CARDINAL FREEMAN VILLAGE

Supporting Documentation

Appendix W

Electrical & Communications Supply Upgrade Strategy

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CARDINAL FREEMAN VILLAGE

ELECTRICAL & COMMUNICATIONS INFRASTRUCTURE SERVICES MASTER PLAN REPORT

TABLE OF CONENTS

1.0. INTRODUCTION/ BACKGROUND

Aevum is committed to undertaking a staged redevelopment of the Cardinal Freeman Village site (Victoria Street, Ashfield) over the next several years.

The Cardinal Freeman Village is a residential precinct for the elderly comprising of an entire suburban block bounded by 4 public roads.

The proposed redevelopment program will ultimately see the site have the following aged residential facilities

- 130 bed Residential Aged Care Facility
- 228 new Independent Living Units for Seniors
- New Village Community facility
- New underground parking facilities
- More than 1500m^2 of consolidated new open space and associated link roads & paths.

JHA has been involved with the CFV site over the last 2 years and is familiar with the extent and condition of the site's existing infrastructure. The following is a summarized report which identifies the extent/condition of existing infrastructure, its suitability for continued use and the extent of new infrastructure necessary to ensure that a robust, flexible and reliable system is put in place to support the proposed new redevelopment.

2.0 ELECTRICAL INFRASTRUCTURE

2.1. Existing Services

The existing site is currently served by 5 off independent electrical feeds of varying capacities from Energy Australia's street network. While these street feeds are adequate to service the current site needs they are not considered adequate to accommodate the increased electrical load requirements for the redevelopment site.

Ongoing consultation with Energy Australia (EA) over the past 2 years has also confirmed that they will not continue to support this number of independent feeds. Consistent with EA policy they will require that CFV have its numerous electrical supplies consolidated.

2.2 New Consolidated Supplies

A preliminary maximum demand assessment has been undertaken for the consolidated site and a total diversified electrical load in the order of 2MVA is anticipated. Given the spread out nature of the site and the limitations provided by excessive voltage drop it is considered that the redevelopment site is best served by 2 off 1,000KVA substations strategically positioned at the north and south ends of the site. Refer to drawing ESK-01 at the rear of this report.

The 2 off new substations will replace the 5 off independent low voltage feeds that currently service the site.

Each new substation will also have a new main switchboard associated with it for the distribution of power throughout its respective half of the site. New main switchboards will be equipped with Supply Authorities metering, load monitoring devices, bulk power factor correction and surge protection equipment.

The substation and its associated main switchboard at the northern end of the site has recently been established under an earlier stage of the works. It is proposed that this existing kiosk type substation will be relocated further north and in a position adjacent to Clissold Street.

The position nominated on drawing ESK-01 for the substation and associated main switchboard at the southern end of the site is subject to co-ordination with the Architect and other interested parties and its final position can be adjusted to suit planning.

2.3. Reticulation

Power to each new and refurbished building will be independently sourced from the new main switchboards via appropriately sized XLPA submains run in an underground conduit/pit network. Submains and conduits shall be sized such as to ensure a minimum of 25% spare capacity thus offering the site long term flexibility.

Such reticulation paths will be consolidated within dedicated services corridors and co-ordinated with communications and hydraulic underground services. Refer to the accompanying drawing ESK-01 for reticulation paths.

2.4 Maximum Demand Predictions (per building)

A preliminary maximum demand assessment has been undertaken for each new/refurbished building on the redevelopment site for the purpose of power distribution. The following is a summarized result.

3.0 TELECOMMUNICATIONS SERVICES INFRASTRUCTURE

The current telecommunications network throughout the Village is convoluted, antiquated and not reliable. There is little or no evidence of any structured data cabling system.

It is proposed that the Village will be served from a consolidated Campus Distributor (CD). The CD will be housed within Building Q2 which is ideally located close to the geographical centre of the Village. The Campus Distributor will typically house the following:

- Telephone main distribution frame / Telstra fibre optic cabinet
- Village PABX
- Security system head end
- IT servers, hubs, routers etc
- Other miscellaneous telecommunications and electronic equipment

All critical equipment within the Campus Distributor will be protected and supported by appropriately sized Uninterruptable Power Supplies (UPS).

