

# City of Melbourne

## Council House 1

**CLIENT: Transfield Services**

**WORKS: Main Switchboard Service,  
Repair & Upgrade Works**

**Date: Mar – Nov 2014**

### Scope of Works

- When JNJ were approached by City of Melbourne & Transfield Services to install additional car charging points totaling up to 300 amps (1 phase) within the Royal Lane Carpark, JNJ recommended an audit be conducted on the serviceability and loads on the 2 existing 1MVA supplies feeding both Council House 1 Main Switchboards (MSB's 1 & 2).
- Items identified included:
  - Supply 1 had sufficient spare capacity for the prospective charge points however Supply 2 (feeding the Data Centre) was verging on being fully committed
  - A new 250 Amp 3 Phase MCCB integrated into MSB1 and feeding a remote dedicated car-charging distribution board would provide an effective & expandable platform for connecting the car-charging services
  - Unmetered Tenant Chassis feeding 5 shops in Little Collins St required replacement due to obsolete & non-compliant equipment.
  - All Cables into MSB1 had previously been incorrectly installed into the switchboard, creating numerous potential hazards and allowing dust to enter the switchboard components
  - Incorrect connections and switching arrangements shown on existing Single Line Diagrams and various labelling & demarcation on both MSB's obsolete or incorrect.



## The Challenges

- To shut down power supplies to MSB1 & MSB2 over 2 nights, carry out all repair, servicing & upgrade works and return supplies to a fully functioning and tenanted multilevel city building (8 stories) + 5 tenanted shops.
- To provide advice & report on power consumption and distribution requirements
- To install Distribution Facility for Car-Charging Systems
- To carry out complex internal switchboard modifications
- To remove & re-install up to 30 supply & circuit feeds into MSB through new gland plates, ranging from parallel 400mm Substation Feeds down to 25mm Fire Pump Supplies
- To provide temporary supply services to various building functions during power outage
- To Perform Maintenance on all Fuse Switches (CFS) & all internal connections
- To prove & document the supply and circuit arrangements within each MSB
- To Thermal Scan All electrical junctions within MSB1 to ensure safe operation
- To provide certification and proof of workmanship for all works completed

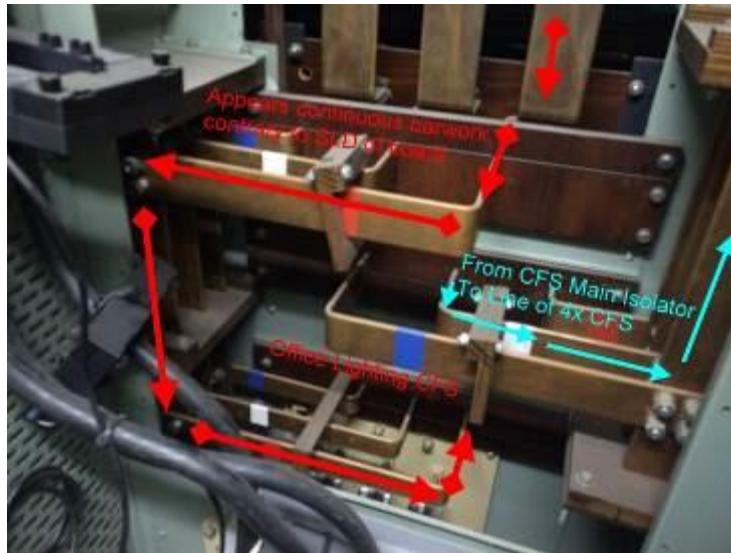
**Before: Main supply cables run directly into switchboard without correct cable restraint, mechanical protection or sealing of Switchboard against dust ingress**



**After: Cables now installed through cable glands (Brass for FR Cables) with new gland plates and all cables labelled.**



