



OLD MUNICIPAL CHAMBERS

PHOTO CREDIT: Sushrutha Metkürke

REPAIRS, RESTORATION &
RECONSTRUCTION

RELEVANT
INFORMATION



February 2018

CONTENTS

CONTENTS	2
REPAIRS, RESTORATION & RECONSTRUCTION RELEVANT INFORMATION	3
QUALITY ASSURANCE	3
QA DOCUMENT RECORD	3
1. Purpose / Objective.....	4
2. Background.....	4
3. Guiding Documents.....	4
4. Consultants Engaged	4
5. Pragmatic Restoration Approach	5
6. Reference Information / Guiding Documents.....	5
7. Feasibility Report.....	5
8. Developed Design.....	6
9. Risks, Issues & Actions.....	6
10. Next Steps	7
11. Full Disclaimer	8
12. Appendix A	9

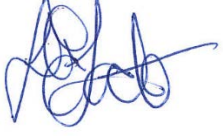
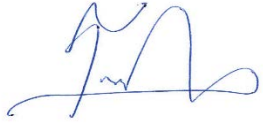
REPAIRS, RESTORATION & RECONSTRUCTION RELEVANT INFORMATION

Client: Christchurch City Council
Asset Old Municipal Chambers
Prepared By: Joseph & Associates Limited
Date: 8th February 2018

QUALITY ASSURANCE

Document: 0 - OMC Repairs, Restoration & Reconstruction Relevant Information – 2018-2-8

QA DOCUMENT RECORD

Document	Revision	Date	Reviewed By	Prepared & Authorised for Release By
0 - OMC Repairs, Restoration & Reconstruction Relevant Information – 2018-2-8	1	8/2/2018	 Linda Lodetti Managing Quantity Surveyor	 Tony Joseph Project Director

1. Purpose / Objective

Joseph & Associates Ltd were engaged by Christchurch City Council (CCC) in December 2017 to assemble relevant information describing the Old Municipal Chambers (OMC) building condition and CCC's existing repairs strategies.

2. Background

The Old Municipal Chambers (OMC) was severely damaged in the 2010 / 11 Canterbury earthquake sequence.

A comprehensive programme of retrieval, deconstruction, stabilisation, weatherproofing and protection was completed in 2014 to stabilise the building until the building could be repaired and restored.

The deconstruction and stabilisation work involved clearing rubble and loose masonry, followed by propping and stabilising the remaining structures.

A regular programme of inspections, monitoring and reactive maintenance was adopted for OMC for as long as the building and site remains unattended until such time that repair, strengthening, reconstruction and restoration works commences. The building condition is monitored monthly. The extent of works carried out to date under this holding pattern is as per CCC instruction.

3. Guiding Documents

All work on the building and site is to be guided by the Conservation Plan for the OMC prepared in October 2000 by Dave Pearson Architects and in accordance with the principles and policies of the ICOMOS NZ Charter for the Conservation of Places of Cultural Heritage Value updated in 2010.

The principal project objective within CCC's project charter is to prepare a plan for the preservation, restoration and reconstruction of the OMC. The project plan is to ensure compliance with statutory, regulatory and professional conservation practice requirements and delineate a detailed programme (for recovery) for Council approval. Building consents are required which necessitates statutory compliance upgrades and all work to the building will be controlled through the Christchurch District Plan Activity status requirements e.g. Resource Consent.

4. Consultants Engaged

Christchurch City Council engaged the following consultants to develop likely strategies for the repairs, restoration and reconstruction:

Project Manager	Joseph & Associates
Quantity Surveyor	Joseph & Associates
Conservation Architect	Tony Ussher Architect
Structural Engineer	Opus Consultants
Structural Peer Review	Ruamoko Solutions
Services Engineer	Opus Consultants
Fire Engineer	Enlightened Solutions
Planner	Planz Consultants

5. Pragmatic Restoration Approach

Conservation work to heritage buildings typically requires that repair, restoration and reconstruction works will be required to meet the requirements of Building Code Regulations. However, in instances where buildings have significant or nationally acknowledged heritage values, a pragmatic approach appropriate to cause minimal effect on heritage values in repairs / reinstatement works is required.

