideration of PR/Communications risks. It was assumed that these risks would be managed by an appropriate communications plan.

One of the important results of the study has been to identify the need to balance the value of the building contents to that of the overall project cost.

Of equal, or greater importance, is the need to identify the final project outcome. The longer this decision is deferred the more of an impact this is going to have on escalating project costs, worker safety and the ability to retain key heritage values.

Regards,

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From:
Sent: Friday, 24 February 2012 3:05 p.m.
To:
Subject: Christchurch Cathedral
Attachments: Church Property Trustees - options.pdf

Withheld under section 9(2)(g)(i)

Withheld under section 9(2)(a)

Dear

Please find attached a letter from Warwick Isaacs regarding the Cathedral.

Regards

Warwick Isaacs, GM Operations
Canterbury Earthquake Recovery Authority (CERA)
Private Bag 4999, Christchurch 8140

DDI:
M:
E:
W:www.cera.govt.nz

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CERA 
**Canterbury Earthquake
Recovery Authority**

23 February 2012

Church Property Trustees
Anglican Centre
c/- St Peter's Church
22 Main South Road
PO Box 6088
Christchurch 8042

Attention :

Email : |

Dear

Christchurch Cathedral

Thank you for meeting with my team and I on 21 February 2012.

I confirm that CERA has been fully informed of the various options the Church Property Trust has been considering for the Christchurch Cathedral. A Collaborative Working Group (CWG), which CERA staff were involved with, was set up to help the Church Property Trust (CPT) find a way to make Christchurch Cathedral safe in terms of the CERA notice you have received. From this process three options have been put forward to the CPT for consideration.

As we discussed the Diocese Control Group, Standing Committee and Church Property Trustees will be considering options for the Cathedral at the various meetings scheduled for 23 February 2012 and 1 March 2012 respectively.

As I understand it, the options being considered are:

Option 1 : Maximum Retention

This involves the construction of braced structural steel shoring towers within the building, vertical steel mullions on the outside of the North and South gables and additional roof bracing. The installation of the internal make safe works would require the use of 'safe havens' in order to minimise health and safety risks to construction personnel. This option involves a significant amount of demolition/ deconstruction of damaged masonry.

Option 2 : Minimum Shoring

This involves the controlled demolition/deconstruction of the structure to approximately sill level.

Option 3 : Intermediate Scheme

A combination of Options 1 and 2, with deconstruction of the nave and retention and strengthening east from the crossing

We note that all options include removal of the tower to approximately sill level.

CERA Engineers have reviewed and considered the options outlined and comment as follows:

Option 1: We have reservations about the effectiveness of temporary supports to restrain severely damaged masonry in a less than moderate earthquake event. In support of our opinion we note that the temporary support to the West wall of the Cathedral did not prevent the wall from collapsing in a dangerous way.

We consider that the building in its present condition would pose a high risk to tradesmen erecting and carrying out proposed temporary strengthening works within the building. From our personal experience it is difficult to move in a significant earthquake event, especially while dodging falling masonry. Because of this, we consider that the provision of safe havens would do little to mitigate the risk to tradesmen working outside of these safe havens, but within the building.

Option 2: Controlled deconstruction is a feasible option and could be done safely.

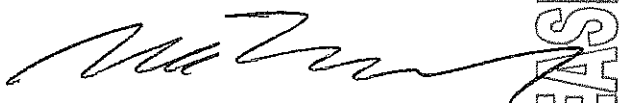
Option 3: The controlled deconstruction of the nave, aisle, and West end of the building is a feasible option and could be done safely. The retention and strengthening East from the crossing is possible but has high risk to tradesmen erecting and carrying out proposed temporary strengthening works.

In order for me to fully consider your chosen option, I require a detailed methodology statement clearly articulating how the option will be achieved, with particular reference to how the health and safety of workers on site will be ensured. Any option chosen must leave the structure in a condition that fully satisfies the requirements of the section 38 notice dated 28 October 2011.

I look forward to continuing to work with you regarding the Christchurch Cathedral.

Finally, as we have also discussed, it is crucial to the recovery of the central city that a decision is made on 1 March 2012.

Yours sincerely



Warwick Isaacs
General Manager Operations

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CHRISTCHURCH CATHEDRAL - TABLE OF HERITAGE VALUES

CATEGORY	Tangible values	Intangible values	Combined tangible & intangible values	Ecclesiastical	Secular
S1. Historic & Social Significance	c) Heritage tourism site	b) Symbol of the foundation of the city	a) Associations with the founding of the city d) Church history e) First oldest cathedral	a) Associations with the founding of the city e) First Anglican and oldest surviving cathedral	b) Symbol of the foundation of the city c) Heritage tourism site d) Chronicle of city's history
S2. Cultural and Spiritual Significance		a) Centre of Anglican Diocese in Canterbury	b) Significant place of worship d) Part of the Cultural Precinct of Christchurch including the Museum, Arts Centre and the Provincial Chambers	a) Centre of Anglican Diocese in Canterbury b) Significant place of worship c) Symbolises the founding ideals of the city fathers	d) Part of the Cultural Precinct of Christchurch including the Museum, Arts Centre and the Provincial Chambers
S3. Architectural & Aesthetic	a) Major work by noted English architect, Sir Giles Gilbert Scott	c) Largely unmodified and with a high degree of authenticity d) Association with Benjamin Mountford who designed many	b) Association with large number of Canterbury architects, craftsmen etc.	a) Major work by noted English architect, Sir Giles Gilbert Scott c) Largely unmodified and with	b) Association with large number of Canterbury architects, craftsmen etc. d) Association with

RCP
draft programme

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CATEGORY	Tangible values	Intangible values	Combined tangible & intangible values	Ecclesiastical	Secular
		of the other major buildings in Christchurch including the Arts Centre and the Museum		a high degree of authenticity	Benjamin Mountford who designed many of the other major buildings in Christchurch including the Arts Centre and the Museum
S4. Technological & Craftsmanship	a) High quality of construction and decoration, particularly stained glass, carved stone, ceramic tiles and timber.				a) High quality of construction and decoration, particularly stained glass, carved stone, ceramic tiles and timber.
S5. Contextual			c) Focal point of the Square.		b) Major landmarks in the city c) Focal point of the Square.
S6. Values since the earthquakes	c) Rarity value following loss of majority of Christchurch's heritage buildings	a) Evidence of earthquakes	b) Symbol of February earthquake around the world.		c) Rarity value following loss of majority of Christchurch's heritage buildings a) Evidence of earthquakes b) Symbol of February earthquake around the world.

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 Major landmarks in the city

Can't Do
As Part Has
Been Demolished
↳ / Consider

CHRISTCHURCH CATHEDRAL - REBUILD OPTIONS & MAKE SAFE ANALYSIS

REBUILD OPTIONS	REBUILD OPTIONS	REBUILD OPTIONS	REBUILD OPTIONS	REBUILD OPTIONS	REBUILD OPTIONS	REBUILD OPTIONS	REBUILD OPTIONS
A 100% new cathedral	B 100% new cathedral incorporating intangible values	C New cathedral incorporating intangible values and selected heritage fabric	D Part new cathedral Part reconstructed replica	E 100% reconstructed replica	F Part reconstructed replica Part repair and strengthening	#6 MOST HERITAGE VALUES RETAINED	#6 MOST HERITAGE VALUES RETAINED
#1 LEAST HERITAGE VALUES RETAINED	#2 A MUST	#3	#4	#5	#6	#7	#8
MAKE SAFE OPTIONS	MAKE SAFE OPTIONS	MAKE SAFE OPTIONS	MAKE SAFE OPTIONS	MAKE SAFE OPTIONS	MAKE SAFE OPTIONS	MAKE SAFE OPTIONS	MAKE SAFE OPTIONS
1 100% demolition no salvage	1 100% demolition no salvage	3 Part controlled demolition with selected salvage	4 Part controlled demolition deconstructed with 100% salvage	2 Part controlled demolition Part deconstructed with 100% salvage	5 Part deconstruction with salvage Part repair	MAKE SAFE OPTIONS	MAKE SAFE OPTIONS
A	A	Part repair	More Old Trade	None with Repair			

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SAME LITTLE DIFFERENCE

Arch Thinking Parts
Of Cathedral As Opposed
To Specific Elements

CHRISTCHURCH CATHEDRAL - MAKE SAFE OPTIONS

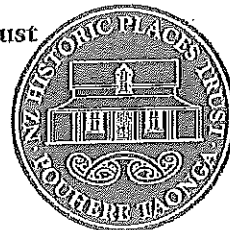
Make Safe 1 Complete demolition, no salvage, clear site.

Make Safe 2 Full deconstruction with full salvage and storage.

Make Safe 4 Part controlled demolition with agreed salvage / Part deconstruction with selected salvage.

Make Safe 5 Part deconstruction with full salvage / Part repair and strengthening.

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27 February 2012
Confidential

HP 12004-026 (SRO)

Warwick Isaacs
General Manager, Operations
CERA
Christchurch

Cathedral Church of Christ - securing options

As requested from the Cathedral Project Manager (RCP) and CERA, this letter constitutes the NZHPT's advice on the preferred options to secure the Cathedral Church of Christ (the Cathedral), Christchurch.

Background

The Cathedral is registered with the NZHPT as a Category I historic place (Record No. 46) under the Historic Places Act 1993 in recognition of its special and outstanding historical and cultural heritage significance and value. The purpose of the Register is to inform the public and notify owners of historic places and to assist historic places to be protected under the RMA.

Built on land set aside for the purpose by the Canterbury Association, the Cathedral Church of Christ (the Cathedral) is the only church designed by distinguished British Gothic Revival architect George Gilbert Scott in New Zealand and is one of the most important landmarks and symbol of Christchurch. New Zealand architect, Benjamin Woolfield Mountfort largely supervised the building of the Cathedral and had a significant influence on the final design, resulting in a greater High Victorian emphasis than Scott's original design. This design included polychromatic enrichment of decorative elements on both the exterior and interior. The multitude of memorial windows and tablets within and around the cathedral create a living history of Canterbury's past and its people.

The Cathedral is a pivotal part of an internationally significant and rare cluster of Gothic Revival buildings, which includes also the Canterbury Provincial Council Buildings, the Canterbury Museum and the Arts Centre.

Earthquakes are part of the history of the Cathedral. Soon after the Cathedral was consecrated in 1881, an earthquake loosened the stonework of the tower, and repairs and further strengthening was required. Seven years later a more severe earthquake brought down the top 29 feet (8.8 m) of the spire. This was eventually rebuilt with firebricks, rather than stone, but a further earthquake, in 1901, damaged the spire again and the more successful solution was to reconstruct the upper portion of the spire in timber covered with copper.

While the Cathedral experienced minimal damage from the Darfield earthquake of 4 September 2010, the building was severely damaged on 22 February 2011 and

subsequent aftershocks. The top of the spire collapsed and the rest of the church was severely damaged. The north wall of the tower was demolished by USAR following this earthquake damage. Further severe damage occurred on 23 December 2011 with the significant collapse of the west end of the nave, including the rose window.

Securing options

The NZHPT was involved in the Cathedral Collaborative Working Group (the committee) during October 2011. The committee included representatives from the Church, RCP, Christchurch City Council, NZHPT and consultants. The NZHPT provided advice regarding options for the securing of the Cathedral and retrieval of artefacts. This consultation was confined to the securing of the building as an interim measure and any consideration of the long term options for the site was not part of the brief for this committee.

Following the consultative meetings, and prior to the end of 2011, the NZHPT were able to support a comprehensive engineering proposal to secure the bulk of the Cathedral. The earthquakes experienced on 23 December 2011 and related aftershocks delayed the proposed securing work and consequently the options have been revisited.

In light of the further damage, and after its recording and assessment by engineers, three options have been developed by the Cathedral's engineers for the securing of the Cathedral and the retrieval of artefacts. The NZHPT understands that these options are concept-only and any selected option would require considerably more detailed analysis and design work before pricing and the start of the works. The NZHPT's Consultant Engineer will be providing advice around the detailed approaches and methodology for the chosen securing option.

It is the NZHPT understanding that the concept-only options, that were discussed at a meeting held on 20 February 2012 for consideration, involve:

- Maximum Retention Option (Revised Phase 1 & 2 Make Safe Works)
The work is detailed in two phases – the first is work that can be carried out from the building exterior, then to provide interior tying and shoring working from the West-end through to, and including, the Transept. The artefacts would be progressively removed for safe keeping. The rough order time frame for Phase 1 is 4-months and Phase 2 a further 4 to 6 months.
- Intermediate Option (Revised Make Safe Works)
Deconstruction or demolition of the nave is progressively carried out down to sill level from the West end through to the junction of the Nave with the Transept. The Transept is shored for retention together with the East end. Artefacts are removed as these areas become safe.
- Minimum Shoring Option (Revised Make Safe Works)
Deconstruction or demolition is progressively carried out down to sill level of the entire Cathedral, working from West to East, removing the artefacts as these areas become safe.

The objective of the three options, with varying proportions of deconstruction, demolition and shoring, are to meet the provisions of the Canterbury Earthquake Recovery Act 2011, to allow the work to be carried out safely and to provide the Church with pathways for the future recovery.

The NZHPT understands that the construction details and methodology will be determined once the final outcome for the building is agreed and the 'make safe' option is chosen.

The NZHPT understands that the decision as to which option will be progressed will be an independent decision by the CPT Board.

At time of writing, the options have not been qualified with any financial estimates to allow the NZHPT to incorporate this factor in assessing any option.

Assessment

The NZHPT is guided by the purpose of the Historic Places Act 1993 in assessing the impact of the securing options on the Cathedral. These principles are:

Historic places have lasting value in their own right and provide evidence of the origins of New Zealand's distinct society.

Taking into account of all relevant cultural values, knowledge and disciplines.

Promoting the least possible alteration or loss of material of cultural heritage value.

Safeguarding the options of present and future generations.

Ensuring decisions are well researched, documented and recorded.

The principles of the Treaty of Waitangi and the relationship of Maori and their culture and traditions with their ancestral lands, water, sites, wahi tapu, and other taonga.

The NZHPT is also guided by the principles and assessment standards outlined in the *Sustainable Management of Historic Heritage Guidance Series*, 3 August 2007, and the ICOMOS NZ Charter 2010.

The Canterbury Earthquake Recovery Act 2011 is relevant. Section 3 of the Act outlines a number of purposes including to restore the social, economic, cultural, and environmental well-being of greater Christchurch communities.

Further, the NZHPT has been involved in several hundred consultations about earthquake-damaged heritage buildings since 4 September 2010. These consultations highlight the need to ensure the heritage significance of the building is well understood in making decisions, the need to ensure public safety, financial sustainability, recognising public value and promoting public information and transparency.

As with many other heritage buildings, the Cathedral also has values beyond heritage – the Cathedral is a place of prayer and worship for the Anglican and wider community, a place for New Zealand and international visitors and as an architectural identity and townscape symbol of Christchurch. While the Cathedral is privately-owned, management decisions need to be cognisant of the wide range of public values.

With regard to the Cathedral's heritage values, the NZHPT promotes the restoration of the Cathedral as a contribution towards the social, economic and cultural well-being of greater Christchurch. The NZHPT considers that objective is attainable and can be achieved by a commitment to:

- Securing and restoration work that can take place in a safe environment.
- Aiming for the goal that the Cathedral will again provide a sense of place by continuity of function as a church and heritage destination.
- Ensuring that the Cathedral will remain eligible as a registered historic place, especially with regard to historical, community association, public esteem and symbolic or commemorative values
- Providing that securing and restoration work will involve least possible loss of fabric or evidence of cultural heritage values.
- Ensuring that sufficient physical and documentary evidence will inform securing and restoration work.
- Promoting that the Church community is financially supported by international, national and local government and public donations.
- Recognising Māori values associated with the Cathedral site.
- Complying with the Canterbury Earthquake Recovery Act 2011, Central City Recovery Plan, Historic Places Act 1993, Building Act 2004 and other relevant legislation, including the NZ Building Code in terms of structural performance, fire safety and access.
- Informing the wider community about the range of options and decisions concerning the Cathedral site.

With regard to ensuring the least possible loss of fabric or evidence of cultural heritage values, the NZHPT has examined the three securing options as outlined Appendix 1. This assessment favours the maximum retention option.

In terms of the archaeological authority provisions of the Historic Places Act 1993, an archaeological authority has been granted for above ground deconstruction and stabilisation.¹ Under the conditions of this authority, demolition will be 'controlled' and fully recorded with retention of materials where practical. The NZHPT also has a role under the authority in approving any deconstruction, stabilisation, recording, retention and storage of materials in relation to the Cathedral.

Conclusions

The NZHPT supports securing the Cathedral to achieve retention of heritage values and providing the potential recovery of the building as a contribution towards the restoration of greater Christchurch.

¹ It is noted, that the archaeological authority does not pre-determine any view or stance the NZHPT may have in regard to its advocacy advice on the extent of any deconstruction/demolition of the Cathedral.

The various securing options and associated decisions are critical in determining the future outcome for the Cathedral. As outlined in this assessment, the securing options will have differing effects on the heritage values of the Cathedral from the 'least practical impact' to severe impacts. The NZHPT considers the 'maximum retention option' as the most compatible with the purpose and principles of the Historic Places Act 1993 promoting the least possible alteration or loss of material of cultural heritage value.

The maximum retention option will not only retain maximum heritage fabric, but will also provide a basis for restoration of the Cathedral. While the Cathedral has sustained further damage as a result of ongoing earthquakes, the NZHPT's Consultant Engineer remains confident that restoration/reconstruction in a strengthened form is still possible.

Without appropriate financial information, however, it could be surmised that the maximum retention option may be the most expensive. For this reason, the NZHPT considers that all opportunities should be explored to obtain local, national and international financial support.

The intermediate and minimum options involve substantial loss of material of cultural heritage value and are not supported by the NZHPT.

Thank you for the opportunity to provide the NZHPT comment in regard to the current options under consideration. CERA and CPT are encouraged to discuss any aspect further with the NZHPT Heritage Advisor.

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Withheld under section 9(2)(a)

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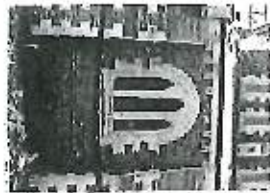
Appendix 1.

Partial Demolition Heritage Impact Assessment Table			
Principle ²	Maximum retention option	Intermediate option	Minimum shoring option
Partial demolition should not be allowed unless it does not adversely affect the significance and integrity of the place.	This option should ensure least possible demolition to enable safe securing work and should provide for the maximum future rebuild alternatives including full reinstatement.	Demolishing the nave down to sill level will remove the bulk of the worship space and remove the bulk of the highly significant key cathedral internal space and external architecture	The extent of partial demolition to sill level everywhere would come close to full demolition, considerably impacting the heritage values of the building
Partial demolition should be limited to parts of the building (including interior) that have been identified in a conservation plan or heritage assessment as having no significance, are not contributory to the significance of the heritage place, are intrusive, or where the partial demolition reveals fabric of higher degree of significance	This option respects as far as practicable the heritage significance of the bulk of the built Cathedral fabric removing only what is absolutely necessary, notably the western gable down to ground level to allow access for securing structures and limited deconstruction elsewhere	This option removes the roof bulk of walls and columns of the nave down to sill level. These elements are all of high heritage significance as categorised in the conservation plan and are key to the overall heritage value of the Cathedral	This option removes most of the highly significant heritage fabric and severely alters the form of the Cathedral
Partial demolition should be limited to parts of the building that are beyond physical repair due to fire or other damage.	The Cathedral has suffered extensive earthquake damage but is not beyond physical repair or reinstatement. The majority of the building is still standing, can be deconstructed and rebuilt in a strengthened form	This option will involve demolition of parts of the building that are not beyond physical repair	This option will involve demolition of parts of the building that are not beyond physical repair

² Refer to the NZHPT Sustainable Management Guidance Sheet no 14 <http://www.historic.org.nz/Publications/-/media/Corporate/Files/Publications/Sustainable%20Management%20series/14%20Info%20Sheet%2014%20partial%20demolition%20of%20historic%20buildings.ashx>



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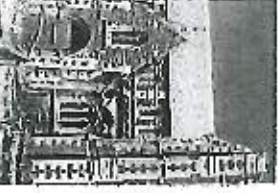
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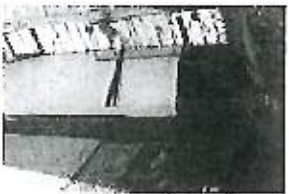
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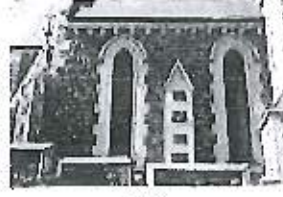
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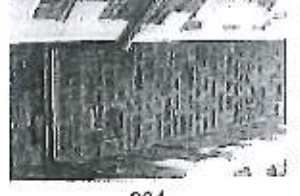
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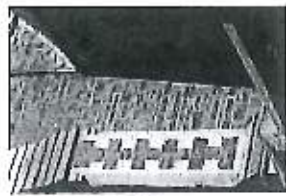
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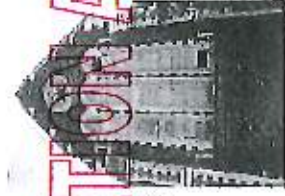
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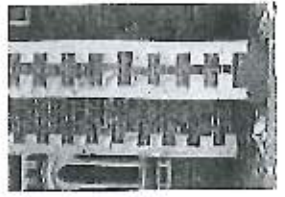
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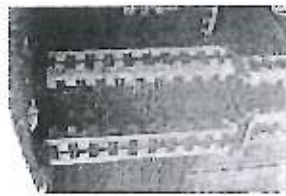
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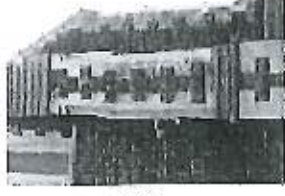
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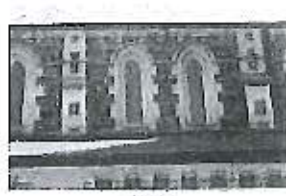
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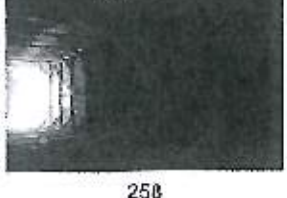
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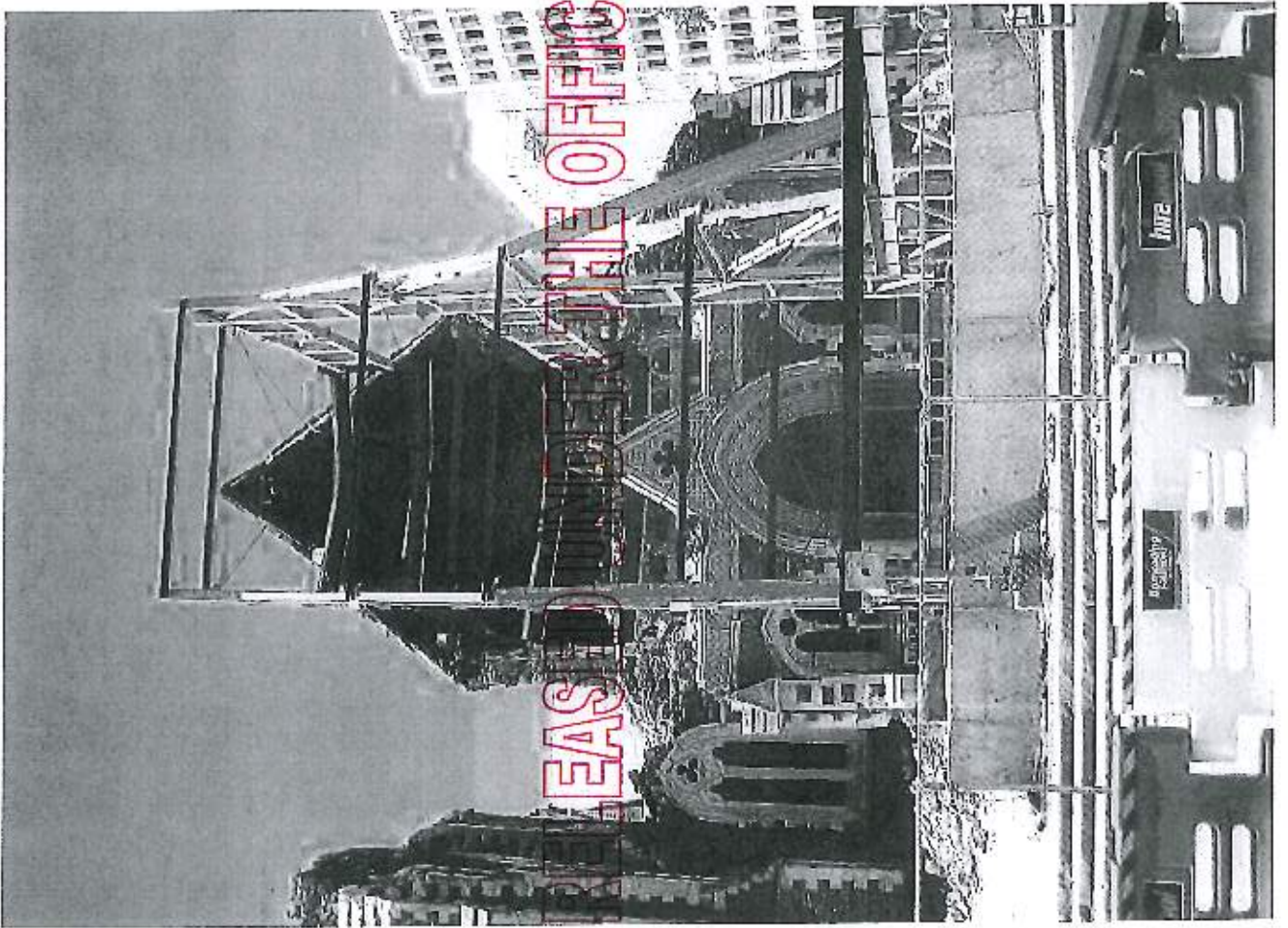


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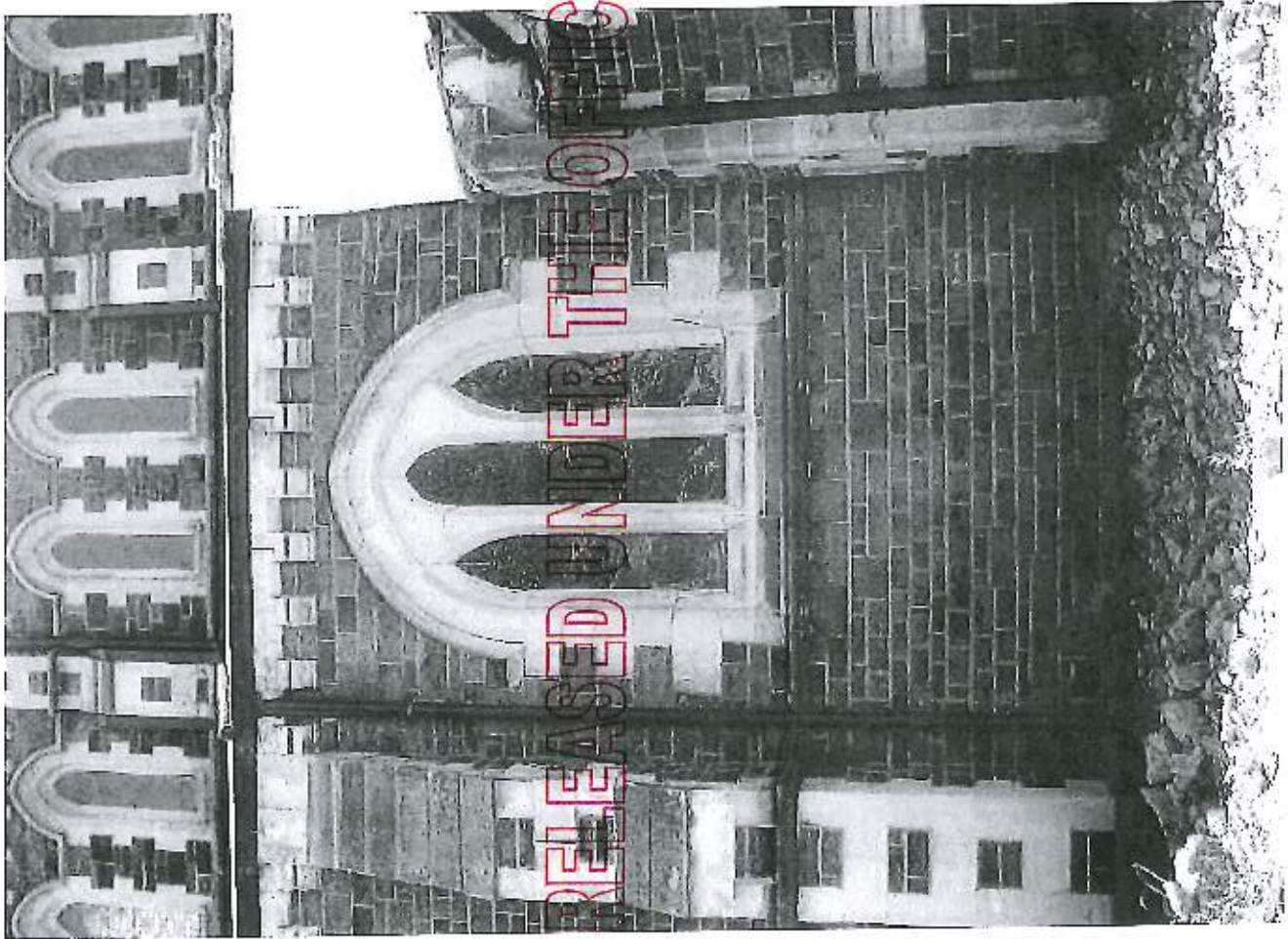
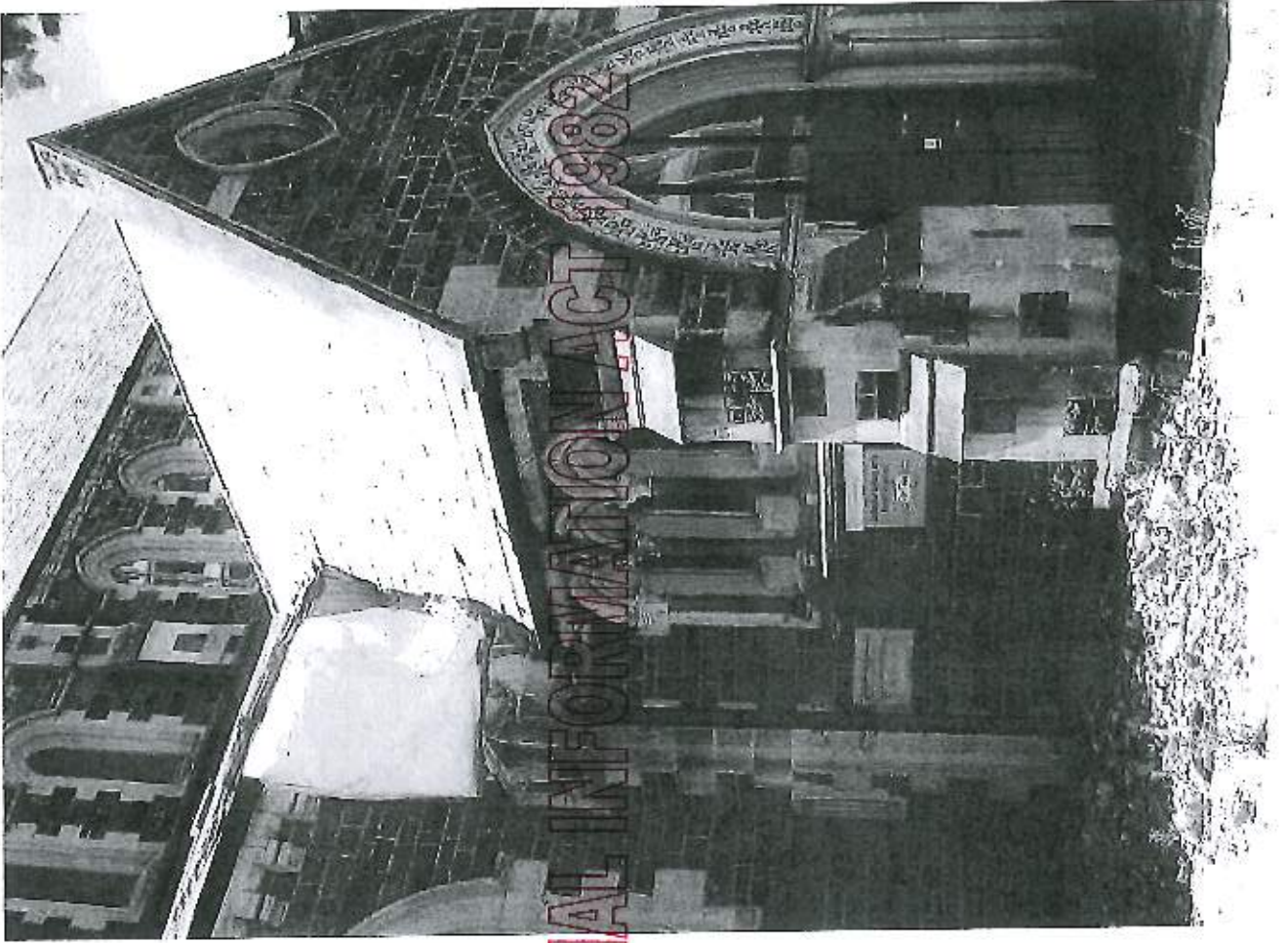


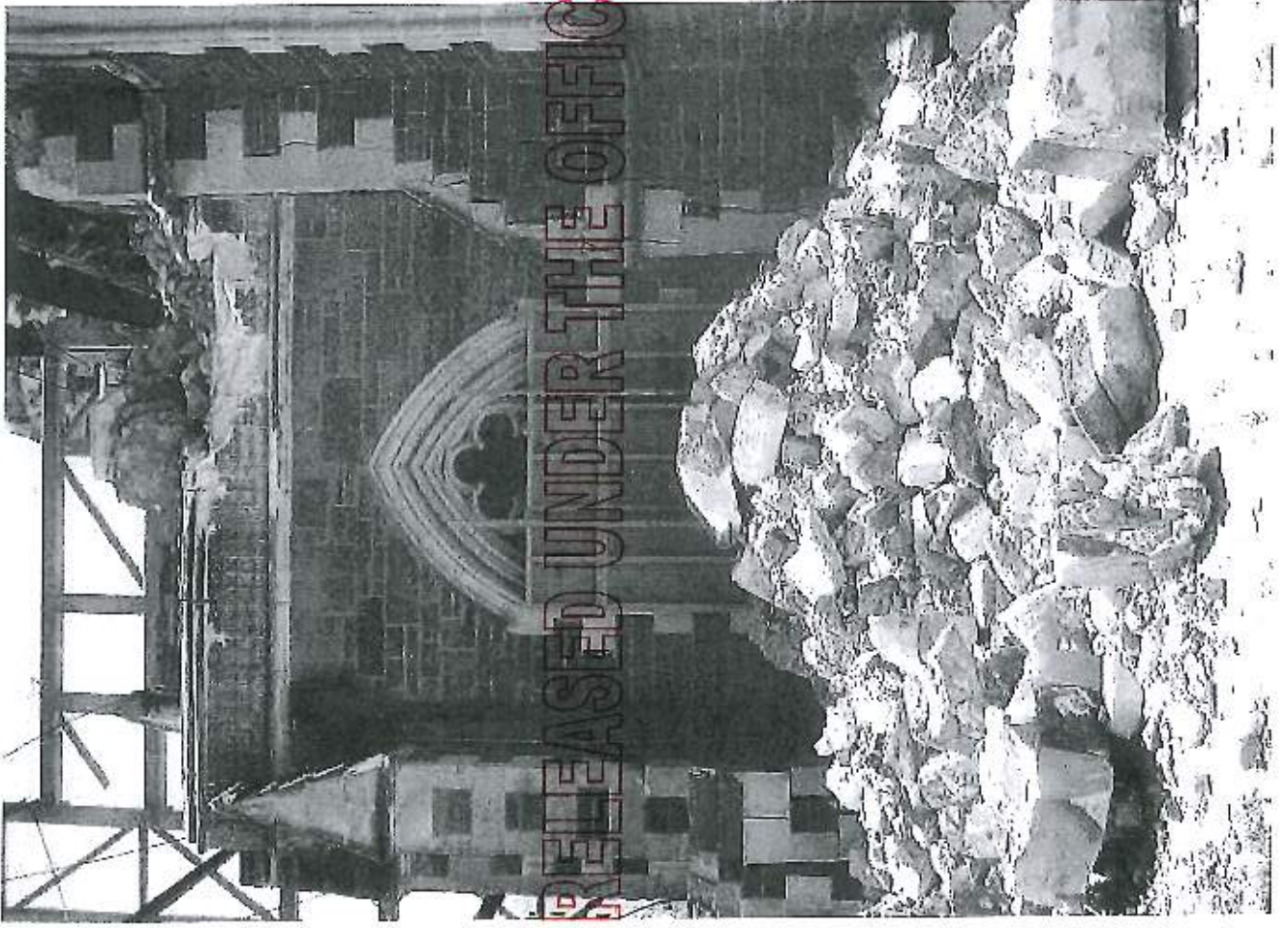
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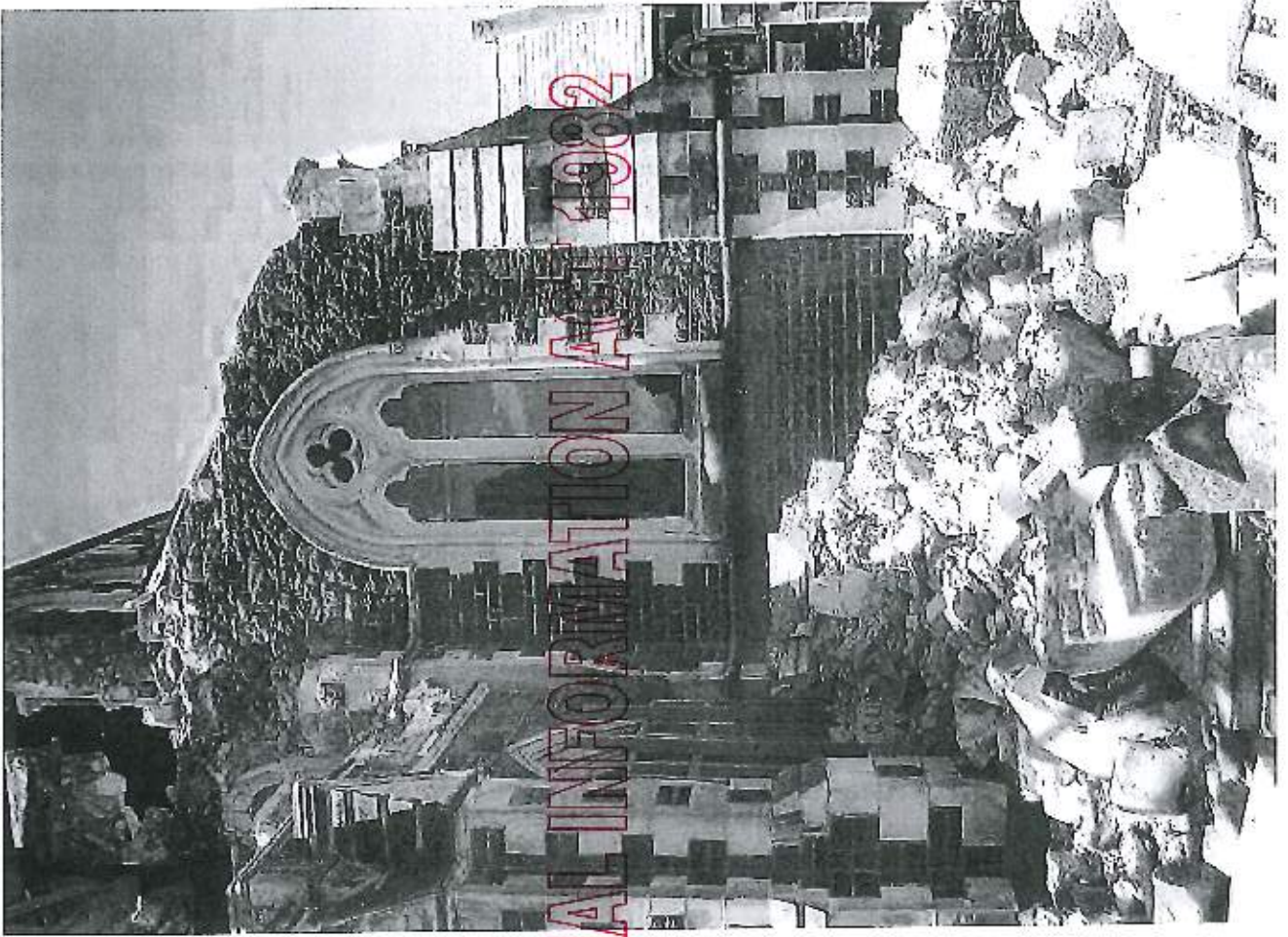


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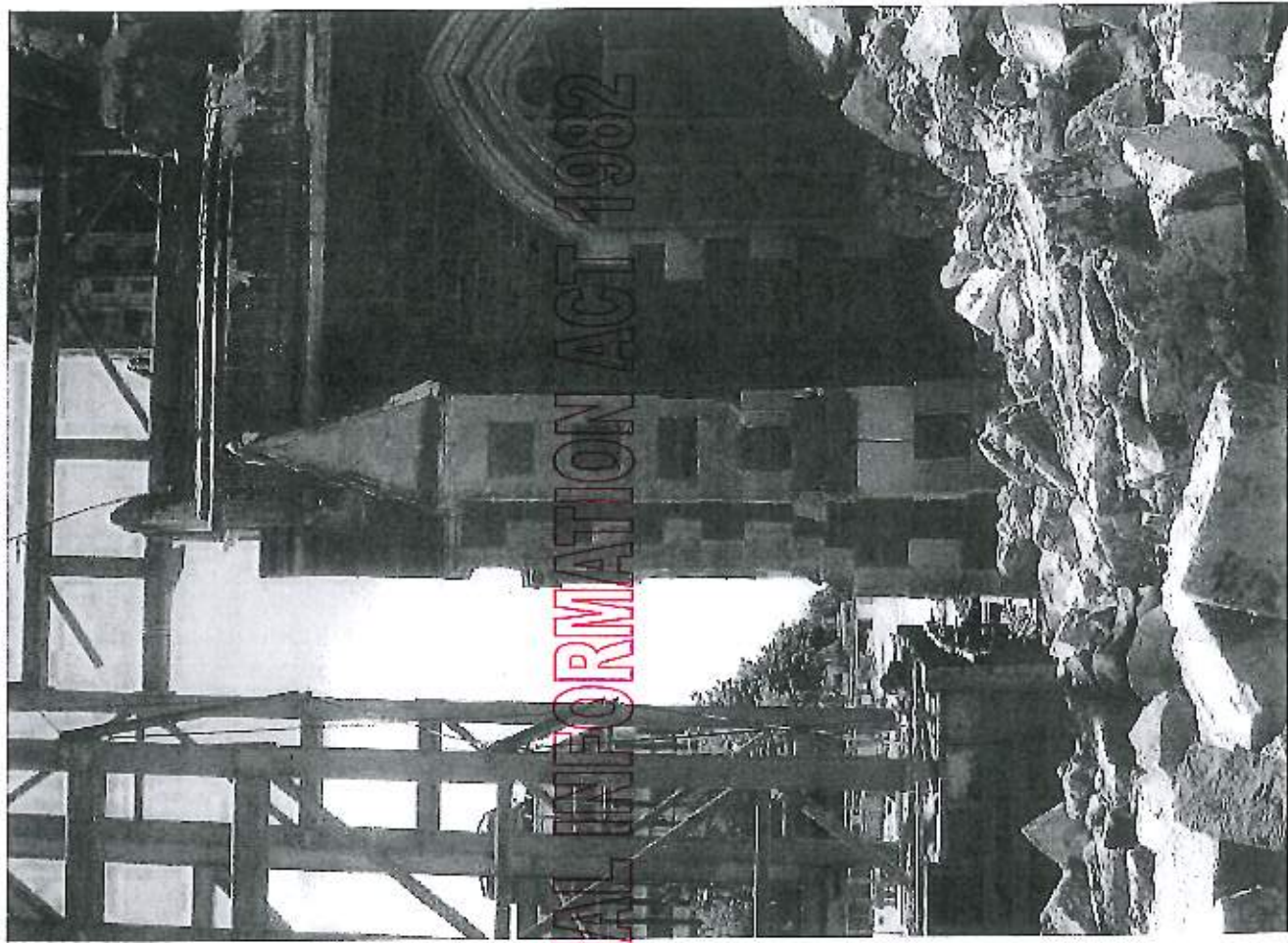




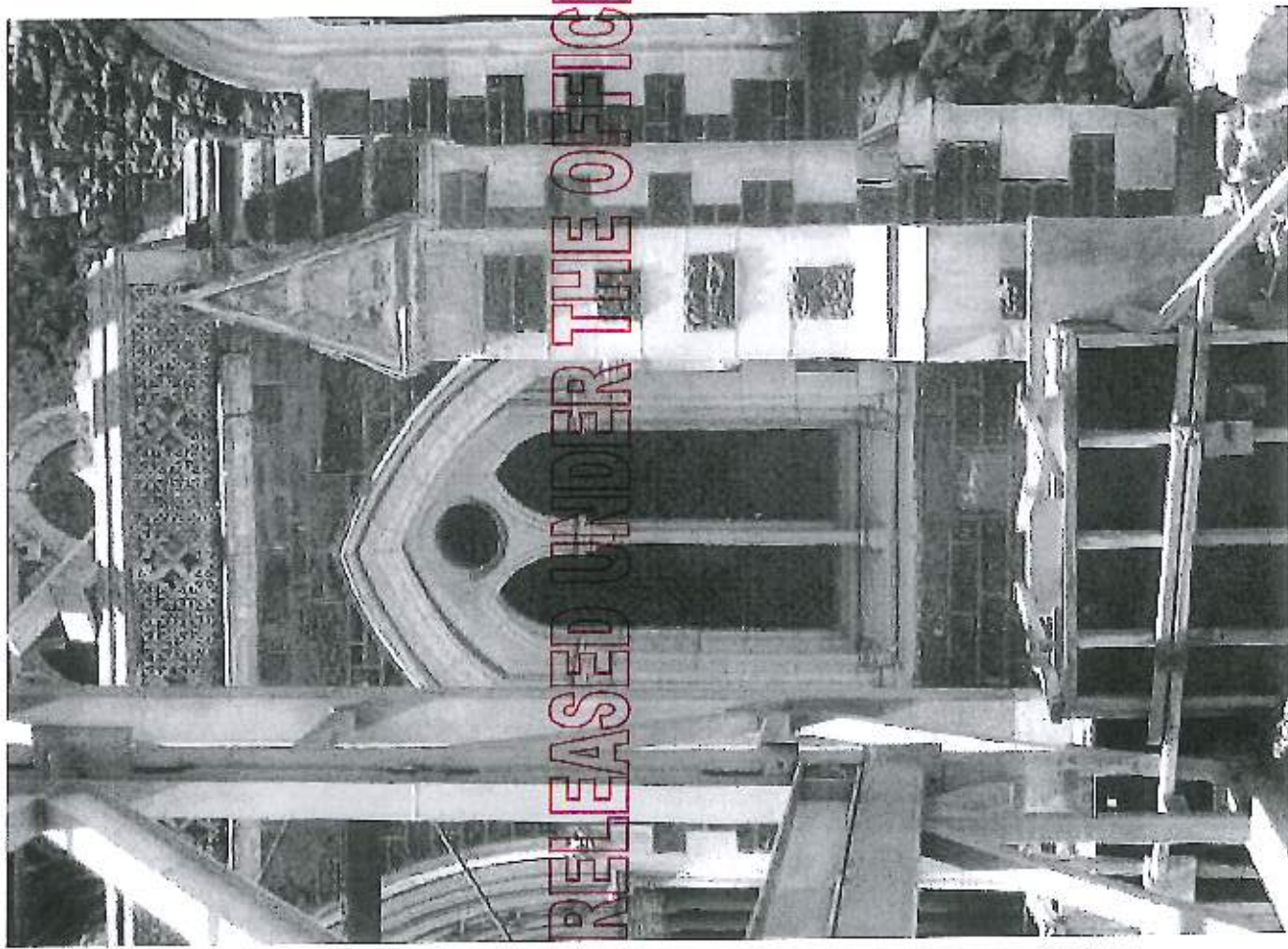
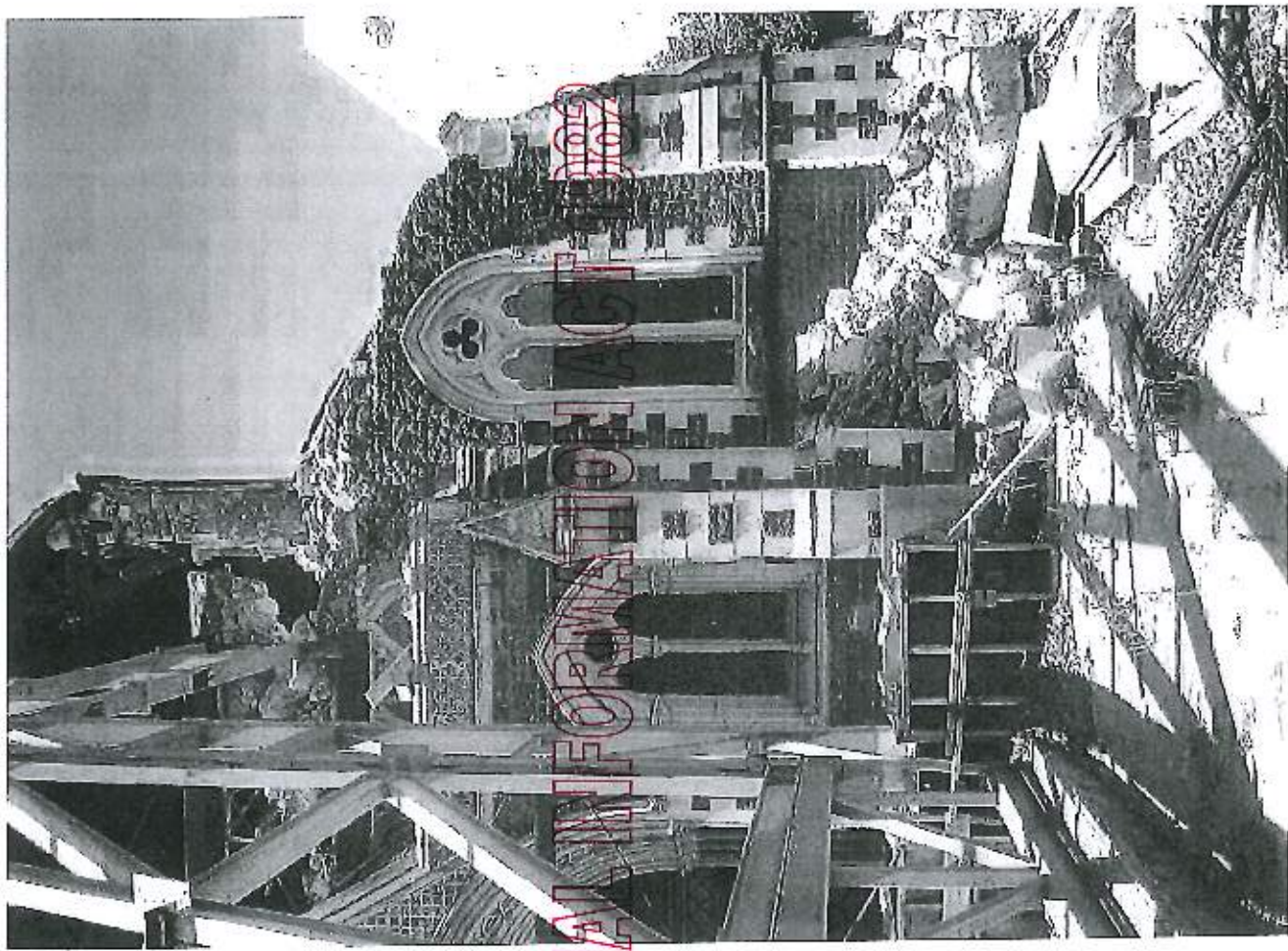
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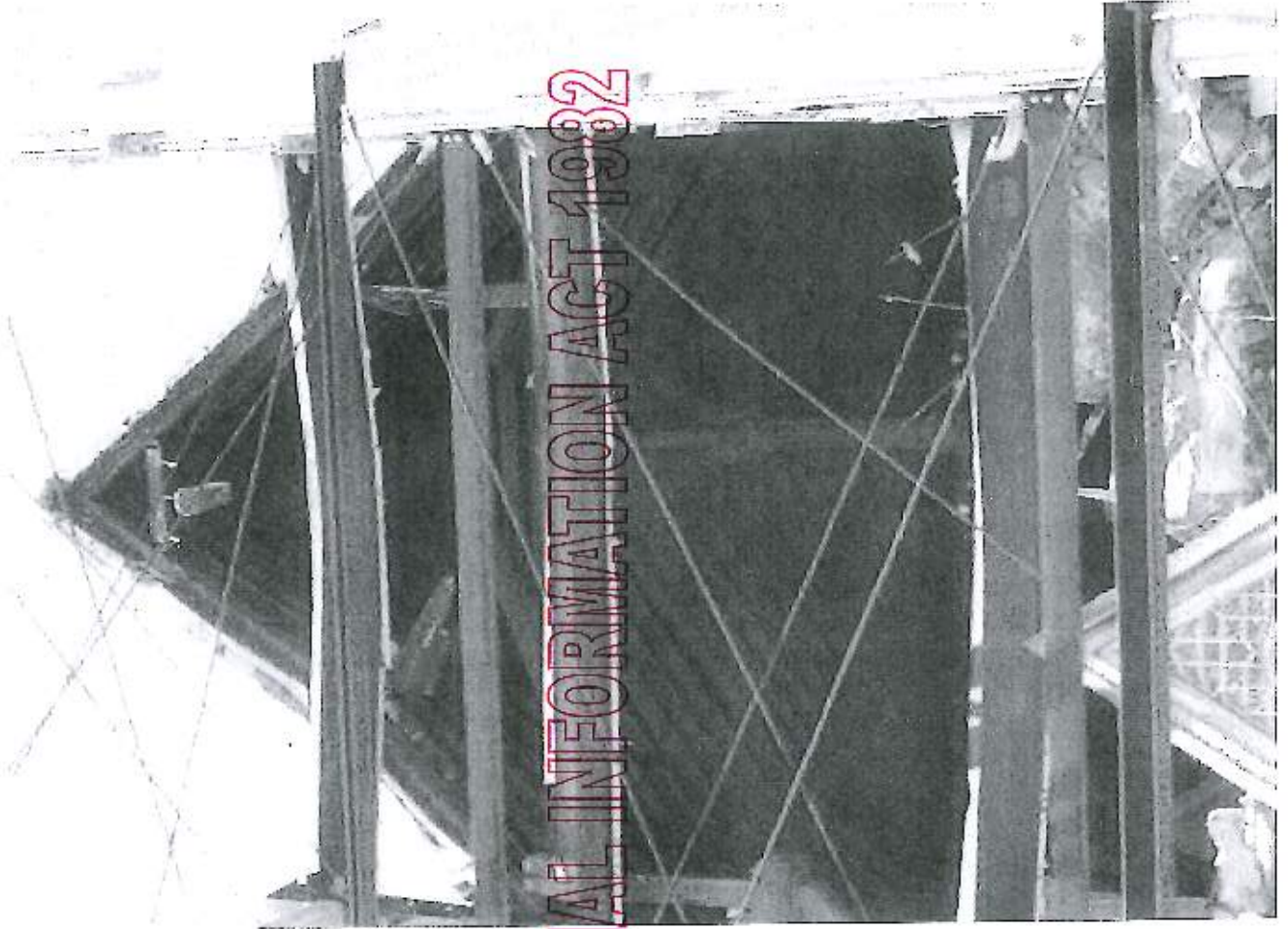
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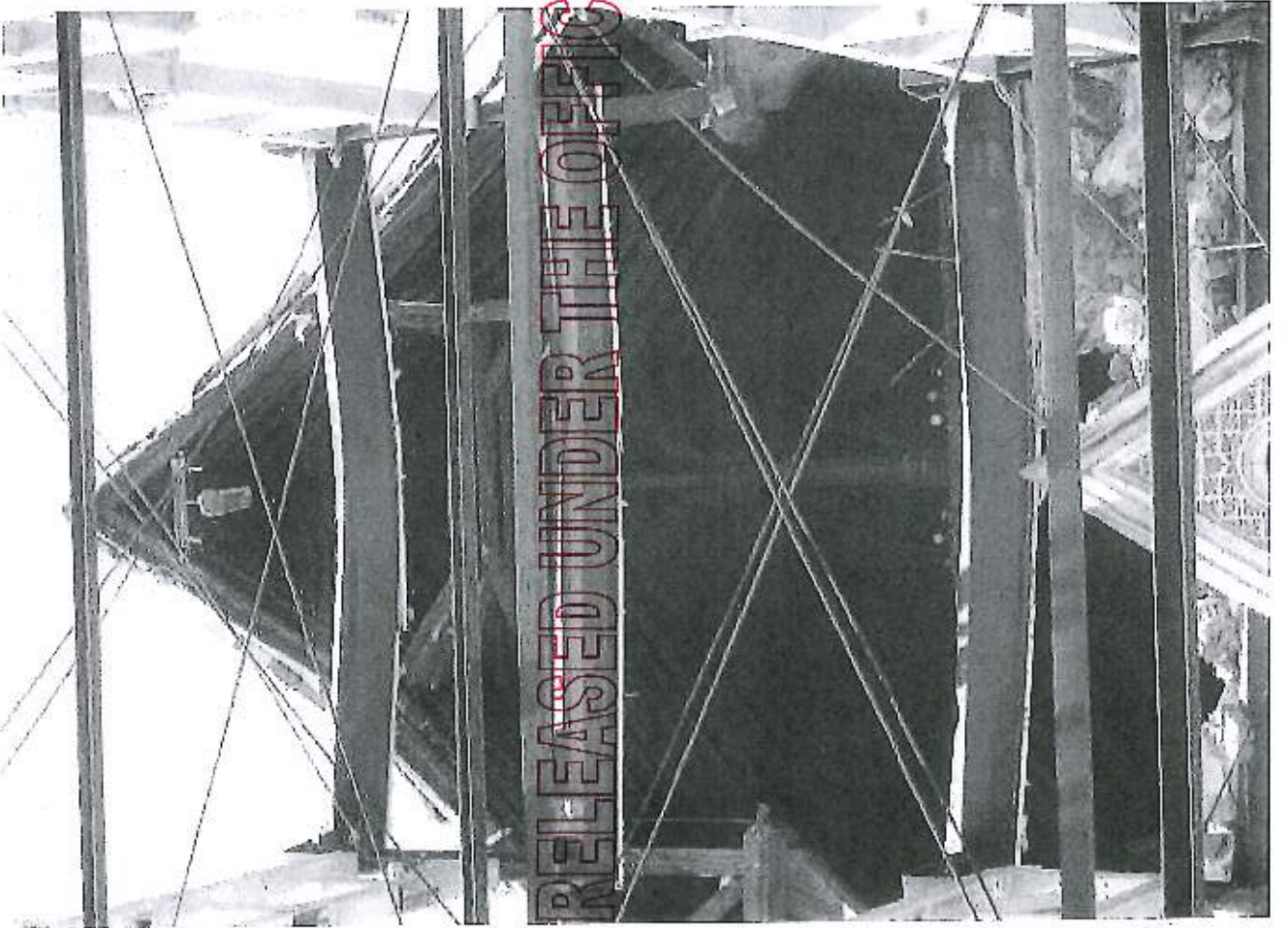
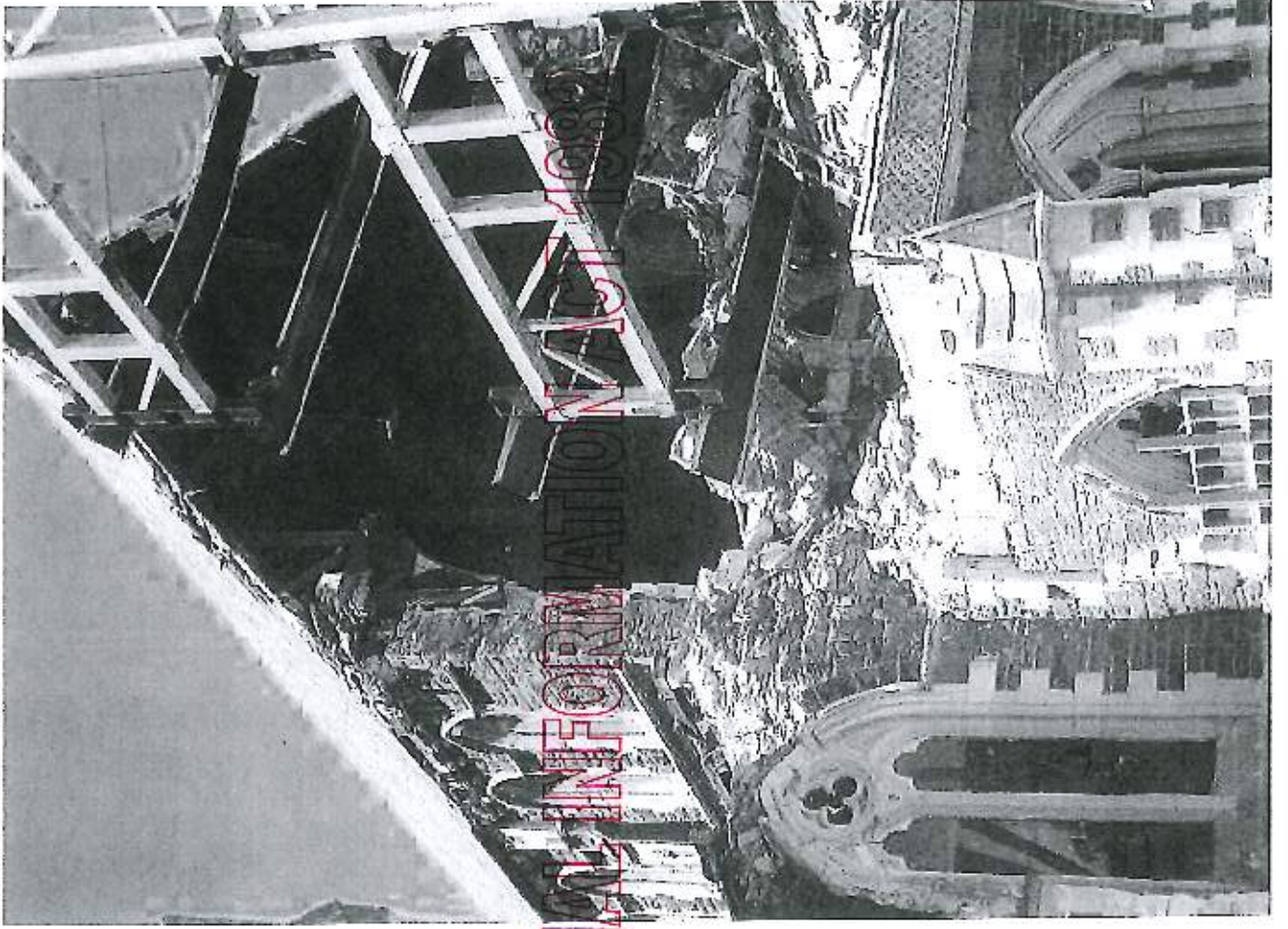
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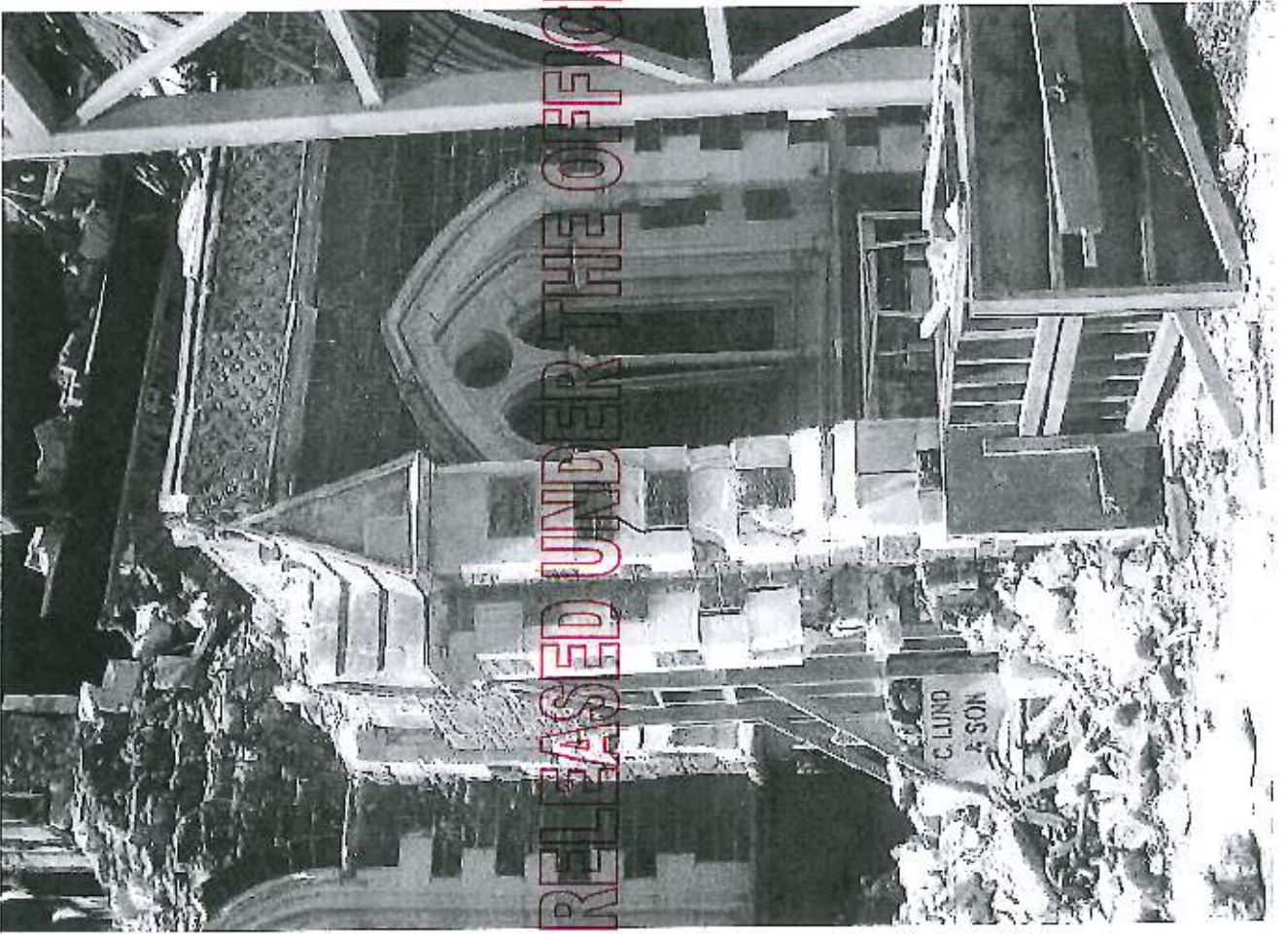
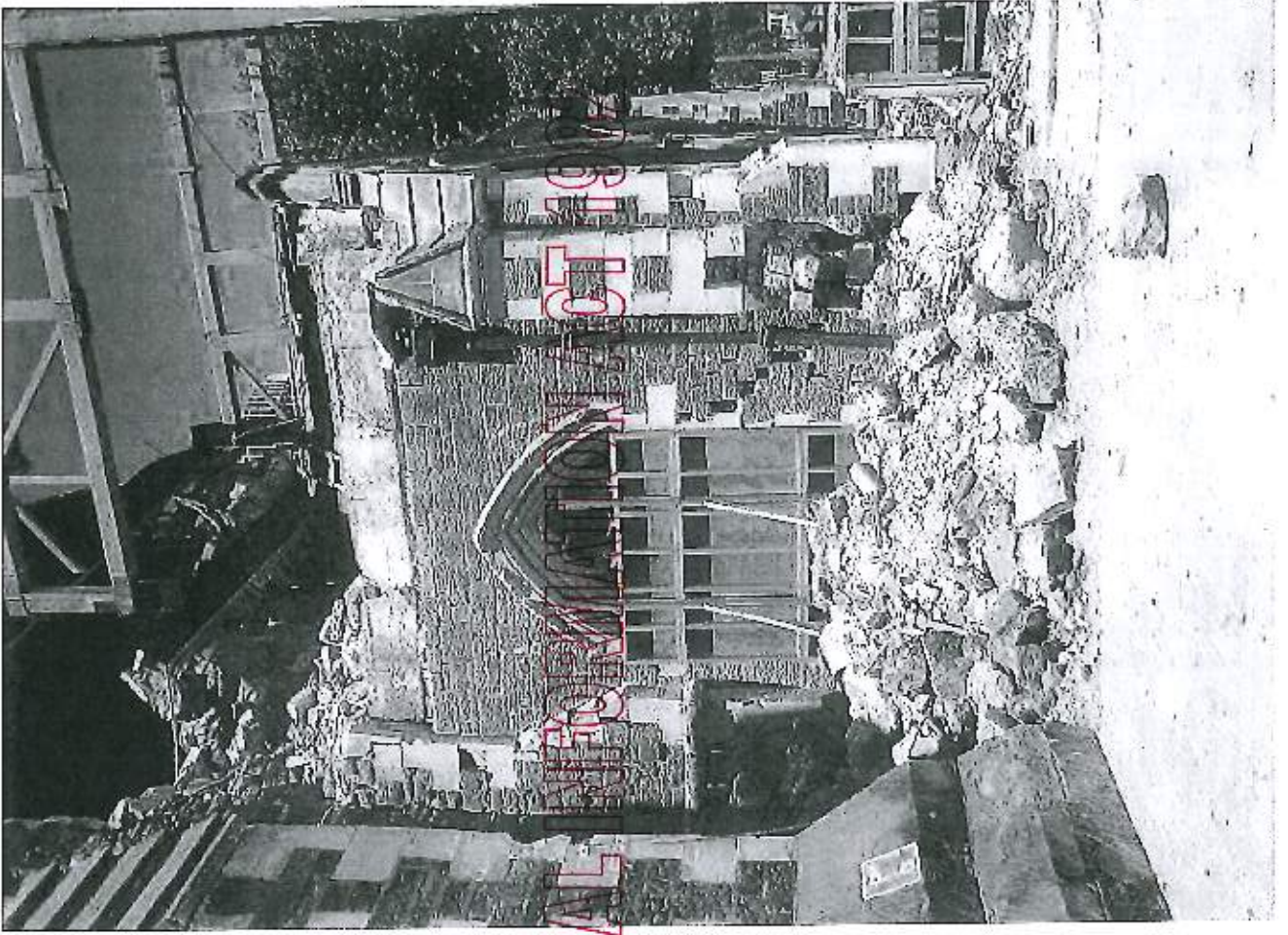
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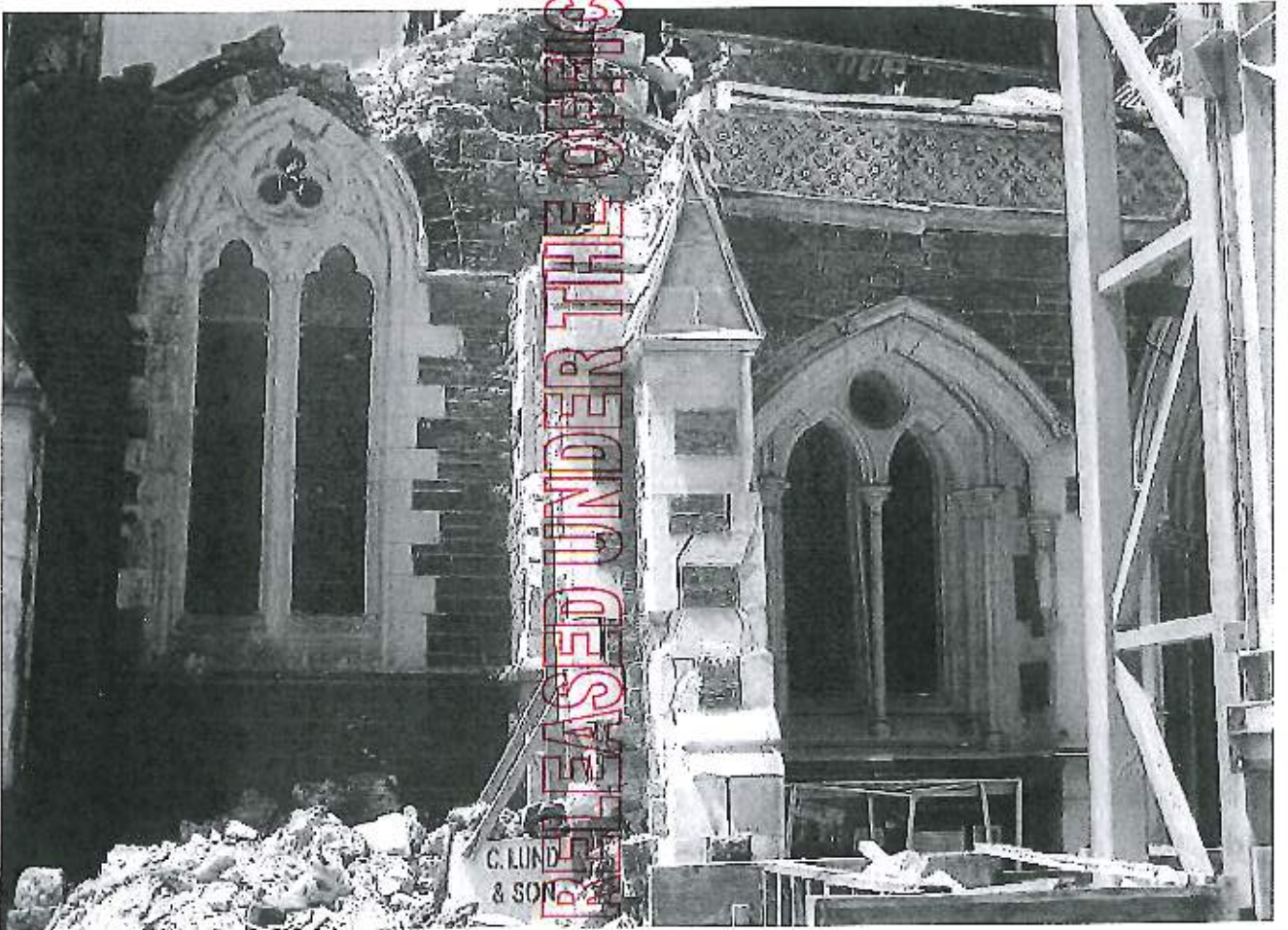
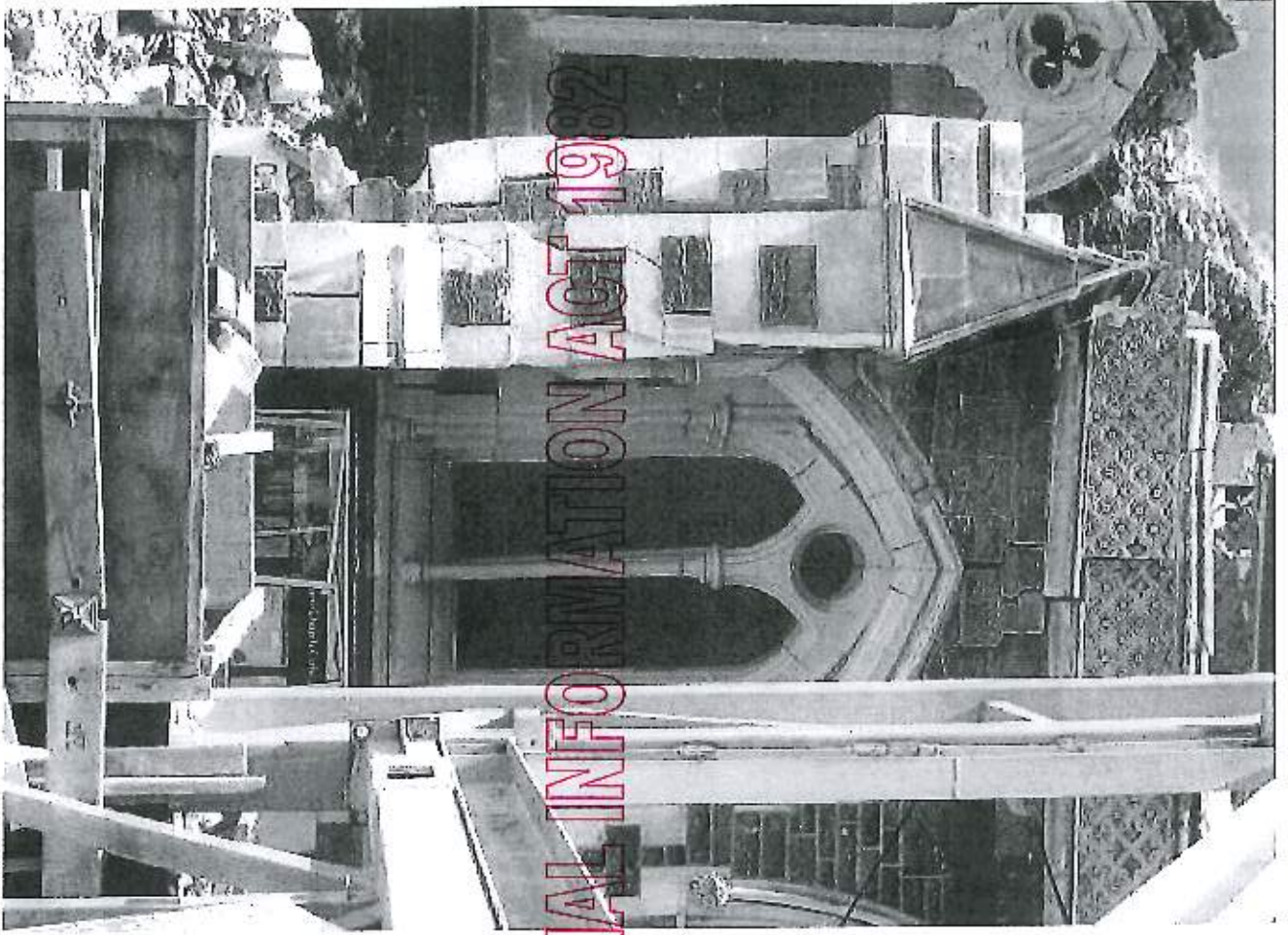


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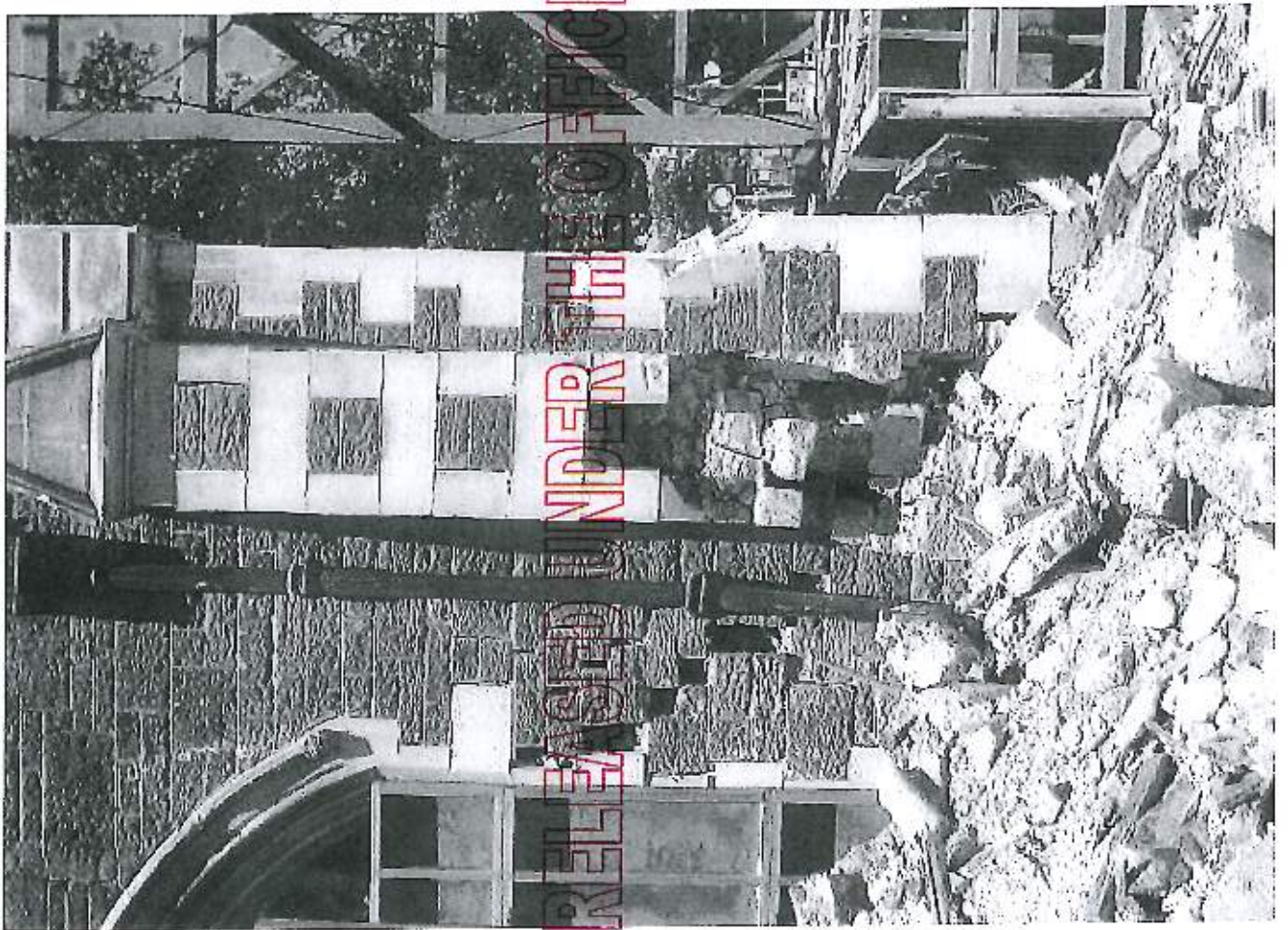
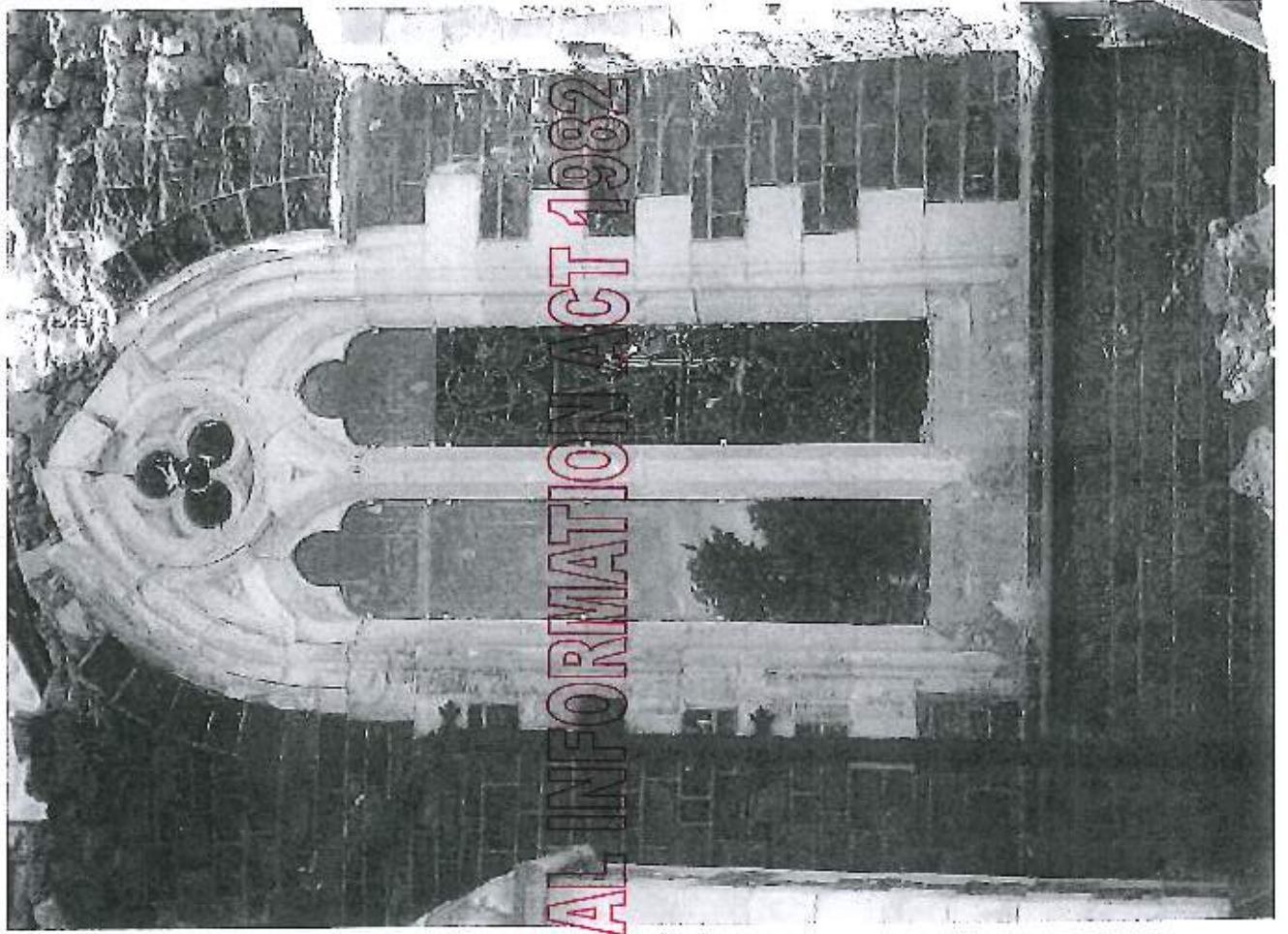


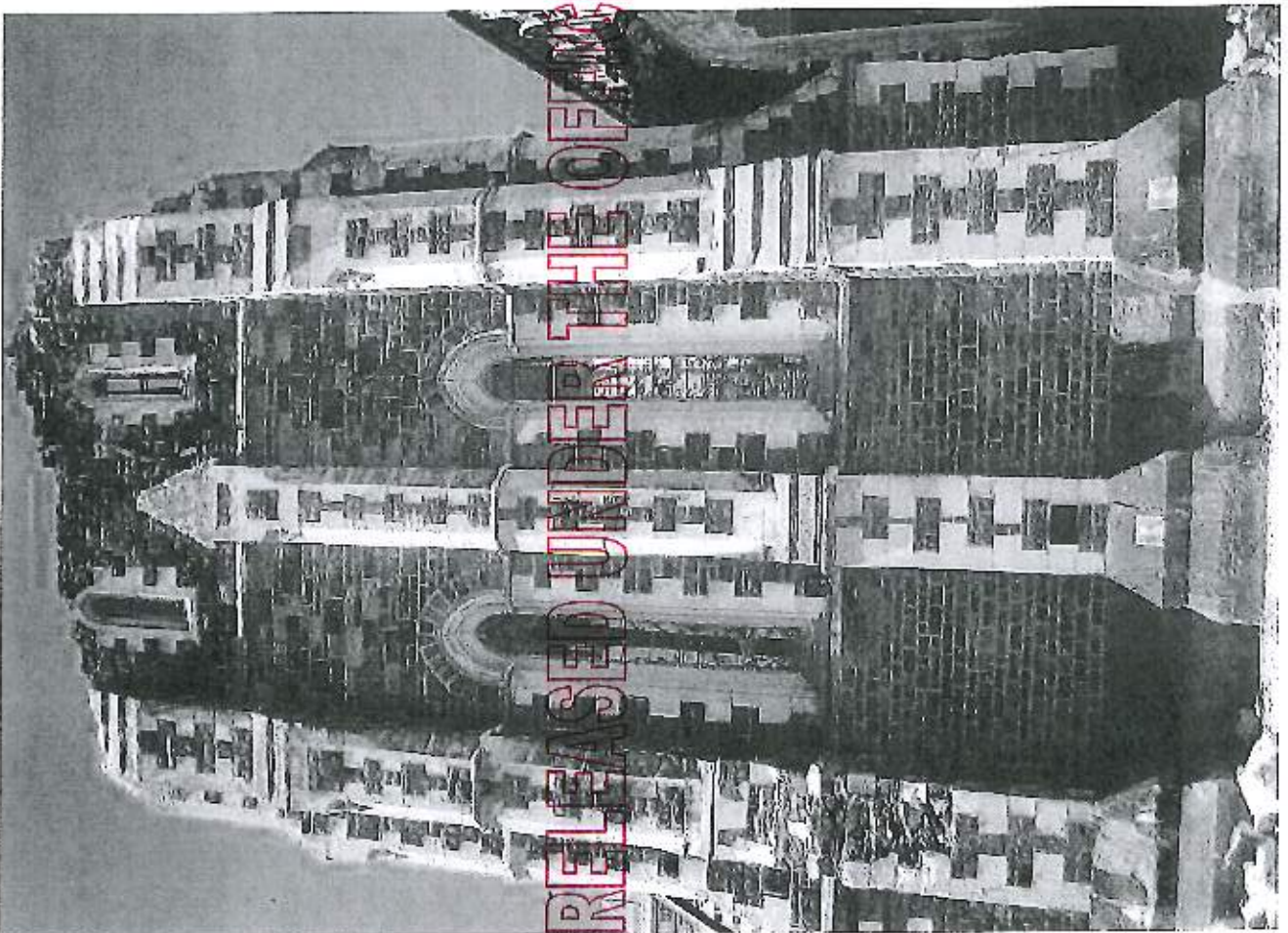
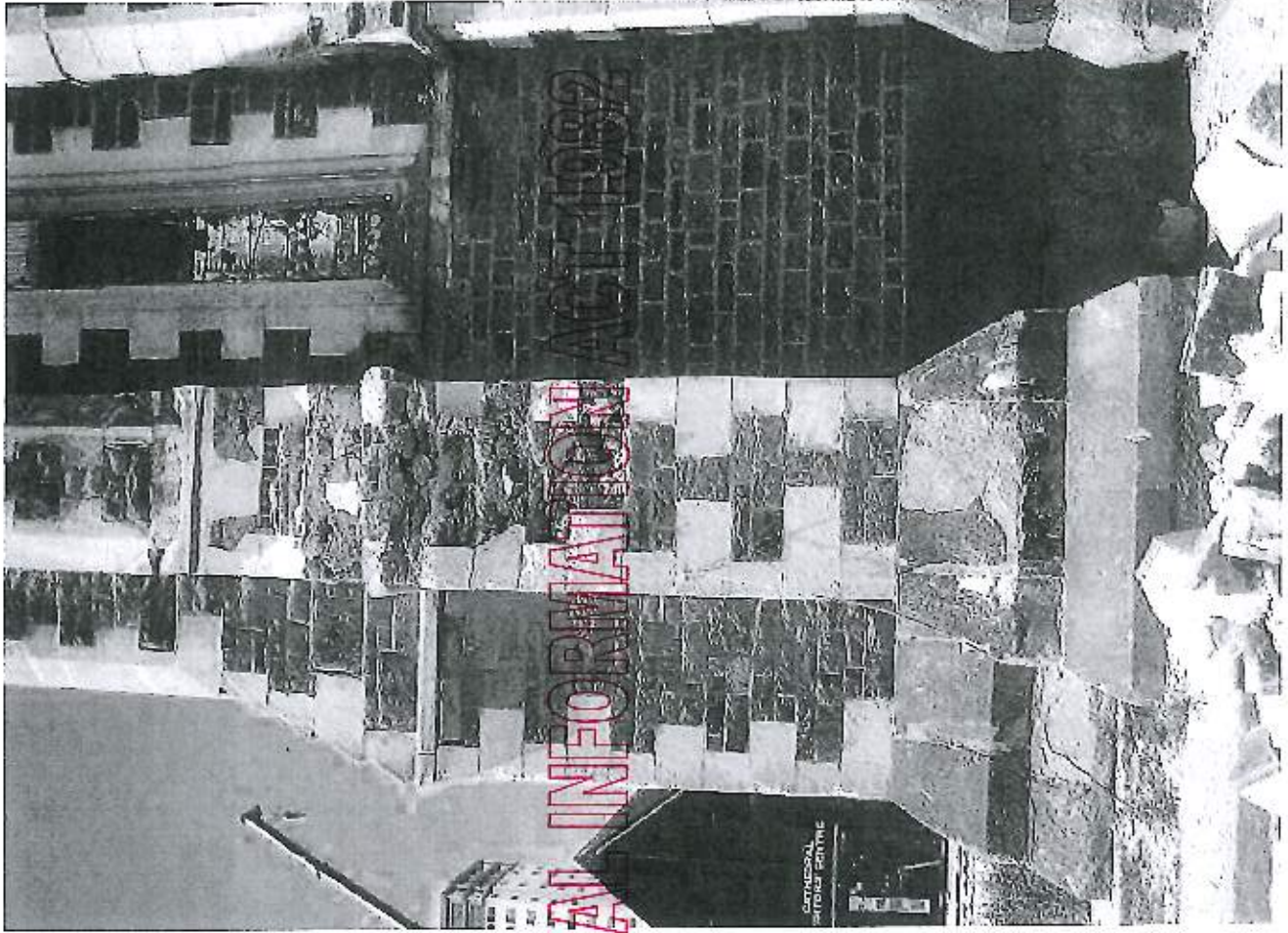
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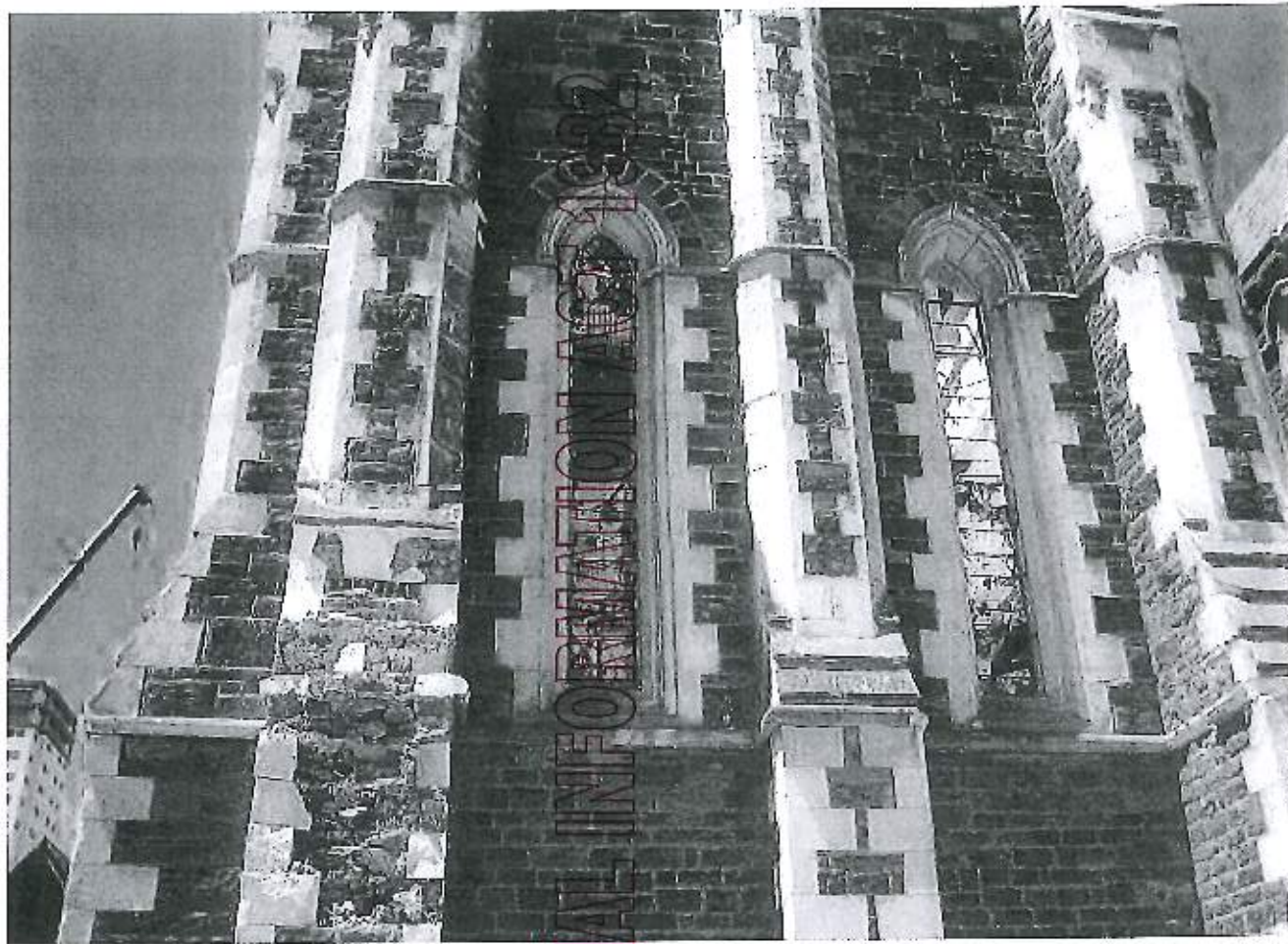


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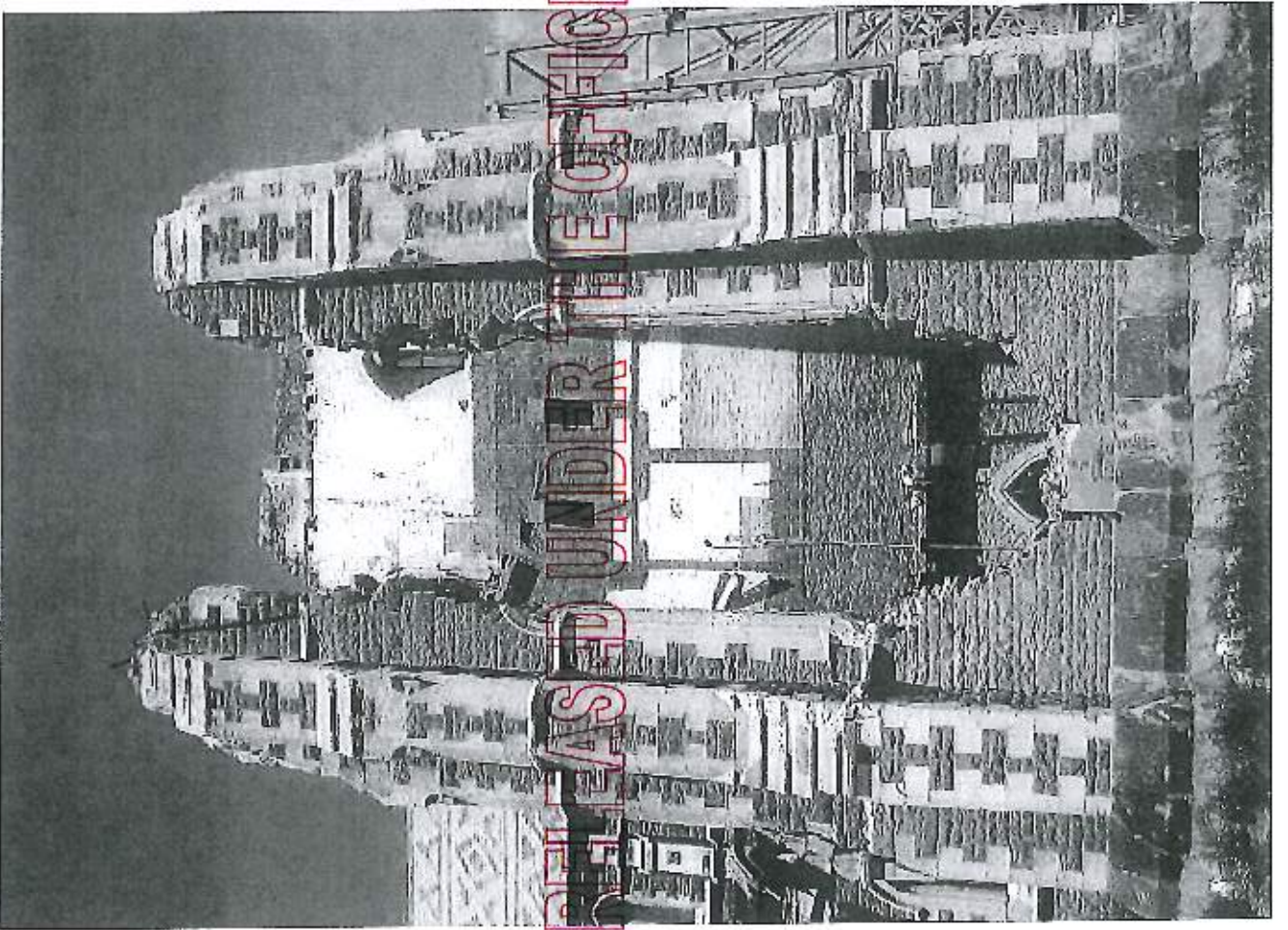
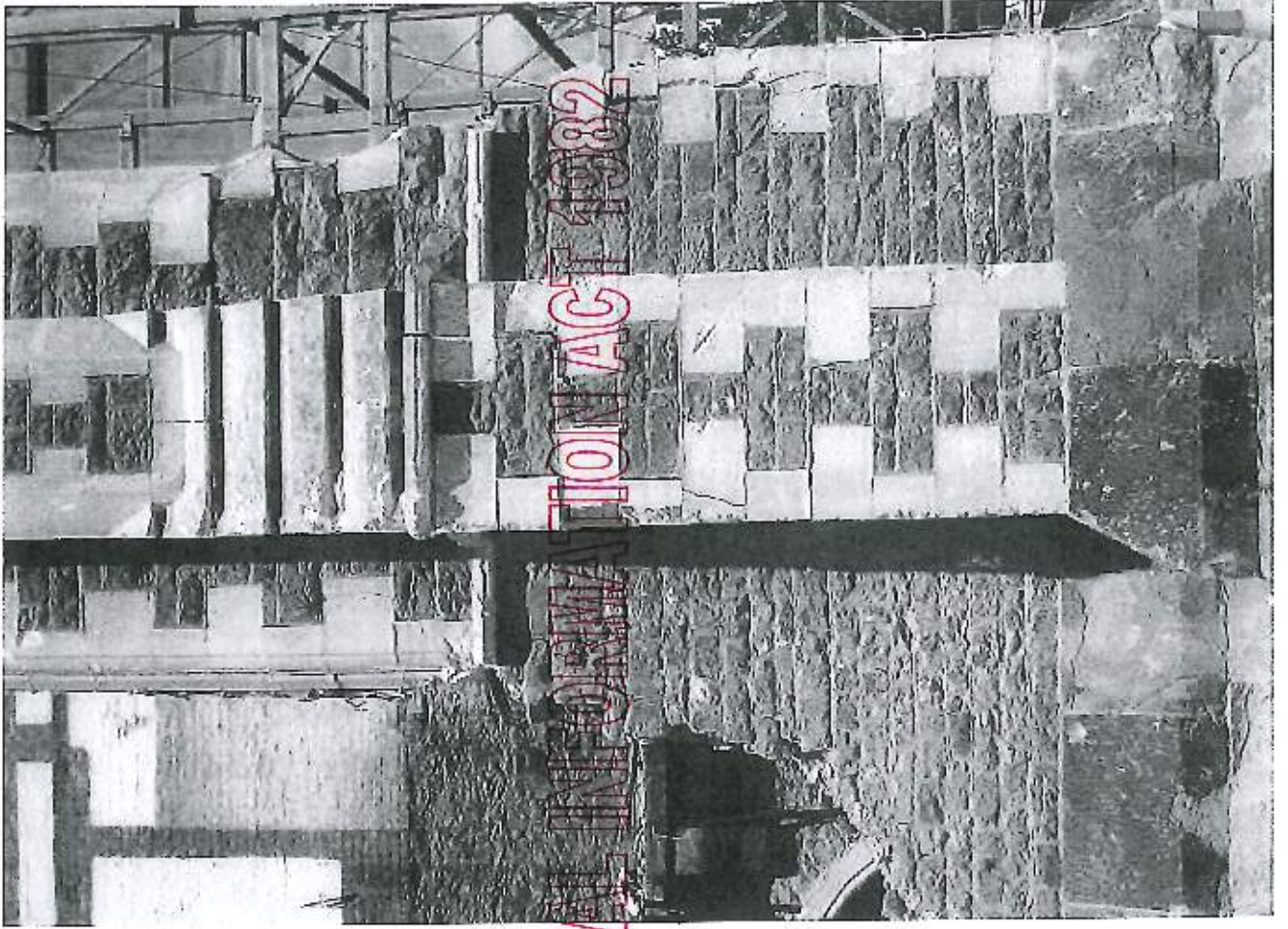
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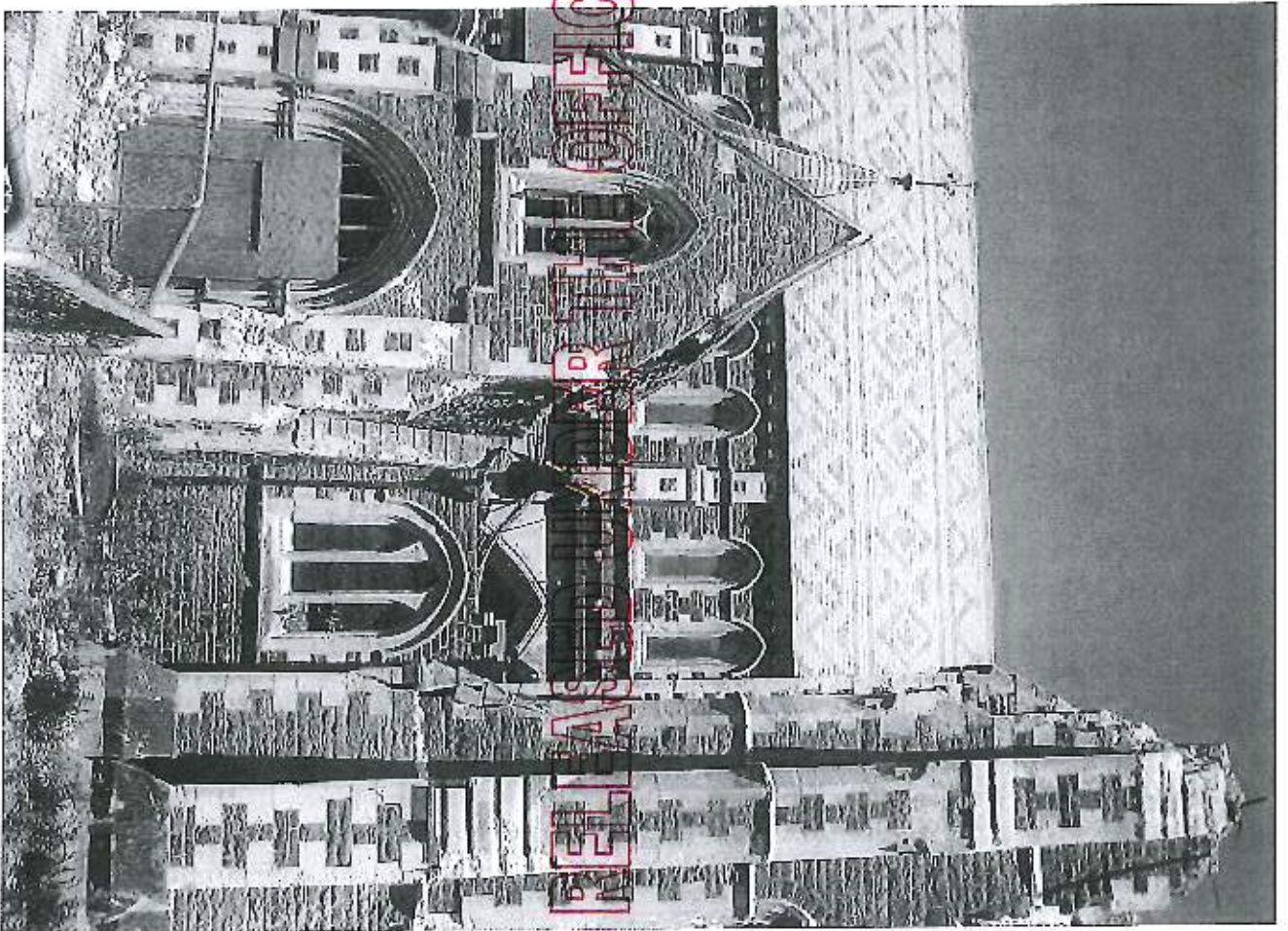
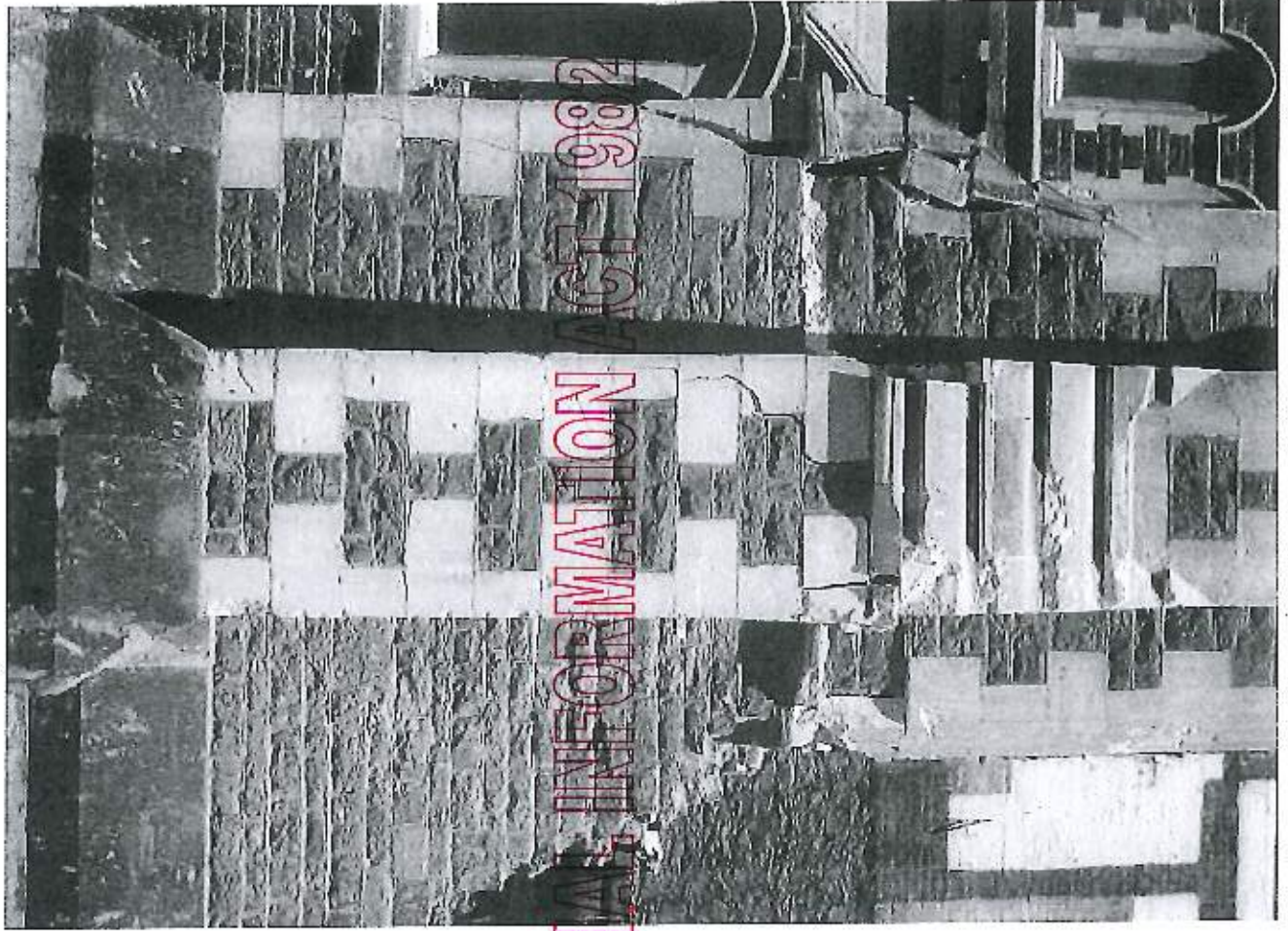
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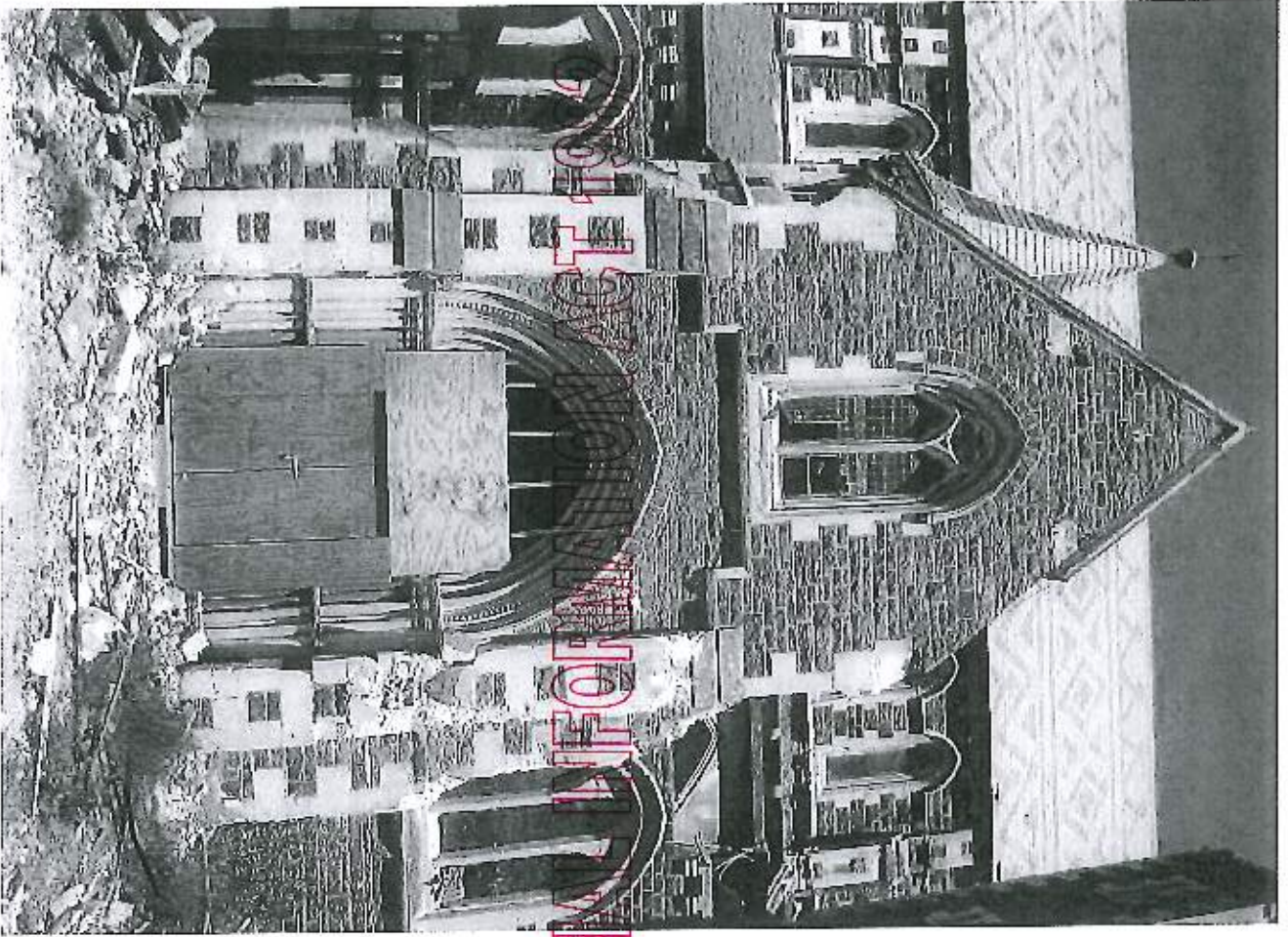


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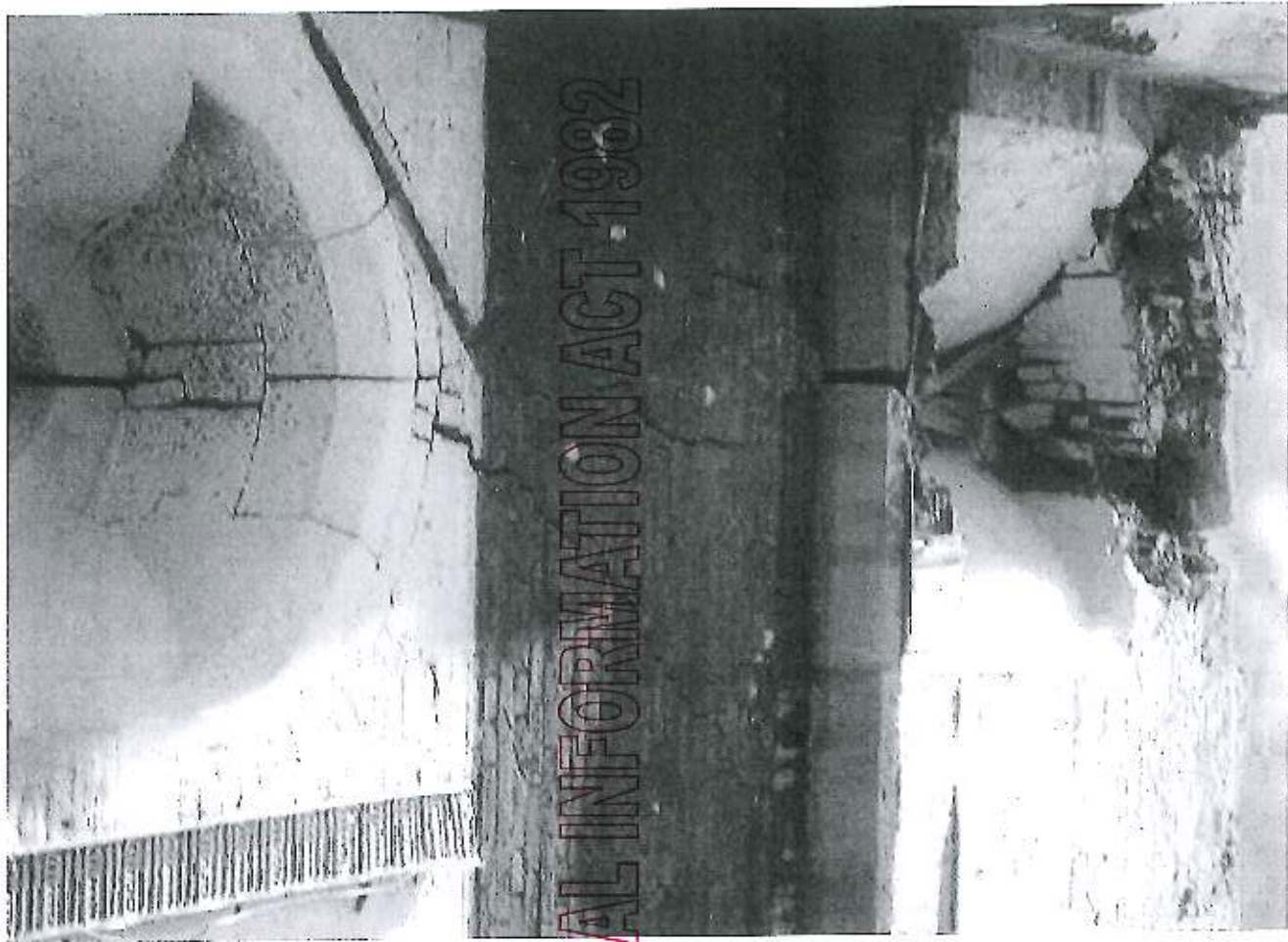




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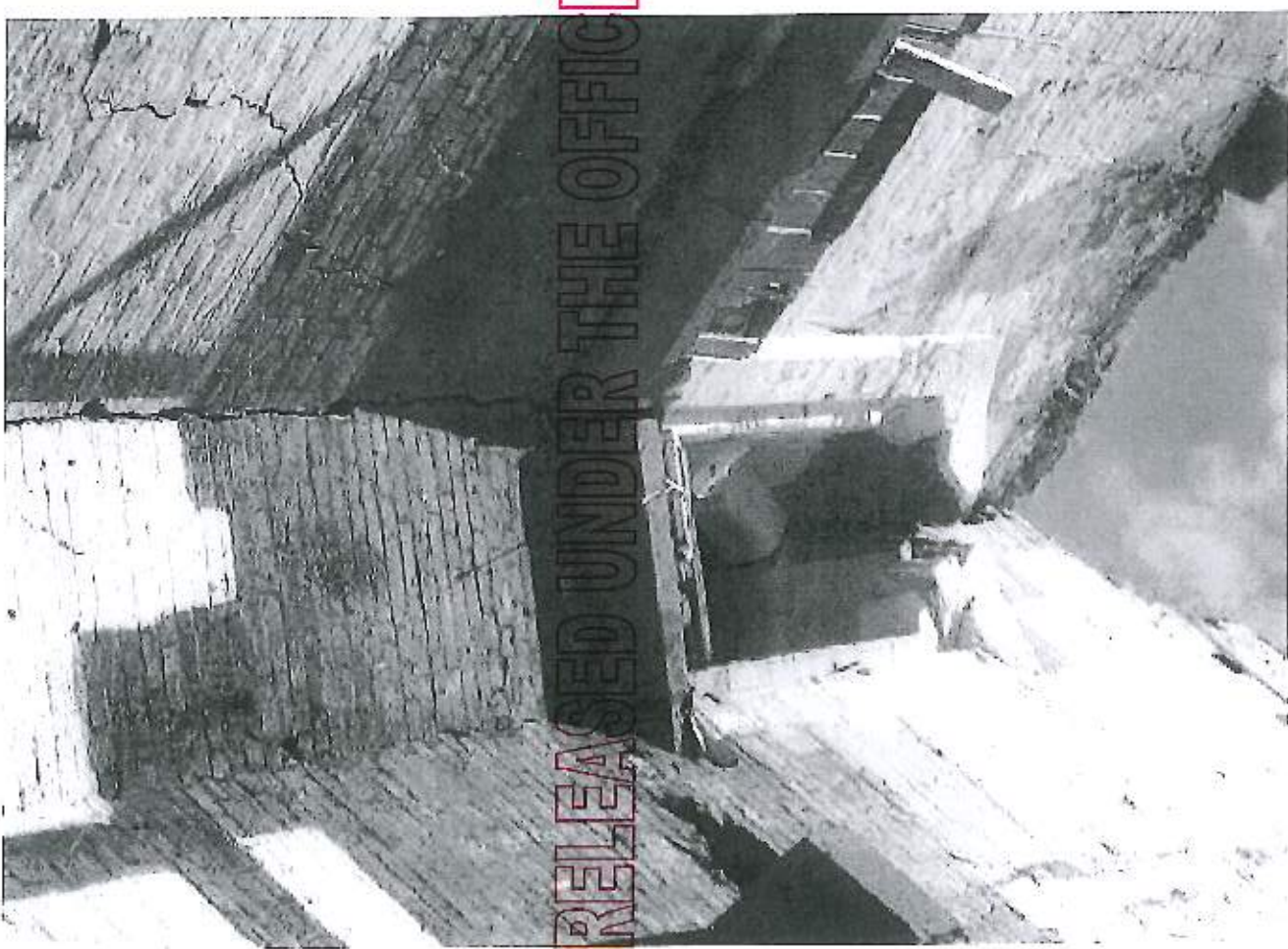
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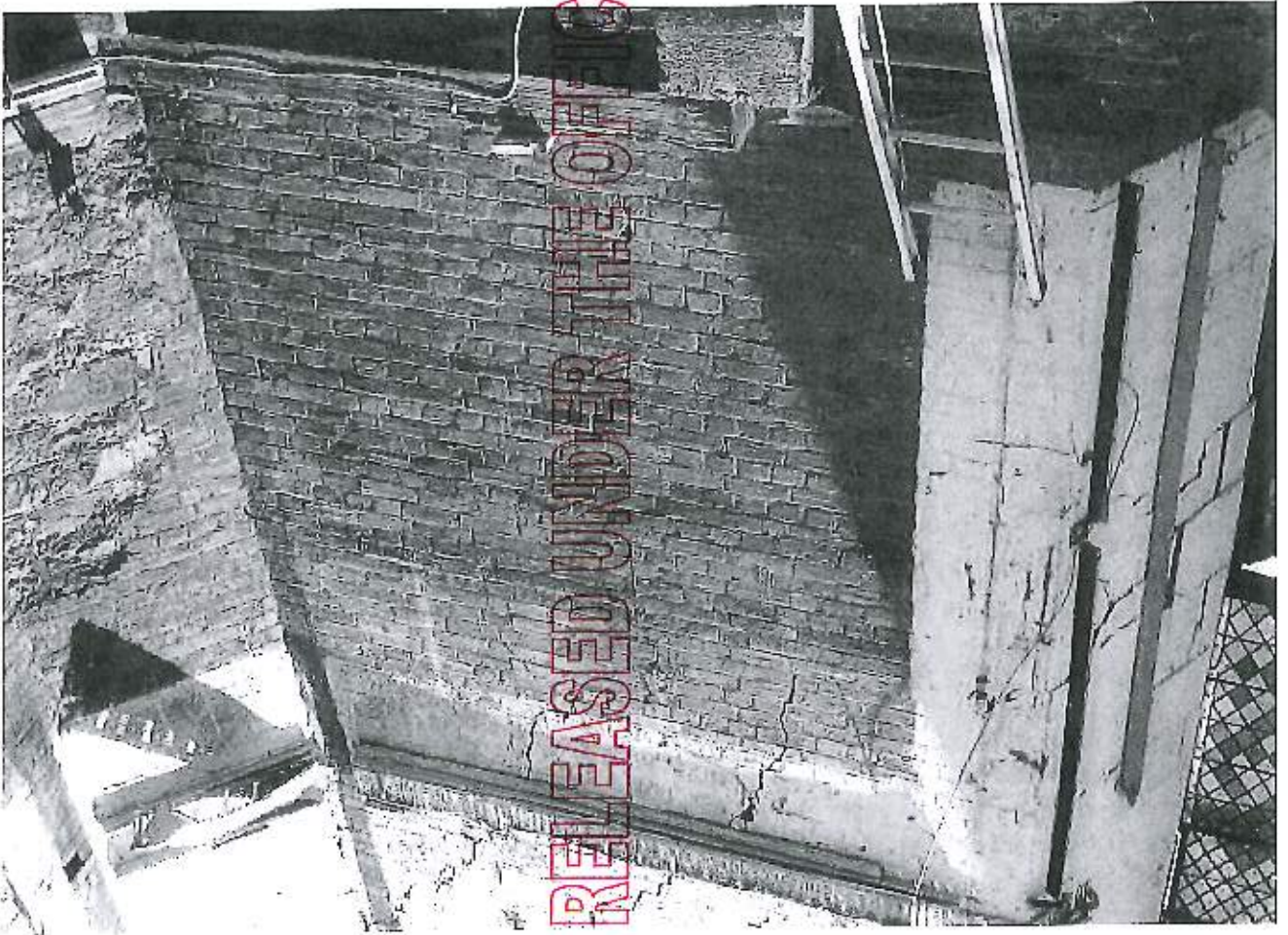
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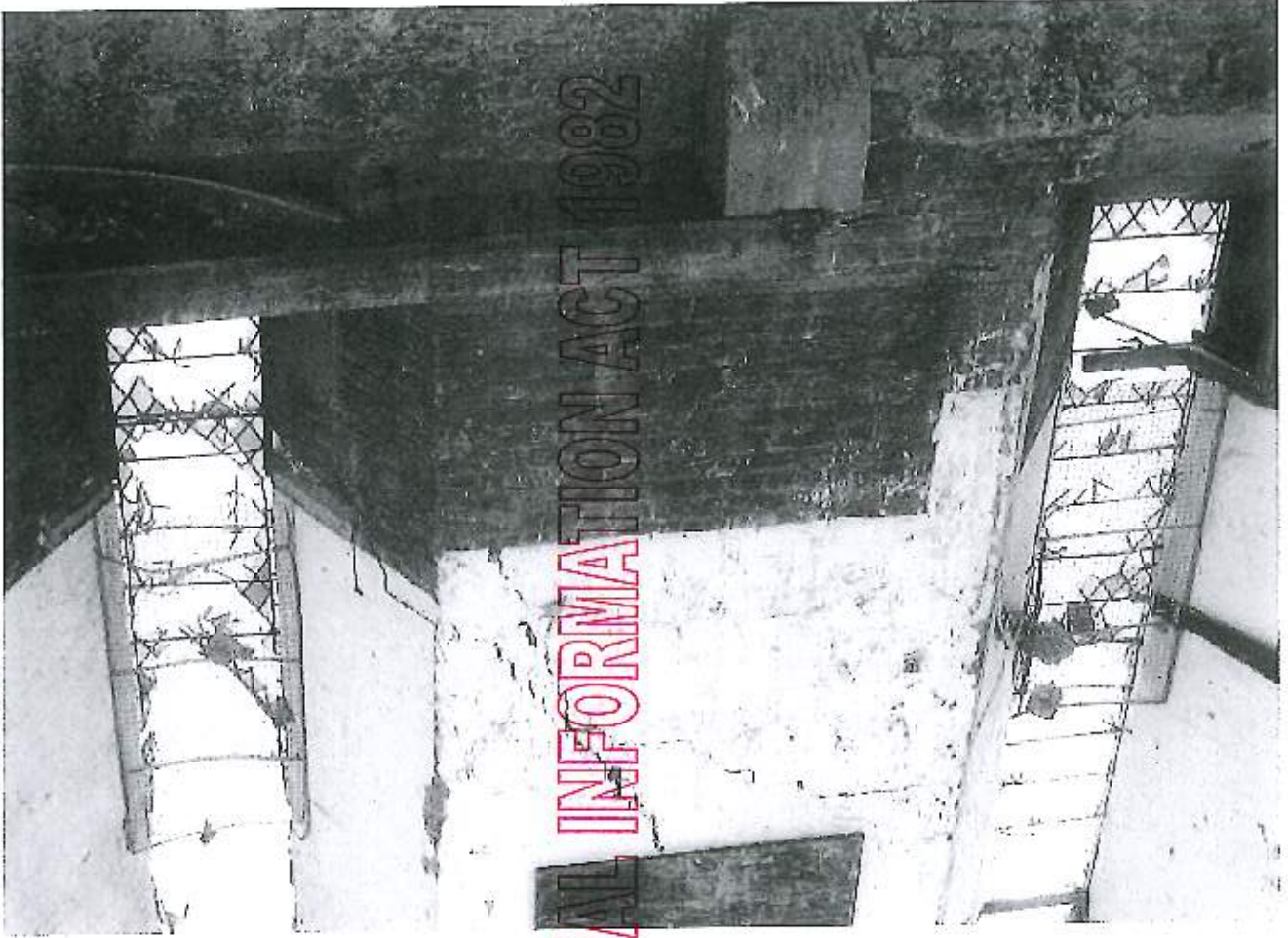
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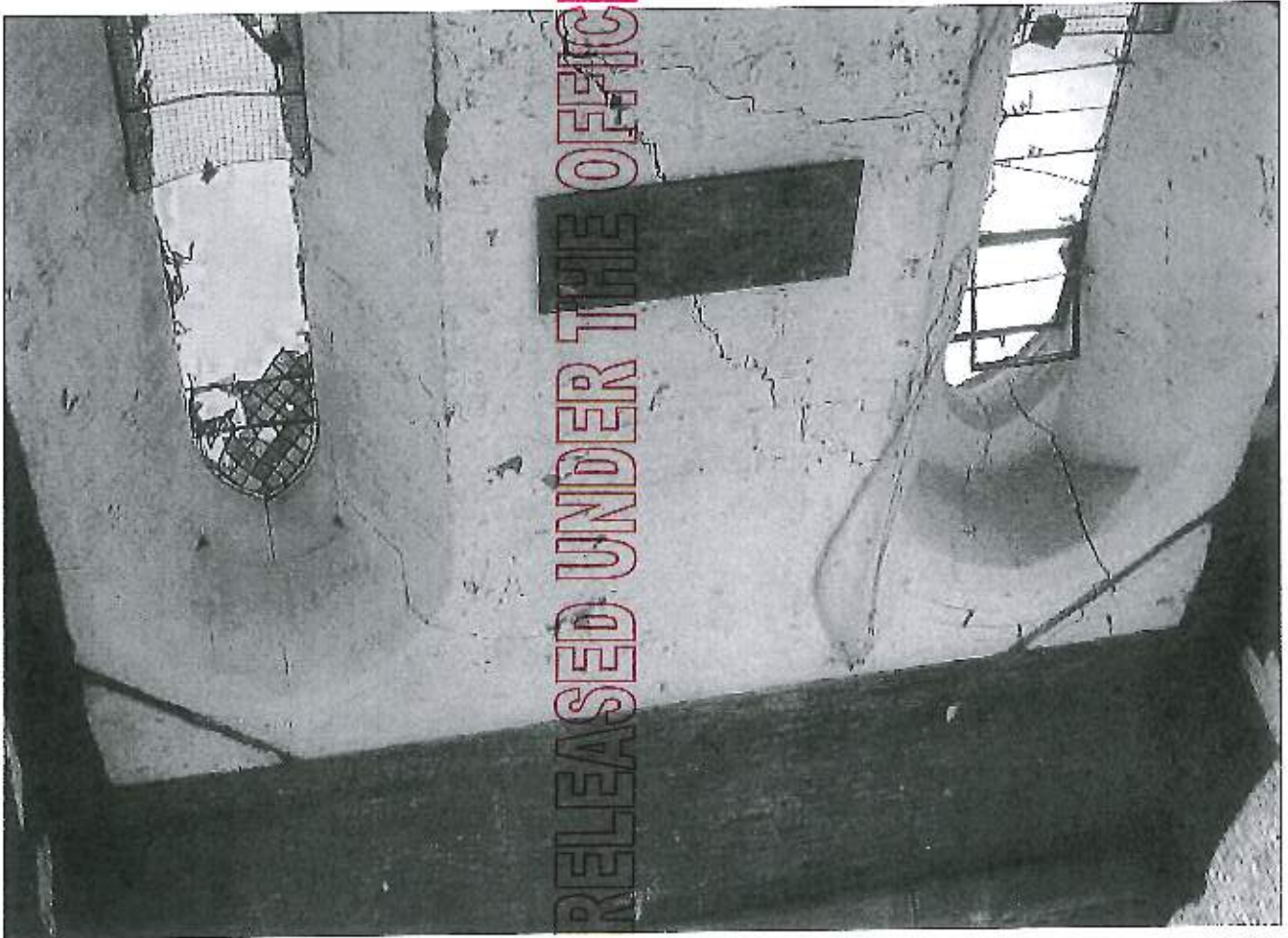
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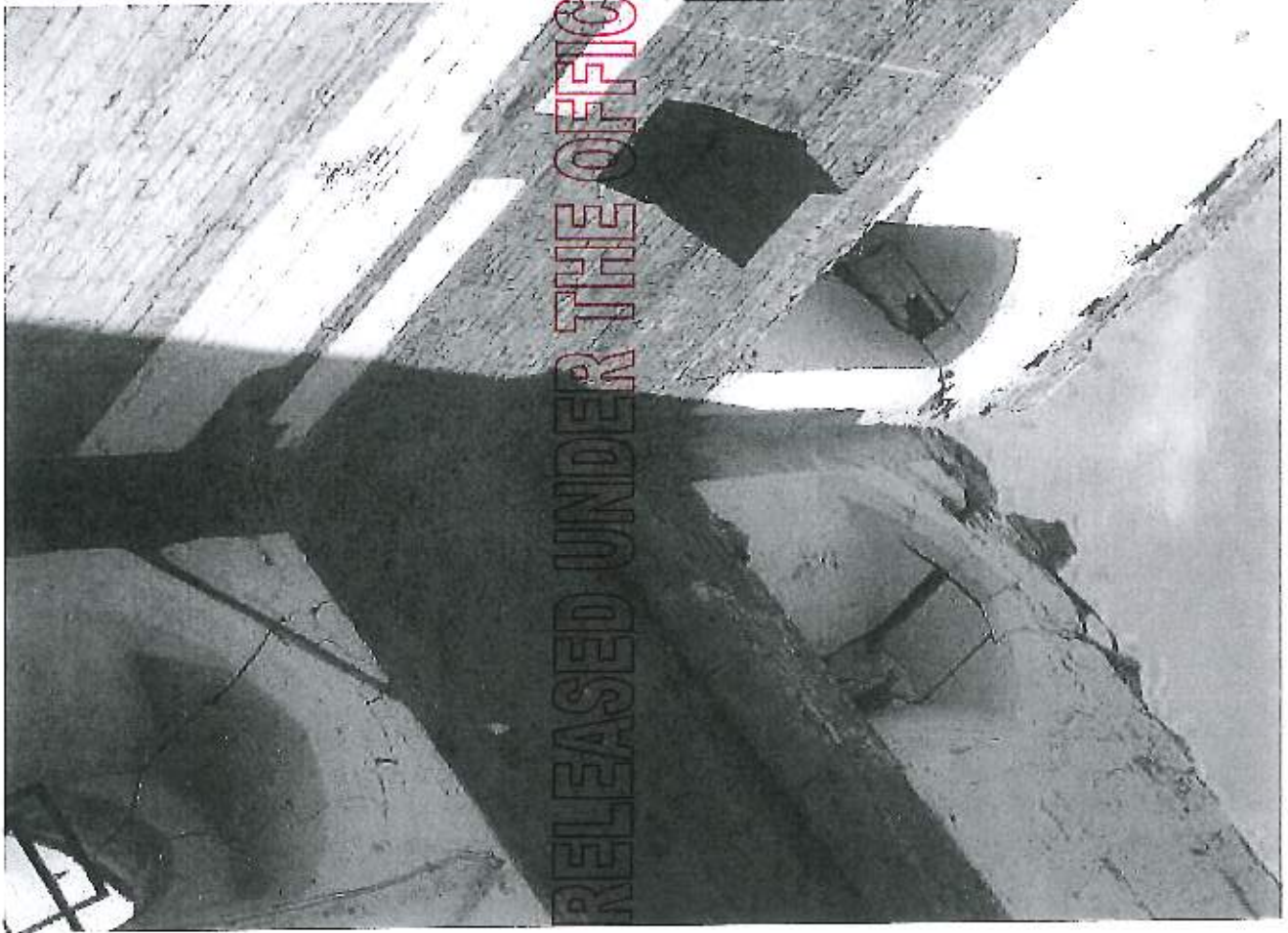
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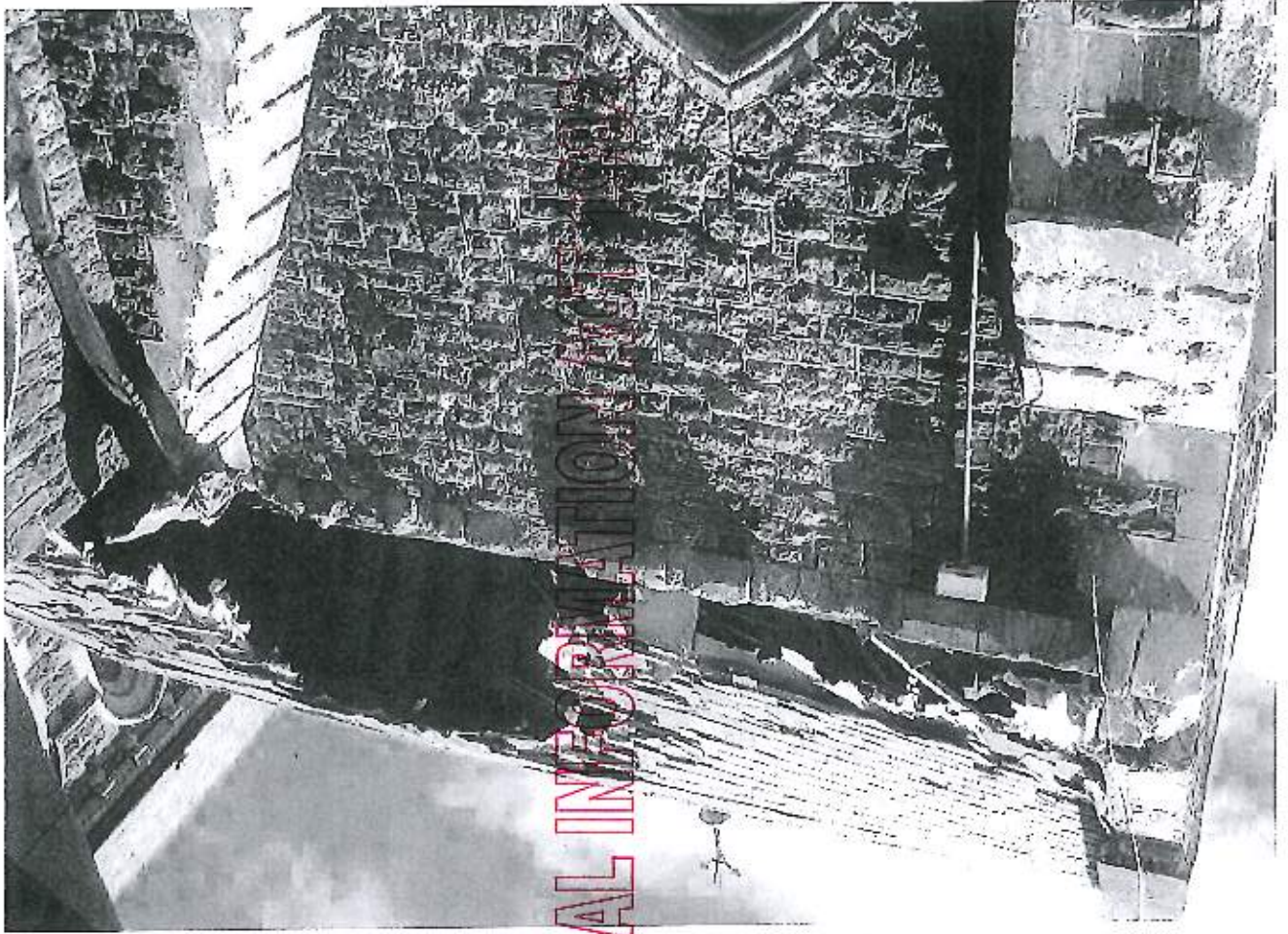
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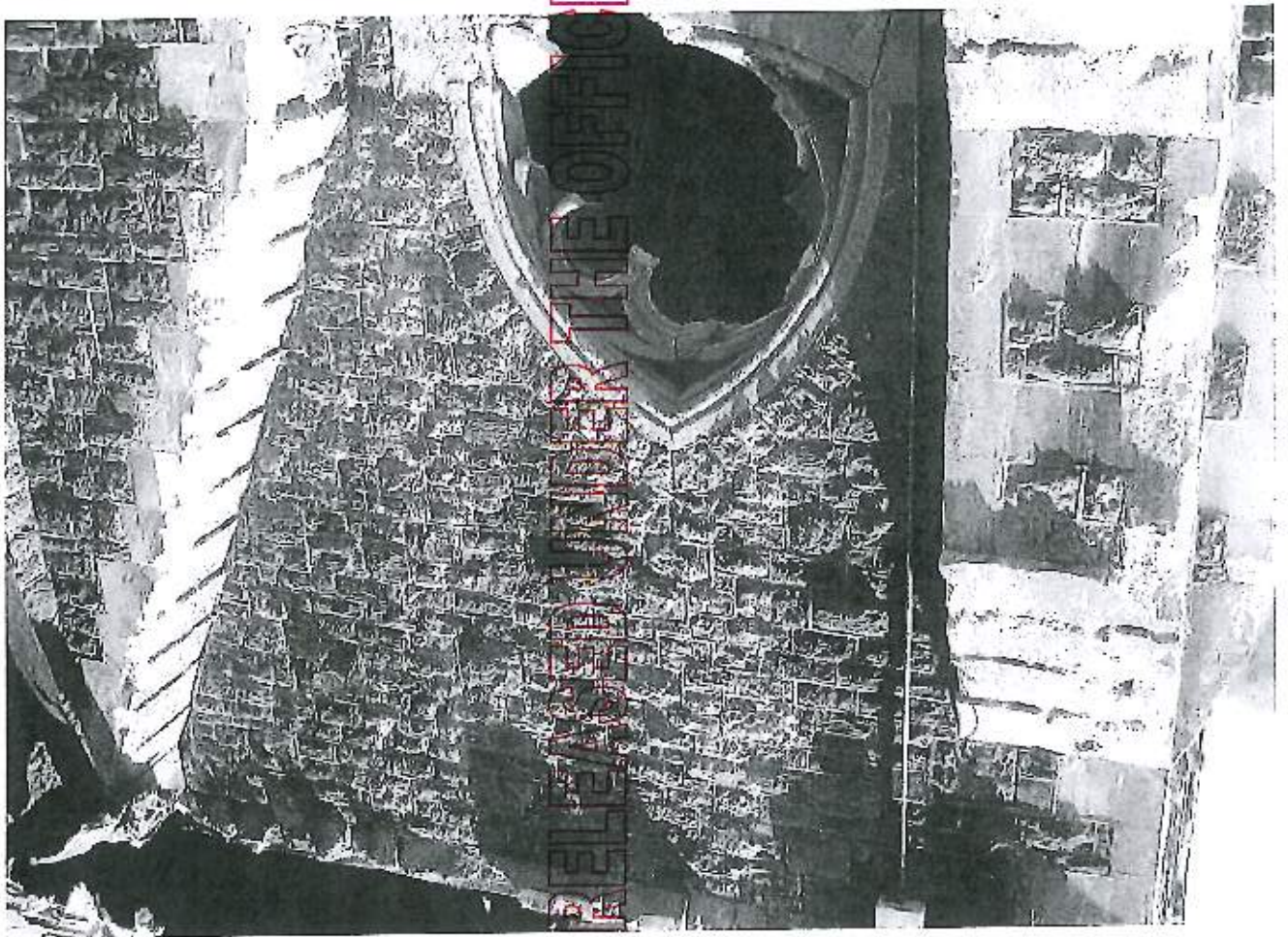
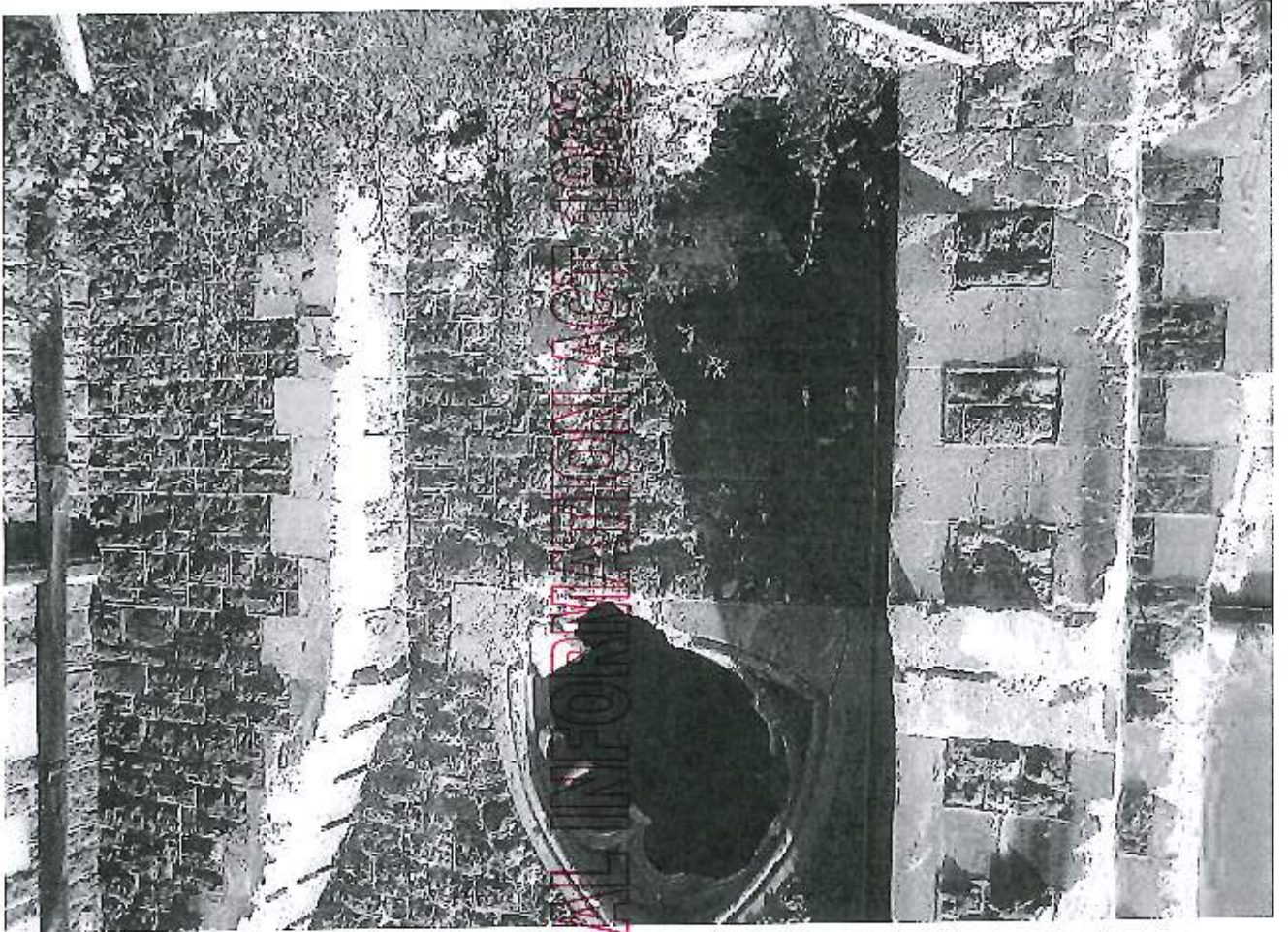
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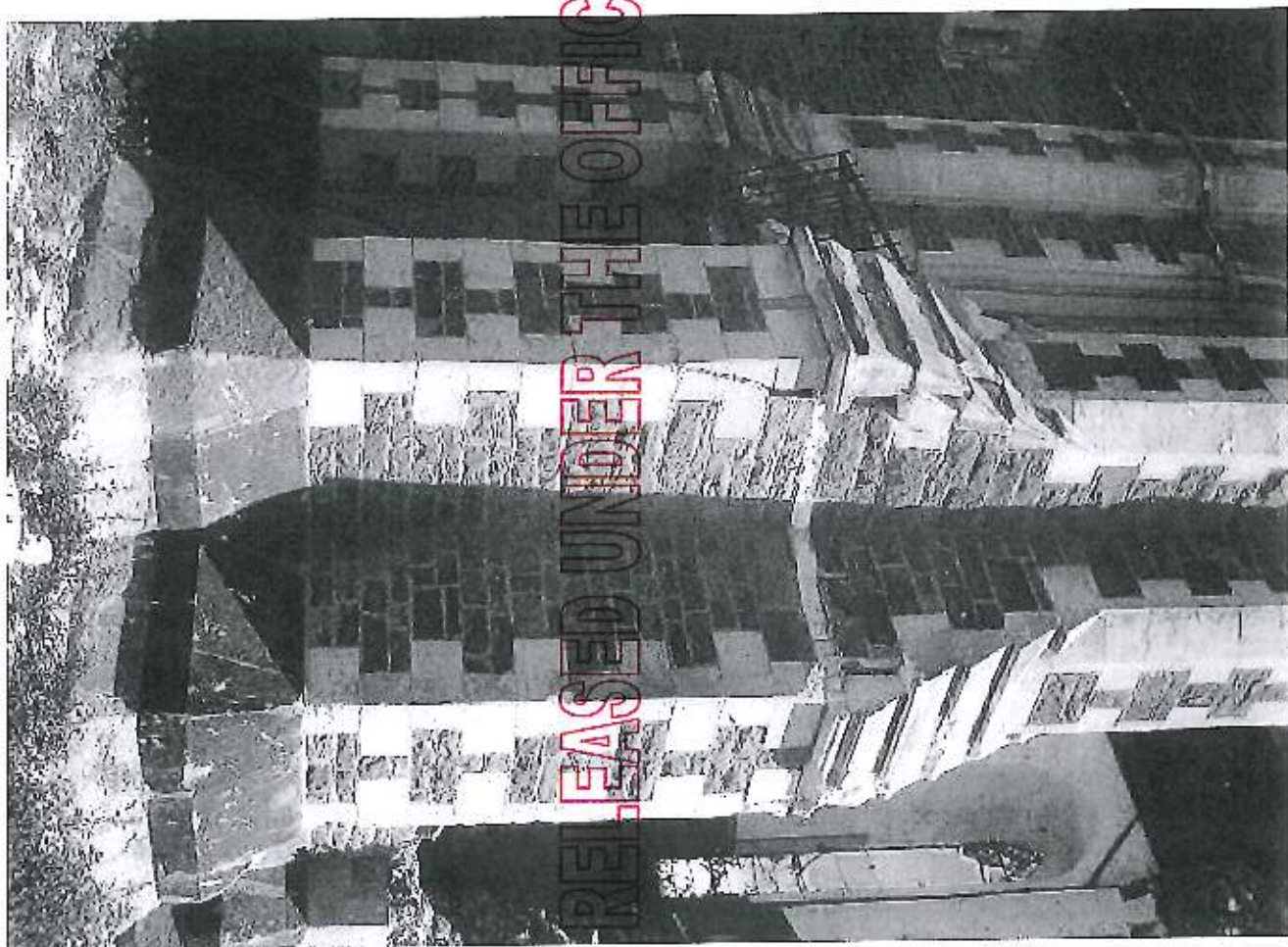
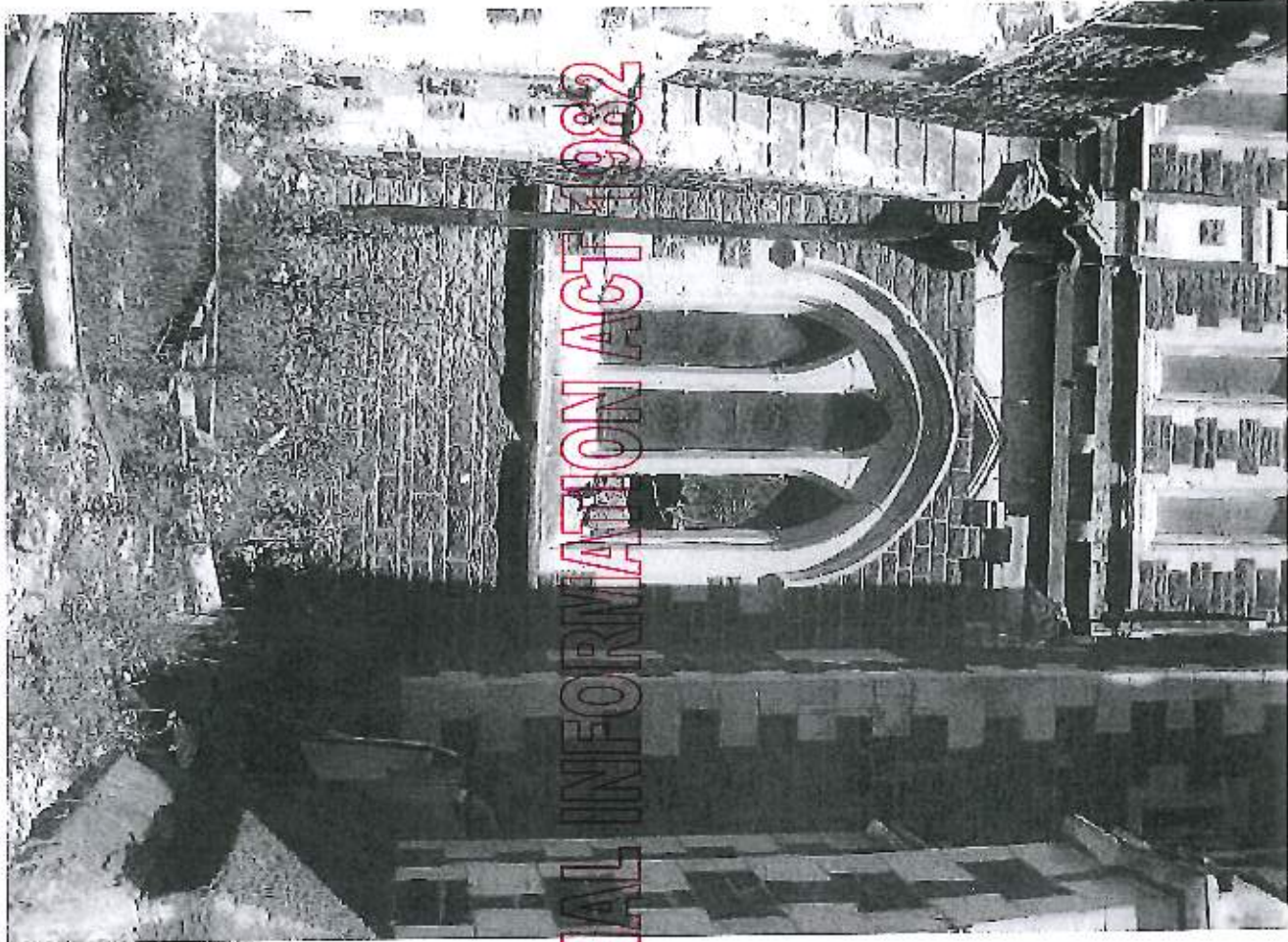


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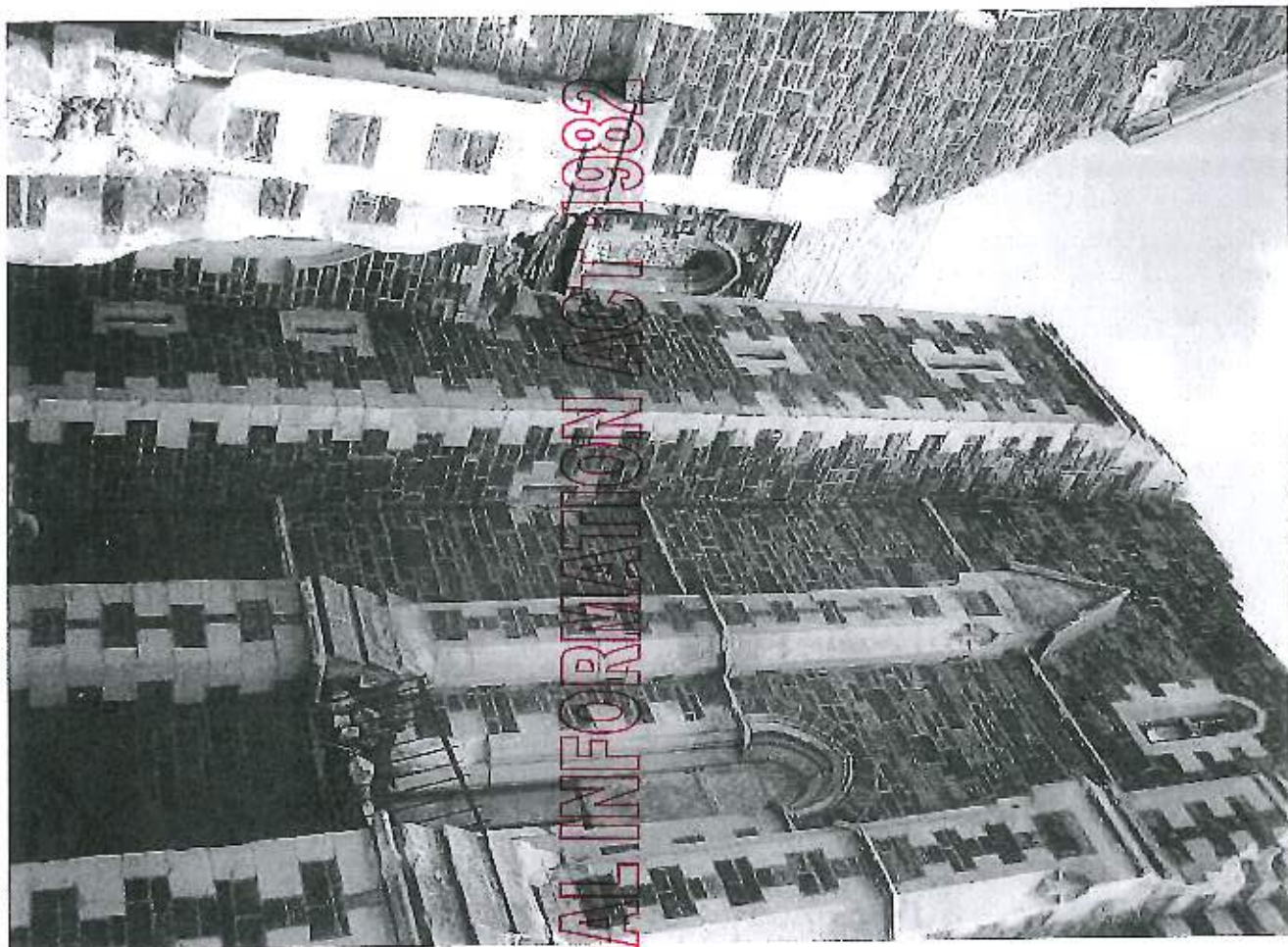


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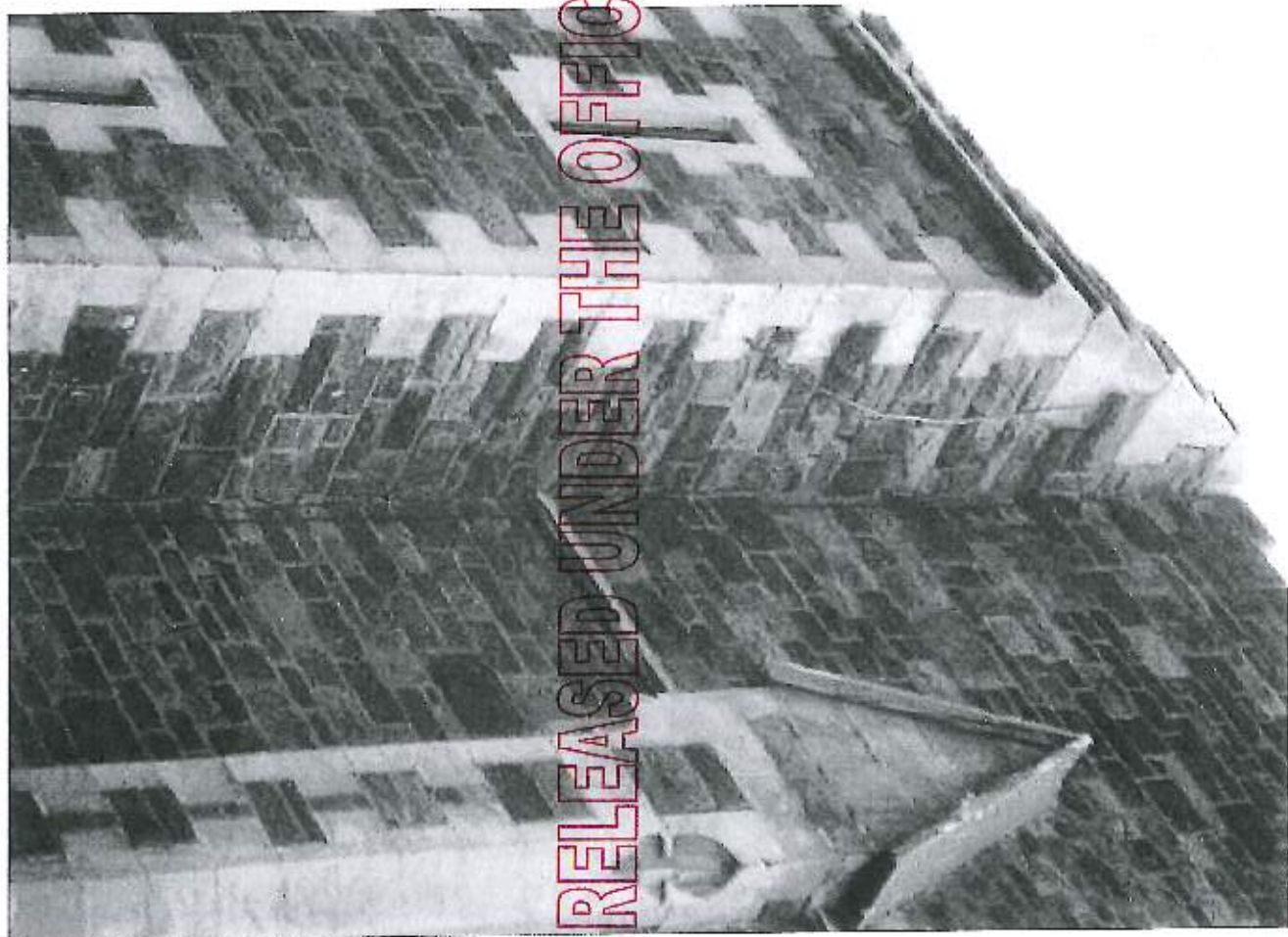
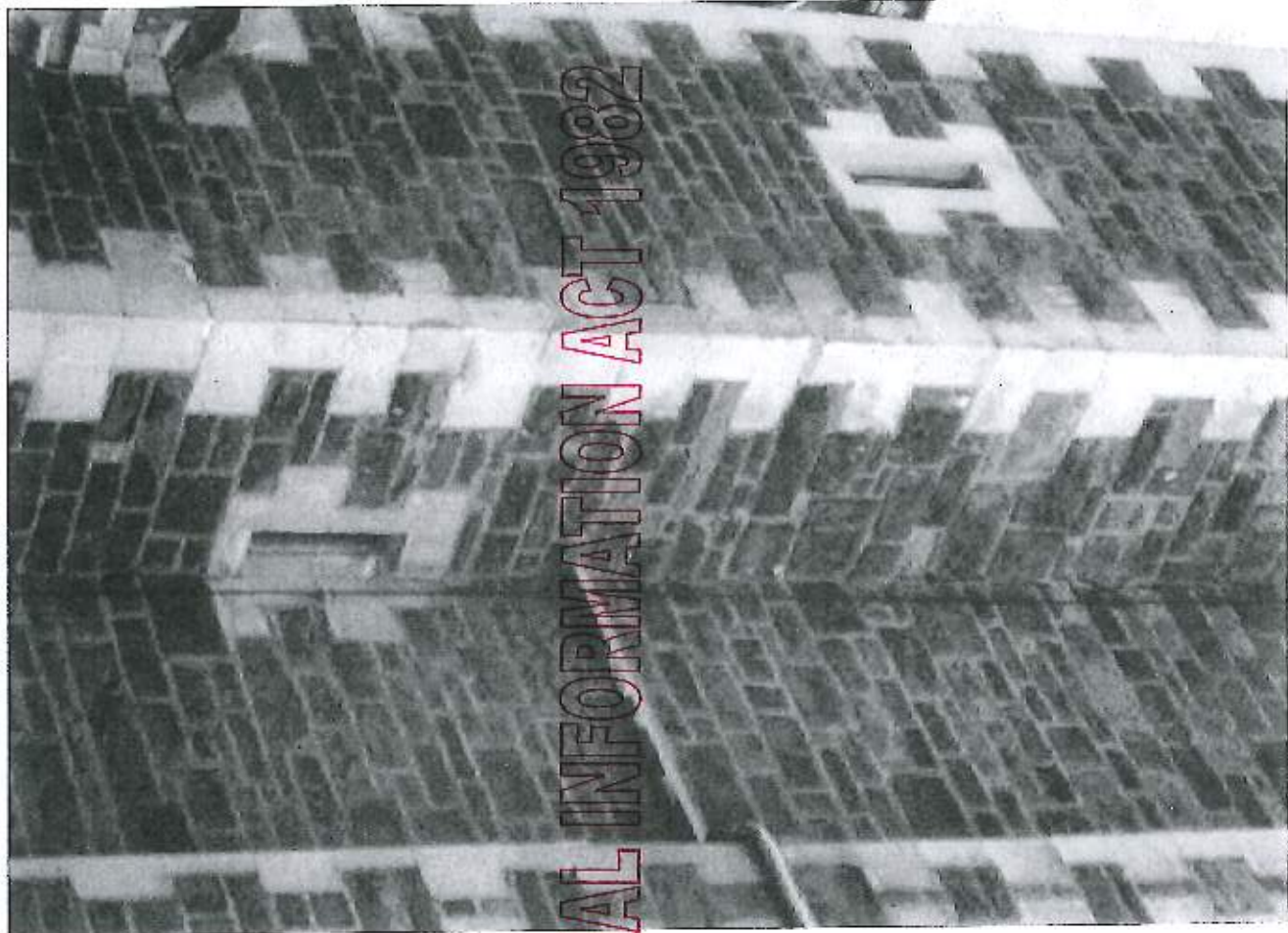




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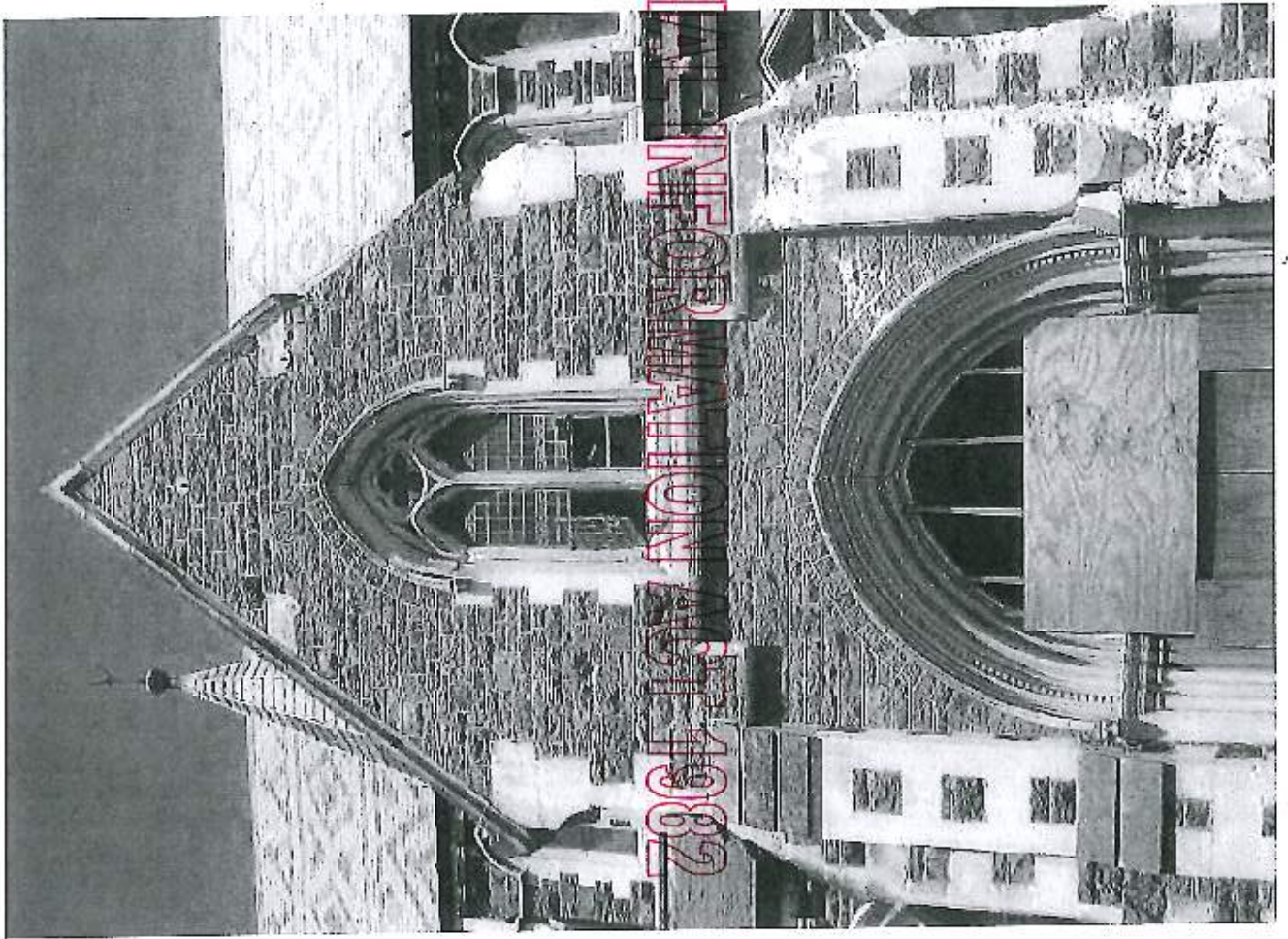
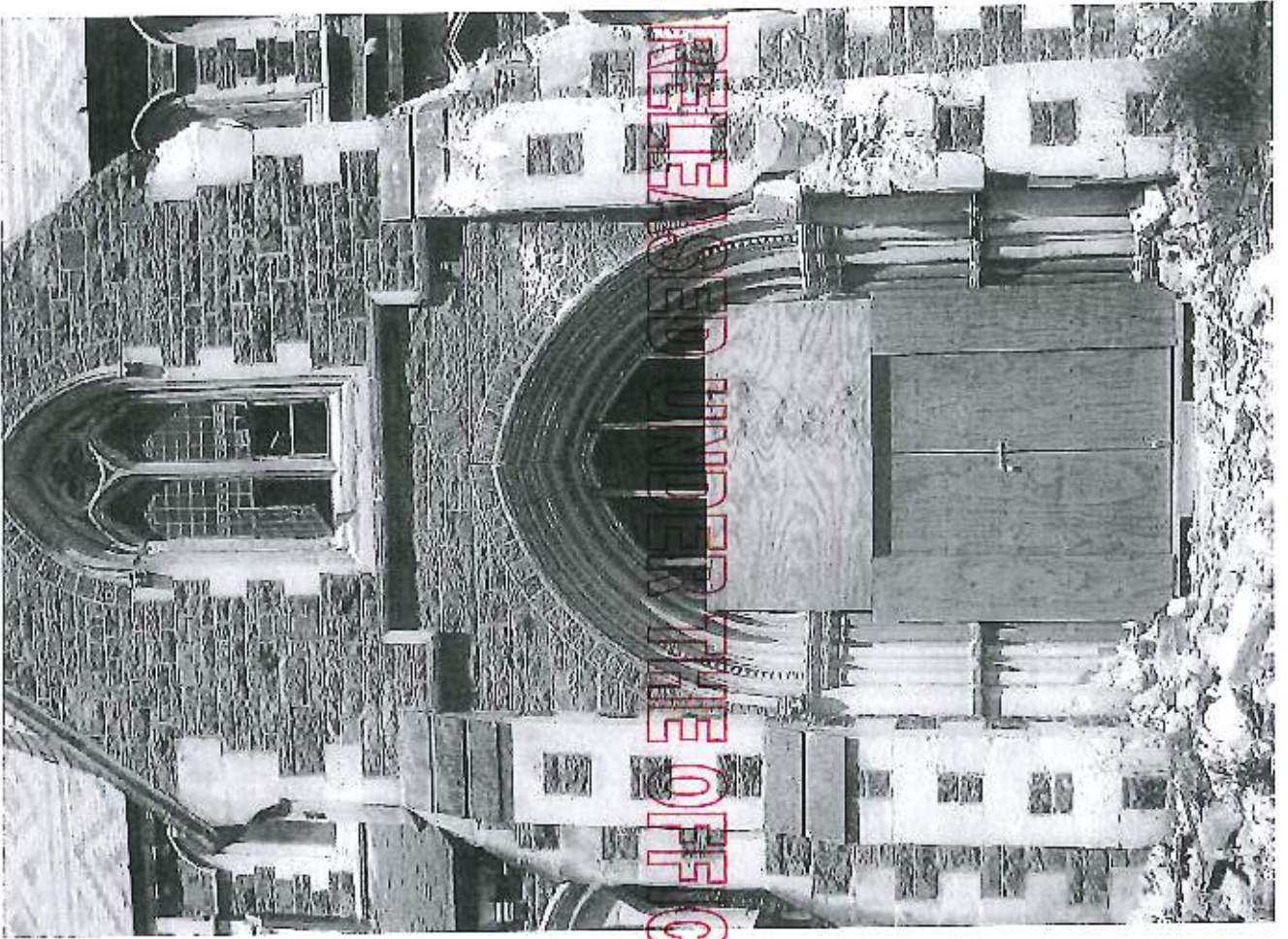


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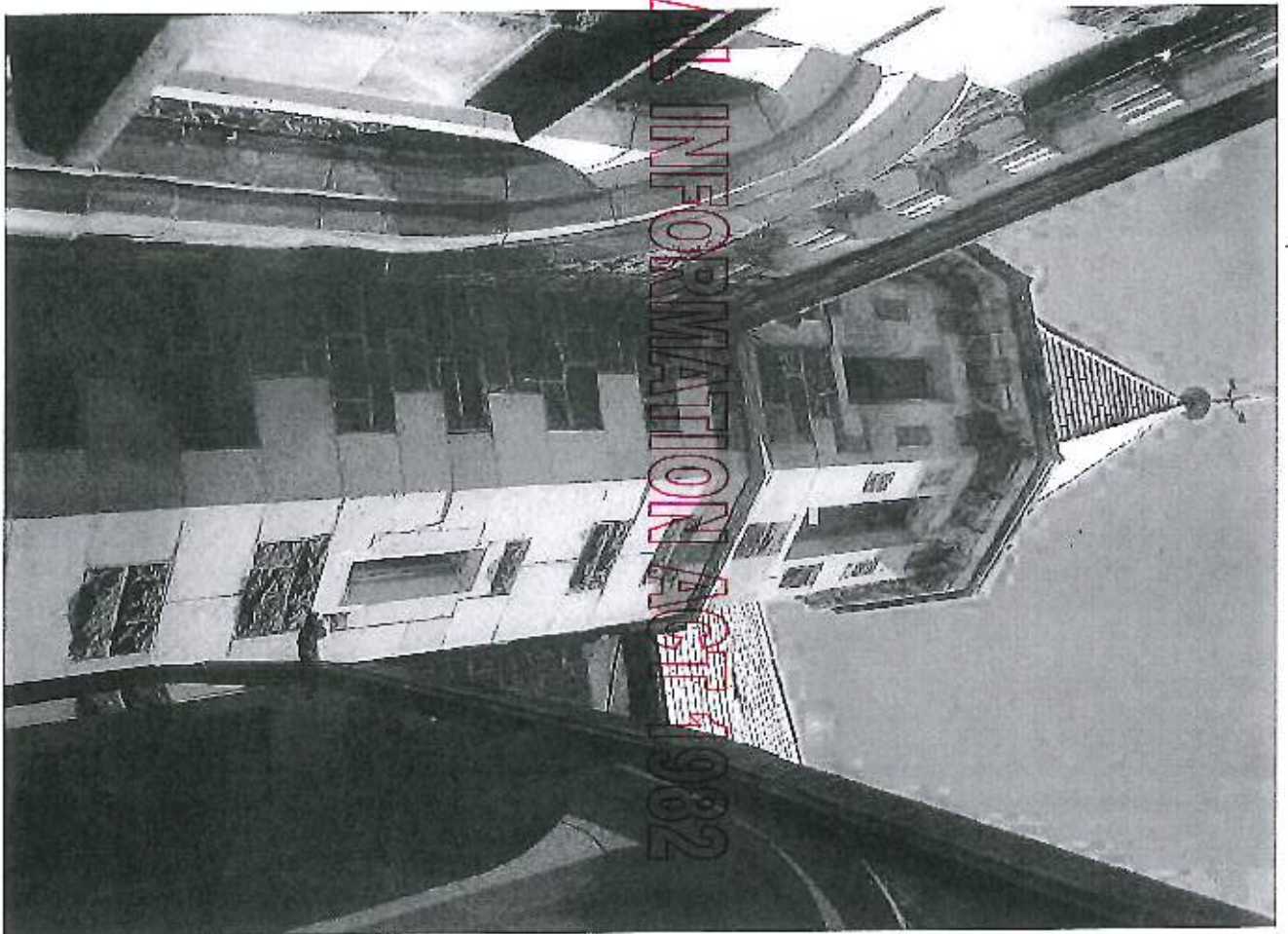




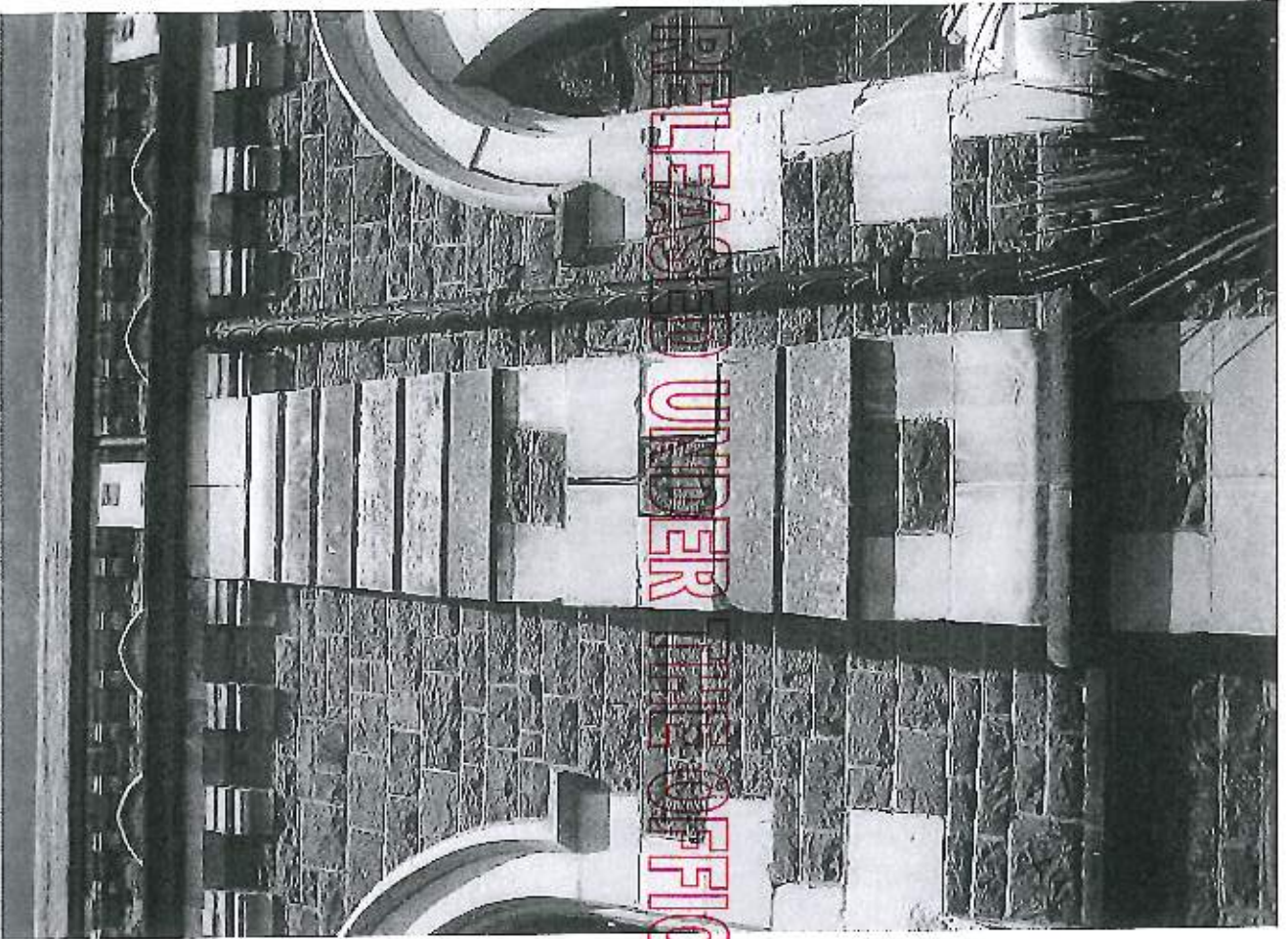
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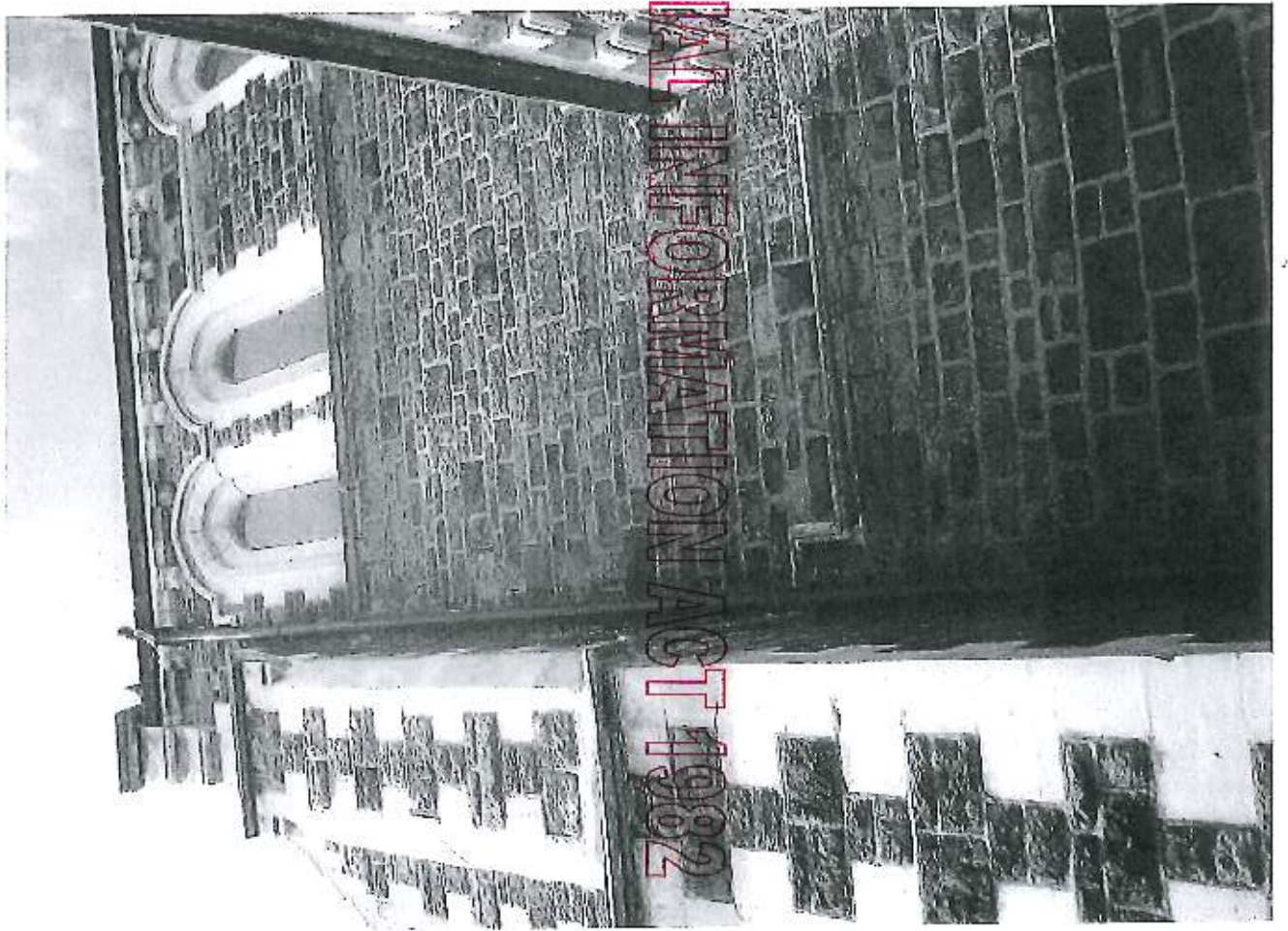
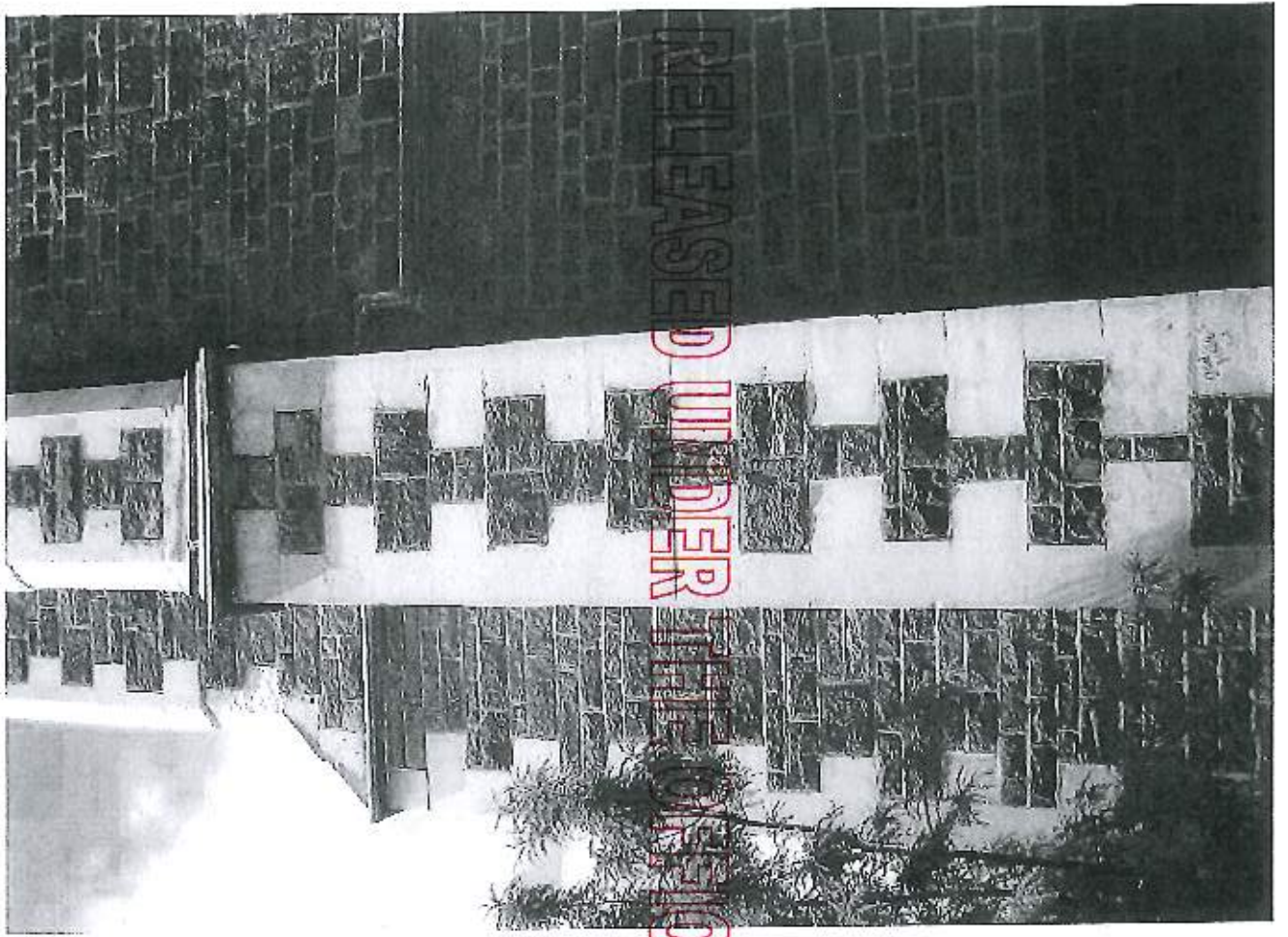


