



City of Salisbury

Stage 1 – Accommodation Review

Municipal Office and Operations Centre



19 May 2014
Project Number: 1188

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Executive Summary

The purpose of the Accommodation Review is to review the City of Salisbury office accommodation at the Municipal Office and Operations Centre against the GOAC guidelines and current relevant codes and standards and to identify development options to upgrade the accommodation to contemporary office standards and which supports the culture and business objectives of the organisation.



The scope of this consultancy focussed on the office areas and included:

- Site visits to review the Municipal office and Operations Centre
- Review of floor plans and Engineers reports
- Collection of staff data
- Review current office facilities against the South Australian Government office accommodation Committee (GOAC) guidelines and benchmark assess current office space efficiency, flexibility, utilisation, amenities and code compliance
- Determination of the impact of required earthquake structural upgrades proposed in the Wallbridge and Gilbert reports.
- Recommended approach to future phases of assessment and potential development options.

General Office Accommodation Review

While the office accommodation over both sites is in sound condition, it does not reflect contemporary office design which is characterised by large visually connected floor areas, central amenities and support functions. These characteristics support flexible team based work practices and office culture.

Both sites have high office space efficiency (i.e. sqm per person) as measured against GOAC Guidelines. The Municipal Office has achieved 14.2sqm per person and the Operations Centre 10.79 sqm per person.

However this efficiency has typically been achieved by:

- work points that are under sized (i.e. minimum guideline size 6 sqm)
- lack of support/ interactive spaces (i.e. cafes, meeting and utility areas) that typically are closer to 45% of the office area
- less enclosed offices that are typically 10% of the work points

To achieve the appropriate GOAC benchmarks for both sites expansion of the office areas are required. The gross areas are summarised in the development options section below.

Executive Summary

Municipal Office Key Issues

Key issues in current Municipal Office include:

- Office accommodation is cellular, fragmented and inconsistent throughout
- Lunchroom segregated on level 2
- Meeting and training rooms are remote generally and the mezzanine training room is only accessible by stair which contravenes the disability access code
- Various Workstation sizes creating possibly unnecessary hierarchy issues with staff
- Work point sizes below minimum guideline standard of 6 sqm
- Lack of central amenities and support spaces
- The Records Building and the Home Assist Building are disconnected from the main building thus undermining the desirable characteristics of a contemporary office design
- Non Compliance with current Building Code of Australia in areas including the toilet design, disability access, earthquake performance and energy efficiency

Earthquake code compliance will have minor impact on space utilisation but the implementation will be very disruptive



Operations Centre Offices Key Issues

Key issues in current Operations Centre Offices include:

- Long narrow office space restricts space planning options and inhibits collaboration between work teams because staff are dispersed along the length of the facility rather than clustered together
- Amenities intrude into the office space creating a series of disjointed office zones
- Location of enclosed offices along the external windows does not reflect contemporary office space planning where they are typically inboard so that all staff benefit from access to light and outlook.

Municipal Office Development Options

The following development options have been identified to upgrade office facilities to GOAC compliant contemporary office standards:

Option 1 Retain and refurbish two storey civic building and build new two level office wing adjacent with a gross area of 3,558sqm

Option 2 New building with a gross area of 4,755sqm on James Street Site or alternative site

Option 3 Refurbish existing offices and extend with a new gross area of 837sqm



Operation Centre Development Options

Option 1 Refurbish existing office and expand into workshop with a new gross area of 403 sqm

Option 2 Refurbish existing office and extend with 403 sqm of new office area on Keys Road frontage

Executive Summary



Future Phases

The following phases of work are recommended to enable the City of Salisbury to make timely and informed decisions on the preferred approach to upgrading their accommodation at both sites:

Phase 2 Municipal Building Audit and Development Options Feasibility Study

Phase 3 Strategic Facility Plan and Brief

Phase 4 Concept Design of Preferred Development Option

Purpose of Report

The purpose of the Accommodation Review is to review the City of Salisbury office accommodation at the Municipal Office and Operations Centre against the GOAC guidelines and current relevant codes and standards and to identify development options to upgrade the accommodation to contemporary office standards and which supports the culture and business objectives of the organisation.



Following growth in the residential and commercial population over the last 20 years, the City of Salisbury has restructured its organisation and adapted its facilities to suit the evolving need. Now in a time of forecast low growth levels the council recognises the need to evaluate how its facilities are performing in terms of functionality, efficiency, aesthetics, civic presence and projected infrastructure upgrade requirements.

The scope of this consultancy focusses on the office areas and includes:

- Site visits to review the Municipal office and Operations Centre
- Review of floor plans and Engineers reports
- Collection of staff data
- Review current office facilities against the South Australian Government office accommodation Committee (GOAC) guidelines and benchmark assess current office space efficiency, flexibility, utilisation, amenities and code compliance
- Determine the impact of required earthquake structural upgrades proposed in the Wallbridge and Gilbert reports.
- Recommend an approach to future phases of assessment including consideration for the potential development options.

The Operation Centre workshops and the Municipal Office civic functions have been deemed by the City of Salisbury to have an adequate floor area for the purpose of this report. In the future Strategic Facility Planning Phase detailed operational requirements of these areas can be included in the scope for assessment.

James Street Municipal Office



Existing Features

The City of Salisbury James Street Municipal Office comprises of a large 2 storey concrete framed masonry civic wing, surrounded by a series of staged single storey office wings. The building is located in a prime position in the city centre adjacent to the Parabanks Shopping Centre and Hoyts Cinema complex.

The civic functions include - Council Chamber, Mayor's Foyer and Committee Rooms at level 2, and the main public interface, function and office areas on the ground level. They generally operate well.

The main original building containing largely the civic functions was designed by Architect Robert Dixon in the 1980s. It is a building of Architectural merit and contributes to the heritage of the precinct. Therefore its preservation including original aspects of the interior should be considered as a part of any future development options.