The extent of the earthquake damage presented challenges and the selection of solutions required careful balance between the impact on heritage significant elements, level of acceptable structural strengthening, resilience and the cost implications of methodologies imposed.

The project team, where appropriate, took a pragmatic approach to minimise adverse effects to the Cultural Heritage value of the Old Municipal Chambers.

6. Reference Information / Guiding Documents

There are numerous key reports which provide relevant information to the repairs, restoration and reconstruction of OMC. Refer to Appendix A for Relevant Information schedule. This schedule is not all encompassing but includes reports referenced by or produced by the project team in the stabilisation of the damaged building and in the design of repair, restoration and strengthening options.

Documents are not for construction.

We strongly advise that all referenced documents provided are read for details on the project teams brief, rationale, objectives, recommendations, limitations and exclusions.

The information provided and referenced is for guidance purposes only.

7. Feasibility Report

Feasibility Concept Designs were prepared for the repairs and restoration of OMC and issued in a report to the Council (July 2016). The proposal included reinstatement of elements that have been removed through the process of seismic action and time, including chimneys, turrets and restoring those items of high heritage significance value.

The brief for the project was to develop a living document formed by the culmination of critical examination of the treatments of each aspect of the building. The project team recognised that there are several design options for each element of the project and some of those options may require further detailed comparison with the initial “suggested” design.

Initial stakeholder engagement was carried out in a workshop format with positive outcomes.

The project team separately listed out options for further analysis and comparison before finalising a “preferred” design for developed design.

The ensuing design prepared for the concept / preliminary design is the “suggested” design. That design forms that basis for comparison with other structural or conservation options that may require further consideration within the Resource Consent process.

Opportunities were identified, and next steps established for subsequent phases.

CCC instructed the project team to progress with Developed Design documentation strengthening the building to 67% NBS through implementation of conventional construction processes.

8. Developed Design

Developed Design was a design progression of the features / options developed in the Feasibility Report.

Two options were advanced in the Developed Design documentation being a single stage (Full Restoration) and a two-stage strengthening and restoration process.

The single stage restoration is self-explanatory; however, the staged solution requires explanation.

The **staged restoration solution** was developed as the first stage of the full strengthening option scope of work, the intent was to enable an earlier start on providing sound long-term protection of the building until the future use and funding would allow strengthening and full restoration to be completed.

Repair strategies were developed for both options. A matrix of options was considered for the repair of each building element. The pros and cons of the repair strategies are included within the matrix of options.

Extensive stakeholder engagement was carried out to support the proposed options.

The developed design for both options are complete and are considered by the design team to be the best outcome in the circumstances, when considering damage sustained in the earthquakes, current seismic strength, conservation of heritage fabric, and cost-effectiveness and accessibility.

The Project has been put on hold until the future use and funding allows strengthening and full restoration to be completed.

9. Risks, Issues & Actions

The following is not an exhaustive list of risks, issues and actions identified for consideration and advancement:

- Time is the biggest risk
- Potential escalation accruing per month
- Building and existing fabric deterioration
- Continued maintenance, stabilisation, vermin and dry rot treatment
- Contractor reluctance for lump sum tendering
- Compliance upgrades. Accessibility has not been finalised due to no pre-application meeting providing regulatory feedback
- The reinstatement works will be based on utilising salvaged fabric, materials and elements retrieved from the deconstruction process. (quantum to be confirmed)
- Pages Road – salvaged fabric storage – ongoing costs
- Availability of suitable stone for decorative elements
- Implications of non-warrantable elements (e.g. roofing and stonework repairs)
- Consultation process with key stakeholders
- Stakeholder approvals - it is likely that stakeholders in this project will identify additional options for analysis and comparison as part of the Resource Consent application
- Decisions required by key stakeholders
 - Whether any trace of the earthquake is acceptable to be visible in the repair