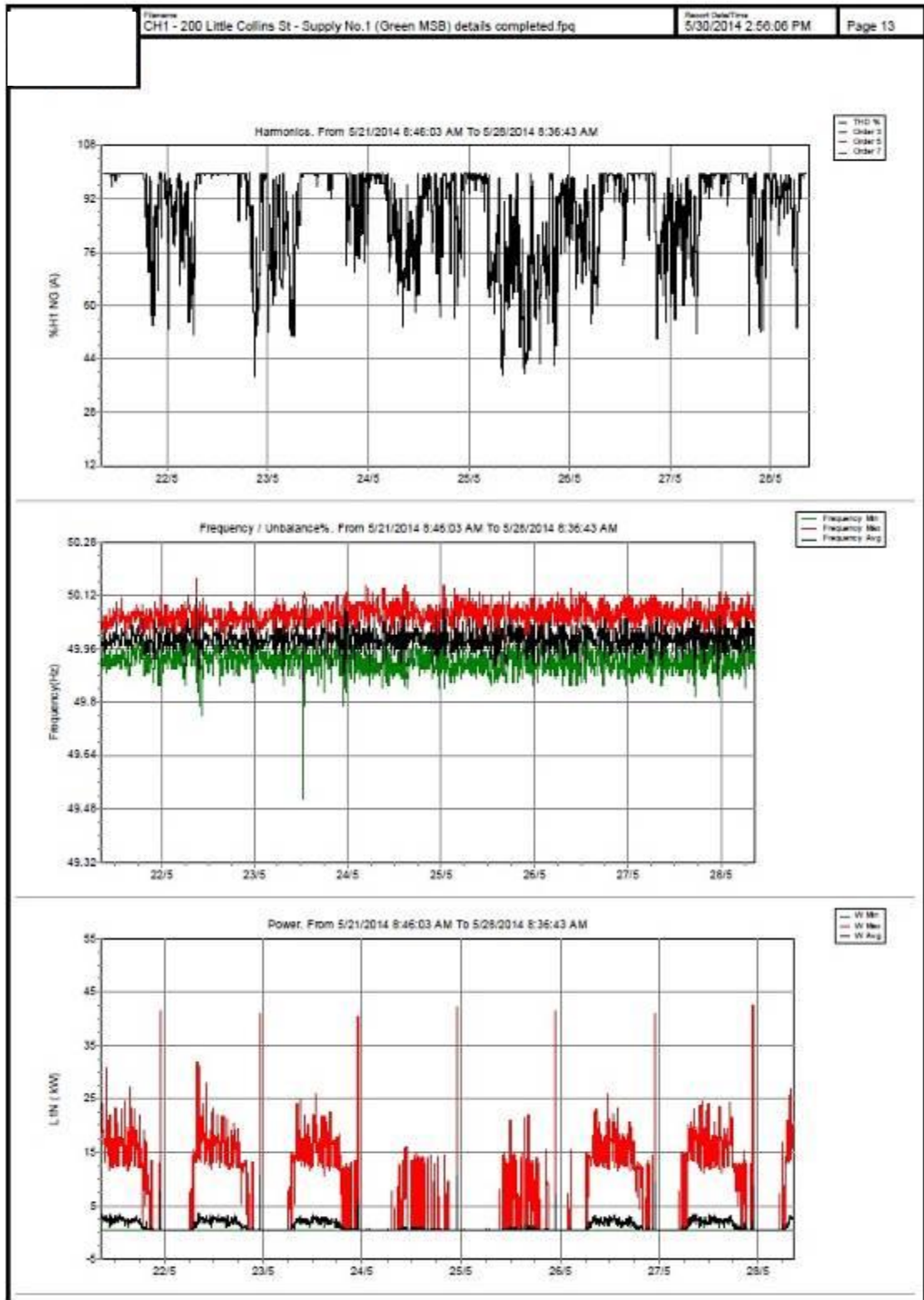
### Identification of switching operation



### Proposed solution



## Power, Harmonic and frequency analysis prior to works



## Thermal Imaging report upon completion of works

### Inspection Summary

For the equipment inspected we have recorded a total of 0 thermographic images documenting exceptions detected during our inspection.