Each building throughout the Village will be equipped with an appropriately sized Building Distributor. Typically such a Distributor will take the form of a small wall mounted rack in which cable terminations can be made and sensitive electronic equipment can be housed. All such Distributors will be linked back to the Campus Distributor via appropriately sized single mode / multi mode fibre optic back bone cables and multi pair telephone back bone cables.

The Campus Distributor will be located within a dedicated, air conditioned room with minimum dimensions of 4000 x 4000. Building Distributors can be located in well ventilated and secure locations (could be within cupboards or non dedicated rooms).

All internal facility cabling throughout the buildings will be a minimum of Cat 6, of a consistent manufacture and form a structured cabling system to ensure maximum flexibility into the future.

All new seniors apartments will be wired and capable (Mode 3) of accepting independently managed emergency call facilities.

In conjunction with the development application an application will be submitted with Telstra to advise them of the long term plans of the Village to ensure adequate infrastructure is in place.

4.0. SECURITY SERVICES INFRASTRUCTURE

No consistent and reliable security system could be found throughout the Village.

It is proposed that a networked security system will be introduced to the Village consisting of the following facilities:

- Electronic access control of select doors and gates (card readers, electric strikes, reed switches etc)
- Movement detection security
- Select fixed duress alarm push buttons
- Back to base 24hr monitoring

It is proposed that a robust yet simple security system such as Concept 4000 would be implemented throughout the Village. It is further proposed that the head end of this system will be established as a part of the RACF construction and be housed within the Campus Distributor. Each building developed on the site will be equipped with a local Data Gathering Panel (DGP) and will be linked back to the head end via LAN cabling. LAN cabling will utilize the telecommunications conduit / pit network.

A comprehensive Closed Circuit Television (CCTV) will be implemented throughout the RACF as well as other key locations in the greater Village (extent and location of CCTV to be determined at the detailed design of subsequent stages).

Similarly detailed resolution of Resident Wandering systems throughout the Village.

5.0. FIRE DETECTION SERVICES INFRASTRUCTURE

The Village is currently equipped with a functional fire detection system serving select areas / buildings. While the system is still in good working order it is not considered appropriate to accommodate the staged and expanded needs of the redeveloped site and as such will be gradually phased out as the Village is redeveloped.

It is proposed that a new and comprehensive fire detection and Building Occupant Warning System (BOWS) will be implemented throughout the Village complying with the requirements of the Building Code of Australia and AS1670.1. Typically such a system will include the following features:

- New main fire indicator panel will be established within the RACF (this will later become a main sub fire indicator panel if the RACF is not considered to be the "main entrance" for Fire Brigade purposes.
- Sub Fire Indicator Panels will be established within all buildings being redeveloped. These will be linked back to the site main fire indicator panel.
- All buildings will be equipped with a fully compliant fire detection system complying with the relevant Codes and Standards.
- All buildings will be equipped with a fully compliant BOWS complying with the relevant Codes and Standards.
- Other miscellaneous minor items necessary to achieve full compliance such as break glass alarms, magnetic door hold open devices, fire trips etc.

The new fire system will be connected to an external 3rd party provider for remote monitoring.

The fire system shall be of a generic manufacture thus allowing for competitive future alterations, additions and maintenance.

All fire panels shall be linked and networked back to the main fire indicator panel utilizing the telecommunications conduit / pit infrastructure.

The fire system proposed will be a fully addressable system thus ensuring ease of use and future maintenance.

6.0 Construction Methodology

In implementing the staged construction works on the site the Construction Manager should be cognizant of the following key points:

Aged Care Precinct

- The Aged Care buildings will source their power from a newly established substation and main switchboard to the north of the site
- The existing building has an independent street feed from Energy Australia's network. This will be decommissioned under the new scope of works
- The decommissioning of this existing street feed and the demolition of the existing building will have known impact on the existing surrounding buildings
- The new Aged Care buildings will have independent telecommunications, security and fire detection services until such time as the Campus Distributor is established within the Village Green Precinct (Building Q2)
- Refer to ESK-01 & ESK-02 within the Appendix for details relating to electrical and communications infrastructure.