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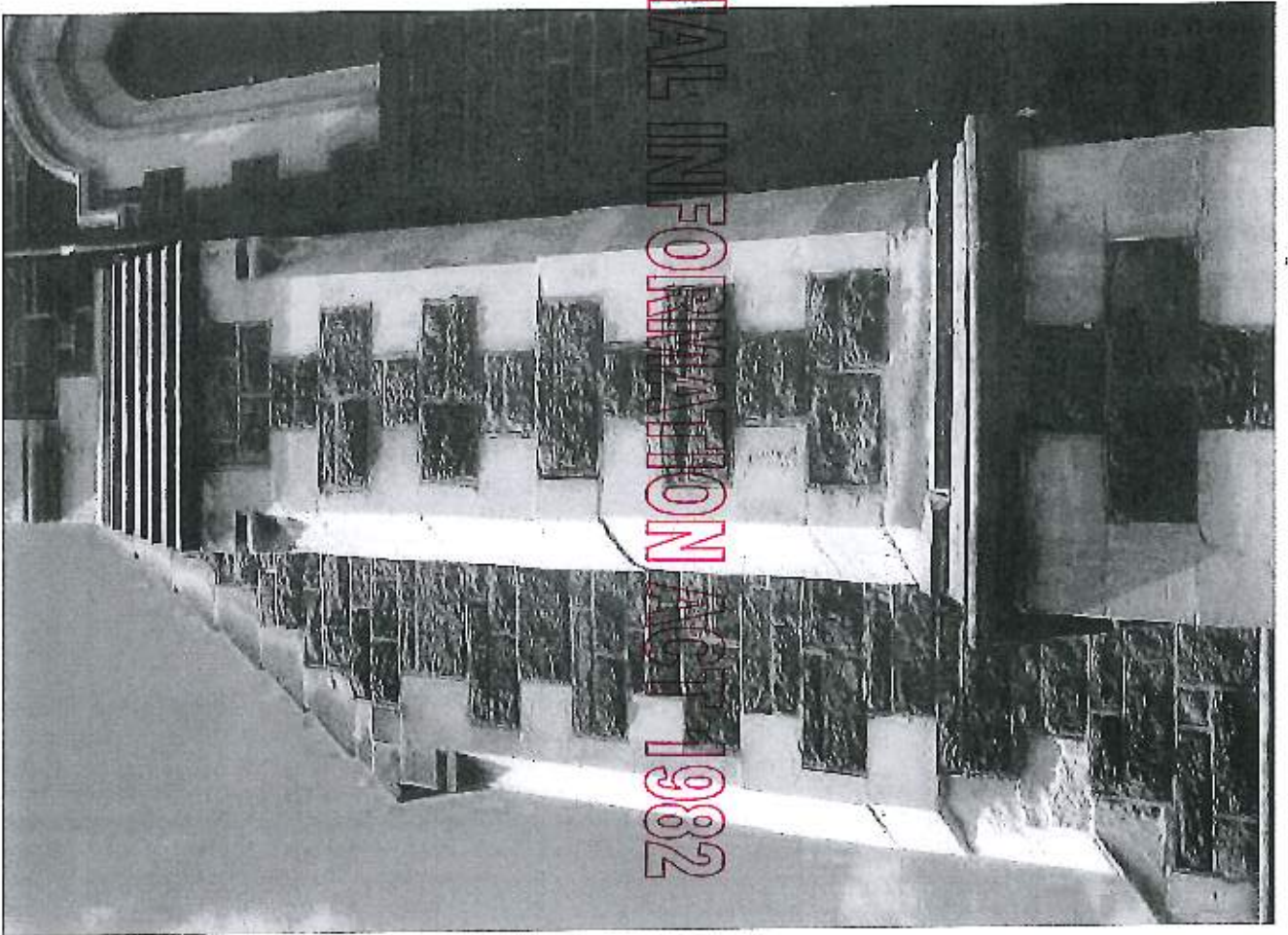
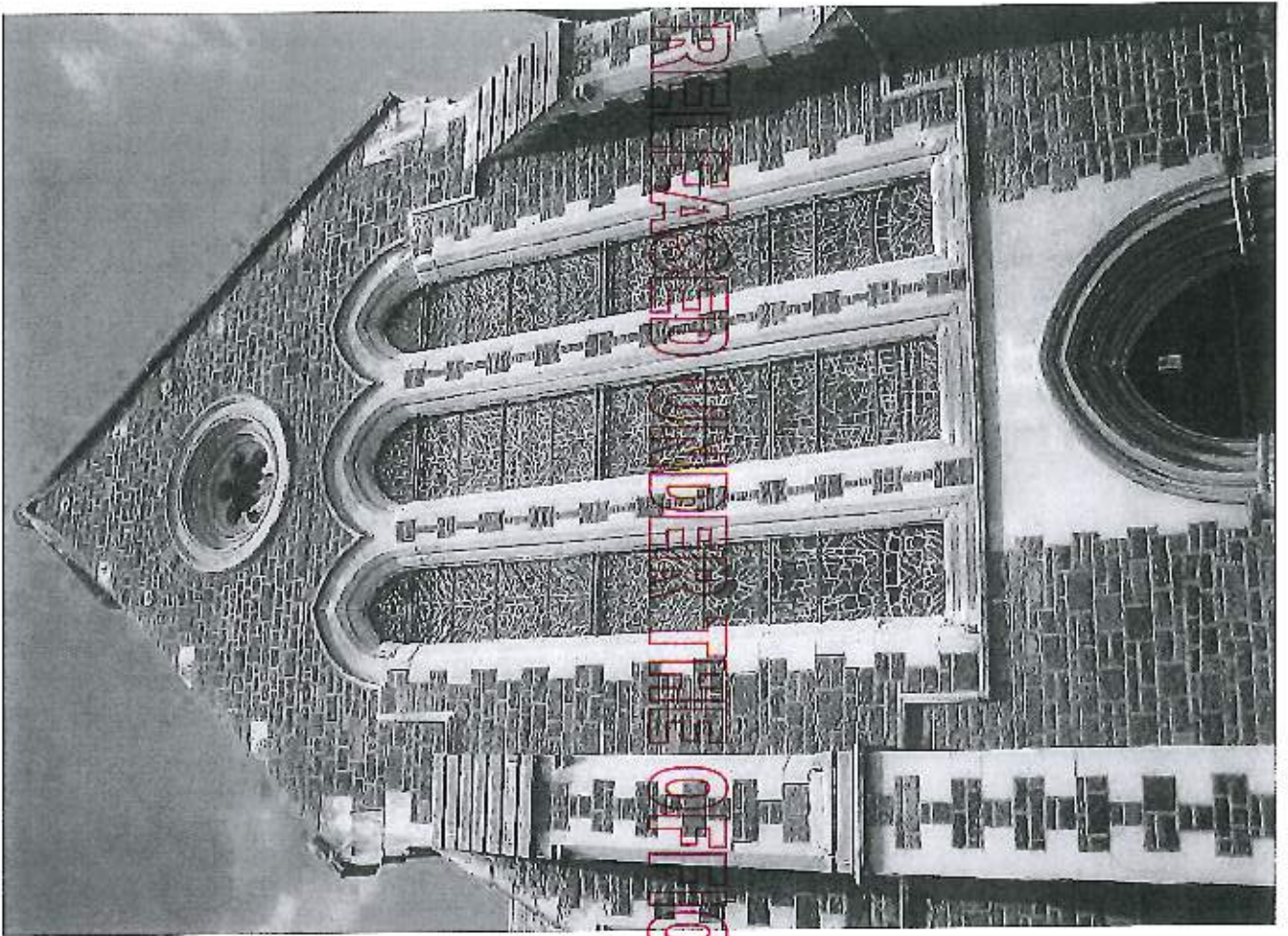


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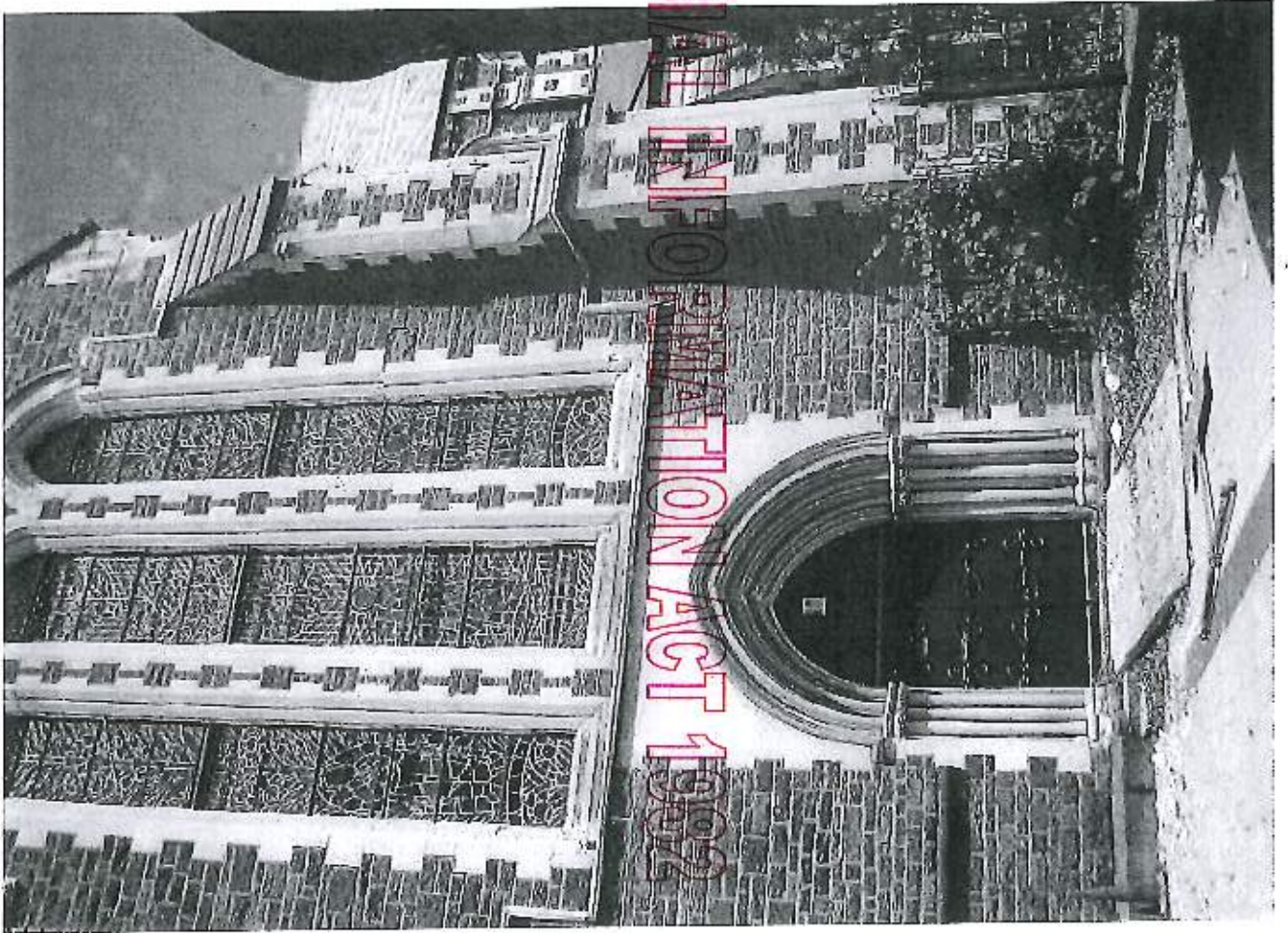
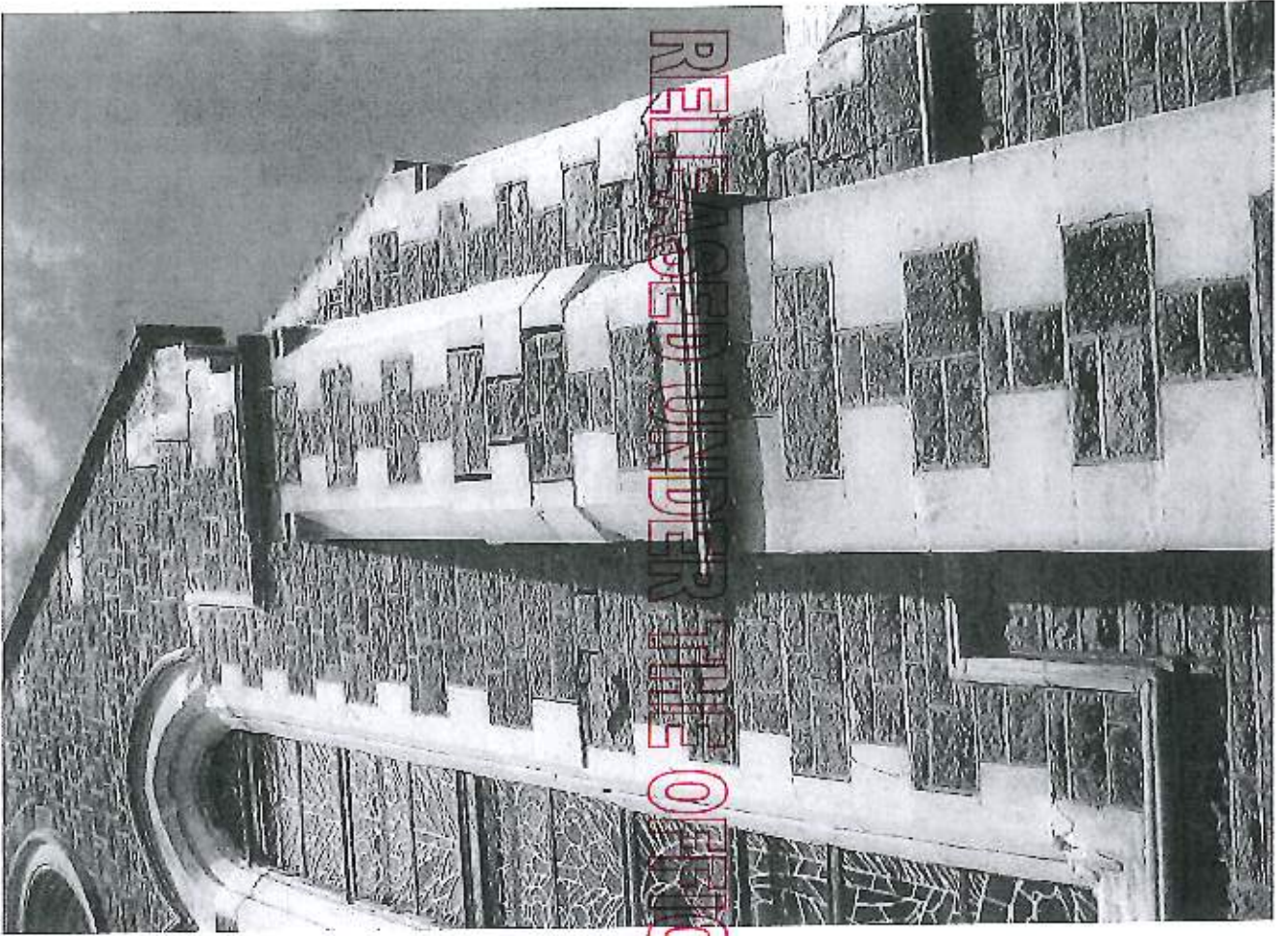




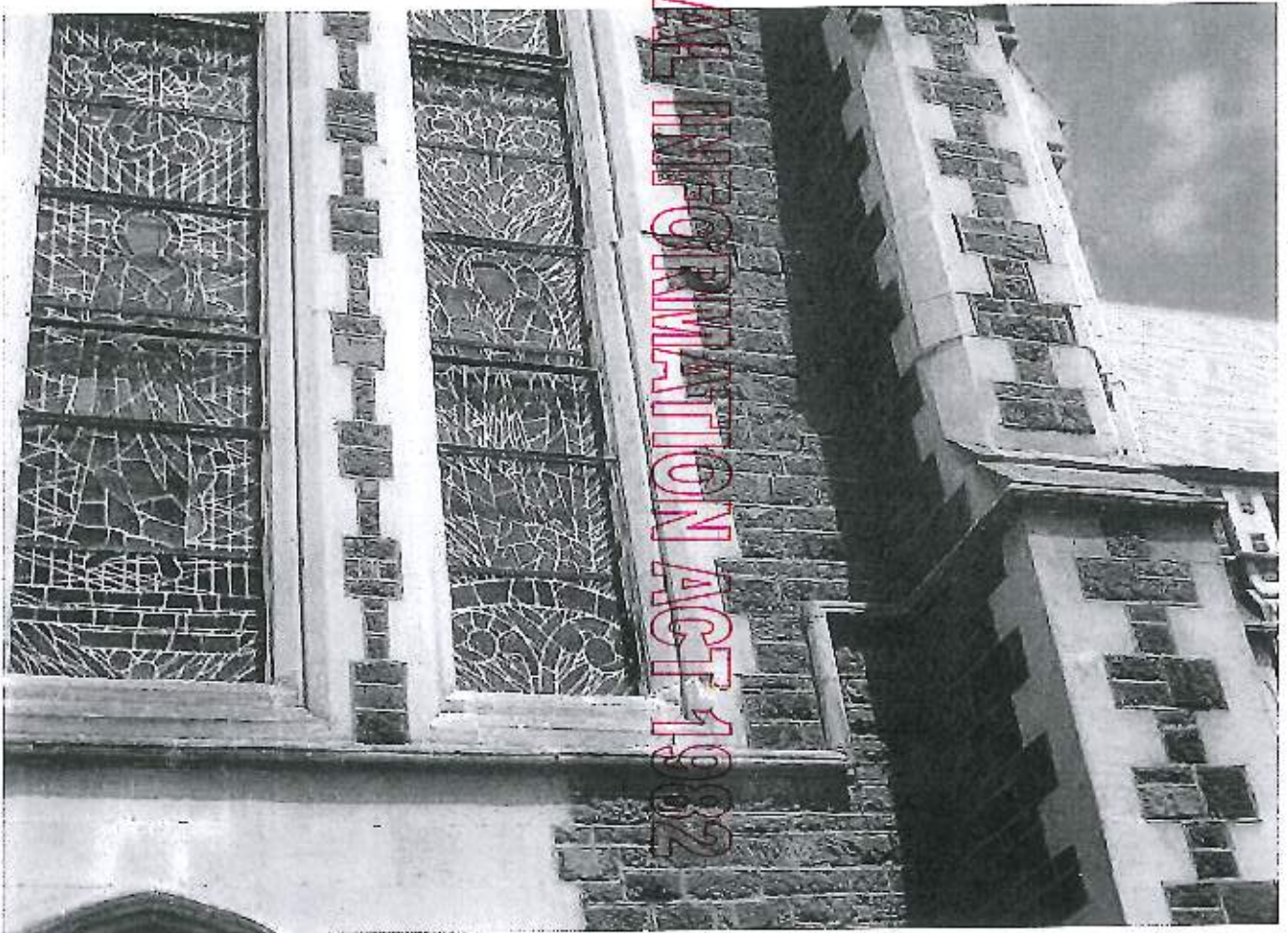
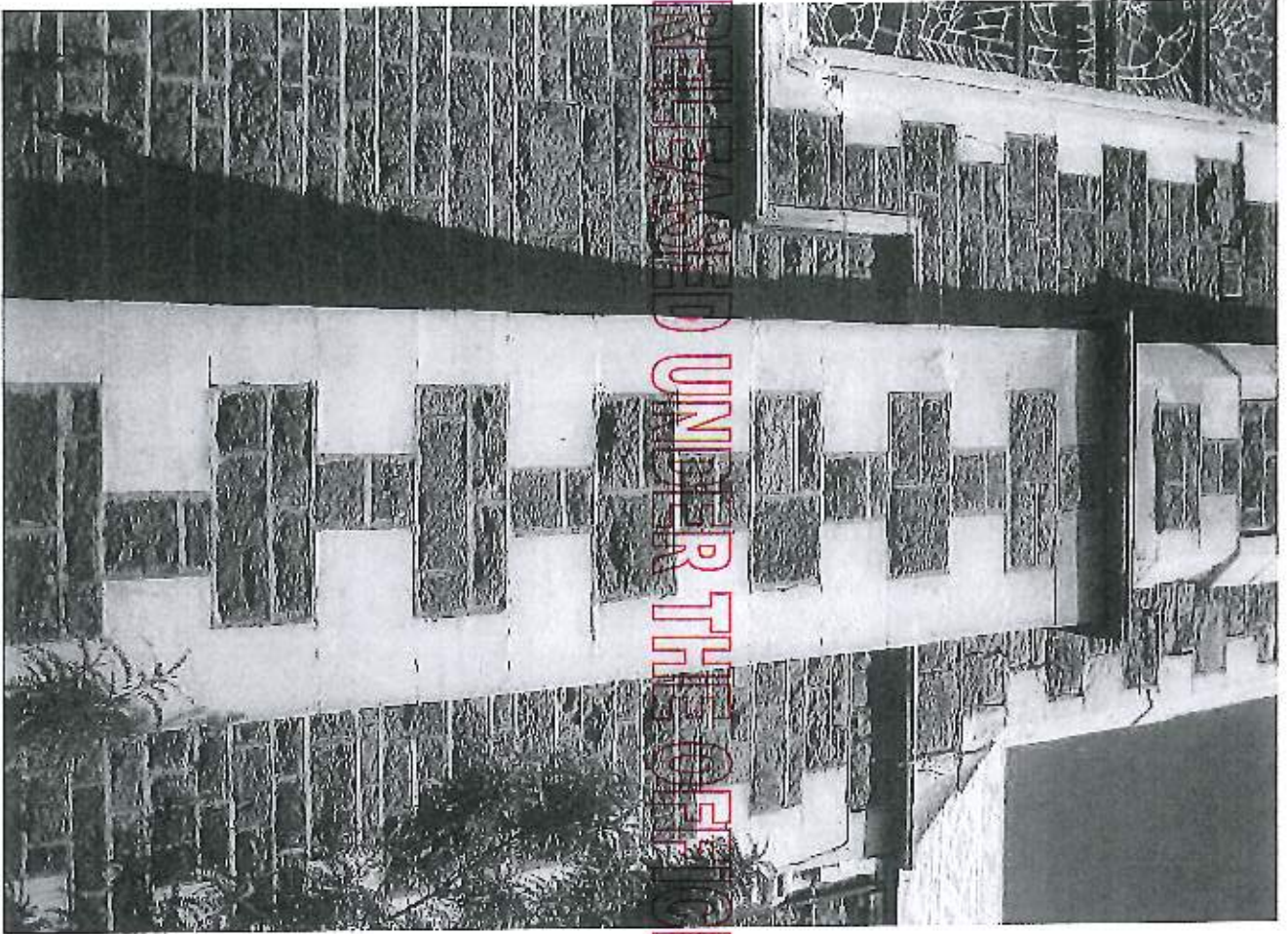
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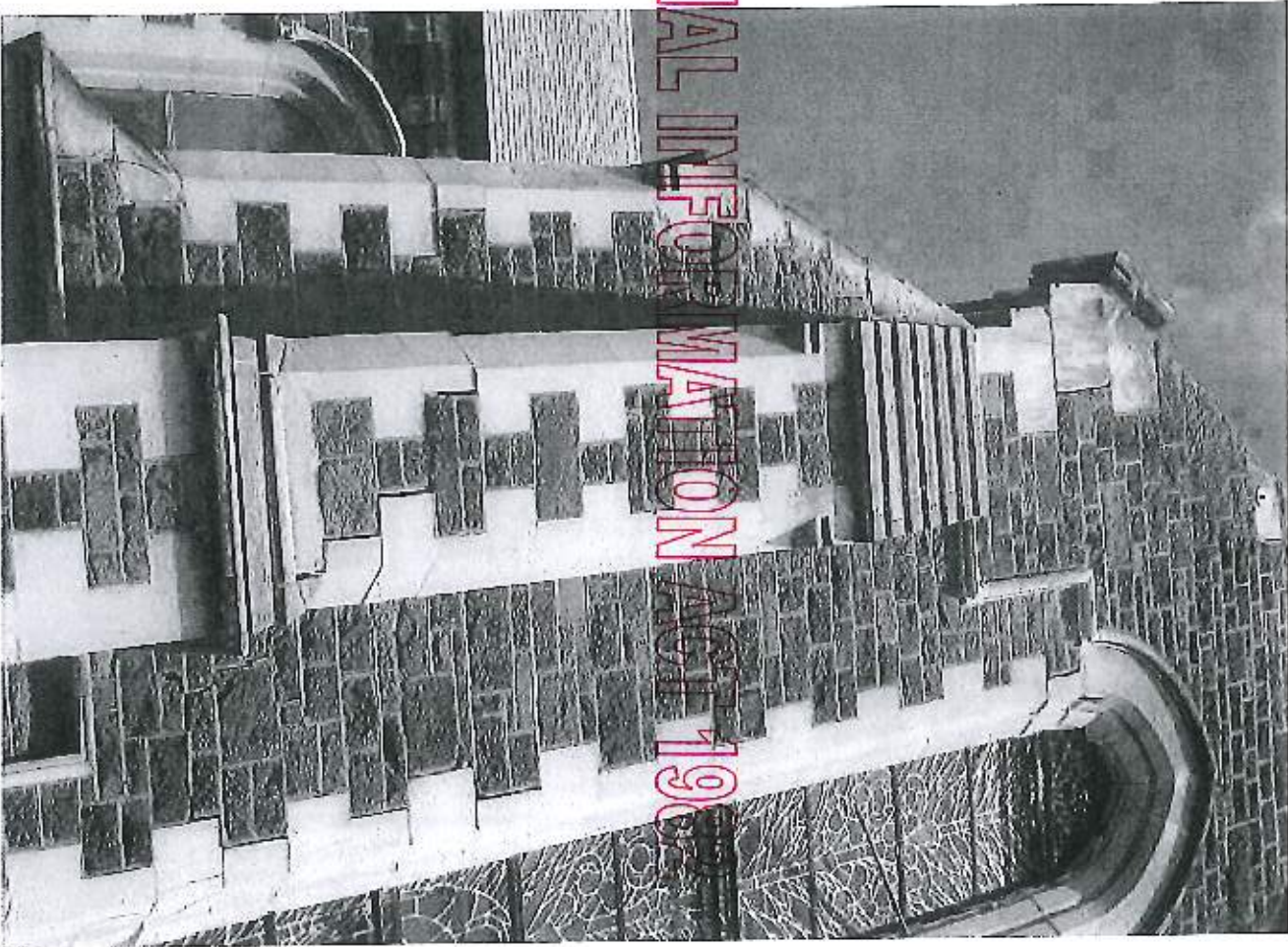
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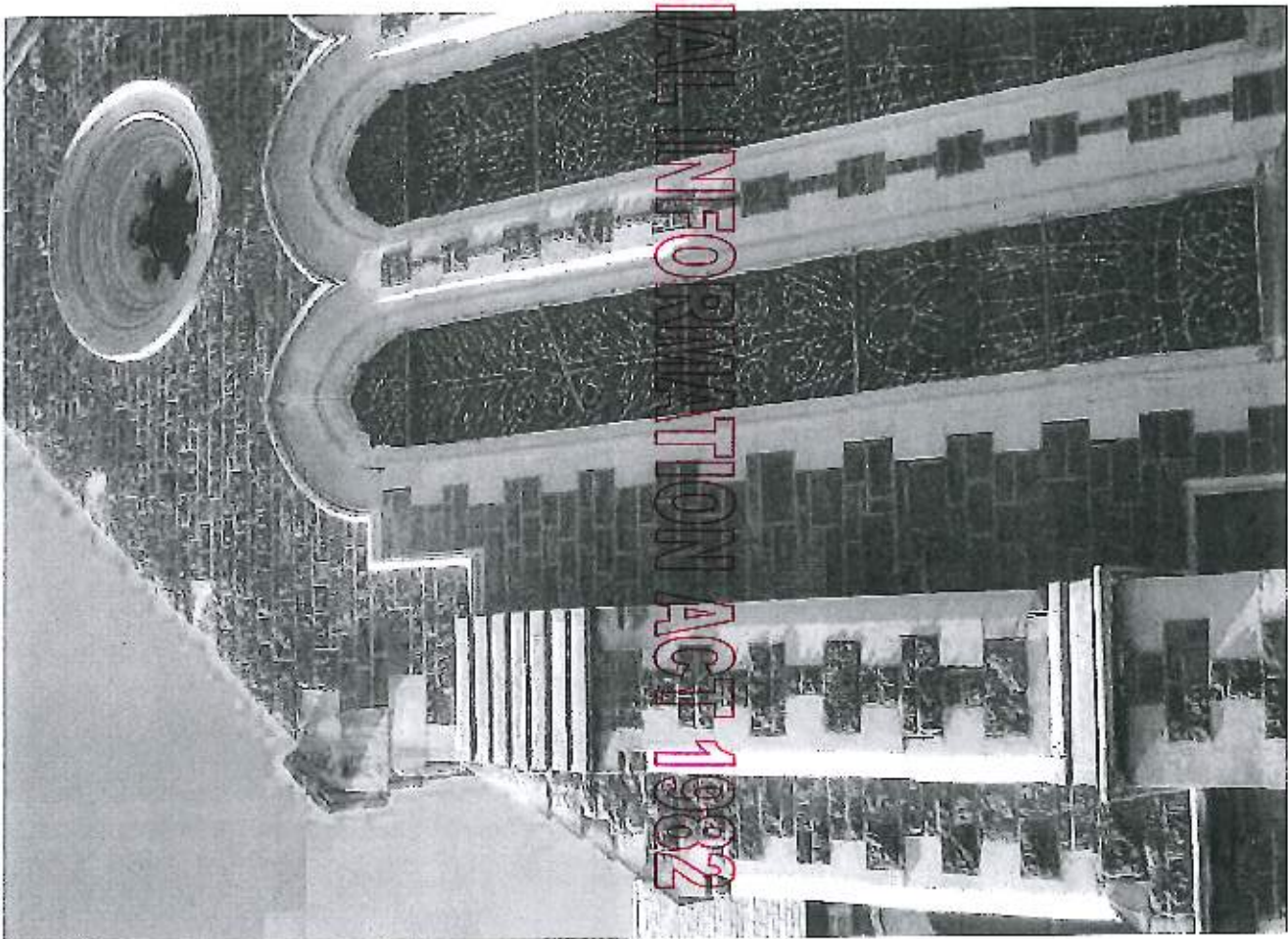
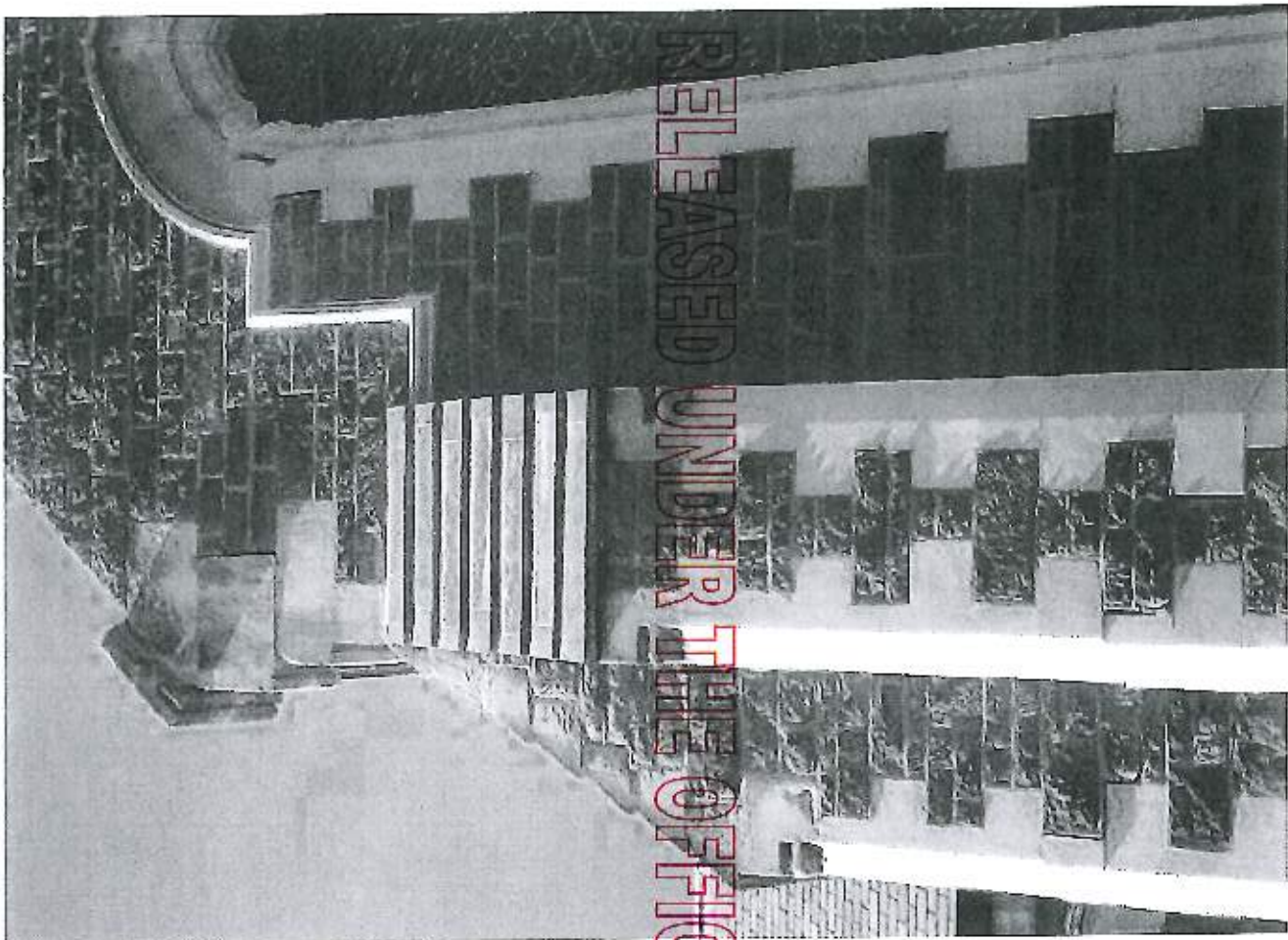
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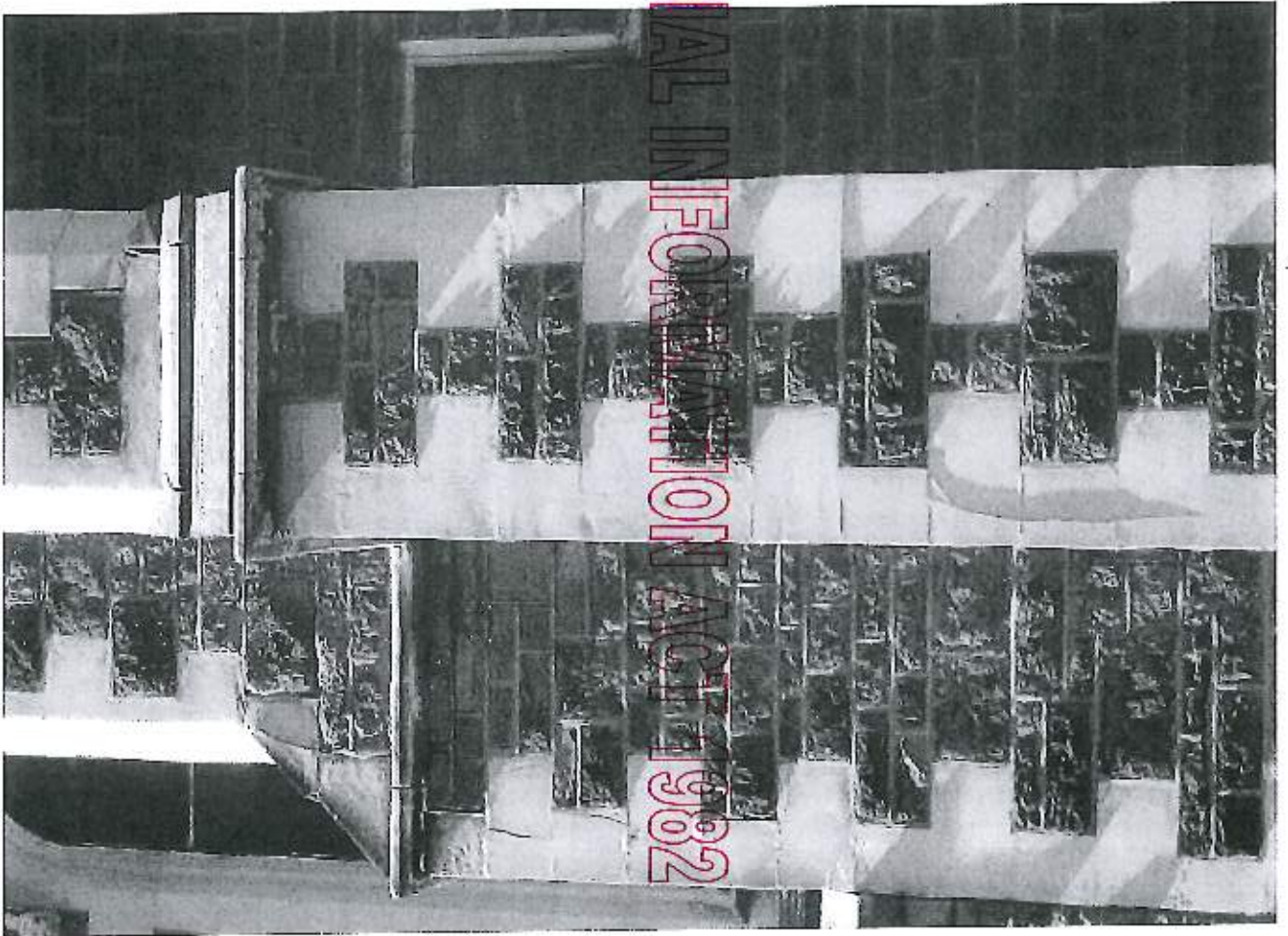
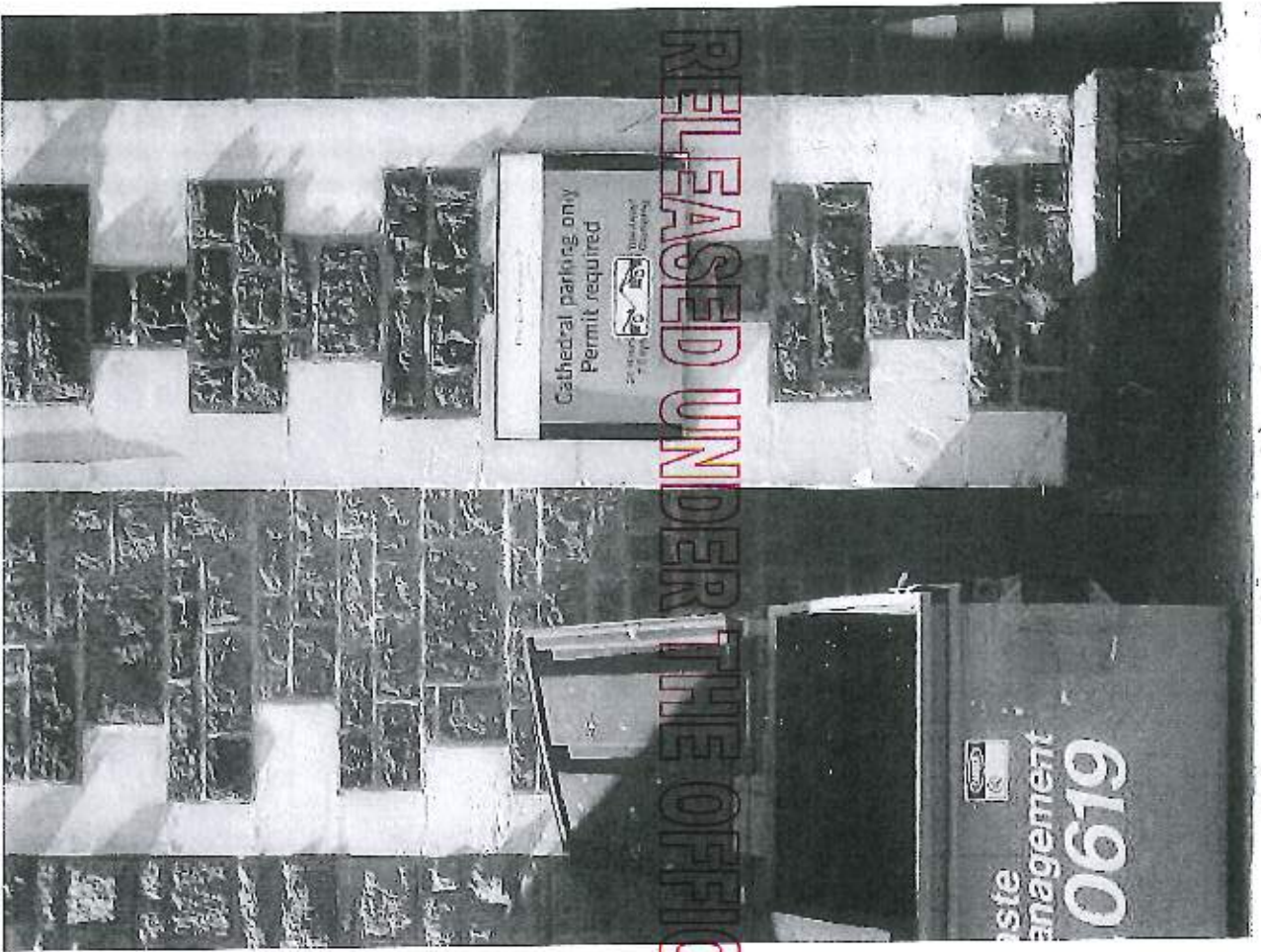
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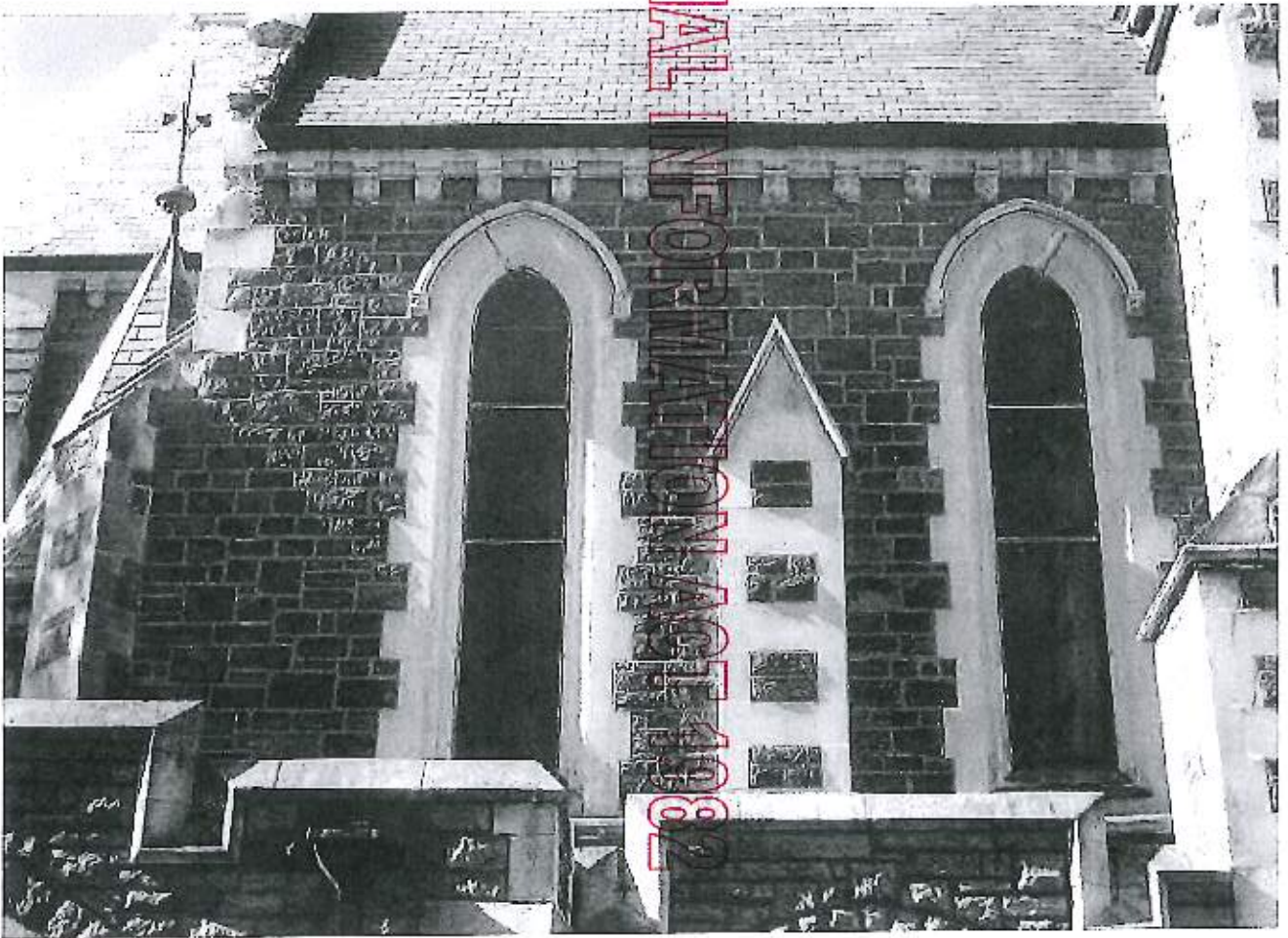
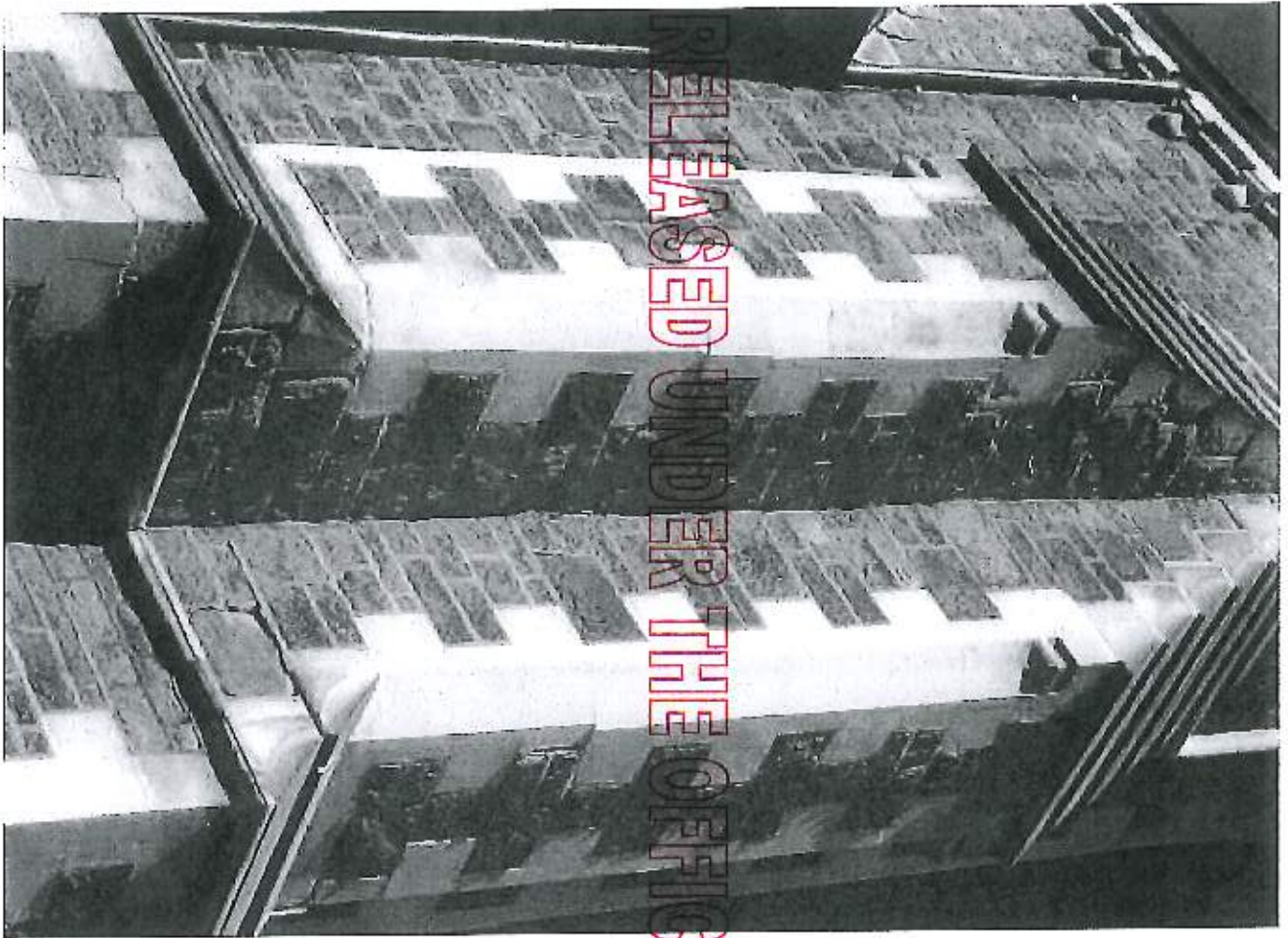
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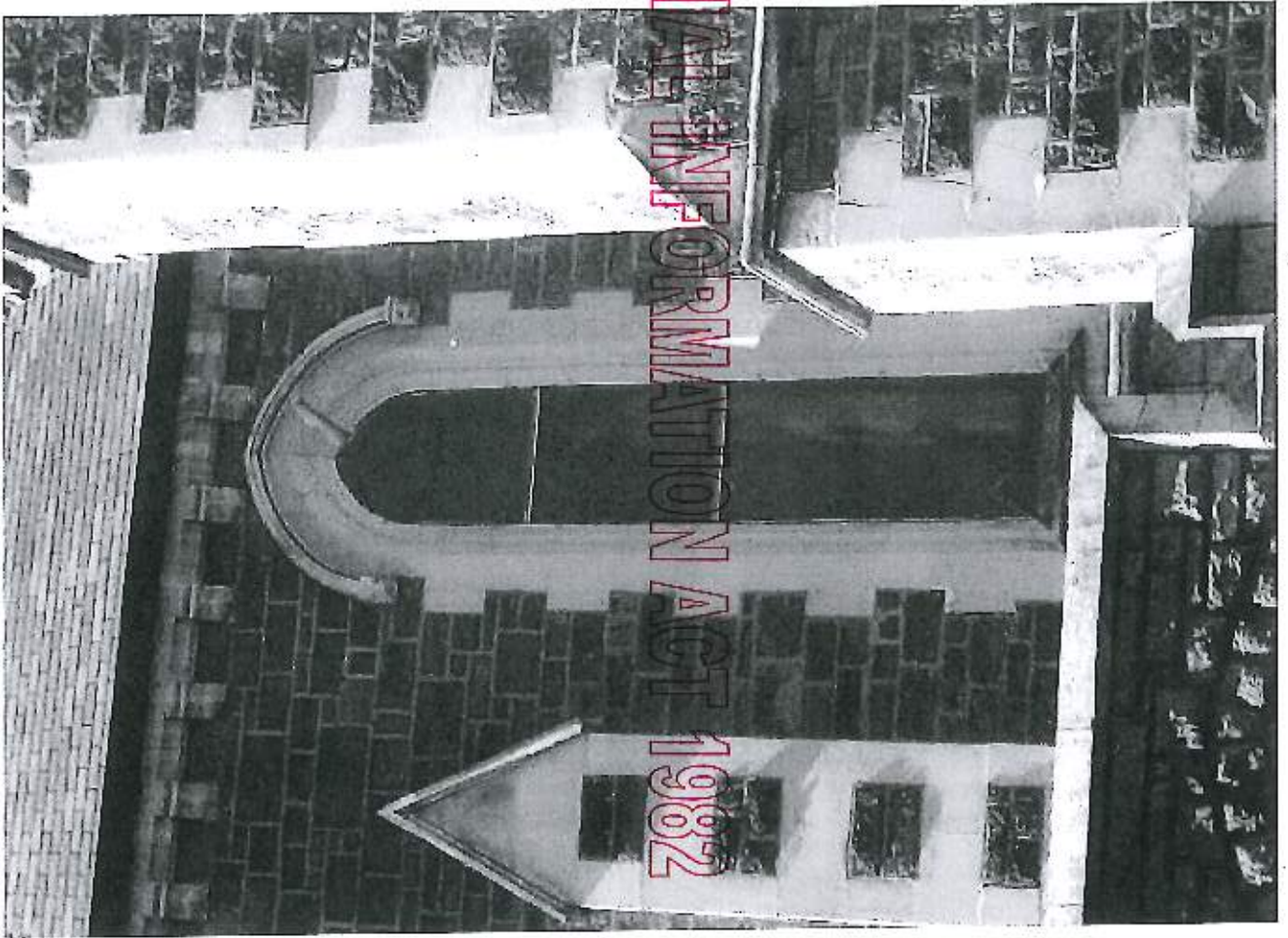
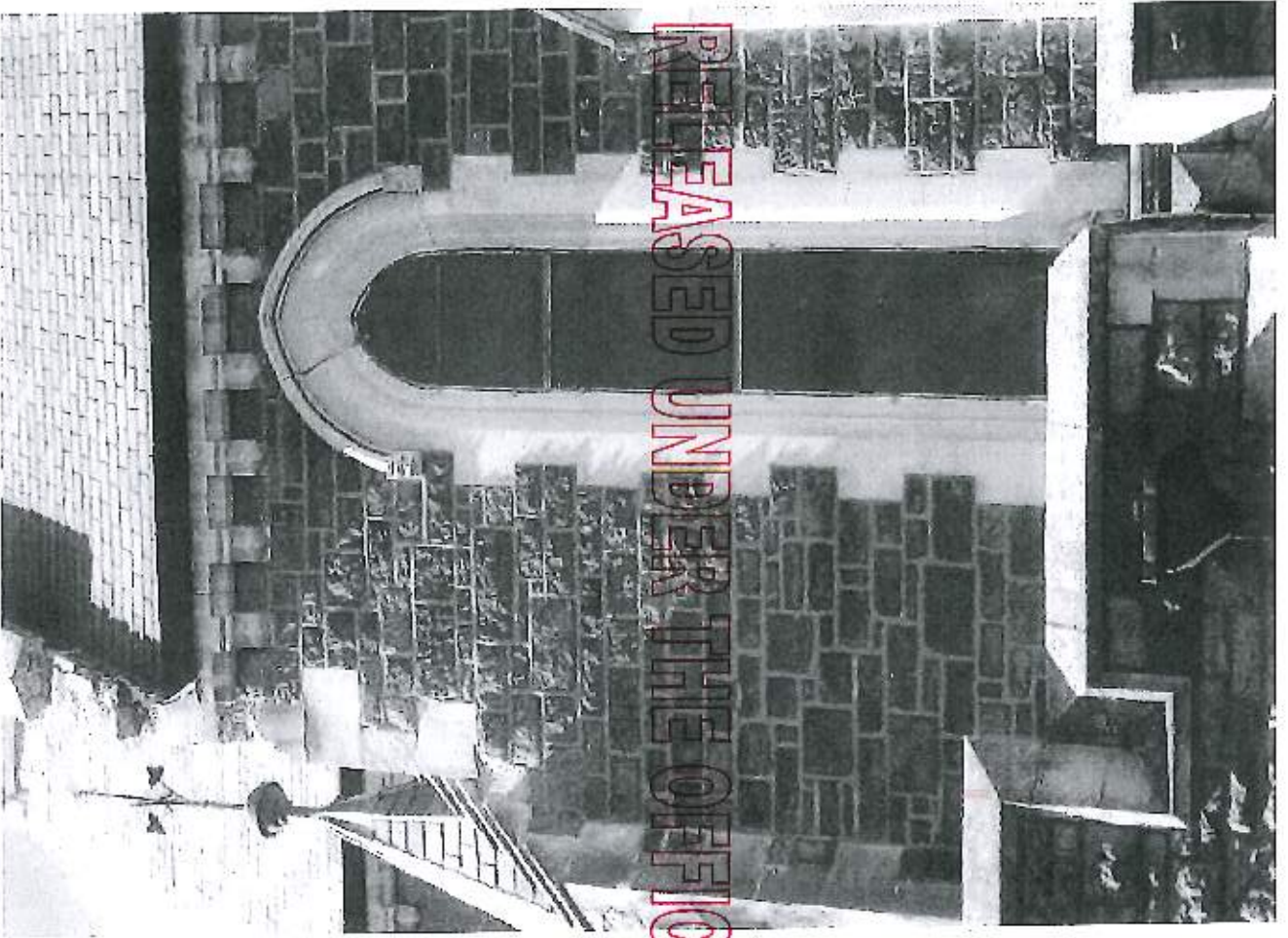
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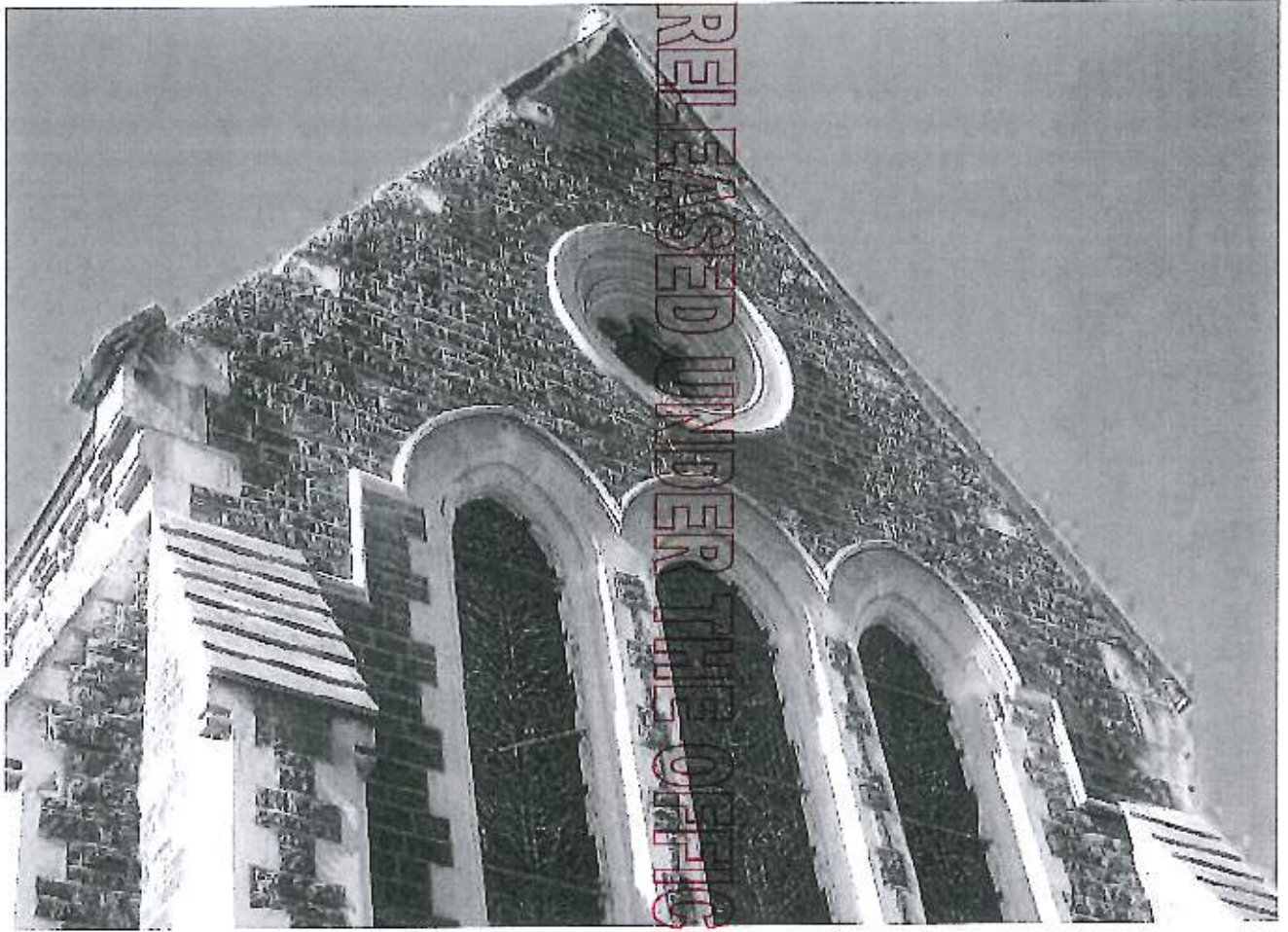


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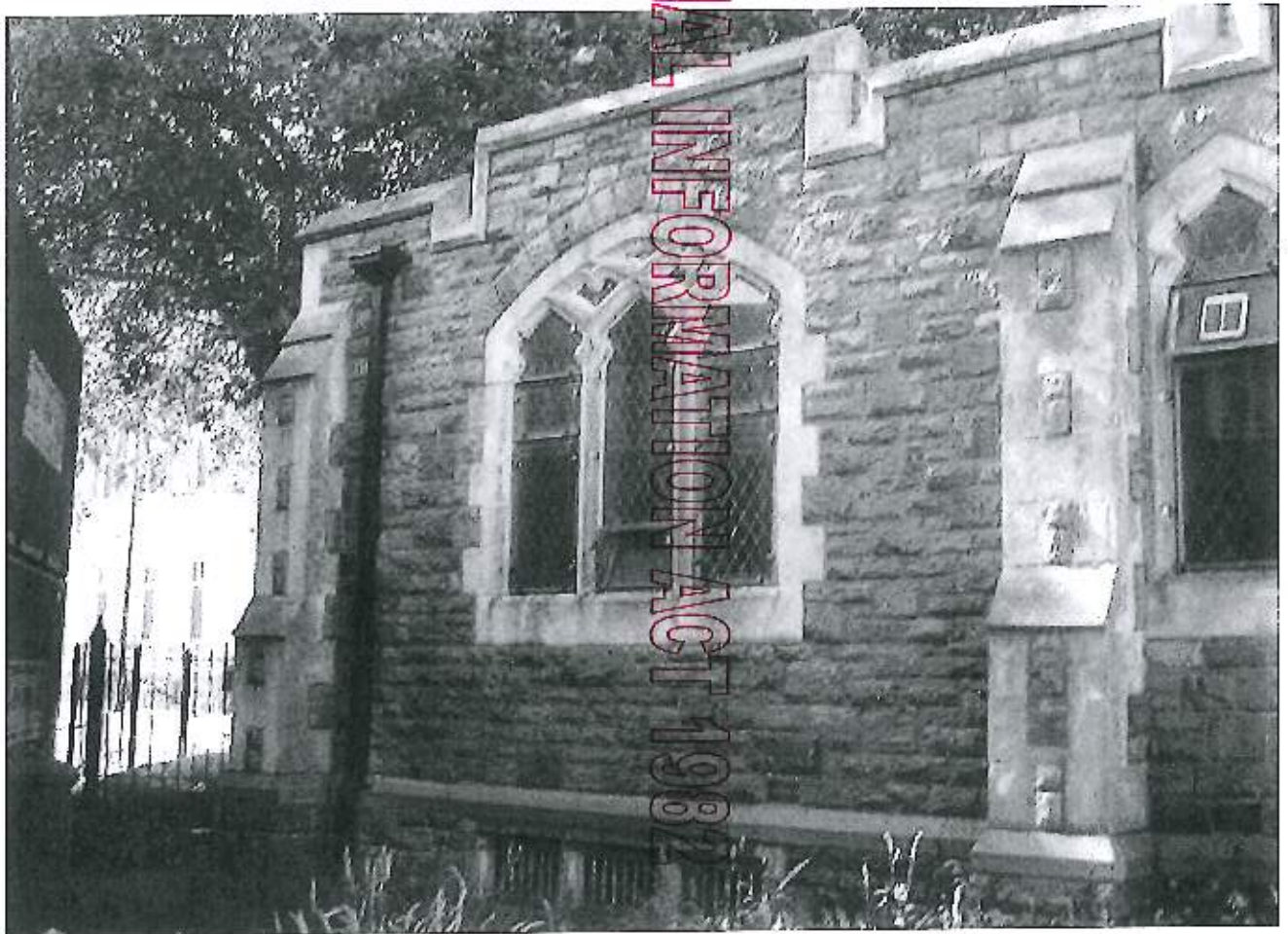
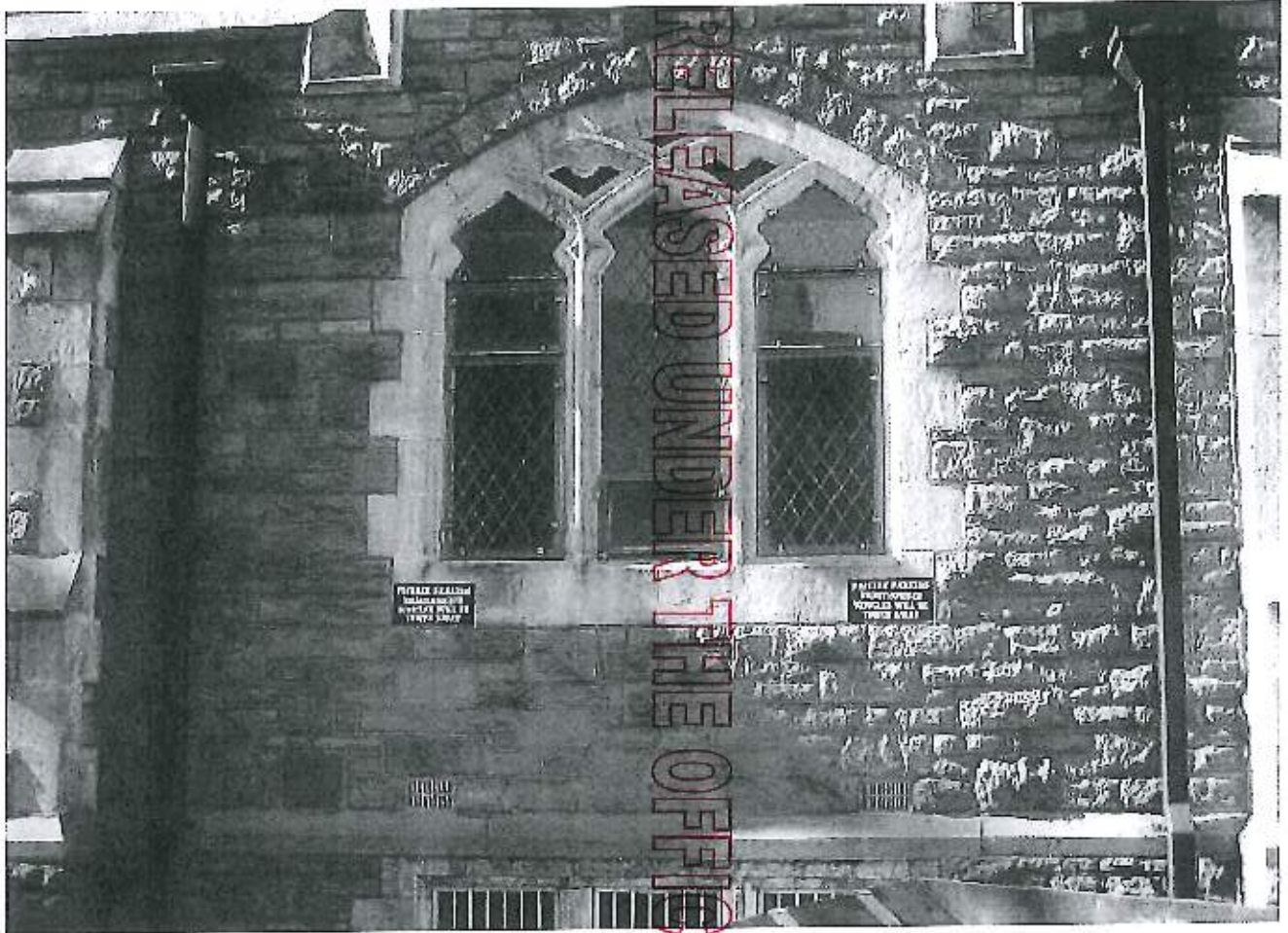


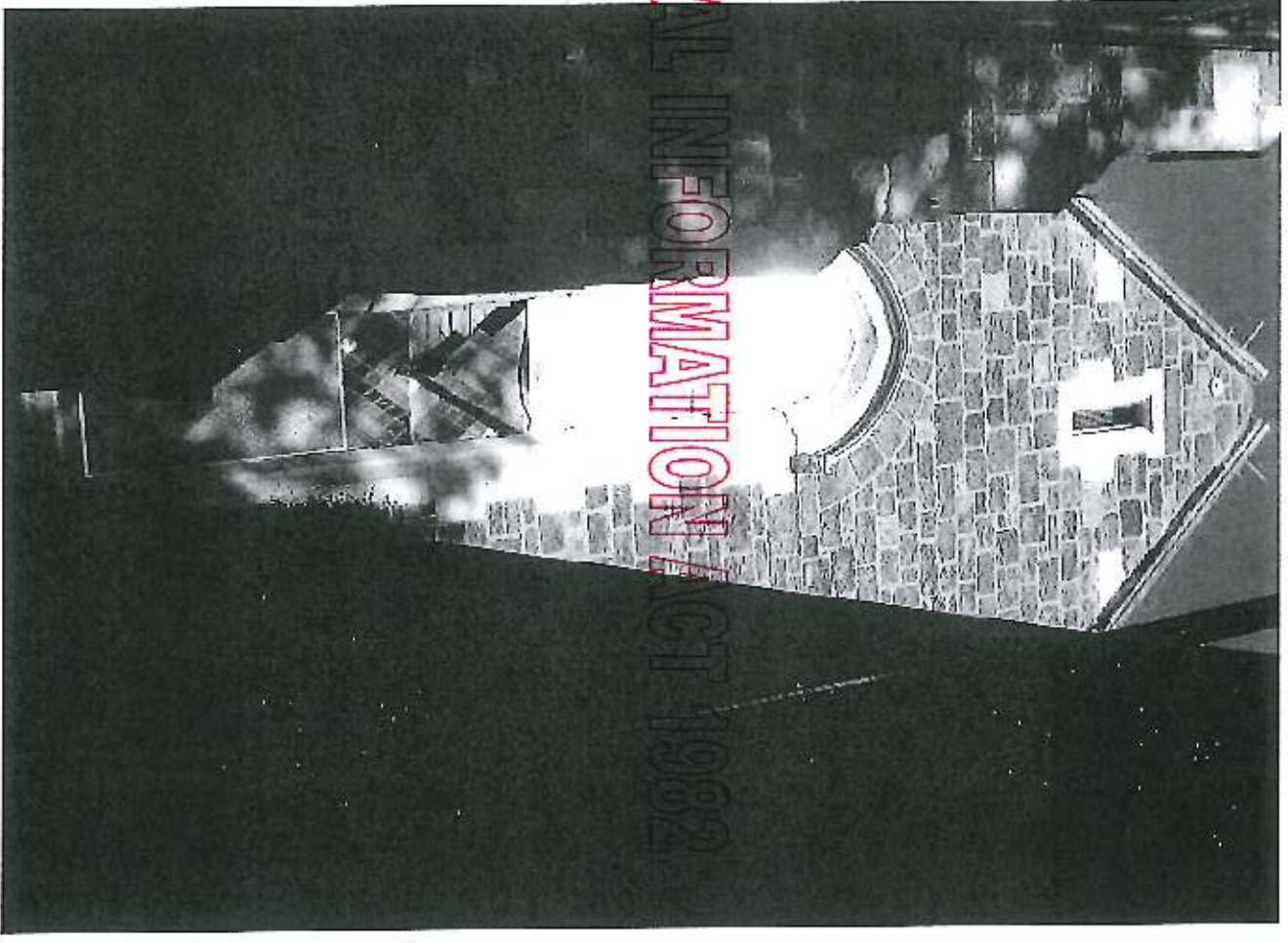
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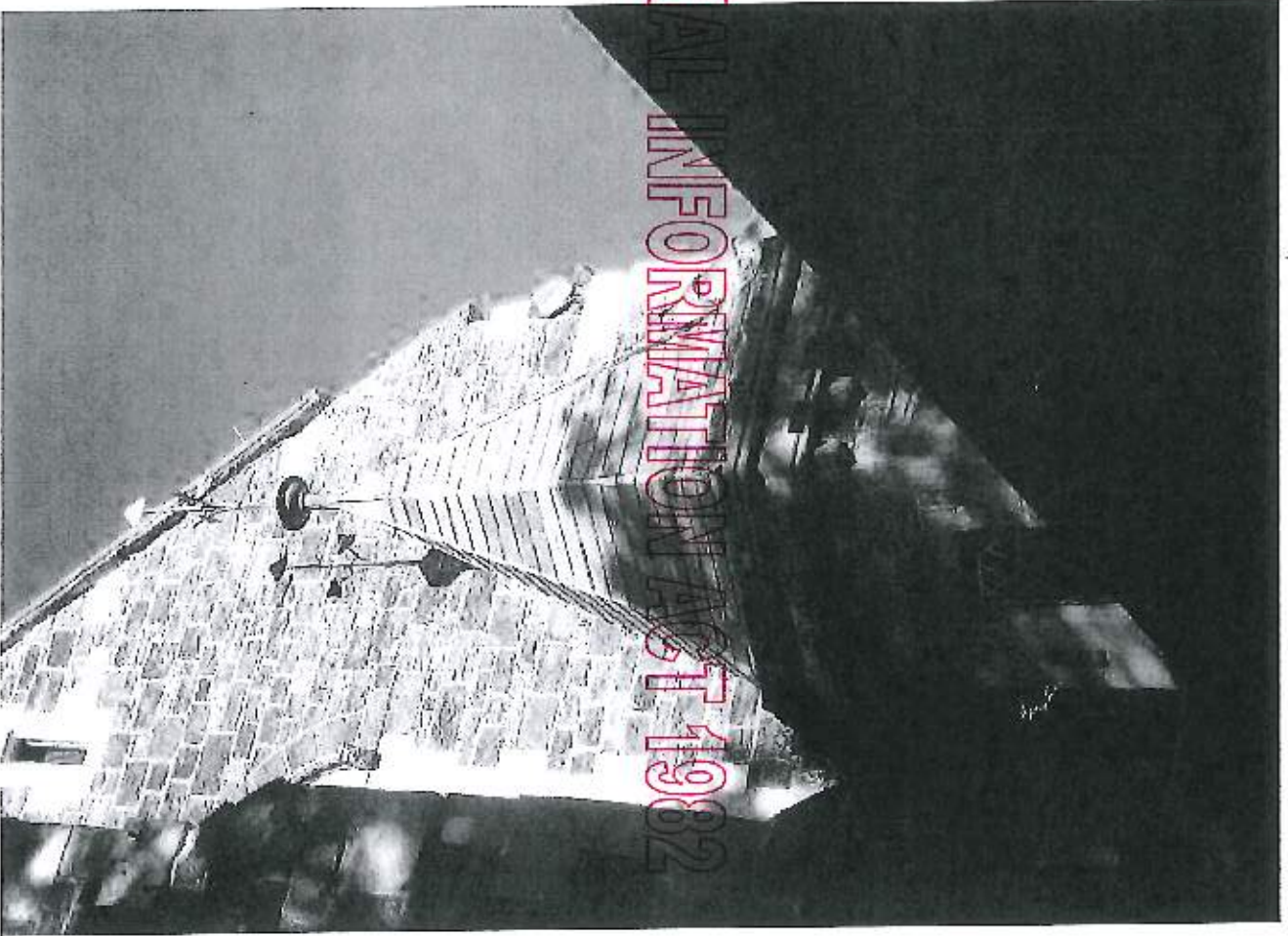


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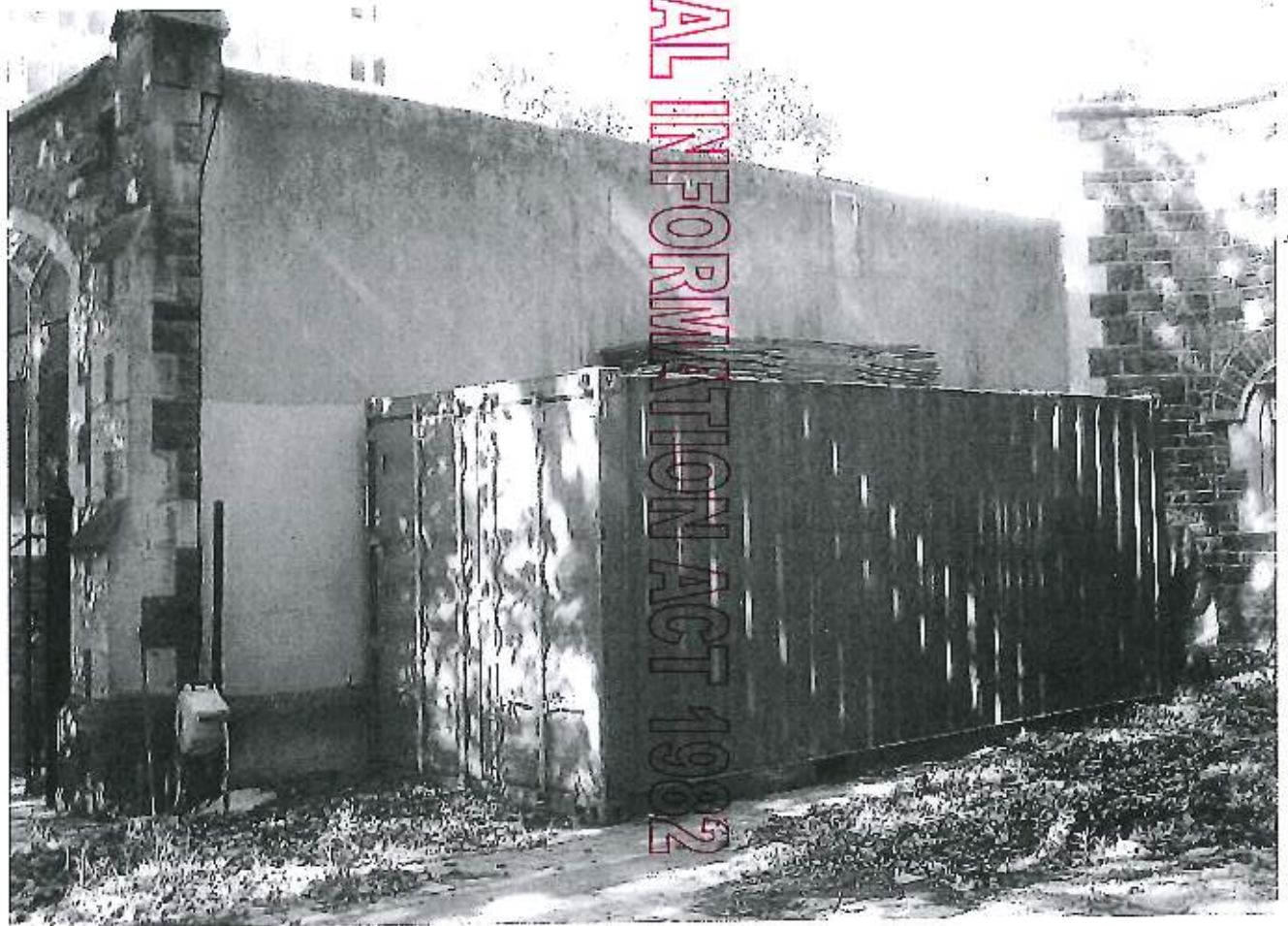




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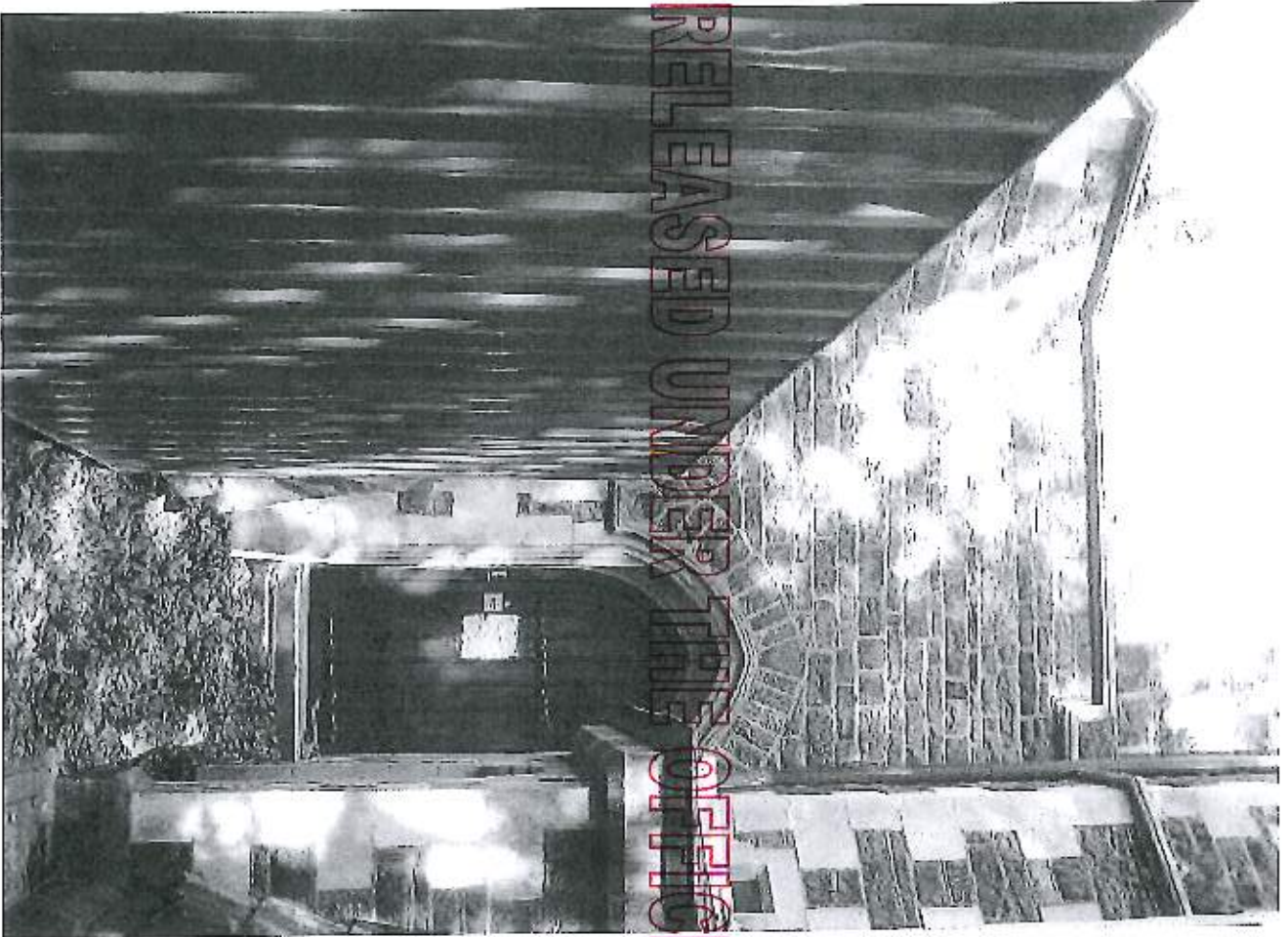
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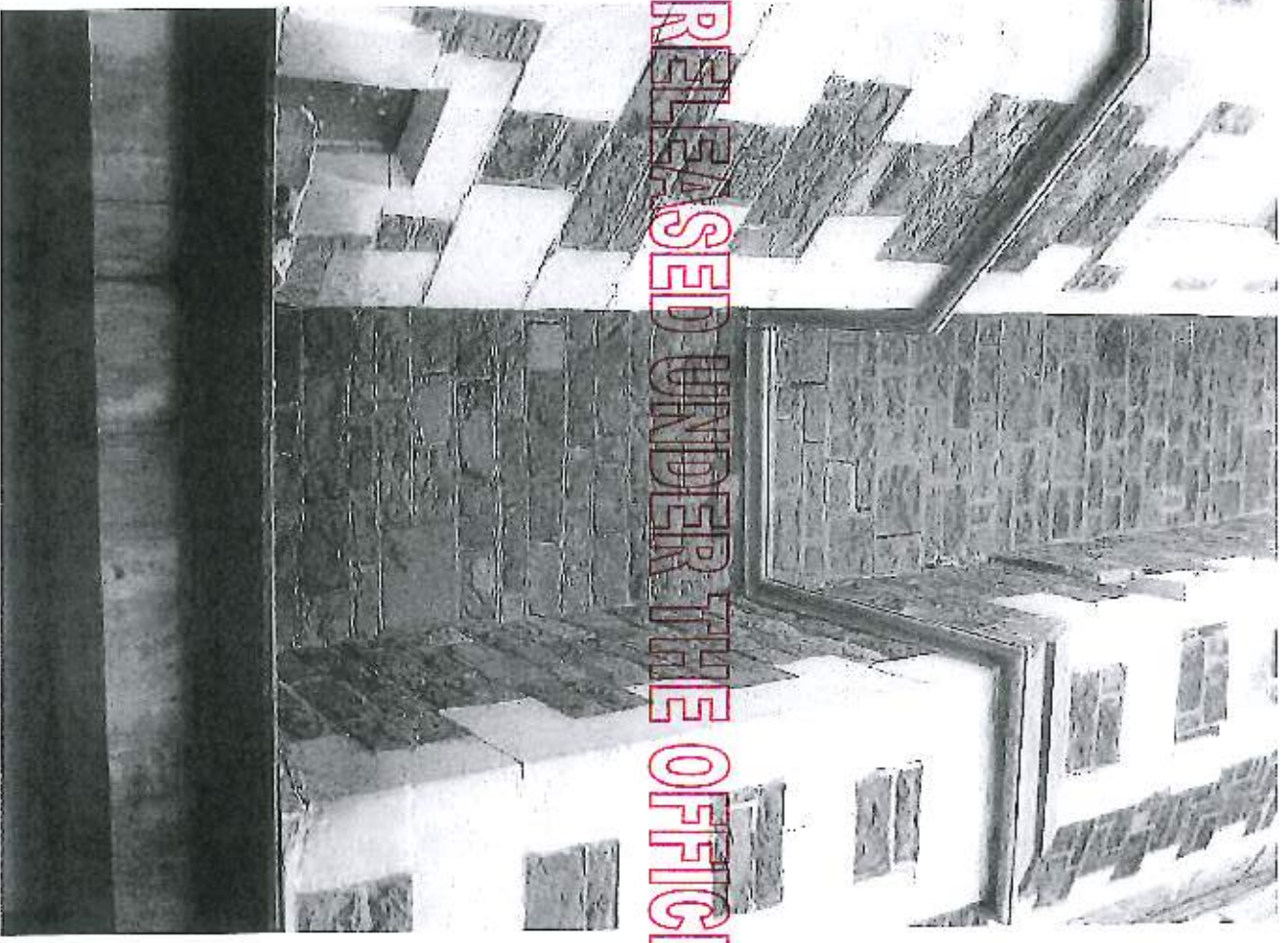
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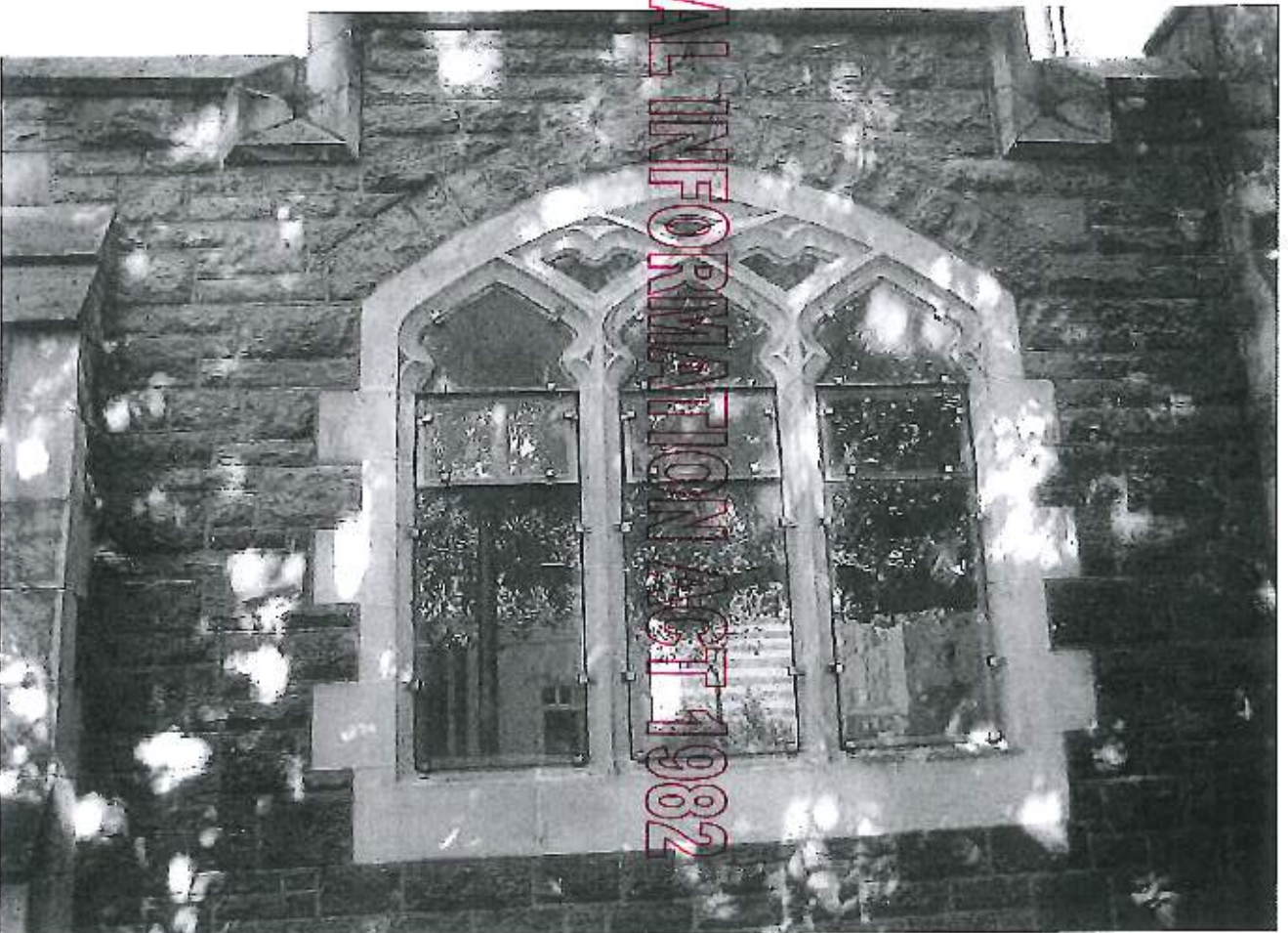
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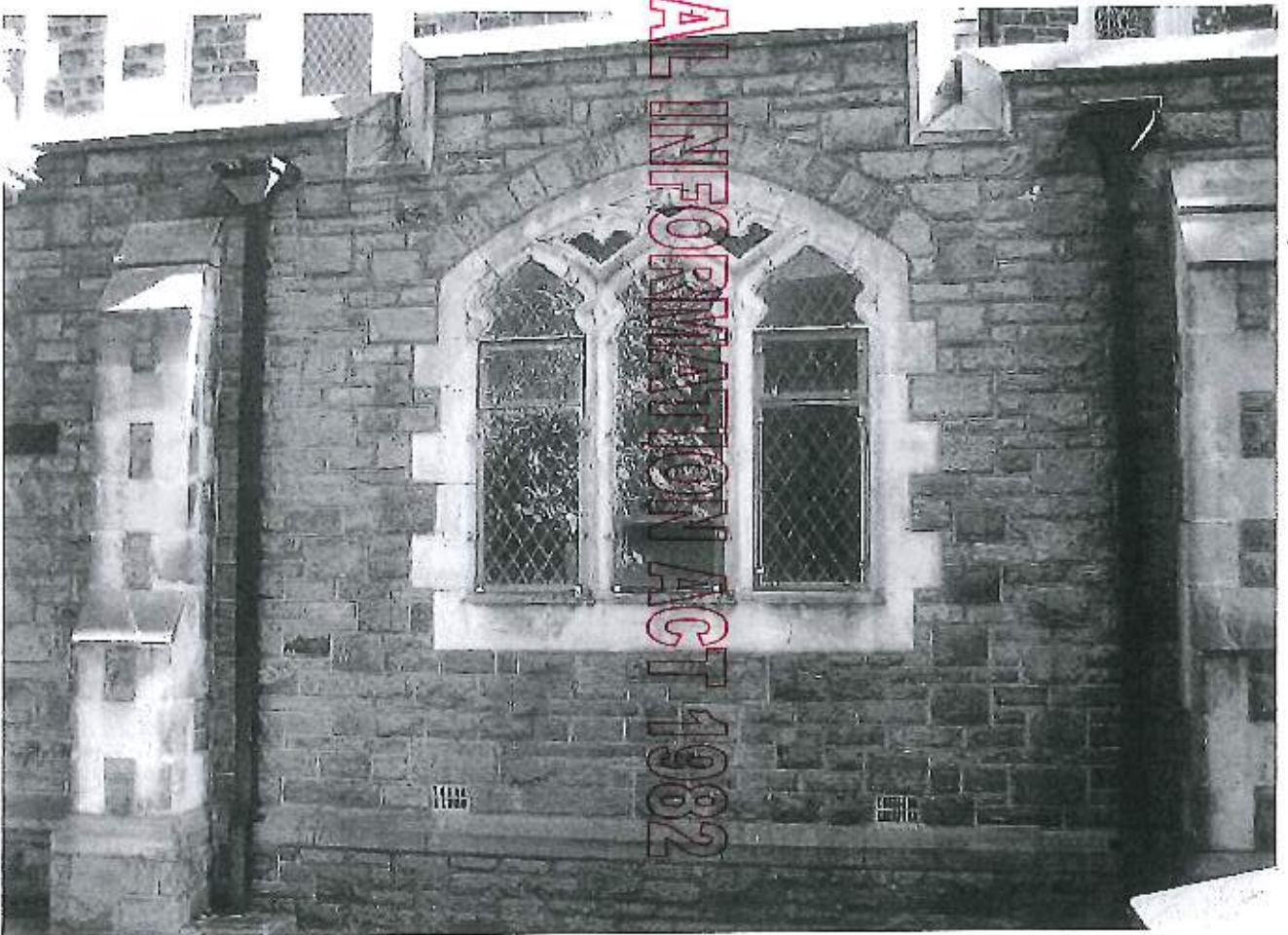
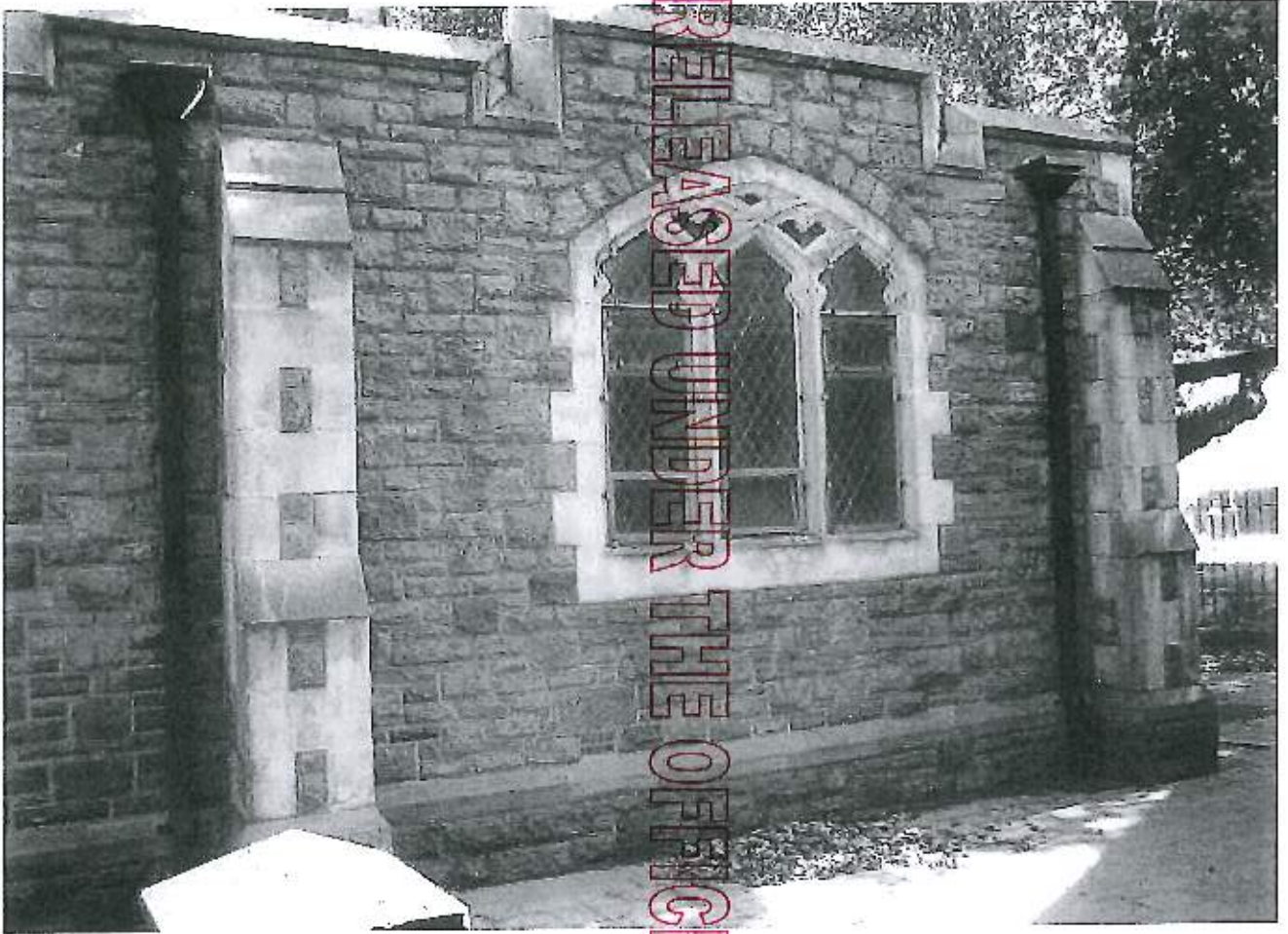
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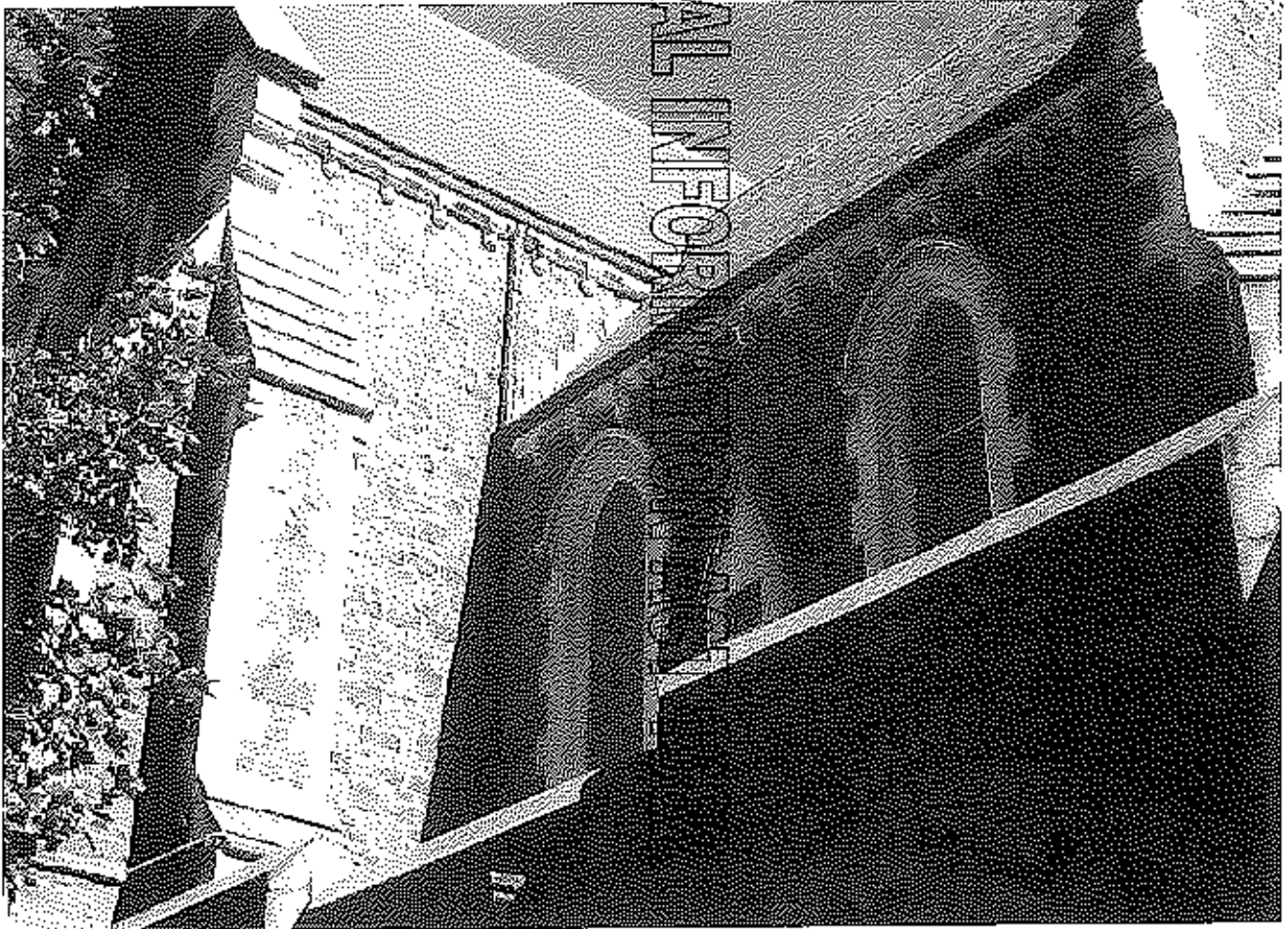
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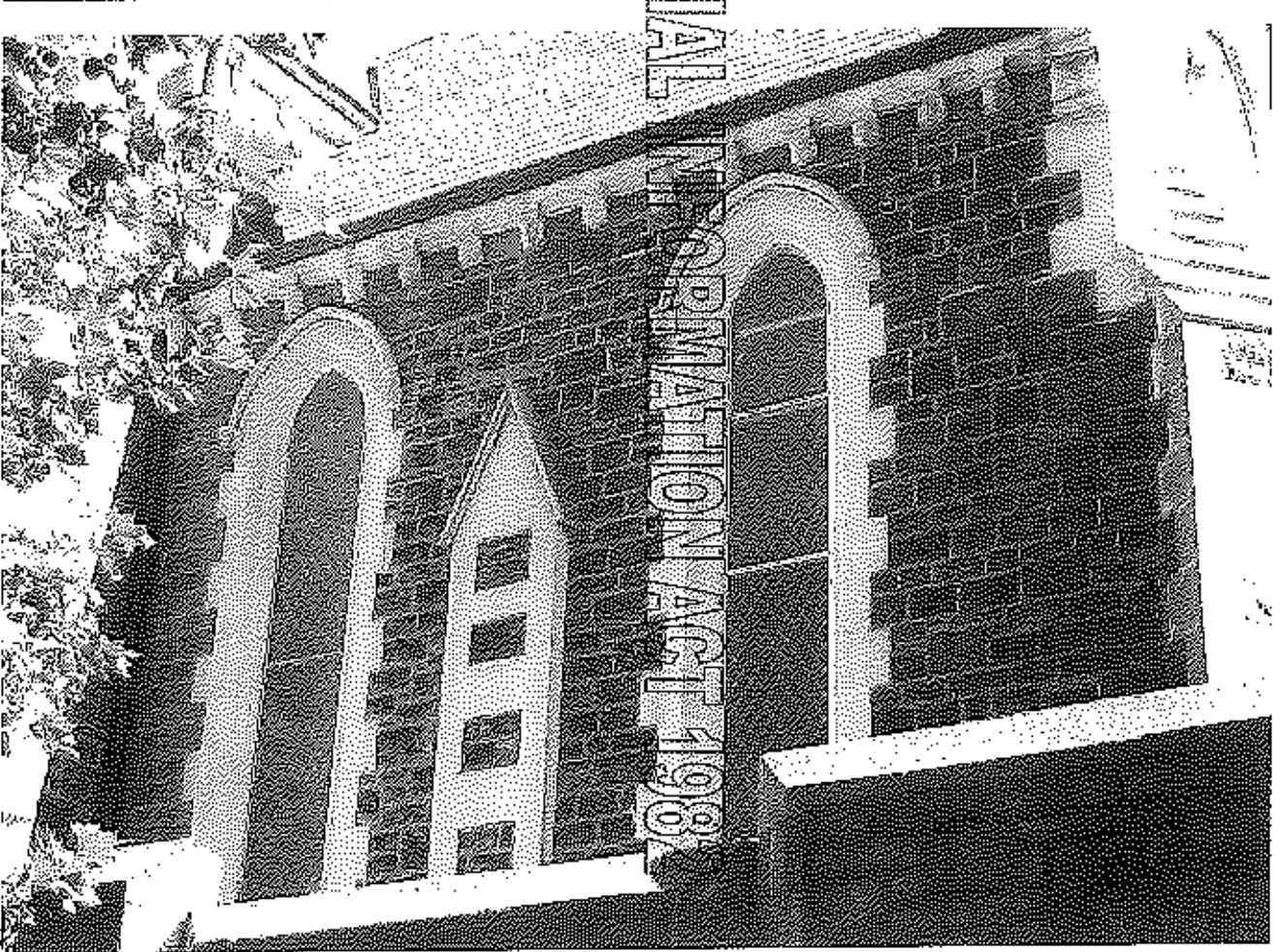
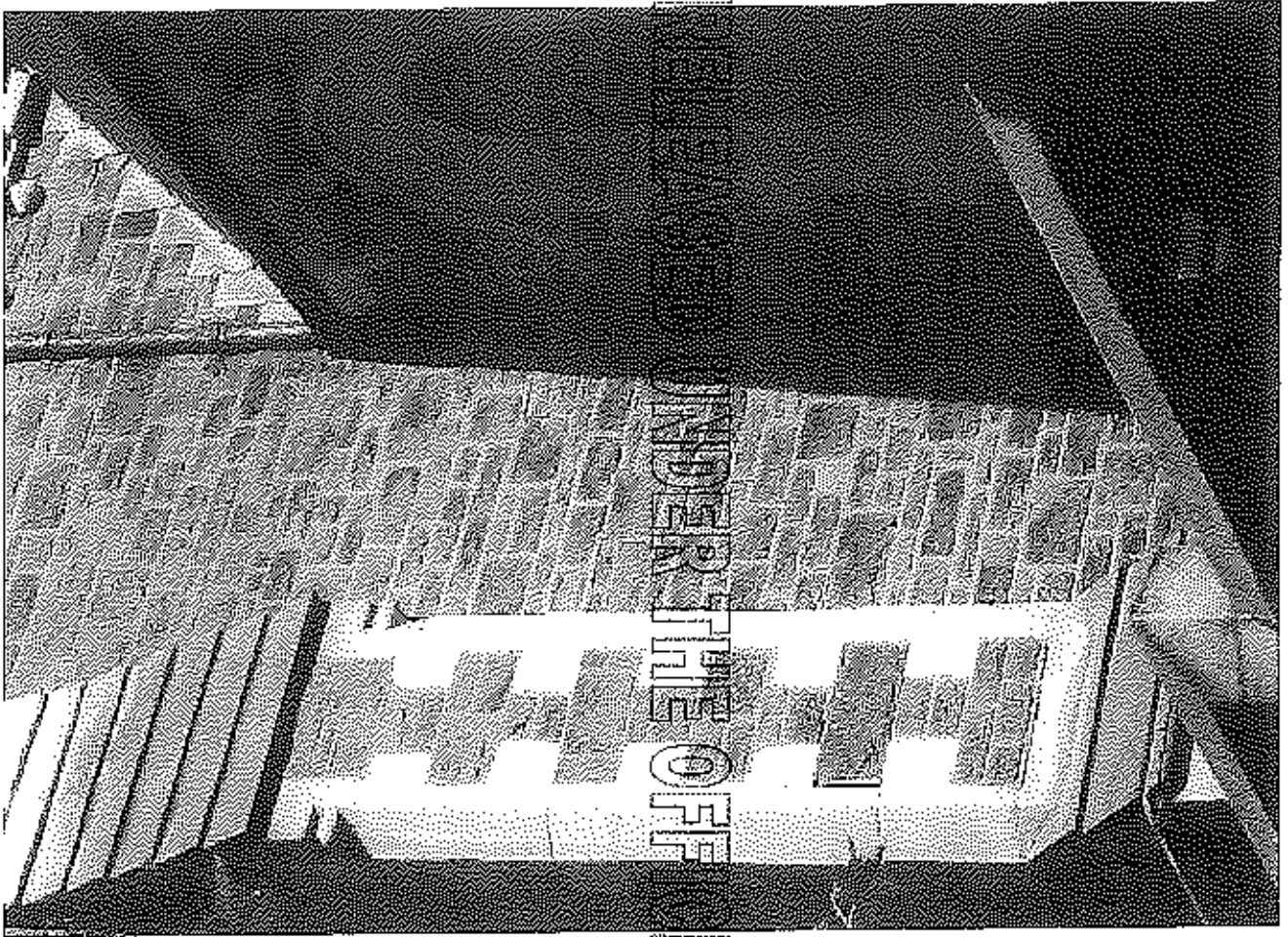
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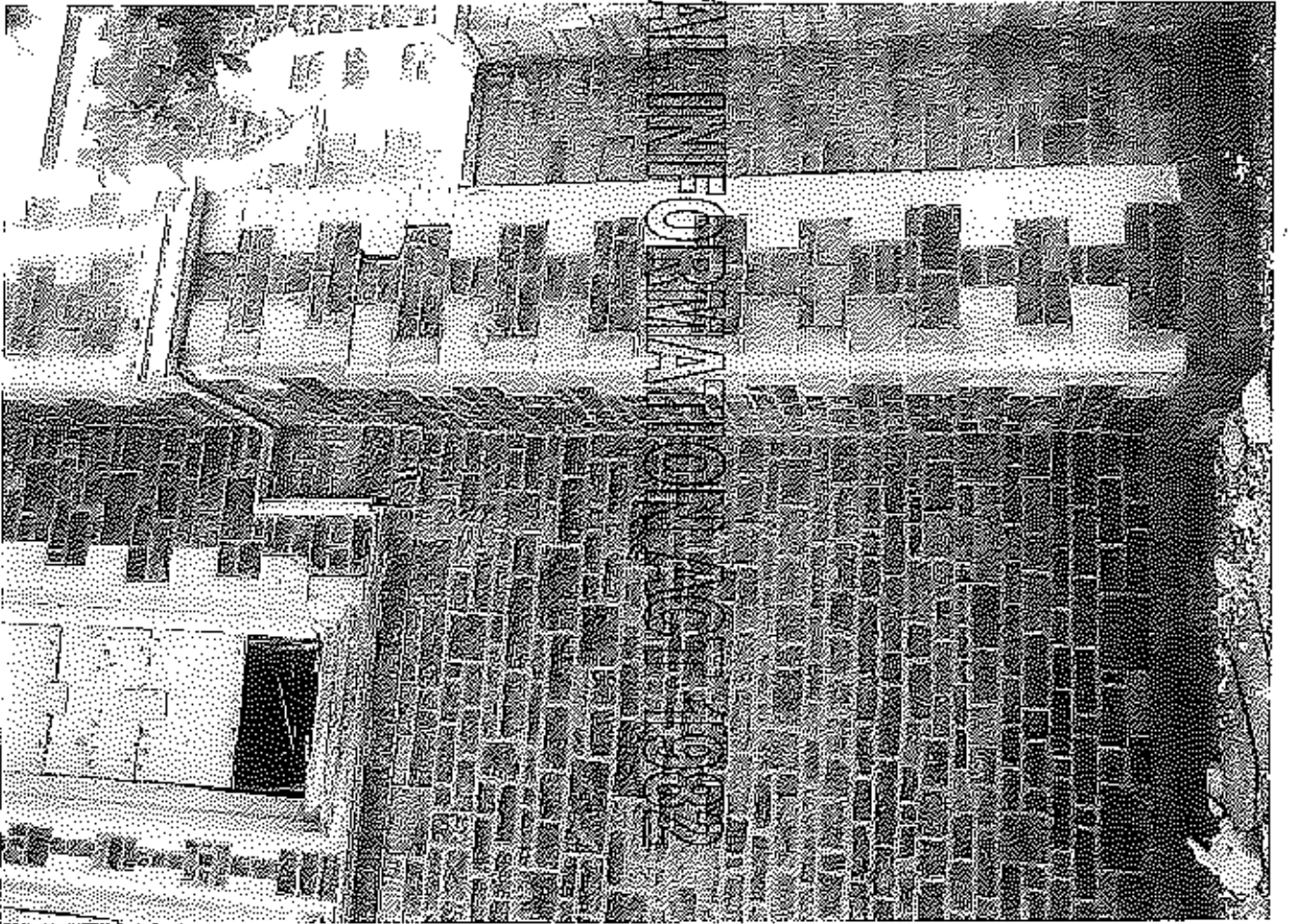
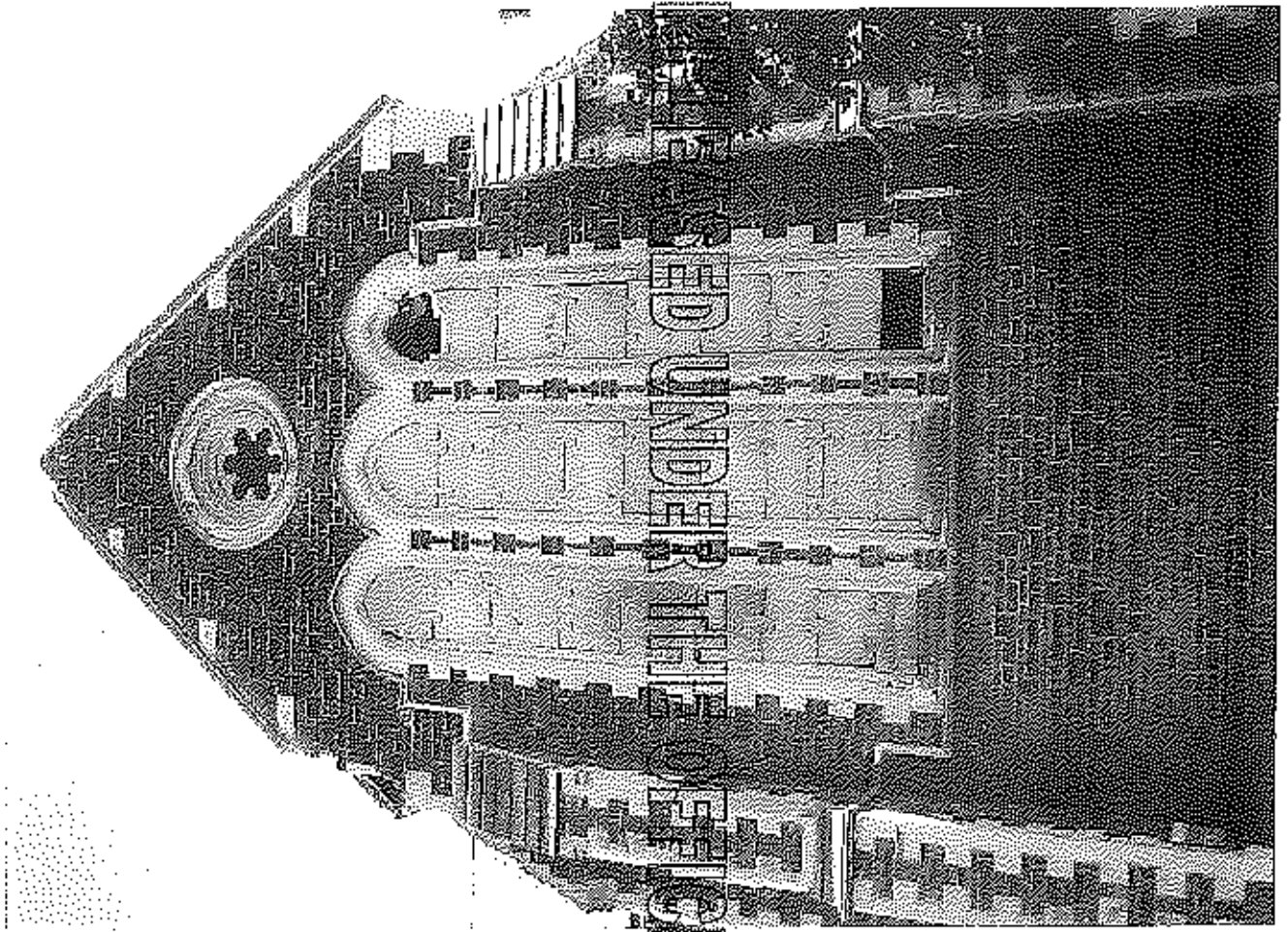


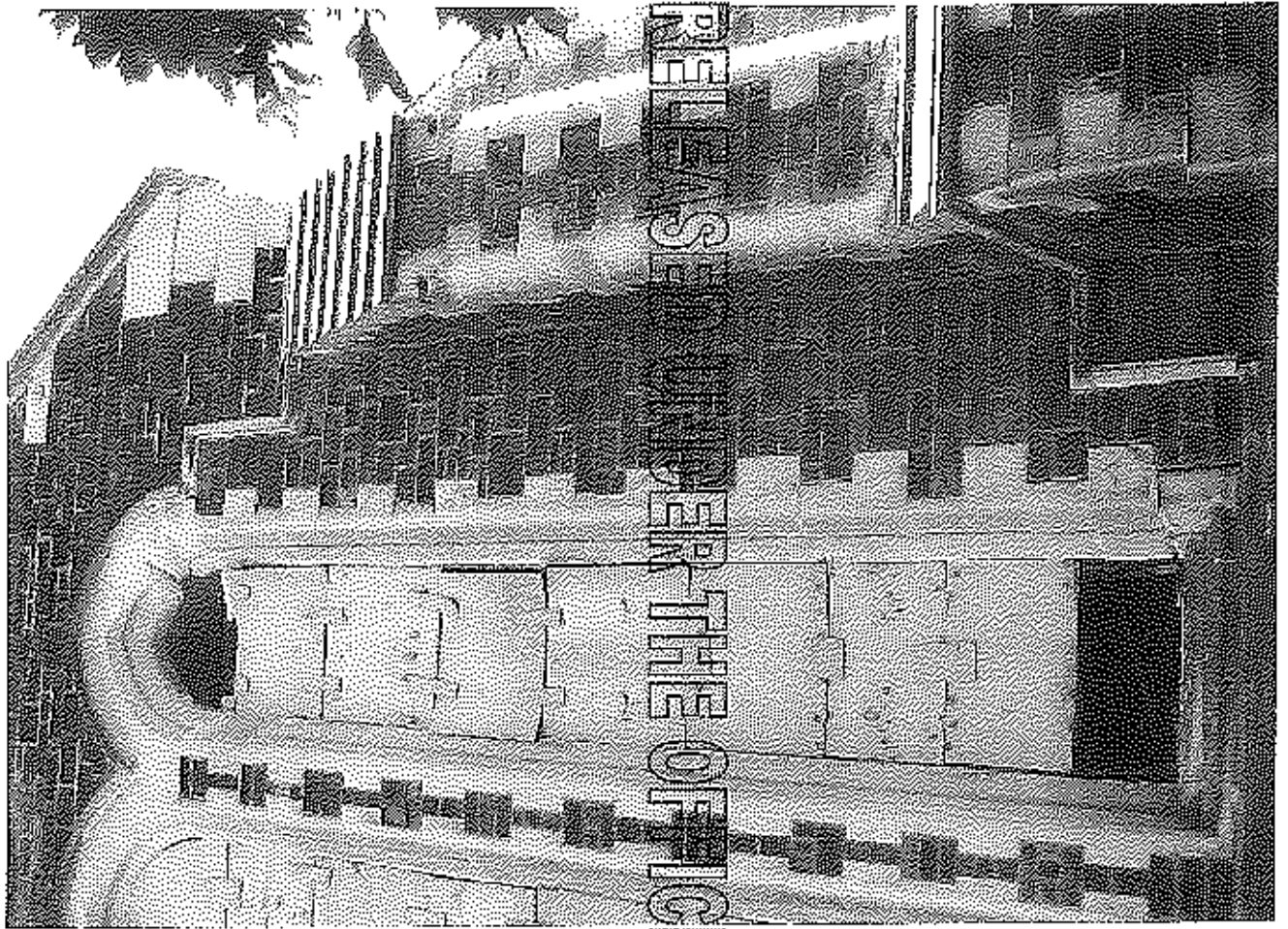
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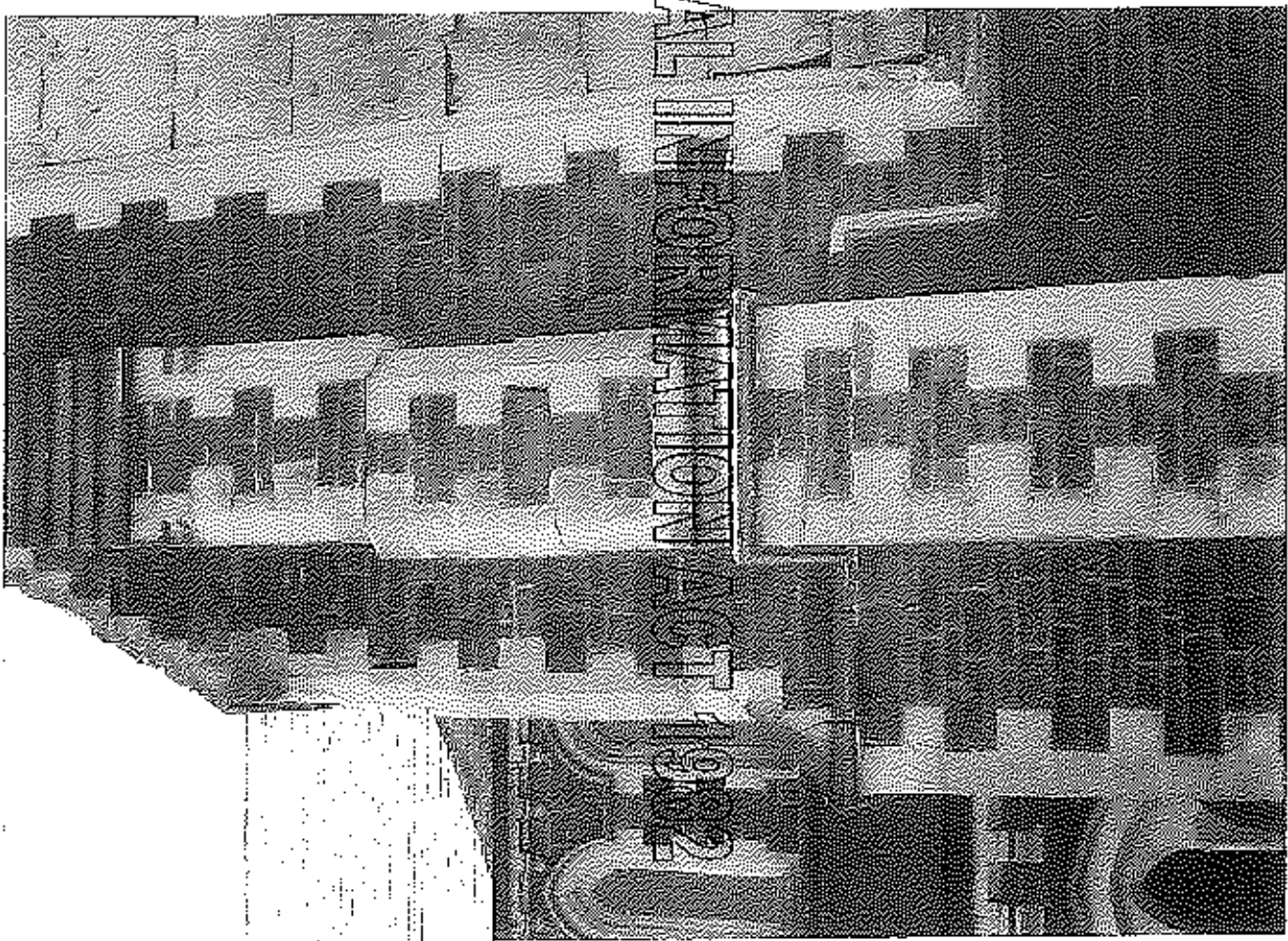
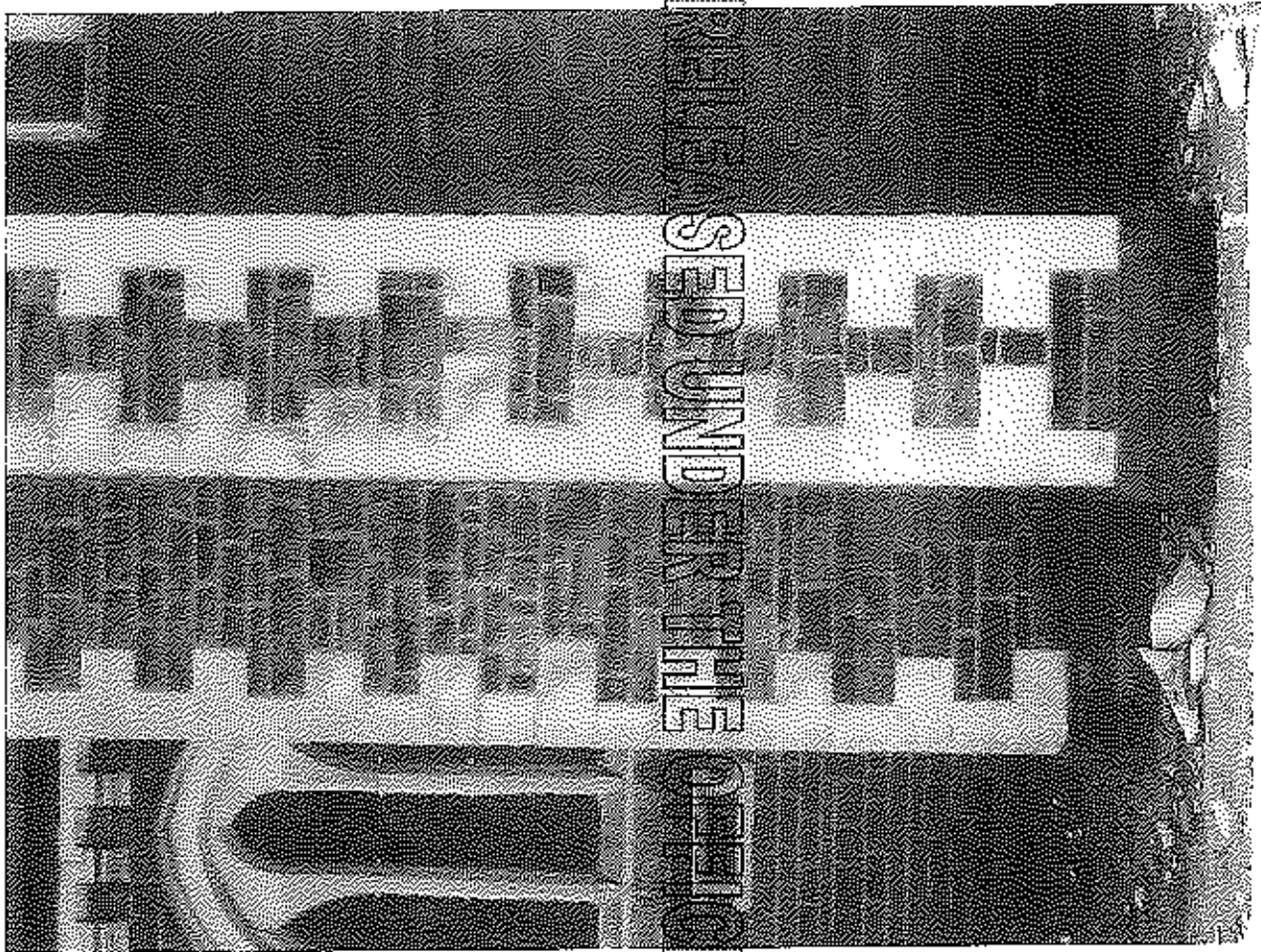
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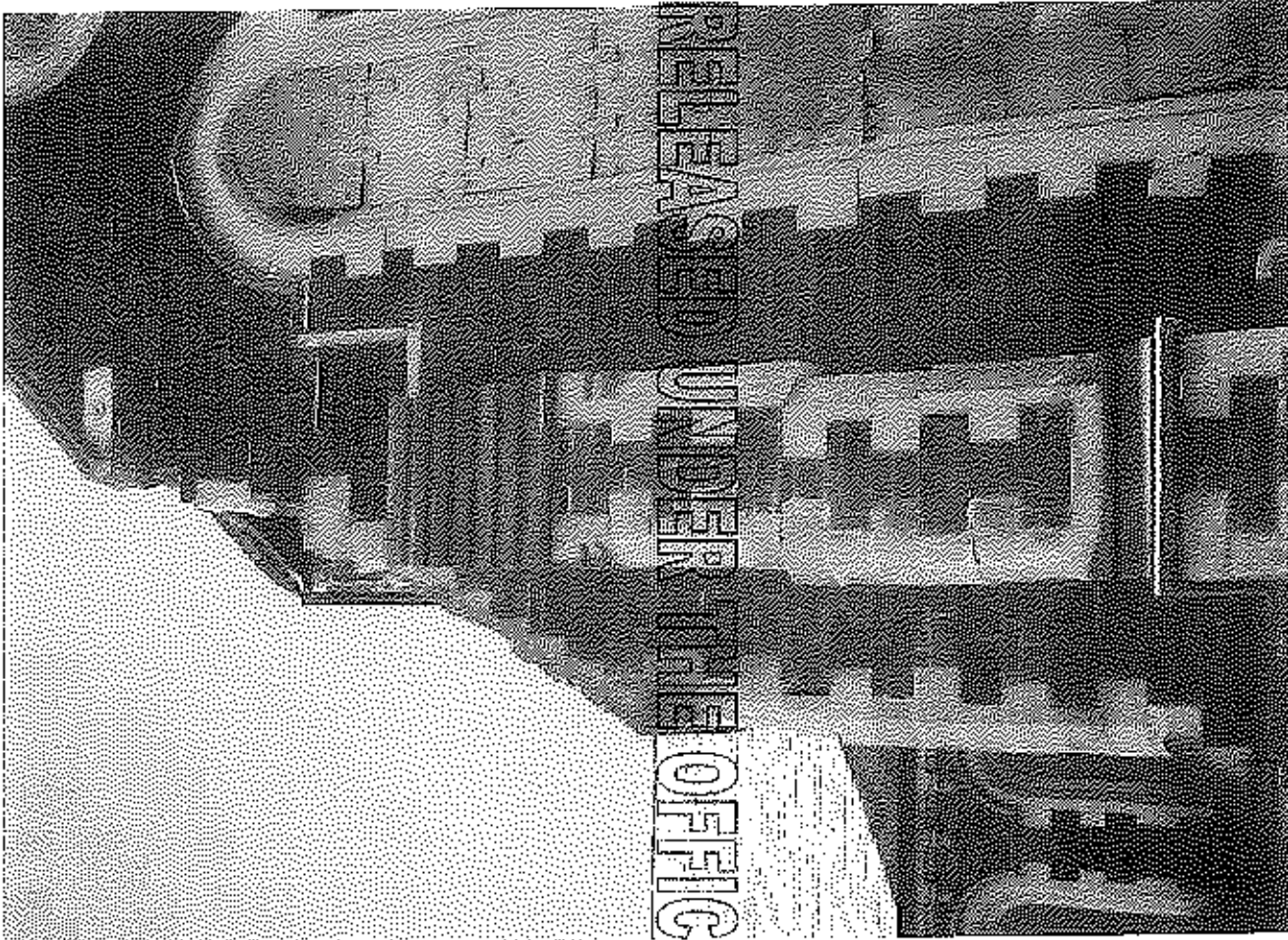




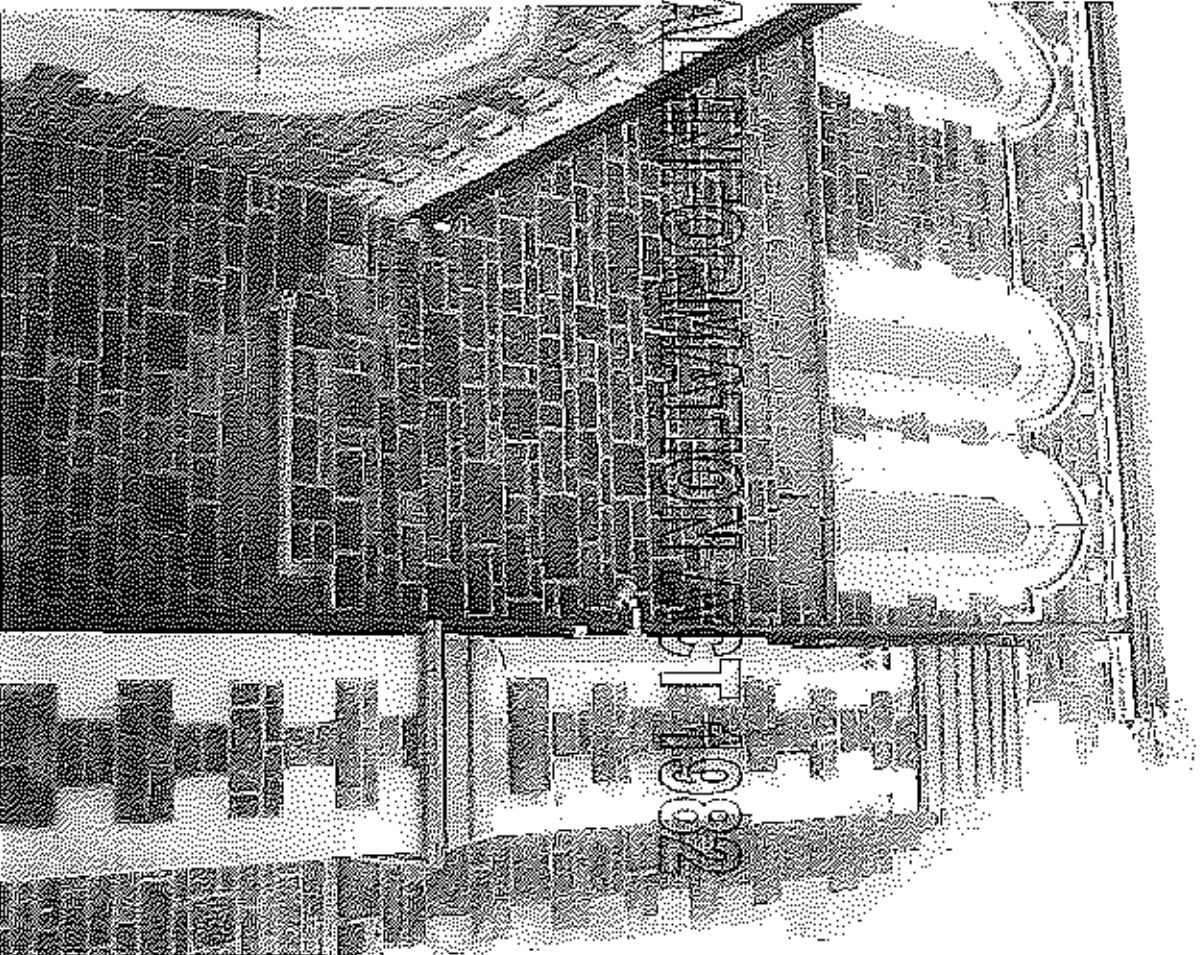
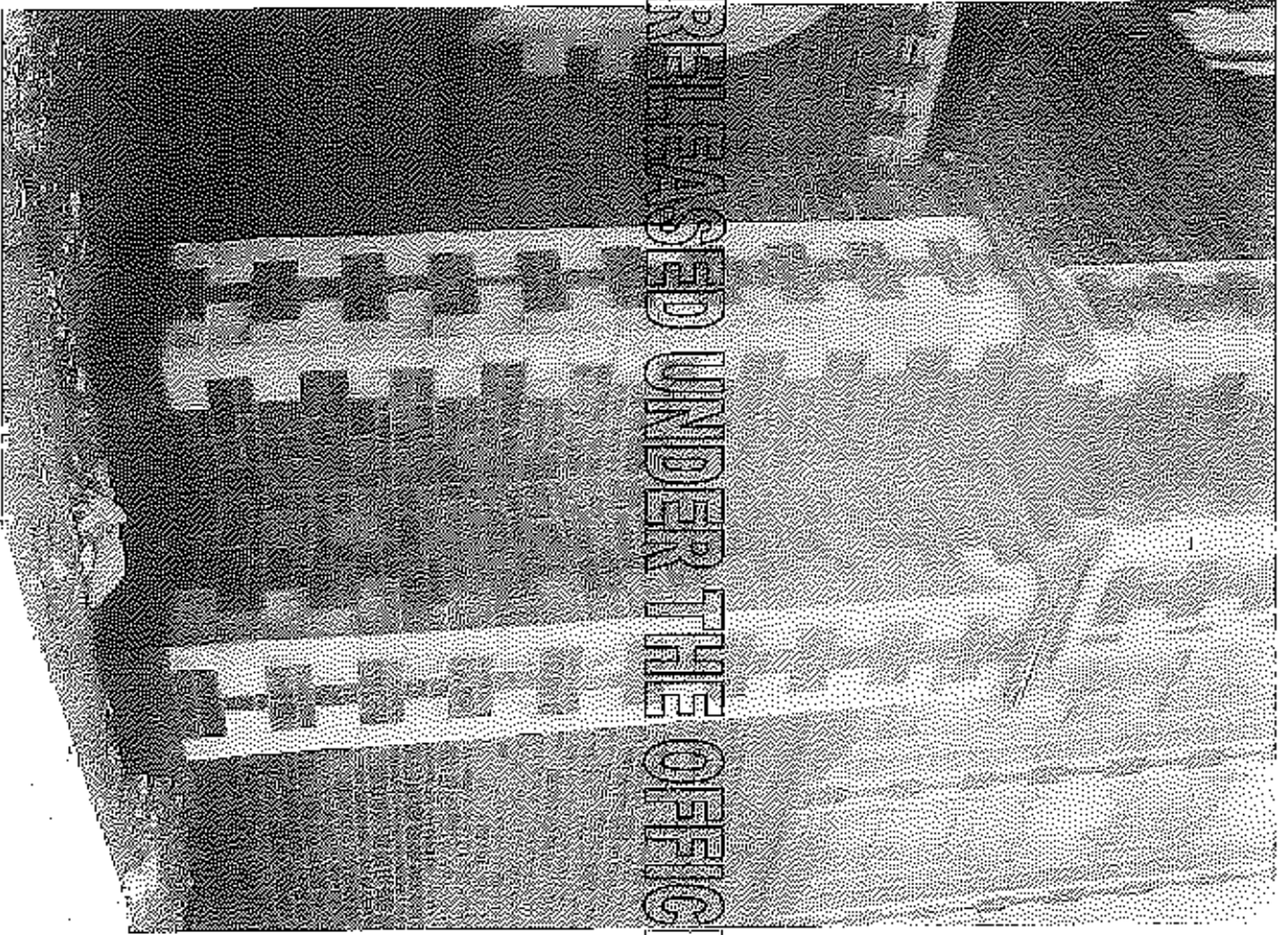


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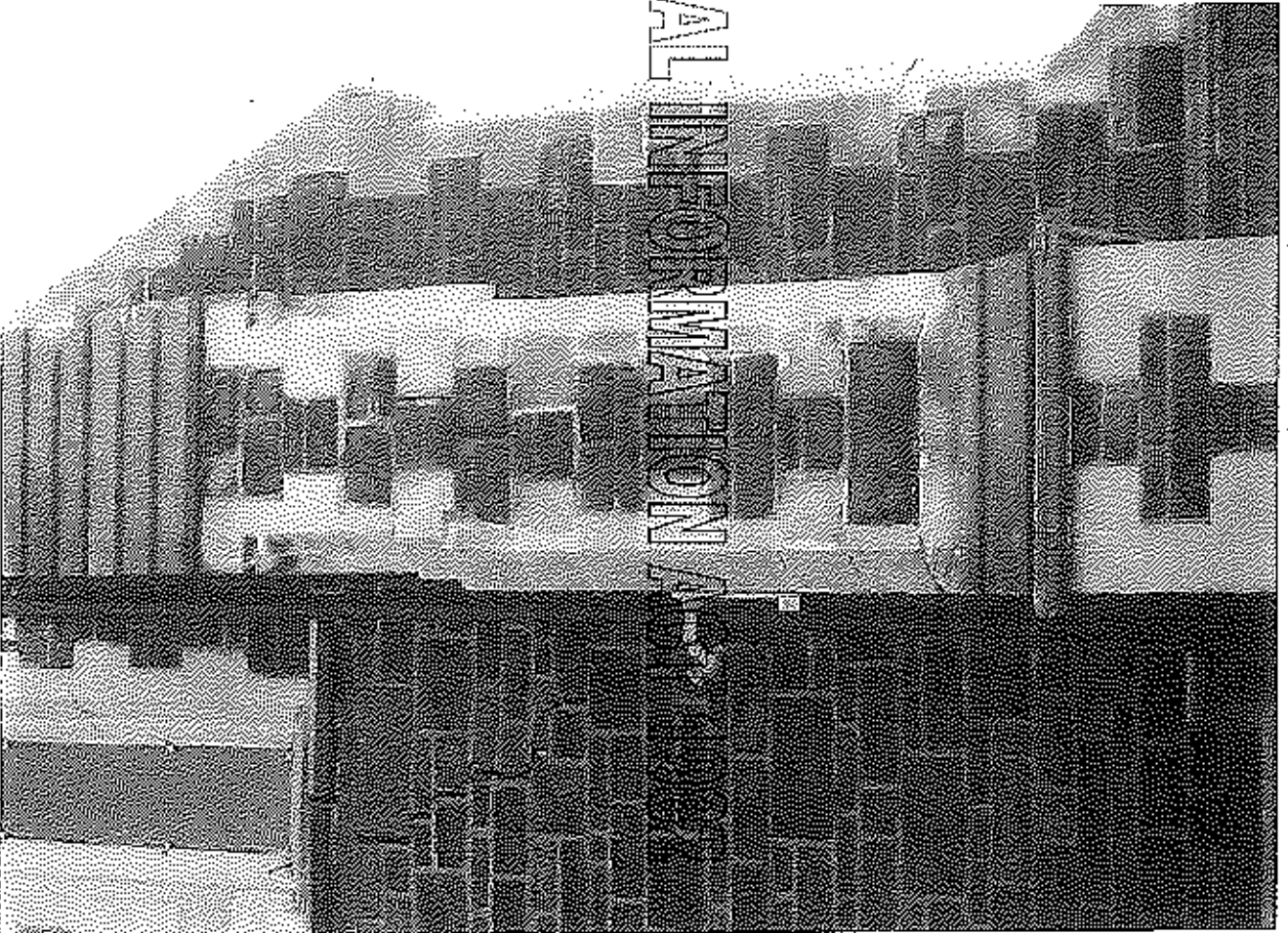




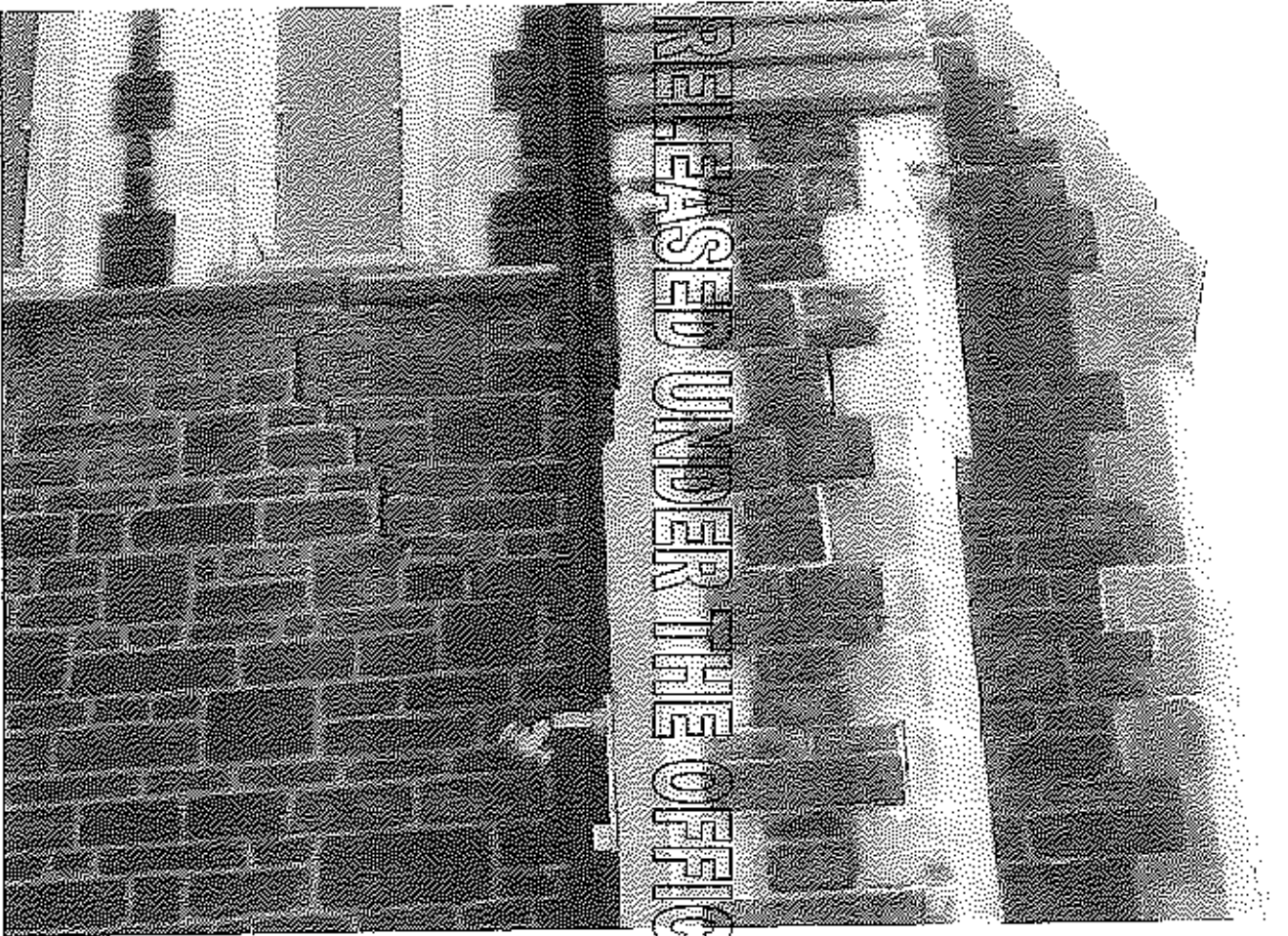
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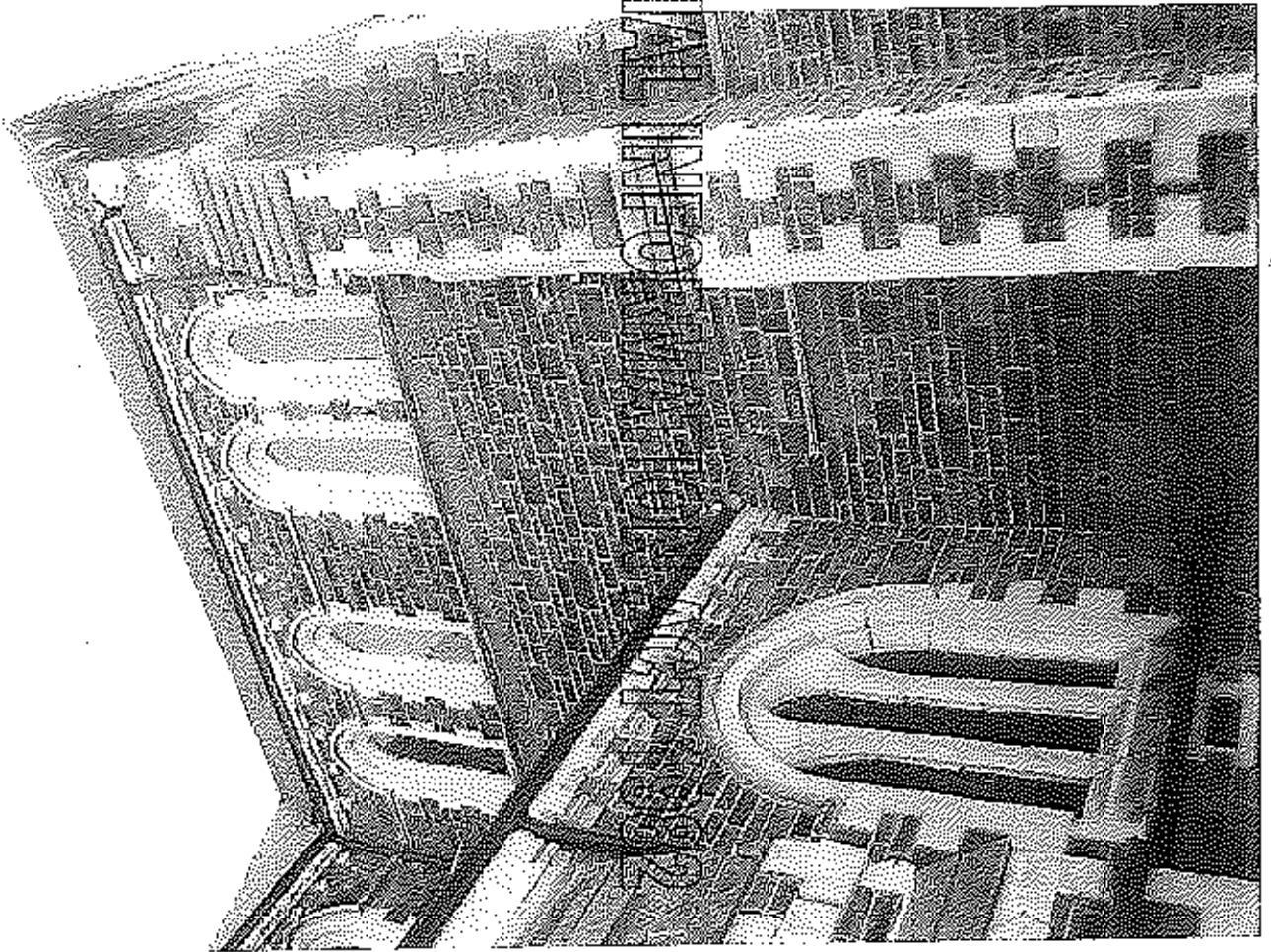
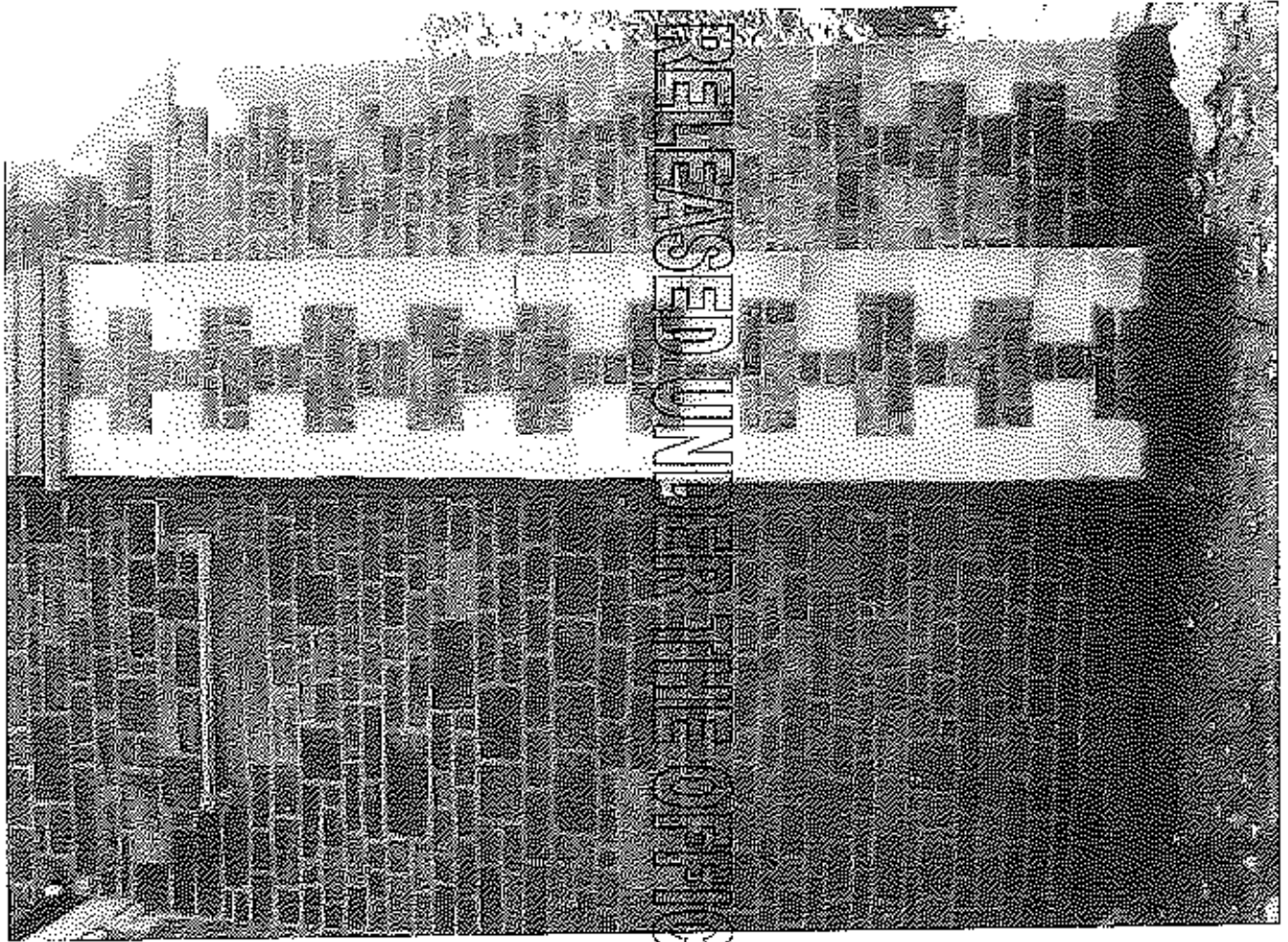
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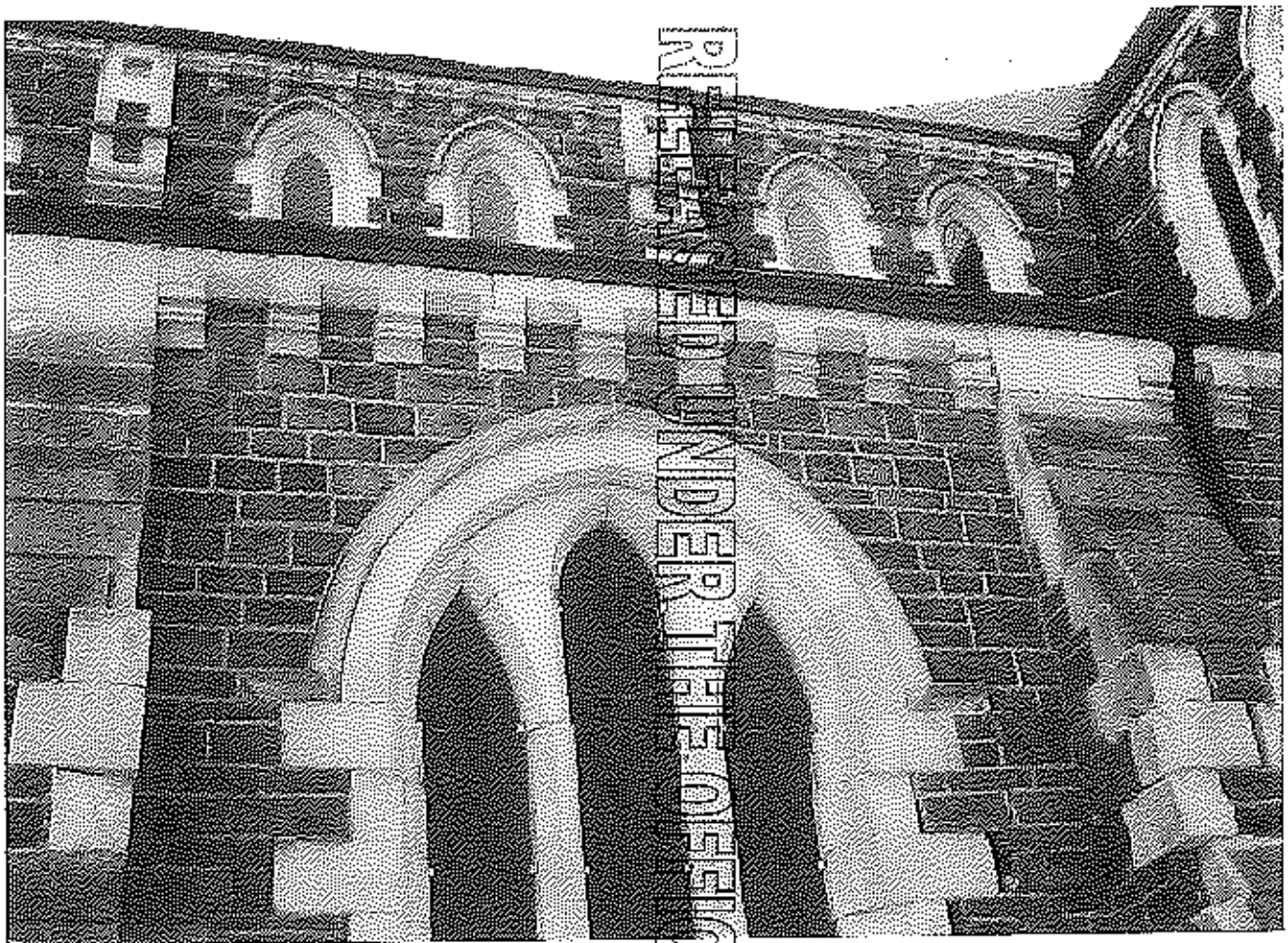


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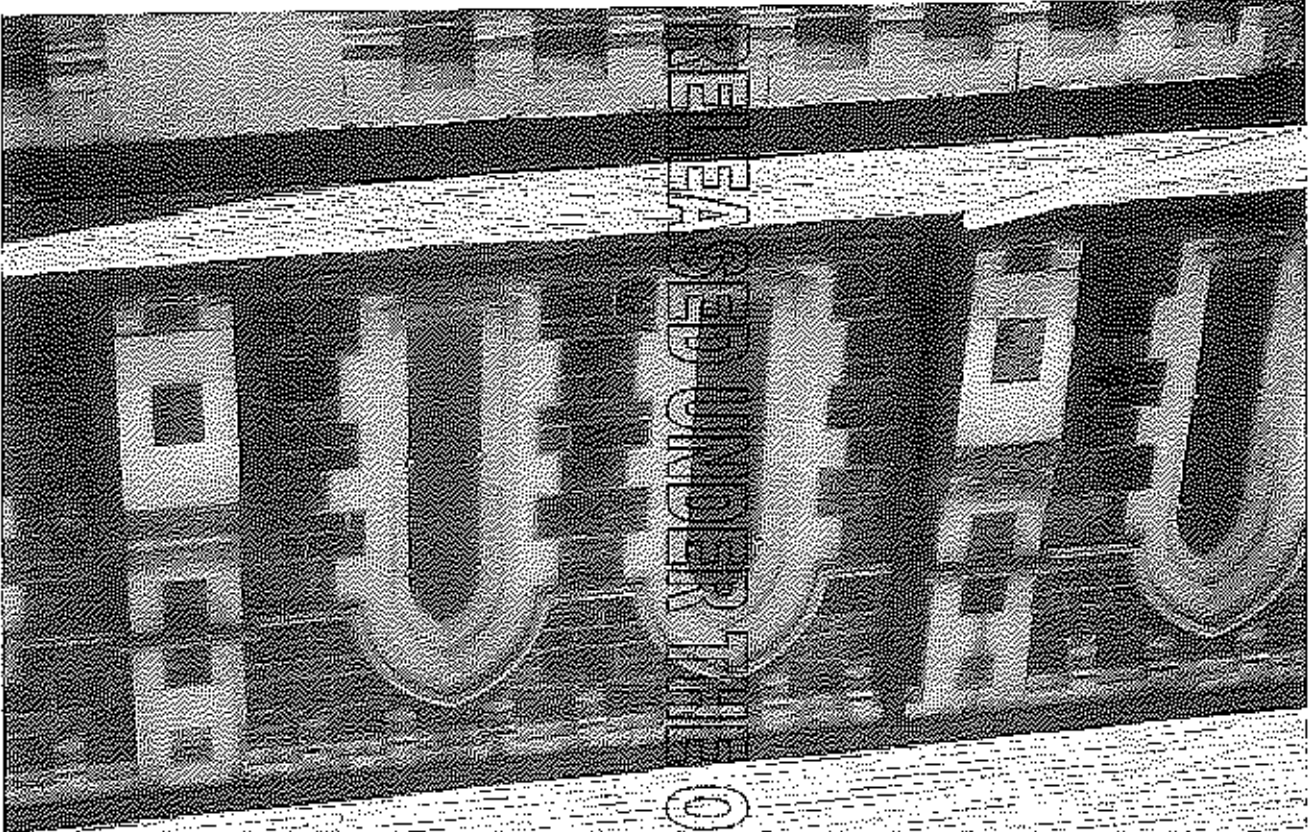


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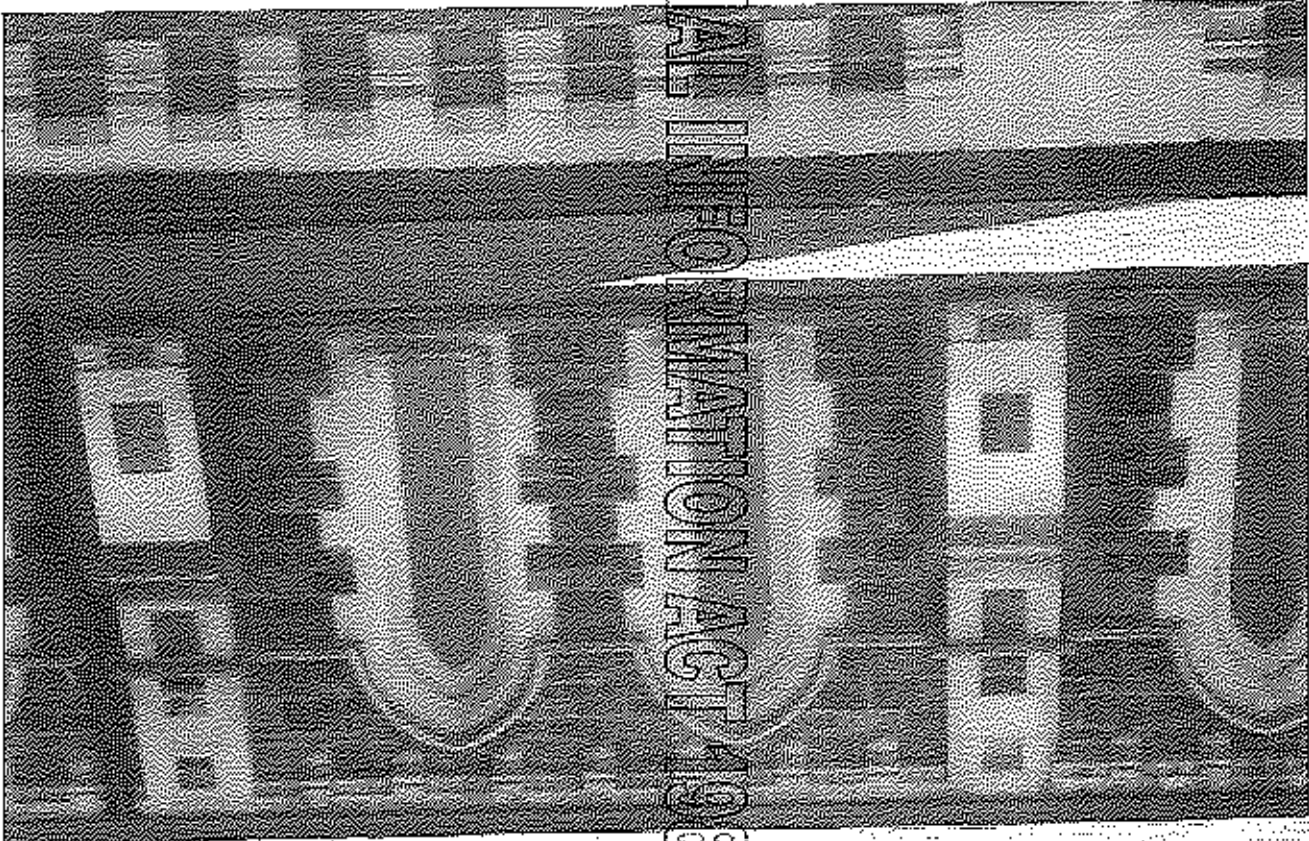


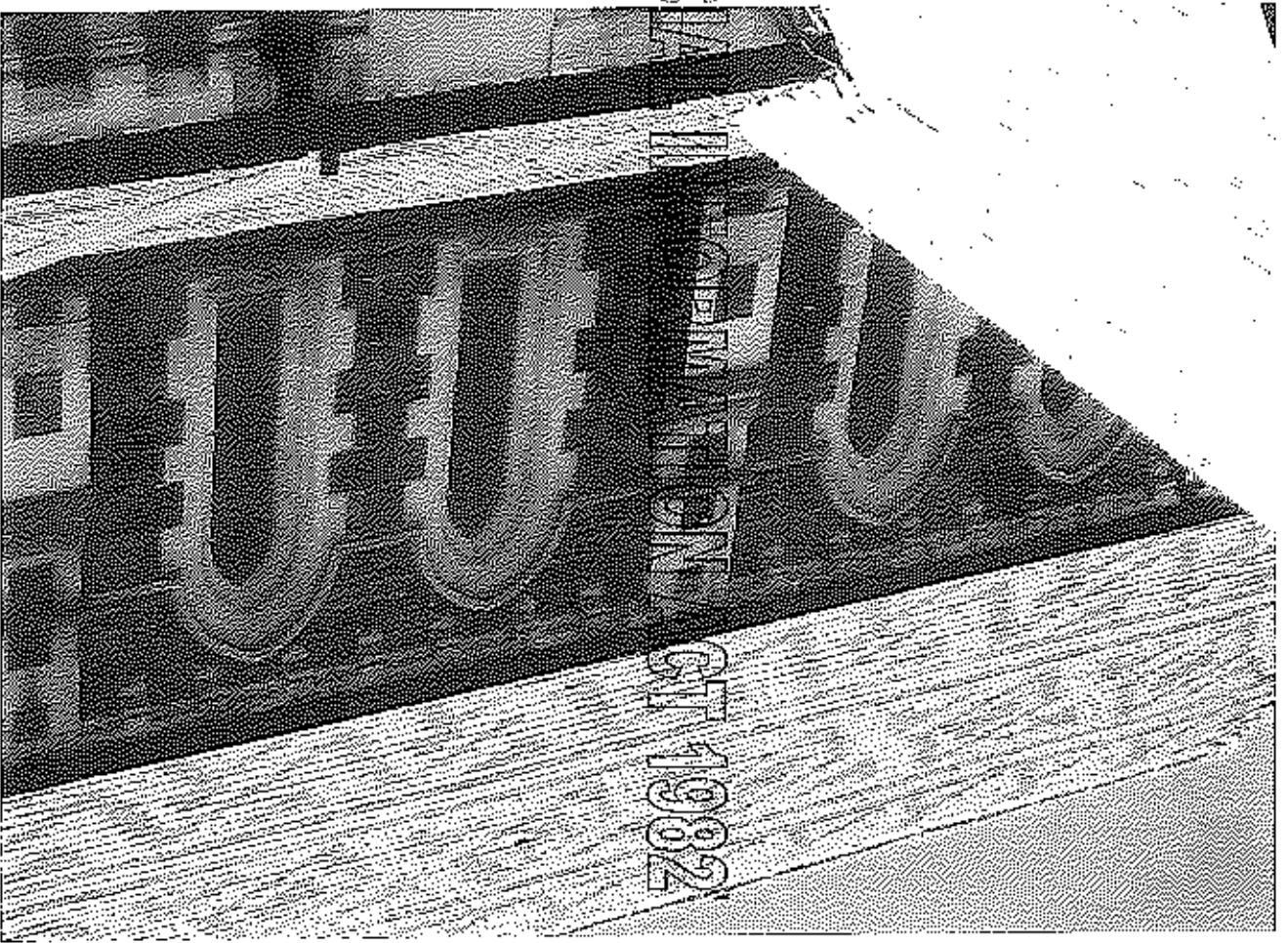


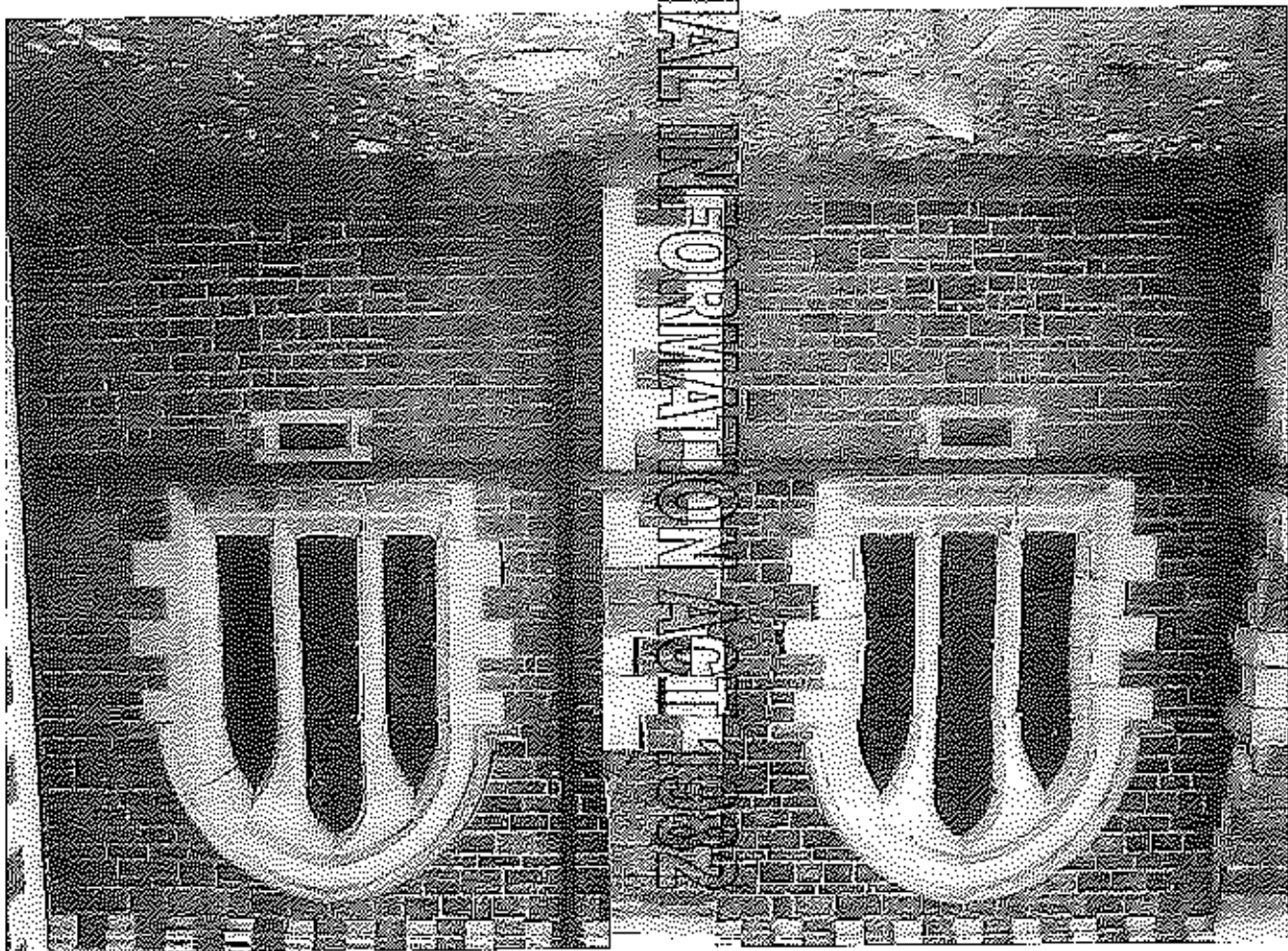
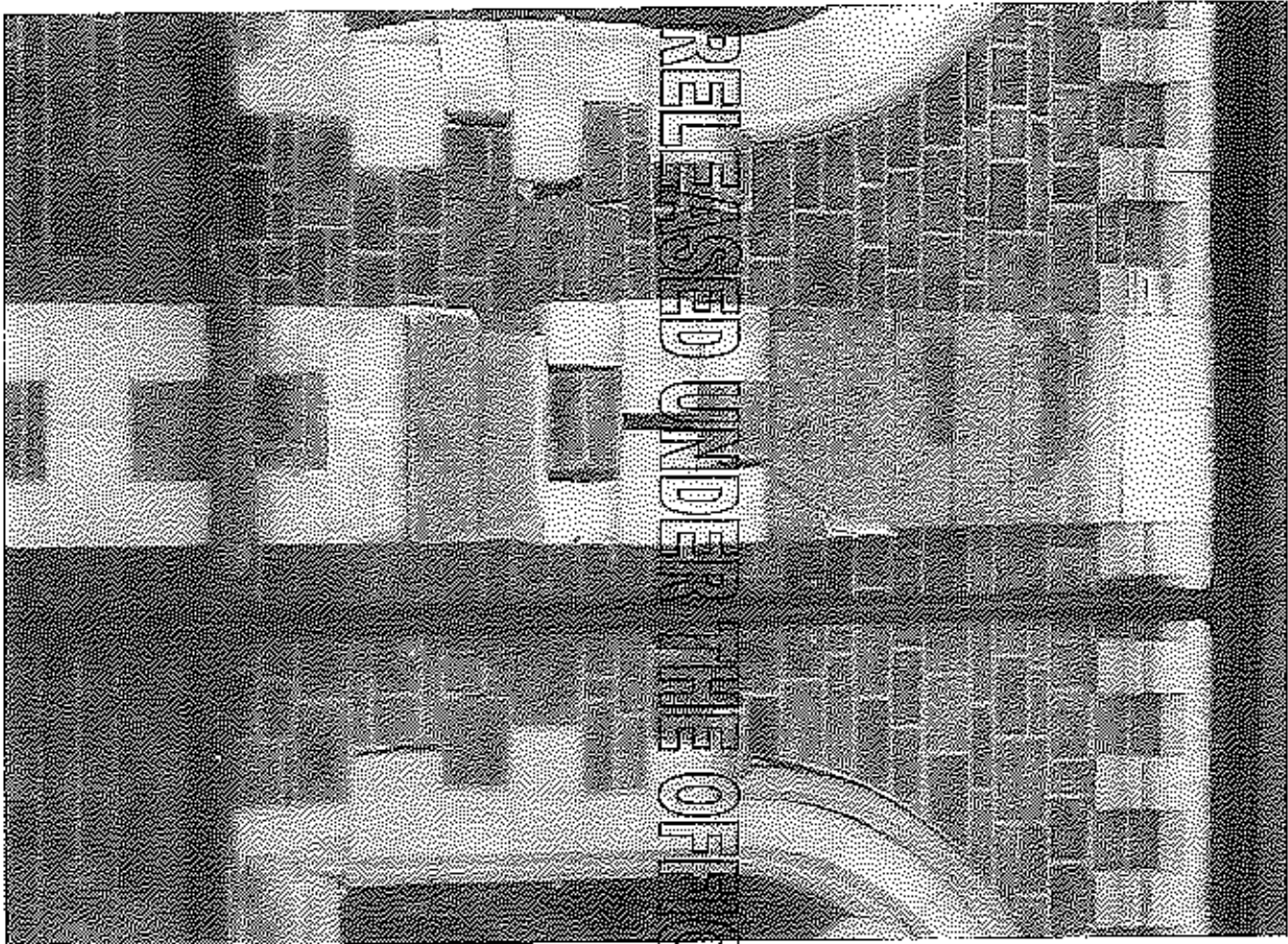
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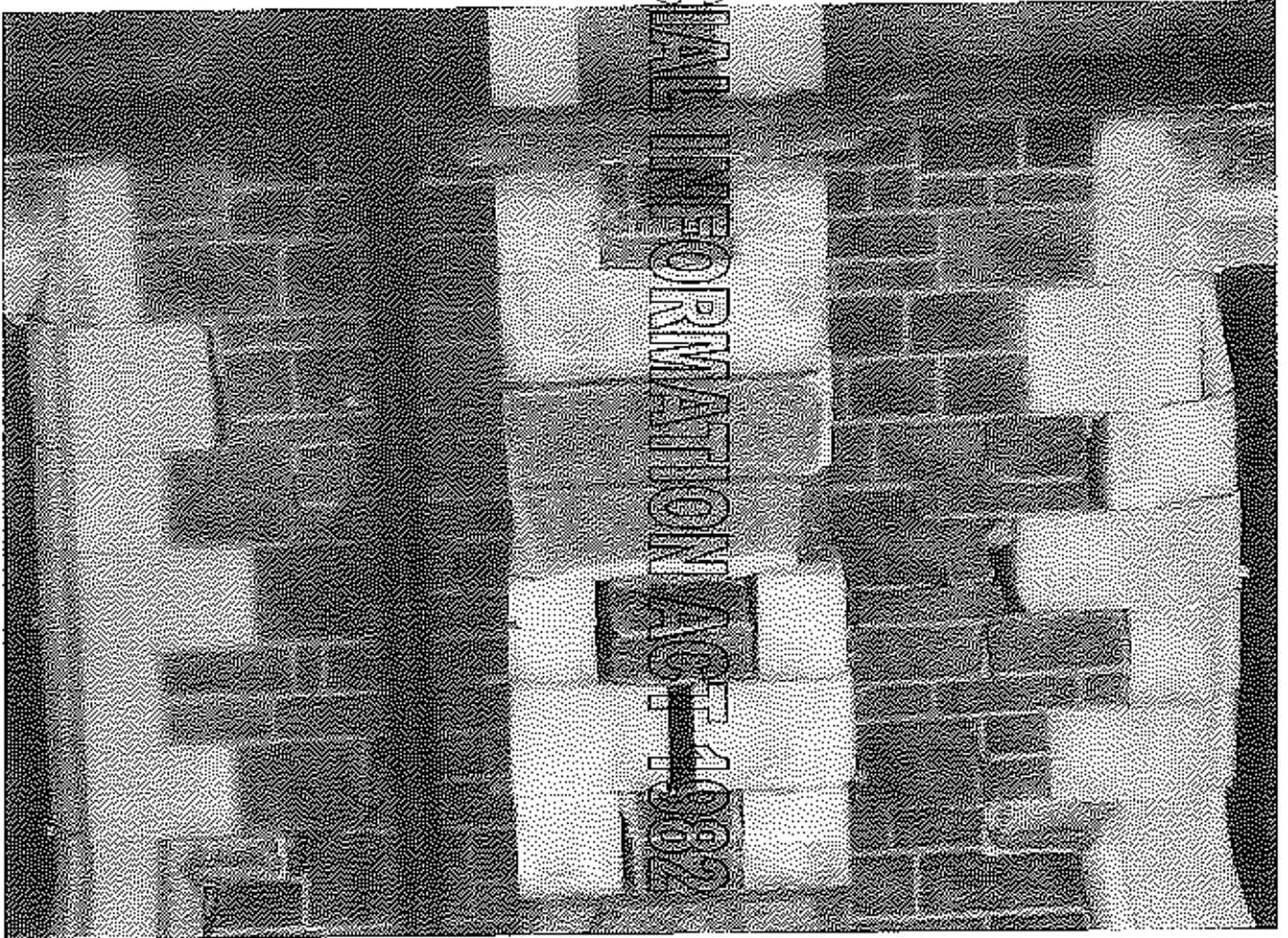
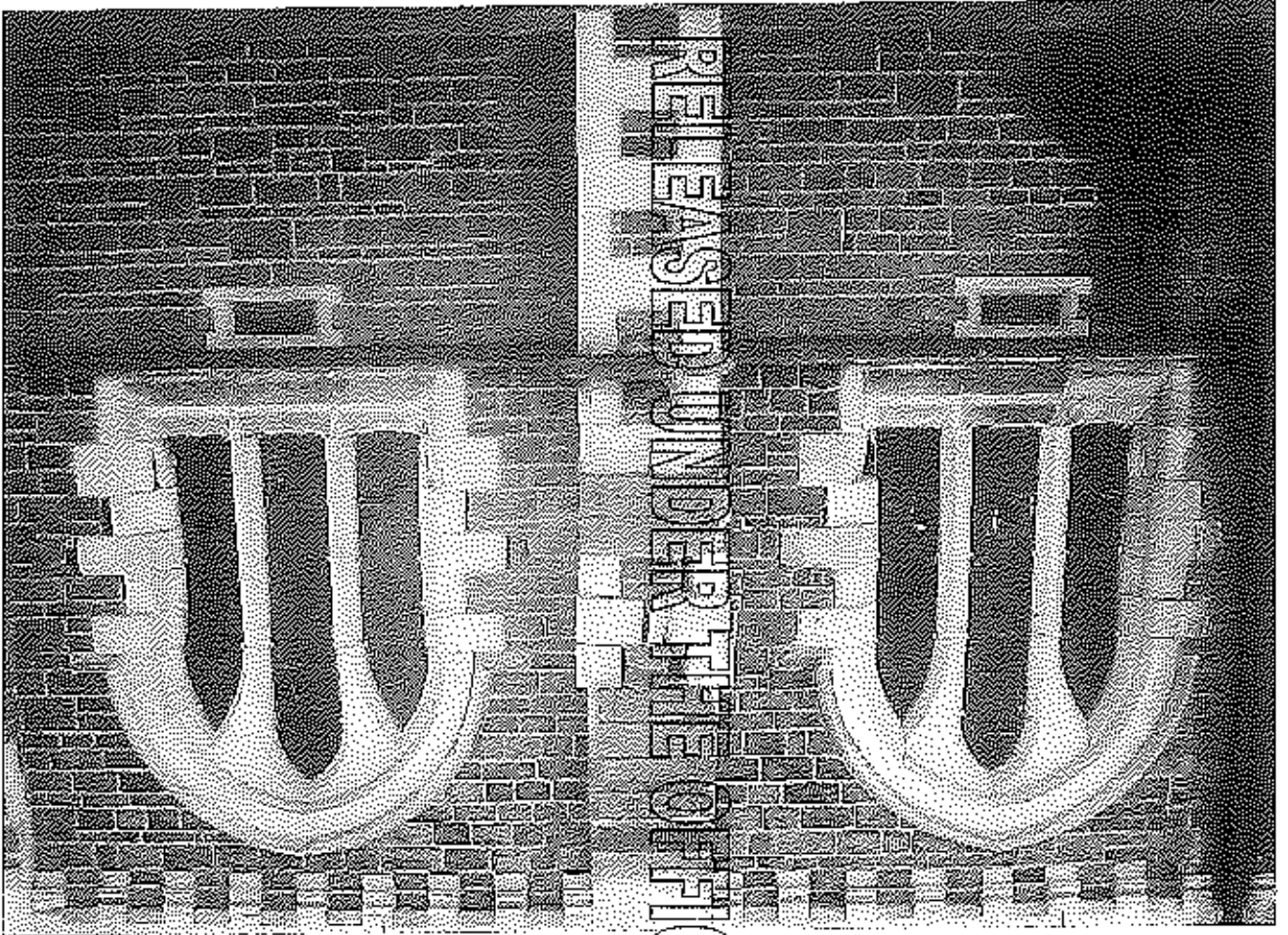
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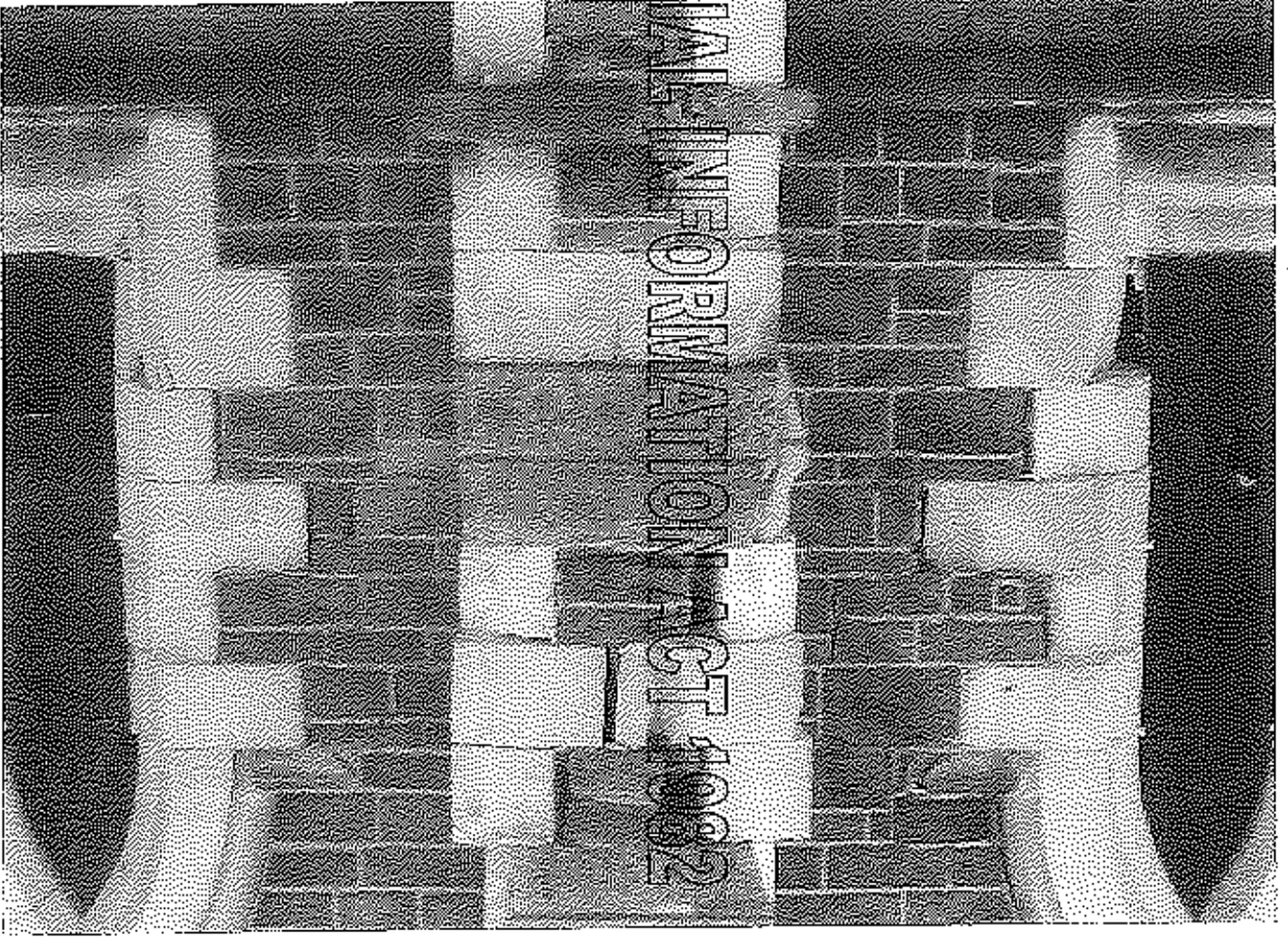


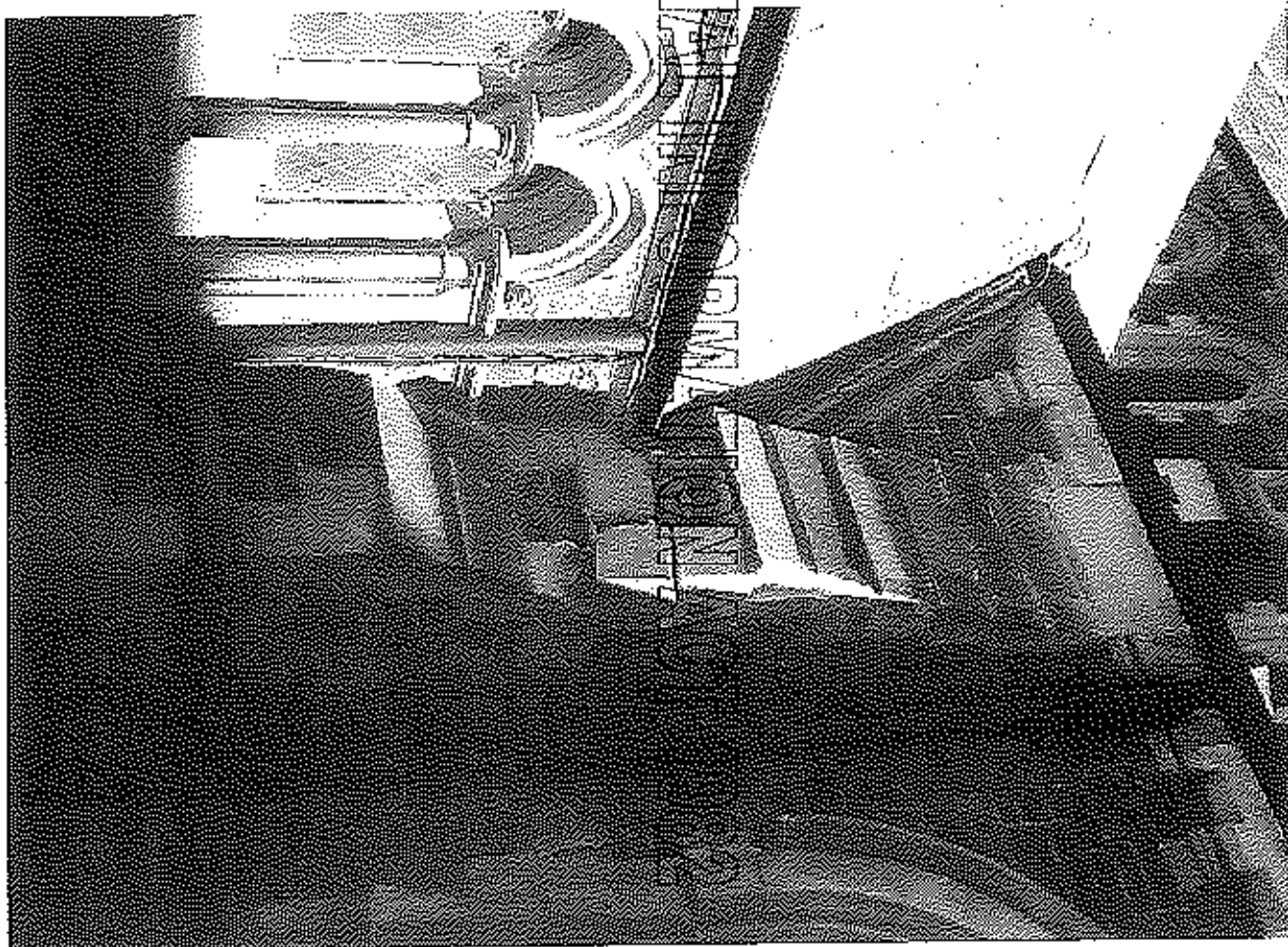
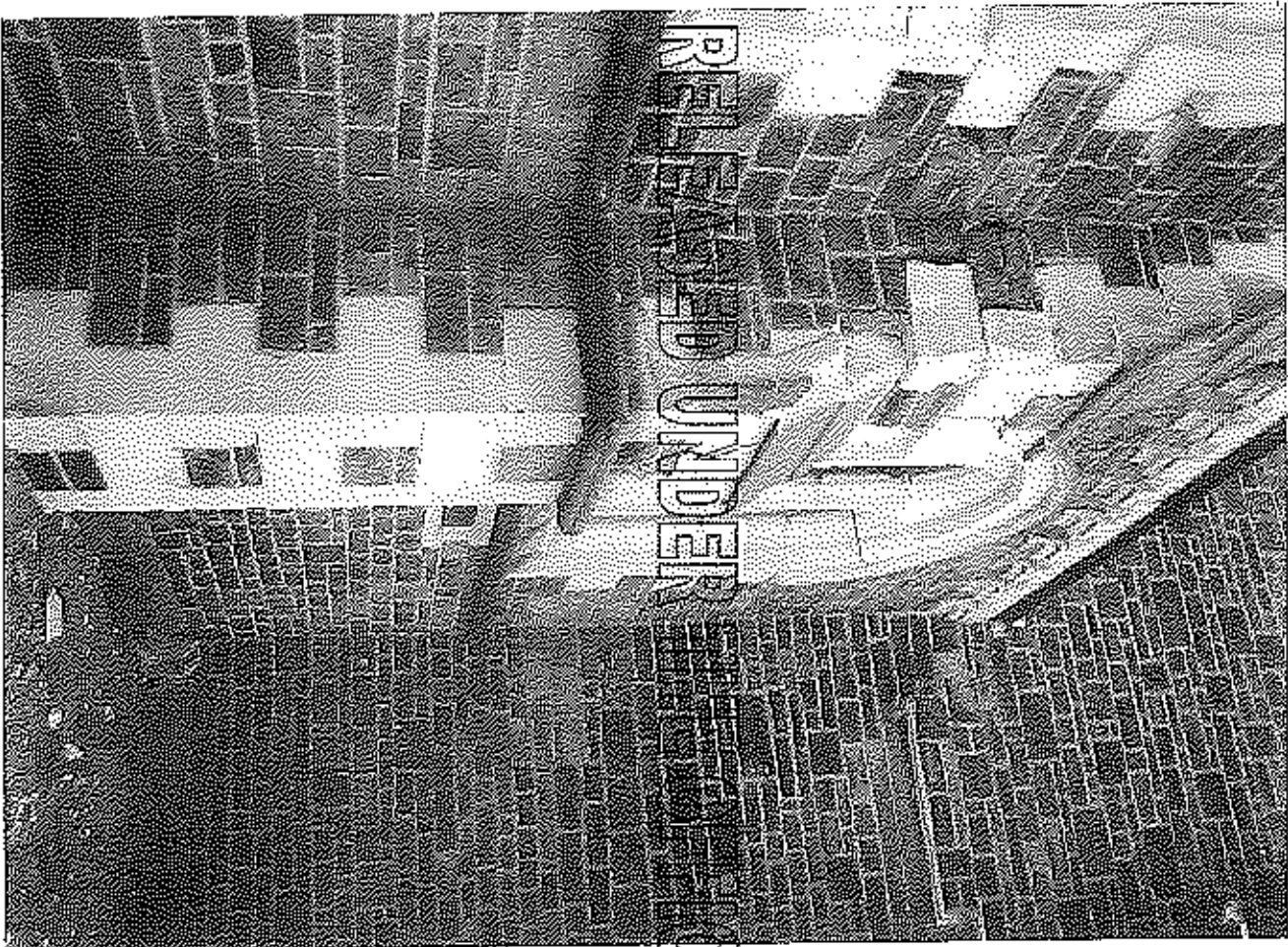