In this instance however, we have included thermal and visual images for all the areas concerned, showing the normal thermal activity present. These images were taken on the follow up survey in the 24<sup>th</sup> July

As a reference, each exception page contains a priority rating. Subjective Evaluation ratings are based on the thermographer's opinion of the of the object's importance for the safe and reliable operation of the equipment.

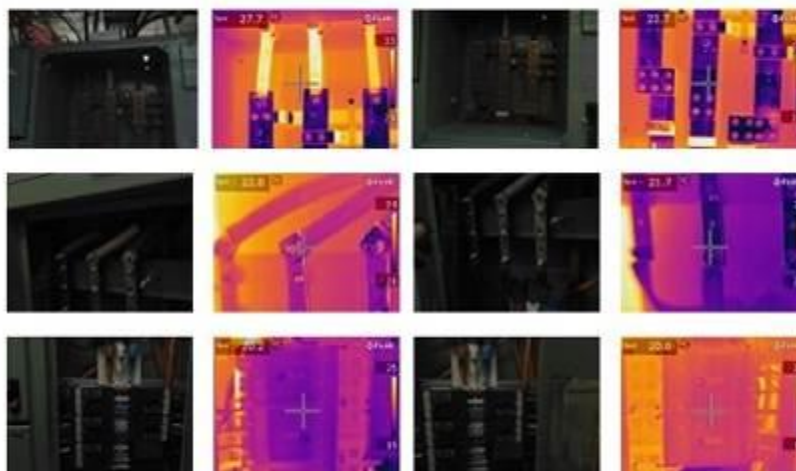
Severe priority exceptions detected (immediate attention recommended) 0

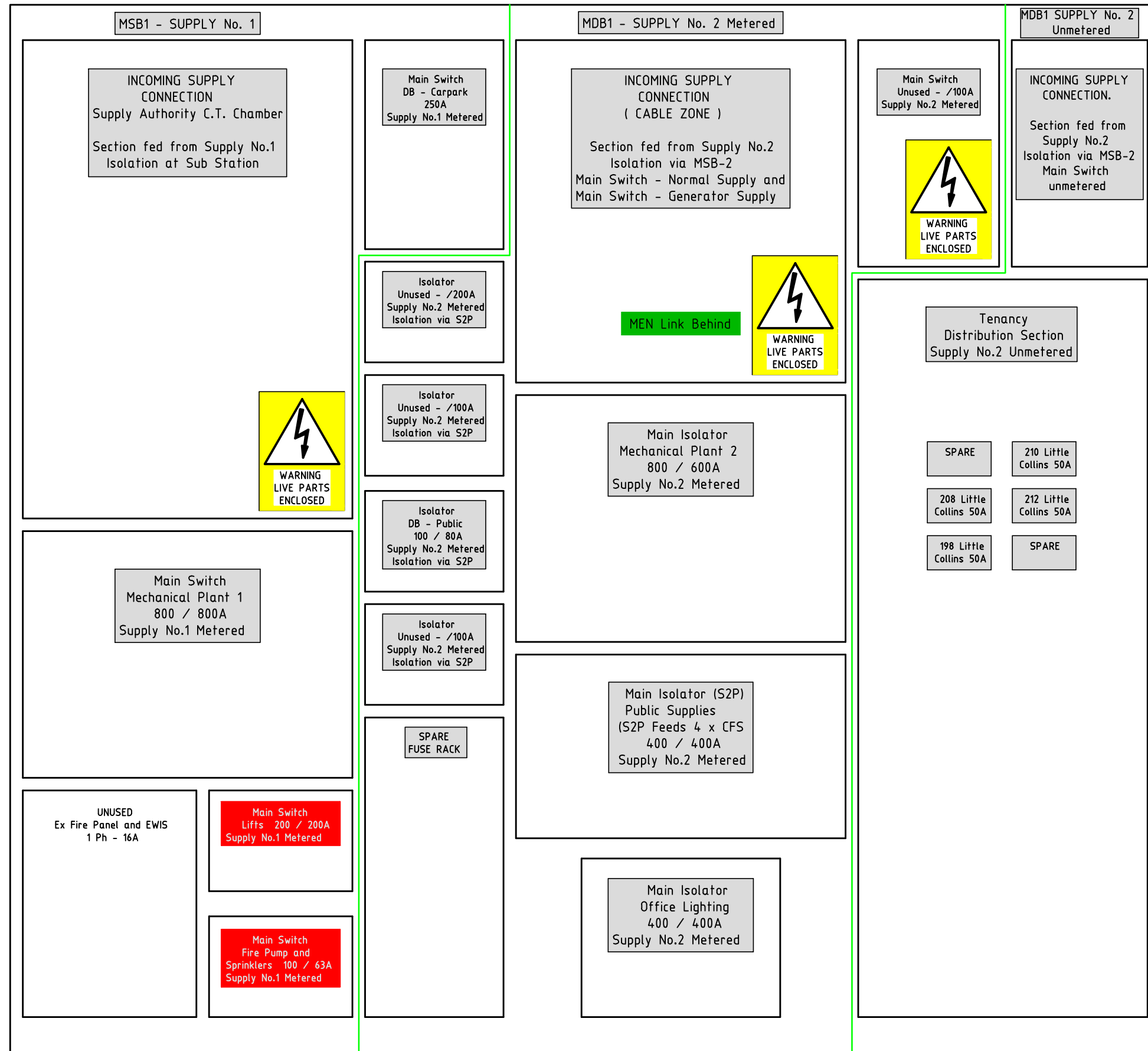
Moderate priority exceptions detected (urgent attention recommended) 0

