From:
Sent: Wednesday, 2 November 2011 5:00 p.m.
To:
Subject: Christchurch Cathedral
Attachments: 20111102 Church Property Trustees.pdf

Dear

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

Regards

Canterbury Earthquake Recovery Authority
Christchurch
ddi :
cell :
www.cera.govt.nz

CERA
Canterbury Earthquake Recovery Authority

2 November 2011

Church Property Trustees

CHRISTCHURCH 8140

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

SB#198

From:
Sent: Friday, 28 October 2011 1:21 p.m.
To:
Subject: Section 38 - 100 Cathedral Square

Attachments: 20111028131215732.pdf

20111028131215732.pdf (984 KB)...

SB#198

ATTENTION

good afternoon.

Please find attached documentation from the Canterbury Earthquake Recovery Authority in relation to the property situated at 100 Cathedral Square - Christchurch Cathedral.

Please make sure you sign, scan and email back to me within the 10 day (not working days) issue period, page 11 of the document, plus all other necessary documentation CERA will require if it is to be an owner managed demolition.

Kind regards

Significant Buildings Unit Case Manager Canterbury Earthquake Authority - CERA Private Bag 4999 Christchurch 8140
M:
DDI:
E:
W: www.cera.govt.nz

CERA
Canterbury Earthquake Recovery Authority

28 October 2011

Church Property Trustees

Christchurch 8140

Dear

Demolition of your building at 100 Cathedral Square – Christchurch Cathedral

1. The purpose of this letter is to:

   - Advise you that I have determined that your building is dangerous in terms of the Canterbury Earthquake Recovery Act 2011 (CER Act), in particular there is a risk that the building could collapse or otherwise cause injury or death to any person in the building as a result of an earthquake that generates shaking that is less than or moderate earthquake; and

   - Give you notice under in accordance with Section 38(4) of the CER Act that your building is to be demolished to the extent necessary to remove the hazards.

2. You have 10 calendar days from the date of receipt of this notice to advise me whether you intend to undertake the demolition of the building (including, as appropriate, removal of the foundations) and, if so, when you intend to undertake and complete the work.

3. Schedule 2 (attached) provides an outline of the information required from you should you propose to complete the demolition work using your own contractor.

   Note: For the purposes of section 38 of the CER Act, where CERA approves your demolition proposal, CERA has commissioned the work. This will enable you to rely on CERA's exception from a building consent for demolition and the permitted activity status for demolition of buildings under the appropriate district plan. You will, however, need to obtain an archaeological approval if the building is dated pre-1900 and for the disturbance of the soil if the area was occupied pre-1900 (regardless of the age of the present building).

CERA commissions all demolition related work within the CBD (the area within the four avenues). Before any work may be started CERA requires that it approves the demolition plan.

4. You may elect to have CERA undertake the demolition work for you. To assist you in deciding if this is your preferred option, please find attached Schedule 3, which is a summary of the services CERA may provide. If you choose this option, the demolition works will be at your cost and you will be invoiced for the work. CERA charges a management fee, this is usually 5.25% of the demolition costs. This is to cover the actual cost incurred of managing the demolition process.

5. Should you elect to have CERA undertake the demolition work for you, CERA will arrange for the work to be carried out through CERA's Project Management Office (PMO). I encourage you to consider using the PMO as CERA will schedule the work to most efficiently use accredited contractors. The PMO will facilitate the demolition in accordance with the scope in Schedule 3.

6. Reopening the central city as quickly as possible, and working towards the recovery of greater Christchurch are top priorities for CERA. In considering your response to this notice and the acceptability of any alternative proposals you put forward, speed of completion of the works will be key criteria for me.

7. Please note that even if you wish to undertake the work I may not accept your proposal and may decide it is more appropriate for CERA to undertake the work.

8. Your written notice to CERA of your intentions should be in the form attached to this letter entitled "Owner's Response to Demolition Notice under s38(4) of the Canterbury Earthquake Recovery Act 2011". Your notice can be either:

   - Emailed to us at **demolitioncontracts@cera.govt.nz**, or
   - Posted to Canterbury Earthquake Recovery Authority, Private Bag 4999, Christchurch 8140.

9. In making your decision you should be aware that the CER Act provides that:

   - if you fail to give notice to me within the 10 calendar day period; or
   - if I am not satisfied with the time specified by you for demolition of the building; or
   - if you do not carry out the works in the time specified,

   CERA may commission the demolition work and recover CERA and third party costs of carrying out the work from you as owner of the dangerous building.

10. If you do not respond to this letter within 10 calendar days of receipt, CERA will look to commence action to commission the demolition works at your cost. The timing and arrangements for demolition will then be negotiated with the demolition company and you will be informed in accordance with the process under the CER Act.

11. Please take the time to read the Frequently Asked Questions information at www.cera.govt.nz/demolitions .

Please contact my office by email, or telephone if you have any questions about this written notice or wish to discuss the demolition.

Yours faithfully

Warwick Isaacs
General Manager, Demolition
Canterbury Earthquake Recovery Authority

Schedule 1: Summary of meaning of "dangerous" building: Building Act 2004 as amended by Canterbury Earthquake (Building Act) Order 2011

A dangerous building is a building which:

(a) in the ordinary course of events (excluding the occurrence of an earthquake), is likely to cause —
  (i) injury or death (whether by collapse or otherwise) to any persons in it or to persons on other property; or
  (ii) damage to other property; or

(b) in the event of fire, injury or death to any persons in the building or to persons on other property is likely because of fire hazard or the occupancy of the building; or

(c) there is a risk that the building could collapse or otherwise cause injury or death to any person in the building as a result of an earthquake that generates shaking that is less than a moderate earthquake; or

(d) there is a risk that other property could collapse or otherwise cause injury or death to any person in the building; or

(e) a territorial authority has not been able to undertake an inspection to determine whether —
  (i) the building is dangerous under paragraph (a); and
  (ii) the territorial authority or the chief executive, as the case may be, is required to exercise powers under section 124 or 129 of the Building Act 2004 as modified by the Canterbury Earthquake (Building Act) Order 2010.

(f) if, having regard to its condition and to the ground on which it is built, and because of its construction, the building —
  (i) will have its ultimate capacity exceeded in a moderate earthquake (as defined in the regulations); and
  (ii) would be likely to collapse causing —
    (a) injury or death to persons in the building or to persons on any other property; or
    (b) damage to any other property.

Note: (f) does not apply to a building that is used wholly or mainly for residential purposes unless the building —
  (i) comprises 2 or more storeys; and
  (ii) contains 3 or more household units.

Extract from Canterbury Earthquake Recovery Act 2011
S40. Compensation for demolition of building

(1) If the chief executive demolishes a dangerous building —

(a) the Crown is not liable to compensate the owner or any tenant or other occupier of the building; and
(b) the chief executive may recover the cost of demolition from the owner.

Schedule 2:Demolition Application - Supporting Information Required

1. Project Information

- Address of building.
- Name of building.
- Description of building i.e. Building height, number of floors above and below ground, age and construction type and approximate building weight.
- Main contractor and principal contact details.
- Sub-contractors and any contact details.

2. Onsite Start Up

- Detail how dilapidation survey will be undertaken and information which will be provided.
- Provide a site plan showing location of fencing,site entry/exit points, registration board, emergency gathering point and any on-site facilities.
- Provide details of road, footpath and infrastructureprotection measures required for tracked equipment and the demolition debris falling off the building during the course of the demolition process.
- Provide details of initial equipment set up including staging areas, equipment swing radiuses, set down and stockpile areas.
- Provide a list of services to site that require disconnection and capping and detail who will carry out this work.Refer to attached list of local authorities and utilities service providers etc.

3. Methodology

- Methodology must describe method and sequence of building deconstruction or demolition. This is to include staged methodology descriptions and graphical representation. This description and plan should be able to be read in conjunction with the demolition programme.
- Methodology must consider building size, structural type, original construction sequence and any seismic damage to the structure.
- Equipment used must be appropriate for building size and proposed methodology.Provide details of specialist or large equipment to be used on the job and details fo people qualified to use the equipment.
- Methodology must be reviewed and approvedby a CPEng engineer. CPEng engineer must be familiar with building and be satisfied that methodology is appropriate considering building size, structural form, seismic damage, critical structural weaknesses andproposed sequence of removal or demolition of structural elements.
- CPEng engineer must be satisfied that methodology avoids risk of local instability, global instability anduncontrolled progressive failure that might threaten the safety of site workers or people or property on adjacent sites.
- CPEng engineer must be available for on-site verification of demolition methodology and to carry out site supervision at critical work stages and to confirm methodology.
- If building is to be entered by any workers for retrieval of goods, strip out or any other purpose this must be explicitly approved by CPEng Engineer who must be satisfied that this proposed work presents no greater danger to these workers than would ordinarily be present to workers on any other building site. The CPEng Engineer may be required to attend site to monitor the structural integrity and safety while these activities occur.
- Provide details in methodology for removal of any specific items or services if required.
- Provide details of proposed dust suppression measures including runoff control.

4. Programme

- A programme for the works on a Gantt chart, or in a similar format, is required. This must relate and be able to be read in conjunction with the detailed methodology.

5. Debris/Waste Management Plan

- Provide a detailed Waste Management Plan. (proforma is attached). This is to include details of any crushing of concrete that may occur on site.
- Provide an estimate of quantities for each type of waste,proposed carrier and approved destination.

6. Traffic Management

- Provide a route plan showing planed routes to and from the site.
- Indicate where truck turning is intended to occur and what signage will be provided.
- Confirm that equipment access to site is unhindered by street widths, weight limits or overhead power lines.
- Atleast one lane of traffic is to be maintained at all times outside the building if the demolition is to occur within the CBD Red Zone Cordon. Outside the CBD Red Zone Cordon the traffic management plan will have to be approved by Christchurch City Council.
- Dilapidation survey is to include any existing street and footpath damage.

7. Health and Safety Plan

- Site specific health and safety information is required.
- An emergency management plan is required.
- A site management plan is required.
- A site evacuation procedure is required.

8. Heritage / NZHPT

- Please note any heritage buildings present, comment on risk to them during works and any measures required to mitigate risk.
- Specific approval from NZHPT to work on or adjacent to heritage buildings may be required. Provide evidence that this has been applied for.A hardcopy of any NZHPT approval(s) granted should be available to view on site, on request.
- If Heritage items are required to be removed form the building being demolished provide full details as to how this is to occur.
- If the site was occupied pre-1900 (regardless of age of building) and soil will be disturbed an archaeological approval may be required.

9. Completion

- Provide detail of proposed condition of site on completion e.g. slab and footings removed, site backfilled and compacted.
- Note any special requirements such as proposed treatment of basement and removal depth for piles.
- Detail verification of site condition procedure.
- Provide a hazardous material report on completion of the project if applicable.

10. Insurance

- Provide evidence of a current Public Liability Insurance Certificate specific to the site of works.

Schedule 3: CERA Services Provided

CERA Professional Services

Resources Available

CERA has the following professionals available to assist and manage the demolition of buildings as part of the demolition of Canterbury.

- Project Managers
- Quantity Surveyors
- Construction Managers
- Structural Engineers
- Health and Safety advisors
- Hazardous Material advisors (asbestos reports)
- Waste and Debris Advisors
- Programmer Managers
- Heritage (NZHPT) Liaison and Heritage Engineers
- Environmental (ECAN) Liaison

CERA also has the ability to call on the services of:

- Close relationship with CCC

The CERA Demolition Process for the demolition of a dangerous building

PLANNING AND TENDER PROCESS

Building and Resource consent

1. If building is deemed to be 'dangerous', CERA will obtain the necessary approvals to allow the building to be demolished.

Under a CERA managed demolition CERA will facilitate the calling of Tenders for the demolition of the buildings. This may include;

1. Site visit by engineers and construction managers to view implications of demolition.
2. Co-ordination with building owners on possession removal of building owners possessions if achievable.
3. Compiling and monitoring of a master programme from tender through to completion.
4. Preparation of a demolition scope of works document specific to each building/project.
5. Initial liaison with local authorities and service providers.
6. Compiling and issuing of contract documents.
7. Access to all building information archives, to facilitate efficient demolition.
8. Liaison with Historic Places Trust and their representatives
9. Compilation of a rapid assessment hazardous material report.
10. Production of tender documents
    - Request for tender letters
    - Scope of works
    - Preliminary and General Specification (P&G)
    - Building information – Structural, Architectural and Services
    - Indicative traffic routes
    - Hazardous material reports
    - Geotechnical reports (if required)
    - Heritage information
    - Debris management guidelines and plans
    - Standard contract conditions
    - Price element breakdown

11. Collation of tender documents for delivery to selected contractors
12. Contractors are pre-determined from an accredited list populated from Expression of Interest and accreditation processes completed by CERA.
13. Complete a tender process and obtain a minimum of three tender prices
14. Access to knowledge of whole market, general price patterns, current market conditions and contractor's resources so that the contractors who tender are selected specifically to each project.
15. Responding to tender queries and clarifications throughout the tender process.
16. Evaluation and Analysis of submitted contract documents for each contractor's submission, including;

    - Price
    - Proposed methodology
    - Traffic Management Plan (TMP)
    - Site safety plan – including removal and disposal of hazardous materials
    - Debris management
    - Programme
    - Overall capability to carry out the project at that point in time

17. Contractors costs/rates are again reviewed by an independent Quantity Surveyor.
18. Compiling of successful contractors contract and facilitation of signing by CERA and the Contractor.
19. Issuing of successful and unsuccessful letters to contractors.

MANAGEMENT OF DE-CONSTRUCTION WORKS

1. Management of the contractor completing a dilapidation survey of adjacent sites and city infrastructure before successful contractor begins site works.
2. Site checks to check progress and that traffic management plan, waste management plan, health and safety and general deconstruct methodology are being carried out in accordance with the demolition contract.
3. Point of contact throughout de-construction process.
4. Management of contractor queries as they become apparent.
5. Monitoring of protection to adjoining properties and surrounding infrastructure.
6. Management of any unforeseen circumstances raised by the contractor (i.e. Identification of asbestos).
7. Final close out of site documenting that the project has been completed to satisfactory standard.
8. Liaison with utility companies to check their assets are protected and any terminations have been completed.
9. Management of temporary works are completed any assets removed are reinstated e.g. traffic lights, planters, street lights etc.

CONTRACT MANAGEMENT

1. The review and certification of payments against claims as received by the contractor.
2. Administer the Demolition Contract so that the Contractor performs his obligations under the Contract.
3. Manage the contractor to perform in the terms of the Demolition Approval – Construction Programme and City Master Programme.
4. Obtain confirmation that the demolition Contract pre construction requirements have been met i.e. insurance, Health & Safety Plan etc.
5. Receive all contractors' correspondence and arrange response.
6. Issue Contract Instructions and Client Variations as required.
7. Provide all necessary directions to the Contractor, monitor progress and performance, and initiate any corrective action required to maintain satisfactory progress and performance.
8. Management of all Contractor Requests for Information.
9. Management of information to be supplied by Contractor.
10. Management of consultant site visits and inspections.
11. Co-ordinate and expedite the procurement of the Practical Completion Certificate
12. Inform Client when the contractor requests the issue of a Certificate of Practical Completion.
13. Determine in conjunction with Client and Consultants whether there are any matters, which prevent the issuing a Certificate of Practical Completion to the Contractor.
14. Provide Client with a copy of the Certificate of Practical Completion issued pursuant to the demolition Contract.
15. Using the assistance of other consultants where it considers necessary, assess and report to Client on any extensions of time to the Date of Practical Completion requested by the contractor under the demolition Contract.
16. Administer extension of time claims under the contract.
17. Provide advice to the Client on any claim or dispute, that arises out of the project prior to the issue of the Final Certificate.
18. Advise Client of the likely date for the issue of the Final Certificate and use the assistance of other consultants and Client as to whether the Final Certificate can be issued to the contractor.
19. Issue the final certificate to the Contractor when they have met all the contractual obligations and completed all remedial works and the defect Liability period has passed (if applicable).

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

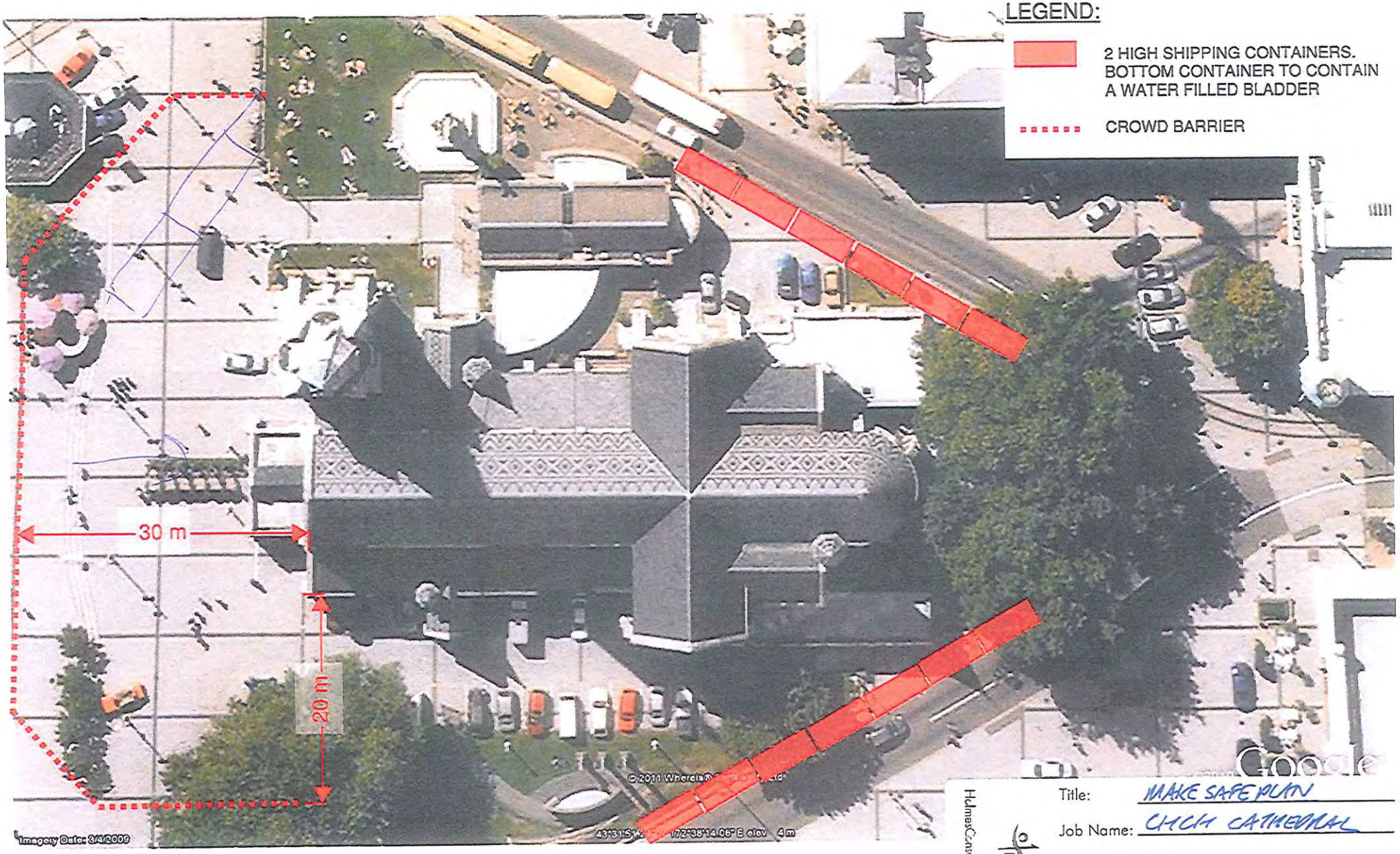
    b. To arrange for the demolition of the building in accordance with my proposal under which demolition will be completed, the site cleared and all waste disposed of in accordance with all relevant requirements by no later than _____ _____2011.

From:

Signed this ___ day of _____ 2011 by _____ as owner or duly authorised representative of the owner.

_____
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.



HolmesConsulting Group

Title: MAKE SAFE PLAN

Job Name: CHCH CATHEDRAL

Job #: 106324 SSK#: 016

Date: 4/10/11 Rev: 2

2.1 21/10/2011.

From:
Sent: Friday, 14 October 2011 8:23 a.m.
To:
Cc:
Subject: FW: Cathedral Make safe.
Attachments: 2011-10-13 17.23.30.jpg; 2011-10-13 17.24.58.jpg

198

FYI

Regards

Structural Engineer – Significant Buildings Unit
Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140
T:
M:
E:
W: www.cera.govt.nz

From:
Sent: Friday, October 14, 2011 8:01 AM
To:
Cc:
Subject: RE: Cathedral Make sare.

Hi All,

Please see attached photo's of the completed container protection works to the rear of the Cathedral, for your information.

Regards

M
DDI

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

From:
Sent: Tuesday, 4 October 2011 5:21 p.m.
To:
Cc:
Subject: RE: Cathedral Make safe.

Thanks

If the containers are going in next Monday Pre warning for vehicle movement around the square should be happening now – any further comments on this.

Regards

Structural Engineer – Significant Buildings Unit
Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140
T:
M:
E:
W: www.cera.govt.nz

From:
Sent: Tuesday, October 04, 2011 5:11 PM
To:
Cc:
Subject: RE: Cathedral Make safe.

Hi

I have spoken to all parties involved and we will be ready to start installing the Cathedral barriers, on Monday 10th October. I'm expecting it to take approximately three days to install the containers, including filling the water bladders. C Lund and Son will be undertaking the installation work and are going to be submitting a safety plan and methodology for review / authorisation, later this week.

Any queries, please give me a call.

Kind Regards

Project Manager
M

RCP

From:
Sent: Tuesday, 4 October 2011 4:14 p.m.
To:
Cc:
Subject: RE: Cathedral make safe.

Hi

Thank you for your emails.

Please note that in a meeting with Warwick last week on the Cathedral (item 4.3 in the minutes attached), along with CCC, MCH and HPT it was agreed that we would all work collaboratively and all media enquires relating to the Cathedral are to be forwarded through to the Cathedral Project Media and communications manager – wording and contact details below:

- **Thank you for your call. We have an agreed central point for media calls for Christchurch Cathedral. Please contact Her email is If you need to call her after nours her home number is**

With regards to the traffic management plan. We have discussed this with and are aware that there are going to be a number of significant building demolitions going on in the square vicinity during the next few months so would propose that instead of the Cathedral project just producing a traffic management plan in isolation, a bigger picture view is taken to take into account the other significant building demolitions in the area. We are happy to contribute to such a meeting or plan as necessary, but hope that CERA or the Significant buildings team can facilitate this.

In terms of the date that the barrier containers are going to be erected around the Cathedral – we are awaiting confirmation of the exact date later this evening and will advise all those copied into this email tomorrow morning, along with submitting the methodology and programme for undertaking these works for CERA approval later this week.

We trust that the above is acceptable to CERA, but should you wish to discuss further, do not hesitate to contact me.

Regards

M
DDI

RCP

From:
Sent: Tuesday, 4 October 2011 3:43 p.m.
To:
Cc:
Subject: RE: Cathedral Make safe.

Hi all

Please note that this activity is almost certain to trigger media attention.
CERA will need to be aware of what is happening around the cathedral, so please keep me in the info loop.

CERA will be the lead agency for all media enquiries and any comments.

Regards,

CBD Red Zone Cordon & Access Manager
Canterbury Earthquake Recovery Authority

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

From:
Sent: Tuesday, 4 October 2011 1:39 p.m.
To:
Cc:
Subject: RE: Cathedral Make safe.

Hi

Gents I am following up on the status of the TMP and when the containers will be placed around the Cathedral. I had a call from at CCC who advised that they have had no contact from you yet.

Before the containers are placed there will be a requirement to place signage giving advanced warning (1 week) that this is going to happen.

Could you please give us an update

Regards

Structural Engineer – Significant Buildings Unit
Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140
T:
M:
E:
W: www.cera.govt.nz

From:
Sent: Thursday, September 29, 2011 12:25 PM
To:
Cc:

Subject: RE: Cathedral Make safe.

Further to your email on Monday 26 September we agree that placing the containers on the roadway and limiting the traffic to one way around the Cathedral is the only option. A larger traffic management plan will need to be considered for vehicle movement around the square and traffic management signage will be required clearing advising this before construction vehicles, especially trucks, enter the square.

Could you please continue with urgency with the placement of the containers as outlined in the Holmes report and submit a traffic management plan for consideration. The traffic management plan must consider the current road closures around the red zone, signage, and outline access paths through and around the square. Could you please coordinate the TMP with or f CCC traffic

If you have any queries please contact me.

Regards

Significant Buildings Unit
Structural Engineer

on behalf of **CERA**

From:
Sent: Tuesday, September 27, 2011 2:48 PM

To:
Cc:
Subject: Cathedral Make safe.

Hi

Further to my email, yesterday regarding the containers and their positioning around the cathedral, could you reply to :

Kind Regards

Project Manager

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

Please consider the environment before printing this email.


CONTAINER FOR SALE PHONE
0800 560 177
CONTAINER FOR SALE PHONE
0800 560 177

From:

Sent: Tuesday, 4 October 2011 8:27 p.m.

To:

Subject: FW: Cathedral Make safe.

SB# 198

See string of emails that follow. Relates to the containers required around the cathedral.

Regards

Structural Engineer – Significant Buildings Unit
Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140
T:
M:
E:
W: www.cera.govt.nz

From:
Sent: Tuesday, October 04, 2011 5:39 PM
To
Cc:
Subject: RE: Cathedral Make safe.

As much notice as possible please.
We have 1800+ traffic movements through the gates each day and most of these go past the Cathedral. We have to ensure that they get adequate notice of any changes so they can plan new routes etc.

From
Sent: Tuesday, 4 October 2011 5:21 p.m.
To:
Cc:
Subject: RE: Cathedral Make safe.

Thanks

If the containers are going in next Monday Pre warning for vehicle movement around the square should

be happening now – any further comments on this.

Regards

Structural Engineer – Significant Buildings Unit
Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140
T:
M:
E:
W: www.cera.govt.nz

From:
Sent: Tuesday, October 04, 2011 5:11 PM
To:
Cc:
Subject: RE: Cathedral Make safe.

Hi

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Kind Regards

Project Manager
M

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

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Sent: Tuesday, 4 October 2011 4:14 p.m.
To:
Cc:
Subject: RE: Cathedral Make safe.

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Regards

M
DDI

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

Please consider the environment before printing this email.

From:
Sent: Tuesday, 4 October 2011 3:43 p.m.
To:
Cc:
Subject: RE: Cathedral make safe.

Hi all

Please note that this activity is almost certain to trigger media attention.
CERA will need to be aware of what is happening around the cathedral, so please keep me in the info loop.

CERA will be the lead agency for all media enquiries and any comments.

Regards,

CBD Red Zone Cordon & Access Manager
Canterbury Earthquake Recovery Authority

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

Fr
Sent: Tuesday, 4 October 2011 1:39 p.m.
To:
Cc:
Subject: RE: Cathedral Make safe.

Hi

Gents I am following up on the status of the TMP and when the containers will be placed around the Cathedral. I had a call from at CCC who advised that they have had no contact from you yet.

Before the containers are placed there will be a requirement to place signage giving advanced warning (1 week) that this is going to happen.

Could you please give us an update

Regards

Structural Engineer – Significant Buildings Unit
Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140
T:
M:
E:
W: www.cera.govt.nz

From:
Sent: Thursday, September 29, 2011 12:25 PM
To:
Cc:

Subject: RE: Cathedral Make safe.

Further to your email on Monday 26 September we agree that placing the containers on the roadway and limiting the traffic to one way around the Cathedral is the only option. A larger traffic management plan will need to be considered for vehicle movement around the square and traffic management signage will be required clearing advising this before construction vehicles, especially trucks, enter the square.

Could you please continue with urgency with the placement of the containers as outlined in the Holmes report and submit a traffic management plan for consideration. The traffic management plan must consider the current road closures around the red zone, signage, and outline access paths through and around the square. Could you please coordinate the TMP with or of CCC traffic

If you have any queries please contact me.

Regards

Significant Buildings Unit
Structural Engineer
M

on behalf of CERA

From:
Sent: Tuesday, September 27, 2011 2:48 PM
To
Cc
Subject: Cathedral Make safe.

Hi

Further to my email, yesterday regarding the containers and their positioning around the cathedral, could you reply to

Kind Regards

Project Manager

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

Please consider the environment before printing this emai

This email contains information from RCP and may be confidential or privileged. If you are not the intended recipient or this email has been sent to you in error, be aware that any disclosure, copying, distribution, or use of the contents of this information is prohibited. If you have received this email in error, please notify us by telephone immediately.

Please consider the environment before printing this email and its attachments.
Avoid printing, or print double-sided if you can.

2.1

From:
Sent: Monday, 31 October 2011 1:15 p.m.
To:
Subject: FW: Cathedral Make safe.
Attachments: 2011-10-13 17.23.30.jpg; 2011-10-13 17.24.58.jpg

---

From:
Sent: Friday, October 14, 2011 8:01 AM
To:
Cc:
Subject: RE: Cathedral Make safe.

Hi All,

Please see attached photo's of the completed container protection works to the rear of the Cathedral, for your information.

Regards

Senior Project Manager
M
DDI

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

Please consider the environment before printing this email.

From:
Sent: Tuesday, 4 October 2011 5:21 p.m.
To:
Cc:
Subject: RE: Cathedral Make safe.

Thanks

If the containers are going in next Monday Pre warning for vehicle movement around the square should be happening now – any further comments on this.

Regards

Structural Engineer – Significant Buildings Unit

Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140
T:
M:
E:
W: www.cera.govt.nz

From:
Sent: Tuesday, October 04, 2011 5:11 PM
To:
Cc:
Subject: RE: Cathedral Make safe.

Hi

I have spoken to all parties involved and we will be ready to start installing the Cathedral barriers, on Monday 10th October. I'm expecting it to take approximately three days to install the containers, including filling the water bladders. C Lund and Son will be undertaking the installation work and are going to be submitting a safety plan and methodology for review / authorisation, later this week.

Any queries, please give me a call.

Kind Regards

Project Manager
M

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

From:
Sent: Tuesday, 4 October 2011 4:14 p.m.
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Hi

Thank you for your emails.

Please note that in a meeting with Warwick last week on the Cathedral (item 4.3 in the minutes attached), along with CCC, MCH and HPT it was agreed that we would all work collaboratively and all media enquires relating to

the Cathedral are to be forwarded through to the Cathedral Project Media and communications manage
– wording and contact details below:

- **Thank you for your call. We have an agreed central point for media calls for Christchurch Cathedral. Please contact . Her email is . If you need to call her after hours her home number is .**

With regards to the traffic management plan. We have discussed this with and are aware that there are going to be a number of significant building demolitions going on in the square vicinity during the next few months so would propose that instead of the Cathedral project just producing a traffic management plan in isolation, a bigger picture view is taken to take into account the other significant building demolitions in the area. We are happy to contribute to such a meeting or plan as necessary, but hope that CERA or the Significant buildings team can facilitate this.

In terms of the date that the barrier containers are going to be erected around the Cathedral – we are awaiting confirmation of the exact date later this evening and will advise all those copied into this email tomorrow morning, along with submitting the methodology and programme for undertaking these works for CERA approval later this week.

We trust that the above is acceptable to CERA, but should you wish to discuss further, do not hesitate to contact me.

Regards

Senior Project Manager
M
DD

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

From:
Sent: Tuesday, 4 October 2011 3:43 p.m.
To:
Cc:
Subject: RE: Cathedral Make safe.

Hi all

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Regards,

CBD Red Zone Cordon & Access Manager
Canterbury Earthquake Recovery Authority

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W: www.cera.govt.nz

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Regards

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Canterbury Earthquake Recovery Authority (CERA)

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Regards

Significant Buildings Unit
Structural Engineer
M

on behalf of CERA

From:
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Kind Regards

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

RCP

ChristChurch Cathedral
PO Box 855 Christchurch New Zealand | Tel +64 3 3660046 | Fax +64 3 3668452
admin@christchurchcathedral.co.nz | www.christchurchcathedral.co.nz

ANGLICAN DIOCESE OF CHRISTCHURCH EARTHQUAKE RECOVERY PROJECT			
Minutes of:	**ChristChurch Cathedral Collaborative Working Group**	**Date:**	11 October 2011
Meeting held at:		**Time:**	1:00pm
Attendees		*File Ref:*	

Name	Company	Name	Company
	Anglican Diocese COO		Holmes
	RCP		CCC
	WAM		CCC Heritage Eng
			CCC Heritage Cnslt
			HPT
Apologies:			
	CCC		HPT Heritage Eng
	CPT –		CCC
	Davis Langdon		

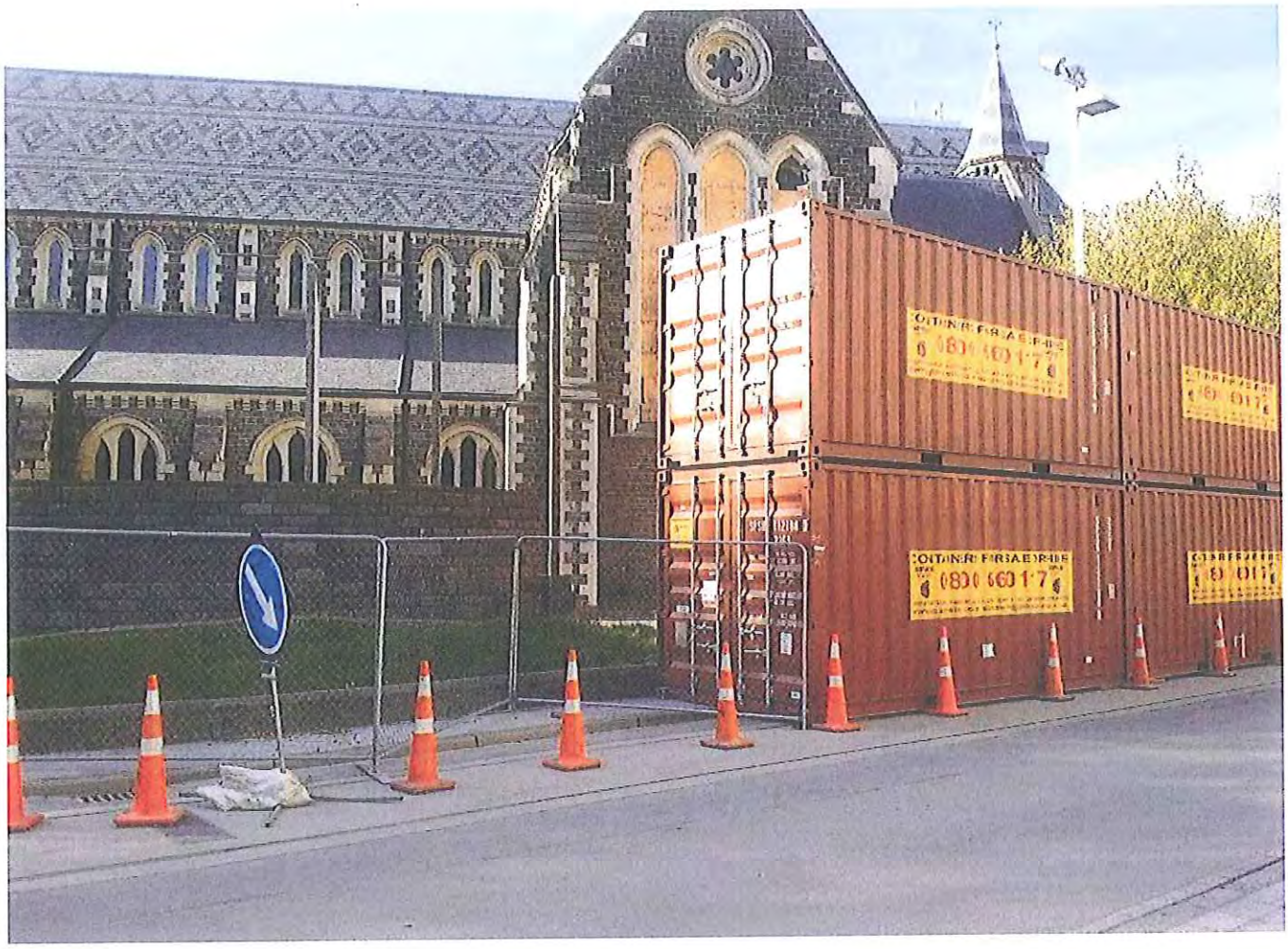
Post Meeting Note = ***PMN***

	Item	Action	Date
1.0	**PREVIOUS MEETING MINUTES**		
1.1.	noted that there had been no requests to change any of the previous minutes. All present accepted the minutes of the previous meeting as an accurate record.	Note	
2.0	**STRUCTURAL BRIEFING**		
2.1	noted that a meeting with CCC and Holmes had been held yesterday to divide up the Structural assessment work. advised that CCC are in the process of engaging Miyamoto Cardno engineers to prepare a high-level alternative scheme towards Option 7. reported that CCC are still reviewing whether there is any value to what Miyamoto can bring to the group given the limited timeframe. It may come back to a peer review role, similar to at HPT rather than an alternative scheme. to advise once CCC have clarified.	Note	
2.2	noted that CERA engineers should be briefed. to do this in the next few days. ***PMN:***		
2.3	suggested that instead of holding a CWG another meeting of the Cathedral Heritage Interested Parties forum could be held to update all involved on the progress and options analysis. To be reviewed following next meeting.		
2.4	noted that there are a number of irreplaceable items inside the Cathedral that will require some controlled demolition/deconstruction or repair works to retrieve in a safe manner. to ask the Cathedral Chapter to prioritise the list of these so that they can be taken into account.		

	Item	Action	Date
2.5	noted a 3D scan of the building will take place next week.	Note	
3.0	**HERITAGE**		
3.1	noted that there is no pure Heritage solution in the context of the current situation.	Note	
3.2	noted that the caucusing session was held with the heritage consultants and architect this morning and went well, with a large amount of progress being made. A similar follow on session will be held next Tuesday morning. to arrange in absence.	Note	
3.3	drew a sketch diagram of a section through the Cathedral (see attached) and discussed the repair and propping options for each.	Note	
3.4	confirmed that the consultant's agree that the building can't be preserved in a safe manner entirely as it currently is. to provide a marked up set of drawings which establishes the structural position of making safe each of the Cathedral element and circulate to this group so that these can be considered. confirmed that some parts of the building are repairable, while others may have to be replicated if a facsimile rebuild is the future scenario that is chosen.		
3.5	noted that they are currently preparing a draft heritage impact assessment, which will consider each of the make-safe options and there heritage impact. to circulate a draft to this group for consideration on Friday.		14.10.11
4.0	**OPTIONS TO REVIEW**		
4.1	noted that the options summary could be reduced for clarity purposes. To be reviewed further following review of information.		
4.2	noted that there is an order of decisions that lead to each of various outcomes. to document a decision tree – which reflects the options/paths available.		
5.0	**PROGRAMME**		
5.1	needs final options for cost estimating by Friday 21st October in order to produce cost estimates for reporting to the Cathedral Project team meeting on 27 October.	Note	
5.2	noted the following milestones based on the above: ▪ Tues 18 Oct - Drafts of all reports to be tabled at the meeting ▪ Frid 21 Oct - Finalised documents circulated to all – to cost ▪ Wed 26 Oct – to issue cost estimates on each option ▪ Thur 27 Oct – Options presented to Cathedral DCG for consideration, review and approval of preferred.	ALL	
6.0	**FINANCIALS**		
6.1	noted that the insurance indemnity valuation work for the Cathedral is still progressing, as is a structural peer review by the Insurers structural engineer.	Note	
7.0	**ANY OTHER BUSINESS**		
7.1	No other business was raised.	Note	

Note: Unless advised specifically these minutes represent a true and accurate record of the above meeting.

Next Meeting of this forum: Tuesday 18 October 1:00pm at
Minuted by: RCP



From:

Sent: Thursday 6 October 2011 10:44 a.m.

To:

Cc:

Subject: RE: Cathedral Make safe.

Hi
We need to discuss then and sort out what you want from us. For discussion:

- We have a heap of TMPs for the Red Zone submitted in our Traffic Management processing mailbox. If a plan is submitted it needs to be compliant or we can't sign it off. At this stage Red Zone plans are likely to be returned as "declined" due to them being outside of timeframes and non-compliant with the Code of Temporary Traffic Management.
- Our understanding has always been that the jobs being undertaken in the red zone didn't need a TMP as they are within a "work zone" being managed by and the team and are covered by the CERA Act. We have been receiving some TMPs for haulage routes starting/finishing at the red zone boundary - all of which have been compliant and approved through the process.
- We haven't been advised that we would receive plans as a courtesy and that you want any guidance so what we have received has been declined if it isn't compliant. We don't follow up after that and we are not auditing the red zone so are unlikely to find out whether the job went ahead without a compliant TMP.

Will catch u later to get something sorted
Cheers

From:
Sent: Thursday, 6 October 2011 9:27 am
To:
Cc:
Subject: RE: Cathedral Make safe.

Hi

A bit of mis-communication here I think.
The plan wasn't submitted for approval just for courtesy and seeking some guidance.

Lets chat this afternoon?

Cheers

From:
Sent: Thursday, 6 October 2011 9:09 a.m.
To:
Cc:
Subject: RE: Cathedral Make safe.
Importance: High

Hi
Spoke with the Traffic Management provider last night to find out why he has sent what he did (as it is miles away from what would be required) and have got to follow up with the project people today. In terms of a TMP is has been declined from our section.

I can discuss with you this morning (and to decide on what signs you need if I know where the traffic is supposed to be going, as nothing about traffic flows is shown on the TMP provided. Won't take long, sometime around the lunchtime meetings will be good?
Will discuss the fencing offline at the same time.
Cheers

From:
Sent: Wednesday, 5 October 2011 5:14 pm
To:
Subject: RE: Cathedral Make safe.

Hi

Did the last email help?

Cheers

From:
Sent: Wednesday, 5 October 2011 5:06 p.m.
To:
Subject: RE: Cathedral Make safe.

Hi
Don't have all the info but have found the Holmes Report that shows containers close to the footpath with enough space for two way traffic. Is there something more up to date than that? Is tomorrow too late to discuss?
Regards,

From:
Sent: Wednesday, 5 October 2011 8:26 am
To: undisclosed-recipients
Cc:
Subject: RE: Cathedral Make safe.

Hi

Can you give us some guidance here please?
We are putting up containers around the Cathedral, and this may effect traffic and want to inform the CBD Red Zone users asap.

Regards

From:
Sent: Wednesday, 5 October 2011 8:13 a.m.
To:
Cc:
Subject: RE: Cathedral Make safe.

Hi

I'm happy to put signs up. Can you tell me what signs you want and where you want them please?

Kind Regards

Project Manager
M

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

From:
Sent: Tuesday, 4 October 2011 5:39 p.m.
To:
Cc:
Subject: RE: Cathedral Make safe.

As much notice as possible please.
We have 1800+ traffic movements through the gates each day and most of these go past the Cathedral. We have to ensure that they get adequate notice of any changes so they can plan new routes etc.

From:
Sent: Tuesday, 4 October 2011 5:21 p.m.
To:
Cc:
Subject: RE: Cathedral Make safe.

Thanks

If the containers are going in next Monday Pre warning for vehicle movement around the square should be happening now -- any further comments on this.

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Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140
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M:
E:
W: www.cera.govt.nz

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Any queries, please give me a call.

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Project Manager
M

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Senior Project Manager
M
DD.

RCP

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Canterbury Earthquake Recovery Authority

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Structural Engineer
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on behalf of CERA

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N

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From:

Sent: Thursday, 6 October 2011 8:50 a.m.
To:
Cc:

Subject: RE: Cathedral Square Traffic Management Plan

I cannot approve this TMP as it isn't consistent with the Code of Practice for Temporary Traffic Management (CoPTTM).

Note I know that the traffic management provider that has drawn this plan would never attempt to send us a plan like this as it would never be signed off due to the amount items that are incorrect. I don't understand what is trying to be achieved by this plan. I presume that because it was sent to our team that you require compliance from a traffic management prospective.

Can someone please give me a call to discuss.

Traffic Management Coordinator
Telephone: DDI
Cell Ph:
E-Mail:

-----Original Message-----
From:
Sent: Wednesday, 5 October 2011 4:11 pm
To:
Cc:

Subject: FW: Cathedral Square Traffic Management Plan

Dear

Attached is a traffic management plan for the Cathedral, whilst the container fall protection is in place, could you please review and let me know if this is acceptable. We can install the lane signage tomorrow and leave the cones until the containers arrive. Alternatively we can install all the signage and cones on Monday 10th when the containers are due to start being installed. Please let me know which you prefer.

Unfortunately getting signs printed up explaining about the lane closures will not be achievable before the containers are to be installed. I trust this is acceptable.

Any queries, please do not hesitate to contact me.

Regards

Project Manager
M

is prohibited. If you have received this email in error, please notify us by telephone immediately.

-----Original Message-----
From:
Sent: Wednesday, 5 October 2011 3:58 p.m.
To:
Subject: Cathederal Square Traffic Management Plan

Hi

Plan attached as discussed on site today.

Regards

Whites Traffic Management
P O Box 36 747
CHRISTCHURCH 8014

****
This electronic email and any files transmitted with it are intended solely for the use of the individual or entity to whom they are addressed.

The views expressed in this message are those of the individual sender and may not necessarily reflect the views of the Christchurch City Council.

If you are not the correct recipient of this email please advise the sender and delete.

Christchurch City Council
http://www.ccc.govt.nz
****

2.1

From:
Sent: Monday, 31 October 2011 1:13 p.m.
To:
Subject: FW: Cathedral Square Traffic Management Plan

Attachments: TR556 RCP.pdf; TR556 Cathederal RCP.pdf; ATT00001.txt


TR556 RCP.pdf (79 KB)


TR556 Cathederal RCP.pdf (133...


ATT00001.txt (72 B)

-----Original Message-----
From:
Sent: Wednesday, October 05, 2011 4:11 PM
To:
Cc:

Subject: FW: Cathedral Square Traffic Management Plan

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M

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P O Box 36 747
CHRISTCHURCH 8014

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TRAFFIC MANAGEMENT PLAN

TR Code 1731

Traffic Management Plan Reference	for office use only			
Organisation	Contractor: Whites Traffic Management	Client: Rescource Cordination Partnership Ltd (RCP)		
Location	Road Name(s): Worcester Street and Colombo Street Cathederal Square	Road Level (1,2,3): L1P	Speed Limit: 50	From RP / From RP
Description of Activity	Seven containers being placed opposite Warners in front of the Cathederal and six containers being placed on the opposite side of the building on the ANZ side as shown in the plan. The containers are being placed in position to protect workers and surrounding buildings. A shoulder closed set up with single lane signage at each end will be used to alert drivers. The outside, roadside of the containers will be conned out as per the plan.			
Work Programme	10/10/2011 containers being placed in position for up to 30 March 2012 permanently in position			
Proposed /Restricted Work Hours	Containers permanently in position for 10/10 to 30/03			
Traffic details (Main route)	AADT	Peak Hourly Flow		
Proposed Traffic Management Method	Active / Previous	Cones and signs in place. site set by level 2 STMS STMS to audit site twice daily		
	Unattended	stms to audit site twice daily		
	Night	site close at night time but signs and cones to stay in place.		

Proposed Speed Restrictions	nil	
Positive Traffic Management Measures	Refer attached TMP' 556 signs and cones to alert drivers as to one lane traffic	
Contingency Plans	close down site if required. f an accident occurs on site, the contractor is to follow both their own health & safety plan policy, & the health & safety plan of Whites Traffic section for working on the roads.	
Public Notification	nil	
Personal Safety	regular tool box briefs, day glo reflector safety vests on all personel. first aid kit, & fire extinguisher in vehicleon site	
On -Site Monitoring	Attended	continual by STMS 2 x daily audits
	Unattended	signs and cones to remain in place daily site audits by STMS
	Overnight	Site Closed
	Other times	Audits by STMS
Other Information	The containers will be placed on the footpath as far accross as possible. Both footpaths will be closed off.	

Layout Diagrams	Refer attached TMP's 1,2,& 3 generic		
EED Applicable	no	Attached	no
Traffic Controllers	Name (STMS) cert no	L1,2 & 3 practicing	Phone (24 hours) Mobile: Office: Fax:
	Name TC cert no		Phone (24 hours)
TMP prepared accurately to represent site conditions and submitted by	Contractor / Applicant cert no	L1,2 & 3 practicing	Date 1/8/08
Requires Amendment	Engineer cert no		Date

This TMP is approved on the Following Basis

1 To the best of the approving Engineer's judgment thisTMP conforms to the requirements of transit New Zealand's Code of Practice for Tempory Traffic Managment.

2 This plan is approved on the basis that the ***activity ,the location and the road environment have been correctly represented by the applicant.*** Any inaccuracy in the portrayal of this information is the reponsibility of the applicant. The STMS for the activity is reminded that it is the STMS's duty to "Postpone,cancel or modify operations due to adverse traffic,weather or other conditions that affect the safety of this site" (reference A4.5).

Approving Engineer

(Name and certificate Number)

Signature

Acceptance by TMC	TMC Cert No Signature	Date

Whites Traffic Management

Traffic management plan **TMP 556**

Client -RCP
Cathederal in Cathedral Square
Date 10/10/2010 for 25 weeks
0700 to 1900
Containers for Cathederal

Two lane - Two way road

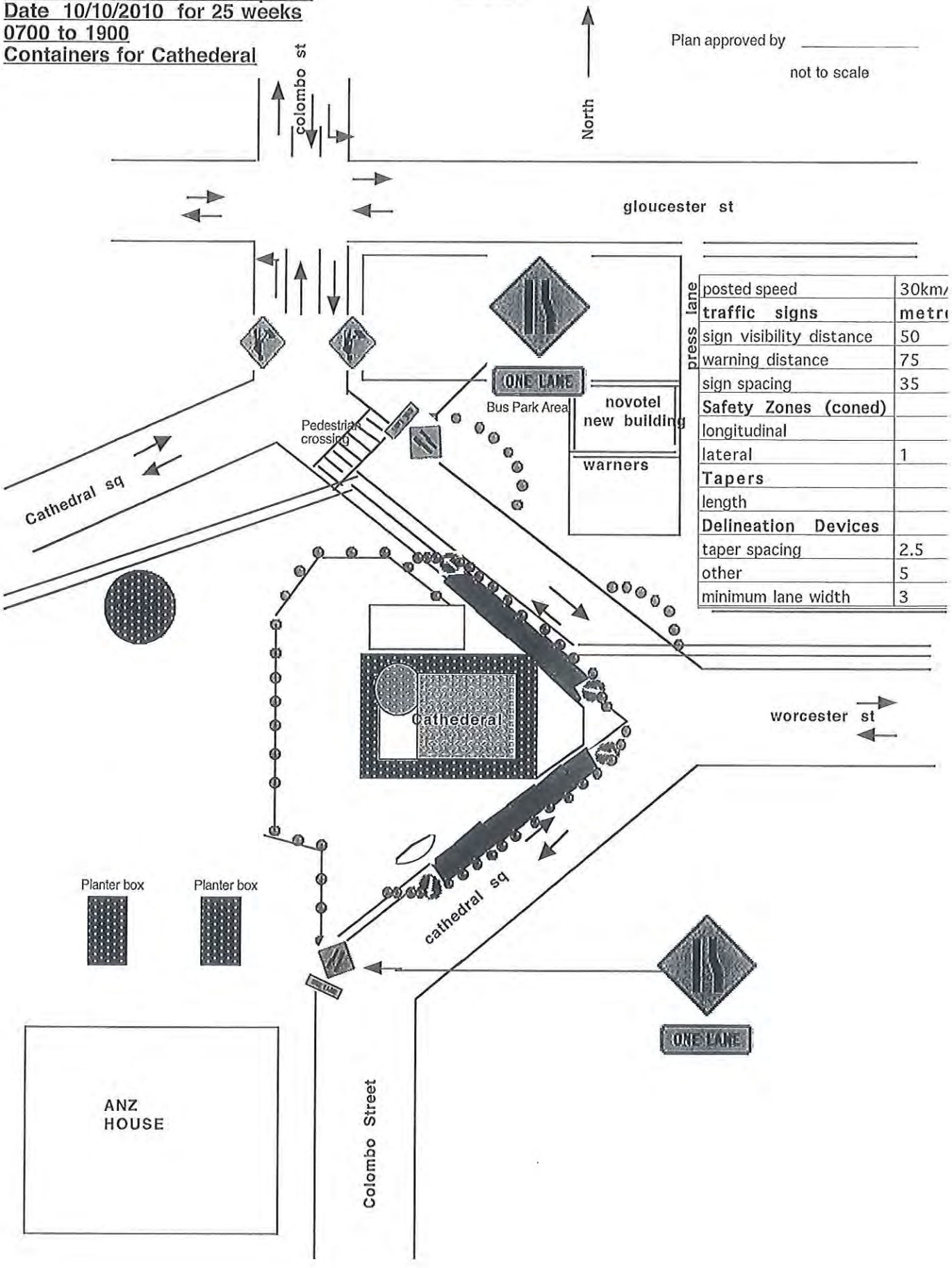
inner city

Prepared by

STMS L1,2 & 3 practising
027 432 0420

Plan approved by _____

not to scale



posted speed	30km/
traffic signs	**metr**
sign visibility distance	50
warning distance	75
sign spacing	35
Safety Zones (coned)	
longitudinal	
lateral	1
Tapers	
length	
Delineation Devices	
taper spacing	2.5
other	5
minimum lane width	3

2-1

From:
Sent: Monday, 31 October 2011 1:39 p.m.
To:
Subject: FW: Cathedral Make safe.

From:
Sent: Tuesday, October 04, 2011 4:17 PM
To:
Cc:
Subject: RE: Cathedral Make safe.

This comms plan should probably be done over a meeting, with stakeholders present, proper notes etc.
I have a feeling this comms plan will get tested so should be quite robust.....

From:
Sent: Tuesday, 4 October 2011 4:11 p.m.
To:
Cc:
Subject: RE: Cathedral Make safe.

Hi there,

For clarity - the Cathedral demolition/deconstruction is not CERA initiated, but we are providing support for a traffic management plan, or is CCC. What is CERA's actual role? (Please describe and include the relationship to any stakeholders incl CCC and building owner)

If it is not entirely CERA then may be best to have a bottom drawer response which I can work on for them.

Communications Adviser
Canterbury Earthquake Recovery Authority (CERA)
Private Bag 4999, Christchurch 8140

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

From
Sent: Tuesday, 4 October 2011 3:35 p.m.
To:
Subject: FW: Cathedral Make safe.

this may need some comms?
even though it is in the zone, it is still high profile. as soon as we put containers around it, people will be alerted.....

From:
Sent: Tuesday, 4 October 2011 1:39 p.m.
To:
Cc:
Subject: RE: Cathedral Make safe.

Hi

Gents I am following up on the status of the TMP and when the containers will be placed around the Cathedral. I had a call from at CCC who advised that they have had no contact from you yet.

Before the containers are placed there will be a requirement to place signage giving advanced warning (1 week) that this is going to happen.

Could you please give us an update

Regards

Structural Engineer – Significant Buildings Unit
Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140
T:
M:
E:
W: www.cera.govt.nz

From:
Sent: Thursday, September 29, 2011 12:25 PM
To:
Cc:
Subject: RE: Cathedral Make safe.

Further to your email on Monday 26 September we agree that placing the containers on the roadway and limiting the traffic to one way around the Cathedral is the only option. A larger traffic management plan will need to be considered for vehicle movement around the square and traffic management signage will be

required clearing advising this before construction vehicles, especially trucks, enter the square.

Could you please continue with urgency with the placement of the containers as outlined in the Holmes report and submit a traffic management plan for consideration. The traffic management plan must consider the current road closures around the red zone, signage, and outline access paths through and around the square. Could you please coordinate the TMP with . or of CCC traffic

If you have any queries please contact me.

Regards

Significant Buildings Unit
Structural Engineer
M

on behalf of CERA

From:
Sent: Tuesday, September 27, 2011 2:48 PM
To:
Cc:
Subject: Cathedral Make safe.

Hi

Further to my email, yesterday regarding the containers and their positioning around the cathedral, could you reply to

Kind Regards

Project Manager

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

From:
Sent: Friday, 7 October 2011 12:28 p.m.
To:
Subject: FW: ChristChurch Cathedral Project - Heritage Interest Meeting Minutes 29-09-11

FYI.
Warwick

From:
Sent: Tuesday, 4 October 2011 3:17 p.m
To:

Cc:
Subject: Re: ChristChurch Cathedral Project - Heritage Interest Meeting Minutes 29-09-11

Good afternoon
Thank you for copying us into this.
I will be completing the final draft of the Communications Plan this week for RCP review.

has asked me to provide you with wording to be used to refer media calls to me:

Thank you for your call. We have an agreed central point for media calls for Christchurch Cathedral. Please contact ler email is If you need to call her after hours her home number is

Kia kaha

On 3/10/11 10:50 PM, wrote:

Hi All,

Please find attached the minutes of the ChristChurch Cathedral Heritage Interest meeting held at 3pm on Thursday 29 September at

As agreed at the meeting please notify your media team that all enquiries regarding the Cathedral are to be directed to contact details in item 4.3), who will draft the appropriate response.

Also attached is the draft Collaboration framework prepared by the CCC Heritage team, for your information. This will be reviewed in detail at the collaborative working group meeting at 1pm tomorrow.

Regards

Senior Project Manager
M
DD

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

Please consider the environment before printing this email.

From:
Sent: Tuesday, 27 September 2011 5:00 p.m.
To:
Cc:
Subject: Cathedral Make Safe activities

Hi

has come to me asking about some activities around the Cathedral. The basic request is for a one way system around the cathedral in order to place containers to stop debris spread. This likely to effect the 'demolition highway' and needs to be deconflicted.

Can you pop in to L4 HSBC sometime soon to discuss?

Regards,

CBD Red Zone Cordon & Access Manager
Canterbury Earthquake Recovery Authority
Ph
Mob

198 #2.1

From:
Sent: Monday, 26 September 2011 4:18 p.m.
To:
Subject: FW: Christchurch Cathedral
Attachments: 2011-09-26 12.34.02.jpg; 2011-09-26 12.41.32.jpg; 2011-09-26 12.50.24.jpg

Dear

Further to the below email, I have been out to the Cathedral to investigate how we are going to install the containers. I have also consulted with our client. It has become clear that we are not going to be able to install the containers, without going onto the road. The attached photos, clearly show a wall around the building, lamp posts, gates and a memorial. As you're aware this is a heritage building and removing such items, just to place containers, is not an option. May I suggest a one way system or even traffic lights, to limit the flow of traffic to one lane.

Kind Regards

Project Manager
M

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

From:
Sent: Monday. 26 September 2011 10:33 a.m.
To:
Cc:
Subject: Christchurch Cathedral

Thanks for calling today regarding the proposed programme for the make safe works at the cathedral. This work is urgent due to the ongoing risk to traffic on the roads around the Cathedral.

The CER ' ıgineer reviewing work associated with the Cathedral is Please contact in the first instance for any advice in the future.

The CERA Significant Buildings Unit Case Manager is Please send all emailed documentation to

I understand that the make safe works will begin soon.
Please advise a fixed programme for the works to CERA for review.
A fully developed make safe works plan will need to be submitted to CERA for review prior to implementation.

The make safe works plan will need to include a site specific safety plan.

Note that due to the high volume of traffic expected on the roads around the Cathedral, the proposed Shipping container barriers must not be located on a roadway.
If possible, the west side of the cathedral facing the square, should be left open to view hence barriers on this side should be restricted to low solid traffic barriers and wire mesh fencing located at an appropriate distance from the Cathedral.

Regards,

Significant Buildings Unit
Senior Structural Engineer
M

on behalf of CERA
Email:

Cathedral staff
parking only

SB #178 2 of 3

HolmesConsultingGroup

CONSULTANT ADVICE

Project Name:	Christchurch Cathedral Reconstruction	CA HCG:	011
Project No:	106324	☐ Action:	
From:		☑ Information	
Date:	23 August 2011	Pages:	1 of 4
Subject:	Fall Zone & Make Safe Works		

To	cc	
☑	☐	Beca
☑	☐	Beca
☐	☑	Holmes Consulting Group

Confirmation / Response to PC No.: N/A

As requested we have completed an assessment of the probable fall zone for the Cathedral. We have also detailed a concept make safe plan that could be used when adjacent areas of Cathedral Square and Colombo St are re-opened to the public.

The fall zone plan was determined using a procedure developed by NZ Urban Search & Rescue. Please refer to SSK# 015 for the probable extent of the fall zone. As is illustrated on SSK# 015 the fall zone extends beyond the extent of the existing perimeter fence in the west, south east and north east directions.

A concept make safe plan using shipping containers and other proprietary container hardware is shown on SSK# 016. The intention is that the lower container will contain an industrial bladder which will be filled with water once the container has been lowered into position. Such bladders are commonly used by wine industry to transport wine in bulk.

Standard shipping twist-lok connections will be used to fix the top container securely to the lower container. None of containers or other proprietary container hardware used will be altered or damaged (unless they sustain impact damage from the Cathedral) and it is envisaged that they would be re-sold once they are no longer required thereby minimizing the cost of the make safe works.

STRUCTURAL AND CIVIL ENGINEERS

Christchurch

Telephone

64 3 366 3366

Facsimile

64 3 379 2169

Internet

www.holmesgroup.com

Level 5

123 Victoria Street

PO Box 25355

Christchurch 8144

New Zealand

Offices in

Auckland

Hamilton

Wellington

Queenstown

San Francisco

Regards,

Google

HolmesConstructionGroup

Title: MAKE SAFE PLAN

Job Name: CHCH CATHEDRAL

Job #: 106324 SSK#: 016

Date: 23/8/11 Rev: 1

From:
Sent: Thursday, 15 September 2011 1:46 p.m.
To:
Cc:
Subject: Christchurch Cathedral - Make Safe Works
Attachments: Christchurch Cathedral - Holmes Report - Fall Zone & Make Safe Works.pdf

I understand that you are the project manager for the Christchurch Cathedral building work.
A fall zone and make safe works report was prepared by Holmes Consulting Group (copy attached).
The report indicated that a considerable area of public space is within the fall zone of the Cathedral.

CERA is concerned that this unfenced fall zone places contractors working around the Cathedral Square at risk.

Because of the demolition traffic in the adjacent roads, it is not feasible to fence off the fall zone.
Holmes have produced a concept make safe plan which, in principle, is acceptable to CERA.

Please proceed with the make safe works without delay.
The fully developed make safe works plan will need to be submitted to CERA for review prior to implementation.

The contact person at CERA for enquiries about this work is can be contacted at the above email.

Regards,

Significant Buildings Unit
Senior Structural Engineer
M

on behalf of **CERA**
Email:

From:
Sent: Wednesday, 14 September 2011 9:38 a.m.
To:
Cc:
Subject: RE: Chirstchurch Cathedral Structural Report - 1 of 4

Point of contact for Cathedral work should now be at RCP.
Email address is

should be able to provide information as to where things are heading with the Cathedral.

Regards

Significant Buildings Unit
Team Leader / Senior Project Manager
M

on behalf of **CERA**

From:
Sent: Wednesday. 14 September 2011 9:02 a.m.
To:
Cc:
Subject: FW: Chirstchurch Cathedral Structural Report - 1 of 4

SB#198
2.3

Gents FYI

Kind regards

Significant Buildings Unit Case Manager - **CERA**

Private Bag 4999
Christchurch 8140
M:
E:

From:
Sent: Wednesday. 14 September 2011 8:14 a.m.
To:

Cc:
Subject: RE: Chirstchurch Cathedral Structural Report - 1 of 4

Hi

In addition to our damage report the following Consultants Advice related to a concept make safe works for the Cathedral may also be of interest to CERA.

This make safe work is still under consideration by the Project Team.

Regards,

Holmes Consulting Group
Unit 5 | 295 Blenheim Rd | PO Box 6718 | Christchurch 8442 | New Zealand
Phone: +643 Fax: +643 | Mobile: Email:

From:
Sent: Monday, 12 September 2011 9:05 a.m.
To:
Subject: RE: Chirstchurch Cathedral Structural Report - 1 of 4

good morning.
Many thanks for that.
Yes could you please forward copies to me for CERA files. I would get them from

Kind regards

Significant Buildings Unit Case Manager - **CERA**

Private Bag 4999
Christchurch 8140
M:
E:

From:
Sent: Monday, 12 September 2011 8:54 a.m.
To:
Cc:
Subject: FW: Chirstchurch Cathedral Structural Report - 1 of 4

Hi
Further to a conversation you had with on Friday this is an email to let you know that we provided CERA with a copies of our Christchurch Cathedral damage report on the 10th of August (refer email to below). I am happy to re-send the report you cannot locate the earlier copy.

Regards,

Holmes Consulting Group
Unit 5 | 295 Blenheim Rd | PO Box 6718 | Christchurch 8442 | New Zealand
Phone: +643 Fax: +643 Mobile | Email:

From:
Sent: Wednesday, 10 August 2011 10:21 a.m.
To:
Cc:
Subject: RE: Chirstchurch Cathedral Structural Report - 1 of 4

As requested please refer attached for part 1 of the HCG Christchurch Cathedral Preliminary Damage Report.
Parts 3 thru 4 to follow.

Regards,

Holmes Consulting Group
Unit 5 | 295 Blenheim Rd | PO Box 6718 | Christchurch 8442 | New Zealand
Phone: +643 Fax: +643 | Mobile | Email:

From:
Sent: Tuesday, 9 August 2011 6:20 p.m.
To:
Cc:
Subject: Chirstchurch Cathedral Structural Report

198 2.3

Further to our discussions today and last month can you please provide a copy of the Structural engineering reports for the Cathedral.
If you could also provide a summary of the future of the building based on todays board meeting it would be appreciated.
As you can appreciate we need to be able to give a briefing to the CEO and Minister of CERA.

You mentioned that there will be some removal happening tomorrow through to Friday, if you could please summarise this so we can inform the CERA team it would be appreciated. If I could have this by 9am tomorrow it will allow the Media team to get briefed.

If you have any further questions please give me a call at any time.

Regards

Significant Buildings Unit
Team Leader / Senior Project Manager
M

on behalf of **CERA**

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memo

CERA
Canterbury Earthquake Recovery Authority

To: Warwick Isaacs – General Manager Demolition

From: Structural Engineer – Significant Buildings Unit

Reviewed: Structural Engineer – Significant Buildings Unit

Date: 28 October 2011

Subject: SB198 – Christchurch Anglican Cathedral

Warwick,

A Collaborative Working Group (CWG) was set up to help the Church Property Trust (CPT) find a way to make Christchurch Cathedral safe under CERA regulations and investigate the implications of the make safe options on the future scenarios for rebuilding. The development of specific rebuild concepts was excluded from this investigation. It was noted at the first CWG meeting on 29 September 2011 that the health and safety of the public was the priority of the Church Property Trust.

The CWG included the following:

- Church Property Trust
- CERA
- Christchurch City Council (Planning and Heritage)
- Historical Places Trust
- Holmes Consulting Group (Engineers for the Church Property Trust)
- Warren & Mahoney
- (Heritage Architect)
- RCP Project Managers
- Davis Langdon Quantity Surveyors

The CWG considered reports from Holmes Consulting Group and Miyamoto + Cardno (Engineers engaged by Christchurch City Council) detailing make safe options.

As highlighted in our memo dated 12th September 2011 the Christchurch Anglican Cathedral has been severely damaged and the extent of the damage was summarized in that memo. Since then, the city has experienced ongoing aftershocks, the largest being a 5.5 magnitude aftershock on 9 October 2011.

CERA Engineers have carried out further inspections, the most recent being on 26 October 2011. These inspections have revealed that there has been additional damage to the Cathedral since 12th September 2011, particularly to the west wall where there has been a further collapse of the wall around the rose window. In our

opinion the cracks in the stone walls are typically getting wider, longer and more numerous as a result of the continuing aftershocks in the city. This additional damage further compromises the structural integrity of the Cathedral.

CERA Engineers have reviewed and considered the options outlined in the reports by Holmes Consulting Group and Miyamoto + Cardno. It is the opinion of CERA engineers that the proposed make safe options, in their current form, do not reduce the risk of injury or death to tradesmen working in or around the building to an acceptable level. The preferred option will need to be further developed to ensure that safety issues are fully addressed.

CERA Engineers have considered full demolition versus partial demolition and in our opinion, the extent of stable structure left after demolition of those parts of the building that could collapse or otherwise cause injury or death to any person in or around the building would be minimal.

In our opinion the building has suffered extensive and significant damage, is in poor structural condition, and is sustaining more damage with the on-going seismic aftershocks. We still maintain that the Cathedral is dangerous as defined in the Building Act 2004 and as modified by the Canterbury Earthquake (Building Act) Order 2010.[1] Given the continuing degradation of the structure it is our opinion that it is possible that in the event of a significant aftershock or less than moderate earthquake, the building, or parts of the building, could collapse or otherwise cause injury or death to any person in or around the building.

As previously reported we believe that the building in its present condition would pose a high risk to tradesmen erecting and carrying out the proposed temporary strengthening works within, or around, the building. We therefore conclude that it would not be practicable to strengthen the building temporarily or otherwise in a safe manner without the risk of collapse of part or all of the building.

On the basis of this information and our considered opinion, we recommend that you determine that the Christchurch Anglican Cathedral be deemed a dangerous building for the purpose of issuing a letter to the building owner under Section 38 of the C.E.R. Act, and that the building be demolished. The demolition must include all parts of the building that could collapse or otherwise cause injury or death to any person in or around the building.

END

Reviewed by

Structural Engineer
CERA Significant Buildings Unit

Noted + Agreed

Warwick Isaacs – General Manager Demolition

Structural Engineer
CERA Significant Buildings Unit

Date: 28/10/11.
1.30pm.

From:

Sent: Wednesday, 26 October 2011 10:16 a.m.

To:

Cc:

Subject: Christchurch Cathedral - Additional Structural Reports

Attachments: 106324CA0329.013.pdf; 106324RS1107.001.pdf

As requested please find attached two additional structural reports related to the Christchurch Cathedral project that you may not have received:
- Client Briefing Document on Reconstruction Considerations (11/7/2011)
- CA# 013 Concept Interim make safe Works (20/10/2011)

Also further to our discussions this email confirms that Holmes Consulting Group has not recommended to the Client that the building be demolished.

Regards,

Holmes Consulting Group
PO Box 6718 I Christchurch
Phone: +643 | DDI: +643 Fax: +649 | Mobile:
Email:

HolmesConsultingGroup

CONSULTANT ADVICE

STRUCTURAL AND CIVIL ENGINEERS

Project Name:	Christchurch Cathedral Reconstruction	CA HCG:	013
Project No:	106324	☐ Action:	
From:		☑ Information	
Date:	20 October 2011	Pages:	1 of 3
Subject:	Concept Interim Make Safe Works		

To	cc	
☑	☐	RCP
☑	☐	RCP
☑	☐	CPT
☑	☐	CPT
☐	☑	Warren & Mahoney
☐	☑	Davis Langdon
☐	☑	Jackie Gillies & Ass
☐	☑	Holmes Consulting Group

Confirmation / Response to PC No.: N/A

As requested we have completed a preliminary assessment of the scope of make safe works that would be required to meet CERA requirements in terms of securing the site if the Christchurch Cathedral was to be left in an interim state for the medium term i.e. 1 – 5 years.

Two make concept safe options have been developed:

1. Maximum retention of heritage fabric
2. Minimum structural shoring option.

It is acknowledged that a range of interim make safe options exist between the two considered here.

Option 1 – Maximum Retention of Heritage Fabric

Please refer to SSK# 023 – 026 attached. Scope of proposed works includes:

(i) 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

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New Zealand

Offices in
Auckland
Hamilton
Wellington
Queenstown
San Francisco

structural collapse. These will be connected to existing structural steel bracing elements where they occur.

(ii) Central portion of the western wall is to be demolished/deconstructed to gain construction access to the interior of the building. Other damaged wall elements (i.e. north and south isle walls) will generally be retained except that secondary high level falling hazards will need to be secured/removed.

(iii) 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.

(iv) Damaged roof bracing elements will be reinstated. Temporary weatherproofing to replace the area of roof that was damaged by tower debris will also need to be provided.

(v) Tower to be made safe by providing a new braced shoring frame at the north elevation to replace the lost section of wall. A new concrete 'roof' slab will be provided at the top of the remaining section of tower to maintain structural integrity and provide additional protection against future weathering.

(vi) Installation of the internal make safe works will require the use of 'safe havens' as detailed previously in HCG Consultants Advice No. 9 in order to minimize health and safe risks to construction personnel.

Option 2 – Minimum Shoring Option

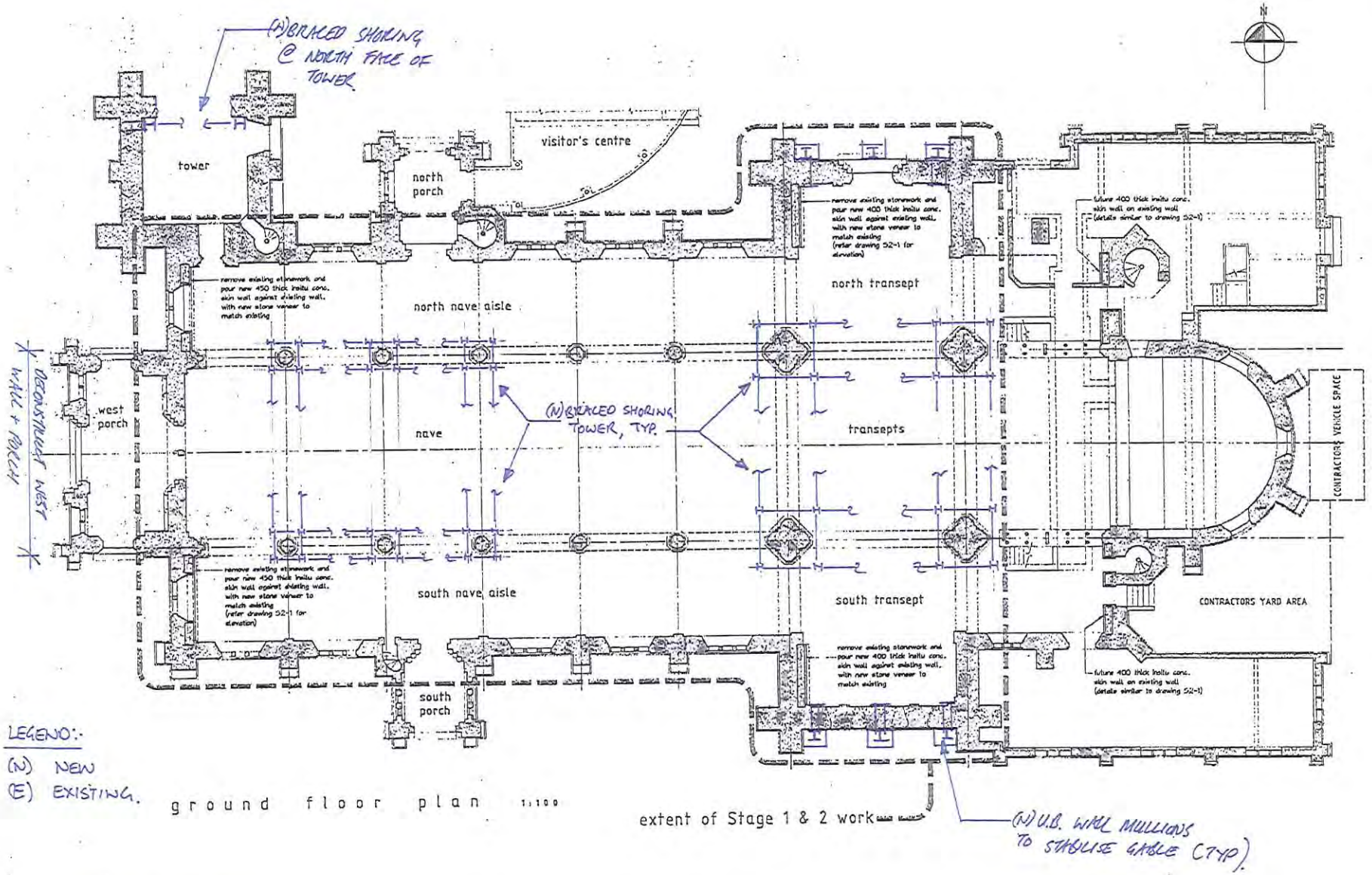
Please refer to SSK# 027 – 026 attached. Scope of proposed works includes controlled demolition/deconstruction of most of the Cathedral (including removal of most of the roof) down to windowsill level. An exception to this is the east end of the Cathedral which, based on observations made to date, is in relatively good condition and could be made safe with minimal shoring/remedial works.

Consideration will need to be given to weather proofing those areas of the building that are exposed as a result of the make safe work.

Please note that the make safe options detailed in this Consultants Advice are at concept design level and a more detailed assessment of the building and the proposed make safe works will be required as part of any future design phases that might include full or partial reconstruction.

Regards,

106324CA0329.013



Title: CERA MAKE SAFE - PLAN

Job Name: CHCH CATHEDRAL

Job #: 108324 SSK#: 023

Date: 19/10/11 Rev: 1

nesConsultingGroup
TURAL AND CIVIL ENGINEERS

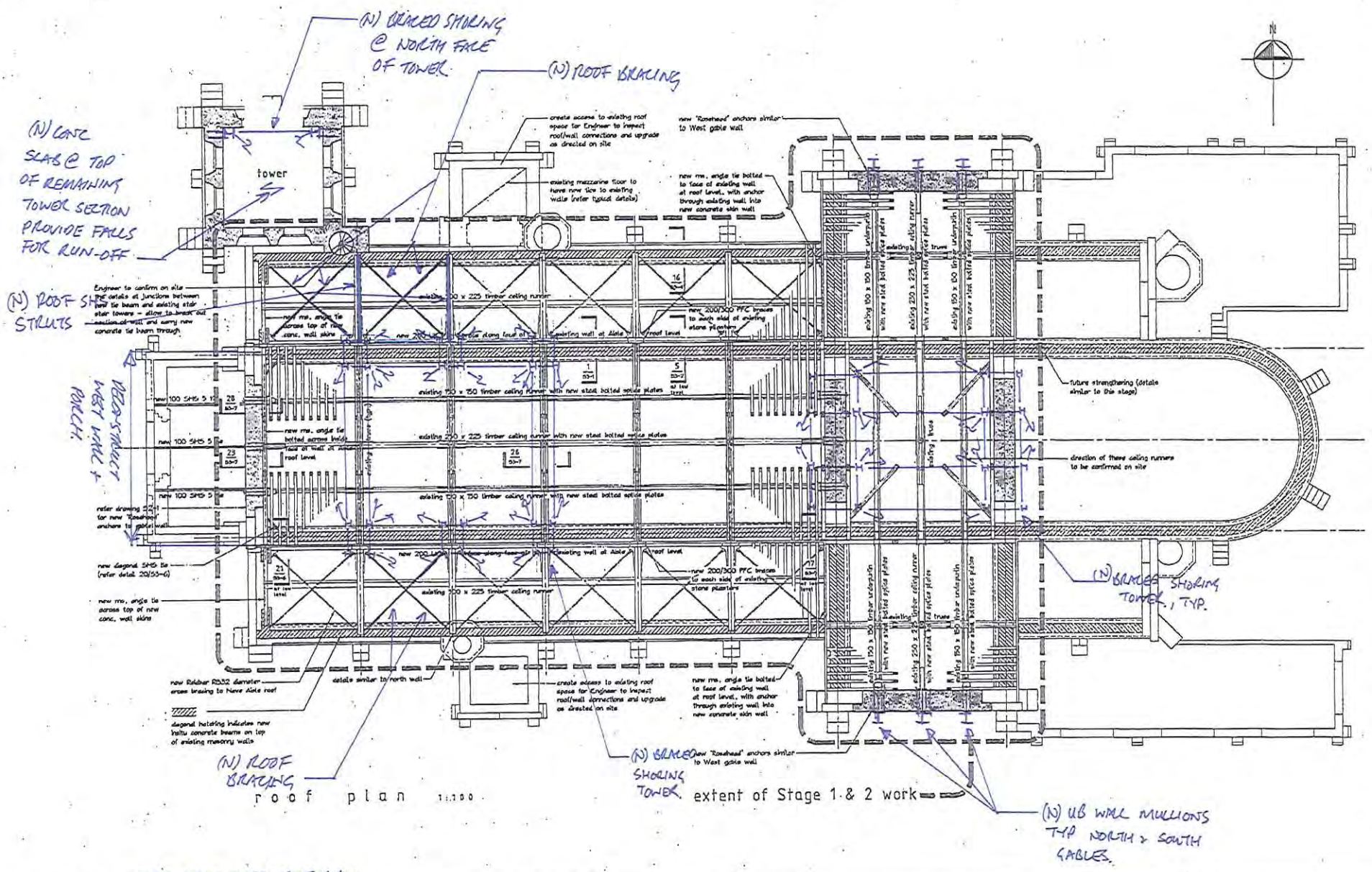
Rev	Date	By	Description
3	02/03/98	RIS	Tender
2	16/12/98	RIS	Building Consent
1	27/11/98	RIS	Preliminary

Drawn RIS Scale 1:100
Approved Issue Revision S1-1

CHRISTCHURCH CATHEDRAL STRENGTHENING

Drawing Title: ground floor plan

Job No	Sheet No	Rev
2948	S1-1	3



Title: CERA MAKE SAFE - ROOF PLAN

Job Name: CHCH CATHEDRAL

Job #: 106324 SSK#: 024

Date: 19/10/11 Rev: 1

sConsultingGroup
AL AND CIVIL ENGINEERS
Telephone : 366-3366
Facsimile : 379-2188

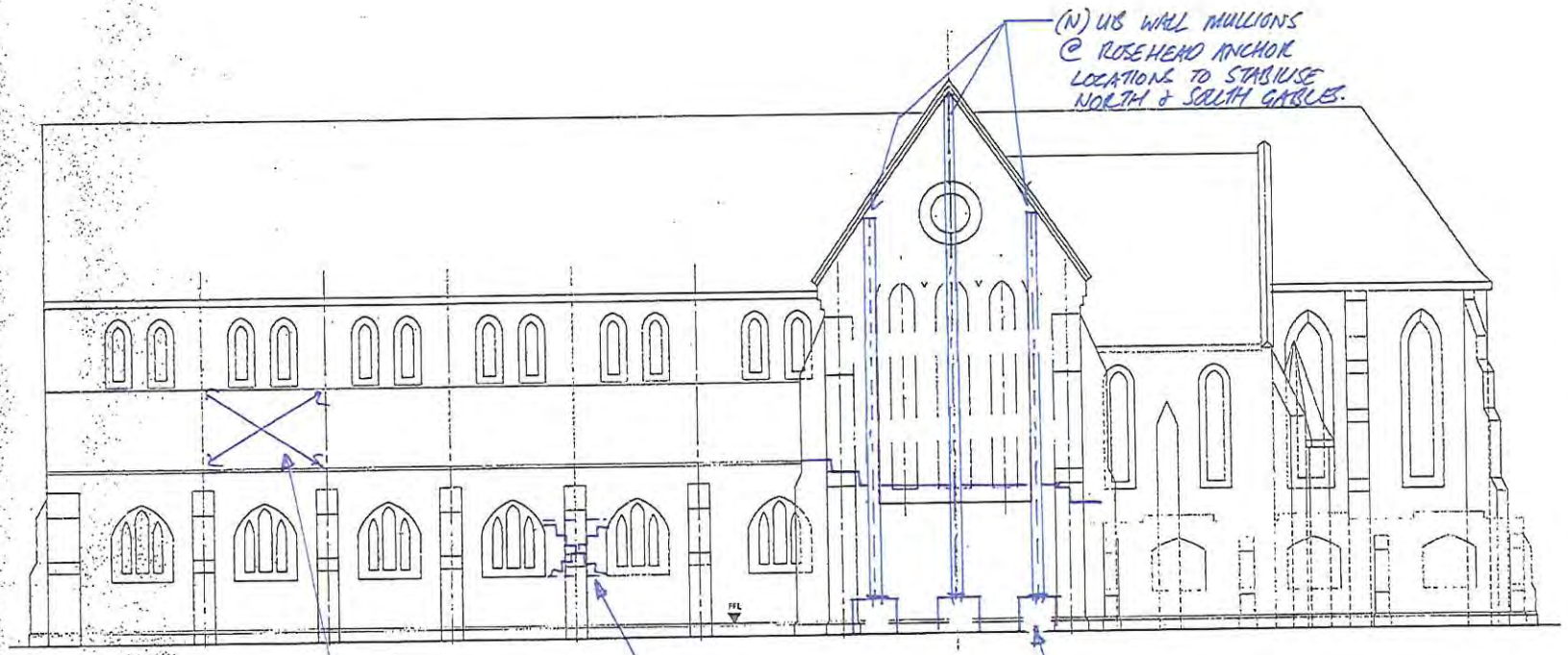
Rev	Date	By	Issue
3	02/03/99	RIS	Tender
2	16/12/98	RIS	Building Consent
1	27/11/98	RIS	Preliminary

Drawn RIS Scale 1:100
Approved Acad Filename S1-2

CHRISTCHURCH CATHEDRAL STRENGTHENING

Sheet Title: roof plan

Job No	Sheet No	Rev
2948	S1-2	3



s o u t h e l e v a t i o n

(NORTH ELEVATION SIM)

Title: CERA MAKE SAFE - SOUTH ELEV

Job Name: CHCH CATHEDRAL

Job #: 106324 SSK#: 025

Date: 19/10/11 Rev: 1

REV. DATE BY REASON

HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS

CHRISTCHURCH CATHEDRAL

SEISMIC STRENGTHENING PROPOSALS

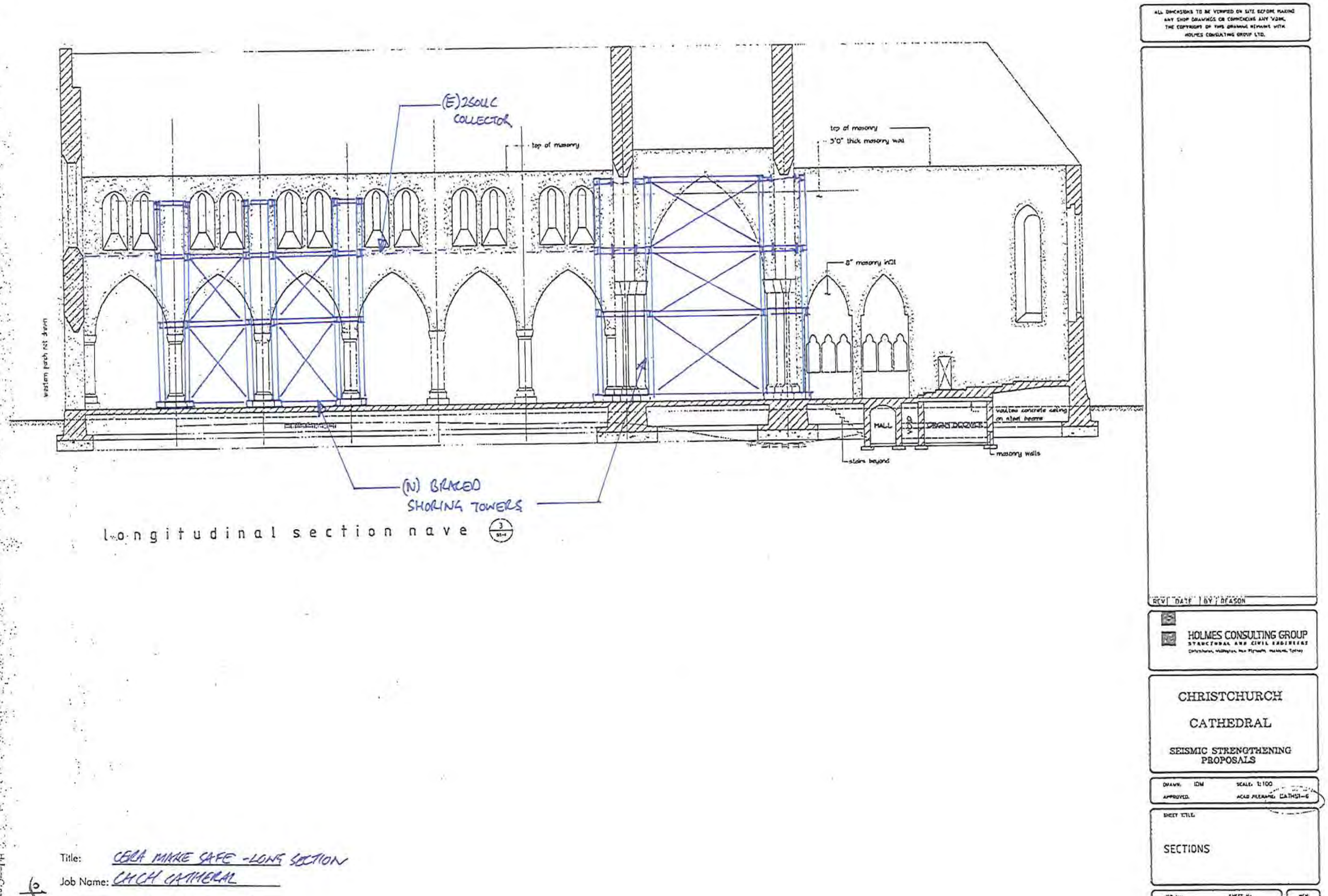
DRAWN ICM SCALE: 1:100

APPROVED: ACAD FILENAME: CATHS1-2

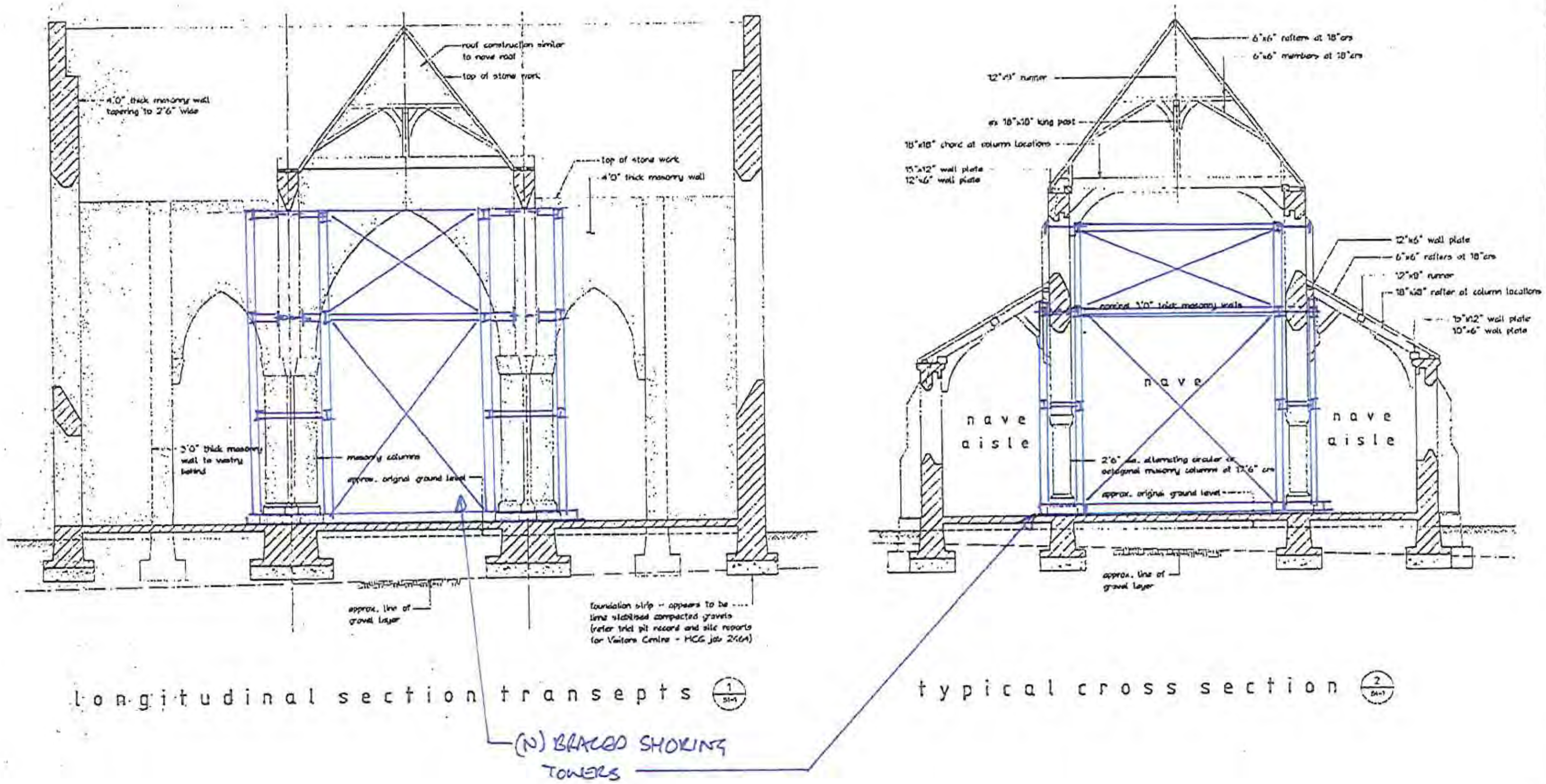
SHEET TITLE:

ELEVATIONS

JOB No. 2948 SHEET No. S1-2 REV. REV



Title: CERA MAKE SAFE - LONG SECTION
Job Name: CHCH CATHEDRAL
Job #: 106324 SSK#: 026
Date: 14/10/11 Rev: 1



REV | DATE | BY | REASON

HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS

CHRISTCHURCH CATHEDRAL

SEISMIC STRENGTHENING PROPOSALS

DRAWN: TDM SCALE: 1:100
APPROVED: ACAD FILENAME: CATHS1-6

SHEET TITLE: SECTIONS

JOB No. 2948 | SHEET No. S1-6 | REV. REV

Title: CERA MAKE SAFE - SECTION
Job Name: CHCH CATHEDRAL
Job #: 106324 SSK#: 026
Date: 19/10/11 Rev: 1.

HolmesConsultingGroup
STRUCTURAL AND CIVIL ENGINEERS

Project Name: *Christchurch Cathedral*
Project Number: *106324*
Sketches By:
Date: *20/10/2011*
Sketch Number: *027*

HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS

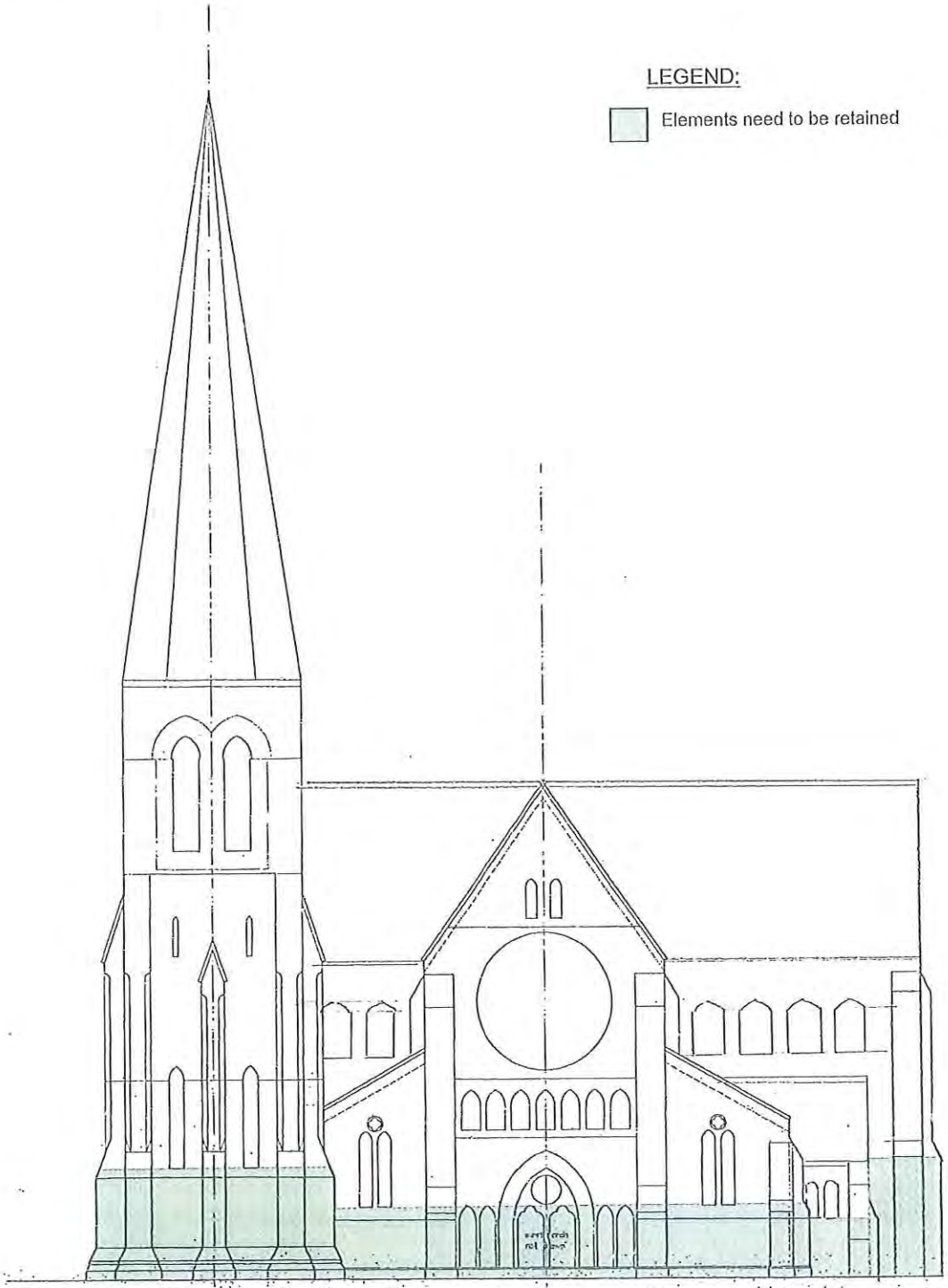
CHRISTCHURCH
CATHEDRAL
SEISMIC STRENGTHENING
PROPOSALS

ELEVATIONS

JOB No. 2948
SHEET No. S1-5
REV

LEGEND:

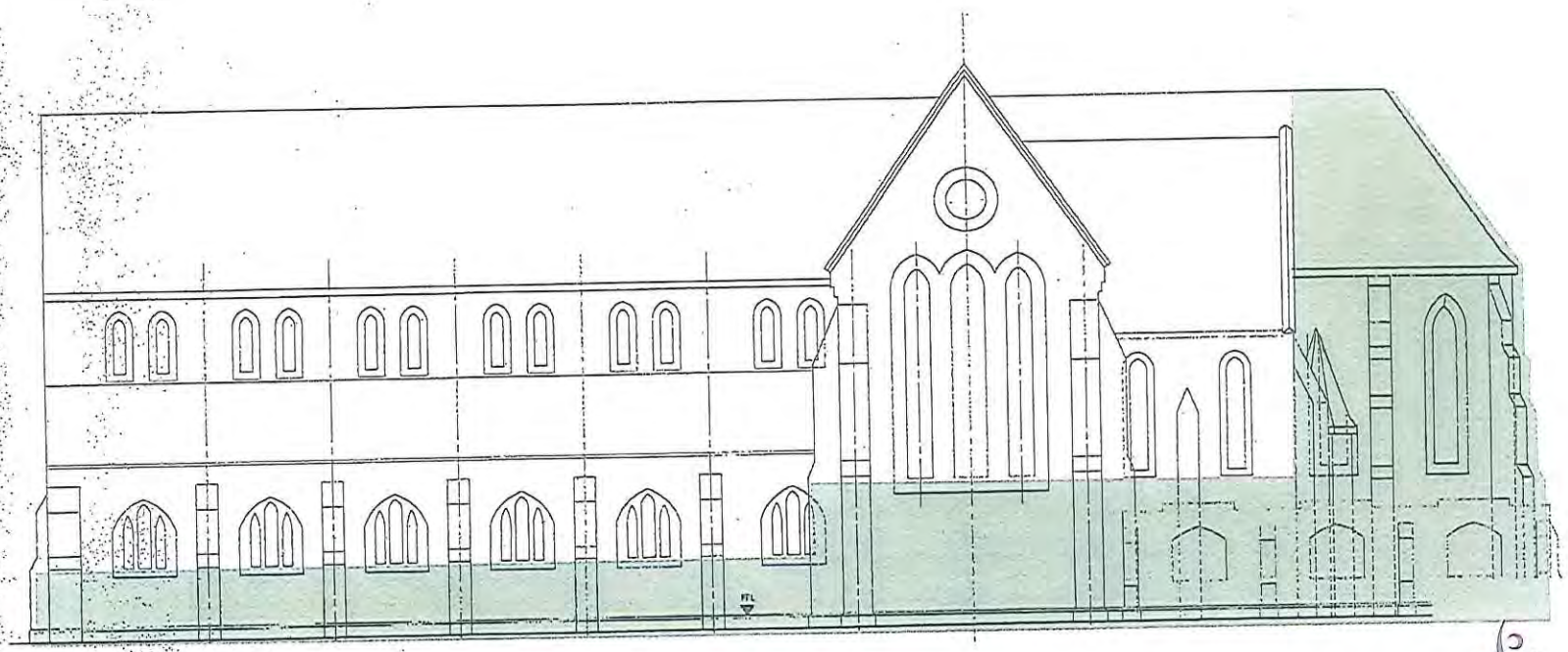
Elements need to be retained



west elevation

LEGEND:

Elements to be retained



south elevation

REV.| DATE |BY| REASON

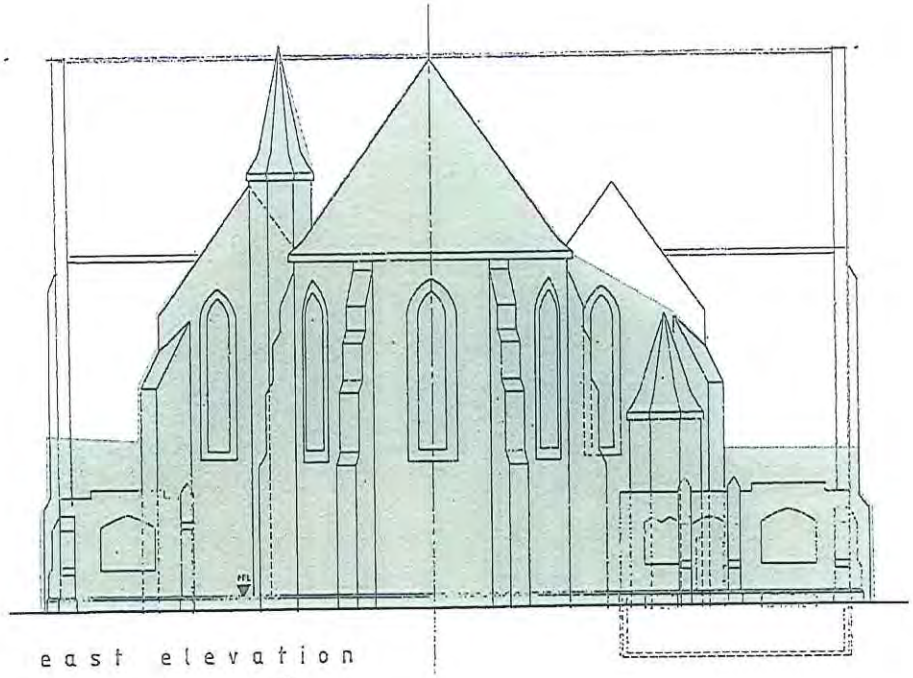
HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS

HolmesConsultingGroup
STRUCTURAL AND CIVIL ENGINEERS

Project Name:	*Christchurch Cathedral*
Project Number:	*106324*
Sketches By:	
Date:	*20/10/2011*
Sketch Number:	*028*

LEGEND:

Elements to be retained



east elevation

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:	*20/10/2011*
Sketch Number:	*029*

LEGEND:

Elements to be retained

HolmesConsultingGroup
STRUCTURAL AND CIVIL ENGINEERS

Project Name:	*Christchurch Cathedral*
Project Number:	*106324*
Sketches By:	
Date:	*20/10/2011*
Sketch Number:	*030*

north elevation

REV	DATE	BY	REASON

HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS

CHRISTCHURCH CATHEDRAL

SEISMIC STRENGTHENING PROPOSALS

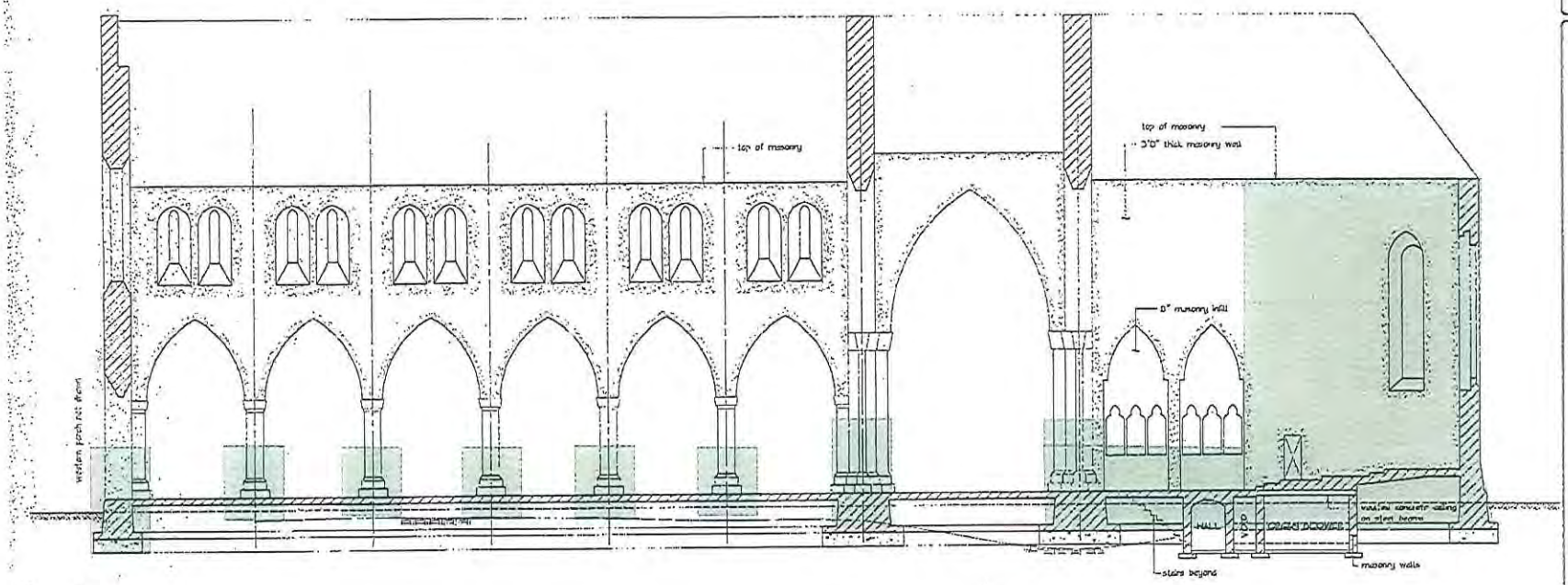
DRAWN: IDM SCALE: 1:100

APPROVED: ACAD FILENAME: CATHS1-4

SHEET TITLE:

ELEVATIONS

JOB No.	SHEET No.	REV:
2948	S1-4	REV



longitudinal section nave (3 / SH-1)

REV	DATE	BY	REASON

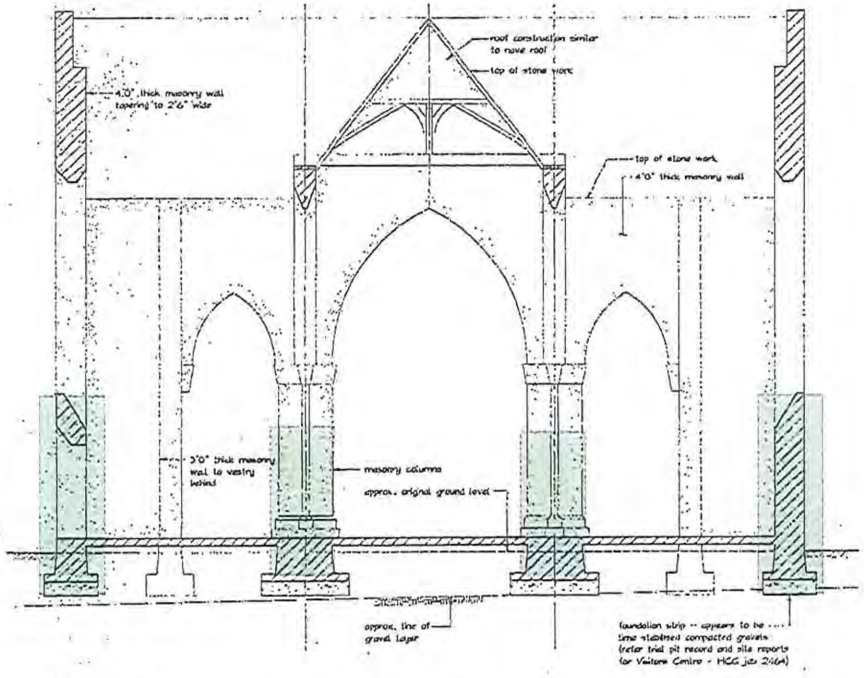
HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS

HolmesConsultingGroup
STRUCTURAL AND CIVIL ENGINEERS

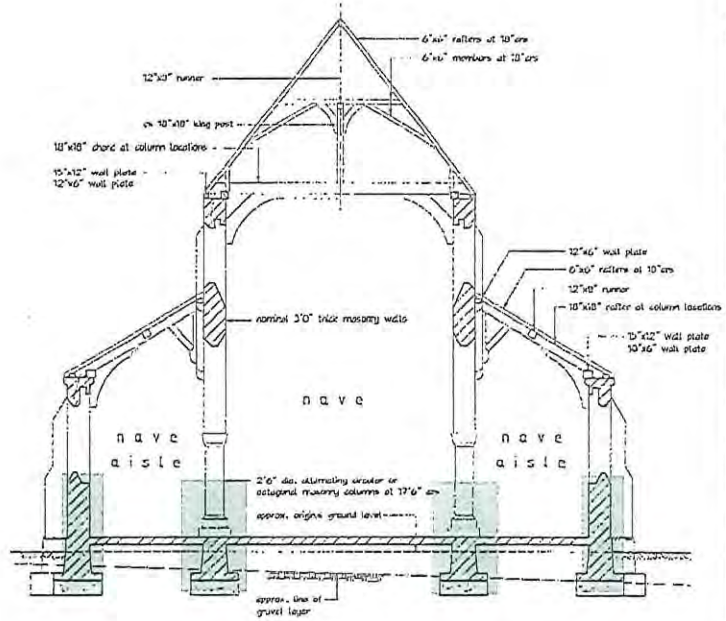
LEGEND:

Elements to be retained

Project Name:	*Christchurch Cathedral*
Project Number:	*106324*
Sketches By:	
Date:	*2010/2011*
Sketch Number:	*031*



longitudinal section transepts (1/SH1)



typical cross section (2/SH1)

LEGEND:

Elements to be retained

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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: 20/10/2011
Sketch Number: 032

From:

Sent: Wednesday, 26 October 2011 9:05 a.m.