Office Areas

The Municipal building covers a gross area of approximately 4,700sqm which includes significant space dedicated to public and civic functions. Refer to Appendix 1 for floor plans.

The office accommodation is summarised below:

Location	Area
Ground floor (excl public & civic)	2,587 sqm
First floor (inc Committee rooms / Kitchen, excl public / civic)	200 sqm
Mezzanine	84 sqm
Records building	242 sqm
Home assist building	115 sqm
TOTAL	3,144 sqm

Office Configuration

The building has been extended multiple times and accommodates staff in various types and sizes of enclosed offices and open. The staged expansion of space over time has led to a series of non-contiguous office spaces being created that limits flexibility for change and legibility of circulation generally.

While the office accommodation is in sound condition, it does not reflect contemporary office design which is characterised by large visually connected floor areas, central amenities and support functions. These characteristics support flexible team based work practices and office culture.

Key issues in current office planning include:

- Office accommodation is cellular, fragmented and inconsistent throughout.
- Lunchroom segregated on level 2
- Meeting and training rooms are remote generally and the training room is only accessible by stair which contravenes the disability access code
- Various Workstation sizes creating possibly unnecessary hierarchy issues with staff
- Lack of central amenities and support spaces



Unsuitable Office Areas

The Records Building and the Home Assist Building accommodate staff but are disconnected from the main building thus undermining the desirable characteristics of a contemporary office design where all staff are working together to support a team based culture.

Similarly the mezzanine space is disconnected but furthermore it is not accessible via a lift and is therefore non-compliant with current codes.

A summary of the areas are as follows:

Location	Area
Mezzanine area	84 sqm
Records Building	242 sqm
Home Assist Building	115 sqm
Area unsuitable for office use	441 sqm

In any scenario where significant refurbishment or redevelopment is considered the above areas should be discounted and the staff / functions absorbed into a refurbished and/or expanded office fitout area.

Work Point Sizes

Current enclosed offices and workstation sizes vary depending on when and where they are located. Typically the work stations are smaller than the current standard for government work points, thereby contributing significantly to the space per person efficiency being better than the guidelines. As part of an upgrade of the office facilities, the establishment of a standard work point will prove important in providing the City of Salisbury with a flexible facility that accommodates change in staff numbers and organisational restructure.



Earthquake upgrade and loadbearing structure

The structural reports and plans by Wallbridge and Gilbert regarding the Municipal Offices note a significant amount of work to be undertaken to bring the facility up to current code compliance. Refer Appendix 2.

These upgrades include:

Additional strengthening brackets at floor and ceiling levels

Additional bracing in roof spaces

Additional stiffening at ceiling level

Additional steel columns to augment existing columns

Additional K bracing

The proposed upgrades will not have a major effect on the current office accommodation efficiency as most of the structural bracing is proposed to be located in positions where there are existing walls and columns.

In the Wallbridge and Gilbert Report elements shown in green will not have any major impact on available floor space but will be disruptive to install. The elements shown in pink will have a minor impact on available floor space.

The disruption caused by the implementation of the proposed upgrades will be significant and will likely require the relocation of a large portion of the Municipal Office staff for the duration of the works.

Toilet facilities

The current toilet facilities are in three zones:

Ground floor adjacent Records Building access

Ground floor adjacent Public Gallery

First floor adjacent Committee Rooms

An upgrade of the office facilities generally will require an upgrade of toilets. While the number of existing sanitary fixtures is deemed sufficient for the current staff and visitor numbers, the layout and dimensions of these facilities do not comply with present code requirements.



For the purposes of assessing staff toilet fixture numbers, the toilet facilities on the ground floor adjacent the Public Gallery are deemed to be for public use. Therefore the existing ground back of house and first floor toilet facilities have been used to assess compliance (in number only) for the current staff numbers as follows:

Based on 221 staff currently accommodated at Municipal Office

Assume 50/50, Male / Female, Excluding public facilities (Grd), Including public facilities (1st)

	Male	Female	Unisex
Current Pans	8	8	
Required Pans	6	8	
Current Basins	6	7	
Required Basins	3	4	
Current Urinals	8	-	
Required Urinals	4	-	
Current Access Facility			2
Required Access Facility			2

If staff are to only access the facilities on the ground floor adjacent the Records Building, then the following table sets out the current and required statistics demonstrating a shortfall in facilities:

Based on 221 staff currently accommodated at Municipal Office

Assume 50/50, Male / Female, Excluding public facilities (Grd + 1st Floor)

	Male	Female	Unisex
Current Pans	3	4	
Required Pans	6	8	
Current Basins	2	3	
Required Basins	3	4	
Current Urinals	3	-	
Required Urinals	4	-	
Current Access Facility			1
Required Access Facility			1

Importantly however the existing toilet layouts will not comply with the current minimum spacial requirements and the need for ambulant facilities to be provided within each male and female facility. We note each core does currently have an access toilet however this is also unlikely to comply with the current spatial requirements.



DDA

The Municipal Building does provide wheel chair accessible counters and lift access to the upper civic spaces but not to the training area on the mezzanine. All spaces in the facility are expected to be accessible. Subject to the options selected for further analysis in Phase 2 we recommend a DDA audit be undertaken to identify all areas that would be need to be addressed in a potential future fitout if redevelopment of the current site is preferred.

Sustainability Strategies

Due to the age of the building it is highly likely that it will not perform to the required codes and standards. As a minimum a sustainability/energy review is recommended to assess the status of current and proposed initiatives and determine necessary strategies and systems upgrades required to comply with the relevant codes. In addition the review should include consultation with the City of Salisbury on future ESD policy for their facilities.

Cross Keys Road Operations Centre



Existing Features

The Operations Centre at Cross Keys Road is of a typical office/industrial facility configuration comprising a large metal clad workshop, narrow masonry office accommodation extending along the street frontage and a large open service yard at the rear.