- Reconstruction of masonry will include specific relocation of decorative brickwork, carved and dressed stones and general area reinstatement of general facing bricks.
- Fittings / fixtures and equipment (loose furniture, specialist plant and equipment, tenant fitout including joinery and fittings)
- Unforeseen works e.g. stone or brickwork reconstruction
- Dated design documentation
- Future accepted use for the building

10. Next Steps

The following is not an exhaustive list, it seeks to provide an indication of where the repairs, restoration and reconstruction strategy for OMC is at:

- The next steps are to finalise the building's future use, funding and tenancy requirements.
- Review risks, issues and actions and mitigate same.
- Subject to any changes from above, the Project Team prepare a detailed Scope of Works/Specification up to Building Consent standards - detailed design documentation, that is suitable for contractors to provide quotes on and for consent purposes.

11. Full Disclaimer

Joseph & Associates Limited has prepared this document for the sole use of the Christchurch City Council for a specific purpose, each as expressly stated in the document. Joseph & Associates were engaged by Christchurch City Council (CCC) in December 2017 to assemble relevant information to Old Municipal Chambers (OMC) building condition and CCC's existing repairs strategies and the findings of this report are limited to the information contained within.

No other party should rely on this document without the prior written consent of Joseph & Associates Limited. Joseph & Associates Limited undertakes no duty, nor accepts any responsibility, to any third party who may rely upon or use this document.

This document has been prepared based on the Client's description of its requirements and Joseph & Associates Limited's industry experience, having regard to assumptions that Joseph & Associates Limited can reasonably be expected to make in accordance with sound professional principles.

Joseph & Associates Limited may also have relied upon information provided by the Client and other third parties to prepare this document, some of which may not have been verified. Subject to the above conditions, this document may be transmitted, reproduced or disseminated only in its entirety.

Any third-party report or externally sourced information annexed / referenced to this report is the responsibility of that third party and is attached for information only and we make no warranty regarding the same nor accept any responsibility for incorrect information contained therein.

We strongly advise that all referenced documents provided are read for details on the project teams brief, rationale, objectives, recommendations, limitations and exclusions.

All documents prepared by project/consultant team are not for construction.

While we will use our best endeavours to use all reasonable care and skill in carrying out the engagement consistent with that applied by reputable professionals practising in industry in New Zealand at this time. We provide no warranty (expressed or implied) as to the material or findings presented in this report except and only to the extent that the laws of New Zealand impose a warranty or guarantee and without limiting the foregoing: -

- i) Where our services are supplied to a consumer, who acquires, or holds itself out as acquiring our services for the purposes of a business as defined in the Consumer Guarantees Act 1993 ("the CGA Act"), the provisions of the CGA Act shall not apply to our services; and
- ii) Where our services are provided for business purposes as defined in the CGA Act then, if any liability arises under this report because of the provision of such services then such liability whether arising under contract, tort or otherwise is always limited to the contract price paid for this report.

12. Appendix A

Appendix A

OLD MUNICIPAL CHAMBERS

REPAIRS, RESTORATION & RECONSTRUCTION RELEVANT INFORMATION



Thursday, 8 February 2018

The following documents and key sections noted below are not an exhaustive list but provides relevant information to the repairs, restoration and reconstruction of Old Municipal Chambers.
This document is to be read in conjunction with Joseph & Associates Repairs, Restoration & Reconstruction Relevant Information Report for OMC dated 8th February 2018.
Documents are not for construction.
We strongly advise that all referenced documents provided are read for details on the project teams brief, rationale, objectives, recommendations, limitations and exclusions.