To:

Cc:

Subject: Cathedral CERA Structural Report

Hi

Can you please provide us a copy of the CERA structural report on the Cathedral, so that we can figure it's contents into any media/comms preparations.

Regards

Senior Project Manager
M
DDI

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

Please consider the environment before printing this email.

HolmesConsultingGroup

MEMORANDUM

STRUCTURAL AND CIVIL ENGINEERS

To:

Company: CERA

From:

Project No: 106324 Date: 17 October 2011

Subject: Christchurch Cathedral - Structural Design Parameters for Make Safe Works

---

Dear

Holmes Consulting Group has been engaged by Church Property Trustees to develop make safe works for the Christchurch Anglican Cathedral.

- No CERA Policy.
- Above Current Code
- Take No Exception To The Proposal

To the best of our knowledge CERA has not provided any detailed policy guidance on temporary shoring requirements or what defines 'making safe'. On-going seismic activity in Canterbury has raised questions related to the adequacy of the AS/NZS 1170 requirements for construction loading.

This issue as been raised within the project team and Holmes Consulting Group have been asked to prepare a document that outlines the structural design parameters that we are proposing to use for the make safe works, and have this document reviewed by CERA (this document).

Proposed structural design actions for make safe works are:

Imposed Loads (Dead & Live)

Design loads shall be in accordance with AS/NZS 1170.1.

Earthquake Loads

Design loads shall be in accordance with NZS 1170.5 except that a return period factor, R_u of 0.67 shall be used.

Wind Loads

Design loads shall be in accordance with AS/NZS 1170.2.

Christchurch

Telephone

64 3 366 3366

Facsimile

64 3 379 2169

Internet

www.holmesgroup.com

Unit Five

295 Blenheim Road

Upper Riccarton

PO Box 6718

Christchurch 8442

New Zealand

Offices in

Auckland

Hamilton

Wellington

Queenstown

San Francisco

We request that CERA review the structural design parameters proposed and confirm that they are adequate in terms of CERA's 'make safe' requirements for existing buildings in Christchurch.

Do not hesitate to contact us if you have any questions.

Cc:

106324ME1710.002.doc

2.3

From:
Sent: Thursday, 29 September 2011 12:28 p.m.
To:
Subject: FW: Christchurch Cathedral - Make Safe Works
Attachments: Christchurch Cathedral - Holmes Report - Fall Zone & Make Safe Works.pdf

198 – 2.3

From:
Sent: Thursday, September 29, 2011 12:26 PM
To:
Subject: FW: Christchurch Cathedral - Make Safe Works

Supporting information.

Regards

Significant Buildings Unit
Structural Engineer
M

on behalf of CERA

From:
Sent: Thursday, September 15, 2011 1:46 PM
To:
Cc:
Subject: Christchurch Cathedral - Make Safe Works

I understand that you are the project manager for the Christchurch Cathedral building work.
A fall zone and make safe works report was prepared by Holmes Consulting Group (copy attached).
The report indicated that a considerable area of public space is within the fall zone of the Cathedral.

CERA is concerned that this unfenced fall zone places contractors working around the Cathedral Square at risk.

Because of the demolition traffic in the adjacent roads, it is not feasible to fence off the fall zone.
Holmes have produced a concept make safe plan which, in principle, is acceptable to CERA.

Please proceed with the make safe works without delay.
The fully developed make safe works plan will need to be submitted to CERA for review prior to implementation.

The contact person at CERA for enquiries about this work is can be contacted at

the above email.

Regards,

Significant Buildings Unit
Senior Structural Engineer
M

on behalf of CERA
Email:
Please consider your environment before printing this e-mail.

SB #178 2 of 3

HolmesConsultingGroup

CONSULTANT ADVICE

STRUCTURAL AND CIVIL ENGINEERS

Project Name:	Christchurch Cathedral Reconstruction
Project No:	106324
From:	
Date:	23 August 2011
Subject:	Fall Zone & Make Safe Works

CA HCG: 011

☐ Action:

☑ Information

Pages: 1 of 4

To	cc	
☑	☐	Beca
☑	☐	Beca
☐	☑	Holmes Consulting Group

Confirmation / Response to PC No.: N/A

As requested we have completed an assessment of the probable fall zone for the Cathedral. We have also detailed a concept make safe plan that could be used when adjacent areas of Cathedral Square and Colombo St are re-opened to the public.

The fall zone plan was determined using a procedure developed by NZ Urban Search & Rescue. Please refer to SSK# 015 for the probable extent of the fall zone. As is illustrated on SSK# 015 the fall zone extends beyond the extent of the existing perimeter fence in the west, south east and north east directions.

A concept make safe plan using shipping containers and other proprietary container hardware is shown on SSK# 016. The intention is that the lower container will contain an industrial bladder which will be filled with water once the container has been lowered into position. Such bladders are commonly used by wine industry to transport wine in bulk.

Standard shipping twist-lok connections will be used to fix the top container securely to the lower container. None of containers or other proprietary container hardware used will be altered or damaged (unless they sustain impact damage from the Cathedral) and it is envisaged that they would be re-sold once they are no longer required thereby minimizing the cost of the make safe works.

Christchurch

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64 3 366 3366

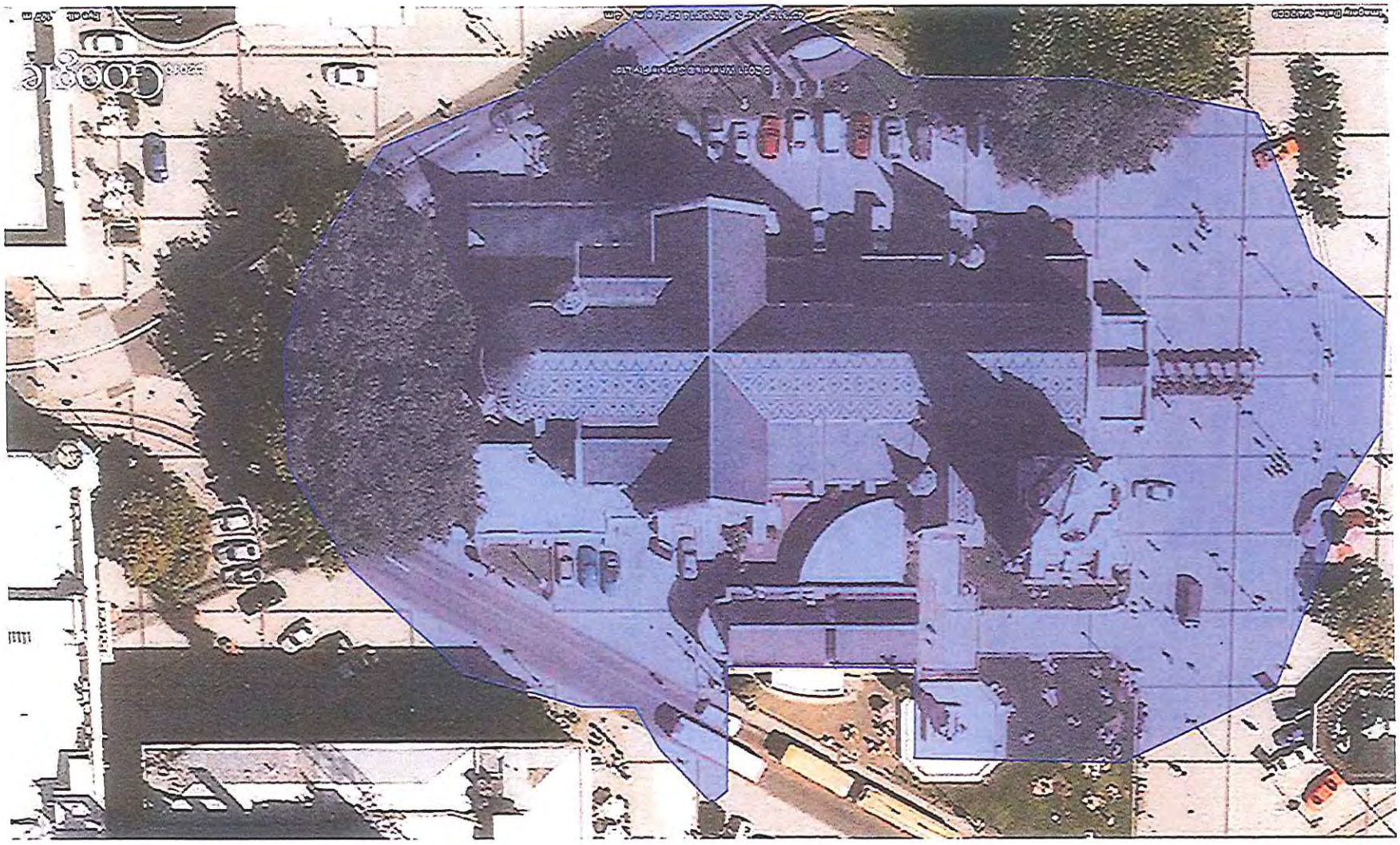
Facsimile
64 3 379 2169

Internet
www.holmesgroup.com

Level 5
123 Victoria Street
PO Box 25355
Christchurch 8144
New Zealand

Offices in
Auckland
Hamilton
Wellington
Queenstown
San Francisco

Regards,




LEGEND:
2 HIGH SHIPPING CONTAINERS. BOTTOM CONTAINER TO CONTAIN A WATER FILLED BLADDER
Imagery Date: 6/4/2009
HolmesConsultingGroup
Title: MAKE SAFE PLAN
Job Name: CHCH CATHEDRAL
Job #: 106324 SSK#: 016
Date: 23/8/11 Rev: 1

From:
Sent: Thursday, 29 September 2011 12:27 p.m.
To:
Subject: FW: Cathedral Make safe.

198 – 2.3

From:
Sent: Thursday, September 29, 2011 12:25 PM
To:
Cc:

Subject: RE: Cathedral Make safe.

Further to your email on Monday 26 September we agree that placing the containers on the roadway and limiting the traffic to one way around the Cathedral is the only option. A larger traffic management plan will need to be considered for vehicle movement around the square and traffic management signage will be required clearing advising this before construction vehicles, especially trucks, enter the square.

Could you please continue with urgency with the placement of the containers as outlined in the Holmes report and submit a traffic management plan for consideration. The traffic management plan must consider the current road closures around the red zone, signage, and outline access paths through and around the square. Could you please coordinate the TMP with or , of CCC traffic

If you have any queries please contact me.

Regards

Significant Buildings Unit
Structural Engineer
M

on behalf of **CERA**

From:
Sent: Tuesday, September 27, 2011 2:48 PM
To:
Cc:
Subject: Cathedral Make safe.

Hi

Further to my email, yesterday regarding the containers and their positioning around the cathedral, could you reply to

Kind Regards

Project Manager
M

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

Please consider the environment before printing this email.

From:
Sent: Wednesday, 14 September 2011 9:02 a.m.
To:
Cc:
Subject: FW: Chirstchurch Cathedral Structural Report - 1 of 4
Attachments: 106324CA0329.011.pdf.zip

SB#198
2.3

Gents FYI

Kind regards

Significant Buildings Unit Case Manager - **CERA**

Private Bag 4999
Christchurch 8140
M:
E:

From:
Sent: Wednesday, 14 September 2011 8:14 a.m.
To:
Cc:
Subject: RE: Chirstchurch Cathedral Structural Report - 1 of 4

Hi

In addition to our damage report the following Consultants Advice related to a concept make safe works for the Cathedral may also be of interest to CERA.

This make safe work is still under consideration by the Project Team.

Regards,

Holmes Consulting Group
Unit 5 | 295 Blenheim Rd | PO Box 6718 I Christchurch 8442 | New Zealand
Phone: +643 Fax: +643 | Mobile: | Email:

From:

Sent: Monday, 12 September 2011 9:05 a.m.
To:
Subject: RE: Chirstchurch Cathedral Structural Report - 1 of 4

, good morning.
Many thanks for that.
Yes could you please forward copies to me for CERA files. I would get them from

Kind regards

Significant Buildings Unit Case Manager - **CERA**

Private Bag 4999
Christchurch 8140
M:
E:

From:
Sent: Monday, 12 September 2011 8:54 a.m.
To:
Cc:
Subject: FW: Chirstchurch Cathedral Structural Report - 1 of 4

Hi
Further to a conversation you had with on Friday this is an email to let you know that we provided CERA with a copies of our Christchurch Cathedral damage report on the 10th of August (refer email to elow). I am happy to re-send the report you cannot locate the earlier copy.

Regards,

Holmes Consulting Group
Unit 5 | 295 Blenheim Rd | PO Box 6718 | Christchurch 8442 | New Zealand
Phone: +643 | Fax: +643 9 | Mobile | Email:

From:
Sent: Wednesday, 10 August 2011 10:21 a.m.
To:
Cc:
Subject: RE: Chirstchurch Cathedral Structural Report - 1 of 4

As requested please refer attached for part 1 of the HCG Christchurch Cathedral Preliminary Damage Report.
Parts 3 thru 4 to follow.

Regards,

Holmes Consulting Group
Unit 5 | 295 Blenheim Rd | PO Box 6718 | Christchurch 8442 | New Zealand
Phone: +643 Fax: +643 | Mobile: | Email:

From:
Sent: Tuesday, 9 August 2011 6:20 p.m.
To:
Cc:
Subject: Chirstchurch Cathedral Structural Report

198 2.3

Further to our discussions today and last month can you please provide a copy of the Structural engineering reports for the Cathedral.
If you could also provide a summary of the future of the building based on todays board meeting it would be appreciated.
As you can appreciate we need to be able to give a briefing to the CEO and Minister of CERA.
You mentioned that there will be some removal happening tomorrow through to Friday, if you could please summarise this so we can inform the CERA team it would be appreciated. If I could have this by 9am tomorrow it will allow the Media team to get briefed.
If you have any further questions please give me a call at any time.
Regards

Significant Buildings Unit
Team Leader / Senior Project Manager
M
on behalf of **CERA**

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The Company takes no responsibility for any unauthorized attachments, or unintentionally transmitted material (including viruses) sent by this email.

CERA
Canterbury Earthquake
Recovery Authority

Memo – Structural Engineers' Reports on Christchurch Cathedral

The memo of 12 September 2011 from the CERA Structural Engineers to myself was not signed by me as I did not accept the recommendation. Instead I asked the Structural Engineers to review and they provided me with a further report on 28 October 2011, which I did approve.

Warwick Isaacs
General Manager Demolition

Date : 2nd November 2011

MEMO

CERA

Canterbury Earthquake Recovery Authority

Attention	**Warwick Isaacs – General Manager Demolition**
From **Contact**	Structural Engineer, Significant Building Unit
Reviewed	Structural Engineer, Significant Buildings Unit
Date	**Monday 12th September 2011**
Subject	**Christchurch Cathedral – Dangerous Building Status**
Number of Pages	4 pages

Warwick,

This memo has been prepared for and on the behalf of the Canterbury Earthquake Recovery Authority (CERA). The purpose of the memo is to comment on the current status of the Christchurch Cathedral.

Appended to this memo is a summary of the damage to the Cathedral which is based on the Holmes Consulting Group (Holmes) reports dated 24 March 2011 and 29 June 2011 and an external assessment by CERA Engineer on 17 August 2011.

Building Description

In general terms the structure comprises slate tile roof cladding supported on timber framing (sarking, rafters and beams). The timber framing is supported by stone walls, strengthened with buttresses, which are likely founded on a stone wall foundation.

The stone walls typically comprise internal and external "facing" stonework with rubble infill. The rubble infill is typically poorly graded and weakly cemented.

The ability of the cathedral structure to resist lateral loads relies on the interconnection of the stone work and rubble infill. This interconnection was weak when constructed and has been further compromised as a result of the earthquake damage sustained.

Observed Damage

Christchurch Cathedral has been severely damaged. While the walls and roof of the cathedral itself remained mostly intact, the gable of the west front sustained significant damage in the February earthquake and in the June event most of the

west wall, including the Rose Window collapsed. The roof over the western section of the north aisle nearest the tower has collapsed. A significant portion of the tower has collapsed, and the northern and southern stone walls are badly cracked and have displaced laterally, compromising both the vertical and lateral load-carrying capacity of the structure. The roof has partially collapsed in a number of locations. Temporary shoring has been put in place to secure the West Wall and the South Turret has been removed. A detailed summary of the damage to the Cathedral is appended.

Cracks in the stone walls are getting wider as a result of the continuing aftershocks in the city, which further compromises the structural integrity of the Cathedral.

Additional propping and securing measures would be required if an internal inspection of the Cathedral is to be carried out. The building in its current condition would pose a high risk to tradesmen working in the building for a significant length of time as would be required to erect the propping and securing works.

Conclusion

In our opinion the building has suffered extensive and significant damage, is in poor structural condition, and is dangerous as defined in the Building Act 2004, as modified by the Canterbury Earthquake (Building Act) Order 2010. It is possible that in the event of a significant aftershock or less than moderate earthquake, the building, or parts of the building, could collapse or otherwise cause injury or death to any person in or around the building.

We believe that the building in its present condition would pose a high risk to tradesmen erecting temporary strengthening works within the building. We therefore conclude that it would not be possible to strengthen the building temporarily or otherwise in a safe manner without the risk of collapse of part or all of the building.

On the basis of this information and considered opinion, we recommend that you determine that the Christchurch Cathedral be deemed a dangerous building for the purpose of issuing a letter to the building owner under Section 38 of the C.E.R. Act, and that the building be demolished.

END

Structural Engineer for and on Behalf of CERA Significant Buildings Unit

Reviewed by

Structural Engineer for and on Behalf of CERA Significant Buildings Unit

Date:

Warwick Isaacs – General Manager Demolition

Appendix - Summary of the damage to the Cathedral

This summary is based on the Holmes Consulting Group (Holmes) reports dated 24 March 2011 and 29 June 2011 and an external assessment by CERA Engineer on 17 August 2011. Building damage and access limitations meant that the assessment was limited to the building exterior.

The scope of work for the Holmes report was:

- To complete a ground based survey of the building to identify the general form and location of earthquake damage.
- To provide a report that details the results of the structural survey.

The damage is summarised as follows:

- The west porch is permanently offset from the western wall by approximately 20 – 30 mm as a result of the February event and has displaced a further 10 mm in the June event. The additional deformation imposed on the west porch has caused the widths of the existing cracks to increase. There is moderate damage to the south and west walls, and significant damage to the north wall. The damage to north wall includes parapet collapse and significant spalling of the north western buttress. The north portion of roof has collapsed as a result of falling tower debris.

- The west wall sustained severe damage in February and significant additional damage in June. The north buttress and part of the adjoining section of the nave wall has collapsed. The south buttress has become separated from the west and south nave walls. A number of the capping stones have buckled but remain in place. The wall itself is significantly distorted.

  A significant portion of the west wall, including most of the Rose Window, has now collapsed with much of the debris landing on the roof of the west porch below. The remaining portions of the west wall are badly distorted and severely compromised.

- Complete collapse has occurred to the upper section of the tower. USAR demolished the central section of north wall down to approximately 4 m above ground level. The remaining buttress sections are reasonably stable but may require shoring to enable deconstruction. A large crack has developed to the inside and outside of the stair at the southeast corner, full height on south wall (30mm+). Most of the rubble has been stockpiled on site but is severely degraded.

- The north aisle has sustained significant damage at the western end due to falling tower debris. Portions of the north aisle roof sheathing, roof bracing and a rafter have also failed. The South aisle roof bracing has yielded and is visibly sagging.

- The severely damaged north and south walls sustained additional damage in the June event. The existing crack widths increased and new cracks were observed in both walls. Significant additional cracking and spalling was observed adjacent the south porch.

- The South wall piers and buttresses have sustained damaged similar to that observed in the north wall. The cracks are significantly wider (i.e. approx 10 –

30mm wide). Some glass damage has also occurred as a result of the structural deformations.

- High level walls in the north western corner of the Nave have an outward lean as a result of tower collapse. There is moderate cracking in other areas of the north wall. Columns and arches have sustained some damage to stone surfaces, some of this is severe.

- The west wall/buttresses of the north porch has sustained damage due to falling tower debris. Stone elements that make up the northern wall have also sustained surface damage. Falling tower debris has also caused much of the roof to collapse in the north porch.

- The south porch is generally in good condition except for severe damage to the stairwell wall that supported the South Turret. The South Turret has subsequently been removed.

- The North and South Transept walls have sustained significant cracking and damage. The upper regions have a permanent horizontal offset of approximately 10mm and 40mm for the north and south walls respectively. The North and South Transept wall gables have also sustained significant cracking. A number of capping stones on the north wall have shifted. Three capping stones at the apex of the south wall have also shifted. USAR have made temporary repairs to the Barker and Pilgrim columns that support the west Transept walls. The central Transept area appears to be in poor condition with significant cracking of the western arch keystone observed.

- The North and South Apse walls have sustained significant cracking (30 – 40 mm) and associated glass damage.

- The North and East walls, believed to be of reinforced concrete construction, of the 1960's Clergy Vestry are largely undamaged. The south wall, believed to be a plastered concrete block infill wall, has sustained some cracking. The original unreinforced masonry walls have sustained significant cracking.

- Damage to the Choir Vestry is similar to the Clergy Vestry. Stepped cracking has occurred to the east wall of the south transept above the Choir Vestery. Bed joint slide cracking in the original internal piers adjacent to the vestries increased in the June event. The extent and severity of the observed cracking is difficult to quantify due to the presence of wall linings.

- The Visitor Centre structure appears to be undamaged. Some damaged has occurred to non-structural elements.

SB #198 2 of 3

HolmesConsultingGroup

CONSULTANT ADVICE

Project Name:	Christchurch Cathedral Reconstruction	CA HCG:	011
Project No:	106324	☐ Action:	
From:		☑ Information	
Date:	23 August 2011	Pages:	1 of 4
Subject:	Fall Zone & Make Safe Works		

To	cc	
☑	☐	Beca
☑	☐	Beca
☐	☑	Holmes Consulting Group

Confirmation / Response to PC No.: N/A

As requested we have completed an assessment of the probable fall zone for the Cathedral. We have also detailed a concept make safe plan that could be used when adjacent areas of Cathedral Square and Colombo St are re-opened to the public.

The fall zone plan was determined using a procedure developed by NZ Urban Search & Rescue. Please refer to SSK# 015 for the probable extent of the fall zone. As is illustrated on SSK# 015 the fall zone extends beyond the extent of the existing perimeter fence in the west, south east and north east directions.

A concept make safe plan using shipping containers and other proprietary container hardware is shown on SSK# 016. The intention is that the lower container will contain an industrial bladder which will be filled with water once the container has been lowered into position. Such bladders are commonly used by wine industry to transport wine in bulk.

Standard shipping twist-lok connections will be used to fix the top container securely to the lower container. None of containers or other proprietary container hardware used will be altered or damaged (unless they sustain impact damage from the Cathedral) and it is envisaged that they would be re-sold once they are no longer required thereby minimizing the cost of the make safe works.

STRUCTURAL AND CIVIL ENGINEERS

Christchurch

Telephone

64 3 366 3366

Facsimile

64 3 379 2169

Internet

www.holmesgroup.com

Level 5

123 Victoria Street

PO Box 25355

Christchurch 8144

New Zealand

Offices in

Auckland

Hamilton

Wellington

Queenstown

San Francisco

Regards,

106324CA0329.011.doc

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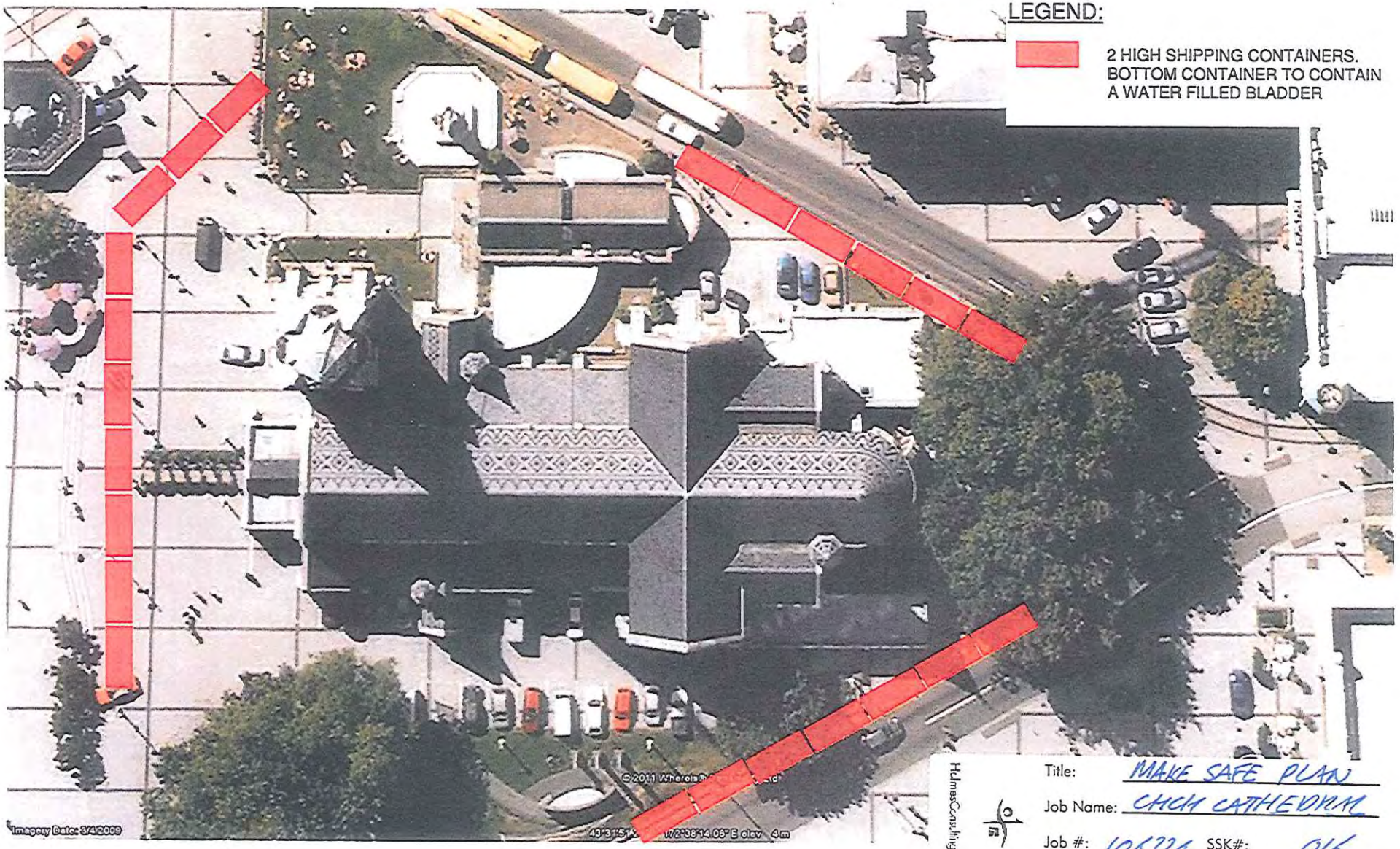
Google



HolmesConsultingGroup

Title: MAKE SAFE PLAN

Job Name: CHCH CATHEDRAL

Job #: 106324 SSK#: 016

Date: 23/8/11 Rev: 1

From:
Sent: Wednesday 10 August 2011 7:09 p.m.
To:
Cc:
Subject: FW: ChristChurch Cathedral : HCG - Prelim Post EQ Structural Damage Survey - 24 March 2011

Attachments: 106324 Damage Report.pdf

106324 Damage Report.pdf

198 2.3

Earlier report from Holmes for your consideration in your review of the Cathedral.

Regards

Significant Buildings Unit
Team Leader / Senior Project Manager
M

on behalf of CERA

-----Original Message-----
From:
Sent: Wednesday, 10 August 2011 2:43 p.m.
To:
Cc:
Subject: ChristChurch Cathedral : HCG - Prelim Post EQ Structural Damage Survey - 24 March 2011

As discussed, find attached copy of the 24 March 2011 Holmes Consulting EQ damage report. This is their initial report following the 22 Feb EQ.
I understand sent you a copy of the updated report dated 29 June following the 13 June EQ directly.

Please advise if you any queries or require further information.

Regards

Beca
Phone
DDI
Mob

www.beca.com

-----Original Message-----
From:
Sent: Wednesday, 10 August 2011 10:51 a.m.
To:
Subject: HCG - Prelim Post EQ Structural Damage Survey - 24 March 2011

Your message is ready to be sent with the following file or link attachments:

106324 Damage Report.pdf

Note: To protect against computer viruses, e-mail programs may prevent sending or receiving certain types of file attachments. Check your e-mail security settings to determine how attachments are handled.

From:

Sent: Tuesday, 9 August 2011 6:20 p.m.

To:

Cc:

Subject: Chirstchurch Cathedral Structural Report

198 2.3

Further to our discussions today and last month can you please provide a copy of the Structural engineering reports for the Cathedral.
If you could also provide a summary of the future of the building based on todays board meeting it would be appreciated.
As you can appreciate we need to be able to give a briefing to the CEO and Minister of CERA.

You mentioned that there will be some removal happening tomorrow through to Friday, if you could please summarise this so we can inform the CERA team it would be appreciated. If I could have this by 9am tomorrow it will allow the Media team to get briefed.

If you have any further questions please give me a call at any time.

Regards

Significant Buildings Unit
Team Leader / Senior Project Manager
M

on behalf of CERA

HolmesConsultingGroup

CONSULTANT ADVICE

Project Name:	Christchurch Cathedral Reconstruction	CA HCG:	005
Project No:	106324	☐ Action:	
From:		☑ Information	
Date:	24 June 2011	Pages:	1 of 2
Subject:	High Level Falling Hazard Inspection & Mitigation		

To	cc	
☑	☐	Beca
☑	☐	Beca
☐	☑	Christchurch Cathedral Chapter
☐	☑	Church Property Trust
☐	☑	Stoneworks
☐	☑	Holmes Consulting Group

Confirmation / Response to PC No.: N/A

As requested Holmes Consulting Group have completed an updated preliminary ground based damage survey of the Cathedral buildings. The primary purpose for this survey was to establish if it was safe to re-entry the Vestries and the Visitor Centre to retrieve additional building contents.

We are in the process of documenting the updated structural survey and expect to issue a revised damage report next week. During the damage survey a number of additional high falling hazards were observed. Some of these pose a danger to occupants of the Vestries. These are documented in Appendix A.

We recommend that these falling hazards be mitigated, and a more detailed damage survey of the eastern end of the Cathedral be undertaken via a man cage to check for lose capping stones and other elevated appendages in the vicinity of the Vestries.

This inspection and mitigation work will need to be completed prior to the retrieval of any building contents.

We recommend that Stoneworks ( ) be engaged to complete the falling hazard inspection and mitigation work. We would also like to be present when the inspection work is undertaken so that we can take the opportunity to inspect the eastern end of the Cathedral from an elevated position.

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Hamilton
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Christchurch
Queenstown
San Francisco

Regards,

106324CA0329.005.doc

APPENDIX A – SKETCH RECORD OF PRIMARY DAMAGE OBSERVED

Inspection Date: 24 June 2011

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.

APPENDIX A – High Level Falling Hazard Identification

The following high level falling hazards were observed during an interim ground based structural survey of the Cathedral undertaken on the 24 June 2011:

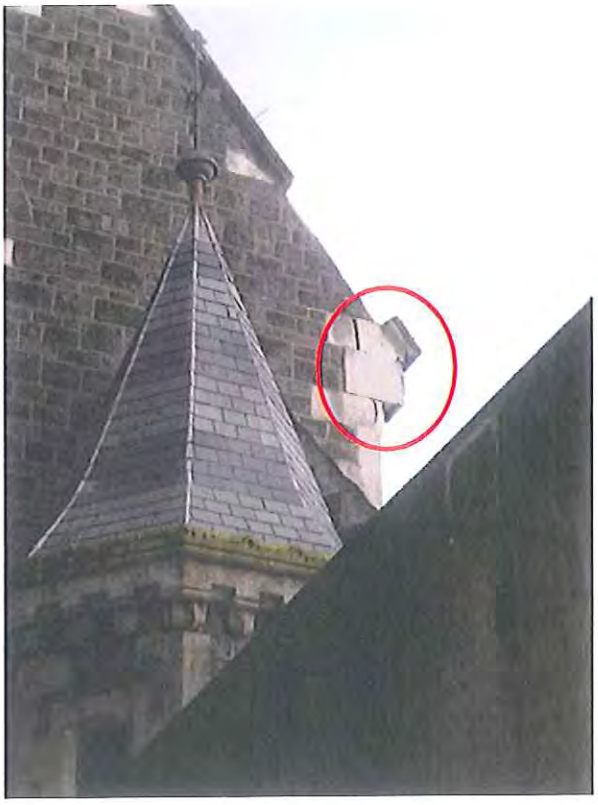

Figure 1 Falling hazard above Clergy Vestry

Figure 2 Re-check falling hazard above Clergy Vestry

2/8/11

Appendix B

High Level Falling Hazard Inspection and Mitigation

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E: info@beca.com // www.beca.com

2 August 2011

Canterbury Earthquake Recovery Authority
Interim Deconstruction Manager
Private Bag 4999
Christchurch 8140

Attention:

Christchurch City Council
Heritage Response Team
PO Box 237
Christchurch 8140

Attention.

Dear

Request for Retrospective Approval for Emergency Make Safe Works undertaken at the ChristChurch Cathedral

Introduction

We are writing to request retrospective approval from the Canterbury Earthquake Recovery Authority (CERA) for emergency make safe works carried out at the ChristChurch Cathedral following the 22 February and 13 June 2011 earthquakes.

Background

The ChristChurch Cathedral suffered significant damage following the earthquakes on 22 February and 13 June 2011. The damage sustained during these earthquakes and subsequent aftershocks has been documented in Damage Assessment Reports undertaken by Holmes Consulting Group (HCG) attached as **Appendix A**. The Damage Assessment Reports (dated 20 March and 29 June 2011) include the HCG structural engineer's inspection notes; photos and recommendations for make safe works.

Request for Retrospective Approval

The ChristChurch Cathedral is listed as a Group 1 heritage building under the Christchurch City Plan. Under normal circumstances (pre 15 June 2011), alteration of a Group 1 heritage building would require resource consent from CCC as a discretionary activity under Rule 1.3.1(a) of Part 10: Heritage and Amenities of the City Plan.

However, the Minister for Canterbury Earthquake Recovery amended Rule 1.3.1(b) of the City Plan on 15 June 2011 under section 27(1)(a) of the Canterbury Earthquake Recovery Act 2011 (the Act) to state that any demolition of a Group 1 heritage building approved by the National Controller under the Civil Defence Emergency Management Act 2002 during the state of emergency in place from 23 February to 30 April 2011 or any demolition carried out or commissioned by or on behalf of the chief executive of the Canterbury Earthquake Recovery Authority while the Canterbury

Earthquake Recovery Act 2011 is in force shall be a permitted activity. We have been advised by CCC's Heritage Response Team that the make safe works at the Cathedral fall within the ambit of the amended Rule 1.3.1(b) and therefore no resource consent is necessary for the works, subject to this retrospective approval being given by CERA.

The Cathedral is also classified as a Category I historic place (register number 46) by the New Zealand Historic Places Trust (NZHPT). Discussions with NZHPT confirm that an archaeological authority cannot be granted for works that have already been undertaken.

Initial Damage Assessments

The emergency works carried out at the Cathedral following the earthquakes were required to enable USAR to complete their search for bodies and to reduce the risk of injury to people and property as a result of further collapse.

HCG structural engineers carried out preliminary damage surveys on 22 March and 24 June 2011 and subsequently provided recommendations on make safe methods for the Cathedral (Damage Assessment Reports attached as **Appendix A**). HCG also prepared memorandum on High Level Falling Hazard Inspection and Mitigation (attached as **Appendix B**).

Description of the Emergency Make Safe Works

22 February 2011 Earthquake

The earthquake on 22 February 2011 caused severe structural damage to the Cathedral. The spire and upper section of the tower collapsed, the roof over the western section of the north aisle nearest the tower collapsed and engineering inspections showed that the pillars supporting the building were severely damaged. The rose window was also severely compromised with approximately 50% of the glass gone.

The Urban Search and Rescue team (USAR) were responsible for a lot of the emergency works undertaken after 22 February as it was during the period when they were searching for bodies. The USAR works included:

- Removal of the central section of the north tower wall, bringing it down to a height of approximately 4 metres;
- Temporary banding/strapping of the west columns in the transept;
- Installed steel gantry at the west porch upper section;
- Securing and bracing of the west wall, including the rose window; and
- Providing additional out-of-plane support to the west wall and rose window.

The emergency works undertaken by C Lund & Son Ltd, in association with Stoneworks on behalf of the Church Properties Trustees (CPT) are as follows:

- Removal of loose capping stones, particularly those around the west wall, south porch gable and south transept gable;
- Removal of exterior falling hazards via a crane;
- Removed the turret in the south gable;
- Installed security fencing around the Cathedral (completed by CCC); and
- Removed interior items such as office equipment and choir robes.

13 June 2011 Earthquake

The earthquake on 13 June 2011 caused more damage to the Cathedral. A significant portion of the west wall, including the rose window, collapsed. The falling debris also caused additional damage to the west porch. Damage previously noted to the north and south walls, and to the Apse, increased. Other areas of the Cathedral sustained lesser amounts of additional damage.

No additional make safe works were undertaken following the 13 June earthquake, although Stoneworks undertook a more detailed damage survey of the eastern end of the Cathedral via a man cage in order to check for loose capping stones and other elevated appendages in the vicinity of the Vestries. Scaffolding that was in situ for the repair of windows has also now been removed.

Rubble displaced from the earthquakes and subsequent aftershocks is still located outside the Cathedral. Some of the rubble was removed following the earthquakes and is currently being stored at An archaeologist will be engaged to develop an appropriate "sifting" methodology for the rubble at both the Cathedral and

If you require any additional information, or wish to discuss any aspect of this request, please do not hesitate to contact the undersigned.

Yours sincerely

on behalf of
Beca Carter Hollings & Ferner Ltd
Direct Dial: +t
Email:

Copy
Church Properties Trustees; Holmes Consulting Group

Appendix A

Damage Assessment Reports


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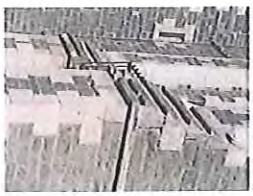
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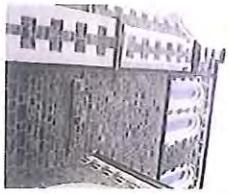
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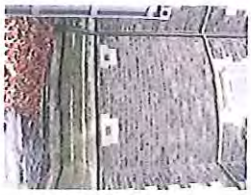
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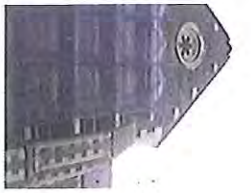
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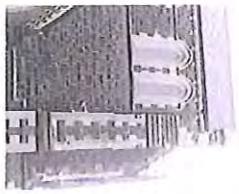
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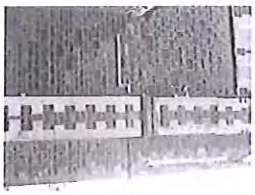
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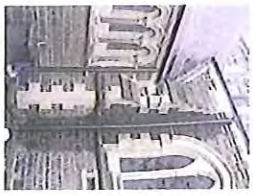
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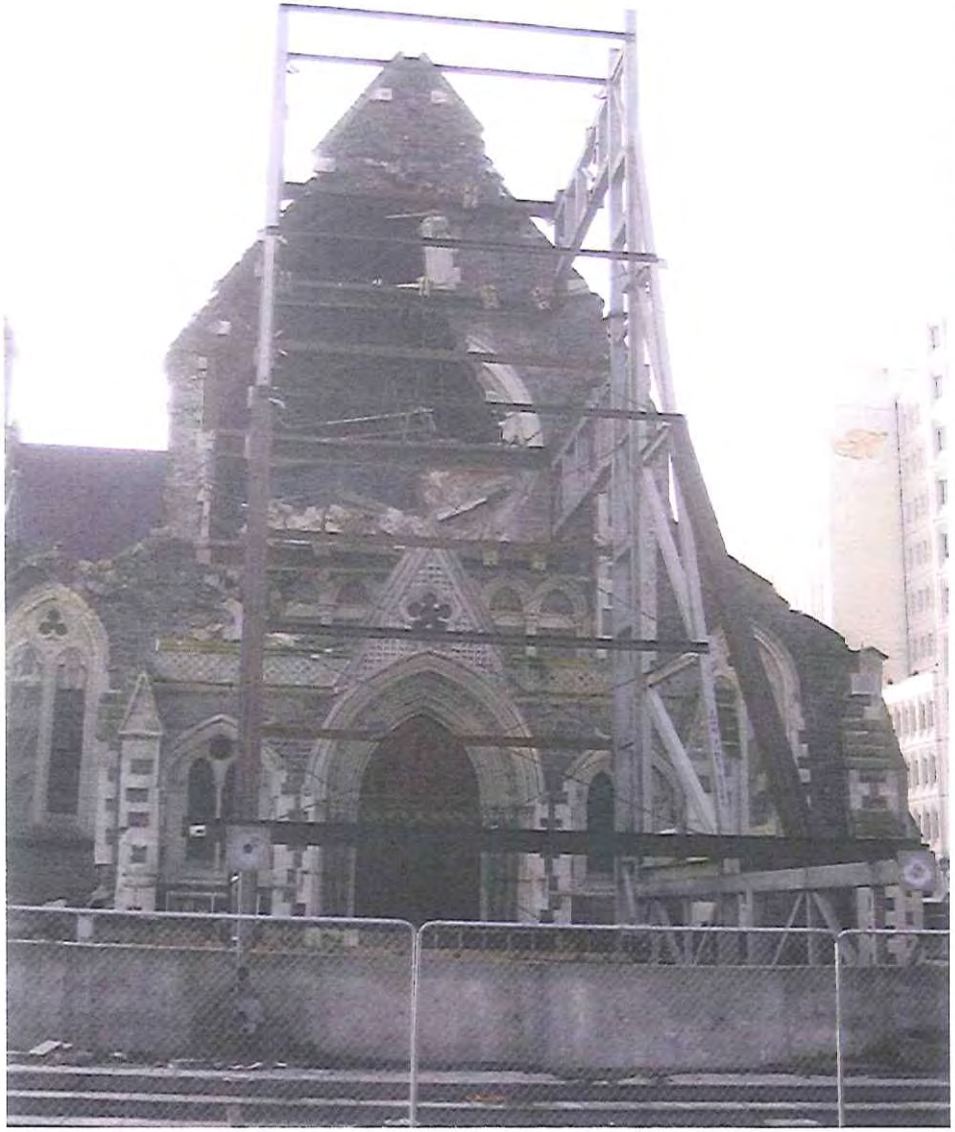
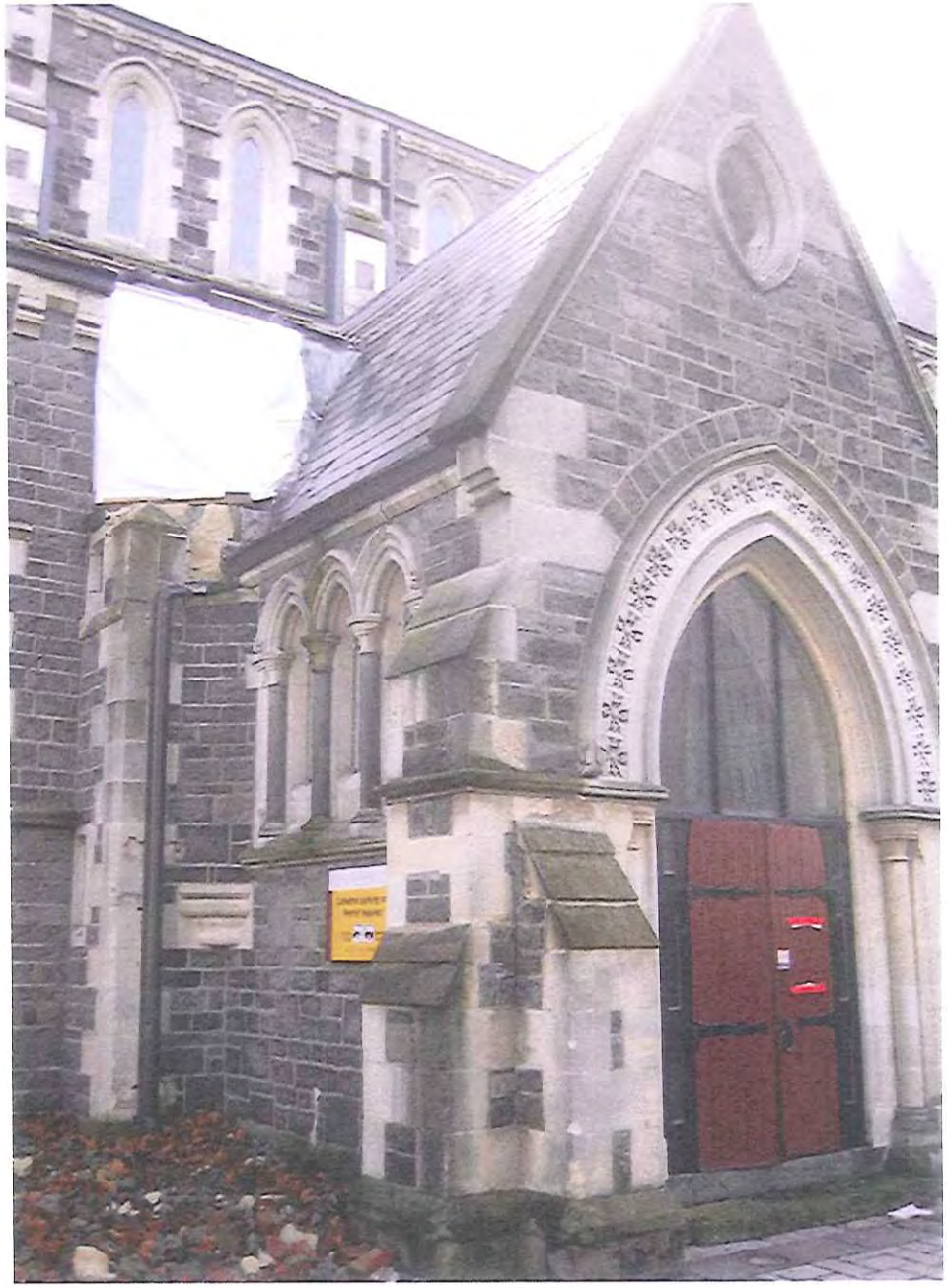
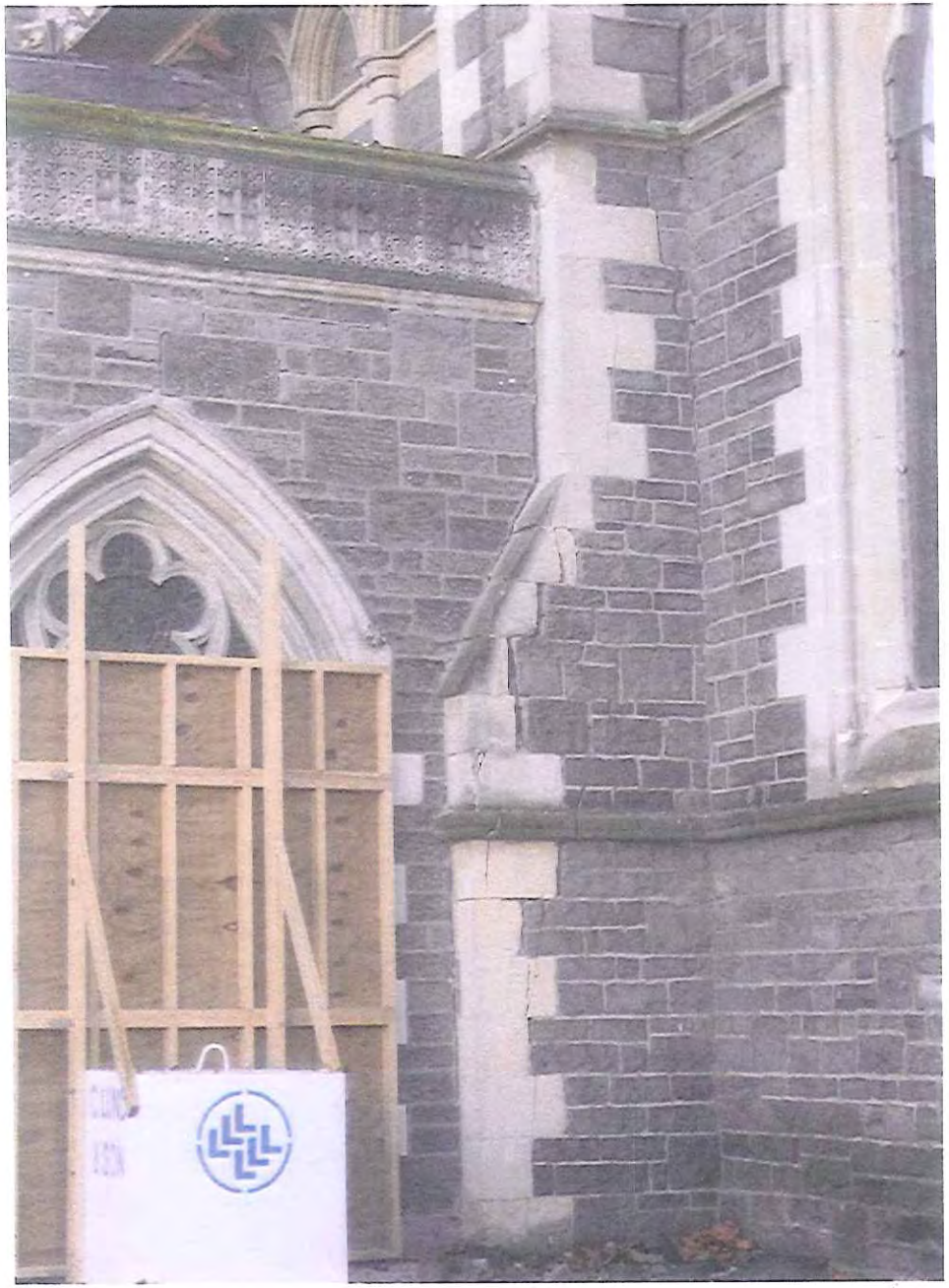
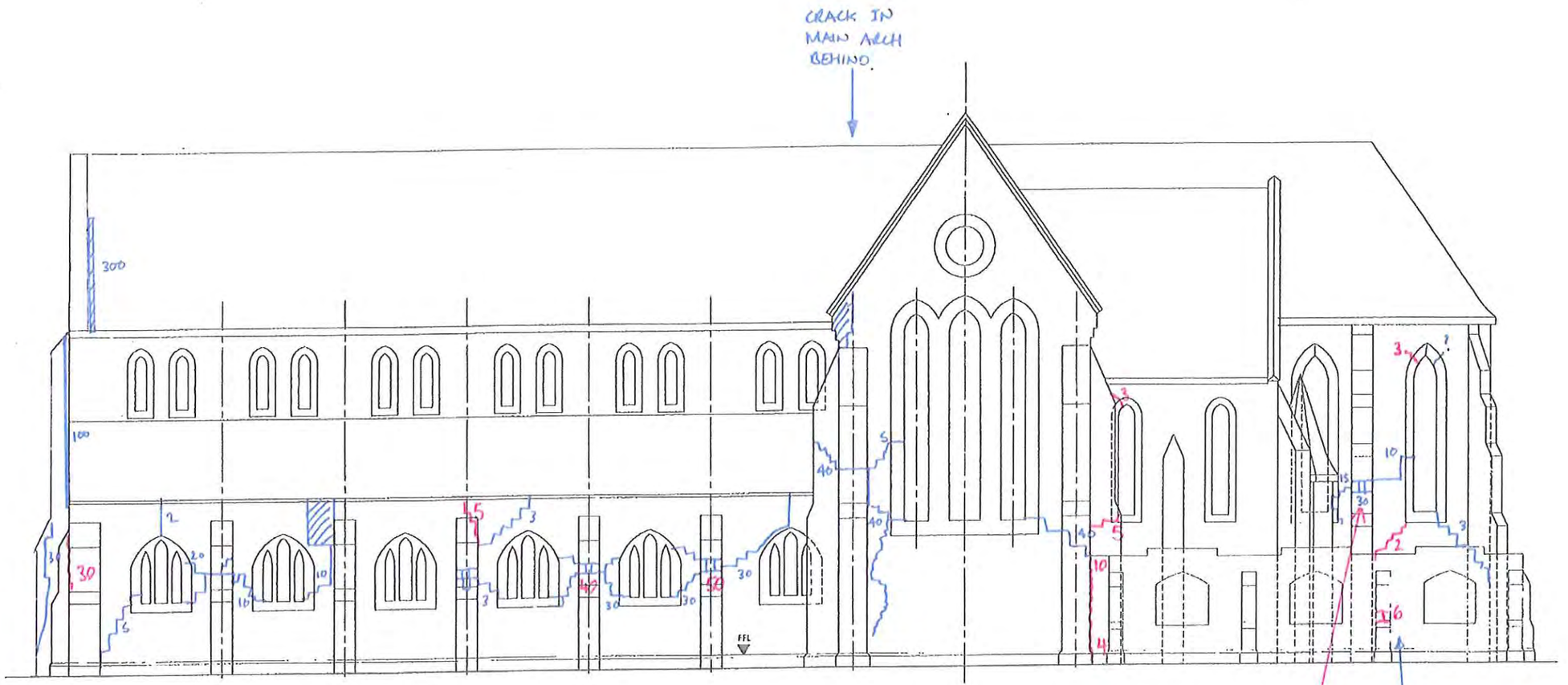







C. LUND
& SON

EXTERNAL DAMAGE SURVEY 22/3/11
SYO LIMITED TO GROUND OBSERVATION
EXTERNAL DAMAGE SURVEY 24/6/11



south elevation

REV	DATE	BY	REASON

HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS

CHRISTCHURCH CATHEDRAL

SEISMIC STRENGTHENING PROPOSALS

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APPROVED: ACAD FILENAME: CATHS1-2

SHEET TITLE: ELEVATIONS

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2948	S1-2	REV

SSk # 001

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CHRISTCHURCH CATHEDRAL

SEISMIC STRENGTHENING PROPOSALS

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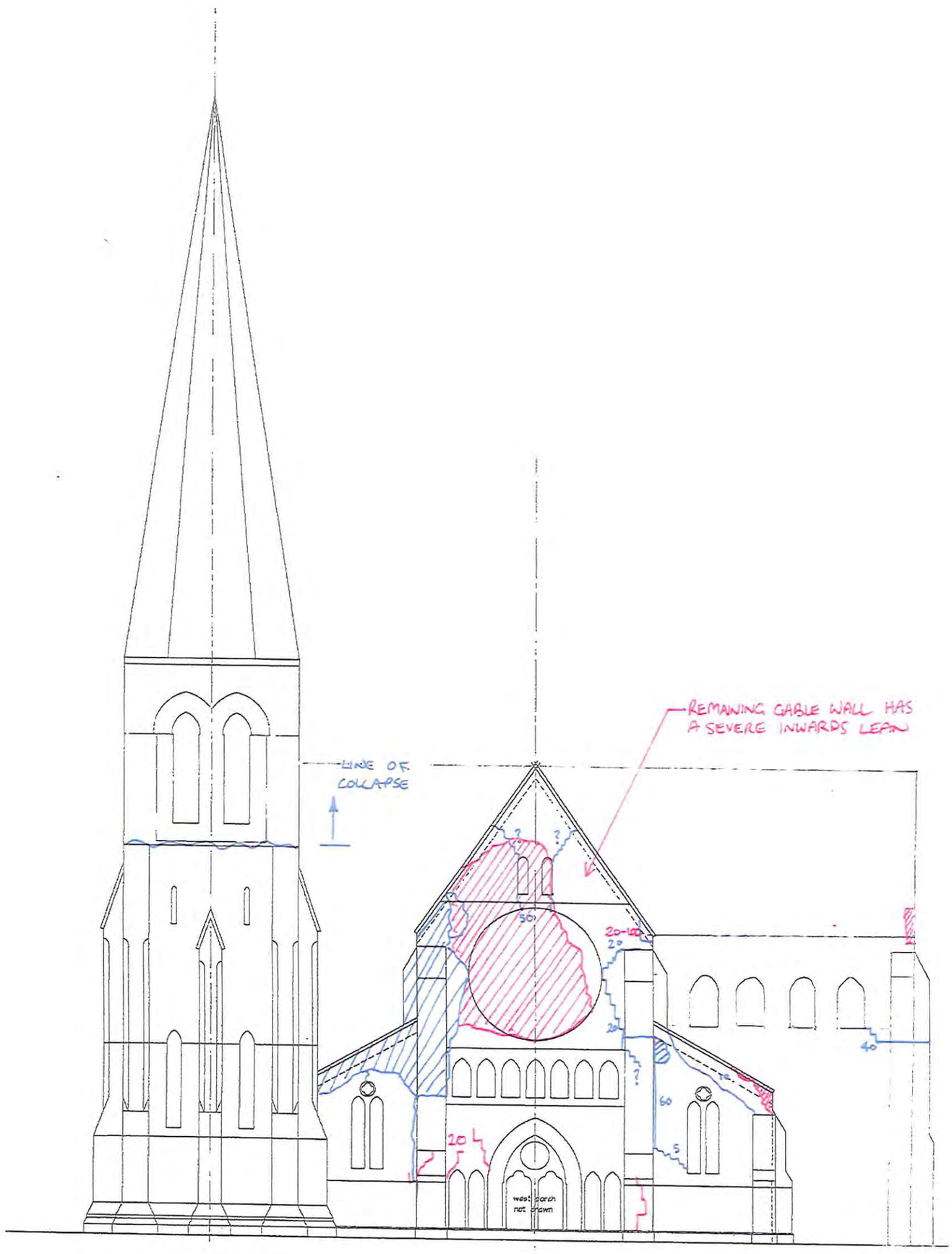

west elevation

SSK#002

north elevation

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STRUCTURAL AND CIVIL ENGINEERS
Christchurch, Wellington, New Plymouth, Auckland, Sydney

CHRISTCHURCH CATHEDRAL

SEISMIC STRENGTHENING PROPOSALS

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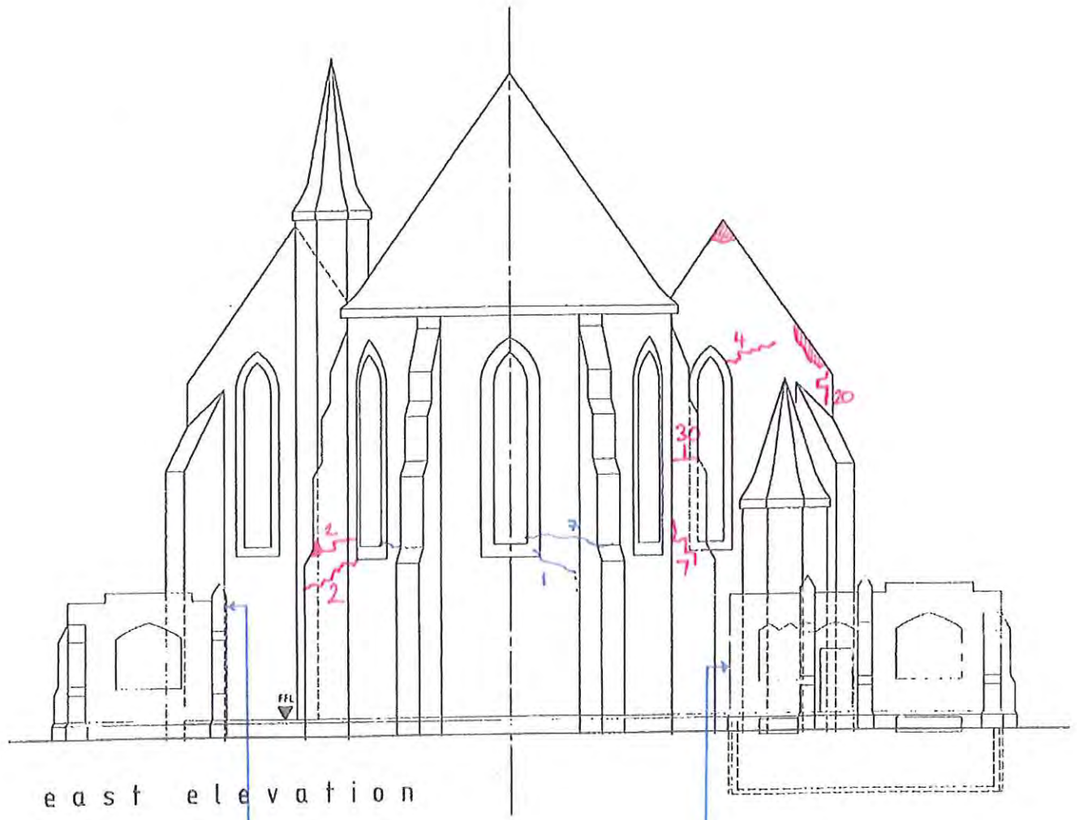

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(Established, Wellington, New Plymouth, Auckland, Sydney)

CHRISTCHURCH
CATHEDRAL

SEISMIC STRENGTHENING PROPOSALS

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ELEVATIONS

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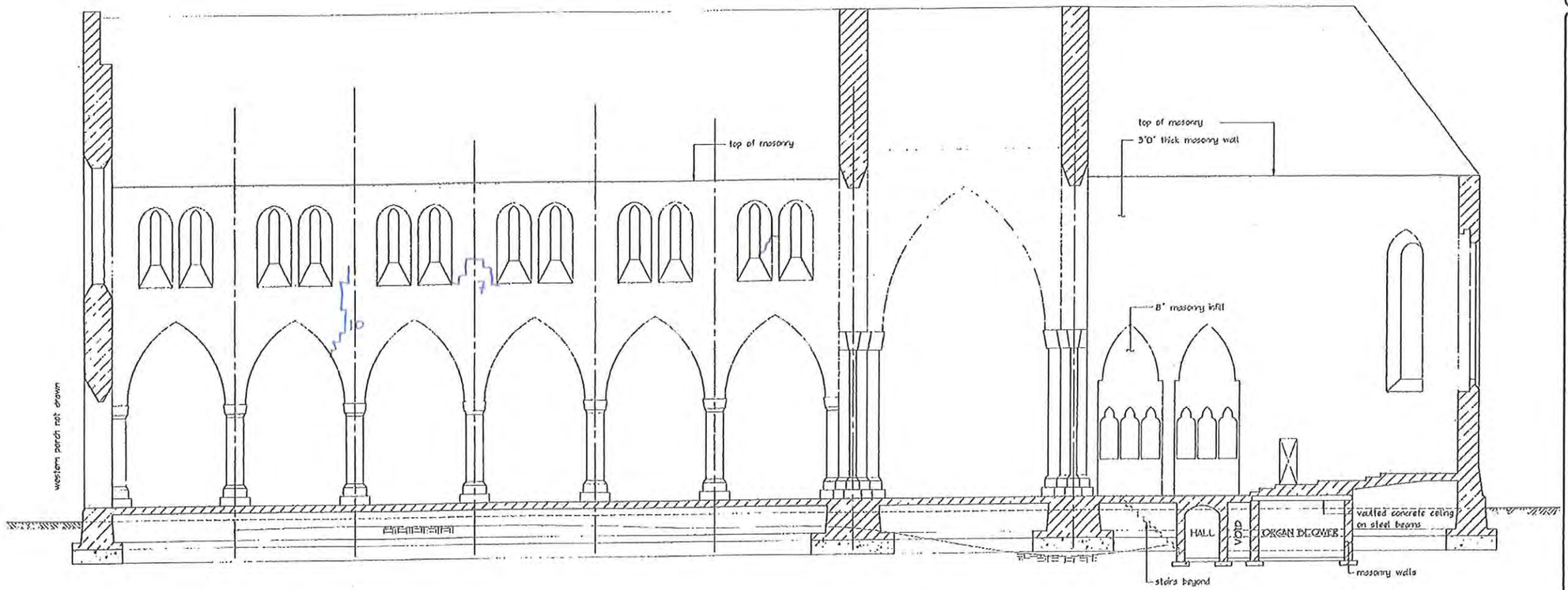

→ NO INSPECTION BEYOND HERE

longitudinal section nave (3 / S1-1)
(NORTH WALL)

NOTE: NO DAMAGE OBSERVED IN SOUTH WALL

REV	DATE	BY	REASON

HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS
Christchurch, Wellington, New Plymouth, Auckland, Sydney

CHRISTCHURCH
CATHEDRAL
SEISMIC STRENGTHENING PROPOSALS

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SECTIONS

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SSK#005

HolmesConsultingGroup

REPORT

Christchurch Cathedral Reconstruction

Briefing Document on Reconstruction Considerations

PREPARED FOR

Christchurch Cathedral Property Trust & Church Chapter

11 July 2011

1. Introduction

The Christchurch Cathedral has suffered severe 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 preliminary ground based damage surveys on the 22nd of March and the 24th of June and issued reports [1,2] detailing the results of the structural surveys.

Figure 1 Christchurch Cathedral following June 13th aftershock

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San Francisco

Holmes Consulting Group has been requested to prepare a briefing document for the Project Control Group. The purpose of the briefing document was to provide background information relating to reconstruction options for the Christchurch Cathedral.

2. Scope of Work

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

1. Relevant statutory requirements that require consideration when dealing with earthquake damaged buildings.
2. A structural assessment of the Cathedral in its current damaged state.
3. Investigate the feasibility of reconstructing the building such that it complies with current Building Code requirements.
4. Develop a conceptual reconstruction methodology for the building.
5. Discussion on the comparative costs of reconstruction vs. building a functionally similar new building on the site.

3. Limitations

Findings presented as a part of this project are for the sole use of the *Christchurch Cathedral Property Trust, Christchurch Cathedral Chapter*, its *insur*er, and the *Christchurch City Council* 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 generally been limited to external ground based inspections. We have limited knowledge on the condition of the roof, nave and internal structural elements. It is anticipated that more detailed interior and exterior damage surveys will be undertaken as part of future investigative works once necessary securing works have been completed.

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.

4. Statutory Requirements

4.1. Building Act

When dealing with existing buildings there are a number of relevant sections of the Building Act [3] that need to be considered in relation to the building's structure and strength.

SECTION 112 - ALTERATIONS TO EXISTING BUILDINGS

Section 112 of the Building Act requires that a building subject to an alteration continue to comply with the relevant provisions of the Building Code to at least the same extent as before the alteration.

Essentially this section means that the building may not be made any weaker than it was, as a result of any alteration.

SECTION 115 – CHANGE OF USE

Section 115 of the Building Act requires that the territorial authority (the Christchurch City Council) be satisfied that the building in its new use will comply with the relevant sections of the building code "as nearly as is reasonably practicable"

In relation to building earthquake strength, this section is typically interpreted by the Christchurch City Council as requiring earthquake strengthening to a minimum level of 67% of that required for an equivalent new building.

SECTION 122 – MEANING OF EARTHQUAKE PRONE BUILDING

Section 122 of the Building Act 2004 deems a building to be earthquake prone if its ultimate capacity (strength) would be exceeded in a "moderate earthquake" and it would be likely to collapse causing injury or death, or damage to other property.

The Building Regulations [4] define a moderate earthquake as one that would generate loads 33% as strong as those used to design an equivalent new building.

SECTION 124 – POWERS OF TERRITORIAL AUTHORITIES

If a building is found to be earthquake prone, the territorial authority has the power under section 124 of the Building Act to require strengthening work to be carried out, or to close the building and prevent occupancy.

SECTION 131 – EARTHQUAKE PRONE BUILDING POLICY

Section 131 of the Building Act requires all territorial authorities to adopt a specific policy on dangerous, earthquake prone, and unsanitary buildings.

4.2. Canterbury Earthquake Building Act

A number of modifications were made to the Building Act in wake of the Darfield Earthquake. These modifications as detailed in the Canterbury Earthquake Building Act [5] apply to buildings located in Christchurch City, and the Selwyn the Waimakariri Districts. Relevant sections of this Act that need to be considered include:

SECTION 7 – MODIFICATION OF MEANING OF DANGEROUS BUILDING AND EXTENT TO WHICH TERRITORIAL AUTHORITY CAN APPLY MODIFIED PROVISION

Section 7 of the Act expands the definition of a Dangerous Building to include buildings that are Earthquake Prone, and buildings where there is a risk that another property could collapse ,or otherwise cause injury or death to any person in the building.

SECTION 9 – MODIFICATION OF POWERS OF TERRITORIAL AUTHORITIES IN RESPECT OF DANGEROUS EARTHQUAKE-PRONE, OR INSANITARY BUILDINGS UNDER SECTION 124 OF THE ACT

This section modifies the definition of Dangerous Buildings in the Building Act to include earthquake-prone buildings. By extending the definition, the territorial authorities powers in respect to demolition or making good were made broader, in respect to earthquake damaged and understrength buildings.

4.3. Building Code

The Building Act requires all new building work to comply with the New Zealand Building Code which outlines the performance standards required for new building

work. The Department of Building and Housing also publishes Compliance Documents which may be used to establish compliance with the Building Code.

Following the Lyttelton Earthquake, an amendment to the Compliance Document B1 Structure [6] was published on the 19th May, 2011. This amendment contained changes to the seismic design loads for Canterbury including;

- 36% increase in the basic seismic design load (Z) for Christchurch (new Z=0.3)
- Increased serviceability limitations for new buildings

As a result, a building constructed in Christchurch last year to comply with the Building Code could now have a capacity of 73% of the new load levels.

4.4. Christchurch City Council Policy

In 2006 the Christchurch City Council (CCC) adopted their Earthquake-Prone, Dangerous and Insanitary Building Policy [4], which was subsequently amended (under urgency) following the 4th September 2010 Darfield Earthquake.

The 2010 amendment outlines a process of identifying Earthquake Prone Buildings due to commence from 1 July 2012. Owners of Earthquake Prone Buildings identified through this process would have between 15-30 years to strengthen the building to a target of 67% of current code as outlined in Section 2.3.3.

SECTION 2.3.3 – TAKING ACTION ON EARTHQUAKE-PRONE BUILDINGS

> ... As noted in section 2.3.1 of this Policy, the Council will determine the level of strengthening required to reduce or remove the danger on a building-by-building basis. It will be guided by the Recommendations of the New Zealand Society of Earthquake Engineers that 67% of Full Code Levels is a reasonable level of strengthening to reduce the risk posed by existing buildings...

The CCC's 2010 policy also includes the following section covering the repair of buildings damaged by an earthquake:

SECTION 2.3.6 – BUILDINGS DAMAGED BY AN EARTHQUAKE

> Buildings may suffer damage in a seismic event. Applications for a building consent for repairs will be required to ensure structural strength. The Council will follow sections 2.3.1 and 2.3.3 of this Policy in determining the level of strengthening required for each building.

If a building consent application for repairs is not made and/or the repair work is not completed within a timeframe that the Council considers reasonable the Council reserves the right to serve notice under section 124(1) of the Building Act 2004 [3] to require the work to be done.

From various discussions with CCC following the Canterbury earthquakes, we understand that building officials are likely to require buildings being repaired to achieve a capacity of 67% current code. Exemptions from achieving this requirement are likely to be limited, with significant heritage or other relevant considerations the only likely reasons for non-compliance.

4.5. Canterbury Earthquake Recovery Authority (CERA)

The Canterbury Earthquake Recovery Authority (CERA) was established on 28th March, 2011 to take responsibility for the recovery of Christchurch by means of the Canterbury Earthquake Recovery Act 2011 [7] which was passed on 18 April, 2011. Under this act, the CEO (of the Canterbury Earthquake Recovery Agency, CERA) has wide powers in respect of verifying building safety and requiring demolition or repairs. Particularly relevant sections are;

SECTION 38 – WORKS

(4) If the chief executive gives written notice to an owner of a building, structure, or other erection on or under land that demolition work is to be carried out there, -

(a) the owner must give notice to the chief executive within 10 days after the chief executive's notice is given stating whether or not the owner intends to carry out the works and, if the owner intends to do so, specifying a time within which the works will be carried out; and

(b) if the owner fails to give notice under paragraph (a) or the chief executive is not satisfied with the time specified, or the works are not carried out in the time specified or otherwise agreed, then –

(i) the chief executive may commission the carrying out of the works; and

(ii) in the case of the demolition of a building to which section 40(1) or (2) refers, the chief executive may recover the costs of carrying out the work from the owner of the dangerous building in question; and

(iii) the amount recoverable becomes a charge on the land on which the work was carried out.

SECTION 51 – REQUIRING STRUCTURAL SURVEY

> The chief executive may require any owner, insurer, or mortgagee of a building that he or she considers has or may have experienced structural change in the Canterbury earthquakes to carry out a full structural survey of the building before it is re-occupied for business or accommodation by the owner, a tenant, or any member of the public.

With regard to Section 51, we understand that it is likely that CERA will require a detailed engineering evaluation to be carried out for all buildings not exempt from the Earthquake Prone Building Legislation. At this stage it is not clear whether the detailed evaluation will be required prior to re-occupation.

CERA has recently published a draft procedure for the detailed engineering evaluation. Depending on the outcome of an initial qualitative assessment for a building, a further detailed quantitative assessment may be required. In addition to repair of earthquake damage, strengthening may be required in order to achieve compliance with the performance levels outlined in this evaluation procedure.

Typically the evaluation procedure defaults to achieving the minimum standard set out by the Earthquake Prone Building legislation, which has generally been accepted as achieving an ultimate limit state capacity equivalent to at least 33% current code. However, an additional requirement has been proposed whereby Critical Collapse Hazards (CCHs) must be specifically considered.

4.6. Heritage Considerations

The Christchurch City Plan [8] lists structures, places and objects which have a heritage value and sets out the rules for any proposed alterations. Listed historic items are divided into four groups, with Group 1 heritage items having the highest level of protection.

The rules affect proposals for demolition, alteration, removal, or additions to the listed items. The following extract from the City Plan outlines the general Resource Consent requirements;

> If a listed building, place or object is located on the site, and demolition, alteration or removal is proposed, and/or the erection of any additional building(s) is proposed on a site containing a listed building, place or object, application will need to be made for resource consents as follows:

	Demolition	Alteration or removal	Additional buildings
Group 1	Non-complying	Discretionary	Discretionary
Group 2	Non-complying	Discretionary	Discretionary
Group 3	Discretionary	Discretionary	Controlled
Group 4	Discretionary	Controlled (alteration) Discretionary (removal)	Controlled

Applications for any alteration to, or erection of any additional building(s) on a site containing a Group 3 or Group 4 building, place or object, or any internal alteration to a Group 1 or 2 building, place or object will not require the written consent of other persons and shall be non-notified.

5. Damage Assessment

Preliminary damage surveys completed to date [1,2] have confirmed that the Christchurch Cathedral has been severely damaged. As illustrated in Figures 1 and 2 a significant portion of the tower and the western wall (including the Rose Window) has collapsed. The northern, southern and Apse walls are also significantly damaged (refer Figure 3).

Other areas of the Cathedral have sustain lesser, but still significant, levels of damage. The South Turret has been removed and temporarily relocated to the grassed area to the south of the Cathedral.

Damage to the Visitor Centre appears to be limited to non-structural items such as glazing and linings.

In its current damaged state the Christchurch Cathedral is considered to be Earthquake Prone as defined in Section 122 of the Building Act [3]. This assessment has been made on the basis that if the building was to experience another moderate earthquake it is considered likely that that a portion of the building might collapse, and that this might cause injury or death to any building occupants that might be present.

Figure 1 Damage observed to the Tower

Figure 2 Typical damage pier observed to the south wall.

The Christchurch Cathedral is also considered dangerous as defined in Section 7 of the Canterbury Earthquake Building Act [4] on the basis that the building is considered to be Earthquake Prone.

Under Section 9 of the Canterbury Earthquake Building Act [4], Christchurch City Council could give written notice requiring that work be carried out on the Cathedral to reduce or remove the danger within a specified timeframe (minimum 5 days). If this work is not undertaken within the time stated in the notice Christchurch City Council has the authority under Section 9 of the Act [4] to undertake this work at the owners cost.

6. Reconstruction Requirements & Feasibility Assessment

Due to the extensive scope of reconstruction works that would be required to repair the damaged Cathedral it is likely that the Christchurch City Council would require that the be repaired building such that it complies with current Building Code requirements.

In terms of the New Zealand Loadings Standard, AS/NZS 1170.0 [9], the Cathedral would be considered an Importance Level 3 building as it contains contents of high value to the community and people in crowds. AS/NZS 1170.0 requires that seismic loads for Importance Level 3 buildings be based on an earthquake with 1000 year return period. This equates to a peak ground acceleration of 0.44g for a soft soil site.

We can confirm that it is feasible to repair and reconstruct the Christchurch Cathedral such that it complies with current Building Code requirements for an AS/NZS 1170 Importance Level 3 building.

7. Concept Reconstruction Methodology

The Cathedral could be reconstructed in many different ways. One methodology which is likely to offer potential cost advantages would be to reconstruct the Cathedral progressively from the west end. Referring to SSK# 011 included in Appendix 1 this methodology would require the construction of a relocatable steel gantry. The purpose of this gantry would be to:

i. Provide lateral stability to the damage Cathedral as it is reconstructed.

ii. Prop the nave roof while the damaged columns are repaired/replaced.

iii. Provide a safe haven for construction workers to retreat to should another large aftershock occur.

As the Cathedral was repaired the gantry would progressively be moved east. The roof to the nave isles would also need temporary propping as the north and south walls are reconstructed.

Based on what has been observed to date we have developed a concept reconstruction methodology for the Nave; and north and south Transept walls. It is likely that the reconstruction methodology adopted for these elements would be broadly similar to that which might be adopted elsewhere in the building. Please note that the actual scope of required deconstruction and reconstruction is still to be confirmed subject to the findings of a detailed damage assessment.

7.1. North & South Isle Walls

Referring to SSK# 012 and 013 (refer Appendix 1) the proposed reconstruction methodology is as follows (progressively working from west to east):

i. Prop the north and south Isle roofs.
ii. Deconstructed the north and south isle walls down to the level of the window sills.
iii. Deconstruct the ashlar and a portion of the inner wythes down to the existing floor level. Prop outer stone wythes as necessary.
iv. Deconstruct floor and existing foundation down to solid bearing.
v. Reconstruct new continuous reinforced concrete strip footing, foundation wall and reinstate the floor slab.
vi. Reconstruct new reinforced concrete wall up to roof level.
vii. Reinstate roof connections and new roof bracing.
viii. Reconstruct new outer stone wythes.
ix. Remove roof propping and reinstate windows.
x. Reconstruct ashlar.

Reconstruction of the ashlar could be deferred until some point in the future if necessary to reduce costs.

7.2. Nave Walls

Referring to SSK# 012 and 014 (refer Appendix 1) the proposed reconstruction of the nave walls is as follows:

i. Prop nave roof.

ii. Deconstruct ashlar and a portion of the inner wythes. Prop outer stone wythes as necessary.

iii. Reconstruct new reinforced concrete wall.

iv. Reinstate roof connections and new roof bracing.

v. Remove roof propping.

vi. Reconstruct inner ashlar layer.

As was the case with the north and south isle walls reconstruction of the ashlar could be deferred until some point in the future.

7.3. North and South Transept Walls

The methodology for proposed for the north and south Transpet walls is similar to that proposed for the north and south Isle walls.

8. Reconstruction Cost Assessment

Extensive reconstruction works will be required to repair the damaged Christchurch Cathedral. Much of this work will involve the deconstruction and reconstruction of heritage masonry, and strengthening of the existing walls with new reinforced concrete shearwalls.

Based on what has been observed to date, and if it is assumed that approximately 50% of the Cathedral walls will need to be deconstructed, and approximately 75% of the walls will need to be strengthened with new reinforced concrete walls, it is likely that the reconstruct cost will be higher than that associated with a functionally similar new building with the same gross floor area and with a standard level of fixtures and finishes.

Given the location of the building, its past history and importance to the community as the "Heart of the City" we recommend that some consideration be given as to whether a functionally similar new building with a standard level of fixtures and finishes is appropriate. A more appropriate assessment might be comparing the reconstruction cost of the Cathedral with the cost of a comparable new public building (i.e. art gallery or convention centre). On this basis it is unclear at this stage if the reconstruction cost would be higher.

We appreciate that the project has a number of financial constraints. A number of strategies could be employed to reduce the cost of the reconstruction:

i. Adopted a stage reconstruction program whereby portions of the Cathedral such as the Tower and Apse are deferred until a future date. This is similar to how the Cathedral was originally constructed and would permit other longer term funding mechanisms to be explored.

ii. Defer the reconstruction of expensive finishes and fixtures until a future date. This could include such items as the ashlar and floor tiles.

iii. A partial contemporary new build, partial reconstructed option that incorporates portions of the existing Cathedral.

9. Recommendations

We recommend the following:

i. A detailed damage assessment be undertaken to confirm the extent of earthquake damage.

ii. A more detailed reconstruction design be developed.

iii. A Heritage Consultant be engaged to review and comment on the proposed reconstruction methodology.

iv. A registered Quantity Survey be engaged to complete a detailed cost analysis for the proposed reconstruction design and for a new build option.

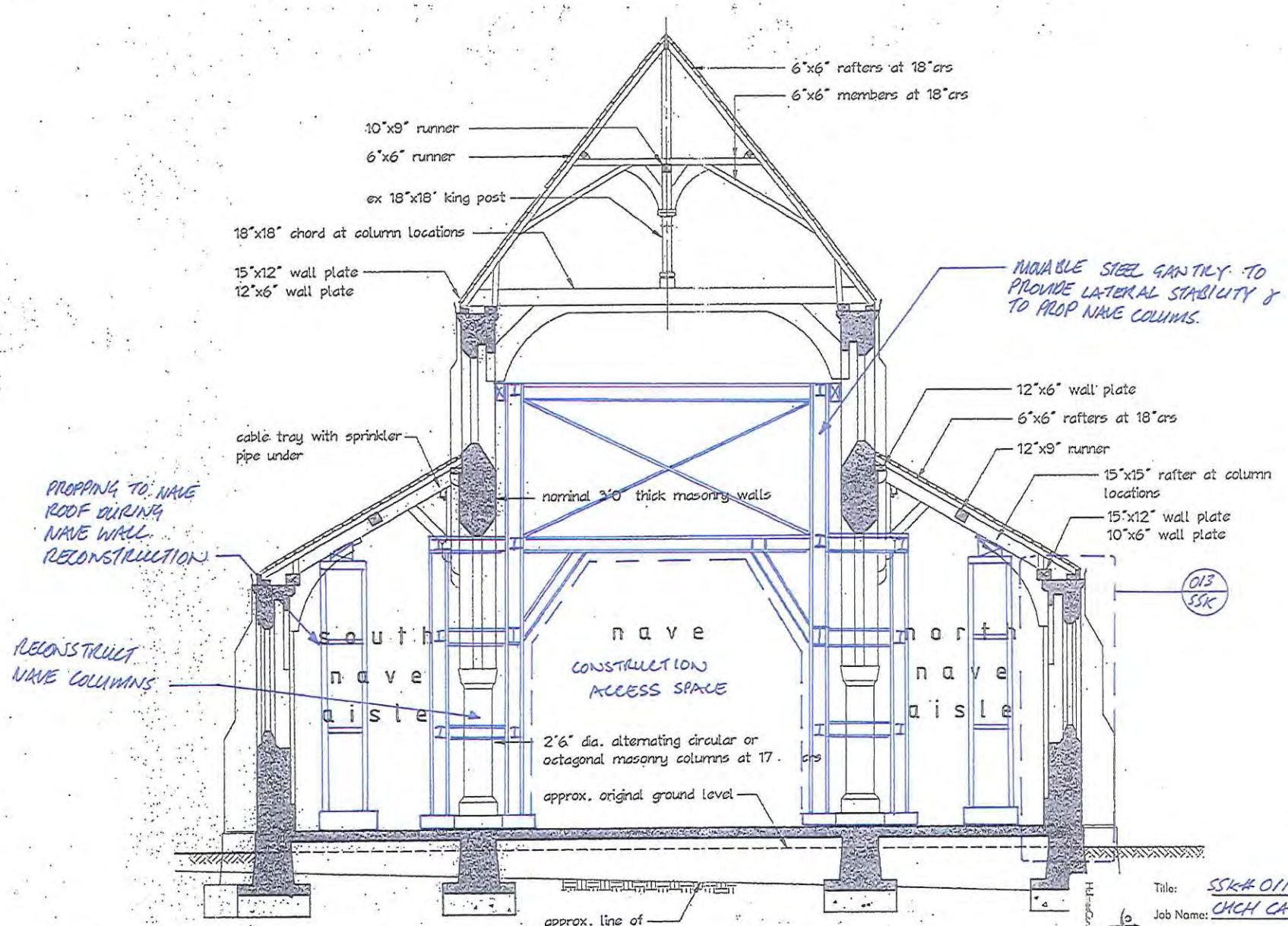
Report Prepared by:-

REFERENCES:

1. Holmes Consulting Group, *Christchurch Cathedral – Preliminary Damage Report,* 24th March 2011
2. Holmes Consulting Group, *Christchurch Cathedral – Preliminary Damage Report,* 29th June 2011
3. *Building Act*, 2004
4. *Canterbury Earthquake (Building Act)*, 2010
5. Department of Building & Housing, *Compliance Document for New Zealand Building Code – Clause B1 Structure*, 2011
6. *Earthquake-Prone Dangerous and Insanitary Buildings Policy 2010*, Christchurch City Council, 2010
7. *Canterbury Earthquake Recovery Act, 2011*
8. Christchurch City Council, *City Plan,* 2005
9. *Structural Design Actions Part 0: General Principles, AS/NZS 1170.0:2002*, Standards New Zealand, 2002

APPENDIX A

STRUCTURAL ENGINEERING SKETCHES



TYPICAL SECTION

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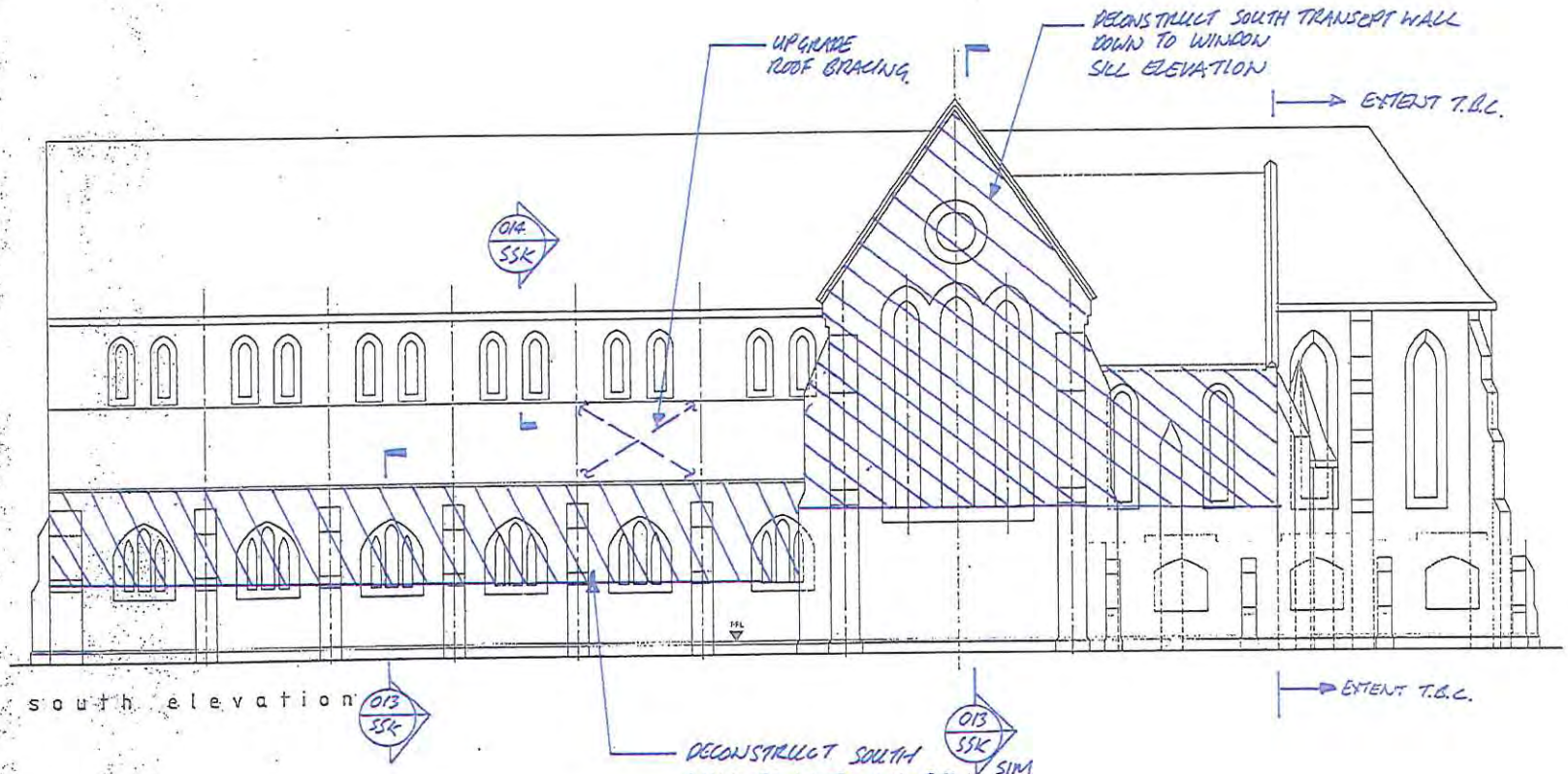
Job Name: CHCH CATHEDRAL
Job #: 106324 Rev: 1
Date: 9/7/11 Drawn:



SOUTH ELEVATION

NO	DATE	BY	REASON

HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS
Christchurch, Wellington, New Plymouth, Auckland, Sydney

CHRISTCHURCH CATHEDRAL

SEISMIC STRENGTHENING PROPOSALS

DRAWN: IDM SCALE: 1:100
APPROVED: ACAD FILENAME: CATHS1-2

SHEET TITLE

Title: SSK# 012
Job Name: CHCH CATHEDRAL
Job #: 106324 Rev: 1
Date: 9/7/11 Drawn:

HolmesConsultingGroup

HolmesConsultingGroup

Project Name: CHCH CATHEDRAL

Project No: 106324

Calcs By:

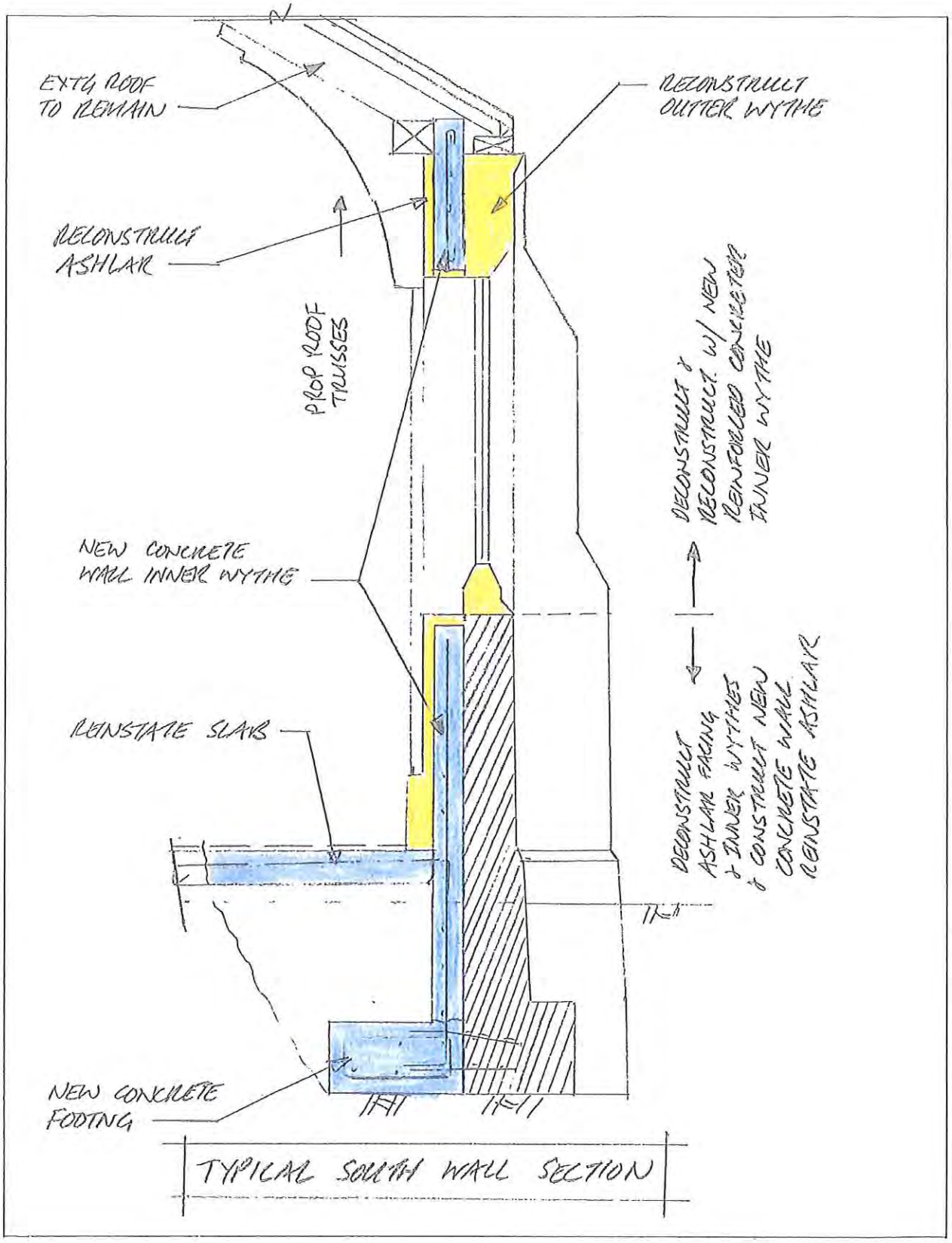
Date: 11/7/11

Sketch No: 013

Page No:

Revision: 1

CALCS/SKETCHES



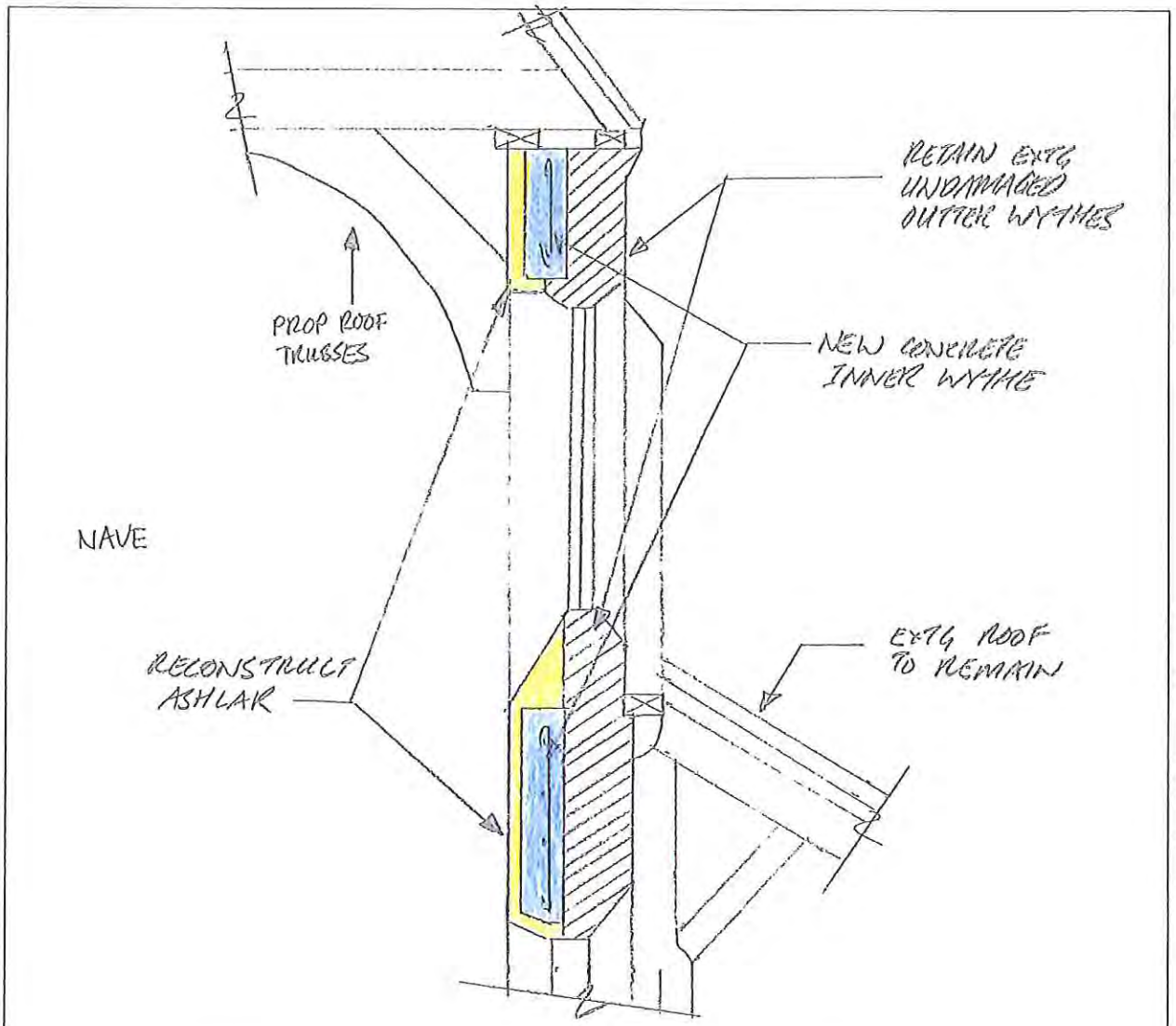
TYPICAL SOUTH WALL SECTION

HolmesConsultingGroup

Project Name: CHCH CATHEDRAL
Project No: 108324
Calcs By:
Date: 11/7/11
Sketch No: 014

CALCS/SKETCHES

Page No:
Revision: 1



TYPICAL NAVE WALL SECTION

HolmesConsultingGroup

REPORT

STRUCTURAL AND CIVIL ENGINEERS

Christchurch Cathedral

Updated Preliminary Post Earthquake Structural Damage Survey

PREPARED FOR

Christchurch Cathedral Property Trust & Church Chapter

29 June 2011

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 and issued a reporting detailing the results of the structural survey on the 24th of March.

