



29 February 2012

EDMONDS BAND ROTUNDA: 230 CAMBRIDGE TERRACE
EARTHQUAKE DAMAGE RECOVERY

SECURING & DECONSTRUCTION METHODOLOGY & PROTECTION PLAN

The document outlines the securing, retrieval and deconstruction methodology of the Edmonds Band Rotunda only and does not include permanent repair works.

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1. EARTHQUAKE DAMAGE TO THE BAND ROTUNDA & DECONSTRUCTION

Following the 22nd February 2011 earthquake, the Band Rotunda suffered major damage to the structure. There is severe cracking and failure to the concrete at the top and bottom of all columns at the dome collar and pedestal plinth connections, and there is cracking and damage to all of the concrete balustrades. There has been appreciable ground movement and spreading in the riverbank area on which the band rotunda is located and this has caused noticeable leaning of the rotunda and the basement floor has lifted within the plinth drum. The plaster column capitals and pedestals have come away from the concrete substrate and reinforcing steel in the column connections is visible and has stretched and deformed. There are also visible cracks around the base and plinth. There is evidence of ground movement adjacent to and on the site of the rotunda and this is elaborated in separate geotechnical engineering reports. The dome and collar beam appear to be reasonably sound.

Temporary bracing of the columns and stabilization of the entire rotunda insitu had been investigated and proposed following the February 2011 earthquakes. However, the scope of the stabilisation works required has increased since due to further settlement and movement of the rotunda. Stabilisation work was consequently extended to include screw piling beneath the foundations, steps and plinth to stabilise the movement and to enable future re-levelling of the structure. With the extent of the deterioration, settlement and damage now suffered by the rotunda it has now been resolved to salvage the structurally sound dome and roof allowing this to be incorporated into a new structure including new foundations, plinth and columns, and to deconstruct and remove the existing damaged columns, balustrades, steps, plinth and basement.

The dome and roof would be lowered to a temporary support base on the ground and protected, and the columns, balustrade, plinth, steps and basement would be recorded once it is safe to do so and deconstructed. The recording would include salvage of representative examples of decorative elements to enable new to be replicated. This would include plaster capitals and pedestals, balustrades and associated handrails, rails and cappings. An example of a column would be salvaged and stored with the dome. Measurements and photos would

be taken to enable future as-built drawings to be prepared for reconstruction purposes. The plaster decoration to the capitals and bases and balustrades would be salvaged, protective wrapped and recorded. The remainder of the concrete columns, plinth, steps and basement are to be recorded by the Conservation Architect prior to deconstruction and disposal.

The deconstruction contractor's proposed deconstruction methodology is attached.

2. CULTURAL HERITAGE SIGNIFICANCE OF THE BAND ROTUNDA

The Edmonds Band Rotunda is of regional significance due to its historical and architectural values. The Edmonds Band Rotunda is listed in the Christchurch City Plan, Volume 3, Part 10 *Heritage and amenities*, Appendix 1 as a group 2 protected place. It is part of a heritage grouping on this area of the riverbank that includes the Poplars Pavilion, riverbank walls Edmonds Clock Tower, drinking fountain, telephone kiosk, the poplars and setting.

The rotunda is registered with the NZ Historic Places Trust as Historic place – Category II.

Celebrating 50 years in Christchurch, Thomas Edmonds decided to commission and donate a band rotunda to the city. Designed by Victor Hean and built by Neil McGillvray, this building was opened on 11 Nov 1929.

The CCC Architectural Heritage of Christchurch brochure no. 8 – 'The Legacy of Thomas Edmonds' describes the building as follows:

"The band rotunda is octagonal in plan with an overall diameter of 10.2m and a height of 12m. The building is constructed from reinforced concrete with a stucco plaster finish and consists of a basement and ground floor. A column, 4.8m high, stands at each of the eight corners to support the dome which is of timber construction and sheathed in copper.

Circular steel sash windows with wrought iron grilles have been placed around the base of the rotunda to allow light into the basement. This was originally used as a changing room for band members. The rotunda entrance is on the western side at the top of the curved staircase and a wooden door on the northern side leads into the basement

Owing to a decline in public interest for band concerts and after many years of disuse and neglect, alterations were made in 1986 to convert the rotunda into a restaurant. The changes were designed by architect David Childs.