Ref No.	Document	File Name	Contents	Section No.	Page No.	Dated	Author	Comments
1	Relevant Information Report	1 - OMC Relevant Information Schedules 2018	Repairs, Restoration & Reconstruction Relevant Information Report for OMC dated 8th February 2018			8-Feb-18	Joseph & Associates Ltd	
2	Conservation Plan	2 - OMC Conservation Plan Part 1				1-Oct-00	Dave PearsonArchitects Ltd	For key information about OMC and its setting and pre-earthquake condition refer to Conservation Plan 2000.
3	Conservation Plan	3 - OMC Conservation Plan Part 2				1-Oct-00	Dave PearsonArchitects Ltd	
4	Verticality Survey	4 - OMC Verticality Survey-2012-05-29				29-May-12	43 Below	
5	Verticality Re -Survey	5 - 43 Below Survey Report 2013-5-28				28-May-13	43 Below	
6	Verticality Re -Survey	6 - OMC 43 Below Survey Report 120580 - 08-June-2015				8-Jun-15	43 Below	
7	Building Condition Report	7 - OMC - Building Condition Report - rev0 - 2015-07-14				14-Jul-15	BuildQual NZ Ltd	The purpose of this survey was to capture the general condition of the interior of the rooms of the building at the time of the assessment.
8	Geotech	8 - GEOTECH				1-May-16	Geotech Consulting Ltd	This developed design report summarises the geotechnical considerations relating to the restoration of OMC.
9	Conceptual Structural Remedial Options Report Rev 8	9 - Combined Report OMC Conceptual Structural Remedial Options Report Rev8				29-Jul-16	Opus International Consultants Ltd	Combined Structural Report included in original feasibility report to CCC July 2016. This report has largely been superseded by Developed Design documentation, however it contains key sections not carried through into the developed design documents sections being 2,3,4 and Appendices A, F and G. NOTE: Key sections are listed
			Background	2	2			
			Building Description	2.3	3			
			Previous Strengthening/Securing Works	2.4	3			
			Damage Observed	3	4			
			4 September 2010	3.1	4			
			22 February 2011 & Aftershocks	3.2	4			
			Water Ingress & Dry Rot	3.3	8			
			Level & Verticality	3.4	8			
			Stabilisation and Securing Works	4	9			
			Reinstatement Guidelines	5	10			
			Building Use	5.1	10			
			Heritage Considerations	5.2	11			
			Likelihood of Seismic Event	5.3	11			
			Structural Performance	5.4	11			
			Structural Analysis & Assessment	6	12			
			Global Assessment	6.1	12			
			Local Architectural Features	6.2	15			
			Foundations	6.3	15			
			Approaches to Repair, Strengthening and Resilience	7	16-17			
			Reinstatement Options	8	20			
			Buildability	8.5	26			
			Peer Review	8.6	28			
			Conclusions	9	28			
			Recommendations	10	29			
			Damage Assessment	Appendix A				
			Peer Review Comments Register	Appendix F				
			3D Scan, Level Assessment	Appendix G				

Appendix A

OLD MUNICIPAL CHAMBERS

REPAIRS, RESTORATION & RECONSTRUCTION RELEVANT INFORMATION



Thursday, 8 February 2018

The following documents and key sections noted below are not an exhaustive list but provides relevant information to the repairs, restoration and reconstruction of Old Municipal Chambers.
This document is to be read in conjunction with Joseph & Associates Repairs, Restoration & Reconstruction Relevant Information Report for OMC dated 8th February 2018.
Documents are not for construction.
We strongly advise that all referenced documents provided are read for details on the project teams brief, rationale, objectives, recommendations, limitations and exclusions.