The building sustained additional damage during the June 13th aftershock. This report summarises the findings of an updated ground based damage survey undertaken by Holmes Consulting Group on the 24th of June

As was the case for the original preliminary survey, 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 June 13th aftershock.
2. To provide a report that details the results of the updated structural survey.

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Limitations

Findings presented as a part of this project 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 a significant portion of the west wall, including most of the the Rose Window, has collapsed with much of the debris landing on the roof of the west porch below. The remaining portions of the west wall are badly distorted and severely compromised. Additional spalling and glass damage has also occurred to the Hawdon Window presumably from falling west wall debris (refer Figure 2).

Figure 1 Damage Observed to the West Wall

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

West Porch

Debris from collapsed west wall has damaged the slate roof of the west porch and has displaced the west porch a further 10 mm to the west. The additional deformation imposed on the west porch has caused the widths of the existing cracks to increase and glass breakage in the window above the north door.

The northern most window on the western wall of the porch has also experienced additional damage with new glass breakage and frame cracking observed (refer Figure 2).

Tower

As illustrated in Figure 3 the general pattern of damaged to the tower remains largely unchanged. Additional spalling was noted in the northern buttresses through the softer Oamaru stone.

North & South Aisles

No significant additional damaged was observed to have occurred to the north and south isles during the external damage survey. A closer internal inspection will be required to confirm this assessment.

North and South Walls

The severely damaged north and south walls were observed to have sustained additional distress. Existing crack widths have increased and new cracks were observed in both walls. Significant additional cracking and spalling was observed adjacent the south porch (refer Figure 4).

Nave

No significant additional damaged was observed to have occurred to the upper level north or south isle walls.

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

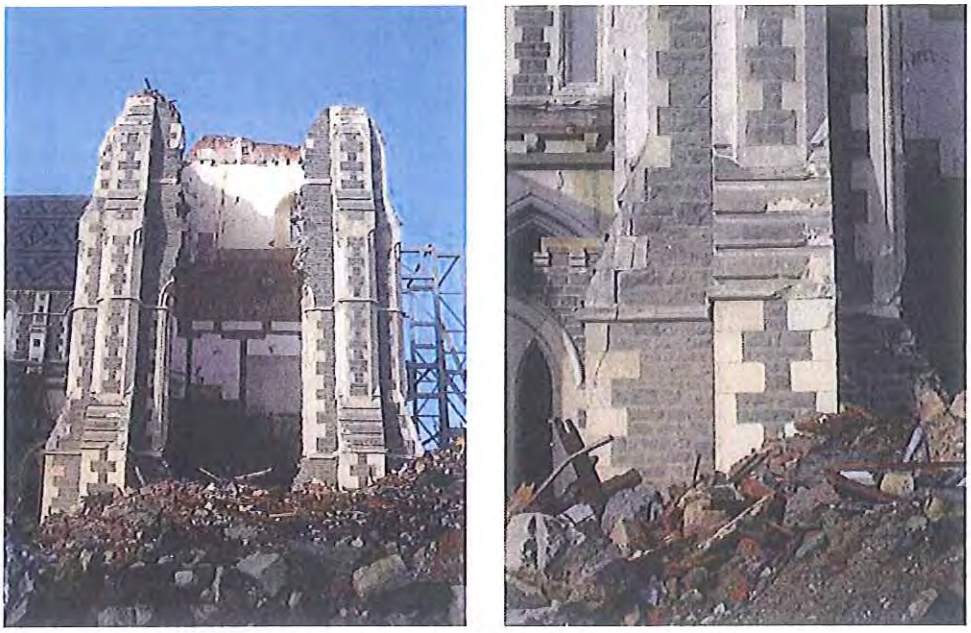

Figure 3 Damage Observed to the Cathedral Tower

Figure 4 Damage Observed to the South Wall

North Porch & North Turret

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

The north turret did experience further damage with additional stepped cracking observed in the supporting stairwell walls (refer Figure 5).

South Porch

Additional damage was noted to the east and west and windows of the south porch. The new damage consisted of cracking and minor spalling to the stone window frames (refer Figure 6).

Transept

Additional stepped cracking was observed to have occurred to the east wall of the south transept above the Choir Vestery. Bed joint slide cracking previously noted in the original internal piers adjacent the vestries has increased (refer Figure 7). The extent and severity of the observed cracking is difficult to quantify due to the presence of wall linings.

Apse

Additional structural damage was observed to have occurred to the Apse. Referring to Figure 8, crack widths in the northern wall have increased in magnitude. A brief interior inspection suggests that the stepped cracks are now approximately 30 to 40 mm wide (refer Figure 9).

Additional minor cracking, 2 to 7 mm wide, was also observed in the east and south walls.

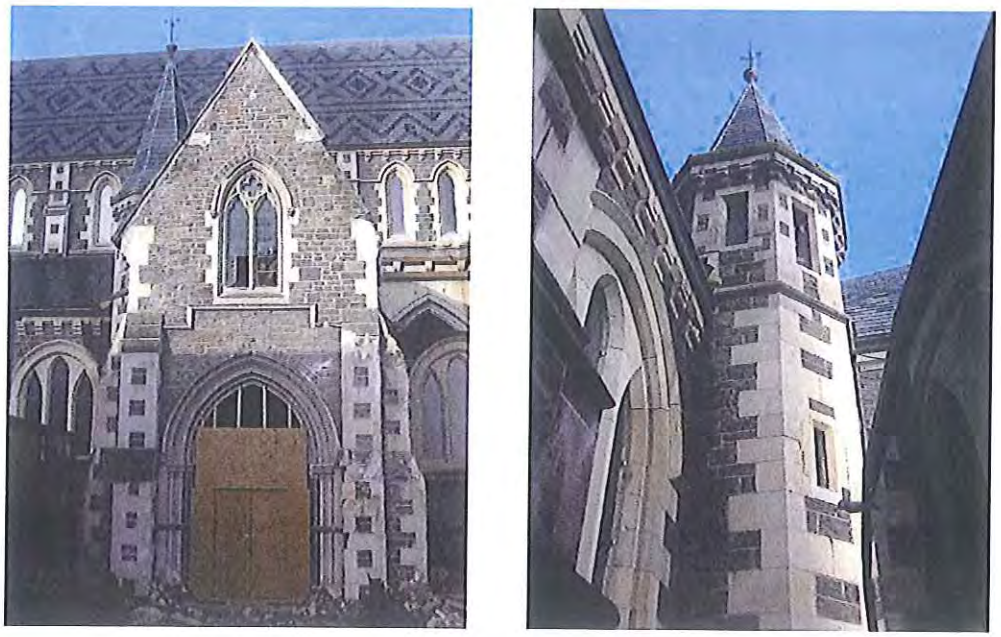

Figure 5 Damage Observed to the North Porch & North Turret

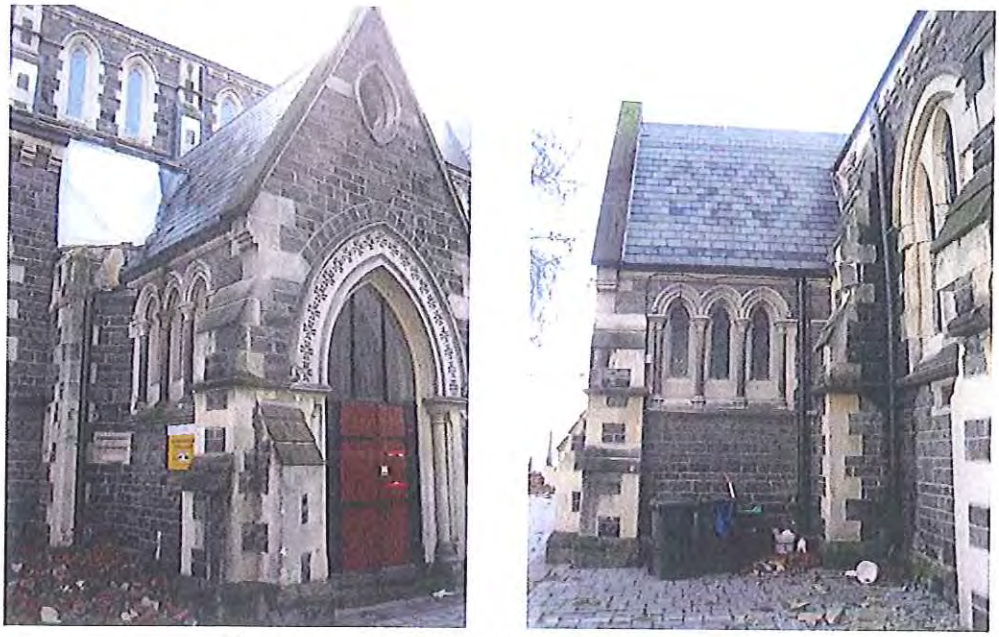

Figure 6 Damage Observed to the South Porch

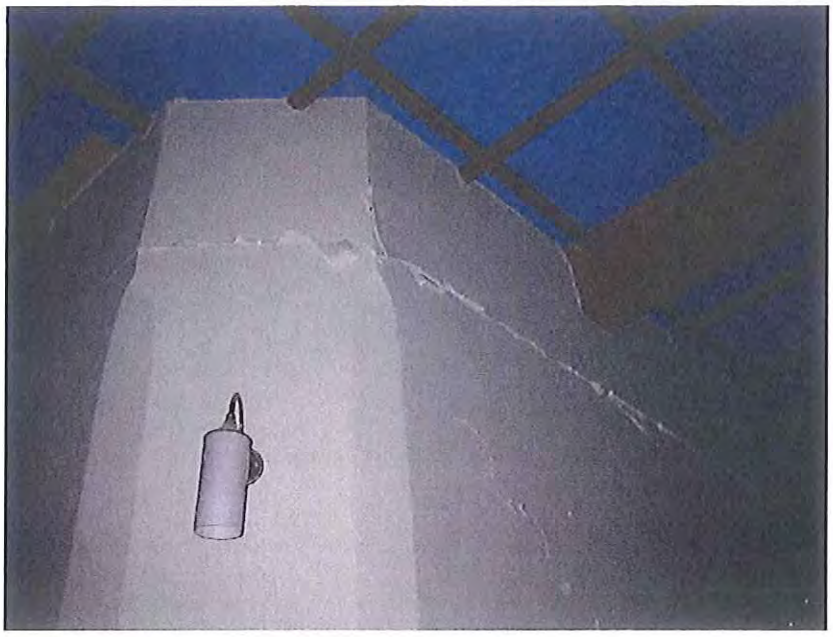

Figure 7 Damage Observed to the Clergy Vestry Stone Pier

Figure 8 Damage Observed to the Apse North Wall

Figure 9 Interior View of Damage Observed to the Apse North Wall

Clergy & Choir Vestries

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

Visitor Centre

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

Conclusion

The Christchurch Cathedral sustained significant additional structural damage as a result of the June 13th aftershock. Most of the west wall, including the Rose Window, has collapse with the falling debris also causing additional damage to the west porch. Damaged previously noted to the north and south walls, and to the

Apse, has increased. 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 likely that these detailed assessments will require the removal of non-structural wall linings in the vestry areas.

Report Prepared by:-

APPENDIX A – SKETCH RECORD OF PRIMARY DAMAGE OBSERVED

Inspection Date: 24 June 2011

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.

HolmesConsultingGroup

CONSULTANT ADVICE

STRUCTURAL AND CIVIL ENGINEERS

Project Name:	Christchurch Cathedral Reconstruction	CA HCG:	002
Project No:	106324	☐ Action:	
From:		☑ Information	
Date:	31 March 2011	Pages:	1 of 3
Subject:	Limited Access for Property Retrieval		

To	cc	
☑	☐	Christchurch Cathedral Chapter
☐	☑	Stoneworks
☐	☑	Warren & Mahoney
☐	☑	Holmes Consulting Group

Confirmation / Response to PC No.: N/A

This Consultants Advice is intended to detail those areas of the Cathedral which can be occupied for short periods of time to facilitate the removal of important fixtures and fittings.

Referring to SSK# 006 attached the following areas of the Cathedral can be occupied:

- Visitor Centre. Ground floor and basement areas. Access the building from the north east door.
- Clergy Vestry. Ground and basement areas as marked on the attached sketch. Access via the eastern door.
- Choir Vestry. Ground floor areas as marked on the attached sketch. Access via the eastern door.

Access is subject to the following conditions.

- Access is not permitted until the immediate securing works detailed on HCG Design Advise #001 have been completed.
- A representative of Holmes Consulting Group shall be present when the building is accessed. Personnel accessing the building will be required to follow any additional safety instructions given by Holmes Consulting Group staff.
- Total access time to the Cathedral and ancillary buildings is limited to 60 minutes for safety reasons. No more than 6 Church personnel are permitted to be in the buildings at any given time.
- The Cathedral building has sustained significant earthquake damage and has not yet been fully secured. While every effort has been made to

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Christchurch
Queenstown
San Francisco

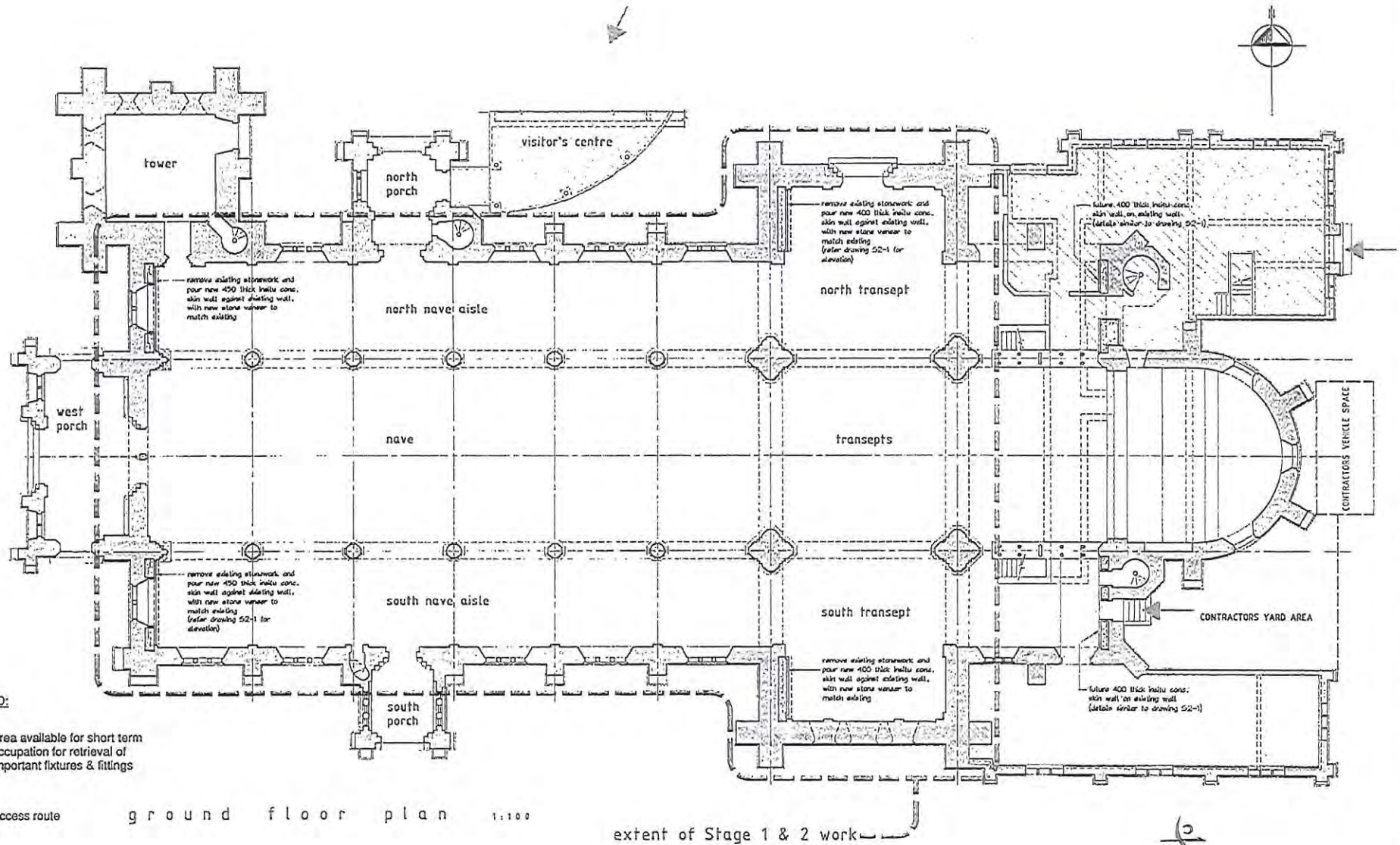
mitigate the risk of injury to people accessing the building please be advised that the stability of the Cathedral under a moderate to large aftershock cannot be assured. Those entering the Cathedral do so at their own risk and Holmes Consulting Group will not be held liable for any resulting injury or death.

- Access outside those areas detailed on SSK# 006 is not permitted.
- People should avoid congregating outside the building when not accessing the Cathedral and remain at least 20 m away whenever possible.
- The Cathedral Chapter will responsible for obtaining the necessary authorisations from the Christchurch City Council to enter the cordon and gain limited access to the building.

Should an aftershock occur while people are inside the Cathedral the following is advised:

- Personnel located within the Visitor Centre. Move toward the northern end of the building if possible and seek shelter under a desk or within a doorway.
- Personnel located within the Clergy and Choir Vestries. Move toward the eastern end of the building if possible and seek shelter under a desk or within a doorway.
- Personnel located outside the building. Move away from the Cathedral towards an open space.

Regards,



ground floor plan 1:100

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3	02.03.98	RG	Tender
2	16.12.97	MT	Building Consent
1	27.11.95	RG	Preliminary
Rev	Date	By	Reason

Drawn RG Scale 1:100
Approved Area Revision S1-1

CHRISTCHURCH CATHEDRAL STRENGTHENING

Project Name: Christchurch Cathedral Reconstruction
Project Number: 106224
Sketches By:
Date: 29-Mar-2011
Sketch Number: 006

HolmesConsultingGroup

REPORT

STRUCTURAL AND CIVIL ENGINEERS

Christchurch Cathedral

Preliminary Post Earthquake Structural Damage Survey

PREPARED FOR

Christchurch Cathedral Chapter

24 March 2011

Introduction

This report summarises the findings of a preliminary damage survey undertaken by Holmes Group Limited on the 22nd of March. 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 a more detailed interior and exterior damage survey will be undertaken as part of planned future investigative works with elevated work platforms.

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 earthquake damage.
2. To provide a report that details the results of the structural survey.

Limitations

Findings presented as a part of this project are for the sole use of *Christchurch Cathedral 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.

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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 damage observed to the Cathedral. Detailed survey information, a photo log and a floor plan have been included in the appendices.

West Porch

The west porch has been permanently offset from the western wall by approximately 20 – 30 mm. Moderate damage was observed to south and west walls, and significant damage to north wall (refer Figure 1). Damage to north wall includes parapet collapse and significant spalling of the north western buttress.

The north portion of roof has collapsed as a result of falling tower debris.

West Wall

The west wall has sustained severe damage. With reference to Figure 2, the north buttress and part of the adjoining section of nave wall has collapsed. The south buttress has become separated from the west and south nave walls. A number of the capping stones have buckled but remain in place. The wall itself is significantly distorted.

Figure 1 Damage Observed to the West Porch

Figure 2 Damage Observed to the West Wall

The Rose Window has been severely compromised with approximately 50% of the glass lost. Much of the stone structure still remains. A steel gantry was constructed by USAR to stabilise the wall and to date this appears to have worked satisfactorily.

Tower

Complete collapse of the upper section to level of bell ringers' ceiling (approx). Referring to Figure 3 subsequent USAR activities took central section of north wall down to approx 4 m above ground level. The remaining buttress sections are reasonably stable but may require shoring to enable deconstruction. A large crack has developed to inside and out of stair at southeast corner, full height on south wall (set width 30mm+). Most of the rubble has been stockpiled on site but is severely degraded.

North & South Aisles

The north aisle has sustained significant damage at the western end due to falling tower debris (refer Figure 4). Portions of the north aisle roof sheathing, roof bracing and a rafter have also failed. South aisle roof bracing has yielded and is visibly sagging.

North Wall

With reference to Figure 5 the north wall has sustained significant cracking through the wall piers and buttresses (i.e. 5 -10 mm).

South Wall

South wall piers and buttresses have sustained damaged similar to that observed in the north wall. With reference to Figure 6 in this instance the cracks are significantly wider (i.e. approx 10 – 30 mm wide). Some glass damage has also occurred as a result of the structural deformations.

Figure 3 Damage Observed to the Cathedral Tower

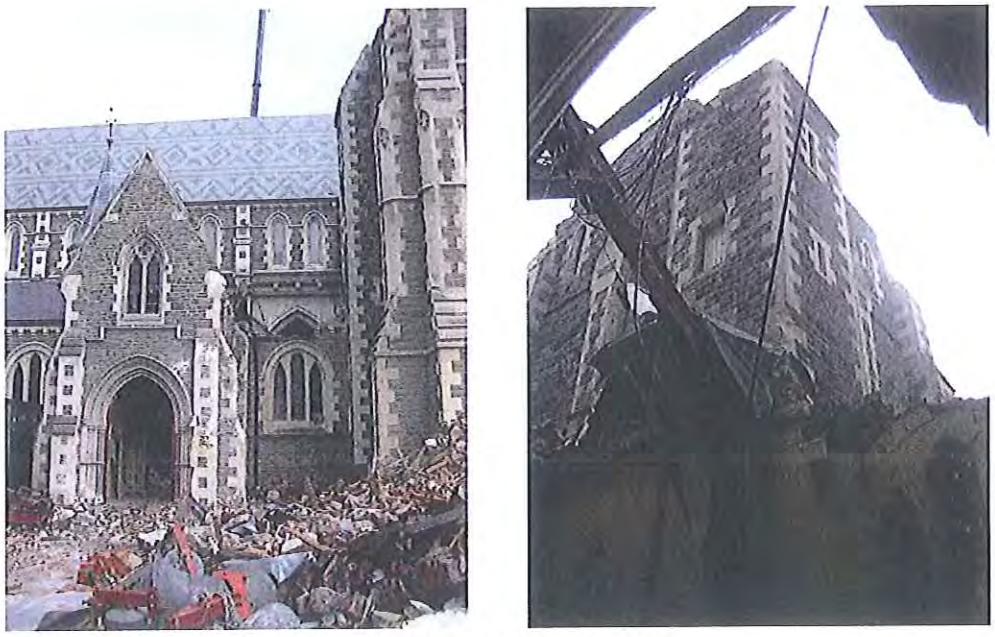


Figure 4 Damage Observed to the North Isle

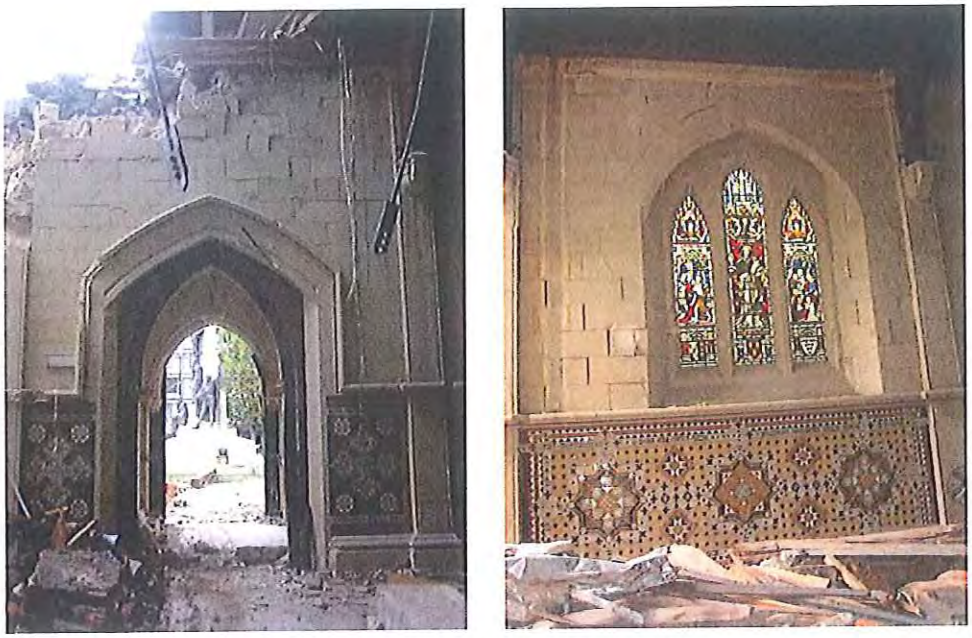


Figure 5 Damage Observed to the North Wall

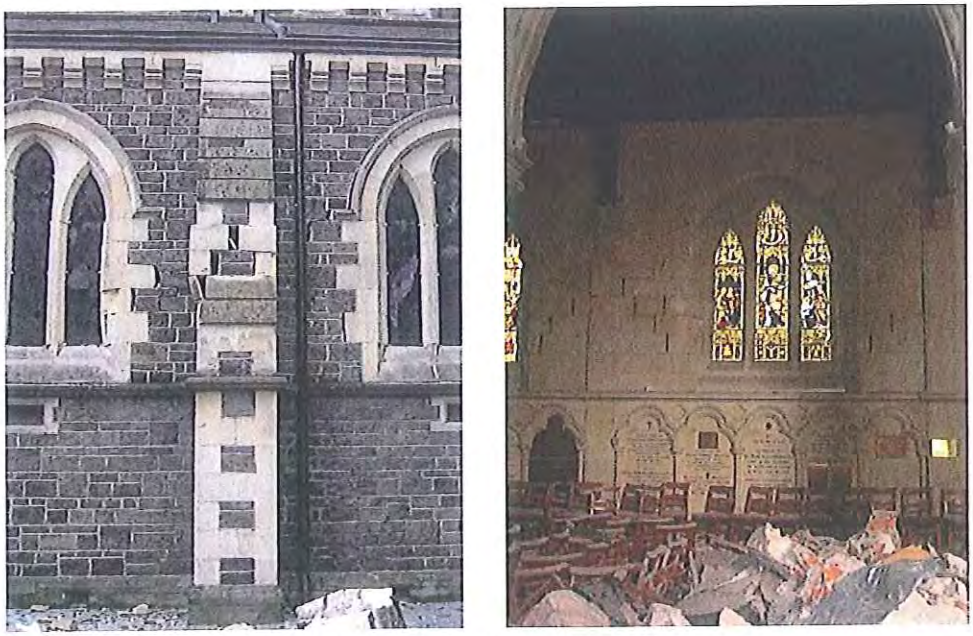


Figure 6 Damage Observed to the South Wall

Nave

High level walls in the north western corner have an outward lean as a result of tower collapse. Moderate levels of cracking were also observed in other areas of north wall. No significant structural damage was observed to the upper level south walls.

Columns and arches have sustained some damage to stone surfaces, some of this is severe (refer Figure 7). Roof appears to be in good condition except for the damage adjacent the western wall.

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

North Porch

The west wall/buttresses of the north porch has sustained damage due to falling tower debris (refer Figure 8). Stone elements that make up the northern wall have also sustained surface damage.

Falling tower debris have also caused much of the roof to collapse. Cracks have been observed in the ceiling.

The North Turret appears to be generally in good condition although some glass breakage was observed. Minor cracking (approx 1 – 3 mm wide) was observed in the supporting stairwell walls.

South Porch

Observed to generally be in good condition except for severe damage to the stairwell wall that supports the South Turret. The South Turret has subsequently been removed and relocated to the grassed to the south of the Cathedral by Stoneworks. Loose elements of the damaged stairwell have also been deconstructed and logged by Stoneworks.

Figure 7 Damage Observed to the Nave

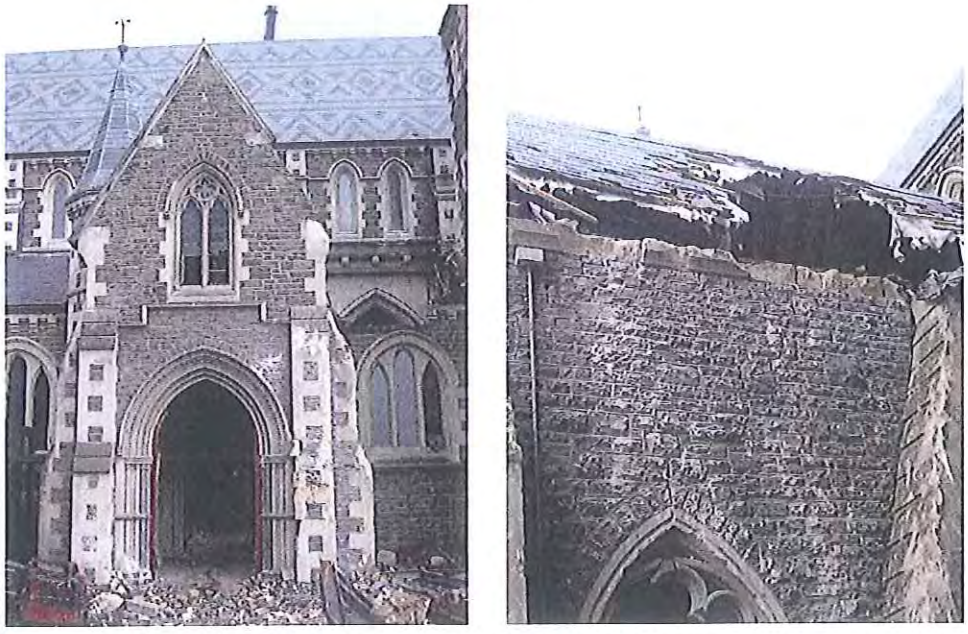


Figure 8 Damage Observed to the North Porch

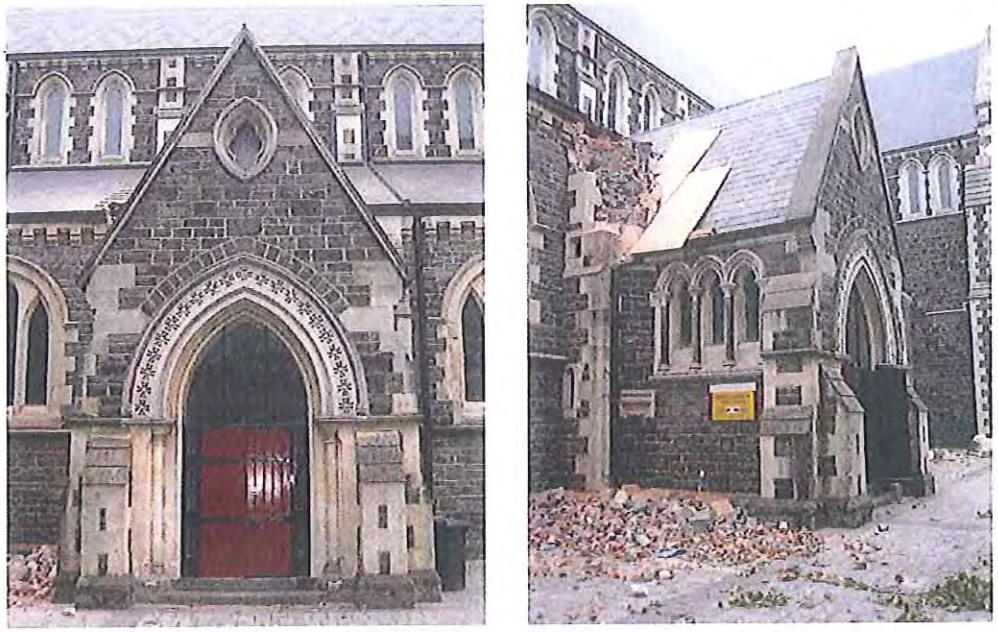


Figure 9 Damage Observed to the South Porch

Figure 10 Damage Observed to the South Transept Wall

Transept

North and south Transept walls have sustained significant cracking and damage. The upper regions have a permanent horizontal offset of approximately 10 mm and 40 mm for the north and south and walls respectively (refer Figure 10). North and south Transept wall gables have also sustained significant cracking

Damage to the windows in north and south transept walls since the Boxing Day event has increased.

A number of capping stones on the north wall have shifted. However the cross and supporting stonework still appear to be sound. Three capping stones at the apex of the south wall have also shifted.

USAR have made temporary repairs to the Barker and Pilgrim columns that support the west Transept walls. The central Transept area appears to be in poor condition with significant cracking of the western arch keystone observed.

Apse

North and south Apse walls have sustained significant cracking (10 – 20 mm) and associated glass damage (refer Figure 11). The central wall appears to have sustained less damage with no glass breakage observed from the exterior.

Clergy Vestry

Exterior review of the 1960's addition indicates that the north and east walls, believed to be of reinforced concrete construction, are largely undamaged (refer Figure 12). The south wall, believed to be a plastered concrete block infill wall, has sustained some cracking. The original unreinforced masonry walls have sustained significant cracking.

Choir Vestry

Damage was observed to be similar to that seen to the Clergy Vestry.

Figure 11 Damage Observed to the Apse

Figure 12 Damage Observed to the Clergy Vestry

Visitor Centre

Main structure appears to be undamaged. Some damaged to glazing observed.

Conclusion

The Christchurch Cathedral has been severely damaged. A significant portion of the tower has collapsed, the western wall has sustained severe damage and the northern and southern walls are significantly damaged. Other areas of the Cathedral have sustain lesser, but still significant, levels of damage.

Temporary shoring has been put in place to secure the West Wall and the South Turret has been removed.

It is recommended that the securing measures detailed in the Holmes Consulting Group memorandum of the 20th March 2011 be undertaken in order to make the site safe and enable a more detailed internal and external damage survey to be undertaken.

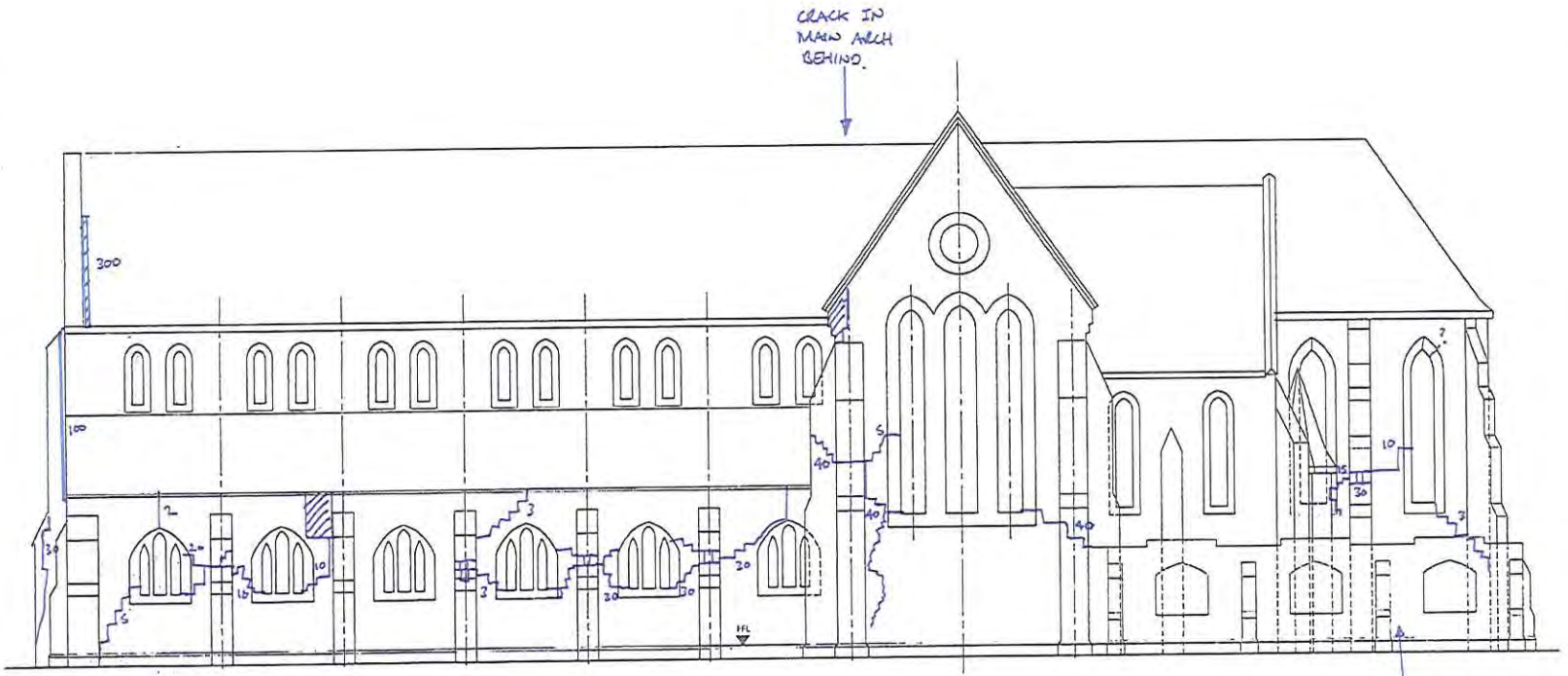
Report Prepared by:-

APPENDIX A – SKETCH RECORD OF PRIMARY DAMAGE OBSERVED

Inspection Date: 21 & 22 March 2011

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.

EXTERNAL DAMAGE SURVEY 22/3/11
SKO LIMITED TO GROUND OBSERVATION



south elevation

REV	DATE	BY	REASON

HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS

CHRISTCHURCH
CATHEDRAL
SEISMIC STRENGTHENING PROPOSALS

DRAWN: IDM SCALE 1:100
APPROVED: ACAD FILENAME: CATHS1-2

SHEET TITLE
ELEVATIONS

JOB No:	SHEET No:	REV:
2948	S1-2	REV

SSk # 001

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rev	DATE	BY	REASON

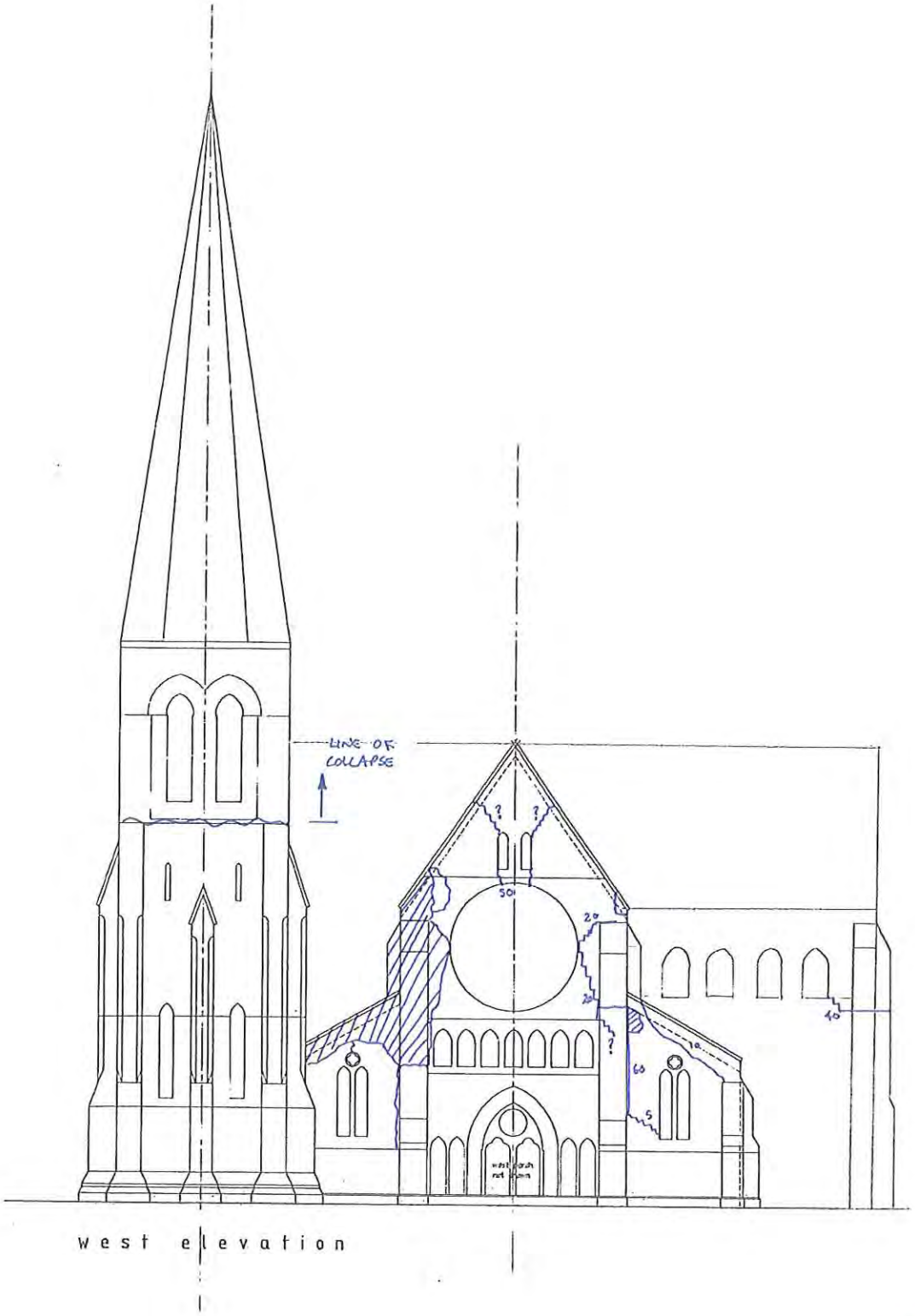
HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS
Christchurch, Nelson, Tauranga, New Plymouth, Auckland, Sydney

CHRISTCHURCH
CATHEDRAL
SEISMIC STRENGTHENING PROPOSALS

Drawn: GM | SCALE: 1:100
Approved: | AGAD FILENAME: CATHS1-5

SHEET TITLE: ELEVATIONS

JOB No. 2948 | SHEET No. S1-5 | REV. REV



SSK#002

north elevation

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REV	DATE	BY	REASON

HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS
(Christchurch, Wellington, New Plymouth, Auckland, Sydney)

CHRISTCHURCH CATHEDRAL

SEISMIC STRENGTHENING PROPOSALS

DRAWN: JDM SCALE: 1:100
APPROVED: ACAD FILENAME: CATHS1-4

SHEET TITLE:
ELEVATIONS

JOB No.	SHEET No.	REV.
2948	S1-4	REV

SSK # 003

REV	DATE	BY	REASON

HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS

CHRISTCHURCH
CATHEDRAL

SEISMIC STRENGTHENING PROPOSALS

DRAWN: IDM	SCALE: 1:100
APPROVED:	ACAD FILENAME: CATHS1-3

SHEET TITLE:

ELEVATIONS

JOB No.	SHEET No.	REV.
2948	S1-3	REV

SSK#004

SW#178

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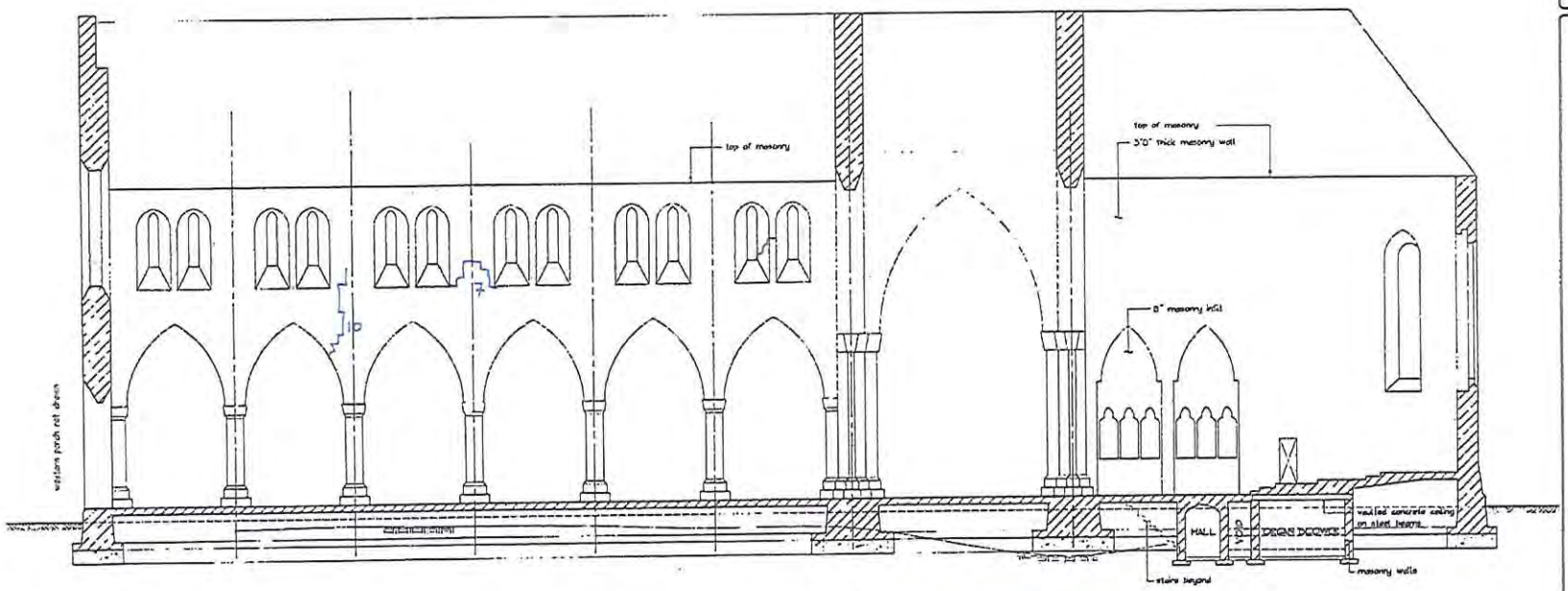

→ NO INSPECTION BEYOND HERE

longitudinal section nave (3 SHM)
(NORTH WALL)

NOTE: NO DAMAGE OBSERVED IN SOUTH WALL

REV	DATE	BY	REASON

HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS
Christchurch, Wellington, New Plymouth, Southern Region

CHRISTCHURCH
CATHEDRAL
SEISMIC STRENGTHENING PROPOSALS

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SHEET TITLE
SECTIONS

JOB No.	SHEET No.	REV
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SSK#005

APPENDIX B – PHOTO RECORD OF PRIMARY DAMAGE OBSERVED

Inspection Date: 21 & 22 March 2011

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	Comments
1	West Wall	View of gantry and damage to west wall.
2	South Wall, Hassali Window	
3	South Wall, Watts Russell Window	Note that south turret has been removed.
4	West wall of West Porch	Note spalling damage to window frame
5	South wall of West Porch	Permanent offset of west porch has increased by approximately 10 mm.
6	West Wall	
7	West Wall	
8	West Wall, Wilson Window	
9	South wall of West Porch	

Photo No.	Location	Comments
10	West wall of West Porch	Note visible western lean of west wall
11	West Wall of West Porch	Southern section of wall obscured by temporary securing works.
12	West Wall, Wilson Window & West Porch	
13	West Wall	Note significant structural distortion.
14	West Wall & Rose Window	
15	West Wall & Rose Window	
16	West Wall, Hawdon Window & West Porch, North Wall	
17	West Wall of West Porch	Northern section of wall obscured by temporary securing works.
18	West Porch, North Wall	
19	West Porch, West Wall	
20	West Porch, West Wall	Damage to north west corner of the Nave
21	West Porch, North	Close-up of the damage to the west pillar of the north wall of the West Porch.

Photo No.	Location	Comments
	Wall	
22	West Wall, Hawdon Window	
23	West Wall, Cathedral Tower	
24	North Wall, Cathedral Tower	
25	North Wall, Cathedral Tower	Close-up of the damage to the west buttress.
26	North Wall, Cathedral Tower	Close-up of the damage to the east buttress
27	North Porch	
28	North Porch	
29	North Wall, Cathedral Tower	Interior view of Cathedral Tower north wall.
30	North Porch, West Wall	
31	North Porch, West Wall	
32	North Porch, West Wall	
33	North Porch, West Buttress	Close-up of buttress adjacent the Tancred Window.

Photo No.	Location	Comments
34	North Wall, Tancred Window	
35	North Wall, Cathedral Tower	Close-up of the damage to the east buttress
36	North Porch, North Gable	
37	North Porch, North Entrance	
38	North Turret	Upper section
39	North Turret	Lower section. Note cracking adjacent window.
40	Buttress, North Wall	Typical buttress damage in northwall.
41	West Transept Wall, North Section	Note damage/horizontal offset in buttress
42	West Transept Wall, North Buttress	Lower section of buttress.
43	West Transept Wall, North Buttress	Close-up of perminant horizontal offset observed in buttress.
44	North Transept Wall	Upper section of western portion of wall unobscured by temporary scaffolding works. Note horizontal offset in buttress
45	North Transept Wall	Middle section of western portion of wall unobscured by temporary scaffolding works
46	North Transept Wall	Lower section of western portion of wall unobscured by temporary scaffolding works
47	North Transept Wall	Upper section of eastern portion of wall unobscured by temporary scaffolding works.

Photo No.	Location	Comments
48	North Transept Wall	Middle section of eastern portion of wall unobscured by temporary scaffolding works.
49	North Transept Wall	Lower section of eastern portion of wall unobscured by temporary scaffolding works.
50	North Transept Wall	North eastern view of buttress – middle section
51	North Transept Wall	North eastern view of buttress – upper section and gable
52	North Vestry Wall	
53	Clergy Vestry, North Wall	Note spalling around window frame and broken glass.
54	Clergy Vestry, North Wall	
55	Clergy Vestry, North Wall	
56	Clergy Vestry, North Wall	
57	Clergy Vestry, North Wall	
58	Clergy Vestry, South Wall	Note cracking in south wall
59	Clergy Vestry, South Wall	
60	North Gable of North Vestry	
61	Apse, North East Wall, Studholme	Apse, North East Wall, Studholme Window

Photo No.	Location	Comments
	Window	
62	North East Turret	Note falling hazard in wall behind.
63	Apse East Wall, Canterbury Colonists Window	
64	Choir Vestry, North Wall	
65	Choir Vestry, North Wall	
66	Apse, South East Wall, Studholme Window	
67	Apse, South East Wall, Studholme Window	Lower section
68	South East Turret	Upper section
69	South East Turret	Lower section.
70	Apse, South Wall	Upper section
71	Apse, South Wall	Close up of damage
72	Apse, South Wall	Lower section
73	Choir Vestry, South Wall	No significant additional cracking noted
74	Choir Vestry, South	

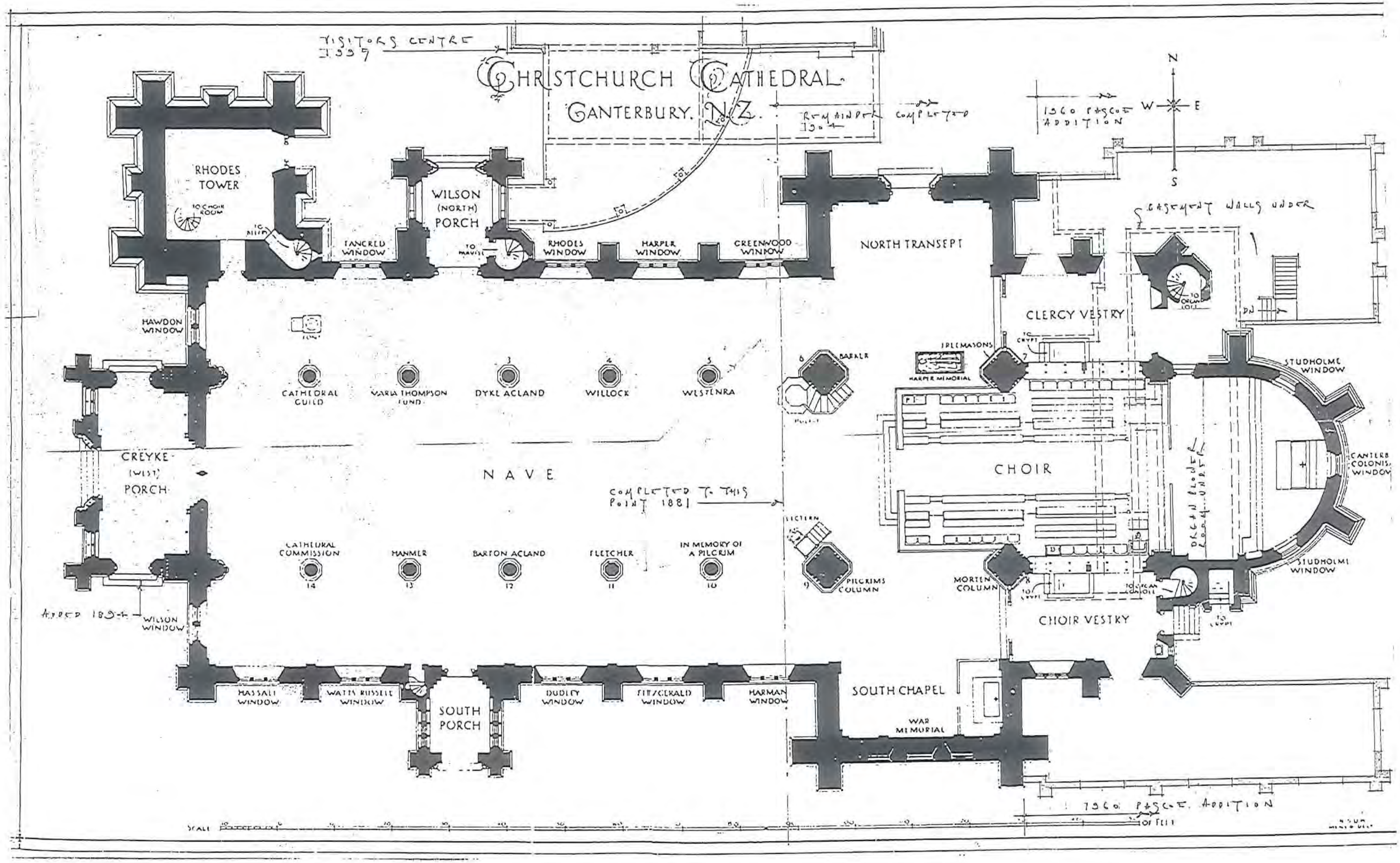
Photo No.	Location	Comments
	Wall	
75	Choir Vestry, South Wall	
76	Choir Vestry, South Wall	
77	Choir Vestry, Upper Level South Wall	
78	South Transept, East Wall	
79	South Transept Wall, Western Buttress	Middle section.
80	South Transept Wall, Western Buttress	Upper section
81	South Transept Wall, Western Buttress	Close-up of perminant offset.
82	South Transept Wall, Eastern Buttress	Lower section
83	South Transept Wall, Western Buttress	Upper section
84	South Transept Wall, Western Buttress	Close-up of perminant offset.
85	South Transept Wall, Western Buttress	Middle section.

Photo No.	Location	Comments
86	South Transept Wall, Western Buttress	Lower section
87	South Transept Wall, Western Buttress	South western view, upper section.
88	South Transept Wall, Western Buttress	South western view, lower section.
89	West Transept Wall	South section, upper level
90	West Transept Wall	South section, upper level
91	West Transept Wall	South section, lower level
92	West Transept Wall	South section, lower level
93	West Transept Wall	Close up of damage to south section, mid level
94	West Transept Wall	South western view
95	South Wall	
96	South Wall, Fitzgerald & Harman Windows	
97	South Wall, Fitzgerald & Harman Windows	Close up of damage to buttress.
98	South Wall, Fitzgerald & Harman Windows	Close up of damage to buttress.
99	South Wall, Dudley & Fitzgerald Windows	
100	South Porch, East	Note spalling damage in South Wall at

Photo No.	Location	Comments
	Wall	
101	South Porch, East Wall	Close-up of spalling damage
102	South Porch, East Wall	
103	South Porch, South Wall	
104	Interior of Choir Vestry, West wall	
105	Interior of Choir Vestry, West wall	
106	Choir Vestry Colonnade	
107	South Transept, South Wall	Internal view
108	North Transept, North Wall	
109	Pilgrims Column	
110	South Wall	
111	Apse, North Wall	
112	Western Transept Arch	
113	Apse, South Wall	

Photo No.	Location	Comments
114	Apse, North Wall	Upper section
115	Apse, North Wall	Upper section
116	Apse, North Wall	Lower section
117	Apse, North Wall	Lower section
118	Clergy Vestry Colonnade	
119	Bishop Harper Effigy	
120	Clergy Vestry, Internal Pier	Heritage element
121	Clergy Vestry	Non structural lining damage
122	Clergy Vestry	Non structural lining damage
123	Apse, North Wall	
124	Apse, North Wall	
125	Clergy Vestry	

APPENDIX C – BUILDING PLAN


CHRISTCHURCH CATHEDRAL
CANTERBURY. N.Z.
VISITORS CENTRE 1997
REMAINDER COMPLETED 1904
1960 PASCOE ADDITION
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BASEMENT WALLS UNDER
RHODES TOWER
TO CHOIR ROOM
WILSON (NORTH) PORCH
TANCRED WINDOW
RHODES WINDOW
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GREENWOOD WINDOW
NORTH TRANSEPT
CLERGY VESTRY
HAWDON WINDOW
FREEMASONS
HARPER MEMORIAL
STUDHOLME WINDOW
CATHEDRAL GUILD
MARIA THOMPSON FUND
DYKE ACLAND
WILLOCK
WESTENRA
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CANTERB. COLONIS. WINDOW
ORGAN BLOWER ROOM UNDER
CATHEDRAL COMMISSION
HANMER
BARTON ACLAND
FLETCHER
IN MEMORY OF A PILGRIM
LECTERN
PILGRIMS COLUMN
MORTEN COLUMN
STUDHOLME WINDOW
ADDED 1894
WILSON WINDOW
CHOIR VESTRY
HASSALL WINDOW
WATTS RUSSELL WINDOW
SOUTH PORCH
DUDLEY WINDOW
FITZGERALD WINDOW
HARMAN WINDOW
SOUTH CHAPEL
WAR MEMORIAL
1960 PASCOE ADDITION
SCALE
OF FEET

CATHEDRAL DAMAGE REPORT

Summary of damage observations to date:

1. West porch. Pushed out from west wall, moderate damage to north and south walls. West wall sustained minor damage in Boxing Day, appears reasonably sound. No internal inspection yet, not safe

2. West wall. Severely damaged. Upper portion only still fixed to roof structure. Lost north buttress and part wall. South buttress split from both west and south nave wall. North gable capping stones lost, south gable capping stones buckled but still in place. Rose Window severely compromised, lost some stone, but most of inner structure still in place. Appears approx 50% of glass lost. Steel gantry to upper section above porch installed 27/28 Feb, tied through, appears to have stabilized in short term to allow considered deconstruction

3. Tower. Catastrophic collapse of upper section to level of bellringers' ceiling (approx). Subsequent USAR activities took central section of north wall down to approx 4m (level of lancet window sills). Remaining buttresses reasonably stable but may require further shoring. Large split to inside and out of stair at southeast corner, full height on south wall (set width 30mm+). most of rubble still on site but severely degraded.

4. North aisle. Bracing gone in westernmost bays to north porch due to tower falling debris. Took out bracing and one full rafter, one partial rafter remaining. Damage to stonework.

5. Both aisles. North and south walls show severe shear cracking in most bays, inside and out.

6. Nave. High level wall has outward lean at northwest corner (due to deformation from tower stone fall taking out rafter/brace?). Possible cracking at upper levels, full inspection required. Columns and arches, damage to stone surfaces, some severe. Arches moved , lost mortar, detail. Roof in good order apart from at west wall.

7. North porch. Roof severely damaged from tower. First floor not sighted, assume damage from rubble, ceiling sagging. Ground floor reasonably intact. North wall tbc.

8. South porch. Porch mostly intact but stair wall to turret badly cracked, and unstable. Turret roof in good order, needs immediate removal for safety and preservation

9. Transept. Central area in poor condition. West columns banded by USAR. Falling hazard from arch stonework. South wall severely cracked, approx 50mm offset in west section of wall to window. Glazing damaged (prior to Feb, increased). North wall better, cross still in place, tbc

10. Apse. Significant cracking to north and south walls. North and south stained glass windows moderately damaged, central appears better

11. Offices. Significant cracking to walls adjacent to apse. Exterior walls appear better, moderately cracked. Linings generally cracked and damaged throughout. South of apse not seen, but assume similar. Organ loft not seen, but cracking to upper level walls apparent externally.

12. Basement. No major damage noted

13. Visitors centre. Some glass damage plus roof (tbc) but main structure appears intact.

SUMMARY

The Cathedral is severely damaged with the tower approximately 50% destroyed, and the stability of the west end compromised and precarious, even with temporary shoring installed. The East end including transept is in better condition, but still severely damaged.


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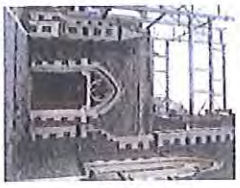
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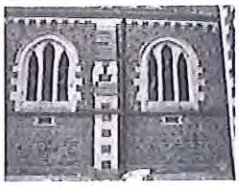

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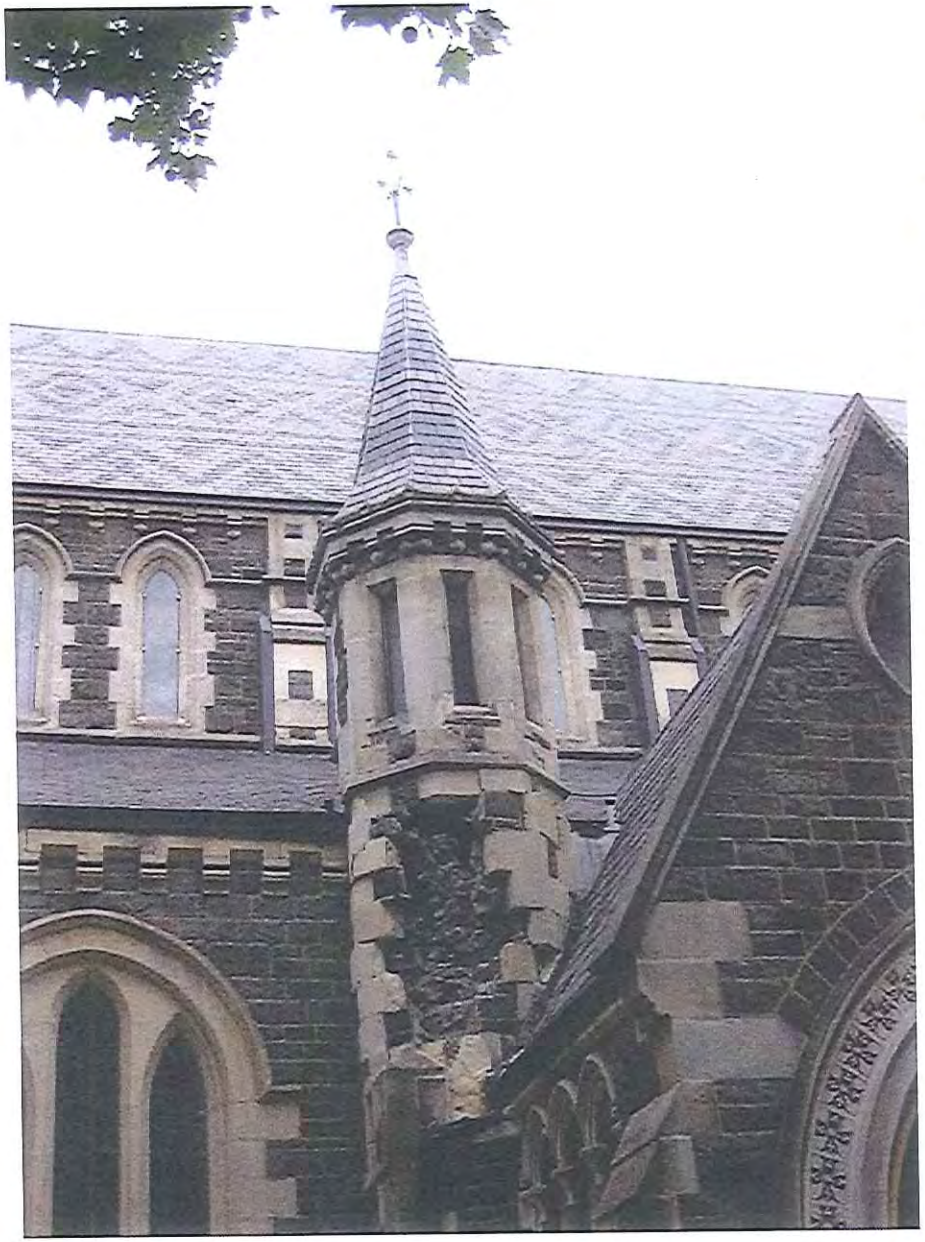