Village Green Precinct

- In order to enable new works associated with the Village Green Precinct to proceed it will be necessary to establish a new substation to service the power needs of the southern half of the site.
- It is proposed that this new substation and its associated main switchboard will be located at the western end of the site (precise position to be confirmed)
- It is proposed that the existing street feeds servicing the southern end of the site (3 off) will be retained until such time as they are transferred onto the new substation / main switchboard
- No disruption to power will occur to existing buildings during the redevelopment of the Village Green
- A new Campus Distributor for all telecommunication and security services will be established as a part of the Village Green Precinct. This node will ultimately service the needs of the Village. Existing telecommunication and security services will be transferred onto this Campus Distributor in a staged manner as the site continues to be redeveloped.
- No disruption of telecommunication, security or fire detection services is anticipated as a part of the proposed Village Green Precinct works.
- Refer to ESK-01 & ESK-02 within the Appendix for details relating to electrical & communications infrastructure.

7.0. APPENDIX

ESK-01 Electrical Services Reticulation Scheme

ESK-02 Telecommunications Services Reticulation Scheme

LEGEND:

- TELECOMMUNICATIONS /SECURITY /FIRE DETECTION CAMPUS DISTRIBUTOR.
- TELECOMMUNICATIONS /SECURITY /FIRE DETECTION BUILDING DISTRIBUTOR.
- C — TELECOMMUNICATIONS SERVICES PIT.
- UNDERGROUND TELECOMMUNICATIONS /SECURITY /FIRE DETECTION CONDUIT RETICULATION PATH..

NOTES:

1. ELECTRICAL CONDUIT ROUTES & PITS AS SHOWN ARE APPROXIMATE ONLY & SUBJECT TO FINAL COORDINATION WITH LANDSCAPING, CIVIL WORKS & HYDRAULIC SERVICES.
2. DISTRIBUTION BOARD LOCATIONS WITHIN THE BUILDINGS ARE NOTIONAL ONLY. FINAL POSITIONING & QUANTITY WILL BE SUBJECT TO COORDINATION WITH THE ARCHITECT DURING INTERNAL PLANNING STAGES.

No.	Date	Details	
C	07.05.09	MASTER PLANNING	B.H.
B	03.03.09	NEW CAMPUS DISTRIBUTORS	B.H.
A	12.02.09	PRELIMINARY ISSUE	B.H.

Amendments

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Drawing

ELECTRICAL SERVICES
TELECOMMUNICATIONS / SECURITY & FIRE DETECTION RETICULATION

Status

PRELIMINARY ISSUE: NOT FOR CONSTRUCTION

Project No.	Drawing No.
2002	ESK02/ C

Drawn:	B.H.	Date:	May 2009
Design:	J.H.	Scale:	1:500 @A1
Verified:	J.H.	No in set:	2 OF 2