The overall character of the rotunda was maintained by fixing the glazing for the restaurant area within the external structure and adding striped awnings to control the sunlight in summer. The basement was converted into a kitchen and area for public conveniences.

The band rotunda was designed by Victor Hean in the High Renaissance style. Proportion, harmony and a return to the Classical form were the principle features of this style of architecture. The rotunda is similar in style to Donato Bramante's 'Tempietto' in Rome c.1502-1503, which is considered to be the first great monument of the High Renaissance."

3. CONSERVATION PLAN

A Conservation Plan has not been prepared for the Band Rotunda.

4. ICOMOS 2010 NZ CHARTER: APPLICABLE PRINCIPLES

The principles and policies of the ICOMOS 2010 NZ Charter guide the conservation of heritage buildings and sites and apply to the securing, removal of fabric, and recording of the salvage and deconstruction work required to the Edmonds Band Rotunda.

The following guiding conservation principles elaborated from the ICOMOS 2010 NZ Charter apply to the salvage, recording, deconstruction and removal work:

Respect for Surviving Evidence: *The removal of any physical evidence should be minimised.*

Comment: The remaining standing elements of the building provide evidence and a basis for the interpretation of the building for its future possible reconstruction and restoration. Whilst the columns and base are critically damaged precluding their retention, they can be salvaged in part to provide physical evidence of all the elements for future reconstruction in new material.

Minimum Intervention: *Work undertaken to a place of cultural heritage value should involve the least degree of intervention consistent with conservation and the principles of this (ICOMOS) charter.*

Comment: The rotunda is now so critically damaged that the principle of minimum intervention applied to the whole structure cannot apply. The dome and concrete collar are intact and can be separated from the columns and lifted off in one piece for incorporation into a new structure. The columns, balustrade and base will have representative parts retained for interpretation enabling reconstruction in new material.

Controlled dismantling following recording of fabric where this is safe to do should only be carried out after instruction by the Project Manager in consultation with the Conservation Architect and Structural Engineer.

Recording: *Recording is an essential part of the physical investigation of a place. It informs and guides the conservation process and its planning. Systematic recording should occur prior to, during, and following any intervention. It should include the recording of new evidence revealed, and any fabric obscured or removed. Recording of the changes to a place should continue throughout its life.*

General: The deconstruction, dismantling and removal of fabric shall be undertaken assuming that the material will be used in the reconstruction of the rotunda or for fabrication of new fabric. The reconstruction process will include reassembly using existing materials, eg roof, dome and collar, and new columns, balustrade and plinth.

Removed and insitu damaged material provides vital physical evidence on which the reconstruction of the building can be based. Salvaged material must be sorted, recorded, protected and securely stored to assist with the reconstruction process. Collapsed material, where this occurs, should be recorded in its found location before removal to identify which part of the building it came from. All recording of fallen and removed material shall be under the control of the Conservation Architect Tony Ussher using the recording methodology established and maintained by the CCC Heritage Recovery Working Group.

5. ARCHAEOLOGICAL AUTHORITY REQUIREMENT

The band rotunda is within the four avenues and consequently is deemed to be an archaeological site by the Christchurch City Plan that requires that an Archaeological Authority is required from the NZ Historic Places Trust for the deconstruction and excavation work. An Archaeological Authority is to be obtained and submitted.

6. OCCUPATIONAL HEALTH & SAFETY PLAN

Nikau Contractors Ltd are to prepare and submit directly to CERA a Health & Safety Plan for the work once the deconstruction of the rotunda has been approved.

7. SEDIMENT CONTROL PLAN REQUIREMENT

A sediment control plan for the site during deconstruction and excavation processes will be required to prevent run off entering the Avon River and will be submitted by Nikau Contractors.

8. GUIDELINES & CHECKLIST

The following guidelines apply to all salvage and deconstruction processes.