Low priority exceptions detected (attention required when convenient) 0

Objective evaluation ratings are based on the temperature rise criteria as specified by the Infraspection Institute Standard for Infrared Inspection of Electrical Systems and Rotating Equipment

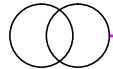
### Panel Photos and Images



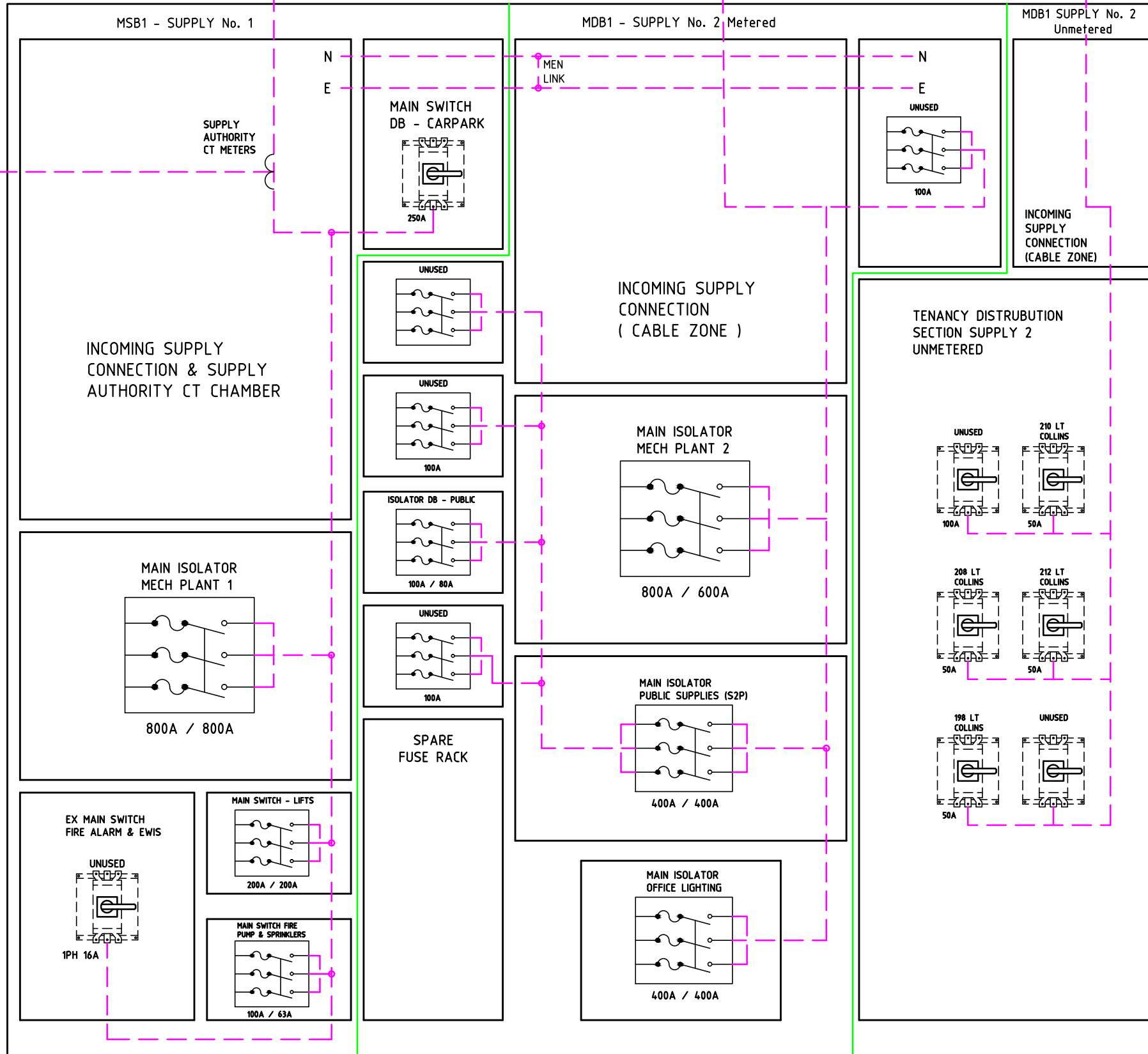


				Drawn :	TAD	 <p><b>JNJ Electric</b> Excellence at work</p>	Factory 12 / 10 - 14 Simms Road GREENSBOROUGH VIC 3088  TELEPHONE +61 3 9432 0969 FACSIMILE +61 3 9432 0449 ABN 81 019 818 377 REC 12389 www.jnjelectric.com.au	Sheet :	Title :	
				Date :	30.01.15			1 of 1	City of Melbourne COUNCIL HOUSE 1 - MSB-1 SWITCHBOARD LAYOUT DRAWING	
				Checked :				Scale :		
				Approved :				1:1		
				Coordinated :		Size :	Drawing Number :			
				Design :			A3	63785-01A		
Rev	By	Date	Revision Description							
A	GPM	30.01.15	AS BUILT							
0			PRELIMINARY ISSUE.							

SUB STATION  
SUPPLY No.1



SUPPLY  
AUTHORITY



FROM MSB2 MAIN SWITCH  
- METERED

FROM MSB2 MAIN SWITCH  
- UNMETERED

Drawn : TAD

Date : 30.01.15

Checked :

Approved :

Coordinated :

Design :