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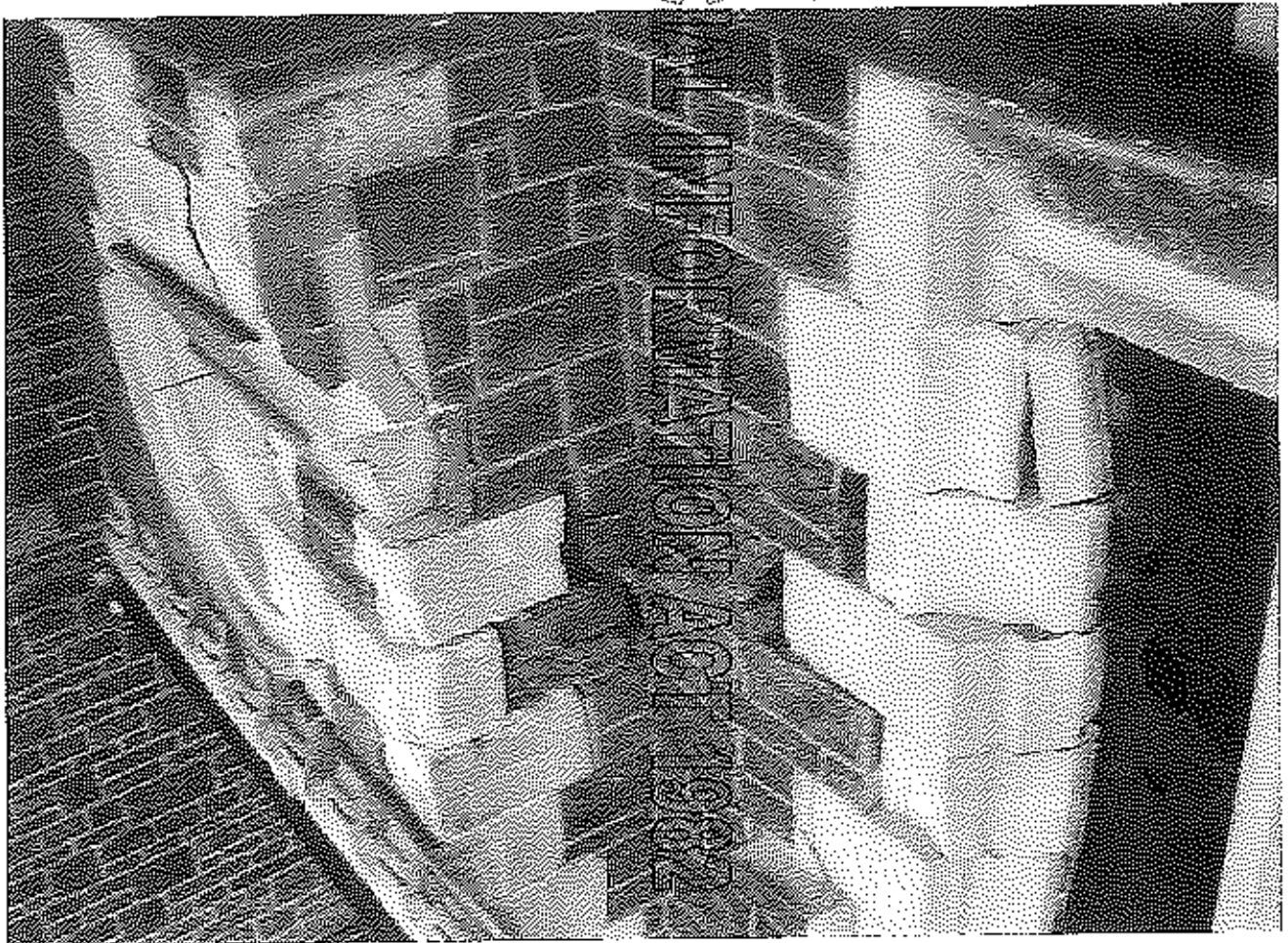




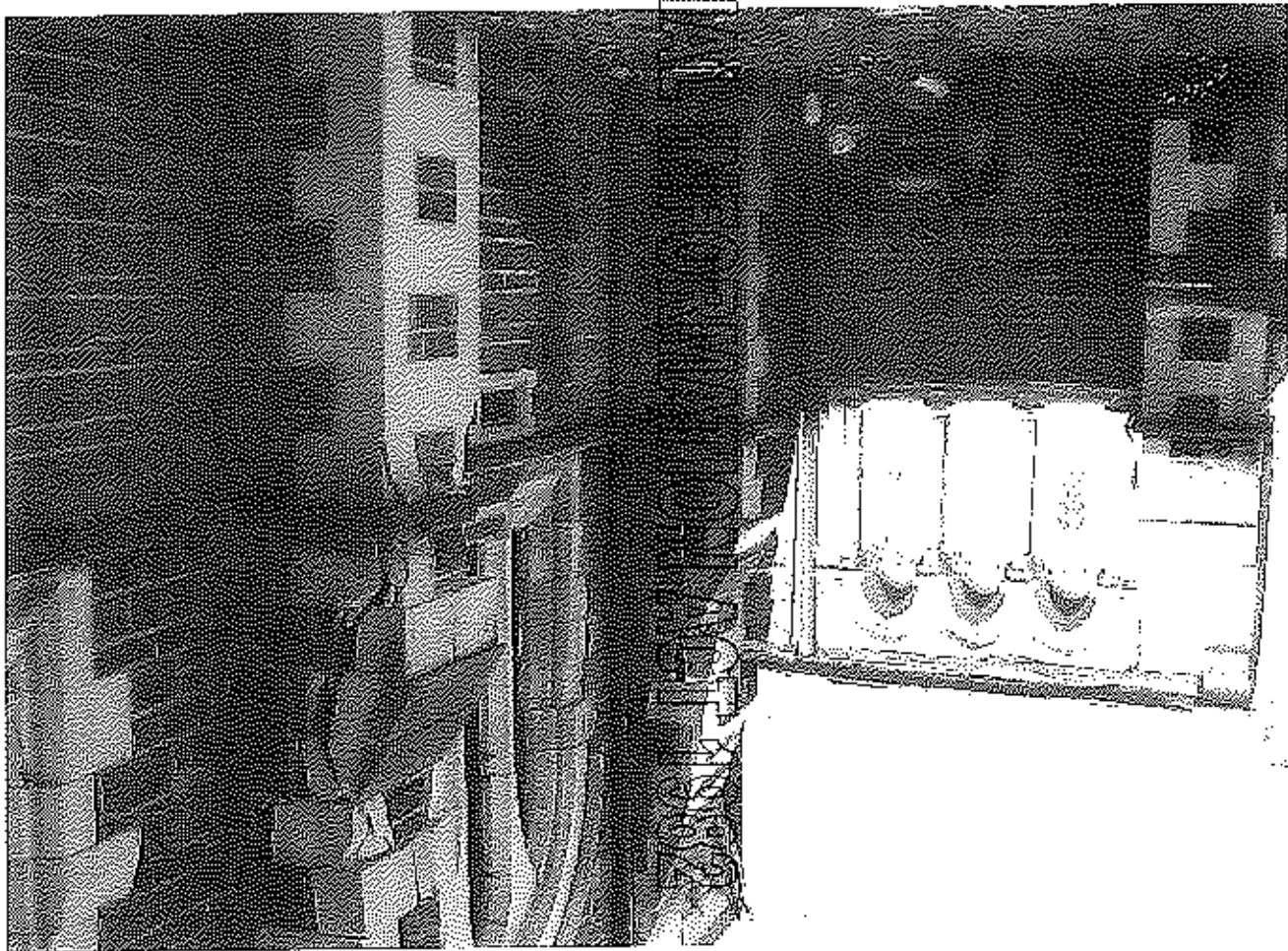
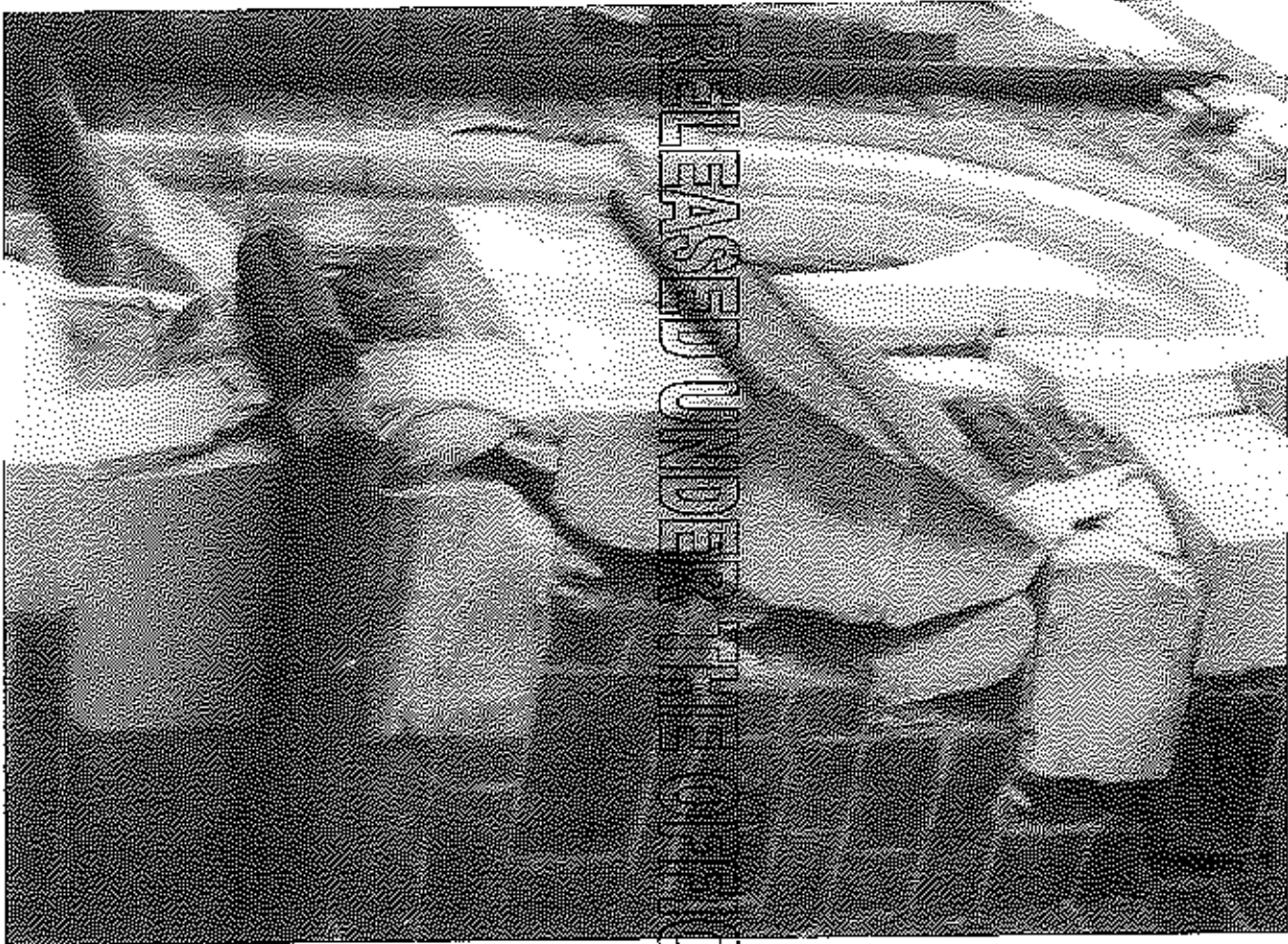


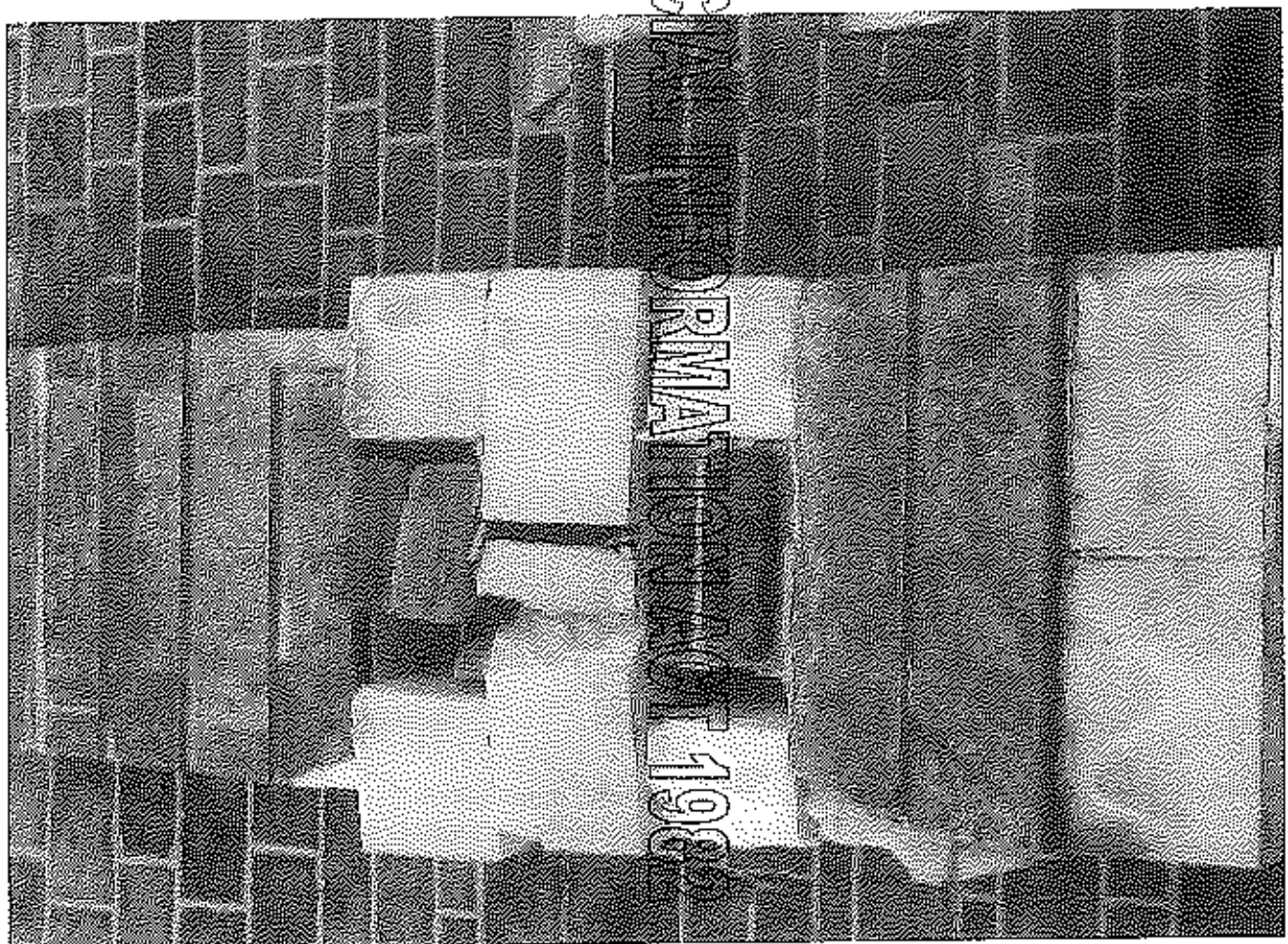


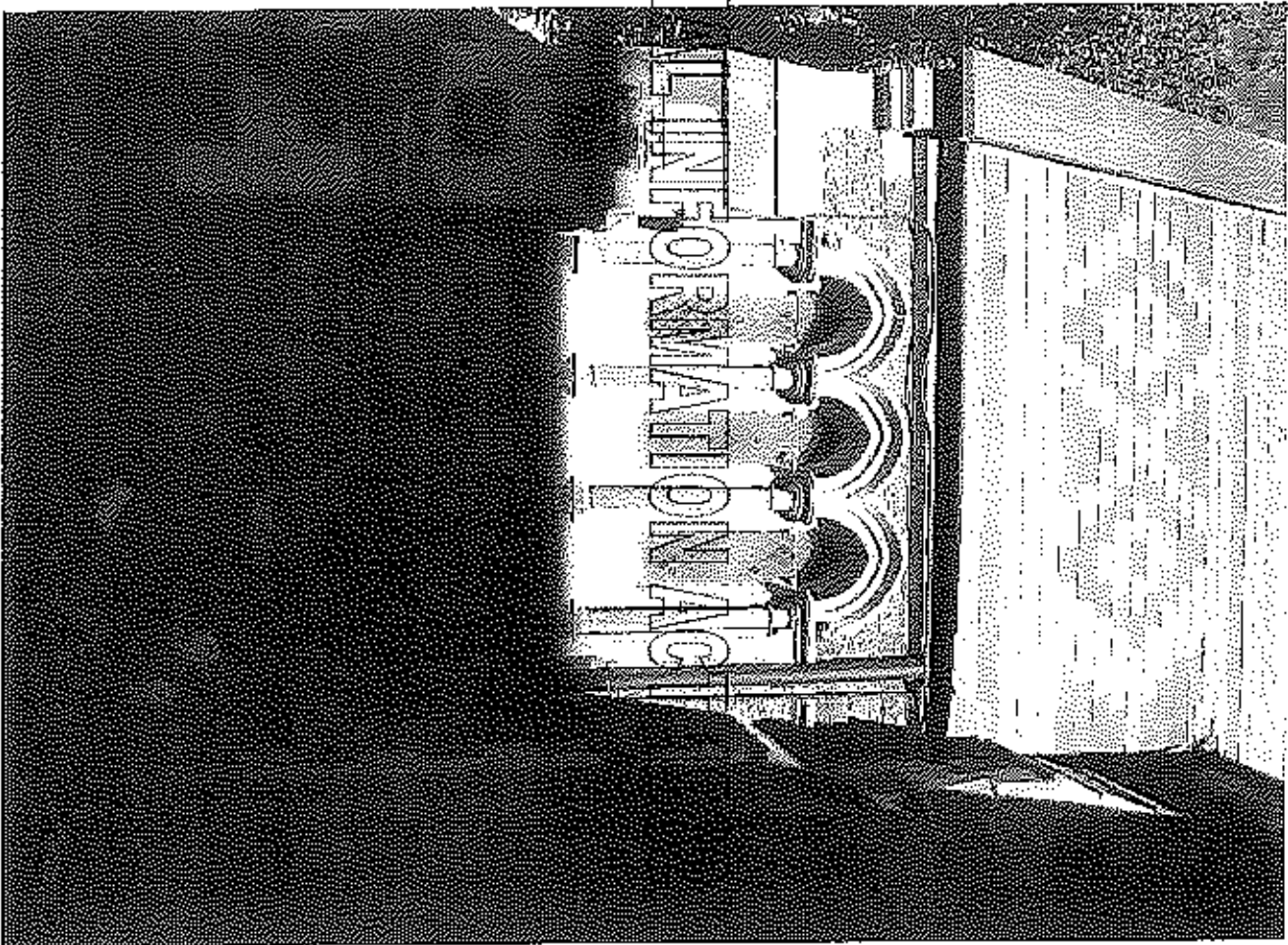
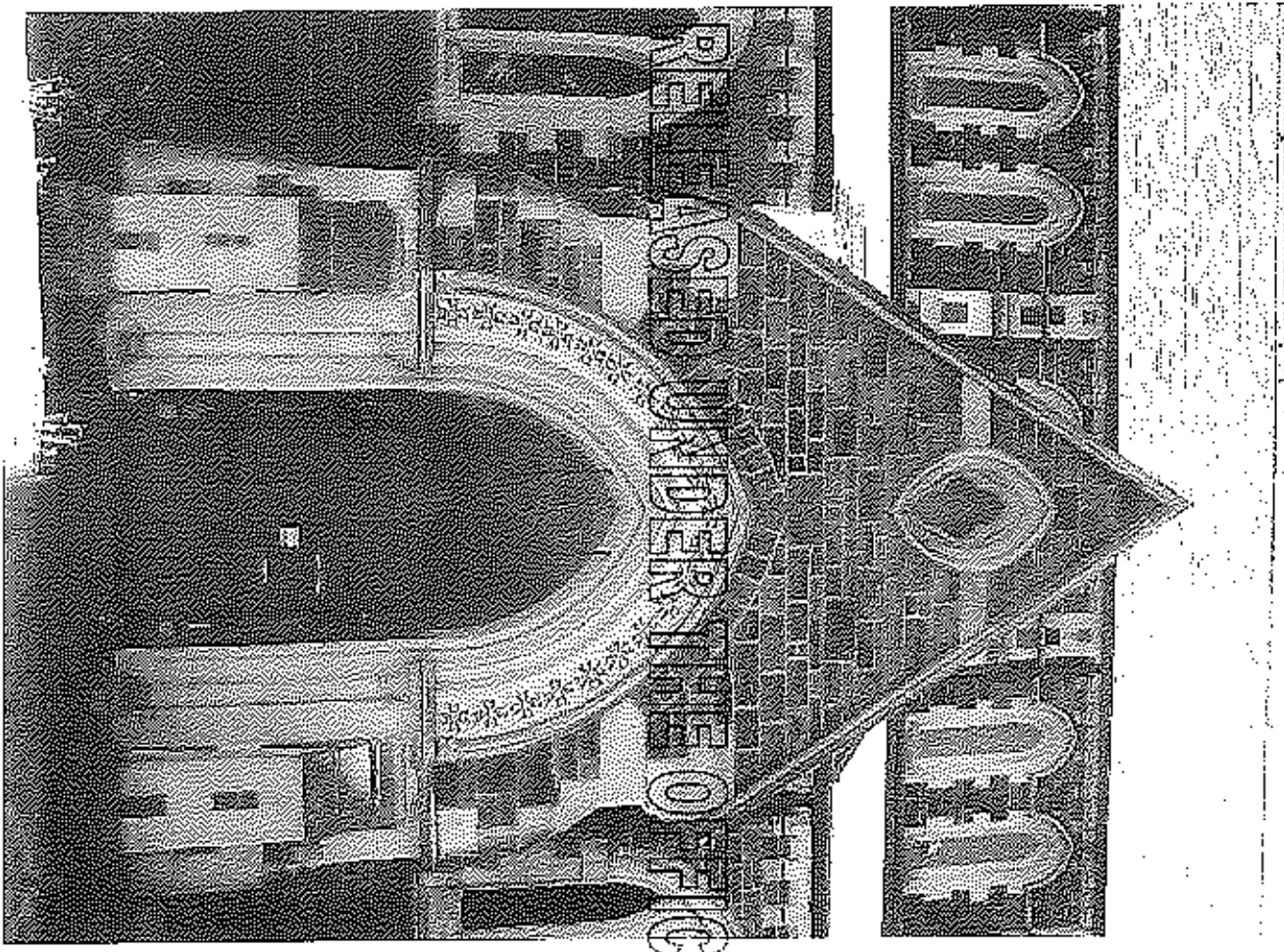
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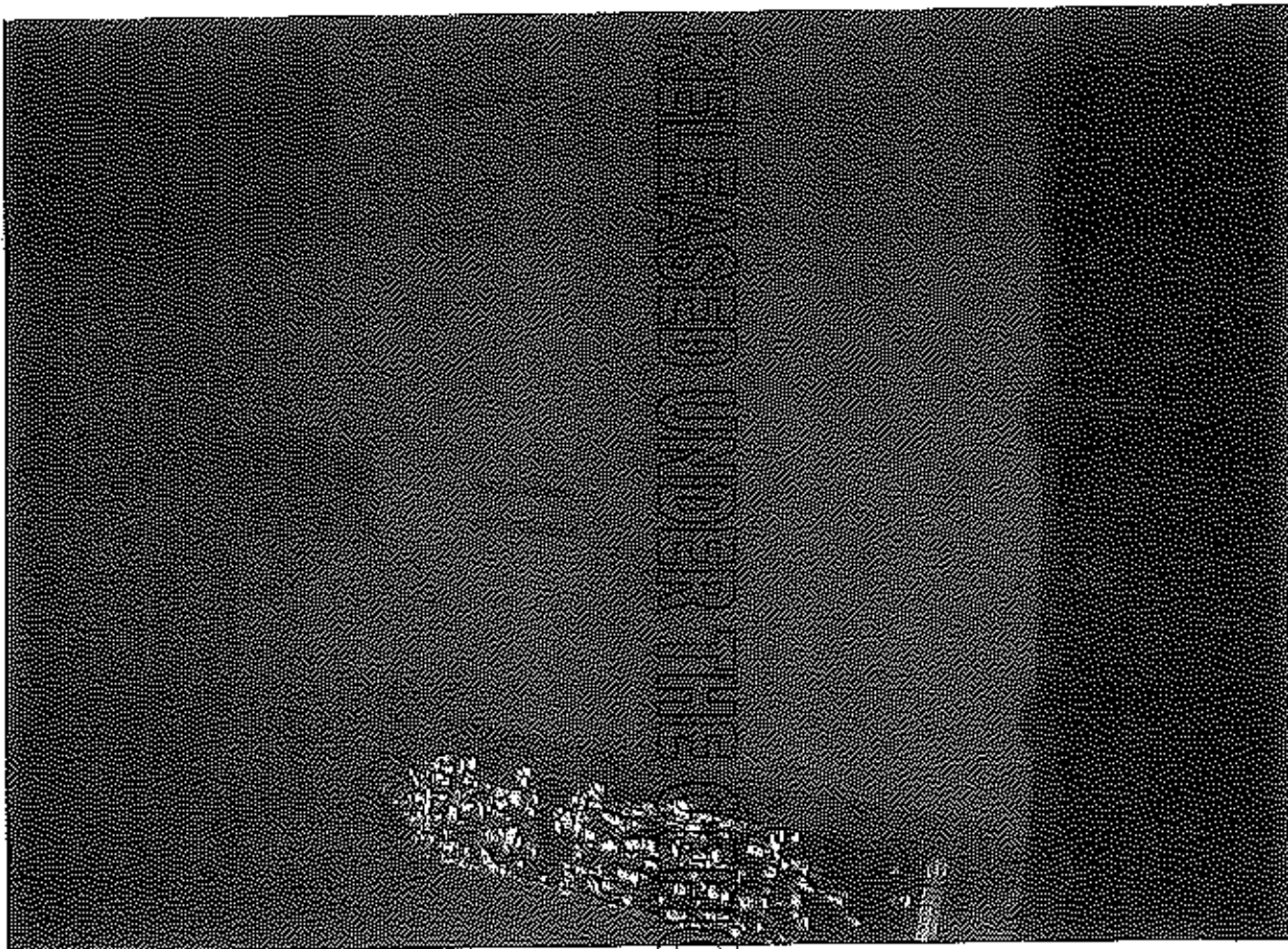


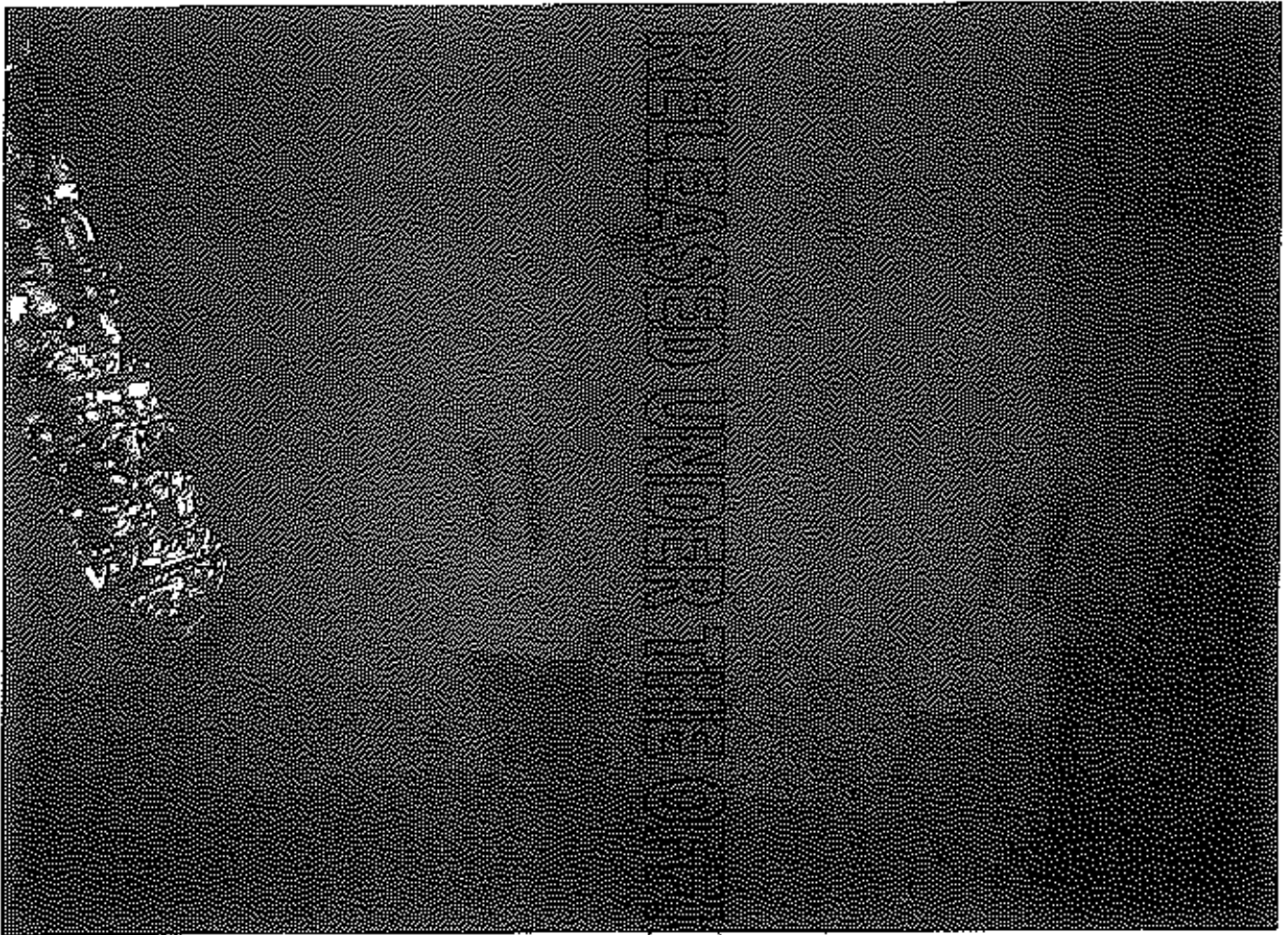
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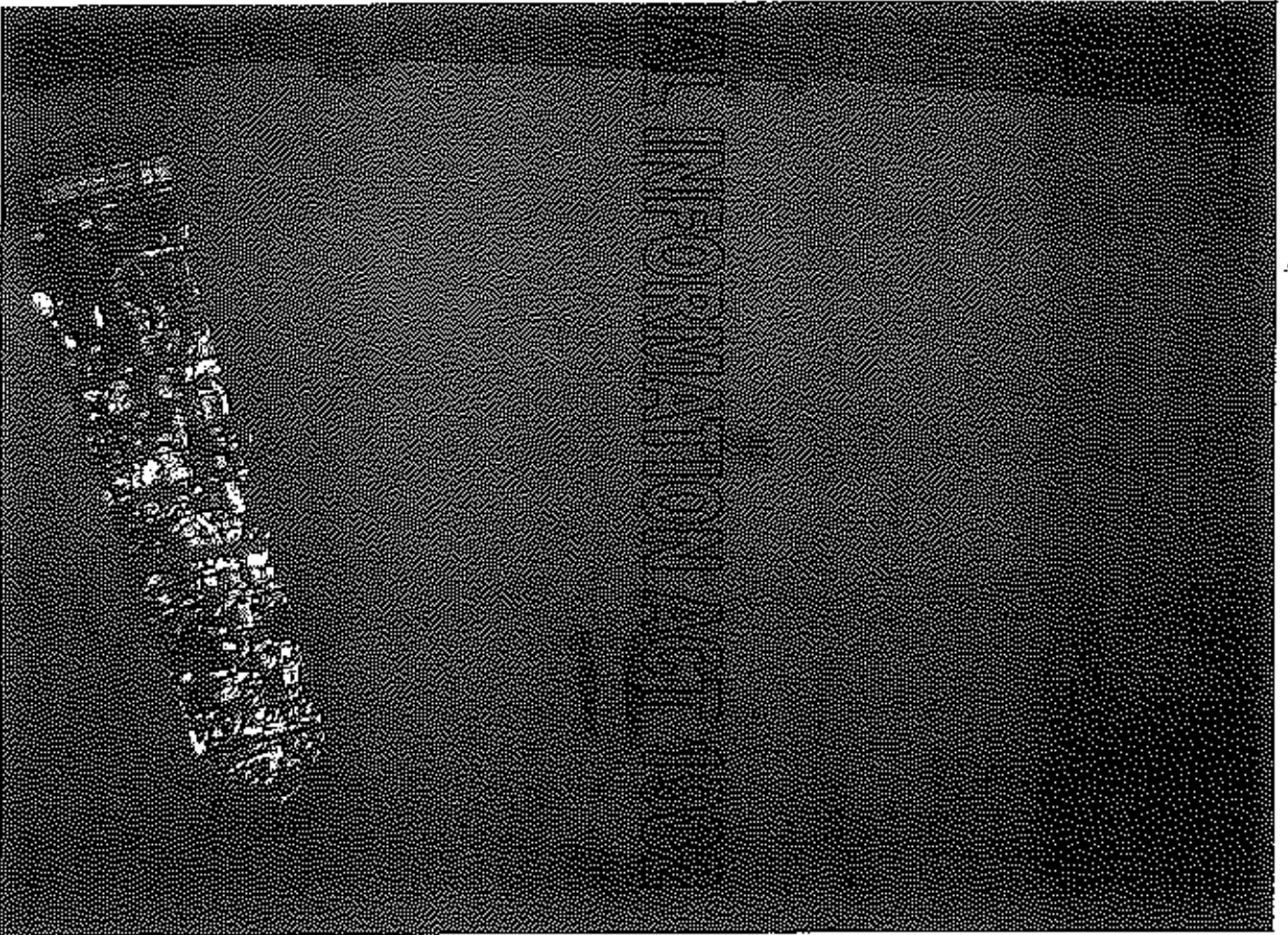


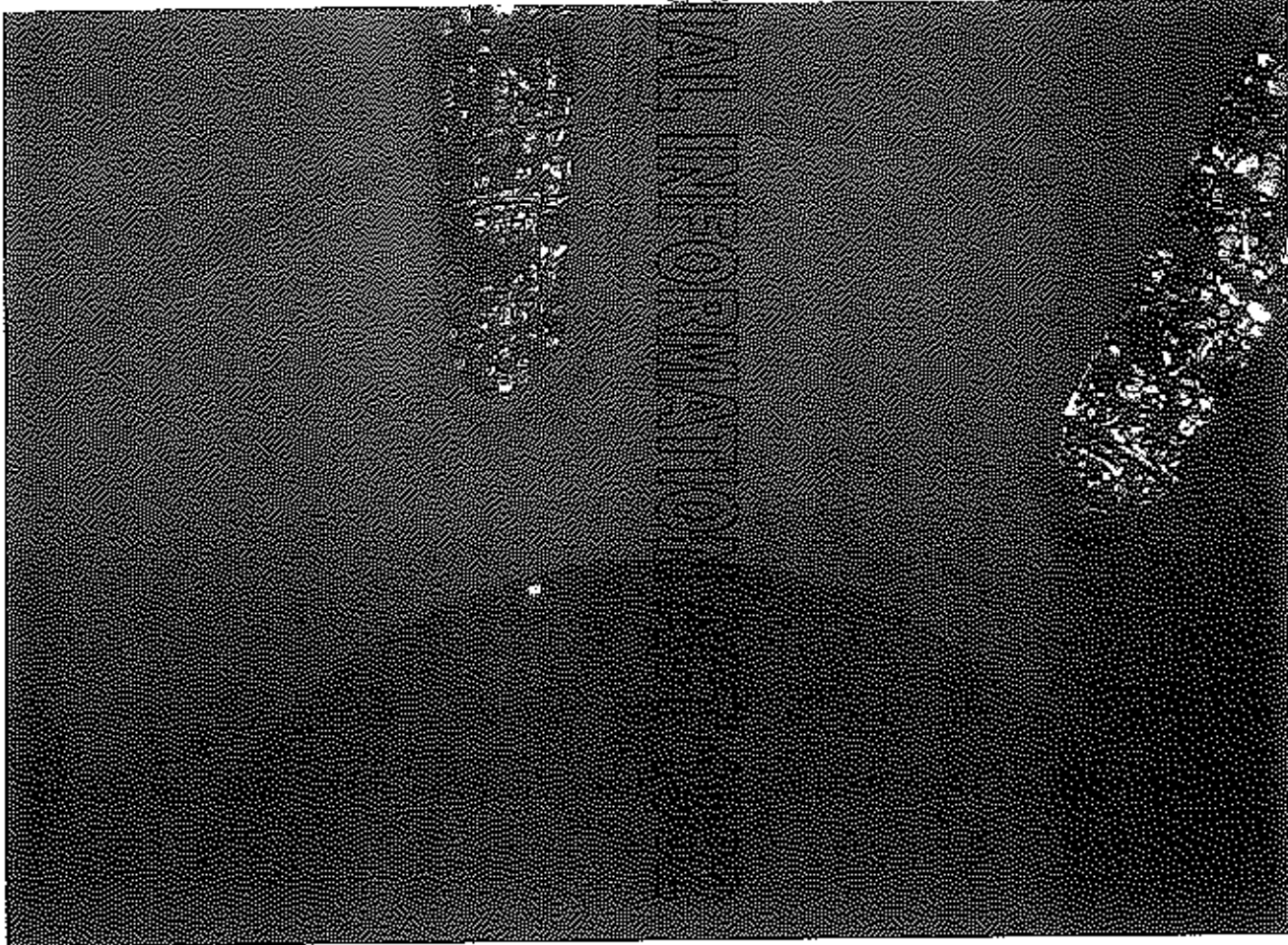
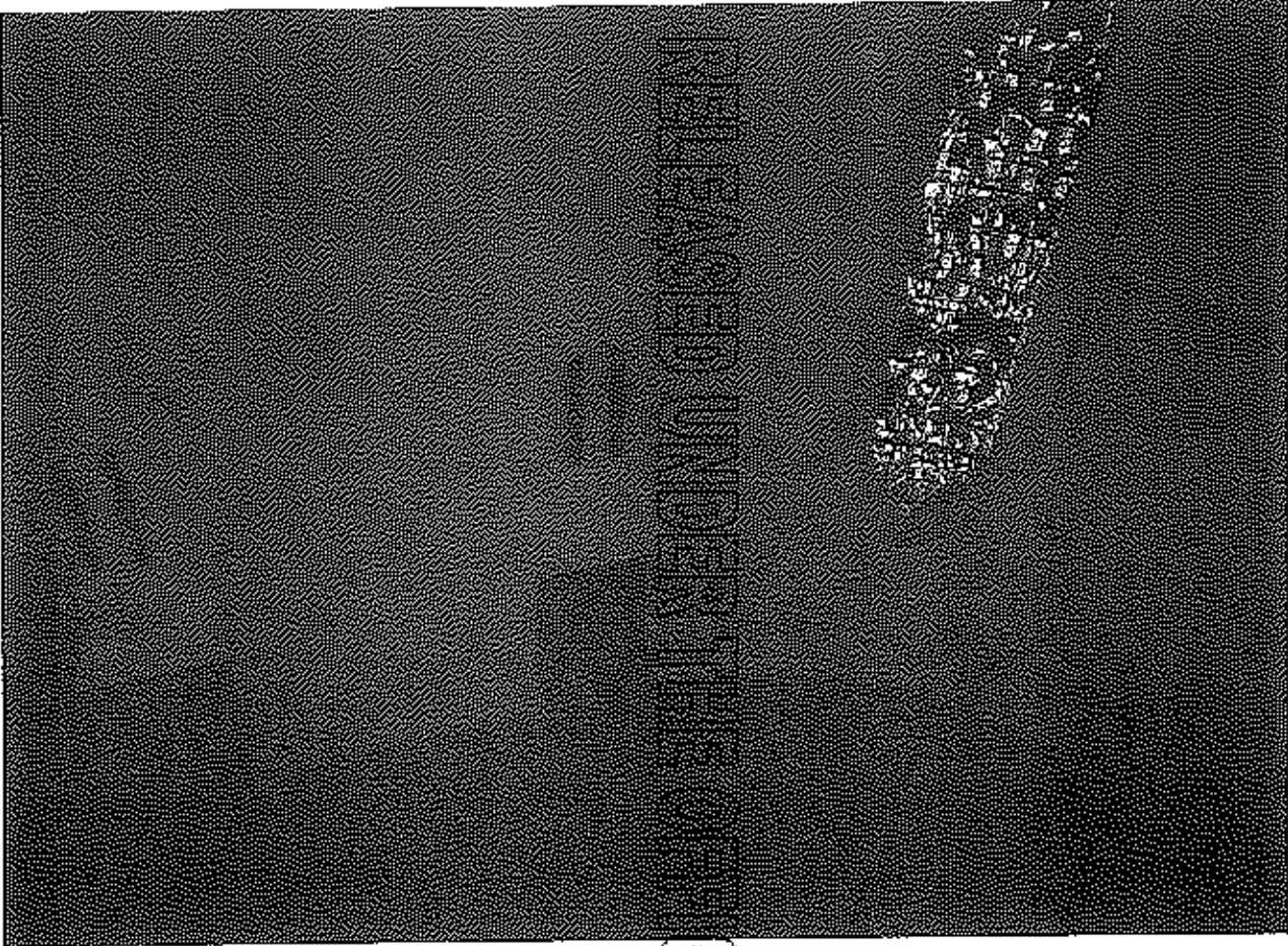


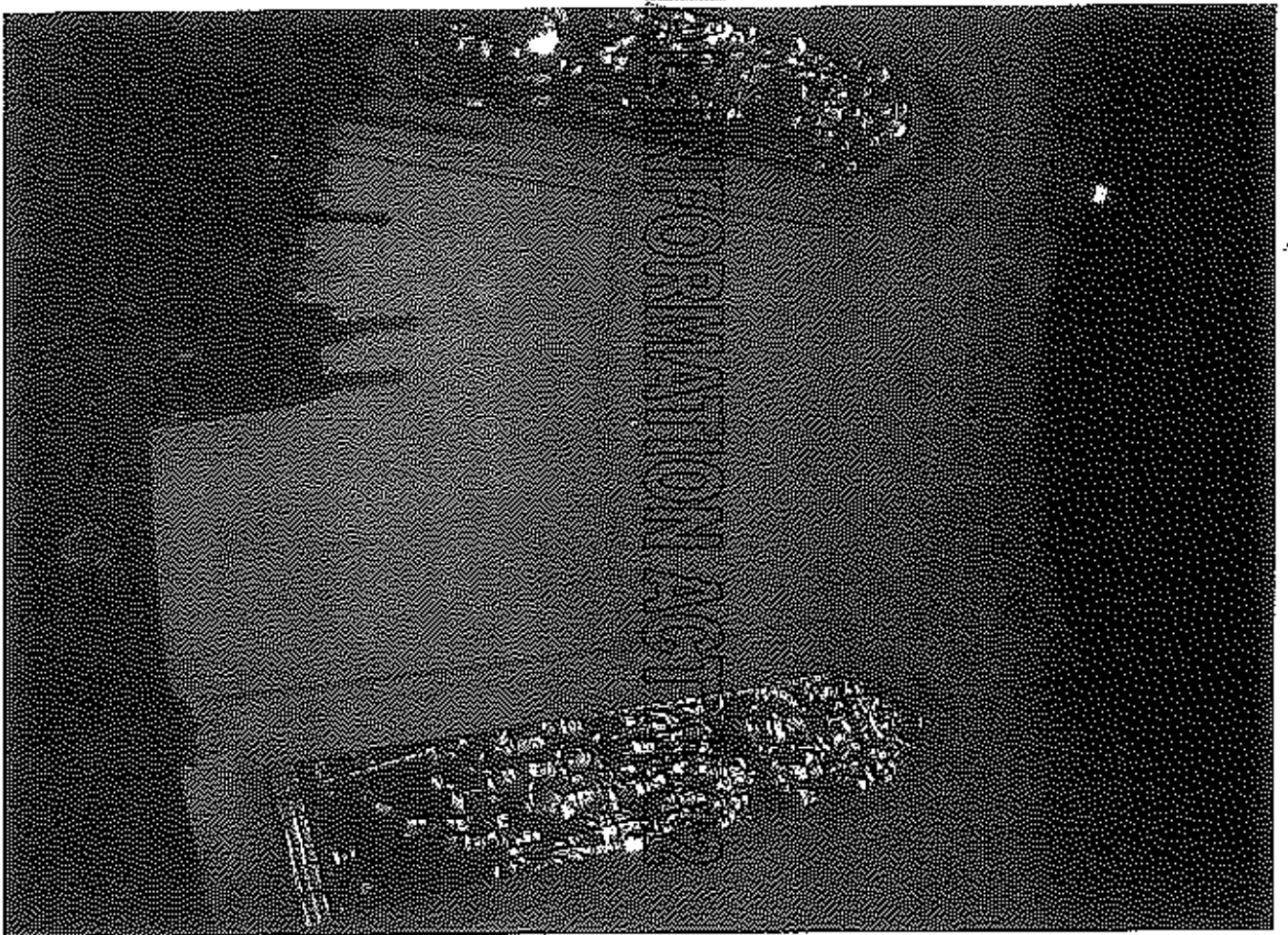
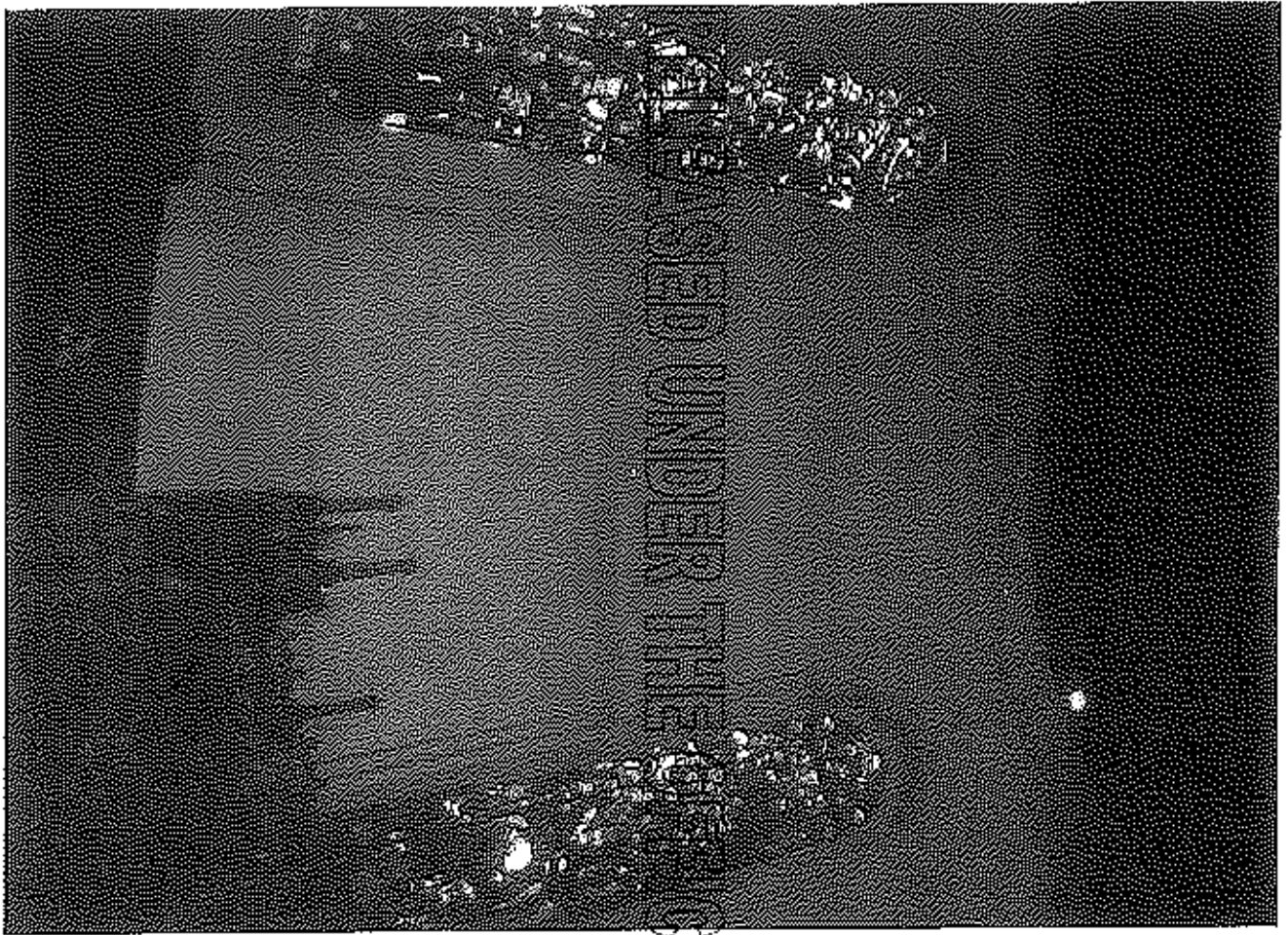


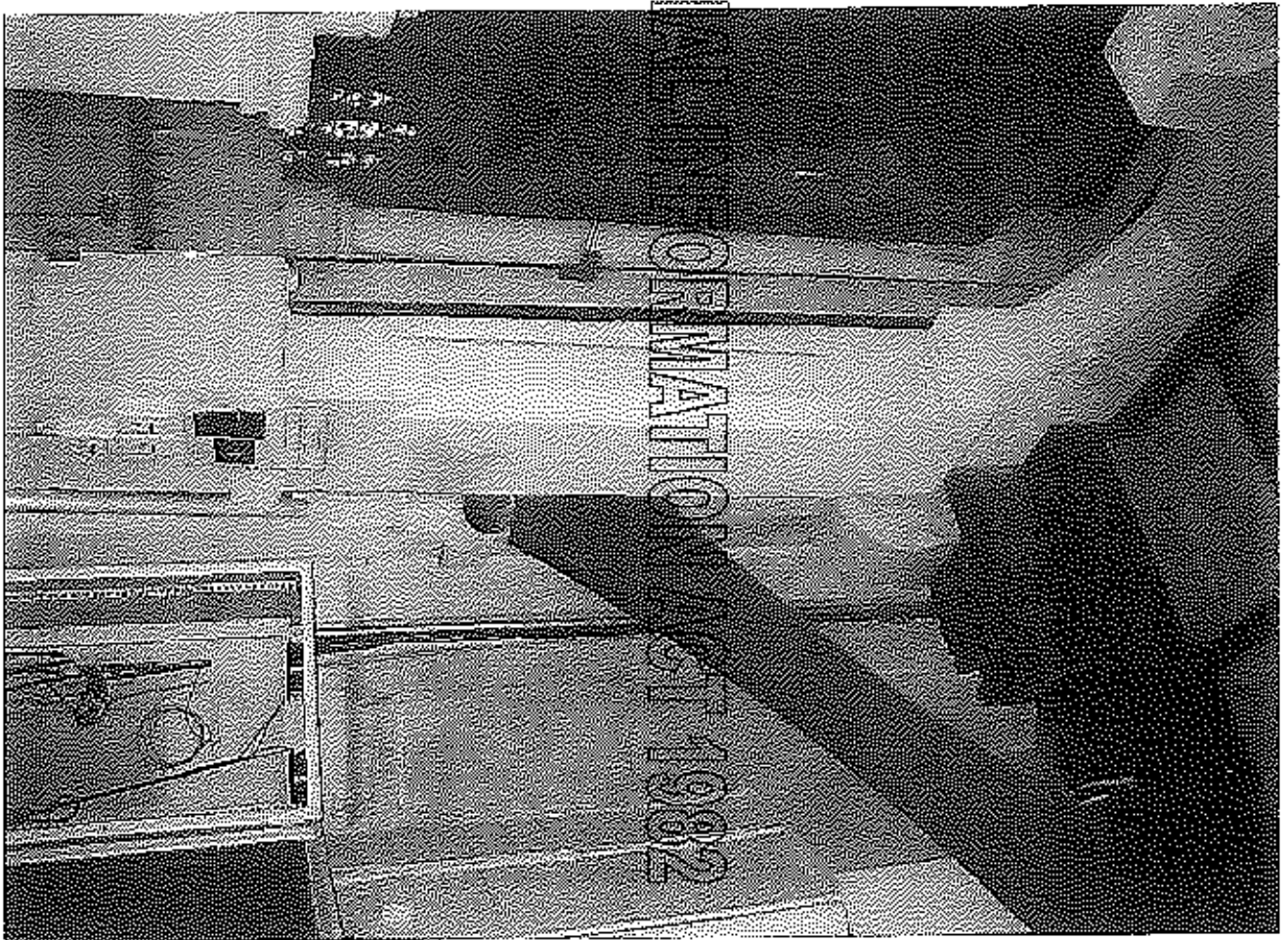
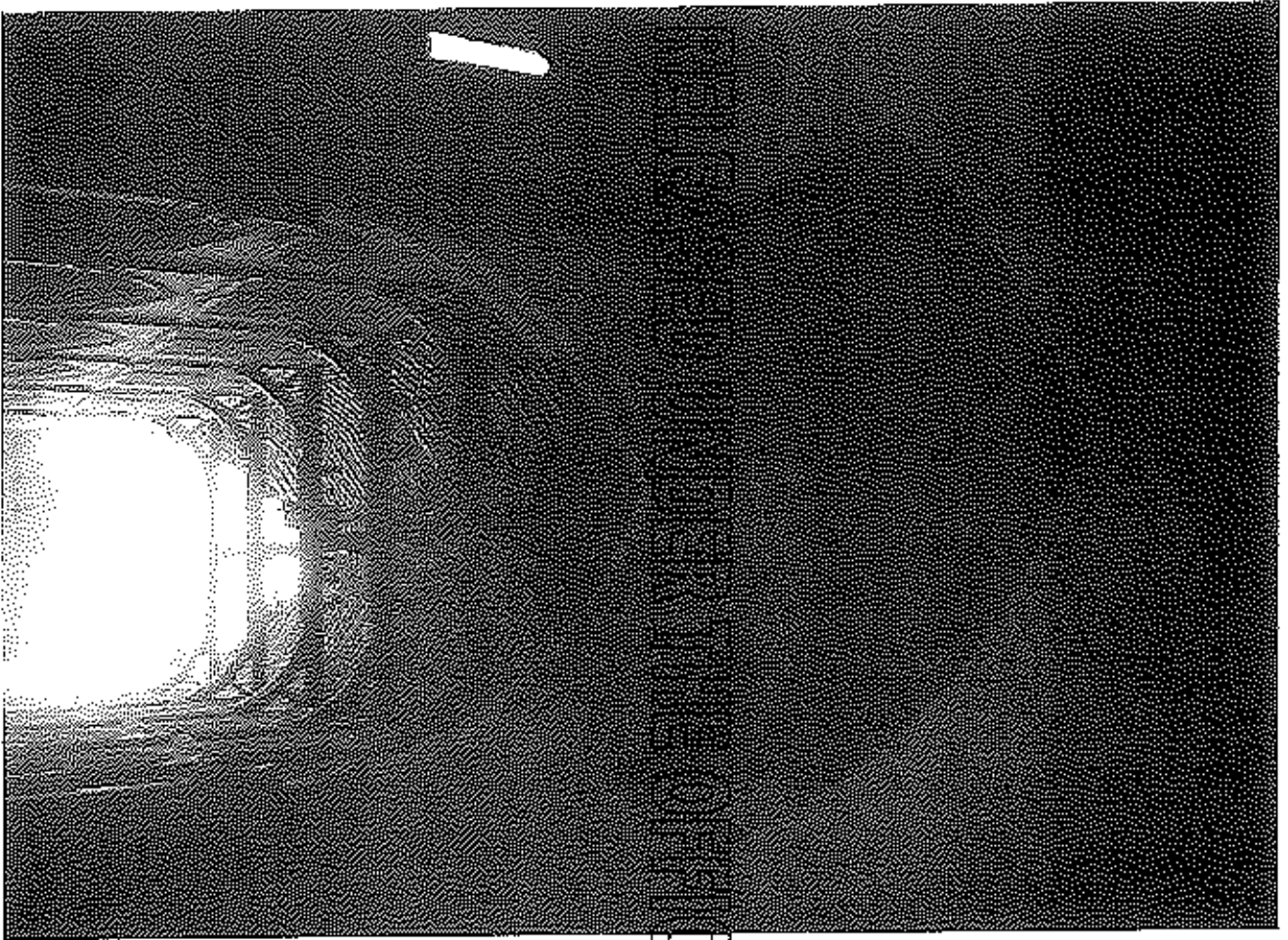


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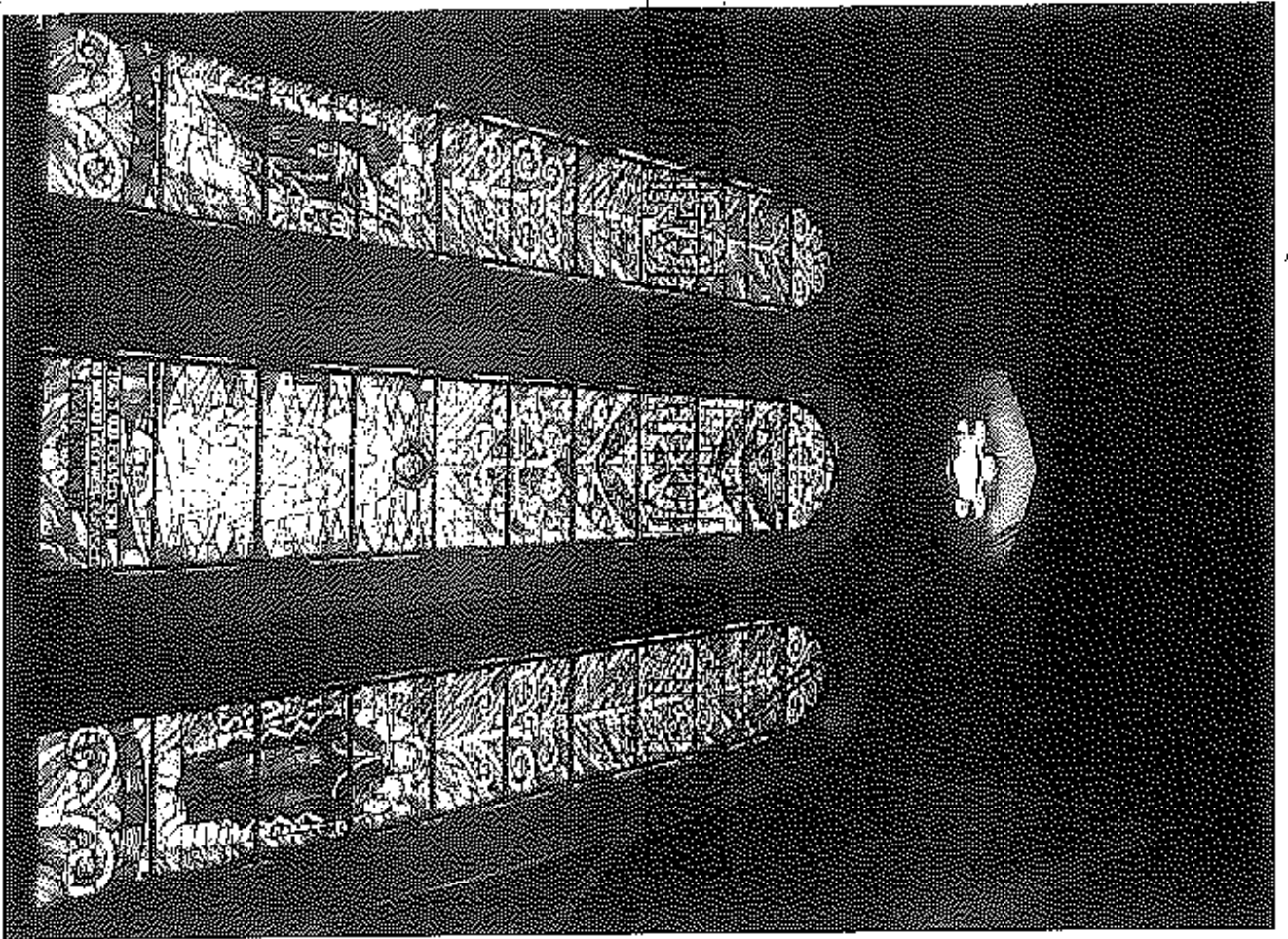
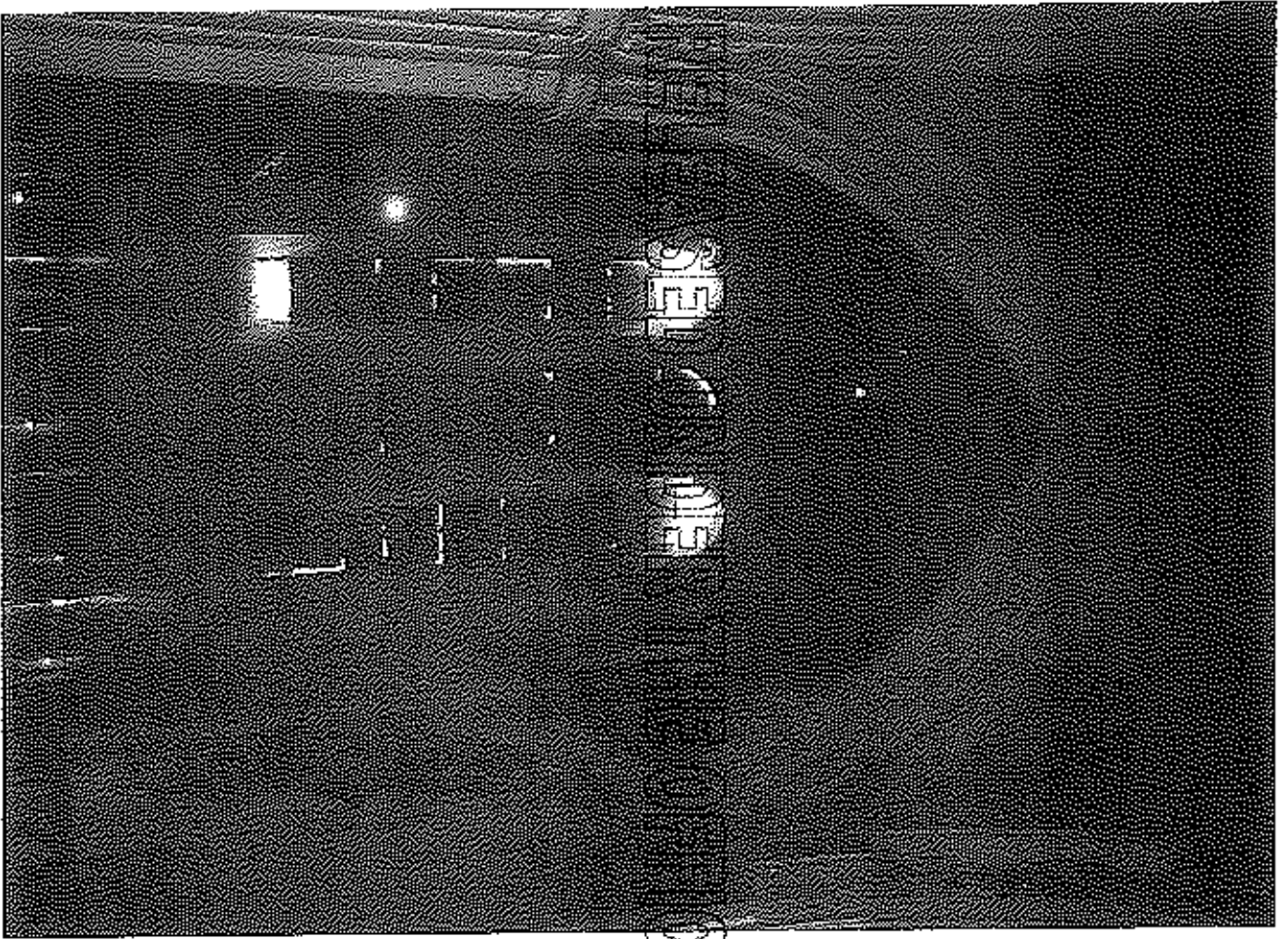


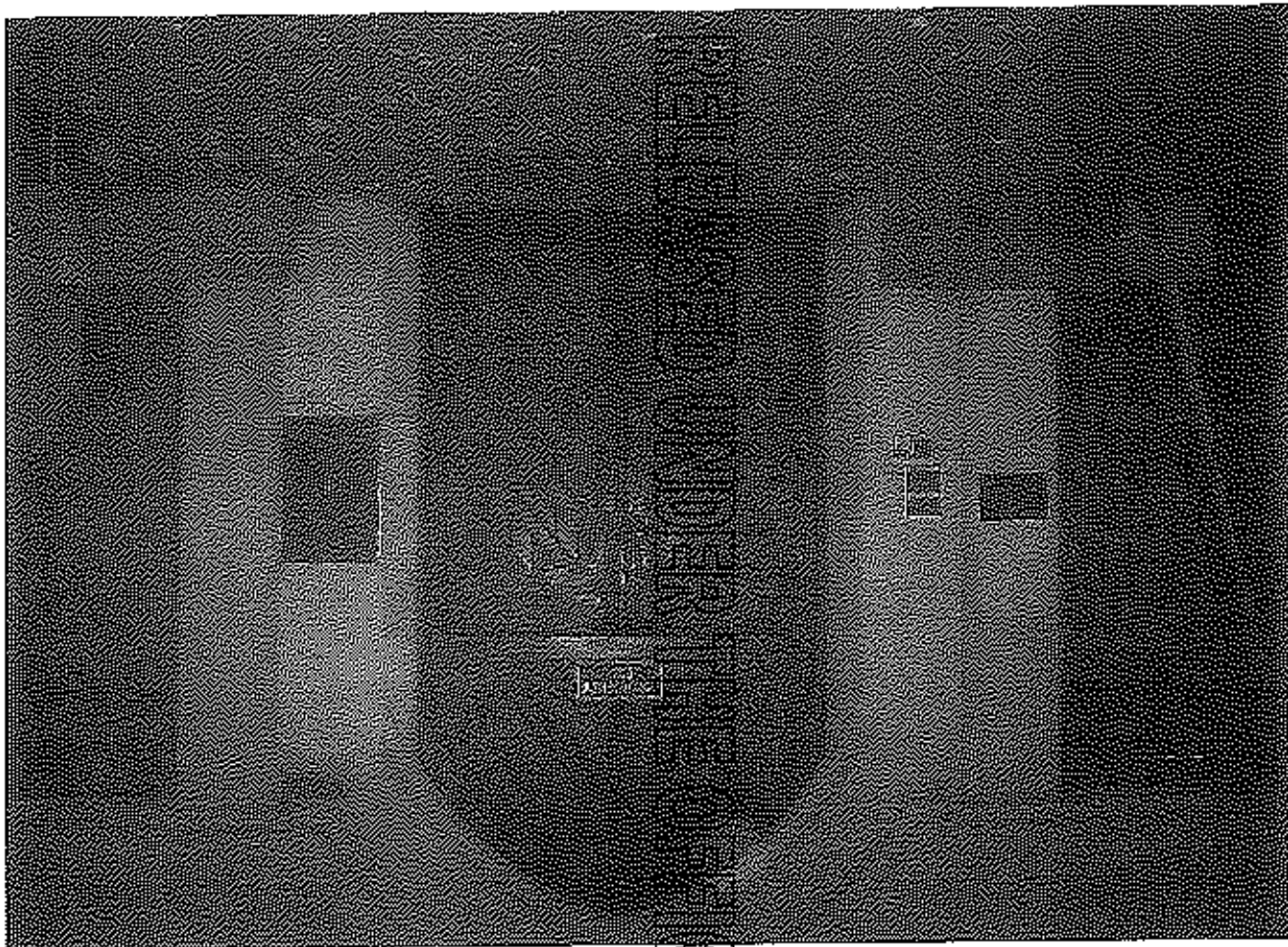




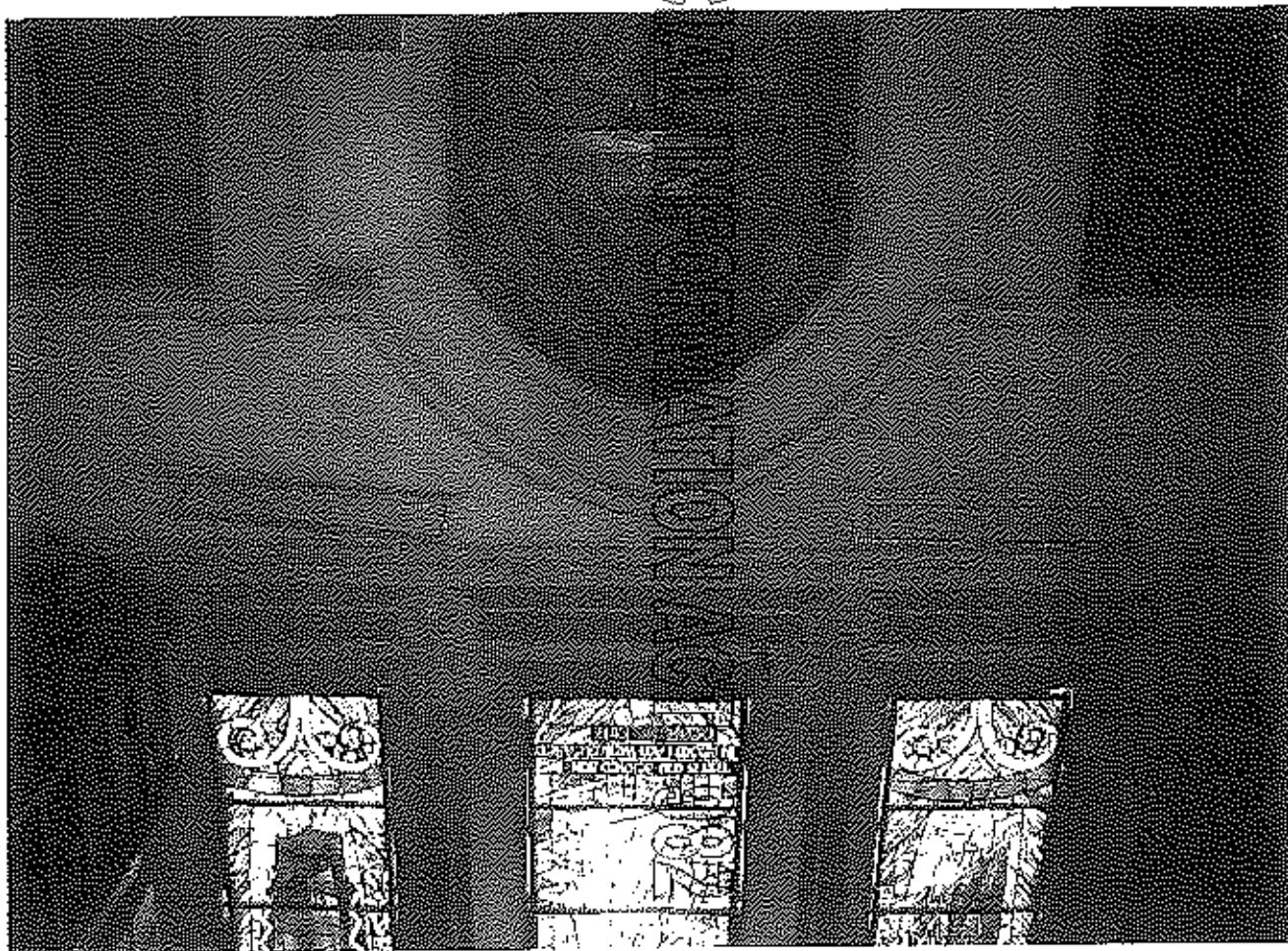


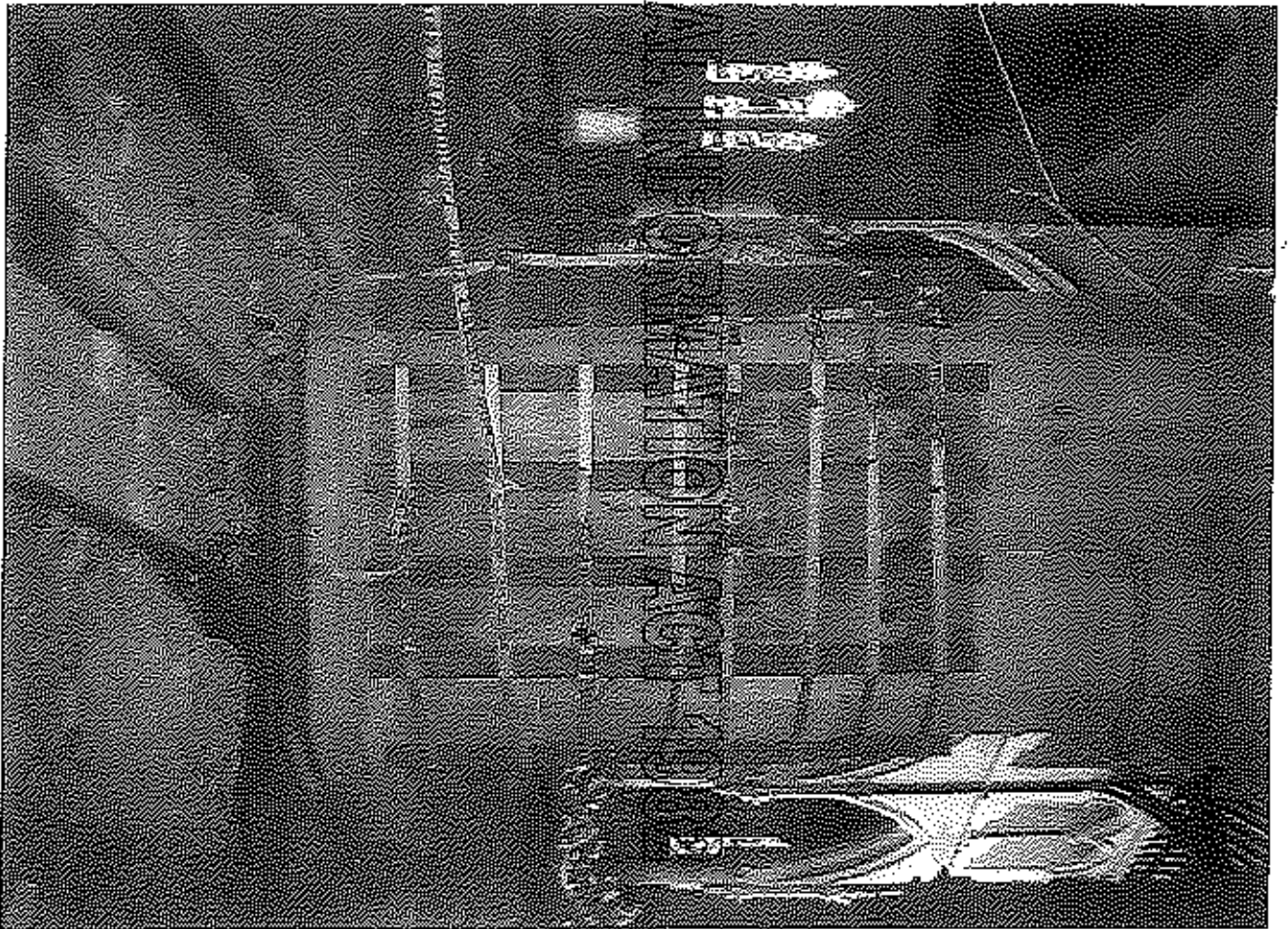


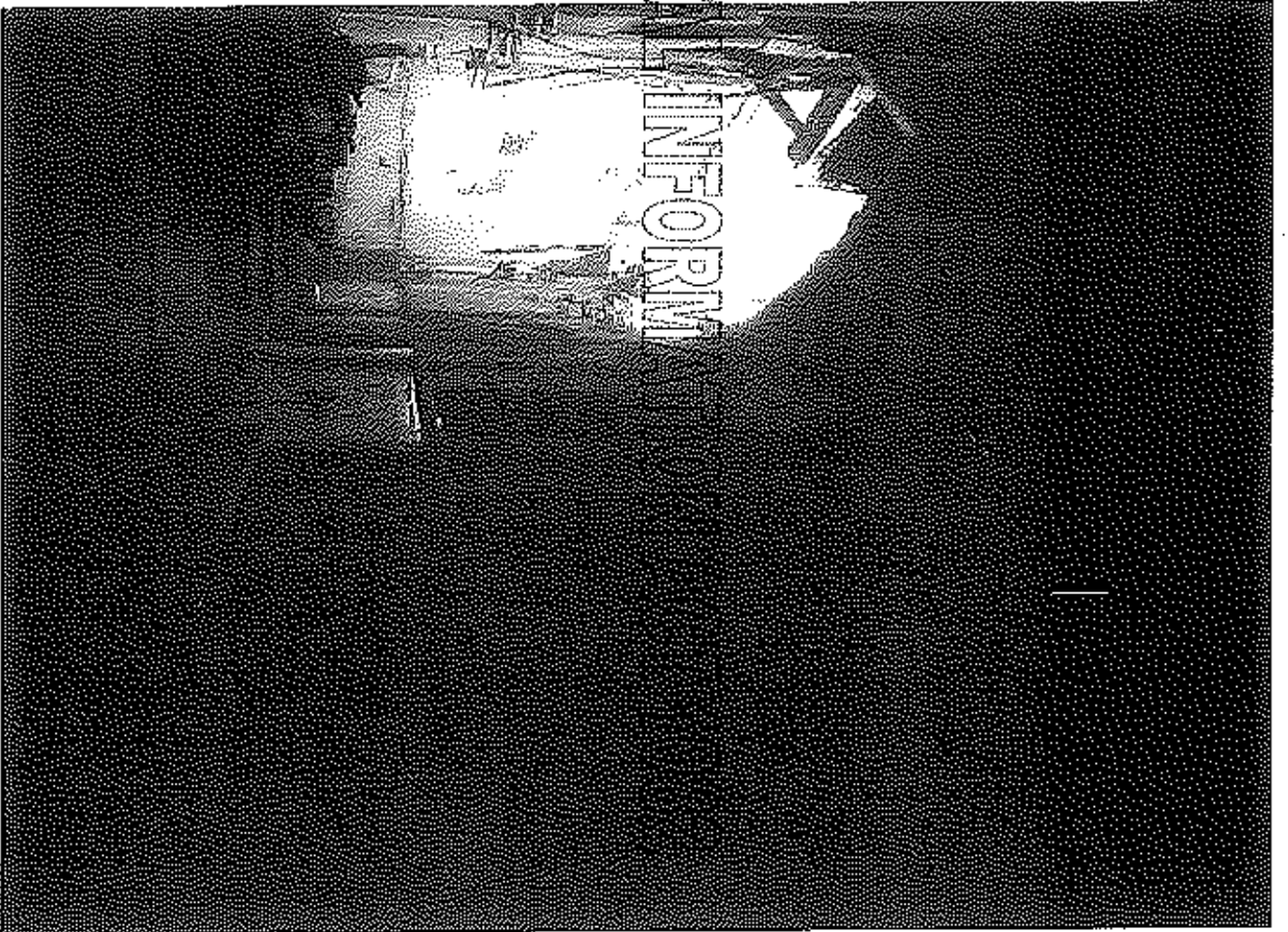


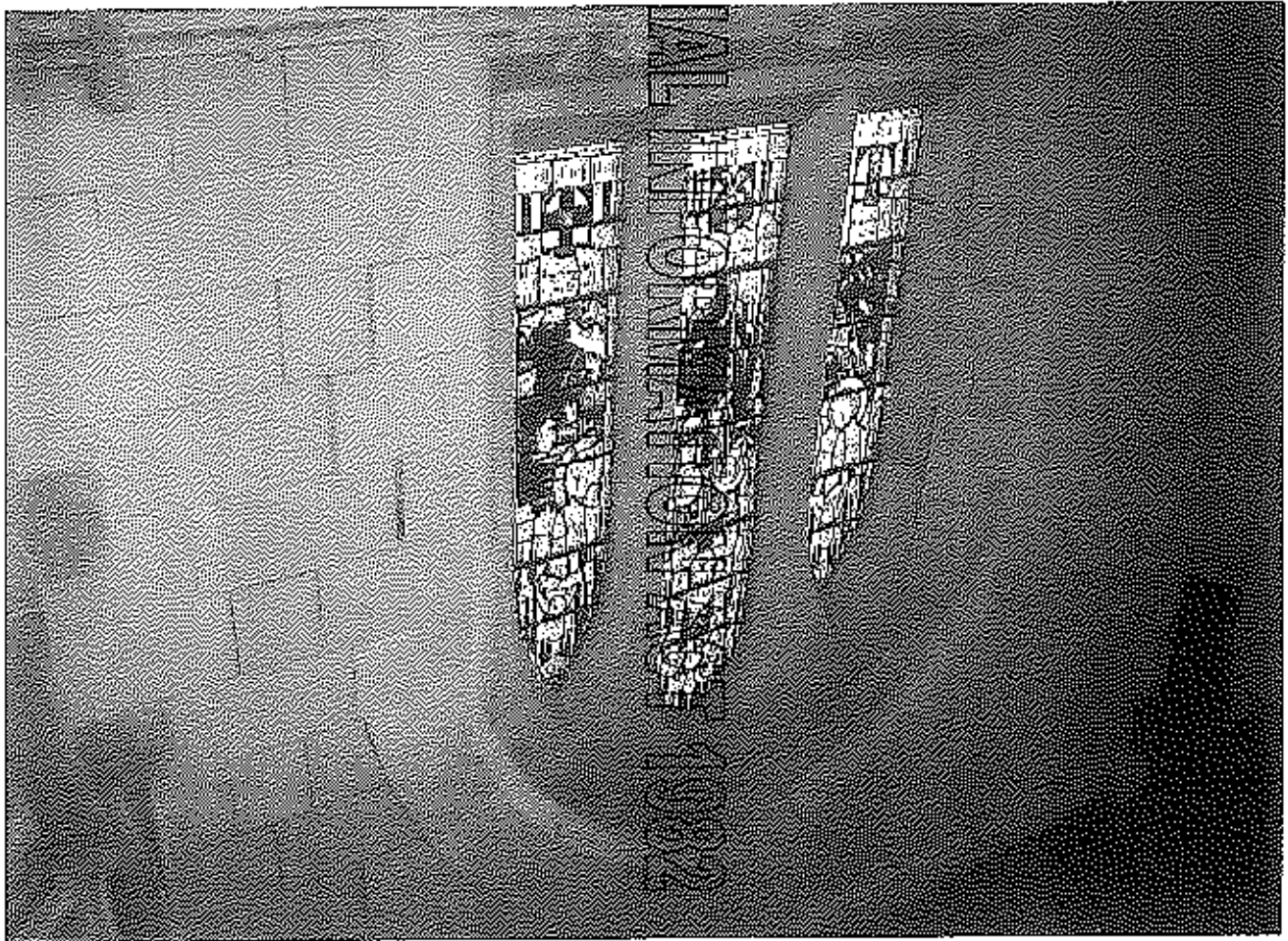
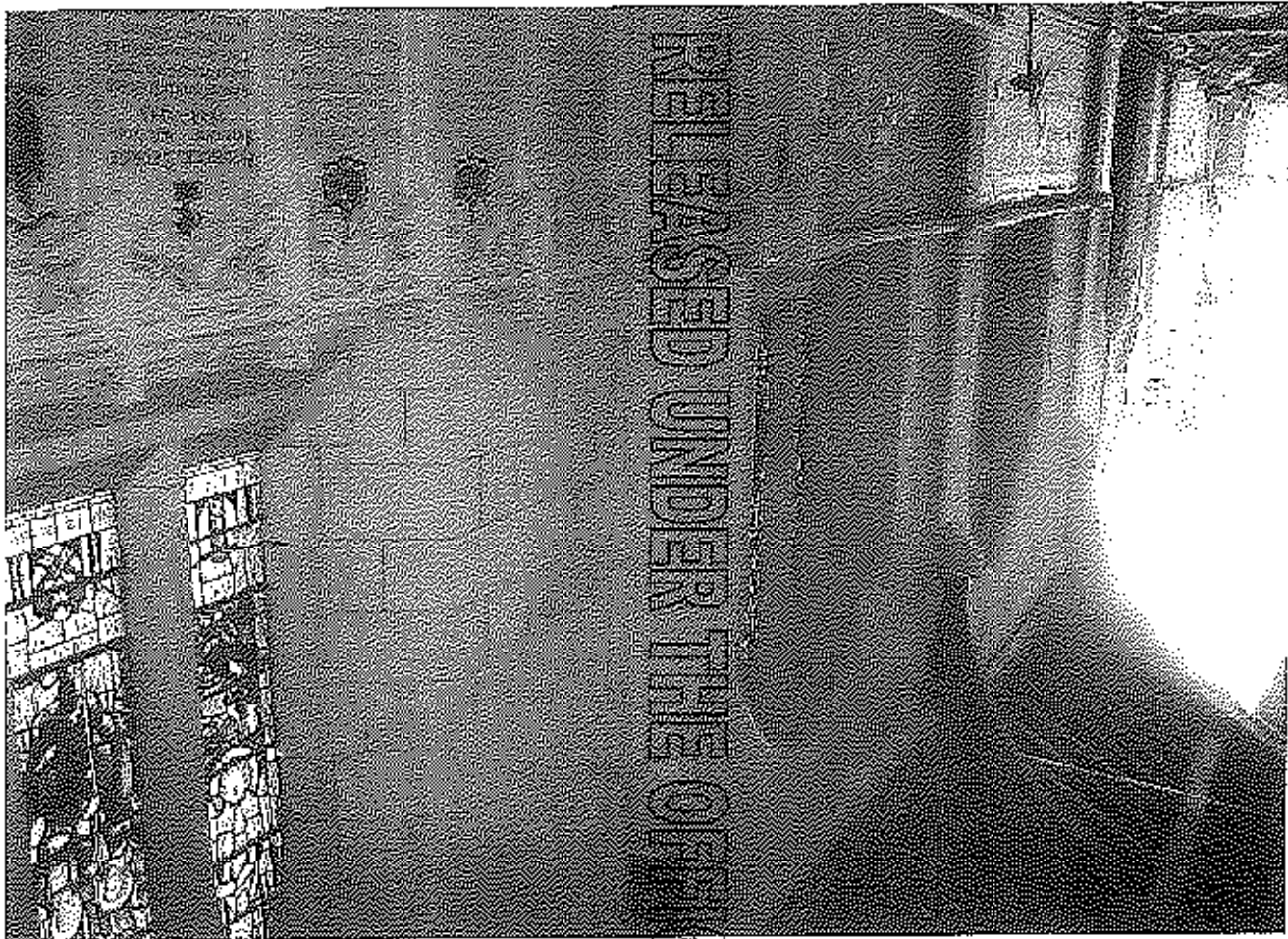


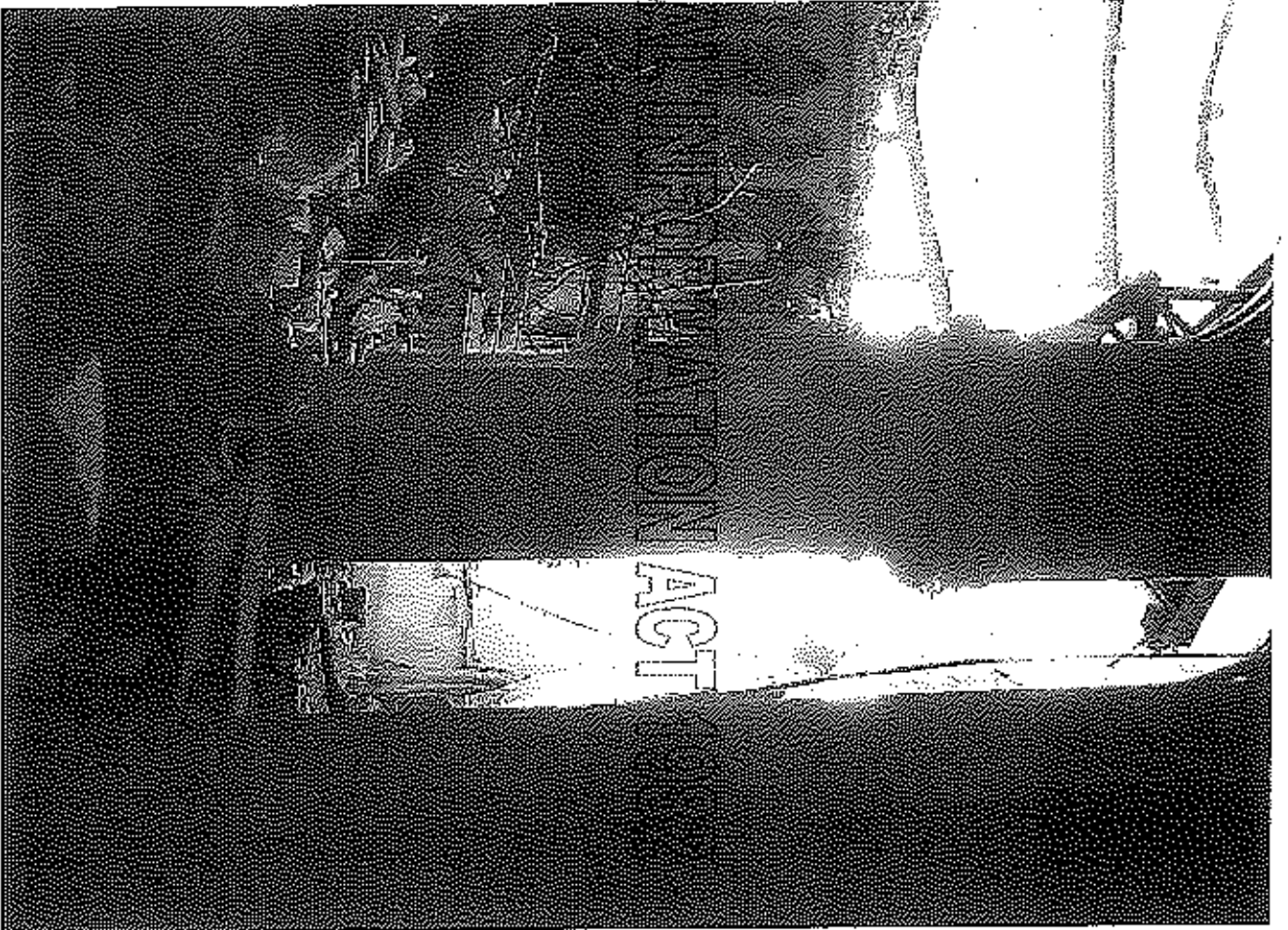
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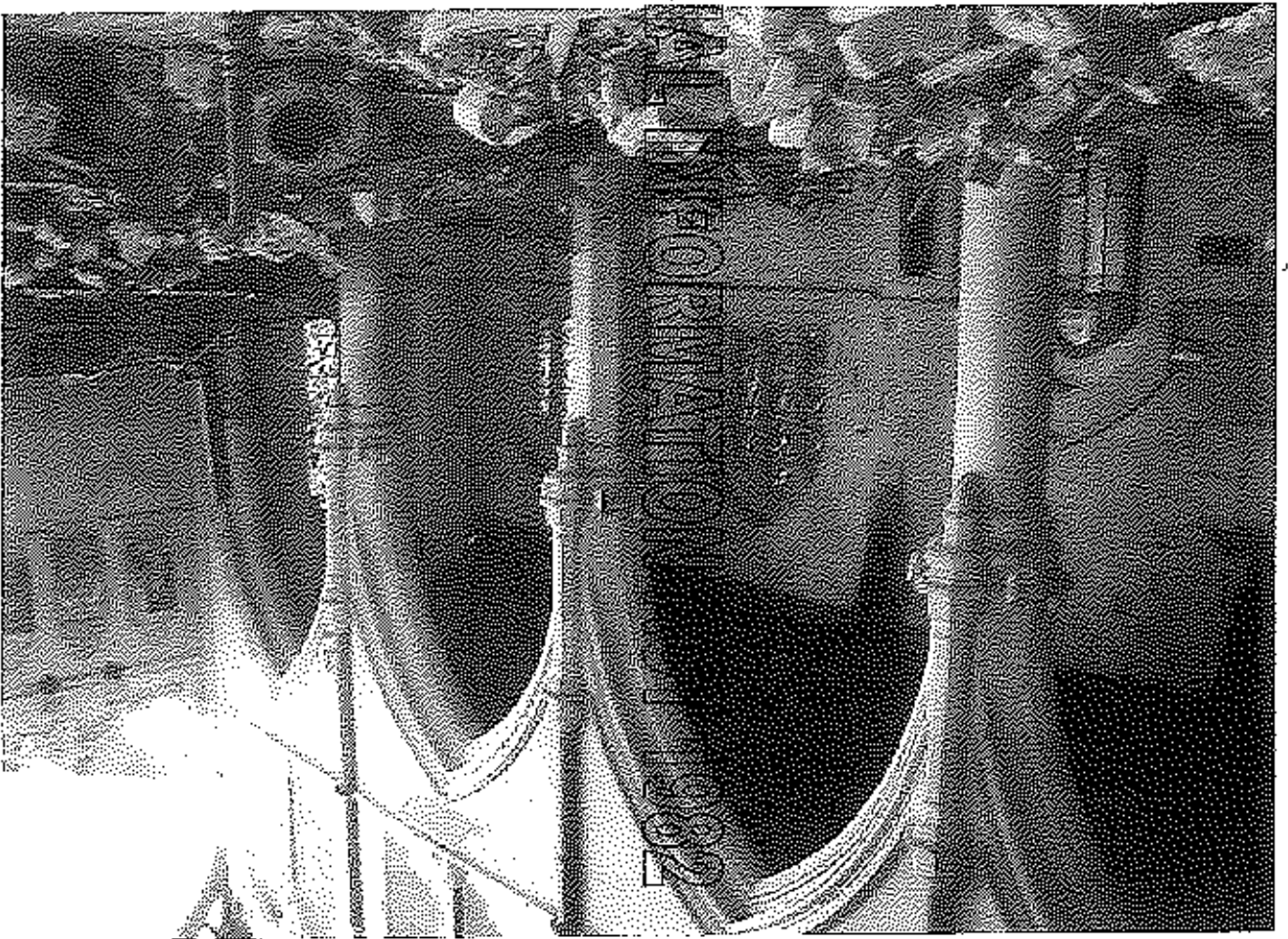
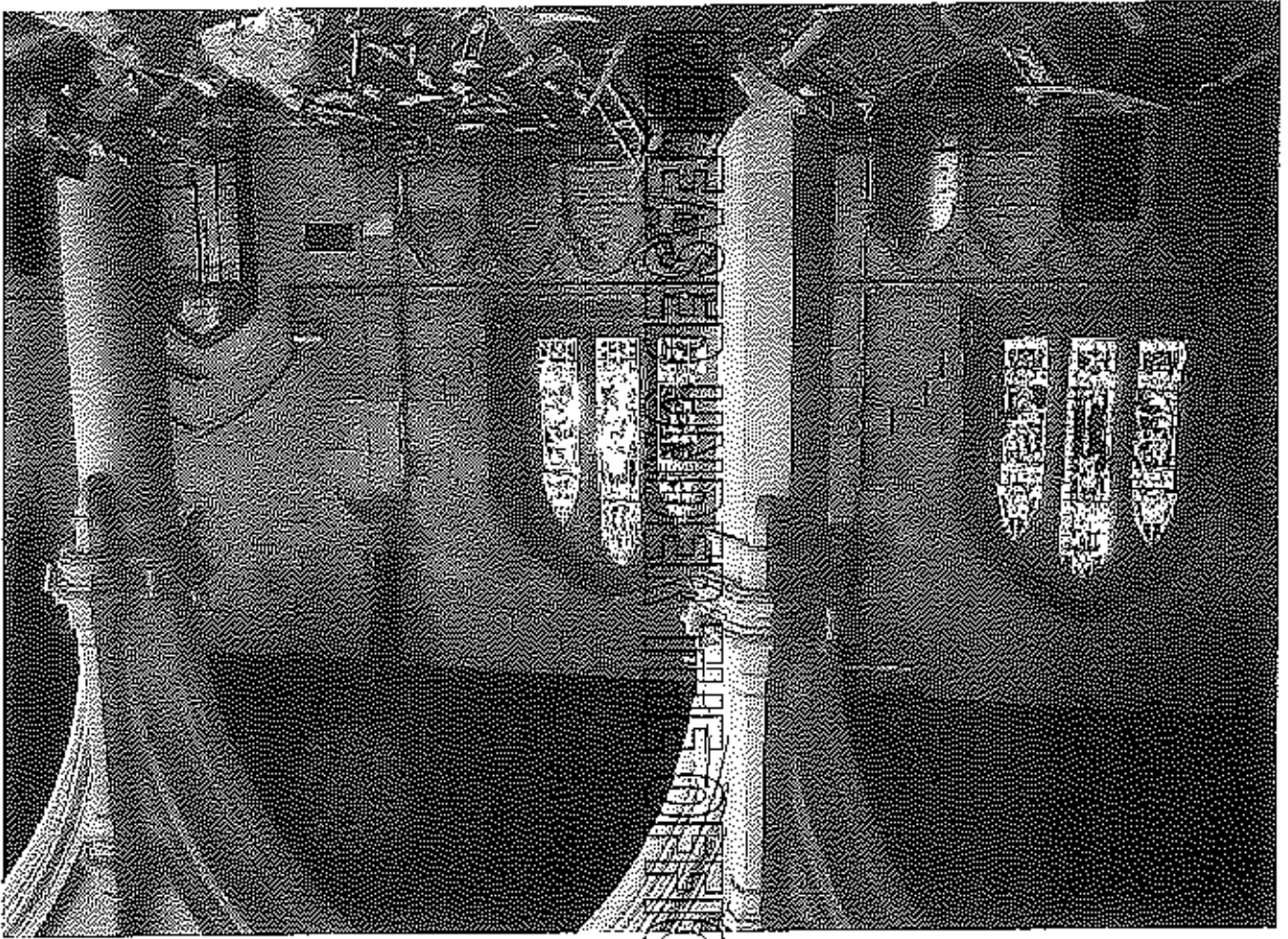


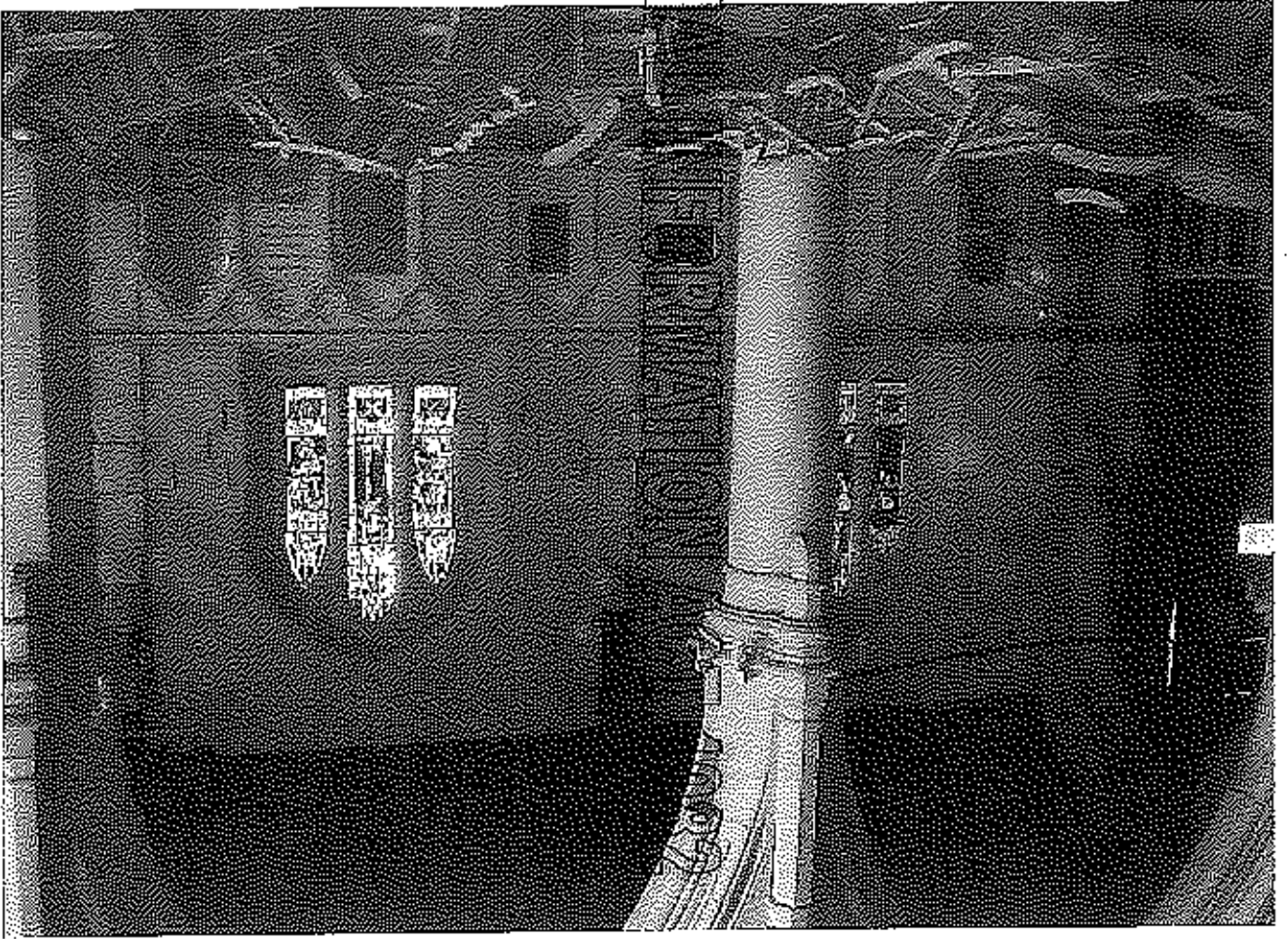
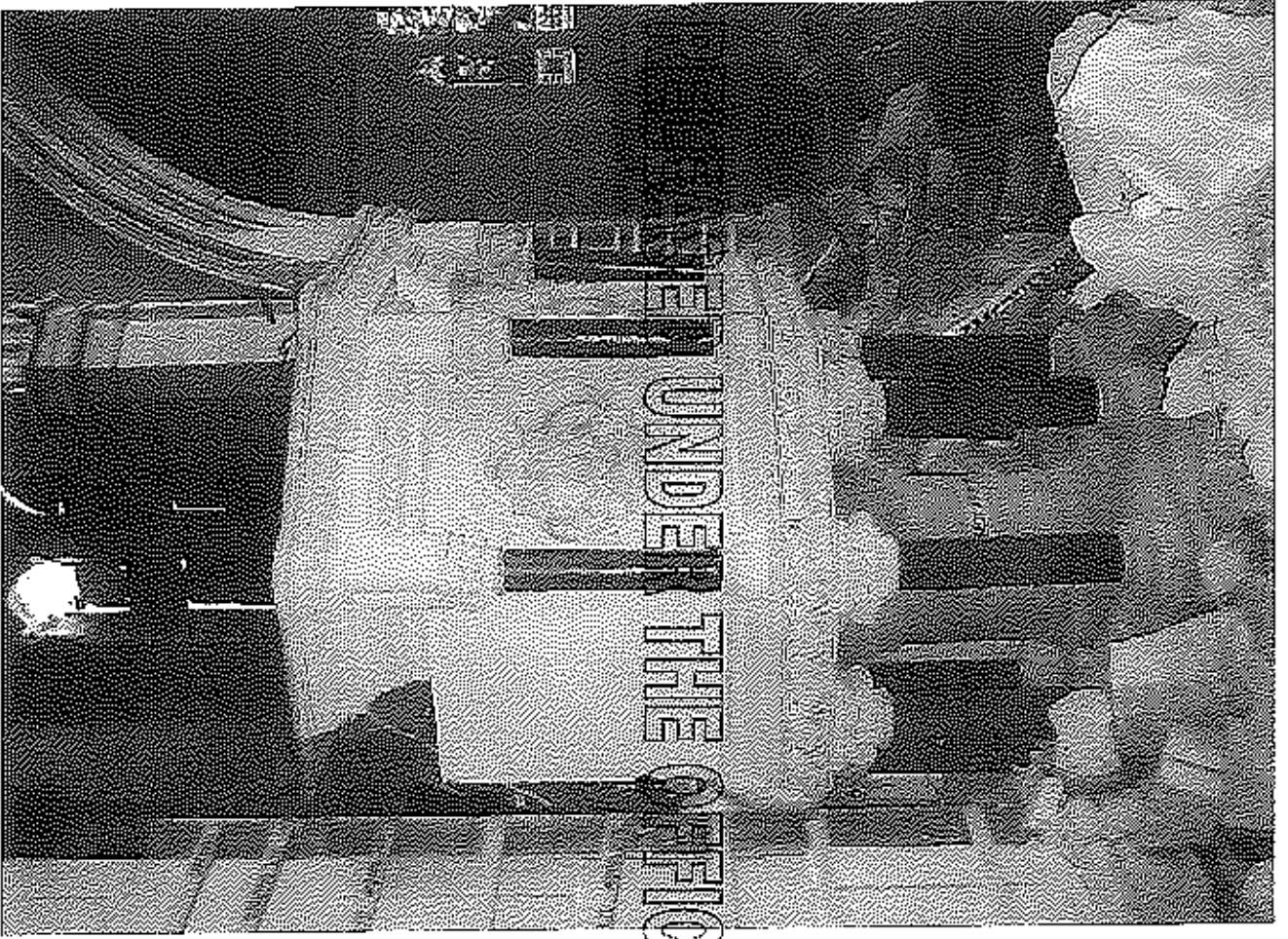


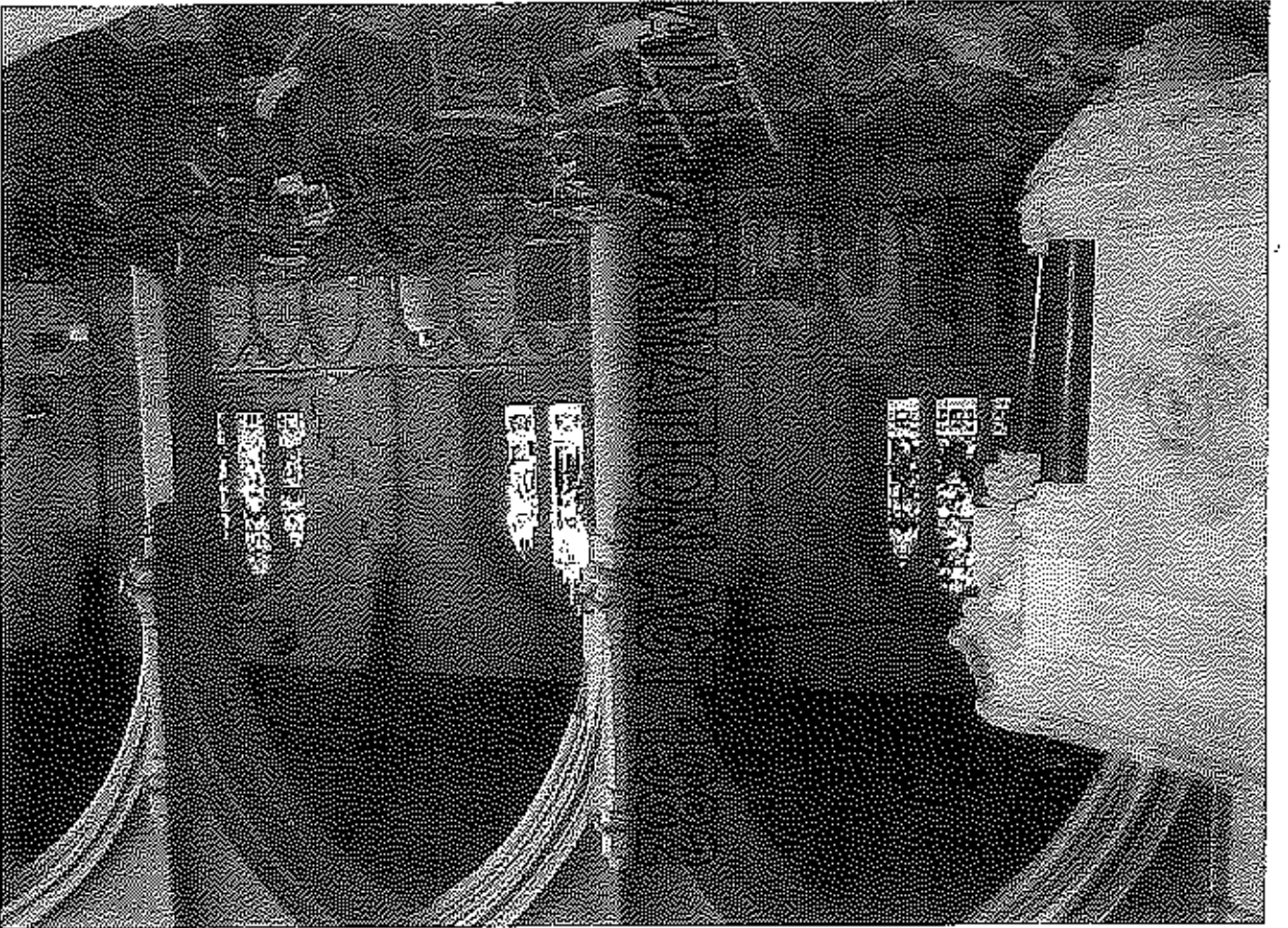
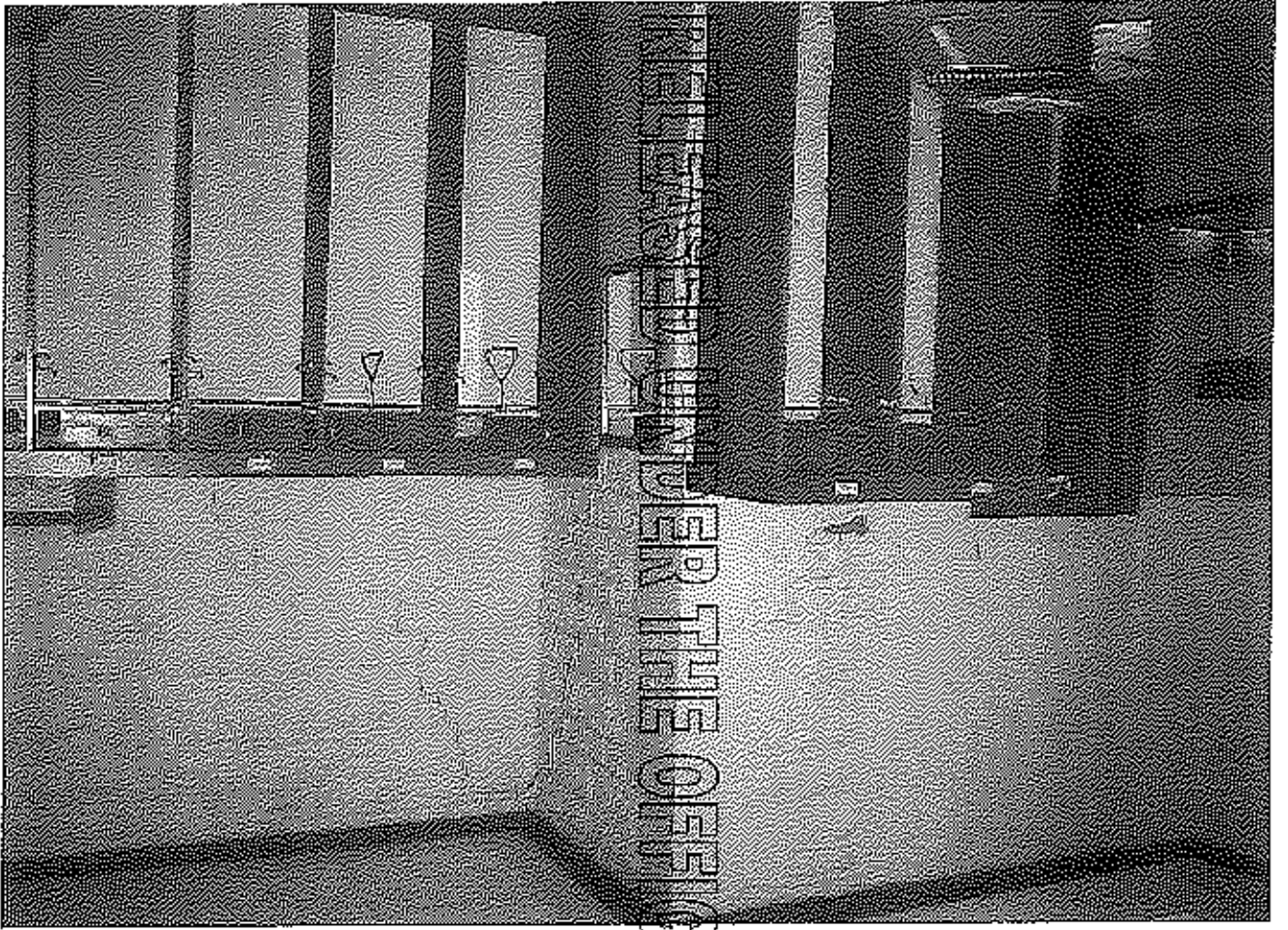


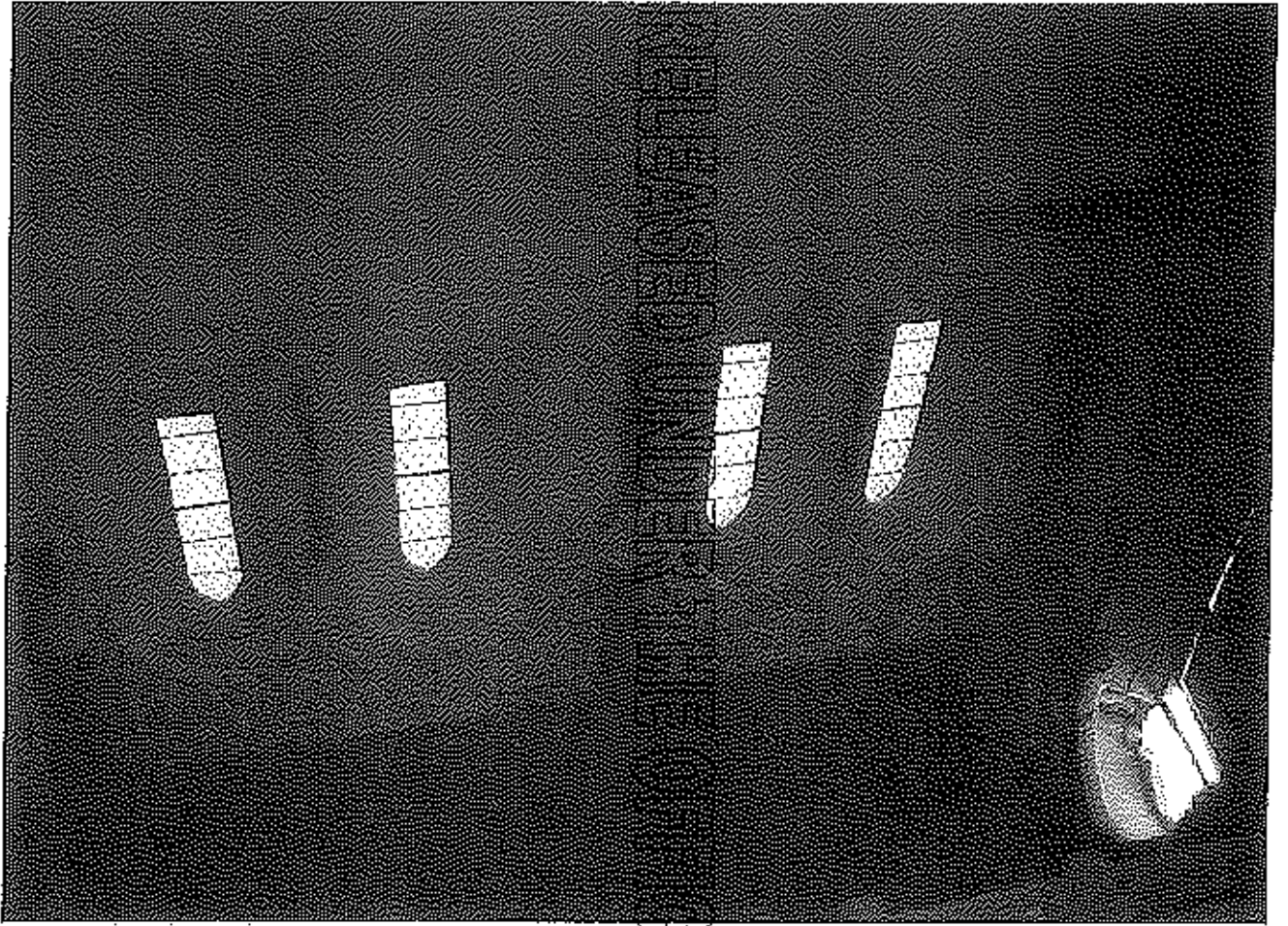


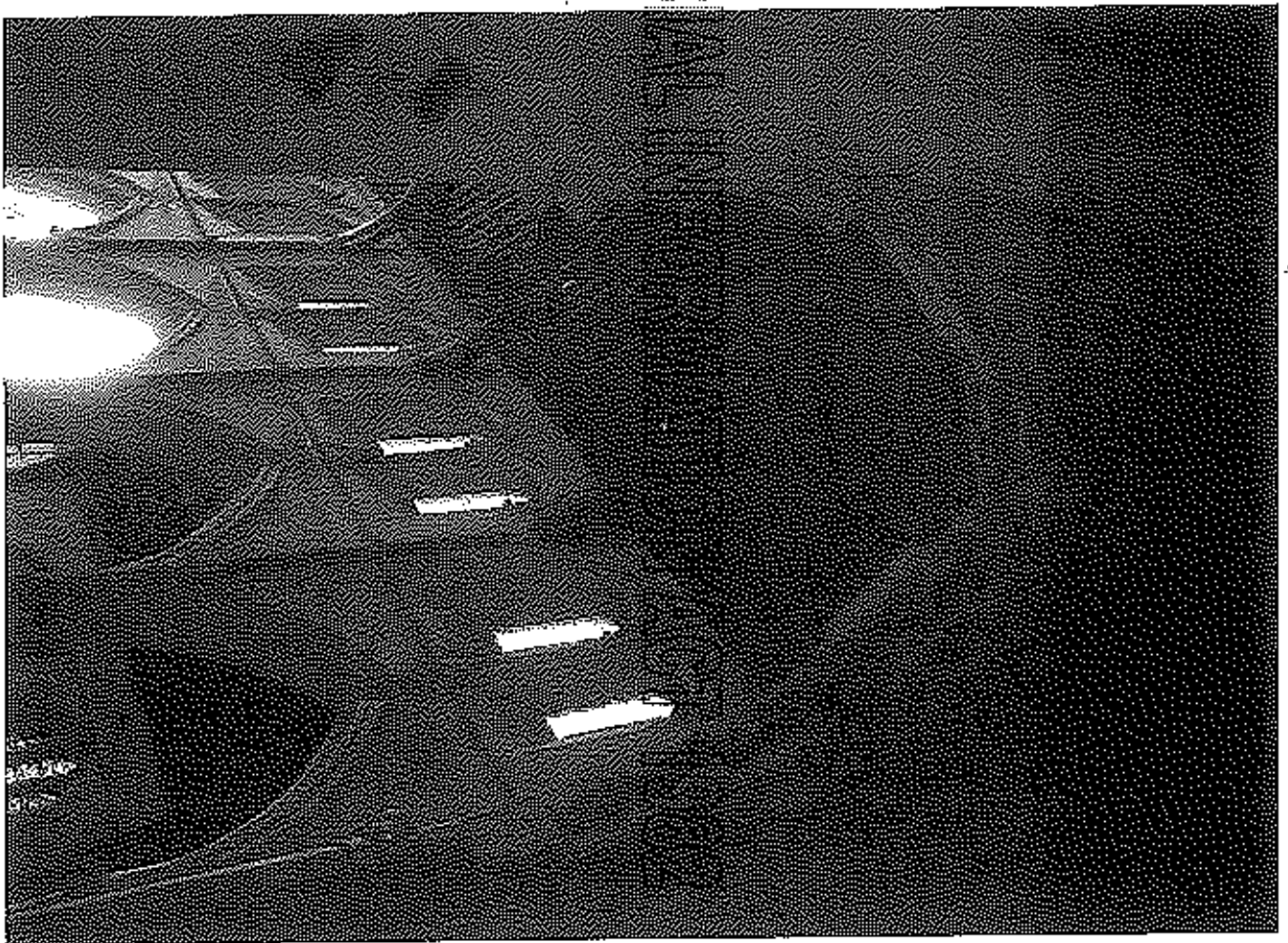
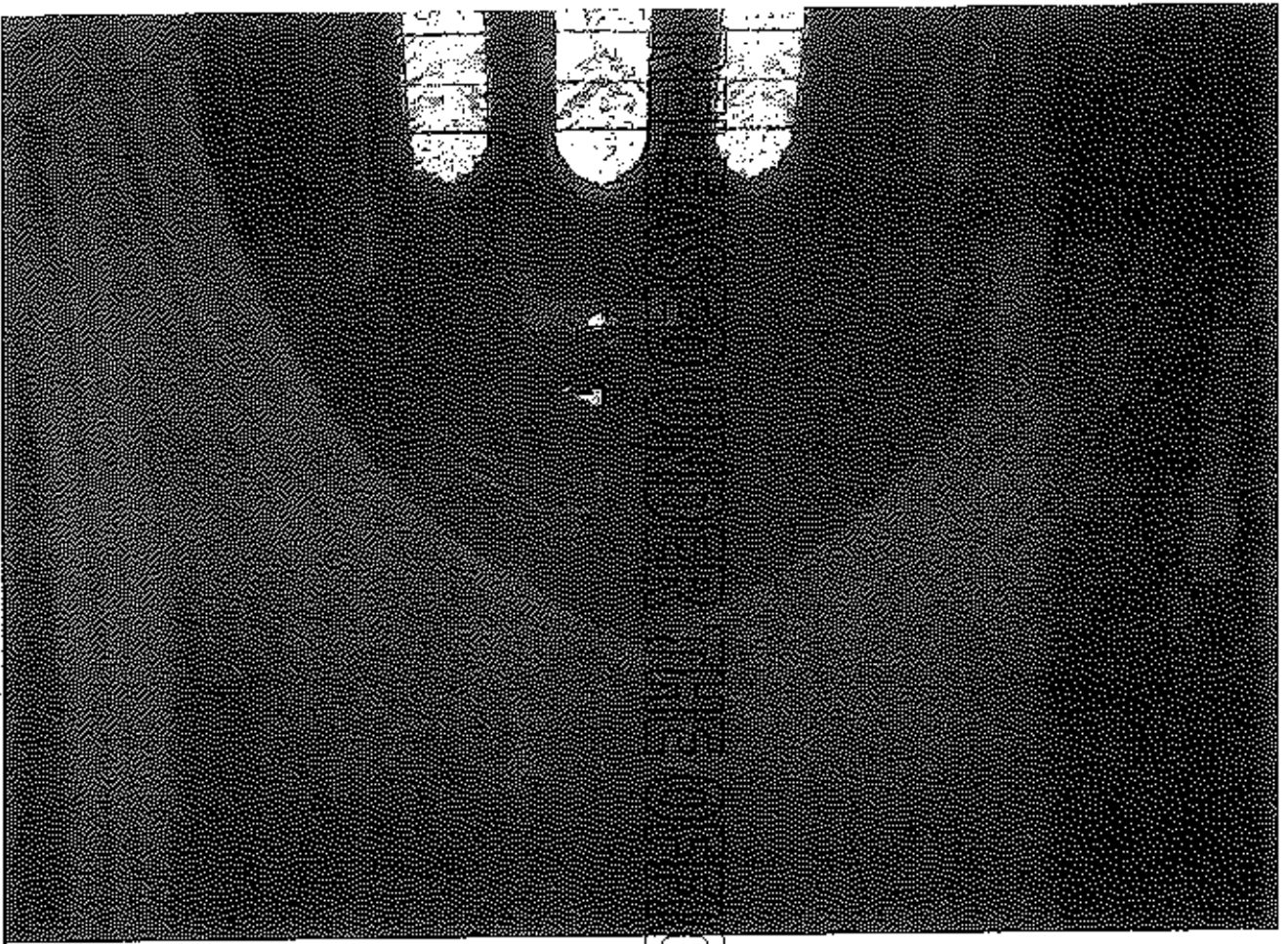


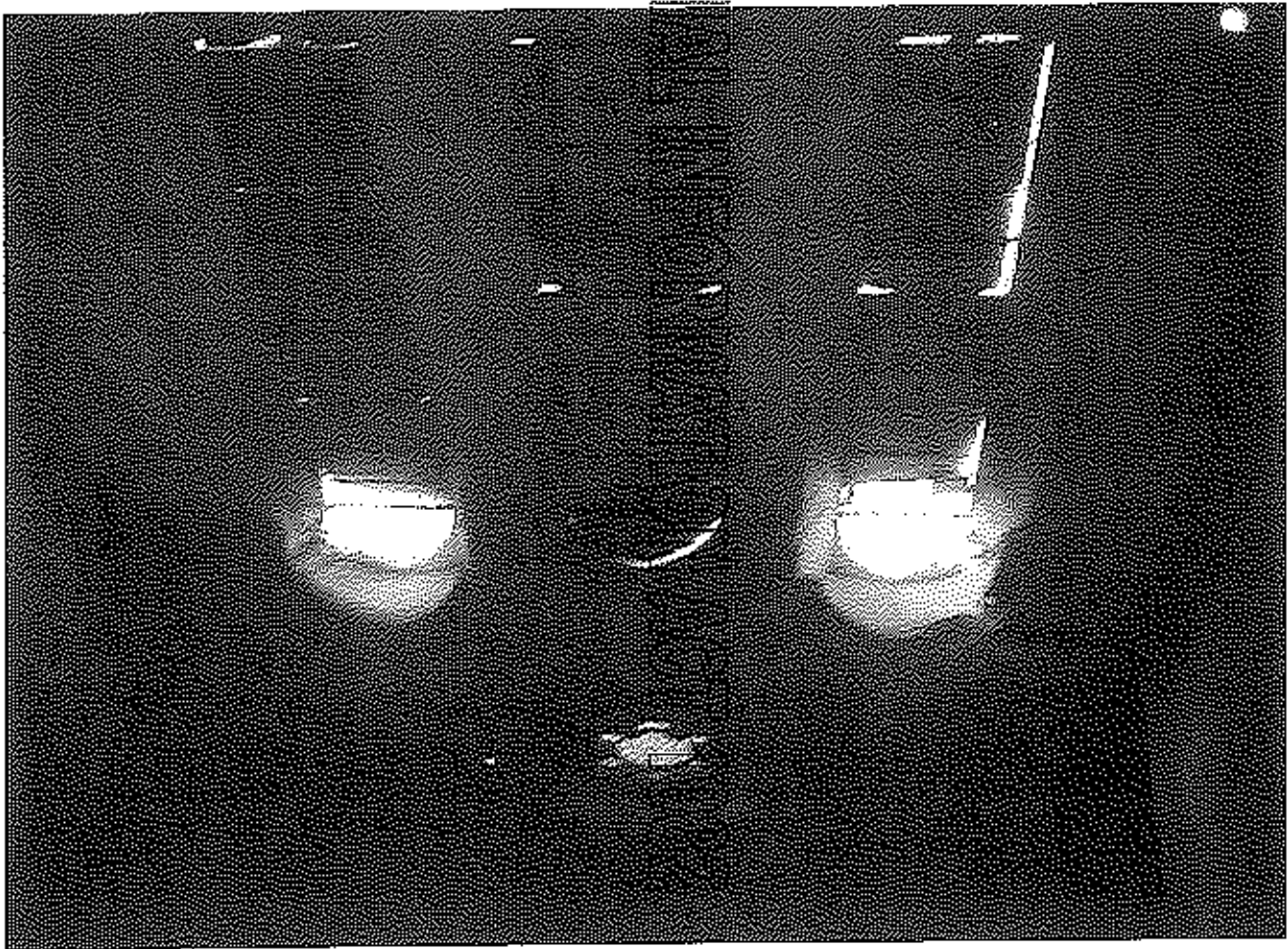
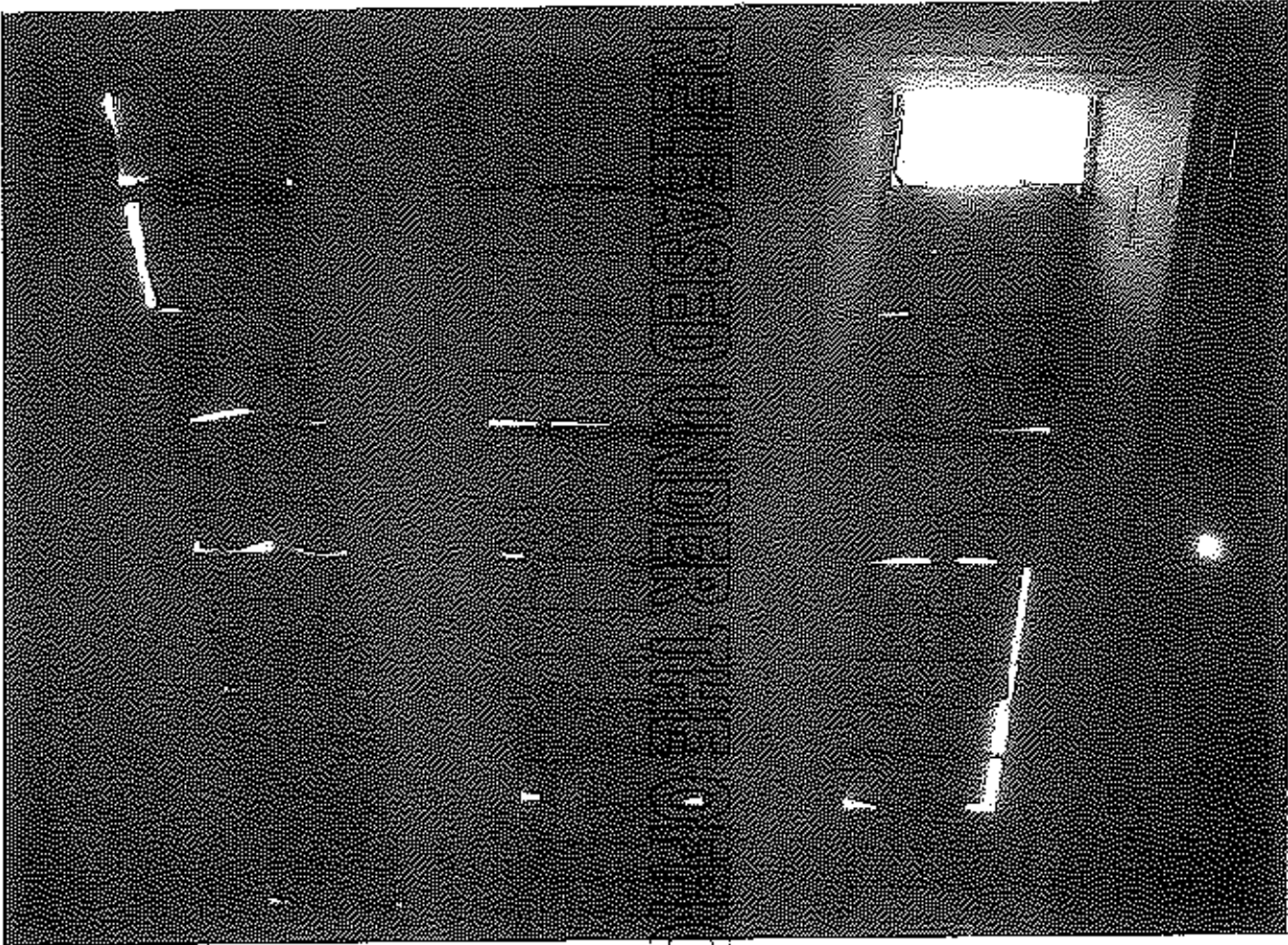


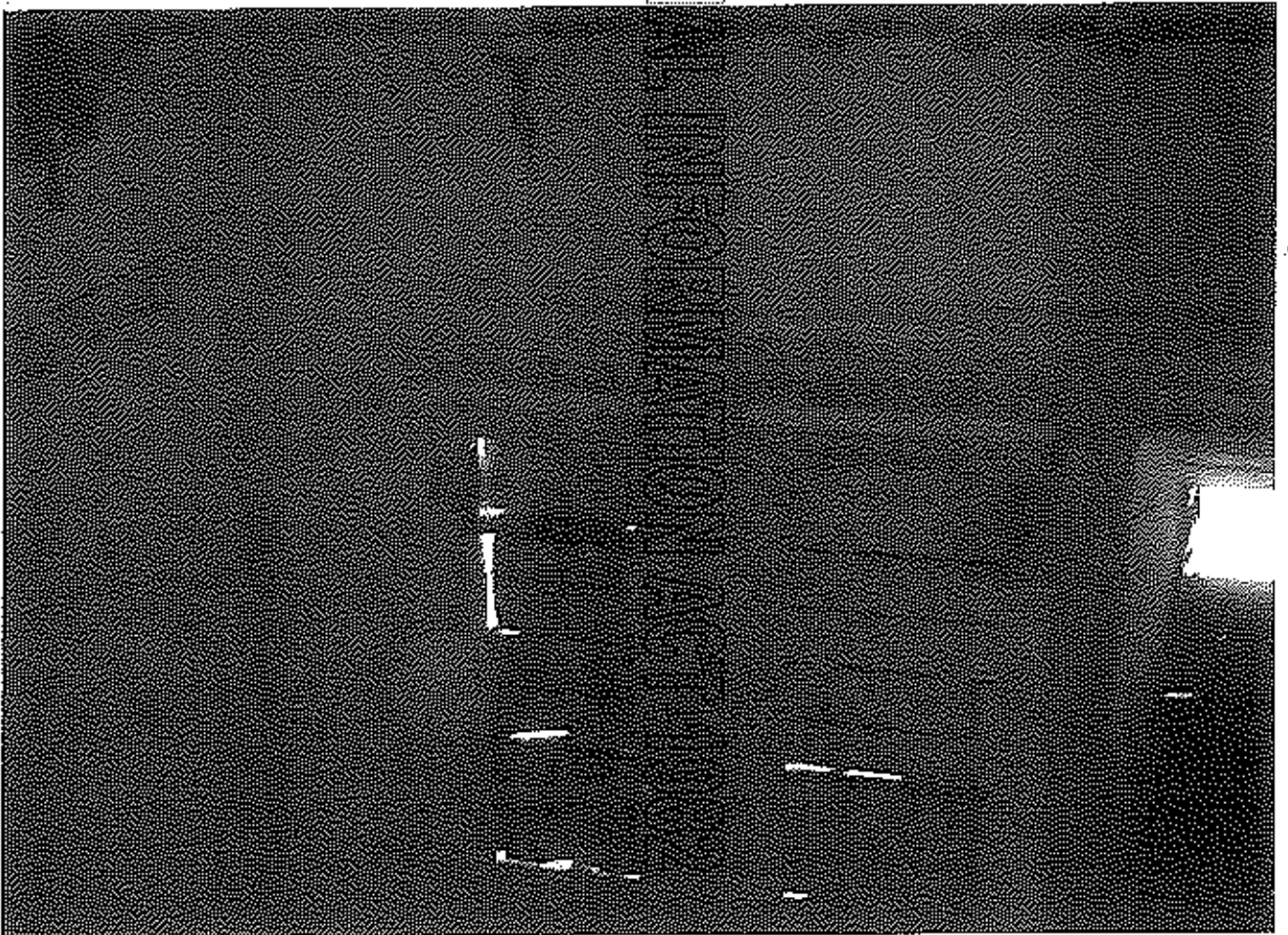


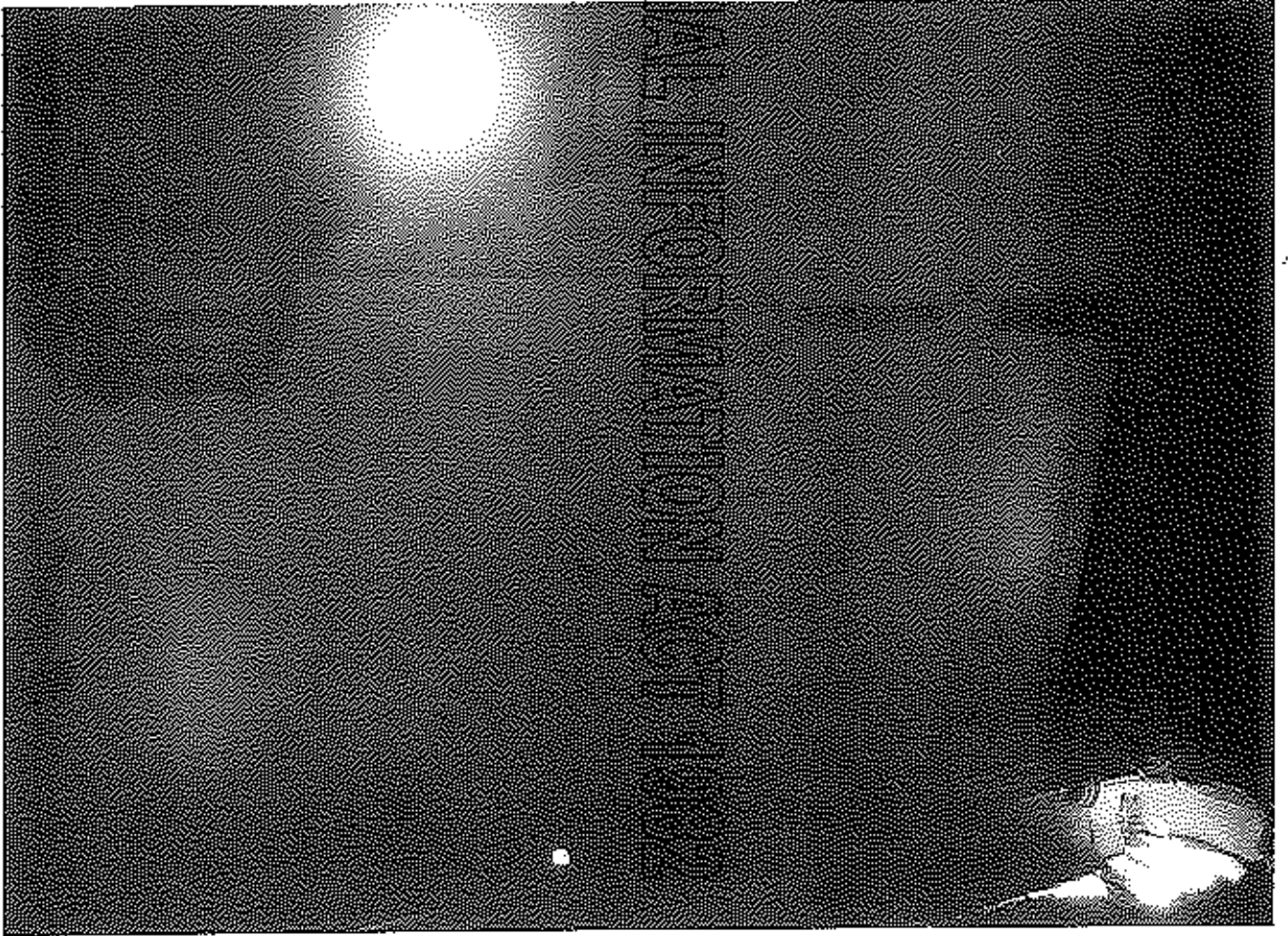
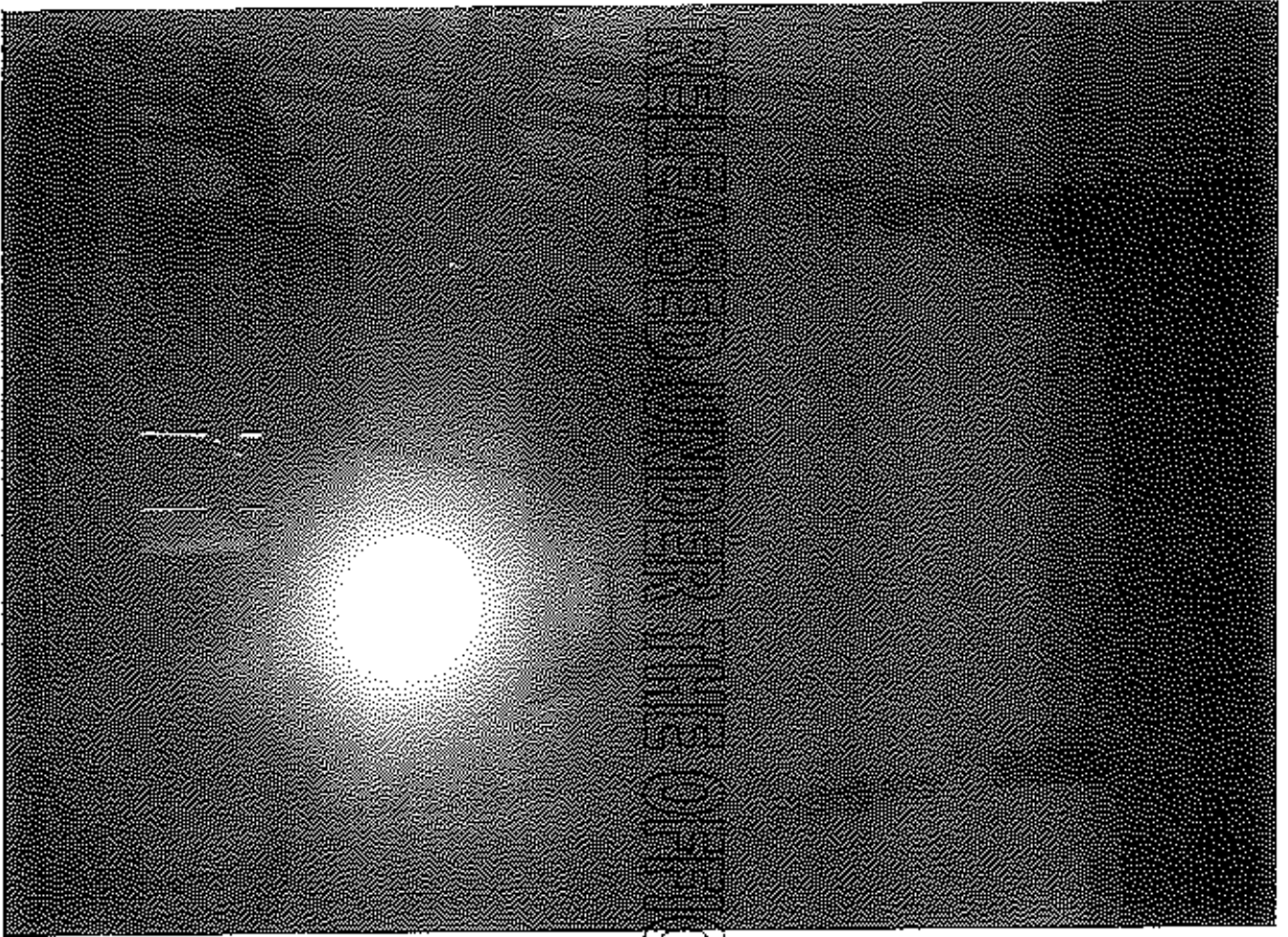


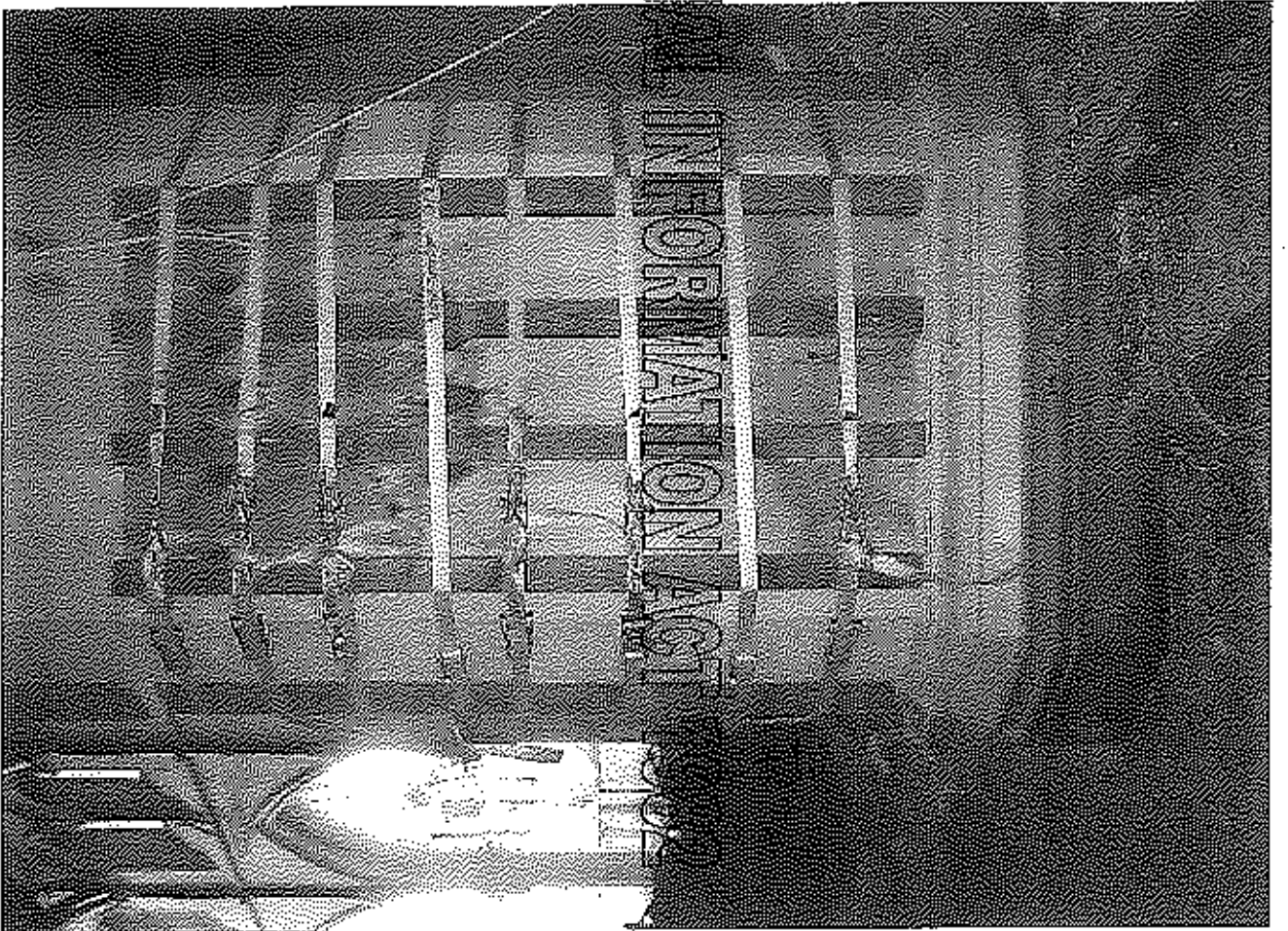
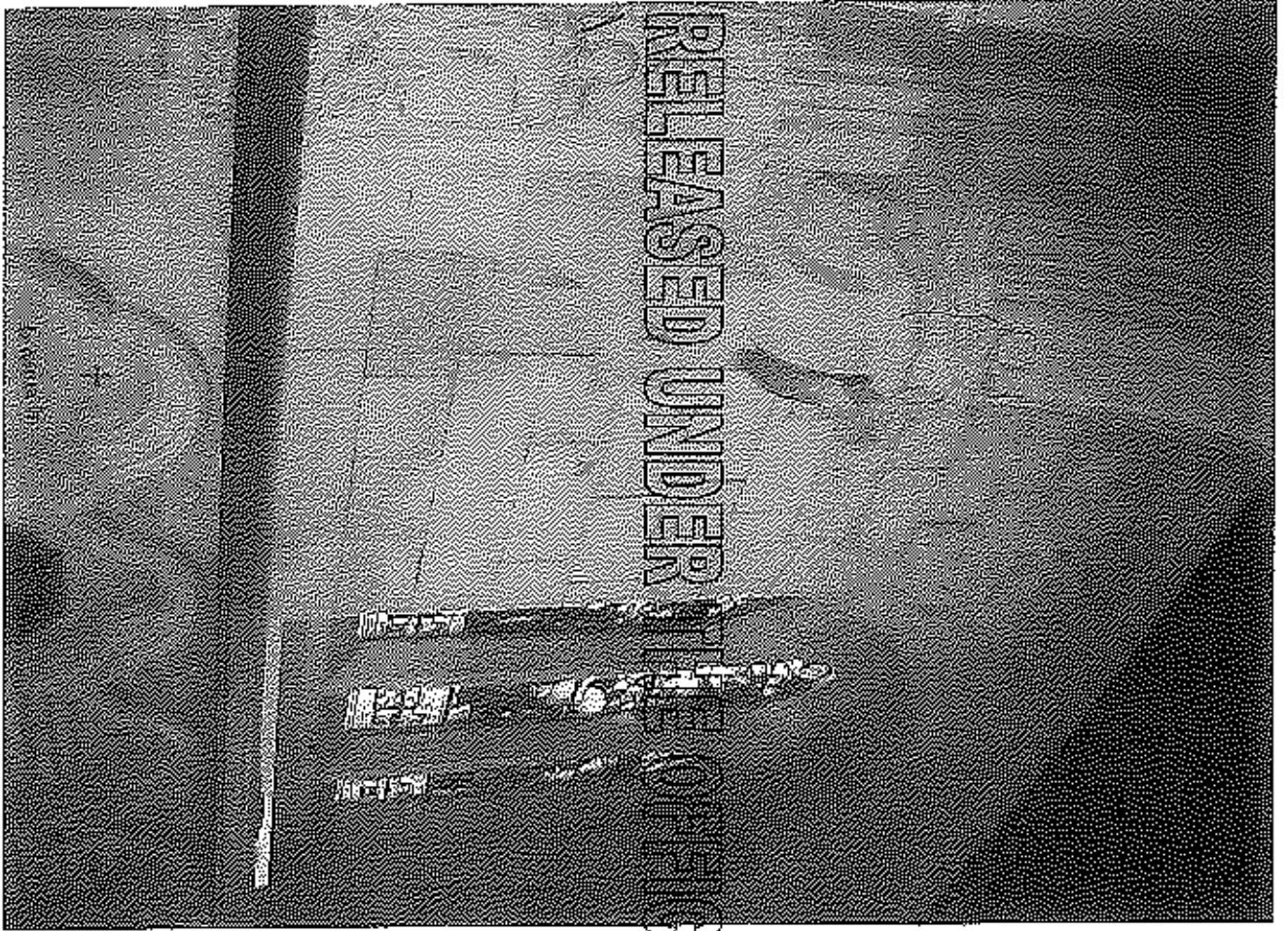


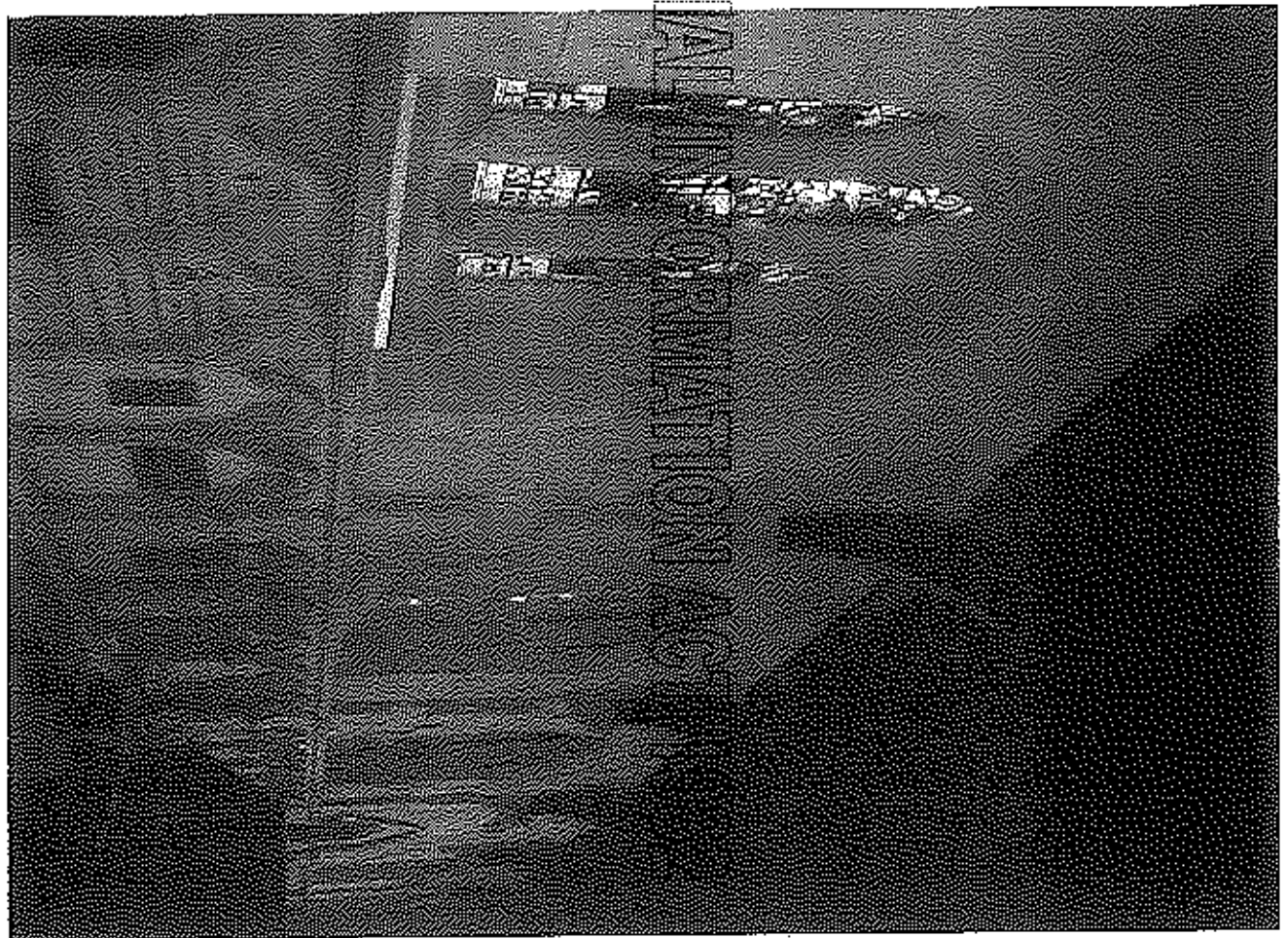


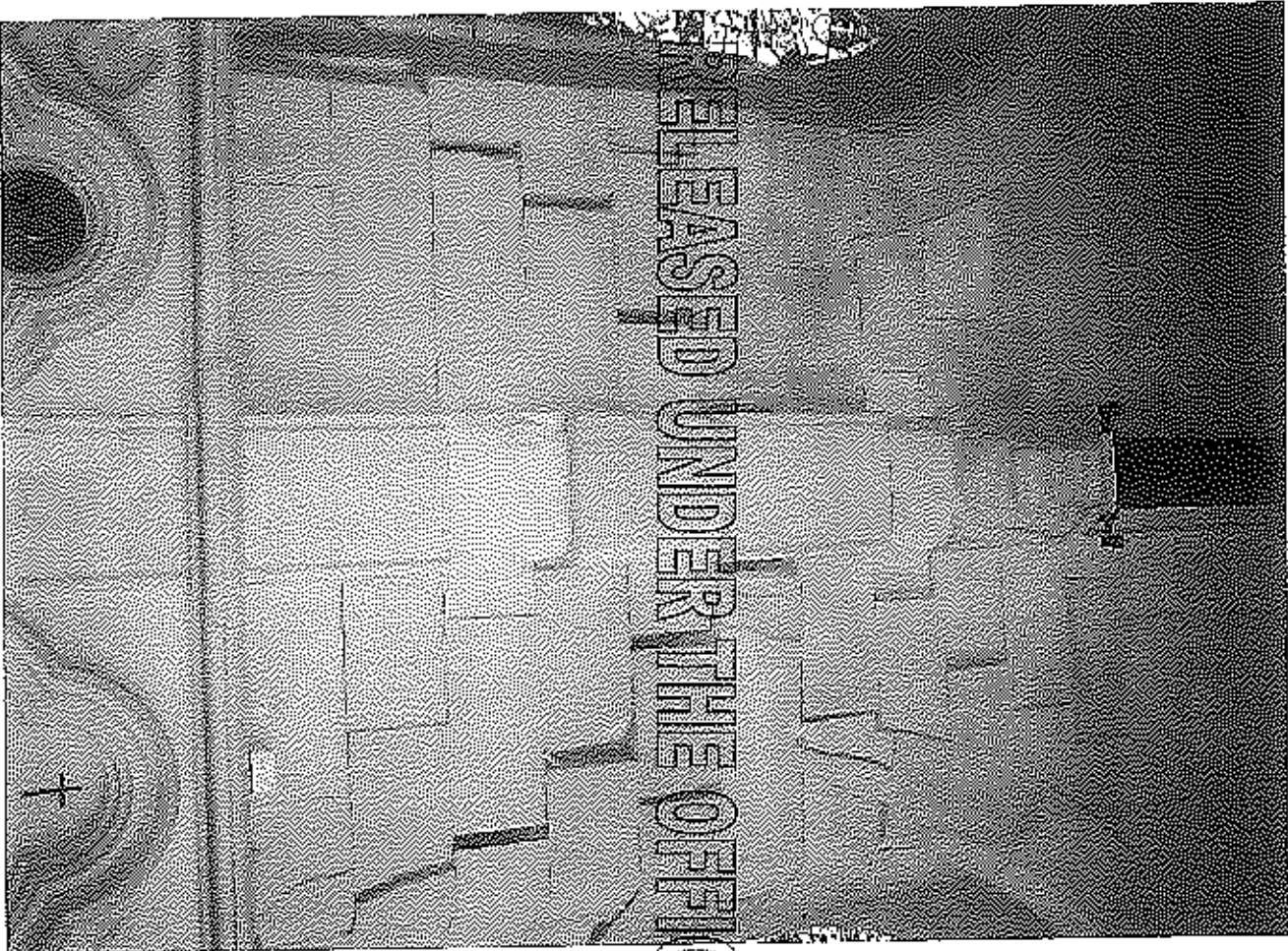




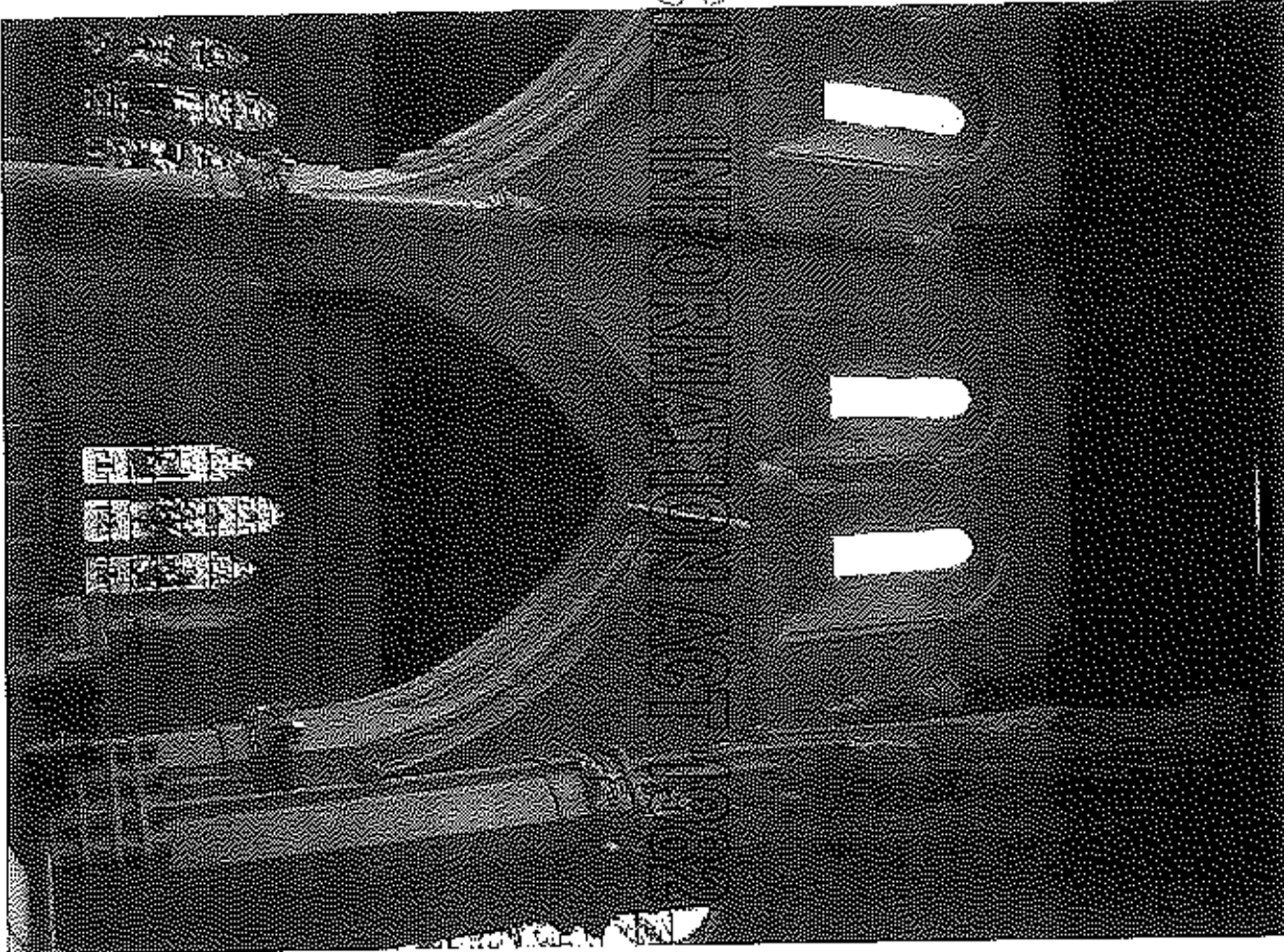


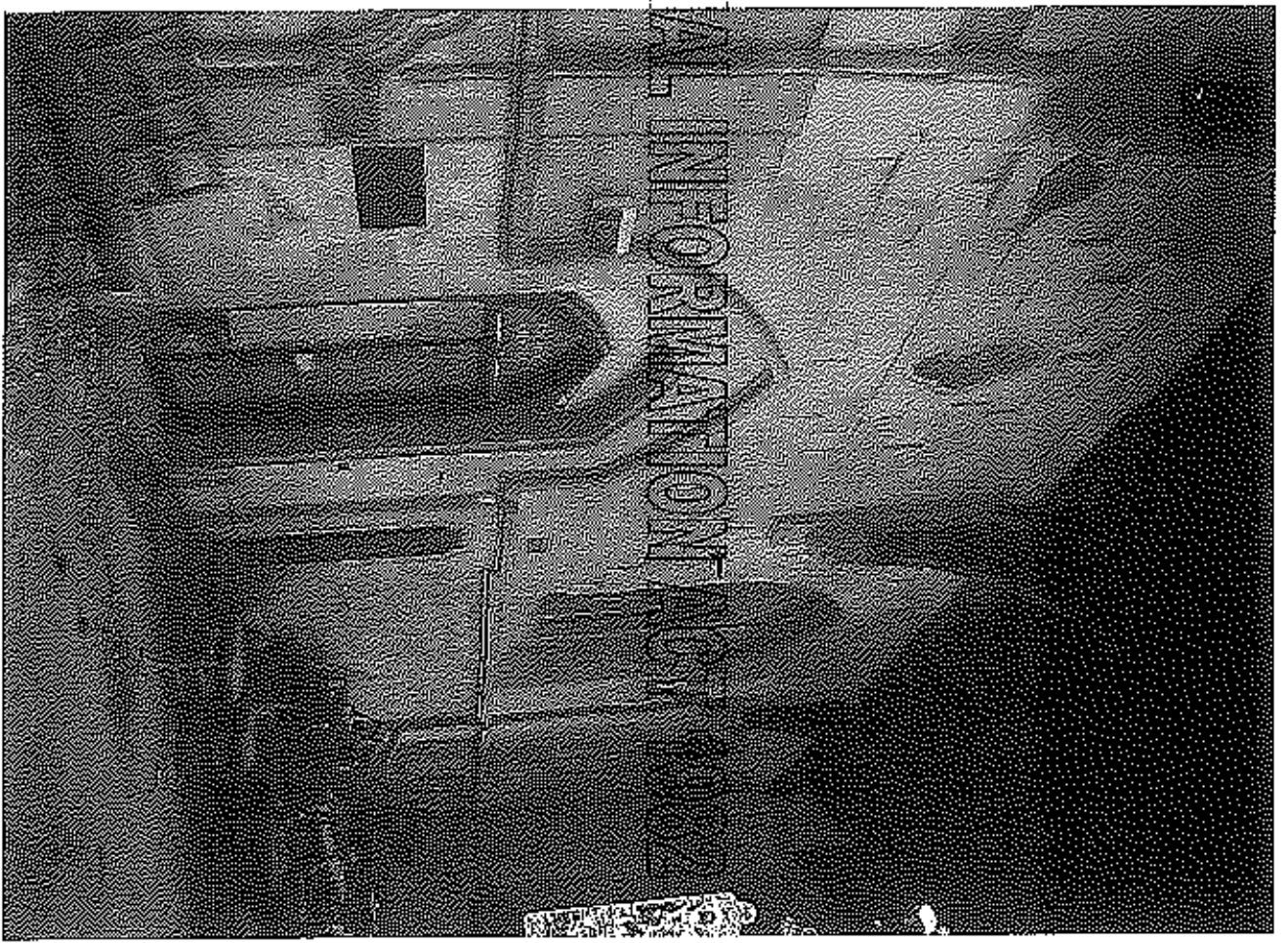


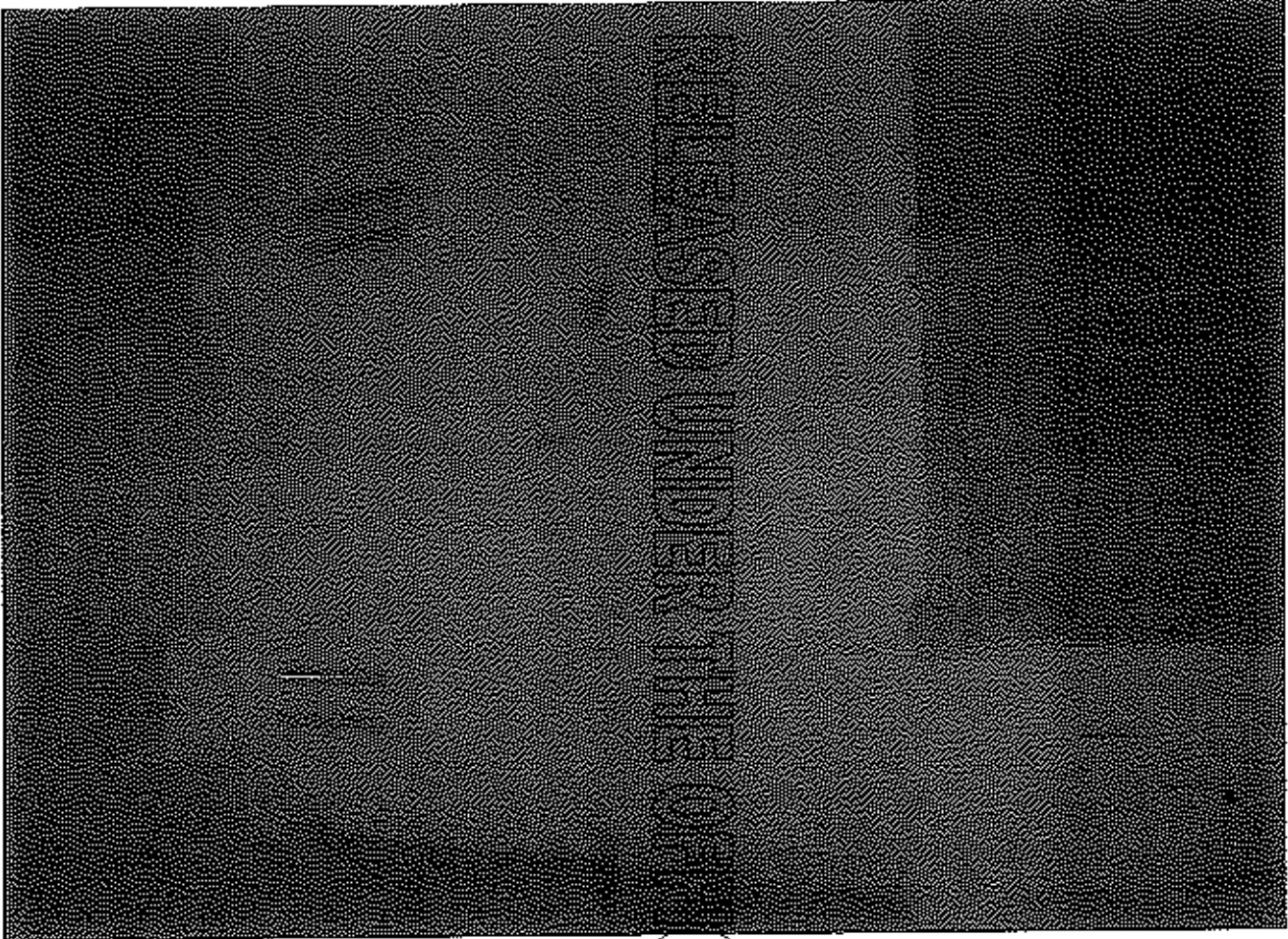




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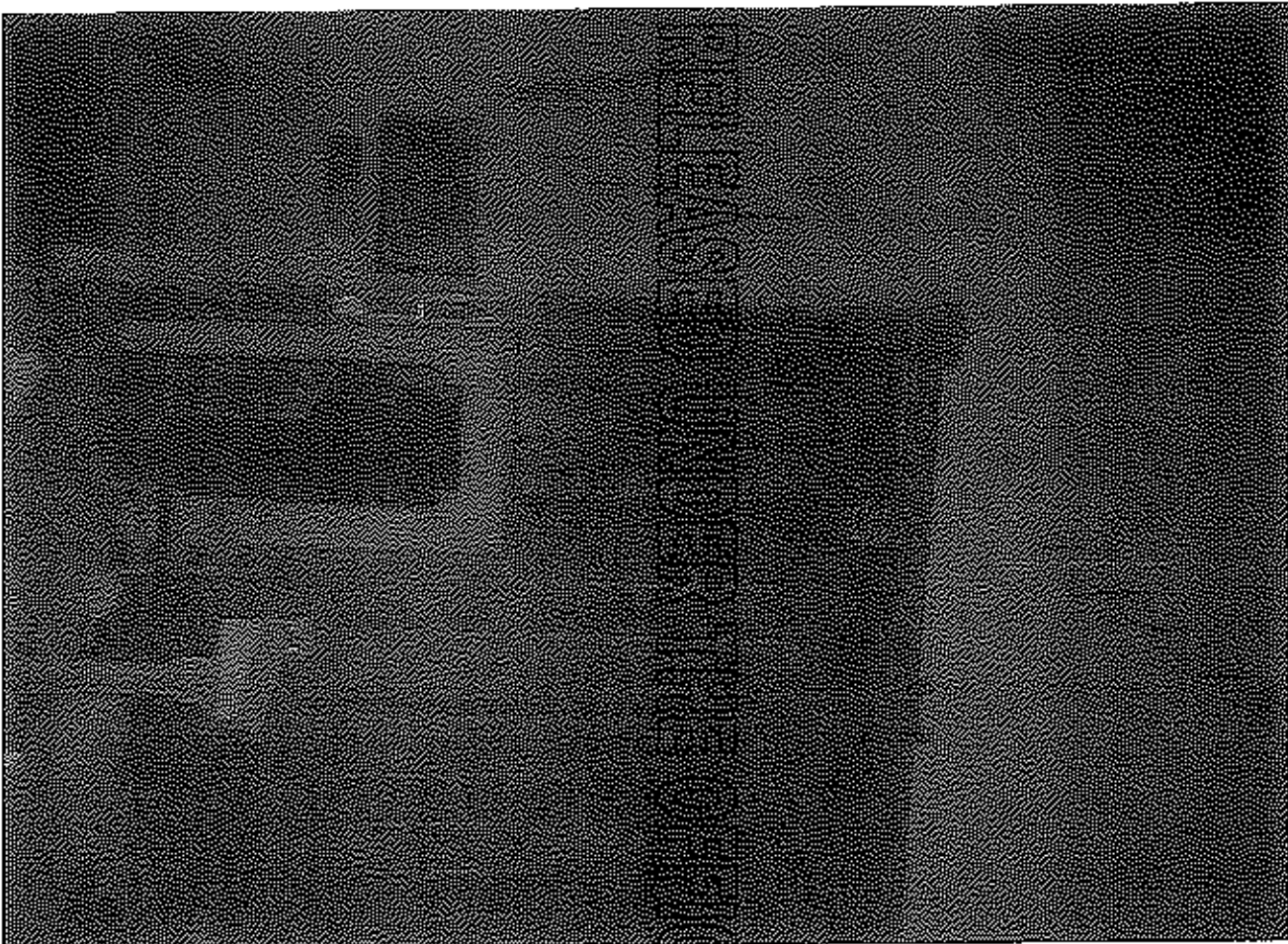


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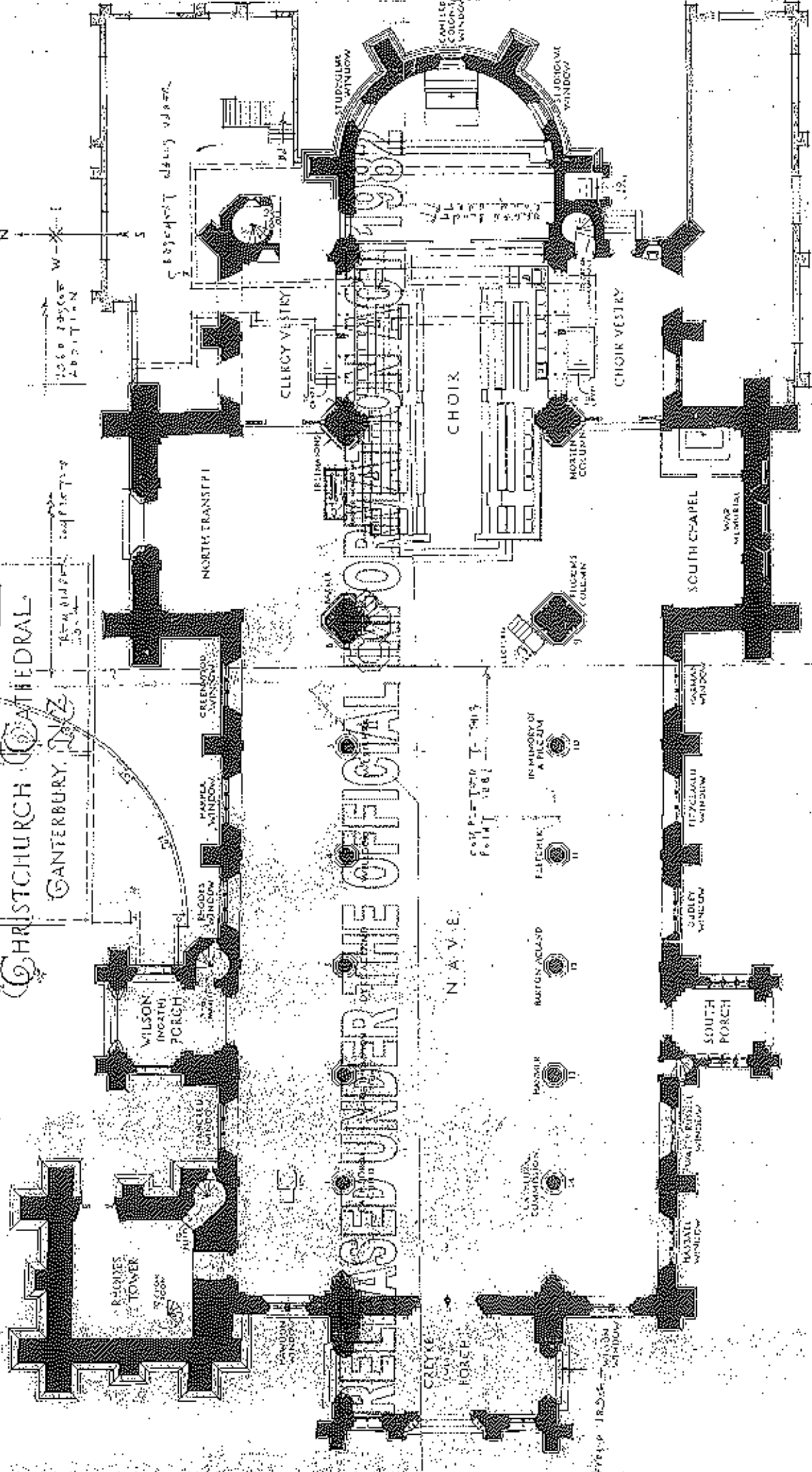
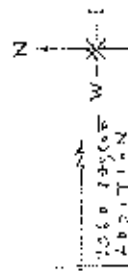
APPENDIX C -- BUILDING PLAN

PAGE C1

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205 ST. MARKS CHURCH
1889

CHRIST CHURCH CATHEDRAL GANTERBURY, N.Z.