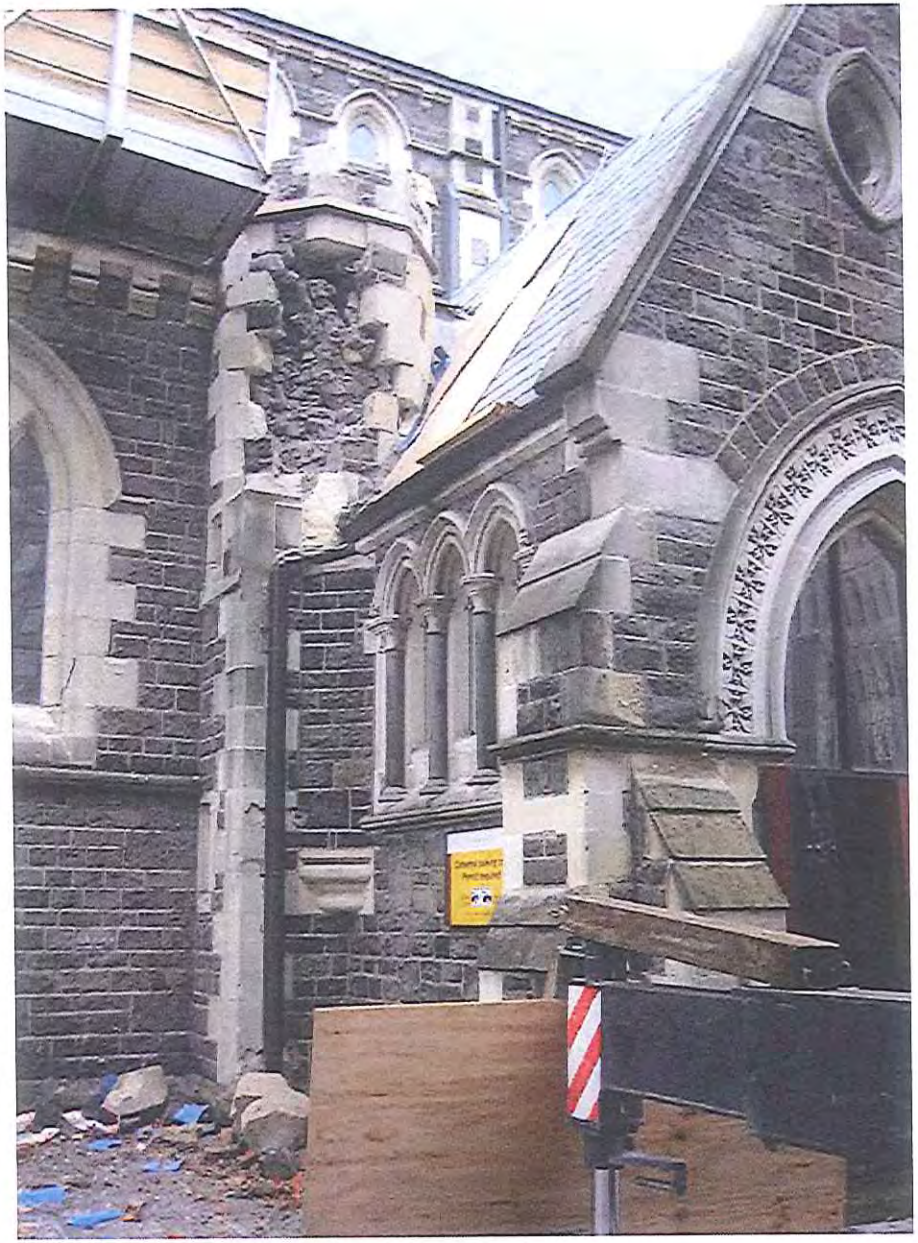

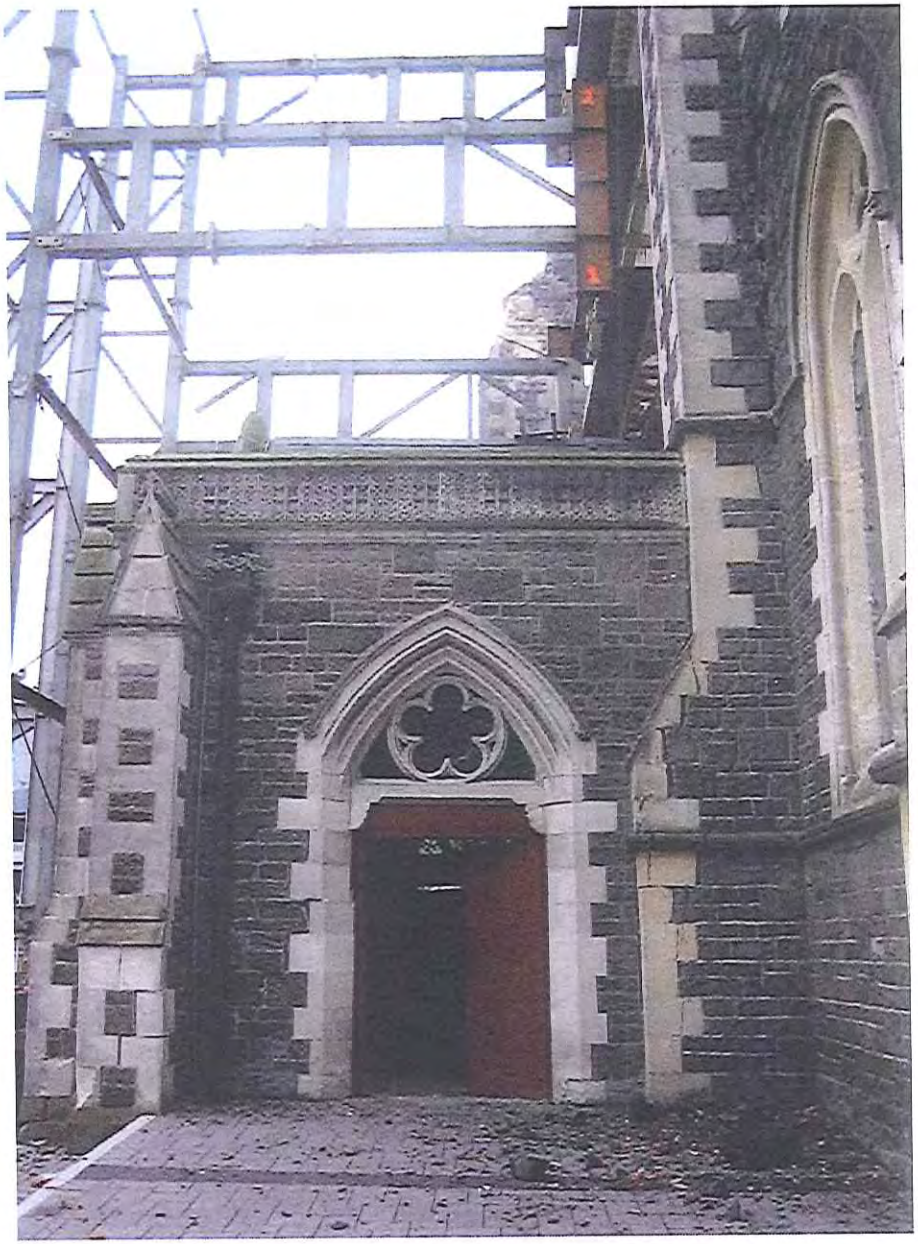

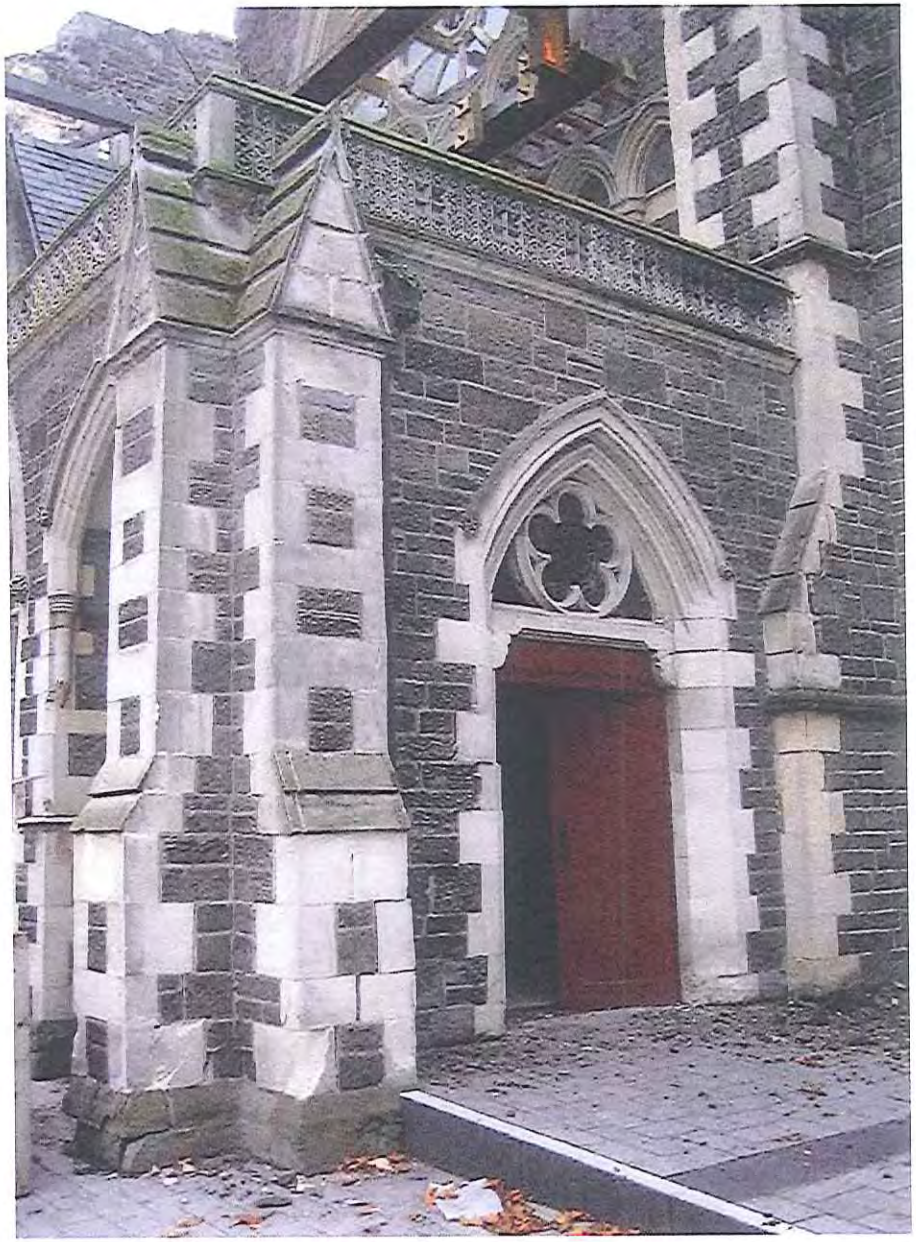

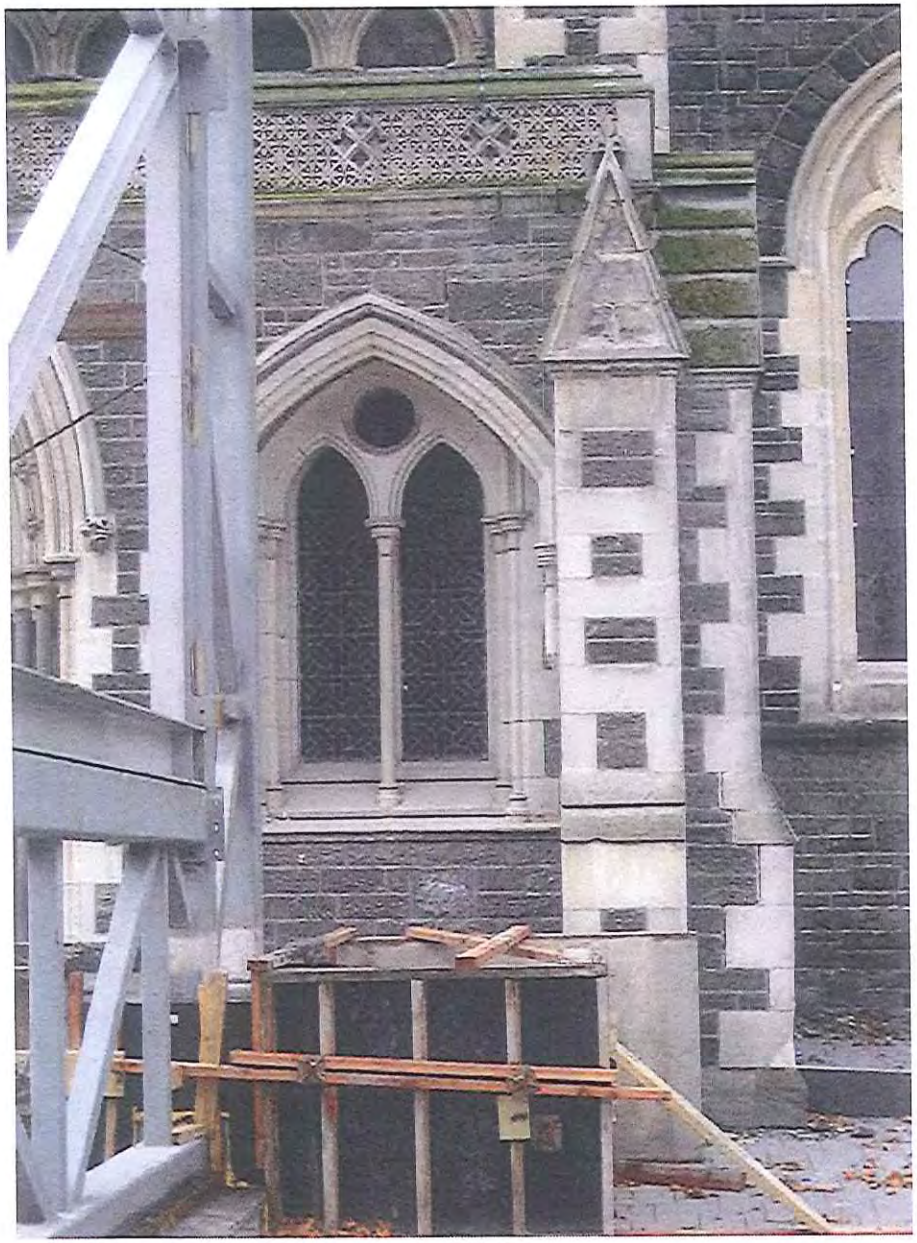

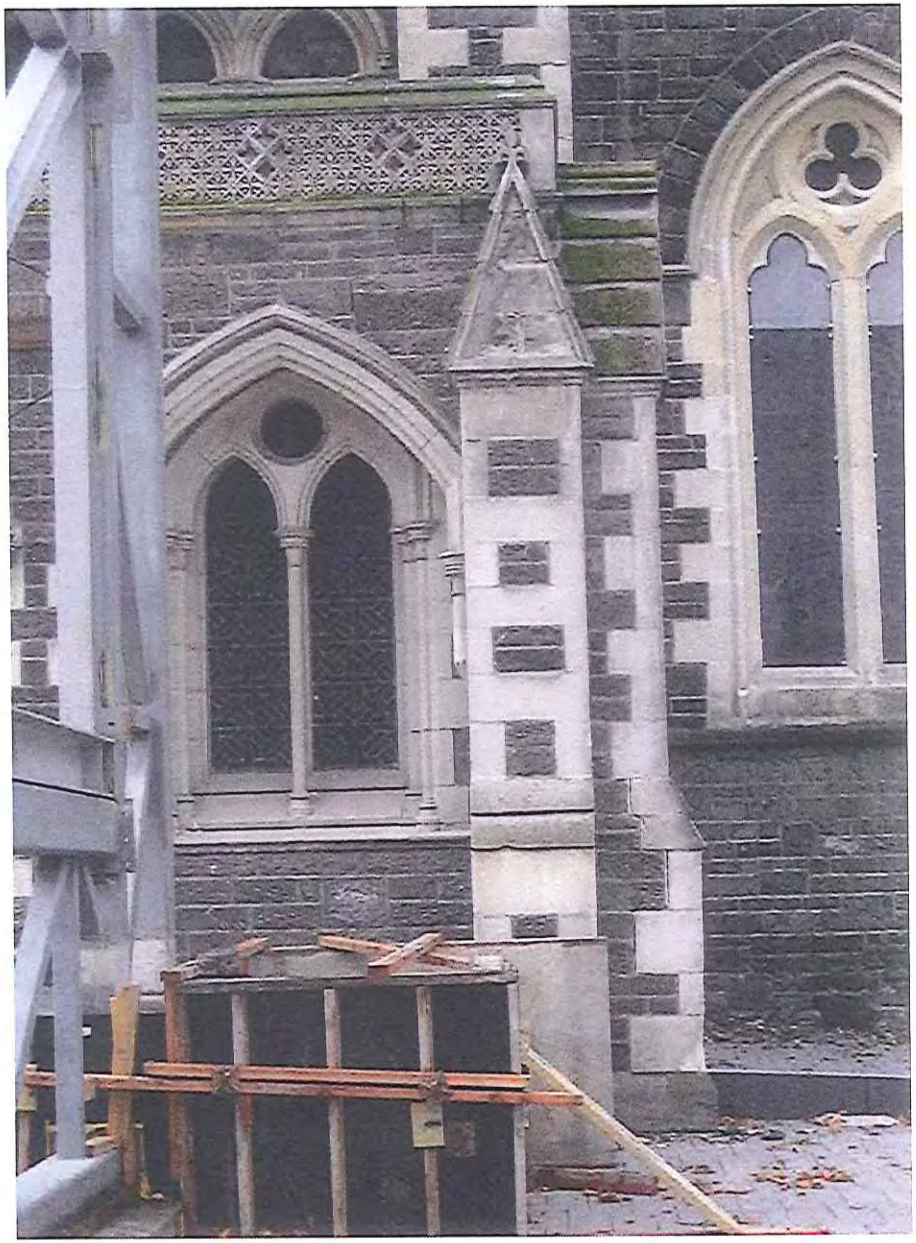

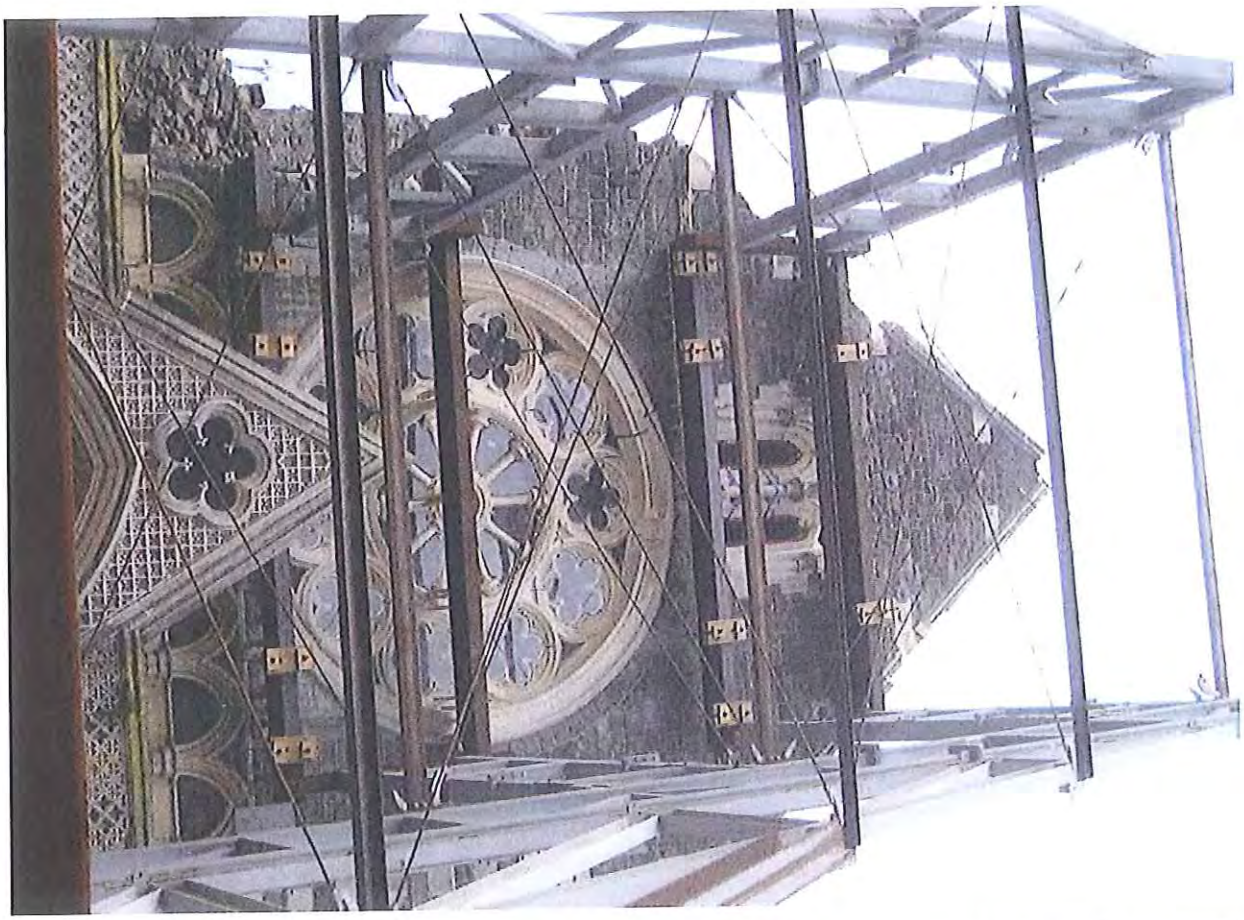

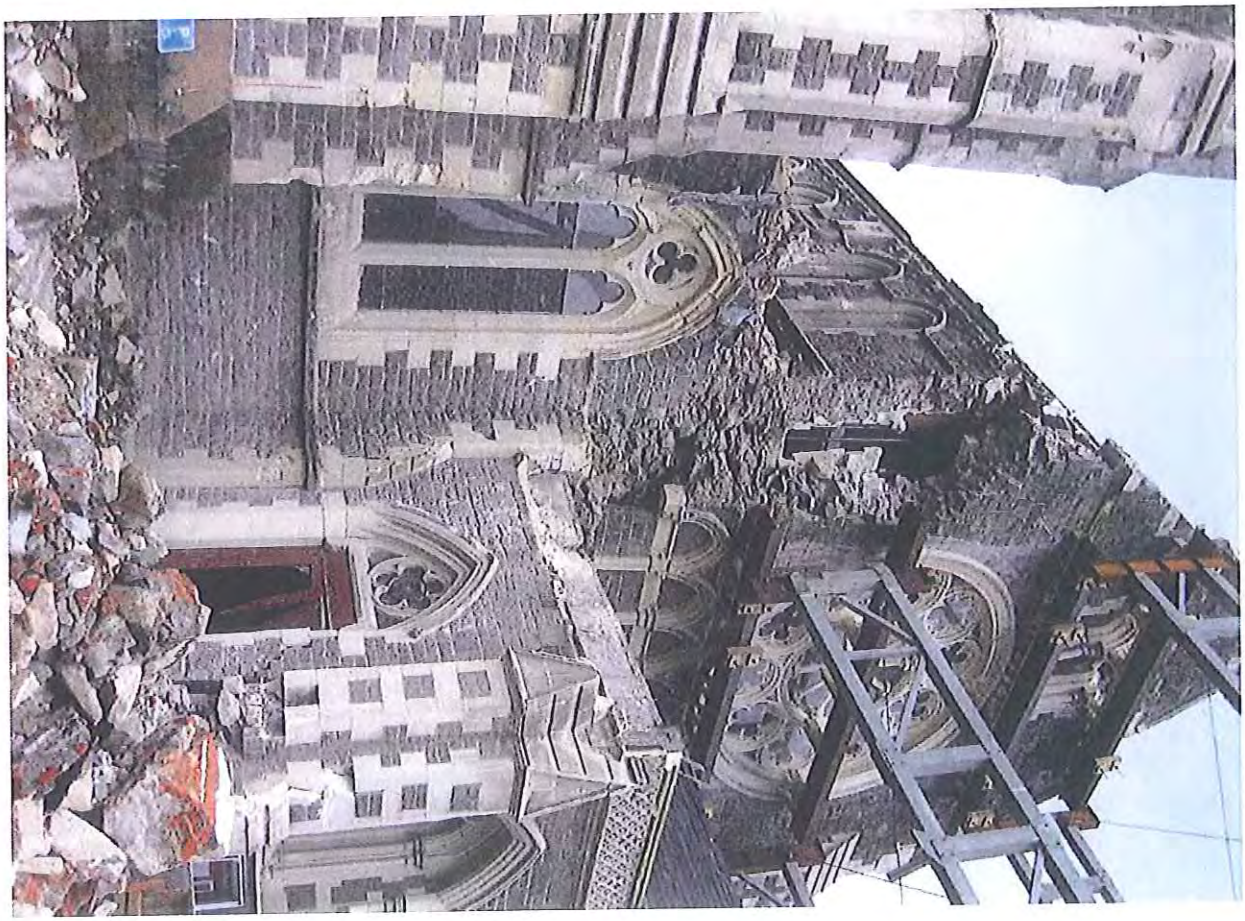

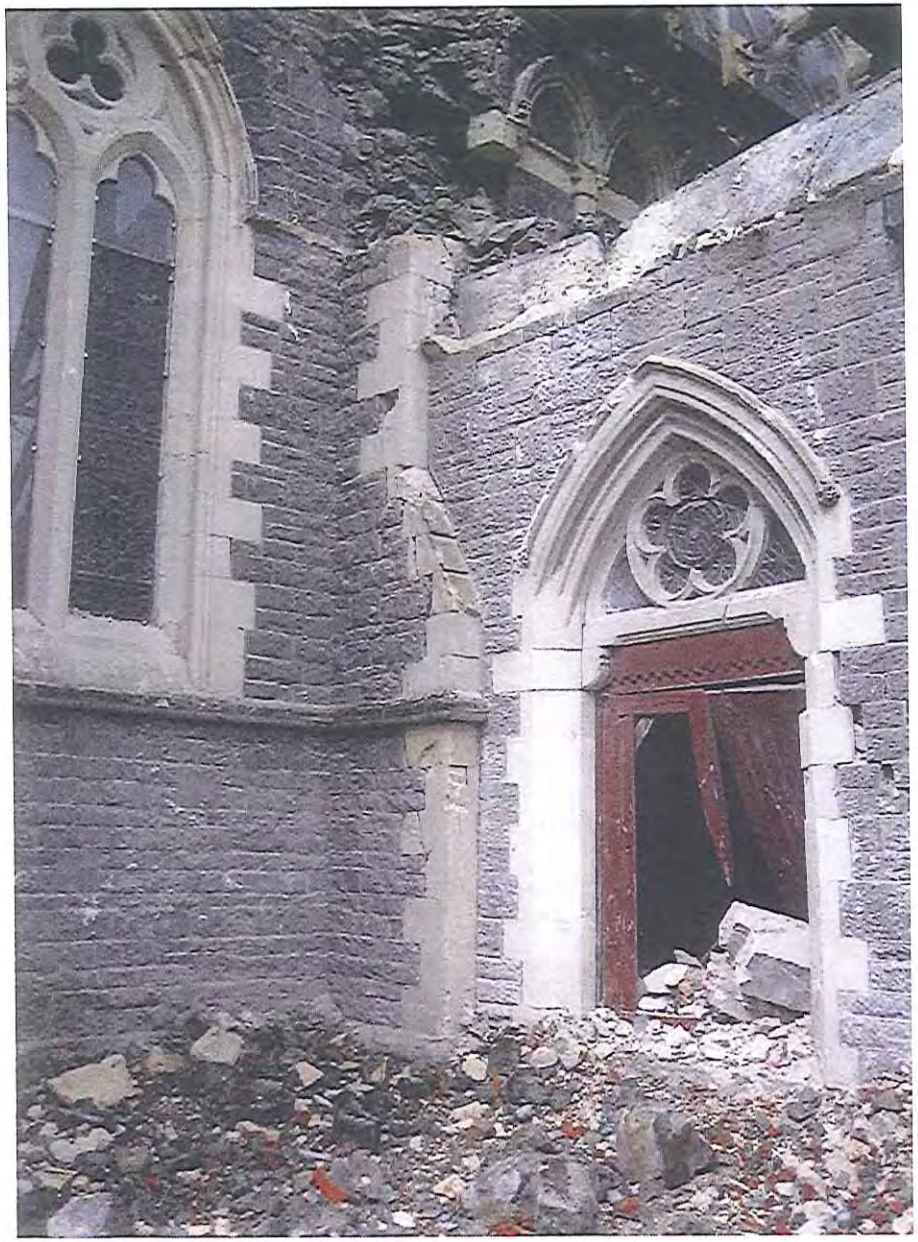

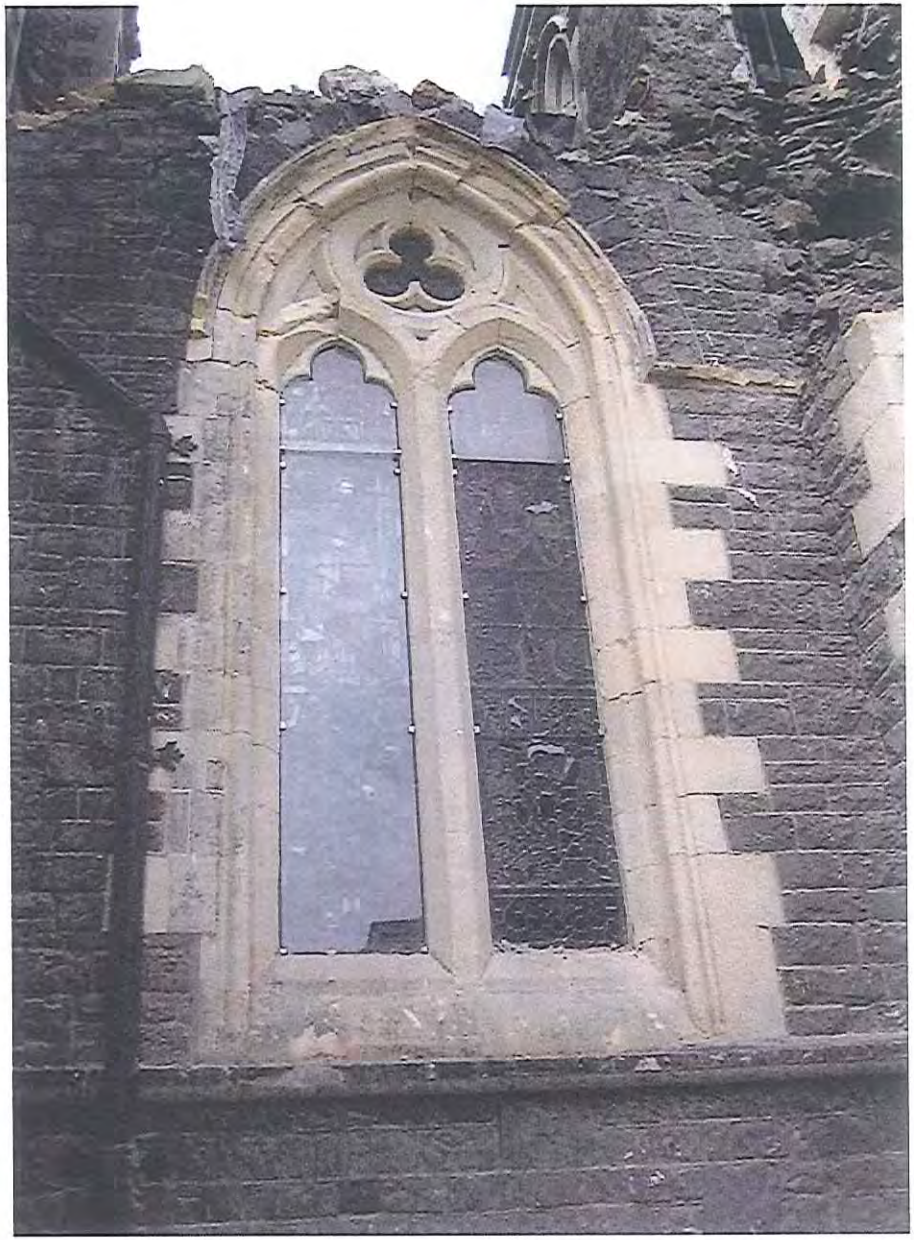

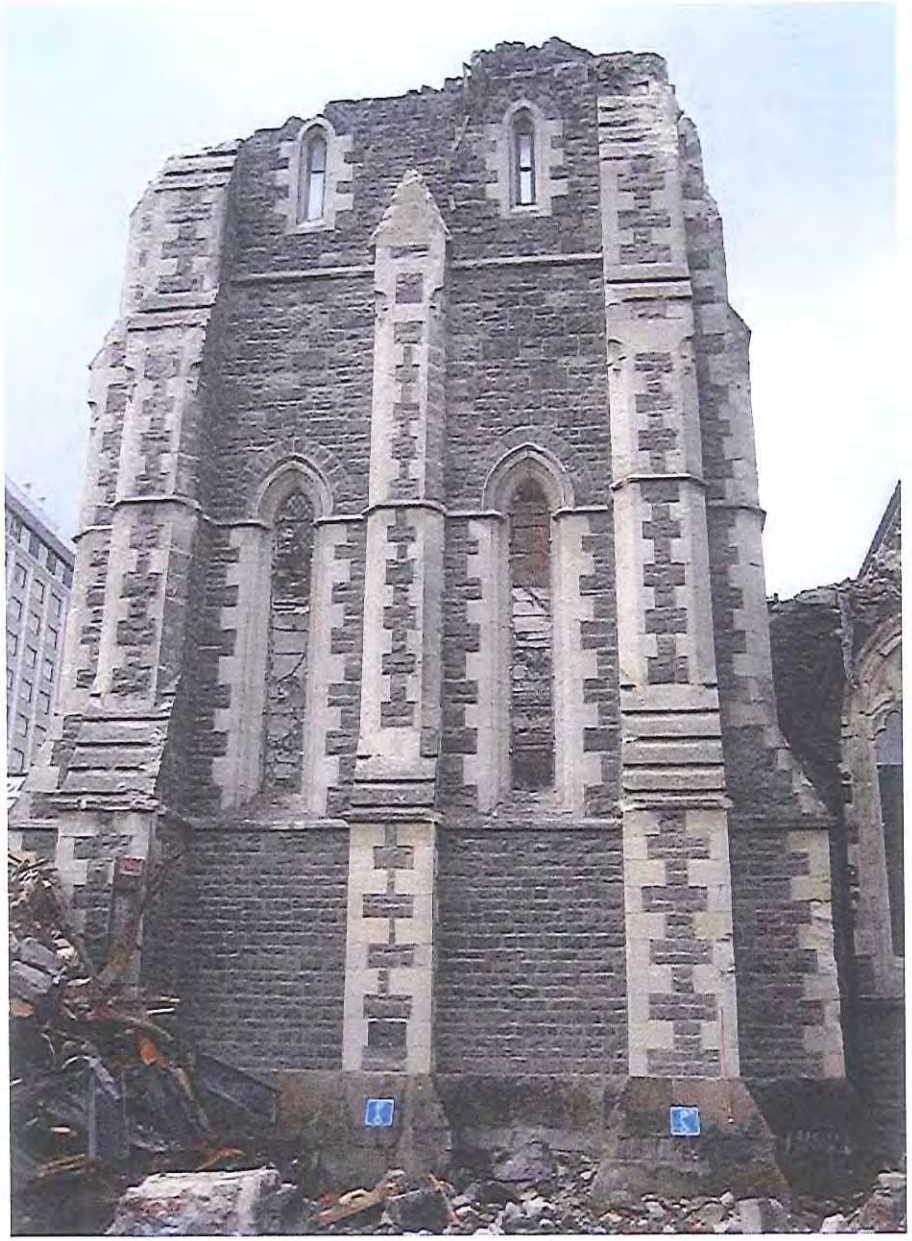

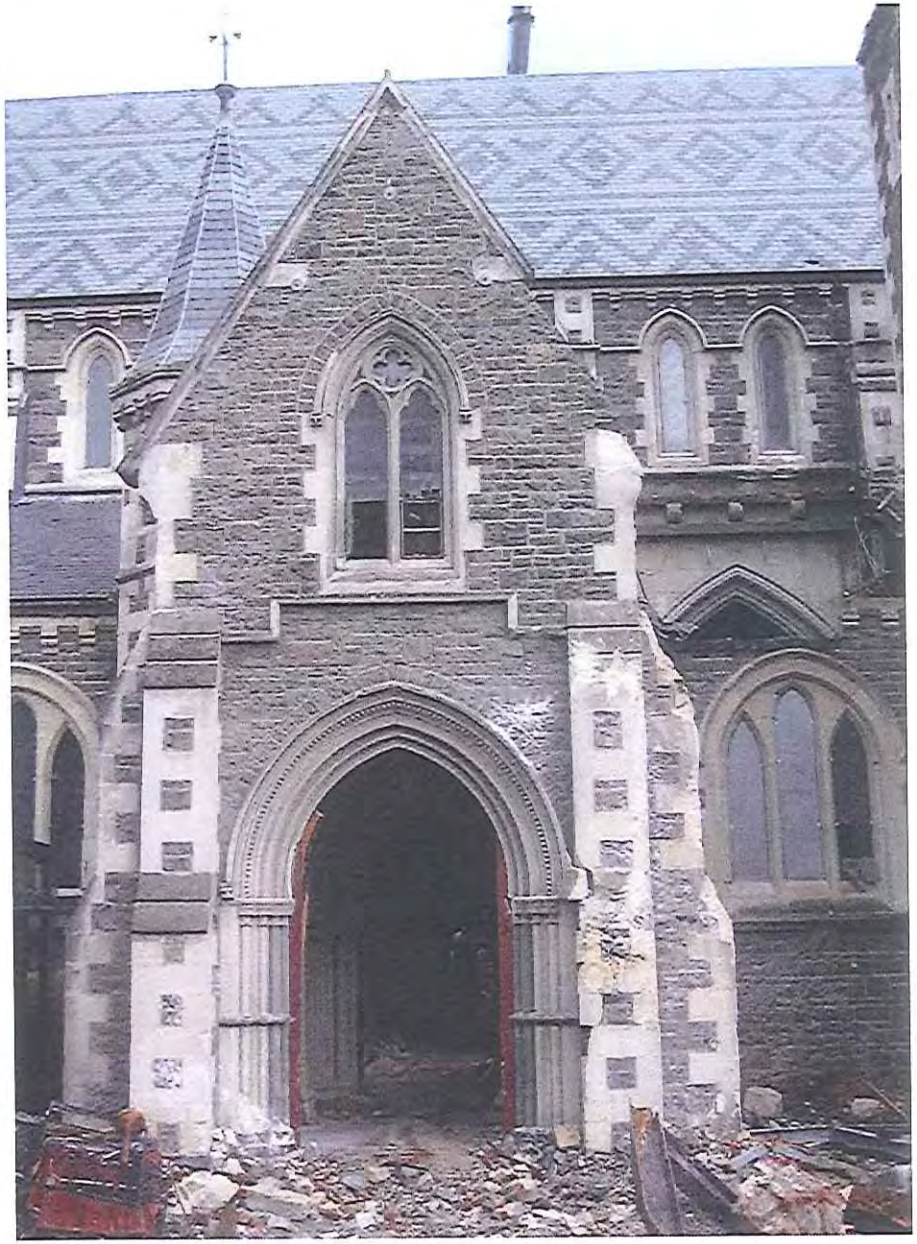

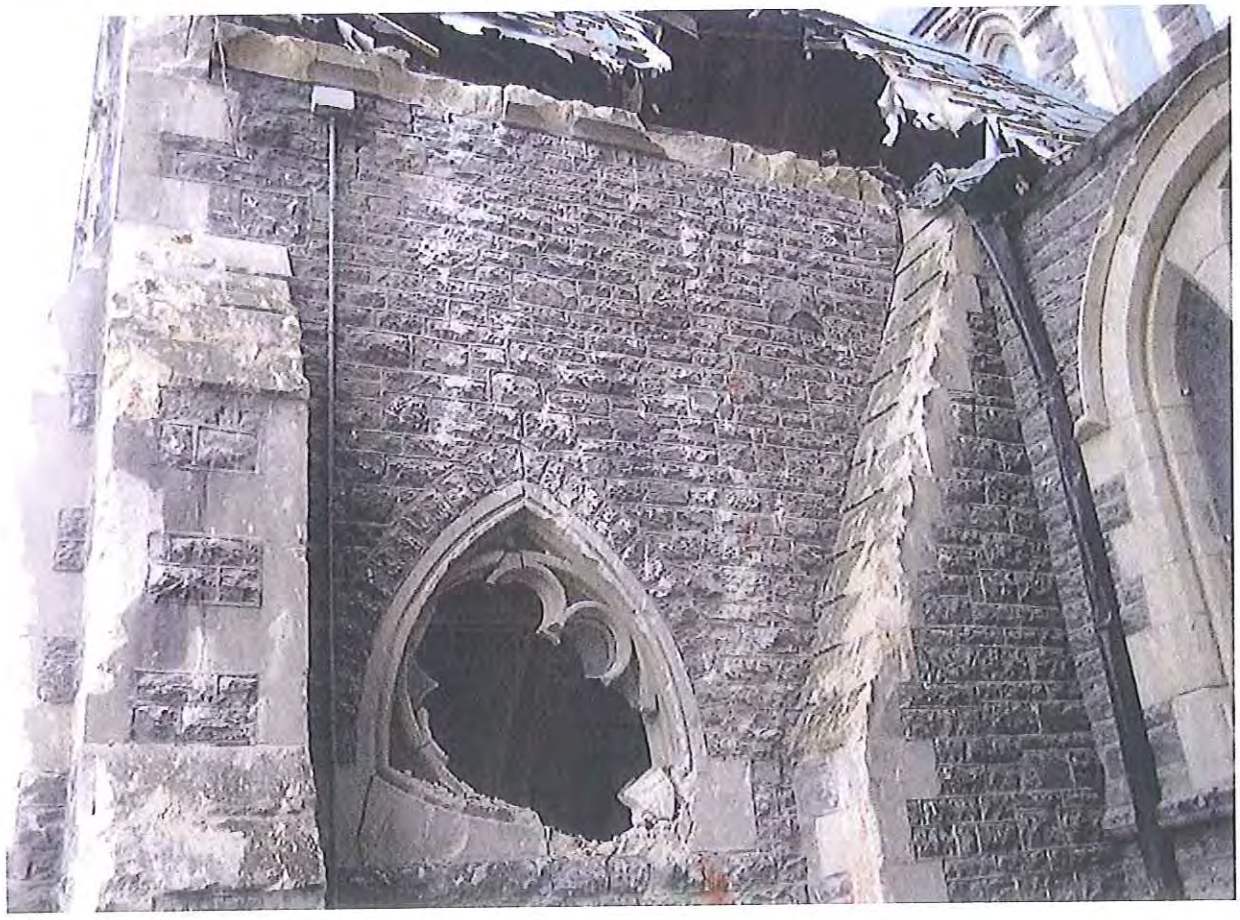

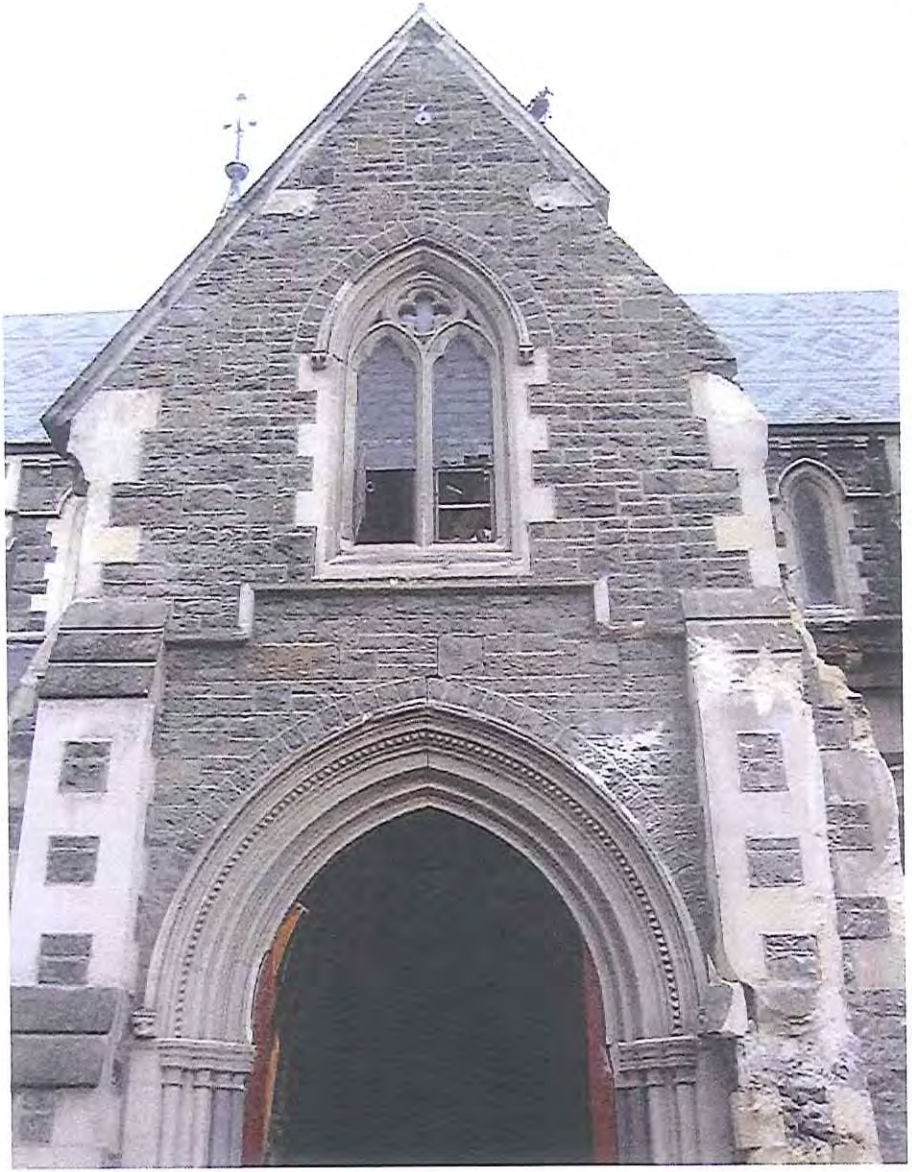

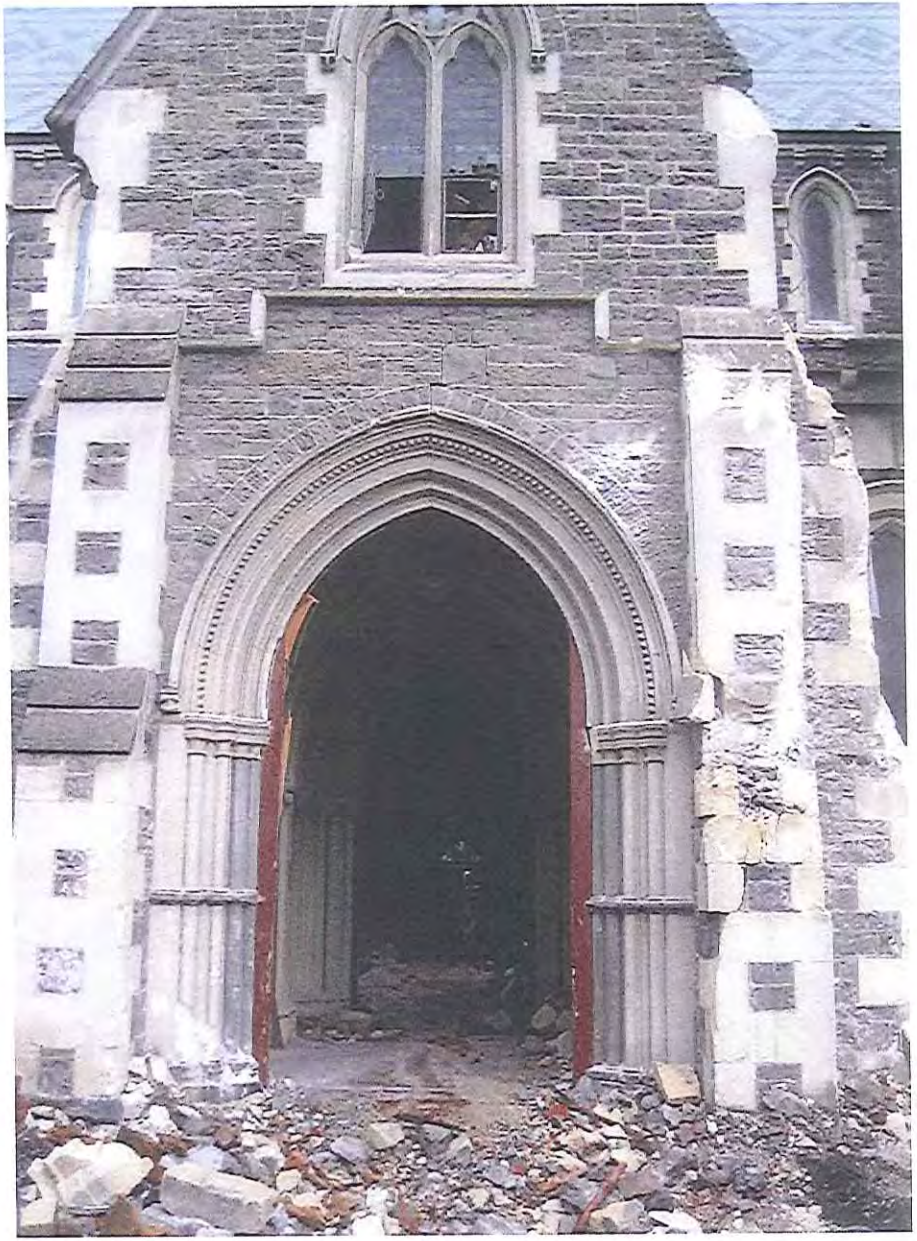

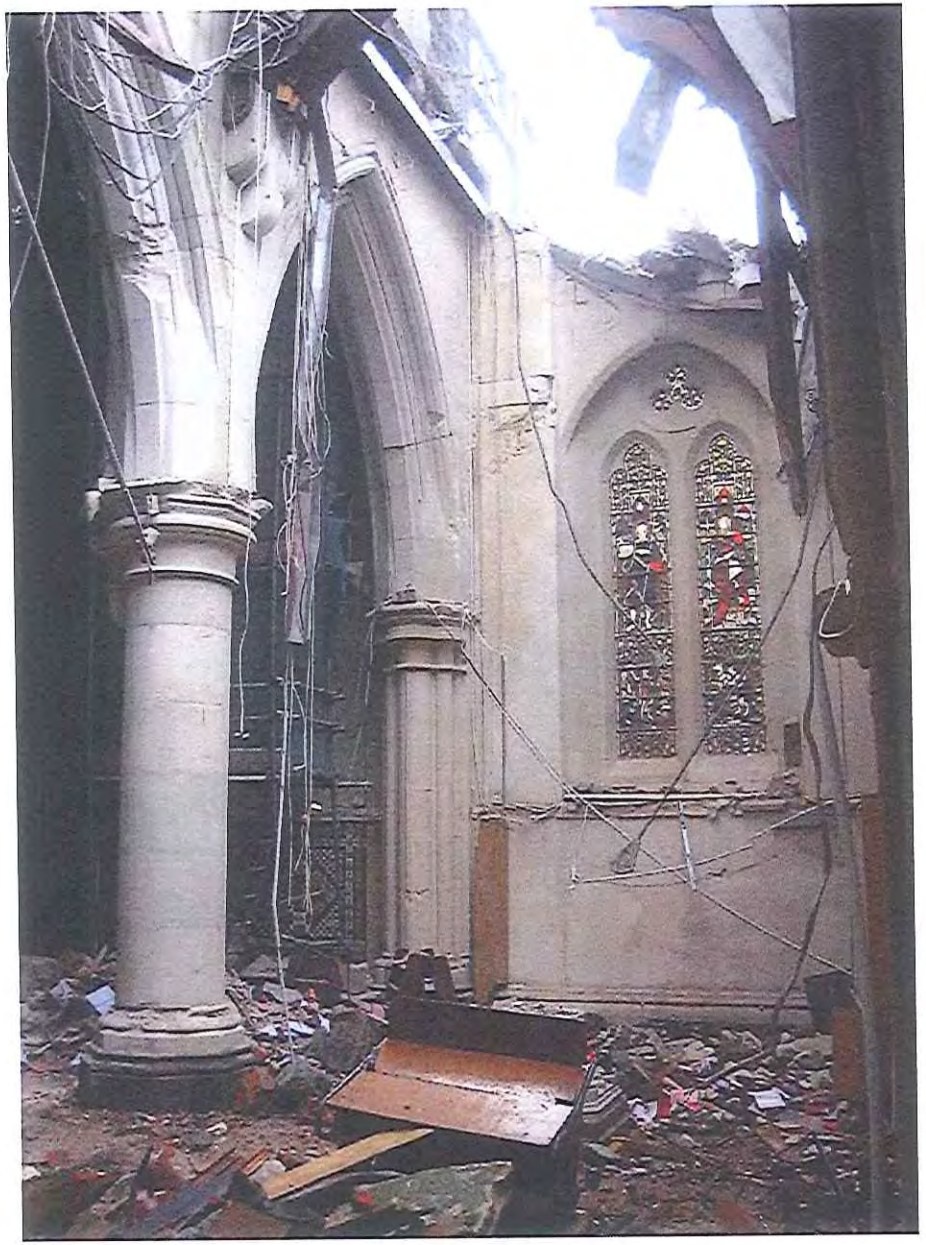

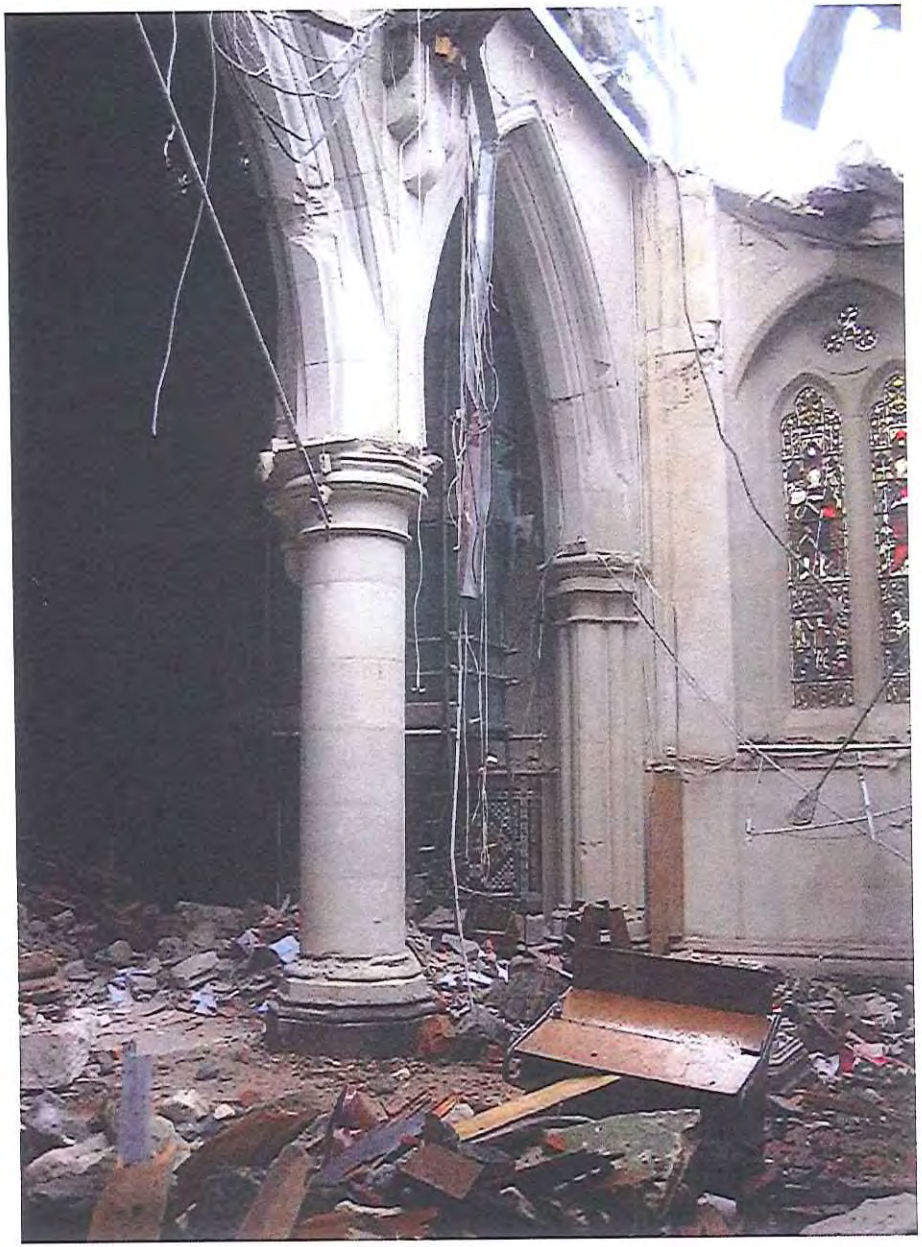

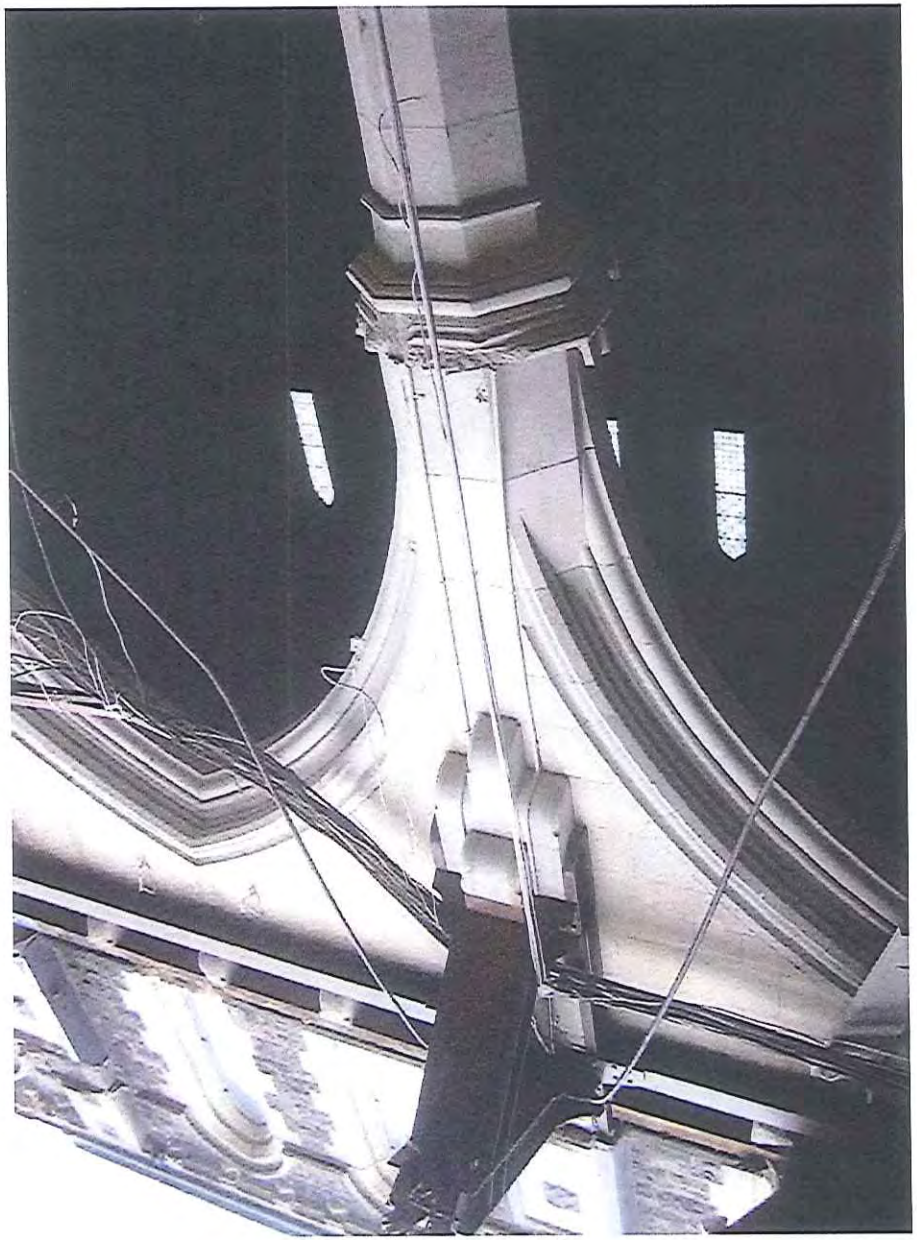

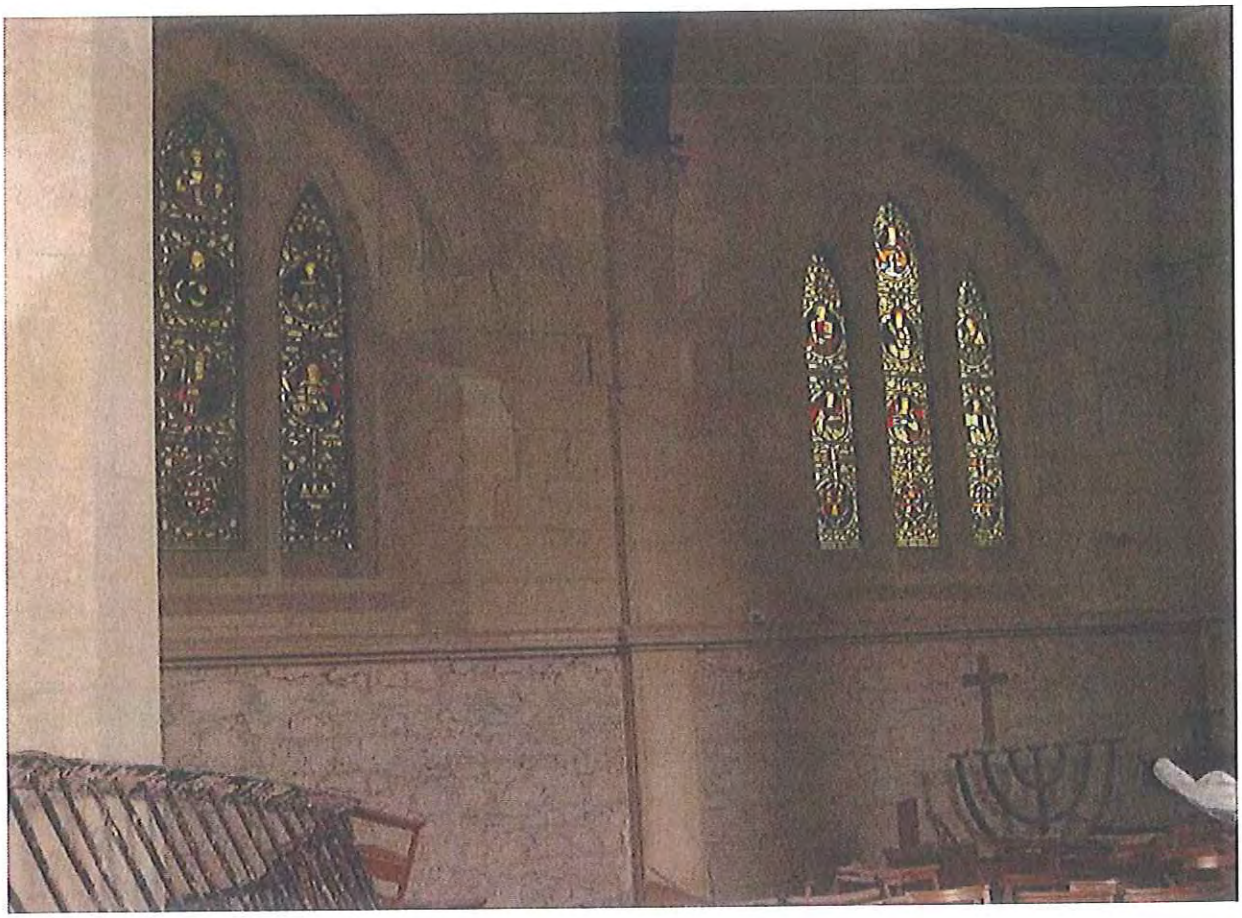

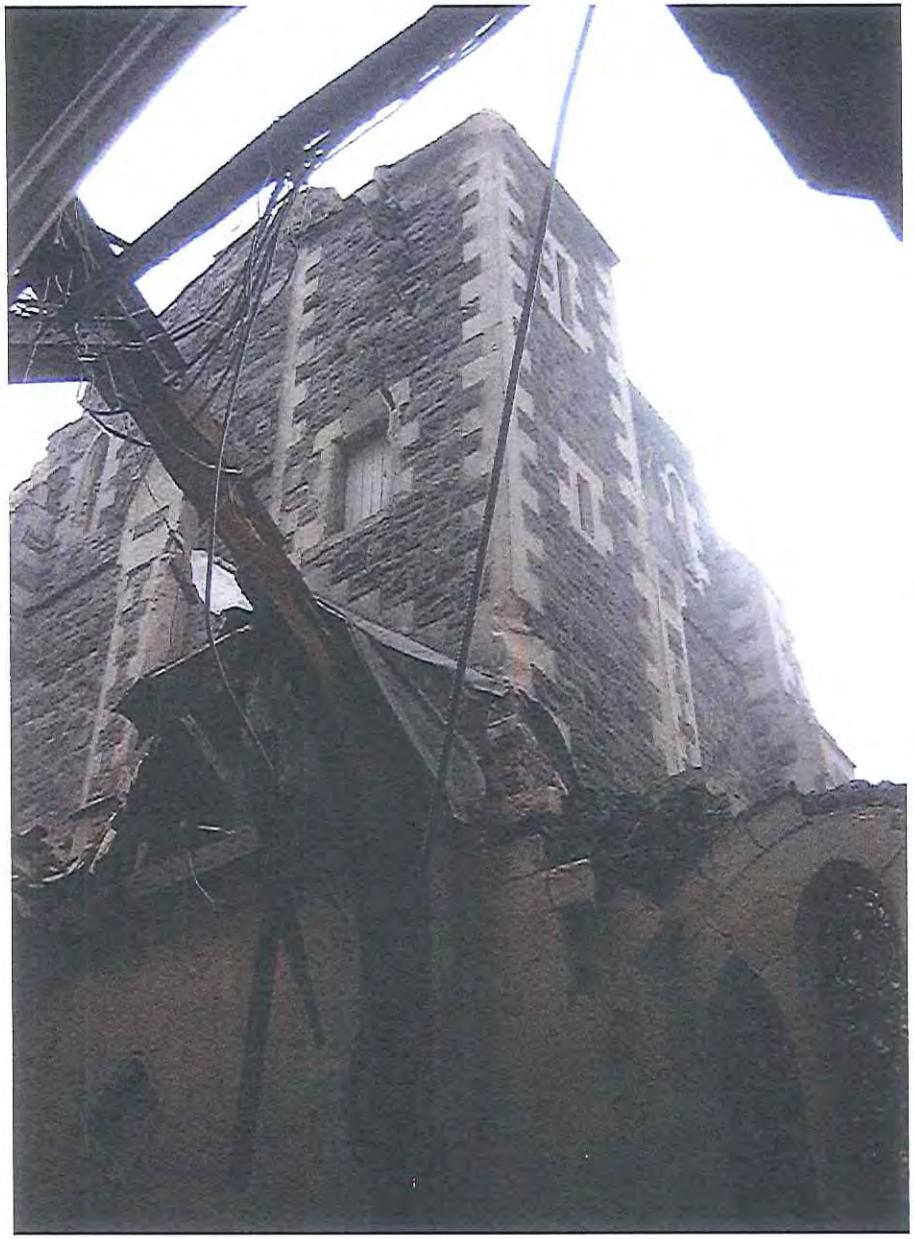

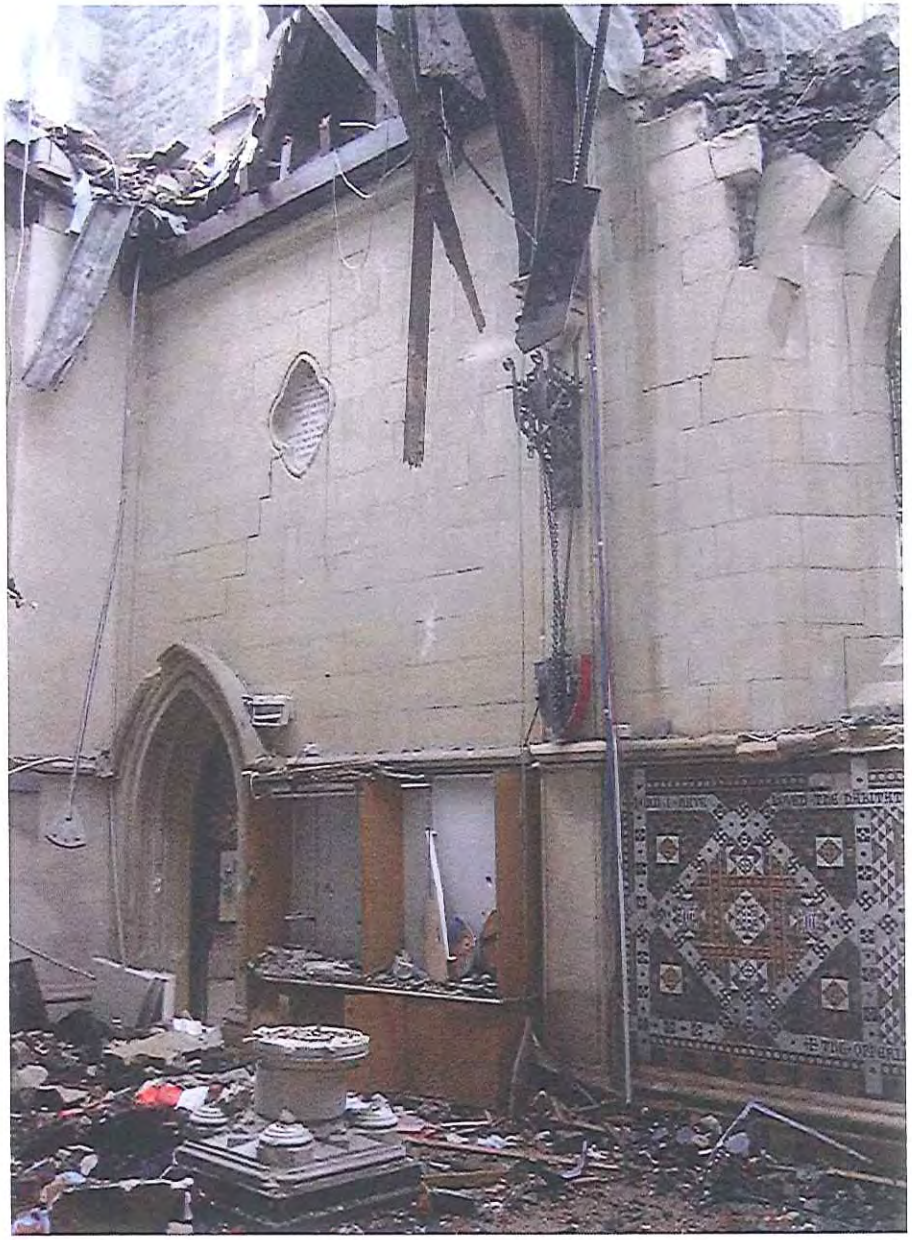

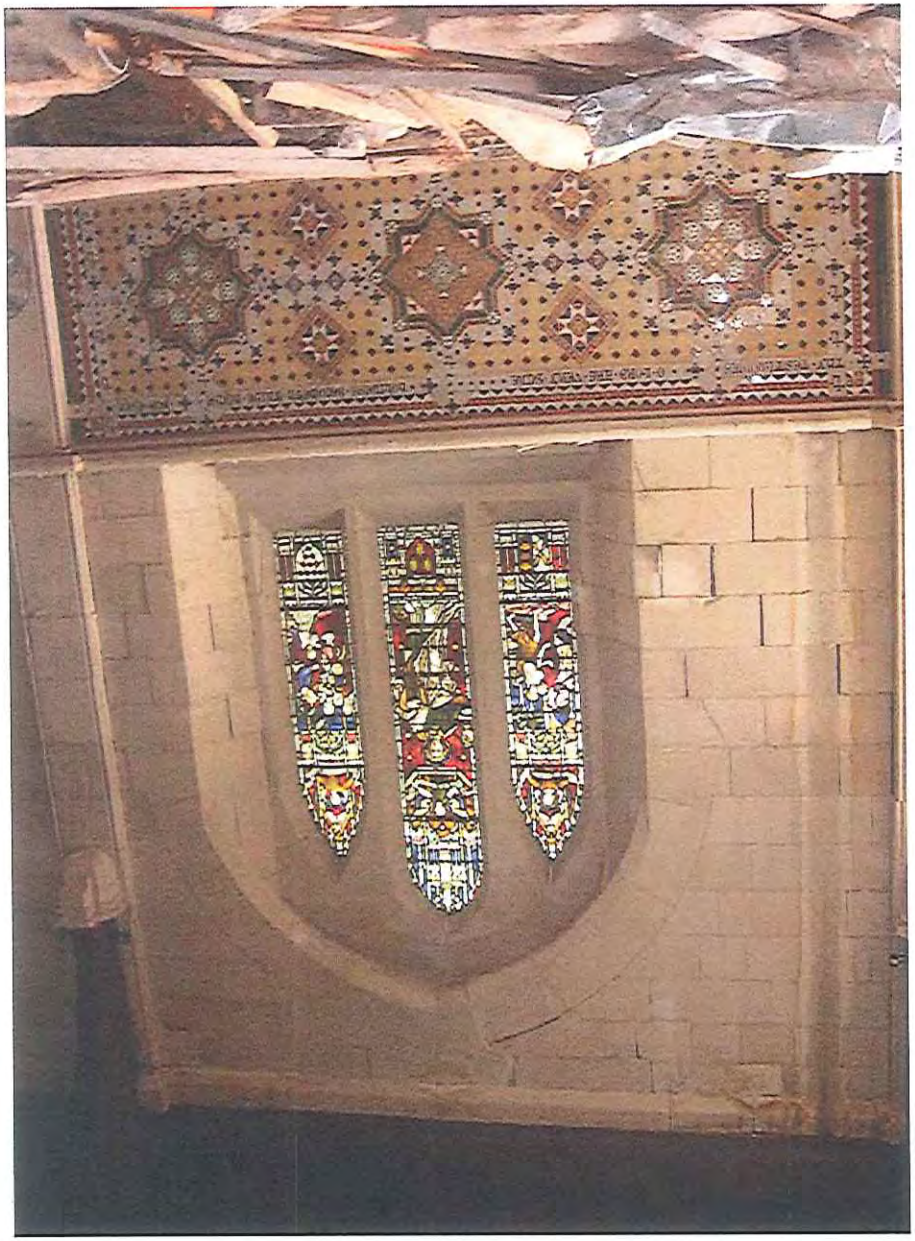

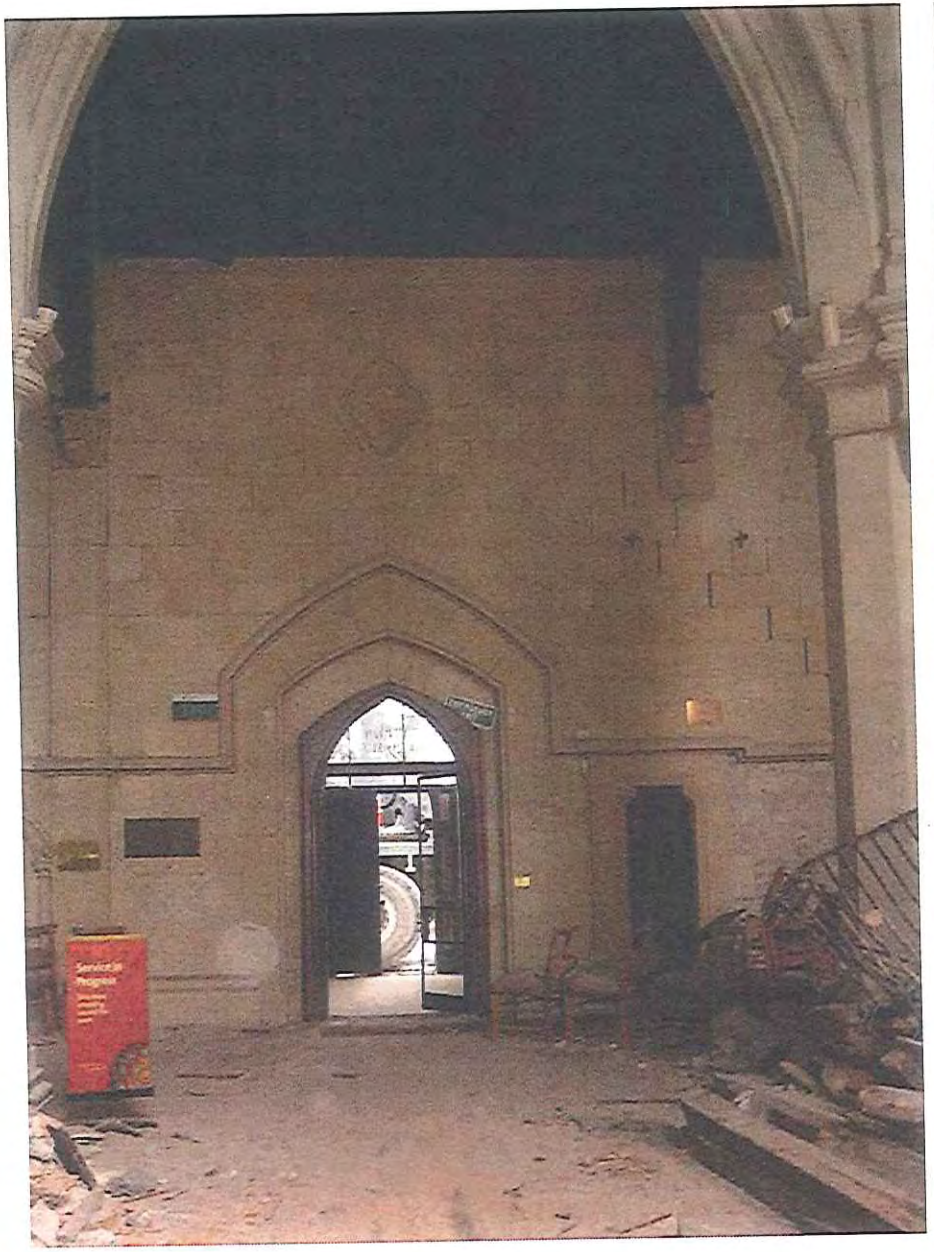

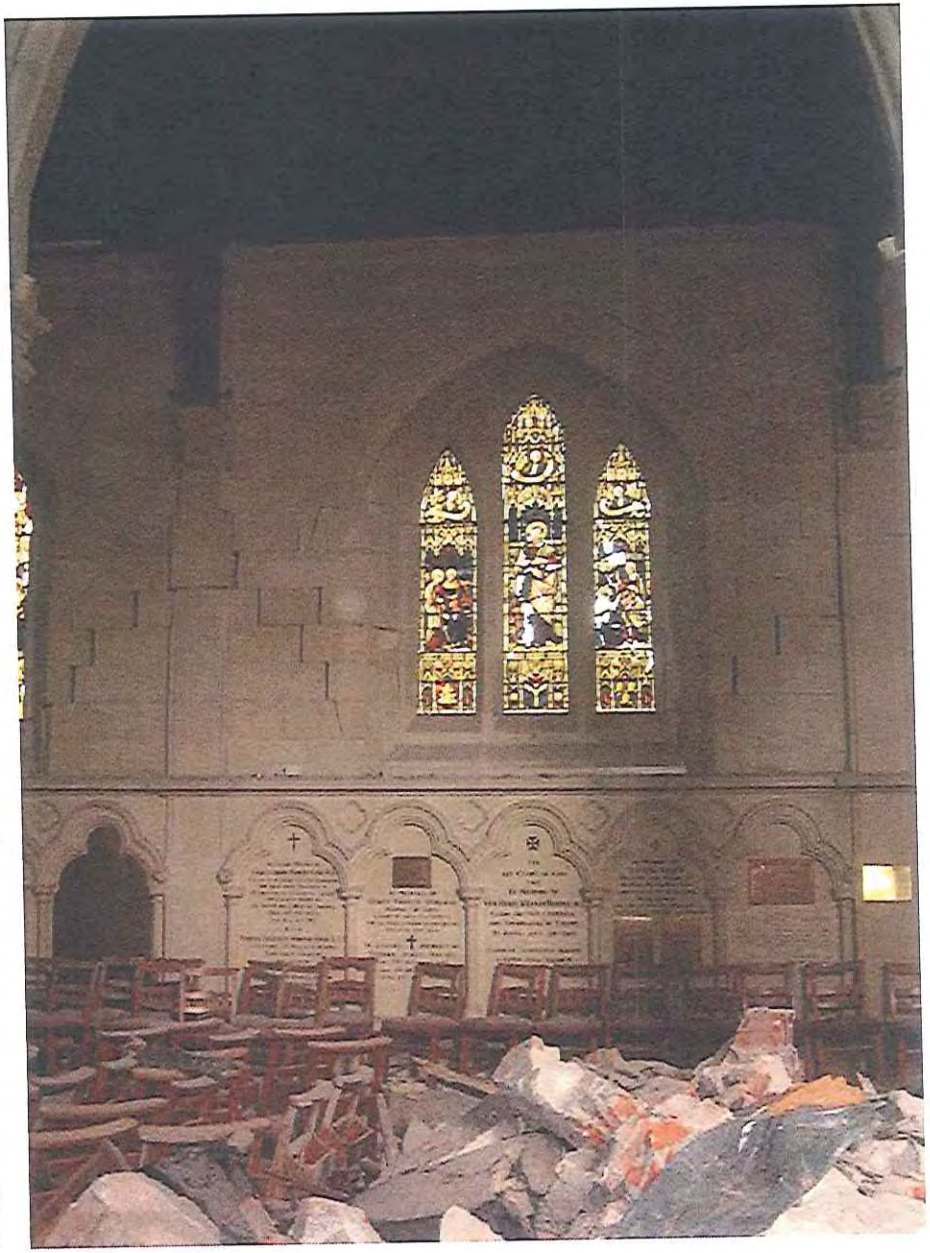

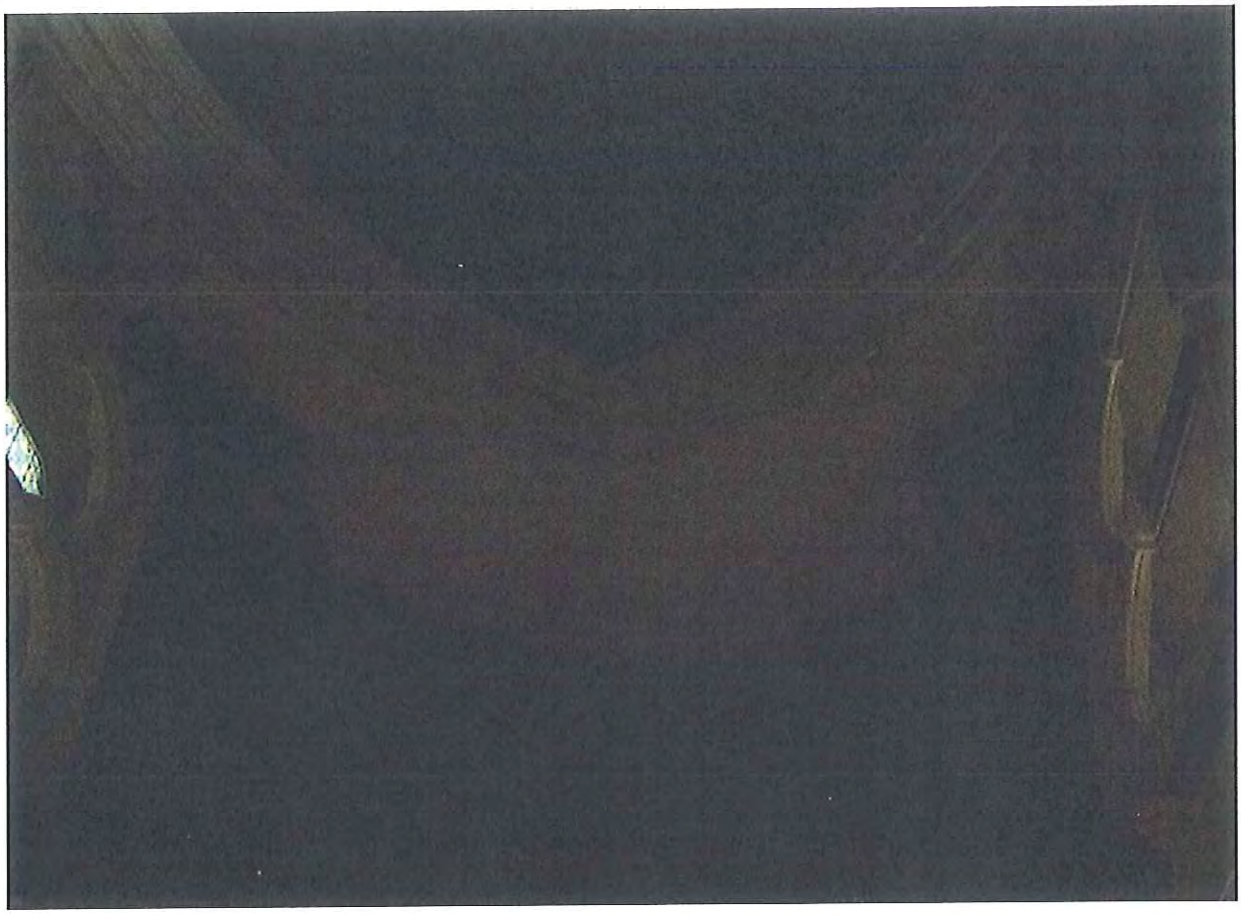

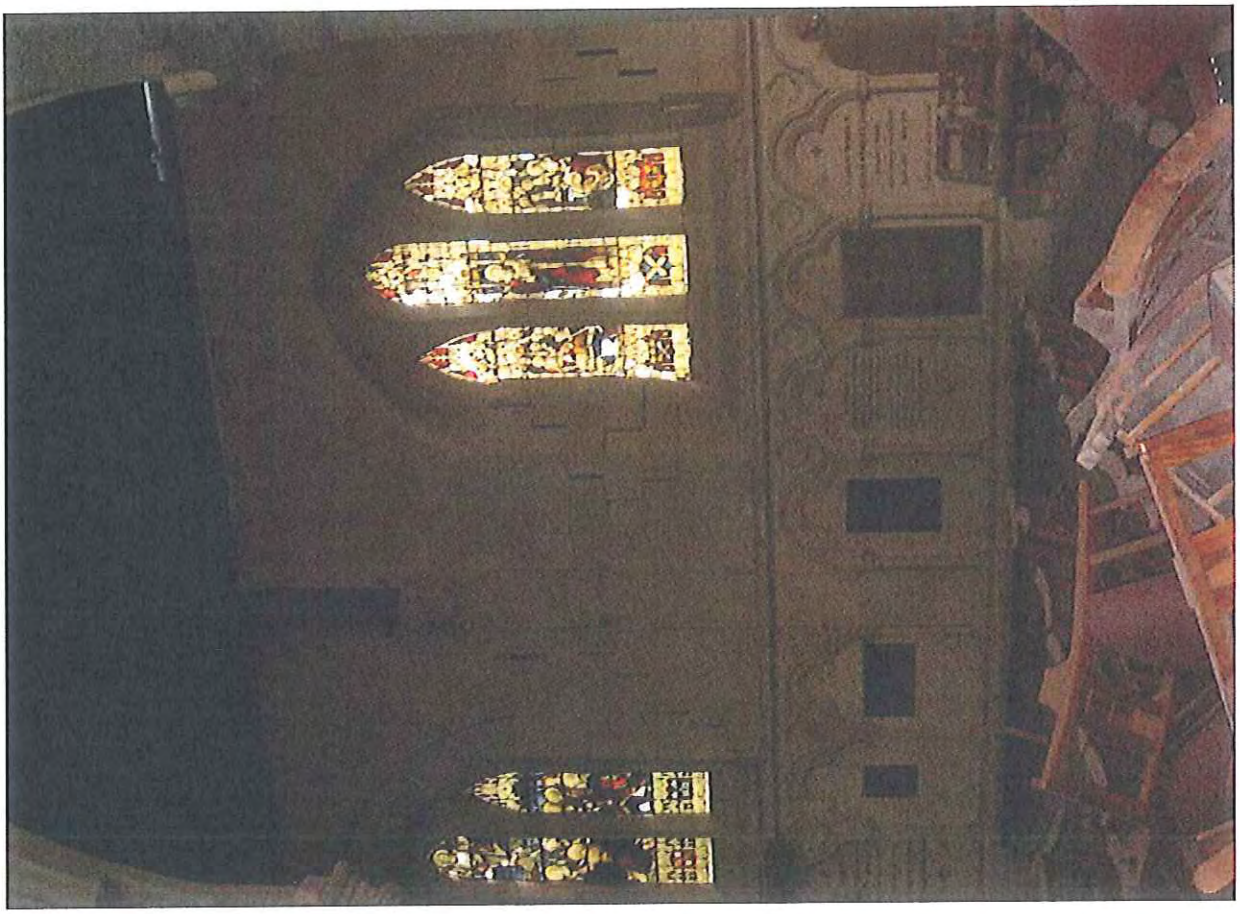

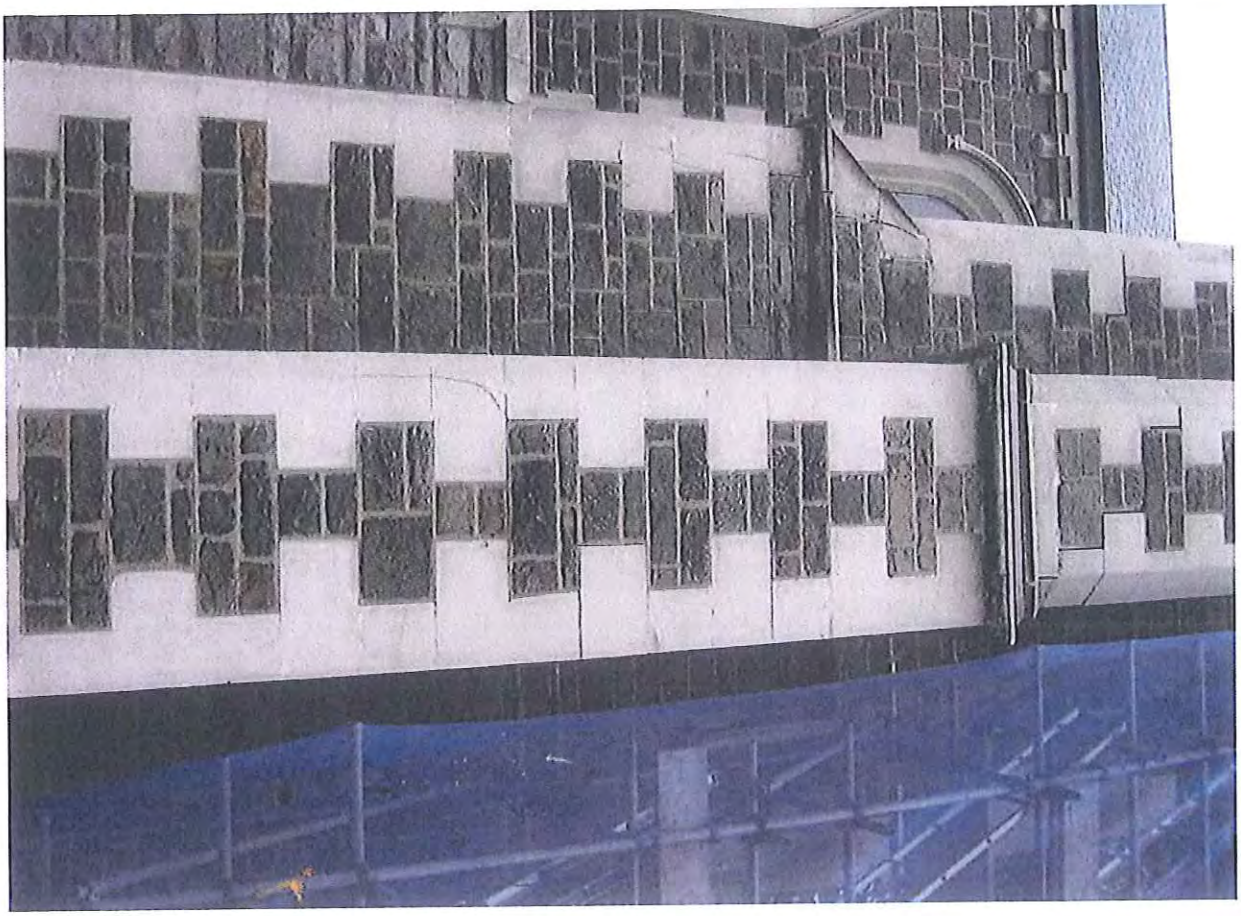


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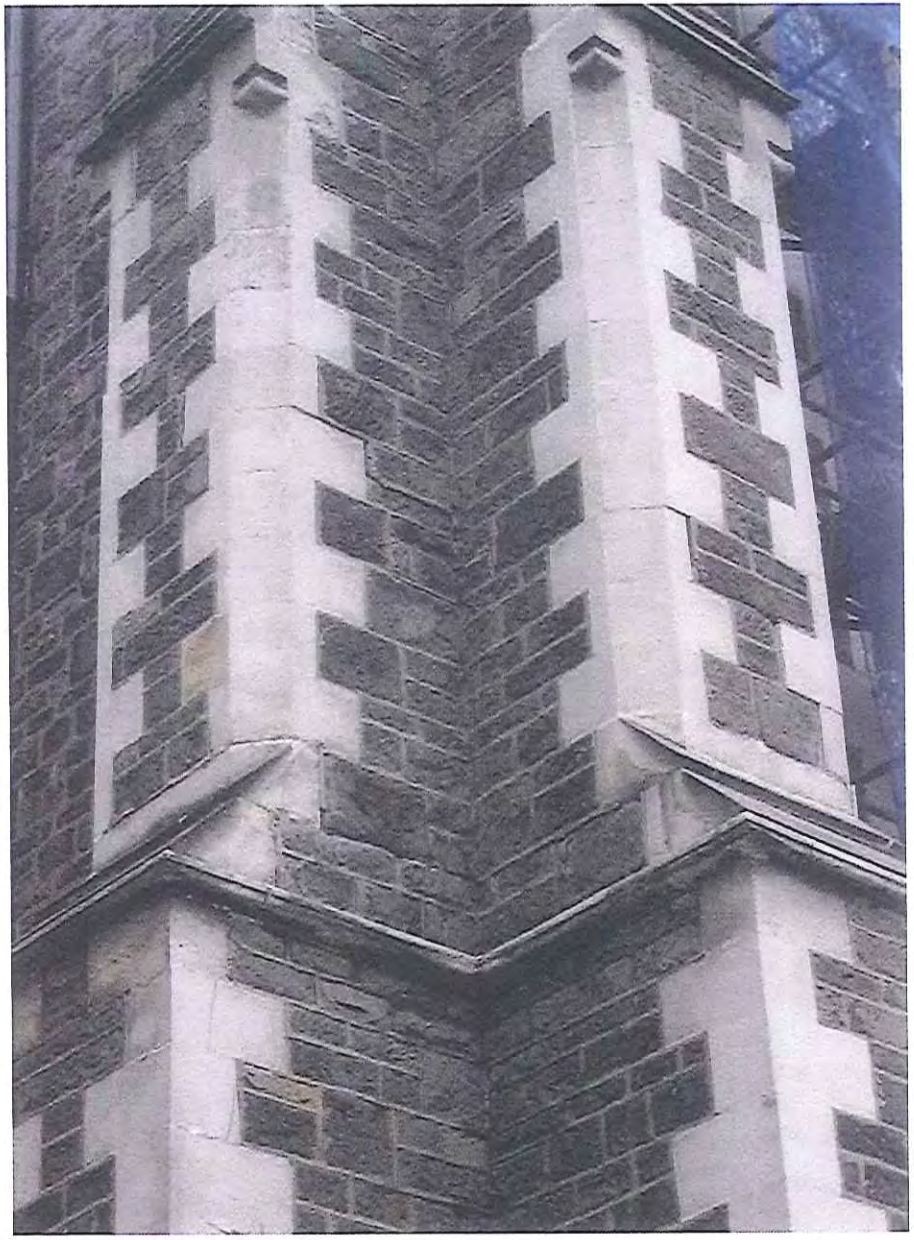
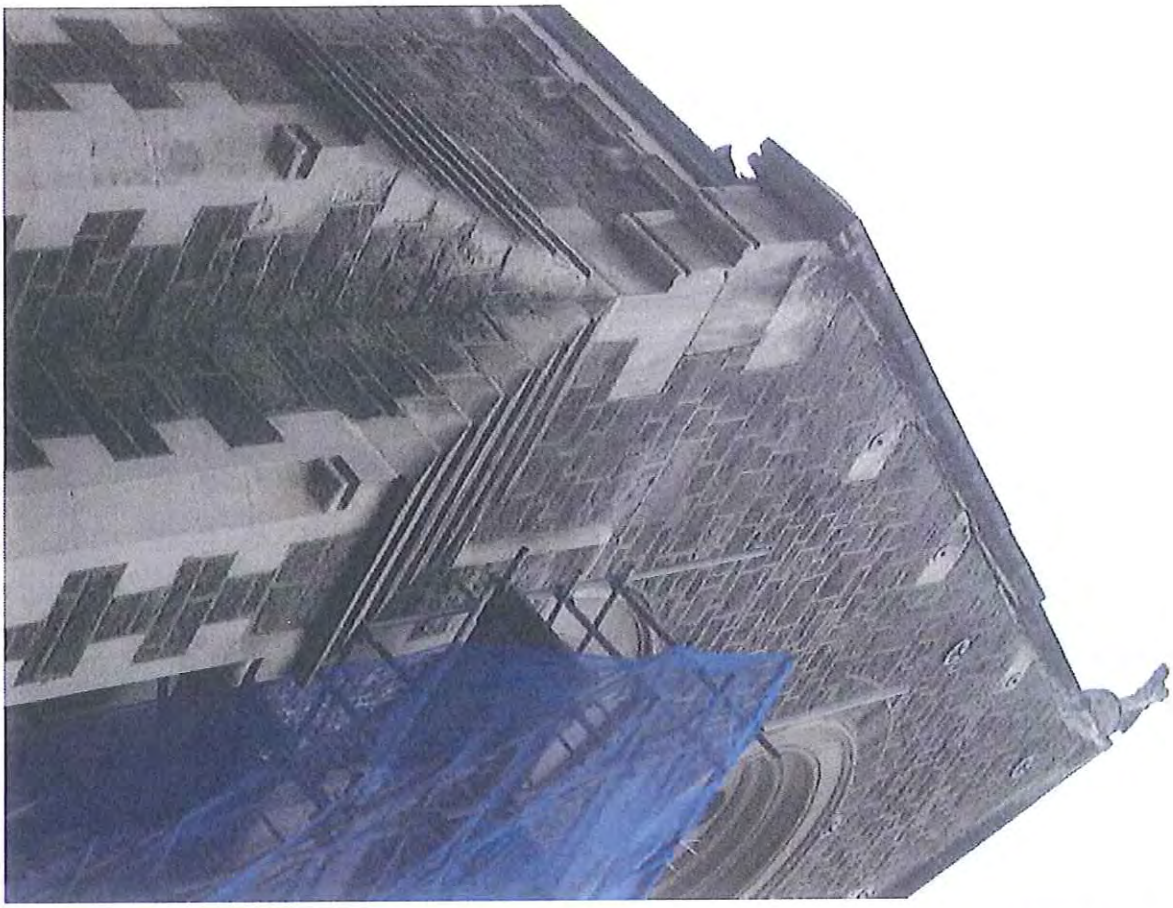
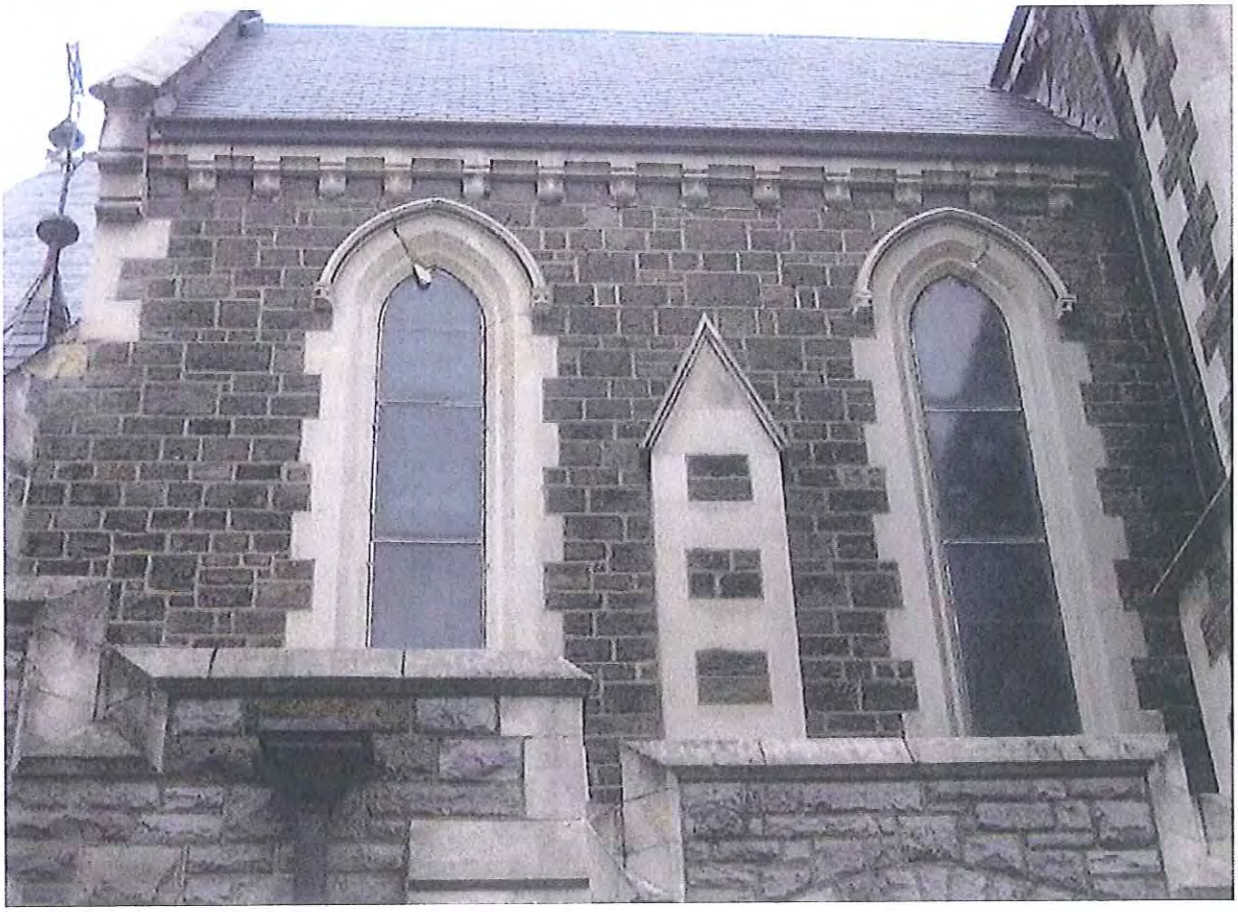
Permit required
24 Hours
7 Days
Tow Away
Clamping





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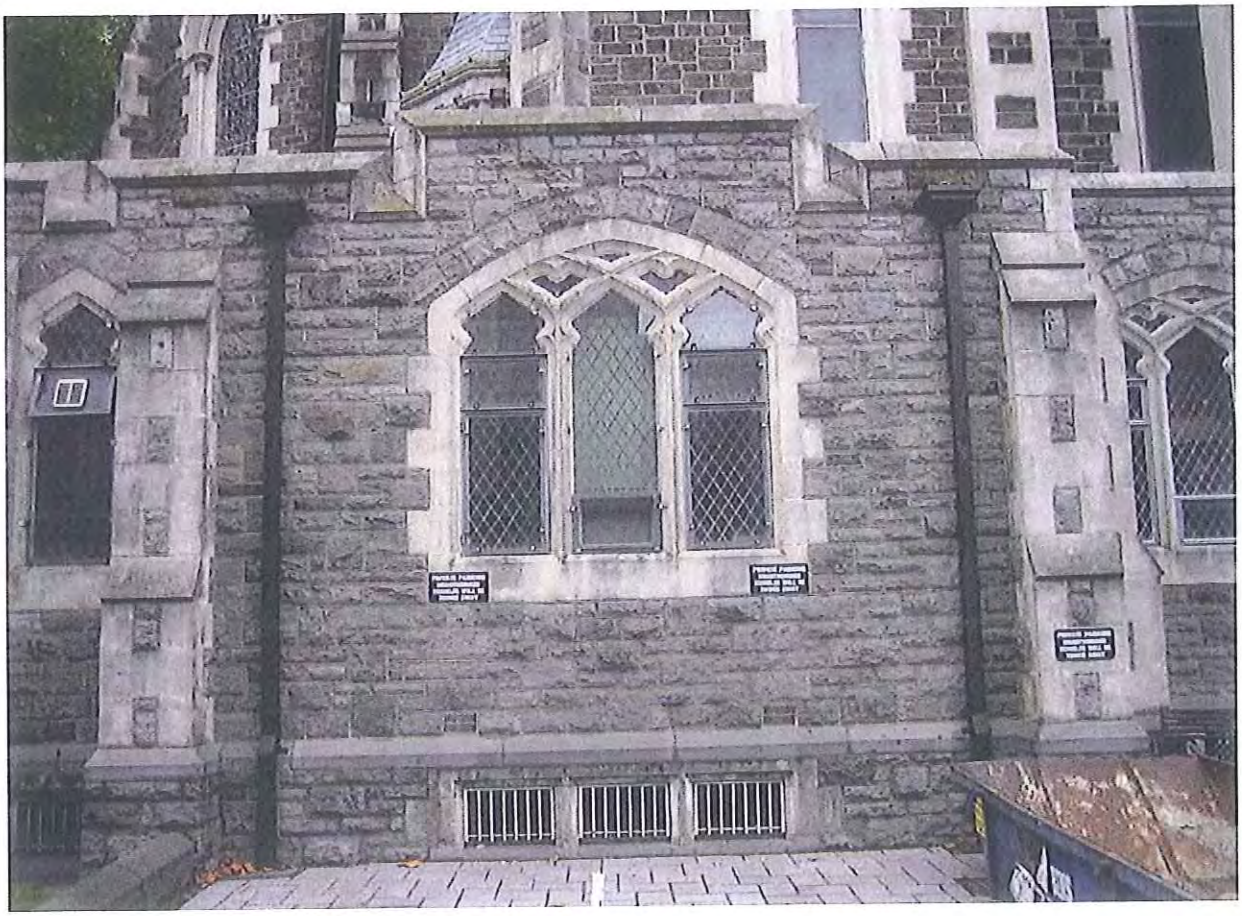

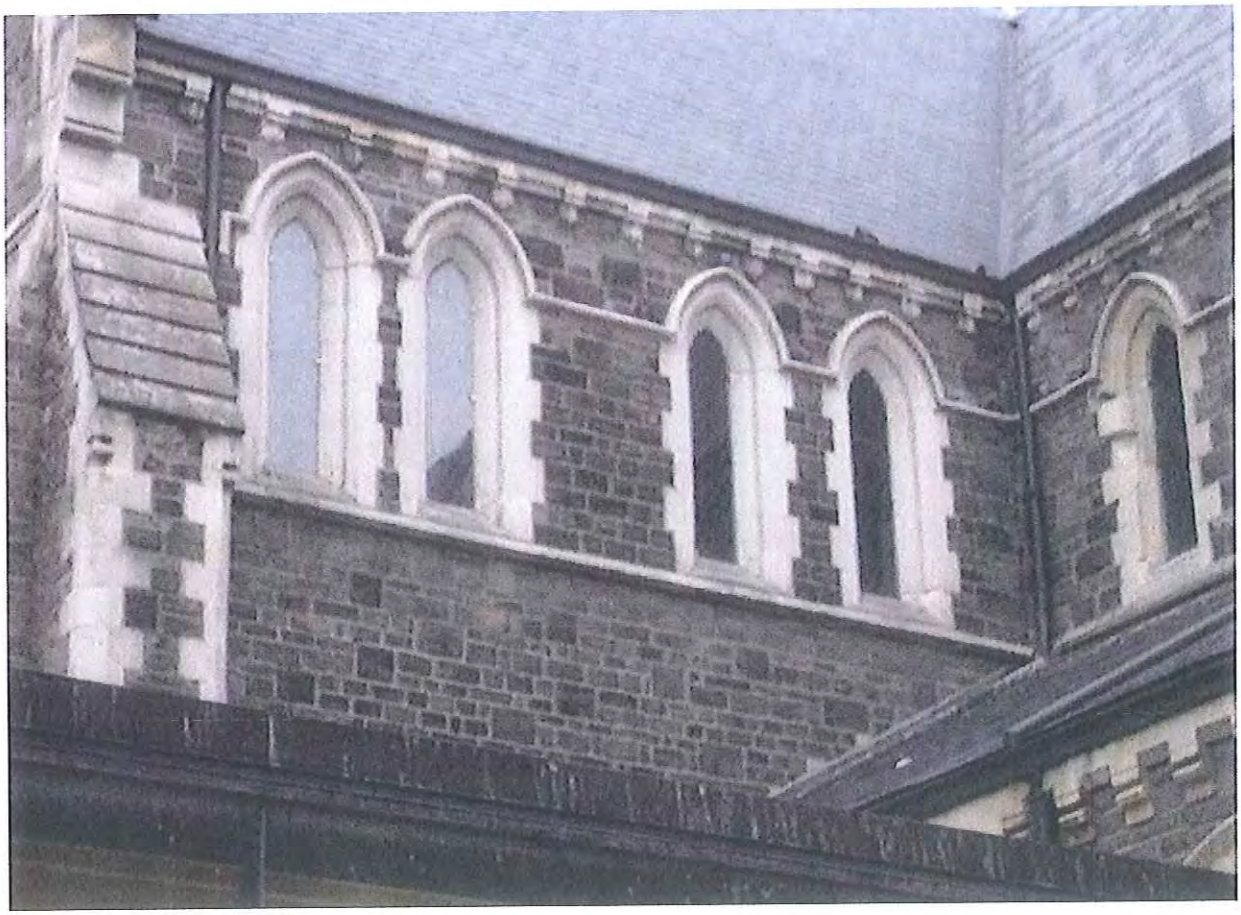

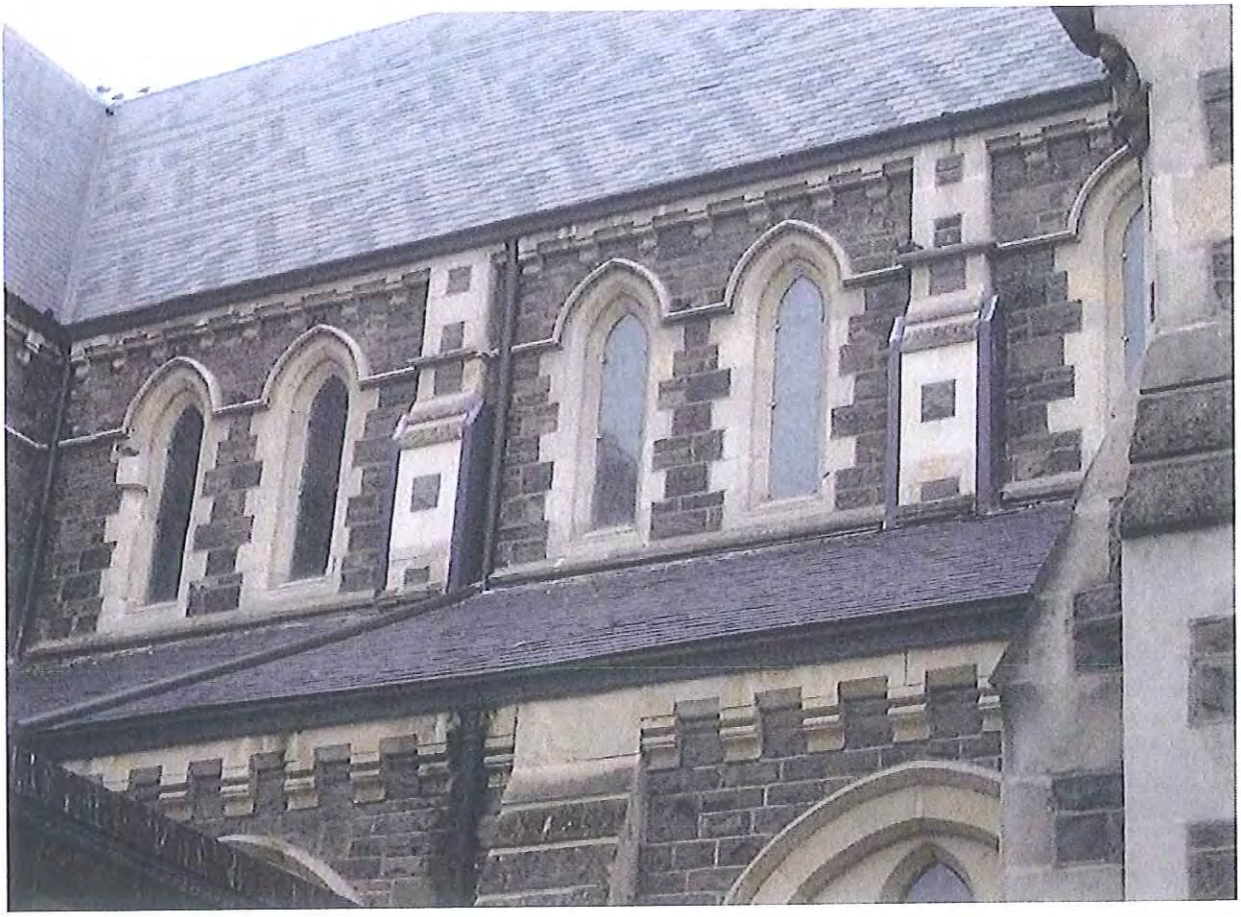

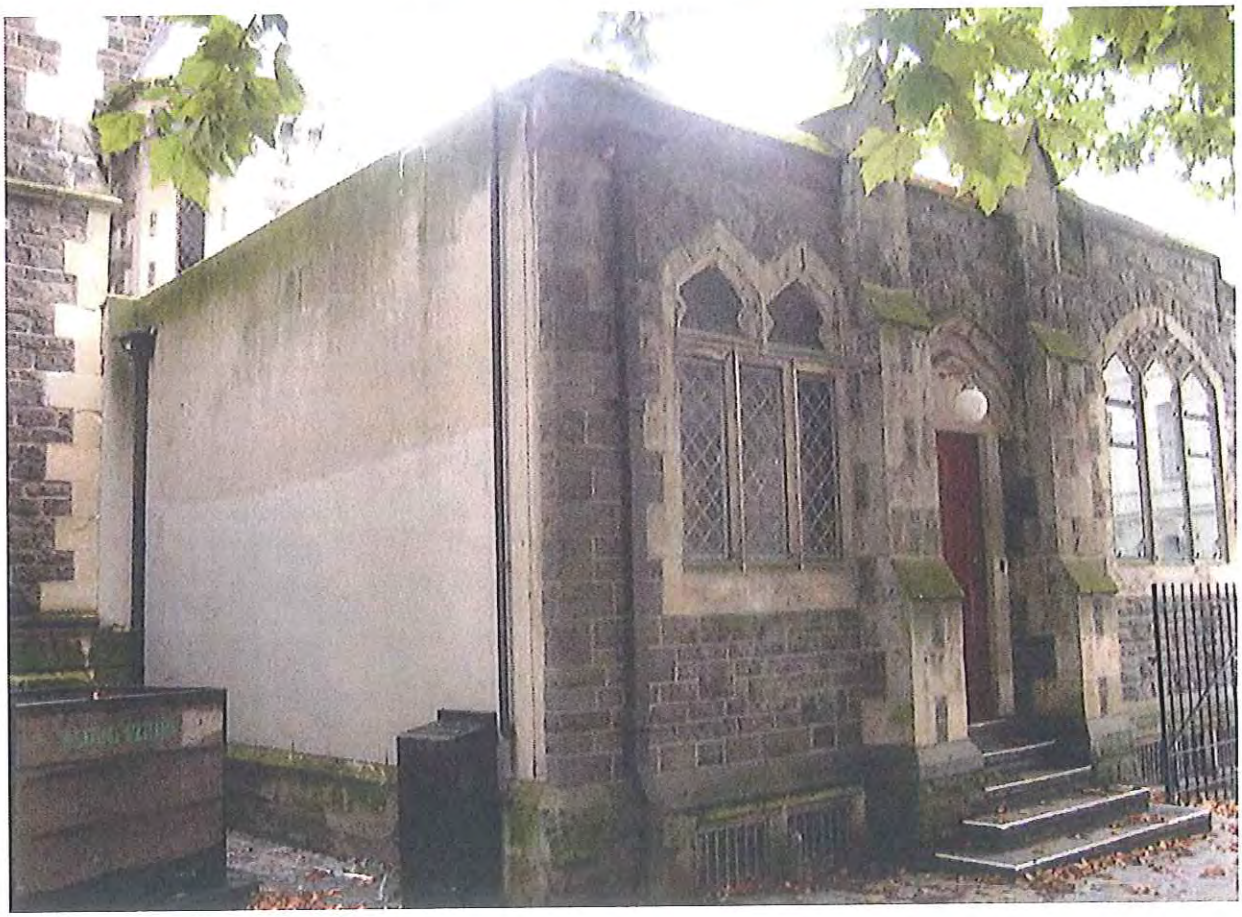

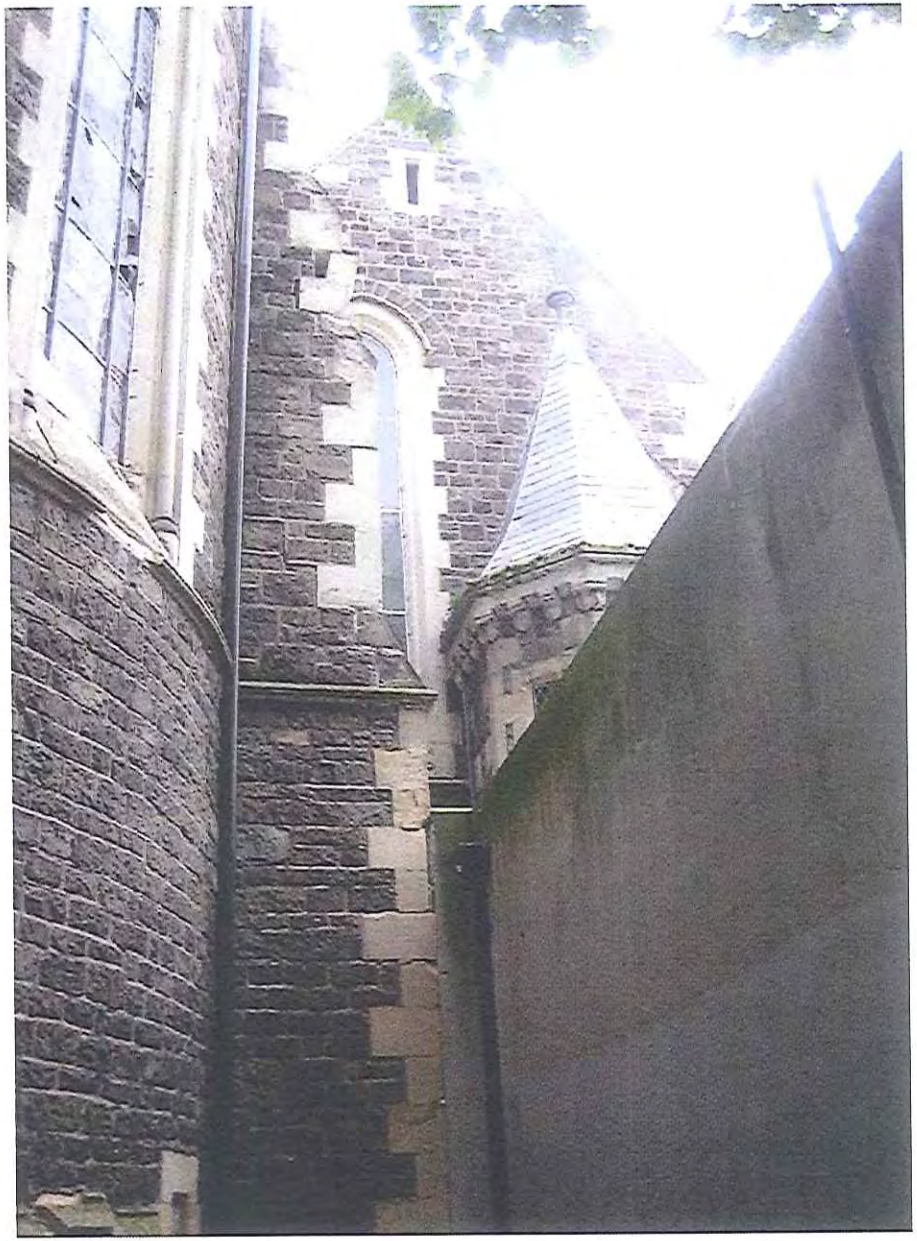

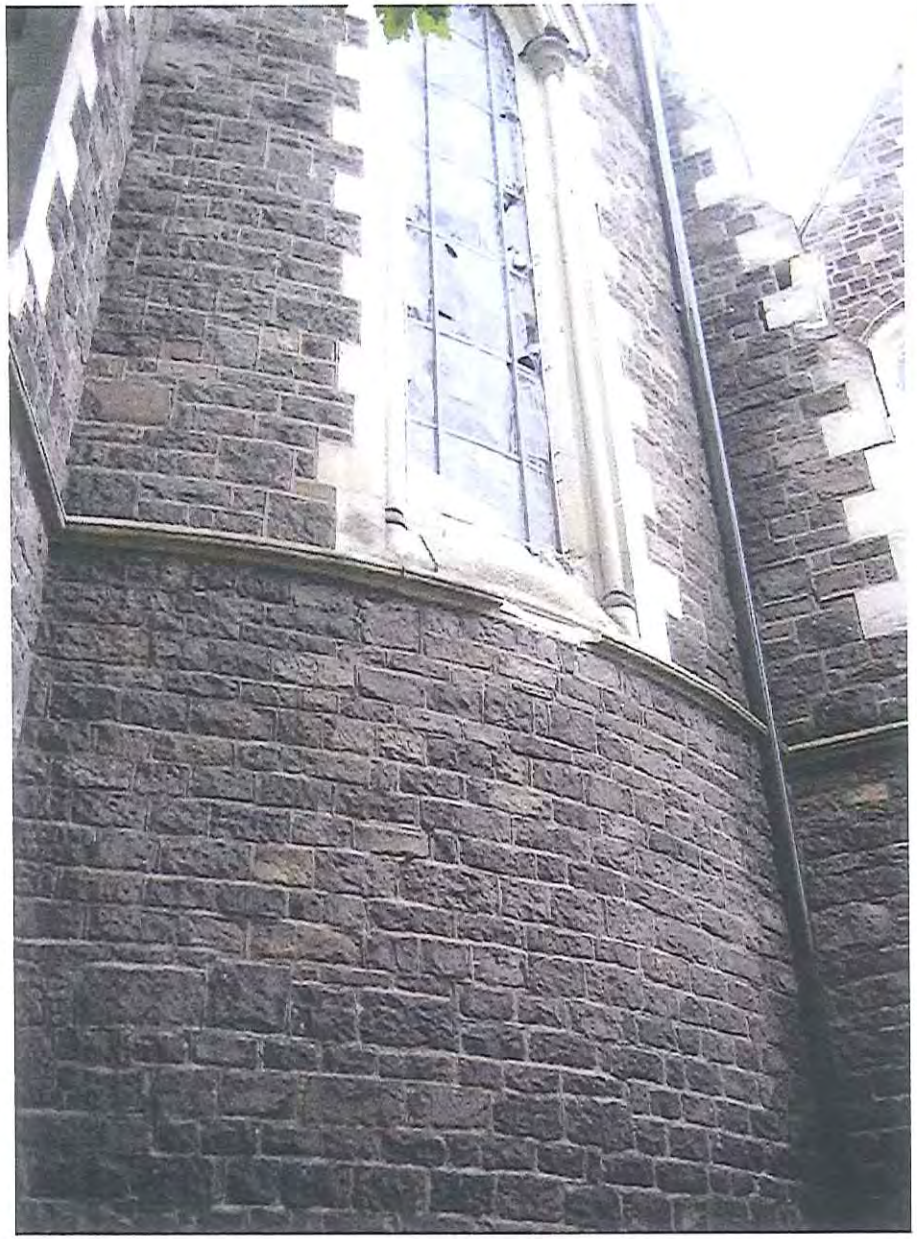

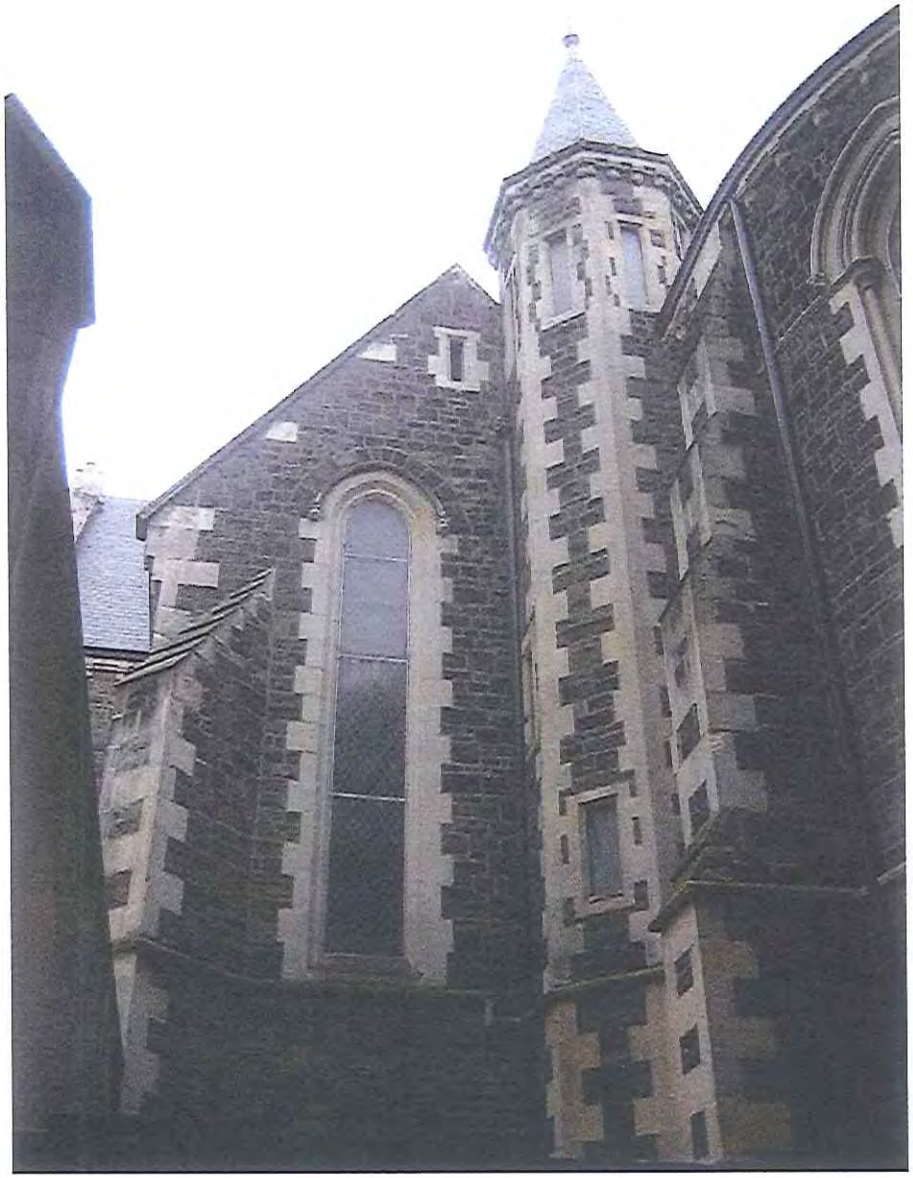

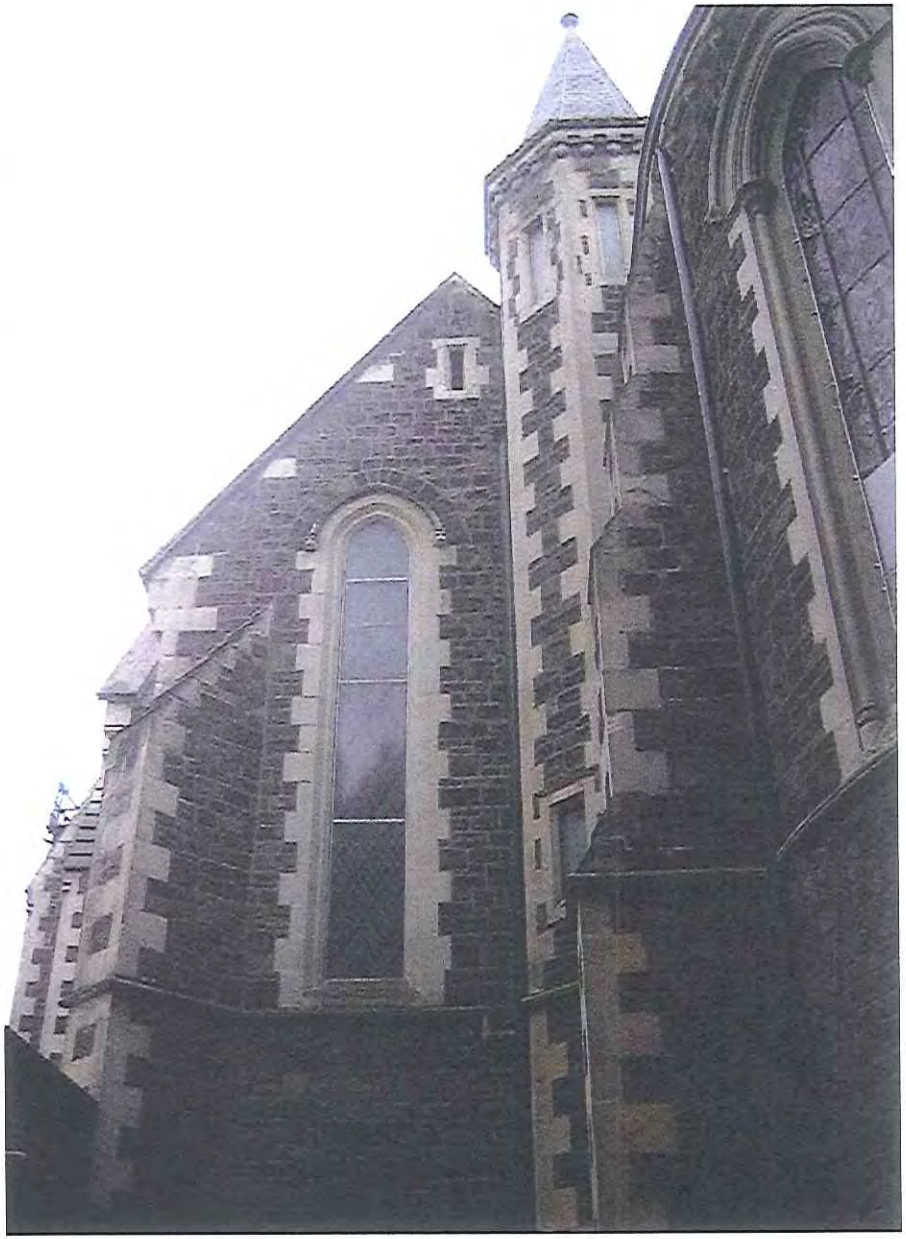

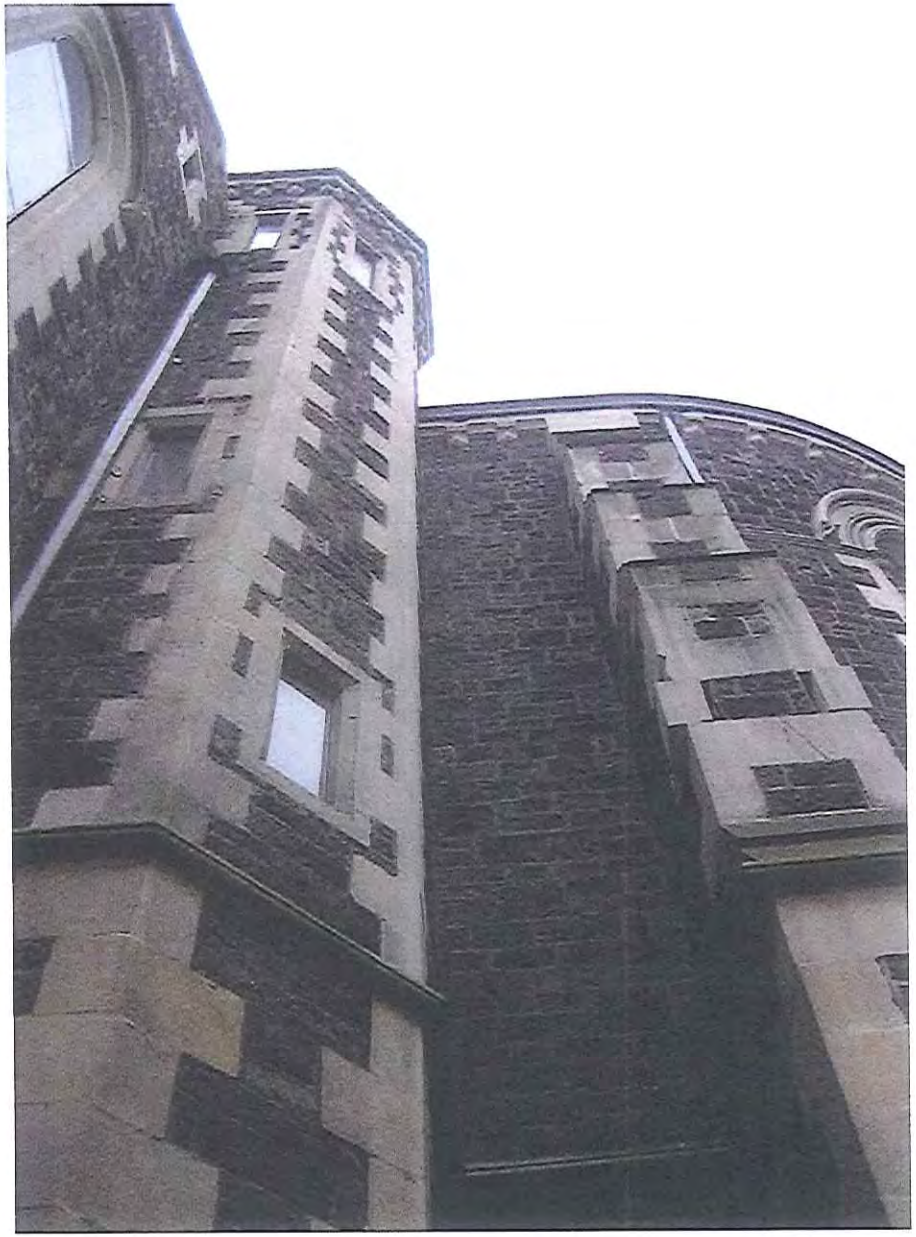

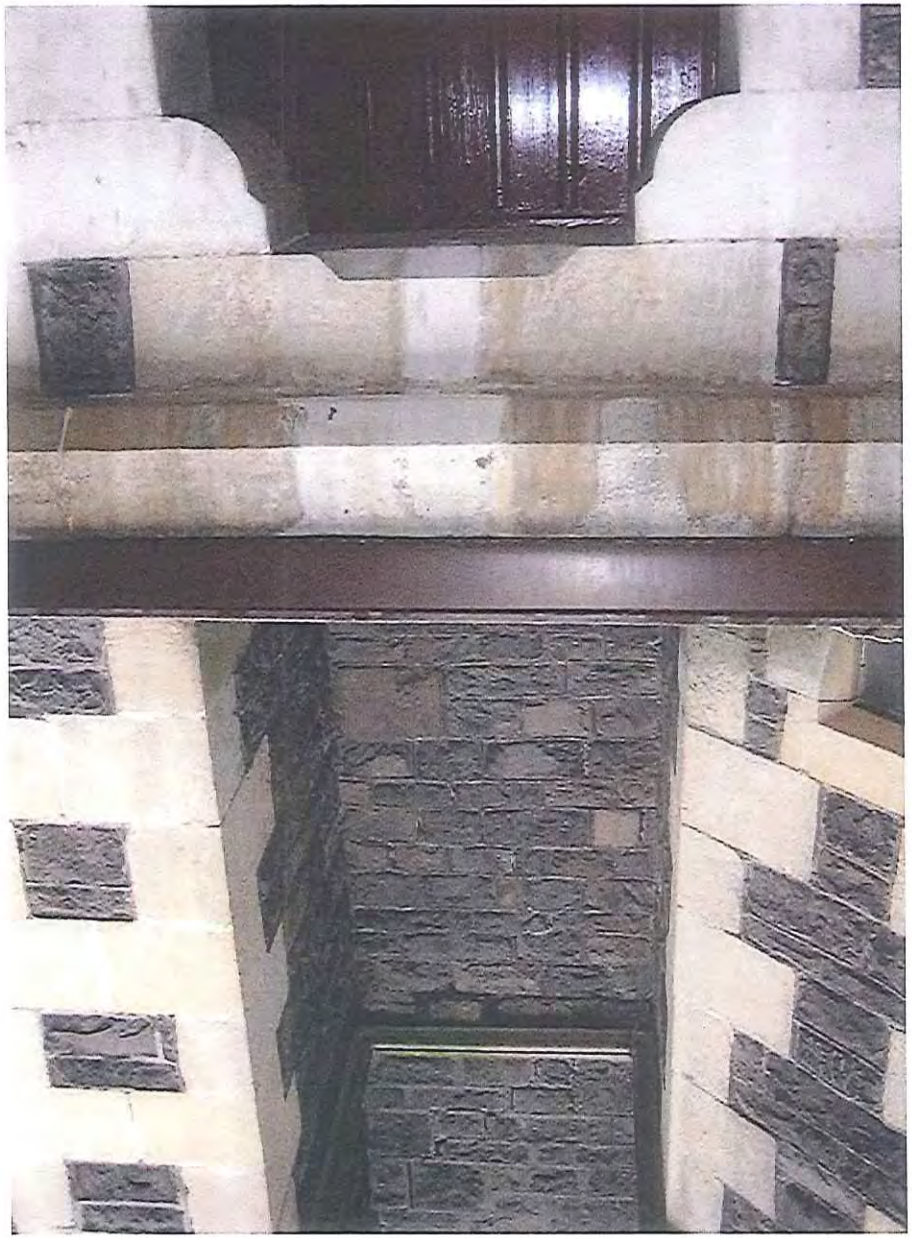

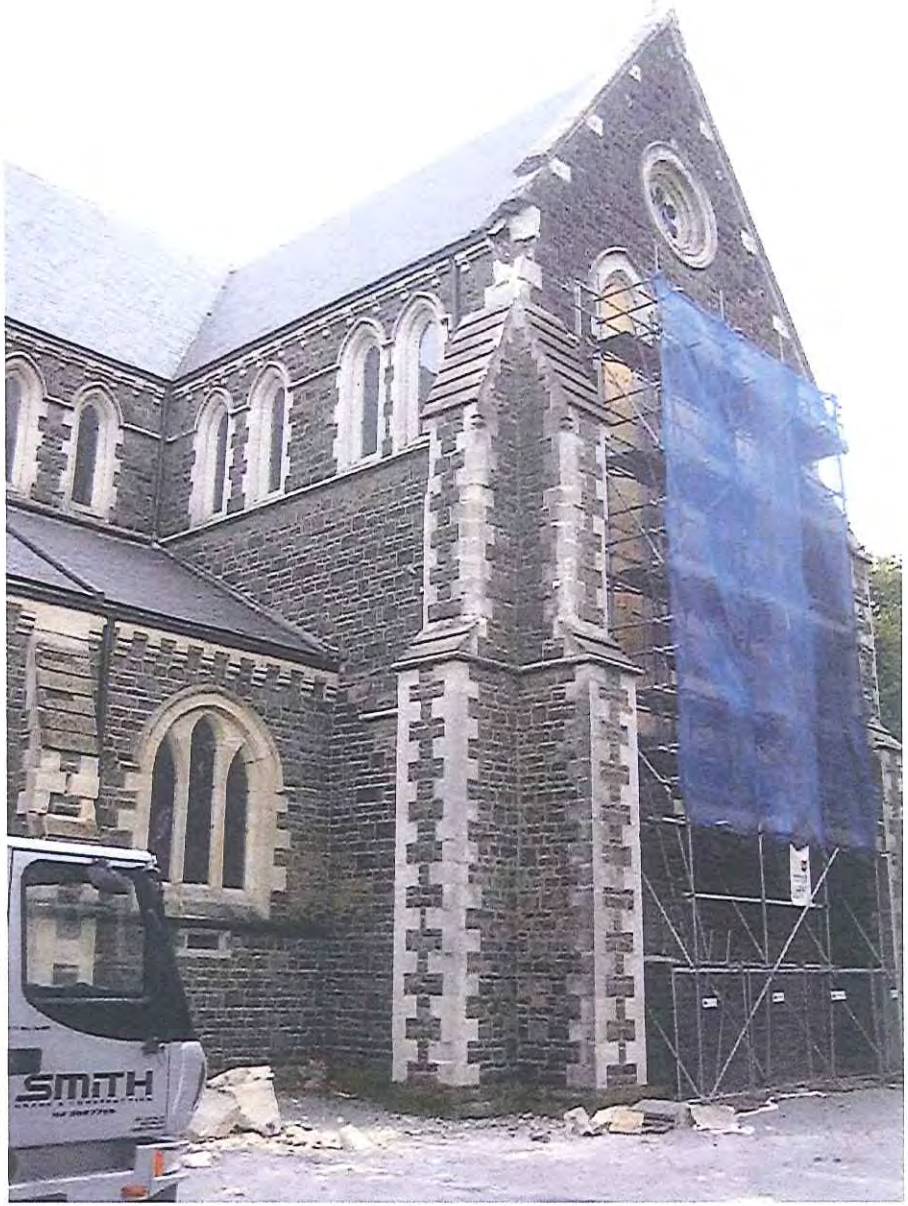
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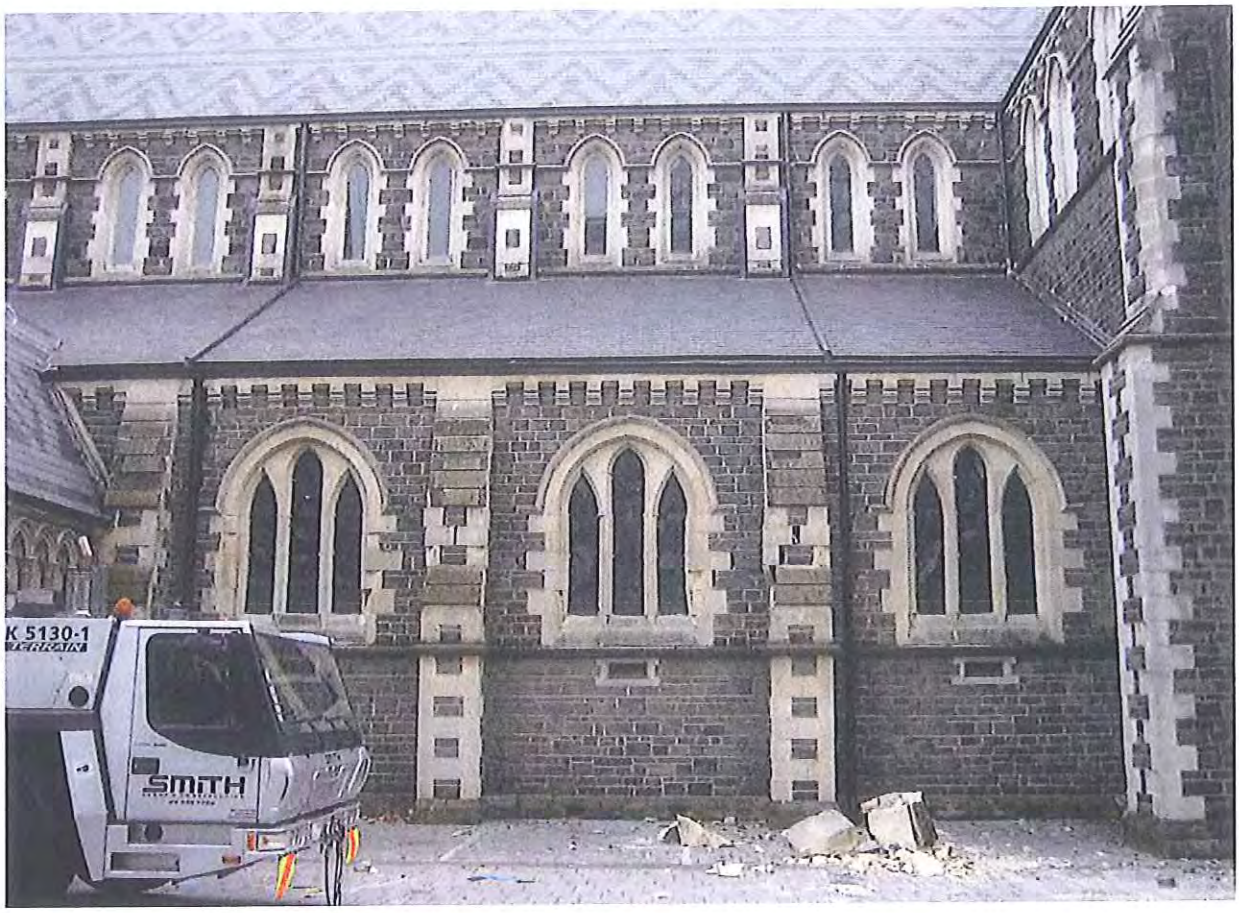
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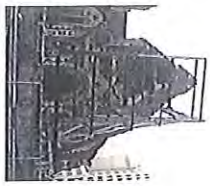
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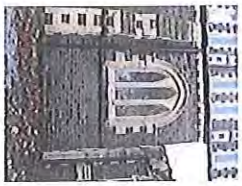
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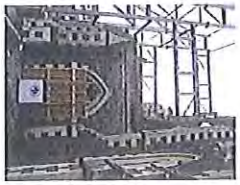
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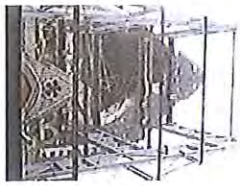
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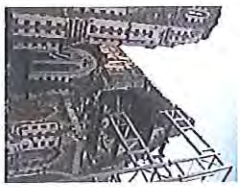
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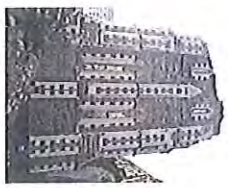
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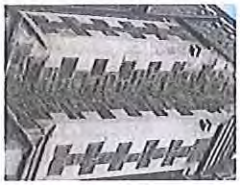
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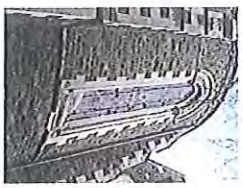
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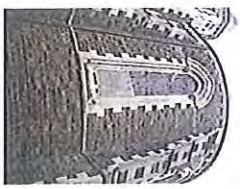
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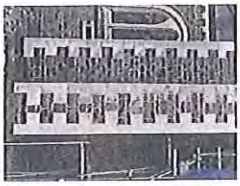
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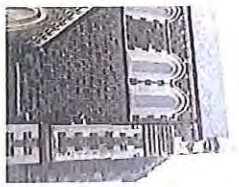
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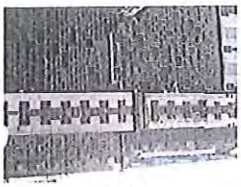
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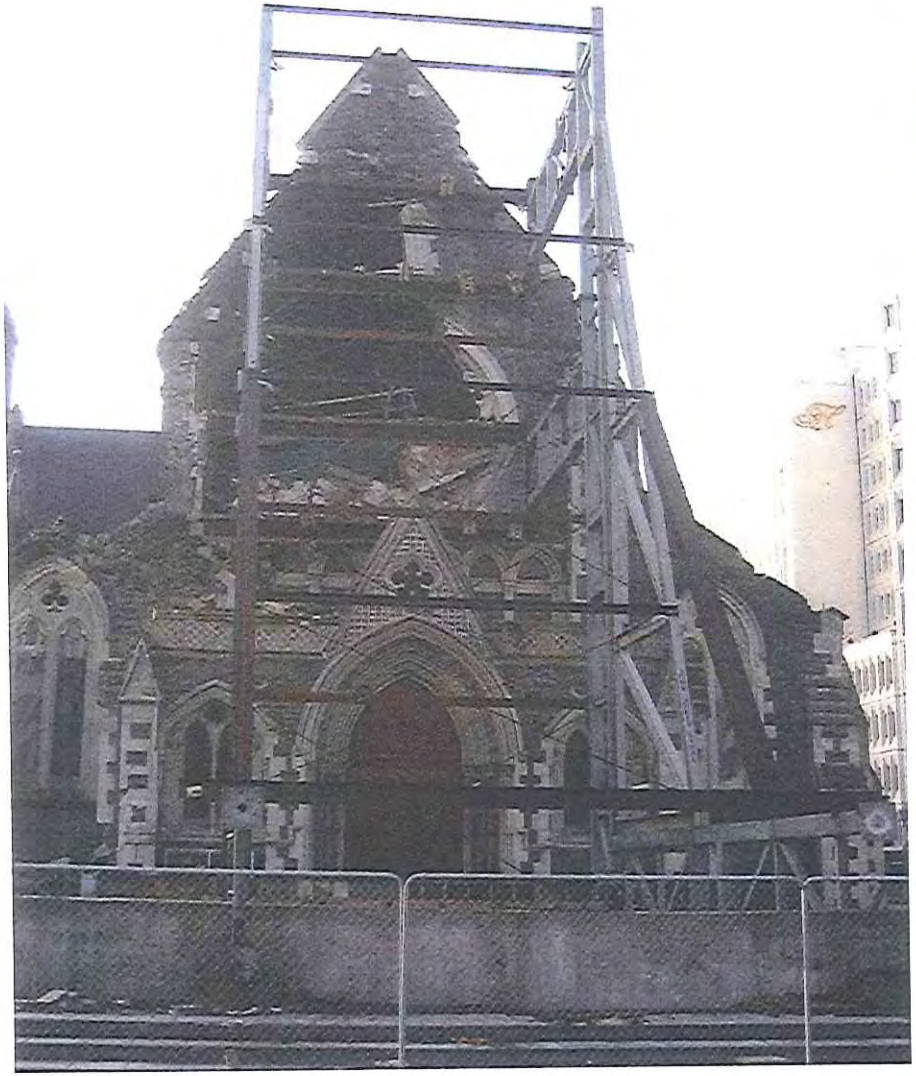