Office Areas

The office accommodation has a gross area of approximately 735sqm and the shed structure 5,025sqm. The office accommodation is in good condition and accommodates staff in a mix of open plan and enclosed offices which is efficient. However the work points do not comply with the GOAC guidelines requiring 6 sqm per work point.

The long narrow office space restricts space planning options and inhibits collaboration between work teams because staff are dispersed along the length of the facility rather than clustered together. In addition the amenities intrude into the office space creating a series of disjointed office zones.

Furthermore the location of contained offices along the external windows does not reflect contemporary office space planning. Typically offices are located internally rather than on exterior walls so that all staff benefit from access to light and outlook. Similarly lunch points should be located centrally, in a high traffic area to foster and encourage interaction between staff in a communal facility. To implement these planning philosophies in the Operations Centre would be disruptive as well as unproductive from an efficiency view point but would be valuable from a cultural and interaction improvement perspective.

To further improve this space it would be necessary to relocate the amenities, however this would be costly and likely promote an intrusion into the warehouse space which may be undesirable.

Toilet facilities

The Operations Centre site provides above the required number of amenities for the current staff numbers in the office space. Based on the current facilities an additional 60 males and an additional 30 females could be served which may include field staff. As for the Municipal Office the toilets do not comply with current codes.

Based on 48 administrative staff currently accommodated at Operations Centre
Assume 50/50, Male / Female
Exclude Atco facilities

	Male	Female	Unisex
Current Pans	5	4	
Required Pans	2	2	
Current Basins	6	4	
Required Basins	1	1	
Current Urinals	5	-	
Required Urinals		-	
Current Access Facility			1
Required Access Facility			

Government Office Accommodation Committee (GOAC) Guidelines



Government Office Accommodation Committee

The Government Office Accommodation Committee (GOAC) is responsible for ensuring that Government of South Australia office fitouts are designed to an efficient and consistent standard.

Refer Appendix 3 for the GOAC Guidelines.

The key benchmark criteria and targets for assessing a standard office fitout include:

- Maximum net office area of 14 sqm per person
- Maximum of 10% of staff in enclosed offices
- Up to 45% of area for interactive and support spaces e.g. cafes, utility and meeting functions
- Target 20% of area for circulation
- Minimum 6 sqm work point area

The first two of these benchmarks are considered the most critical.

Special Agency Features

The GOAC guidelines permits an additional area allowance for non-standard office functions referred to as Special Agency Features. Examples of Special Agency Features applicable to the City of Salisbury include the Council Chamber precinct, Mayor's facilities, large public service foyer and public gallery.

These areas would be in addition to the standard net office areas driven by the 14 sqm per person target.

Inefficient Base Buildings

The above GOAC benchmarks are based on buildings that are regular in shape with large open floors. Where a base building useable area is considered inefficient due to shape proportions and/or intrusions the sqm per person allowance is increased to allow for the inherent inefficiency placed on the office fitout design.

Work Point Area

In addition to a 6 sqm per work point minimum size the work point and to be standardised and of a consistent layout.



Existing Office Space

Refer to Appendix 1 for Municipal Office Building floor plans.

The key areas are summarised below.

Office Area Location	Area
Ground floor office area (excl Public and Civic)	2587 sqm
First floor (inc Committee Rooms and Kitchen)	200 sqm
Mezzanine area	84 sqm
Records Building	242 sqm
Home Assist Building	115 sqm
Total net office area	3,144 sqm

Existing Space Efficiency

Number of Staff	221
Area per person	14.2 sqm

Existing space efficiency of 14.2 sqm signifies that the Municipal Office accommodation is quite efficient.

However the work points are varying in size and in many cases do not comply with the minimum work point 6 sqm rule. So efficiency has in part been achieved at the expense of work point size. This is supported by the fact that an inefficiency factor due to the building shape has not been applied.

Due to the irregular shape, multiple core locations and courtyards in the existing Municipal office accommodation, an inefficiency factor of up to 2sqm per person would apply in any new fitout works to give an appropriate benchmark for efficiency.

Enclosed Offices

Current number of offices	9
Current number of staff	221
% of staff in enclosed offices	4.1%

The 4.1% of staff in enclosed offices is well below the maximum 10% GOAC benchmark. However it is consistent with the trend in the broader office fitout market.



Interactive and Support Spaces

The following table sets out the approximate current allocation of interactive and support space.

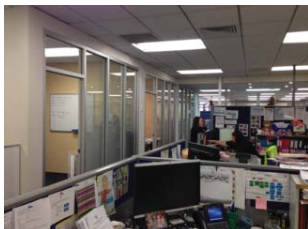
Location	Area
Ground Floor (excl misc. stores)	160 sqm
First Floor	200 sqm
Mezzanine	84 sqm
Home assist	20 sqm
Records Building	110 sqm
Total net area	574 sqm
Office Area	3144 sqm
% area for support & interactive facilities	18.2%

The 18.2% of area is well below the GOAC benchmark which indicates the offices have decentralised storage and lack appropriate support spaces for staff.

Furthermore the mezzanine, home assist and records buildings are not considered appropriate for long term use due to disability access and fragmentation.

Circulation

The percentage of space used for circulation cannot be accurately measured due to the disjointed nature of the workstation planning and building form. However the building configuration would dictate that the circulation required in the current facility would be higher than would be expected in a regularly shaped generically planned facility. Hence additional 2sqm per person inefficiency factor would be applied when planning new fitout works within the existing facilities.



Office Space Assessment

Based on a total usable floor area of 643sqm and the staff numbers provided by the City of Salisbury (refer Appendix 4) that are currently located in the Operations Centre office area the following utilisation rates are achieved:

Net Office area: (excl Training Room and part of the Lunch Room)	518 sqm
Number of Staff	48 staff
Area per person	10.79 sqm

This is well below the GOAC benchmark of 14sqm per person. A large lunch and training facility that are used by the staff including field based staff is considered to be a special agency feature rather than part of the standard office accommodation. However 25 sqm of the lunch room has been allocated to the net office area for GOAC assessment.