BRUNNEN TOWER
1889

WILSON PORCH
1889

ROBES WINDOW
1889

PARVIA WINDOW
1889

GREENWOOD WINDOW
1889

NORTH TRANSEPT

CLERGY VESTRY

CHOIR

CHOIR VESTRY

TUDGILL WINDOW

CAMILLE COLONY WINDOW

JUDGIVE WINDOW

CRAYNE PORCH
1889

WILSON WINDOW
1889

ROBERTSON WINDOW
1889

SOUTH PORCH

GADLEY WINDOW

DEZALLARD WINDOW

WARREN WINDOW

WAR MEMORIAL

SOUTH CHAPEL

MORTON COLUMN

HUGHES COLUMN

IN MEMORY OF A PILGRIM

ELFELICK

BARTON AGLASD

PASTOR

LAURENCE COMMISSION

COMPLETED 1889

N. A. V. E.

YEAR 1889

1889

1889

1889

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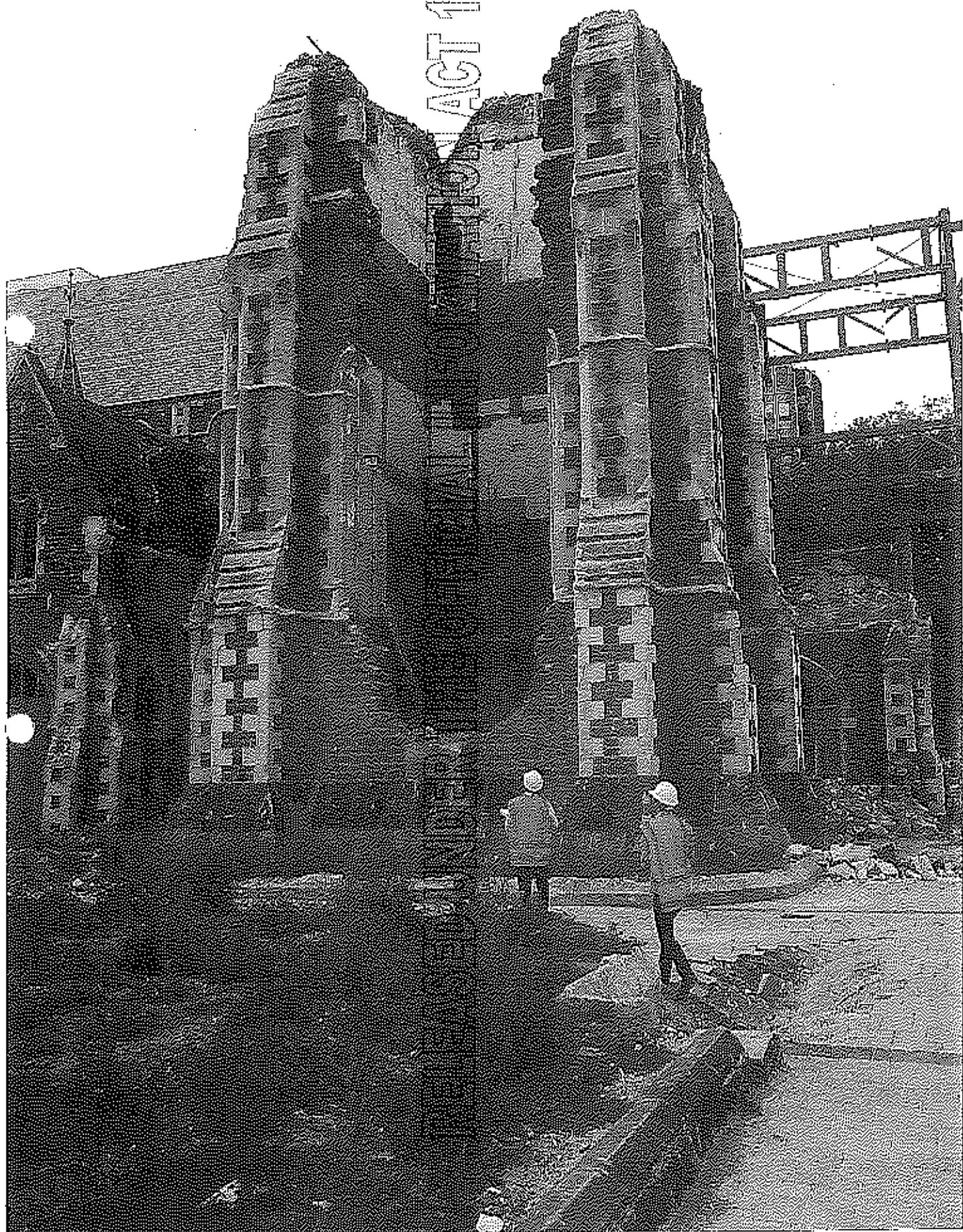
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ACT 1982

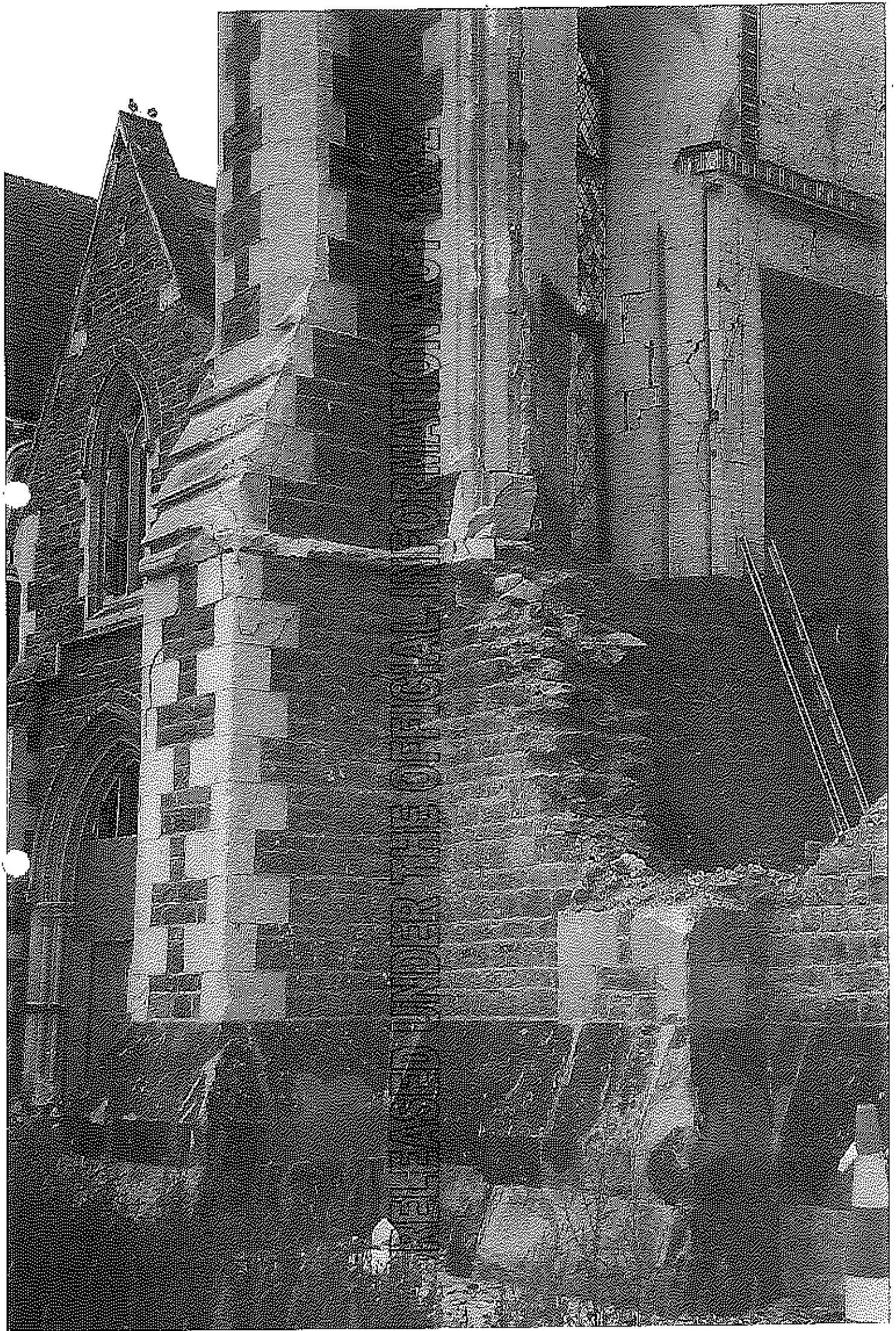


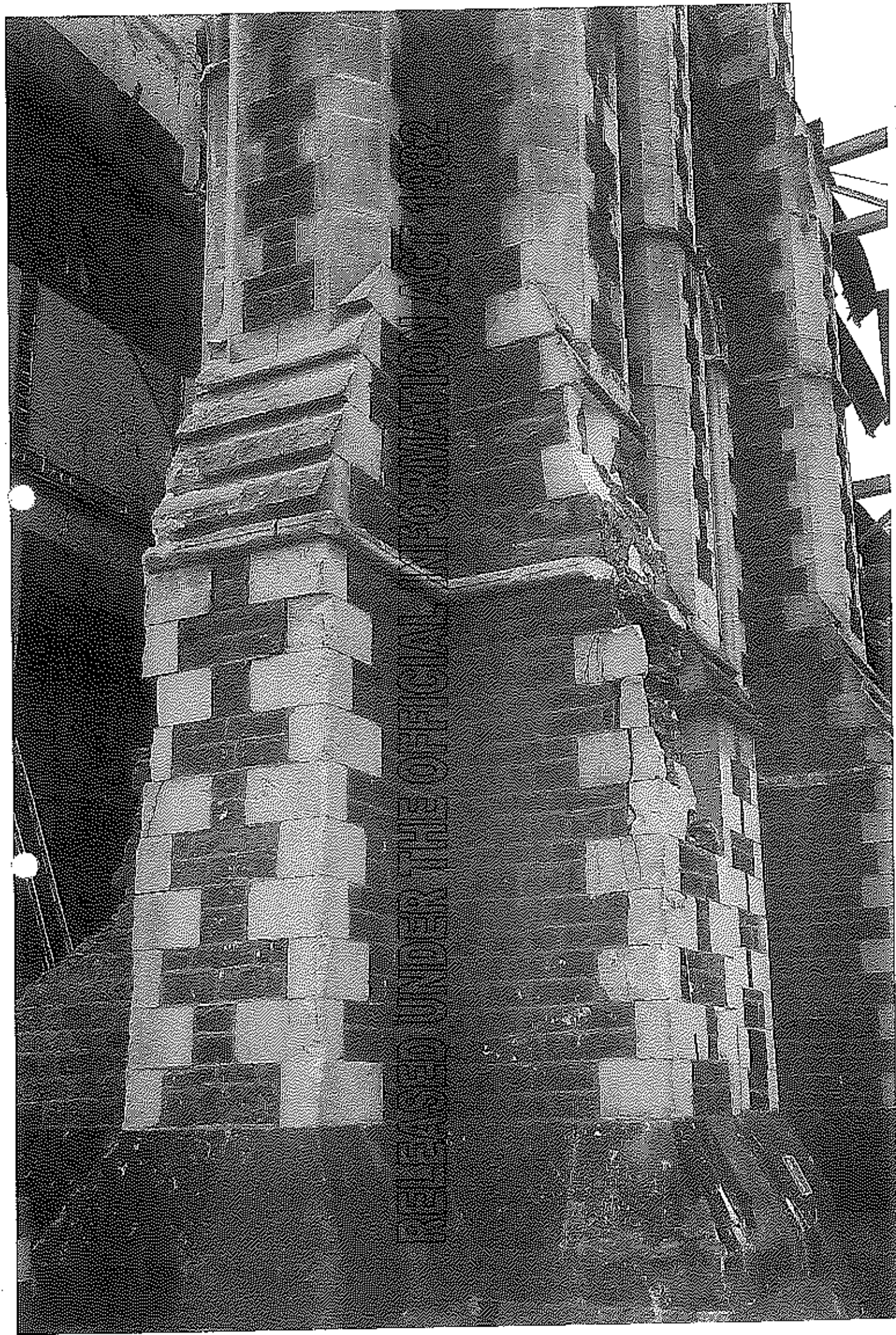


92

1911

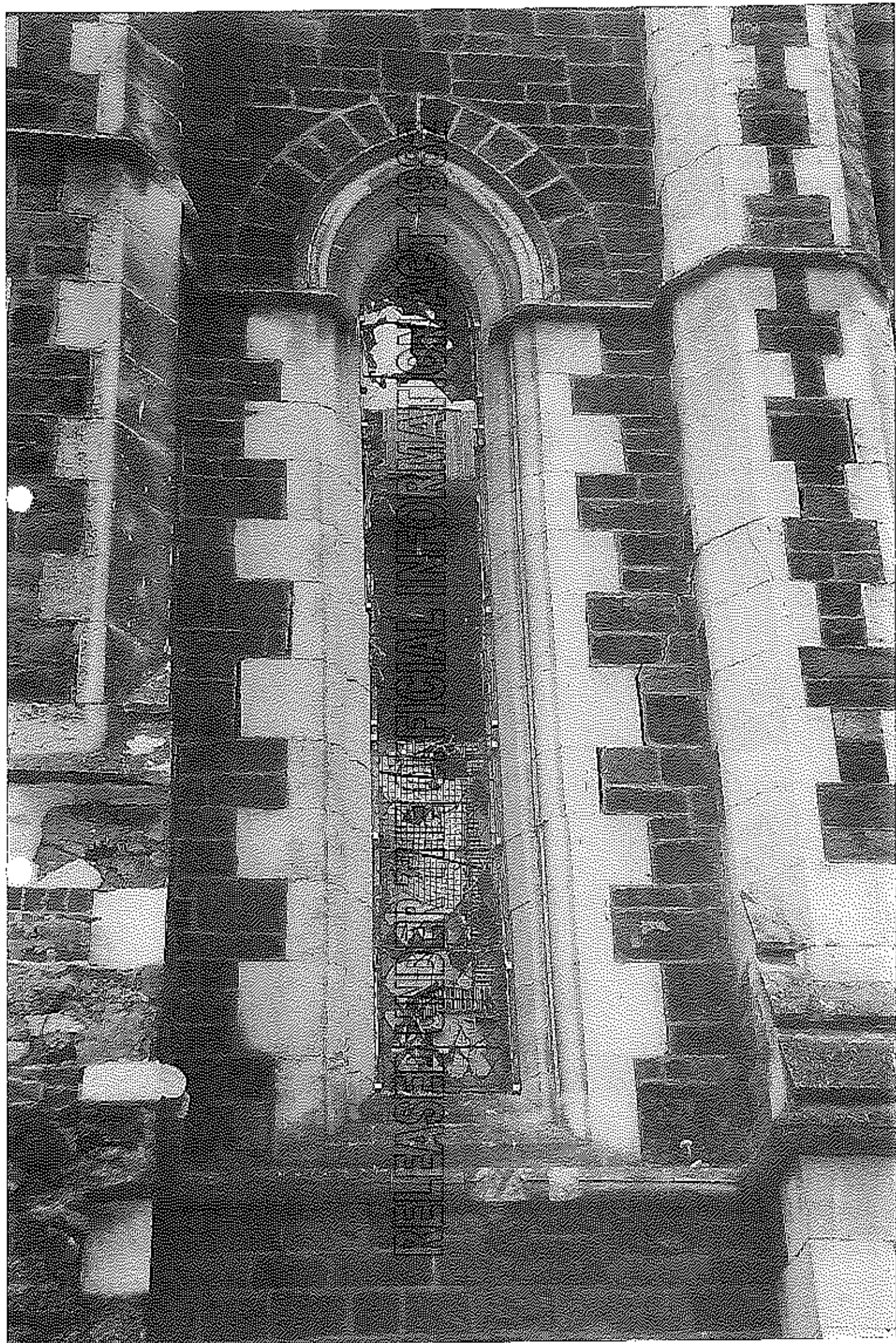
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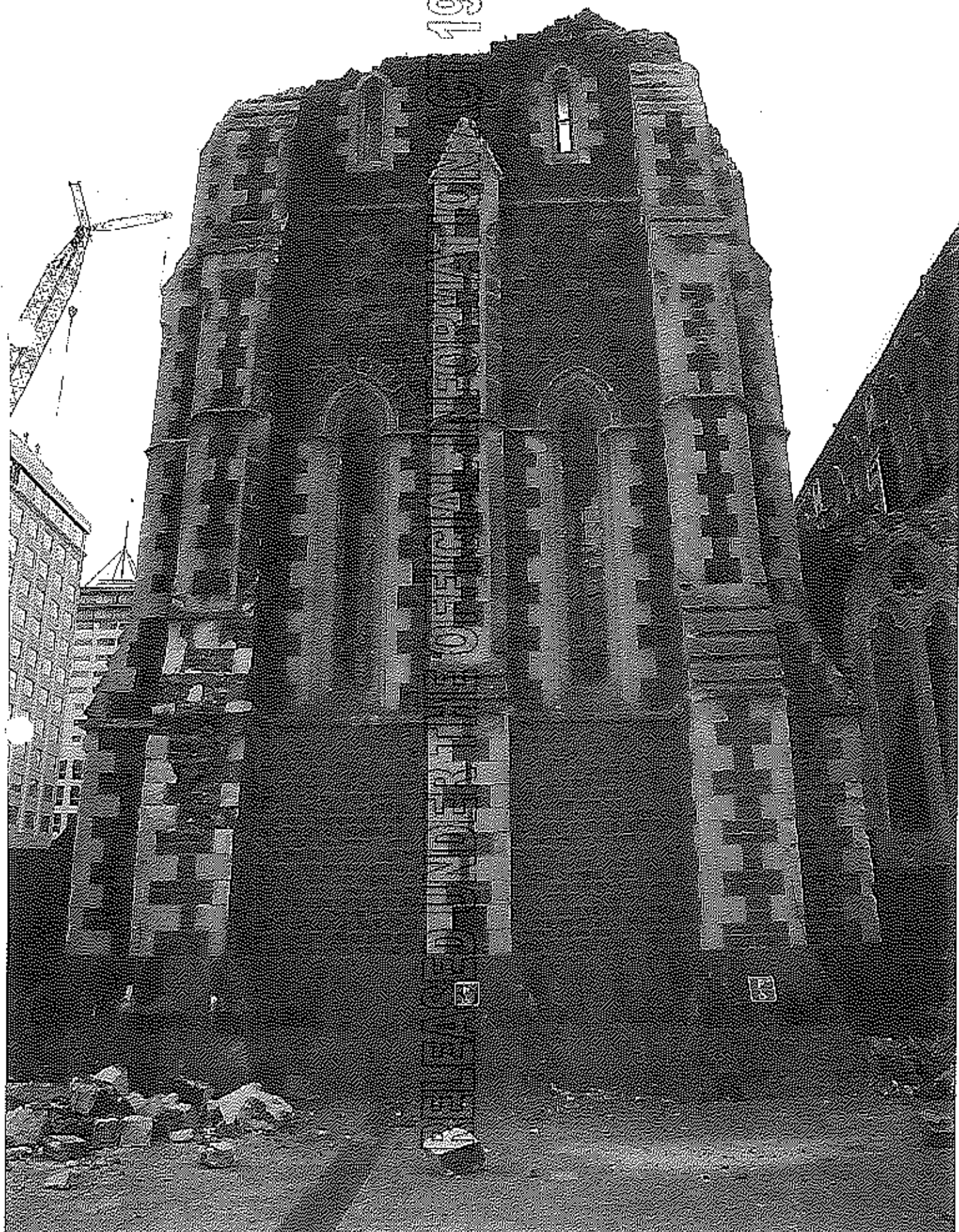


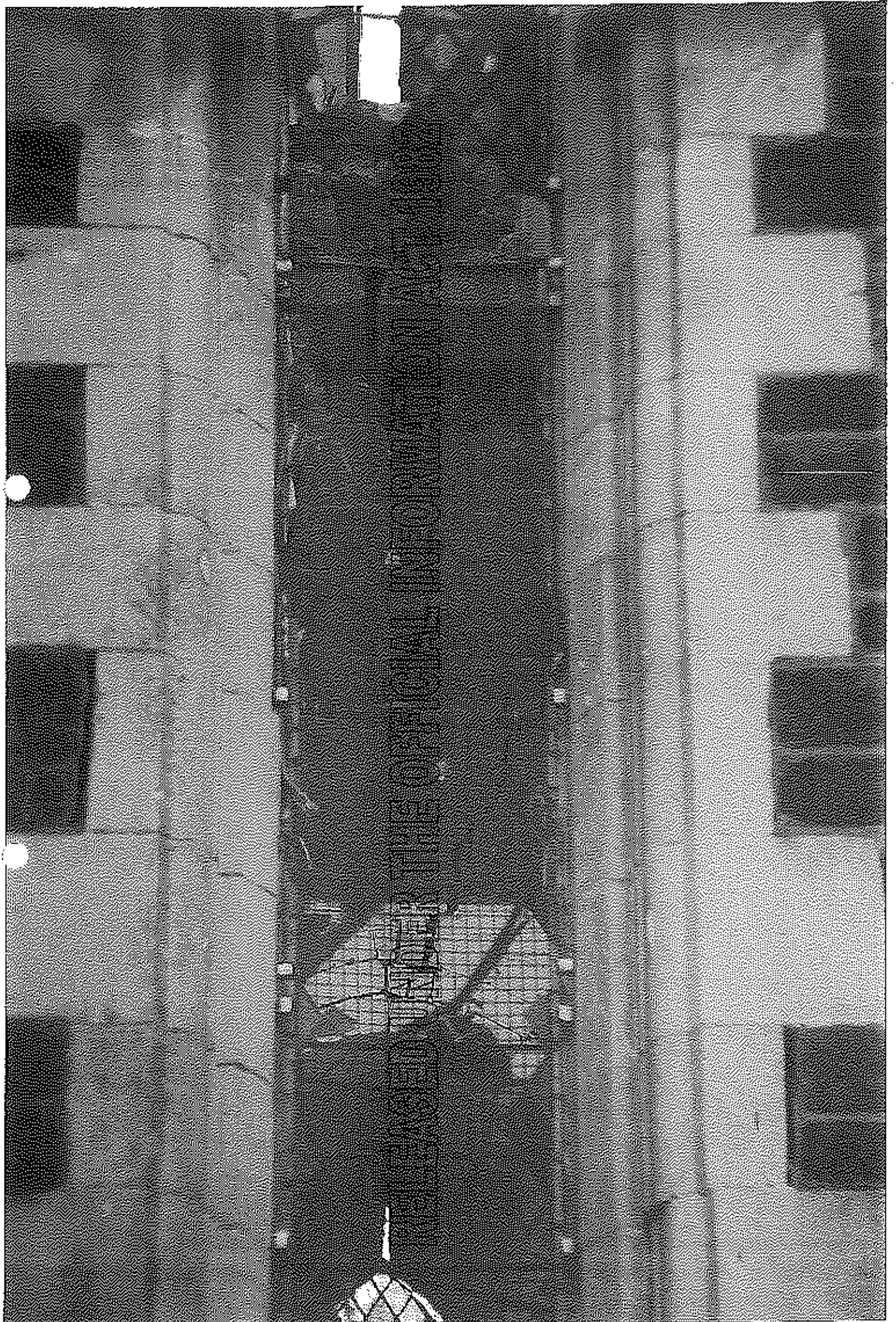
RELEASED UNDER THE PRESIDENT JOHN F. KENNEDY ASSASSINATION RECORDS ACT



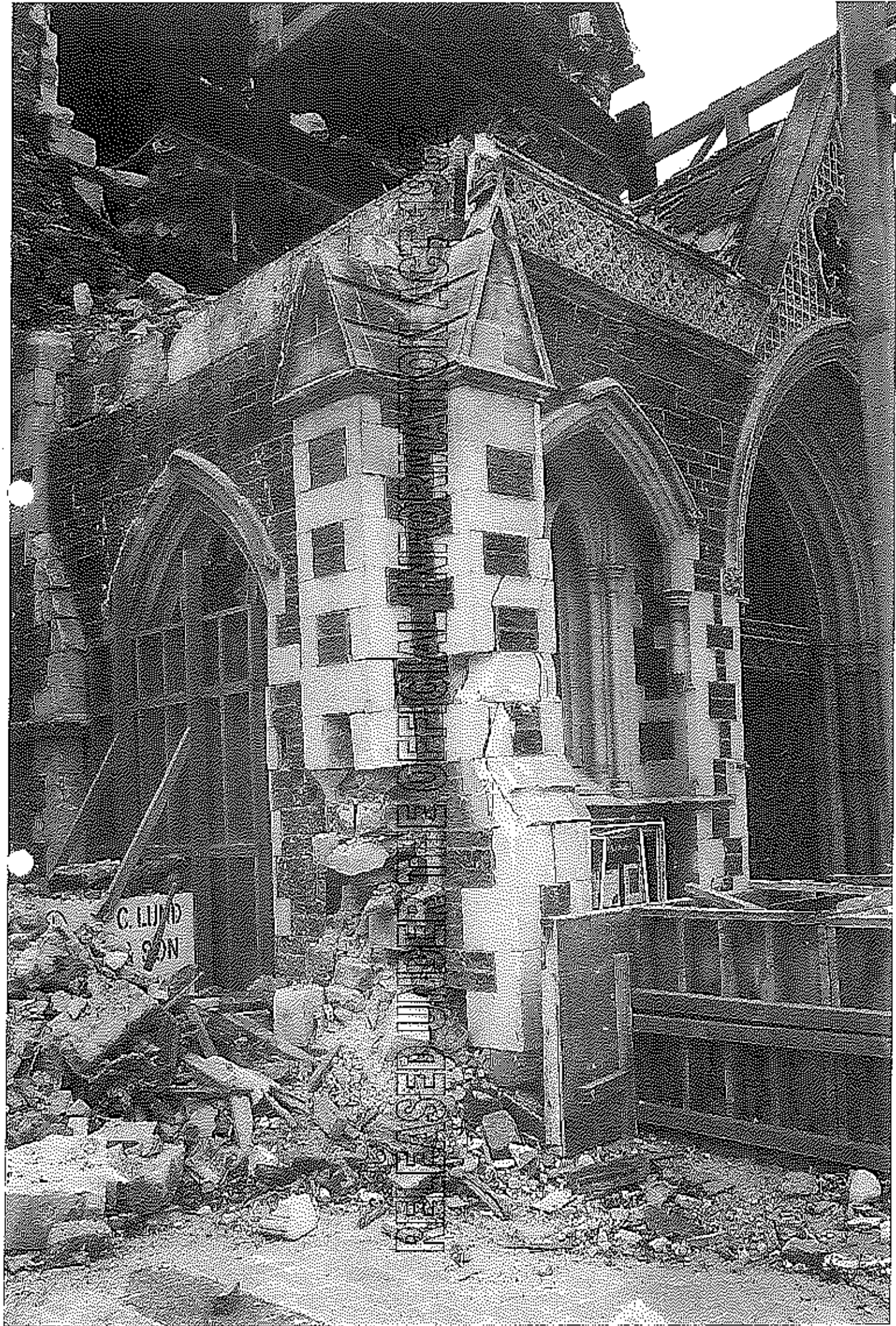


1982





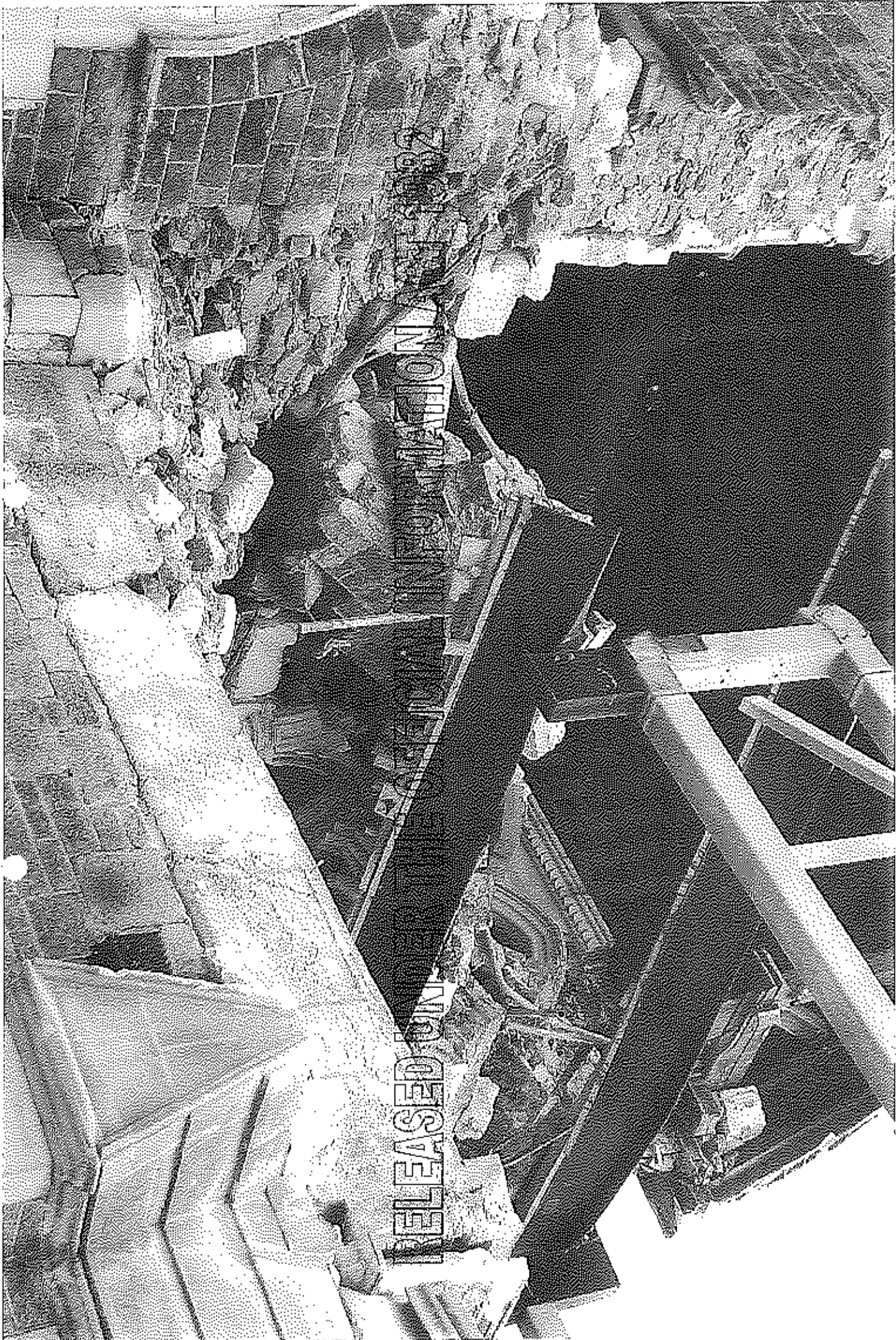






RELEASE UNDER THE OFFICIAL INFORMATION ACT 1982

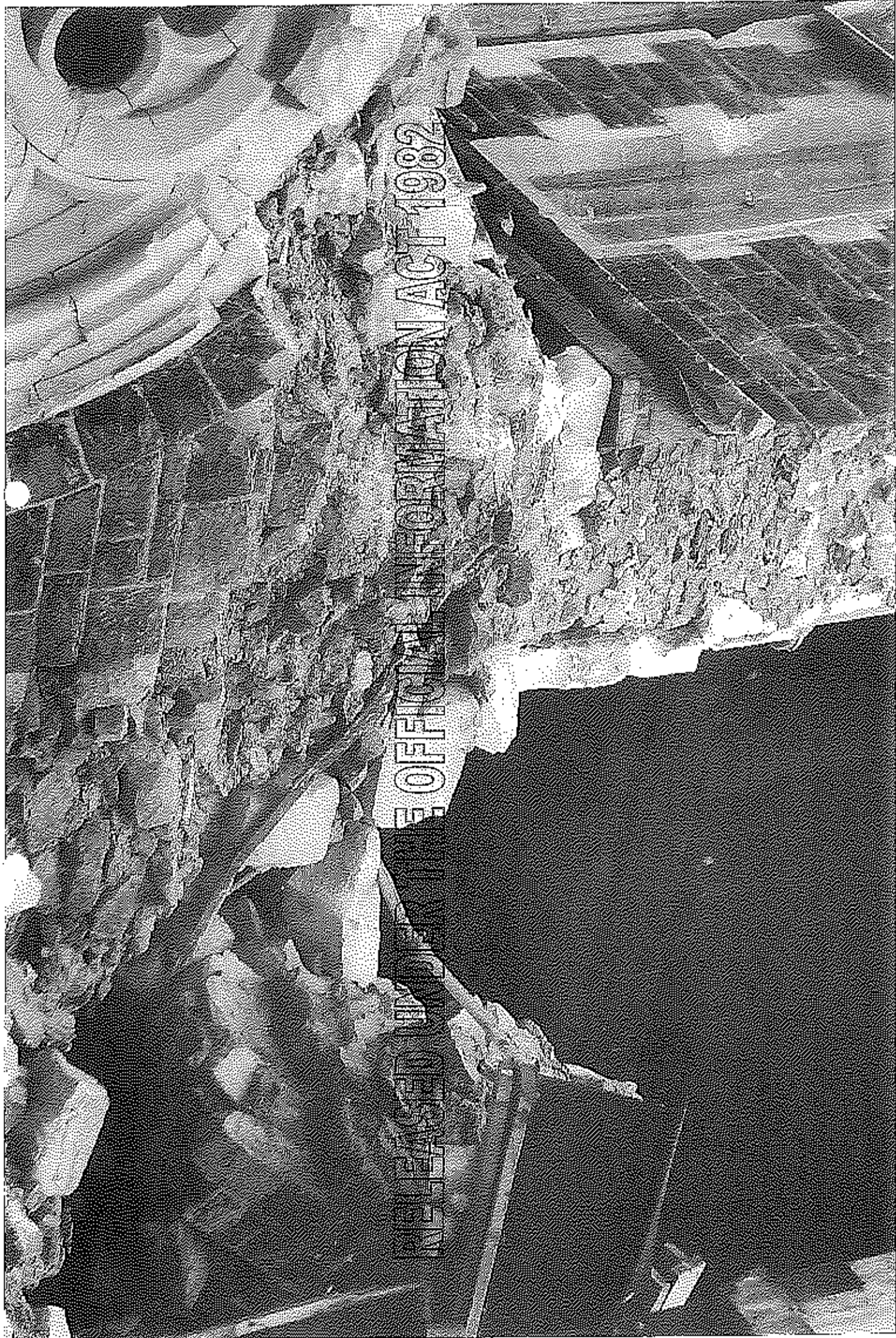






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RELEASED UNDER THE OFFICIAL INFORMATION ACT





RELEASED UNDER E.O. 13526

RELEASED UNDER E.O. 13526

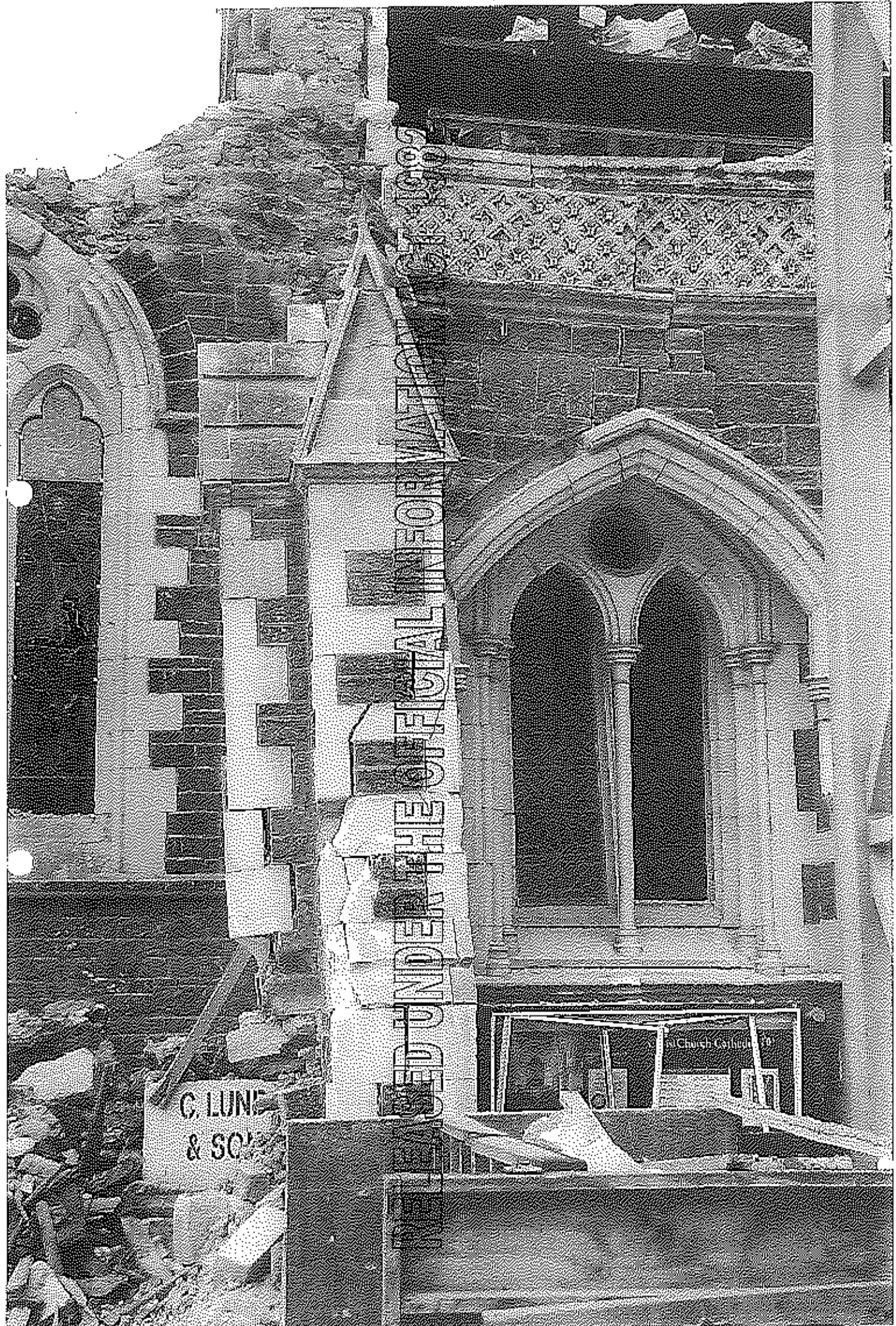
ATION ACT 1982

THE PUBLIC INFORMATION ACT 1982

1982



UNDER THE OFFICE OF INFORMATION



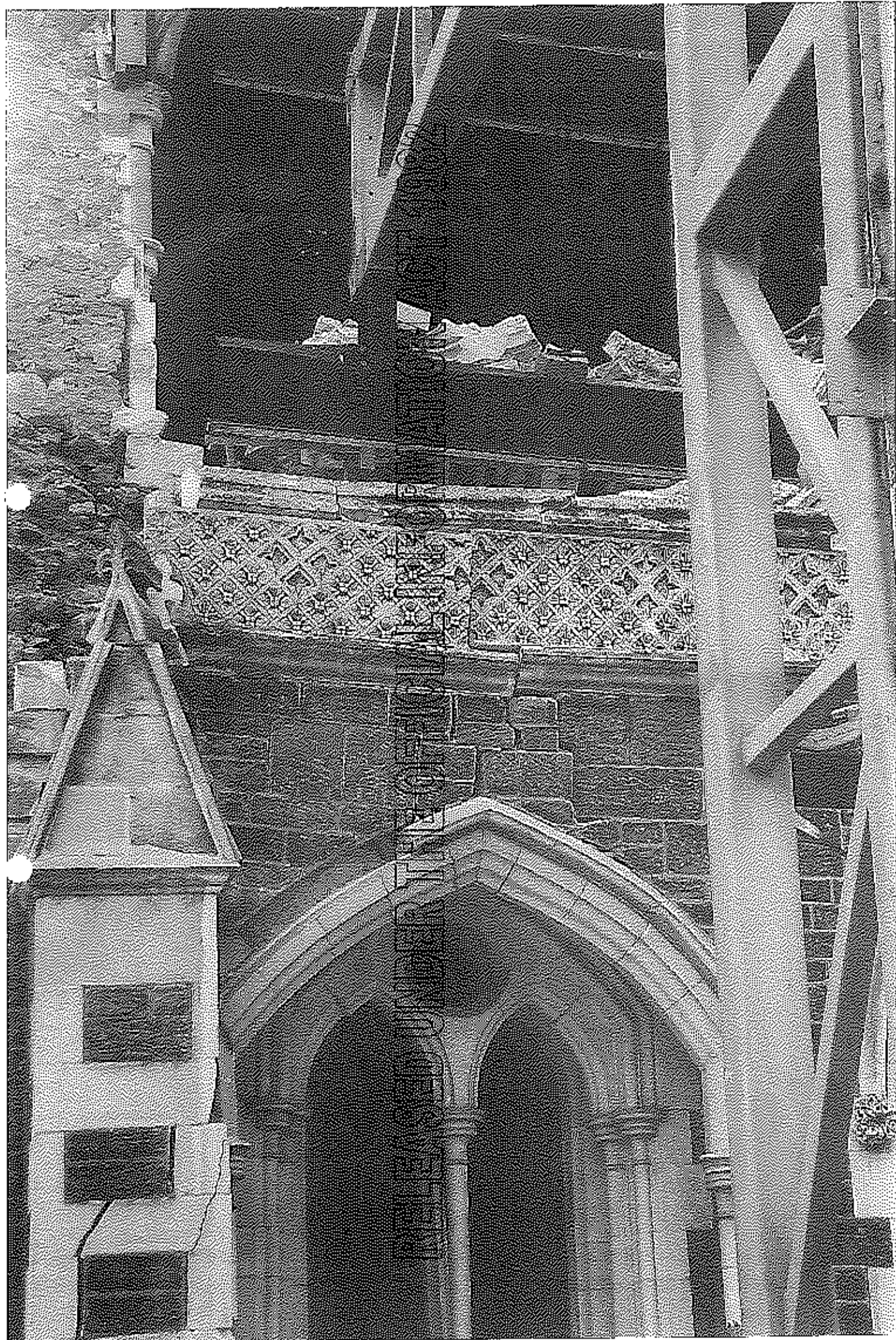
SEEK UNDER THE OFFICIAL INFORMATION ACT 1989

C. LUNE
& SON

St. Church Cathedral

RELEASED UNDER THE OFFICIAL INFORMATION ACT

C. LIND
& SON



RELEASE UNDER THE OFFICIAL INFORMATION ACT



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RECEIVED THE OFFICIAL

UNDEFEATED THE OFFICIAL OF NORMAN

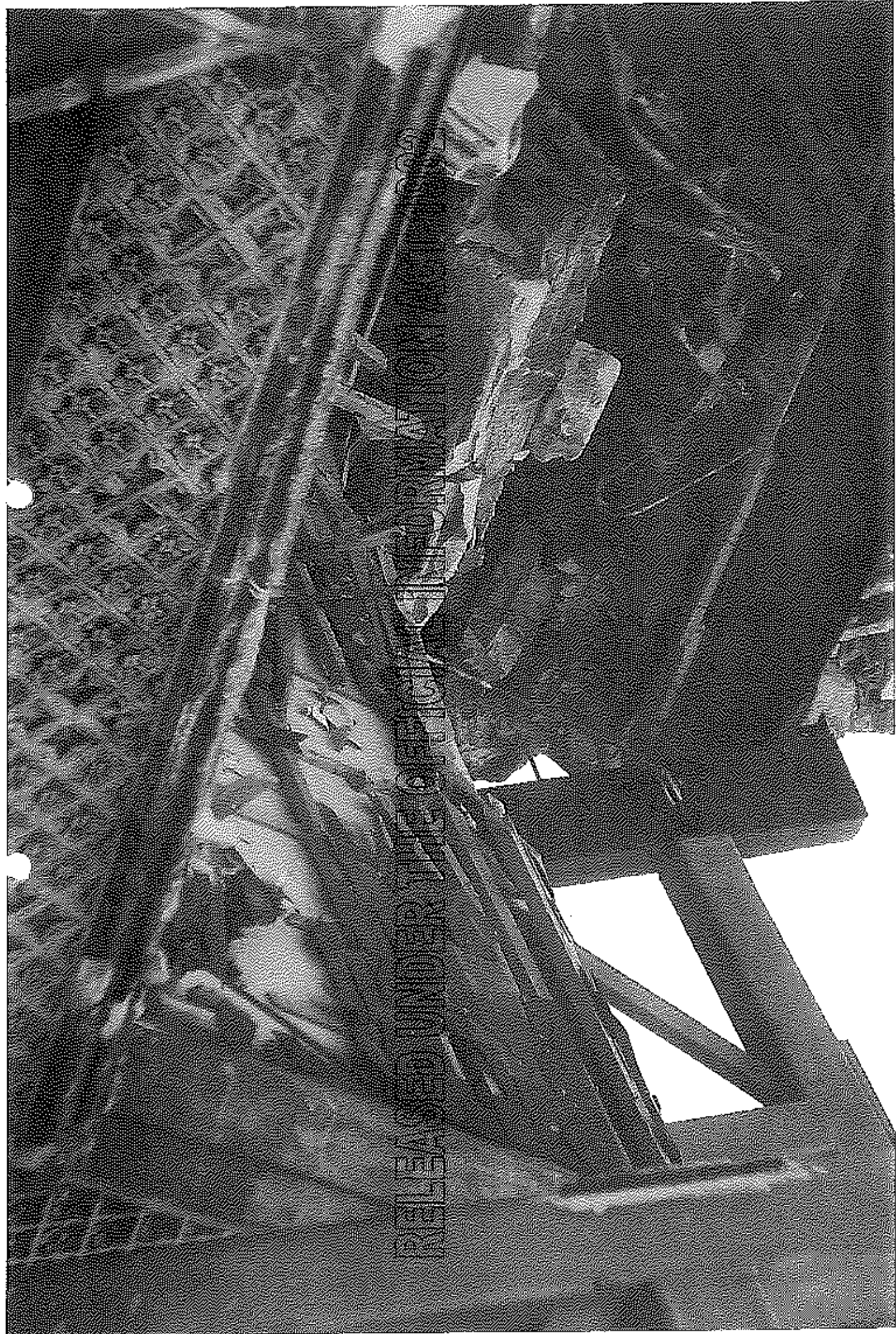
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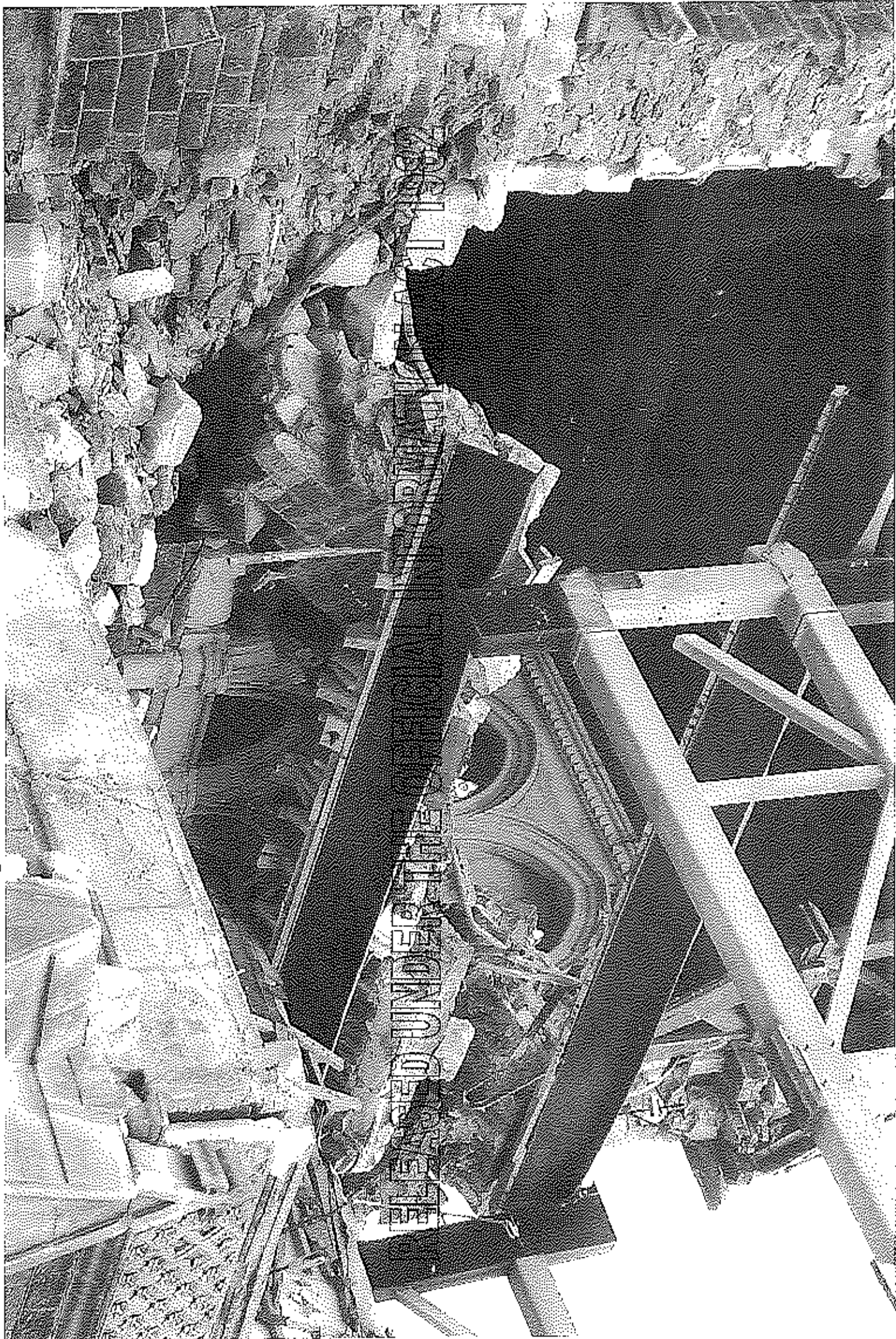
Church Cathedral

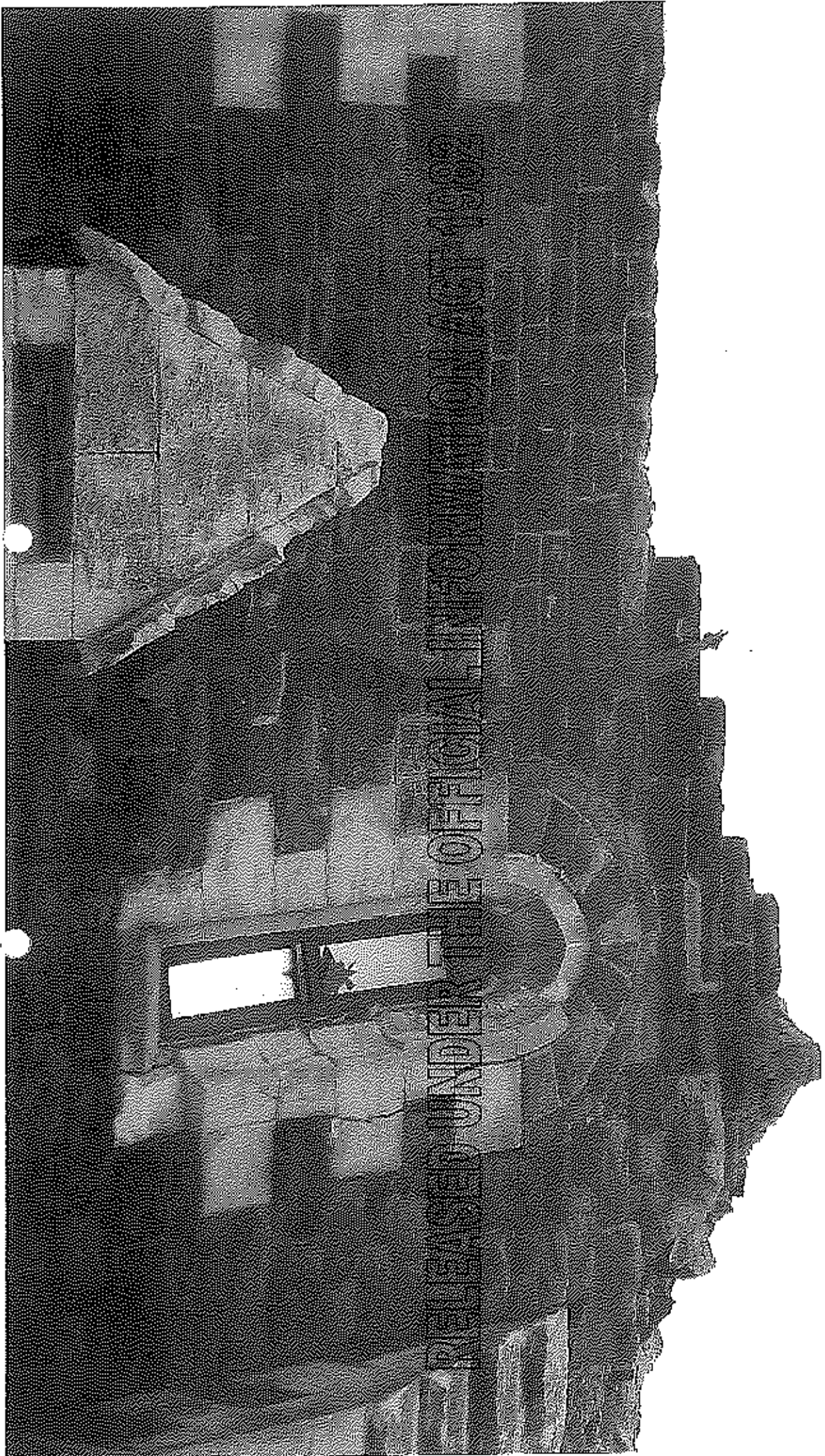
RELEASED UNDER THE OFFICIAL INFORMATION ACT

A black and white photograph showing the interior of a building that has been severely damaged. The scene is filled with rubble, including large chunks of concrete and twisted metal. A prominent feature is a large, jagged hole in the ceiling or upper wall, through which bright light is streaming. The floor is covered in debris, and the overall atmosphere is one of destruction and chaos. The image has a grainy, high-contrast quality typical of a photocopy or a low-resolution scan.

RELEASED UNDER THE OFFICIAL INFORMATION ACT







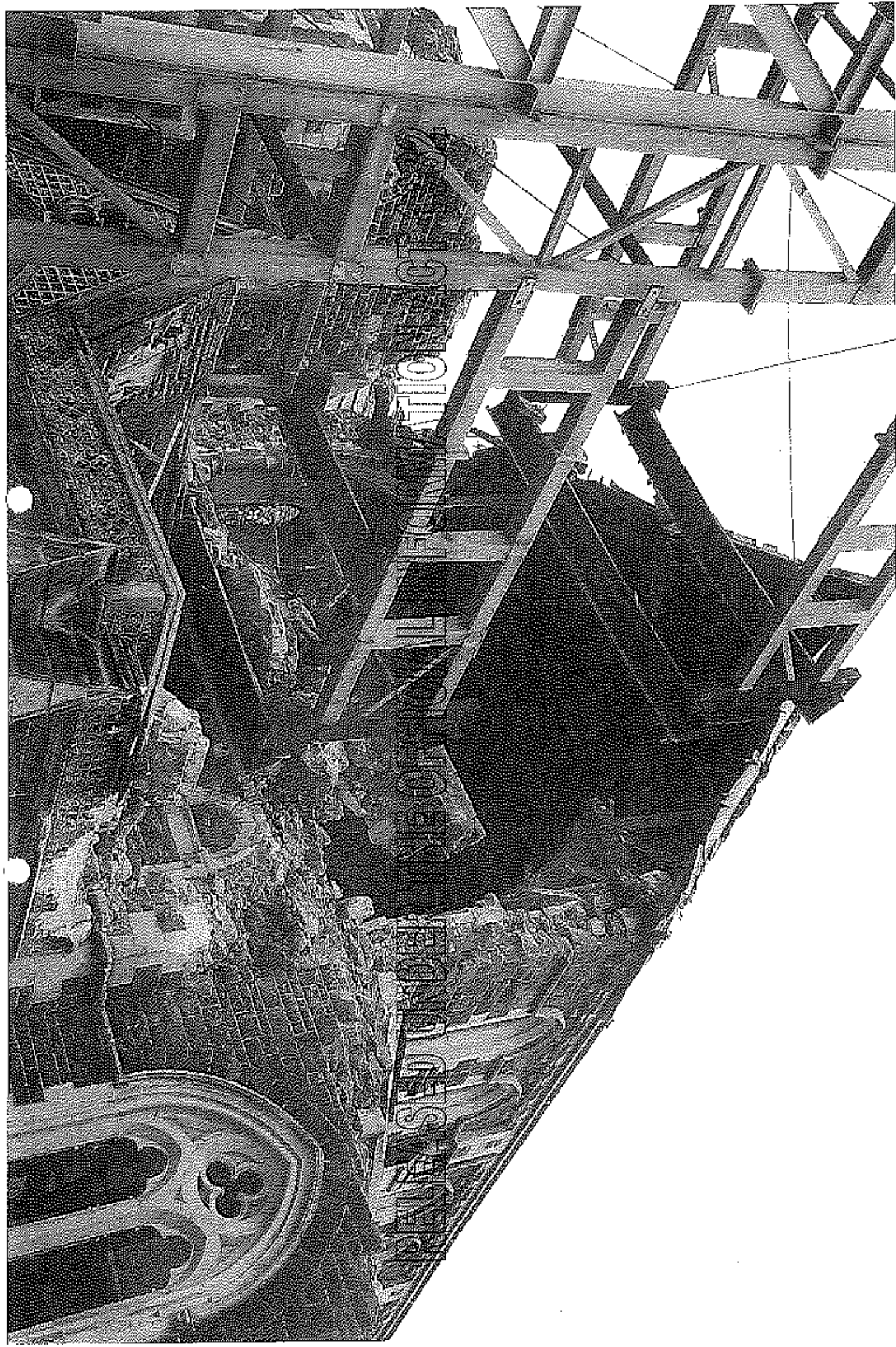
FACT 1982

THE OFFICE





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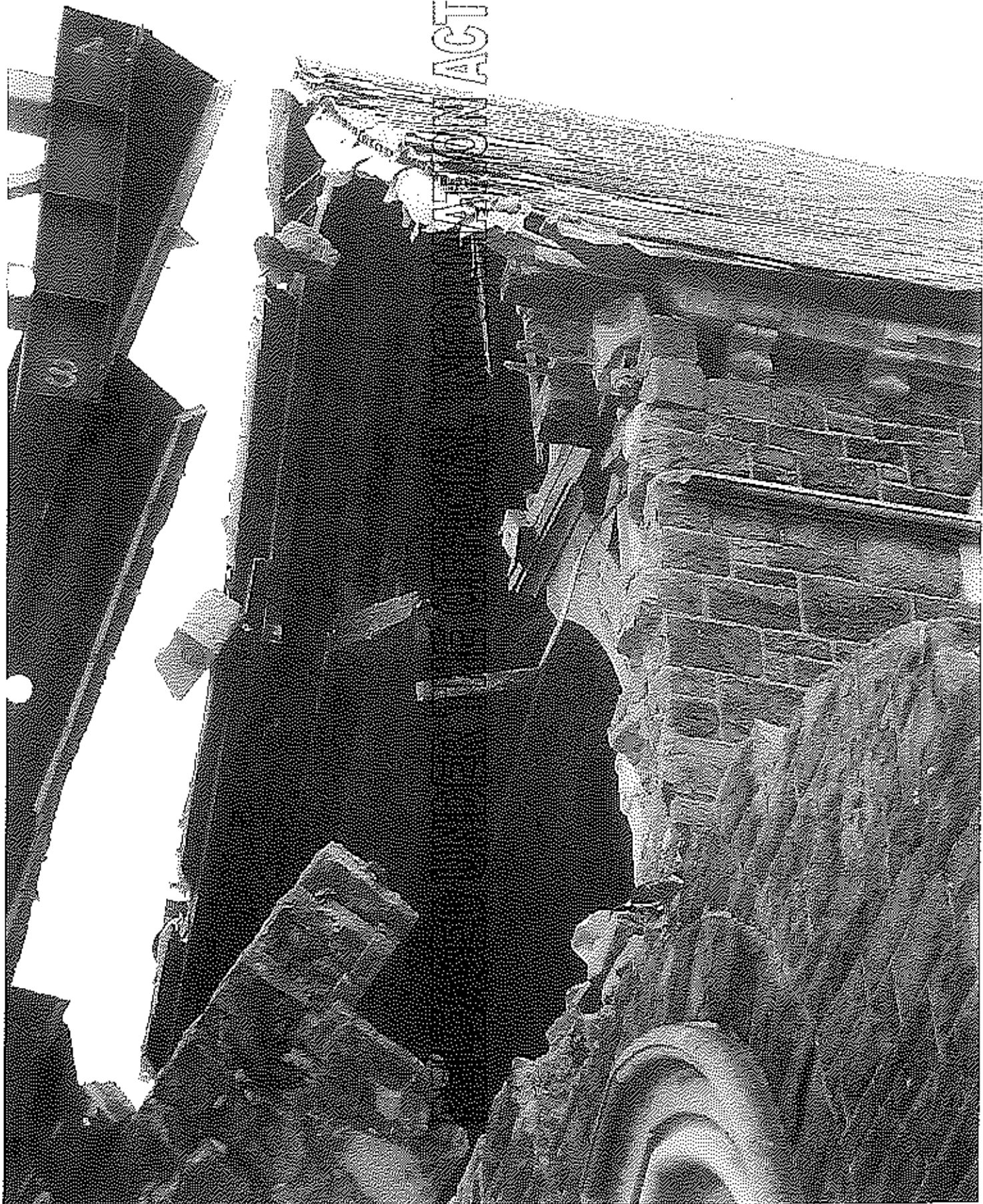
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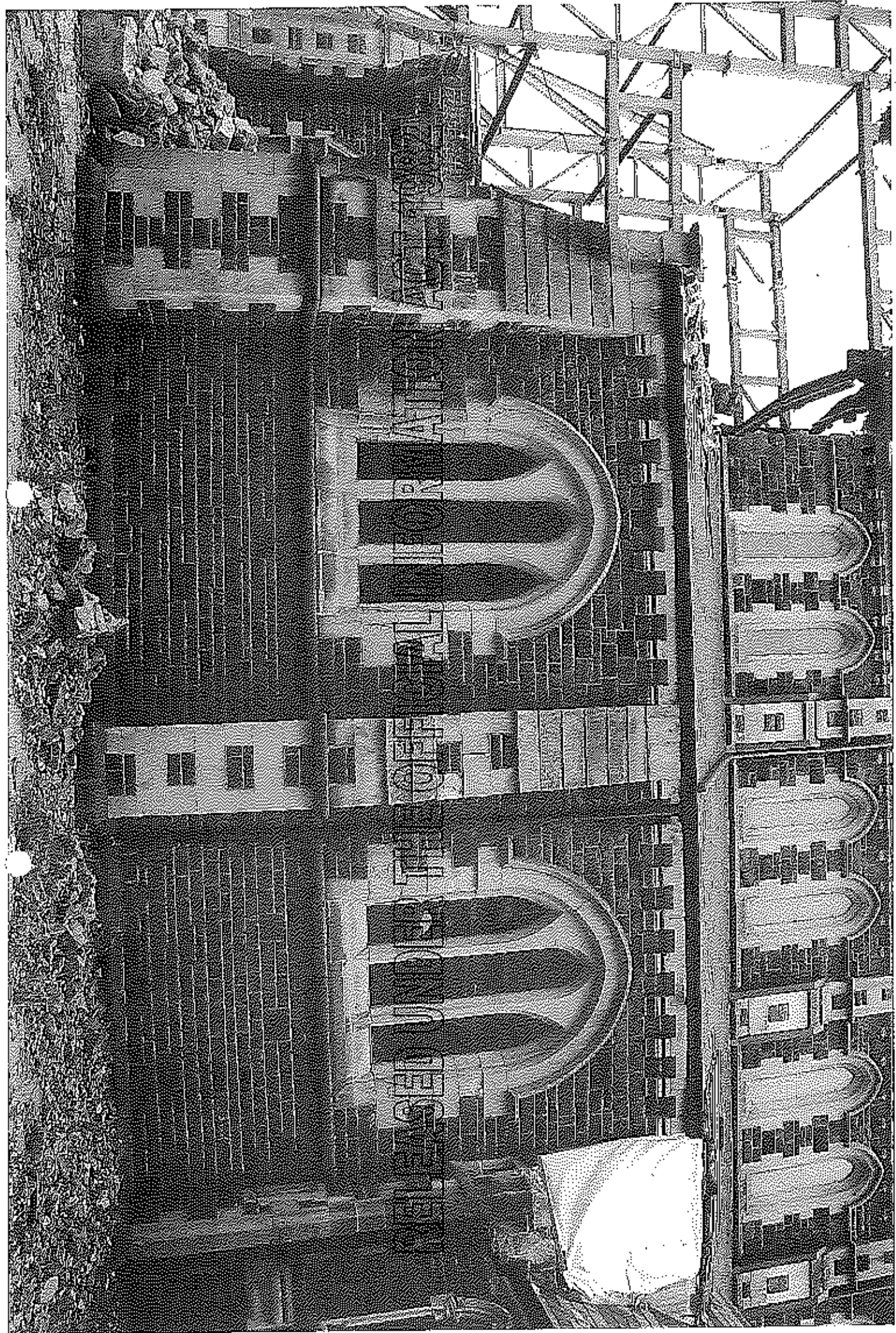


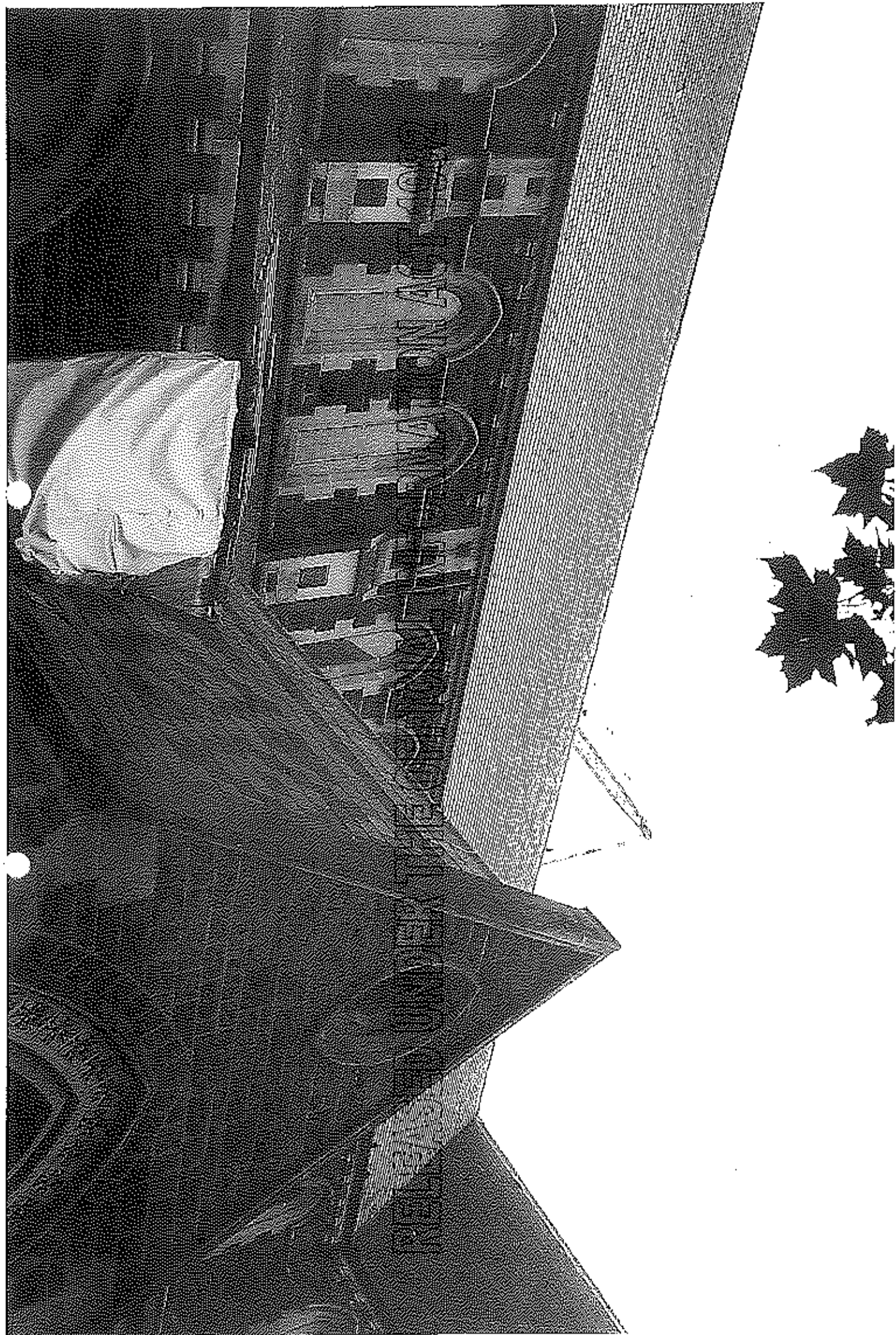




ACT 1982







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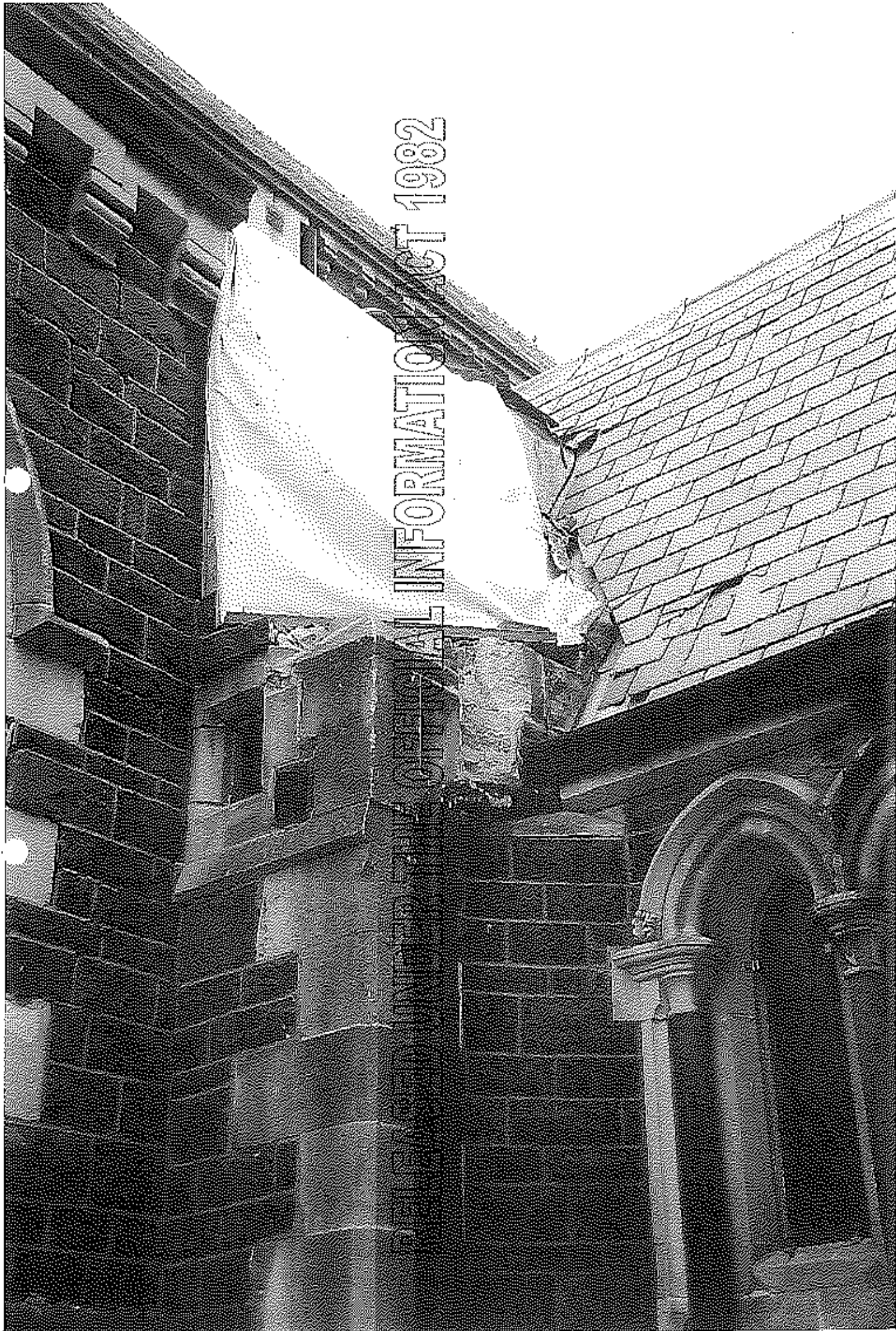
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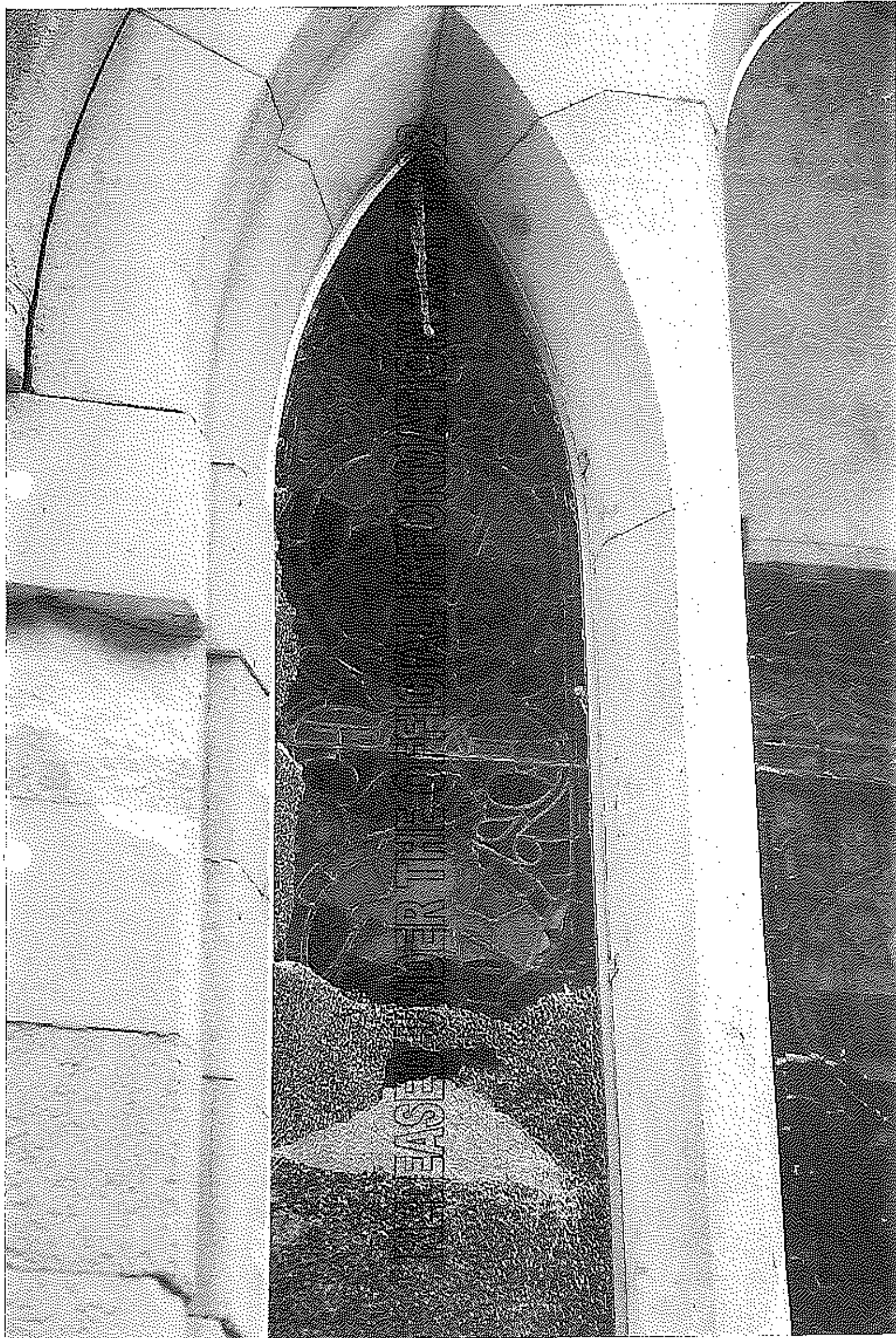
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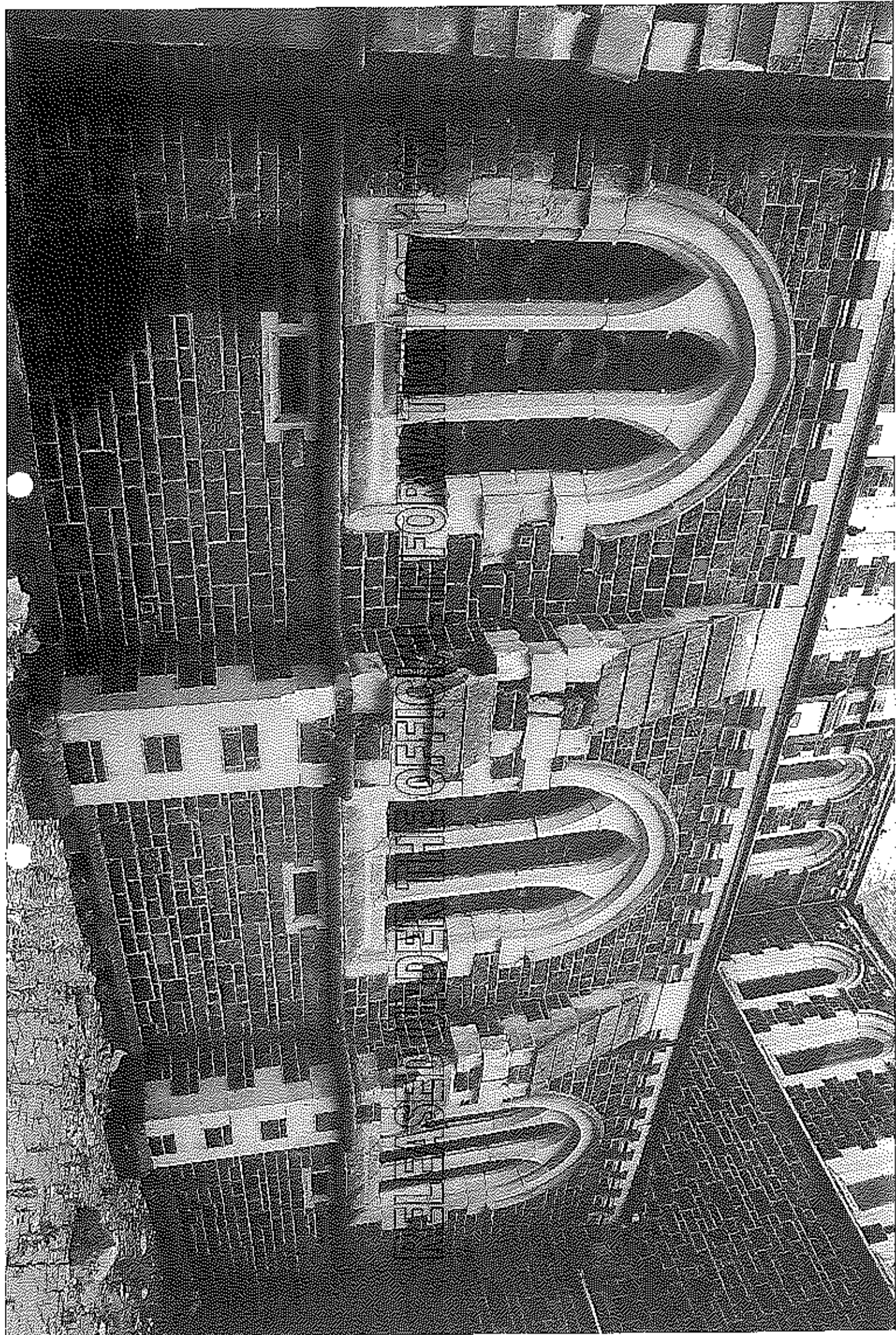
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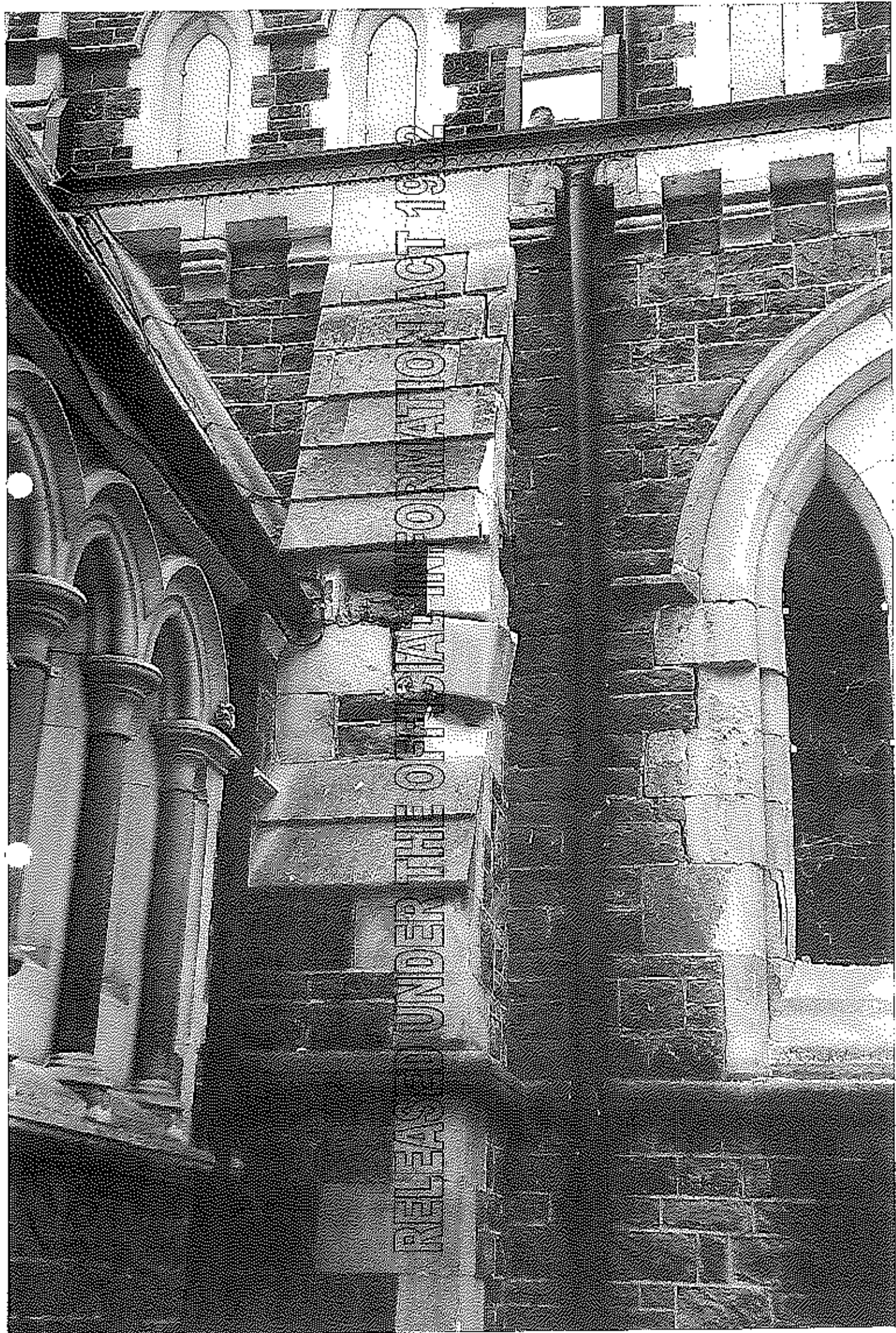


CONFIDENTIAL INFORMATION ACT 1982



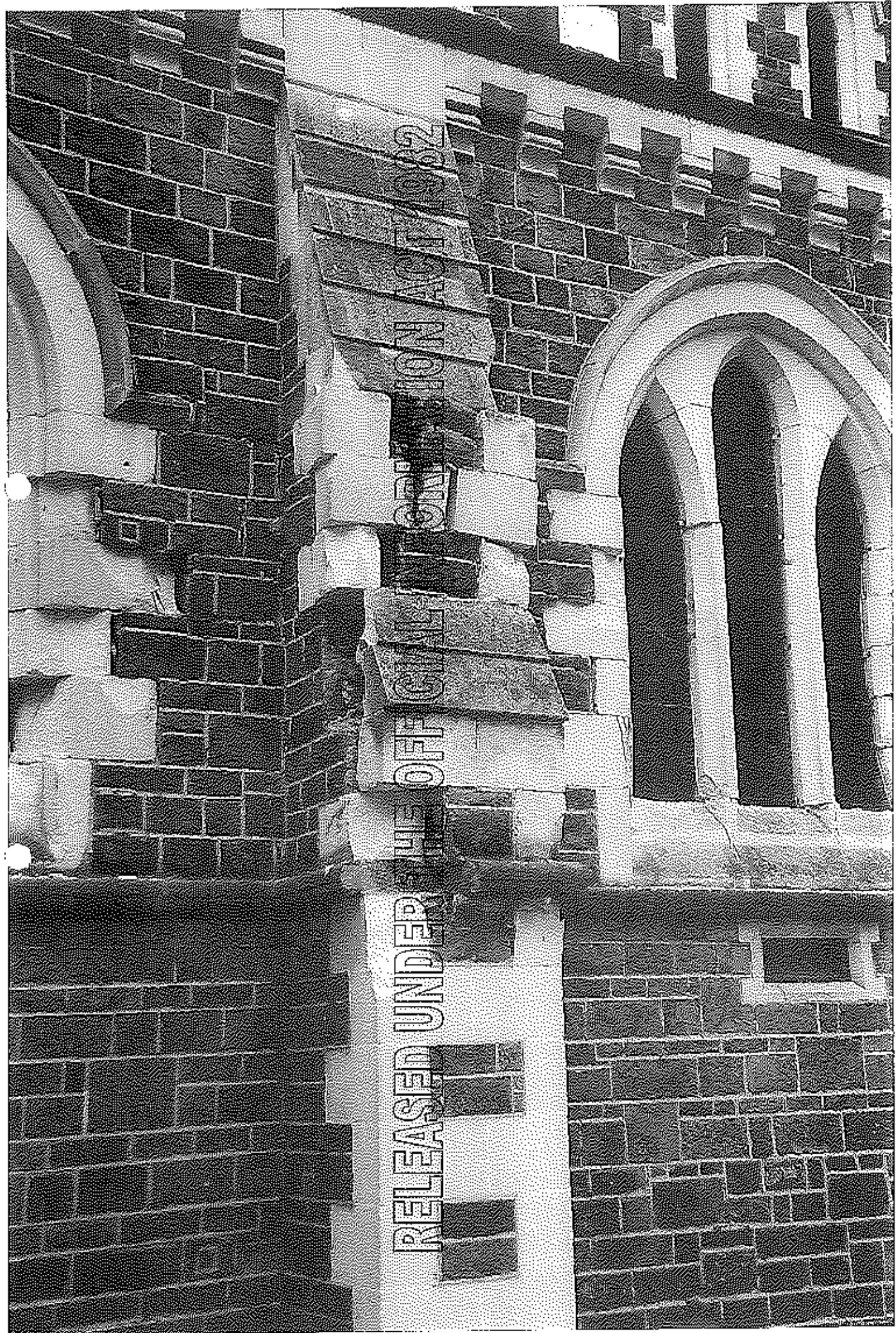






RELEASE UNDER THE OFFICIAL INFORMATION ACT 1982





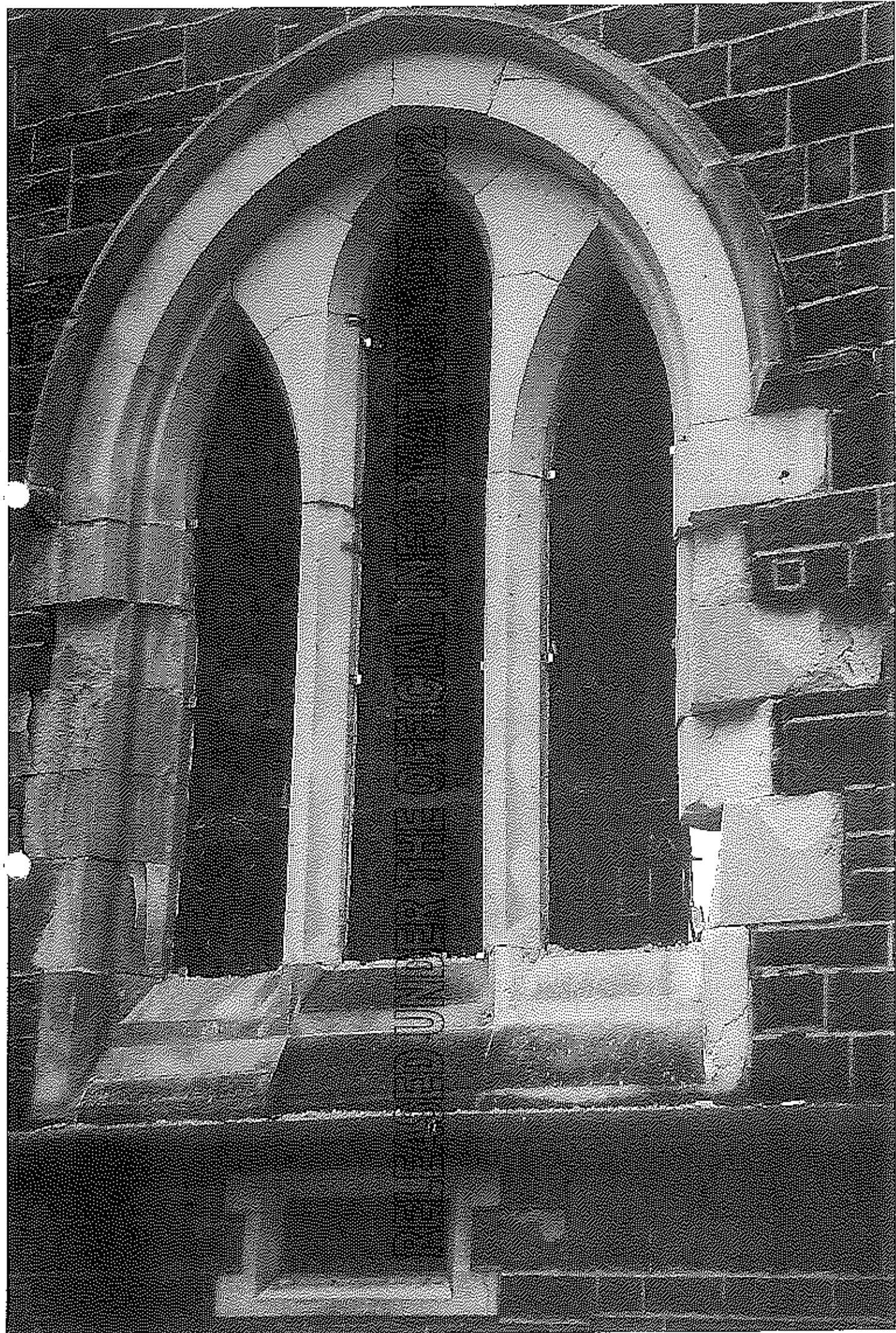
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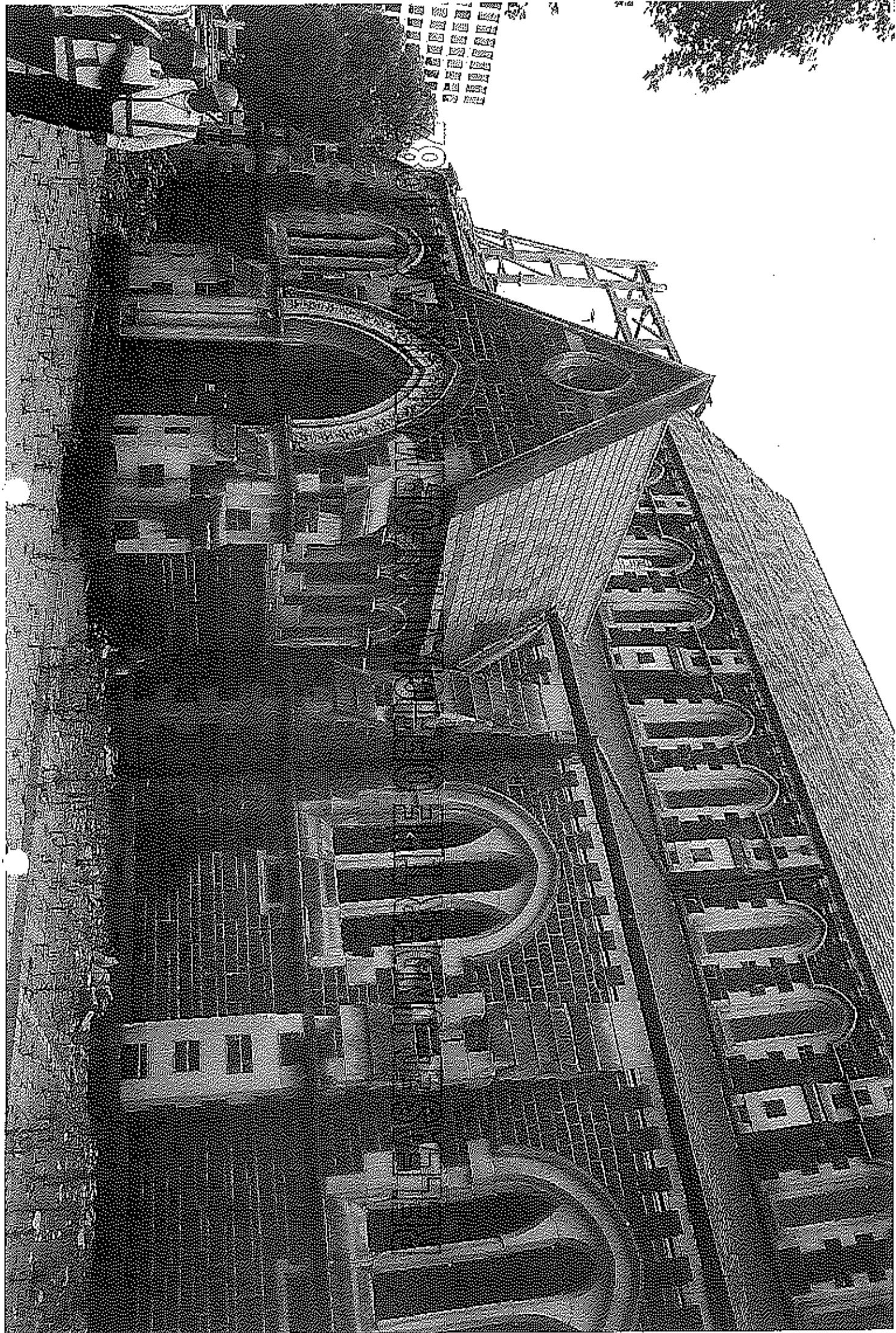


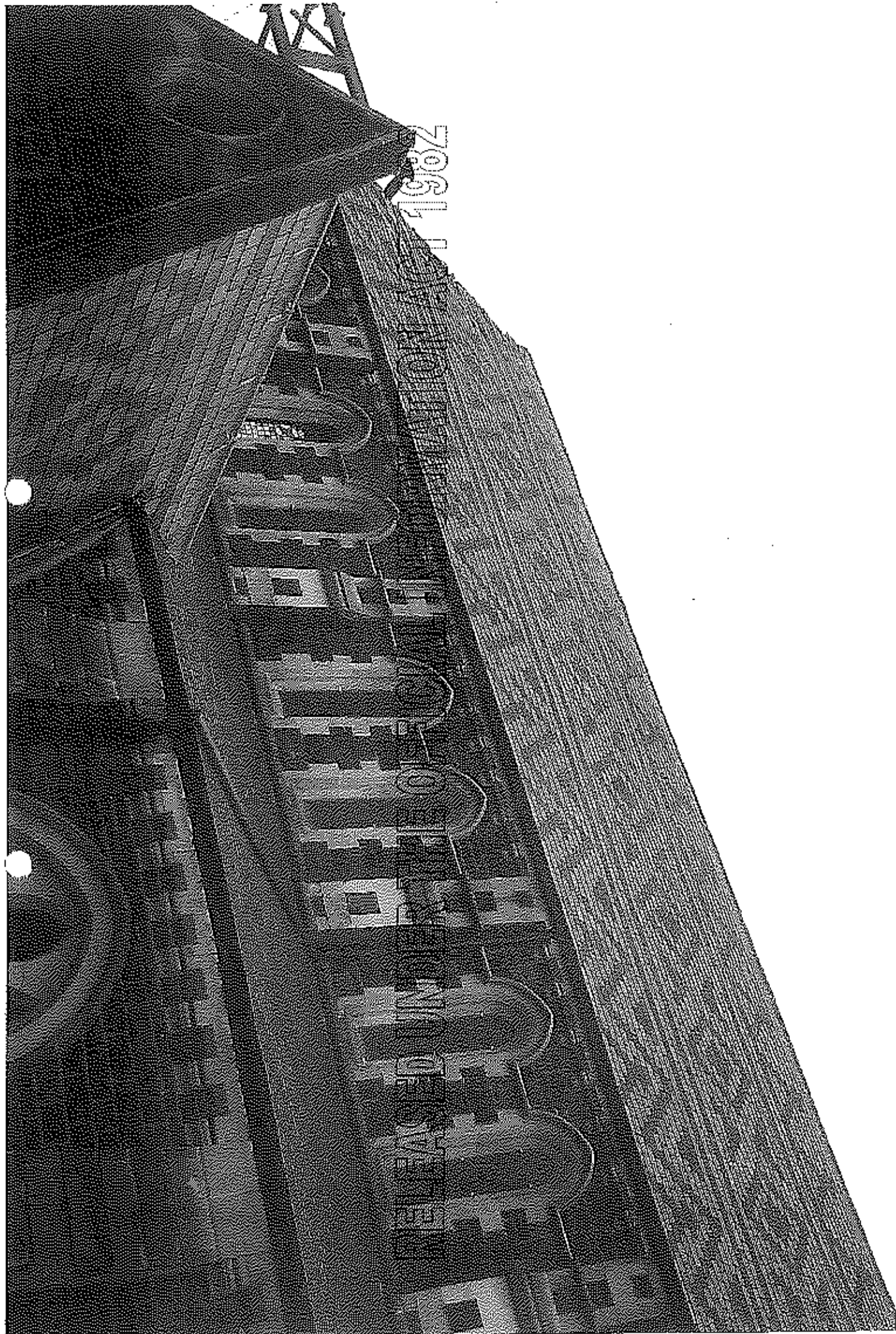


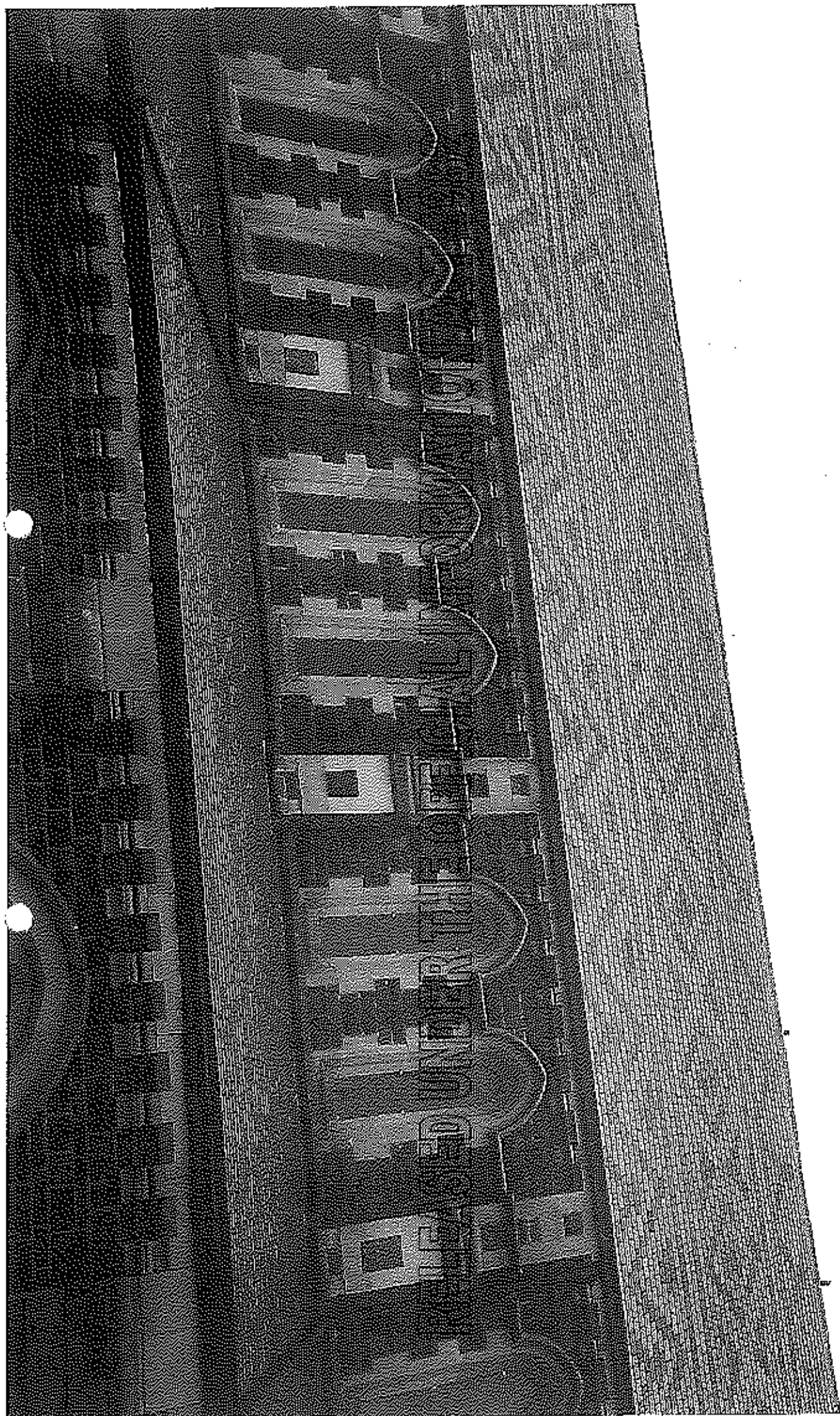
STATE OF NEW YORK
OFFICE OF THE ATTORNEY GENERAL

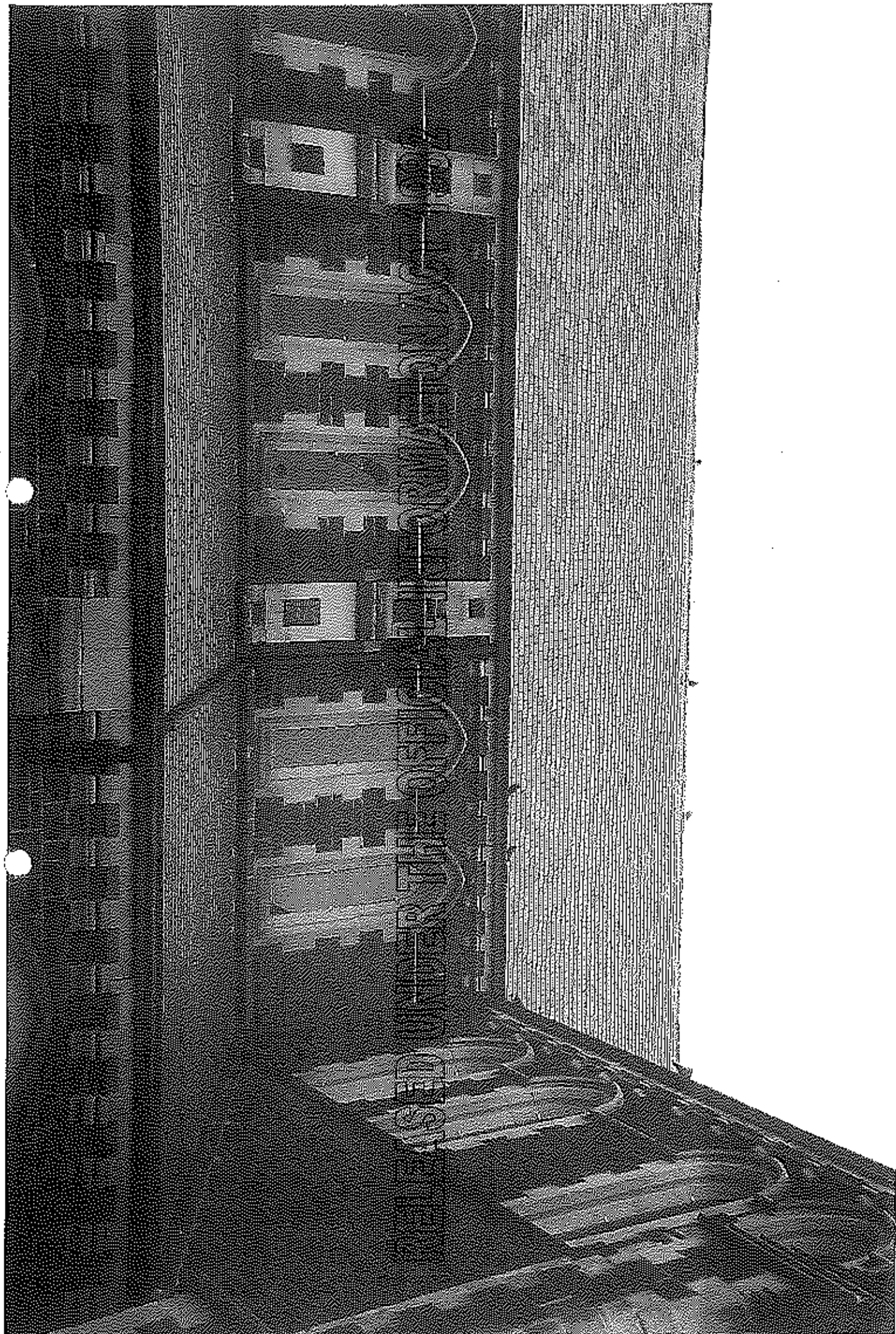


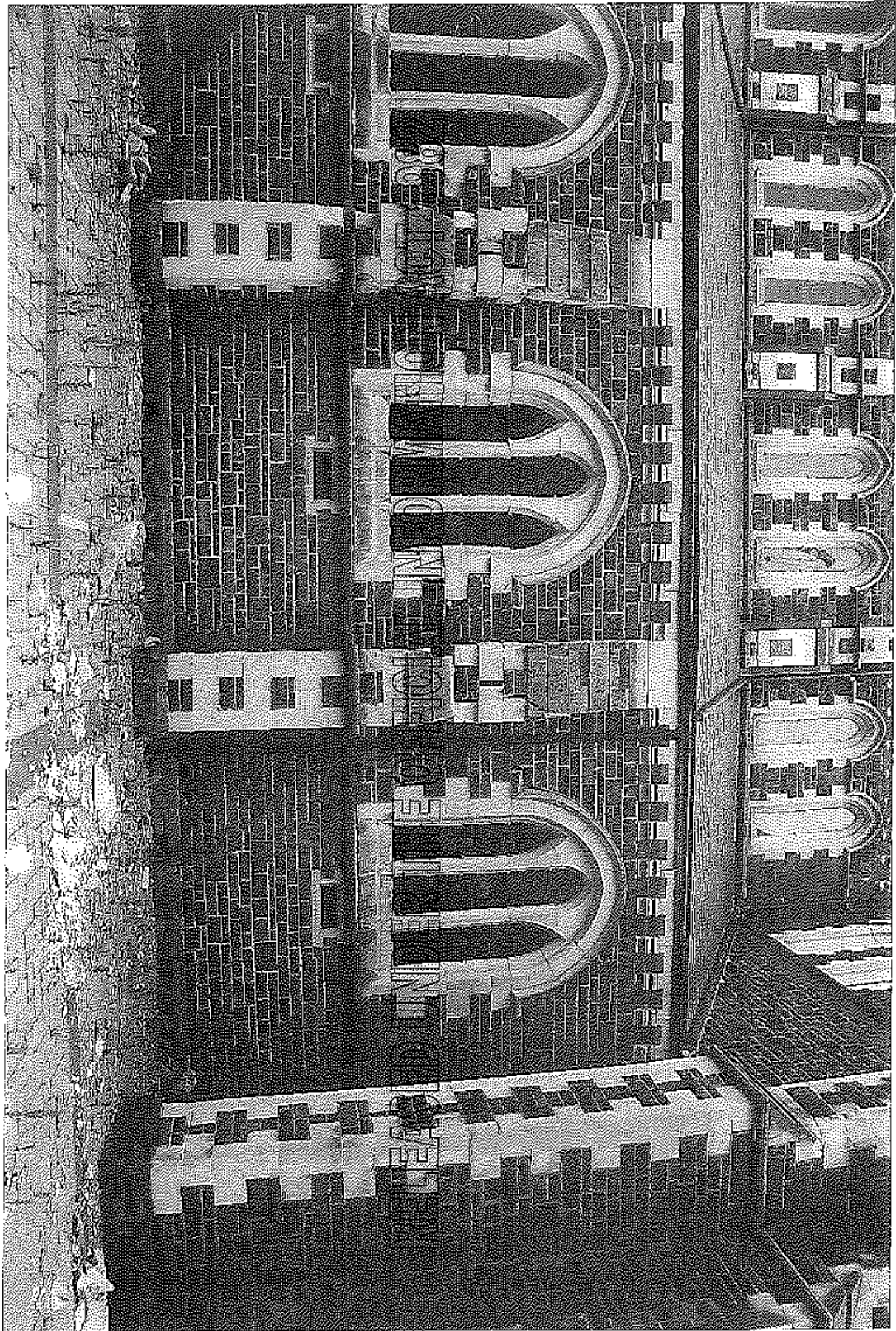


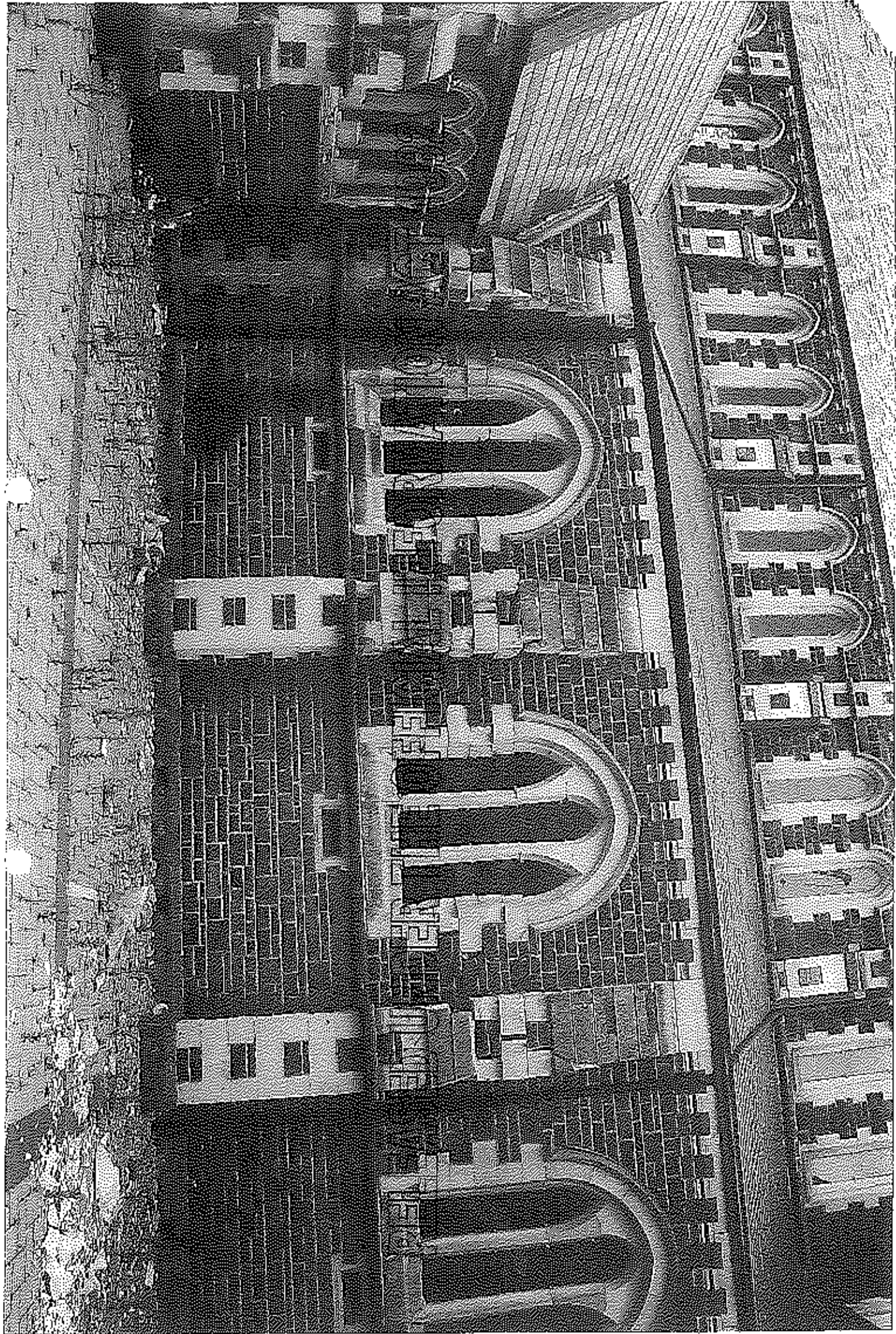


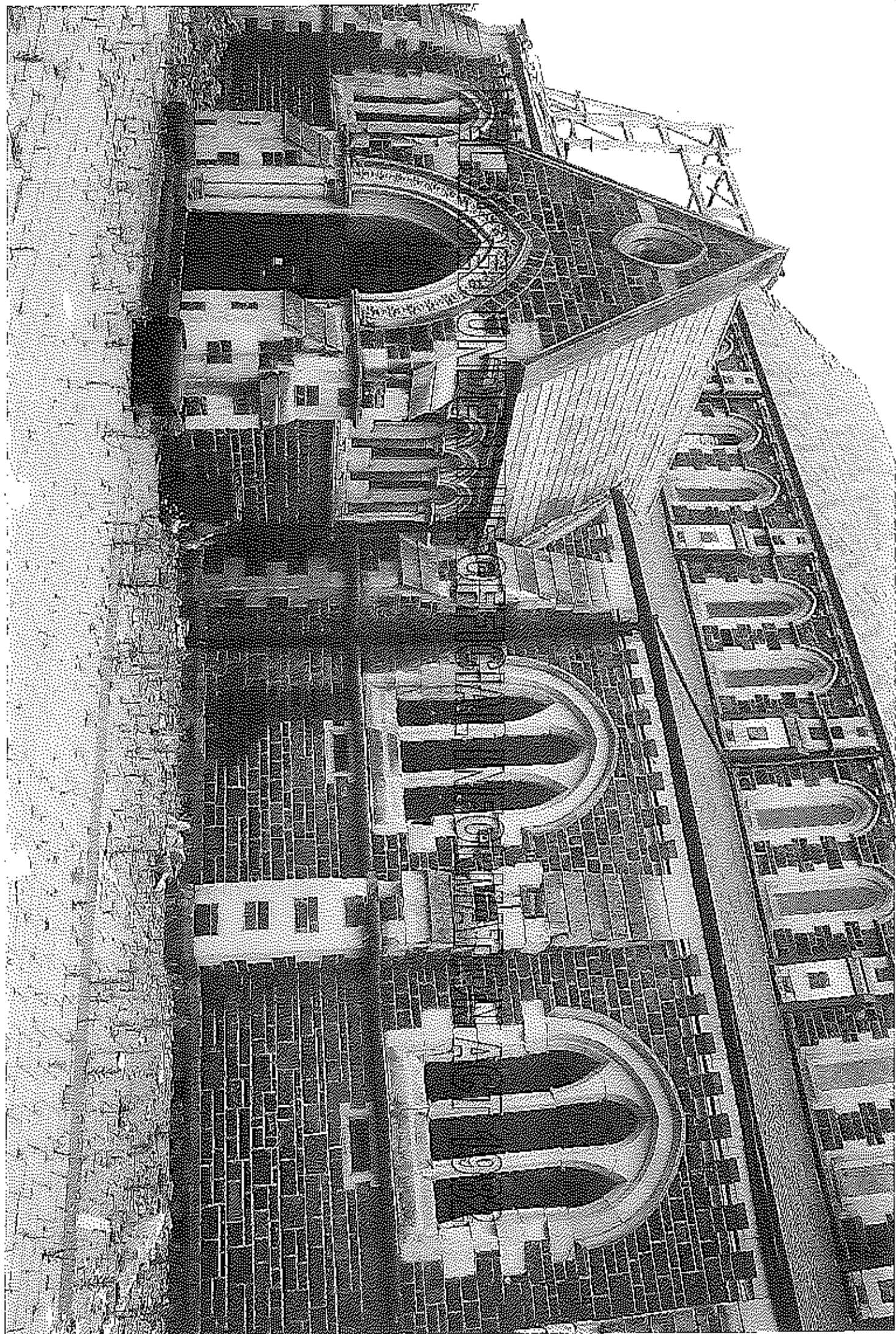


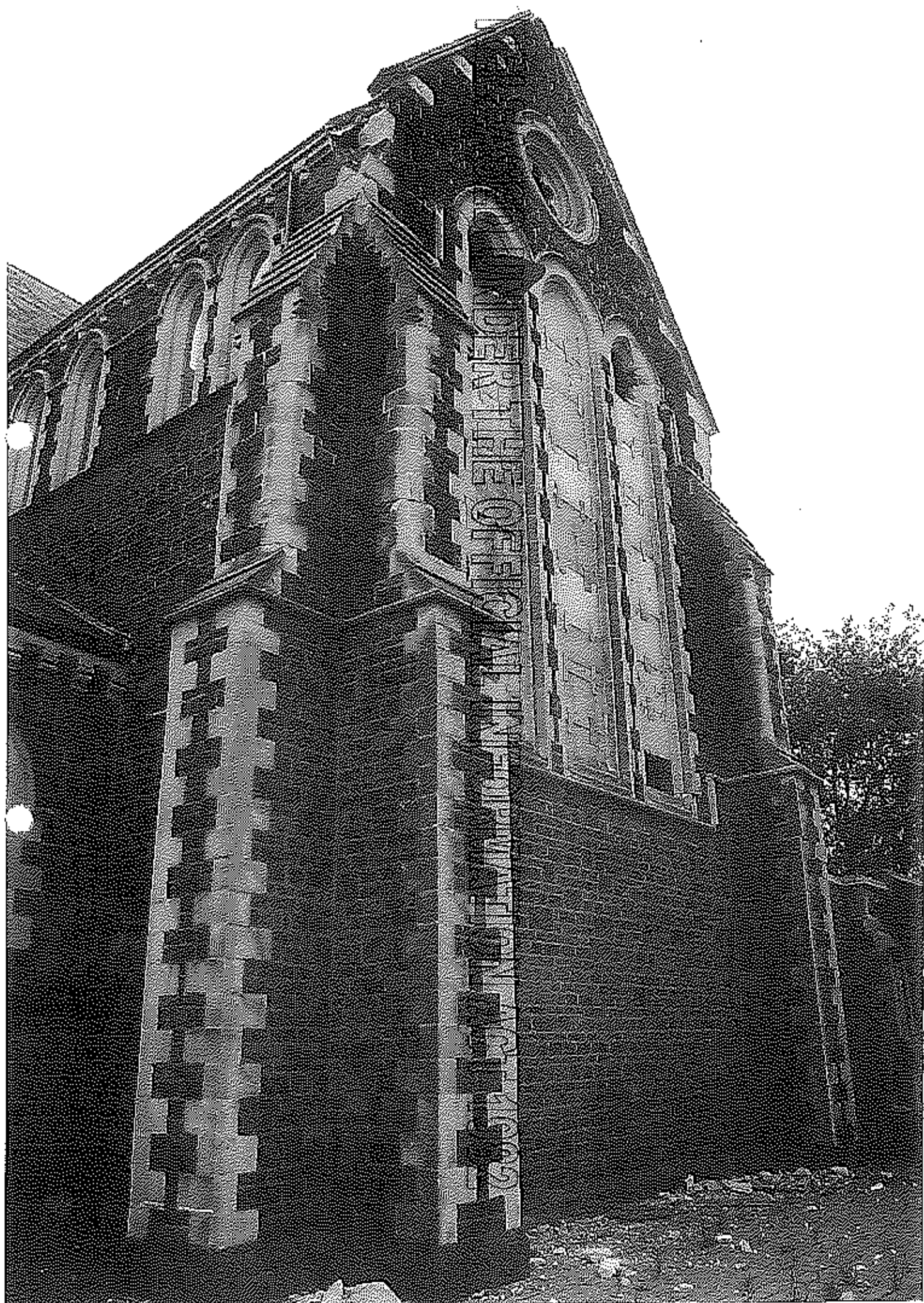












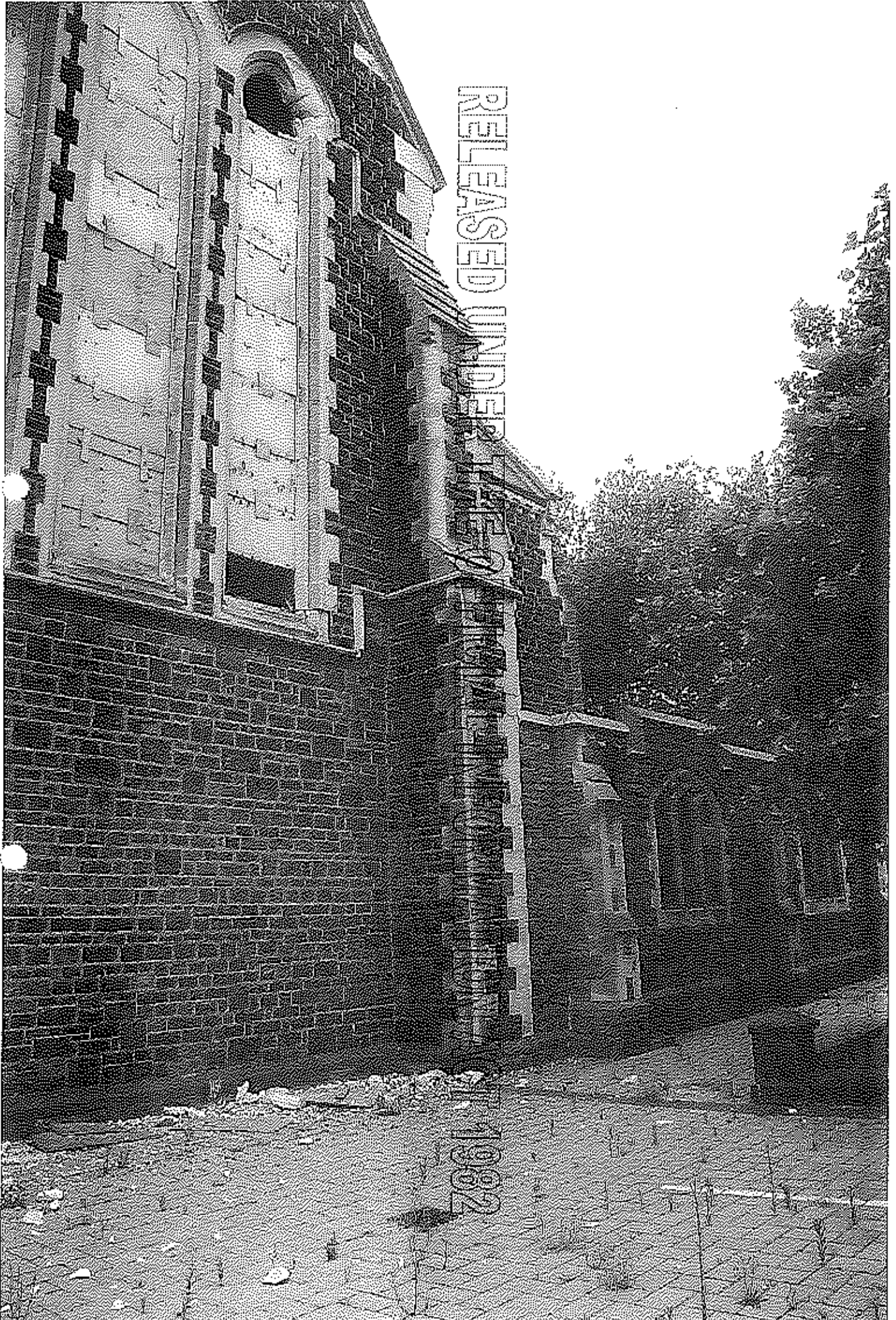
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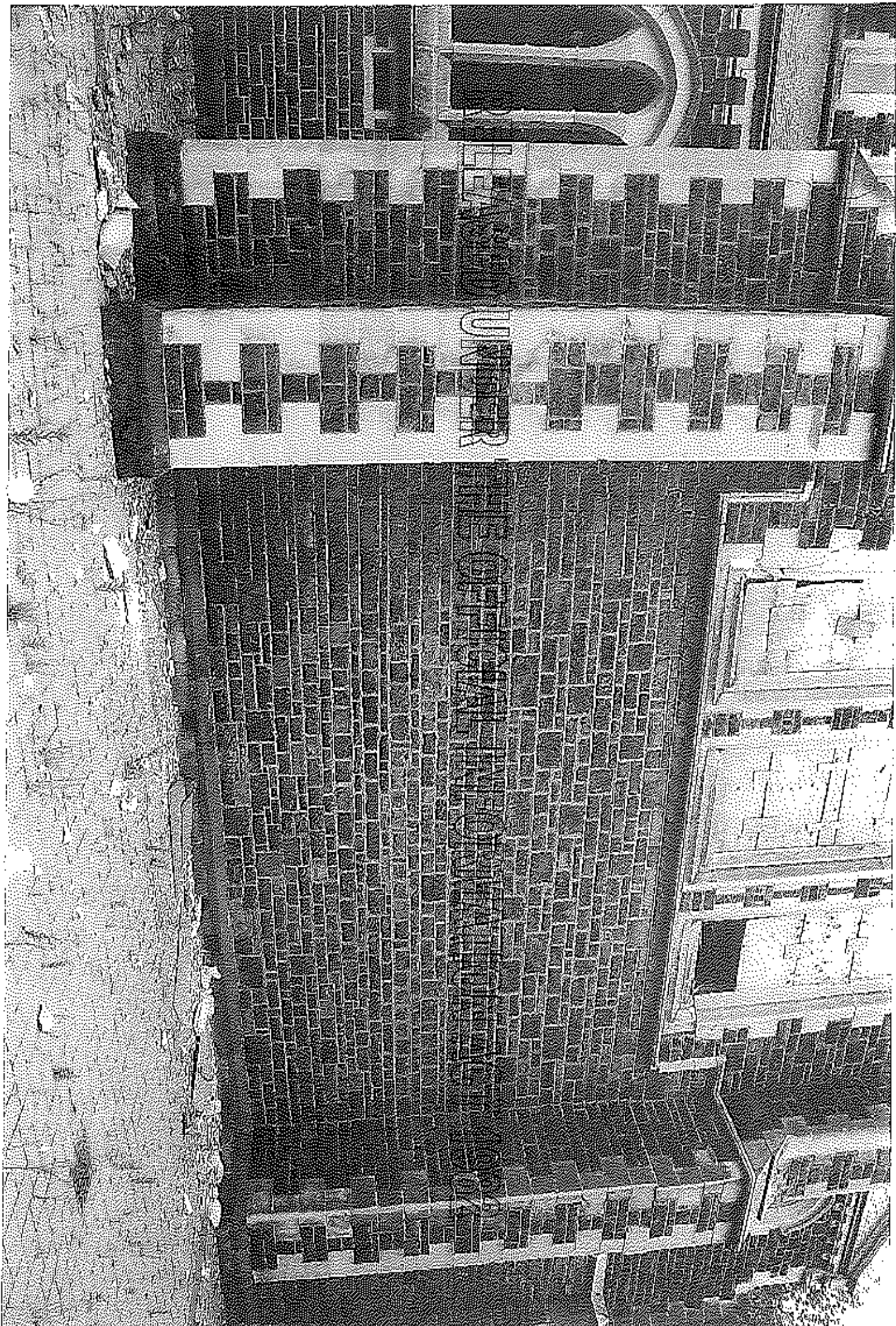
RELEASE

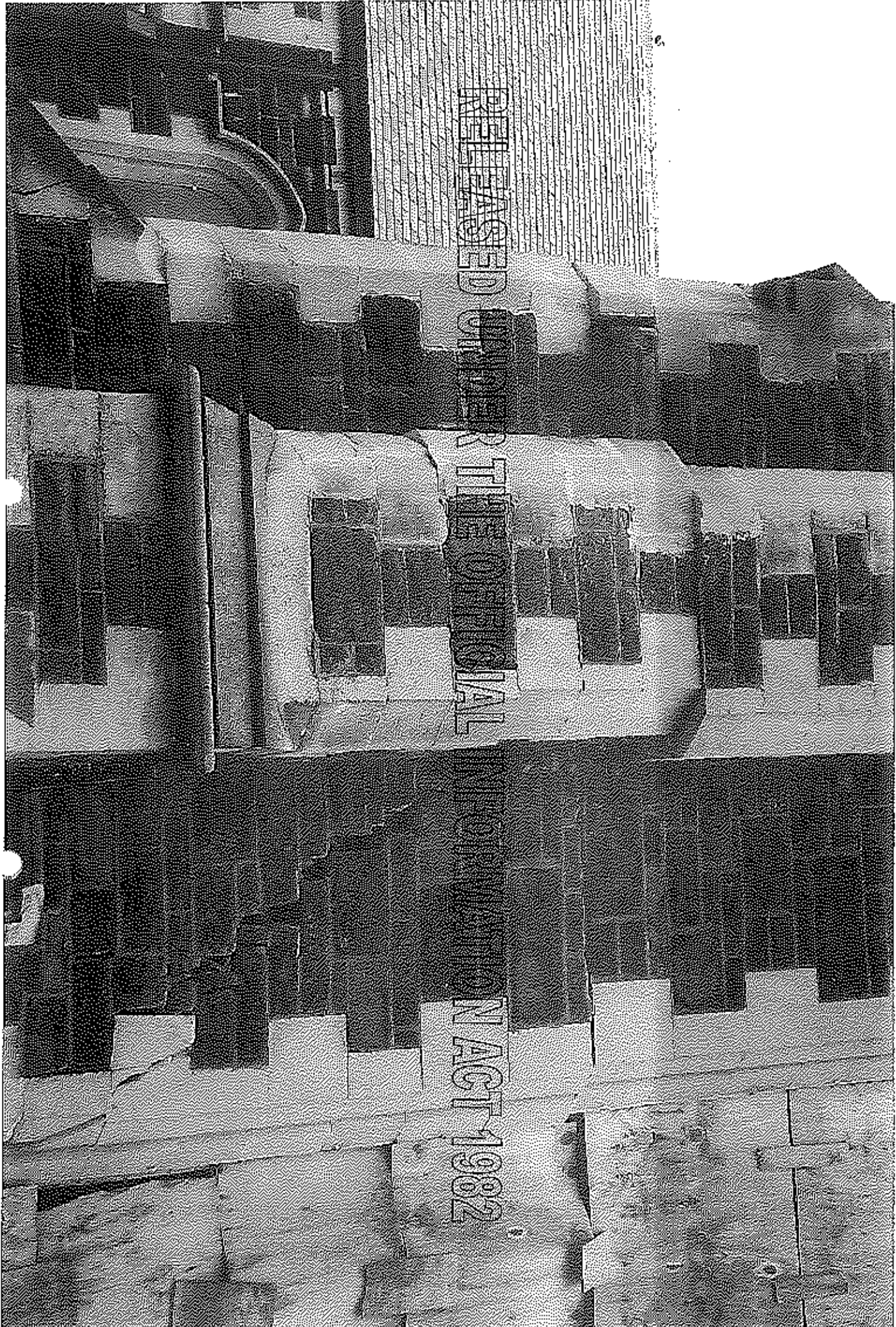
FOR THE OFFICIAL INFORMATION



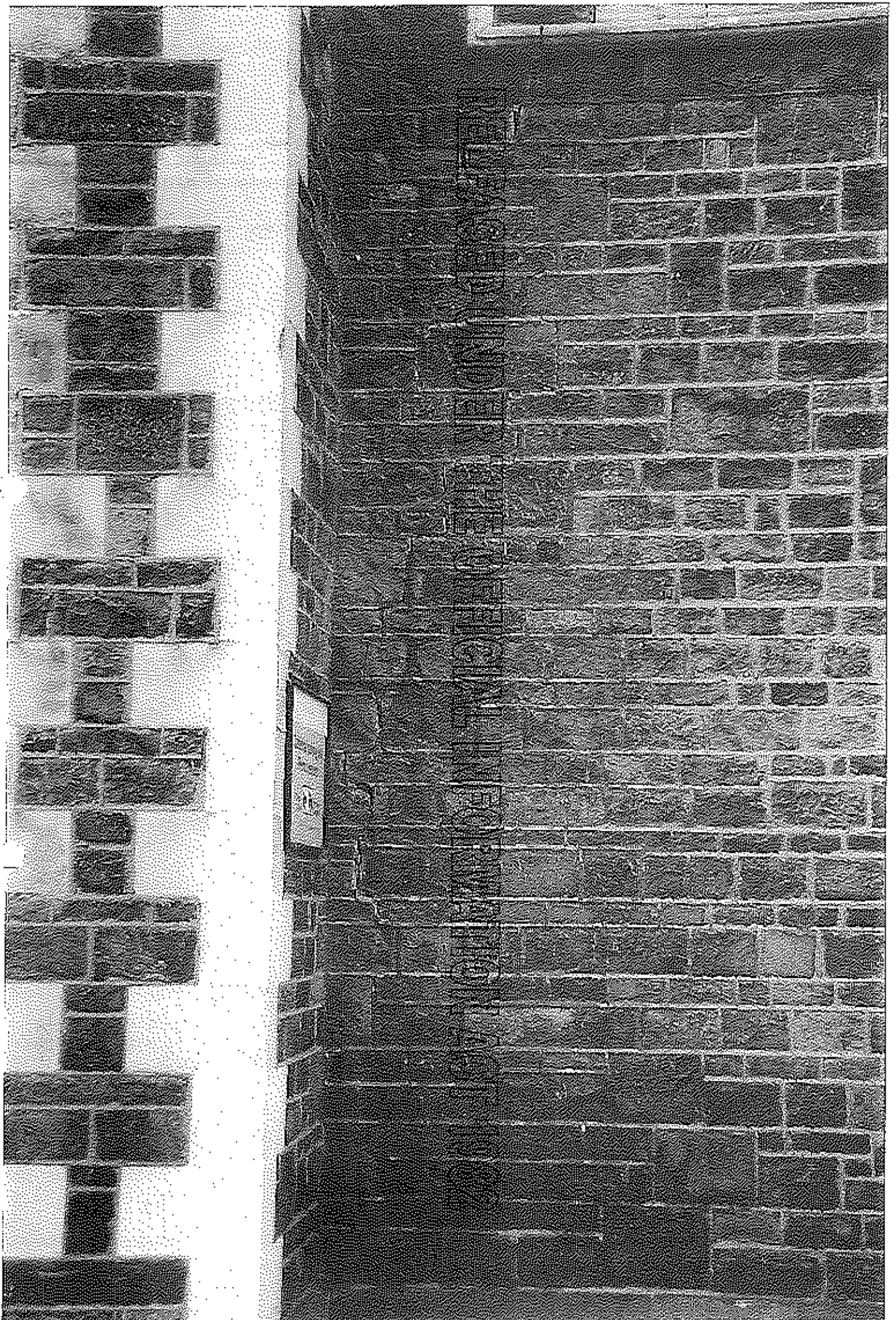


RELEASED UNDER THE
NATIONAL ARCHIVES ACT
OF 1982





RELEASED UNDER THE NATIONAL ARCHIVES ACT OF 1982









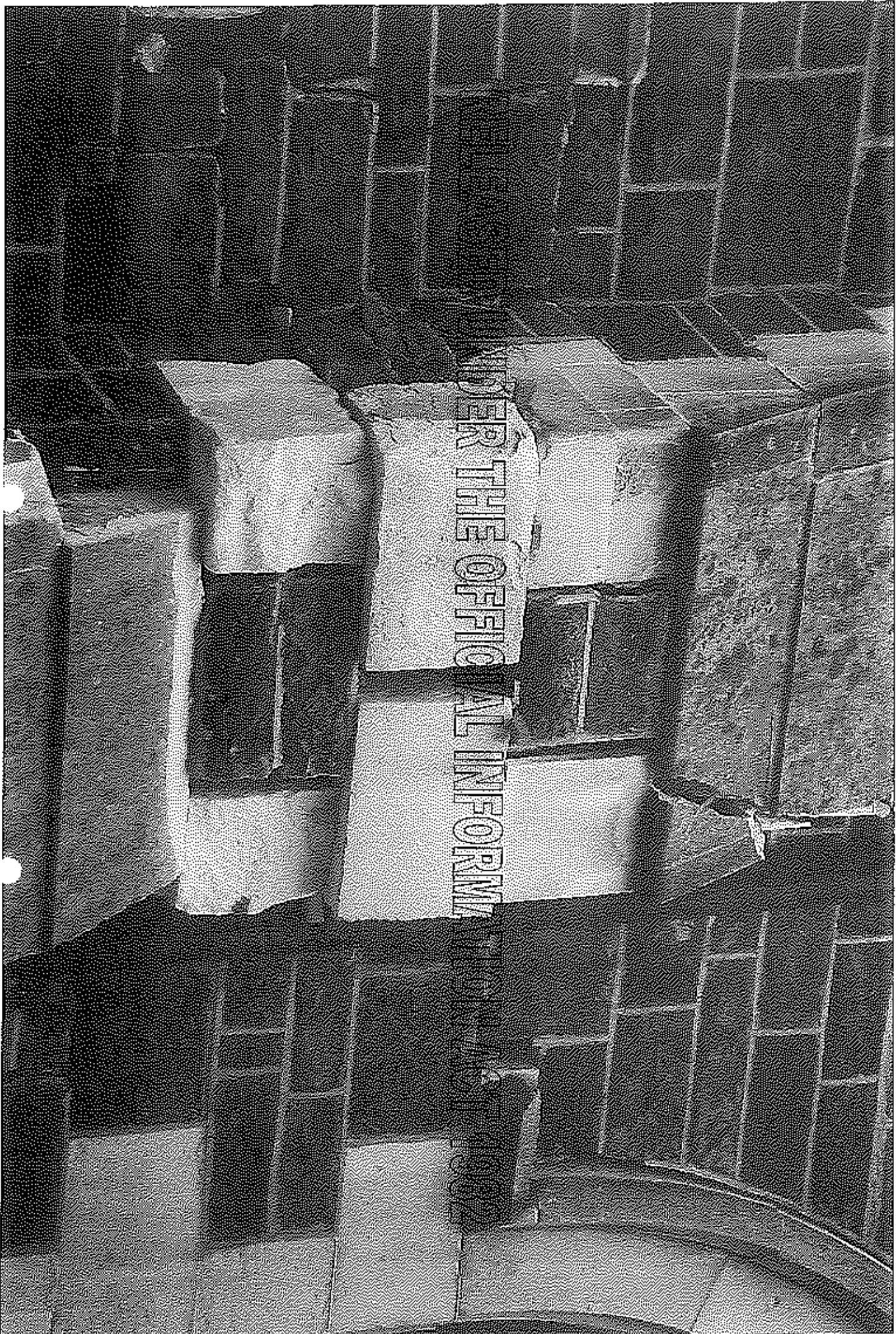
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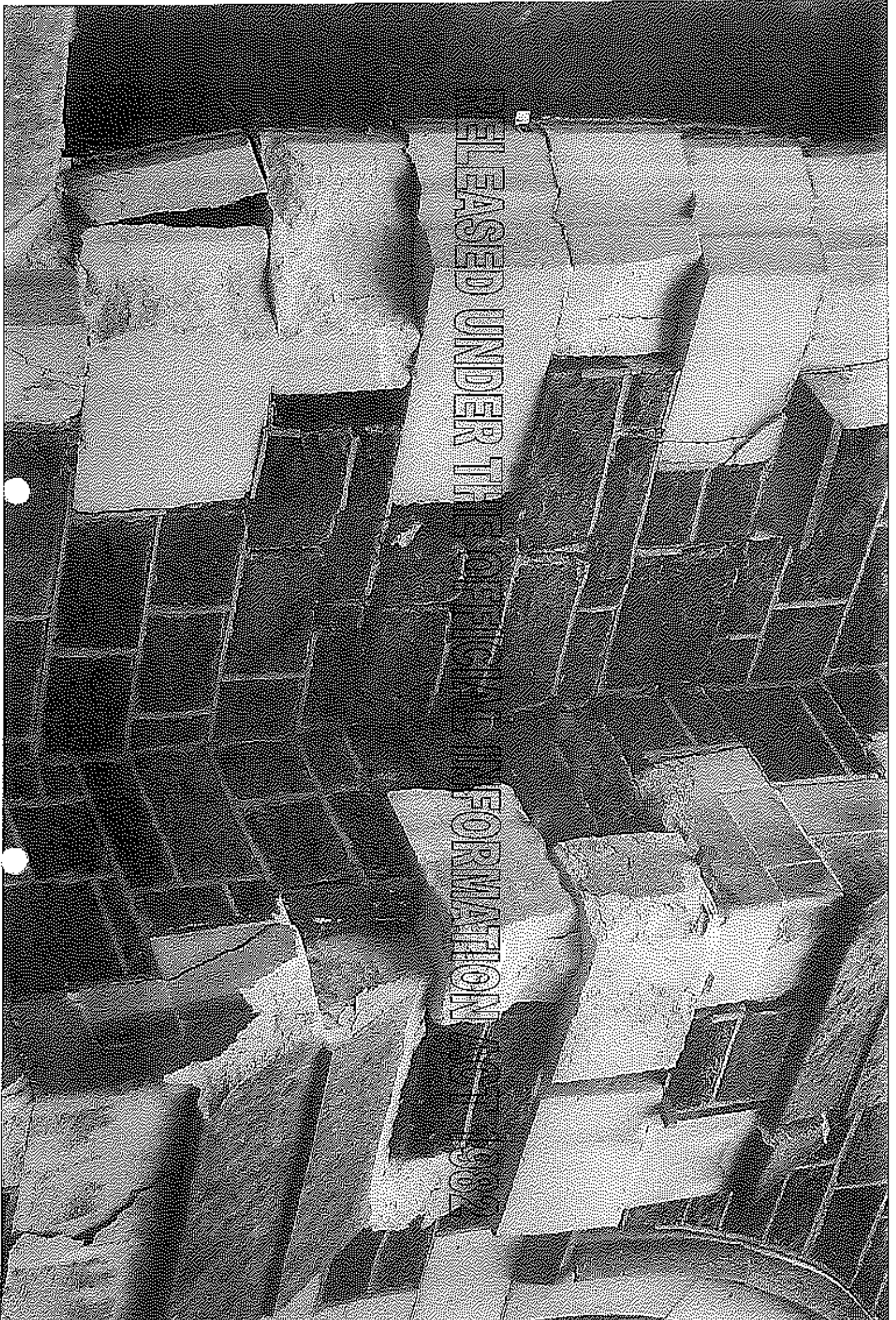
FOR THE OFFICE

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1964

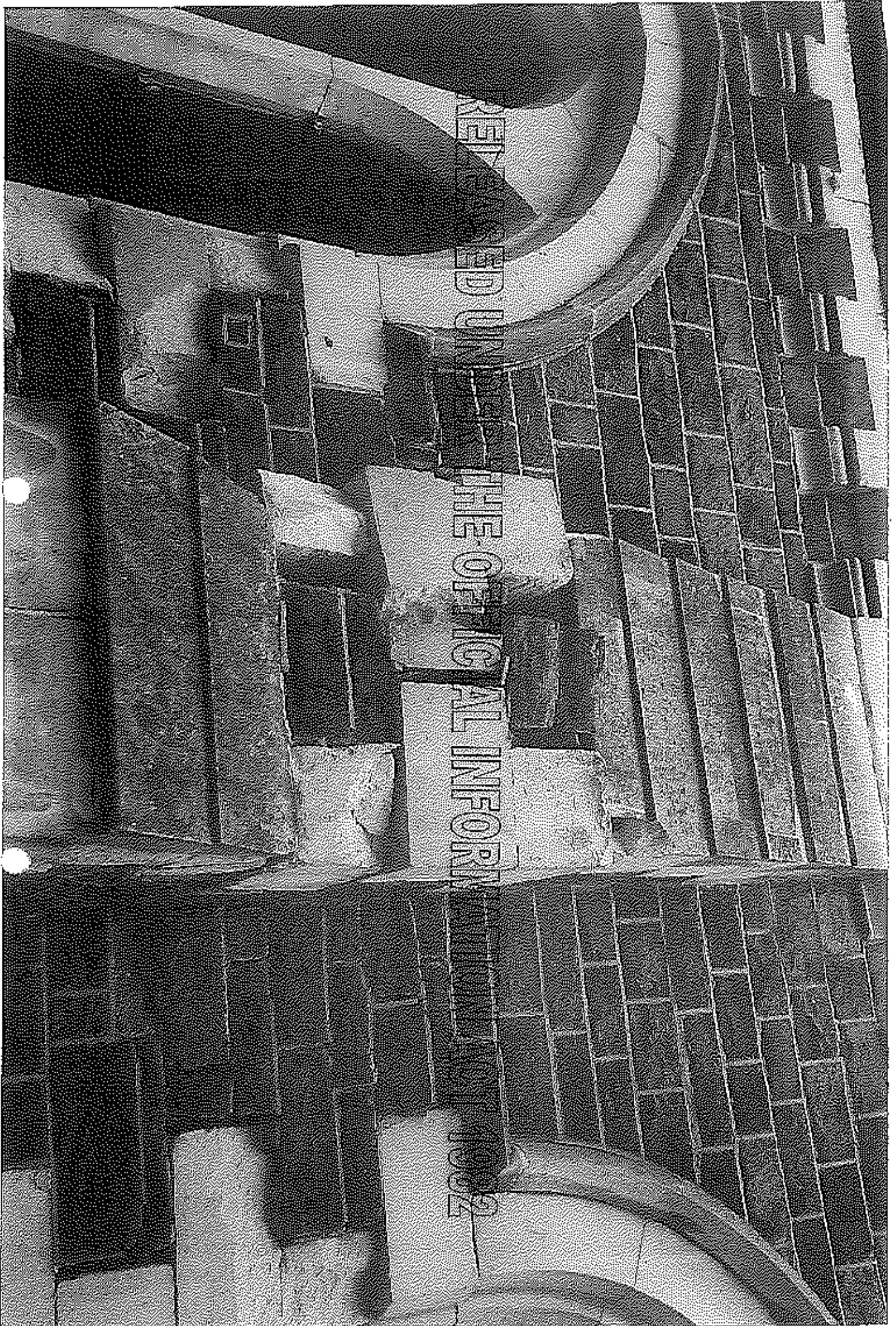
ENTER THE OFFICIAL INFORMATION





RELEASED UNDER THE

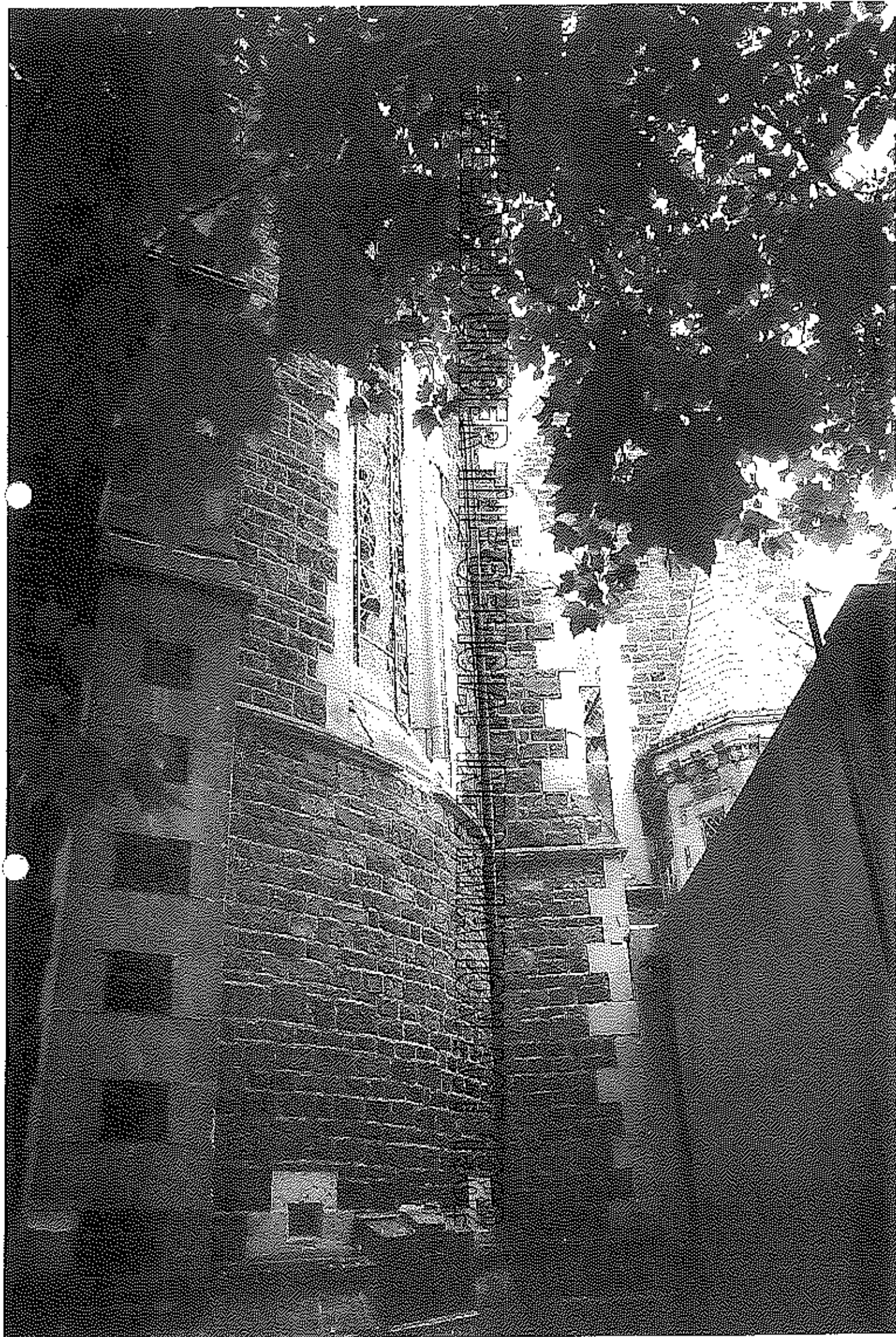
FREEDOM OF INFORMATION ACT



THE OFFICIAL INFORMATION ACT





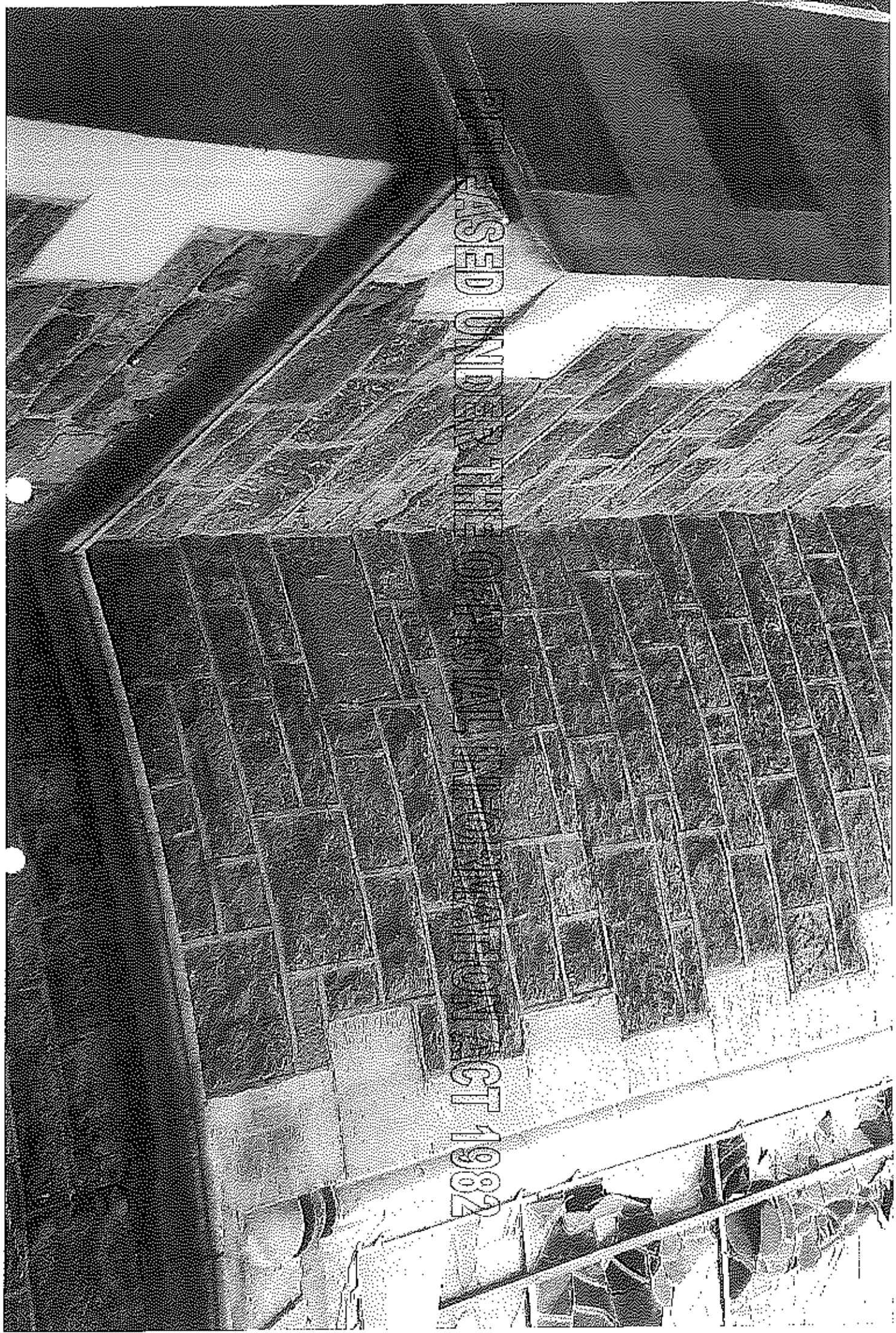




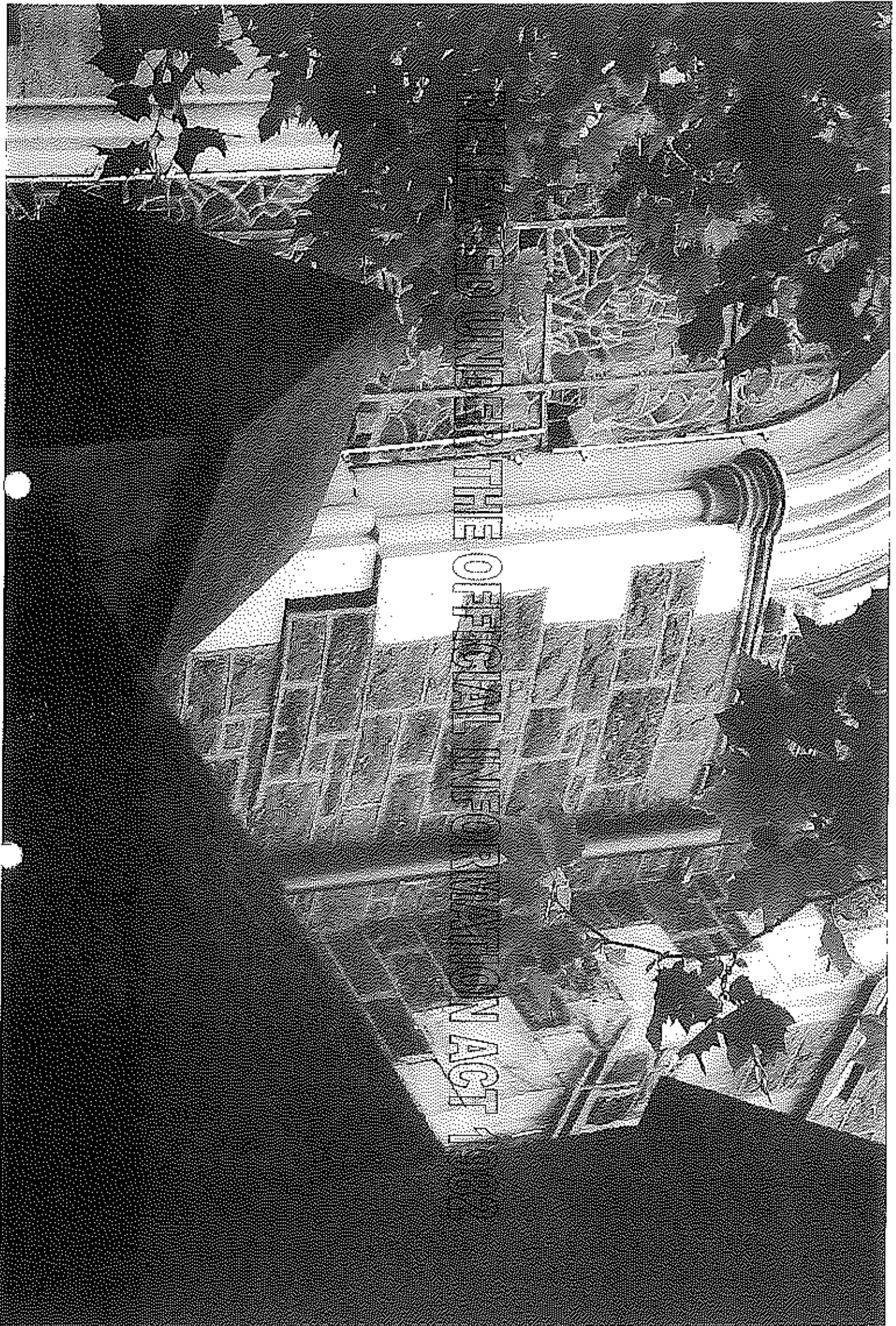




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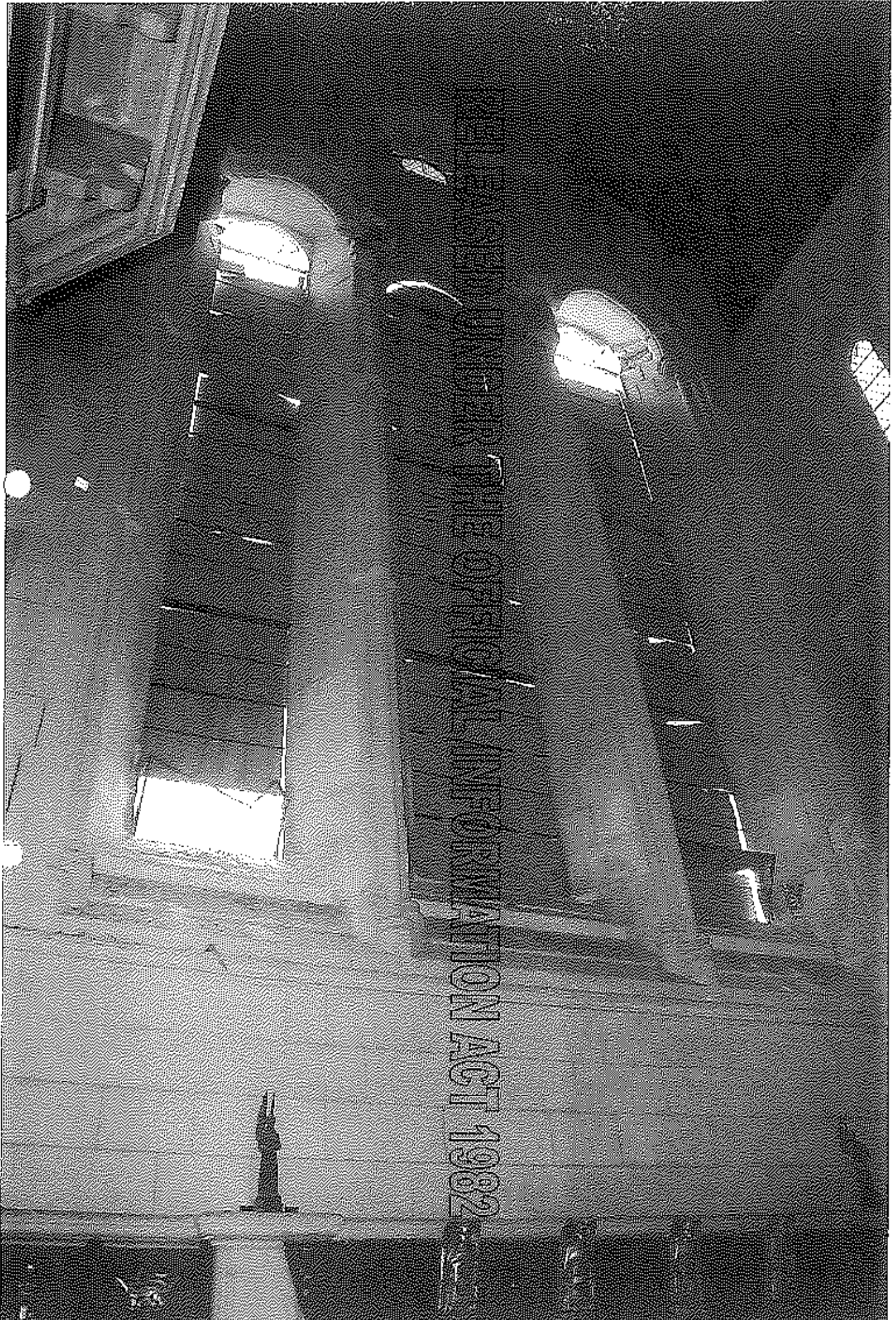


BASED UNDER THE NATIONAL CONTACT 1982



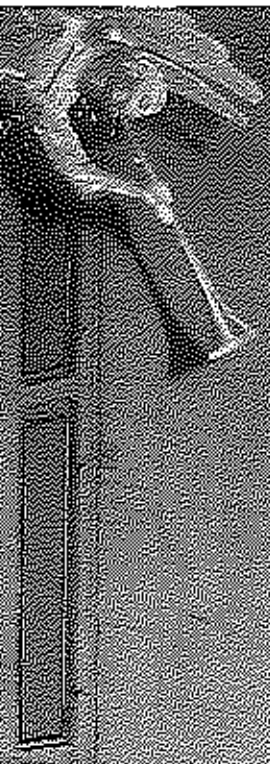
FOUNDING THE OFFICIAL INFORMATION ACT

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REVISION ACT 1982

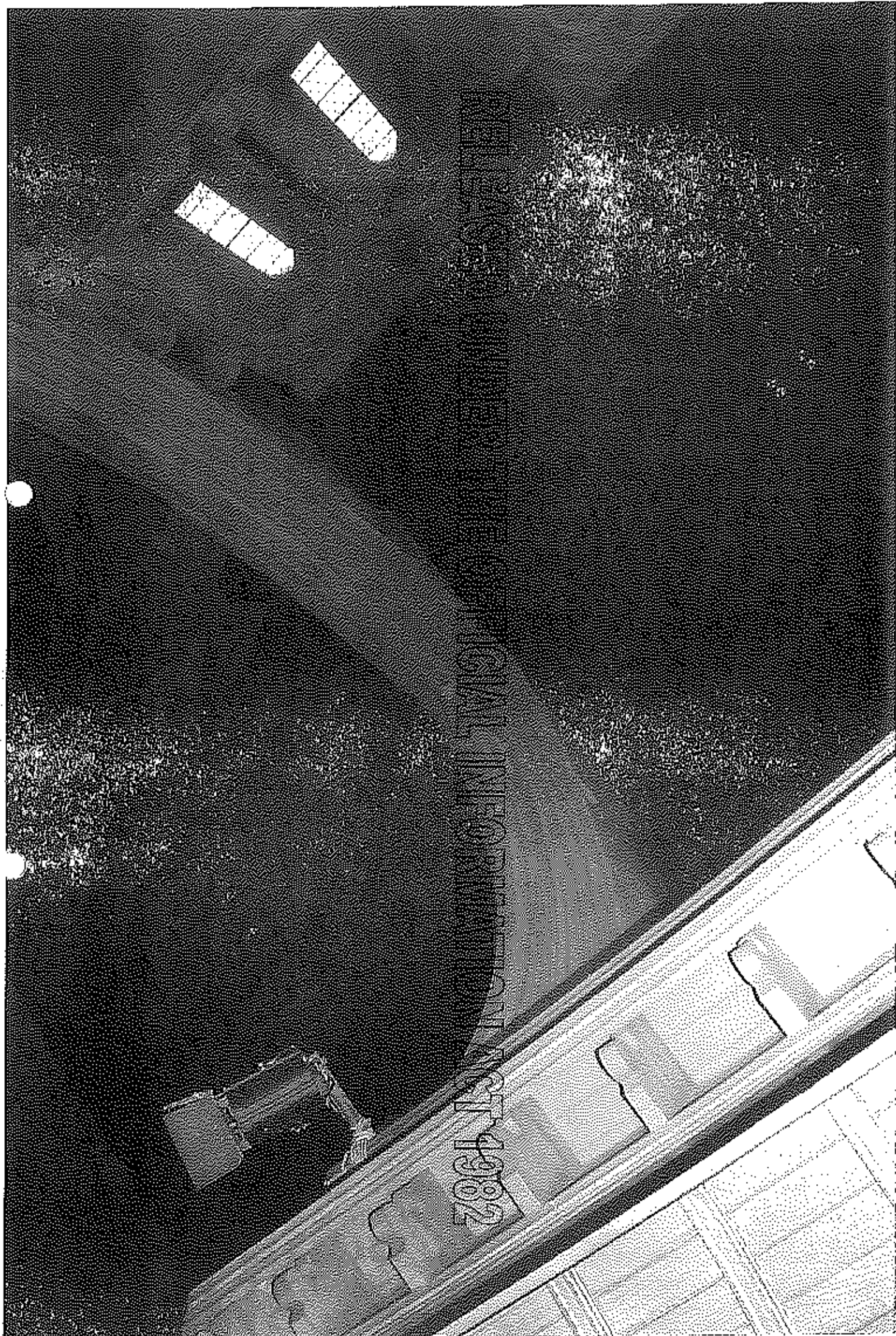
RELEASED UNDER THE OFFICIAL INFORMATION ACT





RELEASED

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JOHN W. WILSON
ARCHITECT 1982









RELEASE UNDER THE PRESIDENT JOHN F. KENNEDY
ASSASSINATION ACT OF 1962

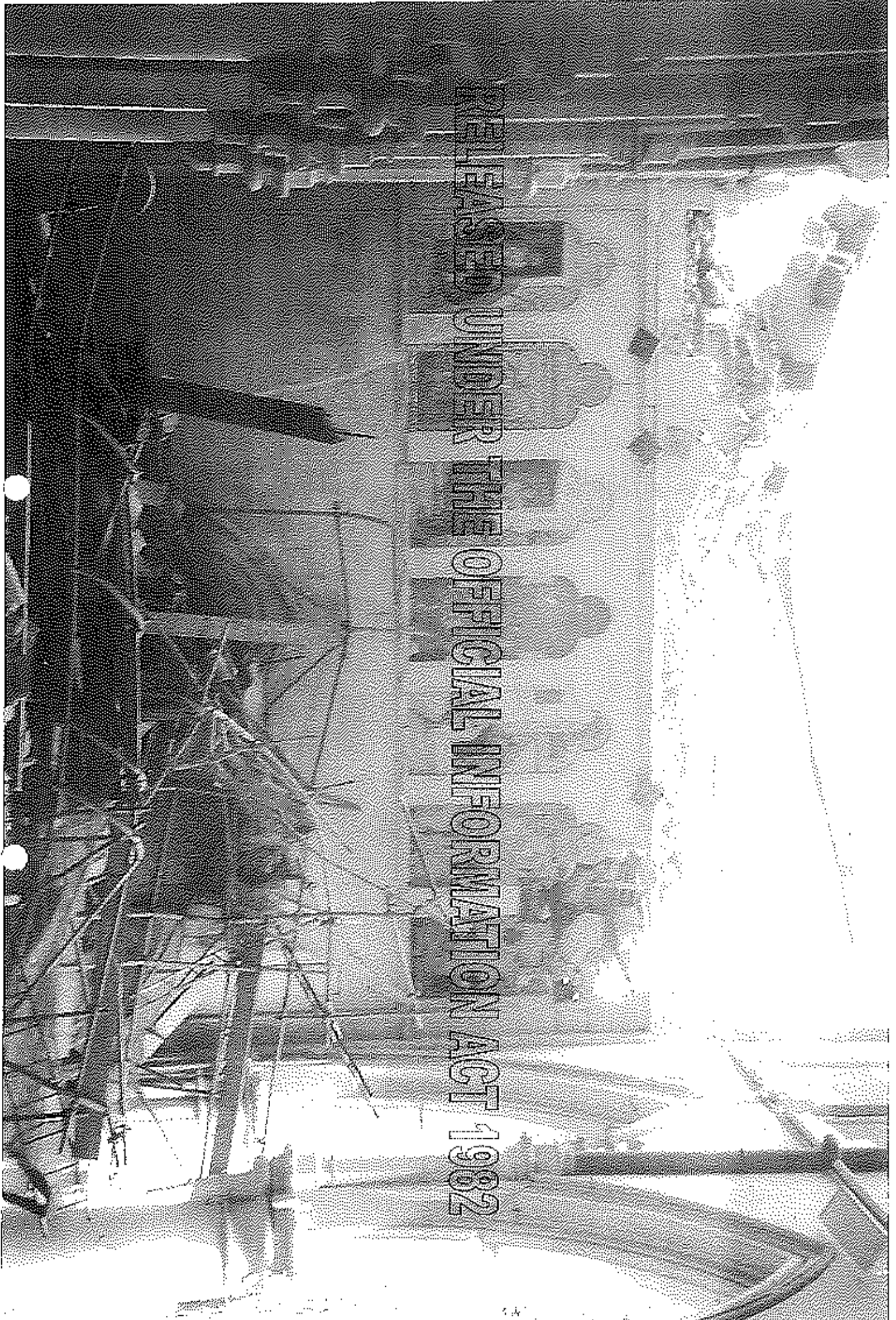
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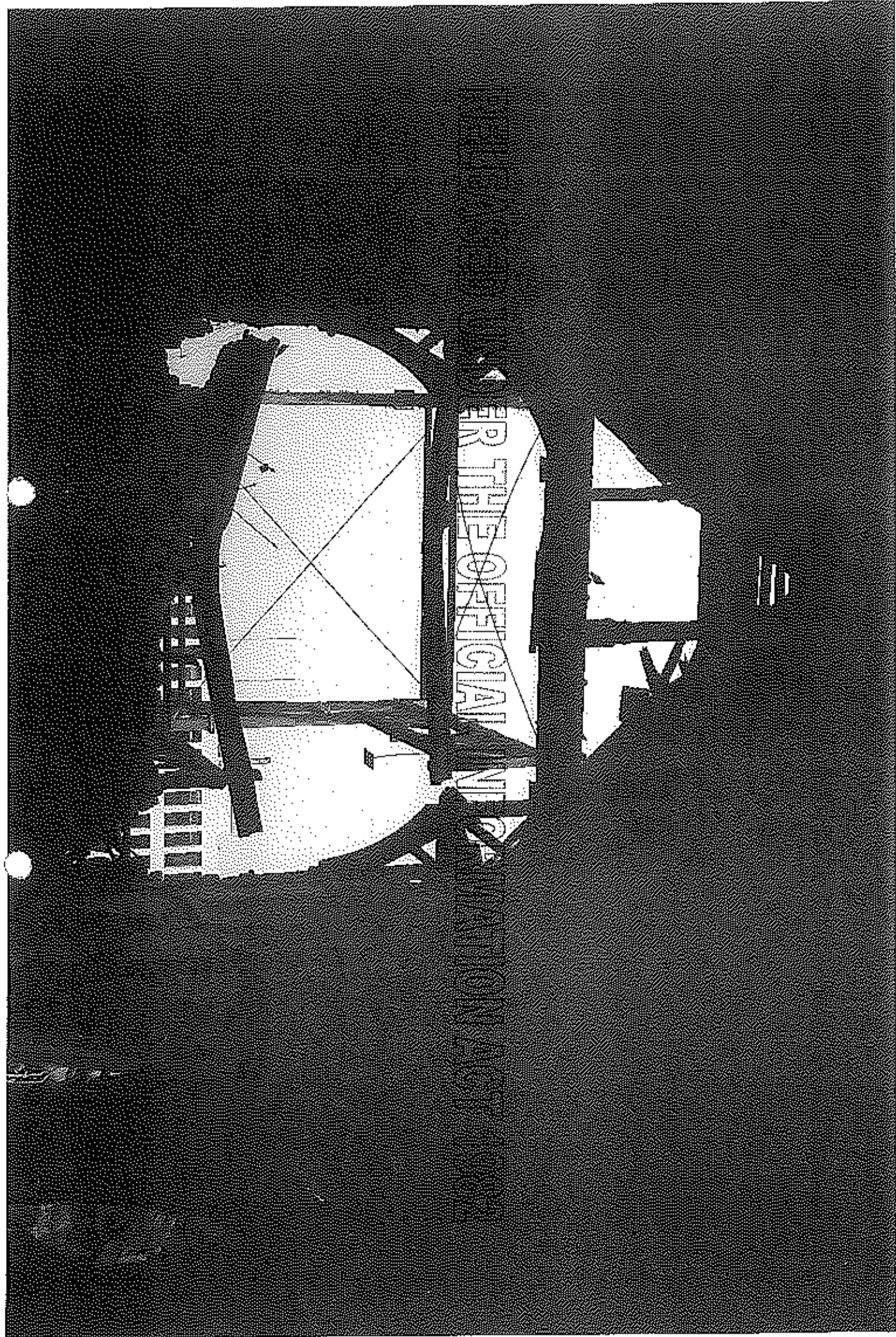
1982



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RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

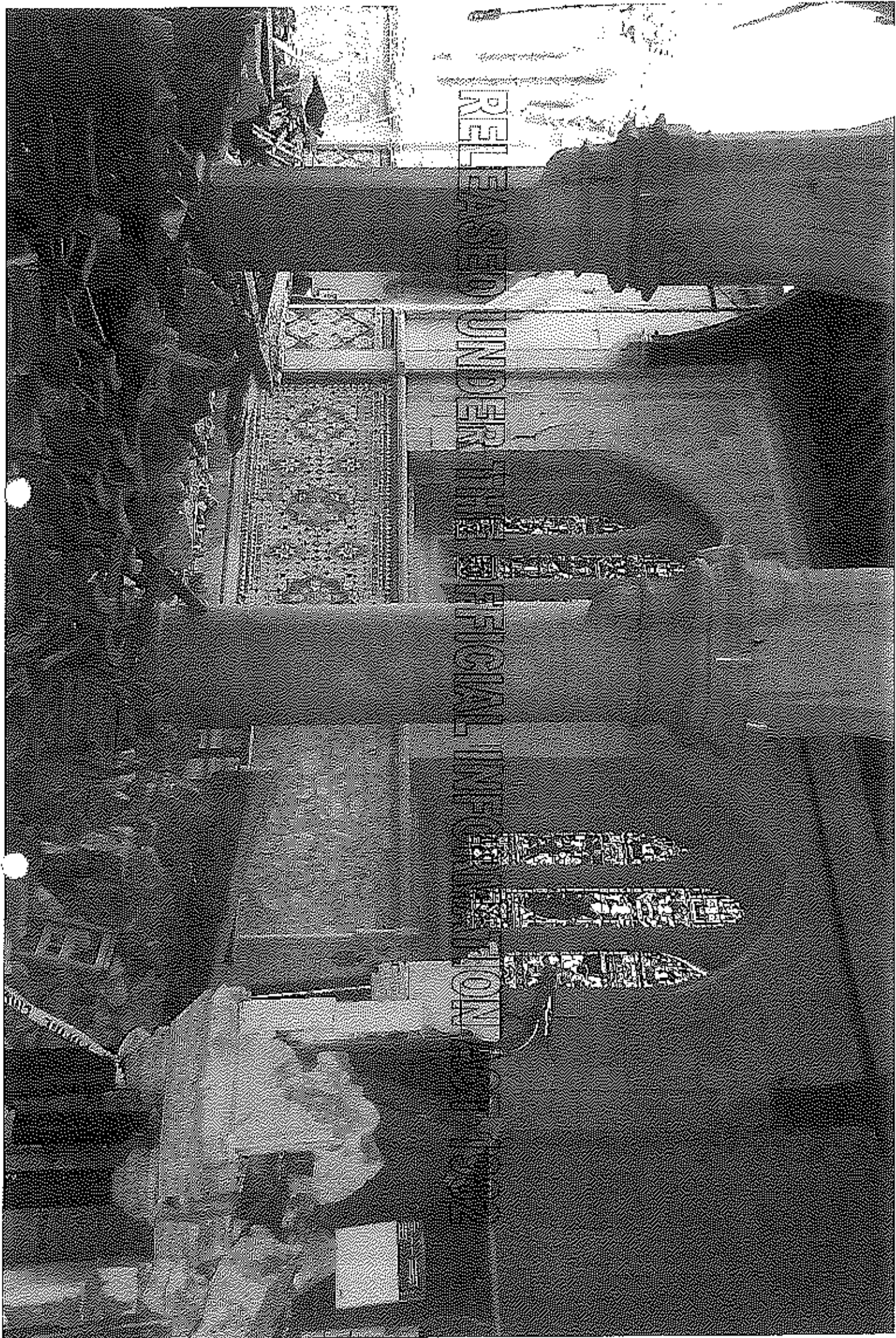






MEMORANDUM FOR THE OFFICIAL INFORMATION ACT 4982





RELEASED UNDER THE PRESIDENT JOHN F. KENNEDY ASSASSINATION ACT OF 1975

RECEIVED UNDER THE OFFICIAL INFORMATION ACT







REMOVED UNDER THE OFFICIAL INFORMATION ACT

TO THE HONOURABLE
ANDREW JONES, MINISTER
OF RELIGION AND
CULTURAL AFFAIRS

RE: [Illegible]

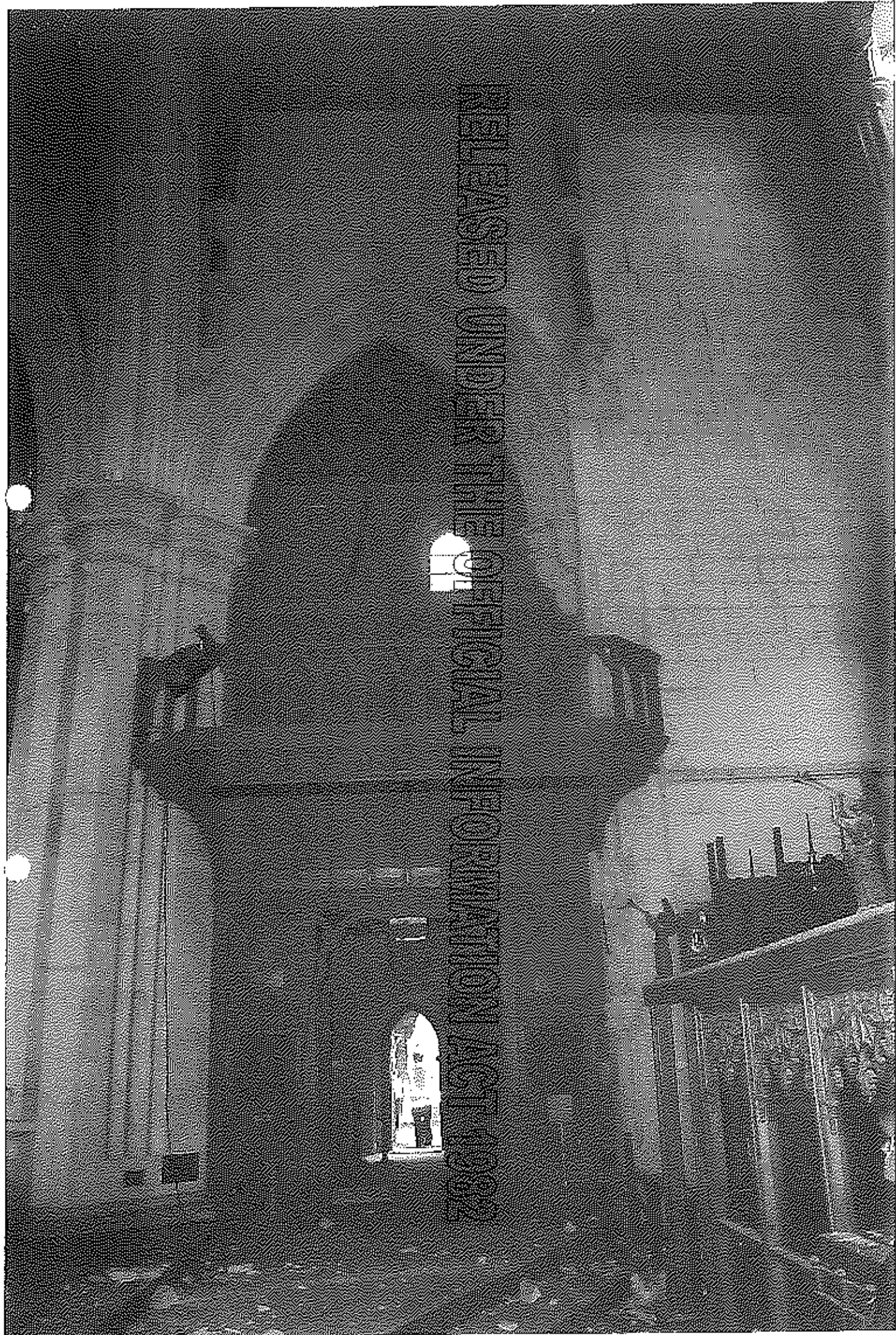
APPROXIMATELY [Illegible]



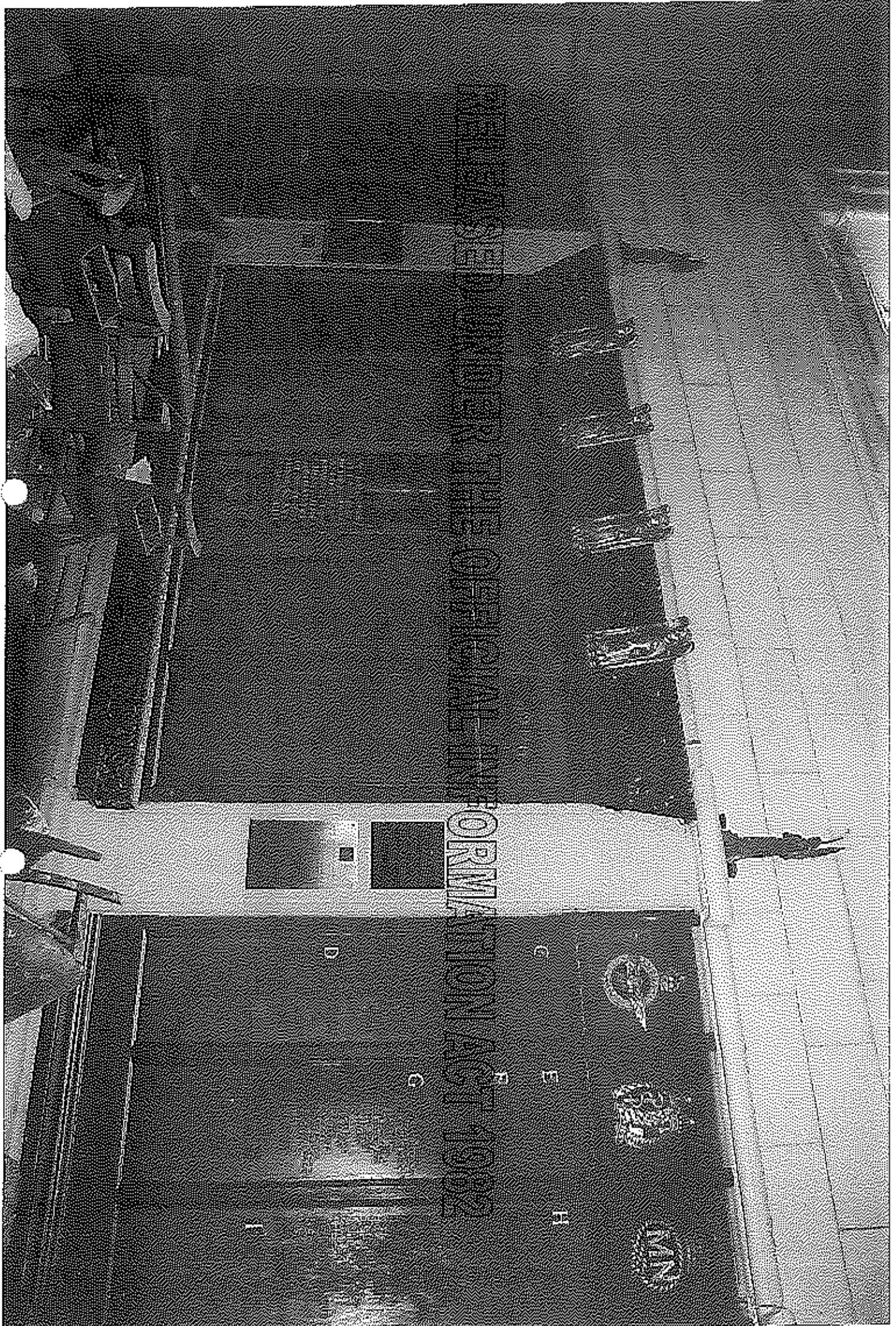
PLEASE CONSIDER THE OFFICIAL INFORMATION ACT 1982

REF ID: A66107
FOIA INFORMATION ACT 1987









FORMATION

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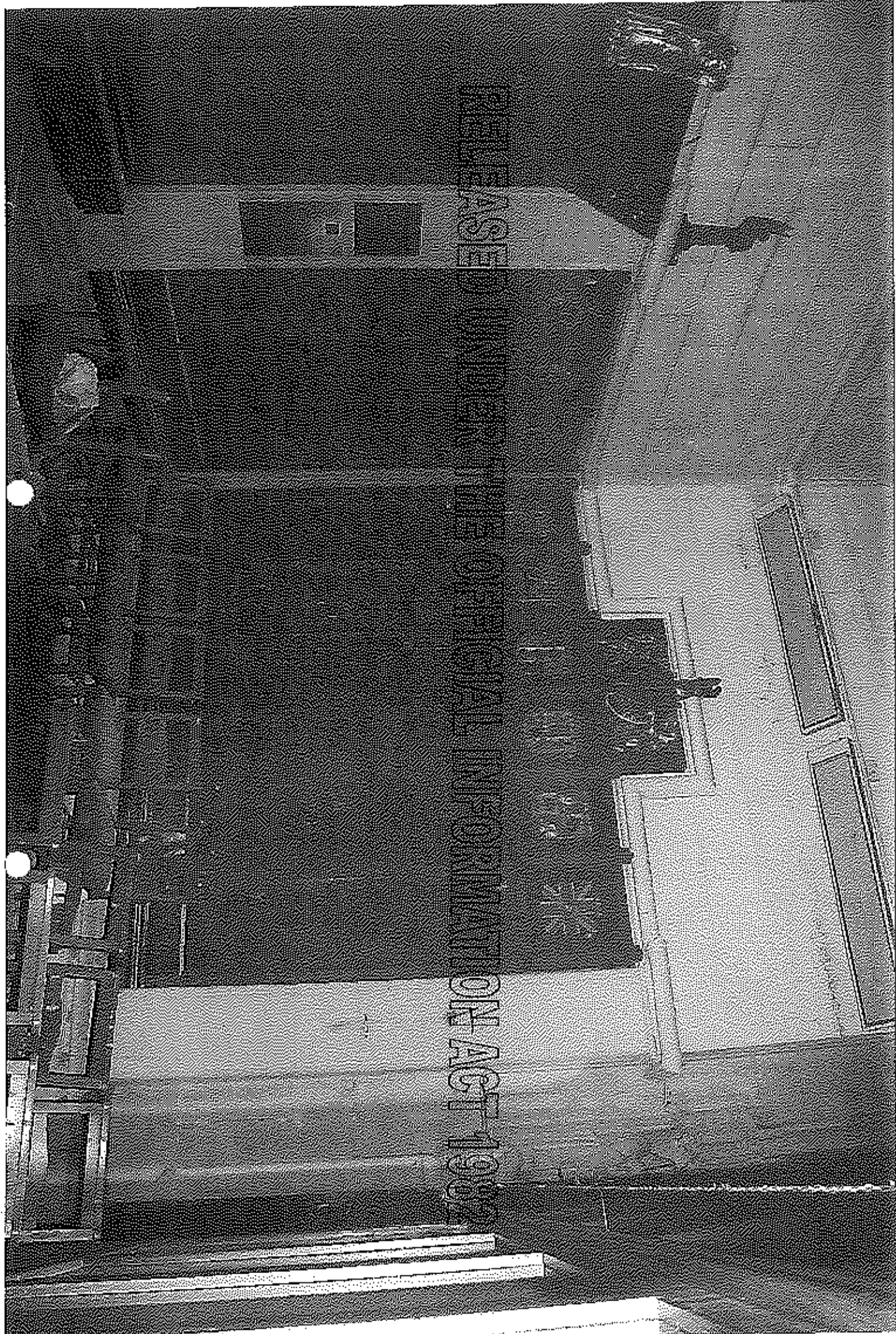
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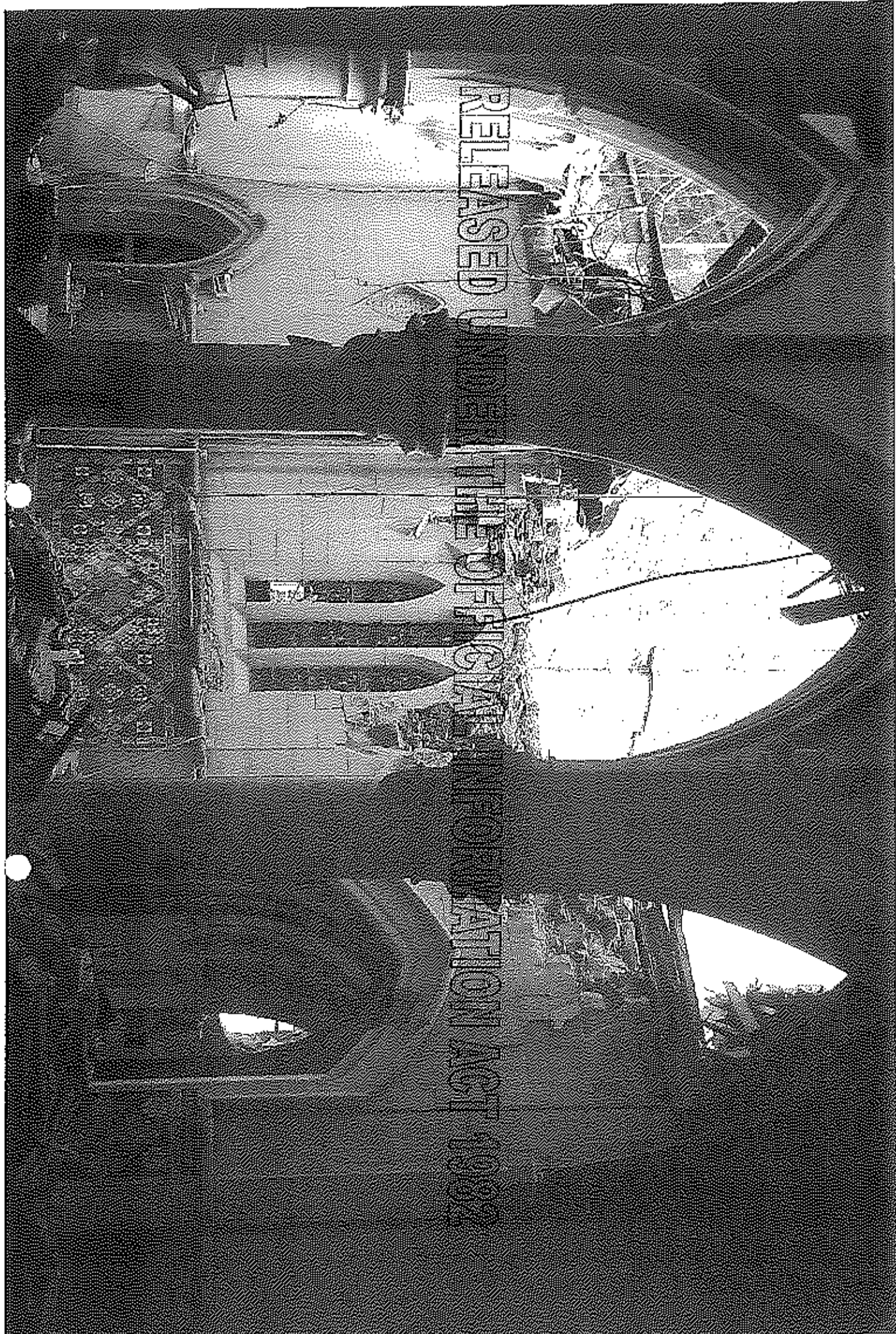
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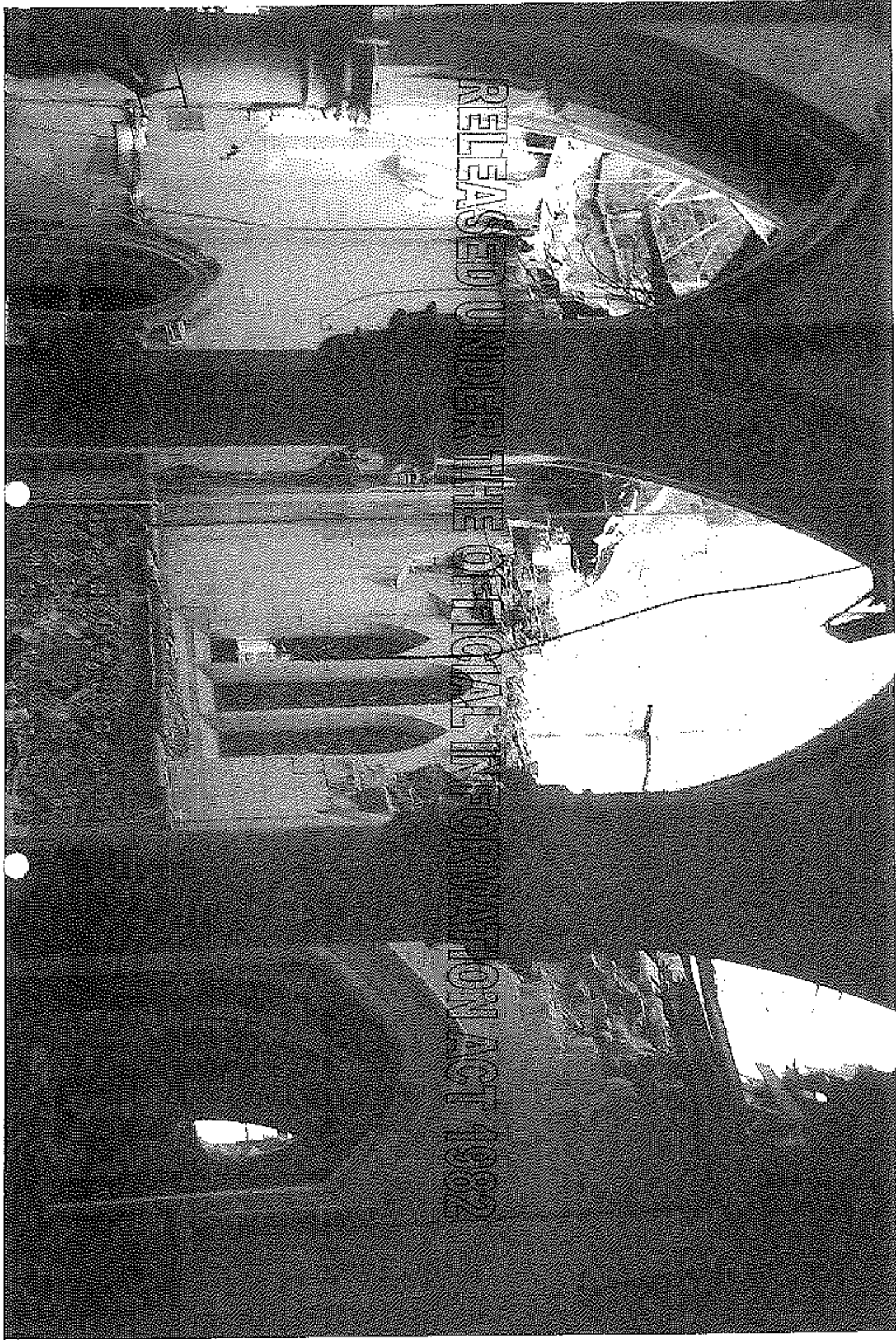




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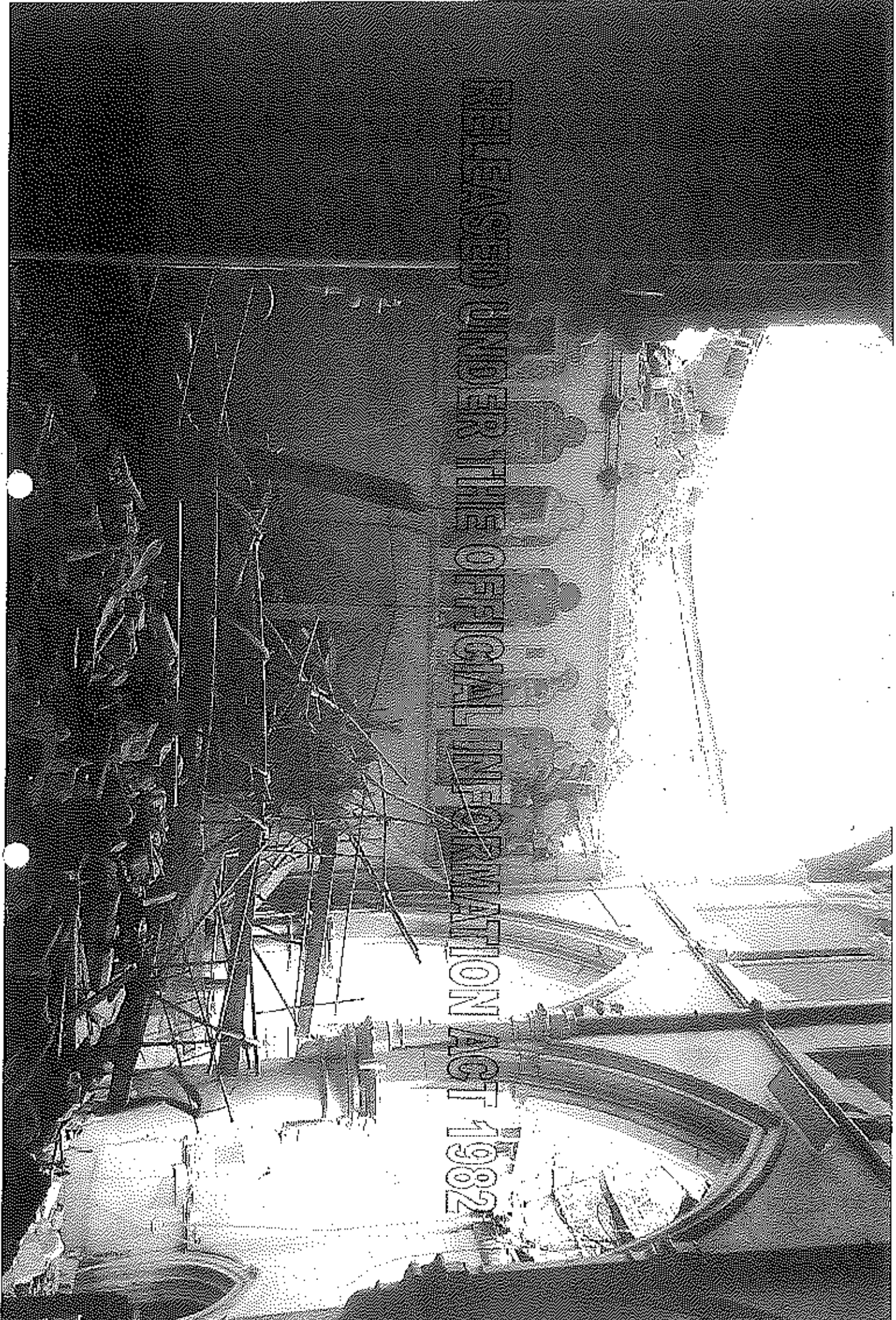
THE OFFICIAL INFORMATION ACT

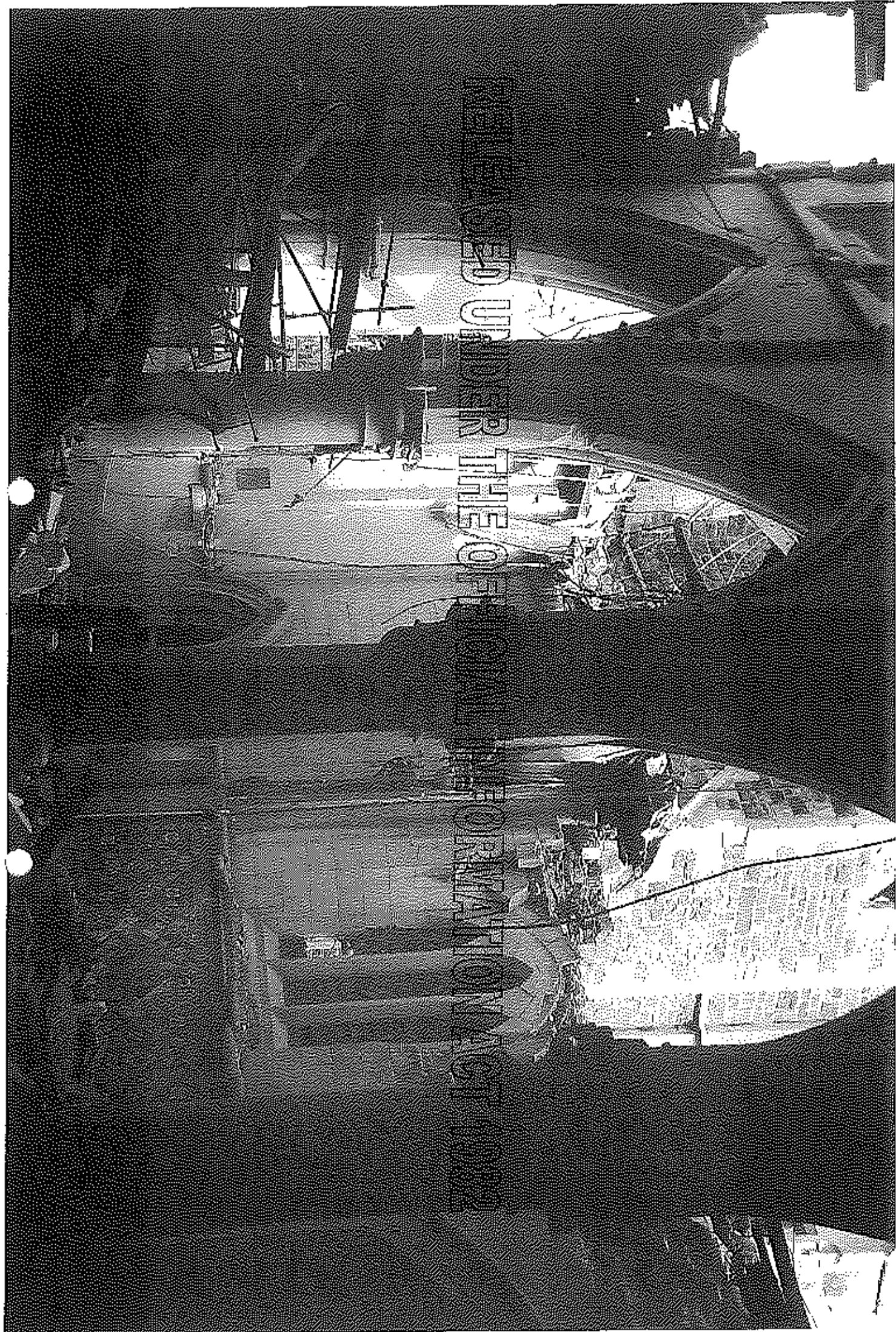
1987-1990

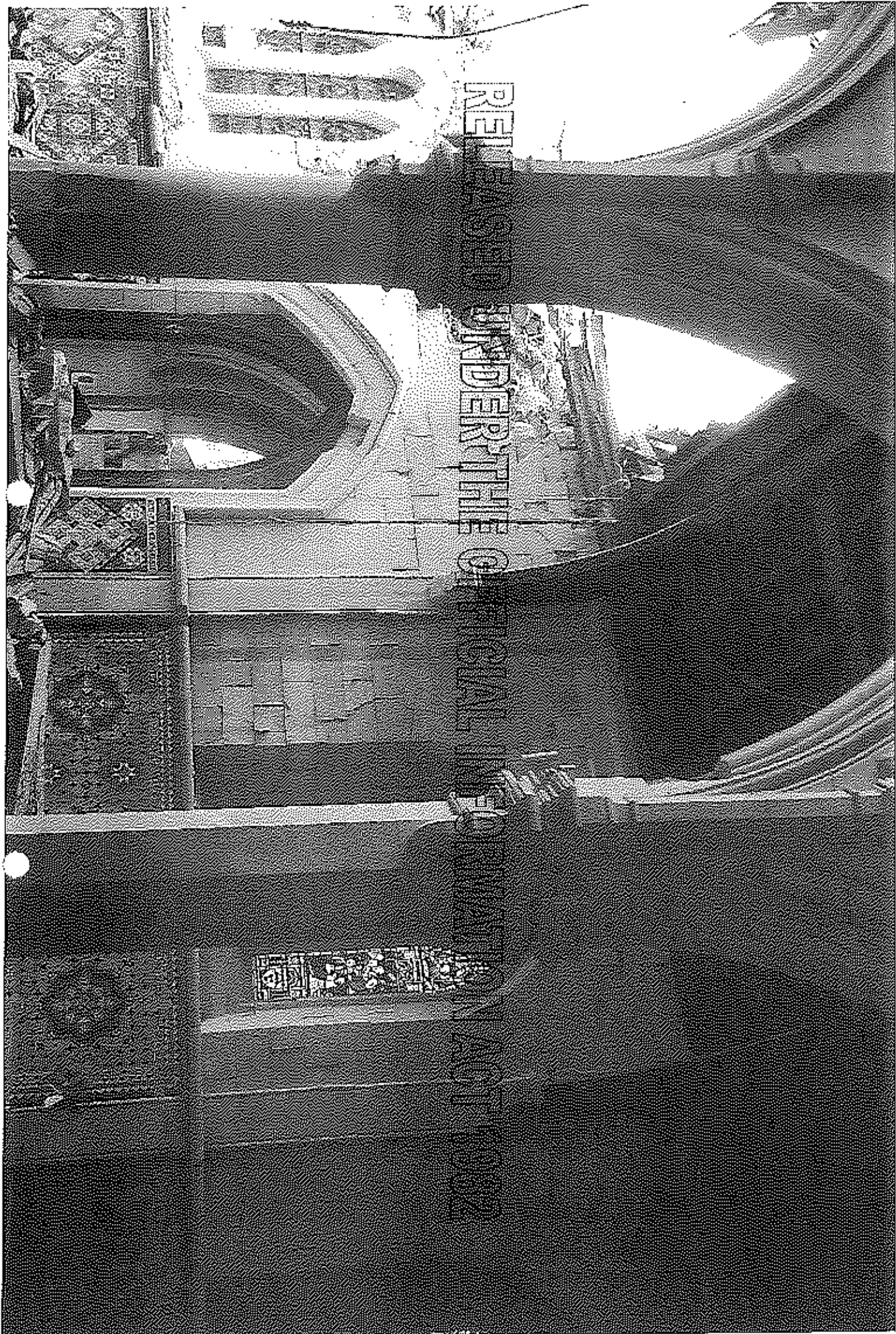


RELEASED UNDER THE OFFICIAL INFORMATION ACT

REVEAL UNDER THE OFFICIAL INFORMATION ACT 1982



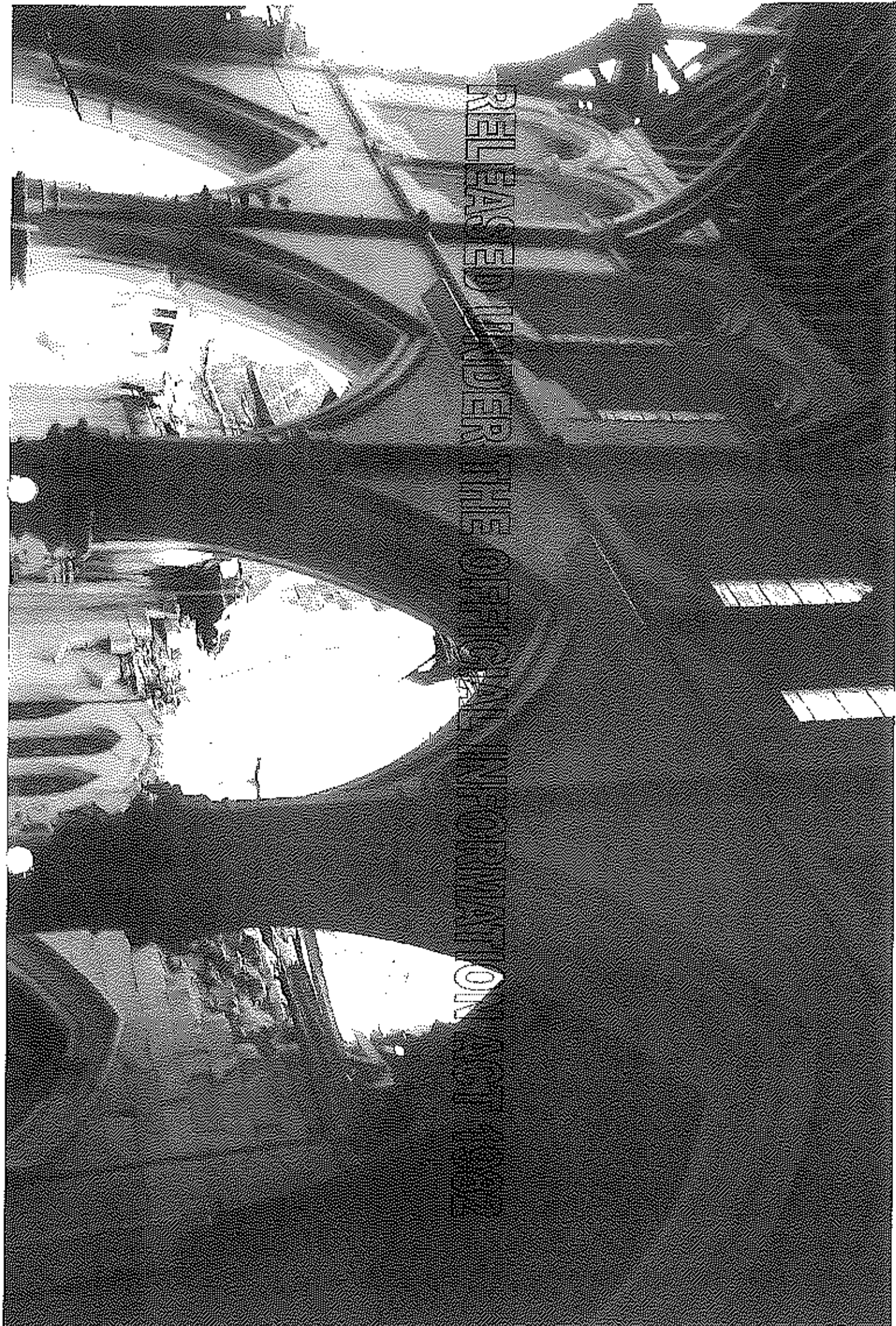




REMEMBER THE ORIGINAL



RELEASED UNDER THE OFFICIAL INFORMATION ACT 982





RELEASED UNDER THE PRESIDENT JOHN F. KENNEDY ACT OF 1952

RELEASED UNDER THE OPEN INFORMATION ACT 1082

THE INFORMATION ACT

1. The purpose of this Act is to provide a framework for the release of information held by government institutions.

2. The Act applies to all government institutions, including the federal government, provincial governments, and municipalities.