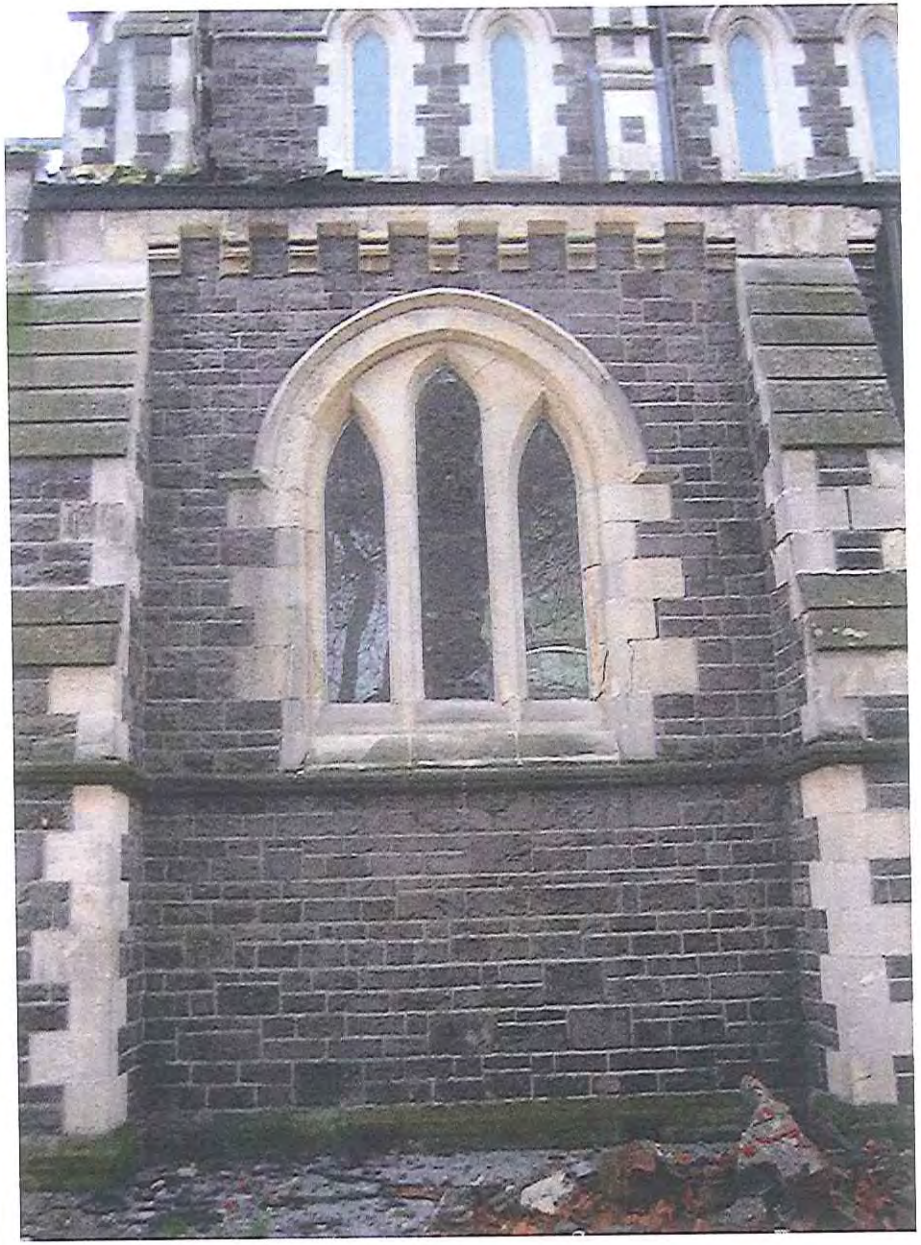

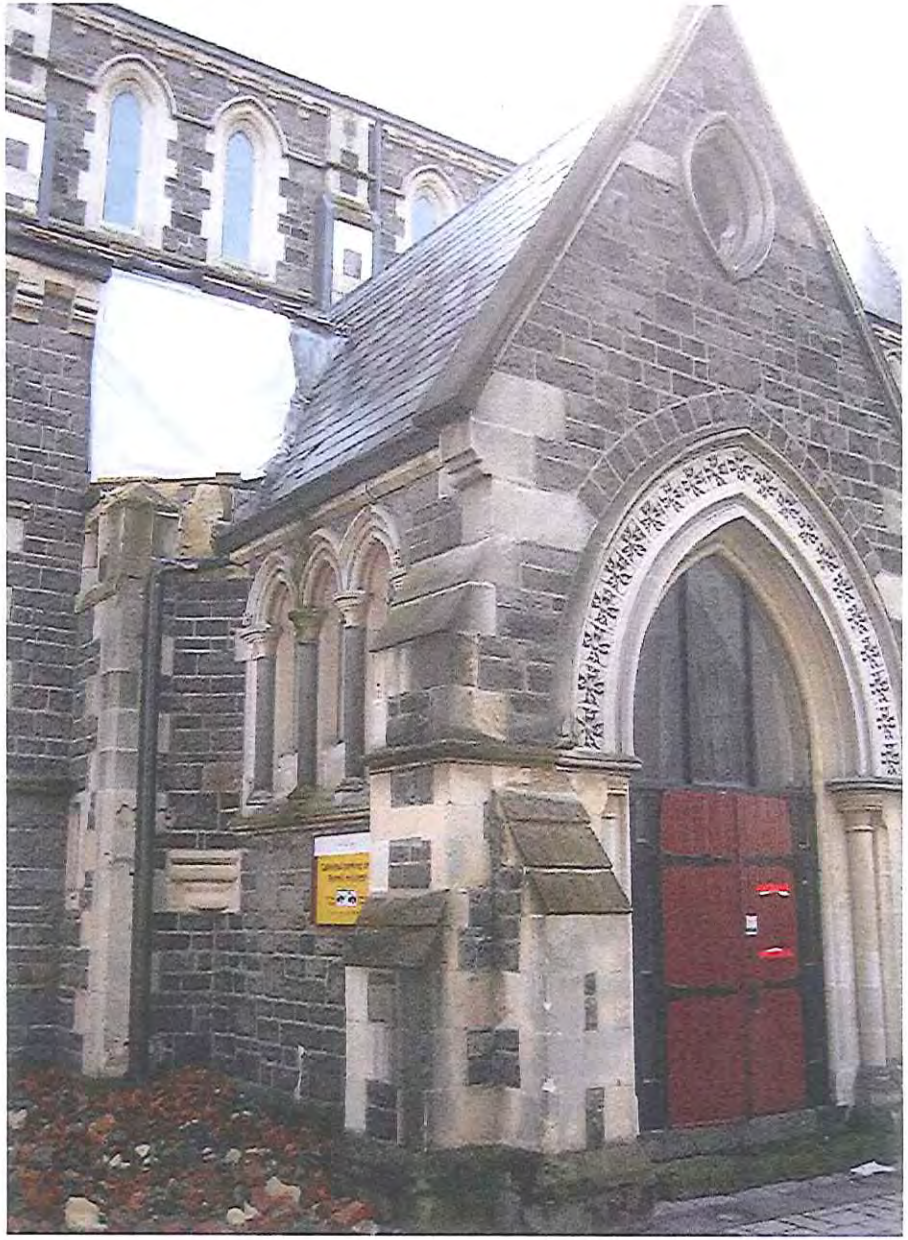


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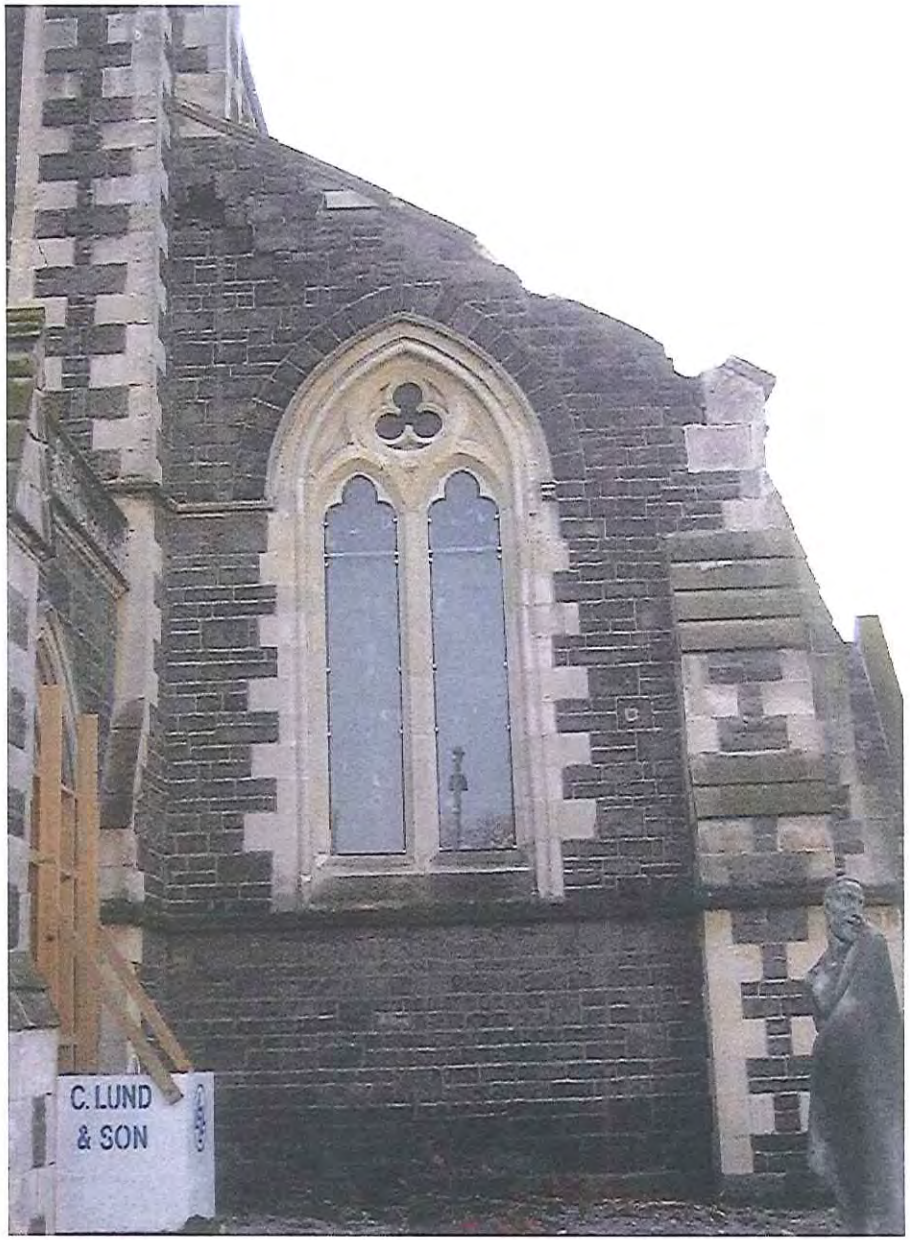
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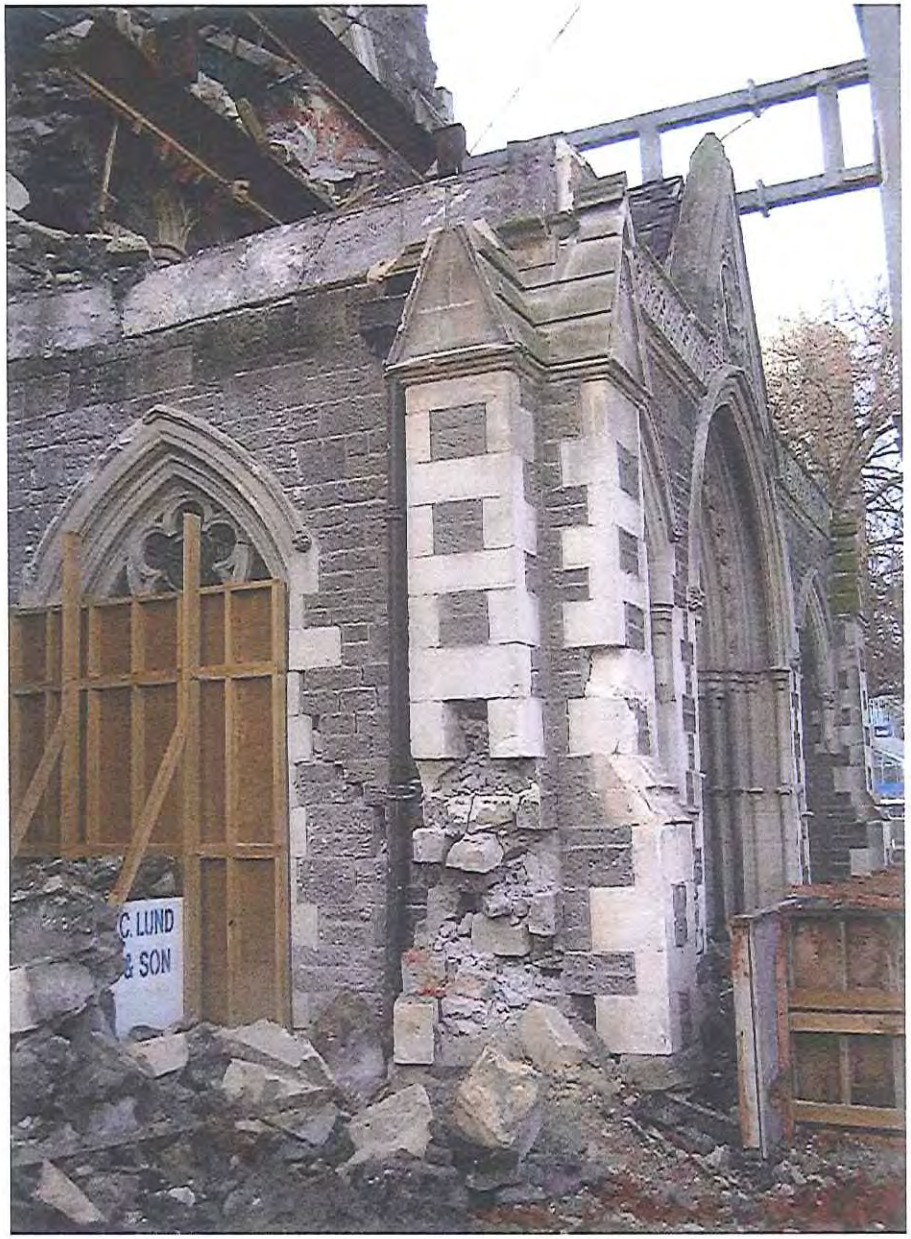
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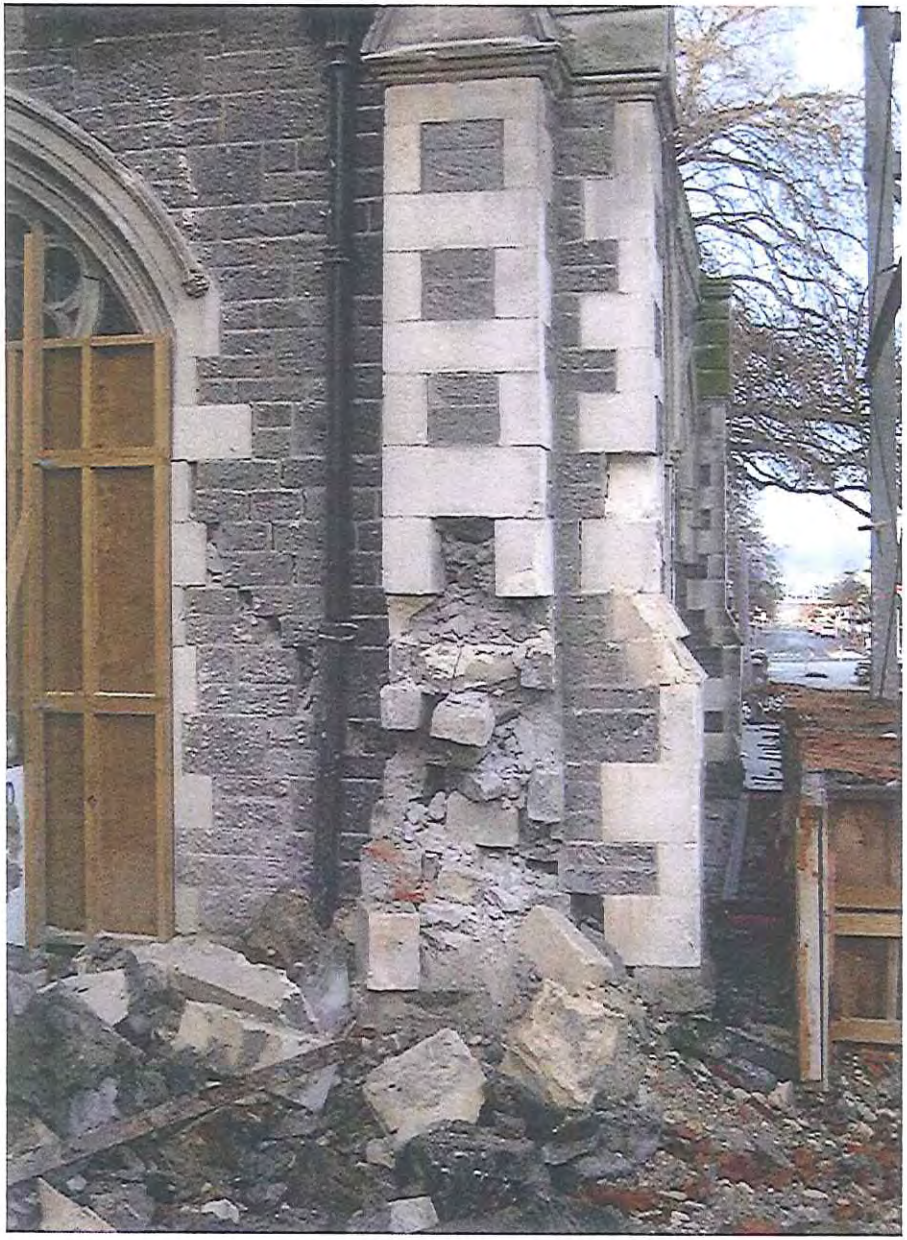

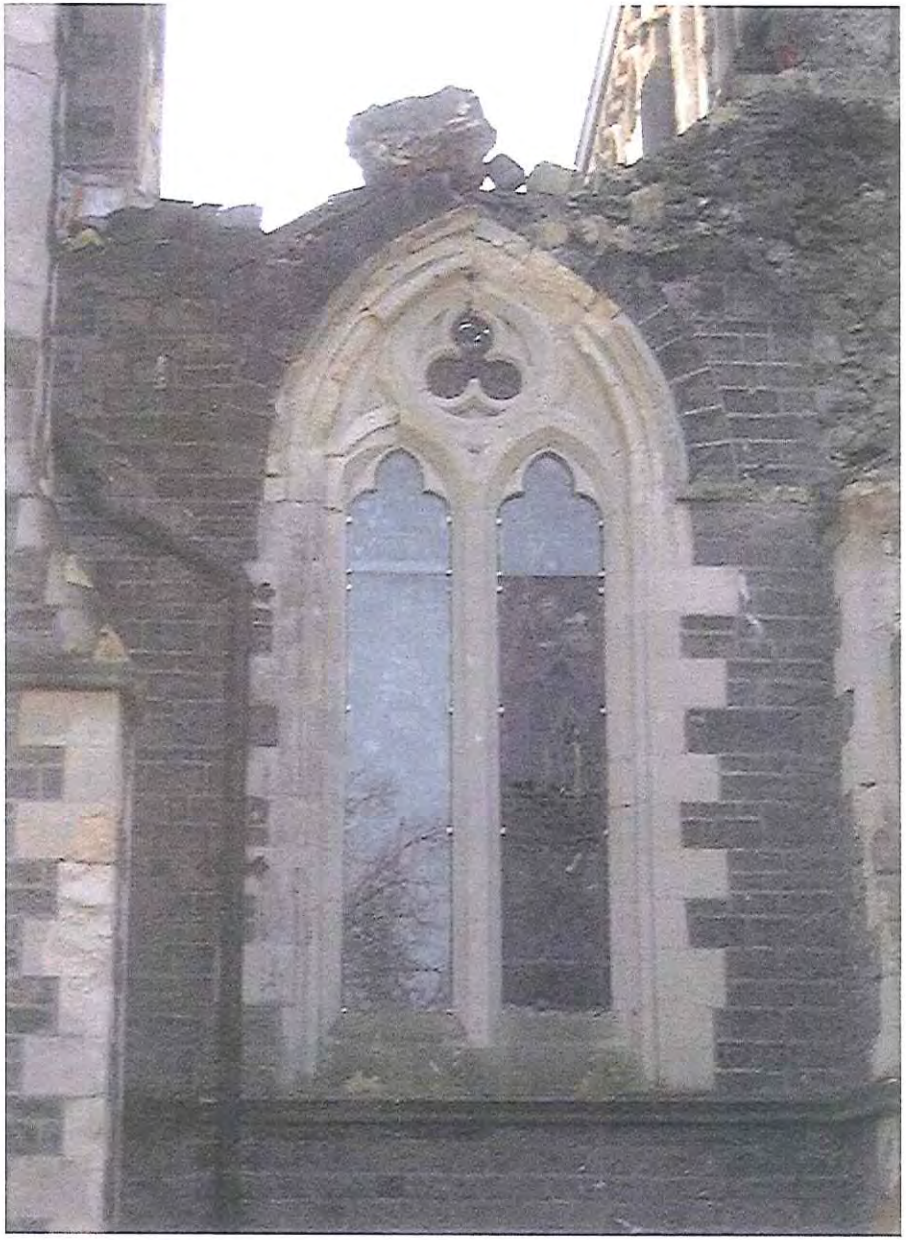

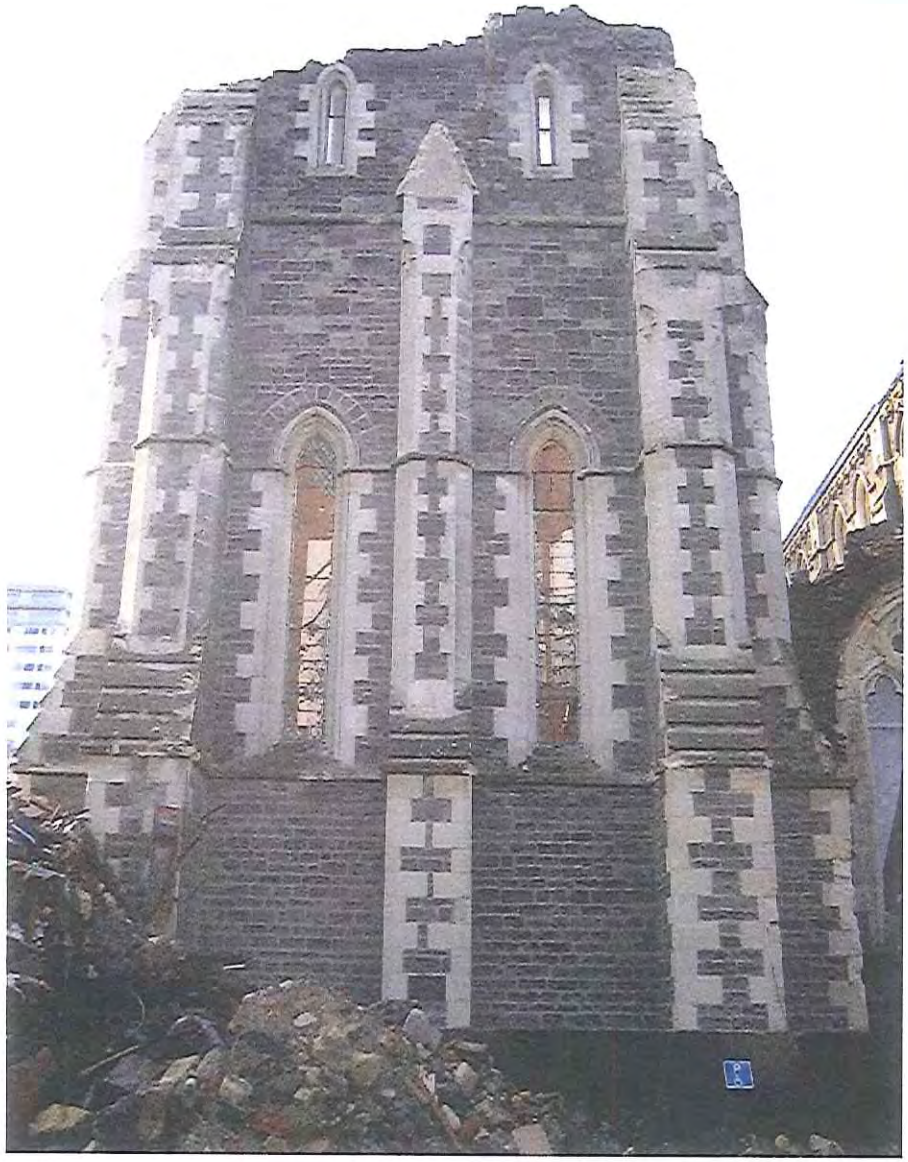

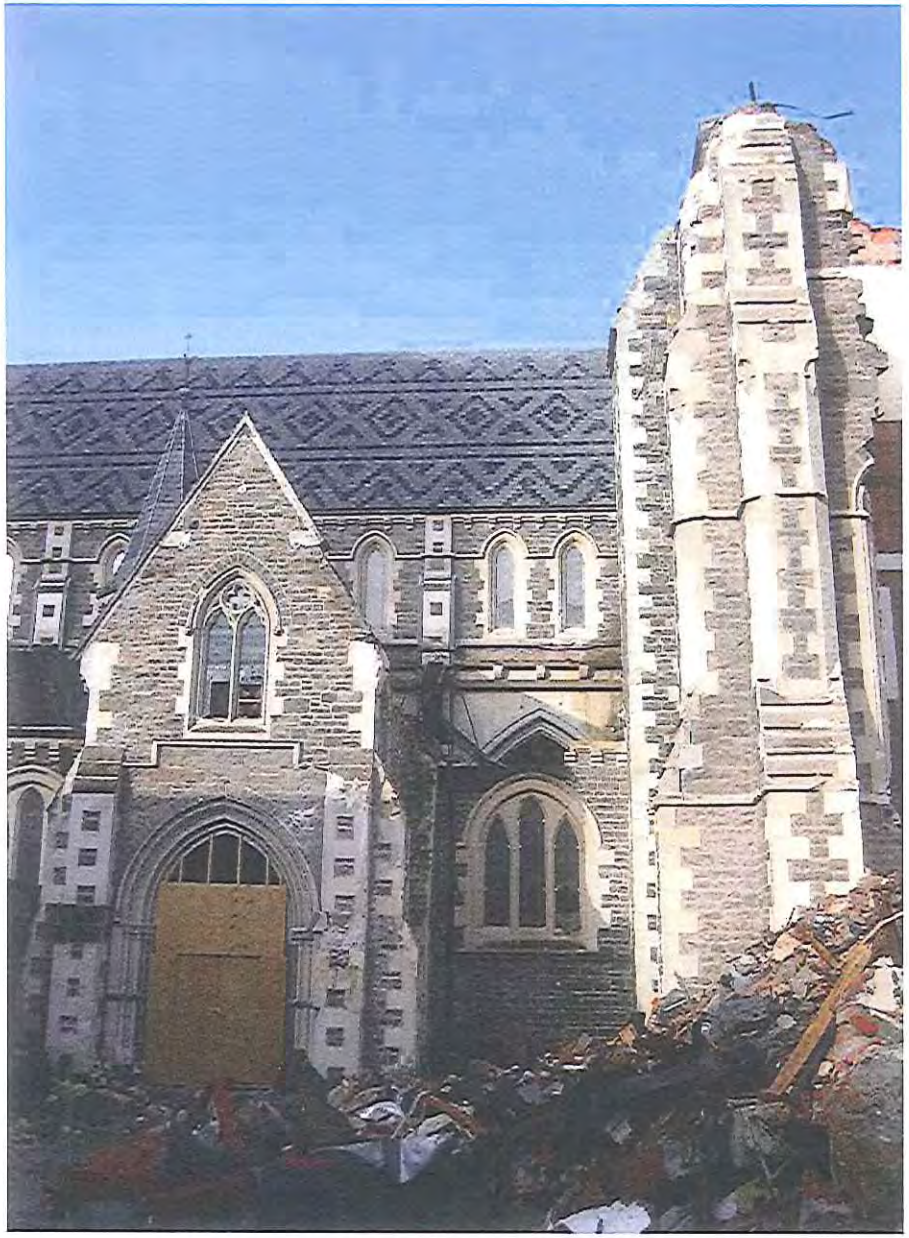

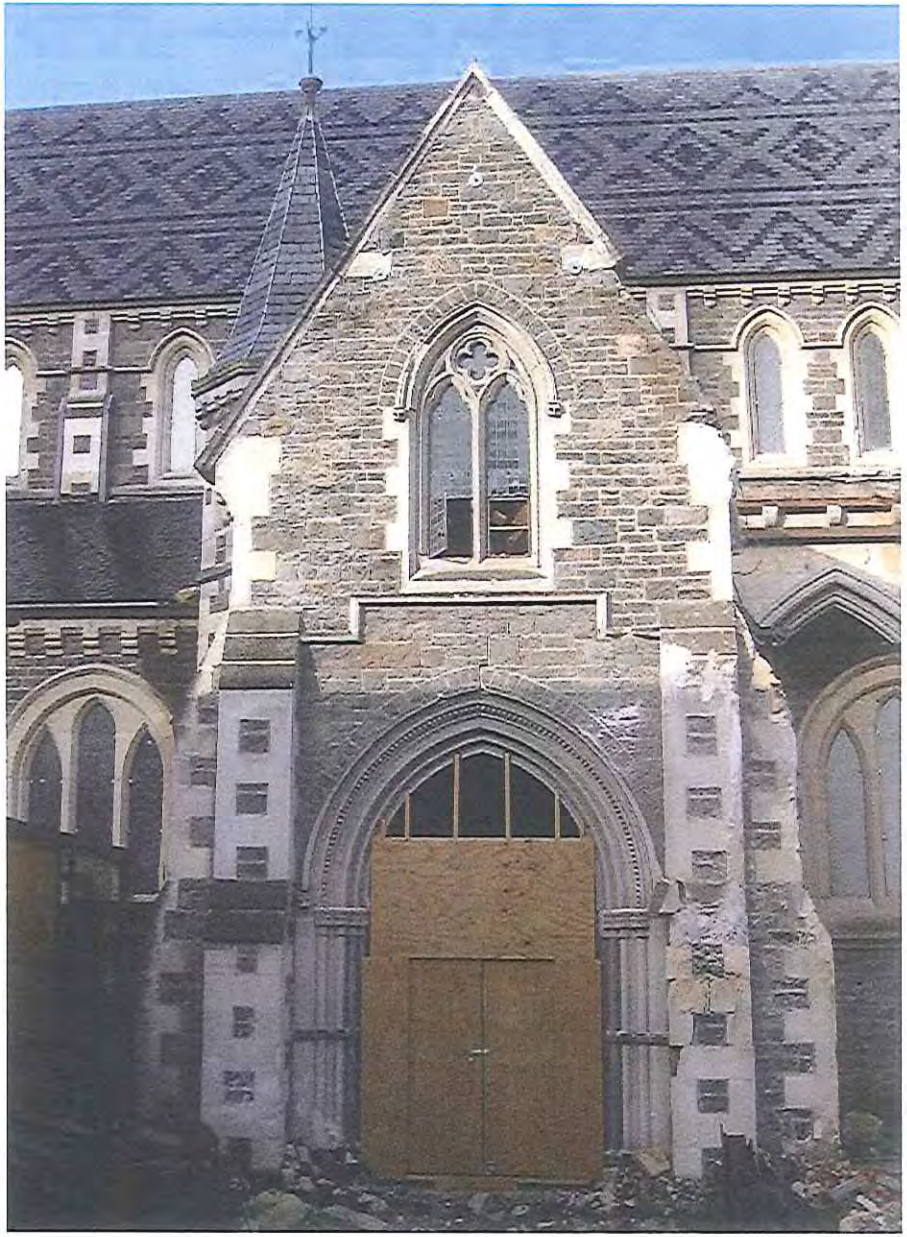

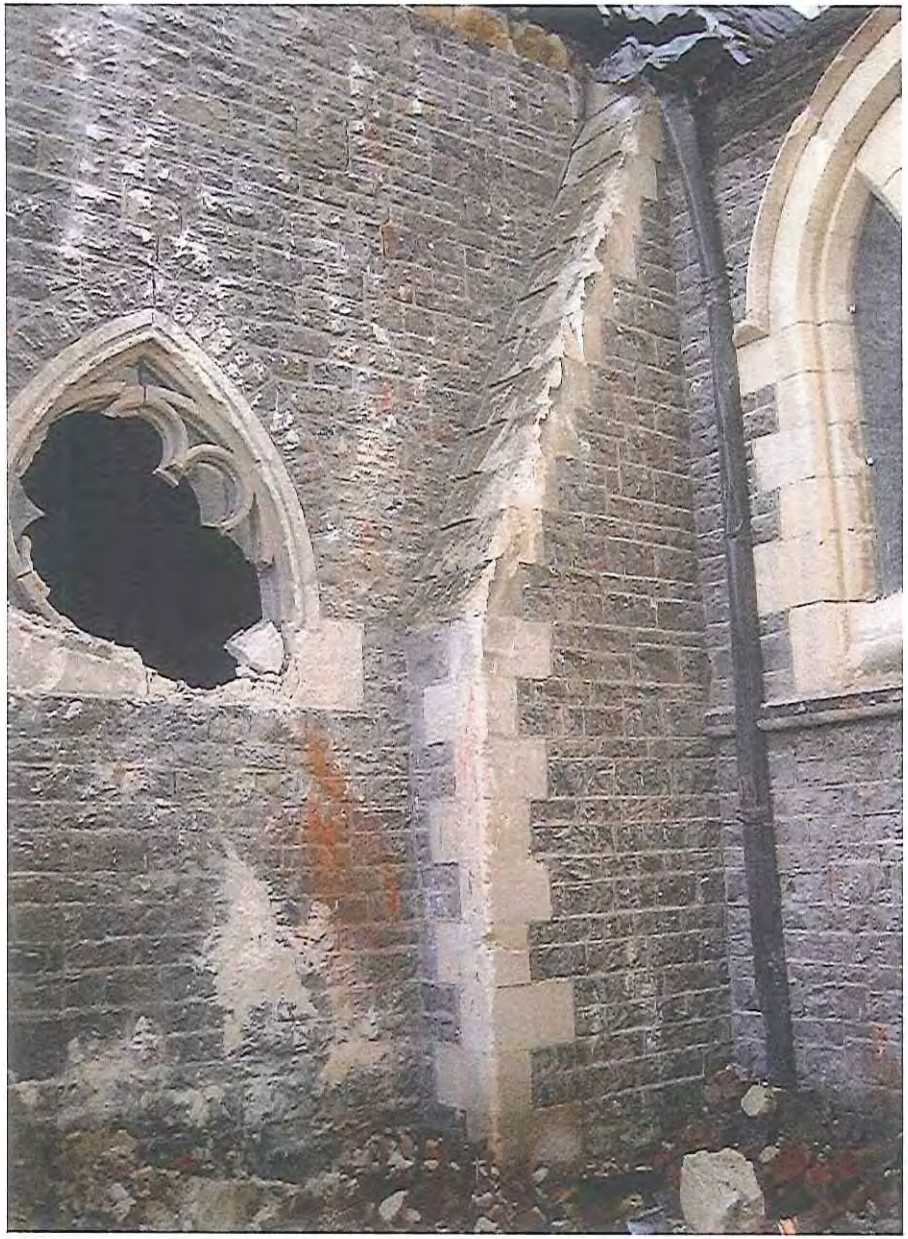

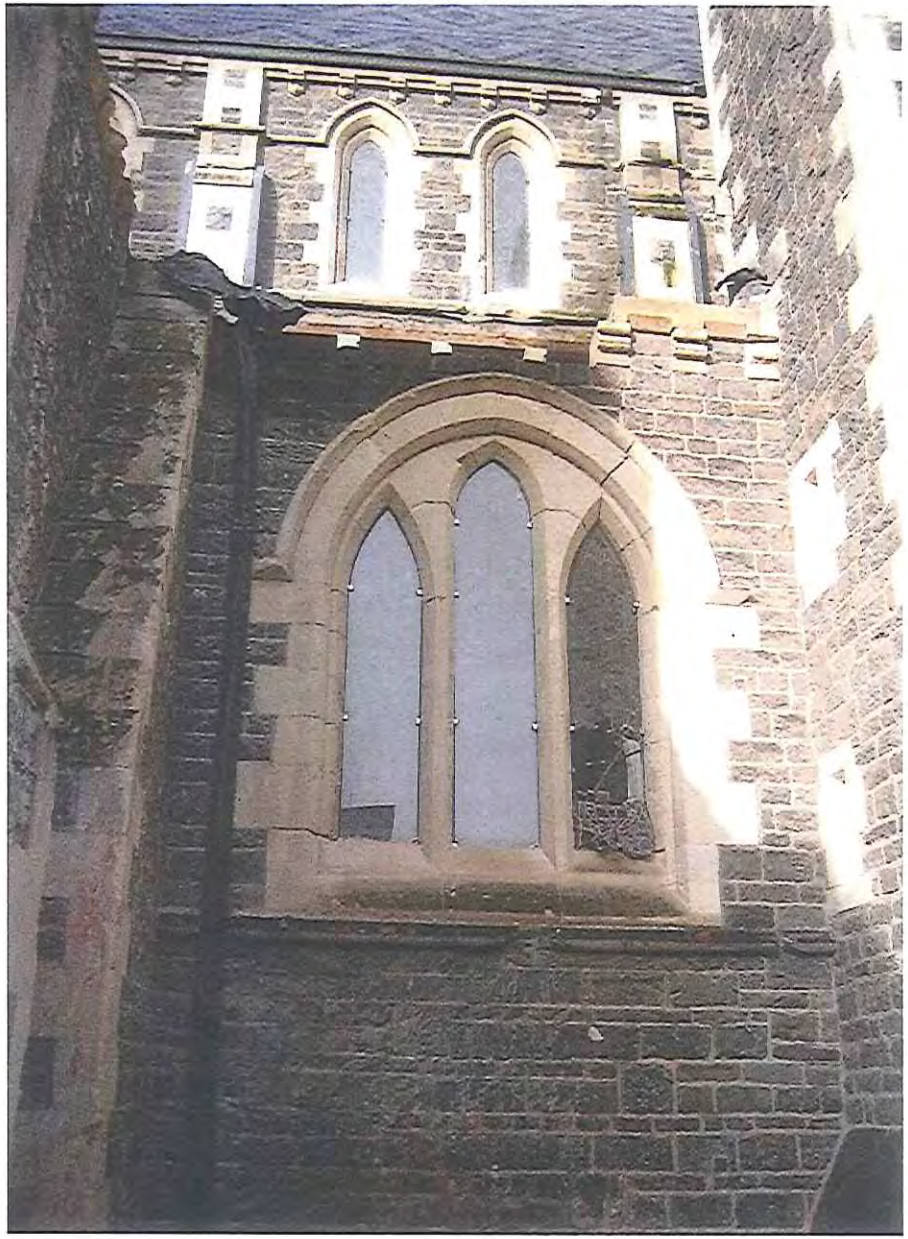

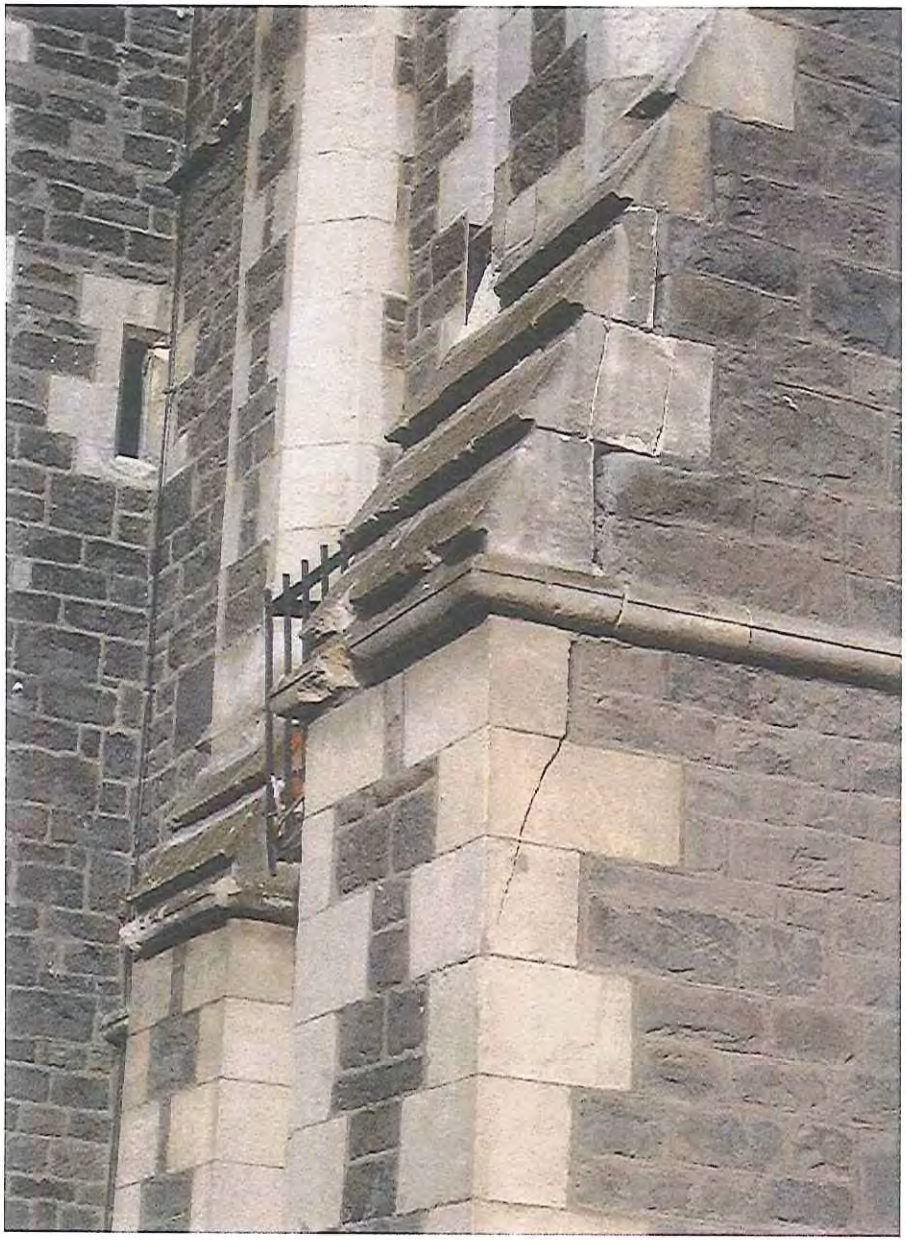

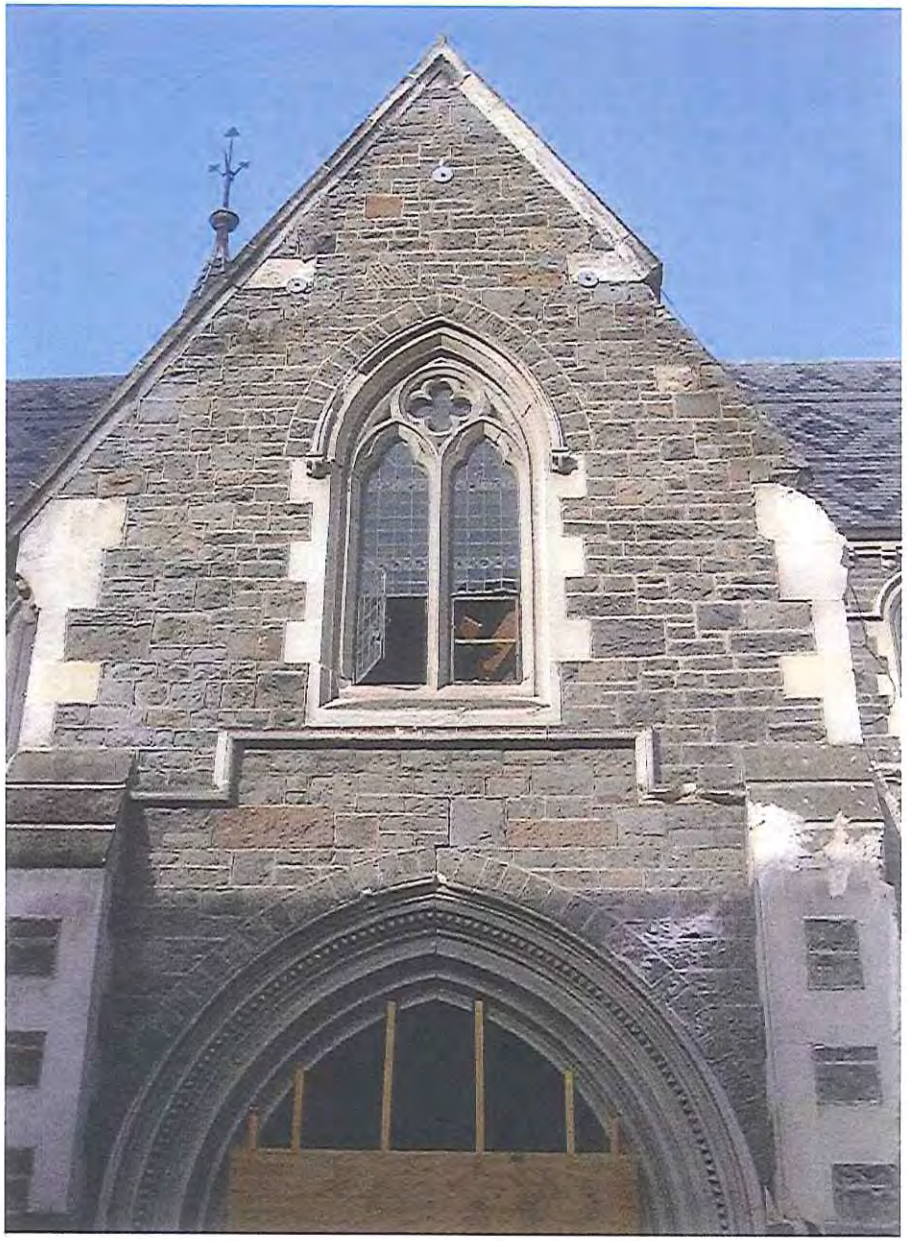

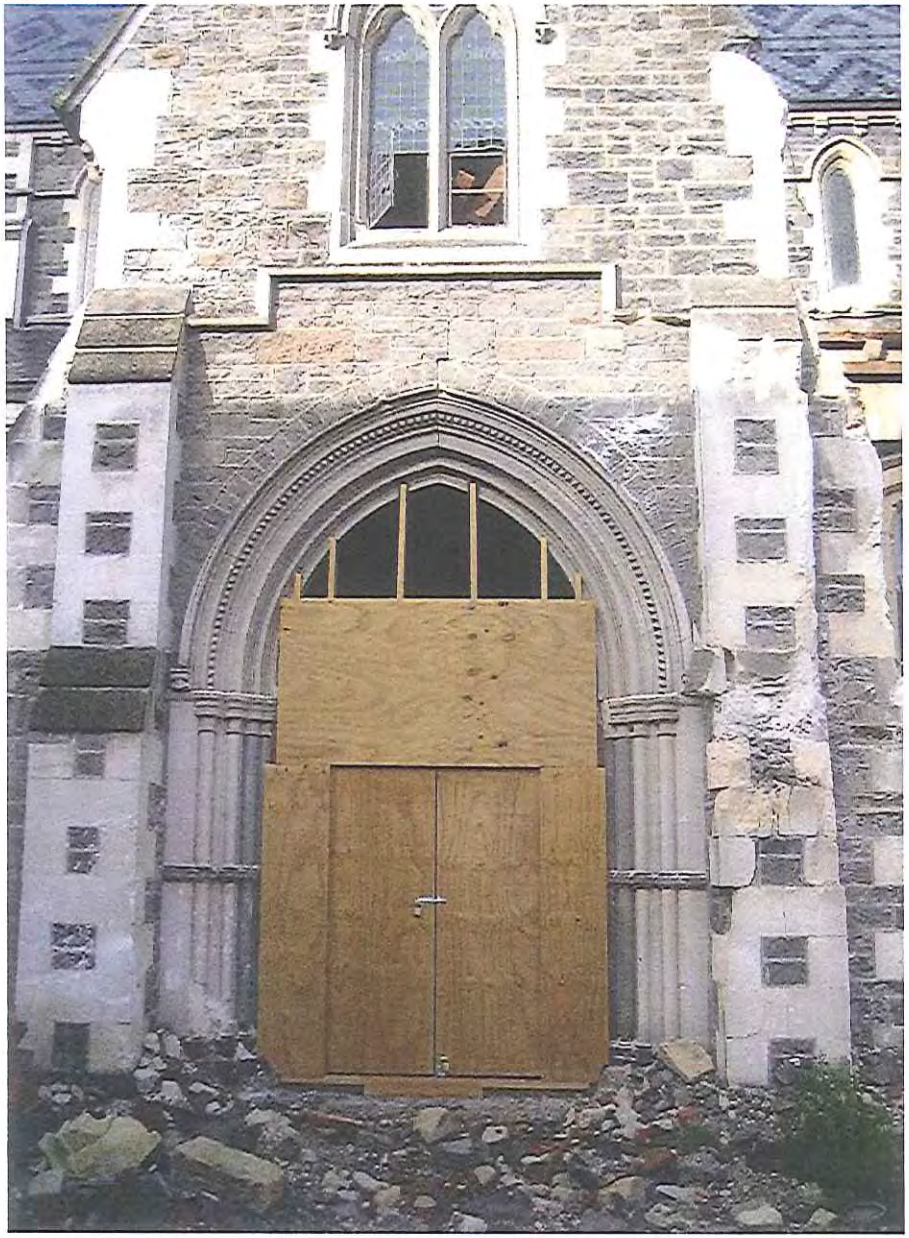

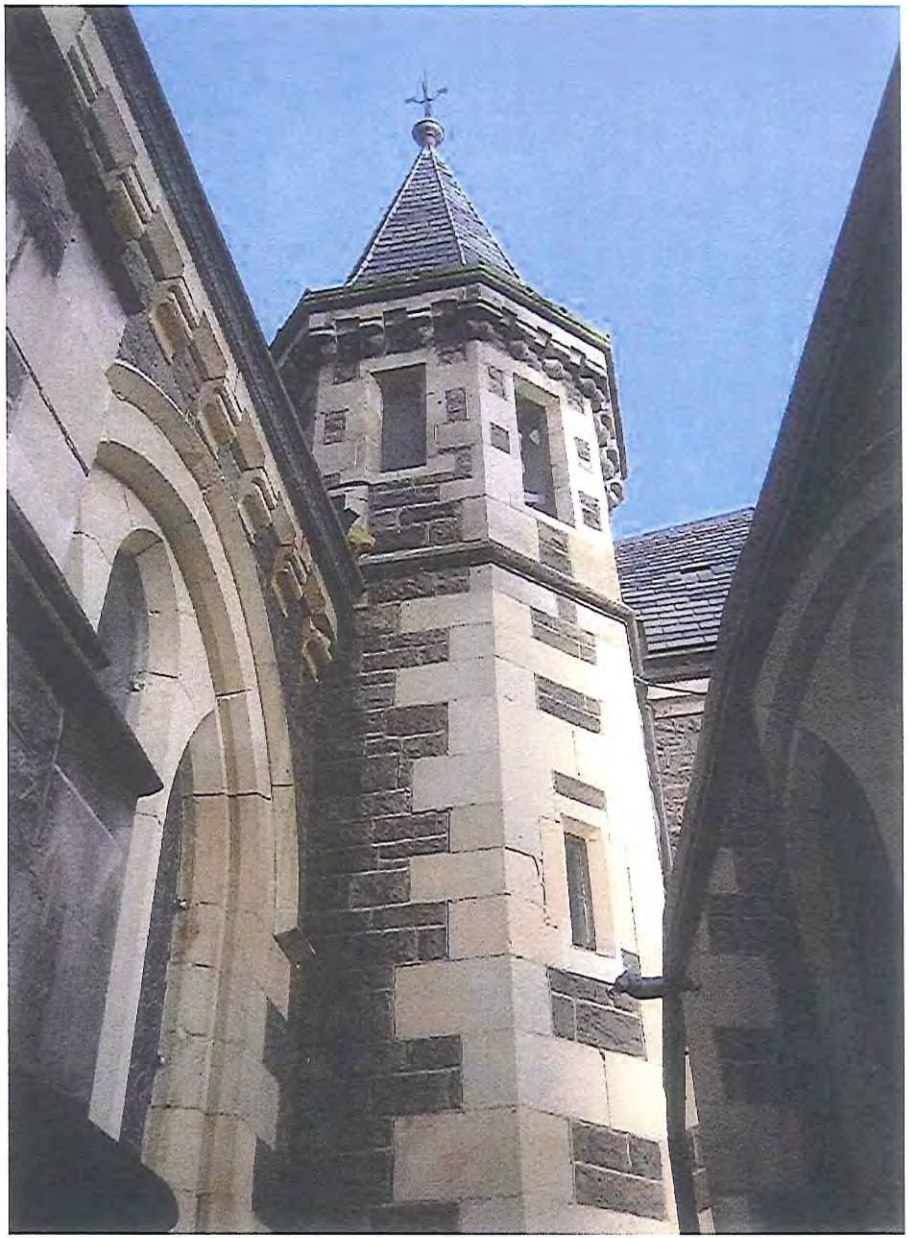

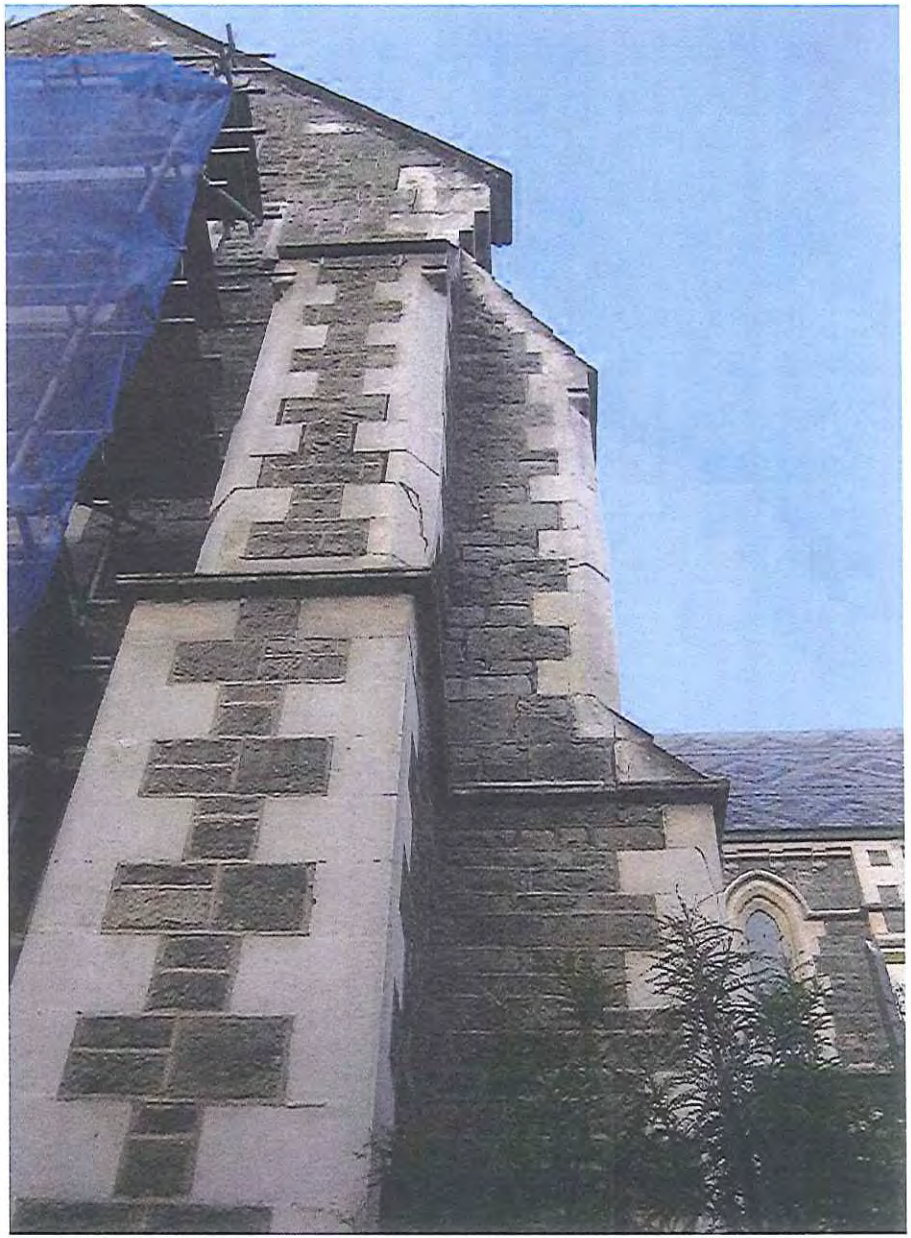

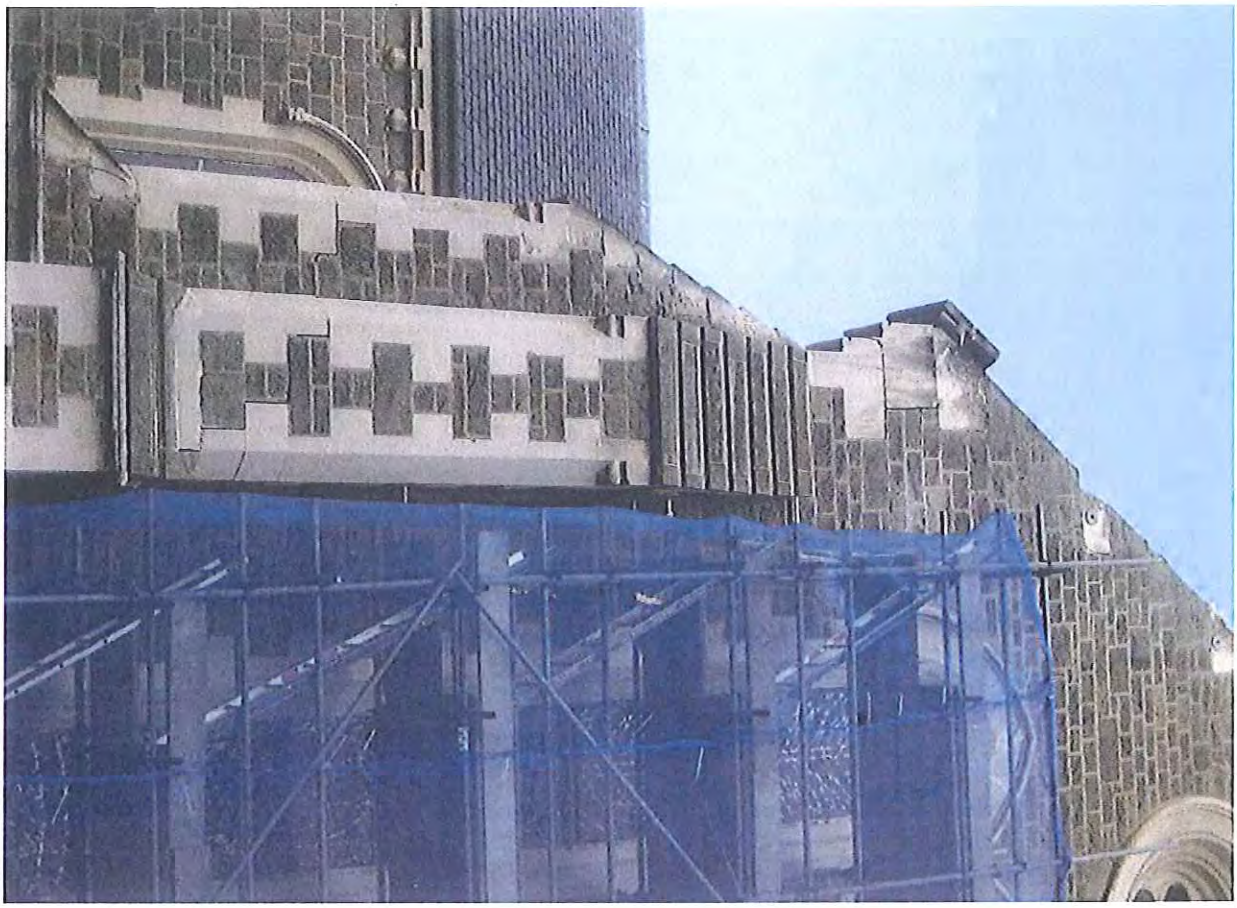

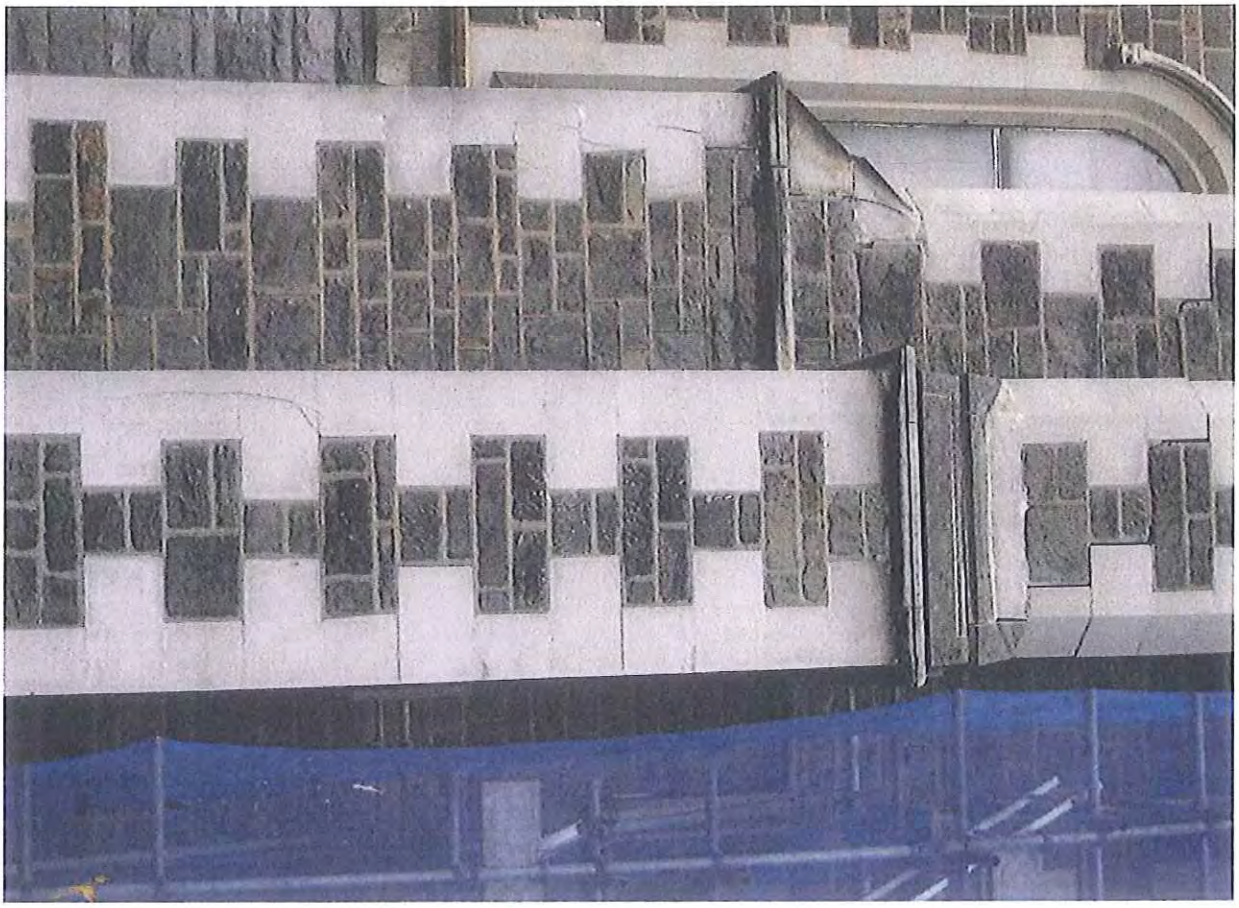


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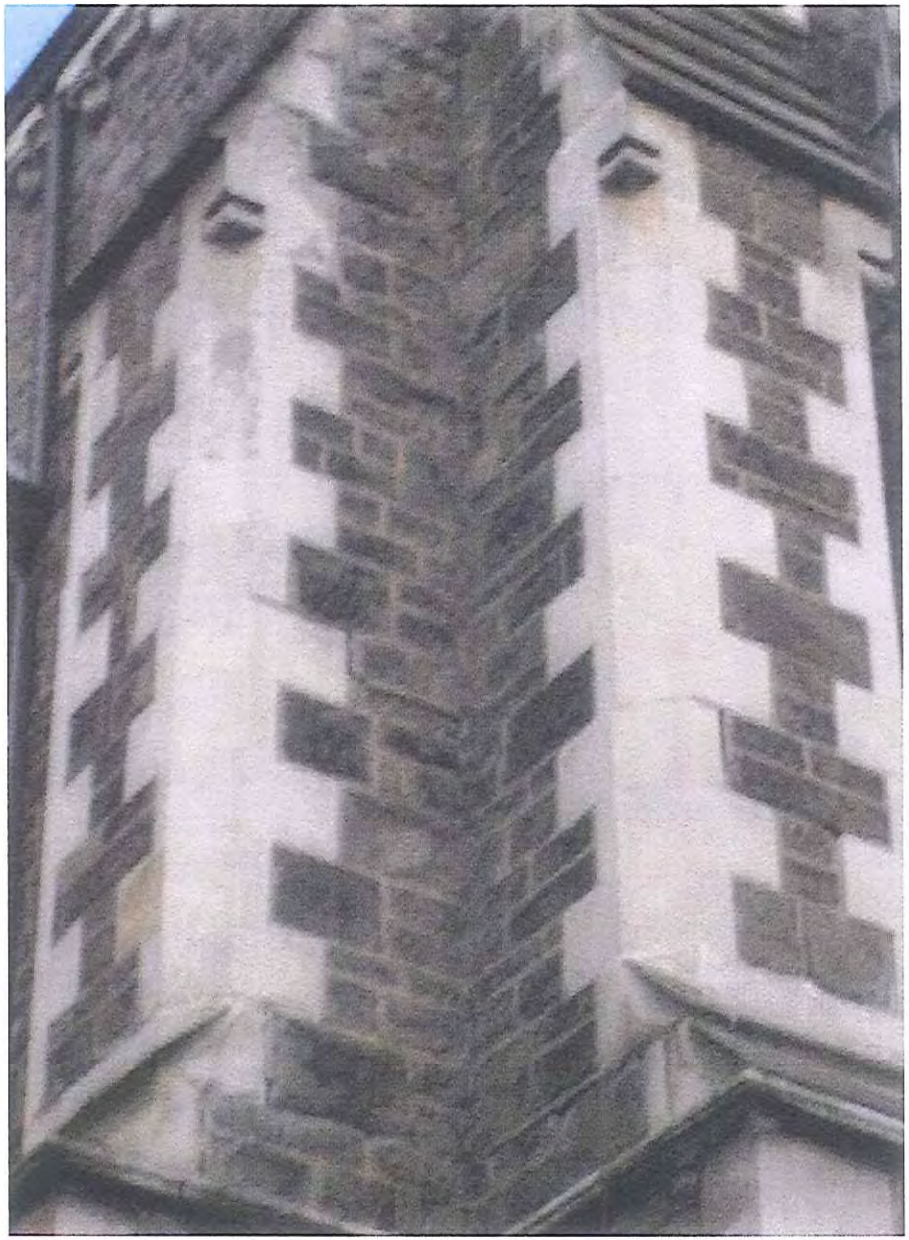

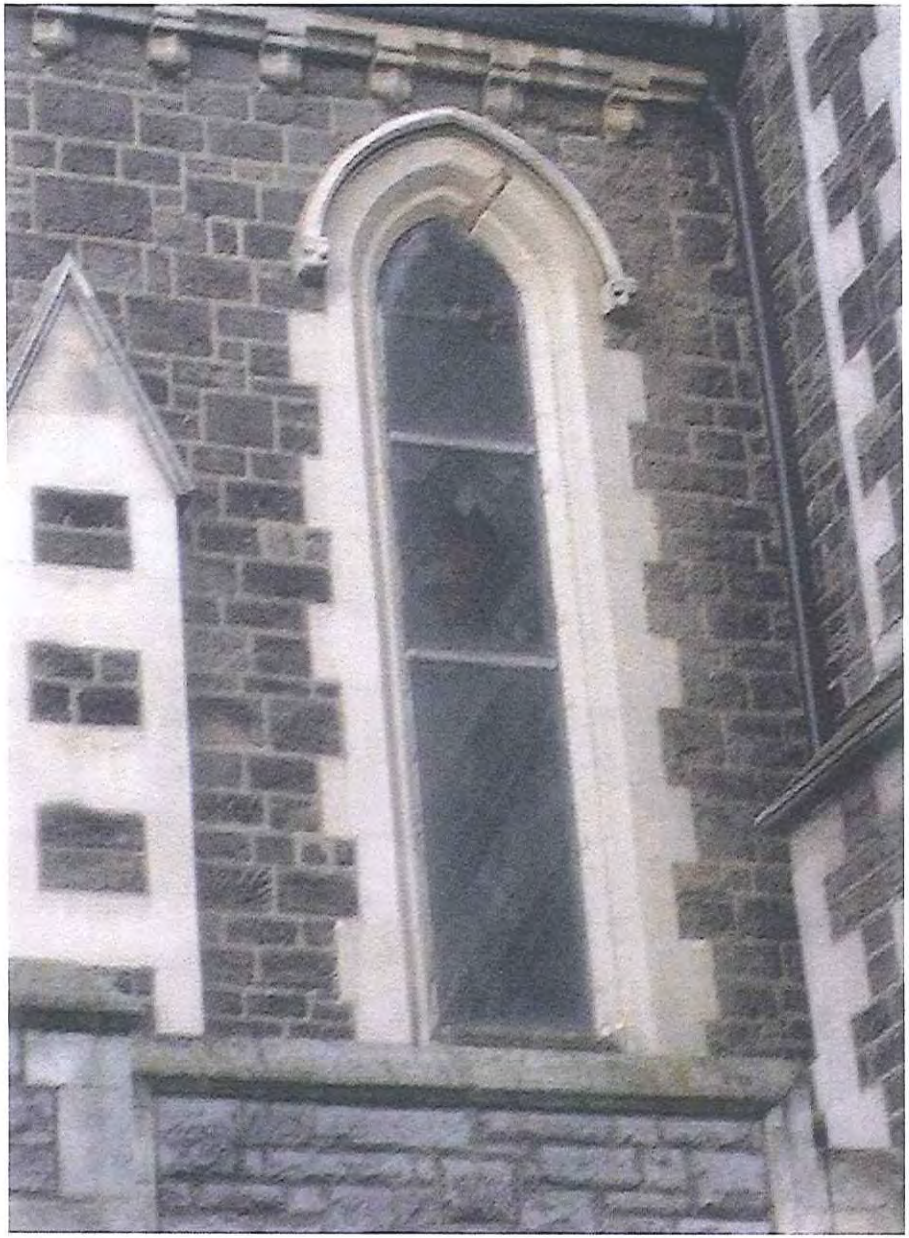

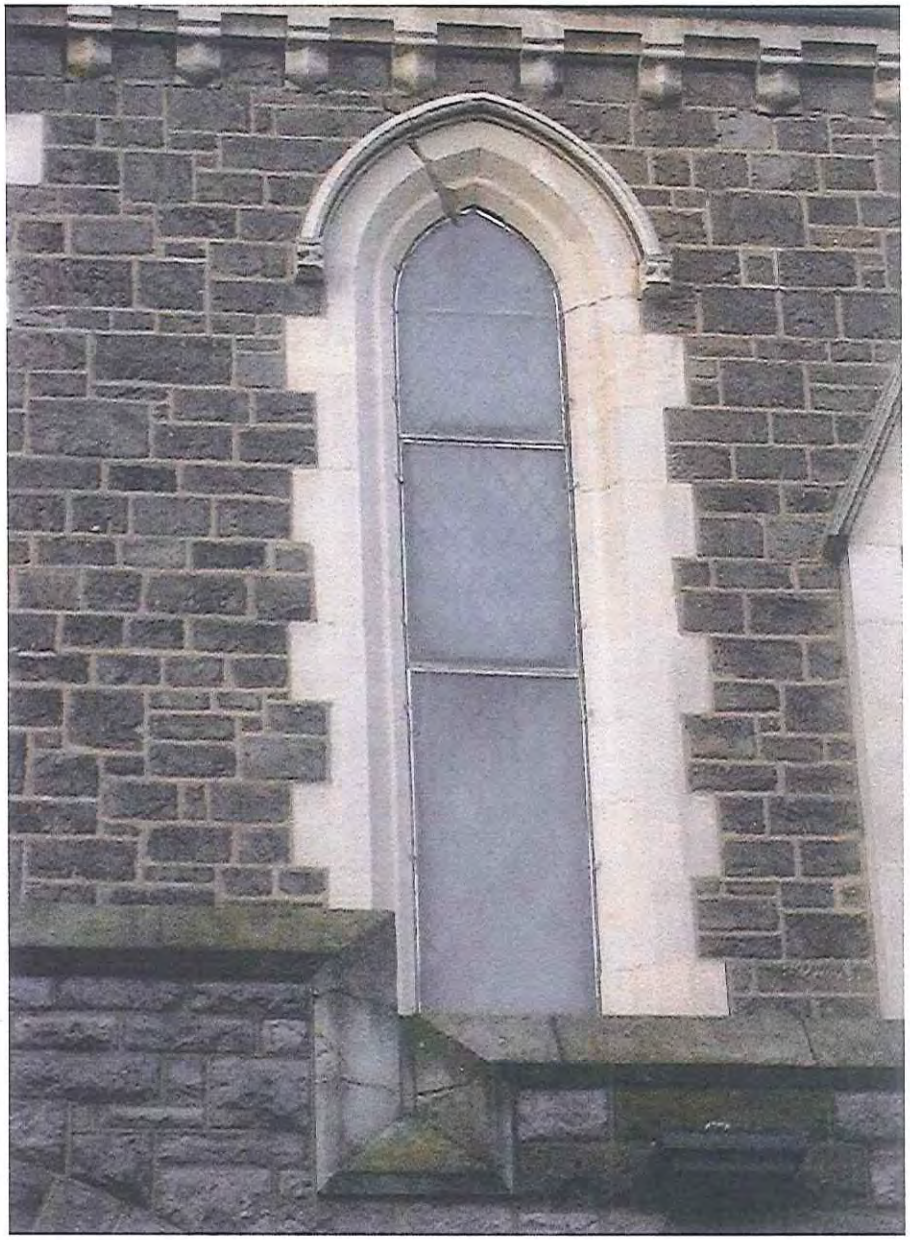


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VEHICLES WILL BE
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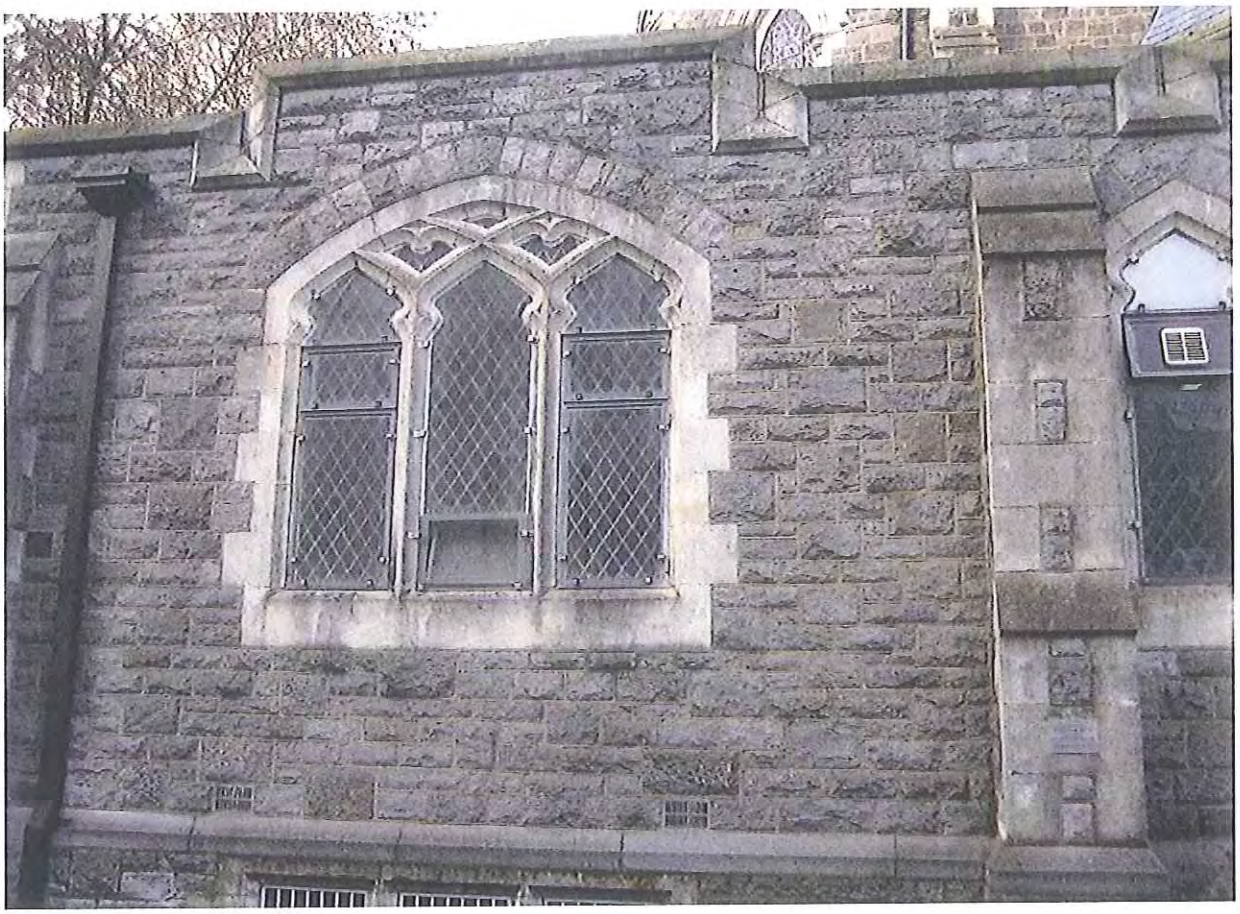
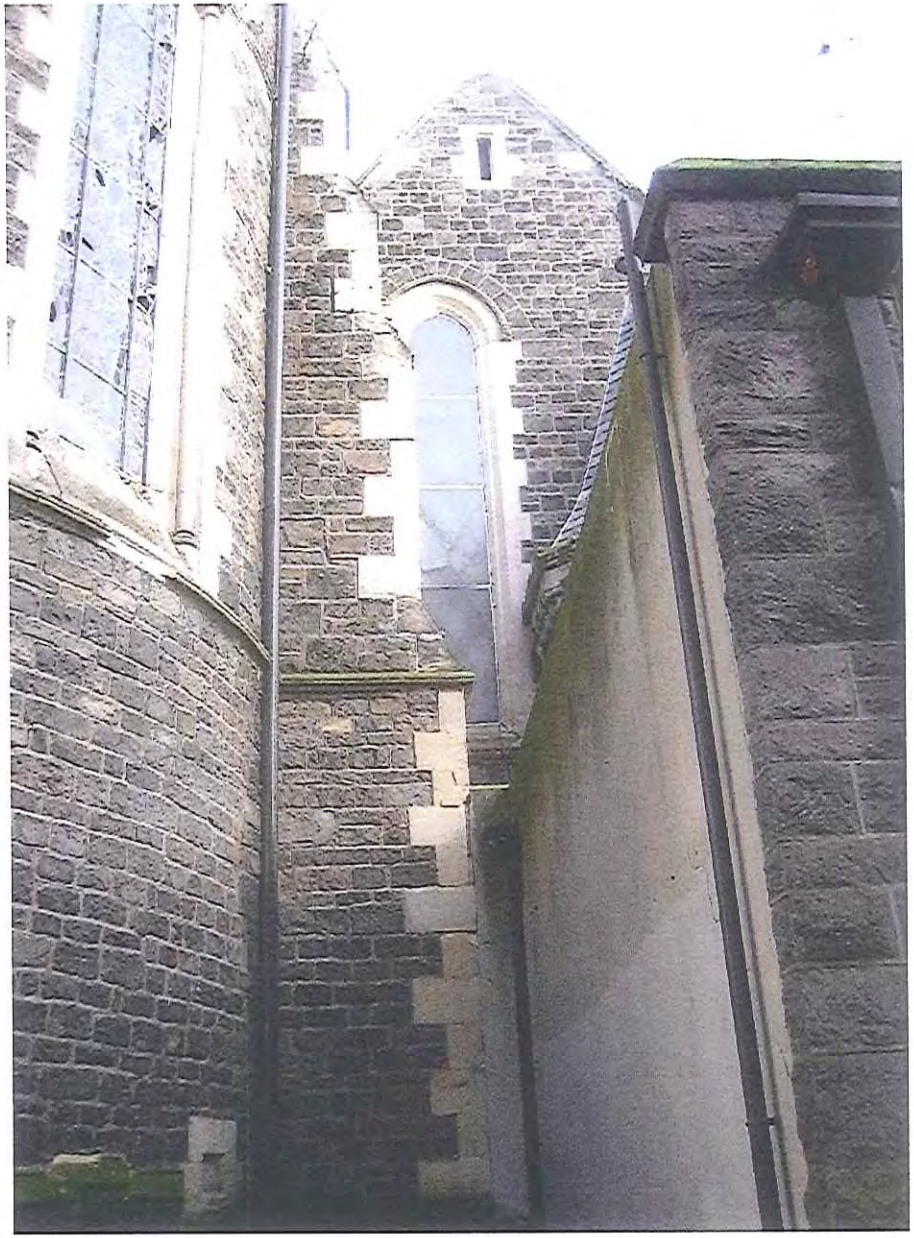
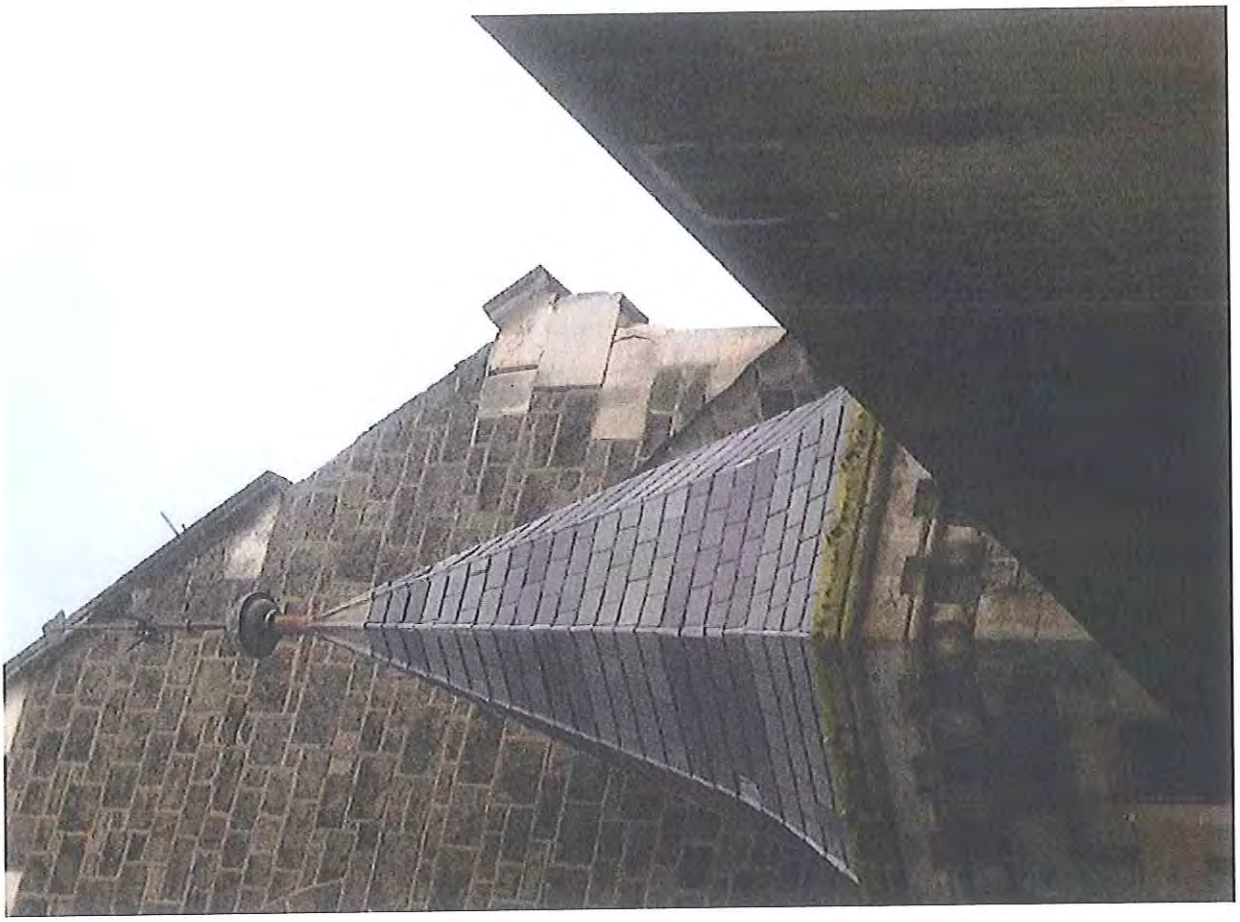
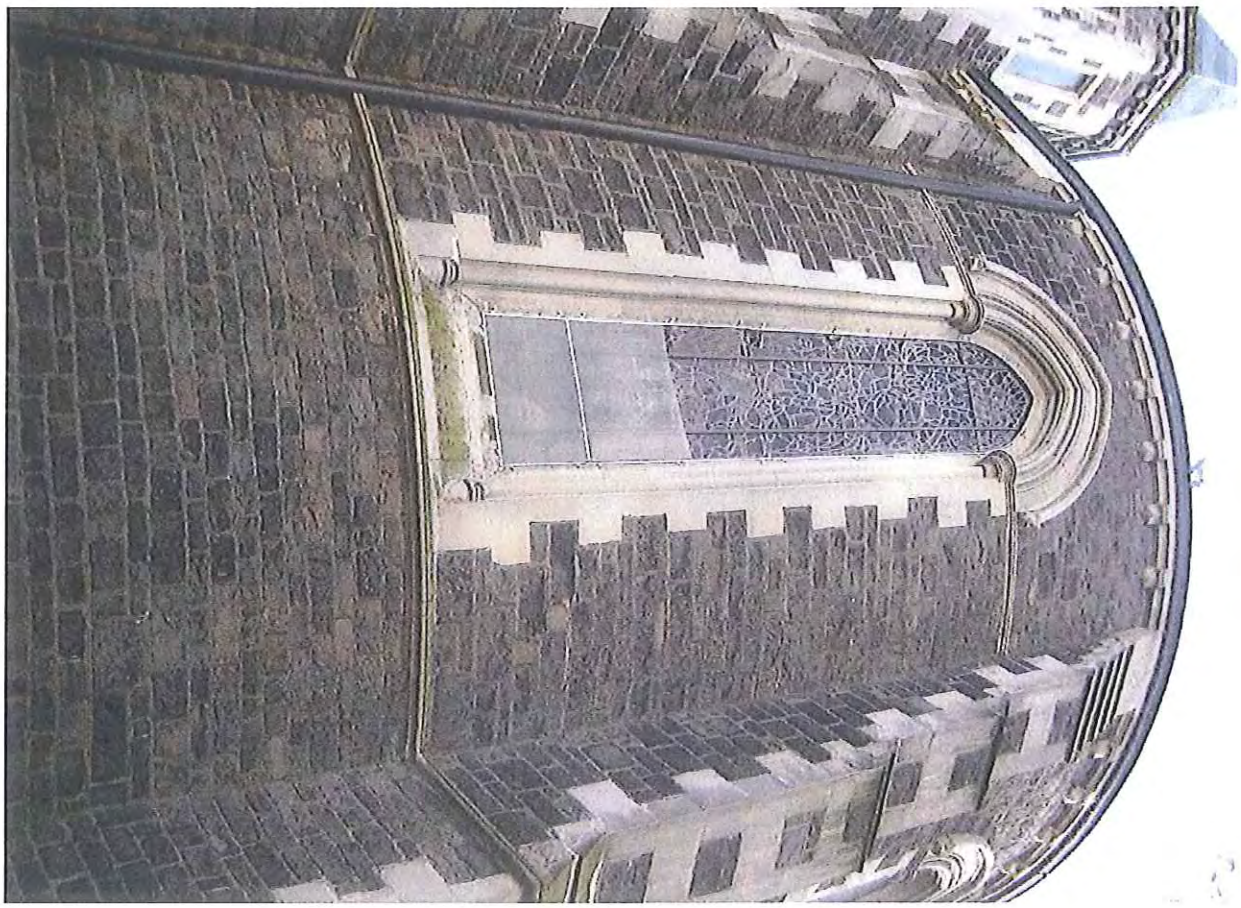
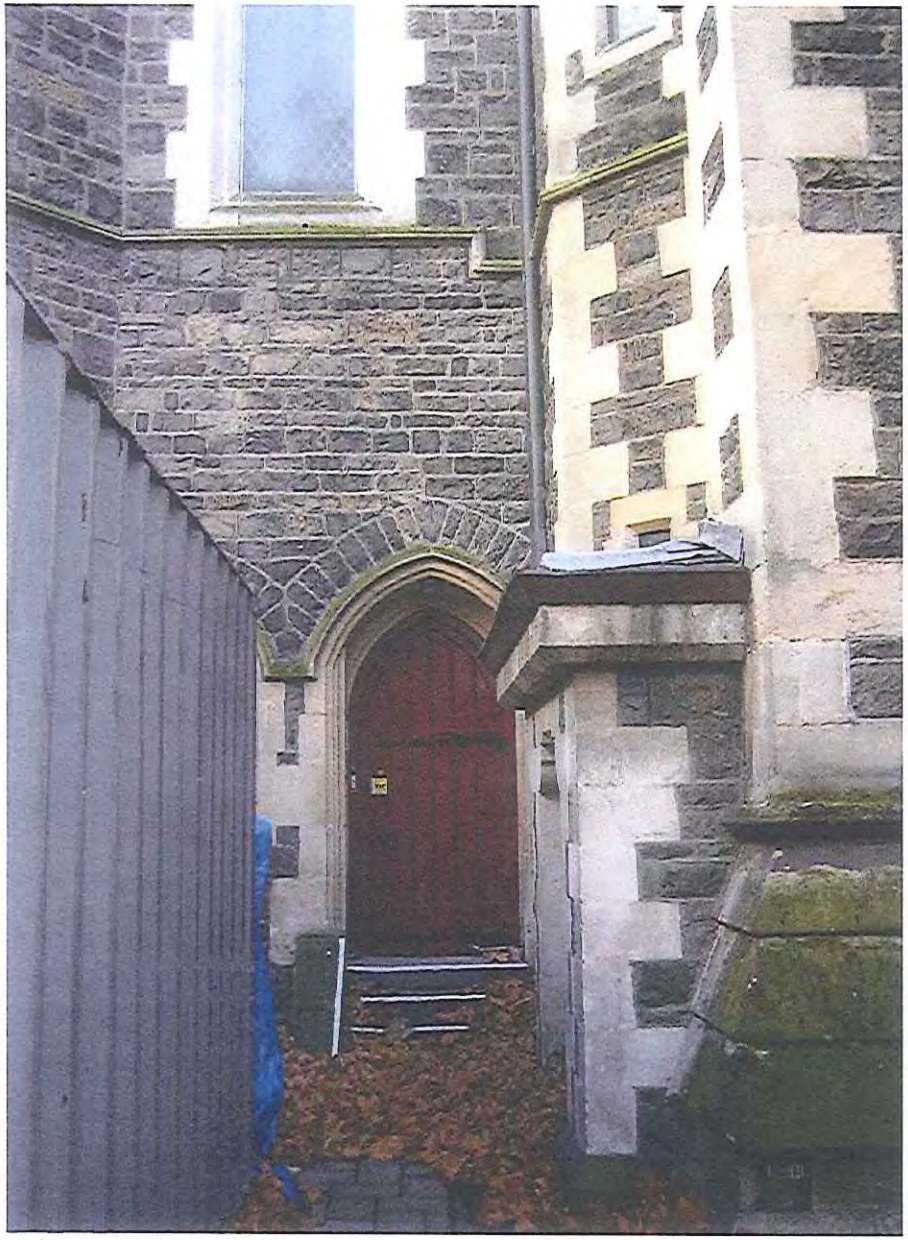
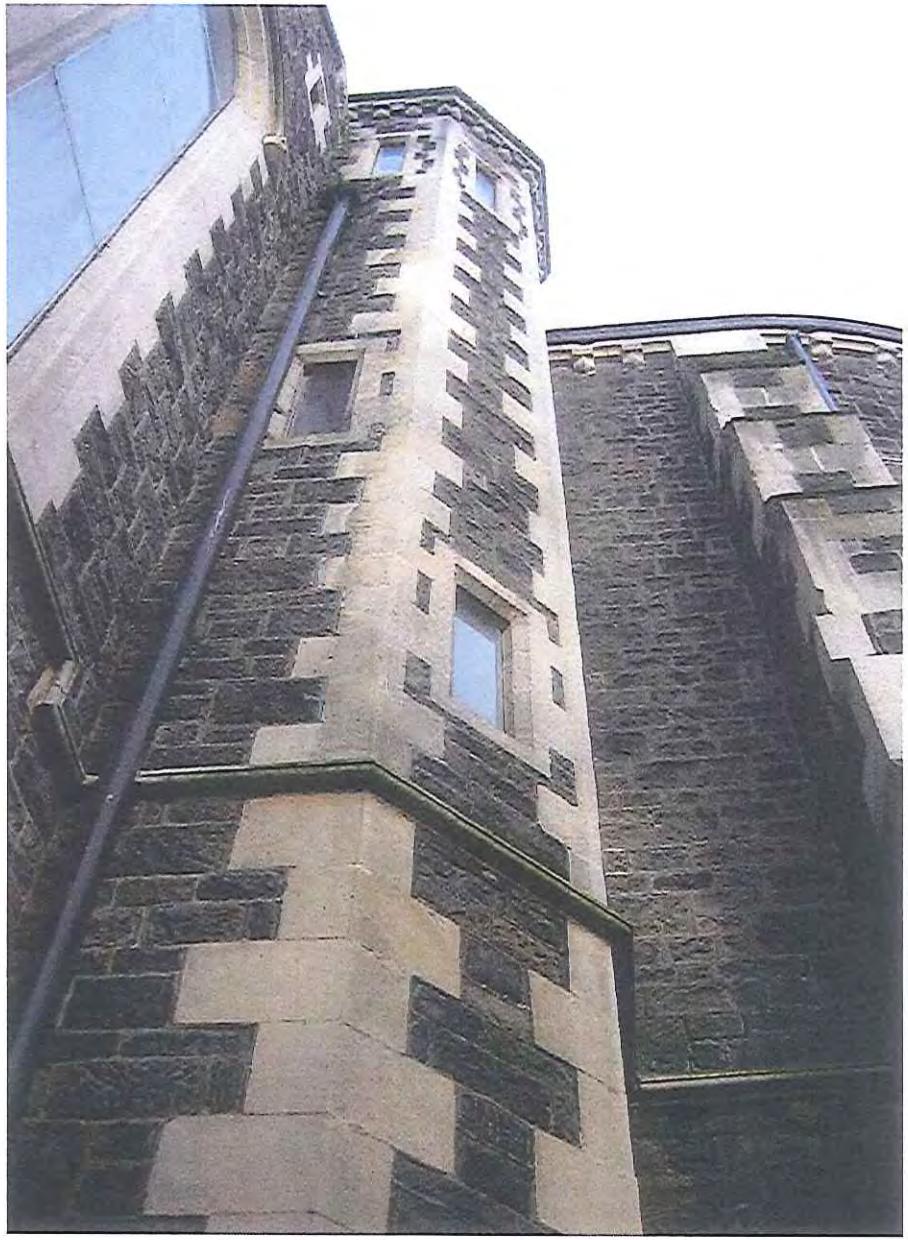