There are 12 staff positions in several transportable office facilities in the workshop. These work areas are non-compliant with regard to work point size and disabled access and are not conducive to supporting a team based working environment. Therefore they should be accommodated into the office area.

Enclosed Offices

Four staff positions are currently accommodated in offices at the Operations Centre, which is slightly below the 10% of staff GOAC benchmark. The benchmark of 10% of staff in offices would allow for 5 staff to be accommodated in enclosed offices.



Current number of enclosed offices	4
Current number of staff	48
% of staff in enclosed offices	8.3%

Interactive and Support Space

The GOAC benchmark of up to 45% of space for interactive and support spaces are difficult to benchmark due to the dispersed nature of the existing storage and support facilities.

Support/Interactive Area	92 sqm
Net office area	518 sqm
% area for support & interactive space	17.76%

This is well below the GOAC benchmark for space use but it is consistent with the very high efficiency benchmark achieved for staff density.

Municipal Office Development Options

The City of Salisbury has a broader agenda to renew its city centre. As part of this renewal is the assessment of whether the Municipal Office Building office upgrade should be a refurbishment of existing, a redevelopment on the James Street site or an alternative site.



Identified development options include:

- Option 1 Retain two storey civic building and build new office wing adjacent
- Option 2 New building on James Street Site or alternative site
- Option 3 Refurbish and extend existing offices

Option 1- Retain two storey civic building and build new office wing adjacent

Advantages: preservation of main original 1980s building with highest Architecture and interior merit, while still providing contemporary office facilities.

Disadvantages: decanting staff and operations during construction

Current staff	221
Net Office area required (based on 14 sqm per person)	3,094 sqm
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Total New Office Wing Gross Area (15% grossing factor)	3,558 sqm

Municipal Office Development Options



Option 2-New Office and Civic Facilities

New office and Civic facilities on existing site or alternative site.

Advantages: Optimum fit for purpose facilities

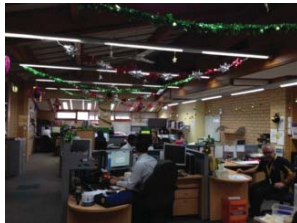
Disadvantages: decanting staff and operations during construction on existing site

Current staff	221
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Net office area required (based on 14 sqm per person)	3,094 sqm
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Special Agency Feature	Area
Front public counter area	150 sqm
Gallery room	155 sqm
Catering kitchen	13 sqm
Central records store	70 sqm
Central fireproof records store	20 sqm
Council chamber	175 sqm
Council ante space	85 sqm
Mayors reception	36 sqm
Council meeting space (over standard allocation)	55 sqm
Council kitchen	24 sqm
Council dining room	50 sqm
Sub total	833 sqm
Special Agency Features Net Area (including circulation @1.25)	1,041 sqm
Total Office Net Area (Office and Special Agency Features)	4,135 sqm
Total New Gross Building Area (15% grossing factor)	4,755 sqm

Municipal Office Development Options



Option 3- Refurbish and extend existing offices

Retain existing two storey civic building, refurbish and extend existing office facility to comply with GOAC guidelines.

Advantages: improved facilities, possibility less capital cost

Disadvantages: decanting staff and operations during construction, office area still fragmented

Current office area	3,144 sqm
Less Mezzanine area	84 sqm
Less Records Building	242 sqm
Less Home Assist Building	115 sqm
Suitable Office Space	2,703 sqm
Current building capacity (based on 14+2=16 sqmpp)	169 staff
Current staff numbers	221 staff
Shortfall in capacity	52 staff
Additional new net office area (based on 14 sqmpp)	728 sqm
Total New Gross Area (15% grossing factor)	837sqm

The 837sqm of new office area would be most suitably achieved through filling in the existing courtyard and extending to the north. This would enable the most continuous office floor plate possible.

Operation Centre Development Options



Option 1-Refurbish and Expand Existing Office into Workshop

Refurbish existing and extend office.

Advantages: improved facilities, all staff in contemporary offices assists decanting of staff during construction, cost effective

Disadvantages: decanting staff and operations during construction, office area still linear

Current office area (including lunch and training rooms)	643 sqm
Less training room	55 sqm
Less lunch room	95 sqm
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Suitable office space	493 sqm
Suitable office space (based on 14sqm per person)	35 staff
Current staff numbers	60 staff
Shortfall in capacity	25 staff
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Additional new net area (based on 14sqm per person)	350 sqm
Total new gross area (15% grossing factor)	403 sqm

Option 2 – Refurbish and Extend Existing Office

Refurbish existing office and extend office building on Keys Road frontage.

Advantages: new public presentation and amenity, improved facilities, all staff in contemporary offices, reduced encroachment into workshop area

Disadvantage: possibly a more expensive solution

Table of areas in Option 1 apply to the option.

Future Phases



The next phases of work recommended to enable the City of Salisbury to make timely and informed decisions on the preferred approach to upgrading their Civic and office accommodation include:

Phase 2 Municipal Building Audit and Feasibility Study

Review and prepare a building audit for the existing Municipal Building
Prepare block planning concepts for the development options identified in this report
Prepare cost plan, staging strategies, program and budgets for the development options
Assist the City of Salisbury in the preparation of the business case for each option

Phase 3 Strategic Facility Plan and Brief

Prepare of a Strategic Facility Plan including schedule of areas in line with the City of Salisbury vision and future business objectives including a review of the specific requirements of each business unit, relationships the shared common spaces and the Special Agency Features of the organisation.