Ref No.	Document	File Name	Contents	Section No.	Page No.	Dated	Author	Comments
10	DD Heritage Assessment Report	10- DD Heritage Assessment Report				24-Mar-17	Tony Ussher Architect & Conservation Consultant	This developed design report describes the history and cultural heritage significance of the building, its current condition and status, summarises the options considered for its remediation at feasibility study stage, and discusses relevant construction and strengthening processes that could be applied. The scope of the proposed work is described in detail including services and statutory upgrades required.
			Introduction	1	3			This report has been prepared to assess the effects of the proposed interventions of the preferred developed design solution on the heritage values of the OMC.
			Outline History	3	3			Summarised from the Heritage NZ list, reference number 1844.
			Building Description	4	5			
			Construction & Description- Pre Earthquake Damage Status	4.1	5			
			Previous Strengthening and Alterations	4.2	5			
			Cultural Heritage Significance	5	6			
		10a - DD Significance Schedule	Conservation Plan	5.1	7			The Conservation Plan (CP) by Dave Pearson Architects Ltd was prepared in October 2000 and is to be followed in regard to all works to the Chamber and its setting. Design options considered the significance values policies and recommendations of the CP.
			Description of the 2010/11 Canterbury Earthquakes Damage and Stabilisation	6	8			
			Building Surveys	6.2	15			
			Heritage Fabric Recording	6.3	15			
			Schedule of Authenticity, Significance, Condition and Status	7	16			Refer also to file named 9a DD Significance Schedule
			Options Considered for the Repairs, Restoration and Strengthening	8	21			
			General Considerations	8.1	21			
			Summary of the Feasibility Study Options considered	8.2	21			Refer also to the Matrix of Options Report prepared by consultant team.
			Masonry Wall Repair Processes Considered- Feasibility Study	8.3	22			Numerous appropriate repair processes and techniques were considered and assessed in the development of the repair and remediation strategies for the building. The structural engineering pros and cons of the options are discussed in Section 7, Approaches to Repair, Strengthening and Resilience of the Structural Remediation Options Report by Opus Consultants. Comment on the effects of the various processes and technologies on the heritage values of the Chambers are included here.
			Architectural Drawings - Developed Design	8.4	24			Existing, Full and Staged Restoration Drawings.
			Structural Strengthening: Full Restoration with Strengthening to 67% NBS	8.5	24			
			Construction & Fabric Considerations	8.6	29			
			Disabled Persons Access- Statutory Requirements & Upgrading	9.2	34			
			Existing Situation	9.2.1	34			
			Compliance with Acceptable Solutions in NZBC D1/AS1 and NZS 4121:2001	9.2.2	34			Refer to the Barrier Free report for the full assessment of upgrading requirements and recommendations.
			Considerations	9.2.3	35			
			Proposals for Electrical Services & Heating	9.3	36			Refer Opus Consultants OMC Repairs, Restoration & Report- available upon request.
			Proposed Electrical Supply and Reticulation	9.3.1	36			
			Proposed for Ventilation and Space Heating	9.3.2	36			
			Proposals for Fire Protection	9.4	37			Refer to the Enlightened Solutions Fire Report.
			Conservation Policy Considerations & Constraints	10	37			
			ICOMOS NZ Charter 2010	10.1	37			
			Conservation Plan	10.2	41			
			Christchurch Replacement District Plan	10.3	43			
			Assessment of Effects on Heritage Values - Full Restoration	11	44			
11	Matrix of Options Considered	11 - Matrix of Options Considered				1-Apr-17	Joseph & Associates Ltd	Developed Design Report-In developing repair and reinstatement approaches for this building the Project Team have considered a broad range of materials and techniques. This section introduces this range of materials and approaches and intends to highlight the benefits and limitations of each as a basis for understanding how the options outlined in the subsequent sections have been arrived at.
12	DD Outline Specification	12 - DD Outline Spec-31.03.17				31-Mar-17	Tony Ussher Architect & Conservation Consultant	Developed Design Report-The Outline Specification describes the work and materials according to the component parts of the building and its elements. The outline specification is divided into two parts, the first for the FULL RESTORATION proposal, and the second for the STAGED RESTORATION proposal which is a partial completion of the repair, strengthening and reconstruction of the building deferring its final restoration to a future date.

OLD MUNICIPAL CHAMBERS

REPAIRS, RESTORATION & RECONSTRUCTION RELEVANT INFORMATION

Thursday, 8 February 2018



The following documents and key sections noted below are not an exhaustive list but provides relevant information to the repairs, restoration and reconstruction of Old Municipal Chambers. This document is to be read in conjunction with Joseph & Associates Repairs, Restoration & Reconstruction Relevant Information Report for OMC dated 8th February 2018. Documents are not for construction.

We strongly advise that all referenced documents provided are read for details on the project teams brief, rationale, objectives, recommendations, limitations and exclusions.