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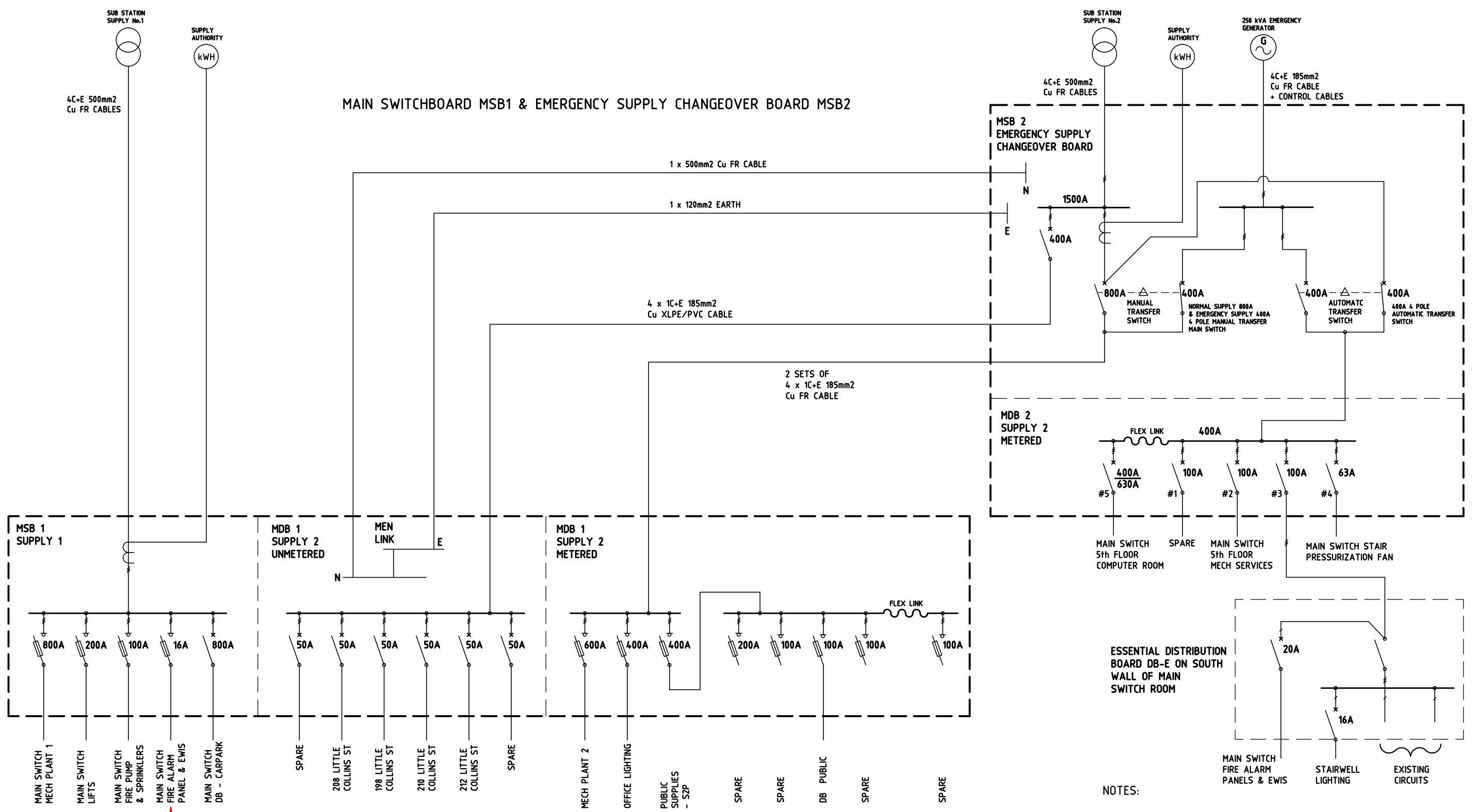
City of Melbourne  
COUNCIL HOUSE 1 - MSB-1  
FUNCTIONAL DRAWING

Drawing Number :

63785-02A

Rev	By	Date	Revision Description
A	GPM	30.01.15	AS BUILT
0			PRELIMINARY ISSUE.





Currently fed from DB-E.  
May be Recommissioned in  
Future Power Revision

**NOTES:**

IN THE EVENT OF FAILURE OF POWER SUPPLY, THE POWER SENSING DEVICE OF THE AUTOMATIC TRANSFER SWITCH SHALL SEND A "LOSS OF POWER" SIGNAL TO START THE GENERATOR. THE GENERATOR WILL THEN SUPPLY ELECTRICITY THROUGH THE AUTOMATIC TRANSFER SWITCH TO THE CIRCUITS SHOWN ON THE SCHEMATIC DIAGRAM.

LIMITED GENERATOR POWER SUPPLY WILL ALSO BE PROVIDED TO CIRCUITS SHOWN ON THE SCHEMATIC VIA A MANUAL TRANSFER SWITCH.

Rev	By	Date	Revision Description	Drawn :	TAD
				Date :	30.01.15
				Checked :	
				Approved :	
				Coordinated :	
				Design :	
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Sheet : 1 of 1  
Scale : 1:1  
Size : A3

Title : **City of Melbourne COUNCIL HOUSE 1 - MSB-1 SINGLE LINE DIAGRAM**

Drawing Number : **63785-03A**