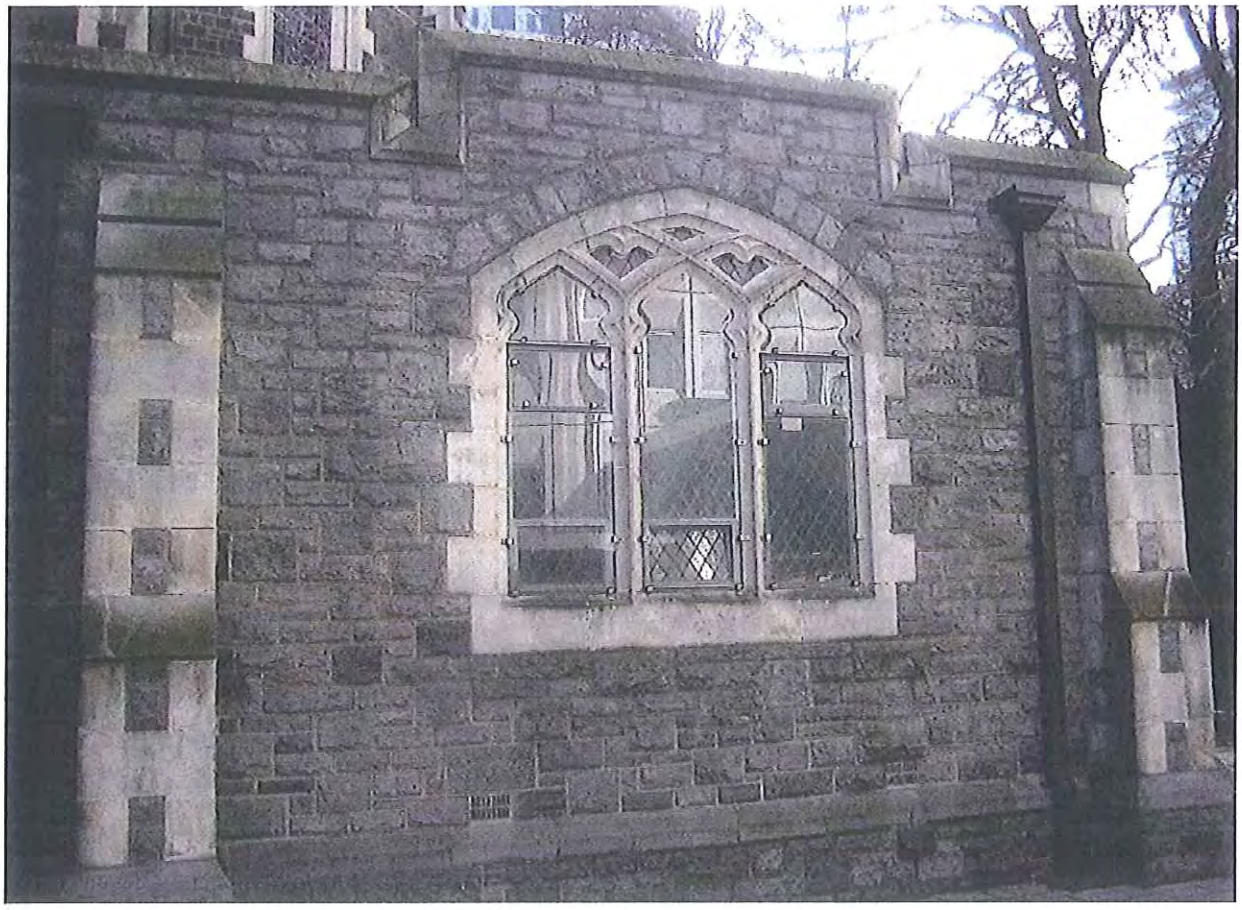


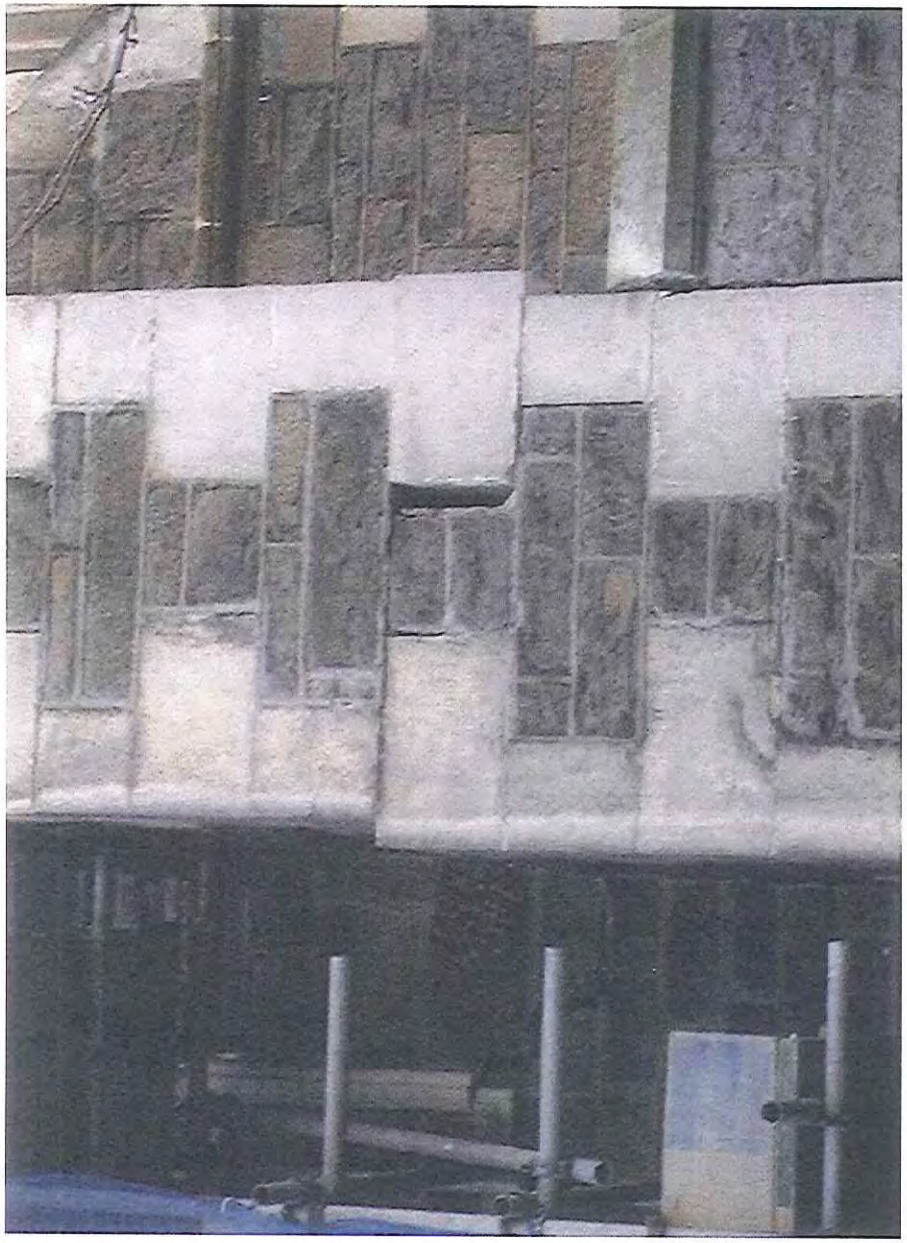


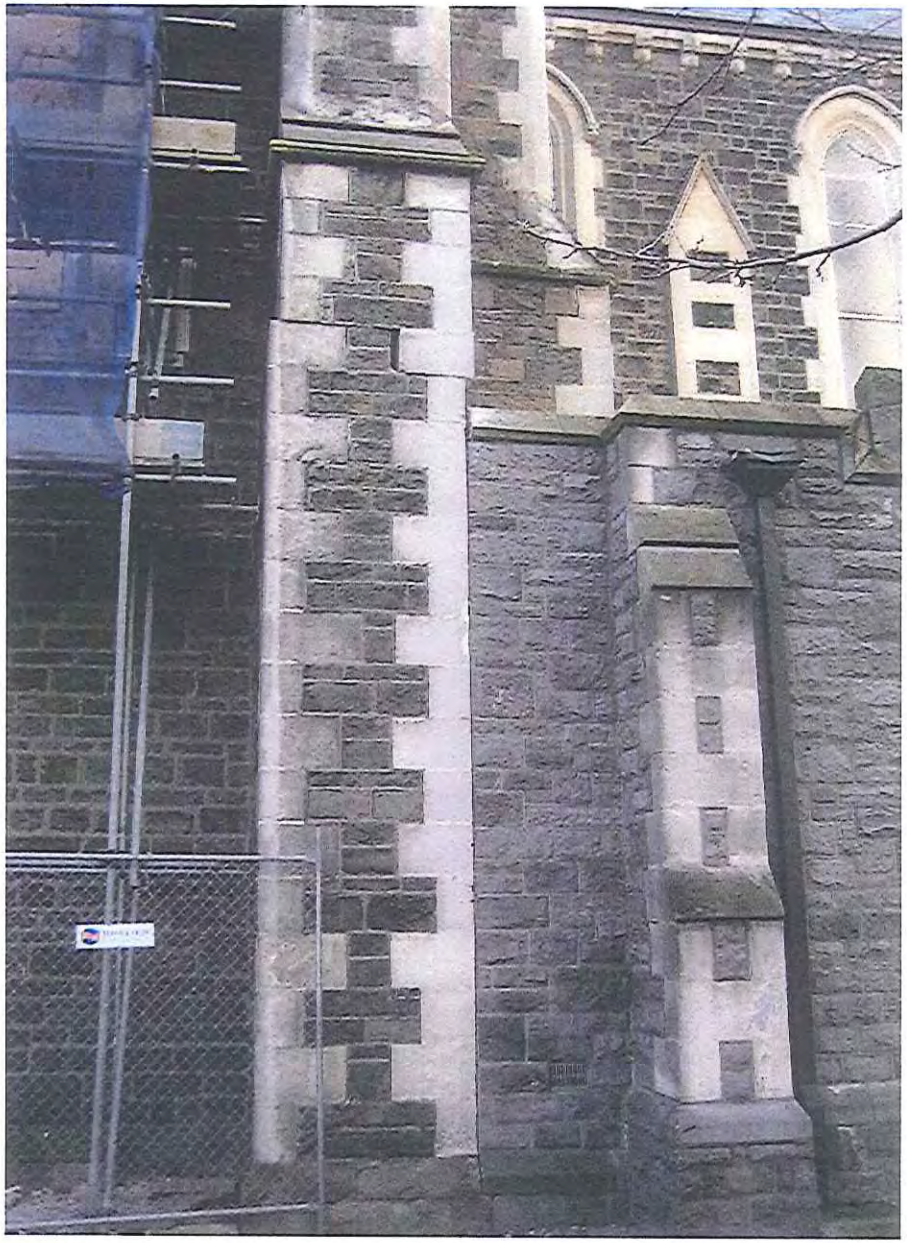


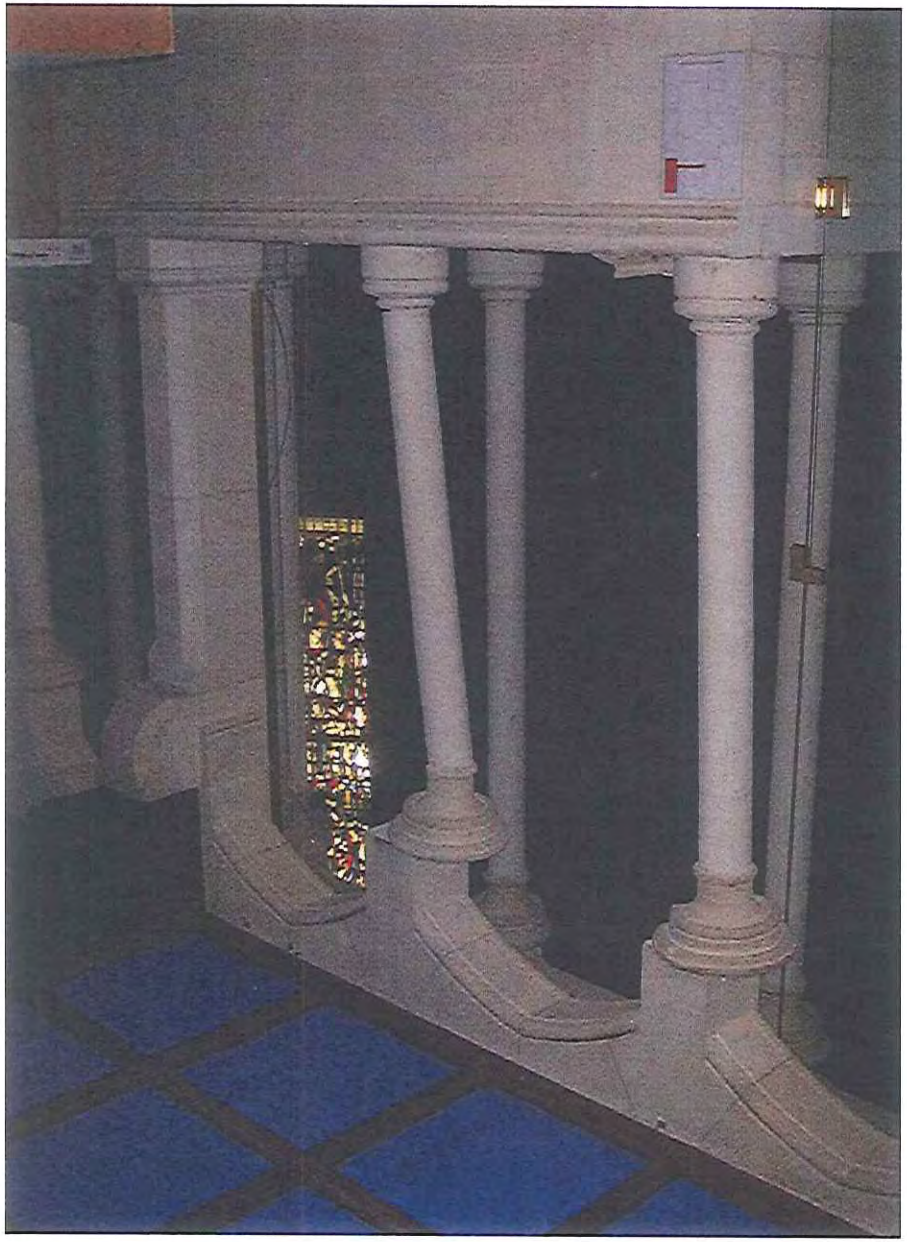


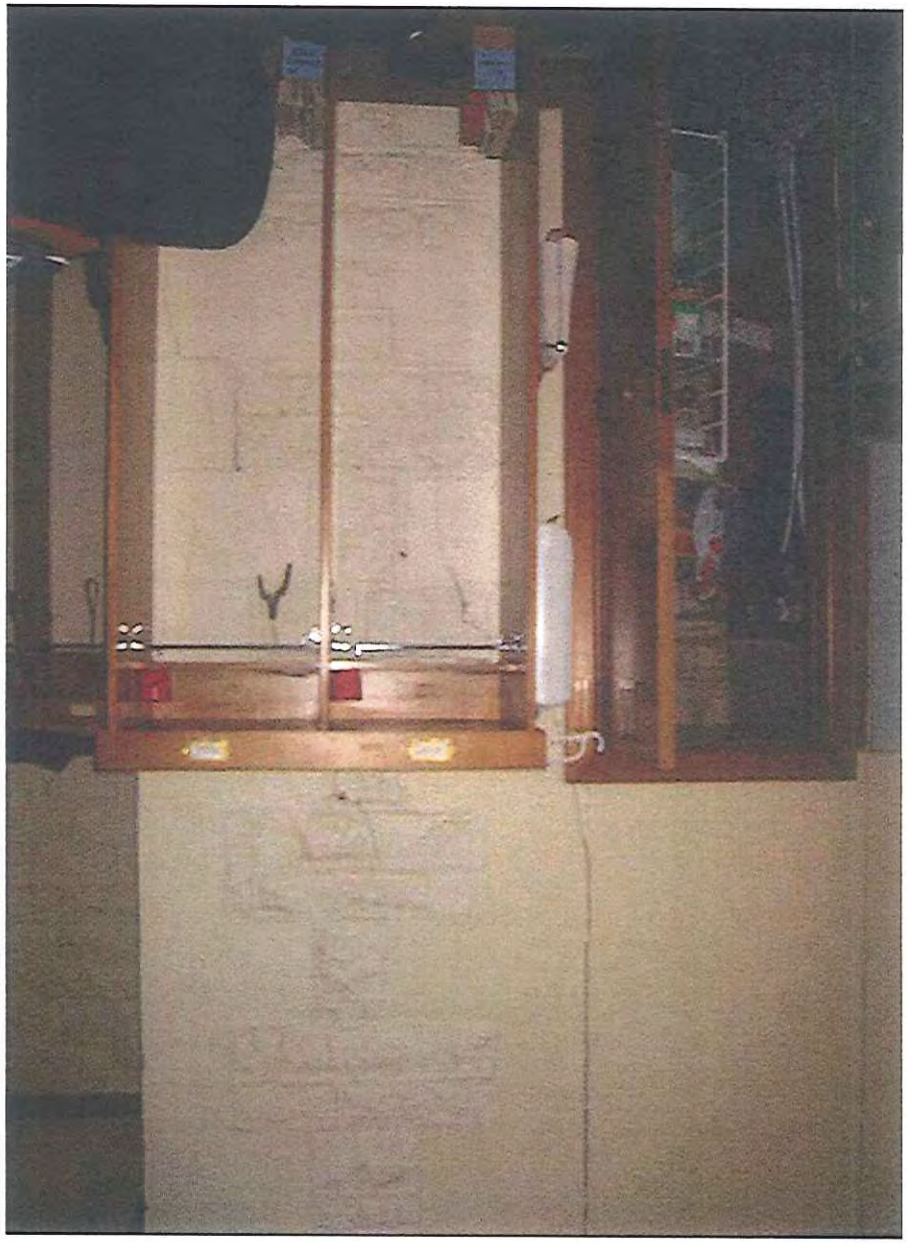


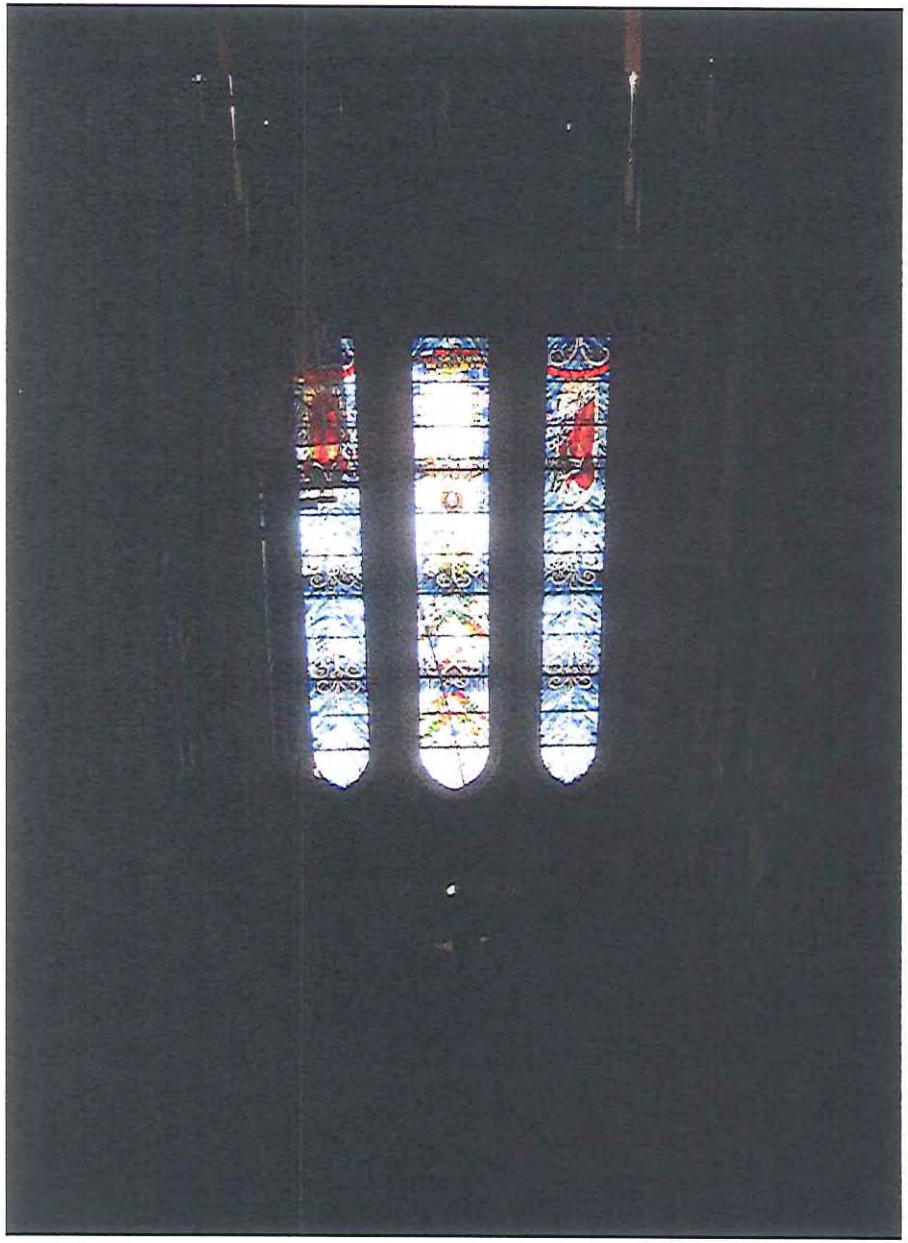


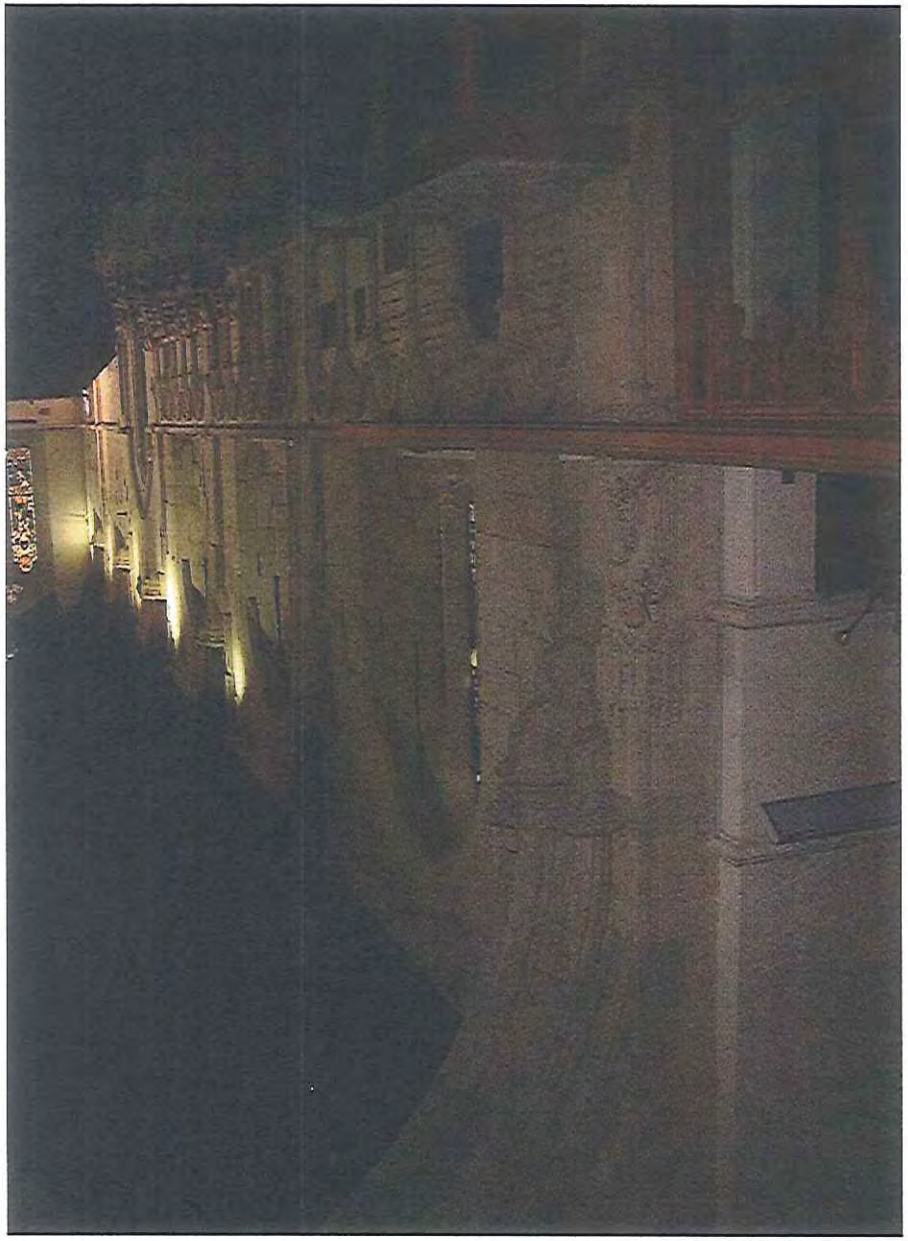


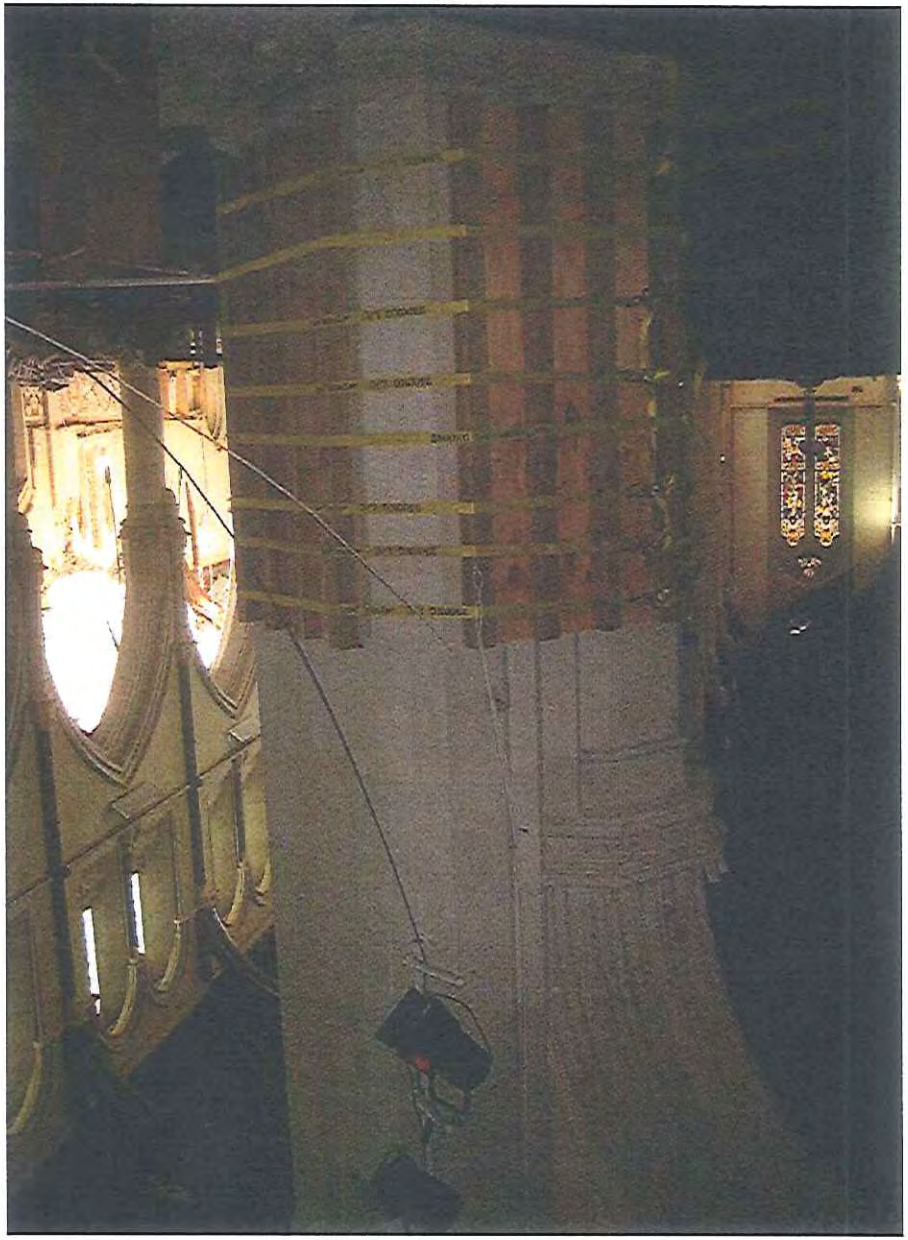


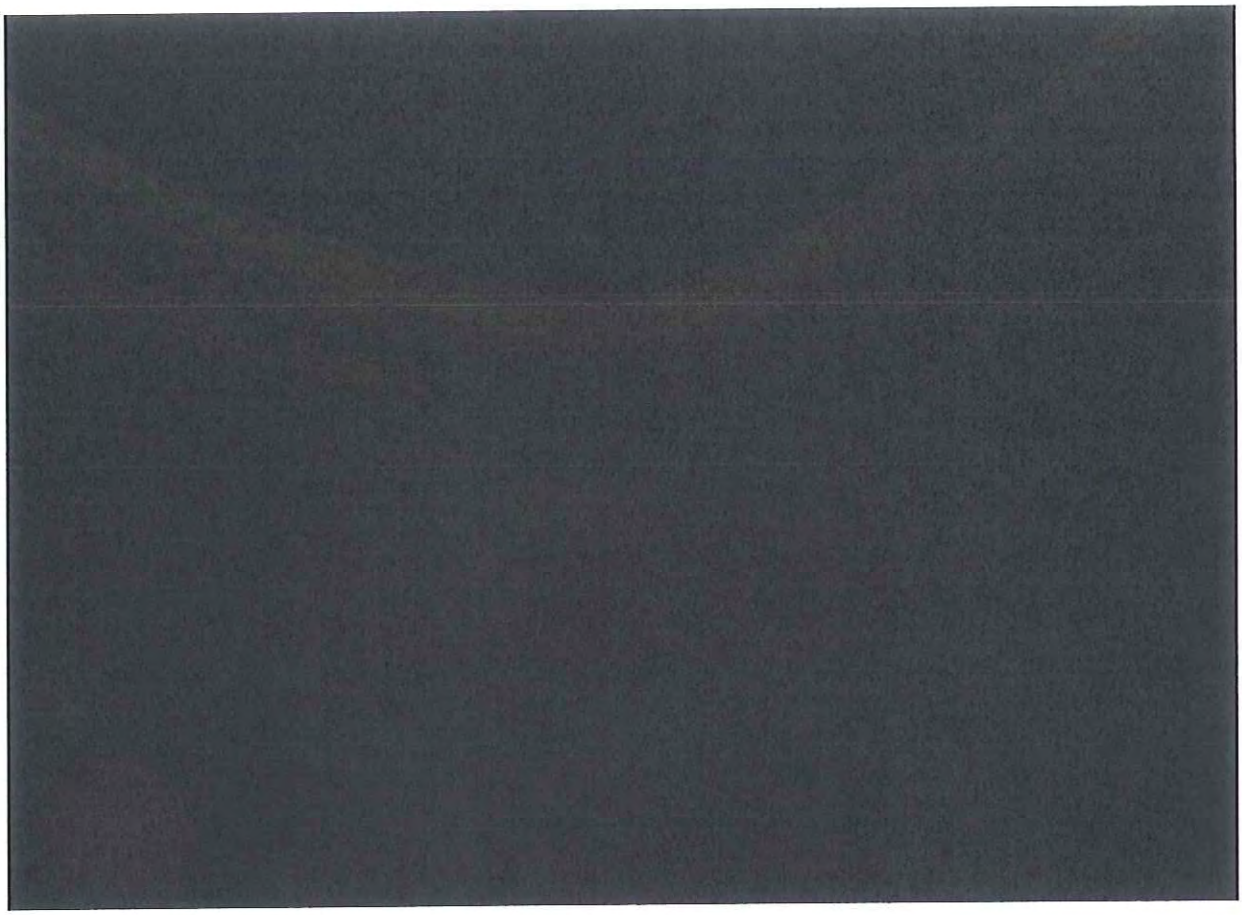


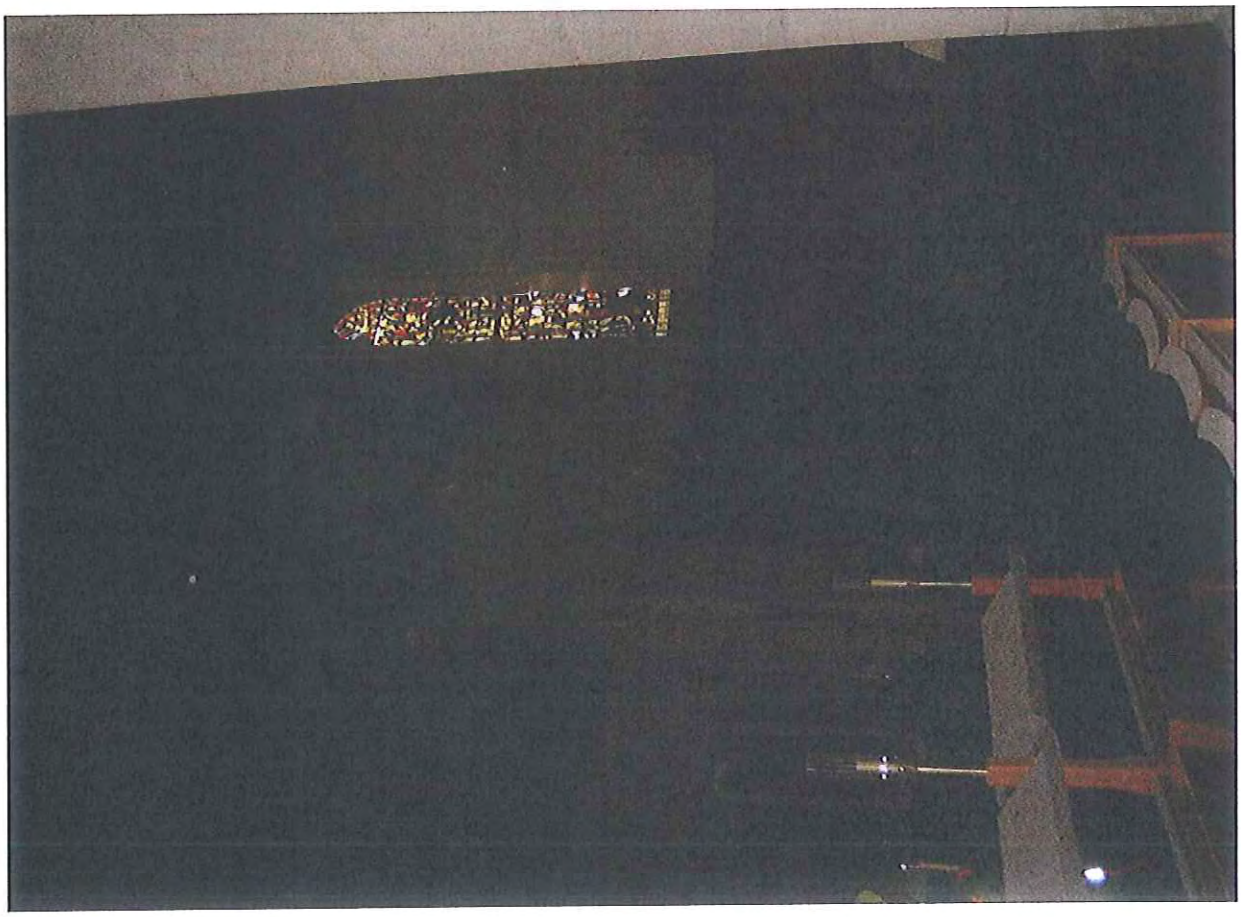


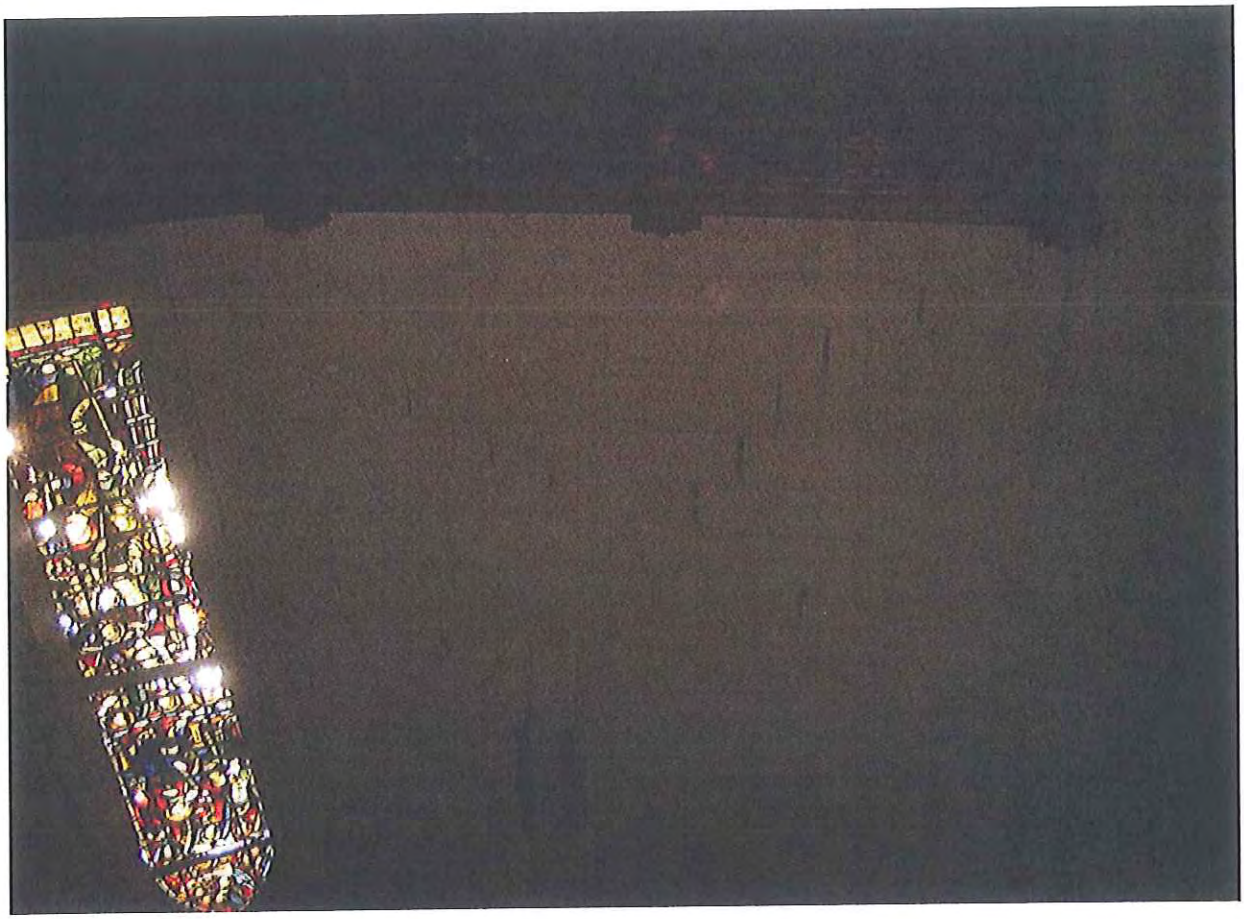


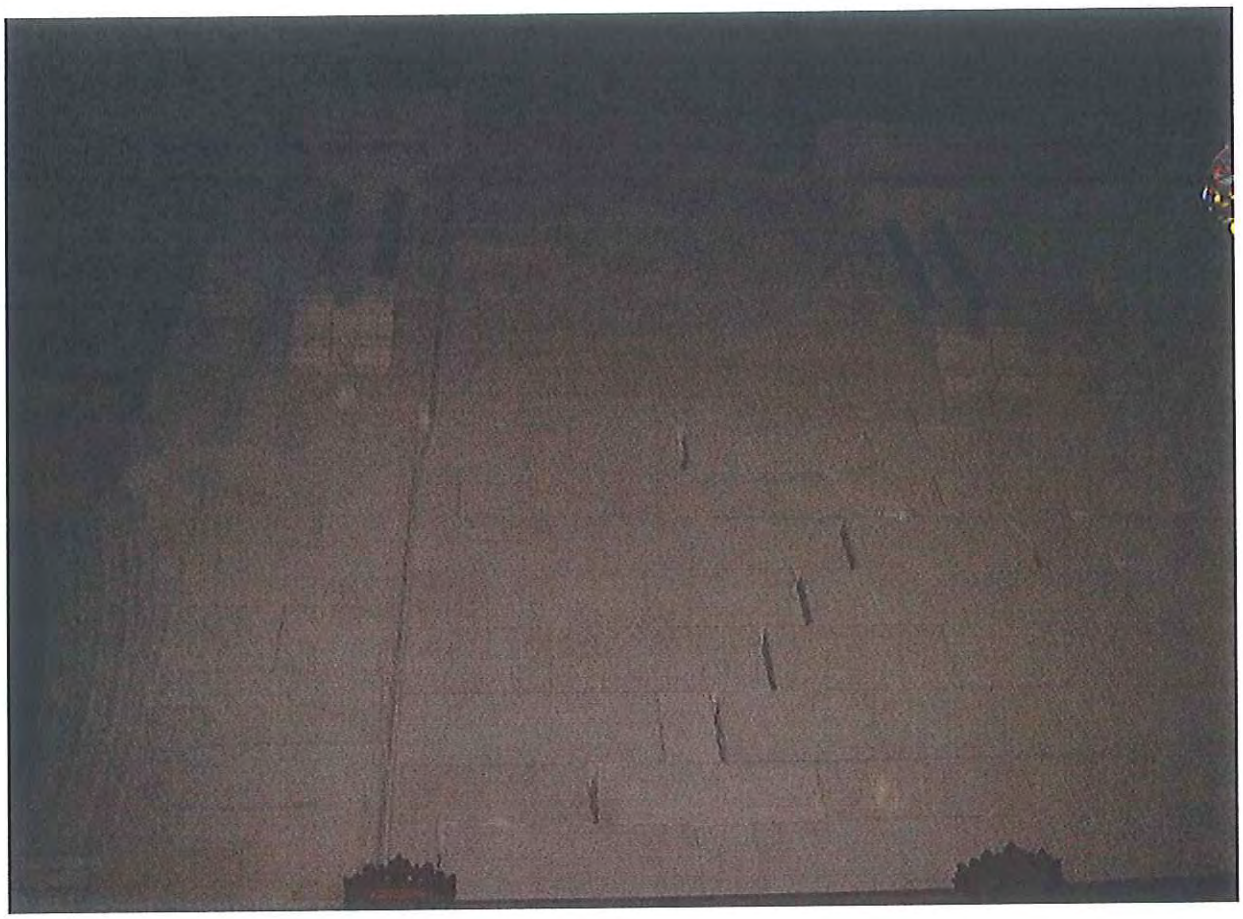


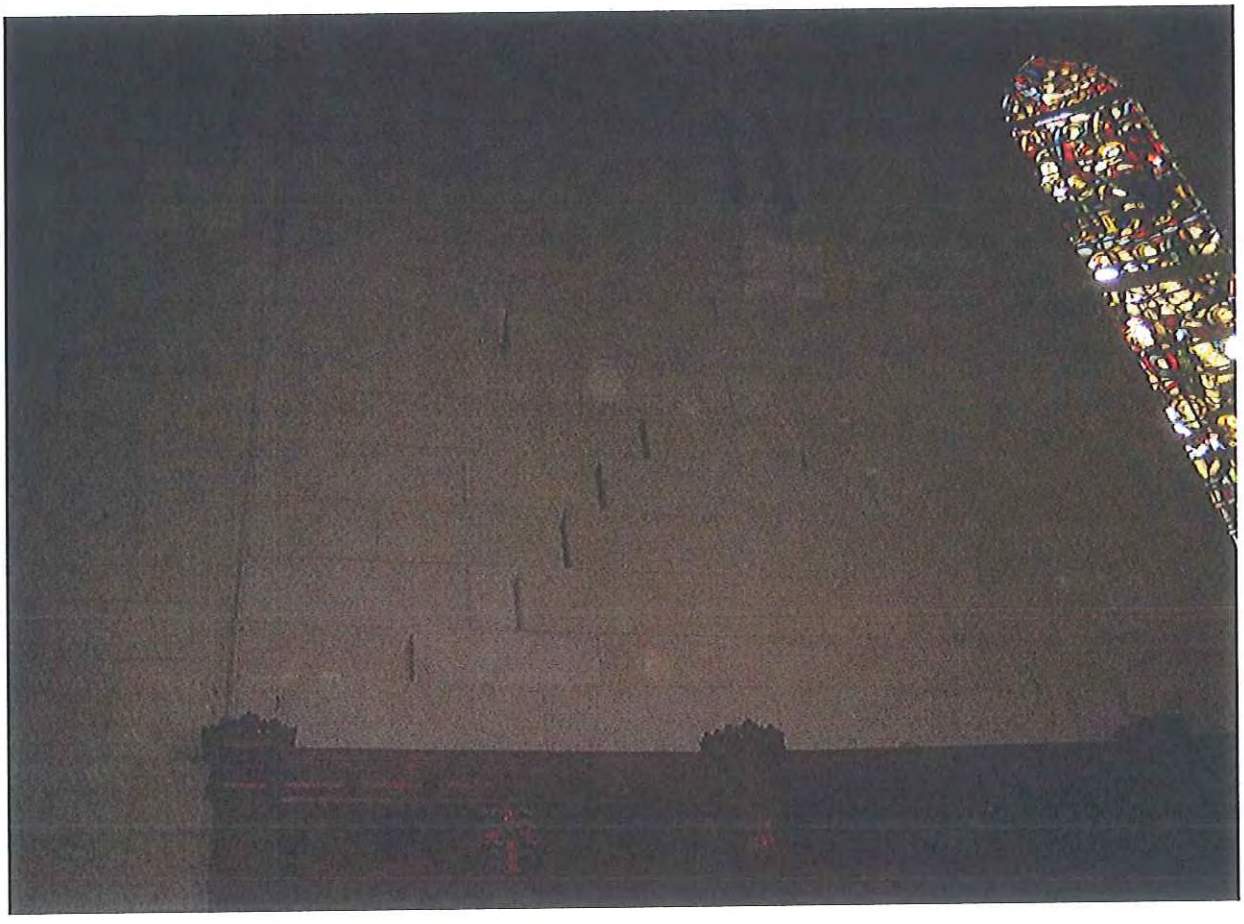


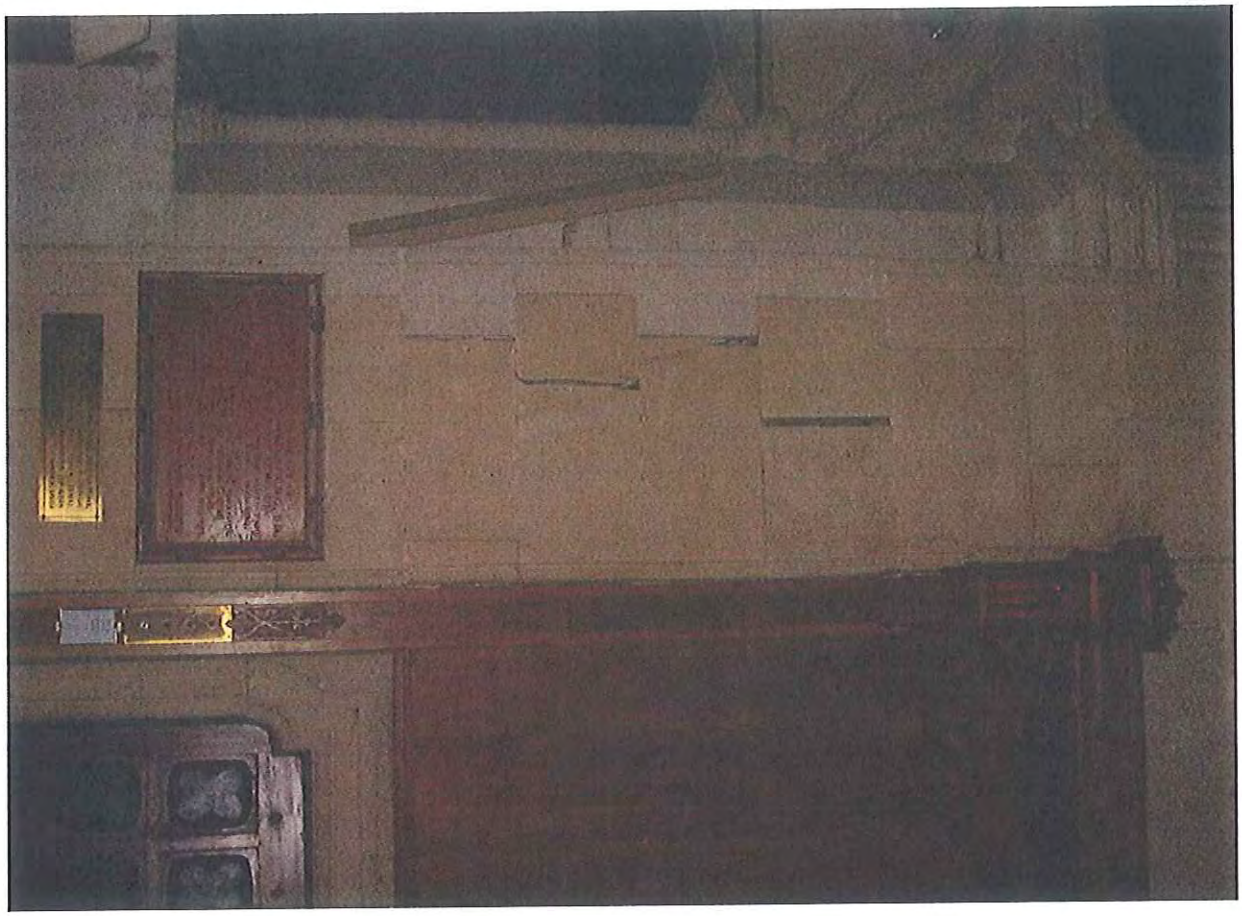


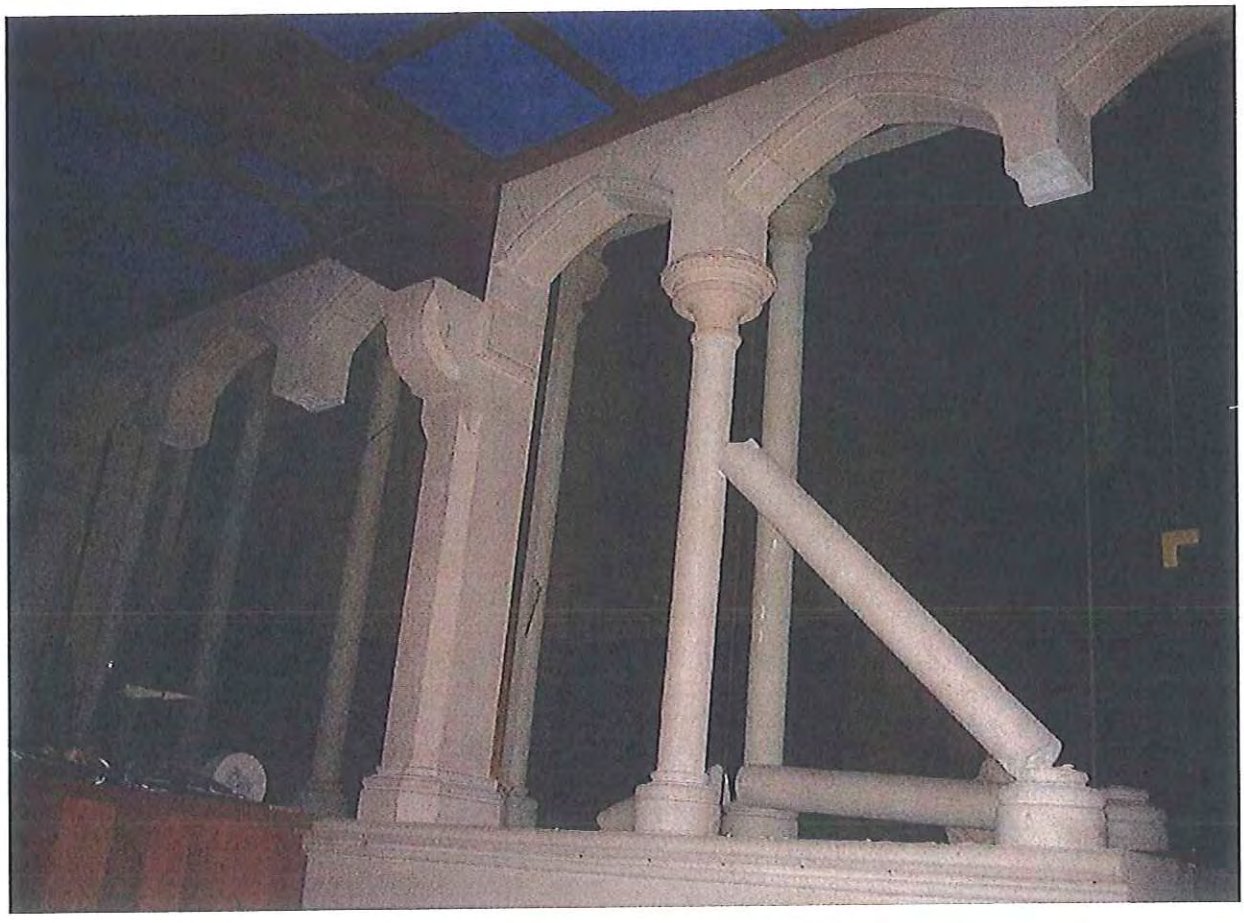


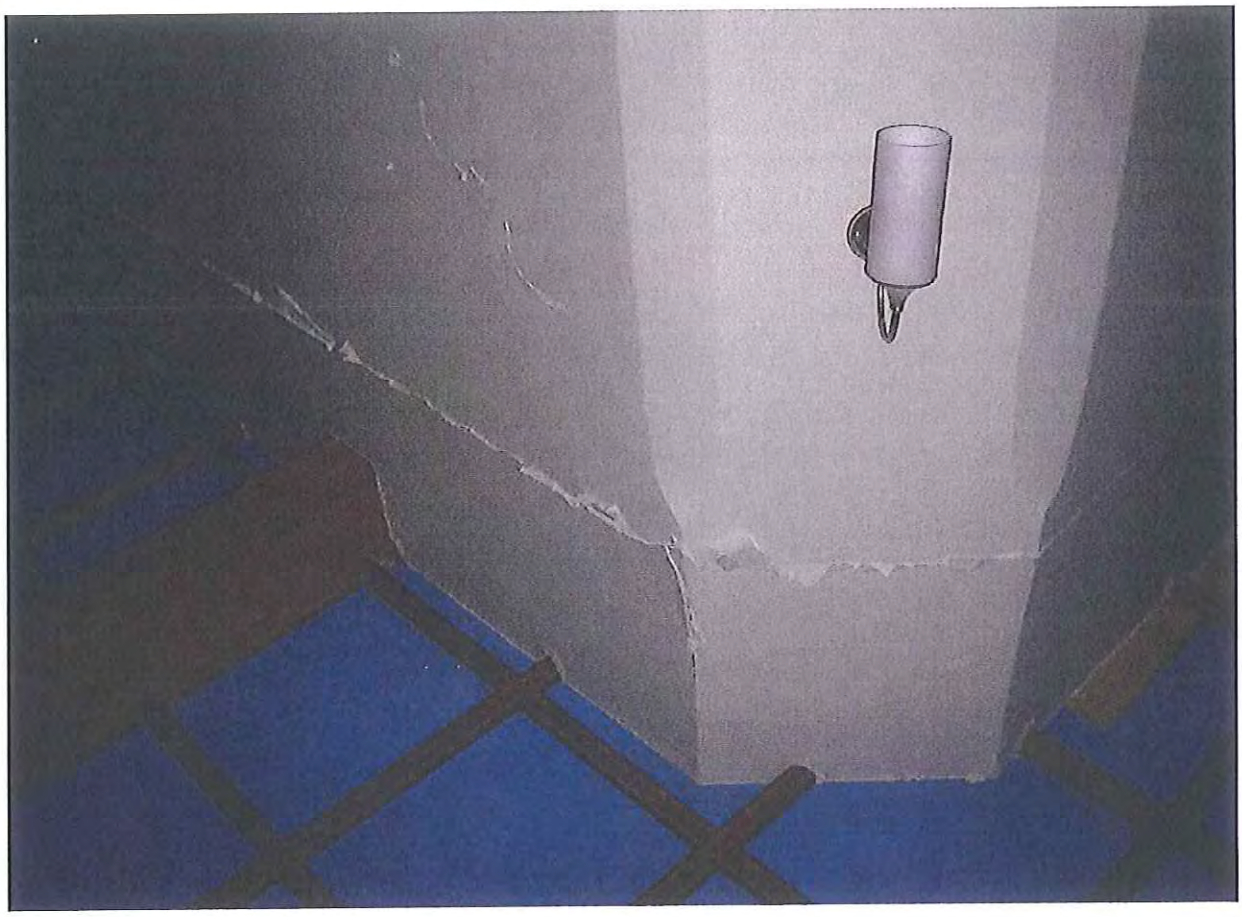


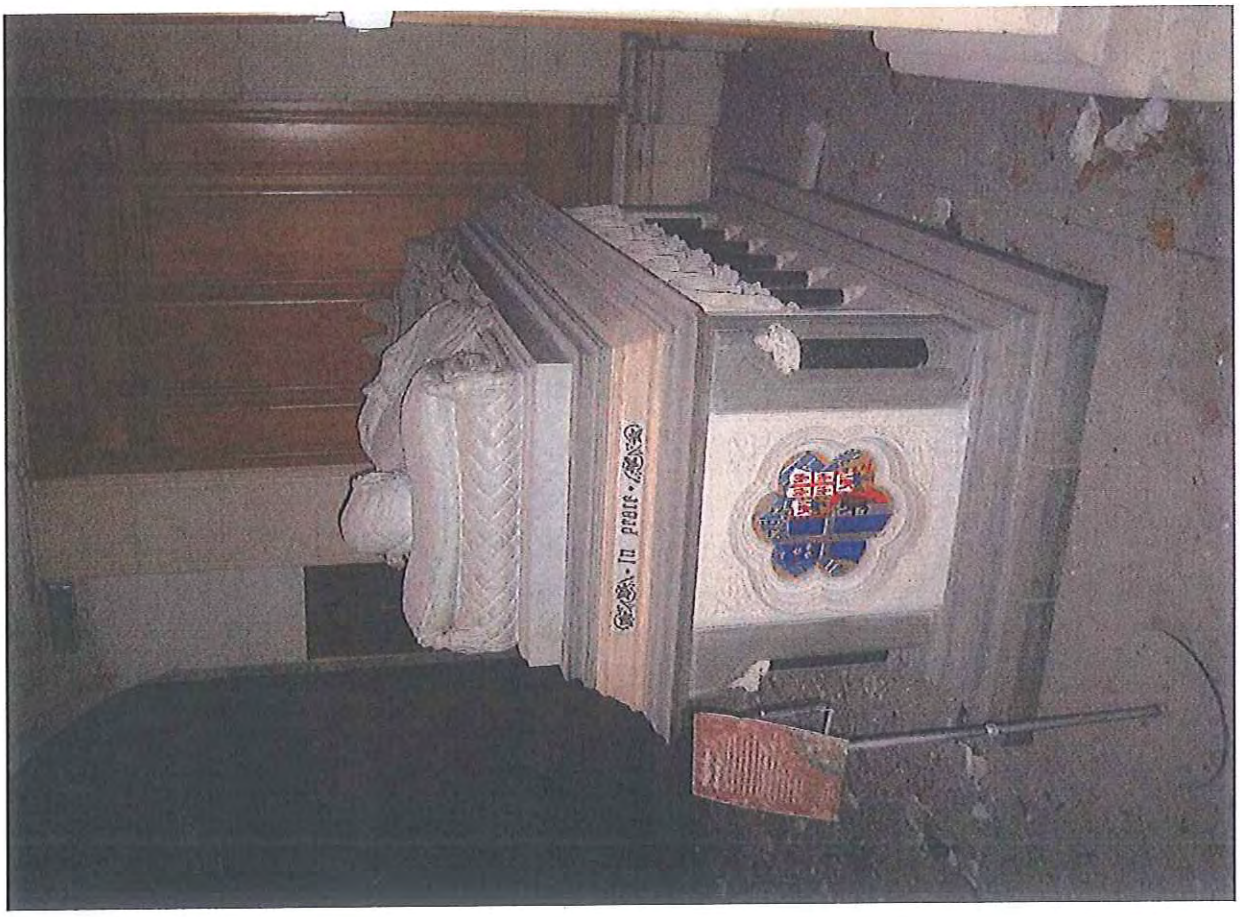


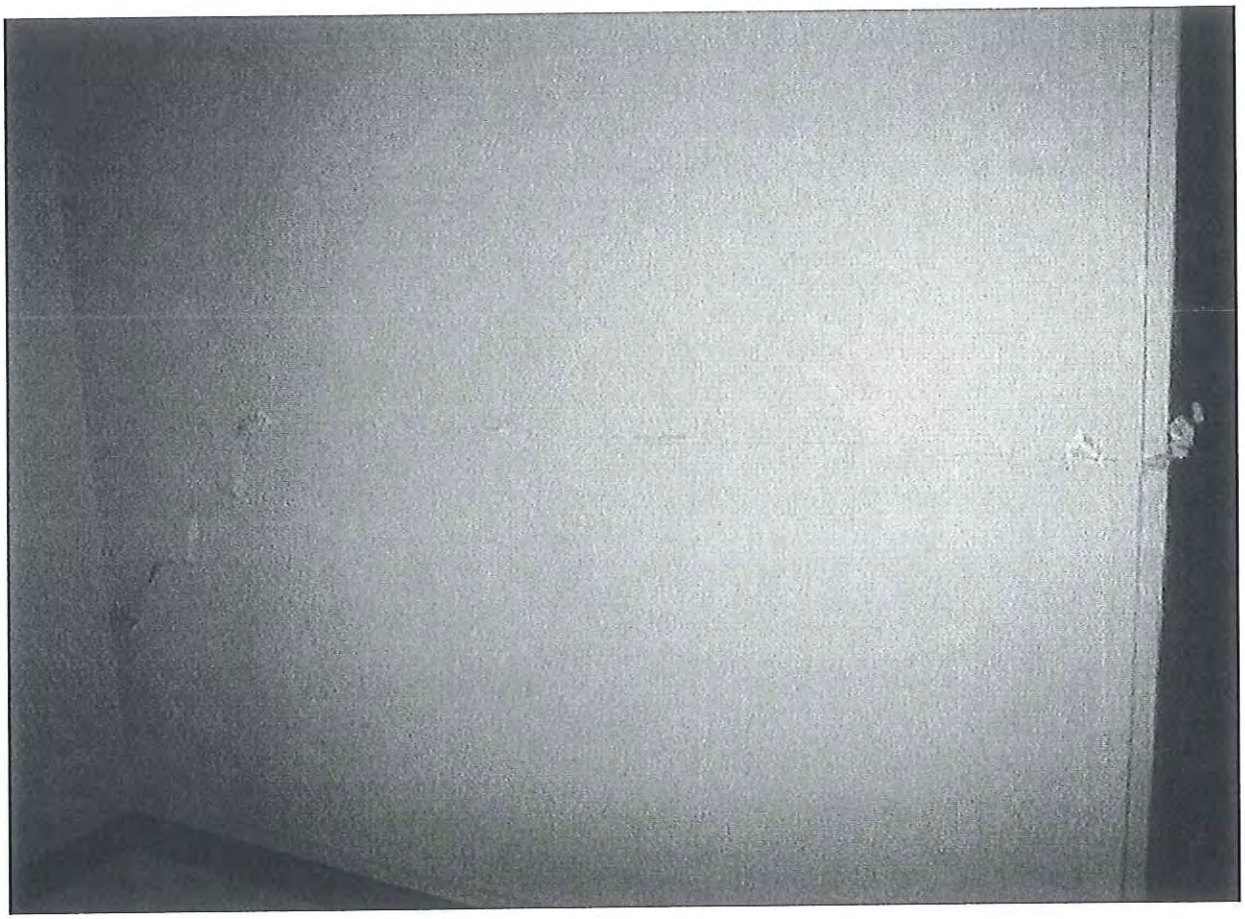












(5) JT

Christchurch Eq RAPID Assessment Form - LEVEL 2

Inspector Initials	SXO	Date	22/3/2011	Final Posting (e.g. UNSAFE)	Y2
Territorial Authority	Christchurch City	Time	0900		

Building Name: Christchurch cathedral
Short Name:
Address: 100 Cathedral Square Christchurch.
GPS Co-ordinates: S° E°
Contact Name:
Contact Phone:

Storeys at and above ground level: 2 (Part) Below ground level: 1 (Part)
Total gross floor area (m²): Year built:
No of residential Units:

Photo Taken: Yes No

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

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

Investigate the building for the conditions listed on page 1 and 2, and check the appropriate column. A sketch may be added on page 3

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

Comments: USAR have completed some securing works

Record any existing placard on this building:

Existing Placard Type (e.g. UNSAFE):

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

INSPECTED			RESTRICTED USE			UNSAFE		
GREEN	G1	G2	YELLOW	Y1	Y2	RED	R1	R2	R3

Record any restriction on use or entry:

Further Action Recommended: HOLMES CONSULTING

Tick the boxes below only if further actions are recommended
- ☐ Barricades are needed (state location):
- ☐ Detailed engineering evaluation recommended
  - ☐ Structural ☐ Geotechnical ☐ Other:
- ☐ Other recommendations:

Estimated Overall Building Damage (Exclude Contents)

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

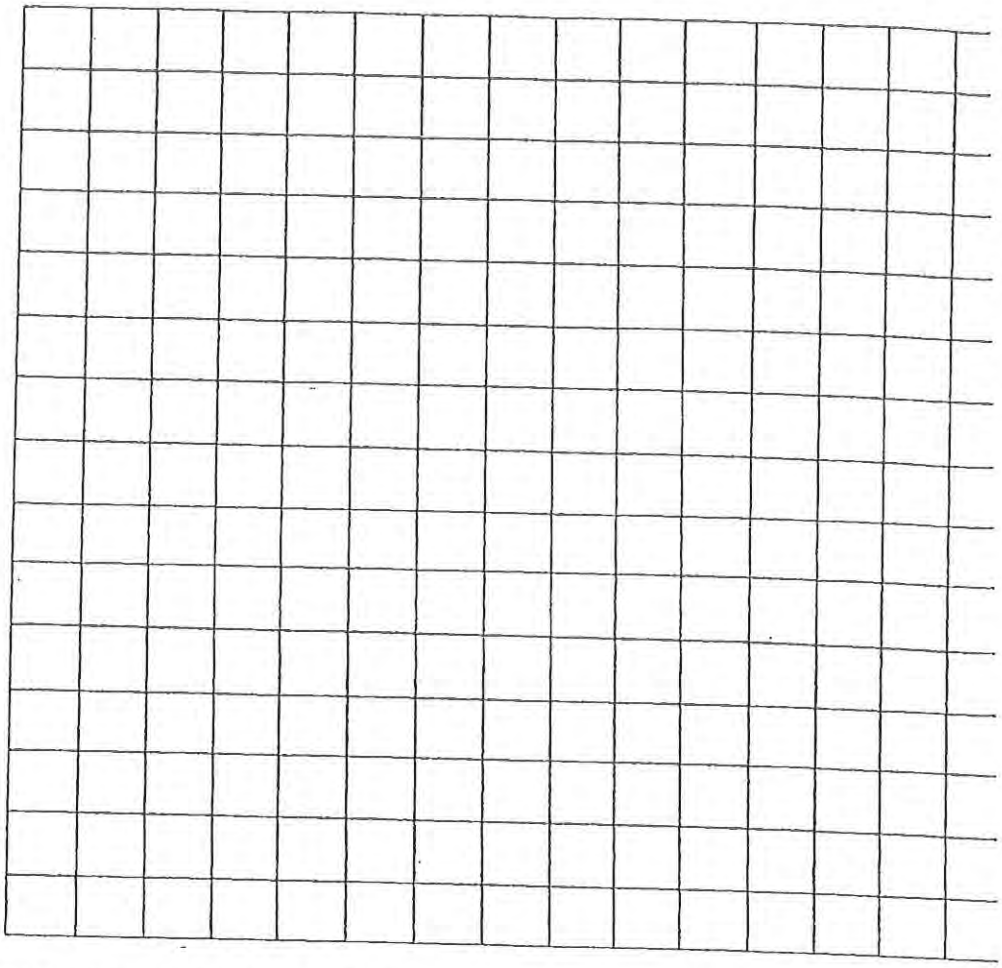
Sign here on completion

Date & Time
ID

Inspection ID: _____ *(Office Use Only)* 7508 4028

CDB 7500 9085

Sketch (optional)
Provide a sketch of the entire building or damage points. Indicate damage points.



Recommendations for Repair and Reconstruction or Demolition (Optional)

Detailed securing works & reconstruction design program under.

 Inspection ID: _____ (Office Use Only)

Diocese of Christchurch

Media Release – Embargoed until 11:30am Friday 28 October 2011

Decision Reached on the Christchurch Cathedral

The Church Property Trust of the Anglican Diocese of Christchurch has reached a decision on the Christchurch Cathedral following significant damage to the building after the February earthquake.

In a joint announcement today with Canterbury Recovery Minister Gerry Brownlee, Bishop Victoria Matthews confirms works will be undertaken on the Cathedral as an interim measure which will require some controlled demolition and temporary measures in order to make the building safe.

This will allow key artefacts and heritage items to be removed, retained and stored until decisions about a future Cathedral are made.

"The decision follows a challenging and complex assessment process including review and input by a range of involved and interested persons to identify options and risks, along with consideration of expert analysis and technical reports.

"At all times we have proceeded with a deep commitment to being faithful to the gospel we proclaim," says Bishop Matthews.

As with all damaged churches and buildings in the Anglican Diocese of Christchurch, a key consideration for the Church Property Trust was having confidence the Cathedral building could be made safe. Currently, the extent of the damage

[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*.

sustained makes the building unpredictable, particularly in the event of another earthquake, and therefore considered a danger.

These works will require the Bishop to deconsecrate the Cathedral, which moves the building from sacred to secular use.

"This has been a difficult decision for all involved as no one loves the Cathedral as much as we do. However, this is the next step towards a decision about the future of the Cathedral, which will combine the old and the new, " says Bishop Matthews.

It is now critically important to the Bishop, Dean and the Anglican community of Christchurch that the right decision is made as to where the Cathedra[1] 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 public 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 we make decisions about the mission of the Church in this part of God's vineyard," concluded Bishop Matthews.

ENDS

Notes

1. The Cathedral sits on land owned by the Cathedral and managed by the Church Property Trust.

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[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*.

2. The Columnbarium is excluded from the deconstruction process and deconsecration does not affect burial rights.
3. The Citizen's War Memorial, is on land owned and administered by the Christchurch City Council and not part of the Cathedral deconstruction process.

High-resolution images available

For further information contact:

[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*.

CHRISTCHURCH CATHEDRAL

HISTORY

1856 First Bishop of Christchurch, Henry John Chitty Harper, arrived and began driving the idea of a central cathedral in the Canterbury region based on the English model of Christ Church Cathedral in Oxford, England

1858 Sum of £1000 put aside for the erection of a cathedral

1861 George Gilbert Scott commissioned to draw plans for the Cathedral

1864 Foundation stone laid, saying, ""May Christ's temple on this cornerstone stand for all future years, a strong, beautiful, noble and conspicuous witness of faith." Robert Speechly, superintending architect, arrives

1865 Foundations completed but further work delayed due to lack of funds

1873 New Zealander Benjamin Mountfort appointed to take over the project and construction recommenced – initially to be wooden but changed to masonry stone due to good local supply

1874 First service held within the walls

1881 Cathedral consecrated.

1887 First wedding in the Cathedral

1889 Archdeacon Julius elected Bishop, consecrated 1890 (first Bishop to be consecrated in Cathedral) Since then, 7 bishops consecrated or enthroned in cathedral.

1901 TRH Duke & Duchess of York (later George V & Queen Mary) attend services

1922 Cathedral lit by electricity. War memorial Chapel created in south transept

1973 Pacific Chapel dedicated

1981 Cathedral centenary. Restoration completed, Scott window dedicated, dossal installed (both designed by Bill Sutton)

1995 After much controversy Visitors Centre completed and opened by HM Queen

1999 Earthquake strengthening. Chancel renovated again

2006 Cathedral 125th anniversary.

The Canterbury Region has experienced many earthquakes over the years during which the cathedral has suffered varying degrees of earthquake damage.

1881 A stone was dislodged from the finial cap, immediately below the terminal cross, by an earthquake in late 1881, within a month of the cathedral's consecration.

1888 Approximately 8 metres of stonework fell as a result of the 1 September 1888 North Canterbury earthquake. The stone spire was replaced.

1901 The top of the spire fell again as a result of the 16 November 1901 Cheviot earthquake. This time, the stone construction was replaced with a more resilient structure of Australian hardwood sheathed with weathered copper sheeting. Repairs were funded by the Rhodes family.

2010 September 4

The September earthquake some superficial damage, and the cathedral was closed for engineering inspections until 22 September 2010, when it was deemed safe to re-open. Some further damage was sustained in the "Boxing Day Aftershock" on 26 December

2011 February 22

The 6.3-magnitude earthquake left the cathedral damaged and several surrounding buildings in ruins. The spire that had withstood damage in the September 2010 quake was completely destroyed, leaving only the lower half of the tower standing. While the walls and roof of the cathedral itself remained mostly intact, the gable of the west front sustained damage, and the roof over the western section of the north aisle, nearest the tower, collapsed. Further Inspections showed that the pillars supporting the building are severely damaged and investigations of damage to the buildings foundations will determine whether the cathedral can be rebuilt on the present site. Cathedral closed. The last service held in the Cathedral before Feb 22 quake was evensong with the New Zealand United States Council to mark United States President's day. Final music played in the Cathedral was the Battle Hymn of the Republic and the Liberty Bell March by John Philip Souza.

2011 June 13

The Cathedral suffered further significant damage from the 6.3-magnitude Christchurch earthquake with the rose window in the west wall falling in.

CHRISTCHURCH CATHEDRAL ANNOUNCEMENT

FRIDAY 28 OCTOBER 2011

Questions and Answers

When was the decision made?

Following consideration of all the expert information provided in regard to the state of the ChristChurch Cathedral (the Cathedral) building and the various interim 'make safe' options, the Cathedral Chapter (ie, the governing authority or Board of the Cathedral) made their opinion known to the Church Property Trust (CPT) on Thursday 27 October. The CPT, of which Bishop Victoria Mathews is the chair, made the decision final on Thursday 27 October.

Who was involved in making the decision?

Many parties were involved in regard to supplying key information to support the decision making process. Ultimately the decision was made by the collective voice of the Church Property Trust, as 'owners' of the Cathedral property on advice from the Cathedral Chapter.

What was CERA's involvement?

The Cathedral project management group have kept CERA informed during this lengthy and complex assessment and decision-making process. CERA had previously advised the CPT the building was considered dangerous, particularly in the event of a significant aftershock, and needed to be made safe otherwise a forced demolition would be necessary.

What was the consultation process?

A collaborative working group was established early in the process and has convened regularly since September. Participants have included representatives from the following organisations: Anglican Diocese, Church Property Trust, RCP (Project Managers), Davis Langdon (Cost Consultancy), Christchurch City Council – Heritage Team, Salmon Reed Architects (as CCC Heritage consultant) Historic Places Trust Trust, Holmes Consulting Group (Structural Engineering Consultancy), Jackie Gillies and Associates, Warren and Mahoney and CERA.

What were the options considered?

A number of 'make the building safe' options, provided by structural engineering and heritage experts, have been considered at length by the CPT and Cathedral Chapter. These were based on a number of variations between the two extreme approaches: complete demolition, no salvage, and a cleared site to support a future whole new build; to the most conservative option of a controlled demolition, maximum salvage and long-term storage, and an ultimate full reconstruction with maximum original materials. Also considered were the financial implications and impact on mission attached to each option.

Was full demolition of the Cathedral ever considered?

It was an identified option on the table but was discarded, and full demolition was not ever recommended as part of any assessment work completed by the Church's structural engineers.

What were the structural engineering considerations?

The Cathedral was assessed as having suffered severe structural damage as a result of the seismic events since December 26th 2010. The subsequent focus was to assess how the building could be made safe in the interim until such time as a decision could be made on its longer-term future.

The Cathedral building was extensively assessed by structural engineers, and the following elements identified:

- parts of the building that could be deconstructed and reconstructed
- parts of the building that could be repaired insitu but would need propping to sustain during this process
- parts of the building that could be repaired insitu.
- degrees of difficulty placed on retrieval of heritage items
- potential falling hazards and hazard mitigation strategies.

What were the heritage considerations?

The heritage considerations and preferences were overlaid onto the various engineering options and incorporated guidelines from the ICOSMOS NZ Charter that forms the basis of good practice in regard to heritage conservation in NZ. These included consideration of historic, social, cultural, spiritual, architectural, aesthetic, archaeological, contextual, technological and craftsmanship elements of significance.

What was the heritage preference?

The preferred 'make safe option' from a heritage point of view was part controlled demolition, part deconstruction, part interim repair with maximum salvage and storage of retrievable artefacts.

What is the cost attached to the 'make safe' option decided on.

Approximately $4 million. The CPT has been advised by its professional team that any future scenarios have a funding shortfall of at least $30million.

Why was the current decision favoured?

This option is a prudent measure to make the building safe to allow for the removal of artefacts and allows for a more detailed design assessment encompassing the new and the old.

Will the Cathedral ever be rebuilt to look exactly as it used to?

No. There has been extensive damage and a large amount of building fabric lost.

What does "controlled demolition" actually mean?

The demolition of a building in a manner that allows for the careful removal of some elements that can then be stored for either incorporation in a future building or stored for other possible conservation projects. Conventional demolition of a building does not allow for this.

How will the Cathedral actually be made safe?

This may involve work to ensure the building is propped, secured, protected and will involve some measure of controlled demolition to allow these works to be undertaken safely.

When will the make safe works commence?

Work is likely to commence within the next 2-3 months.

What company will be undertaking this work?

The work has yet to go to tender.

What items of historic value will be able to be salvaged?

The salvage of any historic parts of the Cathedral or artifacts therein will be entirely dependent on whether thay can be safely removed from the building.

What happens next?

On November 9, a deconsecration service will be held on site to return the Cathedral building to secular use. This is a formality required by the Anglican ministry in situations such as this to move the building from sacred to secular use. This is unable to be a public service as the Cathedral remains within the red zone cordon

Are there any plans to build a new Cathedral on the same site?

The preference would be to build on the current site. However, as with all sites in the central city, including the Christchurch Cathedral, safety is the first priority. The Cathedral is to be 'made safe in the shorter term while further investigations are undertaken as part of the future design process.

How are plans progressing with the transitional cardboard Cathedral?

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.

New Zealand Historic Places Trust Pouhere Taonga

28 October 2011

MEDIA RELEASE

Christ Church Cathedral announcement to make safe welcomed by NZHPT

The process set out in today's announcement by church leaders to "make safe" the Christ Church Cathedral and retain as much of its original heritage fabric as possible until a final decision can be made has been welcomed by the New Zealand Historic Places Trust Board (NZHPT), said NZHPT Chief Executive Bruce Chapman.

The NZHPT's role in the process to date has been an advisory one and the organisation looks forward to continuing to work with the Church on future options for the Cathedral.

Architects and engineers from the NZHPT have worked directly with the church, Council and CERA staff and consultants seeking solutions that would retain the building's important heritage values.

"Along with other members of the collaborative group including engineers who had examined the Cathedral, we agreed that the preferred option was making the building safe and retaining as much of the building's heritage fabric as possible."

"While there is much work to be done and some uncertainty remains, today's decision will be welcome news for everyone who has lived in Christchurch, worshipped or visited the Cathedral. It is an iconic heritage landmark regionally, nationally and internationally – reflected in its current Category I registration with the NZHPT."

"As well as the significant heritage values of the building itself, the future of the Cathedral and other heritage landmarks of the CBD such as Our City-O-Tautahi, the Arts Centre, the Catholic Basilica and Canterbury Provincial Chambers need to be considered in light of the wider economic benefits they bring to the City. Cultural tourism previously attracted many visitors to the city centre, if these buildings can be retained they will enhance the prospects for the economic recovery of the city and the CBD."

For more information:

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 Cathedra[1] 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:

From:
Sent: Wednesday, 26 October 2011 3:29 p.m.
To:
Cc:
Subject: FW: Statement from Bishop Victoria Matthews

Importance: High

Attachments: 8-FINAL-Cathedral-interim-26oct.doc

8-FINAL-Cathedral-interim-26oc...

FYI

Regards

Structural Engineer – Significant Buildings Unit Canterbury Earthquake Recovery Authority (CERA)

Private Bag 4999, Christchurch 8140
T:
M:
E:
W: www.cera.govt.nz

-----Original Message-----
From: .
Sent: Wednesday, October 26, 2011 3:22 PM
To:

Cc:
Subject: FW: Statement from Bishop Victoria Matthews
Importance: High

Hi All,

As members of the Cathedral collaborative working group, please be advised of the attached statement that has been released to the media today.

Regards

Senior Project Manager
M
DDI

-----Original Message-----
From:
Sent: Wednesday, 26 October 2011 2:32 p.m.
To:

Subject: Statement from Bishop Victoria Matthews
Importance: High

Good afternoon
Bishop Victoria has approved for me to release this statement to media today.
She will email the various church entities to ensure they also see it later today.

From:

Sent: Friday, 12 August 2011 2:00 p.m.

To:

Cc:

Subject: RE: Christchurch Cathedral

198 2.11.1ec

Thanks
Have you got Resource Consent for the removal of the Rubble seeing as though it is a Heritage Item?
I would appreciate a catch up Tuesday next week to go through where things are heading for the Cathedral also.

Can you please contact and arrange a meeting for Tuesday with myself and Please ask Warwick if he would like to attend also.

Regards

Significant Buildings Unit
Team Leader / Senior Project Manager
M

on behalf of **CERA**

From:
Sent: Thursday, 11 August 2011 12:39 p.m.
To:
Subject: Christchurch Cathedral

Hi
Weather permitting, we will be removing the remaining three bells and the Risen Christ sculpture tomorrow and move them to We have to crate the statue.
Our next 'event' will be in a couple of weeks with the sorting and removal of the rubble.
Cheers

Project Director
Beca
Mobile
Email
www.beca.com

2.12

From:

Sent: Monday, 31 October 2011 1:16 p.m.

To:

Subject: FW: ChristChurch Cathedral - Release of Make Safe Decision to Collaborative Working Group - The Press Page 3 Leak from CCC Consultant Engineers

198 - CWG

From:
Sent: Friday, October 28, 2011 7:12 AM
To:

Cc:

Subject: RE: ChristChurch Cathedral - Release of Make Safe Decision to Collaborative Working Group - The Press Page 3 Leak from CCC Consultant Engineers

Hi CCC Heritage Team

Frankly we are surprised and most disappointed that despite all formal agreements and collaborative efforts and formal reiterations around confidentiality and working together, as recently as our meeting held on Wednesday, CCC's consulting engineers have purposefully made the page 3 of today's Press.

http://www.stuff.co.nz/business/rebuilding-christchurch/5866539/Fate-of-Christ-Church-cathedral-on-table

We will respond more formally about this matter to CCC next week, and may now need to consider addressing the above as part of today's formal announcement.

Regards

Senior Project Manager
M
DDI

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

Please consider the environment before printing this email.

From:
Sent: Thursday, 27 October 2011 10:24 p.m.
To:

Cc: '

Subject: ChristChurch Cathedral - Release of Make Safe Decision to Collaborative Working Group

Hi All,

As discussed in recent meetings is the key communications contact while

Tomorrow morning will circulate the make safe decision and media pack to you all (which will be embargoed and confidential until formally released to the media – will advise the time)

Please contact , who is in Christchurch with any urgent project matters on ', otherwise contact me on Monday

details are below:

Thank you for your continued support and assistance in these matters.

Regards

Senior Project Manager
M
DDI

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

Please consider the environment before printing this email.

From:

Sent: Thursday, 27 October 2011 10:27 p.m.

To:

Cc:

Subject: ChristChurch Cathedral - Release of Make Safe Decision to Collaborative Working Group

Hi All,

As discussed in recent meetings is the key communications contact while

Tomorrow morning will circulate the make safe decision and media pack to you all (which will be embargoed and confidential until formally released to the media – will advise the time)

Please contact who is in Christchurch with any urgent project matters on . otherwise contact me on Monday

details are below:

Thank you for your continued support and assistance in these matters.

Regards

Senior Project Manager
M
D

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

Please consider the environment before printing this email.

Received 26/10/11 CWA

BRENDON BURNS: Is our iconic Cathedral at the heart of our city at risk of being demolished? That's the very real fear that's begun emerging in Christchurch in recent days. I do not have a complete picture but I am choosing to comment because I think it important we are now told what is happening with our Cathedral, some 8 months after February 22. I understand engineers working for the Anglican Church have suggested demolition, even though my sources suggest apart from the very real damage to the spire, earthquake strengthening has assisted the nave (main body). I believe the engineers' report may now be being peer-reviewed. I contacted CERA yesterday asking about suggestions a demolition order has been sought. CERA would only say this was a matter for the Church. I do not doubt the Church understand the importance of the Cathedral to our city. It may be, however, that like many other property owners the cost of redevelopment, likely to be enormous, is weighing heavily. Given that demolition may be under consideration, I think it is time to inform the people of Canterbury of the true picture and update them as it develops. There is no more important icon of our city. This church is at the heart of who we are and where we came from. The concept of a Christchurch without the Cathedral in the Square is too ghastly to contemplate. As well as hoping and praying this does not come to pass, we as citizens have the right to ask about the future of our city's most important building

RUS
STAR PAPER WEBSITE.

HolmesConsultingGroup

CONSULTANT ADVICE

STRUCTURAL AND CIVIL ENGINEERS

Project Name:	Christchurch Cathedral Reconstruction	CA HCG:	013
Project No:	106324	☐ Action:	
From:		☑ Information	
Date:	20 October 2011	Pages:	1 of 3
Subject:	Concept Interim Make Safe Works		

To	cc	
☑	☐	RCP
☑	☐	RCP
☑	☐	CPT
☑	☐	CPT
☐	☑	Warren & Mahoney
☐	☑	Davis Langdon
☐	☑	Jackie Gillies & Ass
☐	☑	Holmes Consulting Group

Confirmation / Response to PC No.: N/A

As requested we have completed a preliminary assessment of the scope of make safe works that would be required to meet CERA requirements in terms of securing the site if the Christchurch Cathedral was to be left in an interim state for the medium term i.e. 1 – 5 years.

Two make concept safe options have been developed:

1. Maximum retention of heritage fabric
2. Minimum structural shoring option.

It is acknowledged that a range of interim make safe options exist between the two considered here.

Option 1 – Maximum Retention of Heritage Fabric

Please refer to SSK# 023 – 026 attached. Scope of proposed works includes:

(i) 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

Christchurch

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San Francisco

structural collapse. These will be connected to existing structural steel bracing elements where they occur.

(ii) Central portion of the western wall is to be demolished/deconstructed to gain construction access to the interior of the building. Other damaged wall elements (i.e. north and south isle walls) will generally be retained except that secondary high level falling hazards will need to be secured/removed.

(iii) 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.

(iv) Damaged roof bracing elements will be reinstated. Temporary weatherproofing to replace the area of roof that was damaged by tower debris will also need to be provided.

(v) Tower to be made safe by providing a new braced shoring frame at the north elevation to replace the lost section of wall. A new concrete 'roof' slab will be provided at the top of the remaining section of tower to maintain structural integrity and provide additional protection against future weathering.

(vi) Installation of the internal make safe works will require the use of 'safe havens' as detailed previously in HCG Consultants Advice No. 9 in order to minimize health and safe risks to construction personnel.

Option 2 – Minimum Shoring Option

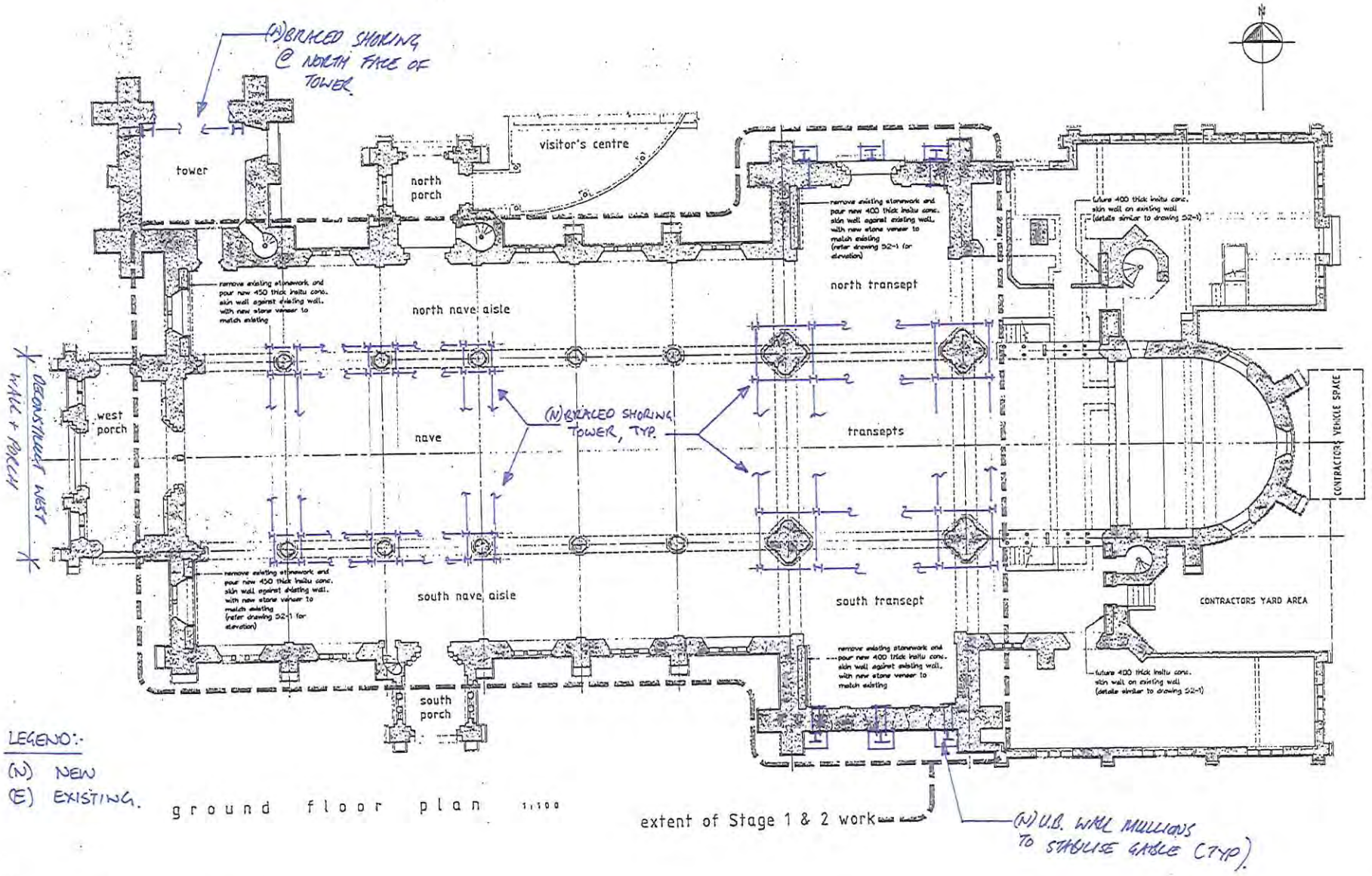
Please refer to SSK# 027 – 026 attached. Scope of proposed works includes controlled demolition/deconstruction of most of the Cathedral (including removal of most of the roof) down to windowsill level. An exception to this is the east end of the Cathedral which, based on observations made to date, is in relatively good condition and could be made safe with minimal shoring/remedial works.

Consideration will need to be given to weather proofing those areas of the building that are exposed as a result of the make safe work.

Please note that the make safe options detailed in this Consultants Advice are at concept design level and a more detailed assessment of the building and the proposed make safe works will be required as part of any future design phases that might include full or partial reconstruction.

Regards,

106324CA0329.013



Title: CCHA MAKE SAFE- PLAN
Job Name: CHCH CATHEDRAL
Job #: 106324 SSK#: 023
Date: 14/10/11 Rev: 1

HolmesConsultingGroup
TURAL AND CIVIL ENGINEERS

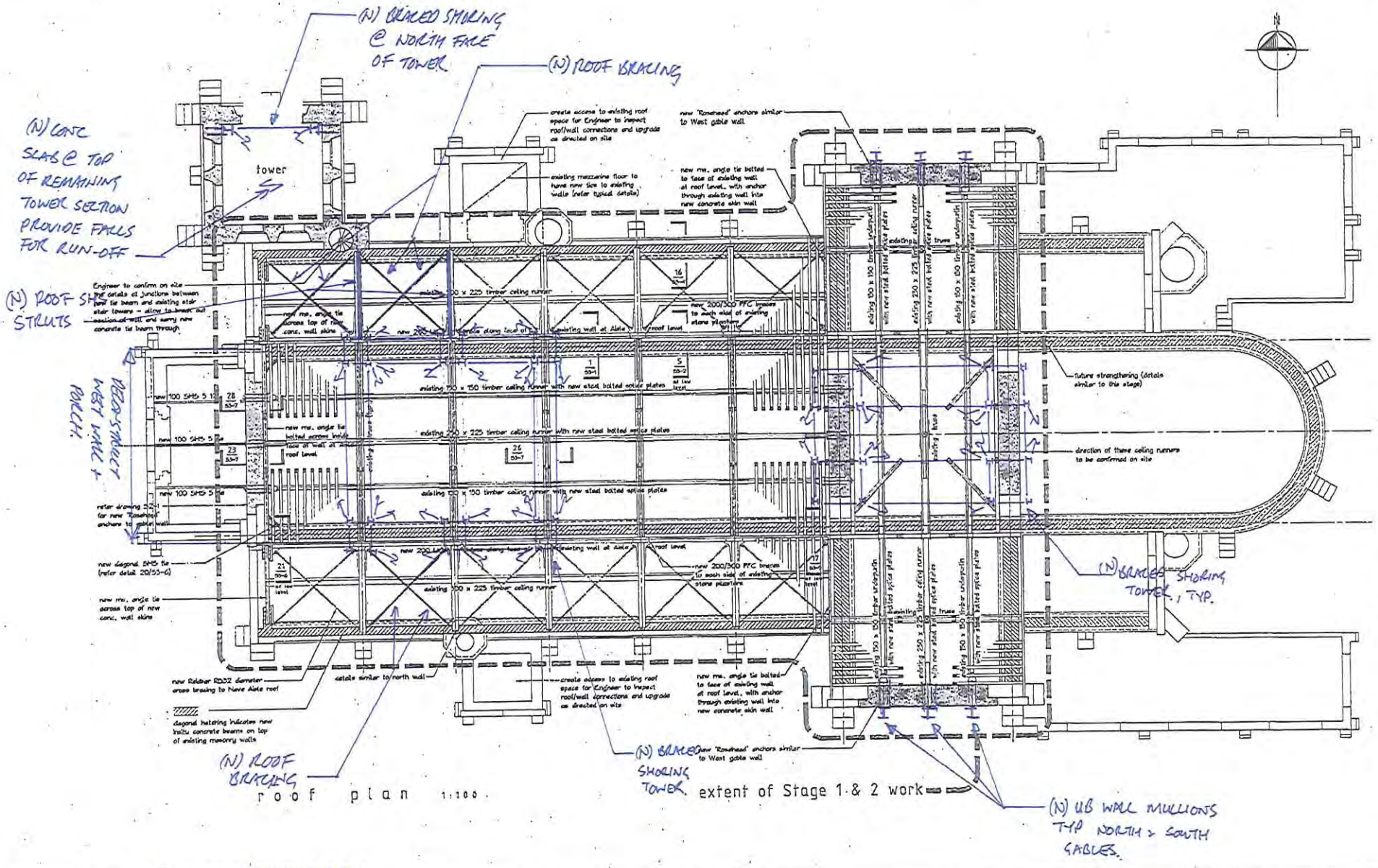
Rev	Date	By	Issue
5	07/03/99	RIS	Tender
4	16/12/98	RIS	Building Consent
3	27/11/98	RIS	Preliminary
Rev	Date	By	Issue

Drawn RIS Scale 1:100
Approved Acad Filename S1-1

CHRISTCHURCH CATHEDRAL STRENGTHENING

Sheet Title: ground floor plan

Drg No	Sheet No	Rev
2948	S1-1	3



Title: CCHA MAKE SAFE - ROOF PLAN

Job Name: CHCH CATHEDRAL

Job #: 106324 SSK#: 024

Date: 19/10/11 Rev: 1

sConsultingGroup
AL AND CIVIL ENGINEERS
Telephone : 366-3366
Facsimile : 379-2188

Rev	Date	By	Reason
3	02/03/99	RIS	Tender
2	16/12/98	RIS	Building Consent
1	27/11/98	RIS	Preliminary

Drawn RIS Scale 1:100

Approved Next Filename S1-2

CHRISTCHURCH CATHEDRAL STRENGTHENING

Sheet Title: roof plan

Job No	Sheet No	Rev
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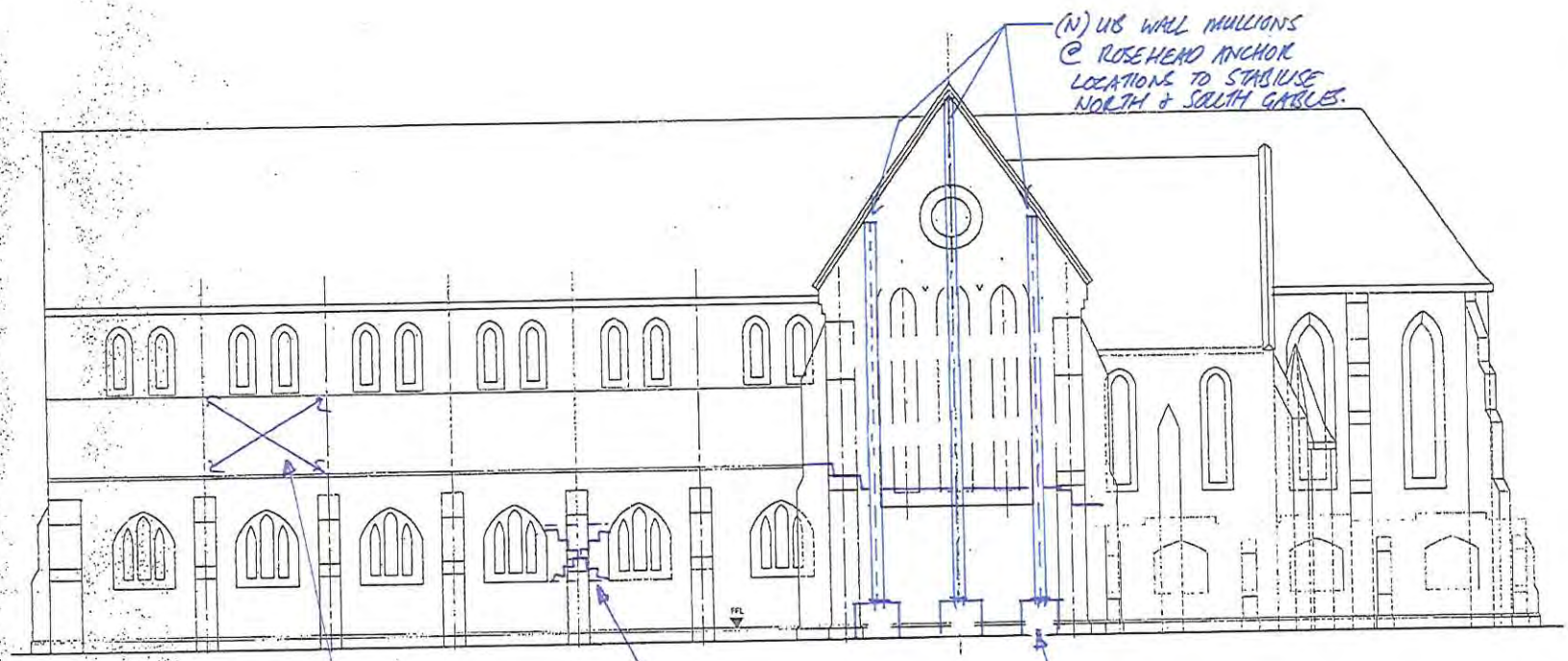

south elevation

(NORTH ELEVATION SIM.)