3. The Act sets out the principles of access to information, including the right of access and the duty of disclosure.

4. The Act also sets out the procedures for requesting and receiving information, including the process of making an access to information request.



RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

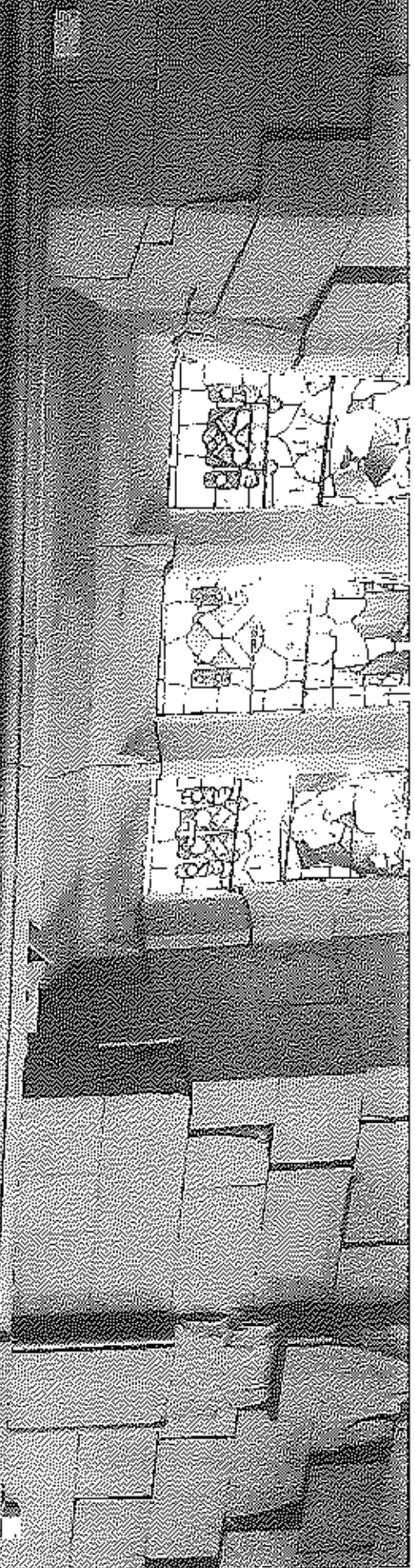
FRANCIS KNOWLES, 71
14 LOVING MEADOWS DR
TORONTO, ONTARIO M2M 1P8
FRANCIS KNOWLES, 71
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TORONTO, ONTARIO M2M 1P8



RELEASED UNDER THE OFFICIAL INFORMATION ACT, 1982



RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

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GENERAL INVESTIGATIVE DIVISION
INTELLIGENCE DIVISION
INSPECTION DIVISION
LABORATORY DIVISION
LEGAL COUNSEL
PLANNING DIVISION
TRAINING DIVISION
ADMINISTRATIVE SERVICES DIVISION
COMMUNICATIONS DIVISION
PROPERTY DIVISION
RECORDS DIVISION
GENERAL INVESTIGATIVE DIVISION
INTELLIGENCE DIVISION
INSPECTION DIVISION
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LEGAL COUNSEL
PLANNING DIVISION
TRAINING DIVISION
ADMINISTRATIVE SERVICES DIVISION
COMMUNICATIONS DIVISION
PROPERTY DIVISION
RECORDS DIVISION



RELEASED UNDER THE PRESIDENT JOHN F. KENNEDY ASSASSINATION ACT OF 1992





UNDER THE OFFICIAL INFORMATION ACT 1992

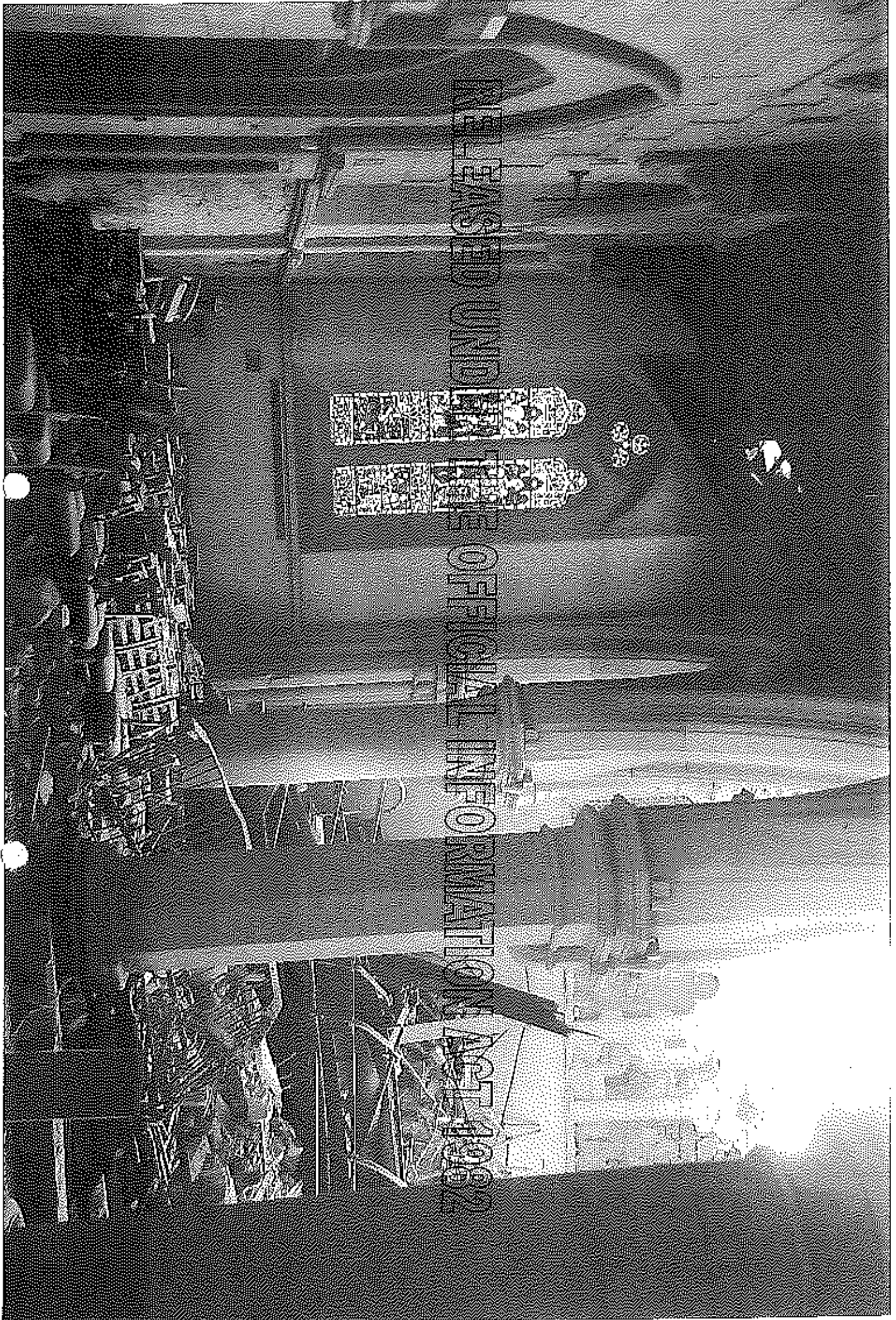


RELEASING UNDER THE OFFICIAL INFORMATION ACT 1982



229

229

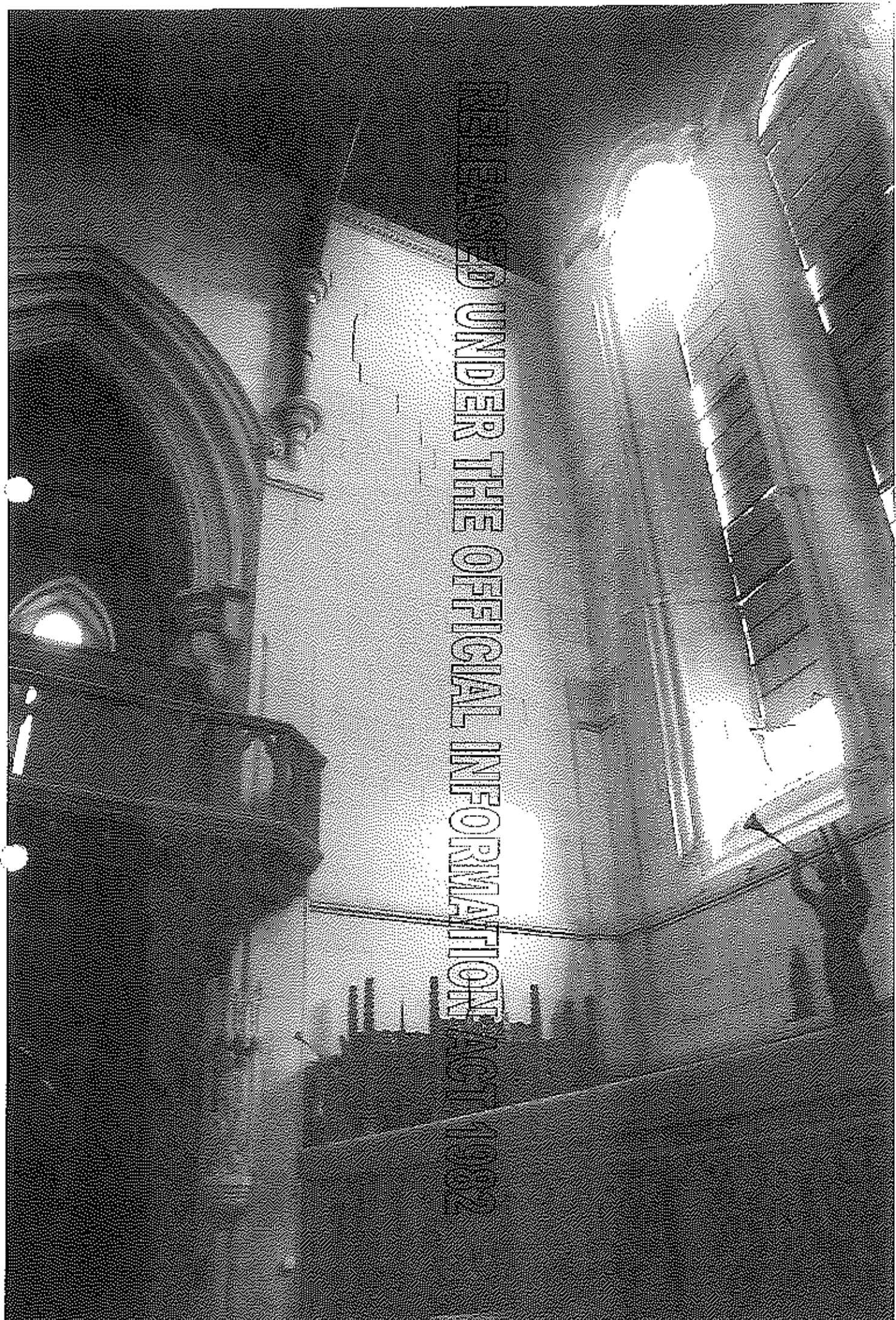


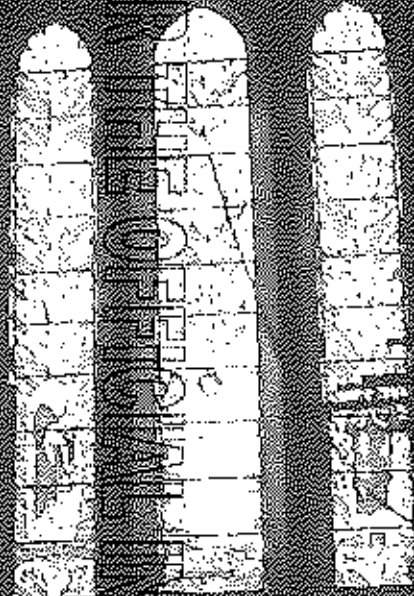
RELEASE UNDER THE OFFICIAL INFORMATION ACT 1982





REDACTED UNDER THE OFFICIAL INFORMATION ACT



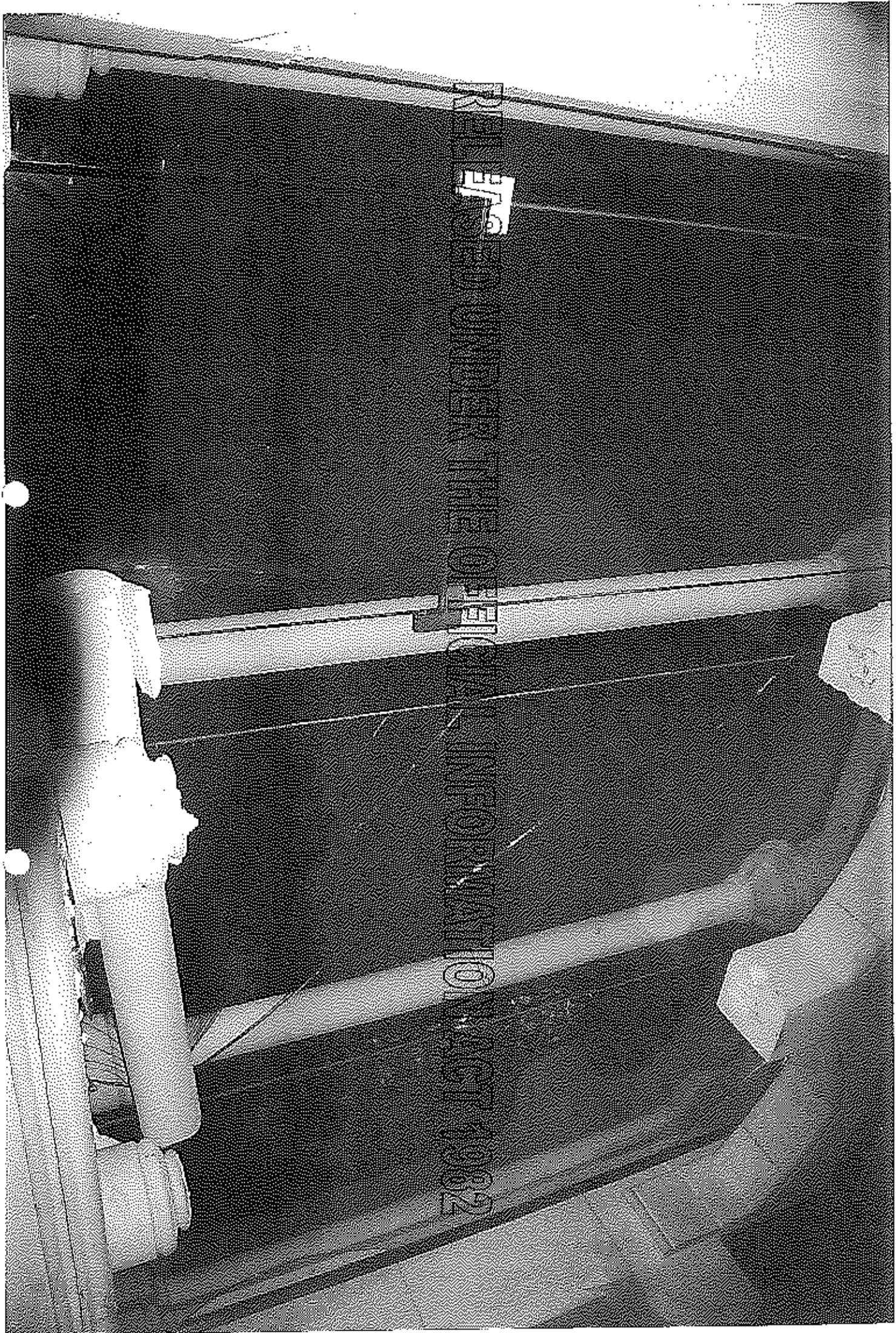


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THE OREGON WILSON ACT 1982

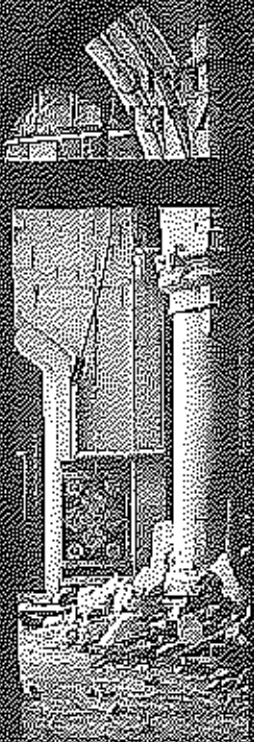
61

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REPEASED UNDER THE OFFICIAL INFORMATION ACT 1992

1992年11月1日



1992年11月1日

RELEASED UNDER THE PRESIDENT JOHN F. KENNEDY ASSASSINATION ACT 1992



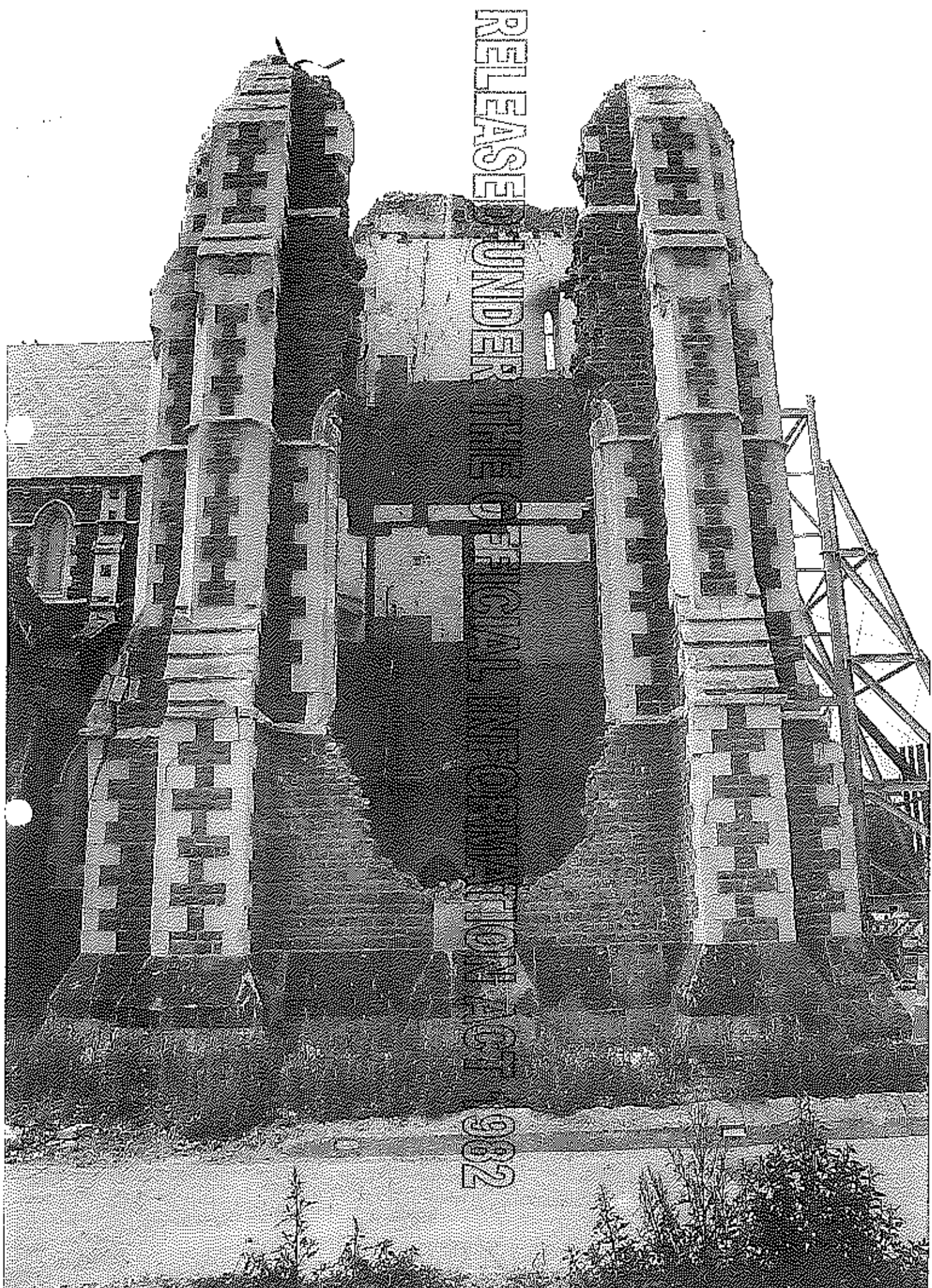
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RELEASED UNDER THE OFFICIAL INFORMATION ACT

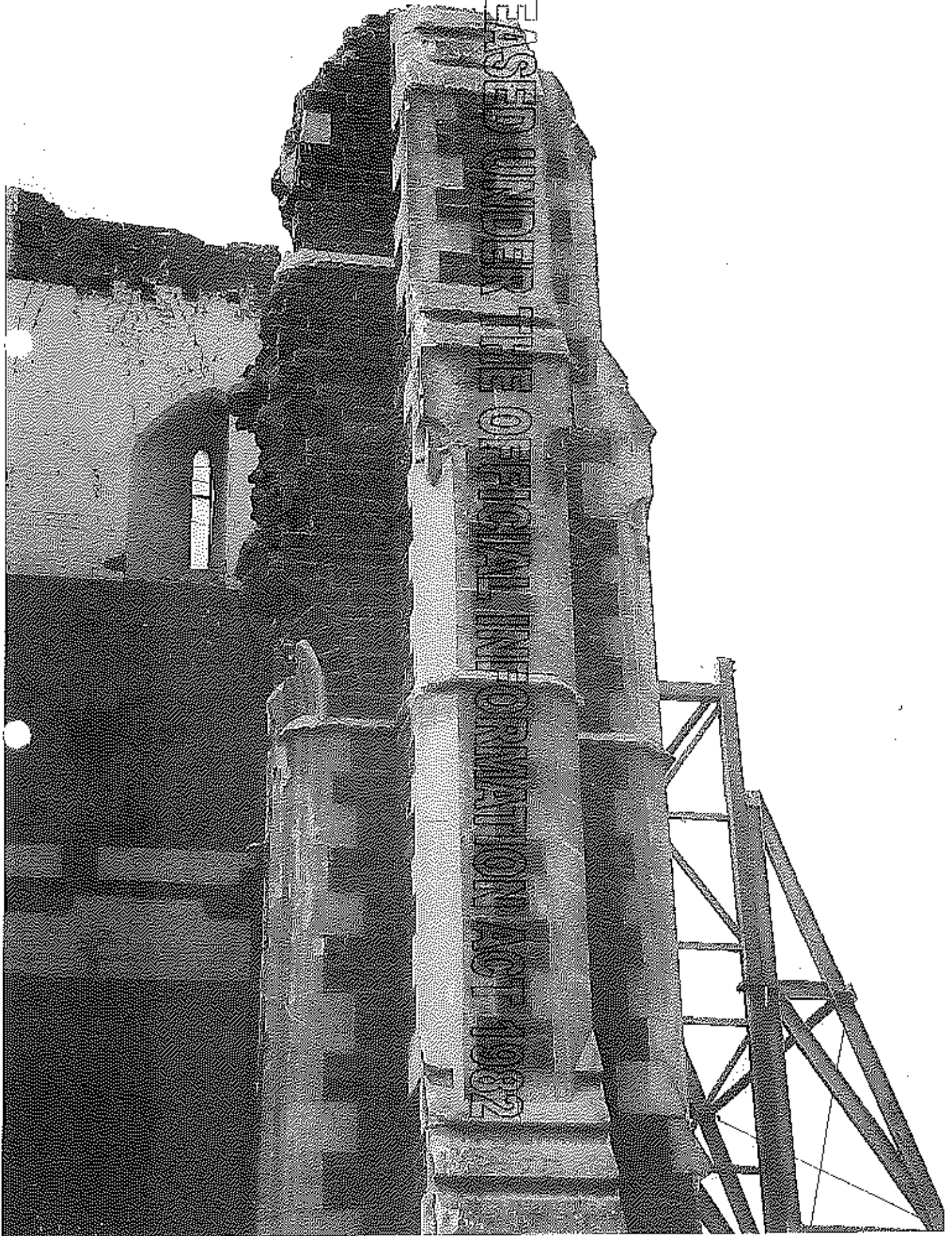


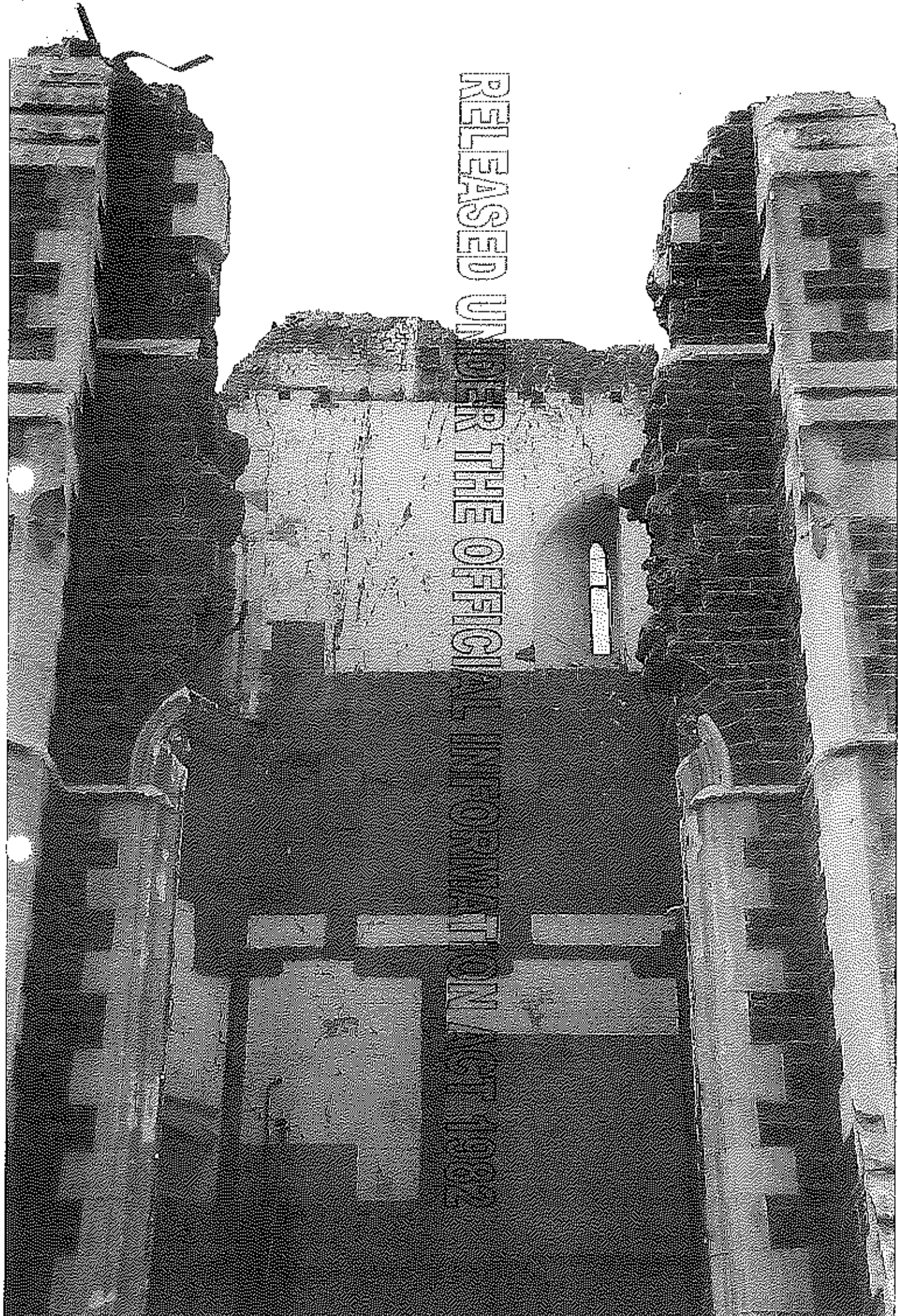
THE COURTYARD OF THE
PARLIAMENTS BUILDING
IN OTTAWA, CANADA



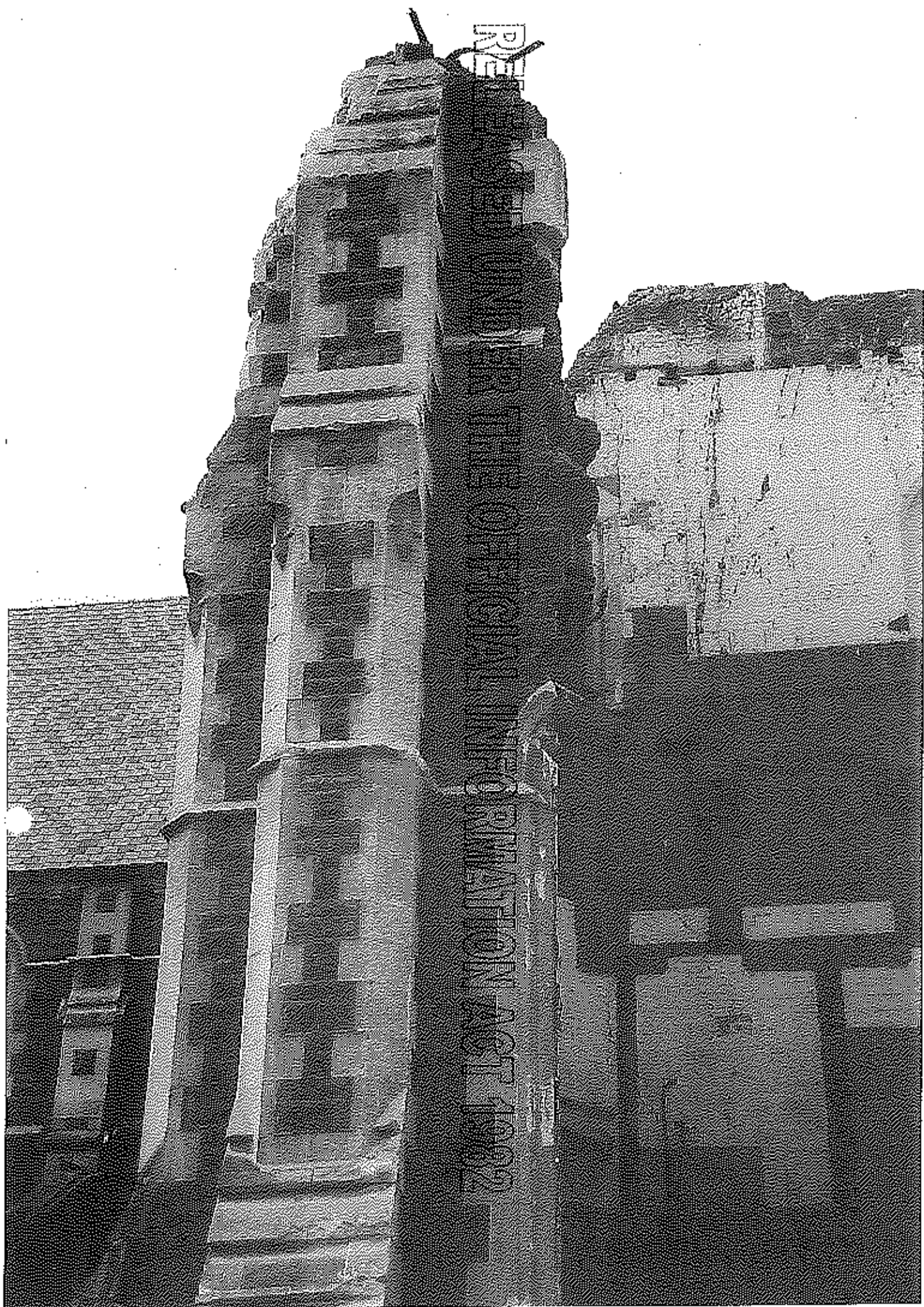
RELEASE UNDER NATIONAL DEFENSE INFORMATION ACT 982

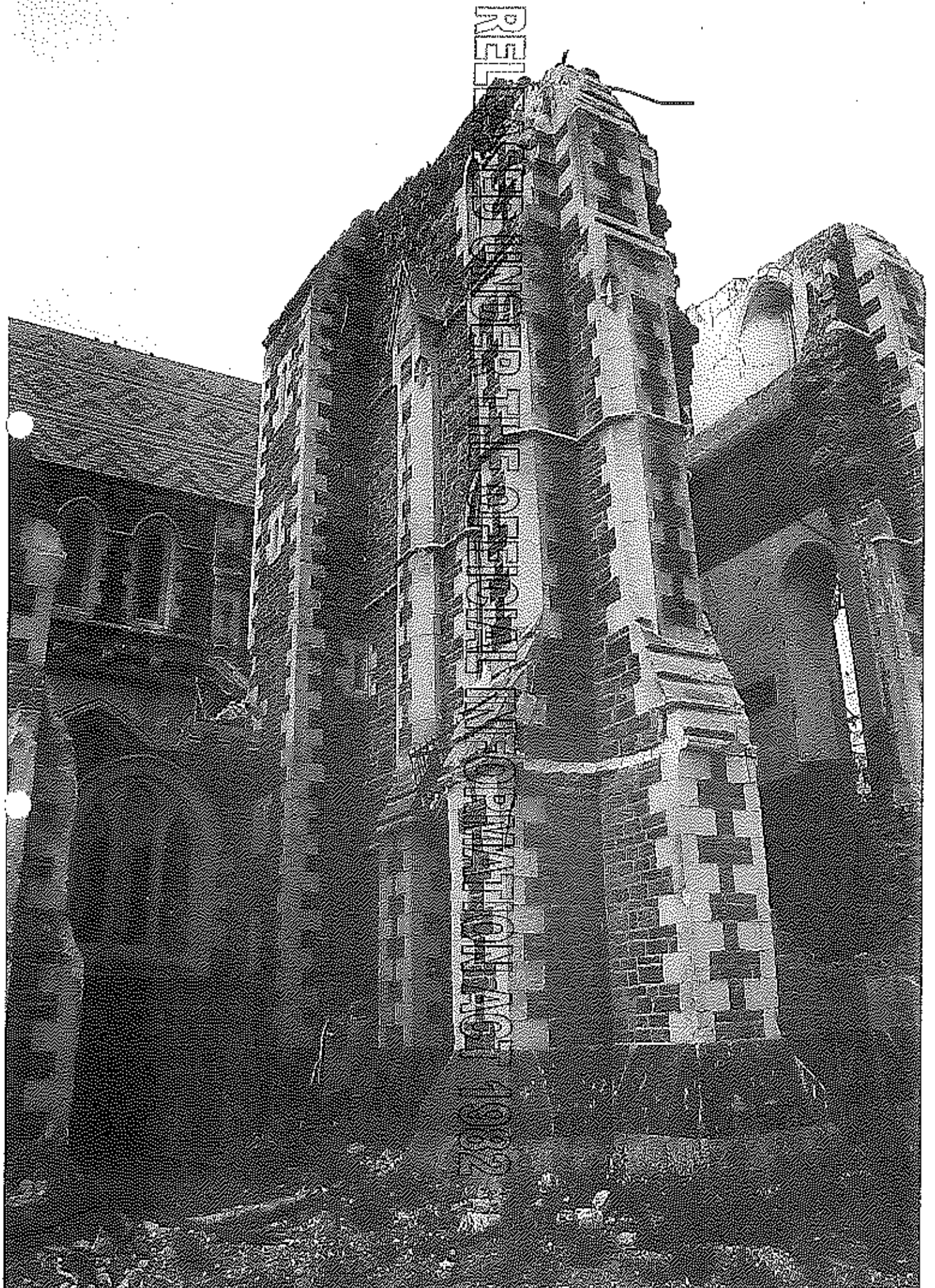
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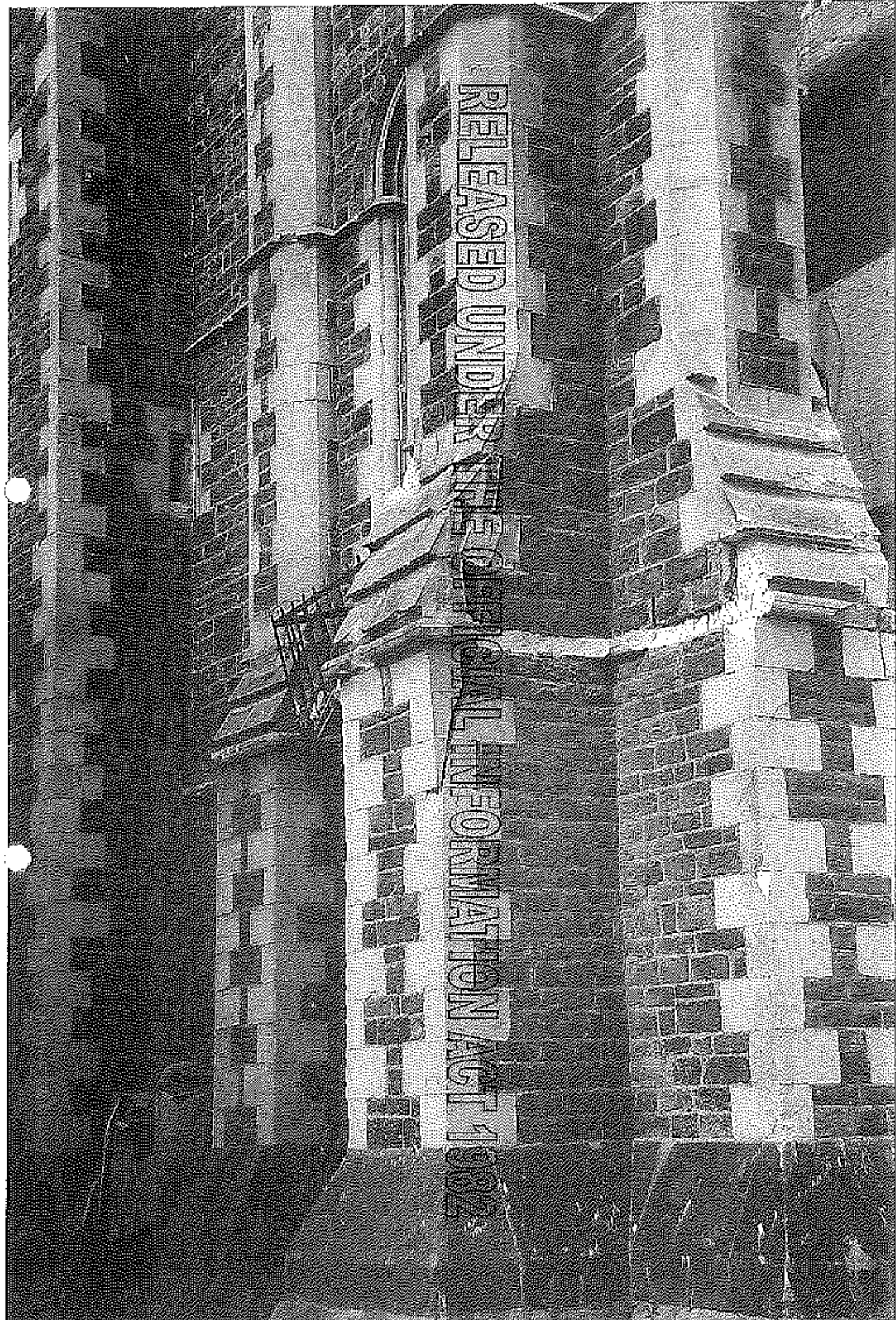




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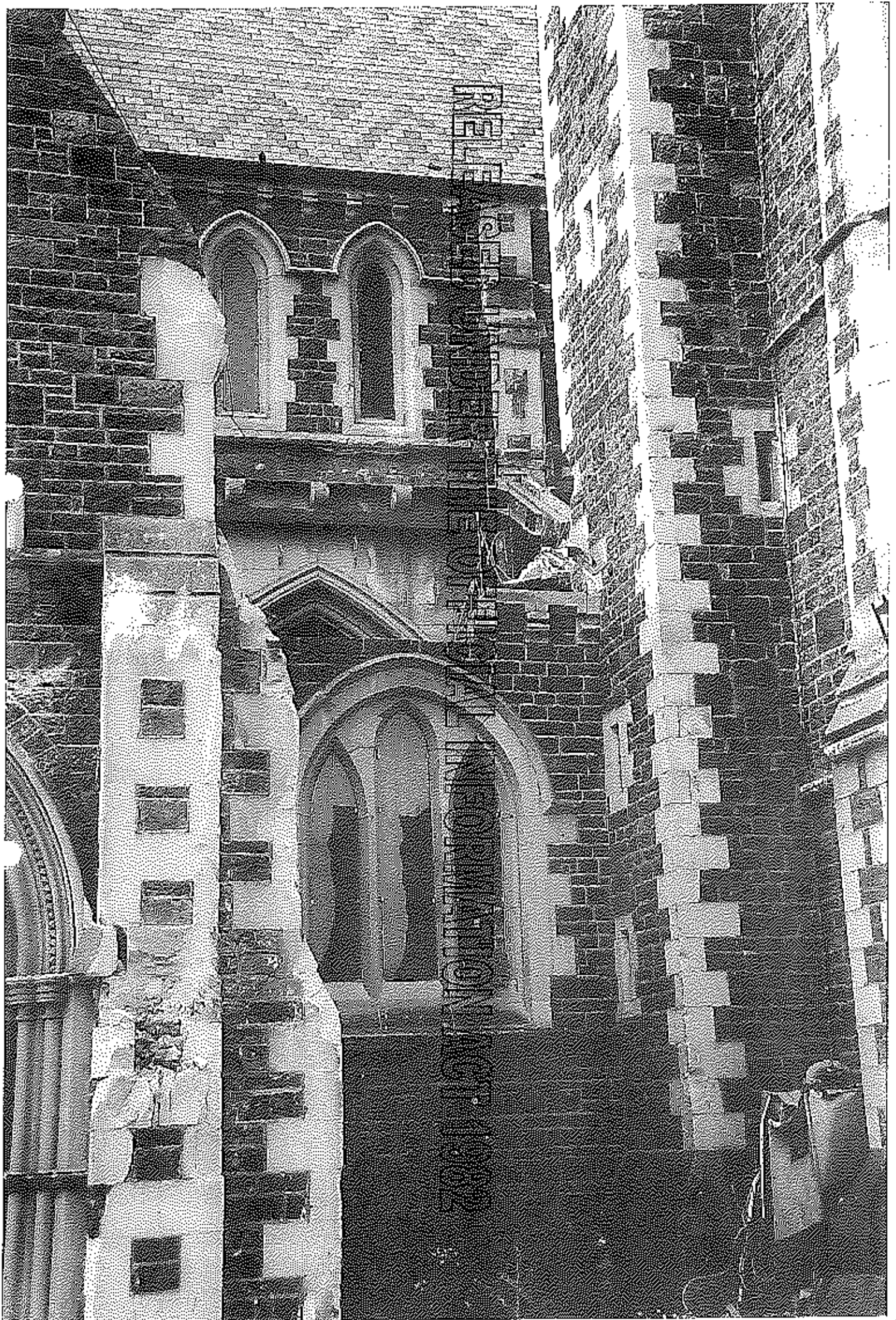


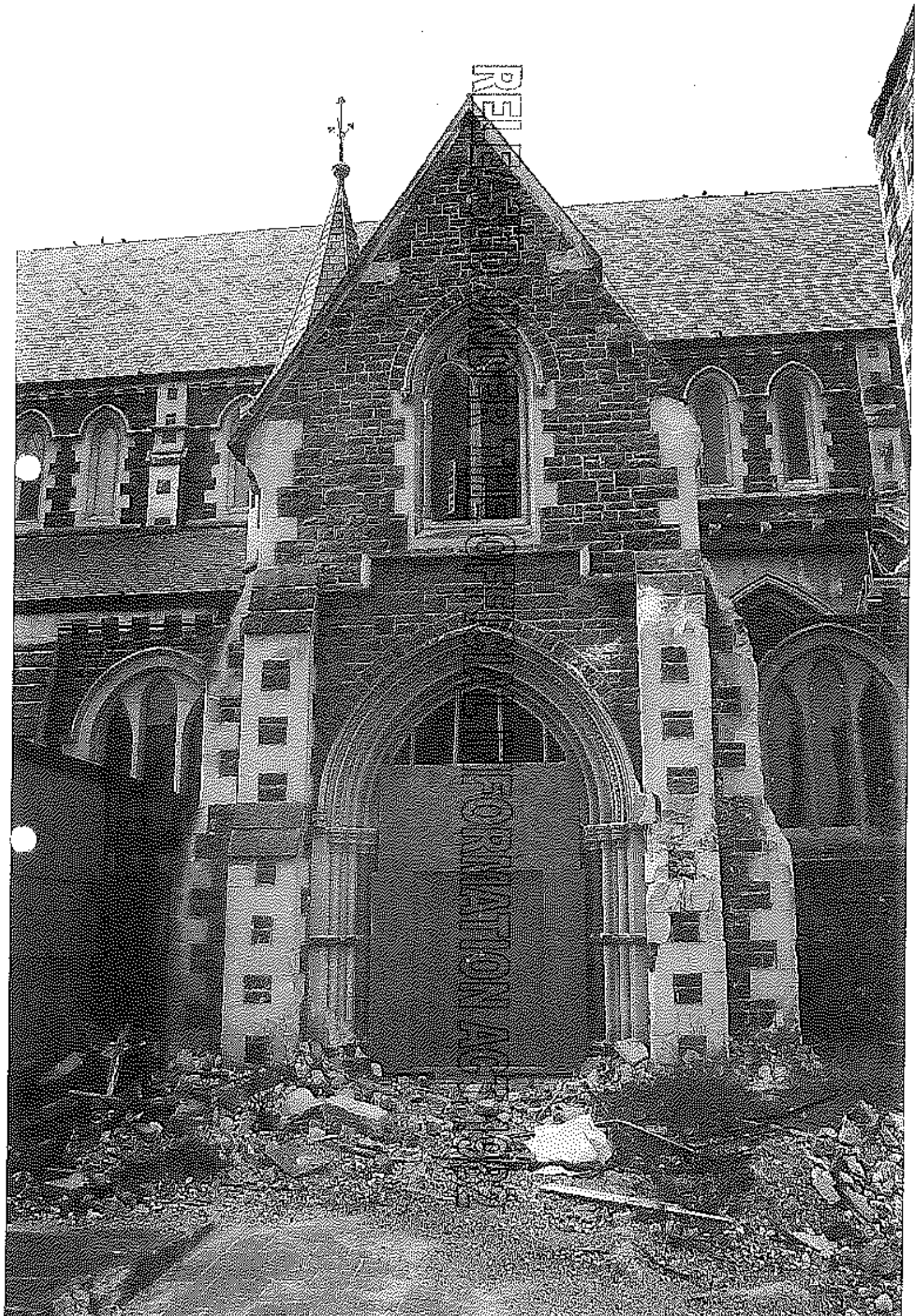


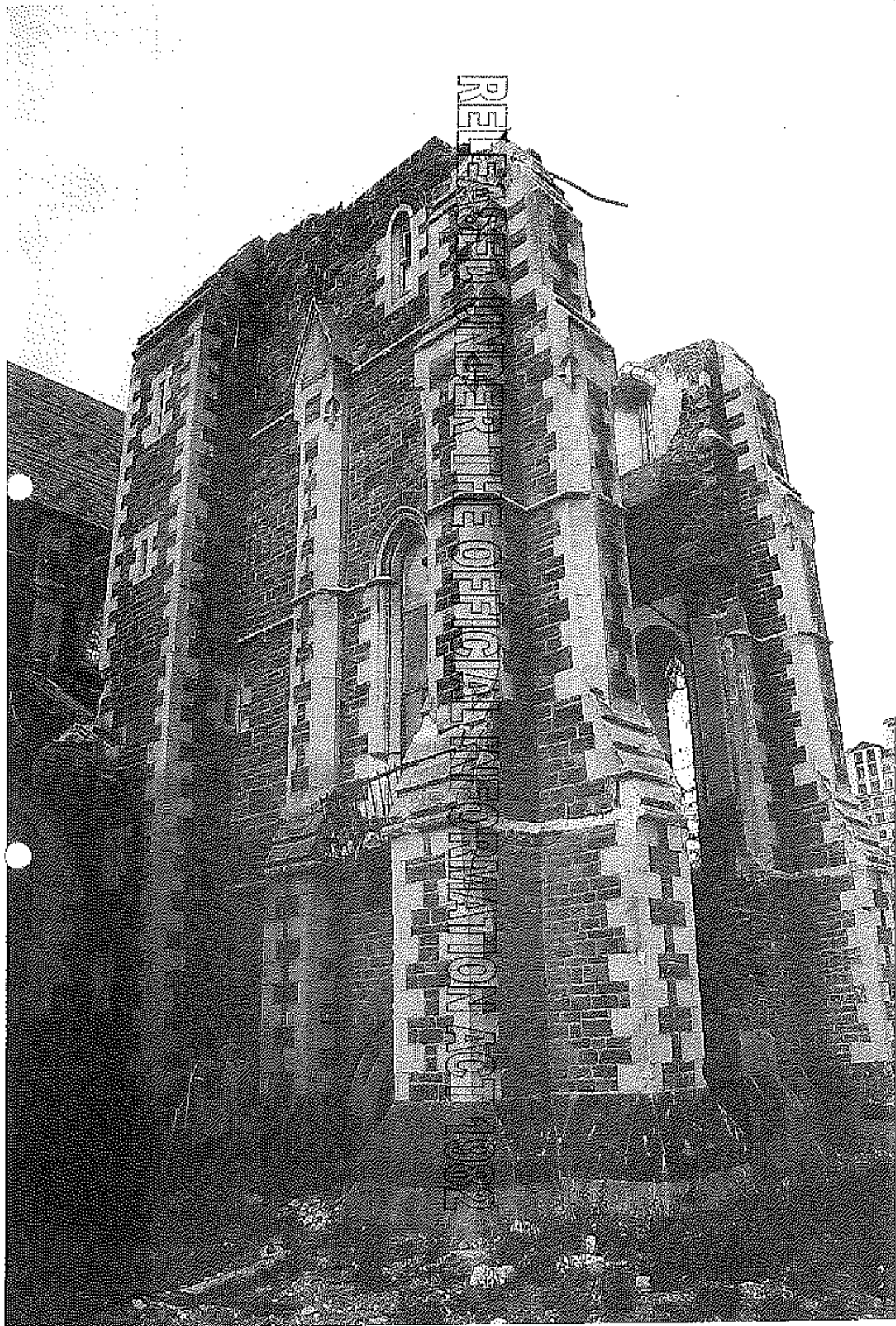




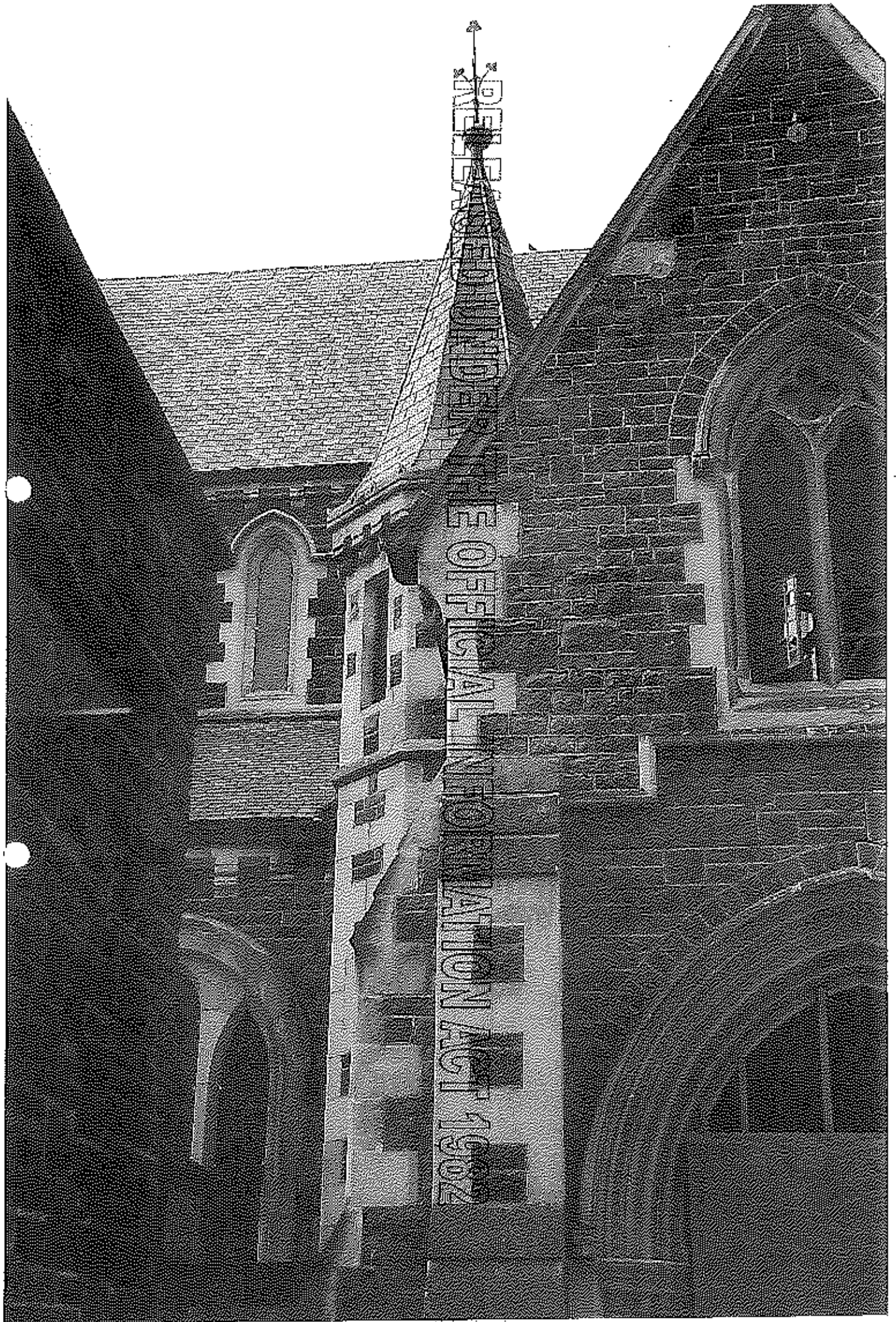
RESEARCH AND ANALYSIS INFORMATION ACT 1982

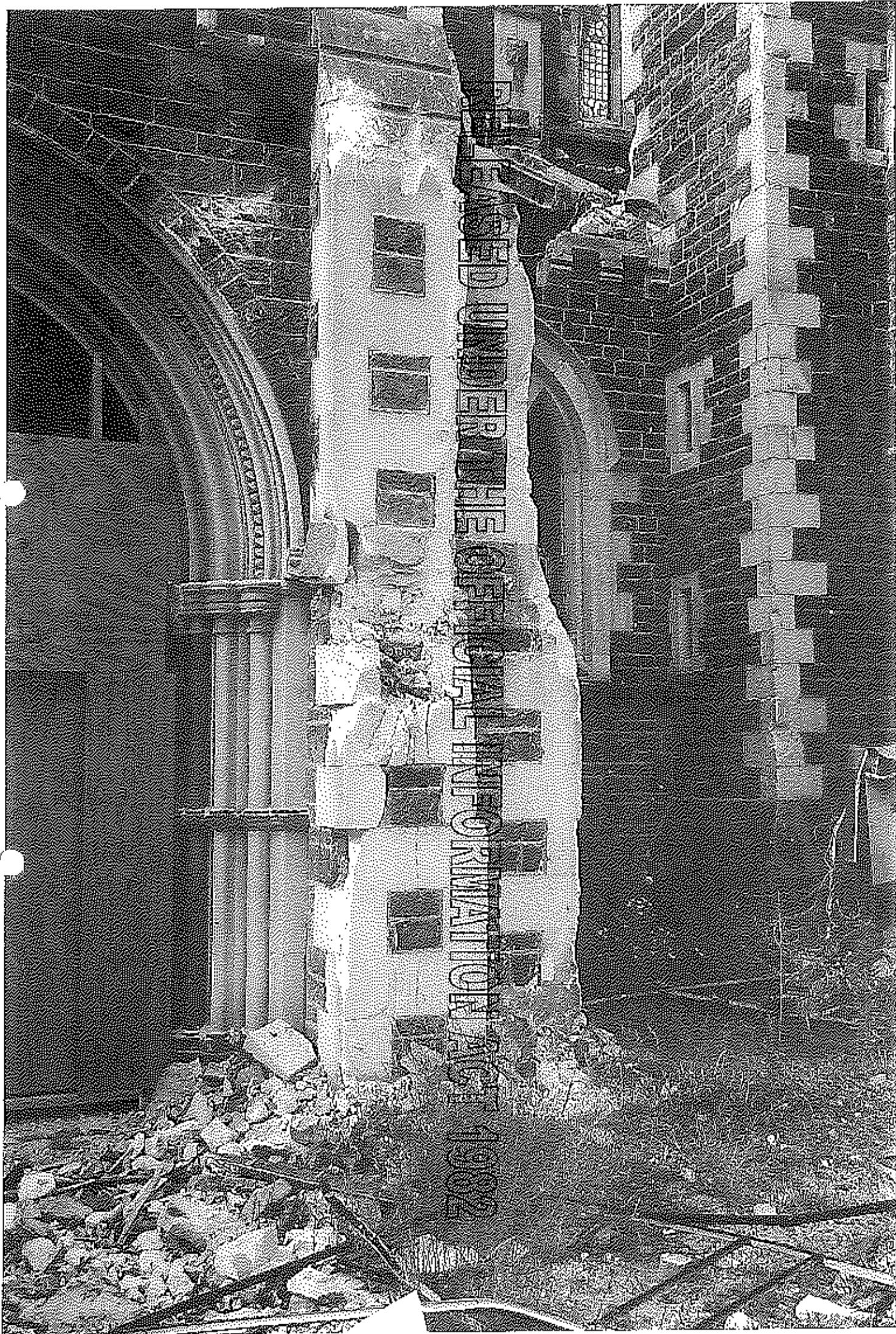






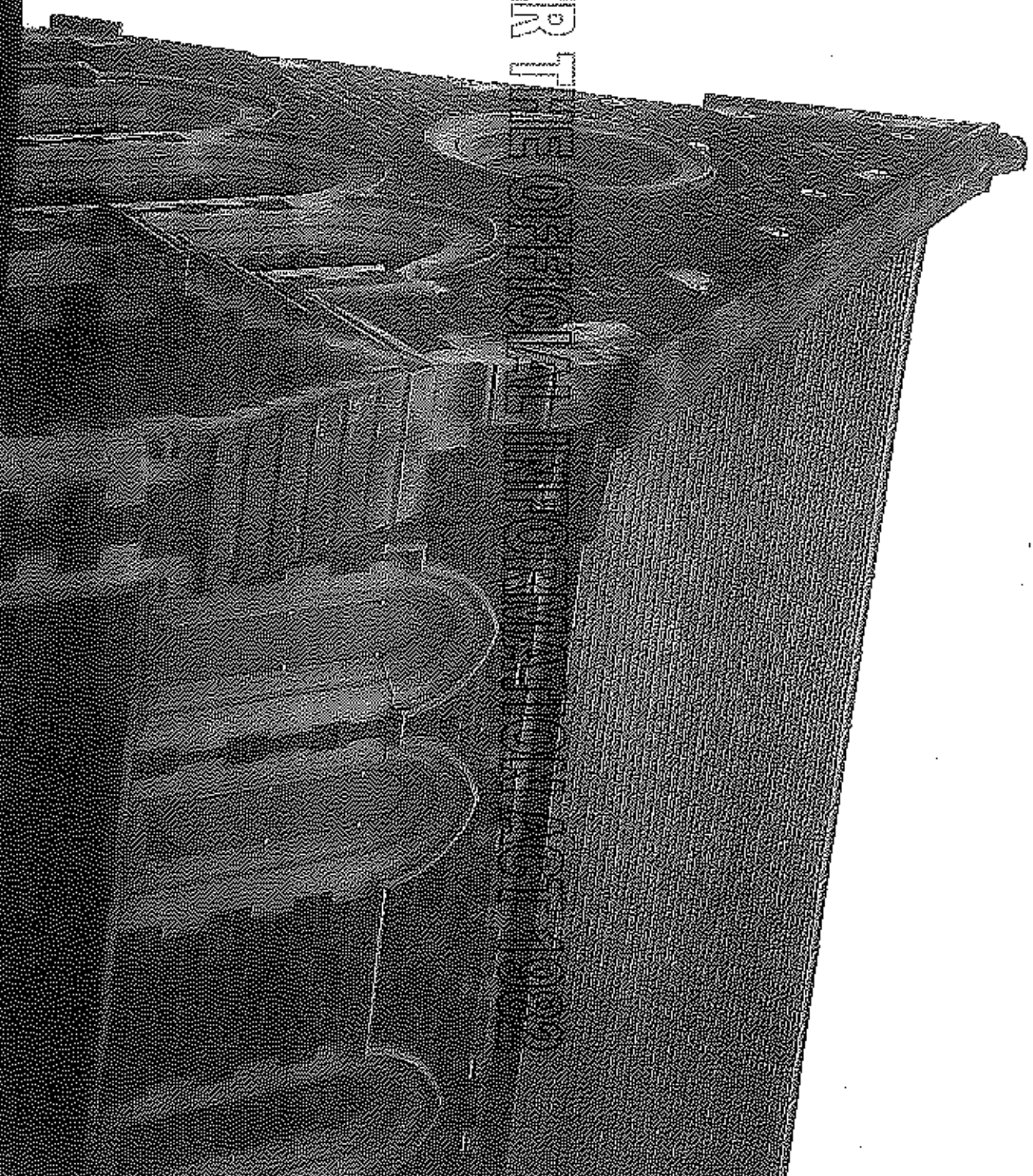


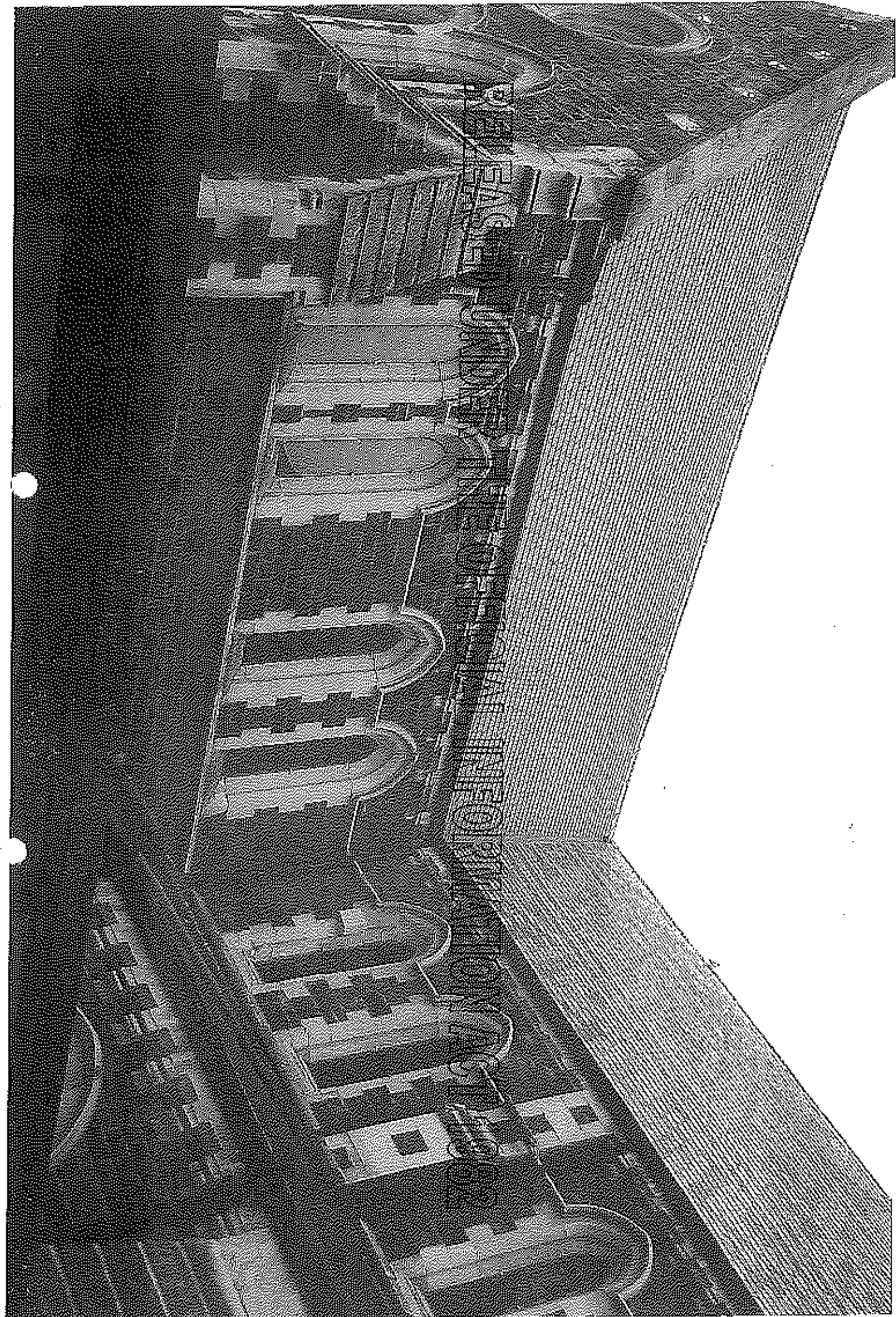


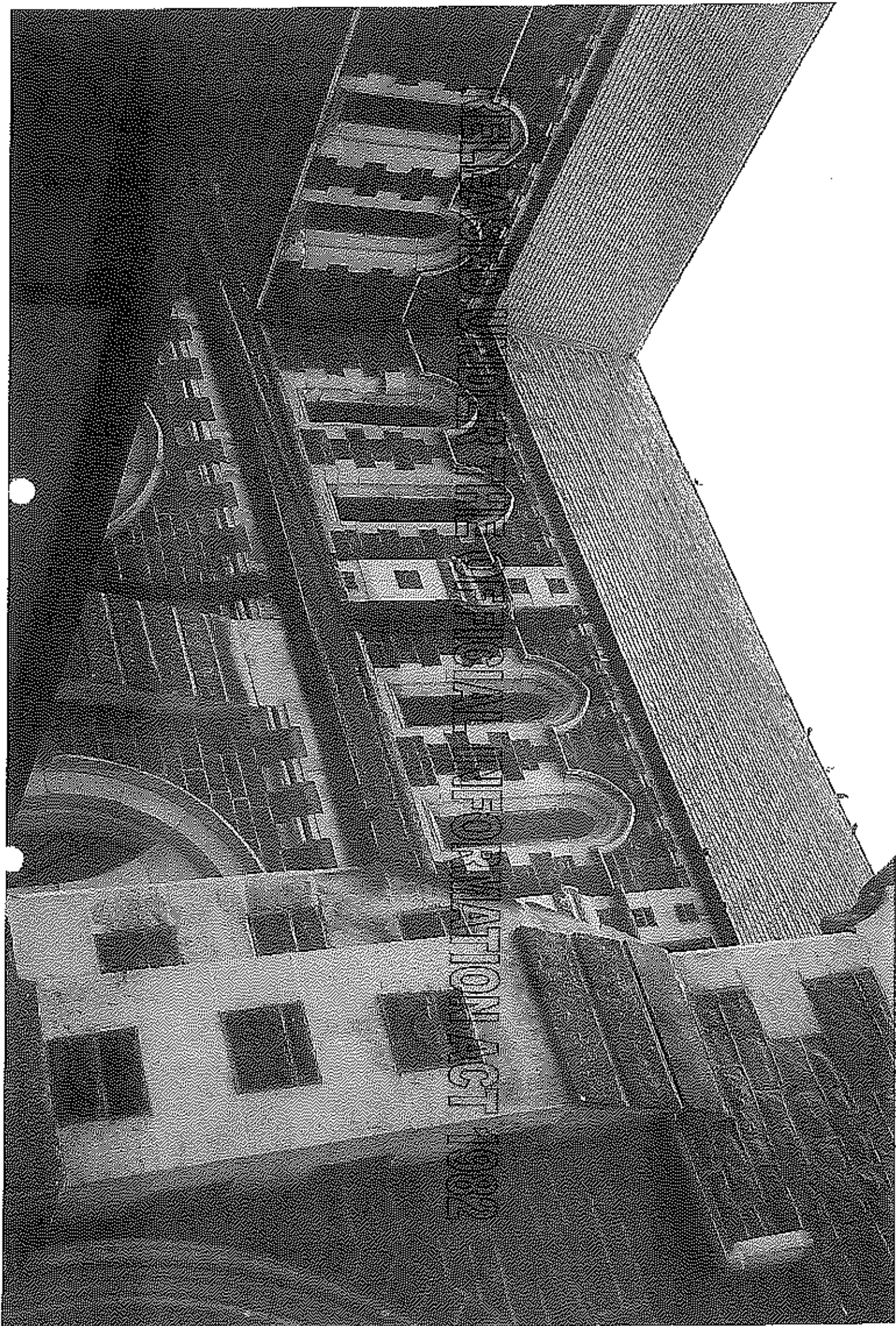


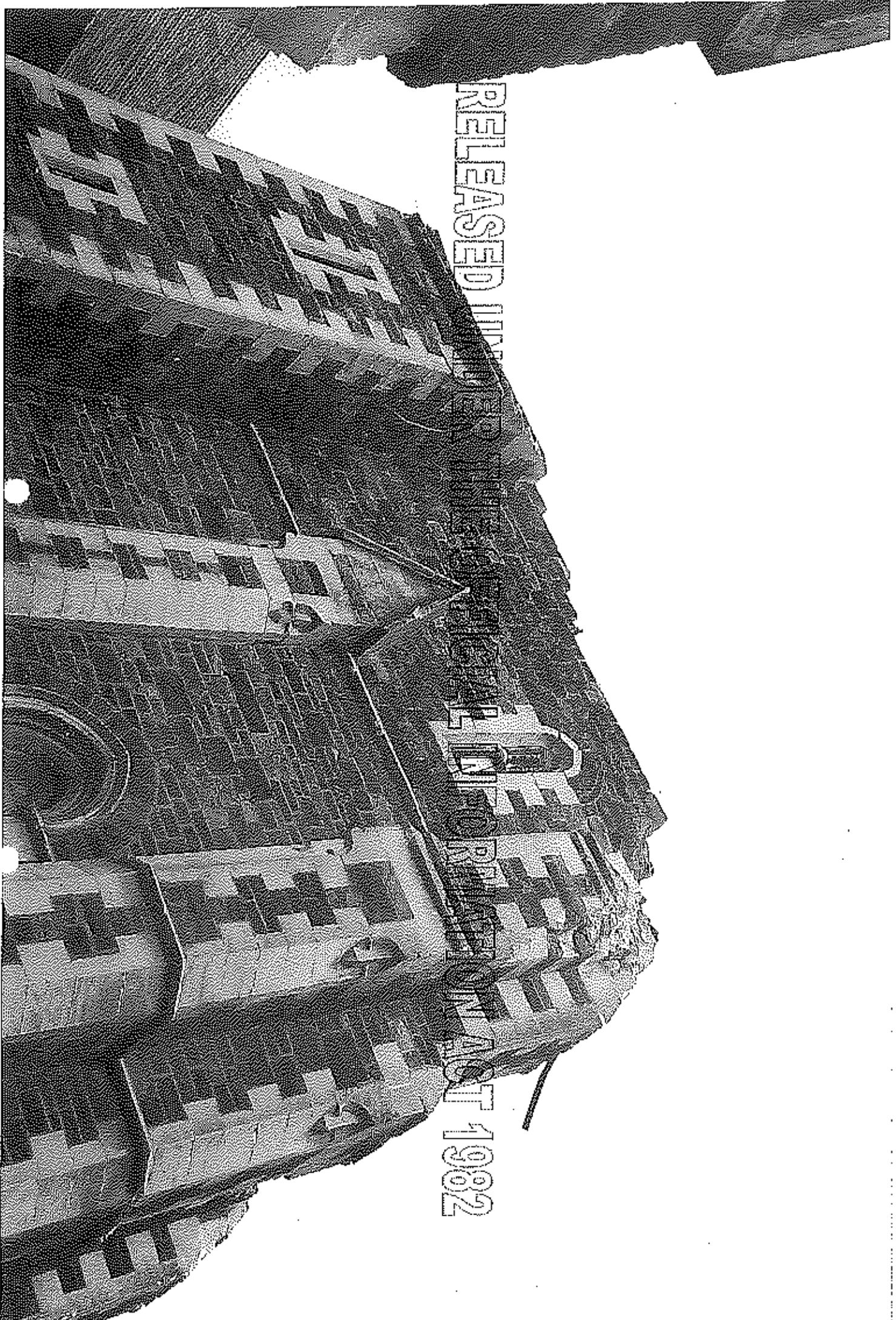


RELEASED UNDER THE PRESIDENT JOHN F. KENNEDY ASSASSINATION ACT OF 1975

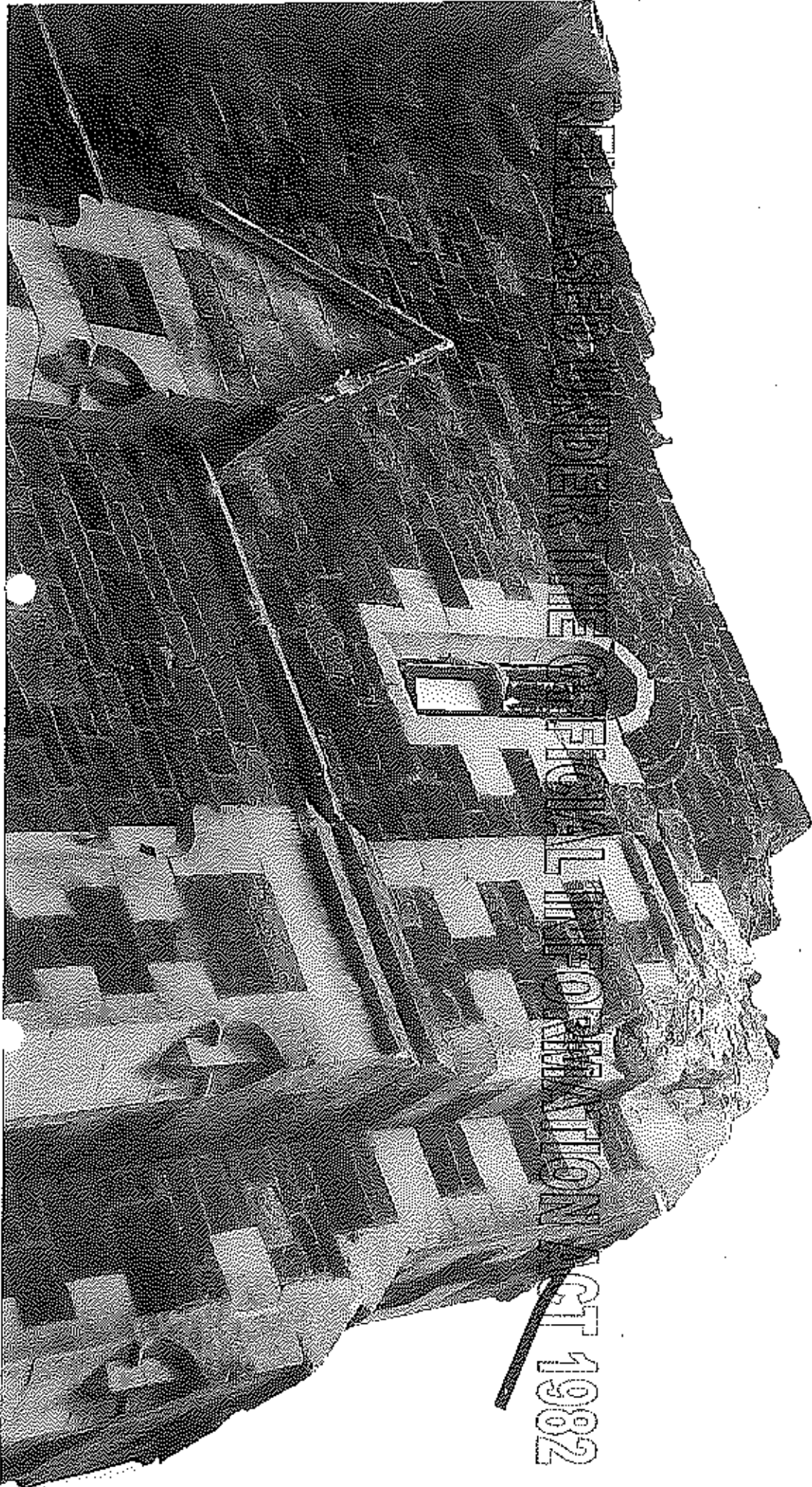


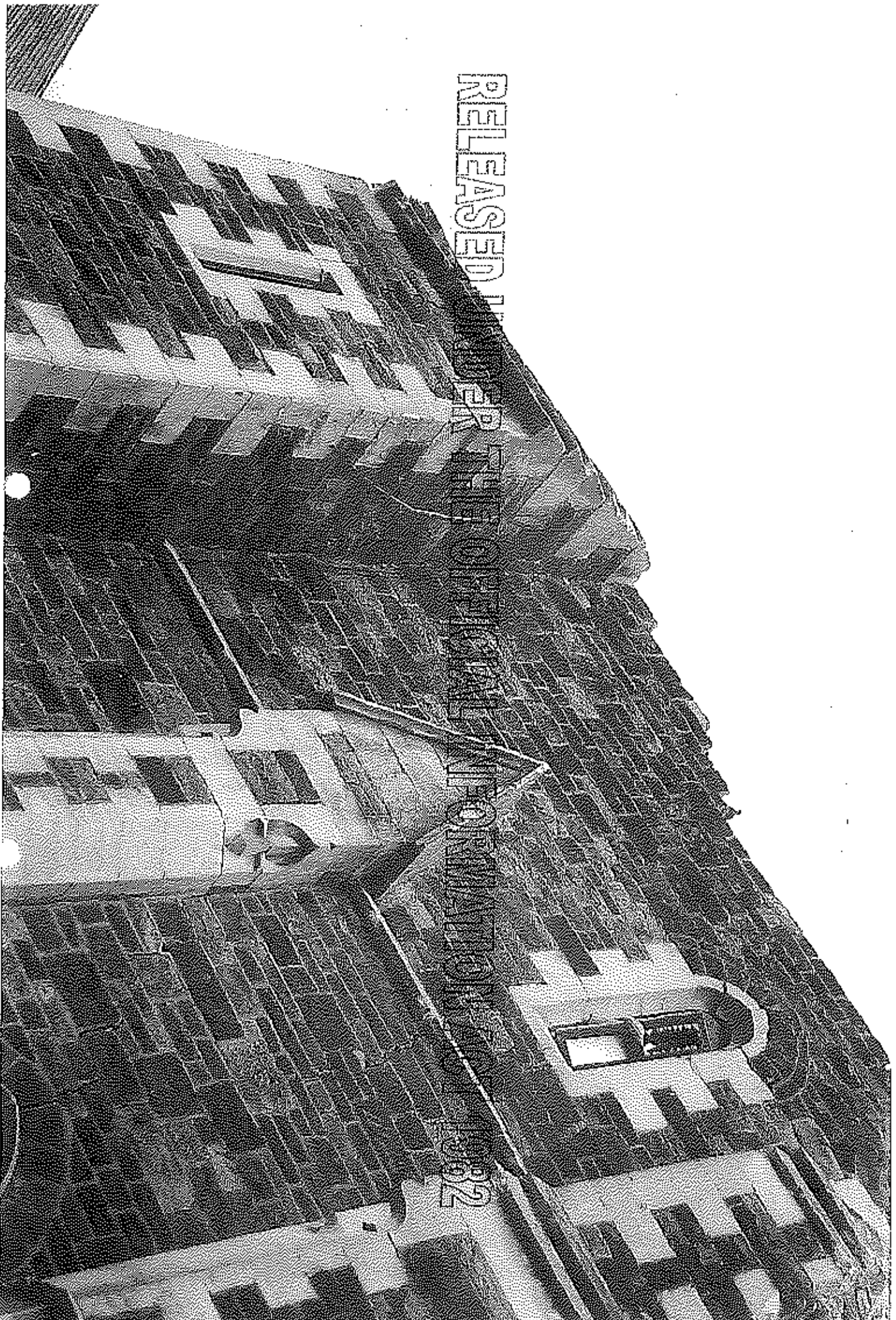






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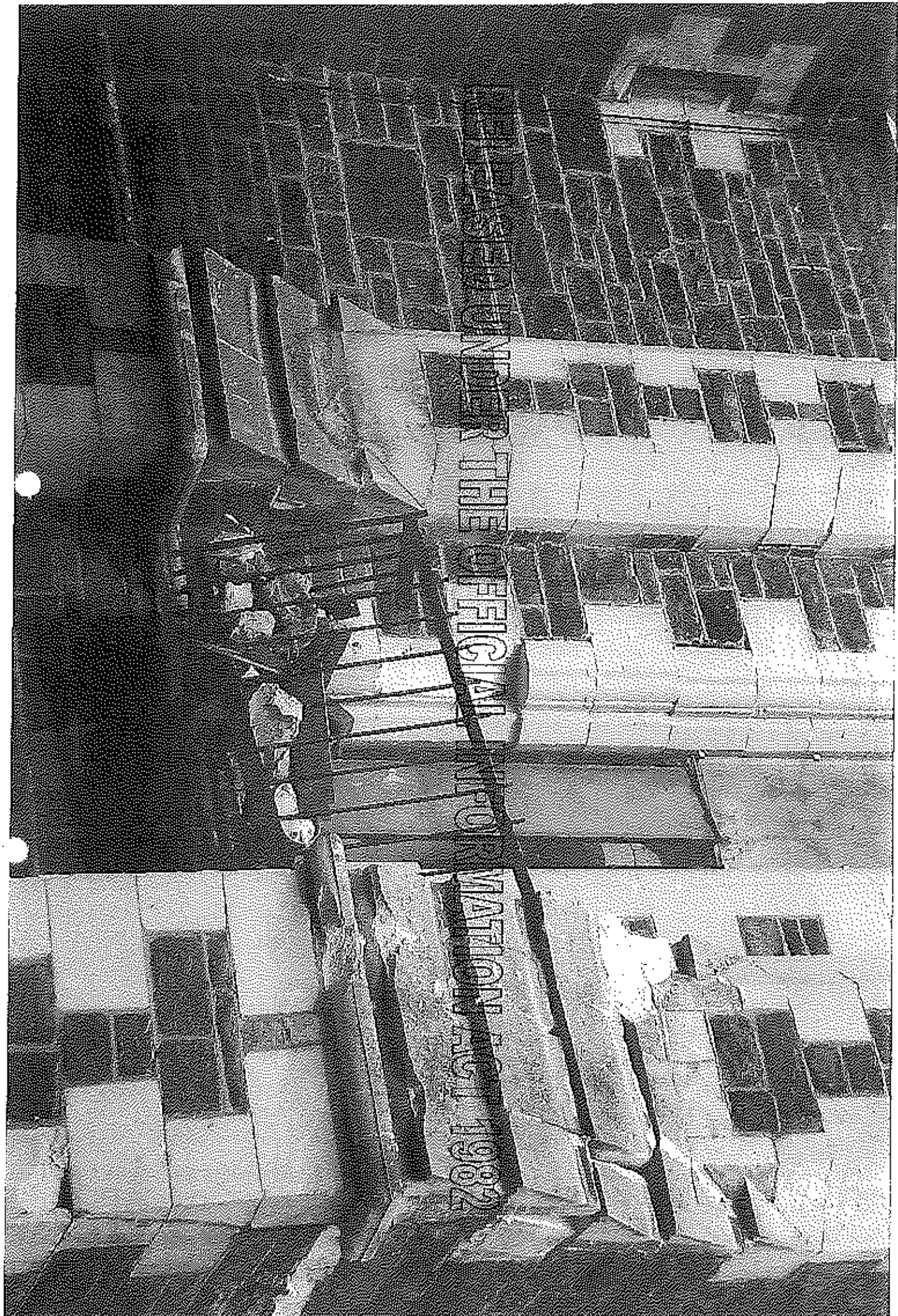
ER TRIMMING

PHOTOGRAPH

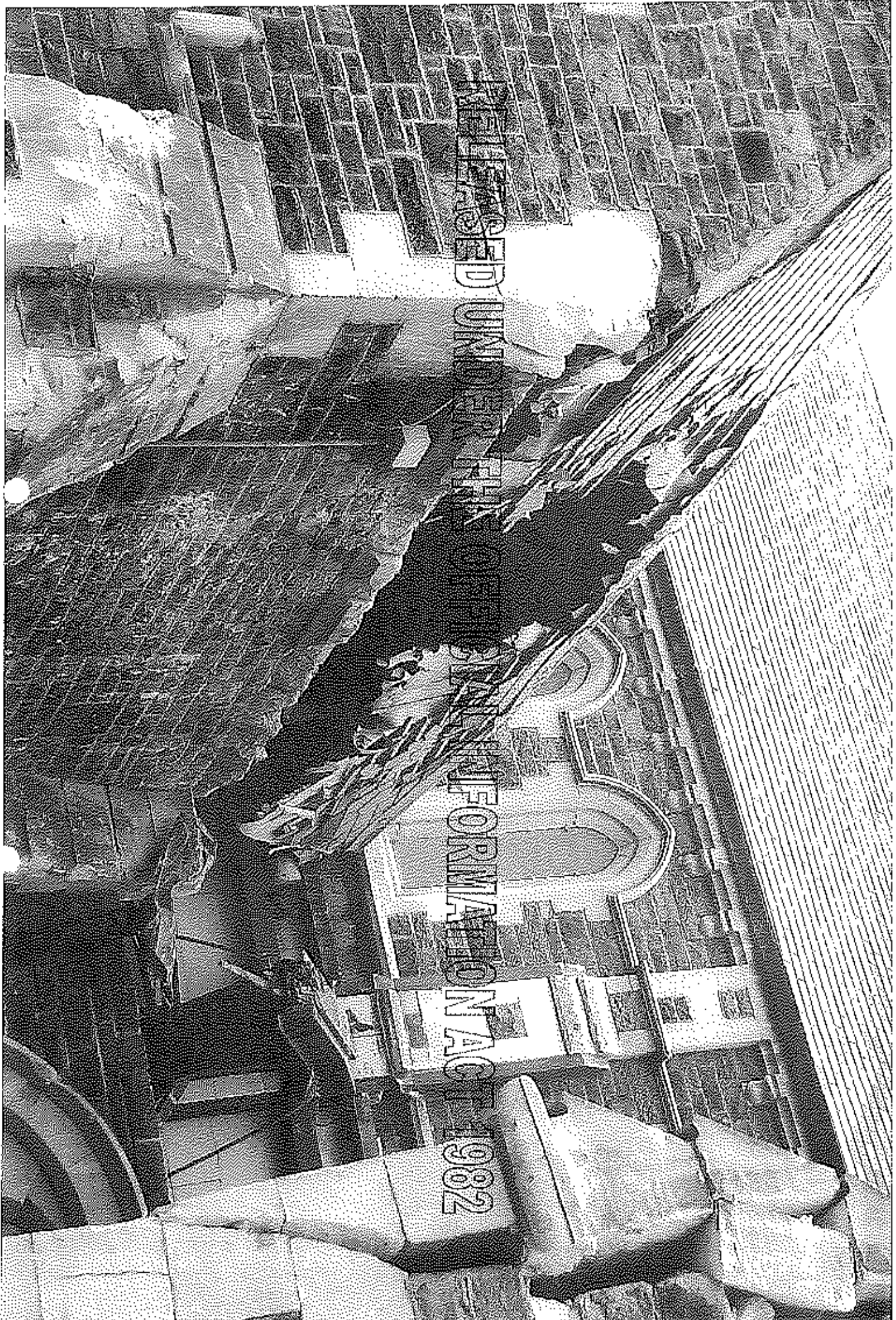
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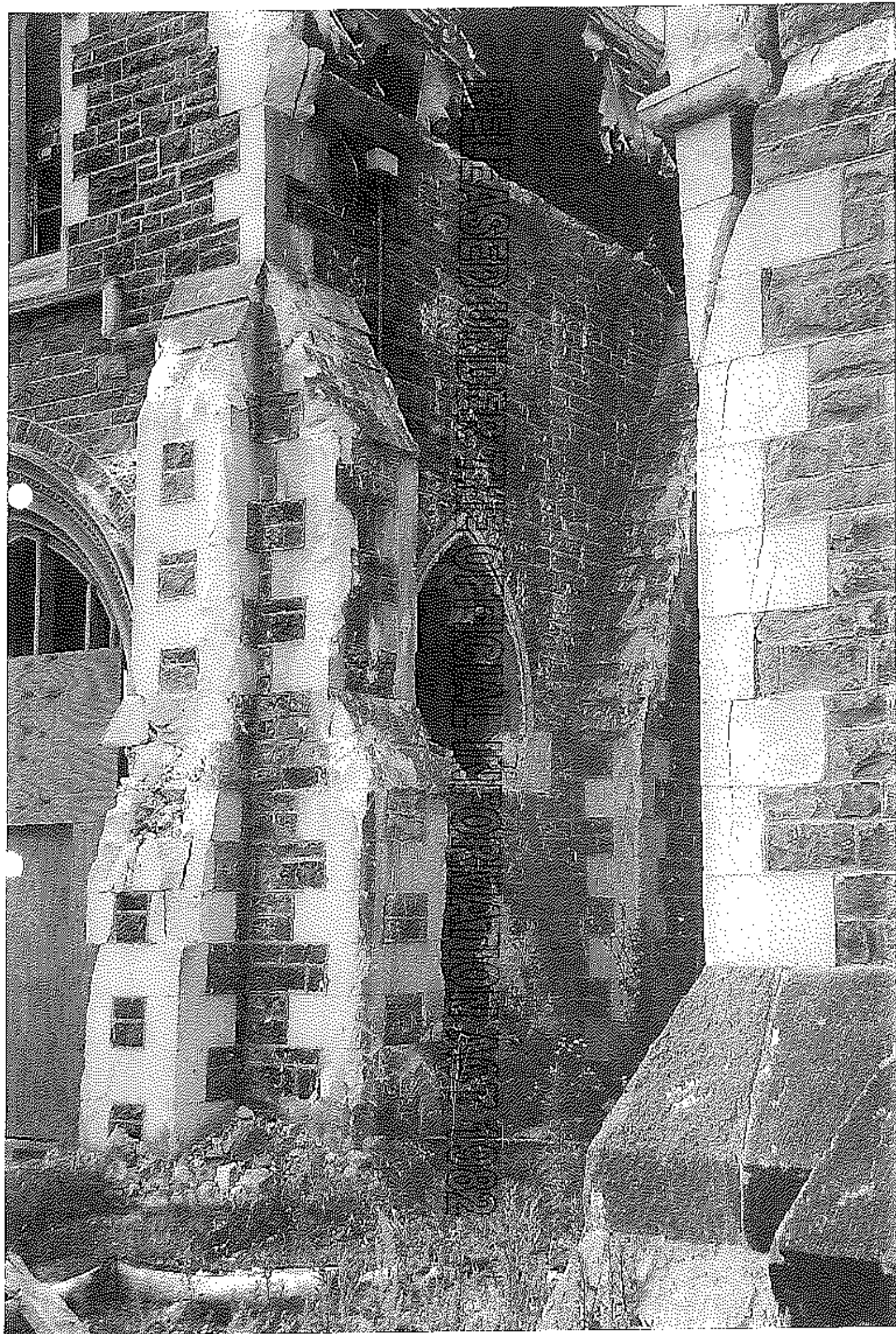
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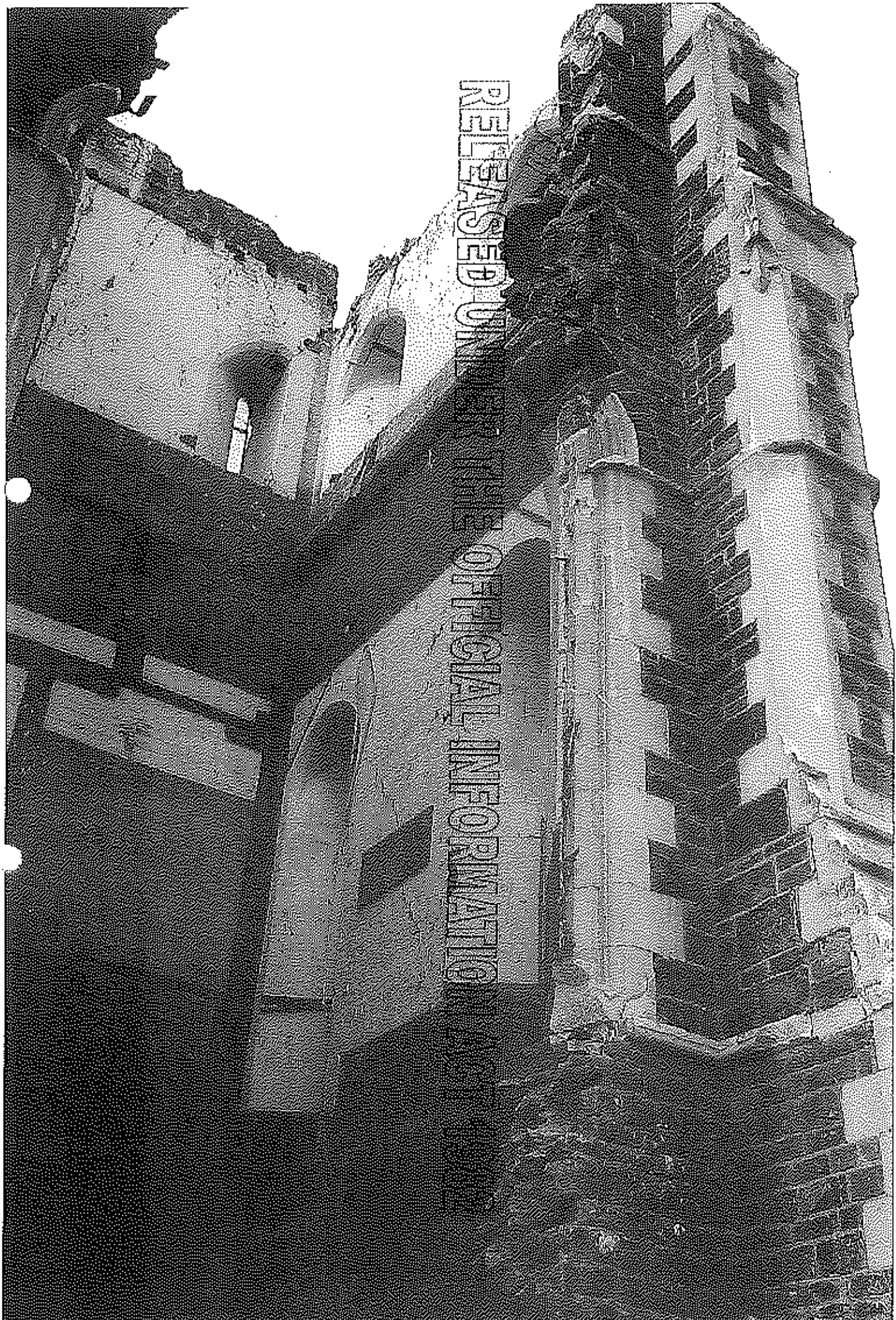




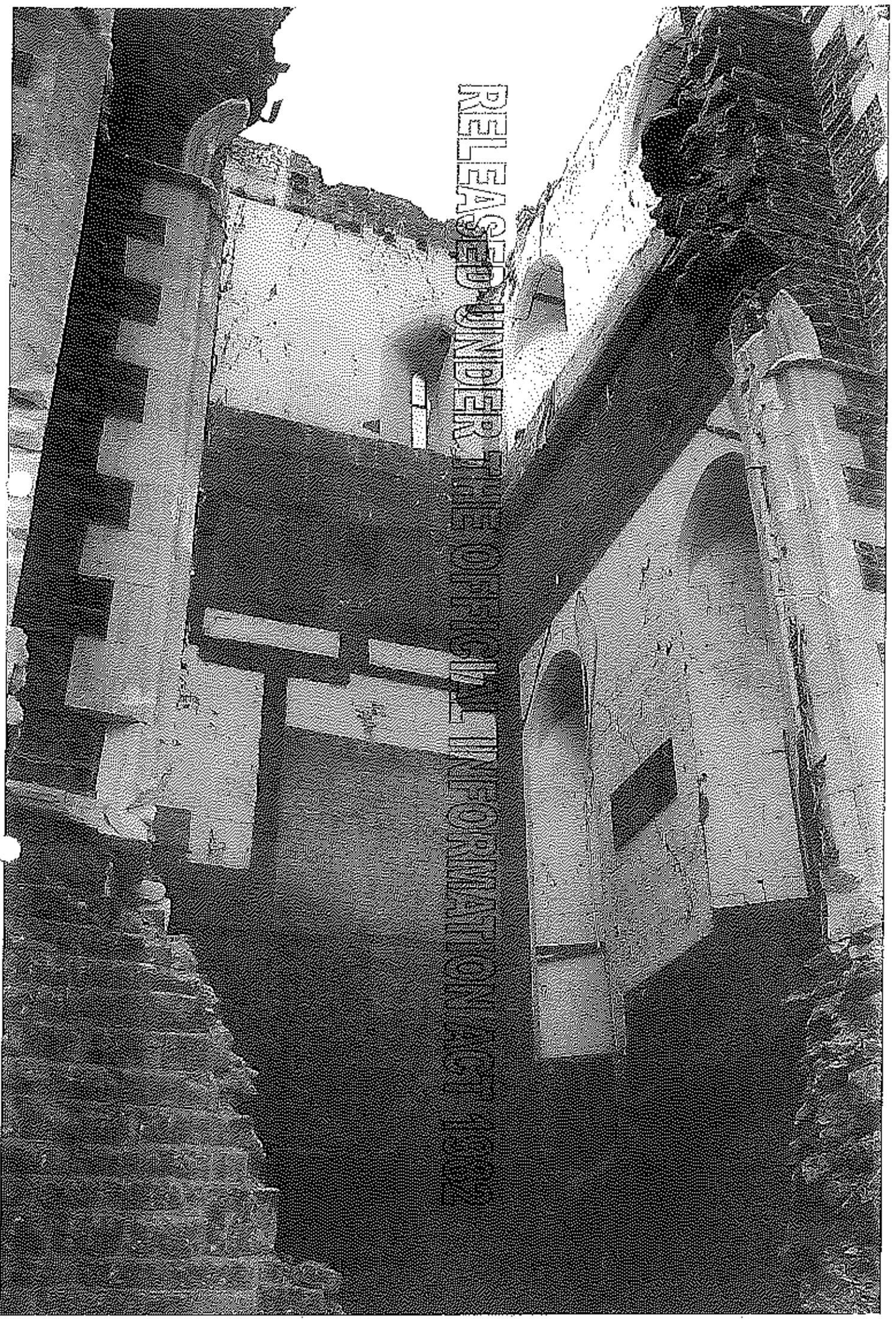
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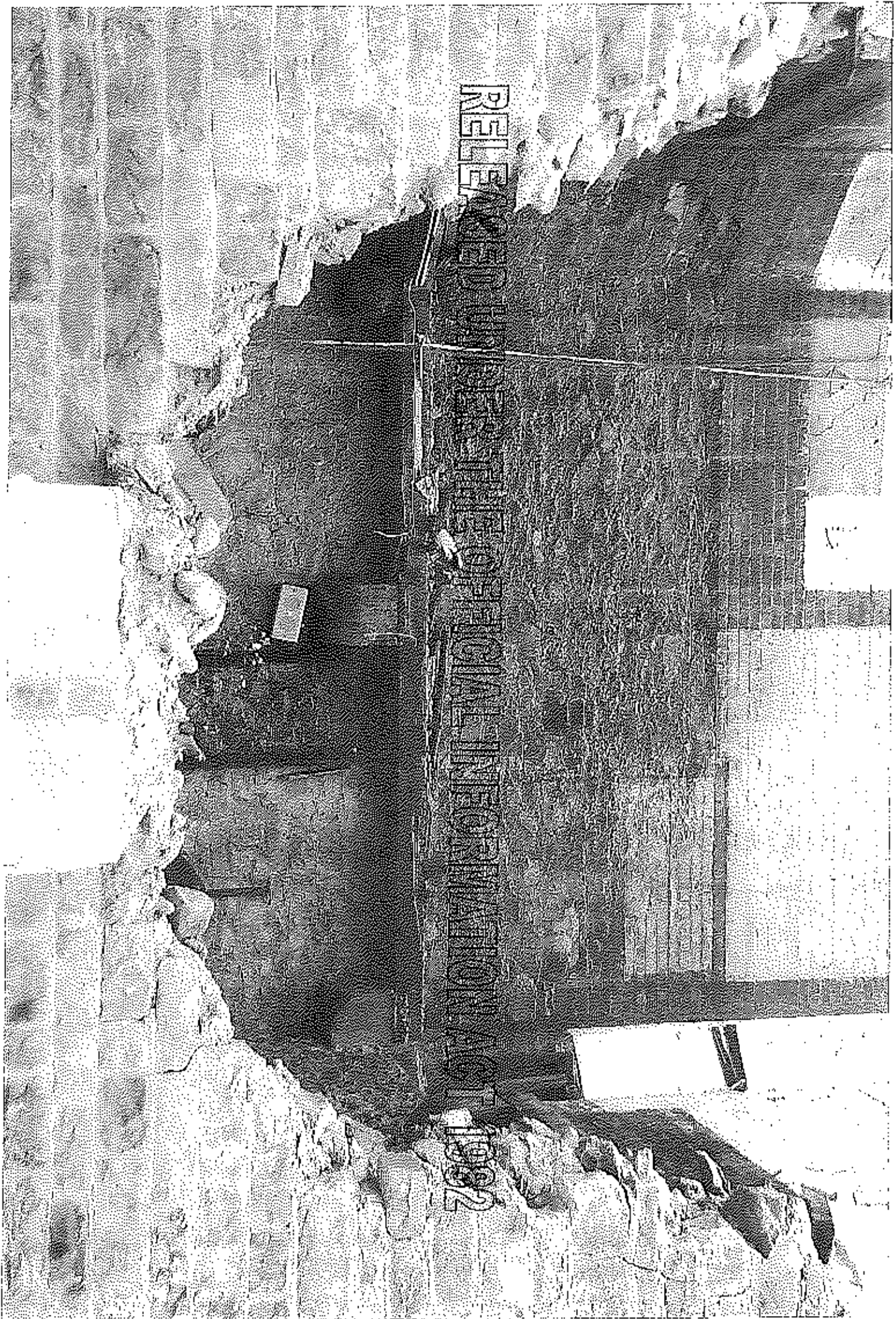


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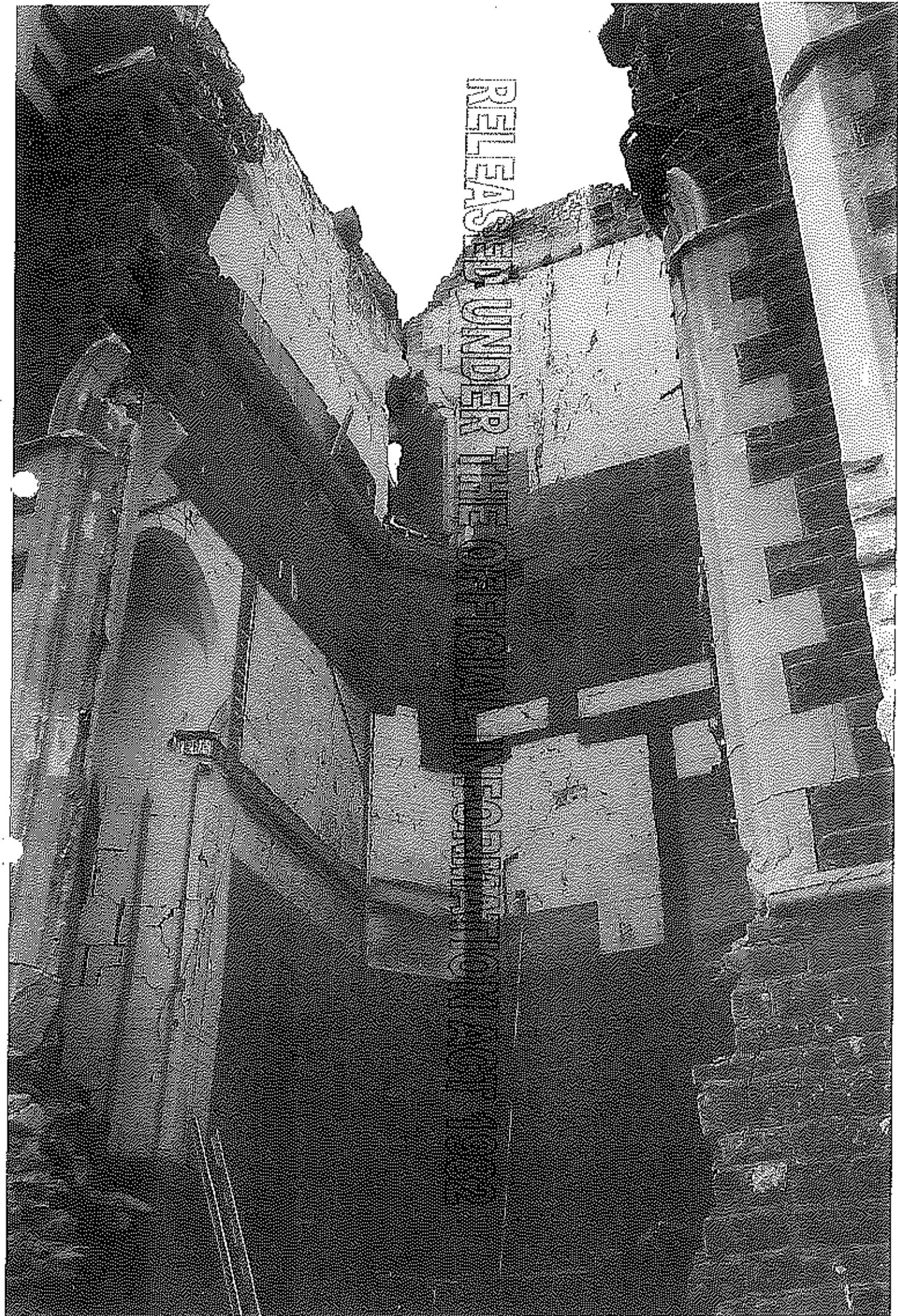




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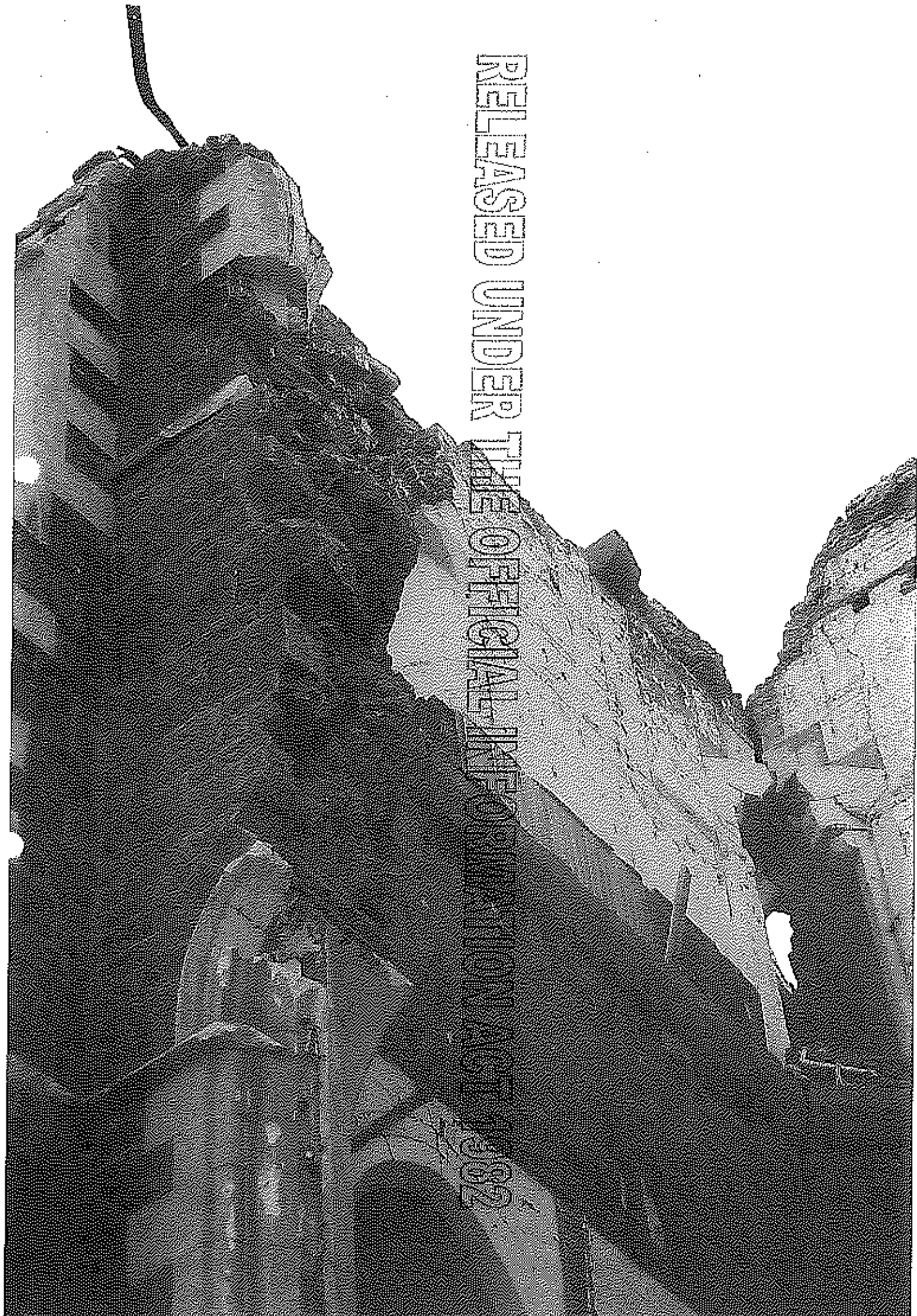


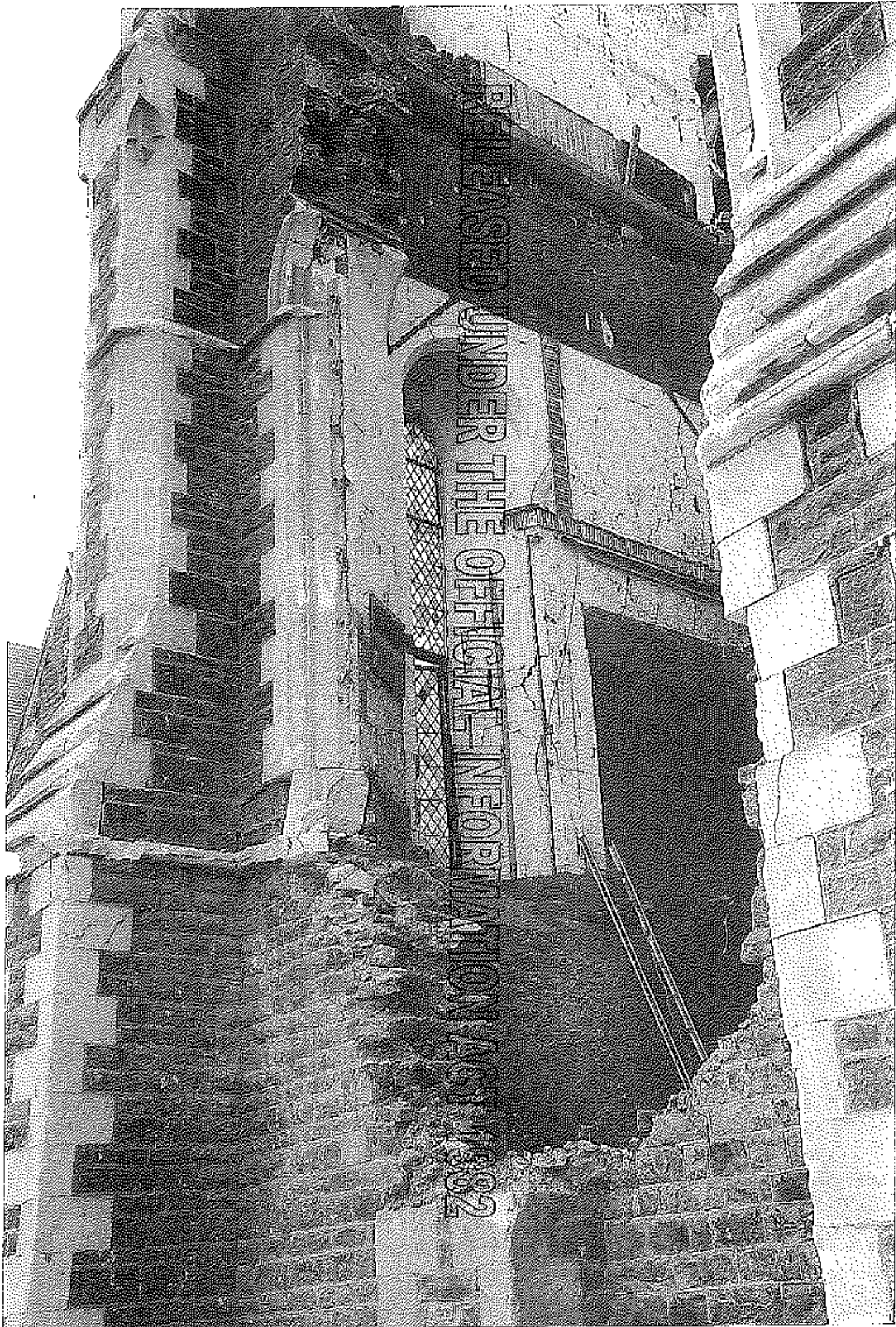
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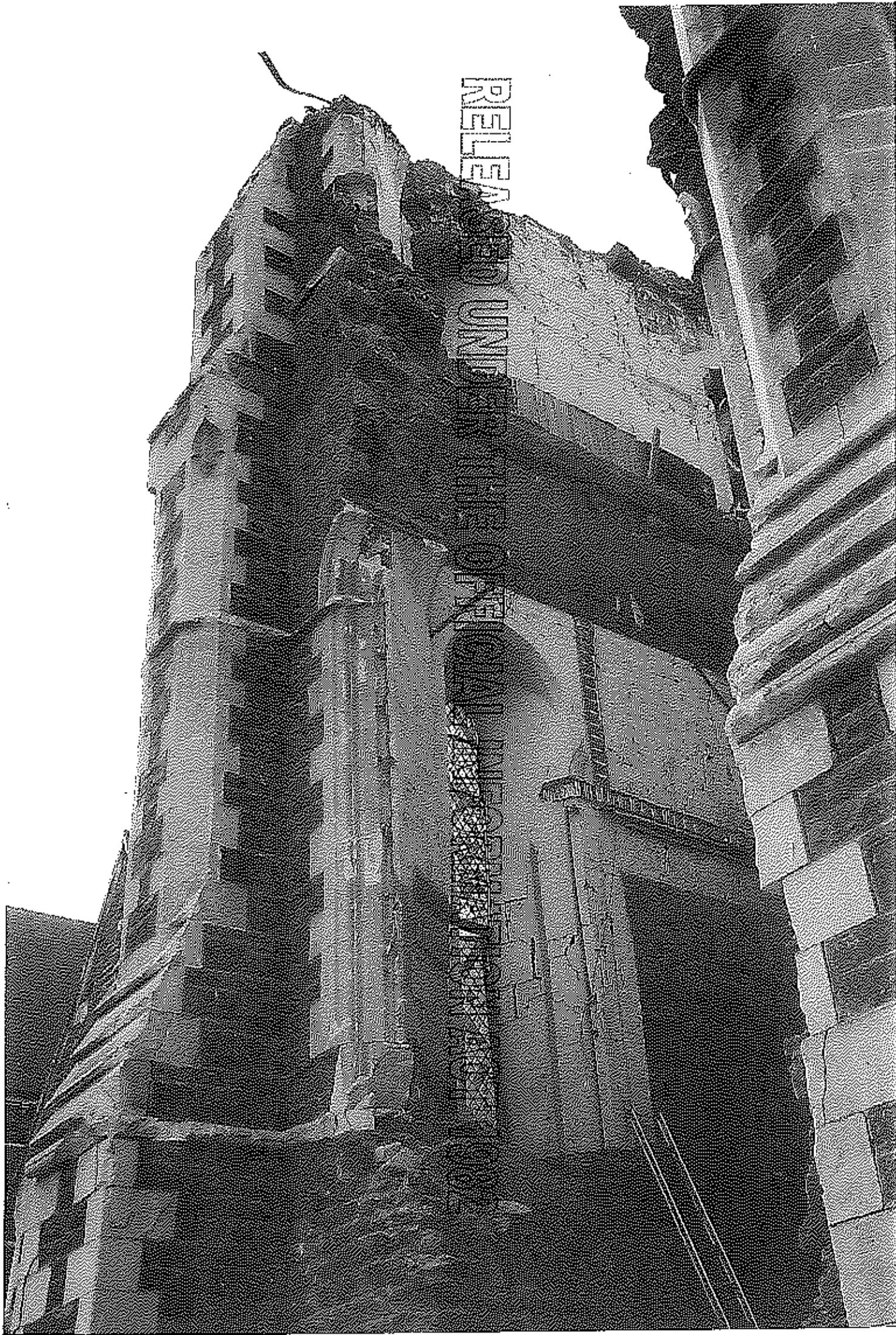


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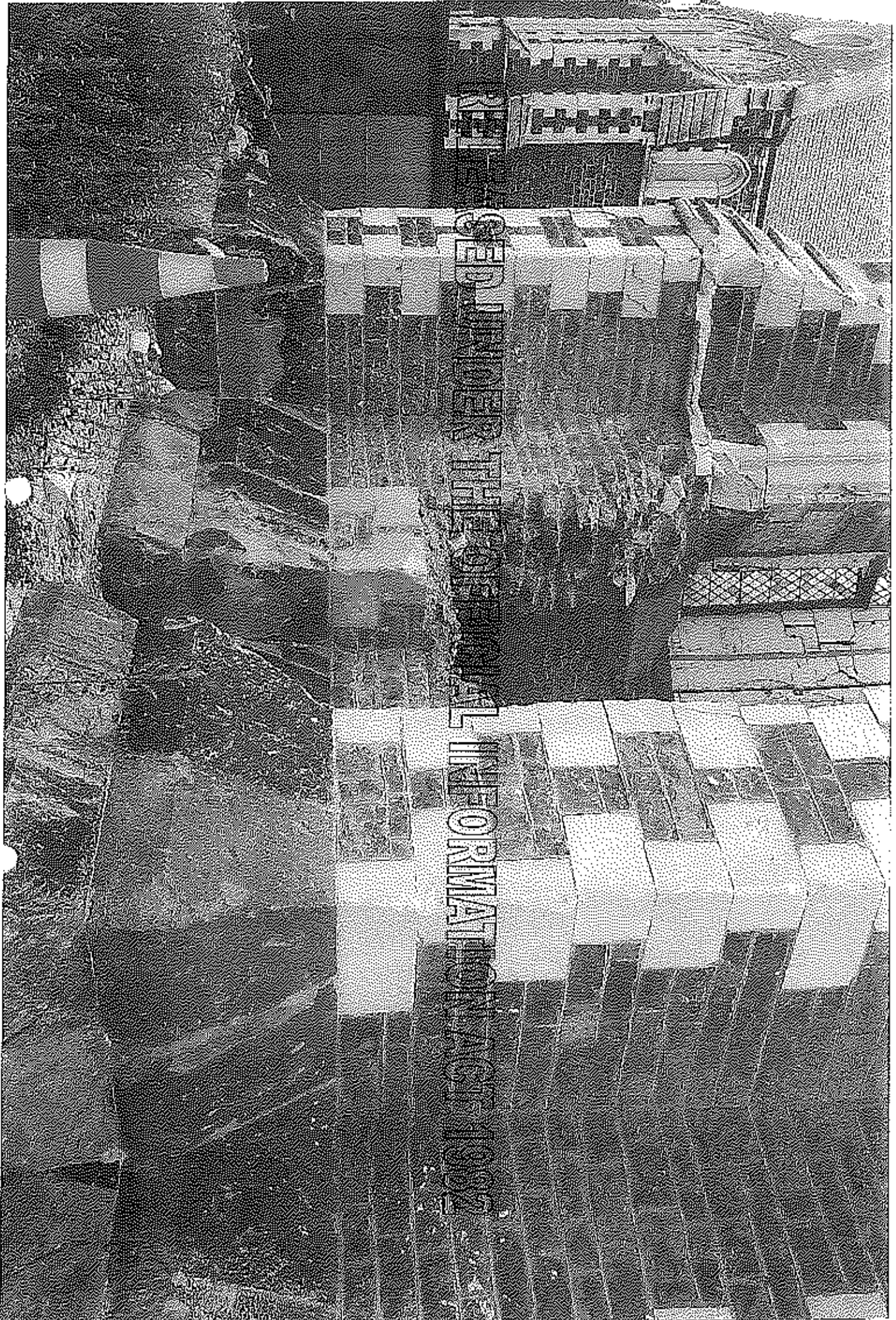
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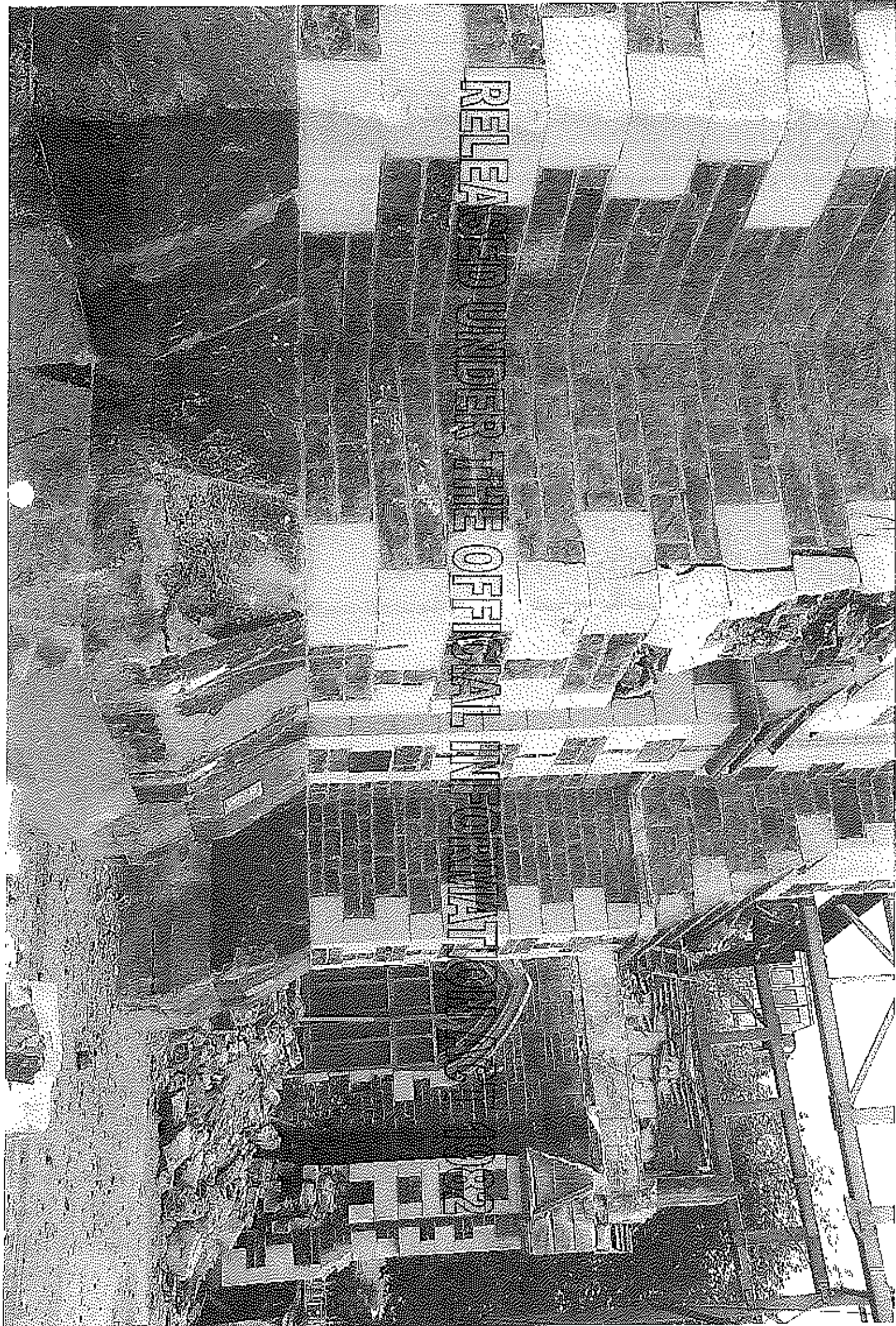
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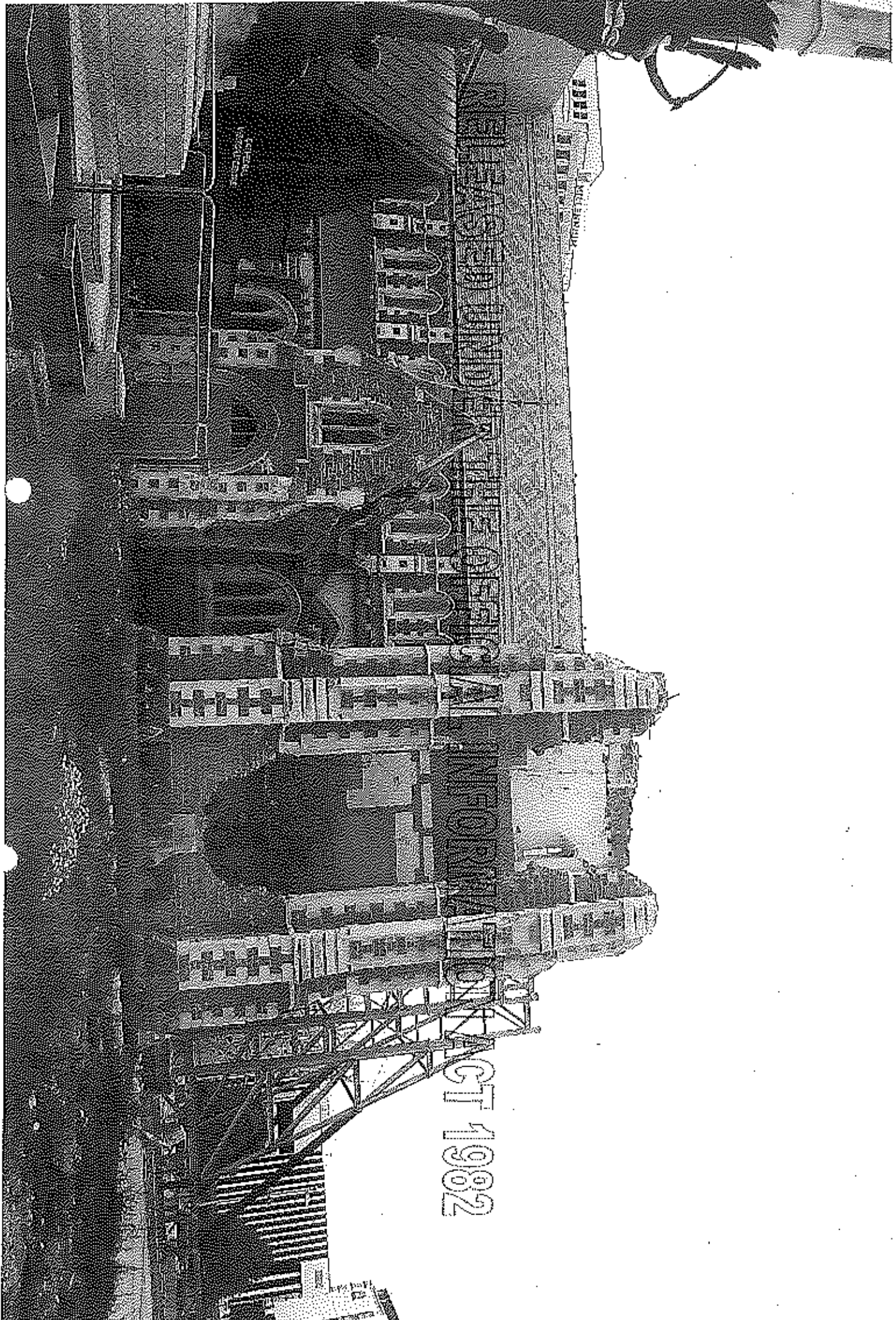
THE OFFICIAL INFORMATION ACT 1992



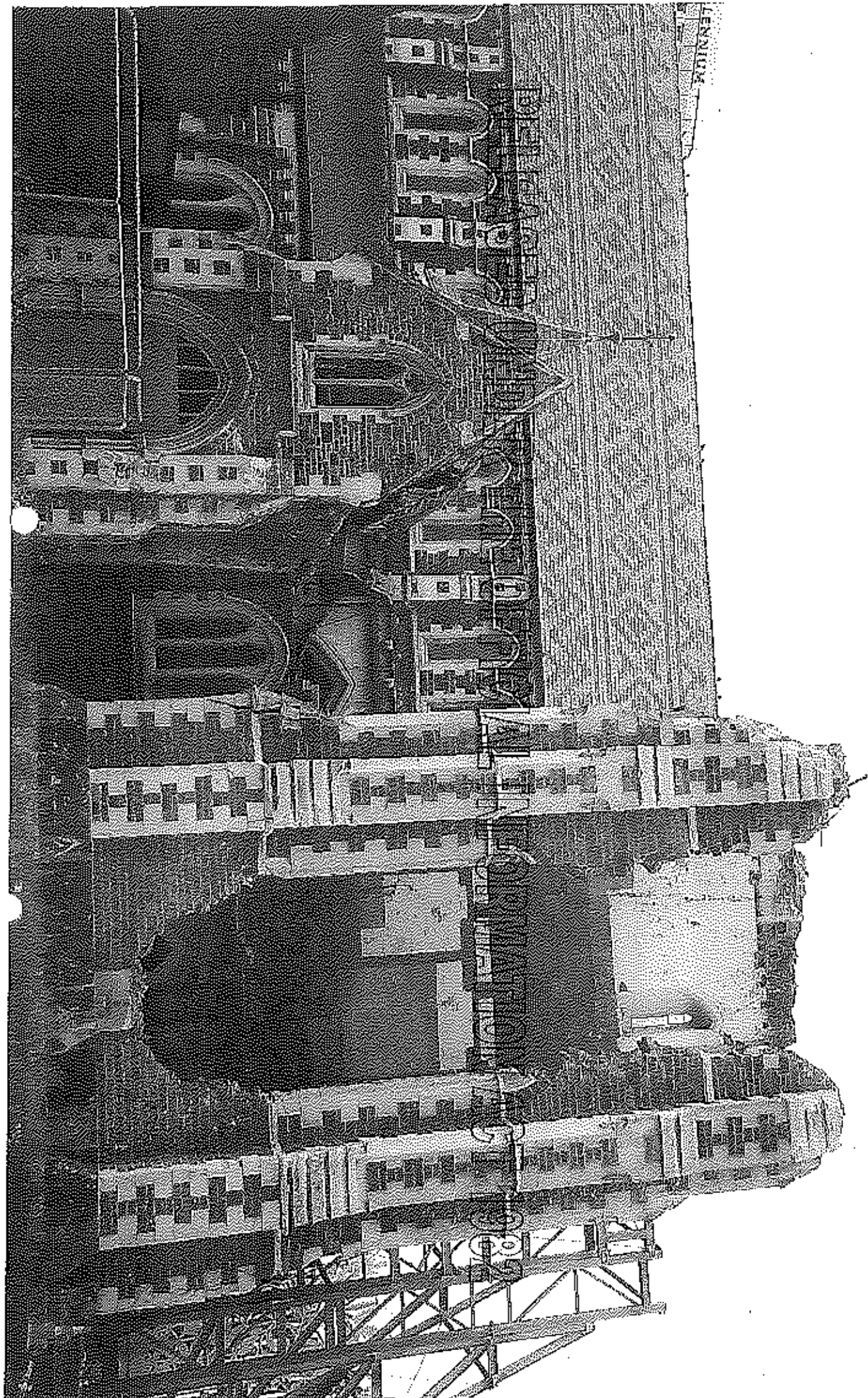


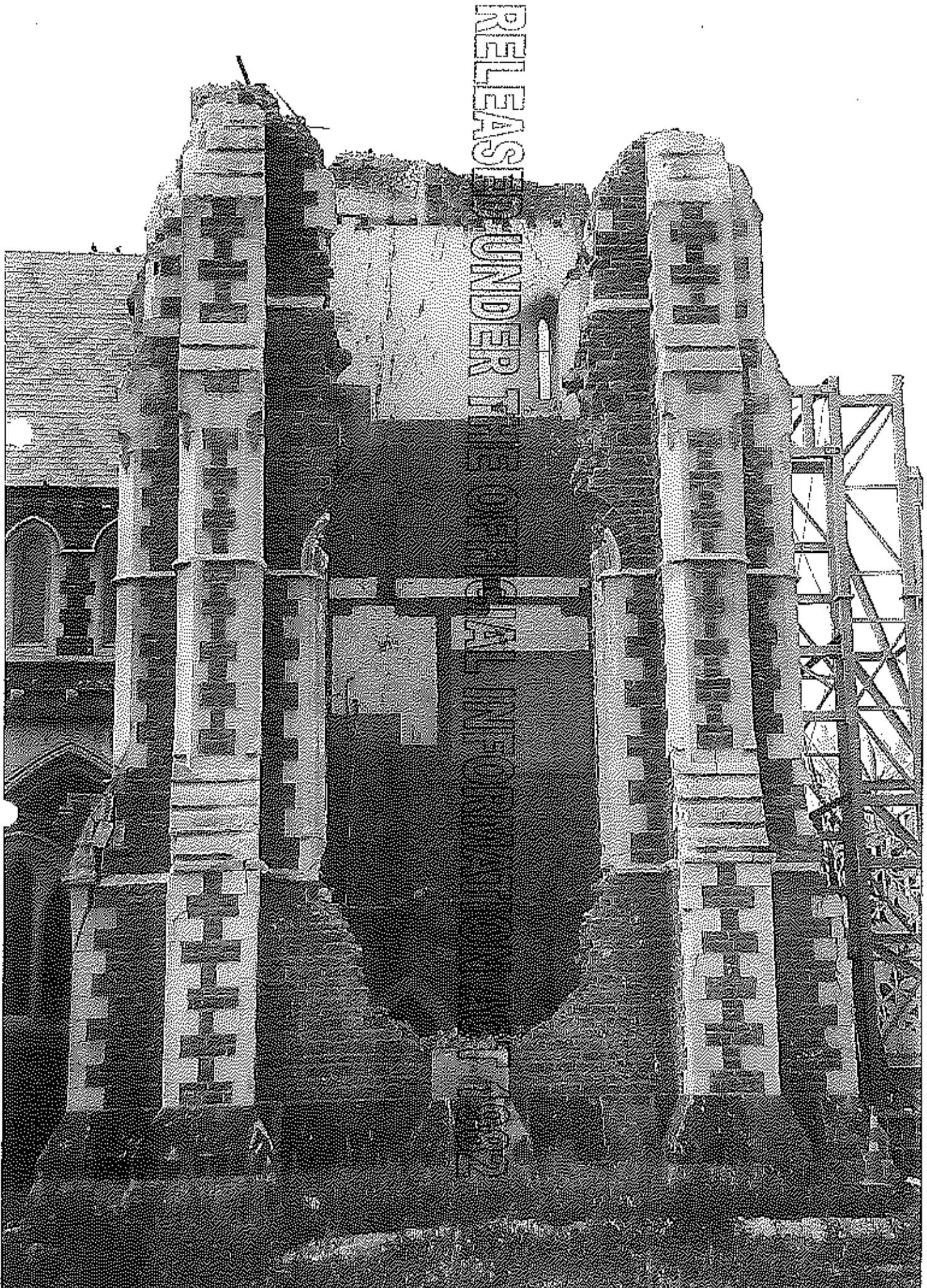


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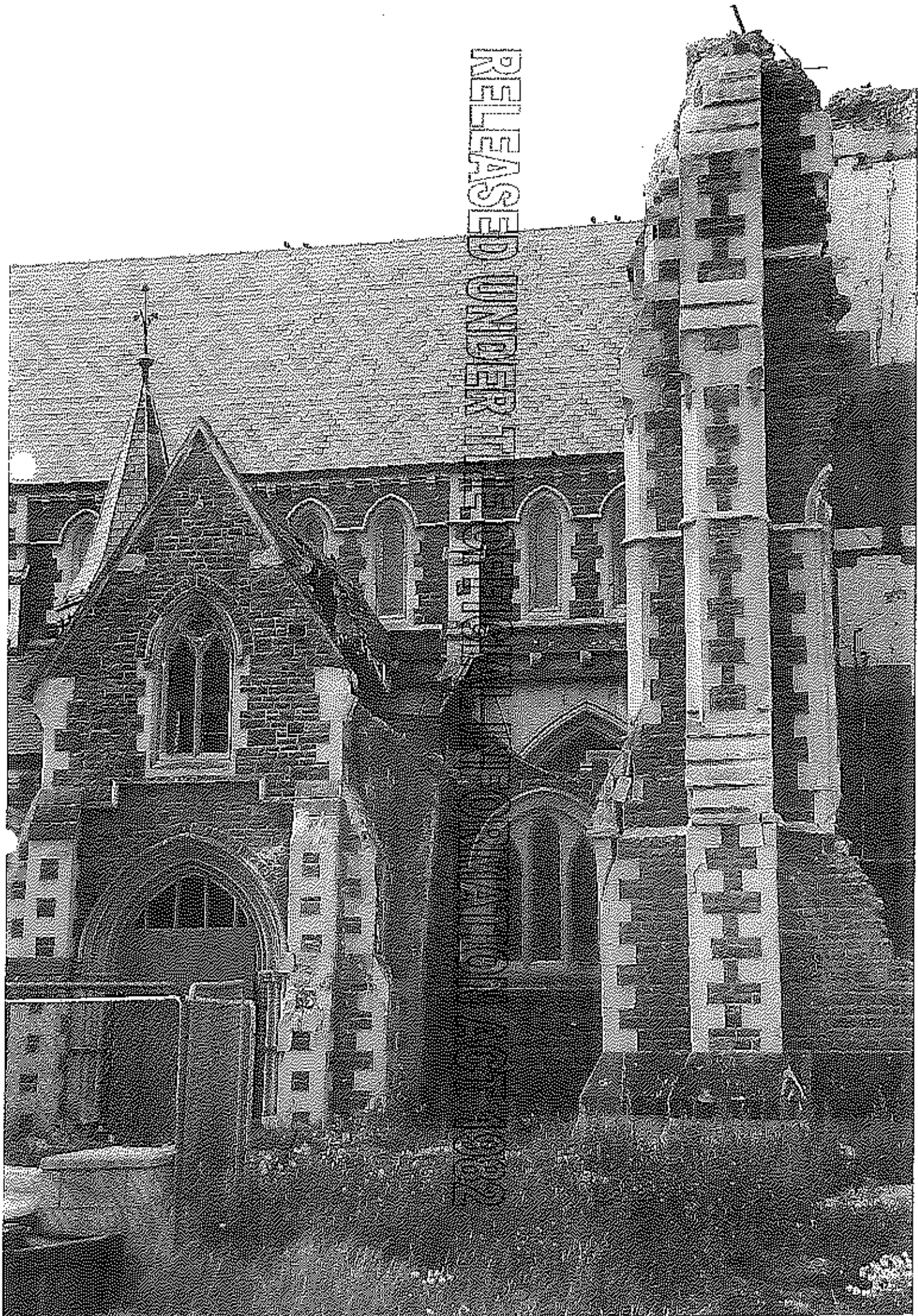


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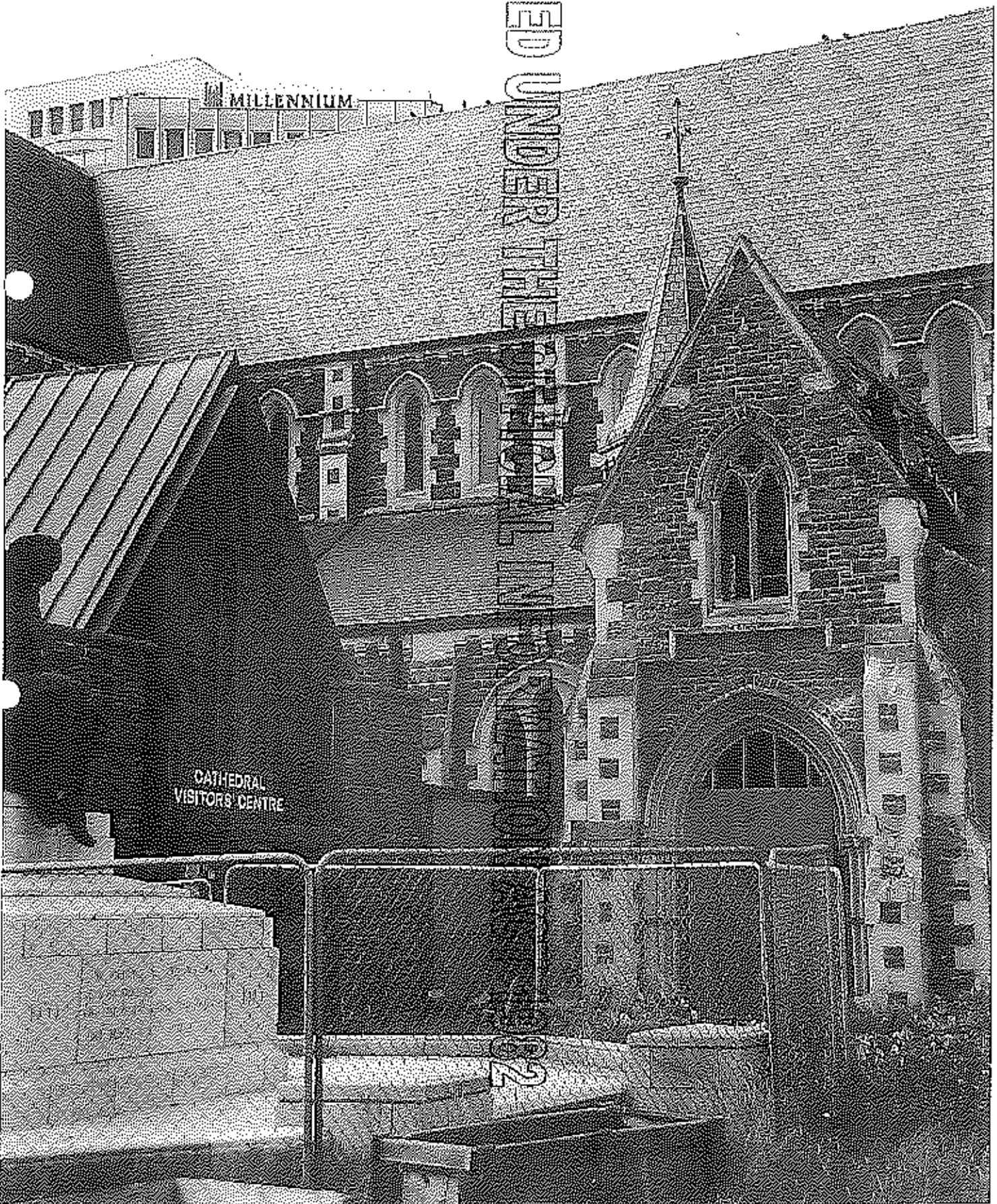


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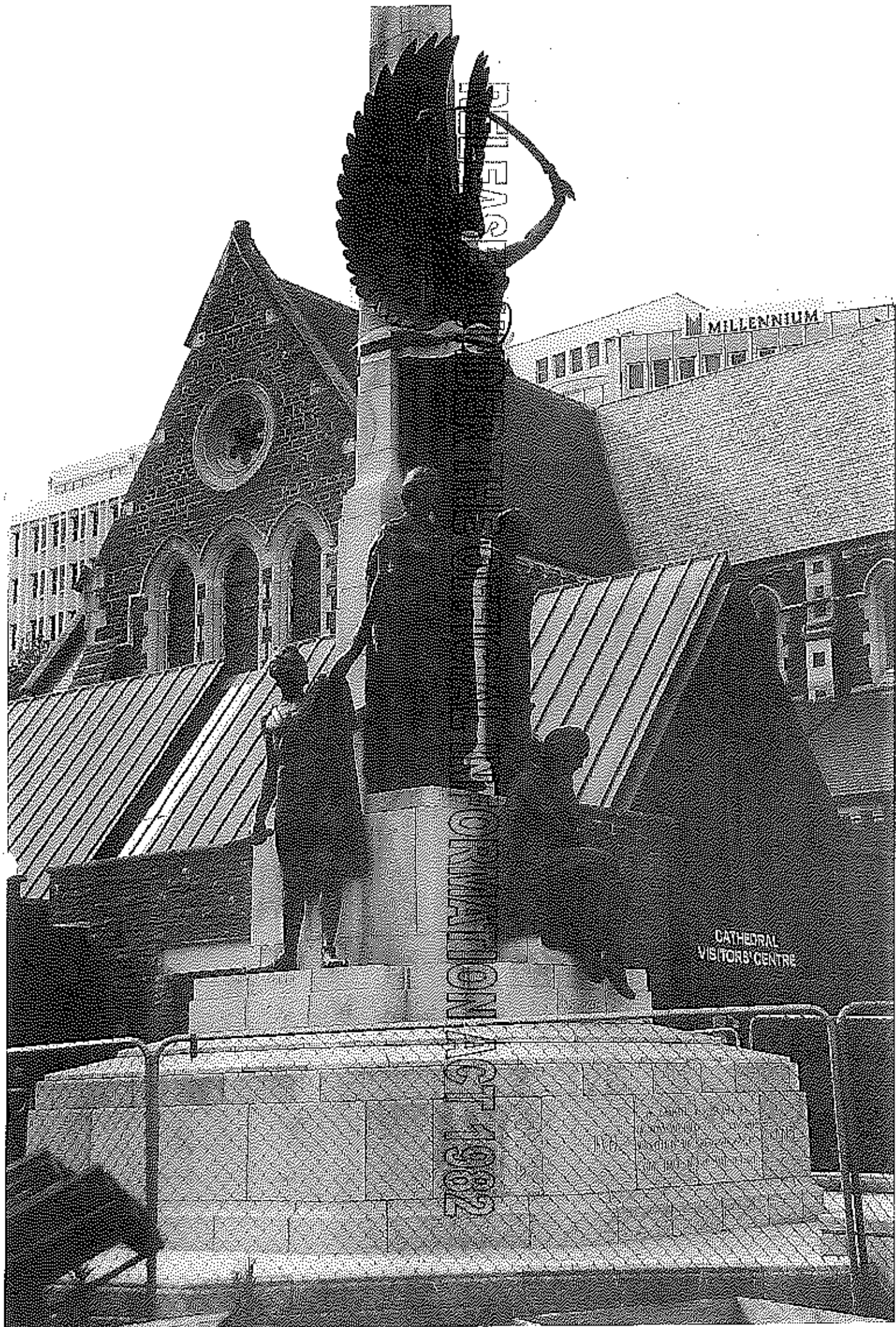


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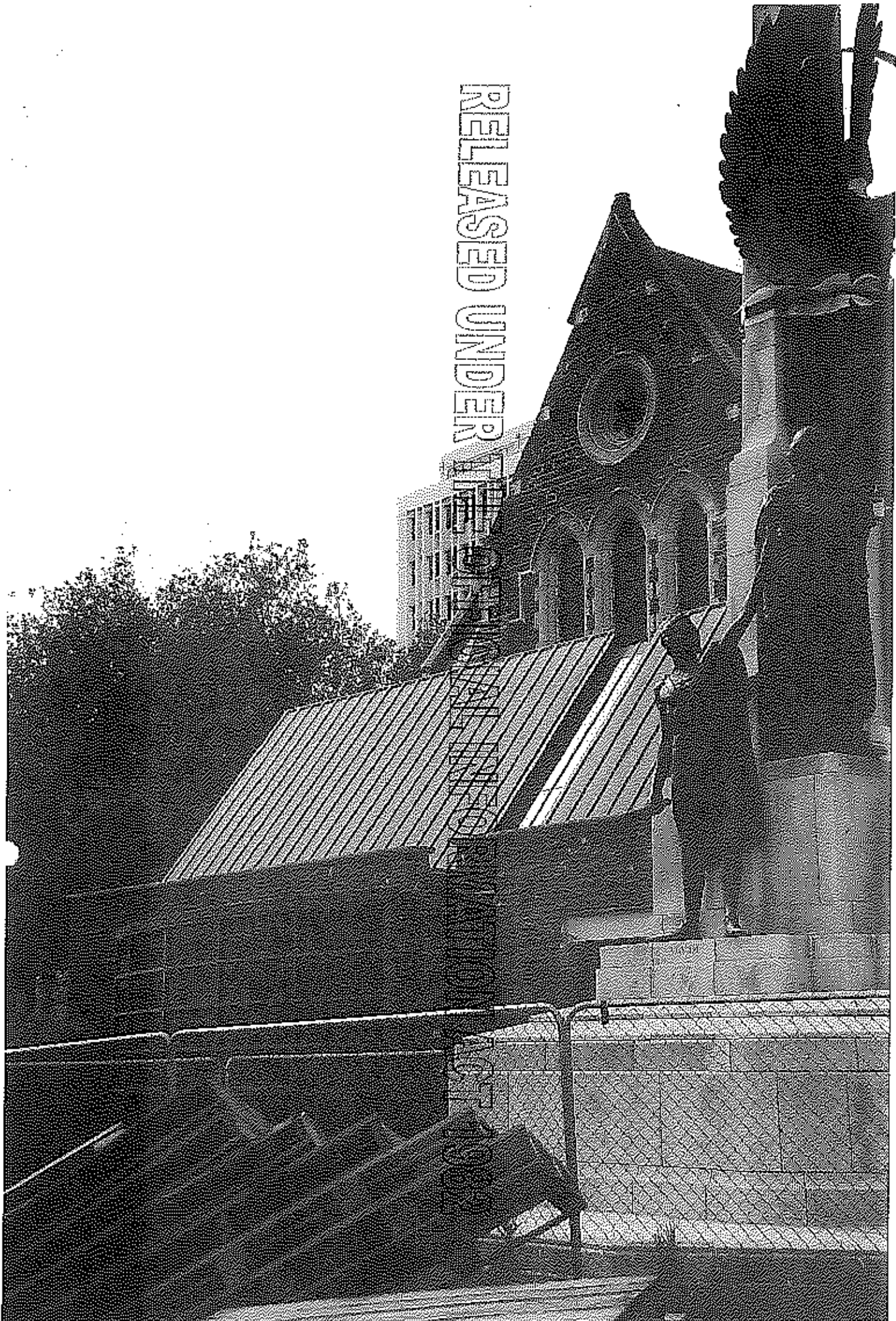
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82

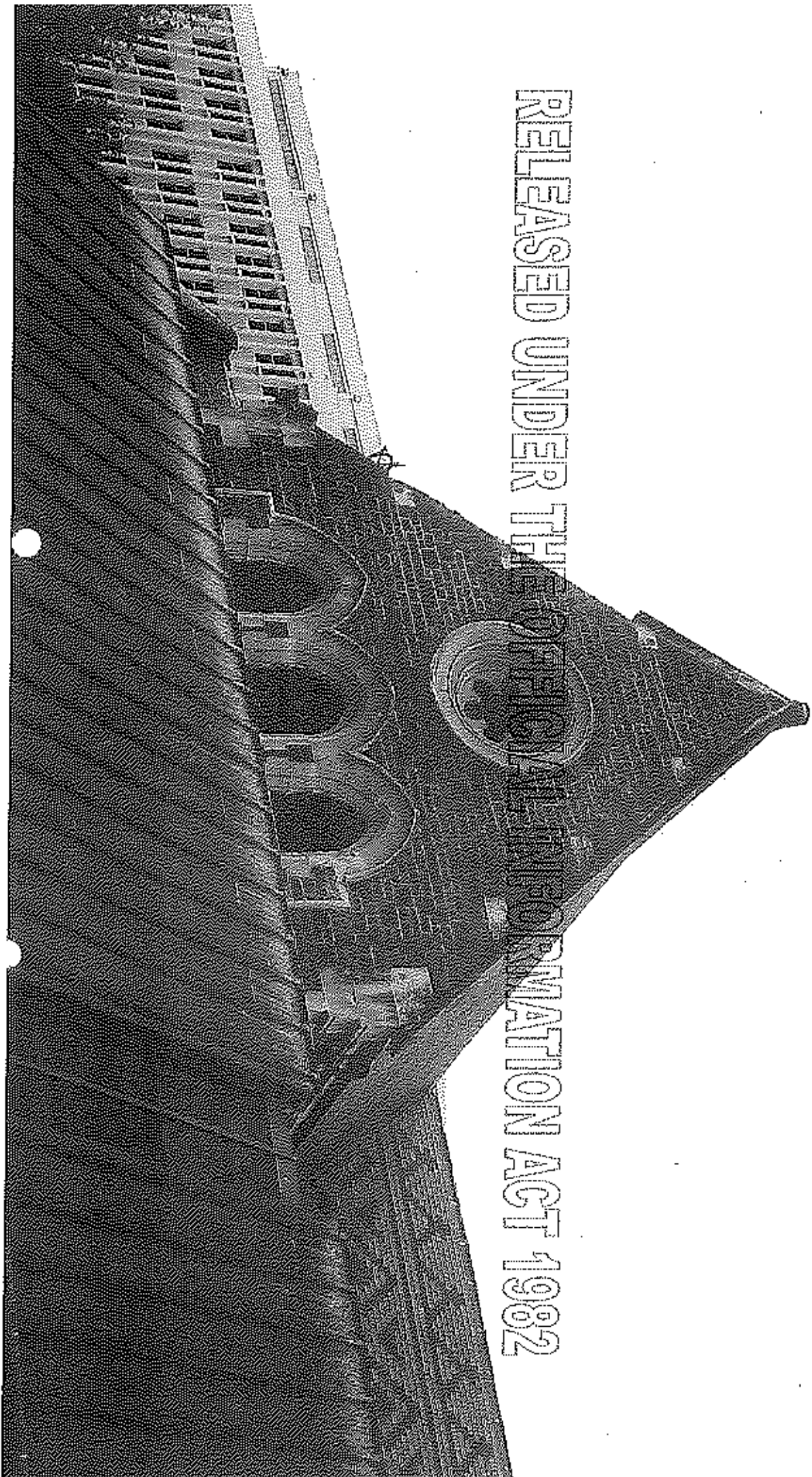


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PRESIDENT JOHN F. KENNEDY
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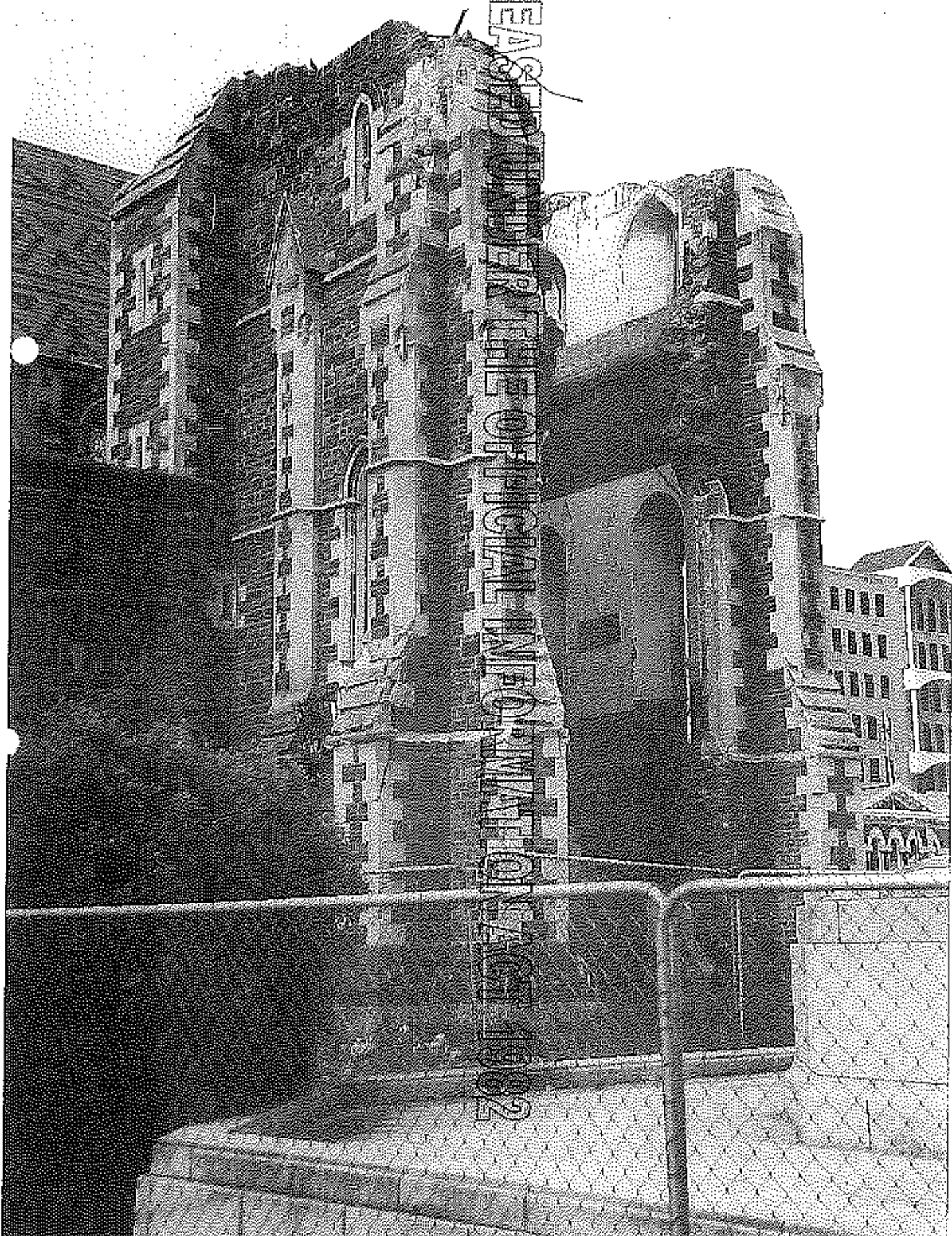




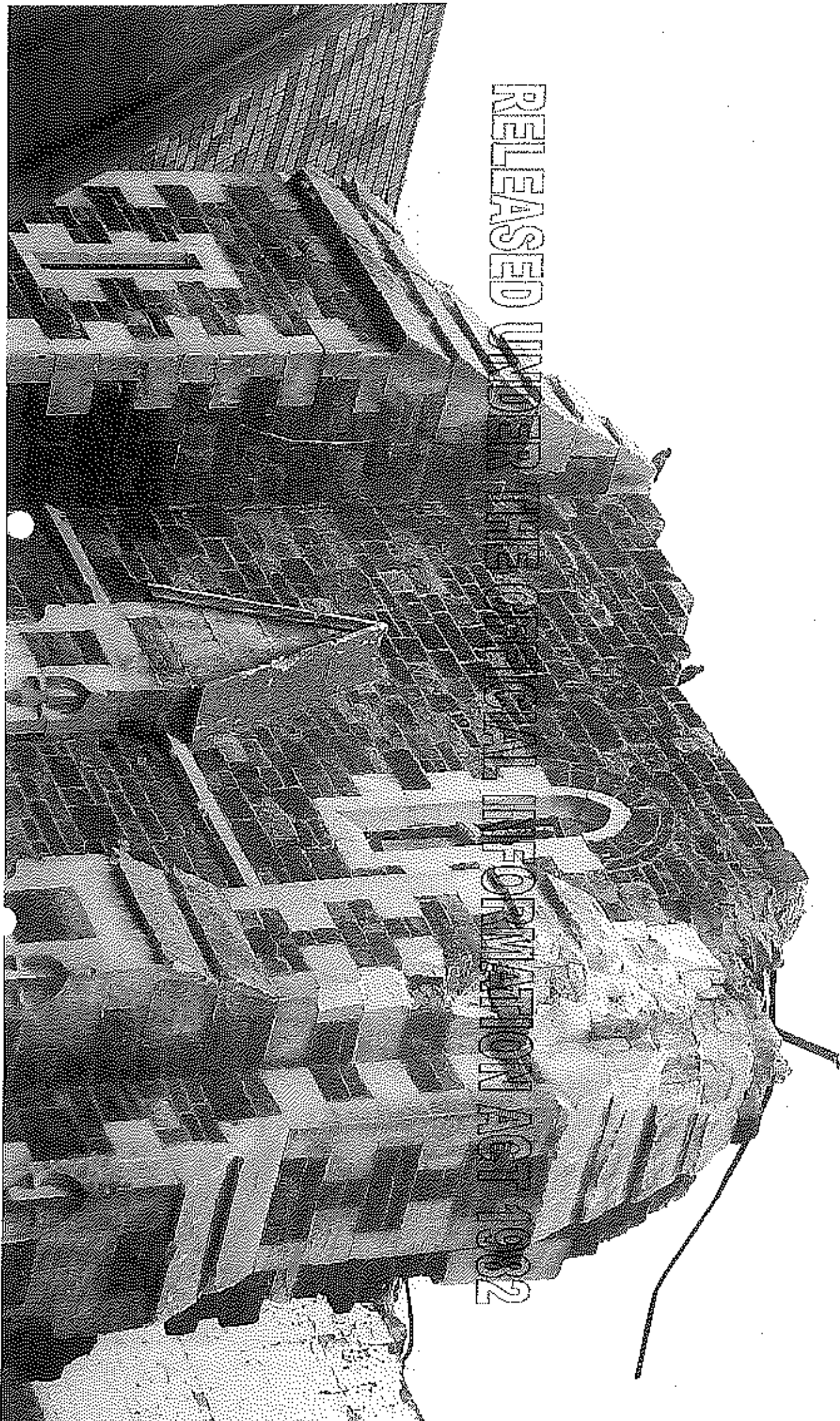
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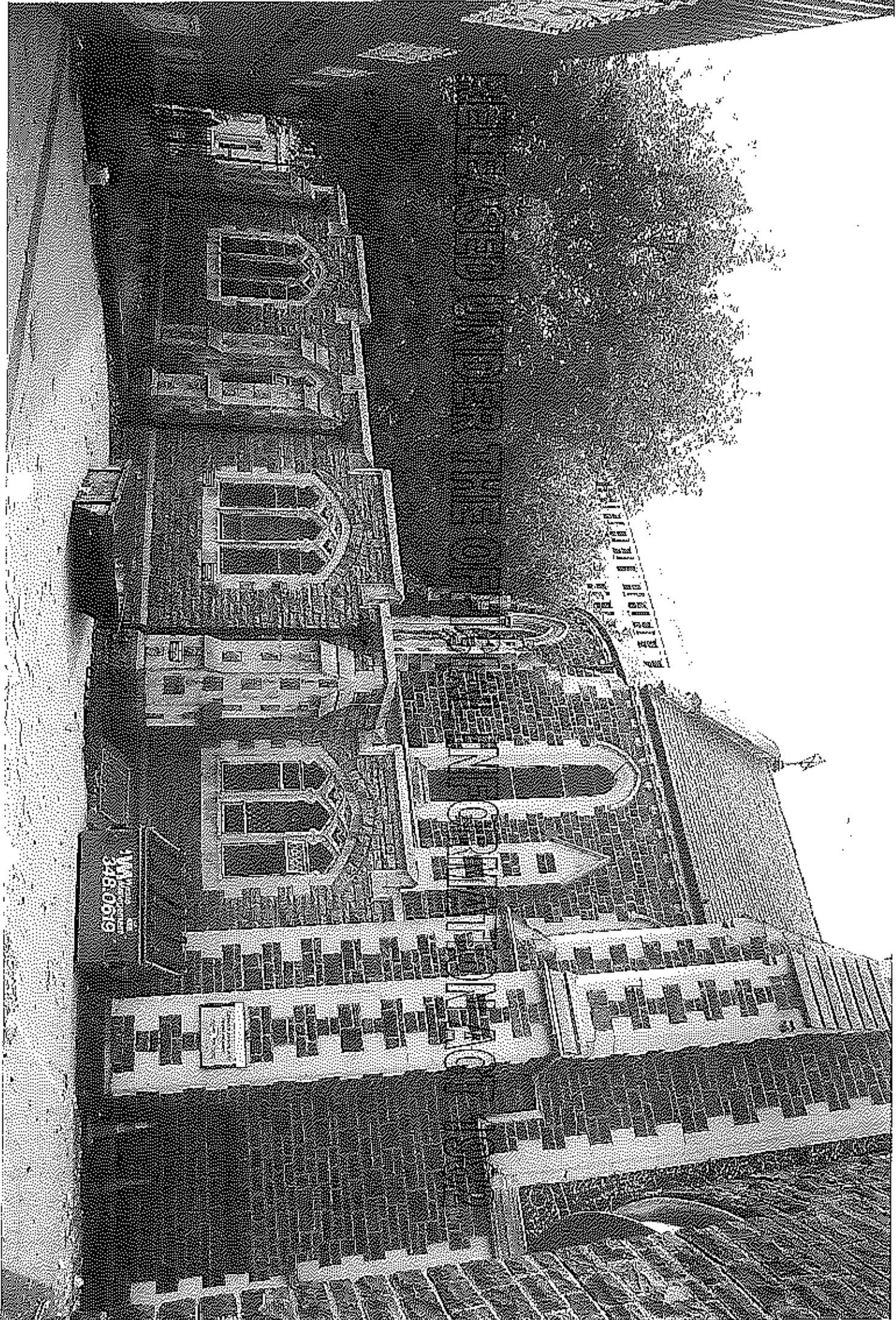


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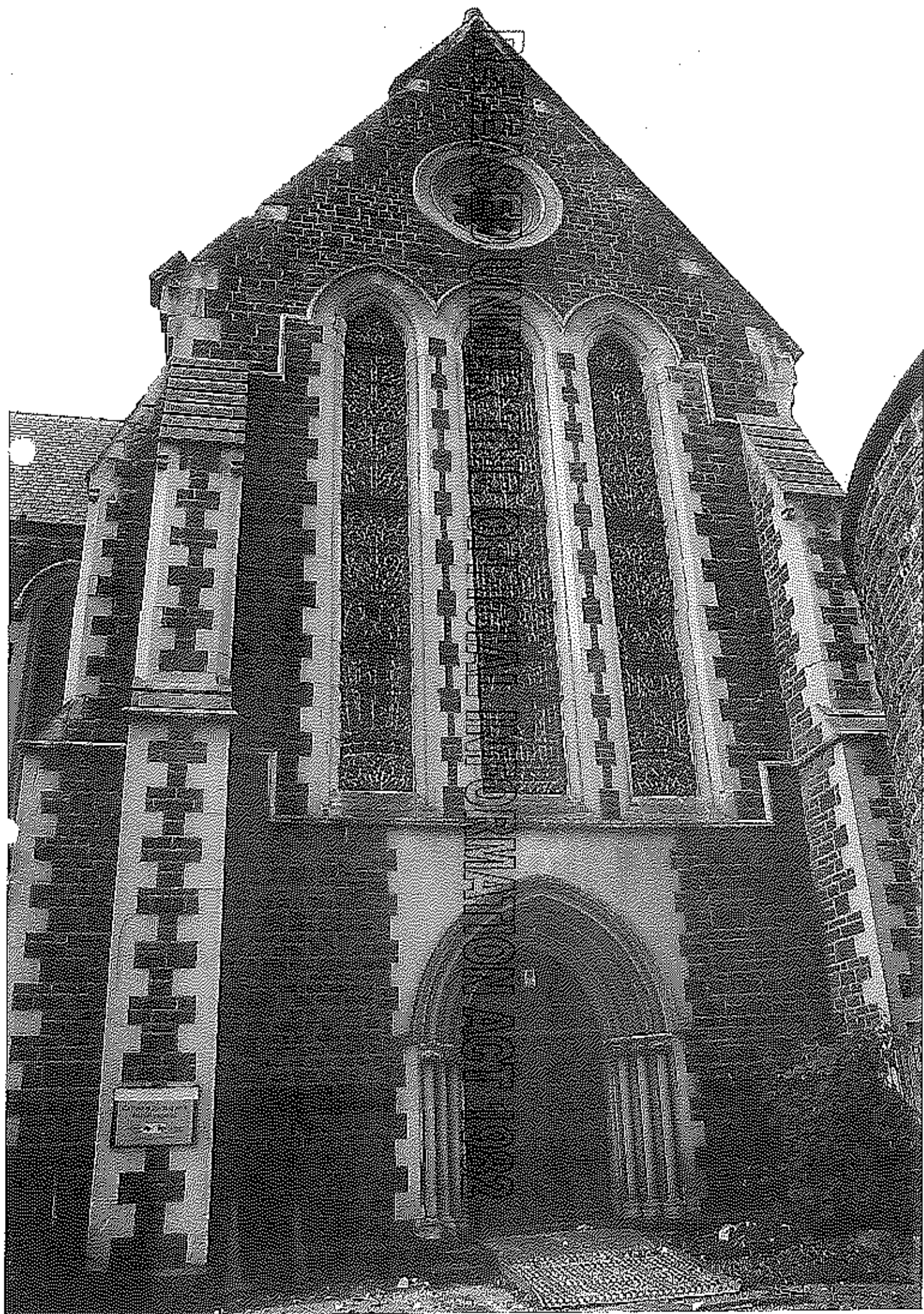




THE OFFICIAL INFORMATION ACT 1982



11th Street
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1000 West 10th
Management
348.0579

2

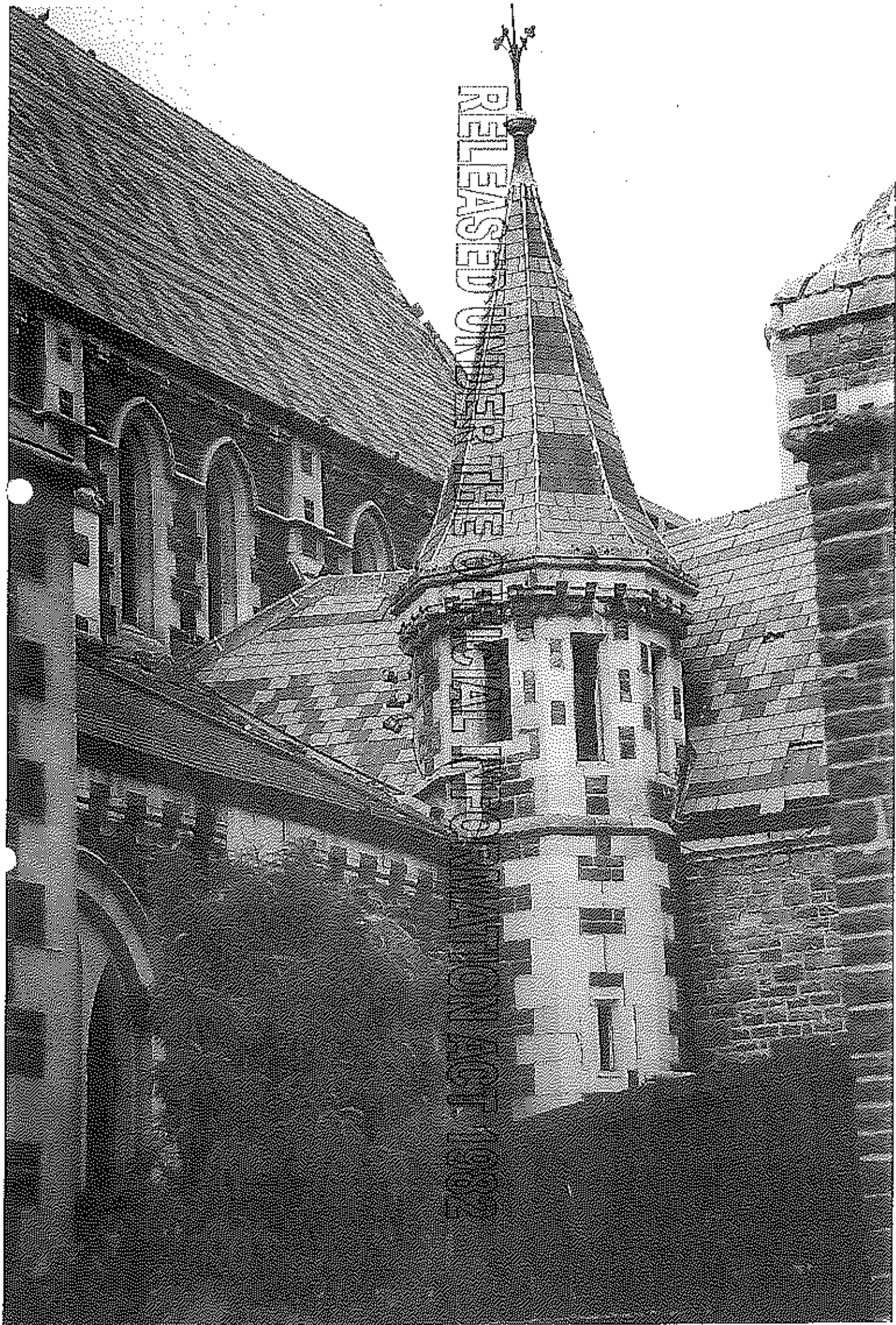


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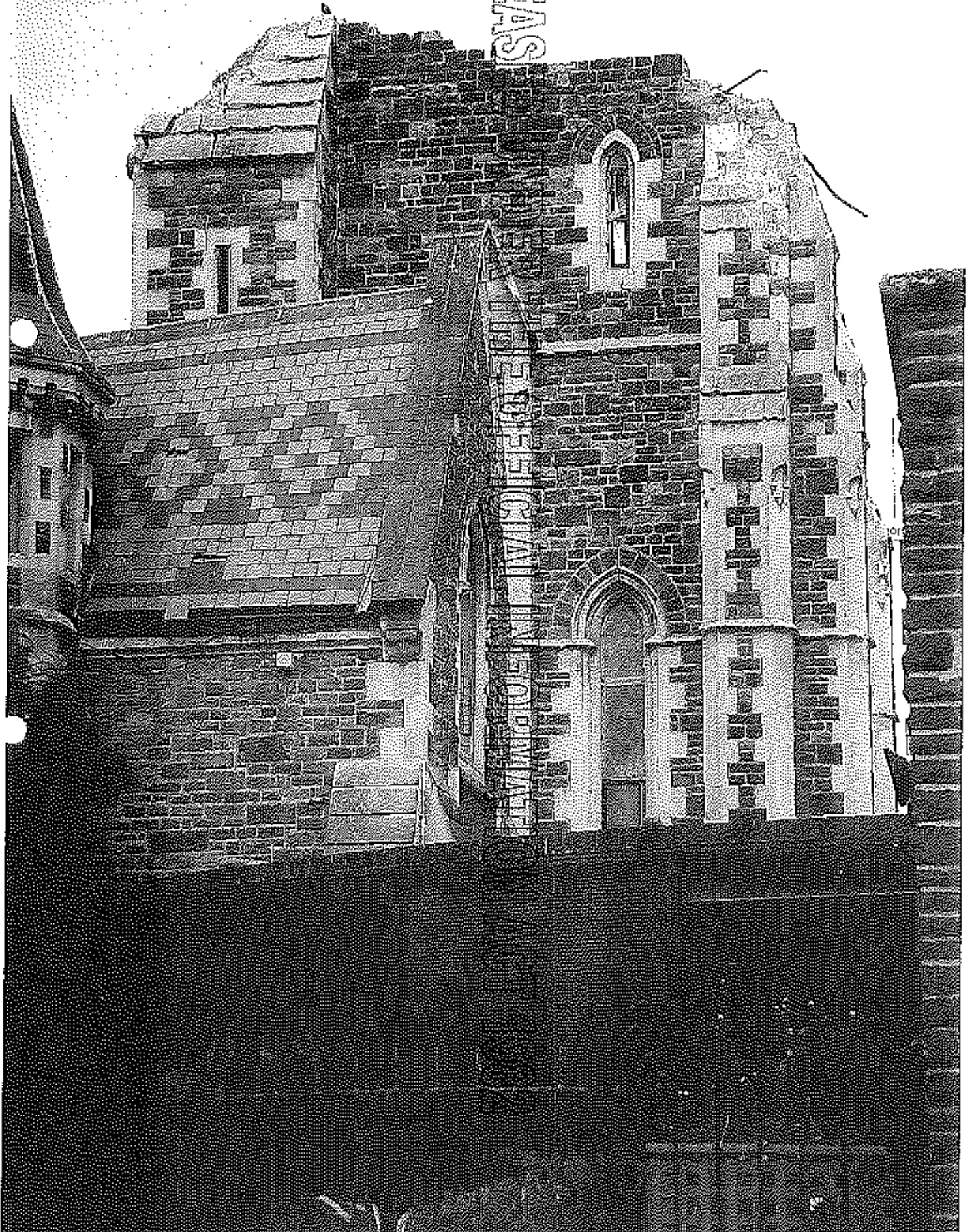
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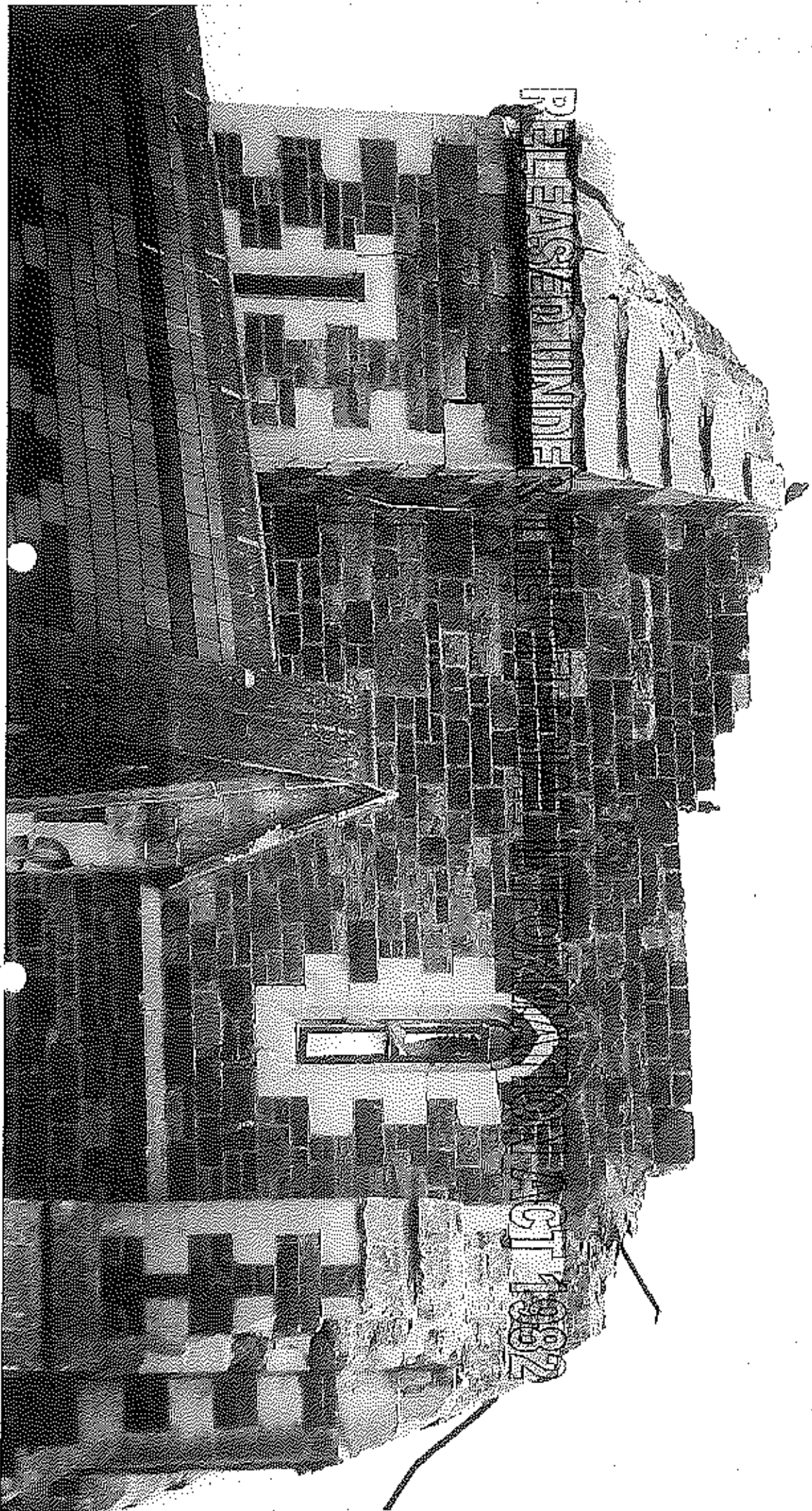
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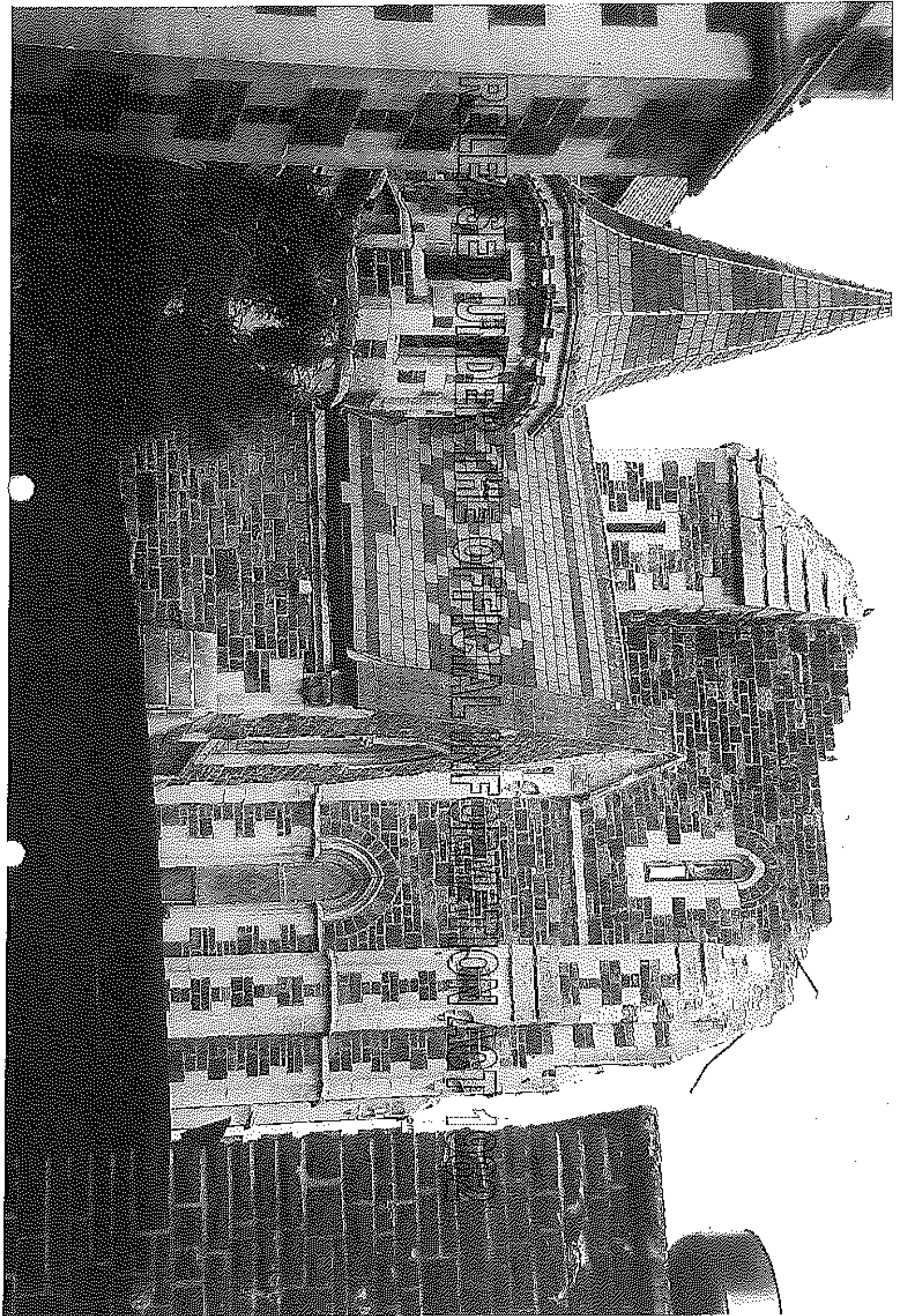


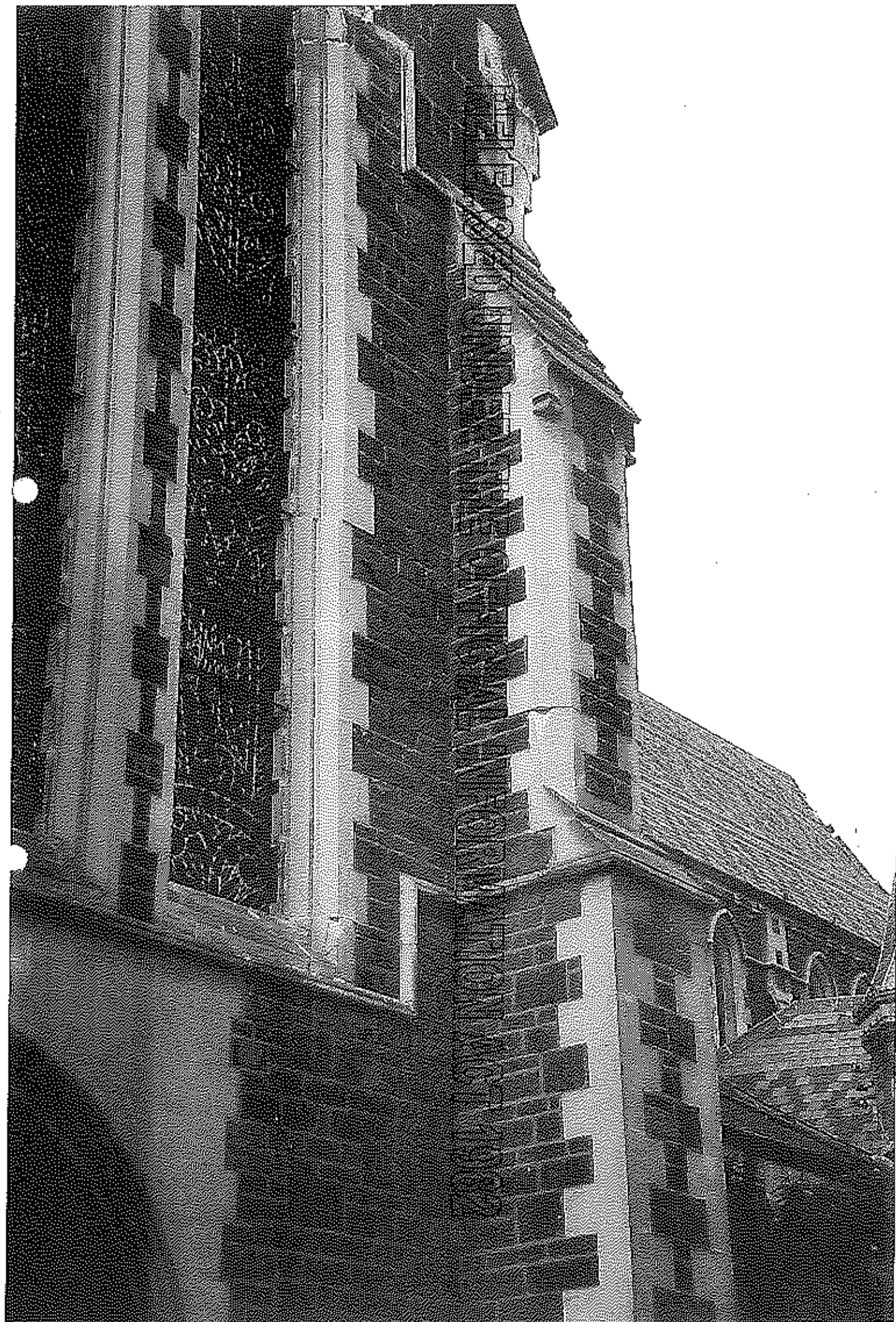
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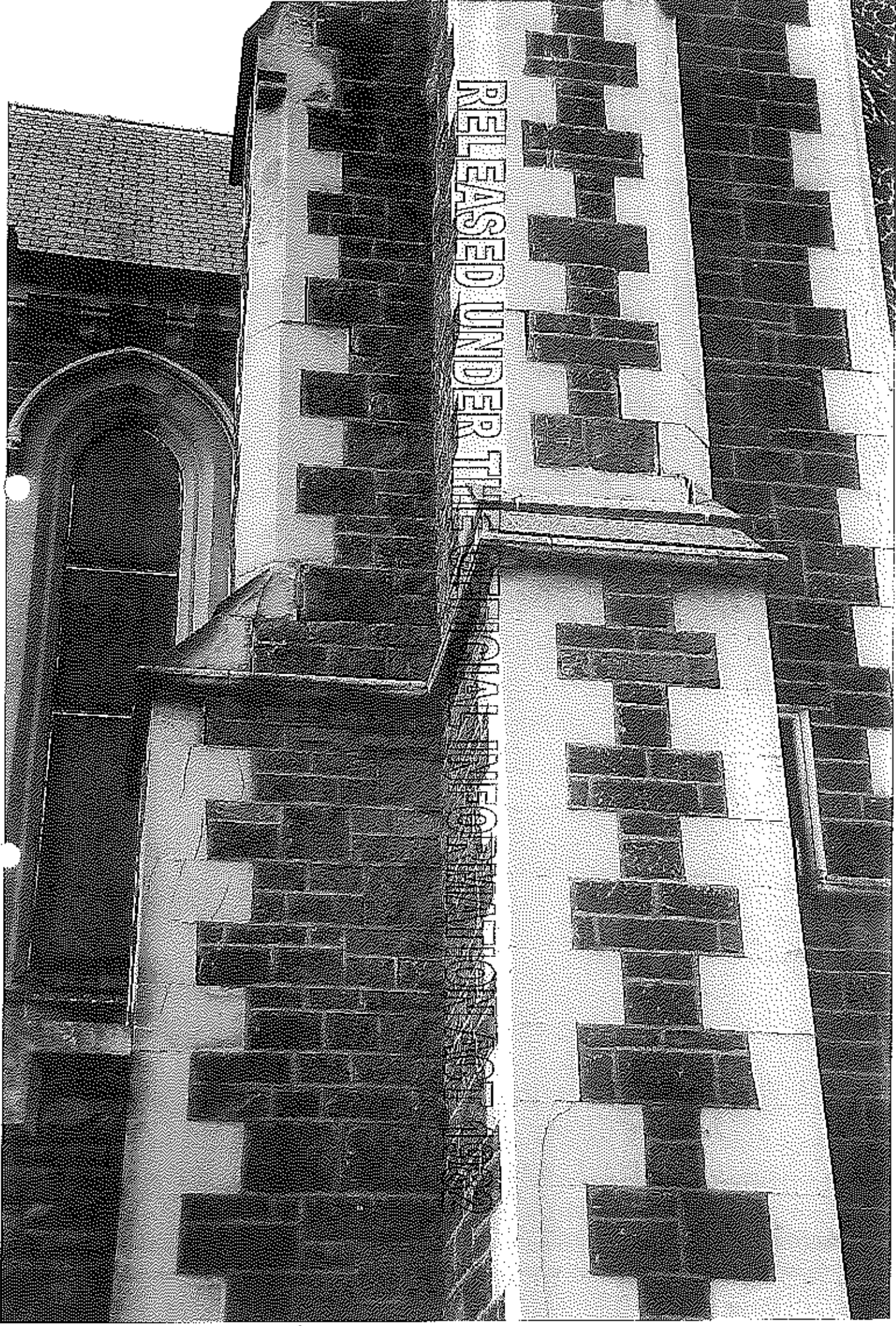
THE OFFICIALS OF THE
FEDERAL BUREAU OF INVESTIGATION
ARE CURRENTLY REVIEWING THE
MATTERS







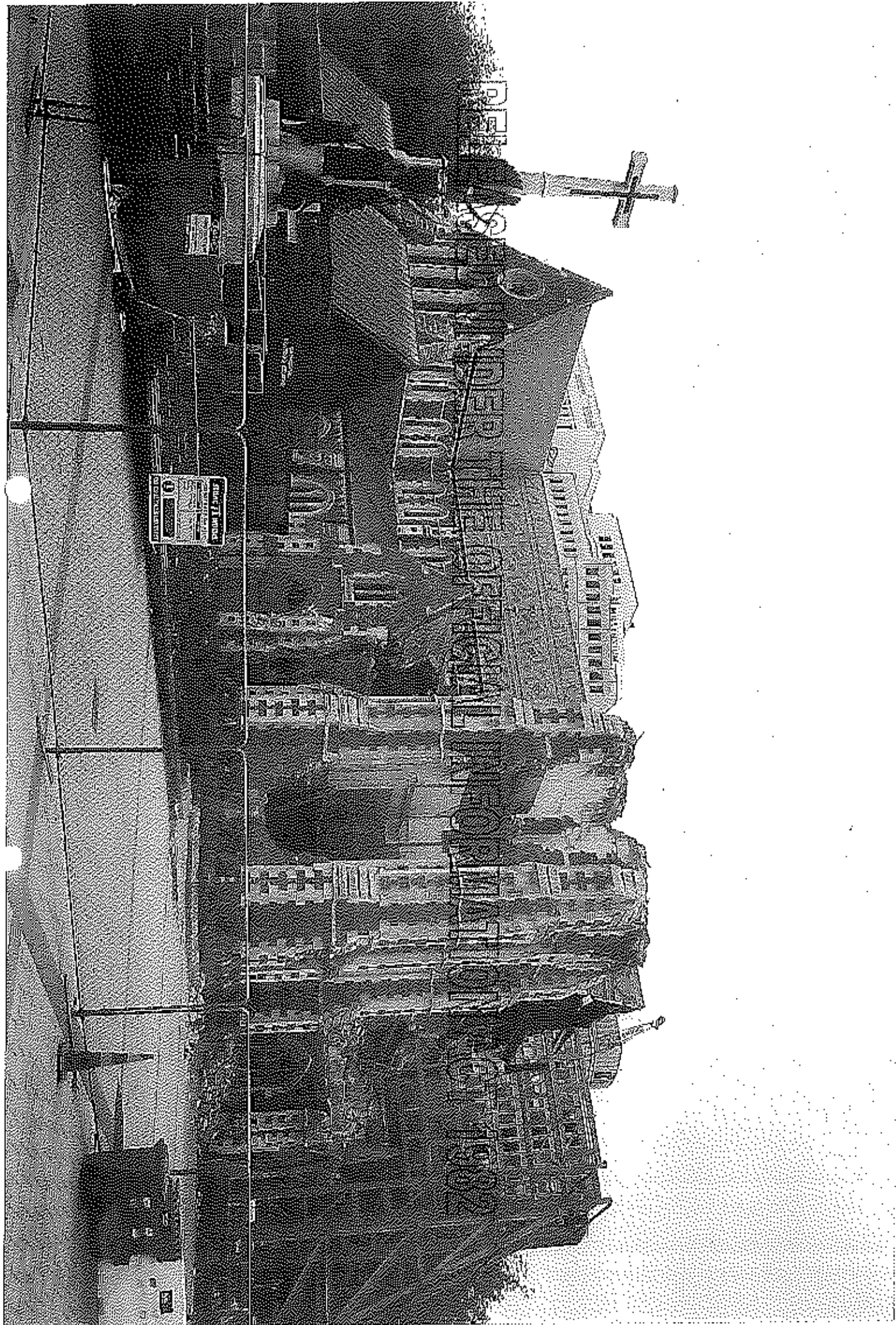




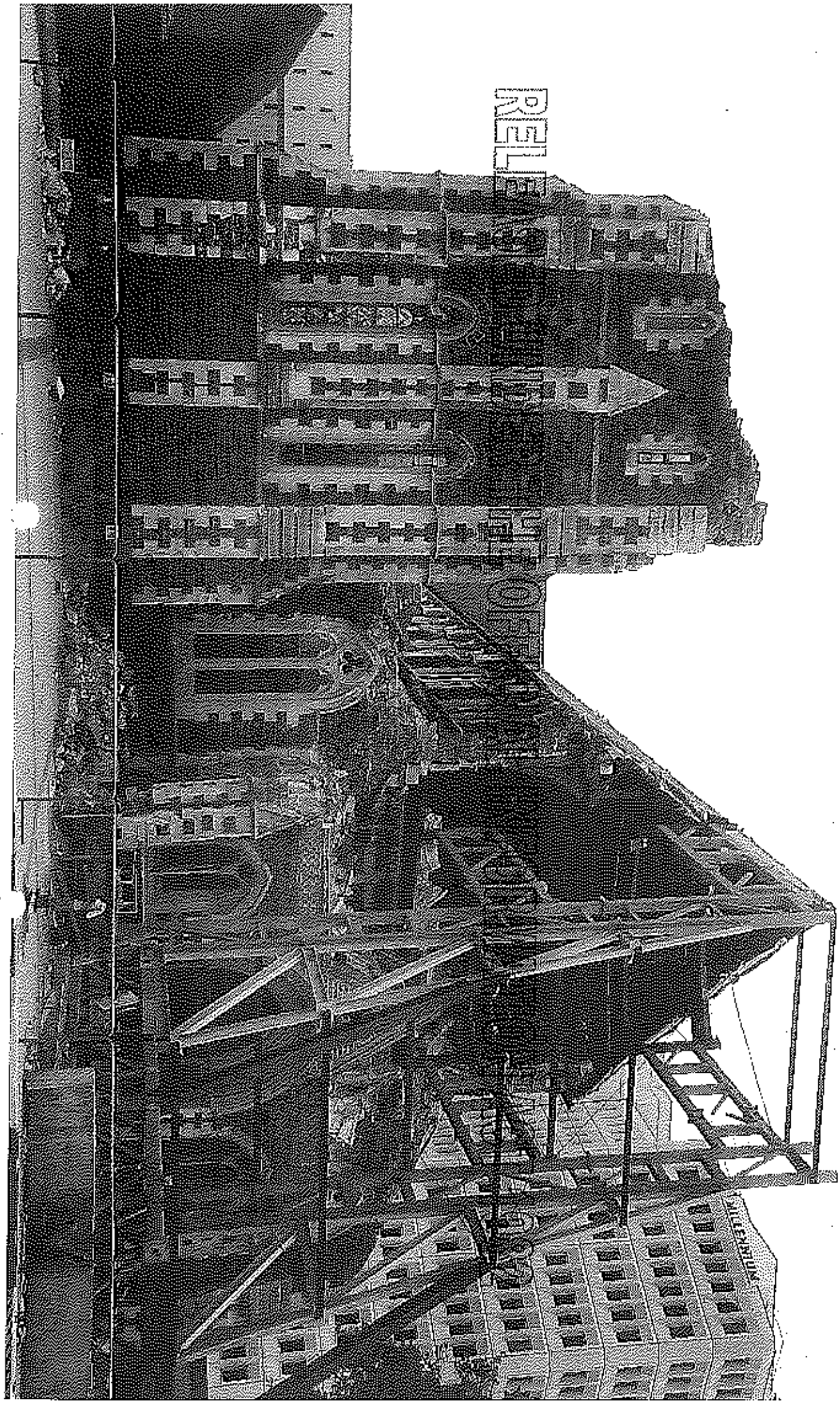
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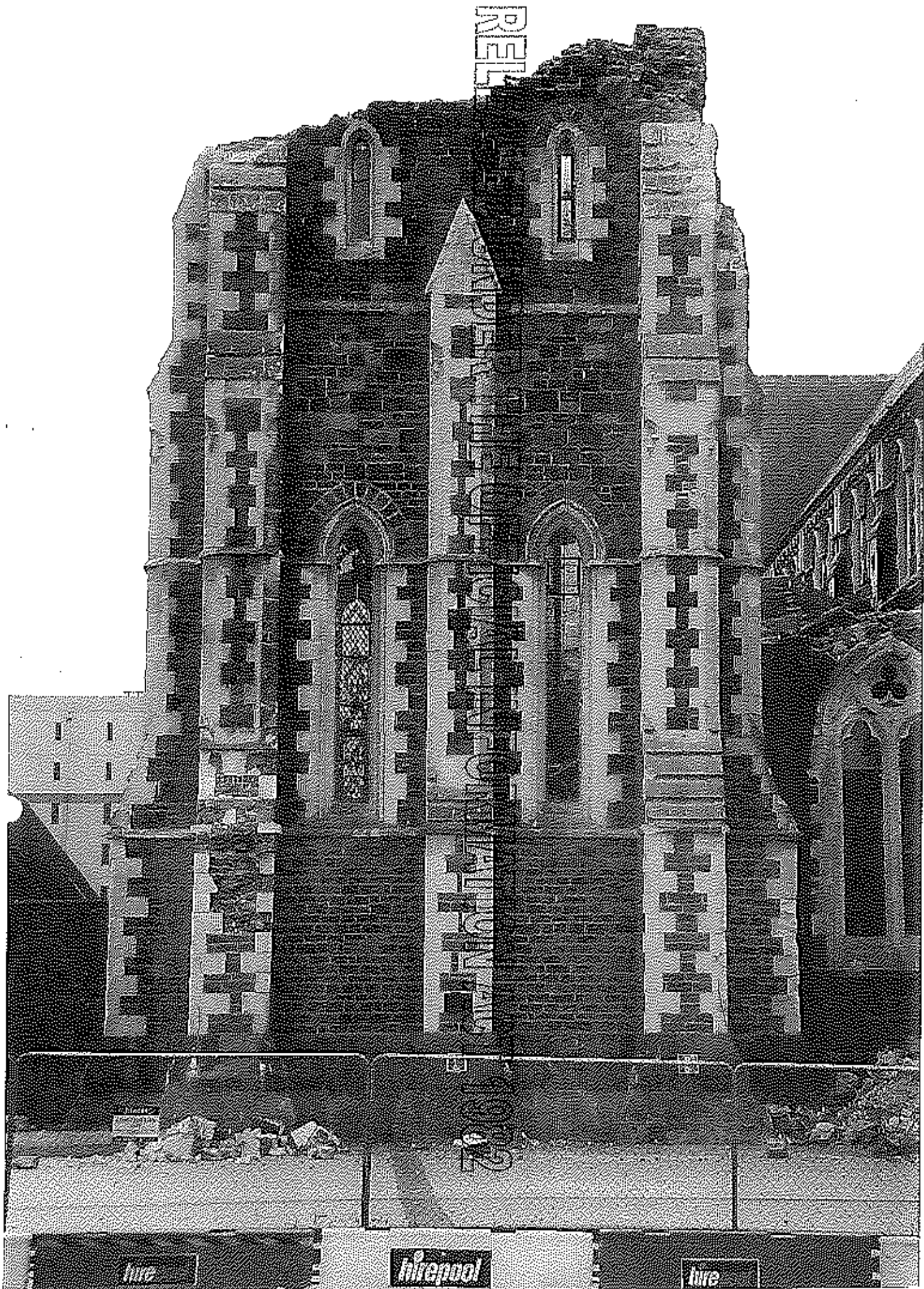
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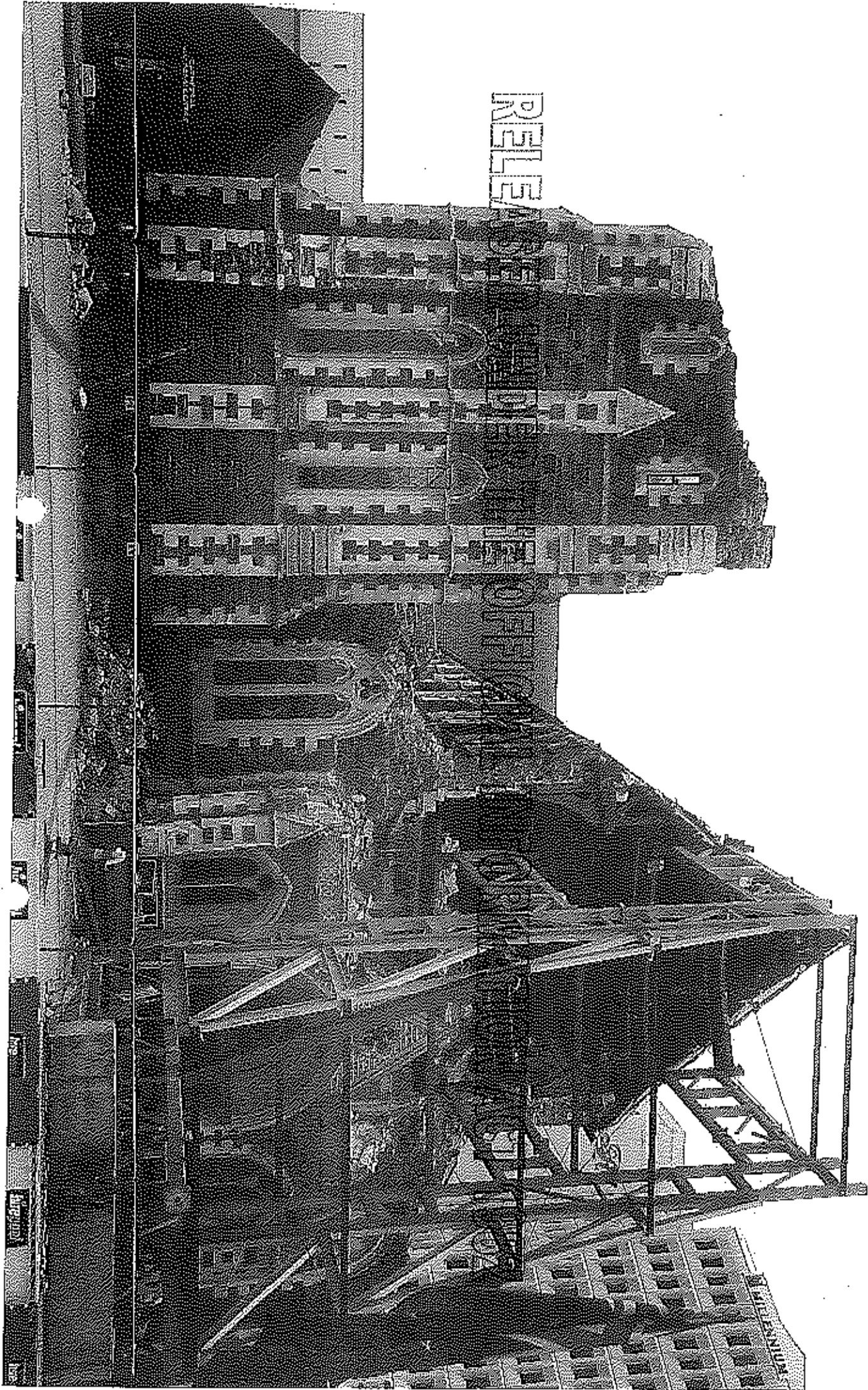
hrc

hrcpool

hrcpool







Withheld under section 9(2)(g)(i)

From:
Sent: Friday, 17 February 2012 12:51 p.m.
To:
Subject: FW: Christchurch Cathedral - Make Safe Options 1 of 2
Attachments: 106324CA0329.027.pdf.zip; 106324CA0329.030.pdf.zip

Withheld under section 9(2)(a)

From:
Sent: Friday, February 17, 2012 11:28 AM
To:
Cc:
Subject: Christchurch Cathedral - Make Safe Options 1 of 2

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Gents,

Further to our last meeting on site 3 make safe options have been developed for the Christchurch Cathedral:

- Option 1 - Maximum Retention
- Option 2 - Minimum Shoring
- Option 3 - Intermediate Scheme

These proposals are currently being costed and are with the Client for their consideration.