1. Evaluate the site
 - a. Check surroundings for risks
 - i. Buildings and structures
 - ii. Water
 - iii. Power
 - iv. Gas
 - v. Wind, dust and debris
 - b. Identify escape routes
 - c. Identify loose material
 - d. Use safety gear
 - i. Hard hat
 - ii. High visibility vest
 - iii. Masks
 - iv. Safety boots
 - v. Gloves
 - vi. Glasses
2. Prepare the site
 - a. Map the site

- b. What's in there and where is it expected to be found. This include furniture and fixtures. Provide methodology on how to handle, and protect these.
 - c. Divide the site and grid it for recording purposes
 - d. Photograph (may need crane cage or knuckle boom to view from above)
 - e. Decide where to start
 - f. Identify materials needed
 - i. Jiffy foam for wrapping salvaged material to be recorded and kept as physical evidence
 - ii. LD45 protection foam for separating, protection, stabilisation and propping structure from heritage fabric
 - iii. Ply sheeting and supporting timber
 - g. Identity plant and tools needed including
 - i. Torches and lights
 - ii. Clean strops
 - iii. Cranes and hoists
 - iv. Trucks
 - v. Lifting cages
 - vi. Pallets and boxed pallets (for salvaged material to be recorded and retained)
 - vii. Labels, marker pen, pencil & masking tape
- 3. Prepare storage
 - a. Plan routes and timing
 - b. Check security and protection
- 4. Prepare methodology
 - a. Notify owner
 - b. Systematically record before and during removal
 - c. Ensure appropriate conservation specialists are on site including conservation architect, structural engineer and archaeologist.
 - d. Where to work from, side in or top down.
 - e. Identify other methods, crane to lift bulky and large items clear to minimize damage beneath.
- 5. Prepare personnel
 - a. Archaeological protocols
 - b. Safety
 - c. Instruction on retrieval
 - d. Handling
 - e. Protection of materials
 - f. Stacking and storing
- 6. Process
 - a. Work from cage/cradle
 - b. Do not work in winds

9. CONSULTANT & CONSTRUCTION TEAM
[Contact Information Removed]

10. PHOTOS



The rotunda from the west with stairs, commemorative plaque in the centre panel, and a pair of the Art Deco lamp standards that encircle the rotunda.



The commemorative plaque.



A typical column base and pedestal damage with exposed and deformed reinforcing steel. A damaged balustrade bay and a vent with grille to the plinth of the rotunda are shown.



Typical damage and failure of the column capital and dome collar joint with exposed reinforcing steel. The decorative plaster moulding to the capital has collapsed.



West elevation stairway



The door to the basement.

10. RECOVERY, DECONSTRUCTION & PROTECTION PLAN

ACTIVITY	POTENTIAL RISK	MITIGATING MEASURES
Deconstruction, documentation, recording and storage	<p>Loss or damage to heritage fabric.</p> <p>Evidence of removed material's location in the building is forgotten or lost.</p>	<ul style="list-style-type: none"> • A photographic survey is to be maintained by the Conservation Architect, Tony Ussher prior to work commencing and during dismantling, retrieval and storage of retained salvaged material. • Monitoring and subsequent photographic record of all works and discoveries shall be maintained by the above who shall be notified as soon as any discoveries become apparent. On instruction record and photograph and report at scheduled site meetings. • On site allow the Conservation Architect to identify any significant fabric and to quickly note the fabric, its location, extent of damage, and location where collapsed. • The Conservation Architect is to identify significant elements retrieved for interpretation purposes in a concealed place with indelible marker or graphite pencil following deconstruction. • Record these significant elements using sketches, measured survey drawings and/or photographs. The record is to be maintained in an established spreadsheet format by the Conservation Architect and consultant Archaeologist, Katharine Watson who administers the system. • The Conservation Architect, Tony Ussher, should be on site throughout critical operations that require specialist conservation knowledge and methodology. The Conservation Architect is to sequentially photograph and record the dismantling work as it proceeds. • A record log of materials is to be maintained under the direction of the Conservation Architect Tony Ussher during salvage and removal work. The log is to record the found location of the material against a reference grid, and is to also reference the stored location of the material. The log is to be maintained in an electronic spreadsheet format agreed with the CCC. • The Conservation Architect Tony Ussher and the CCC are to maintain a tracking log recording the movements of materials. The roof and drum are to be stored either on site in a secured area or at the Pages Rd storage facility, and all other retrieved material to be retained for interpretation is to be stored at Pages Rd. • Material, both collapsed and removed that is to be retained for interpretation needs to be recorded and located on the building. This work is the responsibility of the Conservation Architect Tony Ussher. Plans, elevations and sections exist of the rotunda exist that will assist with this recording process. Records are to be copied to the Project Manager, Alan Brown by the Conservation Architect. • Significant material and fabric including broken and damaged fabric that is to be salvaged for re-use and/or interpretation purposes to assist with the reconstruction and restoration of the rotunda includes the following: <ul style="list-style-type: none"> Roof and collar – all to be retained for re-use Column – representative column for interpretation