Check against assumptions in Phase 2 and review Feasibility Study Options

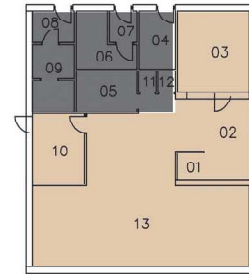
Phase 4 Concept Design of Preferred Development Option

Review Facility Plan and Schedule of Areas against the preferred option
Develop concept and cost plan

Appendices

- Appendix 1 – Municipal Office Floor plans
- Appendix 2 – Wallbridge and Gilbert Report and Plans
- Appendix 3 – GOAC Schedule
- Appendix 4 – City of Salisbury Staff Numbers
- Appendix 5 – Operations Centre Floor Plan

Appendix 1 – Municipal Office Floor plans



- Core
- Courtyard
- Office
- Public + Civil + Workshop

N
P General Arrangement Plan 1:200

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City of Salisbury Municipal Offices
General Arrangement Plan - 12 James St
Mar 2014 scale 1:200 @ A1 job no 1188 SK 01

Appendix 2 – Wallbridge and Gilbert Report and Plans

SEISMIC EVALUATION
AND
STRUCTURAL CALCULATIONS
FOR
SALISBURY COUCIL CHAMBERS
AT
12 JAMES STREET SALISBURY

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APPROVAL REGISTER				
Rev	Date	Issue	Engineer	Checked
A	12/04/11	Tender	MCR	

SEISMIC EVALUATION

**SALISBURY COUNCIL CHAMBERS
12 JAMES STREET, SALISBURY**

prepared for
CITY OF SALISBURY

by



JULY 2010

JOB NO: C071225

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 - 3.2 OFFICE ADDITIONS CIRCA 1980's
 - 3.3 GALLERY ADDITION CIRCA 1990's
4. CONCLUSIONS



1. INTRODUCTION

Wallbridge & Gilbert were commissioned by Mr Laurie Mann of the Salisbury City Council to undertake an Earthquake Load Assessment and design and documentation of the seismic upgrade required for the Council Chambers Building at 12 James Street, Salisbury. The scope of the works involved in this phase includes:

- Undertaking earthquake analysis of the structure in accordance with AS3826-1998 'Strengthening existing buildings for earthquakes' using one-third threshold loads derived from AS 1170.4 Earthquake Loading Code.
- Design and documentation of the additional structural elements required to provide sufficient capacity within the structure.
- Design and documentation of the upgrade of existing connections within structure.

2. EARTHQUAKE ANALYSIS OF EXISTING STRUCTURE

In accordance with AS3826, an 'Equivalent Static Analysis' of the structure was undertaken using the current Australian loading code for earthquakes AS1170.4. The building was divided into three sections as identified in the Phase 1 report with a separate analysis undertaken for each section.

- The original two storey building was built circa 1970's.
- Single storey office additions to the northern and eastern sides of the existing chambers circa 1980's.
- A single storey gallery addition to the southern side of the existing chambers built circa 1990's.

As part of the analysis of the structure the existing load paths in each section were identified and assessed for its structural adequacy to transfer lateral loads to the foundation. As discussed in the original report the inadequate diaphragm action and poorly conditioned shear walls inhibit the structures ability to resist these loads. This highlighted the inherent weaknesses in the structure which required additional structural elements to ensure there is sufficient capacity to resist seismic loads imposed during an earthquake event.

3. STRUCTURAL DESIGN OF EARTHQUAKE UPGRADE

Having established revised lateral load paths in each of the sections of the chambers, the analysis was undertaken and used to design the additional building elements.

3.1 ORIGINAL STRUCTURE (CIRCA 1970'S)

The review of this part of the building identified the following weaknesses in the structure requiring upgrade:

- A poorly conditioned structural diaphragm at roof level to tie the structure together and distribute lateral loads to shear elements.
- Insufficient 'in-plane' bracing elements on both the first and ground floor to transfer loads to the foundations.
- Inadequate connection between the existing masonry shear elements and first floor diaphragm.
- Inadequate lateral restraint for out-of-plane loads on existing masonry walls.

To address these problems, the following upgrades were proposed:

- A new plywood ceiling is to be retro-fitted to the underside of the roof framing to provide a structural diaphragm.
- New steel bracing elements (WB1 & WB2) were introduced on both the first floor and ground floor (refer drawings S01 & S02) to provide sufficient in-plane capacity to the structure. The frames consist of fully welded steel members connected to the corresponding footing, flooring and roof levels. In addition the footings on the ground floor located under the vertical members of the braced frames require additional footing size to deal with large axial loads associated with the frame.
- Connections between existing shear walls and diaphragms were upgraded (refer to elements BK1, FA on drawing S02) to ensure that loads can be transferred to that element.
- Structural mullions were introduced (refer drawing S02) to stiffen existing masonry walls and prevent out-of plane failure.

Further to the seismic upgrade, the existing brick piers on the ground floor require further strengthening as discussed in the original report. The piers could potentially fail under application of a lateral load in addition to the vertical load it carries. Therefore new steel columns, (indicated as C2 on drawing S01) have been introduced to prevent this.

3.2 OFFICE ADDITIONS (CIRCA 1980'S)

The review of the unarticulated full masonry office additions (circa 1980's) identified the following issues:

- Inadequate diaphragm present in existing roof framing.
- Lack of connectivity between existing shear walls and the roof and footings.