In preparation for our meeting scheduled for Monday please find attached details of the proposed securing works (one more email to follow).

Regards,

Withheld under section 9(2)(a)

Holmes Consulting Group
PO Box 6718 | Christchurch
Phon:
Email:
Web: www.holmesgroup.com

Fax:

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Project Name: Christchurch Cathedral Reconstruction

CA HCG: 027

Project No: 106324

Action:

From:

Information

Date: 9 February 2012

Pages: 1 of 2

Subject: Revised Phase 1 & 2 Make Safe Works – Maximum Retention Option

- To
-
-
-
-
-
-
-

- CPT
- CPT
- RCP
- Warren & Mahoney
- Davis Langdon
- Jackie Gillies & Ass
- Holmes Consulting Group

Christchurch

Telephone

64 3 366 3366

Facsimile

64 3 379 2169

Internet

www.holmesgroup.com

Confirmation / Response to PC No.: N/A

Level 5

As requested Holmes Consulting Group have completed a review of the required Phase 1 and Phase 2 Make Safe Works for the Maximum Retention Option to address the additional building damage that occurred during the December 23rd 2011 after shock.

123 Victoria Street

PO Box 25355

The securing works have been revised on the basis that an aftershock with a similar level of intensity as the 23rd December 2011 event could take place during the installation of the works. Risks to the safety of Consultants and Contractors have been managed by the following means:

Christchurch 8144

New Zealand

- (i) All of the Phase 1 works will be completed from the outside of the building.
- (ii) Phase II works will be undertaken progressively from the west end. The building will be shored as required to stabilise the building against collapse as the work front advances.
- (iii) Safe Havens are to be used during the phase 2 works.

Offices in

Auckland

Hamilton

Wellington

Queenstown

San Francisco

Details of the revised scope of securing works for re-pricing purposes are as follows:

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Withheld under section 9(2)(a)



1. Phase 1 Make Safe Works

Scope of modified securing works is detailed on SSK# 33 – 35 Rev 5 attached.
Changes to that previously advised in HCG CA#022 are:

- Tower remnants are to be deconstructed to window sill level rather than stabilised insitu.
- Stabilisation of two south aisle wall piers with high capacity ratchet tie-downs.

2. Phase 2 Make Safe Works

Scope of modified securing works is detailed on SSK# 37 -- 40 Rev 5 attached.
Changes to that previously advised are;

- All windows are to be covered with plywood and braced with timber blocking.
- Selected wall piers are to be stabilised with high capacity ratchet tie-downs or high strength wire rope.
- Aisle roof to be propped at north and south aisle perimeter walls.
- Damaged transept arches to be propped with timber shoring

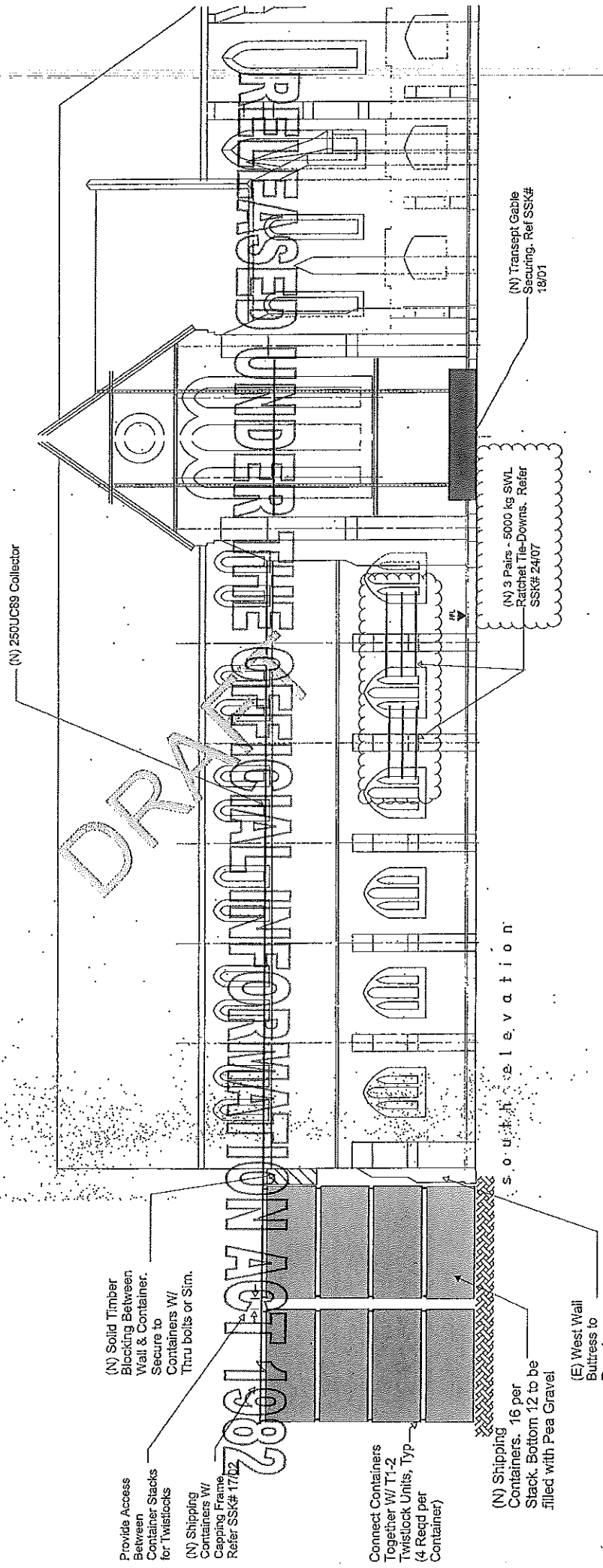
Regards,

Withheld under section 90(2)(a)

106324CA0329.027

LEGEND:

- (N) - New
- (E) - Existing



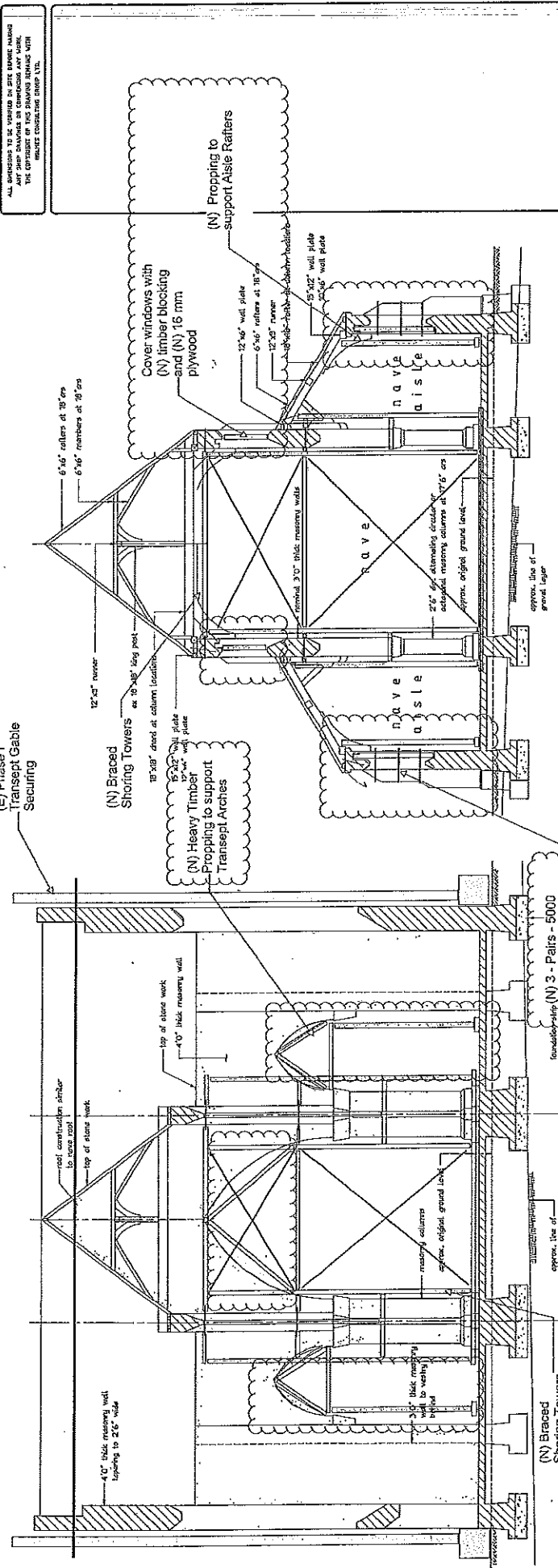
MAKE SAFE PLAN - PHASE 1 SOUTH ELEVATION

Withheld under section 9(2)(a)

Holmes & Narver Group
SHEPHERD AND PARTNERS

Project Name: Christchurch Cathedral

Date: 12/12/2011
Sheet Number: 35 Rev 4



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All dimensions are shown in metric units, unless otherwise stated. The opposite of this drawing shall be used in preference to this drawing.

REV.	DATE	BY	REASON

HOLMES CONSULTING GROUP
 CONSULTING ENGINEERS AND ARCHITECTS
 1000 West Broadway, Suite 1000, Vancouver, B.C. V6H 1A5

CHRISTCHURCH CATHEDRAL
 SEISMIC STRENGTHENING PROPOSALS

Working Title: SEISMIC STRENGTHENING PROPOSALS
 Approved: FOR FILING: CATH-1-G

SHEET TITLE: SECTIONS

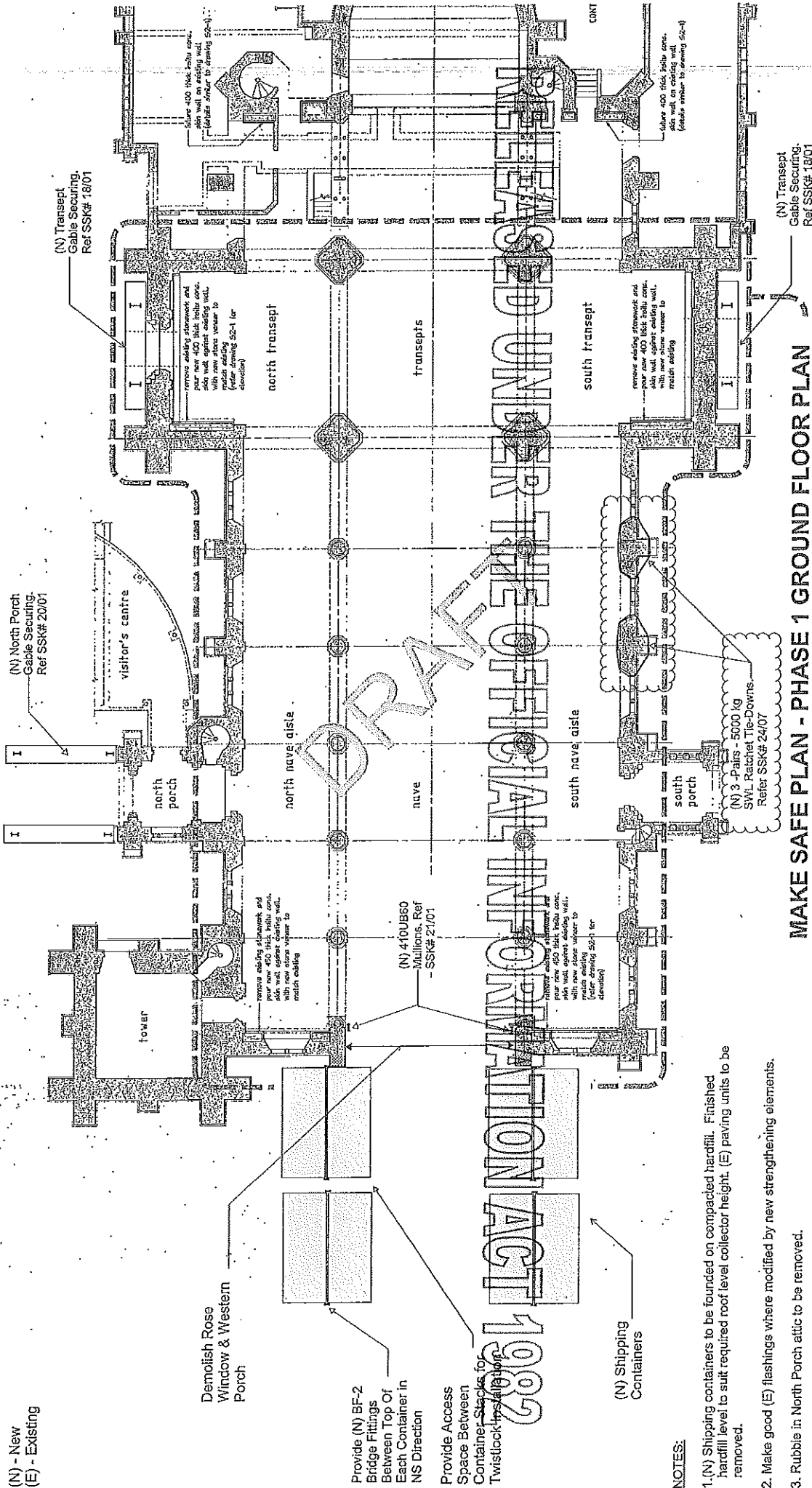
JOB NO.	2948	SHEET NO.	S1-6	REV.	REV
---------	------	-----------	------	------	-----

MAKE SAFE PLAN - PHASE 2 SECTIONS

Withheld under section 9(2)(a)

LEGEND:

- (N) - New
- (E) - Existing



MAKE SAFE PLAN - PHASE 1 GROUND FLOOR PLAN

NOTES:

1. (N) Shipping containers to be founded on compacted hardfill. Finished hardfill level to suit required roof level collector height. (E) paving units to be removed.
2. Make good (E) flashings where modified by new strengthening elements.
3. Rubble in North Porch attic to be removed.



Holmes Consulting Group
STRUCTURAL AND CIVIL ENGINEERS
81 Dundas Street
Christchurch

Project Name: Christchurch Cathedral

Project Number: 12/1220/1

Withheld under section 9(2)(a)

Sheet Number: 39 Rev 4

NO.	DATE	BY	DESCRIPTION
1	12/12/2011	JM	Issue for tender
2	12/12/2011	JM	Issue for tender
3	12/12/2011	JM	Issue for tender

Holmes Consulting Group
STRUCTURAL AND CIVIL ENGINEERS
81 Dundas Street
Christchurch



Project Name: Christchurch Cathedral

Project Number: 12/1220/1

Sheet Number: 39 Rev 4

Project Name: Christchurch Cathedral

Project Number: 12/1220/1

Project Name: Christchurch Cathedral

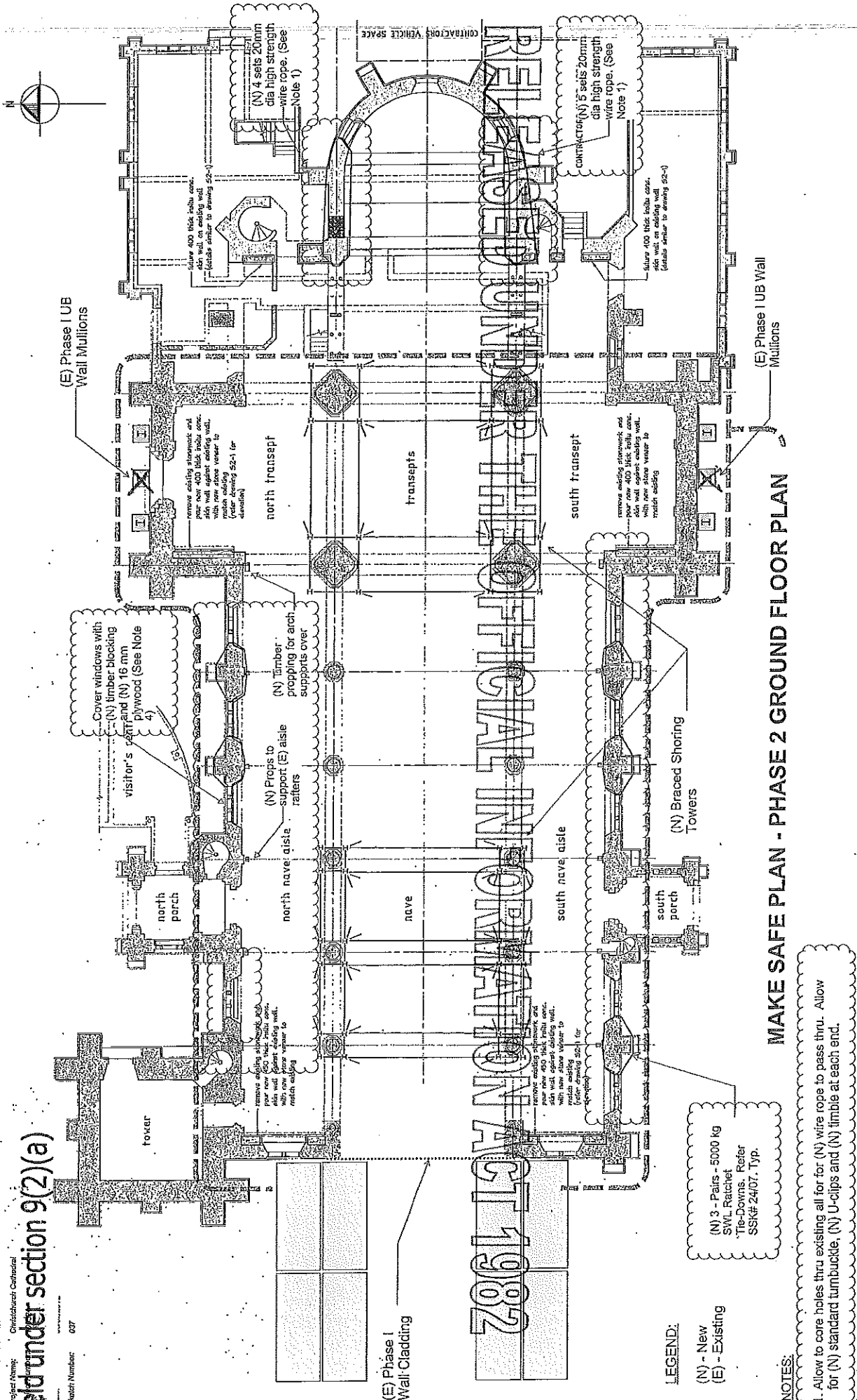


Holmes Consulting Group
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81 Dundas Street
Christchurch

NO.	DATE	BY	DESCRIPTION
1	12/12/2011	JM	Issue for tender
2	12/12/2011	JM	Issue for tender
3	12/12/2011	JM	Issue for tender

Holmes Consulting Group
STRUCTURAL AND CIVIL ENGINEERS
81 Dundas Street
Christchurch

Holmes Consulting Group
STRUCTURAL AND CIVIL ENGINEERS
81 Dundas Street
Christchurch



MAKE SAFE PLAN - PHASE 2 GROUND FLOOR PLAN

LEGEND:
 (N) - New
 (E) - Existing

NOTES:

1. Allow to core holes thru existing all for (N) wire rope to pass thru. Allow for (N) standard turnbuckle, (N) U-clips and (N) timble at each end.
2. Make good (E) flashings where modified by new strengthening elements.
3. (E) Rubble in North Porch attic to be removed.
4. All windows to be covered with (N) 16 mm plywood sheathing and propped with (N) timber blocking
5. Work is to be undertaken progressively from the west end. Safe havens are to be used for the installation of internal works.

19 Group ENGINEERS
 Telephone: 03-359-2100
 Fax: 03-359-2101

Drawn	BS	Scale	1:100
Checked	BS	Author	BS
Disc	BS	Project No.	2948
Date	21/10/07	Sheet No.	S1-1

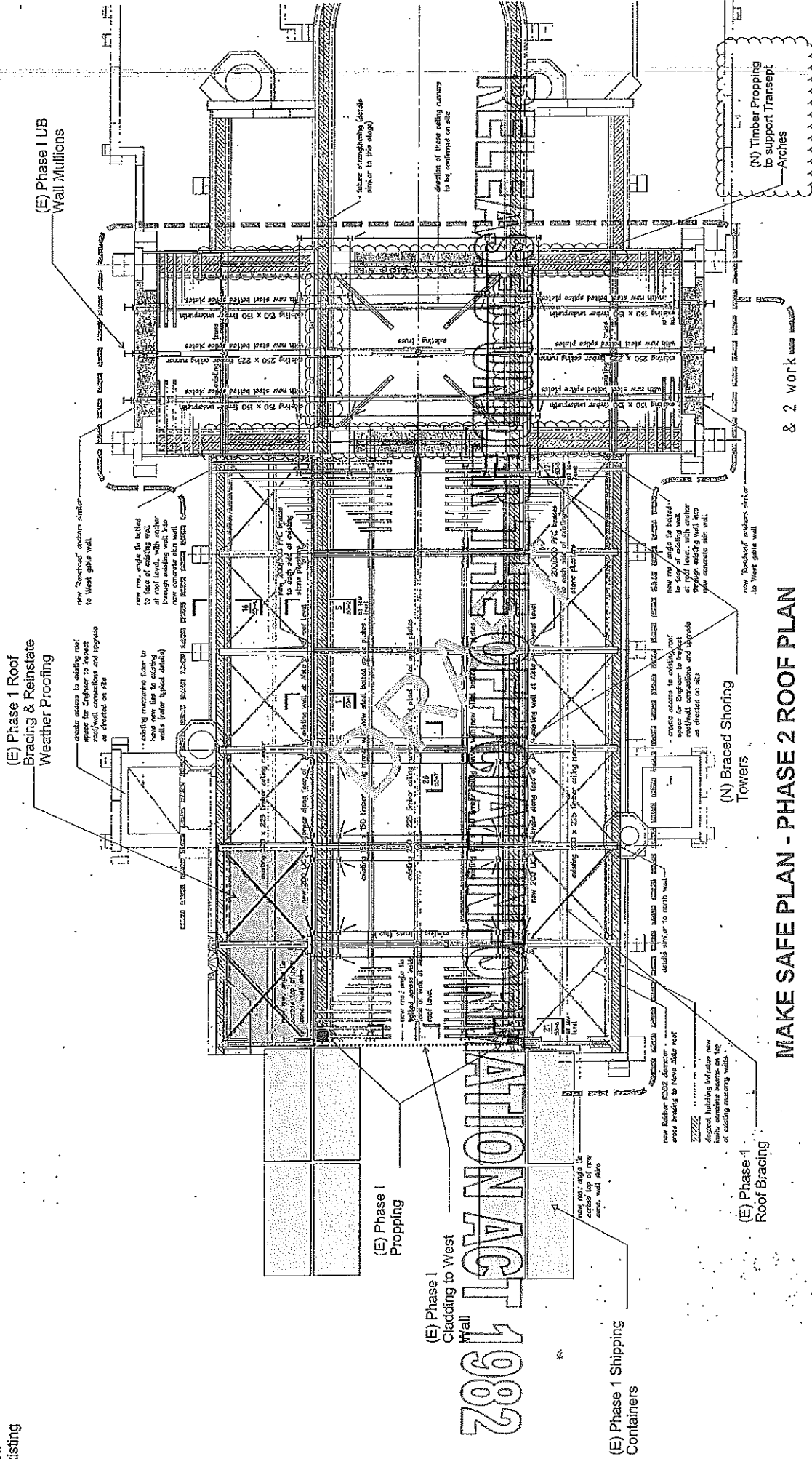
CHRISTCHURCH CATHEDRAL
 STRENGTHENING

ground floor plan
 2948
 S1-1

COMMERCIAL IN CONFIDENCE

LEGEND:

- (N) - New
- (E) - Existing



MAKE SAFE PLAN - PHASE 2 ROOF PLAN

Project Name: Christchurch Cathedral
 Client: Christchurch Cathedral
 Date: 04/1/2011
 Sheet Number: 038

Withheld under section 9(2)(a)

Helmes Consulting Group
 STRUCTURAL AND CIVIL ENGINEERS
 51 Lambton Quay
 Christchurch

Drawn	ES	Scale	1:100
Checked	ES	Project File No.	SH-2
Reviewed	ES	Project Name	Christchurch Cathedral
Approved	ES	Project No.	2948

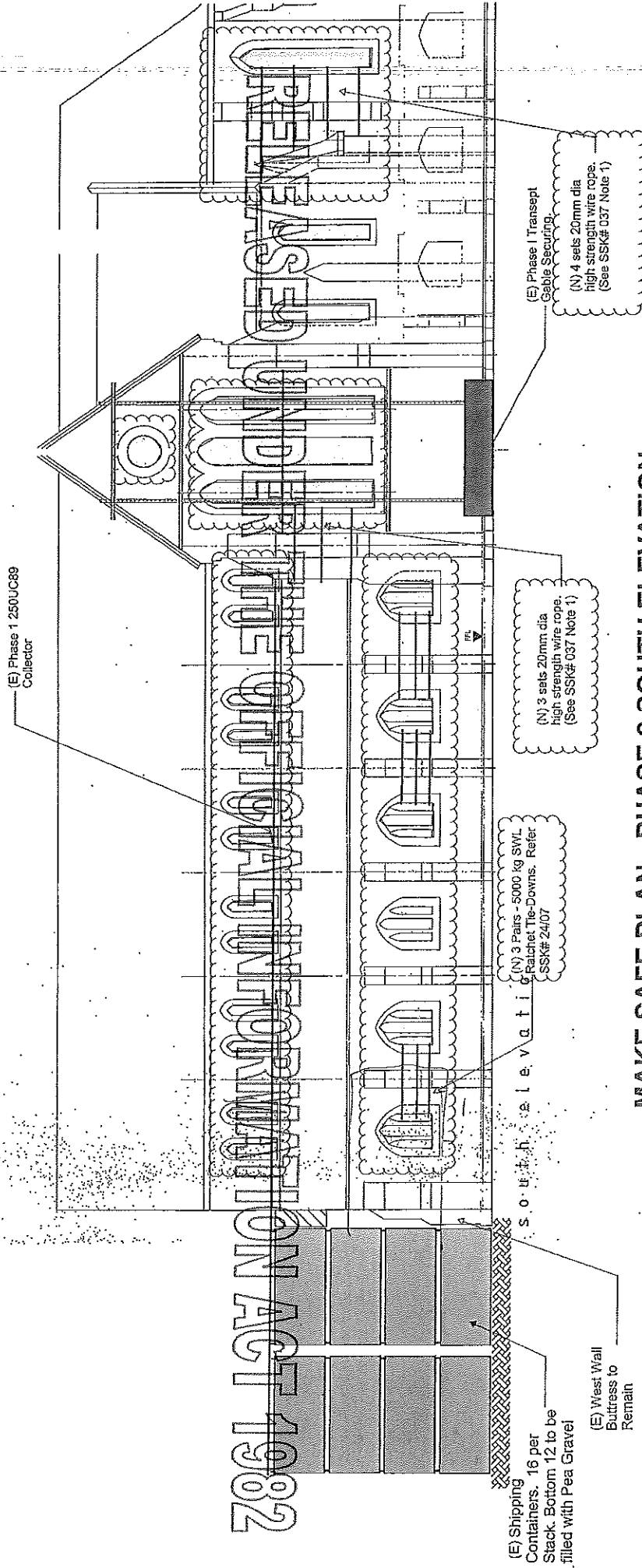
Sheet No. 1
 roof plan
 2948

CHRISTCHURCH CATHEDRAL
 STRENGTHENING

COMMERCIAL IN CONFIDENCE

LEGEND:

- (N) - New
- (E) - Existing



MAKE SAFE PLAN - PHASE 2 SOUTH ELEVATION



Holmes Consulting Group
STRUCTURAL ENGINEERS

Project Name: Chisholm Catholic

Section Number: section 9(2)(a)

Date: 06/02/2012

Sheet Number: 40



Sketch Title: Container Capping frame

SKETCH

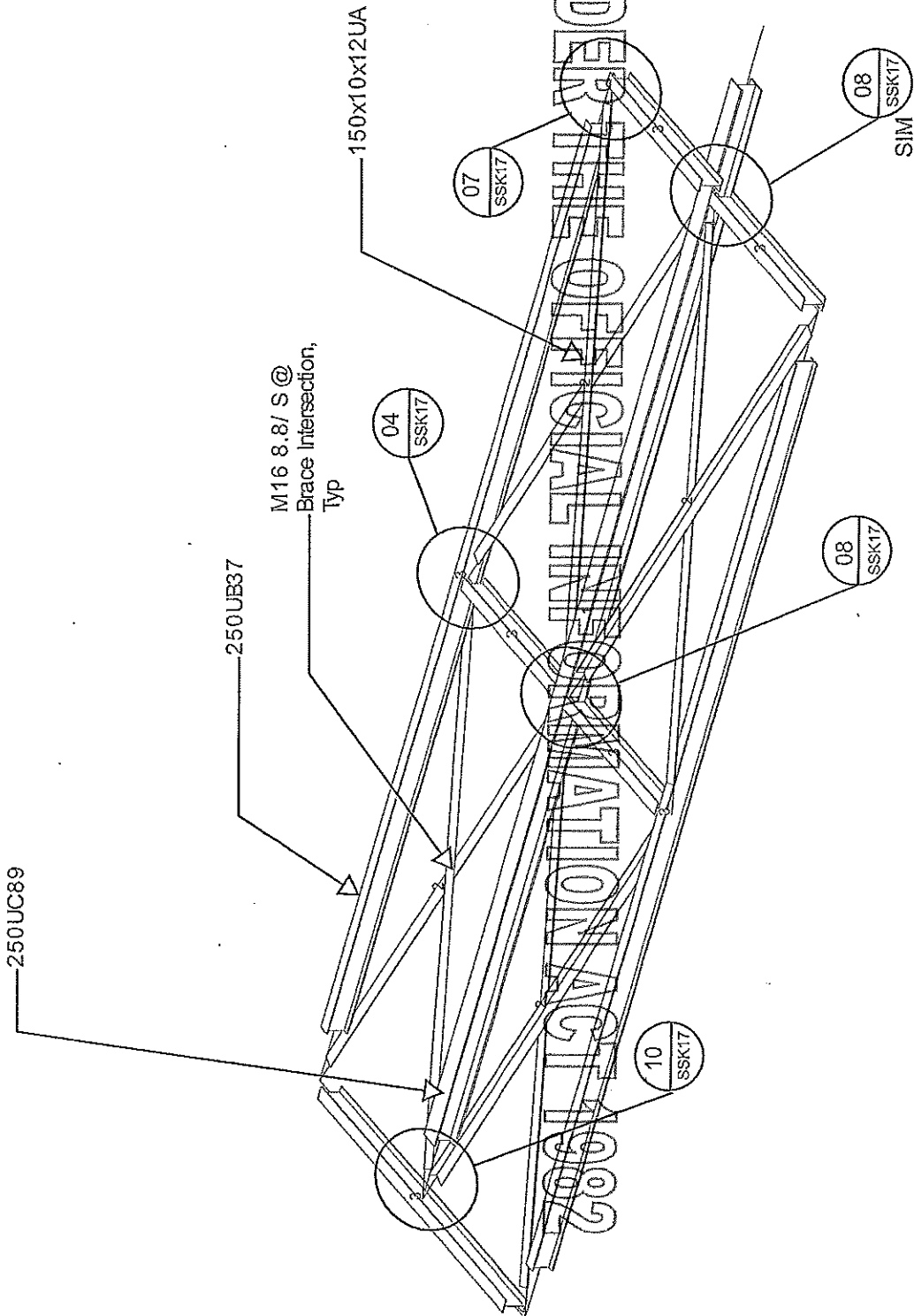
Project Name: Christchurch Cathedral

Project No: 106324

Date: 01/ 12/ 2011

Sketch No: 17/ 01

Rev: 01



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Project Name: CHRISTCHURCH CATHEDRAL

Project No: 108324

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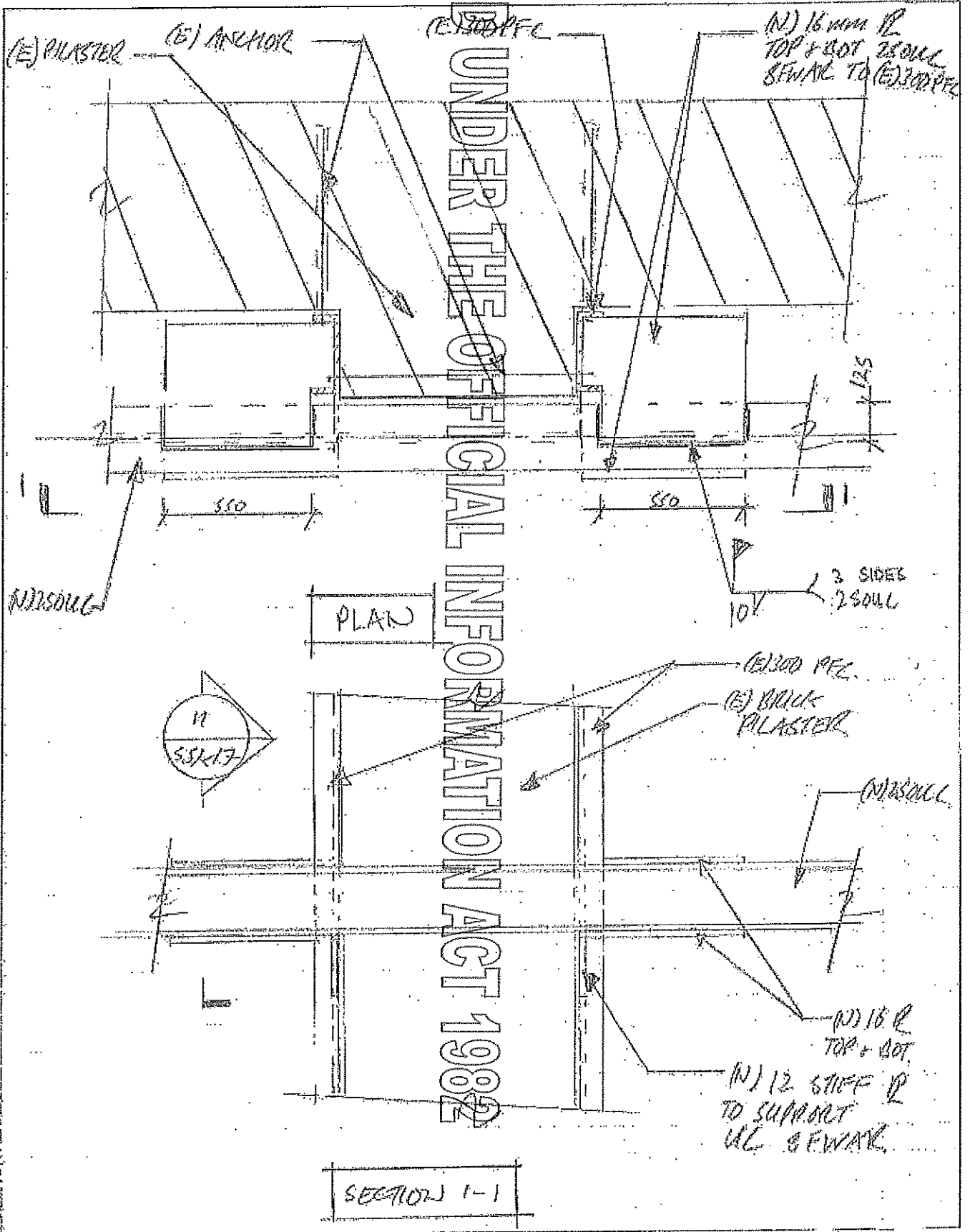
GAUGES/SKETCHES

Date: 01/12/11

Page No:

Sketch No: 17/02

Revision:



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Project Name: *Construction CalMedrol*

Project No: *106324*

Weld under section 9(2)(a)

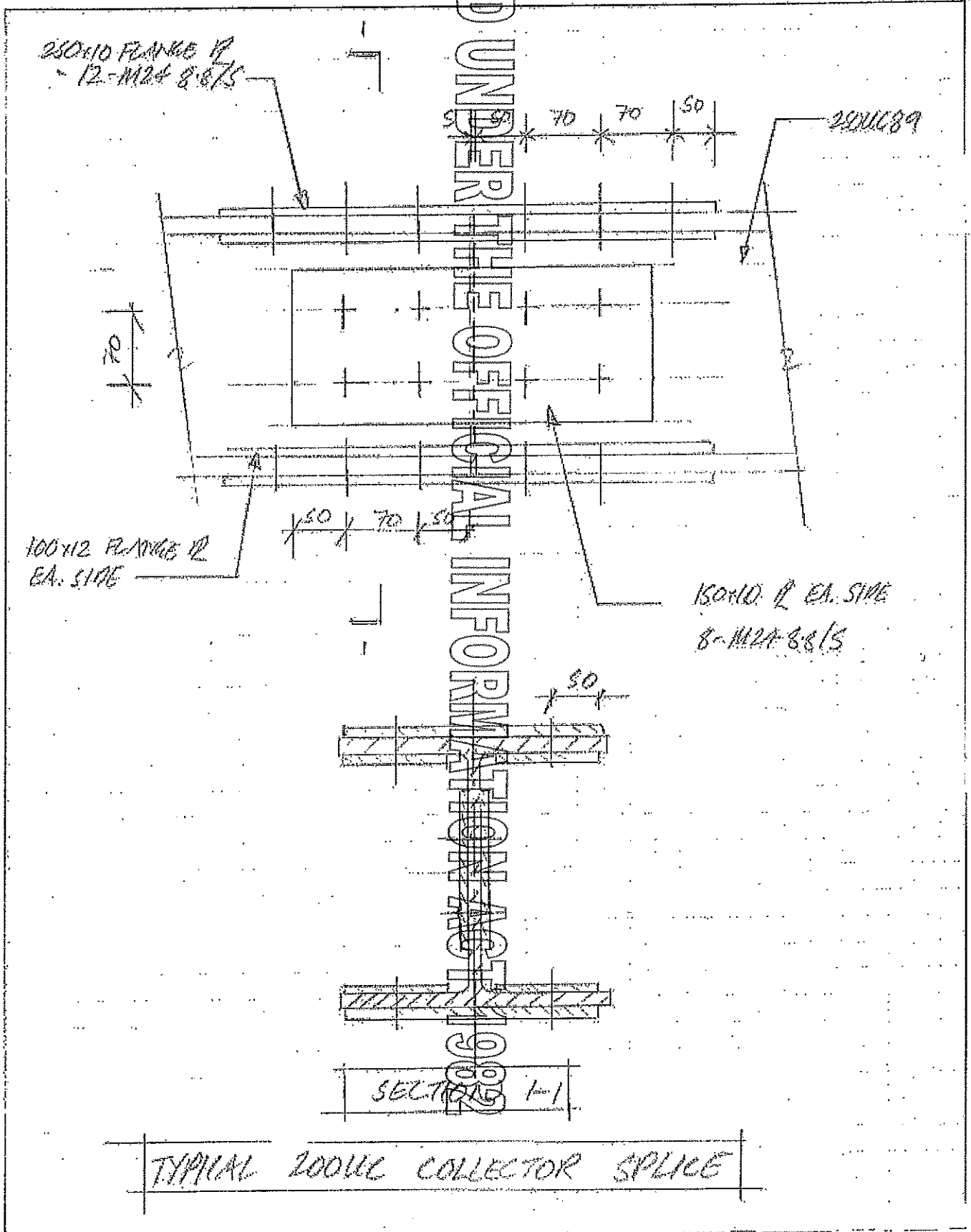
CA. CS/SKETCHES

Date: *2/12/11*

Page No:

Sketch No: *17/03*

Revisions: *1*



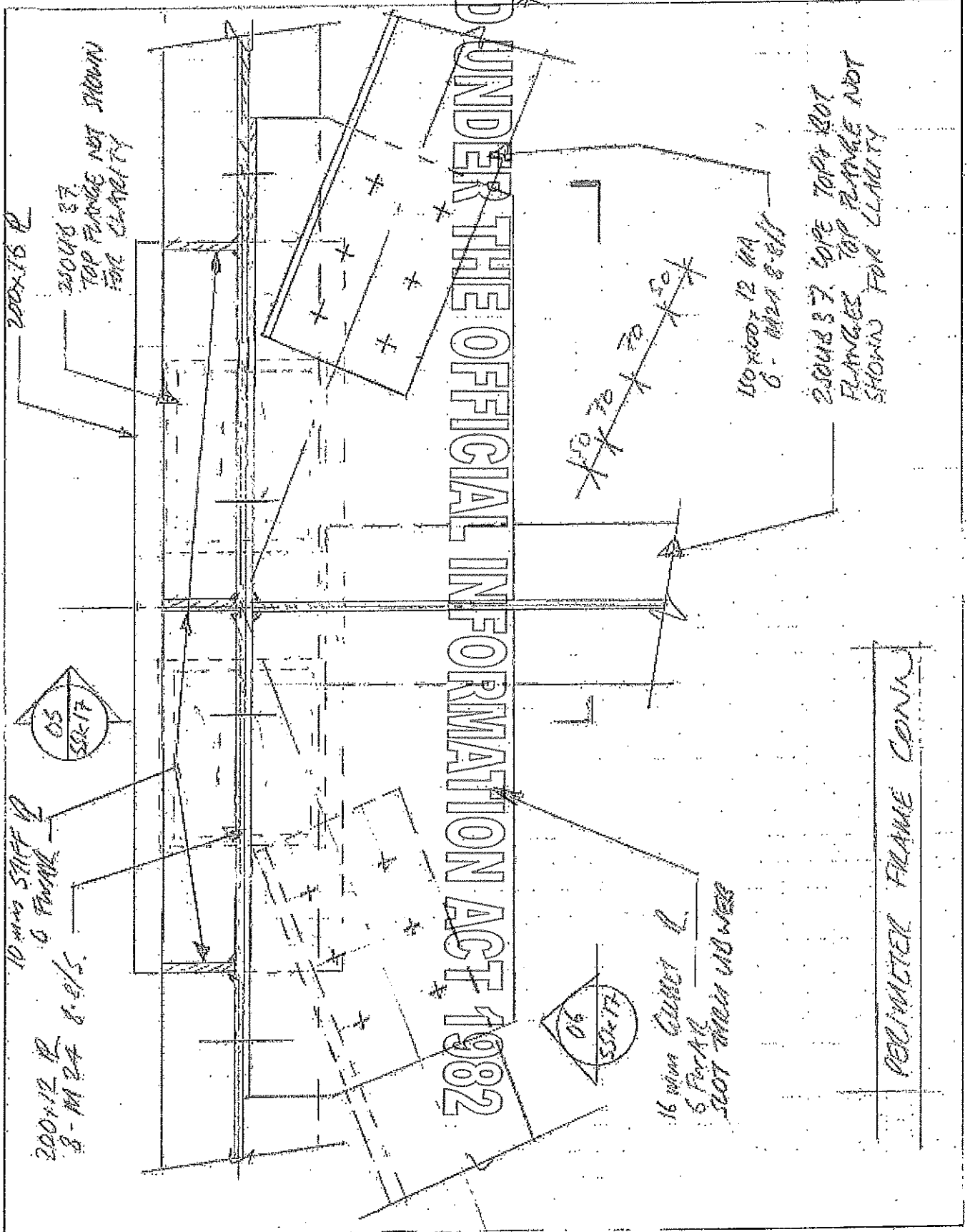


Project Name: *Christchurch Cathedral*
 Project No: *106327*
 Date: *2/10/11*
 Search No: *17/04*

Withheld under section 2(1)(b)

Page No:
 Revision: *1*

CALCS/SKETCHES



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Project Name: *Chastaburda Call Record*

Project No: *106382*

Withheld under section 9(2)(a)

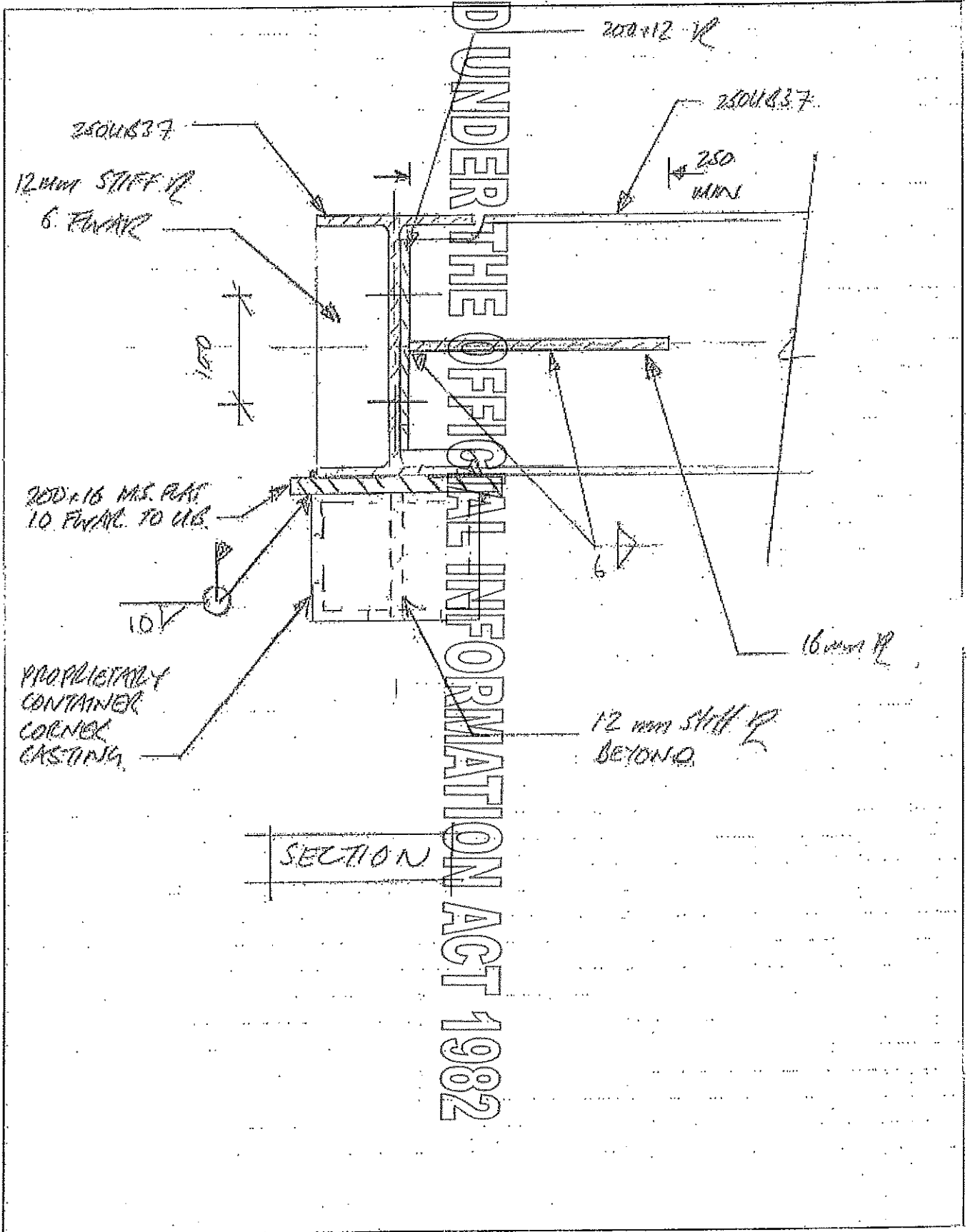
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Date: *2/12/11*

Page No:

Sketch No: *17/05*

Revision: *1*





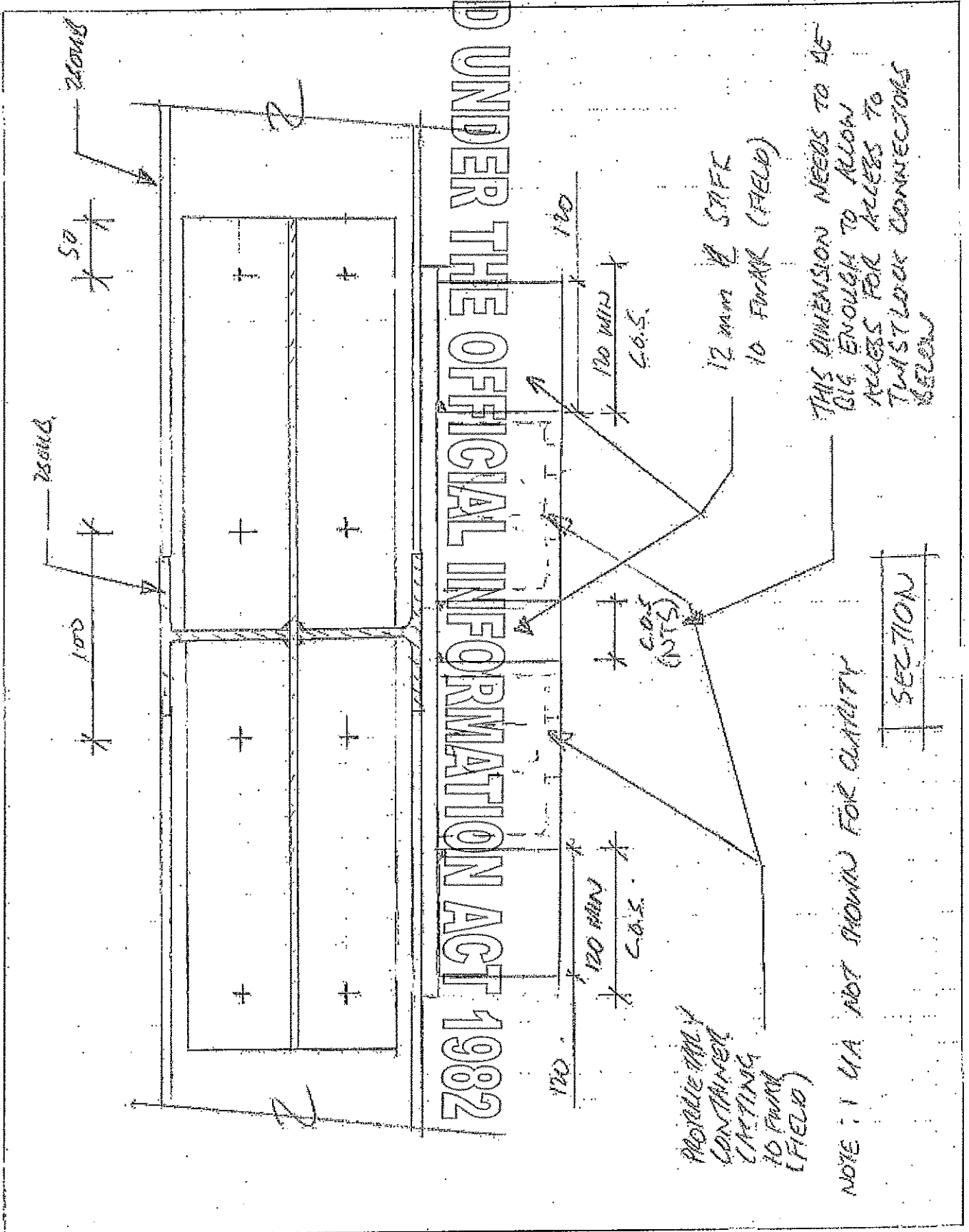
Project Name: *Christ Church Cathedral*
 Project No: *10632*
 Date: *2/12/11*
 Sheet No: *17/06*

Withheld under section 4(1)(a)

Page No:
 Revisor: *1*

CALCS/SKETCHES

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THIS DIMENSION NEEDS TO BE
 BIG ENOUGH TO ALLOW
 ACCESS FOR ACCESS TO
 TWIST LOCK CONNECTIONS
 BELOW

NOTE: 1 U/A NOT SHOWN FOR CLARITY

SECTION

PROVIDE TIMBER
 CONTAINER
 CAPPING
 TO FORM
 (FIELD)

12mm Ø STAFF
 TO FORM (FIELD)

120 MIN
 C.O.S.

C.O.S.
 (NTS)

Isolated

0.5

1001

120

120 MIN
C.O.S.

Project Name: *Christchurch Central*

Project No: *106324*

Withheld under section 9(2)(a)

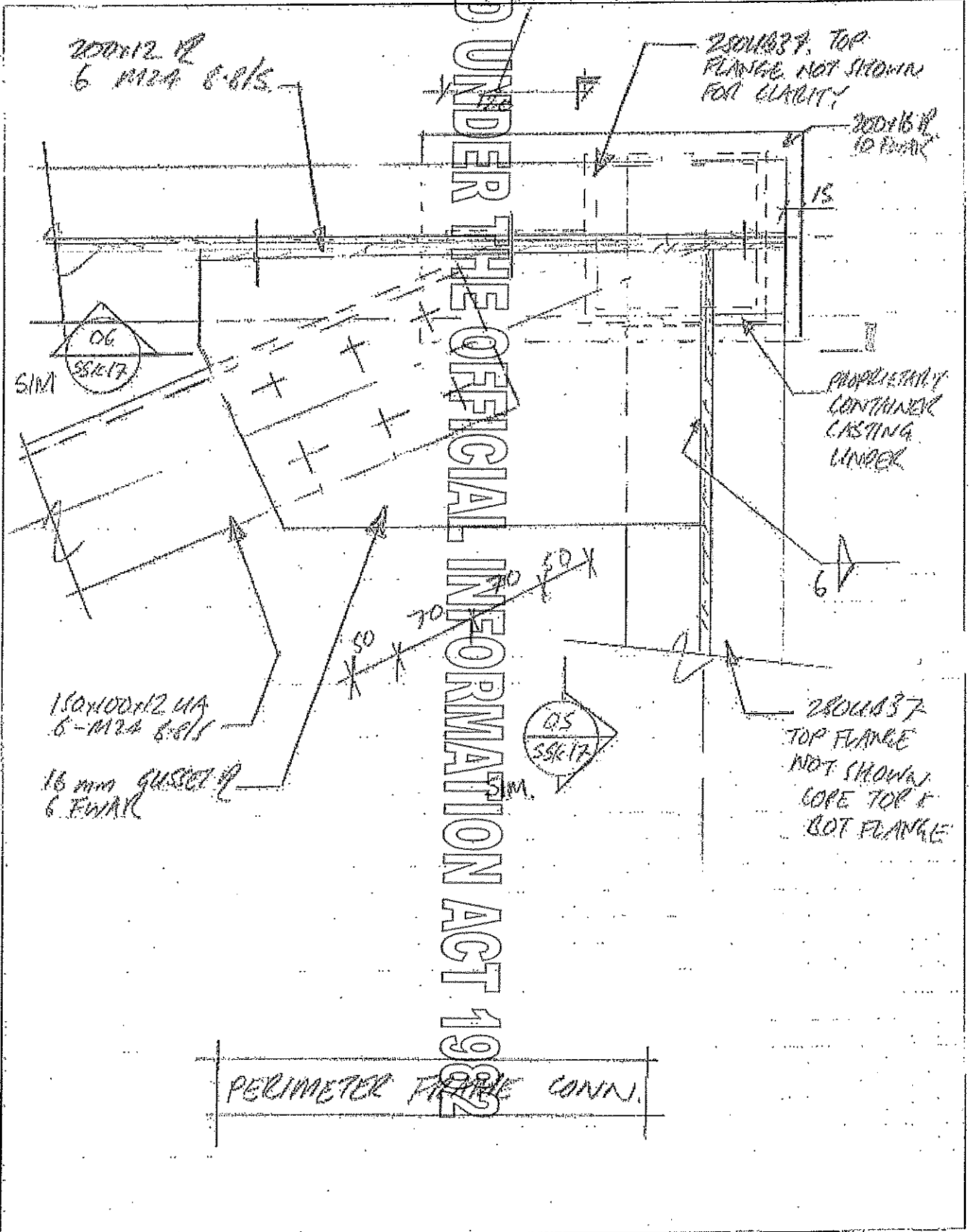
CALC'S/SKETCHES

Date: *2/12/11*

Page No:

Sheet No: *17/07*

Revision: *1*



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Project Name: *Christ Church Cathedral*

Withheld under section 9(2)(a)

Drawn By: *[Signature]*

Date: *2/12/11*

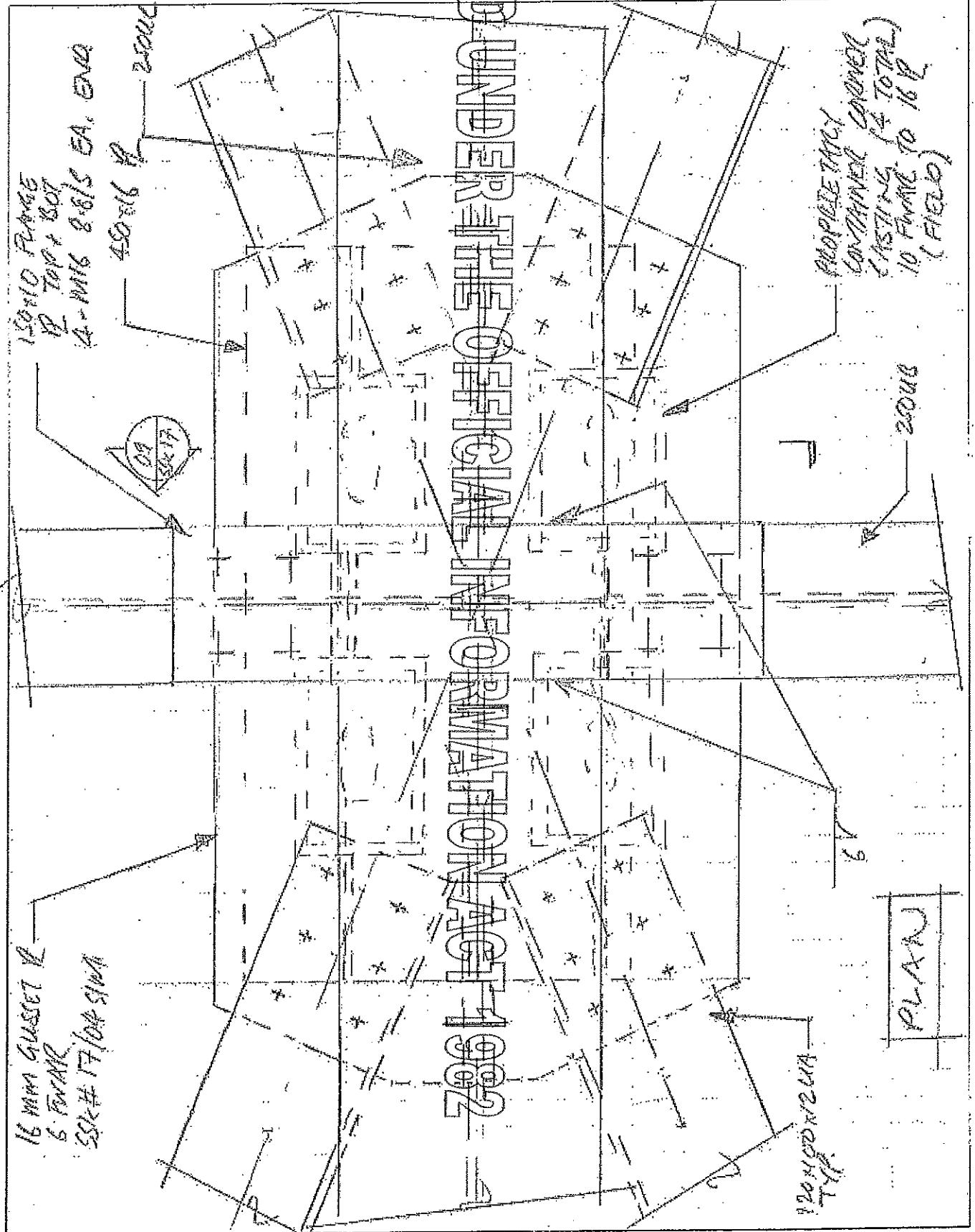
Sketch No: *17/08*

Page No:

Revision:

CALCS/SKETCHES

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PLAN



Project Name: *Christiana Cathedral*

Withheld under section 9(2)(a)

Calcs By:

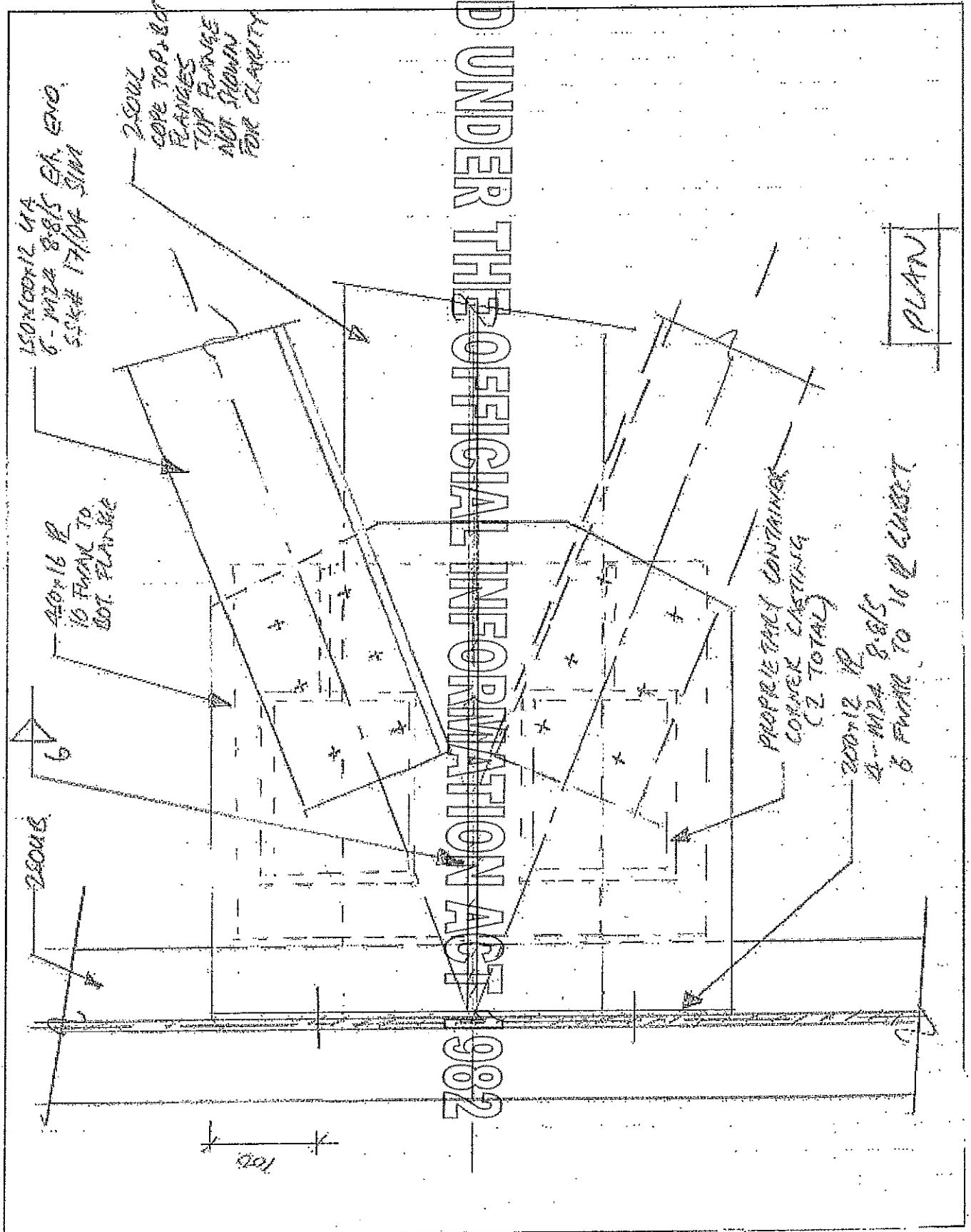
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Sketch No: *17/10*

Page No:

Revision:

0 A L C S / S K E T C H S



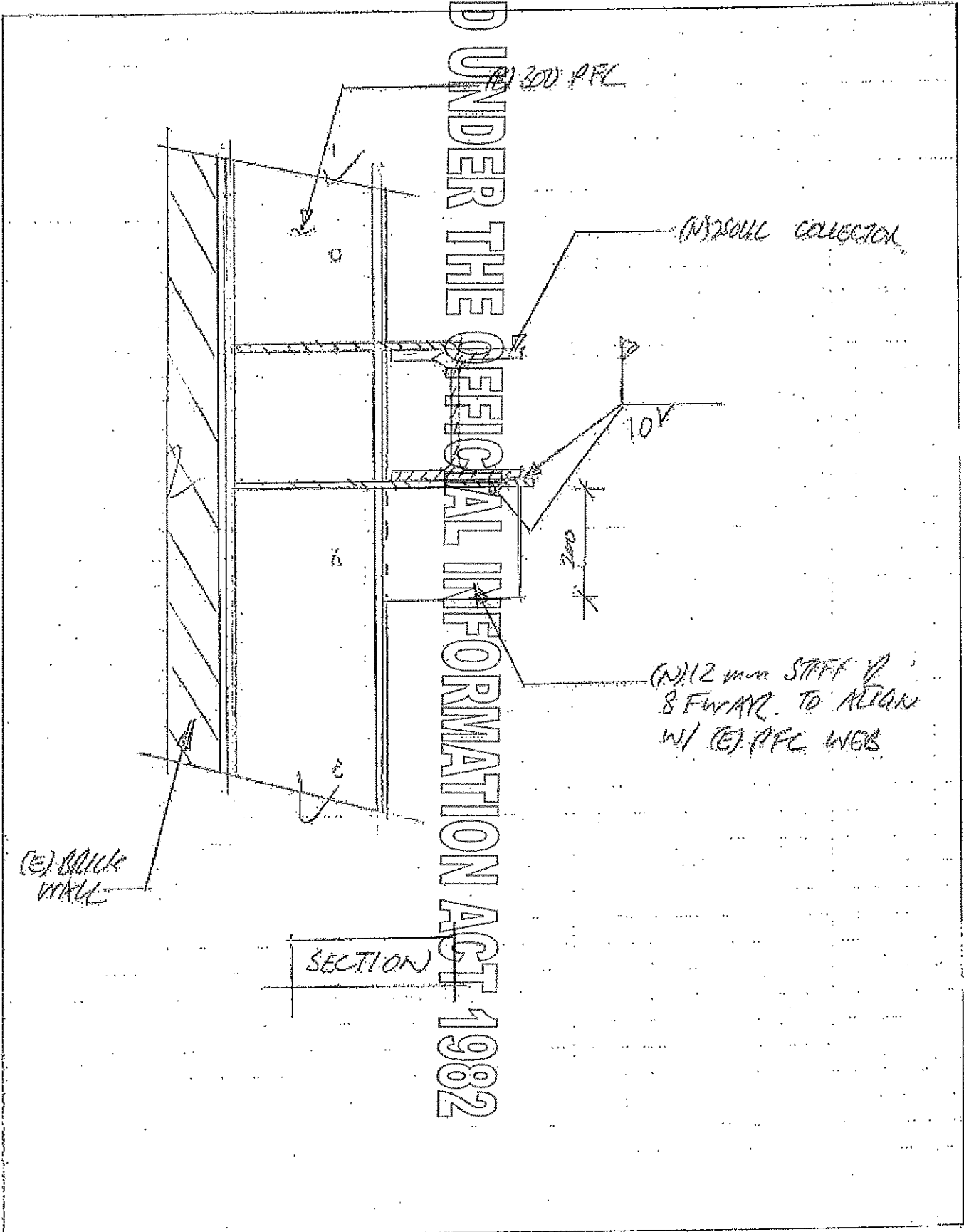


Project No: *Christchurch Cathedral*
Project No: *108324*
Withheld under section 9(2)(a)

CALCS/SKETCHES

Date: *6/12/11* Page No:
Sketch No: *17/11* Revisions:

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Project Name: *Christchurch Cathedral*

Project No: *106324*

Withheld under section 9(2)(a)

Drawn By: *6/12/11*

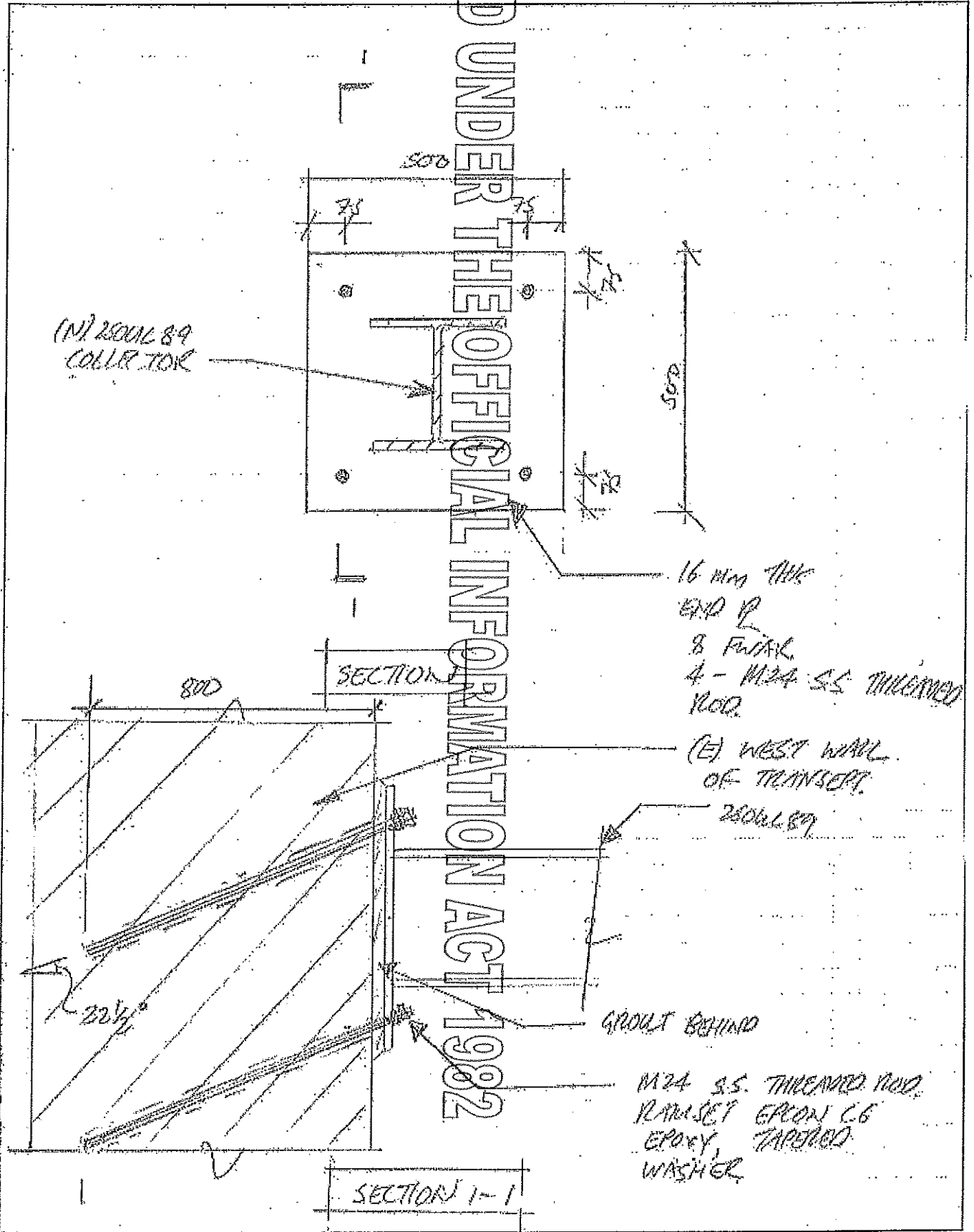
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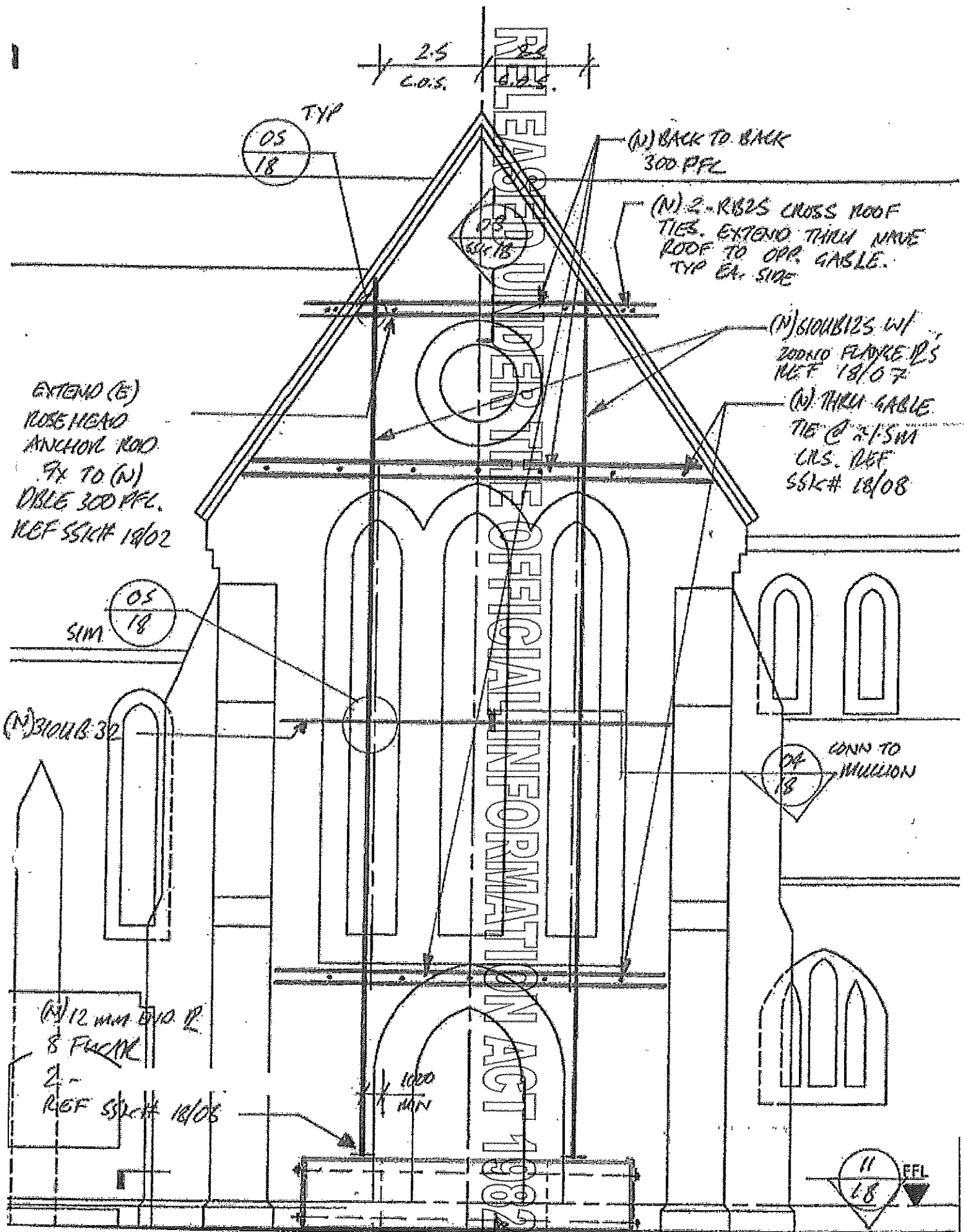
Sketch No: *17/117*

Revision:

CALCS/SKETCHES

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Title: TRANSAPT CABLE SECURING
 Job Name: CHRISTCHURCH CATHEDRAL
 Job #: 106324 SSK#: 18/01
 Date: 7/10/11 Rev: 1

(N) 1.5x1.5x7.0m PRECAST CONC. BLOCK ANCHOR. CAST IN SECTIONS & FIX TOGETHER W/ A-RB32

Hillier-Smith Group



Project Name: CHRISTMAS CATHEDRAL

Withheld under section 9(2)(a)

Drawn by: 106324

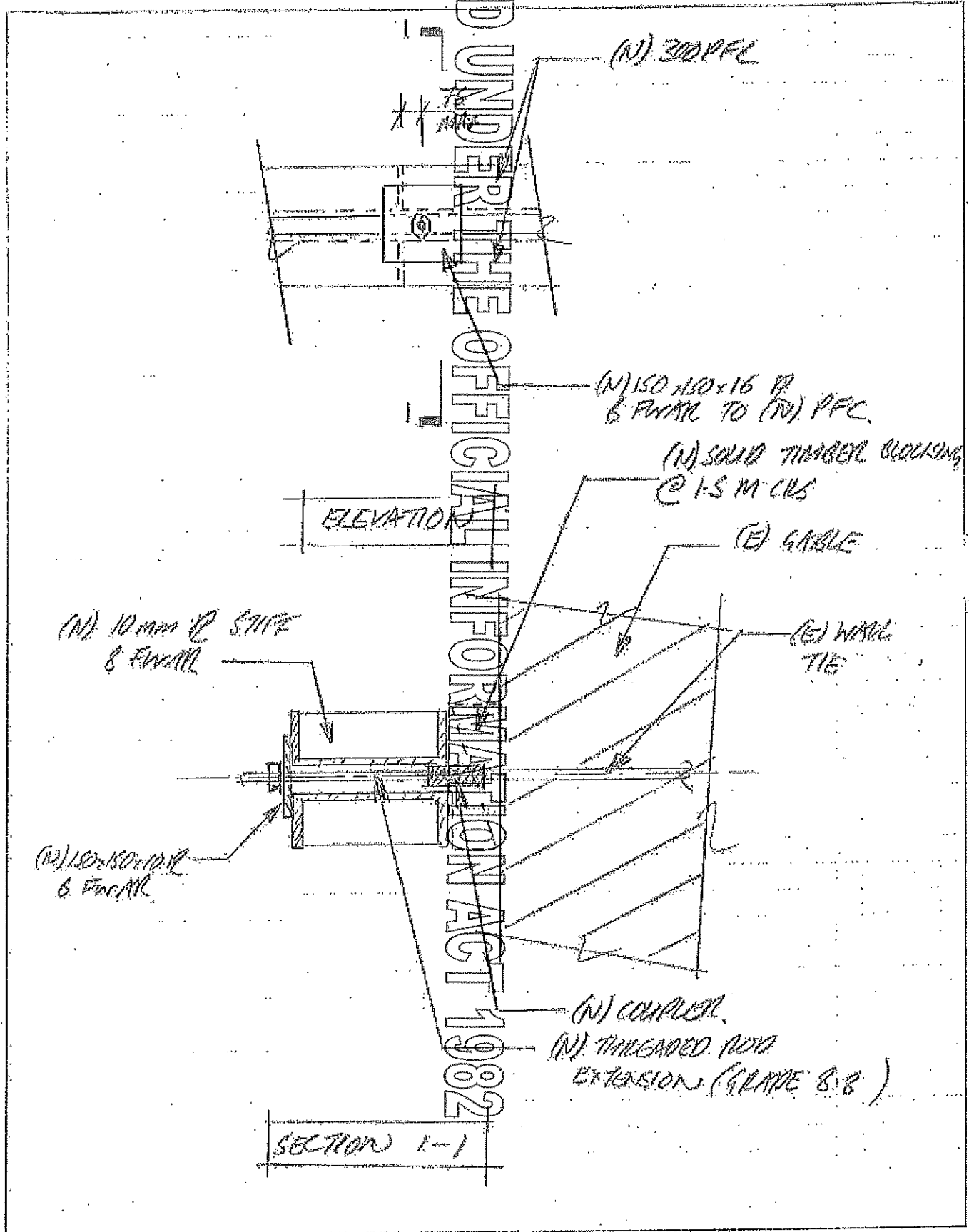
Date: 8/12/11

Sketch No: 18/10/2

Page No:

Revision:

CALCS/SKETCHES





Project Name: *CASH LA MEDICAL*

Project No: *108324*

Withheld under section 90(2)(u)

Calcs By: *[Signature]*

Date: *8/12/11*

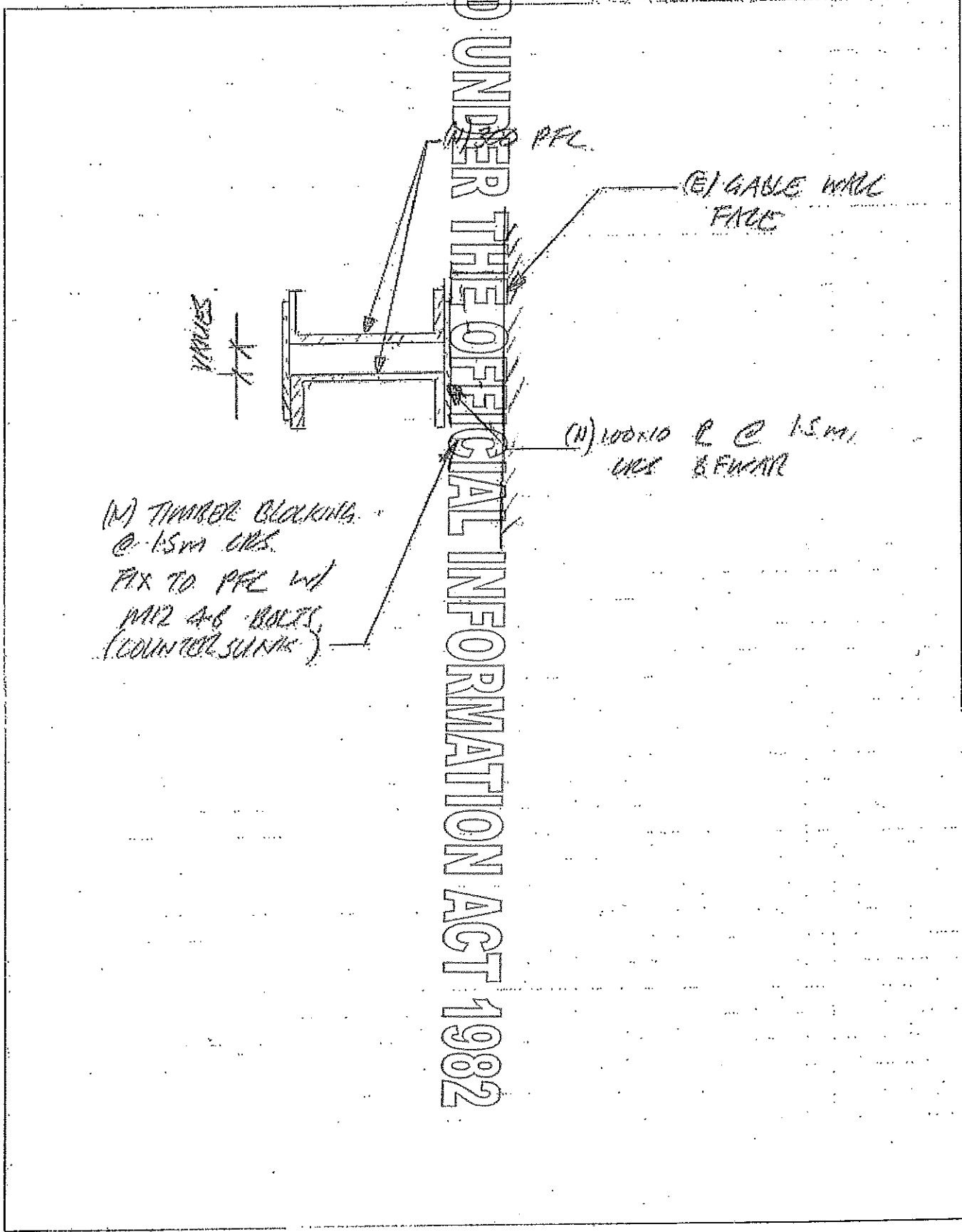
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Sketch No: *18/03*

Rev'd by: *[Signature]*

CALCS/SKETCHES

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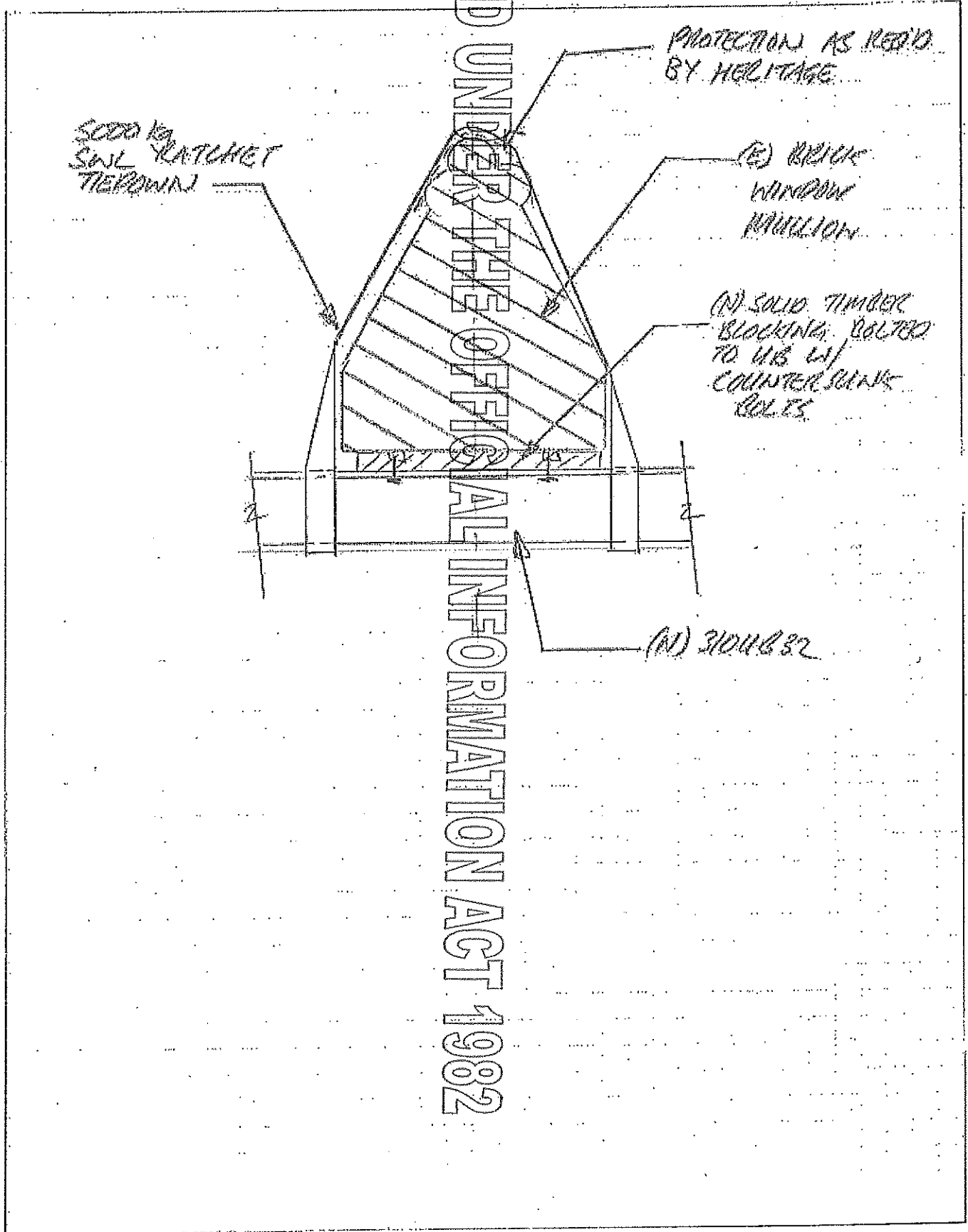


Project Name: *CHCH CATHEDRAL*
 Project No: *10031*
 City: *Wellington*
 Date: *8/12/11*
 Section No: *18/04*

Withheld under section 9(2)(a)

CALCS/SKETCHES

Page No:
 Revision: *1*





Project Name: CHCH CATHEDRAL

Project No: 108314

Withheld under section 9(2)(a)

Drawn by:

Date: 8/12/11

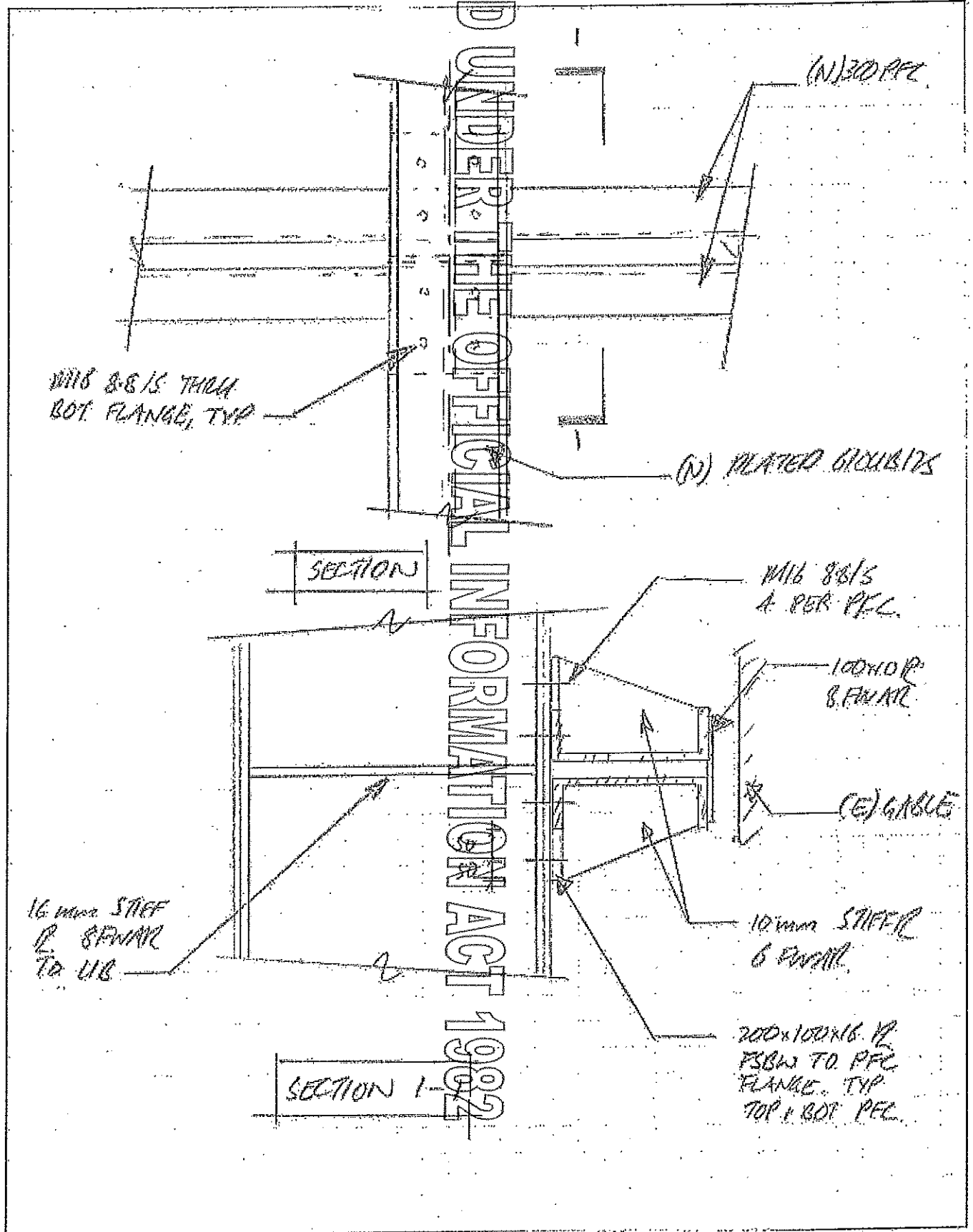
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Sketch No:

18/05

Revision:

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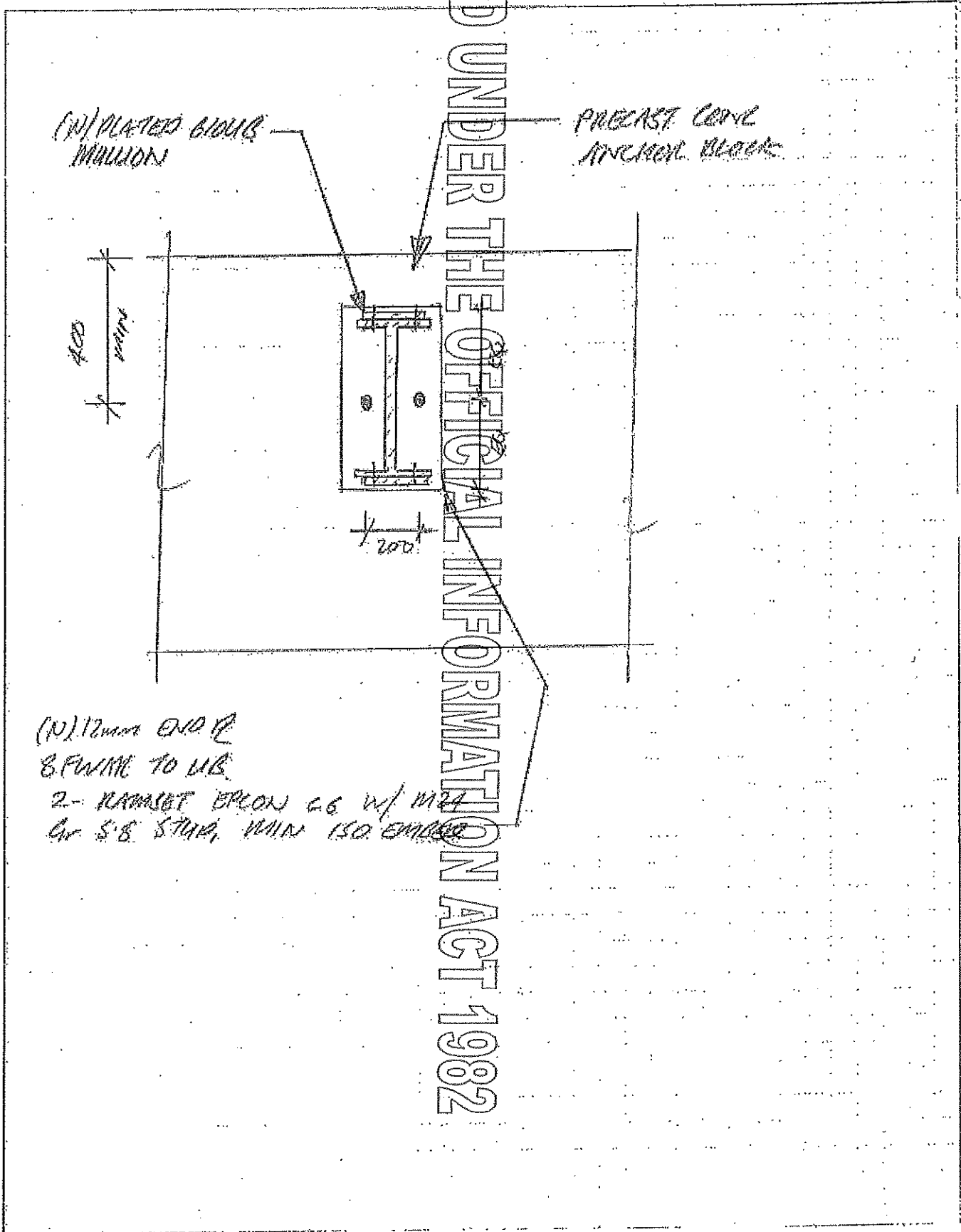


Project Name: *CHCH CAMPBELL*
 Project No: *10832*
 Drawn by: *[Signature]*
 Date: *8/12/11*
 Sketch No: *18/08*

CALCS/SKETCHES

Page No:
Revision:

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Project Name: *CHCH CATHEDRAL*

Project No: *100322*

Withheld under section 9(2)(a)

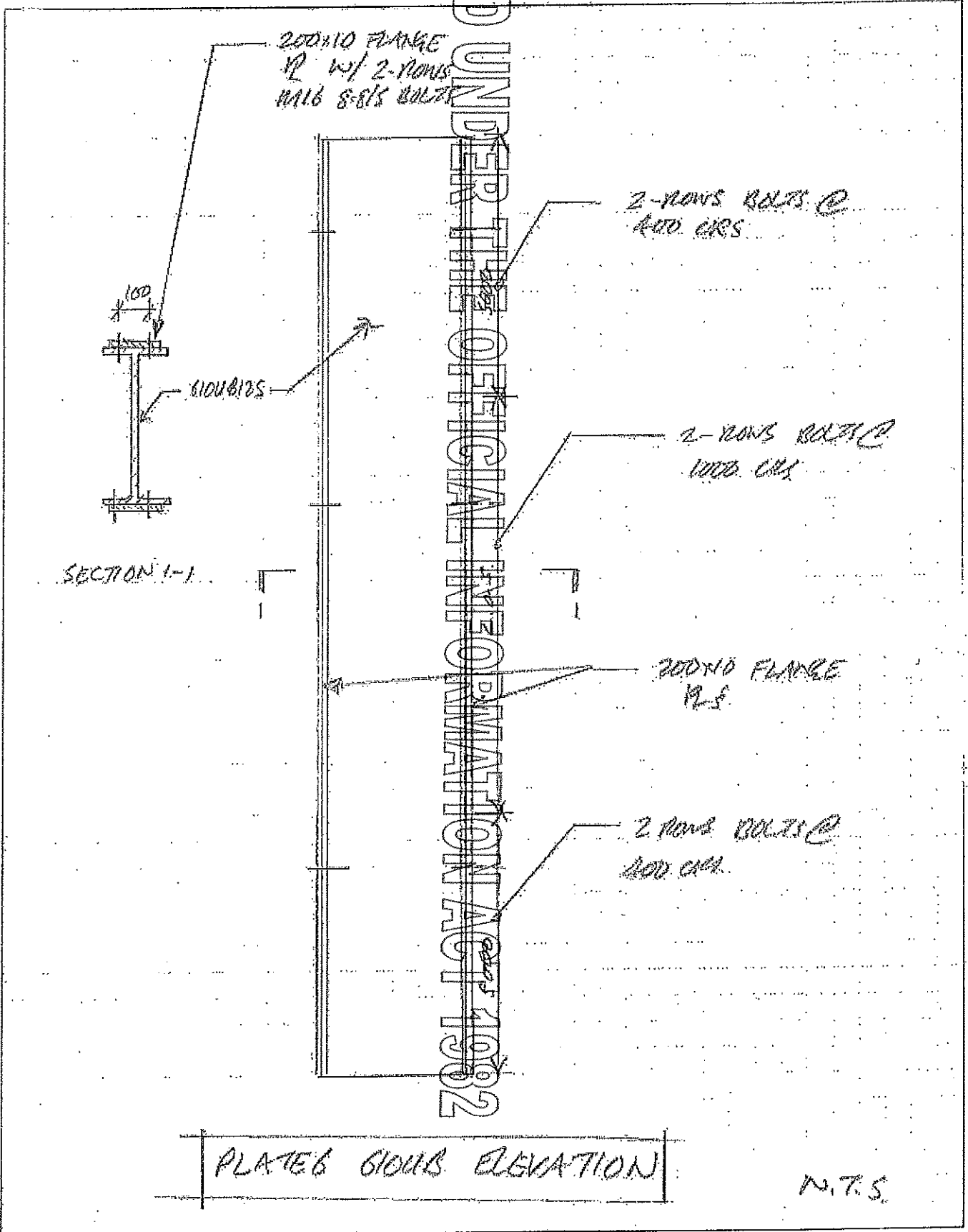
CALCS/SKETCHES

Date: *8/12/11*

Page No:

Sketch No: *18/07*

Revision:





Project Name: *CHICK GARDEN PL*

Project No: *10634*

Withheld under section 9(2)(a)

CALCS/SKETCHES

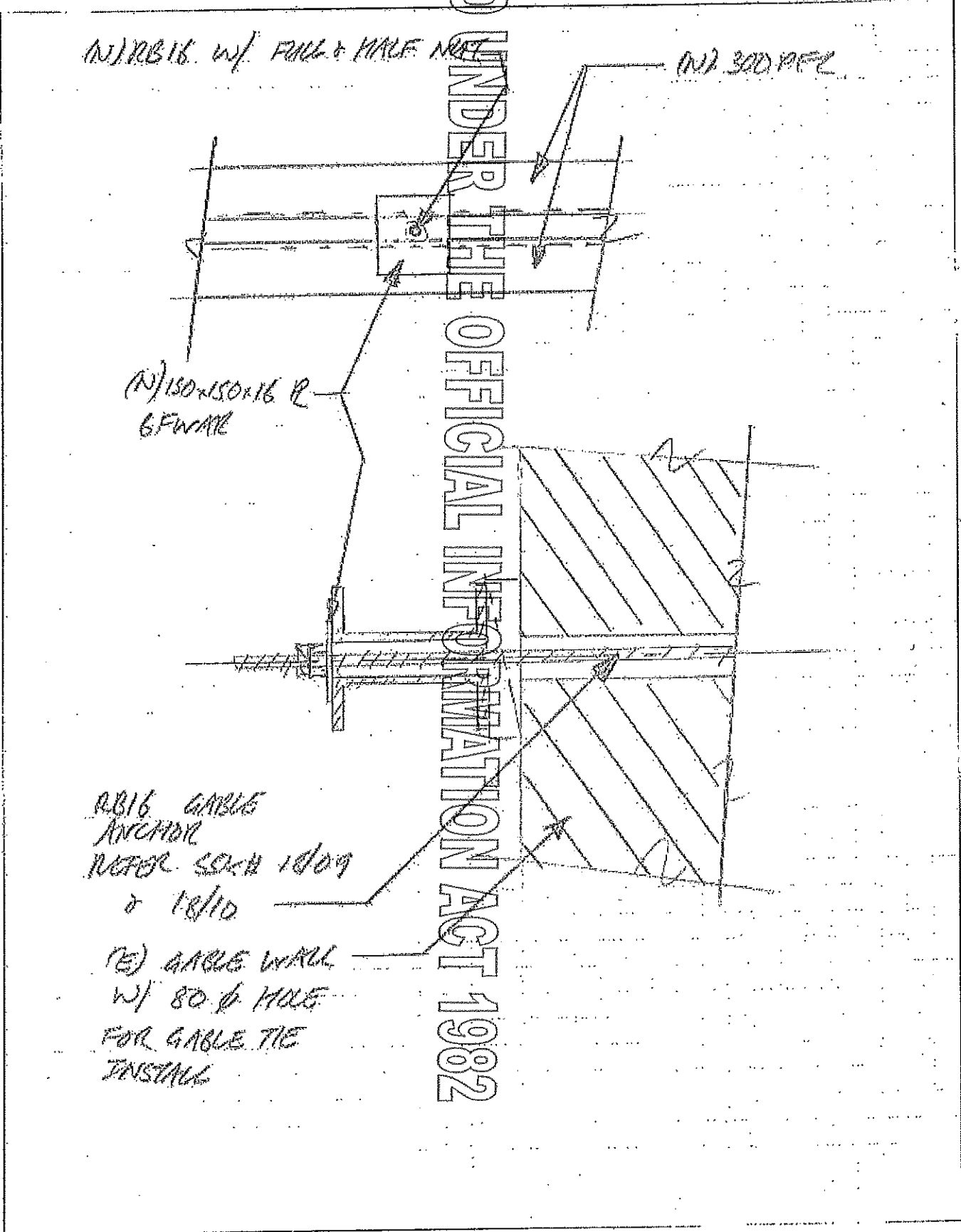
Date: *8/11/12*

Page No:

Store No: *18/08*

Revision: *1*

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Project Name: Great Hall Crable Tie

Withheld under section 9(1)(b)

Calcs By: -

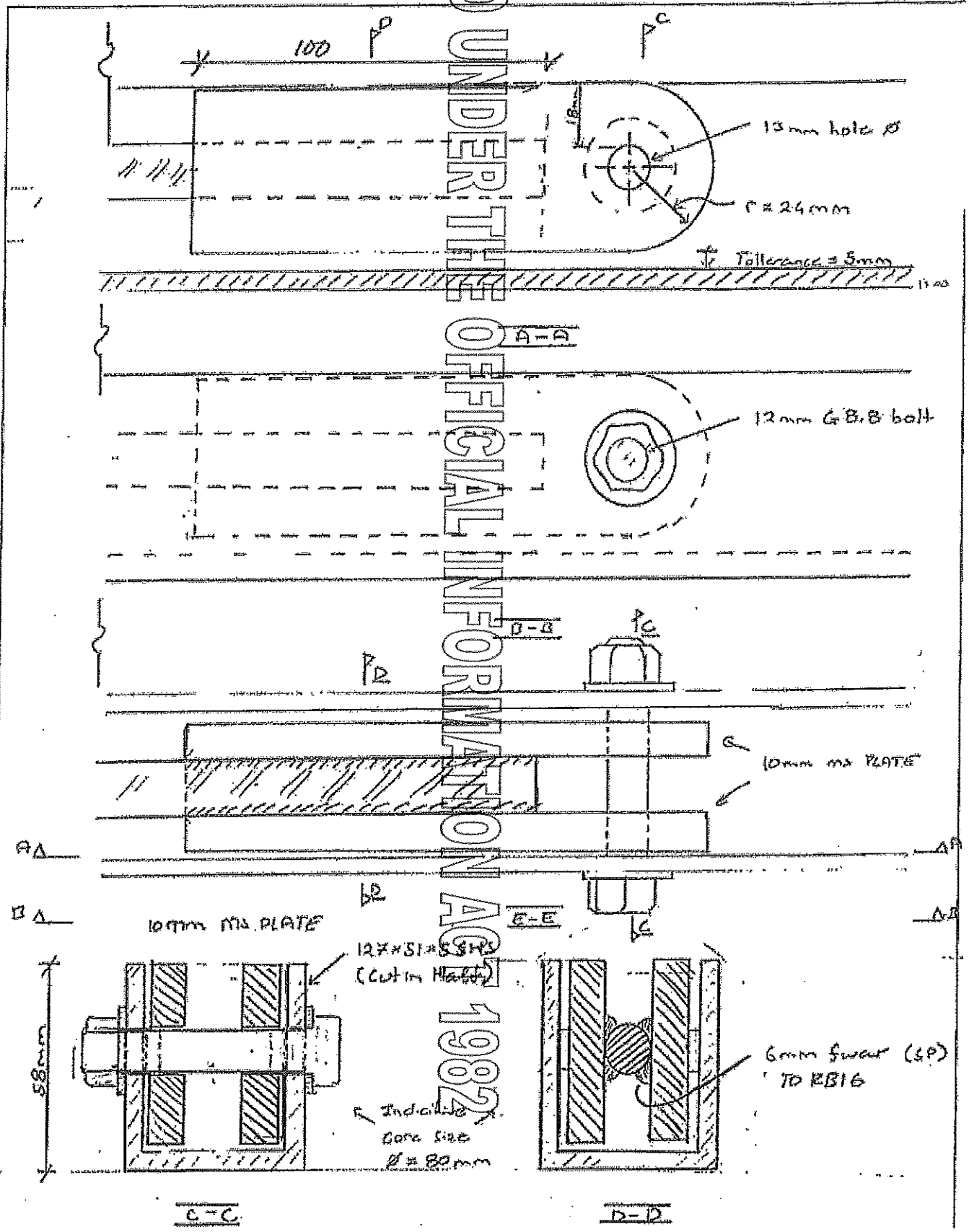
CALCS/SKETCHES

Date: 22-6-11

Page No:

Sketch No: 18/09

Revision: 1





Project Name: Grand Hall Gable Tie

Project No: 1063415 (2) (3)

Withheld under section 9(2)(a)

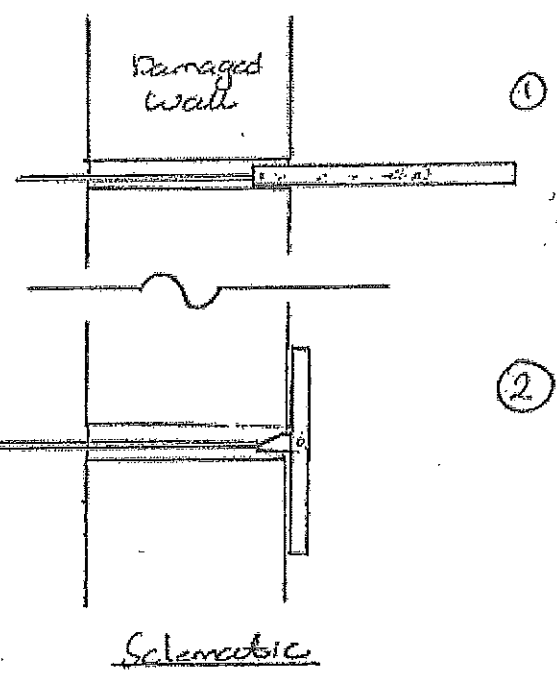
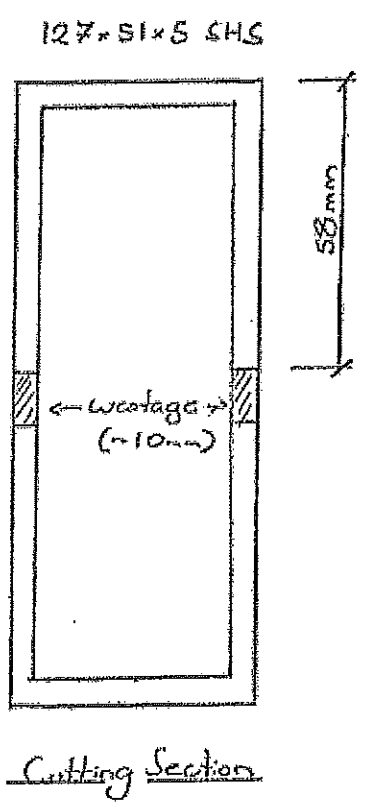
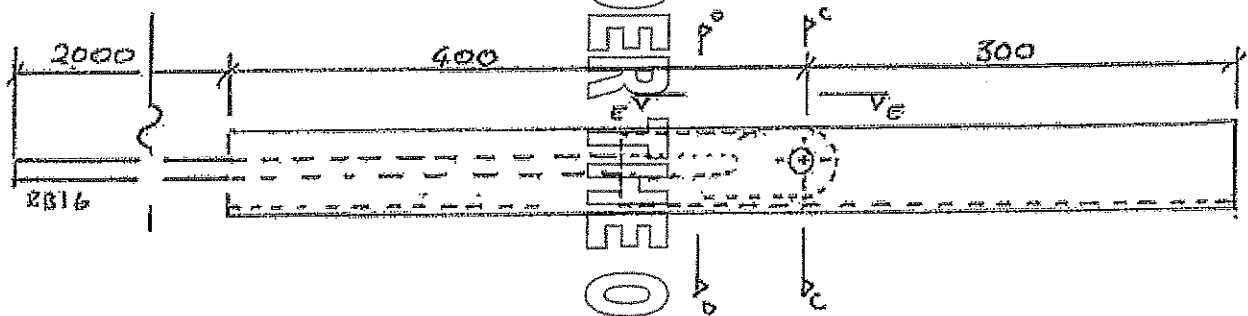
Date: 22-6-11

Page No:

Sketch No: 18/10

Revision: 1

CALCS/SKETCHES



- All welds SP
- All bolts G8.8
- Do not seabe

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Project Name:

CHCA LA MENDOC

Project No:

108374

Withheld under section 9(2)(a)

Date:

8/12/11

Page No:

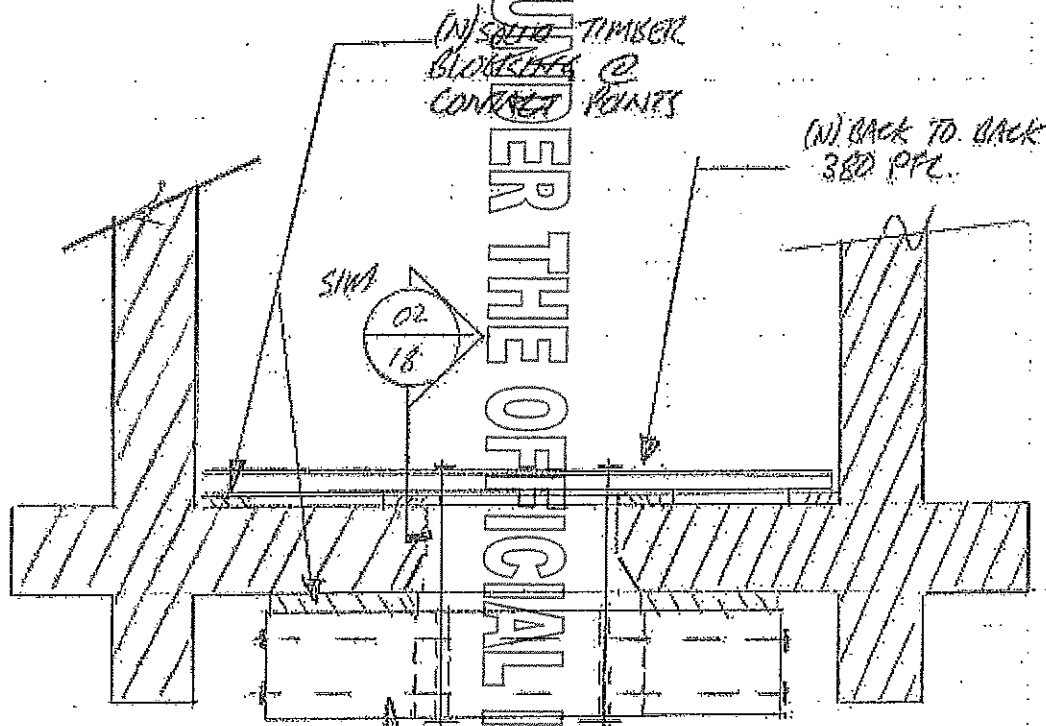
Sheet No:

18/11

Revision:

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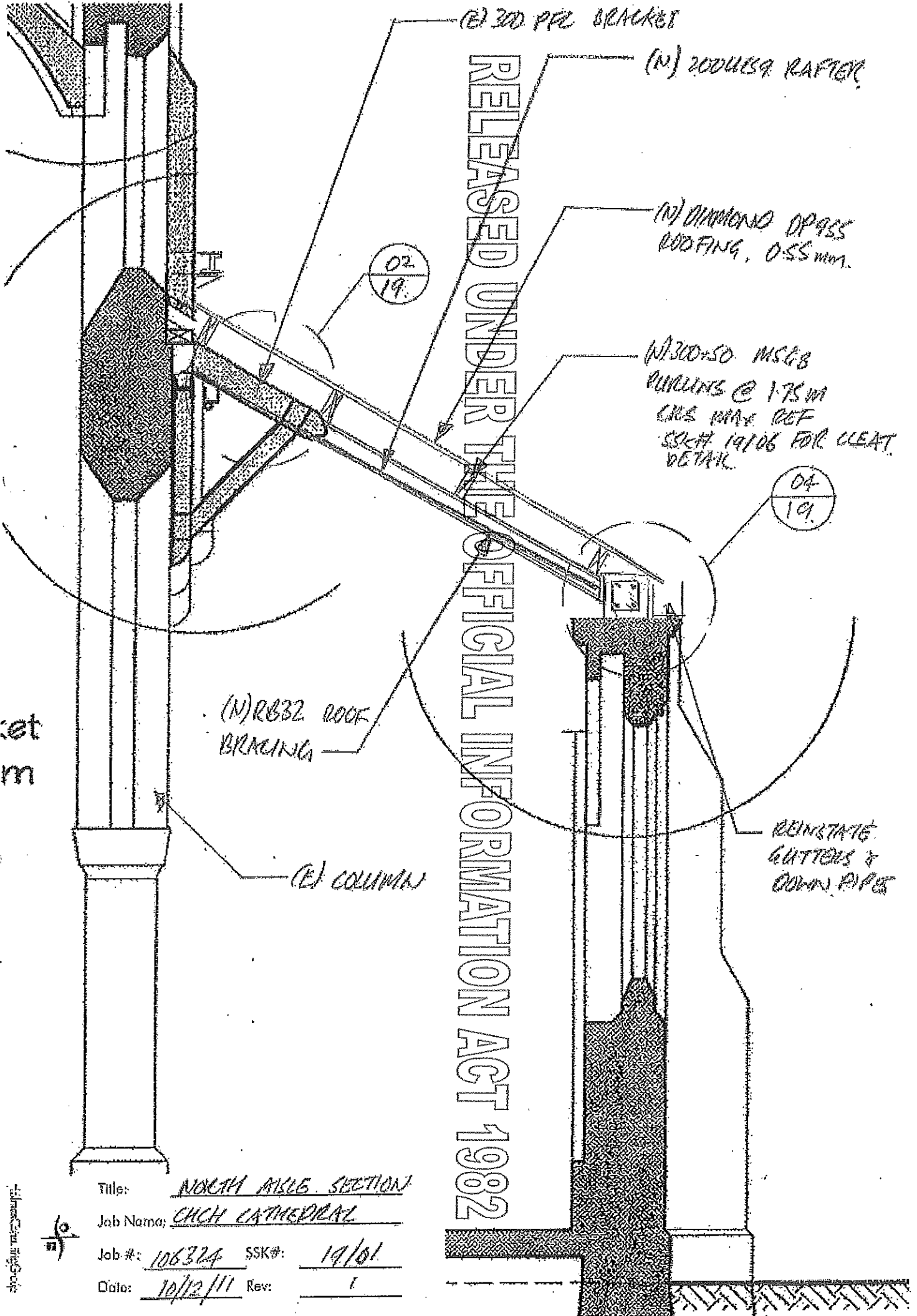
CALCS/SKETCHES



15x15x70
 CONCL ANCHOR
 BLOCK REMOVE
 (E) PAVERS &
 PLACES ON COMPACTED
 HARD FILL

(N) REBDS THRU TIES
 W/ 150x150x16 PL &
 FULL & HALF NUT EA. END.
 PROVIDE 40mm DUCT
 THRU PRECAST.

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(E) 300 PFL BRACKET

(N) 200x150 RAFTER

02
19

(N) DIAMOND DP455
ROOFING, 0.55mm.

(N) 300x50 MS&B
PURLINS @ 175mm
C/S WAVE REF
SSK# 19106 FOR CLEAT
DETAIL

04
19

(N) R332 ROOF
BRACING

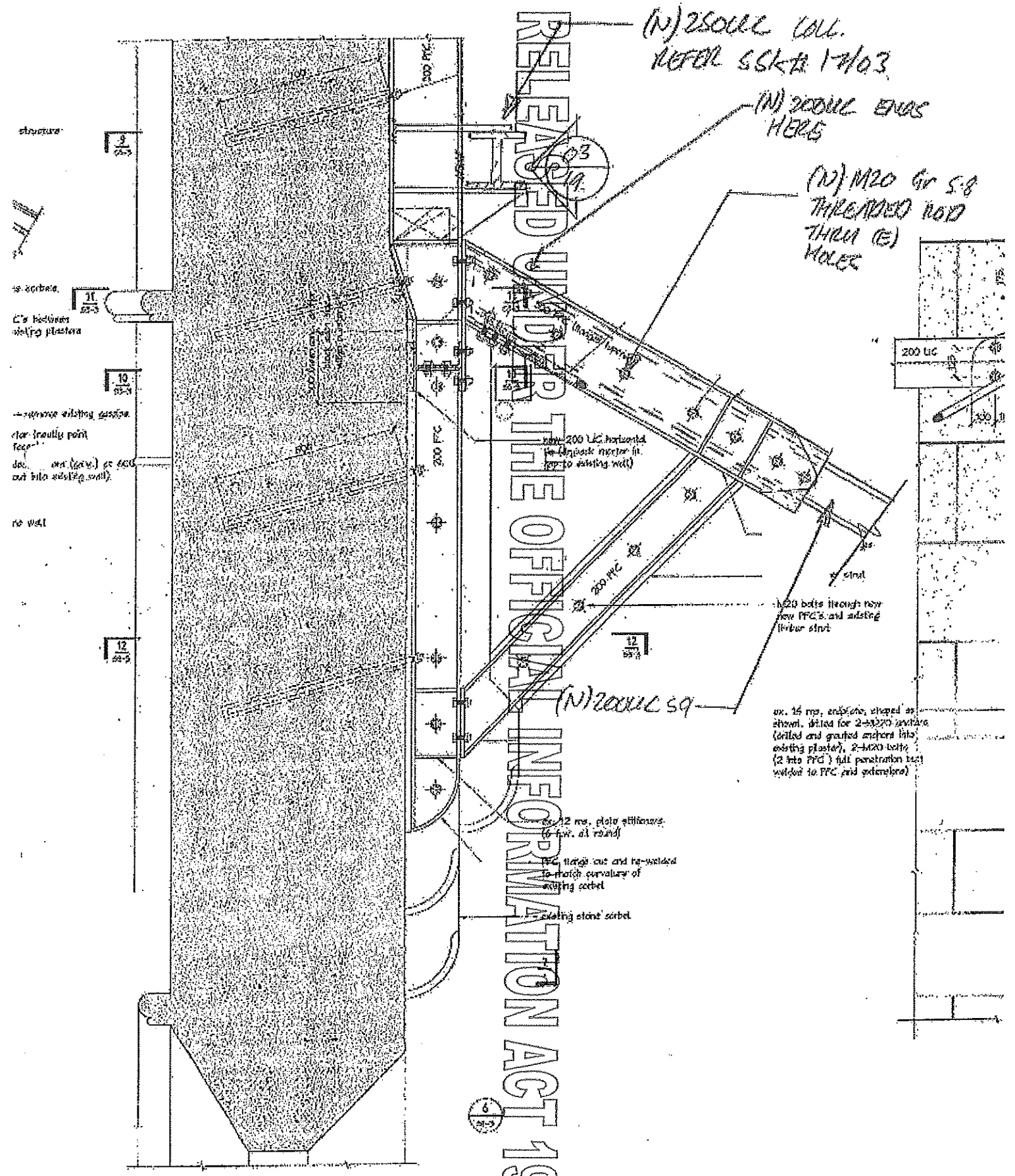
(E) COLUMN

REINSTATE
GUTTERS &
DOWN PIPES

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Title: NORTH AISLE SECTION
 Job Name: CHCH CATHEDRAL
 Job #: 106324 SSK#: 19/01
 Date: 10/12/11 Rev: 1

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(N) 250x250x12 ANGLE
REFER SSK# 14/03

(N) 200 I.C. ENDS
HERE

(N) M20 Gr 5.8
THREADED ROD
THRU (E)
MOLE

(N) 200x200x12 I.C.

ex. 16 mm, endplate, shaped as shown. fitted for 2-3270 hardware (drilled and grouted anchors into existing plaster), 2-M20 bolts (2 into PFC) full penetration test welded to PFC and extensions

ex. 12 mm, plate stiffeners to form all round

PFC flange cut and re-welded to match curvature of existing corbel

existing stone corbel

structure

11/03

10/03

12/03

to corbel

ex. existing existing

for (scully point)

do. (ex. (scully) or 600 out into existing wall)

no wall

Title: RAFTER CONN

Job Name: CHURCH CATHEDRAL

Job #: 108324 SSK#: 19/02

Date: 10/12/11 Rev: 1

CHRISTCHURCH CATHEDRAL

STRENGTHENING



Project Name: CHCH LATHENAL

Project No: 108344

Withheld under section 9(2)(a)

Date: 10/12/11

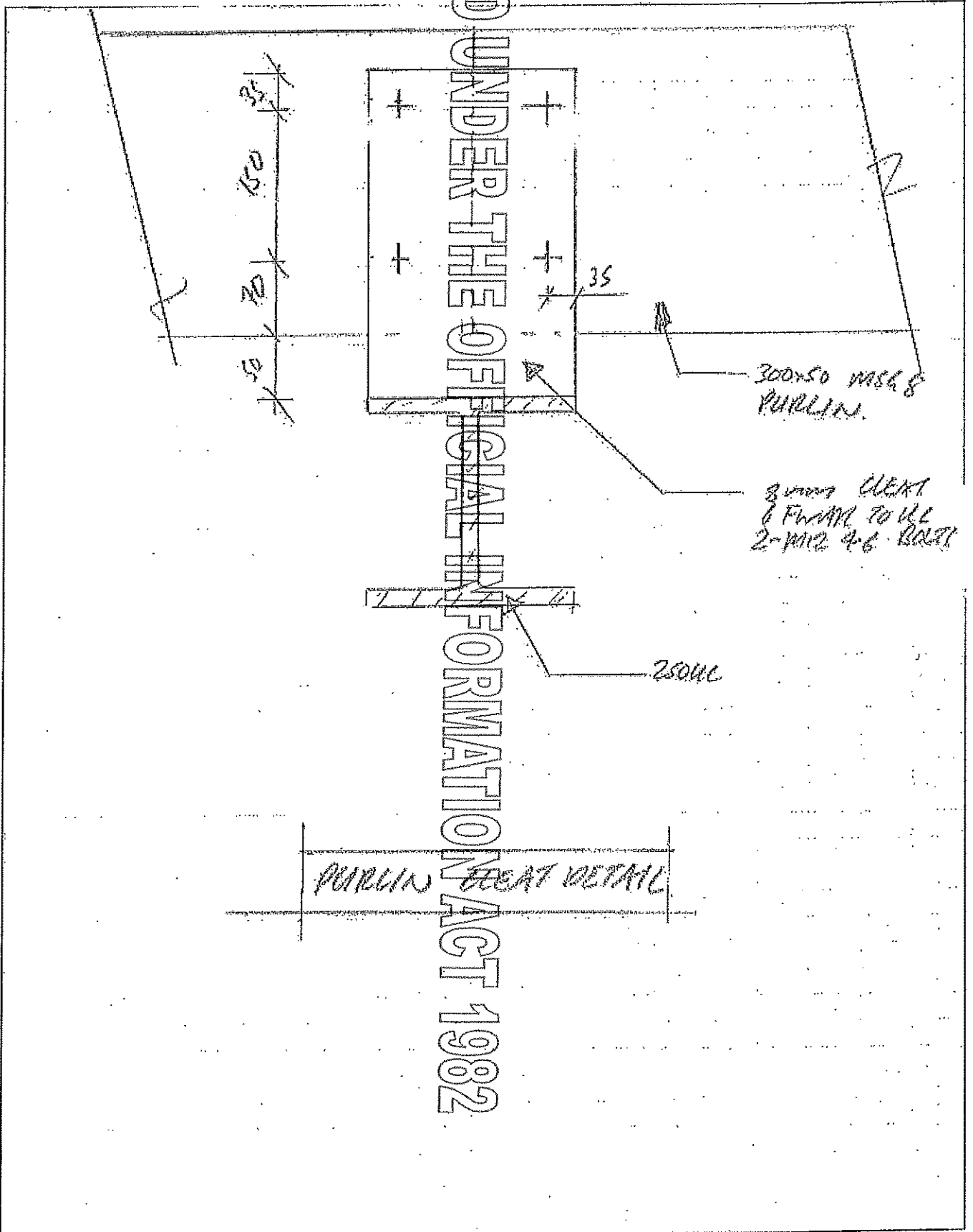
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Sketch No: 19/06

Revisions:

CALCS./SKETCHES

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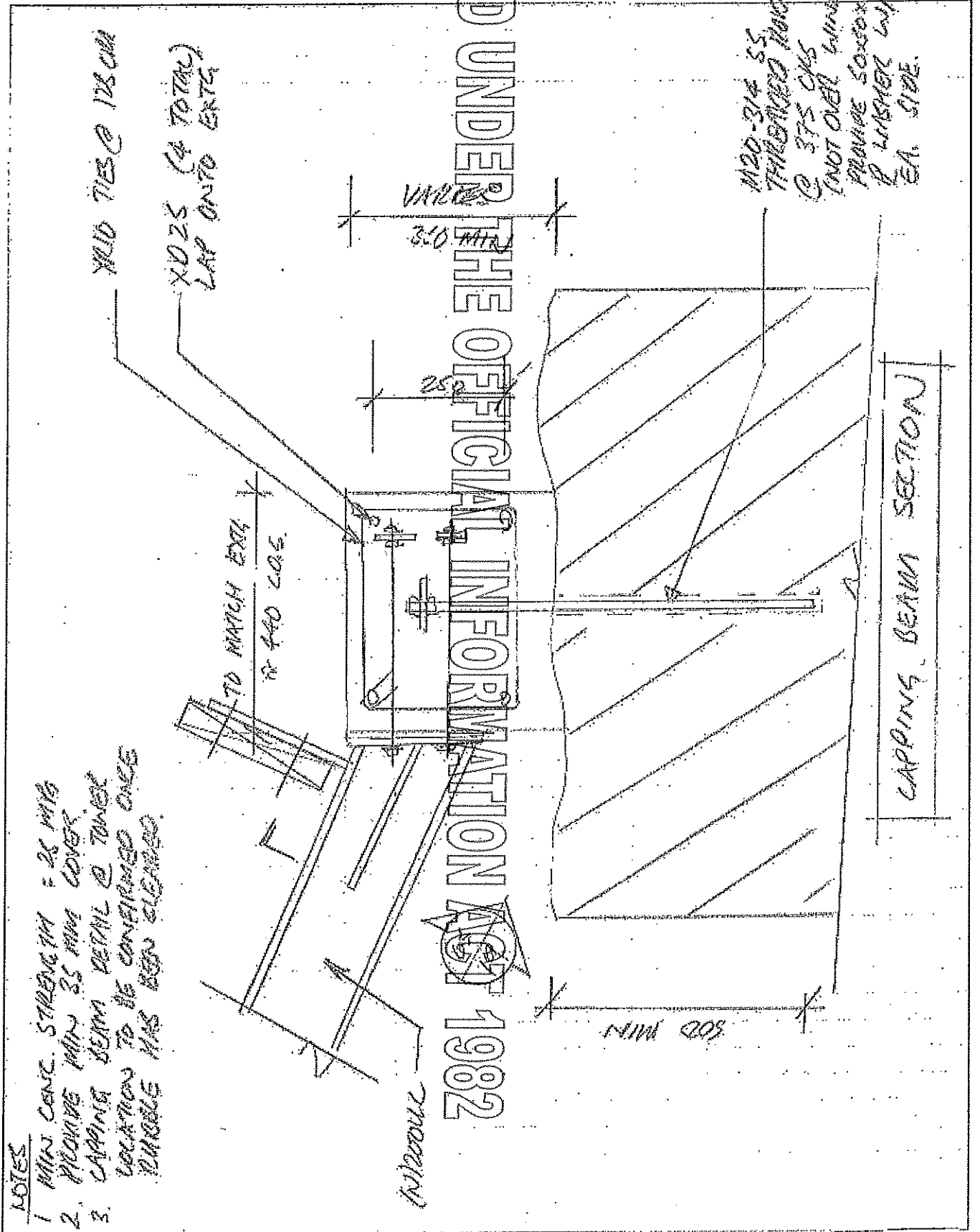


Project Name: *CHCH CATHEDRAL*
 Project No: *1063*
 Date: *10/12/11*
 Sketch No: *19/04*

Withheld under section 9(2)(a)

Page No:
Revision:

CALLS/SKETCHES



NOTES

1. MIN CONC. STRENGTH = 28 MPa
2. PROVIDE MIN 35 MM COVER.
3. CAPPING BEAM DETAIL @ TOP OF LOCATION TO BE CONFIRMED ONCE PUNCELE HAS BEEN CLEARED.

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Project Name: CHCH LAMERAL

Project No: 10832

Withheld under section 9(2)(a)

Drawn By:

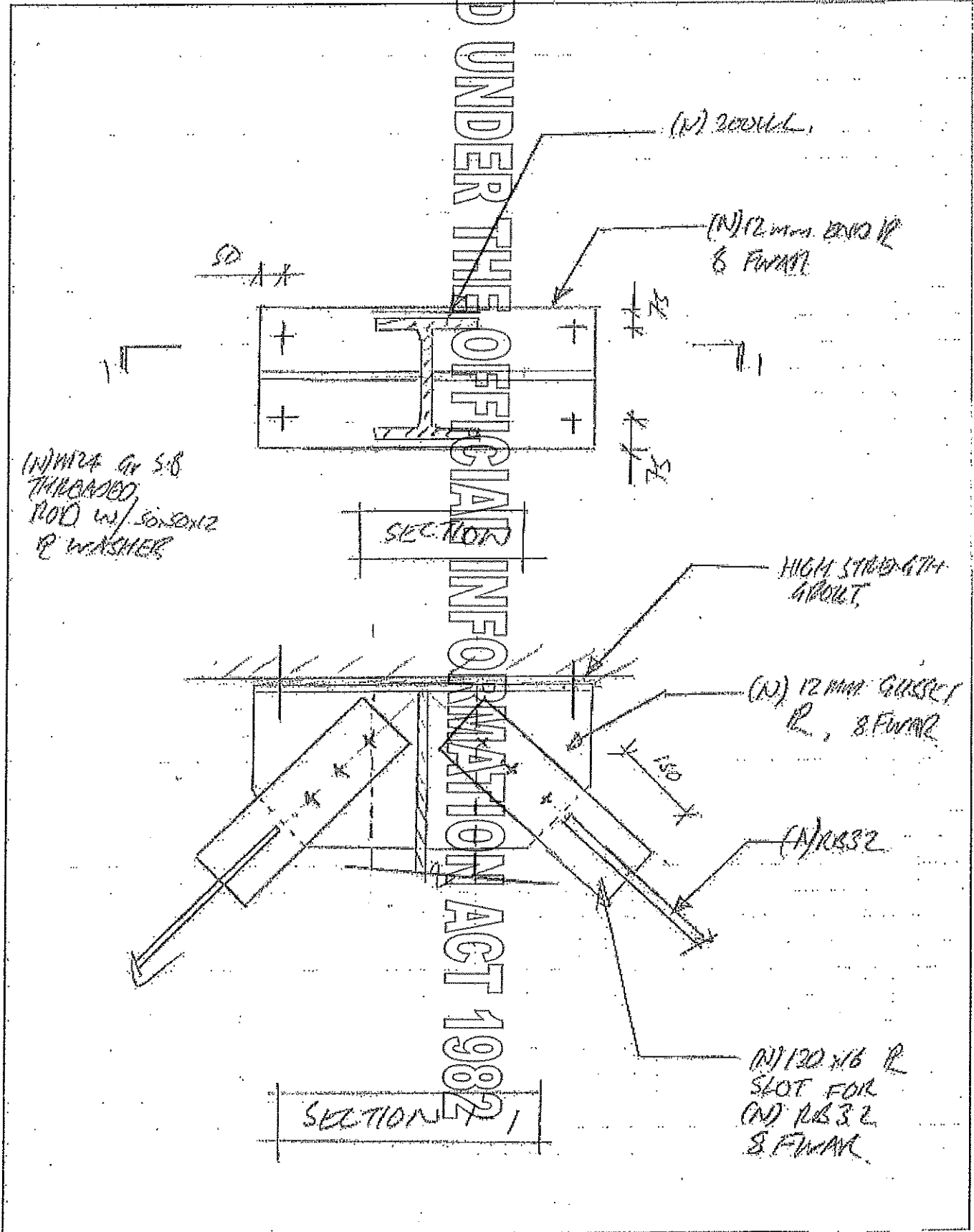
DALCS/SKETCHES

Date: 10/12/11

Fig No:

Sketch No: 17/10.5

Revisions:



(N) 12mm GRASS
THREADED
ROD w/ 10mm
R WASHERS

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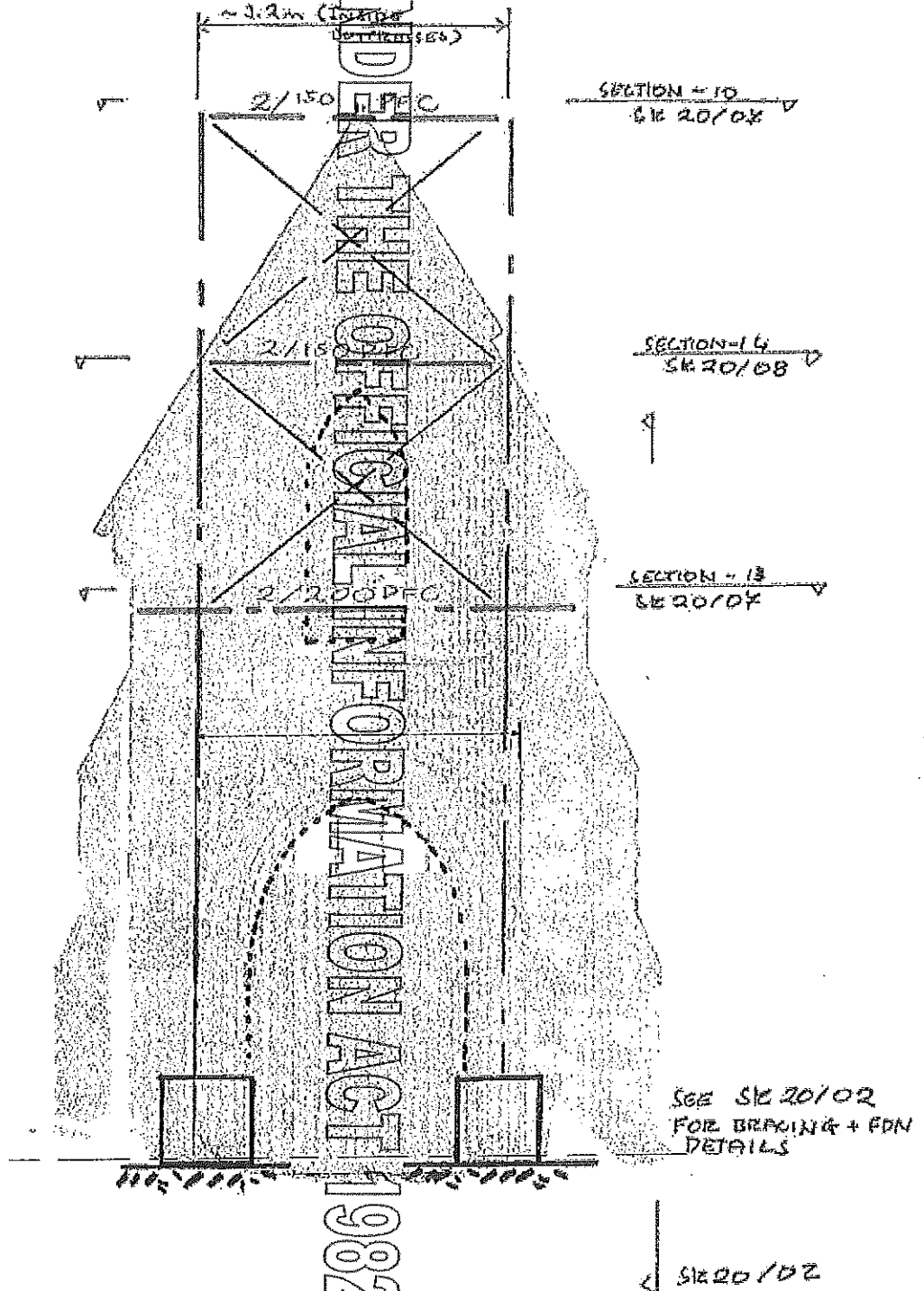
Project Name: Christchurch Cathedral Reconstruction
 Project No: 106324
 Co/Cs By: 9(2)(a)
 Date: 10/12/11
 Sketch No: 20/02

CALCS/SKETCHES

Page No:

Revision:

NORTH PORCH SHORING DETAILS



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Project Name: CHRISTCHURCH CATHEDRAL

Project No: 106320

Withheld under section 17B

CALCS/SKETCHES

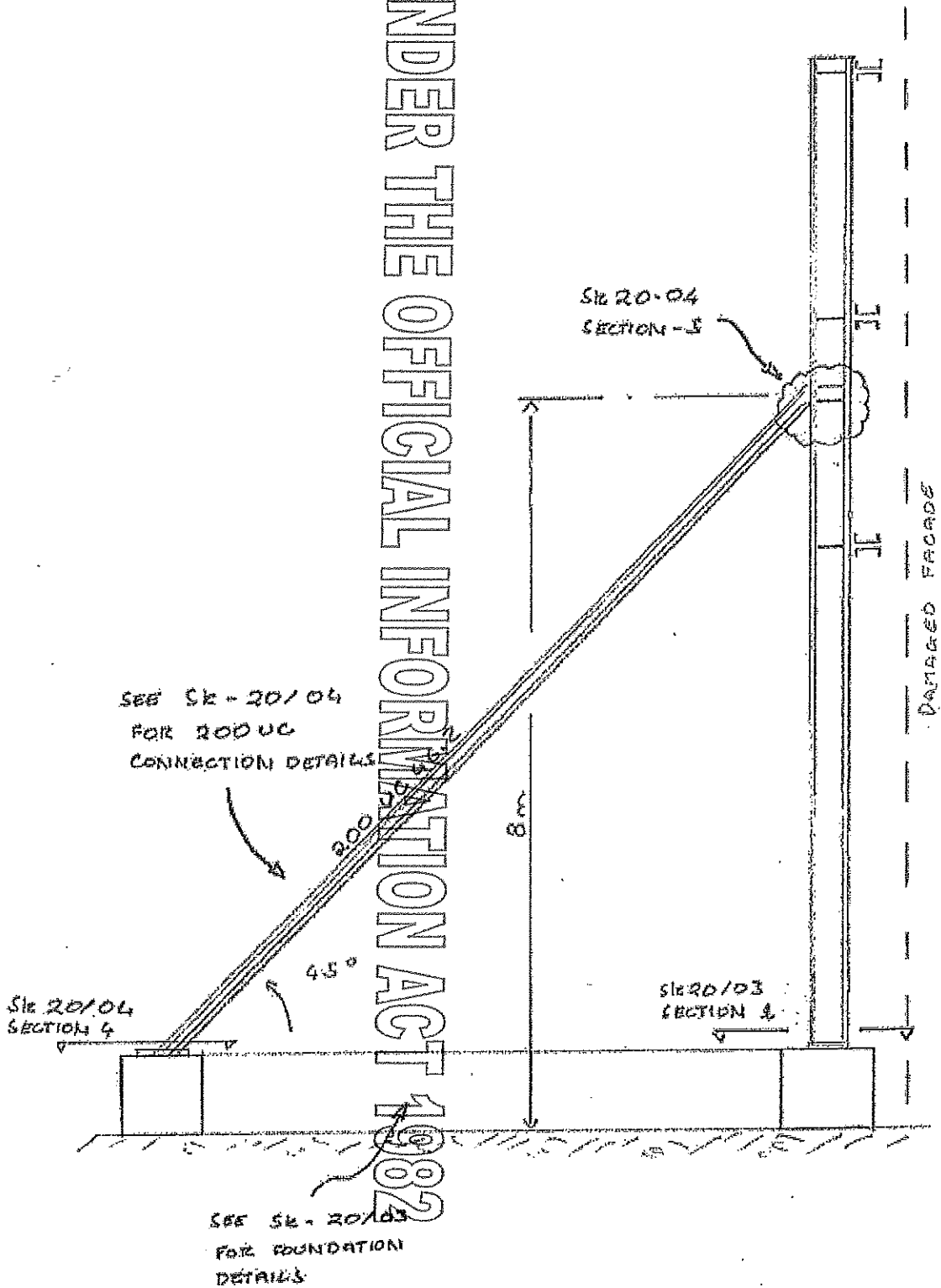
Date: 12-12-11

Page No:

Sketch No: 20/02

Revision:

BEACED FRAME EAST ELEVATION



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Project Name: CHRISTENBERG CATHEDRAL

Project No: 106324

will be under section 2(2)(a)

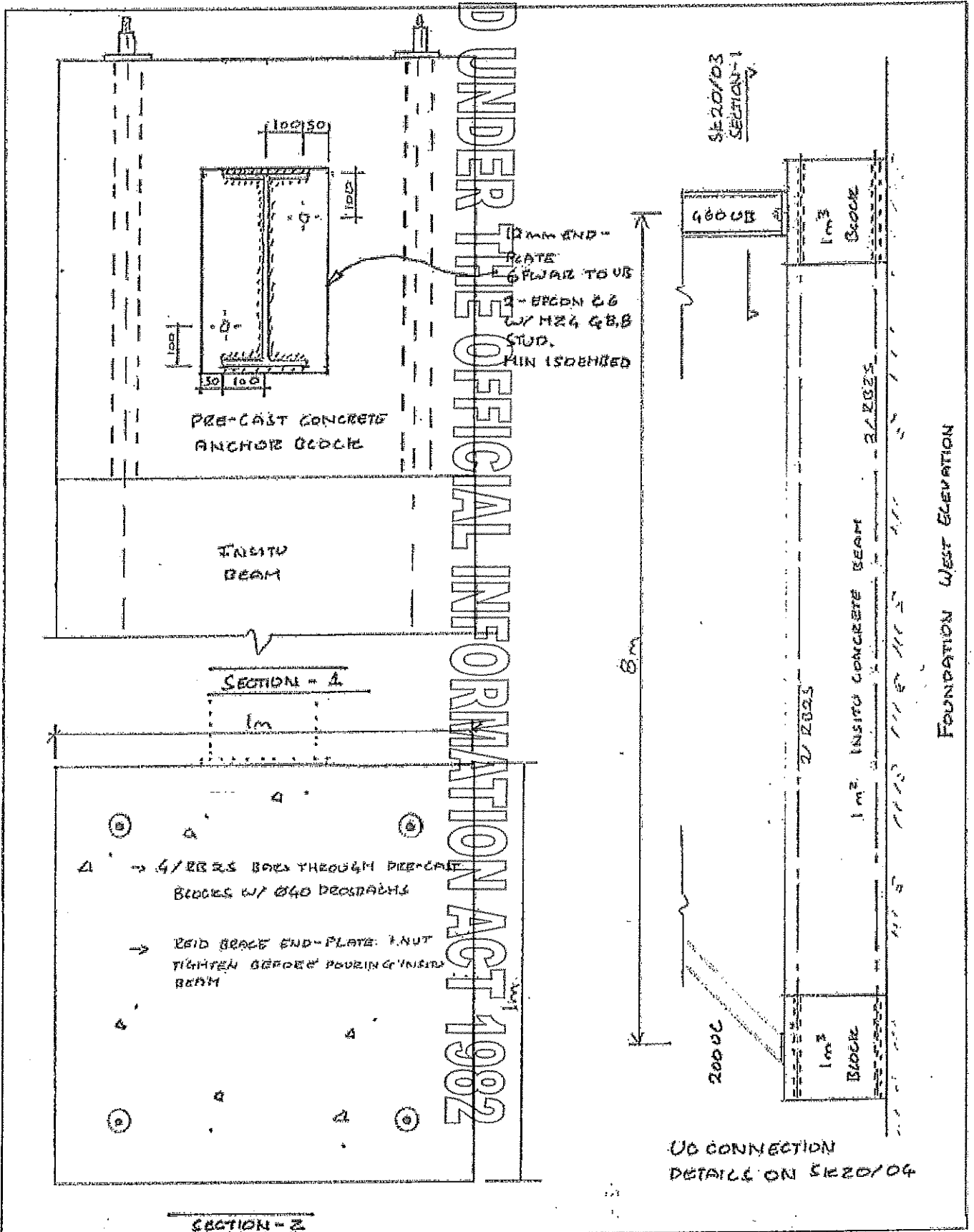
Date: 12-12-11

Page No:

Sketch No: 20/03

Revision:

CALCS/SKETCHES



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Project Name: CHRISTCHURCH CATHEDRAL

Project No: 106 324

Withheld under section 9(2)(a)

Calcs By:

CALCS/SKETCHES

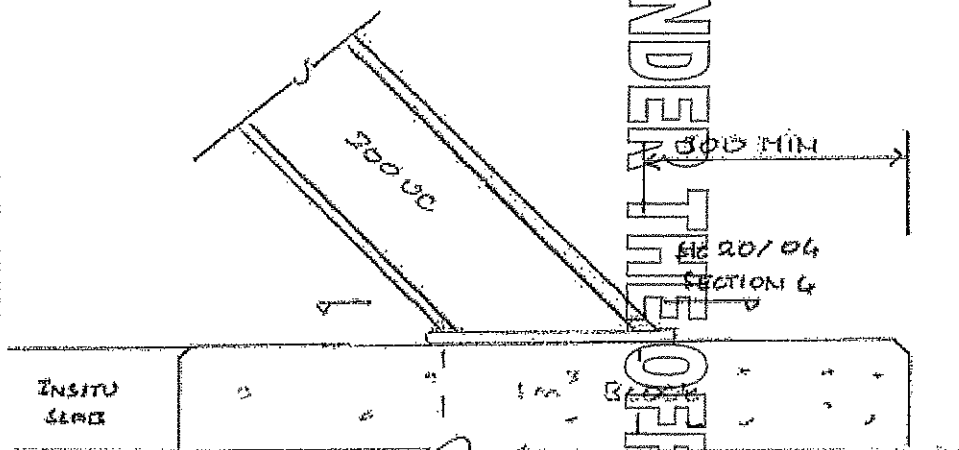
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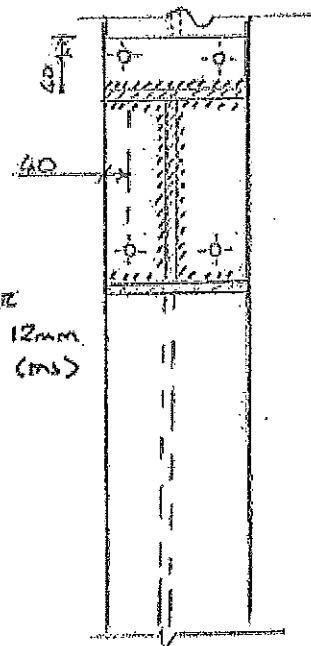
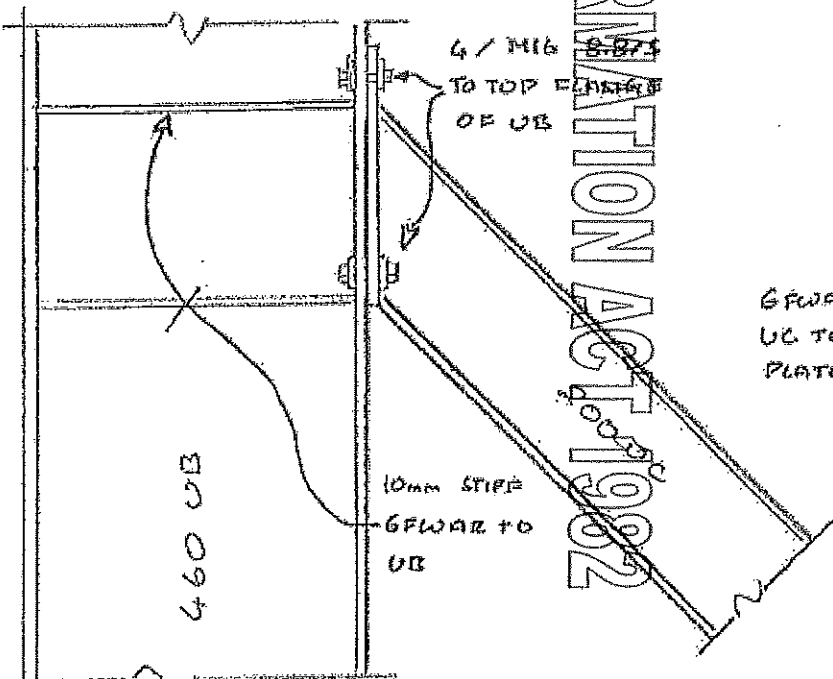
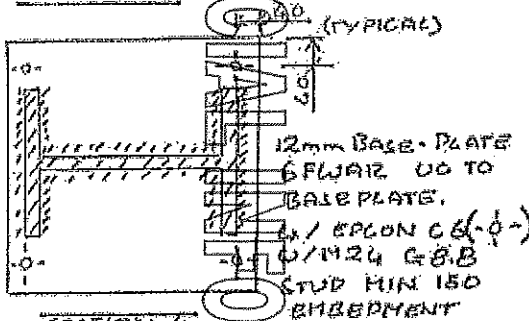
Sketch No: 20/04

Revision:

UC BEACE, CONNECTION DETAILS



BASE-PLATE
DETAIL :



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Withheld under section 9(2)(a)

Colo. B₁

CALCS/SKETCHES

Date: 12-12-11

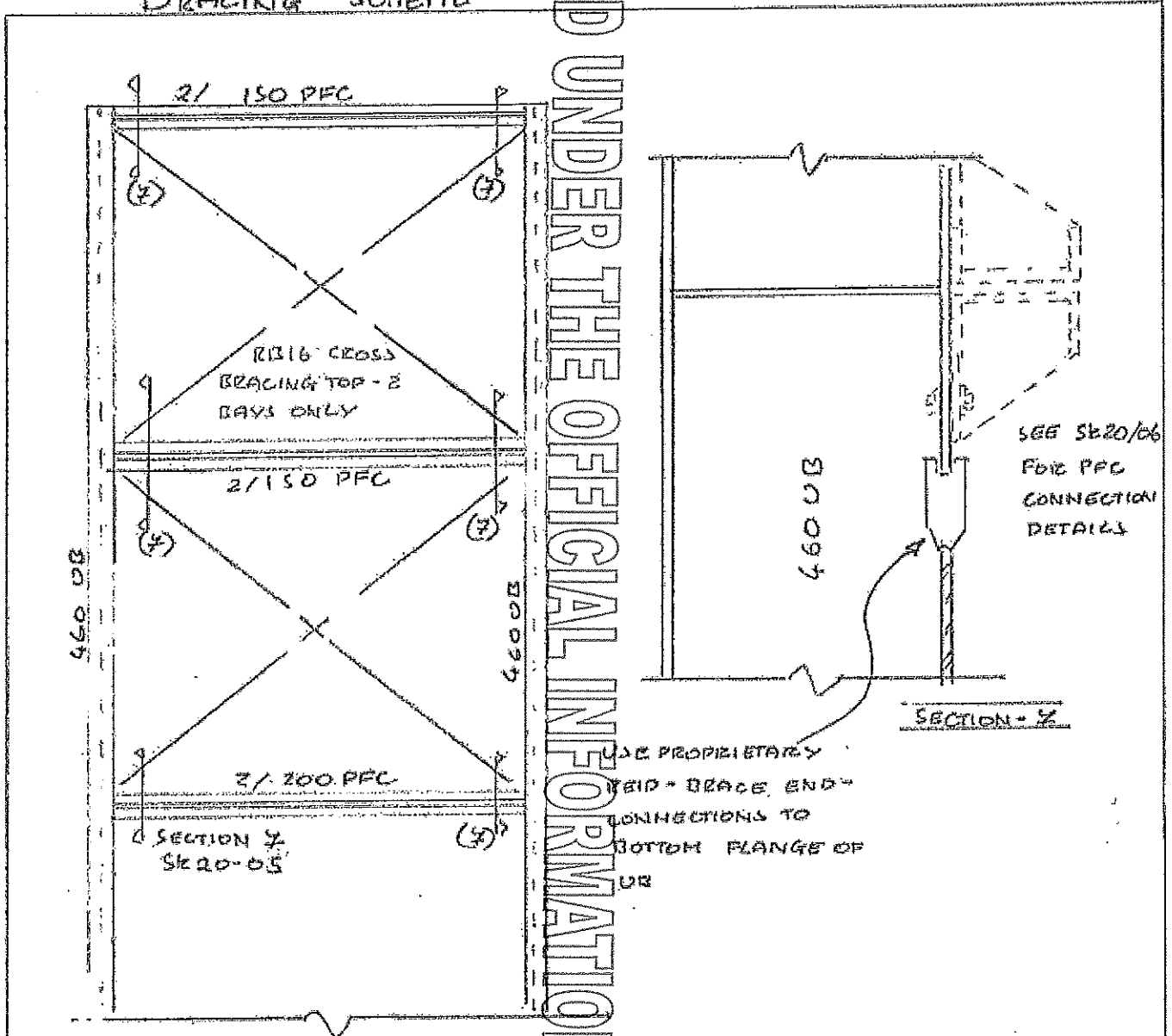
Page No:

Sketch No: 20-05

Revision:



BRACING SCHEME



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Project Name: CHRISTCHURCH CATHEDRAL

Project No: 106324

Drawn under section 9(2)(a)

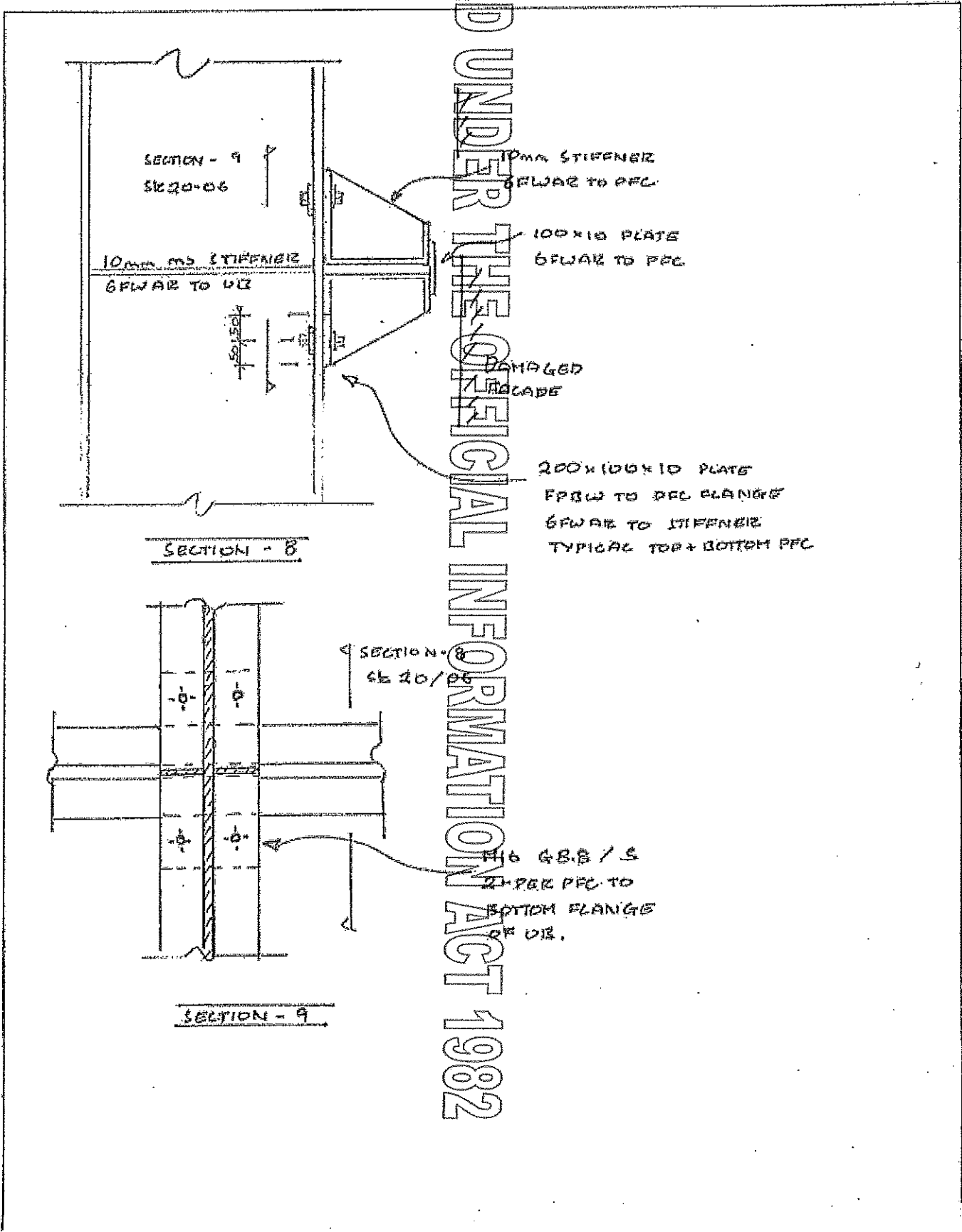
Date: 12-12-11

Page No:

Sketch No: 20-06

Revision:

CALCS/SKETCHES



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Project Name: CHEISTCHURCH CATHEDRAL

Project No: 106324

Withheld under section 9(2)(a)

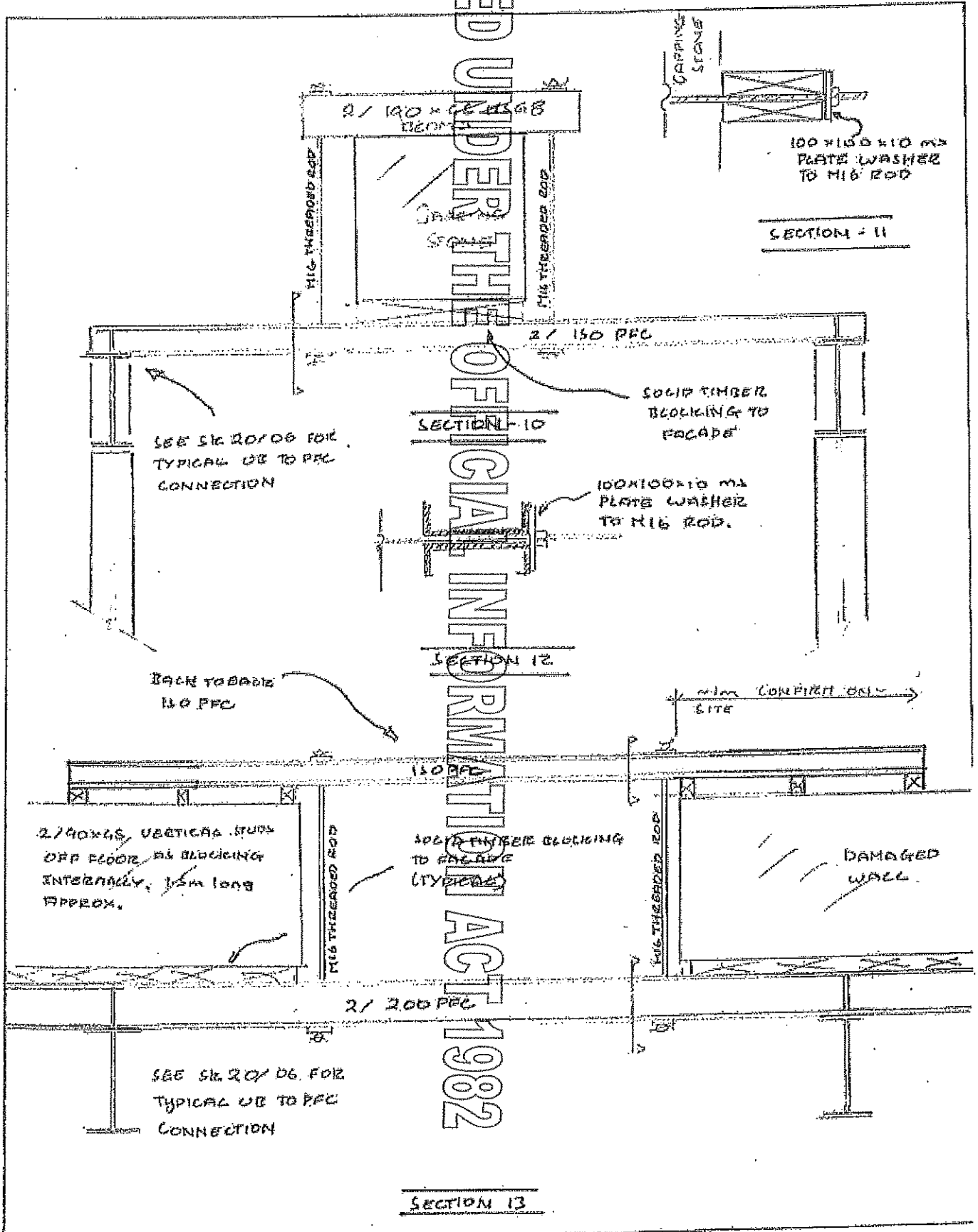
CALCS/SKETCHES

Date: 12-12-11

Page No:

Sketch No: 20-04

Revision:



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Project Name: CHRISTCHURCH CATHEDRAL

Project No: 106322

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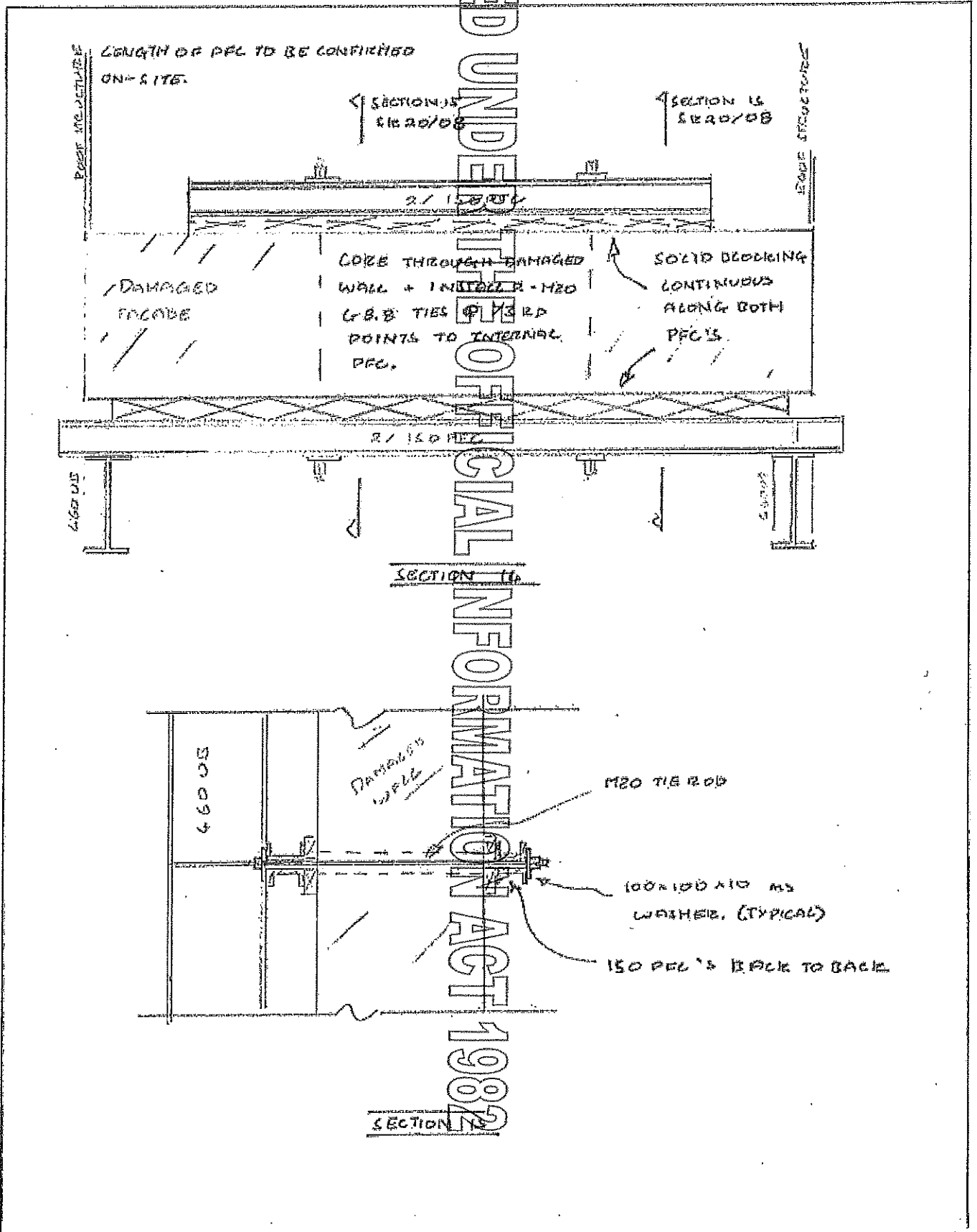
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Date: 12-12-11

Page No:

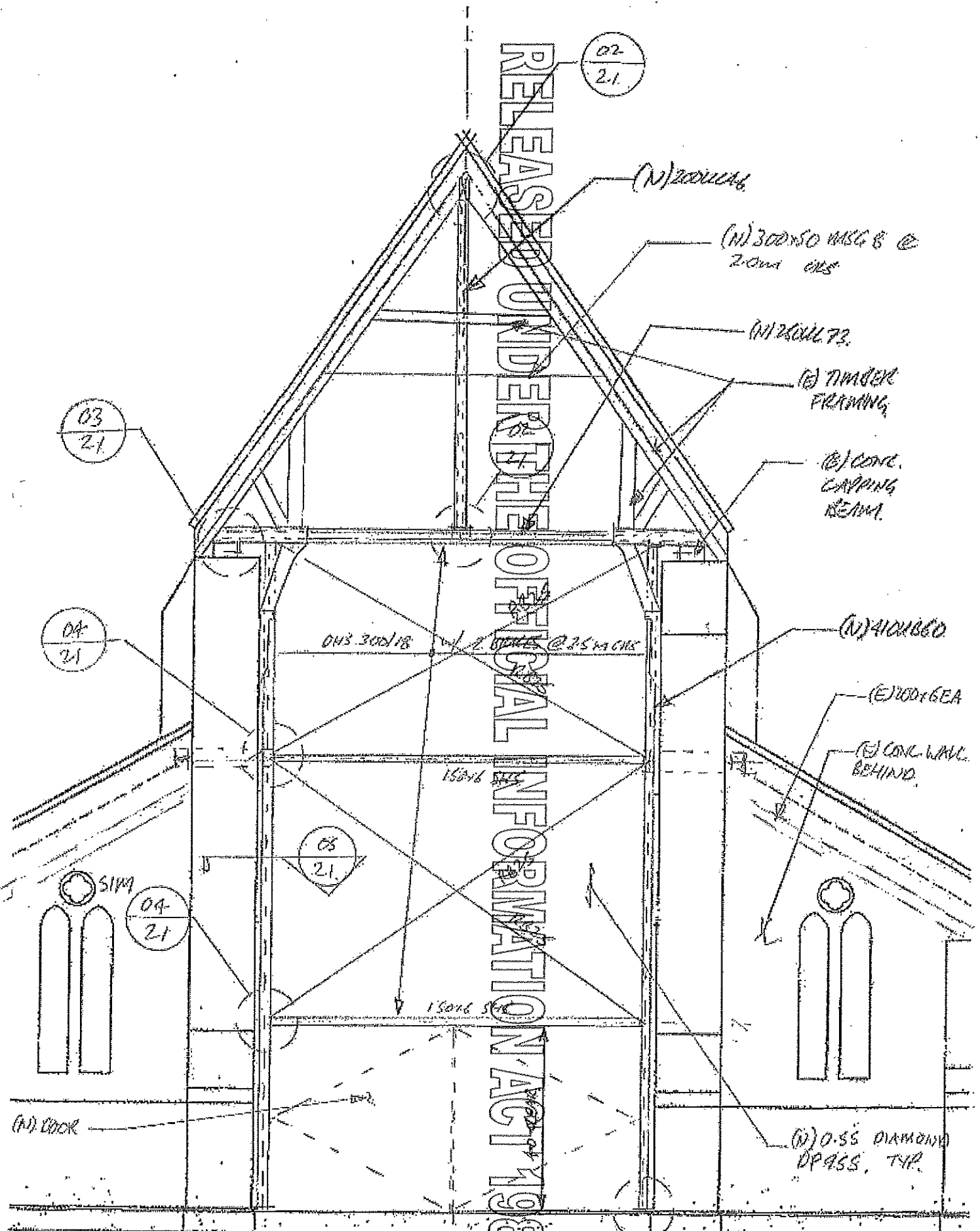
Sketch No: 20/08

Revision:



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02
21

03
21

04
21

08
21

04
21

06
21

Title: WEST WALL SECURING
Job Name: CHARISMAWALL CATHEDRAL
Job #: 108324 SSK#: 21/01
Date: 11/12/11 Rev: 1

HD International Group



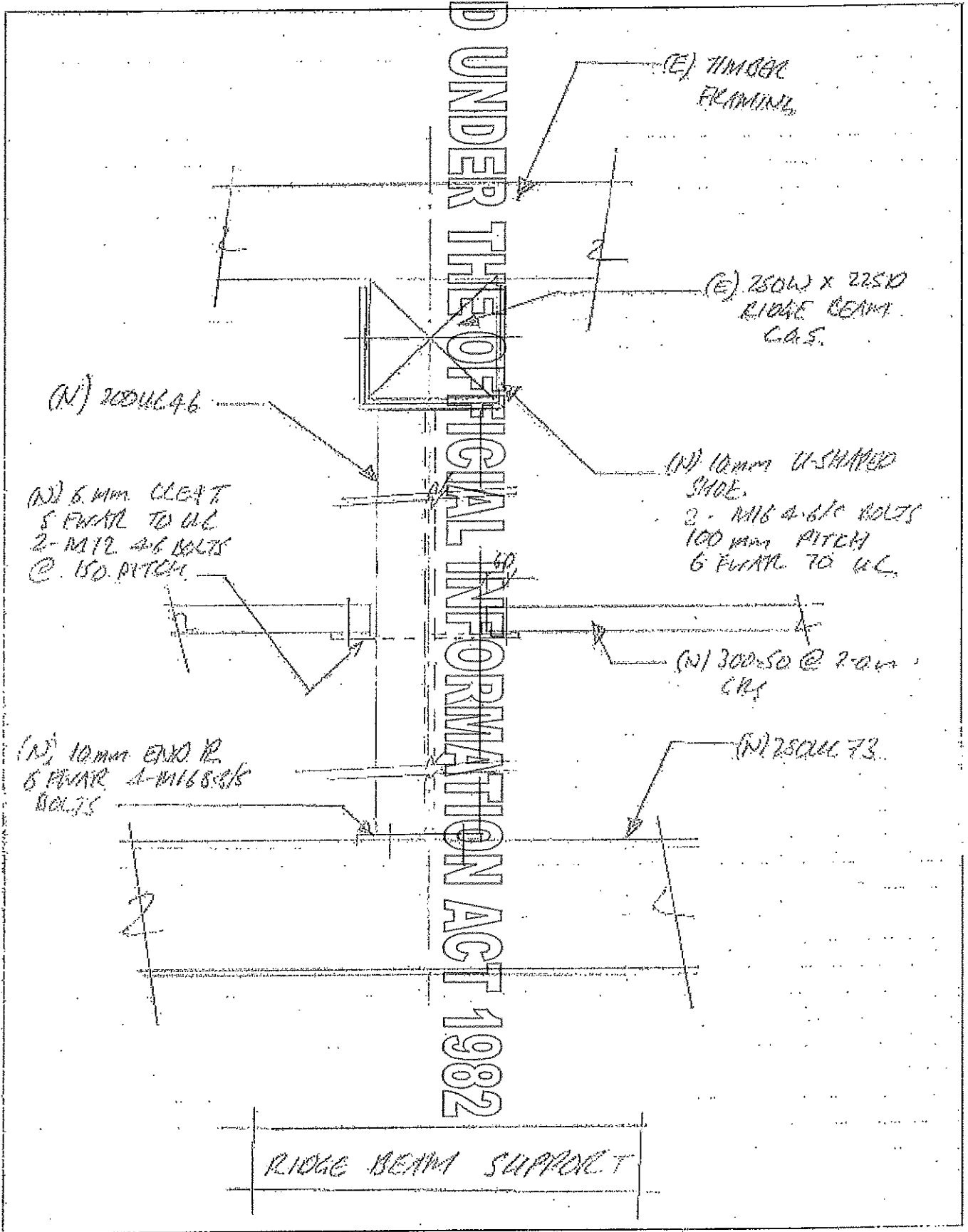
Project Name: CHCM EASTMEDIAN
 Project No: 10637
 Codes By: [Redacted]
 Date: 11/12/12
 Sketch No: 21/02

Withheld under section 9(2)(a)

CALCS/SKETCHES

Page No:
 Revisions: 1

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RIDGE BEAM SUPPORT



Project Name: *CHICK LA MEDICAL*

Project No: *108344*

Withheld under section 9(2)(a)

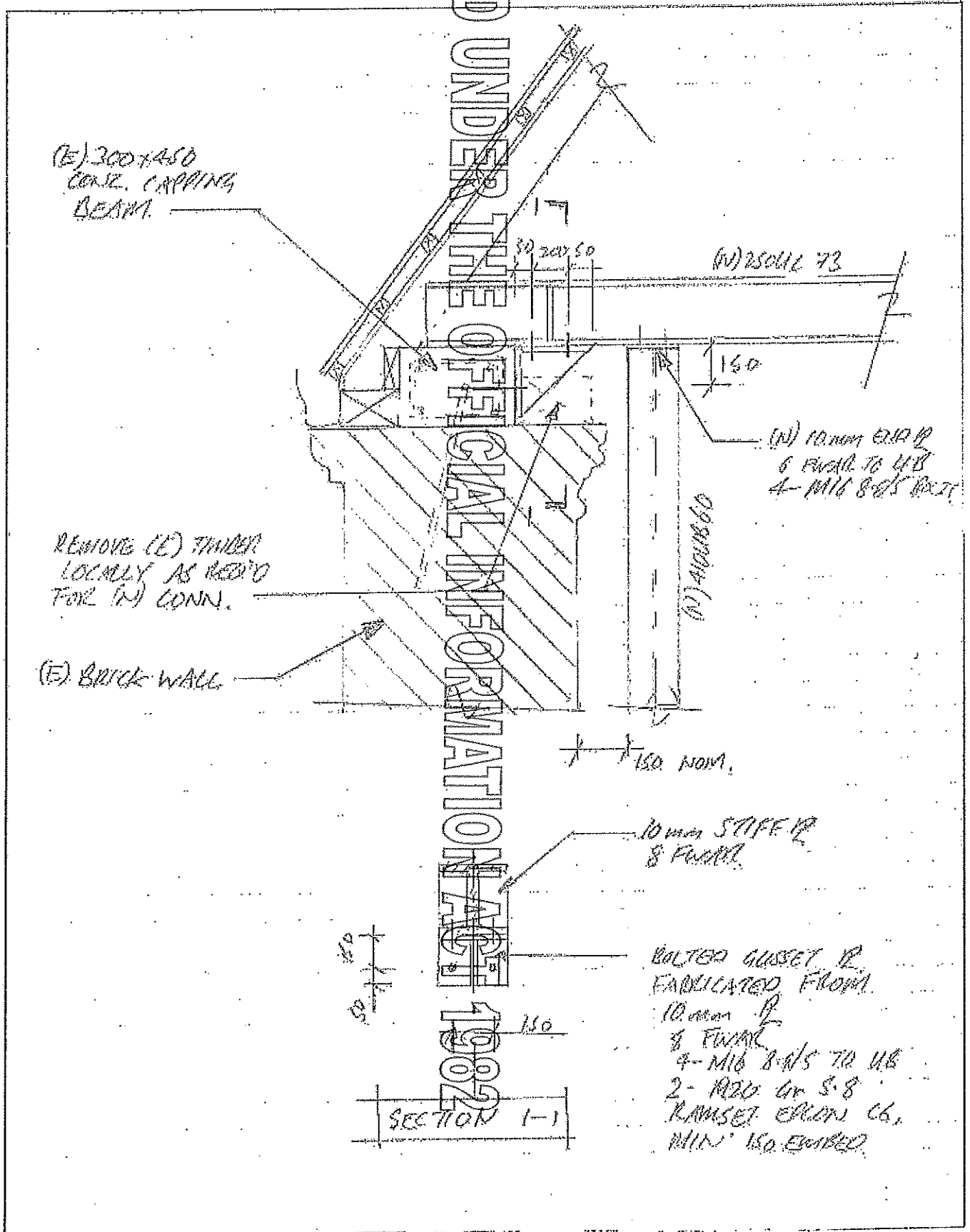
CAISS/SKETCHES

Date: *11/12/11*

Page No:

Sheet No: *21/63*

Revisions: *1*



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Project Name: CATCH ~~CONFIDENTIAL~~

Project No: 106329

Withheld under section 9(2)(a)

Date: 12/12/11

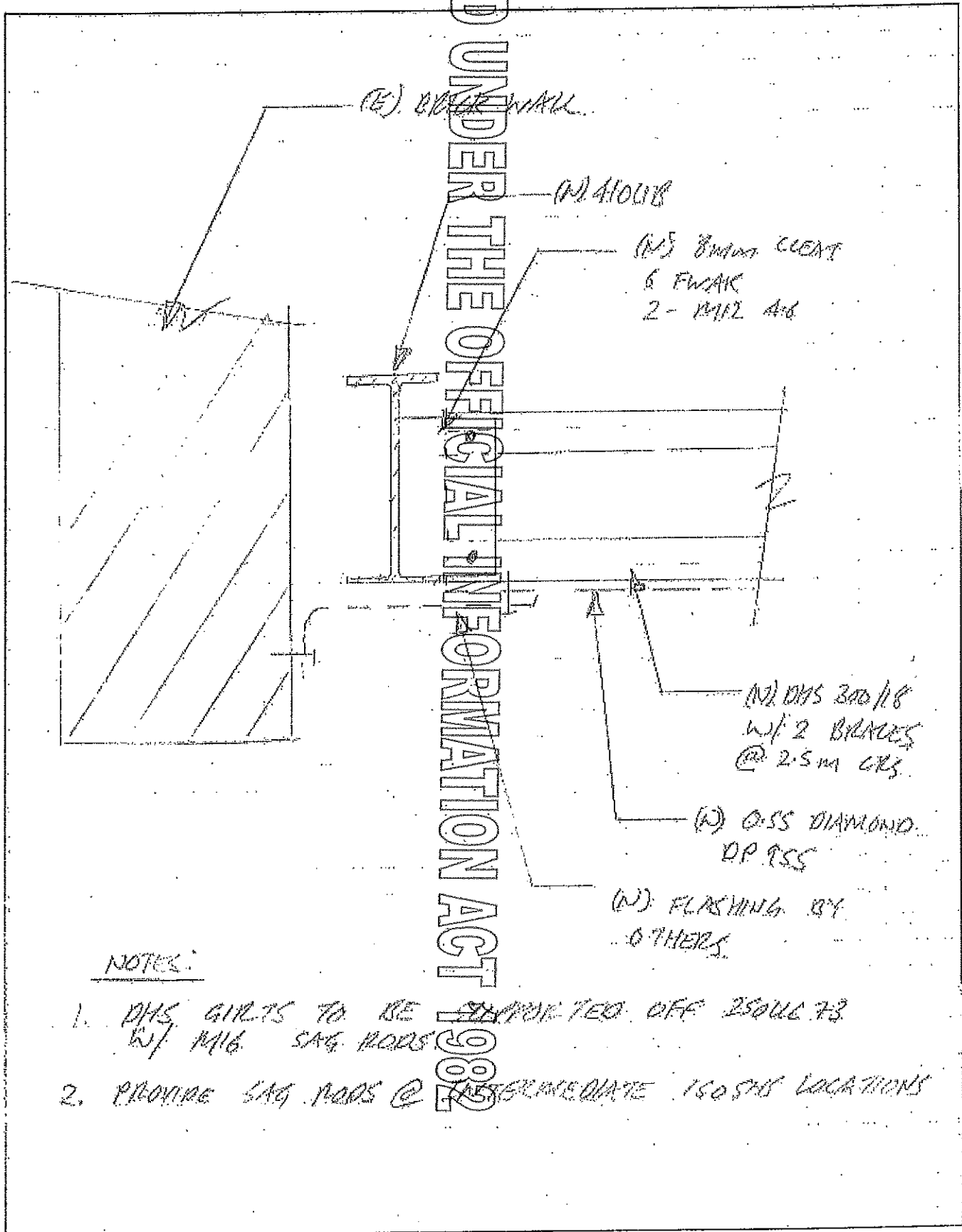
Page No:

Sheet No: 21/05

Revision: 1.