ACTIVITY	POTENTIAL RISK	MITIGATING MEASURES
(Documentation, recording and storage, continued)		<p>Balustrades - complete bay of balustrade for interpretation Loose whole balusters Balustrade rails and capping - representative pieces for interpretation Plaster mouldings to column capitals and pedestal - representative for moulding new. This may need to be a jig-saw of pieces Plinth circular windows and grilles – all to be retained for re-use Basement door – retain for re-use Garden lamp standards and plinths, (if these are to be removed) – all to be salvaged for re-use. (If they remain they are to be protected from deconstruction activities.) Granite commemorative plaque to be retrieved for re-use</p> <ul style="list-style-type: none"> • If possible dismantle building or building elements in sections as large as possible. Place material in a suitable area, where fabric can be recorded and/or protected for storage. • The Conservation Architect, Tony Ussher, shall identify elements with artefact identification numbers and record their locations on existing drawings of the rotunda.
Communication	<p>Heritage fabric either known or discovered may be at risk if intentions and subsequent actions are not discussed and decided upon by the contractor, client and heritage consultants.</p> <p>Instructions issued on site must come from one source.</p>	<ul style="list-style-type: none"> • Initiate a 'Heritage Site' briefing to all contractors and staff, consultants and work related visitors. • Hold a pre-construction site meeting prior to work commencing on each area of the building, and then regular minimum weekly construction meetings on site where heritage related issues are discussed and recorded. • Establish communication procedures for issues arising between site meetings. • Any further propping, dismantling or deconstruction of the building to secure and make it safe should be done following the instructions of the Project Manager Alan Brown, in consultation with the Conservation Architect Tony Ussher and the Structural Engineer, and their selected specialist contractors. All work is to be approved by the CCC Heritage Planners. The Project Manager shall issue all instructions to the contractor.
Security	Out of hours construction sites are potential targets to damage and subsequent loss of heritage fabric.	<ul style="list-style-type: none"> • The main contractor Nikau Contractors Ltd is to prepare a Site Management Plan including site access, positioning of site buildings, security and sediment control. This is to be approved by CERA. • Ensure the whole site is secure and monitored during the deconstruction and stabilisation contract period. • All parts of the Band Rotunda and site are to be secure. The security and safety of scaffolding, hoists, plant and equipment and the security fenced contractor's work and storage area is the contractor's responsibility. • Report on security at site meetings and take appropriate action as situations require. • Install security around all stored material to prevent theft. • If there is the potential for theft, remove especially significant elements to a more secure area.