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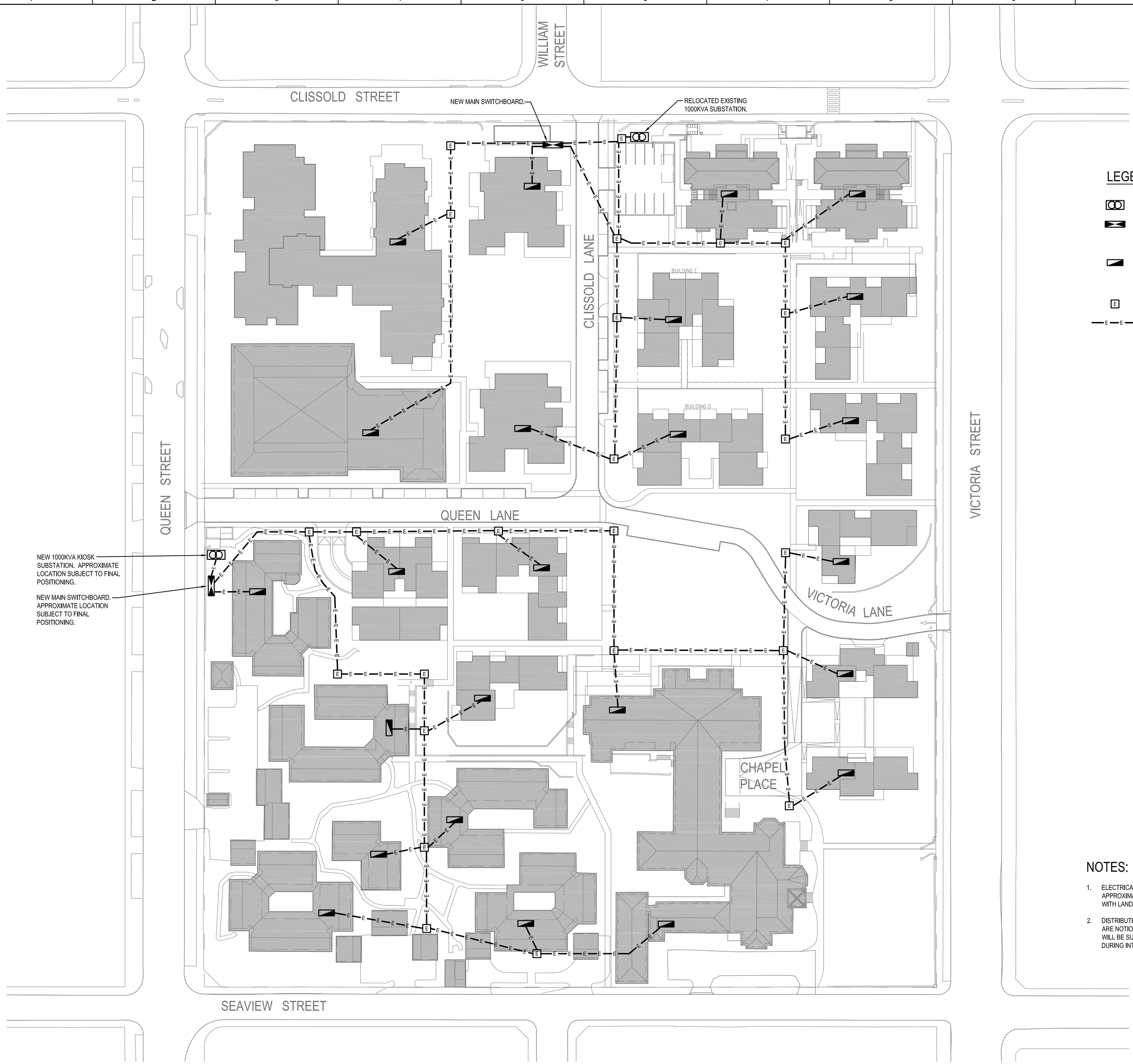
Mar 08, 2010 - 9:55am



LEGEND:

- 1000KVA KIOSK TYPE SUBSTATION.
- SITE MAIN SWITCHBOARD (COMPLETE WITH SUPPLY AUTHORITY METERING, BULK POWER FACTOR CORRECTION & SURGE PROTECTION).
- BUILDING MAIN DISTRIBUTION BOARD (COMPLETE WITH SUPPLY AUTHORITY METERING IF APPLICABLE & SURGE PROTECTION).
- E — ELECTRICAL SERVICES PIT.
- E — E — UNDERGROUND ELECTRICAL SUBMAINS & CONDUITS RETICULATION PATH..

NOTES:

1. ELECTRICAL CONDUIT ROUTES & PITS AS SHOWN ARE APPROXIMATE ONLY & SUBJECT TO FINAL COORDINATION WITH LANDSCAPING, CIVIL WORKS & HYDRAULIC SERVICES.
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No.	Date	Details	
C	08.03.10	SUBSTATION RELOCATED	B.H.
B	07.05.09	MASTER PLANNING	B.H.
A	12.02.09	PRELIMINARY ISSUE	B.H.

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Drawing

ELECTRICAL SERVICES
ELECTRICAL RETICULATION

Status

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