To address these issues the following upgrades were proposed:

- New roof bracing to be introduced to the existing framing (refer to BR1 on Dwg S01).
- New bracket to be introduced at the base of the walls to tie the shear walls to the footings (refer brackets BR1 on drawing S01)

3.3 GALLERY ADDITIONS (CIRCA 1990'S)

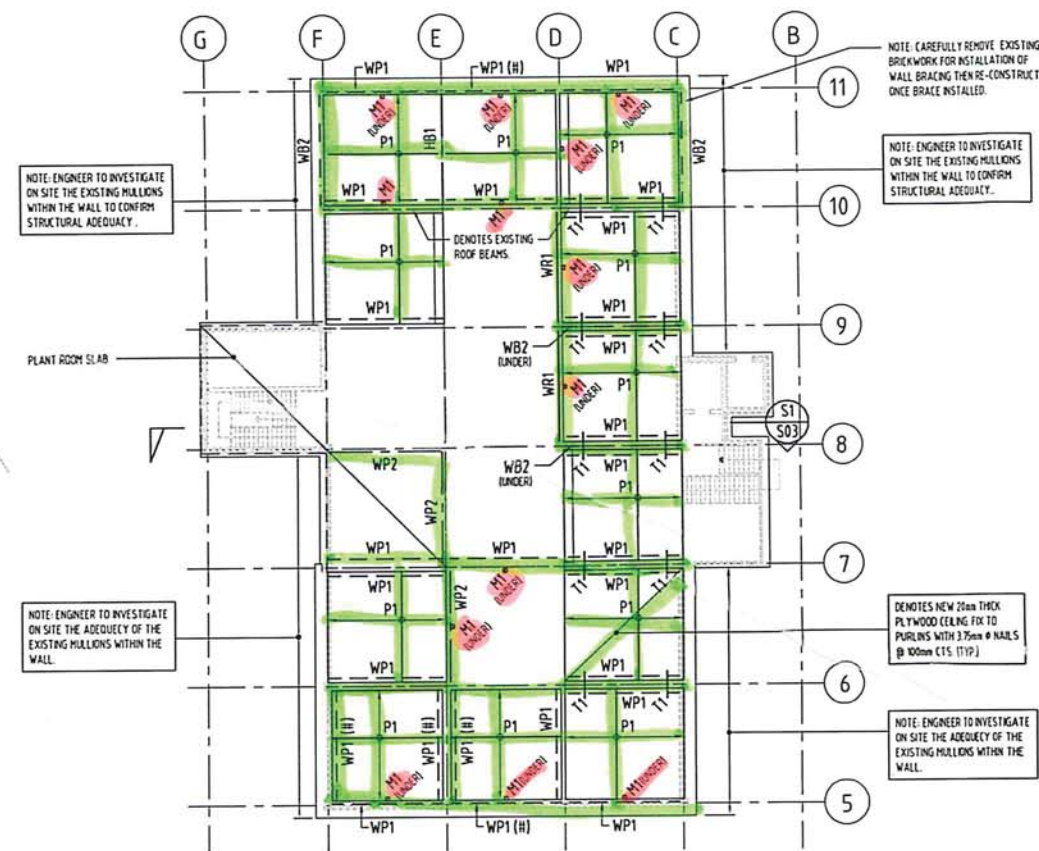
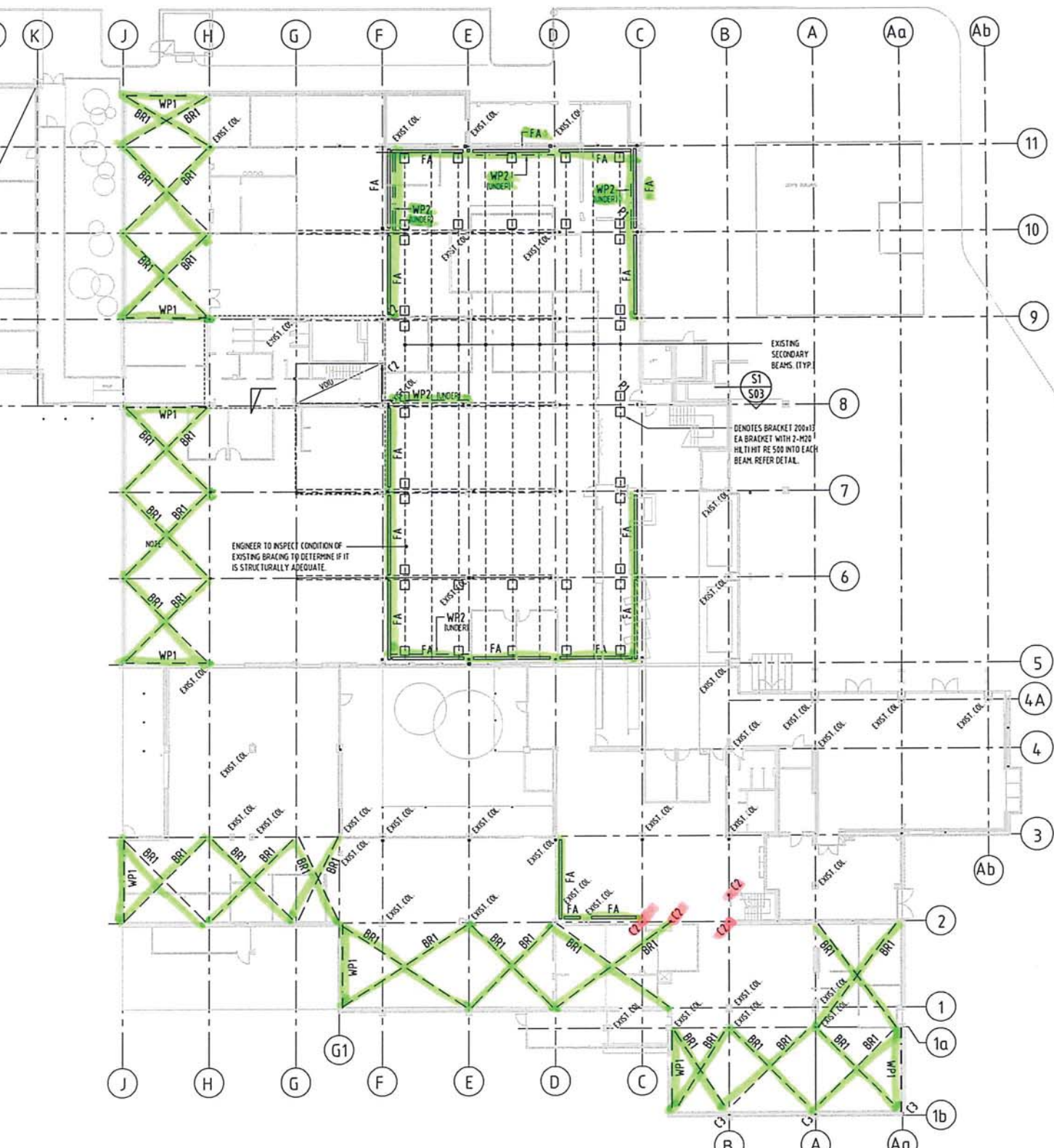
As discussed in the original report, this part of the structure which forms the council chambers appears to be well-conditioned to resist lateral loads. The restraint of the glazing and masonry partitions need to be investigated on site to ensure adequate restraint exists.