Title: CERA MAKE SAFE - SOUTH ELEV

Job Name: CHCH CATHEDRAL

Job #: 106324 SSK#: 025

Date: 19/10/11 Rev: 1

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REV: DATE: BY: REASON:

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STRUCTURAL AND CIVIL ENGINEERS

CHRISTCHURCH CATHEDRAL

SEISMIC STRENGTHENING PROPOSALS

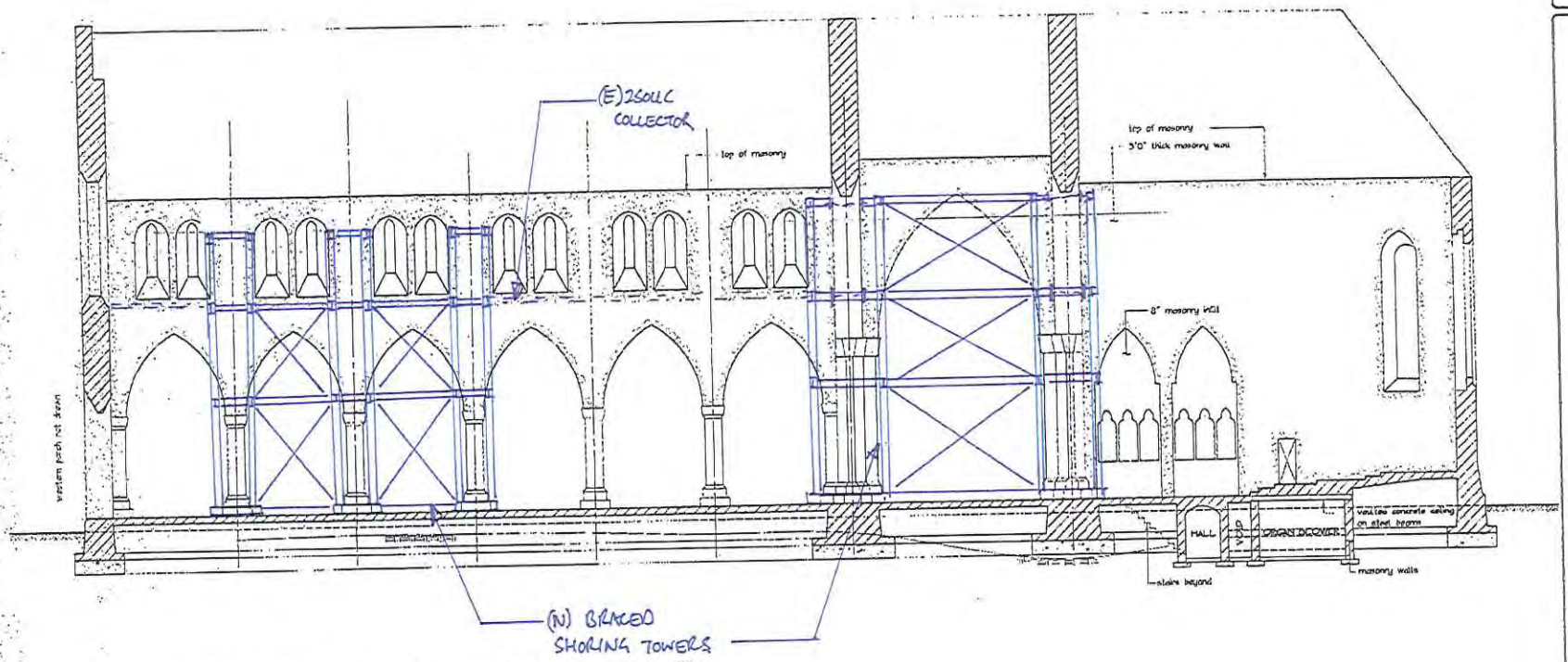
DRAWN: ICM SCALE: 1:100

APPROVED: ACAD FILENAME: CATHS1-2

SHEET TITLE:

ELEVATIONS

JOB No.	SHEET No.	REV.
2948	S1-2	REV



longitudinal section nave (3 / S1-1)

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CHRISTCHURCH CATHEDRAL

SEISMIC STRENGTHENING PROPOSALS

DRAWN: IDM SCALE: 1:100
APPROVED: ACAD FILENAME: CATHS1-6

SHEET TITLE: SECTIONS

JOB No.	SHEET No.	REV
2948	S1-7	REV

Title: CERA MAKE SAFE - LONG SECTION
Job Name: CHCH CATHEDRAL
Job #: 106324 SSK#: 026
Date: 19/10/11 Rev: 1

(9 / S1)

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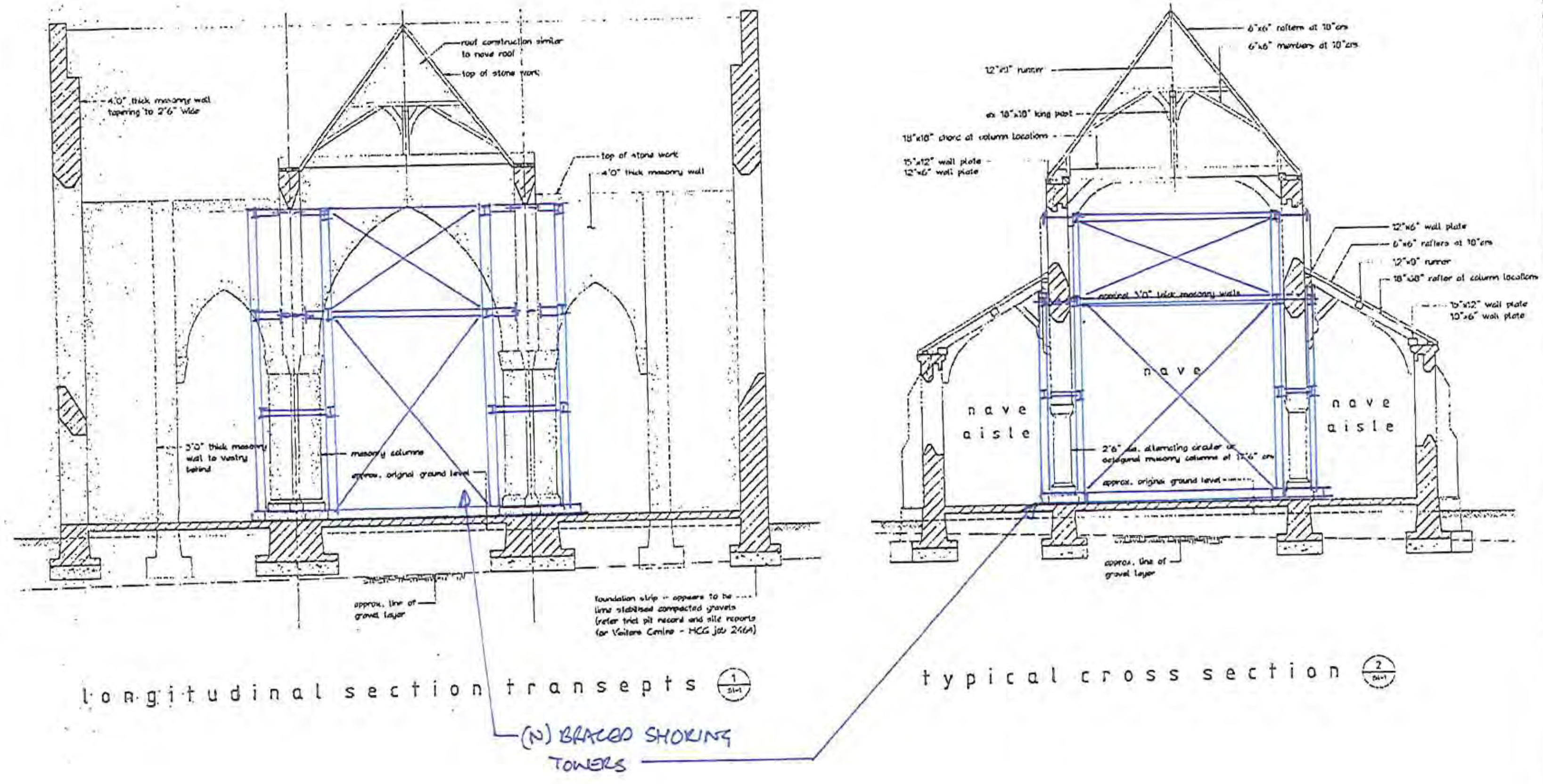

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CHRISTCHURCH CATHEDRAL

SEISMIC STRENGTHENING PROPOSALS

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APPROVED: ACAD FILENAME: CATHS1-6

SHEET TITLE: SECTIONS

JOB No. 2948 | SHEET No. S1-6 | REV. REV

Title: CERA MAKE SAFE - SECTION
Job Name: CHCH CATHEDRAL
Job #: 106324 SSK#: 026
Date: 19/10/11 Rev: 1.

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Project Name: *Christchurch Cathedral*
Project Number: *106324*
Sketches By:
Date: *20/10/2011*
Sketch Number: *027*

REV	DATE	BY	REASON

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Christchurch, Wellington, New Plymouth, Auckland, Sydney

CHRISTCHURCH CATHEDRAL
SEISMIC STRENGTHENING PROPOSALS

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APPROVED: JOB NUMBER: 4540 FILENAME: CATH01-S

SHEET TITLE: ELEVATIONS

JOB No. 2948 SHEET No. S1-5 REV REV

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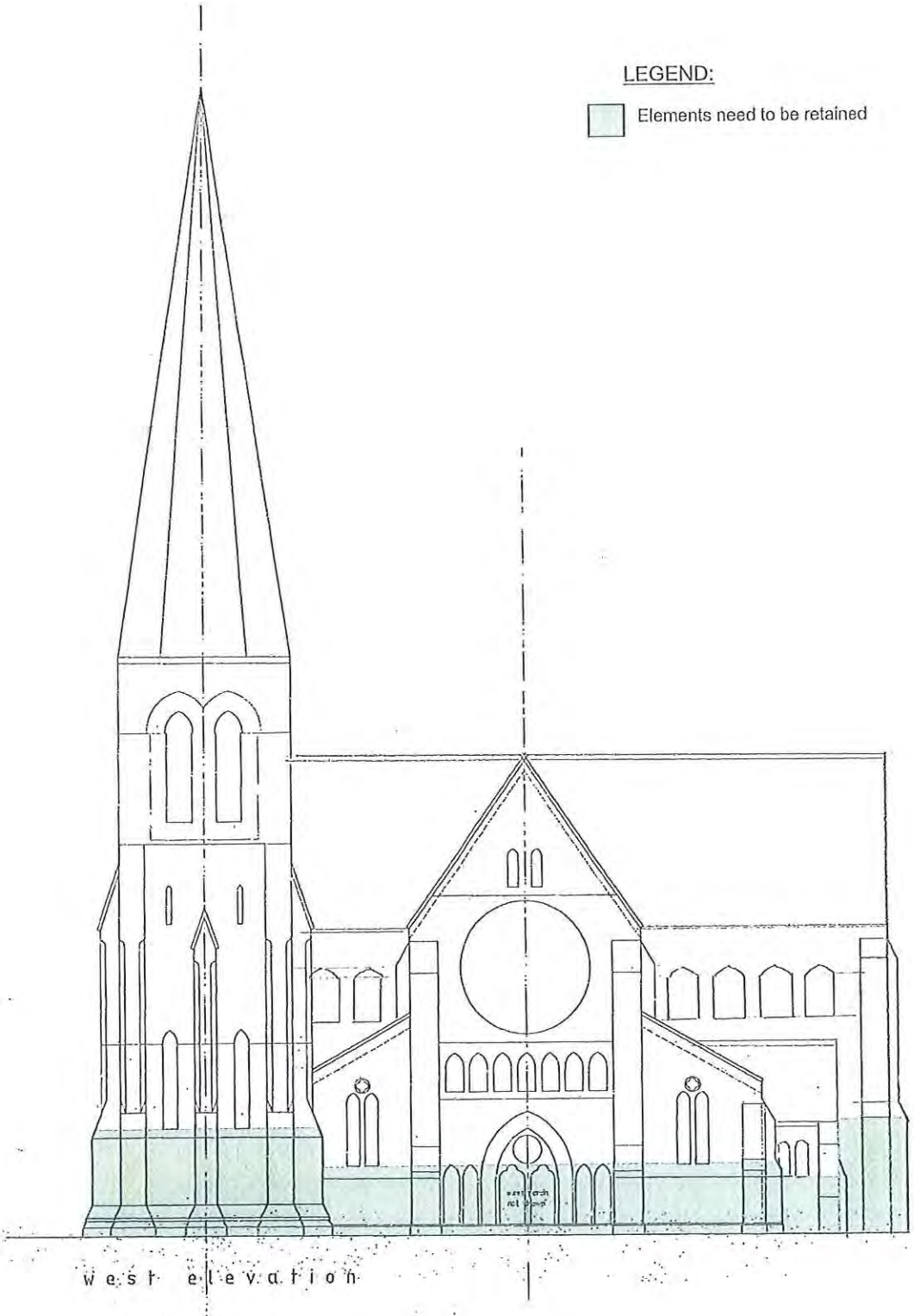

west elevation

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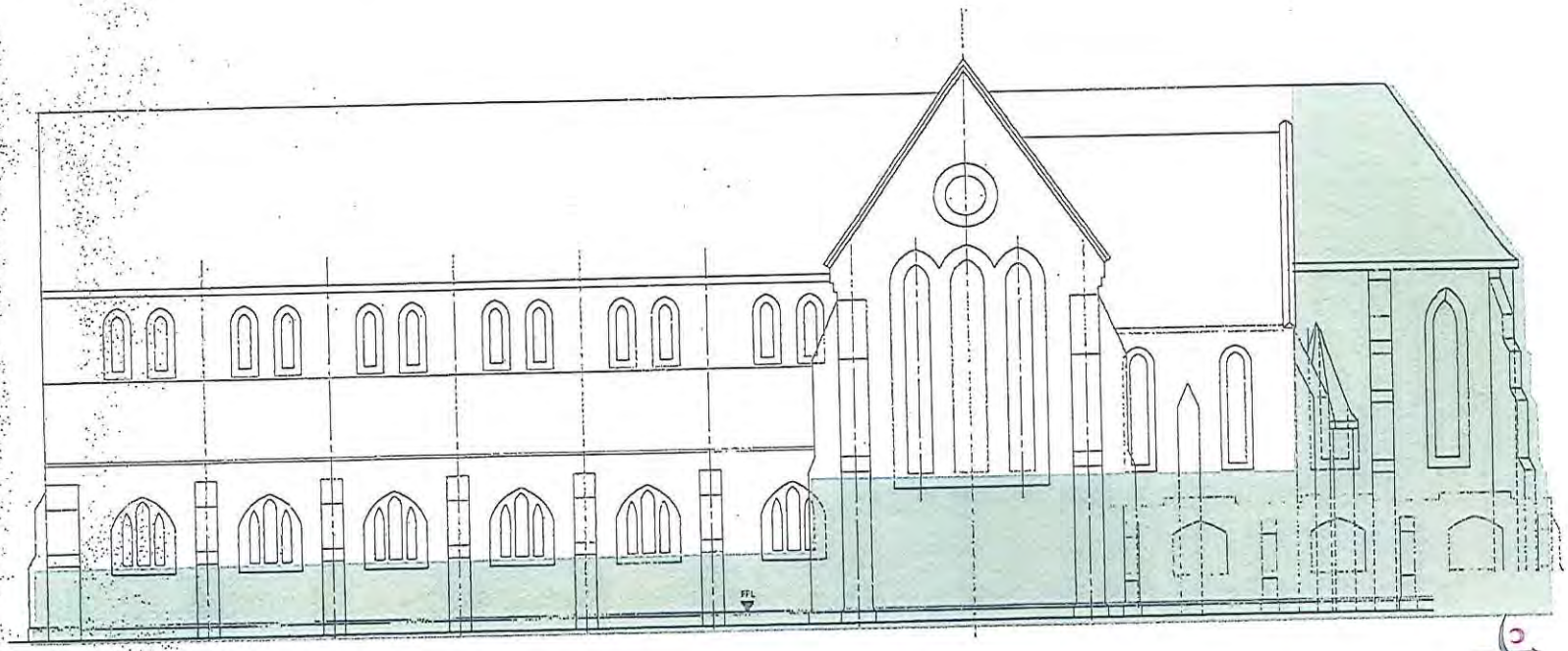

south elevation

REV. DATE "BY" REASON

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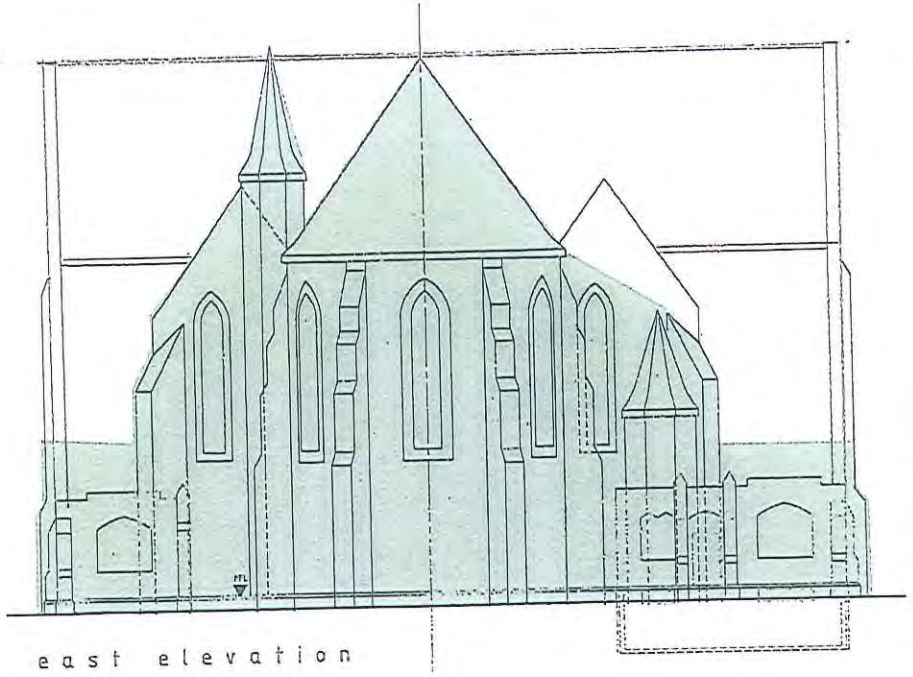
Project Number:	*106324*
Sketches By:	
Date:	*20/10/2011*
Sketch Number:	*028*

LEGEND:

Elements to be retained



east elevation

REV	DATE	BY	REASON

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Project Name:	*Christchurch Cathedral*
Project Number:	*106324*
Sketches By:	
Date:	*20/10/2011*
Sketch Number:	*029*

LEGEND:

Elements to be retained

north elevation

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Project Name:	Christchurch Cathedral
Project Number:	106324
Sketches By:	
Date:	20/10/2011
Sketch Number:	030

REV | DATE | BY | REASON

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STRUCTURAL AND CIVIL ENGINEERS
Christchurch, Wellington, New Plymouth, Auckland, Sydney

CHRISTCHURCH
CATHEDRAL

SEISMIC STRENGTHENING PROPOSALS

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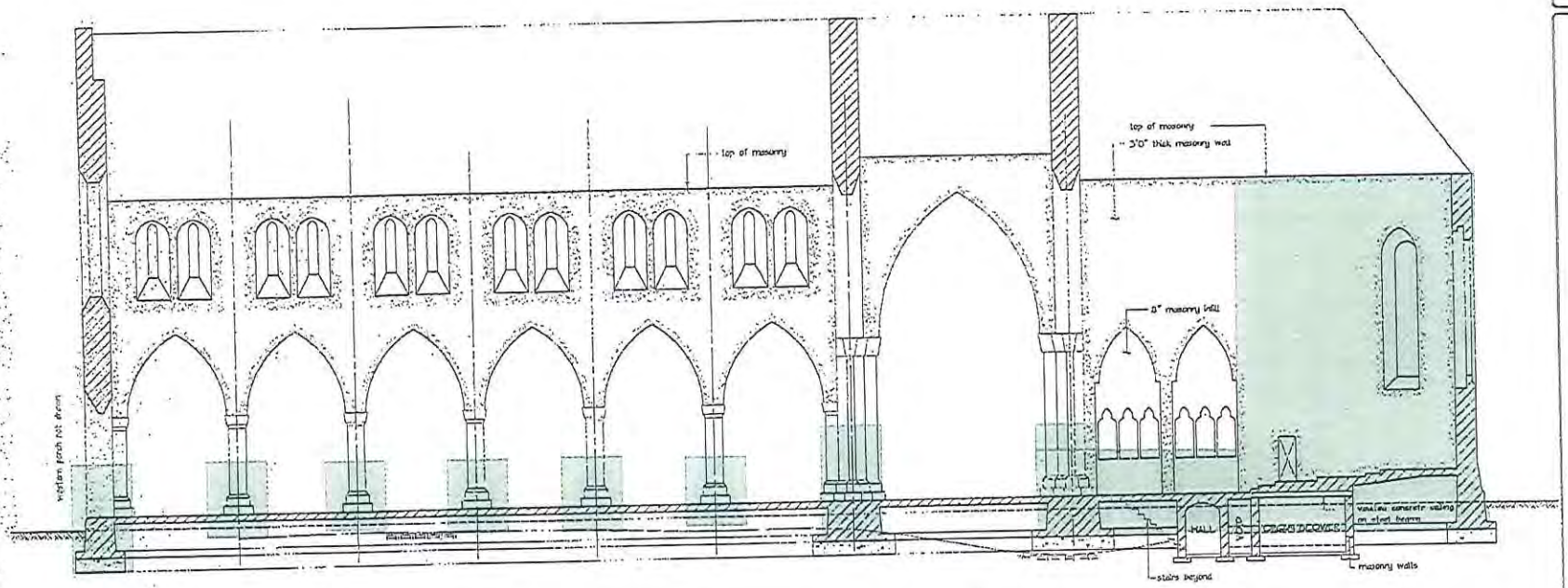

longitudinal section nave (1 / SK-1)

LEGEND:

Elements to be retained

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HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS

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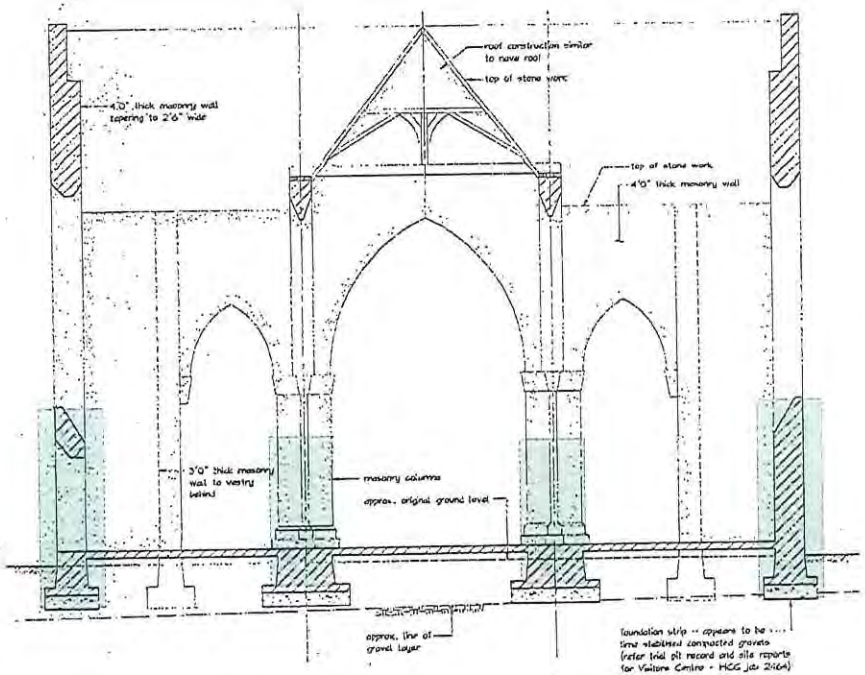
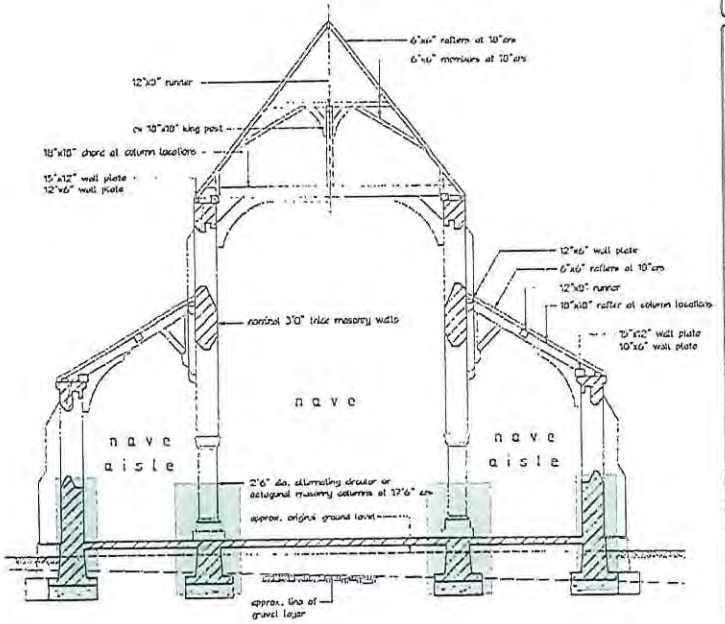
Project Number:	*106324*
Sketches By:	
Date:	*2010/2011*
Sketch Number:	*031*



longitudinal section transepts (1 SK1)



typical cross section (2 SK1)

REV	DATE	BY	REASON

HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS

HolmesConsultingGroup
STRUCTURAL AND CIVIL ENGINEERS

LEGEND:

Elements to be retained

Project Name:	*Christchurch Cathedral*
Project Number:	*106324*
Sketches By:	
Date:	*20/10/2011*
Sketch Number:	*032*

CHRISTCHURCH CATHEDRAL – REBUILD / MAKE SAFE OPTIONS – 20TH OCTOBER 2011
DRAFT – PRIVATE & CONFIDENTIAL – STILL TO BE CONFIRMED

INTERIM MAKE SAFE OPTION 1 – Maximum Retention of Heritage Fabric

INTERIM MAKE SAFE OPTION 2 – Minimum Shoring Option

	REBUILD OPTIONS		REBUILD OPTIONS		REBUILD OPTIONS		REBUILD OPTIONS
A	New cathedral incorporating intangible values (See full definition above)	B	New cathedral incorporating intangible values and selected heritage fabric (See full definition above)	C	Part new cathedral Part reconstructed Part repair (See full definition above)	D	Full reconstruction to pre-earthquake form. (See full definition above)
	All new built with no original materials		More new than original		More original than new build.		All rebuilt with some original materials
	↓		↓		↓		↓
	MAKE SAFE OPTIONS		MAKE SAFE OPTIONS		MAKE SAFE OPTIONS		MAKE SAFE OPTIONS
1	100% demolition no salvage	3	Part controlled demolition Part deconstructed with selected salvage with storage Part repair	4	Part controlled demolition Part deconstructed with maximum salvage with storage Part repair	2	100% deconstruction maximum salvage long term storage

Cost Estimates for each of these are currently being produced – for consideration at Thursday's Cathedral DCG Meeting.

RCP

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CHRISTCHURCH ANGLICAN DIOCESE EARTHQUAKE RECOVERY PROJECT			
Agenda for:	**CHRISTCHURCH CATHEDRAL PROJECT Collaborative Working Group**	**Date:**	18 October 2011
To be held at:		**Time:**	1:00pm
Attendees		*File Ref:*	

Name	Company	Name	Company
	CPT		CCC
	RCP		CCC
	Jackie Gillies		CCC
	Jackie Gillies		CCC
	Holmes		HPT
	WAM		CCC Heritage Consult
	CERA		

	Topic
1.0	PREVIOUS MEETING MINUTES
2.0	STRUCTURAL UPDATE
3.0	HERITAGE UPDATE
4.0	OPTIONS SUMMARY
5.0	PROGRAMME
6.0	FINANCIALS
7.0	ANY OTHER BUSINESS

SB 198.

HolmesConsultingGroup

STRUCTURAL AND CIVIL ENGINEERS

CONSULTANT ADVICE

Project Name:	Christchurch Cathedral Reconstruction	CA HCG:	012
Project No:	106324	☐ Action:	
From:		☑ Information	
Date:	15 October 2011	Pages:	1 of 2
Subject:	Required scope of Reconstruction & Propping		

To	cc	
☑	☐	RCP
☑	☐	RCP
☑	☐	CPT
☑	☐	CPT
☐	☑	Warren & Mahoney
☐	☑	Davis Langdon
☐	☑	Jackie Gillies & Ass
☐	☑	Holmes Consulting Group

Confirmation / Response to PC No.: N/A

As requested we have completed a preliminary assessment of the scope of propping, and deconstruction and reconstruction, that would be required if the Christchurch Cathedral was to be reconstructed substantially in its pre-February 22nd form.

The scope of works out lined in this Consultants Advice have been developed assuming the reconstruction methodology would be similar to that detailed in the Holmes Consulting Group Report of 11th of July 2011.

The scope of works is based primarily on ground based, exterior observations and limited, ground based interior observations. As such a higher level of uncertainty exists with regard to the extent of damage to the upper nave, central transept and apse and therefore the scope of works required in these areas.

We have developed what we believe is a 'middle of the road' assessment of what would required to ensure the building could be reconstructed in a relatively safe manner.

We would recommend undertaking a more detailed assessment of the building as part of any future design phases that might include full or partial reconstruction.

Details of the indicative scope of works are illustrated on SSK# 017 – 022 attached.

Christchurch

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Offices in

Auckland

Hamilton

Wellington

Queenstown

San Francisco

Regards,

106324CA0329.012

HolmesConsultingGroup
STRUCTURAL AND CIVIL ENGINEERS

Project Name:	*Christchurch Cathedral*
Project Number:	*106324*
Sketches By:	
Date:	*15/10/2011*
Sketch Number:	*017*

HOLMES CONSULTING GROUP

CHRISTCHURCH CATHEDRAL

SEISMIC STRENGTHENING PROPOSALS

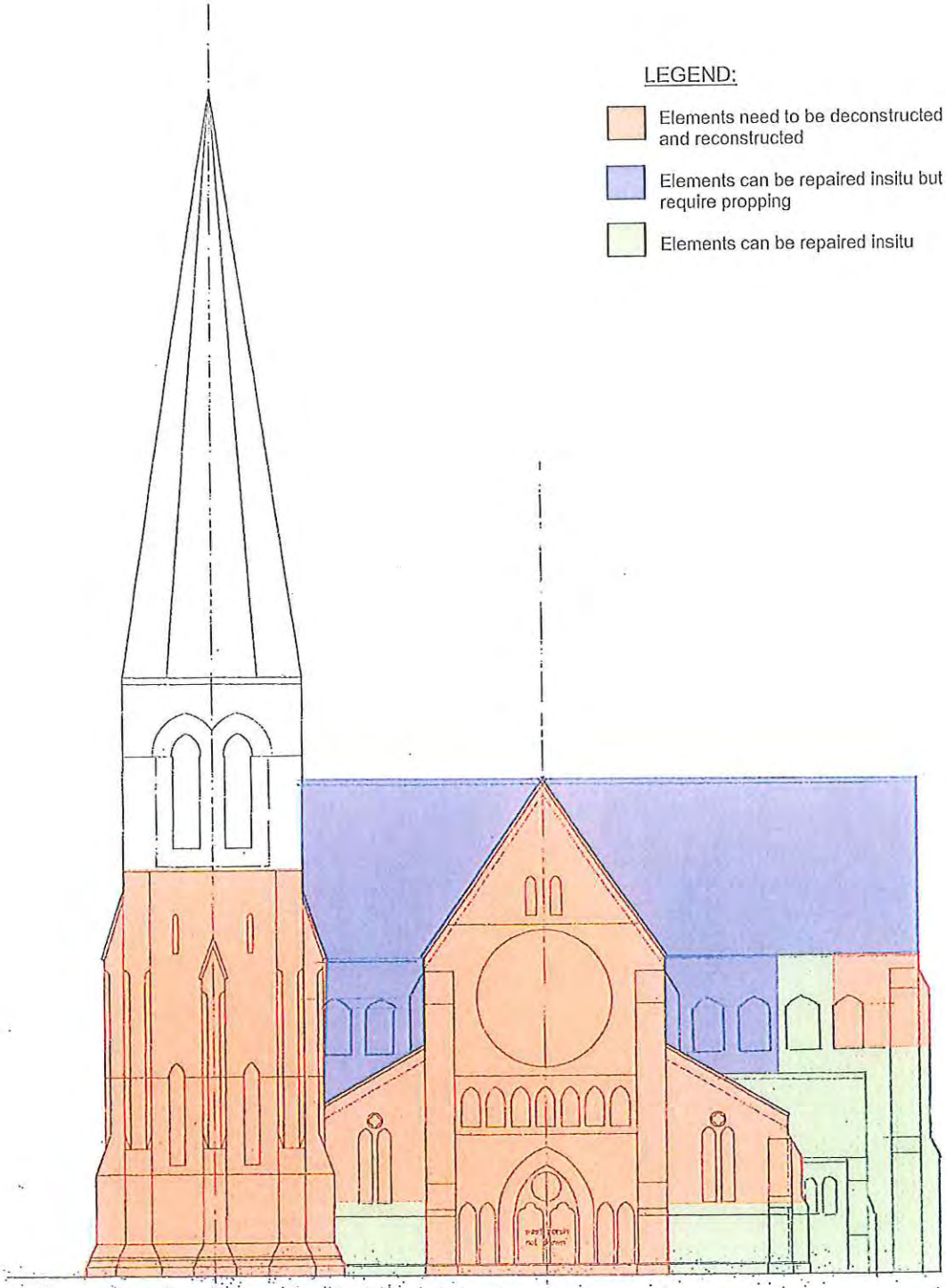
ELEVATIONS

SHEET No. S1-5

REV

LEGEND:

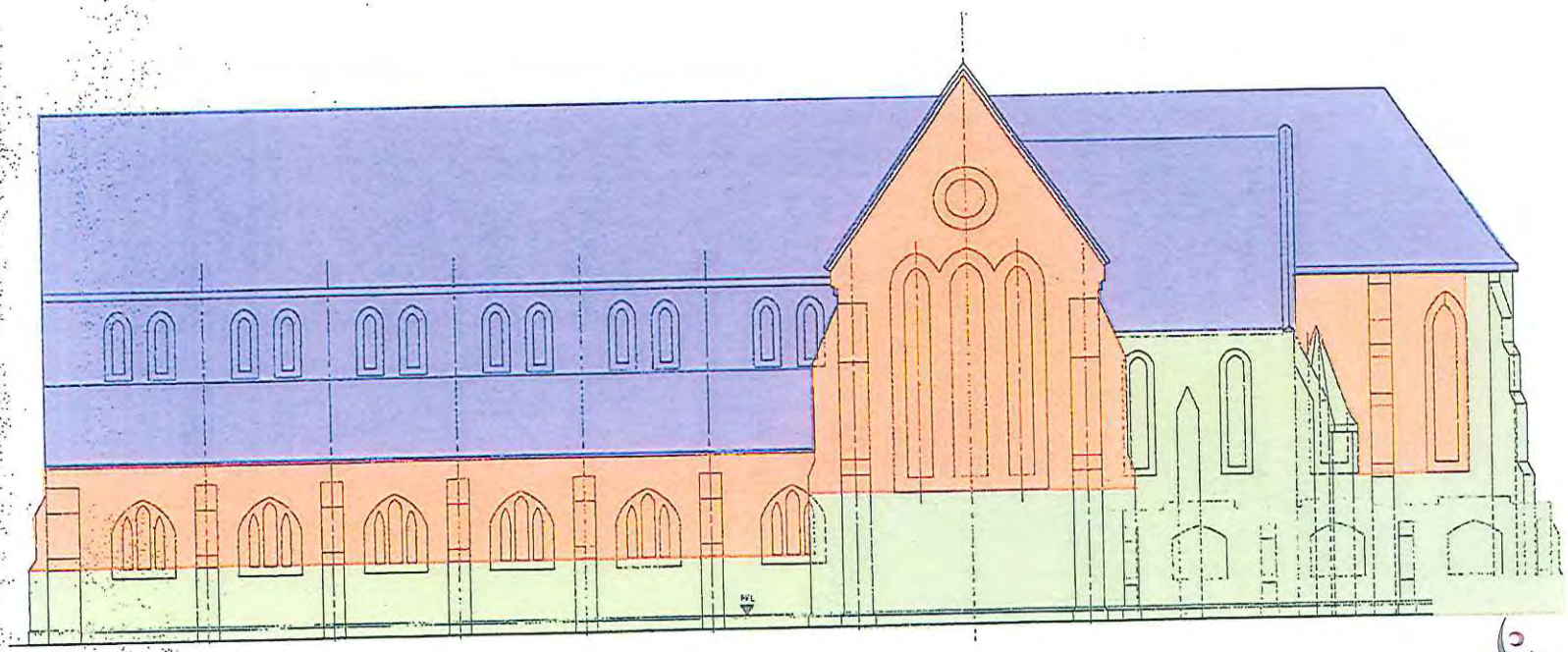
- Elements need to be deconstructed and reconstructed
- Elements can be repaired insitu but require propping
- Elements can be repaired insitu



west elevation

LEGEND:

- Elements need to be deconstructed and reconstructed
- Elements can be repaired insitu but require propping
- Elements can be repaired insitu



south elevation

REV: DATE: BY: REASON

HOLMES CONSULTING GROUP
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STRUCTURAL AND CIVIL ENGINEERS

Project Name:	*Christchurch Cathedral*
Project Number:	*106324*
Sketches By:	
Date:	*15/10/2011*
Sketch Number:	*018*

LEGEND:

- Elements need to be deconstructed and reconstructed
- Elements can be repaired insitu but require propping
- Elements can be repaired insitu

east elevation

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:	*15/10/2011*
Sketch Number:	*019*

LEGEND:

- Elements need to be deconstructed and reconstructed
- Elements can be repaired insitu but require propping
- Elements can be repaired insitu

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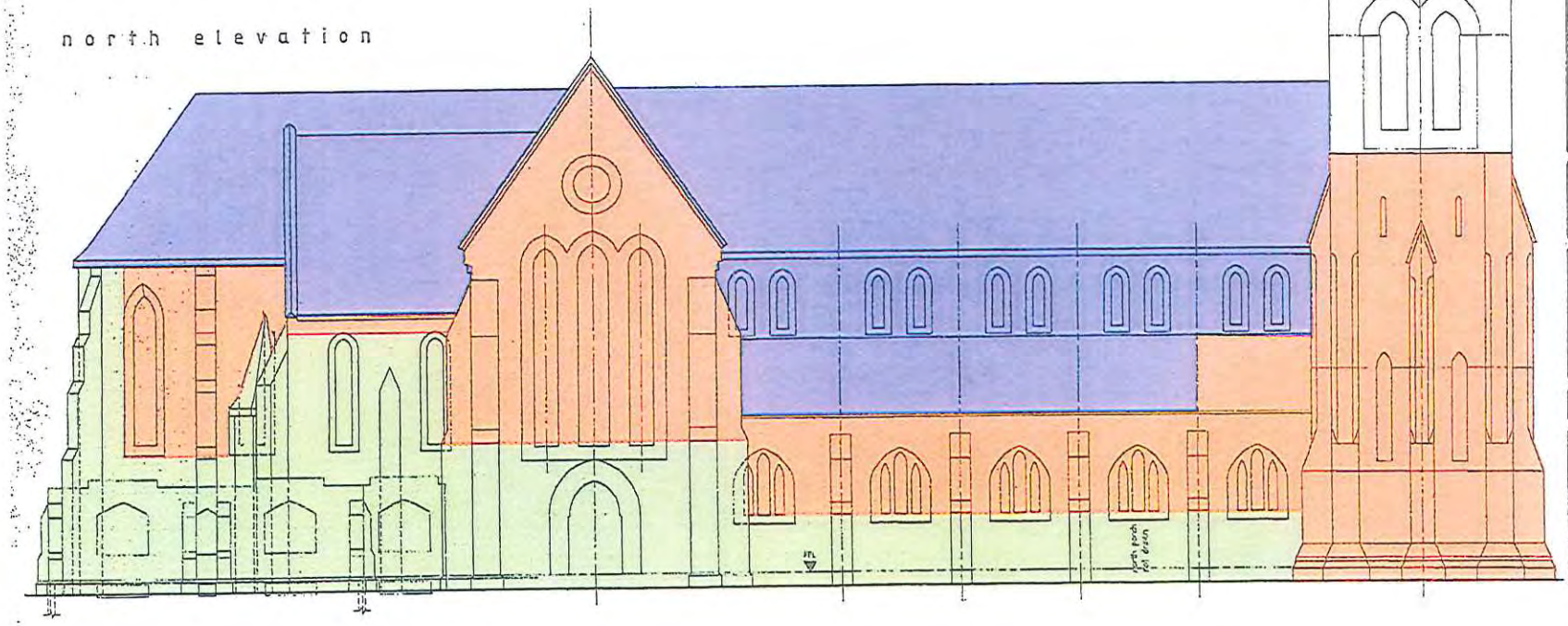
STRUCTURAL AND CIVIL ENGINEERS

Project Name:	*Christchurch Cathedral*
Project Number:	*106324*
Sketches By:	
Date:	*15/10/2011*
Sketch Number:	*020*

north elevation



REV	DATE	BY	REASON

HOLMES CONSULTING GROUP
STRUCTURAL AND CIVIL ENGINEERS

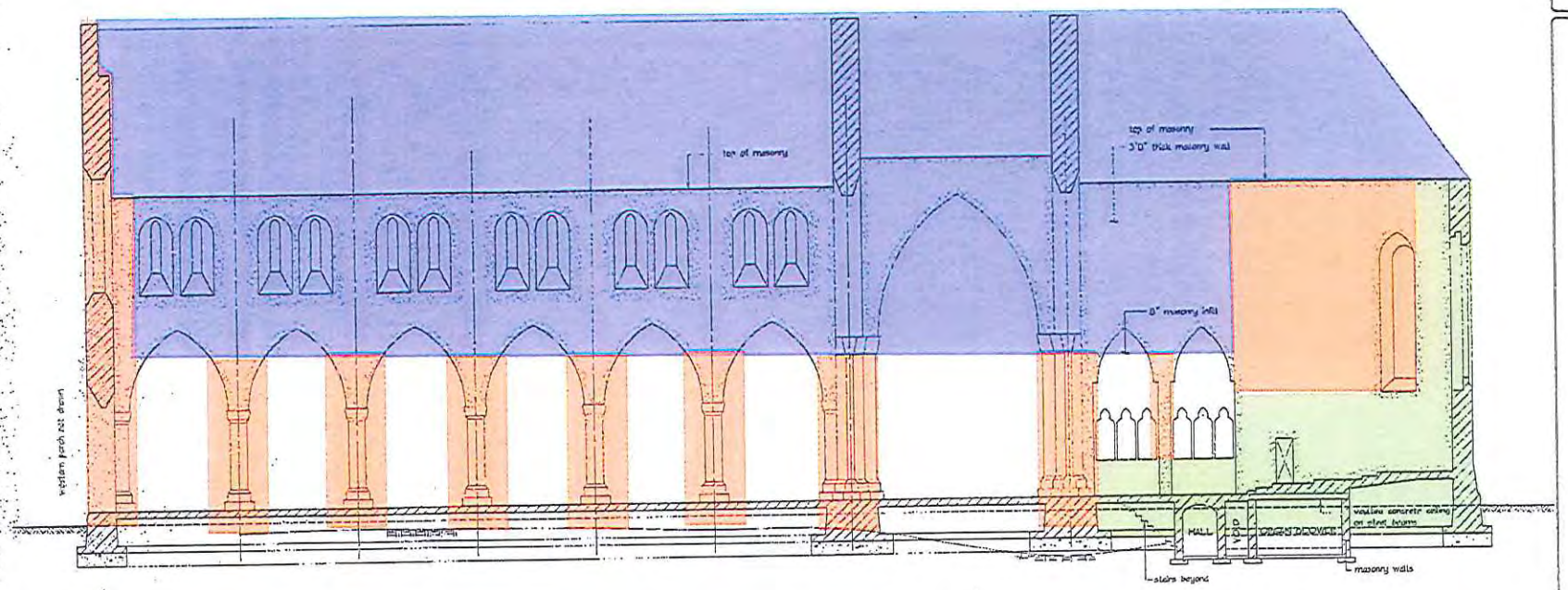
CHRISTCHURCH CATHEDRAL

SEISMIC STRENGTHENING PROPOSALS

DRAWN: IDM SCALE: 1:100
APPROVED: ACAD FILENAME: CATHS1-4

SHEET TITLE:
ELEVATIONS

JOB No. 2948 SHEET No. S1-4 REV. REV



longitudinal section nave (1/SK-1)

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LEGEND:

- Elements need to be deconstructed and reconstructed
- Elements can be repaired insitu but require propping
- Elements can be repaired insitu

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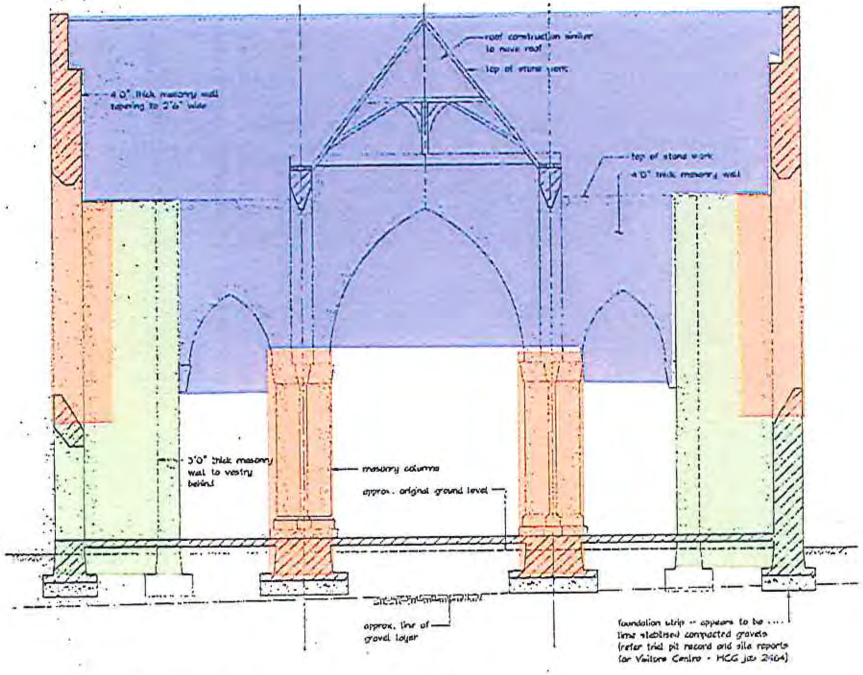
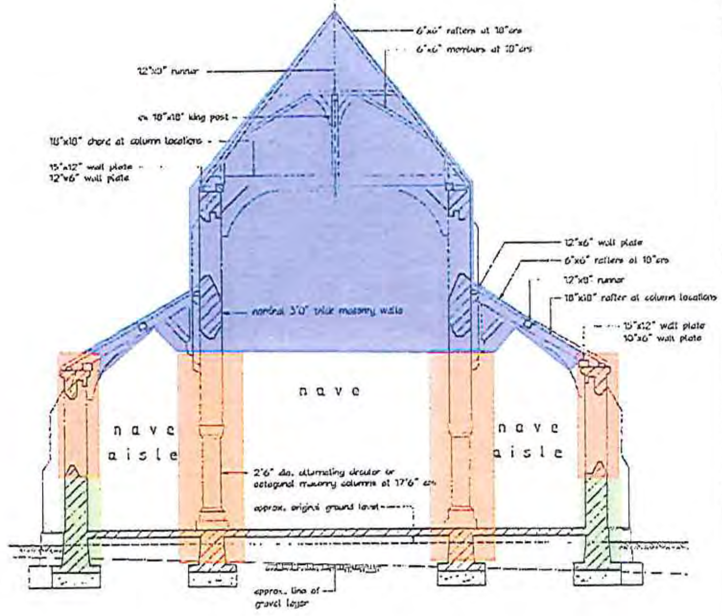
Project Name:	*Christchurch Cathedral*
Project Number:	*106324*
Sketches By:	
Date:	*15/10/2011*
Sketch Number:	*021*



longitudinal section transepts (1/SM)



typical cross section (2/SM)

LEGEND:

- Elements need to be deconstructed and reconstructed
- Elements can be repaired insitu but require propping
- Elements can be repaired insitu

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:	15/10/2011
Sketch Number:	022

CHRISTCHURCH CATHEDRAL

REBUILD OPTIONS

HERITAGE IMPACT ASSESSMENT

Jackie Gillies + Associates
Architecture + Conservation + Archaeology
First Floor, 44 Beach Street
PO BOX 213, Queenstown, 9348
(03) 409 0607 - jackie@jackiegillies.co.nz

CHRISTCHURCH CATHEDRAL

REBUILD OPTIONS

Following the devastating earthquakes in 2010 and 2011 ChristChurch Cathedral suffered considerable damage. This is most evident in the total collapse of the spire and the partial collapse of the tower. In the June event, the West wall and rose window suffered additional damage and are now in a precarious state. The rest of the Cathedral is still relatively intact, but nonetheless demonstrates widespread structural cracking and movement and some minor collapse.

The Church property Trust (CPT) must find a way to make the building safe under the CERA regulations and must therefore investigate the implications of this make-safe work on the future scenarios for rebuilding. One of the factors to be taken into account is the impact on the heritage values of the cathedral of any of these scenarios. This Heritage Impact Assessment attempts to set this out in tabular form to contribute to the necessary debate.

The different rebuild scenarios envisaged are as follows

SCENARIO – A	100% New Cathedral.
SCENARIO – B	100% New Cathedral with Intangible Heritage Values Incorporated.
SCENARIO – C	New Cathedral with Intangible Heritage Values Incorporated and Selected Heritage Fabric.
SCENARIO – D	Part New Cathedral, Part Reconstructed Replica.
SCENARIO – E	100% Reconstructed Replica.
SCENARIO – F	Part Reconstructed Replica, Part Original Repaired and Strengthened.

With respect to national and international best practice the ICOMOS NZ Charter for the Conservation of Places of Cultural heritage Significance and numerous other international charters have a common thread which revolves around the importance of basing decisions on well researched and understood heritage significance or value. A summary of these charters is attached, along with a full review of identified heritage significance. The analysis which follows assesses each of the possible scenarios above measured against the impact on the heritage significance affected.

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)Chronicle of city's history e)First Anglican and oldest surviving 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 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		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	b)Association with large number of Canterbury architects, craftsmen etc,		a)Major work by noted English architect, Sir Giles Gilbert Scott	b)Association with large number of Canterbury architects, craftsmen etc,

CATEGORY	Tangible values	Intangible values	Combined tangible & intangible values		Ecclesiastical	Secular
		d) Association with Benjamin Mountford who designed many of the other major buildings in Christchurch including the Arts Centre and the Museum			c) Largely unmodified and with a high degree of authenticity	d) Association with 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			b) Major landmark in the city c) Focal point of the Square.			b) Major landmark 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.			a) Evidence of earthquakes b) Symbol of February earthquake around the world. c) Rarity value following loss of majority of Christchurch's heritage buildings

SCENARIO – A **100% New Cathedral.**

This envisages a new building of contemporary design sited in Cathedral Square, but otherwise with no references to the original Cathedral.
EXAMPLE: Liverpool Catholic Cathedral

SCENARIO – B **100% New Cathedral with Intangible Heritage Values Incorporated.**

This envisages a similar approach to A, but elements of the intangible heritage values, such as symbolism, associations with founding families, incorporated.
EXAMPLE:

SCENARIO – C **New Cathedral with Intangible Heritage Values Incorporated and Selected Heritage Fabric.**

This develops the previous approach, but would include the incoproation of a number of heritage elements or fabric recycled from the original. (This might include stained glass, carved features such as the pulpit, etc.
EXAMPLE:

SCENARIO – D **Part New Cathedral, Part Reconstructed Replica.**

This assumes that some parts of the original cathedral building are stable enough to remain in place and simply repaired and strengthened, whereas other parts are too badly damaged to remain.
EXAMPLE: - Dunedin Cathedral

SCENARIO – E **100% Reconstructed Replica.**

This would involve the careful deconstruction of the Cathedral, storage of elements and materials for a number of years and then careful reconstruction (incorporating strengthening) into a faithful replica of the original.
EXAMPLE: Frauenkirche, Dresden; Uppark, England.

SCENARIO – F **Part Reconstructed Replica, Part Original Repaired and Strengthened.**

This assumes an approach of full repair and retention of heritage fabric and values. It must inevitably, however, also include a limited element of loss of authentic material due to the damage sustained in the earthquake and in the work required to incorporate strengthening.
EXAMPLE:

SCENARIO – A ..... 100% New Cathedral

		Impact on Identified Heritage Significance	COMMENTARY
S1. Historic & Social Significance	a) Associations with the founding of the city	X	Interpretation of history of Cathedral and founding families possible within Cathedral or Visitor's Centre.
	b) Symbol of the foundation of the city	X	Ditto
	c) Heritage tourism site	X	Ditto
	d) Chronicle of city's history	X	Ditto
	e) First Anglican and oldest surviving cathedral	X	Ditto
S2. Cultural and Spiritual Significance	a) Centre of Anglican Diocese in Canterbury	✓	
	b) Significant place of worship	✓	
	c) Symbolises the founding ideals of the city fathers	X	
	d) Part of the Cultural precinct of Christchurch, including the Museum, Arts Centre and the Provincial Chambers	X	
S3. Architectural & Aesthetic	a) Major work by noted English architect, Sir Giles Gilbert Scott	X	
	b) Association with large number of	✓	Association with major current architects

		Impact on Identified Heritage Significance	COMMENTARY
	Canterbury architects, craftsmen etc,		and architectural firms possible depending on selection. Ditto for skilled craftsmen etc.
	c) Largely unmodified and with a high degree of authenticity	X	
	d) Association with Benjamin Mountford who designed many of the other major buildings in Christchurch including the Arts Centre and the Museum	X	
S4. Technological & Craftsmanship	a) High quality of construction and decoration, particularly stained glass, carved stone, ceramic tiles and timber.	✓	Tradition of high quality building can be retained depending on selection of materials and architectural features, new stained glass windows for example.
S5. Contextual	a) Major landmark in the city	✓	Still possible depending on new design.
	b) Focal point of the Square	✓	Ditto.
S6. Post earthquake	a) symbol of earthquake	X	
	b) broken spire & tower international icon of earthquake	X	
	c) rarity of heritage buildings post earthquake	X	

SCENARIO – B ..... 100% new Cathedral incorporating intangible heritage values

		Impact on Identified Heritage Significance	COMMENTARY
S1. Historic & Social Significance	a) Associations with the founding of the city	✓	Detailed design of Cathedral would incorporate references to the founding families in its architecture, eg dedicated windows, specifically designed and dedicated pillars etc.
	b) Symbol of the foundation of the city	X	Interpretation of history of Cathedral and founding families possible within Cathedral or Visitor's Centre.
	c) Heritage tourism site	X	Ditto
	d) Chronicle of city's history	✓	Detailed design of Cathedral would incorporate references to the founding families in its architecture, eg dedicated windows, specifically designed and dedicated pillars etc.
	e) First Anglican and oldest surviving cathedral	X	Interpretation required as above.
S2. Cultural and Spiritual Significance	a) Centre of Anglican Diocese in Canterbury	✓	
	b) Significant place of worship	✓	
	c) Symbolises the founding ideals of the city fathers	X	Detailed design of Cathedral would incorporate references to the founding families in its architecture, eg dedicated windows, specifically designed and dedicated pillars etc.
	d) Part of the Cultural precinct of	X	

		Impact on Identified Heritage Significance	COMMENTARY
	Christchurch, including the Museum, Arts Centre and the Provincial Chambers		
S3. Architectural & Aesthetic	a) Major work by noted English architect, Sir Giles Gilbert Scott	X	
	b) Association with large number of Canterbury architects, craftsmen etc,	✓	Association with major current architects and architectural firms possible depending on selection. Ditto for skilled craftsmen etc.
	c) Largely unmodified and with a high degree of authenticity	X	
	d) Association with Benjamin Mountford who designed many of the other major buildings in Christchurch including the Arts Centre and the Museum	X	
S4. Technological & Craftsmanship	a) High quality of construction and decoration, particularly stained glass, carved stone, ceramic tiles and timber.	✓	Tradition of high quality building can be retained depending on selection of materials and architectural features, new stained glass windows for example.
S5. Contextual	a) Major landmark in the city	✓	Still possible depending on new design.
	b) Focal point of the Square	✓	Ditto.
S6. Post earthquake	a) symbol of earthquake	X	
	b) broken spire & tower international icon of earthquake	X	

		Impact on Identified Heritage Significance	COMMENTARY
	c) rarity of heritage buildings post earthquake	X	

SCENARIO – C ..... New Cathedral incorporating intangible values and selected heritage fabric

		Impact on Identified Heritage Significance	COMMENTARY
S1. Historic & Social Significance	a) Associations with the founding of the city	✓	Detailed design of Cathedral would incorporate references to the founding families in its architecture, eg dedicated windows, specifically designed and dedicated pillars etc. Selected heritage fabric or elements incorporated into new cathedral.
	b) Symbol of the foundation of the city	X	Interpretation of history of Cathedral and founding families possible within Cathedral or Visitor's Centre.
	c) Heritage tourism site	X	Ditto
	d) Chronicle of city's history	✓	Detailed design of Cathedral would incorporate references to the founding families in its architecture, eg dedicated windows, specifically designed and dedicated pillars etc. Selected heritage fabric or elements incorporated into new cathedral.
	e) First Anglican and oldest surviving cathedral	X	Interpretation required as above.
S2. Cultural and Spiritual Significance	a) Centre of Anglican Diocese in Canterbury	✓	
	b) Significant place of worship	✓	
	c) Symbolises the founding ideals of the city fathers	X	Detailed design of Cathedral would incorporate references to the founding

		Impact on Identified Heritage Significance	COMMENTARY
			families in its architecture, eg dedicated windows, specifically designed and dedicated pillars etc.
	d) Part of the Cultural precinct of Christchurch, including the Museum, Arts Centre and the Provincial Chambers	X	
S3. Architectural & Aesthetic	a) Major work by noted English architect, Sir Giles Gilbert Scott	X	
	b) Association with large number of Canterbury architects, craftsmen etc,	✓	Association with major current architects and architectural firms possible depending on selection. Ditto for skilled craftsmen etc.
	c) Largely unmodified and with a high degree of authenticity	X	
	d) Association with Benjamin Mountford who designed many of the other major buildings in Christchurch including the Arts Centre and the Museum	X	
S4. Technological & Craftsmanship	a) High quality of construction and decoration, particularly stained glass, carved stone, ceramic tiles and timber.	✓	Tradition of high quality building can be retained depending on selection of materials and architectural features, new stained glass windows for example.
S5. Contextual	a) Major landmark in the city	✓	Still possible depending on new design.
	b) Focal point of the Square	✓	Ditto.

		Impact on Identified Heritage Significance	COMMENTARY
S6. Post earthquake	a) symbol of earthquake	X	
	b) broken spire & tower international icon of earthquake	X	
	c) rarity of heritage buildings post earthquake	X	

SCENARIO - D ..... Part new Cathedral, part reconstructed replica

		Impact on Identified Heritage Significance	COMMENTARY
S1. Historic & Social Significance	a) Associations with the founding of the city	✓	Some loss would be experienced depending on the elements retained or removed, but some associations with founding families etc would be retained.
	b) Symbol of the foundation of the city	X	Interpretation of history of Cathedral and founding families possible within Cathedral or Visitor's Centre.
	c) Heritage tourism site	X	Ditto
	d) Chronicle of city's history	✓	The extent of loss or retention of this value would depend on the selection of elements retained or removed.
	e) First Anglican and oldest surviving cathedral	X	Interpretation required as above.
S2. Cultural and Spiritual Significance	a) Centre of Anglican Diocese in Canterbury	✓	
	b) Significant place of worship	✓	
	c) Symbolises the founding ideals of the city fathers	X	The extent of loss or retention of this value would depend on the selection of elements retained or removed.
	d) Part of the Cultural precinct of Christchurch, including the Museum, Arts Centre and the Provincial Chambers	X	The extent of loss or retention of this value would depend on the selection of elements retained or removed.
S3. Architectural &	a) Major work by noted English architect,	X	

		Impact on Identified Heritage Significance	COMMENTARY
Aesthetic	Sir Giles Gilbert Scott		
	b) Association with large number of Canterbury architects, craftsmen etc,	✓	Association with major current architects and architectural firms possible depending on selection. Ditto for skilled craftsmen etc.
	c) Largely unmodified and with a high degree of authenticity	X	
	d) Association with Benjamin Mountford who designed many of the other major buildings in Christchurch including the Arts Centre and the Museum	X	
S4. Technological & Craftsmanship	a) High quality of construction and decoration, particularly stained glass, carved stone, ceramic tiles and timber.	✓	Tradition of high quality building can be retained depending on selection of new materials and architectural features, new stained glass windows for example, and retention of original features.
S5. Contextual	a) Major landmark in the city	✓	Still possible depending on new design and elements retained.
	b) Focal point of the Square	✓	Ditto.
S6. Post earthquake	a) symbol of earthquake	✓	Design of new elements and retention of old would allow expression of devastation caused by the February earthquake but would also express the city's desire to rebuild and move on.
	b) broken spire & tower international icon of earthquake	✓	Design of new spire and part of tower in modern idiom would allow expression of devastation caused by the February

		Impact on Identified Heritage Significance	COMMENTARY
			earthquake but would also express the city's desire to rebuild and move on.
	c) rarity of heritage buildings post earthquake	X	

SCENARIO - E ..... 100% reconstructed replica.

		Impact on Identified Heritage Significance	COMMENTARY
S1. Historic & Social Significance	a) Associations with the founding of the city	✓	Some loss would be experienced depending on the practicalities of deconstruction and long term storage, but most associations with founding families etc would be retained.
	b) Symbol of the foundation of the city	✓	
	c) Heritage tourism site	✓	
	d) Chronicle of city's history	✓	Some loss would be experienced depending on the practicalities of deconstruction and long term storage, but most associations with founding families etc would be retained.
	e) First Anglican and oldest surviving cathedral	✓	
S2. Cultural and Spiritual Significance	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	✓	

		Impact on Identified Heritage Significance	COMMENTARY
S3. Architectural & Aesthetic	a) Major work by noted English architect, Sir Giles Gilbert Scott	✓	
	b) Association with large number of Canterbury architects, craftsmen etc,	✓	Association with major current architects and architectural firms possible depending on selection. Ditto for skilled craftsmen etc.
	c) Largely unmodified and with a high degree of authenticity	X	Architectural integrity mostly retained, ie original design etc, but complete deconstruction and storage of materials for a period of time reduces the tangible heritage values. There will be unavoidable loss too due to the requirements of strengthening scheme. It does not remove these values, however.
	d) Association with 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.	✓	New materials and features to replace those lost must be of similar quality.
S5. Contextual	c) Major landmark in the city	✓	
	d) Focal point of the Square	✓	
S6. Post earthquake	a) symbol of earthquake	✓	Reconstruction of Cathedral would allow expression of devastation caused by the

		Impact on Identified Heritage Significance	COMMENTARY
			February earthquake but would also express the city's desire to rebuild and move on.
	b) broken spire & tower international icon of earthquake	✓	Reconstruction of these elements would express the city's desire to rebuild and move on.
	c) rarity of heritage buildings post earthquake	✓	

SCENARIO - F ..... Part reconstructed replica, part repaired and strengthened original.

		Impact on Identified Heritage Significance	COMMENTARY
S1. Historic & Social Significance	a) Associations with the founding of the city	✓	Some loss would be experienced depending on the practicalities of deconstruction and long term storage, but most associations with founding families etc would be retained.
	b) Symbol of the foundation of the city	✓	
	c) Heritage tourism site	✓	
	d) Chronicle of city's history	✓	Some loss would be experienced depending on the practicalities of deconstruction and long term storage, but most would be retained.
	e) First Anglican and oldest surviving cathedral	✓	
S2. Cultural and Spiritual Significance	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	✓	

		Impact on Identified Heritage Significance	COMMENTARY
S3. Architectural & Aesthetic	a) Major work by noted English architect, Sir Giles Gilbert Scott	✓	
	b) Association with large number of Canterbury architects, craftsmen etc.	✓	Association with major current architects and architectural firms possible depending on selection. Ditto for skilled craftsmen etc.
	c) Largely unmodified and with a high degree of authenticity	✓	Architectural integrity mostly retained, ie original design etc, but there will be some loss of authenticity due to the unavoidable loss of some materials or elements and requirements of strengthening scheme.
	d) Association with 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.	✓	New materials and features to replace those lost must be of similar quality.
S5. Contextual	a) Major landmark in the city	✓	
	b) Focal point of the Square	✓	
S6. Post earthquake	a) symbol of earthquake	✓	Reconstruction of Cathedral would allow expression of devastation caused by the February earthquake but would also express the city's desire to rebuild and move on.
	b) broken spire & tower international icon of	✓	Reconstruction of these elements would

		Impact on Identified Heritage Significance	COMMENTARY
	earthquake		express the city's desire to rebuild and move on.
	c) rarity of heritage buildings post earthquake	✓	

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)Chronicle of city's history e)First Anglican and oldest surviving 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 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		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

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			b)Major landmark in the city c)Focal point of the Square.			b)Major landmark 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.

CHRISTCHURCH CATHEDRAL - REBUILD OPTIONS & MAKE SAFE ANALYSIS

CAN'T DO AS PART HAS BEEN DEMOLISHED / COLLAPSED

	REBUILD OPTIONS		REBUILD OPTIONS		REBUILD OPTIONS		REBUILD OPTIONS		REBUILD OPTIONS		REBUILD OPTIONS
A	100% new cathedral	B A	100% new cathedral incorporating intangible values. A MUST	C B	New cathedral incorporating intangible values and selected heritage fabric	D C	Part new cathedral Part reconstructed replica	E D	100% reconstructed replica	F	Part reconstructed replica Part repair and strengthening
	#1 LEAST HERITAGE VALUES RETAINED		#2		#3		#4		#5		#6 MOST HERITAGE VALUES RETAINED
	↓		↓		↓		↓		↓		↓
	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 Part deconstructed with selected salvage & PART REPAIR	4	Part controlled demolition Part deconstructed with 100% salvage	2	100% deconstruction 100% salvage	5	Part deconstruction with salvage Part repair

MORE OUTPUT THAN NEED WITH REPAIR.

SAME LITTLE DIFFERENCE

ARCH THINKING PARTS OF CATHEDRAL AS OPPOSED

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 3 Part controlled demolition with agreed salvage / Part deconstruction with full salvage.

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.

2.12

From:

Sent: Monday, 31 October 2011 1:15 p.m.

To:

Subject: FW: CPT - ERP - ChristChurch Cathedral - Collaborative Working Group Meeting Minutes 11-10-11 and Agenda for tomorrow's meeting

Attachments: ChristChurch Cathedral Project - Collaborative Working Group Meeting Minutes - 11-10-11.pdf

---

From:
Sent: Monday, October 17, 2011 2:07 PM
To:

Cc:
Subject: RE: CPT - ERP - ChristChurch Cathedral - Collaborative Working Group Meeting Minutes 11-10-11 and Agenda for tomorrow's meeting

Hi All,

Someone has rightly pointed out that the numbering in section 2 of the minutes circulated under the below email was incorrect. Please refer and print the attached replacement and delete the previous version.

Regards

Senior Project Manager
M
DDI

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

From:
Sent: Monday, 17 October 2011 12:52 p.m.
To:

Cc:
Subject: CPT - ERP - ChristChurch Cathedral - Collaborative Working Group Meeting Minutes 11-10-11 and Agenda for tomorrow's meeting

Hi All,

Please find attached the minutes of the Cathedral Collaborative Working Group Meeting held on 11 October.

Also find attached the agenda for tomorrow's 1pm meeting, along with the draft papers have prepared following last week's meeting, for your information and consideration.

The next meeting of this forum will be held at 1pm tomorrow at

Regards

Senior Project Manager
M
DD

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

Please consider the environment before printing this email.

2.12

From:
Sent: Monday, 31 October 2011 1:15 p.m.
To:
Subject: FW: CPT - ERP - ChristChurch Cathedral - Collaborative Working Group Meeting Minutes 11-10-11 and Agenda for tomorrow's meeting
Attachments: ChristChurch Cathedral Project - Collaborative Working Group Meeting Minutes - 11-10-11.pdf.zip; ChristChurch Cathedral Project - Collaborative Working Group Meeting Agenda - 18-10-11.pdf.zip; Make Safe 1 Options v2 DRAFT.pdf.zip; REBUILD MAKE SAFE ANALYSIS v2 DRAFT.pdf.zip; TABLE OF HERITAGE VALUES v2 DRAFT.pdf.zip; TABLE OF HIA v3 DRAFT.pdf.zip; 106324CA0329.012.pdf.zip

From:
Sent: Monday, October 17, 2011 12:32 PM
To:

Cc:
Subject: CPT - ERP - ChristChurch Cathedral - Collaborative Working Group Meeting Minutes 11-10-11 and Agenda for tomorrow's meeting

Hi All,

Please find attached the minutes of the Cathedral Collaborative Working Group Meeting held on 11 October.

Also find attached the agenda for tomorrow's 1pm meeting, along with the draft papers have prepared following last week's meeting, for your information and consideration.

The next meeting of this forum will be held at 1pm tomorrow at

Regards

Senior Project Manager
M
DDI

Description:

RCP

ChristChurch Cathedral
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ANGLICAN DIOCESE OF CHRISTCHURCH EARTHQUAKE RECOVERY PROJECT			
Minutes of:	ChristChurch Cathedral Collaborative Working Group	Date:	11 October 2011
Meeting held at:		Time:	1:00pm
Attendees		File Ref:	

Name	Company	Name	Company
	Anglican Diocese COO		Holmes
	RCP		CCC
	WAM		CCC Heritage Eng
	Jackie Gillies		CCC Heritage Cnslt
	Jackie Gillies		HPT
Apologies:			
	CCC		HPT Heritage Eng
	CPT		CCC
	Davis Langdon		

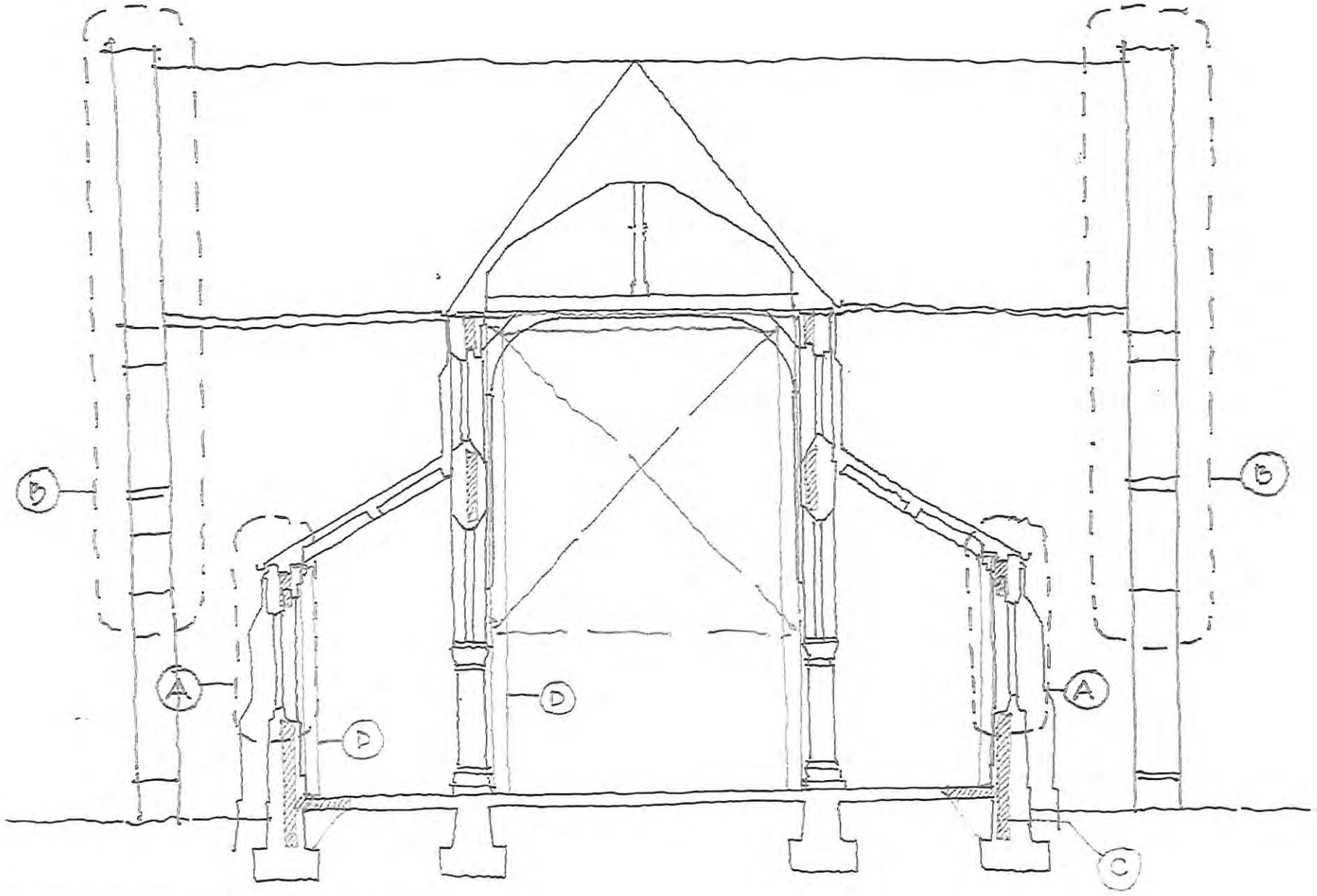
Post Meeting Note = PMN

	Item	Action	Date
1.0	**PREVIOUS MEETING MINUTES**		
1.1.	noted that there had been no requests to change any of the previous minutes. All present accepted the minutes of the previous meeting as an accurate record.	Note	
2.0	**STRUCTURAL BRIEFING**		
4.1	noted that a meeting with CCC and Holmes had been held yesterday to divide up the Structural assessment work. advised that CCC are in the process of engaging Miyamoto Cardno engineers to prepare a high-level alternative scheme towards Option 7. reported that CCC are still reviewing whether there is any value to what Miyamoto can bring to the group given the limited timeframe. It may come back to a peer review role, similar to at HPT rather than an alternative scheme. to advise once CCC have clarified.	Note	
4.2	noted that CERA engineers should be briefed. to do this in the next few days. ***PMN:***		
4.3	suggested that instead of holding a CWG another meeting of the Cathedral Heritage Interested Parties forum could be held to update all involved on the progress and options analysis. To be reviewed following next meeting.		
4.4	noted that there are a number of irreplaceable items inside the Cathedral that will require some controlled demolition/deconstruction or repair works to retrieve in a safe manner. to ask the Cathedral Chapter to prioritise the list of these so that they can be taken into account.		

	Item	Action	Date
4.5	noted a 3D scan of the building will take place next week.	Note	
3.0	**HERITAGE**		
3.1	noted that there is no pure Heritage solution in the context of the current situation.	Note	
3.2	noted that the caucusing session was held with the heritage consultants and architect this morning and went well, with a large amount of progress being made. A similar follow on session will be held next Tuesday morning. . to arrange in absence.	Note MR	
3.3	drew a sketch diagram of a section through the Cathedral (see attached) and discussed the repair and propping options for each.	Note	
3.4	confirmed that the consultant's agree that the building can't be preserved in a safe manner entirely as it currently is. to provide a marked up set of drawings which establishes the structural position of making safe each of the Cathedral element and circulate to this group so that these can be considered.		
3.5	noted that they are currently preparing a draft heritage impact assessment, which will consider each of the make-safe options and there heritage impact. to circulate a draft to this group for consideration on Friday.		14.10.11
4.0	**OPTIONS TO REVIEW**		
4.1	noted that the options summary could be reduced for clarity purposes. To be reviewed further following review of information.		
4.2	noted that there is an order of decisions that lead to each of various outcomes. to document a decision tree – which reflects the options/paths available.		
5.0	**PROGRAMME**		
5.1	needs final options for cost estimating by Friday 21st October in order to produce cost estimates for reporting to the Cathedral Project team meeting on 27 October.	Note	
5.2	. noted the following milestones based on the above: ▪ Tues 18 Oct - Drafts of all reports to be tabled at the meeting ▪ Frid 21 Oct - Finalised documents circulated to all – . to cost ▪ Wed 26 Oct – . to issue cost estimates on each option ▪ Thur 27 Oct – Options presented to Cathedral DCG for consideration, review and approval of preferred.	ALL	
6.0	**FINANCIALS**		
6.1	noted that the insurance indemnity valuation work for the Cathedral is still progressing, as is a structural peer review by the Insurers structural engineer.	Note	
7.0	**ANY OTHER BUSINESS**		
7.1	No other business was raised.	Note	

Note: Unless advised specifically these minutes represent a true and accurate record of the above meeting.

Next Meeting of this forum: Tuesday 18 October 1:00pm at
Minuted by: RCP



CATHEDRAL CROSS SECTION.

RCP

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CHRISTCHURCH ANGLICAN DIOCESE EARTHQUAKE RECOVERY PROJECT			
Agenda for:	**CHRISTCHURCH CATHEDRAL PROJECT Collaborative Working Group**	**Date:**	18 October 2011
To be held at:		**Time:**	1:00pm
Attendees		*File Ref:*	

Name	Company	Name	Company
	CPT		CCC
	RCP		CCC
	Jackie Gillies		CCC
	Jackie Gillies		CCC
	Holmes		HPT
	WAM		CCC Heritage Consult
	CERA		

	Topic
1.0	**PREVIOUS MEETING MINUTES**
2.0	**STRUCTURAL UPDATE**
3.0	**HERITAGE UPDATE**
4.0	**OPTIONS SUMMARY**
5.0	**PROGRAMME**
6.0	**FINANCIALS**
7.0	**ANY OTHER BUSINESS**

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 3 Part controlled demolition with agreed salvage / Part deconstruction with full salvage.

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.

CHRISTCHURCH CATHEDRAL - REBUILD OPTIONS & MAKE SAFE ANALYSIS

	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
	#1 **LEAST HERITAGE VALUES RETAINED**		#2		#3		#4		#5		#6 **MOST HERITAGE VALUES RETAINED**
											
	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 Part deconstructed with selected salvage	4	Part controlled demolition Part deconstructed with 100% salvage	2	100% deconstruction 100% salvage	5	Part deconstruction with salvage Part repair

RCP

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ANGLICAN DIOCESE OF CHRISTCHURCH EARTHQUAKE RECOVERY PROJECT					
Minutes of:	**ChristChurch Cathedral Collaborative Working Group**			**Date:**	11 October 2011
Meeting held at:				**Time:**	1:00pm
Attendees				*File Ref:*	
Name	**Company**	**Name**	**Company**		
	Anglican Diocese COO		Holmes		
	RCP		CCC		
	WAM		CCC Heritage Eng		
	Jackie Gillies		CCC Heritage Cnslt		
	Jackie Gillies		HPT		
Apologies:					
	CCC		HPT Heritage Eng		
	CPT – Property Mngr		CCC		
	Davis Langdon				

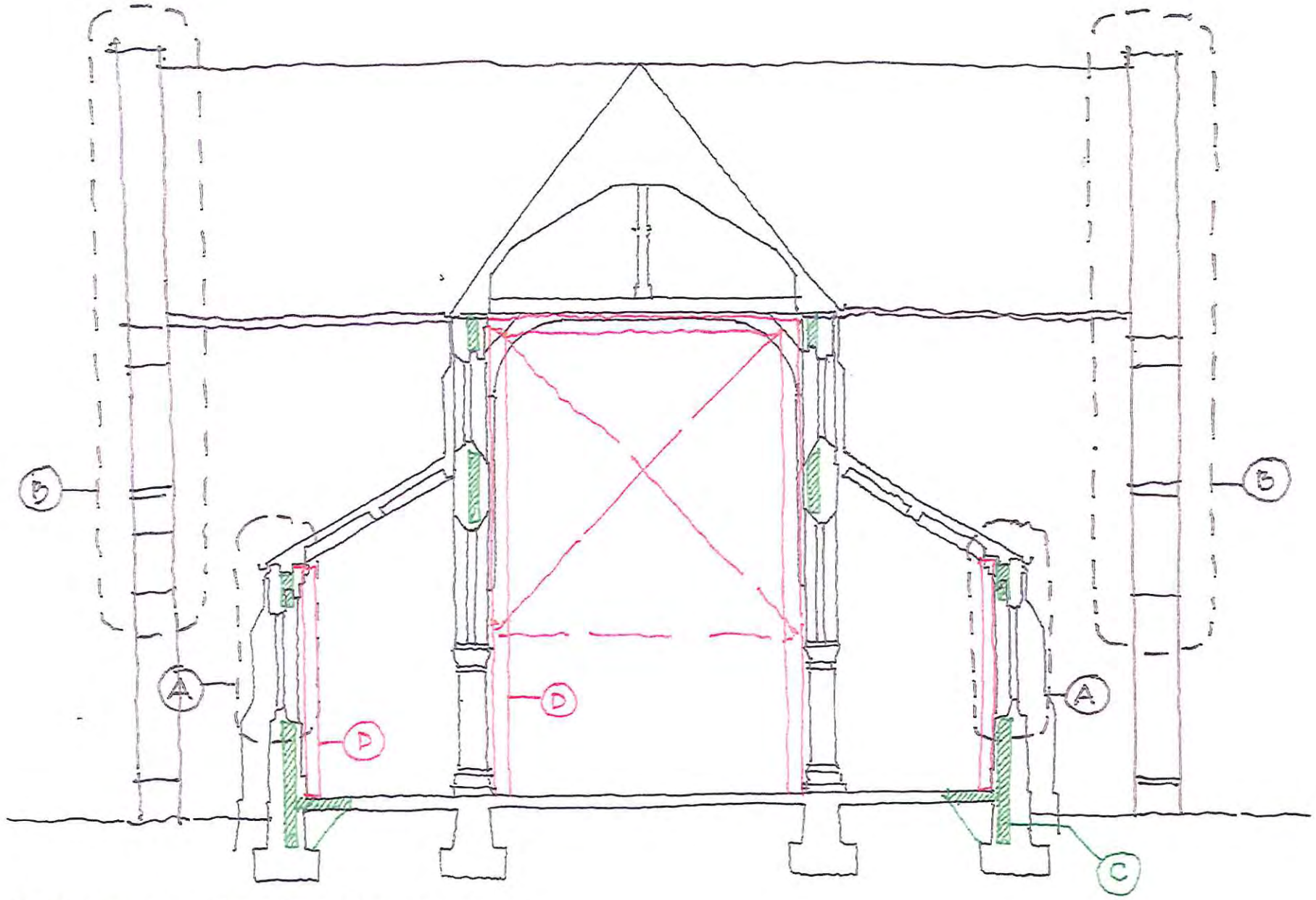
*Post Meeting Note = **PMN***

	Item	Action	Date
1.0	**PREVIOUS MEETING MINUTES**		
1.1.	noted that there had been no requests to change any of the previous minutes. All present accepted the minutes of the previous meeting as an accurate record.	Note	
2.0	**STRUCTURAL BRIEFING**		
4.1	noted that a meeting with CCC and Holmes had been held yesterday to divide up the Structural assessment work. advised that CCC are in the process of engaging Miyamoto Cardno engineers to prepare a high-level alternative scheme towards Option 7. reported that CCC are still reviewing whether there is any value to what Miyamoto can bring to the group given the limited timeframe. It may come back to a peer review role, similar to at HPT rather than an alternative scheme. to advise once CCC have clarified.	Note	
4.2	noted that CERA engineers should be briefed. to do this in the next few days. ***PMN***		
4.3	suggested that instead of holding a CWG another meeting of the Cathedral Heritage Interested Parties forum could be held to update all involved on the progress and options analysis. To be reviewed following next meeting.		
4.4	noted that there are a number of irreplaceable items inside the Cathedral that will require some controlled demolition/deconstruction or repair works to retrieve in a safe manner. to ask the Cathedral Chapter to prioritise the list of these so that they can be taken into account.		

	Item	Action	Date
4.5	. noted a 3D scan of the building will take place next week.	Note	
3.0	**HERITAGE**		
3.1	noted that there is no pure Heritage solution in the context of the current situation.	Note	
3.2	noted that the caucusing session was held with the heritage consultants and architect this morning and went well, with a large amount of progress being made. A similar follow on session will be held next Tuesday morning. to arrange in absence.	Note	
3.3	drew a sketch diagram of a section through the Cathedral (see attached) and discussed the repair and propping options for each.	Note	
3.4	confirmed that the consultant's agree that the building can't be preserved in a safe manner entirely as it currently is. to provide a marked up set of drawings which establishes the structural position of making safe each of the Cathedral element and circulate to this group so that these can be considered.		
3.5	noted that they are currently preparing a draft heritage impact assessment, which will consider each of the make-safe options and there heritage impact. to circulate a draft to this group for consideration on Friday.		14.10.11
4.0	**OPTIONS TO REVIEW**		
4.1	. noted that the options summary could be reduced for clarity purposes. To be reviewed further following review of information.		
4.2	noted that there is an order of decisions that lead to each of various outcomes. to document a decision tree – which reflects the options/paths available.		
5.0	**PROGRAMME**		
5.1	needs final options for cost estimating by Friday 21st October in order to produce cost estimates for reporting to the Cathedral Project team meeting on 27 October.	Note	
5.2	noted the following milestones based on the above: ▪ Tues 18 Oct - Drafts of all reports to be tabled at the meeting ▪ Frid 21 Oct - Finalised documents circulated to all - to cost ▪ Wed 26 Oct – . to issue cost estimates on each option ▪ Thur 27 Oct – Options presented to Cathedral DCG for consideration, review and approval of preferred.	ALL	
6.0	**FINANCIALS**		
6.1	noted that the insurance indemnity valuation work for the Cathedral is still progressing, as is a structural peer review by the Insurers structural engineer.	Note	
7.0	**ANY OTHER BUSINESS**		
7.1	No other business was raised.	Note	

Note: Unless advised specifically these minutes represent a true and accurate record of the above meeting.

Next Meeting of this forum: Tuesday 18 October 1:00pm at
Minuted by: RCP



CATHEDRAL CROSS SECTION.

2.12

From:
Sent: Monday, 31 October 2011 1:18 p m.
To:
Subject: FW: ChristChurch Cathedral Project - Heritage Interest Meeting Minutes 29-09-11
Attachments: ChristChurch Cathedral Project - Heritage Interest Meeting Minutes - 29-09-11.pdf; ChristChurch Cathedral Collaboration Framework - Draft.doc

198 – CWG

From:
Sent: Monday, October 03, 2011 10:50 PM
To:

Cc:

Subject: ChristChurch Cathedral Project - Heritage Interest Meeting Minutes 29-09-11

Hi All,

Please find attached the minutes of the ChristChurch Cathedral Heritage Interest meeting held at 3pm on Thursday 29 September at

As agreed at the meeting please notify your media team that all enquiries regarding the Cathedral are to be directed to . ntact details in item 4.3), who will draft the appropriate response.

Also attached is the draft Collaboration framework prepared by the CCC Heritage team, for your information. This will be reviewed in detail at the collaborative working group meeting at 1pm tomorrow.

Regards

Senior Project Manager
M
DDI

RCP

Resource Co-ordination PartnershipLtd (trading as RCP)

Please consider the environment before printing this email.

RCP

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admin@christchurchcathedral.co.nz | www.christchurchcathedral.co.nz

CHRISTCHURCH ANGLICAN DIOCESE EARTHQUAKE RECOVERY PROJECT			
Minutes of:	ChristChurch Cathedral Heritage Interest Meeting	**Date:**	29 September 2011
Meeting held at:		**Time:**	3:00pm
Attendees		*File Ref:*	

Name	Company	Name	Company
	Anglican Diocese		CERA – Significant Buildings Engineer
	Cathedral		Min. Culture & Heritage
	CPT – Property Mngr		Historic Places Trust
	RCP		Historic Places Trust
	RCP		CCC Heritage Team
Warwick Isaacs (WI)	CERA Demolitions Mngr		CCC (arrived 3:45pm)

Post Meeting Note = PMN

	Item	Action	Date
1.0	**INTRODUCTIONS**		
1.1.	The Bishop opened in prayer, welcomed all, and each party introduced themselves and their roles.	Note	
2.0	**CONTEXT / BACKGROUND**		
2.1	noted that this meeting was called following an earlier meeting that was held between CERA, CCC, HPT and MCH where it was noted that these parties would like to meet with the Cathedral leaders.	Note	
2.2	confirmed that the above meeting had taken place and that the parties involved wanted to assist the Diocese and Chapter in working through the options and issues related to the Cathedral. noted that apart from it's obvious heritage importance (number 49 on National register), the Cathedral also held very strong cultural and iconic status for many people locally, nationally and internationally.	Note	
2.3	noted that a working meeting had been held with CCC Heritage and HPT along with CPT and RCP on Tuesday 27 September and a collaborative approach to controlled demolition/deconstruction options was discussed. Following the meeting CCC Heritage prepared the **attached** draft working paper, which is to be reviewed and agreed at the first Cathedral collaborative working group meeting.	Note	
3.0	**DE-CONSECRATION AND CONTROLLED DEMOLITION**		
3.1	requested clarification that there hadn't already been a decision made about the extent of demolition of the Cathedral and all reiterated that detailed assessments were still underway and no decision had been made and no Section 38 Notice had been issued.	Note	
3.2	noted that the target date for Controlled Demolition options to be considered by the Cathedral DCG was at the end of October when a preferred option will be instructed. Following this a De-Consecration service would be held so that the necessary works can be undertaken.	Note	

	Item	Action	Date
3.3	In answer to a query outlined that De-consecration was a prayer that allowed what had been scared, consecrated space, to be returned to non-sacred space, to allow demolition works to take place. This has happened for all churches in the diocese where demolition work has taken place.	Note	
3.4	noted that given the importance of the Cathedral to many people the De-consecration service would be a large event, involving parish members, community groups, leadership and media. The project team will work with CERA to come up with the appropriate arrangements.	Note	
3.5	confirmed that an appropriate timeframe with allowance for the de-consecration service had been agreed between CERA and	Note	
3.6	noted the importance of the heritage aspects of the Cathedral and that suggested that a Steering Group be formed representing the organisations around the table (possibly a different representative from CERA) so that items with historical importance can be appropriately protected. noted that the Diocese were already salvaging, storing and protecting many items of heritage from other churches, as agreed and required by HPT and queried why HPT would need to be any more involved than they were on those churches. likened the Cathedral to a child that the Diocese and Chapter would care for wanting the best outcome possible, while keeping the safety of people as the highest priority. high-lighted that the Cathedral was of economic importance to Christchurch and the central city and needed to be considered in context of the other buildings around. noted that first and foremost the Cathedral was a place of worship, that there will be a new Cathedral developed, potentially incorporating elements from the past, but that the importance of this discussion is to "Harvest the Heritage" before it "rots" or gets damaged beyond repair. noted that if there is another significant earthquake event even more items of historical significance will be lost, so safely removing them and storing them off-site for future reuse may be the solution. noted that there was no point in establishing a Steering Group when the Diocese and Cathedral Chapter already have a project structure in place and are the ultimate decision makers. noted that what could be useful is that a weekly working group meeting be established with those preparing reports and assessments of the Cathedral, so that information can be exchanged and efficiencies gained as options were considered for the extent of demolition and the safe preservation of heritage items.	Note Note Note Note Note	
3.7	requested agreement of all the parties represented around the table that a Steering Board was not required and that a weekly collaborative Cathedral working group meeting be established. The attendees of the working group would then report progress to the management of their respective organisations. All parties agreed to this proposal. to arrange a weekly meeting on Tuesdays 1-2:30pm starting 4 October. noted that a site visit of the Cathedral would also be arranged for 10:30am on 4 October for all consultants and engineers inputting into the working group meeting.	Note	
4.0	**MEDIA / COMMUNICATIONS**		
4.1	noted that the Cathedral Project team have appointed as the one channel for all Cathedral related media enquiries.	Note	

	Item	Action	Date
4.2	It appears Close Up have a leaked copy of a CERA structural report on the Cathedral as the Dean and a number of consultants have been contacted for statements. confirmed that this seemed to be the case but that he continued to state the options are still being assessed and no decision has been made.	Note	
4.3	asked whether there could be consensus that any media enquiries to any of the respective organisations represented be channelled through so that the appropriate, coordinated response can be provided. All agreed to this proposal and to advise their respective media teams of this process.	ALL	
4.4	asked for confirmation that CERA, CCC, HPT and MCH were willing as organisations to have their names published in media statements saying that they are working through the options collaboratively with the project team. All present agreed to and welcomed this approach.	ALL	
5.0	**COLLABORATIVE WORKING**		
5.1	noted that MCH are currently developing the Heritage Recovery Plan for Christchurch noted that the Cathedral Project Team will consider the findings of this document in the design process going forward, once it has been finalised.	Note	
5.2	confirmed that the Cathedral Project team are willing to work collaboratively with CERA/HPT/CCC and MCH to review the options for the controlled demolition / deconstruction phase of works, and agree on the items of historic significance that can be safely recovered and potentially reused in the future replacement Cathedral.	Note	
6.0	**ANY OTHER BUSINESS**		
6.1	No other business was raised.	Note	

Note: Unless advised specifically these minutes represent a true and accurate record of the above meeting.

Next Meeting of this forum: Late October (if necessary). The Working Group meet each Tuesday.
Minuted by: RCP

ChristChurch Cathedral – Scope for Make Safe and Protection of Heritage works – as proposed by CCC Heritage Team for discussion

This document only relates to initial investigations and make safe works. It does not consider any issues or options surrounding the longer term future of the site.

Background:

A meeting was held Monday 26 September 2011 involving Christchurch City Council (CCC), Ministry of Culture and Heritage (MCH), New Zealand Historic Places Trust (NZHPT) and Canterbury Earhtquake Recovery Authority (CERA) at which the Cathedral came under discussion and it was agreed that a collaborative approach would be of benefit to all parties who may play a role in any reporting to decision makers. It was decided that this collaborative approach would be suggested to Church Property Trustees (CPT), the owners of the site, by of NZHPT.

This approach was suggested in recognition of the fact that the Cathedral site is the key site within Canterbury following the earthquakes, there is a city identity issue surrounding the site and that CPT and the Anglican Church should not be left to carry the sole responsibility for any outcomes for the site. The site has national and international importance first and foremost as a focal point for the Anglican community, but also for the wider Canterbury and New Zealand community, many of whom identify closely with it.

A meeting was held Tuesday 27 September 2011 between (CPT), (RCP), (CCC) and CCC) to discuss the Cathedral. The meeting proposed a process of information sharing, collaboration of experts, close liaison between all parties and shared media management. The aim being to assist CPT with clarifying options and solutions for the site. Each party will then put these forward to their relevant management groups, before providing reports to CERA.

At this meeting it was agreed that CCC would employ o provide heritage expertise and that CPT would employ in the same role. HPT offered peer review b of the engineering reports to date. CPT and CCC are also looking at employing Quantity Surveyors as and when necessary. CPT currently employ Holmes Consulting as engineers, CCC are employing Marriott Consulting and BuildGreen as consultant engineers for peer review. The idea of additional, international engineering expertise, possibly funded by CCC or MCH was also mentioned.

Aims at this stage are to undertake an analysis of the various options for making the site safe for the city to reopen whilst protecting valuable heritage fabric, and to agree a preferred option if possible. Also to be investigated – avenues for funding, both national and international

Ideally CPT would like everyone working towards an end of October deadline for this stage of the works.

Parties involved:
Anglican Church
CPT – act on behalf of the Anglican Church
CCC – Management and heritage team
CERA

MCH
NZHPT
RCP – project managers for CPT

Project group:

CCC	CPT	HPT	MCH	CERA
co-ordinator, heritage input	owner's representative	– co-ordinator	Not sure if relevant at this level – unless providing particular expertise in heritage, engineering or quantity surveying	Not sure if relevant at this level – unless providing particular expertise in heritage, engineering or quantity surveying
senior planner	– project manager			
– Heritage Conservation Architect	– Heritage Conservation Architect	– Heritage Architect		?
Marriott Consulting, BuildGreen - Engineering expertise	Holmes Consulting – Engineering expertise	– Engineering expertise	? International expertise	?
	Warren & Mahoney Architects			
? - QS	Davis Langdon - QS			
Communications	– media liaison			

Ways of working:

As agreed in the Key Stakeholder meeting held on Thursday 20 September, all media enquires to any of the above organisations are to be referred to:

ChristChurch Cathedrals communications and media advisor)

Any responses should be agreed with all parties through their relevant media advisors

Project group – to meet weekly, 1-2:30pm Tuesday afternoons, in a workshop type environment where options can be worked through and evaluated with all experts working together. The first of these is to be held 4 October 2011. Could involve site visits, sharing of information, reporting back to steering group.

An access plan to be agreed by Holmes Consulting in consultation with CCC and HPT engineers in order to enable experts to access the site as and when necessary, as safely as possible.

Key contacts to be agreed for each party:
CCC -
CPT/RCP –
HPT -

Options to be investigated by the project group for making the site safe and protecting heritage values and fabric:

Even though some of the options below may not be considered to be viable options and may be ruled out very early on, they are included in order to ensure that all potential solutions have been considered by the end of this process.

Option 1 - Demolition
Demolition of entire structure, with little or no salvage, as per current CERA contracts around the CBD, leaving a vacant site.

Option 2 - Full deconstruction
Careful deconstruction of entire structure, directed and managed by heritage professionals. Would include salvage of all materials and utilisation of expertise such as, but not limited to, stone masons, archaeologists, engineers. Would include full recording – including options such as 3D modelling, archaeological recording, photographic records by a professional – and agreed storage of all salvaged materials, leaving a vacant site.

Option 3 - Partial demolition with agreed heritage salvage
Demolition of parts of the structure, with limited salvage of representative samples of key heritage elements. Retaining and protecting some parts of the structure. Extent of demolition and salvage to be investigated and agreed with heritage professionals and engineers as part of this option. It is anticipated that there would be several possibilities within this option to be agreed on by the project group, such as (for the purposes of example only):
- Demolition of entire west end and south wall
- Demolition of entire west end
- Demolition of everything down to first floor level or an agreed horizontal level
- Retention of roof structure and east end of building

All possibilities need to be considered and it is anticipated that these would become clear as part of the investigations being undertaken.

Option 4 - Partial deconstruction with agreed heritage salvage
Careful deconstruction of parts of the structure, directed and managed by heritage professionals. Would include salvage of all materials and utilisation of expertise such as, but not limited to, stone masons, archaeologists, engineers. How much deconstruction to be investigated and agreed with heritage professionals and engineers as part of this option. It is anticipated that there would be several possibilities within this option such as (for the purposes of example only):
- Deconstruction of entire west end and south wall
- Deconstruction of entire west end
- Deconstruction of everything down to first floor level or an agreed horizontal level
- Retention of roof structure and east end of building

All possibilities need to be considered and it is anticipated that these would become clear as part of the investigations being undertaken.

Option 5 – Combination of options 3 and 4
Partial demolition of some areas, careful deconstruction of others and retention of some areas. All possibilities to be considered and it is anticipated that these would become clear as part of the investigations being undertaken

Option 6 - Retention of structure as is with minimal make safe works
Structure to be propped in place and weatherproofed – this may include some limited deconstruction of loose material. Site will remain fenced, but considered safe enough that Cathedral Square could be re-opened.

Option 7 - Immediate repair works undertaken
Work starts immediately on repair of the structure in situ, with strengthening undertaken to bring the remainder of the building as close as possible to full code.

Focussed engineering:
With the understanding that CPT do not want to be funding fully detailed engineering investigation of the entire structure, a request has been made that CCC and HPT engineers state what areas in particular they consider need further, detailed work so that Holmes Consulting can focus on these particular areas.

Christchurch City Council

26 October 2010

THE RIGHT REVERED VICTORIA MATTHEWS
ANGLICAN DIOCESE OF CHRISTCHURCH
P.O. BOX 4438,
CHRISTCHURCH 8140

CC DEAN PETER BECK
ANGLICAN CHURCH PROPERTY TRUSTEES

Dear Rt Rev Victoria

Re: Christchurch Anglican Cathedral

The council together with the Anglican Church Property Trustees, CERA, NZHPT and the Ministry for Culture & Heritage have been involved in a collaborative approach to identifying the actions to be taken to address the risks associated with the current Christchurch Cathedral. As all parties have appreciated, the Cathedral is an icon building within the city, and is crucial to the historic and current identity of the city and its people. The church for many years has received ongoing grant funding from the city, and has over that time regularly reminded Council of the symbolic nature of the building, and the role of the church in the life of the city.

As you will appreciate the building has a CAT 1 NZHPT listing and a Group 1 Christchurch City Council City Plan heritage listing, meaning that it is recognised as a building of international or national significance, the protection of which is considered essential. In addition, the Cathedral has been the recipient of public money via CCC grants both operational and asset related (deferred maintenance and structural) which have totalled more than $2 million.

For these reasons the city is concerned that the demolition of the building should not be actioned prematurely or without considerable regard to the options that exist for it. While the city recognises that the building is owned by the Anglican Church in NZ and that the church and CERA may possibly have final say over its future, the city considers that the public interest in the building means that all options should be explored. We also consider that there will be a high degree of interest in the Cathedral's future and accordingly there are reputational risks if the church or any parties are seen to be acting without taking account of a full range of options.

Civic Offices, 53 Hereford Street, Christchurch, 8011
PO Box 73012, Christchurch, 8154
Phone: 03 941 8281
Email: Michael.theelen@ccc.govt.nz
www.ccc.govt.nz

As part of its contribution the Council has retained the services of Miyamoto Cardno. Miyamoto Cardno are experienced structural engineers who have had significant experience in the treatment repair and demolition of sensitive buildings, on an international scale. They have expressed the view that the structure can be stabilised and deconstructed in a less intrusive manner than currently being proposed, and which would provide a better basis from which to consider the long term future of the building.

I am aware that costs will be a factor weighing upon the Church's mind. However, as has been discussed with the trustees, there are a number of grant avenues which the church may be able to explore as part of any further way forward.

A copy of the Miyamoto Cardno letter is attached for your consideration and we would urge the church to continue the ongoing dialogue, and to work with a range of community partners to build a strong consensus on the future of the Cathedral, and its role in the rebuild of the community.

Yours Faithfully

Michael Theelen
General Manager
Strategy and Planning

Encl : A copy of the Miyamoto Cardno letter

Our Ref MI1108045

Contact:

25 October, 2011

Strategy and Planning Group
Christchurch City Council
53 Hereford Street
Christchurch, New Zealand 8011

Subject: Christchurch Cathedral "Make Safe" Prior to Reconstruction

Dear

This letter is a follow-up to our collaborative effort to create a suitable "Make Safe" plan for the Christchurch Cathedral. In preparing this methodology we have reviewed several documents and performed a site inspection of the current condition of the building.

We have reviewed Holmes Consulting reports dated 15 October, 20 October with regard to Required Scope of Reconstruction and Propping and Concept Interim Make Safe Works. We also have had several discussions with of Holmes Consulting regarding these documents.

The enclosed Miyamoto + Cardno's "Make Safe" approach for the Christchurch Cathedral will lead to a safe structure (to minimum 67% of code) with minimal time, cost and exposure to unsafe reconstruction conditions and allowing full 100% code strengthening works to follow. The first ("make safe") phase will incorporate the use of post-installed reinforcing cores and temporary steel braced frames at the weak and damaged exterior walls, respectively.

Rather than deconstructing and rebuilding of all the weakened and damaged walls of the Cathedral, the Miyamoto + Cardno's rehabilitation approach (see attached) will utilise a combination of performance based engineering and unique retrofitting techniques to strengthen the damaged Cathedral to a minimum level of 67% of that required for an equivalent new building. This approach will eliminate the time and cost associated with large scale deconstruction and reconstruction while also preserving the Cathedral's historical significance.

Unlike conventional wall strengthening concepts, reinforced cores can be installed inside the walls identified as weak from the roof down without having to enter the Cathedral therefore minimising the contractor's exposure to the unsafe interior conditions. This technique also does not alter the appearance of the structure thus preserving its historical significance. Reinforced cored wall retrofits are considered a "tried and true methodology"; which is currently already being employed in other Holmes Consulting projects throughout New Zealand.

Temporary steel braced frames will be utilised at walls which have been identified as needing reconstruction. These steel frames will act as temporary shoring and provide seismic resistance while the identified walls are being reconstructed. These steel frames will be installed on the exterior of the Cathedral so as to minimise the contractor's exposure to the unsafe interior conditions.

We have previously provided the attached proposal for Miyamoto + Cardno to move forward in a collaborative effort with Holmes Consulting to structurally strengthen the Christchurch Cathedral. Based on our experience, Miyamoto + Cardno believes that this rehabilitation scheme is the fastest and most cost effective solution.

Miyamoto + Cardno believe that the Christchurch Cathedral can be saved, using modern techniques, while providing resiliency for future earthquakes. While the "make safe" plan is being implemented, the team can then determine requirements for the second stage, i.e. reconstruction and rehabilitation. Several options should be explored during this stage in order to determine what is required to restore the structure. We anticipate that this process could take nine months to a year for design and two to three years for implementation.

The Christchurch Cathedral provides an important link to the history, culture and character of the city of Christchurch. Today's construction and structural technologies can provide a path to reconstruction and rehabilitation of this great structure, and lead the way to bringing Christchurch back to the city it was before the earthquake.

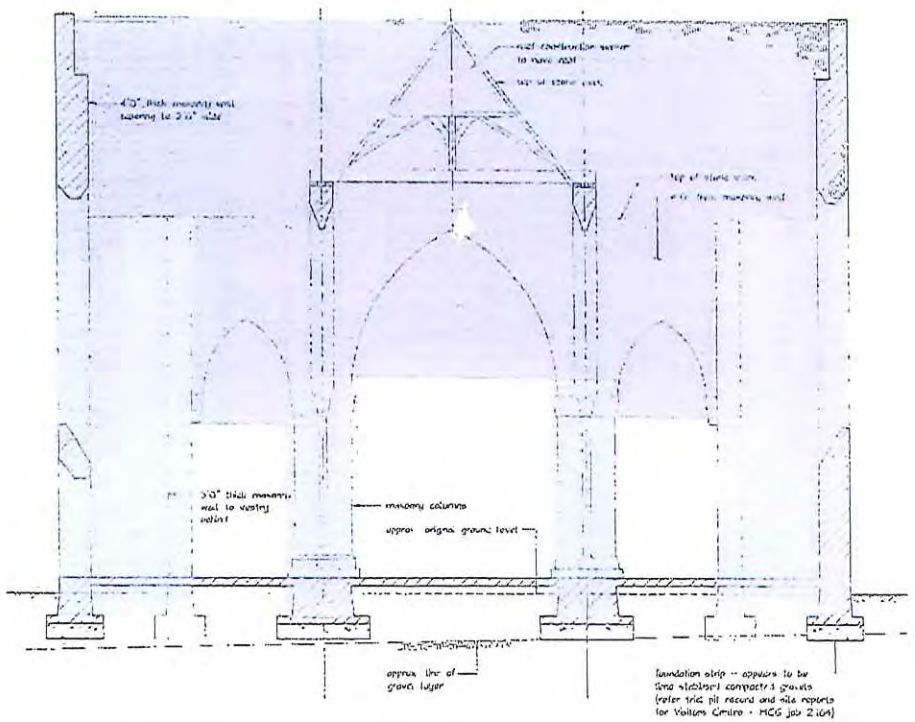
We trust that this report is sufficient for your needs, however should you have any queries or require further input from us, please do not hesitate to contact the undersigned.