ACTIVITY	POTENTIAL RISK	MITIGATING MEASURES
Security (continued)		<ul style="list-style-type: none"> At present the rotunda is located in a public reserve that is within the inner city red zone and is not accessible to the public. The red zone cordon around the area including the site will be returning to public use. At the end of the deconstruction contract the site is to be safe secured to allow normal access for the public around the site, but excluded from it. Final security of the site each day is the contractor's responsibility. The security and safety of scaffolding, hoists, plant and equipment and the security fenced contractor's work and storage area is the contractor's responsibility.
Weather proofing	Damage to heritage fabric is possible when elements are open to the weather during the retrieval, stabilisation and deconstruction process when areas containing significant finishes and building fabric are exposed to the elements.	<ul style="list-style-type: none"> The roof and collar is an exterior element of the rotunda and does not require any specific weather protection. The roof is to be checked for leak sources that could cause deterioration of the timber sub-structure and the Project Manager advised where any sources of leaking are found. Once the overhead falling hazards have been removed and safe entry to the basement and restaurant is possible enabling retrieval of tenant fitout material identified for retrieval, these should be removed as soon as possible to avoid further exposure to weather.
Fire & protection systems	The Band Rotunda has cultural and architectural significance and heritage value.	<ul style="list-style-type: none"> This is strictly a NO SMOKING site. No open flame or heat devices are allowed on the site. Construction fire extinguishers are to be provided as well as permanent access to a water supply for fire fighting. Any combustible materials are to be securely stored away from the rotunda and other buildings.
Cranage and heavy vehicles	The use of cranes or hoists will be required to remove the roof and columns to be deconstructed. Vehicle access and cranes need to be located on or adjacent to the landscaped riverbank grounds of that includes mature trees.	<ul style="list-style-type: none"> Wherever possible, cranes and heavy equipment are to be located on the road area to the north of the rotunda and to the grounds to the west. Take care to manoeuvre the crane, hoist and vehicles around hard landscaping and trees. Keep clear of tree trunks and provide protection around the trees where they are close. Provide barriers around the drip-line circumference of the trees to keep vehicle movement away from tree roots. Locate crane supporting legs and blocking clear of tree roots. Determine in advance whether any roads are affected and put in place any traffic management procedures and approvals.
Dust and debris	<p>The contractors site and construction area is located adjacent to public roads, footpaths and public space.</p> <p>Debris and rubble may contain evidence for interpretation and restoration assistance.</p>	<ul style="list-style-type: none"> Keep the contractors site and construction area dampened to avoid dust nuisance, to neighbouring properties and onto the footpaths and road. Dust and grit is to be kept out of stormwater kerb channels. Provide hay bales as sediment filter between the river and the rotunda and to street kerb dish channels to prevent sediment entering the stormwater reticulation system. Check street crossing and kerb channel regularly for accumulated sediment and clean and remove as necessary. Remove only debris from site as instructed by the Conservation Architect Tony Ussher to minimise the risk of fabric being removed that may be required for interpretation. purposes.

ACTIVITY	POTENTIAL RISK	MITIGATING MEASURES
Scaffolding & temporary support	Potential damage to heritage fabric can occur from load bearing, falling or leaning scaffolding.	<ul style="list-style-type: none"> • If scaffolding is to be erected is to be held clear of the building and protection is to be provided where scaffold is close to or touches any heritage fabric that is identified for retrieval. Keep scaffolding well clear of any decorative elements, windows, doors, copper roof and plastered concrete structure and walls. • Provide foam padding between the scaffold planks and poles where these are in close proximity to the building fabric. Padding is to be a square piece of LD45 between the pole/plank and the building fixed by wrapping in tape. • A site meeting is to be held with scaffolders, Project Manager and Conservation Architect prior to erection of scaffolding to discuss, agree and record any protection required.
Protection of fabric:	<p>There is risk to significant heritage fabric from damage caused during adjacent deconstruction work.</p> <p>Deconstruction work will be occurring adjacent to doors and windows including timber finishings.</p>	<ul style="list-style-type: none"> • Provide protection to insitu fabric identified for retrieval wherever possible until retrieval or removal of is possible. • Protection of doors and frames: Remove basement door and wrap in Jiffy foam supplied by the Project Manager. Store where directed by the Project Manager. • Protection of removed vents in the plinth: wrap in Jiffy foam and store in sided pallets provided by the Project Manager. • Remove window grilles and store in sided pallets with foam separation between grilles. • Protection of balustrades: provide LD45 foam of carpet throws over balustrades to be salvaged.
Monitoring	There is a risk that the work will proceed undocumented or without prior agreement resulting in damage and/or loss to heritage fabric.	<ul style="list-style-type: none"> • Work is only to be conducted under supervision or agreement of the Council Heritage Consultant Jenny May, the Conservation Architect Tony Ussher and in consultation with the Structural Engineer. • The Council Heritage Consultant and the Conservation Architect are to undertake regular inspections to suit the work and at milestones. • The Conservation Architect only shall issue or request instructions and these are to the Project Manager for his consideration and issue to the contractor for action. • All instructions to the main contractor shall be issued by the Project Manager and the main contractor will not act on instructions unless with authorisation from the Project Manager.