4. CONCLUSIONS

Once the upgrade as discussed for each section of the council building have been installed and inspected by an engineer then the council chamber building will have sufficient capacity to resist to one-third threshold earthquake loads and achieve compliance with Australian Standard AS 3826.

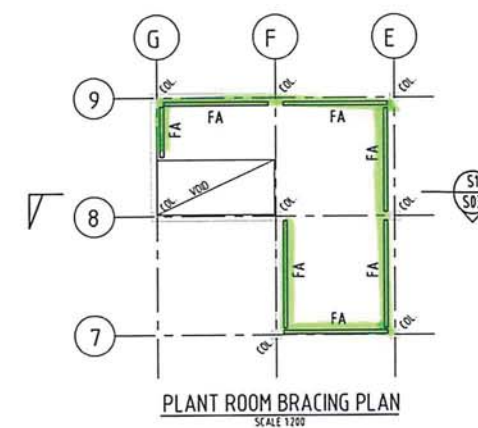
We advise that it is imperative that independent Building Certification for the proposed structural upgrade be obtained by the City of Salisbury to ensure BCA compliance prior to commencement of building works on site. The proposed structural upgrade will have an impact on the serviceability and use of the building; the City of Salisbury will need to consider this impact on their day to day operations including the potential for temporary relocation of council staff and services.

The original preliminary cost estimate for the works was obtained in January 2010 based on the original concept design documentation. It is pertinent and appropriate for a revised cost estimate to be obtained based on the completed drawings: C071225-N01, S01, S02, S03 & S04 prior to calling for tenders.



ROOF BRACING PLAN
SCALE 1:200

MARK	SIZE	COMMENTS: (U.N.D)
C1	200x6 SHS	COLUMN REFER TO DETAIL
C2	150x6 SHS	COLUMN
C3	100x6 SHS	COLUMN
FA	200x100x10 UA	FABRICATED ANGLE. REFER TO TYPICAL FA/SLAB CONNECTION DETAIL, ON DWG 503
BR1	30x10 GI STRAP	ROOF BRACING FIXES ENDS OF BRACING BY BENDING STRAP OVER TOP OF ROOF MEMBER FOR FIXING TO SIDE WITH 4/2.8mm # NAILS. FIX TO INTERMEDIATE MEMBERS WITH 2/2.8mm # NAILS
WB1	150x6 SHS	FULLY WELDED "K" BRACE FRAME. REFER DETAILS.
WB2	100x6 SHS	FULLY WELDED "K" BRACE FRAME. REFER DETAILS.
WP1	90x10 EA	WALL PLATE FIX TO EXISTING TIMBER MEMBERS WITH 1-M6 B/S BOLTS @ 400 CTS. (H) DENOTES FIX TO EXISTING MASONRY WALL WITH M6 H/THTY-70 (WITH SLEEVES @ 200 CTS)
WP2	90x10 EA	WALL PLATE. FIX TO CONCRETE FRAME AS PER DETAILS.
WR1	150 PFC	WALL RESTRAINT. FIX TO WALL PLATES WITH 8mm THICK CLEAT PLATE 2-M6 BOLTS.
CEILING JOIST	1200 CTS	CEILING JOIST @ 1200 CTS. FIX TO WP1 WITH 8mm CLEAT 2-M12 BOLTS.




PLANT ROOM BRACING PLAN
SCALE 1:200



Appendix 3 – GOAC Schedule


GOAC OFFICE ACCOMMODATION SPACE USAGE TABLE

No. of Employees to be Accommodated:  0

Personal Workpoints	Workpoint Nos.	BENCHMARK UNIT AREA (m ²)	NET AREA (m ²)
Open workstations		6.3	0
Enclosed offices		12.6	0
SUB-TOTAL 1	0		0
Interactive Spaces	No.	BENCHMARK UNIT AREA (m ²)	NET AREA (m ²)
Team zone (seats 4)		6.3	0
Meeting / Interview room (seats 6)		12.6	0
Large meeting room (seats 12)		25.2	0
Conference room (seats 18)		37.8	0
Quiet room (for 1)		6.3	0
Work Café / breakout zone		37.8	0
SUB-TOTAL 2			0
Support Spaces	No.	BENCHMARK UNIT AREA (m ²)	NET AREA (m ²)
Hot desking area 		6.3	0
Reception / waiting		37.8	0
Small storage room		12.6	0
Large storage room		25.2	0
Open Storage			0
Utility bay		12.6	0
Other			0
SUB-TOTAL 3			0
NET OFFICE AREA (Sub-Total 1 + 2 + 3)			0
CIRCULATION			0.0
TOTAL GROSS AREA (Sub-Total 4)			0.0