CALCS/SKETCHES

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NOTES:

1. DHS GIRTS TO BE SUPPORTED OFF 250UB73
w/ M16 SAG RODS @ INTERMEDIATE 150SIS LOCATIONS
2. PROVIDE SAG RODS @ INTERMEDIATE 150SIS LOCATIONS



Project Name: CHCH CATHEDRAL

Project No: 106384

Withheld under section 9(2)(a)

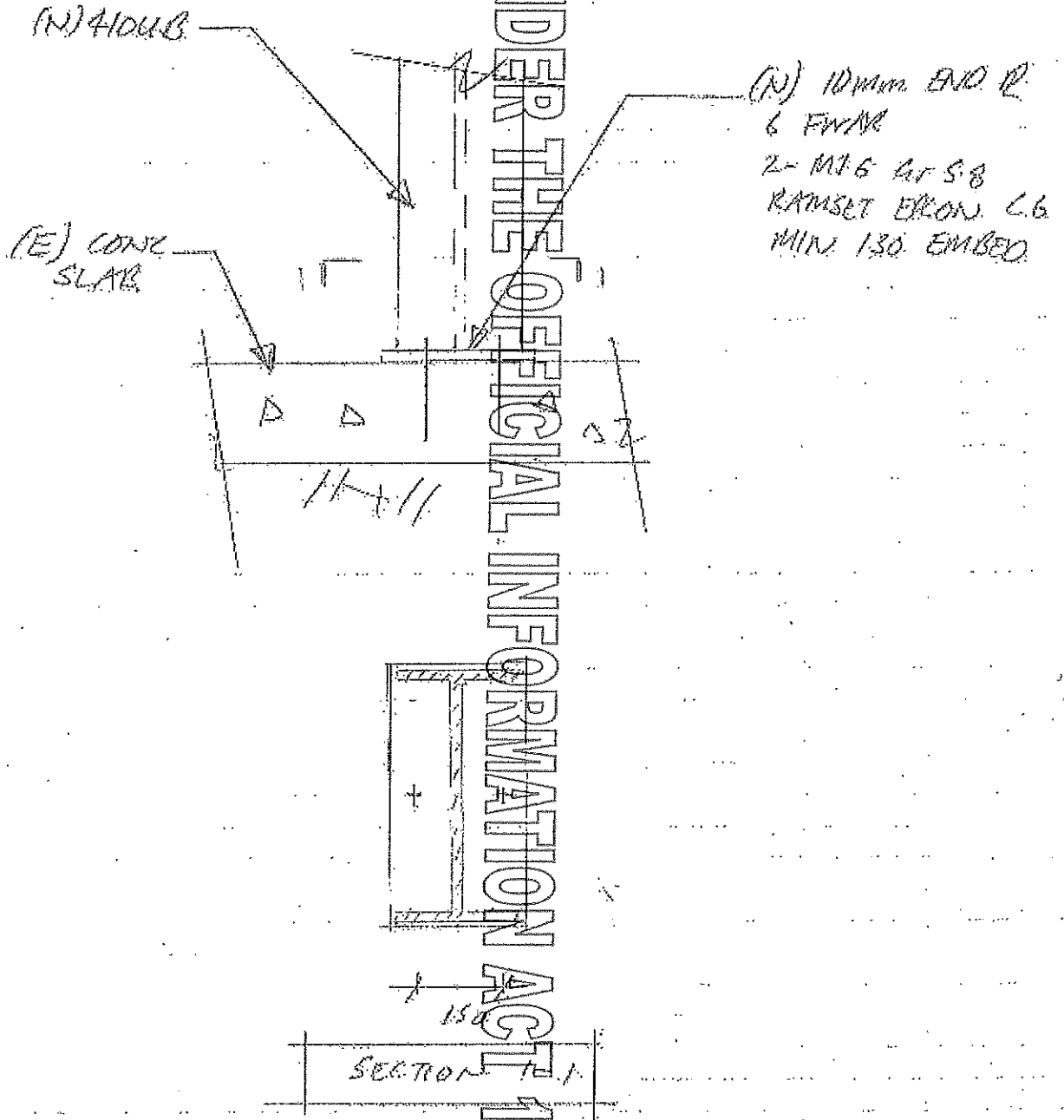
CALCS/SKETCHES

Date: 12/12/11

Page No.

Sketch No: 21/06

Revised:



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Project Name: *CHRIST CHURCH CATHEDRAL*

Project No: *108324*

Withheld under section 9(2)(a)

CALCS/SKETCHES

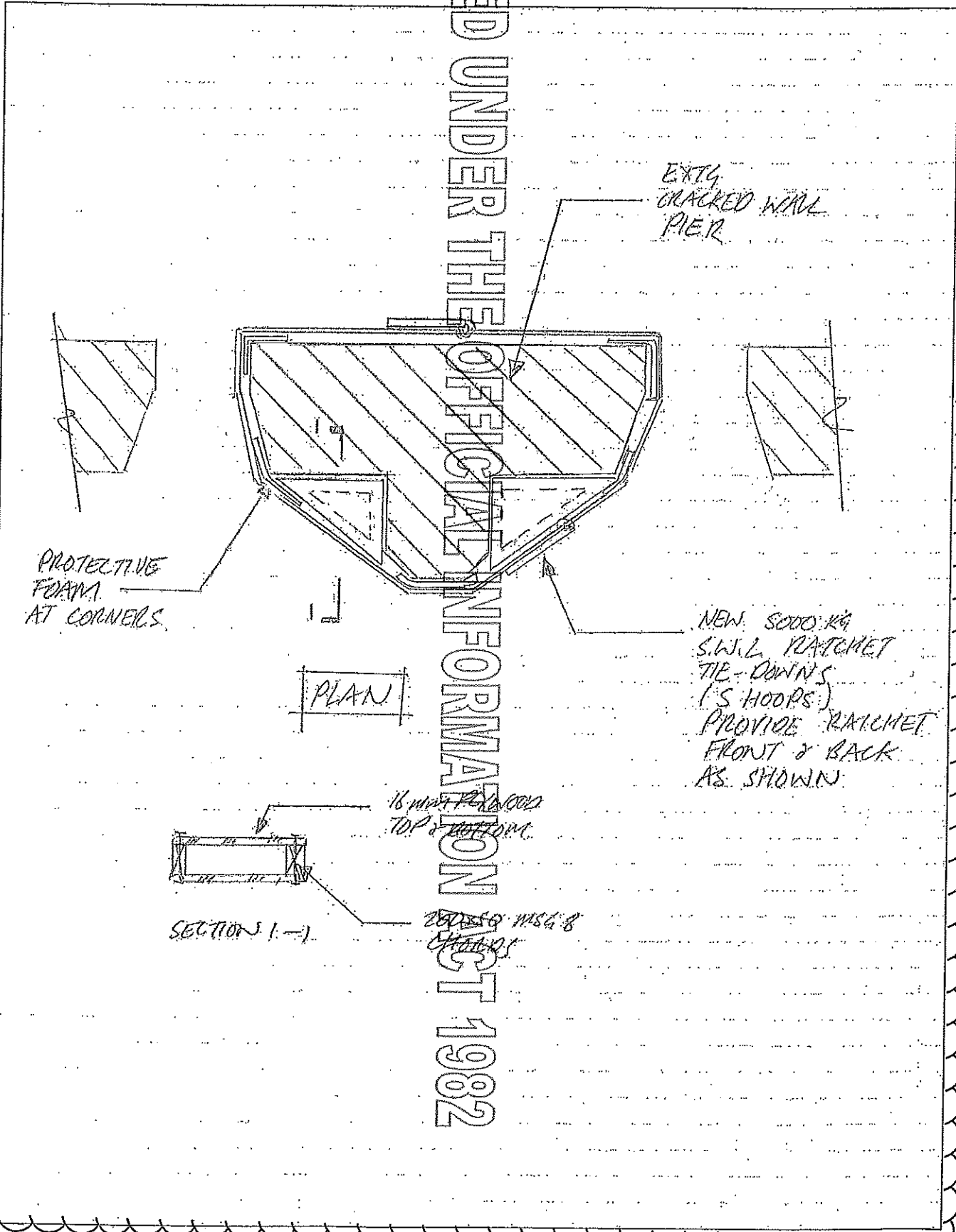
Date: *18/11/12*

Page No:

Sketch No: *24/07*

Revision:

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In the following sections demolition/deconstruction is simply collectively referred to as deconstruction for the purpose of this Consultants Advice.

2. Phasing Of Demolition/Deconstruction Works

Proposed phasing of deconstruction works is illustrated on SSK# 029-01. The phasing of work is generally as follows.

Phase 1 – Removal of Stain Glass Windows Stage I

The following stain glass windows will be removed in accordance with HCG CA# 28.

- Window W8
- Window W11 – W14
- Window W21 – W23
- Window W33
- Window W35 – W37

Refer HCG CA# 28 for key plan detailing window locations.

Phase 2 – Heritage Protection Works Stage I

Heritage protection works will be installed for the following elements as detailed in Section 3 below.

- Window W6 – W7
- Window W40
- Window W46
- Pulpit (TBC)
- Harper's effigy (TBC)
- North & South Aisle wall carved panels

Phase 3 – Tower Deconstruction

Deconstruct the Tower down to window sill level as shown on SSK# 027 Rev 1.

Phase 4 - Removal of Stain Glass Windows Stage II

Remove stain glass window W37 in accordance with HCG CA# 28.



Phase 5 – Nave Clerestory Deconstruction

Deconstruct the temporary steel gantry that was Deconstruct Nave roof by cut and crane method starting from the west end.

Roof to be removed in sections and stored on site (refer Section 5). It is likely that this will require the use of a 100 ton crawler crane or similar.

Deconstruct the clerestory down to the level of aisle roof. Note that the stability of the clerestory will be compromised once the Nave roof has been removed. The clerestory walls will be susceptible to collapse in this interim state.

Phase 6 - Removal of Stain Glass Windows Stage III

Remove stain glass windows W6, W7 and W10 in accordance with HCG CA# 28.

Phase 7 – North and South Aisle Deconstruction

Deconstruct North and South Aisles, North and South Porches and the North Turret down to window sill level as illustrated on SSK# SSK# 027 – 032 Rev 1.

Phase 8 – Transept Deconstruction

Deconstruct Transept roof by cut and crane method (refer Section 5). Deconstruct Transept walls as detailed on SSK# 29-01 noting the following:

- Transept walls supporting the organ loft shall be deconstructed down to the level of the organ loft roof taking care not to drop debris onto either the organ loft or the organ pipes.
- Care shall be taken when deconstructing the North Transept wall above Harper's effigy

Phase 9 – Apse Deconstruction

Deconstruct Apse roof by cut and crane method (refer Section 5).

Deconstruct Apse walls down to window sill level as illustrated on SSK# 29-01. Note that the Apse walls supporting the organ loft shall be deconstructed down to the level of the organ loft roof, taking care not to drop debris onto either the organ or the organ pipes.

Phase 10 – Organ Loft Deconstruction

Deconstruct Organ Loft roof by cut and crane method. Deconstruct Organ Loft walls down to the level of the Organ Loft floor taking care to minimise damage to the organ. Sections of the organ are to be removed as required.



Once the organ has been removed, deconstruct the balance of the Organ Loft structure as illustrated on SSK# 29-01.

Phase 11 – Heritage Protection Works Stage II

Remove West Porch roof sheathing locally to enable vertical access to the west side of the west wall below. Install heritage protective works as detailed in Section 3 below.

Phase 12 – West Porch Deconstruction

Deconstruct West porch to ground level. Deconstruction work to be undertaken noting the following:

- The west door of the West Porch has a high heritage value. Deconstruct the West Porch around the door and salvage the door when it is safe to do so.
- Care shall be taken to avoid damaging the heritage items previously identified on the west side of the West Wall

Phase 13 – West Wall

Deconstruct the West Wall down, leaving the portion of the wall that contains the heritage items that are to be salvaged. Salvage heritage items and demolish the rest of the wall down to the level of the adjacent sections of remaining Aisle wall remnants

Phase 14 – Clergy & Choir Vestry Deconstruction

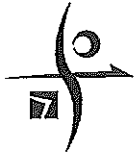
Demolish Clergy and Choir Vestries to ground level. Choir Vestry ground floor slab and basement is to be retain (to be confirmed by Client/Project Manager).

3. Heritage Protection Works

Heritage protection works will be installed in stages as the deconstruction progresses to protect selected heritage items that remain in the Cathedral.

Protective Timber Screens

Timber framed screens will be dropped into location via crane to provide protection to selected windows and wall panels against falling debris. SSK# 29-02 details where the screens are to be located. Details have been provided for both single and double sided screens (refer SSK# 29-4 & 29-5).



Protective Structural Steel Frames

Protective structural steel frames are proposed to protect the Pulpit and Harper's effigy (refer SSK# 29-02). The intention is that a rectangular hole would be cut into the roof above the items to be protected and the frame would be craned in from above. The hole in the roof would be repaired with plywood sheathing.

Further work is required to confirm the feasibility of this proposal.

For the purpose of initial costing please assume the following per frame:

- Structural steel weight = 2000 kg
- 25 mm thick, Grade F8 plywood sheathing = 30 m²
- 300 x 50 MSG 8 = 50 m

Organ Protection

Temporary weatherproofing of the Organ may be required during the deconstruction process. Once exposed the Organ is expected to take approximately 2 weeks to dismantle and retrieve.

4. Wall Remnant Stabilisation & Preservation Works

Remaining unreinforced masonry perimeter walls need to be protected from the weather and stabilised against vertical delamination. Vertical delamination occurs when wall remnants have been unloaded by the removal of sections of wall above and when water is permitted to enter the rubble core.

Extent of stabilisation works is detailed on SSK# 29-3. Stabilisation works would be undertaken after the ashlar is removed. Elements of the stabilisation work includes:

Reinforced Concrete Capping Beam

As per SSK# 29-7 cap top of wall remnants with reinforced concrete to prevent weather damage and consequential delamination of wall. The concrete capping is likely to crack as a result of shrinkage, thermal movements and future seismic activity. It is recommended that consideration be given to providing a 'basic' waterproof membrane over. This requirement is to be confirmed by the Heritage Arch/Client.

Injection Grouting

Injection routing of the wall to improve structural competency and help to prevent on-going seismic damage is highly recommended. This is essential if the site is to be re-opened to the public as a ruin.



Exact grout composition will need to be verified by sampling to ensure that it is consistent with the original construction of the walls. For pricing purposes the following grout properties can be assumed:

- % composition by weight: Slaked lime 17.5%, pozzolan (i.e. Huntly flyash) 52.5%, Portland cement 30%
- Water Cement Ratio (w/c) = 0.85
- Super plasticiser i.e. Sikament NN or similar

It is difficult to estimate required grout quantities as the porosity of the wall remnants is not known. For pricing purposes and assuming 15% void ratio the following grout quantities could be used:

- Nave = 60,000 litres
- Transept = 25,000 litres
- Apse = 70,000 litres

Transverse Wall Ties

Helifix stainless steel HBR10 10 mm diameter horizontal wall ties at 750 crs, EW, EF as per SSK# 29-7. These would be installed prior to injection grouting.

5. Roof Removal & Storage

Craneage Considerations:

Roof weight is approximately 250 kg/m² based on plan area. This equates to a roof weight of approximately 15 tonnes per 5.1 x 11 m bay of roof.

For a typical, commonly available, 100 tonne crawler crane the following lifting capacities apply:

- 15 tonnes at max 34 m reach
- 30 tonnes at max 20 m reach
- 45 tonnes at max 14 m reach

Originally it was proposed to remove the roof in 16 x 11 m sections (i.e. 3 bays) which would weigh approximately 45 tonnes. Using our typical 100 tonne crawler crane this would lift our reach to 14 m which may not be practicable. Options to improve the reach would be to remove the roof in smaller sections or use either larger (i.e. 200 tonne) or multiple cranes.



Roof Removal Methodology:

It is advantageous from a heritage point of view for the roof to be removed in large sections using the cut and carry method (refer Warren & Mahoney SK# 009).

Before the roof can be removed it will need to be disconnected from the supporting clerestory walls. The roof is held in place by bolted structural steel brackets at roof truss locations. The brackets were installed as part of the previous seismic strengthening work.

Holes will need to cut locally in the roof at the roof truss to access the steel brackets. In addition to this the existing roof sheathing and purline will need to be cut.

Transport Considerations:

It is generally possible to obtain permits to cart elements up to 9 m wide and 6 m high (i.e. similar to a domestic house). Note that this requires a route check by Origin.

Roof dimensions are 11 m wide by 8 m high x 5.5 m bay lengths. As such it may be difficult to transport the roof sections away without first dismantling them. If off site storage is currently under consideration it is recommended that transportation options be confirmed with the Contractor.

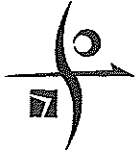
Site Storage Considerations

Site storage of roof elements is likely to be a more favourable option, although this option will reduce the area of site available for construction staging. If the site is to be opened to the public as a ruin further consideration of the site storage option may be required.

6. Comparison of Minimum Shoring Option vs Maximum Retention Option

A discussion of the pros and cons of Maximum Retention vs. Minimum Shoring option was provided in HCG CA# 025. In terms of cost comparisons the following points are relevant:

- The minimum shoring option is likely to have a lower initial cost for the interim state. However this option will also attract a significant premium associated with those portions of the existing structure that are to be retained in the final development i.e. storing, repairing, re-assembling the roof and craning them back into position.
- If the maximum retention option was adopted, the work associated with interim stabilisation of those portions of the building that will not ultimately be retained in the final development will be abortive. Early identification of the final project outcome will minimise this project cost.



Regards,

Withheld under section 9(2)(a)

106324CA0329.029

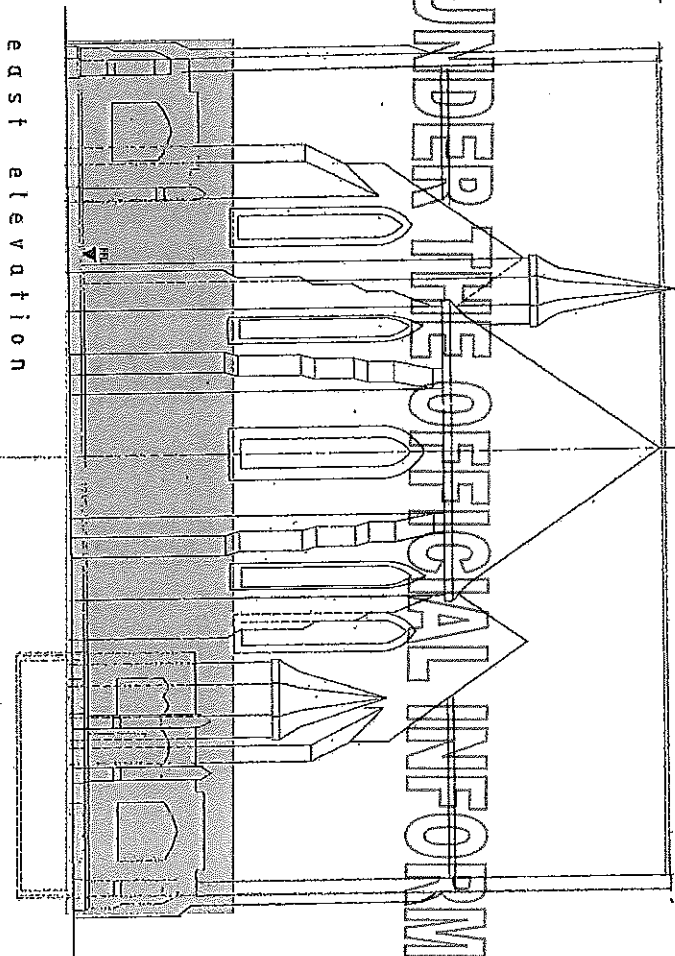
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PAGE 8

LEGEND:

█ Elements to be retained

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**MAKE SAFE PLAN - MINIMUM SHORING OPTION -
EXTENT OF DECONSTRUCTION**

ALL CONSTRUCTION TO BE PERFORMED BY THE LICENSEE MEMBER
OF THE SOCIETY OF PROFESSIONAL ENGINEERS AND ARCHITECTS
IN CANADA (SPEA) INC. (SPEA) INC.

REV. DATE BY REASON
HOLMES CONSULTING GROUP STRUCTURAL AND CIVIL ENGINEERS

HolmesConsultingGroup
STRUCTURAL AND CIVIL ENGINEERS

Project Name: Christchurch Cathedral

Project Number: 106324

Sketches By:

Date: 1/26/2012
Withheld under section 9(2)(a)

Sketch Number: 029 Rev 1



Holmes Consulting Group
STRUCTURAL AND CIVIL ENGINEERS

Project Name: Christchurch Cathedral

Project No: Withheld under section 9(2)(a)

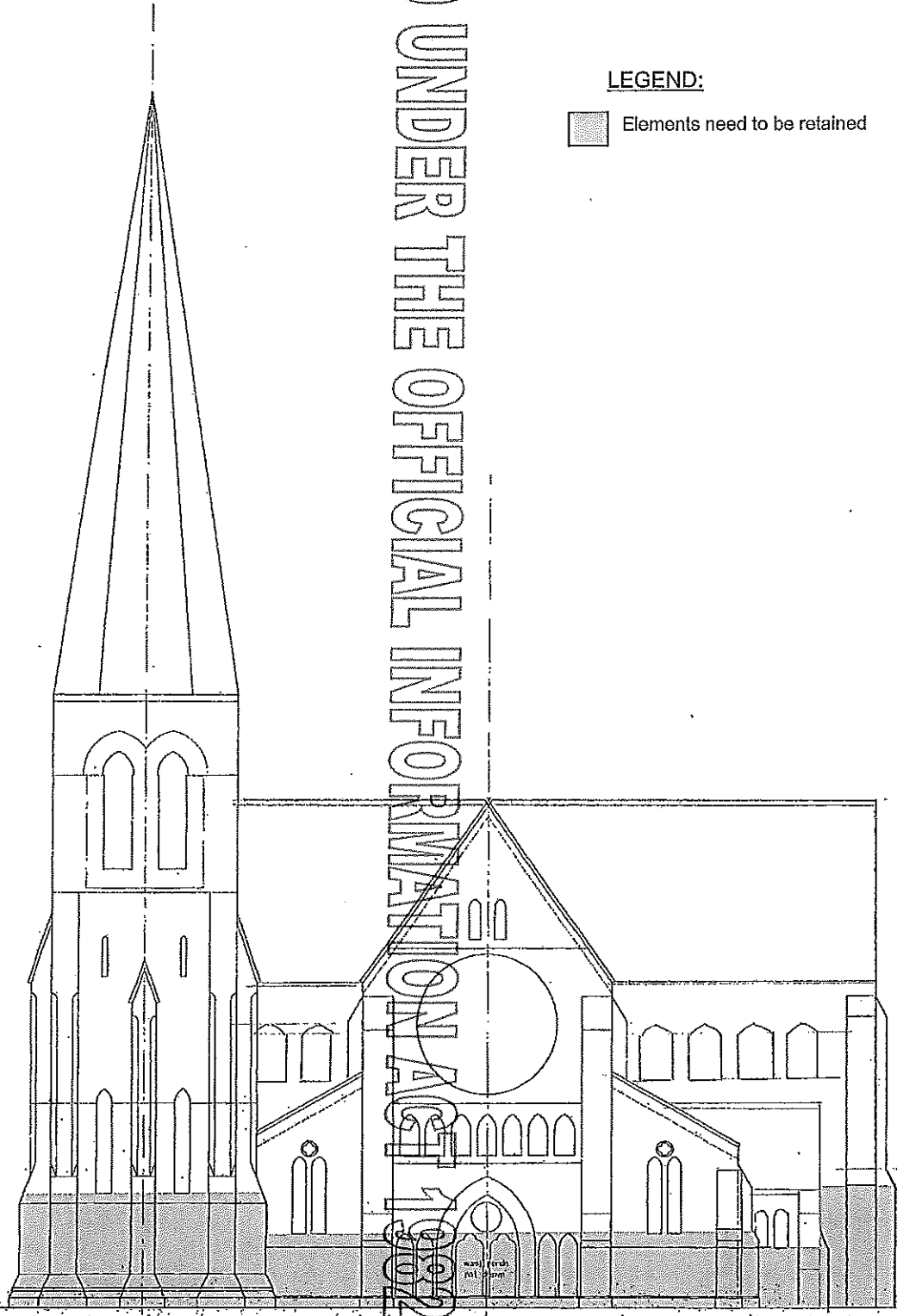
Sketches By:

Date: 14/02/2012


Sketch Number: 027 Rev 1

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REV: DATE: BY: REASON:	HOLMES CONSULTING GROUP STRUCTURAL AND CIVIL ENGINEERS Christchurch, Wellington, New Plymouth, Auckland, Sydney	CHRISTCHURCH CATHEDRAL	SCALE: 1:100 APPROX. 10% SHEET TITLE:	REV: REV
		SEISMIC STRENGTHENING PROPOSALS		
		ELEVATIONS		
				SHEET NO. 2948
				REV. S1-5

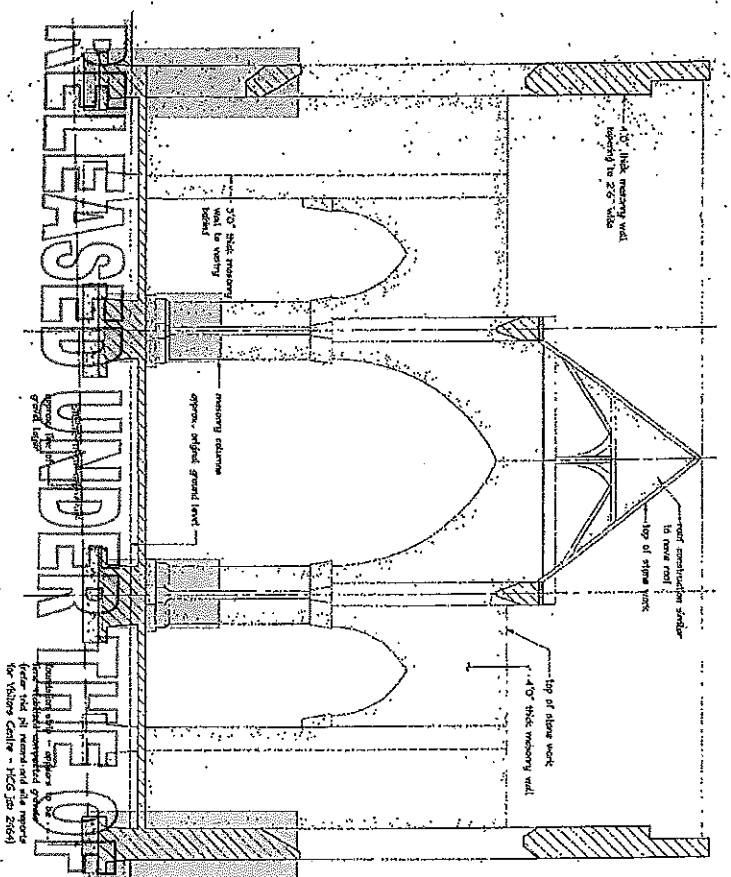


LEGEND:

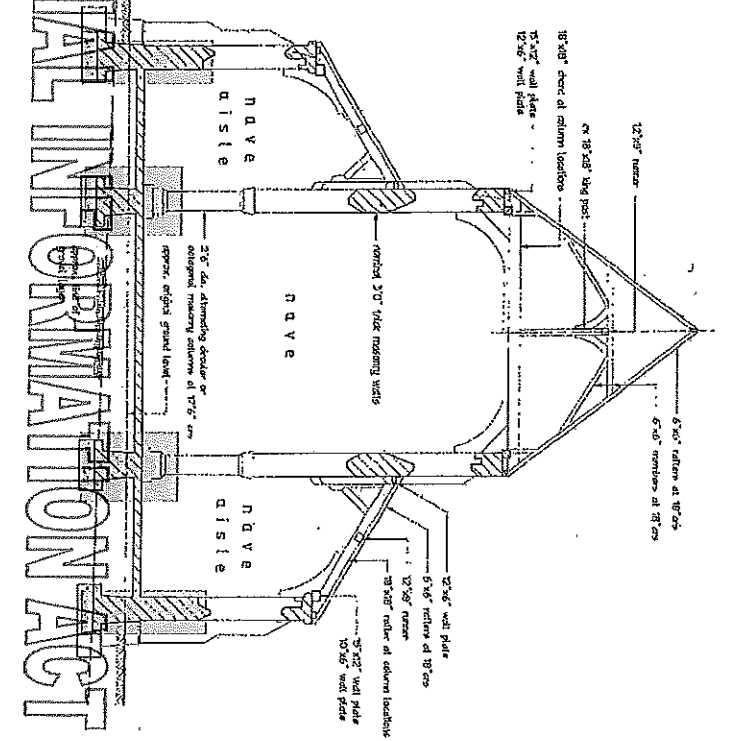
 Elements need to be retained

West elevation

**MAKE SAFE PLAN - MINIMUM SHORING OPTION -
EXTENT OF DECONSTRUCTION**



Longitudinal section transepts 1



typical cross section 2

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LEGEND:
 Elements to be retained

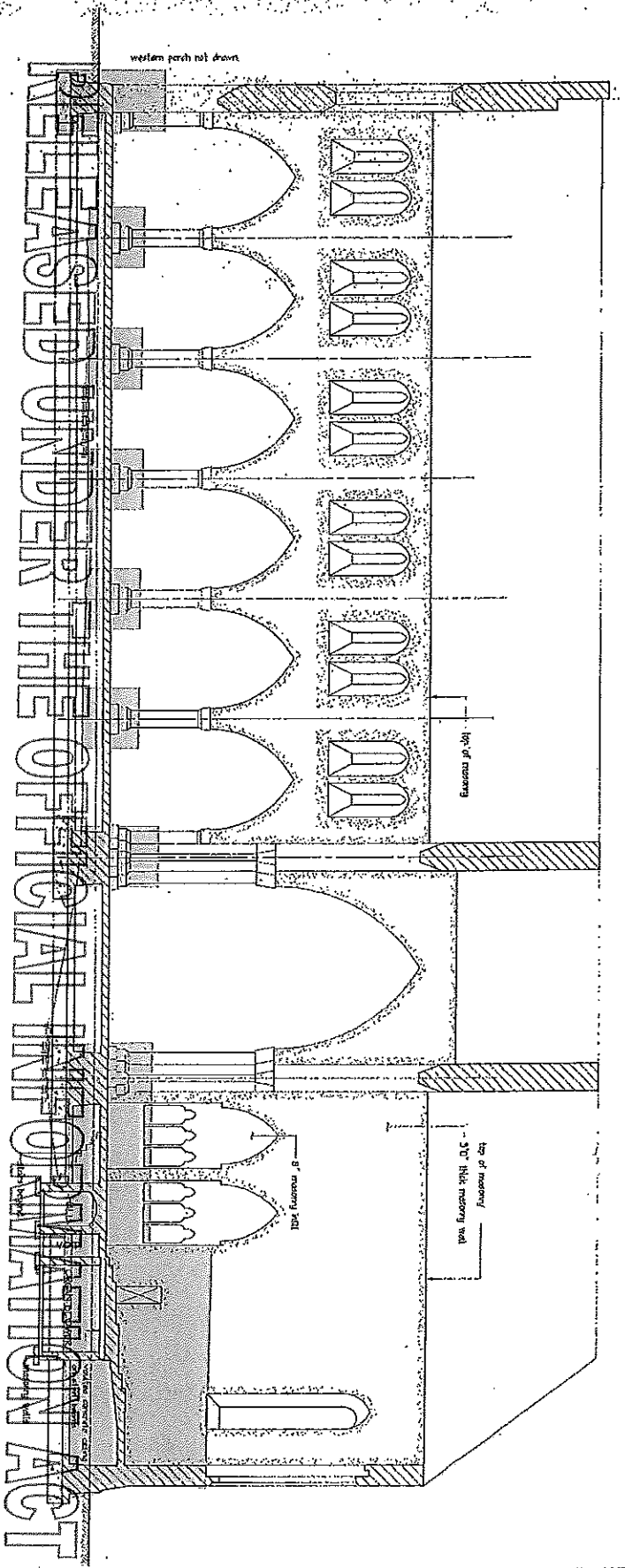
MAKE SAFE PLAN - MINIMUM SHORING OPTION - EXTENT OF DECONSTRUCTION

ALL DRAWINGS TO BE VIEWED BY SUNT HANSHI PLANNING INC. CONSULTING ENGINEERS AND ARCHITECTS. 1000 SHEPPARD AVENUE EAST, SUITE 100, SCARBOROUGH, ONTARIO M1S 1W7. (416) 291-1111. FAX: (416) 291-1112. WWW.SUNT-HANSHI.COM

REV. DATE: 18/1/2012

HOLMES CONSULTING GROUP
 PROJECT MANAGER: JOHN WATSON
 PROJECT ENGINEER: JAMES WATSON

Withheld under section 97(2)(a)
 Withheld under section 97(2)(a)
 Project Name: **Christchurch Cathedral**
 Project Number: 106924
 Date: 14/02/2012
 Sketch Number: 032 Rev 1



Longitudinal section nave

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LEGEND:
 Elements to be retained

**MAKE SAFE PLAN - MINIMUM SHORING OPTION -
 EXTENT OF DECONSTRUCTION**

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REV: DATE: REASON:

HOLMES CONSULTING GROUP
 STRUCTURAL AND CIVIL ENGINEERS
 2000, VICTORIA, CANADA



Holmes Consulting Group
 STRUCTURAL AND CIVIL ENGINEERS

Project Name: Christchurch Cathedral
 Project Number: 106324

Sketches under section 9(2)(a)
 Date: 14/02/2012

Sketch Number: 031 Rev 1



Holmes Consulting Group
STRUCTURAL AND CIVIL ENGINEERS

Project Name: Christchurch Cathedral

Project Number: 106324

Withheld under section 9(2)(a)

Date: 14/02/2012

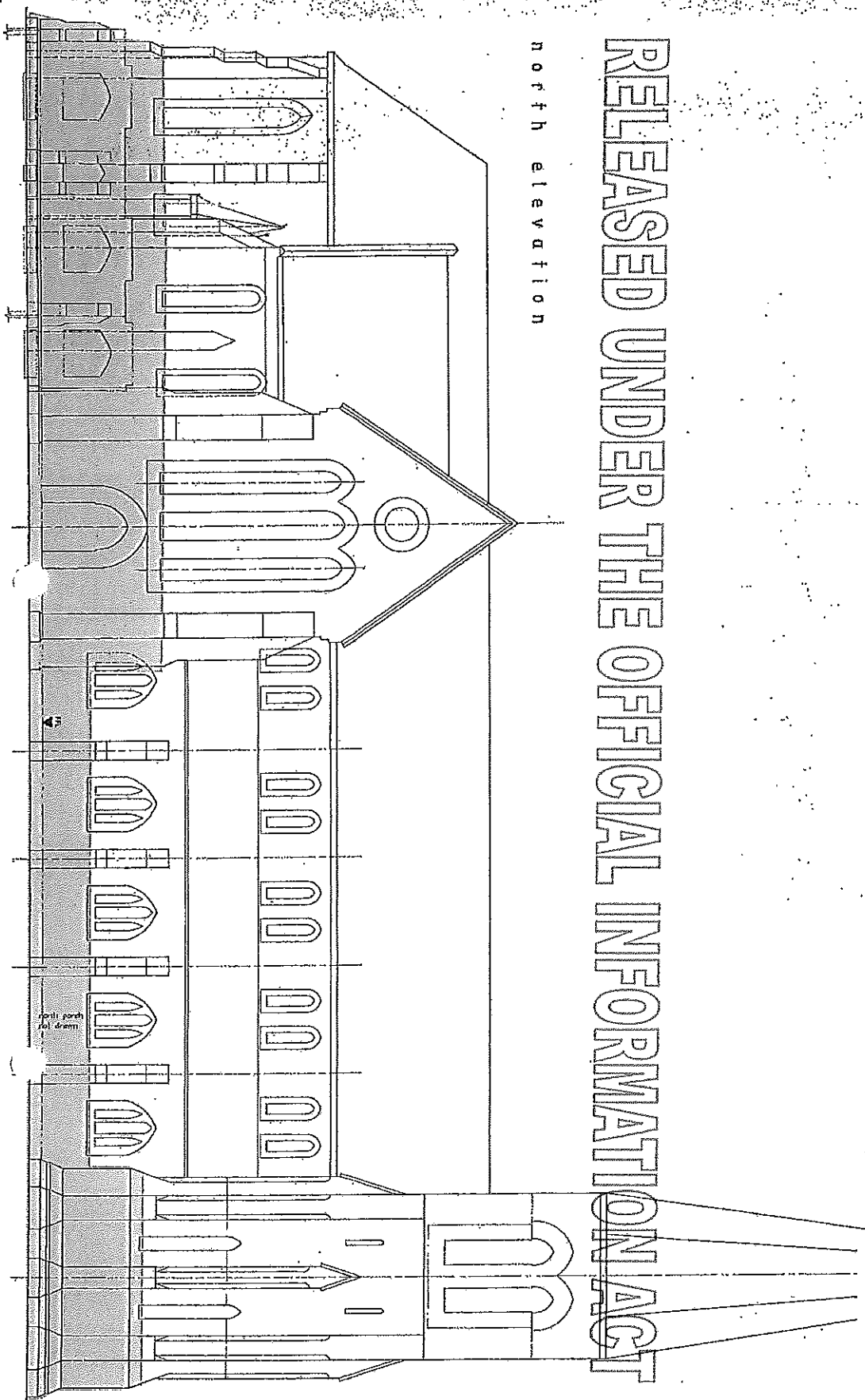
Sketch Number: 030 Rev 1

LEGEND:
Elements to be retained

**MAKE SAFE PLAN - MINIMUM SHORING OPTION -
EXTENT OF DECONSTRUCTION**

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n o r t h e l e v a t i o n



REV. DATE	BY	REASON

HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS
Auckland, Wellington, Dunedin, Christchurch, Invercargill, New Zealand

**CHRISTCHURCH
CATHEDRAL**
SEISMIC STRENGTHENING
PROPOSALS

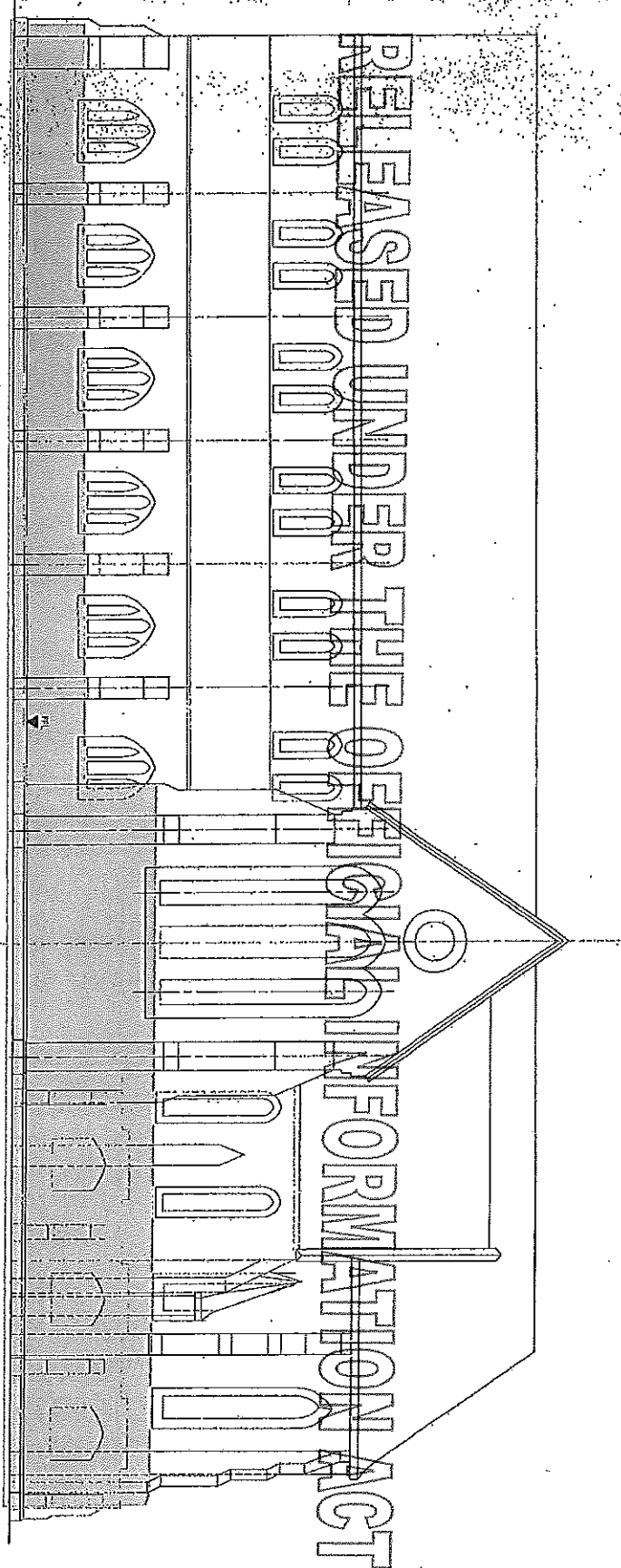
SCALE: 1:100
APPROVED: ANDREW DUNN
DATE: 14/02/2012

ELEVATIONS

2948 S1-4 REV

LEGEND:

█ Elements to be retained



SOUTH Elevation

**MAKE SAFE PLAN - MINIMUM SHORING OPTION -
EXTENT OF DECONSTRUCTION**



Holmes Consulting Group
STRUCTURAL AND CIVIL ENGINEERS

Project Name: Christchurch Cathedral

Project Number: 106324

Withheld under section 9(2)

Date: 14/02/2012

Sketch Number: 028 Rev 1

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WITHOUT THE WRITTEN CONSENT OF THE ENGINEER

DATE: 14/02/2012

HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS
106324

CHRISTCHURCH



Project Name: *CHUM CENTRAL*
Project No: *107324*
Calcs By: *Withheld under section 19(4)(c)*

CALCS/SKETCHES

Date: *15/2/12* Page No:
Sketch No: *29-4* Revision: *1*

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- 3.6m WIRE x 9m HIGH PROTECTIVE TIMBER PANEL
- 25mm THK FB PLYWOOD
- 300x50 MSG 8 STUDS @ 400 CRS.
- 300x50 MSG 8 BLOKING 1200 CRS HORIZ

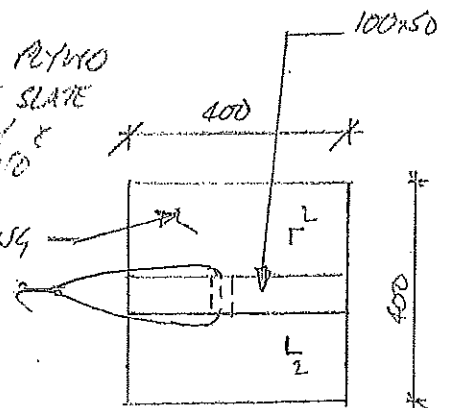
EXISTING WINDOW

SAND BAGS TO SUPPORT BASE OF PANEL

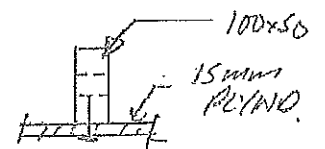
ANCHOR TOP PANEL BACK W/ 20mm NYLON ROPE (3 TOTAL)

EXTG ROPE

15mm PLYMO REMOVE SLATE LOCALLY & TYPAL TO ROOF SHEATHING



SECTION 1-1



SECTION 2-2

WINDOW PROTECTIVE PANEL
" SINGLE SIDED



Project Name: *LMCH CA MEDICAL*

Project No: *10632-A*

Withheld under section 9(2)(a)

Calcs By:

Date: *15/12/12*

Page No:

Sketch No: *29-5*

Revision: *1*

CALCS/SKETCHES

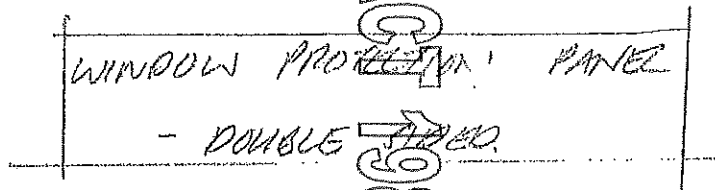
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3.6m WIDE x 9m HIGH PROTECTIVE TIMBER PANEL (REFER SSCH. 29-4) EA. SIDE

3 x 20φ NYLON ROPES OVER WALL

EXTG WINDOW.

SAND BAGS EA. SIDE TO SUPPORT BASE OF PANEL



WINDOW PROTECTION PANEL

- DOUBLE SIDED



Project Name: CHCH CENTRAL

Project No: 108327

Col: Withheld under section 9(2)(a)

Date: 16/2/12

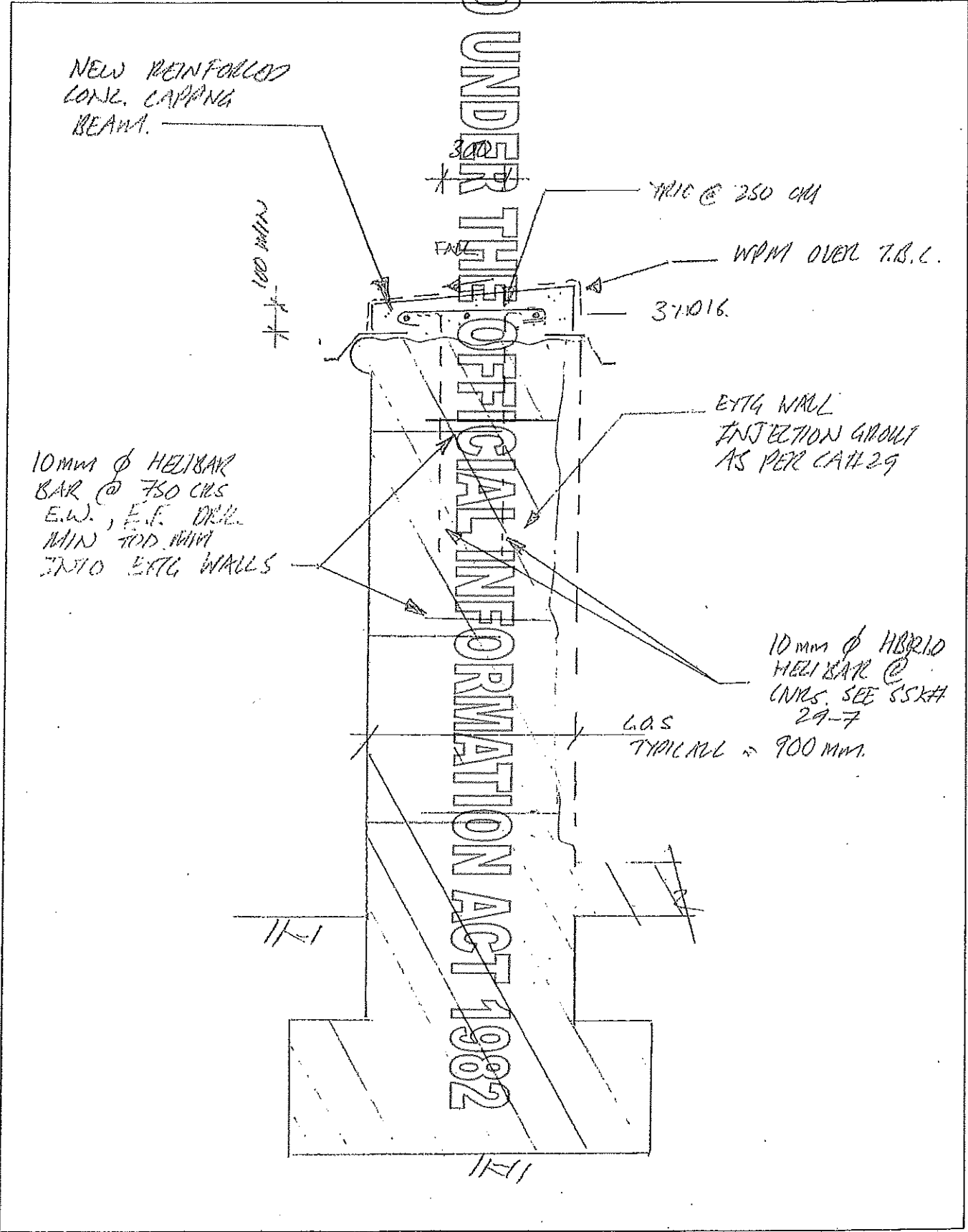
Page No:

Sketch No: 29-6

Revision: 1

CALCS/SKETCHES

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Project Name: *CHALK LATHEDRAM*

Project No: *70631*

Withheld under section 9(2)(a)

Calcs By:

Date: *16/2/11*

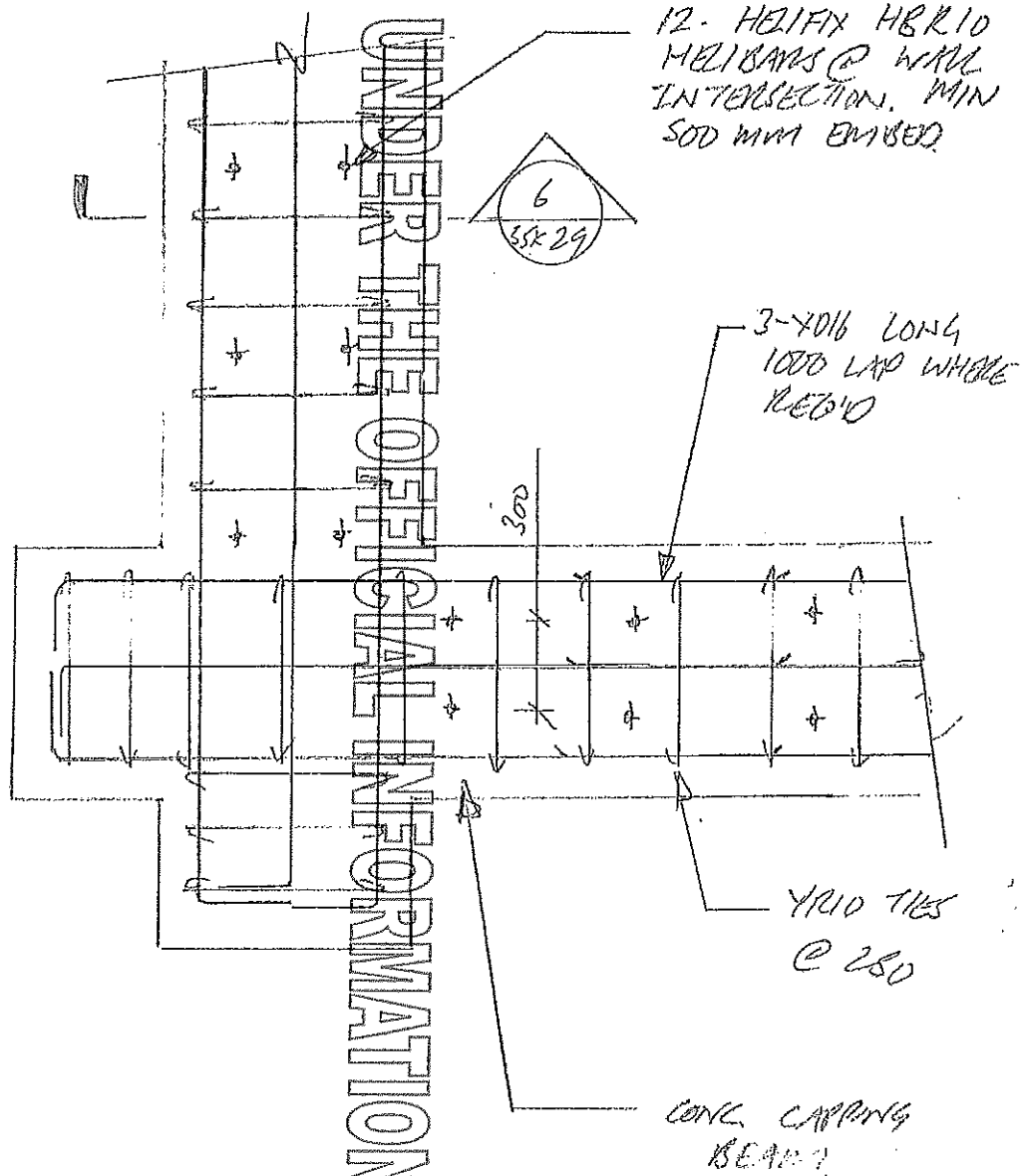
Page No:

Sketch No: *29-7*

Revision: *1*

CALCS/SKETCHES

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Project Name: CHCH LATHING

Project No: 10637

Withheld under section 9(2)(a)

Date: 10/2/12

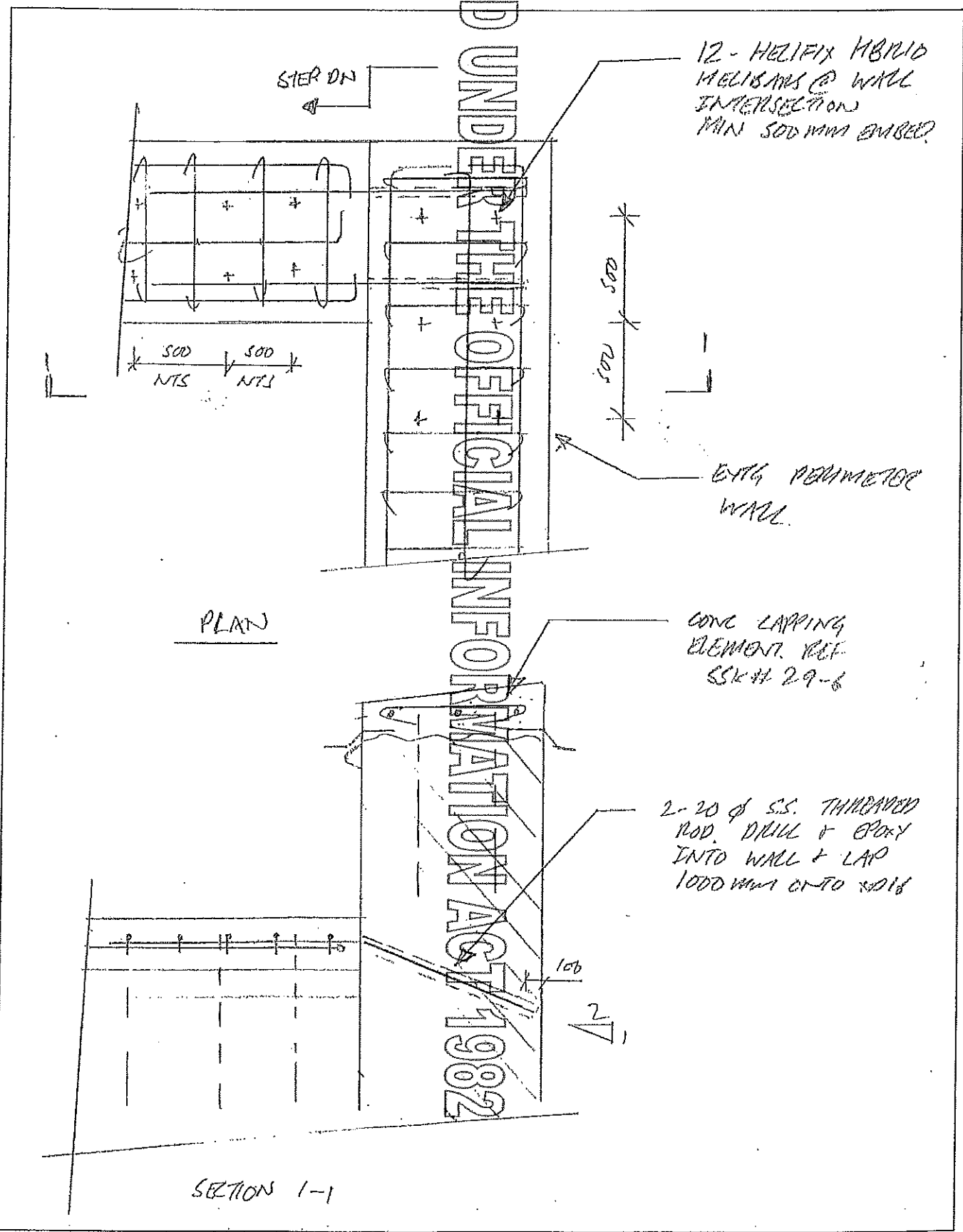
Page No:

Sketch No: 29-5

Revision:

CALCS/SKETCHES

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Project Name: Christchurch Cathedral Reconstruction CA HCG: 030

Project No: 106324 Action: Christchurch

From: Withheld under section 9(2)(a) Information Telephone

Date: 17 February 2012 Pages: 1 of 2 64 3 366 3366

Subject: Revised Make Safe Works - Intermediate Option Facsimile

- To
- cc
-
-
-
-
-
-
-
-

- CPT
- CPT
- RCP
- Warren & Mahoney
- Davis Langdon
- Jackie Gillies & Ass
- Holmes Consulting Group

- Internet
- www.holmesgroup.com

Withheld under section 9(2)(a)

Withheld under section 9(2)(a)

Confirmation / Response to PC No.: N/A

As requested Holmes Consulting Group have completed concept design of an intermediate securing option for the Cathedral

This securing has been developed on the assumption that the east end of the Cathedral (i.e. the Transept & Apse) have sustained significantly less damage than the west end (i.e. Nave & Tower) and on that basis can be more easily stabilised in place and repaired. This option assumes that the balance of the Cathedral, excluding the Visitor Centre, would ultimately be demolished and replaced with new contemporary elements.

This option has a number of advantages:

- The Transept & Apse could be repaired and used as a place of worship while the design and construction of the new contemporary eastern structure occurs.
- Once the Transept and Apse have been stabilised the western end could be retained as a ruin for the interim state and the Visitor Centre could be re-opened.
- Costly abortive works associated securing portions of the Cathedral that would not ultimately be used in the final state are avoided.

Outline scope of works is detailed on SSK-030-01 & 02.

- Level 5
- 123 Victoria Street
- PO Box 25355
- Christchurch 8144
- New Zealand
- Offices in
- Auckland
- Hamilton
- Wellington
- Queenstown
- San Francisco

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Regards,

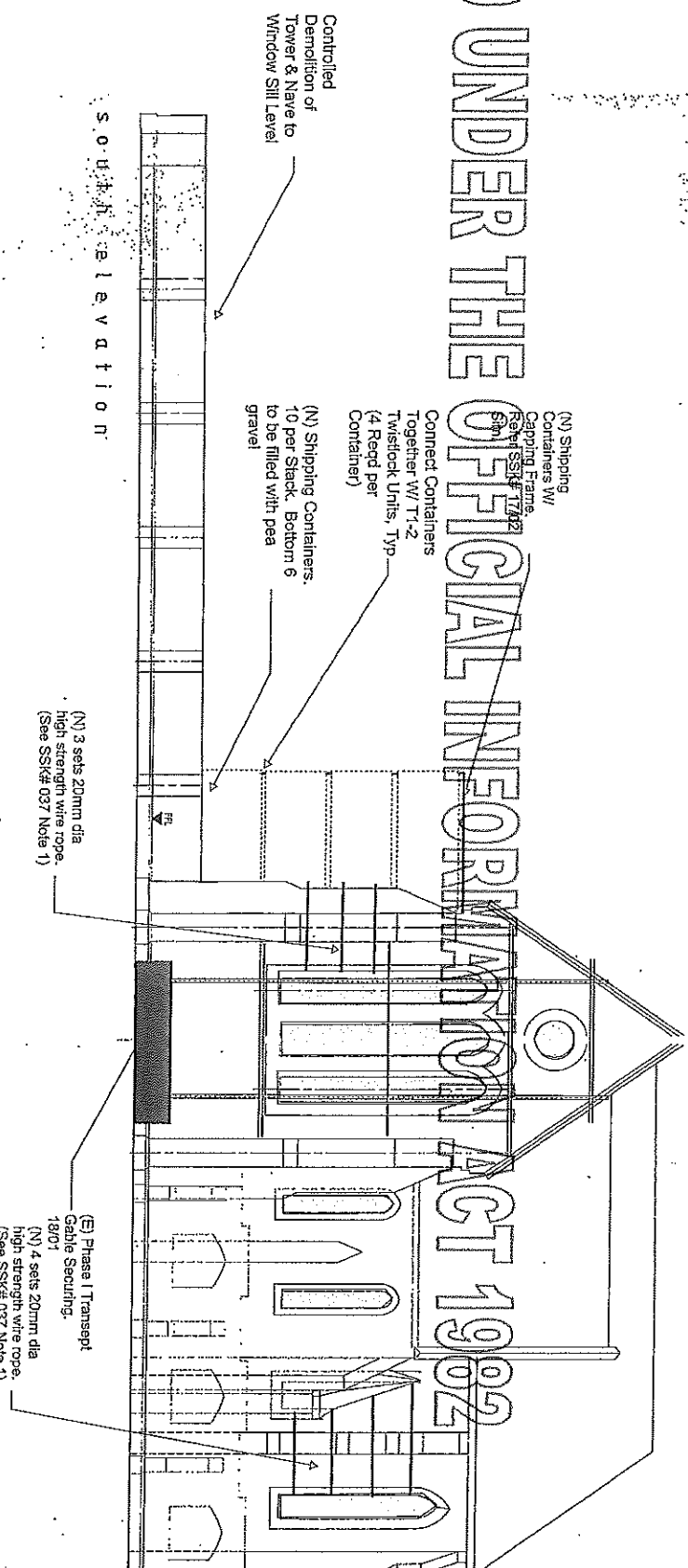
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106324CA0329.030

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LEGEND:
(N) - New
(E) - Existing

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Controlled Demolition of Tower & Nave to Window Sill Level

(N) Shipping Containers w/ Skidding Frames Refer SSK# 1742 Ship Connect Containers Together w/ T1-2 Twistlock Units. Typ (4 Rep'd per Container)

(N) Shipping Containers. 10 per Stack. Bottom 6 to be filled with pea gravel

(N) 3 sets 20mm dia high strength wire rope. (See SSK# 037 Note 1)

(E) Phase 1 Truss Gable Securing. 18/01 (N) 4 sets 20mm dia high strength wire rope. (See SSK# 037 Note 1)

SOUTH Elevation

MAKE SAFE PLAN - INTERMEDIATE OPTION - SOUTH ELEVATION



Halmer Consulting Group

Project Name: Cathedral Cathedral

Drawn by: **Withheld under section 9(2)(a)**

Date: 17/05/2017
Sheet Number: 030-02

26/10/11

CHRISTCHURCH CATHEDRAL

The Anglican Diocese of Christchurch is considering all the options for all of its churches, buildings and other facilities following the recent earthquakes.

"This is a challenging and complex process and extensive consultation is required with a range of stakeholders along with the need to commission expert analysis and technical reports. At all times we are proceeding with a deep commitment to being faithful to the gospel we proclaim," says Bishop Victoria Matthew.

With all sites, including the Christchurch Cathedral in the central city, safety is the first priority.

A final decision won't be made until all of the information and reports are received by the various church entities and the options and ramifications considered.

It is critically important to the Bishop, Dean and the Anglican community that the right decision is made as to where the Cathedral¹ of the Bishop is located both in the short and long term.

With regards to the interim ministry of the Cathedral, again all the options, including the feasibility of the cardboard Cathedral concept, are being fully investigated and considered.

There will be a formal announcement once a decision is made on the future of each of the churches and facilities including the Christchurch Cathedral and the location of the interim ministry.

"We celebrate that there is such interest in the future plans, particularly those for the Cathedral. We must be responsible and above all faithful stewards as

¹ "Cathedra" is a Greek word for chair, and refers to the seat of a bishop in the principal church of their diocese, which is therefore called a cathedral.

we make decisions about the mission of the Church in this part of God's vineyard," concluded Bishop Matthews.

Ends

For further information:

Tracey Chambers

Chambers Strategy + Communication

03 377 0147 or 027 229 1838 or tracey@chamberspr.co.nz

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From:
Sent: Wednesday, 2 November 2011 11:00 a.m.
To:
Subject: RE: Catherdal
Attachments: Letter CPT - Section 38 Clarifications (final draft).doc

Withheld under section 9(2)(g)(i)

Canterbury Earthquake Recovery Authority (CERA)
L4, 62 Worcester Boulevard
Private Bag 4999, Christchurch 8140

www.cera.govt.nz

From:
Sent: Wednesday, 2 November 2011 10:50 a.m.
To:
Subject: RE: Catherdal

Withheld under section 9(2)(g)(i)

My tracked changes attached. May nee to discuss the "state that would survive in a less than moderate earthquake"

Canterbury Earthquake Recovery Authority (CERA)
L4, 62 Worcester Boulevard
Private Bag 4999, Christchurch 8140

T: 03 354 2745
M: 029 263 1287
E: greg.wilson@cera.govt.nz
W: www.cera.govt.nz

From:
Sent: Wednesday, 2 November 2011 10:37 a.m.
To:
Subject: Catherdal
Importance: High

Withheld under section 9(2)(g)(i)

Gents

Attached is a draft letter to the CPT clarifying items raised at our meeting yesterday.

Welcome your comments and amendments

Regards

13/03/2012

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Canterbury Earthquake Recovery Authority (CERA)

L4 62 Worcester Boulevard
Private Bag 4999, Christchurch 8140

W: www.cera.govt.nz

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Withheld under section 9(2)(g)(i)

From:
Sent: Wednesday, 2 November 2011 5:00 p.m.
To:
Subject: Christchurch Cathedral
Attachments: 20111102 Church Property Trustees.pdf

Withheld under section 9(2)(a)

Dear

Please find attached a letter from Warwick Isaacs regarding Christchurch Cathedral.

Regards

to Warwick Isaacs, GM Demolition
Canterbury Earthquake Recovery Authority
L4, 62 Worcester St, Christchurch
ddi : '
cell
www.cera.govt.nz

Withheld under section 9(2)(g)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

CERA



Canterbury Earthquake
Recovery Authority

2 November 2011

Church Property Trustees

PO Box 4438
CHRISTCHURCH 8140

Withheld under section 9(2)(a)

Dear

100 Cathedral Square – Christchurch Cathedral

A section 38 letter was issued on 28 October 2011 which requires you to advise me, within 10 calendar days, whether you intend to undertake the demolition of the building yourselves or you wish CERA to undertake the work. If you wish to undertake the work you need to provide me with a plan for my approval.

On 1 November 2011 CERA staff met with your consulting team to discuss the requirements of the section 38 notice and this also provided the opportunity to clarify any issues. The following is clarification of issues raised at the meeting:

- Interim work for the retrieval of the artifacts is acceptable. Your plan must address the method and time-line you propose to use to retrieve artifacts – which may include necessary demolition, deconstruction, or strengthening work designed to protect the people engaged in the retrieval work, as well as the people engaged in the necessary building works (Phase One).
- Your plan is also to include your proposal to remove or mitigate the hazard posed by the dangerous building (Phase Two). This is to include the methods you propose to use to remove all the hazards, the time-line over which the work is to be carried out and a full description of the state the building will be left in once the works are completed.

CERA staff are available to work with your consulting team to clarify any further issues so the requirements of the section 38 letter are satisfied within the given time-frame.

Please contact my office if you have any further queries.

Yours sincerely



Warwick Isaacs
General Manager Demolition

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From:
Sent: Friday, 4 November 2011 12:56 p.m.
To:
Subject: Christchurch Cathedral - Make safe plans

Withheld under section 9(2)(a)

Hi [redacted] thanks for coming in to explain and discuss the make-safe work being planned for presentation to CERA today and formally by Tuesday.

I confirm that insurers are comfortable with the process as developed and explained to date. You've indicated that the best estimate of cost is [redacted]

Withheld under section 9(2)(b)(ii)

We confirm we are comfortable with this process and that the reasonable costs incurred will be met by Ansvar.

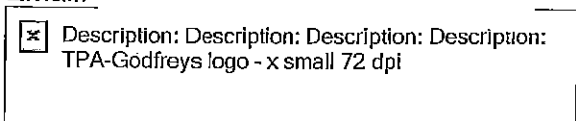
Can you please ensure we are forwarded copies of the developed plans and any scoping documents so that we stay informed with the entire process, and are able to keep insurers informed.

You mentioned that CERA are requiring removal of protection works from the public footpath adjacent to the Cathedral. Can you please check that position with CERA? We are extremely surprised that protection of the building, whether on the public roadway or not, wouldn't be seen as a greater priority than public access to the footpath and roadway. It would concern insurers if the cost of work for this significant building - both protection and reinstatement - were noticeably increased by measures designed to allow public access so close to the building.

Best regards

Withheld under section 9(2)(a)

Email:



Auckland | Hamilton | Napier | Wellington | Christchurch | Queenstown

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From: I
Sent: Tuesday, 8 November 2011 11:35 AM
To:
Subject: RE: help...

Withheld under section 9(2)(g)(i)

Thanks v much

Canterbury Earthquake Recovery Authority
www.cera.govt.nz

From: I
Sent: Tuesday, 08 November, 2011 11:34 AM
To:
Subject: RE: help...

Hi

We haven't received the Cathedral plans yet. Indication yesterday was we would receive it later afternoon.

Regards

Canterbury Earthquake Recovery Authority (CERA)
Private Bag 4999, Christchurch 8140

W: www.cera.govt.nz

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From:
Sent: Tuesday, November 08, 2011 11:02 AM
To:
Subject: help...

Am expecting media interest today in the Cathedral plans for their partial demo that are expected to be submitted today. Warwick will address the questions formally, but for starters have we even got the cathedral plans in? An ETA?

cheers

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Canterbury Earthquake Recovery Authority

www.cera.govt.nz

Withheld under section 9(2)(g)(i)

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From:

Sent: Tuesday, 8 November 2011 1:58 p.m.

To: Warwick Isaacs

Subject: Hello, its me again

Withheld under section 9(2)(g)(i)

If the Cathedral plans come in before 6pm, would you please let me know?
I have two requests now for confirmation that the plans arrived or didn't arrive today. So if I can factually state at the end of the day that we have been given the plans, (as per the church's earlier media advisories saying they intend to give them to us today) that would be good.

thanks very much in advance.

Canterbury Earthquake Recovery Authority

www.cera.govt.nz

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RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

From:
Sent: Tuesday, 8 November 2011 7:08 p.m.
To:
Cc:
Subject: FW: ChristChurch Cathedral Section 38(4) Owners Response
Attachments: 2011-11-08-S38 signed.pdf; S38 Initial Draft Make Safe Plan- Draft.pdf; 2011-11-08-CPT - ERP - ChristChurch Cathedral - Draft Interim Make Safe Programme rev1.pdf; 2011-011-08-Cathedral Priority Retrieval Items.pdf; 2011-11-08-MR-Cathedral Retrieval Location Zones Plan.pdf; Christchurch Cathedral - Make safe plans

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Dear

As you have requested - please find attached a copy of the documents and signed S38(4).

You will note that on the S38(4) we have put the make safe works as being completed by the end of February and this is reflected in the RCP programme under Phase 1.

The additional internal making safe for the retrieval of the heritage items we expect will take longer and this with the retrieval will be completed by April 2012, again reflected in the RCP programme Phase 2.

If you have any questions please contact either myself or Marcus Read.

Kind regards

Withheld under section 9(2)(a)

Church Property Trustees
 Anglican Centre, St Peter's Church, 22 Main South Road, Upper Riccarton, PO Box 6088, Upper Riccarton, Christchurch 8042
 www.cpt.org.nz

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Withheld under section 9(2)(a)

From:
Sent: Tuesday, 8 November 2011 5:19 p.m.
To: demolitioncontracts (CERA)
Cc: ; 'warwick.isaacs@cera.govt.nz'
Subject: ChristChurch Cathedral Section 38(4) Owners Response

Withheld under section 9(2)(g)(i)

Dear Cera Demolitions

Please find attached:

1. Signed Pg 11 - Section 38(4) for the ChristChurch Cathedral
2. Holmes Consulting Group ChristChurch Cathedral Draft Initial Make Safe Plan
3. RCP – ChristChurch Cathedral Draft Programme for the Interim Make Safe
4. ChristChurch Cathedral Priority Retrieval Items
5. ChristChurch Cathedral Retrieval Location Zones Plan
6. Email from Insurer's Loss Adjustor - Godfrey's

If you have any further questions please let me know.

Kind regards

Withheld under section 9(2)(a)

Church Property Trustees
Anglican Centre, C/- St Peter's Church, 22 Main South Road, Upper Riccarton, PO Box 6088, Upper Riccarton,
Christchurch 8042

www.anglicanlife.org.nz

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Owner's Response to Demolition Notice under s38(4) of the Canterbury Earthquake Recovery Act 2011 (the Act)

To: The Chief Executive, Canterbury Earthquake Recovery Authority
Attention: Warwick Isaacs, General Manager, Demolition

Email demolitioncontracts@cera.govt.nz, or

Post to Canterbury Earthquake Recovery Authority, Private Bag 4999,
Christchurch 8140.

1. I confirm that I am the owner or duly authorised representative of the owner of the building at 100 Cathedral Square, Christchurch Lot 1 DP 39475 as described in the demolition notice you issued to me under section 38(4) of the Act.

2. I agree that the description of the building in that notice is accurate (if not please amend and attach updated description).

3. I agree (cross out which you do not want to apply):

~~a. That CERA will arrange for the demolition of the building and will invoice me for the cost of the work once it is completed; OR~~

b. To arrange for the demolition of the building in accordance with my proposal under which demolition will be completed, the site cleared and all waste disposed of in accordance with all relevant requirements by no later than December 14th 2012.

From: **Withheld under section 9(2)(a)**

Signed this 8th day of November 2011 by
duly authorised representative of the owner.

Withheld under section 9(2)(a) as owner or

Withheld under section 9(2)(a)

Signature

- Attached:
- Amended description (if building description is not accurate)
 - Copy of demolition proposal under paragraph 3(b) above (if applicable)
 - Proof of authority to sign this letter if signing as duly authorised representative
 - Completed Owner's Agreement (if paragraph 3(a) is chosen).

Withheld under section 9(2)(a)

Withheld under section 9(2)(a)

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From: [redacted]
Sent: Wednesday, 9 November 2011 8:49 a.m.
To: [redacted]
Cc: [redacted]
Subject: RE: ChristChurch Cathedral Section 38(4) Owners Response

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Good morning

You will note that on the S38 I have the completion date as being 28 February 2012.

To clarify:
 28 February 2012 is the completion date of the Phase 1 – securing the building within the site boundary.
 End of April is the completion date of Phase 2 – securing the building to enable contents retrieval.

Kind regards

Withheld under section 9(2)(a)

[redacted], Church Property Trustees
 Anglican Centre, C/- St Peter's Church, 22 Main South Road, Upper Riccarton, PO Box 6088, Upper Riccarton,
 Christchurch 8042

| ☎ +
 | ☒; www.anglicanlife.org.nz

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Withheld under section 9(2)(g)(i)

From: [redacted]
Sent: Wednesday, 9 November 2011 7:31 a.m.
To: [redacted]
Cc: [redacted]
Subject: RE: ChristChurch Cathedral Section 38(4) Owners Response

Withheld under section 9(2)(a)

good morning.

Many thanks for the section 38 response etc..

I have deleted the first email from you on request of the second email

Our CERA engineers will review the information received and will be back to you shortly.

If you have any further questions you would like answered please feel free to contact me.

Kind regards

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Canterbury Earthquake Authority - **CERA**

Private Bag 4999
Christchurch 8140

M:

Withheld under section 9(2)(g)(i)

DE

E:

W: www.cera.govt.nz

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

Withheld under section 9(2)(a)

From:

Sent: Tuesday, 8 November 2011 5:19 p.m.

To: demolitioncontracts (CERA)

Cc:

Subject: ChristChurch Cathedral Section 38(4) Owners Response

Withheld under section 9(2)(g)(i)

Dear Cera Demolitions

Please find attached:

1. Signed Pg 11 - Section 38(4) for the ChristChurch Cathedral
2. Holmes Consulting Group ChristChurch Cathedral Draft Initial Make Safe Plan
3. RCP – ChristChurch Cathedral Draft Programme for the Interim Make Safe
4. ChristChurch Cathedral Priority Retrieval Items
5. ChristChurch Cathedral Retrieval Location Zones Plan
6. Email from Insurer's Loss Adjustor - Godfreys

If you have any further questions please let me know

Kind regards

Withheld under section 9(2)(a)

Church Property Trustees

Anglican Centre, C/- St Peter's Church, 22 Main South Road, Upper Riccarton, PO Box 6088, Upper Riccarton, Christchurch 8042

☎

www.anglicanlife.org.nz

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9/11/2011

From: [Redacted]
Sent: Wednesday, 9 November 2011 10:42 a.m. **Withheld under section 9(2)(g)(i)**
To: [Redacted]
Cc: [Redacted]
Subject: FW: ChristChurch Cathedral Section 38(4) Owners Response
Attachments: 2011-11-08-S38 signed.pdf.zip; S38 Initial Draft Make Safe Plan- Draft.pdf.zip; 2011-11-08-CPT - ERP - ChristChurch Cathedral - Draft Interim Make Safe Programme rev1.pdf.zip; 2011-011-08-Cathedral Priority Retrieval Items.pdf.zip; 2011-11-08-MR-Cathedral Retrival Location Zones Plan.pdf.zip; Christchurch Cathedral - Make safe plans

SB#198
2.11.2

Gents FYI

Kind regards

Canterbury Earthquake Authority - **CERA**
Private Bag 4999
Christchurch 8140

W: www.cera.govt.nz

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From: [Redacted]
Sent: Tuesday, 8 November 2011 5:19 p.m.
To: demolitioncontracts (CERA)
Cc: [Redacted]
Subject: ChristChurch Cathedral Section 38(4) Owners Response

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

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5. ChristChurch Cathedral Retrieval Location Zones Plan
6. Email from Insurer's Loss Adjustor - Godfreys

If you have any further questions please let me know

Kind regards

[Redacted], Church Property Trustees

Anglican Centre, C/- St Peter's Church, 22 Main South Road, Upper Riccarton, PO Box 6088, Upper Riccarton, Christchurch 8042

.org.nz www.anglicanlife.org.nz

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From:
Sent: Wednesday, 9 November 2011 8:49 a.m.
To:
Cc:
Subject: RE: ChristChurch Cathedral Section 38(4) Owners Response

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Good morning

You will note that on the S38 I have the completion date as being 28 February 2012.

To clarify:
28 February 2012 is the completion date of the Phase 1 – securing the building within the site boundary.
End of April is the completion date of Phase 2 – securing the building to enable contents retrieval.

Kind regards

Church Property Trustees
c/- St Peter's Church, 22 Main South Road, Upper Riccarton, PO Box 6088, Upper Riccarton,
Christchurch 8042

: www.anglicanlife.org.nz

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From: I
Sent: Wednesday, 9 November 2011 7:31 a.m.
To: I
Cc: I
Subject: RE: ChristChurch Cathedral Section 38(4) Owners Response

Withheld under section 9(2)(g)(i)

Withheld under section 9(2)(a)

good morning.

Many thanks for the section 38 response etc..

I have deleted the first email from you on request of the second email!

Our CERA engineers will review the information received and will be back to you shortly.

If you have any further questions you would like answered please feel free to contact me.

Kind regards

Canterbury Earthquake Authority - **CERA**
Private Bag 4999
Christchurch 8140

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Withheld under section 9(2)(g)(i)

W: www.cera.govt.nz

From: I
Sent: Tuesday, 8 November 2011 5:19 p.m.
To: demolitioncontracts (CERA)
Cc:
Subject: ChristChurch Cathedral Section 38(4) Owners Response

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

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4. ChristChurch Cathedral Priority Retrieval Items
5. ChristChurch Cathedral Retrieval Location Zones Plan
6. Email from Insurer's Loss Adjustor - Godfrey

If you have any further questions please let me know.

Kind regards

Withheld under section 9(2)(a)

Property Manager, Church Property Trustees
Anglican Centre, c/- St Peter's Church, 22 Main South Road, Upper Riccarton, PO Box 6088, Upper Riccarton, Christchurch 8042
| ☎ + 64 3 348 6960 or 027 285 2028
| ✉ property@anglicanlife.org.nz www.anglicanlife.org.nz

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RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

From:
Sent:
To:
Subject:

Thursday, 10 November 2011 8:22 a.m.

Accepted: Cathedral

Withheld under section 9(2)(g)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

From:
Sent: Monday, 14 November 2011 9:25 a.m.
To:
Subject: RE: Cathedral Report

Released under section 9(2)(g)(i)
Released under section 9(2)(a)

Hi

The make safe methodology provided by CPT is not currently on the Cathedral file. CERA engineers are reviewing. Heritage engineers (through HPT) will also be engaged to review the methodology.

Regarding a change in process, I do not believe that is the case. My understanding of the arrangement is that HRT and HPT have the opportunity for input, reports etc on heritage buildings prior to a s38 notice being issued. Indeed, these reports are considered carefully to inform the s38 process.

My further understanding is that CERA will have the lead as opposed to the RMA process with respect to the make safe works, noting that the building owners through their contracted project manager will be doing the work.

Regards

Canterbury Earthquake Recovery Authority (CERA)
L4, 62 Worcester Boulevard
Private Bag 4999, Christchurch 8140

Released under section 9(2)(g)(i)

W:www.cera.govt.nz

From: [mailto:...]
Sent: Tuesday, 8 November 2011 4:14 p.m.
To:
Cc:
Subject: RE: Cathedral Report

Released under section 9(2)(g)(i)

Hi

Yes we will be checking the file to specifically review the option of make safe provided to CERA by the CPT. Can you please confirm whether this information is on the file or advise when it has been received. We understand that the file must remain in the building, no problem.

I must say that I am very surprised that CERA does not require to view the HRT position regarding make safe. This potentially is a significant change in process. The HRT has continually commented on all Group 1-4 buildings in the city for both demolition and make safe. While we might expect that CERA not consider our advice on group 3 and 4 buildings, it has always been our hope that CERA reviews with careful consideration our advice on Group 1 and 2 buildings. Moreover, I have reprinted two email below, one from Warwick Isaacs and the other from [redacted] on his behalf, that clearly expects and encourages the HRT to assist CERA in this matter. So please expect that once we have viewed the CPT chosen methodology we shall be able to complete our report and forward to CERA.

Released under section 9(2)(g)(i)

Also, as work to make safe on the cathedral starts, will it be CERA that will oversee and approve any make safe methodologies and other concerns or will the RMA process take the lead? If CERA, then please expect that the HRT will want to have a role in providing additional advice on this significant Group 1 building prior to and as work progresses. We undertake this work daily, for example, we are working closely and in harmony with the Arts Centre Trust and Holmes Consulting. Work has progressed very well and without delay. I think there is danger in allowing work to progress without peer review by recognised professionals. Please note that our report will provide a full recommendation regarding methodologies and other conditions that should accompany any approval. The HRT along with HPT staff have considerable knowledge and skills to offer in this regard to ensure the appropriate outcome.

---Original Message---

From

On Behalf Of Warwick Isaacs

Withheld under section 9(2)(a)(i)

Sent: Friday, 16 September 2011 12:17 pm

Withheld under section 9(2)(a)

Subject: RE: Re Anglican Cathedral

I have copied you in on my reply to necessary decisions regarding its future.

you will see that I have no intention of excluding either the City or NZHPT from assisting CERA making the

Regards

Warwick

-----Original Message-----

From:

Behalf Of Warwick Isaacs

Withheld under section 9(2)(a)(i)

Sent: Friday, 16 September 2011 4:56 pm

Withheld under section 9(2)(a)

Subject: RE: Re Anglican Cathedral

I have talked to Warwick. He said the meeting went well, but the timeframe is not confirmed yet.

He suggests you look at the file, review Heritage's position as quickly as possible and let him know in the normal way.

Regards

Withheld under section 9(2)(g)(i)

Canterbury Earthquake Recovery Authority L4, 62 Worcester St, Christchurch cdd

www.cera.govt.nz

Regards

Withheld under section 9(2)(g)(i)

Email

Web: www.ccc.govt.nz

Christchurch City Council
Civic Offices, 53 Hereford Street, Christchurch, 801
PO Box 73012, Christchurch, 8154

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18/11/2011

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

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From:
Sent: Tuesday, 8 November 2011 2:05 pm
To: [redacted]
Subject: RE: Cathedral Report

Withheld under section 9(2)(g)(i)

Hi

There is no issue you looking at the Cathedral file. Please come across and view at your leisure. Note that we cannot have the file leaving the building.

CERA does not require a report from CCC Heritage regarding this building. A s38 notice has been sent to the owners in support of their decision. It is now up to them to work through the remainder of the process to leave the building in a safe state.

In the future, I do not believe it is CERA's intention to refer HRT to the website to access information on Heritage or other buildings.

Happy to discuss as always.

Cheers

Canterbury Earthquake Recovery Authority (CERA)
L4, 62 Worcester Boulevard
Private Bag 4999, Christchurch 8140

Withheld under section 9(2)(g)(i)

E:
W:www.cera.govt.nz

From:
Sent: Tuesday, 8 November 2011 11:00 a.m.
To:
Subject: Cathedral Report
Importance: High

Withheld under section 9(2)(g)(i)

Hi

Last week I asked if we could see the CERA file to enable us to complete our report to CERA on this Group 1 building. Your reply was to some extent helpful in that you said all information will be on the CERA website and can be viewed there. We have reviewed the website but have difficulty in down loading some of the larger files. We have asked our IT folks to help but they may not be able to help in a timely manner due to their current work load. I ask whether we can view the physical file as has been the process to date. Also, it is important to understand when CERA expects the Heritage Response Team (HRT) report, please confirm.

I would also seek clarification whether it is CERA Demolition intention that all future information sought by the HRT will be via the website, or is is for some reason this case is an anomaly?

Regards

Email:

Christchurch City Council

Withheld under section 9(2)(g)(i)

Civic Offices, 53 Hereford Street, Christchurch Central, 8011
PO Box 73012, Christchurch Mail Centre, 8154

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Christchurch City Council
<http://www.ccc.govt.nz>

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Christchurch City Council
<http://www.ccc.govt.nz>

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SB#198

CERA

**Canterbury Earthquake
Recovery Authority**

18 November 2011

Church Property Trustees

PO Box 4438
CHRISTCHURCH

Withheld under section 9(2)(a)

Dear

Christchurch Cathedral – Make Safe request for information - RFI 01

Thank you for the documentation received by email, dated 8 November 2011, in response to the section 38 notice.

In the CERA letter dated 2 November 2011, I clarified the requirements of the section 38 notice. I confirmed that interim works for the retrieval of the artefacts would be acceptable but highlighted that the plan must address the safe method of demolition, deconstruction, or strengthening work and timeline for this. I referred to this as Phase One works. Phase Two of the plan was to outline the works to remove or mitigate the hazard posed by the dangerous building and to give a full description of the state of the building once the works are completed.

Your plan dated 7 November 2011 proposes the make safe works is done as follows:

- Phase 1 – Securing the building within the site boundary.
- Phase 2 – Securing the building to enable contents retrieval.

Your plan does not address the works to remove or mitigate the hazard posed by the dangerous building nor does it give a description of the state of the building once the works are completed.

To allow us to complete our review of the documentation the following information is required:

- In Section 3(b) of the "Owner's Response to Demolition Notice" you state that the site will be cleared by no later than February 2012. Could you please amend this date to reflect the end date of the make safe works and completion of the retrieval of the artefacts. In addition, could you please advise the date by which time the building will be in a safe state immediately prior to the reconstruction. I do not accept that this is the completion date of the Phase 2 works as outlined in your plan.

- Please provide a brief description of the state of the building immediately prior to the reconstruction.
- With reference to the "Hazard Analysis" breakdown please provide additional information to clarify the following:
 - Item 2.3 - Elaborate on the installation of the steel braced frame to stabilise the tower and how this will be done safely.
 - Item 4.3 - Elaborate on how props for the west end roof truss will be done safely.
 - Item 9.1 - Elaborate what form the "safe havens" will be in the north and south isles and on how they will be installed safely.
 - Item 9.2 to 9.7 - Elaborate on the size and installation methodology of the prefabricated shoring towers in the west end and how they will be erected within the building safely.
 - Item 10 - Confirm the extent of the high level falling hazard referred to in the west end of the building and what is involved in this scope of work.
 - Item 11.1 - Elaborate what form the "safe havens" will be in the north and south transepts and on how they will be installed safely.
 - Item 11.2 to 11.5 - Elaborate on the size and installation methodology of the prefabricated shoring towers in the transepts and how they will be erected within the building safely.
 - Item 12 - Confirm the extent of the high level falling hazard referred to in the east end of the building and what is involved in this scope of work. Please confirm the form of the safe havens and how they be constructed safely. Also note the error in the notes for this task; it refers to "the scope of work to extend from the west wall to the west transept wall" it should refer to the east wall.

CERA staff are available to discuss the issues raised in this letter and clarify the additional information that is required.

Please contact me office if you have further queries

Yours sincerely



Warwick Isaacs
General Manager Demolition

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

Subject: Meeting re review of letter Request for information for Cathedral before giving to Warwick for signing

Start: Fri 18/11/2011 8:30 a.m.
End: Fri 18/11/2011 9:00 a.m.
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

Required Attendees: Withheld under section 9(2)(g)(i)

From: [redacted]
Sent: Monday, 21 November 2011 12:14 p.m.
To: [redacted]
Cc: [redacted]
Subject: 100 Cathedral Square - Christchurch Cathedral
Attachments: 20111121111813272.pdf

Withheld under section 9(2)(g)(i)

Withheld under section 9(2)(a)



2011112111181327

2.pdf

SB#198

Withheld under section 9(2)(a)

good afternoon.

Please find attached documentation from the Canterbury Earthquake Recovery Authority in relation to the Christchurch Cathedral.

CERA would like to set up a meeting on the afternoon of Thursday 24 November with you, of Holmes Consulting and of RCP to discuss the plan.

Please email me back if this date is suitable for all and a preferred time.

Many thanks.

Kind regards

Canterbury Earthquake Authority - CERA
Private Bag 4999
Christchurch 8140

Withheld under section 9(2)(g)(i)

W: www.cera.govt.nz

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SB# 198

From: Monday, 21 November 2011 12:14 PM.
To:
Cc:
Subject: 100 Cathedral Square - Christchurch Cathedral

Withheld under section 9(2)(g)(i)

Attachments: 20111121111813272.pdf

Withheld under section 9(2)(a)



2011112111181327
2.pdf (474 KB)... SB#198

good afternoon.

Please find attached documentation from the Canterbury Earthquake Recovery Authority in relation to the Christchurch Cathedral.

CERA would like to set up a meeting on the afternoon of Thursday 24 November with you, [redacted] of Holmes Consulting and [redacted] of RCP to discuss the plan.

Please email me back if this date is suitable for all and a preferred time.

Many thanks.

Withheld under section 9(2)(a)

Kind regards

Bag 4999 Christchurch 8140

Canterbury Earthquake Authority - CERA Private

E:
W: www.cera.govt.nz

Withheld under section 9(2)(g)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

From:
Sent: Monday, 21 November 2011 12:53 p.m.
To:
Subject: RE: 100 Cathedral Square - Christchurch Cathedral

Withheld under section 9(2)(a)
Withheld under section 9(2)(g)(i)

Yes I will
Thank you

Withheld under section 9(2)(a)

, Church Property Trustees Anglican Centre, C/- St Peter's
Church, 22 Main South Road, Upper Riccarton, PO Box 6088, Upper Riccarton, Christchurch
8042
||
www.anglicanlife.org.nz

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Please consider the environment before printing this email!

-----Original Message-----

From:
Sent: Monday, 21 November 2011 12:52 p.m.
To:
Subject: RE: 100 Cathedral Square - Christchurch Cathedral

Withheld under section 9(2)(g)(i)
Withheld under section 9(2)(a)

Yes please. CERA office 11am.

Could you send out an invite to [redacted] and [redacted] ?

Thanks
Regards

- Significant Buildings Unit Canterbury Earthquake Recovery Authority
(CERA)
Private Bag 4999, Christchurch 8140
Withheld under section 9(2)(g)(i)

W: www.cera.govt.nz

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-----Original Message-----

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Withheld under section 9(2)(a)

From:
Sent: Monday, November 21, 2011 12:51 PM
To:
Subject: RE: 100 Cathedral square - Christchurch Cathedral

Withheld under section 9(2)(g)(i)

Dear

Friday morning at 11:00am would suit us

Do you want to meet at Cera's offices?

Kind regards

Withheld under section 9(2)(a)

Church Property Trustees Anglican Centre, C/- St Peter's
Church, 22 Main South Road, Upper Riccarton PO Box 6088, Upper Riccarton, Christchurch
8042

www.anglicanlife.org.nz

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Please consider the environment before printing this email!

Withheld under section 9(2)(g)(i)

-----Original Message-----

From: .
Sent: Monday, 21 November 2011 12:49 p.m.
To:
Subject: RE: 100 Cathedral Square - Christchurch Cathedral

Withheld under section 9(2)(a)

Hi

Sorry I am not able to make Thursday morning. How is Friday late morning.

The purpose of the meeting is to just clarify the make safe plan. We are keen to get Holmes to review the request for further information that sent earlier and then get them to talk us through the plan in a bit more detail. You may be happy to have and attend but you are obviously more than welcome.

Withheld under section 9(2)(a)

Thanks

Regards

- Significant Buildings Unit Canterbury Earthquake Recovery Authority

(CERA)

Private Bag 4999, Christchurch 8140

Withheld under section 9(2)(g)(i)

w: www.cera.govt.nz

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-----Original Message-----

From:
Sent: Monday, November 21, 2011 12:45 PM
To:
Cc:
Subject: RE: 100 Cathedral Square - Christchurch Cathedral

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Dear
Would we be able to make the meeting earlier on the Thursday morning - 8:30 or 9:00am? We have meetings later in the day.

Kind regards

Church Property Trustees Anglican Centre, C/- St Peter's Church, 22 Main South Road, Upper Riccarton, PO Box 6088, Upper Riccarton, Christchurch 8042

www.anglicanlife.org.nz

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P Please consider the environment before printing this email!

-----Original Message-----

From:
Sent: Monday, 21 November 2011 12:14 p.m.
To:
Cc: :
Subject: 100 Cathedral Square - Christchurch Cathedral

Withheld under section 9(2)(g)(i)

Withheld under section 9(2)(a)

SB#198

, good afternoon.

Please find attached documentation from the Canterbury Earthquake Recovery Authority in relation to the Christchurch Cathedral

CERA would like to set up a meeting on the afternoon of Thursday 24 November with you, of Holmes Consulting and of RCP to discuss the plan.

Please email me back if this date is suitable for all and a preferred time.

Many thanks.

Kind regards

Withheld under section 9(2)(a)(i)

Canterbury Earthquake Authority - CERA
Private Bag 4999
Christchurch 8140

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From: i

Sent: Tuesday, 22 November 2011 7:58 a.m.

Withheld under section 9(2)(g)(i)

To:

<http://www.stuff.co.nz/national/6008722/Bitter-row-over-Christ-Church-Cathedral-plan>

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From: Tuesday, 22 November 2011 8:04 p.m.
Sent: Withheld under section 9(2)(g)(i)
To:
Subject: FW: 100 Cathedral Square - Christchurch Cathedral

See email below. I don't see any issues as it is at the request of CPT. Also think it is worthwhile having (spelling?) NZHPT Heritage Engineer also attend - I discussed having him involved with Warwick who agreed in principal. Thoughts?

Regards
Canterbury Earthquake Recovery Authority
(CERA)

Private Bag 4999, Christchurch 8140

W: www.cera.govt.nz

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-----Original Message-----
From: Withheld under section 9(2)(a)
Sent: Tuesday, November 22, 2011 3:11 PM
To:
Subject: RE: 100 Cathedral Square - Christchurch Cathedral Withheld under section 9(2)(g)(i)

Dear
from Godfreys' Loss Adjustors and from Aurecon would also like to attend the meeting on Friday morning. This is to keep the insurers briefed on the work happening at the Cathedral.

Kind regards

Withheld under section 9(2)(a)

Church Property Trustees Anglican Centre, C/- St Peter's Church, 22 Main South Road, Upper Riccarton, PO Box 6088, Upper Riccarton, Christchurch 8042

www.anglicanlife.org.nz

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P Please consider the environment before printing this email!

From:
Sent: Friday, 25 November 2011 8:02 a.m.
To:
Cc:
Subject: FW: Cathedral Phase 1 and 2 Works Review.

Withheld under section 9(2)(g)(i)
Withheld under section 9(2)(a)

As you are aware the NZHPT have contracted to provide assessment, review and comment in regard to a number of earthquake damaged heritage properties. As discussed with you, CERA has provided a copy of the Holmes report for for phases 1&2 of the works related to retrieval and make safe. I understand there will be meeting related to Engineering approaches this Friday and will attend at CERA request that meeting to add any heritage perspective in relation to the structural proposal.

The comment below is initial response to the information provided to date by CERA, and as such provides comment around points to be considered to advance the engineering proposal in a way that best retains the Cathedrals historic significance as the engineering design develops.

The NZHPT is generally supportive of an engineering proposal that retains as much of the existing heritage fabric and architectural elements of the Cathedral as outlined in the current proposal, noting the likelihood that removal the Western end of the nave and its associated entry porch may be necessary. The NZHPT support for an approach retaining as much of the Cathedral original heritage fabric as possible is in line with our views formed when part the Collaborative Working Group.

You have confirmed that is currently retained to provide overview of conservation approaches in relation to any proposals, and the NZHPT supports her role as essential in providing ongoing guidance to the Church and its consultant team.

The current proposal is effectively a 'sketch design' of an initial approach to securing to enable retrieval of an extensive list of items, and there is much further confirmation of aspects and detail to this proposal yet to be provided. The NZHPT is particularly interested in the methodology around inserting structures to secure the building, and the methodology and extent of deconstruction and managed/partial demolition (see comments below).

New Zealand Historic Places Trust Pouhere Taonga
HSBC building, 4th Floor, Worcester Boulevard, Christchurch

Shop online at <http://www.historic.org.nz/> and help keep New Zealand's heritage places alive

From:
Sent: 22 November 2011 11:49
To:
Subject: Cathedral Phase 1 and 2 Works Review

Withheld under section 9(2)(a)
Withheld under section 9(2)(g)(i)

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We have reviewed the outline proposal from HCG and comment as follows. We understand that the proposal is a very "high level" at present and that some of the comments below more pertain to principles that would be good to integrate into the next phase. We would not wish to see them as critique of the current design or the completeness of it, more as points to be considered as the design develops.

West Gable Demolition/Deconstruction

1. We suggest some clarity around the treatment of the removed fabric be proposed: what is to be lifted off, versus controlled dropping of material (to allow sorting later re-use with limited/minimised damage), versus demolition only for disposal.
2. We note the propping each side at the base of the gable, but suggest that additional support from the containers at the apex or "shoulders" of the roof trusses may be of benefit.
3. Is the propping to the containers to include some restraint to the roof diaphragm in the north/south direction?
4. It would be useful to have some design intent statement of how the propping is to interface with the existing (packing plus wrap around ties, bolting through timberwork?). We understand that this will develop as the works proceed, but it would be good to agree the general approach
5. The "cut line" describing the extent of demolition we would suggest be agreed in more detail by "marked up" photos before it is undertaken.

Tower Stabilisation

6. The new cap slab proposed should be carefully detailed to allow either incorporation into any permanent works, or to allow safe removal in any future re-construction. We suggest details such as stopping the slab short of the outer line of stone (so that a covering slip may be later introduced) or the use of cross bracing (instead of a slab) with the concrete capping beam (to allow more simple removal later) should be considered when detailing.
7. Similar considerations to the vertical bracing frame, which in the future may want to be lifted out with the concrete ring-beam remaining in place.
8. What is the intent for the connection to the tops of the existing wall/piers (capping only or also with positive dowelling or clamping)?

New Internal Frames

9. We suggest the designer may wish to consider "freestanding" frames, from which wrapping/clamping structures for connection to the existing, are attached. Construction of the new frames around the existing piers would be more difficult on site and may impede any future remedial work to those items.
10. If the frames are to be pre-fabricated as noted in the form of a 3d truss (similar to a tower crane section), they may be able to be constructed in such a way as the frame or part of it makes the "safe haven".
11. Similar to item 4 above it would be good to agree a brief "design intent" statement of how the connection is to be made with the existing.

Transept Gable End Mullions

12. Is a connection to be made to the existing mullion up the height of the new mullion? Similar to item 4 above what would be the intent of how this was to be done.

Regards,

Janning Thornton Consultants Ltd
Ph:

Withheld under section 9(2)(a)

www.dunningthornton.co.nz

Withheld under section 9(2)(a)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

From:
Sent: Friday, 25 November 2011 8:02 a.m.
To:
Subject: RE: Cathedral meeting

Withheld under section 9(2)(g)(i)

No problem.

It has turned in to a bit of a circus ~~of~~ people. Want to keep it focused on the Make Safe only.

Regards

- Significant Buildings Unit Canterbury Earthquake Recovery Authority
(CERA)

Private Bag 4999, Christchurch 8140

W: www.cera.govt.nz

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-----Original Message-----

From:
Sent: Thursday, November 24, 2011 10:11
To:
Subject: Cathedral meeting

Withheld under section 9(2)(g)(i)

Apologies, I am not in tomorrow.

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From: [redacted]
Sent: Friday, 25 November 2011 8:07 a.m. [redacted] Withheld under section 9(2)(g)(i)
To: [redacted]
Subject: FW: Cathedral Phase 1 and 2 Works Review

Could you print please

Regards

Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140

E:
W: www.cera.govt.nz

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From: [redacted] Withheld under section 9(2)(g)(i)
Sent: Friday, November 25, 2011 8:02 AM
To: [redacted] Withheld under section 9(2)(a)
Cc: [redacted] Withheld under section 9(2)(a)
Subject: FW: Cathedral Phase 1 and 2 Works Review.

As you are aware the NZHPT have contracted [redacted] to provide assessment, review and comment in regard to a number of earthquake damaged heritage properties. As discussed with you, CER/ [redacted] as provided a copy of the Holmes report for for phases 1&2 of the works related to retrieval and make safe. I understand there will be meeting related to Engineering approaches this Friday and [redacted] will attend at CERA request that meeting to add any heritage perspective in relation to the structural proposal.

Withheld under section 9(2)(a)

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Withheld under section 9(2)(g)(i)

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Collaborative Working Group.

You have confirmed that [redacted] is currently retained to provide overview of conservation approaches in relation to any proposals, and the NZHPT supports her role as essential in providing ongoing guidance to the Church and its consultant team.

Withheld under section 9(2)(a)

The current proposal is effectively a 'sketch design' of an initial approach to securing to enable retrieval of an extensive list of items, and there is much further confirmation of aspects and detail to this proposal yet to be provided. The NZHPT is particularly interested in the methodology around inserting structures to secure the building, and the methodology and extent of deconstruction and managed/partial demolition (see [redacted] comments below).

Withheld under section 9(2)(g)(i)

New Zealand Historic Places Trust Pouhere Taonga
HSBC building, 4th Floor, Worcester Boulevard, Christchurch
Mob: [redacted]

Shop online at <http://www.historic.org.nz/> and help keep New Zealand's heritage places alive

From: [redacted]
Sent: 22 November 2011 11:49
To: [redacted]
Subject: Cathedral Phase 1 and 2 Works Review.

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

We have reviewed the outline proposal from HCG and comment as follows. We understand that the proposal is a very "high level" at present and that some of the comments below more pertain to principles that would be good to integrate into the next phase. We would not wish to see them as critique of the current design or the completeness of it, more as points to be considered as the design develops.

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3. Is the propping to the containers to include some restraint to the roof diaphragm in the north/south direction?
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7. Similar considerations to the vertical bracing frame, which in the future may want to be lifted out with

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the concrete ring-beam remaining in place.

8. What is the intent for the connection to the tops of the existing wall/piers (capping only or also with positive dowelling or clamping)?

New Internal Frames

9. We suggest the designer may wish to consider "freestanding" frames, from which wrapping/clamping structures for connection to the existing, are attached. Construction of the new frames around the existing piers would be more difficult on site and may impede any future remedial work to those items.
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Transept Gable End Mullions

12. Is a connection to be made to the existing mullion up the height of the new mullion? Similar to item 4 above what would be the intent of how this was to be done.

Regards,

Dunning Thornton Consultants Ltd

Withheld under section 9(2)(a)

www.dunningthornton.co.nz

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25/11/2011

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Subject: Meeting re Cathedral make safe plan
Location: Level 2
Start: Fri 25/11/2011 11:00 a.m.
End: Fri 25/11/2011 12:00 p.m.
Show Time As: Tentative
Recurrence: (none)
Meeting Status: Not yet responded
Required Attendees:

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

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From:

Sent: Tuesday, 29 November 2011 1:55 p.m.

To:

Withheld under section 9(2)(g)(i)

Subject: Traffic Management around the Cathedral site

Hi

As discussed -

The traffic management signs and cones in place around the Cathedral can be reduced without compromising the intent of the installation.

The 30kph cordon speed limit and the significantly reduced traffic volume we currently have, has reduced the risk to the point that I would be comfortable with the following arrangements.

1. Remove all 'directional' signs (until a whole-of-cordon traffic flow is established)
2. Remove all cones (except at each end where the container line terminate)

We can make the new arrangements known to all contractors at the fortnightly meeting.

If the speed limit is raised, or the traffic volume increases significantly, the project manager will need to re-address this.

Regards,

Canterbury Earthquake Recovery Authority

W: www.cera.govt.nz

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From:

Sent: Tuesday, 29 November 2011 2:18 pm

Withheld under section 9(2)(g)(i)

To:

Subject: RE: Traffic Management around the Cathedral site

I'm keen to have some sort of 'merge' indicator at these points.
It may be more cost efficient in the long run to install the 'stick-on' bollards?

From:

Sent: Tuesday, 29 November 2011 2:02 p.m.

Withheld under section 9(2)(g)(i)

To:

Subject: RE: Traffic Management around the Cathedral site

Can we confirm the number we need at the end of the container line – say 3 at each end? If required at all.
Thoughts

From:

Sent: Tuesday, November 29, 2011 1:55 PM

To:

Subject: Traffic Management around the Cathedral site

Withheld under section 9(2)(g)(i)

Hi

As discussed -

The traffic management signs and cones in place around the Cathedral can be reduced without compromising the intent of the installation.
The 30kph cordon speed limit and the significantly reduced traffic volume we currently have, has reduced the risk to the point that I would be comfortable with the following arrangements.

1. Remove all 'directional' signs (until a whole-of-cordon traffic flow is established)
2. Remove all cones (except at each end where the container line terminate)

We can make the new arrangements known to all contractors at the fortnightly meeting.

If the speed limit is raised, or the traffic volume increases significantly, the project manager will need to re-address this.

Regards,

Canterbury Earthquake Recovery Authority

T: 03 354 2724

13/03/2012

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From:
Sent: Tuesday, 29 November 2011 2:28 pm
To:
Cc:
Subject: FW: Traffic Management around the Cathedral site

Withheld under section 9(2)(g)(i)

Withheld under section 9(2)(a)

Hi:

See email below as discussed. Any questions please direct to

Regards

Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140

W: www.cera.govt.nz

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From:
Sent: Tuesday, November 29, 2011 1:55 PM
To:
Subject: Traffic Management around the Cathedral site

Withheld under section 9(2)(g)(i)

Hi

As discussed -

The traffic management signs and cones in place around the Cathedral can be reduced without compromising the intent of the installation.

The 30kph cordon speed limit and the significantly reduced traffic volume we currently have, has reduced the risk to the point that I would be comfortable with the following arrangements.

1. Remove all 'directional' signs (until a whole-of-cordon traffic flow is established)
2. Remove all cones (except at each end where the container line terminate where we suggest 3 number 'stick-on' bollards at each end of the containers – it may be cheaper in the long run for the Church to purchase these)

We can make the new arrangements known to all contractors at the fortnightly meeting.

If the speed limit is raised, or the traffic volume increases significantly, the project manager will need to re-address this.

13/03/2012

Regards,

Canterbury Earthquake Recovery Authority

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--

From:
Sent: Tuesday, 29 November 2011 3:12 p.m.
To:
Subject: Cathedral File

Withheld under section 9(2)(g)(i)

Hi

Withheld under section 9(2)(a)

Below is the link to the CERA documents that are available to the public. I refer you to pages 78,79, 110, and 111 – 114 for the documents you have requested.

<http://www.rebuildchristchurch.co.nz/blog/2011/11/cera-the-christchurch-cathedral-file>

I trust this helps

Regards

Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140

W: www.cera.govt.nz

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From:**Sent:** Tuesday, 6 December 2011 3:39 p.m.**To:**

Withheld under section 9(2)(g)(i)

Subject: Cathedral Time line

As requested below is a time line of events for the Cathedral

Withheld under section 9(2)(a)

From the initial CERA review on 10 August 2011 until 6 December 2011:

Withheld under section 9(2)(g)(i)

- On 10 August 2011 CERA Engineers received and reviewed reports by Holmes Consulting dated 24 March 2011 and 29 June 2011.
- CERA Engineers and carried out an external assessment of the building on 17 August 2011.
- An internal CERA memo to Warwick Isaacs, written by and dated 12 September 2011, summarized the Holmes reports and the observed damage for the external assessment. The memo concluded that the Building was dangerous and recommended issuing a Section 38 letter to the owners. Warwick did not sign or approve the memo.
- A collaborative working group was set up to review options for the controlled demolition/deconstruction phase of the works and agree on items of historical significance for reuse in the future replacement cathedral. The first meeting of the CWG was 29 September 2011 and the group met weekly.
- CERA Engineers carried out further inspections, with the most recent being on 26 October 2011. These inspections revealed additional damage since the initial 12 September memo. internal CERA memo to Warwick, dated 28 October 2011, confirmed the findings and recommendations of the 12 September memo. This resulted in the Section 38 notice being issued on 28 October 2011.
- On 1 November 2011 CERA staff met with the Cathedral consulting team to discuss the requirements of the Section 38 notice and clarified a number of issues. It was confirmed in a letter to the Church Property Trust, dated 2 November 2011, the interim work for the retrieval of the artifacts is acceptable.
- The Church Property Trust signed and returned the Section 38 notice on 8 November 2011. They confirmed that the CPT would arrange for the demolition of the building in accordance with the "Interim Make Safe Plan" by Holmes Consulting which was included in the documentation received on 8 November 2011.
- The Holmes "Make Safe Plan" was for the interim make safe works in order to remove the artifacts from the building. It was make safe plan is proposed in 2 Phases. Phase 1 is securing the building within the site boundary and Phase 2 is securing the building to enable contents retrieval.
- The plan was reviewed by CERA and a letter requesting further information was sent to the CPT on 18 November 2011.
- for the NZCPT, also reviewed the make safe plan (at the request of CERA) and requested additional information/clarification in an email dated 22 November 2011.
- On 25 November 2011 CERA met with CPT, Holmes Engineer, Aurecon Engineer, and Insurers to discuss the make safe plan and the further information/clarification required.

Going forward from now:

- Holmes are currently developing the detailed Phase 1 make safe methodology which is due today, 6 December 2011.

From:
Sent: Tuesday, 6 December 2011 6:50 p.m.
To:
Cc:
Subject: RE: Cathedral Time line

Withheld under section 9(2)(a)(i)

...not too shabby for an engineer!

Canterbury Earthquake Recovery Authority (CERA)
L4, 62 Worcester Boulevard
Private Bag 4999, Christchurch 8140

W:www.cera.govt.nz

From:
Sent: Tuesday, 6 December 2011 4:05 p.m.
To:
Subject: RE: Cathedral Time line

Withheld under section 9(2)(g)(i)

A work of art. many thanks.

Canterbury Earthquake Recovery Authority
www.cera.govt.nz

From:
Sent: Tuesday, 06 December, 2011 3:54 PM
To:
Subject: FW: Cathedral Time line

Withheld under section 9(2)(g)(i)

Cathedral timeline as requested below.

Any question, give me a shout.

Cheers

Canterbury Earthquake Recovery Authority (CERA)

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L4, 62 Worcester Boulevard
Private Bag 4999, Christchurch 8140

Withheld under section 9(2)(g)(i)

W: www.cera.govt.nz

From: [redacted]
Sent: Tuesday, 6 December 2011 3:39 p.m.
To: [redacted]
Subject: Cathedral Time line

Withheld under section 9(2)(g)(i)

As requested below is a time line of events for the Cathedral.

Going forward from now:

- Holmes are currently developing the detailed Phase 1 make safe methodology which is due today, 6 December 2011.
- CERA will review the plan and confirm it is acceptable. Provided CERA get this detailed plan we will review and approve by 16 December 2011.
- During this time the contractor will price the work for Phase 1.
- The commencement of Phase 1 is due to begin on 19 December 2011 and will be completed by 17 February 2011.
- An outline plan for the Phase 2 works will be completed by 16 December 2011
- CERA will review and comment on this plan by 11 January 2012
- Following the initial CERA review Holmes to develop the detailed Phase 2 plan and will complete by 27 January 2011.
- CERA to review and approve the final methodology by 10 February during which time the contractor will price the works.
- The Phase 2 works will commence on site on 24 February 2012 and will be completed by 27 April 2012.

Trust this covers what you require.

Regards

Canterbury Earthquake Recovery Authority (CERA)

Withheld under section 9(2)(g)(i)

Private Bag 4999, Christchurch 8140

W: www.cera.govt.nz

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From:
Sent: Wednesday, 7 December 2011 4:33 p.m. Withheld under section 9(2)(g)(i)
To:
Subject: FW: CERA - Cathedral Interim Make Safe Phase 1 Review Meeting

Are you free to meet. See email below?

From: I Withheld under section 9(2)(a)
Sent: Wednesday, December 07, 2011 4:23 PM
To: .
Cc:
Subject: CERA - Cathedral Interim Make Safe Phase 1 Review Meeting Withheld under section 9(2)(g)(i)

Hi

Can you please advise a suitable time this Monday afternoon to sit down with you and discuss the finalised Cathedral Make Safe documentation? and I will make whatever time suits you.

Regards

Withheld under section 9(2)(a)



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From:
Sent:
To:
Subject:

Thursday, 8 December 2011 7:54 a.m.

Accepted: Catneural meeting

Withheld under section 9(2)(g)(i)

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

Subject: FW: Cathedral meeting
Location: TBC

Start: Mon 12/12/2011 2:00 p.m.
End: Mon 12/12/2011 3:00 p.m.
Show Time As: Tentative

Recurrence: (none)

Meeting Status: Not yet responded

How does 2pm Monday suit you?

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From: [redacted]
Sent: Tuesday, 13 December 2011 1:55 p.m.
To:
Subject: FW: Christ Church Cathedral

Withheld under section 9(2)(a)

FYI as promised.

Withheld under section 9(2)(g)(i)

From:
Sent: Tuesday, 13 December, 2011 10:16 AM
To: media (CERA)
Subject: Christ Church Cathedral

Withheld under section 9(2)(a)

Hi,

here from The Press newspaper.

Just had a few questions regarding the section 38 process for the Christ Church Cathedral. I was speaking to [redacted] his week and she said that the section 38 notice came 'out of the blue' and was a shock.

This did not tally with comments from Cera staff that the section 38 notice was a collaborative process with the cathedral. Warwick Isaacs said on Radio New Zealand on 4 Nov that he had been in discussions for months with the cathedral and the cathedral requested that the notice be issued in October.

Can I speak to someone today to clarify these issues please and get an update on where the process is up to now.

Thanks,

14 Logistics Drive, Private Bag 4722 Christchurch, New Zealand

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From:
Sent: Tuesday, 13 December 2011 4:59 p.m.
To:
Cc:
Subject: RE: Christ Church Cathedral

Withheld under section 9(2)(a)

Hi,

Withheld under section 9(2)(g)(i)

Having spoken to the [redacted] seems that [redacted] is mistaken:

The [redacted] surprise, shock and out of the blue comment relates to when in September 2011 her staff advised her that the Cathedral was so badly damaged that a section 38 Notice might indeed need to be issued by CERA. Following this there were a number of meetings with CERA and internal briefings and discussion that led up to the issue of the actual notice by CERA on 29 October 2011.

Regards



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From:
Sent: Tuesday, 13 December 2011 2:58 p.m.
To:
Subject: rfw: Christ Church Cathedral

Withheld under section 9(2)(g)(i)

From:
Sent: Tuesday, December 13, 2011 1:57 PM
To:
Subject: rfw: Christ Church Cathedral

Withheld under section 9(2)(a)

I just spoke to the reporter and he is wanting the story for tomorrow and hoping for a response by 5pm today. Just so you know :-)

From:
Sent: Tuesday, 13 December, 2011 1:55 PM
To:
Subject: rfw: Christ Church Cathedral

Withheld under section 9(2)(g)(i)

FYI as promised.

From:
Sent: Tuesday, 13 December, 2011 10:16 AM
To: media (CERA)
Subject: Christ Church Cathedral

Withheld under section 9(2)(a)

Hi,

[redacted] here from The Press newspaper.

Just had a few questions regarding the section 38 process for the Christ Church Cathedral. I was speaking to [redacted] last week and she said that the section 38 notice came 'out of the blue' and was a shock.

This did not tally with comments from Cera staff that the section 38 notice was a collaborative process with the cathedral. Warwick Isaacs said on Radio New Zealand on 4 Nov that he had been in discussions for months with the cathedral and the cathedral requested that the notice be issued in October.

Can I speak to someone today to clarify these issues please and get an update on where the process is up to now.

Thanks,

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Released under section 9(2)(a)

From:
Sent: Tuesday, 13 December 2011 5:43 p.m.
To:
Cc:
Subject: Cathedral

Released under section 9(2)(g)(i)

Hi

Response below as promised.

All the best,

We understand that the [redacted] ment relates to her surprise at the extent of the damage to the Cathedral - not to the issuing of a section 38 notice.

The Cathedral owners, CERA, Council and other parties were involved in a number of meetings and discussions around the outcomes for the Cathedral and worked together to ensure the process and decision was agreed to.

A section 38 notice is issued to owners of buildings that are considered dangerous in accordance with the CER Act. The section 38 notice was issued by CERA to the Cathedral owners to support their decision to partially demolish the building.

The Cathedral owners were fully aware of and supported the issuing of the section 38 notice. The notice enables CERA to support the Cathedral owners through the process of planning and the work required and avoids the formal requirements for resource consent and building consent.

From:
Sent: Tuesday, 13 December, 2011 4:55 PM
To:
Subject:

Hi
Any luck today?

14 Logistics Drive, Private Bag 4722 Christchurch, New Zealand

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From:
Sent: Wednesday, 14 December 2011 9:32 a.m.
To:
Cc:
Subject: Cathedral Section 38 Update and Phase 1 Interim Make Safe Works Submission

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Hi

Thank you for meeting with us on Monday afternoon. There is a Full CPT Board meeting occurring tomorrow night at which the Trustees will sign the updated Section 38 Cover sheet (which presumably we are to back-date to the original submission date?). We will arrange for a hardcopy set of all of the updated documents to be delivered to your offices on Friday morning.

Regards



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From: [Redacted] **Withheld under section 9(2)(a)**
Sent: Friday, 16 December 2011 10:40 a.m.
To: [Redacted] **Withheld under section 9(2)(g)(i)**
Cc: [Redacted]
Subject: Cathedral - Phase 1 Make Safe Detailed Draft Submission

Hi,

from the CPT will drop in a hardcopy of all the information to you around midday today.

Have a good weekend and we look forward to going through it all with you on Monday morning at 11am.

Regards



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Subject: FW: Meeting
detailed methodology prior to CERA's review.
Location: CERA Office
Start: Mon 19/12/2011 11:00 a.m.
End: Mon 19/12/2011 12:00 p.m.
Show Time As: Tentative
Recurrence: (none)
Meeting Status: Not yet responded

to discuss the Cathedral

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Gents

NZHPT have now put forward as the Engineer to do the Heritage review, not .

As discussed yesterday we were going to meet to discuss the written methodology in detail before CERA carry out the detailed review. Are you OK to meet on Monday at 11am?

Regards

withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

From: [Redacted] Withheld under section 9(2)(g)(i)
Sent: Monday, 19 December 2011 3:12 p.m.
To:
Subject: Cathedral.....

Given this timeline (which you so very helpfully provided a while ago) is Phase One of the Cathedral work underway today?? Or are we still sorting out the plans?

- CERA will review the plan and confirm it is acceptable. Provided CERA get this detailed plan we will review and approve by 16 December 2011.

During this time the contractor will price the work for Phase 1.

- The commencement of Phase 1 is due to begin on 19 December 2011 and will be completed by 17 February 2011.

- An outline plan for the Phase 2 works will be completed by 16 December 2011

Canterbury Earthquake Recovery Authority
www.cera.govt.nz

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From:
Sent: Tuesday, 20 December 2011 9:12 a.m.
To:
Subject: Cathedral

Withheld under section 9(2)(g)(i)

Withheld under section 9(2)(a)

Hi

In my opinion the programme should reflect the Phase 1 and 2 works (items 1 – 34).

I will do a methodology review and provide comment – will send this through by the end of the day. I appreciate that Lunds are developing their documents following our meeting and may find the comments useful.

Regards

Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140

T:
M

W: www.cera.govt.nz

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From:
Sent: Tuesday, 20 December 2011 9:03 a.m.
To:
Cc:
Subject: RE: Cathedral
Attachments: CPT ERP - Cathedral - Make Safe Programme - Draft Rev 3.pdf

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Hi

Further to our discussions at the review meeting yesterday and your below email, please confirm that the attached revised programme is acceptable to CER.

Regards



Resource Co-ordination Partnership Ltd (trading as RCP)

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Withheld under section 9(2)(g)(i)

From:
Sent: Tuesday, 20 December 2011 9:12 a.m.
To:
Subject: Cathedral

Withheld under section 9(2)(a)

Hi

In my opinion the programme should reflect the Phase 1 and 2 works (items 1 – 34).

I will do a methodology review and provide comment – will send this through by the end of the day. I appreciate that Lunds are developing their documents following our meeting and may find the comments useful.

Regards

Canterbury Earthquake Recovery Authority (CERA)

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From:
Sent: Tuesday, 20 December 2011 5:08 p.m.
To:
Subject: FW: Cathedral
Attachments: CPT ERP - Cathedral - Make Safe Programme - Draft Rev 3.pdf

Withheld under section 9(2)(g)(i)

The program submitted as part of the Phase 1 works included Phase 3. I do not believe the phase 3 is relevant for this stage and therefore suggested it was removed.

See attached.

Regards

Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140

W: www.cera.govt.nz

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Withheld under section 9(2)(a)

From:
Sent: Tuesday, December 20, 2011 5:03 PM
To:
Cc:
Subject: RE: Cathedral

Withheld under section 9(2)(g)(i)

Hi

Further to our discussions at the review meeting yesterday and your below email, please confirm that the attached revised programme is acceptable to CERA.

Regards



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From:
Sent: Tuesday, 20 December 2011 5:56
To:
Subject: FW: Cathedral - Meeting Notes 19 Dec-11 - Private and Confidential

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Hi.

As discussed and requested, please see the below

Regards

--
 Resource Co-ordination Partnership Ltd



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From:
Sent: Tuesday, 20 December 2011 12:15 p.m.
To:
Subject: Cathedral - Meeting Notes 19 Dec-11

Withheld under section 9(2)(a)

Gents

To confirm following our discussion yesterday and other points:

1. Lunds are to update the methodology to note:
 - > Protection of existing Council assets, i.e. lights, memorials, etc.
 - > Lunds to develop HCG's H&S Hazard ID as works progress.
 - > HCG are to be present onsite during undertaking of pre-agreed items of work.
 - > Other minor clarifications as discussed with CERA
2. RCP will arrange for Client report to be submitted to HTP re. archaeology for approval, circa 3 days.
3. Lunds can not assume that all services have been disconnected already. The proposal needs to state that Lunds will need to assume some services may remain live and that Lunds must proceed accordingly.
4. HCG and to provide letter confirming review of Lunds revised methodology.
5. CERA to be invite to weekly site meetings.
6. CERA to sign-off revised methodology.
7. Lunds to provide itemised build-up to those works requiring Client approval to proceed with, a limited letter of intent.

13/03/2012

8. RCP to issue limited letter of intent pre-xmas, subject to satisfaction of revised costs and methodology.

All to be progressed asap, any questions please let me know.

Regards

Withheld under section 9(2)(a)

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From: [Redacted]
Sent: Tuesday, 20 December 2011 6:00 p.m.
To: [Redacted]
Subject: FW: Cathedral - Meeting Notes 19 Dec-11 - Private and Confidential

Withheld under section 9(2)(g)(i)

Could you please print

Ta

From: [Redacted]
Sent: Tuesday, December 20, 2011 5:56 PM
To: [Redacted]
Subject: FW: Cathedral - Meeting Notes 19 Dec-11 - Private and Confidential

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

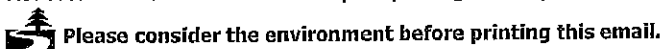
Hi

As discussed and requested, please see the below:

Regards



Resource Co-ordination Partnership Ltd (trading as RCP)



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From: [Redacted]
Sent: Tuesday, 20 December 2011 12:15 p.m.
To: lund@lund.co.nz;
Subject: Cathedral - Meeting Notes 19 Dec-11

Withheld under section 9(2)(a)

Gents

To confirm following our discussion yesterday and other points:

- 1. Lunds are to update the methodology to note:
 - > Protection of existing Council assets, i.e. lights, memorials, etc.
 - > Lunds to develop HCG's H&S Hazard ID as works progress.
 - > HCG are to be present onsite during undertaking of pre-agreed items of work.
 - > Other minor clarifications as discussed with CERA

21/12/2011

2. RCP will arrange for Client report to be submitted to HPP re. archaeology for approval, circa 3 days.
3. Lunds can not assume that all services have been disconnected already. The proposal needs to state that Lunds will need to assume some services may remain live and that Lunds must proceed accordingly.
4. HCG and [redacted] to provide letter confirming review of Lunds revised methodology.
5. CERA to be invite to weekly site meetings.
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7. Lunds to provide itemised build-up to those works requiring Client approval to proceed with, a limited letter of intent.
8. RCP to issue limited letter of intent pre-xmas, subject to satisfaction of revised costs and methodology.

All to be progressed asap, any questions please let me know.

Regards

Withheld under section 9(2)(a)

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CATHEDRAL MEETING NOTES 19/12/11 Han

Withheld under section 9(2)(a) Withheld under section 9(2)(a)
Withheld under section 9(2)(g)(i)

Withheld under section 9(2)(a)

1. Discussed THE PHASE 1 WORKS, In Summary To Remove HAZARDS + REINSTATE DAMAGED STRUCTURE TO ENABLE RETRIEVING ARTIFACTS
withheld under section 9(2)(a)

2. Discussed DETAILS + LOGS LOWEST IN TIER WC + SO TO HAVE A SEPARATE DISCUSSION REGARDING THESE DETAILS FOR THE PHASE 2 WORKS

3. MEETING CONSIDERS UNTIL Spm TO HAVE CS LINDS ATTEND TO DISCUSS THE METHODOLOGY.

4. withheld under section 9(2)(a) from CS LINDS DISCUSSED THE METHODOLOGY TO CARRY OUT THE PHASE 1 MAKE SAFE WORKS

- o SECTIONS 1-4 - STANDARD SITE SET UP ITEMS
 - o SECTION 5 - PROTECTION OF FOUNDATIONS, SERVICES, INFRASTRUCTURE
- RECOMMENDED THAT A DESCRIPTION SURVEY BE DONE

withheld under section 9(2)(a) SECTION 6 - MATERIALS
WILL ELABORATE ON THE STONE/BRICK MATERIAL THAT WILL BE RECOVERED THIS WILL BE BASED ON DISCUSSIONS WITH HANES + Withheld under section 9(2)(a)

o SECTION 9.1 HIGH LEVEL FALLING HAZARD
LINDS TO PROVIDE MORE DETAIL OF ACTUAL HAZARD AND HOW IT WILL BE MITIGATED AFTER INITIAL WALK OVER WITH HANES AT BEGINNING OF PHASE 1.

o SECTION 9.2 STABILISE TOWER
- LINDS TO ELABORATE ON THE CRANE OPERATIONS / POSITION AS PART OF TASK ANALYSIS. THERE ARE A NUMBER OF DIFFICULT OPERATIONS THAT CAN NOT BE ADDRESSED IN DETAIL AT THIS STAGE.

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SECTION 9.2 CONT

- THE TASK ANALYSIS WILL BE DEVELOPED WITH HOLMES' INPUT.

Withheld under section 9(2)(a). To Develop A Hazardous Plan.

SECTION 9.3 PENETRATE ROOF

- THIS TASK WILL BE DONE AFTER SECTION 9.4.
- THE FALLING HAZARD WILL BE MITIGATED IN 9.4 SO ACCESS TO THE ROOF WILL BE ACCEPTABLE.

SECTION 9.4 REMOVE ROSE WINDOW

- CONCERN RAISED ABOUT LARGE SECTIONS OF STONE FALLING WHEN ROSE TIES ARE CUT. HOLMES WILL BE ON SITE AT ALL TIME DURING THIS STAGE OF THE WORKS AS THIS HAS BEEN IDENTIFIED AS ONE OF THE MORE DIFFICULT STAGES OF WORK.

SECTION 9.5 W3 MULLIONS

- POTENTIAL DIFFICULTIES WITH INSTALLING TIE RODS BETWEEN NORTH & SOUTH TRANSIT CABLES DUE TO EXISTING STRUCTURE. TO BE ON SITE AND BE PART OF SPECIFIC TASK ANALYSIS FOR THIS STAGE OF WORK. Withheld under section 9(2)(a)

Program Has Extended For Phase 1 Works Until End Of May 2012, However May Not Complete All Of The Proposed Phase 2 Works If DEEMS THAT THE BUILDING IS SAFE TO ENTER TO CARRY OUT THE REMOVAL. A DETAILED SURVEY OF THE INSIDE OF THE BUILDING WILL BE DONE BY HOLMES AFTER THE PHASE 1 WORKS HAVE BEEN COMPLETED.

Withheld under section 9(2)(a)

From:
Sent: Tuesday, 20 December 2011 6:09 p.m.
To:
Cc:
Subject: RE: Cathedral
Attachments: CPT ERP - Cathedral - Make Safe Programme - Draft Rev 3.pdf

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Hi.

Draft programme updated to include a Phase 3 TBA as requested.

Regards



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Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

From:
Sent: Tuesday, 20 December 2011 5:02 p.m.
To:
Cc:
Subject: RE: Cathedral

Hi.

Further to our discussions at the review meeting yesterday and your below email, please confirm that the attached revised programme is acceptable to CERA.

Regards



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From: [redacted]
Sent: Tuesday, 20 December 2011 9:12 a.m.
To: [redacted]
Subject: Cathedral

Withheld under section 9(2)(a)(i)

Withheld under section 9(2)(a)

Hi [redacted]

In my opinion the programme should reflect the Phase 1 and 2 works (items 1 – 34).

I will do a methodology review and provide comment – will send this through by the end of the day. I appreciate that Lunds are developing their documents following our meeting and may find the comments useful.

Regards

Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140

W: www.cera.govt.nz

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Withheld under section 9(2)(a)

From:
Sent: Wednesday, 21 December 2011 1:43 p.m.
To:
Cc:
Subject: FW: Cathedral Make Safe Works Methodolgy Rev 3
Attachments: Christchurch Cathedral Interim Make Safe Works Draft Methodology Rev 3.pdf

Withheld under section 9(2)(g)(i)

Hi

As discussed, please find attached the updated Interim Make Safe Works Methodology for the Cathedral, following our meeting earlier this week.

Please provide any feedback you have to the attached via [redacted] today is my last day in the office.

Regards



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From:
Sent: Wednesday, 21 December 2011 12:45 p.m.
To: I
Subject: Fw: Cathedral Make Safe Works Methodolgy Rev 3

Withheld under section 9(2)(a)

Hi

As attached and below.

I will call to discuss.

Regards

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From: C Lund & Son Ltd [lund@lund.co.nz]
Sent: Wednesday, 21 December 2011 12:43 p.m.
To:
Subject: Cathedral Make Safe Works Methodology Rev 3

Withheld under section 9(2)(a)

Cathedral Make Safe Works Methodology

Attached is a PDF of the updated Methodology text (rev3, 21 December 2011). The site plan and programme have not been changed. Have removed "Draft" from the document, but if you want any changes made before it is forwarded to CERA, let me know.

Regards,

C Lund & Son Ltd

PO Box 16342
Christchurch

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Withheld under section 9(2)(a)

From:
Sent: Wednesday, 21 December 2011 9:49 p.m.
To:

Withheld under section 9(2)(g)(i)

Subject: CPT - ERP - Cathedral - Interim Make Safe Works - Updated Programme
Attachments: CPT ERP - Cathedral - Make Safe Programme - Draft Rev 4.pdf

Hi All,

Further to the below advice from regarding HPT closure dates, and notification that the contract works insurance still being processed, we have had to make a call to delay the start onsite date by two weeks. The site establishment for the Interim Make Safe works is now programmed to start on 30 January 2012, dependant on both the aforementioned being in place.

– please find attached a revised programme taking into account the above. We will continue to submit information to CERA as it becomes available, and hope that everything can be in place by w/c 23 January 2012, to allow CERA approval then a potential media pack/briefing to take place on Thursday 26 January, prior to works commencing.

Thank you to all for your efforts this year towards making the Cathedral safe. We look forward to continuing this work with you in 2012.

On am on my Christmas break from tomorrow until 9 January 2012, so I wish you all a very Merry Christmas and excellent New Year break!

In my absence please direct any Cathedral Make Safe communication to

Regards



Resource Co-ordination Partnership Ltd (trading as RCP)

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From:
Sent: Wednesday, 21 December 2011 10:52 a.m.
To:
Cc:
Subject: Fw: Cathedral AA

Withheld under section 9(2)(a)

Dear

Please see below email from HPT archaeologist.
 We will be able to get our Assessment out to you today or first thing tomorrow morning for signature by the client, but this will not help with the HPT's timetable as noted below.

13/03/2012

Please advise.

Withheld under section 9(2)(a)

From:
Sent: Tuesday, December 20, 2011 8:02 PM
To:
Cc:
Subject: RE: Cathedral AA

Hi
The office closes this Friday at 1300, I will be in until then.
The office reopens 4 January but I won't be back until 9 January.

Under the OIC a decision has to be made within three days after having received an application but the statutory non-working days over the Christmas period are from 20 December - 10 January. That means that legally from today no decisions have to be made before 16 January. However, everything that does come in over the next couple of days will be processed as time permits, and I will start processing again on the 9th. there are no guarantees over this period though, and there is no back-up for the first three days of January, even though the office is open again. The two weeks complete shutdown for authority processing has been done deliberately because of the workload this office in particular has endured over the past year.

Regards,

From:
Sent: Tuesday, 20 December 2011 5:51 p.m.
To:
Cc:
Subject: Cathedral AA

Dear

We are preparing our AA application now and are hoping to get it completed shortly.
With the upcoming Christmas break, I wonder if you can tell me what your office closing dates are? I realise that with AAs office closing dates means your holiday dates as you cover nearly all applications yourself and the last thing we want to do is to put unreasonable timeframes on you. Can you tell me what these dates are so we make sure we can fit within them.

many thanks

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Withheld under section 9(2)(a)

From:
Sent: Sunday, 25 December 2011 10:14 a.m.
To:
Cc:
Subject: Cathedral Pictures Post 23122011 EQ
Attachments: 24122011 Cathedral Post 2312EQ.zip

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Good Afternoon
How are you? Merry Christmas.

Hopefully you received some pictures of the cathedral yesterday by phone. Here are a few more. Cheers

on behalf of **CERA**
Significant Buildings Unit

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From:
Sent: Wednesday, 28 December 2011 2:46 p.m.
To:
Cc:
Subject: Christchurch Cathedral - Site Report No. 95
Attachments: 106324SR2812.005.pdf

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Please refer HCG Site Report attached. A more detailed inspection will be undertaken during the week of the 9th of January.

Feel free to call in the interim if you have any questions.

Regards,

Holmes Consulting Group
PO Box 6718 | Christchurch

Web: www.holmesgroup.com

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From:
Sent: Tuesday, 10 January 2012 4:08 p.m.
To:
Subject: Just to let you know...

Withheld under section 9(2)(g)(i)

Hi Team,

Just letting you that I was asked by Council to organise access for:

Withheld under section 9(2)(a)

To go into the Square and take photos of the Cathedral. They went in this morning and are putting a proposal together about the fate of the building. I think you are both aware that they are doing this but just wanted to keep you in the loop. I will also forward you the email sent me.

Cheers,

Canterbury Earthquake Recovery Authority (CERA)
Private Bag 4999, Christchurch 8140

Withheld under section 9(2)(g)(i)

W: www.cera.govt.nz

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From:
Sent: Tuesday, 10 January 2012 4:49 p.m.
To:
Subject: FW: Christchurch Cathedral. Belltower...a proposal to rebuild. Please review
Attachments: Copy%20of%20Drawing%20and%20modle%20disassembled%20with%20copper.JPG.zip; ChristchurchLetterofsupport.pdf.zip; DeanBeck4.pdf.zip; steepleSMfinal.pdf.zip

Withheld under section 9(2)(g)(i)
 Withheld under section 9(2)(a)

Email as promised :-)

From:
Sent: Monday, 09 January, 2012 10:45 PM
To:
Subject: FW: Christchurch Cathedral. Belltower...a proposal to rebuild. Please review

Withheld under section 9(2)(a)

Hi

Withheld under section 9(2)(g)(i)

Further below is the email we received from [redacted] in the U.S representing the Peoples Steeple group. This group have involved some fantastic minds in each of their fields to come up with options on saving our cathedral. The two gentlemen who wish to visit the red zone tomorrow are both currently based in Geraldine and are going to travel to Chch tomorrow to join us. They are...

-U.S Traditional timber and log construction expert.

-N.Z Director of Log Homes New Zealand.

Their request is to visit the square to take up to date photos of the new damage to the cathedral as well as get a first hand view of the current state of the building.

Thank you so much with helping with this request. You will really enjoy their enthusiasm for the rebuild. I have told them to bring photo id and be in Chch around 11am. Thank you once again.

Christchurch City Council

Mayor Parker and the Members of the CCC;

Firstly, let me express my admiration for all of you. I have been watching events unfold from afar since the February earthquake; your leadership of the city in it's time of crisis is inspirational.

From the earliest hours of the crisis, I realized that my skills and background may actually be of some use to the City's recovery. Rather than talk about stone and timber when blood and tears were still being shed, I worked quietly from this side of the world. Drawing on the courage, leadership and inspiration shown by [redacted] and the CCC, the eloquence of [redacted], and the true grit of the Farmey Army and the Student Volunteers, I press ahead.

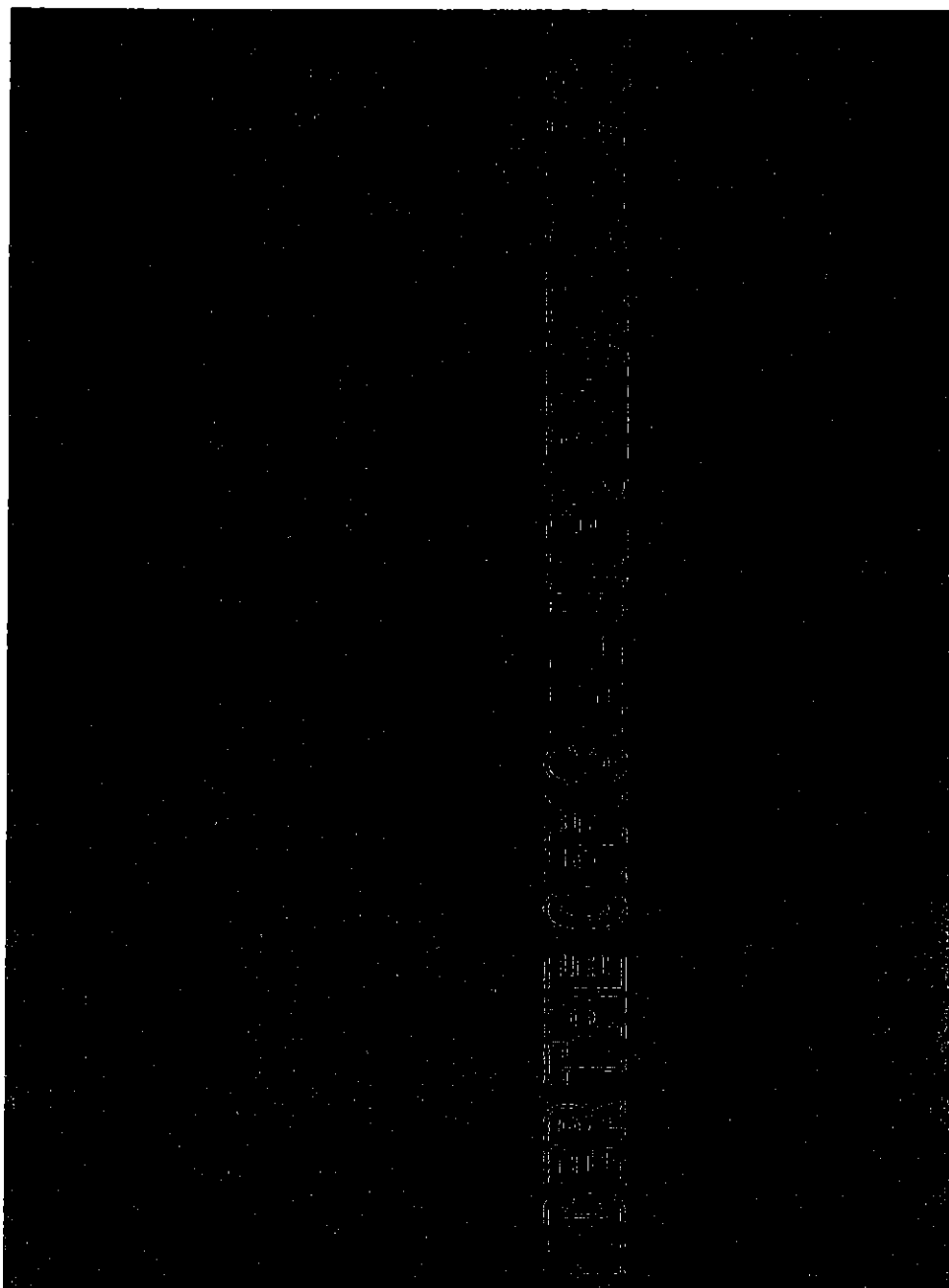
The attached proposal is the culmination of that work. I shared early drafts of this with [redacted] and he encouraged my efforts.

The condensed version is that we propose to rebuild the new tower to be the same familiar size, form and shape, but lighter and earthquake resistant. Hundreds of volunteers arrayed in Cathedral Square will provide the power to raise the structure up to its final position. We propose to utilize time-proven, non-industrial, sustainable methods and materials. Scores of volunteer and hired skilled craftsmen from NZ and around the world would be called to fabricate and assemble the needed parts.

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If the plan is adopted within the next month or so, the bells could be ringing in Cathedral Square the evening of 22 February 2013.

This proposal is now before the Church. Obviously, if they take the decision to adopt the plan, they will need the city's full cooperation and support. Please review the proposal. If you think it has merit, contact the Cathedral and let them know. Encourage them to refrain from any further demolition of the tower until this plan can be fully considered.



I can think of no more potent symbol of hope for the future of the City than to have the Spire at the Cathedral put back into place by the hearts and hands of hundreds of Cantabrians...with a little help from their friends. To paraphrase Churchill...I do not pretend that this project would be the end of the rebuild of Christchurch, nor even the beginning of the end. But I do think it would mark an excellent beginning.

Respectfully submitted, Spe fortis

Withheld under section 9(2)(a)

PS

There is a two part video on You tube that you might like to view. part one part two

I have taken the liberty of setting up a web site to share information about the project: <http://www.thepeoplessteeple.org/>. Also attached are letters of support from the Timber Framers Guild (Canada and US) and the Carpenter's Fellowship (UK) offering their support for the project.

I will be also sharing this plan with the Press. As a courtesy, I wanted you to be aware of the proposal in the event that a reporter asked you about it.

With respect,

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From:
Sent: Wednesday, 11 January 2012 1:59 p.m.
To:
Cc:
Subject: RE: Cathedral **Withheld under section 9(2)(a)**

Thanks

Given the circumstances it is acceptable to receive a revised scope of work and related methodology later in January. When the revised scope and methodology has been determined we would like a follow up meeting with the parties concerned, including Lunds.

Thanks again for the update and please keep me informed as things progress.

Regards

Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4009, Christchurch 8140

Withheld under section 9(2)(g)(i)

W: www.cera.govt.nz

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From:
Sent: Wednesday, January 11, 2012 1:46 PM
To:
Cc:
Subject: RE: Cathedral **Withheld under section 9(2)(a)**

Hi

Happy New Year to you too – I hope you got a break between the aftershocks!

As a brief update on the Cathedral – [redacted] has conducted a more detailed review on site over the last few days and there is further significant damage. [redacted] is hoping to issue his report tomorrow afternoon for the team to review, which will include some of the changes that will need to be incorporated as part of the revised Make Safe works methodology.

As a project team we will be meeting with Lunds, Jackie Gillies and [redacted] next Thursday to agree the detail of the revised Make Safe methodology, and would hope to be in a position to discuss a revised draft of this with yourselves later this month.

Note that the recent aftershocks have caused the insurers considering providing the Contract Works insurance for the Cathedral more concern, and obtaining this insurance has become even more difficult. They

have put a hold on processing the application until a further detailed information on the current state and works are provided.

One piece of good news is that HPT have advised that we should receive the Archaeological consent for the Cathedral Make Safe works by the end of this week – the conditions of which the team will also consider as part of Thursday's meeting.

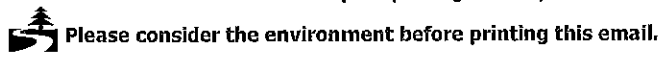
We trust this update is sufficient at present and will contact you next Friday to give more certainty around timing and further meetings with CERA.

Regards

Withheld under section 9(2)(a)



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From
Sent: Wednesday, 11 January 2012 11:01 a.m.
To
Cc
Subject: Cathedral

Withheld under section 9(2)(a)

Hi Gents

Happy New Year. Hope you both got a well deserved break

Could you drop me an email to fill me in on where we are at regarding the Cathedral works. As discussed with [redacted] on 28 December, I have parked the methodology that we received just before Christmas while the extend of the works was reassessed given the additional damaged sustained.

Hear from you soon.

Regards

Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140

Withheld under section 9(2)(g)(i)

Vv: www.cera.govt.nz

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From: redzoneaccess (CERA) [redzoneaccess@cera.govt.nz]
Sent: Wednesday, 1 February 2012 2:40 p.m.
To:
Subject: FW: Access to Cathedral

Withheld under section 9(2)(g)(i)

?

Red Zone Access Team
Canterbury Earthquake Recovery Authority (CERA)
L4 62 Worcester Boulevard
Private Bag 4999, Christchurch 8140

Located at the portacoms on Worcester directly opposite the HSBC building.

E: redzoneaccess@cera.govt.nz
W: www.cera.govt.nz

From:
Sent: Wednesday, 01 February, 2012 2:05 PM
To: redzoneaccess (CERA)
Subject: RE: Access to Cathedral

Withheld under section 9(2)(a)

Mainly observing from the outside. **If** they go into the building it would only be under the direct supervision of the structural engineer and for a very short space of time.



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From: redzoneaccess (CERA) [mailto:redzoneaccess@cera.govt.nz]
Sent: Wednesday, 1 February 2012 1:56 p.m.
To:
Subject: RE: Access to Cathedral

Withheld under section 9(2)(a)

Hi

Are you actually wanting to enter the building or observing from outside?

Cheers

13/03/2012

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Red Zone Access Team
Canterbury Earthquake Recovery Authority (CERA)
L4 62 Worcester Boulevard
Private Bag 4999, Christchurch 8140

Located at the portacoms on Worcester directly opposite the HSBC building.

E: redzoneaccess@cera.govt.nz
W: www.cera.govt.nz

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From:
Sent: Wednesday, 01 February, 2012 11:39 AM
To: redzoneaccess (CERA)
Cc:
Subject: FW: Access to Cathedral

Withheld under section 9(2)(a)

Hi Guys

I sent through the below email last Monday and have not received a reply. Could you follow this up please.

Regards



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From:
Sent: Monday, 23 January 2012 4:51 p.m.
To: 'redzoneaccess (CERA)'
Subject: FW: Access to Cathedral

Withheld under section 9(2)(a)

Good afternoon

Could I organise another pass to get into the Cathedral please. This time it's for _____ of CPT. She will need the pass for 3 months. (Exactly the same as for _____)

Thanks

M 021 550 693



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From:
Sent: Monday, 23 January 2012 3:26 p.m.
To:
Subject: Access to Cathedral

Withheld under section 9(2)(a)

Dear

Happy New Year.

Would you please arrange a pass for me for access to the Cathedral for the next 3 months please.

Many thanks

Church Property Trustees
Anglican Centre, C/- St Peter's Church, 22 Main South Road, Upper Riccarton, PO Box 6088, Upper Riccarton,
Christchurch 8042

www.anglicanlife.org.nz

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Subject: FW: ChristChurch Cathedral - Structural Engineer Site Visit
Location: Cathedral Site
Start: Wed 8/02/2012 11:00 a.m.
End: Wed 8/02/2012 12:00 p.m.
Show Time As: Tentative
Recurrence: (none)
Meeting Status: Not yet responded

-----Original Appointment-----

From:
Sent: Thursday, February 02, 2012 3:36 PM
To:
Subject: ChristChurch Cathedral - Structural Engineer Site Visit
When: Wednesday, February 08, 2012 11:00 AM-12:00 PM (UTC+12:00) Auckland, Wellington.
Where: Cathedral Site

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Hi.

Further to my phone message, please forward this invite onto [redacted] and [redacted] (for his information) at HPT.

Thanks

From: ()
Sent: Wednesday, 8 February 2012 2:59 p.m.
To:
Subject: RE: Cathedral - Meetings with CERA

Withheld under section 9(2)(g)(i)

Withheld under section 9(2)(a)

Hi I

Thanks for your time this morning. I have confirmed 4pm on 21 Feb in the Avon Room, HSBC Building, Worcester Boulevard with Warwick. I think I will send you an electronic appointment.

Cheers

Canterbury Earthquake Recovery Authority (CERA)
Private Bag 4999, Christchurch 8140

W:www.cera.govt.nz

From:
Sent: Wednesday, 8 February 2012 1:41 p.m.
To:
Subject: Cathedral - Meetings with CERA

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Hi.

Thanks for your time this morning at the Cathedral site visit. We appreciate CERA's input and position.

As discussed, please advise the times the relevant CERA participants are available for the following meetings:

Mon 20 Feb – Engineering Review of options (with [redacted]) probably 1.5 hours

Tuesday 21 Feb – Heads of meeting with CERA (Warwick etc) with the [redacted] CPT, Cathedral DCG members etc (probably 6-7 from the Churches side will be in attendance). 1 hour

Please let us know any suitable times, or times to avoid so that we can lock these in and arrange with the various representatives of the Client body.

Regards



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982
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From:
Sent:
To:
Subject:

Wednesday, 8 February 2012 5:10 pm
Warwick Isaacs
Accepted: Cathedral meeting

Withheld under section 9(2)(g)(i)

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Subject:

Start: Fri 10/02/2012 12:00 p.m.
End: Fri 10/02/2012 1:00 p.m.
Show Time As: Tentative

Withheld under section 9(2)(a)

Recurrence: (none)

Withheld under section 9(2)(a)

Meeting Status: Not yet responded

Required Attendees:

Withheld under section 9(2)(g)(i)

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From:

Withheld under section 9(2)(a)

Sent: Tuesday, 14 February 2012 3:08 p.m.

To:

Withheld under section 9(2)(g)(i)

Subject: ChristChurch Cathedral Update - Interview on Campbell Live tonight

Hi All,

and myself have been interviewed outside the ChristChurch Cathedral to give an update on the damage and process. We have been advised the interview will be screened on Campbell Live tonight, if you're interested in watching it.

Regards



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From:
Sent: Friday, 17 February 2012 11:29 a.m.
To:
Cc:
Subject: 2Christchurch Cathedral - Make Safe Options 2 of 2
Attachments: 106324CA0329.029.pdf

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Refer attached.

From:
Sent: Friday, 17 February 2012 11:28 a.m.
To:
Cc:
Subject: Christchurch Cathedral - Make Safe Options 1 of 2

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Gents,

Further to our last meeting on site 3 make safe options have been developed for the Christchurch Cathedral:

- Option 1 - Maximum Retention
- Option 2 - Minimum Shoring
- Option 3 - Intermediate Scheme

These proposals are currently being costed and are with the Client for their consideration.

In preparation for our meeting scheduled for Monday please find attached details of the proposed securing works (one more email to follow).

Regards,

Withheld under section 9(2)(a)

Holmes Consulting Group
PO Box 6718 | Christchurch

Web: www.holmesgroup.com

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Subject: Meeting 1
Start: Mon 20/02/2012 12:00 p.m.
End: Mon 20/02/2012 1:30 p.m.
Show Time As: Tentative
Recurrence: (none)
Meeting Status: Not yet responded
Required Attendees:

re Cathedral

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Does this suit you. Could you co-ordinate with so.

From:
Sent:
To:
Subject:

Monday, 20 February 2012 1:26 p.m.
Accepted: Cathedral meeting

Withheld under section 9(2)(g)(i)

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From:
Sent: Tuesday, 21 February 2012 10:45 a.m.
To:
Subject: FW: MUST READ letter re Church advertisement
Attachments: Cathedral.Chambers.3344.jpeg

Withheld under section 9(2)(g)(i)

Withheld under section 9(2)(g)(i)

FYI.

From: Roger Sutton
Sent: Monday, 20 February 2012 10:27 a.m.
To: Warwick Isaacs
Subject: FW: MUST READ letter re Church advertisement

Withheld under section 9(2)(g)(i)

FYI

Canterbury Earthquake Authority

From:
Sent: Friday, 17 February 2012 6:09 p.m.
To: Councillors & Mayor; Tony Marryatt; Roger Sutton
Subject: MUST READ letter re Church advertisement

Withheld under section 9(2)(a)

Hi All,

Please see below. It is so important that you all read and understand this before our Cathedral is destroyed. The truth is not being told and it would appear that the Press has an agenda on this as well.

> From:
> Subject: letter re Church advertisement
> Date: Fri, 17 Feb 2012 09:57:21 +1300
> CC: Info@thepeoplessteeple.org;
> To:

>

>

>

> Below you'll find the full text of our letter, before the Press edited it.

>

> Again, thanks for your assistance.

>

> It is important that people KNOW that the church is NOT destroyed. The Press and the Church keep showing pics only of the damage. I sent the Press the photo below (can you find significant damage in this photo?), but they did not publish it.

>

> The public don't get Red Zone passes, and so they believe the photos they are shown: no wonder they

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think it's stuffed.

>

> It isn't.

>

> Regards

>

>

>

> -----

>

>

> To the Editor:

>

> Escorted by a Cera official and

we visited Christ Church Cathedral on January 10, 2012. We were allowed to get as close to the building as we wished, and we were given all the time we needed. We were assessing the structure on behalf of "The People's Steeple," (www.ThePeoplesSteeple.org) a group of professional heavy timber framers who have volunteered to help with a proper heavy-timber shoring system, and the reconstruction and strengthening of the Cathedral.

>

> The Bishop's advertisement in Thursday's Press had many dramatic photos. But these photos do not accurately represent the Cathedral's overall condition—the Church is calling attention to the worst damage. As we walked around the Cathedral, we estimate that for 80% of the exterior looks very good. The roof of the entire structure is in excellent condition: ridges and valleys are straight; there is no twisting or displacement of the roof planes. Slate tiles are very brittle, but only a small handful (out of many tens of thousands) have been broken.

>

> There is significant damage at the west end, but much of it was assisted or caused by humans. The steeple roof fell because of the earthquake. But the bell tower was then razed with a digger. The west gable and its rose window were likely pushed over by the steel structure (now known as "the battering ram"). Except for the steeple itself, the majority of damage shown in the Church's advertisement was probably caused by humans, not solely by tremors.

>

> The Church decided to not show the majority of the building where significant damage is hard to find, and may not exist. That's their choice—they paid for the advert. But, it would be a mistake to believe that all of the Cathedral is as devastated as that advertisement makes it appear. We are not risk-takers, and we would have felt safe entering the east end of the Cathedral and having a look inside.

>

> The People's Steeple group has a plan prepared that will secure the structure. For safety, the structure can be shored and stabilized without requiring anyone to go inside. Once stabilized, restoration by skilled New Zealand stone masons, builders, and others would protect the beauty and history of the Cathedral, and ensure the safety of parishioners and visitors for years to come.

>

> Signed-

>

>

>

>

>

>

>

>

> People's Steeple www.ThePeoplesSteeple.org

>

> Feel free to publish this photo by

>

Withheld under section 9(2)(a)

Withheld under section 9(2)(a)

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From: F
Sent: Wednesday, 22 February 2012 6:40 p.m.
To:
Subject: FW: Cathedral letter
Attachments: Draft Cathedral letter.doc

Withheld under section 9(2)(g)(i)

Canterbury Earthquake Recovery Authority (CERA)
Private Bag 4999, Christchurch 8140

W:www.cera.govt.nz

From:
Sent: Wednesday, 22 February 2012 4:51 p.m.
To:
Subject: Cathedral letter

Can you please put this in the appropriate format asap!

Cheers

Canterbury Earthquake Recovery Authority (CERA)
Private Bag 4999, Christchurch 8140

W:www.cera.govt.nz

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From:
Sent: Thursday, 23 February 2012 9:37 a.m.
To:
Subject: Cathedral Letter Withheld under section 9(2)(g)(i)
Importance: High
Attachments: Draft Cathedral lette Withheld under section 9(2)(g)(i)

I have added to and amended the letter. Will have a chat when I get back, not sure if you want to include this level of detail.

I had noted from our meeting that the we were to provide comment on:

- The process that CERA have been involved with
- A brief history
- The options being tabled with comments

Cheers

Regards

Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140

W: www.cera.govt.nz

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From:
Sent: Monday, 27 February 2012 2:38 p.m.
To:
Subject: FW: Cathedral NZHPT response. Confidential
Attachments: 20120227122423765.pdf

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Hi

No doubt you will have already seen this, but I thought I'd forward it through just in case you haven't.

Regards



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From:
Sent: Monday, 27 February 2012 12:39 p.m.
To: Warwick Isaacs;
Subject: Cathedral NZHPT response. Confidential

Withheld under section 9(2)(g)(i)

Withheld under section 9(2)(a)

Warwick and :

Please refer to the attached as requested

New Zealand Historic Places Trust Pouhere Taonga
PO Box 4403, Christchurch 8140
HSBC building, 4th floor, Worcester Boulevard

Shop online at <http://www.historic.org.nz/> and help keep New Zealand's heritage places alive

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From:
Sent: Thursday, 1 March 2012 2:33 p.m.
To:
Subject: Cathedral

Following our conversation could you please confirm whether the containers around the Cathedral, especially on the southern side, are filled. We have had a request from Hawkins who are working on the BNZ site.

Regards

Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140

W: www.cera.govt.nz

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From:
Sent: Thursday, 1 March 2012 2:37 p.m.
To:
Subject: Cathedral

Withheld under section 9(2)(a)

Hi

Withheld under section 9(2)(g)(i)

Diane Turner is the contact within CERA

Email:

Regards

Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140

W: www.cera.govt.nz

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From:
Sent: Thursday, 1 March 2012 3:59 p.m.
To:
Subject: FW: Fall protection containers at the Christchurch Cathedral

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

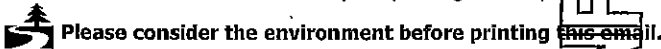
Hi

Below as requested:

Regards



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From:
Sent: Thursday, 1 March 2012 3:54 p.m.
To:
Subject: Fall protection containers at the Christchurch Cathedral

Withheld under section 9(2)(a)

Hi]

The containers at the cathedral are held together with marine twist locks as used on the container ships. Cast your mind back to the pictures of the Rena and this will show you how effective they are at securing the containers. Each container on the bottom row of containers, on either side of the Cathedral, has had a specialist bladder installed and filled with approx. 24000L of water. This is designed to hold the container and rubble in the event of the Cathedral collapsing.

The protection scheme was designed by [redacted] of Holmes Consulting.

Hope this helps
Kind Regards



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From:
Sent: Monday, 5 March 2012 4:19 p.m.
To:
Subject: the latest from
Importance: High

Withheld under section 9(2)(g)(i)

Withheld under section 9(2)(g)(i)

Withheld under section 9(2)(a)

<http://www.stuff.co.nz/national/christchurch-earthquake/6526291/Call-for-TV-cathedral-debate>

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i

From:
Sent: Friday, 9 March 2012 7:47 a.m.
To:
Cc:
Subject: Christchurch Cathedral - Photos

Withheld under section 9(2)(g)(i)

Withheld under section 9(2)(a)

Warwick has ask me to let you know that he wishes to make the photos that were taken of the inside of the cathedral available to the media. They already have the photos from previous visits under the OIA last year.

Regards

Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140

W: www.cera.govt.nz

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From:
Sent: Monday, 12 March 2012 10:23 a.m.
To:
Cc:
Subject: FW: Christchurch Cathedral - CA# 031 - Deconstruction Phases 1 - 3: Tower Deconstruction & Stain Glass Window Removal
Attachments: 106324CA0329.031.pdf

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Hi,

As a prelude to our meeting tomorrow requested that I sent through the proposed methodology for the Tower deconstruction and stain glass window removal.

Regards,

Holmes Consulting Group
 PO Box 6718 | Christchurch
 Phone: 03 366 3333
 Web: www.holmesgroup.com

From:
Sent: Friday, 9 March 2012 1:13 p.m.
To:
Cc:
Subject: Christchurch Cathedral - CA# 031 - Deconstruction Phases 1 - 3: Tower Deconstruction & Stain Glass Window Removal

Withheld under section 9(2)(a)

Please refer HCG DA attached.

Regards,

Holmes Consulting Group
 PO Box 6718 | Christchurch
 Phone:
 Email:
 Web: www.holmesgroup.com

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From:

Withheld under section 9(2)(g)(i)

Sent: Monday, 12 March 2012 10:26 a.m.

Withheld under section 9(2)(a)

To:

Subject: RE: Christchurch Cathedral - CA# 031 - Deconstruction Phases 1 - 3: Tower Deconstruction & Stain Glass Window Removal

Cheers

See you tomorrow at 11am

Regards

Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140

W: www.cera.govt.nz

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From:

Withheld under section 9(2)(a)

Sent: Monday, March 12, 2012 10:23 AM

To:

Withheld under section 9(2)(g)(i)

Cc:

Subject: FW: Christchurch Cathedral - CA# 031 - Deconstruction Phases 1 - 3: Tower Deconstruction & Stain Glass Window Removal

Hi

As a prelude to our meeting tomorrow requested that I sent through the proposed methodology for the Tower deconstruction and stain glass window removal.

Withheld under section 9(2)(a)

Regards,

Holmes Consulting Group
PO Box 6718 | Christchurch

Web: www.holmesgroup.com

Withheld under section 9(2)(a)

From:

Sent: Friday, 9 March 2012 1:13 p.m.

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

To:

Cc:

Subject: Christchurch Cathedral - CA# 031 - Deconstruction Phases 1 - 3: Tower Deconstruction & Stain Glass Window Removal

Please refer HCG DA attached.

Regards,

Withheld under section 9(2)(a)

Holmes Consulting Group
PO Box 6718 | Christchurch

Web: www.holmesgroup.com

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From:
Sent: Monday, 12 March 2012 10:44 a.m.
To:
Subject: Cathedral - HPT Archaeological Consent - FYI
Attachments: 2012-549eq.pdf

Withheld under section 9(2)(a)

Withheld under section 9(2)(g)(i)

Hi Warwick,


Attached FYI, as discussed.

Regards

Withheld under section 9(2)(a)



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From:
Sent: Tuesday, 10 January 2012 4:49 p.m.
To:
Subject: FW: Christchurch Cathedral. Belltower...a proposal to rebuild. Please review
Attachments: Copy%20of%20Drawing%20and%20model%20disassembled%20with%20copper.JPG.zip; Christchurchletterofsupport.pdf.zip; DeanBeck4.pdf.zip; steepleSMfinal.pdf.zip

Withheld under section 9(2)(g)(i)

Email as promised :-)

From:
Sent: Monday, 09 January, 2012 10:45 PM
To:
Subject: FW: Christchurch Cathedral. Belltower...a proposal to rebuild. Please review

Withheld under section 9(2)(a)

Hi

Further below is the email we received from the U.S representing the Peoples Steeple group. This group have involved some fantastic minds in each of their fields to come up with options on saving our cathedral. The two gentlemen who wish to visit the red zone tomorrow are both currently based in Geraldine and are going to travel to Chch tomorrow to join us. They are...

- U.S Traditional timber and log construction expert.
- N.Z Director of Log Homes New Zealand

Their request is to visit the square to take up to date photos of the new damage to the cathedral as well as get a first hand view of the current state of the building. Thank you so much with helping with this request. You will really enjoy their enthusiasm for the rebuild. I have told them to bring photo id and be in Chch around 11am. Thank you once again.

Withheld under section 9(2)(a)

Mayor Parker and the Members of the CCC;

Firstly, let me express my admiration for all of you. I have been watching events unfold from afar since the February earthquake; your leadership of the city in it's time of crisis is inspirational.

From the earliest hours of the crisis, I realized that my skills and background may actually be of some use to the City's recovery. Rather than talk about stone and timber when blood and tears were still being shed, I worked quietly from this side of the world. Drawing on the courage, leadership and inspiration shown by and the CCC, the eloquence of , and the true grit of the Farney Army and the Student Volunteers, I press ahead.

Withheld under section 9(2)(a)

The attached proposal is the culmination of that work. I shared early drafts of this with and he encouraged my efforts.

The condensed version is that we propose to rebuild the new tower to be the same familiar size, form and shape, but lighter and earthquake resistant. Hundreds of volunteers arrayed in Cathedral Square will provide the power to raise the structure up to its final position. We propose to utilize time-proven, non-industrial, sustainable methods and materials. Scores of volunteer and hired skilled craftsmen from NZ and around the world would be called to fabricate and assemble the needed parts.

PS

There is a two part video on You tube that you might like to view. part one part two

I have taken the liberty of setting up a web site to share information about the project: <http://www.thepeoplessteeple.org/>. Also attached are letters of support from the Timber Framers Guild (Canada and US) and the Carpenter's Fellowship (UK) offering their support for the project.

I will be also sharing this plan with the Press. As a courtesy, I wanted you to be aware of the proposal in the event that a reporter asked you about it.

With respect,

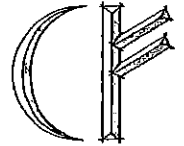
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The Carpenters' Fellowship
PO Box 2823
Corsham
SN13 8ER
UK

Withheld under section 9(2)(a)

Christchurch Cathedral
PO Box 855
Christchurch
New Zealand

Thursday, 24 November 2011

Withheld under section 9(2)(a)

Dear

I am writing to you from the Carpenters' Fellowship, an organisation representing timber framers in the UK. We are dedicated to promoting training, education and the exchange of ideas and skills in the use of structural timber, drawing on both our ancient oak framed heritage and on modern styles and techniques. We have close links with the Timber Framers Guild (TFG) and other organisations representing national timber building guilds worldwide.

Withheld under section 9(2)(a)

We have been watching with great interest the ingenious and elegant timber frame solution put forward by [redacted] to rebuild your magnificent steeple. Looking at the historic timber spires here in the UK and being familiar with the techniques used in the States to create these sorts of structures, I have no doubt that this wooden steeple can be built and can last for centuries, with its combination of time-proven construction and 21st century engineering design.

There is a proposal that such a spire could be built using experts and learners in the USA, the UK and in New Zealand, to realise a multi-national community project.

I can see that your church has various options ahead and that the decisions are not yet made, but I can assure you that should you make the decision to go down this particular path, we at the Carpenters' Fellowship would be enormously proud to be able to contribute and to offer you every means at our disposal in the realisation of this amazing enterprise.

I know the people of Christchurch continue to struggle with the obstacles to reconstruction caused by the awful events of last February and in being a part of a worldwide community project we would have the opportunity to salute their courage and tenacity, sending the strongest message of support and hope.

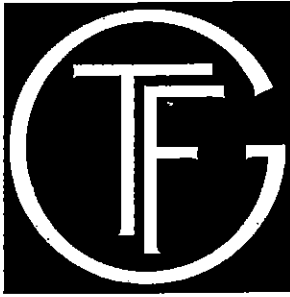
This has the potential to be an extraordinarily powerful symbol of global cooperation, offering so many people from around the world a genuine involvement in rendering assistance to your community, working and learning together on a fascinating and truly worthwhile project.

If our organisation in the UK is called upon to contribute our expertise and energy to assist in any way, you may be sure that we will.

Yours sincerely,

withheld under section 9(2)(a)

The Carpenters' Fellowship



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Timber Framers Guild
PO Box 295 - 9 Mechanic Street
Alstead, New Hampshire 03602
U.S.A.
559-834-8453
info@tfguild.org

November 20, 2011

Withheld under section 9(2)(a)

Christchurch Cathedral
PO Box 855
Christchurch
New Zealand

Withheld under section 9(2)(a)

Dear

The recent destruction of your historic and iconic steeple is a loss that crosses all borders of faith, politics and nationalities. Should you choose to rebuild we would like you consider a timber alternative, built with our many handed community service model.

Withheld under section 9(2)(a)

Long time Timber Framers Guild member, _____ has been working hard on a model for rebuilding your steeple that honor the form of the original structure while addressing modern engineering standards as well as the seismic conditions of your location. We hope you take the time to review his proposal. Please consider this letter a vote of support for his design concepts.

Timber Framers Guild has a twenty five year legacy of completing volunteer based community service building projects. Past events range from construction of a pedestrian covered bridge in British Columbia, to framing women's shelter in Virginia. We have navigated the intricacies of contracts on the city, state, and federal level, and

have tackled overseas projects in Surinam, and in Europe. This past summer we led a highly successful reconstruction of a fifteenth century synagogue roof system in Poland. For more information about what we do, please visit our website (www.tfguild.org).

The decision to rebuild at all is a difficult one. Should you take that step, please also consider the rebuild process as an opportunity to unify many layers of our social fabric: your congregation, your city, and the international community of tradespersons. We know the building process itself can be a source of inspiration, dedication, and humility.

Sincerely,

Withheld under section 9(2)(a)

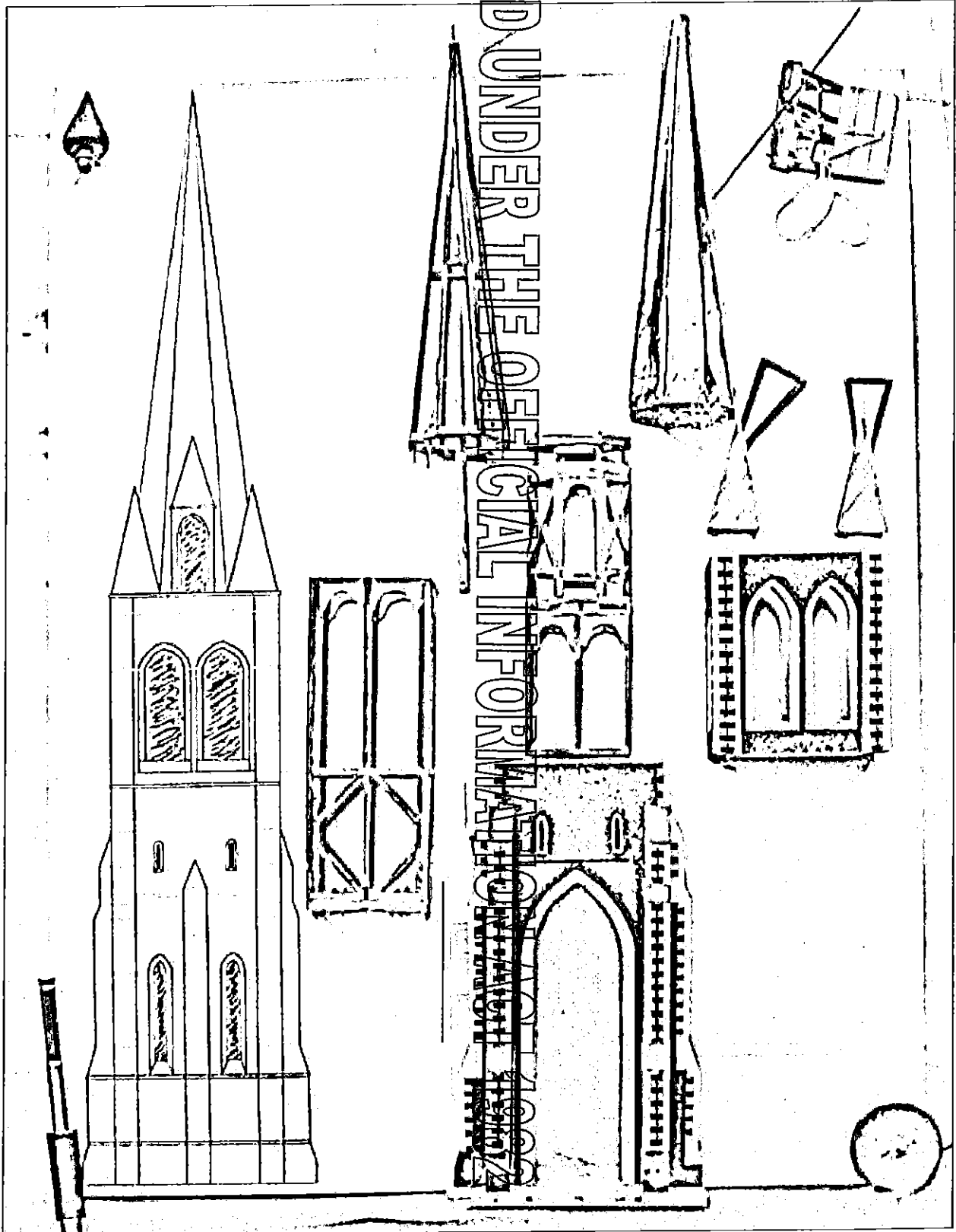
REFUSED UNDER THE OFFICIAL INFORMATION ACT 1982

The People's Steeple

A proposal to rebuild the bell tower at Christchurch Cathedral

by

withheld under section 9(2)(a)



RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

The Project in Brief

We propose to rebuild the new tower to be the same familiar size, form and shape, but lighter and earthquake resistant. Hundreds of volunteers arrayed in Cathedral Square will provide the power to raise the structure up to its final position. We propose to utilize time-proven, non-industrial, sustainable methods and materials. Scores of volunteer and hired skilled craftsmen from NZ and around the world would be called to fabricate and assemble the needed parts.

If this proposal is approved and adopted before Christmas this year, the bells could be ringing from the People's Steeple on the evening of 22 February 2013

This unique approach offers many benefits and opportunities.

- Provides an positive beacon of hope early in the city's recovery effort.
- Would be one of the first projects of the permanent rebuild of the City and a potent symbol to Christians and non-Christians alike.
- Sends the message near and far that "Christchurch is on the mend."
- Builds links and understanding between NZ and the rest of the Commonwealth and the world.
- Augments, but not replaces, Christchurch's resource base with skills and materials and volunteers from around the world. Timber framed sections of the steeple are prefabricated in North America and England using renewable resources.
- Sections are assembled in sequence inside the stone base of the tower and raised into place by rigging, powered by teams of people driving capstans in Cathedral Square.
- Articulating tower sections and mass damper allow for some movement. It's "built to take a shake."
- Uses hundreds of volunteers of all ages guided by skilled professionals.
- As Christchurch's eloquent exhort, the plan is bold and resolute. It builds on a noble past of built heritage that is widely loved and admired. It is excellent in design and concept and will be beautiful and built with great craftsmanship befitting the heritage. Doing great work early in the city's recovery sets a high standard and serves notice that we "banish the bland and ugly" in the new Christchurch.
- Opportunities to incorporate Maori and European elements.
- Long lived construction. A similar steeple in Rhode Island was built in 1726, two years before Captain Cook was born.
- Assuming that the temporary Cardboard Cathedral would be sited in Cathedral Square in a position opposite the wounded Cathedral, the new iteration of the bell tower could serve the congregation and city in its proper role from the day it is raised.

Withheld under section 9(2)(a)

Introduction

The loss of the Cathedral's bell tower was a loss to the skyline of Christchurch and a wound to the heart of every Cantabrian and every lover of the Garden City worldwide.

This is a proposal to rebuild that iconic landmark.

We propose to rebuild the new tower to be the same familiar size, form and shape, but lighter and earthquake resistant. We propose to utilize time-proven, non-industrial, sustainable methods. Scores of volunteer and hired skilled craftsmen from NZ and around the world would be called to fabricate and assemble the needed

parts. Hundreds of volunteers arrayed in Cathedral Square will provide the power to raise the structure up to its final position.

If this proposal is approved and adopted before Christmas this year, the bells could be ringing from the People's Steeple on the evening of 22 February 2013



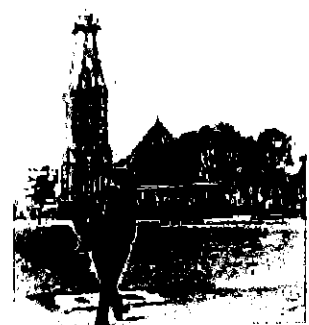
Overview

The earthquake of 22 February 2011 dealt two blows to the Cathedral. Firstly, the shaking of the Cathedral itself resulted in cracks and other damage. Secondly, the quake caused the bell tower to fail. The energy released by that much stone slamming to earth from that lofty perch is roughly equivalent to 100 Kg of TNT exploding next to the Cathedral's north-west corner. That energy rattled throughout the Cathedral, smashing the north aisle roof, damaging columns, and weakening the west wall, leaving it vulnerable to aftershocks. Indeed, the most shocking damage to the Cathedral is a direct or indirect result of the Steeple falling, not the earthquake itself.

The spire's copper peak bore witness to earthquake damage a century earlier.

The steeple could be replaced stone-by-stone with an exact duplicate of the original, built in the tradition of England with its stable geology and gentle climate. But that would again risk lives and disaster in another such quake. That being the case, it would be well to find another way forward that is better adapted to the realities of building in New Zealand.

Steeple under repair, circa 1883



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Tall Towers, Tall Ships and a Potential Way Forward

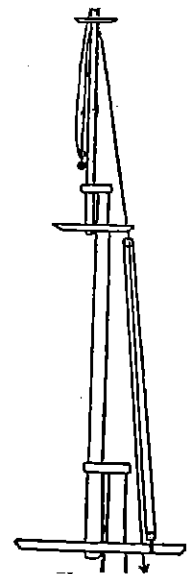
In the 1600 and 1700's, the English settlers in the New England colonies of Massachusetts, Rhode Island, Connecticut and New Hampshire were faced with building steeples along their new storm-ravaged coast. That coast is subject to savage gales out of the North East (Nor'easters) and vicious Hurricanes up from the tropics. They had to come up with a way to build that would stand up to the new situation in which they found themselves.

When it comes to building tall structures and exposing them to extreme conditions, they only had to look as far as the ships that brought them across the ocean. Some of the lessons learned from the masts and rigging of tall ships:



A sailor sending topmasts aloft. Standing on lower masthead, the sailor sets shrouds in place and assures that the topmast and rigging leads fair. Crew on deck mans the capstans to provide power to lift topmast. Note safety harness.

- Keep the weight low.
- The higher you go, the lighter the spars.
- Masts are made of several sections. One section does not simply sit atop the other. There is a "doubling" where they grab each other, making the connection secure and resilient. Top of lower mast serves as the lifting point to raise the upper mast. (See page 22.)
- Rig is built to be safely sent aloft from the deck utilizing rigging, capstans and muscle.
- Build some flexibility and "give" into the system.
- Standing rigging braces the masts down to the hull.

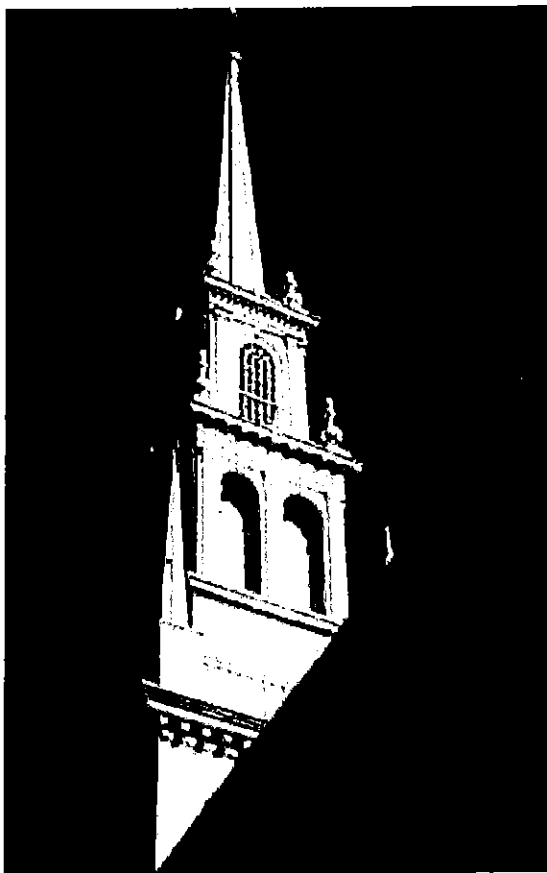


The sketch above shows the arrangement of lower, top and topgallant masts. Note doubling at each level. (Standing rigging omitted for clarity.)

Drawing from those lessons and the rich carpentry heritage of pre-industrial England together with their own cunning and common sense, church builders soon came up with a plan. That plan called for a base section of the steeple to be built next to or into the church building. This base section was usually about the height of the peak of the church roof. On well-built churches, this base was built of well buttressed stone. Meanwhile, the carpenters concentrated on prefabricating sections of the tower that would nestle into each other, like sections of a telescope. These telescoping sections support and brace each other doing the same function as doubling and standing rigging on a ship.