Ref No.	Document	File Name	Contents	Section No.	Page No.	Dated	Author	Comments
13	Architectural Drawings	13 - Architectural Drawings 31.03.17				31-Mar-17	Tony Ussher Architect & Conservation Consultant	The developed design architectural drawings include the following series: Drawings prefixed AE Existing Pre-Earthquake Damage Form. AF Developed Design Full Restoration. AS Developed Design, Staged (Partial Restoration)
14	OMC Structural Design Features Report	14 - OMC Structural Design Features Report Issue 1				24-Mar-17	Opus International Consultants Ltd	Developed Design Report.
			General	1	2			
			Introduction	1.1	2			The building has not been occupied since September 2010 due to the damage sustained and its risk of collapse. The building has generally been seismically stabilised to provide at least 34% NBS strength to the perimeter including areas adjacent to public access ways.
			Objective	1.2	2			The Design Features Report (DFR) is a detailed document defining the structure’s design criteria and recording key decisions or outcomes. It outlines design loading, structural modelling assumptions, material properties, foundation requirements and design standards. The DFR also defines the calculation procedure and checking principles to be followed, providing a clear explanation of the full design.
			Building Use	1.3	3			At this stage the client (CCC) are expecting to use the building in essentially the same way as prior to the Canterbury Earthquake sequence.
			Approach to Consent	1.4	3			In order to future proof the building and to maximise the options for its re-use, CCC have decided to restore the building and strengthen it to a level where the damage to the building in a future earthquake is expected to be moderate. Recommendation is that when CCC apply for consent to restore the building, approval is also sought for a change in use.
			Means of Compliance	1.5	3			The design of the structure is in compliance with the New Zealand Building Code (NZBC),section B1.
			The Structure	2	3			Note: This section has both Full Restoration and Staged Information.
			General	2.1	3			
			Existing Gravity Structure	2.2	6			
			Lateral Load Resisting Structure	2.3	7			
			Full Restoration Significant Design Features	2.4	8			
			Soil Conditions	3	16			
			Summary of Geotechnical Report	3.1	16			Refer to the Geotechnical Report by Geotech Consulting, dated May 2016.
			Soil Design Values	3.2	17			Refer to the Geotechnical Report by Geotech Consulting, dated May 2016.
			Seismic Design Methodology	4	18			This section outlines the seismic design methodology adopted for the design of the seismic lateral load resisting system.
			Design Loads	5	19			
			Structural Peer Review	6	20			Ruamoko Solutions was engaged to undertake a peer review of the structural aspects of this project. The scope of the peer review is listed within this section. Ruamoko has completed a review of the concept design report in July 2016, their comments have been incorporated into the developed design documentation.
			Next Steps	7	21			There are a selection of structural items which need to be considered as part of the detailed design stage. These are summarised for future reference.
			Report Limitations	8	21			
			Full Restoration Sequencing Sketches	Appendix A				Appendix B includes Staged Restoration Sequencing Sketches.
15	Old Municipal Chambers Structural Drawings	15 - Old Municipal Chamber Structural 2017-04-04				4-Apr-17	Opus International Consultants Ltd	Developed Design Structural Drawings - not for construction.
16	Enlightened Fire Report	16 - Enlightened Fire Report	Means of Escape Fire Report			27-Mar-17	Enlightened Solutions	Developed Design Report-The purpose of this report is to satisfy Council that after the proposed alterations the building will comply with the provisions of the building code for means of escape from fire as nearly as is reasonably practicable.
17	Accessibility Report	17 - Accessibility Report 20170313				13-Mar-17	Barrier Free New Zealand Trust	Developed Design Report-Barrier Free NZ Trust was engaged to produce an Accessibility Report on Old Municipal Chambers building (OMC) with the purpose of ascertaining existing levels of accessibility compliance and providing recommendations for the improvement of accessibility which could be incorporated ‘as nearly as is reasonably practicable’ into the repair and upgrade works.
18	Planning Considerations	18 - OMC - Planning Matters (January edition)				19-Dec-17	Planz Consultants Limited	This updated Developed Design Report summarises Planning Considerations for the Full Restoration of the OMC including the underlying zone provisions . The underlying zone provisions provide for a range of permitted uses of the building- list included. The report lists the Key Stakeholders in the consenting process and other matters i.e. archaeological authority and planning conclusions.