SPACE USAGE ANALYSIS

	AGENCY	GOVERNMENT TARGET
No. enclosed offices as % total no. personal workpoints	#DIV/0! %	Less than 10% staff
% Area used for Interactive & Support Spaces	#DIV/0! %	Up to 45% total floor space
% area used for Circulation (20% of gross area) 	#DIV/0! %	20%
AVERAGE AREA PER EMPLOYEE 	#DIV/0! m ²	14m² (based on total office area)

Special Agency Facilities 	GROSS AREA (m ²)
Public Counter area	
Other	
TOTAL SPECIAL AGENCY FACILITIES (Sub-Total 5)	0.0
TOTAL AREA REQUIREMENT (Sub-Total 4 + 5)	0.0

Appendix 4 – City of Salisbury Staff Numbers

Business Unit	James Street Office Accommodation								Cross Keys Rd Office Accommodation							
	Office Staff		Office Staff Growth		Field staff workstations	Field Staff Growth workstations	TOTAL No.	TOTAL Area Req	Office Staff		Office Staff Growth		Field staff workstations	Field Staff Growth workstations	TOTAL Nn.	TOTAL Area Req
	Offices	Workstations	Offices	Workstations					Offices	Workstations	Offices	Workstations				
Business Excellence																
Information Servtices	1	21	0	0	0	0	22	144.9	0	0	0	0	0	0	0	0
People and Culture	1	13	0	0	0	0	14	94.5	0	2	0	0	0	0	2	12.6
Contracts & Procurement	0	4	0	0	0	0	4	25.2	0	1	0	0	0	0	1	6.3
Financial Services	0	18	0	0	0	0	18	113.4	0	0	0	0	0	0	0	0
Water Systems	0	8	0	0	0	0	8	50.4	0	0	0	0	0	0	0	0
Admin & GM	1	2	0	0	0	0	3	25.2								
City Development																
Economic Development	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Urban Development	2	6	0	0	0	0	8	63	0	0	0	0	0	0	0	0
Development Services	0	22	0	0	0	0	22	138.6	0	0	0	0	0	0	0	0
Environmental Health & Safety	0	16	0	0	0	0	16	100.8	0	0	0	0	0	0	0	0
Admin & Support Services (GM)	1	1	0	0	0	0	2	18.9	0	0	0	0	0	0	0	0
Community Development																
Libraries & Community Centres	0	1	0	0	0	0	1	6.3	0	0	0	0	0	0	0	0
Health Aging & Access	0	25	0	0	0	0	25	157.5	0	0	0	0	0	0	0	0
Recreation Services	0	2	0	0	0	0	2	12.6	0	0	0	0	0	0	0	0
Business & Cemetary Services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Community Learning & Wellbeing	0	1	0	0	0	0	1	6.3	0	0	0	0	0	0	0	0
Community Planning and Vitality	0	7	0	0	0	0	7	44.1	0	0	0	0	0	0	0	0
Marketing & Customer Relations	0	21	0	0	0	0	21	132.3	0	0	0	0	0	0	0	0
Admin & GM	1	3	0	0	0	0	4	31.5								
City Infrastructure																
Business Support	0	5	0	0	0	0	5	31.5	5	10	0	0	0	0	15	126
Property & Buildings	0	0	0	0	0	0	0	0	1	11	0	0	0	0	12	81.9
Technical Services	0	25	0	0	0	0	25	157.5	0	0	0	0	0	0	0	0
Civil & Waste	0	0	0	0	0	0	0	0	1	6	0	0	0	0	7	50.4
Parks and Landscape	0	0	0	0	0	0	0	0	1	10	0	0	0	0	11	75.6
Projects	0	9	0	0	0	0	9	56.7	0	0	0	0	0	0	0	0
Admin & GM	1	3	0	0	0	0	4	31.5								
Benchmark Shared Support Spaces																
Open team meeting 4p @ 6.3m2							4	25.2							2	0
Meeting room 6p @ 12.6m2							8	100.8							1	25.2
Meeting room 12p @ 25.2m2							4	100.8								25.2
Conference Room 18p @ 37.8m2							2	75.6								0
Quiet Room for 1p @ 6.3m2							6	37.8							1	6.3
Utility / copy @ 12.6m2							9	113.4							2	25.2
Store room sml @ 12.6m2							9	113.4							2	25.2
Store room lge @ 25.2m2							4	100.8								0
Staff Caf�� @ 37.8m2							4	151.2							1	37.8
Other																
Open team storage @ 1sqmpp							221	221							48	48
Net area circulation at 1.25								2482.7								545.7
TOTAL AREA REQUIRED								620.7								136.4
								3103.4								682.1
Total staff							221								48	48
% staff in offices							3.6%								16.7%	
Area per person								14.0								14.2
Special Agency Features																
Front public counter area (public side)							1	150								
Gallery room							1	155								
Catering Kitchen							1	13								
Central Records Store							1	70								
Central Fire proof records Store							1	20								
Council Chamber							1	175								
Council Ante Space							1	85								
Mayors Reception							1	36								
Council meeting room (divisible into 3)							1	130								
Catering kitchen							1	24								
Council Dining Room							1	50								
Training Room																
Common Lunch Room																
Mechanical Workshop																
Central Store + mezzanine																
Misc open warehouse																
Buildings Workshop																
First Aid																
Lockers / showers . Change																
Area of Special Agency Features								908.0								150.0
circulation at 1.25								227.0								37.5
TOTAL AREA REQUIRED								1135.0								187.5
TOTAL AREA REQUIRED inc SPECIAL AGENCY FEATURES (SQM)								4238.4								869.6

Appendix 5 – Operations Centre Floor Pla



- Core
- Courtyard
- Office
- Public + Civil + Workshop

N
P General Arrangement Plan 1:200

materne pennino hoare
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interior design

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City of Salisbury Operations Centre
General Arrangement Plan - 120 Cross Keys Rd

Mar 2014 scale 1:200 @ A1 job no 1188 SK 02