Yours faithfully

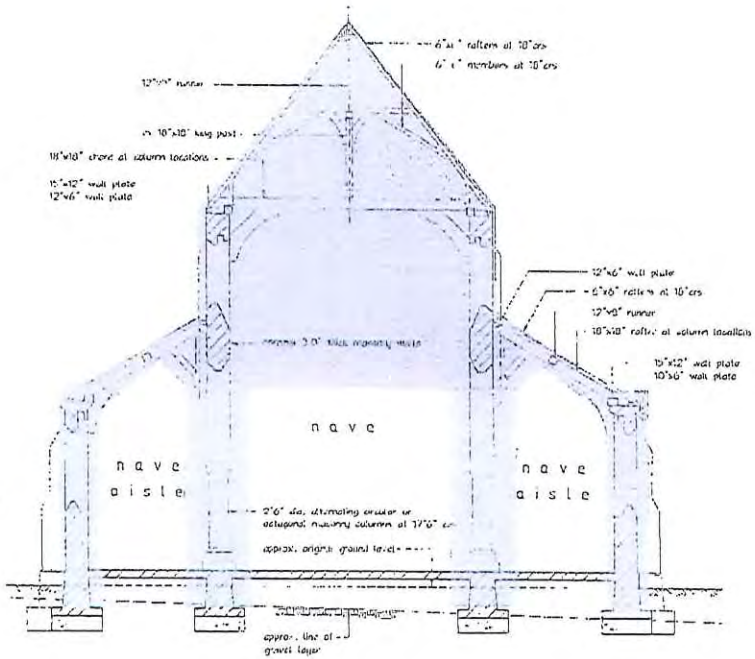
Chartered Professional Engineer for
Miyamoto + Cardno

Structural Engineer for
Miyamoto + Cardno

Attachment: "Make Safe" Schematic Plan and Details
17 October - Proposal Letter
Miyamoto + Cardno - Capability Statement



longitudinal section transepts (1 SH1)



typical cross section (2 SH1)

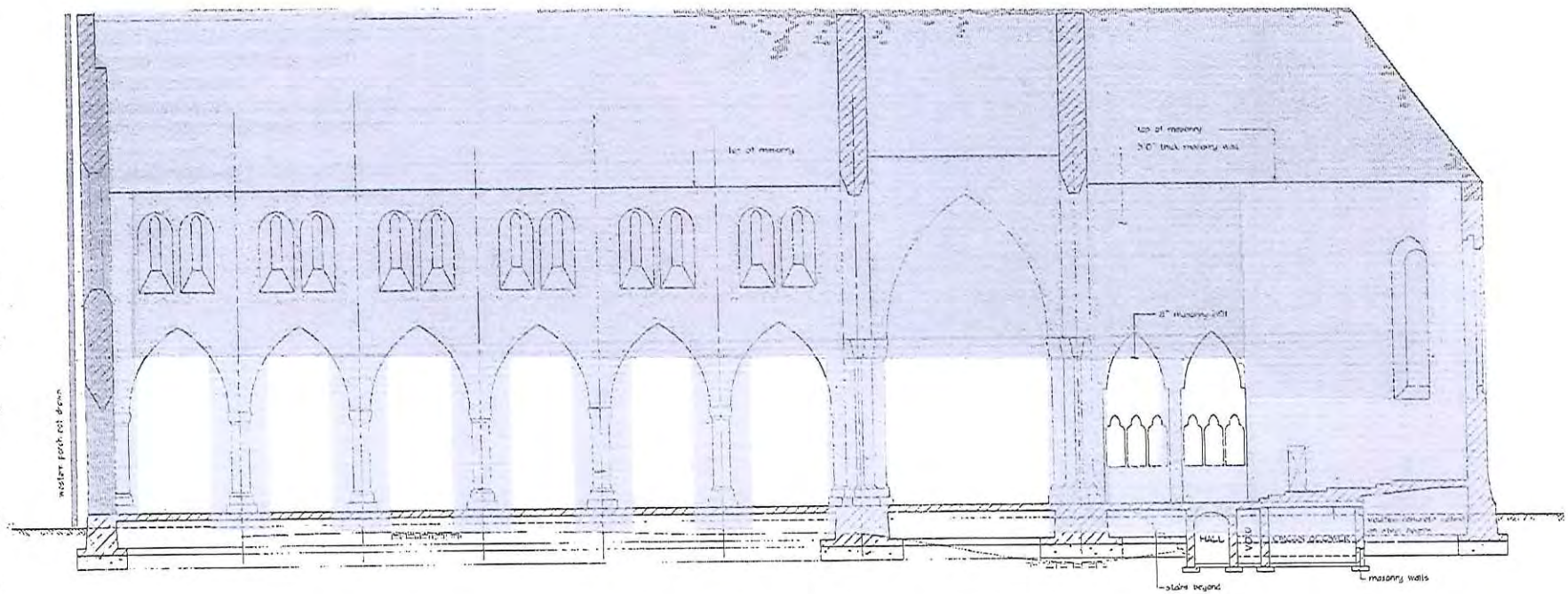
LEGEND:

- Elements need to be deconstructed and reconstructed
- Elements can be repaired insitu but require propping
- Elements can be repaired insitu
- Centercore Installation Locations

Project Name: Christchurch Cathedral

Date: 19 October 2011

Sketch Number: SK2



longitudinal section nave (2/SK1)

LEGEND:

- Elements need to be deconstructed and reconstructed
- Elements can be repaired insitu but require propping
- Elements can be repaired insitu
- Centercore Installation Locations
- Temporary Exterior Steel Frame

Project Name: *Christchurch Cathedral*

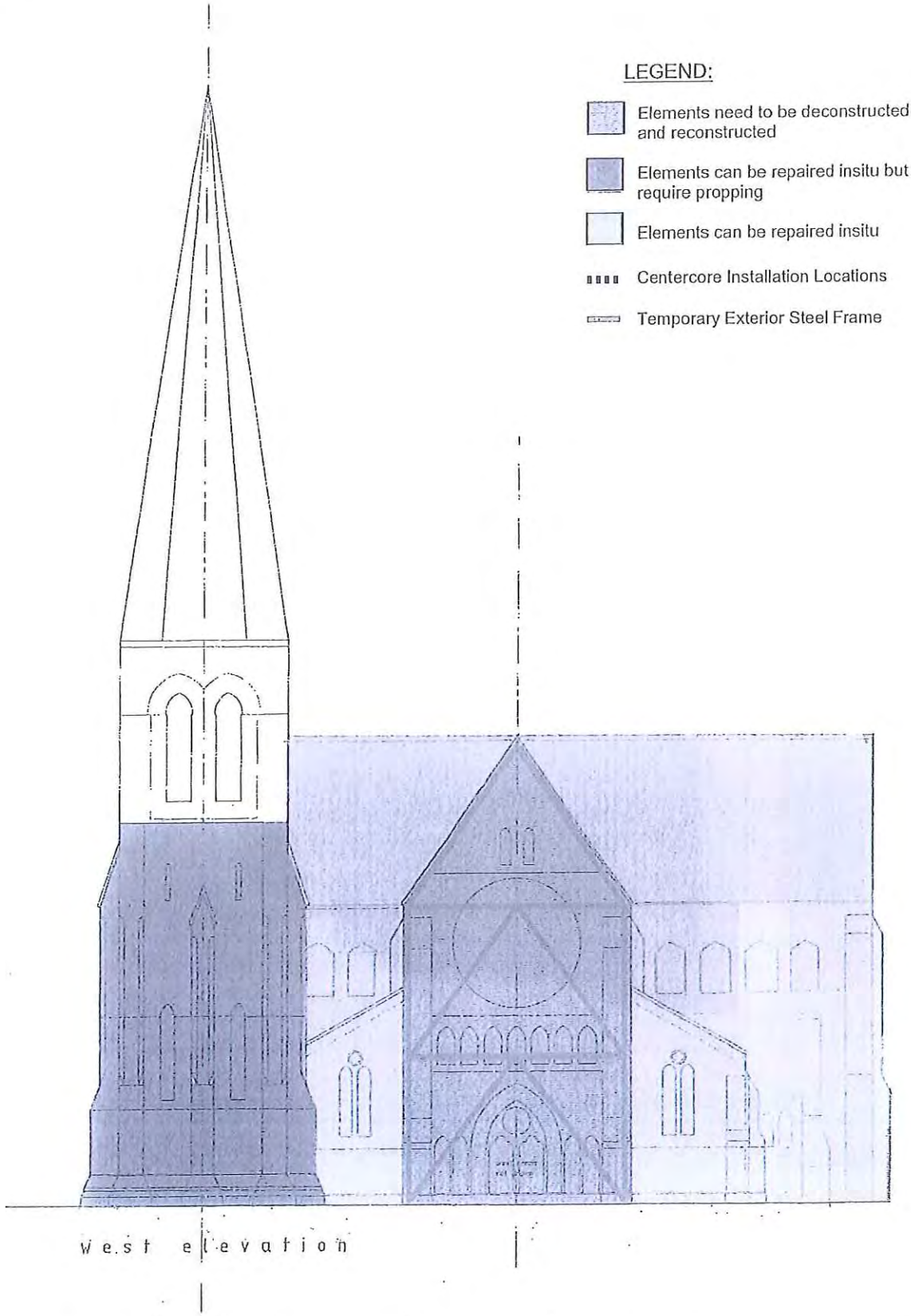
Date: 19 October 2011

Sketch Number: SK1

Project Name: *Christchurch Cathedral*

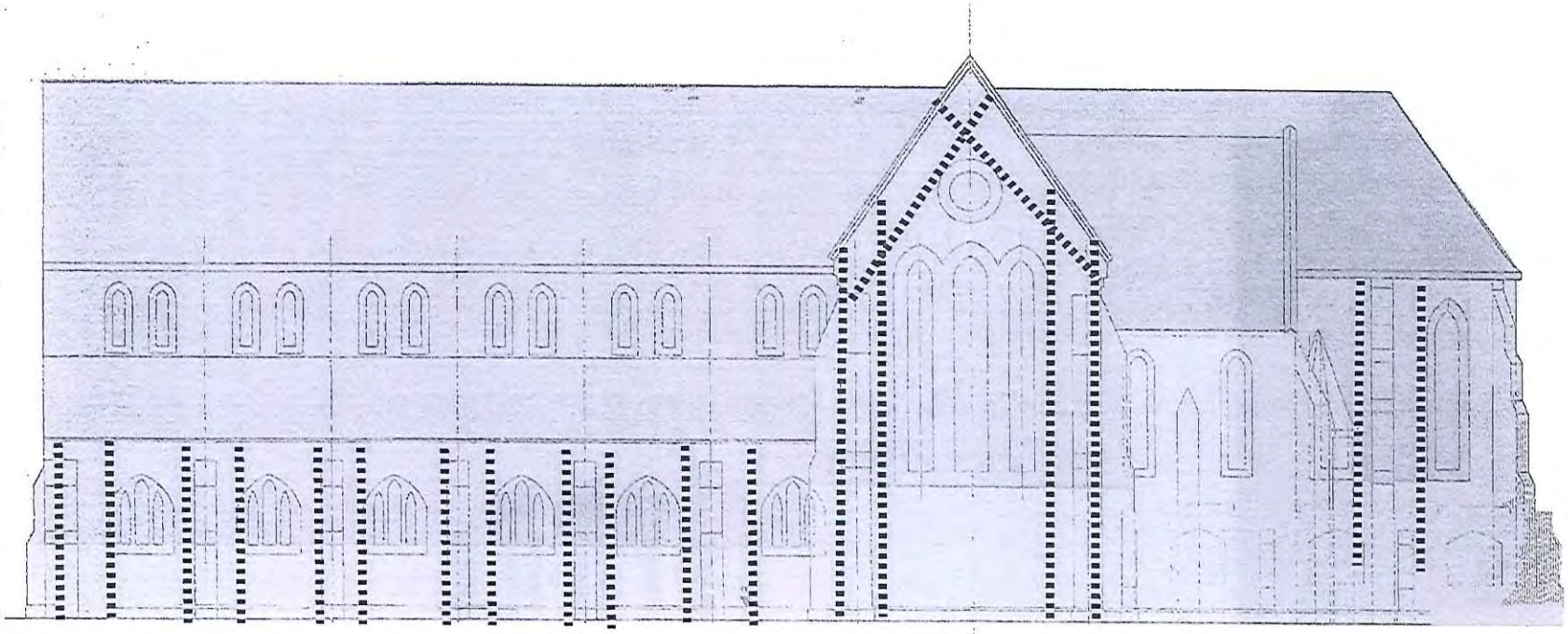
Date: 19 October 2011

Sketch Number: SK3



LEGEND:

- Elements need to be deconstructed and reconstructed
- Elements can be repaired insitu but require propping
- Elements can be repaired insitu
- Centercore Installation Locations



south elevation

Project Name: *Christchurch Cathedral*

Date: 19 October 2011

Sketch Number: SK4

LEGEND:

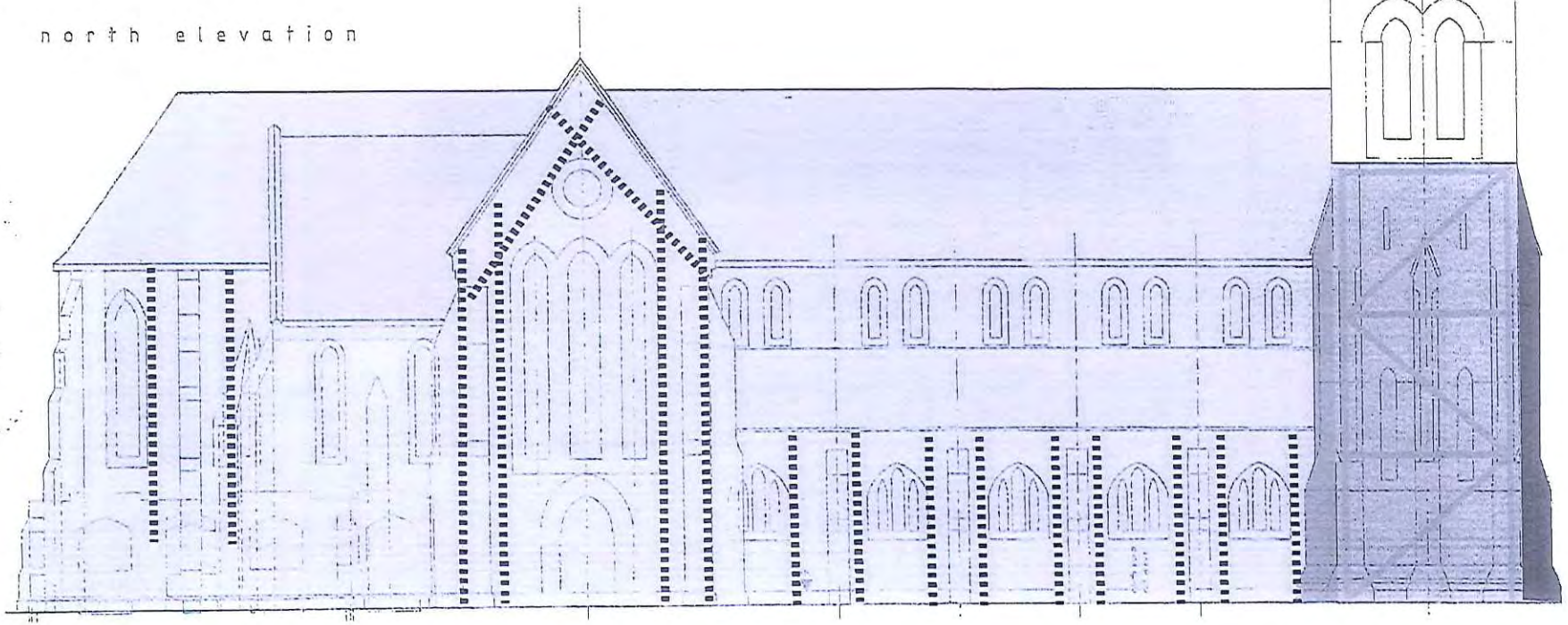
- Elements need to be deconstructed and reconstructed
- Elements can be repaired insitu but require propping
- Elements can be repaired insitu
- Centercore Installation Locations
- Temporary Exterior Steel Brace

Project Name: *Christchurch Cathedral*

Date: 19 October 2011

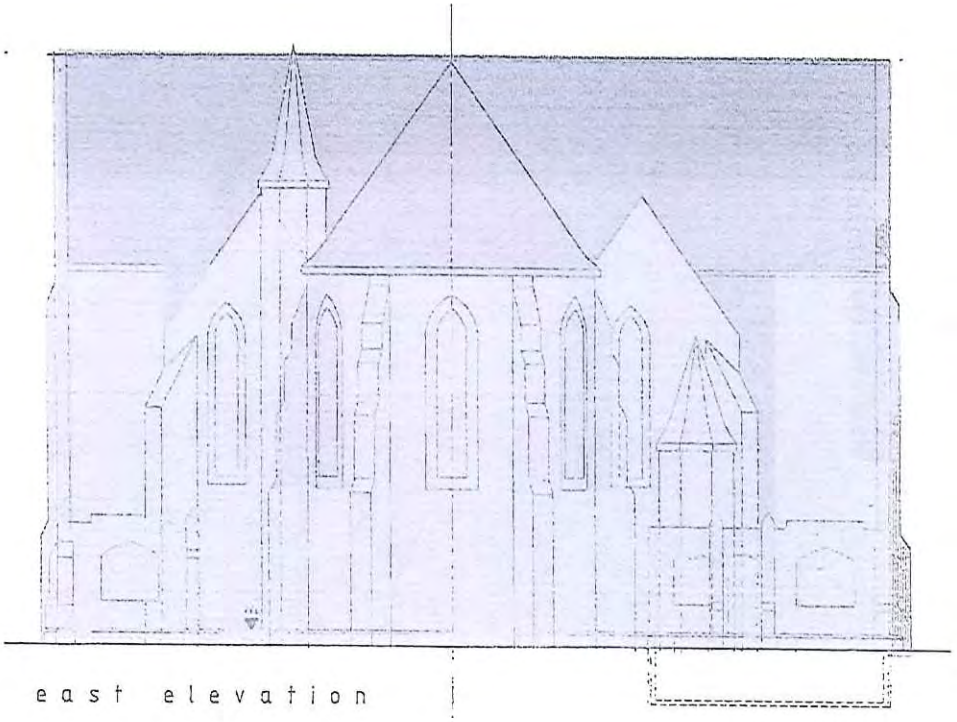
Sketch Number: SK5

north elevation



LEGEND:

- Elements need to be deconstructed and reconstructed
- Elements can be repaired insitu but require propping
- Elements can be repaired insitu
- Centercore Installation Locations



Project Name: *Christchurch Cathedral*

Date: 19 October 2011

Sketch Number: SK6

Our Ref MI1108045

Contact:

17 October, 2011

Strategy and Planning Group
Christchurch City Council
53 Hereford Street
Christchurch, New Zealand 8011

Subject: Christchurch Cathedral Reconstruction

Dear

This letter proposal was prepared following our meetings regarding the subject structure. In our experience for post-earthquake repairs, it is important to recognise structures such as this and present the appropriate teams to repair and rehabilitate them. We have been, and continue to be, involved on several project teams throughout the world on projects such as this and welcome the opportunity to lend our expertise to this team.

Miyamoto + Cardno are pleased to provide a proposal for the first phase of saving the historic Christchurch Cathedral. This phase will "make safe" the existing earthquake-damaged structure in order to allow access for the next phases. Miyamoto + Cardno will collaborate with the current team in order to develop a two stage scheme to save the Christchurch Cathedral.

The first stage, "make safe" will allow final reconstruction and rehabilitation of the earthquake-damaged structure. Based upon our review of existing documentation and our experience, we would estimate this design scheme could be completed in 60 to 90 days and consist of the following schematic work:

1. Deconstruct Tower to a manageable height and install a braced frame outside of the exiting wall line on the open front in order to stabilise the structure. This will allow reconstruction of the stone masonry wall.

2. Deconstruct the West Wall (Rose Window Wall) of the Cathedral and the entry structure and install a braced frame just outside the location of the West Wall. This will also allow reconstruction of the stone masonry wall on the West end of the Cathedral.

3. Install micro-piles through the existing stone walls at each end of the wall piers between the existing windows and pretension these walls. This will help to lock the stones together in order to provide stability and flexural resistance in the existing stone walls.

As the Christchurch Cathedral is an icon historical treasure we believe every means should be investigated to fully explore all options for its preservation. Icons such as this need to be repaired because once this original thread of historic fabric is gone from the beautiful city of Christchurch, it is gone forever. To enable a building of this great historic significance, to be saved, a collaborative effort must be undertaken in order to gather all expertise and possible alternatives for reconstruction and restoration. It is only by gathering experts from all over the world that a truly comprehensive plan can be developed, that will ultimately stand up to scrutiny for years to come.

We would propose to act on phase one of this process to "make safe" in a collaborative effort with owners, governmental officials, CERA, existing engineering teams, and other interested parties, as noted above for a fee of $48,000. We will extend the resources necessary to facilitate the completion of this work in the anticipated time frame noted above.

Miyamoto + Cardno have over 100 years of earthquake engineering experience for rehabilitation of existing structures. We are currently working with the Government of Haiti on the rehabilitation and reconstruction of the National Palace (43,066 m^2), which sustained severe damage during the earthquake in January, 2010. The president and people of Haiti understand that the National Palace is truly a symbol of Haiti and an historic treasure that must be saved. The reconstruction of the earthquake-damaged National Palace will be a symbol of the strength of people of Haiti, as they recover from the earthquake that took the lives of over 300,000 people. Miyamoto + Cardno have also just finished the rehabilitation to the historic Iasi City Hall in Romania. This three story 4,380 m^2 masonry structure constructed 1810, is a very important historic building for the city and could not be lost in an earthquake. Rather than strengthening the existing stone masonry building, it will be placed on a base isolation system that will protect the structure from earthquake damage. As the ground moves below the building during an earthquake, all the movement will be taken in the base isolation system.

Miyamoto + Cardno believe that the Christchurch Cathedral can be saved, using modern techniques, while providing resiliency for future earthquakes. While the "make safe" plan is being implemented, the team can then determine requirements for the second stage, i.e. reconstruction and rehabilitation. Several options should be explored during this stage in order to determine what is required to restore the structure. We anticipate that this process could take nine months to a year for design and two to three years for implementation.

The Christchurch Cathedral provides an important link to the history, culture and character of the city of Christchurch. Today's construction and structural technologies can provide a path to reconstruction and rehabilitation of this great structure, and lead the way to bringing Christchurch back to the city it was before the earthquake.

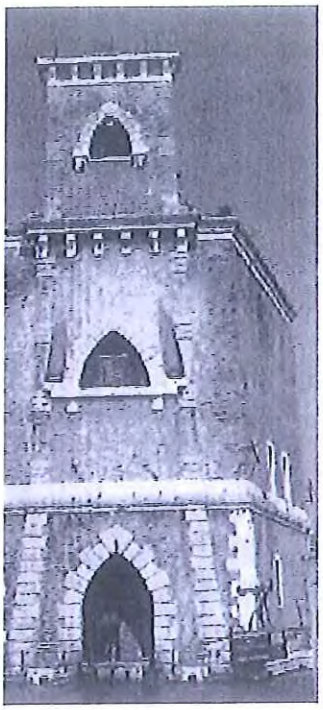
We trust that this report is sufficient for your needs, however should you have any queries or require further input from us, please do not hesitate to contact the undersigned.

Yours faithfully

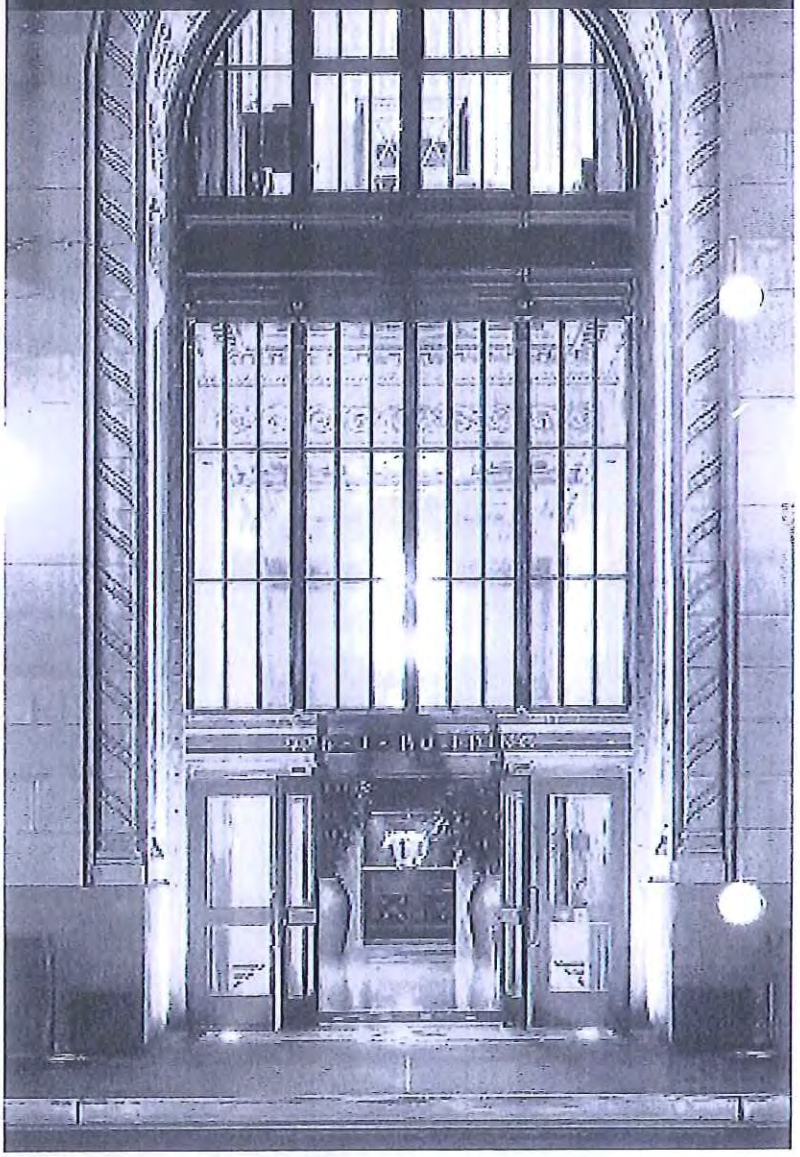
Chartered Professional Engineer for
Miyamoto + Cardno

Structural Engineer for
Miyamoto + Cardno

Attachment: Miyamoto + Cardno - Capability Statement



HISTORIC REHABILITATION AND HIGH PERFORMANCE EARTHQUAKE ENGINEERING

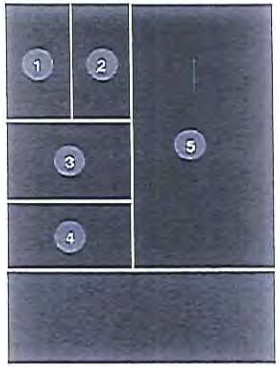


miyamoto.
Cardno

CAPABILITIES

Supporting the seismic rehabilitation of Christchurch, and ensuring the safety of New Zealand's neighboring communities is our highest priority. By joining forces with New Zealand design community, private sector, and local government, Miyamoto Cardno is implementing highly effective, sustainable engineering solutions to restore earthquake devastated communities. Together, we aim to preserve the integrity and safety of New Zealand's built environment for generations to come.

It is crucial that New Zealand understands its options when it comes to rebuilding safe communities. Partnering with you, listening to your needs, and providing tailored options will enable you to make better informed decisions around rehabilitation versus demolition. Responding to more than 100 earthquake and natural disaster events in the past 30 years, Miyamoto Cardno brings a new level of understanding to the sensitivities of historic rehabilitation. Our expertise includes high performance earthquake engineering, unreinforced masonry (URM), and historic concrete and stone built structures. Our engineers bring a plethora of technical knowledge based on first-hand experience from some of the most challenging disaster mitigation, response, and historic rehabilitation



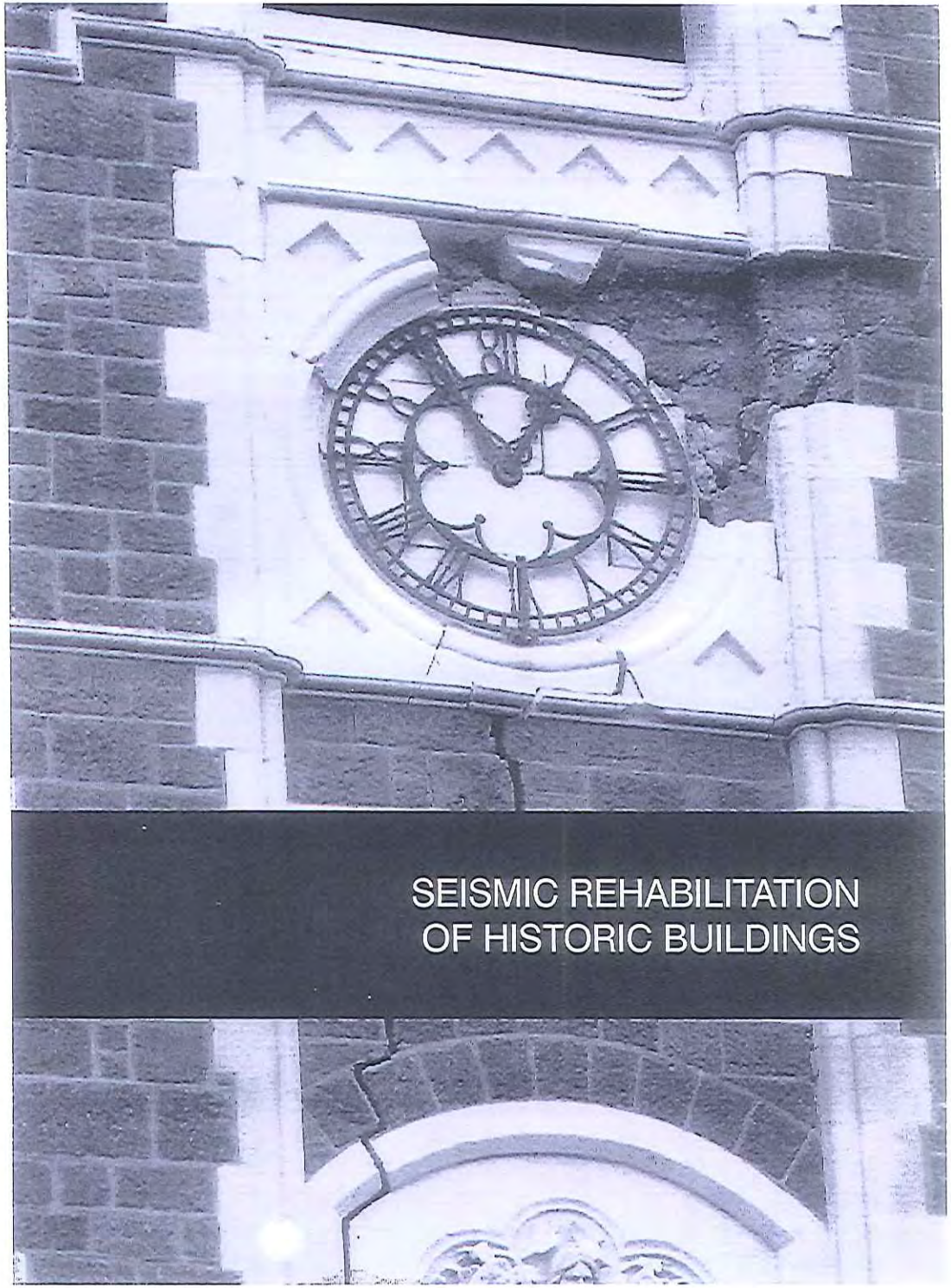
ON THE COVER

1. Pedestrian Bridge at Arsenale di Venezia | Venice, Italy
2. Hotel Woodland | Woodland, CA
3. Santa Sofia Church | Italy
4. Iasi City Hall | Romania
5. Citizen Hotel | Sacramento, CA

projects around the globe. As your partner in rebuilding, it is our mission to protect your most valuable investments, enabling you to preserve your communities' historic fabric, empower economic recovery, and provide long term stability and performance.

ABOUT OUR TEAM

Miyamoto International Inc. and Cardno have formed a new company, Miyamoto+Cardno, to bring expert engineering solutions to the Canterbury earthquake recovery and rebuilding effort in New Zealand. We provide critical services that sustain industries around the world with 160 locations throughout the Americas, Asia, and Europe. We have over 100 of the world's finest earthquake engineers addressing the needs of earthquake vulnerable communities world-wide.



SEISMIC REHABILITATION OF HISTORIC BUILDINGS

miyamoto.
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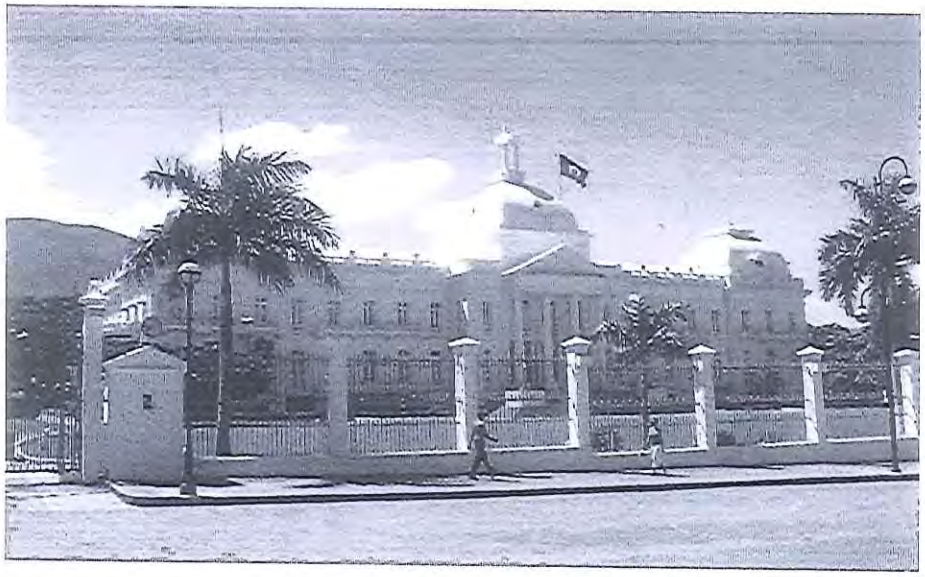

National Palace of the Republic of Haiti

LOCATION:
Port-Au-Prince, Haiti

YEAR:
2010

SCALE:
463,561 SF

On retainer by the Government of Haiti, Miyamoto International conducted damage surveys of the National Palace of the Republic of Haiti (National Palace) to assess damage resulting from seismic events occurring in January 2010. The ground motions from this earthquake caused severe damage to the National Palace, a three-story structure built in the 1920s, composed of non-ductile framing which historically has not performed well during seismic events. The existing structure consists of non-ductile concrete beams and columns, supporting one-way concrete-slab at the floors and a concrete roof. The interior and exterior walls consist of a variety of infill materials and exterior is reinforced with a very thick layer of cement stucco reinforced with a wire mesh, while the interior is reinforced with thin layers of stucco or plaster. Miyamoto will provide disaster reconstruction to rehabilitate this historic structure for the country of Haiti.

Iasi City Hall

LOCATION:
Romania

YEAR:
2006-Current

CLIENT TEAM:
Ministry of Transport, Construction and Tourism

CONSTRUCTION COST:
$75 Million

SCALE:
14 Counties

As part of the Romania hazard, mitigation and emergency preparadness project, Miyamoto provided seismic rehabilitation services to retrofit Iasi City Hall, also know as the Roset-Roznovanu Palace. The structure was built in the decade of 7–10 in the eighteenth century. Miyamoto also provided a quality-control program for the earthquake engineering and construction of 61 buildings in 14 different counties of Romania, from Bucharest in the south to Iasi in the north. The project includes monitoring 20 design and construction seismic retrofit contracts, as well as monitoring the construction supervision of 84 seismic retrofit projects. Miyamoto has implemented and conducted a construction quality-assurance program for Romania. The buildings involved in this project are key public-sector institutions, including fire stations, schools, hospitals, historic or cultural heritage buildings, and emergency response centers. This program is considered to be the cornerstone of the earthquake disaster mitigation program for the region.

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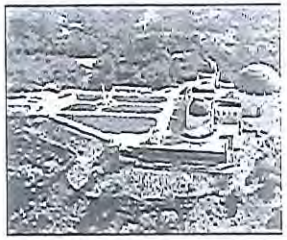
Cardno



Griffith Observatory

LOCATION:
Los Angeles, CA

YEAR:
2006

CLIENT TEAM:
Pfeiffer Partners

CONSTRUCTION COST:
$60 Million

SCALE:
25,000 SF New /15,000 SF Renovation

AWARDS:

2008 AIA HONOR AWARDS FOR ARCHITECTURE

2007 NATIONAL PRESERVATION AWARD, NATIONAL TRUST FOR HISTORIC PRESERVATION

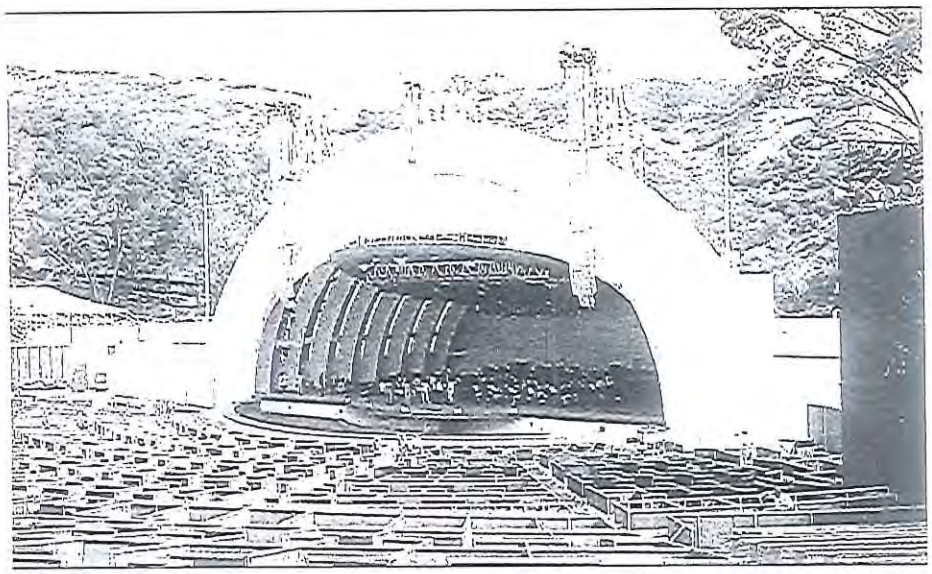
2007 TRUSTEES AWARD FOR EXCELLENCE IN HISTORIC PRESERVATION, CALIFORNIA PRESERVATION FOUNDATION

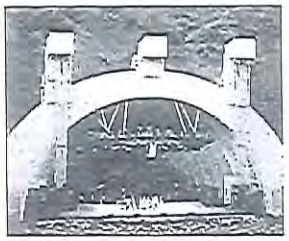
2007 PRESERVATION DESIGN AWARD FOR REHABILITATION, CALIFORNIA PRESERVATION FOUNDATION

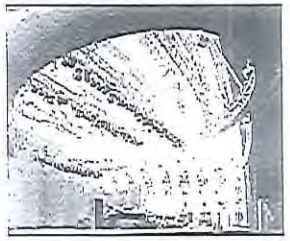
2007 PRESERVATION DESIGN AWARD FOR PRESERVATION CALIFORNIA PRESERVATION FOUNDATION

2006 EXCELLENCE IN STRUCTURAL ENGINEERING FOR LANDMARK STRUCTURES, SEAOSC

Renovating one of the architectural icons of Los Angeles, the Griffith Observatory, was a major feat of structural engineering. The rehabilitation of this 1930s icon features new galleries, offices and workshops. Historic preservation requirements made it necessary to construct an underground basement. Renovations were conducted on 15,000 square feet of existing space. The installation of stairs and elevators within the central area of the existing structure required the design of shear collectors in the main floor diaphragm and re-support of roof and floor framing at the new openings. Miyamoto engineers developed a jacking procedure allowing loads from the existing structure to be transferred to the new framing without disturbance to existing historic finishes.







Hollywood Bowl

LOCATION:
Hollywood, CA

YEAR:
2004–06

CLIENT TEAM:
Gruen Associates, Los Angeles County Department of Public Works

CONSTRUCTION COST:
$12 Million

SCALE:
50,000 SF

AWARDS:

2005 EXCELLENCE AWARD FOR LANDMARK STRUCTURES (SEAOC)

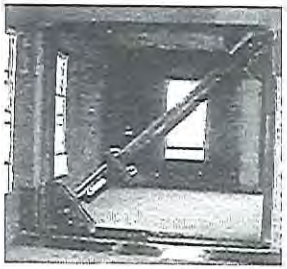
2005 EXCELLENCE IN STRUCTURAL ENGINEERING, NATIONAL COUNCIL STRUCTURAL ENGINEERS ASSOCIATION

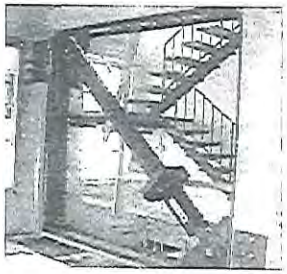
2005 EXCELLENCE IN STRUCTURAL ENGINEERING, SPECIAL USE STRUCTURES (SEAOSC)

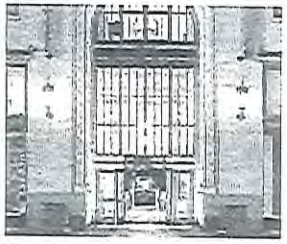
2003 OUTSTANDING PUBLIC/PRIVATE SECTOR CIVIL ENGINEERING PROJECT, AMERICAN SOCIETY OF CIVIL ENGINEERS

Over its history, four different shells have been constructed at the Bowl. Miyamoto provided services on the fifth shell; the first since 1929, which is by far the largest and most complex. It features ten arched steel trusses spanning up to 120' over the stage. As the centerpiece of an overall upgrade to the existing facility, the shell features state-of-the-art lighting and acoustical equipment carried in a suspended acoustic "halo", a 70 foot diameter stage turntable, rooftop fireworks platforms, video screens and improved backstage and basement spaces. Miyamoto engineers worked tirelessly through design and construction to help complete the facility without a single lost performance.

miyamoto.
Cardno







Citizen Hotel

LOCATION:
Sacramento, CA

YEAR:
2008

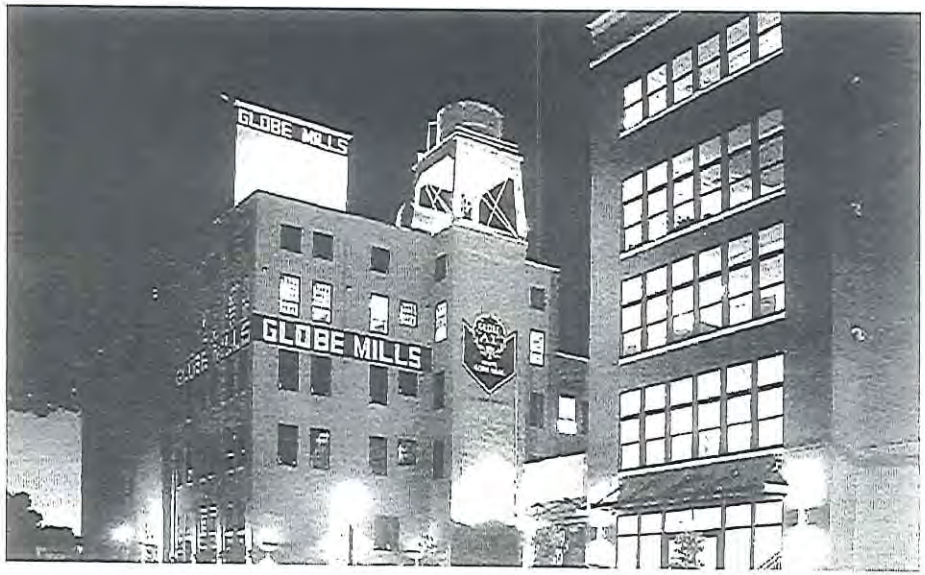
CLIENT TEAM:
Vitae Architecture

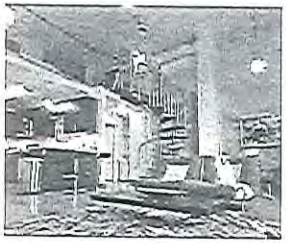
CONSTRUCTION COST:
$35 Million

SCALE:
135,000 SF

AWARDS:
2008 PEOPLE'S CHOICE AWARD, ACRE DEVELOPER SHOWCASE

Originally designed as a mixed-use retail and office building, this 14-story concrete structure was built in the 1920s, and was the first high-rise constructed in the state capital. As a registered historic place, it has many unique architectural features such as terra cotta tile and Italian marble finishes. In 2008, it opened as Sacramento's first Joie de Vivre Boutique Hotel. The hotel is comprised of reinforced concrete moment frames and reinforced concrete structural walls at the lower two floors. Through high-perfomance earthquake engineering fluid viscous dampers were added. Steel braces were added at the first floor to provide lateral and torsional stiffness and mitigate the effect of full-length reinforced concrete walls on the back faces of the building.





Globe Mills

LOCATION:
Sacramento, CA

YEAR:
2008

CLIENT TEAM:
Applied Architecture, Inc.

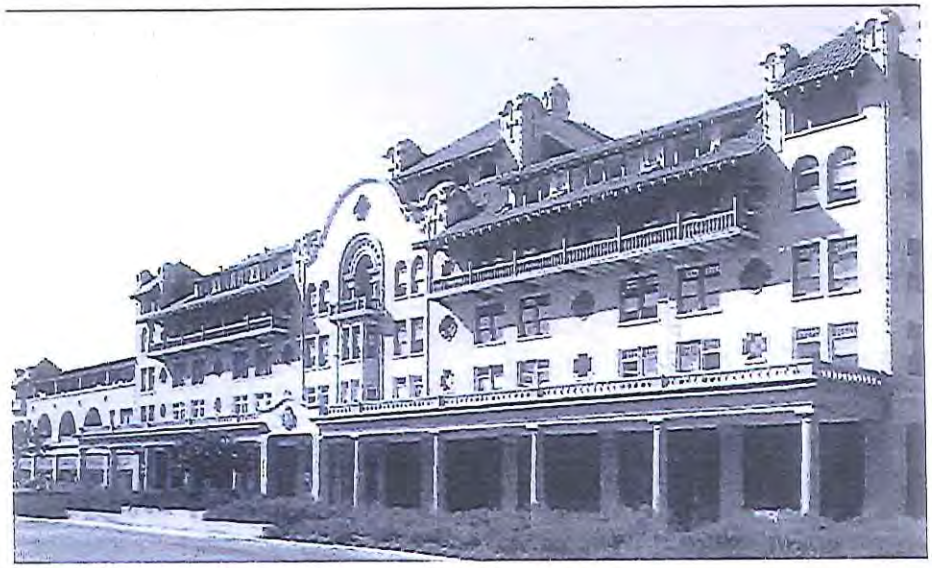
CONSTRUCTION COST:
$30 Million

SCALE:
50,000 SF

AWARDS:
2010 OUTSTANDING HISTORICAL RENOVATION ASCE REGION 9
2009 BEST RENOVATION/RESTORATION CALIFORNIA CONSTRUCTION
2009 ASCE OUTSTANDING PROJECT OF THE YEAR AWARD FOR STRUCTURAL PROJECT
2009 DESIGN HONOR AWARD, AIA CV
BEST PROJECTS OF 2009 AWARD, MCGRAW HILL
2009 TRANSIT ORIENTED DEVELOPMENT OF THE YEAR, SACRAMENTO REGIONAL TRANSIT
2009 J. TIMOTHY ANDERSON AWARD FOR EXCELLENCE IN HISTORIC PRESEVATION, BEST HISTORIC REHABILITATION, NATIONAL HOUSING & REHABILITATION ASSOCIATION
2009 SHOWCASE PROJECT FOR SACRAMENTO ARCA YOUTHSUSTAINABILITY COUNCIL, LOCAL GOVERNMENT COMMISSION
2008 REDEVELOPMENT EXCELLENCE, NATIONAL ASSOCIATION OF LOCAL HOUSING

Globe Mills was built in the late 1800s and included a flour mill, barley mill, paste house, boiler and multiple silos. It was closed in 1968 and for the next 40 years sat dormant, surviving multiple fires. It was technically, visually and functionally challenging to convert the seismically unstable and hazardous grain storage building into modern residential use. Elements such as fire access, stairs, elevators and sewer service were added. Having gone through a significant seismic retrofit and historic rehabilitation, the Globe Mills building has been restored into a mixed-use facility, providing market-rate loft apartments, affordable housing and retail. Two new buildings exceed energy requirements by 20%. This project illustrates Sacramento's vision to sustainably revitalize one of its oldest neighborhoods.

miyamoto.
Cardno



The Stockton

LOCATION:
Stockton, CA

YEAR:
2004

CLIENT TEAM:
Applied Architecture

CONSTRUCTION COST:
$24 Million

SCALE:
145,000 SF

AWARDS:

2007 PRESERVATION DESIGN AWARD
BEST REHABILITATION
CALIFORNIA PRESERVATION FOUNDATION

2005 BEST HISTORIC REHABILITATION
AFFORDABLE HOUSING
NATIONAL HOUSING AND REHABILITATION ASSOCIATION

The Stockton, originally a 252-room hotel built in 1910 and listed on the National Register of Historic Places, lay vacant for 20 years. Miyamoto's high-performance earthquake engineering approach made this adaptive re-use project viable, preserving the integrity of the historic structure while providing new office and retail spaces, as well as affordable senior housing units. The seismic technology employed by Miyamoto provided a reduction of more than 20% in story drift, protecting existing brittle materials and reducing member stresses to nearly elastic levels. In other words, the building performance was upgraded from potential collapse to near immediate occupancy after a major seismic event. Miyamoto performed non-linear dynamic analyses and designed seismic shock dampers and fiber reinforced polymer composites at the first story level to reduce seismic demand, producing an economical rehabilitation cost of $9 per square foot.

Elliott Building

LOCATION:
Sacramento, CA

YEAR:
2003

CLIENT TEAM:
Loftworks

CONSTRUCTION COST:
$7.1 Million

SCALE:
52,800 SF

AWARDS:

2004 BEST MIXED-USE FACILITY AWARD OF MERIT, GOLD NUGGET AWARDS

2004 BEST RENOVATED, RESTORED SINGLE HOUSE OR PROJECT GRAND AWARD
GOLD NUGGET AWARDS

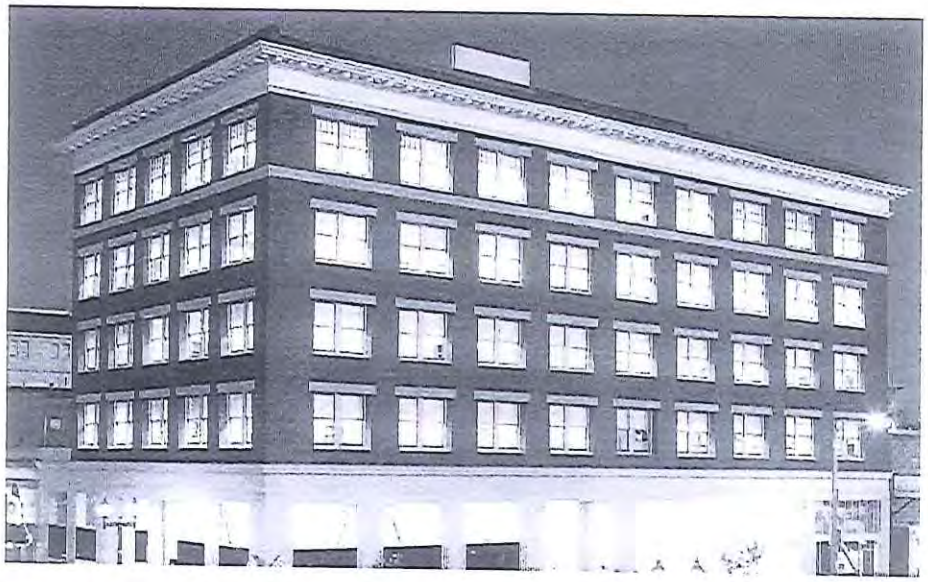
2004 BEST NEW USE OF TECHNOLOGY IN RETROFIT/ ALTERATION AWARD, SEAOCC

2003 BUILDING PROJECT OF THE YEAR, AMERICAN SOCIETY OF CIVIL ENGINEERS

2003 BEST IN COMMERCIAL REAL ESTATE DESIGN, SACRAMENTO BUSINESS JOURNAL

An 80-year-old historical concrete structure, the Elliott Building formerly housed a car dealership. This rehabilitated building is now home to 18 premier lofts and creative office spaces, as well as two restaurants on the ground level. Through high-performance engineering, friction dampers were designed to dissipate the dynamic energy of an earthquake, and fiber reinforced polymer composites were used to increase the floor capacity—an exemplary example of how innovative design facilitates adaptive reuse of historical buildings in today's urban landscapes. The project has won numerous design awards from industry associations.

miyamoto. Cardno



Professional Building

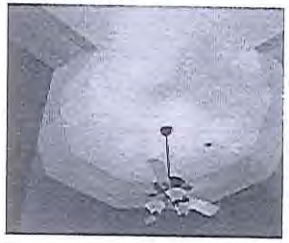
LOCATION:
Eureka, CA

YEAR:
2003

CLIENT TEAM:
Kramer Properties

SCALE:
Five-Story, 42,700 SF Office Building

Built in 1917, the Professional Building stands as one of the largest buildings in downtown Eureka, California. Located in an earthquake vulnerable area with poor soil conditions, this unreinforced masonry building was in need of a seismic rehabilitation. Using performance-based engineering, the existing interior steel gravity frames were augmented with new slotted bolted friction dampers, adding lateral stiffness and seismic energy dissipation. Using readily available materials for design of the friction dampers allowed construction of the newly rehabilitated mixed-use facility to be completed on time and within the budget. Architectural features addressed included the refurbishment of the rooftop cornice and main entrance columns.



Antler Hotel

LOCATION:
Lemoore, CA

YEAR:
2004

CLIENT TEAM:
McCandless & Associates

CONSTRUCTION COST:
$1.5 Million

SCALE:
13,500 SF

AWARDS:
2008 BEST REHABILITATION, CALIFORNIA PRESERVATION FOUNDATION

This two-story, un-reinforced masonry (URM) building with a partial basement is located in the heart of Lemoore's Historic District. The Antlers Hotel was very close to being demolished when the City set out to revitalize the landmark property in 2002. The URM walls, with significant cracks crushed under the weight of the roof, were anchored to the roof and 2nd floor diaphragms and steel braced frames were added to the open front to help stabilize the building. Challenges included keeping ground floor businesses open with minimal impact to tenants during construction. Miyamoto retained as much historic fabric as possible while accommodating modern residential reuse, stabilizing the structure, reconstructing the cornice, rehabilitating the façade and revitalizing the landmark.

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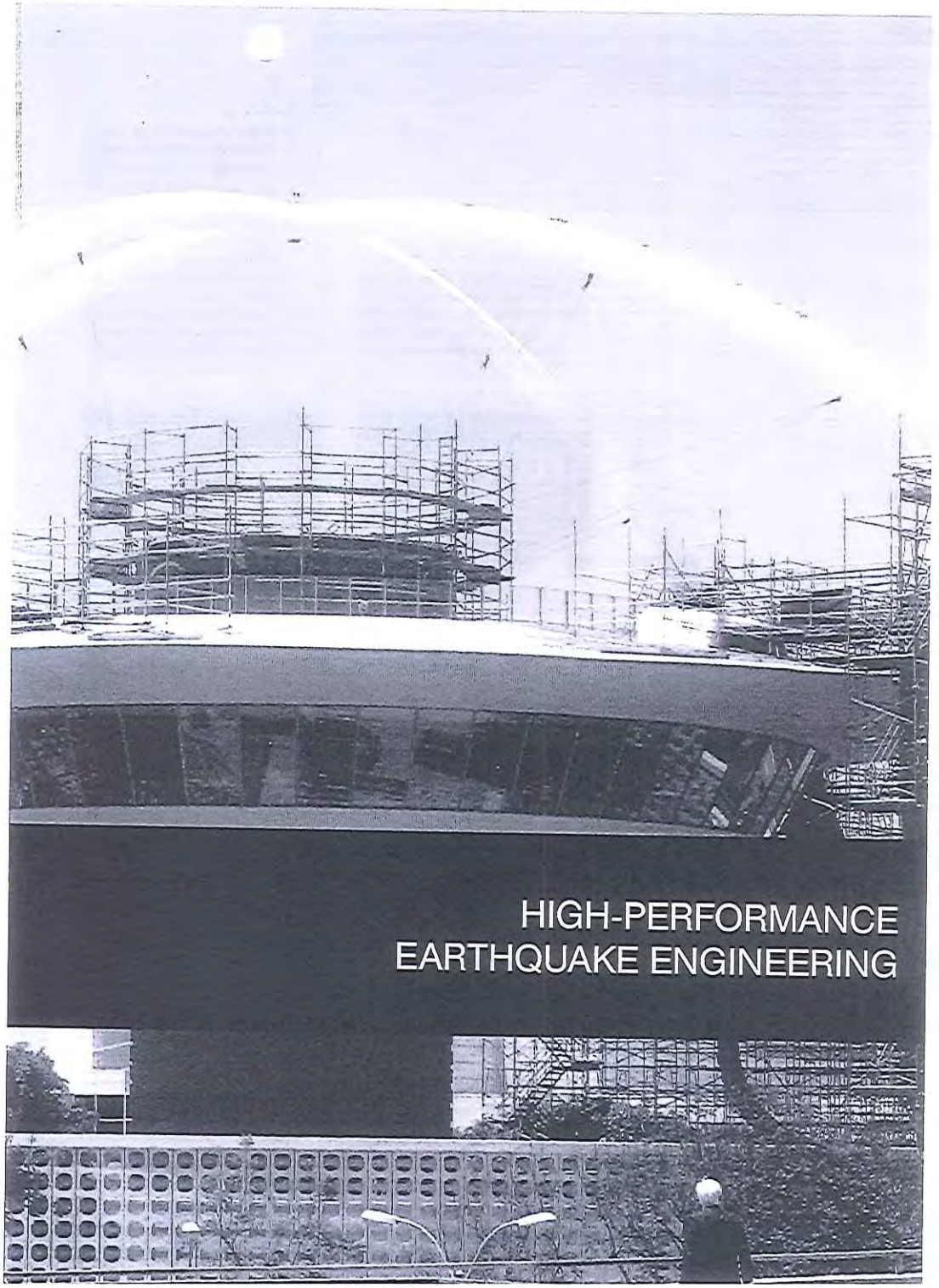
Eureka Historic Business District

LOCATION:
Eureka, CA

YEAR:
January 10, 2010

Damage reconnaissance of affected buildings throughout downtown Eureka's historic and business districts resulting from the M6.5 event of January 9, 2010. Evaluations included performance assessments of buildings formerly retrofitted by MI, such as the 5-story unreinforced masonry Professional Building, which was upgraded with slotted-bolted friction dampers in 2001. Consulted with local owners, developers and City officials to restore and retrofit the historic Healey Building, formerly slated for demolition due to damages sustained during the earthquake.



HIGH-PERFORMANCE EARTHQUAKE ENGINEERING

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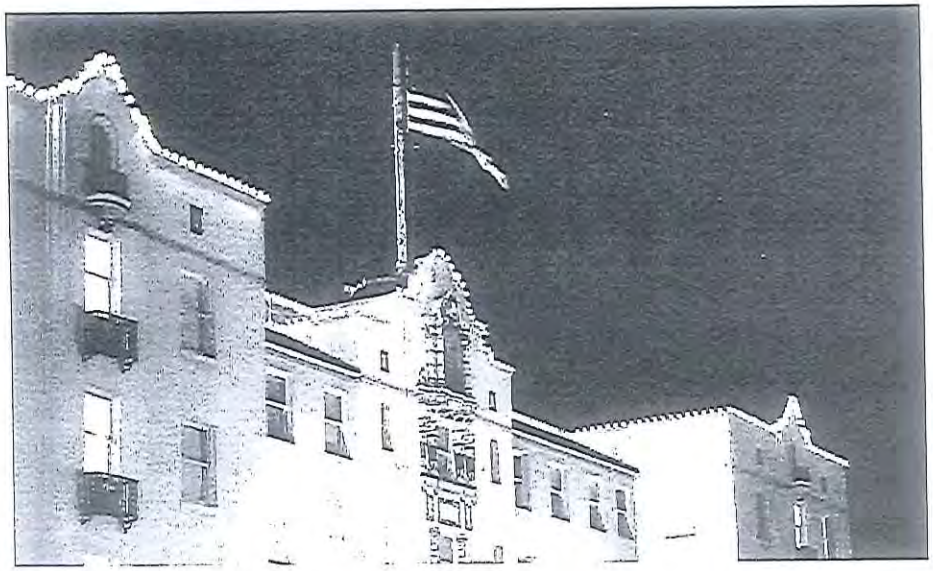
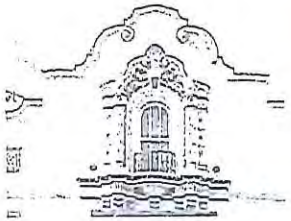
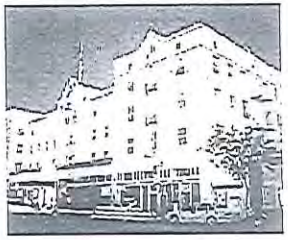
Cardno







Hotel Woodland

LOCATION:
Woodland, CA

YEAR:
2000

CLIENT TEAM:
McCandless & Associates

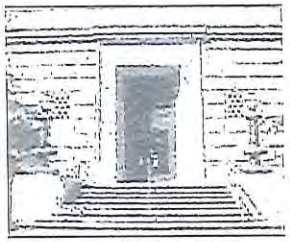
SCALE:
60,000 SF

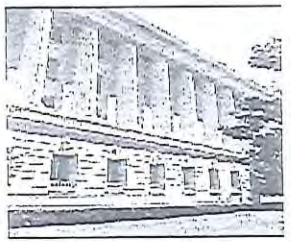
AWARDS:
2000 EXCELLENCE IN STRUCTURAL ENGINEERING
HONORABLE MENTION,STRUCTURAL ENGINEERING ASSOCIATION
OF CALIFORNIA

1998 GOVERNOR'S AWARD
STATE OF CALIFORNIA HISTORIC PRESERVATION DEPARTMENT

1997 PRESERVATION DESIGN AWARD,
REHABILITATION CATEGORY
CALIFORNIA PRESERVATION FOUNDATION

The Hotel Woodland, which is included in the National Historic Preservation Registry, was rehabilitated to showcase retail shops and offices on the first floor while providing affordable housing to tenants on its upper floors. The rehabilitation was the first building in the world to have NASA-designed earthquake shock absorbers installed. The state-of the-art technology and design eliminated the concern of major structural deficiencies. The structure is also supported by viscous dampers.





U.S. Post Office, Courthouse and Federal Building

LOCATION:
Sacramento, CA

YEAR:
2007

SCALE:
100,000 SF

The Federal Building required rehabilitation, however, this structure housed the Main Downtown Sacramento Post Office, which had to remain in continuous service to the public. The four story (plus a basement) office building was constructed with steel frame, unreinforced masonry and terracotta, non-bearing exterior walls. The structure lacked a seismic resistive system. Miyamoto designed reinforced concrete shear walls to resist lateral load in both directions, and tied the unreinforced masonry and terracotta walls to the main building frame. The retrofit was accomplished in unobtrusive phases. The Building presently houses the Staff Offices for the State of California.

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Cardno

Academic Information Resource Center CSU Sacramento

LOCATION:
Sacramento, CA

YEAR:
2005

CLIENT TEAM:
Dreyfuss and Blackford Architects

CONSTRUCTION COST:
$19 Million

SCALE:
100,000 SF

AWARDS:

2007 ACSE ENGINEERING MECHANICS AWARD, AMERICAN SOCIETY OF CIVIL ENGINEERS

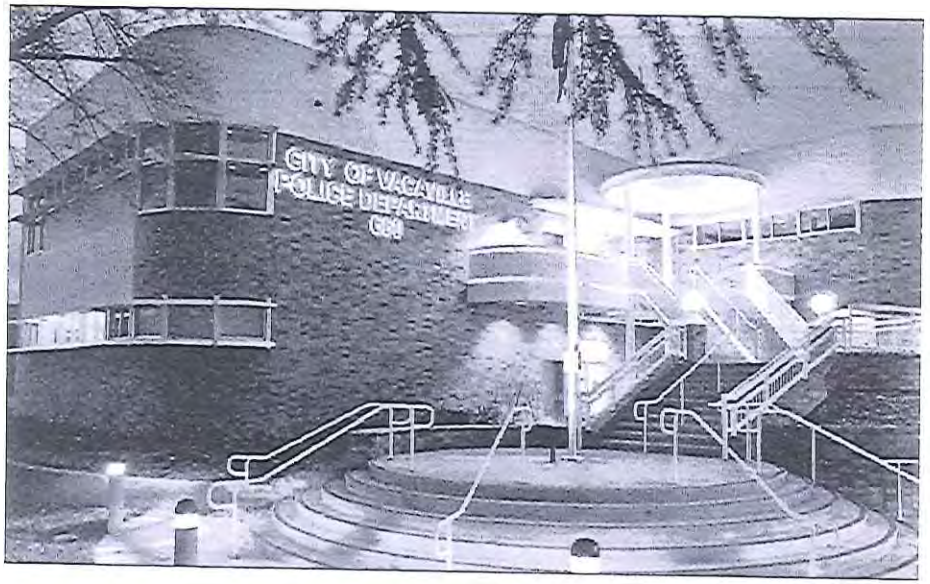
2005 CERTIFICATE OF MERIT FOR BEST USE OF NEW TECHNOLOGY IN NEW CONSTRUCTION, SEAOC

2005 EXCELLENCE IN STRUCTURAL ENGINEERING BEST USE OF NEW TECHNOLOGY IN NEW CONSTRUCTION, SEAOSC

2005 EXCELLENCE IN STRUCTURAL ENGINEERING AWARD FOR BEST IN NEW TECHNOLOGY IN NEW CONSTRUCTION, SEAOCC

Located on the California State University, Sacramento campus, the Academic Information Resource Center (AIRC) is home to the university computing and communications services and the university telecommunications Services. Through high performance earthquake engineering practices the Resource Center was designed to meet

University needs well into the twenty-first century by creating a space that supports academic success for both on-campus and off-campus students. This 4-story,100,000-square foot building is one of the few buildings in the United States to apply 2000 NEHRP procedures to the design of a building with fluid viscous dampers (FVDs).



Vacaville Police Station

LOCATION:
Vacaville, CA

YEAR:
2003

CLIENT TEAM:
Indigo/Hammond and Playle Architects

CONSTRUCTION COST:
$9.1 Million

SCALE:
39,000 SF

AWARDS:

2006 EXCELLENCE IN STRUCTURAL ENGINEERING

BEST USE OF NEW TECHNOLOGY IN NEW CONSTRUCTION, SEAOCC

Miyamoto provided design services for this new two-story police headquarters. This is the first building in the United States to apply 2000 NEHRP procedures to the design an essential facility using fluid viscous dampers—a passive energy dissipation system that controls displacement of the structure. Located in a high-seismic area, the building is designed to ensure immediate occupancy after a 475-year return earthquake.

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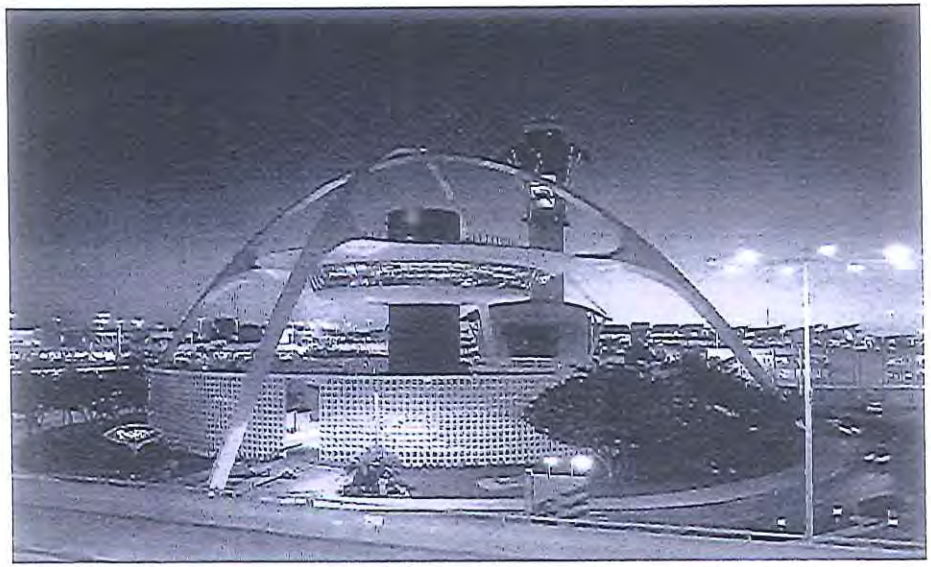
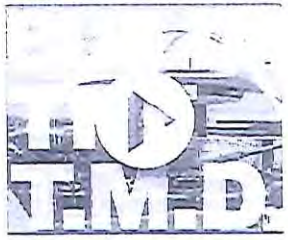




LAX Theme Building

LOCATION:
Los Angeles, CA

YEAR:
2010

CLIENT TEAM:
Los Angeles World Airports, Tower General Contractors, Gin Wong and Associates, VCA Engineering

CONSTRUCTION COST:
$12.3 Million

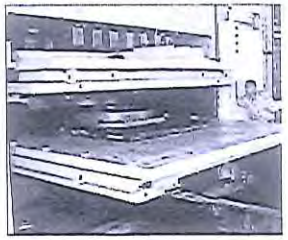
SCALE:
31,000 SF

AWARDS:
2010 TRUSTEES AWARD FOR EXCELLENCE IN HISTORIC PRESERVATION

2010 PRESERVATION TECHNOLOGY CATEGORY, CALIFORNIA PRESERVATION FOUNDATION

2010 STRUCTURAL ENGINEERS ASSOCIATION OF CALIFORNIA, AWARD OF EXCELLENCE RETROFIT

Miyamoto designed an innovative seismic retrofit solution by adding 1,200,000 pounds of steel mass at the roof cavity supported by base isolators and dampers, creating a tuned-mass damper to reduce seismic demand. This design eliminated the need for a conventional seismic upgrade, preserved the historical fabric of the building, and allowed the internal restaurant to remain operational during the retrofit. Advanced analyses and the latest engineering technologies were used to implement a cost-effective and elegant seismic retrofit solution. This high-performance earthquake engineering approach saved the airport an estimated $4 million in construction costs, by not using traditional seismic retrofit solutions. Miyamoto was the expert structural consultant to VCA Engineers for this project.



Burbank Airport Regional Intermodal Transit Center

LOCATION:
Burbank, CA

YEAR:
2009

CLIENT TEAM:
Anil Verma Associates, Burbank Glendale Pasadena Airport

CONSTRUCTION COST:
$112 Million

SCALE:
300,000 SF

Miyamoto is currently working with the Burbank Airport Authority to develop a Regional Intermodal Transit Center. At the heart of the project is a 300,000-square-foot signature structure with a consolidated rental car facility, terminals for airport shuttle and transit bus services and visitor parking. In addition to these diverse operational needs, the Airport Authority has outlined extraordinarily high goals for the seismic performance and longevity of this facility. To meet these objectives, Miyamoto designed the structure to include over one hundred triple pendulum bearing isolators, protecting the facility against seismic impact. Together, these needs are the drivers for a unique structural solution. Miyamoto was specifically engaged for our command of the technology, innovation and expertise that is required for this first-of-its-kind structure.

miyamoto.
Cardno

As the largest government building in Orange County, the ten-story Reagan Federal Building uses a dual seismic resisting system combining steel braced frames and a steel moment-resisting frame. This system provides a high level of seismic performance and good control of building deflection in spite of an unusual 20 foot floor-to-floor height. A landscaped plaza level using both steel and concrete framing is used to transfer forces from the curved tower above to the rectangular grid of the parking levels below. Miyamoto designed a stainless steel support for the tall glass and stone-veneer curtain wall system, which allowed lateral movement during an earthquake. This work was done in conjunction with a curtain wall consultant. Construction cost $120 million.

Ronald Reagan Federal Building U.S. Courthouse

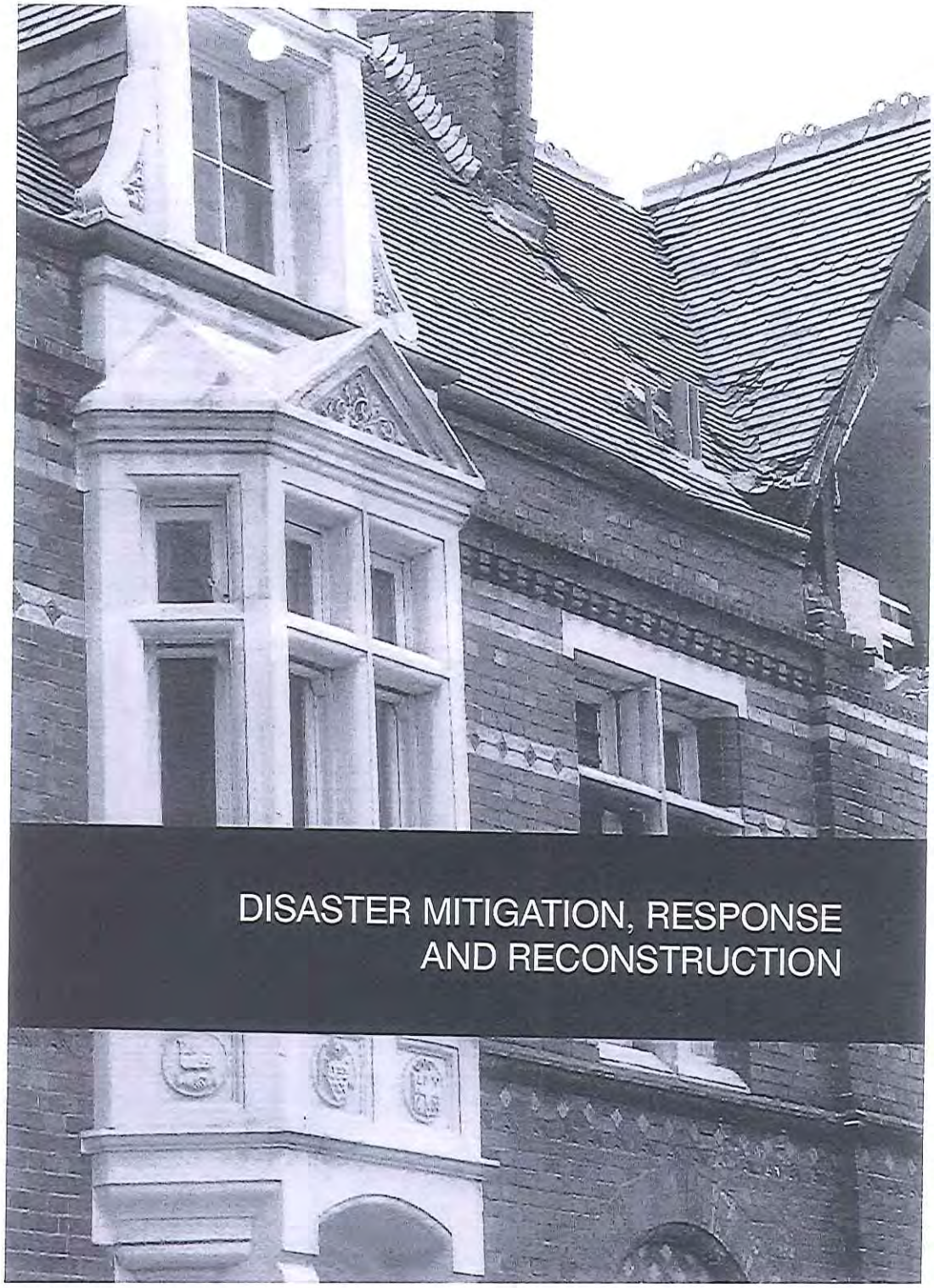
LOCATION:
Santa Ana, CA

YEAR:
2007

CLIENT TEAM:
Gruen Associates
U.S. General Services Administration

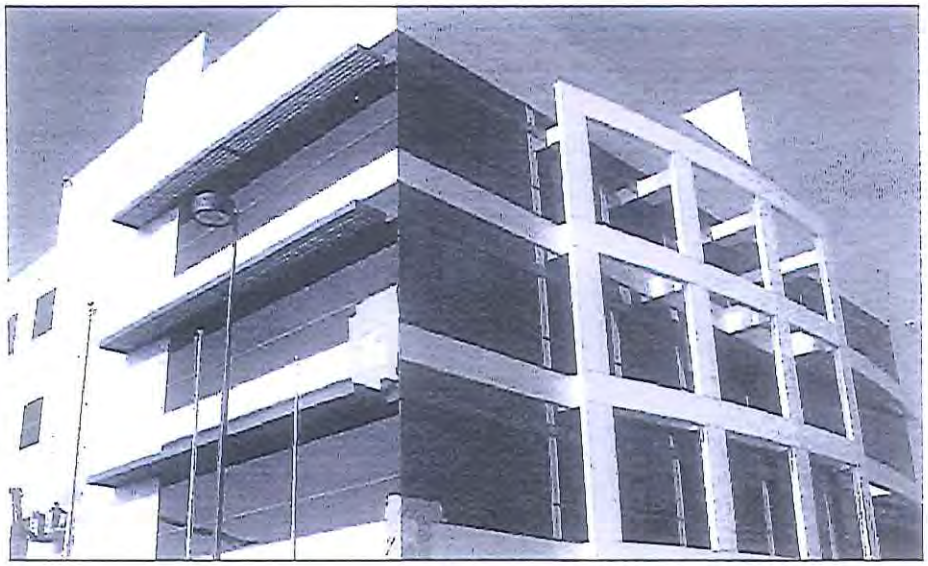
CONSTRUCTION COST:
$120 Million

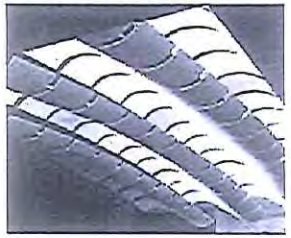
SCALE:
600,000 SF



DISASTER MITIGATION, RESPONSE AND RECONSTRUCTION

miyamoto.
Cardno





Caltrans Los Angeles Regional Transportation Management Center

LOCATION:
Los Angeles, CA

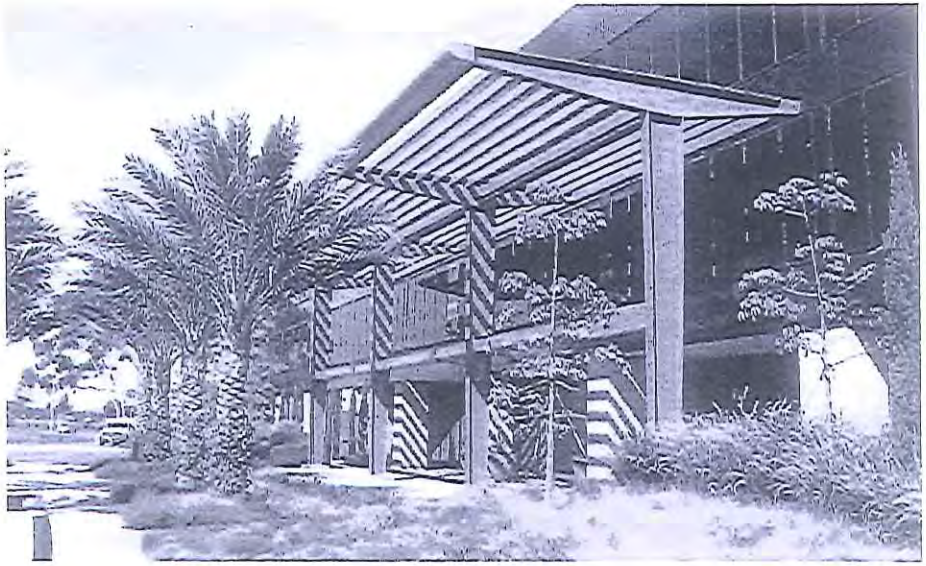
YEAR
2007

CLIENT TEAM:
Holmes & Narver Inc.

CONSTRUCTION COST:
$40 Million

SCALE:
70,000 SF

The Los Angeles Regional Transportation Management Center serves as the emergency command center for Caltrans District 7, California Highway Patrol, and Los Angeles County Metro, and was designed to remain operational after a severe earthquake. This five-story, base-isolated building was built to allow emergency dispatchers to help manage freeway traffic and maximize roadway capacity, providing safer travels for the general public. This essential-services facility was designed using performance-based engineering to maximize its optimal performance. The building is supported on twenty-three, 36-inch diameter rubber isolators, which allows it to move up to 24 inches relative to the ground. Seismic energy is dissipated through 300-kip fluid viscous dampers. The recommended system was a mat foundation.



3300 Hyland Office Building Retrofit

LOCATION:
Costa Mesa, CA

YEAR:
2009

CLIENT:
LCS Constructors

YEAR:
$1.2 Million

SCALE:
175,000 SF

This three-story office building retrofit in Orange County features 44 NASA-grade shock absorbers. Without this innovative technology, it would not be financially feasible to seismically strengthen this circa 1969, steel and concrete building. Miyamoto determined that fluid viscous dampers, which NASA and the U.S. military use to dissipate seismic energy, can also be deployed in civilian building projects. Miyamoto engineers successfully implemented this high performance technology into the office building, significantly improving performance during a seismic event. Thirty-six-inch-long cylinder-like dampers were strategically installed at the second and third floors.

miyamoto.
Cardno

Christchurch, New Zealand

LOCATION:
New Zealand

YEAR:
2010

SCALE:
Est. 1.4 Billion Damages

Miyamoto and Cardno engineers are investigating the extent and causes of damage caused by the September 4, M7.1 Canterbury earthquake in New Zealand. Damage was found in downtown Christchurch due to widespread soil liquefaction and historical buildings with little to no seismic reinforcement. In addition, the collapse of many non-structural elements have shut down businesses completely. Individuals, businesses, community organizations, and essential facilities will continue to be affected for months or years to come. Early estimates have been determined to be in the range of $1.4 billion in damages. Miyamoto is assisting with post-earthquake needs in an effort to restore safety and operations to Christchurch and the surrounding communities.

Istanbul, Turkey

LOCATION:
Istanbul, Turkey

YEAR:
2007–08

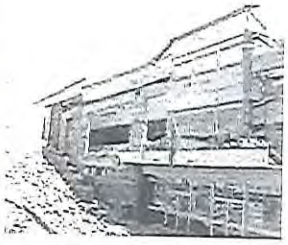
CONSTRUCTION COST:
$1 Billion

SCALE:
2000 Structures

DONORS
World Bank, European Union Funded

Miyamoto provided engineering quality control for World Bank and the European Union (EU) funded seismic risk-mitigation project in Istanbul, involving more than 2,000 structures. Several hundred schools, hospitals, and emergency operation centers were seismically strengthened. With Turkish engineers and academicians, we developed a guideline for seismic rehabilitation by using the latest US, Japanese and Turkish codes. By working with the Turkish government, we were able to assist with high-performance earthquake engineering, providing designs that achieve superior performance at reduced costs. Our international culture helped us to work effectively with local and other international consultants.

miyamoto.
Cardno



L'Aquila, Italy

LOCATION:
L'Aquila, Italy

YEAR:
2009

SCALE:
6.3 Magnitude

Miyamoto and Global Risk Miyamoto (GRM) dispatched a team of earthquake engineers to assess the structural integrity of existing buildings and infrastructure, and provide support to clients on damage assessment, loss estimation, and repair recommendations to mitigate further business interruption. This data will also be utilized in order to promote earthquake risk reduction worldwide. More than 300 were killed and 40,000 left homeless as a result of the damage caused by the 6.3 M earthquake near L'Aquila, Italy.

Haitian Ministry of Public Works (MTPTC) 400,000 Damage Assessment Project

LOCATION:
Haiti

YEAR:
2010–2011

CLIENT TEAM:
The Pan American Development Foundation (PADF), United Nations Office for Project Services (UNOPS), United States Agency for International Development (USAID), and The World Bank

SCALE:
400,000 Structures

AWARDS:

2011 STRUCTURAL ENGINEERS ASSOCIATION OF CENTRAL CALIFORNIA, AWARD OF EXCELLENCE, STUDY/RESEARCH/GUIDELINES

2011 STRUCTURAL ENGINEERS ASSOCIATION OF CALIFORNIA, AWARD OF EXCELLENCE, HUMANITARIAN

In response to the 2010 Haiti earthquake, Miyamoto developed an innovative solution for rapid damage assessment and management. This project was the world's first post-disaster assessment program to use a geographic coordinate system, personal digital assistants, and electronic real-time database management. Implementing this system involved training 600 Haitian engineers in international practices, project management, collaboration with the Haitian government, nongovernmental organizations, local leaders, and the community. It has allowed several hundred thousand people to return to the security of their homes. The damage assessment database has been used to formulate a strategic reconstruction plan and the program promotes sustainability by reducing the need for demolition and new reconstruction materials.

Haitian and international communities have identified this program as one of the most critical and successful rebuilding projects undertaken in the first year after the disaster. The resulting program can be extended as a platform for seismic damage evaluation and reconstruction strategies worldwide.

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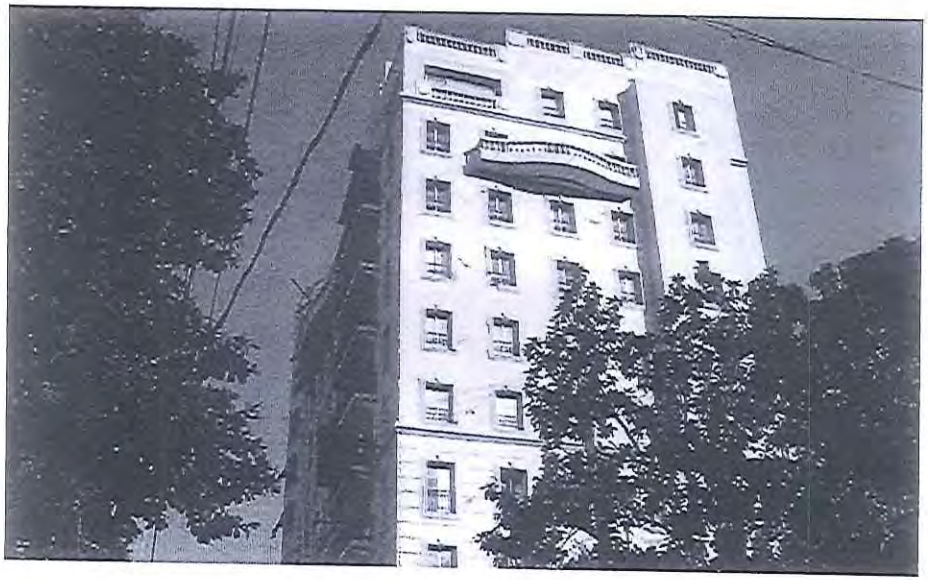

Japanese Embassy Phase 1 Assessment

LOCATION:
Port-au-Prince, Haiti

YEAR:
2010

Miyamoto International, Structural and Earthquake Engineers visited the Hexagone Building to visually assess the earthquake damage resulting from the M7.0 event on Jan 12, 2010, and subsequent aftershocks. The Hexagone Building consists of an eight-story office building with five levels of below-grade parking. The building is rectangular in shape and is situated on a sloping site on which the grade slopes approximately ten feet from the east end to the west end of the building. The structure was constructed using standard local construction standards and practices, which consist of cast-in-place (CIP) concrete and hollow concrete block (HCB).

Sichuan, China

LOCATION:
China

YEAR:
2008

SCALE:
8.0 Magnitude

As an international earthquake engineering expert, Miyamoto provided quality control and risk mitigation studies funded by the World Bank. Conducting damage assessments in 7 major cities, our engineers evaluated a variety of building types for future risk mitigation. Schools and hospitals were structurally deficient in construction, built with unreinforced masonry walls, with little or no connection between structural elements or soft story construction, leading to irrevocable collapse. China is in critical need of the latest engineering and construction methods such as a uniform building code and quality control checks for all building projects. As a result of the earthquake on May 12, 2008 near Sichuan, more than 70,000 were killed and more than five million were left homeless.

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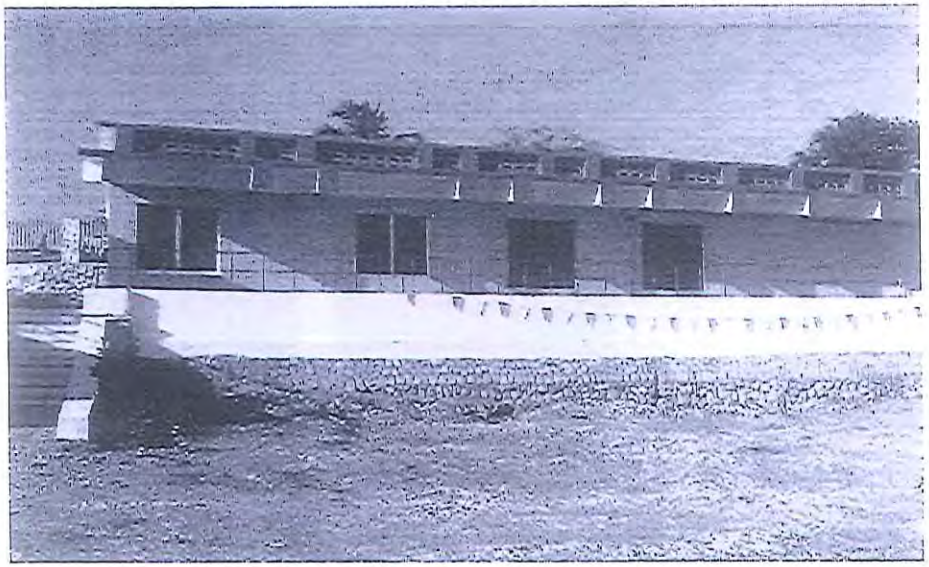

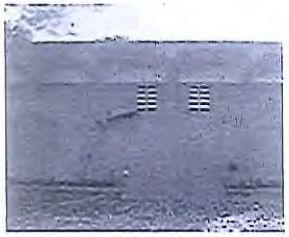

Ecole Nationale Jacob Martin Henriquez

LOCATION:
Port-Au-Prince, Haiti

YEAR:
2011

CLIENT TEAM:
Gensler, Operation USA

SCALE:
9-Single Story Buildings Totaling 40,375 SF

CONSTRUCTION COST:
Est. $900,000

As part of our commitment to the communities of Haiti, Miyamoto International partnered with Gensler and Operation USA in the design and construction of this public primary school, funded by Honeywell Hometown Solutions. This Jacmel school was under construction when the January 12, 2010 earthquake struck Haiti, destroying the school. After reviewing existing construction techniques, it was determined building materials would need to be manufactured to new specifications. Miyamoto developed a seismic-resisting structural system and provided construction supervision. The result is simple, cost-effective single-story buildings constructed with local materials designed to withstand earthquakes. This vibrant school will be home to more than 600 K-7 students and will include 15 classrooms, a library, computer center, administration and restroom/shower facilities. Groundbreaking is expected to take place August 2011. This facility will serve as the benchmark for design and construction in Jacmel and surrounding areas.

Port-au-Prince, Haiti

LOCATION:
Port-Au-Prince, Haiti

YEAR:
2010

CLIENT TEAM:
Government of Haiti, Pan American Development Foundation, UNOPS, World Bank

SCALE:
7.0 Magnitude

The earthquake in Haiti on January 12, 2010, called for extraordinary measures from the global community. As an earthquake engineering expert, Miyamoto has the privilege of partnering with the Government of Haiti and key recovery stakeholders to respond to the nation's immediate needs. Stakeholders include the United Nations Office for Project Services (UNOPS), World Bank, United States Agency for International Development (USAID) and the Pan American Development Foundation (PADF). Our recovery and reconstruction efforts for the people of Haiti include the damage assessment of more than 400,000 structures and planning and implementing a reconstruction strategy for the affected area.

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New Orleans Hotel*
Old Sacramento, CA

Rivett-Fuller Building*
Old Sacramento, CA

Saddlerock Restaurant*
Old Sacramento, CA

Felipe deNeve Branch Library
Los Angeles, CA

Historic Carriger Barn
Sonoma, CA

1029 K Street, Pyramid Brewery
Sacramento, CA

2020 L Street
Sacramento, CA

Auburn Performing Arts
Auburn, CA

Old Merced Library
Merced, CA

Port of Los Angeles,
Warehouse No.1
Los Angeles, CA

Smith-Cornwall Building*
Old Sacramento, CA

Vernon-Brannan House*
Old Sacramento, CA

Adams Express Building*
Old Sacramento, CA

Bennett's Masonic Hall*
Old Sacramento, CA

Daily Union Building*
Old Sacramento, CA

Heywood Building*
Old Sacramento, CA

Rialto Building*
Old Sacramento, CA

D.O. Mills Bank*
Old Sacramento, CA

E.P. Figg Building*
Old Sacramento, CA

Leggett Ale House*
Old Sacramento, CA

Foster Saloon*
Old Sacramento, CA

Booth & Company Building*
Old Sacramento, CA

Howard House*
Old Sacramento, CA

Danmeier Eureka Gardens HOA
Seismic Project
San Francisco, CA

1901 E. First Street
Santa Ana, CA

Wyndham Hotel
Costa Mesa, CA

1600 Broadway
Santa Ana, CA

2nd Harvest Food Bank
El Toro, CA

Anaheim Hilton
Anaheim, CA

1575 East Holt Avenue
Pomona, CA

1400 West Edlinger
Santa Ana, CA

328-330 Healdsburg Avenue
Healdsburg, CA

*[illegible]

GLOBAL DISASTER RELIEF

2008 earthquake in Sichuan, China

Miyamoto Relief is a tax-exempt 501(c)3 technical organization that engages in disaster mitigation response, relief and reconstruction efforts throughout the world. We are the only professional nonprofit organization that provides immediate and long-term support following all major natural disasters. We provide internationally recognized engineering, construction and management expertise at the critical phases of a disaster.

Miyamoto Relief works with national governments, the United Nations, and NGO's to strategize and implement disaster mitigation programs. Our staff and consultants have responded to more than 100 earthquakes and hurricanes. We provide crucial post-disaster activities, including structural safety assessments, damage assessments, damage data collection, debris management, human capacity building, and the establishment of building code technical platforms and relief material logistics.

Miyamoto Relief provides crucial post and pre-disaster services, such as rebuilding homes and schools. Currently we are repairing damaged houses in Haiti and rebuilding a school in Port au Prince making it a safe place for children to learn. We are also teaching advanced engineering classes in Haiti in order to prevent future structural failures. In Japan, we were able to purchase text books for a Tsunami-affected school.

More about Miyamoto Relief:

- Kit Miyamoto on National Public Radio about Miyamoto Relief
- Miyamoto Relief on News [illegible]
- Miyamoto Relief in the Sacramento Business Journal
- [illegible]

Please visit our website at: [illegible] to learn more about us.

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earthquake +
structural engineers

CONTACT

Miyamoto+Cardno is a joint collaboration between Miyamoto International (a U.S. corporation), and Cardno (a global engineering consultancy with locations in New Zealand).

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IN THE NEWS

The Star Cantebury: Stables to face bulldozer
By Star Cantebury, NZ

Visiting engineer shocked at demolition numbers
By 3news.co.nz

Demolishing half of CBD 'unbelievable'
By thepress.co.nz

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ADDITIONAL HISTORIC AND SEISMIC REHABILITIATION PROJECTS

Alaskan Way Viaduct Retrofit Study
Seattle, WA

Beverly Hills Courthouse
Beverly Hills, CA

Century City Hospital
Century City, CA

Hotel Fresno Feasibility Study
Fresno, CA

Mission College Preparatory School*
San Luis Obispo, CA

540 East Main*
Stockton, CA

Hall Luhrs Building*
Old Sacramento, CA

Railroad Square, Old Sears Building*
Stockton, CA

Crest Building*
Stockton, CA

Leithold Building*
Knights Landing, CA

Victory Outreach Church
Sacramento, CA

Lady Adams Building
Old Sacramento, CA

Davis City Hall
Davis, CA

Stansbury Home
Chico, CA

St. Mary's Church*
Ukiah, CA

21st & L Streets
Sacramento, CA

381 Grand Avenue
San Francisco, CA

CSAC
Sacramento, CA

Winter's Opera House
Winters, CA

10th & K Streets
Sacramento, CA

Centre City Development Corporation, Historic Preservation, Villa Victoria
San Diego, CA

Buckhorn Restaurant*
Winters, CA

1615 J Street
Sacramento, CA

Aetna Springs
Napa, CA

Intel Communications Center
Rancho Cordova, CA

601 Main Street
Woodland, CA

First Methodist Church
Ukiah, CA

Norte Administration Building
Crescent City, CA

Chico Senator Tower
Chico, CA

Pioneer Telegraph Building
Old Sacramento, CA

Bannon Mortuary
Oakland, CA

Summit Commercial, Lot 15
Fairfield, CA

Water Quality Expansion
Sacramento, CA

Traveler's Hotel
Sacramento, CA

1414 K Street
Sacramento, CA

California Cotton Mill Building
Oakland, CA

Chico Old Municipal Building
Chico, CA

Rapid Transfer Building
Portland, OR

Executive Building (11-Story)
Portland, OR

Eaton Hotel Fiber Reinforced Plastic (5-Story)*
Portland, OR

1414 K Street Building Seismic Dampening
Sacramento, CA

Trolley Car Lofts
Portland, OR

American Bank Building FEMA Study (14-Story)
Portland, OR

Jackson Tower FEMA Study (11-Story)
Portland, OR

Mohawk Building FEMA Study (4-Story)
Portland, OR

Mohawk Galleries FEMA Study (2-Story)
Portland, OR

Morgan Building FEMA Study (8-Story)
Portland, OR

Morgan Park Building FEMA Study (6-Story)
Portland, OR

1015 20th Street
Sacramento, CA

Filipino Center
Stockton, CA

Clunie Clubhouse
Sacramento, CA

Sacramento Memorial Auditorium Design Study
Sacramento, CA

801 I Street, Old Sacramento Post Office (5-Story)
Sacramento, CA

Professional Building, 511 F Street*
Eureka, CA

Bronx Hotel (5-Story)
Stockton, CA

Shasta/Argus Hotels (6-Story)
Sacramento, CA

Tegler Hotel (5-Story)
Bakersfield, CA

548 Main Street
Vacaville, CA

Auburn Hotel
Auburn, CA

Breuner's Building (6-Story)
Stockton, CA

560 Main St.
Vacaville, CA

City of Auburn Civic Center, Administration Building & Public Safety Building (4-Story)
Auburn, CA

San Francisco Armory
San Francisco, CA

UC Davis Silo
Davis, CA

Traveler's Hotel (3-Story)
Vallejo, CA

Elks Building Preliminary Design & Seismic Study
Sacramento, CA

Nelles School
Whittier, CA

S.P. Depot & Railway Express Building Preliminary Design Study
Sacramento, CA

Ten Mile Justice Court
Fort Bragg, CA

Pioneer Building
Sacramento, CA

Porterville Hotel
Porterville, CA

Ridgeway Hotel (3-Story)
Sacramento, CA

Sequoia Hotel (3-Story)
Sacramento, CA

First Brick House
Monterey, CA

Garnier House
Los Encinos State Park, Encino, CA

John Marsh Home
Brentwood, CA

Woodland Library
Woodland, CA

1301 H Street
Sacramento, CA

Alhambra Creamery
Sacramento, CA

Bayley House
Pilot Hill, CA

Silberstein Building
Chico, CA

Town of Locke Structural Analysis
Locke, CA

Old Tavern Building (4-Story)
Sacramento, CA

Regis Hotel (3-Story)
Sacramento, CA

Ebner/Empire Building*
Old Sacramento, CA

Public Market Building
Sacramento, CA

Gates Building
San Diego, CA

Elliot Building (5-Story)
Sacramento, CA

Ping Yuen Senior Housing
Sacramento, CA

Mercantile Building
San Diego, CA

Oroville Chinese Temple
Oroville, CA

Placer County Courthouse
Auburn, CA

Mt. St. Mary's Convent (3-Story)
Grass Valley, CA

Chico Enterprise-Record
Chico, CA

Soda Springs Lodge
Soda Springs, CA

Gregory-Barnes Building
Old Sacramento, CA

Yolo County Museum
Woodland, CA

Napa County Courthouse (3-Story)
Napa, CA

S.H. Kress Building (4-Story)
Sacramento, CA

Benecia Arsenal
Benecia, CA

Guild Savings & Loan
Sacramento, CA

Hughes Stadium
Sacramento, CA

Colusa Care Center
Colusa, CA

Baker-Hamilton Building*
Old Sacramento, CA

Bank Exchange Building*
Old Sacramento, CA

Fratt Building*
Old Sacramento, CA

Haines Building*
Old Sacramento, CA

Hill, Clark & Company*
Old Sacramento, CA

Lambard Flour Mills*
Old Sacramento, CA

Sam Brannan Building*
Old Sacramento, CA

Sazerac Bolding & Blue Wing Saloon*
Old Sacramento, CA

Stevens, Chesley & Company*
Old Sacramento, CA

Union Hotel*
Old Sacramento, CA

What Cheer House*
Old Sacramento, CA

B.F. Hastings Building*
Old Sacramento, CA

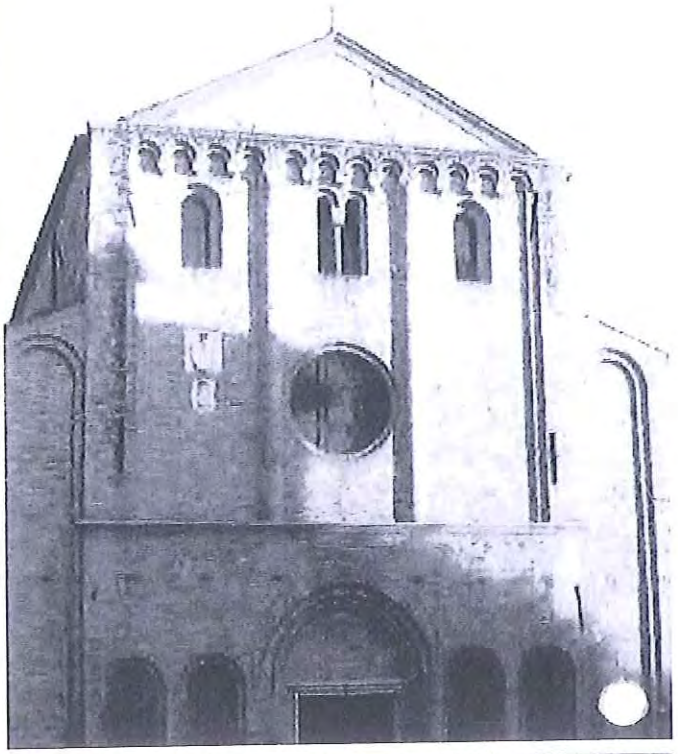
Democratic State Journal*
Old Sacramento, CA

Eagle Theatre*
Old Sacramento, CA

Harris-Winkle Building*
Old Sacramento, CA

Mechanics Exchange Building*
Old Sacramento, CA

National Hotel*
Old Sacramento, CA



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