The lowest section was assembled inside the base first. Once assembled, it was raised into place and secured into the base section. Once installed, the lower section provided a lifting point for the subsequent sections as well as a scaffold to clad and roof the spire. The final lift was the completed spire ...cross, roof and all... lifted heavenward by the straining muscles of the congregation making capstans in the churchyard. Historical accounts relate that this last raising took about two hours from start to finish. Celebration followed.

These wooden steeples have proven their worth. Many are 200+ years old, having stood up to every brutal storm that has come their way. Last June, I visited an Anglican Church in Newport, Rhode Island (Trinity Church). The church and spire are in excellent repair and were built in 1726, some two years before Capt. Cook was born.



Trinity Church, Newport RI Built 1726, two years before Captain Cook was born in England

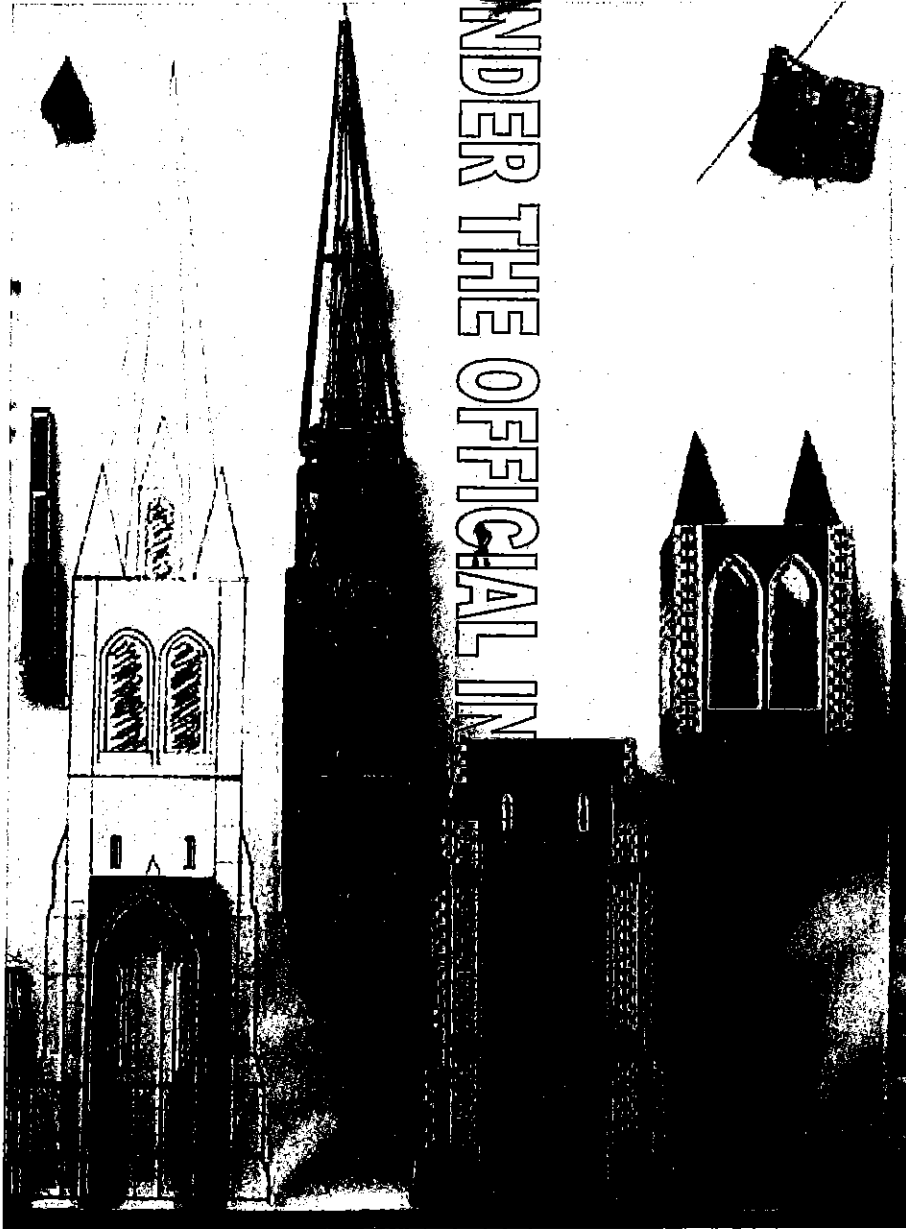
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This method of steeple building seems well suited to the needs of Christchurch:

- It uses the rebuilding of the Steeple to rebuild and strengthen the Community.
- Quick to build...could be ready for second anniversary of the earthquake.
- Proven method of construction that lasts for centuries.
- It is a strong, flexible, light replacement for a heavy, rigid, unreinforced masonry structure.
- The final form can be much the same as the lost steeple in size and shape.
- Uses the "Farmey Army" and Cardboard Cathedral (model) of volunteer community effort in conjunction with volunteers around the world.
- Uses green, sustainable, low-carbon footprint resources.
- Human-scale, pre-industrial building techniques for a human-scale, post-industrial new Christchurch.
- Time-proven to stand up to heavy battering by the elements. Lends itself to Seismic considerations.

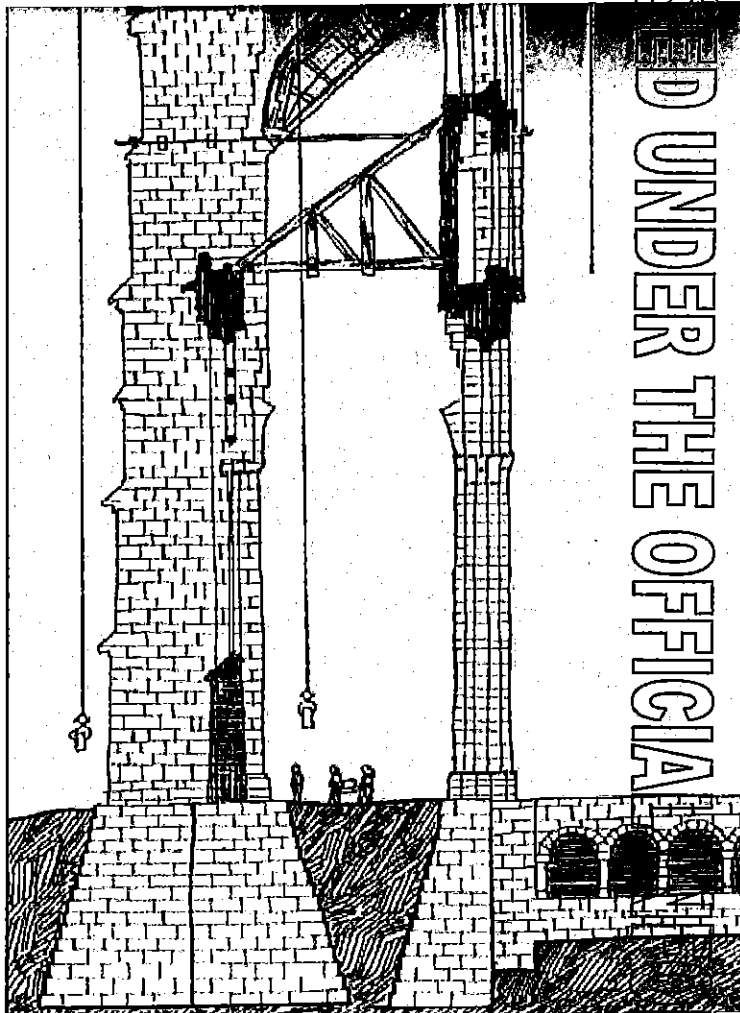
The Plan

The plan I propose for the rebuilding of the Bell tower at Christchurch is a variation on that telescoping steeple plan with particular attention given to being seismically stable and easy to build and maintain. I further propose to repair, rework and re-enforce the original base of the Bell tower at Christchurch to receive the telescoping sections of the new tower.



The model exploded showing the relevant elevations against the drawing of the original steeple. Note: telescoping steeple and telescope scale figure is 6 feet tall, capstan in upper right corner not to scale.

The Base



Cross section of typical Cathedral walls and foundation. Note deep foundations that spread wide below grade. (David Macaulay)

You are blessed with the legacy of some exceptionally talented and careful builders that gave you an exceptionally well built structure. The tower walls are thick (4 feet / 1.2m) and very well buttressed in two directions so that, at the base, the walls are some 8 feet thick (2.4m). This wide buttressing and deep foundations (typically 25 to 30 feet deep, 8-10m) gives the base a wide, stable stance like a Yeoman farmer standing with his feet planted shoulder-width apart.

To the uninitiated, particularly to those that knew the old tower and remember it well, the current state of the bell tower can bring nothing less than shock, grief and despair at the hope of seeing it put right. To those of us that rebuild ruins and care for older buildings, there is much to be optimistic about.

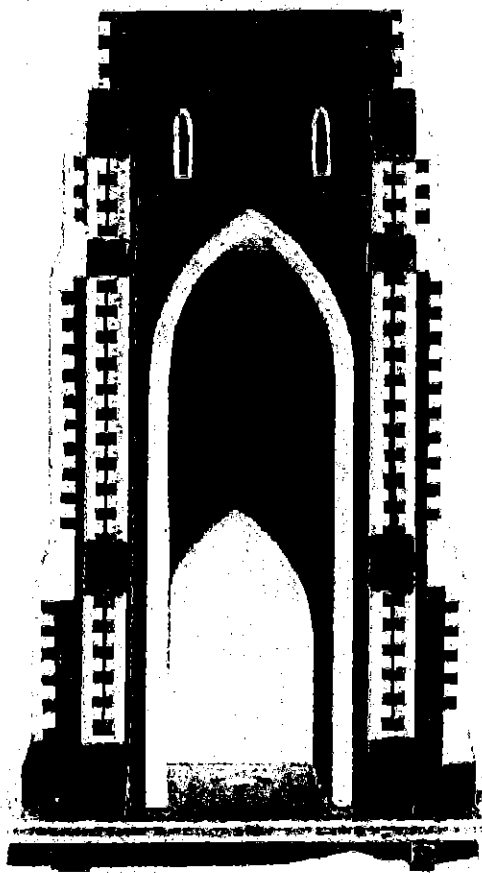
Firstly, and perhaps most importantly, the Tower and Cathedral sits atop some of the best building soils in Christchurch. At the Share-an-Idea conference hosted by the CCC last autumn, Ian McCahon of GeoTech Engineers pointed out that the Cathedral Square area has good soils for building. Shallow foundations work perfectly well in that part of the City and it is not in the liquefaction zone.

(See the presentation at http://www.youtube.com/watch?v=oZEE_Q9R7Lo.)

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If the stonework was structurally compromised, one would expect to see obvious cracking in the plasterwork of the Ringing Room. In the images available, the plaster is smooth. Most of the force of the collapse of the stonework above would have hit the base where it is strongest: straight down. It is reasonable to assume that the base, once repaired and re-fitted, would be more than adequate for the proposed rebuild. That is particularly so, as the proposed spire is a fraction of the weight of the original.

I was sorry to see that the north wall of the tower had to be dismantled; however, it is a blessing in disguise. That side of the tower will give easy access to the interior of the base if it is reworked into a tall Lancet or Catenary arch up to the level of the ringing room. After the rebuild, the arch becomes a feature and part of the Cathedral's story.



North wall of proposed tower rebuild. Lancet arch installed up to floor level of ringing room, allowing access for installing tower sections and spire. On model, arch is removable to show details of the anchorage of the Lower Section into the masonry Base. Instead of the classic Gothic lancet arch, a more modern Catenary arch could be used. Either one would span the opening and impose minimum thrust sideways.

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I would fully expect that when the wall was removed, the sides crept in a few cm from the buttresses pressing in. Scanning and measuring will confirm or refute this. If so, before the arch and wall is set in place, the sides should be jacked apart until any give in the buttresses and stone is taken up. Then the arch and wall can be safely installed, knowing that the sides are pre-stressed and won't creep apart under the load of the arch, causing additional problems.

To prepare for the rebuild, the wall head would have to be demolished to a level that would allow for rebuilding in-kind. The wall would then be built up to the former bell level. Likewise, some of the quoins and dripstones were scarred and damaged. Unless the drip stones are damaged to the point that they no longer conduct water away from the tower, it might be well to leave the scarred stone as a silent witness. Any competent stonemason can handle this work, and I understand that Christchurch has several.

Lastly, the base needs to be reinforced and slightly modified for its new role. Pockets and corbels will be needed to support the timbers. Tension rods need to run from anchor points set low on the tower to a galvanized and protected steel ring beam set at the top of the wall head. This arrangement protects the wall head from outward thrust and puts the entire stone structure into compression, making it far stronger in future earthquakes. Cantabrian masonry drillers assure me that it is feasible for them to drill the holes down the 22 meters needed at a reasonable cost, thus eliminating the fear and danger of unreinforced masonry.

The New Tower Sections and Spire



Using the remains of the bell tower and the overall size and shape of the original bell tower as a starting point, I incorporated the telescoping frame plan and a mass damper into the design illustrated and described below.

The structure lends itself to being built in three sections:

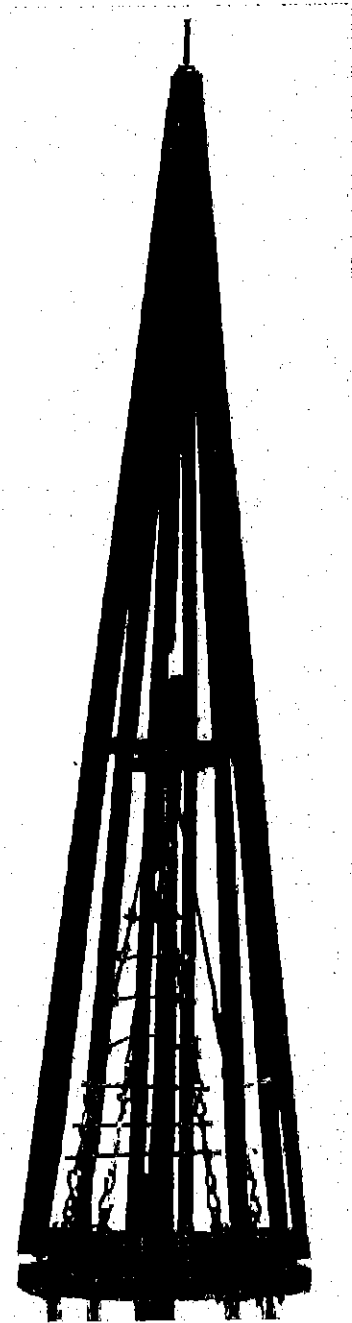
Lower Section. (upper left) Heavily built to take the load of everything above and interface with the stonework below. Square in cross section, this section springs from the floor level of the ringing room and rises to the level of the observation balcony. Corbels and heavy timbers in the frame key into the stone walls of the Base to support the weight. This section lends itself to being pre-fabricated in the Eastern US where large, straight oaks can be found.

Upper Section. (lower left) Stoutly built and well braced with knees and braces. This section goes from the level of the bells to the base of the spire... roughly the former level of the top of the doorway to the observation balcony.

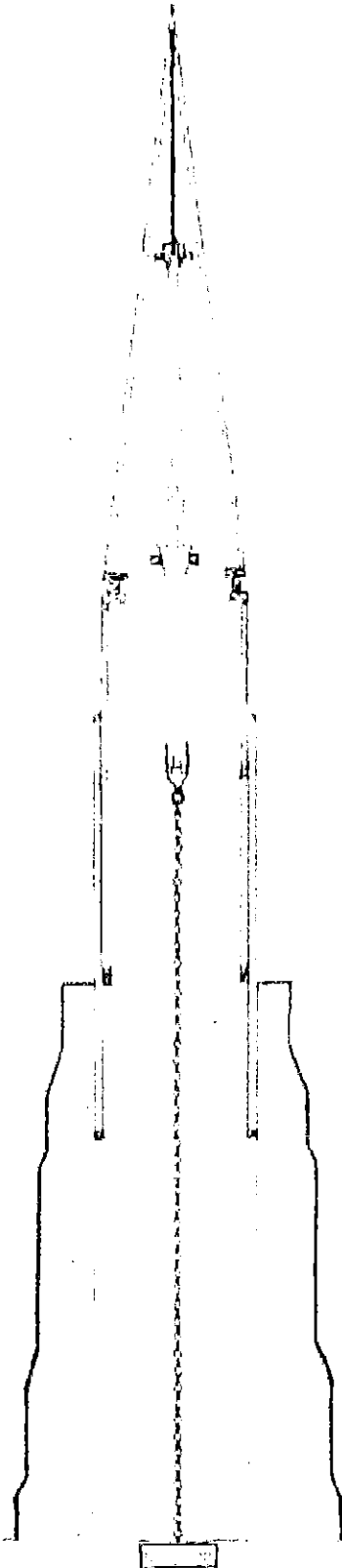
This section transitions from a square to an octagonal cross section at the observation balcony level. This section would be suited to the shorter, curvier oaks in the UK.



The Spire. (right) This light but strong structure rises from the Upper Section and reaches heavenward. A central mast in the center of the Spire provides doubling into the Upper section. At the transition between the Upper Section and the Spire, several heavy springs provide an additional degree of flexibility to the spire. The spire could be clad in slate like the Cathedral roof, or copper as the original spire had at the top. The Spire is a natural for being pre-fabricated in Western Canada where long, light, strong, rot resistant timber is plentiful.



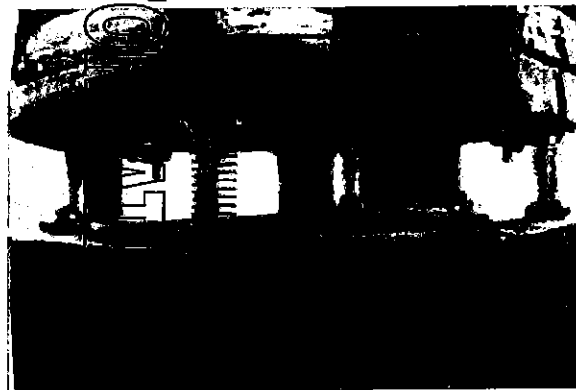
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These sections slide inside one another, allowing them to be built at ground level and hoisted aloft once assembled.

Building on the idea of adapting to a different situation, I propose to add a new wrinkle to the telescoping steeple idea to adapt it to the seismic considerations of NZ. Rather than trying to hold the Spire rigidly against the effects of an earthquake, I propose to have the Spire float on a series of captured springs. This would allow for flex in any direction including up and down. The mast, securely mounted in the middle of the Spire and extending down into the Upper Section would be fitted with a stout chain. A Ship's anchor chain would do nicely. That chain would lead down through the middle of the steeple, past the bells, through the ringing room, down into open space of the base and attach to a large pendulum below ground level. The weight of the pendulum provides a counter weight that prevents the spire from overturning. Being a free swinging weight, it would act as a tuned mass damper of the pendulum type, greatly mitigating Seismic events. The scale model performs beautifully when shaken violently. Ironically, I had the model set up with the pendulum in place when we experienced a rare earthquake here recently. The 5.9 quake was felt all over the Eastern part of the US. The spire simply swayed and the pendulum swayed.

Mass dampers of this type have been used for years on skyscrapers in seismically active areas. Obviously, the arrangement of the bells, the ceiling and floors of the ringing room and ground floor need to be thought through to accommodate a chain passing through the center of the space. Properly done, it becomes a feature, not an impediment.



DRAWING: Cross section of proposed Christchurch Cathedral spire, bell tower and base showing arrangement of springs, spire mast, pendulum chain and weight. Weight could be located below floor level and covered with flooring that would permit movement. Similar flooring arrangements in Ringing room and Bell level would be needed.

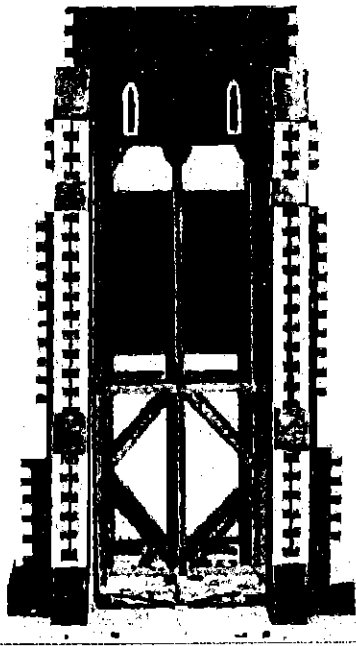
Assembly and Raising

The plan calls for the steeple sections to be raised into place by teams of people pushing sixteen or more capstans in Cathedral Square. While the lift could easily be accomplished by a crane or mechanical winches, the man-powered capstans give hundreds of people the chance to rebuild their city and take ownership in the project. Indeed, the whole point of this project is to use the building of the steeple as a vehicle for building the community. Beyond the crews on the capstans, hundreds more volunteers can help with cooking, logistics, crowd control, etc. An Amish friend once observed that one of the most valuable jobs at a barn raising is done by the boys and girls that carry water to the workers.

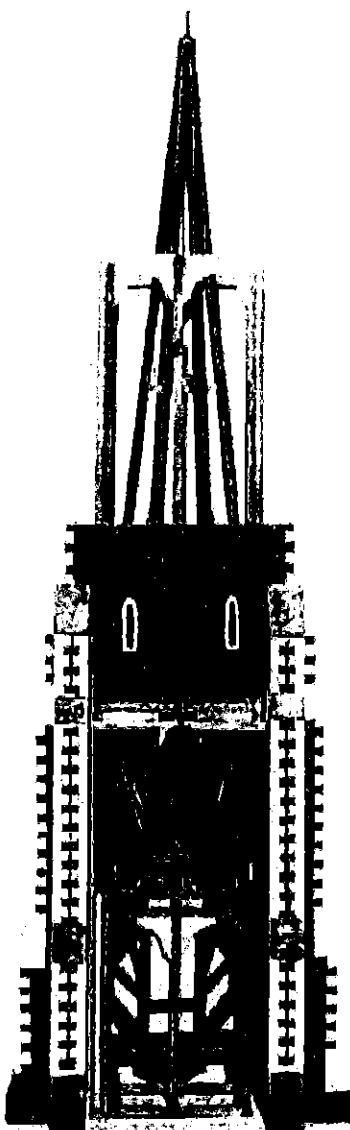


Raising the obelisk at St. Peter's Square, 1586. The Steeple raising would be roughly 1/3 as big: 16 capstans, 500 people, no horses, miles of rope, dozens of blocks and other rigging. We hope crowd control will not need spears in Christchurch.

The rigging would be stress tested and have a huge safety factor and redundancy built in. Only competent riggers with years of practical experience and training would be utilized in setting out the rigging. Tall ship sailors, industrial riggers and Navy trained bosuns would qualify. New Zealand has some world class Tall ships to recruit from. Deck hands from the tugboats in Lyttelton Harbour would have useful skills too. In advance of the raising, Capstan crews and their captains will be trained and drilled to work as a team.



Lower section assembled and installed into Base. (Arch omitted to show interior details)



Once the containers carrying the prefabricated sections land in Lyttelton, make their way through the tunnel and arrive in Christchurch, crews will quickly set about double checking and assembling the sections. Before long the lower section would be assembled and ready inside the repaired stone base.

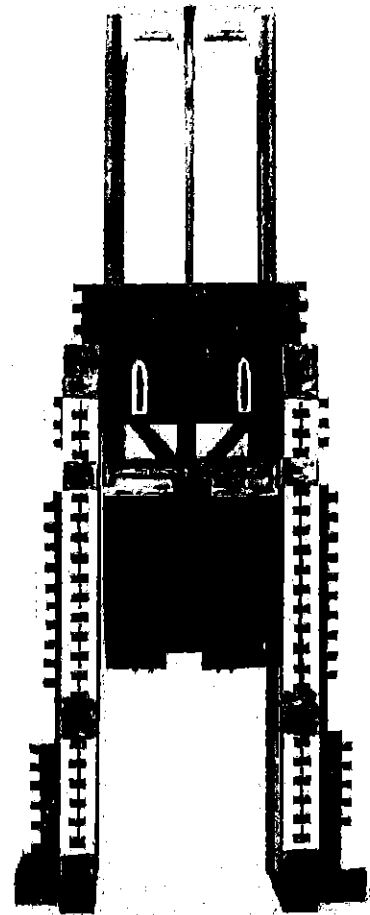
By this point, the riggers have worked their magic and the capstans have been arrayed and anchored. As soon as everything is ready, the capstan crews will be called to action for the first lift. This section is light and gives an opportunity for the capstan crews to get a lift under their belts.

Once in place, timbers slide into prepared pockets in the masonry at the corners to secure the frame to the masonry. Corbels share the load at the midpoints.

At this point, the Spire parts are assembled inside the base and hoisted up out of the way and secured. The Spire mast is then swung into place and secured in the mast partners and cross trees. The Octagonal section of the Upper Section is assembled under the Spire and the resilient connection between Spire and Upper section installed. The whole assembly is hoisted and secured to allow the square section of the Upper Section to be assembled.

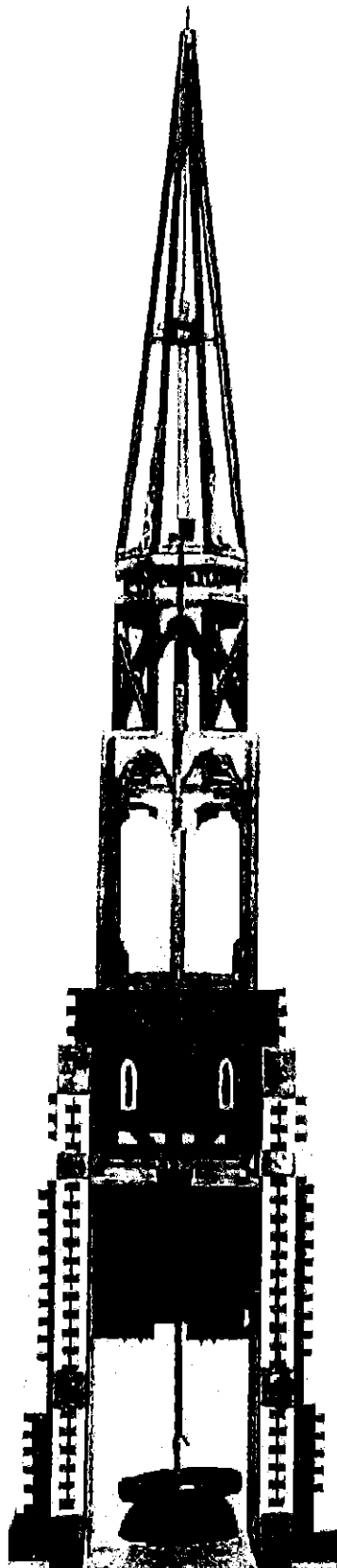
From the time the Spire is assembled and hoisted up, crews can be using the lower section as scaffolding to allow access to sheath and copper the Spire (assuming a copper roof as per the upper section of the old spire) Careful netting and walling off would allow two crews to work one above the other. (Subject to NZ safety regulations)

When the Upper section is complete, the steeple will soon be ready to raise into final position. With some planning, the frames that hold the ring of bells could be fabricated and installed in the Upper Section prior to it being sent aloft.



Lower section raised and locked into base

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Steeple raised, Pendulum installed. Roof, siding, pinnacles, arch, and Bell level facade omitted for clarity.

Details of roof, Bell level facade, pinnacles etc. are conjectural. Tension bands, jack rafters and some braces were omitted from the model for clarity.

Of necessity, the wooden sections have to fit inside the Stone Base. This results in a stepping-in of the silhouette where the timber framed structure extends past the Stone Base.

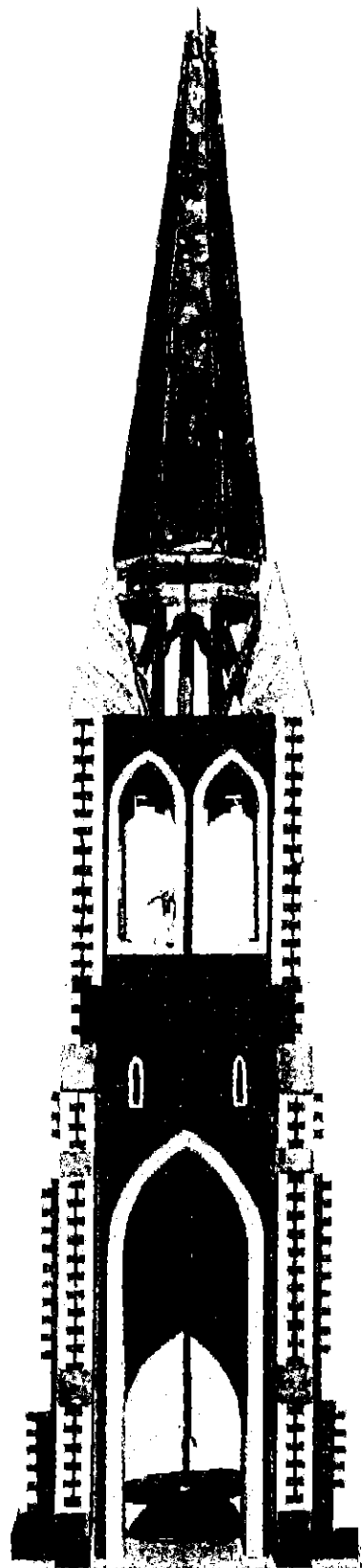
The design was developed specifically to allow the silhouette of the original tower to be duplicated. That requires the bell level facade to be built out to the width of the base.

That could be done in lighter wooden construction at the time of the raising of the steeple, or in stone as time and money permit. Either way, the steeple would be flexible and structurally independent.

Alternately, the bell level facade could depart from the original, perhaps including Maori and other New Zealand motifs. This is one of the issues that need the input of the Cathedral's Architects and other stakeholders.

Obviously, all plans and work would have to comply with NZ safety regulations and all laws and building codes.

Likewise, we look forward to working with your clergy, engineers, architects, project managers, city authorities and cathedral staff to make sure that the project meets the needs of the Church, Congregation, City and Community.



Steeple raised with all the details installed. Man at bell level is six feet tall. For modeling purposes, pendulum weight is above ground level.

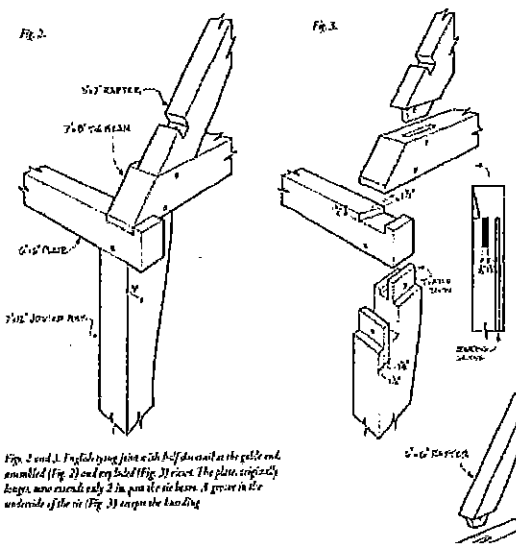
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Timber Framing

The Craft, the Guild, the Fellowship and Christchurch



The classic English tying joint: assembled and exploded views

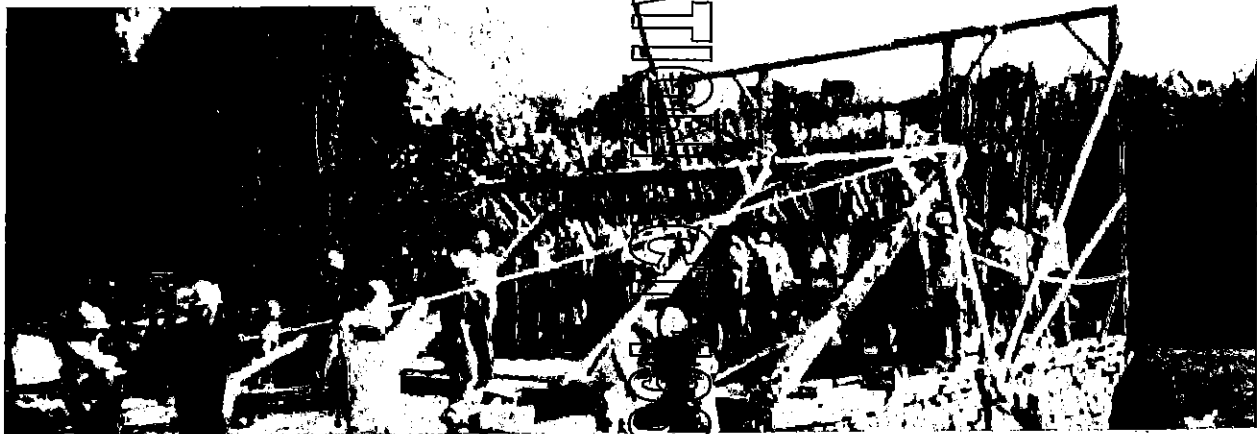


The ancient craft of timber frame carpentry would be used to fabricate the heavy timber sections of the Bell tower and Spire. Traditional Timber-framing, also known as “Green oak” framing is an ancient, time-proven craft that utilizes sustainable and renewable natural materials to build significant and substantial structures that are beautiful and durable... just like the timber roof in the Cathedral.

The craft employs careful joinery and an understanding of the inherent strengths and weaknesses of wood rather than an overreliance on metal fasteners. Before the Industrial Revolution this style of carpentry was simply known as “building”, as most buildings were built this way.

For centuries, practitioners of this craft and their neighbors have come together to raise structures that would have been impossible to raise as individuals. The Timber Framers Guild (www.tfguild.org) in Canada and the US, together with the UK Carpenter’s Fellowship (www.carpentersfellowship.co.uk) continue that tradition.

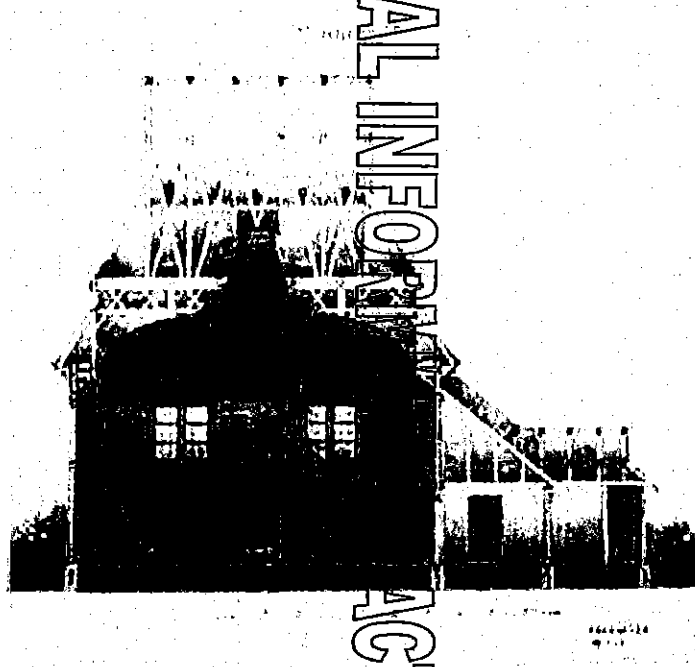
*Barn Raising, 9 am.
By dark, the roof and walls were installed.*



I am aware that New Zealand's losses were staggering from the recent earthquakes. Some estimates are that your losses, on a per capita basis, are twice those in Japan's quake and tsunami. To augment the resources in Canterbury and help shoulder some of the burden, the opportunity exists to tap into the volunteer skills and resources that are available to you worldwide. With the help of the Guild and Fellowship, I envision having the timber framed sections prefabricated in three areas of the globe : Western Canada, Eastern US and the UK. There is adequate good timber and large concentrations of Carpentry talent of the sort needed in all three places. This would give many talented people an opportunity to give of their skills, even if they cannot travel to NZ to help. There would be many opportunities for Cantabrians to help with assembly and fabrication, especially if there is an interest in learning the craft.

Both the Guild and Fellowship have agreed in principle to participating in this project if the decision makers adopt this approach.

For many decades the Guild has been doing pro bono work and commissioned volunteer projects that benefit the communities in which we build. We make a point of fully including, involving and sharing with the locals and anyone interested in learning. Past projects have included housing for the working poor, three covered bridges, many barns and pavilions, steeples, towers, windmills, Torii gates, a Quaker Meetinghouse roof, a 1850's cannon carriage, and an airport terminal . When the call comes, we do not hesitate to go afield. Early in our history, we helped struggling students in St Petersburg, Russia build their boat building school. We gladly forewent a month's wages to help recreate two 12th Century siege weapons along the banks of Loch Ness with our British colleagues.



Polish Synagogue. Built circa 1650. Surveyed and drawn circa 1913.

Notably, this year, the Guild recreated a 17th century Synagogue in Poland. When Hitler's troops rolled across Poland, none of these classic and iconic structures survived. After years of research into their form and construction, the Guild gathered an International team from a dozen countries to come to Poland and turn a pasture full of logs into a Synagogue. As in the 17th century, no power tools or metal fasteners were used

I would like to bring the skills, craft and resources of the Guild and Fellowship to bear in Christchurch.

The usual business model for a commissioned volunteer project like this is for the Guild to provide and oversee a large volunteer group of skilled carpenters. Those volunteers are coordinated and led by a much smaller staff of paid professionals. The sponsoring group (in this case, the church) covers the costs of materials, transportation, food and lodging, professional fees and incidental expenses. Additionally the Guild receives an honest fee for helping to pull the project together to completion. While this is not free to the sponsor, we find that we can usually do a project for about 30% to 50% of the cost of simply contracting out the same work. Donations of materials, services, food, etc., can dramatically reduce the overall cost to the Sponsor. I believe we could work out a variation of this model that would include the Carpenter's Fellowship and suit the needs of everyone involved.



Polish Synagogue reconstruction 2011. Timber Framers' Guild fielded an International team to replicate the iconic structure using 17th Century techniques.

How it Might All Come Together

Assuming that the decision makers approve this plan by Christmas 2011 the flow of activity would be something along these lines:

January - March 2012

In Christchurch, volunteers would clean up, sort and palletize stone and rubble from quake for re-use. Design team reviews, develops, and refines design. Careful survey of dimensions of base, masons scaffold tower and start selective demolition and rebuild of wall head. Set up false work for new arch and cut stone for arch. Set up platform for drillers to work from, commence drilling of holes for reinforcement rods. Provide for fabrication of ring beam

Elsewhere: Locate timber supplies ready for Spring/Summer work; organize volunteer gathering venues and logistics. Work with NZ team to refine design

April - June 2012

In Christchurch: build arch, finish rods and ring beam. Locate large Douglas fir for Spire mast 70 feet long 18" dia. at little end. Work out logistics of raising; accommodations, food transportation, etc. Talk with NZ authorities about the issues involved with having volunteers come to help resolve custom/immigration problems Find out if there are requirements for importing timbers.

Elsewhere: get timbers delivered Sort out logistics of gatherings. Work with NZ crew to determine how many should come to NZ to help with raising. Set selection criteria

July - September 2012

In Christchurch. Put job site to bed for winter as needed. Continue to work on logistics

Elsewhere: Major push to do workshops/gatherings rendezvous to cut, pre-fabricate and test fit the sections. I anticipate that each section should take a hundred people about a week, or 50 people 2 weeks.

October - December 2012

In Christchurch: final push to square away any masonry work still to do from last season. Final push for logistics of having volunteers come to help. Take delivery of shipping containers/rigging/tools.

Elsewhere: All sections plus spare pieces to be packed in containers and shipped by 15 October; final selection of crew to go to NZ will be made by that time too. Load tools, pack clothes and leave for NZ after the Christmas travel rush.

After Christmas, volunteer timber frame carpenters from all over will travel to NZ to join with the people of Canterbury to assemble and erect the steeple.

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In the weeks leading up to the 22 February target date for the raising, Cathedral Square will be a hive of activity. Hands will be unloading the containers and double checking all the parts. Rigging will get shaken out and inspected. Anchor points for turning blocks and capstans set into the ground. Crews of volunteer raisers will be trained to work as a team and handle heavy loads with their capstan. Food will be served to hungry, grateful workers. New friendships will be forged, new skills learned. As always happens, insurmountable obstacles will have to be overcome or ignored. Soon, the Lower Section of the steeple will be ready to raise into place to act as lifting point and scaffold for assembling the Spire and Upper Section. Once the Spire frame is assembled, carpenters can begin sheathing the surface in preparation for the slaters or coppersmiths to work their magic. As the roofers are working above, the Upper Section can be assembled below the Spire. Once that is done, the final preparation for the final raising can move into high gear.

While all this is going on, we will ask

Withheld under section 9(2)(a)

write the best builder's prayer ever. We'll need all the help

and oversight that the Almighty can spare on raising day.



Barn raising in Pennsylvania 1905. Community raisings build great communities and beautiful buildings.

REPEAL THE OFFICIAL INFORMATION ACT 1982

Withheld under section 9(2)(a) An Introduction

For the last thirty years or so, I've been restoring historic stone and timber buildings, mostly in Southeastern Pennsylvania. I'm a working master carpenter and stone mason. Most of the historic buildings I am called to work on are 150 to 300 years old. Solid and well crafted, these old buildings tend to age well, but neglect and damage can take a toll. Much of my effort is spent in repairing and strengthening the timber frames of barns, bridges, houses, gristmills and churches. I've had several commissions to build new structures in the old style. I have organized and led many barn raisings, in which hundreds of volunteers gather to raise a barn's frame in a day. A good crew will have the sides and roof on too.

Straightening, plumbing and repairing damaged stone walls is often called for. It is not uncommon to straighten a wall 10 meters high that is out of plumb by 400 or 500 mm. Having studied and worked with several Scots masons, I'm a strong believer in lime based mortars and good masonry practice. The interface between stone and timber is of particular interest to me.

Since 1989, I've been a professional member of the Timber Framers' Guild (TFG) and a member of the Traditional Timberframe Research and Advisory Group (TTRAG). That part of the Guild focuses on understanding the past practice of the craft with a view that the past might help inform future practice. I have advised many historical and preservation societies and sat on many review boards.

As a result of my participation in Guild efforts and projects, I was invited to go to both Scotland and China to investigate "lost" technologies for the Public Broadcast Service series NOVA. We built working siege weapons in Scotland and in China we built a bridge design that hadn't been built since the Mongol invasion.

I teach Traditional building skills at Lehigh University, Bethlehem, PA. I'm particularly interested in ways that the pre-industrial past practice can inform building in the greener, sustainable post-industrial world of the future.

I serve as a sailor, boson and ship's carpenter aboard the tall ship Gazela (www.Gazela.org). That experience has taught me much about rigging and raising heavy loads in confined spaces. It's taught me about erecting tall, secure, flexible, stable structures that get tossed about and shaken mercilessly. A sea captain in her own right, my wife serves as First Mate aboard Gazela. She out-ranks me, and helps keep me humble.

Since 22 February, I have been working as much as possible to develop a method to rebuild the Bell tower at Christchurch. With the help of friends and students, and the forbearance of my wife, I developed a plan that is beautiful, solid, strong, flexible, earthquake resistant, buildable, durable, and familiar. But more than anything, I want to use the rebuilding of the steeple as a vehicle for rebuilding and strengthening the community. And, once built, serve as an outward witness to the inward love we have for each other as fellow humans.

I look forward to doing this project with the able help of my best friends in the world...many of whom I haven't yet met.

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Theology and Paradigm

Edward Frey in his insightful treatise on sacred architecture, "This Before Architecture," writes, "We must realize that we do not only worship in our buildings, but that we also worship with our buildings"

A project in which people of all walks of life from all over the world gather together to serve something far greater than themselves is an act of joy and love. It is the coming together of the Body of Christ acting together in this world. It is our answer to His call to love our neighbors. The raising of the new steeple from the rubble of the earthquake proclaims to all the Resurrection of our Lord.

When the bells again peal from that tower, they too will proclaim "the Lord is risen...and so too shall this city." Everyone that sees the spire on the horizon of the new Christchurch will know its story and know its message of hope, courage and redemption.

The craftsmanship will be the best that we can give, because we know that the Lord gives freely to us of His gifts.

Frey goes on to say, "I am reasonably certain that for the seasoned Christians it may not be at all necessary to make so much of church architecture, may not even be necessary to have a special building facility. If the Church had no responsibility to either the immature Christian or the non-Christian, probably any kind of building would satisfy our private needs for our closed community. But the church building is not a private expression only, it is a public matter. The building and what we do in it confronts the whole community."

The "People's Steeple" will stand before the community as an outward witness to that inward love for each other.

Good Stewardship of God's Gifts

The Bible relates to us that we humans were granted dominion over the earth. Implicit in the power of "dominion" is the obligation of stewardship. A durable structure made by the efforts of many, using renewable, natural materials goes a long way toward that obligation. Timber resources would be local to the places where the various sections of the frame would be cut, minimizing transportation. Every effort would be made to utilize only salvaged dead trees or sustainably harvested timbers. Where available, using recycled timbers from older structures might be an option. Donations of trees from forest landowners would be welcome and solicited. Indeed, it would be entirely proper to request such trees from HRH Queen Elizabeth II, for the portion of the steeple to be cut and pre-fabricated in the UK. Her Majesty is, after all, the Queen of New Zealand and the Supreme Governor of the Church of England. Indeed, many of the carpenters that would be building the UK section of the tower restored Windsor Castle after the fire.

The CCC rebuild plan calls for the abandonment of some of the land for building and reverting it to open space. Planting a substantial woodlot of native and non-native timber species on part of the land would be another step toward good stewardship and provide for future needs. It would be particularly appropriate if the Queen were to donate some royal acorns to that effort.

Sprouting and tending the seedlings would be a wonderful way to involve school children throughout Canterbury. And, for generations the people of Christchurch could enjoy the Queen's Oaks.

Funding, Resources, Donations

The Press reports that the Cathedral is somewhat under-funded for the quake losses. Assuming that you were paying full rates for everything in the rebuild, this wooden tower would be a fraction of the cost of replacing the original in stonework. I would guess it would be 15% to 20% of the cost of masonry. That is a major savings and goes a long way to making up the shortfall in funding. With so much volunteer labor, the savings would be substantially more.

Even with the donation of months of volunteer effort, worth several millions of dollars, there will be considerable expenditure of funds to accomplish this project. That being the case, identifying potential revenue streams and cost savings is crucial.

Once the project is adopted, the appeal can go out for donations to this first step in the permanent rebuild. The success of this phase can be leveraged to appeal for funds to rebuild the remainder of the Cathedral.

Classically, one of the ways that church buildings have been funded is by sponsorship of the various parts of the church. The steeple would be a perfect candidate for sponsorships. Sponsors might underwrite a timber. We'll put their name on it and give them a copy of the steeple plans with their piece highlighted. You could have a schedule of pieces; the bigger, easily seen timbers (like in the ringing room) might be a premium and smaller timbers much less dear. At barn raisings, it's not uncommon to "sell" the pegs that hold the joints together for people to put their names on before we drive them home into the joint.

There are many opportunities for people and businesses to make contributions-in-kind of their goods, services and time that would materially reduce the costs of the project. As with the Cardboard Cathedral, donations of airfare, and professional services would be a real help. Additionally, ocean shipping might be donated. I'm sure NZ Shipping would be approachable. We'll need a shot of anchor chain and miles of rope and tons of rigging. Who are your contacts in the maritime world? I understand the frigate HMNZS Canterbury was scuttled a few years ago. If her anchor chain can be located and utilized, that would be both appropriate and symbolic.

Timber framers are used to Spartan conditions. If you could talk the Army into providing tents and cots field showers, etc. within walking distance of the Cathedral, we'd be happy. We will require good food and plenty of it. It's hard work and we eat like horses. Cold beer is also an essential after-work nutrient.

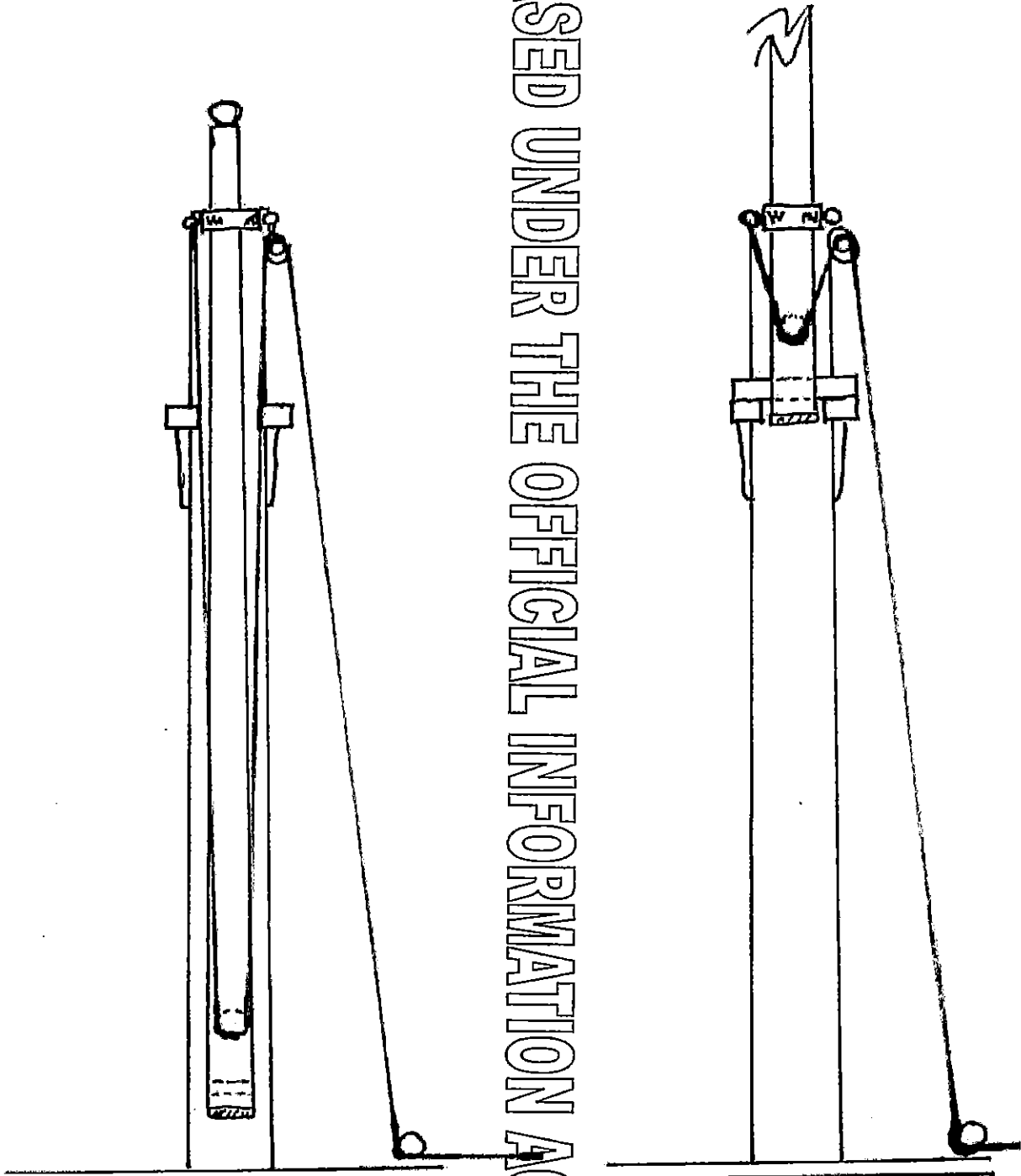
We can approach the forest land owners in the three areas. I'm sure the BC Premier might be approachable by his NZ counterpart. First Nation Canadians have expressed an interest in donating old growth Cedar to the effort. Likewise, the Commonwealth of Pennsylvania has vast forest reserves. HRH the Queen is another potential donor of timber with a strong connection to the Cathedral in Christchurch. We will need a large, long tree for the spire mast (70 feet long, 16" at the little end). I understand that CCC has some timber reserves planted to Douglas fir. If we could find the log we need in Canterbury, it would save some expensive shipping. Anything that doesn't fit inside a 40 foot container costs a LOT more to ship, if they will ship it at all.

With a bit of tweaking, it may be easy to provide room in the pinnacles for wireless communication antennae, providing better communications for the CBD and an income for the church.

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Rigging Detail

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Method for raising topmasts in sailing ships. A very similar rig will permit us to raise steeple sections using the section below as a lifting point

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Moving Forward

Thank you for considering this proposed approach to rebuilding the Steeple. I invite any questions you might have and look forward to a conversation about the possibilities, opportunities and obstacles the plan presents.

At your invitation, I am willing, accompanied by my colleagues from the Guild and Fellowship, to travel to Christchurch to meet with all the stakeholders. It is my great hope that we can forge a way forward together.

Until then, we urge you to stabilize the remains of the tower and refrain from further demolition.

We believe that this plan will suit the needs of the Church, the City and the Community. We hope you will agree and invite us to join your efforts to rebuild.

Warmly and respectfully submitted,

Withheld under section 9(2)(a)

East Greenville, PA

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Rev 1 7.12.11

CHRISTCHURCH CATHEDRAL INTERIM MAKE SAFE WORKS Site Specific Contractor / Subcontractor Induction Summary

Site Location

- The site is the Christchurch Cathedral in Cathedral Square. The site entrance is in the north western corner of the Cathedral site.

Scope of Works

- The work involves interim make safe works to the extensively earthquake damaged cathedral as detailed and instructed by Holmes Consulting Group. The work generally involves work to the damaged tower, the west rose window gable wall, the damaged section of roof adjacent to the tower, propping of the east and west gables, and installation of propping to the interior of the nave.
- Refer to the C Lund & Son Methodology Statement for details of the proposed work methodology and Demolition Plan.

Safety Induction

- All work must be carried in accordance with the C Lund & Son Site Health and Safety Procedures, and in accordance with the Health and Safety in Employment Act 1992.

Site Access / Traffic and Parking / Traffic Management Plan

- Site access shall be via the entrance to into the cordon at Gloucester St / Oxford St for all vehicles other than overweight vehicles. .
- Private vehicles are required to park outside the fenced site area.
- All visitors to the site are required to sign in and out using the sign-in register in the main site office.
- A Traffic Management Plan is not required

Personal Protective Equipment

- Hard hats, safety boots and high visibility vests are mandatory on the site at all times. Safety goggles, ear muffs and other PPE are to be used as appropriate to the work being undertaken. Safety Harnesses MUST be worn at all times in accordance with correct procedures when working from elevated work platforms, suspended man-cages, and at any time when there is a risk of injury from fall.

Site Hazards

- A hazard board that is regularly updated is located on the front of the site sheds.
- Particular hazards that you must be aware of include but are not limited to:
 - Risk of falling overhead debris. Every area of work must be fully assessed prior to work being undertaken
 - Risk of further collapse to the building or parts of the building in the event of a significant earthquake. Work must be carried out strictly in accordance with HCG Interim Make Safe Works Hazard Analysis and C Lund & Son Work Methodology. Safe escape routes must be identified and maintained prior to all areas of work being undertaken
 - cranes operating – watch out overhead
 - height safety work – correct height safety procedures to be followed at all times.
 - vehicles manoeuvring around the site and heavy plant operating – be aware at all times.
 - Manual handling of heavy components
 - Slips, Trips and Falls



Radios

- Radios are not permitted on the site.

Animals

- Animals / pets are not permitted on site.

Alcohol / Drugs

- Alcohol or Drugs or working under the influence of is not permitted on site, only exception being bona fide medical requirements. If suspected of being on site under the influence of Alcohol or Drugs, you will be required to leave the site immediately and your employer notified.

Site Security / Temporary Barriers

- Do not alter any temporary walls or barriers without prior approval from C Lund & Son Ltd Foreman. Advise C Lund & Son Ltd immediately if you believe that any walls or barriers may have been tampered with.

Fire Protection and Hot Work

- Extreme care must be taken when undertaking any hot work.
- A hot work permit system operates on the site and must be used for all hot work (gas cutting, welding, grinding etc). Forms are held in the site office. Subcontractors are to provide their own worksite fire extinguishers for carrying out of hot work.
- Fire extinguishers are provided on the site. These are not to be tampered with. Advise C Lund & Son immediately if an extinguisher has been activated for any reason.

Existing Services

- Before disconnecting any services or carrying out any work that may affect existing services, advise C Lund & Son Ltd Foreman.

Evacuation / Emergency / Earthquake

- The warning signal for evacuation is 3 blasts of an air horn and continuous siren with the assembly point adjacent to the site entry gate
To use site phones to call emergency services -- dial 111

First Aid

- The First Aid Cabinet is located within the main site office.

Accident Reporting

- All accidents and near misses must be reported. Copies of completed accident forms (either C Lund & Son Ltd form or your employers form) must be faxed / delivered to the site office on the day the accident occurs.

Contacts:

Foreman and C Lund & Son Ltd Health & Safety Representative:

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Christchurch Cathedral Interim Make Safe Works

Proposed Methodology - Draft

rev 2 15 Dec 2011

1. Introduction

The scope of works included in the interim make Safe Works at Christchurch Cathedral is described in Holmes Consulting Groups 'Christchurch Cathedral Interim Make Safe Works Hazard Analysis' Revision 02, dated 1 December 2011. All work will be carried out to Engineering details provided progressively by Holmes Consulting Group as the work progresses. Draft HCG contract instructions received to date are referred to for each area.

This methodology statement provides detail relating to the intended work practices in carrying out the scope of work, and will be updated progressively as further Engineering details are issued.

2. Site Establishment

Attached find C Lund & Son Sketch SK01 rev 2 indicating the proposed site establishment area.

It is proposed that all work will be confined within the site area bounded by the existing site fences. As we understand the site is likely to remain within the cordoned area for the duration of the works and the existing fences are to remain in place, we have allowed for installing a set of access gates into the fence at the North West corner of the site as the main site access. The existing fences will be used to secure the work zone and exclude unauthorised personnel. Access to the site for all vehicles other than heavy traffic with the current cordon configuration will be from the Gloucester St / Oxford Terrace cordon entry / exit point as indicated on the attached map of the area. Heavy traffic such as cranes will access the site from the Manchester St cordon entrance. Secondary access to the south of the site area will be required at times to allow heavy plant to access the southern side of the Cathedral for the period prior to the removal of the existing steel gantry frame at the west gable. This access will not be used for general site access.

Site facilities include:

- Site Office Storage Container Site Toilet (Portaloo)
- Temporary power connection
- Temporary phone connection

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Major Plant

Craneage for Phase 1 of the works will primarily be provided by a 150T Kobelco Crawler Crane established in the area indicated on SK01 for the duration of Phase 1. This will provide full coverage of all Phase 1 works (excluding the installation of the bracing to the South Transept Gable), and will ensure that there is adequate capacity available for the critical works in the Tower and West gable areas. The capacity of the 150 T crawler will allow the crane to be sited near the extremity of the potential fall zone and will provide increased stability for workers as much of the work will be undertaken from suspended man-buckets.

For installation of the bracing to the south Transept gable, and for certain tasks requiring additional craneage, mobile hydraulic cranes will be provided ranging in capacity from 25T to 100 T depending on the specific task, and will be located in the areas indicated on SK01 attached.

C Lund & Son have a range of Engineer certified man-buckets that are suitable to be used as working platforms for much of the high level work.

Should a medium reach breaker be required for careful deconstruction work on sections of the Tower and West wall, these will be located in the areas indicated on SK01.

Phase 2 lifting will be determined as the design of the internal bracing is finalised and will be limited to equipment that can safely access the interior of the nave.

3. Key Personnel and Contacts

C Lund & Son Ltd

Foreman / Site manager
Director in Charge
Contract Administration

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4. Work Hours

The hours of work will be within the following hours:

7.00am to 7.00pm Monday to Friday
7.00 am to 12 noon Saturday

5. Protection of Adjacent Buildings, Existing Surfaces and Infrastructure

The following protective measures will be implemented on this project:

Existing Adjacent Buildings

Given the cathedral and visitors centre relative isolation, no temporary protection to existing adjacent buildings is considered necessary.

Paving

A temporary crushed fines surface will be provided to a depth of around 300mm in the areas of the establishment of the crawler crane and breaker equipment as indicated on SK01.

Infrastructure

DECONTAMINATION SURVEY TO BE INCORPORATED

At this stage, no excavation work is proposed. Available plans of existing buried services within the site area will be obtained and referred to should excavation work be instructed as the detailed design progresses.

Trees

There should be no need to interfere with any trees in the surrounding cathedral area.

6. Retrieval / Disposal of Stone and Brick Materials

As noted in the following specific task methodology, the works will be undertaken wherever practicable to facilitate the retrieval of Halswell Stone from the areas undergoing deconstruction. This stone will be palletised on site.

Soft sandstone in the areas undergoing deconstruction will not generally be recoverable and will be disposed of along with brick and rubble.

*To Be
ELABORATED
BASED ON
CONSULTATION
WITH HOMES*

7. Disconnection of Services

We understand that all existing electrical services within the building have been disconnected. We will require confirmation of this prior to work commencing.

8. Health & Safety

Refer to the site specific Health & Safety Plan that is separately submitted.

9. Specific Task Methodology

(Task Names and numbers correspond to The Holmes Consulting Interim make Safe Works Hazard Analysis)

Phase 1 – Securing the Site

1.0 Removal of External High level Falling Hazards

- This will be undertaken only in areas where safe access is possible utilising a man-bucket suspended from the crawler crane.

*LUNDS TO PROVIDE MORE DETAIL
AFTER INITIAL WALK OVER WITH HOMES
AT BEGINNING OF PHASE 1.*

2.0 Stabilise Tower (HCG CA 16)

- Remove window or install protection to existing stained glass window at ground level to east of tower
- Remove top of tower walls down to designated level by manual breakers working out of the man-bucket suspended from crawler crane. This will ensure a neat, level top is provided for the construction of the concrete ring beam.
- Forming, reinforcing, pouring of ring beam, installation of hollow-core units and pouring topping will be carried out from a suspended man-bucket and from workers harnessed to the suspended man-bucket while working on the top of the levelled tower walls. Their escape route will be via the man-bucket.
- Following completion of the topping slab, the removal of the outside walls of the spiral stair will be carried out by hydraulic breaker situated adjacent the front doors of the visitors centre. Breaker will initially chip down soft sandstone corners which will loosen the walls and allow the Halswell stone to be chipped out. Wherever possible, the Halswell stone will be removed in full blocks for retrieval. The breaker will then chip down the brick body of the wall to the designated level.

2 Corners?
 1 - Man bucket
 1 - Material

Hydraulic Pump
 To be developed
 Be

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3.0 Reinstate Roof Bracing (HCG CA 19 and 20)

North Porch Gable Securing to be completed prior to Roof Bracing Reinstatement

- Methodology for securing the north porch gable to be similar to the North and South Transept Gable Securing methodology described below with craneage provided by 150 T crawler crane.

Item A will
 be done
 before item 3

(To be Confirmed with HCG) - Roof Bracing reinstatement to be carried out following completion of stabilisation of the Tower and the East - West Nave Bracing (As access into the interior of the cathedral in the area of the roof bracing reinstatement will be necessary to undertake this work, the work will be scheduled to only commence once longitudinal stability in the east-west direction is restored by installation of the east-west nave Bracing).

Leads to
 elaborate

- Craneage to this area to be provided from 150 t crawler.
- Scaffold the outside of the damaged wall , complete with stair tower to provide escape route and access to the top of the wall.
- Remove / relocate rubble at ground level inside the building. Lift scissor hoist into the building through the roof opening. Remove rubble along top of existing damaged wall. Remove unstable sections of North porch roof as required. Remove damaged sections of roof bracing and remaining damaged timber rafter sections.

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- Construct concrete beam as detailed accessing both from external scaffold and onto scissor hoist.
- Site measure steel rafter beams, prefabricate and install, and reinstate diagonal bracing. Install timber purlins, lift out scissor hoist, and install roofing as detailed.

4.0 Remove West Rose Window, Gantry and West Porch (HCG CA 17)

- Establish long reach breaker to the south west of the Gantry as indicated on SK01
- Utilising a long reach gas nozzle and working out of the man-bucket, gas cut the head off the rose-head tie that connects the remaining dislodged section of the west face to the gable tie. This will reduce the risk of this tie further damaging the existing roof when the dislodged section of the west gable is removed.
- Where possible, using the long reach breaker, remove any loose blocks that have fallen to the level of the west porch roof that are caught up with the gantry steelwork to avoid chipped materials accumulating at that level
- Carefully chip away the triangular peak section and the remaining dislodged section of the west wall with the breaker. Materials will fall inside the building and on to the west porch roof. This cannot be avoided. It is also possible that the extensively damaged buttress on the west wall to the south of the west porch will collapse during this process. This process will be carried out slowly, attempting to break the remaining high sections of the west rose window wall into as smaller sections as possible to control their fall, but it must be noted that due to the extensive degree of damage to the wall and the unstable position the remaining sections are located in, it is possible that the sections that fall could be relatively large and cause further damage.

We note that the intention is to recover the main entry doors to the west porch, however it will only be safe to do this once the overhead hazard from the damaged west gable wall is removed. A risk of damage to the main entry doors therefore exists from falling debris while the remaining sections of the west rose gable walls are removed.

- Once the rose window west wall is cleared down to the level of the west porch roof, the steel gantry will be removed by cutting into sections and craning sections out. This work will be undertaken from a man-bucket with a supplementary crane hook provided.

Any Risk
Of Partial
Collapse
When Ties Cut

SO WILL
BE ON
SITE
DURING
THIS
PHASE

SO TO
BE SITES

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- The west porch will then be deconstructed utilising a short reach digger / breaker, removing the roof and side walls first. Possible saving of some feature stonework to the west porch to be investigated at this stage. The main entry doors will then be recovered, and the front face of the porch deconstructed.

5.0 Install Shipping Container Shoring (HCG CA 17)

- Uplift pavers and remove west porch foundations and ramps. Prepare ground to required level with compacted hardfill. Prep. face of building as required prior to installation of containers.
- Progressively install containers, filling with pea gravel. Setout critical to allow pre-manufacture of capping frame. Minimum gap of .5m to be provided between front and rear rows of containers and access rungs to be prefixed to higher level containers to provide access for connecting lower central twistlocks.
- Install capping frames.
- Working from hydraulic access equipment where possible, and suspended man-bucket in areas of limited access, set-out the level of the collector along the columns. Install lower stiffener and support plates. Install collector beams, then install upper plates.

6.0 Install UB Mullions in North and South Transept Gables (HCG CA 18)

- Craneage to be provided by temporarily relocated 150T Crawler to North transept, and mobile Hydraulic crane temporarily established where indicated on the site plan for the south transept. Secondary access for staff to the workface to be provided by hydraulic manlift access equipment as required.
- Remove pavers and prepare ground for precast concrete base and install precast concrete base. Arrange for removal of remaining stained glass windows to north transept.
- From suspended manbucket, extend high level rose-heads and set-out and drill and install wall ties as detailed
- From suspended manbucket, install prefabricated horizontal PFC's with timber blocking to accurate centreline set-out
- Site measure vertical setout of PFC's, fabricate, pre-drill, and install 610UB mullions

SO TO
LOOK AT
SET OUT
OF THE
RODS

- Install RB25 cross roof ties utilising 150T crawler and hydraulic mobile crane on south side, and tighten
- Install ties through door to precast base of north Transept (detail at door to be confirmed). Detail at base of South transept to be confirmed – no door.

7.0 Reinststate Waterproofing over northwest corner (HCG CA 19 and 20)

(Refer 3.0 above)

8.0 Reinststate West Wall Cladding (HCG CA 21)

- Access to be provided by either hi-reach hydraulic access equipment operating inside the west end of the nave, or internal scaffold to the west wall. To be confirmed at a later date.
- Site measure, shop draw, manufacture and install structural steel and cladding.

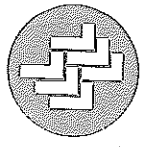
Phase 2 – Contents Retrieval Works

Methodology for Phase 2 works to be determined when details are available.

CHRISTCHURCH CATHEDRAL INTERIM MAKE SAFE WORKS STAGE 2 PHASE 1 SECURING THE SITE
DRAFT PROGRAMME REV 1 14 DECEMBER 2011

	16/01/2012	23/07/2012	30/01/2012	6/02/2012	13/02/2012	20/02/2012	27/02/2012	5/03/2012	12/03/2012	19/03/2012	26/03/2012	2/04/2012	9/04/2012	16/04/2012	23/04/2012	30/04/2012	7/05/2012	14/05/2012	21/05/2012	28/05/2012	
1 Contract acceptance/Consents/Issue construction Drawings																					
2 Site Establishment																					
3 STABILISE TOWER																					
3.1 Level top of existing tower																					
3.2 Install new concrete ring beam																					
3.3 Site measure/ manufacture Dycore																					
3.4 Install Dycore and pour topping																					
3.5 Deconstruct Stair walls																					
4 WEST PORCH AND ROSE WINDOW																					
4.1 Demolish West porch, rose window and remove gantry(See note 1)																					
4.2 Install shipping containers (capping frame)																					
4.3 Site measure/ manufacture UC Collector																					
4.4 Install UC Collector																					
5 INSTALL UB MULLIONS IN NORTH & SOUTH TRANSSEPT GABLES																					
5.1 Site measure/ Shop drawing/ Manufacture																					
5.2 Install Mullions																					
5.3 Install South Mullions																					
6 NORTH PORCH GABLE																					
6.1 Site measure/ Shop drawing/ Manufacture																					
6.2 Install mullions																					
7 REINSTATE NORTH ROOF BRACING																					
7.1 Deconstruct/ Clear site/ Scaffold																					
7.2 Pour concrete beam																					
7.3 Site measure/ Shop drawing/ Manufacture																					
7.4 Install roof bracing																					
7.5 Roofing/ waterproofing																					
8 REINSTATE WEST WALL CLADDING																					
8.1 Site measure/ Shop drawing/ Manufacture																					
8.2 Install sisselwork/ Framing																					
8.3 Install cladding																					
NOTE 1 Dependant on availability of equipment																					

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C LUND & SON LTD

MASTER HEALTH AND SAFETY PLAN

1	Site Emergency Procedures Emergency Procedures – Instructions to Employees Site Establishment Checklist Site Safety Signs Subcontractors Emergency Contacts Medical Conditions Site Health & Safety Induction Register Site Specific Contractor/Subcontractor Induction Summary Tools & Electrical – schedule of checks Supplier – Health & Safety Contacts Current List C Lund & Son Ltd First Aiders
2	Hazard Identification Forms Hazard Correction Summary Sheet Appendices to Hazard Identification Forms
3	Accident Report – Including Near Miss
4	Tool Box Meeting Record & Record of Attendance Confidential Concerns
5	Hot Work Permit Forms
6	Subcontractors Health & Safety Control Programme Hazardous Material Inventory Material Safety Data Sheets for this Site
7	C Lund & Son Ltd Health & Safety in the Workplace Programme Site Safety Programme Site Safe Duties Employee Duties Safety Memos
8	C Lund & Son Ltd Record of Training
9	
10	Master Copies for Photocopying

C. LUND & SON LTD

HEALTH AND

SAFETY POLICY



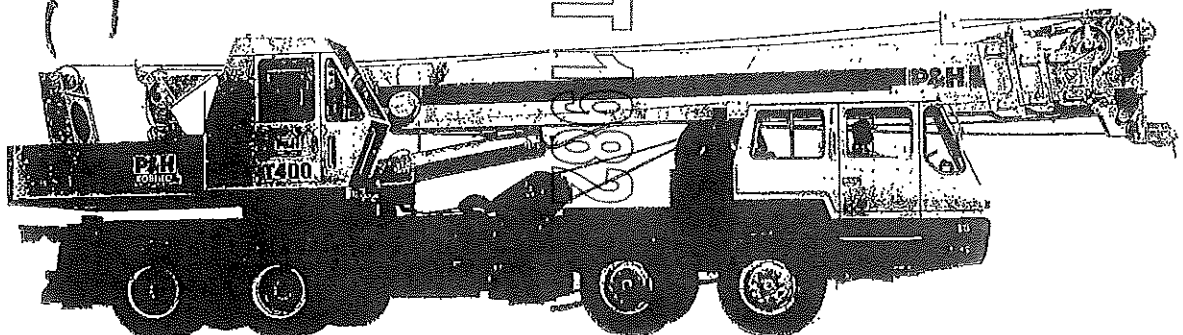
1. Our aim is to provide safe and healthy working conditions for all staff.
2. To provide adequate training and supervision to ensure that safe conditions prevail.
3. To enlist employee co-operation and dedication to health and safety.
4. To foster a deeper understanding and respect for environmental damage caused by industrial activities.
5. Endorsement of legal responsibilities of both employee and employer.
6. To continually strive to educate personnel in the company's **BE AWARE (2) TAKE CARE** philosophy.

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Withheld under section 9(2)(a)

DIRECTOR

RECTOR



**C LUND & SON LTD
EMERGENCY PROCEDURES**

SITE :

FOREMAN :

SITE OFFICE PHONE :

FAX:

EMERGENCY:

SITE ADDRESS :

EVACUATION SIGNAL:

3 blasts on air horn

ASSEMBLY POINT:

POWER SUPPLY:

WATER:

SUPERVISOR:

HEALTH & SAFETY:

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EMERGENCY PROCEDURES INSTRUCTIONS TO EMPLOYEES

ACCIDENT REPORTING

REPORT DANGERS & NEAR MISSES If you witness an accident or incident where someone could have been injured you must report it immediately. You must correct or report to your foreman in charge immediately every danger, hazard or safety problem that you notice.

REPORT ALL ACCIDENTS AND INJURIES immediately they occur to the foreman in charge. A copy of the C Lund & Son Ltd accident report is enclosed. If a work injury is not reported on the day the injury occurs then it will not be accepted as a work related injury and this may affect your right to workers compensation.

If medical treatment was required provide a copy of the Accident Insurance Treatment Certificate (AIRC) from the medical care provider to the foreman in charge and on the day of the accident.

In case of serious injury; a First Aid Person, will be available on site.

An accident investigation by C Lund & Son Ltd senior management may be required.

Do not disturb the scene of the accident.

An OSH accident register for all accidents is kept on site.

A company wide accident register is kept at C Lund & Son Ltd's office Christchurch.

EMERGENCY PROCEDURES

Emergency procedures and instructions are in place on all sites. There is a emergency board with emergency equipment and giving all instructions in case of emergency in every C Lund & Son Ltd site office. You must ensure that you are familiar with all these procedures and understand :

- the emergency signal that indicates immediate evacuation of the site
- the assembly point in case of evacuation
- evacuation routes
- the location of fire hydrants for emergency purposes
- the location of the first aid kit
- location of power and water mains
- Hot Work permit procedures
- how to ring out and contact emergency services
- the address, phone no, specific directions and instructions relating to the site to be given to emergency services in case of an emergency

SITE ESTABLISHMENT SAFETY INVENTORY CHECK LIST



Date:

Site:

Foreman:

The following is a checklist of a number of Health & Safety items that are required when setting up a new site. Fax the form to the office and arrangements will be made to get the required items to site.

Please tick the items that you have on site, and cross items that you require.

Tick Box:

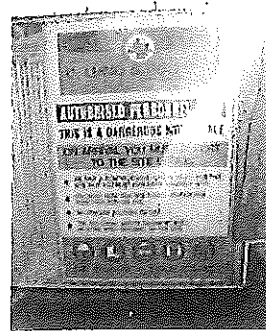
- | | |
|--------------------------|---|
| <input type="checkbox"/> | Site Fenced & Gates |
| <input type="checkbox"/> | Main Site Safety Sign |
| <input type="checkbox"/> | Site Access sign - if required |
| <input type="checkbox"/> | Emergency board in visual display ("Main Site Entry") |
| <input type="checkbox"/> | Hazard identification "white board" (in visual display) |
| <input type="checkbox"/> | Site Office Sign |
| <input type="checkbox"/> | Air horn |
| <input type="checkbox"/> | Fire Extinguisher |
| <input type="checkbox"/> | Emergency Procedure Cover Sheet |
| <input type="checkbox"/> | First Aid Kit |
| <input type="checkbox"/> | Visitor Control - i.e. Visitor, Site Safety requirements, pamphlets & register book |
| <input type="checkbox"/> | Lunds Red Safety Folder specifically for this project |
| <input type="checkbox"/> | Check OSH Notification has been done |

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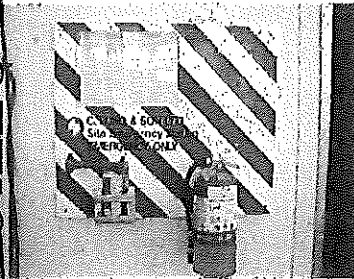
C Lund & Son Ltd
Site Safety Signs

Your site should have the following site safety signs:

Main Site Safety Sign



Emergency Board



Hazard Identification White Board

HAZARD IDENTIFICATION		HAZARD SPECIFIC TO THIS SITE	
HAZARD	CONTROL MEASURES	HAZARD	CONTROL MEASURES
Excavation	Shoring	Excavation	Shoring
Overhead Power Lines	Warning Signs	Overhead Power Lines	Warning Signs
Heavy Lifting	Warning Signs	Heavy Lifting	Warning Signs
Deep Foundations	Shoring	Deep Foundations	Shoring
Mobile Plant	Warning Signs	Mobile Plant	Warning Signs
Construction Traffic	Warning Signs	Construction Traffic	Warning Signs
Construction Workers	Warning Signs	Construction Workers	Warning Signs
Construction Materials	Warning Signs	Construction Materials	Warning Signs
Construction Equipment	Warning Signs	Construction Equipment	Warning Signs
Construction Site	Warning Signs	Construction Site	Warning Signs

Site Office Sign



If this is not the case please contact the office so we can procure them for you

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SUPPLIER - HEALTH AND SAFETY CONTACTS

Company Name	Postal Address	Suburb	Town	Phone	Fax	Contact
Allied Concrete	PO Box 33 144		CHRISTCHURCH			
Allied Work Force	PO Box 8456		CHRISTCHURCH			
Alsco	PO Box 7118		CHRISTCHURCH			
Aorangi Concrete Cutting	PO Box 4079	Highfield	TIMARU			
B J Dakin	PO Box 19 561		CHRISTCHURCH			
Bartlett Concrete Placing	PO Box 33 157		CHRISTCHURCH			
Blacks Fasteners	PO Box 7229	Sydenham	CHRISTCHURCH			
Brown Bros Plasterers	PO Box 393		WANAKA			
Building Choices	PO Box 2653		CHRISTCHURCH			
Canterbury Concrete Cutting	PO Box 7451		CHRISTCHURCH			
Canterbury Metalwork	PO Box 28 142		CHRISTCHURCH			
Canzac	PO Box 3181		CHRISTCHURCH			
Carters	PO Box 4643		CHRISTCHURCH			
Collins Carriers	PO Box 11 194	Sockburn	CHRISTCHURCH			

Withheld under section 9(2)(a)

Composite Insulation	PO Box 8480		CHRISTCHURCH			
Concrete Pump Hire	91 Aitona Street		CHRISTCHURCH			
Construction Techniques	PO Box 8939		CHRISTCHURCH			
Coverstaff	PO Box 3028		CHRISTCHURCH			
Drury Access Hire	PO Box 24 029		CHRISTCHURCH			
Enterprise Staff Consultants	PO Box 13 733		CHRISTCHURCH			
Firth Industries	PO Box 14 161		CHRISTCHURCH			
Forman Building Systems	PO Box 22 132		CHRISTCHURCH			
Gallagher Bros	PO Box 10 254		CHRISTCHURCH			
Garden City Waste	PO Box 5592		CHRISTCHURCH			
Hilti	Unit 6	50-56 Acheron Drive	CHRISTCHURCH			
Hylton Parker Fasteners	117 Wrights Road		CHRISTCHURCH			
Ken Jones Building Supplies	PO Box 21 311		CHRISTCHURCH			
KM Business Equipment	PO Box 10 289		CHRISTCHURCH			
Loadlift Equipment	PO Box 4121		CHRISTCHURCH			
Mainland Access	PO Box 7069		CHRISTCHURCH			
Metalcraft Industries	PO Box 33 056		CHRISTCHURCH			

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Schedule of Electrical & Mechanical Checks for Lifeguards, small tools, etc

1. Lifeguards, Lifeguard Leads, Site Supplies to containers & site sheds must be checked once every three months.
2. Small electrical tools, Lifeguard 6s, etc are checked once every 6 months in the Timaru or Christchurch Yard.

Please refer below for months of scheduled tests

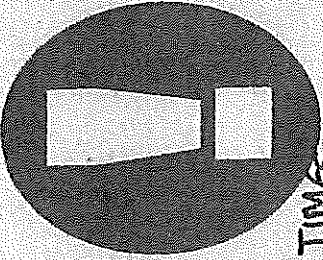
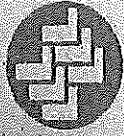
Inspection months	Lifeguards, Lifeguard Leads, Site Supplies etc Timaru	Lifeguards, Lifeguard Leads, Site Supplies etc Christchurch	Site tools, small electrical tools, lifeguard 6s etc Timaru	Site tools, small electrical tools, lifeguard 6s etc Christchurch
February				
May				
August				
November				

In addition to the above checks a separate check must be done at the time when any of the following occur:

- a temporary site supply or temporary supply to a new site shed/office is commissioned
- lifeguards & leads are set up on site
- additional lifeguards & leads are added to an existing configuration
- tools or leads are repaired

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Visitors,
Report upstairs &
sign in & out.



Health and Safety in Employment Act 1992

Persons entering these premises
MUST
comply with all safety regulations
under the above Act.

C. LUND & SON LTD

HI VIZ / BOOTS / HELMET COMPULSORY AT ALL TIMES.

HAZARDS SPECIFIC TO THIS SITE → ALL PERSONEL TO BE INDUCTED

Hazard	Potential Harm	Significant Hazard Y/N	E	I	M	Action Proposed	Completion Date	Frequency of Monitoring
TRENCH / EXCAVATION	FALLS	N		X		PROCEED CAUTIOUSLY AROUND SITE EDGES. NO RUNNING / JUMP. PLASTIC CAPS OVER ALL OPENINGS REMOVING PPE. USE SKIPS PROVIDED TO KEEP SITE FREE OF GARBAGE / DEBRIS.		DAILY
REINFORCING STEEL DEBRIS / WIRE TRIP HAZARD	CRUSHING / STAB WOUNDS	Y	X	X	X	DO NOT WALK UNDER CRANE. PPE. DOG MAN / OPERATOR COMPETENT. PPE. DRIVE SLOWLY / CAUTIONAELY. PEDESTRIANS BE AWARE OF. SEATBELT WORN, DOOR SHUT. OPERATOR USE ONLY. INSPECT BEFORE HOT WORK PERMIT READ. OBTAIN FROM OFFICE DAILY. EDGE PROTECTION, SCAFFOLDING, PPE (eg Ropes, harnesses as req'd).		DAILY
CRANEAGE	CRUSHING	Y	X	X		TIE OFF, FOOT IF READ, FOR ACCESS ONLY, LIMIT USE, NO CARRY TOOLS. DO NOT WALK UNDER, CONE / BLOCK ENTRY POINTS. ERECTORS CAUTIONS. NO MORE THAN ONE PERSON ON ONE PANEL. MAX WEIGHT 150KG. RESTRICTED ACCESS FOR ESSENTIAL WORK ONLY.		DAILY
MOVING VEHICLE / MACHINE	BEING STRUCK	Y			X			DAILY
MACHINE OPERATION	CRUSHING / FALLING OUT	N		X	X			DAILY AS REQ'D
HOT WORK	FIRE	Y	X	X				DAILY
HEIGHT WORK	FALLS	Y	X	X				DAILY
LADDERS	FALLS	Y	X	X				DAILY
INSULATED PANEL DECK	CRUSHING	Y	X	X				DAILY
WORK ON PANEL CEILING	FALLS	Y	X	X				DAILY

E = Eliminate I = Isolate M = Minimise

SUPPLIER - HEALTH AND SAFETY CONTACTS

Company Name	Postal Address	Suburb	Town	Phone	Fax	Contact
Mico / Crane Distribution	PO Box 4641					
Morrow Equipment	PO Box 31 168	Lower Hutt				
Murray Brown Electrical	PO Box 702					
Orion	PO Box 13 896					
Placemakers Timaru	PO Box 632					
Potter Interior Systems	3 Vanadium Place					
Prolec	PO Box 8563					
Ramset	PO Box 4116					
RPM Project Management T/A						
Concrete Connect	PO Box 36 648					
Seearco Distributors	PO Box 7019					
SHF Petroleum	PO Box 33 338					
Sika	PO Box 19 192	Avondale				
Specialist Auto Electric	PO Box 11 349					
Stafford Personnel	PO Box 171					
Terra Lana Products	PO Box 19 155					
Timaru ITM	PO Box 204					
Titan Cranes	PO Box 16 852					
Tyco Construction Technologies	PO Box 12 169					
Ullrich Aluminium	PO Box 100 500					
Vertec	PO Box 18 872					

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C. LUND & SON LTD

C LUND & SON LTD
FIRST AIDERS as at 1 NOVEMBER 2011

NZQA UNIT STANDARDS 6400, 6401, 6402

CHRISTCHURCH

Withheld under section 9(2)(a)

TIMARU

Withheld under section 9(2)(a)

JOINERY

Withheld under section 9(2)(a)

LUNDS STEEL

Withheld under section 9(2)(a)

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C L... J and Son Ltd - Hazard Identification Form

✓ or x (if x then detail required on attached HCS sheet)

ITEM	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
GENERAL SAFETY								
All services identified - power, gas, water, phone, data - drainage, fire main.								
Building consent obtained for project								
Site Fenced and secure.								
Emergency Board, Air Horn, Fire Exit, Emergency Proc, Assembly Point etc								
Subcontractor Advises * Who are sub safety reps								
Toolbox Meetings Yes/No Make Notes								
Accident/Incident Reports								
Foremans Checklists								
Subcontractor H&S Programme (Site Specific)								
Visitor Control								
Hygiene								
Warning signs displayed (Note3).								
Guardrails to perimeters, lifts, ducts, stairs, floor openings & water hazards								
Ladders - secure (Note 4).								
Ladders - good condition								
Lighting in egress ways and stairs and generally over site is adequate								
Fire Protection (Note 5) - Extinguishers master points.								
Hot Work Permit System in place.								
Fire Fighting Equipment in use at places of Hot Work &								
Gas Cylinders restrained (check subbies) & stored correctly (Note 6)								
First Aid Kit - stocked (Note 7).								
Goggles, gloves, ear protection, dust masks available.								
Hard hats and safety boots worn.								
Clean offices, sheds, toilets.								
Materials stacked and site tidy. No accumulation of combustible material								
Walkways, and stairs clear (Evacuation Route unobstructed and signposted)								
Effective traffic control & arrangements to deal with visitors.								
Where vehicles reverse, are they controlled.								
All persons on site protected from protruding reinforcing (or similar) eg rods are bent or capped or protected with a timber rail								
High Visibility Vests available & used with traffic on roads & in congested areas on site & used around cranes / moving machinery								

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C Lund and Son Ltd - Hazard Identification Form

✓ or x (if x then detail required on attached HCS sheet)

ITEM	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
SCAFFOLDS OVER 5M & SPECIAL SCAFFOLD									
Notified									
Built by certified scaffolder (Refer Note 1).									
Register complete & weekly inspections.									
Proximity to power lines (No less than 4m).									
Any brackets supporting scaffold or working platforms checked by a Structural Design Engineer.									
Understand structure of scaffold and any specific design requirement.									
Alterations only by certified scaffolder.									
220mm maximum gap to workface maintained as Note 1									
SCAFFOLDS UP TO 5M (Including Doka Frames, Aluminium Mobile Scaffolds, Safeways & Tube & Clamp									
Built by Competent Scaffolder.									
Built correctly (Refer Note 1) & scaffold is safe.									
Proximity to power lines (No less than 4m).									
Mobile Scaffolds used only on level firm surface									
Mobile Scaffolds where lockers & plates secured when in use									
ELEVATING PLATFORMS									
Personnel Hoist									
- S.W.L. markings, certification.									
- 6 month certification current									
- Operating instructions.									
- Competent operator.									
- Distance to power lines (4m minimum).									
- Maintenance programme.									
- Operating on firm even surface									
- Safety Harness & Lanyard in use									
Scissor Lift / EWP / Rough Terrain Man Lift									
- S.W.L. markings, certification.									
- 6 month certification current									
- Operating instructions.									
- Competent operator.									
- Distance to power lines (4m minimum).									
- Maintenance programme.									

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Cl... and Son Ltd - Hazard Identification Form

✓ or x (if x then detail required on attached HCS sheet)

ITEM	DATE	DATE	DATE	DATE	DATE	DATE	DATE
HAZARDOUS SUBSTANCES (Note 9). Kept in separate, lockable area. Inventory kept and up to date (See attached sheet). Respirators, filters, eye/skin protection & ventilation in use when necessary.							
COMPRESSED AIR Check all lines and tools are in good order. Check hose connections. Check correct fittings.							
DEMOLITION Note (10) All services identified. Demolition Plan in place and approved by a Structural Design Engineer.							
PRECAST CONCRETE INCLUDING DYCORE Lifting Points and Lifting Bars approved by Structural Design Engineer. Propping systems approved by Structural Design Engineer. Falls over 3m adequately protected. Infill boards between precast beams are secure and able to support weight. Lifting has been carried out according to the Lifting sequence and Lifting Plan in place for the project Lifting equipment visually inspected before every use.							
FALSEWORK/FORMWORK Design and supports for shuttering & formwork has been checked by a competent person. Construction is as design. Props plum, firm base, correct pins. Falls over 3m adequately protected.							

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C Lund and Son Ltd - Hazard Identification Form

✓ or x (if x then detail required on attached HCS sheet)

ITEM	DATE	DATE	DATE	DATE	DATE	DATE	DATE	DATE
WORKING AT HEIGHT								
Protection provided to prevent falls over 3m								
Crawlboards provided to brittle material ie. Super 6 roofing asbestos cement transparent roofing, glass etc.								
Anchor point to fall arrest system checked by Structural Engineer as required.								
Fall arrest equipment and harnesses visually inspected before every use								

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APPENDICES TO HAZARD IDENTIFICATION FORMS

SCAFFOLD

Note (1)

- Aluminum Mobile } **Same rules all scaffolds**
- Tube & Clamp }
- Doka Frames }
- Safeway Frames }

GENERAL - All on site

- Certified Scaffolder erects all standing scaffold over 5m.
- Scaffold Register kept for scaffolds over 5m
- Notifiable over 5m
- Inspections are weekly and after alteration for all scaffolds over 5m.
- Certified scaffolds are not to be altered by anyone other than the certified scaffolder particularly guardrails, midrails, ties and bracing.
- Be aware of the structure of the scaffold and be briefed in its construction by the scaffolder in charge.
- Public to be protected by screens and barriers where they are at risk of falling objects.

SAFE SCAFFOLD CONSTRUCTION

FOUNDATIONS

- Are all uprights properly founded with base plates (Metal) for concrete and hard surfaces and 200 x 38 x 500 minimum long timber sole plates for other ground conditions.
- Has slipping/sinking been avoided and is scaffold fully supported at ground level.

WORKING PLATFORMS

- **Must be fully planked and minimum 675mm wide.** Planks must be free from obvious defects such as knots, securely restrained and arranged to avoid tipping and tripping.
- **Proper access to all working platforms by stair or properly secured ladders NOT vertical ladders.** (1:4 - 1:6 pitch allowed only)
- All working platforms over 3m and to which there is a exposed face greater than 200mm away must be protected by a **guardrail** (@1000-1100 high)

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- All working platforms over 3m and to which there is a exposed face greater than 200mm away must be protected by a **midrail or by a toeboard 225m high.**
- **Special screen protection** is required at working platforms where there is a risk to **the public** of falling objects:
- There must be a toeboard 225m high if scaffold is over 3m and if materials and tools placed on the platform are likely to be dislodged.

SCAFFOLD STRUCTURE

All **uprights, ledges, putlogs, ties, braces** as code of practice. Refer Table 1.

Barricades are required if there is a risk to the **public** from falling objects both during construction of the scaffold and while it is standing.

The scaffold must be **straight and plumb.**

Freestanding scaffold require additional **Raking braces.**

SPECIFIC DESIGN

Specific design by a registered Engineer is required for

1. All screening and containment sheeting (wind loads & additional deadload)
2. Over/around a verandah or canopy.
3. Any support brackets and fixings required for any scaffold.
4. Heavy construction loads.
5. Cantilevered or special scaffolds.
6. Suspended Scaffolds.

Additional standards at mid-span

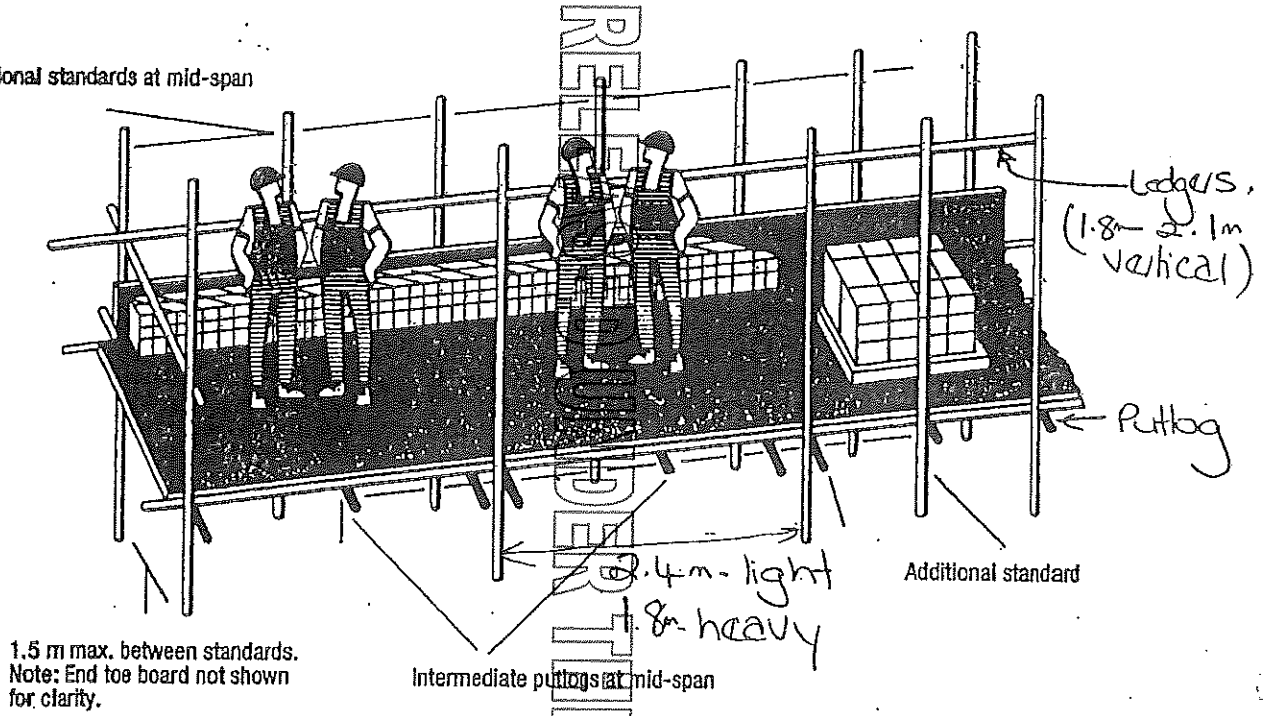
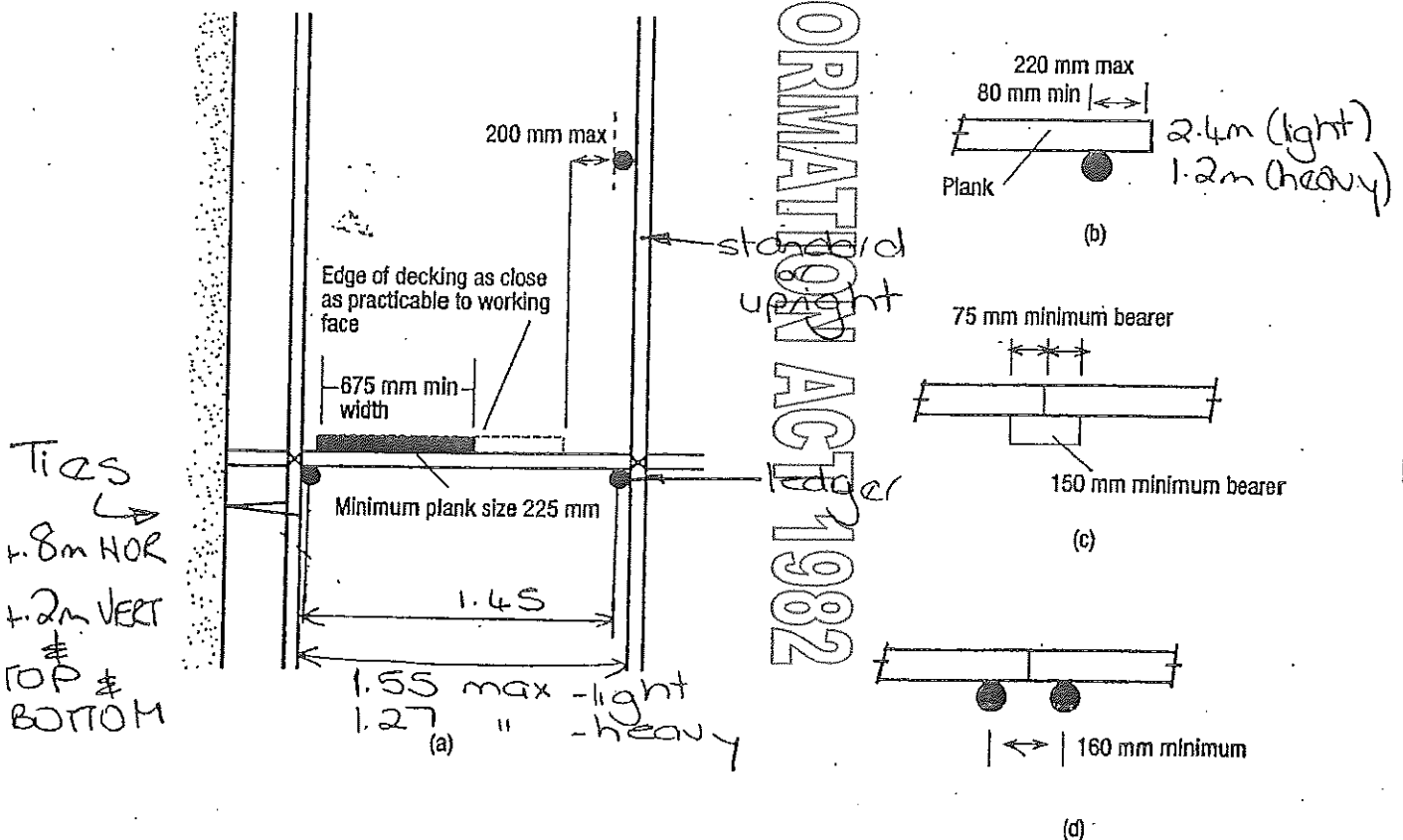


Fig. 5 Medium or heavy-duty load.

WORKING PLATFORMS



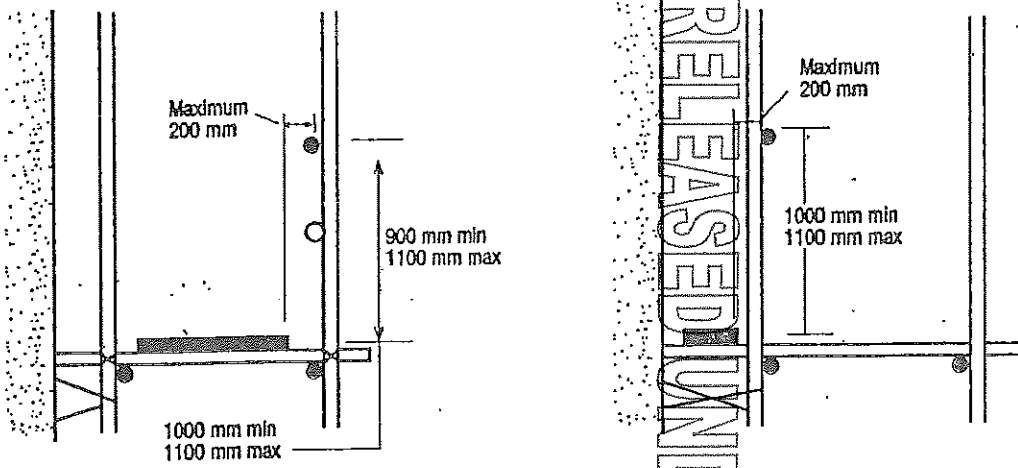


Fig. 7 (a) Guardrails.

3.5 GUARDRAILS AND MIDRAILS

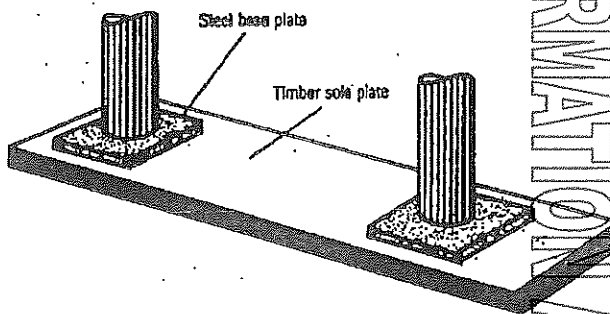
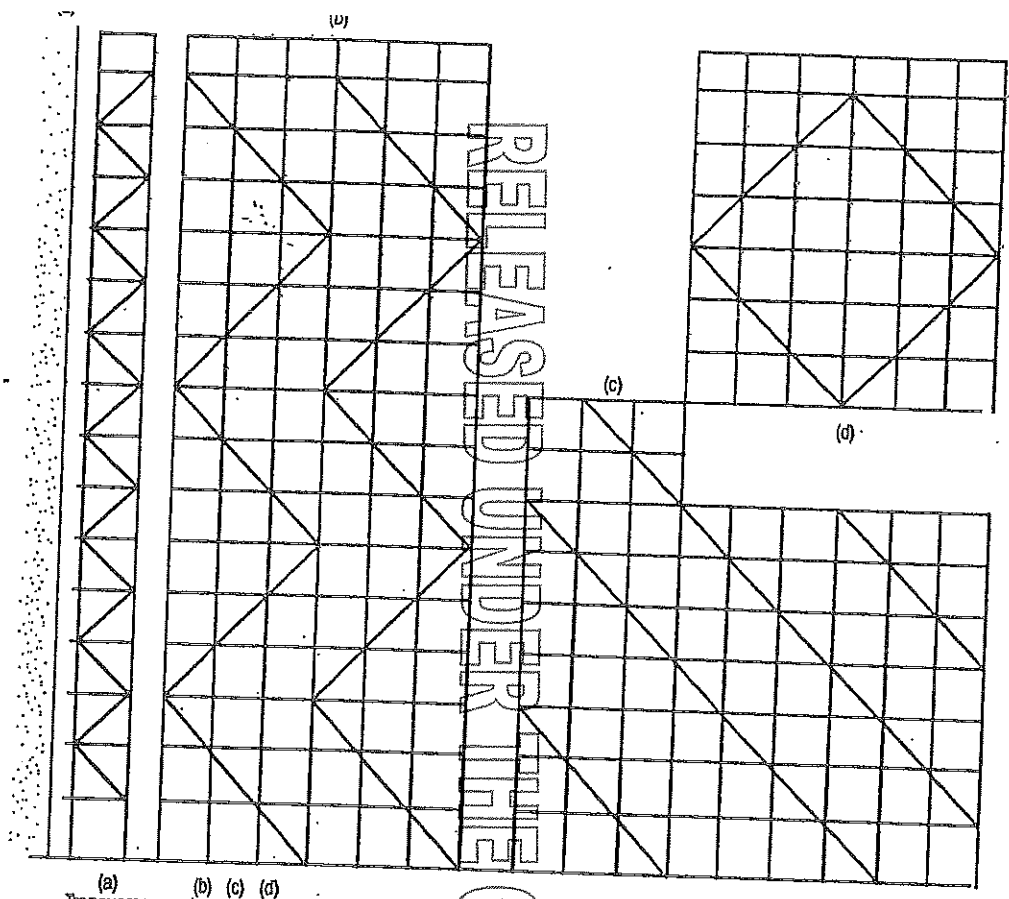


Fig. 4 Support for tubular scaffold standards/UPRIGHTS .

BASE SUPPORT.

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(a) Transverse
 every 10th pair
 at each end.
 (b) (c) (d)
 Longitudinal

BRACING - TIES STANDARD

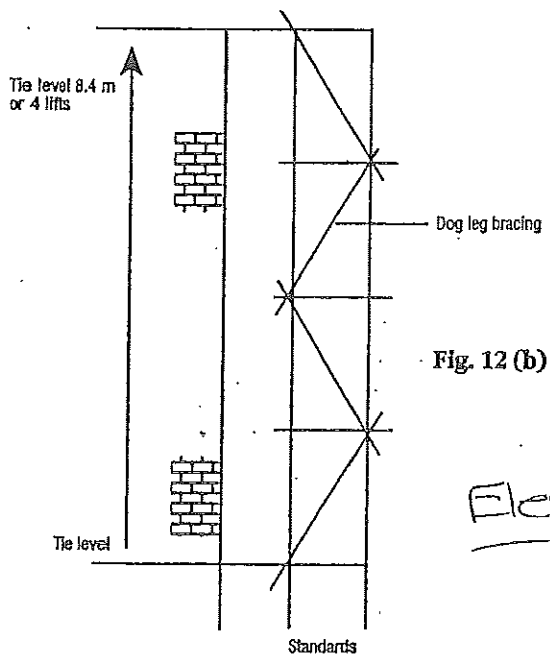


Fig. 12 (b) (Cross section) Dog leg bracing used when vertical distance between ties is excessive. Note that substantial ties are required.

Elevation

ADDITIONAL BRACING - INSUFFICIENT TIES

PLAN

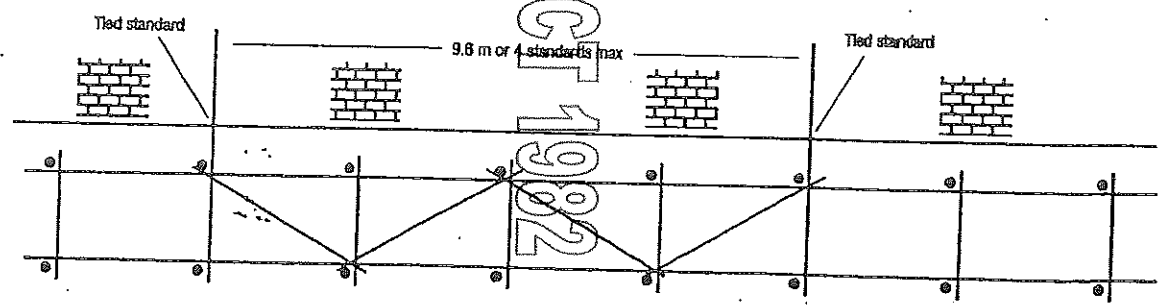


Fig. 12 (a) Plan bracing where horizontal tie distance is excessive. Note that substantial ties are required.

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7.1 FREE-STANDING SCAFFOLDS

7.1.1 DEFINITION

A free-standing scaffold is a standing scaffold which is not attached to any other structure and is stable against overturning on its own account or, if necessary, assisted by rakers and anchors (see fig. 17).

Free-standing scaffolds include:

- (a) Tubular scaffolds (with or without rakers);
- (b) Frame scaffolds (with or without rakers);
- (c) Mobile scaffolds (without ties or rakers); and
- (d) Trestle scaffolds (without ties or rakers).

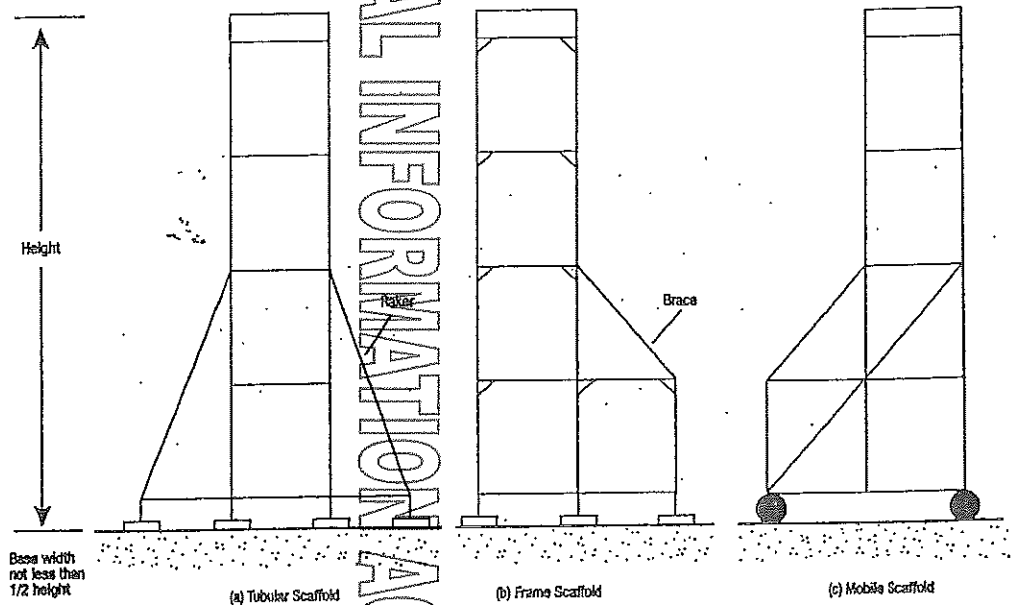


Fig. 17 Free-standing scaffolds.

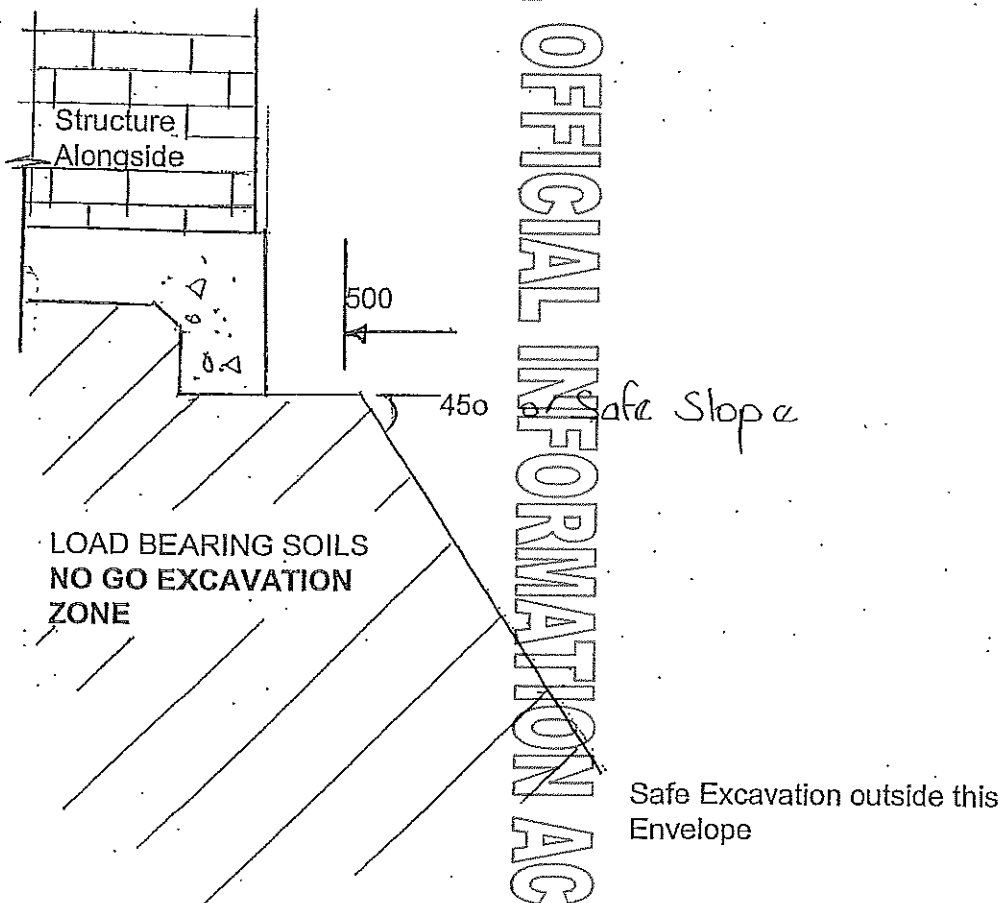


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EXCAVATIONS

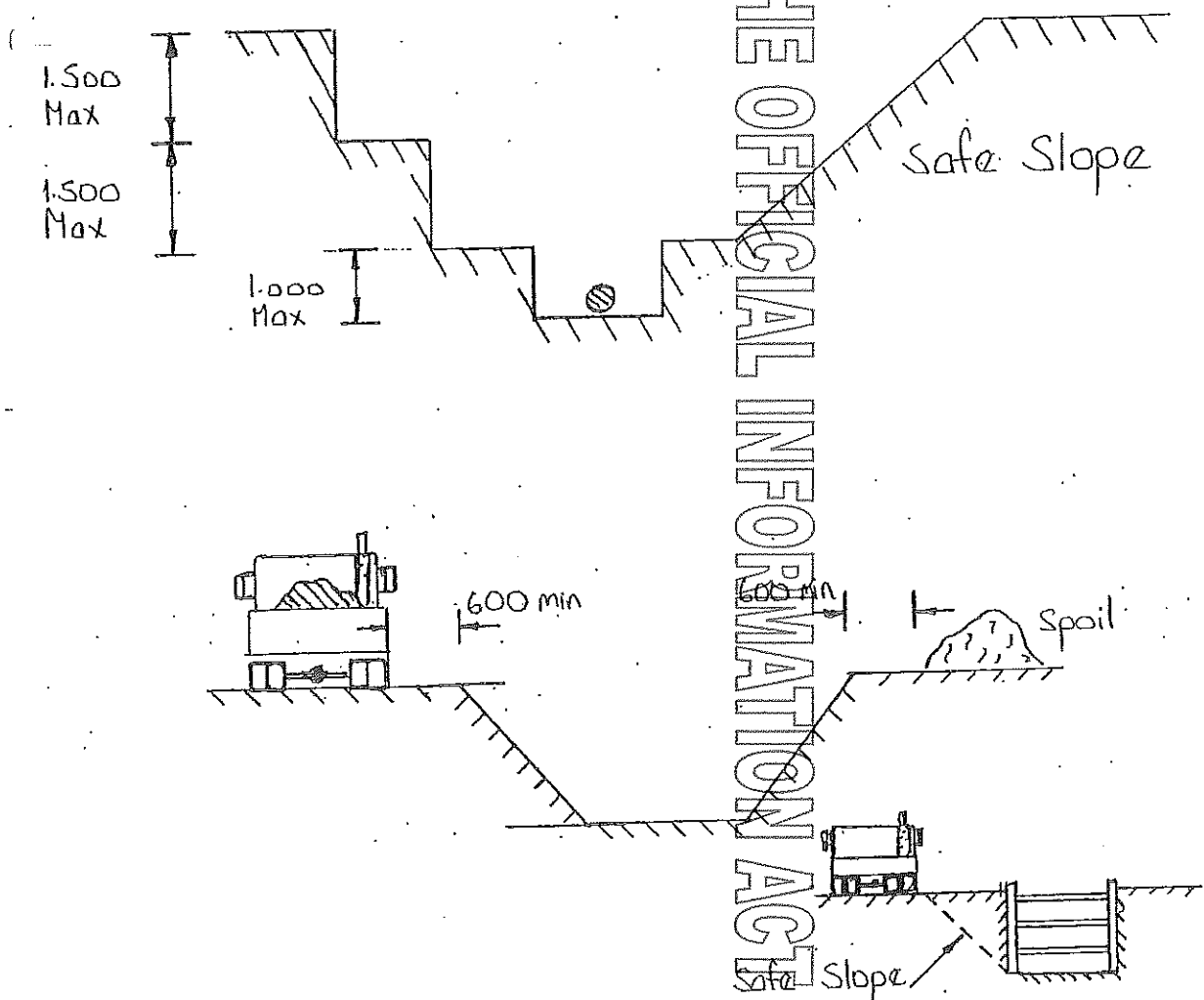
Note 2

- A) Underpinning to a adjoining building will be required if excavations encroach into load bearing soils beneath a structure. The safe envelope extends 500mm away and 450 down from the lowest foundation. If excavations encroach within the safe envelope underpinning will be required i.e. additional structural foundations such that load bearing soils become deeper than the excavation alongside.



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- B) **Faces greater than 1.5 high must be shored unless:**
- Shoring impracticable and steps taken (O.S.H./ Engineer approved).
 - No danger of collapse (O.S.H./ Engineer approved).
 - Batter cut to safe slope (for all weather and conditions):
 - 1:1 or angle of repose (whichever is the flatter) above water table.
 - 1.5:1 or angle of repose (whichever is the flatter) for saturated soils, below water table and excavations greater than 3m deep.
 - Benches - 1.5m maximum, except adjacent to work 1m.



- Trucks and spoil must keep well away from the face of any excavation slope.
- Where excavations are shored keep trucks away unless the shoring has been designed to take the truck loads near its edge.

GENERAL SAFETY

Note (3)

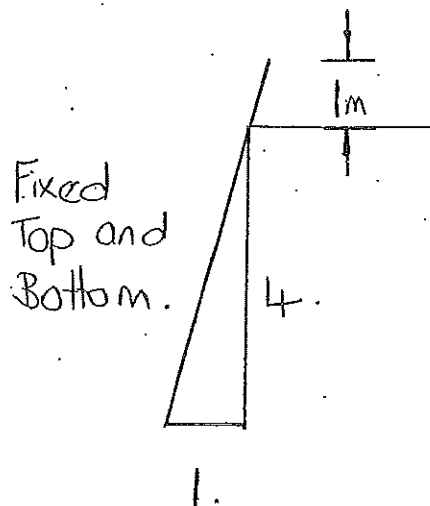
Warning Signs

Basic Requirements:

- "Protective Helmet Area"
- "Caution - Explosive tools in Use"
- "O.S.H. Regulation : - All visiting personnel to sign attendance register in site office"
- "Caution - Crane Working"
- "Hearing Protection"
- "Dangerous Site"
- "Trucks Crossing"

Ladders

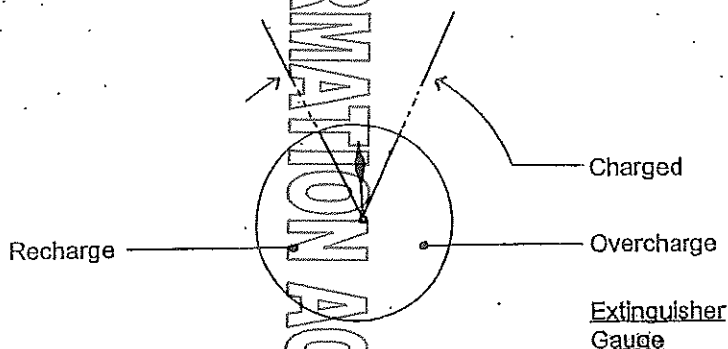
Note (4)



Step ladders need metal stays - rope stays are inadequate.
Restrain all ladders top and bottom.

Fire Protection

Note (5)



Extinguishers should be in place and fully charged - check gauge. (1 Extinguisher per level).

Hose reels working where appropriate.

Hot work permits being submitted by subcontractors

Precautionary measures when welding etc - extinguishers/bucket are close to hand.



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Gas Cylinders

Note (6)

- If a gas bottle falls over and the top is damaged it becomes a missile.
- Lying them down is not acceptable.
- Gas bottles must be restrained.
- Gas bottles must be fitted with flash back arrestors.
- Gas bottles should be stored overnight in a lockable gas storage compound wherever possible.

First Aid Kit

Note (7)

Requirements vary depending on:

- Type and duration of work.
- Number employed.
- Proximity to first-aid and ambulance services.

A Basic Guide of requirements is:

Accident Register
Sleek Tape
Antiseptic (e.g. Savlon, Cetrimide)
6 & 8cm W.O.W. gauze bandage (Several)
Triangular Bandage (Several)
6 or 7.5cm Dressing Strip (Elastoplast)
Optrex
First Aid Book
Pencil
Safety Pins
Scissors and Splinter Forceps
Wound Dressing - No's 13 and 14
Disposable Gloves (pkt 10)
Melolite Sterile Dressing (7.5x5 and 10x7.5cm)
Eye Pads (oval gauze pads)
Eye Tissues (individually wrapped tissues)
Warning - Aids/Hepatitis B sticker affixed to inside lid of box.
Barrier Cream

Crane

Note (8)

CLS has a contract with M & I to certify all cranes - Co-ordinate with
Check that all cranes have current certification.

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Hazardous Substances
Note (9)

- Material Safety Data Sheets (M.S.D.S.) are available from suppliers - adhere to them and the labels instructions.
- Use of appropriate respirator, overalls, gloves etc with handling and using chemicals.
- A respirator is needed when grinding hardened concrete.
- Lead based paint:
 - If a building is greater than 25 years old assume lead based paint was used on it - especially if pre 1945.
 - Use a toxic dust respirator if making dust or burning off.
 - Keep work area clear of people and animals.
 - If stripping outside of building shut windows etc.
 - Cover up
 - Wash hands and faces before meals, don't smoke.
 - Collect spoil on sheet, vacuum and dispose at tip. (This also applies to flakes taken off by a water blaster)
 - Collect the debris afterwards.
 - Assigning a lockable room to painters for their materials.
- Epcon
 - avoid dermal contact, use respirator in confined spaces.
 - use acrylic alternative wherever possible (eg Acrylic 7)
- Asbestos
 - Employ specialist removal contractor, don't touch
 - Can be present in buildings built as recently as the early 1980's. It was extensively used in the following forms (this is not exhaustive)
 - Asbestos board until the early 1980's.
 - Pipe section until the late 1970's
 - Sprayed whisper (Textured) Ceiling until the early 1980's.
 - Fire Rating of Structural Steel until early 1980's.
 - Rope until early 1980's.
 - Asbestos roofing until the early 1980's

Specialist Removal Contractors are:

CHRISTCHURCH

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TIMARU

(Some forms only)

DUNEDIN

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- Skin Disorders

Some substances which may cause skin problems include:

- Wet and dry cement.
- Tar and pitch.
- Mineral oils in cement castings and brick making.
- Paint thinners.
- Acids for masonry cleaning.
- Synthetic mineral fibres (rockwool, slagwool, glass fibre).
- Chromate metal primers.
- Epoxy and acrylic resin hardeners.
- Bonding agents and sealers.
- Exposure to ultraviolet radiation.
- Detergents, solvents or fibreglass insulation

Measures available to reduce risk of skin disorders include use of:

- Barrier creams.
- Gloves.
- Long sleeved shirts, long trousers, and boots.
- Eye protection.
- Good personal hygiene.
- Sun block.
- Disposable overalls

DEMOLITION

Note (10)

- Generally by a subcontractor, in all cases a **supervisor must be nominated** who is constantly in charge of the demolition.
- A demolition plan should be prepared to describe the extent of the work, the type of plant to be used and the proposed method of removing each part of the structure, e.g. roof, walls, floors and foundations. It should include a hazard identification, assessment and control method. It must also outline the precautions for the safety of employees on site and persons in the vicinity including the emergency procedures. It should cover dust and noise controls and safety for the public.
- The supervisor/demolition subcontractor must
 - * Plan the demolition work & obtain necessary permits.
 - * Plan & select methods of demolition and ensure safe use of all plant, material and equipment.
 - * Check the site building or structure for likely hazards these may include asbestos, power, gas reticulation and unsafe structural members.
 - * **Identify all services**, either underground or above ground, such as gas, water, electricity, drains, telephone cables, etc., and arrange for them to be disconnected or diverted.
 - * **Identify load bearing walls & structural elements.**



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- * Check condition of all structural elements be they timber, prestressed concrete, precast concrete, reinforced concrete or steel.
 - * Examine the building and any building plans. Seek the advice of a **registered engineer to determine any propping or strengthening** that is required and any potential instability of partially demolished structures. The engineer should check additional loads from demolition materials & plant.
 - * Check contents of underground storage tanks, they could be explosive.
 - * Check cantilevered structures and how their stability is affected by demolition process (staircases, balconies, cornices, parapets).
 - * **Manage traffic** in and around the demolition site.
 - * Ensure structures are not left in a condition in which they could be brought down by a moderate earthquake, wind storm or by vibration from traffic/plant.
 - * Ensure cranes for balling and demolition excavators are fitted with a FOPS cab (Falling Object Protective Structure).
 - * Ensure access is prevented to any person while collapse demolition is underway.
 - * Protect the public with barricades and screens.
 - * Ensure additional support is provided to employees required to remove brittle roofing (in particular corrugated plastic & asbestos cement roofing)
 - * Ensure proper protective clothing is used and safe working at heights practices followed.
- NOTE: Any building a distance half the height of the demolished building is in danger.

POWDER ACTIVATED HAND HELD FASTENING TOOLS

Note (11)

- Must only be operated by certified operators.
- Tools must be
 - a) **cleaned at least once a day after use, and at least once in every week in which the tool is used**, dismantled and examined for defects by a certified operator.
 - b) Powder-actuated fastening tools should be **returned to the manufacturer's** master agent for a complete overhaul **every 6 months**.
- Every tool should be provided with operating instructions for safe use, handling and maintenance of the tool and its accessories. These instructions should include at least the following
 - a) An illustration of the tool showing the basic operating functions and parts.
 - b) A list of components which an certified operator is permitted to change.
 - c) A list of the various fasteners and charges which are nominated to be used in the tool.

NOTE: These fasteners should comply with AS/NZS 1873.4:1994



- d) A listing of charges and colours of charges recommended for use in the tool. This description should comply with AS/NZS 1873.3:1994
- e) Procedures to be followed in the event of a misfire.
- f) Maintenance instructions.
- When fixing materials together with powder-actuated fastening tools, use only materials which are suitable for this fixing method. When firing into materials with a powder-actuated fastening tool, the operator should comply with the following:
 - a) Where a concrete structure is of a prestressed or post-tensioned type, advice should be sought from its designer or other suitably qualified party, regarding the suitability and placement of fasteners to be set into these structures.
NOTE: Fasteners set too close to the prestressing wires or cables may damage these elements and could compromise the integrity of the structure.
 - b) Due to the risk of disintegration of the materials, fasteners should not be driven into concrete, or similar material, under the following circumstances:
 - (i.) Nearer than 75mm to an edge;
 - (ii.) Nearer than 75mm to another fastener;
 - (iii.) Where the thickness of the material is less than 100 mm, or less than 3 times the shank penetration into the base material, whichever is the lesser; or
 - (iv.) Nearer than 150 mm to where another fastener has failed to fully penetrate and has damaged the surrounding base material (spalling)
 - c) Where fixings are made into steel with a higher strength than common grades of structural steel (i.e. above grade 350), advice should be sought to ensure the correct selection of powder-actuated fastening tools, fasteners and chargers.

Fasteners should not be driven into steel under the following circumstance:

- (i.) Nearer than 16 mm to an edge;
 - (ii.) Nearer than 25 mm to another fastener;
 - (iii.) Nearer than 100 mm to a heat-affected zone;
 - (iv.) Less than 4 mm in thickness when specialised fasteners are intended to be used.
- d) Do not drive fasteners into brittle materials which are liable to shatter and materials which are too hard. Unsuitable brittle materials include cast iron, marble, glazed tiles, slate, natural stones, fired clay bricks. Concrete and concrete products with a compressive strength greater than 60 MPa are also unsuitable as they are too hard.



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- e) Do not drive fasteners into areas of steel that have been affected by welding, flame cuttings or similar process.
- f) Do not drive fasteners into joints in masonry, for example brickwork or stonework joints.
- g) Do not drive fasteners into timber where timber is the base material. A timber member is unsuitable for the purpose of securing another timber member to it. Manufactured products such as plywood, hardboard and particle board are considered to be timber where those products have similar physical characteristics to timber.
- h) Do not drive fasteners into soft materials with a low compressive strength (i.e. concrete of less than 10 MPA) as they are unsuitable for use as a base material. Unsuitable materials include plaster board and lightweight, aerated or weak concrete.

NOTE: As a general rule do not fire into any material which dulls the point of a fastener if used as a centre punch as this material is too hard for the fastener to penetrate.

- At all times when a powder-actuated tool is being used, a notice or notices bearing the following words CAUTION: EXPLOSIVE POWERED TOOL IN USE should be displayed.

CERTIFIED C LUND & SON OPERATORS

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ACCIDENT REPORT - Including Near Misses

*(To be completed by injured person and faxed to 03 349 6901 on the day of any accident.
This is very important).*

Date:

Site:

Injured Person:

Nature of Injury:

Serious Harm Injury: YES / NO
(Refer rear cover of OSH Accident Register)

- Where and how did the accident happen?
- What medical treatment has been sought?
- Are you able to take any steps to prevent this type of accident happening again? If so please state what those steps are.
- Do you require action from some other party to prevent this type of accident again? If so please state what that action is.
- Employee has Accident Insurance Treatment Certificate(AITC) and has provided a copy (preferably to the office) Y / N
- Accident has been entered on site OSH register. Y / N

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Tool Box Meeting

- Opportunity for all employees to talk about safety and plan ahead for the week.
- Keep it positive and proactive. Seek everyone's ideas and co-operation.
- Discuss accidents, near misses and what changes may be needed to avoid future problems.
- Plan ahead any resources you may need contact
 - Scaffold
 - Scissorlift
 - Harness / Fall Arrest Gear
 - Safety Barriers
 - Trestles / Ladders
- Try to have a topic of the month that should relate to your site currently and have some discussion. Delegate to others to encourage their input.
- Raise any problems with contractors and generally on site. Try to resolve onsite – if not advise that you may need to apply some pressure.

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RECORD OF TOOL BOX MEETING

Site.....

Date.....

Activities Planned for the Week

Scaffold / Scissor Lift / Fall Arrest Gear (Harnesses) / Safety Barriers / Trestles & Ladders -- requirements for next 2 weeks

Points raised for discussion by meeting

Action Site needs from to assist in maintaining a safe work site.

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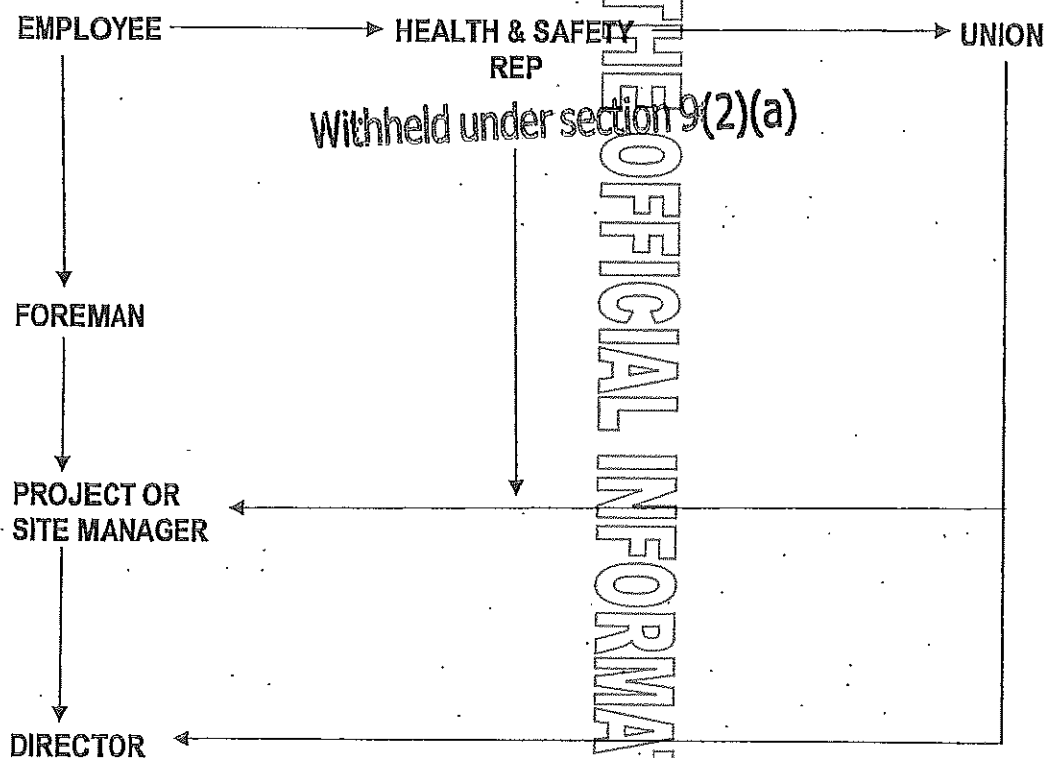
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CONFIDENTIAL CONCERNS

C Lund & Son Ltd procedures for employees wanting to raise confidential issues they do not wish to raise in the "OPEN" environment of a Toolbox Meeting.



Depending on type of problem issues raised can be discussed at the 6 monthly Foremans/Safety Meeting or carried over for specific review at a Foremans/Safety Meeting.



C. LUND & SON LTD HOT WORK PERMIT - PERMIT TO WORK

NOTE:

1. A completed 'Hot Work Permit' form is to be submitted to the C Lund & Son Ltd Site Foreman on site prior to 'Hot Work' of any kind being carried out:
This includes:
 - Gas cutting and Arc welding operations
 - Other types of welding
 - Use of blow lamps and torches (Laying of rubber roofing membrane etc)
 - Application of hot bitumen or other heat producing operation
 - Use of LPG cylinders for drying off or laying vinyl
 - Use of Oxyacetylene for brazing and cutting.
2. All Hot Work must be performed by qualified operators wearing appropriate protective clothing. Flash back arrestors must be fitted to the outlet side of both fuel gas and oxygen regulators.
3. 'Hot Work' is to be carried out only when at least one worker equipped with a fire extinguisher is present.
4. The area of 'Hot Work' is to be examined one hour after work has finished.

TO BE COMPLETED PRIOR TO 'HOT WORK'

- 1) DATE & TIME WORK BEING CARRIED OUT:.....
- 2) COMPANY:.....
- 3) PERSON RESPONSIBLE:.....
- 4) AREA DESCRIPTION:.....
- 5) TYPE OF WORK BEING DONE:.....
- 6) POISONOUS GASES PRODUCED BY HOTWORK PROCEDURE YES/NO (If yes Go to 9)
- 7) IS AREA CONFINED AND IS THERE A LACK OF VENTILATION YES/NO (If yes Go to 9).
- 8) SCREENS TO PROTECT OTHERS EYES FROM ARC WELDING FLASHES ARE IN PLACE YES/NO (If no - no permit will be issued).
- 9) FORM OF SAFETY EQUIPMENT/PROTECTION TO BE USED (e.g. Mask Artificial Ventilation)
.....
- 10) IS AREA TIDY AND CLEAR OF COMBUSTIBLE MATERIAL (if no - no permit will be issued) YES/NO
- 11) FIRE PROTECTION EQUIPMENT TO BE USED:.....

HOT WORK AUTHORISED BY

C LUND & SON LTD SITE FOREMAN

PRINT NAME:.....

SIGNED:

DATE:.....

SITE:.....

TO BE COMPLETED AFTER 'HOT WORK'

TIME WORK CARRIED OUT:.....

AREA INSPECTED 1 HOUR AFTER WORK BEING CARRIED OUT.

INSPECTED BY (NAME):.....

TIME:.....

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C LUND & SON LTD
SUBCONTRACTORS HEALTH AND SAFETY CONTROL PROGRAMME

SITE:

1 Name of Subcontractor:

2 Name of person who will be responsible for Health and Safety on site:

Contact Phone Number:

Confirmation that this person has adequate experience and training:

YES NO
(Tick as appropriate)

3 Confirmation that the Subcontractor has in place a Health and Safety Control Programme which complies with all relevant NZ Safety legislation and codes of practice:

YES NO

4 List here any hazards that are likely to be present or created on site in relation to the Subcontractors activities (Subcontract Hazards) that can not be eliminated by the Subcontractor

5 Detail here or as an attachment how Subcontract hazards that can not be eliminated by the Subcontractor will either be isolated or detail what procedures will be used to minimise the hazard

6 List here any products, chemicals or substances that will be present on site in relation to the Subcontractors activities which may have health risks for any persons including details of:
nature of health risk

- * correct methods for handling
- * first aid requirements
- * specific emergency requirements that may be required

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7 Confirmation that the Subcontractor has accident and incident reporting procedures which include reporting serious harm to OSH
(A copy of all reports to be provided to C Lund & Son Ltd.)

YES

NO

8 Confirmation that all employees are trained in the safe use of all plant, equipment, chemicals, substances and products

YES

NO

9 List here details of any employees who are not fully knowledgeable in their work and the name of the person who has been made responsible to supervise them.

Employee Supervisor

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THIS FORM IS TO BE COMPLETED AND RETURNED TO:

C LUND & SON LTD WITH YOUR SUBCONTRACT AGREEMENT

PRIOR TO SUBCONTRACTORS COMMENCING ON SITE



C. LUND & SON LTD

SITE HEALTH AND SAFETY PROGRAMME

SITE:

HAZARDOUS MATERIALS INVENTORY

MATERIAL	RELEVANT INFORMATION
NAME OF SUBSTANCE	NOTE HERE: <ul style="list-style-type: none">• Health risk associated with substance• Correct method for handling substance• Protective clothing equipment required

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	Health & Safety Administration	Building Site/Joinery Supervisor	Contracts Manager/QS	Health & Safety Independent	Central Store	Factory/Yard/Site Foreman	Site Foreman or delegated person/leading hand	All CLS employees	Operators/Drivers	Senior Operators	Comments from Senior Managers/Senior foreman
1.0 Price for H & S	Identify and price work requiring specialist equipment or people for H & S purposes		✓								
2.0 Site Set up											
2.1 OSH Notification	Notify OSH of demo, scaffold, excavation etc on their standard form	✓	✓								
2.2 Health and Safety Policy	Place somewhere visible to all on site	✓									
2.3 Red Site Boss/Health and Safety Folder	Set up the duration of the project										
2.4 Site Establishment Checklist	Control Fencing & Gates - site can be locked and secured										
	H & S signage, emergency board, hazard board	✓									
	Air horn, Fire Extinguishers, First Aid Kit, evacuation sirens for larger jobs	✓									
	Site Establishment Safety/Inventory Check List	✓									
2.5 Site Specific H & S Requirements	Write Emerg Procedures and Job Site Specific H & S Requirements. Site specific H & S inductions refer 4.2a	✓									

RELEASED UNDER THE INFORMATION ACT 1982
 Set up the duration of the project
 Control Fencing & Gates - site can be locked and secured

Contracts manager/qs notifies OSH when accepting first subs and setting up job. Copies to H & S admin. who make sure there is a copy of OSH notification in red site H & S folder, supervisor and foreman makes sure they know its been done
 Foreman (Copies held with CHCH H & S admin) places in smoko shed & site office
 Spare folders for new jobs set up in CHCH office by H & S admin. Foreman makes with H & S admin and places safe folder in on site and set up for the duration of the project (through to project completion)
 Foreman makes with H & S admin and places safe folder in on site and set up for the duration of the project (through to project completion)
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 Foreman makes with H & S admin and places safe folder in on site and set up for the duration of the project (through to project completion)

Foreman arranges with H & S admin or whoever is in control of safety store
 Emergency Board (with fire extinguisher and air horn for emergency purposes only) hung on the back side of a container door or somewhere that is always accessible and known to all CLS employees on site. H & S signage must be clear to all visitors. Directions to the site office to be clear and easy for visitors and first liners to find the site office. Building site supervisors oversee HAZARD BOARD must highlight main hazards particularly for any one off deliveries (drivers), visitors, short stay site staff etc and hazards should include notice of any heavy machinery/ cranes working, excavations, demolition, scaffold, overhead hazards, powerlines etc Update at least fortnightly for upcoming fortnight. Add date of update.
 Foreman makes with H & S admin or whoever is in control of safety store. Building Site supervisor oversees. Requirements for fire extinguishers may change with time as the building work progresses. For large sites or multi storey we will set up evacuation sirens and keep modifying the system as the job progresses.

A checklist for everything that is needed for setting up with Foreman sent into the office asap. H&S Admin co-ordinate with Foreman
 Contracts Manager checks Conditions of Contract with QS for specific requirements. First Draft goes in Red H&S folder. Foreman makes sure final version approved by the client goes in the Red H & S folder. Contracts Manager to liaise with H & S Supervisor & Foreman to conclusion. H & S admin to type, foreman to use at tool box meetings to inform site staff Foreman to implement at all times. H & S admin have copies of previous site specific H & S policies and staff induction procedures for reference. H&S admin and Contracts Manager to arrange for site specific H & S requirements to be sent to all subs.

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	Health & Safety Administration	Building Site/Joinery Supervisor	Contracts Manager/QS	Health & Safety Independent	Central Store	Factory/Yard/Site Foreman	Site Foreman or delegated person/leading hand	All CLS employees	Operators/Drivers	Senior Operators	Comments from Senior Managers/Senior Foremen
2.6 Visitor Control	Arrange Visitor Safety Requirement Cards and Sign In/Out book. Everyone should come to site with their own Must be rigid soled and proper shoe not sandals. CLS have enough first aiders such that one is always on every site					✓	✓				
2.7 Visitor: Hard Hats and vests						✓	✓				
2.8 Visitor shoes						✓	✓				
2.9 First Aider	Complete First Aid kit on site at all times					✓	✓				
2.10 First Aid Kit	Smoke room and toilet and wash hand basin					✓	✓				
2.11 Site Accommodation						✓	✓				
2.12 Arrange RCD protected mains supply	Also 5.0					✓	✓				

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4.0 Workplace Hazards - Site Based Activity	All employees follow safe work instructions. Inductions/briefing in safe work instructions for new employees as required. H&S admin to arrange with Don't leave out safety staff keeps signed record of inductions. Workers need to arrange their own inductions for each machine & additional for working in the factory. TEMPS make sure the temp agency (eg Allied or Enterprise) have covered the basics with their staff before they come to site.	✓	✓	✓	✓	✓	✓	✓	✓	✓	
4.1 Safe Work Instructions (SWI)	Induction for all new employees including students										
4.2 Work not covered by SWI	Plan ahead										
4.2a Site Specific induction	Refer 2.5 also										

Withheld under section 9(2)(a)

	Health & Safety Administration	Building Site/Joinery Supervisor	Contracts Manager/QS	Health & Safety Independent	Central Store	Factory/Yard/Site Foreman	Site Foreman or delegated person/leading hand	All C.L.S employees	Operators/Drivers	Senior Operators	Comments from Senior Managers/Senior Foremen
4.3 Hazard Identification & Control (Site)	<p>Foreman or foreman delegated person. H & S admin to make up a roster so can take someone through hazard checklist with all leading hands/foremen/delegated persons one at a time to make sure we are all consistently setting high standards.</p> <p>Check must include subcontractors activities.</p> <p>Refer 2.4 Update at least fortnightly for upcoming fortnight.</p> <p>Independent check must include subcontractors activities. Foreman or foreman delegated person must include independent audits in Timaru including Sir Steel and Joinery and Timaru Yard in general.</p> <p>Withheld under section 9(2)(a)</p> <p>Foreman or foreman delegated person must include independent audits in Timaru including Sir Steel and Joinery and Timaru Yard in general.</p> <p>Withheld under section 9(2)(a)</p> <p>Auditor completes hazard check list and returns completion sheets for each site, address site of urgent corrective action, H & S admin send H & S corrective action sheets to site. Sites attend to urgent items straight away and any others within 5 days. H & S admin/ite confirm everything attended to within 5 days.</p> <p>Joinery arrange with H & S admin to have all lead repairs completed immediately every 2 weeks. That corrective action has been attended to.</p>						✓	✓			
4.3a Hazard Board	<p>Complete mid month site hazard checks, complete checklists and file, also complete hazard correction (control) summary sheet and confirm action taken</p> <p>Fill out Hazard Board</p>						✓	✓			
4.4 Hazard Identification & Control (Independent)	<p>Underlate end of month independent site hazard checks, complete checklists and file also</p> <p>Complete hazard correction (control) summary sheet and confirm action taken</p> <p>(Independent workplace inspection)</p>			✓							
4.5 Accident Reports	<p>Complete, fax to office and file in red H & S folder</p>						✓	✓			
4.6 Accident Register	<p>Maintain Accident Register</p> <p>Report and recommend any changes to current workplace practices</p> <p>Carry out investigation if necessary</p>			✓							
4.7 Accident Investigation	<p>Accident registers in ChCh office, maintained by H & S admin.</p> <p>Building site supervisors / Site Foreman</p> <p>Serious events will be independently investigated.</p> <p>Less serious events will be investigated in house by building sites supervisor Site Foreman, H & S committee and H & S admin keep records.</p> <p>Aim for 3-4 per year. Share around content. H & S admin prepares, Foreman or leading hand can take, keep a full attendance record and fax back to ChCh office.</p>										
4.8 Tool Box Talks	<p>Company wide tool box meeting agenda and material</p> <p>Foreman or any leading hand can take, keep a simple record only. Try for one every fortnight. Keep it short and to the point. Address with all C.L.S staff on site all forward work, assess all hazardous work. Agree arrangements to carry out all work safely. Follow safe working at height procedures, keep site tidy etc. Make sure plant/resources for carrying out work are safe and available. Think ahead. Building site supervisors may need to be involved with planning complex work (eg heavy lifting). Update hazard board at tool box meeting. Have occasional whole site tool box meetings on larger sites.</p> <p>Less formal but more regular tool box meetings on an as required basis.</p>						✓	✓			

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Withheld under section 9(2)(a)

		Health & Safety Administration	Building Site/Joinery Supervisor	Contracts Manager/QS	Health & Safety Independent	Central Store	Factory/Yard/Site Foreman	Site Foreman or delegated person/leading hand	All CLS employees	Operators/Drivers	Senior Operators	Comments from Senior Managers/Senior Foremen
4.3 Hazard Identification & Control (Site)	Foreman or foreman delegated person, H & S admin to make up a roster so can take someone through hazard checklist with all leading hands/foreman/delegated persons one at a time to make sure we are all consistently setting high standards. Check must include subcontractors activities	✓					✓	✓				
4.3a Hazard Board	Refer 2.4 Update at least fortnightly for upcoming fortnight.		Withheld under section 9(2)(a)				✓	✓				
4.4 Hazard Identification & Control (Independent)	Independent check must include subcontractors activities. Independent audits in Tiramau including Str Steel and Joinery and Tiramau Yard in general. H & S admin arrange checklists and hazard correction sheets each month. (Christchurch Auditor completes hazard check list and hazard correction sheets for each site, advises site of urgent corrective action, H & S admin send H & S corrective action sheets to site. Sites attend to urgent items straight away and any others within 5 days. H & S admin/ste confirm everything attended to within 5 days. Joiners arrange with H & S admin to make up a roster to take someone through hazard checklist with all leading hands/foreman/delegated persons one at a time to make sure we are all consistently setting high standards. Check must include subcontractors activities that corrective action has been attended to.	✓	Withheld under section 9(2)(a)				Withheld under section 9(2)(a)	Withheld under section 9(2)(a)				
(Independent workplace inspection)	Complete hazard correction (control) summary sheet and confirm action taken				✓							
4.5 Accident Reports	Foreman or delegated site person attends to urgent corrective action immediately and any other matters within 5 days. Injured or nearly injured person completes form, Foreman or foreman (builders & joiners) delegated person faces to CHCh office and files fax original in Rec H & S file on site.						✓	✓				
4.6 Accident Register	Accident register is in CHCh office, maintained by H & S admin. Building site supervisors / Site Foreman	✓					✓					
4.7 Accident Investigations	Report and recommend any changes to current workplace practices Carry out investigation if necessary Serious events will be independently investigated.				✓							
4.8 Tool Box Talks	Less serious events will be investigated in house by building sites supervisor, Site Foreman, H & S committee and H & S admin keep records. Aim for 3-4 per year. Share around content. H & S admin prepares, Foreman or leading hand can take, keep a full attendance record and fax back to CHCh office. Foreman or any leading hand can take, keep a simple record only. Try for one every fortnight. Keep it short and to the point. Address with all CLS staff on site all forward work, assess all hazardous work. Agree arrangements to carry out all work safely. Follow safe working at height procedures, keep site tidy etc. Make sure plant/resources for carrying out work are safe and available. Think ahead. Building site supervisors may need to be involved with planning complex work (eg heavy lifting). Update hazard board at tool box meeting. Have occasional whole site tool box meetings on larger sites.	✓					✓	✓				
	Company wide tool box meeting agenda and material											
	Less formal but more regular tool box meetings on an as required basis.											

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	Health & Safety Administration	Building Site/Joinery Supervisor	Contracts Manager/QS	Health & Safety Independent	Central Store	Factory/Yard/Site Foreman	Site Foreman or delegated person/leading hand	All CLS employees	Operators/Drivers	Senior Operators	Comments from Senior Managers/Senior Foremen
5.0 Plant, Equipment and Vehicles											
5.1 Cranes	Daily/Weekly checks - Fill in service record 50hr servicing-Fill in service record Major Services-Fill in service record								✓	✓	
	1. July annually renew all checklists for all cranes								✓	✓	
	Crane M and I annual inspection and certification - update records								✓	✓	
	Crane M and I annual inspection and certification - carry out								✓	✓	
5.2 Slinging equipment (include sheaves, shackles, lifting devices, rings, shoring, slings, etc.)	Slinging equipment annual inspection - update records								✓	✓	
5.3 Lifting Bars/Beams, Man Buckets, Dycore clamps, platform	Annual H&S inspection and certification party (Alan Walker, Cookies) include with annual report of slinging equipment								✓	✓	
5.4 Gantry Crane	Monthly Checks								✓	✓	
	Gantry Crane annual inspection and certification-update records								✓	✓	
	Prepare operators manual and service record								✓	✓	
5.5 Hoist Crane	Hoist Crane annual inspection and certification-update records								✓	✓	
	Hoist Crane servicing - there are at least 9 grease points								✓	✓	
5.6 Forklifts (ChCh-2no.)	Six monthly inspection and servicing-arrange								✓	✓	
	Coordinate and maintain record of inspection check list and service								✓	✓	
5.7 Forklifts (Tamaru-4no.)	Six monthly servicing and inspection-arrange								✓	✓	
	Rationalise to 3 forklifts- Withheld under section 9(2)(a)								✓	✓	
	Coordinate and maintain record of inspection check list and service								✓	✓	
5.8 Forklifts (General)	Check oil, water, brakes at least weekly on site.								✓	✓	
	Withheld under section 9(2)(a)								✓	✓	
	Jobney Apprentices								✓	✓	
	Jobney Apprentices								✓	✓	
	Jobney Apprentices								✓	✓	
	Jobney Apprentices								✓	✓	
5.9 Small Tools and leads	Keep inventory, book electrician, purchase test tags, organise Lund staff to attend and to perform mechanical checks, organise times with sites								✓	✓	
	Six monthly certification and tagging (Chris Church, May & November - Tamaru - February & August)								✓	✓	
	Withheld under section 9(2)(a)								✓	✓	
	Aranged in the yard with electrical contractor. u) Make sure our staff check mechanical operation. Site foreman organise for tools to go to yard. All sites (incl the yard) to provide one person to attend checks and help with mechanical checks and also remove old test tags. Tools for repair are labelled with site they came from.								✓	✓	

PLEASE PROVIDE THE FOLLOWING INFORMATION AGT 1982

Withheld under section 9(2)(a)

Withheld under section 9(2)(a)

Withheld under section 9(2)(a)

Withheld under section 9(2)(a)

Withheld under section 9(2)(a)

	Health & Safety Administration	Building Site/Joinery Supervisor	Contracts Manager/QS	Health & Safety Independent	Central Store	Factory/Yard/Site Foreman	Site Foreman or delegated person/leading hand	All CLS employees	Operators/Drivers	Senior Operators	Comments from Senior Managers/Senior foremen
Small Tools and leads continued	Central stores/supervisors arrange for repairs by Power Tool People in CHCH and Air & Power in Timaru. make sure they get back to their site.										
5.10 Fixed Plant and Machines on site including sheds and containers.	Central Store/George fixes sites to get details of any fixed plant. Central stores/supervisors arrange and assist Protec - CHCH and Air & Power - Timaru to go around sites and inspect, repair if necessary and tag this fixed plant on site in the week after the small tools inspection and test.										
5.11 Temporary Power Supply (Lifeguards and Lifeguard leads)	Central stores/supervisors arrange and assist Protec - CHCH and Air & Power to go around sites and inspect, test and tag all life guards, leads, and RCD protection including at the means board in the week after the small tools inspection. Intention is that any lifeguards needing repair go back to the yard and to be swapped for others in store. Same electrician in Timaru will carry out repairs. We have had trouble with repairs to lifeguards being substandard.										
5.12 Power Leads	H&S admin/central store site electrician carries out as above - any lifeguards needing repair should go back to the yard and be swapped for others in store. Keep repairs carried out site from Timaru.										
5.13 Ladders	Checked at six monthly intervals and repaired if necessary. Lifeguards and Timaru repairs on an as required basis? What happens in Timaru?? ...										
5.14 EWP Certification/maintenance	Keep spares in CHCH store and Timaru yard. Swap over if need repairs. now doing.										
5.15 Height Safety Equipment	We are now using Load Lift who are prepared to service and certify the EWP and then return a completed checklist with their invoice. They recommend we go for electric drive EWP not hydraulic drive for better battery life. Loadlift will do both electric and mechanical drive EWP. H & S Admin to coordinate with supervisors. Timaru & Christchurch - show local EWP - who liaises with Loadlift?? Deep cycle batteries must be recharged on a daily basis or they will die and they are expensive to replace. You get the maximum life from deep cycle batteries by recharging them regularly definitely not by running them flat.										
5.16 Ramsset and Pascode tools	Foreman delegate EWP care to a person. Improve servicing and upkeep on sites. Fill battery regularly. Keep clean and in good condition. George will go around sites and inspect EWP twice a year, and complete a short condition report which H & S admin will distribute. Do this at same time as lifting equipment inspections. H&S Admin/George/supervisors Arranged by sites with ... or ... direct (contact name and numbers)										
	Done on site, check batteries, recharge batteries, check fuel cell and metering valve, replace fuel cell if necessary, clean air filter, clean jams, clean tool. Checked and inventory updated at six monthly tool check.										

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		Health & Safety Administration	Building Site/Job/ery Supervisor	Contracts Manager/QS	Health & Safety Independent	Central Store	Factory/Yard/Site Foreman	Site Foreman or delegated person/leading hand	All CLS employees	Operators/Drivers	Senior Operators	Comments from Senior Managers/Senior Foremen
5.17 Fire Extinguishers	No need for inventory	Have a record of extinguishers we have bought - copy invoices.										
Chubb check sites and advise what is required. Chubb will supply what we order.	Emergency board fire ext for emergencies only. Subs use their own for hot work (including etc), subs should have fire blankets too. Other extinguishers - one per level or 60m apart I think - depends on occupancy. Chubb will advise us what is required, where water, where powder & area covered. Turn powder extinguishers.											
Requirements for fire extinguishers on site	Chubb visits yard and sites and does annual check. We will supply boaters if he takes away others for pressure test or refill. suggests a few more water extinguishers that we can recharge ourselves.	✓										
Annual servicing and pressure test (November)												
5.18 Vehicles (cars, vans and small trucks)	COF/MOF	H & S Admin liaise with drivers. Drivers have principle responsibility for fits. Individual drivers book their own service and COF/MOF and have a pre COF/MOF check done at the same time. This means we don't fail our COF/MOF checks which keeps our LTNZ rating up and also we know there is regular servicing being carried out.										
	Road User Charges	Individual drivers notify Christchurch Office as required.										
	Registrations	H&S Admin liaise with drivers. Registrations are updated automatically.										
	Record	Updated reasonably regularly.										
5.19 Larger Vehicles (large trucks, trailers, cranes)	COF/MOF Head/Registration Record	As per vehicle above										
	Overdimension permits-current permits and expiry dates	H&S Admin have a record. Operators and drivers need to be aware of requirements by the current permits for their vehicles. Contact in for any permitting requirements.										
	Additional permits	Require 6 weeks notice. ????? Reorganise who does this??										
	Operator rating	Need a session with others and operators to explain operator rating system that has come in.										
5.20 Scaffold, Slim Jims, Doka ? Aluminium scaffold	Need inventory	Who knows where it is - need inventory (Timaru has this)										
	Electrical and mechanical check/servicing records	H&S Admin to coordinate at time of tool check. Small Engine Repairs in Christchurch. y organising checks/repairs and oil change.										
	Up to date record of plant equipment and vehicle inspections	We have a good record with photos.										
5.21 Pink Folder												
5.22 Kelly floats etc												
5.23 Brian Spencer & George Robinson to create inventory & update same on forward plan. (Note location) ditto												
6.0 Training												
6.1 Forklift	Arranged as required and training record kept up to date	ITC - ChCh, Aoraki Polytech - Timaru										
6.2 Heavy Traffic	Arranged as required and training record kept up to date	Maitland Driving School - ChCh, Aoraki Polytech - Timaru										
6.3 Crane Operator and Slings/loads	Arranged as required and training record kept up to date	Power Crane Association										
6.4 Site Safe	Arranged as required and training record kept up to date	Site Safe										
6.5 First Aid	Arranged as required and training record kept up to date	Red Cross										
6.6 Working at height	Arranged as required and training record kept up to date	OSM										

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 WITHHELD UNDER SECTION 9(2)(a)

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	Health & Safety Administration	Building Site/Joinery Supervisor	Contracts Manager/QS	Health & Safety Independent	Central Store	Factory/Yard/Site Foreman	Site Foreman or delegated person/leading hand	All C.L.S. employees	Operators/Drivers	Senior Operators	Comments from Senior Managers/Senior foremen
6.7 Small tools - skill saws etc	✓	✓									
6.8 Pesticides, Ramset & Hilti	✓	✓									
6.9 In house basic slinging and dogging											
6.10 In house basics of scaffolding											
6.11 Joinery plant	✓	✓									
6.12 Permit receiving	✓	✓									Ask Dave Daroit??
6.13 Annual Assessment of our Practices	✓	✓									Ask Dave Daroit??

Health Checks

Hearing and Health Checks
Mole check

Health and Safety Committee

Health and Safety Administration
Building Site Supervisor and Foreman
Joinery Supervisor

Contracts Manager and QS

Health and Safety Independent
Central Store
Foreman

Persons who are sometimes foreman and/or who foreman/supervisors can delegate to (leading hands)

Senior Operators

Withheld under section 9(2)(a)

Withheld under section 9(2)(a)

Withheld under section 9(2)(a)

Withheld under section 9(2)(a)

C LUND & SON
SITE SAFETY PROGRAMME

(I) Identify the person or persons who have overall responsibility for ensuring the safety programme is implemented.

(II) **HAZARD IDENTIFICATION INSPECTION**

Safety inspections to be carried out at regular intervals and at the commencement of each new stage of construction. **HAZARD IDENTIFICATION FORMS** and **HAZARD CORRECTION SUMMARY SHEETS (HCS)** are to be completed.

(III) **EMPLOYERS & EMPLOYEES DUTIES**

Make sure that:

- * Employees are trained to do all the tasks asked of them. If they do not have all the necessary training, make sure they are supervised.
- * Limitations of staff are known.
- * Equipment is maintained in a safe condition.
- * Safety equipment and clothing is available and used when required.
- * Regular discussions on safety are held on site.
- * Employees are aware what is expected of them.
- * Employees are aware that safety is to be taken seriously.
- * Ensure all employees have read the C Lund & Son Site Safety Booklet and issue each employee with a copy of the Employee's Duties Sheet and have them sign it and return it for C Lund & Son's records.

(IV) **SUBCONTRACTORS**

Ensure subcontractors carry out good health and safety practices. Health and Safety in Employment Act letter is sent to all subcontractors with their subcontract acceptances. Completed forms to be reviewed for adequacy and kept in safety file on site.

(V) **HEALTH RISKS ASSOCIATED WITH CHEMICALS AND SUBSTANCES**

Hazardous Materials inventory to be compiled with information including:

- * Substances on site.
- * Health risks associated with each substance.
- * Correct method of handling each substance.
- * Protective clothing and equipment to be used with each substance.

Materials inventory to be made accessible to all employees working on the site.
Materials to be correctly labelled and stored.



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(IV) THE PUBLIC

- * The public must be protected from all hazards on the work site. In particular:
- * Avoid causing hazards to persons, such as unfenced and water filled holes.
- * When working alongside or on a road or footpath use signs, barricades and flagmen to ensure public safety
- * Stop pedestrian traffic from passing under crane suspended loads, unless there is robust overhead protection.
- * Erect a shelter over the footpath to protect the public if there is any danger from falling debris or objects.
- * Have toeboards or kerbs at perimeters to stop tools and debris dropping onto people.
- * Beware of causing unnecessary noise
- * If plastering or painting, erect mesh screens to contain splatter.
- * Screen welding operations to avoid weld flash complaints.

(VII) FIRST AID KIT

Ensure that an adequately stocked first aid kit is maintained on site.

(VIII) ACCIDENT REGISTER

Maintain an accident register (using prescribed OSH form) of all accidents or incidents including near misses. Notify OSH as soon as possible after the occurrence and within 7 (seven) days provide written notice on the prescribed form of any accident involving serious harm.

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SITE SAFETY DUTIES

(I) HAZARD IDENTIFICATION INSPECTIONS

- Please undertake an inspection fortnightly and record your inspection on the HAZARD IDENTIFICATION FORM.
- Record all corrective action on the HCS sheet (Hazard Correction Summary Sheet).

(II) EMPLOYEES DUTIES

- All employees must have read their C LUND & SON Site Safety Booklet. Their duties are summarised on the Employee Duties Sheet.

(III) SUBCONTRACTORS SAFETY PROGRAMME

- This is sent out with subcontractors tender acceptances.

(IV) HAZARDOUS MATERIAL INVENTORY

- Must be kept and updated on every site.

(V) RECORD OF RCD TESTS

- Please complete tests at least fortnightly.

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C LUND & SON EMPLOYEES DUTIES

GENERAL DUTY

Take all practicable steps to ensure that you are safe at work and that you do not harm other people.

REPORT DANGERS

You must correct or report to your supervisor or employer every hazard or safety problem that you notice. IMMEDIATELY.

REPORT ACCIDENTS INJURIES AND INCIDENTS

If you witness an accident or an incident where someone could have been injured you MUST report it immediately. Your Employer is obliged by law to keep a register of all accidents or near misses where someone could have been injured.

If you receive an injury while at work you MUST report it immediately to your supervisor and have it reported. If a work injury is not reported on the day the injury occurs then it will not be accepted as a work related injury and this may affect your right to ACC compensation. A current doctors certificate (Accident Insurance Treatment Certificate - AITC) must be provided when taking time off for an injury.

SOLVENTS/CHEMICALS

Always find out whether there are any dangers to your health before you use any solvents or chemicals. IF IN DOUBT, ASK.

PROTECTIVE CLOTHING

Always use the correct protective clothing or equipment for the task. IF IN DOUBT ASK.

ELECTRICAL

Always check leads and equipment before use. Use a transformer or an earth leakage circuit breaker (E.L.C.B.). (If using a E.L.C.B: check it daily).

HAND TOOLS

Keep all tools in good condition. Use the right tool for the right job.

TRAINING AND SUPERVISION

You must not carry out any task, or use any plant or equipment, or apply or use any chemical or substance unless you have trained in the safe use of all plant, objects, and protective clothing and equipment that you may be required to use or handle. If you are not sure, report to your supervisor.

MOST IMPORTANT RULE

IF YOU ARE UNCERTAIN ABOUT ANYTHING DO NOT PROCEED, ASK!!

NOTE: GIVE EVERY EMPLOYEE A COPY OF THIS SHEET.
HAVE THE EMPLOYEE SIGN A COPY AS EVIDENCE FOR YOUR RECORDS

EMPLOYEE NAME: _____

EMPLOYEE SIGNATURE: _____ DATE: _____

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TRUCKS, VANS, UTES, CARS, MOBILE CRANES ETC.

All drivers must have LTSA Licence and the correct class of licence for the type of Vehicle they are to drive.

The driver is the person responsible to ensure the vehicle is in a safe and road worthy condition and has all relevant legal requirements before driving the vehicle on public roads.

The driver must ensure the safety of themselves and any other person travelling in that vehicle and allow for weather, traffic and road conditions etc.

The employer will maintain the vehicle to LTSA Standards and keep the vehicle in a safe and roadworthy condition for the purpose the vehicle is to be used.

The employer will not instruct or place demands on the driver to speed or exceed driving hours.

Faults or maintenance requirements for the vehicle should be recorded and corrected as soon as is practicable and only be carried out by suitably experienced people. A record of items attended to shall be sent to the office.

Accidents, incidents or injuries when using a vehicle should be reported to management as soon as possible.

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RULES FOR USING MACHINERY

1. Keep floor area around machines clear.
2. Always stop the machine before making adjustments.
3. When changing blades always turn off main switch.
4. Make sure blades are sharp and suitable for the job.
5. Never reach around, over, or behind a running blade.
6. Use push sticks or wedge cutters when required.
7. Do not stand directly behind the work.
8. Never wear loose fitting clothes, rings, gloves etc when using machinery.
9. Concentrate on what you are doing (don't be distracted).
10. Wear appropriate P.P.E. (hearing/dust/eye protection).



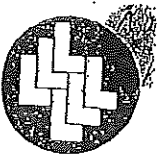
RULES FOR SLINGING LOADS

1. Know your hand signals.
2. Always use hand signals or radios and only have one person giving directions.
3. Always face hooks outwards.
4. Never get between a load and a hard place.
5. Do not exceed the safe working load (SWL) of equipment being used.
6. Be aware of suspended or swinging loads.
7. Use tag lines when necessary.
8. Use packing to avoid tight bends and sharp corners.
9. Never allow the included angle to be more than 120°.
10. Remember only two of any three or four legged slings take the load the others only balance the load.

STATEMENT

Before carrying out a lift there are three factors which must be known.

1. The weight of the object or the material being lifted and how it is to be lifted.
2. The lifting capacity of the tackle being used.
3. The suitability of the tackle being used.



MEMO TO: All Foremen
SUBJECT: Scaffolding
DATE: 8 May 2001
FROM:

Withheld under section 9(2)(a)

Recently there have been issues raised with regard to the safe set up of scaffolding.

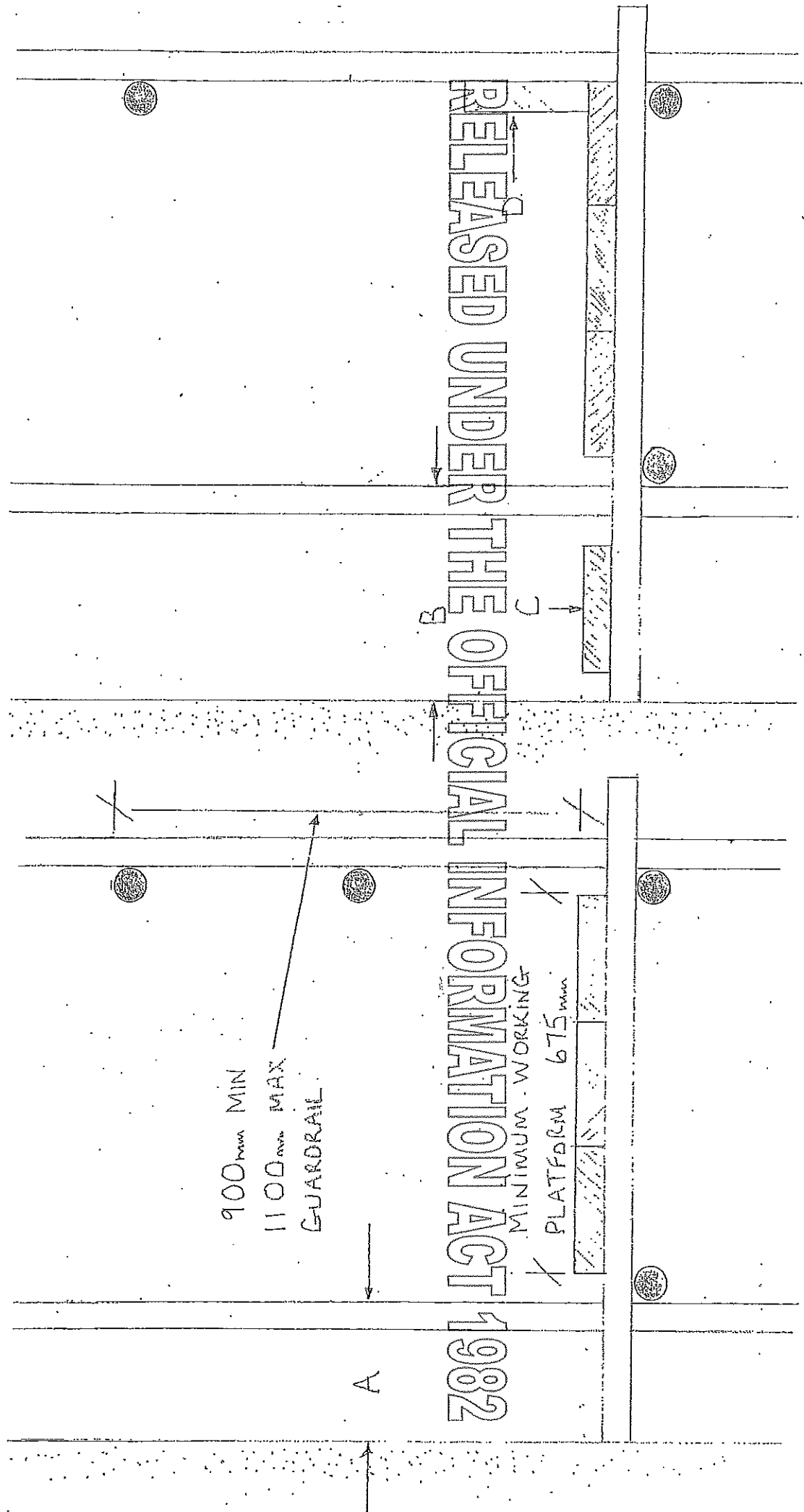
These sketches will help you make your own observations, as to what the finished scaffold should look like and what options are available to subcontractors.

Thank you for your co-operation.

Withheld under section 9(2)(a)

SAFETY IS EVERYONE'S BUSINESS

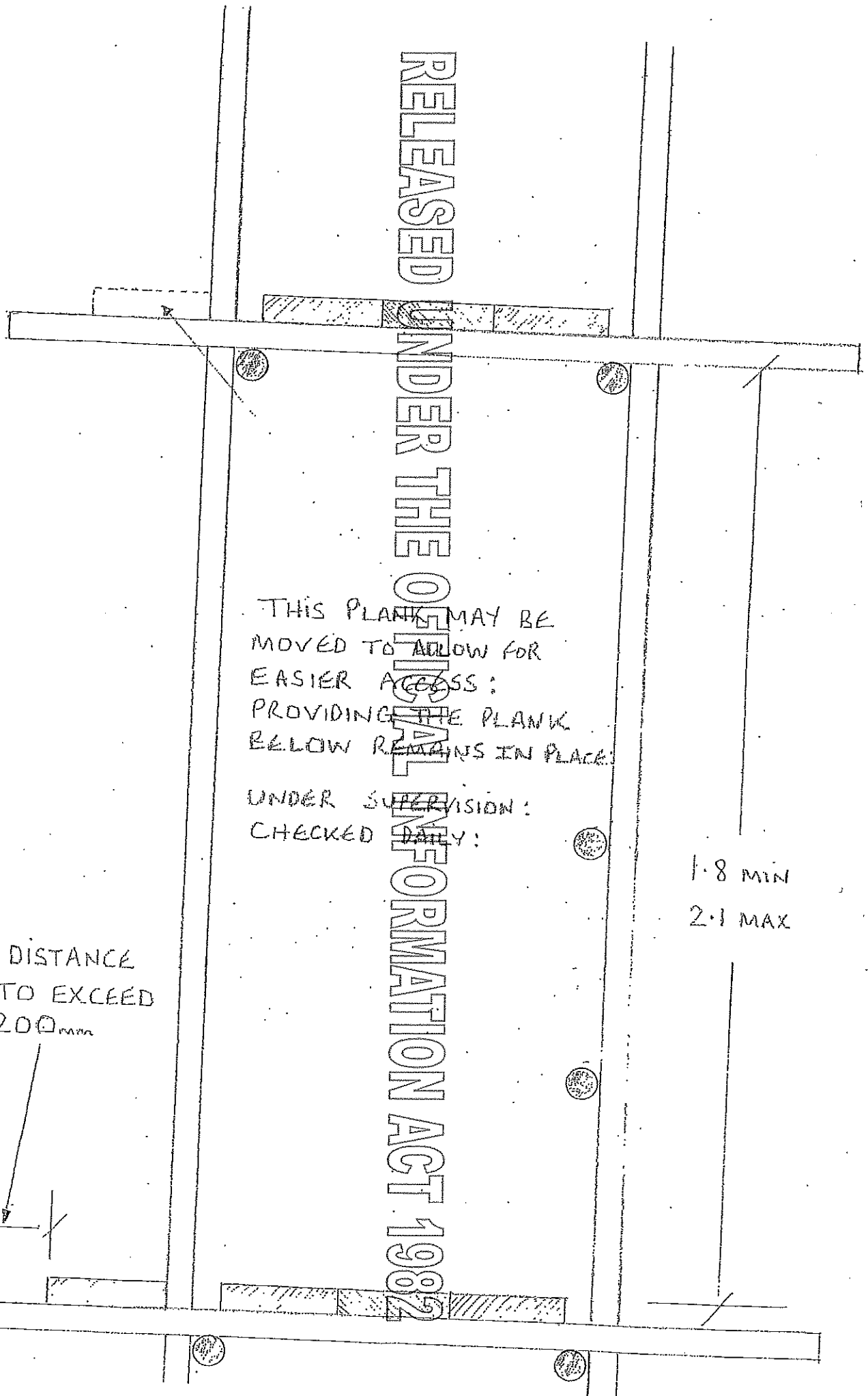
1 ACCEPTABLE FALL PROTECTION FOR STANDING SCAFFOLD:



A = 200 mm MAX.

- B = WHEN DISTANCE FROM FACE OF BUILDING IS GREATER THAN 200 mm.
- C = PROVIDE EXTRA PLANK ON PUTLOG.
- D = TOEBOARD / MIDRAIL NOT REQUIRED.

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982



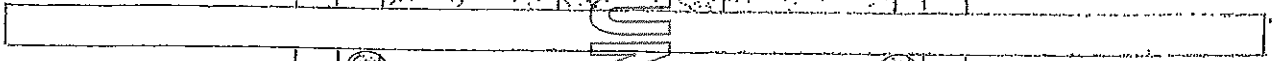
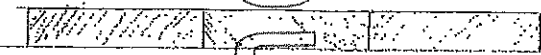
THIS PLANK MAY BE
MOVED TO ALLOW FOR
EASIER ACCESS:
PROVIDING THE PLANK
BELOW REMAINS IN PLACE.

UNDER SUPERVISION:
CHECKED DAILY:

1.8 MIN
2.1 MAX

THIS DISTANCE
NOT TO EXCEED
200mm

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WHEN DISTANCE FROM
FACE OF BUILDING IS
GREATER THAN 200mm
AND NO EXTRA PLANK ON
EXTENDED PULLOG!
GUARD RAIL / MIDRAIL MUST
BE IN PLACE



GREATER
THAN 200mm



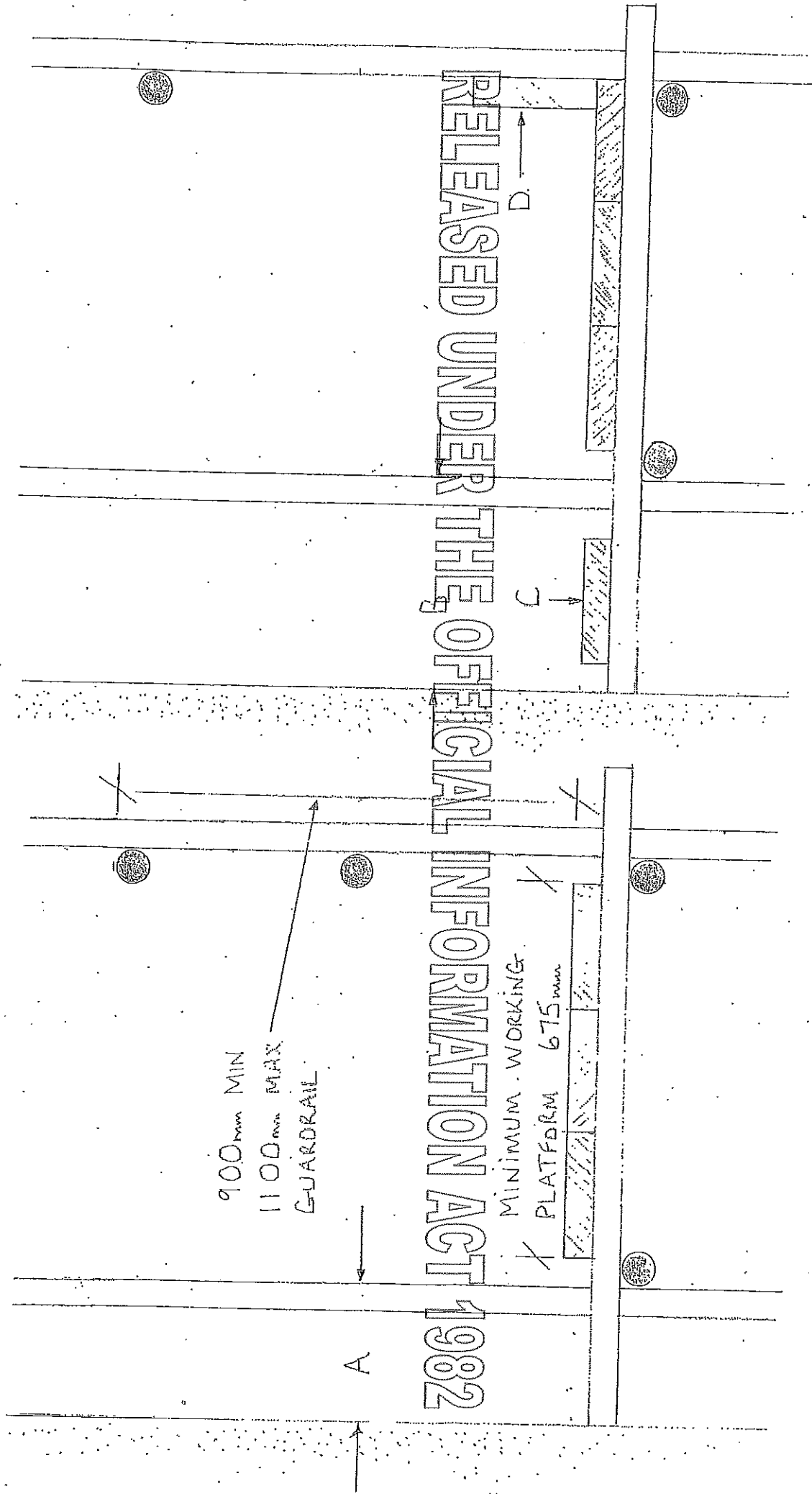
MIDRAIL



900-1100mm



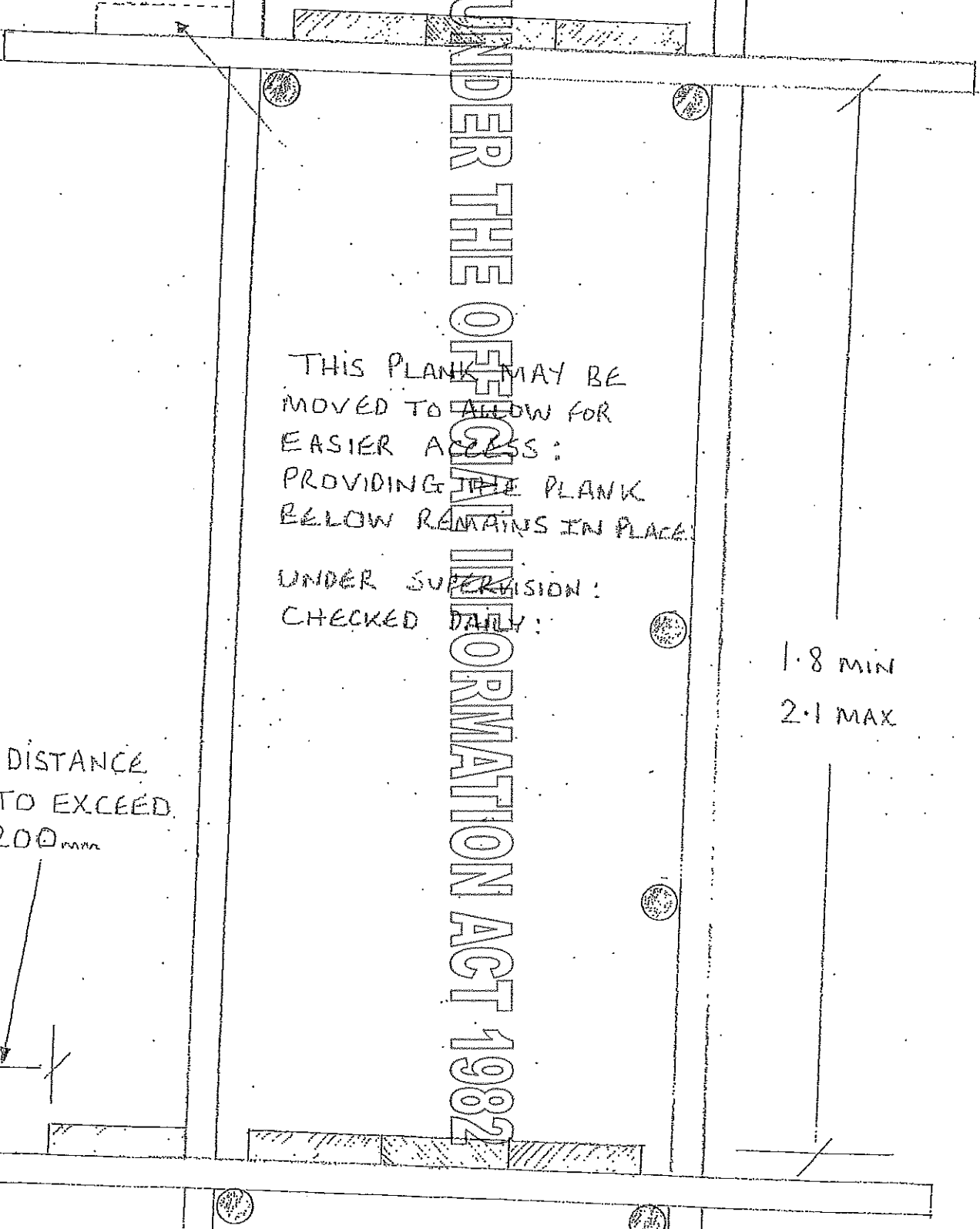
1 ACCEPTABLE FALL PROTECTION FOR STANDING SCAFFOLD:



A = 200mm MAX

- B = WHEN DISTANCE FROM FACE OF BUILDING IS GREATER THAN 200mm.
- C = PROVIDE EXTRA PLANK ON PLATFORM
- D = TC-BOARD/MIDRAIL NOT REQUIRED

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982



THIS PLANK MAY BE
MOVED TO ALLOW FOR
EASIER ACCESS:
PROVIDING THE PLANK
BELOW REMAINS IN PLACE.

UNDER SUPERVISION:
CHECKED DAILY:

1.8 MIN
2.1 MAX

THIS DISTANCE
NOT TO EXCEED
200mm

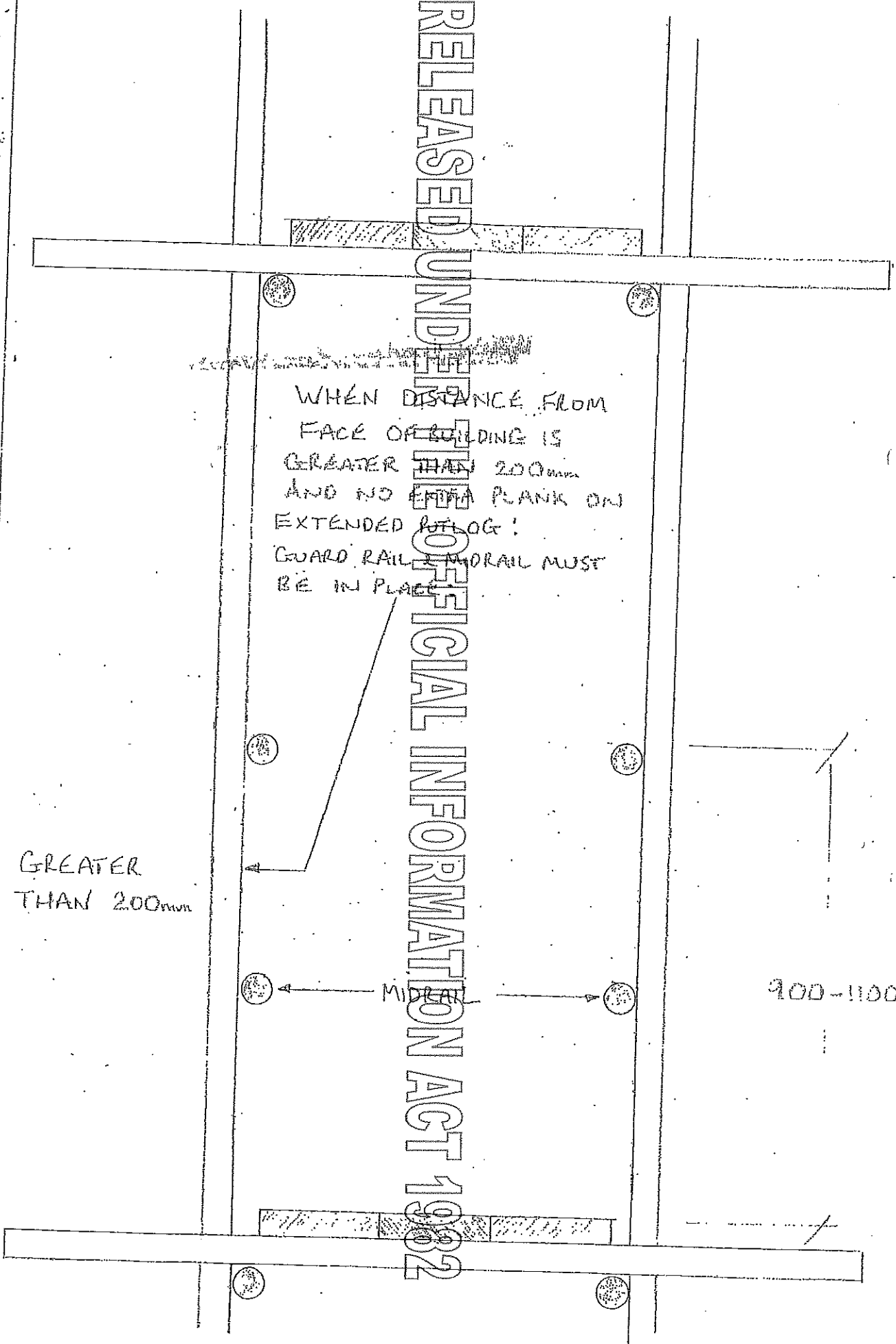
RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

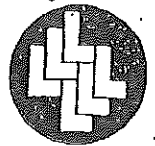
WHEN DISTANCE FROM
FACE OF BUILDING IS
GREATER THAN 200mm
AND NO EXTRA PLANK ON
EXTENDED PUTLOG:
GUARD RAIL & MIDLIN RAIL MUST
BE IN PLACE

GREATER
THAN 200mm

MIDLIN

900-1100mm





P.O. Box 848
Christchurch

Phone (03) 355-5511
Fax (03) 355-5593

MEMO TO: All Site Foreman

SUBJECT: Toolbox Talks

DATE: 5 March 2001

FROM: Withheld under section 9(2)(a)

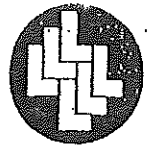
After each weekly toolbox talk, please fax a copy of any health & safety issues that have been raised on your site to: 03 377 7630.

Many Thanks

Withheld under section 9(2)(a)

**WORKING TOGETHER MAKES A SAFER
WORKPLACE**

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982



P.O. Box 848
Christchurch

Phone (03) 355-5511
Fax (03) 355-5593

MEMO TO: All On Site Staff
SUBJECT: Scaffold / Planks / Workbenches

DATE: 5 March 2001

FROM: [Redacted] Withheld under section 9(2)(a)

When setting up a temporary workbench scaffold planks are not to be used.

When scaffold planks are used as a workbench they can be subjected to unnecessary damage, especially when a skillsaw is used.

Never drive nails into plank.

If a damaged scaffold plank is used as a platform on a scaffold it could result in persons being injured or at the worst, maimed or killed.

THINK SAFETY WE NEED YOU

RELEASED UNDER THE OFFICIAL INFORMATION ACT 1982

C. LUND & SON LTD

Registered Master Builders

FAXED



P.O. Box 848
Christchurch

Phone (03) 355-5511
Fax (03) 355-5593

MEMO TO: All On Site Staff
Precast, Joinery and Structural Shop

SUBJECT: Forklifts

DATE: 15 March 2004

FROM: [Redacted]
Withheld under section 9(2)(a)

I have recently had to remind a C. Lund & Son subcontractor about the safe use of a forklift.

This is a reminder to all on site staff, that riding the forks, or standing on guardrails of forklift mancages will not be tolerated.

Only trained forklift drivers are permitted to operate forklifts.

Thank you for your co-operation.

[Redacted]
Withheld under section 9(2)(a)

A SAFE WAY IS THE BEST WAY

Year/Date	Begin	End/Date	Grade	Subject	Score	Remarks	Signature	Date
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Withheld under section 9(2)(a)

Withheld under section 9(2)(a)

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18/04/2005		18/04/2005	18/04/2005					
21/02/2011		21/02/2011	21/02/2011					
15/04/1995		15/04/1995	15/04/1995					
7/09/2011		7/09/2011	7/09/2011					
19/01/1994		19/01/1994	19/01/1994					
30/02/2005		30/02/2005	30/02/2005					
21/02/2005		21/02/2005	21/02/2005					
6/12/1993		6/12/1993	6/12/1993					
6/02/1998		6/02/1998	6/02/1998					
12/07/2004		12/07/2004	12/07/2004					
18/07/2005		18/07/2005	18/07/2005					
30/02/2010		30/02/2010	30/02/2010					
3/04/1991		3/04/1991	3/04/1991					
20/11/2001		20/11/2001	20/11/2001					
3/04/1995		3/04/1995	3/04/1995					
4/12/2001		4/12/2001	4/12/2001					
19/02/1990		19/02/1990	19/02/1990					
15/10/2010		15/10/2010	15/10/2010					
7/02/2011		7/02/2011	7/02/2011					
25/10/1994		25/10/1994	25/10/1994					
24/01/1994		24/01/1994	24/01/1994					
7/02/2011		7/02/2011	7/02/2011					
4/10/1993		4/10/1993	4/10/1993					
9/05/1994		9/05/1994	9/05/1994					
23/02/2006		23/02/2006	23/02/2006					
21/04/1995		21/04/1995	21/04/1995					
17/10/1993		17/10/1993	17/10/1993					
16/02/2004		16/02/2004	16/02/2004					
22/06/2003		22/06/2003	22/06/2003					
11/04/1993		11/04/1993	11/04/1993					
6/07/1993		6/07/1993	6/07/1993					
28/10/2005		28/10/2005	28/10/2005					
23/04/2007		23/04/2007	23/04/2007					
6/12/1993		6/12/1993	6/12/1993					

Training No.	Start Date	End Date	Duration	Location	Trainer	Participant	Remarks
2307/1989	18/06/89	19/06/89	1 day	180000	180000	180000	
7/07/1985	15/06/85	15/06/85	1 day	180000	180000	180000	
5/08/2002	08/08/02	09/08/02	2 days	180000	180000	180000	
4/08/1985	15/06/85	15/06/85	1 day	180000	180000	180000	
28/08/2008	21/08/08	21/08/08	1 day	180000	180000	180000	
5/03/1987	21/08/87	21/08/87	1 day	180000	180000	180000	
18/02/2008	04/02/10	04/02/10	1 day	180000	180000	180000	
12/11/1973	21/08/00	21/08/00	1 day	180000	180000	180000	
18/05/2010	21/08/10	21/08/10	1 day	180000	180000	180000	
21/04/2008	21/08/00	21/08/00	1 day	180000	180000	180000	
18/01/2006	21/08/00	21/08/00	1 day	180000	180000	180000	
5/10/2009	21/08/10	21/08/10	1 day	180000	180000	180000	
14/04/2003	18/06/03	18/06/03	1 day	180000	180000	180000	
17/01/2011	21/08/10	21/08/10	1 day	180000	180000	180000	
15/02/1991	21/08/00	21/08/00	1 day	180000	180000	180000	
11/10/1982	02/07/10	21/08/10	1 day	180000	180000	180000	

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180000

